

DNR Grant #RM08921

Tall Pines Conservancy - Mason Creek Stream Restoration - Schmidt Property

Interim Report: October 1, 2021 to September 30, 2022

Tall Pines Conservancy (TPC) contracted with Stantec Consulting Services, Inc (Stantec) in January 2022 to complete bidding, permitting, and construction management services. TPC contracted Wondra Construction, Inc. (Wondra) to complete construction of the stream realignment in March 2022. The contractor was selected via a competitive bid and review process conducted by an independent committee of TPC. The following represents grant activities completed as of September 30, 2022.

Component 1: Education and Outreach

TPC continues to partner with the Oconomowoc Watershed Protection Program (OWPP) and other partners to offer programs that promote water quality within the watershed. TPC is also working with local partners to perform invasive species management on the Mason Creek stream corridor. Mason Creek has been featured in the TPC and OWPP newsletters. The team has given presentations regarding the creek to the North Lake Management District members, at community meetings of OWPP, and at the annual Healthy Lake Conference. TPC and OWPP provide periodic updates on construction to North Lake residents within the North Lake Management District's newsletters.

TPC, North Lake Management District, and OWPP continue to monitor water quality in Mason Creek and North Lake. TPC has continued monitoring various points on the creek in 2021 and 2022. OWPP's Mudchaser program continues to monitor points along the creek and at its entrance into North Lake during climate events.

Component 2: Permitting

Coordination with the Town of Merton, Waukesha County, WDNR and the U.S. Army Corps of Engineers (ACOE) was initiated as part of the concept design phase and the following permits were secured for the project:

- ACOE Nationwide Permit (NWP) 27 for Aquatic Habitat Restoration (2022-00266-MWM)
- WDNR Individual Permit for Stream Realignment (IP-SE-2022-68-00881)
- WDNR General Permits for Waterway Crossings (GP-SE-2022-68-01312) and Wildlife Ponds (GP-SE-2022-68-00883)
- Waukesha County Stormwater Management & Erosion Control Permit (601404)
- Waukesha County Zoning Permits (39025 & 39026)

Approved permits are attached for reference.

Component 3: Pre-Construction Vegetation Management

Prior to construction, TPC contracted with Stantec to treat invasive reed canary grass (*Phalaris arundinacea*) (RCG) within the project area, to aid in re-establishment of recovering sedge meadow and the native wet meadow seed bank. Mowing and spot treatments of RCG occurred initially in June 2021, followed by grass-selective herbicide treatments in August and September 2021 (Zones 1 & 2). In areas that were densely populated with RCG (Zone 3), a total kill herbicide was applied. Details are shown on the attached Figure 1. Additional spot treatments were applied in 2022, prior to the start of construction.

Component 4: Construction

Wondra began construction on August 22, 2022. Stantec was contracted to complete construction oversight and erosion control inspections throughout the project. Wondra, Stantec, and TPC hold weekly construction meetings to evaluate progress and talk through any pertinent updates related to sequencing, erosion control, and any overall construction methodology. In mid-September, a 6-inch rain event (25-year storm, according to SEWRPC) stalled construction of the new channel. The site was monitored closely during the event to ensure that runoff did not occur downstream, and pre- and post- water quality monitoring show that the erosion control methods held up exceptionally well. The team continues to monitor and modify erosion control measures to prevent runoff.

Earthwork is expected to be complete by the end of October 2022.

Component 5: Revegetation

Sod mats and cover crop seed are applied to exposed soils after each section of stream is constructed. This practice will continue throughout construction, for optimal erosion control. Native seed will be applied upon completion of all earthwork, under contract with Wondra.

Component 6: Post-construction Monitoring

Post-construction monitoring will start upon completion of the project, for a duration of two years post-construction. The project will be evaluated for stability of the newly restored channel, and seed and plant material establishment.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

July 28, 2022

Regulatory File No. 2022-00266-MWM

Tall Pines Conservancy
Susan Buchanan
P.O. Box 65
W330 N4465 Lakeland Drive (CTH C)

Dear Ms. Buchanan:

We are responding to your request for authorization to realign Mason Creek to the historic location, enhance the creek's functions, and enhance the adjacent wetlands. The proposed work is located in Section 6, Township 8 North, Range 18 East, Waukesha County, Wisconsin.

Project authorization:

The regulated activities associated with this project include the permanent permanent discharge of dredged and fill material into 92,672 square feet (2.13 acres) of wetlands associated with scraping and grading for the creation of a new stream channel, for placement of habitat structures within the proposed stream bank, and for removal and replacement of an access road. Additionally, authorization is required for the permanent discharge of fill material into 3,370 square feet (259 linear feet) of Mason Creek associated with backfilling the waterway to follow the newly constructed path. We have determined that these activities are authorized by a Nationwide Permit (NWP), specifically, NWP 27, Aquatic Habitat Restoration, Enhancement, and Establishment Activities. This work is shown on the enclosed figures, labeled 2022-00266-MWM figure 1 through 4.

Conditions of your permit:

You must ensure the authorized work is performed in accordance with the enclosed General Permit terms, General Conditions, and St. Paul District Regional Conditions.

You are also required to complete and return the enclosed Compliance Certification form within 30 days of completing your project. Please email the completed form to the contact identified in the last paragraph.

A change in location or project plans may require re-evaluation of your project. Proposed changes should be coordinated with this office prior to construction. Failure to comply with all terms and conditions of this permit invalidates this authorization and could result in a violation of Section 301 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. You must also obtain all local, State, and other Federal permits that apply to this project.

Water Quality Certification:

You must also comply with the enclosed Water Quality Certification conditions associated with this General Permit.

Permit expiration:

The 2021 NWP is valid until March 14, 2026 unless modified, suspended, or revoked. If the work has not been completed by that time, you should contact this office to verify that the permit

is still valid. Furthermore, if you commence or are under contract to commence this activity before the date of General Permit expiration, modification, or revocation, you have 12 months to complete the activity under the present terms and conditions of the General Permit.

Jurisdictional determination:

No jurisdictional determination was requested or prepared for this project. While not required, you may request a jurisdictional determination from the contact identified in the last paragraph.

Contact Information:

If you have any questions, please contact Morgan Wirth-Murray in our Brookfield office at (651) 290-5855 or by email at Morgan.M.Wirth-Murray@usace.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read 'JS' with a stylized flourish.

Joey Shoemaker
Chief, Wisconsin East Branch

Enclosures

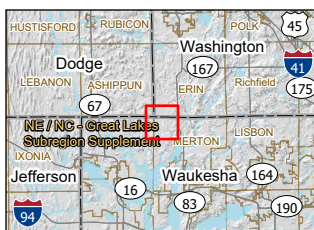
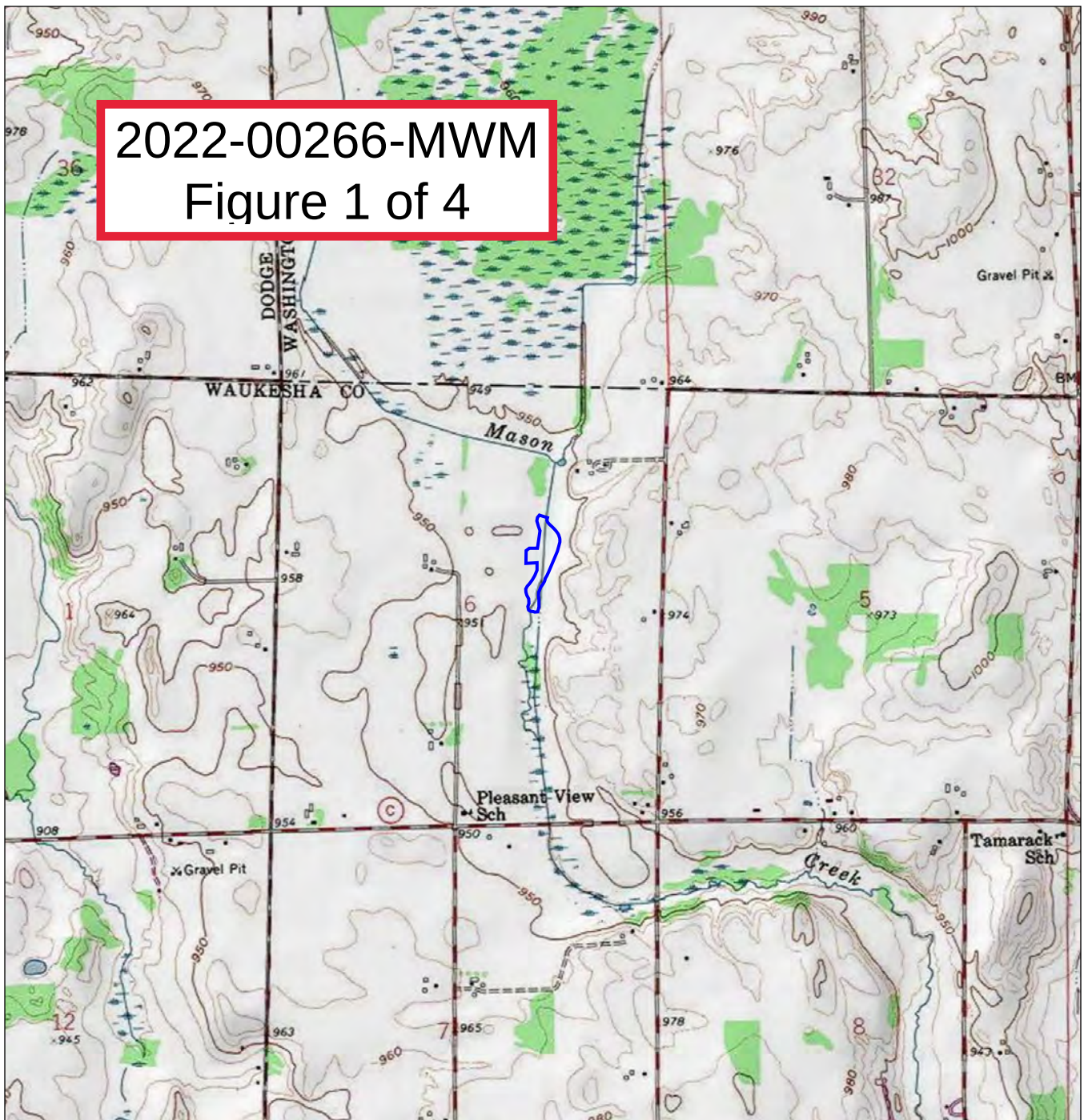
CC:

Luke Roffler, Wisconsin Department of Natural Resources [GP-SE-2022-68-00883]

Sarah Majerus, Stantec

2022-00266-MWM

Figure 1 of 4



Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources: Stantec, Tall Pines Conservancy, WisDOT, WDNR
 3. Background: USGS 7.5' Topographic Quadangles

Legend

 USACE Permit Area/Project Area

0 1,000 2,000 Feet
 (At original document size of 8.5x11)
 1:24,000



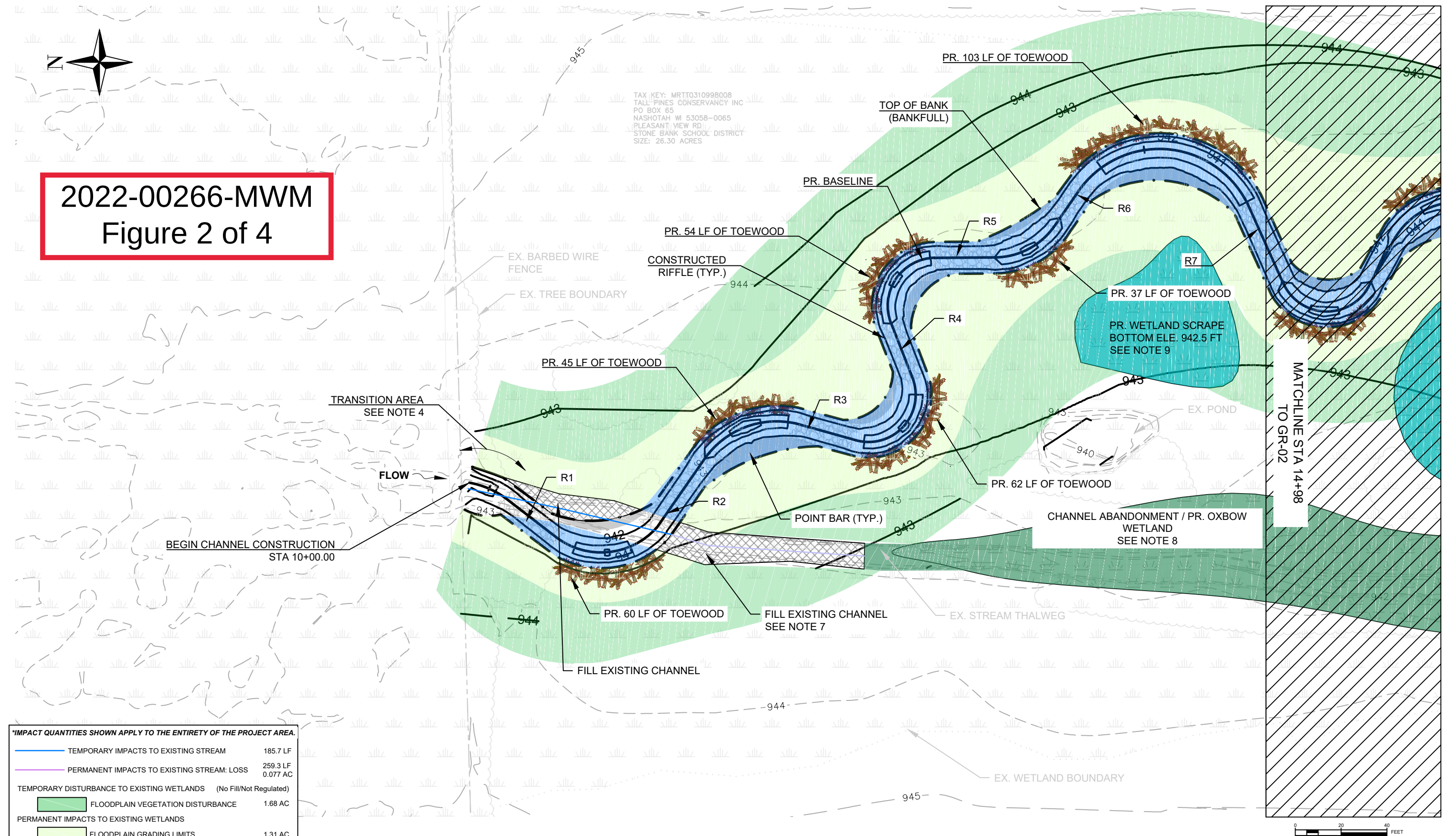
Project Location
 T8N, R18E, S6
 T. of Merton, Waukesha Co., WI

Client/Project
 Tall Pines Conservancy
 Tall Pines- Mason Creek Water
 Cultural

Figure No.
 1

Title
 Project Location and Topography

2022-00266-MWM
Figure 2 of 4



***IMPACT QUANTITIES SHOWN APPLY TO THE ENTIRETY OF THE PROJECT AREA.**

TEMPORARY IMPACTS TO EXISTING STREAM	185.7 LF
PERMANENT IMPACTS TO EXISTING STREAM: LOSS	259.3 LF 0.077 AC
TEMPORARY DISTURBANCE TO EXISTING WETLANDS (No Fill/Not Regulated)	
FLOODPLAIN VEGETATION DISTURBANCE	1.68 AC
PERMANENT IMPACTS TO EXISTING WETLANDS	
FLOODPLAIN GRADING LIMITS	1.31 AC
PROPOSED CHANNEL (1,682 LF)	0.59 AC
PROPOSED ACCESS ROAD	0.02 AC
EXISTING ROAD REMOVAL	0.01 AC
WETLAND SCRAPE	0.19 AC
ABANDONED CHANNEL / OXBOW	0.55 AC

Professional Certification:

NO.	REVISION	BY	DATE



Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere Wisconsin 54115
TEL: (920) 992-8400
FAX: (920) 992-8444
www.stantec.com

MASON CREEK STREAM RESTORATION
TALL PINES CONSERVATORY

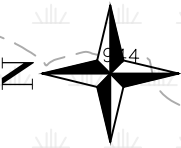
REVISED	APPROVED	DATE	APPROVED	DATE	SCALE:
DATE	BY				DRAWN BY: DD
			CHIEF ENGINEER		CHECKED BY: SDC
			APPROVED	DATE	SHEET NO. 8 OF 19
			ENGINEER ADMINISTRATOR	CHIEF, RIGHT OF WAY	PROJECT NO. 193707448
					DATE: 3/29/2022

DESIGN

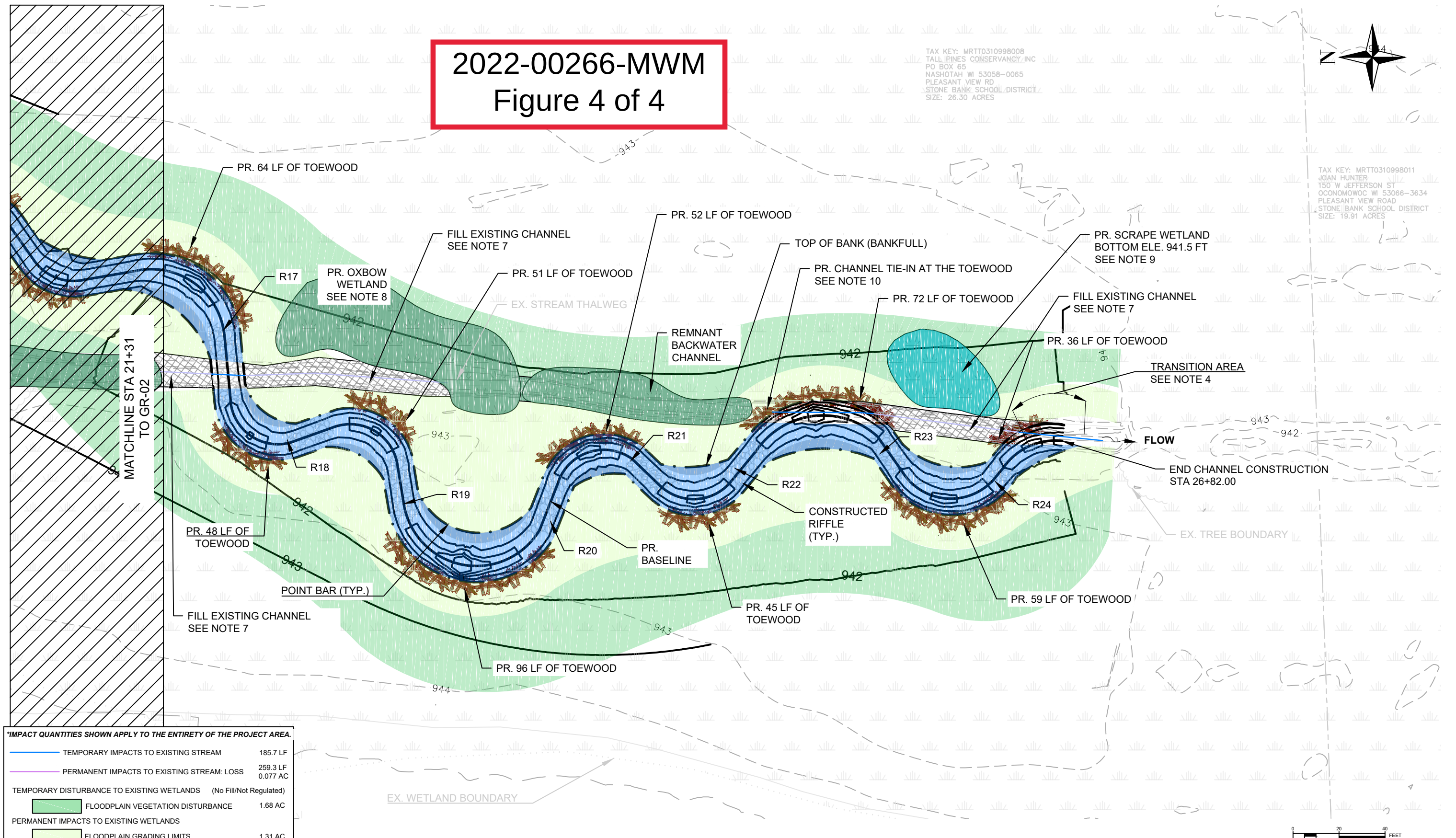
IMPACT GRAPHIC

2022-00266-MWM
Figure 4 of 4

TAX KEY: MRTT0310998008
TALL PINES CONSERVANCY
PO BOX 65
NASHOTAH WI 53058-0065
PLEASANT VIEW RD
STONE BANK SCHOOL DISTR
SIZE: 26.30 ACRES



TAX KEY: MRTT0310998011
JOAN HUNTER
150 W JEFFERSON ST
OCONOMOWOC WI 53066-3634
PLEASANT VIEW ROAD
STONE BANK SCHOOL DISTRICT
SIZE: 19.91 ACRES



*IMPACT QUANTITIES SHOWN APPLY TO THE ENTIRETY OF THE PROJECT AREA.		
TEMPORARY IMPACTS TO EXISTING STREAM		185.7 LF
PERMANENT IMPACTS TO EXISTING STREAM: LOSS		259.3 LF 0.077 AC
TEMPORARY DISTURBANCE TO EXISTING WETLANDS	(No Fill/Not Regulated)	
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Professional Certification:		NO.	REVISION	BY	DATE
	xx/xx/xxxx				
	DATE				



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MASON CREEK STREAM RESTORATION									
TALL PINES CONSERVATORY									
REVISED		APPROVED	DATE	APPROVED	DATE	SCALE:		DESIGN	
DATE	BY					DRAWN BY:	DD		
		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY:	SDC		
		APPROVED	DATE	APPROVED	DATE	SHEET NO.	10 OF 19		
						PROJECT NO.	193707448	IMPACT GRAPHIC	
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		DATE:	3/29/2022		

Nationwide Permits

27. Aquatic Habitat Restoration, Enhancement, and Establishment Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To be authorized by this NWP, the aquatic habitat restoration, enhancement, or establishment activity must be planned, designed, and implemented so that it results in aquatic habitat that resembles an ecological reference. An ecological reference may be based on the characteristics of one or more intact aquatic habitats or riparian areas of the same type that exist in the region. An ecological reference may be based on a conceptual model developed from regional ecological knowledge of the target aquatic habitat type or riparian area.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to the removal of accumulated sediments; releases of sediment from reservoirs to maintain sediment transport continuity to restore downstream habitats; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms are removed; the installation of current deflectors; the enhancement, rehabilitation, or re-establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to enhance, rehabilitate, or re-establish stream meanders; the removal of stream barriers, such as undersized culverts, fords, and grade control structures; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to restore or enhance wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; coral restoration or relocation activities; shellfish seeding; activities needed to reestablish vegetation, including plowing or disking for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., the conversion of a stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge of dredged or fill material occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity, the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does

not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) the binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 32), except for the following activities:

- (1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;
- (2) Activities conducted in accordance with the terms and conditions of a binding coral restoration or relocation agreement between the project proponent and the NMFS or any of its designated state cooperating agencies;
- (3) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or
- (4) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Authorities: Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

2021 Nationwide Permits (NWP)

St. Paul District Regional Conditions for Minnesota and Wisconsin

To qualify for NWP authorization, the prospective permittee must comply with the following regional conditions, as applicable, in addition to any case specific conditions imposed by the division engineer. The St. Paul District Regulatory website will provide current information regarding NWPs and the necessary 401 Water Quality Certifications at

<https://www.mvp.usace.army.mil/missions/regulatory/nwp/>. Every person who wishes to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

The following NWPs have been revoked and are not available for use in St. Paul District: NWPs 8, 12, 14, 15, 21, 23, 24, 34, 48, 49, 50, 55, 56, 57, and 58.

Information on other permits available for use in St. Paul District can be found at:
<https://www.mvp.usace.army.mil/Missions/Regulatory/Permitting-Process-Procedures/>.

Any regulated activity eligible for authorization under a St. Paul District Special Area Management Plan (SAMP) general permit is not eligible for authorization by NWPs.

The following regional conditions are applicable to all NWPs:

- A. **Linear Projects**: No linear utility or linear transportation projects are eligible for authorization by NWPs. These projects will be reviewed for authorization under the St. Paul District's regional general permits or an individual permit.
- B. **Temporary Impacts**: All regulated temporary impacts to waters of the U.S. must comply with the following criteria:
 - (1) If the temporary impacts in waters of the U.S., including wetlands, that occur as a result of the regulated activity would remain in place for longer than 90 days between May 15 and November 15, a PCN is required.
 - (2) Any PCN with temporary impacts must specify how long the temporary impact will remain and include a restoration and re-vegetation plan showing how all temporary fills and structures will be removed and the area restored to preconstruction contours and elevations. Native, non-invasive vegetation must be used unless otherwise authorized by a Corps NWP verification.
- C. **PCNs for Apostle Islands National Lakeshore and Madeline Island**: A project proponent must notify the District by submitting a PCN if the regulated activity would result in excavation, fill, or the placement of a new structure within the boundaries of Apostle Islands National Lakeshore and Madeline Island in Wisconsin. Regulated activities authorized under NWP 3 (Maintenance) are not subject to this condition unless they include bank shaping or excavation.
- D. **Calcareous fens**:
 - WISCONSIN**: No work in a calcareous fen is authorized by a NWP unless the Wisconsin Department of Natural Resources (WI DNR) has approved a permit for the proposed regulated activity. Project proponents must provide evidence of an approved permit to the District.
 - MINNESOTA**: No work in a calcareous fen is authorized by a NWP unless the Minnesota Department of Natural Resources (MN DNR) has approved a calcareous fen management plan specific to a project that otherwise qualifies for authorization by a NWP. Project proponents must provide evidence of an approved fen management plan to the District. A list of known Minnesota calcareous fens can be found at: http://files.dnr.state.mn.us/eco/wetlands/calcareous_fen_list.pdf.

- E. **Special Aquatic Resources:** A project proponent must notify the District by submitting a PCN if a regulated activity would occur in any of the following aquatic resources:
- (1) State-designated wild rice waters^{1,2};
 - (2) Bog wetland plant communities^{1,3};
 - (3) Fens^{1,3};
 - (4) Coastal plain marshes^{1,4};
 - (5) Interdunal wetlands^{1,4};
 - (6) Great Lakes ridge and swale complexes^{1,4};
 - (7) Aquatic resources within Lake Superior National Estuarine Research Reserve;
 - (8) Ramsar wetland sites, including: the Horicon Marsh, Upper Mississippi River Floodplain Wetland, Kakagon and Bad River Slough, Door Peninsula Coastal Wetlands, Chiwaukee Illinois Beach Lake Plain, and Lower Wisconsin Riverway. The complete up to date Ramsar list is available at <https://rsis Ramsar.org>.

The following regional conditions are applicable to a specific NWP:

- F. **NWP 52. Water-Based Renewable Energy Generation Pilot Projects:** NWP 52 does not authorize structures or work in Lake Michigan and Lake Superior within the geographic regulatory boundaries of the St. Paul District.
- G. **NWP 3, 33, and 41. Aquatic Resource Impacts:** A project proponent must notify the District by submitting a PCN if a regulated activity, including but not limited to, filling, flooding, excavating, or drainage of waters of the U.S., involves:
- (1) A permanent loss of greater than 1/10 acre of waters of the U.S. for NWP 3 and 41; or
 - (2) over 1/2 acre of temporary impacts to waters of the U.S. for NWP 3, 33, and 41.
- H. **NWP 27. Aquatic Habitat Restoration, Establishment and Enhancement Activities:** NWP 27 does not authorize the permanent conversion of forested, bog, fen, sedge meadow, or shrub-carr wetlands to other plant communities. A project proponent may request, in writing, a waiver from this condition from the District. The waiver will only be issued if it can be demonstrated that the conversion would restore wetland plant communities to the pre-settlement condition or a watershed approach and that the current landscape and hydrologic conditions would sustain the targeted community.

¹ Information about Wisconsin plant community types for 1-6 above may be obtained from: <http://dnr.wi.gov/topic/EndangeredResources/Communities.asp?mode=group&Type=Wetland>

² Information regarding wild rice waters and their extent may be obtained from: <https://www.dnr.state.mn.us/wildlife/shallowlakes/wildrice.html> and <https://gisdata.mn.gov/dataset/biota-wild-rice-lakes-dnr-wld> in Minnesota, <https://dnr.wisconsin.gov/topic/wildlifehabitat/rice.html> in Wisconsin, and an interactive map is provided at: <http://maps.glifwc.org/> (under Treaty Resources – Gathering).

³ Additional information on bog and fen communities can be found at: <http://www.mvp.usace.army.mil/missions/regulatory.aspx> and in Minnesota at <http://www.dnr.state.mn.us/npc/classification.html>.

⁴ Coastal plain marshes, interdunal wetlands, and Great Lakes ridge and swale complexes are specific to Wisconsin

2021 Nationwide Permit General Conditions

1. Navigation.

- (a) No activity may cause more than a minimal adverse effect on navigation.
- (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
- (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers.

(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species.

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties.

(a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she

makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either

some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary,

to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWP.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality.

(a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States

for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- (c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a “USACE project”), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer’s receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is “no effect” on listed species or “no potential to

cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed activity;
- (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- (4)
 - (i) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.
 - (ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.
 - (iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
- (5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;
- (6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.
- (7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;
- (8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the

proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:*

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.



**US Army Corps
of Engineers®**

St. Paul District

COMPLIANCE CERTIFICATION

Regulatory File Number: 2022-00266-MWM
Name of Permittee: Tall Plains Conservancy, Susan Buchanan
County/State: Waukesha, Wisconsin
Date of Issuance: July 28, 2022

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the Corps contact identified in your verification letter within 30 days.

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

By signing below, the permittee is certifying that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



05/04/2022

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330
N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058
[sent electronically]

IP-SE-2022-68-00881

RE: Application to remeander a portion of Mason Creek in the Town of MERTON, Waukesha County

Dear Ms. Buchanan:

The Department of Natural Resources has completed its review of your application for a permit to realign a section of Mason Creek as part of a habitat restoration project located in the SW 1/4, NE 1/4, Section 06, Township 08, Range 18E, Town of MERTON, Waukesha County. You will be pleased to know your application is approved.

I am attaching a copy of your permit, which lists the many important conditions that must be followed to protect water quality and habitat. A copy of the permit must be posted for reference at the project site. Please read your permit conditions carefully so that you are fully aware of what is expected of you.

Please note you are required to submit photographs of the completed project within 7 days after you've finished construction. This helps both of us to document the completion of the project and compliance with the permit conditions.

Your next step will be to notify me of the date on which you plan to start construction and again after your project is complete.

If you have any questions about your permit, please call me at (262) 354-4569 or email luke.roffler@wisconsin.gov.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Email CC:
U.S. Army Corps of Engineers
DNR Stormwater
County Zoning Administrator
DNR Conservation Warden
Stantec

**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**CHANNEL CHANGES PERMIT
IP-SE-2022-68-00881**

Application of Susan Buchanan is hereby granted under Sections Ch 30.195(1) and Ch 30.208, Wisconsin Statutes, to realign a section of Mason Creek as part of a habitat restoration project located in the SW 1/4, NE 1/4, Section 06, Township 08, Range 18E, Town of MERTON, Waukesha County, subject to the following conditions:

PERMIT

1. You must notify Luke Roffler at phone (262) 354-4569 or email luke.roffler@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.
2. You must complete the project as described **on or before 05/04/2027**. If you will not complete the project by this date, you must submit a written request for an extension prior to expiration of the initial time limit specified in the permit. Your request must identify the requested extension date. The Department shall extend the time limit for an individual permit or contract for no longer than an additional 5 years if you request the extension before the initial time limit expires. You may not begin or continue construction after the original permit expiration date unless the Department extends the permit in writing or grants a new permit.
3. This permit does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of this permit. If you wish to alter the project or permit conditions, you must first obtain written approval of the Department.
4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.
5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.
6. The Department may modify or revoke this permit for good cause, including if the project is not completed according to the terms of the permit or if the Department determines the activity is detrimental to the public interest.
7. **You must post a copy of this permit at a conspicuous location on the project site, visible from the waterway**, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of the permit and approved plan available at the project site at all times until the project is complete.
8. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of this permit.
9. **You must submit a series of photographs to the Department, within one week of completing work on the site.** The photographs must be taken from different vantage points and depict all work authorized by this permit.
10. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.
11. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Adm. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.
12. All equipment used for the project including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. **Inspect and remove** aquatic plants, animals, and mud from your equipment.
2. **Drain all water** from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps.
3. **Dispose** of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
4. **Wash your equipment** with hot (>140° F) and/or high-pressure water,
- OR -
Allow your equipment to **dry thoroughly for 5 days.**

STREAM RELOCATION CONDITIONS:

13. Construction must take place during low water periods and no in-water construction can take place from September 15th through May 15th of each calendar year to protect fish spawning, movement, and egg incubation periods.

14. Development in conjunction with this project, such as construction or filling, must conform to State Floodplain Management Standards and local zoning regulations.

15. Material excavated from the new channel must be temporarily stored in an upland area, out of the floodway, separated from the stream by a strip of undisturbed vegetative cover or protected with appropriately installed best management practices (such as silt fence).

16. The bank slopes of the new channel must be in accordance with the approved plans dated February 2021.

17. The new channel's banks must be stabilized before it is opened up to receive stream flow. To minimize erosion, the downstream end of the new channel must be opened first. Once the stream flow is passing through the new channel, the existing channel can be filled. The upstream and downstream end of the fill in the old channel must be protected from erosion in accordance with the plans dated February 2021 and approved by this permit.

18. The old channel must be filled with material excavated from the new channel in the areas indicated on the approved plans dated February 2021. Additional fill can be used as needed so that the old channel is filled level with the surrounding ground. The top of this fill must be stabilized in accordance with the approved plans dated February 2021.

FINDINGS OF FACT

1. Susan Buchanan (Tall Pines Conservancy), P.O. Box 65 W330 N4465 Lakeland Drive (CTH C), Nashotah, WI 53058, filed an application with this Department on 02/28/2022, under sections Ch 30.195(1) and 30.208, Wisconsin Statutes, to change the channel of Mason Creek located in the SW 1/4, NE 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

2. The applicant proposes to realign approximately 1,420 linear feet of Mason Creek located in the east portion of their 26.5-acre property along Pleasant View Road. Restoration will include abandonment of the existing channel and creation of a new channel within the historic floodplain, in an effort to provide hydrological reconnection to the existing floodplain. Portions of the existing, straightened channel will remain unfilled to provide oxbox habitat. Other project elements were authorized under separate General Permits (In-stream habitat structures – GP-SE-2022-68-01311, Wetland scrapes – GP-SE-2022-68-00883, Ford crossings – GP-SE-2022-68-01312).

3. The Department has completed an investigation of the project site and has evaluated the project as described in the application and plans.

4. Mason Creek is a navigable water.

5. The proposed project, if constructed in accordance with this permit will not adversely affect water quality, will not increase water pollution in surface waters and will not cause environmental pollution as defined in s. 283.01(6m), Wis. Stats.

6. The proposed project will not negatively impact wetlands if constructed in accordance with this permit. Various temporary and permanent wetland disturbance activities are proposed as a part of this project, but will provide an overall environmental lift in terms of aquatic habitat restored, floodplain and wetland habitat reconnected, and wetland habitat protected.

7. The Department of Natural Resources has determined that the agency's review of the proposed project constitutes an integrated analysis action under s. NR 150.20(2), Wis. Adm. Code. The Department has considered the impacts on the human environment, alternatives to the proposed projects and has provided opportunities for public disclosure and comment. The Department has completed all procedural requirements of s. 1.11(2)(c), Wis. Stats., and NR 150, Wis. Adm. Code for this project.

8. Department of Natural Resources has completed all procedural requirements and the project as permitted will comply with all applicable requirements of Sections 30.195(1) and 30.208, Wisconsin Statutes and Chapters NR 102, 103, of the Wisconsin Administrative Code.

The applicant was responsible for fulfilling the procedural requirements for publication of notices under s. 30.208(5)(c)1m., Stats., and was responsible for publication of the notice of pending application under s.30.208(3)(a), Stats. or the notice of public informational hearing under s.30.208(3)(c), Stats., or both. S. 30.208(3)(e), Stats., provides that if no public hearing is held, the Department must issue its decision within 30 days of the 30-day public comment period, and if a public hearing is held, the Department must issue its decision within 20 days after the 10-day period for public comment after the public hearing. S. 30.208(5)(bm), Stats., requires the Department to consider the date on which the department publishes a notice on its web site as the date of notice.

9. The stream relocation will not be detrimental to the public interest because the project will provide significant environmental lift to a straightened Class I trout stream while also enhancing and reconnecting adjacent floodplain and wetland habitat.

10. The activity will not cause environmental pollution as defined in s. 299.01(4).

11. The newly relocated stream channel is considered navigable and public as a result of this authorization and project. The newly relocated stream channel is considered navigable for local zoning purposes and local permits/approvals are required for work proposed within the shoreland zone of this waterway.

12. No material injury will result to the riparian rights of any riparian owners of real property that abuts any water body that is affected by the activity.

CONCLUSIONS OF LAW

1. The Department has authority under the above indicated Statutes and Administrative Codes, to issue a permit for the construction and maintenance of this project.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions shall be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing of any individual permit decision pursuant to section 30.209, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources, P.O. Box 7921, Madison, WI, 53707-7921. The petition shall be in writing, shall be dated and signed by the petitioner, and shall include as an attachment a copy of the decision for which administrative review is sought. If you are not the applicant, you must simultaneously provide a copy of the petition to the applicant. If you wish to request a stay of the project, you must provide information, as outlined below, to show that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment. If you are not the permit applicant, you must provide a copy of the petition to the permit applicant at the same time that you serve the petition on the Department.

The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

A request for contested case hearing must meet the requirements of section 30.209, Wis. Stats., and sections NR 2.03, 2.05, and 310.18, Wis. Admin. Code, and if the petitioner is not the applicant the petition must include the following information:

1. A description of the objection that is sufficiently specific to allow the department to determine which provisions of this section may be violated if the proposed permit or contract is allowed to proceed.
2. A description of the facts supporting the petition that is sufficiently specific to determine how the petitioner believes the project, as proposed, may result in a violation of Chapter 30, Wis. Stats;.
3. A commitment by the petitioner to appear at the administrative hearing and present information supporting the petitioner's objection.

If the petition contains a request for a stay of the project, the petition must also include information showing that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment.

Dated at the Waukesha Service Center, Wisconsin on 05/04/2022.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By: 

Luke Roffler

Compliance Team Coordinator

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



08/25/2022

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65
W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058
[sent electronically]

IP-SE-2022-68-00881

RE: Application to remeander a portion of Mason Creek in the Town of Merton, Waukesha County

Dear Ms. Buchanan:

We have reviewed your request to amend permit IP-SE-2022-68-00881, which is to realign a section of Mason Creek as part of a habitat restoration projects located in the SW 1/4, NE 1/4, Section 06, Township 08N, Range 18E, Town of Merton, Waukesha County.

Your request is approved with certain conditions and limitations. Attached is a copy of the Permit Amendment containing new conditions, along with a copy of your original permit which is still in effect unless otherwise noted.

If you have any questions about this permit amendment, please call me at (262) 354-4569 or you can reach me by email at luke.roffler@wisconsin.gov.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Email CC:

USACE Project Manager
County Zoning Administrator
Conservation Warden
Stantec

**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**PERMIT AMENDMENT
IP-SE-2022-68-00881**

PERMIT AMENDMENT

Susan Buchanan (Tall Pines Conservancy), P.O. Box 65 W330 N4465 Lakeland Drive (CTH C), Nashotah, WI 53058 is hereby granted under Section 30.195(1) and Ch. 30.208, Wisconsin Statutes, an amendment to permit number IP-SE-2022-68-00881, which authorized the permittee to to Changing stream course located in the SW 1/4, NE 1/4, Sec. 06, T. 08N, R. 18E, Town of Merton, Waukesha County. This is an approved amendment to install a temporary culvert crossing on the north end of the project site, at the location of a future ditch plug. The applicant is bound by the conditions of the original permit and by any conditions of this amendment.

AMENDED PERMIT CONDITIONS

1. All original permit conditions remain in effect, except where modified by the amended permit conditions below.
2. The project purpose is to place a waterway crossing to allow for access across a navigable river or stream and does not result in significant adverse impacts to the public rights and interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the riparian rights of any riparian owner pursuant to s. 30.206(3r)(a)2., Wis. Stats., nor does it cause more than minimal adverse environmental impacts, materially interfere with navigation, nor have an adverse impact on the riparian property rights of adjacent riparian owners pursuant to s. 30.206(1)(am), Wis. Stats.
3. Structures shall be placed entirely within the riparian's zone of interest, as determined by one of the methods outlined in ch. NR 326, Wis. Admin. Code, or applicants have the written permission from all affected riparian landowners to proceed with structure placement in the proposed location.
4. The placement and installation of waterway crossing structures placed on the bed of a river or stream (culvert or ford crossings) shall mimic the natural streambed and gradient above and below the structure to allow for aquatic organism passage (AOP) where appropriate, and not result in a permanent impoundment of water upstream of the crossing location. (note: culverts on streams 2% gradient or greater may require additional culvert design considerations to allow for AOP).
5. Structures in and over navigable waterways must be sized and set at an elevation so that water depths, widths and velocities at the inlet and outlet match the natural stream channel. Invert elevations of culverts shall be determined by surveying the stream bed elevations upstream and downstream of the crossing, and setting the culvert below the natural stream bed elevation. (note: site specific conditions such as northern pike waters, may require different embedding techniques than typical designs to prevent fish entrapment)
6. Any wetland disturbance associated with the structure placement is incidental to the structure, confined to the area within the stream channel being crossed or the immediate adjacent banks, and has been authorized by a department wetland permit or exemption as required pursuant to s. 281.36 Wis. Stats. (Documentation required).
7. The removal of material from the stream bed to facilitate the placement of structures located on the stream bed is located within 2' of the structure or is limited to the minimum amount necessary for correct placement of the structure and shall not be disposed of in a waterway, floodway, floodplain, or wetland. (Note. Stream channels may not be widened beyond existing bankfull width to accommodate culvert placement.)
8. The applicant shall avoid operating equipment on the stream bed. If required for project installation, the applicant must consult with the Department and shall follow the best management practices identified below as appropriate in order to minimize adverse resource impacts:
 - a. Temporary timber matting is used to protect the streambed
 - b. Movement on the stream bed is kept to a minimum

- c. Equipment is kept on streambed for as little time as needed to complete the project and must be removed when not in use;
- d. Properly installed and maintained silt curtains and/or turbidity barriers are used around the perimeter of the project;
- e. Pre-inspection of vehicles/equipment is done for all operating days to avoid leaks;
- f. Biodegradable hydraulic and engine oils are used OR a spill containment kit is on site in case of spill

FINDINGS OF FACT

1. Sarah Majerus (Stantec) filed a request with the Department on 08/23/2022, for an amendment to the Mason Creek restoration project located in the SW 1/4, NE 1/4, Sec. 06, T. 08, R. 18E, Town of Merton, Waukesha County under Section 30.195(1) and Ch. 30.208, Wisconsin Statutes.
2. Susan Buchanan (Tall Pines Conservancy) was granted Permit Number IP-SE-2022-68-00881 to realign a section of Mason Creek as part of a habitat restoration project.
3. Sarah Majerus filed a request to amend the original permit on 08/23/2022 to install a temporary culvert crossing at the north end of the project site in the future location of a ditch plug. The crossing will allow for efficient equipment access to both sides of the stream, limiting the total amount of site disturbance. The exact location of the proposed crossing is shown in the proposed revision to the plan set dated 08/23/2022.
4. The Department has determined that the proposed amendment to the permit will not affect the Findings of Fact and Conclusions of Law of the original permit. A copy of the original permit is attached to this amendment.

CONCLUSIONS OF LAW

1. The Department has authority under Section 30.195(1), Ch. 30.208, and Ch. 30.12 Wisconsin Statutes, and the foregoing Findings of Fact, to issue an order granting the permit amendment requested.
2. The Department has complied with Section 1.11, Wisconsin Statutes and NR 150, Wisconsin Administrative Code.

Dated at the Waukesha Service Center, Wisconsin on 08/25/2022

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

BY: 

Luke Roffler
Compliance Team Coordinator

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



04/04/2022

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058

GP-SE-2022-68-01311

Dear Ms. Buchanan:

Thank you for submitting an application for a General Permit to place habitat structures in Mason Creek located in the NE 1/4, SW 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

You have certified that your project meets the eligibility criteria for this activity. Based upon your signed certification you may proceed with your project. Please take this time to re-read the permit standards and conditions. You are responsible for meeting all general permit eligibility standards and permit conditions. This includes notifying the Department before starting the project, and submitting photographs within one week of project completion. We have not reviewed your plans for compliance with installation and construction standards. You are responsible for ensuring that the project meets all eligibility standards described on the attached checklist. **Please note that your project must be complete within 3 years of the date of this letter.**

The Department conducts routine and annual compliance monitoring inspections. Our staff may follow up and inspect your project to verify compliance with state statutes and codes. If you need to modify your project please contact your local Water Management Specialist, Luke Roffler at (262) 354-4569 or email luke.roffler@wisconsin.gov to discuss your proposed modifications. If you fail to comply with state statutes and code, the Department has the authority to pursue enforcement which could include site restoration and fines.

The Department of Natural Resources appreciates your willingness to comply with waterway regulations, which help to protect the water quality, fish and wildlife habitat, natural scenic beauty and recreational value of Wisconsin's water resources for future generations. You are responsible for obtaining any other local, state or federal permits that are required before starting your project.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Copy to: USACE Project Manager
 County Zoning Administrator
 DNR Stormwater
 Conservation Warden
 Stantec

ELIGIBILITY CRITERIA

1. The fish habitat structure may be located in an area of special natural resource interest, or within a public rights feature as described in Wis. Admin. Code s. NR 1.06, or at a site where the Department requires a permit under Wis. Stats. s. 30.12(2m)
2. The project purpose is to place a fish habitat structure solely for the purpose of improving fish and wildlife habitat, or fish stocking, and the placement does not result in significant adverse impacts to the public rights and interests, cause environmental pollution as defined in Wis. Stats. s. 299.01(4), or result in material injury to the riparian rights of any riparian owner pursuant to Wis. Stats. s. 30.206(3r)(a)2., nor does it cause more than minimal adverse environmental impacts, materially interfere with navigation, nor have an adverse impact on the riparian property rights of adjacent riparian owners pursuant to Wis. Stats. s. 30.206(1)(am). The applicant or co-applicant is the riparian owner.
3. The applicant or co-applicant is the riparian owner.
4. The fish habitat or stocking structure must be placed entirely within the riparian zone of interest as determined by one of the methods outlined in Wis. Admin. Code s. NR 326.07. Certain habitat structures may be placed waterward of the line of navigation where allowed by activity specific standards contained in this general permit.
5. The riparian owner or the person who places fish habitat or stocking structures under coverage of this General Permit must have the approval of the local Department Fisheries Biologist before placing the structure. A list of fisheries biologists can be found at <http://dnr.wi.gov/topic/fishing/people/index.html>.
6. Fish Spawning. To minimize adverse impacts on fish movement, fish spawning, and egg incubation periods, structures may not be placed during the following time periods:
 - September 15th through May 15th for all trout streams; and upstream to the first dam or barrier on the Root River (Racine County), the Kewaunee River (Kewaunee County), and Strawberry Creek (Door County). To determine if a waterway is a trout stream, you may use the WDNR website trout maps which can be found at <http://dnr.wi.gov/topic/fishing/trout/streammaps.html>
 - March 1st through June 15th for ALL waters.The regional Department Fisheries Biologist may waive or modify timing restrictions in writing. To find your biologist and request in writing a waiver or modification of fish spawning timing restrictions for your project use the WDNR website at: <http://dnr.wi.gov/topic/fishing/people/index.html>.
7. The placement of structures must be conducted in a manner that prevents the collection, removal or dispersal of sediment away from the project site to the maximum extent practicable. Temporary sediment control measures used to accomplish this should be completely removed from the waterbody no more than 24 hours after the project is completed.
8. All temporary sediment control measures must follow all state lighting requirements and cannot materially obstruct navigation.
9. Live, living or growing aquatic plants may not be removed unless the removal is exempt under Wis. Stats. s. 23.24 (4) or complies with the provisions for waiver of the permit requirement under Wis. Admin. Code s. NR 109.06.
10. Removal of material above the ordinary high water mark is a land grading activity and is not authorized under this general permit.
11. Dredging under Wis. Stats. s. 30.20(1g) (b) 1., is not allowed for the placement of a fish habitat or stocking structure. This general permit does not authorize the removal of native bed and bottom material which includes sand, cobble, silt, detritus, and other organic material. Dredging does not include "de minimus" activities.
12. A deposit of sand, gravel or stone under Wis. Stats. s. 30.12(1g) (a), may be associated with the placement of a fish habitat or stocking structure provided the deposit is limited to the area immediately underneath or within one foot of the structure and is less than 2 cubic yards.

13. Erosion control measures must meet or exceed the technical standards for erosion control approved by the department under Wis. Admin. Code subch. V of ch. NR 151. Any area where topsoil is exposed during construction must be immediately seeded and mulched or riprapped to stabilize disturbed areas and prevent soils from being eroded and washed into the waterway. Note: These standards can be found at the following website: <http://dnr.wi.gov/topic/stormwater/standards/>.

14. Unless part of a permanent stormwater management system, all temporary erosion and sediment control practices must be removed upon final site stabilization. Areas disturbed during construction or installation must be restored.

SELF CERTIFICATION CONDITIONS

1. You must notify Luke Roffler at phone (262) 354-4569 or email luke.roffler@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.

2. You must complete the project as described on or before 04/04/2025. If you will not complete the project by this date, there is no opportunity for an extension and you must apply for a new permit.

3. Your signed certification does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of your signed certification. If you wish to alter the project, you must first obtain written approval of the Department.

4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.

5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.

6. The Department may modify or revoke your signed certification for good cause, including if the project is not completed according to the terms of the eligibility standards and conditions for the activity or if the Department determines the activity is detrimental to the public interest.

7. You must post a copy of your signed certification at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of your signed certification and plan available at the project site at all times until the project is complete.

8. Your acceptance of this letter and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of your signed certification.

9. You shall maintain the project in good condition and in compliance with the terms and conditions of your signed certification, NR 323, Wis. Admin. Code and s. 30.206, Stats.

10. This project shall comply with all conditions identified in Wisconsin Administrative Code NR 323, and identified in the Instructions for the General Permit application.

11. You must submit a series of photographs to the Department, within one week of completing work on the site. The photographs must be taken from different vantage points and depict all work authorized by this permit.

12. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.

13. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Admin. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.

14. All equipment used for the project, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile, and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. Inspect and remove aquatic plants, animals, and mud from your equipment.
2. Drain all water from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps.
3. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
4. Wash your equipment with hot (>104° F) and/or high pressure water,

- OR -

Allow your equipment to dry thoroughly for 5 days.

FINDINGS OF FACT

1. The proposed stream realignment and restoration project includes installation of toe wood along several outside bends. A total of 28 locations and over 1,600 total linear feet. The proposed project also includes installation of 24 stone riffles within the stream channel.
1. The Department has determined that your signed certification of the project site and project plans meet the standards in s. 30.206, Stats. and ch. NR 323, Wis. Adm. Code., to qualify for this General Permit.
2. The proposed project will not injure public rights or interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the rights of any riparian owner, if constructed in accordance with your signed certification.
3. The Department and the applicant have completed all procedural requirements, and the project as described in your signed certification will comply with all applicable requirements of Section 30.206, Wis. Stats., and Chapters NR 102, 103, 150, 299, 310 and 323 if carried out as proposed.

CONCLUSIONS OF LAW

1. The Department has authority under ch. 30, Wis. Stats., and ch. NR 323, Wis. Adm. Code, to grant approval for the construction and maintenance of this project.
2. The Department has complied with s. 1.11, Wis. Stats.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058

GP-SE-2022-68-00883

Dear Ms. Buchanan:

Thank you for submitting an application for a General Permit to install a series of wildlife ponds near Mason Creek located in the NE 1/4, SW 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

You have certified that your project meets the eligibility criteria for this activity. Based upon your signed certification you may proceed with your project. Please take this time to re-read the permit standards and conditions. You are responsible for meeting all general permit eligibility standards and permit conditions. This includes notifying the Department before starting the project, and submitting photographs within one week of project completion. We have not reviewed your plans for compliance with installation and construction standards. You are responsible for ensuring that the project meets all eligibility standards described on the attached checklist. **Please note that your project must be complete within 3 years of the date of this letter.**

The Department conducts routine and annual compliance monitoring inspections. Our staff may follow up and inspect your project to verify compliance with state statutes and codes. If you need to modify your project please contact Luke Roffler at (262) 354-4569 or email luke.roffler@wisconsin.gov to discuss your proposed modifications. If you fail to comply with state statutes and code, the Department has the authority to pursue enforcement which could include site restoration and fines.

The Department of Natural Resources appreciates your willingness to comply with waterway regulations, which help to protect the water quality, fish and wildlife habitat, natural scenic beauty and recreational value of Wisconsin's water resources for future generations. You are responsible for obtaining any other local, state or federal permits that are required before starting your project.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Copy to: USACE Project Manager
DNR Stormwater
County Zoning Administrator
Conservation Warden
Stantec

ELIGIBILITY CRITERIA

Eligibility criteria:

1. The purpose of the pond or artificial waterbody shall be wetland conservation as determined under ch. NR 353 and all standards for construction of the ponds in ss. NR 353.04 and 353.05 will be met.
2. Reporting and monitoring requirements in s. NR 216.48 (4) will be followed
3. The site shall meet the construction site performance standards of s. NR 151.11 for land disturbing construction activities for non-transportation projects and s. NR 151.23 for transportation projects.
4. The pond or artificial water body is designed in accordance with best management practices required for stormwater discharge permits under ch. NR 216, or to meet a local ordinance for stormwater management.
5. The pond or artificial water body may not be associated with any metallic or non-metallic mining project.
6. Erosion and sediment control best management practices shall be designed in accordance with s. NR 216.46 (6).
7. A site specific erosion control plan designed in accordance with s. NR 216.46 (1) to (4).
8. Erosion control measures shall meet or exceed the technical standards for erosion control approved by the department under subch. V of ch. NR 151. Any area where topsoil is exposed during placement, repair or removal of a structure shall be immediately seeded and mulched to stabilize disturbed areas and prevent soils from being eroded and washed into the waterway. These standards can be found at: <http://dnr.wi.gov/topic/stormwater/standards/>.
9. Unless part of a permanent storm water management system, all temporary erosion and sediment control practices will be removed upon final site stabilization. All areas disturbed during removal of temporary erosion and sediment control practices will be restored
10. All equipment used for the project including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.
11. The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.
 - a. Inspect and remove aquatic plants, animals, and mud from your equipment.
 - b. Drain all water from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps.
 - c. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.Wash your equipment with hot (>104° F) or high pressure water, steam clean or allow your equipment to dry thoroughly for 5 days.
12. Follow the most recent department approved washing and disinfection protocols and department approved best management practices to avoid the spread of invasive species as outlined in NR 40, Wis. Adm. Code. These protocols and practices can be found on the Department website at <http://dnr.wi.gov/topic/Invasives/bmp.html> Keyword: "equipment operator" and at <http://dnr.wi.gov/topic/Invasives/documents/EquipOper.pdf>.

SELF CERTIFICATION CONDITIONS

1. You must notify Luke Roffler at phone (262) 354-4569 or email luke.roffler@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.

2. You must complete the project as described on or before 04/04/2025. If you will not complete the project by this date, there is no opportunity for an extension and you must apply for a new permit.
3. Your signed certification does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of your signed certification. If you wish to alter the project, you must first obtain written approval of the Department.
4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.
5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.
6. The Department may modify or revoke your signed certification for good cause, including if the project is not completed according to the terms of the eligibility standards and conditions for the activity or if the Department determines the activity is detrimental to the public interest.
7. You must post a copy of your signed certification at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of your signed certification and plan available at the project site at all times until the project is complete.
8. Your acceptance of this letter and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of your signed certification.
9. You shall maintain the project in good condition and in compliance with the terms and conditions of your signed certification, NR 343, Wis. Admin. Code and s. 30.206, Stats.
10. This project shall comply with all conditions identified in Wisconsin Administrative Code NR 343, and identified in the Instructions for the General Permit application.
11. You must submit a series of photographs to the Department, within one week of completing work on the site. The photographs must be taken from different vantage points and depict all work authorized by this permit.
12. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.
13. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Admin. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.
14. All equipment used for the project, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile, and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. Inspect and remove aquatic plants, animals, and mud from your equipment.
2. Drain all water from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps.
3. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
4. Wash your equipment with hot (>104° F) and/or high pressure water,

- OR -

Allow your equipment to dry thoroughly for 5 days.

FINDINGS OF FACT

1. The proposed stream realignment and restoration project includes installation of a series of very shallow wetland scrapes, each approximately 1' or less in depth. Each scrape will have sideslopes of 8:1 or gentler. The total combined acreage for the scrapes will be approximately 0.19 acres.
2. The Department has determined that your signed certification of the project site and project plans meet the standards in s. 30.206, Stats. and ch. NR 343, Wis. Adm. Code., to qualify for this General Permit.
3. The proposed project will not injure public rights or interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the rights of any riparian owner, if constructed in accordance with your signed certification.
4. The Department and the applicant have completed all procedural requirements, and the project as described in your signed certification will comply with all applicable requirements of Section 30.206, Wis. Stats., and Chapters NR 102, 103, 150, 299, 310 and 343 if carried out as proposed.

CONCLUSIONS OF LAW

1. The Department has authority under ch. 30, Wis. Stats., and ch. NR 343, Wis. Adm. Code, to grant approval for the construction and maintenance of this project.
2. The Department has complied with s. 1.11, Wis. Stats.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



04/04/2022

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058

GP-SE-2022-68-01312

RE: Coverage under the waterway statewide general permit to install a stone ford crossing over Mason Creek, located in the Town of MERTON, Waukesha County, docket GP-SE-2022-68-01312.

Dear Ms. Buchanan:

Thank you for submitting an application for a General Permit to install waterway crossings over Mason Creek located in the SW 1/4, NE 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

You have certified that your project meets the eligibility criteria for this activity. Based upon your signed certification you may proceed with your project. Please take this time to re-read the permit standards and conditions. The eligibility standards can be found on your application checklist or in the statewide general permit (found at <http://dnr.wi.gov/topic/waterways/> - keyword: general permits). The permit conditions are attached to this letter. **You are responsible for meeting all general permit eligibility standards and permit conditions.** This includes notifying the Department before starting the project, and submitting photographs within one week of project completion. **Please note your coverage is valid for 5 years from the date of the department's determination or until the activity is completed, whichever occurs first.**

The Department conducts routine and annual compliance monitoring inspections. Our staff may follow up and inspect your project to verify compliance with state statutes and codes. If you need to modify your project please contact Luke Roffler at (262) 354-4569 or email luke.roffler@wisconsin.gov to discuss your proposed modifications.

The Department of Natural Resources appreciates your willingness to comply with waterway regulations, which help to protect the water quality, fish and wildlife habitat, natural scenic beauty and recreational value of Wisconsin's water resources for future generations. You are responsible for obtaining any other local, state or federal permits that are required before starting your project.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Copy to: USACE Project Manager
County Zoning Administrator
DNR Stormwater
Conservation Warden

You agree to comply with the following conditions:

1. The applicant has contacted the local WDNR Water Management Specialist during the development of the project to have a pre-application discussion. Go to dnr.wi.gov, key word “waterway protection” for more information. Project design must address the site specific considerations that are identified by the WMS and appropriate resource managers during the pre-application discussion.
2. The project purpose is to place a waterway crossing to allow for access across a navigable river or stream and does not result in significant adverse impacts to the public rights and interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the riparian rights of any riparian owner pursuant to s. 30.206(3r)(a)2., Wis. Stats., nor does it cause more than minimal adverse environmental impacts, materially interfere with navigation, nor have an adverse impact on the riparian property rights of adjacent riparian owners pursuant to s. 30.206(1)(am), Wis. Stats.
3. Projects proposed in locations with existing recorded deed restrictions within the project area, including easements limiting construction and land use activities, are not eligible for this general permit.

Note: Department Chs. 30 and 281 Wis. Stats. permits do not supersede any legal restrictions on the use of land

4. Structures over lake outlets and lake systems are not eligible for this permit.
5. Structures shall be placed entirely within the riparian’s zone of interest, as determined by one of the methods outlined in ch. NR 326, Wis. Admin. Code, or applicants have the written permission from all affected riparian landowners to proceed with structure placement in the proposed location.
6. The placement and installation of waterway crossing structures placed on the bed of a river or stream (culvert or ford crossings) shall mimic the natural streambed and gradient above and below the structure to allow for aquatic organism passage (AOP) where appropriate, and not result in a permanent impoundment of water upstream of the crossing location. (note: culverts on streams 2% gradient or greater may require additional culvert design considerations to allow for AOP).
7. Spawning. To minimize adverse impacts on fish movement, fish spawning, and egg incubation periods, in-stream structures may not be placed during the following time periods:
 - September 15th through May 15th for all trout streams; to determine if a waterway is a trout stream, you may use the WDNR website trout maps which can be found at <https://dnr.wisconsin.gov/topic/Fishing/trout/streammaps.html>
 - September 15th through June 15th on all Great Lakes tributaries upstream to the first dam or barrier.
 - March 1st through June 15th for ALL OTHER waters.

Note: The local Department Fisheries Biologist may waive or modify timing restrictions in writing. To request waiver or modification of fish spawning timing restrictions for your project please do so within the narrative portion of your permit application.

8. The applicant is working to obtain a local shoreland zoning authorization for the project or the local shoreland zoning requirements have been waived. (Documentation required). If local zoning permits are not required, the project vegetation and bank disturbance is limited to the amount necessary for project placement and erosion control practices are adequate to prevent sedimentation to surface waters.
9. If the project is located in a regulatory floodplain, the applicant is working to obtain a floodplain permit (NR 116 Wis. Admin. Code) from the local floodplain zoning department.

Note: Contact your local floodplain zoning department to determine whether your project is located in a regulatory floodplain. For general floodplain mapping information, you may review the floodplain themed surface water data viewer at <https://dnrmaps.wi.gov/H5/?Viewer=SWDV&layerTheme=1>

10. Structures in and over navigable waterways must be sized and set at an elevation so that water depths, widths and velocities at the inlet and outlet match the natural stream channel. Invert elevations of culverts shall be determined by surveying the stream bed elevations upstream and downstream of the crossing, and setting the culvert below the natural stream bed elevation. (note: site specific conditions such as northern pike waters, may require different embedding techniques than typical designs to prevent fish entrapment)

11. All bridges and culverts shall maintain a clearance of 5 feet or more above the ordinary high water mark (OHWM), or request a waiver to the navigational clearance requirements, which can be granted by the Department when the following conditions apply:

- a. The waterway is known to have little or no navigation or snowmobile use.
- b. The waterway is not anticipated to have navigational use by other than lightweight craft.
- c. The owner provides a portage over or around the bridge or culvert.
- d. The reduced clearance would not be detrimental to the public interest.

12. Any wetland disturbance associated with the structure placement is incidental to the structure, confined to the area within the stream channel being crossed or the immediate adjacent banks, and has been authorized by a department wetland permit or exemption as required pursuant to s. 281.36 Wis. Stats. (Documentation required).

13. The removal of material from the stream bed to facilitate the placement of structures located on the stream bed is located within 2' of the structure or is limited to the minimum amount necessary for correct placement of the structure and shall not be disposed of in a waterway, floodway, floodplain, or wetland. (Note. Stream channels may not be widened beyond existing bankfull width to accommodate culvert placement.)

14. The applicant shall avoid operating equipment on the stream bed. If required for project installation, the applicant must consult with the Department and shall follow the best management practices identified below as appropriate in order to minimize adverse resource impacts:

- a. Temporary timber matting is used to protect the streambed
- b. Movement on the stream bed is kept to a minimum
- c. Equipment is kept on streambed for as little time as needed to complete the project and must be removed when not in use;
- d. Properly installed and maintained silt curtains and/or turbidity barriers are used around the perimeter of the project;
- e. Pre-inspection of vehicles/equipment is done for all operating days to avoid leaks;
- f. Biodegradable hydraulic and engine oils are used OR a spill containment kit is on site in case of spill

Additional eligibility standards for fords

1. The ford shall not be located in an Area of Special Natural Resource Interest (ASNRI) or Public Rights Feature (PRF), unless it is constructed for an agricultural use as defined in s. 30.40 (1), Wis.Stats.

Note: To determine if a waterway is an ASNRI or PRF, you may use the Designated Waters Theme on DNR's Surface Water Data Viewer: <http://dnr.wi.gov/topic/surfacewater/swdv/>

Note: Fisheries Biologist Ben Heussner expressed complete support for the project, including the ford crossing in a trout stream (which is the reason the stream is designated an ASNRI). As such, the ASNRI restriction does not apply here.

3. The ford shall only be constructed where the stream width is less than 100 feet, the normal stream depth is less than 2 feet.

4. The ford shall consist of a 6 to 24 inch thick layer of a minimum 2 to 4 inch diameter rock or pre-cast reinforced concrete planks over a base of crushed rock or an NRCS recommended design consistent with Conservation Practice 578 standards. The final placement of the crossing shall result in the top surface of the crossing set at the same elevation of the natural streambed immediately up and downstream of the crossing.



Waukesha County

Department of Parks and Land Use

June 28, 2022

Tall Pines Conservancy, Inc.
Susan Buchanan, Executive Director
P.O. Box 65
Nashotah, WI 53058

RE: Stormwater Permit: 601404. Mason Creek Streambank Restoration, Town of Merton

The Land Resources Division has reviewed your permit application. The plans that you submitted satisfy the requirements of Waukesha County's Stormwater Management & Erosion Control and Ordinance, Chapter 14. Please find enclosed your stormwater permit (#601404). The expiration date is 10/30/2023. The permit conditions are summarized on Page 3 and 4 of the Stormwater Permit Application. Any additional erosion control measures deemed necessary by LRD staff must be implemented without delay.

If you have any questions or comments, please contact me at (262) 896-8354.

Sincerely,

A handwritten signature in blue ink that reads "Marissa Castello".

Marissa Castello
Senior Conservation Specialist
Land Resources Division

Cc: Sarah Majerus, Stantec
Sean Collins, Stantec
Matthew Kaelin, DNR
Benjamin Greenberg, Waukesha County Planning and Zoning
Clerk, Town of Merton
Marilyn Haroldson, Town of Merton

Land Resources Division

Stormwater Permit

Permit #: 601404

Permit Expiration Date: 10/30/23

This permit has been issued pursuant to Chapter NR216 Wis. Admin. Code and the Waukesha County Stormwater Management and Erosion Control Ordinance (Chapter 14 Code of Ordinances).

Project Name: Mason Creek Streambank Stabilization

Project Type: Misc gradings/blgs

Permit Holders Name: Susan Buchanan, Tall Pines Conservancy, Inc.

Project Location: Pleasant View Road

Survey Township: Merton

Section: 8

Municipality: Town of Merton

Issued By: Marissa Castello

Date Issued: 6/28/22

Waukesha County Department of Parks and Land Use
Land Resources Division
Administration Center
515 W. Moreland Blvd., Room AC260
Waukesha, WI 53188
Phone: 262-896-8300

☒ If checked, this county permit also confers coverage under WPDES stormwater discharge permit WI-S067831-5, issued by the Wisconsin Department of Natural Resources under Chapter NR 216 Wisconsin Administrative Code.

Plans & Approvals (office use only)

☐ TIS

☒ Erosion Control

☐ Stormwater Management

☐ Foundation Drainage

- Post this permit on premises in clear view from the road -



Waukesha County

Department of Parks and Land Use

Dear Property Owner or Other Responsible Party:

Enclosed is your approved Zoning Permit for a proposed project on your property. **Please review the conditions of approval attached to your Zoning Permit.**

Please contact our office for a new or revised permit if additional activities will occur in conjunction with your project that are not included with your approved Zoning Permit. Such activities may include, but are not limited to, the following:

- **LAND-ALTERING ACTIVITIES** (grading, filling, cutting, etc.)
- **RETAINING WALLS**
- **DECKS, PATIOS** (regardless of material), **AND OTHER APPURTENANCES**
- **TREE CUTTING/ VEGETATION REMOVAL** especially if it is wooded and/or located on or near a lake or river.
- **FLOODPLAIN DEVELOPMENT IN THE C-1 DISTRICT** – development in the Floodplain/C-1 District is restricted on any property or within the road right-of-way.
- **IMPERVIOUS SURFACES (IS)** – certain properties with new or replacement IS as of 10/1/16 require a permit. Please contact our office for more information/permits.

If you have any questions or concerns about your Zoning Permit, please contact the **Planner of the Day** at (262) 548-7790 or pod@waukeshacounty.gov. An appointment is required for an in-person meeting.

PLEASE CONTACT THE BUILDING INSPECTOR TO APPLY FOR A BUILDING PERMIT AND TO DETERMINE IF YOU MUST PROVIDE A HARD COPY OF YOUR ZONING PERMIT PACKET.

In accordance with Wisconsin State Statute 59.691, the property owner is responsible for complying with State and Federal Laws concerning construction near or on wetlands, lakes and streams. Wetlands that are not associated with open water can be difficult to identify. Failure to comply may result in removal or modification of construction that violates the law or other penalties or costs. For more information, visit the Department of Natural Resources Wetlands Identification Webpage www.dnr.wi.gov/wetlands or contact a Department of Natural Resources Service Center.

Application No. M22:045
Construction Commencement
Deadline 01/02/2023
Expiration Date 12/28/2023

THIS CERTIFIES THAT A
ZONING PERMIT

Has been issued to TALL PINES CONSERVANCY, INC., PO BOX 65
to permit Stream realignment and riparian restoration.
on the premises described as LOT 2 CSM #11865 VOL 119/336 REC AS DOC #4401897 & CORRECTED BY DOC #4415230 PT
SW1/4 OF NE1/4 & SE1/4 OF NW1/4 & NW1/4 OF SE1/4 SEC 6 T8N R18E

in the Town of Merton Waukesha County, Wisconsin
Permit issued on July 6 20 22 Permit No. 39025
Dale R. Shaver
Town Building Inspector Zoning Administrator

IMPORTANT:

A BUILDING PERMIT MUST BE APPLIED FOR SEPARATELY IN CONFORMITY WITH THE TOWN BUILDING CODE. BEFORE THE PREMISES MAY BE OCCUPIED AN OCCUPANCY AND USE PERMIT MUST BE ISSUED BY THE TOWN, IF APPLICABLE.

APPLICATION FOR A ZONING PERMIT FOR FLOODPLAIN DEVELOPMENT
IN THE C-1 CONSERVANCY DISTRICT

1002882.002

For Office use only: Fee Pd. (see Fee Schedule) _____ ATF Y/N: n Receipt No. _____ Checked by hg PSE approved na
LRD approval received X DNR approval received X FEMA approval received _____ ACOE approval received _____
BOA No. _____ PO No. _____ CU No. _____ ZP Appl. No. M22:045 ZP No. _____
File copy _____ Building Inspector copy _____ Town Assessor copy _____ Owner copy _____ Applicant copy _____
Waukesha County Zoning Code _____ Waukesha County Shoreland and Floodland Protection Ordinance X
Town Merton Section 6 Zoning District(s) C-1 Tax Key No(s) MRTT0310998008
Owner Tall Pines Conservancy, Inc. Applicant (if different) _____
Mailing address P.O. Box 65 Nashotah, WI 53058-0655 Mailing address _____
Email address susanb@tallpinesconservancy.org Email address _____
Daytime Phone No. (262) 369-0500 Daytime Phone No. () _____
Address of Premises (if different) Pleasant View Road, Oconomowoc, WI 53066
Legal Description (from survey) LOT 2 CSM #11865 VOL 119/336 REC AS DOC #4401897 & CORRECTED BY DOC #4415230 PT SW1/4 OF NE1/4 & SE1/4 OF NW1/4 & NW1/4 OF SE1/4 SEC 6 T8N R18E
Detailed and complete description of proposed work to be completed and the intended use(s) (attach additional pages, if necessary): Stream realignment and riparian restoration for water quality improvement.
Ave. Lot Width (ft.) 1,025 Ave. Lot Depth (ft.) 865 Total Lot Area (sq. ft.) 1,145,628 SF (26.3 acres)
Type of existing structures on the lot and the use(s) of each: N/A (vacant)

RZ95

Floodplain Y/N: Y Sewer Y/N: N Private Well Y/N/Other: N Non-Conforming Y/N: N Reason(s): Stream Realignment
Floodplain elevation (amsl) at project area: 944 ft Numbered A-Zone (Studied area) A Unnumbered A-Zone (Approximate studied area) _____
FEMA FIRM Panel Number: 55133C0034G, 55133C0041G, 55133C0042G
Floodway mapped? Yes X No
Individual study completed for floodplain elevation and/or floodway determinations: X Yes (If so, please attach study) _____ No
Does the floodplain development impede drainage? Yes X No
Does the floodplain development result in an increased regional flood elevation? Yes X No
Does the floodplain development reduce the flood water storage capacity of the floodplain? Yes X No
(Please attach plans illustrating that compensatory storage is being provided for all areas of fill on a minimum of a one to one basis, which equals 100% replacement of any lost floodplain storage capacity. If an easement is required, please provide a copy of such easement.)
Is a building proposed in the floodplain? Yes (If so, please fill out an "Application for a Zoning Permit") X No

FIVE COPIES OF AN ACCURATE SITE PLAN OR PLAT OF SURVEY (preferred), DRAWN TO SCALE, MUST BE SUBMITTED WITH THIS APPLICATION, INCLUDING: lot dimensions and the location of all buildings on the lot in relation to the property boundaries; the location of any waterways and natural or man-made obstructions to the waterways; the location of any wetlands, including the source and date of the wetland determination; the location of the floodfringe and floodway boundary, including the elevation, source and date of the floodplain boundary; and the location of any natural areas, such as a primary or secondary environmental corridor or isolated natural resource area, as designated on the Waukesha County Zoning Maps, Comprehensive Development Plan for Waukesha County, or as designated by SEWRPC. The source and date of the determination of the identified natural areas shall also be identified.

THE FOLLOWING INFORMATION MUST ALSO BE SUBMITTED WITH THIS APPLICATION: an existing and proposed grading plan, including the area of disturbance; a drainage plan; timetable for completion; type, source, and amount of fill; an erosion control plan; a complete vegetative plan including seeding mixtures, amount of topsoil and mulch; a cross-section elevation view of the proposal, perpendicular to the watercourse showing if the proposed development will obstruct flow; and an analysis calculating the effects of this proposal on regional flood height. If the floodplain does not have an established elevation or floodway, a hydraulic and hydrologic study must be submitted for review and approval. If flood water storage is reduced, plans illustrating 100% compensation for any lost flood storage capacity must be submitted for review and approval.

AN INCOMPLETE APPLICATION FORM OR MISSING INFORMATION WILL CAUSE DELAY IN THE ISSUANCE OF THE ZONING PERMIT, AND THE APPLICATION MAY BE RETURNED FOR ADDITIONAL INFORMATION. CONSTRUCTION MUST BE COMPLETED WITHIN 6 MONTHS OF THE DATE OF ISSUANCE OF THE ZONING PERMIT UNLESS OTHERWISE SPECIFIED.

The undersigned states that the foregoing information is true and accurate to the best of his/her knowledge; it is hereby agreed that for and in consideration of the issuance of a zoning permit that the foregoing work will be carried out as defined in this application; that all applicable ordinances or codes of the state, county, and town will be complied with in carrying out the proposed work stated in the application; and that work will not commence before a building permit has been obtained from the town building inspector. If any changes or deviations are made from the original application, a new permit is required. Failure to comply with the permit as issued will result in the revocation of the permit or other penalties. By signing this form, the owner/applicant is giving consent for the Department of Parks and Land Use to inspect the site as necessary and related to this application even if the property has been posted against trespassing pursuant to Wis. Stat.

Signature of Owner A Susan Buchanan, Executive Director Date 2.9.22
Signature of Applicant _____ Date _____
Application (approved) (denied) by Zoning Administrator Ben Greenberg Date 7.6.22
Conditions for approval or reasons for denial see attached conditions of approval



Waukesha County

Department of Parks and Land Use

CONDITIONS OF ZONING PERMIT M22:045, # 39025

1. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understand and agree to follow all conditions of this permit.
2. This permit is for changes to the floodplain related to a realignment of a 2,500 ft. stretch of Mason Creek.
3. The project shall comply with the approved plans prepared by Stantec with a revision date of February 1, 2021, and submitted to the Waukesha County Planning and Zoning Division on February 16, 2022.
4. **Within six months after the completion of the watercourse relocation, the petitioners shall apply for a Letter of Map Revision with FEMA for the proposed changes. The petitioners shall obtain FEMA approval of a Letter of Map Revision.**
5. All conditions of conditional rezone RZ95 shall be complied with. **Within six months after the completion of the watercourse relocation the petitioners shall submit a final map to be certified by an engineer, that the fill or alteration as approved by Waukesha County has been accomplished to the specifications set forth by zoning amendment RZ95.**
6. All conditions of County Stormwater Permit No. 601404 shall be complied with.
7. Any required WDNR or ACOE Permits, shall be complied with. All necessary permits shall be obtained prior to any land altering activities.
8. The project shall not impede drainage, obstruct flows of floodwaters, cause any increase in flood heights during the regional flood, or affect the storage capacity of the floodplain.
9. Solid or hazardous materials shall not be used as a source of fill.
10. No net reduction in flood storage is proposed nor permitted herein.
11. You must immediately contact our office if there are any changes to this permitted project before the work is performed. A revised permit or additional permits may be required.

N:\PRKANDLU\Planning and Zoning\Zoning Permits\Conditions attached to Issued ZPs incl samples\Town of Merton\M22 045 Tall Pines FPD permit.doc

To:	Michelle Hase & Ben Greenberg Wisconsin DNR & Waukesha County	From:	Sean Collins, Jill Dam Mequon, WI
File:	Mason Creek Tall Pines Floodplain Study Stantec Project 193707448	Date:	January 19, 2022

Reference: Mason Creek Tall Pines Floodplain Study – Memo

BACKGROUND INFORMATION

Stantec Consulting Services Inc. (Stantec) conducted a floodplain hydraulic study to evaluate potential floodplain elevation impacts related to the restoration of a segment of Mason Creek by Tall Pines Conservancy. The stream restoration site is located near the Town of Merton, in Waukesha County. The upstream (north) limits of restoration are at approximate coordinates 43d 11' 22" N, 88d 24' 19" W. The stream flows directly south approximately 1,500 linear feet to the downstream (south) limits of restoration at approximate coordinates 43d 11' 08" N, 88d 24' 21" W. The contributing drainage area is approximately 5.6 square miles (upper limit), and land use is predominantly cultivated crops. (48.6%) Approximately 1.5 miles downstream, Mason Creek enters North Lake, where it joins with the Oconomowoc River.

A review of historic aerial imagery shows that this segment of Mason Creek was altered (channelized and straightened), prior to 1937. Currently, the adjacent floodplain is relatively broad, low, with limited topography, and bordered by well-defined upland terrace slopes to the east and west. The channel is generally straight, narrow, and incised with two (2) historic farm culvert crossings; one (1) has previously failed and is partially removed. The channel banks and bed are comprised of sands and silts and the bed features are limited and impaired. The floodplain and channel banks are generally well vegetated with various native and invasive grasses and herbaceous species; a few random larger diameter trees are located along the top of the bank. Upland areas are actively farmed. A gravel "farm road" extends between the adjacent upland fields running east to west and crossing Mason Creek at the lower culvert.

The restoration project proposes to improve the stability and function of Mason Creek within the Tall Pines Conservancy property limits. In accordance with the EPA Stream Function Pyramid, various elements of the restoration design address hydrology, hydraulics, geomorphology, physiochemistry, and/or biology of the project site. The proposed restoration plan includes changes in channel pattern, dimension, profile, and bed materials, as well as bank and floodplain vegetation. The proposed channel design is based on the topography of the valley (floodplain width, slope, elevation), regional stream reference data, and downstream historical imagery (1937) where segments of Mason Creek had a more irregular meander pattern, higher density of trees, and a generally larger distance between cultivated fields and the channel (buffer width).

METHODOLOGY AND RESULTS

The regulatory HEC-2 hydraulic model used in the effective Washington County floodplain mapping was obtained from Wisconsin DNR. This model was used for a flood insurance study in 1965 and was approved by FEMA and WDNR. The HEC-2 model was imported into a new HEC-RAS model in November 2019 by Stantec. The HEC-RAS project was entitled "MasonCreek_Mapleton."

The cross section used in the HEC-RAS model is labeled as cross section 0, which equates to X117 from the FEMA model. This cross section is the most upstream cross section from the FEMA model. There were no existing cross sections in the FEMA model that overlap with the restoration reach.

The 100-year flood flow in the HEC-RAS model (identified as the 1% probability flow) is 235 cubic feet per second. No revisions to the regulatory flood flows / hydrology are proposed.

Reference: Mason Creek Tall Pines Floodplain Study – Memo

The restored stream channel will incorporate both horizontal and vertical variability, for improved ecological function and enhanced habitat for fish and other organisms. The planform of the new stream will meander across an area of restored wetland, in comparison to the existing channel which follows the edge of an existing agricultural field in a straight north-south alignment. The new stream cross section will incorporate a thalweg that shifts within the stream section, leading to deeper channel depths along the outer bank at curves, and shallower bars on the inside of bends.

The new channel profile will include glide-pool-riffle-run sequences, as well as instream habitat and cover features such as toe wood and log/rock riffles.

The cross sections upstream of the FEMA model are based on Waukesha County 2015 LiDAR. To reflect the stream restoration design, the cross section shapes were modified to reflect the proposed restoration design. Reach lengths were also adjusted to reflect the new alignment. Cross section 3557 and 3153 are upstream of the restoration reach, and the only modification to this modeled cross section was to update the reach lengths to reflect the new channel alignment. Cross section 1907 is located downstream of the restoration reach, and no model adjustments were made to that cross section.

Below is a table of HEC-RAS hydraulic model results. These results show that there are no off-site regulatory flood elevation increases. In the table, the cross sections go from downstream to upstream.

Cross section number	Cross section description	100-Year Flood Elevations (feet)		Elevation Change (feet)
		Pre-Project	Post-Project	
1907	Approx. 1,907 feet upstream of the Detailed HEC-2 Study	943.91	943.91	0.00
1964	Approx. 1,647 feet downstream from northern property boundary on new alignment (entirely contained within property)	943.94	943.93	-0.01
2330	Approx. 1,112 feet downstream from northern property boundary on new alignment (entirely contained within property)	944.09	944.04	-0.05
2615	Approx. 730 feet downstream from northern property boundary on new alignment (entirely contained within property)	944.24	944.15	-0.09
3117	Just downstream of where existing alignment will flow into the new alignment	944.60	944.48	-0.12
3134	Upper portion of new alignment	944.62	944.50	-0.12
3153	Upstream (northern) property boundary, just upstream of where new alignment will diverge from existing alignment	944.64	944.51	-0.13
3557	Approx. 440 feet upstream from north property line	945.18	945.15	-0.03

The results show that upstream of the project limits / project property (cross sections 3134 and upstream), there is a -0.12 to -0.13-foot decrease in the 100-year flood elevation. At cross section 3557, approximately 440 feet upstream of the project limits, the proposed flood profile ties into the flood profile. There is no cross section that has an increase in the proposed floodplain.

Reference: Mason Creek Tall Pines Floodplain Study – Memo

FLOODPLAIN MAPPING

Horizontal mapping was completed comparing the Existing FEMA 100 year Floodplain (which is noted as Zone A), Existing 100 year Floodplain with HEC-2 model, Proposed 100 year Floodplain with Proposed Conditions. The Floodplain map is attached to this memo. The horizontal mapping of the 100 year floodplain was completed using topographic data from Waukesha County (2015 LiDAR).

The two (2) Floodplain boundaries compared were the Existing 100-year Floodplain with the HEC-2 model and the Proposed Conditions 100-year Floodplain. There are two locations where the proposed conditions go outside of the existing conditions floodplain.

1. Model Station 3117 to 2615 – Upland Slope Intercept. Based on application of the proposed channel / floodplain typical section, the proposed floodplain grading limits intercept the toe of the existing upland slope along the eastern edge between stations 3117 and 2615. The Mason Creek floodplain adjacent to the project site is relatively flat (minimal vertical relief). The existing site topographic data, 1' contours, were developed from a combination of collected topographic survey data and existing LiDAR data, as such grading tie-ins for areas with less than 1' of elevation change may not extend to the proposed grading limits, as part of the restoration efforts to minimize the limits of disturbance.
2. Model Station 2615 to 2330 – Farm Road. The historic gravel farm road, discussed above, has a surface elevation above the adjacent floodplain as it approaches the Mason Creek channel crossing. The proposed restoration activities would include the partial removal and/or lowering of a section of the roadway as needed to match the proposed floodplain grading improvements.

Both locations stay within the Tall Pines Conservancy property limits.

Conclusion

The floodplain analysis presents that the proposed conditions do not cause a vertical rise in the floodplain.

The floodplain analysis does present that the proposed conditions horizontal mapping does go outside of the existing floodplain in two locations.

1. Model Station 3117 to 2615 – Upland Slope Intercept
2. Model Station 2615 to 2330 – Farm road

Based on the information above and communication with Michelle Hase, apart of Wisconsin Department of Natural Resources (WDNR), consultation with Waukesha County will be required to determine if a LOMR or CLOMR/LOMR would be required for this project.

It is our recommendation that the project only completes a LOMR as there is no vertical increase in the floodplain, only a horizontal expansion that stays within the property limits.

Feel free to contact me to discuss any further information that may be needed regarding the floodplain analysis for this project.



January 19, 2022

Michelle Hase & Ben Greenberg

Page 4 of 4

Reference: Mason Creek Tall Pines Floodplain Study – Memo

STANTEC CONSULTING SERVICES INC.

A handwritten signature in blue ink that reads "Jill Vande Boom".

Jill Vande Boom, EIT

Engineer in Training

Stantec

Phone: 262-349-0551

Jill.VandeBoom@stantec.com

A handwritten signature in blue ink that reads "Sean D. Collins".

Sean D. Collins, PE, MLE

Senior. Water Resources Engineer

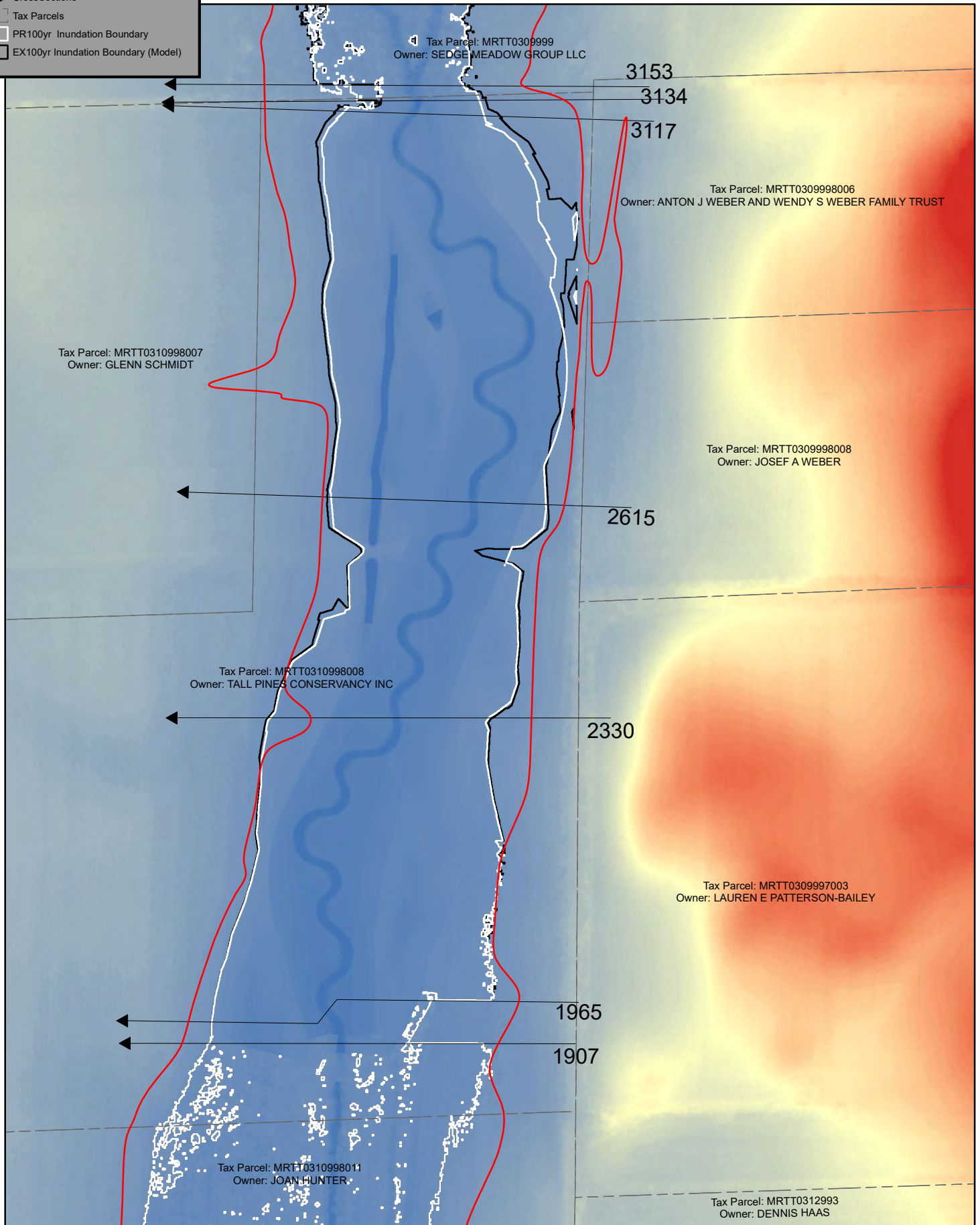
Stantec

Phone: 704.491.0929

Sean.collins@stantec.com

Legend

- EX FEMA 100yr Floodplain
- CrossSections
- Tax Parcels
- PR100yr Inundation Boundary
- EX100yr Inundation Boundary (Model)



**Mason Creek Stream
Restoration Project
Technical Memorandum**



Prepared for:
Tall Pines Conservancy

Prepared by:
Stantec Consulting Services, Inc.



April 22, 2021

Introduction

Stantec Consulting Services, INC. (Stantec) used Natural Channel Design (NCD) methods and Best Management Practices (BMPs) to assess and develop restoration plans for a segment of Mason Creek located within the Tall Pines Conservancy property. The proposed restored channel segment extends from the northern edge of the property south along the valley to a tie-in point just upstream of the property limits. The proposed channel restoration activities are intended to restore floodplain connectivity, improve channel stability, provide for aquatic organism passage, and increase the variability of in-stream habitat. Additionally, the removal of the culverts will eliminate the potential for culvert failure from debris blockages and/or larger flow events which can often result in rapid and accelerated erosion and channel instability.

This Technical Memorandum (TM) discusses and presents our analysis, designs, and calculations and is organized as follows:

Introduction	2
Site Information.....	3
Existing Conditions.....	3
Design	7
<i>Channel and Floodplain Restoration.....</i>	<i>8</i>
<i>Bed Materials</i>	<i>8</i>
<i>Revegetation.....</i>	<i>9</i>
<i>References.....</i>	<i>9</i>

Appendices

Appendix 1: Plans

Appendix 2: Calculations

Site Information

The project is a segment of Mason Creek located east of Pleasant View Road, and north of Mapleton Road, in Waukesha County, WI. The site has a Public Land Survey System (PLSS) legal description of SE, Merton, SEC6, T8N, R18E. Mason Creek drains into North Lake and is part of the Oconomowoc River Basin (Water Management Unit UR09). The Site is located in a rural setting with scattered residential development to the northeast and west. Surrounding land use consists primarily of current and historic agricultural land, interspersed with scattered woodlots and wetlands.

Existing Conditions

Mason Creek, a 303 (d) listed impaired waterway and Class I Trout Stream, which has been ditched and channelized, resulting in degraded water quality and degradation of habitat for trout and other aquatic organisms. The contributing drainage area upstream of the project is approximately 5.52 square miles. The existing channel segment is approximately 1420 feet in length with two existing culverts. The upstream culvert (washed out) is approximately 30-feet downstream of the northern property limits; the second culvert is approximately 530 feet downstream (south) and provides current access from Pleasant Road to the eastern side of the creek.

The geomorphic survey for the site includes an approximately 300-linear foot, wadeable reach of Mason Creek and the adjacent riparian area. The geomorphic survey began at approximately station 17+00, extending more than 30 bankfull widths downstream. The surrounding upland areas include moderately steep, rolling, forested and cultivated field slopes. The floodplain is relatively broad, low, and gently sloped, with a few large diameter mature trees and some woody debris adjacent to the channel; ground cover is dense with a few small bare areas consisting of grasses and forbs. The upper bank slope is vegetated with thick sod mats; vegetation is mostly absent from the lower banks near baseflow/low flow levels. The waterway is relatively straight and channelized with a mostly uniform channel depth throughout the bed profile. Upstream of the lower culvert the channel bed is wider, sediment is loose, soft, and aggrading; downstream of the culvert the bottom is mostly firm sand with a few random gravel/cobble bed features. The upper culvert is a galvanized Corrugated Metal Pipe (CMP) that has structurally collapsed; the channel approaches on both sides are washed out. The lower culvert (CMP) appears to be in fair structural condition with visible corrosion of the culvert invert, the top of the culvert is exposed within the existing gravel road.



Photo 1. Mason Creek - Upstream property limits, f/us (~ Sta. 10+00)



Photo 2. Mason Creek - Upper culvert f/ds (~ Sta. 10+00)



Photo 3. Mason Creek f/ds (~Sta. 11+50)



Photo 4. Mason Creek f/ds (~Sta. 13+00)



Photo 5. Mason Creek f/ds (~Sta. 14+00)



Photo 6. Mason Creek – Lower Culvert f/ds (~ Sta. 15+00)



Photo 7. Mason Creek f/ds (~Sta. 16+50)



Photo 8. Mason Creek f/ds (~Sta. 17+50)



Photo 9. Mason Creek f/ds (~Sta. 18+50)



Photo 10. Mason Creek f/ds (~Sta. 19+50)



Photo 11. Mason Creek f/ds (~Sta. 20+50)



Photo 12. Mason Creek f/ds (~Sta. 21+50)



Photo 13. Mason Creek f/ds (~Sta. 23+00)



Photo 14. Mason Creek f/ds (~Sta. 24+00)



Photo 15. Left floodplain / Proposed Alignment
(~Sta. 11+00 - 14+00)



Photo 16. Left floodplain / Proposed Alignment
(~Sta. 15+00 - 18+00)



Photo 17. Left floodplain / Proposed Alignment
(~Sta. 18+00 - 21+00)



Photo 18. Right floodplain / Proposed Alignment
(~Sta. 22+00 - 25+00)



Photo 19. Right floodplain existing access road - facing
West towards Pleasant View Road



Photo 20. Left floodplain existing access road - facing
East

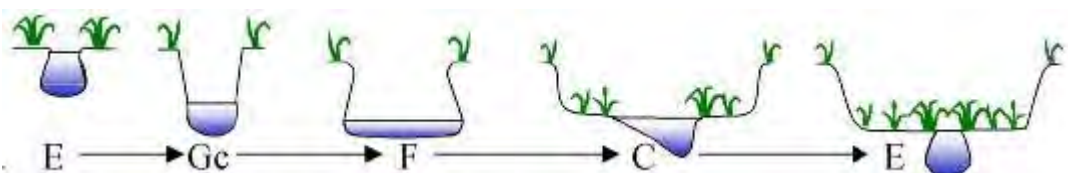
Stantec performed a geomorphic survey and conditions assessment at Mason Creek in the March of 2020. The stream reach at the site is a channelized Rosgen E5 stream type – gentle gradient, riffle/pool, slightly entrenched, very low width-to-depth ratio stream with a sand-

dominated bed morphology transitioning to a Rosgen G5 – entrenched, low sinuosity channel. The stream flows through a relatively broad alluvial valley with low step terraces and rolling upland hills (Rosgen Valley Type U-AL-FD). The data show that the reach is unstable. The lower stream banks are mostly bare, consisting of sand and silt; bank height ratio is approximately 1.3. Woody debris is present in the channel and on the floodplain, consisting of mostly larger pieces. Bed material is comprised of firm, moderately dull sand. Aquatic vegetation is mostly absent.

Table 1 presents summary information about the site. All geomorphic survey data was processed and analyzed using RIVERMorph™.

Variable	Value
Site ID	Mason Creek
Stantec Survey Protocol ¹	Wadeable stream
Sediment Data Collection Method ¹	EMAP (visual)
Rosgen Valley Type	U-AL-FD
Rosgen Stream Type	E5
Bankfull Width (FT)	7.99
Bankfull Depth (mean) (FT)	1.83
Bankfull Depth (max) (FT)	2.40
Width/Depth Ratio	4.37 (very low)
Floodprone Width (FT)	95 (min)
Entrenchment Ratio	11.9 +
Pfankuch Stability Rating	87 – Fair (Moderately Unstable)
Bank Erosion Hazard Index Adjective	Moderate
Near-Bank Stress Adjective	Low
Estimated Total Bank Erosion (tons/yr)	82.2
Estimated Unit Bank Erosion Rate (tons/yr/ft)	0.0289
Special Conditions	Culvert (2)

The channel is currently moderately unstable and are likely going to experience a channel succession scenario of downcutting, widening, bank erosion/valley widening, and then the formation of a new stable channel with a narrower and lower floodplain.



The lowering and widening of Mason Creek will result in an increase in the downstream sediment load due to bed and bank erosion and impact aquatic organisms by decreasing low flow water depth and increasing water temperature. Floodplain vegetation will transition from wetland to upland as the adjacent water table lowers with the stream bed.

Design

Stantec developed the Mason Creek Stream Restoration Plans to address the issues discussed above. The Stream Restoration Plans are included as Appendix A to this Technical Memorandum.

Channel and Floodplain Restoration

The proposed channel restoration is designed to provide Functional Lift related to hydrology, hydraulics, geomorphology, physiochemistry, and habitat. The proposed channel is a meandering, low-gradient, moderately wide, moderately sinuous, Rosgen C3 riffle-pool-run-glide stream type. The proposed channel dimensions create a channel that is connected to the existing adjacent floodplain at bankfull flow. The proposed channel design increases the channel length and correspondingly decreases the channel slope. The decrease in channel slope and changes in channel geometry (width, depth, cross sectional area) reduce channel velocity and at the same time reducing the volume of finer materials available to the system from bank erosion; reducing TSS, phosphorus, and nitrogen. The design included changes in channel bed materials (i.e. increasing material size) to resist calculated shear stresses within the proposed channel while maintaining transport of smaller upstream materials. In an effort to "jump start" or promote this process we used a channel bed material design methodology developed for the Dead River Recovery Project (1600 AC Reservoir failure in Michigan's Upper Peninsula, 2003) based on Buffington and Montgomery's research on non-mobile bed systems (Dr. Richard Hey, Paige Baker, PE).

Channel habitat is improved and water temperature decreased by increasing the diversity and quality of in-stream bed features (deep pools, micro pools, areas of accelerated water flow, woody debris (toe wood) and through proposed improvements to the riparian habitat including vegetated banks and the planting of floodplain trees and shrubs. Additionally, the proposed restoration plans promote habitat diversity by preserving the existing channel sections as remnant backwater channels and oxbow wetlands. The lower end of the abandoned channel is designed to maintain some flow exchange with the proposed stream channel to create a fish food plot area(s).

The upstream (northern) culvert will be removed and disposed of offsite; the downstream culvert will remain in place with some additional gravel to provide site access and channel backwater channel connectivity both during and post-construction. Excess soil from the channel excavation will be mounded and seeded in a designated upland area to provide pedestrian recreational access and an elevated viewing area of the restored channel and adjacent riparian area.

Bed Materials

Channels where the watershed sediment supply has been altered due to land use are often subject to clean-water discharge and have little-to-no available upstream bed material supply. Thus, the riffles are designed to completely resist mobility of the bed material to avoid any negative geomorphic shifts. The D50 of the coarse material used to construct the riffles and the minimum size for the boulders for the riffle structures are shown in Table 3. Computations for sizing the structure materials are presented in Appendix 2.

Location	Cobble/ Gravel Riffle
D50 Pavement - in (mm)	3.0 (76.4)
D84 Pavement - in (mm)	4.8 (121.9)
D100 Pavement - in (mm)	6.0 (152.4)
Material Classification	Cobble
Material Classification	ABC
Shear Stress - lb/ft ²	0.84
Boulder (Length) - in	15 - 18
Boulder (width) - in	9 - 12
Boulder (height) - in	6 -9

Bed materials detailed in the construction plans are adjusted, as needed, to match applicable DOT Standard material sizes, while meeting minimum D50 / D100 sizing requirements. Using standard DOT materials reduces project costs and reduces the need to confirm material acceptability.

Revegetation

As part of the proposed channel restoration activities the channel banks and adjacent floodplain disturbed during construction will be revegetated. Revegetation will include removal of invasive species, establishment of cover crop seeding for erosion control, native seeding, live staking, and other riparian buffer plantings. Sod mats and/or transplants may be used in lieu of or in combination with cover crop and native seeding.

Invasive species removal may take place prior to or at the time of construction. Native seeding and planting activities may be completed as part of the channel construction activities or as part of a separate riparian area restoration plan.

References

Rosgen, D. L., 1996. Applied River Morphology. Wildland Hydrology Books, Pagosa Springs, CO.
Rosgen, DL. 2006. Watershed Assessment of Stability and Sediment Supply (WARSSS). Wildland Hydrology, 11210 N County Rd 19, Ft. Collins, CO.

Appendices

Appendix 1: Plans



STANTEC CONSULTING SERVICES INC.
1165 SCHEURING ROAD
DE PERE WISCONSIN 54115
www.stantec.com
FIRM LICENSE # F-0672

APPROVED
Grading and
Drainage Plan

Received
02/16/2022
Waukesha County Dept.
of Parks and Land Use

TALL PINES CONSERVANCY
MASON CREEK STREAM RESTORATION
DESIGN PLANS

HARTLAND, WI

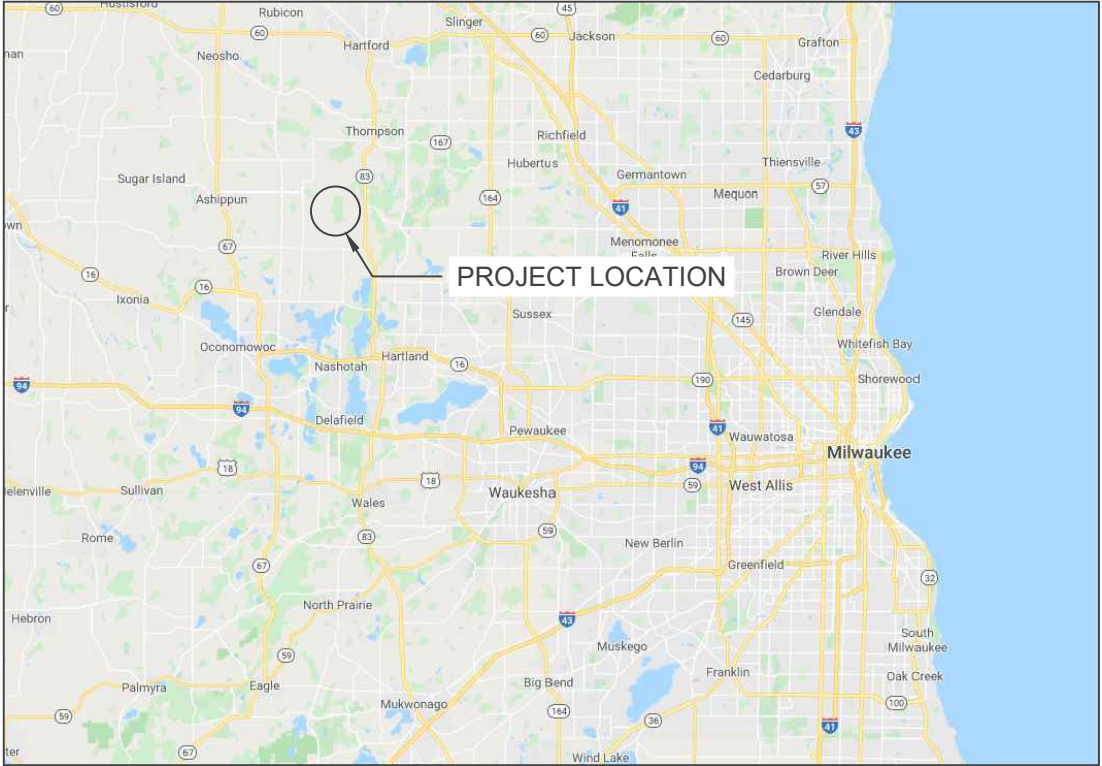


Know what's below.
Call before you dig.

FEBRUARY 2021

PROJECT NUMBER: 193707448

NOTE: THE LOCATION AND ELEVATION OF THE
REQUIRED WORK MAY BE FIELD ADJUSTED
BASED ON SITE CONDITIONS ENCOUNTERED
DURING CONSTRUCTION AND PER APPROVAL
OF THE ENGINEER.



VICINITY MAP
NOT TO SCALE

INDEX OF SHEETS

SHEET NO.	TITLE
C001	COVER SHEET
C002 - C003	GENERAL NOTES
C100 - C102	OVERVIEW & HORIZONTAL DATA
C200	EROSION AND SEDIMENT CONTROL PLAN
C300 - C302	PLAN VIEW
C400 - C401	PROFILE VIEW
C500 - C501	CROSS SECTIONS
C600 - C602	TYPICAL SECTIONS & PLANTING PLANS
C700 - C701	DETAILS

Professional Certification:		NO.		REVISION		BY		DATE		MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY													
										REVISED		APPROVED		DATE		APPROVED		DATE		SCALE:		DESIGN COVER SHEET C001	
										DATE		BY				PROJECT MANAGER		DRAWN BY:		DD			
												CHIEF ENGINEER				CHECKED BY:		SDC					
												APPROVED		DATE		APPROVED		DATE		SHEET NO. 1 OF 19			
												ENGINEER ADMINISTRATOR				CHIEF, RIGHT OF WAY		DATE:		2/1/2021			
		02/26/2021																					

Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere Wisconsin 54115
TEL: (920) 592-8400
FAX: (920) 592-8444
www.stantec.com

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EXISTING FEATURES LEGEND



EX. PROPERTY LINE



EX. 100 YEAR WSEL



EX. 100 YEAR FLOODPLAIN



EX. STREAM BASELINE



EX. FENCE



EX. MINOR CONTOUR



EX. MAJOR CONTOUR



EX. TREE LINE



EXISTING TREE



EXISTING SPECIMEN TREE



EXISTING WETLAND



EXISTING ROAD

PROPOSED FEATURES LEGEND



LIMIT OF DISTURBANCE



MAJOR CONTOUR



MINOR CONTOUR



PROPOSED SILT FENCE



PROPOSED ABSORBENT BOOM



PROPOSED TURBIDITY CURTAIN



PROPOSED TEMPORARY GRAVEL ACCESS ROAD/TRAIL



PROPOSED 100 YEAR FLOODPLAIN



PROPOSED STREAM ALIGNMENT



PROPOSED STREAM TOP OF BANK (BANKFULL)



PROPOSED TOE WOOD



PROPOSED POINT BAR



PROPOSED FILL



BACKWATER CHANNEL



PROPOSED RIFFLE



WETLAND SCRAPE



ROAD MATERIAL REMOVAL



PROPOSED IN-STREAM FORD



PROPOSED ROAD



PROPOSED TEMPORARY ACCESS ROAD

CONSTRUCTION SEQUENCE:

PRE-CONSTRUCTION

- THE CONTRACTOR SHALL ATTEND AN ON-SITE PRE-CONSTRUCTION MEETING WITH PROJECT STAKEHOLDERS INCLUDING THE OWNER AND THE ENGINEER, A MINIMUM OF 1 WEEK PRIOR TO THE START OF CONSTRUCTION. THE MEETING SHALL INCLUDE A FULL REVIEW OF THE SITE TO ASCERTAIN THE STATE AND CONDITIONS UNDER WHICH THE WORK IS TO BE DONE AND A REVIEW OF PERMIT DOCUMENTS.
- THE CONTRACTOR SHALL PROVIDE A WRITTEN CONSTRUCTION SCHEDULE IDENTIFYING THE NUMBER OF CREWS, CREW TASKS, AND PROJECT STARTING LOCATIONS 2 WEEKS PRIOR TO THE START OF CONSTRUCTION AND/OR 1 WEEK PRIOR TO THE PRE-CONSTRUCTION MEETING, FOR REVIEW BY THE OWNER AND THE ENGINEER.
- CONTRACTOR-PROPOSED ALTERNATIVES TO THE CONSTRUCTION SEQUENCE AND/OR CONSTRUCTION SCHEDULE SHALL BE PROVIDED IN WRITING 2 WEEKS PRIOR TO CONSTRUCTION FOR REVIEW BY THE OWNER AND ENGINEER.
- THE CONTRACTOR SHALL PROVIDE A WRITTEN LIST OF COMPANY CONTACT INFORMATION INCLUDING: OFFICE, PROJECT MANAGER, 24-HOUR EMERGENCY CONTACT, AND SAFETY COORDINATOR PRIOR TO THE START OF CONSTRUCTION. COMPANY CONTACT INFORMATION SHALL BE POSTED ON THE PROJECT SIGN.

SITE MOBILIZATION

- THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL SIGNAGE IN ACCORDANCE WITH WISCONSIN DOT SPECIFICATIONS AND LOCAL REQUIREMENTS PRIOR TO MOBILIZATION OF EQUIPMENT AND/OR MATERIALS TO THE SITE.
- CONTRACTOR-PROVIDED CONSTRUCTION TRAILER IS OPTIONAL. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER ON PLACEMENT OF A CONSTRUCTION TRAILER. THE CONTRACTOR IS NOT REQUIRED TO PROVIDE POWER FOR THE TRAILER.
- PROJECT SIGN BOARD SHALL BE INSTALLED AT THE CONSTRUCTION TRAILER OR AT THE STAGING AREA NEAR THE INTERSECTION OF PLEASANT VIEW ROAD AND THE EXISTING 2-TRACK ACCESS ROAD.

ALL PROJECT SEGMENTS

- PROJECT SEGMENTS MAY BE CONSTRUCTED SIMULTANEOUSLY OR CONSECUTIVELY. PROJECT SEGMENTS CONSTRUCTED SIMULTANEOUSLY SHALL REQUIRE SEPARATE WORK CREWS AND EQUIPMENT SUFFICIENT TO COMPLETE THE PROJECT WORK.
- ALL PROJECT REACH WORK SHALL BE PERFORMED IN A CONTINUOUS MANNER FROM THE START OF WORK UNTIL COMPLETION. CHANNEL WORK SHALL BE COMPLETED STARTING AT THE MOST UPSTREAM POINT OF THE REACH TO DOWNSTREAM END OF THE REACH. CREWS AND/OR EQUIPMENT SHALL NOT BE DE-MOBIUZED OR RELOCATED TO ANOTHER PROJECT REACH UNTIL WORK IS COMPLETE.
- THE CONTRACTOR SHALL STAKE OUT THE PROJECT SITE, INCLUDING PROJECT ACCESS, LIMITS OF DISTURBANCE, CHANNEL GEOMETRY, STRUCTURE LOCATIONS, AND CONTROL POINTS SHOWN ON THE PLANS. ALL STAKEOUT AND SURVEY CONTROL POINT WORK SHALL BE PERFORMED BY A SURVEYOR LICENSED IN THE STATE OF WISCONSIN.
- PROJECT STAKEOUT SHALL BE FIELD REVIEWED BY THE ENGINEER PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROVIDE 2 WORKING DAYS' NOTICE TO THE ENGINEER THAT THE PROJECT STAKEOUT IS COMPLETE AND

- READY FOR REVIEW. DURING THE FIELD REVIEW THE CONTRACTOR AND ENGINEER SHALL DISCUSS EXISTING SITE CONDITIONS THAT MAY NEED TO BE INCORPORATED INTO THE PROPOSED WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- UNLESS IDENTIFIED BY THE ENGINEER DURING THE FIELD REVIEW STANDING TREES CANNOT BE REMOVED / DISTURBED.
 - THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES IN THE REACH(S) UNDER CONSTRUCTION PER THE PLANS AND IN ACCORDANCE WITH STATE AND LOCAL PERMITS.
 - PRIOR TO GROUND DISTURBANCE / EARTHWORK ACTIVITIES THE CONTRACTOR SHALL CONTACT 811. WOODY DEBRIS WITHIN THE EXISTING CHANNEL SHALL NOT BE REMOVED IF THE REMOVAL WILL DISTURB THE CHANNEL BED AND/OR BANKS.
 - IN ORDER TO MINIMIZE THE POTENTIAL FOR EROSION AND CONSTRUCTION RE-WORK, CHANNEL AND ADJACENT FLOODPLAIN CONSTRUCTION WITHIN THE REQUIRED REACHES THE WORK SHALL BE LIMITED TO 500-FOOT SEGMENTS. THE CONTRACTOR MAY SUBMIT ALTERNATIVE LIMITS IN WRITING FOR REVIEW AND APPROVAL BY THE OWNER.
 - THE CONTRACTOR WILL MAINTAIN CHANNEL FLOW THROUGH THE EXISTING CHANNEL UNTIL THE OFF-LINE SEGMENTS ARE COMPLETE AND THE TIE-INS CONSTRUCTED. THE CONTRACTOR MAY PROPOSE A PUMP-AROUND OPERATION AT NO ADDITIONAL COST TO THE OWNER.

OFF-LINE SEGMENT CONSTRUCTION - (STATION 10+95 - 21+90)

- THE CONTRACTOR SHALL BEGIN AND END THE OFF-LINE CHANNEL SEGMENTS BY MAINTAINING A "PLUG", A MINIMUM 10-FOOT SECTION OF EXISTING GROUND, BETWEEN THE EXISTING CHANNEL AND THE PROPOSED WORK.
- CONSTRUCTION STEPS A-H (LIMITED TO ≈ 500')
 - THE CONTRACTOR WILL REMOVE AND STOCKPILE EXISTING SOD MATS FROM THE PROPOSED CHANNEL GRADING AREA.
 - GRADING AND EXCAVATION OF THE CHANNEL AND ADJACENT FLOODPLAIN, TERRACE SLOPE AND UPLAND WORK SHALL BEGIN AT THE UPSTREAM LIMITS OF THE PROJECT AND PROCEED CONTINUOUSLY DOWNSTREAM. THE CONTRACTOR SHALL CONSTRUCT THE CHANNEL IN ACCORDANCE WITH THE PLANS, PROFILE, TYPICAL SECTIONS, AND SPECIFICATIONS.
 - THE CONTRACTOR SHALL INSTALL THE IN-STREAM STRUCTURES AT THE LOCATIONS SHOWN ON THE PLANS IN ACCORDANCE WITH THE PLANS, PROFILE, DETAILS AND SPECIFICATIONS, AS THE CHANNEL WORK PROGRESSES DOWNSTREAM.
 - THE CONTRACTOR MAY REMOVE/HARVEST ROCK AND/OR WOODY DEBRIS FROM EXISTING CHANNEL SECTIONS PROPOSED TO BE ABANDONED AS THE CHANNEL WORK PROGRESSES DOWNSTREAM. HARVESTED ON-SITE ROCK AND WOODY DEBRIS MEETING THE IN-STREAM STRUCTURE MATERIAL SPECIFICATIONS SHALL BE INCORPORATED INTO PROPOSED IN-STREAM STRUCTURES. TEMPORARY STOCKPILING OF HARVESTED CHANNEL MATERIAL SHALL BE IN ACCORDANCE WITH THE EROSION CONTROL PLANS.
 - TEMPORARILY STOCKPILED ON-SITE MATERIAL NOT INCORPORATED INTO THE SEGMENT 1 CHANNEL OR IN-STREAM STRUCTURE CONSTRUCTION, SHALL BE USED IN OTHER PROJECT SEGMENTS.
 - THE CONTRACTOR SHALL PERFORM AN AS-BUILT SURVEY OF THE INSTALLED IN-STREAM STRUCTURES PRIOR TO FINISH GRADING. THE "AS-BUILT" SURVEY SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. ANY DEFICIENCIES IN THE CHANNEL GRADING AND/OR STRUCTURE WORK SHALL BE CORRECTED AND RE-SURVEYED UNTIL COMPLIANCE IS

- CONFIRMED BY THE ENGINEER.
- UPON CONFIRMATION THAT THE CHANNEL DIMENSIONS AND IN-STREAM STRUCTURES ARE IN COMPLIANCE WITH THE PLANS, THE CONTRACTOR SHALL FINISH GRADE THE APPLICABLE CHANNEL BANKS, FLOODPLAIN, AND UPLAND AREAS.
 - ONCE FINISH GRADING IS COMPLETE THE CONTRACTOR SHALL COVER CROP SEED AND MULCH THE SECTION IN ACCORDANCE WITH THE EROSION CONTROL AND PLANTING PLANS AND SPECIFICATIONS.
- AFTER THE SEGMENT OF CHANNEL, ADJACENT FLOODPLAIN, AND UPLAND AREA WORK IS COMPLETED PER STEPS A -H THE CONTRACTOR SHALL PROCEED WITH THE NEXT DOWNSTREAM SEGMENT UNTIL THE PROJECT IS COMPLETED.
 - A WALK-THROUGH INSPECTION SHALL BE CONDUCTED WITH THE ENGINEER, OWNER, THE CONTRACTOR AND ANY SUB-CONTRACTORS TO CONFIRM THAT ALL SEGMENT SPECIFIC CONSTRUCTION "PUNCH-LIST" ITEMS ARE COMPLETE AND "SIGNED-OFF".

CHANNEL TIE-IN CONSTRUCTIONS (STATION 10+00 - 21+90)

- AFTER CONSTRUCTION OF THE OFF-LINE SEGMENT(S) BETWEEN STATION ~10+95 AND ~21+90 THE CONTRACTOR SHALL REMOVE THE DOWNSTREAM "PLUG" AND THEN THE CONTRACTOR SHALL PROCEED UPSTREAM AND BEGIN DIVERTING WATER INTO THE PROPOSED CHANNEL SEGMENT(S) BY REMOVING THE UPSTREAM PLUG AND CONSTRUCTING OF A NEW "PLUG" IN THE EXISTING CHANNEL TO BE ABANDONED. WATER WILL FLOW THROUGH THE PROPOSED CHANNEL SEGMENT.
- THE CONTRACTOR SHALL COMPLETE ALL GRADING AND IN-STREAM STRUCTURE WORK BETWEEN STATION 10+00 AND THE END OF THE TIE-IN.

PERMANENT SEEDING / PLANTING (STATION 10+00 - 21+90)

- AFTER CONSTRUCTION "SIGN-OFF" THE CONTRACTOR SHALL REMOVE ALL TEMPORARY CONTROL MEASURES AND COMPLETE REQUIRED PERMANENT SEEDING AND PLANTING ACTIVITIES. NOTE THAT PERMANENT STABILIZATION USING SOD MATS MAY HAVE ALREADY BEEN COMPLETED DURING CHANNEL CONSTRUCTION.
- PERMANENT SEEDING AND PLANTING ACTIVITIES MAY BE COMPLETED AS 500-FOOT SEGMENTS ARE COMPLETED.
- A WALK-THROUGH INSPECTION SHALL BE CONDUCTED WITH THE ENGINEER, OWNER, THE CONTRACTOR AND ANY SUB-CONTRACTORS TO CONFIRM THAT ALL SEEDING AND PLANTING IS COMPLETE AND IN ACCORDANCE WITH THE PLANS.

ADDITIONAL OFF-LINE SEGMENTS AND CHANNEL TIE-IN CONSTRUCTION

- THE CONTRACTOR SHALL FOLLOW THE SAME CONSTRUCTION SEQUENCE FOR CHANNEL CONSTRUCTION (OFF-LINE AND TIE-IN) AND SEEDING FOR THE DOWNSTREAM SEGMENTS:
 - STATION 21+90 - 25+30
 - STATION 25+90 - 26+60

SITE DE-MOBILIZATION

- UPON COMPLETION OF ALL THE REQUIRED PLANTING OPERATIONS, THE CONTRACTOR SHALL REMOVE ANY EQUIPMENT, SIGNAGE, FACILITIES, CONSTRUCTION MATERIALS/DEBRIS, ETC. FROM THE SITE.
- A FINAL WALK-THROUGH INSPECTION SHALL BE CONDUCTED WITH THE OWNER, THE ENGINEER, AND THE CONTRACTOR AND ANY SUB-CONTRACTORS TO CONFIRM THAT ALL PROJECT CONSTRUCTION "PUNCH-LIST" ITEMS ARE COMPLETE AND "SIGNED-OFF".

Professional Certification:



02/26/2021

DATE

NO.	REVISION	BY	DATE



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MASON CREEK STREAM RESTORATION										
TALL PINES CONSERVATORY										
REVISED		APPROVED		DATE		APPROVED		DATE		DESIGN GENERAL NOTES C002
DATE	BY					SCALE:				
		CHIEF ENGINEER		PROJECT MANAGER		DRAWN BY:		DD		
		APPROVED		DATE		CHECKED BY:		SDC		
						SHEET NO.		2 OF 19		
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		PROJECT NO.		193707448		
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ABBREVIATIONS

WIS DOT	WISCONSIN DEPARTMENT OF TRANSPORTATION
EC	EROSION CONTROL
SESC	SOIL EROSION AND SEDIMENTATION CONTROL
ELEV, EL	ELEVATION
WBKF	BANKFULL WIDTH
DBKF,D	BANKFULL MEAN DEPTH
DMBKf	BANKFULL MAXIMUM DEPTH, MAX DEPTH
W/D	BANKFULL WIDTH TO DEPTH RATIO
ABKF	BANKFULL AREA
STD	STANDARD
SCP	SURVEY CONTROL POINT
N	NORTHINGS
E	EASTINGS
WSE	WATER SURFACE ELEVATION
AC	ACRE
CY	CUBIC YARD
SY	SQUARE YARD
LF	LINEAR FOOT
TN	TON
W/	WITH
MIN	MINIMUM
MISC	MISCELLANEOUS
WFA	WIDTH OF FLOODPRONE AREA
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
SPEC	SPECIFICATIONS
STA	STATION
TYP	TYPICAL
V, VERT	VERTICAL
H, HOZ	HORIZONTAL
R	RIFFLE
N	RUN
G	GLIDE
P	POOL
MAX	MAXIMUM
EA	EACH
DSO	MEDIAN PARTICLE SIZE BY MASS
DIA	DIAMETER
D/S	DOWNSTREAM
U/S	UPSTREAM
APPROX	APPROXIMATE

TEMPORARY ACCESS

1. TEMPORARY ACCESS TO THE PROJECT SITE SHALL BE AT THE DESIGNATED LOCATIONS SHOWN IN THE PLANS. ALL OTHER ACCESS POINTS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE(S).
2. THE CONTRACTOR SHALL FLAG THE PROPOSED TEMPORARY ACCESS ROUTE PRIOR TO DISTURBANCE FOR REVIEW AND APPROVAL BY REPRESENTATIVE(S) OF THE OWNER, AND ENGINEER.
3. CHANGES IN THE LOCATION OF PROPOSED PROJECT TEMPORARY ACCESS ROADS SHALL BE COORDINATED AND APPROVED BY REPRESENTATIVE(S) OF THE OWNER AND ENGINEER PRIOR TO RELOCATION. THE CONTRACTOR MAY BE REQUIRED TO SUBMIT THE PROPOSED CHANGES IN WRITING AND OBTAIN WRITTEN APPROVAL FROM FEDERAL, STATE, AND/OR LOCAL PERMITTING AGENCIES PRIOR TO RELOCATION.
4. VEGETATION REMOVAL TO CREATE TEMPORARY ACCESS SHALL BE LIMITED TO THE NARROWEST WIDTH NECESSARY TO ALLOW FOR MOVEMENT OF CONSTRUCTION EQUIPMENT AND MATERIALS.
5. EXISTING ROADS USED FOR TEMPORARY ACCESS SHALL BE MAINTAINED SMOOTH AND FREE OF RUTS THROUGHOUT THE DURATION OF THE PROJECT. BORROW MATERIAL FOR ROAD MAINTENANCE SHALL BE CLEAN, GRANULAR, COMPACTABLE MATERIAL FREE OF REFUSE AND ORGANIC MATERIAL.
6. THE CONTRACTOR SHALL PLACE TYPE III BARRICADES AT THE ENTRANCES OF ALL TEMPORARY ACCESS ROADS WHEN THE ROAD IS NOT IN USE FOR THE PROPOSED CONSTRUCTION WORK.
7. THE CONTRACTOR SHALL REFER TO WISCONSIN DOT STANDARDS FOR PLACEMENT OF SIGNAGE AT PUBLIC ROAD ACCESS POINTS TO IDENTIFY TEMPORARY INGRESS AND EGRESS.
8. TEMPORARY ACCESS ROADS WILL BE ABANDONED AFTER CONSTRUCTION IS COMPLETE AND PRIOR TO DEMOBILIZATION FROM THE SITE. ABANDONMENT WILL INCLUDE SEEDING AND MULCHING IN ACCORDANCE WITH THE PLANTING PLAN.

DISTURBANCE LIMITS

1. THE DISTURBANCE LIMITS INCLUDE TEMPORARY CONSTRUCTION LIMITS, TEMPORARY ACCESS ROADS, TEMPORARY STAGING/STOCKPILE AREAS AND PERMANENT STORAGE/STOCKPILE AREAS. IF THE CONTRACTOR NEEDS TO DISTURB ADDITIONAL/DIFFERENT AREA(S) IN ORDER TO PERFORM THE WORK, THEY SHALL REQUEST PERMISSION FROM THE OWNER IN WRITING.
2. THE CONTRACTOR SHALL MINIMIZE THE AREA AND DURATION OF ACTIVE DISTURBANCE AS THE WORK PROGRESSES AND SHALL PROVIDE TEMPORARY AND PERMANENT EROSION CONTROL IN ACCORDANCE WITH THE EROSION CONTROL PLANS SHEETS, PLANTING NOTES SHEETS, AND THE PLANTING PLANS SHEETS.

SURVEY CONTROL

1. SURVEY DATUM:

COORDINATE SYSTEM: WISCONSIN STATE PLANE, US SURVEY FEET

VERTICAL DATUM: NAVD88
2. ALL ELEVATION, DISTANCES, LENGTHS, ETC., ARE IN US SURVEY FEET.
3. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING GRADES, SURVEY CONTROL, AND STAKING LIMITS OF WORK, WHICH SHALL BE PERFORMED IN THE FIELD WITH INPUT FROM THE OWNER.
4. BASE MAPPING IS A COMBINATION OF PUBLICLY AVAILABLE AERIAL COVERAGES, CONTOURS FROM WISCONSIN LIDAR DATA (NOT FIELD RUN), AND OTHER FIELD IDENTIFIED/MEASURED INFORMATION.
5. THE CONTRACTOR SHALL HAVE ON-SITE, DURING ALL CONSTRUCTION ACTIVITIES, SURVEY EQUIPMENT AND PERSONNEL CAPABLE OF ESTABLISHING AND CONFIRMING GRADES AND ELEVATIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING SURVEY DOCUMENTATION OF ALL COMPLETED WORK AND CONFIRMING THAT PLAN GRADES AND ELEVATIONS HAVE BEEN MET. SURVEY DOCUMENTATION SHALL BE PERFORMED BY A SURVEYOR.

GENERAL

1. THE CONTRACTOR WILL REFER TO THE PLAN SHEET SET, CONTRACT, PERMITS, AND OTHER PROJECT DOCUMENTS (MEETING MINUTES, PUNCH LISTS, ETC.) FOR COMPLETE INFORMATION ABOUT THE REQUIRED WORK. ANY ONE OF THESE PARTS OF THE "CONSTRUCTION DOCUMENTS" MAY NOT CONTAIN ALL OF THE INFORMATION REQUIRED TO COMPLETE THE WORK.
2. ALL PROJECT STATIONING IS ABOUT THE BASELINE. THE THALWEG LOCATION IS APPROXIMATE BASED ON FIELD MEASUREMENTS.
3. DIRECTIONS "LEFT (LT.)" AND "RIGHT (RT.)" ARE DETERMINED RELATIVE TO THE CHANNEL AS IF FACING DOWNSTREAM.
4. CHANNEL GRADING TO ACHIEVE SPECIFIED MINIMUM DIMENSIONS SHOWN (DEPTH, WIDTH, BANK SLOPE, CROSS SECTIONAL AREA) WITHIN THE BANKFULL CHANNEL SHALL BE WITHIN 0.2' OF DESIGN. GRADING OF ALL AREAS OUTSIDE OF THE PROPOSED BANKFULL CHANNEL (INCLUDING FLOODPLAIN AND TERRACE SLOPES) SHALL ALLOW FOR MINOR VARIATIONS IN ELEVATION. VARIATIONS OF UP TO 0.5' ARE ACCEPTABLE.
5. ALL WORK WILL BE WITHIN 0.5' OF THE REQUIRED HORIZONTAL LOCATION(S) SHOWN ON THE PLANS AND TYPICAL SECTIONS UNLESS OTHERWISE SPECIFIED
6. TRANSITION BETWEEN THE PROPOSED AND EXISTING CHANNEL BED AND BANK FEATURES SHALL BE EVENLY GRADED TO PROVIDE A SMOOTH TRANSITION. TRANSITION SLOPES BETWEEN BED, BANKS, FLOODPLAIN, TERRACE SLOPE AND EXISTING GROUND SHALL BE GRADED TO PROVIDE A SMOOTH AND ROUNDED TRANSITION.
7. IF SITE CONDITIONS (I.E. BEDROCK) DO NOT ALLOW FOR APPLICATION OF THE TYPICAL CROSS-SECTION(S) AND/OR EVEN TRANSITION BETWEEN EXISTING AND PROPOSED BED/BANK FEATURES THEN THE PROPOSED GRADING SHALL BE ADJUSTED TO INCORPORATE THE SITE CONDITIONS. THE ENGINEER SHALL BE NOTIFIED OF ADVERSE SITE CONDITIONS AND DETERMINE THE APPROPRIATE MEANS OF INCORPORATION.
8. NATURAL VARIABILITY AT THE SITE MAY REQUIRE ADAPTATION OF THE PLANS, NOTES, QUANTITIES, ETC., AND WILL NOT NECESSARILY CONSTITUTE A CHANGE IN THE WORK. ANY REQUESTED CHANGE IN PRICE WILL BE IDENTIFIED, SPECIFIED IN WRITING, AND APPROVED BY THE OWNER PRIOR TO THE START OF THE CHANGE.
9. THE QUANTITY OF ANY ITEM SHOWN ON THE PLANS MAY BE ADJUSTED BY THE OWNER'S REPRESENTATIVE BASED ON FIELD CONDITIONS AT THE TIME THE WORK IS PERFORMED AND PER APPROVAL OF THE ENGINEER.
- 10.EXISTING SITE CONDITIONS SHOWN ON THE PLANS DO NOT REFLECT CHANGES TO THE SITE THAT HAVE OCCURRED SINCE THE SURVEY WAS PERFORMED.

HEALTH AND SAFETY

1. **IN ALL CONSTRUCTION ACTIVITIES SAFETY OF LIFE SHALL OUTWEIGH ALL OTHER CONSIDERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF THEIR EMPLOYEES AND THEIR SUB-CONTRACTED EMPLOYEES.**
2. ALL OPERATIONS SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S (OSHA) "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" AS WELL AS ANY APPLICABLE LOCAL, STATE, OR FEDERAL SAFETY REQUIREMENTS.
3. THE CONTRACTOR IS REQUIRED TO SUBMIT A "SAFETY PLAN" IN WRITING TO THE OWNER FOR REVIEW FIFTEEN (15) BUSINESS DAYS PRIOR TO ANY SITE ACTIVITY. THE OWNER IS NOT REQUIRED TO REVIEW AND/OR APPROVE THE CONTRACTOR'S SAFETY PLAN.
4. THE OWNER'S REPRESENTATIVE MAY REQUEST ADDITIONAL SAFETY MEASURES AT THAT TIME AND/OR ANY TIME THROUGHOUT THE DURATION OF THE PROJECT.
5. THE CONTRACTOR SHALL POST A COPY OF ALL APPLICABLE SAFETY RULES AND REGULATIONS ON-SITE. THE CONTRACTOR SHALL MAINTAIN A COPY OF THE "SAFETY PLAN" ON-SITE THROUGHOUT CONSTRUCTION.
6. THE CONTRACTOR SHALL CONDUCT AN ON-SITE PRE-CONSTRUCTION SAFETY MEETING FOR ALL EMPLOYEES AND SUBCONTRACTOR EMPLOYEES WORKING ON THE PROJECT SITE. THE CONTRACTOR SHALL REVIEW THE SAFETY PLAN AT THE PRE-CONSTRUCTION SAFETY MEETING. THE OWNER, ENGINEER, AND/OR FACILITY OWNER(S) SHALL BE NOTIFIED TEN (10) CALENDAR DAYS PRIOR TO THE PRE-CONSTRUCTION SAFETY MEETING SO THAT THEIR REPRESENTATIVE(S) MAY ATTEND.
7. WORK DONE ADJACENT TO UTILITIES/FACILITIES/HIGHWAYS SHALL COMPLY WITH SAFETY AND CONSTRUCTION PRACTICES REQUIRED BY THE UTILITY/FACILITY/HIGHWAY DEPARTMENT, IN ADDITION TO THOSE REQUIRED BY LOCAL, STATE AND FEDERAL LAWS.
8. THE CONTRACTOR SHALL HOLD SAFETY MEETINGS WITH ALL EMPLOYEES ON A REGULAR BASIS AND PROVIDE THE OWNER'S REPRESENTATIVE WITH A COPY OF THE MEETING MINUTES.
9. THE CONTRACTOR SHALL MAINTAIN ON-SITE A "SAFETY SIGN-IN SHEET" OF ALL EMPLOYEES AND SUB-CONTRACTOR EMPLOYEES ATTENDING THE PRE-CONSTRUCTION SAFETY MEETING. ANY CONTRACTOR AND SUB-CONTRACTOR EMPLOYEES ADDED DURING THE DURATION OF THE PROJECT SHALL ATTEND AN "ON-SITE" CONSTRUCTION SITE SAFETY MEETING PRIOR TO STARTING WORK. IN ADDITION, THEIR NAMES SHALL BE ADDED TO THE "SAFETY SIGN-IN SHEET".
- 10.A VISITOR "SIGN-IN" LOG SHALL BE KEPT ON-SITE BY THE CONTRACTOR. THE LOG SHALL AT A MINIMUM IDENTIFY THE NAME, ORGANIZATION, DATE, TIME OF ARRIVAL AND THE TIME OF DEPARTURE.

SUBSURFACE PLANS, UTILITY/INFRASTRUCTURE FACILITIES

1. NO SUBSURFACE PLANS ARE AVAILABLE FOR THIS PROJECT. THE CONTRACTOR SHALL MAKE THEIR OWN INVESTIGATION TO DETERMINE SUBSURFACE CONDITIONS.
2. THE UTILITY/INFRASTRUCTURE FACILITIES/INFORMATION SHOWN ON THESE PLANS IS PROVIDED FOR INFORMATIONAL PURPOSES. COMPLIANCE WITH THESE NOTES AND PLANS DOES NOT CONSTITUTE RESPONSIBILITY BY THE OWNER, THEIR REPRESENTATIVE(S), AND/OR THE UTILITY/INFRASTRUCTURE FACILITY OWNER.
3. THE CONTRACTOR IS RESPONSIBLE FOR DIRECT COORDINATION WITH UTILITY/INFRASTRUCTURE FACILITY OWNERS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY COORDINATION ACTIVITIES.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE ACTUAL LOCATION OF UTILITY AND INFRASTRUCTURE FACILITIES WITHIN THE PROJECT LIMITS INCLUDING PROJECT ACCESS, STAGING, AND CONSTRUCTION AREAS.
5. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO OR INTERFERENCE WITH EXISTING POWER LINES, COMMUNICATIONS FACILITIES, ROADWAYS, RAILROADS, BURIED CABLES, AND OTHER FACILITIES ADJACENT TO OR CROSSING THE PROJECT AREA, FROM CONSTRUCTION ACTIVITIES RELATED TO THE PROPOSED WORK.
6. ANY REMEDIAL ACTION, RESULTING FROM THE CONSTRUCTION ACTIVITIES, REQUIRED BY THE UTILITY/INFRASTRUCTURE OWNER(S), SHALL BE AT THE CONTRACTOR'S SOLE COST AND EXPENSE.

SOIL EROSION AND SEDIMENT CONTROL:

1. ALL PROJECT AREAS (CHANNEL BANKS, FLOODPLAIN, ACCESS AREAS, STOCKPILE AREAS, ETC.) DISTURBED DURING CONSTRUCTION SHALL BE VEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS UPON COMPLETION OF THE WORK.
2. THE CONTRACTOR SHALL MINIMIZE THE AREA AND DURATION OF ACTIVE DISTURBANCE AS THE WORK PROGRESSES. ANY SITE AREA (CHANNEL BANKS, FLOODPLAIN, TERRACE SLOPES, FAIRWAYS, ETC.) DISTURBED MORE THAN 15 CALENDAR DAYS WITHOUT PERMANENT STABILIZATION MEASURES IN PLACE SHALL BE TEMPORARILY SEEDED AND MULCHED.
3. EROSION CONTROL MEASURES AND PROJECT ACCESS SHALL BE INSTALLED AND REMOVED IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE, SPECIFICATIONS, AND APPLICABLE PERMITS.
4. THE CONTRACTOR SHALL MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES UNTIL THE SITE IS STABILIZED. ALL EROSION CONTROL MEASURES AND MATERIALS SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO FINAL INSPECTION.
5. AREA SPECIFIC EROSION CONTROL MEASURES ARE SHOWN ON THE EROSION CONTROL SHEETS. ADDITIONAL AND/OR ALTERNATIVE EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED TO MEET CHANGING SITE CONDITIONS AS THE CONSTRUCTION WORK PROGRESSES.
6. EXCAVATED MATERIAL MAY BE TEMPORARILY STOCKPILED WITHIN THE LIMITS OF THE DESIGNATED PROJECT AREAS. SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF SPOIL PILES REMAINING IN PLACE LONGER THAN 5 CALENDAR DAYS TO PREVENT SEDIMENT MIGRATION FROM THE TEMPORARY STOCKPILES. ANY STOCKPILED SOIL TO REMAIN IN PLACE LONGER THAN 15 CALENDAR DAYS SHALL BE TEMPORARILY SEEDED AND MULCHED. ALL TEMPORARILY STOCKPILED SOIL SHALL BE REMOVED AND/OR INTEGRATED INTO THE FINAL WORK AND PERMANENTLY STABILIZED.

SITE HOUSEKEEPING, CLEANUP, AND RESTORATION

1. THE PROJECT SITE WILL BE MAINTAINED IN A SAFE AND NEAT CONDITION. AT THE END OF EACH CONSTRUCTION DAY, THE CONTRACTOR WILL REMOVE ALL TRASH AND DEBRIS. THE PAVEMENT AREAS WILL BE SWEEP CLEAN OF LOOSE MATERIALS, AND ALL EXCAVATIONS WILL BE CLOSED.
2. REMOVAL AND DISPOSAL OF MATERIALS, DEBRIS, AND TRASH FROM THE SITE WILL BE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS.
3. CLEANUP OPERATIONS AND DISPOSAL OF MATERIALS, TRASH, AND DEBRIS WILL BE AT NO ADDITIONAL COST TO THE OWNER.
4. ONCE ACCESS IS NO LONGER REQUIRED WITHIN A PROJECT AREA, SECTION, AND/OR REACH AND PRIOR TO DE-MOBILIZATION, CONSTRUCTION MATERIALS WILL BE REMOVED FROM THE AREA. THE AREA WILL BE SEEDED AND MULCHED.
5. REPRESENTATIVES OF THE OWNER, ENGINEER, AND CONTRACTOR WILL INSPECT EACH WORK AREA PRIOR TO DE-MOBILIZATION FROM THE AREA. ITEMS WHICH REQUIRE ADDITIONAL WORK WILL BE LISTED ON A CONSTRUCTION PUNCH-LIST. THE CONTRACTOR WILL COMPLETE ALL CONSTRUCTION PUNCH LIST ITEMS PRIOR TO DE-MOBILIZATION. THERE WILL BE NO ADDITIONAL PAYMENT FOR COMPLETION OF CONSTRUCTION PUNCH LIST ITEMS.

STAGING AREA

1. THE CONTRACTOR MAY USE THE AREAS DESIGNATED ON THE PLANS OR AS DESIGNATED BY THE OWNER'S REPRESENTATIVE AS STAGING AREAS FOR THE PROJECT. ANY TEMPORARY STORAGE OF THE CONTRACTOR'S MATERIALS AND EQUIPMENT FOR THIS PROJECT IS LIMITED TO THE STAGING AREA(S).
2. ANY PROPOSED CHANGES TO THE STAGING AREA(S), INCLUDING THEIR DISTURBANCE LIMITS, WILL BE COORDINATED AND APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
3. ANY DAMAGE TO STAGING AREAS RESULTING FROM CONSTRUCTION TRAFFIC AND/OR MATERIALS STORAGE WILL BE REPAIRED AT NO ADDITIONAL COST TO THE ENGINEER OR THE OWNER.
4. UPON COMPLETION OF THE WORK THE CONTRACTOR WILL RESTORE THE STAGING AREAS TO AT LEAST THE CONDITION PRESENT AT THE BEGINNING OF CONSTRUCTION.

STORAGE OF MATERIALS

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS NECESSARY TO COMPLETE THE WORK. MATERIALS MAY BE STORED OFF-SITE OR ON-SITE WITHIN THE STAGING AREA(S). OFF-SITE STORAGE IS AT THE DISCRETION OF THE CONTRACTOR AND WILL NOT BE PROVIDED BY THE ENGINEER OR OWNER. IN EITHER CASE, THE ENGINEER OR THE OWNER'S REPRESENTATIVE WILL NOT BE RESPONSIBLE FOR LOST MATERIALS, VANDALISM, THEFT, ETC. IN ANY WAY.

EQUIPMENT MAINTENANCE AND REFUELING

1. ALL REFUELING AND MAINTENANCE WILL BE PERFORMED A MINIMUM OF 50 FEET FROM ANY BODY OF WATER, WETLAND, AND/OR WET AREA.
2. PRIOR TO THE START OF ANY PROJECT WORK THE CONTRACTOR WILL SUBMIT A WRITTEN REFUELING AND EQUIPMENT MAINTENANCE OPERATIONS PLAN, AND INCLUDE PROCEDURES FOR FUEL HANDLING, SPILL/LEAK CONTAINMENT, EQUIPMENT MAINTENANCE, AND CLEANUP AND DISPOSAL OF FUEL-, LUBRICANT-, AND OR OTHERWISE CONTAMINATED MATERIAL. CLEANUP AND DISPOSAL OF FUEL-CONTAMINATED MATERIAL WILL BE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR WILL MAKE THEIR OWN DETERMINATION OF ON-SITE FUEL STORAGE NEEDS. IF FUEL IS TO BE STORED ON THE PROJECT SITE, THE CONTRACTOR WILL PROVIDE A COPY OF A WRITTEN AGREEMENT WITH THE LAND OWNER TO STORE FUEL ON THEIR PROPERTY. THE WRITTEN AGREEMENT WILL BE SUBMITTED TO THE ENGINEER AS PART OF THE REFUELING OPERATIONS PLAN.

PRESERVATION

1. IT IS EMPHASIZED THAT DAMAGE TO VEGETATION, ESPECIALLY LIVE AND DEAD TREES, IS PROHIBITED, EVEN WITHIN THE CONSTRUCTION LIMITS, UNLESS AUTHORIZED BY THE ENGINEER. PRIOR TO THE START OF WORK, THE CONTRACTOR WILL WALK THE PROJECT SITE WITH THE ENGINEER AND OWNER TO MARK TREES FOR REMOVAL. ONLY THOSE TREES MARKED WILL BE REMOVED. THE CONTRACTOR WILL REPLACE ANY TREE DAMAGED DURING CONSTRUCTION THAT WAS NOT IDENTIFIED FOR REMOVAL TO THE SATISFACTION OF THE OWNER AND AT NO ADDITIONAL COST TO THE OWNER.
2. ALL REASONABLE ATTEMPTS WILL BE MADE TO MINIMIZE THE TOTAL AREA OF DISTURBED LAND.
3. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE WORK IN SUCH A MANNER AS NOT TO DAMAGE OR DESTROY ANY EXISTING FACILITIES NOT RELATED TO THE WORK. IF ANY SUCH DAMAGE DOES OCCUR DUE TO THE CONTRACTOR'S OPERATIONS, THE CONTRACTOR WILL REPAIR THE DAMAGE AT NO ADDITIONAL COST TO THE OWNER.

MATERIALS

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
2. MATERIALS FAILING TO MEET THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS SHALL BE CONSIDERED "REJECTED" AND REMOVED FROM THE SITE AT NO ADDITIONAL COST TO THE OWNER.
3. REJECTED MATERIALS MAY BE MARKED WITH STANDARD "TEMPORARY" MARKING PAINT TO PREVENT USE WITHIN THE PROJECT LIMITS.
4. THE OWNER AND/OR THEIR REPRESENTATIVE ACCEPT NO COST ASSOCIATED WITH IDENTIFYING/MARKING AND/OR REMOVAL OF "REJECTED" MATERIALS.

Professional Certification:



02/26/2021

DATE

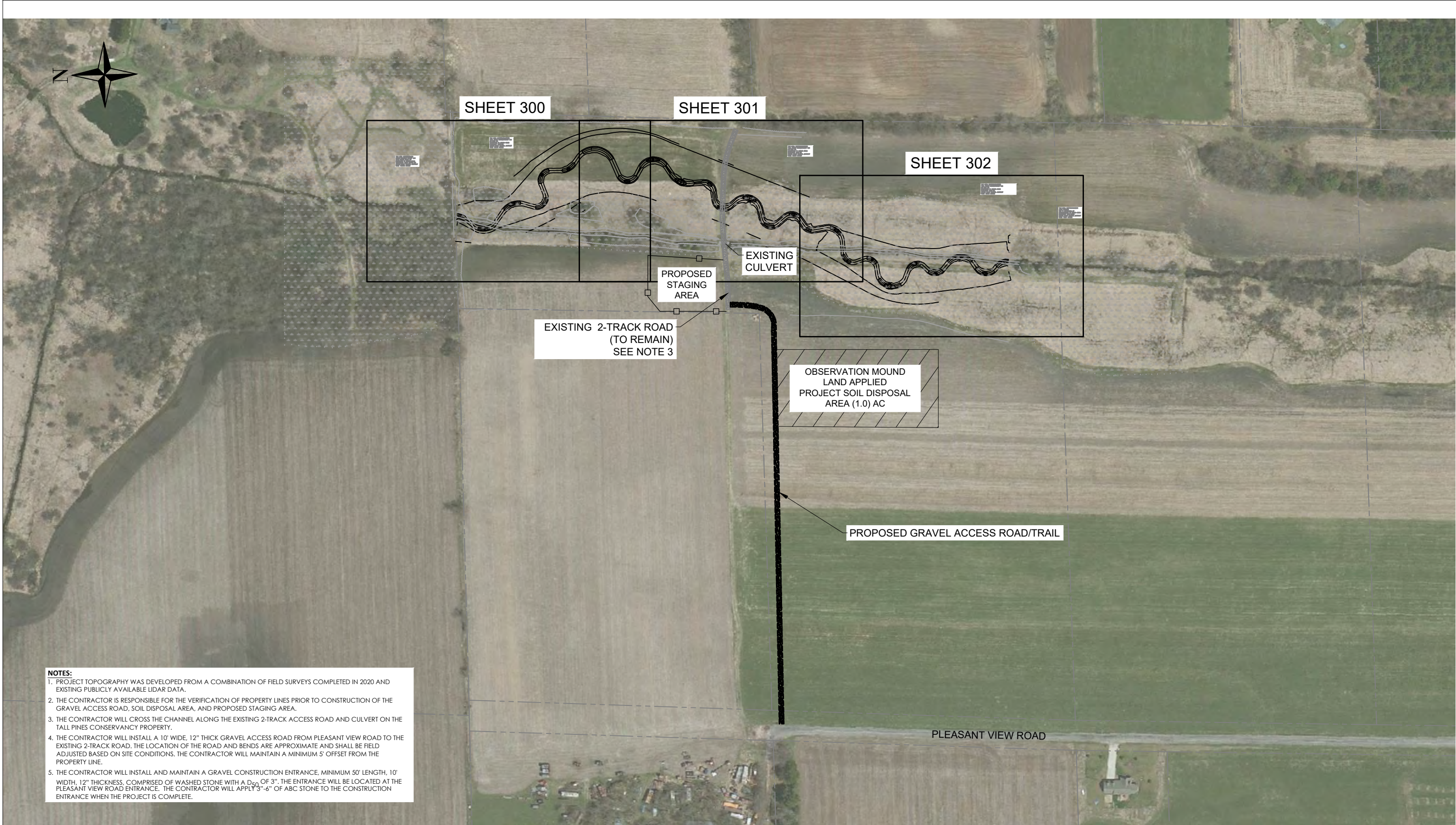
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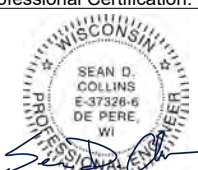
MASON CREEK STREAM RESTORATION									
TALL PINES CONSERVATORY									
REVISED		APPROVED	DATE	APPROVED	DATE	SCALE:		DESIGN	GENERAL NOTES C003
DATE	BY					DRAWN BY:			
		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY:	SDC		
		APPROVED	DATE	APPROVED	DATE	SHEET NO.	3 OF 19		
						PROJECT NO.	193707448		
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		DATE:	2/1/2021		

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- NOTES:**
1. PROJECT TOPOGRAPHY WAS DEVELOPED FROM A COMBINATION OF FIELD SURVEYS COMPLETED IN 2020 AND EXISTING PUBLICLY AVAILABLE LIDAR DATA.
 2. THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF PROPERTY LINES PRIOR TO CONSTRUCTION OF THE GRAVEL ACCESS ROAD, SOIL DISPOSAL AREA, AND PROPOSED STAGING AREA.
 3. THE CONTRACTOR WILL CROSS THE CHANNEL ALONG THE EXISTING 2-TRACK ACCESS ROAD AND CULVERT ON THE TALL PINES CONSERVANCY PROPERTY.
 4. THE CONTRACTOR WILL INSTALL A 10' WIDE, 12" THICK GRAVEL ACCESS ROAD FROM PLEASANT VIEW ROAD TO THE EXISTING 2-TRACK ROAD. THE LOCATION OF THE ROAD AND BENDS ARE APPROXIMATE AND SHALL BE FIELD ADJUSTED BASED ON SITE CONDITIONS. THE CONTRACTOR WILL MAINTAIN A MINIMUM 5' OFFSET FROM THE PROPERTY LINE.
 5. THE CONTRACTOR WILL INSTALL AND MAINTAIN A GRAVEL CONSTRUCTION ENTRANCE, MINIMUM 50' LENGTH, 10' WIDTH, 12" THICKNESS, COMPRISED OF WASHED STONE WITH A D_{50} OF 3". THE ENTRANCE WILL BE LOCATED AT THE PLEASANT VIEW ROAD ENTRANCE. THE CONTRACTOR WILL APPLY 3"-6" OF ABC STONE TO THE CONSTRUCTION ENTRANCE WHEN THE PROJECT IS COMPLETE.

Professional Certification:



02/26/2021
DATE

NO.	REVISION	BY	DATE



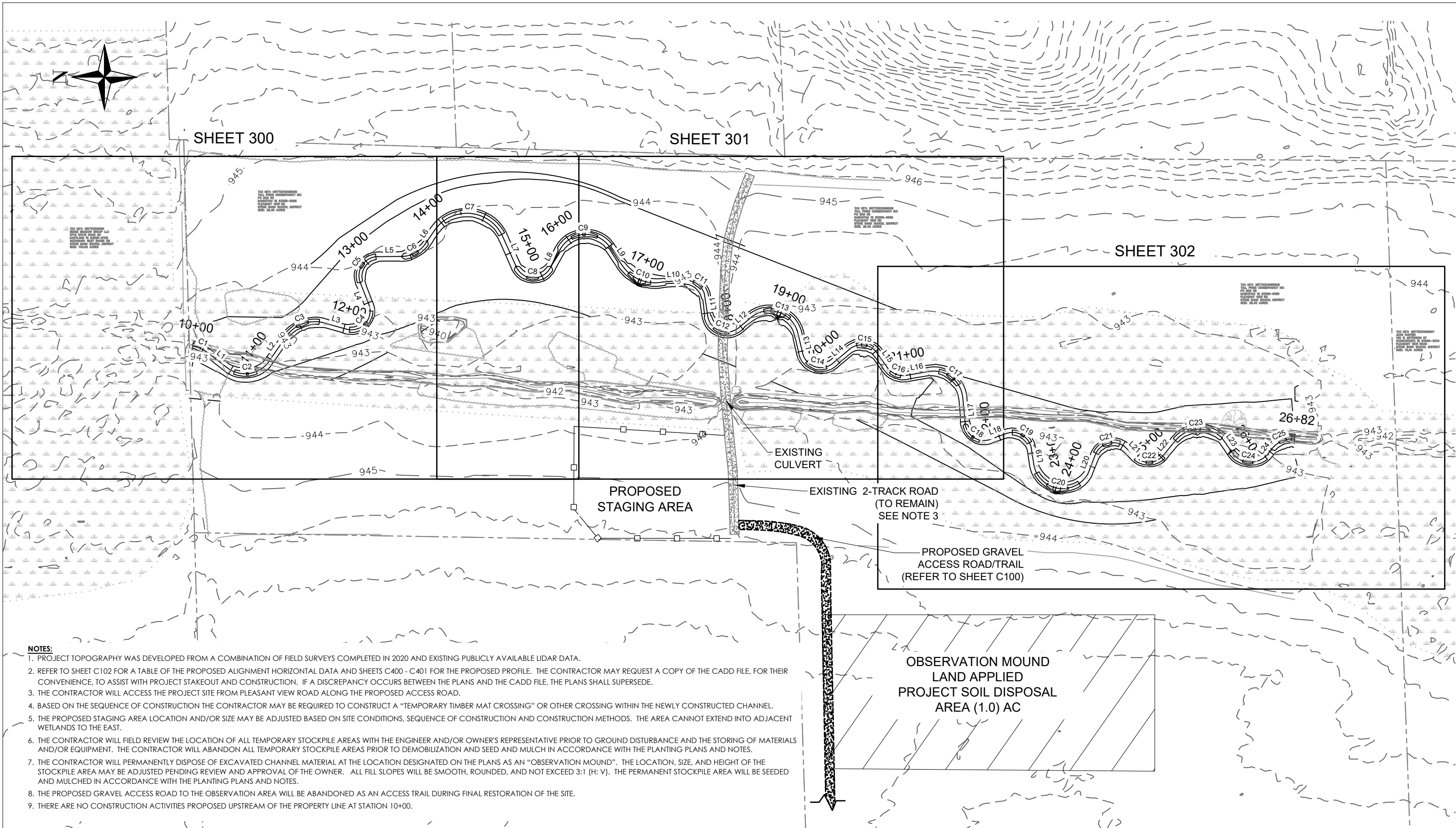
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MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY									
REVISED		APPROVED		DATE		APPROVED		DATE	
DATE	BY	CHIEF ENGINEER		PROJECT MANAGER		SHEET NO.		4 OF 19	
		APPROVED		DATE		PROJECT NO.		193707448	
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		DATE:		2/1/2021	

DESIGN

OVERVIEW & HORIZONTAL DATA
C100

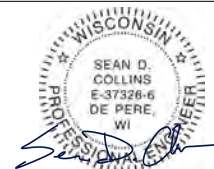
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NOTES:

1. PROJECT TOPOGRAPHY WAS DEVELOPED FROM A COMBINATION OF FIELD SURVEYS COMPLETED IN 2020 AND EXISTING PUBLICLY AVAILABLE LIDAR DATA.
2. REFER TO SHEET C102 FOR A TABLE OF THE PROPOSED ALIGNMENT HORIZONTAL DATA AND SHEETS C400 - C401 FOR THE PROPOSED PROFILE. THE CONTRACTOR MAY REQUEST A COPY OF THE CADD FILE, FOR THEIR CONVENIENCE, TO ASSIST WITH PROJECT STAKEOUT AND CONSTRUCTION. IF A DISCREPANCY OCCURS BETWEEN THE PLANS AND THE CADD FILE, THE PLANS SHALL SUPERSEDE.
3. THE CONTRACTOR WILL ACCESS THE PROJECT SITE FROM PLEASANT VIEW ROAD ALONG THE PROPOSED ACCESS ROAD.
4. BASED ON THE SEQUENCE OF CONSTRUCTION THE CONTRACTOR MAY BE REQUIRED TO CONSTRUCT A "TEMPORARY TIMBER MAT CROSSING" OR OTHER CROSSING WITHIN THE NEWLY CONSTRUCTED CHANNEL.
5. THE PROPOSED STAGING AREA LOCATION AND/OR SIZE MAY BE ADJUSTED BASED ON SITE CONDITIONS, SEQUENCE OF CONSTRUCTION AND CONSTRUCTION METHODS. THE AREA CANNOT EXTEND INTO ADJACENT WETLANDS TO THE EAST.
6. THE CONTRACTOR WILL FIELD REVIEW THE LOCATION OF ALL TEMPORARY STOCKPILE AREAS WITH THE ENGINEER AND/OR OWNER'S REPRESENTATIVE PRIOR TO GROUND DISTURBANCE AND THE STORING OF MATERIALS AND/OR EQUIPMENT. THE CONTRACTOR WILL ABANDON ALL TEMPORARY STOCKPILE AREAS PRIOR TO DEMOBILIZATION AND SEED AND MULCH IN ACCORDANCE WITH THE PLANTING PLANS AND NOTES.
7. THE CONTRACTOR WILL PERMANENTLY DISPOSE OF EXCAVATED CHANNEL MATERIAL AT THE LOCATION DESIGNATED ON THE PLANS AS AN "OBSERVATION MOUND". THE LOCATION, SIZE, AND HEIGHT OF THE STOCKPILE AREA MAY BE ADJUSTED PENDING REVIEW AND APPROVAL OF THE OWNER. ALL FILL SLOPES WILL BE SMOOTH, ROUNDED, AND NOT EXCEED 3:1 (H: V). THE PERMANENT STOCKPILE AREA WILL BE SEEDED AND MULCHED IN ACCORDANCE WITH THE PLANTING PLANS AND NOTES.
8. THE PROPOSED GRAVEL ACCESS ROAD TO THE OBSERVATION AREA WILL BE ABANDONED AS AN ACCESS TRAIL DURING FINAL RESTORATION OF THE SITE.
9. THERE ARE NO CONSTRUCTION ACTIVITIES PROPOSED UPSTREAM OF THE PROPERTY LINE AT STATION 10+00.

Professional Certification:



02/26/2021

DATE

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MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY									
REVISED DATE	BY	APPROVED	DATE	APPROVED	DATE	SCALE:		SHEET NO.	PROJECT NO.
						DRAWN BY:	DD		
		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY:	SDC	5 OF 19	193707448
		APPROVED	DATE	APPROVED	DATE	CHIEF, RIGHT OF WAY	DATE:	2/1/2021	
		ENGINEER ADMINISTRATOR							

DESIGN
OVERVIEW & HORIZONTAL DATA
C101

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ALIGNMENT LINE DATA				
LINE #	LENGTH	BEARING	START POINT	END POINT
L1	27.6612	S37° 36' 59.37"W	(2393733.5516, 437632.6373)	(2393716.6679, 437610.7264)
L2	36.5100	S55° 10' 17.30"E	(2393720.4934, 437566.5091)	(2393750.4632, 437545.6574)
L3	27.1903	S15° 33' 52.30"W	(2393765.9920, 437505.7014)	(2393758.6962, 437479.5082)
L4	24.7817	N68° 37' 13.73"E	(2393786.5276, 437455.0943)	(2393809.6040, 437464.1283)
L5	26.2880	S0° 26' 32.61"E	(2393838.2505, 437445.1873)	(2393838.4534, 437418.9001)
L6	18.6456	S55° 29' 29.90"E	(2393851.8262, 437393.1267)	(2393867.1910, 437382.5635)
L7	38.7928	S65° 50' 57.11"W	(2393862.6074, 437308.9476)	(2393827.2100, 437293.0759)
L8	24.5494	S61° 40' 17.90"E	(2393824.1960, 437256.6568)	(2393845.8054, 437245.0076)
L9	25.8896	S55° 35' 47.03"W	(2393849.6275, 437191.0961)	(2393828.2666, 437176.4680)
L10	23.8239	S4° 02' 39.88"E	(2393810.4799, 437131.8704)	(2393812.1602, 437108.1059)
L11	24.3224	S81° 24' 35.56"W	(2393797.3262, 437086.5344)	(2393773.2767, 437082.9015)
L12	15.7173	S39° 47' 51.12"E	(2393761.3705, 437047.4839)	(2393771.4307, 437035.4082)
L13	20.2006	S76° 33' 30.07"W	(2393751.9471, 436983.4031)	(2393732.2999, 436978.7074)
L14	21.4326	S40° 12' 22.43"E	(2393722.7308, 436943.7853)	(2393736.5664, 436927.4167)
L15	19.8575	S54° 39' 09.49"W	(2393732.6754, 436897.1982)	(2393716.4784, 436885.7099)
L16	23.9389	S9° 50' 57.98"E	(2393708.1521, 436863.9167)	(2393712.2471, 436840.3307)
L17	28.9775	S84° 34' 29.70"W	(2393684.1581, 436803.0421)	(2393655.3104, 436800.3025)
L18	20.2553	S19° 43' 14.82"E	(2393637.3073, 436774.3354)	(2393644.1421, 436755.2682)
L19	15.7716	S80° 56' 29.31"W	(2393626.2125, 436727.5241)	(2393610.6376, 436725.0410)
L20	23.0111	S68° 43' 37.16"E	(2393599.3526, 436665.9164)	(2393620.7957, 436657.5677)
L21	16.7849	S43° 51' 03.94"W	(2393630.1458, 436625.6273)	(2393618.5174, 436613.5230)
L22	19.5118	S50° 33' 22.92"E	(2393619.2986, 436583.6543)	(2393634.3666, 436571.2581)
L23	17.7132	S54° 47' 29.49"W	(2393639.8799, 436518.9497)	(2393625.4072, 436508.7371)
L24	8.4877	S50° 24' 44.51"E	(2393620.2699, 436469.3586)	(2393626.8109, 436463.9497)

ALIGNMENT CURVE DATA					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C1	37.79	17.06	SOUTH22.949803WEST	(2393740.1468,437648.2125)	(2393733.5516,437632.6373)
C2	32.54	48.84	SOUTH4.944695EAST	(2393716.6679,437610.7264)	(2393720.4934,437566.5091)
C3	38.40	45.48	SOUTH21.238449EAST	(2393750.4632,437545.6574)	(2393765.9920,437505.7014)
C4	20.54	46.11	SOUTH48.742564EAST	(2393758.6962,437479.5082)	(2393786.5276,437455.0943)
C5	20.94	40.26	SOUTH56.527327EAST	(2393809.6040,437464.1283)	(2393838.2505,437445.1873)
C6	31.90	30.15	SOUTH27.423039EAST	(2393838.4534,437418.9001)	(2393851.8262,437393.1267)
C7	43.00	88.64	SOUTH3.562855WEST	(2393867.1910,437382.5635)	(2393862.6074,437308.9476)
C8	20.87	44.52	SOUTH4.730982WEST	(2393827.2100,437293.0759)	(2393824.1960,437256.6568)
C9	32.00	64.36	SOUTH4.055250EAST	(2393845.8054,437245.0076)	(2393849.6275,437191.0961)
C10	43.10	50.93	SOUTH21.743375WEST	(2393828.2666,437176.4680)	(2393810.4799,437131.8704)
C11	21.00	28.27	SOUTH34.515050WEST	(2393812.1602,437108.1059)	(2393797.3262,437086.5344)
C12	21.00	46.06	SOUTH18.580898WEST	(2393773.2767,437082.9015)	(2393761.3705,437047.4839)
C13	31.96	67.30	SOUTH20.538390WEST	(2393771.4307,437035.4082)	(2393751.9471,436983.4031)
C14	20.65	44.15	SOUTH15.323605WEST	(2393732.2999,436978.7074)	(2393722.7308,436943.7853)
C15	20.65	34.27	SOUTH7.337319WEST	(2393736.5664,436927.4167)	(2393732.6754,436897.1982)
C16	21.00	24.73	SOUTH20.909769WEST	(2393716.4784,436885.7099)	(2393708.1521,436863.9167)
C17	32.00	52.32	SOUTH36.990246WEST	(2393712.2471,436840.3307)	(2393684.1581,436803.0421)
C18	20.67	35.96	SOUTH34.733779WEST	(2393655.3104,436800.3025)	(2393637.3073,436774.3354)
C19	20.79	38.17	SOUTH32.872623WEST	(2393644.1421,436755.2682)	(2393626.2125,436727.5241)
C20	32.00	78.34	SOUTH10.805984WEST	(2393610.6376,436725.0410)	(2393599.3526,436665.9164)
C21	21.00	38.42	SOUTH16.316553EAST	(2393620.7957,436657.5677)	(2393630.1458,436625.6273)
C22	21.00	33.24	SOUTH1.498136EAST	(2393618.5174,436613.5230)	(2393619.2986,436583.6543)
C23	35.16	59.42	SOUTH6.016758EAST	(2393634.3666,436571.2581)	(2393639.8799,436518.9497)
C24	24.92	45.95	SOUTH7.432831WEST	(2393625.4072,436508.7371)	(2393620.2699,436469.3586)
C25	27.42	28.97	SOUTH23.900105EAST	(2393626.8109,436463.9497)	(2393638.0081,436438.6820)

NOTES:
1. REFER TO SHEET C101 FOR THE HORIZONTAL ALIGNMENT OF THE PROPOSED CHANNEL



02/26/2021
DATE

NO.	REVISION	BY	DATE



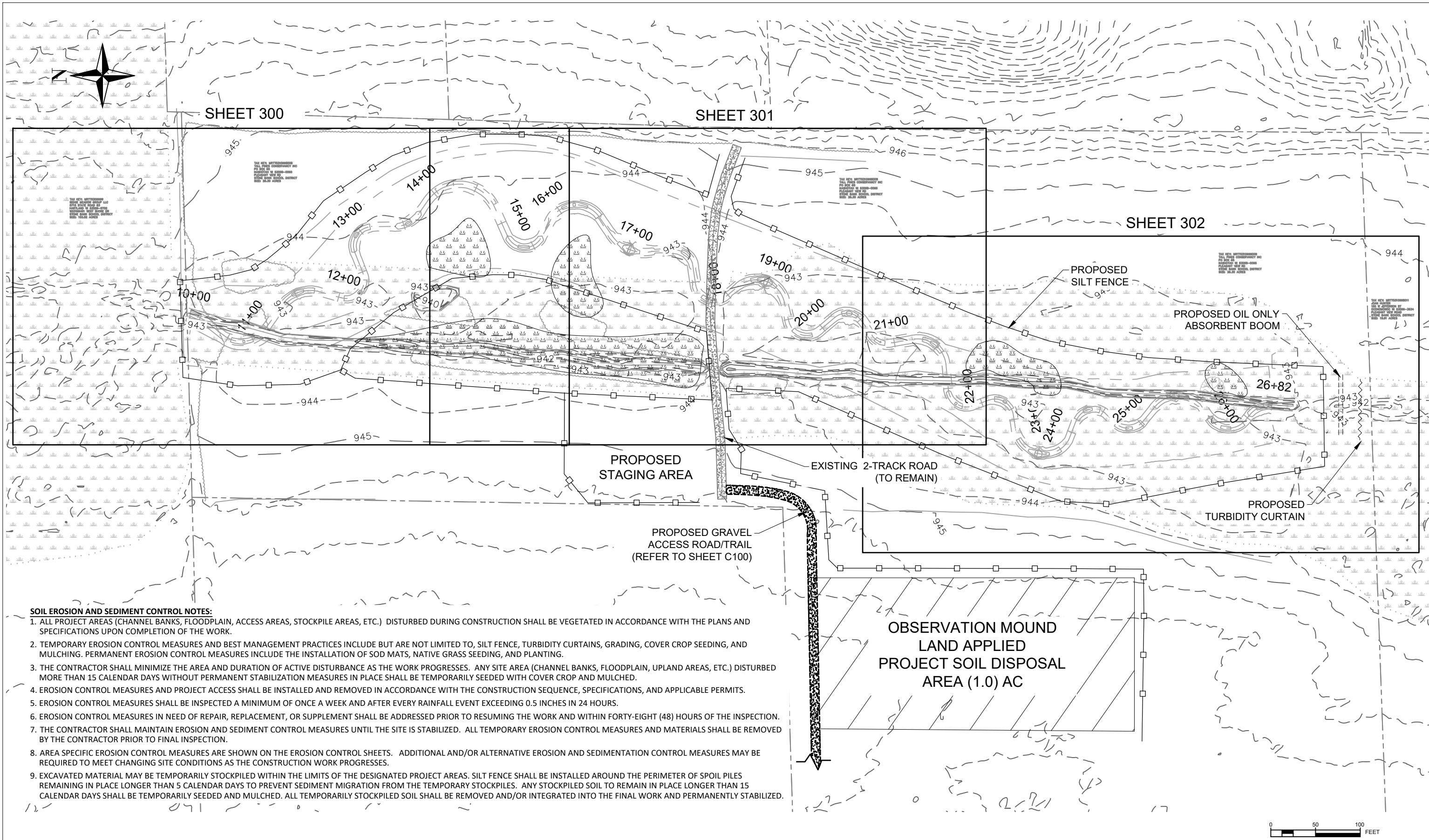
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MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY					
REVISED DATE	BY	APPROVED DATE	APPROVED DATE	SCALE:	
				DRAWN BY:	DD
		CHIEF ENGINEER	PROJECT MANAGER	CHECKED BY:	SDC
		APPROVED DATE	APPROVED DATE	SHEET NO.	6 OF 19
				PROJECT NO.	193707448
		ENGINEER ADMINISTRATOR	CHIEF, RIGHT OF WAY	DATE:	2/1/2021

DESIGN

OVERVIEW & HORIZONTAL DATA
C102

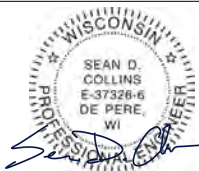
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SOIL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL PROJECT AREAS (CHANNEL BANKS, FLOODPLAIN, ACCESS AREAS, STOCKPILE AREAS, ETC.) DISTURBED DURING CONSTRUCTION SHALL BE VEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS UPON COMPLETION OF THE WORK.
2. TEMPORARY EROSION CONTROL MEASURES AND BEST MANAGEMENT PRACTICES INCLUDE BUT ARE NOT LIMITED TO, SILT FENCE, TURBIDITY CURTAINS, GRADING, COVER CROP SEEDING, AND MULCHING. PERMANENT EROSION CONTROL MEASURES INCLUDE THE INSTALLATION OF SOD MATS, NATIVE GRASS SEEDING, AND PLANTING.
3. THE CONTRACTOR SHALL MINIMIZE THE AREA AND DURATION OF ACTIVE DISTURBANCE AS THE WORK PROGRESSES. ANY SITE AREA (CHANNEL BANKS, FLOODPLAIN, UPLAND AREAS, ETC.) DISTURBED MORE THAN 15 CALENDAR DAYS WITHOUT PERMANENT STABILIZATION MEASURES IN PLACE SHALL BE TEMPORARILY SEED WITH COVER CROP AND MULCHED.
4. EROSION CONTROL MEASURES AND PROJECT ACCESS SHALL BE INSTALLED AND REMOVED IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE, SPECIFICATIONS, AND APPLICABLE PERMITS.
5. EROSION CONTROL MEASURES SHALL BE INSPECTED A MINIMUM OF ONCE A WEEK AND AFTER EVERY RAINFALL EVENT EXCEEDING 0.5 INCHES IN 24 HOURS.
6. EROSION CONTROL MEASURES IN NEED OF REPAIR, REPLACEMENT, OR SUPPLEMENT SHALL BE ADDRESSED PRIOR TO RESUMING THE WORK AND WITHIN FORTY-EIGHT (48) HOURS OF THE INSPECTION.
7. THE CONTRACTOR SHALL MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES UNTIL THE SITE IS STABILIZED. ALL TEMPORARY EROSION CONTROL MEASURES AND MATERIALS SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO FINAL INSPECTION.
8. AREA SPECIFIC EROSION CONTROL MEASURES ARE SHOWN ON THE EROSION CONTROL SHEETS. ADDITIONAL AND/OR ALTERNATIVE EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED TO MEET CHANGING SITE CONDITIONS AS THE CONSTRUCTION WORK PROGRESSES.
9. EXCAVATED MATERIAL MAY BE TEMPORARILY STOCKPILED WITHIN THE LIMITS OF THE DESIGNATED PROJECT AREAS. SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF SPOIL PILES REMAINING IN PLACE LONGER THAN 5 CALENDAR DAYS TO PREVENT SEDIMENT MIGRATION FROM THE TEMPORARY STOCKPILES. ANY STOCKPILED SOIL TO REMAIN IN PLACE LONGER THAN 15 CALENDAR DAYS SHALL BE TEMPORARILY SEED AND MULCHED. ALL TEMPORARILY STOCKPILED SOIL SHALL BE REMOVED AND/OR INTEGRATED INTO THE FINAL WORK AND PERMANENTLY STABILIZED.

Professional Certification:



02/26/2021

DATE

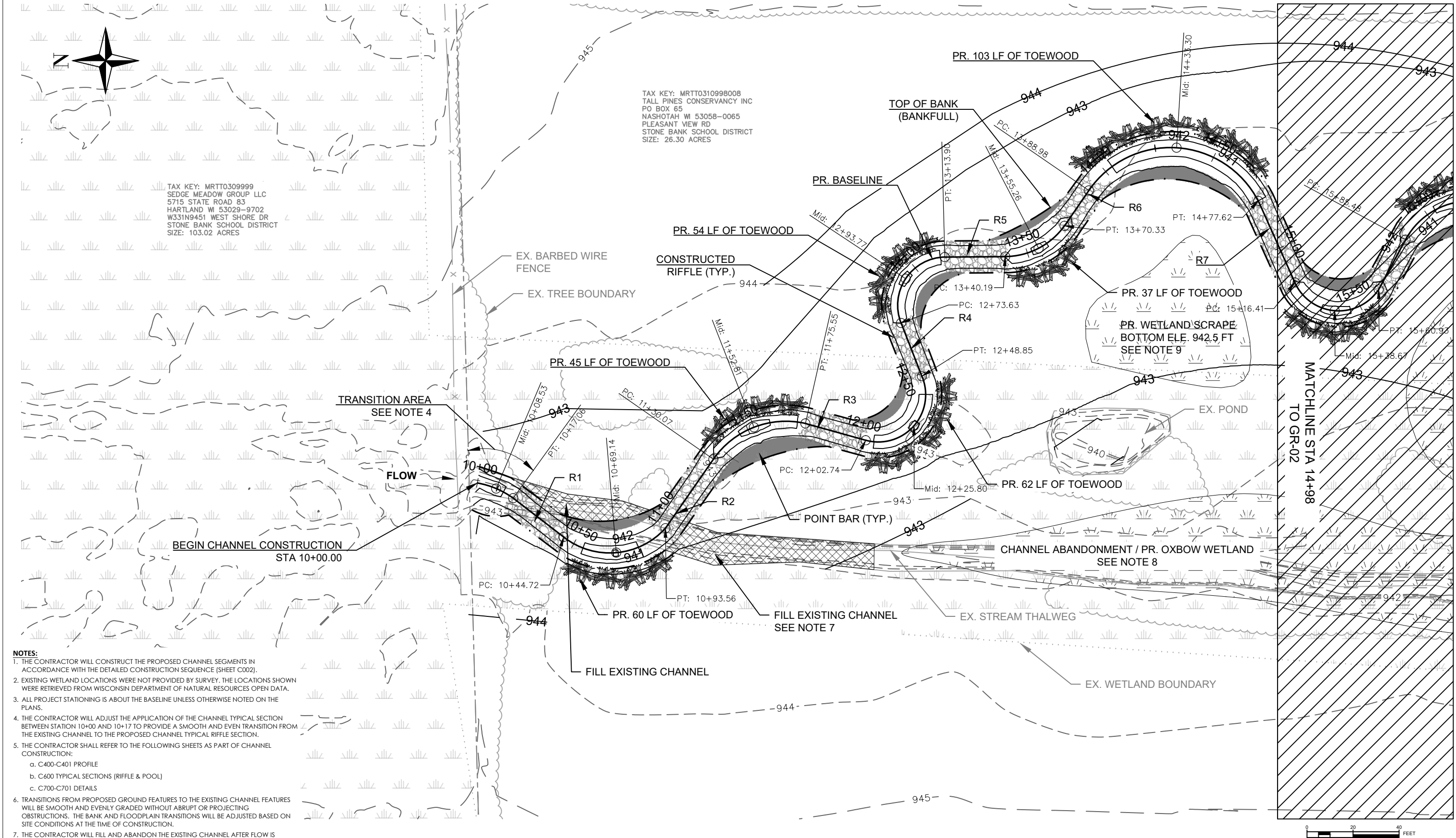
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MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY									
REVISED DATE	BY	APPROVED	DATE	APPROVED	DATE	SCALE:		DESIGN	
		CHIEF ENGINEER		PROJECT MANAGER		DRAWN BY:	DD		
		APPROVED	DATE	APPROVED	DATE	CHECKED BY:	SDC	EROSION & SEDIMENT CONTROL PLAN C200	
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		SHEET NO.	7 OF 19		
						PROJECT NO.	193707448		
						DATE:	2/1/2021		

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- NOTES:**
1. THE CONTRACTOR WILL CONSTRUCT THE PROPOSED CHANNEL SEGMENTS IN ACCORDANCE WITH THE DETAILED CONSTRUCTION SEQUENCE (SHEET C002).
 2. EXISTING WETLAND LOCATIONS WERE NOT PROVIDED BY SURVEY. THE LOCATIONS SHOWN WERE RETRIEVED FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES OPEN DATA.
 3. ALL PROJECT STATIONING IS ABOUT THE BASELINE UNLESS OTHERWISE NOTED ON THE PLANS.
 4. THE CONTRACTOR WILL ADJUST THE APPLICATION OF THE CHANNEL TYPICAL SECTION BETWEEN STATION 10+00 AND 10+17 TO PROVIDE A SMOOTH AND EVEN TRANSITION FROM THE EXISTING CHANNEL TO THE PROPOSED CHANNEL TYPICAL RIFFLE SECTION.
 5. THE CONTRACTOR SHALL REFER TO THE FOLLOWING SHEETS AS PART OF CHANNEL CONSTRUCTION:
 - a. C400-C401 PROFILE
 - b. C600 TYPICAL SECTIONS (RIFFLE & POOL)
 - c. C700-C701 DETAILS
 6. TRANSITIONS FROM PROPOSED GROUND FEATURES TO THE EXISTING CHANNEL FEATURES WILL BE SMOOTH AND EVENLY GRADED WITHOUT ABRUPT OR PROJECTING OBSTRUCTIONS. THE BANK AND FLOODPLAIN TRANSITIONS WILL BE ADJUSTED BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION.
 7. THE CONTRACTOR WILL FILL AND ABANDON THE EXISTING CHANNEL AFTER FLOW IS ROUTED INTO THE PROPOSED CHANNEL. THE FILL ELEVATION WILL MATCH THE ADJACENT TOP OF BANK ELEVATIONS AND MOUNDED UP TO 6" IN THE CENTER OF THE CHANNEL TO ACCOUNT FOR SETTLEMENT. COMPACTION OF THE FILL SHALL BE COMPLETED USING MECHANICAL MEANS AND EXCEED 85% STANDARD PROCTOR.
 8. THE CONTRACTOR SHALL NOT DISTURB THE CHANNEL BED AND/OR BANKS IN AREAS NOTED AS "CHANNEL ABANDONMENT". THESE AREAS MAY NATURALLY DEVELOP INTO OXBOW WETLANDS.
 9. WETLAND SCRAPES ARE RELATIVELY SHALLOW SURFACE DEPRESSIONS DESIGNED TO PROVIDE AN UNEVEN FLOODPLAIN. EXTENTS AND/OR ELEVATION(S) MAY BE FIELD ADJUSTED BASED ON SITE CONDITIONS PER APPROVAL OF THE ENGINEER.
 10. PROPOSED IN-STREAM AND BANK STRUCTURES ARE SHOWN AS SYMBOLS (ONLY) AND ARE PROVIDED TO SHOW THE LOCATION AND EXTENTS OF THE REQUIRED WORK.

Professional Certification:

SEAN D. COLLINS
E-37326-6
DE PERE, WI

02/26/2021

NO.	REVISION	BY	DATE

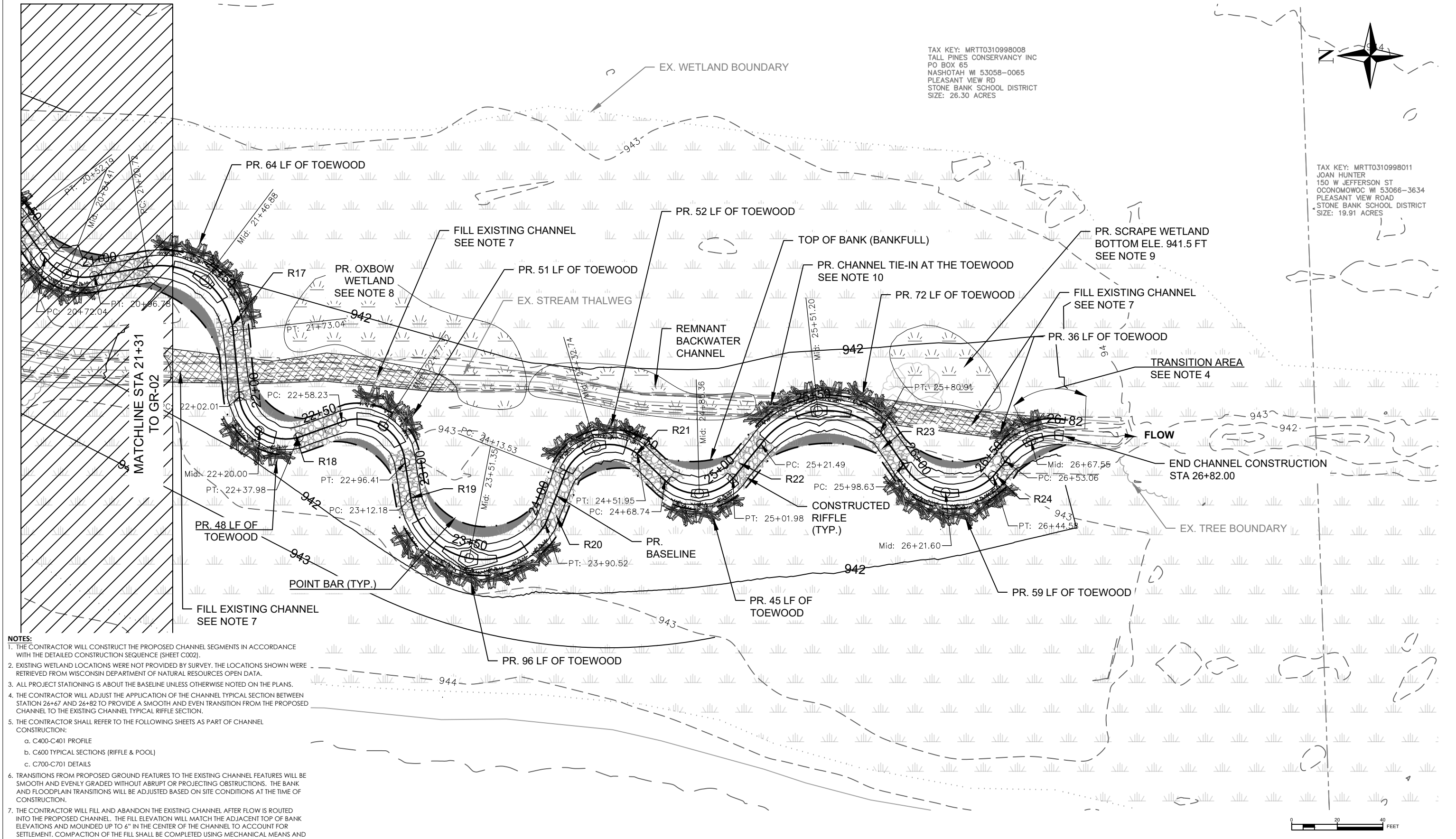
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1165 Scheuring Road
De Pere Wisconsin 54115
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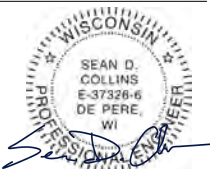
MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY									
REVISED DATE	BY	APPROVED		DATE	APPROVED		DATE	SCALE:	
		CHIEF ENGINEER			PROJECT MANAGER			DRAWN BY:	DD
		APPROVED		DATE	APPROVED		DATE	CHECKED BY:	SDC
		ENGINEER ADMINISTRATOR			CHIEF, RIGHT OF WAY			SHEET NO.	8 OF 19
								PROJECT NO.	193707448
								DATE:	2/1/2021

DESIGN
PLAN VIEW
C300

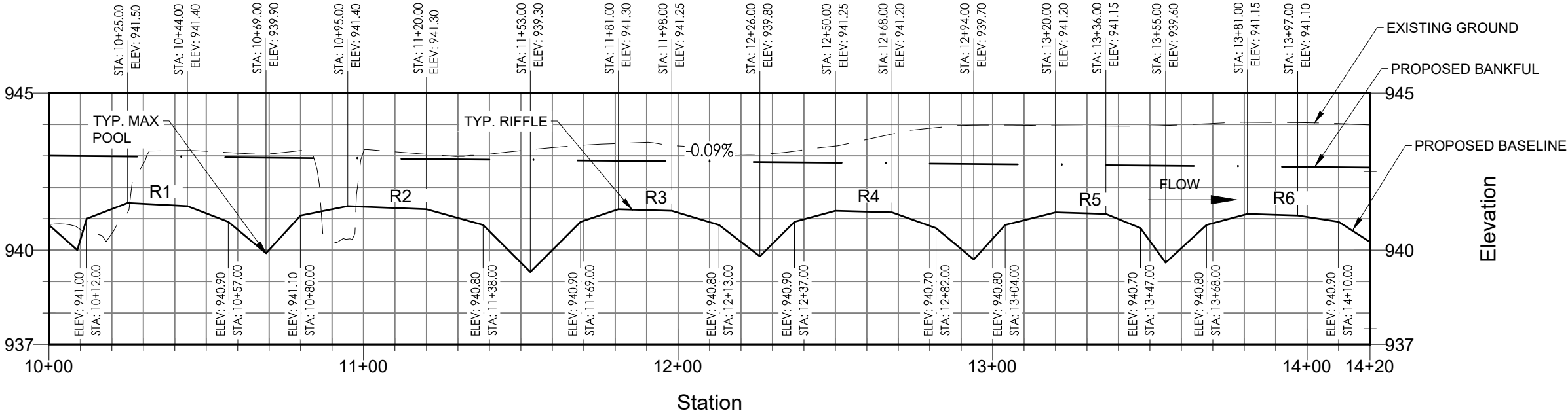
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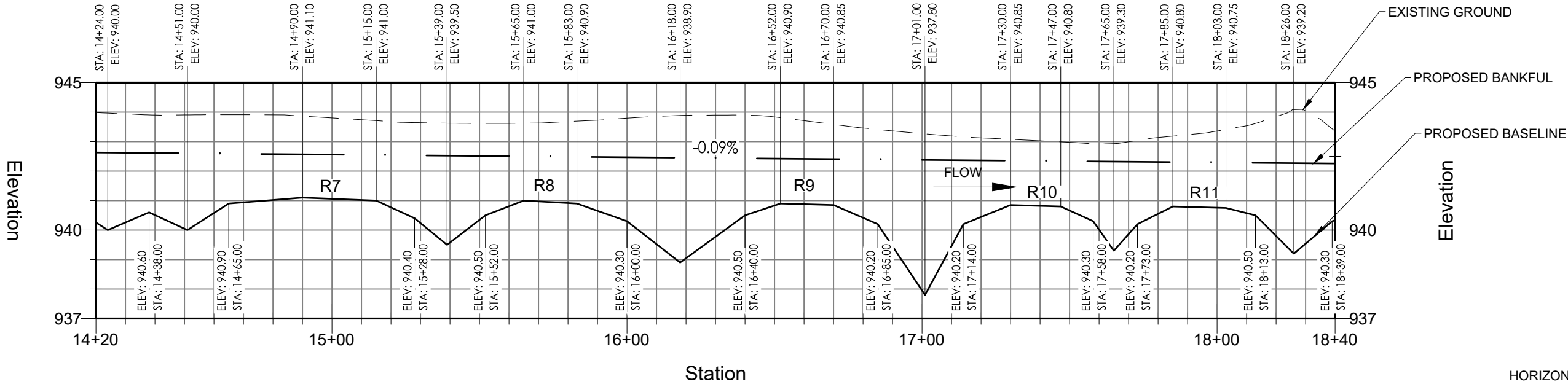
- NOTES:**
1. THE CONTRACTOR WILL CONSTRUCT THE PROPOSED CHANNEL SEGMENTS IN ACCORDANCE WITH THE DETAILED CONSTRUCTION SEQUENCE (SHEET C002).
 2. EXISTING WETLAND LOCATIONS WERE NOT PROVIDED BY SURVEY. THE LOCATIONS SHOWN WERE RETRIEVED FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES OPEN DATA.
 3. ALL PROJECT STATIONING IS ABOUT THE BASELINE UNLESS OTHERWISE NOTED ON THE PLANS.
 4. THE CONTRACTOR WILL ADJUST THE APPLICATION OF THE CHANNEL TYPICAL SECTION BETWEEN STATION 26+67 AND 26+82 TO PROVIDE A SMOOTH AND EVEN TRANSITION FROM THE PROPOSED CHANNEL TO THE EXISTING CHANNEL TYPICAL RIFFLE SECTION.
 5. THE CONTRACTOR SHALL REFER TO THE FOLLOWING SHEETS AS PART OF CHANNEL CONSTRUCTION:
 - a. C400-C401 PROFILE
 - b. C600 TYPICAL SECTIONS (RIFFLE & POOL)
 - c. C700-C701 DETAILS
 6. TRANSITIONS FROM PROPOSED GROUND FEATURES TO THE EXISTING CHANNEL FEATURES WILL BE SMOOTH AND EVENLY GRADED WITHOUT ABRUPT OR PROJECTING OBSTRUCTIONS. THE BANK AND FLOODPLAIN TRANSITIONS WILL BE ADJUSTED BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION.
 7. THE CONTRACTOR WILL FILL AND ABANDON THE EXISTING CHANNEL AFTER FLOW IS ROUTED INTO THE PROPOSED CHANNEL. THE FILL ELEVATION WILL MATCH THE ADJACENT TOP OF BANK ELEVATIONS AND MOUNDED UP TO 6" IN THE CENTER OF THE CHANNEL TO ACCOUNT FOR SETTLEMENT. COMPACTION OF THE FILL SHALL BE COMPLETED USING MECHANICAL MEANS AND EXCEED 85% STANDARD PROCTOR.
 8. THE CONTRACTOR SHALL NOT DISTURB THE CHANNEL BED AND/OR BANKS IN AREAS NOTED AS "CHANNEL ABANDONMENT". THESE AREAS MAY NATURALLY DEVELOP INTO OXBOW WETLANDS.
 9. WETLAND SCRAPES ARE RELATIVELY SHALLOW SURFACE DEPRESSIONS DESIGNED TO PROVIDE AN UNEVEN FLOODPLAIN. EXTENTS AND/OR ELEVATION(S) MAY BE FIELD ADJUSTED BASED ON SITE CONDITIONS PER APPROVAL OF THE ENGINEER.
 10. CONTRACTOR SHALL CONSTRUCT A TIE-IN CHANNEL (APPROXIMATELY 2' WIDE, 6" DEPTH, 2:1 SIDE SLOPES) TO CONNECT PROPOSED CHANNEL THROUGH TOE WOOD STRUCTURE TO PROPOSED REMNANT BACKWATER CHANNEL.
 11. PROPOSED IN-STREAM AND BANK STRUCTURES ARE SHOWN AS SYMBOLS (ONLY) AND ARE PROVIDED TO SHOW THE LOCATION AND EXTENTS OF THE REQUIRED WORK.

Professional Certification:		NO.		REVISION		BY		DATE				MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY																	
 <i>Sean D. Collins</i> 02/26/2021		DATE										REVISED		APPROVED		DATE		APPROVED		DATE		SCALE:							
												DATE		BY				CHIEF ENGINEER		PROJECT MANAGER		DRAWN BY:		DD					
																		APPROVED		DATE		APPROVED		DATE		SHEET NO.		10 OF 19	
																		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		DATE:		2/1/2021		PROJECT NO.		193707448	

- NOTES:
1. THE PROPOSED THALWEG AND BANKFULL ELEVATIONS SHALL BE TIED TO THE EXISTING CHANNEL FEATURES AT THE BEGINNING AND ENDING LOCATIONS INDICATED ON THE PROFILE. TRANSITIONS FROM EXISTING GROUND TO PROPOSED CHANNEL FEATURES SHALL BE SMOOTH, ROUNDED, AND EVENLY GRADED.
 2. SURVEY OF THE SITE WAS PERFORMED IN 2020, AND AS SUCH THE PROFILE DOES NOT REFLECT CHANGES TO THE SITE THAT MAY HAVE OCCURRED SINCE THAT TIME. THE PROFILE SHOWN ABOVE IS ALONG THE PROPOSED BASELINE.
 3. THE RIFFLE TYPICAL CROSS-SECTIONS ON SHEETS C600 SHALL BE APPLIED AT LOCATIONS IDENTIFIED ON THE PROFILE AS "BEGIN RIFFLE". THE POOL TYPICAL CROSS-SECTIONS ON SHEETS C600 SHALL BE APPLIED AT LOCATIONS IDENTIFIED ON THE PROFILE AS "MAX POOL" ("MID POOL" STATION ON PLAN SHEETS). ALL OTHER AREAS ARE TRANSITIONING FROM "RIFFLE" TO "POOL" AND/OR "POOL" TO "RIFFLE".
 4. TRANSITIONS BETWEEN RIFFLE AND POOL OR POOL AND RIFFLE TYPICAL CROSS SECTIONS SHALL BE EVENLY GRADED.
 5. SEE SHEET C701 FOR THE COBBLE/GRAVEL RIFFLE WITH WOODY DEBRIS RUN DETAIL. THE PROFILE INDICATES THE EXTENT OF THE GLIDE, RIFFLE, AND RUN MATERIAL. WOODY DEBRIS ARE NOT SHOWN IN THE PROFILE; REFER TO THE DETAIL.

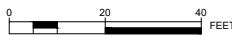


Geometry Pint	Pool	Pool Max Depth	Glide	PT	Riffle (R1)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R2)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R3)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R4)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R5)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R6)	Run	PC	Pool
STA (ft)	10+00	10+09	10+12	10+17	10+25	10+44	10+45	10+57	10+69	10+80	10+94	10+95	11+20	11+30	11+38	11+53	11+69	11+76	11+81	11+98	12+03	12+13	12+26	12+37	12+49	12+50	12+68	12+74	12+82	12+94	13+04	13+14	13+20	13+36	13+40	13+47	13+55	13+68	13+70	13+81	13+97	13+82	14+10
Baseline Elevation (ft)	940.80	940.00	941.00		941.50	941.40		940.90	939.90	941.10		941.40	941.30		940.80	939.30	940.90		941.30	941.25		940.80	939.80	940.90		941.25	941.20		940.70	939.70	940.80		941.20	941.15		940.70	939.60	940.80		941.15	941.10		940.90
Bankfull Elevation (ft)	943.00	942.99	942.99	942.98	942.98	942.96	942.96	942.95	942.94	942.93	942.91	942.91	942.89	942.88	942.88	942.86	942.85	942.84	942.84	942.82	942.82	942.81	942.80	942.79	942.78	942.78	942.76	942.75	942.75	942.74	942.73	942.72	942.71	942.70	942.69	942.69	942.68	942.67	942.67	942.66	942.64	942.66	942.63



Geometry Point	Pool Max Depth 1	Glide Point	Pool Max Depth 2	Glide	PT	Riffle (R7)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R8)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R9)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R10)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R11)	Run	PC	Pool	Pool Max Depth	Glide
STA (ft)	14+24	14+38	14+51	14+65	14+78	14+90	15+15	15+16	15+28	15+39	15+52	15+61	15+65	15+83	15+85	16+00	16+18	16+40	16+50	16+52	16+70	16+76	16+85	17+01	17+14	17+27	17+30	17+47	17+50	17+58	17+65	17+73	17+79	17+85	18+03	18+03	18+13	18+26	18+39
Baseline Elevation (ft)	940.00	940.60	940.00	940.90		941.10	941.00		940.40	939.50	940.50		941.00	940.90		940.30	938.90	940.50		940.90	940.85		940.20	937.80	940.20		940.85	940.80		940.30	939.30	940.20		940.80	940.75		940.50	939.20	940.30
Bankfull Elevation (ft)	942.62	942.61	942.60	942.58	942.57	942.56	942.54	942.54	942.53	942.52	942.51	942.50	942.49	942.48	942.48	942.46	942.45	942.43	942.42	942.42	942.40	942.40	942.39	942.37	942.36	942.35	942.35	942.33	942.33	942.32	942.32	942.31	942.30	942.28	942.28	942.27	942.26	942.25	

HORIZONTAL SCALE



VERTICAL SCALE



Professional Certification:



02/26/2021

DATE

NO.	REVISION	BY	DATE



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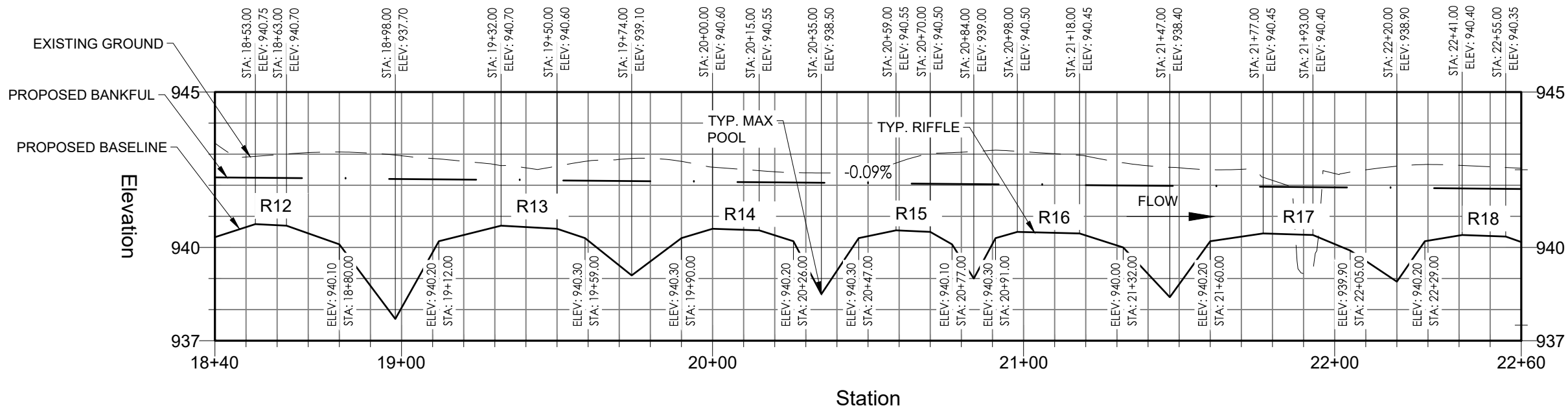
MASON CREEK STREAM RESTORATION
TALL PINES CONSERVATORY

REVISED	APPROVED	DATE	APPROVED	DATE	SCALE:
DATE	BY		PROJECT MANAGER		DRAWN BY: DD
	CHIEF ENGINEER				CHECKED BY: SDC
	APPROVED	DATE	APPROVED	DATE	SHEET NO. 11 OF 19
	ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		PROJECT NO. 193707448
					DATE: 2/1/2021

DESIGN

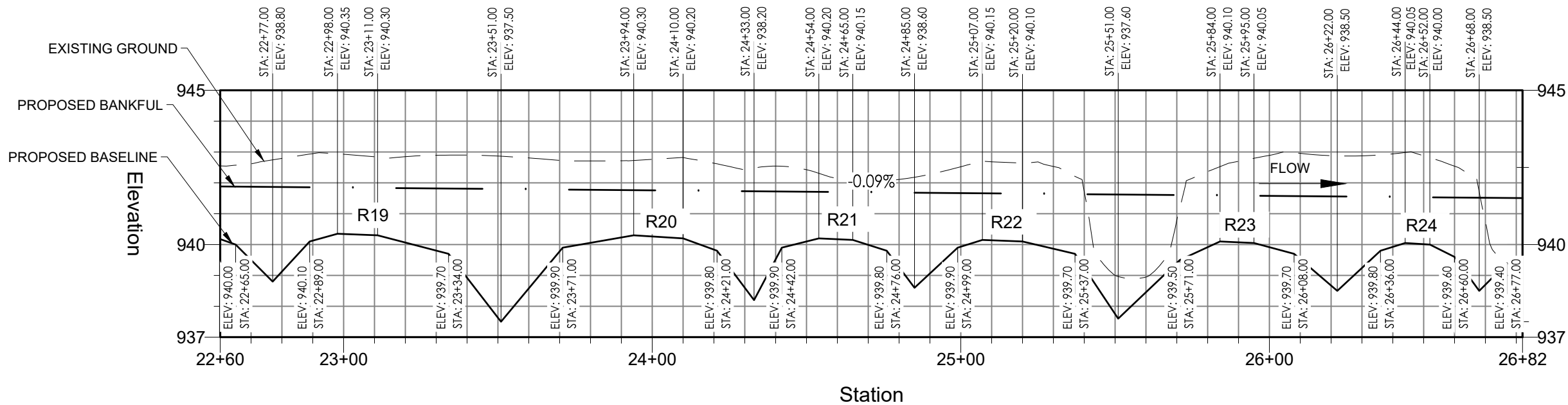
PROFILE
C400

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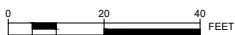
- NOTES:**
1. THE PROPOSED THALWEG AND BANKFULL ELEVATIONS SHALL BE TIED TO THE EXISTING CHANNEL FEATURES AT THE BEGINNING AND ENDING LOCATIONS INDICATED ON THE PROFILE. TRANSITIONS FROM EXISTING GROUND TO PROPOSED CHANNEL FEATURES SHALL BE SMOOTH, ROUNDED, AND EVENLY GRADED.
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 3. THE RIFFLE TYPICAL CROSS-SECTIONS ON SHEETS C600 SHALL BE APPLIED AT LOCATIONS IDENTIFIED ON THE PROFILE AS "BEGIN RIFFLE". THE POOL TYPICAL CROSS-SECTIONS ON SHEETS C600 SHALL BE APPLIED AT LOCATIONS IDENTIFIED ON THE PROFILE AS "MAX POOL" ("MID POOL" STATION ON PLAN SHEETS). ALL OTHER AREAS ARE TRANSITIONING FROM "RIFFLE" TO "POOL" AND/OR "POOL" TO "RIFFLE".
 4. TRANSITIONS BETWEEN RIFFLE AND POOL OR POOL AND RIFFLE TYPICAL CROSS SECTIONS SHALL BE EVENLY GRADED.
 5. SEE SHEET C701 FOR THE COBBLE/GRAVEL RIFFLE WITH WOODY DEBRIS RUN DETAIL. THE PROFILE INDICATES THE EXTENT OF THE GLIDE, RIFFLE, AND RUN MATERIAL. WOODY DEBRIS ARE NOT SHOWN IN THE PROFILE; REFER TO THE DETAIL.

Geometry Point	PT	Riffle (R12)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R13)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R14)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R15)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R16)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R17)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R18)	Run	PC	
STA (ft)	18+49	18+53	18+63	18+65	18+80	18+98	19+12	19+32	19+32	19+50	19+52	19+59	19+74	19+90	19+96	20+00	20+15	20+18	20+26	20+35	20+47	20+52	20+59	20+70	20+72	20+77	20+84	20+91	20+97	20+98	21+18	21+21	21+32	21+47	21+60	21+73	21+77	21+93	22+02	22+05	22+20	22+29	22+38	22+41	22+55	22+58	
Baseline Elevation (ft)		940.75	940.70		940.10	937.70	940.20		940.70	940.60		940.30	939.10	940.30		940.60	940.55		940.20	938.50	940.30		940.55	940.50		940.10	939.00	940.30		940.50	940.45		940.00	938.40	940.20		940.45	940.40		939.90	938.90	940.20		940.40	940.35		
Bankfull Elevation (ft)	942.24	942.24	942.23	942.23	942.21	942.20	942.19	942.17	942.17	942.15	942.15	942.14	942.13	942.12	942.11	942.11	942.09	942.09	942.08	942.08	942.06	942.06		942.05	942.04	942.04	942.04	942.03	942.03	942.02	942.02	942.00	942.00	941.99	941.98	941.96	941.95	941.95	941.93	941.93	941.92	941.91	941.90	941.89	941.89	941.88	941.88

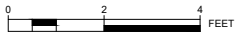


Elevation

HORIZONTAL SCALE



VERTICAL SCALE



Geometry Point	Pool	Pool Max Depth	Glide	PT	Riffle (R19)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R20)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R21)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R22)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R23)	Run	PC	Pool	Pool Max Depth	Glide	PT	Riffle (R24)	Run	PC	Pool	Pool Max Depth	Glide	Start Riffle / EP Tie-in
STA (ft)	22+65	22+77	22+89	22+96	22+98	23+11	23+12	23+34	23+51	23+71	23+91	23+94	24+10	24+14	24+21	24+33	24+42	24+52	24+54	24+65	24+69	24+76	24+85	24+99	25+02	25+07	25+20	25+21	25+37	25+51	25+71	25+81	25+84	25+95	25+99	26+08	26+22	26+36	26+45	26+44	26+52	26+53	26+60	26+68	26+77	26+82
Baseline Elevation (ft)	940.00	938.80	940.10		940.35	940.30		939.70	937.50	939.90		940.30	940.20		939.80	938.20	939.90		940.20	940.15		939.80	938.60	939.90		940.15	940.10		939.70	937.60	939.50		940.10	940.05		939.70	938.50	939.80		940.05	940.00		939.60	938.50	939.40	939.30
Bankfull Elevation (ft)	941.87	941.86	941.85	941.84	941.84	941.83	941.83	941.81	941.79	941.78	941.76	941.76	941.74	941.74	941.73	941.72	941.71	941.70	941.70	941.69	941.69	941.68	941.67	941.66	941.66	941.65	941.64	941.64	941.63	941.62	941.60	941.59	941.59	941.58	941.57	941.56	941.55	941.54	941.53	941.53	941.53	941.52	941.52	941.51	941.50	941.50

Professional Certification:



02/26/2021

DATE

NO.	REVISION	BY	DATE



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De Pere Wisconsin 54115
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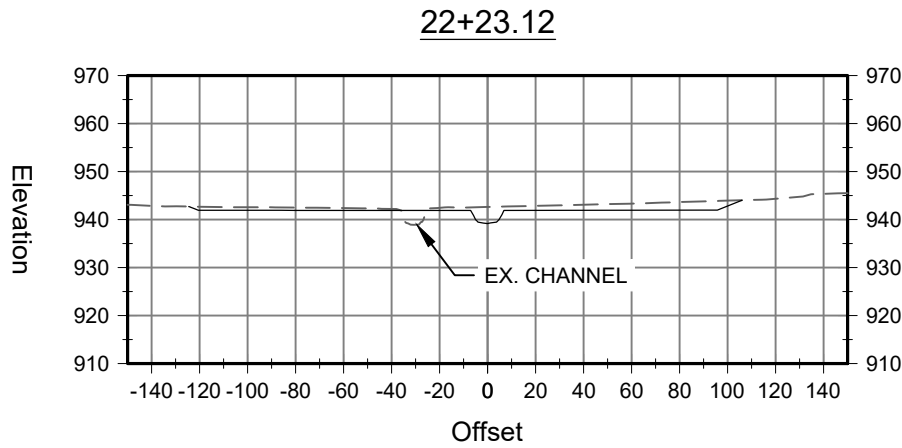
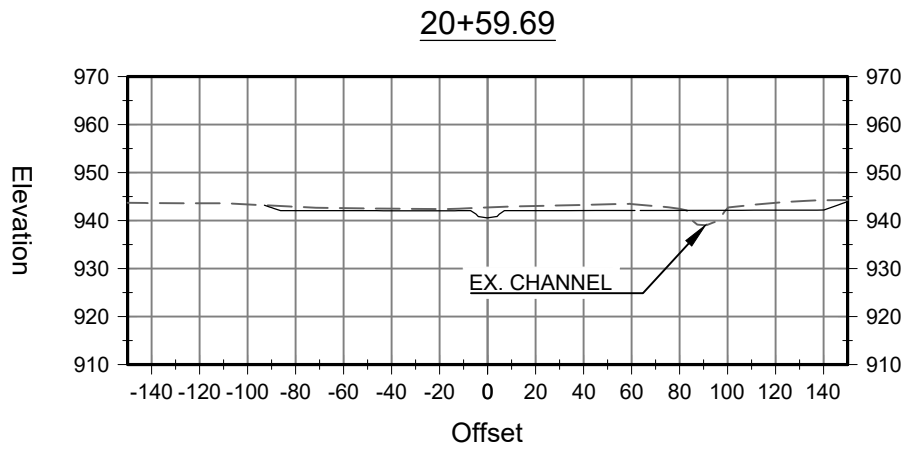
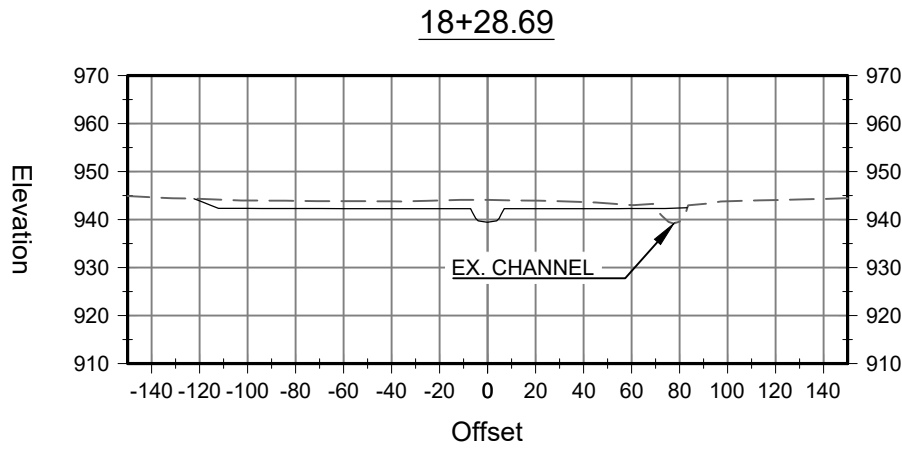
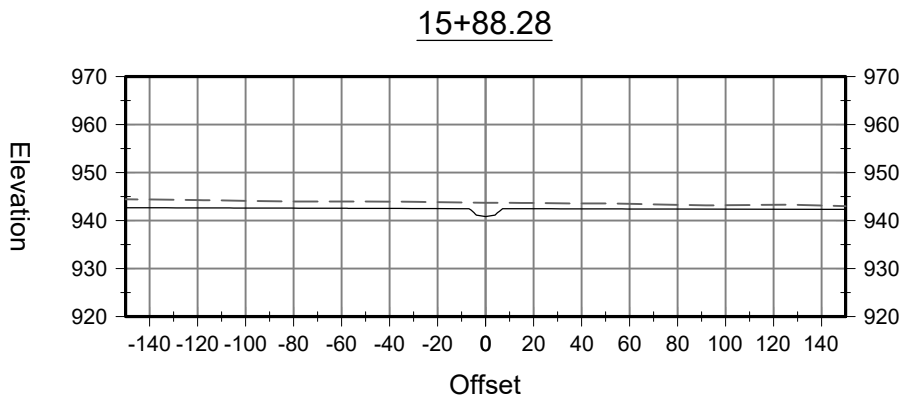
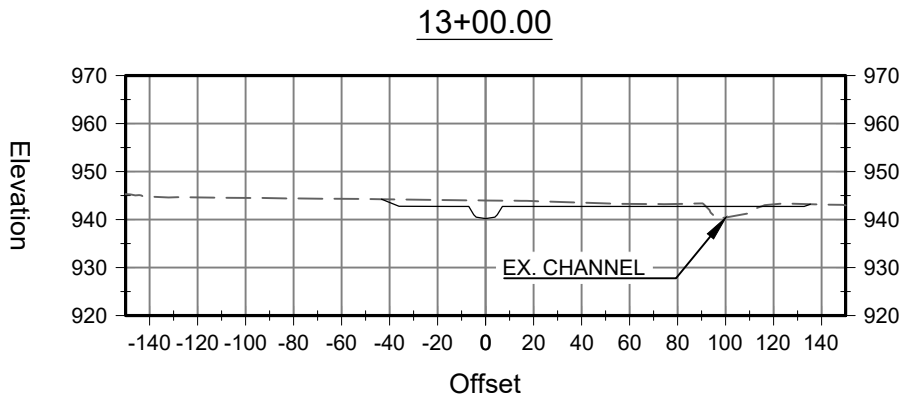
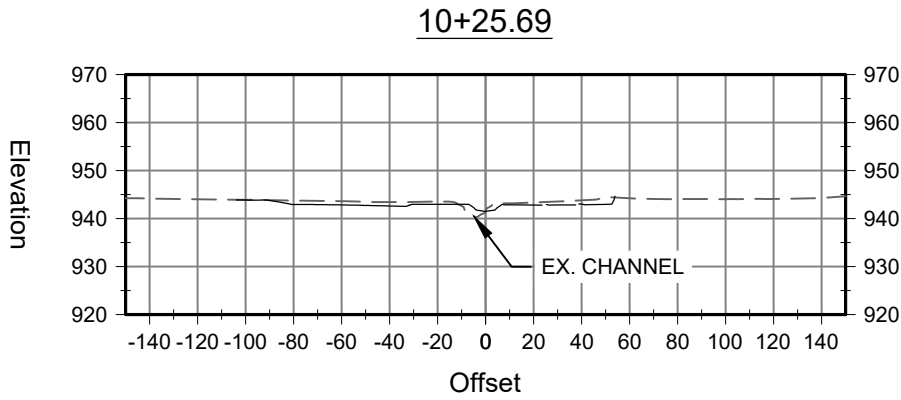
MASON CREEK STREAM RESTORATION
TALL PINES CONSERVATORY

REVISED	APPROVED	DATE	APPROVED	DATE	SCALE:
DATE	BY				DRAWN BY: DD
	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: SDC
	APPROVED	DATE	APPROVED	DATE	SHEET NO. 12 OF 19
	ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		PROJECT NO. 193707448
					DATE: 2/1/2021

DESIGN

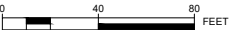
PROFILE
C401

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NOTES:
1. REFER TO PLAN SHEETS C300 - C302 FOR PROPOSED CHANNEL AND FLOODPLAIN GRADING LIMITS.

HORIZONTAL SCALE



VERTICAL SCALE



Professional Certification:



02/26/2021

DATE

NO.	REVISION	BY	DATE



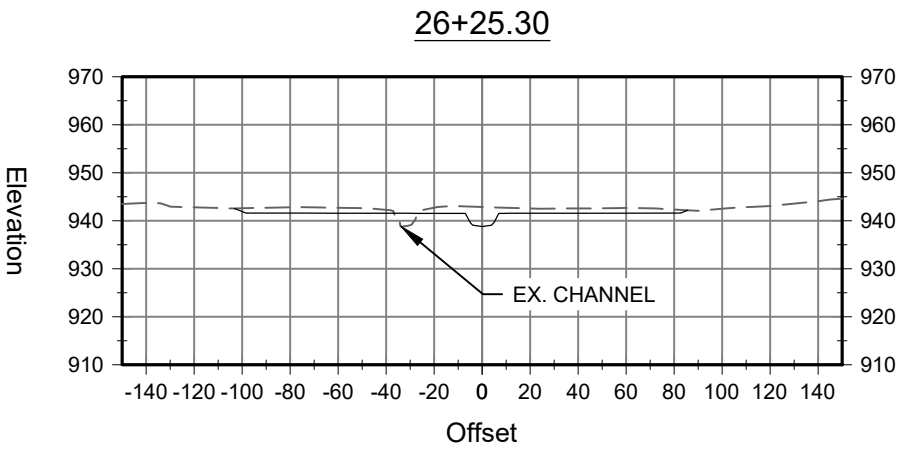
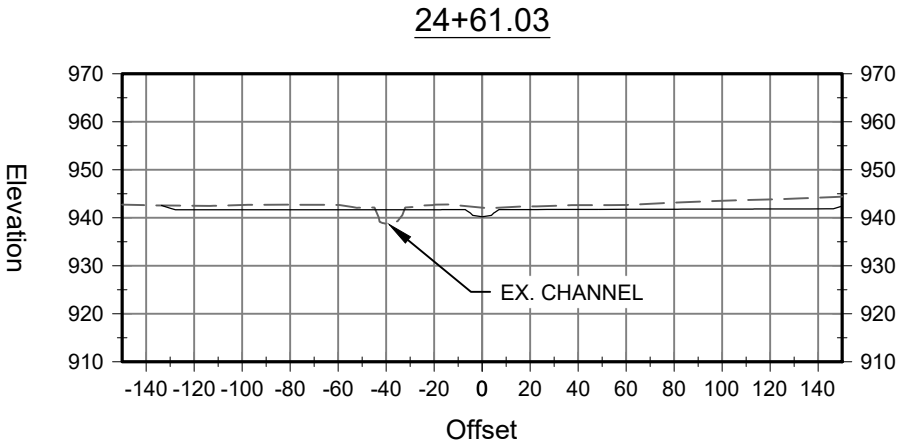
Stantec Consulting Services Inc.
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De Pere Wisconsin 54115
TEL: (920) 592-9400
FAX: (920) 592-9444
www.stantec.com

MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY							
REVISED DATE	BY	APPROVED	DATE	APPROVED	DATE	SCALE:	
						DRAWN BY:	DD
		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY:	SDC
		APPROVED	DATE	APPROVED	DATE	SHEET NO.	13 OF 19
						PROJECT NO.	193707448
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		DATE:	2/1/2021

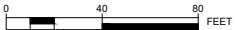
DESIGN

CROSS SECTIONS
C500

NOTES:
1. REFER TO PLAN SHEETS C300 - C302 FOR PROPOSED CHANNEL AND FLOODPLAIN GRADING LIMITS.



HORIZONTAL SCALE



VERTICAL SCALE



Professional Certification:

SEAN D. COLLINS
E-37326-6
DE PERE, WI

02/26/2021
DATE

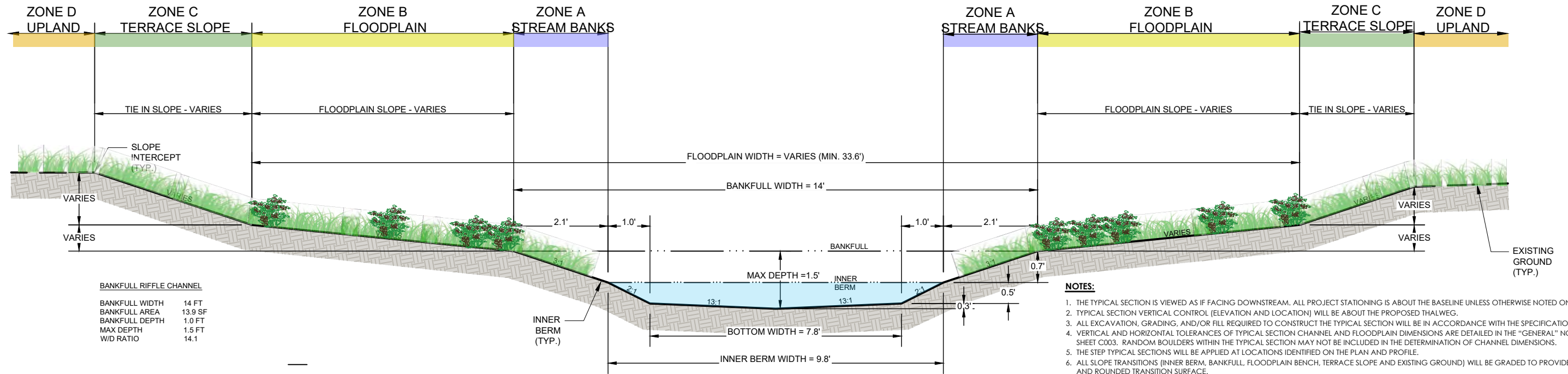
NO.	REVISION	BY	DATE

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De Pere Wisconsin 54115
TEL: (920) 592-8400
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MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY							
REVISED		APPROVED		APPROVED		SCALE:	
DATE	BY	DATE		DATE		DRAWN BY:	DD
			CHIEF ENGINEER		PROJECT MANAGER	CHECKED BY:	SDC
			APPROVED	DATE	APPROVED	DATE	SHEET NO. 14 OF 19
			ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		PROJECT NO. 193707448
						DATE:	2/1/2021

DESIGN

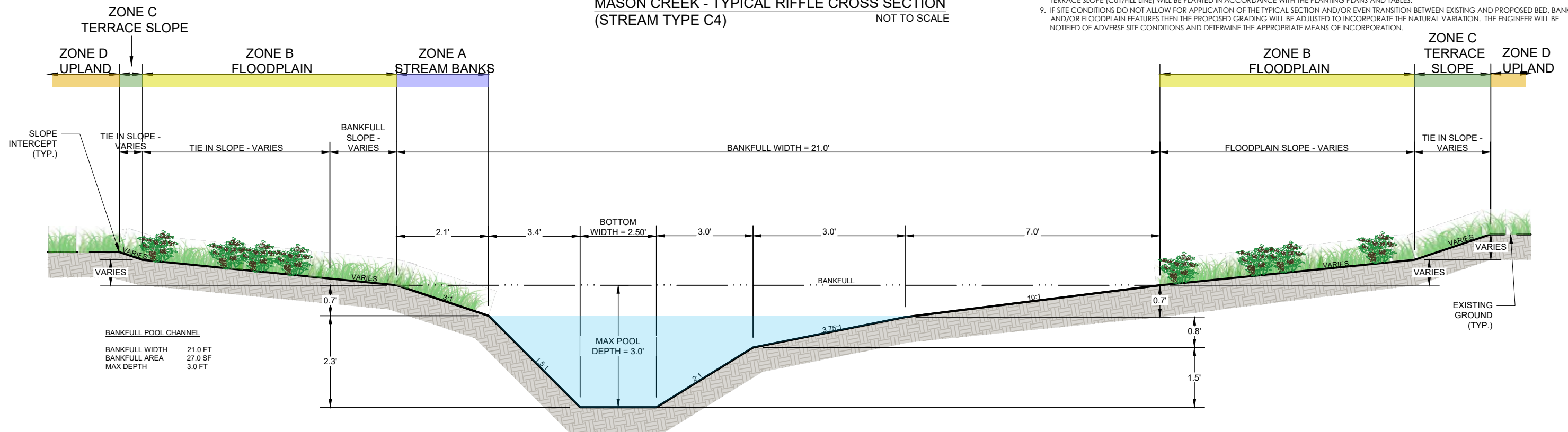
CROSS SECTIONS
C501



BANKFULL RIFFLE CHANNEL	
BANKFULL WIDTH	14 FT
BANKFULL AREA	13.9 SF
BANKFULL DEPTH	1.0 FT
MAX DEPTH	1.5 FT
W/D RATIO	14:1

- NOTES:**
1. THE TYPICAL SECTION IS VIEWED AS IF FACING DOWNSTREAM. ALL PROJECT STATIONING IS ABOUT THE BASELINE UNLESS OTHERWISE NOTED ON THE PLANS.
 2. TYPICAL SECTION VERTICAL CONTROL (ELEVATION AND LOCATION) WILL BE ABOUT THE PROPOSED THALWEG.
 3. ALL EXCAVATION, GRADING, AND/OR FILL REQUIRED TO CONSTRUCT THE TYPICAL SECTION WILL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 4. VERTICAL AND HORIZONTAL TOLERANCES OF TYPICAL SECTION CHANNEL AND FLOODPLAIN DIMENSIONS ARE DETAILED IN THE "GENERAL" NOTES ON SHEET C003. RANDOM BOULDERS WITHIN THE TYPICAL SECTION MAY NOT BE INCLUDED IN THE DETERMINATION OF CHANNEL DIMENSIONS.
 5. THE STEP TYPICAL SECTIONS WILL BE APPLIED AT LOCATIONS IDENTIFIED ON THE PLAN AND PROFILE.
 6. ALL SLOPE TRANSITIONS (INNER BERM, BANKFULL, FLOODPLAIN BENCH, TERRACE SLOPE AND EXISTING GROUND) WILL BE GRADED TO PROVIDE A SMOOTH AND ROUNDED TRANSITION SURFACE.
 7. TYPICAL SECTION DEPICTS PLANTING OF VEGETATION IN ACCORDANCE WITH THE PLANTING PLANS AND TABLES.
 8. THE CONTRACTOR WILL MINIMIZE LIMITS OF DISTURBANCE AND PROTECT EXISTING VEGETATION BEYOND CUT/FILL LIMITS. DISTURBED AREAS BEYOND TERRACE SLOPE (CUT/FILL LINE) WILL BE PLANTED IN ACCORDANCE WITH THE PLANTING PLANS AND TABLES.
 9. IF SITE CONDITIONS DO NOT ALLOW FOR APPLICATION OF THE TYPICAL SECTION AND/OR EVEN TRANSITION BETWEEN EXISTING AND PROPOSED BED, BANK, AND/OR FLOODPLAIN FEATURES THEN THE PROPOSED GRADING WILL BE ADJUSTED TO INCORPORATE THE NATURAL VARIATION. THE ENGINEER WILL BE NOTIFIED OF ADVERSE SITE CONDITIONS AND DETERMINE THE APPROPRIATE MEANS OF INCORPORATION.

MASON CREEK - TYPICAL RIFFLE CROSS SECTION
(STREAM TYPE C4)
NOT TO SCALE



BANKFULL POOL CHANNEL	
BANKFULL WIDTH	21.0 FT
BANKFULL AREA	27.0 SF
MAX DEPTH	3.0 FT

MASON CREEK - TYPICAL POOL CROSS SECTION
(STREAM TYPE C4)
NOT TO SCALE



02/26/2021

DATE

NO.	REVISION	BY	DATE



MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY							
REVISED DATE	BY	APPROVED	DATE	APPROVED	DATE	SCALE:	
						DRAWN BY:	DD
		CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY:	SDC
		APPROVED	DATE	APPROVED	DATE	SHEET NO.	15 OF 19
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		PROJECT NO.	193707448
						DATE:	2/1/2021

DESIGN
TYPICAL SECTION & PLANTING PLANS
C600

PLANTING GENERAL NOTES

1. PLANT MATERIALS SHALL BE INSTALLED ON THIS PROJECT USING A VARIETY OF METHODS, ALONE AND IN COMBINATION, AS SPECIFIED. METHODS ARE:

1.A. SEEDING - COVER CROP, NATIVE GRASSES

1.B. BAREROOT - SHRUB

1.C. TRANSPLANTS / SOD MATS

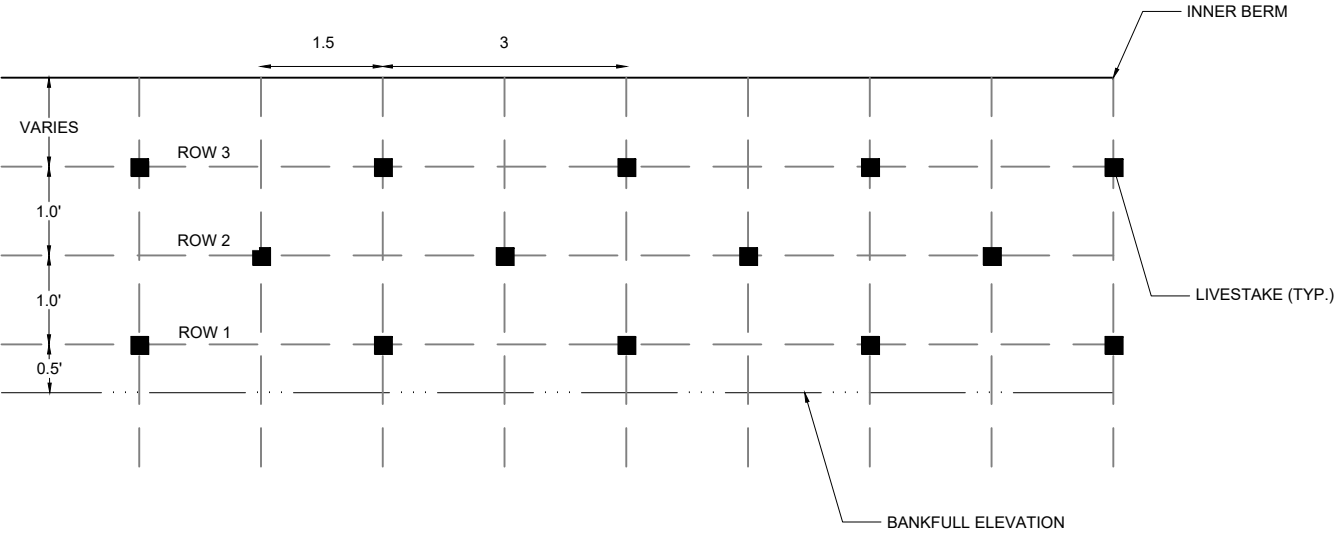
1.D. LIVE STAKING
2. LOCATIONS AND CORRESPONDING METHODS ARE:

2.A. PLANTING ZONE A (STREAM BANK) - COVER CROP, NATIVE GRASSES TRANSPLANTS / SOD MATS, AND LIVE STAKES

2.B. PLANTING ZONE B (FLOODPLAIN BENCH) (DEPRESSION) - COVER CROP, NATIVE GRASSES, BAREROOT SHRUBS

2.C. PLANTING ZONE C (TERRACE SLOPE) - COVER CROP, NATIVE GRASSES, BAREROOT SHRUBS

2.D. PLANTING ZONE E (UPLAND PRAIRIE) - COVER CROP, NATIVE GRASSES
3. ALL INFORMATION FOR PLANTING THIS SITE IS NOT NECESSARILY INCLUDED IN THIS PLAN SHEET SET. ADDITIONAL INFORMATION IS CONTAINED IN THE PROJECT TECHNICAL SPECIFICATIONS AND OTHER APPLICABLE CONSTRUCTION DOCUMENTS.
4. SEE SEPARATE TABLES FOR PLANT SPECIES NAME(S), SIZE, TYPE, AND/OR APPLICATION RATE FOR EACH INSTALLATION METHOD.
5. DEPENDING UPON LOCAL AVAILABILITY AND COST, SPECIES SUBSTITUTIONS MAY BE ACCEPTABLE. ALL SUBSTITUTIONS (INCLUDING PRE-PACKAGED SEED MIXES) SHALL BE SUBMITTED TO THE OWNER AT LEAST TWO WEEKS PRIOR TO INSTALLATION FOR APPROVAL.
6. LABELS SHALL BE ATTACHED SECURELY TO ALL PLANTING MATERIALS (SEED, DORMANT CUTTINGS, FERTILIZER, ETC.). LABELS SHALL BE DURABLE, LEGIBLE, USE WEATHER-RESISTANT INK OR OTHER RESILIENT LETTERING, SO THE OWNER MAY DETERMINE THAT ALL MATERIALS CONFORM TO THE SPECIFICATIONS (SIZE, SPECIES, ORIGIN, ETC.)
7. THE BEST SOURCE OF PLANT MATERIAL IS FROM THE AREA LOCAL TO THE PROJECT. PLANT MATERIALS MAY BE HARVESTED FROM LOCAL SITES (WITH APPROVAL FROM THE OWNER) OR OBTAINED FROM COMMERCIAL NURSERIES. IF MATERIALS ARE HARVESTED BY THE CONTRACTOR, POSITIVE IDENTIFICATION OF THE SPECIES MUST BE MADE/DOCUMENTED AND PERMISSION FROM THE HARVEST SITE PROPERTY OWNER MUST BE OBTAINED BY THE CONTRACTOR AND DOCUMENTED TO THE OWNER, IN WRITING.
8. ALL PLANT MATERIALS SHALL BE HANDLED WITH CARE AT ALL TIMES INCLUDING DURING HARVESTING, PACKING, DELIVERY, UNLOADING, HANDLING, AND INSTALLATION, AND PROTECTED FROM DISTURBANCE FROM ON-GOING CONSTRUCTION ACTIVITIES AFTER INSTALLATION (WITH FLAGGING, FENCING, ETC., AS NECESSARY).
9. A TWO-YEAR WARRANTY PERIOD BEGINNING UPON COMPLETION OF THE PROJECT IS REQUIRED ON ALL PLANTINGS.
10. PLANTING SCHEMATICS FOR SHRUBS AND LIVE STAKES DEPICT PLATING ORIENTATION OF ONE CHANNEL BANK AND SHOULD BE FLIPPED FOR APPLICATION ON THE OPPOSITE BANK.

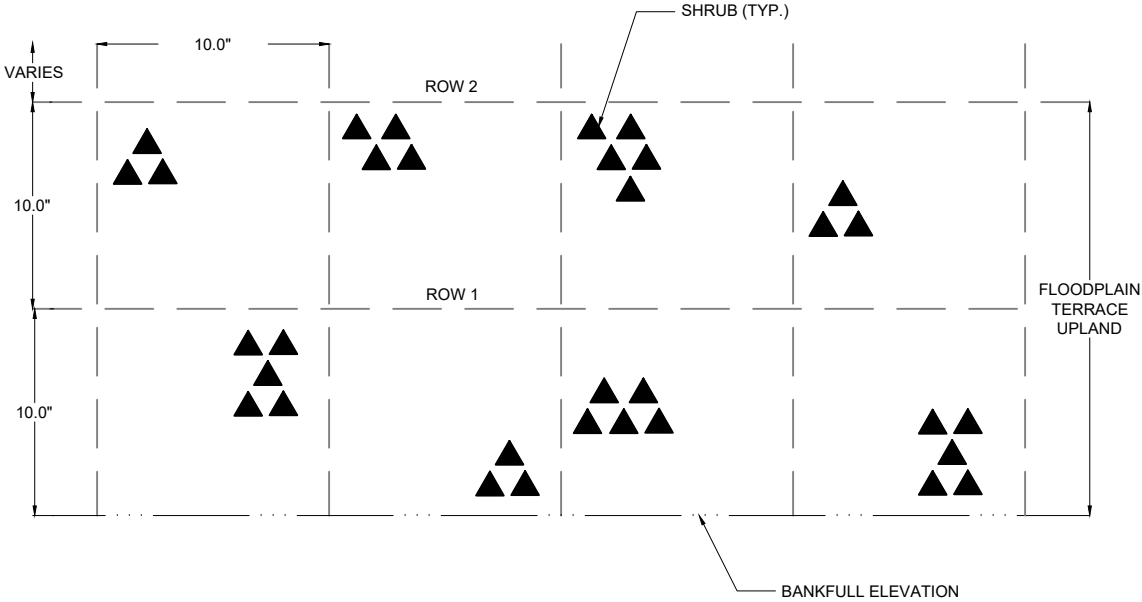


NOTES

1. NO LIVE STAKES ON THE INSIDE OF MEANDER BEN (POINT BAR) "C" STREAM TYPES.
2. SEE TABLE 4 SHEET C602

LIVE STAKE PLANTING SCHEMATIC

NOT TO SCALE

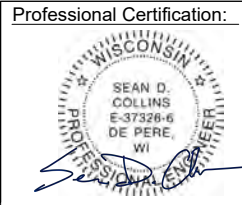


NOTES

1. IF DISTURBED AREA/GRADING LIMITS EXTENDS BEYOND THE 2ND ROW CONTINUE TO INSTALL SHRUBS IN RANDOM CLUSTERS OF 3-5 (AVG. OF 4).
2. ALL PLANTS IN A SHRUB CLUSTER SHALL BE OF THE SAME SPECIES.
3. SEE TABLE 5 SHEET C602.

BAREROOT SHRUB PLANTING SCHEMATIC

NOT TO SCALE



02/26/2021

DATE

NO.	REVISION	BY	DATE



MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY									
REVISED		APPROVED		DATE		APPROVED		DATE	
DATE	BY	DATE		DATE		DATE		DATE	
		CHIEF ENGINEER				PROJECT MANAGER			
		APPROVED		DATE		APPROVED		DATE	
		ENGINEER ADMINISTRATOR				CHIEF, RIGHT OF WAY			
SCALE:		DRAWN BY:		DD		CHECKED BY:		SDC	
SHEET NO.		16		OF 19		PROJECT NO.		193707448	
DATE:		2/1/2021							

DESIGN

PLANTING NOTES
C601

TABLE 1 – Zone A, B, C, D - COVER CROP AND/OR TEMPORARY EROSION CONTROL SEED MIXTURE ^{1, 2}

SCIENTIFIC NAME	COMMON NAME	SEEDING RATE (PLS ³)	PERCENT	SEASON
AVENA SATIVA	COMMON OATS ⁴	38 LBS/AC 19 LBS/AC AS A COVER CROP	86	LATE SPRING - EARLY FALL (APRIL 15 THRU NOVEMBER 15)
LOLIUM MULTIFORUM	ANNUAL RYE	6 LBS / AC 3 LBS/AC AS A COVER CROP	14	

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.
- CONTRACTOR SHALL SUBSTITUTE WINTER WHEAT BETWEEN NOVEMBER 15 AND APRIL 15 AT A RATE OF 40 LBS/AC FOR SEEDING AND 15 LBS/AC AS A COVER CROP.

TABLE 2 – ZONE A, B & WET AREAS - NATIVE GRASS SEED MIXTURE ¹

SCIENTIFIC NAME	COMMON NAME	PHYSIOLOGY	SEEDING RATE (PLS ³)
BROMUS CILIATUS	FRINGED BROME	GRASS	VARIABLES ^{5,6}
CALAMAGROSTIS CANADENSIS	BLUE-JOINT GRASS	GRASS	VARIABLES ^{5,6}
CAREX BLANDA	COMMON WOOD SEDGE	SEDGE	VARIABLES ^{5,6}
CAREX CRISTATELLA	CRESTED OVAL SEDGE	SEDGE	VARIABLES ^{5,6}
CAREX GRANULARIS	PALE SEDGE	SEDGE	VARIABLES ^{5,6}
CAREX LACUSTRIS	COMMON LAKE SEDGE	SEDGE	VARIABLES ^{5,6}
CAREX LUPULINA	COMMON HOP SEDGE	SEDGE	VARIABLES ^{5,6}
CAREX STRICTA	COMMON TUSsock SEDGE	SEDGE	VARIABLES ^{5,6}
CAREX VULPINOIDEA	BROWN FOX SEDGE	SEDGE	VARIABLES ^{5,6}
ELYMUS CANADENSIS	CANADA WILD RYE	GRASS	VARIABLES ^{4,6}
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	GRASS	VARIABLES ^{4,6}
GLYCERIA STRIATA	FOWL MANNA GRASS	GRASS	VARIABLES ^{5,6}
PANICUM VIRGATUM	SWITCH GRASS	GRASS	VARIABLES ^{5,6}
SCHENOPECTUS ACUTUS	HARDSTEM BULRUSH	SEDGE	VARIABLES ^{5,6}
SCIRPUS ATROVIRENS	DARK GREEN RUSH	SEDGE	VARIABLES ^{5,6}
SCIRPUS CYPERINUS	WOOL GRASS	SEDGE	VARIABLES ^{5,6}
SORGHASTRUM NUTANS	INDIAN GRASS	GRASS	VARIABLES ^{4,6}
SPARTINA PECTINATA	CORD GRASS	GRASS	VARIABLES ^{5,6}

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.
- SEED MIXES SHALL INCLUDE NO MORE THAN 20% WILD RYE SPECIES. MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 2/3 OF ANY SINGLE WILD RYE SPECIES.
- SEED MIXES SHALL INCLUDE AT LEAST 3 SEDGES AND 3 GRASS SPECIES.
- MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 15% OF ANY ONE SPECIES.
- APPLY SEED MIX AT A RATE OF 10 LB/AC.

TABLE 3 – ZONE C, D - NATIVE GRASS SEED MIXTURE ^{1, 2}

SCIENTIFIC NAME	COMMON NAME	PHYSIOLOGY	SEEDING RATE (PLS ³)
ASCLEPIAS INCARNATA	SWAMP MILKWEED	FORB	VARIABLES ^{4,5,6}
EUPATORIUM PERFOLIATUM	BONESET	FORB	VARIABLES ^{4,5,6}
EUTROCHUM MACULATUM	JOE-PYE-WEED	FORB	VARIABLES ^{4,5,6}
IRIS VIRGINICA	BLUE FLAG	FORB	VARIABLES ^{4,5,6}
MONARDA FISTULOSA	WILD-BERGAMOT	FORB	VARIABLES ^{4,5,6}
RUDBECKIA HIRTA	BLACK-EYED SUSAN	FORB	VARIABLES ^{4,5,6}
SOLIDAGO GIGANTEA	LATE GOLDENROD	FORB	VARIABLES ^{4,5,6}
SOLIDAGO RIDDELLII	RIDDELLI GOLDENROD	FORB	VARIABLES ^{4,5,6}
THALICTRUM DASycARPUM	PURPLE MEADOW-RUE	FORB	VARIABLES ^{4,5,6}
CALAMAGROSTIS CANADENSIS	BLUE-JOINT GRASS	GRASS	VARIABLES ^{4,5,6}
ELYMUS CANADENSIS	CANADA WILD RYE	GRASS	VARIABLES ^{4,5,6}
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	GRASS	VARIABLES ^{4,5,6}
PANICUM VIRGATUM	SWITCH GRASS	GRASS	VARIABLES ^{4,5,6}

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- PLS - PURE LIVE SEED.
- SEED MIXES SHALL INCLUDE AT LEAST 3 FORBS AND 3 GRASSES SPECIES.
- MAINTAIN SPECIES DIVERSITY BY USING NO MORE THAN 20% OF ANY SINGLE SPECIES IN THE TOTAL SEED MIX.
- APPLY SEED MIX AT A RATE OF 6 LB/AC.

TABLE 4 – ZONE A - SPECIES FOR DORMANT WOODY CUTTINGS ^{1, 2}

SCIENTIFIC NAME	COMMON NAME	SIZE (INCHES)	SPACING ³
SALIX COTTETII	BANKERS WILLOW	LENGTH 24-36, DIA. ¾" – 1½"	STAGGERED WITH 1 STAKE PER 3 LINEAR FEET OF STREAM BANK IN 3 ROWS SPACED 1 FOOT APART. THE FIRST ROW IS ALONG THE TOP OF BANK (BANKFULL) AND THE NEXT 2 ARE BELOW BANKFULL BETWEEN THE TOP OF BANK AND THE INNER BERM. PLANT ON CASCADE AND POOLS WITHIN THE TOE WOOD.
SALIX EXIGUA	SANDBAR WILLOW	LENGTH 24-36, DIA. ¾" – 1½"	
SAMBUCUS CANADENSIS	ELDERBERRY	LENGTH 24-36, DIA. ¾" – 1½"	
VIBURNUM OPOLUS (TRILOBUM)	HIGH BUSH CRANBERRY	LENGTH 24-36, DIA. ¾" – 1½"	
CORNUS STOLONIFERA	RED-OSIER DOGWOOD	LENGTH 24-36, DIA. ¾" – 1½"	
CORNUS AMOMIUM	SILKY DOGWOOD	LENGTH 24-36, DIA. ¾" – 1½"	

NOTES

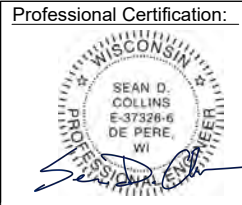
- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- MAINTAIN SPECIES DIVERSITY BY USING AT LEAST FOUR (4) SPECIES WITH NO MORE THAN 25% OF ANY ONE (1) SPECIES.
- THE QUANTITY OF LIVE STAKES BELOW THE TOP OF BANK (BANKFULL) MAY BE REDUCED WITHIN THE TOE WOOD APPLICATION BASED ON THE DENSITY OF TRANSPLANT MATERIAL.

TABLE 5 – ZONE B AND C - SHRUB ¹

SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING ²
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	18" – 24"	WITHIN SHRUB GROUPS SPACING TO BE 3'-5' APRART. SHRUBS GROUPS SPACED 15' – 20' APRAT.
CORNUS AMOMIUM	SILKY DOGWOOD	18" – 24"	
CORNUS FOEMINA	GRAY DOGWOOD	18" – 24"	
CORNUS SERICEA	RED-OSIER DOGWOOD	18" – 24"	
SAMBUCUS CANADENSIS	ELDERBERRY	18" – 24"	
VIBURNUM LENTAGO	NANNY BERRY	18" – 24"	
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	18" – 24"	
CORNUS AMOMIUM	SILKY DOGWOOD	18" – 24"	
CORNUS FOEMINA	GRAY DOGWOOD	18" – 24"	

NOTES

- CONTRACTOR MAY SELECT OTHER SPECIES THAT MUST BE APPROVED BY THE OWNER: SELECT SPECIES SUITABLE FOR SOIL CONDITIONS PER TESTING AS DESCRIBED IN SEED BED/SOIL PREPARATION NOTES.
- SHRUBS OF THE SAME SPECIES TO BE PLANTED IN GROUPS OF 3 TO 5. CONTRACTOR SHALL INSTALL AN AVERAGE OF 4 OR MORE SHRUBS PER GROUP



02/26/2021

DATE

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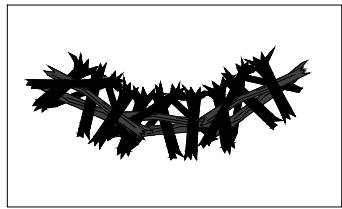
Stantec

Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere Wisconsin 54115
TEL: (920) 592-9400
FAX: (920) 592-9444
www.stantec.com

MASON CREEK STREAM RESTORATION								
TALL PINES CONSERVATORY								
REVISED		APPROVED	DATE	APPROVED	DATE	SCALE:		DESIGN
DATE	BY					DRAWN BY:	DD	
		CHIEF ENGINEER	PROJECT MANAGER	CHECKED BY:	SDC	PLANTING TABLES C602		
		APPROVED	DATE	APPROVED	DATE			
				SHEET NO.	17 OF 19			
				PROJECT NO.	193707448			
		ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY	DATE:	2/1/2021		

DESIGN

PLANTING TABLES
C602



PLAN - SYMBOL

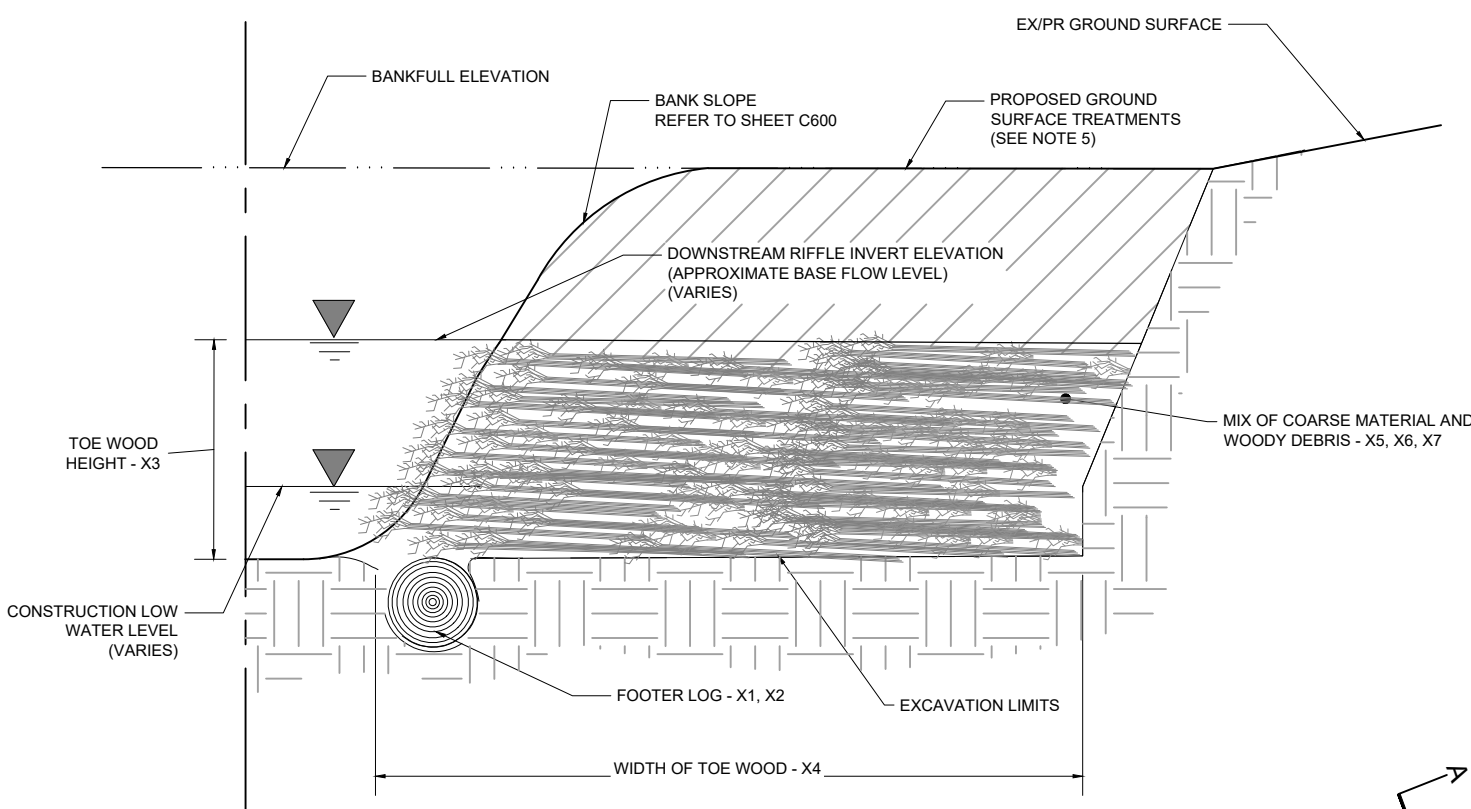
NOTES:

1. DETAIL TYPICAL SECTIONS ARE VIEWED FACING DOWNSTREAM AND APPLICATION OF THE POOL TYPICAL SECTION SHALL BE REVERSED AS NEEDED DEPENDING ON THE STREAM AND THE DIRECTION OF THE BEND IN THE STREAM.
2. APPLICABLE REFERENCES:

C100 AND C101 - OVERVIEW AND HORIZONTAL DATA

C300 THRU C302 - PLAN SHEETS

C600 - TYPICAL POOL SECTIONS
3. WOODY MATERIAL OF APPROPRIATE SIZE CONSISTING OF LOGS, TRUNKS, LIMBS, BRANCHES, AND SMALLER WOODY DEBRIS INCLUDING TOPS OR SLASH ON-SITE WOODY MATERIAL IS PREFERRED.
4. WOODY DEBRIS SHOULD BE GREEN OR RELATIVELY GREEN AND MAY CONSISTS OF HARDWOODS, CONIFERS, OR A COMBINATION OF BOTH.
5. ON TOP OF THE INSTALLED TOE WOOD THE CONTACTOR MAY CONSTRUCT / INSTALL A VARIETY OF GROUND SURFACE TREATMENTS TO COMPLETE THE BANK SURFACE FROM INNER BERM TO BANKFULL (TOP OF BANK). THE PROPOSED TREATMENTS SHALL CLOSELY MATCH THE PROPOSED SLOPE OF THE TYPICAL POOL SECTION.
6. THE PREFERRED SURFACE TREATMENT IS VEGETATED SOD MATS TAKEN FROM THE ADJACENT FLOODPLAIN. SOD MAT SHALL CONSIST OF SURFACE VEGETATION (GRASSES, FORBS, SHRUBS, SMALL TREES) AND THE UNDERLYING SOIL LAYER. MINIMUM IS TYPICALLY 1' OF SOIL, HOWEVER IF ROOT STRUCTURE EXTENDS DEEPER THAN 1' THEN THE MAT THICKNESS SHALL BE INCREASED. MATS SHALL BE 3'-6' IN LENGTH AND 1.5' - 3' IN WIDTH; AVOID SQUARE MATS.
7. COIR WRAPPED SOIL LIFTS AND/OR COMPACTED SOIL WITH SURFACE APPLIED MULCH /EROSION CONTROL FABRIC MAY BE USED IN LIEU OF SOD MATS PENDING APPROVAL BY THE ENGINEER. THE CONTRACTOR SHALL REQUEST CHANGES IN WRITING WITH 2 WEEKS FOR APPROVAL BY ENGINEER AND OWNER.
8. CONSTRUCTION LOW WATER LEVEL VARIES



SECTION A-A'

TOE WOOD DIMENSIONS			
VARIABLE	PR MASON CREEK	TYPICAL UNIT	DESCRIPTION
X1	6.0 - 10.0	IN.	FOOTER LOG DIAMETER
X2	8.0 - 12.0	FT.	FOOTER LOG LENGTH
X3	1.0 -2.3	FT.	TOE WOOD HEIGHT
X4	6.0 - 8.0	FT.	TOE WOOD WIDTH
X5	0.5 - 3.0	IN.	WOODY DEBRIS DIAMETER
X6	8.0 - 12.0	FT.	WOODY DEBRIS LENGTH
X7	15 - 20	%	SELECT COARSE MATERIAL BACKFILL (BY VOLUME)
X8	100	%	COARSE MATERIAL (3" MINUS)

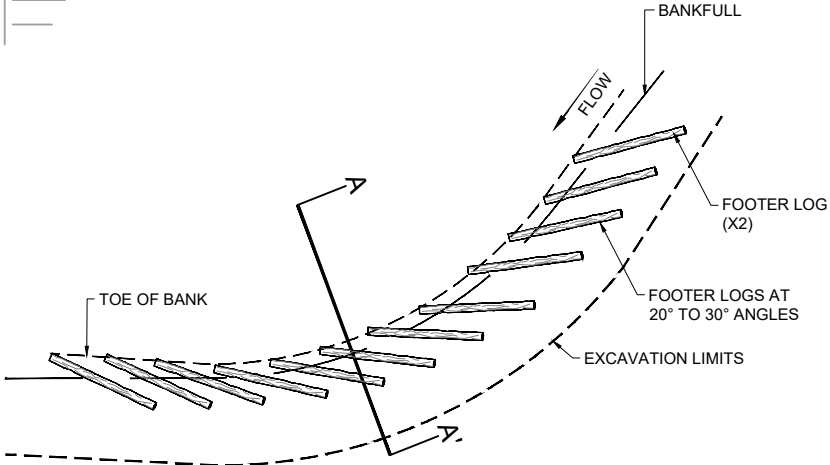


LEGEND

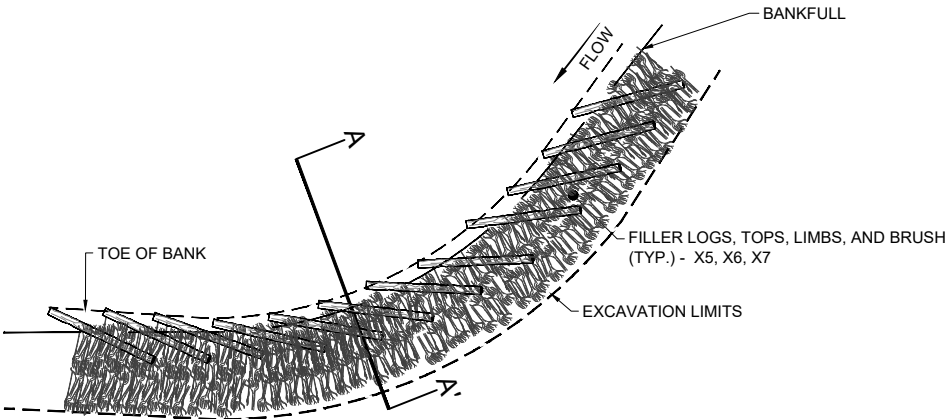
IN SITU MATERIAL

MIX OF COARSE MATERIAL AND WOODY DEBRIS

FOOTER LOG



PLAN VIEW AT CONSTRUCTION LOW WATER ELEVATION



PLAN VIEW AT BASE FLOW ELEVATION

DETAIL - TOEWOOD

Professional Certification:

02/26/2021

DATE

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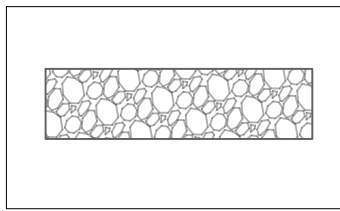
MASON CREEK STREAM RESTORATION TALL PINES CONSERVATORY			
REVISED	DATE	APPROVED	DATE
DATE	BY		
		CHIEF ENGINEER	
		APPROVED	DATE
		ENGINEER ADMINISTRATOR	
		APPROVED	DATE
		PROJECT MANAGER	
		APPROVED	DATE
		CHIEF, RIGHT OF WAY	

SCALE:
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CHECKED BY: SDC
SHEET NO. 18 OF 19
PROJECT NO. 193707448
DATE: 2/1/2021

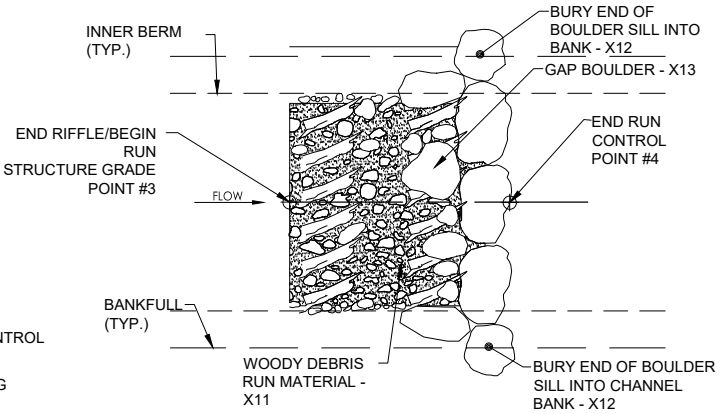
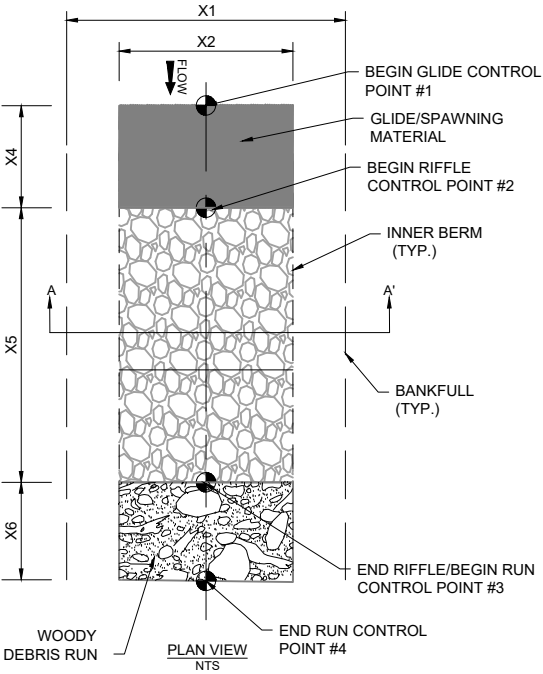
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DETAILS
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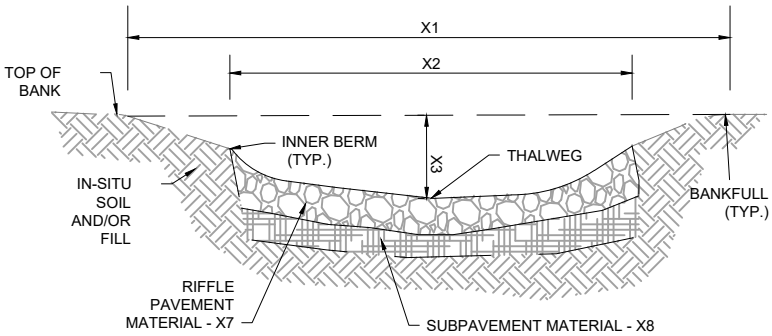


PLAN - SYMBOL

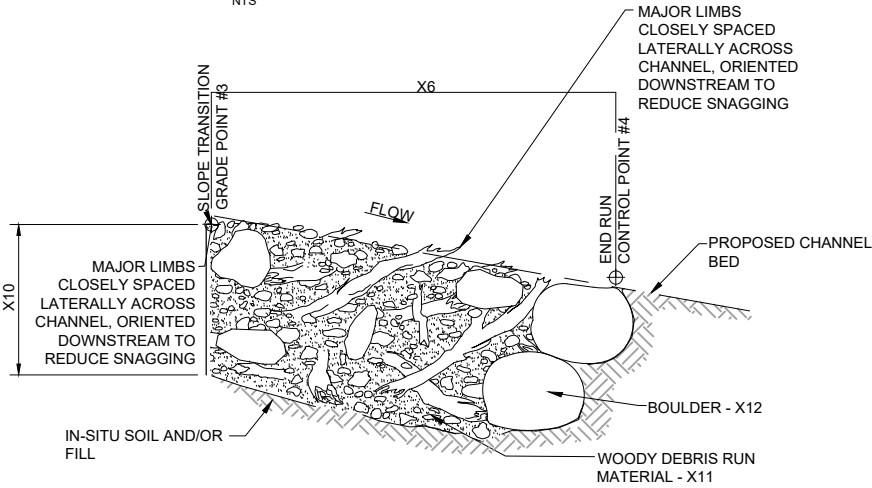


WOODY DEBRIS RUN - BOULDER PLAN VIEW

NOT TO SCALE



SECTION A-A' NTS



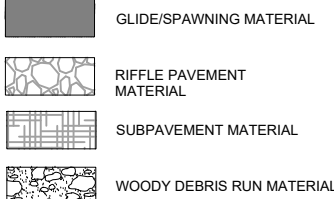
WOODY DEBRIS RUN - BOULDER PROFILE

NOT TO SCALE

NOTES:

1. COBBLE / GRAVEL RIFFLES WITH WOODY DEBRIS RUN SHALL BE CONSTRUCTED AT THE LOCATIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE TYPICAL SECTIONS, THE DETAIL, DIMENSION TABLE, AND SPECIFICATION.
2. THE LOCATION AND ELEVATION OF PROPOSED COBBLE / GRAVEL RIFFLES WITH WOODY DEBRIS RUN MAY BE FIELD ADJUSTED BY THE ENGINEER BASED ON SITE CONDITIONS (EXISTING / PROPOSED CULVERTS, UTILITIES, BEDROCK, LANDSCAPE WALLS, TREES, ETC.) ENCOUNTERED IN THE FIELD DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
3. COBBLE / GRAVEL RIFFLES WITH WOODY DEBRIS RUN TRANSITIONS TO ADJACENT GROUND SURFACES SHALL BE SMOOTH, EVENLY GRADED, AND ROUNDED.
4. WOODY DEBRIS WILL CONSIST OF A COMBINATION OF HARDWOOD AND CONIFER BRANCHES, LIMBS, AND TOPS MEETING THE SPECIFICATION SIZE REQUIREMENTS. WOODY DEBRIS SHOULD BE HARD, DENSE, AND FREE OF ROT.
5. RIP RAP, BEDDING STONE, CRUSHER RUN, AND/OR WOODY MATERIAL SHALL BE MECHANICALLY MIXED, PER THE PERCENTAGES SHOWN IN THE DIMENSION TABLE, WITH A LOADER, EXCAVATOR, OR OTHER EQUIPMENT IN ORDER TO CREATE A RANDOM AND WELL GRADED MIX.

LEGEND



COBBLE/GRAVEL RIFFLE DIMENSIONS			
VARIABLE	REACH	TYPICAL UNIT	DESCRIPTION
X1	14.0	FT.	RIFFLE BANKFULL WIDTH
X2	9.8	FT.	RIFFLE INNER BERM WIDTH
X3	1.5	FT.	RIFFLE BANKFULL MAX DEPTH
X4	VARIES	FT.	GLIDE LENGTH
X5	VARIES	FT.	RIFFLE LENGTH
X6	VARIES	FT.	RUN LENGTH
X7	COBBLE	N/A	RIFFLE PAVEMENT MATERIAL CATEGORY
X7	3.0	IN.	RIFFLE PAVEMENT MATERIAL - D50
X7	12.0	IN.	RIFFLE PAVEMENT - THICKNESS
X7	70 % - 75% 12" RIP RAP 20 % - 25% 3" MINUS 5% - 10% ABC	%	RIFFLE PAVEMENT MATERIAL COMPOSITION (BY VOLUME)
N/A	1.0 - 3.0	IN.	WOODY DEBRIS - DIAMETER
N/A	4.0 - 6.0	IN.	WOODY DEBRIS - LENGTH
X8	GRAVEL	N/A	SUBPAVEMENT MATERIAL CATEGORY
X8	0.75	IN.	SUBPAVEMENT MATERIAL - D50
X8	6.0 (MIN)	IN.	SUBPAVEMENT MATERIAL - THICKNESS
X8	100 % ABC	%	SUBPAVEMENT MATERIAL COMPOSITION (BY VOLUME)
X9	3/8 - 3/4 (ROUNDED)	IN.	GLIDE SPAWNING GRAVEL MATERIAL - USFWS STONE
X9	12.0	IN.	GLIDE SPAWNING GRAVEL MATERIAL - THICKNESS
X10	18.0	IN.	WOODY DEBRIS RUN MATERIAL - THICKNESS
X11	<5% (MAX) - 24" RIP RAP 65% - 70% - 8" RIP RAP 20% - 25% - 3" MINUS 5% - 10% - ABC 5% - 10 % - WOODY DEBRIS	%	WOODY DEBRIS RUN MATERIAL COMPOSITION (BY VOLUME)
X12	15 - 18 (L) 9 - 12 (W) 6 - 9 (H)	IN.	BOULDER (LENGTH, WIDTH, HEIGHT)
X13	12 - 15 (L) 9 - 12 (W) 6 - 9 (H)	IN.	GAP BOULDER (LENGTH, WIDTH, HEIGHT)

DETAIL - COBBLE/GRAVEL RIFFLE WITH WOODY DEBRIS RUN

Professional Certification:



02/26/2021

DATE

NO.	REVISION	BY	DATE



Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere Wisconsin 54115
TEL: (920) 992-8400
FAX: (920) 992-8444
www.stantec.com

MASON CREEK STREAM RESTORATION
TALL PINES CONSERVATORY

REVISED	APPROVED	DATE	APPROVED	DATE	SCALE:
DATE	BY				DRAWN BY: DD
	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: SDC
	APPROVED	DATE	APPROVED	DATE	SHEET NO. 19 OF 19
	ENGINEER ADMINISTRATOR		CHIEF, RIGHT OF WAY		PROJECT NO. 193707448
					DATE: 2/1/2021

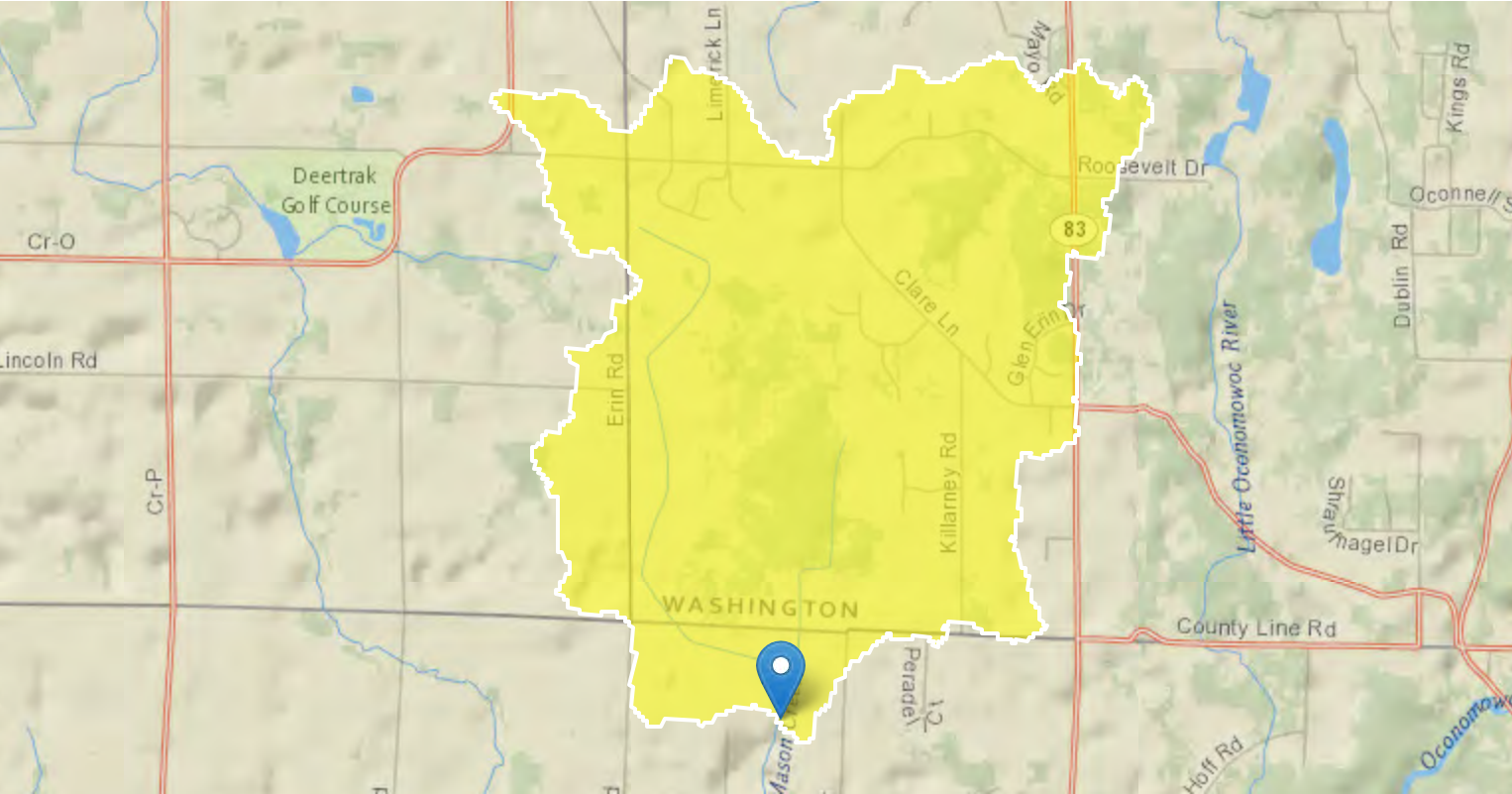
DESIGN

DETAILS
C701

Appendix 2: Calculations

StreamStats Report

Region ID: WI
Workspace ID: WI20200817165132248000
Clicked Point (Latitude, Longitude): 43.18828, -88.40533
Time: 2020-08-17 11:51:50 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CLIFAC100Y	100-year climate factor from Litchy and Karlinger (1990)	2.7	dimensionless
CLIFAC25Y	25-year climate factor from Litchy and Karlinger (1990)	2.5	dimensionless
CLIMFAC2YR	Two-year climate factor from Lichy and Karlinger (1990)	1.9	dimensionless
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	5.97	feet per mi
DEVNLCD01	Percentage of land-use categories 21-24 from NLCD 2001	15.3	percent
DRNAREA	Area that drains to a point on a stream	5.57	square miles
FOREST	Percentage of area covered by forest	10.4	percent
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	7.094	inches

Parameter Code	Parameter Description	Value	Unit
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	4	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	5	inches
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	2.6	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	5.986	inches
I24H5Y	Maximum 24-hour precipitation that occurs on average once in 5 years	3.3	inches
LC01CRPHAY	Percentage of cultivated crops and hay, classes 81 and 82, from NLCD 2001	48.03	percent
LC01HERB	Percentage of herbaceous upland from NLCD 2001 class 71	0.3	percent
LC01WATER	Percentage of open water, class 11, from NLCD 2001	0.19	percent
LC11EMWET	Percentage of area of emergent herbaceous wetlands from NLCD 2011 class 95	10.83	percent
LC11WDWET	Percentage of area of wooded wetlands from NLCD 2011 class 90	14.73	percent
PRECIP	Mean Annual Precipitation	32.888	inches
SNOFALL	Mean Annual Snowfall	37.264	inches
SOILPERM	Average Soil Permeability	11.864	inches per hour
WETLAND	Percentage of Wetlands	25.55	percent

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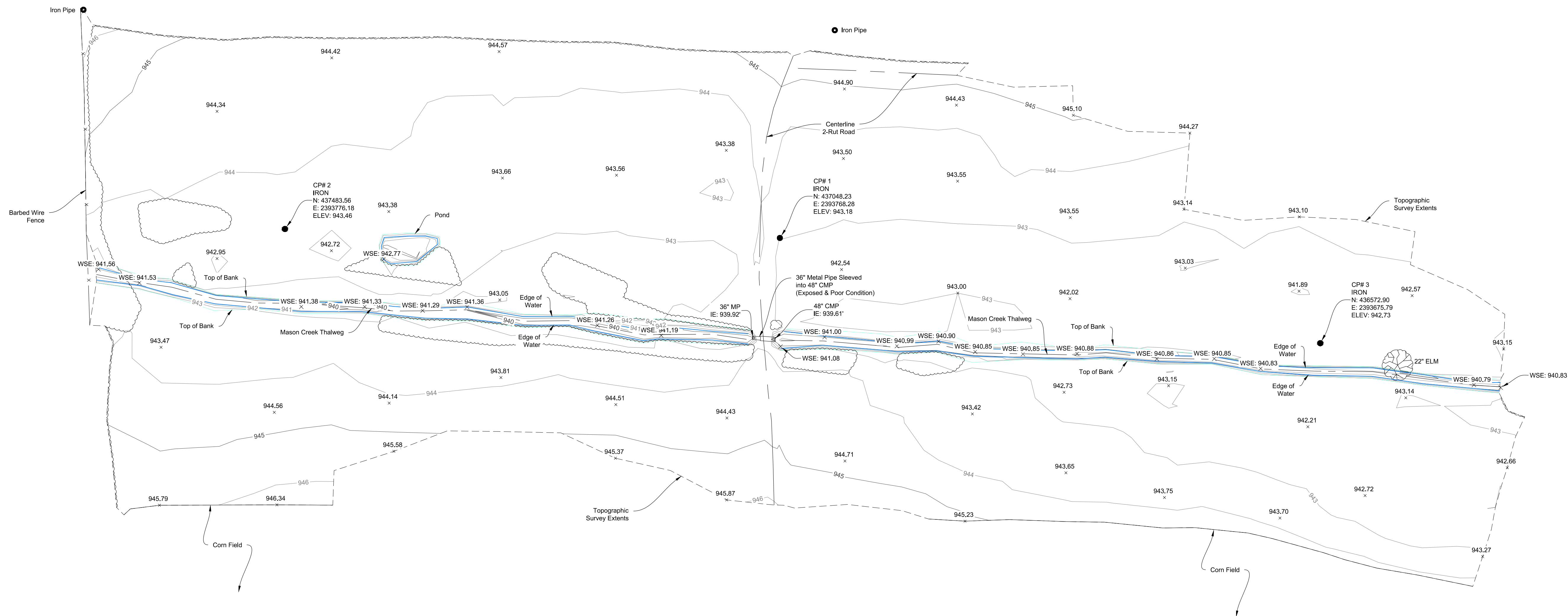
ISSUED	DESCRIPTION	DATE
	Client Review	10/13/20
DESIGNED:	JWM	
DRAWN:	CLC	
CHECKED:	CLC	
APPROVED:	SJB	

TRIMEDIA
JOB NUMBER:
2020-2540
SHEET TITLE:

Survey
Basemap

SHEET NUMBER:

1



NORTH

GRAPHIC SCALE: 1 inch = 50 feet

0 25 50 100 150

Contour Interval 1'

Topographic survey performed on October 6, 2020.

Horizontal Datum: NAD83 (2011)
Coordinate System: Wisconsin State Plane, South Zone
Vertical Datum: NAVD88 (GEOID18)
Units: US Survey Foot

C:\Users\joe\Desktop\Active\2020-2540 Stantec - Mason Creek Topo Survey\Drawings\2020-10-06 Stantec - Mason Creek Survey - Basemap.dwg

Effect of Sediment Size on Channel Design

Reach Mason Creek
Stream Type C3

Variable	Description (units)	1	Comments
d	riffle mean depth (ft)	0.95	Reach design values
w	riffle width (ft)	14	
A	riffle cross-sectional area (ft ²)	13.9	
y	riffle max depth (ft)	1.5	
w/d	riffle width/depth ratio	14.1	
R	hydraulic radius (ft)	1	
S	slope (ft/ft)	0.009	Design discharge
Q	discharge (cfs)	62	
Φ	critical dimensionless shear stress for particle entrainment	0.023	Range 0.0225 -0.03 ¹
SG	specific gravity	1.65	
g	acceleration of gravity (ft/sec ²)	32.2	
u	velocity (ft/sec)	4.46	Calculated below
D ₅₀	Particle Size (ft)	0.225	Calculated below ²
D ₈₄	Particle Size (ft)	0.400	D ₈₄ selected based on velocity ³

0.023078 Calculated from D₅₀ & D₈₄

68.67036 mm

Equation

1.0) $d = (SG \cdot \Phi \cdot D_{50}) / S$

Calculated D₅₀ based on design values

$$D_{50} = (d \cdot S) / (SG \cdot \Phi) = \frac{0.95 \cdot 0.009}{1.65 \cdot 0.023} = 0.225$$

$a = 11.1(R/y)^{-0.314}$

$$a = 11.1(1/1)^{-0.314} = 12.607$$

2.0) $1/\sqrt{F} = 2.03 \log((a \cdot d)/(3.5 \cdot D_{84}))$

$$F = \frac{1}{(2.03 \log((12.607 \cdot 0.95)/(3.5 \cdot 0.400)))^2} = 1.892$$

3.0) $u = ((8 \cdot G \cdot d \cdot S) / (F))^{1/3}$

$$u = ((8 \cdot 32.2 \cdot 0.95 \cdot 0.009) / 1.892)^{1/3} = 2.8$$

Calculated velocity based on D₈₄

4.0) $u = Q/A$

$$u = 62 / 13.9 = 4.46$$

4.5 Velocity check.

Design Materials Mix		
	in	mm
D ₅₀	2.7	68.7
D ₈₄	4.8	121.9
Bed Material (classification)	Gravel	

D₈₄/D₅₀

1.78

Range: 1.43 - 3.0

D₁₀₀

6.0 152.4

Notes

1. Buffington and Montgomery, 1997.
2. Equation 1.0 was transformed to solve for the D₅₀ using the proposed design dimensions.
3. The D₈₄ was selected based on a comparison of velocities using the calculations in Equations 3.0 and 4.0

Design of Material Gradation
Pavement Gradation and Thickness

C3

Rip Rap (Pavement)

Toe of Slope	Size (in)
D ₅₀ =	2.7
D _{max} =	6
D _{min} =	0.31
D ₈₅ =	4.8
D ₁₅ =	1

In-Situ Soil
Filter (Subpavement) Material

Loam (sand-silt-clay)
Aggregate Base Course (ABC)

Comparision of Rip Rap (pavement) to In-situ soil

Eq. 1

$$\frac{D_{15 \text{ rip rap}}}{D_{85 \text{ soil}}} < 5$$

Eq. 2

$$5 < \frac{D_{15 \text{ rip rap}}}{D_{15 \text{ soil}}} < 40$$

Eq. 3

$$\frac{D_{50 \text{ rip rap}}}{D_{50 \text{ soil}}} < 40$$

Pavement	Size (in)
D ₅₀ =	2.7
D ₈₅ =	4.8
D ₁₅ =	1

Soil	Size (mm)	Size (in)
D ₅₀ =	0.25	0.0098
D ₈₅ =	0.5	0.0197
D ₁₅ =	0.125	0.0049

Pavement Layer to Soil

Equation	Ratio	Target	Results
Eq. 1	50.80	< 5	fails
Eq. 2	203.20	> 5	ok
	203.20	< 40	fails
Eq. 3	274.32	< 40	fails

Comparison of Filter (subpavement) Stone to Soil

Eq. 4

$$\frac{D_{15 \text{ filter}}}{D_{85 \text{ soil}}} < 5$$

Eq. 5

$$5 < \frac{D_{15 \text{ filter}}}{D_{15 \text{ soil}}} < 40$$

Eq. 6

$$\frac{D_{50 \text{ filter}}}{D_{50 \text{ soil}}} < 40$$

Soil	Size (mm)	Size (in)
D ₅₀ =	0.25	0.0098
D ₈₅ =	0.5	0.0197
D ₁₅ =	0.125	0.0049

Filter Layer	Size (mm)	Size (in)
D ₅₀ =	9.5	0.3740
D ₈₅ =	25.4	1.0000
D ₁₅ =	2.38	0.0937

Filter to Soil

Equation	Size (in)	Target	Results
Eq. 4	4.76	< 5	ok
Eq. 5	19.04	> 5	ok
	19.04	< 40	ok
Eq. 6	38.00	< 40	ok

Comparision of Rip Rap (pavement) to Filter (subpavement)

Eq 7

$$\frac{D_{15 \text{ rip rap}}}{D_{85 \text{ filter}}} < 5$$

Eq. 8

$$5 < \frac{D_{15 \text{ rip rap}}}{D_{15 \text{ filter}}} < 40$$

Eq. 9

$$\frac{D_{50 \text{ rip rap}}}{D_{50 \text{ filter}}} < 40$$

Pavement	Size (in)
D ₅₀ =	2.7
D ₈₅ =	4.8
D ₁₅ =	1

Filter Layer	Size (mm)	Size (in)
D ₅₀ =	9.5	0.3740
D ₈₅ =	25.4	1.0000
D ₁₅ =	2.38	0.0937

Filter to Rip Rap

Equation	Size (in)	Target	Results
Eq. 7	1.00	< 5	ok
Eq. 8	10.67	> 5	ok
	10.67	< 40	ok
Eq. 9	7.22	< 40	ok

Shear Stress

$$T = \gamma d s$$

where:

- T = shear stress (lb/ft²)
- γ = unit weight of water (62.4 lb/ft³)
- d = depth (ft)
- s = slope (ft/ft)

	Single Thread Channel	Multi-Thread Channel
γ	62.4	
d	1.5	
s	0.009	
T	0.84	

Table 8.05g
Permissible Shear Stresses
for Riprap and Temporary
Liners

		Permissible Unit Shear Stress, T_a
Lining Category	Lining Type	(lb/ft ²)
Temporary	Woven Paper Net	0.15
	Jute Net	0.45
	Fiberglass Roving:	
	Single	0.60
	Double	0.85
	Straw with Net	1.45
	Curled Wood mat	1.55
	Synthetic Mat	2.00
d_{50} Stone Size (inches)		
Gravel Riprap	1	0.33
	2	0.67
Rock Riprap	6	2.00
	9	3.00
	12	4.00
	15	5.00
	18	6.00
	21	7.80
	24	8.00

OK

Adapted From: FHWA, HEC-15, April 1983, pgs. 17 & 37.

Worksheet 3-11. Form to calculate Bank Erosion Hazard Index (BEHI) variables and an overall BEHI rating. Use **Figure 3-7** with BEHI variables to determine BEHI score.

Stream: MasonCK_Tall-Pines, Reach - MasonC		Location:	
Station: Existing		Observers: SPB, SDC	
Date: 08/17/20	Stream Type: E5	Valley Type: U-AL-FD	

Study Bank Height / Bankfull Height (C)					BEHI Score (Fig. 3-7)
Study Bank Height (ft) =	2.4 (A)	Bankfull Height (ft) =	1.83 (B)	(A) / (B) =	1.34 (C)
					4.7
Root Depth / Study Bank Height (E)					
Root Depth (ft) =	0.6 (D)	Study Bank Height (ft) =	2.4 (A)	(D) / (A) =	0.25 (E)
					6.5
Weighted Root Density (G)					
Root Density as % =	70 (F)	(F) × (E) =			17.5 (G)
					7.6
Bank Angle (H)					
Bank Angle as Degrees =	90 (H)				7.9
Surface Protection (I)					
Surface Protection as % =	25 (I)				6.5

Bank Material Adjustment:			Bank Material Adjustment		0
Bedrock (Overall Very Low BEHI) Boulders (Overall Low BEHI) Cobble (Subtract 10 points if uniform medium to large cobble) Gravel or Composite Matrix (Add 5–10 points depending on percentage of bank material that is composed of sand) Sand (Add 10 points) Silt/Clay (no adjustment)		→			
			Stability Adjustment		0
			Add 5–10 points, depending on position of unstable layers in relation		

Very Low	Low	Moderate	High	Very High	Extreme	Adjective Rating and Total Score High 33.2
5 – 9.5	10 – 19.5	20 – 29.5	30 – 39.5	40 – 45	46 – 50	

Bank Sketch

Worksheet 3-12. Various field methods of estimating Near-Bank Stress (NBS) risk ratings to calculate erosion rate.

Estimating Near-Bank Stress (NBS)									
Stream: MasonCK_Tall-Pines, Reach - Mason Location:									
Station: Existing			Stream Type: E5			Valley Type: U-AL-FD			
Observers: SPB, SDC						Date: 08/17/20			
Methods for Estimating Near-Bank Stress (NBS)									
(1) Channel pattern, transverse bar or split channel/central bar creating NBS					Level I	Reconnaissance			
(2) Ratio of radius of curvature to bankfull width (R_c / W_{bkf})					Level II	General prediction			
(3) Ratio of pool slope to average water surface slope (S_p / S)					Level II	General prediction			
(4) Ratio of pool slope to riffle slope (S_p / S_{rif})					Level II	General prediction			
(5) Ratio of near-bank maximum depth to bankfull mean depth (d_{nb} / d_{bkf})					Level III	Detailed prediction			
(6) Ratio of near-bank shear stress to bankfull shear stress (τ_{nb} / τ_{bkf})					Level III	Detailed prediction			
(7) Velocity profiles / Isovels / Velocity gradient					Level IV	Validation			
Level I	(1)	Transverse and/or central bars-short and/or discontinuous.....			NBS = High / Very High				
		Extensive deposition (continuous, cross-channel).....			NBS = Extreme				
		Chute cutoffs, down-valley meander migration, converging flow.....			NBS = Extreme				
Level II	(2)	Radius of Curvature R_c (ft)	Bankfull Width W_{bkf} (ft)	Ratio R_c / W_{bkf}	Near-Bank Stress (NBS)	Dominant Near-Bank Stress Low			
	(3)	Pool Slope S_p	Average Slope S	Ratio S_p / S	Near-Bank Stress (NBS)				
	(4)	Pool Slope S_p	Riffle Slope S_{rif}	Ratio S_p / S_{rif}	Near-Bank Stress (NBS)				
Level III	(5)	Near-Bank Max Depth d_{nb} (ft)	Mean Depth d_{bkf} (ft)	Ratio d_{nb} / d_{bkf}	Near-Bank Stress (NBS)				
		2.4	2.1	1.14	Low				
	(6)	Near-Bank Max Depth d_{nb} (ft)	Near-Bank Slope S_{nb}	Near-Bank Shear Stress τ_{nb} (lb/ft ²)	Mean Depth d_{bkf} (ft)	Average Slope S	Bankfull Shear Stress τ_{bkf} (lb/ft ²)	Ratio τ_{nb} / τ_{bkf}	Near-Bank Stress (NBS)
Level IV	(7)	Velocity Gradient (ft / sec / ft)		Near-Bank Stress (NBS)					
		0		0					
Converting Values to a Near-Bank Stress (NBS) Rating									
Near-Bank Stress (NBS) ratings		Method number							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Very Low		N / A	> 3.00	< 0.20	< 0.40	< 1.00	< 0.80	< 0.50	
Low		N / A	2.21 – 3.00	0.20 – 0.40	0.41 – 0.60	1.00 – 1.50	0.80 – 1.05	0.50 – 1.00	
Moderate		N / A	2.01 – 2.20	0.41 – 0.60	0.61 – 0.80	1.51 – 1.80	1.06 – 1.14	1.01 – 1.60	
High		See	1.81 – 2.00	0.61 – 0.80	0.81 – 1.00	1.81 – 2.50	1.15 – 1.19	1.61 – 2.00	
Very High		(1)	1.50 – 1.80	0.81 – 1.00	1.01 – 1.20	2.51 – 3.00	1.20 – 1.60	2.01 – 2.40	
Extreme		Above	< 1.50	> 1.00	> 1.20	> 3.00	> 1.60	> 2.40	
Overall Near-Bank Stress (NBS) rating							Low		

Worksheet 3-13. Summary form of annual streambank erosion estimates for various study reaches.

Stream: MasonCK_Tall-Pines				Location: Waukesha, WI			
Graph Used:		Total Stream Length (ft): 1650			Date: 3/23/2020		
Observers: SPB, SDC		Valley Type: U-AL-FD		Stream Type: E5			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Station (ft)	BEHI rating (Worksheet 3-11) (adjective)	NBS rating (Worksheet 3-12) (adjective)	Bank erosion rate (Figure 3-9 or 3-10) (ft/yr)	Length of bank (ft)	Study bank height (ft)	Erosion subtotal [(4)×(5)×(6)] (ft³/yr)	Erosion Rate (tons/yr/ft) {[(7)/27] × 1.3 / (5)}
1. Existing	High	Low	0.250	2860.0	2.4	1716.00	0.02890
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
Sum erosion subtotals in Column (7) for each BEHI/NBS combination					Total Erosion (ft³/yr)	1716.00	
Convert erosion in ft ³ /yr to yds ³ /yr {divide Total Erosion (ft ³ /yr) by 27}					Total Erosion (yds³/yr)	63.56	
Convert erosion in yds ³ /yr to tons/yr {multiply Total Erosion (yds ³ /yr) by 1.3}					Total Erosion (tons/yr)	82.62	
Calculate erosion per unit length of channel {divide Total Erosion (tons/yr) by total length of stream (ft) surveyed}					Unit Erosion Rate (tons/yr/ft)	0.0289	

Worksheet 3-10. Pfankuch (1975) channel stability rating procedure, as modified by Rosgen (1996, 2001c, 2006b).

Stream: MasonCK_Tall-Pines				Location: Waukesha, WI				Valley Type: U-AL-FD				Observers: SPB, SDC				Date: 3/23/2020			
Location	Key	Category	Excellent		Good		Fair		Poor										
			Description	Rating	Description	Rating	Description	Rating	Description	Rating									
Upper banks	1	Landform slope	Bank slope gradient <30%.	2	Bank slope gradient 30–40%.	4	Bank slope gradient 40–60%.	6	Bank slope gradient > 60%.	8									
	2	Mass erosion	No evidence of past or future mass erosion.	2	Infrequent. Mostly healed over. Low future potential.	6	Frequent or large, causing sediment nearly yearlong.	9	Frequent or large, causing sediment nearly yearlong OR imminent danger of same.	12									
	3	Debris jam potential	Essentially absent from immediate channel area.	2	Present, but mostly small twigs and limbs.	4	Moderate to heavy amounts, mostly larger sizes.	6	Moderate to heavy amounts, predominantly larger sizes.	8									
	4	Vegetative bank protection	> 90% plant density. Vigor and variety suggest a deep, dense soil-binding root mass.	3	70–90% density. Fewer species or less vigor suggest less dense or deep root mass.	6	50–70% density. Lower vigor and fewer species from a shallow, discontinuous root mass.	9	<50% density plus fewer species and less vigor indicating poor, discontinuous and shallow root mass.	12									
Lower banks	5	Channel capacity	Bank heights sufficient to contain the bankfull stage. Width/depth ratio departure from reference width/depth ratio = 1.0. Bank-Height Ratio (BHR) = 1.0.	1	Bankfull stage is contained within banks. Width/depth ratio departure from reference width/depth ratio = 1.0–1.2. Bank-Height Ratio (BHR) = 1.0–1.1.	2	Bankfull stage is not contained. Width/depth ratio departure from reference width/depth ratio = 1.2–1.4. Bank-Height Ratio (BHR) = 1.1–1.3.	3	Bankfull stage is not contained; over-bank flows are common with flows less than bankfull. Width/depth ratio departure from reference width/depth ratio > 1.4. Bank-Height Ratio (BHR) > 1.3.	4									
	6	Bank rock content	> 65% with large angular boulders. 12"+ common.	2	40–65%. Mostly boulders and small cobbles 6–12".	4	20–40%. Most in the 3–6" diameter class.	6	<20% rock fragments of gravel sizes, 1–3" or less.	8									
	7	Obstructions to flow	Rocks and logs firmly imbedded. Flow pattern w/o cutting or deposition. Stable bed.	2	Some present causing erosive cross currents and minor pool filling. Obstructions fewer and less firm.	4	Moderately frequent, unstable obstructions move with high flows causing bank cutting and pool filling.	6	Frequent obstructions and deflectors cause bank erosion yearlong. Sediment traps full, channel migration occurring.	8									
	8	Cutting	Little or none. Infrequent raw banks <6".	4	Some, intermittently at outcures and constrictions. Raw banks may be up to 12".	6	Significant. Cuts 12–24" high. Root mat overhangs and sloughing evident.	12	Almost continuous cuts, some over 24" high. Failure of overhangs frequent.	16									
	9	Deposition	Little or no enlargement of channel or point bars.	3	Some new bar increase, mostly from coarse gravel.	8	Moderate deposition of new gravel and coarse sand on old and some new bars.	12	Extensive deposit of predominantly fine particles. Accelerated bar development.	16									
Bottom	10	Rock angularity	Sharp edges and corners. Plane surfaces rough.	1	Rounded corners and edges. Surfaces smooth and flat.	2	Corners and edges well rounded in 2 dimensions.	3	Well rounded in all dimensions, surfaces smooth.	4									
	11	Brightness	Surfaces dull, dark or stained. Generally not bright.	0	Mostly dull, but may have <35% bright surfaces.	2	Mixture dull and bright, i.e., 35–65% mixture range.	3	Predominantly bright, > 65%, exposed or scoured surfaces.	4									
	12	Consolidation of particles	Assorted sizes tightly packed or overlapping.	2	Moderately packed with some overlapping.	4	Mostly loose assortment with no apparent overlap.	6	No packing evident. Loose assortment, easily moved.	8									
	13	Bottom size distribution	No size change evident. Stable material 80–100%.	4	Distribution shift light. Stable material 50–80%.	8	Moderate change in sizes. Stable materials 20–50%.	12	Marked distribution change. Stable materials 0–20%.	16									
	14	Scouring and deposition	<5% of bottom affected by scour or deposition.	6	5–30% affected. Scour at constrictions and where grades steepen. Some deposition in pools.	12	30–50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools.	18	More than 50% of the bottom in a state of flux or change nearly yearlong.	24									
	15	Aquatic vegetation	Abundant growth moss-like, dark green perennial. In swift water too.	1	Common. Algae forms in low velocity and pool areas. Moss here too.	2	Present but spotty, mostly in backwater. Seasonal algae growth makes rocks slick.	3	Perennial types scarce or absent. Yellow-green, short-term bloom may be present.	4									
Excellent total =				9	Good total =				12	Fair total =				42	Poor total =				24

Stream type	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D3	D4	D5	D6
Good (Stable)	38-43	38-43	54-90	60-95	60-95	50-80	38-45	38-45	40-60	40-64	48-68	40-60	38-50	38-50	60-85	70-90	70-90	60-85	85-107	85-107	85-107	67-98
Fair (Mod. unstable)	44-47	44-47	91-129	96-132	96-142	81-110	46-58	46-58	61-78	65-84	69-88	61-78	51-61	51-61	86-105	91-110	91-110	86-105	108-132	108-132	108-132	99-125
Poor (Unstable)	48+	48+	130+	133+	143+	111+	59+	59+	79+	85+	89+	79+	62+	62+	106+	111+	111+	106+	133+	133+	133+	126+

Stream type	DA3	DA4	DA5	DA6	E3	E4	E5	E6	F1	F2	F3	F4	F5	F6	G1	G2	G3	G4	G5	G6
Good (Stable)	40-63	40-63	40-63	40-63	40-63	50-75	50-75	40-63	60-85	60-85	85-110	85-110	90-115	80-95	40-60	40-60	85-107	85-107	90-112	85-107
Fair (Mod. unstable)	64-86	64-86	64-86	64-86	64-86	76-96	76-96	64-86	86-105	86-105	111-125	111-125	116-130	96-110	61-78	61-78	108-120	108-120	113-125	108-120
Poor (Unstable)	87+	87+	87+	87+	87+	97+	97+	87+	106+	106+	126+	126+	131+	111+	79+	79+	121+	121+	126+	121+

Grand total =	87
Existing stream type =	E5
*Potential stream type =	E5
Modified channel stability rating =	FAIR (Mod. Unstable)

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*Rating is adjusted to potential stream type, not existing.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



05/04/2022

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330
N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058
[sent electronically]

IP-SE-2022-68-00881

RE: Application to remeander a portion of Mason Creek in the Town of MERTON, Waukesha County

Dear Ms. Buchanan:

The Department of Natural Resources has completed its review of your application for a permit to realign a section of Mason Creek as part of a habitat restoration project located in the SW 1/4, NE 1/4, Section 06, Township 08, Range 18E, Town of MERTON, Waukesha County. You will be pleased to know your application is approved.

I am attaching a copy of your permit, which lists the many important conditions that must be followed to protect water quality and habitat. A copy of the permit must be posted for reference at the project site. Please read your permit conditions carefully so that you are fully aware of what is expected of you.

Please note you are required to submit photographs of the completed project within 7 days after you've finished construction. This helps both of us to document the completion of the project and compliance with the permit conditions.

Your next step will be to notify me of the date on which you plan to start construction and again after your project is complete.

If you have any questions about your permit, please call me at (262) 354-4569 or email luke.roffler@wisconsin.gov.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Email CC:
U.S. Army Corps of Engineers
DNR Stormwater
County Zoning Administrator
DNR Conservation Warden
Stantec

**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**CHANNEL CHANGES PERMIT
IP-SE-2022-68-00881**

Application of Susan Buchanan is hereby granted under Sections Ch 30.195(1) and Ch 30.208, Wisconsin Statutes, to realign a section of Mason Creek as part of a habitat restoration project located in the SW 1/4, NE 1/4, Section 06, Township 08, Range 18E, Town of MERTON, Waukesha County, subject to the following conditions:

PERMIT

1. You must notify Luke Roffler at phone (262) 354-4569 or email luke.roffler@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.
2. You must complete the project as described **on or before 05/04/2027**. If you will not complete the project by this date, you must submit a written request for an extension prior to expiration of the initial time limit specified in the permit. Your request must identify the requested extension date. The Department shall extend the time limit for an individual permit or contract for no longer than an additional 5 years if you request the extension before the initial time limit expires. You may not begin or continue construction after the original permit expiration date unless the Department extends the permit in writing or grants a new permit.
3. This permit does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of this permit. If you wish to alter the project or permit conditions, you must first obtain written approval of the Department.
4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.
5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.
6. The Department may modify or revoke this permit for good cause, including if the project is not completed according to the terms of the permit or if the Department determines the activity is detrimental to the public interest.
7. **You must post a copy of this permit at a conspicuous location on the project site, visible from the waterway**, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of the permit and approved plan available at the project site at all times until the project is complete.
8. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of this permit.
9. **You must submit a series of photographs to the Department, within one week of completing work on the site.** The photographs must be taken from different vantage points and depict all work authorized by this permit.
10. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.
11. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Adm. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.
12. All equipment used for the project including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. **Inspect and remove** aquatic plants, animals, and mud from your equipment.
2. **Drain all water** from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps.
3. **Dispose** of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
4. **Wash your equipment** with hot (>140° F) and/or high-pressure water,
- OR -
Allow your equipment to **dry thoroughly for 5 days**.

STREAM RELOCATION CONDITIONS:

13. Construction must take place during low water periods and no in-water construction can take place from September 15th through May 15th of each calendar year to protect fish spawning, movement, and egg incubation periods.

14. Development in conjunction with this project, such as construction or filling, must conform to State Floodplain Management Standards and local zoning regulations.

15. Material excavated from the new channel must be temporarily stored in an upland area, out of the floodway, separated from the stream by a strip of undisturbed vegetative cover or protected with appropriately installed best management practices (such as silt fence).

16. The bank slopes of the new channel must be in accordance with the approved plans dated February 2021.

17. The new channel's banks must be stabilized before it is opened up to receive stream flow. To minimize erosion, the downstream end of the new channel must be opened first. Once the stream flow is passing through the new channel, the existing channel can be filled. The upstream and downstream end of the fill in the old channel must be protected from erosion in accordance with the plans dated February 2021 and approved by this permit.

18. The old channel must be filled with material excavated from the new channel in the areas indicated on the approved plans dated February 2021. Additional fill can be used as needed so that the old channel is filled level with the surrounding ground. The top of this fill must be stabilized in accordance with the approved plans dated February 2021.

FINDINGS OF FACT

1. Susan Buchanan (Tall Pines Conservancy), P.O. Box 65 W330 N4465 Lakeland Drive (CTH C), Nashotah, WI 53058, filed an application with this Department on 02/28/2022, under sections Ch 30.195(1) and 30.208, Wisconsin Statutes, to change the channel of Mason Creek located in the SW 1/4, NE 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

2. The applicant proposes to realign approximately 1,420 linear feet of Mason Creek located in the east portion of their 26.5-acre property along Pleasant View Road. Restoration will include abandonment of the existing channel and creation of a new channel within the historic floodplain, in an effort to provide hydrological reconnection to the existing floodplain. Portions of the existing, straightened channel will remain unfilled to provide oxbox habitat. Other project elements were authorized under separate General Permits (In-stream habitat structures – GP-SE-2022-68-01311, Wetland scrapes – GP-SE-2022-68-00883, Ford crossings – GP-SE-2022-68-01312).

3. The Department has completed an investigation of the project site and has evaluated the project as described in the application and plans.

4. Mason Creek is a navigable water.

5. The proposed project, if constructed in accordance with this permit will not adversely affect water quality, will not increase water pollution in surface waters and will not cause environmental pollution as defined in s. 283.01(6m), Wis. Stats.

6. The proposed project will not negatively impact wetlands if constructed in accordance with this permit. Various temporary and permanent wetland disturbance activities are proposed as a part of this project, but will provide an overall environmental lift in terms of aquatic habitat restored, floodplain and wetland habitat reconnected, and wetland habitat protected.

7. The Department of Natural Resources has determined that the agency's review of the proposed project constitutes an integrated analysis action under s. NR 150.20(2), Wis. Adm. Code. The Department has considered the impacts on the human environment, alternatives to the proposed projects and has provided opportunities for public disclosure and comment. The Department has completed all procedural requirements of s. 1.11(2)(c), Wis. Stats., and NR 150, Wis. Adm. Code for this project.

8. Department of Natural Resources has completed all procedural requirements and the project as permitted will comply with all applicable requirements of Sections 30.195(1) and 30.208, Wisconsin Statutes and Chapters NR 102, 103, of the Wisconsin Administrative Code.

The applicant was responsible for fulfilling the procedural requirements for publication of notices under s. 30.208(5)(c)1m., Stats., and was responsible for publication of the notice of pending application under s.30.208(3)(a), Stats. or the notice of public informational hearing under s.30.208(3)(c), Stats., or both. S. 30.208(3)(e), Stats., provides that if no public hearing is held, the Department must issue its decision within 30 days of the 30-day public comment period, and if a public hearing is held, the Department must issue its decision within 20 days after the 10-day period for public comment after the public hearing. S. 30.208(5)(bm), Stats., requires the Department to consider the date on which the department publishes a notice on its web site as the date of notice.

9. The stream relocation will not be detrimental to the public interest because the project will provide significant environmental lift to a straightened Class I trout stream while also enhancing and reconnecting adjacent floodplain and wetland habitat.

10. The activity will not cause environmental pollution as defined in s. 299.01(4).

11. The newly relocated stream channel is considered navigable and public as a result of this authorization and project. The newly relocated stream channel is considered navigable for local zoning purposes and local permits/approvals are required for work proposed within the shoreland zone of this waterway.

12. No material injury will result to the riparian rights of any riparian owners of real property that abuts any water body that is affected by the activity.

CONCLUSIONS OF LAW

1. The Department has authority under the above indicated Statutes and Administrative Codes, to issue a permit for the construction and maintenance of this project.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions shall be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing of any individual permit decision pursuant to section 30.209, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources, P.O. Box 7921, Madison, WI, 53707-7921. The petition shall be in writing, shall be dated and signed by the petitioner, and shall include as an attachment a copy of the decision for which administrative review is sought. If you are not the applicant, you must simultaneously provide a copy of the petition to the applicant. If you wish to request a stay of the project, you must provide information, as outlined below, to show that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment. If you are not the permit applicant, you must provide a copy of the petition to the permit applicant at the same time that you serve the petition on the Department.

The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

A request for contested case hearing must meet the requirements of section 30.209, Wis. Stats., and sections NR 2.03, 2.05, and 310.18, Wis. Admin. Code, and if the petitioner is not the applicant the petition must include the following information:

1. A description of the objection that is sufficiently specific to allow the department to determine which provisions of this section may be violated if the proposed permit or contract is allowed to proceed.
2. A description of the facts supporting the petition that is sufficiently specific to determine how the petitioner believes the project, as proposed, may result in a violation of Chapter 30, Wis. Stats;.
3. A commitment by the petitioner to appear at the administrative hearing and present information supporting the petitioner's objection.

If the petition contains a request for a stay of the project, the petition must also include information showing that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment.

Dated at the Waukesha Service Center, Wisconsin on 05/04/2022.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By: 

Luke Roffler

Compliance Team Coordinator

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

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



04/04/2022

Received
04/07/2022
Waukesha County Dept.
of Parks and Land Use

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058

GP-SE-2022-68-01311

Dear Ms. Buchanan:

Thank you for submitting an application for a General Permit to place habitat structures in Mason Creek located in the NE 1/4, SW 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

You have certified that your project meets the eligibility criteria for this activity. Based upon your signed certification you may proceed with your project. Please take this time to re-read the permit standards and conditions. You are responsible for meeting all general permit eligibility standards and permit conditions. This includes notifying the Department before starting the project, and submitting photographs within one week of project completion. We have not reviewed your plans for compliance with installation and construction standards. You are responsible for ensuring that the project meets all eligibility standards described on the attached checklist. **Please note that your project must be complete within 3 years of the date of this letter.**

The Department conducts routine and annual compliance monitoring inspections. Our staff may follow up and inspect your project to verify compliance with state statutes and codes. If you need to modify your project please contact your local Water Management Specialist, Luke Roffler at (262) 354-4569 or email luke.roffler@wisconsin.gov to discuss your proposed modifications. If you fail to comply with state statutes and code, the Department has the authority to pursue enforcement which could include site restoration and fines.

The Department of Natural Resources appreciates your willingness to comply with waterway regulations, which help to protect the water quality, fish and wildlife habitat, natural scenic beauty and recreational value of Wisconsin's water resources for future generations. You are responsible for obtaining any other local, state or federal permits that are required before starting your project.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Copy to: USACE Project Manager
County Zoning Administrator
DNR Stormwater
Conservation Warden
Stantec

ELIGIBILITY CRITERIA

1. The fish habitat structure may be located in an area of special natural resource interest, or within a public rights feature as described in Wis. Admin. Code s. NR 1.06, or at a site where the Department requires a permit under Wis. Stats. s. 30.12(2m)
2. The project purpose is to place a fish habitat structure solely for the purpose of improving fish and wildlife habitat, or fish stocking, and the placement does not result in significant adverse impacts to the public rights and interests, cause environmental pollution as defined in Wis. Stats. s. 299.01(4), or result in material injury to the riparian rights of any riparian owner pursuant to Wis. Stats. s. 30.206(3r)(a)2., nor does it cause more than minimal adverse environmental impacts, materially interfere with navigation, nor have an adverse impact on the riparian property rights of adjacent riparian owners pursuant to Wis. Stats. s. 30.206(1)(am). The applicant or co-applicant is the riparian owner.
3. The applicant or co-applicant is the riparian owner.
4. The fish habitat or stocking structure must be placed entirely within the riparian zone of interest as determined by one of the methods outlined in Wis. Admin. Code s. NR 326.07. Certain habitat structures may be placed waterward of the line of navigation where allowed by activity specific standards contained in this general permit.
5. The riparian owner or the person who places fish habitat or stocking structures under coverage of this General Permit must have the approval of the local Department Fisheries Biologist before placing the structure. A list of fisheries biologists can be found at <http://dnr.wi.gov/topic/fishing/people/index.html>.
6. Fish Spawning. To minimize adverse impacts on fish movement, fish spawning, and egg incubation periods, structures may not be placed during the following time periods:
 - September 15th through May 15th for all trout streams; and upstream to the first dam or barrier on the Root River (Racine County), the Kewaunee River (Kewaunee County), and Strawberry Creek (Door County). To determine if a waterway is a trout stream, you may use the WDNR website trout maps which can be found at <http://dnr.wi.gov/topic/fishing/trout/streammaps.html>
 - March 1st through June 15th for ALL waters.The regional Department Fisheries Biologist may waive or modify timing restrictions in writing. To find your biologist and request in writing a waiver or modification of fish spawning timing restrictions for your project use the WDNR website at: <http://dnr.wi.gov/topic/fishing/people/index.html>.
7. The placement of structures must be conducted in a manner that prevents the collection, removal or dispersal of sediment away from the project site to the maximum extent practicable. Temporary sediment control measures used to accomplish this should be completely removed from the waterbody no more than 24 hours after the project is completed.
8. All temporary sediment control measures must follow all state lighting requirements and cannot materially obstruct navigation.
9. Live, living or growing aquatic plants may not be removed unless the removal is exempt under Wis. Stats. s. 23.24 (4) or complies with the provisions for waiver of the permit requirement under Wis. Admin. Code s. NR 109.06.
10. Removal of material above the ordinary high water mark is a land grading activity and is not authorized under this general permit.
11. Dredging under Wis. Stats. s. 30.20(1g) (b) 1., is not allowed for the placement of a fish habitat or stocking structure. This general permit does not authorize the removal of native bed and bottom material which includes sand, cobble, silt, detritus, and other organic material. Dredging does not include "de minimus" activities.
12. A deposit of sand, gravel or stone under Wis. Stats. s. 30.12(1g) (a), may be associated with the placement of a fish habitat or stocking structure provided the deposit is limited to the area immediately underneath or within one foot of the structure and is less than 2 cubic yards.

13. Erosion control measures must meet or exceed the technical standards for erosion control approved by the department under Wis. Admin. Code subch. V of ch. NR 151. Any area where topsoil is exposed during construction must be immediately seeded and mulched or riprapped to stabilize disturbed areas and prevent soils from being eroded and washed into the waterway. Note: These standards can be found at the following website: <http://dnr.wi.gov/topic/stormwater/standards/>.

14. Unless part of a permanent stormwater management system, all temporary erosion and sediment control practices must be removed upon final site stabilization. Areas disturbed during construction or installation must be restored.

SELF CERTIFICATION CONDITIONS

1. You must notify Luke Roffler at phone (262) 354-4569 or email luke.roffler@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.

2. You must complete the project as described on or before 04/04/2025. If you will not complete the project by this date, there is no opportunity for an extension and you must apply for a new permit.

3. Your signed certification does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of your signed certification. If you wish to alter the project, you must first obtain written approval of the Department.

4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.

5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.

6. The Department may modify or revoke your signed certification for good cause, including if the project is not completed according to the terms of the eligibility standards and conditions for the activity or if the Department determines the activity is detrimental to the public interest.

7. You must post a copy of your signed certification at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of your signed certification and plan available at the project site at all times until the project is complete.

8. Your acceptance of this letter and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of your signed certification.

9. You shall maintain the project in good condition and in compliance with the terms and conditions of your signed certification, NR 323, Wis. Admin. Code and s. 30.206, Stats.

10. This project shall comply with all conditions identified in Wisconsin Administrative Code NR 323, and identified in the Instructions for the General Permit application.

11. You must submit a series of photographs to the Department, within one week of completing work on the site. The photographs must be taken from different vantage points and depict all work authorized by this permit.

12. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.

13. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Admin. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.

14. All equipment used for the project, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile, and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. Inspect and remove aquatic plants, animals, and mud from your equipment.
2. Drain all water from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps.
3. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
4. Wash your equipment with hot (>104° F) and/or high pressure water,

- OR -

Allow your equipment to dry thoroughly for 5 days.

FINDINGS OF FACT

1. The proposed stream realignment and restoration project includes installation of toe wood along several outside bends. A total of 28 locations and over 1,600 total linear feet. The proposed project also includes installation of 24 stone riffles within the stream channel.
1. The Department has determined that your signed certification of the project site and project plans meet the standards in s. 30.206, Stats. and ch. NR 323, Wis. Adm. Code., to qualify for this General Permit.
2. The proposed project will not injure public rights or interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the rights of any riparian owner, if constructed in accordance with your signed certification.
3. The Department and the applicant have completed all procedural requirements, and the project as described in your signed certification will comply with all applicable requirements of Section 30.206, Wis. Stats., and Chapters NR 102, 103, 150, 299, 310 and 323 if carried out as proposed.

CONCLUSIONS OF LAW

1. The Department has authority under ch. 30, Wis. Stats., and ch. NR 323, Wis. Adm. Code, to grant approval for the construction and maintenance of this project.
2. The Department has complied with s. 1.11, Wis. Stats.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

Received
04/07/2022
Waukesha County Dept.
of Parks and Land Use

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



Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058

GP-SE-2022-68-00883

Dear Ms. Buchanan:

Thank you for submitting an application for a General Permit to install a series of wildlife ponds near Mason Creek located in the NE 1/4, SW 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

You have certified that your project meets the eligibility criteria for this activity. Based upon your signed certification you may proceed with your project. Please take this time to re-read the permit standards and conditions. You are responsible for meeting all general permit eligibility standards and permit conditions. This includes notifying the Department before starting the project, and submitting photographs within one week of project completion. We have not reviewed your plans for compliance with installation and construction standards. You are responsible for ensuring that the project meets all eligibility standards described on the attached checklist. **Please note that your project must be complete within 3 years of the date of this letter.**

The Department conducts routine and annual compliance monitoring inspections. Our staff may follow up and inspect your project to verify compliance with state statutes and codes. If you need to modify your project please contact Luke Roffler at (262) 354-4569 or email luke.roffler@wisconsin.gov to discuss your proposed modifications. If you fail to comply with state statutes and code, the Department has the authority to pursue enforcement which could include site restoration and fines.

The Department of Natural Resources appreciates your willingness to comply with waterway regulations, which help to protect the water quality, fish and wildlife habitat, natural scenic beauty and recreational value of Wisconsin's water resources for future generations. You are responsible for obtaining any other local, state or federal permits that are required before starting your project.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Copy to: USACE Project Manager
 DNR Stormwater
 County Zoning Administrator
 Conservation Warden
 Stantec

ELIGIBILITY CRITERIA

Eligibility criteria:

1. The purpose of the pond or artificial waterbody shall be wetland conservation as determined under ch. NR 353 and all standards for construction of the ponds in ss. NR 353.04 and 353.05 will be met.
2. Reporting and monitoring requirements in s. NR 216.48 (4) will be followed
3. The site shall meet the construction site performance standards of s. NR 151.11 for land disturbing construction activities for non-transportation projects and s. NR 151.23 for transportation projects.
4. The pond or artificial water body is designed in accordance with best management practices required for stormwater discharge permits under ch. NR 216, or to meet a local ordinance for stormwater management.
5. The pond or artificial water body may not be associated with any metallic or non-metallic mining project.
6. Erosion and sediment control best management practices shall be designed in accordance with s. NR 216.46 (6).
7. A site specific erosion control plan designed in accordance with s. NR 216.46 (1) to (4).
8. Erosion control measures shall meet or exceed the technical standards for erosion control approved by the department under subch. V of ch. NR 151. Any area where topsoil is exposed during placement, repair or removal of a structure shall be immediately seeded and mulched to stabilize disturbed areas and prevent soils from being eroded and washed into the waterway. These standards can be found at: <http://dnr.wi.gov/topic/stormwater/standards/>.
9. Unless part of a permanent storm water management system, all temporary erosion and sediment control practices will be removed upon final site stabilization. All areas disturbed during removal of temporary erosion and sediment control practices will be restored
10. All equipment used for the project including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.
11. The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.
 - a. Inspect and remove aquatic plants, animals, and mud from your equipment.
 - b. Drain all water from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps.
 - c. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.Wash your equipment with hot (>104° F) or high pressure water, steam clean or allow your equipment to dry thoroughly for 5 days.
12. Follow the most recent department approved washing and disinfection protocols and department approved best management practices to avoid the spread of invasive species as outlined in NR 40, Wis. Adm. Code. These protocols and practices can be found on the Department website at <http://dnr.wi.gov/topic/Invasives/bmp.html> Keyword: "equipment operator" and at <http://dnr.wi.gov/topic/Invasives/documents/EquipOper.pdf>.

SELF CERTIFICATION CONDITIONS

1. You must notify Luke Roffler at phone (262) 354-4569 or email luke.roffler@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.

2. You must complete the project as described on or before 04/04/2025. If you will not complete the project by this date, there is no opportunity for an extension and you must apply for a new permit.
3. Your signed certification does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of your signed certification. If you wish to alter the project, you must first obtain written approval of the Department.
4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.
5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.
6. The Department may modify or revoke your signed certification for good cause, including if the project is not completed according to the terms of the eligibility standards and conditions for the activity or if the Department determines the activity is detrimental to the public interest.
7. You must post a copy of your signed certification at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of your signed certification and plan available at the project site at all times until the project is complete.
8. Your acceptance of this letter and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of your signed certification.
9. You shall maintain the project in good condition and in compliance with the terms and conditions of your signed certification, NR 343, Wis. Admin. Code and s. 30.206, Stats.
10. This project shall comply with all conditions identified in Wisconsin Administrative Code NR 343, and identified in the Instructions for the General Permit application.
11. You must submit a series of photographs to the Department, within one week of completing work on the site. The photographs must be taken from different vantage points and depict all work authorized by this permit.
12. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.
13. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Admin. Code. The technical standards are found at: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html.
14. All equipment used for the project, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile, and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.

The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.

1. Inspect and remove aquatic plants, animals, and mud from your equipment.
2. Drain all water from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps.
3. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
4. Wash your equipment with hot (>104° F) and/or high pressure water,

- OR -

Allow your equipment to dry thoroughly for 5 days.

FINDINGS OF FACT

1. The proposed stream realignment and restoration project includes installation of a series of very shallow wetland scrapes, each approximately 1' or less in depth. Each scrape will have sideslopes of 8:1 or gentler. The total combined acreage for the scrapes will be approximately 0.19 acres.
2. The Department has determined that your signed certification of the project site and project plans meet the standards in s. 30.206, Stats. and ch. NR 343, Wis. Adm. Code., to qualify for this General Permit.
3. The proposed project will not injure public rights or interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the rights of any riparian owner, if constructed in accordance with your signed certification.
4. The Department and the applicant have completed all procedural requirements, and the project as described in your signed certification will comply with all applicable requirements of Section 30.206, Wis. Stats., and Chapters NR 102, 103, 150, 299, 310 and 343 if carried out as proposed.

CONCLUSIONS OF LAW

1. The Department has authority under ch. 30, Wis. Stats., and ch. NR 343, Wis. Adm. Code, to grant approval for the construction and maintenance of this project.
2. The Department has complied with s. 1.11, Wis. Stats.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow St., Room 180
Waukesha, WI, 53188

Received
04/07/2022
Waukesha County Dept.
of Parks and Land Use

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



04/04/2022

Susan Buchanan
Tall Pines Conservancy
P.O. Box 65 W330 N4465 Lakeland Drive (CTH C)
Nashotah, WI 53058

GP-SE-2022-68-01312

RE: Coverage under the waterway statewide general permit to install a stone ford crossing over Mason Creek, located in the Town of MERTON, Waukesha County, docket GP-SE-2022-68-01312.

Dear Ms. Buchanan:

Thank you for submitting an application for a General Permit to install waterway crossings over Mason Creek located in the SW 1/4, NE 1/4, Sec. 06, T. 08, R. 18E, Town of MERTON, Waukesha County.

You have certified that your project meets the eligibility criteria for this activity. Based upon your signed certification you may proceed with your project. Please take this time to re-read the permit standards and conditions. The eligibility standards can be found on your application checklist or in the statewide general permit (found at <http://dnr.wi.gov/topic/waterways/> - keyword: general permits). The permit conditions are attached to this letter. **You are responsible for meeting all general permit eligibility standards and permit conditions.** This includes notifying the Department before starting the project, and submitting photographs within one week of project completion. **Please note your coverage is valid for 5 years from the date of the department's determination or until the activity is completed, whichever occurs first.**

The Department conducts routine and annual compliance monitoring inspections. Our staff may follow up and inspect your project to verify compliance with state statutes and codes. If you need to modify your project please contact Luke Roffler at (262) 354-4569 or email luke.roffler@wisconsin.gov to discuss your proposed modifications.

The Department of Natural Resources appreciates your willingness to comply with waterway regulations, which help to protect the water quality, fish and wildlife habitat, natural scenic beauty and recreational value of Wisconsin's water resources for future generations. You are responsible for obtaining any other local, state or federal permits that are required before starting your project.

Sincerely,

Luke Roffler
Compliance Team Coordinator

Copy to: USACE Project Manager
County Zoning Administrator
DNR Stormwater
Conservation Warden

You agree to comply with the following conditions:

1. The applicant has contacted the local WDNR Water Management Specialist during the development of the project to have a pre-application discussion. Go to dnr.wi.gov, key word “waterway protection” for more information. Project design must address the site specific considerations that are identified by the WMS and appropriate resource managers during the pre-application discussion.
2. The project purpose is to place a waterway crossing to allow for access across a navigable river or stream and does not result in significant adverse impacts to the public rights and interests, cause environmental pollution as defined in s. 299.01(4), Wis. Stats., or result in material injury to the riparian rights of any riparian owner pursuant to s. 30.206(3r)(a)2., Wis. Stats., nor does it cause more than minimal adverse environmental impacts, materially interfere with navigation, nor have an adverse impact on the riparian property rights of adjacent riparian owners pursuant to s. 30.206(1)(am), Wis. Stats.
3. Projects proposed in locations with existing recorded deed restrictions within the project area, including easements limiting construction and land use activities, are not eligible for this general permit.

Note: Department Chs. 30 and 281 Wis. Stats. permits do not supersede any legal restrictions on the use of land

4. Structures over lake outlets and lake systems are not eligible for this permit.
5. Structures shall be placed entirely within the riparian’s zone of interest, as determined by one of the methods outlined in ch. NR 326, Wis. Admin. Code, or applicants have the written permission from all affected riparian landowners to proceed with structure placement in the proposed location.
6. The placement and installation of waterway crossing structures placed on the bed of a river or stream (culvert or ford crossings) shall mimic the natural streambed and gradient above and below the structure to allow for aquatic organism passage (AOP) where appropriate, and not result in a permanent impoundment of water upstream of the crossing location. (note: culverts on streams 2% gradient or greater may require additional culvert design considerations to allow for AOP).
7. Spawning. To minimize adverse impacts on fish movement, fish spawning, and egg incubation periods, in-stream structures may not be placed during the following time periods:
 - September 15th through May 15th for all trout streams; to determine if a waterway is a trout stream, you may use the WDNR website trout maps which can be found at <https://dnr.wisconsin.gov/topic/Fishing/trout/streammaps.html>
 - September 15th through June 15th on all Great Lakes tributaries upstream to the first dam or barrier.
 - March 1st through June 15th for ALL OTHER waters.

Note: The local Department Fisheries Biologist may waive or modify timing restrictions in writing. To request waiver or modification of fish spawning timing restrictions for your project please do so within the narrative portion of your permit application.

8. The applicant is working to obtain a local shoreland zoning authorization for the project or the local shoreland zoning requirements have been waived. (Documentation required). If local zoning permits are not required, the project vegetation and bank disturbance is limited to the amount necessary for project placement and erosion control practices are adequate to prevent sedimentation to surface waters.
9. If the project is located in a regulatory floodplain, the applicant is working to obtain a floodplain permit (NR 116 Wis. Admin. Code) from the local floodplain zoning department.

Note: Contact your local floodplain zoning department to determine whether your project is located in a regulatory floodplain. For general floodplain mapping information, you may review the floodplain themed surface water data viewer at <https://dnrmaps.wi.gov/H5/?Viewer=SWDV&layerTheme=1>

10. Structures in and over navigable waterways must be sized and set at an elevation so that water depths, widths and velocities at the inlet and outlet match the natural stream channel. Invert elevations of culverts shall be determined by surveying the stream bed elevations upstream and downstream of the crossing, and setting the culvert below the natural stream bed elevation. (note: site specific conditions such as northern pike waters, may require different embedding techniques than typical designs to prevent fish entrapment)

11. All bridges and culverts shall maintain a clearance of 5 feet or more above the ordinary high water mark (OHWM), or request a waiver to the navigational clearance requirements, which can be granted by the Department when the following conditions apply:

- a. The waterway is known to have little or no navigation or snowmobile use.
- b. The waterway is not anticipated to have navigational use by other than lightweight craft.
- c. The owner provides a portage over or around the bridge or culvert.
- d. The reduced clearance would not be detrimental to the public interest.

12. Any wetland disturbance associated with the structure placement is incidental to the structure, confined to the area within the stream channel being crossed or the immediate adjacent banks, and has been authorized by a department wetland permit or exemption as required pursuant to s. 281.36 Wis. Stats. (Documentation required).

13. The removal of material from the stream bed to facilitate the placement of structures located on the stream bed is located within 2' of the structure or is limited to the minimum amount necessary for correct placement of the structure and shall not be disposed of in a waterway, floodway, floodplain, or wetland. (Note. Stream channels may not be widened beyond existing bankfull width to accommodate culvert placement.)

14. The applicant shall avoid operating equipment on the stream bed. If required for project installation, the applicant must consult with the Department and shall follow the best management practices identified below as appropriate in order to minimize adverse resource impacts:

- a. Temporary timber matting is used to protect the streambed
- b. Movement on the stream bed is kept to a minimum
- c. Equipment is kept on streambed for as little time as needed to complete the project and must be removed when not in use;
- d. Properly installed and maintained silt curtains and/or turbidity barriers are used around the perimeter of the project;
- e. Pre-inspection of vehicles/equipment is done for all operating days to avoid leaks;
- f. Biodegradable hydraulic and engine oils are used OR a spill containment kit is on site in case of spill

Additional eligibility standards for fords

1. The ford shall not be located in an Area of Special Natural Resource Interest (ASNRI) or Public Rights Feature (PRF), unless it is constructed for an agricultural use as defined in s. 30.40 (1), Wis.Stats.

Note: To determine if a waterway is an ASNRI or PRF, you may use the Designated Waters Theme on DNR's Surface Water Data Viewer: <http://dnr.wi.gov/topic/surfacewater/swdv/>

Note: Fisheries Biologist Ben Heussner expressed complete support for the project, including the ford crossing in a trout stream (which is the reason the stream is designated an ASNRI). As such, the ASNRI restriction does not apply here.

3. The ford shall only be constructed where the stream width is less than 100 feet, the normal stream depth is less than 2 feet.

4. The ford shall consist of a 6 to 24 inch thick layer of a minimum 2 to 4 inch diameter rock or pre-cast reinforced concrete planks over a base of crushed rock or an NRCS recommended design consistent with Conservation Practice 578 standards. The final placement of the crossing shall result in the top surface of the crossing set at the same elevation of the natural streambed immediately up and downstream of the crossing.

Stormwater Permit

Permit #: 601404

Permit Expiration Date: 10/30/23

This permit has been issued pursuant to Chapter NR216 Wis. Admin. Code and the Waukesha County Stormwater Management and Erosion Control Ordinance (Chapter 14 Code of Ordinances).

Project Name: Mason Creek Streambank Stabilization

Project Type: Misc gradings/blgs

Permit Holders Name: Susan Buchanan, Tall Pines Conservancy, Inc.

Project Location: Pleasant View Road

Survey Township: Merton

Section: 8

Municipality: Town of Merton

Issued By: Marissa Castello

Date Issued: 6/28/22

Waukesha County Department of Parks and Land Use
Land Resources Division
Administration Center
515 W. Moreland Blvd., Room AC260
Waukesha, WI 53188
Phone: 262-896-8300

☒ If checked, this county permit also confers coverage under WPDES stormwater discharge permit WI-S067831-5, issued by the Wisconsin Department of Natural Resources under Chapter NR 216 Wisconsin Administrative Code.

Plans & Approvals (office use only)

☐ TIS

☒ Erosion Control

☐ Stormwater Management

☐ Foundation Drainage

- Post this permit on premises in clear view from the road -



Waukesha County

Department of Parks and Land Use

Dear Property Owner or Other Responsible Party:

Enclosed is your approved Zoning Permit for a proposed project on your property. **Please review the conditions of approval attached to your Zoning Permit.**

Please contact our office for a new or revised permit if additional activities will occur in conjunction with your project that are not included with your approved Zoning Permit. Such activities may include, but are not limited to, the following:

- **LAND-ALTERING ACTIVITIES** (grading, filling, cutting, etc.)
- **RETAINING WALLS**
- **DECKS, PATIOS** (regardless of material), **AND OTHER APPURTENANCES**
- **TREE CUTTING/ VEGETATION REMOVAL** especially if it is wooded and/or located on or near a lake or river.
- **FLOODPLAIN DEVELOPMENT IN THE C-1 DISTRICT** – development in the Floodplain/C-1 District is restricted on any property or within the road right-of-way.
- **IMPERVIOUS SURFACES (IS)** – certain properties with new or replacement IS as of 10/1/16 require a permit. Please contact our office for more information/permits.

If you have any questions or concerns about your Zoning Permit, please contact the **Planner of the Day** at (262) 548-7790 or pod@waukeshacounty.gov. An appointment is required for an in-person meeting.

PLEASE CONTACT THE BUILDING INSPECTOR TO APPLY FOR A BUILDING PERMIT AND TO DETERMINE IF YOU MUST PROVIDE A HARD COPY OF YOUR ZONING PERMIT PACKET.

In accordance with Wisconsin State Statute 59.691, the property owner is responsible for complying with State and Federal Laws concerning construction near or on wetlands, lakes and streams. Wetlands that are not associated with open water can be difficult to identify. Failure to comply may result in removal or modification of construction that violates the law or other penalties or costs. For more information, visit the Department of Natural Resources Wetlands Identification Webpage www.dnr.wi.gov/wetlands or contact a Department of Natural Resources Service Center.

Application No. M22:046
Construction Commencement
Deadline 01/02/2023
Expiration Date 12/28/2023

THIS CERTIFIES THAT A
ZONING PERMIT

Has been issued to TALL PINES CONSERVANCY, INC., PO BOX 65
to permit wetland scrapes and removal of invasive species in conjunction with Mason Creek realignment and restoration of riparian zones.
on the premises described as LOT 2 CSM #11865 VOL 119/336 REC AS DOC #4401897 & CORRECTED BY DOC #4415230 PT
SW1/4 OF NE1/4 & SE1/4 OF NW1/4 & NW1/4 OF SE1/4 SEC 6 T8N R18E

in the Town of Merton Waukesha County, Wisconsin
Permit issued on July 6 20 22 Permit No. 39026
Dale R. Shaver
Town Building Inspector Zoning Administrator

IMPORTANT:

A BUILDING PERMIT MUST BE APPLIED FOR SEPARATELY IN CONFORMITY WITH THE TOWN BUILDING CODE. BEFORE THE PREMISES MAY BE OCCUPIED AN OCCUPANCY AND USE PERMIT MUST BE ISSUED BY THE TOWN, IF APPLICABLE.

VEGETATION REMOVAL WORKSHEET AND APPLICATION

OFFICE USE ONLY (Form Created 8/29/19)		1002882.002	M22:046	39026
Fee Pd. (see Fee Schedule) _____		Receipt No: _____	Permit Reviewed by: bg	ZP Appl. No. _____ ZP No. _____
ATF Y___N___ Request sent to LA or Professional Y___N___ File _____ Building Inspector _____ Owner _____ Applicant _____				
Zoning Code _____ SFPO ☒		Zoning District(s) C-1/HG/A-1		Compliance with Ordinance: Yes___No___
Legal Description (from survey) LOT 2 CSM #11865			Town Merton	
Natural Resources present on property: PEC___ SEC___ INRA___ FP___ WL___ ☒ Navigable Waterway ☒ RZ95				

See M22:045
for approved plans
and related docs.

Property Owner Tall Pines Conservancy, Inc. (TPC)	Applicant (if different) (see owner information) _____
Tax Key No(s). MRTT0310998008	Mailing Address: _____
Property Address Pleasant View Road, Oconomowoc	_____
Mailing Address P.O. Box 65	_____
Nashotah, WI 53058	Email Address: _____
Email Address susanb@tallpinesconservancy.org	_____
Phone No. 262-369-0500	Phone No. _____

Proposed Vegetation Removal Project (Note: A permit is not required for pruning/trimming):

Describe in detail the proposed work to be completed and the purpose (if more space is needed, attach additional sheets)

TPC proposes to realign a section of Mason Creek. Vegetation removal will include clearing associated with proposed grading (See attached Plans).

Applicability of Vegetation Removal Regulation (*Note: more than one (1) of the vegetation removal types may apply)

*The attached Vegetation Removal Permit Application Submittal Form and Checklist must be included with this application.

- ☒ **Vegetation Removal within 35 feet of a Navigable Waterway**
- Identify the existing and/or proposed access and viewing corridor (vegetation removal is allowed without replacement)
 - One (1) access and viewing corridor is allowed, unless otherwise approved by the Zoning Administrator.
 - All structures/improvements must be located within the access and viewing corridor.
 - The access and viewing corridor is limited to 35% of the shoreline frontage.

Shoreline Frontage 1,500 ft.	Access and Viewing Corridor Width NA ft.	NA % Access and Viewing Corridor
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Priority Tree Removal within 300 feet of a Navigable Waterway

- A tree is designated as a *Priority Tree* only if it meets all of the following criteria:
 - The tree species (type) is identified at the end of the Vegetation Removal Requirements Form, and
 - The tree is at least twelve (12) inches in diameter at breast height, and
 - The tree is located within 300 feet of a navigable waterway.

☒ **Vegetation Removal within an area zoned E-C Environmental Corridor or E-C Environmental Corridor Overlay**

Total Lot Area (sq. ft.) **1,145,528 SF** Sewer Y___N___☒ If no, type of private septic system _____ Private Well Y___N___☒ Other _____

Existing Area of Disturbance on Lot (sq. ft.)* 13,000 SF (driveway)	1 % of the lot disturbed
Post-Project (existing and proposed) Disturbance on Lot (sq. ft.)* 13,000 SF (driveway)	1 % of the lot disturbed post-project

*Area of disturbance includes all structures, un-naturalized yard, septic, and driveway areas on the lot, regardless of E-C status.

☒ **Vegetation Removal within an area zoned C-1 Conservancy or C-1 Conservancy Overlay**

☒ **Land Altering Activities associated with Vegetation Removal**

- Additional permit/s are required for land altering activities. Please contact the Planning and Zoning Division for more information.

The undersigned states that the foregoing information is true and accurate to the best of his/her knowledge; it is hereby agreed that for and in consideration of the issuance of a zoning permit that the foregoing work will be carried out as defined in this application; that all applicable ordinances or codes of the state, county, and town will be complied with in carrying out the proposed work stated in the application, and work will not commence before all required permits have been obtained from the appropriate agencies, as applicable. If any changes or deviations are made from the original application, a new permit is required. Failure to comply with the permit as issued will result in the revocation of the permit or other penalties. By signing this form, the owner or his/her authorized agent is giving their consent for the Dept. of Parks and Land Use to inspect the site as necessary and related to this application even if the property has been posted against trespassing pursuant to Wis. Stat.

Signature (owner) *Austin Buchanan, Executive Director* Date *2.9.22*

Application Approved ☒ Denied___ by Zoning Administrator *Ben Greenberg* Date *7.6.22*

SEE ATTACHED SHEET FOR CONDITIONS OF APPROVAL OR REASONS FOR DENIAL



Waukesha County
Department of Parks and Land Use

CONDITIONS OF ZONING PERMIT APPROVAL: M22:046, #39026

1. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understand and agree to follow ALL conditions of this permit.
2. This permit is for vegetation removal associated with the Mason Creek realignment project and establishment of riparian zone.
3. All vegetation removal shall be in accordance with the approved plans prepared by Stantec with a revision date of February 1, 2021 and submitted to the Waukesha County Planning and Zoning Division on February 16, 2022.
4. Staff members of the Waukesha County Department of Parks and Land Use, or its successor, shall, with ample notice, be permitted to conduct periodic inspections of the property for the purpose of verifying that the replacement Priority Trees remain on the property and are in good standing.
5. **MODIFICATIONS:** You must contact our office if there are any changes to this permitted project before the work is performed. This includes, but is not limited to, vegetation removal, changes to the proposed grades, changes to the house design, newly proposed decks, patios, retaining walls, etc. A revised permit or additional permits may be required. There is a processing fee for minor modifications. A full application fee is required for major modifications and/or newly proposed structures.

Planning and Zoning

515 W. Moreland Blvd., Room AC 230 Waukesha, Wisconsin 53188-3878

Phone: (262) 548-7790 Fax: (262) 896-8071 www.waukeshacounty.gov/planningandzoning

This form applies to all seven types of Zoning Permit application forms/permitting worksheets, Conditional Use Permits, and Site Plan/Plan of Operation Use Permits.

NOTICE OF WETLAND INFORMATION

In accordance with Wisconsin State Statute 59.691, beginning **January 1, 2011**, counties are required to provide the following written notice when issuing certain permits. This information is provided to give you notice regarding potential wetlands. Specifically the statute states: "YOU ARE RESPONSIBLE FOR COMPLYING WITH STATE AND FEDERAL LAWS CONCERNING CONSTRUCTION NEAR OR ON WETLANDS, LAKES, AND STREAMS. WETLANDS THAT ARE NOT ASSOCIATED WITH OPEN WATER CAN BE DIFFICULT TO IDENTIFY. FAILURE TO COMPLY MAY RESULT IN REMOVAL OR MODIFICATION OF CONSTRUCTION THAT VIOLATES THE LAW OR OTHER PENALTIES OR COSTS. FOR MORE INFORMATION, VISIT THE DEPARTMENT OF NATURAL RESOURCES WETLANDS IDENTIFICATION WEB PAGE www.dnr.wi.gov/wetlands OR CONTACT A DEPARTMENT OF NATURAL RESOURCES SERVICE CENTER."

WAUKESHA OFFICE

DNR SERVICE CENTER
141 NW BARSTOW ROOM 180
WAUKESHA WI 53188
262-574-2100-phone
262-574-2117-fax

In lieu of having you return to our office to sign this form upon issuance of your permit, please be advised that by signing this form at the time of application, you are acknowledging receipt of the above notice of the wetland information. If you would like to return to our office at the time we issue your permit and sign the form, you do not have to sign the form at the time of application. However, this may delay the mailing of your permit, when applicable.

Owner's signature/date

Ausan Buchanan

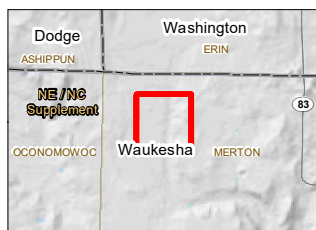
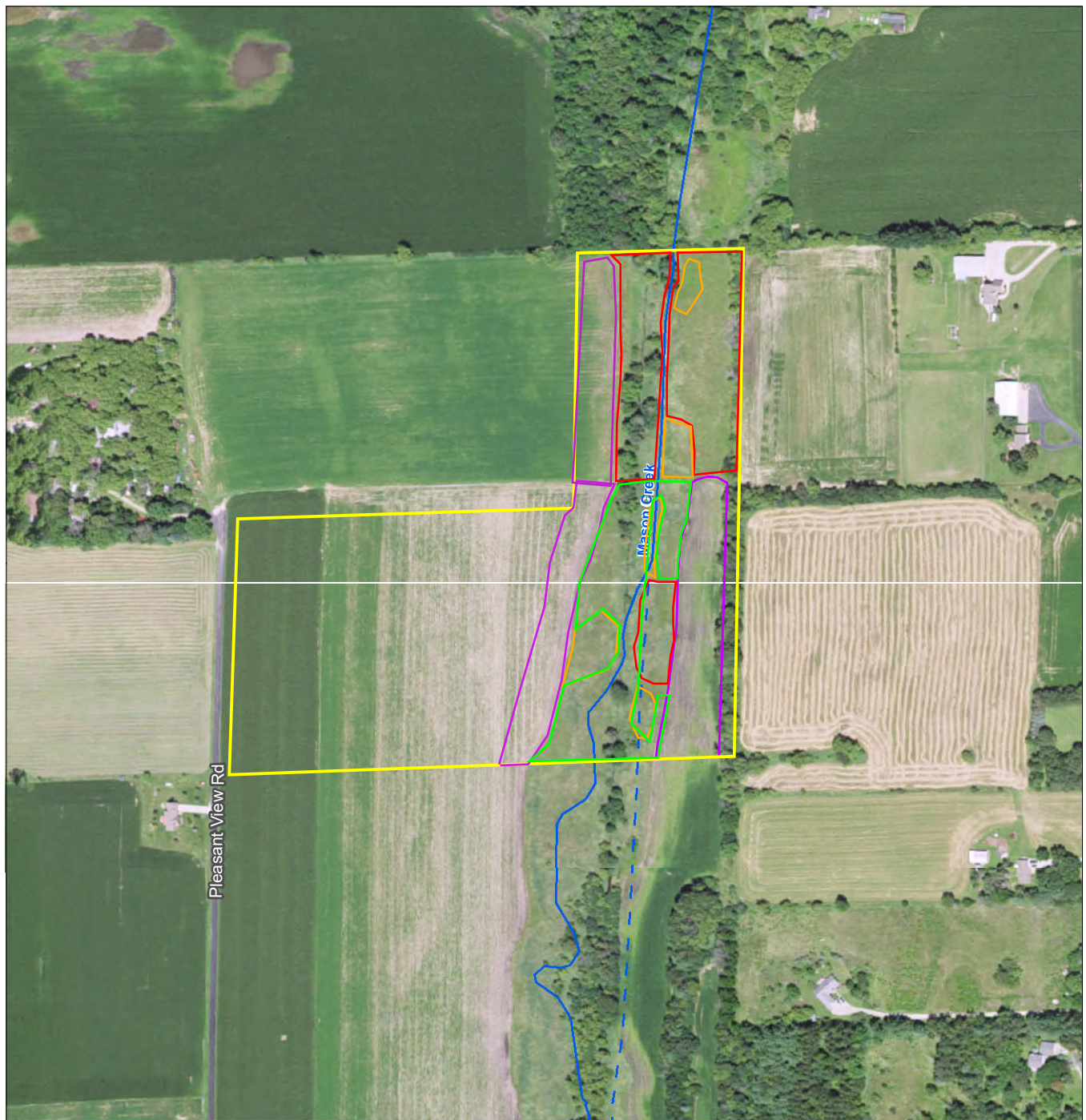
2.11.22

File No. _____

Tax Key No. _____

Street Name/Section No./Town (for Floodplain Development in ROW Permits only)

Waukesha County Department of Parks and Land Use
Planning and Zoning Division
515 W. Moreland Blvd. • Room AC230
Waukesha, Wisconsin 53188
Phone: (262) 548-7790 • Fax: (262) 896-8071
www.waukeshacounty.gov/planningandzoning



- Notes**
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources Include: Stantec, WisDOT, WDNR
 3. Orthophotography: 2017 NADP

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Legend

- Tall Pines Conservancy Project Site (26.46 acres)
- 2020 Native Buffer Planting
- DNR 24k Hydrography
- Perennial Stream
- Intermittent Stream
- Waterbody
- Zone 1 - Sedge Stands, RCG seed heads were clipped and removed in June, Grass-selective in Sept
- Zone 2 - Mixed Sedge/RCG, Grass-selective in Sept
- Zone 3 - Dense RCG, Total Kill in Aug/Sept

Figure No.

1

Title

2021 Pre-Construction Vegetation Management

Client/Project

Tall Pines Conservancy
Water Quality Improvement Project

Project Location

T9N, R18E, S06,
T. of Merton,
Waukesha Co., WI

1937/0000

Prepared by BWT on 2018-12-06
Technical Review by MP on 2018-12-07
Independent Review by MC on 2019-01-30

0 200 400 Feet
1:4,800 (at original document size of 8.5x11)

