KCI
ISO 9001:2008 CERTIFIED
ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
434 South Yellowstone Drive, Suite 202 • Madison, WI 53719 • Phone 608 445 8543

April Marcangeli
Regulatory Ecologist
U.S. Army Corps of Engineers
St. Paul District-Regulatory Division
250 N. Sunnyslope Road, Suite 296
Brookfield, WI 53005
Via email

March 18, 2025

Dear Ms. Marcangeli:

I am writing in regard to the previously approved December 23, 2022, prospectus for the Little Lacrosse River Headwaters site. Last autumn you and I spoke about modifications that KCI wishes to make to improve the project. Following that conversation, I have gathered and included updated information here for the IRT review.

Since the 2022 submission, KCI has received feedback from the IRT members (undated-File No. MVP-2022-02313-ANM received May 9, 2023), completed additional site evaluations and investigations, and consulted with local and state conservation agency professionals in the region. Based upon that feedback, we propose to modify the project with four small real estate additions to improve the ecological restoration of the site.

- Parcel A - 4.6 acres, Schmitz land located to the east of the initial project
- Parcel B - 30 acres, Lydon/Kolbo located to the east of the initial project
- Parcel C - 1.7 acres, Wisconsin DOT Surplus property located to west of initial project
- Parcel D – 0.57 acres Town of Jefferson property located to southwest of initial project

In addition to the real estate additions, we have also modified the stream restoration proposal based on feedback and input from agency resource professionals and IRT comments.

As we discussed this autumn, we would like to continue to work to develop the Mitigation Bank Instrument and Conservation Site Plan for the project. In an attempt to provide all necessary materials for your timely review, I have attached:

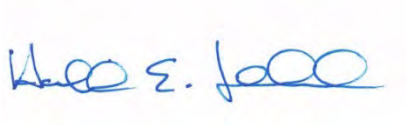
- project narrative explaining the additions including maps;
- updated credit projections;
- historical imagery;
- SQT worksheets, and
- wetland delineation report.

Please do contact me if you want any additional information about these proposed modifications.

I would greatly appreciate some feedback from you on the process to consider this modification and how it affects project timelines.

Many thanks for your assistance,

Sincerely,



Harald (Jordy) Jordahl

Attachments

Cc Brad Shoger, KCI
Josh Sitz, KCI

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Little Lacrosse River Headwaters Stream and Wetland Mitigation Bank Prospectus Addendum

March 18, 2025

KCI has previously received IRT approval for the December 23, 2022, prospectus for the Little Lacrosse River Headwaters site which included 43.9 acres. Since that time, KCI has had the opportunity to complete additional site evaluations, gather more data and consult with resource professionals in the region, and proposes to modify the project with four small real estate additions to improve the ecological restoration success of the site.

- Parcel A - 4.6 acres, Schmitz wetland trade land trade located to the east of the initial project
- Parcel B - 30 acres, Lydon/Kolbo located to the east of the initial project
- Parcel C - 1.7 acres, Wisconsin DOT Surplus property located to west of initial project
- Parcel D – 0.57 acres Town of Jefferson property located to southwest of initial project

We are submitting this addendum to the December 23, 2022, prospectus with updated information about the project reflecting the revised approximately 92-acre footprint and alterations to the stream restoration proposal.

Please see Map 1 showing real estate boundaries with Parcels A, B, C, D highlighted

Objectives for the Modification

Incorporation of Parcels A and B

- Includes expanded hydric soils and historic wetlands

The original project footprint included most of the Little Lacrosse River corridor flowing south to north between CTH F and the Wisconsin DNR (WDNR) conservation land. However, the zone of hydric soils and potentially restorable wetlands as identified by WDNR is currently divided by the N/S property line between KCI and Parcel A and Parcel B to the east. Attached Map 2 clearly shows this former wetland area extending throughout the KCI land and across and into the western edge of both new parcels. Incorporating Parcels A and B into our conservation project will allow for a more complete restoration. This new footprint will now encompass all of the potentially restorable wetlands in this block of lands between STH 27, CTH F and the existing wetlands to the north on WDNR fishery area.

- Fully control surface drainage

One of the primary objectives in the restoration will be to slow the flow and redirect surface waters to restored wetlands before they are eventually discharged into the Little Lacrosse River. Adding Parcels A and B significantly enhances our ability to do this for water from the south and east of the project area. The eastern expansion (Parcels A & B) now fully incorporates a field-line ditch running along the property line from south to north which carries water from the wetland area in the SE directly north

before turning slightly east and dropping through a deeply eroded ravine and discharging into the Little Lacrosse River on Parcel B outside of the original project area. This ditch also intercepts surface water from the east, preventing connection to the wetland area. Incorporating the SE corner on Parcel A and the 50' strip along the former property line in addition to adding Parcel B allows the project to redirect surface water flows in this ditch as well as incorporate any other surface flow into the wetland rehabilitation and reestablishment areas. Attached Map 3 highlights hydrologic modifications including ditching and drain tiles to the site.

- Disable drainage tile

Field investigations have identified drainage tiles in the agricultural field in both Parcel A and B. This expansion will facilitate disabling these tiles and restoring hydrology to the project wetland areas.

- Invasive species control

Current site conditions include extensive growth of invasive reed canary grass (*Phalaris arundinacea*), and a patch of phragmites (*Arundo phragmites)*. Both species are found in the original project areas and along the borders with Parcels A and B. Incorporating these parcels into the project area surrounds the invasive species with land under conservation management with a buffer of active agricultural lands. This new footprint will reduce new colonization from outside the conservation project.

- Eliminates risk of hydraulic trespass

Incorporating Parcels A and B into the project also significantly reduces any unintended impacts and risk of hydraulic trespass on neighbors to the east of the restoration that could be associated with the wetland restoration.

Incorporation of Parcel C and Parcel D

- Stream restoration corridor

Following field investigations and consultations with staff from Wisconsin DNR fishery management, USDA NRCS, Monroe County and Wisconsin DATCP, we have modified the stream restoration proposal in the project. The December 2022 project envisioned restoration of Tributary 1 on the northern section of the project area. Incorporating the western parcels will allow us to realign the tributary into this current preferred location.

The restoration of Tributary 1 is now planned to initiate further south on the site (please see attached Map 4) supported by feedback from agency resource management staff. This alignment allows the restoration to begin at the upstream point where the waterway enters the site at the STH27 bridge and right-of-way. This alignment is also supported in historical imagery and Wisconsin and USGS waterway mapping (see attached Figure 1 - Historical Images). The existing ditched stream is located along the property line between KCI and land that formerly was part of the Wisconsin DOT highway and abandoned railroad right of way. In addition to improving the stream restoration on the project, this southern stream alignment will also benefit the re-establishment and rehabilitation of the wetland areas on the northwest side of the project.

- Eliminate risk of hydraulic trespass and simplify construction

These two parcels are remnants of historical transportation infrastructure that has been abandoned. Acquisition provides KCI full control of the site bordered by the right of way for STH27 on the west and CTH F on the south. Acquisition of these parcels will eliminate any concern about hydraulic trespass and greatly simplify the construction of the unnamed tributary by reducing permissions and permits that would be necessary if the DOT retained partial ownership of the waterway.

Other project changes since the original prospectus was submitted in 2022.

- Tributary 2 is no longer proposed for restoration as included in the original prospectus. Efforts to restore Tributary 2 in the southeast section of the project for mitigation credit remain under consideration and will be refined and finalized before submission of draft MBI. This ditched waterway is engaged with conservation easements associated with protection of the Little LaCrosse River (Wisconsin DNR Fisheries and Wisconsin DATCP/CREP). Immediately adjacent and to the east of this ditch is filled wetland area and two drainage ditches which will be restored as part of the wetland components of the project. KCI is actively working with our project designers and the conservation agencies and IRT to determine what – if any – stream restoration options may be possible in this ditch.

- Southwest agricultural lands
  Because of the realigned stream restoration, the southwestern agricultural field currently owned by KCI is no longer excluded from the project area as was anticipated in the original prospectus. This approximately 10-acre field now provides buffer to the restored stream and is currently envisioned to be planted in a mesic forest community.

Status of real estate transactions

- Parcel A - KCI has completed the real estate transaction to acquire Parcel A from Peacefull Valley Farm, LLC (Mike and Brian Schmitz)
- Parcel B - KCI has a signed option and is planning to acquire Parcel B with closing planned Spring 2025.
- Parcel C - Following a historic highway realignment and the abandonment of the railroad corridor, Parcel C has now been declared surplus by WDOT. KCI has an agreement to acquire this small, 1.7-acre rectangle with closing in Spring 2025.
- Parcel D - KCI has an agreement with the Town of Jefferson to acquire this parcel in Spring 2025.

Credit generation

Successful completion of the restoration with the new modified footprint and preliminary conservation plan is projected to generate the following credits (Please see attached Map 5).

	Floodplain	Mesic Forest	Shrub Carr	Wooded Swamp	Total Acres	Credit Ratio	Credits
Buffer		18.05	0.85	1.26	20.16	0.25:1	5.04
Effective Riparian Area	1.04				1.04		
Reestablishment			15.87	0.40	16.28	1.0:1	16.28
Rehabilitation			8.15	22.12	30.27	0.75:1	22.71
Rehabilitation 2				6.11	6.11	0.5:1	3.06
Grand Total	1.04	18.05	24.87	29.90	73.86		47.08

Wetland Re-Establishment – 16.28 Acres

Approximately 16.28 acres of the site have been effectively drained by the installation of tile drainage, surface ditching, filling and the lateral effect resulting from the incision and channelization of stream

tributaries. All of these actions were implemented to allow land cultivation. These areas have hydric soils and no wetland vegetative communities. These areas will be restored through the reestablishment of historic drainage patterns, disabling of drain tile/ditching, re-establishment of microtopography, and re-vegetation to targeted wetland communities. The targeted wetland type within these areas is shrub carr. The proposed credit ratio in this area is 1:1. Successful restoration of these areas will generate 16.28 credits.

Wetland Re-habilitation 1 – 30.27 acres
Approximately 30.27 acres on site are affected by hydrologic impacts of ditching, draining, and stream channelization. These areas exhibit some level of hydrologic functionality but have been vegetatively altered in the past (cleared, farmed, grazed) resulting in increased presence of invasive species, primarily reed canary grass (*Phalaris arundinacea*), buckthorn (*Rhamnus cathartica*) and bush honeysuckle (*Lonicera maackii*). Although these areas are identified as wetland in the delineation report, field ditches and drain tiles have been identified in these zones. These alterations have impacted flood storage capacity, nutrient processing, and wetland wildlife habitat. The vegetative community in these areas has been simplified and now lacks diversity. These areas will be rehabilitated through disabling drainage features, re-establishing historic drainage patterns, and revegetating to targeted wetland communities. Targeted wetland types within these areas are wooded swamp, and shrub carr. The proposed credit ratio in this area is 0.75:1. Successful restoration of these areas will generate 22.71 credits.

Wetland Re-habilitation 2 – 6.11 acres
Approximately 6.11 acres on site are affected by hydrologic impacts of ditching, draining, and stream channelization and agricultural history impacting the wetland plant community. These areas exhibit a higher level of hydrologic functionality but have been vegetatively altered and simplified in the past (cleared, farmed, grazed in the 1930-1960 era as documented in the historic images and ditched) resulting in increased presence of invasive species, primarily reed canary grass which has limited diversity of native species. Although this area is identified as wetland in the delineation report, historic alterations include ditching have been identified in this zone. These alterations have impacted flood storage capacity, nutrient processing, and wetland wildlife habitat. These areas will be rehabilitated through restoration of historic water movement across the site to the main stem of the Little LaCrosse River, eradication of invasive species, and revegetation of targeted wetland communities. Targeted wetland types within these areas are wooded swamp, and shrub carr. The proposed credit ratio in this area is 0.5:1. Successful restoration of these areas will generate 3.06 credits.

Buffer – 20.16 Acres
A buffer between the restored site and adjacent non-conservation land uses will be established. These areas are primarily on the periphery of the site and will buffer the restored system from impacts arising from adjacent land uses. Either wetland or upland communities will be established and maintained where they do not exist. Microtopography development and replanting will be the primary means of upland restoration. This buffer is currently expected to be a minimum of 50 ft. in width and will be documented and finalized during the full design process. The site shares a common boundary with the WDNR's LaCrosse River Comprehensive Fisheries Area along the northern boundary and no buffer is proposed between state owned and managed conservation property.

A stream buffer zone will be established outside the effective riparian area along the restored unnamed tributary in the southwest zone on the site. The proposed credit ratio in this stream buffer zone is 0.25:1. Successful restoration of all buffer areas will generate 5.04 credits.

WDNR holds a 66' wide Fisheries Stream Easement along both banks of the Little La Crosse River as it transects the site. In addition, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) holds a CREP easement forming a 30' wide strip adjacent to the WDNR easement. The total of these two easements is 9.13 acres and is not included in the 19.83-acre buffer.

Stream Restoration

The project as revised and expanded will result in the priority 1 restoration of 1,456 LF of an un-named tributary to the Little La Crosse River yielding 389 functional feet of lift using the MN SQT and 2024 field data. For the MBI, we will gather additional field data and complete the MNWI SQT spreadsheet. (MNSQT project assessment worksheets attached). Attached Map 6 provides information about stream reaches for the attached updated SQT calculations.

Reach	Existing	Proposed	Functional Change	Credits
UNT-1 R1	1054.2	800.9	0.35	229
UNT-1 R2	23.0	17.5	0.53	9
UNT-1 R3	839.3	637.6	0.31	151
Total	**1916.5**	**1456.0**		**389**

Adjacent owners contact information

With the real estate additions, below is an updated list of adjacent landowners. Names in capital letters below are adjacent only to the newly added parcels. Attached Map 7 shows parcels and landowner names.

East Side

Steven J. Schmitz, Brian Schmitz
23794 Lamplighter Road
Norwalk, WI 54648

Michael J. Lydon, Brenda J. Kolbo
11531 County Highway F
Cashton WI 54619

HAROLD W. DE WITT & MICHELE M. VON RUDEN
11526 MARSH RD
CASHTON, WI 54619

PATRICK W. & SUSANNE M. PECK
11569 COUNTY HIGHWAY F
CASHTON, WI 54619

CEDAR PEAK FARM LLC
7262 ICEHOUSE AVE
SPARTA, WI 54656

South Side
James S. & Dorcas N. Horning
11012 Mascot Ave.
Cashton WI 54619

BRUCE A BERNETT IRREVOCABLE TRUST & DOROTHY E BERNETT IRREVOCABLE TRUST
11278 MASCOT AVE
CASHTON, WI 54619

BRIAN L. HOPKINS
PO BOX 3161
LA CROSSE, WI 54602

West Side
Susan K. Cooley
25181 State Highway 27
Cashton, WI 54619

Wisconsin Department of Transportation
3550 Mormon Coulee Rd.
La Crosse, WI 54601

ELDRID L FISHER
626 CENTRAL DR
CASHTON, WI 54619

VILLAGE OF MELVINA
604 CENTRAL DR
CASHTON, WI 54619

North Side
Wisconsin Department of Natural Resources
101 S Webster St.
Madison, WI 53707-7921

KCI TECHNOLOGIES

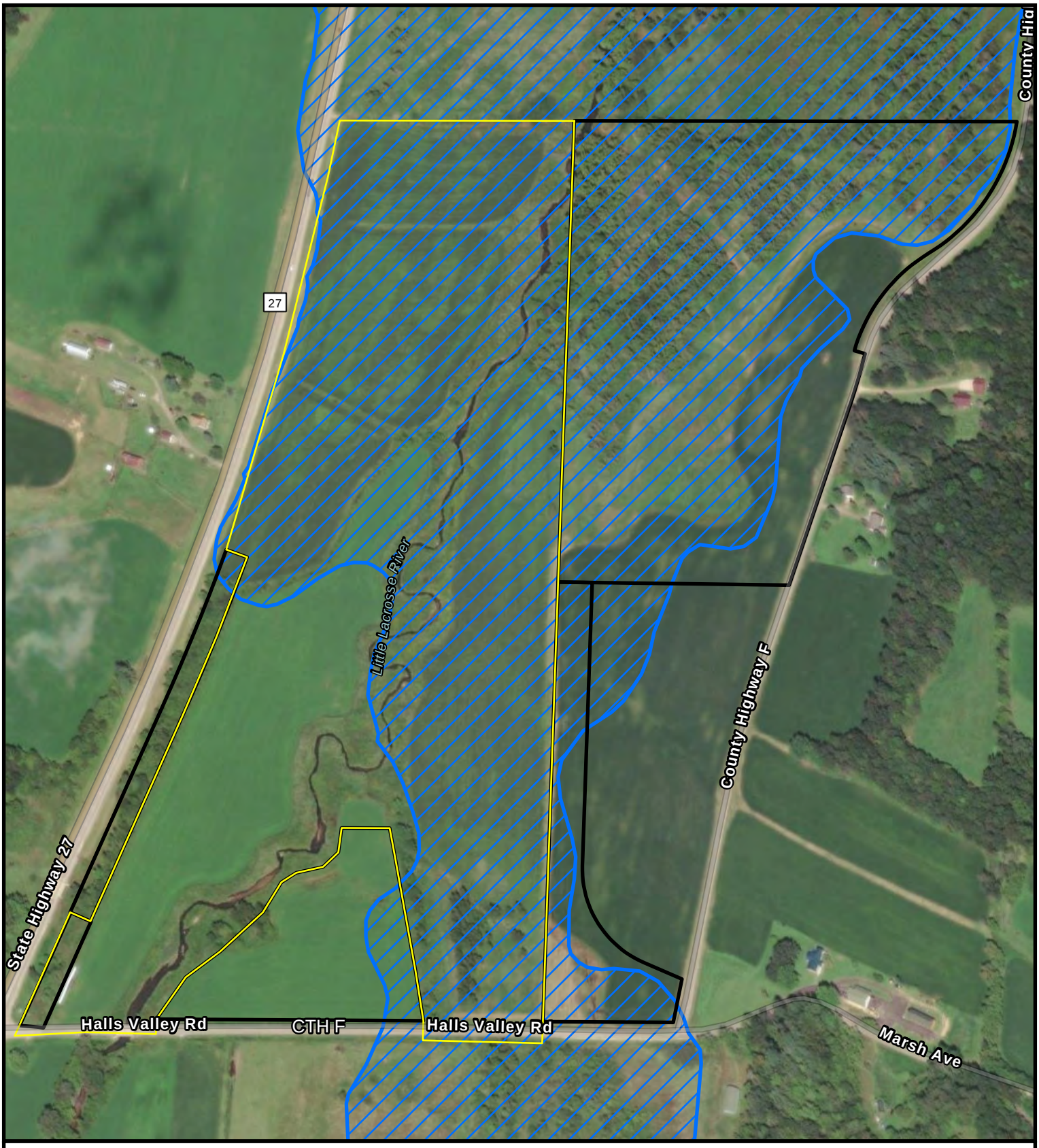
Map 1: Parcels
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 2/20/2025

N

0 200 400 800 Feet

KCI Owned Parcel
KCI Aquired Parcel



KCI TECHNOLOGIES

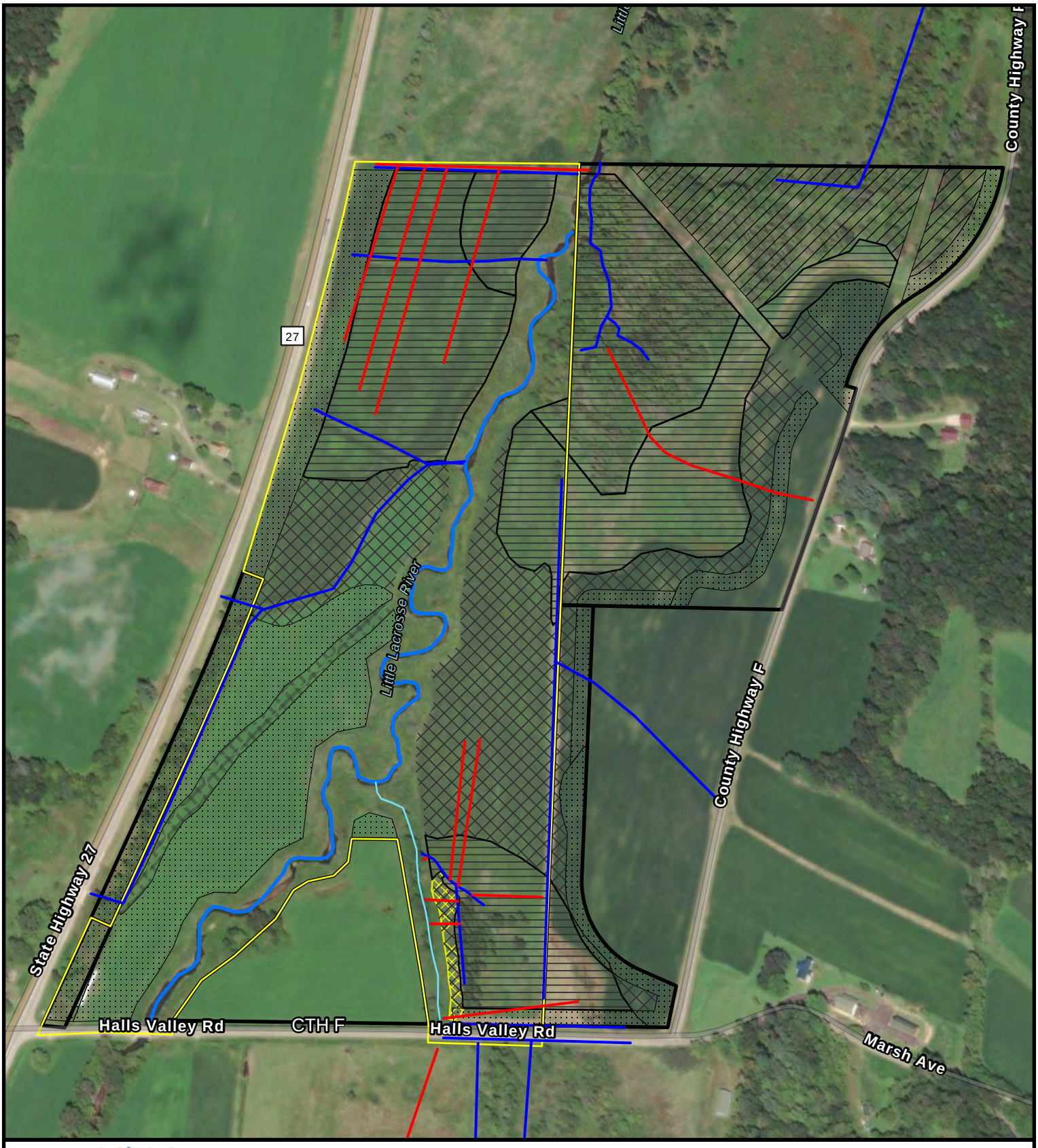
Map 2: Hydric Soil
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 2/20/2025

N

0 200 400 800 Feet

KCI Owned Parcel
KCI Aquired Parcel
Partially Hydric to Hydric Soils



KCI TECHNOLOGIES

Map 3: Restoration Actions
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 2/20/2025

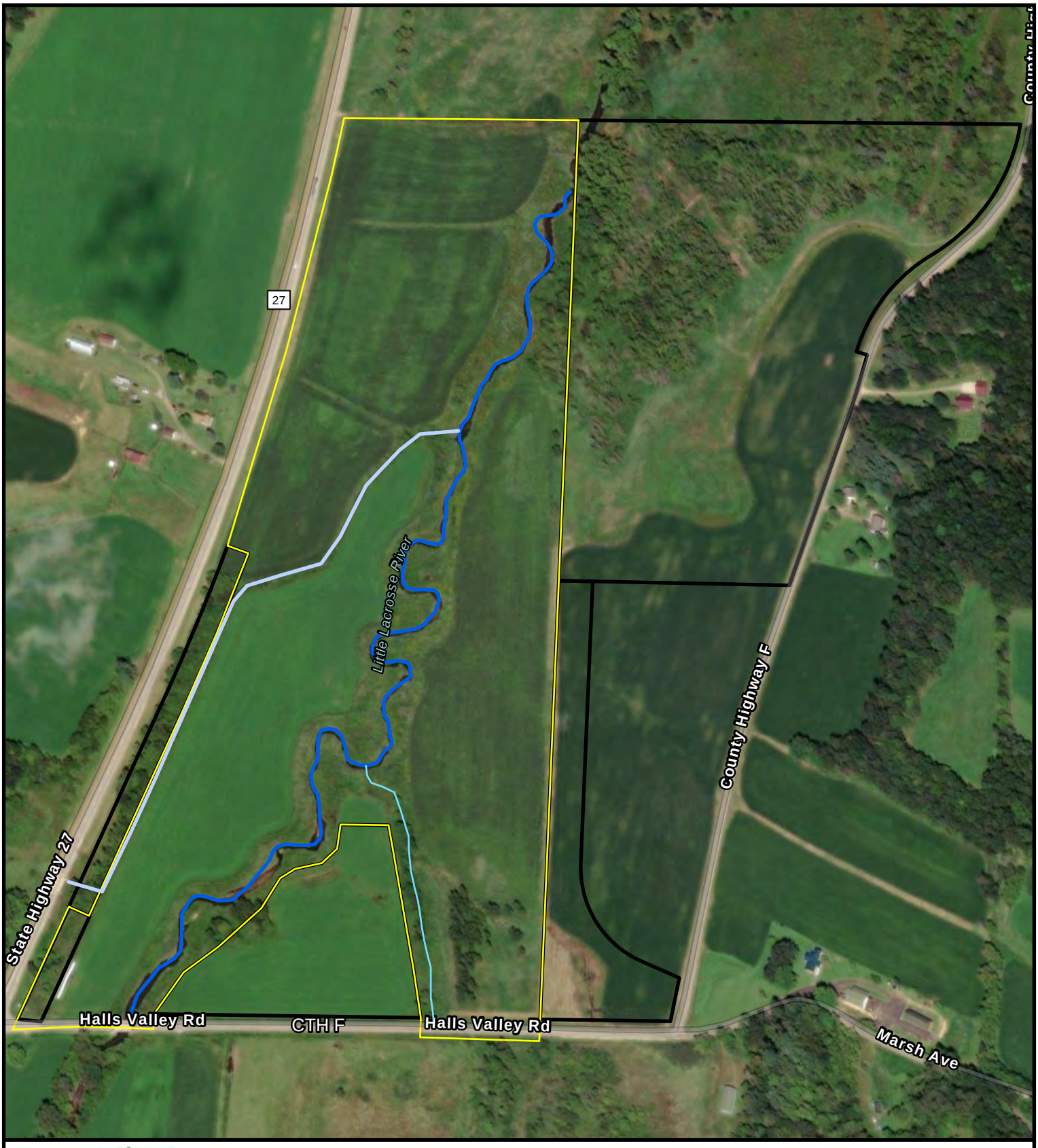
N

0 200 400 800 Feet

- KCI Owned Parcel
- KCI Aquired Parcel
- Little La Crosse River
- Ditch
- Tile
- Ditched Tributary
- Wetland Filled Area

Credit Type

- Buffer
- Effective Riparian Area
- Reestablishment
- Rehabilitation
- Rehabilitation 2



KCI TECHNOLOGIES

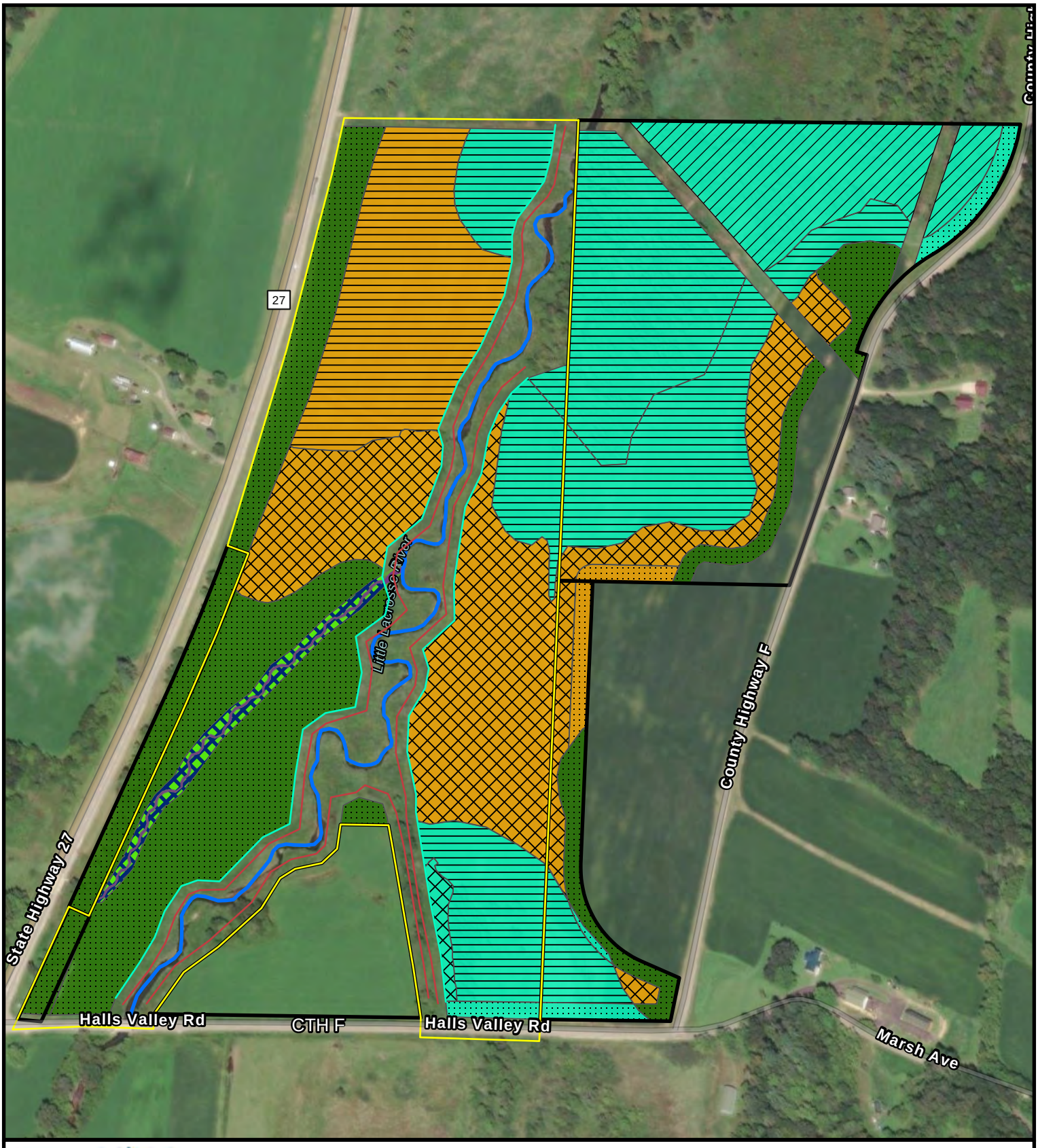
Map 4: Existing Ditch
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 2/20/2025

N

0 200 400 800 Feet

- KCI Owned Parcel
- KCI Aquired Parcel
- Little La Crosse River
- Existing Ditch
- Ditched Tributary



KCI TECHNOLOGIES

Map 5: Credit Type
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 2/20/2025

N

0 200 400 800 Feet

- KCI Owned Parcel
- KCI Aquired Parcel
- Little La Crosse River
- WIDNR Fisheries Easement
- DATCP CERP Easement

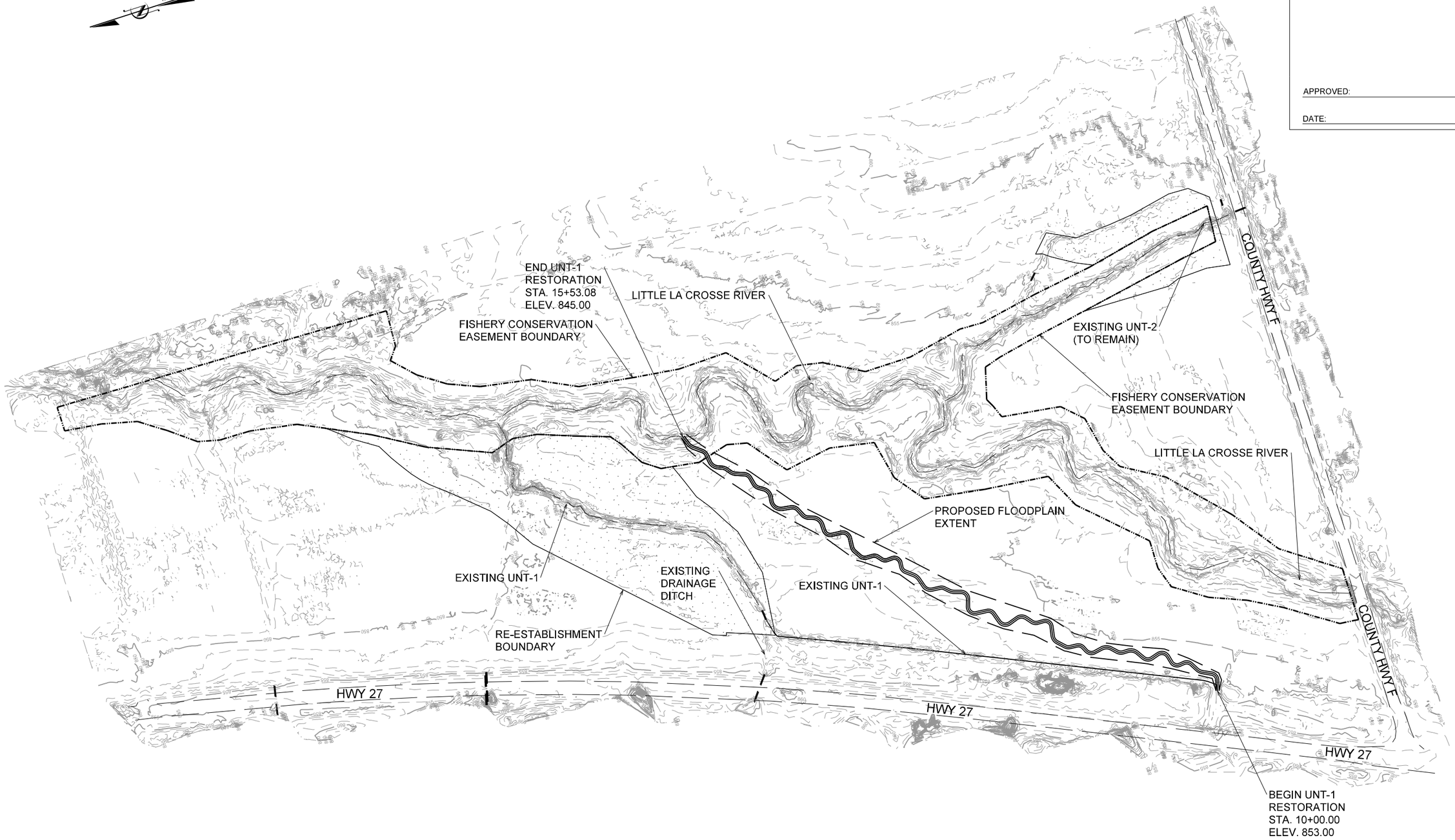
Credit Type
- Buffer
- Effective Riparian Area
- Reestablishment
- Rehabilitation
- Rehabilitation 2

Community
- Floodplain
- Forest
- Shrub Carr
- Wooded Swamp

–110 –55 0 110 220

WI GRID
NAD '83

Figure 6 Unnamed Tributary Restoration Plan



APPROVED:

DATE:

REVISIONS

SYM.	DESCRIPTION	DATE	APPROVED

ETC
KCI ENVIRONMENTAL
ENGINEERING AND CONSTRUCTION INC.

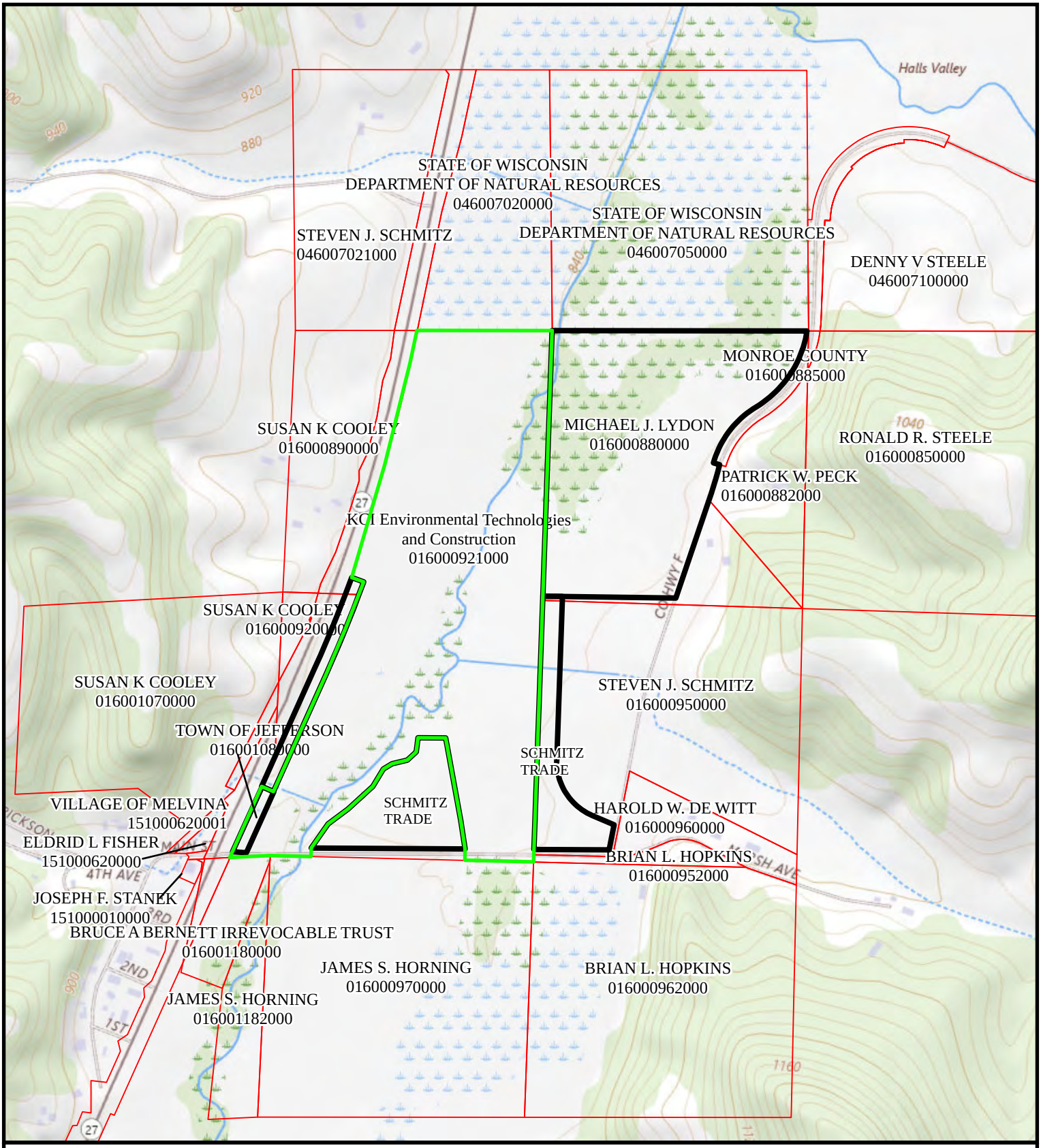
KCI TECHNOLOGIES
300 2ND STREET NORTH, SUITE 350
LA CROSSE, WI 54601

LITTLE LA CROSSE RIVER HEADWATERS
STREAM & WETLAND RESTORATION PROJECT
MONROE COUNTY, WISCONSIN

DATE: JANUARY 2024
SCALE: GRAPHIC

UNT-1
RESTORATION
OVERVIEW

SHEET X OF 17



KCI TECHNOLOGIES

Figure 7: Adjacent Parcels
Little La Crosse River
Headwaters Restoration Site

USGS Topo Basemap
Monroe County, WI
Map Created: 2/20/2025

N

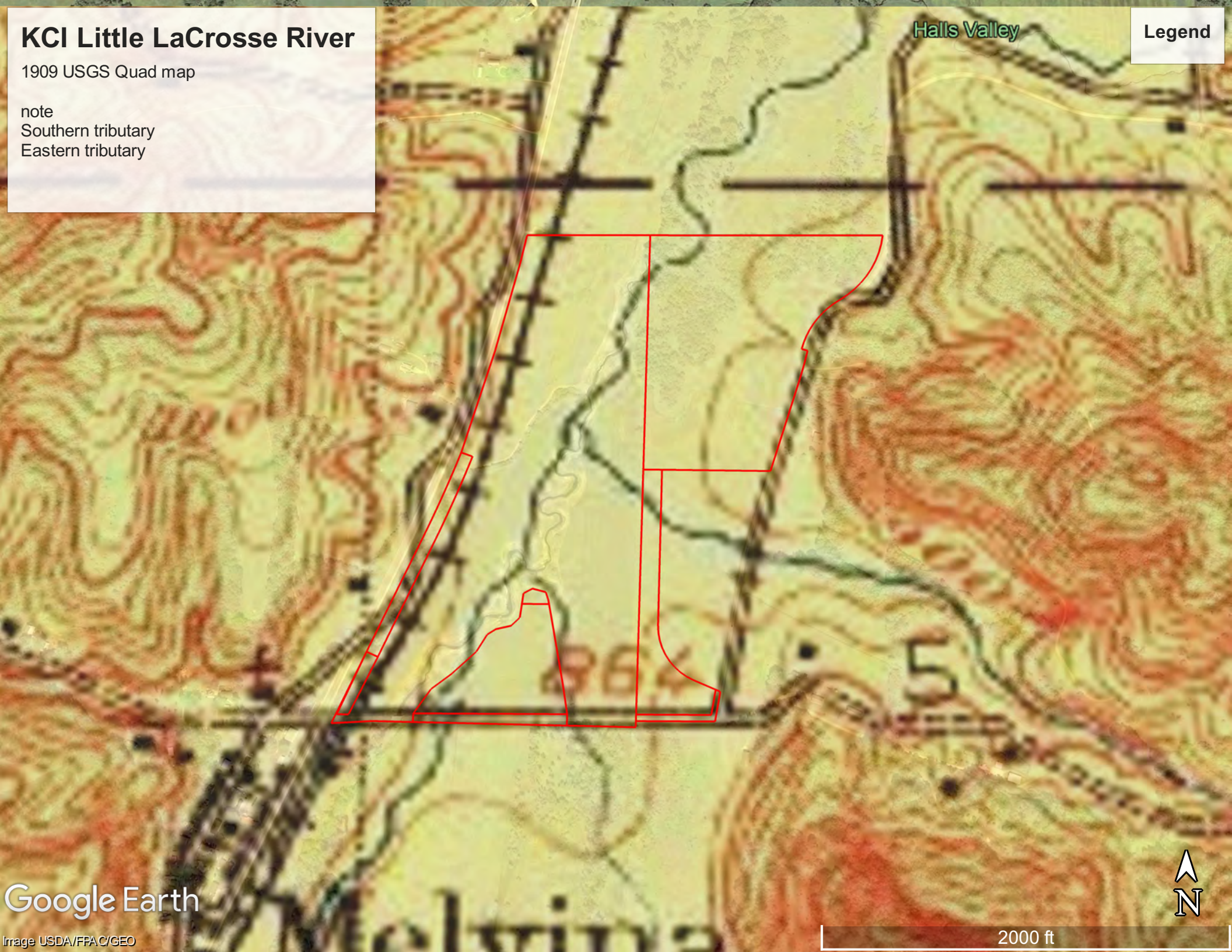
Feet
0 195 390 780

KCI Owned Parcel
KCI Aquired Parcels
Adjacent Parcels

KCI Little LaCrosse River

1909 USGS Quad map

note
Southern tributary
Eastern tributary



KCI Little LaCrosse River

1939 aerial image - earliest available
note
western waterway from STH 27 bridge
ditched waterway from south

KCI Little LaCrosse River

1946 aerial image
note
Western waterway relocated to DOT ditch alignment
waterway from east interrupted by property line ditching

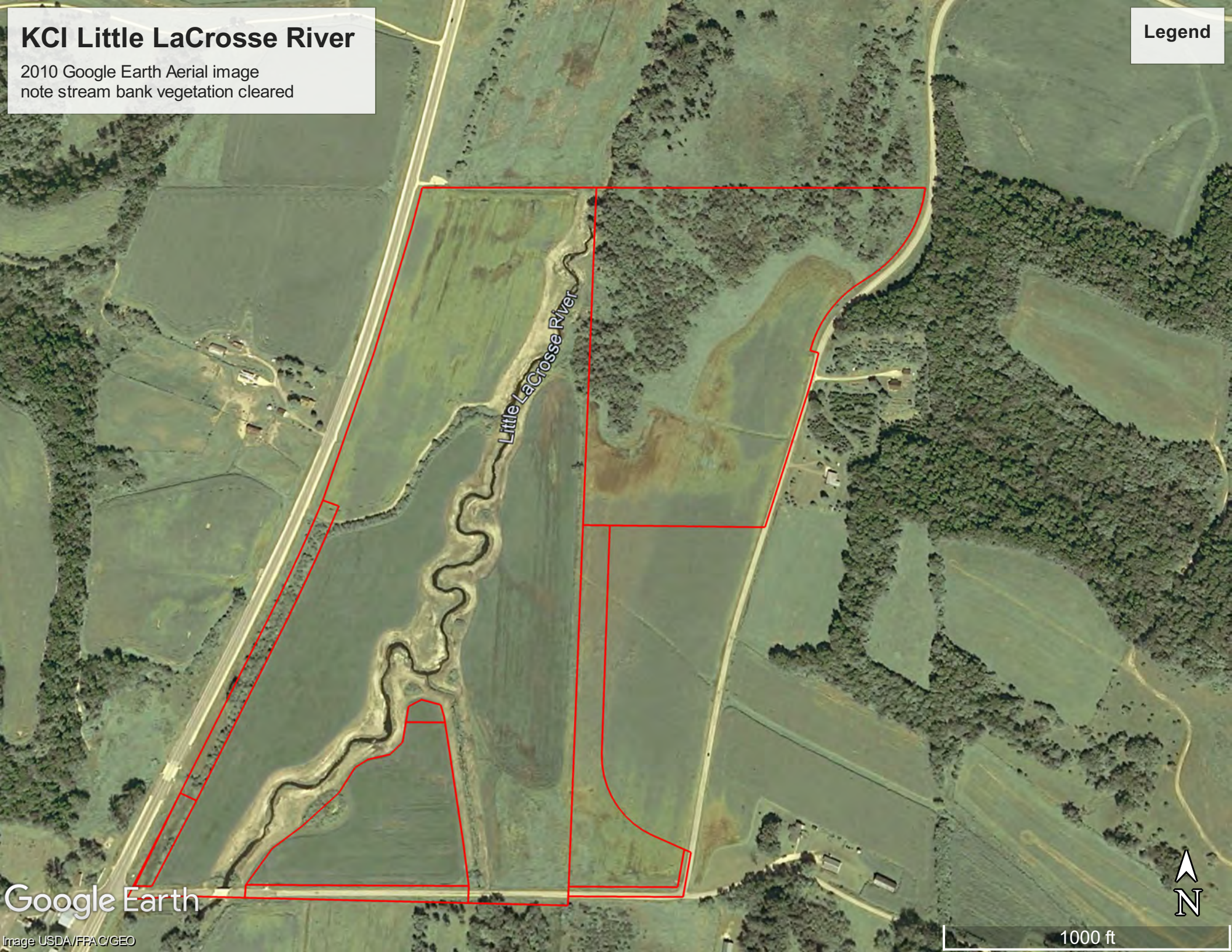
KCI Little LaCrosse River

1965 aerial image
note
Western waterway in present alignment
northeast forest cleared

KCI Little LaCrosse River

1982 Aerial image

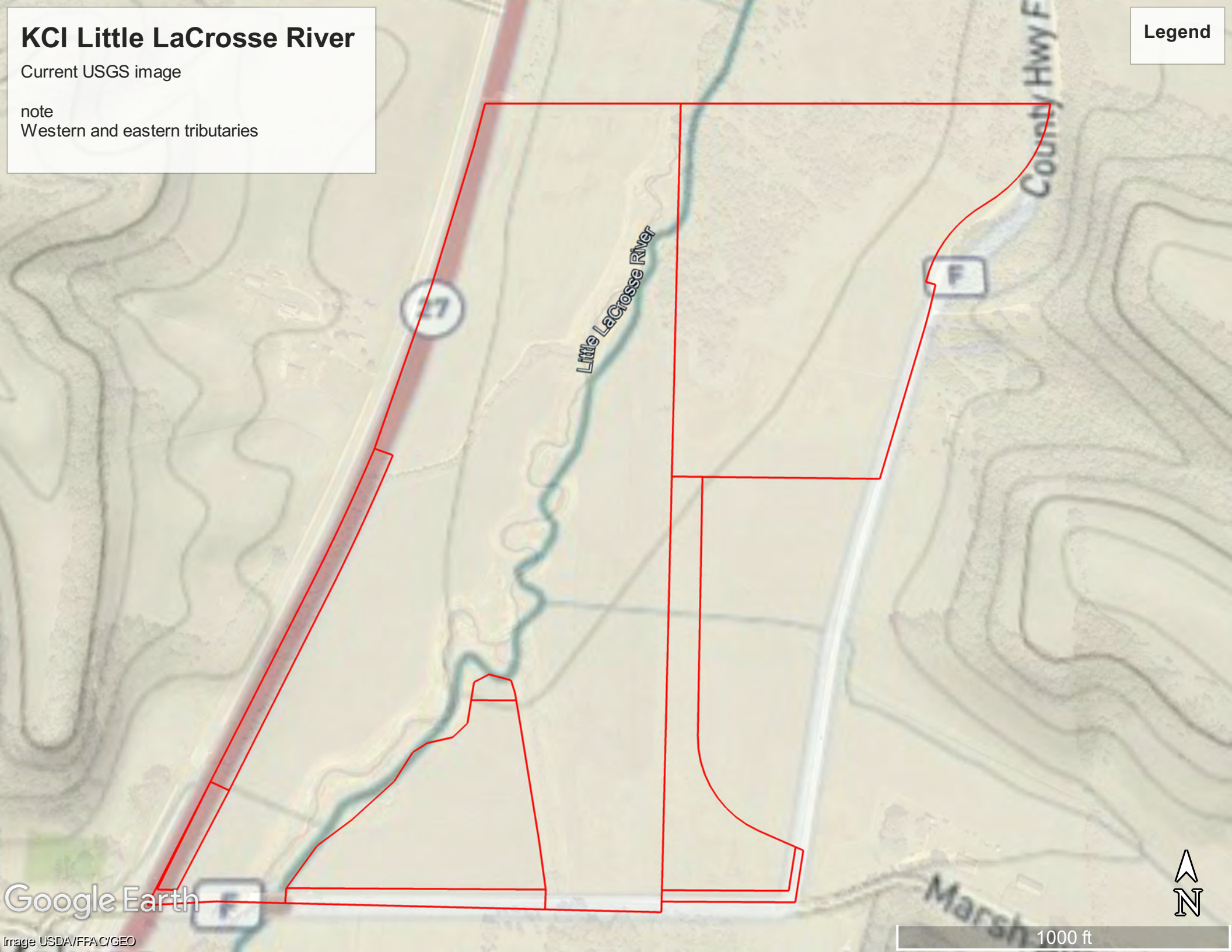
note
SE CTH F ditch


KCI Little LaCrosse River
2010 Google Earth Aerial image
note stream bank vegetation cleared
Legend
Little LaCrosse River
Google Earth
Image USDA/FPAC/GEO
N
1000 ft

KCI Little LaCrosse River

Current USGS image

note
Western and eastern tributaries



Programmatic Goals

Select:
Mitigation - Credits

Insert Aerial Photo of Project Reach

Reach Description

Reach ID:	UNT-1 R1

Describe this reach and reach break criteria:
This stream segment is currently a single, channelized ditch of similar greomorphic and vegetative character down to an existing field driveway/culvert.

Lat:	43.809557
Long:	-90.76893

Reference Stream Type: C

Reference stream type is the stream type that should occur in a given landscape setting given the hydrogeomorphic processes occurring at the watershed and reach scales. Channel evolution scenarios should be used to inform the reference stream type in the MNSQT.

Describe the rationale used to select the reference stream type:
A C channel was chosen for the reference stream type based on the likely historic channel and constructibility. The restored channel may evolve into a C/E system, and may eventualy be occupied by the beaver population currently on the Little La Crosse River main stem. The wide alluvial valley, slope, preliminary sinuosity, and natural bed-form fall within the C/E stream type. The specific reference stream type will be verified during the early design process.

Restoration Approach

Expand on the programmatic goals of this project:
This project seeks to restore approximatley 1,456 LF of stream to produce 389 function feet stream credits for sale as a private mitigation bank. The project provides further ecological lifty through the rehabilitation of approximatley 26 acres of wetland adjacent to the stream channles. The tributaries being restored include the confluence with a Class 1 trout stream and will provide additional nursery habitat cureently degraded beyond use. Mitigation credits produced at this site will offsite impacts to the Upper Mississippi - Black Root Watershed Cataloguing Unit.

Explain the restoration potential of this project based on the programmatic goals (based on catchment assessment form):

This project will be a partial restoration of UNT-1 on property owned by KCI Technologies, Inc.. No assessment of physiochemical components will be performed or targeted for uplift in this project. The straightened, ditched stream on KCI property will be restored to a natural C5 channel based upon reference reach survey data collected from the Jackson Marsh State Natural Area stream. The initial Catchment Assessment indicated the catchment was in Fair condition with the majority of the contributing watershed in rural development, agruculture, and forest. The recieving stream, Little La Crosse Rive,r is rated a Class 1 trout stream in Fair to Poor condition as reported by WI DNR in thier 2022 assessment.

Explain the goals and objectives for this project:

Goals:
1. Improve floodplain connectivity through planfrom, profile, and cross-sectional area adjustments.
2. Improve instream-habitat through the incorporation of large woody debris and riffle/pool sequences to diversify flow regimes.
3. Improve riparian habitat through the installation of native vegetation.

Objectives:
1. Reach runoff will improve slightly in the lateral drainage area by vegetating soil in agriculture.
2. Bedform diversity will improve with the installation of pool/riffle sequences.
3. Riparian buffer diversity and width will be increased through riparian species planting and protection.

NOTICE: If you find errors or problems, please email StPaulSQT@usace.army.mil

The Stream Quantification Tool Credits:
Lead Agency: U.S. Army Corps of Engineers, St. Paul District
Contributing Agencies: U.S. Environmental Protection Agency
Minnesota Board of Water and Soil Resources
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency

Contractors:
Ecosystem Planning and Restoration (EPR) through a contract with the U.S. Environmental Projection Agency (Contract No. EP-C-17-001).
Stream Mechanics as a sub-contractor to EPR

Version 2.0
Version Last Updated 10/27/2020

Catchment Name and Number: UNT to Little La Crosse North
Watershed Name (HUC 8) and Number: La Crosse-Pine 70400006

Rater(s): Timothy Guess
Date: 1/16/24

Overall Watershed Condition	**P**
Restoration Potential	**Partial**

Purpose: This form is used to determine the project's restoration potential. The catchment assessment is performed on the catchment and contributing area for the project reach. Note the contributing area may be downstream as well, as in the case where a dam exists downstream which restricts movement/recovery of fishes.

CATCHMENT ASSESSMENT

	Categories	Description of Catchment Condition: Poor	Fair	Good	Rating (P/F/G)
1	Flow Alteration - Water Use (Hydrology)	Substantial reduction or augmentation of natural flow regime.	Moderate reduction or augmentation of natural flow regime.	Minimal reduction or augmentation of natural flow regime.	F
2	Impervious Cover (Hydrology)	Impervious Cover (IC) Index Score of 40% or less.	IC Index Score Between 41% and 70%.	IC Index score of 71% or greater.	P
3	Land Use Change (Hydrology)	Perennial Cover (PC) Index Score of 40% or less = % PC remaining -> Highly Altered Landscape.	PC Index Score of 41 to 70% or less -> Altered Landscape.	PC Index Score of 71% or greater -> Minimally Altered Landscape.	P
4	Roads (Hydrology)	Major roads located in or adjacent to project reach and/or high road density in catchment.	Few major or minor roads in or adjacent to project reach. Moderate road density in catchment.	No major or minor roads in or adjacent to project reach. Low road density in catchment.	F
5	Percent Forested (Hydrology)	≤20%	>20% and <70%	≥70%	P
6	Percent Agricultural Land (Hydrology/Physicochemical)	≥ 70%	>20% and <70%	≤20%	F
7	Flashiness Index (Hydrology)	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 40% or less.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of between 41% to 70%.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 71% or more.	G
8	Riparian Connectivity - Vegetation (Geomorphology)	Riparian Connectivity (RC) Index Score of 40% or less.	RC Index Score Between 41% and 70%.	RC Index score of 71% or greater.	P
9	Sediment Supply (Geomorphology)	High sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 40% or less.	Moderate sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores between 41 to 70%.	Low sediment supply. Upstream bank erosion and surface runoff is minimal. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 71% or greater.	G
10	Minnesota Integrated Report (305(b) and 303(d)) designated use support status *(Note: impairments with atmospheric deposition as a source should be excluded*)*	On or immediately upstream or downstream of a waterbody in Category 5 OR in Category 4c (i.e., designated use impairment not actively being mitigated).	On or immediately upstream or downstream of a waterbody in Category 4a or 4b (i.e., active mitigation of designated use impairment through approved TMDL or other control mechanisms).	No adjacent waterbodies listed as not supporting a designated use (i.e., all designated uses either unassessed or in Category 1, 2, or 3).	P
11	Localized Potential Pollution Sources, Animal Units (Physicochemical)	Extensive Livestock (animal units) in area and potential access to stream - scores of 40% or less.	Moderate Livestock (animal units) in area and potential access to stream - scores between 41% and 70%.	Low levels of Livestock (animal units) in area and low likely access to stream - scores of 71% or greater.	G
12	Longitudinal Connectivity of the stream network (Biology)	Aquatic Connectivity (AC) Index Score of 40 or less.	AC Index Score Between 41% and 70%.	AC Index score of 71% or greater.	G
13	Organism Recruitment (Biology)	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 40% or less.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores between 41 to 70%.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 71% or greater.	P
14	Ditched or straightened streams (Hydrology)	Altered Watercourse Index Score of 40% or less.	Altered watercourse score between 41 and 70%.	Altered watercourse score - 71% or greater.	P
15	Other				

MN DNR WHAF Website: https://arcgis.dnr.state.mn.us/ewr/whaf2/

WHAF Index/Metric	WHAF score equivalents: 0-40 = Poor; 41-70=Fair; 71-100=Good
Flow Alteration INDEX: Water withdrawal	There has been a moderate amount of flow augmentation including road drainages and course alteration into roadside ditches and surface ditching through the ag field.
INDEX: Impervious Cover (time series)	The catchment is very small and there is limited impervious cover within.
INDEX: Perennial Cover (time series)	Approximatley 87% of the catchement is in perrenial cover.
INDEX: Aquatic Connectivity	The headwaters of the catchment flow under STH 27 adjacent to the site before flowing into the restoration reach.
NLCD Land Use Charts, Ecoregions	The catchment is approximately 50% forested.
NLCD Land Use Charts, 'Cultivated' land	The catchment is approximatley 8% cultivated land.
Major Flow Variability Matrics Worksheet: Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP)	The catchment is likely somewhat flashy given the degree of headwater streams contributing to the system. This was the basis of the Fair scoring as Wisconsin does not provide a current index to utilize.
INDEX: Riparian Connectivity	The riparian corridor for he project reach is narrow and mostly cleared of perrenial vegetation.
INDEX: Soil Erosion Susceptibility; Steep Slopes Near Streams	The percent of perrenial cover throughout the catchment indicates this system likely has low upstream sediment supply. The lower stream through the project resach slated for restoration has been ditcherd with unstable, eroded slopes, but is a small portion of the overall catchment.
Impairments INDEX: Aquatic Life Assessments DATA: Impaired Waters	The project reach flows into the Little la Crosse River at the downstream end of the project. The river is listed as a catergory 5 stream for phosphorus.
INDEX: Animal Unit metric DATA: Feedlots	Livestock pasture occupies approximatley 2.5% of the catchement and have low access to contributing drainages.
Inline Impoundments INDEX: Aquatic Connectivity DATA: **Dams**, bridges, culverts	The catchment is small and passes through only 1 bridge along its length.
Organism Recruitment INDEX: Stream Species, Aquatic Life Assessments DATA: Fish, Invert IBI, Mussel site, fully supporting reaches	No biotic community data on these ditched stream channels are available, however, based on flow regime and altered status, it is likely the scores for these channels would be in the Poor range.
INDEX: Altered Watercourse DATA: Altered Watercourse; Public watercourses/Ditch (DNR data access)	The main channel within the catchment, including the project reach, has been straightened and ditched. Most contributing ephemeral tributaries upstream are along their natural planfrom.

Site Information and Reference Selection	
Project Name:	LLR Headwaters Restoration
Reach ID:	UNT1 Reach 1
Restoration Potential:	Partial
Existing Stream Type:	F
Reference Stream Type:	C
Woody Vegetation Natural Component:	Yes
Use Class:	2B
River Nutrient Regions:	
Drainage Area (sq.mi.):	0.44
Proposed Bed Material:	Sand
Existing Stream Length (ft):	1054.17
Proposed Stream Length (ft):	800.9
Macroinvertebrate IBI Class:	
Fish IBI Class:	Southern Coldwater
Valley Type:	Unconfined Alluvial
Flow Permanence:	Intermittent
Strahler Stream Order:	First

Notes
1. Users input values that are highlighted based on restoration potential
2. Users select values from a pull-down menu
3. Leave values blank for field values that were not measured

FUNCTIONAL CHANGE SUMMARY	
Existing Condition Score (ECS)	0.17
Proposed Condition Score (PCS)	0.51
Change in Functional Condition (PCS - E	0.34
Existing Stream Length (ft)	1054.17
Proposed Stream Length (ft)	800.9
Change in Stream Length (ft)	-253.27
Existing Functional Feet (FF)	179
Proposed Functional Feet (FF)	408
Proposed FF - Existing FF	229
Percent Change in FF (%)	128%
FF Yield (FF/ft)	0.29

MITIGATION SUMMARY		
229	(FF)	Lift

FUNCTION BASED PARAMETERS SUMMARY			
Functional Category	Function-Based Parameters	Existing Parameter	Proposed Parameter
Hydrology	Reach Runoff	0.49	0.79
Hydraulics	Floodplain Connectivity	0.12	1.00
Geomorphology	Large Woody Debris	0.00	0.38
	Lateral Migration	0.67	1.00
	Bed Material Characterization		
	Bed Form Diversity	0.33	0.97
	Riparian Vegetation	0.02	0.69
Physicochemical	Temperature		
	Dissolved Oxygen		
	Total Suspended Solids		
Biology	Macroinvertebrates		
	Fish		

FUNCTIONAL CATEGORY REPORT CARD			
Functional Category	ECS	PCS	Functional Change
Hydrology	0.49	0.79	0.30
Hydraulics	0.12	1.00	0.88
Geomorphology	0.25	0.76	0.51
Physicochemical			
Biology			

EXISTING CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	Function-Based Parameter	Metric	Field Value	Index Value	Parameter	Category	Category
Hydrology	Reach Runoff	Land Use Coefficient BMP MIDS Rv Coefficient Concentrated Flow Points / 1,000 feet	75 1	0.29 0.69	0.49	0.49	Functioning At Risk
Hydraulics	Floodplain Connectivity	Bank Height Ratio Entrenchment Ratio	5.3 1.4	0.00 0.23	0.12	0.12	Not Functioning
Geomorphology	Large Woody Debris	LWD Index No. of LWD Pieces / 100 meters	0	0.00	0.00	0.25	Not Functioning
	Lateral Migration	Dominant BEHI/NBS Percent Streambank Erosion (%) Percent Armoring (%)	H/L 6	0.40 0.94	0.67		
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio Pool Depth Ratio Percent Riffle (%) Aggradation Ratio	0 3.5 89.3	0.00 1.00 0.00	0.33		
	Riparian Vegetation	Effective Vegetated Riparian Area (%) Canopy Cover (%) Herbaceous Strata Vegetation Cover (%) Woody Stem Basal Area (sqm/hectare)	34.1 43.3 8.3 0.03	0.06 0.00 0.00 0.00	0.02		
Physicochemical	Temperature	Summer Average (°C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI					
	Fish	Fish IBI					

PROPOSED CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	Function-Based Parameter	Metric	Field Value	Index Value	Parameter	Category	Category
Hydrology	Reach Runoff	Land Use Coefficient BMP MIDS Rv Coefficient Concentrated Flow Points / 1,000 feet	70 0	0.58 1.00	0.79	0.79	Functioning
Hydraulics	Floodplain Connectivity	Bank Height Ratio Entrenchment Ratio	1 5	1.00 1.00	1.00	1.00	Functioning
Geomorphology	Large Woody Debris	LWD Index No. of LWD Pieces / 100 meters	240	0.38	0.38	0.76	Functioning
	Lateral Migration	Dominant BEHI/NBS Percent Streambank Erosion (%) Percent Armoring (%)	L/L 5	1.00 1.00	1.00		
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio Pool Depth Ratio Percent Riffle (%) Aggradation Ratio	5 2.7 45	1.00 0.91 1.00	0.97		
	Riparian Vegetation	Effective Vegetated Riparian Area (%) Canopy Cover (%) Herbaceous Strata Vegetation Cover (%) Woody Stem Basal Area (sqm/hectare)	100 55 90 12	1.00 0.16 1.00 0.60	0.69		
Physicochemical	Temperature	Summer Average (°C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI					
	Fish	Fish IBI					

Programmatic Goals

Select:
Mitigation - Credits

Insert Aerial Photo of Project Reach

Reach Description

Reach ID:	UNT-1 R2

Describe this reach and reach break criteria:
The reach exists within a field driveway culvert and exhibits no stream function.

Lat:	43.809557
Long:	-90.76893

Reference Stream Type: C

Reference stream type is the stream type that should occur in a given landscape setting given the hydrogeomorphic processes occurring at the watershed and reach scales. Channel evolution scenarios should be used to inform the reference stream type in the MNSQT.

Describe the rationale used to select the reference stream type:
A C channel was chosen for the reference stream type based on the likely historic channel and constructibility. The restored channel may evolve into a C/E system, and may eventualy be occupied by the beaver population currently on the Little La Crosse River main stem. The wide alluvial valley, slope, preliminary sinuosity, and natural bed-form fall within the C/E stream type. The specific reference stream type will be verified during the early design process.

Restoration Approach

Expand on the programmatic goals of this project:
This project seeks to restore approximatley 1,456 LF of stream to produce 389 function feet stream credits for sale as a private mitigation bank. The project provides further ecological lifty through the rehabilitation of approximatley 26 acres of wetland adjacent to the stream channles. The tributaries being restored include the confluence with a Class 1 trout stream and will provide additional nursery habitat cureently degraded beyond use. Mitigation credits produced at this site will offsite impacts to the Upper Mississippi - Black Root Watershed Cataloguing Unit.

Explain the restoration potential of this project based on the programmatic goals (based on catchment assessment form):

This project will be a partial restoration of UNTLR1 on property owned by KCI Technologies, Inc.. No assessment of physiochemical components will be performed or targeted for uplift in this project. The straightened, ditched stream on KCI property will be restored to a natural C5 channel based upon reference reach survey data collected from the Jackson Marsh State Natural Area stream. The initial Catchment Assessment indicated the catchment was in Fair condition with the majority of the contributing watershed in rural development, agruculture, and forest. The recieving stream, Little La Crosse Rive,r is rated a Class 1 trout stream in Fair to Poor condition as reported by WI DNR in thier 2022 assessment.

Explain the goals and objectives for this project:

Goals:
1. Improve floodplain connectivity through planfrom, profile, and cross-sectional area adjustments.
2. Improve instream-habitat through the incorporation of large woody debris and riffle/pool sequences to diversify flow regimes.
3. Improve riparian habitat through the installation of native vegetation.

Objectives:
1. Reach runoff will improve slightly in the lateral drainage area by vegetating soil in agriculture.
2. Bedform diversity will improve with the installation of pool/riffle sequences.
3. Riparian buffer diversity and width will be increased through riparian species planting and protection.

NOTICE: If you find errors or problems, please email StPaulSQT@usace.army.mil

The Stream Quantification Tool Credits:
Lead Agency: U.S. Army Corps of Engineers, St. Paul District
Contributing Agencies: U.S. Environmental Protection Agency
Minnesota Board of Water and Soil Resources
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency

Contractors:
Ecosystem Planning and Restoration (EPR) through a contract with the U.S. Environmental Projection Agency (Contract No. EP-C-17-001).
Stream Mechanics as a sub-contractor to EPR

Version 2.0
Version Last Updated 10/27/2020

Catchment Name and Number: UNT to Little La Crosse North
Watershed Name (HUC 8) and Number: La Crosse-Pine 70400006

Rater(s): Timothy Guess
Date: 1/16/24

Overall Watershed Condition	**P**
Restoration Potential	**Partial**

Purpose: This form is used to determine the project's restoration potential. The catchment assessment is performed on the catchment and contributing area for the project reach. Note the contributing area may be downstream as well, as in the case where a dam exists downstream which restricts movement/recovery of fishes.

CATCHMENT ASSESSMENT

	Categories	Description of Catchment Condition: Poor	Fair	Good	Rating (P/F/G)
1	Flow Alteration - Water Use (Hydrology)	Substantial reduction or augmentation of natural flow regime.	Moderate reduction or augmentation of natural flow regime.	Minimal reduction or augmentation of natural flow regime.	F
2	Impervious Cover (Hydrology)	Impervious Cover (IC) Index Score of 40% or less.	IC Index Score Between 41% and 70%.	IC Index score of 71% or greater.	P
3	Land Use Change (Hydrology)	Perennial Cover (PC) Index Score of 40% or less = % PC remaining -> Highly Altered Landscape.	PC Index Score of 41 to 70% or less -> Altered Landscape.	PC Index Score of 71% or greater -> Minimally Altered Landscape.	P
4	Roads (Hydrology)	Major roads located in or adjacent to project reach and/or high road density in catchment.	Few major or minor roads in or adjacent to project reach. Moderate road density in catchment.	No major or minor roads in or adjacent to project reach. Low road density in catchment.	F
5	Percent Forested (Hydrology)	≤20%	>20% and <70%	≥70%	P
6	Percent Agricultural Land (Hydrology/Physicochemical)	≥ 70%	>20% and <70%	≤20%	F
7	Flashiness Index (Hydrology)	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 40% or less.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of between 41% to 70%.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 71% or more.	F
8	Riparian Connectivity - Vegetation (Geomorphology)	Riparian Connectivity (RC) Index Score of 40% or less.	RC Index Score Between 41% and 70%.	RC Index score of 71% or greater.	P
9	Sediment Supply (Geomorphology)	High sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 40% or less.	Moderate sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores between 41 to 70%.	Low sediment supply. Upstream bank erosion and surface runoff is minimal. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 71% or greater.	G
10	Minnesota Integrated Report (305(b) and 303(d)) designated use support status *(Note: impairments with atmospheric deposition as a source should be excluded*)*	On or immediately upstream or downstream of a waterbody in Category 5 OR in Category 4c (i.e., designated use impairment not actively being mitigated).	On or immediately upstream or downstream of a waterbody in Category 4a or 4b (i.e., active mitigation of designated use impairment through approved TMDL or other control mechanisms).	No adjacent waterbodies listed as not supporting a designated use (i.e., all designated uses either unassessed or in Category 1, 2, or 3).	P
11	Localized Potential Pollution Sources, Animal Units (Physicochemical)	Extensive Livestock (animal units) in area and potential access to stream - scores of 40% or less.	Moderate Livestock (animal units) in area and potential access to stream - scores between 41% and 70%.	Low levels of Livestock (animal units) in area and low likely access to stream - scores of 71% or greater.	G
12	Longitudinal Connectivity of the stream network (Biology)	Aquatic Connectivity (AC) Index Score of 40 or less.	AC Index Score Between 41% and 70%.	AC Index score of 71% or greater.	G
13	Organism Recruitment (Biology)	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 40% or less.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores between 41 to 70%.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 71% or greater.	P
14	Ditched or straightened streams (Hydrology)	Altered Watercourse Index Score of 40% or less.	Altered watercourse score between 41 and 70%.	Altered watercourse score - 71% or greater.	P
15	Other				

MN DNR WHAF Website: https://arcgis.dnr.state.mn.us/ewr/whaf2/

WHAF Index/Metric	WHAF score equivalents: 0-40 = Poor; 41-70=Fair; 71-100=Good
Flow Alteration INDEX: Water withdrawal	There has been a moderate amount of flow augmentation including road drainages and course alteration into roadside ditches and surface ditching through the ag field.
INDEX: Impervious Cover (time series)	The catchment is very small and there is limited impervious cover within.
INDEX: Perennial Cover (time series)	Approximatley 87% of the catchement is in perrenial cover.
INDEX: Aquatic Connectivity	The headwaters of the catchment flow under STH 27 adjacent to the site before flowing into the restoration reach.
NLCD Land Use Charts, Ecoregions	The catchment is approximately 50% forested.
NLCD Land Use Charts, 'Cultivated' land	The catchment is approximatley 8% cultivated land.
Major Flow Variability Matrics Worksheet: Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP)	The catchment is likely somewhat flashy given the degree of headwater streams contributing to the system. This was the basis of the Fair scoring as Wisconsin does not provide a current index to utilize.
INDEX: Riparian Connectivity	The riparian corridor for he project reach is narrow and mostly cleared of perrenial vegetation.
INDEX: Soil Erosion Susceptibility; Steep Slopes Near Streams	The percent of perrenial cover throughout the catchment indicates this system likely has low upstream sediment supply. The lower stream through the project resach slated for restoration has been ditcherd with unstable, eroded slopes, but is a small portion of the overall catchment.
Impairments INDEX: Aquatic Life Assessments DATA: Impaired Waters	The project reach flows into the Little la Crosse River at the downstream end of the project. The river is listed as a catergory 5 stream for phosphorus.
INDEX: Animal Unit metric DATA: Feedlots	Livestock pasture occupies approximatley 2.5% of the catchement and have low access to contributing drainages.
Inline Impoundments INDEX: Aquatic Connectivity DATA: **Dams**, bridges, culverts	The catchment is small and passes through only 1 bridge along its length.
Organism Recruitment INDEX: Stream Species, Aquatic Life Assessments DATA: Fish, Invert IBI, Mussel site, fully supporting reaches	No biotic community data on these ditched stream channels are available, however, based on flow regime and altered status, it is likely the scores for these channels would be in the Poor range.
INDEX: Altered Watercourse DATA: Altered Watercourse; Public watercourses/Ditch (DNR data access)	The main channel within the catchment, including the project reach, has been straightened and ditched. Most contributing ephemeral tributaries upstream are along their natural planfrom.

Site Information and Reference Selection	
Project Name:	LLR Headwaters Restoration
Reach ID:	UNT-1 R2
Restoration Potential:	Partial
Existing Stream Type:	G
Reference Stream Type:	C
Woody Vegetation Natural Component:	Yes
Use Class:	2B
River Nutrient Regions:	
Drainage Area (sq.mi.):	0.44
Proposed Bed Material:	Sand
Existing Stream Length (ft):	23
Proposed Stream Length (ft):	17.5
Macroinvertebrate IBI Class:	
Fish IBI Class:	Southern Coldwater
Valley Type:	Unconfined Alluvial
Flow Permanence:	Intermittent
Strahler Stream Order:	Second

Notes
1. Users input values that are highlighted based on restoration potential
2. Users select values from a pull-down menu
3. Leave values blank for field values that were not measured

FUNCTIONAL CHANGE SUMMARY	
Existing Condition Score (ECS)	0.00
Proposed Condition Score (PCS)	0.53
Change in Functional Condition (PCS - E	0.53
Existing Stream Length (ft)	23
Proposed Stream Length (ft)	17.5
Change in Stream Length (ft)	-5.5
Existing Functional Feet (FF)	0
Proposed Functional Feet (FF)	9
Proposed FF - Existing FF	9
Percent Change in FF (%)	
FF Yield (FF/ft)	0.53

MITIGATION SUMMARY		
9	(FF)	Lift

FUNCTION BASED PARAMETERS SUMMARY			
Functional Category	Function-Based Parameters	Existing Parameter	Proposed Parameter
Hydrology	Reach Runoff	0.00	0.79
Hydraulics	Floodplain Connectivity	0.00	1.00
Geomorphology	Large Woody Debris	0.00	0.80
	Lateral Migration	0.00	1.00
	Bed Material Characterization		
	Bed Form Diversity	0.00	0.97
	Riparian Vegetation	0.00	0.69
Physicochemical	Temperature		
	Dissolved Oxygen		
	Total Suspended Solids		
Biology	Macroinvertebrates		
	Fish		

FUNCTIONAL CATEGORY REPORT CARD			
Functional Category	ECS	PCS	Functional Change
Hydrology	0.00	0.79	0.79
Hydraulics	0.00	1.00	1.00
Geomorphology	0.00	0.87	0.87
Physicochemical			
Biology			

EXISTING CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	Function-Based Parameter	Metric	Field Value	Index Value	Parameter	Category	Category
Hydrology	Reach Runoff	Land Use Coefficient BMP MIDS Rv Coefficient Concentrated Flow Points / 1,000 feet	100	0.00	0.00	0.00	Not Functioning
Hydraulics	Floodplain Connectivity	Bank Height Ratio Entrenchment Ratio	5 0	0.00 0.00	0.00	0.00	Not Functioning
Geomorphology	Large Woody Debris	LWD Index No. of LWD Pieces / 100 meters	0	0.00	0.00	0.00	Not Functioning
	Lateral Migration	Dominant BEHI/NBS Percent Streambank Erosion (%) Percent Armoring (%)	Ex/Ex 100	0.00 0.00	0.00		
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio Pool Depth Ratio Percent Riffle (%) Aggradation Ratio	0 0 0	0.00 0.00 0.00	0.00		
	Riparian Vegetation	Effective Vegetated Riparian Area (%) Canopy Cover (%) Herbaceous Strata Vegetation Cover (%) Woody Stem Basal Area (sqm/hectare)	0 0 0 0	0.00 0.00 0.00 0.00	0.00		
Physicochemical	Temperature	Summer Average (°C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI					
	Fish	Fish IBI					

PROPOSED CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	Function-Based Parameter	Metric	Field Value	Index Value	Parameter	Category	Category
Hydrology	Reach Runoff	Land Use Coefficient BMP MIDS Rv Coefficient Concentrated Flow Points / 1,000 feet	70 0	0.58 1.00	0.79	0.79	Functioning
Hydraulics	Floodplain Connectivity	Bank Height Ratio Entrenchment Ratio	1 5	1.00 1.00	1.00	1.00	Functioning
Geomorphology	Large Woody Debris	LWD Index No. of LWD Pieces / 100 meters	18	0.80	0.80	0.87	Functioning
	Lateral Migration	Dominant BEHI/NBS Percent Streambank Erosion (%) Percent Armoring (%)	L/L 5	1.00 1.00	1.00		
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio Pool Depth Ratio Percent Riffle (%) Aggradation Ratio	6 2.7 45	1.00 0.91 1.00	0.97		
	Riparian Vegetation	Effective Vegetated Riparian Area (%) Canopy Cover (%) Herbaceous Strata Vegetation Cover (%) Woody Stem Basal Area (sqm/hectare)	100 55 90 12	1.00 0.16 1.00 0.60	0.69		
Physicochemical	Temperature	Summer Average (°C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI					
	Fish	Fish IBI					

Programmatic Goals

Select:

Mitigation - Credits

Insert Aerial Photo of Project Reach

Reach Description

Reach ID:	UNT-1 R3

Describe this reach and reach break criteria:
This stream segment is currently a single, channelized ditch of similar geomorphic and vegetative character from an existing field driveway/culvert down to the confluence with the Little La Crosse River. The natural channel was moved and shaped to allow for efficient drainage of the neighboring agricultural fields while maximizing planting area. This reach has recently undergone additional tree clearing along the entire length to be further assessed.

Lat:	43.809557
Long:	-90.76893

Reference Stream Type: C

Reference stream type is the stream type that should occur in a given landscape setting given the hydrogeomorphic processes occurring at the watershed and reach scales. Channel evolution scenarios should be used to inform the reference stream type in the MNSQT.

Describe the rationale used to select the reference stream type:
A C channel was chosen for the reference stream type based on the likely historic channel and constructibility. The restored channel may evolve into a C/E system, and may eventualy be occupied by the beaver population currently on the Little La Crosse River main stem. The wide alluvial valley, slope, preliminary sinuosity, and natural bed-form fall within the C/E stream type. The specific reference stream type will be verified during the early design process.

Restoration Approach

Expand on the programmatic goals of this project:
This project seeks to restore approximatley 1,456 LF of stream to produce 389 function feet stream credits for sale as a private mitigation bank. The project provides further ecological lifty through the rehabilitation of approximatley 26 acres of wetland adjacent to the stream channles. The tributaries being restored include the confluence with a Class 1 trout stream and will provide additional nursery habitat cureently degraded beyond use. Mitigation credits produced at this site will offsite impacts to the Upper Mississippi - Black Root Watershed Cataloguing Unit.

Explain the restoration potential of this project based on the programmatic goals (based on catchment assessment form):

This project will be a partial restoration of UNTLR1 on property owned by KCI Technologies, Inc.. No assessment of physiochemical components will be performed or targeted for uplift in this project. The straightened, ditched stream on KCI property will be restored to a natural C5 channel based upon reference reach survey data collected from the Jackson Marsh State Natural Area stream. The initial Catchment Assessment indicated the catchment was in Fair condition with the majority of the contributing watershed in rural development, agruculture, and forest. The recieving stream, Little La Crosse River is rated a Class 1 trout stream in Fair to Poor condition as reported by WI DNR in thier 2022 assessment.

Explain the goals and objectives for this project:

Goals:
1. Improve floodplain connectivity through planfrom, profile, and cross-sectional area adjustments.
2. Improve instream-habitat through the incorporation of large woody debris and riffle/pool sequences to diversify flow regimes.
3. Improve riparian habitat through the installation of native vegetation.

Objectives:
1. Reach runoff will improve slightly in the lateral drainage area by vegetating soil in agriculture.
2. Bedform diversity will improve with the installation of pool/riffle sequences.
3. Riparian buffer diversity and width will be increased through riparian species planting and protection.

NOTICE: If you find errors or problems, please email StPaulSQT@usace.army.mil

The Stream Quantification Tool Credits:
Lead Agency: U.S. Army Corps of Engineers, St. Paul District
Contributing Agencies: U.S. Environmental Protection Agency
Minnesota Board of Water and Soil Resources
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency

Contractors:
Ecosystem Planning and Restoration (EPR) through a contract with the U.S. Environmental Projection Agency (Contract No. EP-C-17-001).
Stream Mechanics as a sub-contractor to EPR

Version 2.0
Version Last Updated 10/27/2020

Catchment Name and Number: UNT to Little La Crosse North
Watershed Name (HUC 8) and Number: La Crosse-Pine 70400006

Rater(s): Timothy Guess
Date: 1/16/24

Overall Watershed Condition	**P**
Restoration Potential	**Partial**

Purpose: This form is used to determine the project's restoration potential. The catchment assessment is performed on the catchment and contributing area for the project reach. Note the contributing area may be downstream as well, as in the case where a dam exists downstream which restricts movement/recovery of fishes.

CATCHMENT ASSESSMENT

	Categories	Description of Catchment Condition: Poor	Fair	Good	Rating (P/F/G)
1	Flow Alteration - Water Use (Hydrology)	Substantial reduction or augmentation of natural flow regime.	Moderate reduction or augmentation of natural flow regime.	Minimal reduction or augmentation of natural flow regime.	F
2	Impervious Cover (Hydrology)	Impervious Cover (IC) Index Score of 40% or less.	IC Index Score Between 41% and 70%.	IC Index score of 71% or greater.	P
3	Land Use Change (Hydrology)	Perennial Cover (PC) Index Score of 40% or less = % PC remaining -> Highly Altered Landscape.	PC Index Score of 41 to 70% or less -> Altered Landscape.	PC Index Score of 71% or greater -> Minimally Altered Landscape.	P
4	Roads (Hydrology)	Major roads located in or adjacent to project reach and/or high road density in catchment.	Few major or minor roads in or adjacent to project reach. Moderate road density in catchment.	No major or minor roads in or adjacent to project reach. Low road density in catchment.	F
5	Percent Forested (Hydrology)	≤20%	>20% and <70%	≥70%	P
6	Percent Agricultural Land (Hydrology/Physicochemical)	≥ 70%	>20% and <70%	≤20%	F
7	Flashiness Index (Hydrology)	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 40% or less.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of between 41% to 70%.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 71% or more.	F
8	Riparian Connectivity - Vegetation (Geomorphology)	Riparian Connectivity (RC) Index Score of 40% or less.	RC Index Score Between 41% and 70%.	RC Index score of 71% or greater.	P
9	Sediment Supply (Geomorphology)	High sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 40% or less.	Moderate sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores between 41 to 70%.	Low sediment supply. Upstream bank erosion and surface runoff is minimal. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 71% or greater.	G
10	Minnesota Integrated Report (305(b) and 303(d)) designated use support status *(Note: impairments with atmospheric deposition as a source should be excluded*)*	On or immediately upstream or downstream of a waterbody in Category 5 OR in Category 4c (i.e., designated use impairment not actively being mitigated).	On or immediately upstream or downstream of a waterbody in Category 4a or 4b (i.e., active mitigation of designated use impairment through approved TMDL or other control mechanisms).	No adjacent waterbodies listed as not supporting a designated use (i.e., all designated uses either unassessed or in Category 1, 2, or 3).	P
11	Localized Potential Pollution Sources, Animal Units (Physicochemical)	Extensive Livestock (animal units) in area and potential access to stream - scores of 40% or less.	Moderate Livestock (animal units) in area and potential access to stream - scores between 41% and 70%.	Low levels of Livestock (animal units) in area and low likely access to stream - scores of 71% or greater.	G
12	Longitudinal Connectivity of the stream network (Biology)	Aquatic Connectivity (AC) Index Score of 40 or less.	AC Index Score Between 41% and 70%.	AC Index score of 71% or greater.	G
13	Organism Recruitment (Biology)	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 40% or less.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores between 41 to 70%.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 71% or greater.	P
14	Ditched or straightened streams (Hydrology)	Altered Watercourse Index Score of 40% or less.	Altered watercourse score between 41 and 70%.	Altered watercourse score - 71% or greater.	P
15	Other				

MN DNR WHAF Website: https://arcgis.dnr.state.mn.us/ewr/whaf2/

WHAF Index/Metric	WHAF score equivalents: 0-40 = Poor; 41-70=Fair; 71-100=Good
Flow Alteration INDEX: Water withdrawal	There has been a moderate amount of flow augmentation including road drainages and course alteration into roadside ditches and surface ditching through the ag field.
INDEX: Impervious Cover (time series)	The catchment is very small and there is limited impervious cover within.
INDEX: Perennial Cover (time series)	Approximatley 87% of the catchement is in perrenial cover.
INDEX: Aquatic Connectivity	The headwaters of the catchment flow under STH 27 adjacent to the site before flowing into the restoration reach.
NLCD Land Use Charts, Ecoregions	The catchment is approximately 50% forested.
NLCD Land Use Charts, 'Cultivated' land	The catchment is approximatley 8% cultivated land.
Major Flow Variability Matrics Worksheet: Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP)	The catchment is likely somewhat flashy given the degree of headwater streams contributing to the system. This was the basis of the Fair scoring as Wisconsin does not provide a current index to utilize.
INDEX: Riparian Connectivity	The riparian corridor for he project reach is narrow and mostly cleared of perrenial vegetation.
INDEX: Soil Erosion Susceptibility; Steep Slopes Near Streams	The percent of perrenial cover throughout the catchment indicates this system likely has low upstream sediment supply. The lower stream through the project resach slated for restoration has been ditcherd with unstable, eroded slopes, but is a small portion of the overall catchment.
Impairments INDEX: Aquatic Life Assessments DATA: Impaired Waters	The project reach flows into the Little la Crosse River at the downstream end of the project. The river is listed as a catergory 5 stream for phosphorus.
INDEX: Animal Unit metric DATA: Feedlots	Livestock pasture occupies approximatley 2.5% of the catchement and have low access to contributing drainages.
Inline Impoundments INDEX: Aquatic Connectivity DATA: **Dams**, bridges, culverts	The catchment is small and passes through only 1 bridge along its length.
Organism Recruitment INDEX: Stream Species, Aquatic Life Assessments DATA: Fish, Invert IBI, Mussel site, fully supporting reaches	No biotic community data on these ditched stream channels are available, however, based on flow regime and altered status, it is likely the scores for these channels would be in the Poor range.
INDEX: Altered Watercourse DATA: Altered Watercourse; Public watercourses/Ditch (DNR data access)	The main channel within the catchment, including the project reach, has been straightened and ditched. Most contributing ephemeral tributaries upstream are along their natural planfrom.

Site Information and Reference Selection	
Project Name:	LLR Headwaters Restoration
Reach ID:	UNT 1 Reach 3
Restoration Potential:	Partial
Existing Stream Type:	G
Reference Stream Type:	C
Woody Vegetation Natural Component:	Yes
Use Class:	2B
River Nutrient Regions:	
Drainage Area (sq.mi.):	0.44
Proposed Bed Material:	Sand
Existing Stream Length (ft):	839.3
Proposed Stream Length (ft):	637.6
Macroinvertebrate IBI Class:	
Fish IBI Class:	Southern Coldwater
Valley Type:	Unconfined Alluvial
Flow Permanence:	Intermittent
Strahler Stream Order:	First

Notes
1. Users input values that are highlighted based on restoration potential
2. Users select values from a pull-down menu
3. Leave values blank for field values that were not measured

FUNCTIONAL CHANGE SUMMARY	
Existing Condition Score (ECS)	0.23
Proposed Condition Score (PCS)	0.54
Change in Functional Condition (PCS - E	0.31
Existing Stream Length (ft)	839.3
Proposed Stream Length (ft)	637.6
Change in Stream Length (ft)	-201.7
Existing Functional Feet (FF)	193
Proposed Functional Feet (FF)	344
Proposed FF - Existing FF	151
Percent Change in FF (%)	78%
FF Yield (FF/ft)	0.24

MITIGATION SUMMARY		
151	(FF)	Lift

FUNCTION BASED PARAMETERS SUMMARY			
Functional Category	Function-Based Parameters	Existing Parameter	Proposed Parameter
Hydrology	Reach Runoff	0.77	0.92
Hydraulics	Floodplain Connectivity	0.24	1.00
Geomorphology	Large Woody Debris	0.00	0.38
	Lateral Migration	0.20	1.00
	Bed Material Characterization		
	Bed Form Diversity	0.29	0.97
	Riparian Vegetation	0.00	0.69
Physicochemical	Temperature		
	Dissolved Oxygen		
	Total Suspended Solids		
Biology	Macroinvertebrates		
	Fish		

FUNCTIONAL CATEGORY REPORT CARD			
Functional Category	ECS	PCS	Functional Change
Hydrology	0.77	0.92	0.15
Hydraulics	0.24	1.00	0.76
Geomorphology	0.12	0.76	0.64
Physicochemical			
Biology			

EXISTING CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	Function-Based Parameter	Metric	Field Value	Index Value	Parameter	Category	Category
Hydrology	Reach Runoff	Land Use Coefficient	71	0.53	0.77	0.77	Functioning
		BMP MIDS Rv Coefficient					
		Concentrated Flow Points / 1,000 feet	0	1.00			
Hydraulics	Floodplain Connectivity	Bank Height Ratio	4.3	0.00	0.24	0.24	Not Functioning
		Entrenchment Ratio	1.8	0.47			
Geomorphology	Large Woody Debris	LWD Index	0	0.00	0.00	0.12	Not Functioning
		No. of LWD Pieces / 100 meters					
	Lateral Migration	Dominant BEHI/NBS	H/L	0.40	0.20		
		Percent Streambank Erosion (%)	100	0.00			
		Percent Armoring (%)					
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio	0	0.00	0.29		
		Pool Depth Ratio	2.6	0.88			
		Percent Riffle (%)	98.9	0.00			
		Aggradation Ratio					
	Riparian Vegetation	Effective Vegetated Riparian Area (%)	8.2	0.00	0.00		
		Canopy Cover (%)	0.5	0.00			
		Herbaceous Strata Vegetation Cover (%)	12.8	0.00			
		Woody Stem Basal Area (sqm/hectare)	0	0.00			
Physicochemical	Temperature	Summer Average (°C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI					
	Fish	Fish IBI					

PROPOSED CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	Function-Based Parameter	Metric	Field Value	Index Value	Parameter	Category	Category
Hydrology	Reach Runoff	Land Use Coefficient	55	0.84	0.92	0.92	Functioning
		BMP MIDS Rv Coefficient					
		Concentrated Flow Points / 1,000 feet	0	1.00			
Hydraulics	Floodplain Connectivity	Bank Height Ratio	1	1.00	1.00	1.00	Functioning
		Entrenchment Ratio	5	1.00			
Geomorphology	Large Woody Debris	LWD Index	240	0.38	0.38	0.76	Functioning
		No. of LWD Pieces / 100 meters					
	Lateral Migration	Dominant BEHI/NBS	L/L	1.00	1.00		
		Percent Streambank Erosion (%)	5	1.00			
		Percent Armoring (%)					
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio	6	1.00	0.97		
		Pool Depth Ratio	2.7	0.91			
		Percent Riffle (%)	45	1.00			
		Aggradation Ratio					
	Riparian Vegetation	Effective Vegetated Riparian Area (%)	100	1.00	0.69		
		Canopy Cover (%)	55	0.16			
		Herbaceous Strata Vegetation Cover (%)	90	1.00			
		Woody Stem Basal Area (sqm/hectare)	12	0.60			
Physicochemical	Temperature	Summer Average (°C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI					
	Fish	Fish IBI					

Assured Wetland Delineation Report

Little La Crosse River Mitigation Site Addition

Town of Jefferson, Monroe County, Wisconsin

December 2, 2024

Project Number: 20241365

506 Springdale Street | Mount Horeb, WI 53572 | www.heartlandecological.com

Little La Crosse River Mitigation Site Addition

Town of Jefferson, Monroe County, Wisconsin

December 2, 2024

Prepared for:

Mr. Harald Jordahl

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La Crosse, WI 54601

Prepared by:

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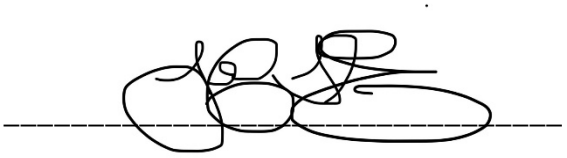
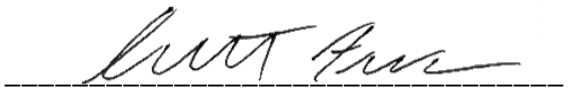


Preparation Assistant: Jenny Grimes, Senior Scientist



Lead Investigator: Scott Fuchs, Senior Scientist

Table of Contents

1.0 Introduction

Heartland Ecological Group, Inc. (“Heartland”) completed an assured wetland determination and delineation on the Little La Crosse River Mitigation Site Addition on October 5, 2024 at the request of KCI Technologies, Inc. Fieldwork was completed by Scott Fuchs, Senior Scientist, an assured delineator qualified via the Wisconsin Department of Natural Resources’ (WDNR’s) Wetland Delineation Assurance Program (Appendix E, Qualifications). The 37.63-acre site (the “Study Area”) consists of two separate areas, one of which is adjacent to the State Trunk Highway (STH 27) right-of-way north of its intersection with County Trunk Highway (CTH) F, and the second of which is located 1/3-mile to the east of the intersection of STH 27 and CTH F, in Sections 5 and 6, T15N, R3W, Town of Jefferson, Monroe County, WI (Figure 1, Appendix A). The purpose of the wetland delineation was to determine the location and extent of wetlands within the Study Area.

Three (3) wetland areas totaling approximately 23.86 acres were delineated and mapped within the Study Area (Figure 7, Appendix A). Five (5) tributaries of the Little La Crosse River and the Little La Crosse River itself were also identified and mapped within the Study Area. Wetlands, waterways, and water bodies discussed in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of the WDNR, and local zoning authorities. Heartland recommends this report be submitted to local authorities, the WDNR, and USACE for final jurisdictional review and concurrence.

2.0 Methods

2.1 Wetlands

Wetlands were determined and delineated using the criteria and methods described in the USACE Wetland Delineation Manual, T.R. Y-87-1 ("1987 Corps Manual") and the applicable *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*. In addition, the *Guidance for Submittal of Delineation Reports to the St. Paul District USACE and the WDNR* (WDNR, 2015) was followed in completing the wetland delineation and report.

Determinations and delineations utilized available resources including the U.S. Geological Survey's (USGS) *WI 7.5 Minute Series (Topographic) Map* (Figure 2, Appendix A), the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO) *Web Soil Survey* (Figure 3, Appendix A), the WDNR's *Wetland Indicator* data layer (Figure 4, Appendix A), the WDNR's *Wisconsin Wetland Inventory* data layer (Figure 5, Appendix A), the WNDR's *24k Hydro Flowlines (Rivers and Streams)* data layer (Figure 2 and 5, Appendix A), the WDNR's *Color-Stretch LiDAR and Hillshade Image Service Layer* (Figure 6, Appendix A), and aerial imagery available through the USDA Farm Service Agency's (FSA) National Agriculture Imagery Program (NAIP).

Wetland determinations were completed on-site at sample points, often along transects, using the three (3) criteria (vegetation, soil, and hydrology) approach per the 1987 Corps Manual and the Regional Supplement. Procedures in these sources were followed to demonstrate that, under normal circumstances, wetlands were present or not present based on a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

Atypical conditions were encountered within the Study Area due to the presence of agricultural lands utilized for row cropping. Therefore, procedures for managed plant communities in the *Problematic hydrophytic vegetation* section described in Chapter 5 of the Regional Supplement were used. NAIP imagery was reviewed for evidence of crop stress, saturation, or inundation signatures. Sample point placements for the wetland delineation were partially determined based on such signatures.

In actively farmed areas within the Study Area where hydric soils may be present, methods described in Chapter 5 (Difficult Wetland Situations) of the Regional Supplement were followed. Available aerial imagery was analyzed using procedures described in the *Guidance for Offsite Hydrology/Wetland Determinations* (USACE and Minnesota Board of Water and Soil Resources, July 2016 – "July 2016 Guidance"). An off-site aerial imagery analysis (Off-Site Analysis) was completed to document the presence or absence of wetland signatures and assist in the wetland determination. A wetland signature is evidence, recorded by aerial imagery, of ponding, flooding, or impacts of saturation for sufficient duration to meet wetland hydrology and possibly wetland vegetation criteria. Wetland signatures often vary based on the type and seasonal date of the aerial imagery. For example, there are seven (7) standardized signature types in actively farmed settings described in the July 2016 Guidance. To assist in interpretations of wetland signatures, a WETS analysis was used to compare antecedent precipitation in the three (3) months leading up to each aerial image to the long-term (30-year) precipitation averages and standard deviation to determine if antecedent precipitation conditions for each image was normal, wet, or dry. Areas within agricultural fields are typically determined to be wetland if hydric soils and wetland hydrology indicators are present and aerial images taken in the five (5) (or more) most recent normal antecedent precipitation images show at least one (1) of the wetland signatures per the July 2016 Guidance. Although the Off-Site Analysis concentrates on imagery taken under normal antecedent precipitation conditions, the images determined to be taken under wet and dry antecedent precipitation conditions were also analyzed and considered. Determinations and delineation of wetlands in agricultural areas are typically based on an outline of the largest wetland signature on an image taken under "normal" antecedent conditions and based on the consistency of the signatures (USDA, NRCS 1998).

Recent weather conditions influence the visibility or presence of certain wetland hydrology indicators. An assessment of recent precipitation patterns helps to determine if climatic/hydrologic conditions were typical when the field investigation was completed. Therefore, a review of antecedent precipitation in the 90 days leading up to the field investigation was completed. Using an Antecedent Precipitation Tool (APT) analysis developed by the USACE (Deters & Gutenson 2021), the amount of precipitation over these 90 days was compared to averages and standard deviation thresholds observed over the past 30 years to generally represent if conditions encountered during the investigation were

normal, wet, or dry. Recent precipitation events in the weeks prior to the investigation were also considered while interpreting wetland hydrology indicators. Additionally, the Palmer Drought Severity Index was checked for long-term drought or moist conditions (NOAA, 2018).

The uppermost wetland boundary and sample points were identified and marked with wetland flagging and located with a Global Navigation Satellite System (GNSS) receiver capable of sub-meter accuracy. In some cases, wetland flagging was not utilized to mark the boundary and the location was only recorded with a GNSS receiver, particularly in active agricultural areas. The GNSS data was then used to map the wetlands using ESRI ArcGIS Pro™ software.

3.0 Results and Discussion

3.1 Desktop Review

Climatic Conditions

According to the APT analysis using the previous 90 days of precipitation data, conditions encountered at the time of the fieldwork were expected to be drier than normal for the time of year (Appendix B). The Palmer Drought Severity Index was checked as part of the APT analysis, and the long-term conditions at the time of the fieldwork were in the mild wetness range. Fieldwork was completed outside the dry-season based on long-term regional hydrology data utilized in the WebWIMP Climatic Water Balance and computed as part of the APT analysis. The growing season was determined to still be underway based on observations of several species retaining live vegetation and soil temperatures above 41°F at a depth of 12 inches.

General Topography and Land Use

Topography within the larger portion of the Study Area was generally gently sloping west towards the Little La Crosse River, with a topographic high of approximately 862 feet above mean sea level present adjacent to CTH F, and a topographic low of approximately 838 feet above mean sea level within the northwest corner. The smaller portion of the Study Area along STH 27 had a topographic high of 864 feet above mean sea level along STH 27 and a topographic low of 856 feet above mean sea level within a ditch that runs parallel to the

eastern boundary (Figures 2, 6, and 7 Appendix A). General drainage is towards the Little La Crosse River. Land use within the Study Area and surrounding areas are primarily agricultural row cropping.

Soil Mapping

Soils mapped by the NRCS Soil Survey within the Study Area and their hydric status are summarized in Table 1. Wetlands identified during the field investigation are located primarily within areas mapped as predominantly hydric soils including wetland indicator soils (Figures 3 and 4, Appendix A).

Table 1. Summary of NRCS Mapped Soils within the Study Area

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
20A: Palms and Houghton mucks, 0 to 1% slopes	Palms-Ponded	0-90	Depressions on stream terraces	Yes
	Houghton-Ponded	0-90	Depressions on stream terraces	Yes
	Ettrick	0-10	Flood plains	Yes
	Water	0-5	—	No
126B: Barremills silt loam, 1 to 6% slopes	Barremills	85-100	Hills	No
	Toddville	3-10	Stream terraces	No
	Arenzville	2-10	Drainageways on stream terraces	No
202D2: Lambeau silt loam, 12 to 20% slopes, moderately eroded	Lambeau	90-100	Hills	No
	Hixton	2-10	Hills	No
628A: Orion silt loam, 0 to 3% slopes, occasionally flooded	Orion-Occasionally flooded	80-95	Drainageways, flood plains	No
	Arenzville-Occasionally flooded	3-10	Flood plains, drainageways	No

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
	Ettrick-Frequently flooded	1-5	Depressions on flood plains	Yes
	Bearpen-Rarely flooded	1-5	Flood plains	No
1743F: Council-Elevasil-Norden complex, 20 to 45% slopes, rocky	Council	30-35	Valley sides	No
	Elevasil	25-35	Rock pediments, valley sides	No
	Norden	25-30	Knolls	No
	Seaton-Driftless valley	0-10	Knolls	No
	Urne	0-8	Valley sides	No
	Boone	0-5	Valley sides	No
	Rock outcrop-Sandstone	0-2	Valley sides	No

Wetland Mapping

The Wisconsin Wetlands Inventory (WWI) mapping (Figure 5, Appendix A) depicts two (2) wetland areas within the eastern portion of Study Area. One (1) emergent/wet (E1Kg) meadow is depicted in the southwestern corner of the eastern portion of the Study Area and one (1) wet meadow/forested/riverine wetland complex (T3K/T3/E1K/S3/E1Kg) is depicted in the northwestern part of the eastern portion of the Study Area.

Waterway Mapping

The WDNR's Rivers and Streams data layer (Figure 5, Appendix A) depicts one (1) waterway within the Study Area. The Little La Crosse River is mapped flowing through the northwest corner of the eastern portion of the Study Area.

Previous Delineations

Heartland previously completed a wetland delineation within the property in between the two portions of the current Study Area in 2023. Boundaries identified during the previous

delineation effort were extended within the Study Area where applicable. A map figure showing the results of the previous wetland delineation is included as Appendix G.

Off-Site Analysis

Agricultural fields within the Study Area have significant mapped hydric or potentially hydric soils and were the focus of the Off-Site Analysis (OSA) (Appendix F). From the aerial imagery, the secondary wetland hydrology indicators of “Saturation Visible on Aerial Imagery” (C9) and “Stunted or Stressed Plants” (D1) were noted.

A total of 20 aerial images were selected and reviewed based on availability and quality of the imagery. Of these images, 12 were taken under normal antecedent precipitation conditions. Signatures were noted in two (2) areas within the Study Area within landscape positions described by the NRCS to support hydric soil components and were the focus of the OSA. At least one (1) of the seven (7) described wetland signatures per the July 2016 Guidance were consistently noted in both of these areas on imagery taken under normal antecedent precipitation conditions. Based on the off-site analysis, both areas were likely to be wetland prior to the fieldwork.

3.2 Field Review

Three (3) wetlands were identified and delineated within the Study Area. Wetland determination data sheets (Appendix C) were completed at 17 sample points that were representative of the wetland and upland conditions near the boundary and where potential wetlands may be present based on the desktop review and field reconnaissance. Appendix D provides photographs, typically taken at the sample point locations within wetlands and adjacent uplands. The wetland boundary and sample point locations are shown on Figure 7 (Appendix A) and the wetlands are summarized in Table 2 and detailed in the following sections.

Table 2. Summary of Wetlands Identified within the Study Area

Wetland ID	Wetland Description	*Surface Water Connections	*NR151 Protective Area	Acreage (on-site)
W-1	Wet Meadow / Unvegetated Ditch	Contiguous with the Little La Crosse River	Less susceptible, 10-30 feet	0.25

Wetland ID	Wetland Description	*Surface Water Connections	*NR151 Protective Area	Acreage (on-site)
W-2	Wet Meadow / Farmed Wet Meadow	Contiguous with the Little La Crosse River	Moderately susceptible, 50 feet	1.69
W-3	Farmed Wet Meadow / Wet Meadow / Sedge Meadow / Shallow Marsh / Shrub Carr / Forested Wetland Complex	Contiguous with the Little La Crosse River	Moderately susceptible, 50 feet	21.91
**Classification based on Heartland's professional opinion. Jurisdictional authority of wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities may have additional restrictions. USACE has authority for determining federal jurisdiction of wetlands and waterways.*				**23.86**

Wetland 1 (W-1)

Wetland W-1 is a 0.25-acre ditch present parallel to the eastern boundary of the western portion of the Study Area. The wetland area consists of the bottom of a ditch, which contains an intermittent waterway (WW-1). Hydrology within W-1 appeared quite flashy based on the erosion and drift deposits observed within the ditch, yet primary wetland hydrology indicators were observed during a drier than normal condition, which is indicative of longer-persisting wetland hydrology.

The ditch bottom was largely unvegetated, but vegetation present on the ditch sideslopes was documented to make a hydrophytic vegetation determination. Dominant vegetation present on the ditch sideslopes included clearweed (*Pilea pumila*, FACW), creeping jenny (*Lysimachia nummularia*, FACW), eastern cottonwood (*Populus deltoides,* FAC), and peach-leaved willow (*Salix amygdaloides,* FACW). Therefore, the wetland vegetation parameter was determined to be met.

The Redox Dark Surface (F6) hydric soil indicator was observed within W-1. A depleted matrix overlain by a 2/1 silty clay loam was observed at 12 inches and below at sample point P04, but a 6/2 sand layer was present from the surface to a depth of three inches. Professional judgement was used to determine that the Depleted Below Dark Surface (A11) indicator was applicable here.

The primary wetland hydrology indicators of High Water Table (A2), Saturation (A3), Drift Deposits (B3), and Sparsely Vegetated Concave Surface (B8) were noted in W-2, while secondary indicators included Drainage Patterns (B10), Geomorphic Position (D2), and a positive FAC-Neutral Test (D5). Therefore, the wetland hydrology parameter was met.

Wetland 2 (W-2)

Wetland 2 (W-2) is a 1.69-acre partially farmed wet meadow located in the southwestern portion of the eastern Study Area. The wetland area was mostly unfarmed at the time of the wetland delineation, but crop detritus was present along the edges. Based on a review of aerial imagery, the farmer only occasionally is able to crop the entire wetland area when conditions allow.

Dominant vegetation within unfarmed portions of W-2 consisted of a ruderal wet meadow dominated by reed canary grass (*Phalaris arundinacea,* FACW). Dominant vegetation along the farmed edges of the wetland consisted of fall witch grass (*Panicum dichotomiflorum,* FACW). Thus, the hydrophytic vegetation parameter was satisfied in both unfarmed and farmed portions of the wetland.

The Histosol (A1), Thick Dark Surface (A12), Loamy Mucky Mineral (F1), and Redox Dark Surface (F6) hydric soil indicators were observed at the sample points completed within W-2 and therefore the hydric soil parameter was met.

The primary wetland hydrology indicator of Saturation (A3) was observed within W-2, while the secondary indicators of Saturation Visible on Aerial Imagery (C9), Stunted or Stressed Plants (D1), Geomorphic Position (D2), and a positive FAC-Neutral Test (D5) were also observed. Therefore, the wetland hydrology parameter was satisfied.

The boundaries of W-2 were determined by the average extent of wetland hydrology signatures observed during normal years reviewed during the OSA and observations of the extent of hydric soil, crop stress, and hydrophytic vegetation observed during the field investigation.

Wetland 3 (W-3)

Wetland 3 (W-3) is a 21.91-acre wetland complex composed of a mosaic of farmed wet meadow, wet meadow, sedge meadow, shallow marsh, shrub carr, and forested wetland present in the northwestern part of the eastern portion of the Study Area. Wetland W-3 continues offsite to the north and west.

Dominant vegetation observed in the farmed wet meadow fringes of W-1 consisted of yellow nut sedge (*Cyperus esculentus,* FACW) and fall panic grass (*Panicum dichotomiflorum,* FACW). Dominant vegetation in wet meadow and shallow marsh portions of W-3 included reed canary grass, rice cut grass (*Leersia oryzoides,* OBL), and narrow-leaved cattail (*Typha angustifolia,* OBL). Dominant vegetation in the partially wooded, northwestern portion of W-3 included American manna grass (*Glyceria grandis,* OBL), angelica (*Angelica atropurprea,* OBL), hairy-fruited sedge (*Carex trichocarpa,* OBL), jewelweed (*Impatiens capensis,* FACW), reed canary grass (*Phalaris arundinacea,* FACW), clearweed (*Pilea pumila,* FACW), Bebb's willow (*Salix bebbiana,* FACW), buckthorn (*Rhamnus cathartica,* FAC), peach-leaved willow (*Salix amygdaloides,* FACW), elderberry (*Sambucus nigra,* FACW), speckled alder (*Alnus incana,* FACW), quaking aspen (*Populus tremuloides,* FAC), box elder (*Acer negundo,* FAC), and American elm (*Ulmus americana,* FACW). Therefore, the wetland vegetation parameter was met.

The Histosol (A1), Depleted Matrix (F3), and Redox Dark Surface (F6) hydric soil indicators were noted at the sample points completed within W-3 and therefore the hydric soil parameter was satisfied.

The High Water Table (A2) and Saturation (A3) primary wetland hydrology indicators were observed within W-3, while secondary indicators included Saturation Visible on Aerial Imagery (C9), Stunted or Stressed Plants (D1), Geomorphic Position (D2), and a positive FAC-Neutral Test (D5). Thus, the wetland hydrology criteria were met.

The boundaries of wet meadow / farmed wet meadow portions of W-3 were determined by the average extent of wetland hydrology signatures observed in normal years reviewed during the OSA and by the extent of hydrophytic vegetation, hydric soils, and wetland hydrology indicators observed during the field investigation. W-3 is contiguous with several unnamed tributaries of the Little La Crosse River and the Little La Crosse River itself, which flows through the northwestern corner of the eastern half of the Study Area.

Waterways

Six (6) waterways, the Little La Crosse River and five (5) unnamed tributaries of the Little La Crosse River, were observed within the Study Area. The approximately ordinary high water mark (OHWM) of the Little La Crosse River and the approximate centerlines of the unnamed tributaries are mapped on Figure 7. The Little La Crosse River flows through the

northwestern corner of the eastern half of Study Area and is considered an Area of Special Natural Resource Interest (ASNRI) Trout Stream by WDNR within the Study Area.

3.3 Other Considerations

This report is limited to the identification and delineation of wetlands within the Study Area. Other regulated environmental resources that result in land use restrictions may be present within the Study Area that were not evaluated by Heartland (e.g. navigable waterways, floodplains, cultural resources, and threatened or endangered species).

Wisconsin Act 183 provides exemptions to permitting requirements for certain nonfederal wetlands. Nonfederal wetlands are wetlands that are not subject to federal jurisdiction. Exemptions apply to projects in urban areas with wetland impacts up to 1-acre per parcel. An urban area is defined as an incorporated area; an area within ½ mile of an incorporated area; or an area served by a sewerage system. Exemptions for nonfederal wetlands also apply to projects in rural areas with wetland impacts up to three (3) acres per parcel. Exemptions in rural areas only apply to structures with an agricultural purpose such as buildings, roads, and driveways. The determination of federal and nonfederal wetlands MUST be made by the USACE through an Approved Jurisdictional Determination (AJD). This report may be submitted to the USACE to assist with their determination.

Wis. Adm. Code NR 151 (“NR 151”) requires that a “protective area” (buffer) be determined from the Ordinary High-Water Mark (OHWM) of lakes, streams and rivers, or at the delineated boundary of wetlands. Per NR 151.12, the protective area width for “less susceptible” wetlands is determined by using 10% of the average wetland width, no less than 10 feet or more than 30 feet. “Moderately susceptible” wetlands, lakes, and perennial and intermittent streams identified on recent mapping require a protective area width of 50 feet; while “highly susceptible wetlands” are associated with outstanding or exceptional resource waters in areas of special natural resource interest and require protective area width of 75 feet. Table 2 above lists the potential wetland buffers per NR 151 for each wetland identified based on Heartland’s professional opinion. Please note that jurisdictional authority on wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities and regional planning organizations may have additional land use restrictions within or adjacent to wetlands.

4.0 Conclusion

Heartland completed an assured wetland determination and delineation within the Little La Crosse River Mitigation Site Addition on October 5, 2024 at the request of KCI Technologies, Inc. Fieldwork was completed by Scott Fuchs, Senior Scientist, an assured delineator qualified via the WDNR's Wetland Delineation Assurance Program (Appendix E). The Study Area is made up of two separate areas within Sections 5 and 6, T15N, R3W, Town of Jefferson, Monroe County, WI (Figure 1, Appendix A).

Three (3) wetland areas were delineated and mapped within the 37.63-acre Study Area (Figure 7, Appendix A). The wetlands, which may be classified as an excavated ditch, farmed wet meadow, wet meadow, and a wetland complex containing wet meadow, sedge meadow, shrub carr, and forested wetland communities, total approximately 23.86 acres within the Study Area. The Little La Crosse River and five (5) unnamed tributaries of the Little La Crosse River were observed and mapped within the Study Area.

Wetlands, waterways, and water bodies discussed in this report may be subject to federal regulation under the jurisdiction of the USACE, state regulation under the jurisdiction of the WDNR, and the local zoning authority. Heartland recommends this report be submitted to the USACE and WDNR for final jurisdictional review and concurrence. Review by local authorities may be necessary for determination of any applicable zoning and setback restrictions.

Heartland recommends that all applicable regulatory agency reviews and permits are obtained prior to beginning work within the Study Area or within or adjacent to wetlands or waterways. Heartland can assist with evaluating the need for additional environmental reviews, surveys, or regulatory agency coordination in consideration of the proposed activity and land use as requested but is outside of the scope of the wetland delineation.

Experienced and qualified professionals completed the wetland determination and delineation using standard practices and professional judgment. Wetland boundaries may be affected by conditions present within the Study Area at the time of the fieldwork. All final decisions on wetlands and their boundaries are made by the USACE, the WDNR, and/or sometimes a local unit of government. Wetland determination and boundary reviews by regulatory agencies may result in modifications to the findings presented to the Client. These modifications may result from varying conditions between the time the wetland

delineation was completed and the time of the review. Factors that may influence the findings may include but are not limited to precipitation patterns, drainage modifications, changes or modification to vegetation, and the time of year.

5.0 References

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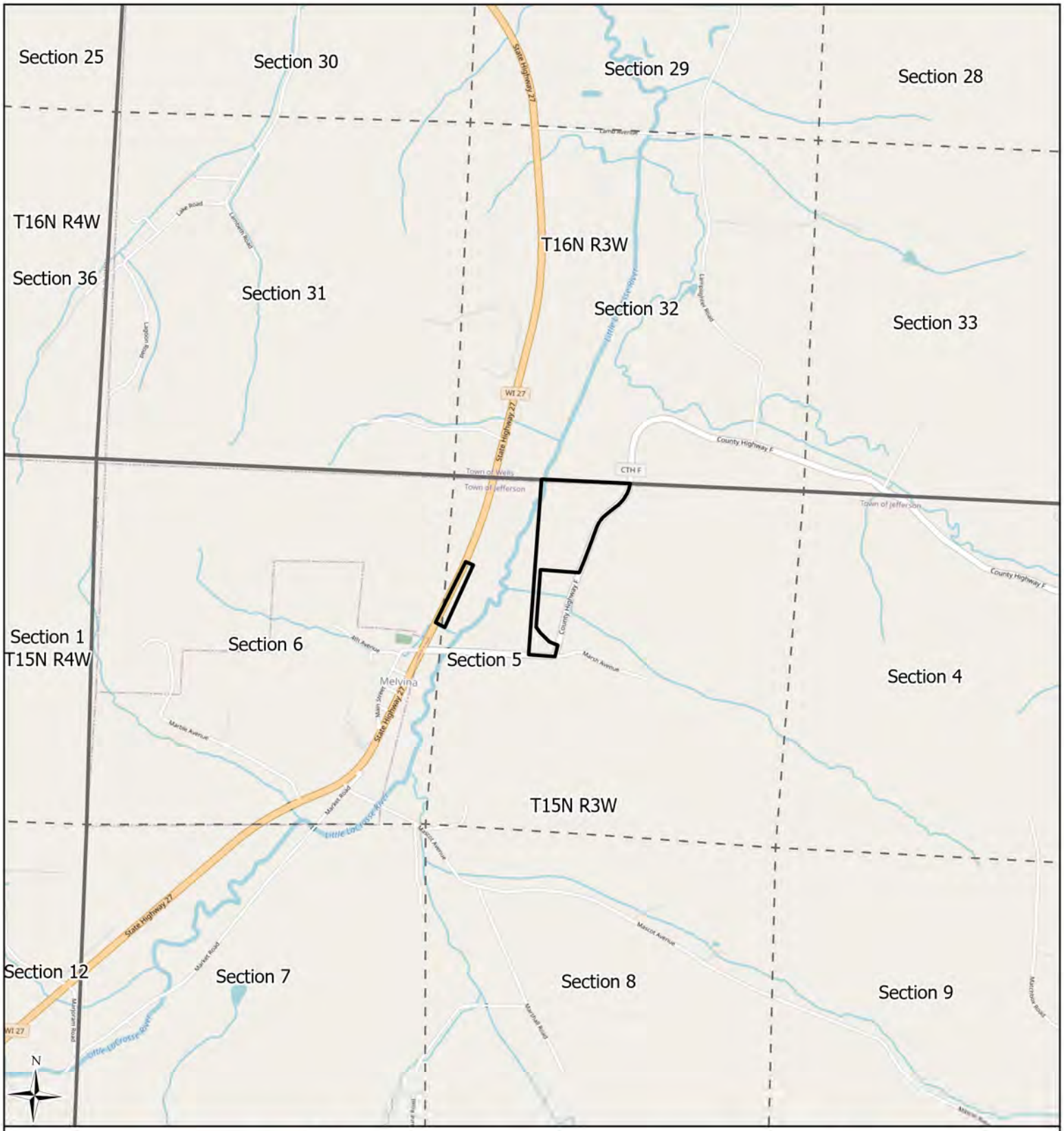
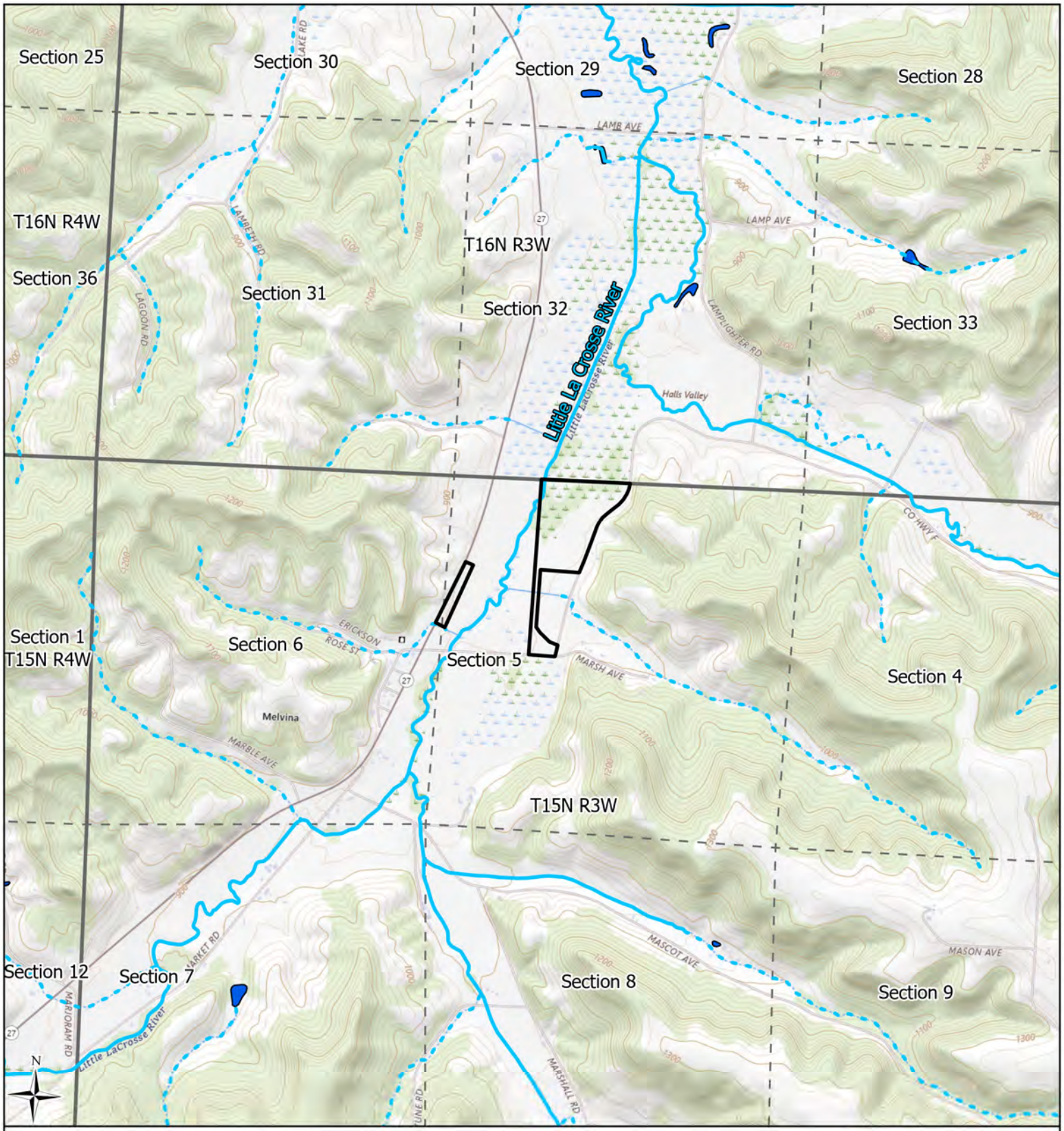
Appendix A | Figures


Section 25
Section 30
Section 29
Section 28
T16N R4W
T16N R3W
Section 36
Section 31
Section 32
Section 33
State Highway 27
WI 27
CTH F
County Highway F
Town of Wells
Town of Jefferson
Section 1
T15N R4W
Section 6
Section 5
Section 4
Melvina
T15N R3W
Section 12
Section 7
Section 8
Section 9
N
Sparta
Study Area (37.63 ac)
Township
Section
0
1,000
2,000
Ft
Heartland
ECOLOGICAL GROUP INC
Figure 1. Project Location
LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co
OpenStreetMap
ESRI
LRR: MW
Figure Created: 12/2/2024



Study Area (37.63 ac)
Township
Section
Perennial Streams
Intermittent Streams
Waterbodies

0 1,000 2,000 Ft

Heartland
ECOLOGICAL GROUP INC

Figure 2. USGS Topography

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

USGSTopo
USGS, WDNR
LRR: MW

Figure Created: 12/2/2024

Study Area (37.63 ac)

NRCS Soil Survey Data

- Hydric (100%)
- Predominantly Hydric (85-99%)
- Partially Hydric (16-84%)
- Predominantly Non-Hydric (1-15%)
- Non-Hydric (0%)

0 150 Ft

Heartland
ECOLOGICAL GROUP INC

Figure 3a. NRCS Hydric Soils

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2022 Orthophoto
NRCS LRR: MW

Figure Created: 12/2/2024

Study Area (37.63 ac)

NRCS Soil Survey Data

- Hydric (100%)
- Predominantly Hydric (85-99%)
- Partially Hydric (16-84%)
- Predominantly Non-Hydric (1-15%)
- Non-Hydric (0%)

0 200 Ft

Heartland ECOLOGICAL GROUP INC

Figure 3b. NRCS Hydric Soils

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2022 Orthophoto
NRCS

LRR: MW

Figure Created: 12/2/2024

Study Area (37.63 ac)

SWDV Wetland Indicators

0 150 Ft

Heartland
ECOLOGICAL GROUP INC

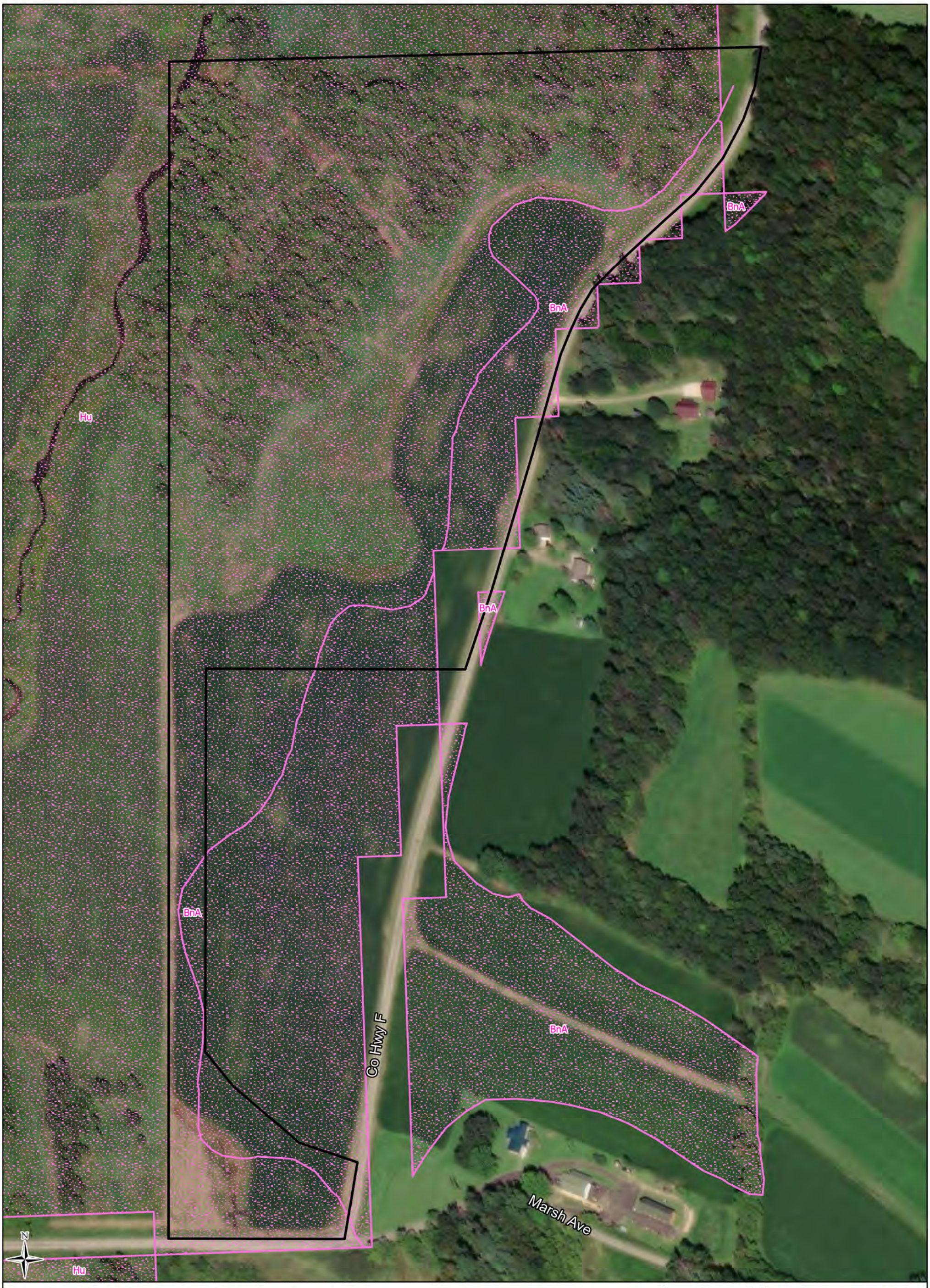
Figure 4a. SWDV Wetland Indicators

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2020 Orthophoto
WDNR

LRR: MW

Figure Created: 12/2/2024



Study Area (37.63 ac)

SWDV Wetland Indicators

0 200 Ft

Heartland
ECOLOGICAL GROUP INC

Figure 4b. SWDV Wetland Indicators

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2020 Orthophoto
WDNR

LRR: MW

Figure Created: 12/2/2024

Study Area (37.63 ac)
WWI Polygons
WWI Points
Perennial Streams
Intermittent Streams
Waterbodies

0 150 Ft

Heartland
ECOLOGICAL GROUP INC

Figure 5a. Wisconsin Wetland Inventory

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2020 Orthophoto
WDNR, USGS

LRR: MW

Figure Created: 12/2/2024

E1Ka
S3/E1Kg
T3/E1K
T3K
Little La Crosse River
E1Kg
Co Hwy F
E1Kg
Marsh Ave
N
S3/E1Kg
T3K
S3/E1Kg
E1Kg

Study Area (37.63 ac)
WWI Polygons
WWI Points
Perennial Streams
Intermittent Streams
Waterbodies

0 200 Ft

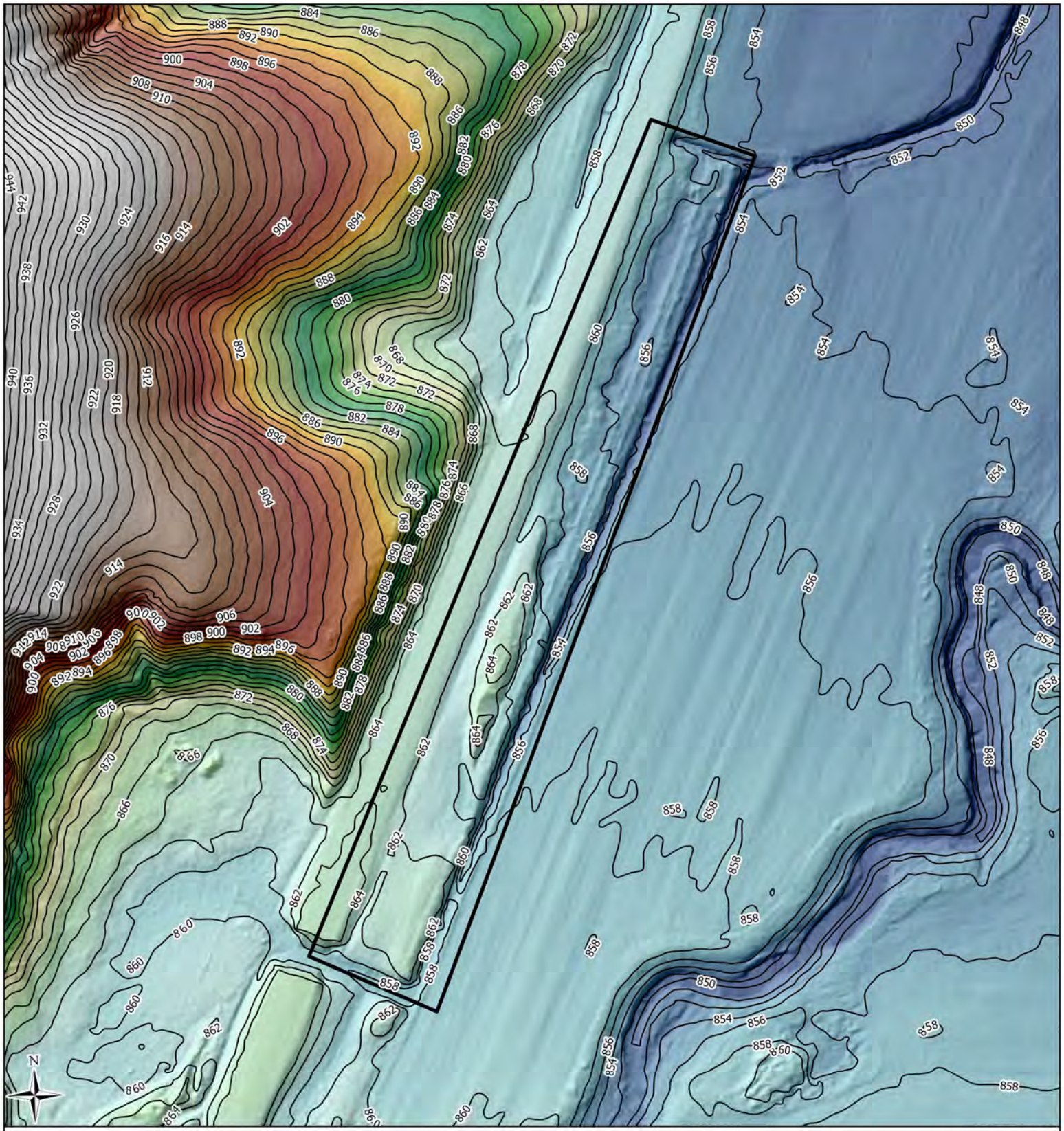
Heartland
ECOLOGICAL GROUP INC

Figure 5b. Wisconsin Wetland Inventory

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2022 Orthophoto
WDNR, USGS
LRR: MW

Figure Created: 12/2/2024



Study Area (37.63 ac)

Monroe Co 2' Contours

0 150 Ft

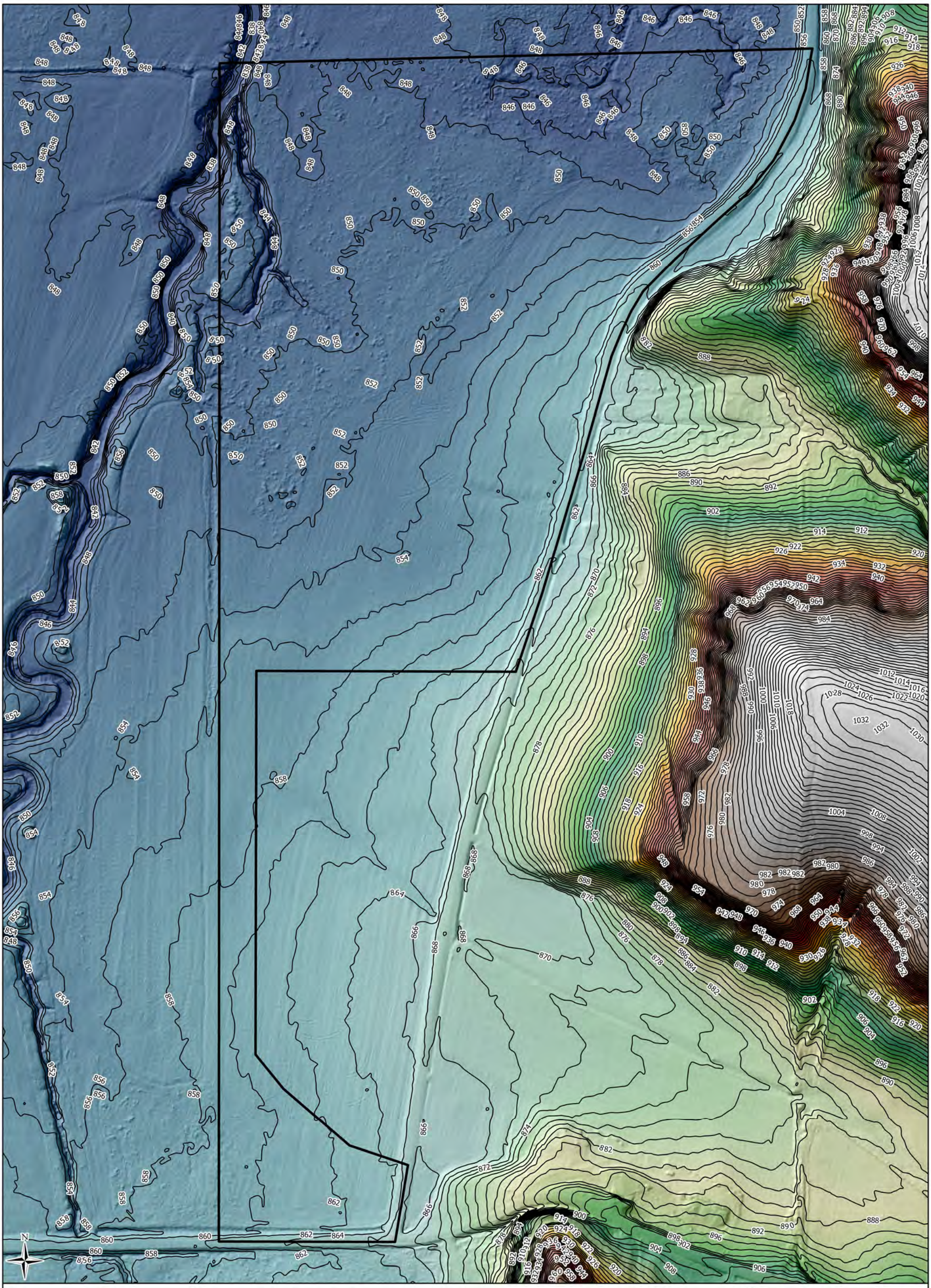
Heartland
ECOLOGICAL GROUP INC

Figure 6a Color-Stretch Digital Elevation Model

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

DNR Lidar Service
WDNR LRR: MW

Figure Created: 12/2/2024



Study Area (37.63 ac)

Monroe Co 2' Contours

0 200 Ft

Heartland ECOLOGICAL GROUP INC

Figure 6b. Color-Stretch DEM

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

DNR LiDAR Service
Monroe Co, HEG LRR: MW

Figure Created: 12/2/2024

Heartland
ECOLOGICAL GROUP INC

Figure 7a. Field Delineated Wetlands

LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

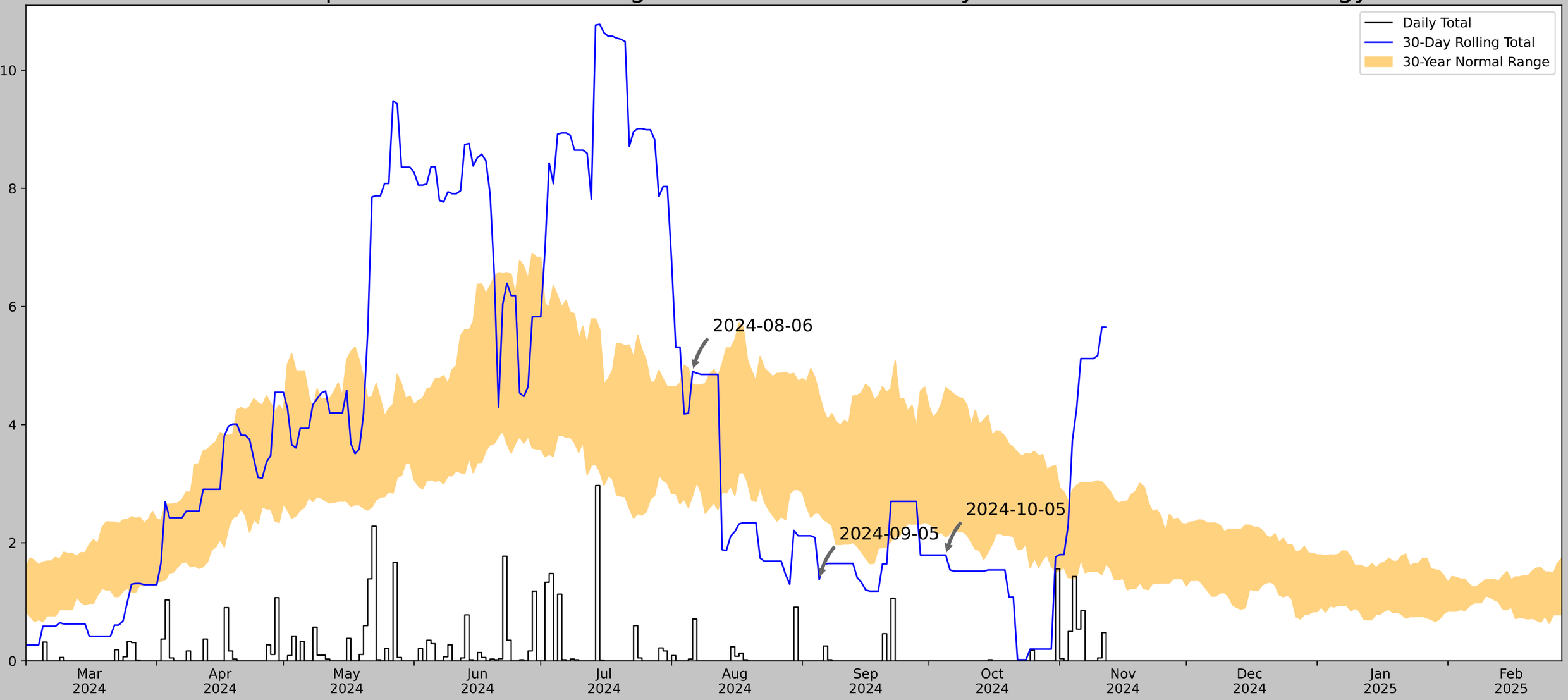
2020 Orthophoto
Monroe Co, HEG
LRR: MW

Figure Created: 12/2/2024

W-3
WW-4
WW-5
WW-3
WW-2
W-3
W-2
P01
P02
P03
P04
P05
P06
P07
P08
P09
P10
P11
P12
P13
P14
P15
P16
P17
N
Study Area (37.63 ac)
Monroe Co 2' Contours
Waterways
Field Delineated Wetlands (23.86 ac)
Sample Points
Upland
Wetland
State Highway 27
Little Lake
Town of Wells
Melvina
0
200
Ft
Heartland
ECOLOGICAL GROUP INC
Figure 7b. Field Delineated Wetlands
LLR Mitigation Site Addition
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co
2020 Orthophoto
Monroe Co, HEG
LRR: MW
Figure Created: 12/2/2024

Appendix B | APT Analysis

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.80595025801185, -90.76477532698794
Observation Date	2024-10-05
Elevation (ft)	866.497
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-10-05	2.096063	4.630315	1.791339	Dry	1	3	3
2024-09-05	2.498819	4.51063	1.377953	Dry	1	2	2
2024-08-06	2.806299	4.668504	4.901575	Wet	3	1	3
Result							Drier than Normal - 8

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ONTARIO 3E	43.7194, -90.53	959.974	13.153	93.477	7.149	10788	84
HILLSBORO 0.5 WSW	43.6514, -90.3475	967.848	10.258	7.874	4.697	159	0
HILLSBORO	43.6542, -90.3339	939.961	10.784	20.013	5.069	160	0
HILLSBORO 2SW	43.6342, -90.3792	1042.979	9.562	83.005	5.097	242	6
CASHTON 3NNW	43.7861, -90.7953	938.976	14.02	20.998	6.603	2	0
LA FARGE	43.5733, -90.6319	798.885	11.307	161.089	6.91	2	0

Appendix C | Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P01

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Rise/Embankment Local relief (concave, convex, none): Convex

Slope (%): 0-2 Lat: 43.808945 Long: -90.770250 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:

Sample point recorded on a rise/embankment adjacent to an excavated ditch. The embankment/berm is a former railway bed based on aerial imagery obtained for the previous wetland delineation. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	70	Y	FAC
2.			
3.			
4.			
5.			
	70.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Hydrophyllum virginianum	70	Y	FAC
2. Alliaria petiolata	20	N	FAC
3. Rhamnus cathartica	10	N	FAC
4. Hesperis matronalis	10	N	FACU
5. Lonicera X bella	8	N	FACU
6. Amphicarpaea bracteata	5	N	FAC
7. Osmorhiza claytonii	5	N	FACU
8. Arctium minus	3	N	FACU
9.			
10.			
	131.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 0	x 2 = 0
FAC species 175	x 3 = 525
FACU species 26	x 4 = 104
UPL species 0	x 5 = 0
Column Totals: 201 (A)	629.00 (B)

Prevalence Index = B/A = 3.13

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

SOIL

Sampling Point: P01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 2/1	100					SL	SL w/black gravelly material. Crushed

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Soils historically disturbed to construct the railway embankment. Entire profile consists of a dark sandy loam with a crushed black stone. Crushed basalt used for railway ballast? No redox/hydric soil indicators met.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ 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.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P02

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave

Slope (%): 0-2 Lat: 43.808854 Long: -90.770094 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Sample point recorded within a shallow excavated ditch adjacent to the western edge of an agricultural field. Hydrology appears somewhat flashy, but primary hydrology indicators observed during a drier than normal condition. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Pilea pumila	50	Y	FACW
2. Lysimachia nummularia	20	Y	FACW
3. Phalaris arundinacea	5	N	FACW
4. Cryptotaenia canadensis	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	80.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		165.00 (B)

Prevalence Index = B/A = 2.06

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Ditch bottom nearly completely unvegetated. Vegetation present on the banks recorded for hydrophytic vegetation determination.

SOIL

Sampling Point: P02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 6/2	100					S	
7-16	10YR 2/1	85	10YR 3/6	10	C	M	SIC	
			2.5Y 5/2	5	D	M	SIC	
16-24	2.5Y 5/1	100					SIC	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Strange soil profile. Sand above clayey material. Finer soils washed away by erosion leaving sand behind?

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ 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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P03

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): None

Slope (%): 3-7 Lat: 43.807400 Long: -90.771167 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

Gentle sideslope sloping downhill from STH 27 to the ditch/wetland/waterway. Occasionally mowed weedy ROW, evaluated as normal circumstances. This area historically disturbed when a temporary bridge was constructed during replacement of the main STH 27 bridge. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Setaria pumila	50	Y	FAC
2. Poa pratensis	50	Y	FAC
3. Trifolium pratense	10	N	FACU
4. Plantago lanceolata	10	N	FACU
5. Schedonorus pratensis	5	N	FACU
6. Daucus carota	5	N	UPL
7. Pastinaca sativa	3	N	UPL
8.			
9.			
10.			
	133.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	25	x 4 =	100
UPL species	8	x 5 =	40
Column Totals:	133 (A)		440.00 (B)

Prevalence Index = B/A = 3.31

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Weedy occasionally mowed ROW.

SOIL

Sampling Point: P03

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					SL	
4-11	10YR 6/3	97	10YR 5/6	3	C	M/PL	SCL	
11-19	10YR 5/6	95	10YR 5/8	5	C	M	SCL	
19-24	10YR 5/6	90	10YR 5/8	10	C	M	SCL	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ 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): 24

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P04

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave

Slope (%): 0-2 Lat: 43.807361 Long: -90.770990 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Sample point recorded within a shallow ditch present on the western edge of an agricultural field. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	50	Y	FAC
2. Salix amygdaloides	30	Y	FACW
3. Acer negundo	10	N	FAC
4.			
5.			
	90.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Lysimachia nummularia	30	Y	FACW
2. Pilea pumila	20	Y	FACW
3. Angelica atropurpurea	5	N	OBL
4. Cryptotaenia canadensis	5	N	FAC
5. Phalaris arundinacea	5	N	FACW
6. Carex trichocarpa	3	N	OBL
7.			
8.			
9.			
10.			
	68.0	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	85	x 2 =	170
FAC species	65	x 3 =	195
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	158 (A)		373.00 (B)

Prevalence Index = B/A = 2.36

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Bottom of ditch is unvegetated except for a willow rooted in its center. Vegetation recorded on ditch sideslopes to make hydrophytic vegetation determination.

SOIL

Sampling Point: P04

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 6/2	100					S	
3-12	10YR 2/1	90	10YR 3/6	10	C	M/PL	SICL	
12-20	2.5Y 5/2	85	10YR 5/8	15	C	M/PL	SIC	
20-24	2.5Y 5/2	95	10YR 5/8	5	C	M	SIC	

[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)
- ___ 2 cm Muck (A10)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Professional opinion used to determine A11 is applicable. Surface sand technically disqualifies it from meeting A11.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 9

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

Hydrology appears somewhat flashy, but primary indicators still observed in a drier than normal condition.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P05

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Toe Of Slope/Depression Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.806274 Long: -90.766148 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: E1Kg (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Sample point recorded within an unfarmed ruderal wet meadow in the southern portion of the eastern study area. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	100	Y	FACW
2. Panicum dichotomiflorum	3	N	FACW
3. Setaria faberi	2	N	FACU
4. Ambrosia trifida	2	N	FAC
5. Verbena hastata	2	N	FACW
6.			
7.			
8.			
9.			
10.			
	109.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	2	x 3 =	6
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	109 (A)		224.00 (B)

Prevalence Index = B/A = 2.06

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.

Hydrophytic Vegetation Present? **Yes ✓ No ____**

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

Ruderal wet meadow dominated by RCG.

SOIL

Sampling Point: P05

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	97	10YR 3/4	3	C	M	MMI	Mucky SiL
9-20	N 2.5/0	70					MUCK	Peaty muck
	10YR 2/2	30					MUCK	
20-24	10YR 2/2	60					PEAT	Mucky peat
	N 2.5/0	40					PEAT	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ✓ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Mucky SIL at surface, remainder of soils are organic.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ✓ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ 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): 12

Wetland Hydrology Present? Yes ✓ No ___

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

This location was unfarmed or otherwise featured wetland hydrology signatures in 92% of normal precipitation years reviewed during the OSA.

Remarks:

Other indicator: this area consistently avoided by farmer, not farmed in most of the NAIP/FSA images reviewed, occasionally appears mowed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P06

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.806493 Long: -90.765858 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Sample point recorded along the average extent of wetland hydrology indicators observed during the OSA. Agricultural field planted with corn, not normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Panicum dichotomiflorum	50	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		100.00 (B)

Prevalence Index = B/A = 2.0

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

This area does not appear to have been treated with herbicides this season, ample volunteer Panicum dichotomiflorum present.

SOIL

Sampling Point: P06

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					SICL	
8-16	10YR 2/1	97	10YR 5/6	3	C	M/PL	SICL	
16-20	N 2.5/0	100					MUCK	Buried muck
20-24	2.5Y 5/1	97	2.5Y 5/6	3	C	M	C	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 20

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:

Sample point recorded on the edge of signature area. Signature area not farmed or otherwise featured wetland hydrology signatures in 92% of normal precipitation years.

Remarks:

Potential algal matting present, difficult to differentiate from manure spreading. Crop has been harvested but there appears to have been stress/drown out based on remaining stubble.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P07

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.806703 Long: -90.765527 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

Sample point recorded within a recently harvested agricultural field that was planted with corn this season, not normal circumstances. Sample point recorded beyond the average extent of hydrology indicators observed during the OSA. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Panicum dichotomiflorum	3	Y	FACW
2. Portulaca oleracea	3	Y	FACU
3. Setaria faberi	1	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	7.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 3	x 2 = 6
FAC species 0	x 3 = 0
FACU species 4	x 4 = 16
UPL species 0	x 5 = 0
Column Totals: 7 (A)	22.00 (B)

Prevalence Index = B/A = 3.14

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.

Hydrophytic Vegetation Present? Yes ____ No ✓

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

SOIL

Sampling Point: P07

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	7.5YR 2.5/1	100					SIL	
13-18	2.5Y 5/2	92	2.5Y 5/6	8	C	M	C	
18-24	2.5Y 5/2	97	2.5Y 5/6	3	C	M	C	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 24

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 22

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

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

Sample point recorded beyond the extent of wetland hydrology signatures observed in normal years.

Remarks:

No crop stress apparent based on remaining stubble.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P08

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Sidelsope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.809431 Long: -90.765659 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: None (WWI)

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 Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

Sample point recorded within a recently harvested agricultural field that was planted with corn this year, not normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Panicum dichotomiflorum	3	Y	FACW
2. Setaria faberi	2	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	5 (A)		14.00 (B)

Prevalence Index = B/A = 2.8

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

SOIL

Sampling Point: P08

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					SIL	
16-24	10YR 4/2	90	10YR 3/4	10	C	M/PL	SICL	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

No hydric soil indicators 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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ 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): 23

Wetland Hydrology Present? Yes _____ No ✓

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

Sample point is beyond the average extent of wetland hydrology indicators observed in normal years during the OSA.

Remarks:

No crop stress / drown out apparent based on corn stubble.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P09

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.810008 Long: -90.765374 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: None (WWI)

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 Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Sample point recorded within unfarmed wetland area, ruderal wet meadow vegetation present. Evaluated as normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	100	Y	FACW
2. Verbena hastata	5	N	FACW
3. Leersia oryzoides	5	N	OBL
4. Typha angustifolia	3	N	OBL
5. Scirpus cyperinus	2	N	OBL
6.			
7.			
8.			
9.			
10.			
	115.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		220.00 (B)

Prevalence Index = B/A = 1.91

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.

Hydrophytic Vegetation Present? **Yes ✓ No ____**

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

Ruderal wet meadow vegetation present.

SOIL

Sampling Point: P09

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/2	95	10YR 4/6	5	C	M/PL	SICL	
9-16	N 2.5/0	100					MUCK	Buried muck
16-24	N 2.5/0	60					MUCK	Peaty muck
	7.5YR 2.5/2	40					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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Depleted matrix at surface over buried muck.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ 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): 12

Wetland Hydrology Present? Yes ✓ No ___

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

This portion of the field was either unfarmed or featured wetland hydrology signatures in 100% of the normal precipitation years reviewed during the OSA. C9 and D1 indicators observed during OSA.

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P10

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.810087 Long: -90.764551 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: None (WWI)

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 Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Sample point recorded within shallow marsh / wet meadow portion of the large wetland complex that juts out into ag field. Evaluated as normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Leersia oryzoides	90	Y	OBL
2. Phalaris arundinacea	10	N	FACW
3. Typha angustifolia	5	N	OBL
4. Solidago gigantea	3	N	FACW
5. Verbena hastata	3	N	FACW
6. Urtica dioica	2	N	FACW
7.			
8.			
9.			
10.			
	113.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	95	x 1 =	95
FACW species	18	x 2 =	36
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	113 (A)		131.00 (B)

Prevalence Index = B/A = 1.16

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.

Hydrophytic Vegetation Present? **Yes ✓ No ____**

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

Wet meadow / shallow marsh vegetation present.

SOIL

Sampling Point: P10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	93	10YR 3/6	7	C	M	SICL	
10-26	N 2.5/0	70					MUCK	Peaty muck
	7.5YR 2.5/3	30					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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Mineral soils over organic material.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 12

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:

This portion of the field was either unfarmed or featured wetland hydrology signatures in 100% of the normal precipitation years reviewed during the OSA. C9 and D1 indicators observed during OSA.

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P11

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.811121 Long: -90.763800 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: None (WWI)

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 Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Sample point recorded within a recently harvested agricultural field that was planted with corn this year. Not normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Setaria pumila	2	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	2.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	2 (A)		6.00 (B)

Prevalence Index = B/A = 3.0

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.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

Very little veg present due to late growing season, ag land use, herbicide use.

SOIL

Sampling Point: P11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					SIL	
11-17	10YR 3/2	70	10YR 4/6	5	C	M	SIL	SiL w/ 5/4 sandy material intermixed
	10YR 5/4	25					SIL	
17-24	2.5Y 5/3	97	2.5Y 5/6	3	C	M	SICL	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

No hydric soil indicators 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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 24

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 22

Wetland Hydrology Present? Yes _____ No ✓

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

Sample point recorded beyond the average extent of wetland hydrology signatures observed during the OSA.

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P12

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.811264 Long: -90.764239 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: None (WWI)

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 Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Sample point recorded within ruderal wet meadow vegetation present at the toe of slope of the ag field. Evaluated as normal circumstances. Stunted/stressed corn present along ag field edge to the east. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	100	Y	FACW
2. Scirpus cyperinus	8	N	OBL
3. Solidago gigantea	3	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	111.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 8	x 1 = 8
FACW species 103	x 2 = 206
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 0	x 5 = 0
Column Totals: 111 (A)	214.00 (B)

Prevalence Index = B/A = 1.93

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.

Hydrophytic Vegetation Present? **Yes ✓ No ____**

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

Ruderal wet meadow dominated by RCG.

SOIL

Sampling Point: P12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	92	10YR 5/6	8	C	M	SICL	
16-24	10YR 5/2	90	10YR 5/6	10	C	M/PL	SICL	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Depleted matrix present throughout profile.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ 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): 16

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

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

This portion of the field was either unfarmed or featured wetland hydrology signatures in 100% of the normal precipitation years reviewed during the OSA. C9 and D1 indicators observed during OSA.

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P13

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): None

Slope (%): 3-7 Lat: 43.811892 Long: -90.762813 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

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 Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:

Sample point recorded on a gentle sideslope within a recently harvested agricultural field that was planted with corn this season. Not normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Panicum dichotomiflorum	5	Y	FACW
2. Taraxacum officinale	2	Y	FACU
3. Setaria faberi	1	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	8.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	8 (A)		22.00 (B)

Prevalence Index = B/A = 2.75

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

No crop stress/drown out occurred this year based on remaining corn stubble.

SOIL

Sampling Point: P13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 2.5/1	100					SIL	
14-17	10YR 3/1	97	10YR 5/6	3	C	M	SICL	
17-24	10YR 4/1	97	10YR 3/6	3	C	M	SC	

[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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 20

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:

Sample point recorded beyond the average extent of wetland hydrology signatures observed during the OSA.

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P14

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Toe Of Slope Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.812377 Long: -90.762458 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: None (WWI)

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 Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Sample point recorded within an RCG dominated wet meadow that is present along the northern edge of the agricultural field. Evaluated as normal circumstances. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	100	Y	FACW
2. Carex trichocarpa	10	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	110.0 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		210.00 (B)

Prevalence Index = B/A = 1.91

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.

Hydrophytic Vegetation Present? **Yes ✓ No ____**

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

Ruderal wet meadow present along ag field edge.

SOIL

Sampling Point: P14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Organic soils present throughout profile.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 8

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P15

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Undulating

Slope (%): 0-2 Lat: 43.812797 Long: -90.763153 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: T3K (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Sample point recorded within a forested wetland present in the northwestern portion of the Study Area. Generally level, but gently undulating, evidence of groundwater seepage present. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	10	Y	FAC
2. Acer negundo	10	Y	FAC
3.			
4.			
5.			
	20.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Salix bebbiana	10	Y	FACW
2. Rhamnus cathartica	10	Y	FAC
3.			
4.			
5.			
	20.0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Glyceria grandis	50	Y	OBL
2. Angelica atropurpurea	30	Y	OBL
3. Eutrochium maculatum	15	N	OBL
4. Phalaris arundinacea	10	N	FACW
5. Carex retrorsa	10	N	OBL
6. Rudbeckia laciniata	5	N	FACW
7. Persicaria arifolia	5	N	OBL
8. Calamagrostis canadensis	5	N	OBL
9. Pilea pumila	5	N	FACW
10. Bidens frondosa	3	N	FACW
	138.0	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	33	x 2 =	66
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	178 (A)		271.00 (B)

Prevalence Index = B/A = 1.52

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Sparsely wooded wet/sedge meadow/swamp.

SOIL

Sampling Point: P15

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	N	2.5/0	100					MUCK	
12-24	N	2.5/0	50					MUCK	Peaty muck
	7.5YR	2.5/3	50					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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Organic soils present throughout soil profile.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P16

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Undulating

Slope (%): 0-2 Lat: 43.812300 Long: -90.765178 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: T3K (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Sample point recorded within a forested wetland present in the northwestern portion of the Study Area. Generally level, but gently undulating, evidence of groundwater seepage present. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	10	Y	FACW
2. Acer negundo	10	Y	FAC
3.			
4.			
5.			
	20.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Salix bebbiana	10	Y	FACW
2. Salix amygdaloides	10	Y	FACW
3. Sambucus nigra	5	Y	FAC
4.			
5.			
	25.0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Carex trichocarpa	50	Y	OBL
2. Impatiens capensis	20	Y	FACW
3. Phalaris arundinacea	20	Y	FACW
4. Persicaria arifolia	10	N	OBL
5. Angelica atropurpurea	10	N	OBL
6. Eutrochium maculatum	10	N	OBL
7. Solidago gigantea	5	N	FACW
8. Pilea pumila	5	N	FACW
9. Lycopus americanus	5	N	OBL
10.			
	135.0	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	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: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	80	x 2 =	160
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	180 (A)		290.00 (B)

Prevalence Index = B/A = 1.61

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Sparsely wooded sedge meadow. Lots of dead box elder.

SOIL

Sampling Point: P16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	N 2.5/0	100					MUCK	
12-24	N 2.5/0	50					MUCK	Peaty muck
	7.5YR 2.5/3	50					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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Organic soils present throughout profile.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 6

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: LLR Mitigation Site Addition City/County: Monroe County Sampling Date: 2024-10-05

Applicant/Owner: KCI Technologies State: Wisconsin Sampling Point: P17

Investigator(s): Scott Fuchs Section, Township, Range: sec 05 T015N R003W

Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Undulating

Slope (%): 0-2 Lat: 43.811430 Long: -90.765162 Datum: WGS84

Soil Map Unit Name: Palms and Houghton mucks, 0 to 1 percent slopes NWI classification: T3K (WWI)

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 Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Shrub carr portions of sparsely wooded wetland area beyond ag field. Sample point recorded within a groundwater seep that feeds a small spring. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	10	Y	FAC
2. Prunus serotina	10	Y	FACU
3.			
4.			
5.			
	20.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Alnus incana	30	Y	FACW
2. Sambucus nigra	10	Y	FAC
3.			
4.			
5.			
	40.0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Glyceria grandis	50	Y	OBL
2. Pilea pumila	30	Y	FACW
3. Impatiens capensis	30	Y	FACW
4. Rudbeckia laciniata	10	N	FACW
5. Glechoma hederacea	10	N	FACU
6. Myosoton aquaticum	10	N	FACW
7. Angelica atropurpurea	5	N	OBL
8. Cryptotaenia canadensis	5	N	FAC
9. Amphicarpaea bracteata	5	N	FAC
10. Solanum dulcamara	5	N	FAC
	163.0	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.71 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	113	x 2 =	226
FAC species	35	x 3 =	105
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	223 (A)		466.00 (B)

Prevalence Index = B/A = 2.09

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.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Shrub carr vegetation present.

SOIL

Sampling Point: P17

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	N	2.5/0	100					MUCK	
16-24	N	2.5/0	70					MUCK	Peaty muck
	7.5YR	2.5/3	30					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)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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:

Organic soils present throughout soil profile.

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)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

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

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

Remarks:

Groundwater seepage conspicuous.

Appendix D | Site Photographs

Photo #1 Sample point P01

Photo #2 Sample point P01

Photo #3 Sample point P01

Photo Missing

Photo #4 Sample point P01

Photo #5 Sample point P02

Photo #6 Sample point P02

Photo #7 Sample point P02

Photo #8 Sample point P02

Photo #9 Sample point P03

Photo #10 Sample point P03

Photo #11 Sample point P03

Photo #12 Sample point P03

Photo #13 Sample point P04

Photo #14 Sample point P04

Photo #15 Sample point P04

Photo #16 Sample point P04

Photo #17 Sample point P05

Photo #18 Sample point P05

Photo #19 Sample point P05

Photo #20 Sample point P05

Photo #21 Sample point P06

Photo #22 Sample point P06

Photo #23 Sample point P06

Photo #24 Sample point P06

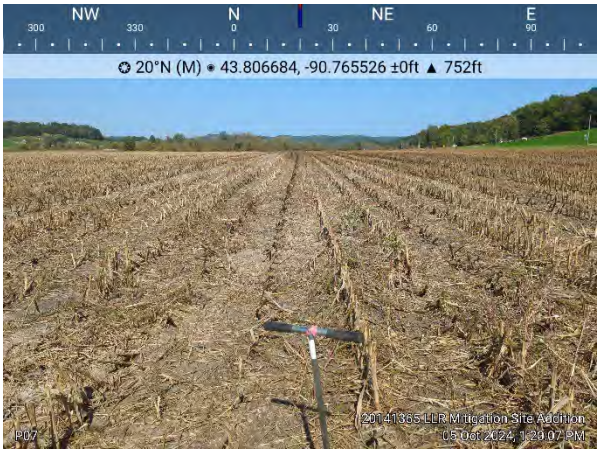


Photo #25 Sample point P07

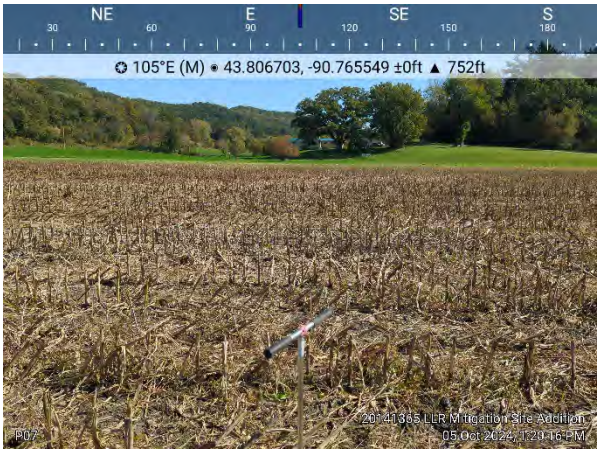


Photo #26 Sample point P07

Photo #27 Sample point P07

Photo #28 Sample point P07

Photo #29 Sample point P08

Photo #30 Sample point P08

Photo #31 Sample point P08

Photo #32 Sample point P08

Photo #33 Sample point P09

Photo #34 Sample point P09

Photo #35 Sample point P09

Photo #36 Sample point P09

Photo #37 Sample point P10

Photo #38 Sample point P10

Photo #39 Sample point P10

Photo #40 Sample point P10

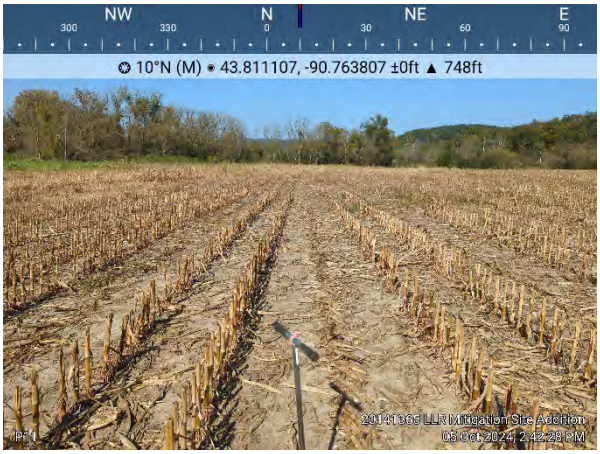


Photo #41 Sample point P11

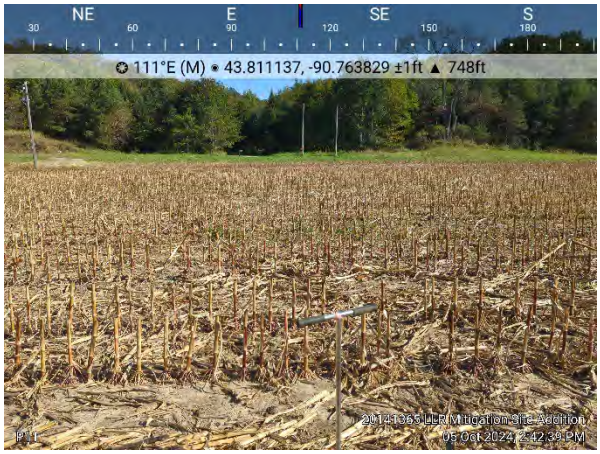


Photo #42 Sample point P11

Photo #43 Sample point P11

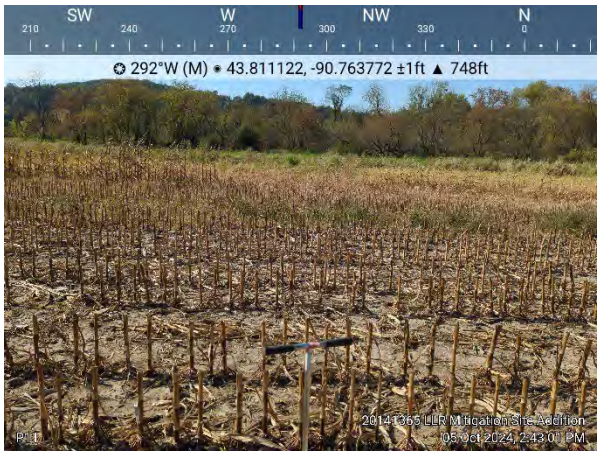


Photo #44 Sample point P11

Photo #45 Sample point P12

Photo #46 Sample point P12

Photo #47 Sample point P12

Photo #48 Sample point P12

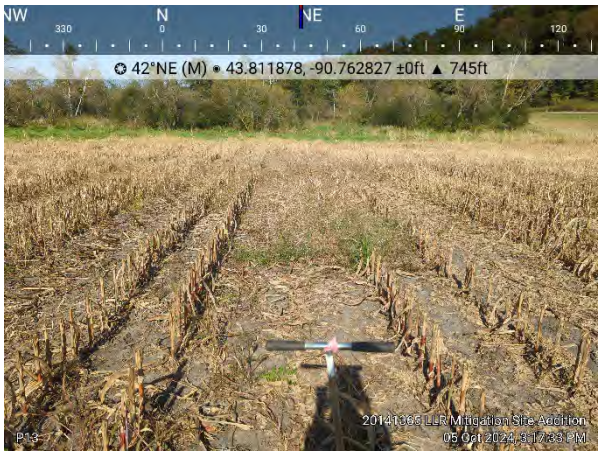


Photo #49 Sample point P13

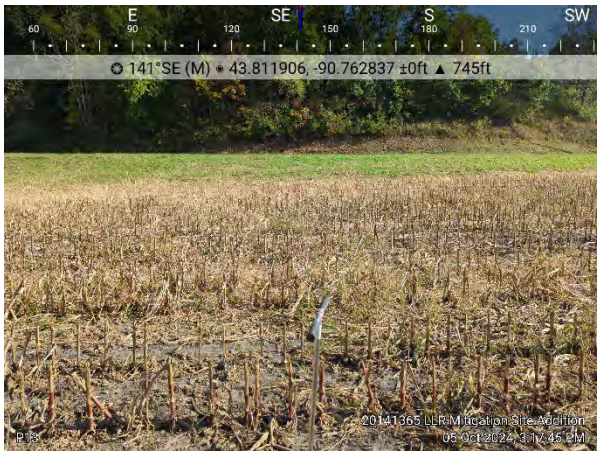


Photo #50 Sample point P13

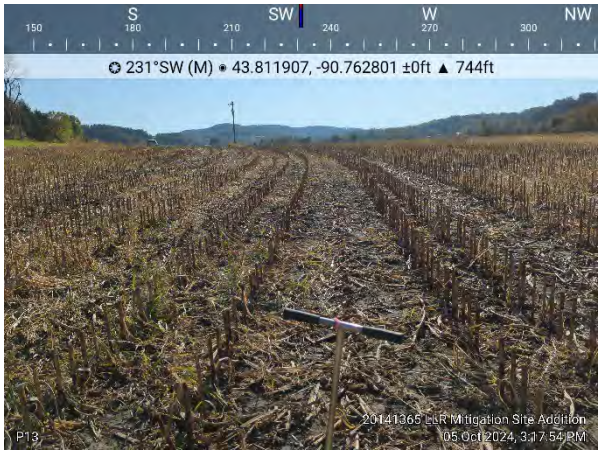


Photo #51 Sample point P13

Photo #52 Sample point P13

Photo #53 Sample point P14

Photo #54 Sample point P14

Photo #55 Sample point P14

Photo #56 Sample point P14

Photo #57 Sample point P15

Photo #58 Sample point P15

Photo #59 Sample point P15

Photo #60 Sample point P15

Photo #61 Sample point P16

Photo #62 Sample point P16

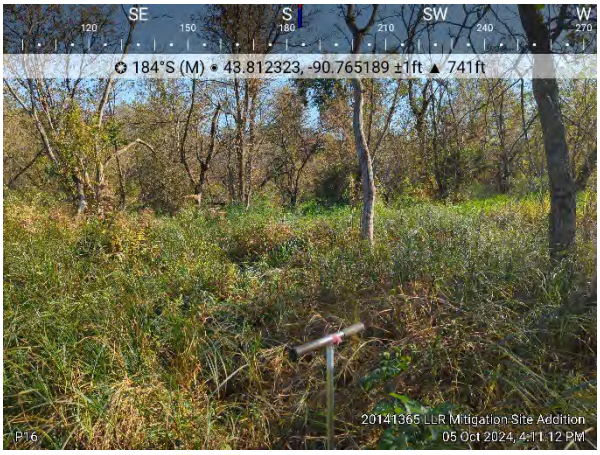


Photo #63 Sample point P16

Photo #64 Sample point P16

Photo #65 Sample point P17

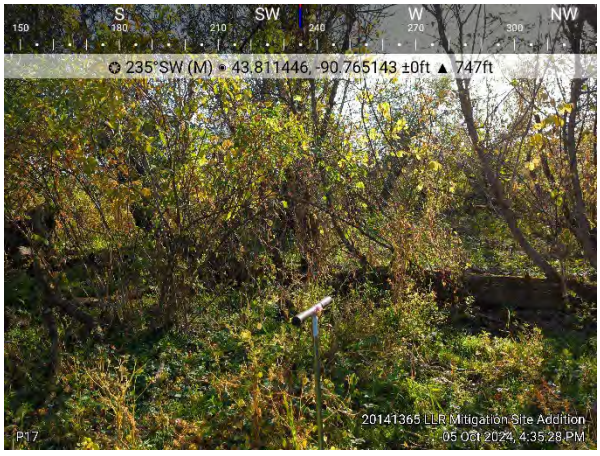


Photo #66 Sample point P17

Photo #67 Sample point P17

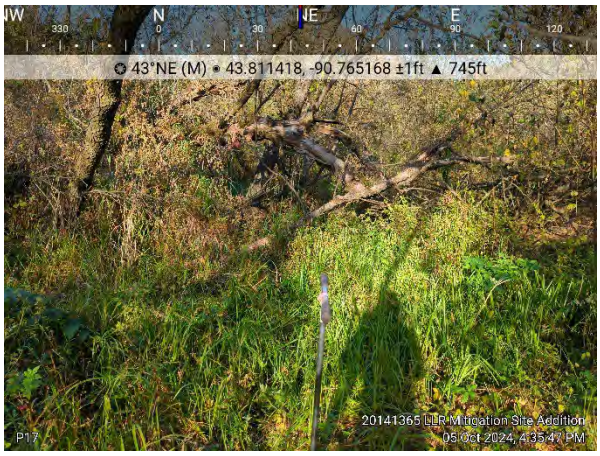


Photo #68 Sample point P17

Photo #69 Waterway WW-1

Photo #70 Waterway WW-1

Photo #71 Waterway WW-1

Photo #72 WW-1 Drift deposits within ditch

Photo #73 WW-1 Drift deposits within ditch

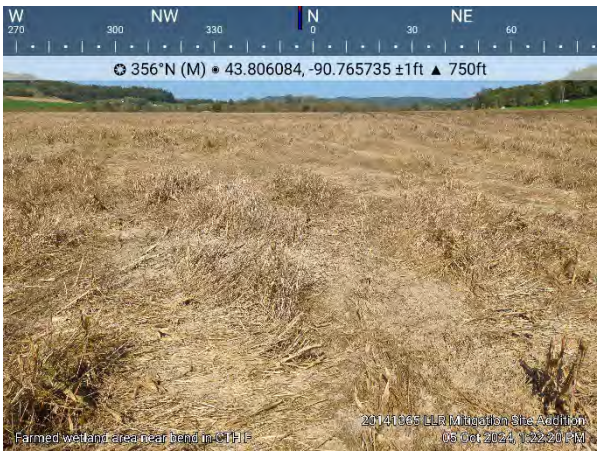


Photo #74 Farmed wetland area near bend in CTH F

Photo #75 Farmed wetland area near bend in CTH F

Photo #76 Farmed wetland area near bend in CTH F

Photo #77 Waterway WW-2

Photo #78 Waterway WW-2

Photo #79 Waterway WW-2

Photo #80 Waterway WW-2 at N study area boundary

Photo #81 Waterway WW-3 at N study area boundary

Photo #82 Waterway WW-3 at N study area boundary

Photo #83 Waterway WW-3

Photo #84 Waterway WW-3

Photo #85 Waterway WW-3

Photo #86 Waterway WW-4

Photo #87 Waterway WW-4

Photo #88 Waterway WW-4

Photo #89 Waterway WW-4

Photo #90 Waterway WW-4

Photo #91 Waterway WW-4

Photo #92 Waterway WW-5

Photo #93 Waterway WW-5

Photo #94 Waterway WW-5

Appendix E | Delineator Qualifications

Scott Fuchs

Environmental Scientist

506 Springdale Street, Mount Horeb, WI 53572
scott@heartlandecological.com
(608) 490-2450, ext. 4

Heartland ECOLOGICAL GROUP INC

Scott is a WDNR-assured wetland delineator and environmental scientist with expertise in wetland assessment and delineation, native plant communities of Wisconsin, botany, geographic information systems (GIS), and state/federal wetland regulations and permitting. Scott has been involved in the field of ecological conservation and restoration for over eight years working as a wetland delineator, environmental consultant, field restoration ecologist and crew leader, ecology research assistant, and GIS administrator. Since joining Heartland, Scott has completed tens of wetland delineations throughout Wisconsin, prepared wetland and waterway permit applications and obtained approval from the DNR and USACE, and performed vegetation and hydrology monitoring for wetland mitigation projects. Scott also provides technical support by assisting with natural area restoration planning, monitoring and management, developing GIS-based project mapping, collecting and interpreting historic aerial imagery, and performing analysis of GIS data sets. Scott implemented Heartland's current GIS workflow, which utilizes ArcGIS Pro, ArcGIS Online, sub-foot EOS Arrow GNSS receivers, and tablet devices to accurately record and view environmental data in the field. Scott achieved his professionally assured wetland delineator certification from the DNR in February 2022.

His experience includes: wetland determination and delineation, long-term vegetation and wildlife monitoring and reporting, collecting and processing monitoring well hydrology data, wetland mitigation bank viability analysis and planning, preparing state artificial and non-federal wetland exemption requests, preparing wetland and waterway permit applications, writing wetland delineation reports, rare species surveys, invasive species control, conducting prescribed burns, and invasive herbaceous, shrub, and tree removal.

Education

BS, Biology (emphasis in Ecology), University of Wisconsin - Whitewater, Whitewater, WI, 2015

Certifications and Licensing

Professionally Assured Wetland Delineator, Wisconsin Department of Natural Resources, 2022 - present

Wildlife Fire Fighter Type 2, National Wildlife Coordinating Group, Incident Management Specialists, LLC, Madison, WI, 2017

Level One Chainsaw Safety Training, Forest Industry Safety & Training Alliance, Eau Claire, WI, 2016

Certified Pesticide Applicator (Category 6), Wisconsin Department of Trade and Consumer Protection, Madison, WI, 2016

Professional Development

Critical Methods in Wetland Delineation, Continuing Education and Extension, University of Wisconsin – La Crosse, WI, 2019 - 2023

Sedges: Identification and Ecology, University of Wisconsin – Milwaukee, Field Station Workshop, Cedarburg, WI, 2022

Advanced Wetland Delineation Training, Continuing Education and Extension, University of Wisconsin – La Crosse, La Crosse, WI, 2019

Basic Wetland Delineation Training, Continuing Education and Extension, University of Wisconsin – La Crosse, La Crosse, WI, 2019

Project Experience

Energy Sector

Madison Gas and Electric, Morey Solar Field Wetland Delineation and Restoration, Dane County, WI, 2021

Assisted in the delineation of wetlands present on a 104-acre airport property, which was a proposed site for a solar field on the west side of Madison, WI. Following construction of the solar field, assisted in creating a native species planting and management plan.

SCS Engineers, Mallard Ridge and Glacier Ridge Landfill Pipelines, Walworth and Dodge Counties, WI, 2018

Performed wetland delineation along separate 1.5-mile and 3.6-mile corridors passing through savanna, upland prairie, wet prairie, hardwood swamps, agricultural fields, stream crossings, and highway right-of-way. Wetland delineation was necessary for construction of methane pipelines linking to nearby regional pipelines.

Private Sector

KSW Construction Corporation, Pink Elephant Renovation, Dane County, WI, 2023

Performed a wetland delineation, prepared an application for and obtained a general wetland disturbance permit from the WDNR for wetland impacts associated with the modernization and expansion of an existing gas station. Assisted in obtaining local project approval through annexation into the neighboring Village.

Capital Growth Buchalter, Inc., Readstown Dollar General, Vernon County, WI, 2023

Performed a wetland delineation and obtained a general wetland disturbance permit from the WDNR for construction of a Dollar General located near Readstown, WI

Harmony Valley Real Estate, Harmony Valley Farm, Vernon County, WI, 2022

Performed a wetland delineation within a 161-acre property containing organic vegetable farms fields, the Bad Axe River floodplain, old fields, woodlands, and coulees within Wisconsin's picturesque driftless area.

Nuemann Developments, Port Washington Road Subdivision, Ozaukee County, WI

Performed a wetland determination and delineation within a 50-acre agricultural field. Compiled historic information to support an approved WI Act 183 artificial wetland exemption for wetlands located on site.

1520 LLC, Port Washington Road Commercial Development, Ozaukee County, WI, 2018

Performed a wetland determination and delineation within a highly disturbed 3-acre parcel containing clayey soils that was subsequently confirmed by WI DNR wetland regulatory staff. Compiled historic information to support an approved WI Act 183 artificial wetland exemption for wetlands located on site.

TPC Wisconsin (Formerly Cherokee Country Club), TPC Wisconsin Golf Course Improvements, Dane County, WI, 2020

Performed a wetland delineation throughout the 153-acre golf course. Assisted senior Heartland staff in preparing and obtaining an individual permit application for wetland and waterway disturbance associated with course improvements. Assisted the Heartland team in planning ecological restoration of the course's 36 acres of wetland. Prepared GIS tools to guide ecological restoration crews in the field.

KL Engineering / Dane County Parks, Phase 2 Lower Yahara River Trail, Dane County, WI

Assisted senior Heartland staff in performing a wetland delineation along an unimproved recreational trail on the northern shore of Lake Kegonsa. Supported KL Engineering in their design of a boardwalk built on the footprint of the unimproved trail by recommending efforts to reduce impacts to wetlands. Drafted an individual wetland disturbance permit application for temporary and minor permanent impacts involved with the project. Facilitated the purchase of mitigation credits required by the permit approval to offset wetland impacts.

D'Onofrio, Kottke & Associates, Creek Crossing Development, Dane County, WI, 2021

Assisted residential developer and engineering firm by writing an application for, and obtaining, an individual permit needed for road crossings, culvert placement, and pedestrian bridge associated with a 32-acre residential development.

Epic, Epic Campus Expansion, Dane County, WI

Assisted in writing application materials for, and obtaining and individual permit for impacts to wetlands associated with an expansion of the Epic campus. Developed practicable alternatives analysis to minimize wetland impacts to the greatest extent practicable.

Bear Development, Barnes Prairie Mitigation Bank Site, Kenosha County, WI, 2018

Performed collection and processing of data from 46 hydrology monitoring wells located throughout a 230-acre agricultural field. Analyzed data to determine if wetland hydrology was present in the location of the sampling wells. Produced graphical representations of precipitation and ground water level data.

Spartan Land Investments, Kreyer Creek Compensatory Wetland Mitigation Bank Site, Monroe County, WI, 2019

Conducted quantitative vegetation monitoring of this 200+ acre compensatory wetland mitigation site. Vegetation monitoring was completed to assess progression of the site towards meeting regulatory performance standards.

Vegetation monitoring including sample plot surveys and timed meander surveys. The results were summarized to assess the various performance metrics including florist quality assessments and diversity, invasive and noninvasive species relative cover, and prevalence indices of hydrophytic vegetation.

The vegetation data and results were incorporate into the annual monitoring report required by the U.S. Army Corps of Engineers and Interagency Review Team.

Nantucket Conservation Foundation, Head of the Plains, Nantucket County, MA

Conducted vegetation monitoring, small mammal live-trapping, and insect pitfall trapping to collect data that is being used in a longitudinal study exploring the viability of different ecological management and restoration techniques in sandplain grassland habitat, a globally rare ecological community.

Installed acoustic bat monitoring devices and regularly downloaded the recorded data to determine the presence of different bat species. Assisted in mist-netting and radio telemetry tracking of federally threatened northern long-eared bats. Performed emergence counts of bat roosting locations discovered via radio telemetry tracking.

Nantucket Conservation Foundation, Coatue, Nantucket County, MA

Conducted vegetation monitoring for a graduate level study investigating the effects of cormorant nesting on plant communities in remote sand dune/shoal habitats.

Nantucket Conservation Foundation, Head of the Plains, Sanford Farm / Ram Pasture, Madequecham Valley, Nantucket County, MA

Performed cut-and-treat management of invasive Phragmites in salt marsh habitats.

Black Bear Enterprises, Big Hollow Compensatory Wetland Mitigation Bank, Sauk County, WI, 2019

Assisted with the development of a Compensation Site Plan (CSP) for a nearly 200-acre compensatory wetland mitigation bank site as part of the Mitigation Banking Instrument (MBI). Completed various technical components of the CSP including assessment of the overall site characteristics and history, vegetation restoration plan, development of regulatory performance standards, and monitoring and management plan.

Completed all site mapping and plans utilizing GIS.

Government Sector

Wisconsin Department of Natural Resources, Soik ILF Mitigation Site, Portage County, WI, 2019-present

Performed collection and processing of data from 14 monitoring wells present on a 60-acre ILF mitigation site. Performed analysis of hydrology data to determine if the site's wetland hydrology standard was met. Summarized results and created graphical representations of hydrology monitoring for end-of-year reporting to the WDNR and USACE.

Established quantitative vegetation monitoring plots and performed vegetation monitoring of a 60-acre wetland mitigation bank in Wisconsin's central sands region. Vegetation monitoring was completed to assess progression of the site towards meeting regulatory performance standards. Vegetation monitoring including sample plot surveys and timed meander surveys. The results were summarized to assess the various performance metrics across a variety of wetland vegetative community and compensation types.

Wisconsin Department of Natural Resources, Evansville ILF Mitigation Site, Rock County, WI, 2020-present

Performed baseline hydrology monitoring of a proposed wetland mitigation site to guide restoration activities. Performed analysis of historic aerial imagery to determine the location and extent of drain tile within the proposed mitigation site. Following ditch filling and tile breaking associated with the restoration project, performed monitoring and analysis of hydrology data collected from 12 on-site hydrology monitoring wells. Summarized results and created graphical representations of hydrology monitoring for end-of-year reporting to the WDNR and USACE.

Performed collection and processing of data from 9 hydrology monitoring wells within agricultural fields, disturbed wet meadow, and shrub-carr communities across a 40-acre site. Analyzed data to determine if wetland hydrology was present in the location of the sampling wells and to compile baseline information prior to wetland restoration work. Produced graphical representations of precipitation and ground water level data.

Transportation Sector

Lynch & Associates, South 76th Street Improvement, Milwaukee County, WI, 2023

Performed a wetland delineation along a 1.5-mile length of the South 76th Street right-of-way. Documented wetland communities in the field, created wetland delineation and community map figures, quantified wetland community impacts suitable for WisDOT mitigation purposes.

City of Verona/Epic/AECOM, U.S. Highway 18/151 Improvement, Dane County, WI, 2023

Performed rare species surveys for both state and federally listed threatened/endangered plant species along the right-of-way of USH 18/151, Dairy Ridge Road, and Country View Road adjacent to Epic's Verona campus. Performed wetland community and vegetative quality field assessments within wetlands adjacent to the Sugar River to support permitting efforts associated with the construction of a new access road to the Epic campus off of USH 18/151. Produced map figures and other GIS products to quantify proposed wetland impacts to different wetland communities. Provided wetland permitting support to the project engineer, AECOM.

Dane County Highway Department, County Highway A Improvement, Dane County, WI, 2022

Performed a wetland delineation along a 6.6-mile length of the County Highway A right-of-way between Oregon and Stoughton, WI.

Dane County Highway Department, County Highway J Improvement, Dane County, WI, 2022

Performed a wetland delineation along a 1.2-mile length of the County Highway J right-of-way near Pine Bluff, WI.

Appendix F | Off-Site Analysis

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Field data sheet reference (if applicable): _____

TABLE A1

Wetland Hydrology from Aerial Imagery - Recording Form*

Project Name: **LLR Mitigation Site Addition** *Date:* **10/3/2024** *County:* **Monroe**

Investigator: **Scott Fuchs** *Legal Description (T, R, S):* **T15N, R3W, S05-06**

Summary Table

Date Image Taken*	Image Source	Climate Condition (wet, dry, normal)	Image Interpretation(s) See Offsite Analysis Reference Image figure for outlines of Areas 1 and 2				
			Area: 1	Area: 2			
July 1993	FSA Slide	Wet	WS/SS/AP	AP/NC			
July 1994	FSA Slide	Normal	**WS/AP**	**Mowed?/AP/NC**			
Aug. 1995	FSA Slide	Dry	WS/AP/NC	WS/NC			
July 1996	FSA Slide	Dry	WS-	AP/NC			
July 1998	FSA Slide	Wet	DO	AP/NC			
July 1999	FSA Slide	Normal	**DO-**	**Mowed?/AP/NC**			
July 2000	FSA Slide	Normal	**CS/SS**	NV			
July 2001	FSA Slide	Wet	NC	WS/NC			
June 2002	FSA Slide	Normal	**CS/DO/SS**	**WS/NC**			
2004-07-08	NAIP	Wet	CS/DO/SS	NV			
2005-06-18	NAIP	Dry	NV/NSS	AP/NC			
2006-07-15	NAIP	Normal	**CS**	**WS**			
2008-07-09	NAIP	Wet	SS/WS-/NC	SS			
2010-08-27	NAIP	Normal	**CS/DO/SS**	**CS/SS**			
2013-08-13	NAIP	Normal	**DO/AP**	**WS-**			
2015-10-07	NAIP	Normal	**CS/DO**	**CS/WS**			
2017-07-04	NAIP	Normal	**SS**	**WS/SS**			
2018-09-09	NAIP	Normal	**CS**	**CS/WS**			
2020-09-05	NAIP	Normal	**WS/CS/DO**	**CS/WS**			
2022-08-31	NAIP	Normal	**WS/NC**	**AP/NC**			
Normal Climate Condition			**Area: 1**	**Area: 2**			
Number			12	12			
Number with wet signatures			12	11			
Percent with wet signatures			100%	92%			

Key		
WS - Wetland Signature	SS - Soil Wetness Signature	CS - Crop Stress
NC - Not Cropped	AP - Altered Pattern	NV - Normal Vegetative Cover
DO - Drowned Out	SW - Standing Water	NSS - No Soil Wetness Signature
Other labels or comments:	1996 and 1997 images were missing their month in the FSA catalog. July was chosen as default month for 1996 and 1997 due to the the majority of FSA photos being taken in July for the PLSS section.	

* Images that were taken after the 20th of their respective month were evaluated under the following month's table to account for otherwise missing preciitation data from the start of the month to the date the image was recorded.

• Use above key to label image interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in box above.

• If less than five (5) images taken during normal climate conditions are available, use an equal number of images taken during wet and dry climate conditions and use as many images as you have available. Describe the results using this methodology in your report.

* Source: http://www.bwsr.state.mn.us/wetlands/delineation/Guidance_for_Offsite_Hydrology_and_Wetland_Determinations.pdf

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Field data sheet reference (if applicable): _____

Wetland Determination from Aerial Imagery - Recording Form*

Project Name: **LLR Mitigation Site Addition** *Date:* **10/3/2024** *County:* **Monroe**

Investigator: **Scott Fuchs** *Legal Description (T, R, S):* **T15N, R3W, S05-06**

Use the decision matrix below to create Table A2

Hydric Soils Present?[1]	Identified on NWI or WWI?[2]	Percent with Wet Signatures from TABLE A1	Field Verification Required?[3]	Wetland?
Yes	Yes	>50%	No	**Yes**
Yes	Yes	30-50%	No	**Yes**
Yes	Yes	<30%	Yes	**Yes, if other hydrology indicators are present**
Yes	No	>50%	No	**Yes**
Yes	No	30-50%	Yes	**Yes, if other hydrology indicators are present**
Yes	No	<30%	No	**No**
No	Yes	>50%	No	**Yes**
No	Yes	30-50%	No	**Yes**
No	Yes	<30%	No	**No**
No	No	>50%	Yes	**Yes, if other hydrology indicators are present**
No	No	30-50%	Yes	**Yes, if other hydrology indicators are present**
No	No	<30%	No	**No**

[1] The presence of hydric soils can be determined from the "Hydric Rating by Map Unit Feature" under "Land Classifications" from the Web Soil Survey. "Not Hydric" is the only category considered to not have hydric soils. Field sampling for the presence/absence of hydric soil indicators can be used in lieu of the hydric rating if appropriately documented by providing completed field data sheets.

[2] At minimum, the most updated NWI data available for the area must be reviewed for this step. Any and all other local or regional wetland maps that are publically available should be reviewed.

[3] Area should be reviewed in the field for the presence/absence of wetland hydrology indicators per the applicable 87 Manual Regional Supplement, including the D2 indicator (geomorphic position).

TABLE A2

Area	Hydric Soils Present?[1]	Identified on NWI or WWI?	Percent with Wet Signatures from TABLE A1	Other Hydrology Indicators Present?[1]	Wetland?
1	Yes (Mapped) Yes (Field Verified)	No	100%	Yes	**Yes**
2	Yes (Mapped) Yes (Field Verified)	Yes (Partially)	92%	Yes	**Yes**

[1] Answer "N/A" if field verification is not required and was not conducted.

* Source: http://www.bwsr.state.mn.us/wetlands/delineation/Guidance_for_Offsite_Hydrology_and_Wetland_Determinations.pdf

June Analysis

Date	Monthly Rainfall in Inches [1]						Weighted Sum	Relative Wetness
	March	Weighted Precip	April	Weighted Precip	May	Weighted Precip		
June 2002	2.39	3	4.65	6	1.34	3	12	Normal
2005-06-20	1.66	2	2.15	2	1.97	3	7	Dry
30% chance less than**	1.23		2.44		3.24			
30 Year Average**	1.75		3.52		4.63			
30% chance more than**	2.09		4.19		5.50			

Sparta Weather Station
30-Year Precipitation Data (1993-2022) from NOAA Website
http://agacis.rcc-acis.org/

July Analysis

Date	Monthly Rainfall in Inches [1]						Weighted Sum	Relative Wetness
	April	Weighted Precip	May	Weighted Precip	June	Weighted Precip		
July 1993	3.11	2	6.76	6	9.59	9	17	Wet
July 1994	6.99	3	1.96	2	4.35	6	11	Normal
July 1996	2.22	1	1.58	2	6.29	6	9	Dry
July 1998	2.93	2	4.92	4	10.42	9	15	Wet
July 1999	4.84	3	6.44	6	2.21	3	12	Normal
July 2000	2.13	1	4.78	4	10.11	9	14	Normal
July 2001	4.08	2	5.67	6	7.42	9	17	Wet
2004-07-08	1.84	1	10.08	6	9.84	9	16	Wet
2006-07-15	5.62	3	6.62	6	1.10	3	12	Normal
2008-07-09	6.38	3	3.55	4	7.65	9	16	Wet
2017-07-04	3.88	2	5.29	4	6.36	6	12	Normal
30% chance less than**	2.44		3.24		3.91			
30 Year Average**	3.52		4.63		5.62			
30% chance more than**	4.19		5.50		6.68			

Sparta Weather Station
30-Year Precipitation Data (1993-2022) from NOAA Website
http://agacis.rcc-acis.org/

August Analysis

Date	Monthly Rainfall in Inches [1]						Weighted Sum	Relative Wetness
	May	Weighted Precip	June	Weighted Precip	July	Weighted Precip		
Aug. 1995	3.23	1	1.85	2	2.54	3	6	**Dry**
2013-08-13	9.25	3	6.06	4	1.30	3	10	**Normal**
30% chance less than**	3.24		3.91		2.67			
30 Year Average**	4.63		5.62		4.06			
30% chance more than**	5.50		6.68		4.87			

Sparta Weather Station
30-Year Precipitation Data (1993-2022) from NOAA Website
http://agacis.rcc-acis.org/

September Analysis

Date	Monthly Rainfall in Inches [1]						Weighted Sum	Relative Wetness
	June	Weighted Precip	July	Weighted Precip	August	Weighted Precip		
2010-08-27	5.79	2	8.29	6	4.31	6	14	**Normal**
2018-09-09	3.66	1	2.46	2	9.94	9	12	**Normal**
2020-09-05	6.69	3	3.00	4	3.39	6	13	**Normal**
2022-08-31	8.44	3	3.37	4	4.52	6	13	**Normal**
30% chance less than**	3.91		2.67		3.07			
30 Year Average**	5.62		4.06		4.52			
30% chance more than**	6.68		4.87		5.40			

Sparta Weather Station
30-Year Precipitation Data (1993-2022) from NOAA Website
http://agacis.rcc-acis.org/

October Analysis

Date	Monthly Rainfall in Inches [1]						Weighted Sum	Relative Wetness
	July	Weighted Precip	August	Weighted Precip	September	Weighted Precip		
2015-10-07	3.47	2	3.03	2	2.99	6	10	**Normal**
30% chance less than**	2.67		3.07		1.95			
30 Year Average**	4.06		4.52		3.41			
30% chance more than**	4.87		5.40		4.15			

Sparta Weather Station
30-Year Precipitation Data (1993-2022) from NOAA Website
http://agacis.rcc-acis.org/

Area 1

Area 2

Study Area (37.63 ac)

Offsite Analysis Signature Areas

0 200 Ft

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Appendix: 2015-10-07
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

20XX Sat. Imagery
Maxar
LRR: MW

Figure Created: 11/24/2024

July 1993: Wet

July 1994: Normal

August 1995: Dry

July 1996: Dry

July 1998: Wet

July 1999: Normal

July 2000: Normal

July 2001: Wet

June 2002: Normal

Study Area (37.63 ac)

0 200 Ft

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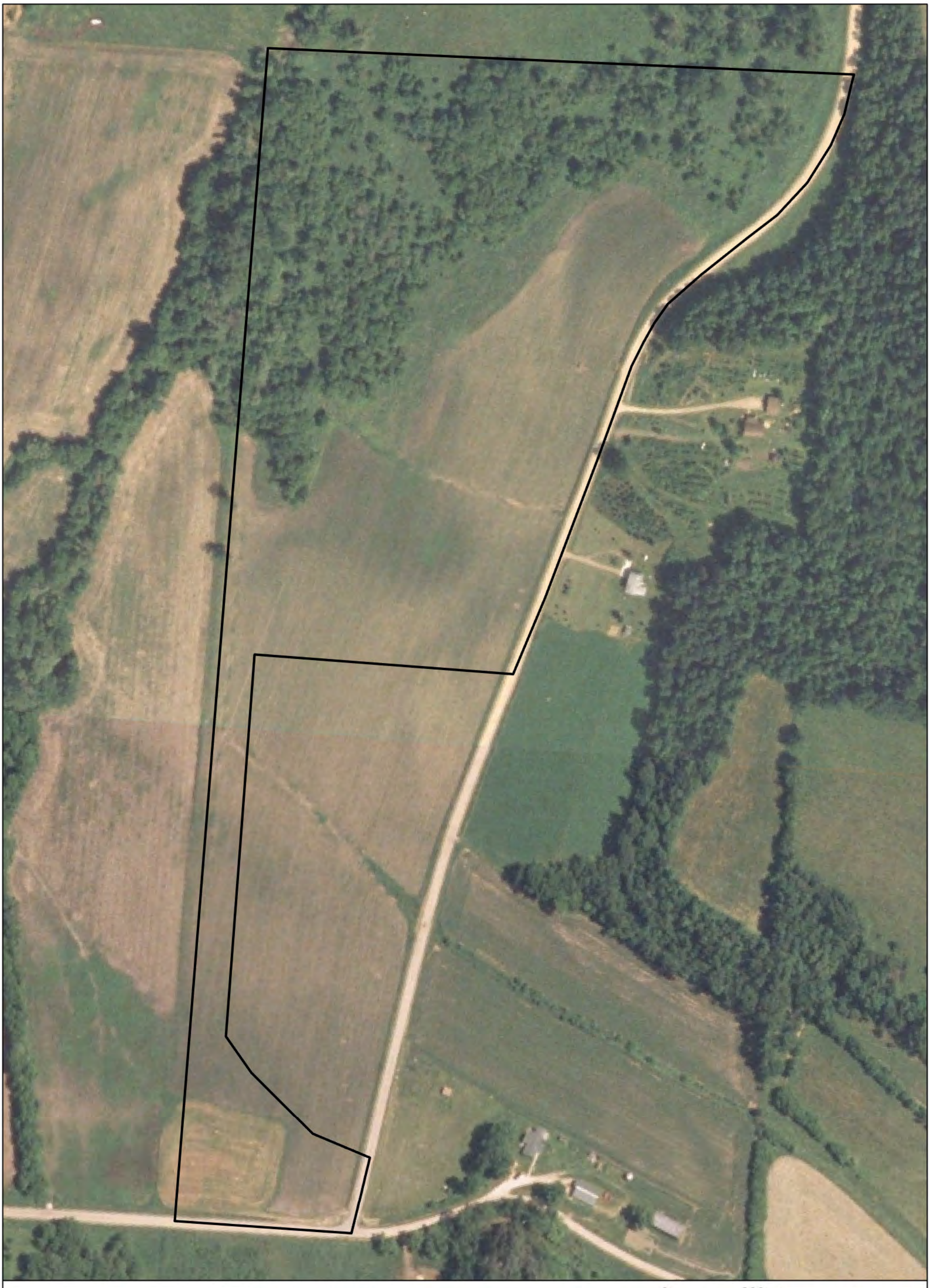
Appendix: 2004-07-08
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2004 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024



Study Area (37.63 ac)

0 200 Ft

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Appendix: 2005-06-18
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2005 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2006-07-15
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2006 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2008-07-09
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2008 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2010-08-27
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2010 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2013-08-13
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2013 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2015-10-07
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2015 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2017-07-04
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2017 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2018-09-09
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2018 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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Appendix: 2020-09-05
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2020 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Study Area (37.63 ac)

0 200 Ft

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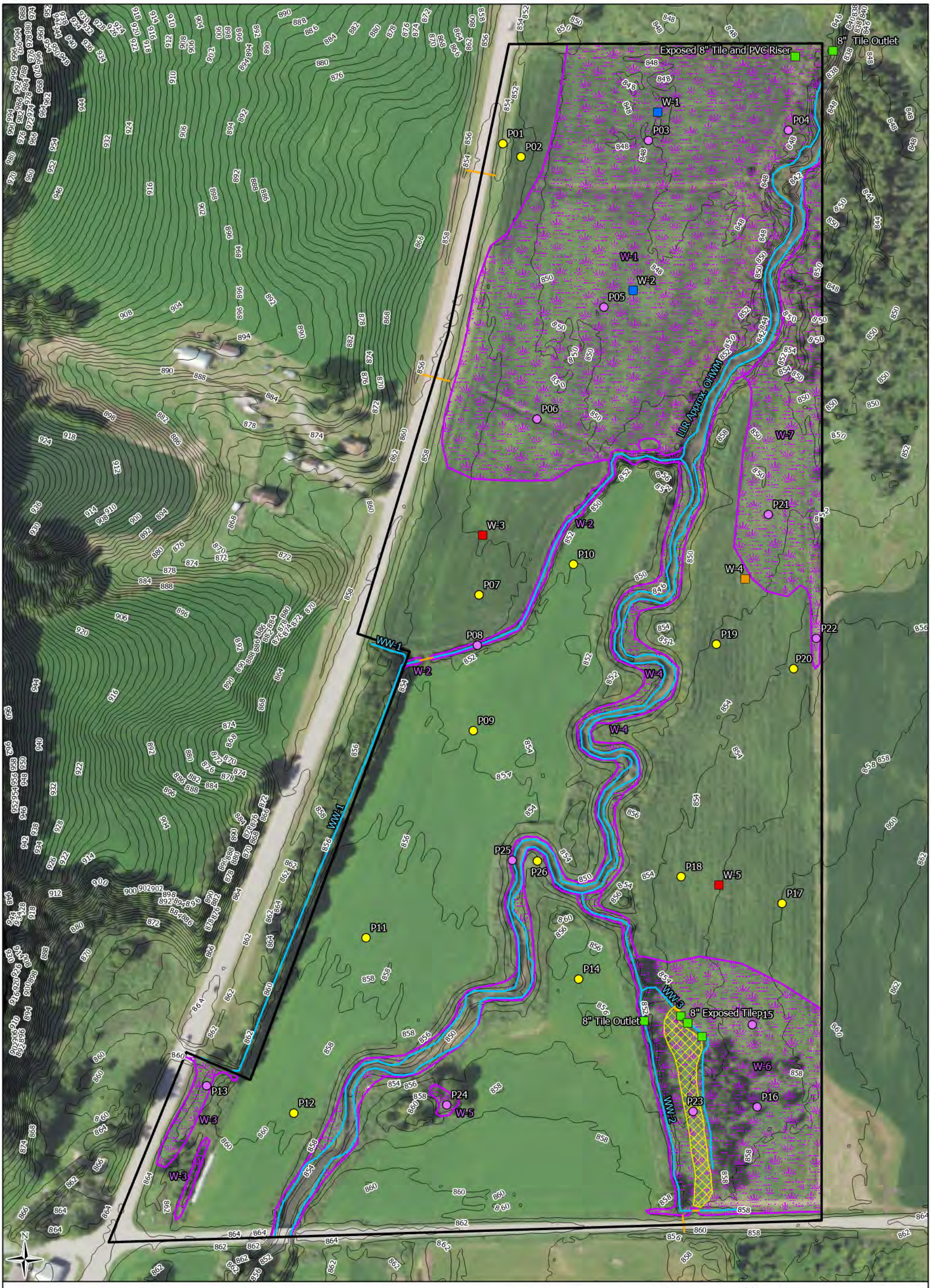
Appendix: 2022-08-31
NAIP Aerial Imagery

LLR Mitigation Site Add.
Project #20241365
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2022 NAIP
USDA
LRR: MW

Figure Created: 10/2/2024

Appendix G | Previous Wetland Mapping



- Study Area (64.75 ac)
- Monroe Co 2' Contours
- Culverts
- Waterways
- Drainage Features / Tile Outlets
- Field Delineated Wetlands (23.63 ac)
- Wetland Fill ca 2020/2021 (0.43 ac)

Sample Points

- Upland
- Wetland

Monitoring Well Locations (Sp 2023 Data)

- Met Wetland Hydrology
- Borderline Wetland Hydrology
- Did Not Meet Wetland Hydrology

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Figure 7. Field Delineated Wetlands

Little La Crosse River Mitigation
Project #20231006
T15N, R3W, S05 & 06
T Jefferson, Monroe Co

2022 NAIP
Monroe Co, HEG LRR: MW

Figure Created: 7/10/2023

KCI
ISO 9001:2015 CERTIFIED
ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
300 2nd St North, Suite 350 • La Crosse, WI 54601• Phone 608-790-9634

December 23, 2022

Received on 23 December 2022
Stevens Point Field Office

U.S. Army Corps of Engineers – Regulatory Branch
180 5th St. East
St. Paul, MN 55101
USACE_Requests_WI@usace.army.mil

Subject: Little La Crosse River Headwaters Site - Stream and Wetland Mitigation Bank Prospectus, Monroe County, Wisconsin

Dear USACE Project Manager:

KCI Technologies, Inc. is submitting the attached prospectus for your review in support of preliminary approval for the development of a mitigation bank at the Little La Crosse River Headwaters Restoration Site. The proposed mitigation bank will produce both stream and wetland mitigation credits for sale within the Upper Mississippi – Black Root Service Area (HUC-070400). The site is located in Monroe County within the La Crosse-Pine Rivers (HUC-07040006) watershed.

If you have any questions or concerns, please contact me at 608-790-9634 or Joe.Pfeiffer@kci.com.

Sincerely,

Joseph Pfeiffer, SPWS
Vice President

Little La Crosse River Headwaters Restoration Site Prospectus

1. **Owner and Agent.** *Identify the bank sponsor and any consultants or experts to be involved in design of the compensation site.*
   KCI Technologies Inc. (KCI) will be the sponsor of the compensation site. The site will be owned by KCI Environmental Technologies and Construction Inc. (ETC), a wholly owned subsidiary of KCI. A conservation easement will be placed on the property in perpetuity to be held by the Wisconsin Department of Natural Resources. KCI will be the project designer/engineer and will provide assessment, design, monitoring, and management services. ETC will provide construction services for the restoration of the site.

2. **Objectives.** *Describe the specific objectives(s) of the proposed mitigation bank or in lieu fee program.*
   The Little La Crosse River Headwaters Restoration Site (LRHRS) is composed of actively row cropped fields. Based on historical aerial photographs, this wetland system was substantially modified for agricultural production prior to the 1939 aerial obtained for the site. The 43.9-acre site consists of 32.89 acres of agricultural field, 9.13 acres of conserved land in a riparian buffer along the Little La Crosse River, and 1.88 acres of degraded shrub swamp wetlands. The site has been hydrologically modified through the re-direction of water, ditching, and installation of tile drains. The site contains two supporting tributaries to the Little La Crosse River, which bisects the site, that were ditched and straightened prior to 1939. The entire site is within the 100-year floodplain of the Little La Crosse River.

   The primary impacts to the site stem from anthropogenic modifications (ditched, tile-drained, and plowed) to enable agricultural production, denuding wetland function.

   Restoration objectives include:
   - Re-establish a functioning stream/wetland complex that complements the adjacent DNR owned fisheries conservation easement on the Little La Crosse River.
   - Increase functions of the existing wetlands on the site.
   - Provide water quality improvements for the contributing drainages.

   The site is situated within the 704000 (Upper Mississippi-Black Root) Watershed Cataloging Unit (6-digit HUC), more specifically 70400006 (La Crosse - Pine) (8-digit HUC) and the Western Coulees and Ridges Ecological Landscape.

   The Wisconsin Wetland Conservation Trust Comprehensive Planning Framework (CPF) identifies two goals/objectives for this HUC-8 (70400006); Restore and enhance Wooded Swamps (Hardwood or Coniferous), Floodplain Forests, Sedge Meadows and Fresh Wet Meadows and preserve Southern Sedge Meadow, Floodplain Forest, White Pine-Red Maple, Wet Prairie, Wet-Mesic Prairie, Southern Tamarack Swamp, Bog Relict, Northern Sedge Meadow, Ephemeral Pond, and Calcareous Fen.

   This project will address the goals of the CPF by;
   - Restoring a large expanse of Wooded Swamp, Shrub Carr wetland, and Sedge Meadow.
   - Restoring two tributaries to the Little La Crosse River to re-establish its hydrologic connectivity to the restored wetlands.
   - Replacing wetland types that have sustained the greatest estimated losses; Sedge Meadow (67%), Shallow Open Water (44%), Shrub Swamp (43%), and Hardwood Swamp (34%), in or adjacent to mapped potentially restorable wetland locations within the HUC-6 service area.

   The objectives and goals described above will be achieved through the disabling of all drain tile, removing ditching, restoring the planform, profile, and cross-section of two tributaries to the Little La Crosse River, re-establishing historic drainage patterns, re-establishing microtopography, and re-vegetating with native species to support the targeted ecological community types.

The successful achievement of the objectives will result in the re-establishment of 5.17 acres of shrub swamp; the re-habilitation of 4.92 acres of wooded swamp, 10.79 acres of shrub swamp, and 5.71 acres of sedge meadow; and the re-establishment of 7.12 acres of buffer, generating 23.33 wetland credits per the summary table below.

	Wetland			Wetland						Non-	Site	
Habitat	Re-establishment			Rehabilitation			Buffer			Wetland	Total	Total
	Acres	@ 1:1	Credits	Acres	@ .75:1	Credits	Acres	@ .25:1	Credits	Acres	Acres	Credits
Wetland	**5.17**	=	**5.17**	**21.42**	=	**16.38**	**0**	=	**0.00**	**0**	**26.59**	**21.55**
Wooded Swamp	0	=	0	4.92	=	3.69	0	=	0.00	0		
Shrub Carr	5.17	=	5.17	10.79	=	8.30	0	=	0.00	0		
Sedge Meadow	0	=	0	5.71	=	4.39	0	=	0.00	0		
Buffer	**0**	=	**0**	**0**	=	0.00	**7.12**	=	1.78	**10.19**	**17.31**	**1.78**
Mesic Forest	0	=	0	0	=	0.00	7.12	=	1.78	0		
LLR CE	0	=	0	0	=	0.00	0	=	0.00	9.13		
R/W	0	=	0	0	=	0.00	0	=	0.00	1.06		
Total	**5.17**	=	**5.17**	**21.42**	=	**16.38**	**7.12**	=	**1.78**	**10.19**	**43.9**	**23.33**

In addition, the project will result in the priority 1 restoration of 2,640 LF of two un-named tributaries to the Little La Crosse River yielding 1,095 functional feet of lift. (SQT project assessment worksheets attached).

Channel Identification	Stream Existing on site LF	Stream Proposed on site LF	Stream Functional Feet
Un-named Tributary - 1	**835**	**1,587**	**734**
Un-named Tributary - 2	**810**	**1,053**	**361**
Total	**1,645**	**2,640**	**1,095**

3. **Operation.** *How the mitigation bank or in-lieu fee program will be established and operated. Include a general description of anticipated design concept for wetland restoration, enhancement, or creation at the proposed compensation site.*

The LRHRS will be restored by returning the site to a sustainable condition, re-establishing the ecological function and value lost as a result of anthropomorphic activities over the past 100 years. The site shares its northern boundary with the La Crosse River Comprehensive Fishery Area (WIDNR owned) which will be used as a reference for establishing community types, species selection, and community transitions for the project. The site was cleared, ditched, drained, and filled to support its utilization for agriculture prior to 1939. Continued improvements to affect this conversion occurred through 1976. Restoration of the site will focus on returning it to its sustainable ecological condition, through the removal of tile drains, filling drainage ditches, removal of placed fill, priority 1 restoration of two un-named tributaries to the Little La Crosse River, removal of invasive species, and re-establishment of native, wetland vegetation.

Wetlands

Ninety eight percent of the site is underlain by hydric soils (Palms and Houghton mucks) with the remaining 2%, non-hydric soil (Orion Silt Loam) occurring along the periphery of the site. The entire site is mapped as having "Wetland Indicators" on the WIDNR GIS layers. The entire site is occupied by wetlands and within the active floodplain of the Little La Crosse River. The NRCS soil survey identifies that 98% of the site is comprised of soils that exhibit a seasonal water table of 12" or less the remaining 2% is along the periphery of the site in the buffer areas. The project intends to restore 26.59 acres of wetland and establish 7.12 acres of buffer (9.13 acres of additional buffer is in an existing CE along the Little La Crosse River held by WIDNR) through Re-Establishment and Re-Habilitation as described below.

Wetland Re-Establishment – 5.17 Acres

Approximately 5.17 acres of the site has been effectively drained by the lateral effect resulting from the incision of UNTLLR-1 and 2. Hydrology was further removed from these areas via installation of tile drainage, ditching,

filling, and the channelization of UNTLLR- 1 and 2 allowing for land cultivation. These areas will be restored through re-establishment of historic drainage patterns, disabling of drain tile/ditching, re-establishment of micro-topography, and re-vegetation to targeted wetland communities. The targeted wetland type within these areas is shrub carr.

Wetland Re-habilitation – 21.42 Acres

Approximately 21.42 acres on site are on the periphery of the influences of hydrologic impacts created by the ditching, draining, and stream channelization. These areas exhibit some level of hydrologic functionality but have been vegetatively altered in the past (cleared, farmed, grazed) resulting in increased presence of invasive species, primarily reed canary grass (*Phalaris arundinacea*). This condition has severely impacted flood storage capacity, nutrient processing, and wetland wildlife habitat. These areas will be re-habilitated through re-establishment of historic drainage patterns and re-vegetation to targeted wetland communities. Targeted wetland types within these areas are wooded swamp, shrub carr, and sedge meadow.

Buffer – 7.12 Acres

A buffer between the restored site and adjacent land uses will be established. These areas are primarily on the periphery of the site and will buffer the restored system from adjacent land uses. Either wetland or upland communities will be established and maintained where they do not exist. Microtopography development and replanting will be the primary means of upland restoration. This buffer is currently expected to be 50 ft in width and will be finalized during the full design process. The site shares a common boundary with the WIDNR's La Crosse River Comprehensive Fisheries Area along the northern boundary. No buffer is proposed between state-owned and maintained fisheries area and the site. WIDNR also holds a 66' wide Stream Easement along both banks of the Little La Crosse River as it transects the site. In addition, DATCP retains a CREP easement forming a 30' wide buffer around the WIDNR easement. The total of these two easements is 9.13 acres and is exclusive of the 7.12-acre periphery buffer. No work or crediting is proposed within the WIDNR/DATCP easement areas.

Streams – 1,645 Linear Feet

The Little La Crosse River (LLR) transects the site from SE to NW for 2,429 LF. This section of the LLR is under management by WIDNR and is not part of this restoration. Two un-named tributaries (UNTLLR 1 and UNTLLR 2) enter the LLR from the east and south flowing 835 LF and 810 LF respectively to their confluences with the LLR. These tributaries were ditched/straightened at some point prior to 1939 and are well incised into the landscape. Their incision impacts the hydrology of the surrounding wetland areas reducing the value of the channel as fisheries habitat. Priority 1 restoration of these tributaries (1,645 LF) will result in 2,640 LF of restored channel with an estimated functional feet score of 734 and 361 respectively.

The significant physical alterations that have occurred are the primary stressors to the stream system. The watershed has been relatively unchanged since 1939.

Stream restoration will focus on re-establishing a stable planform, profile, and cross-section of UNTLLR 1 and 2 to include instream fisheries habitat features. The channels will be restored to a C-type channel with frequent floodplain connections. The increase in floodplain connectivity will contribute to wetland hydrology within the stream's floodplain. Aquatic habitat within the channel will be improved through the installation of bed features and heterogeneous flow. The use of large woody debris within the banks and bed will be determined in the design. A wooded riparian area along the restored channel will be planted as an extension of the floodplain wetland complex. Large woody debris may be included in key locations within the floodplain as well to encourage dynamic interaction of the floodwaters and flood-borne sediment and debris with the developing floodplain. WIDNR will be consulted and coordinated with to ensure that the proposed stream restoration is consistent with the management objectives of the LLR.

Ecological Communities Vegetation Planting

Native forest and wetland plant species will be incorporated as developed in the restoration plan. Woody vegetation will be planted at a minimum density of six hundred eighty (680) stems per acre to achieve a mature forest density of two hundred ten (210) stems per acre after 10 years. Herbaceous vegetation will be seeded at

the recommended seeding rate for the species. Woody vegetation planting will be conducted during dormancy and herbaceous plantings will be conducted during the growing season. Selected species for woody and herbaceous communities will be identified from available literature on the target community types in Wisconsin, plant survey data from the reference wetland community, and nursery availability.

Potential species to be planted include:

Upland Forest – Southern Mesic Forest			
TREES			
White Oak	*Quercus alba*	Red Oak	*Quercus rubra*
Bur Oak	*Quercus macrocarpa*	Shagbark Hickory	*Carya ovata*
Sugar Maple	*Acer saccharum*	Bitternut Hickory	*Carya cordiformis*
Basswood	*Tila americana*		
SHRUBS			
American Hazelnut	*Corylus americana*	Blackhaw	*Viburnum prunifolium*
Witch-hazel	*Hamamelis virginiana*		
HERBACEOUS			
Wild Geranium	*Geranium maculatum*	False Solomon's-seal	*Maianthemum racemosum*
Bottlebrush Grass	*Elymus hystrix*	Rough-Leaved Sunflower	*Helianthus strumosus*
Blue Cohosh	*Caulophyllum thalictroides*		

Wooded Swamp – Southern Hardwood Swamp			
TREES			
Yellow Birch	*Betula alleghaniensis*	Red Maple	*Acer rubrum*
Silver Maple	*Acer saccharinum*	Hackberry	*Celtis occidentalis*
Swamp White Oak	*Quercus bicolor*	Pin Oak	*Quercus palustris*
SHRUBS			
Elderberry	*Sambucus canadensis*	Common Winterberry	*Ilex verticillata*
Silky Dogwood	*Cornus amomum*	Nannyberry	*Viburnum lentago*
HERBACEOUS			
Canada Bluejoint Grass	*Calamagrostis canadensis*	Ostrich Fern	*Matteucia struthiopteris*
Fowl Manna Grass	*Glyceria striata*	Common Wood-reed	*Cinna arundinacea*
Sedge sp.	*Carex* sp.		

Shrub Swamp – Shrub-carr			
SHRUBS			
Red-osier Dogwood	*Cornus sericea*	Silky Dogwood	*Cornus amomum*
Meadowsweet	*Spirea alba*	Willow sp.	*Salix* spp.
Nannyberry	*Viburnum lentago*	Swamp Rose	*Rosa palustris*
Ninebark	*Physocarpus opulifolius*	Elderberry	*Sambucus canadensis*
Gooseberries spp.	*Ribes* spp.		
HERBACEOUS			
Wool Grass	*Scirpus cyperinus*	American Water-horehound	*Lycopus americanus*
Orange Jewelweed	*Impatiens capensis*	Spotted Joe-Pye Weed	*Eupatorium maculatum*
Boneset	*Eupatorium perfoliatum*	Canada Bluejoint Grass	*Calamagrostis canadensis*
Bur-reed sp.	*Sparganium* spp.	Giant Goldenrod	*Solidago gigantea*

Inland Fresh Meadow – Sedge Meadow subset			
SHRUBS			
Pussy Willow	*Salix exigua*	Ninebark	*Physocarpus opulifolius*
Meadowsweet	*Spirea alba*		
HERBACEOUS			
Sedge spp.	*Carex* spp.	Skullcap	*Scutellaria galericulata*
Marsh Bellflower	*Campanula aparinoides*	Panicled Aster	*Symphyotrichum lanceolata*
Southern Blue Flag	*Iris virginica*	Marsh Muhly	*Muhlenbergia glomerata*
Fringed Brome	*Bromus ciliatus*	Canada Bluejoint Grass	*Calamagrostis canadensis*

4. **Service Area.** *Identify the proposed service area.*
This wetland mitigation site will be used to provide wetland mitigation credits for the Upper Mississippi-Black Root service area (HUC-704000). Specifically, this site is in the La Crosse-Pine River (HUC-70400006).

5. **Need.** *Describe the general need for the proposed mitigation bank or in-lieu fee program.*
Currently, there are no private wetland or stream banks in this service area to service future demand. The WIDNR Wisconsin Wetland Conservation Trust (In-Lieu-Fee wetland mitigation program) has 50 advanced credits in the Upper Mississippi-Black Root service area. Of those advance credits, 36.37 have been sold (12.38 have been fulfilled) leaving only a 13.63 credit capacity in the service area. In addition, this bank proposes the establishment of stream credits to accommodate anticipated regulatory requirements.

6. **Technical Feasibility.** *Describe the likelihood of successfully completing the project based on the expertise of the designers, proven methods, or other information available to the Sponsor.*
The design concept for the site will be to disable the drain tile network, restore historic drainage patterns, re-establish microtopography, and re-establish historic vegetative communities. These actions will result in the re-establishment of 5.17 acres of wetland and re-habilitation of 21.42 acres of farmed wetland, with 7.12 acres of peripheral buffer.

The feasibility of restoring the wetland communities on site is very high based on the following attributes:

- The site is in a landscape position that was historically occupied by wetland communities.
- The soils mapping on the site describes over 98% of the site as having groundwater between 0 and 12".

- There is a high degree of hydrologic manipulation (tile drain, diversion, channelization) that can be removed or disabled.
- The site is within the 100-year floodplain of the Little La Crosse River. Restoration of historic drainage patterns will not result in offsite impacts.
- The adjacent land uses are compatible with the restoration.
- The site shares a common boundary with the WIDNR owned La Crosse River Comprehensive Fishery Management Area.

7. **Ownership and Long-term Management.** *Proposed ownership arrangements and long-term management strategy for the mitigation bank or In-Lieu fee project site.*
   The site is under contract for purchase by KCI Environmental Technologies and Construction Inc., a wholly owned subsidiary of the project sponsor. WIDNR owns the adjacent La Crosse River Comprehensive Fisheries Management Area and holds a Fisheries Easement on the reach of the Little La Crosse River that transects the site. The project sponsor will place a perpetual conservation easement on the property to be held by WIDNR or other land conservatorship as appropriate. WIDNR will be consulted with regarding long term management in association with the adjacent La Crosse River Comprehensive Fisheries Management Area.

8. **Qualifications.** *The qualifications of the Sponsor to successfully complete the types of mitigation project proposed, including information describing any past such activities by the sponsor.*
   The project sponsor (KCI) offers a highly qualified staff of environmental, engineering, and construction professionals with extensive training and proven skills in all aspects of mitigation site location, plan development, design, construction, management, monitoring, and remedial action. KCI has been involved in the location, design, development, and management of over 1,600 acres of wetland and 40 miles of stream restoration and has extensive experience with both public and private clients. A detailed Statement of Qualifications is attached showing the key staff and projects.

9. **Ecological Suitability.** *Describe the suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical and biological characteristics of the bank site and how that site will support the planned types of aquatic resources and functions.*

   Objective #1 - Re-establish a functioning wetland complex that complements the adjacent State Fisheries Management Area and improves habitat complexity and connectivity within the landscape.
   The site was historically a stream/wetland complex that constituted a headwaters drainage to the Little La Crosse River. The site has been anthropomorphically altered to support agriculture, denuding its functionality, but the remnant conditions offer the ability to effectively return the site to a sustainable condition, thereby restoring its lost functions and values. Removal of the altered features including tile drain, fill, ditches, and re-establishing the tributaries to the Little La Crosse River, will restore the interconnected complex of habitats on the site and restore hydrology to the system. The proposed approach, which emphasizes a return to a sustainable condition, is widely used in systems that have primarily been impacted from onsite anthropomorphic actions to great success.

   Objective #2 – Restore UNTLLR tributaries.
   The LLR and its un-named tributaries (UNTLLR 1 and 2) historically provided interconnectivity to the matrix of wetland communities that existed on site. The UNTLLR areas were physically altered to promote drainage in support of agricultural activities. The contributing watershed has seen minimal changes since 1939 and maintains a mixture of agriculture, forest, fields, wetland, and rural residential land uses, establishing a consistent hydrologic response from precipitation. As a result, the primary stressors on this system are the physical alterations that were made to improve drainage. The resulting channels roughly classify as artificially established “G4”. The restoration would re-establish an “C4” stream, hydrologically reconnecting much of the floodplain and wetlands on the site. This will result in both increased flood attenuation, nutrient processing, and in-stream habitat.

Objective 3# - Provide water quality improvements for drainages contributing to the site prior to entering the Little La Crosse River.

The drainage from the site discharges into the Little La Crosse River, La Crosse River, and ultimately into the Mississippi River approximately 33 miles downstream. In its present state, runoff from the contributing watershed passes through the site via a series of ditches and channelized streams. In addition, runoff is drained from the site via ditches and tile drain with little or no ability to process nutrients. The proposed restoration will restore the un-named tributaries allowing regular overbank flooding. The removal of ditches and drain tile will create significant residence time in the restored wetland complex. The combination of these actions will provide increased nutrient processing throughout the site.

The LRHRS provides an excellent opportunity to re-establish a historic stream/wetland complex to the landscape. Its geomorphic position, condition, and potential for restoration success provide a high probability of achieving the goals stated for the restoration. The restoration would be complementary to the ongoing work of WIDNR in the LLR and on the adjacent Comprehensive Fisheries Management Area.

10. **Hydrology.** *Provide assurance of sufficient water supply and drainage rights to sustain the proposed water regimes on the site in both the short- and long-term. Include documentation of any existing or anticipated right of the landowner or others to remove water, soil, minerals or biomass from within or adjacent to the site boundary. Also include documentation of any existing or anticipated right to drain water through, from or onto the bank site or impound water on the bank site (e.g., flowage easements, drainage easements, maintenance easements).*

Wetland

Hydrology of the restored system will be supported by both groundwater and surface water inputs. The site is located in the 100-year floodplain of the Little La Crosse River, and it receives drainage from an approximately 12,000 acre watershed. The sub-watersheds to the east (466 acres) and west (300 acres) are routed either through or around the site. Re-establishing the natural flow paths onto the site will provide sufficient water to restore the system and achieve the objectives. There are no restrictions or rights to the water that would prevent the proposed restoration actions to restore effective wetland hydrology to the site. The site is geomorphically positioned such that removal of drainage improvements on site will not impact adjacent properties.

Streams

The Little La Crosse River traverses the site from SW to NE for 2,429 LF and has been relatively unaltered since 1939. Two first order un-named tributaries, entering the site from the east and south, extend 835 and 810 LF respectively across the site and drain into the LLR. The tributaries do not show any change in landscape position since 1939 but do show signs of straightening and ditching.

- LLR is a perennial 3rd order channel and a navigable water under WI statute. It is considered class 1 trout waters by WIDNR.

- UNTLLR-1 is an intermittent 1st order tributary of LLR that was straightened and ditched prior to 1939. The current on-site ditched length is 835 LF and has a contributing watershed of 278 acres.

- UNTLLR-2 is a perennial 1st order channel that originates in wet seeps on the south side of Highway F and was ditched prior to 1939. It has a contributing watershed of 123 acres, 40 acres of which are hydric soils. The channel enters the site through a pipe under Highway F. On the downstream side of the culvert, the water flows through an excavated ditch until its confluence with the LLR. The current on-site ditched length is 810 LF.

Wisconsin DNR holds a fisheries access easement along the LLR reach through the site boundary. DAPTC holds a CREP easement that buffers the DNR access easement. There are no known water easements, soil, mineral, or biomass rights over the site. The sponsor has had preliminary conversations with the WIDNR fisheries manager

regarding the proposed work. The WIDNR Manager was supportive of the wetland and stream restoration and indicated that he would need to review and approve proposed designs to verify it was consistent with the ongoing management work in their Fisheries Easement on the LLR.

11. Adjacent Landowners Contact Information.

East Side
Steven J. Schmitz, Brian Schmitz
23794 Lamplighter Road
Norwalk, WI 54648

Michael J. Lydon, Brenda J. Kolbo
11531 County Highway F
Cashton WI 54619

South Side
James S. & Dorcas N. Horning
11012 Mascot Ave.
Cashton WI 54619

West Side
Susan K. Cooley
25181 State Highway 27
Cashton, WI 54619

State of Wisconsin Department of Transportation
3550 Mormon Coulee Rd.
La Crosse, WI 54601

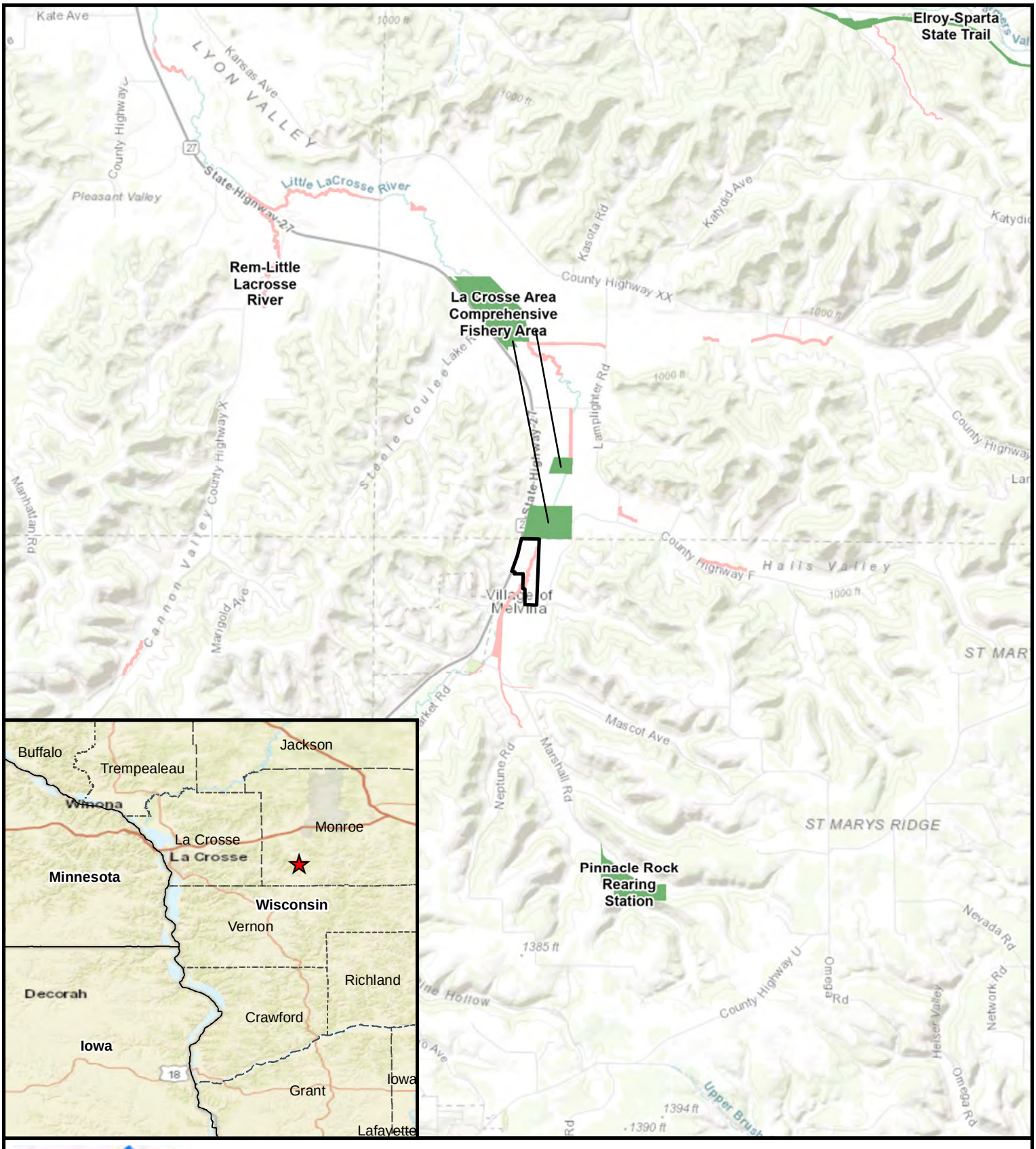
North Side
State of Wisconsin Department of Natural Resources
101 S Webster St.
Madison, WI 53707-7921

12. Maps.

Figure 1: Site Location Map
Figure 2: HUC 8 Watershed Map
Figure 3: Site Watershed Map
Figure 4: Land Cover Map
Figure 5: Property Owner Map
Figure 6: Current Conditions Map
Figure 7: Surface Water Map
Figure 8: USGS Topographic Map
Figure 9: National Wetland Inventory Map
Figure 9a: Wisconsin Potentially Restorable Wetlands Map
Figure 10: Off-Site Wetland Indicators Map
Figure 11: NRCS Soils Map
Figure 12: Credit Types Map
Figure 13: Site Elevation Map
Figure 14: Community Type Map
Figure 15a: Historical Imagery - 1939 Map
Figure 15b: Historical Imagery - 1946 Map
Figure 15c: Current Imagery - 2022 Map

13. <u>Additional Information</u>

a. Site Selection Checklist
b. FSA Offsite Wetland Determination Analysis
c. SQT Preliminary Calculations and Catchment Assessment Worksheets
d. Soil Pit Data
e. Site Photographs
f. KCI Statement of Qualifications



KCI TECHNOLOGIES

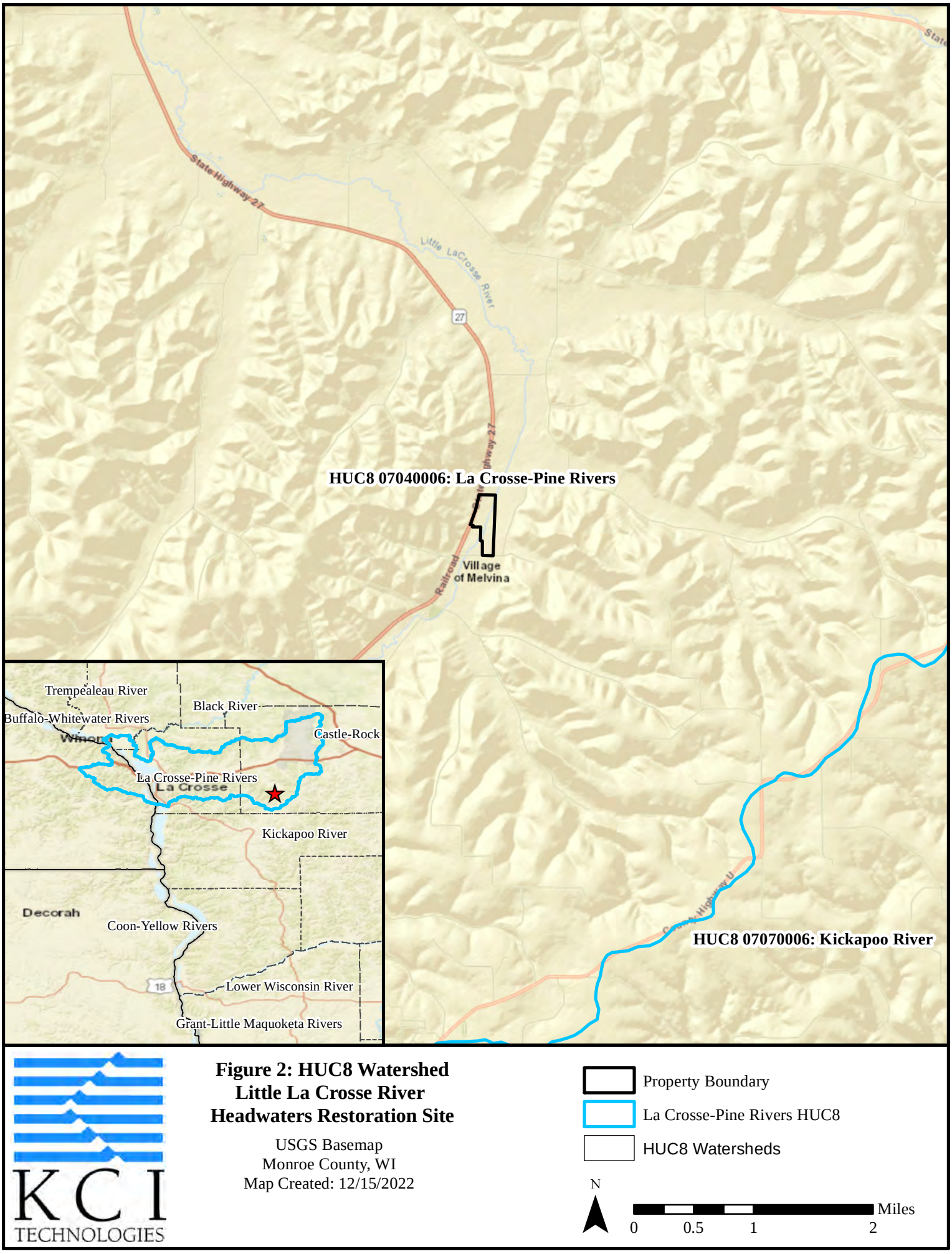
Figure 1: Site Location
Little La Crosse River
Headwaters Restoration Site

ESRI Topo Basemap
Monroe County, WI
Map Created: 12/15/2022

Property Boundary
DNR Owned Land (property)
La Crosse Area Comprehensive Fishery Area (Easement)
No airports within 10 miles

N

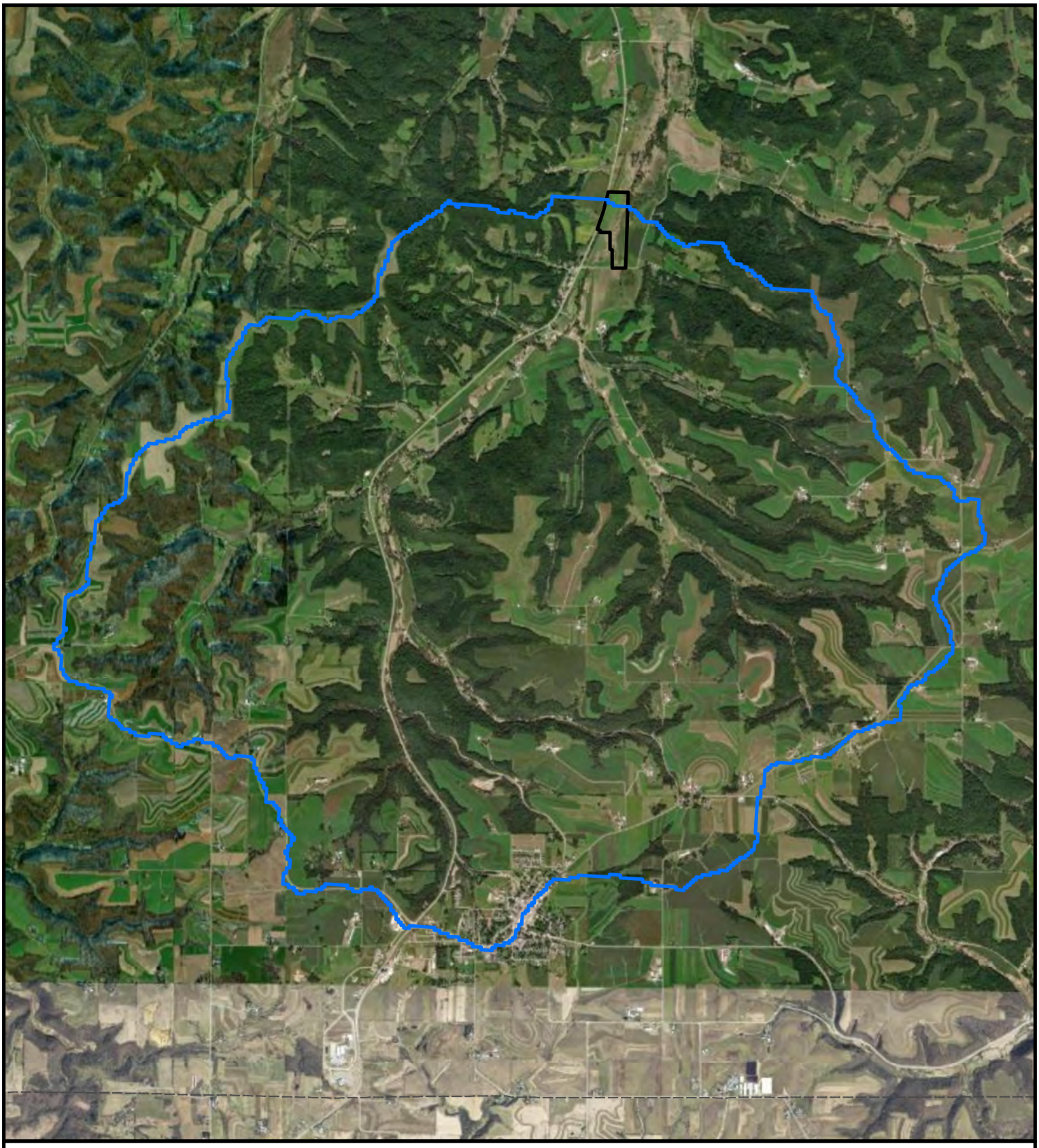
0 0.5 1 2 Miles



KCI TECHNOLOGIES

Figure 2: HUC8 Watershed
Little La Crosse River
Headwaters Restoration Site

USGS Basemap
Monroe County, WI
Map Created: 12/15/2022



KCI TECHNOLOGIES

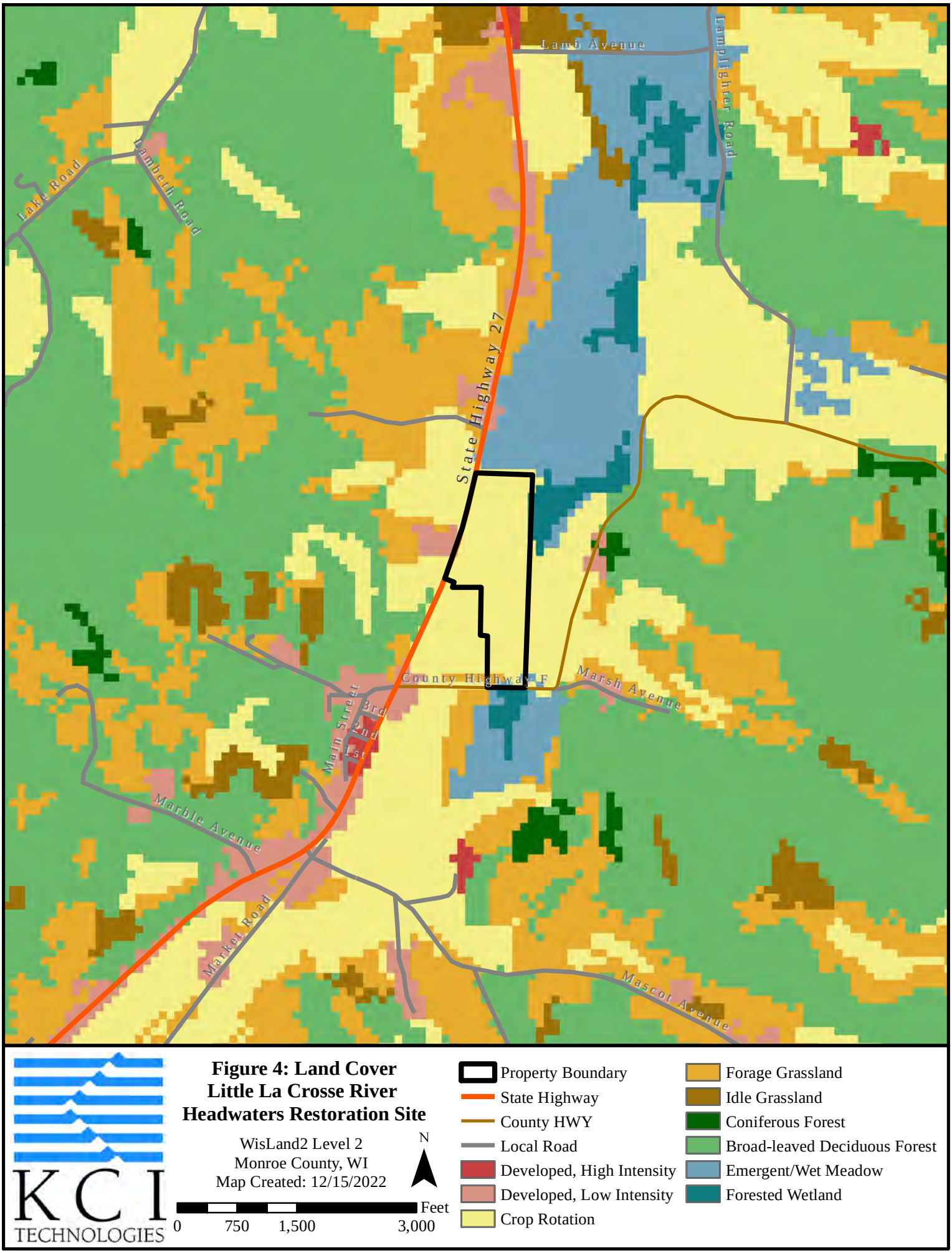
Figure 3: Site Watershed
Little La Crosse River
Headwaters Restoration Site
Site Watershed

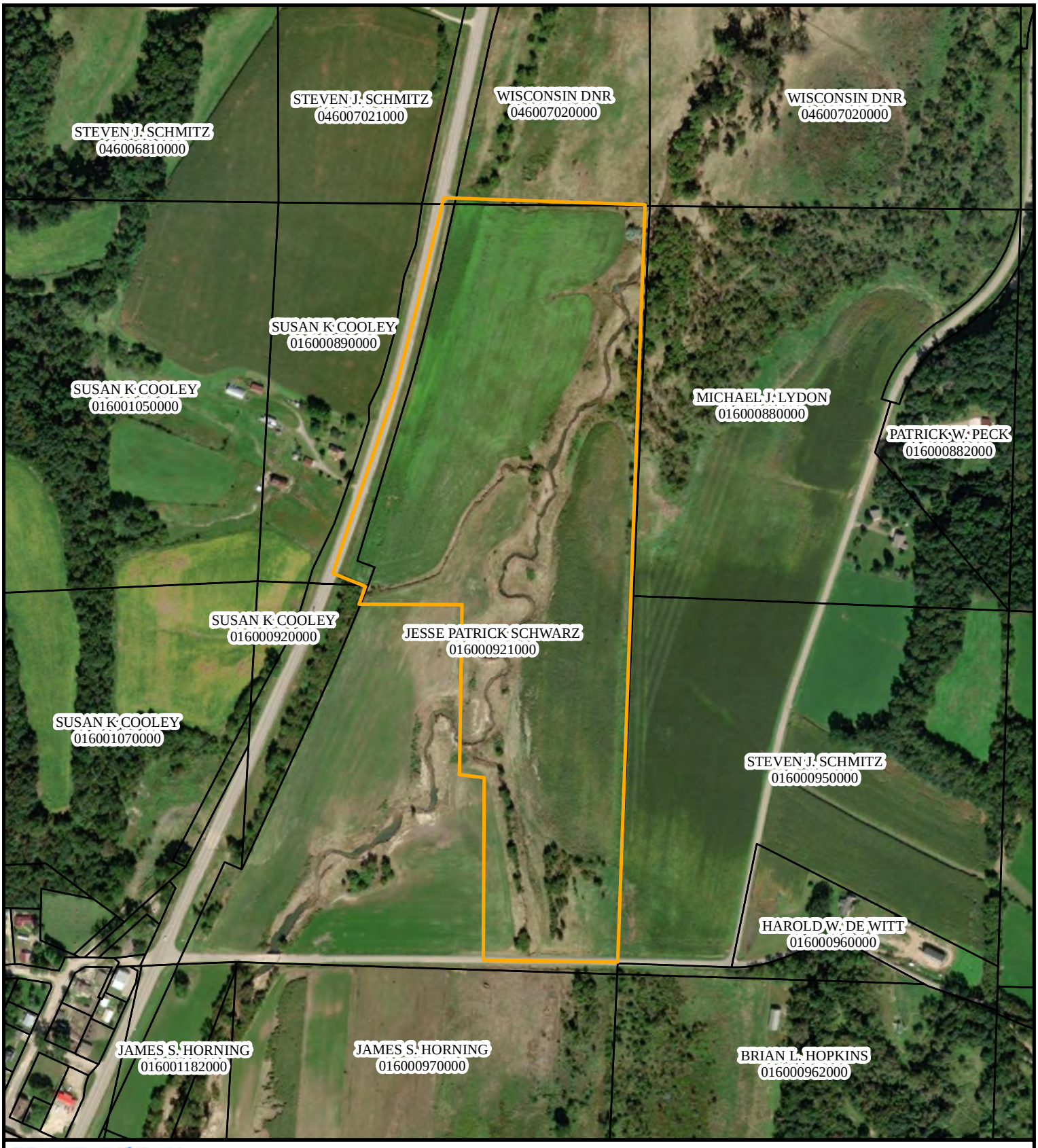
ESRI Basemap
Monroe County, WI
Map Created: 12/15/2022

Site Watershed
Property Boundary

N

0 0.5 1 2 Miles


Lamb Avenue
Lamplighter Road
Lake Road
Lambeth Road
State Highway 27
County Highway F
Marsh Avenue
Main Street
3rd
2nd
1st
Marble Avenue
Market Road
Mascot Avenue
KCI TECHNOLOGIES
Figure 4: Land Cover
Little La Crosse River
Headwaters Restoration Site
WisLand2 Level 2
Monroe County, WI
Map Created: 12/15/2022
N
0
750
1,500
3,000
Feet
Property Boundary
State Highway
County HWY
Local Road
Developed, High Intensity
Developed, Low Intensity
Crop Rotation
Forage Grassland
Idle Grassland
Coniferous Forest
Broad-leaved Deciduous Forest
Emergent/Wet Meadow
Forested Wetland



KCI TECHNOLOGIES

Figure 5: Site Watershed
Little La Crosse River
Headwaters Restoration Site
Land Ownership

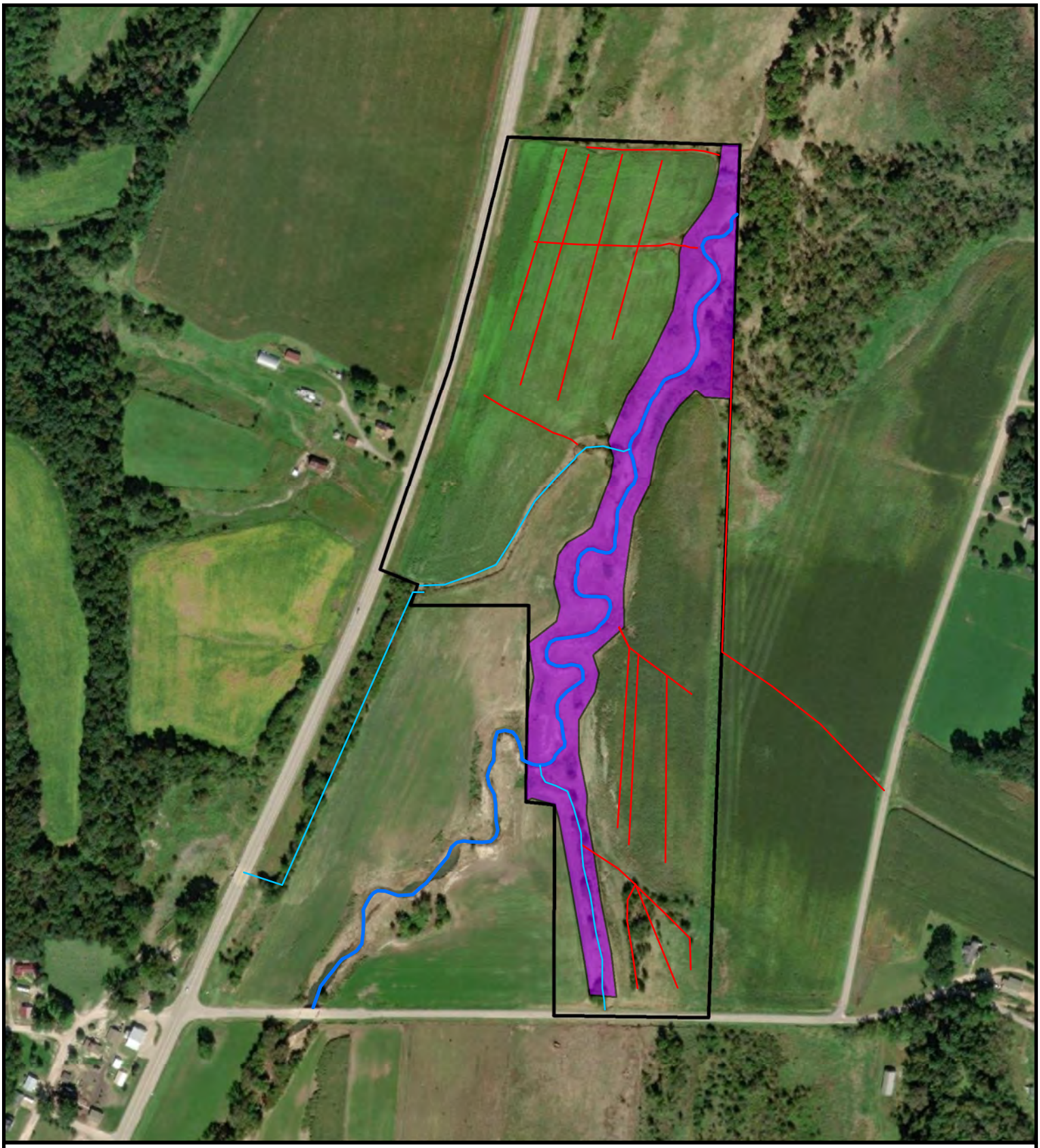
ESRI Basemap
Monroe County, WI
Map Created: 12/15/2022

N

Property Boundary

V800_Wisconsin_Parcels_MONROE

0 0.125 0.25 Miles



KCI TECHNOLOGIES

Figure 6: Current Conditions
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

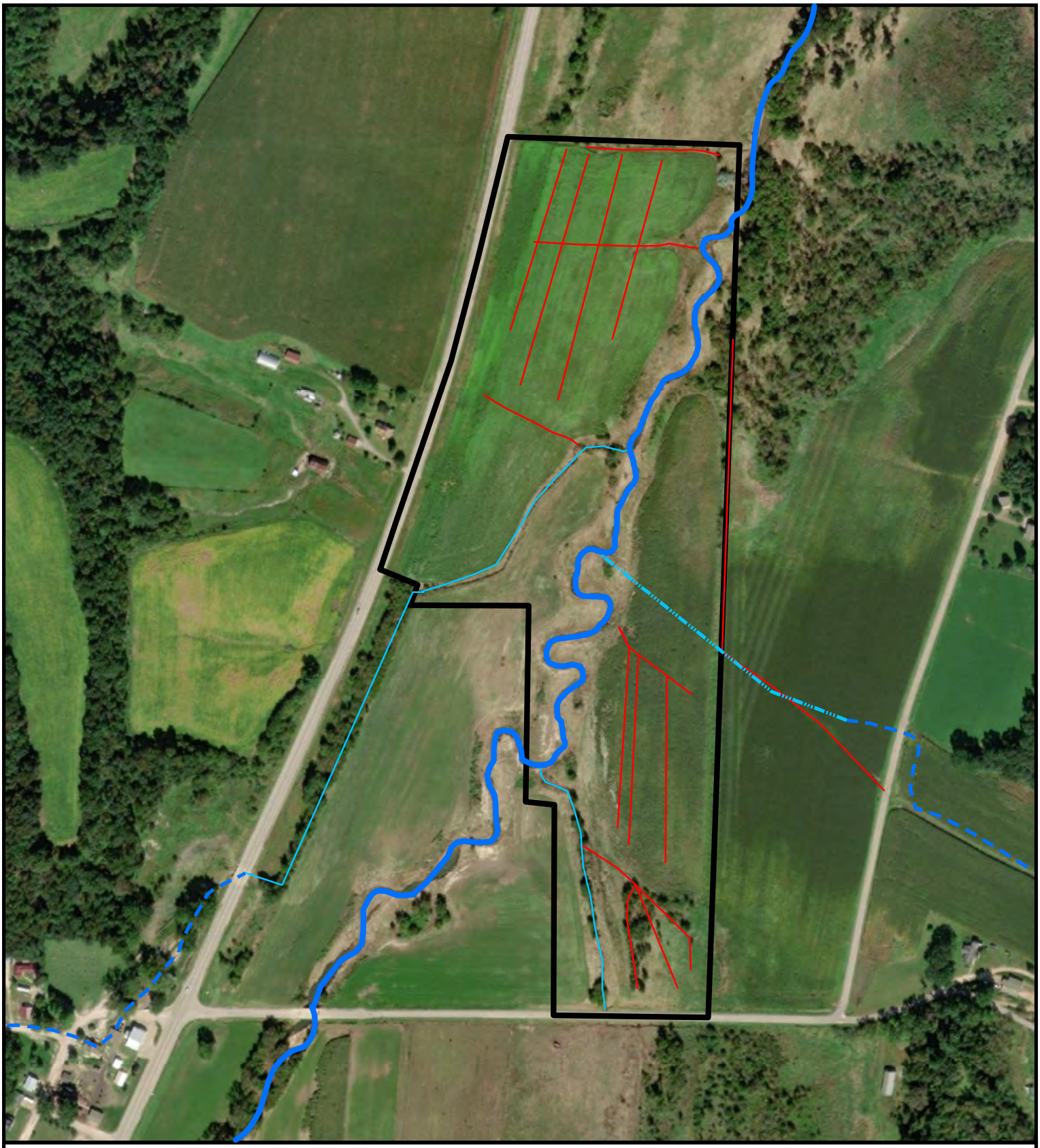


Figure 7: Surface Water
Little La Crosse River
Headwaters Restoration Site

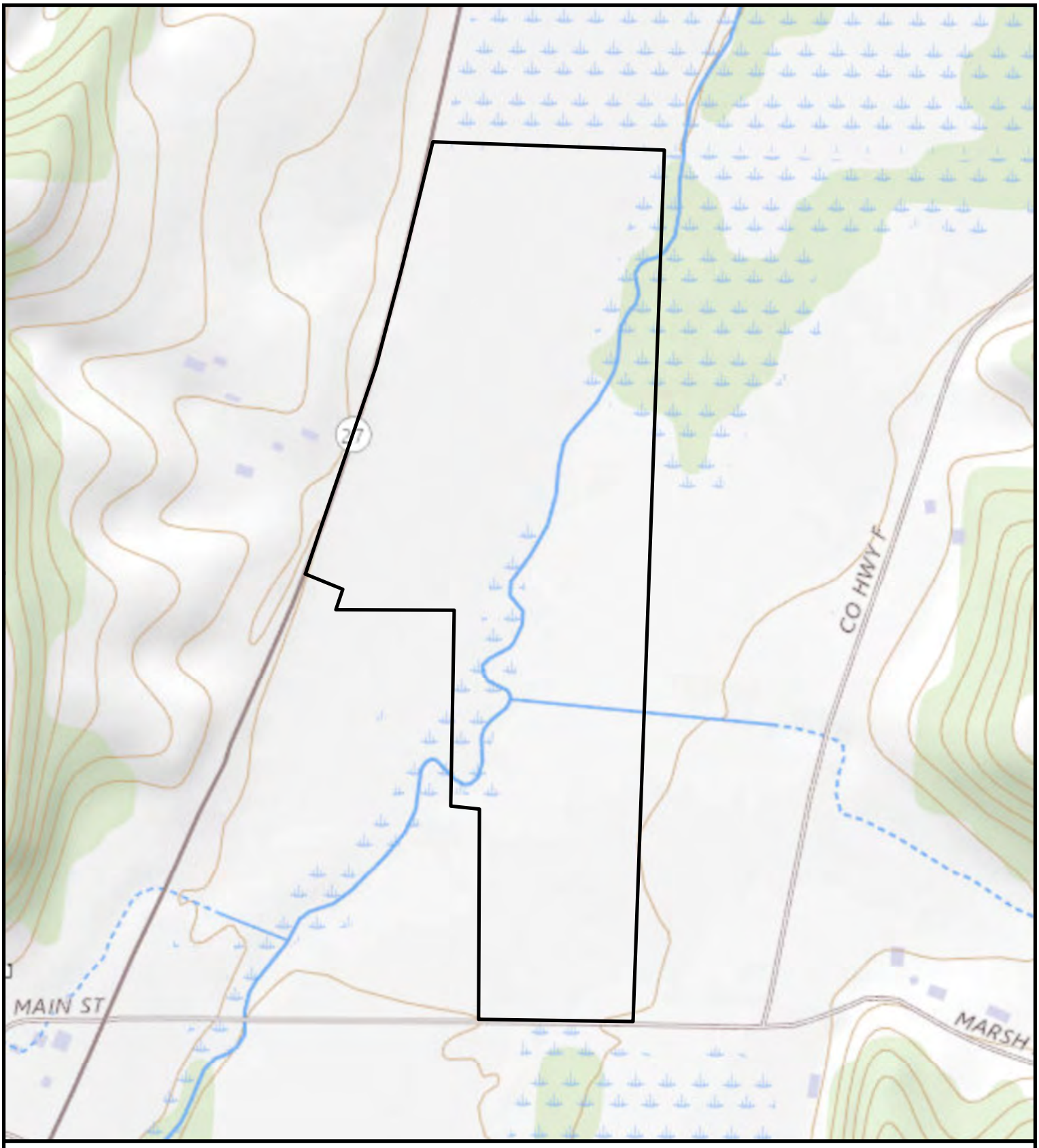
ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

0 200 400 800 Feet

KCI TECHNOLOGIES

WI 24k Flowline
- Primary Flow Over Land- Fluctuating
- Primary Flow Over Land- Intermittent
- Little La Crosse River
- Observed Streams
- Field Drains
- Property Boundary



KCI TECHNOLOGIES

Figure 8: USGS Topography
Little La Crosse River
Headwaters Restoration Site

USGS Topographic Basemap
Monroe County, WI
Map Created: 12/15/2022

Property Boundary

USGS Basemap flow paths do not accurately reflect onsite flow paths

N

0 200 400 800 Feet

Figure 9: National Wetland Inventory
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

0 200 400 800 Feet

KCI TECHNOLOGIES

- Property Boundary
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine

KCI TECHNOLOGIES

Figure 9a: Wisconsin Potentially Restorable Wetlands
Little La Crosse River Headwaters Restoration Site

WI DNR Potentially Restorable Wetlands
ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

Potentially Restorable Wetland
Property Boundary

0 200 400 800 Feet

N

Figure 10: Off-Site Wetland Indicators
Little La Crosse River
Headwaters Restoration Site

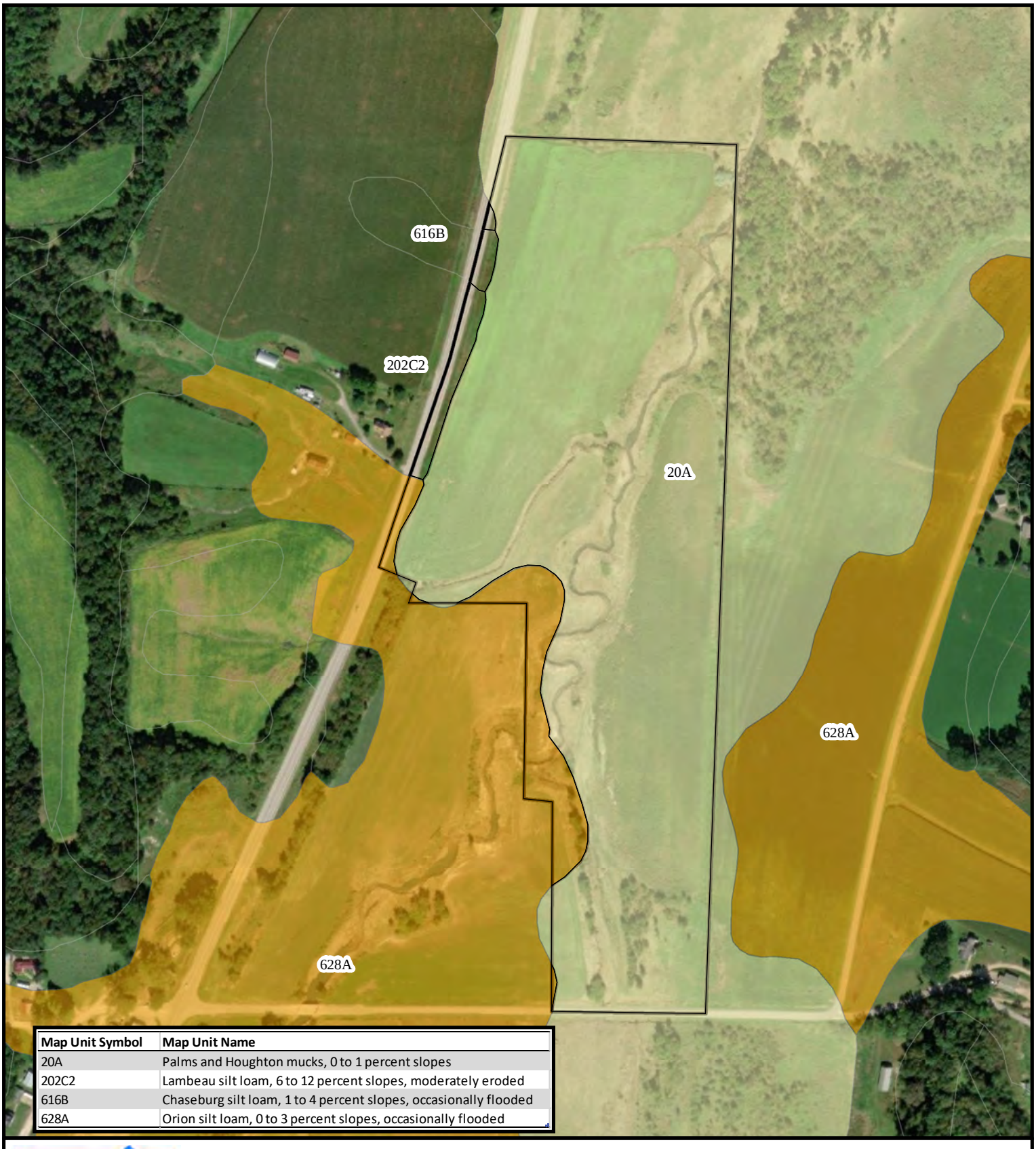
ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

0 200 400 800 Feet

Off-site Wetland Delineation
Property Boundary

KCI TECHNOLOGIES



Map Unit Symbol	Map Unit Name
20A	Palms and Houghton mucks, 0 to 1 percent slopes
202C2	Lambeau silt loam, 6 to 12 percent slopes, moderately eroded
616B	Chaseburg silt loam, 1 to 4 percent slopes, occasionally flooded
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded

KCI TECHNOLOGIES

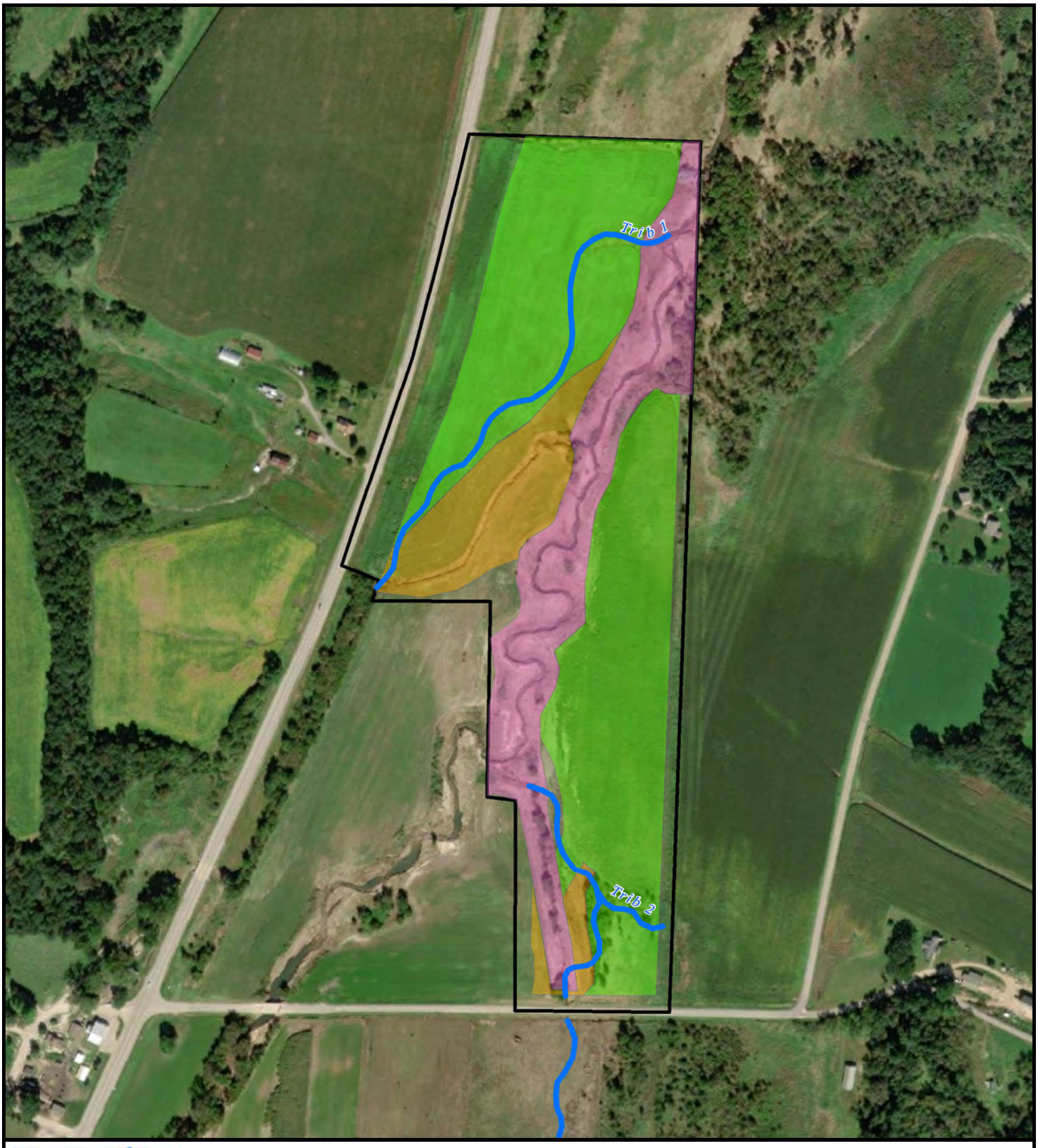
Figure 11: Soils
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

0 200 400 800 Feet

Hydric Potential
Not Hydric
Hydric
Property Boundary



KCI TECHNOLOGIES

Figure 12: Credit Type
Little La Crosse River
Headwaters Restoration Site

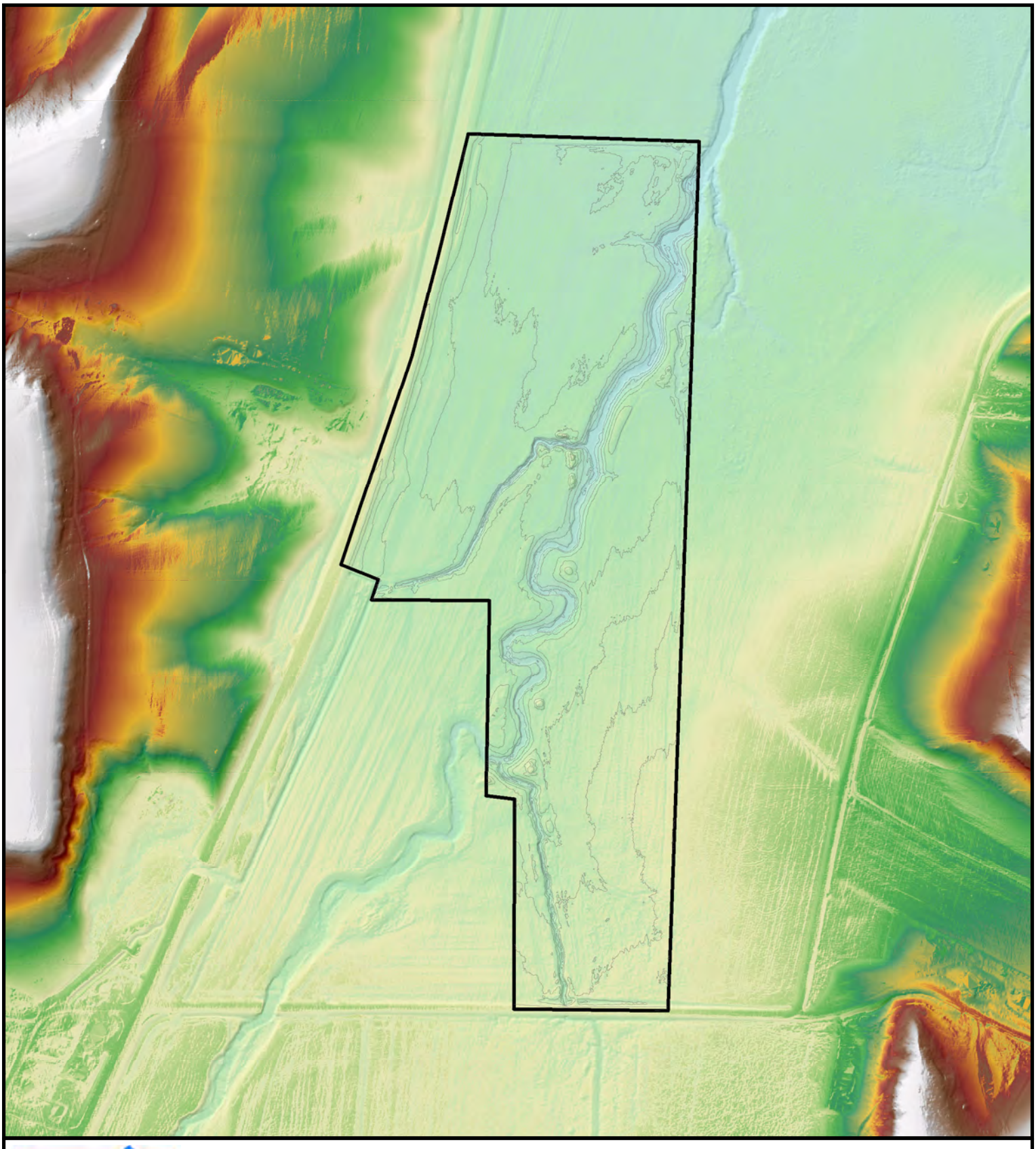
ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

0 200 400 800 Feet

Credit Type

- Re-Establishment
- Re-Habilitation
- Conservation Easement (No Credit Area)
- Tributaries
- Property Boundary



KCI TECHNOLOGIES

Figure 13: Site Elevation
Little La Crosse River
Headwaters Restoration Site

WisLand2 Level 2
Monroe County, WI
Map Created: 12/15/2022

Figure 14: Anticipated Communities
Little La Crosse River
Headwaters Restoration Site

Figure 15a: Historica Imagery 1939
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

Property Boundary

0 200 400 800 Feet

KCI TECHNOLOGIES

Figure 15b: Historica Imagery 1946
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

Feet
0 200 400 800

Property Boundary

KCI TECHNOLOGIES

KCI TECHNOLOGIES

Figure 15C: Site Watershed
Little La Crosse River
Headwaters Restoration Site
Aerial Imagery 12-14-22

ESRI Basemap
Monroe County, WI
Map Created: 12/15/2022

N

0 400 800 Feet

Additional Information

a. Site Selection Checklist
b. FSA Offsite Wetland Determination Analysis
c. SQT Preliminary Calculations and Catchment Assessment Worksheets
d. Soil Pit Data
e. Site Photographs
f. KCI Statement of Qualifications

Site Selection Checklist

US Army Corps of Engineers ®
St. Paul District

Site Selection Criteria
for Compensatory Mitigation Proposals
USACE St. Paul District
June 2021

Project Specific Information

Compensation Site: Little La Crosse River Headwaters Restoration Site – KCI Technologies

Corps File Number:

Date: 12/22/2022

The U.S. Army Corps of Engineers St. Paul District (Corps) developed this checklist to assist sponsors in Minnesota and Wisconsin with selecting sites that have potential to provide successful compensatory mitigation projects. 33 CFR 332.3 identifies factors the U.S. Army Corps of Engineers considers related to site selection. A compensatory mitigation site must meet the needs of the watershed and be ecologically suitable for providing the desired aquatic resource functions. In determining whether a site has potential as a compensatory mitigation project, the Corps will consider several site selection factors. Not every site is eligible or suitable for approval as a compensatory mitigation site.

The Corps intends for sponsors to use this checklist early in their site selection process, and for this checklist to transparently and consistently communicate important site selection factors. This checklist will help guide sponsors to select sites that meet the intent of 33 CFR 332, meet minimum District requirements, avoid common “fatal flaws” that can prevent approval, and have potential for agency approval. Conversely, a sponsor’s use of this checklist may conclude that a site has fatal flaws or other characteristics that would prevent approval and can save the sponsor expenditure of funds for development of a prospectus on a site unlikely to receive Corps approval.

Sponsors should submit this accurately completed checklist with their Prospectus, along with any supplemental information and documentation needed to support each item. The Corps will use the provided information to evaluate ecological suitability of the selected site and determine whether the site has potential as a compensatory mitigation site. If the sponsor’s project proceeds to DMBI, the sponsor should update and submit this checklist with their Mitigation Plan.

This checklist is divided into three primary categories. Category 1, Avoiding Fatal Flaws, are considered standard requirements and a project must generally meet all relevant criteria for the Corps to determine the site has potential. Categories 2 and 3, Location within the Watershed and Site Characteristics, include criteria that represent beneficial aspects (not exclusive) of a project that would likely contribute to overall ecological suitability. Generally, the more criteria selected and documented, the better the site and more likely the Corps will approve the compensatory mitigation project. However, project proponents should be aware that completion of this checklist does not guarantee approval. Ultimately the Corps will based its decisions regarding site potential and site approval on a variety of site-specific factors, IRT comments, program goals and the considerations outlined in 33 CFR 332.

1. Site Selection Criteria – Avoiding Fatal Flaws (Meeting every item in this list is generally considered a requirement for site approval)

[X] If activities related to stream credit are proposed, the Catchment Assessment Form in the MN SQT demonstrates that the catchment and contributing area for the project reach is in fair or good condition and the restoration potential for the project is full or partial

- *Attached*

[X] If activities related to stream credit are proposed, site activities will result predominantly in stream restoration activities and involve no stream creation

- *Two un-named tributaries will be restored.*

[X] Activities do not consist of wetland creation except as a minor component of the project

- *Wetland creation is not a component of this restoration project.*

[X] Site is not located within 10,000 linear feet of an airport

- *The closest airport is Sparta-Fort McCoy 10.4 miles to the NE.*

[X] Site is not located within an abandoned or active non-metallic or metallic mine, tailings basin, or sand or gravel pit

- *No record of mining on site*

[X] The site has no known encumbrances (ex. easements, liens, rights of way, reserved timber, severed surface or subsurface mineral or natural gas rights, etc.) that limit or negatively affect the compensation site goals.

- *DNR holds a fisheries easement on the Little La Crosse River and DATCP holds a CREP easement buffering DNR's easement. No credits are proposed in those areas.*

[X] The landowner and sponsor are willing and able to grant a conservation easement for the entire compensatory mitigation area to include all wetland and stream resources and sufficient upland buffer area to the state of Minnesota or Wisconsin or another natural resources agency or non-profit

- *Yes*

[X] Adjacent land uses will not compromise or limit compensatory mitigation activities, extent of compensatory mitigation site boundaries, or site success. Information about ongoing or anticipated development, infrastructure, mines and quarries, encumbrances, or other activities on adjacent properties must be considered.

- *Adjacent land current and planned use is agricultural and rural residential land use district.*

[X] The sponsor will design the site to be self-sustaining in the long-term, requiring no active hydrologic or structural management activities post-monitoring period (ex. significant structure maintenance, water level adjustment, riprap, etc.). An exception may include sites where active vegetative management activities are required to maintain functional lift, In such cases, the Corps may require a long-term funding mechanism

- *Site will be designed to be self-sustaining.*

[X] For wetlands, potential to yield at least 5 credits (MN) or 20 acres (WI)

- *The site is 43.9 acres and the anticipated credit yield is 24.*

[X] Sponsor is a single entity holding property rights (via in-fee ownership or easement for LLCs) over the site

- *KCI holds an option to purchase the parcel in-fee simple.*

☒ Adjacent properties are free of major invasive vegetation species infestation, or existing infestations are being and would continue to be managed, such that the adjacent properties are not anticipated to pose a significant risk to site sustainability
- *Yes*

☒ Site is not located within the cone of depression of a high capacity well
- *None identified.*

☒ Site activities will not hydrologically affect adjacent properties (unless the adjacent property is part of the mitigation site proposal and the sponsor would place the adjacent property under conservation easement or obtain a flowage easement is obtained)
- *No impact on adjacent parcels*

☒ No federal funding or easements onsite in areas where credits would be generated (NACA, WRP, etc.)
- *No current easements or federal funding in credit development areas.*

☒ Site's stream resource(s) is contiguous with or connected to other aquatic resources
- *Site is connected to Little La Crosse River, La Crosse River and Mississippi River.*

☒ For streams, sufficient riparian area on both sides of the channel will be protected as part of the project
- *Stream corridor is primarily located in the interior of project site the entire ERA within the restored area of the site. Restored wetland/upland communities will extend from the ERA to the edge of the site increasing the protected area surrounding restored stream channels.*

☒ Stream design does not include hard armoring and work is not limited to bank stabilization
- *Priority I restoration of both un-named tributaries*

☒ For stream reaches, site has not been logged in the past 10 years
- *No evidence of recent logging on site*

2. Site Selection Criteria – Location within the Watershed

☒ Project will contribute to habitat connectivity, reducing fragmentation by establishing new or expanding existing wildlife corridors
- *The project will restore an agricultural exception in the otherwise wetland dominated Little La Crosse River floodplain.*
- *This project will restore two un-named tributaries with the Little La Crosse River which connects to the DNR Comprehensive Fisheires Management Area to the North.*

☒ Proposed wetlands are contiguous with or connected to other aquatic resources
- *Project is adjacent to the Wisconsin DNR Comprehensive Fisheries Management Area and connects with other wetlands on the Little La Crosse River floodplain.*

☒ Site is identified in local, state, or federal watershed plans, environmental action plans, or landscape level wetland restoration prioritization mapping tools as important/appropriate mitigation for the watershed
- *The project is situated in the alluvial valley of the Little La Crosse River. DNR actively manages the Little La Crosse River a trout fishery, acquiring easements along the majority of channel in the valley.*

☒ Project is adjacent to other conserved properties
- *The property is upstream and adjacent to the Wisconsin DNR Comprehensive Fisheries Management Area to the North.*

3. Site Selection Criteria – Site Characteristics

[X] Site activities projected to result in wetland credits (not including upland buffer credits allocated as wetland) generated predominantly through wetland restoration (rehabilitation and re-establishment) activities

- *Yes – reestablishment (5.17 acres) and rehabilitation (21.42 acres) constitute 92% of the entire project acreage.*

[X] Presence of drainage infrastructure (typically ditches or tile) that can be disabled as part of the project (considering public versus private management rights)

- *Field drains, ditching and tiles on the site.*

[X] Cultural resources are known to or may be present onsite that would be protected by this project

- *No known cultural resources on site.*

[X] Site supports or would support critical habitat for state listed threatened or endangered species

- *None identified, however, an Endangered Resources Review by WDNR will be initiated.*

[X] Site supports or would support critical habitat for federally listed threatened or endangered species

- *An Endangered Resources Review by WDNR and USFWS will be initiated.*

[X] Project will provide critical habitat for species of greatest concern, as identified by wildlife management plans or other similar documents

- *An Endangered Resources Review by WDNR will be initiated.*

[X] If site is located within 5 miles of an airport, it is not located in direct line with approach and takeoff paths and would not result in shallow marsh or deeper wetland communities

- *The site is located 10.4 miles from the closest open airport.*

[X] Activities do not entail the conversion of other aquatic resources to wetlands (Exception: Removal of man-made or man-altered features for the purpose of returning historic aquatic resources)

- *Site is currently fully in use as agricultural fields.*

[X] If preservation is proposed, activities qualify for preservation per all requirements outlined in 33CFR 332, and St. Paul District Guidance on Evaluating Preservation Sites for Eligibility

- *No preservation is proposed for this project.*

[X] Low risk of encroachment by adjacent landowners, considering both adjacent land use type and number of individual property owners

- *There is low risk of encroachment by adjacent landowners with adjacent land as the surrounding lands are WIDNR owned, private agriculture, and existing wetland. A buffer will be maintained along the site boundary were adjacent to private landowners.*

[X] Contains sufficient buffer between the wetlands or stream proposed for credit and adjacent properties

- *A 50 buffer is proposed between credit areas and neighboring private landowners and sufficient buffer will be maintained between wetland credit areas and restored stream banks.*

[X] Contains historic predominantly hydric soils that have been effectively or partially drained by existing, maintained drainage infrastructure

- *Approximately 92% of the site is underlain by hydric soils. The entire site has been impacted by drainage modifications drainage tiles, surface ditches, and straightened and ditched stream channel.*

FSA Offsite Wetland Determination Analysis

Little LaCrosse River Headwaters Restoration Site
FSA Offsite Wetland Determination Analysis Summary

An Offsite Hydrology/Wetland Determination analysis was performed for the Little LaCrosse River Headwaters Restoration Site in support of the development of this site for mitigation credit in coordination with the Wisconsin Department of Natural Resources.

Available aerial photographs of the site were compiled from Google Earth between 1999 and 2020. Each photograph was examined for indications of wetland hydrology and four study areas were chosen for additional analyses based on visible wetland hydrology signatures. Wetland hydrology signatures included soil wetness, altered crop patterns, crop stress, or had wetland signatures. A determination of current climatic condition was made for each aerial photograph. The AgACIS tool for Monroe County from the NOAA Regional Climate Centers (http://agacis.rcc-acis.org/?fips=55131) was accessed through the NRCS Field Office Technical Guide website (https://efotg.sc.egov.usda.gov/) to make the determination. The AgACIS WETS tool provided the 30% chance of greater or lesser precipitation the site would have during a given month. The determination of climate condition at the time each aerial photograph was made utilizing this data and calculated through the Minnesota Climatology Office's Precipitation Worksheet Using Gridded Database. Exhibit 1 outlines the image dates reviewed, the climatic condition at the time the image was taken, and any aerial wetland hydrology signatures identified by the study area. It should be noted that the dates that were provided for the images in Exhibit 1 were based on best professional judgment because some dates provided by Google Earth were ambiguous. The percent of photographs showing wetland hydrology signatures during years of normal climatic conditions was then calculated for each study area. Exhibit 2 outlines the aerial photography-based wetland determination of each study area. Utilizing the provided Decision Matrix, each study area was determined to be a wetland or not. Descriptions of each of the four study areas and the study results are below. Exhibits 1 and 2 as well as the reviewed aerial photographs are attached to this summary.

Area 1 is an agricultural field on the northwestern side of the site. This study area is approximately 16.4 acres. Area 1 exhibited the wetland hydrology indicator of soil wetness, crop stress, standing water, and wetland signatures. This area showed wetland hydrology indicators in 83.3% of the aerial photographs taken during normal climate conditions. Hydric soils are also present in this area, and it is not identified as a wetland in the National Wetlands Inventory (NWI). Through this analysis, Area 1 was deemed a possible wetland if other field indicators of wetland hydrology are found during an onsite field verification.

Area 2 is an agricultural field in the middle of the site situated between Little LaCrosse River and a tributary of the Little LaCrosse River. This study area is approximately 2.41 acres. Area 2 exhibited the wetland hydrology indicator of crop stress and soil wetness. This area showed wetland hydrology indicators in 50.0% of the aerial photographs taken during normal climate conditions. Hydric soils are present in this area, and it is not identified as a wetland in the National Wetlands Inventory (NWI). Through this analysis, Area 2 was deemed a possible wetland if other field indicators of wetland hydrology are found during an onsite field verification.

Area 3 is an agricultural field on the central eastern side of the site. This study area is approximately 11.8 acres. Area 3 exhibited the wetland hydrology indicator of soil wetness and crop stress. This area showed wetland hydrology indicators in 83.3% of the aerial photographs taken during normal climate conditions. Hydric soils are present in this area, and it is not identified as a wetland in the National Wetlands Inventory

(NWI). Through this analysis, Area 3 was deemed a possible wetland if other field indicators of wetland hydrology are found during an onsite verification.

Area 4 is an agricultural field on the southern end of the site. This study area is approximately 2.50 acres. Area 4 exhibited the wetland hydrology indicator of soil wetness, crop stress, and altered patterns. This area showed wetland hydrology indicators in 66.6% of the aerial photographs taken during normal climate conditions. Hydric soils are present in this area, and it is not identified as a wetland in the National Wetlands Inventory (NWI). Through this analysis, Area 4 was deemed a possible wetland if other field indicators of wetland hydrology are found during an onsite field verification.

Exhibit 1 Field data sheet reference (if applicable): _____

Wetland Hydrology from Aerial Imagery – Recording Form

Project Name: Little LaCrosse River Headwaters Restoration Site Date: December 15, 2022 County: Monroe

Investigator: S. Marler Legal Description (T, R, S): 16 03 32

Summary Table

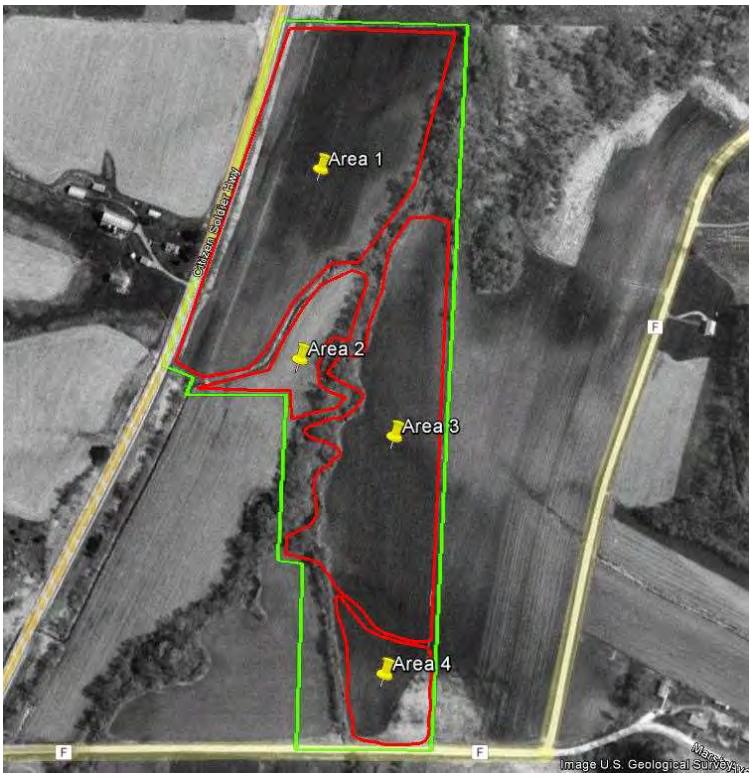
Date Image Taken (M-D-Y)	Image Source	Climate Condition (wet, dry, normal)[i]	Image Interpretation(s)				
			Area: 1	Area: 2	Area: 3	Area: 4	Area:
23-4-1999	Google Earth	Wet	SS	NV	SS	SS	
31-5-2005	Google Earth	Dry	CS	NV	CS	CS	
25-9-2006	Google Earth	Normal	NV	NV	NV	NV	
22-6-2008	Google Earth	Wet	CS	CS	CS, SS	NV	
27-6-2010	Google Earth	Normal	CS, SS	NV	CS, SS	NC	
12-10-2013	Google Earth	Normal	CS	CS	CS	NC	
12-6-2020	Google Earth	Normal	WS, SS, SW	SS	CS, SS	AP, NC	

Normal Climate Condition	Area: 1	Area: 2	Area: 3	Area: 4	Area:
Number	6	6	6	6	
Number with wet signatures	5	3	5	4	
Percent with wet signatures	83.3	50.0	83.3	66.6	

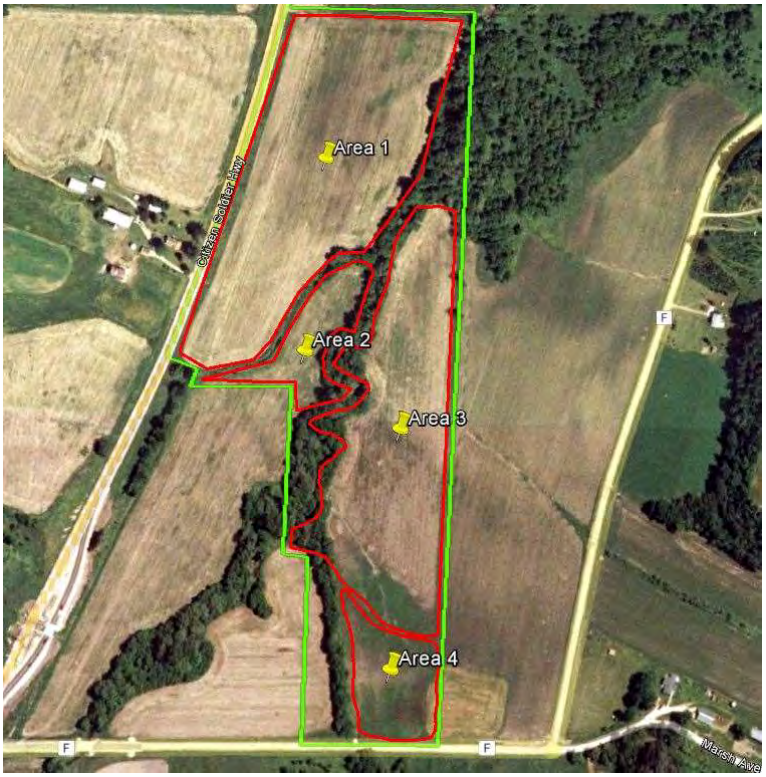
KEY		
WS - wetland signature	SS - soil wetness signature	CS - crop stress
NC - not cropped	AP - altered pattern	NV - normal vegetative cover
DO - drowned out	SW - standing water	NSS – no soil wetness signature
Other labels or comments:		

- Use above key to label image interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in box above.
- If less than five (5) images taken during normal climate conditions are available, use an equal number of images taken during wet and dry climate conditions and use as many images as you have available. Describe the results using this methodology in your report.

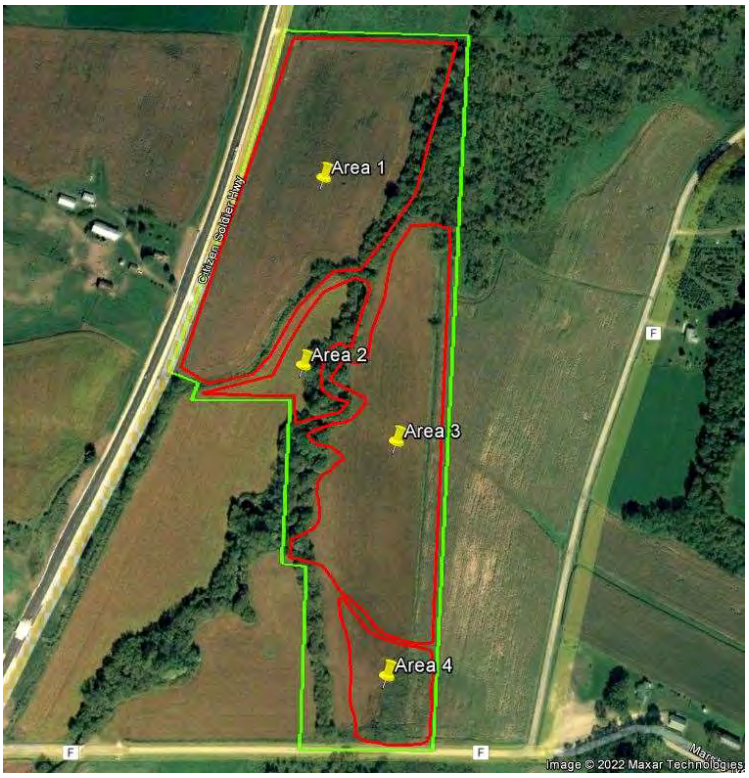
[i] Use MN State Climatology website to determine climate condition when image was taken.



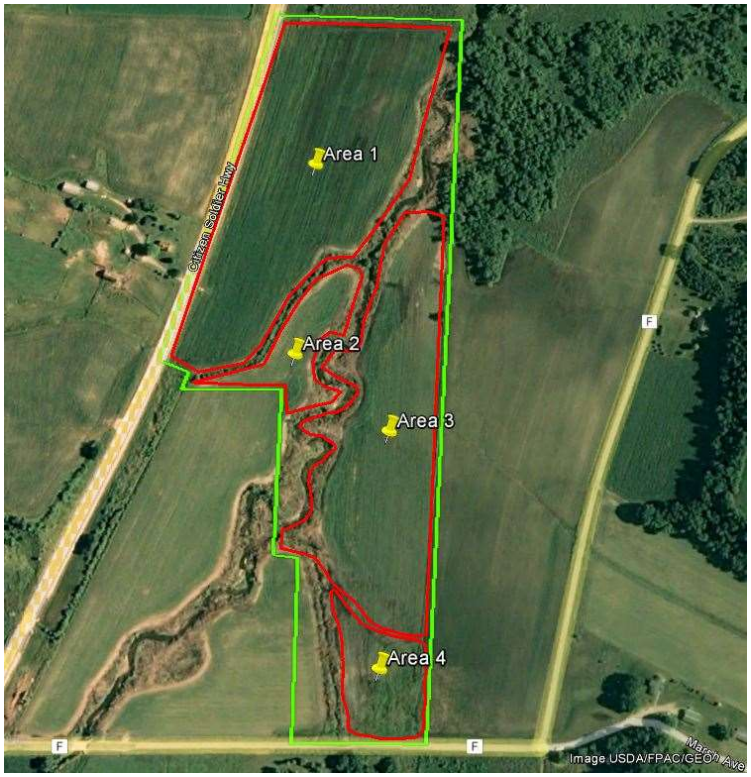
4/23/1999



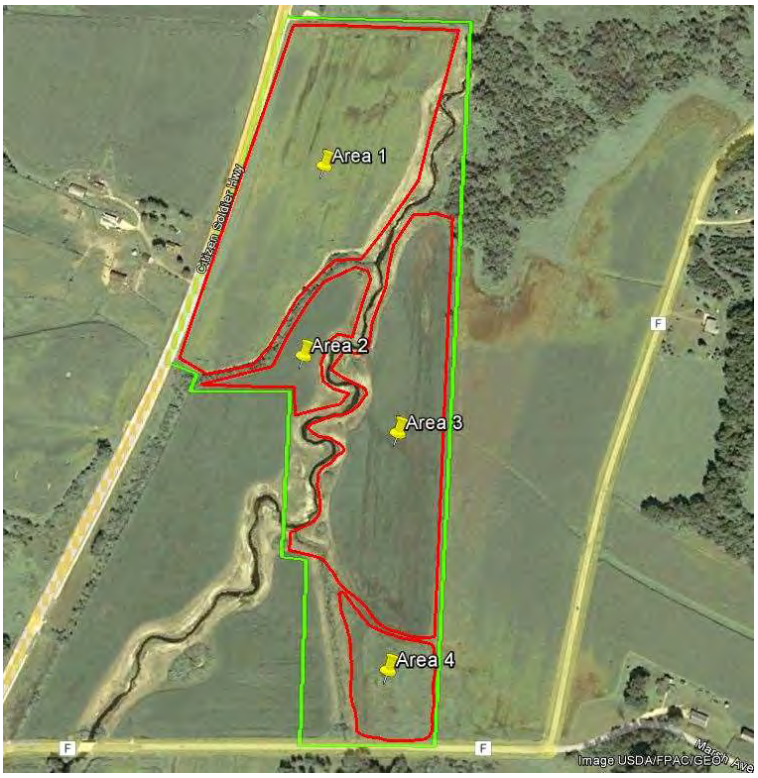
5/31/2005



9/25/2006

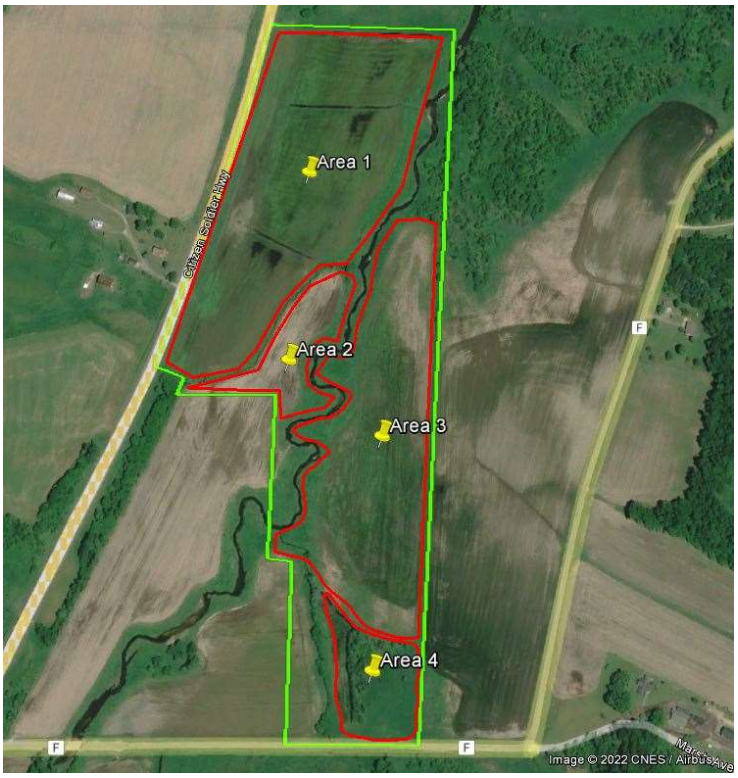


6/22/2008



6/27/2010

10/12/2013



6/12/2020

SQT Preliminary Calculations and Catchment Assessment Worksheets

Programmatic Goals

Select:
Mitigation - Credits

Reach Description

Reach ID:	UNTLR1

Describe this reach and reach break criteria:
This stream segment is currently a single, channelized ditch of similar greomorphic and vegetative character through the project to the confluence with the Little La Crosse River. The natural channel was moved and shaped to allow for efficient drainage of the neighboring agricultural fields while maximizing planting area. This reach has recently undergone additional tree clearing along the entire length to be further assessed.

Lat:	43.809557
Long:	-90.76893

Reference Stream Type: C

Reference stream type is the stream type that should occur in a given landscape setting given the hydrogeomorphic processes occurring at the watershed and reach scales. Channel evolution scenarios should be used to inform the reference stream type in the MNSQT.

Describe the rationale used to select the reference stream type:
A C channel was chosen for the reference stream type based on the likely historic channel and constructibility. The restored channel may evolve into a C/E system, and may eventualy be occupied by the beaver population currently on the Little La Crosse River main stem. The wide alluvial valley, slope, preliminary sinuosity, and natural bed-form fall within the C/E stream type. The specific reference stream type will be verified during the early design process.

Restoration Approach

Expand on the programmatic goals of this project:
This project seeks to restore approximatley 1,587 LF of stream to produce 744 function feet stream credits for sale as a private mitigation bank. The project provides further ecological lifty through the rehabilitation of approximatley 26 acres of wetland adjacent to the stream channles. The tributaries being restored include the confluence with a Class 1 trout stream and will provide additional nursery habitat cureently degraded beyond use. Mitigation credits produced at this site will offsite impacts to the Upper Mississippi - Black Root Watershed Cataloguing Unit.

Explain the restoration potential of this project based on the programmatic goals (based on catchment assessment form):

This project will be a partial restoration of UNTLR1 on property owned by KCI Technologies, Inc.. No assessment of physiochemical components will be performed or targeted for uplift in this project. The straightened, ditched stream on KCI property will be restored to a natural C4 channel based upon reference reach survey data collected from the Jackson Marsh State Natural Area stream. The initial Catchment Assessment indicated the catchment was in Fair condition with the majority of the contributing watershed in rural development, agriculture, and forest. The recieving stream, Little La Crosse Rive,r is rated a Class 1 trout stream in Fair to Poor condition as reported by WI DNR in thier 2022 assessment.

Explain the goals and objectives for this project:

Goals:
1. Improve floodplain connectivity through planfrom, profile, and cross-sectional area adjustments.
2. Improve instream-habitat through the incorporation of large woody debris and riffle/pool sequences to diversify flow regimes.
3. Improve riparian habitat through the installation of native vegetation.

Objectives:
1. Reach runoff will improve slightly in the lateral drainage area by vegetating soil in agriculture.
2. Bedform diversity will improve with the installation of pool/riffle sequences.
3. Riparian buffer diversity and width will be increased through riparian species planting and protection.

Insert Aerial Photo of Project Reach

NOTICE: If you find errors or problems, please email StPaulSQT@usace.army.mil

The Stream Quantification Tool Credits:
Lead Agency: U.S. Army Corps of Engineers, St. Paul District
Contributing Agencies: U.S. Environmental Protection Agency
Minnesota Board of Water and Soil Resources
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency

Contractors:
Ecosystem Planning and Restoration (EPR) through a contract with the U.S. Environmental Projection Agency (Contract No. EP-C-17-001).
Stream Mechanics as a sub-contractor to EPR

Version 2.0
Version Last Updated 10/27/2020

Catchment Name and Number: UNT to Little La Crosse North
Watershed Name (HUC 8) and Number: La Crosse-Pine 70400006

Rater(s): Brad Shoger
Date: 12/22/2022

Overall Watershed Condition	**F**	Purpose: This form is used to determine the project's restoration potential. The catchment assessment is performed on the catchment and contributing area for the project reach. Note the contributing area may be downstream as well, as in the case where a dam exists downstream which restricts movement/recovery of fishes.
Restoration Potential	**Partial**	

CATCHMENT ASSESSMENT

	Categories	Description of Catchment Condition			Rating (P/F/G)
		Poor	**Fair**	**Good**	
1	Flow Alteration - Water Use (Hydrology)	Substantial reduction or augmentation of natural flow regime.	Moderate reduction or augmentation of natural flow regime.	Minimal reduction or augmentation of natural flow regime.	F
2	Impervious Cover (Hydrology)	Impervious Cover (IC) Index Score of 40% or less.	IC Index Score Between 41% and 70%.	IC Index score of 71% or greater.	G
3	Land Use Change (Hydrology)	Perennial Cover (PC) Index Score of 40% or less = % PC remaining -> Highly Altered Landscape.	PC Index Score of 41 to 70% or less -> Altered Landscape.	PC Index Score of 71% or greater -> Minimally Altered Landscape.	G
4	Roads (Hydrology)	Major roads located in or adjacent to project reach and/or high road density in catchment.	Few major or minor roads in or adjacent to project reach. Moderate road density in catchment.	No major or minor roads in or adjacent to project reach. Low road density in catchment.	F
5	Percent Forested (Hydrology)	≤20%	>20% and <70%	≥70%	F
6	Percent Agricultural Land (Hydrology/Physicochemical)	≥ 70%	>20% and <70%	≤20%	G
7	Flashiness Index (Hydrology)	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 40% or less.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of between 41% to 70%.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 71% or more.	F
8	Riparian Connectivity - Vegetation (Geomorphology)	Riparian Connectivity (RC) Index Score of 40% or less.	RC Index Score Between 41% and 70%.	RC Index score of 71% or greater.	P
9	Sediment Supply (Geomorphology)	High sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 40% or less.	Moderate sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores between 41 to 70%.	Low sediment supply. Upstream bank erosion and surface runoff is minimal. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 71% or greater.	G
10	Minnesota Integrated Report (305(b) and 303(d)) designated use support status *(Note: impairments with atmospheric deposition as a source should be excluded*)*	On or immediately upstream or downstream of a waterbody in Category 5 OR in Category 4c (i.e., designated use impairment not actively being mitigated).	On or immediately upstream or downstream of a waterbody in Category 4a or 4b (i.e., active mitigation of designated use impairment through approved TMDL or other control mechanisms).	No adjacent waterbodies listed as not supporting a designated use (i.e., all designated uses either unassessed or in Category 1, 2, or 3).	P
11	Localized Potential Pollution Sources, Animal Units (Physicochemical)	Extensive Livestock (animal units) in area and potential access to stream - scores of 40% or less.	Moderate Livestock (animal units) in area and potential access to stream - scores between 41% and 70%.	Low levels of Livestock (animal units) in area and low likely access to stream - scores of 71% or greater.	G
12	Longitudinal Connectivity of the stream network (Biology)	Aquatic Connectivity (AC) Index Score of 40 or less.	AC Index Score Between 41% and 70%.	AC Index score of 71% or greater.	G
13	Organism Recruitment (Biology)	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 40% or less.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores between 41 to 70%.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 71% or greater.	P
14	Ditched or straightened streams (Hydrology)	Altered Watercourse Index Score of 40% or less.	Altered watercourse score between 41 and 70%.	Altered watercourse score - 71% or greater.	P
15	Other				

MN DNR WHAF Website: https://arcgis.dnr.state.mn.us/ewr/whaf2/

WHAF Index/Metric	**WHAF score equivalents: 0-40 = Poor; 41-70=Fair; 71-100=Good**
Flow Alteration INDEX: Water withdrawal	There has been a moderate amount of flow augmentation including road drainages and course alteration into roadside ditches and surface ditching through the ag field.
INDEX: Impervious Cover (time series)	The catchment is very small and there is limited impervious cover within.
INDEX: Perennial Cover (time series)	Approximatley 87% of the catchement is in perrenial cover.
INDEX: Aquatic Connectivity	The headwaters of the catchment flow under STH 27 adjacent to the site before flowing into the restoration reach.
NLCD Land Use Charts, Ecoregions	The catchment is approximately 50% forested.
NLCD Land Use Charts, 'Cultivated' land	The catchment is approximatley 8% cultivated land.
Major Flow Variability Matrics Worksheet: Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP)	The catchment is likely somewhat flashy given the degree of headwater streams contributing to the system. This was the basis of the Fair scoring as Wisconsin does not provide a current index to utilize.
INDEX: Riparian Connectivity	The riparian corridor for he project reach is narrow and mostly cleared of perrenial vegetation.
INDEX: Soil Erosion Susceptibility; Steep Slopes Near Streams	The percent of perrenial cover throughout the catchment indicates this system likely has low upstream sediment supply. The lower stream through the project resach slated for restoration has been ditcherd with unstable, eroded slopes, but is a small portion of the overall catchment.
Impairments INDEX: Aquatic Life Assessments DATA: Impaired Waters	The project reach flows into the Little la Crosse River at the downstream end of the project. The river is listed as a catergory 5 stream for phosphorus.
INDEX: Animal Unit metric DATA: Feedlots	Livestock pasture occupies approximatley 2.5% of the catchement and have low access to contributing drainages.
Inline Impoundments INDEX: Aquatic Connectivity DATA: **Dams**, bridges, culverts	The catchment is small and passes through only 1 bridge along its length.
Organism Recruitment INDEX: Stream Species, Aquatic Life Assessments DATA: Fish, Invert IBI, Mussel site, fully supporting reaches	No biotic community data on these ditched stream channels are available, however, based on flow regime and altered status, it is likely the scores for these channels would be in the Poor range.
INDEX: Altered Watercourse DATA: Altered Watercourse; Public watercourses/Ditch (DNR data access)	The main channel within the catchment, including the project reach, has been straightened and ditched. Most contributing ephemeral tributaries upstream are along their natural planfrom.

Site Information and Reference Selection	
Project Name:	La Crosse River Mitigation Bank
Reach ID:	UNTLR1
Restoration Potential:	0
Existing Stream Type:	G
Reference Stream Type:	C
Woody Vegetation Natural Component:	Yes
Use Class:	2B
River Nutrient Regions:	
Drainage Area (sq.mi.):	0.44
Proposed Bed Material:	Gravel
Existing Stream Length (ft):	835
Proposed Stream Length (ft):	1587
Macroinvertebrate IBI Class:	
Fish IBI Class:	Southern Coldwater
Valley Type:	Unconfined Alluvial
Flow Permanence:	Perennial
Strahler Stream Order:	Second

Notes
1. Users input values that are highlighted based on restoration potential
2. Users select values from a pull-down menu
3. Leave values blank for field values that were not measured

FUNCTIONAL CHANGE SUMMARY	
Existing Condition Score (ECS)	0.47
Proposed Condition Score (PCS)	0.71
Change in Functional Condition (PCS - E	0.24
Existing Stream Length (ft)	835
Proposed Stream Length (ft)	1587
Change in Stream Length (ft)	752
Existing Functional Feet (FF)	392
Proposed Functional Feet (FF)	1127
Proposed FF - Existing FF	734
Percent Change in FF (%)	187%
FF Yield (FF/ft)	0.46

MITIGATION SUMMARY		
734	(FF)	Lift

FUNCTION BASED PARAMETERS SUMMARY			
Functional Category	**Function-Based Parameters**	**Existing Parameter**	**Proposed Parameter**
Hydrology	Reach Runoff	0.74	0.92
Hydraulics	Floodplain Connectivity	0.36	1.00
Geomorphology	Large Woody Debris	0.94	1.00
	Lateral Migration	0.77	1.00
	Bed Material Characterization		
	Bed Form Diversity	0.00	0.93
	Riparian Vegetation	0.44	0.72
Physicochemical	Temperature		
	Dissolved Oxygen		
	Total Suspended Solids		
Biology	Macroinvertebrates		
	Fish	0.72	0.72

FUNCTIONAL CATEGORY REPORT CARD			
Functional Category	**ECS**	**PCS**	**Functional Change**
Hydrology	0.74	0.92	0.18
Hydraulics	0.36	1.00	0.64
Geomorphology	0.54	0.91	0.37
Physicochemical			
Biology	0.72	0.72	0.00

EXISTING CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	**Function-Based Parameter**	**Metric**	**Field Value**	**Index Value**	**Parameter**	**Category**	**Category**
Hydrology	Reach Runoff	Land Use Coefficient	61	0.78	0.74	0.74	Functioning
		BMP MIDS Rv Coefficient					
		Concentrated Flow Points / 1,000 feet	1	0.69			
Hydraulics	Floodplain Connectivity	Bank Height Ratio	1.7	0.02	0.36	0.36	Functioning At Risk
		Entrenchment Ratio	2.2	0.70			
Geomorphology	Large Woody Debris	LWD Index			0.94	0.54	Functioning At Risk
		No. of LWD Pieces / 100 meters	25	0.94			
	Lateral Migration	Dominant BEHI/NBS	L/L	1.00	0.77		
		Percent Streambank Erosion (%)	25	0.54			
		Percent Armoring (%)					
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio	0	0.00	0.00		
		Pool Depth Ratio	1	0.00			
		Percent Riffle (%)	0	0.00			
		Aggradation Ratio					
	Riparian Vegetation	Effective Vegetated Riparian Area (%)	53	0.33	0.44		
		Canopy Cover (%)	15	0.00			
		Herbaceous Strata Vegetation Cover (%)	95	1.00			
		Woody Stem Basal Area (sqm/hectare)					
Physicochemical	Temperature	Summer Average (^{o}C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI				0.72	Functioning
	Fish	Fish IBI	64	0.72	0.72		

PROPOSED CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	**Function-Based Parameter**	**Metric**	**Field Value**	**Index Value**	**Parameter**	**Category**	**Category**
Hydrology	Reach Runoff	Land Use Coefficient	55	0.84	0.92	0.92	Functioning
		BMP MIDS Rv Coefficient					
		Concentrated Flow Points / 1,000 feet	0	1.00			
Hydraulics	Floodplain Connectivity	Bank Height Ratio	1	1.00	1.00	1.00	Functioning
		Entrenchment Ratio	5	1.00			
Geomorphology	Large Woody Debris	LWD Index			1.00	0.91	Functioning
		No. of LWD Pieces / 100 meters	35	1.00			
	Lateral Migration	Dominant BEHI/NBS	L/L	1.00	1.00		
		Percent Streambank Erosion (%)	5	1.00			
		Percent Armoring (%)					
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio	3	0.80	0.93		
		Pool Depth Ratio	3	1.00			
		Percent Riffle (%)	45	1.00			
		Aggradation Ratio					
	Riparian Vegetation	Effective Vegetated Riparian Area (%)	100	1.00	0.72		
		Canopy Cover (%)	55	0.16			
		Herbaceous Strata Vegetation Cover (%)	90	1.00			
		Woody Stem Basal Area (sqm/hectare)					
Physicochemical	Temperature	Summer Average (^{o}C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI				0.72	Functioning
	Fish	Fish IBI	64	0.72	0.72		

Programmatic Goals

Select:
Mitigation - Credits

Reach Description

Reach ID:	UNTLR2

Describe this reach and reach break criteria:
This stream segment is currently a single, channelized ditch of similar greomorphic and vegetative character through the project to the confluence with the Little La Crosse River. The natural channel was moved and shaped to allow for efficient drainage of the neighboring agricultural fields while maximizing planting area.

Lat:	43.806306
Long:	-90.767614

Reference Stream Type: C

Reference stream type is the stream type that should occur in a given landscape setting given the hydrogeomorphic processes occurring at the watershed and reach scales. Channel evolution scenarios should be used to inform the reference stream type in the MNSQT.

Describe the rationale used to select the reference stream type:
A C channel was chosen for the reference stream type based on the likely historic channel and constructibility. The restored channel may evolve into a C/E system, and may eventualy be occupied by the beaver population currently on the Little La Crosse River main stem. The wide alluvial valley, slope, preliminary sinuosity, and natural bed-form fall within the C/E stream type. The specific reference stream type will be verified during the early design process.

Restoration Approach

Expand on the programmatic goals of this project:

This project seeks to restore approximatley 1,053 LF of stream to produce 744 function feet stream credits for sale as a private mitigation bank. The project provides further ecological lifty through the rehabilitation of approximatley 26 acres of wetland adjacent to the stream channles. The tributaries being restored include the confluence with a Class 1 trout stream and will provide additional nursery habitat cureently degraded beyond use. Mitigation credits produced at this site will offsite impacts to the Upper Mississippi - Black Root Watershed

Explain the restoration potential of this project based on the programmatic goals (based on catchment assessment form):

This project will be a partial restoration of UNTLR2 on property owned by KCI Technologies, Inc.. No assessment of physiochemical components will be performed or targeted for uplift in this project. The straightened, ditched stream on KCI property will be restored to a natural C4 channel based upon reference reach survey data collected from the Jackson Marsh State Natural Area stream. The initial Catchment Assessment indicated the catchment was in Fair condition with the majority of the contributing watershed in rural development, agruculture, and forest. The recieving stream, Little La Crosse Rive,r is rated a Class 1 trout stream in Fair to Poor condition as reported by WI DNR in thier 2022 assessment.

Explain the goals and objectives for this project:

Goals:
1. Improve floodplain connectivity through planfrom, profile, and cross-sectional area adjustments.
2. Improve instream-habitat through the incorporation of large woody debris and riffle/pool sequences to diversify flow regimes.
3. Improve riparian habitat through the installation of native vegetation.

Objectives:
1. Reach runoff will improve slightly in the lateral drainage area by vegetating soil in agriculture.
2. Bedform diversity will improve with the installation of pool/riffle sequences.
3. Riparian buffer diversity and width will be increased through riparian species planting and protection.

Insert Aerial Photo of Project Reach

NOTICE: If you find errors or problems, please email StPaulSQT@usace.army.mil

The Stream Quantification Tool Credits:
Lead Agency: U.S. Army Corps of Engineers, St. Paul District
Contributing Agencies: U.S. Environmental Protection Agency
Minnesota Board of Water and Soil Resources
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency

Contractors:
Ecosystem Planning and Restoration (EPR) through a contract with the U.S. Environmental Projection Agency (Contract No. EP-C-17-001).
Stream Mechanics as a sub-contractor to EPR

Version 2.0
Version Last Updated 10/27/2020

Catchment Name and Number: UNT to Little La Crosse North
Watershed Name (HUC 8) and Number: La Crosse-Pine 70400006

Rater(s): Brad Shoger
Date: 12/22/2022

Overall Watershed Condition	**F**
Restoration Potential	**Partial**

Purpose: This form is used to determine the project's restoration potential. The catchment assessment is performed on the catchment and contributing area for the project reach. Note the contributing area may be downstream as well, as in the case where a dam exists downstream which restricts movement/recovery of fishes.

CATCHMENT ASSESSMENT

	Categories	Description of Catchment Condition: Poor	Fair	Good	Rating (P/F/G)
1	Flow Alteration - Water Use (Hydrology)	Substantial reduction or augmentation of natural flow regime.	Moderate reduction or augmentation of natural flow regime.	Minimal reduction or augmentation of natural flow regime.	F
2	Impervious Cover (Hydrology)	Impervious Cover (IC) Index Score of 40% or less.	IC Index Score Between 41% and 70%.	IC Index score of 71% or greater.	G
3	Land Use Change (Hydrology)	Perennial Cover (PC) Index Score of 40% or less = % PC remaining -> Highly Altered Landscape.	PC Index Score of 41 to 70% or less -> Altered Landscape.	PC Index Score of 71% or greater -> Minimally Altered Landscape.	G
4	Roads (Hydrology)	Major roads located in or adjacent to project reach and/or high road density in catchment.	Few major or minor roads in or adjacent to project reach. Moderate road density in catchment.	No major or minor roads in or adjacent to project reach. Low road density in catchment.	F
5	Percent Forested (Hydrology)	≤20%	>20% and <70%	≥70%	P
6	Percent Agricultural Land (Hydrology/Physicochemical)	≥ 70%	>20% and <70%	≤20%	G
7	Flashiness Index (Hydrology)	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 40% or less.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of between 41% to 70%.	IHA Analysis: Use the Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP) - scores of 71% or more.	G
8	Riparian Connectivity - Vegetation (Geomorphology)	Riparian Connectivity (RC) Index Score of 40% or less.	RC Index Score Between 41% and 70%.	RC Index score of 71% or greater.	P
9	Sediment Supply (Geomorphology)	High sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 40% or less.	Moderate sediment supply from upstream bank erosion and surface runoff. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores between 41 to 70%.	Low sediment supply. Upstream bank erosion and surface runoff is minimal. Use scores for Soil Erosion Susceptibility and for Steep Slopes Near Streams to estimate sediment supply - scores of 71% or greater.	G
10	Minnesota Integrated Report (305(b) and 303(d)) designated use support status *(Note: impairments with atmospheric deposition as a source should be excluded*)*	On or immediately upstream or downstream of a waterbody in Category 5 OR in Category 4c (i.e., designated use impairment not actively being mitigated).	On or immediately upstream or downstream of a waterbody in Category 4a or 4b (i.e., active mitigation of designated use impairment through approved TMDL or other control mechanisms).	No adjacent waterbodies listed as not supporting a designated use (i.e., all designated uses either unassessed or in Category 1, 2, or 3).	P
11	Localized Potential Pollution Sources, Animal Units (Physicochemical)	Extensive Livestock (animal units) in area and potential access to stream - scores of 40% or less.	Moderate Livestock (animal units) in area and potential access to stream - scores between 41% and 70%.	Low levels of Livestock (animal units) in area and low likely access to stream - scores of 71% or greater.	F
12	Longitudinal Connectivity of the stream network (Biology)	Aquatic Connectivity (AC) Index Score of 40 or less.	AC Index Score Between 41% and 70%.	AC Index score of 71% or greater.	G
13	Organism Recruitment (Biology)	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 40% or less.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores between 41 to 70%.	Stream Species Quality Fish /Stream Species Quality Invertebrates - scores of 71% or greater.	P
14	Ditched or straightened streams (Hydrology)	Altered Watercourse Index Score of 40% or less.	Altered watercourse score between 41 and 70%.	Altered watercourse score - 71% or greater.	P
15	Other				

MN DNR WHAF Website: https://arcgis.dnr.state.mn.us/ewr/whaf2/

WHAF Index/Metric	WHAF score equivalents: 0-40 = Poor; 41-70=Fair; 71-100=Good
Flow Alteration INDEX: Water withdrawal	There has been a moderate amount of flow augmentation including road drainages and course alteration into roadside ditches and surface ditching through the ag field.
INDEX: Impervious Cover (time series)	The catchment is very small and there is limited impervious cover within.
INDEX: Perennial Cover (time series)	Approximatley 87% of the catchement is in perrenial cover.
INDEX: Aquatic Connectivity	The headwaters of the catchment flow under STH F adjacent to the site before flowing into the restoration reach.
NLCD Land Use Charts, Ecoregions	The catchment is approximately 20% forested.
NLCD Land Use Charts, 'Cultivated' land	The catchment is approximatley 10% cultivated land.
Major Flow Variability Matrics Worksheet: Rate and Frequency of Change metric (H_M_FV_RFC) and the Frequency and Duration of High/Low Pulses metric (H_M_FV_FDP)	The catchment begins in a wetland likely fed by springs mainting a fairily consistent flow regime. This upstream wetland and the lack of impervious surfaces within the catchment to contribute stormwater runoff is the basis for the rating. Wisconsin does not provide a current index to utilize.
INDEX: Riparian Connectivity	The riparian corridor for the project reach is narrow and mostly cleared of perrenial vegetation.
INDEX: Soil Erosion Susceptibility; Steep Slopes Near Streams	The percent of perrenial cover throughout the catchment indicates this system likely has low upstream sediment supply. The lower stream through the project reach slated for restoration has been ditched with unstable, eroded slopes, but is a small portion of the overall catchment.
Impairments INDEX: Aquatic Life Assessments DATA: Impaired Waters	The project reach flows into the Little la Crosse River at the downstream end of the project. The river is listed as a catergory 5 stream for phosphorus.
INDEX: Animal Unit metric DATA: Feedlots	Livestock pasture occupies approximatley 35% of the catchment and have access to the upstream wetylands supplying the project reach.
Inline Impoundments INDEX: Aquatic Connectivity DATA: **Dams**, bridges, culverts	The catchment is small and passes through only 1 bridge along its length.
Organism Recruitment INDEX: Stream Species, Aquatic Life Assessments DATA: Fish, Invert IBI, Mussel site, fully supporting reaches	No biotic community data on these ditched stream channels are available, however, based on flow regime and altered status, it is likely the scores for these channels would be in the Poor range.
INDEX: Altered Watercourse DATA: Altered Watercourse; Public watercourses/Ditch (DNR data access)	The main channel within the catchment, including the project reach, has been straightened and ditched. Most contributing ephemeral tributaries upstream are along their natural planfrom.

Site Information and Reference Selection	
Project Name:	La Crosse River Mitigation Bank
Reach ID:	UNTLR2
Restoration Potential:	0
Existing Stream Type:	G
Reference Stream Type:	C
Woody Vegetation Natural Component:	Yes
Use Class:	2B
River Nutrient Regions:	
Drainage Area (sq.mi.):	0.19
Proposed Bed Material:	Gravel
Existing Stream Length (ft):	810
Proposed Stream Length (ft):	1053
Macroinvertebrate IBI Class:	
Fish IBI Class:	Southern Coldwater
Valley Type:	Unconfined Alluvial
Flow Permanence:	Perennial
Strahler Stream Order:	Second

Notes
1. Users input values that are highlighted based on restoration potential
2. Users select values from a pull-down menu
3. Leave values blank for field values that were not measured

FUNCTIONAL CHANGE SUMMARY	
Existing Condition Score (ECS)	0.49
Proposed Condition Score (PCS)	0.72
Change in Functional Condition (PCS - E	0.23
Existing Stream Length (ft)	810
Proposed Stream Length (ft)	1053
Change in Stream Length (ft)	243
Existing Functional Feet (FF)	397
Proposed Functional Feet (FF)	758
Proposed FF - Existing FF	361
Percent Change in FF (%)	91%
FF Yield (FF/ft)	0.34

MITIGATION SUMMARY		
361	(FF)	Lift

FUNCTION BASED PARAMETERS SUMMARY			
Functional Category	**Function-Based Parameters**	**Existing Parameter**	**Proposed Parameter**
Hydrology	Reach Runoff	0.74	0.92
Hydraulics	Floodplain Connectivity	0.37	1.00
Geomorphology	Large Woody Debris	0.94	1.00
	Lateral Migration	0.77	1.00
	Bed Material Characterization		
	Bed Form Diversity	0.00	0.93
	Riparian Vegetation	0.80	0.83
Physicochemical	Temperature		
	Dissolved Oxygen		
	Total Suspended Solids		
Biology	Macroinvertebrates		
	Fish	0.72	0.72

FUNCTIONAL CATEGORY REPORT CARD			
Functional Category	**ECS**	**PCS**	**Functional Change**
Hydrology	0.74	0.92	0.18
Hydraulics	0.37	1.00	0.63
Geomorphology	0.63	0.94	0.31
Physicochemical			
Biology	0.72	0.72	0.00

EXISTING CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	**Function-Based Parameter**	**Metric**	**Field Value**	**Index Value**	**Parameter**	**Category**	**Category**
Hydrology	Reach Runoff	Land Use Coefficient	61	0.78	0.74	0.74	Functioning
		BMP MIDS Rv Coefficient					
		Concentrated Flow Points / 1,000 feet	1	0.69			
Hydraulics	Floodplain Connectivity	Bank Height Ratio	2	0.00	0.37	0.37	Functioning At Risk
		Entrenchment Ratio	2.5	0.73			
Geomorphology	Large Woody Debris	LWD Index			0.94	0.63	Functioning At Risk
		No. of LWD Pieces / 100 meters	25	0.94			
	Lateral Migration	Dominant BEHI/NBS	L/L	1.00	0.77		
		Percent Streambank Erosion (%)	25	0.54			
		Percent Armoring (%)					
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio	0	0.00	0.00		
		Pool Depth Ratio	1	0.00			
		Percent Riffle (%)	0	0.00			
		Aggradation Ratio					
	Riparian Vegetation	Effective Vegetated Riparian Area (%)	100	1.00	0.80		
		Canopy Cover (%)	62	0.40			
		Herbaceous Strata Vegetation Cover (%)	95	1.00			
		Woody Stem Basal Area (sqm/hectare)					
Physicochemical	Temperature	Summer Average (^{o}C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI				0.72	Functioning
	Fish	Fish IBI	64	0.72	0.72		

PROPOSED CONDITION ASSESSMENT					Roll Up Scoring		
Functional Category	**Function-Based Parameter**	**Metric**	**Field Value**	**Index Value**	**Parameter**	**Category**	**Category**
Hydrology	Reach Runoff	Land Use Coefficient	55	0.84	0.92	0.92	Functioning
		BMP MIDS Rv Coefficient					
		Concentrated Flow Points / 1,000 feet	0	1.00			
Hydraulics	Floodplain Connectivity	Bank Height Ratio	1	1.00	1.00	1.00	Functioning
		Entrenchment Ratio	5	1.00			
Geomorphology	Large Woody Debris	LWD Index			1.00	0.94	Functioning
		No. of LWD Pieces / 100 meters	35	1.00			
	Lateral Migration	Dominant BEHI/NBS	L/L	1.00	1.00		
		Percent Streambank Erosion (%)	5	1.00			
		Percent Armoring (%)					
	Bed Material Characterization	Size Class Pebble Count Analyzer (p-value)					
	Bed Form Diversity	Pool Spacing Ratio	3	0.80	0.93		
		Pool Depth Ratio	3	1.00			
		Percent Riffle (%)	45	1.00			
		Aggradation Ratio					
	Riparian Vegetation	Effective Vegetated Riparian Area (%)	100	1.00	0.83		
		Canopy Cover (%)	65	0.50			
		Herbaceous Strata Vegetation Cover (%)	90	1.00			
		Woody Stem Basal Area (sqm/hectare)					
Physicochemical	Temperature	Summer Average (^{o}C)					
	Dissolved Oxygen	DO (mg/L)					
	Total Suspended Solids	TSS (mg/L)					
Biology	Macroinvertebrates	Macroinvertebrate IBI				0.72	Functioning
	Fish	Fish IBI	64	0.72	0.72		

Soil Pit Data

La Crosse River Headwaters Site **Joe Pfeiffer SPWS**

Data Collected November 28th, 2:30 to 3:30 pm

Soil Pit	Type	Depth	Matrix	Mottle	Comments
#1	Silty Loam	0-18"+	2.5YR 2.5/0		Plow layer, oxidized root channels
#2	Silty Loam	0-18"	2.5YR 2.5/0		Plow layer
	Silty Clay	18"+	5YR 3/1	5YR 4/6	Mottled, oxidized root channels
#3	Silty Loam	0-8"	5YR 3/1		Plow Layer
	Silty Loam	8-12"	5YR 2.5/1	5YR 4/4	Mottleing
	Organic	12-18"	2.5YR 2.5/0		Blocky, water in hole, burried horizon
#4	Organic	0-18"	2.5YR 2.5/0		Plow Layer
	Silty Clay	18-20"			Band in between organic layers
	Organic	20"+	2.5YR 2.5/0		Blocky,water in hole

Pit #1

Pit #2

Pit #3

Pit #4

Site Photographs

KCI TECHNOLOGIES

Drainage Pictures
Little La Crosse River
Headwaters Restoration Site

ESRI Image Basemap
Monroe County, WI
Map Created: 12/15/2022

N

Photo Points
0
Property Boundary

0 250 500 1,000 Feet

Photo Point 1 Facing East

Photo Point 1 Facing South

Photo Point 2 Facing East

Photo Point 3 Facing East

Photo Point 3 Facing South

Photo Point 4 Facing East

Photo Point 4 Facing West

Photo Point 5

Photo Point 6 Facing North

Photo Point 6 Facing South

Photo Point 6 Facing West

Photo Point 7

Photo Point 8

Photo Point 8 Facing East

Photo Point 9

Photo Point 10 Facing East

Photo Point 11 Facing North

Photo Point 11 Facing West

Photo Point 12

Photo Point 13 Facing West

Photo Point 14 Facing South

Photo Point 15 Facing North

Photo Point 15 Facing East

Photo Point 15 Facing West

Photo Point 15 Facing South

Photo Point 16 Facing North

Photo Point 17 Facing South

Photo Point 17 Facing West

Photo Point 18 Facing East

Photo Point 18 Facing West

Photo Point 19 Facing North

Photo Point 20 Facing West

Photo Point 21 Facing East

Photo Point 22 Facing North

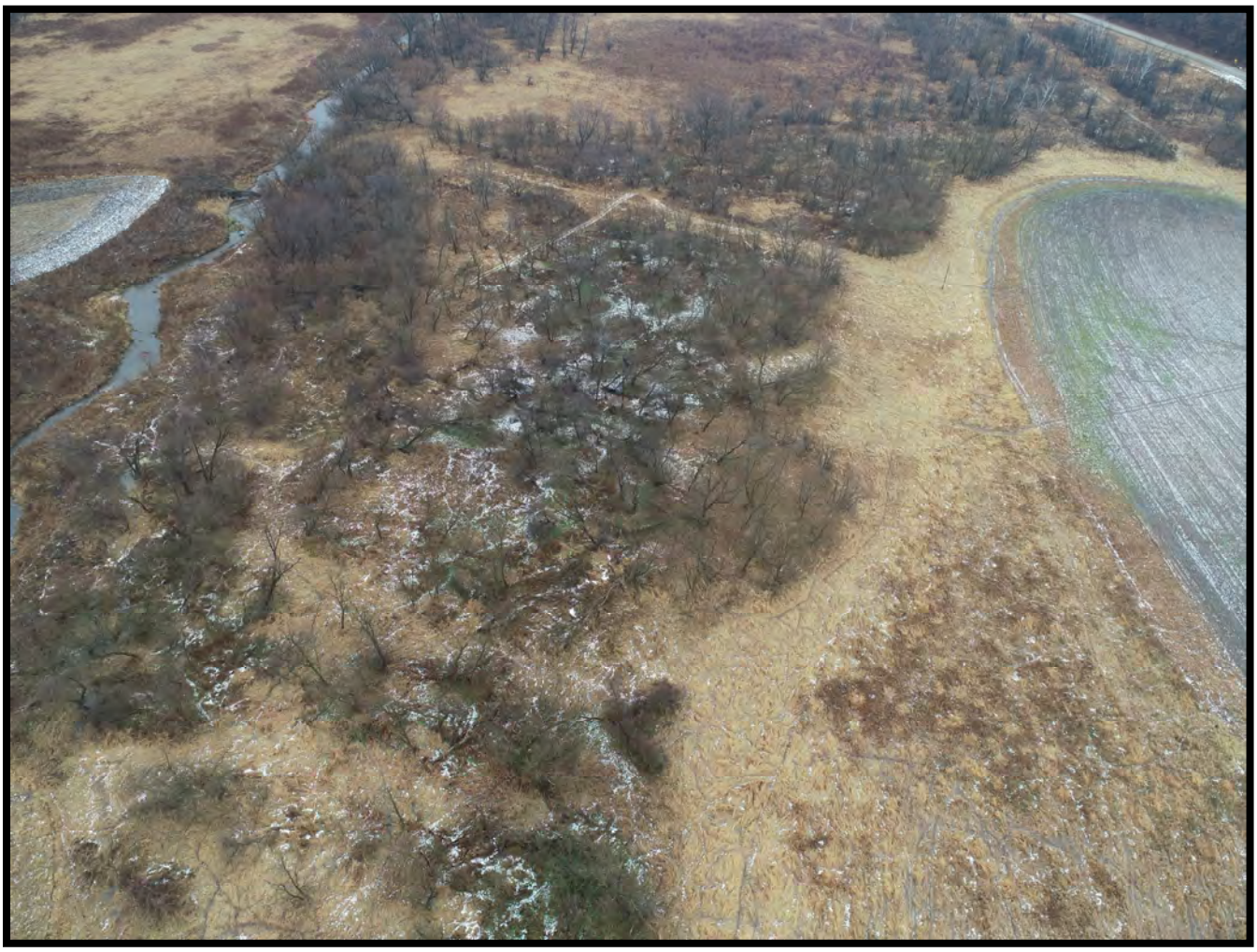


Photo Point 23 Facing North East

Photo Point 24 Facing East

Photo Point 25

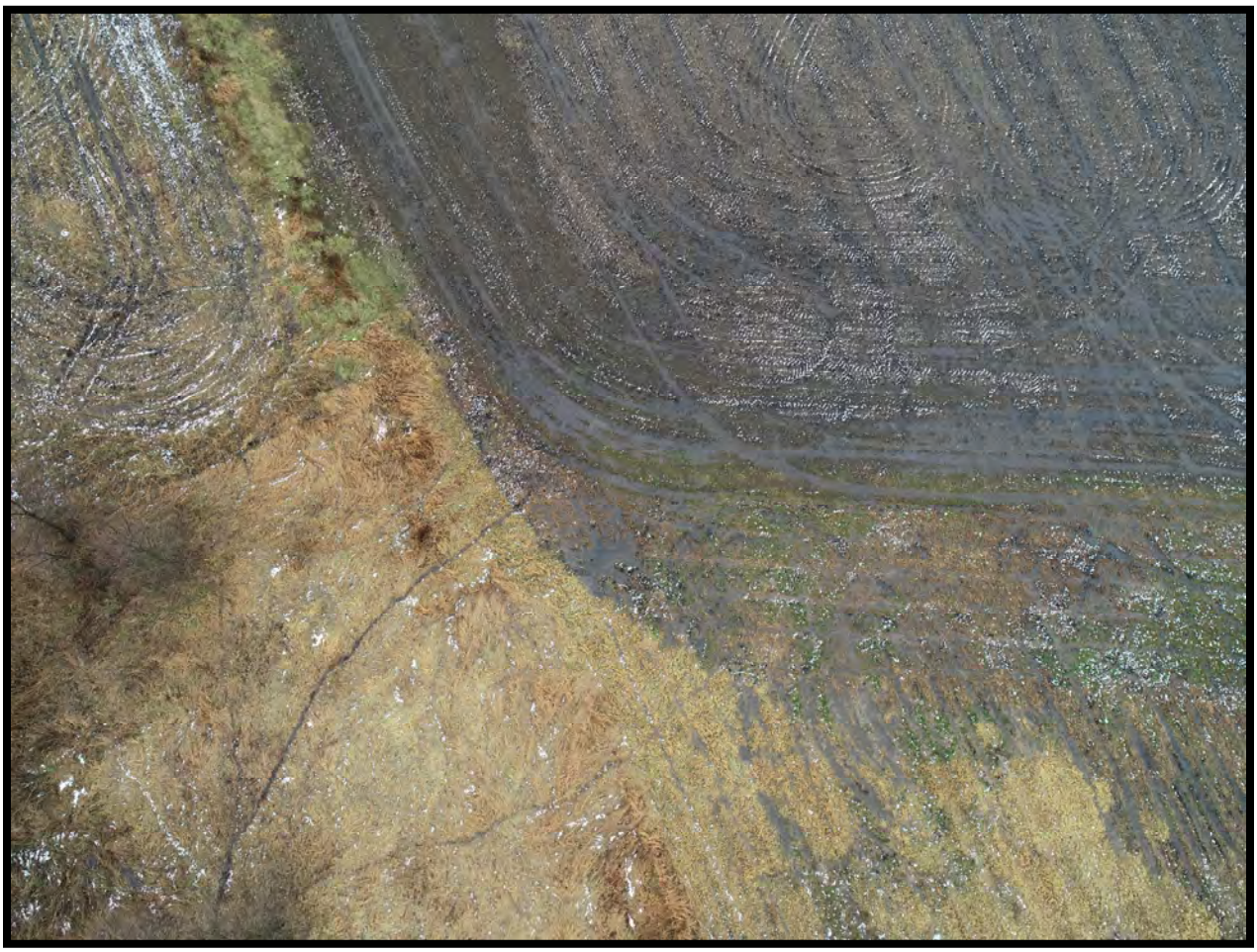


Photo Point 26

Photo Point 27

Photo Point 28

Photo Point 29

Photo Point 30

KCI Statement of Qualifications

RISE TO THE CHALLENGE

KCI

2021 QUALIFICATIONS - WI DEPARTMENT OF NATURAL RESOURCES

STREAM AND WETLAND RESTORATION/ CONSTRUCTION / MANAGEMENT

KCI TECHNOLOGIES, INC.

CONTENTS

1 FIRM OVERVIEW

1 FIRM OVERVIEW

KCI is an employee-owned company headquartered in Sparks, Maryland, with division offices located throughout the Midwest, Mid-Atlantic and Southeastern United States. The Natural Resource Management and Ecosystem Dynamics groups, located in La Crosse, Wisconsin, will be responsible for work derived from this contract.

Our roughly 1,700 employee-owners operate out of more than 55 offices in 19 states. Our employees includes professional engineers, planners, architects, scientists, and construction support personnel. KCI is considered to have one of the largest staffs trained in wetland and stream restoration design and construction, watershed management, geomorphology, and hydrologic/hydraulic engineering in the United States. KCI has made a concerted effort to foster the best technical expertise available in the design, implementation and construction of stream and wetland restoration.

TECHNICAL STAFF

140	130	451	592
ENVIRONMENTAL ENGINEERS/SUPPORT	CIVIL ENGINEERS	TECHNICAL SUPPORT (CAD/ GIS/SURVEY)	OTHER ENGINEERS /SUPPORT

KCI's La Crosse office is the primary location serving Wisconsin Department of Natural Resources, with support from the Indianapolis, IN; Nashville, TN; and Raleigh, NC; locations.

OFFICE LOCATIONS

INDIANAPOLIS, IN	LA CROSSE, WI	RALEIGH, NC	NASHVILLE, TN
5672 W. 74TH STREET INDIANAPOLIS, IN 46278 317.243.9200	300 2ND. STREET NORTH SUITE 350 LA CROSSE, WI 54601 608.790.9634	4505 FALLS OF NEUSE ROAD SUITE 400 RALEIGH, NC 27609 919.783.9214	500 11TH. AVENUE NORTH NASHVILLE, TN 37023 615.370.8410

KCI's team has been established to provide successful implementation of wetland mitigation projects by providing all necessary planning, design, construction management remedial action and financial components in one entity. KCI has been involved in the location, design, development and management of over 1,600 acres of wetland and 40 miles of stream mitigation throughout our theatre of operations.

KCI offers a highly qualified staff of environmental, engineering and construction professionals with extensive training and proven skills in all aspects of mitigation site location, plan development, design, construction, monitoring and remedial action. Our approach to successfully meeting our client's needs includes solid experience in the environmental, engineering, and construction professions, as well as quality personnel.

KCI stands ready to meet your wetland mitigation needs at this site. Upon review of our submittal, we trust you will find our qualifications and proposed site commensurate with your requirements. We look forward to addressing any questions or comments you may have and to the opportunity of working with you in the near future.

PROJECT PERSONNEL

KCI's key staff offer the WI DNR a qualified and experienced group of professionals dedicated to providing the highest quality services and technical expertise in the field of stream and wetland mitigation. Our staff is prepared to complete all tasks on the proposed project in an innovative, cost-effective, and timely manner.

Our past record of successful work performance with state and federal clients is highlighted by our ability to work interactively on multi-disciplined projects in concert with clients, agencies and stakeholders, and demonstrates our commitment and capabilities to undertake projects involving a variety of environmental, engineering and ecological challenges.

In addition to the key staff, KCI maintains a highly-trained professional support staff to aid in the execution of project tasks. This includes over 1,400 technical staff company-wide, with almost 180 in the La Crosse, WI, Indianapolis, IN; Nashville, TN; and Raleigh, NC; offices alone. These groups of engineers and scientists have, on average, 10 years of experience in their respective disciplines, and the majority of them have been awarded advanced degrees in their field of expertise. In addition, our staff has been working as a team as KCI employees for an average of 20 years.

KEY STAFF

Our staff is well qualified, capable and committed to meeting the goals and objectives of the WI DNR. Our team of environmental and engineering professionals offers a qualified and experienced group of professionals dedicated to providing the highest quality services and technical expertise in stream and wetland mitigation. Successful stream and wetland restoration requires the skills of a variety of disciplines. The disciplines represented by the key staff presented herein include: fisheries/wildlife biology, environmental science, hydrology/hydraulics, survey, CADD and construction. The project manager coordinates these disciplines to effectively facilitate the project. Detailed information regarding KCI's key staff can be found on the following pages.

2 STAFF QUALIFICATIONS

JOE PFEIFFER, SPWS

PRINCIPAL-IN-CHARGE / PROJECT MANAGER

CERTIFICATIONS & REGISTRATIONS

Senior Professional Wetland Scientist / #927
Rosgen Natural Channel Design and River Restoration Level IV
Rosgen River Assessment and Monitoring Level III
Rosgen River Morphology and Applications Level II
Rosgen Applied Fluvial Geo-morphology Level I

EDUCATION

MA / Environmental Planning / Towson University / 1993
BS / Natural Science / Towson University / 1988
AA / Wildlife Management / Garrett Community College / 1986

YEARS OF EXPERIENCE

36

Mr. Pfeiffer is the Ecosystem Dynamics Practice leader for KCI. Since joining KCI as an environmental scientist in 1988, he has actively developed KCI's ecological restoration practice throughout the eastern seaboard and midwest. His multi-discipline background in engineering, planning, ecology, and construction has enabled him to integrate ecological restoration into evolving ecological systems with human-induced stressors with focus on natural sustainability as a pillar of the restoration design approach through adaptive management. Mr. Pfeiffer applied his adaptive management approach to restoration with his development of KCI's design-build arm called KCI Environmental Technologies and Construction Inc. Since its inception in 1998 to undertake ecological restoration projects, this venture has provided him 23 years of experience in the implementation and management of ecological systems and has refined his abilities to developed practical, constructable restoration plans that cost effectively achieve the functional objectives of the project.

PROJECT EXPERIENCE

NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM (NCEEP), FULL DELIVERY STREAM/WETLAND RESTORATION **- Statewide, NC.**
PRINCIPAL-IN-CHARGE **- Development of 101,000 lf of streams and 270 acres of wetlands for seven full delivery contracts with a gross value of $39 million. The projects required the location and acquisition of real estate, design and permitting of restoration, construction and 10 years of monitoring and habitat management to develop mitigation credits for the agency.**

WISCONSIN DEPARTMENT OF NATURAL RESOURCES, MEACHEM ROAD FULL DELIVERY RESTORATION **- Racine, WI.**
PRINCIPAL-IN-CHARGE - **KCI was contracted to undertake the restoration of 60-acre wetland system. KCI was responsible for site acquisition, assessment, design, construction, monitoring and management throughout its 10-year restorative process. It will result in more than 45 mitigation credits.**

NCEEP, FARRAR DAIRY STREAM RESTORATION AND WETLAND SURVEY **- Lillington, NC.**
PRINCIPAL-IN-CHARGE - **KCI restored the streams, riparian buffers and forested wetlands along the North Prong of Anderson Creek, the main stream through the site. The streams and wetlands at the site had become degraded through poor grazing management, ditching, and vegetation removal. The project provided mitigation credit for stream and wetland impacts by restoring, enhancing, and preserving 13,044 lf of stream and 112 acres of wetland, while converting a large portion of the property into a hunting preserve. Mr. Pfeiffer was responsible for the delivery of mitigation credits. He also directed location, acquisition, design development, and permitting of more than 110 acres of wetland and 12,500 lf of stream restoration, enhancement, and preservation.**

GARY MRYNCZA, PE, CPESC, LEED AP

HYDROLOGY / HYDRAULICS

CERTIFICATIONS & REGISTRATIONS

Professional Engineer (WI #40933-6)
Hey-River Mechanics and Restoration
Rosgen Levels I, II, III, IV
Certified Professional in Erosion & Sediment Control (#4314)
LEED Accredited Professional

EDUCATION

MS / Water Resources / University of Birmingham / 2001
ME / Civil Engineering / Vanderbilt / 2010
BS / Natural Science / Towson University / 1996
BSET / Civil Engineering Technology / Old Dominion University / 2006

YEARS OF EXPERIENCE

25

Mr. Mryncza is the company-wide discipline head for resource management and specializes in hydrology and streams. His experience includes watershed and site-specific hydrologic analysis, stream assessment, feasibility study and restoration design, water quality assessment/stream monitoring, and water resources management. Mr. Mryncza is versed in the use of hydrologic/hydraulic models and has experience applying natural channel design principles. He has been responsible for the development of design plans for more than 75 mitigation projects throughout the Midwest and Southeast United States.

PROJECT EXPERIENCE

TENNESSEE STREAM MITIGATION PROGRAM, BLEDSOE CREEK STREAM RESTORATION **- Sumner County, TN.**
PROJECT ENGINEER **- KCI will provide professional assessment, design and construction observation services to facilitate the restoration of approximately 6,837 linear feet of Bledsoe Creek and two unnamed tributaries near Bethpage, in Sumner County, TN. The site is on a single parcel with a single landowner. Mr. Mryncza has provided quality assurance and have overseen the assembly of the Umbrella Mitigation Banking Instrument (UMBI). He ensured that all resources were in place to assess the large number of streams at the Facility and that the mitigation prospectus and the UMBI were merged into one cohesive document to submit to TDOT and regulatory agencies.**

CUMBERLAND RIVER COMPACT, RICHLAND CREEK DAM REMOVAL **- Randolph Nashville, TN.**
PRINCIPAL-IN-CHARGE - **KCI provided engineering services for the removal of a low head dam that was four feet tall and 50 feet wide and located on Richland Creek. This project included site assessment, engineering design for the dam removal, and potential installation of a cross vane structure to maintain sufficient water level from the golf course, preparation of permits and supporting documents, and construction oversight. Mr. Mryncza was Principal-In-Charge for the project and oversaw project coordination with the client.**

NORTH CAROLINA DIVISION OF MITIGATION RESOURCES, CANE CREEK TRIBUTARY RESTORATION **- Person County, NC**
PROJECT MANAGER - **KCI developed a restoration plan of approximately 17,000 LF of headwater tributaries that involved a combination of stream restoration and enhancement of B and Bc channel types. The project reaches were designed as restoration or enhancement based on the level of departure from a stable stream system. Mr. Mryncza oversaw the staff and managed the contract for this project.**

HARALD (JORDY) JORDAHL

PROJECT MANAGER

EDUCATION

BS / Political Science, History and International Relations / University of Wisconsin at Madison / 1991

International Summer Session / Public Policy and Administration / University of Oslo, Norway / 1991

Nansenskolen, Norwegian Humanities Institute / 1990

YEARS OF EXPERIENCE

29

Mr. Jordahl is a conservation professional with 29 years of experience based in Wisconsin and the Midwest including program conception, development, and leadership. Jordy worked on resource policy issues with state, local, federal and tribal governments while serving in legislative, executive, administrative and advocacy positions including policy advisor to the Governor, legislative policy aide, director of intergovernmental relations for the Wisconsin Department of Administration, and director of government relations for The Nature Conservancy in Wisconsin. His interests have focused on advancing projects affecting working landscapes and the connections between conservation and communities, agriculture, forestry and transportation.

Immediately prior to joining KCI, Jordahl led large multi-stakeholder collaborations focused on water resources and natural infrastructure in the 31-state Mississippi River Watershed and to support forest land conservation across a 17-state region to meet industrial and conservation objectives.

Mr. Jordahl also directs a family business managing rural properties in Wisconsin, leading teams of contractors and volunteers to complete significant upland forest and cropland projects, restore and establish prairie habitat and reconstruct a large dam to support watershed water quality and habitat objectives.

PROJECT EXPERIENCE

AMERICA'S WATERSHED MISSISSIPPI RIVER WATERSHED REPORT CARD **- MS.** DIRECTOR - **Mr. Jordahl directed a team of academics, agency scientists and watershed professionals to develop the first Mississippi River Watershed Report Card. Over a 24-month period, Mr. Jordahl brought together over 600 diverse experts and stakeholders in workshops, meetings, and webinars throughout the 31-state watersheds to identify information about six broad goals and create a report card. The Report Card supports collective action towards sustaining the economic and natural vitality of the world's fourth largest watershed. The Report Card measured status and reported on progress towards flood control and risk reduction, recreation, ecosystems, transportation, economies and water supply.**

US HIGHWAY 12 BARABOO HILLS NATIONAL NATURAL LANDMARK PRE-MITIGATION SETTLEMENT **- Dane County, WI.**
PROJECT MANAGER - **Mr. Jordahl led efforts for The Nature Conservancy in Wisconsin to work with elected and appointed officials to resolve a long legal and political conflict surrounding impacts associated with the expansion of a highway in Dane County. The final negotiated settlement resolved lawsuits and provided over $15 million to mitigate impacts associated with the highway construction on the Baraboo Hills and the highway corridor in Wisconsin's fastest county protecting thousands of acres of critical habitat.**

ADAM SPILLER, CPESC

ENVIRONMENTAL SCIENTIST

CERTIFICATIONS & REGISTRATIONS

Certified Professional in Erosion and Sediment Control
HAZWOPER 8-Hour Refresher Course
Rosgen Natural Channel Design and River Restoration Level IV
Rosgen River Assessment and Monitoring Level III
Rosgen River Morphology and Applications Level II
Rosgen Applied Fluvial Geomorphology Level I

EDUCATION

MEM / Ecosystem Science and Management / Duke University / 2005
BS / Biology, Environmental Science / College of William and Mary / 2002

YEARS OF EXPERIENCE

17

Mr. Spiller is an environmental scientist and project manager with experience specializing in stream and wetland design and monitoring. This work includes stream assessment and existing conditions surveys, design constraint evaluations, concept plans, design criteria development, mitigation report preparation, permitting, construction plans and specifications, construction oversight, and baseline data collection and report preparation. He also manages all resource monitoring performed by KCI's Raleigh office. Mr. Spiller is experienced in performing stream and wetland assessments and restoration design. His educational background in biology and environmental management aid him in understanding functional implications of stream restoration. He has applied these skills in numerous contexts, including assessment, design, and monitoring.

PROJECT EXPERIENCE

NC DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES, DANIELS FARM RESTORATION SITE **- Louisburg, NC.**
PROJECT MANAGER - **Project involved the restoration of 30 acres of wetlands in a former row crop agricultural setting in Louisburg, North Carolina. Project improved water quality and aquatic and terrestrial habitat. Services included assessment and design, construction administration, and baseline monitoring.**

TENNESSEE STREAM MITIGATION PROGRAM, EMERGENCY REPAIR, ASSESSMENT AND REMEDIATION **- Nashville, TN.**
PROJECT MANAGER - **KCI worked with the principal designer to evaluate the damage to TSMP stream restoration sites from the May 2010 floods. Developed assessments of the damage and remedial plans to guide the repairs to the sites. Performed construction oversight and worked closely with the construction team to ensure that the projects were repaired in a timely, economical, and structurally sound manner. Mr. Spiller provided natural channel stream design.**

RICHLAND COUNTY, MELODY GARDENS STREAMBANK/DITCH STABILIZATION **- Columiba, SC.**
PROJECT MANAGER - **This project consists of a streambank stabilization along 300 feet of Lightwood Knot Branch. KCI is providing stream assessment, survey, conceptual design, easement development, construction plans, hydrologic/hydraulic modeling, FEMA coordination, permitting, and construction management and inspection. The project begins just south of I-20 and runs along the back of a residential neighborhood. Construction began in Fall 2020.**

KRISTIN KNIGHT-MENG, PE

ENVIRONMENTAL ENGINEER

CERTIFICATIONS & REGISTRATIONS

PE / NC / 040899
PE / FL / 85132
PE / GA / 043252
PE / MN / 55971
PE / SC / 35684
PE / TN / 121505
Rosgen River Assessment and Monitoring Level III
Rosgen River Morphology and Applications Level II
Rosgen Applied Fluvial Geomorphology Level I

EDUCATION

BS / Civil Engineering / Clemson University / 2013
MEM / Ecosystem Science and Management / Duke University / 2005
BA / Biology, Environmental Studies / Whitman College / 2001

YEARS OF EXPERIENCE

17

Ms. Knight is a stream and wetland designer serving the Natural Resources Practice in the Southeast. She specializes in the assessment, design, and monitoring of stream and wetland sites. During her time at KCI, Ms. Knight has utilized her background in stream and wetland ecosystems to complete restoration design, hydrologic and hydraulic modeling, geospatial analysis, geomorphologic assessments, vegetative monitoring, permitting, stream and groundwater gauge installation and monitoring, fish surveys, and macroinvertebrate collections.

PROJECT EXPERIENCE

TENNESSEE STREAM MITIGATION PROGRAM, BLEDSOE CREEK STREAM RESTORATION **- Sumner County, TN.**
ENVIRONMENTAL SCIENTIST - **KCI will provide professional assessment, design and construction observation services to facilitate the restoration of approximately 6,837 linear feet of Bledsoe Creek and two unnamed tributaries near Bethpage, in Sumner County, TN. The site is on a single parcel with a single landowner.**

NORTH CAROLINA DIVISION OF MITIGATION SERVICES, CANE CREEK TRIBUTARY RESTORATION SITE **- Person County, NC**
ENVIRONMENTAL SCIENTIST - **KCI developed a restoration plan of approximately 17,000 LF of headwater tributaries that involved a combination of stream restoration and enhancement of B and Bc channel types. The project reaches were designed as restoration or enhancement based on the level of departure from a stable stream system. Ms. Knight-Meng led the geomorphic assessment of this project. She designed the restoration of the streams on the eastern half of the project, completed the restoration plan, and acquired necessary permits.**

TENNESSEE STREAM MITIGATION PROGRAM, BROWNSVILLE BYPASS STREAM RELOCATION **- Haywood County, TN.**
ENVIRONMENTAL SCIENTIST - **Due to the establishment of the Brownsville Bypass, it is necessary to relocate a stream as part of the project's on-site mitigation requirements. KCI conducted functional stream assessments, and prepared a mitigation plan and design for this relocation to support permitting. Draft final plans have been provided to TDOT and the roadway design consultant. Ms. Knight-Meng assisted with the preparation of final mitigation plans.**

BRAD SHOGER

SENIOR ENVIRONMENTAL SCIENTIST / PROJECT MANAGER

CERTIFICATIONS & REGISTRATIONS

Professional Certificate in Watershed Management
Rosgen River Morphology and Applications Level II
Rosgen Applied Fluvial Geomorphology Level I

EDUCATION

MS / Wildlife Ecology and Conservation / University of Florida / 2009
BS / Environmental Management / Indiana University / 2003

YEARS OF EXPERIENCE

12

Mr. Shoger is the lead project manager in Indianapolis. Mr. Shoger has twelve years of experience in the natural resources field, specializing in stream and wetland restoration and wildlife ecology. He manages a wide variety of projects and is responsible for client coordination, stream assessments, wetland delineations, forest habitat evaluations, wildlife surveys, and preparation of technical reports. He has concurrently managed annual mitigation monitoring at more than 40 sites, including managing field staff, client coordination, site remediation and permit compliance. Mr. Shoger has successfully demonstrated that he can handle complex projects, with multiple constraints, in a timely and efficient manner.

PROJECT EXPERIENCE

INDIANA DEPARTMENT OF TRANSPORTATION (INDOT), I-69 ENVIRONMENTAL MITIGATION AND MONITORING **- Southwestern, IN.**
PROJECT MANAGER - **KCI is monitoring mitigation sites associated with construction of Sections 1 through 4 of I-69 on new alignment through southwestern Indiana. This $10 million, 12-year contract involves yearly monitoring and maintenance of wetland, stream, and forested bat habitat mitigation. Monitoring consists of yearly vegetation assessment, wetland determinations/delineations, stream geomorphology, hydrologic monitoring, and photographic documentation. KCI also provides adaptive management services by making and implementing maintenance recommendations for bringing under performing sites into compliance with permit requirements. KCI is currently conducting design/build remediation on three failing stream mitigation sites Mr. Shoger provides client and agency coordination, oversees adaptive management and site remediation design, and oversees field data collection, analysis, and reporting.**

INDOT, I-70 SIX POINTS ROAD STREAM RELOCATION PROJECT **- Hendricks and Marion Counties, IN.**
PROJECT MANAGER - **KCI provided end-to-end stream relocation services for 2.5 miles of channel that included routing five stream channels into two larger stream channels using a hybrid of natural channel design and hydraulic engineering approaches due to the urban and developing watershed. This project was the single largest stream mitigation project in INDOT history. KCI performed eight years of annual monitoring including electrofshing, macroinvertebrate collection, QHEI habitat assessment, vegetation survival, pebble counts, bulk sieve analysis, and geomorphic survey. Geomorphic survey included 35 cross-sections and 7 longitudinal profiles. Mr. Shoger lead data collection, analysis, report preparation, client communication, and Agency coordination for this project.**

SAMANTHA LOUTZENHISER, CERP

ENVIRONMENTAL SCIENTIST

CERTIFICATIONS & REGISTRATIONS

Certified Ecological Restoration Professional
Rosgen River Morphology and Applications Level II
Rosgen Applied Fluvial Geomorphology Level I
FAA Part 107 UAS Remote Pilot
Wilderness First Aid Trained

EDUCATION

MS / Ecological Restoration / University of Florida / 2017
BS / Biology / Palm Beach Atlantic University / 2013

YEARS OF EXPERIENCE

8

Ms. Loutzenhiser is the Sr. Environmental Scientist in Indianapolis. She has seven years of professional experience in the natural resources field, specializing in stream and wetland restoration, invasive species management, geographic information systems, and is a certified drone pilot. Ms. Loutzenhiser has lead field data collection and invasive species management for more than 40 mitigation sites concurrently and regularly coordinates with the client regarding monitoring and maintenance efforts.

PROJECT EXPERIENCE

INDOT, I-70 SIX POINTS ROAD STREAM RELOCATION PROJECT **- Hendricks and Marion Counties, IN.**
ENVIRONMENTAL SCIENTIST - **Ms. Loutzenhiser was on the monitoring team for the single largest stream mitigation project in INDOT history. Yearly site monitoring included electrofishing, macroinvertebrate collection, QHEI habitat assessment, vegetation survival, pebble counts, bulk sieve analysis, and geomorphic survey. Geomorphic survey included 35 cross-sections and 7 longitudinal profiles. Ms. Loutzenhiser collected and analyzed field data as well as helped write the yearly monitoring report.**

NORTH CAROLINA DIVISION OF MITIGATION SERVICES, TWIN BAYS WETLAND RESTORATION **- Wake County, NC.**
ENVIRONMENTAL SCIENTIST - **Full Delivery Project restored elevation of local groundwater and surface water levels with the goal of restoring a native forested hardwood wetland community. Ms. Loutzenhiser utilized the spatial relationship between points representing hydroperiod to calculate acreage of wetland meeting success criteria. With this data, she was able to create report exhibits and predict the acreage of wetlands under a variety of conditions.**

ECOLOGIC, EAGLE CREEK PARK HERPETOFAUNAL SURVEYS **- Indianapolis, IN.**
ENVIRONMENTAL SCIENTIST - **Ms. Loutzenhiser assisted with wildlife data collection and served as lead GIS Analyst for the project. Ms. Loutzenhiser collected, managed, and interpreted GIS data during the herpetofaunal surveys from 2014-2018. Ms. Loutzenhiser compared LiDAR elevation data with manually surveyed crayfish burrow location densities and capture points of Kirtland's snake (*Clonophis kirtlandii*) to predict potential habitat usage of the Kirtland's snake within the survey site. This information can be used to target specific areas for future intensive survey efforts.**

TOMMY SEELINGER

SOIL SCIENTIST

CERTIFICATIONS & REGISTRATIONS

NCDWR Surface Water Idenitifcation Training
Swamp School Wetland Delineation Training
Licensed Soil Scientist in Training
Rosgen River Morphology and Applications Level II
Rosgen Applied Fluvial Geomorphology Level I

EDUCATION

Certificate / Soil Science / North Carolina State University / 2020
BA / Biology / University of North Carolina at Chapel Hill / 2013

YEARS OF EXPERIENCE

10

Mr. Seelinger is an environmental scientist in the natural resource management practice. He has experience in a wide range of environmental resource areas including analyzing wetland monitoring data, installing and downloading groundwater and surface water wells, assisting in wetland delineations, cultural resources, endangered and threatened species, plant surveys, invasive species treatment, monitoring wetlands and streams, and experience in preparing mitigation monitoring reports, GPS field work and permitting.

PROJECT EXPERIENCE

NORTH CAROLINA DIVISION OF MITIGATION SERVICES, CEDAR BRANCH RESTORATION **- Randolph County, NC.**
ENVIRONMENTAL SCIENTIST - **KCI will oversee restoration of 7,047 linear feet of headwater and second order streams for the Cedar Branch Stream site located in Randolph County within the Yadkin River Basin. This project will restore the stream function and hydrology, maintain and enhance water quality, and improve the fish and wildlife habitat. KCI will provide a Categorical Exclusion report, conservation easement plat and document, a draft and final mitigation plan, and assist with 404-401 permitting. KCI will also provide site monitoring for seven years.**

NORTH CAROLINA DIVISION OF MITIGATION SERVICES, JACOBS LADDER AND LANDING MONITORING **- Rowen County, NC.**
ENVIRONMENTAL SCIENTIST - **Together the sites include over 10,000 LF of stream for the NCDMS. The monitoring for the two sites consisted of over 6,200 LF of longitudinal profile survey, 21 cross sections with Wolman pebble counts, 28 permanent vegetation monitoring plots, upkeep of 4 pressure transducer stream gauges, and visual assessment and identification of potential problem areas.**

NORTH CAROLINA DIVISION OF MITIGATION SERVICES, BUFFALO FLATS MONITORING **- Cabbarrus County, NC.**
ENVIRONMENTAL SCIENTIST - **This project for the North Carolina Division of Mitigation Services included over 20 acres of wetlands. Mr. Seelinger assisted with the creation of the baseline report using data collected by others on the team and oversaw the monitoring of this site from Monitoring Year 01 through project closeout. This included sampling 13 permanent vegetation monitoring plots, upkeep and bi-monthly downloads of 12 pressure transducer wetland gauges, annual soil profile monitoring at two locations, and visual assessment and identification of potential problem areas. Mr. Seelinger was also in charge of annual monitoring reports.**

HART DAVIS

ENVIRONMENTAL SCIENTIST

CERTIFICATIONS & REGISTRATIONS

FAA Part 107 UAS (Drone) Pilot
Licensed Commercial Pesticide Applicator - WI

EDUCATION

BS / Biology / Albion College / 2016

YEARS OF EXPERIENCE

4

Mr. Davis is an environmental scientist working out of KCI's La Crosse office. He has four years of professional experience in the natural resources field, specializing in invasive species management and data collection. He currently is working on two projects in Wisconsin and is responsible for invasive species management, vegetation surveys, coordinating and planning of planting, aerial photography and preparation of technical reports. Mr. Davis has consistently shown a strong work ethic and an eye for detail.

PROJECT EXPERIENCE

WISCONSIN DEPARTMENT OF NATURAL RESOURCES, MEACHEM ROAD FULL DELIVERY RESTORATION **- Racine, WI.**

ENVIRONMENTAL SCIENTIST - **The Meachem Road Restoration Site is a 61.57 acre design build project. KCI has partnered with the Wisconsin Wetland Conservation Trust on this 10-year project that will re-establish a functioning wetland complex while providing water quality improvements for onsite drainages leading to Lake Michigan. Construction of the site was completed in 2021 and is being monitored yearly for achievement of performance standards. Monitoring consists of yearly vegetation assessment, wetland determinations/delineations, hydrologic monitoring, and photographic documentation. Mr. Davis currently leads all data collection and maintenance activities at the site.**

WISCONSIN DEPARTMENT OF NATURAL RESOURCES, FRONEY ROAD RESTORATION SITE **- Bayfield County, WI.**

ENVIRONMENTAL SCIENTIST - **KCI designed, built, and is now monitoring this 40-acre site near Port Wing, WI in partnership with the Wisconsin Wetland Conservation Trust. This project will re-establish a functioning boreal forest upland/wetland complex while increasing the functions of existing wetlands on and adjacent to the site. This 10-year project involves yearly monitoring and maintenance of a variety of wetland communities. Monitoring consists of yearly vegetation assessment, wetland determinations/delineations, hydrologic monitoring, and photographic documentation. Mr. Davis currently leads all data collection and maintenance activities at the site.**

3 PROJECT EXPERIENCE

3 PROJECT EXPERIENCE

FULL DELIVERY AND DESIGN/BUILD RESTORATION PROJECTS

KCI has been active in the development of mitigation bank sites through Full Delivery Programs (FDP) and design/build process since 2000. Overall, KCI has undertaken $55 million in projects in the last 19 years, representing 45 projects and the production of 392 wetland and more than 230,000 stream credits.

Full Delivery Programs (FDP) solicit the purchase of credits from "providers" who are responsible for the location, acquisition, design, permitting, construction, and monitoring of the site over its 10-year development process. Projects are awarded through a competitive evaluation process of the technical and unit cost proposals of the projects. As a provider, KCI must conduct detailed analysis of the site for ecological value, agency acceptance, credit generation and economic viability as part of the submission process. Successful completion of these long-term projects requires a detailed understanding of all these key aspects. The FDP is the preferred method of credit delivery by the North Carolina Department of Mitigation Services.

After successful award of a contract to produce the FDP mitigation bank credits, KCI becomes responsible for all aspects of credit generation. After approval of the Mitigation Banking Instrument (MBI), KCI constructs the project through our subsidiary construction company, KCI Environmental Technologies and Construction Inc. After construction, KCI monitors and manages the sites throughout the monitoring period. Yearly monitoring reports are submitted to the IRT to determine credit production.

In addition to the North Carolina program, KCI has been implementing FDP sites in Tennessee for Tennessee Department of Transportation (TDOT) and Tennessee Stream Mitigation Program (TSMP) and in Wisconsin for the Wisconsin Wetland Conservation Trust (WWCT). KCI is the only firm to work with both the Tennessee and North Carolina in-lieu-fee mitigation programs continuously since their inceptions. KCI has produced 99.9% of stream credits and 100% of the wetland credits at agency close out for these projects to date.

PROJECT EXPERIENCE TABLE

	REGION / CHARACTER			CREDIT SUMMARY			TYPE OF PROJECT WORK + CURRENT STATUS						
Project Name	Contract Year	State	Physiographic Province	Watershed Character	Wetland Acres	Stream LF	Assessment	Design	Const. Management	Construction	Monitoring	Natural Channel Design	Client
Rich Fork	2000	NC	Piedmont	Rural	21.5	3,400	X	X	X	X	X	Y	NCWRP
Daniel's Farm	2002	NC	Piedmont	Rural	31.7	N/A	X	X	X	X	X	N	NCEEP
Collins Creek	2005	NC	Piedmont	Rural	N/A	8,933	X	X	X	X	X	Y	NCEEP
Glen Raven	2005	NC	Piedmont	Rural	N/A	3,405	X	X	X	X	X	Y	NCEEP
Brown Farm	2005	NC	Piedmont	Rural	26.3	N/A	X	X	X	X	X	N	NCEEP
Daniels Farm	2005	NC	Piedmont	Rural	19.2	N/A	X	X	X	X	X	Y	NCEEP
Harrell	2005	NC	Coastal	Rural	15.0	18,238	X	X	X	X	X	Y	NCEEP
Cane Creek Tributary	2005	NC	Piedmont	Rural	N/A	14,622	X	X	X	X	X	Y	NCEEP
Farrar Dairy	2006	NC	Piedmont	Rural	61.9	11,881	X	X	X	X	X	Y	NCEEP
Dog Bite Creek	2006	NC	Mountain	Rural	N/A	3,265	X	X	X	X	X	Y	NCEEP
Normans Pasture	2008	NC	Coastal	Rural	15.6	N/A	X	X	X	X	U	N	NCEEP
Jacob's Ladder	2010	NC	Piedmont	Rural	N/A	4,935	X	X	X	X	X	Y	NCEEP
Jacob's Landing	2010	NC	Piedmont	Rural	N/A	4,655	X	X	X	X	X	Y	NCEEP
Twin Bays	2011	NC	Coastal	Rural	11	N/A	X	X	X	X	U	N	NCEEP
Stanley's Slough	2011	NC	Coastal	Rural	2.8	4,248	X	X	X	X	U	Y	NCEEP
Bear Basin	2011	NC	Coastal	Rural	10	N/A	X	X	X	X	U	N	NCEEP
Norman's Pasture	2011	NC	Coastal	Rural	15.6	N/A	X	X	X	X	U	N	NCEEP
Bowl Basin	2011	NC	Coastal	Rural	10.8	N/A	X	X	X	X	U	N	NCEEP
Stanley's II	2012	NC	Coastal	Rural	6.5	N/A	X	X	X	X	U	N	NCEEP
Norman's Pasture II	2013	NC	Coastal	Rural	9.4	332	X	X	X	X	U	Y	NCDMS
May Prairie	2014	TN	Interior Plateau	Rural	N/A	4,680	X	X	X	X	U	Y	TSMP
Sandy Bridge Farm	2015	NC	Piedmont	Rural	4.1	1,600	X	X	X	X	X	Y	NCDMS
Cedar Branch	2015	NC	Piedmont	Rural	N/A	7,000	X	X	X	X	U	Y	NCDMS
Rough Horn Swamp	2015	NC	Coastal	Rural	31	N/A	X	X	X	X	U	N	NCDMS
Stony Fork	2016	NC	Piedmont	Rural	N/A	7,187	X	X	P	P	P	Y	NCDMS
Mill Dam Creek	2016	NC	Piedmont	Rural	N/A	11,000	X	X	P	P	P	Y	NCDMS
Hair Sheep	2017	NC	Appalachians	Rural	1	3,100	U	P	P	P	P	Y	NCDOT
Black Bull	2017	NC	Piedmont	Rural	3.1	6,101	U	P	P	P	P	Y	NCDOT
Froney Road Wetland	2018	WI	Superior Coastal Plain	Rural	29	N/A	X	X	X	X	U	N	WWCT
Rough Horn II	2018	NC	Coastal	Rural	20.7	4,394	X	X	X	X	U	Y	NCDMS
Hip Bone Creek	2018	NC	Piedmont	Rural	4.2	3,000	U	P	P	P	P	Y	NCDMS
Round Hill Branch	2018	NC	Appalachians	Rural	N/A	2,130	U	P	P	P	P	Y	NCDMS
Morgan Branch	2018	NC	Appalachians	Rural	N/A	11,703	U	P	P	P	P	Y	NCDMS
Brownsville Bypass	2018	TN	MS Valley Plains	Rural	N/A	950	X	X	X	X	U	Y	TDOT

	REGION / CHARACTER			CREDIT SUMMARY			TYPE OF PROJECT WORK + CURRENT STATUS						
Project Name	**Contract Year**	**State**	**Physiographic Province**	**Watershed Character**	**Wetland Acres**	**Stream LF**	**Assessment**	**Design**	**Const. Management**	**Construction**	**Monitoring**	**Natural Channel Design**	**Client**
West TN State Penitentiary	2019	TN	MS Valley Plains	Rural	N/A	39,000	X	U	P	P	P	N	TSMP
Lockeland Springs	2019	TN	Interior Plateau	Urban	N/A	5,270	X	X	P	P	P	Y	TSMP
SR-136	2019	TN	Interior Plateau	Urban	N/A	2,000	X	X	P	P	P	Y	TDOT
Bledsoe Correctional	2019	TN	SW Appalachians	Rural	N/A	950	X	X	X	X	U	Y	TDOT
Meachem Road Wetland	2019	WI	Southern Lake Michigan Coastal	Urban	41.0	N/A	X	X	U	U	P	N	WWCT
SR-455	2019	TN	Interior Plateau	Urban	N/A	400	X	U	P	P	P	Y	TDOT
				TOTAL CREDITS	***392.4***	***230,429***							

X = completed, U = underway, P = pending, N/A = not part of project

Clients: NCEEP-NC Ecosystem Enhancement Program, NCDMS-NC Division of Mitigation Services, NCDOT - NC Department of Transportation, TDOT-TN Department of Transportation, TSMP-TN Stream Mitigation Program, WWCT-WI Wetland Conservation Trust

FARRAR DAIRY STREAM + WETLAND RESTORATION

HARNETT COUNTY, NC

KCI assessed existing conditions, developed the appropriate stream and wetland design, and completed the construction at the Farrar Dairy site. The project provides mitigation credit for stream and wetland impacts by restoring, enhancing, and preserving 13,044 LF of stream and 112 acres of wetland. The project restored streams, riparian buffers and forested wetlands along the North Prong of Anderson Creek (NPAC), the main stream through the site, to reestablish an interconnected floodplain corridor. The project streams and wetlands had become degraded through poor grazing management and vegetation removal.

The project is an opportunity to return a highly altered system to a contiguous stream and wetland complex. KCI performed a site analysis and developed a design to raise the NPAC bed elevation and restore a natural meander pattern to reconnect the stream to its historic floodplain. The restoration plan also called for filling and plugging ditches in the drained hydric soils to restore saturated hydrologic conditions, planting a functional Coastal Plain Small Swamp Stream community to create a riparian buffer and wetland complex, and grading former agricultural fields to redevelop wetland microtopography. Incoming NPAC tributaries were returned to natural channel forms. Existing wetlands were enhanced by removing berms, treating invasive species, and partly filling in open water impoundments. The project also connected restored areas to a stream and wetland preservation area along the downstream end of the creek.

Close out of the site occurred in 2014.

OWNER REFERENCE: Tim Baumgartner, 919.707.8543

LOCATION: Harnett County, NC

CLIENT: North Carolina Ecosystem Enhancement Program

VALUE: $6 million

DELIVERY METHOD: Full Delivery

SERVICES:

- Site assessment and design
- Restoration implementation
- Monitoring

MEACHEM ROAD WETLAND RESTORATION

RACINE COUNTY, WI

KCI was tasked to undertake the restoration of 60-acre wetland system in Racine County, Wisconsin. The primary impacts to the site stem from anthropogenic modifications (smoothed, ditched and tile-drained and plowed) to enable agricultural production, denuding all wetland function. As a Full Delivery Project, KCI is responsible for site acquisition, assessment, design, construction, monitoring and management throughout its 10-year restorative process. Objectives of the restoration include:

- Re-establish a functioning wetland complex that complements the adjacent State Natural Area and increases the size of core habitat in the area.
- Increase functions of the existing wetlands on the site.
- Provide water quality improvements for drainages contributing to the site prior to entering Lake Michigan.

The site is situated within the Southwestern Lake Michigan Watershed Cataloging Unit and the Southern Lake Michigan Coastal Ecological landscape. Due to the degree of hydrologic modification the site has experienced over the past 100 years, a detailed water budget model was developed to evaluate the current condition and determine the appropriate community types to be restored on site. The model evaluated each wetland cell on site to determine input, output, potential evapotranspiration and storage. The above objectives will be achieved through the disabling of all drain tile, re-establishing historic drainage patterns, disabling water control structures, re-establishing micro topography and re-vegetating native species to support the targeted ecological community types. The successful achievement of the objectives will result in the restoration of a diverse wetland habitat complex composed of 7.76 acres of wooded swamp, 26.12 acres of shrub carr, 11.31 acres of inland fresh meadow and 16.38 acres of upland buffer.

AGENCY CONTACT: Josh Brown, WWCT Coordinator, 608.516.3708

LOCATION: Racine County, WI

CLIENT: Wisconsin Department of Natural Resources

VALUE: $2,223,000

DELIVERY METHOD: Full Delivery

SERVICES:

- Site assessment and design
- Restoration implementation
- Monitoring

NEELEY'S BEND MITIGATION BANK RESTORATION

DAVIDSON COUNTY, TN

In 2018, KCI established the first private stream mitigation bank in Tennessee in over five years. The Neely's Bend Mitigation Bank is well situated in Davidson County on the outskirts of Nashville and its service area includes three rapidly developing HUC-8 watersheds (Lower Cumberland-Sycamore, Stones, and Harpeth). The project includes two streams which had been straightened, channelized, and moved from their historic position in the landscape to their current position. UT-1 and NC-1 were open to livestock degradation and while NC-2 did not have open livestock access, it was degraded from the previous channelization and the invasive dominated riparian corridor.
KCI managed to shepherd this project through a regulatory process that was still based in ratio credits but transitioning to functional credits. For this project KCI staff had to use a functional justification to achieve ratio-based credits. KCI staff handled all phases of this project including site selection, landowner negotiations, real estate optioning, topographic survey, morphologic survey and site assessment, wetland delineation, prospectus development, mitigation plan and MBI development, permitting, natural channel design, construction plans, SWPPP development, land improvements, construction, and post-construction monitoring.

Both streams were restored with a Priority 1 approach, reconnecting them to their historic floodplain. The UT-1 stream was able to be relocated to its old location in the valley, which reconnected it to a previously degraded wetland. The restoration of this reach and connection to the wetland further improved the hydrology functions in this valley and help with nutrient cycling and habitat connectivity.

In addition to the restored streams, KCI installed fencing for the landowner to protect the conservation easement and a new well for the landowner with offline watering for his cattle.

Unique to this site, KCI designed and constructed a new type of constructed riffle that included woody debris in the riffle bed. This design was the first of its kind and is intended to provide additional habitat diversity within riffles for macroinvertebrates. The installed brush will collect organic matter and create additional deposition and flow regimes within the typical riffle habitat seeking to increase in-stream habitat diversity.

This bank has resulted in over 4,000 linear feet of restored and enhanced streams. The new streams have a stable riffle pool morphology, woody debris habitat structures, a developing native riparian buffer, and are protected by a conservation easement. Construction was completed in early 2019 and 2020 represented the second year of post-construction monitoring. The site is currently meeting the performance standards set in the mitigation plan and MBI and is on its way to successful regulatory close out after completion of the monitoring period.

LOCATION: Davidson County, TN

VALUE: $1.4 million

DELIVERY METHOD: Design-Build

SERVICES:

- Site assessment
- Survey
- Priority 1 stream restoration
- Permitting (404/401 and sediment and erosion control)
- Construction (design/build)

ACUSHNET RIVER FISH PASSAGE PROJECT

ACUSHNET, MA

As a sub-consultant, KCI provided technical fish passage expertise and concept through final design services for Acushnet River Fish Passage. The Acushnet River Fish Passage Project provided anadromous fish, particularly river herring (*Alosa aestivalis, A. pseudoharengtis*), the target species, access to the Acushnet River in Acushnet, MA. Originally, there were three blockages to fish passage on the river. Fish passage has already been restored at the uppermost blockage, the dam at the 200-acre New Bedford Reservoir, with the installation of a 300' long denil fish ladder. However, the Sawmill Dam (the lowermost blockage) and the Hamlin Street Bridge/Dam remained and were the subjects of this scope of work. For both projects, KCI's goal was to provide passage, but avoid or minimize reductions of the existing pond elevations for habitat protection and water supply for cranberry bog operations.

The Sawmill Dam was an earthen dam with a 5-foot high concrete spillway approximately 100 feet in length, with a partially functioning headrace and poorly functioning fishway. The dam created a 9.5-acre upstream impoundment and was not suitable for the generation of hydropower. In addition, the dam's owners no longer wished to maintain it. Hamlin Street, a town roadway, acts as a 300-foot earthen dam to the Acushnet River, with three deteriorating concrete and stone masonry weirs providing the spillway. The weirs were located approximately 15 feet upstream of the three stone bridges of Hamlin Street. This dam created a 6.5-acre impoundment and was not suitable for the generation of hydropower, although town herring gardens manage flashboards at one of the spillways to control spring water levels to improve herring passage.

Hydraulics Analysis. Because anadromous fish passage often occurs during the spring, the baseflow is likely affected by rainfall and/or snowmelt. Unless this discharge exceeds that of a two-year recurrence interval, this condition fails to be represented by conventional hydrologic models or data analysis. KCI evaluated field determined dominant discharge, regional regression analysis, and direct-area method comparison of similar watersheds to define the range of flows that occur during fish passage season. Once the range of base flows was agreed upon, the range of design flows was established. Using a combination of these methods, KCI determined the current hydrologic condition under which fish passage was desired. Following separation and analysis of spawning season baseflow, KCI developed proposed discharge, depth and velocity design criteria for fish passage.

Sawmill Dam. A proposed condition HEC-RAS model was developed based on a previously developed RAS model. Based on the nature-like fishway selected, KCI completed a proposed condition HEC-RAS model. The HEC-RAS model was adjusted such that sections within the dam backwater pool reflect water surfaces based on the previously mentioned reservoir routing. Prior to beginning any major modeling, KCI ran some preliminary fishway hydraulics to determine the viability and impact of various options, including step pools and a rock ramp. The team investigated the potential for channel degradation downstream of the dam as a result of the partial dam removal. Finally, KCI compared existing and proposed water surface elevations to ensure that downstream flooding is not worsened by the proposed work efforts in consideration of any applicable state or local requirements. The team documented the study in a hydraulic analysis

ACUSHNET RIVER FISH PASSAGE PROJECT *(CONTINUED)*

ACUSHNET, MA

report and refined the HEC-RAS model for the selected structure placement associated with one proposed condition. Output of the refined proposed condition was used for determination of stability techniques and sizing of materials using modified USACE method and modified Andrews method.

Hamlin Street Dam. After review of the concept report and a site visit, KCI suggested moving the proposed rock ramp fish passage structure downstream due to the presence of soft unconsolidated material upstream of the dam and the natural flow of the river (toward a bridge opening). KCI identified challenges using training structures in the soft materials to redirect the flow to the rock ramp and the potential for scour at the lower flows. Moving the rock ramp would allow all construction efforts, including stabilizing the stream channel, to be concentrated downstream. KCI developed a revised proposed condition HEC-RAS model based on a previously developed RAS model to account for slit flow scenarios. The HEC-RAS model was adjusted such that sections within the dam backwater pool reflect water surfaces based on the previously mentioned reservoir routing. The team investigated the potential for channel degradation downstream of the dam as a result of the dam removal and compared existing and proposed water surface elevations to ensure that downstream flooding is not worsened by the dam removal, in consideration of any applicable state or local requirements. KCI documented the study in a hydraulic analysis report and refined the HEC-RAS model for the selected structure placement associated with one proposed condition. Output of the refined proposed condition was used for determining stability techniques and sizing of materials using a modified USACE method and modified Andrews method.

Sediment Transport Analysis. KCI supported the prime design firm in performing a sediment transport analysis to estimate proposed changes in rates and volume and rates of sediment transported through the altered reaches of the Acushnet River. KCI used estimates of material composition from soil borings and additional bed/bar samples to determine sediment characteristics and critical shear stress values. KCI applied standard bedload transport relations (i.e. Meyer-Peter Muller, Dubois, Einstein-Brown, or Wilcock) to estimate these quantities.

Viability Assessment. KCI performed a viability assessment of the Sawmill Dam and Hamlin Street Dam Central Weir.

Preliminary Design and Cost Estimate. KCI prepared design plans and cost estimates for each site. These plans included existing conditions, grading, work plans, proposed conditions, water control (maintenance of stream flow), construction sequence, typical sections, and cross-sections. All plans were developed in conformance with NOAA preferred standards and requirements. KCI developed an estimate of quantities conforming to industry standards and unit costs based on best available regional material information and assumed working conditions

LOCATION: Acushnet, MA

CLIENT: EA Engineering

VALUE: $145,000

DELIVERY METHOD: Project Specific Contract

SERVICES:

- Hydraulic analysis
- Sediment transport analysis
- Preliminary design and cost estimate

I-70 / SIX POINTS ROAD INTERCHANGE STREAM RELOCATION

INDIANAPOLIS, IN

As the single largest stream restoration project in INDOT history, KCI designed the relocation of over two miles of the East Fork White Lick Creek and North Creek, along with several of their smaller tributaries, resulting in the relocation of five stream channels into two larger channels. The I-70/Six- Points Road Interchange "fast-track" project was to be completed by June 2005. In order to meet that schedule, stream relocation design plans had to be completed in early 2003, with critical portions of the stream relocation construction completed in mid-2003 and the entire stream relocation construction completed by early 2004. KCI worked under this tight schedule, assisting INDOT with the regulatory agency negotiation for the issuance of the required permits. The project also involved completing a fluvial geomorphologic assessment, sediment transport studies, existing and proposed hydrology and hydraulics conditions, and final design plans, specification and cost estimates in less than a year.

KCI monitored the project for eight years after construction and facilitated the successful close out of the site in 2017.

Annual monitoring included assessments of stream morphology through survey of seven profiles and 39 cross-sections, water quality, stream habitat, fish communities, macroinvertebrate communities, sediment transport, stream hydrology and hydraulics, vegetative success, and performance of installed features. Maintenance activities have included invasive species control, slope drain correction, interchange side ditch repair, additional streambank stabilization under power lines, beaver control, and debris removal.

OWNER REFERENCE: Sandra Bowman, 317.233.5568

LOCATION: Indianapolis, IN

CLIENT: Indiana Department of Transportation

VALUE: $2 million

DELIVERY METHOD: Open-Ended Contract

SERVICES:

- Site assessment
- Design
- Permitting
- Construction administration
- Monitoring

ECOSYSTEM RESTORATION SERVICES AT GRAND LAKE ST. MARYS

MERCER COUNTY, OH

KCI serves as the General Engineering Consultant for the Grand Lake St. Marys Lake Restoration Commission. Work executed under this contract includes; Program Management, Project Planning/Development, Community Relations, Environmental documentation/permitting, Survey, Land acquisition support, Engineering studies/Design, Construction Inspection, Construction Administration, Construction Management, Design/Build Implementation, System Commissioning.

Grand Lake St. Marys is a 21 square mile lake supported by a 52 square mile watershed in north western Ohio and has been an influence on the local and regional economy within Auglaize and Mercer Counties, West Central Ohio since its creation. As the health of the lake and its native habitats has thrived, so has the economy. However, the health of the lake in recent years has felt the drastic cumulative effects of gradual land use changes, related to both growth and development surrounding the immediate lake area and the agricultural industry boom within the surrounding watershed.

These impacts have affected both recreational and economic activities throughout the lake communities. Although numerous plans to reduce the levels of pollution entering the lake have been developed over the years, the lake's water quality continues to suffer from nutrient inputs and other water quality degradation issues leading to dangerous levels of algae microcystin toxin. These threats endanger public health and welfare. Algae blooms were of such a magnitude and duration during the summer of 2010, that the Ohio Environmental Protection Agency was forced to close the lake to all recreational activity. Overall, the lake is on the verge of a functional breakdown and ecological collapse. Despite improved conservation practices over the years, the algal blooms are clear indicators of the ecosystems inability to process and utilize the excess and accumulated nutrients.

Grand Lake St. Marys Strategic Restoration Plan – KCI developed a Strategic Plan formulated to provide a framework and timeline for restoration of the lake ecosystem utilizing various projects and economic management tools to implement solutions for current and future lake improvements and revitalization. The Strategic Plan was prefaced on the developing economic opportunities and activities that stem directly and/or indirectly from restoring degraded natural resources within Grand Lake St. Marys (GLSM). The creation of an economy derived from restoration of the lake within the GLSM watershed, will provide a new direction that is both environmentally sustainable and economically viable. Recognizing and correcting problems created by current and past activities and applying a new environmental and economic paradigm to the future offers a challenging, yet unique and exciting opportunity for the communities that have come to rely on the lake and watershed.

Phase I Lake Diagnostic Assessments – A diagnostic assessment of the lake was conducted to define the spatial and functional extent of critical functions being performed by the lake and the geomorphic forces acting upon it.

Sediment Transport Analysis - Sediment transport characteristics for eight drainages contributing to the lake were conducted by: 1) Collecting and analyzing bed material/pavement samples using a modified Wolman pebble count methodology, 2) Collecting and analyzing sub pavement/bar bulk samples through sieve and weight field measurements, and 3) by conducting critical shear stress calculations, devel-

ECOSYSTEM RESTORATION SERVICES AT GRAND LAKE ST. MARYS *(CONTINUED)*

MERCER COUNTY, OH

oped an estimate of sediment transport for each drainage.

Littoral Fringe Functional Assessment – The littoral/riparian fringe of the lake was conducted to determine it functional value for water quality, wildlife habitat, flood tolerance and general species composition. Rankings were developed to qualitatively compare the zones and critical stressors which may be limiting function will be identified. This assessment determined the spatial extents of littoral/riparian features that can be restored, enhanced, ecological engineered to aid in the natural processing of phosphorus from the lake water.

Littoral Process Analysis – A littoral process analysis was conducted through collection and analysis of data on wind speed, direction, duration and period of occurrence and in conjunction with lake depths determine the anticipated wave energies acting on the system. This information was extrapolated to predict critical areas of wave action on the littoral/riparian zone, loading and distribution of suspended load from the contributing drainages, and define focus areas for work efforts.

Prairie Creek Treatment Train - The Prairie Creek Treatment Train (PCTT) was the initial large scale restoration system to be implemented by Grand Lake St. Marys Restoration Commission and Mercer County Commissioners. KCI coordinated and developed the necessary elements to design, permit, construct, and commission the systems operation. The treatment train (train) consists of multiple Best Management Practices (BMPs) integrated by stream flows that jointly result in improvements to the quality of water discharged into Grand Lake St. Marys (GLSM) from the watershed. The "train" initiates with a stream bed load collector with integrated alum dosing, followed by a constructed wetland to provide secondary treatment, then filtration through a restored wetland for tertiary refinement prior to entering an embayment isolated from the main lake by a berm such that biological filtration and aeration can be employed in advance of discharge into GLSM.

Grant Application Development - KCI prepared grant applications for the Grand Lake Restoration Commission, CIC and Mercer County. Each application required coordination to determine the specific type, location and merits of the project, and justify its technical merits, costs, local match and value to the GLSM Strategic Plan.

On-Site Lake Restoration Manager - KCI provides agency program management services through on full time on-site position that is responsible for day-to-day operations of the Grand Lake Saint Marys Restoration Commission.
Key responsibilities of this position include; Coordinating with the responsible/respective federal, state, and local agencies and/or persons managing Grand Lake St. Marys restoration plans and activities, representing the GLSMRC at meetings, assisting in securing funding for projects, acting as project manager for various projects to improve the lake, identifying funding sources, facilitating grant application proposal and agreements, serving on advisory committees and association boards, providing assistance in implementing the Grand Lake St. Marys Strategic Action Plan, facilitating the GLSMRC Board in developing continuing work plans (both short and long-term), by coordinating with other federal, state and local agencies, organizations, and schools, and any other responsibilities associated with the lake. Assists federal, state, and local government agencies and elected office holders in restoring the lake to environmentally acceptable standards through existing or new legislation, manages assigned projects to improve the lake including coordination of design, funding, contract development and award, construction, and activation, monitors and coordinates the operation of systems installed to improve the lake.

OWNER REFERENCE: Jared Ebbing, 419.586.4209

LOCATION: Indianapolis, IN

CLIENT: Indiana Department of Transportation

VALUE: $460,000

DELIVERY METHOD: General Engineering Contract

SERVICES:

- Sediment transport analysis
- Functional assessment
- Treatment train
- Grant application development
- On-site lake restoration manager

WEHMILLER WETLAND RESTORATION SITE

AUSTIN, IN

The Wehmiller Wetland Restoration Site was developed as part of required mitigation for the I-65 Design Build Best Value project for INDOT. The site is approximately 80 acres located near Austin, IN in the Muscatatuck River watershed and Austin Bottoms Conservation Area. To provide the greatest potential for ecological uplift, KCI staff sought to develop a site adjacent to already protected land. The site is directly adjacent to an Indiana Department of Natural Resources Nature Preserve and required additional coordination to ensure the design plan was approved by DNR ecologists and the site would be acquired for long-term maintenance by DNR.

KCI also negotiated with regulatory agencies to allow for a mosaic of wetland habitats driven by site conditions in the design approach, as opposed to focusing solely on the specific impacted wetland types, which consisted mainly of roadside ditch wetlands.
Site restoration plans included decommissioning of over 2 miles of drainage tile on the site through exploratory spot trenching, and then crushing or removing a length of tile where identified.
Site design also included the installation of abandoned beaver dam mimics, low, earthen berms planted in willow stakes that stretch across the remnant swales onsite mimicking the beaver dam hydrologic influence seen on neighboring parcels creating a more diverse habitat complex and slowing flow across the site. Site construction was completed in 2020 and it is now in monitoring for regulatory compliance.

OWNER REFERENCE: Steve Sperry, 317.417.3623

LOCATION: Austin, IN

CLIENT: Indiana Department of Transportation

VALUE: $587,000

DELIVERY METHOD: Open-Ended Contract

SERVICES:

- Site identification and assessment
- Permitting
- Site design
- Monitoring

I-69 ENVIRONMENTAL MITIGATION MONITORING + MAINTENANCE

EVANSVILLE TO INDIANAPOLIS, IN

Under a twelve -year contract, KCI is providing monitoring and maintenance services for mitigation sites associated with construction of I-69 Sections 1-4 in southwest Indiana for INDOT. Tasks assigned to date include monitoring of mitigation wetlands, streams, endangered species habitat, construction observation, minor maintenance, and preparation of remedial design plans. Monitoring involves delineation of wetland boundaries, assessment of vegetation, and evaluation of mitigation sites based on established success criteria. Stream monitoring involves visual assessment of stability as well as geomorphic survey of cross-section and profile, pebble counts, and QHEI/HHEI. Hydrology is monitored within wetlands and streams using electronic data loggers as well as identification of traditional hydrologic indicators. Currently, there are 35 monitored on Section 1-4 sites totaling approximately 3,475 acres containing 250 acres of wetland restoration and over 57,350 linear feet of stream restoration.

Annual reports summarizing site data are submitted to each regulatory agency and indicate whether the site is compliant with established permit requirements. As part of this contract, KCI is responsible for performing maintenance work at the sites to bring under-performing areas into compliance. Maintenance activities are completed in an adaptive management framework and typically consist of invasive species management and supplemental vegetation planting. KCI is currently completing remedial designs on five failing stream mitigation sites, all of which KCI/ETC will be completing the remedial construction. Remedial design tasks included geomorphological data collection, hydrology analyses, departure analyses, and the submittal of a remedial memorandum to the client to outline the current state of the stream and the recommended remedial approach. Design plans were then prepared to the 60% stage for permitting and construction
In order to efficiently and securely manage monitoring data, KCI's geospatial solutions practice was asked to develop an Environmental Management System (commonly referred to as GeoFusion) which allows users to geographically relate project documents to spatial features within a GIS interface. Geofusion allows controlled access to all project data and yearly monitoring reports are submitted electronically through the application to regulatory agency reviewers.

OWNER REFERENCE: Steve Sperry, 317.232.5206

LOCATION: Southwestern, IN

CLIENT: Indiana Department of Transportation

VALUE: $10 million

DELIVERY METHOD: Open-Ended Contract

SERVICES:

- Monitoring
- Maintenance
- Site remediation

4 GEOGRAPHIC PRESENCE

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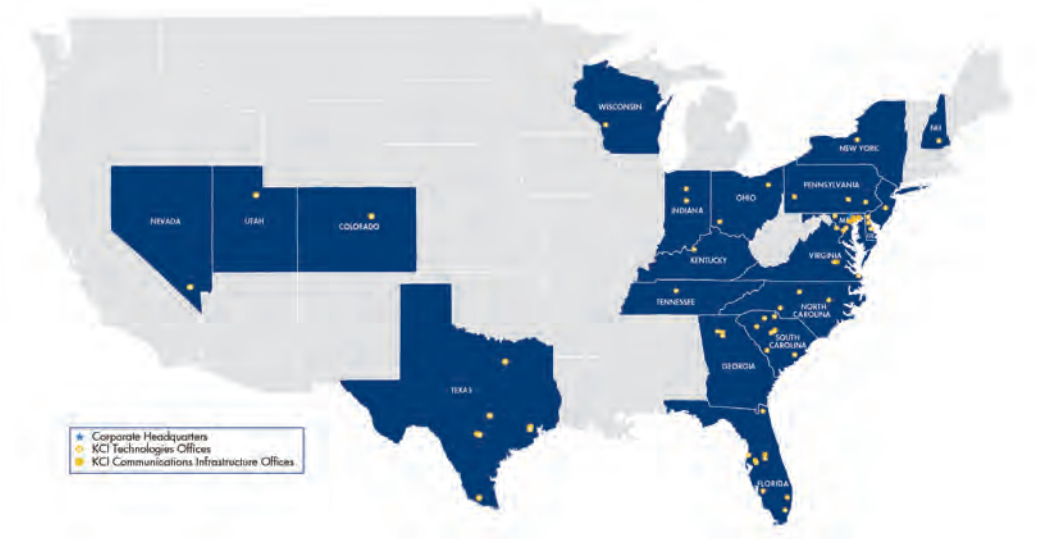
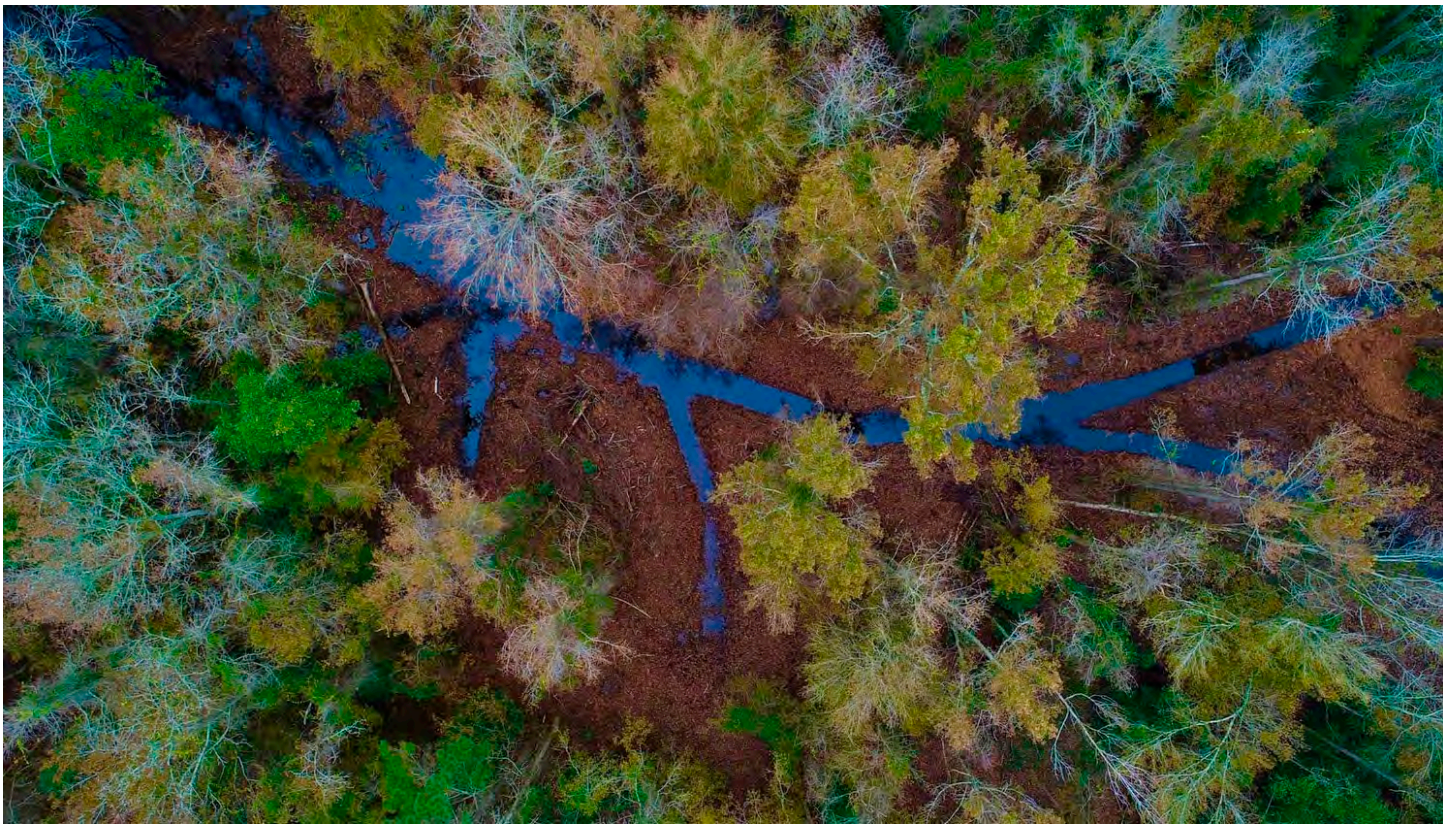
We understand the logistics required to implement long-term mitigations projects and are extremely confident in our ability to implement the projects from our office locations in the Midwest. Our closest office location is in La Crosse, WI. We have additional local resources in our Indianapolis, IN office.



KCI's strategically located offices share resources and personnel when necessary. It is our customary practice to shift personnel and resources between offices to meet the staffing and scheduling requirements of a particular project. Our offices are immediately accessible to each other through the intranet, Internet, e-mail, fax, and telephone. Each office has technical and administrative support, production facilities, and QA /QC procedures to successfully complete task assignments.



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