MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Notice of Availability of an Environmental Assessment Worksheet (EAW)

Scanlon Reservoir Sediment Remediation

Doc Type: Public Notice

Public comment information

EAW public comment period begins:	**May 25, 2021**
EAW public comment period ends:	**June 24, 2021**
Notice published in the EQB Monitor:	**May 25, 2021**

Facility specific information

Facility name and location:
Scanlon Reservoir Sediment Remediation
Township 49, Range 16, Sections 19, 20, 29, 30, 31, and 32
Township 49, Range 17, Sections 24, 25, and 36
City of Scanlon and Thomson Township
Carlton County

Facility contact:
Minnesota Pollution Control Agency
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MPCA contact information

MPCA EAW contact person:

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General information

The Minnesota Pollution Control Agency (MPCA) is distributing this Environmental Assessment Worksheet (EAW) for a 30-day review and comment period pursuant to the Environmental Quality Board (EQB) rules. The MPCA uses the EAW and any comments received to evaluate the potential for significant environmental effects from the project and decide on the need for an Environmental Impact Statement (EIS).

An electronic version of the EAW is available on the MPCA Environmental Review webpage at https://www.pca.state.mn.us/regulations/projects-under-mpca-review. If you would like a copy of the EAW or NPDES permit, have any questions on the EAW or NPDES permit, contact the appropriate person(s)

Description of proposed project

The Minnesota Pollution Control Agency, in partnership with the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers, will conduct environmental cleanup in the Scanlon Reservoir in the St. Louis River Area of Concern. The objectives are to prevent contaminated sediment exposure to benthic organisms and other aquatic life, to prevent migration of contaminated sediments, and to improve aquatic habitat where feasible. The project consists of applying a 4-inch layer of sand amended with granular activated carbon over sediments in open-water areas, and broadcasting pelletized activated carbon in shallow wetlands areas of the reservoir where sediment contaminants exceed the cleanup criteria.

To submit written comments on the EAW

Written comments on the EAW must be received by the MPCA EAW contact person within the comment period listed above.

NOTE: All comment letters are public documents and will be part of the official public record for this project.

Need for an EIS

The MPCA Commissioner will make a final decision on the need for an EIS after the end of the comment period.

July 2013 version

ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.
Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title:** Scanlon Reservoir Sediment Remediation

2. **Proposer:** Minnesota Pollution Control Agency
   Contact Person: Steven M. Schoff
   Title: Remediation Project Leader
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3. **RGU:** Minnesota Pollution Control Agency
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   Title: Planner Principal
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4. **Reason for EAW Preparation:** (check one)

Required:	Discretionary:
☐ EIS Scoping	☐ Citizen petition
◙ Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

   If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

   Minnesota Rule: part 4410.4300, subpart 27, item A. Public waters, public waters wetlands, and wetlands.

5. **Project Location:** Scanlon Reservoir Sediment Remediation
   County: Carlton County
   City/Township: City of Scanlon and Thomson Township
   PLS Location (¼, ¼, Section, Township, Range): Township, Range, Section
   Township 49, Range 16, Sections 19, 20, 29, 30, 31, and 32
   Township 49, Range 17, Sections 24, 25, and 36
   Watershed (81 major watershed scale): St. Louis River HUC04010201
   GPS Coordinates: Approximate Latitude: 46.71077222
   Approximate Longitude: -92.41666667
   Property Ownership: See Attachment A

Figure 1: Project Location
Figure 2: U.S. Geological Survey Topographic Map
Figure 3: Remedial Areas
Figure 4: Site Boundary
Figure 5: Sediment Characterization
Figure 6: Site Bathymetry
Figure 7: Minnesota Well Index

Attachment A: Property Ownership
Attachment B: SLRAOC Remediation and Restoration Sites
Attachment C: Project Summary
Attachment D: Scanlon Reservoir Sediment Remediation
Attachment E: Wetland Delineation
Attachment F: Minnesota Natural Heritage Review
Attachment G: SHPO Concurrence Letter

6. Project Description:

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

The Minnesota Pollution Control Agency, in partnership with the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers, will conduct environmental cleanup in the Scanlon Reservoir in the St. Louis River Area of Concern. The objectives are to prevent contaminated sediment exposure to benthic organisms and other aquatic life, to prevent migration of contaminated sediments, and to improve aquatic habitat where feasible. The project consists of applying a 4-inch layer of sand amended with granular activated carbon over sediments in open-water areas, and broadcasting pelletized activated carbon in shallow wetlands in areas of the reservoir where sediment contaminants exceed the cleanup criteria.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

The St. Louis River Area of Concern (SLRAOC) (Attachment B) was listed as one of 43 Great Lakes Areas of Concern in 1987 by the International Joint Commission under the "Great Lakes Water Quality Annex I" agreement between the United States and Canada. Historical actions such as improper municipal and industrial waste disposal and unchecked land use practices, including dredging and filling of aquatic habitat and damaging logging practices, contributed to the complex set of issues facing the SLRAOC at the time it was listed. The cleanup of contaminated sediments at the Scanlon Reservoir (Reservoir) is a priority project on the management action list to restore the SLRAOC.

The Reservoir is approximately 43 acres in size and consists of the water body immediately upriver of the Scanlon Reservoir Dam (Dam) within the SLRAOC (Figures 1 and 2). The Minnesota Pollution Control Agency (MPCA) defines the project limit in Figures 3 and 4.

The MPCA, the U.S. Environmental Protection Agency (EPA), and the U.S. Army Corp of Engineers (USACE) conducted contaminated sediment studies in the Reservoir for more than 10 years (Figure 5, Attachments C and D). Sediment characterization of the Reservoir from 2010-2016 identified sediments contaminated with dioxins/furans (contaminants of concern [COC]) likely from historically deposited materials. While the MPCA and the EPA identified contaminated sediment generally throughout the Reservoir, COC concentrations exceeding the Midpoint Sediment Quality Target (SQT) are present in an approximately 13.5-acre area (remedial footprint). The MPCA estimates there are approximately 55,000 cubic yards of contaminated sediments within the remedial footprint.

The MPCA considers the contaminated sediment to present a high likelihood of significant effects to benthic invertebrates (such as dragonflies, mayflies and stoneflies). The COC concentrations found in the sediments are likely to transfer through pore water and bioaccumulate into the food web through benthic organisms to higher trophic levels, making this a high priority site for remedial action in the SLRAOC.

The MPCA and the EPA will develop a Great Lakes Legacy Act Project Agreement (Project Agreement) to conduct a cleanup of open-water and shallower areas and wetlands (Attachment E) in the Reservoir. The MPCA selected these areas to comprise the remedial footprint where sediments have COCs exceeding the SQTs, or where net deposition was suspected based on bathymetry, aerial imagery and sediment stability analysis.

The MPCA is conducting this work in accordance with the "St. Louis River System Remedial Action Plan"[1] prepared by the MPCA and Wisconsin Department of Natural Resources (WDNR) 2013 (updated annually), and hereafter referred to as the RAP. The RAP and annual updates are all approved by the SLRAOC leadership team consisting of members from the MPCA, the Fond du Lac Band of Lake Superior Chippewa, the Minnesota Department of Natural Resources (DNR) and the WDNR.

The Scanlon Reservoir Sediment Remediation project (Project) uses the approaches and technologies currently available for successfully remediating contaminated sediments. The overall design for the Project is consistent with approaches identified in EPA's guidance on contaminated sediment remediation (EPA 2005) and guidance developed by the Interstate Technology & Regulatory Council (ITRC 2014).

The MPCA and EPA intend to partner with the USACE to provide the construction oversight and quality assurance for the Project. The MPCA and the USACE jointly established the horizontal extent and footprint for the Project (Figures 3 and 4). The EPA will hire a contractor (Contractor) to complete the remedial action in two phases.

The Project includes applying a 4-inch layer of sand amended with granular activated carbon (GAC) over contaminated sediments in open-water areas. In shallower water and wetland areas, the Contractor will directly broadcast a pelletized activated carbon (PAC) amendment in a very thin layer to minimize impacts to aquatic macrophytes (such as cattails, water hyacinth, and duckweed). The addition of the GAC and PAC will reduce the bioavailability of dioxins/furans to

[1] https://www.pca.state.mn.us/sites/default/files/wq-ws1-31.pdf

the benthic organisms in the sediment. In order to access the Reservoir, the MPCA will widen an existing trail (unofficially called the St. Louis River Trail [Trail]) on Minnesota Power's property by clearing some trees and brush near the Dam for an access ramp, and a staging area for remedial equipment and material.

Remedial Action

The remedial action at the Project consists of two phases:

- A land phase which will occur in the fall of 2021 through the spring of 2022, and
- An in-water phase which will occur in the summer of 2022.

Phase I – Land Phase

The Project land phase (approximately 4 acres) will include all preparation activities required to prepare for the future in-water phase of the Project.

The Contractor will mobilize equipment to the Project site, which may include: shallow draft marine equipment, temporary dock sectional barges, support vessels, land-based excavators, material hopper and conveyor systems, pipelines, material transport barges and proprietary material placement devices. The Contractor will set up a large crane (approximately 150-ton) north of the Scanlon Hydro Station substation to place and move the in-water equipment, and to remove equipment following Project completion.

The Contractor will install erosion and sedimentation control best management practices (BMPs) in compliance with all local, state and federal guidelines prior to disturbing the soil at the Project site. The Contractor's Stormwater Pollution Prevention Plan (SWPPP) and Environmental Protection Plan (EPP) will describe how they will implement BMPs, control erosion, and prevent turbid releases of stormwater to adjacent water bodies. The MPCA expects the BMPs to include silt fencing, hay bales and straw wattles (or equivalent). The Contractor will grade those areas targeted for Project clearing and construction to allow for positive drainage during execution of sediment remediation work.

The Contractor will clear the Project site prior to construction activities. This includes removing woody vegetation (i.e., brush and trees) in designated areas for the access road, staging area, and shoreline access limits. In total, up to 2 acres within the Project work limits will require clearing (Figures 3 and 4).

The Project design includes the installation of a less than 20 foot wide access ramp through an approximately 40 foot long area from uplands to the Reservoir shoreline to further minimize impacts to wetland areas by limiting access to a specified area along the shoreline. The MPCA designed the access ramp as a temporary structure, but does not plan to remove or restore it when the Project is complete. Minnesota Power would prefer to have the ramp left in place in case it needs access in the future. DNR staff are aware of the ramp construction, and MPCA included the design in the DNR Public Waters Work Permit application. There is an existing rough access ramp directly adjacent to where the MPCA proposes to build the new ramp. The Project includes restoring the vegetation and site where the existing access ramp is so that the Project will not add an additional access ramp; rather, the Project will replace the current ramp with a new ramp. This is necessary to provide the substrate and slopes to support the construction equipment, which the current ramp cannot do. The Contractor will also construct a dock area to support the in-water remedial work in 2022.

The Contractor will access the Project site directly off Highway 61, and continue through the Scanlon Park and up the Trail. Minnesota Power owns the Trail property and is granting the EPA an access agreement for construction. Much of this access route is already cleared and traveled by foot and motorized vehicles. The temporary road installation on the Trail will require the Contractor to clear vegetation, conduct earthwork, and place gravel suitable for equipment and haul truck travel to make it usable for this Project. The Contractor will have access controls in place such as signage and fencing as well as security to protect the public during the Project.

The Contractor will construct a staging area adjacent to the Reservoir, level soil to an elevation of approximately 1,137 feet (North American Datum of 1983), clear vegetation as necessary, establish parking areas, and place an office trailer along with equipment and material in the Project staging area.

Following earthwork completion and construction of the staging area and temporary access, the Contractor will stabilize the Project site for the winter.

Phase II – In-Water Phase
In the summer of 2022, the Contractor will begin in-water work.

The Project's remedial design is based on treatability testing results and findings from the Remedial Alternative Analysis (Anchor QEA/Baird Joint Venture, February 12, 2020). This is a hybrid remedy that includes both the placement of a GAC-sand blended cover in open-water areas, and PAC in surrounding shallows and wetland areas. The MPCA and EPA designed the remedy to maximize the benefits of each type of activated carbon amendment application, while minimizing impacts to existing aquatic habitat.

In the open-water remedial areas, the GAC-sand blended cover limits contaminant bioavailability and transport, and also provides a new benthic layer that immediately reduces hydrophobic organic contaminant (HOC) flux and exposure to receptors.

The Contractor will blend approximately 105 tons of GAC with approximately 4,000 to 5,000 cubic yards of medium sand, and place it over 6.1 acres of contaminated sediments in targeted, open-water areas. This quantity assumes a minimum placement thickness of 4 inches of GAC-sand blended cover across the 6.1 acres, with up to 2 inches of allowable over-placement (up to 6 inches total).

The Contractor can install the GAC-sand blended cover with different types of equipment such as a hydraulic spreader, a mechanical spreader, a mechanical clamshell or conveyor belts. The Contractor will select the type of placement equipment and submit a detailed work plan to the MPCA and EPA. The Contractor will adhere to all permit conditions and BMPs during GAC-sand blended cover placement operations as outlined in the Project technical specifications.

The Contractor will begin open-water placement operations working upstream to downstream, first deploying turbidity curtains downstream of active placement areas. The Contractor will select a curtain system that provides environmental protection and complies with permit requirements. Post-placement, the Contractor will survey the amended area.

The remaining area of the Project's remedial footprint includes approximately 7.4 acres of delineated wetland areas and the surrounding shallows where water depths are approximately 0 to 4 feet. The Contractor will broadcast approximately 160 tons of PAC with the minimal layer thickness that corresponds to the design dose (less than 0.25 inch). The Contractor may

broadcast the PAC with the use of pneumatic blowers, telebelts, conventional excavators and other proprietary devices such as conveyor-fed broadcast discs.

Following completion of the amendment placement activities, the Contractor will decontaminate and demobilize all supporting equipment and materials from the Reservoir. The Contractor will restore impacted upland areas of the Project site with new, native live trees and seed. The MPCA and EPA will develop the details of the re-vegetation plan in consultation with USACE biologists and Minnesota Power. The Contractor will decommission the staging area and access roads following restoration per Minnesota Power's requirements.

The MPCA anticipates Project construction to occur from October 2021 to December 2022. The MPCA will determine the exact Project schedule once a Contractor is selected.

c. Project magnitude:

Total Project Acreage	17.5 acres
Linear Project length	1760 feet
Number and type of residential units	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	N/A
Structure height(s)	N/A

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

Previous investigations at the Project site identified sediment contaminated with dioxins/furans. The cleanup of contaminated sediments at the Project site is a priority project in the SLRAOC RAP, which provides a comprehensive plan for delisting the SLRAOC. Environmental benefits include improved water quality and aquatic habitat due to the reduction of contaminant uptake from pore water sediments. Improved aquatic habitat for benthic organisms transfers through the food web to fish and invertebrates, which are consumed by predators and humans.

e. Are future stages of this development including development on any other property planned or likely to happen? ☐Yes ■ No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

The Project is part of ongoing remediation work occurring in the St. Louis River (SLR) for the SLRAOC. The Project is independent of the other projects; however, the MPCA, DNR and WDNR are completing other remediation and restoration projects in the SLR estuary (Estuary) as shown on Attachment B.

f. Is this project a subsequent stage of an earlier project? ☐Yes ■ No
If yes, briefly describe the past development, timeline and any past environmental review.

Refer to Attachment B. The MPCA, DNR or WDNR have completed environmental review on all of the projects shown as either completed or underway.

7. Cover types: Estimate the acreage of the site with each of the following cover types before and after development:

Cover Type	Before	After	Cover Type	Before	After
Wetlands (<6 ft.)	7.4 acres	7.4 acres	Lawn/landscaping	0	0
Deep water (> 6 ft.)	6.1 acres	6.1 acres	Impervious surface	0	0
Wooded/forest	0	0	Stormwater Pond	0	0
Brush/Grassland	4	4	Other (non-vegetated islands)	0	0
Cropland	0	0			
TOTAL	**17.5 acres**	**17.5 acres**	**TOTAL**	**acres**	**acres**

8. Permits and Approvals Required: List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Type of application	Status
DNR	• Public Waters Work Permit • Water Appropriation Permit • Lake Superior Coastal Zone Federal Consistency Letter	To be submitted To be submitted To be submitted
MPCA	• National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater General Permit • Clean Water Act (CWA) Section 401 Water Quality Certification	To be submitted To be submitted, if needed (a blanket 401 Certification may be included in USACE Nationwide Permit)
MHS – SHPO*	• Section 106 concurrence letter	To be submitted
Tribal Nations**	• Section 106 concurrence letter	To be submitted
USACE	• RHA, Section 10*** • CWA Section 404 Authorization *The USACE St. Paul District Regulatory Office has indicated that the Project may fall under USACE general nationwide permit actions, which it will decide upon application submittal.*	To be submitted To be submitted
Carlton County	• Construction Stormwater Permit • Wetland Conservation Act • Filling/Grading Permit****	To be submitted To be submitted To be submitted

* Minnesota Historical Society (MHS) State Historic Preservation Office (SHPO)

** The Fond du Lac Band of Lake Superior Chippewa, the Lac du Flambeau Band of Lake Superior Chippewa, and the 1854 Treaty Authority have all actively participated in Project discussions and provided feedback. Other Tribal Nations have been consulted and may provide comments.

*** Rivers and Harbors Appropriation Act of 1899 (RHA)

**** Carlton County Technical Evaluation Panel may also review the Project for Wetland Conservation Act (WCA) compliance.

The MPCA is pursuing a Great Lakes Legacy Act Project Agreement with EPA to conduct a remedial action for the Project site, which will facilitate removing beneficial use impairments and delisting the SLRAOC. The MPCA and the EPA have the authority and capability to perform the Project and intend to cooperate in financing of the Project. The estimated total cost of the Project is $5,849,834. The EPA's share of the Project costs will be 65%, funded by the Great Lakes Legacy Act. The MPCA's share of the Project costs will be 35%, funded by Minnesota bond appropriations designated for the design and implementation of contaminated sediment management actions to restore water quality in the SLRAOC.

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. Land use:

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

The Reservoir is one of five reservoirs downstream of the City of Cloquet that regulate stream flow into the downstream portion of the SLR. The Project site consists of the 43-acre impoundment created by dams immediately east of the City of Scanlon and downstream of the nearby City of Cloquet. The Scanlon Hydro Station and associated dams bound the Project site to the south (Figure 4). Minnesota Power owns and operates the Scanlon Hydro Station. The power generating and dam infrastructure consists of four major components: a west channel dam; an east channel dam; and, two non-overflow gravity dams on the island that separates the east and west channels of the SLR. The Scanlon Hydro Station is a "run of river" station that relies on surface water flow through the Reservoir (i.e., not stored water) to generate electricity.

Beyond the Scanlon Hydro Station, the downstream portions of the SLR are surrounded by a mix of residential properties, commercial properties and forested lands.

The Project site is also bounded by forested lands owned by Minnesota Power and Sappi Cloquet, LLC. The forested lands extend for nearly 1 mile to the east, northeast, and north of the Project site, bordered by low-density residential neighborhoods and farmlands. Upriver and to the northwest of the Project site are the cities of Scanlon and Cloquet, including former industrial facilities known to have discharged wastewaters into the SLR up until approximately 1979. The Project site is bounded to the west by a small strip of forested land between the Project site and State Highway 45. Beyond State Highway 45 are residential neighborhoods in the City of Scanlon.

The SLR below the Dam is used for whitewater rafting. The section of the SLR downstream of the Reservoir is a popular location for white water kayaking. This 5-mile stretch of the SLR has Class 2 through Class 6 rapids and is publicized as a kayaking destination on the DNR website.

There is no formal public land access to the Reservoir. Some trespassers will fish from shore at the Reservoir. While the land adjacent to the SLR, below the Dam, is owned by Minnesota Power, it has opened a portion of its land to public access along the Trail (unofficial trail).

The Scanlon River Park includes a road access off of Highway 61 that continues to a small parking lot with changing rooms, a walk in watercraft access, and a fishing pier. This area connects to a short segment of the existing Trail. Foot traffic occurs on the Trail that runs along the SLR below the Dam.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

Minnesota Power and Sappi Cloquet, LLC own the forested lands surrounding the Project site. The forested lands extend for nearly 1 mile to the east, northeast and north of the Project site. There is no additional planned use for this area beyond its current use.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The Federal Emergency Management Agency's (FEMA) designates the entire Project within Zone A1 and the 100-year floodplain on the Flood Insurance Rate Map (Community-Panel Number 270046A) described as the SLR. The Project construction will not induce flooding or floodplain development because the MPCA will not significantly alter the land or water bodies within the construction area (Figure 6).

The Project is also within the limits of Minnesota's Lake Superior Coastal Zone. The Project is "consistent to the maximum extent practicable" with the Coastal Zone Management Act, Minnesota's Lake Superior Coastal Program, and the Federal Executive Order on Flood Plain Management (E.O. 11988) because placement of a GAC-sand blended cover and PAC over the contaminated sediments in the Project area is the most practicable alternative in the floodplain to achieve the proposed sediment remediation. The remediated sediment will improve the ecological health of the coastal zone within the Estuary and the proposed actions will not adversely affect the coastal zone.

The Reservoir is found in the southwest and downstream part of the Thomson Wetlands Ecologically Significant Area (ESA). This is an ecological area mostly along the east side of the SLR, occupying approximately 787 acres. The Project area in the Reservoir covers approximately 17.5 acres, and is in the southwest corner of the Thomson Wetlands ESA.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

As noted above and in the Project plan drawings, the Contractor will widen the segment of the Trail to allow for equipment access. For the duration of the Project construction, the Contractor will temporarily close the Scanlon River Park and this segment of the Trail to all public access. The Contractor will place barriers and signage notifying the public of the closure. The MPCA is conducting the Project in the Reservoir, and will return the area to similar, but improved conditions after construction. Therefore, the Project will only temporarily interfere with current nearby land uses. The Western Lake Superior Sanitary District, which has an easement for a sewer main along the Trail, expressed its support for improvements to the Trail.

Since the Project is not changing the existing land use, it will continue to be compatible with surrounding land use.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

The MPCA, EPA, USACE and its consultants are working with Minnesota Power to ensure compatibility with planned future use of the Project site. Specifically, the Project will include restoration of areas impacted by the Project, including re-vegetating with native plant species.

10. Geology, soils and topography/land forms:

a. Geology - Describe the geology underlying the Project site and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The Project is within the Reservoir in a reach of the SLR between the Potlatch Dam and the Scanlon Reservoir Dam, which is in and adjacent to the City of Scanlon. The bedrock beneath and surrounding the Project site within this reach of the SLR consists of metagraywackes, metasiltstones, and slates of the Precambrian metasedimentary Thomson formation. The Thomson formation bedrock is exposed at the land surface in many areas in the Project vicinity. The exposed bedrock forms a series of east-west trending ridges in the Project vicinity. Where bedrock is not exposed at the surface, it is overlain by thin layers of the late Pleistocene channel deposits of the Nickerson phase of the Superior lobe late Wisconsin glaciation. The Nickerson phase channel deposits are comprised mostly of sandy materials in this area. Within the Reservoir where the MPCA will implement the Project, the Thomson Formation bedrock is overlain by varying thicknesses of aquatic sediments consisting of silts, silty sands and sands. Contamination within these aquatic sediments are the Project target.

The MPCA does not expect that the Project will have an impact on any natural geologic features or water resources in the area.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.
NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

The Project site is surrounded by upland undeveloped forested areas in an area of east-west trending bedrock ridges that are thinly covered by varying thicknesses of Nickerson phase channel deposit derived soils. The Project is at the eastern edge of the North Shore Highlands Subsection of the Laurentian Mixed Forest Province, as described in accordance with the DNR Ecological Classification System. Native soils at the Project site developed from sandy materials of the Nickerson phase channel deposits of the Superior Lobe of late Wisconsin glaciation.

During the pre-design investigation, MPCA and EPA collected sediment cores from the remedial footprint within the Reservoir. These generally consisted of soft, loosely consolidated aquatic clays, silts and sands with varying amounts of rootlets and other organic plant debris.

During constructions activities, the Contractor will use BMPs and upland erosion control measures in areas of soil disturbance as described in its SWPPP.

Following Project construction and to prevent erosion, the Contractor will restore and stabilize all upland areas where soils were disturbed. Soil restoration and stabilization will include regrading, and revegetating with native plant species.

11. Water resources:

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

The Project site is within a reach of the SLR between the Potlatch Dam and the Scanlon Reservoir Dam (Stream Identification Number 04010201-516).

The MPCA classifies this reach of the SLR under Minn. R. 7050.0470, as a Class 2B, 3C, 4A, 4B, 5, and 6 waterbody. The SLR has protection status as outlined by the general standards for waters of the state (Minn. R. 7050.0210) and the specific water quality (WQ) standards for each class (Minn. R. 7050.0220 through 7050.0226). The MPCA lists the applicable state classifications and the referenced WQ standards below:

- Class 2B: Minn. R. 7050.0222, subp. 1 and 4. Defines applicable WQ standards for aquatic life and recreation (includes cool and warm water sport fish).
- Class 3C: industrial consumption (includes all waters of the state that are or industry may use as a source of supply for industrial process or cooling water, or any other industrial or commercial purposes, and for which quality control is or may be necessary to protect the public health, safety, or welfare). Class 3C also specifies the protection of cool and warm water sport fish, indigenous aquatic life, and wetlands. Minn. R. 7050.0223, subp. 1 and 4 describes these applicable WQ standards.
- Class 4A and 4B: agriculture and wildlife. Includes all waters of the state that agriculture may use for any agricultural purposes, including stock watering and irrigation, or by waterfowl or other wildlife and for which quality control is or may be necessary to

protect terrestrial life and its habitat or the public health, safety, or welfare. Class 4A also includes a sulfate limit of 10 milligrams per liter (mg/L) for the protection of wild rice where it is present. Class 4A waters also include cold-water sport fish (trout waters) and 4B waters include cool and warm water sport fish. Minn. R. 7050.0220 subp. 3a and 4a, and 7050.0224, subp. 1, 2 and 3 defines these applicable WQ standards.

- Class 5: aesthetic enjoyment and navigation. Minn. R. 7050.0220, subp. 3a, and 7050.0225 define these applicable WQ standards.
- Class 6: other uses and protection of border waters. Minn. R. 7050.0226 defines these applicable WQ standards.

Furthermore, the more restrictive WQ standards for the parameters listed at Minn. R. 7052.0100, subp. 5 (e.g., total mercury limit of 1.3 nanograms/liter) applies to the SLR because it is within the Lake Superior Basin.

The SLR is listed as impaired on the MPCA CWA Impaired Waters List.

Reach name	Reach Description	Year added to List	Stream/ River Segment ID	Affected designated use	Pollutant or stressor
St. Louis River	Below the Potlatch Dam to the Scanlon Reservoir Dam	1998, 2002	04010201-516	Aquatic Consumption	-Mercury in fish tissue - polychlorinated biphenyl (PCB) in fish tissue

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

The Contractor will complete the Project within the waters of the Reservoir section of the SLR and the adjacent upland. The MPCA does not anticipate construction work will impact groundwater resources within the Project site.

The MPCA has not established the depth to groundwater within the uplands at the Project site. Groundwater within the upland areas resides within fractures in the Precambrian Thomson formation, which consists of metagraywackes, metasiltstones, and slates in the Project vicinity. The MPCA did not identify any springs or seeps at the Project site. Any groundwater discharge to the SLR via fracture flow in the Thomson formation would likely be at or below the normal river stage that is controlled to +/- 1 foot in this area.

The Project is not in a wellhead protection area (Figure 7).

There are no wells within the Project vicinity. The MPCA verified this through reconnaissance of the adjacent upland areas surrounding the Reservoir.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) **If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.**

   No significant sources of wastewater exist for this Project. If the Contractor uses water from the Reservoir or hauls water in to the Project site for cleaning equipment, it will collect the water in onsite holding tanks (for settling of any suspended sediments) and dispose of that water at a publicly owned treatment facility. The Contractor will confirm the water meets all standards for treatment facility acceptance. The MPCA expects a minimal quantity of wastewater.

2) **If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.**

   Not applicable.

3) **If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.**

   Not applicable.

ii. **Stormwater - Describe the quantity and quality of stormwater runoff at the site before and post construction. Include the routes and receiving waterbodies for runoff from the site (major downstream waterbodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.**

   The MPCA has not conducted a stormwater study at the Project site. Current and expected precipitation runoff from the Project site naturally discharges to the SLR. The SLR ultimately discharges into Lake Superior near Duluth and Superior. The Project site is a forested area with an existing Trail and hydro power station infrastructure, which drains to the Reservoir. The MPCA is not aware of any stormwater-related water quality issues at the Project site.

   Construction-related impacts to stormwater may include reduced infiltration at the proposed staging area near the Dam, and potentially along the Trail if widening is required by the Contractor for construction access. Since the staging area will possibly increase runoff from the Project site, the MPCA proposes installing a culvert at the staging area near the Dam to bypass the Trail, and discharge the stormwater into the SLR immediately south (downstream) of the Dam. The MPCA anticipates limited environmental impact from the above activities given the relatively small areas involved, combined with the erosion control and stormwater pollution prevention measures required for the Project (see below).
   The Contractor will comply with all federal, state and local guidelines regarding stormwater and erosion control, including installing:

- Stormwater ditches on both sides of the temporary construction access road
- Silt fencing
- Inlet and outlet control measures for a proposed culvert (i.e. silt fencing and grate at inlet, riprap at outlet)

The Contractor will prepare a SWPPP, and install and maintain stormwater BMPs throughout the duration of the Project. The planting plan includes the installation of erosion control blankets and native plant species that will help prevent erosion at the Project post-construction and into the future.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

The Contractor may propose to use hydraulic methods for transport and placement of the carbon amendment within the Reservoir. A pump and pipeline system draws water from the Reservoir to slurry the amendment materials, and hydraulically transfers the slurry to remedial areas. This approach results in no net loss/removal of surface water within the Reservoir during placement, as the drawn water is immediately discharged back to the Reservoir along with the amendment materials. The Contractor may use other transport methods such as barging the materials to the placement equipment, in which case the Contractor would not draw water from the Reservoir during the Project.

The MPCA will apply for and obtain a DNR water appropriation permit prior to the Project's remedial activities.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

Direct impacts from the Project include placement of PAC directly over the wetland areas in order to promote accelerated natural recovery of the sediments and for habitat restoration purposes. The application thickness of the PAC is less than 0.25 inches, and the MPCA anticipates it will have minimal effects to vegetation that are temporary in nature. Based on past USACE studies of thin layer (6-inch) placement of sediments to restore wetlands, vegetative impacts following thin layer placement in aquatic environments are temporary in nature and the vegetation recovers in a robust manner within two to three growing seasons. Since the amendment application to wetland areas in the Project's remedial footprint is less than an inch of placed material, the MPCA expects recovery within one to two growing seasons. As such, the MPCA does not anticipate requiring compensatory mitigation, because the Project will result in a net positive environmental benefit.

The MPCA and EPA evaluated multiple remedial technologies for addressing dioxin/furan contamination in sediments in wetland areas. Direct amendment with activated carbon, as proposed for this Project, was selected as the lowest impact remedy that could achieve Project goals. To further minimize potential impacts to wetland areas, the Contractor will broadcast PAC directly over remedial areas resulting in minimal disturbance compared to conventional delivery methods (e.g., GAC-sand blended cover).

The Project design includes the installation of a less than 20 foot wide access ramp through an approximately 40 foot long area from uplands to the Reservoir shoreline to further minimize impacts to wetland areas by limiting access to a specified area along the shoreline.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any waterbody, including current and projected watercraft usage.

The MPCA expects a temporary increase in total suspended solids (TSS) to occur during the activated carbon amendment placement within the Reservoir. The amendment material will fall through the water column and settle on the riverbed in the work area. The MPCA expects temporary, minimal increases to the TSS, isolated to the immediate area of amendment application.

The MPCA, USACE and DNR met and suggested a TSS limit of 15 mg/L above background as a preliminary water quality criteria for the Project. Since TSS measurements require long turnaround times (due to analytical testing), it was proposed to use turbidity as a field surrogate for construction monitoring purposes. This approach is fairly standard for other regional and national sediment remediation projects in order to protect aquatic habitat and water quality. As such, the MPCA proposed that the Contractor measure both TSS and turbidity daily to arrive at a correlation between the two measurements during the initial construction ramp up phase. Following that phase, the Contractor will measure turbidity as a surrogate and compare

upstream and downstream locations, to ensure the TSS stays below 15 mg/L above background. The Contractor will take weekly TSS measurements following ramp up, and continue to correlate TSS and turbidity. Some additional considerations are listed below.

The Contractor will install turbidity curtains and any other necessary BMPs to control movement of suspended sediments from within the work areas out to the main SLR channel. Once the proper BMPs are in place, the Contractor will not monitor turbidity generated within the work area. The Contractor will monitor turbidity outside of the work area to ensure effectiveness of the BMPs. Following completion of carbon amendment placement, the Contractor will not remove the silt curtains enclosing the work areas until the work area TSS is less than 15 mg/L above background.

BMPs to mitigate impacts

Several MPCA water quality standards protect this waterbody's designated uses (see Item 11.a.i. above). The Contractor will use BMPs to ensure the Project will meet water quality standards (TSS of 15 mg/L above background) outside to the maximum extent practicable. The BMPs also serve to help avoid and minimize the Project's potential to exacerbate the SLR's existing CWA 303(d) listed impairments identified in Item 11.a.i. If it is determined that the proposed BMPs are not adequate to mitigate impacts to water quality, the Contractor will use better-suited BMPs or change its process to meet the Project water quality limits.

Impacts from placing GAC-sand blended cover in the Project's open-water areas

The Contractor will place the GAC-sand blended cover in open-water areas of the Reservoir, outside of delineated wetland areas. During placement, the GAC-sand blended cover settles through the water column onto the sediments in targeted remedial areas, resulting in a new clean surface layer. The amendment limits contaminant transport through the cover, and the cover also provides a new layer for subsequent colonization of benthic organisms that immediately reduces HOC flux and exposure to receptors such as fish. The cover also reduces the potential for scour and transport of contaminated sediments through introduction of a new surface layer. This approach reduces the reliance on natural processes to disperse the activated carbon into the biologically active zone of existing sediments, but also involves the introduction of a thin layer of material that results in changes to the existing sediment bed elevation. The Contractor will place the GAC-sand blended cover as a thin layer; it will have minimal and temporary effects on vegetation in the Reservoir. The MPCA expects the vegetation to recover within two to three growing seasons. The GAC-sand blended cover placement volume effectively reduces the storage capacity of the Reservoir by less than 0.5%, which will have minimal effects on the Reservoir hydrology. Over time, the MPCA expects the amended cover to mix with existing sediments through bioturbation (the reworking of soils and sediments by animals or plants), delivering activated carbon to depths beyond the amended cover thickness, and becoming fully mixed in approximately 30 years (Attachments C and D).

Impacts from placing PAC onto the Project's shallow wetland areas

Over time, the PAC capsules the Contractor places in delineated wetlands and surrounding shallow areas will disaggregate at the sediment surface, integrating the PAC with sediment by natural processes including bioturbation by benthic invertebrates. The natural (passive) post-construction incorporation of activated carbon into surface sediments over time provides a zone of reduced bioavailability, and with negligible changes in bathymetry and Reservoir hydrology. The timeframe for this natural mixing process is approximately three to five years. Since the

amendment application for this Project is less than 1 inch of placed material, the MPCA expects recovery of wetland plants within two to three growing seasons. Restoration project studies of thin layer sediment placement in wetlands supports this projection of vegetative recovery post-placement. Such studies provide a conservative estimate for the Project, as the studies looked at approximately 6 to 12 inches of sediments placed, whereas for this Project, the thickness is less than 1 inch. Therefore, the MPCA expects minimal actual vegetative effects and recovery timeframes likely faster than these projections (Attachments C and D).

12. Contamination/Hazardous Materials/Wastes:

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

Remedial investigations conducted in 2011, 2014 and 2016, identified dioxin/furan concentrations in the low flow, depositional areas of the Reservoir sediment exceeding state SQTs for benthic organisms. The MPCA considered the dioxin/furan concentrations in the sediment to present a high likelihood of significant effects to benthic invertebrates.

The MPCA's goal is to limit dioxins/furans found in the Reservoir's sediments, thereby reducing the transfer of contamination up the food chain, and the exposure risk to human health, aquatic organisms and the environment.

The Contractor will prepare an EPP and review it with the Federal contracting officer prior to construction. The EPP will include a description of planned activities and documentation of requirements related to environmental protection, reporting, permitting and other measures for protecting natural resources.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

The EPA construction contract requires the Contractor to remove all large solid waste such as rubbish, debris, waste materials, garbage and other discarded materials that inhibit the placement of the GAC-sand blended cover in the open-water remedial areas and the PAC in the wetland areas of the remedial footprint. The Contractor may also find solid waste during Project grading and revegetation. The Contractor will dispose of such materials in appropriate landfills and/or recycling centers as applicable, and in accordance with all applicable federal, state and local laws, rules and regulations.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

The Contractor's equipment will require fuel (diesel and/or gasoline) and oils (lubricating and hydraulic). The Contractor will comply with the U.S. Coast Guard and Minnesota Department of Transportation regulations as applicable to marine work, construction activities, and truck transport for handling of fuels and oils. The MPCA will require special measures to prevent chemicals, fuels, oils, greases and other pollutants from entering the waterway.

The Contractor will develop a Contaminant Prevention Plan and a Spill Control Plan in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under state or local laws or regulations. The Contractor will report all spills immediately to the USACE contracting officer and any reportable quantities to the legally required federal, state, and local reporting channels (including the National Response Center 1-800-424-8802 and the Minnesota Duty Officer). The Contractor is required to have spill kits on site to contain and/or neutralize accidental minor discharges. These safeguards minimize the chance of a significant impact.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

The MPCA does not anticipate the generation of hazardous waste as part of the Project. If any hazardous waste is generated, the Contractor will dispose of this waste compliant with Minnesota State regulations.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

a. Describe fish and wildlife resources as well as habitats and vegetation on or near the site.

<u>Fish</u>

The Reservoir is an important fishery. The variety of depths, substrates, aquatic vegetation and protected shallow areas facilitates the various life stages of fish. Fish are likely to spawn in one habitat and feed or shelter in other habitats, with overall use of an area changing depending on the species, life stage and season. The Reservoir is home to important gamefish species such as walleye, muskellunge, smallmouth bass, channel catfish, northern pike, black crappie and bluegill.

The Project's remedial footprint is in shallower water and not in the main channel of the SLR. The Contractor will work outside the timeframe of the fish spawning windows and will install turbidity curtains during construction. One of the MPCA's primary Project objectives is to remove exposure of fish to contaminants that bioaccumulate in the food chain. Although the Project may result in short term impacts to the fish in the Reservoir where carbon amendments are applied to the existing sediment surface, the MPCA anticipates a long-term Project benefit to the health and survival of fish in the SLR.

Wildlife

The Reservoir is a valuable habitat for a diversity of bird species including waterfowl, raptors, shorebirds, gulls and passerines.

The Project may have temporary effects on wildlife due to the removal of vegetation in some areas, and the noise and activity created by the Project. The MPCA designed the Project in a manner to limit the construction duration, and will revegetate the Project post construction.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (ERDB 20150368) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

The USACE completed a Natural Heritage Review for the Project to determine potential impacts to rare species or other significant natural features (Attachment F).

Determinations of the effects on species and ESAs listed in the Minnesota Natural Heritage Information System (NHIS) database are provided in Table 1. Species included are those within a 1-mile radius of the Project site that are also either state or federally listed. All ESAs that were at least partly within the 1-mile radius are also included.

Table 1. NHIS Listings Effects Determinations for the Reservoir Remediation Project.

SPECIES OR ECOLOGICALLY SIGNIFICANT AREA (ESA)	STATE STATUS	FEDERAL STATUS	SHORT-TERM EFFECTS	LONG-TERM & CUMULATIVE EFFECTS
Allium schoenoprasum (wild chives)	Endangered	None	No Effect	No Effect
Lasmigona compressa (creek heelsplitter)	Special Concern	None	None to Insignificant	None to Positive
Ligumia recta (black sandshell mussel)	Special Concern	None	None to Insignificant	None to Positive
Carlton Wetlands ESA	NA	NA	No Effect	No Effect
Thomson Reservoir ESA	NA	NA	None to Insignificant	None to Positive
Thomson Wetlands ESA	NA	NA	Minor	Positive

The Project actions are unlikely to have direct effects on any of these species, and would impact only one ESA, the Thomson Wetlands ESA. This is an ecological area mostly along the east side of the SLR, occupying approximately 787 acres. The Reservoir is found in the southwest and downstream part of the Thomson Wetlands ESA. The Project remediation and upland staging area in the Reservoir is approximately 17.5 acres, and is in the southwest corner of the Thomson Wetlands ESA. The MPCA anticipates the Project will provide ecological benefits by reducing movement of contaminants from sediments to the ecosystem.

Effects on the Thomson Wetlands ESA are limited to the 17.5-acre Project site within the Reservoir and are temporary, primarily occurring during a single construction season. The Project actions may also have temporary, indirect negative effects on NHIS species through operational noise and an increase in turbidity within the remedial area during the construction season. However, positive effects include improvement to water quality and sediment quality in the Reservoir part of the Thomson Wetlands ESA. These positive effects should persist over time as the contaminated sediment is remediated.

The DNR concurred with the USACE's findings, pending a site visit by the DNR regional plant ecologist to determine if wild chive are present and if the Project might impact this species (Attachment F). The site visit will occur during the active growing season in June 2021. If wild chive are present on-site within the work area, the MPCA will work with the DNR, EPA and the Contractor to avoid and mitigate impacts.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

The Project actions may have direct impacts to wildlife, plant communities and the ecosystem due to vegetation clearing and grading during site preparation. The Project may also have direct impacts on benthic species through application of the GAC-sand blended cover and the PAC layer applied to the sediment surface within the remedial area. However, the MPCA expects only temporary impacts, and these will primarily occur during a single construction season at the beginning of the Project. The Project actions may also have indirect impacts on species and ESAs through operational noise, re-introduction of native species, and improvement to water quality. Again, the MPCA expects only temporary negative indirect impacts primarily limited to a single construction season, while positive indirect impacts should persist over time. The USACE determined that the Project will not negatively affect any known occurrences of rare features.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

The Project's remedial footprint is limited to areas where contaminant concentrations in the sediments exceed clean up criteria. As addressed above, the MPCA is tailoring the applications of activated carbon amendments to minimize impacts to aquatic vegetation, while achieving the best remedial outcome possible. The MPCA anticipates the temporary displacement of fish species from the active work areas, but expects fish to return to work areas as remedial activities are concluded, with no adverse effects to population or health. The MPCA will also use

the existing Trail and parking lot for Project access and staging to minimize the amount of vegetation clearing and grading required.

The Contractor will isolate the Project work area from the SLR through the installation of turbidity curtains around the remedial area. This will limit the potential for increased TSS in the SLR outside of the work area.

The Contractor will prevent the introduction, establishment and spread of invasive species within the Project site by cleaning equipment vehicles, gear and/or clothing before arriving at the Project site and after completion of the Project.

If the equipment, vehicles, gear or clothing arrives at the Project with soil, aggregate material, mulch, vegetation (including seeds) or animals, the Contractor will clean these with furnished tools or equipment (brush/broom, compressed air or pressure washer) at the staging area. The Contractor will dispose of material from equipment and clothing at a predetermined location. The Contractor will secure any material leaving the Project site in a sealed container, covered truck or wrapped with a tarp, and legally dispose of it off site.

The Contractor will ensure that all equipment and clothing used for work in infested waters is adequately decontaminated for invasive species (e.g., zebra mussels) before using it in non-infested waters. The Contractor will thoroughly decontaminate all equipment and clothing including, but not limited to waders, tracked vehicles, barges, boats and turbidity curtains that come into contact with any infested waters.

14. Historic properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

The USACE contracted AECOM to complete a Phase I Archaeological Survey (Survey) (dated August 5, 2020) for the Project. The Survey was conducted to identify archaeological resources within the proposed limits of the Project, and if identified, to assess the resource's significance in terms of meeting the criteria for listing in the National Register of Historic Places (NRHP). The field reconnaissance included a visual pedestrian survey of the entire Project site supplemented by the excavation of 15 shovel test pits at 15-meter (50-foot) intervals. The pedestrian survey involved the examination of 178 pre-plotted sample loci at the 15-meter (50-foot) testing intervals.

The 2020 field reconnaissance resulted in the identification of one archaeological resource, which represents elements of previously inventoried archaeological site 21CL0016. The field reconnaissance identified seven extant features and a surface/A-horizon scatter of historic materials (n=29) within a portion of site 21CL0016, which was previously defined within the current Project. Site 21CL0016 was previously recorded and evaluated for the NRHP in 1999 for the Trunk Highway 45 Reconstruction Project (Ward and McCarthy 1999), and was recommended as eligible for inclusion in the NRHP at that time. The results of the current investigations confirm that

recommendation for the portion of site 21CL0016 within the current Project, and contribute new information to the integrity of a portion of the resource. The features identified during the Survey likely represent the intact remnants of workers cottages dating from 1901 to 1909. These features retain depositional integrity and association with the remnants of the historical sawmill complex previously identified to the south. AECOM recommends avoidance of that portion of site 21CL0016 identified within the Project as a result of the 2020 fieldwork, or further examined through Phase II NRHP testing.

SHPO reviewed the two submittals from the EPA dated January 15, 2021 and March 2, 2021, and concurred with the EPA and MPCA's findings regarding archeological sites either adjacent to or within the Project site (Attachment G). Regarding two storage sheds found on the Project site that the Contractor will remove, SHPO found that the structures do not contribute to the currently identified historic Scanlon Hydroelectric Development.

The Fond du Lac Band of Lake Superior Chippewa made a formal request to EPA to have a tribal representative on-site during all ground disturbing activities. The Project will fund a tribal monitor on-site during all ground-disturbing activities such as tree clearing, grading, staging area preparation, haul road improvement and constructing the access ramp. The EPA will reopen consultation with the SHPO if a tribe or any other consulting party expresses concerns or disagreement with the EPA or the MPCA's efforts to identify historic properties and/or the assessment of adverse effect.

The remainder of the current Project site did not contain any evidence of cultural materials or features, and no further investigations appear warranted outside of the site.

15. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The MPCA does not expect the Project to impair any scenic views or vistas. The Project will temporarily impact vegetation in the area; however, the Contractor will restore impacted upland areas of the Project site with new, native live trees and seed. The MPCA and EPA will develop the details of the re-vegetation plan in consultation with USACE biologists and Minnesota Power.

16. Air:

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

The Project does not include stationary emission sources.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

The MPCA anticipates some effects on air quality from combustible engine emissions on equipment used to load, transport and place materials at the Project. However, the Contractor involved in the Project must meet emission standards on all of its equipment; therefore, the MPCA expects only minor emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

The Contractor will wet the amendment material before spreading it on the water surface in order to minimize dust and odors. The Contractor will control all airborne particulates including dust particles, aerosols and gaseous by-products from construction activities, and from processing and preparation of materials (this includes weekends, holidays, and hours when work is not in progress). Odors related to large engines are limited to the immediate vicinity of the placement operations. The Contractor will follow all federal, state and local laws, regulations and ordinances concerning odor control.

17. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

The Contractor will use construction equipment classified as "mobile equipment" such as cranes and excavators, which operate in cycles of full power followed by reduced power. Typical sounds will include engine noise, sounds of metal on rock, and safety back-up alarms. The Contractor will fit all construction equipment with the appropriate mufflers during each phase of the Project to help maintain noise levels below the state standards. Once the Project is complete, the Contractor will not generate any additional noise beyond removing equipment from the site.

The land surrounding the Project is forested and owned by Minnesota Power and Sappi Cloquet, LLC; there are no close residential landowners. Therefore, the MPCA expects minimal noise impacts to residential landowners. Equipment noise may temporarily impact the workers from Minnesota Power at the Dam site and possible recreation users downstream of the Dam. The MPCA, as required by Minnesota Power, will put up signs along the Trail modified for Project access. The signs will notify the public about the Trail closure and potential noise impacts for the Project duration. The MPCA notified adjacent landowners during the public release of the remedial selection; no comments were received. Stakeholders support the long-term benefit of the Project despite any short term disruptions.

18. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

The MPCA anticipates the Project will have some short-term effects on surface transportation due to trucking of sand and other equipment to the Project site. On roads leading to the Project, the Contractor will transport approximately 4,000 to 5,000 cubic yards of clean sand, 160 tons of PAC, and 105 tons of GAC for use in the remedial action along with equipment and other needed supplies. The Contractor will employ a small number of personnel for the Project; they will stay in local hotels.

The Contractor will source the sand from a land-based site and transport it to the Project by trucking. The Contractor will also ship the GAC and PAC material in large bags by truck. The MPCA anticipates this will result in a minor addition to local traffic because the Contractor will use an existing local truck haul route for transportation of the material.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.

If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.

The MPCA expects less than 250 vehicles or less than 2,500 total daily trips per day.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

All land-based transport will obey all applicable federal, state and local driving laws, and obtain any required permits for such activity.

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The MPCA will disturb the upland Project area (approximately 4 acres) from November 2021 to approximately November 2022, and will disturb the remedial in-water footprint (13.5 acres) from approximately July 2022 to October 2022. The Contractor will complete the Project concurrent with other construction projects within the SLRAOC, but the MPCA or the DNR will construct those projects downstream and should not interact directly with this Project in the Reservoir.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The MPCA, DNR and WDNR are designing and implementing the RAP for a wide variety of SLRAOC projects in the St. Louis Bay area. The nearby work includes the following projects:

SLRAOC Project	Action Item	RGU	Construction
Howard's Bay (including Hughitt and Cummings Slips)	Remediate contaminated sediments	WDNR	2020-2021
Spirit Lake- US Steel	Remediate contaminated sediments	City of Duluth	2020-2023
Pickle Pond	Remediate contaminated sediments and habitat enhancement	WDNR	2021
Ponds behind Erie Pier	Remediate contaminated sediments	MPCA	2021-2022
Superior Light & Power MGP Site/ Coal Slip	Remediate contaminated sediments	WDNR	2022
Munger Landing	Remediate contaminated sediments	MPCA	2022-2023
Perch Lake	Habitat restoration	DNR	2022-2023
Thomson Reservoir	Remediate contaminated sediments	Carlton County	2023

These SLRAOC projects are phased actions that will result in positive improvements to the Estuary's ecosystem by cleaning up contaminated sediments and enhancing biodiversity. The MPCA has examined whether the Project could have a significant effect when considered along with other projects that: (1) are already in existence, are actually planned for, or for which a basis of expectation has been laid; (2) are in the surrounding area; and/or (3) might reasonably be expected to affect the same natural resources.

There are no projects (other than those included in the table above) known to the MPCA that are specifically planned in the same direct geographic area (upper reaches of the lower SLR), and the timeframe (2020-2022) that the MPCA evaluated for interaction of environmental effects. The MPCA and other regulatory agencies will construct multiple projects downstream during the same time period, but the geographic separation should limit interaction between the Project at the Reservoir and other projects in the SLRAOC.

The MPCA does not anticipate direct effects of the Project on the other projects in the area. The sediment remediation at the Project is a stand-alone project, for which the direct environmental impact will remain within the footprint of the Project. Nor does the MPCA anticipate that the other projects will impact the Project. The MPCA will construct all of the remaining sediment remediation projects on the Minnesota side of the SLRAOC from 2021-2024. The MPCA has

already or will prepare separate EAWs for each of the projects listed in the following table where the MPCA is the designated responsible government unit (RGU). The DNR has or will prepare separate EAWs for its restoration projects listed in the following table.

SLRAOC Project	Action Item	RGU	Construction
Radio Tower Bay	Restore aquatic habitat	DNR	Completed 2015
Chambers Grove	Restore aquatic habitat	DNR	Completed 2015
Knowlton Creek	Restore aquatic habitat	DNR	Completed 2016
Minnesota Slip	Remediate contaminated sediments	MPCA	Completed 2018
Slip 3	Remediate contaminated sediments	MPCA	Completed 2018
Slip C	Remediate contaminated sediments	MPCA	Completed 2018
Piping Plover Habitat	Restore wildlife habitat	WDNR	Underway
21st Avenue West Restoration	Restore aquatic habitat	MPCA	Underway
40th Avenue West Restoration	Restore aquatic habitat	MPCA	Underway
Grassy Point Restoration	Remove non-native material and restore optimum bathymetry	DNR	Underway
Kingsbury Bay Restoration	Restore wetland complex	DNR	Underway
Northland Pier/ AGP Slip	Remediate contaminated sediments	MPCA	To be determined
Howard's Bay (including Hughitt and Cummings Slips)	Remediate contaminated sediments	WDNR	2020-2021
Interstate Island Restoration	Restore wildlife habitat	DNR/WDNR	2020-2021
Spirit Lake- US Steel	Remediate contaminated sediments	City of Duluth	2020-2023
Ponds Behind Erie Pier	Remediate contaminated sediments	MPCA	2021-2022
Pickle Pond	Remediate contaminated sediments and habitat enhancement	WDNR	2021
Superior Light & Power MGP Site/ Coal Slip	Remediate contaminated sediments	WDNR	2022
Munger Landing	Remediate contaminated sediments	MPCA	2022-2023
Perch Lake	Habitat restoration	DNR	2022-2023
Thomson Reservoir	Remediate contaminated sediments	Carton County	2023

The MPCA has considered the cumulative potential effects on the floodway for remedial and restoration sites in the SLRAOC. These sites lie within the floodplain mapped for the SLR and Estuary where the effective water surface elevation is 605 feet (National Geodetic Vertical Datum 29). The backwater from Lake Superior controls the effective water surface elevations published by FEMA in this area of the floodplain. Because Lake Superior controls the water surface elevation, the proposed fill placement for the cumulative projects will not increase water surface elevations of the floodplain. Therefore, the placement will not impact mapped floodplains further upstream in portions of the SLR. In addition, the quantity of placed material is coming from existing riverine and Estuary bottom that defines the limits of the floodplain. The placement of this same material in the proposed locations will not impact available conveyance of the SLR.

The MPCA's primary objectives of the Project are to prevent contaminated sediment exposure to benthic organisms and other aquatic life, to prevent migration of contaminated sediments from the Project, and to improve aquatic habitat where feasible. Similar to the other St. Louis Bay aquatic habitat remediation and restoration projects, it is the intent of federal and state agencies that the cumulative effects associated with the dredging and placement of materials will have a positive effect on the SLR and will move the SLRAOC toward the goal of delisting by 2025.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

The MPCA anticipates minor and short-term negative cumulative effects, including fuel use and air emissions from equipment operations, and turbidity in the water column at localized sites, which the MPCA has addressed in this EAW.

The positive cumulative effects from implementation of the SLRAOC projects should provide far greater overall benefits to the ecosystem. These benefits include: increased quantity, quality and diversity of aquatic habitat, submerged aquatic vegetation and macroinvertebrates; increased habitat connectivity; improved water quality; and, improved aesthetics.

20. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

The general area west of the Project (in the City of Scanlon) is an area of concern for environmental justice (EJ). This EJ community includes a high percentage of low-income residences, based on U.S. Census tract data.

The MPCA is committed to making sure that pollution does not have a disproportionate impact on any group of people, and that people are provided equal levels of environmental protection and have opportunities to participate in decisions that may affect their environment and health. Since this Project is improving the water quality of the Reservoir and the fish within it that EJ residents may consume, the MPCA views the Project as a benefit to this EJ area.

To reach the community potentially affected by this Project, the MPCA announced the environmental review of the Project on its website, Facebook account and through a press release. The MPCA also sent letters explaining the Project and the environmental review process to three community groups in the area.

The MPCA does not anticipate additional environmental impacts from the Project other than those already discussed in this EAW.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Dan R. Card, P.E.

Signature *This document has been electronically signed.* Date May 17, 2021

Dan R. Card, P.E., Supervisor
Environmental Review Unit
St. Paul Office
Resource Management and Assistance Division

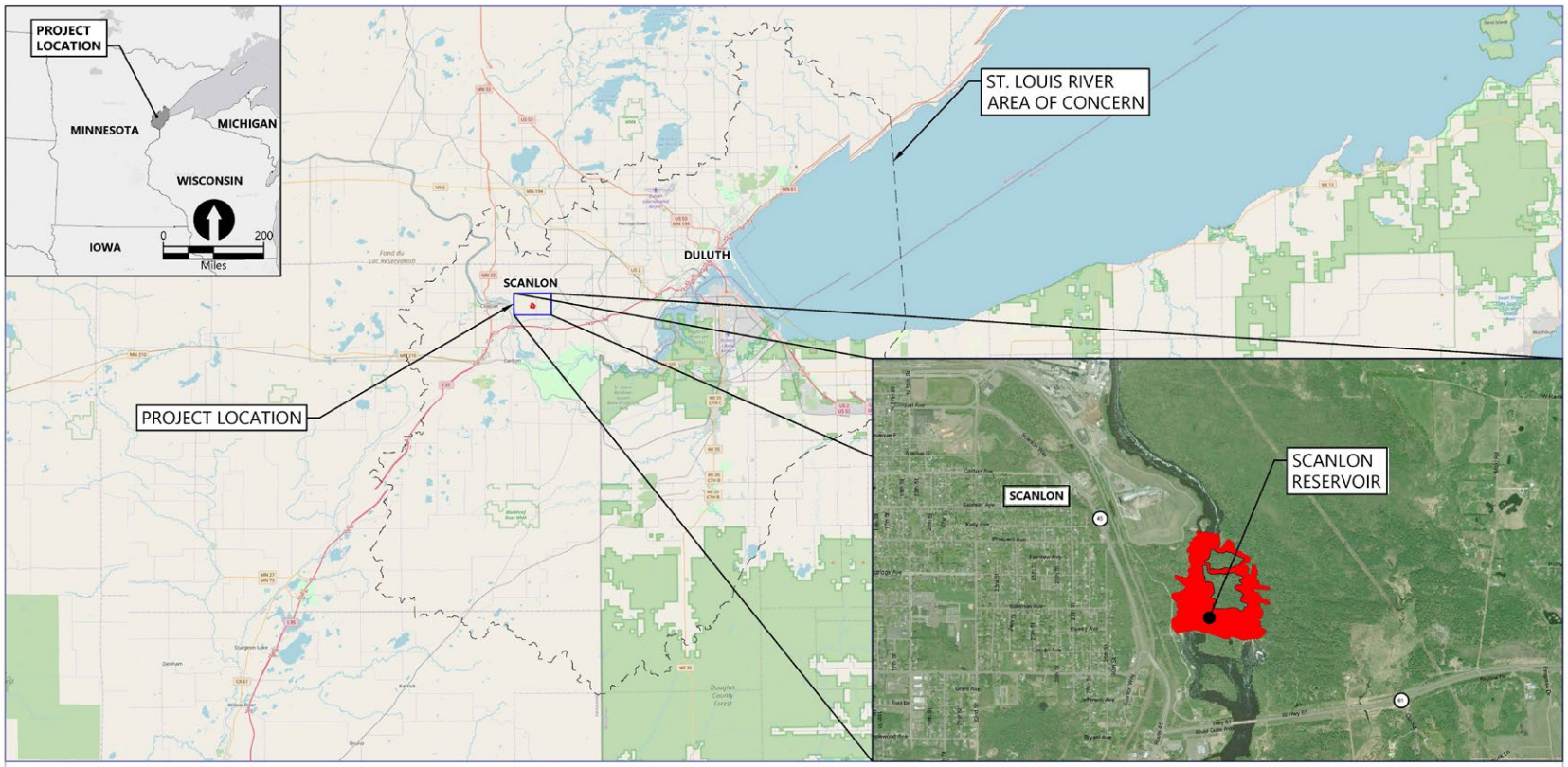


Figure 1
Site Location

Figure 2
USGS Topography Map

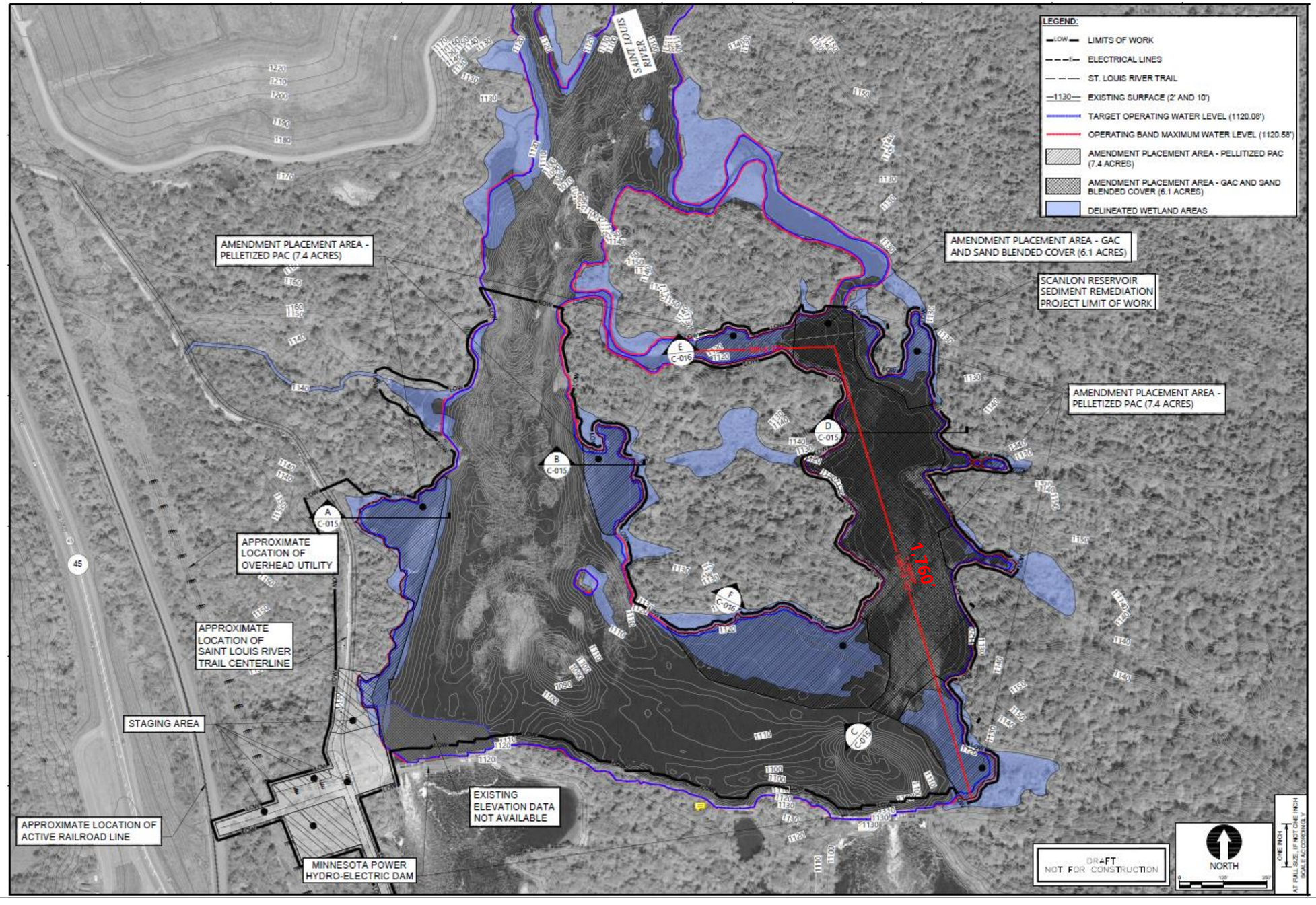


Figure 3
Remedial Areas

Figure 4
Site Boundary

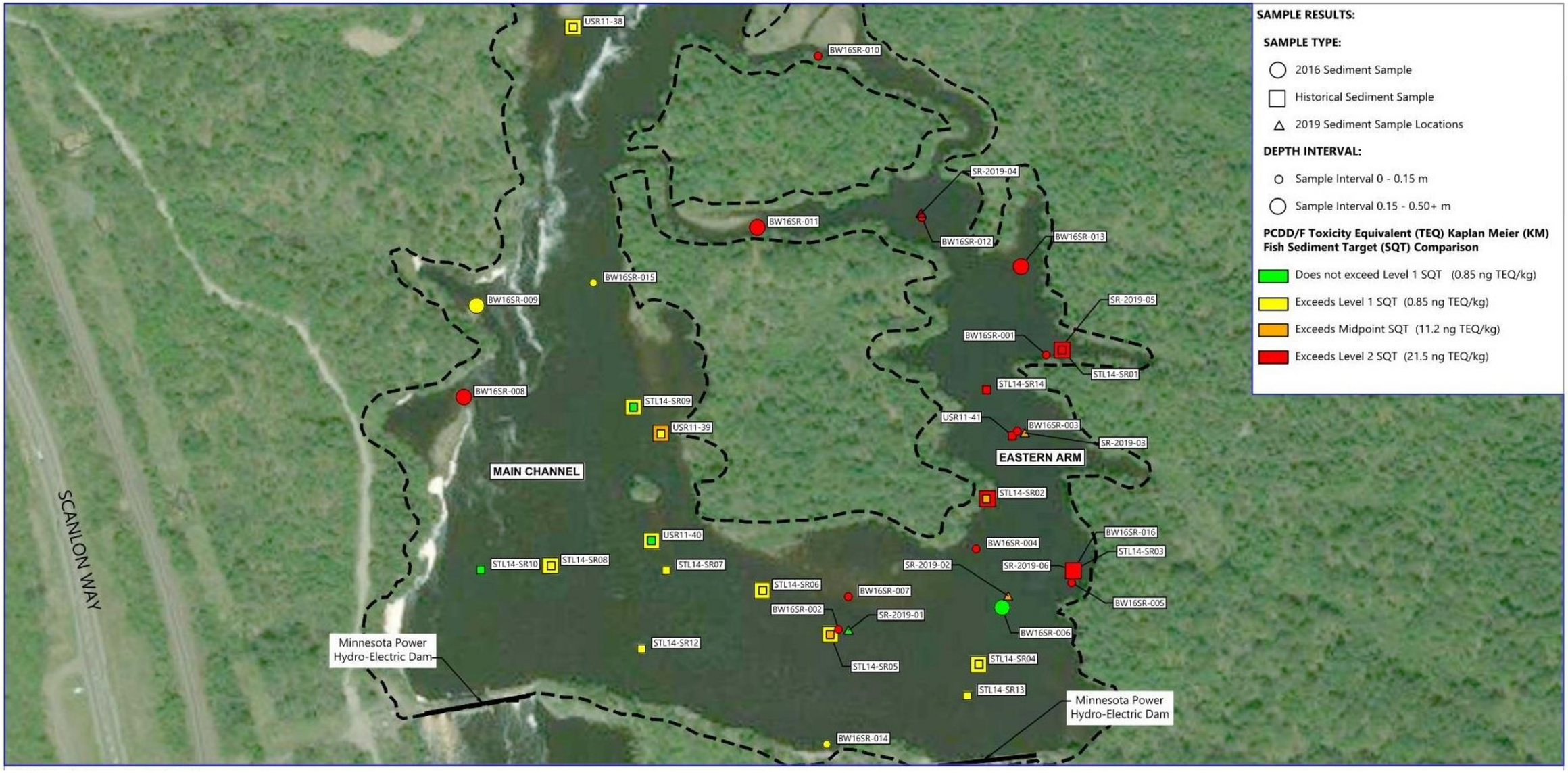


Figure 5
Sediment Contamination

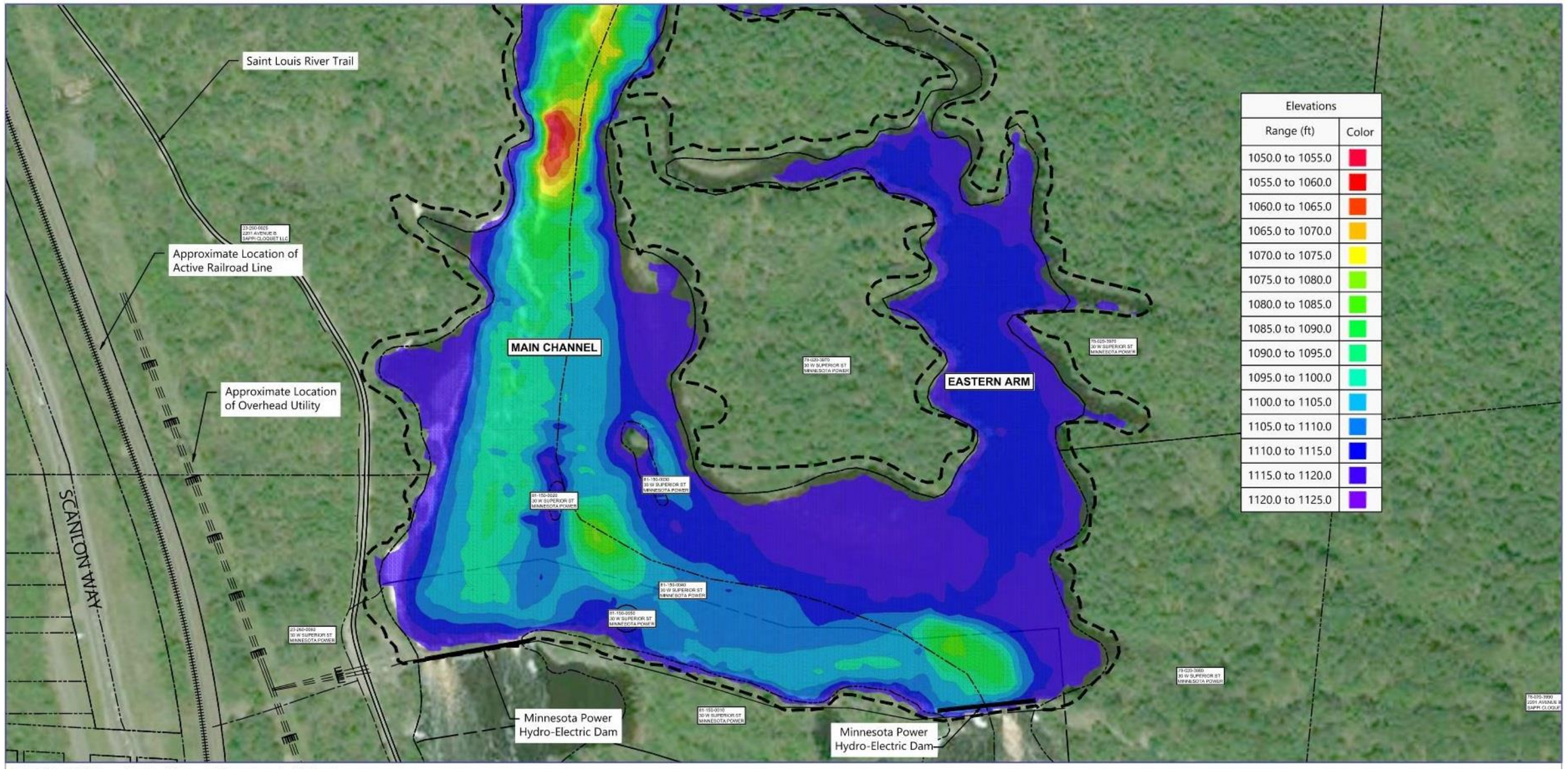


Figure 6
Site Bathymetry

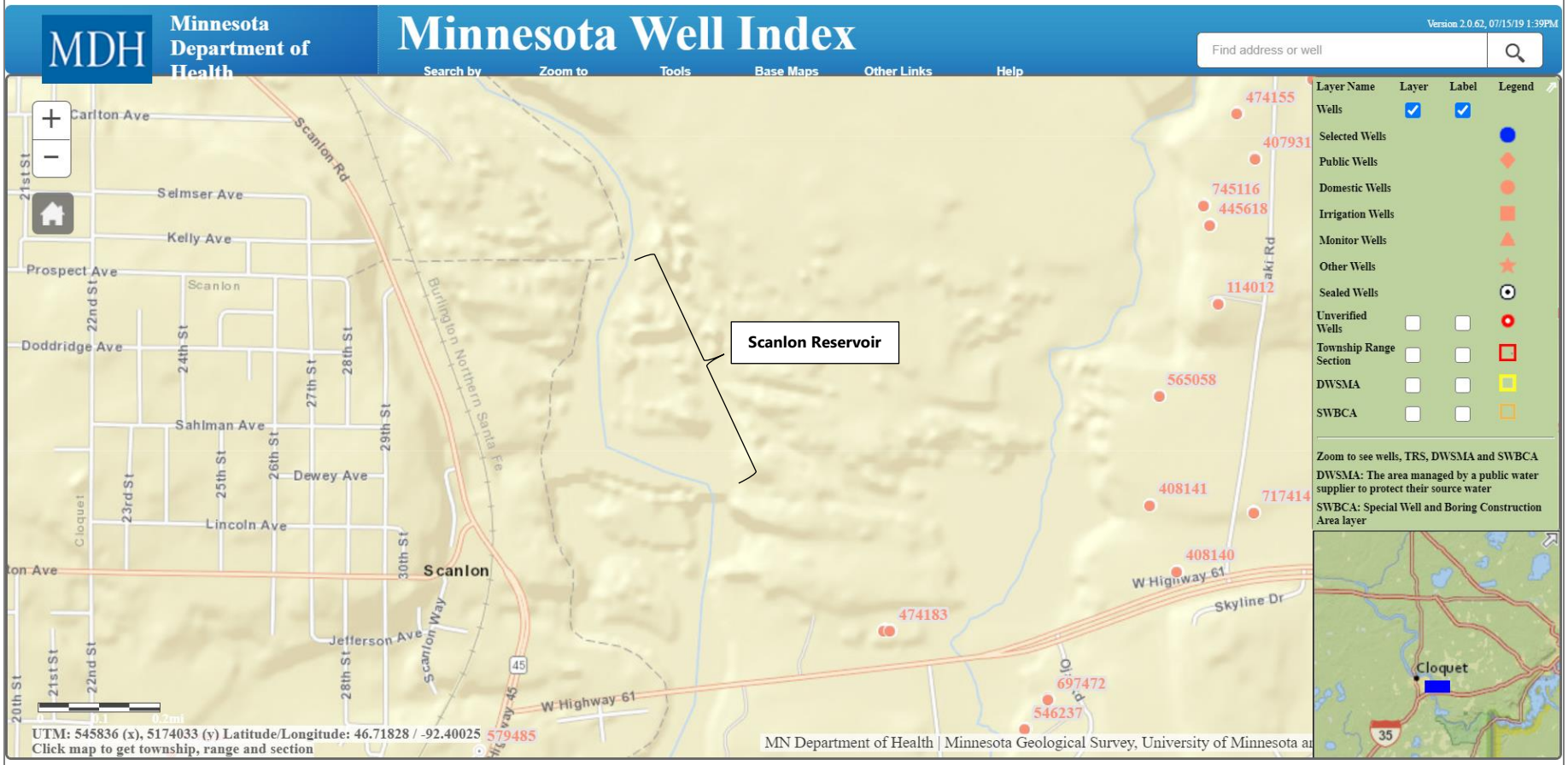
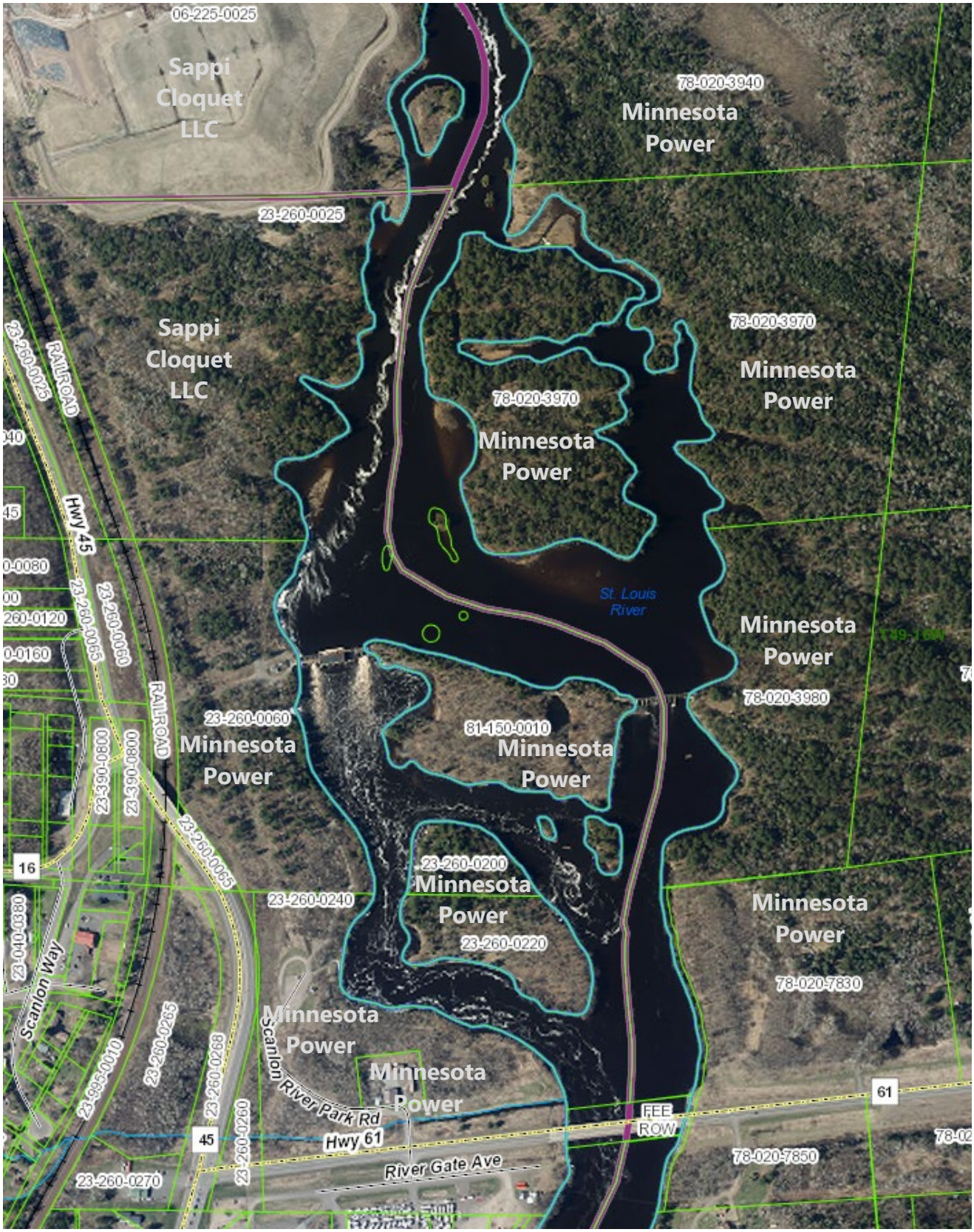
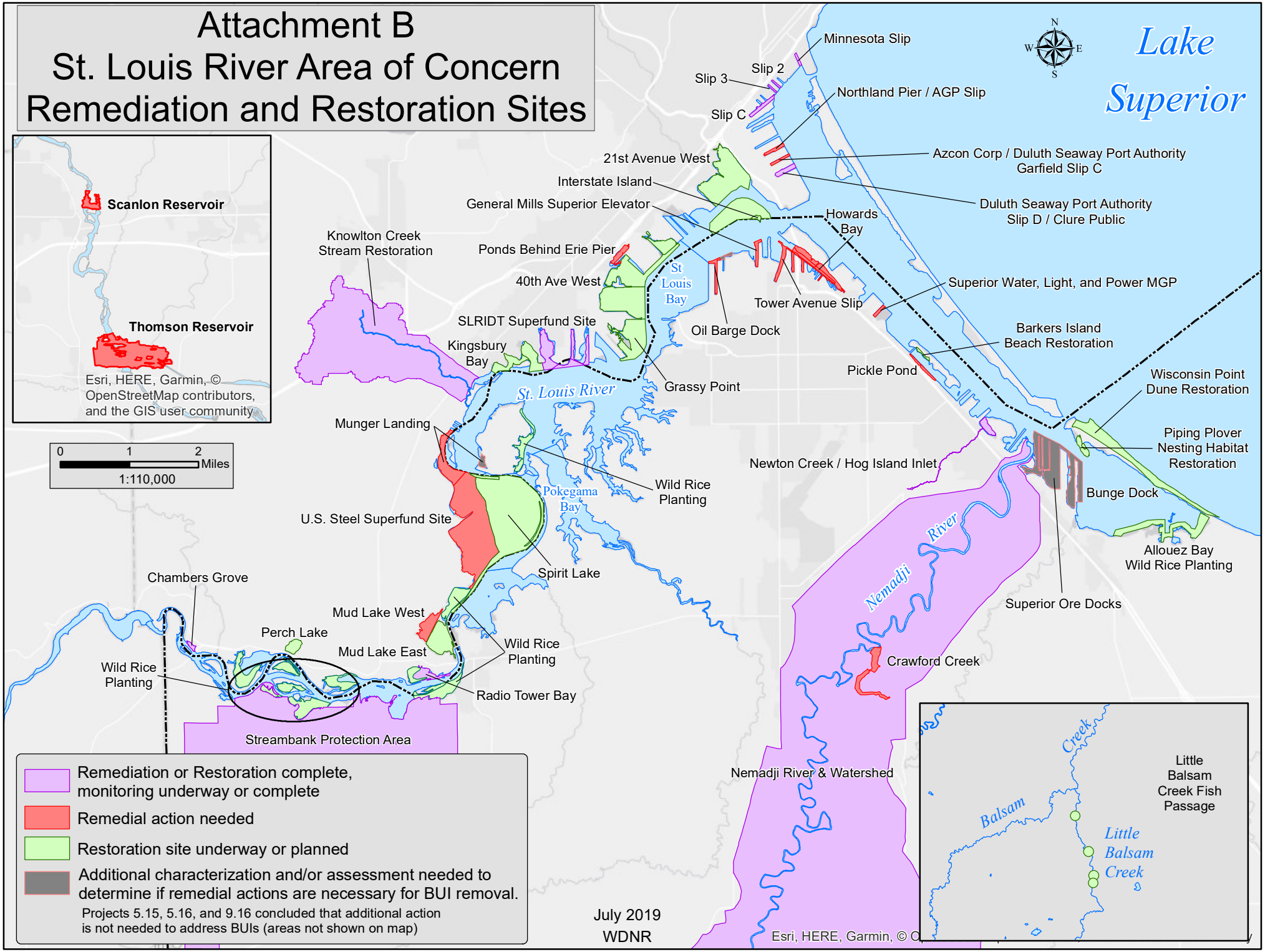


Figure 7
Minnesota Well Index

Attachment A -
Property Ownership




Attachment B
St. Louis River Area of Concern
Remediation and Restoration Sites
Lake Superior
N
W
E
S
Minnesota Slip
Slip 2
Slip 3
Slip C
Northland Pier / AGP Slip
Azcon Corp / Duluth Seaway Port Authority
Garfield Slip C
Duluth Seaway Port Authority
Slip D / Clure Public
21st Avenue West
Interstate Island
General Mills Superior Elevator
Howards Bay
Knowlton Creek
Stream Restoration
Ponds Behind Erie Pier
40th Ave West
St Louis Bay
Superior Water, Light, and Power MGP
Tower Avenue Slip
Oil Barge Dock
SLRIDT Superfund Site
Kingsbury Bay
Barkers Island
Beach Restoration
Pickle Pond
Grassy Point
St. Louis River
Wisconsin Point
Dune Restoration
Piping Plover
Nesting Habitat
Restoration
Munger Landing
Wild Rice
Planting
Newton Creek / Hog Island Inlet
Pokegama Bay
Bunge Dock
U.S. Steel Superfund Site
Spirit Lake
Allouez Bay
Wild Rice Planting
Nemadji River
Chambers Grove
Superior Ore Docks
Mud Lake West
Perch Lake
Mud Lake East
Wild Rice
Planting
Crawford Creek
Wild Rice
Planting
Radio Tower Bay
Streambank Protection Area
Nemadji River & Watershed
Scanlon Reservoir
Thomson Reservoir
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
0 1 2 Miles
1:110,000
Little Balsam Creek Fish Passage
Balsam Creek
Little Balsam Creek
Remediation or Restoration complete, monitoring underway or complete
Remedial action needed
Restoration site underway or planned
Additional characterization and/or assessment needed to determine if remedial actions are necessary for BUI removal.
Projects 5.15, 5.16, and 9.16 concluded that additional action is not needed to address BUIs (areas not shown on map)
July 2019
WDNR
Esri, HERE, Garmin, © O

Scanlon Reservoir Sediment Remediation Project
Scanlon, Minnesota

Project Summary

Introduction: The Minnesota Pollution Control Agency proposes to remediate contaminated sediments located within the Scanlon Reservoir, Scanlon, Carlton County, Minnesota (Figure 1). Scanlon Reservoir is part of the St. Louis River Area of Concern (AOC) for beneficial use impairments. The objective of this project is to address sediments contaminated with dioxins and furans within the reservoir. The remediation consists of placement of carbon amendments over contaminated sediments within the Scanlon Reservoir to reduce the bioavailability of the contaminants and help isolate them from the aquatic environment. Site preparation activities include tree clearing, construction access and staging areas, installation of temporary erosion and sedimentation controls, and temporary contractor facilities.

Figure 1. Scanlon Reservoir General Location and Vicinity.

Background and Project Vicinity: Scanlon Reservoir is bordered by forested areas owned by Minnesota Power, LLC, and Sappi Clouquet, LLC. The City of Scanlon is to the west. In the area between the city and the reservoir (approximately 0.2 mile) are, from west to east, State Highway 45, a Burlington Northern Railroad track, a power utility right of way with overhead lines, and the St. Louis River Trail, a recreational trail that passes alongside the reservoir and currently accommodated pedestrians and recreational vehicles.

Multiple dams are located upstream and downstream of Scanlon Reservoir, including Scanlon Dam, which forms the southern boundary of the reservoir. Flow in the St. Louis River and the Scanlon Reservoir is primarily governed by the functioning of these dams. Reservoir water depths within the thalweg[1] of the river range from approximately 15 feet to 65 feet, while water depths in the eastern arm of the reservoir range from less than 1 foot to approximately 8 feet, averaging approximately 5 feet (Figure 2).

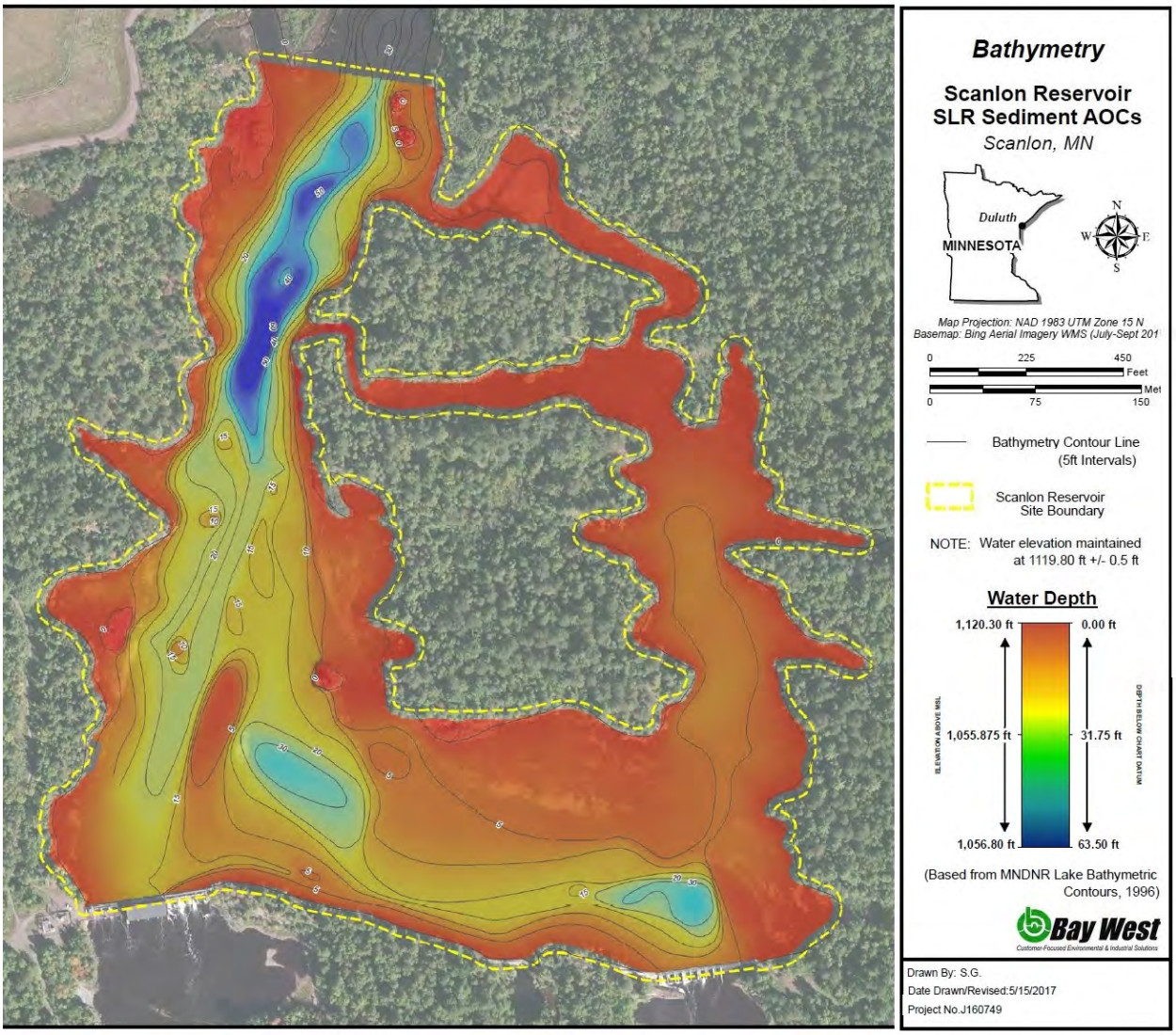


Figure 2. Bathymetry of Scanlon Reservoir.

Scanlon Reservoir is part of the St. Louis River Area AOC, a Great Lakes site recognized by the U.S. Environmental Protection Agency (USEPA) Great Lakes National Program Office (GLNPO) and the Minnesota Pollution Control Agency (MPCA) as having beneficial use impairments (BUIs). Historic discharges, predominantly from pulp and paper mills,

[1] The thalweg is the deepest part of the river channel, generally defining the line of river flow.

have contributed to the accumulation of polychlorinated dibenzo dioxin and furan (dioxin/furan) within sediments of Scanlon Reservoir. Studies of the Scanlon and Thomson Reservoirs "found dioxins and furans in bottom sediments in some parts of the reservoirs.

The contamination likely affects the smallest organisms at the bottom of the food chain, called benthic invertebrates, which live in or on the bottom sediments of rivers, streams, and lakes. As fish and birds consume these tiny organisms, the contamination moves up the food chain. Studies confirm that fish within the reservoirs also contain varying levels of the same dioxin/furans. The contaminants in the Scanlon and Thomson reservoirs potentially lead to the following beneficial use impairments: restrictions on dredging; fish consumption advisories; and harm to the benthic environment where insects and vegetation live at the sediment surface."[2]

Proposed Sediment Remediation: The proposed remediation consists of placement of carbon amendment materials over contaminated sediments within the Scanlon Reservoir to reduce bioavailability of contaminants and to isolate them from the aquatic environment. The amendment areas, which are outside the main flow path of the river, are shown in Figure 3. Pelletized powdered activated carbon (PAC) would be broadcast into the shallower, wetland areas. Disturbance to the wetland vegetation would be minimized by keeping the PAC to <1 centimeter thick on the bottom. In deeper areas a blended cover of granular activated carbon (GAC) mixed with sand would be placed to a thickness of approximately 4-6 inches. Placement is expected to be achieved by broadcasting the amendment (PAC or GAC/sand blended cover) at the water surface where it would fall into the areas desired for amendment placement.

After approximately 5 years, through the process of bioturbation by benthic organisms, the amendment is expected to be incorporated homogenously into the upper 10 cm of bottom sediment, which is the most biologically active sediment zone. The activated carbon binds various contaminants, including dioxins and furans, effectively isolating them from plant and animal uptake, and from movement to the water column, thereby reducing ecological risk. This method of treating contaminated sediments is far less disruptive to existing aquatic vegetation and organisms than the alternative of excavating and/or capping the contaminated materials.

Construction Site Preparation: An access road would be constructed along the existing St. Louis River Trail,[3] extending to the project site from an existing parking area to the south (Figure 4). Two staging areas and a ramp to access the reservoir would also be constructed. A culvert would be installed under the access road to drain surface water from the northern staging area. Additionally, an existing culvert along the St. Louis River Trail would be extended to accommodate the wider construction road. An optional access for one placement location is farther to the north (see Figures 4 and 5).

[2] https://www.pca.state.mn.us/news/mpca-announces-cleanup-options-scanlon-and-thomson-reservoir-sites-st-louis-river-estuary

[3] The St. Louis Trail accommodates pedestrian and recreational vehicle traffic and in the project area extends from the parking lot on the south, past the reservoir, to Highway 61 about 1/3-mile to the north.

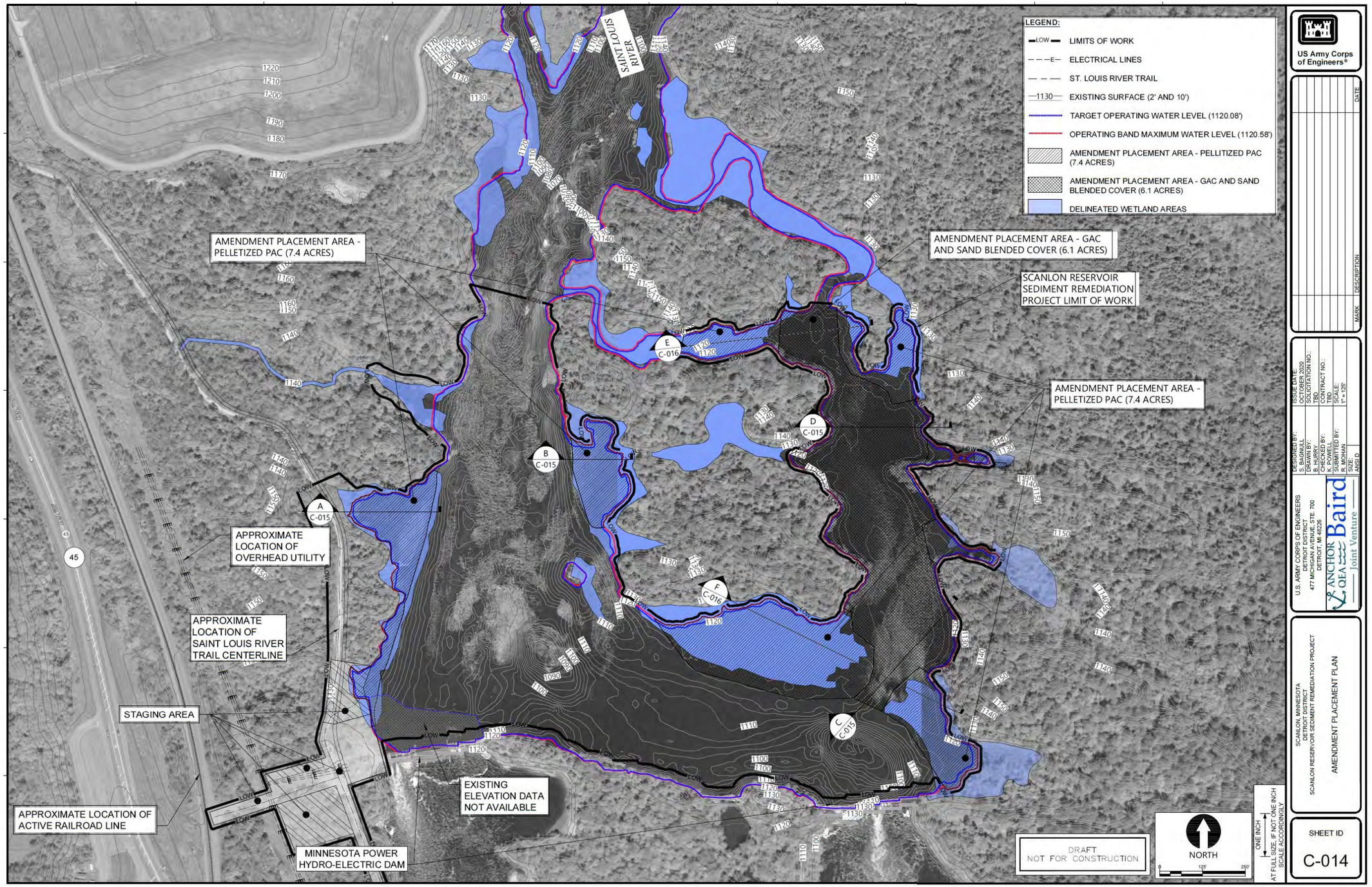


Figure 3. Scanlon Reservoir Sediment Remediation (Amendment Placement) Plan.

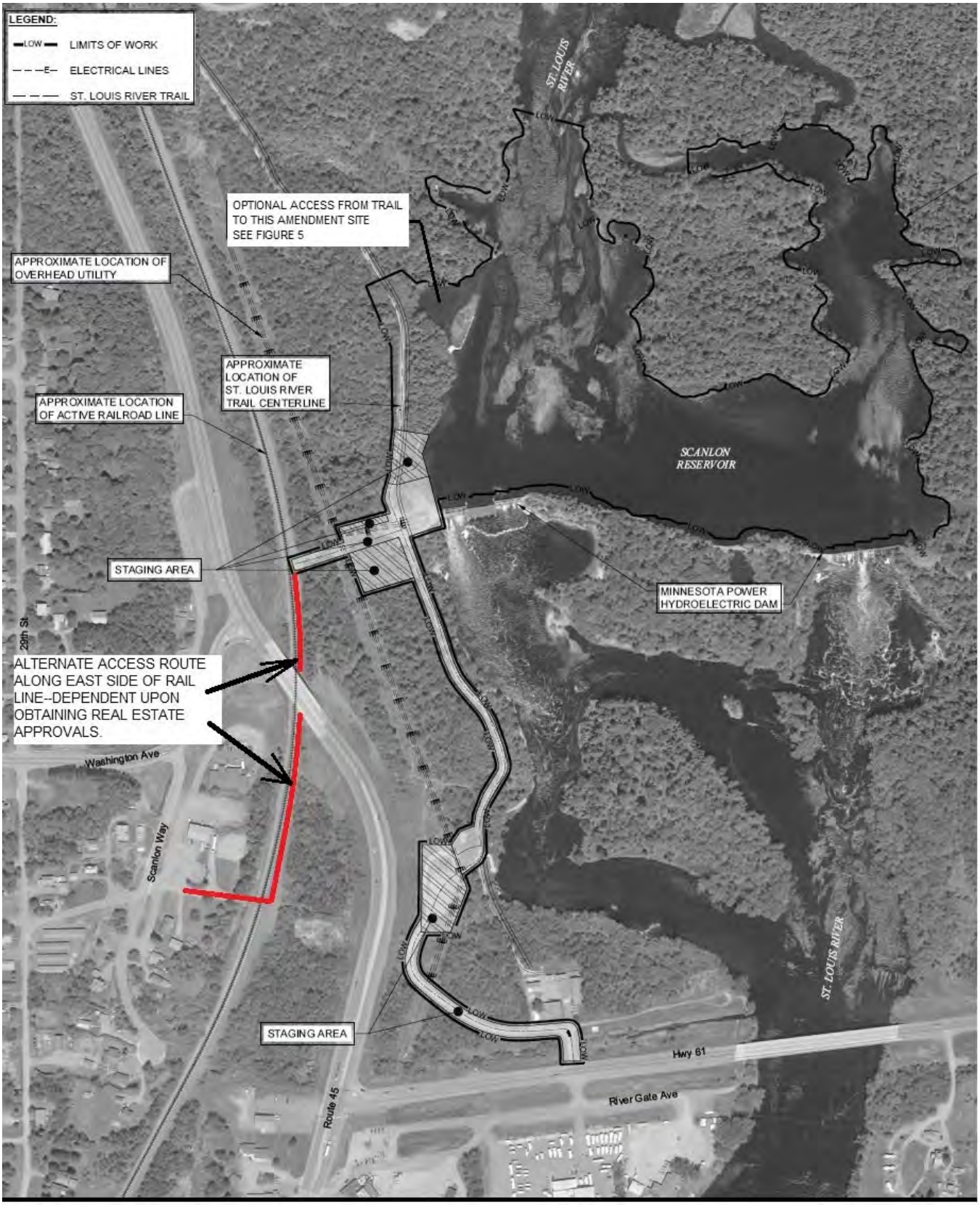


Figure 4. Project Work Limits Showing Reservoir Remediation, Access, and Staging Areas.

Site preparation includes tree clearing, as needed, to accommodate site access and work staging areas (Figure 5). The access road, staging areas, and ramp would be constructed. Temporary erosion and sedimentation controls would be installed around the work areas. Large woody debris would be removed from within the reservoir that may hinder the amendment placement operation or that may loosen and move downstream. Any soil or other materials that are unsatisfactory for the access and staging areas would be excavated and replaced with satisfactory materials.

Upon completion of the remediation work, the site areas affected would be restored and revegetated and the equipment and materials removed from the site, except for those construction features that the property owner may choose to retain as permanent, such as the reservoir boat ramp, access road, and/or parts of the staging areas.

As shown in Figure 4, an alternate site access route follows the east side of the rail line. This route is routinely used by Minnesota Power to access the dam and could be used for the Reservoir Sediment Remediation Project if real estate approvals can be obtained.

If the recreational trail is used for site access, then recreational traffic would be prohibited in the project reach during construction. The expectation is that recreational users would bypass the area by following along the highway to the south and west of the project site.

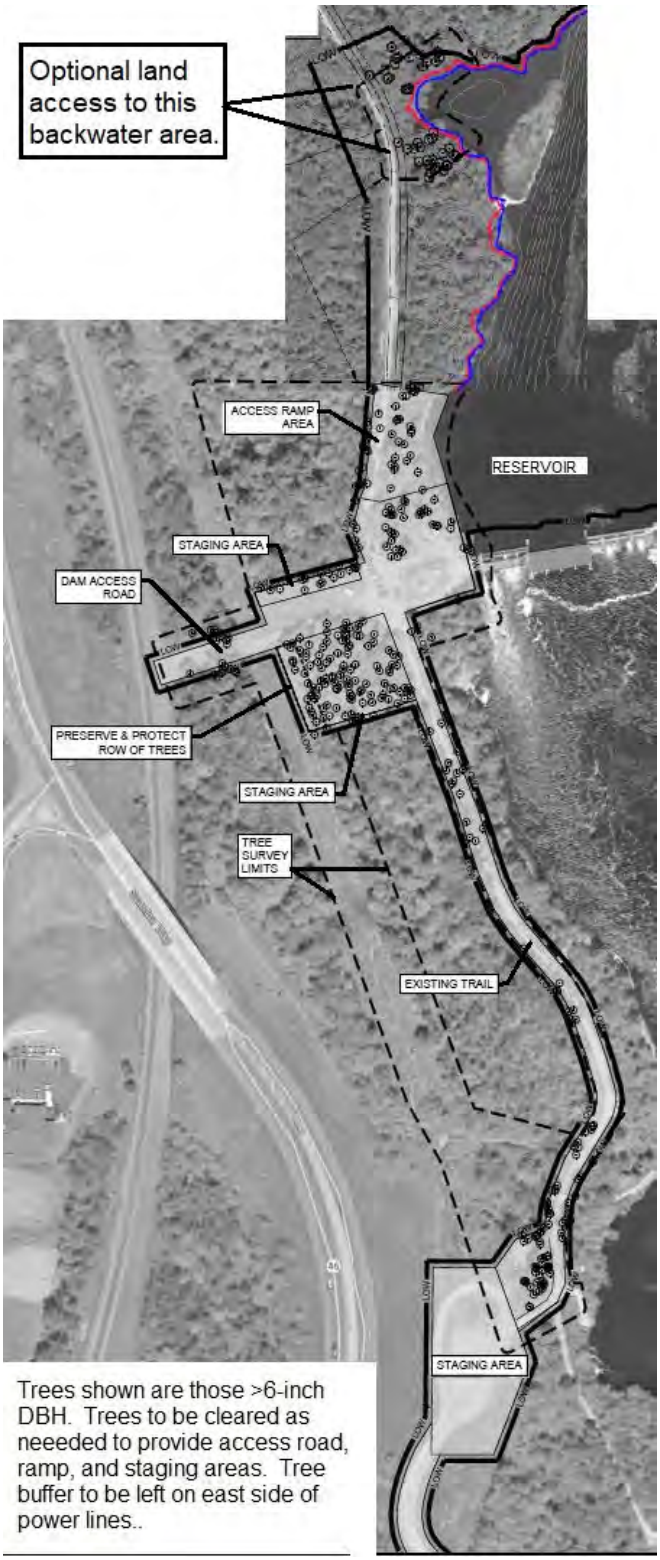
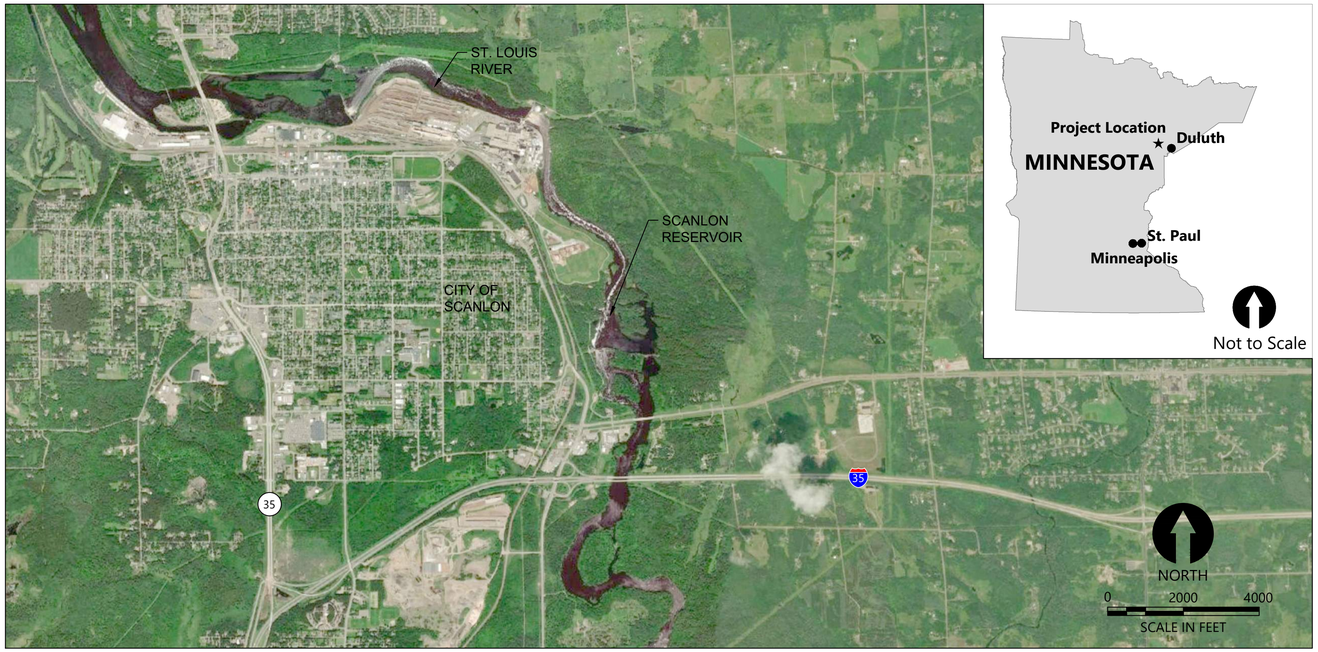


Figure 5. Draft Tree Clearing Plan.

US Army Corps of Engineers®
DETROIT DISTRICT

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT

SCANLON, MINNESOTA



SOLICITATION NO.: TBD
CONTRACT NO.: TBD
ISSUE DATE: DECEMBER 2020

ATTACHMENT D

DRAWING INDEX

SHEET TITLE	SHEET DESCRIPTION
G-001	COVER SHEET
G-002	GENERAL NOTES
G-003	PROJECT VICINITY AND LIMIT OF WORK
G-004	REAL ESTATE PLAN
G-005	EXISTING CONDITIONS PLAN - 1 OF 2
G-006	EXISTING CONDITIONS PLAN - 2 OF 2
G-007	EXISTING CONDITIONS - ENLARGED PLAN VIEW
C-001	CLEARING PLAN
C-002	TRAFFIC CONTROL PLAN
C-003	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN
C-004	PROPOSED ACCESS PLAN & PROFILE - 1 OF 2
C-005	PROPOSED ACCESS PLAN & PROFILE - 2 OF 2
C-006	STAGING AREA SECTIONS
C-007	SHORELINE ACCESS RAMP SECTION
C-008	STAGING AREA PLAN - 1 OF 2
C-009	STAGING AREA PLAN - 2 OF 2
C-010	PLANTING PLAN
C-011	TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS
C-012	PROPOSED ACCESS ROAD SECTIONS
C-013	PROPOSED ACCESS ROAD DETAILS
C-014	STAGING AREA DETAILS
C-015	AMENDMENT PLACEMENT PLAN
C-016	AMENDMENT PLACEMENT SECTIONS - 1 OF 2
C-017	AMENDMENT PLACEMENT SECTIONS - 2 OF 2
C-018	PLANTING SCHEDULE

US Army Corps of Engineers®

MARK | DESCRIPTION | DATE

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: TBD
CONTRACT NO.: TBD
SCALE:

DESIGNED BY: S. BAGNULL
DRAWN BY: B. HURRY
CHECKED BY: K. POWELL
SUBMITTED BY: S. MOHAN
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

COVER SHEET

SHEET ID
G-001

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

95%

GENERAL NOTES:

1. THIS PROJECT INCLUDES IN SITU TREATMENT (AMENDMENT PLACEMENT) FOR SEDIMENT REMEDIATION PURPOSES IN THE SCANLON RESERVOIR, SCANLON, MINNESOTA, AND ASSOCIATED UPLAND ACCESS FOR CONSTRUCTION EQUIPMENT ACCESS AND STAGING.
2. IF SPECIFICATIONS CONTRADICT THESE DRAWINGS, SPECIFICATIONS SHALL GOVERN.
3. LOCATIONS DISPLAYED FOR EXISTING CONDITIONS SUCH AS SHORELINES, STRUCTURES, UNDERGROUND UTILITIES, IDENTIFIED TREES, AND UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY LOCATION OF SITE STRUCTURES, LOCATION OF IDENTIFIED TREES, SHORELINE, AND OTHER SITE FEATURES.
4. THE CONTRACTING OFFICER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE DRAWINGS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE DRAWINGS WITHOUT THE EXPRESSED APPROVAL OF CONTRACTING OFFICER'S REPRESENTATIVE.
5. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
6. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF SITE PERSONNEL AND SHALL ABIDE BY THE REQUIREMENTS OF THE TECHNICAL SPECIFICATIONS AND THE CONTRACTOR'S ACCIDENT PREVENTION PLAN (APP), AS APPROPRIATE, AS WELL AS APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL UTILITY MARKOUTS AND FORWARDING CONFIRMATION OF NOTIFICATION TO THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY AND ALL NECESSARY PERMITS FROM THE AFFECTED UTILITY COMPANIES AND FOR SCHEDULING OF INSPECTIONS BY UTILITY COMPANY PERSONNEL, IF REQUIRED, DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL ADEQUATELY PROTECT ALL EXISTING STRUCTURES AND UTILITIES. ANY DAMAGE TO EXISTING STRUCTURES, SHORELINES, OR UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. OVERHEAD LINES ARE PRESENT AT THE SITE AND THEY ARE NOT SHOWN IN THEIR ENTIRETY ON THESE DRAWINGS. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL OVERHEAD LINES PRESENT ALONG THE WORK AREAS.
10. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS AND OTHER APPLICABLE REGULATORY REQUIREMENTS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES DURING THE CONSTRUCTION PERIOD, AS REQUIRED BY THE PERMITS, THE CONTRACTOR'S STORMWATER POLLUTION PREVENTION PLAN, LOCAL ORDINANCES, PLANS, AND SPECIFICATIONS.
12. THE CONTRACTOR IS ADVISED THAT ALL LOCAL PUBLIC NUISANCE LAWS AND NOISE ORDINANCES SHALL BE OBSERVED DURING THE COURSE OF CONSTRUCTION.
13. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN APPROPRIATE SIGNAGE FOR TRAFFIC CONTROL AND PEDESTRIAN SAFETY DURING CONSTRUCTION. MAINTAIN OPEN ACCESS FOR ALL PUBLIC ROADWAYS DURING PERFORMANCE OF THE WORK.
14. THE CONTRACTOR SHALL MAINTAIN A NEAT AND ORDERLY SITE, LAYDOWN AREA, AND GROUNDS. REMOVE AND DISPOSE OFF SITE ALL RUBBISH, WASTE MATERIALS, LITTER, AND ALL FOREIGN SUBSTANCES. PROMPTLY NOTIFY APPROPRIATE AUTHORITIES AND CONTRACTING OFFICER'S REPRESENTATIVE, AND REMOVE PETRO-CHEMICAL SPILLS, STAINS, AND OTHER FOREIGN DEPOSITS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
15. WHERE TREES WITHIN THE LIMITS OF THE PERFORMED TREE SURVEY HAVE A DIAMETER AT BREAST HEIGHT GREATER THAN 6 INCHES AND ARE LOCATED WITHIN THE PROJECT LIMIT OF WORK AREAS, THEY ARE SHOWN ON THESE DRAWINGS.
16. WORK IN PROXIMITY TO HYDRO STATION - SEE SPECIFICATIONS FOR SPECIAL PROJECT PROCEDURES INCLUDING PRECONSTRUCTION SUBMITTALS, COORDINATIONS, NOTICES, AND SAFETY PRECAUTION AREAS.
17. BEDROCK OUTCROPS AT SEVERAL LOCATIONS WITHIN THE PROJECT AREA. THE CONTRACTOR IS SOLELY RESPONSIBLE TO BECOME FAMILIAR WITH AND DETERMINE EXISTING SITE CONDITIONS.
18. CONTRACTOR SHALL CONFINE STORAGE OF MATERIAL STOCKPILES, OFFICE SPACE, PARKING, AND EQUIPMENT WITHIN LIMITS OF STAGING AREA.

SEQUENCE OF CONSTRUCTION:

SPECIFIC ACTIVITIES, CONDUCTED BY THE CONTRACTOR TO COMPLETE THE WORK INCLUDE, BUT ARE NOT LIMITED TO THE ITEMS PROVIDED BELOW. TREE CLEARING, GRUBBING, AND DISPOSAL WORK MUST BE PERFORMED IN PHASE 1 DURING THE ALLOWABLE WINDOW FOR WORK.

PHASE 1:
1. CONDUCT FIELD INVESTIGATIONS OR EVALUATIONS TO CONFIRM SITE CONDITIONS.
2. PREPARE AND SUBMIT FINAL WORK PLANS AND ALL OTHER PRE-CONSTRUCTION SUBMITTALS FOR UPLAND CONSTRUCTION ACTIVITIES
3. UPLAND CONSTRUCTION MOBILIZATION
4. INSTALL ENVIRONMENTAL CONTROLS
5. UPLAND PRE-CONSTRUCTION SURVEYING
6. TREE CLEARING, GRUBBING, AND DISPOSAL
7. INSTALL ACCESS ROAD
8. INSTALL STAGING AREAS AND LAUNCH
9. UPLAND POST-CONSTRUCTION SURVEYING
10. UPLAND CONSTRUCTION DEMOBILIZATION

PHASE 2:
1. IN-WATER CONSTRUCTION MOBILIZATION
2. PREPARE AND SUBMIT FINAL WORK PLANS AND ALL OTHER PRE-CONSTRUCTION SUBMITTALS FOR IN-WATER CONSTRUCTION ACTIVITIES
3. IN-WATER PRE-CONSTRUCTION SURVEYING
4. INSTALL ENVIRONMENTAL CONTROLS
5. AMENDMENT PLACEMENT
6. IN-WATER POST-PLACEMENT SURVEYING
7. RESTORATION OF STAGING AREAS
8. IN-WATER CONSTRUCTION DEMOBILIZATION

SURVEY NOTES:

1. LIDAR PROVIDED BY MINNESOTA DEPARTMENT OF NATURAL RESOURCES, AERIAL PROVIDED BY BING MAPS. BATHYMETRIC SURVEY PERFORMED BY ANCHOR QEA-BAIRD JV SEPTEMBER 30 TO OCTOBER 3, 2019.
2. HORIZONTAL DATUM: MINNESOTA STATE PLANE NORTH, NORTH AMERICAN DATUM (NAD83), U.S. SURVEY FEET.
3. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. EXISTING TREE LOCATIONS PROVIDED BY APPLIED ECOLOGICAL SOLUTIONS INC. FOR TREE SURVEY PERFORMED FROM AUGUST 27, 2020 TO SEPTEMBER 1, 2020.
5. DELINEATED WETLAND AREA LIMITS PROVIDED BY APPLIED ECOLOGICAL SOLUTIONS INC. FOR WETLAND DELINEATION PERFORMED ON OCTOBER 2, 2019.
6. PROPERTY PARCEL LIMITS AND OWNER IDENTIFICATION INFORMATION OBTAINED FROM CARLTON COUNTY, MINNESOTA PUBLIC IMAPP GIS SERVICE, SEPTEMBER 2020.

ABBREVIATIONS:

AVE - AVENUE
EL - ELEVATION
GAC - GRANULAR ACTIVATED CARBON
HWY - HIGHWAY
LOW - LIMIT OF WORK
MIN - MINIMUM
MPH - MILES PER HOUR
NAD83 - NORTH AMERICAN DATUM OF 1983
NAVD88 - NORTH AMERICAN VERTICAL DATUM OF 1988
OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PAC - POWDERED ACTIVATED CARBON
ST - STREET
WLSSD - WESTERN LAKE SUPERIOR SANITARY DISTRICT

LEGEND:

- 1130 — EXISTING SURFACE (2' AND 10')
- OPERATING BAND MAXIMUM WATER LEVEL (1120.58')
- AMENDMENT PLACEMENT AREA - PELLITIZED PAC (7.4 ACRES)
- AMENDMENT PLACEMENT AREA - GAC AND SAND BLENDED COVER (6.1 ACRES)
- DELINEATED WETLAND AREAS
- PARCEL BOUNDARY
- RAILROAD
- E — OVERHEAD UTILITY
- CONCEPTUAL SITE ACCESS ROUTE
- ST LOUIS RIVER TRAIL CENTERLINE
- EXISTING TREE WITH DIAMETER AT BREAST HEIGHT GREATER THAN 6 INCHES
- LOW — LIMIT OF WORK
- EXISTING ELEVATION DATA NOT AVAILABLE
- STAGING AREA

DRAFT
NOT FOR CONSTRUCTION

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: S. BAGNULL
DRAWN BY: B. HURRY
CHECKED BY: K. POWELL
SUBMITTED BY: R. MOHAN
SIZE: ANSI D

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: TBD
CONTRACT NO.: TBD
SCALE:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

GENERAL NOTES

SHEET ID
G-002

DRAFT
NOT FOR CONSTRUCTION

NORTH

0 200' 400'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH
SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	S. BAGNULL
DRAWN BY:	B. HURRY
CHECKED BY:	K. POWELL
APPROVED BY:	R. MOHAN
SIZE:	ANSI D
ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	TBD
CONTRACT NO.:	TBD
SCALE:	1" = 200'

U.S. ARMY CORPS OF ENGINEERS
ST. PAUL DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

PROJECT VICINITY AND LIMIT OF WORK

SHEET ID

G-003

95%

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
LIMIT OF WORK

APPROXIMATE LOCATION OF OVERHEAD UTILITY

APPROXIMATE LOCATION OF ACTIVE RAILROAD LINE

STAGING AREA

APPROXIMATE LOCATION OF ST. LOUIS RIVER TRAIL CENTERLINE

MINNESOTA POWER HYDROELECTRIC DAM

STAGING AREA

ST. LOUIS RIVER

LEGEND:

- LOW — LIMITS OF WORK
- E — ELECTRICAL LINES
- ST. LOUIS RIVER TRAIL
- PARCEL
- S — SANITARY SEWER MANHOLE
- SS — SANITARY SEWER PIPE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: S. BAGNULL
DRAWN BY: B. HURRY
CHECKED BY: K. POWELL
APPROVED BY: R. MOHAN
SIZE: ANSI D

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: TBD
CONTRACT NO.: TBD
SCALE: 1" = 250'

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

REAL ESTATE PLAN

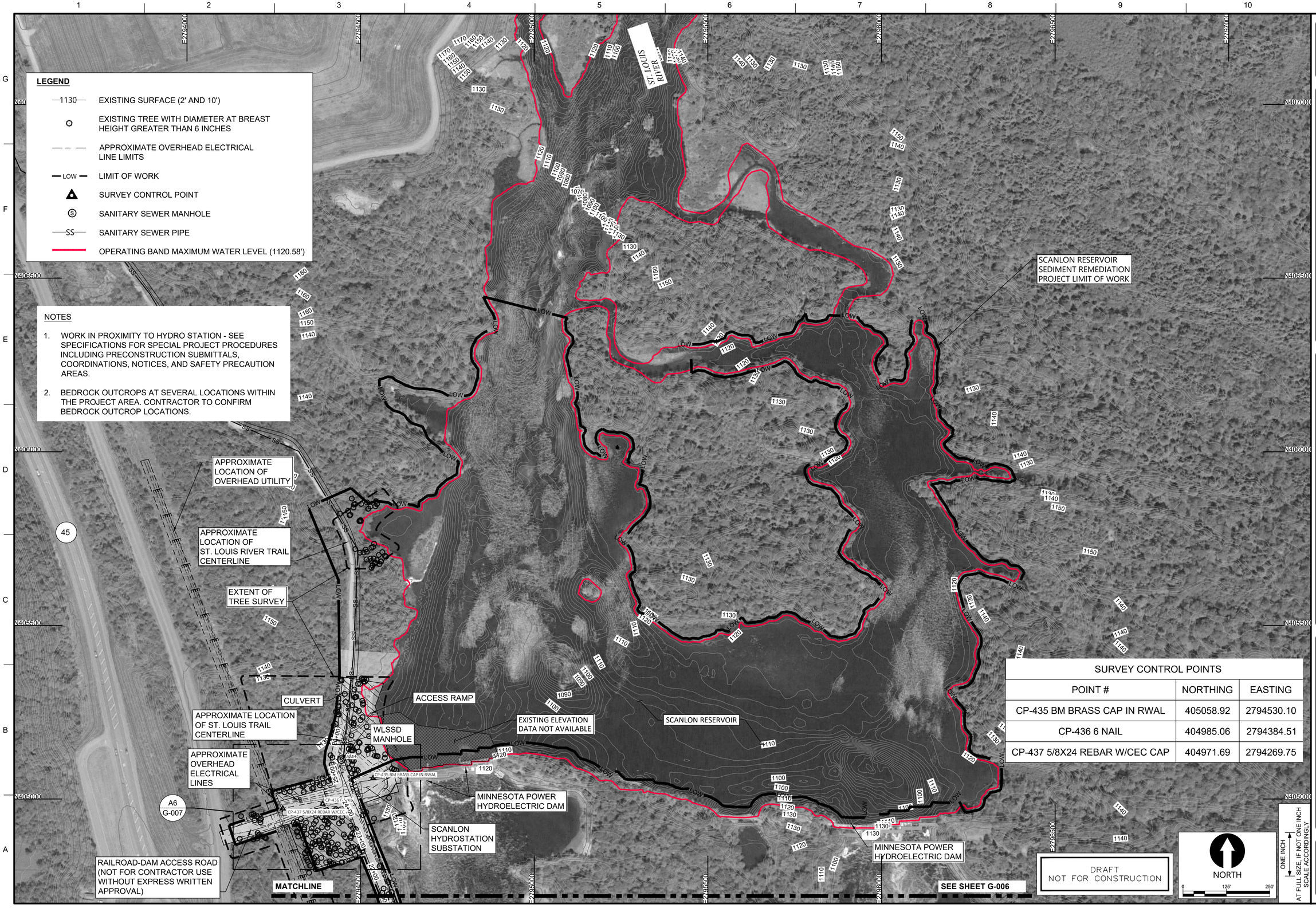
DRAFT
NOT FOR CONSTRUCTION

NORTH
0 250' 500'

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

SHEET ID
G-004

95%



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	S. BAGNULL
DRAWN BY:	B. HURRY
CHECKED BY:	K. POWELL
APPROVED BY:	R. MOHAN
SIZE:	ANSI D
ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	TBD
CONTRACT NO.:	TBD
SCALE:	1" = 125'

U.S. ARMY CORPS OF ENGINEERS
ST. PAUL DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

EXISTING CONDITIONS PLAN - 1 OF 2

SHEET ID
G-005

95%

CULVERT
ACCESS RAMP
APPROXIMATE LOCATION OF ST. LOUIS TRAIL CENTERLINE
WLSSD MANHOLE
EXISTING ELEVATION DATA NOT AVAILABLE
SCANLON RESERVOIR
APPROXIMATE OVERHEAD ELECTRICAL LINES
CP-435 BM BRASS CAP IN RWAL
CP-436 6 NAIL
CP-437 5/8X24 REBAR W/CEC CAP
MINNESOTA POWER HYDROELECTRIC DAM
A6
G-007
SCANLON HYDROSTATION SUBSTATION
RAILROAD-DAM ACCESS ROAD (NOT FOR CONTRACTOR USE WITHOUT EXPRESS WRITTEN APPROVAL)
MATCHLINE
SEE SHEET G-005
WLSSD MANHOLE
BURLINGTON NORTHERN RAILROAD
TREE SURVEY LIMITS
APPROXIMATE LOCATION OF ST. LOUIS TRAIL CENTERLINE
WLSSD MANHOLE
FISHING PIER (CLOSED TO PUBLIC DURING CONSTRUCTION)
CULVERT
CP-1583
CP-3 5/8X24 REBAR W/CEC CAP
RAMP (CLOSED TO PUBLIC DURING CONSTRUCTION)
VERTICAL TIMBER POSTS
WLSSD MANHOLE
SOUTH PARKING LOT
CP-5 6 NAIL
CP-4 5/8X24 REBAR W/CEC CAP
WESTERN LAKE SUPERIOR SANITARY SEWER
WLSSD PUMP STATION
HIGHWAY 61
Jeffers Dr Ave
River Side Ave

LEGEND

- —1130— EXISTING SURFACE (2' AND 10')
- EXISTING TREE WITH DIAMETER AT BREAST HEIGHT GREATER THAN 6 INCHES
- – – – – – APPROXIMATE OVERHEAD ELECTRICAL LINE LIMITS
- —LOW— LIMIT OF WORK
- SURVEY CONTROL POINT
- (S) SANITARY SEWER MANHOLE
- —SS— SANITARY SEWER PIPE
- OPERATING BAND MAXIMUM WATER LEVEL (1120.58')

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING
CP-435 BM BRASS CAP IN RWAL	405058.92	2794530.10
CP-3 5/8X24 REBAR W/CEC CAP	403860.36	2794602.39
CP-436 6 NAIL	404985.06	2794384.51
CP-4 5/8X24 REBAR W/CEC CAP	403652.20	2794574.32
CP-437 5/8X24 REBAR W/CEC CAP	404971.69	2794269.75
CP-5 6 NAIL	403720.37	2794644.29
CP-4 CHECK	403652.22	2794574.28
CP-1583	403911.26	2794627.16

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 125' 250'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D
ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911KD19F0040
CONTRACT NO.: W912P4-16-D-J001
SCALE: 1" = 125'-0"

U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

EXISTING CONDITIONS PLAN - 2 OF 2

SHEET ID
G-006

95%

A6 / G-006 EXISTING CONDITIONS - ENLARGED PLAN VIEW

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 20' 40'

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
R. BATIZA	DECEMBER 2020
DRAWN BY:	SOLICITATION NO.:
S. LANDRY	W911XK19F0040
CHECKED BY:	CONTRACT NO.:
M. GLARK	W912PL-16-D-001
SUBMITTED BY:	SCALE:
A. BRUNTON	1" = 20'-0"
	SIZE: ANSI D

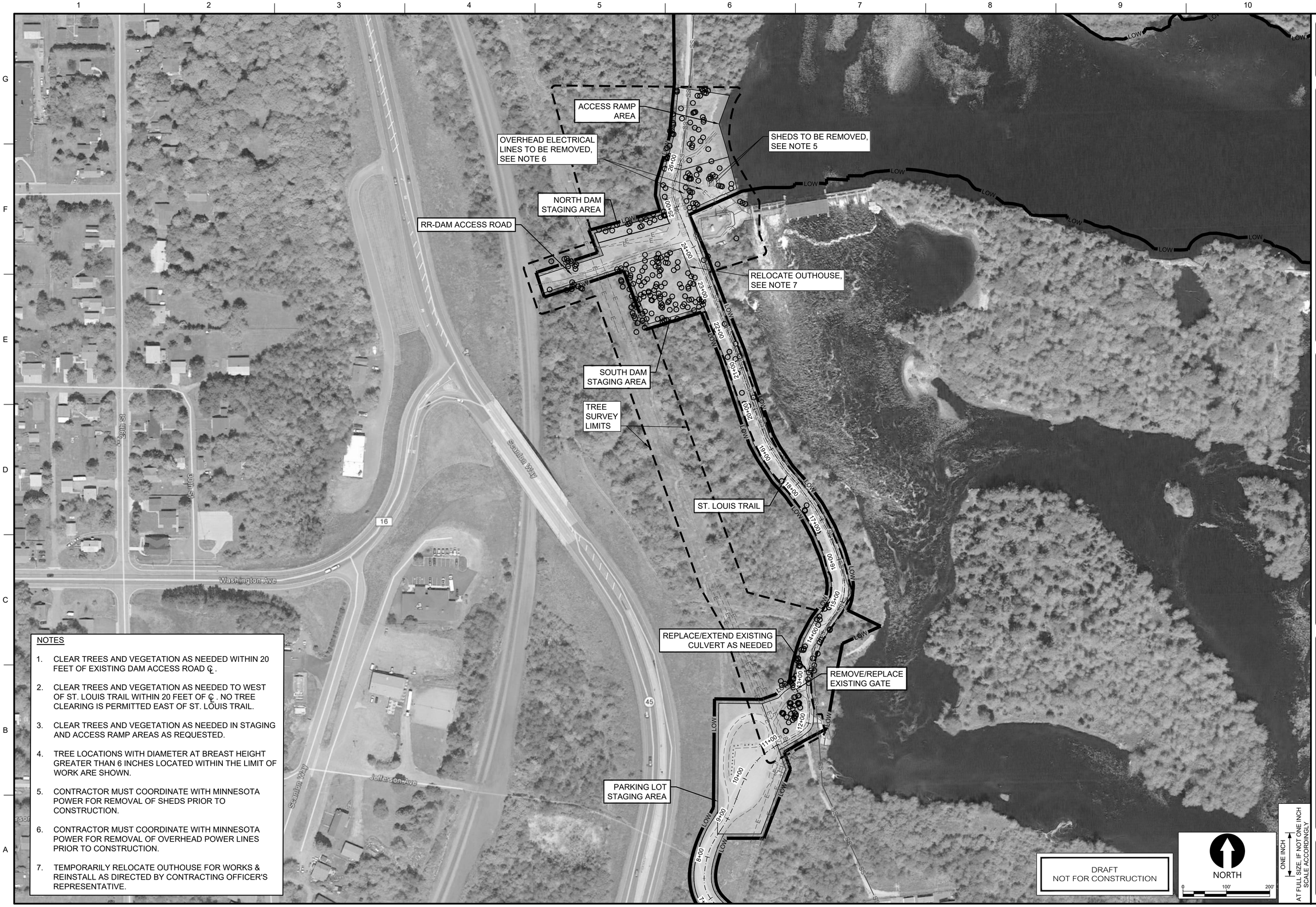
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

EXISTING CONDITIONS - ENLARGED PLAN VIEW

SHEET ID
G-007



NOTES

1. CLEAR TREES AND VEGETATION AS NEEDED WITHIN 20 FEET OF EXISTING DAM ACCESS ROAD ℄ .
2. CLEAR TREES AND VEGETATION AS NEEDED TO WEST OF ST. LOUIS TRAIL WITHIN 20 FEET OF ℄ . NO TREE CLEARING IS PERMITTED EAST OF ST. LOUIS TRAIL.
3. CLEAR TREES AND VEGETATION AS NEEDED IN STAGING AND ACCESS RAMP AREAS AS REQUESTED.
4. TREE LOCATIONS WITH DIAMETER AT BREAST HEIGHT GREATER THAN 6 INCHES LOCATED WITHIN THE LIMIT OF WORK ARE SHOWN.
5. CONTRACTOR MUST COORDINATE WITH MINNESOTA POWER FOR REMOVAL OF SHEDS PRIOR TO CONSTRUCTION.
6. CONTRACTOR MUST COORDINATE WITH MINNESOTA POWER FOR REMOVAL OF OVERHEAD POWER LINES PRIOR TO CONSTRUCTION.
7. TEMPORARILY RELOCATE OUTHOUSE FOR WORKS & REINSTALL AS DIRECTED BY CONTRACTING OFFICER'S REPRESENTATIVE.

DRAFT
NOT FOR CONSTRUCTION

NORTH

0 100' 200'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PH-16-D-001
SCALE: 1" = 100'-0"

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
QUALITY CHECKED BY: A. BRUNTON
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

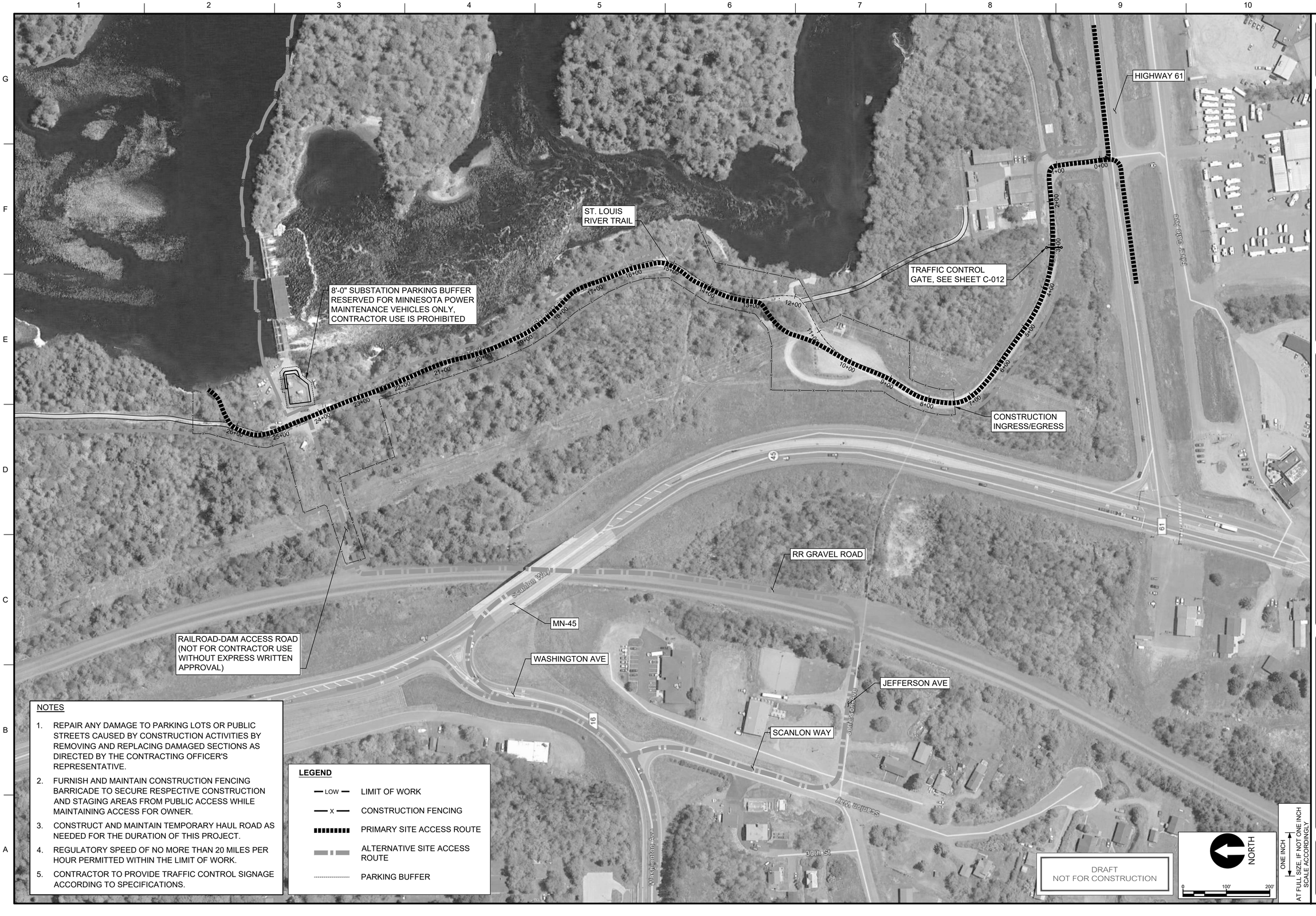
ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

CLEARING PLAN

SHEET ID
C-001

95%



NOTES

1. REPAIR ANY DAMAGE TO PARKING LOTS OR PUBLIC STREETS CAUSED BY CONSTRUCTION ACTIVITIES BY REMOVING AND REPLACING DAMAGED SECTIONS AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
2. FURNISH AND MAINTAIN CONSTRUCTION FENCING BARRICADE TO SECURE RESPECTIVE CONSTRUCTION AND STAGING AREAS FROM PUBLIC ACCESS WHILE MAINTAINING ACCESS FOR OWNER.
3. CONSTRUCT AND MAINTAIN TEMPORARY HAUL ROAD AS NEEDED FOR THE DURATION OF THIS PROJECT.
4. REGULATORY SPEED OF NO MORE THAN 20 MILES PER HOUR PERMITTED WITHIN THE LIMIT OF WORK.
5. CONTRACTOR TO PROVIDE TRAFFIC CONTROL SIGNAGE ACCORDING TO SPECIFICATIONS.

LEGEND

- LOW — LIMIT OF WORK
- x — CONSTRUCTION FENCING
- PRIMARY SITE ACCESS ROUTE
- ALTERNATIVE SITE ACCESS ROUTE
- PARKING BUFFER

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 100' 200'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D
ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PH-16-D-001
SCALE: 1" = 100'-0"

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

TRAFFIC CONTROL PLAN

SHEET ID
C-002

95%

SAFETY BUOY LINE, SEE NOTE 7

EXISTING ELEVATION DATA NOT AVAILABLE

SILT FENCE, REFER TO DETAIL ON SHEET C-011

TURBIDITY BARRIER, SEE NOTE 6

18" CONCRETE CULVERT

BOAT WASH PAD

ACCESS RAMP

PROPOSED TRACKING PAD LOCATION, REFER TO DETAIL ON SHEET C-011. SEE NOTES 1-4 THIS SHEET

PROPOSED TRACKING PAD LOCATION, REFER TO DETAIL ON SHEET C-011. SEE NOTES 1-4 THIS SHEET

Scanlon Way

Jefferson Ave

45

16

NOTES

1. THIS PLAN IS CONCEPTUAL, CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING EXTENT/NATURE OF TEMPORARY EROSION AND SEDIMENT CONTROL AND ADHERING TO ALL RELEVANT PERMITS AND REGULATIONS.
2. CONSTRUCT TRACKING PAD PRIOR TO ANY TRAFFIC ENTERING / LEAVING SITE.
3. CONSTRUCT TRACKING PAD ACROSS THE FULL WIDTH OF THE INGRESS/EGRESS POINT.
4. TRACKING PAD SHALL BE MAINTAINED BY SCRAPING OR TOP DRESSING WITH ADDITIONAL AGGREGATE.
5. TRACKING PAD SHALL BE REMOVED AT END OF CONSTRUCTION AND AREA RESTORED TO PRE-CONSTRUCTION CONDITIONS.
6. TURBIDITY BARRIER FOR SHORELINE WORK IS ONLY TO BE DEPLOYED AS NEEDED DURING INTRUSIVE WORK ALONG SHORELINE.
7. SAFETY BUOY LINE REFER TO SPECIFICATION SECTION 01 35 13 - SPECIAL PROJECT PROCEDURES FOR REQUIREMENTS.

LEGEND

- SF — SILT FENCE
- TURBIDITY BARRIER
- SAFETY BUOY LINE
- SITE ACCESS ROUTE
- LOW — LIMIT OF WORK
- TRACKING PAD

DRAFT
NOT FOR CONSTRUCTION

NORTH

0 75' 150'

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	R. BATIZA
DRAWN BY:	S. LANDRY
CHECKED BY:	M. CLARK
SUBMITTED BY:	A. BRUNTON
SIZE:	ANSI D
ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	W911XK19F0040
CONTRACT NO.:	W912PH-16-D-001
SCALE:	1" = 75'-0"

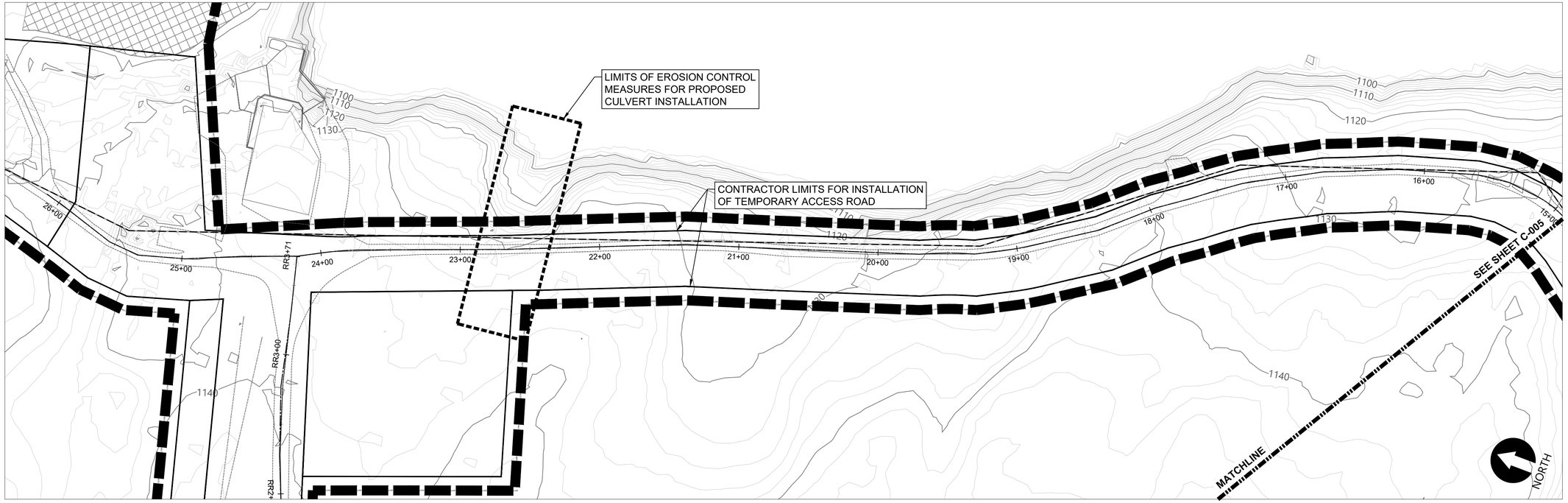
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

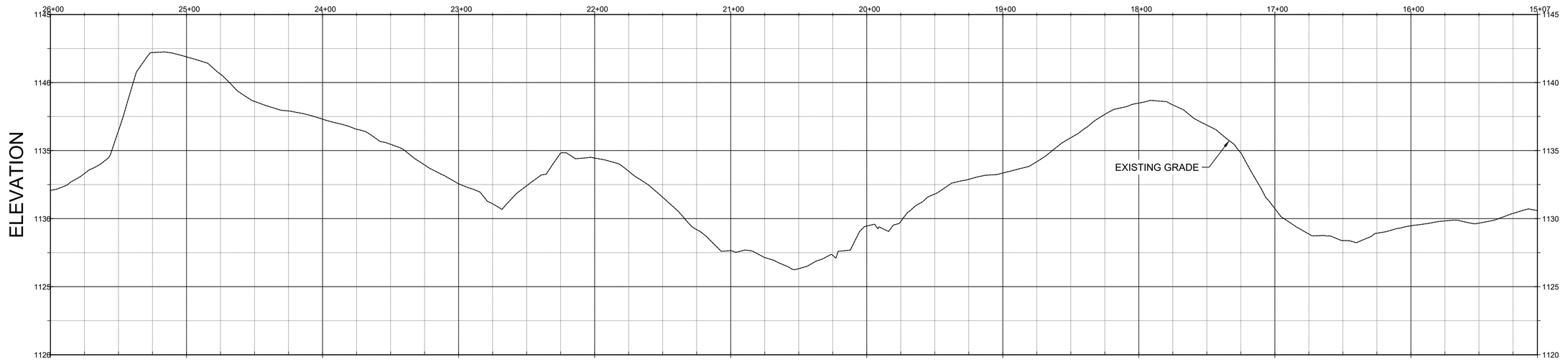
ANCHOR QEA
Baird
Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

TEMPORARY EROSION AND SEDIMENT CONTROL PLAN

SHEET ID
C-003





CONSTRUCTION ACCESS - ST. LOUIS RIVER TRAIL (1 OF 2)
PROFILE

NOTES

1. SEE ACCESS ROAD PERFORMANCE TARGETS ON SHEET C-012
2. ACCESS ROAD ALIGNMENT IS ℄ OF EXISTING TRAIL.

DRAFT
NOT FOR CONSTRUCTION

0 40' 80'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PL-16-D-001
SCALE: 1" = 40'-0"

U.S. ARMY CORPS OF ENGINEERS
ST. PAUL DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

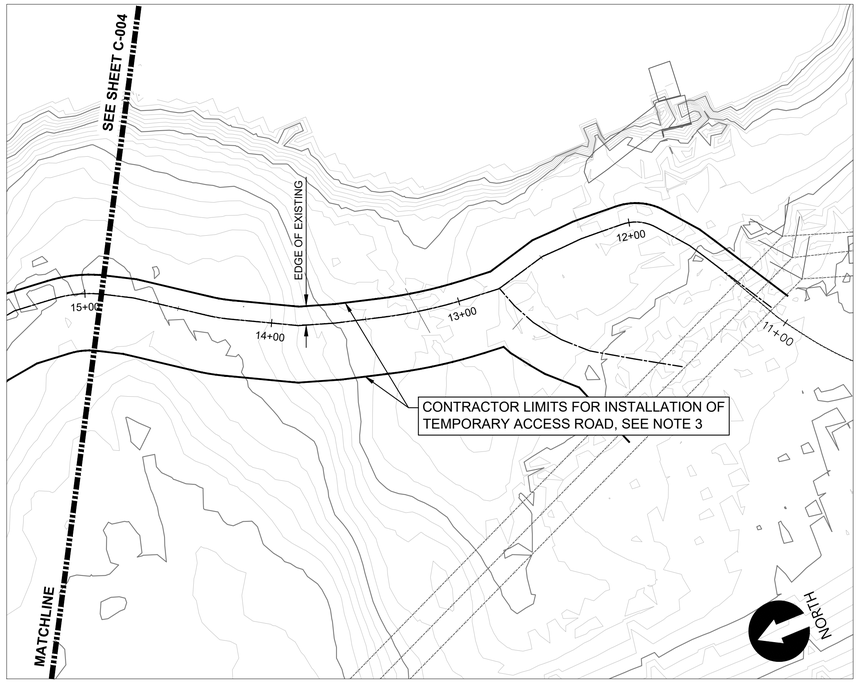
ANCHOR QEA Baird Joint Venture

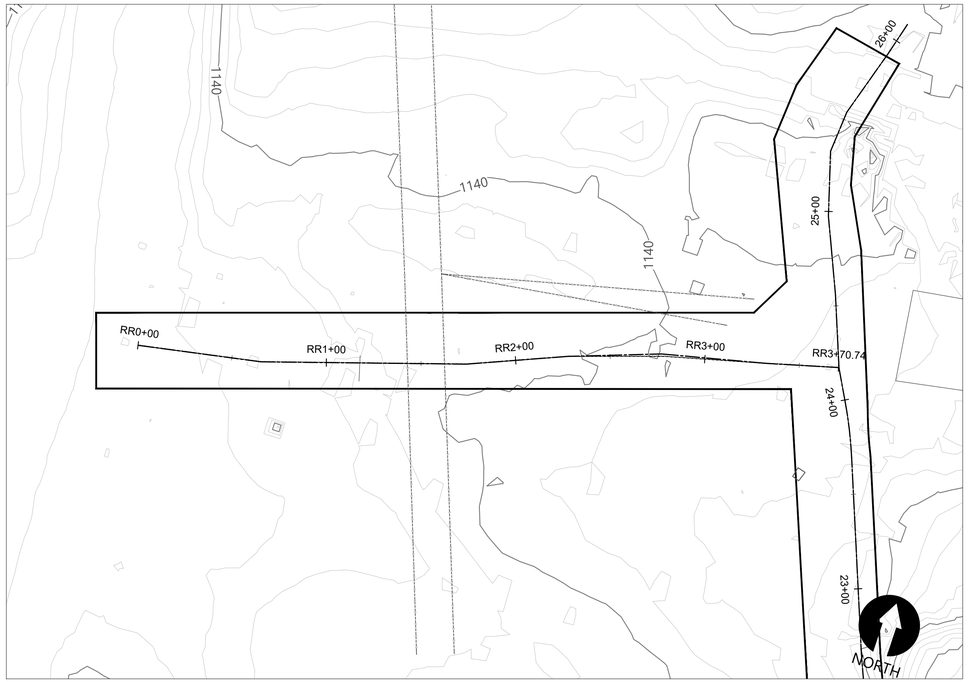
SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

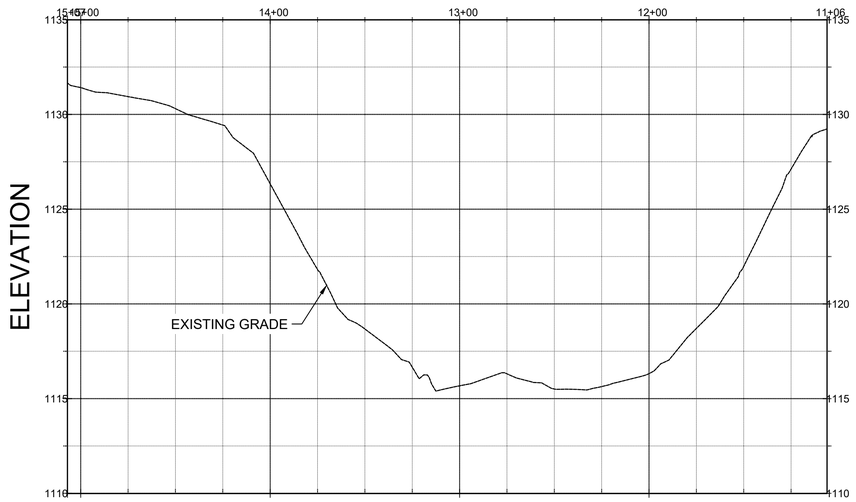
PROPOSED ACCESS PLAN & PROFILE - 1 OF 2

SHEET ID
C-004

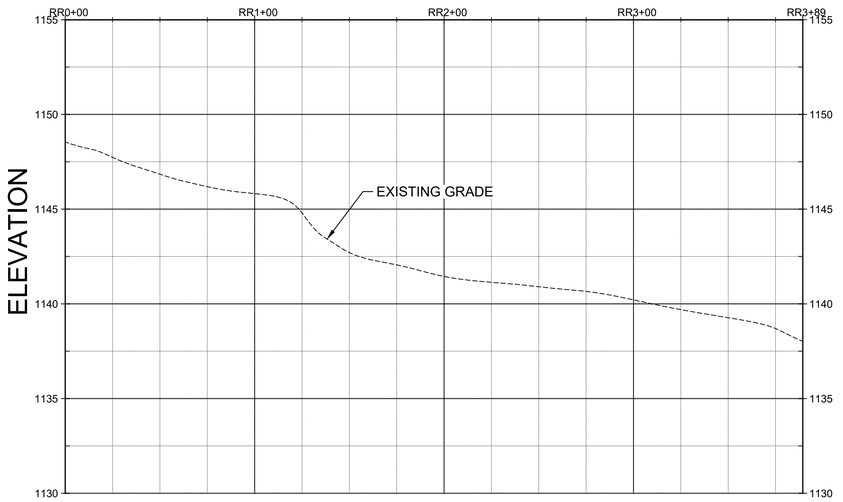
95%







CONSTRUCTION ACCESS - ST. LOUIS RIVER TRAIL (2 OF 2)
PROFILE



CONSTRUCTION ACCESS - RAILROAD ACCESS ROAD
PROFILE

NOTES

1. SEE ACCESS ROAD PERFORMANCE TARGETS ON SHEET C-012
2. ACCESS ROAD ALIGNMENT IS ℄ OF EXISTING TRAIL.
3. ACCESS ROAD LIMITS 30' FROM ℄ AWAY FROM RIVER, 10' FROM ℄ TOWARD RIVER.

DRAFT
NOT FOR CONSTRUCTION

0 40' 80'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
R. BATIZA	DECEMBER 2020
DRAWN BY:	SOLICITATION NO.:
S. LANDRY	W911XK19F0040
CHECKED BY:	CONTRACT NO.:
M. CLARK	W912PH-16-D-001
SUBMITTED BY:	SCALE:
A. BRUNTON	1" = 40'-0"
SIZE:	
ANSI D	

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

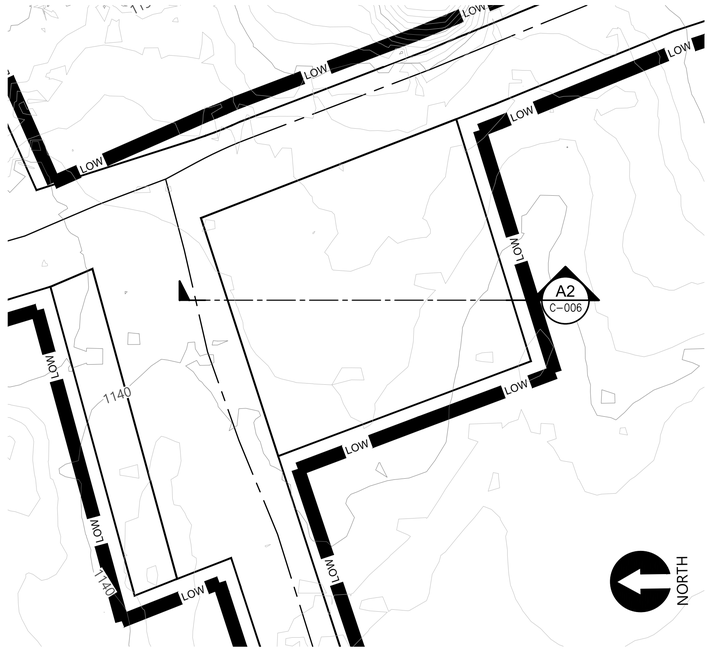
ANCHOR QEA Baird Joint Venture

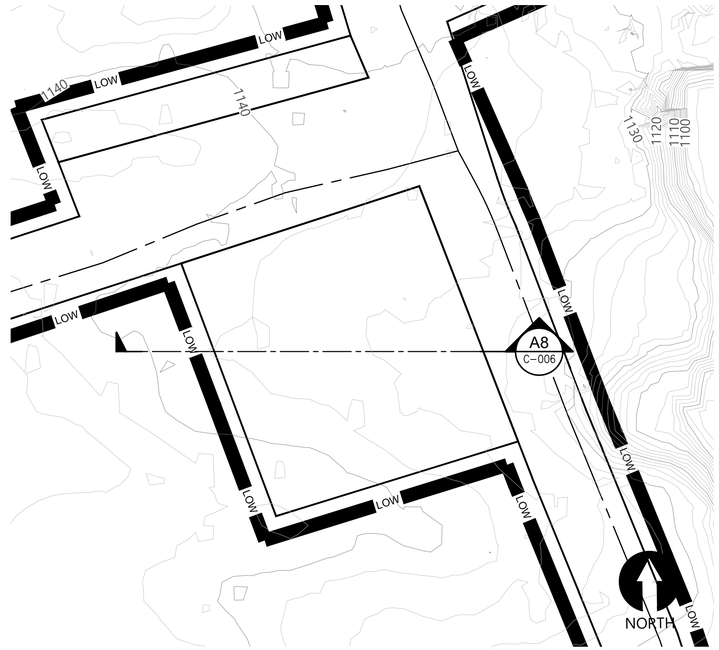
SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

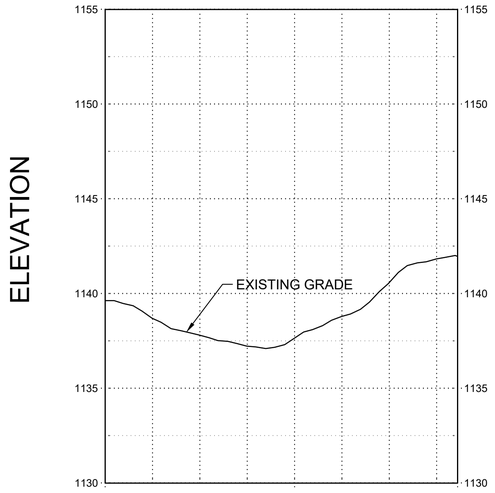
PROPOSED ACCESS PLAN & PROFILE - 2 OF 2

SHEET ID
C-005

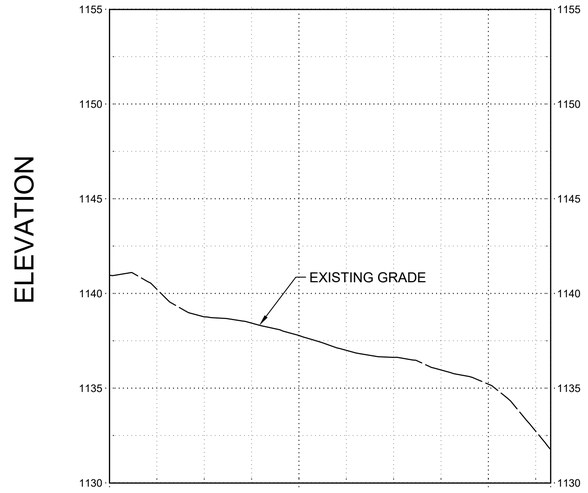
95%







A2 / C-008 STAGING AREA SECTION - NORTH/SOUTH
SCALE: 1" = 40'-0"



A8 / C-008 STAGING AREA SECTION - WEST/EAST
SCALE: 1" = 40'-0"

NOTES

1. FOR STAGING AREA TREE CLEARING DETAILS SEE SHEET C-001

DRAFT
NOT FOR CONSTRUCTION

0 40' 80'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
R. BATIZA	DECEMBER 2020
DRAWN BY:	SOLICITATION NO.:
S. LANDRY	W911XK19F0040
CHECKED BY:	CONTRACT NO.:
M. CLARK	W912PH-16-D-001
SUBMITTED BY:	SCALE:
A. BRUNTON	1" = 40'-0"
SIZE:	
ANSI D	

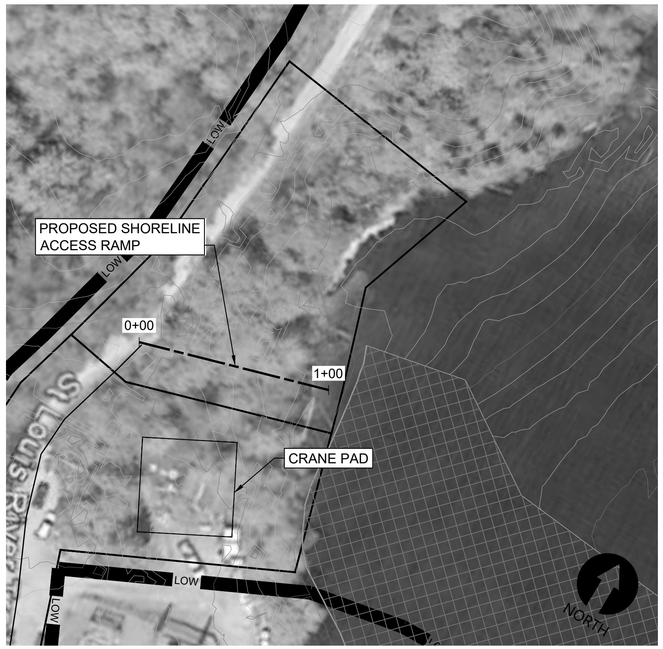
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

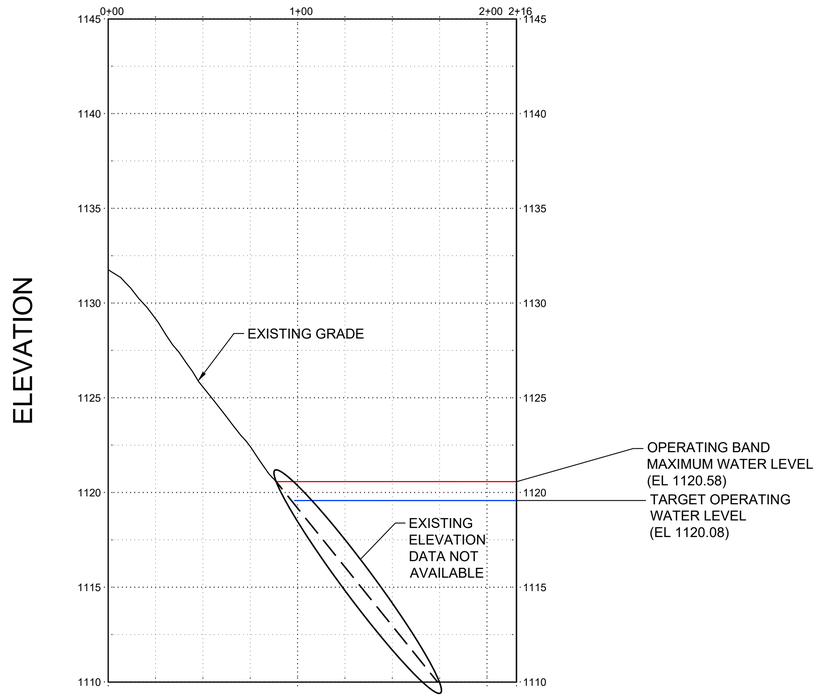
ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

STAGING AREA SECTIONS

SHEET ID
C-006





EXISTING SHORELINE ACCESS RAMP - ST. LOUIS RIVER
PROFILE

NOTE

1. ACCESS RAMP PERFORMANCE TARGETS DETAILED IN 32 11 10 ACCESS RAMP PERFORMANCE SPECIFICATIONS

DRAFT
NOT FOR CONSTRUCTION

0 40' 80'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH
SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
R. BATIZA	DECEMBER 2020
DRAWN BY:	SOLICITATION NO.:
S. LANDRY	W911XK19F0040
CHECKED BY:	CONTRACT NO.:
M. CLARK	W912PH-16-D-001
SUBMITTED BY:	SCALE:
A. BRUNTON	1" = 40'-0"
	SIZE:
	ANSI D

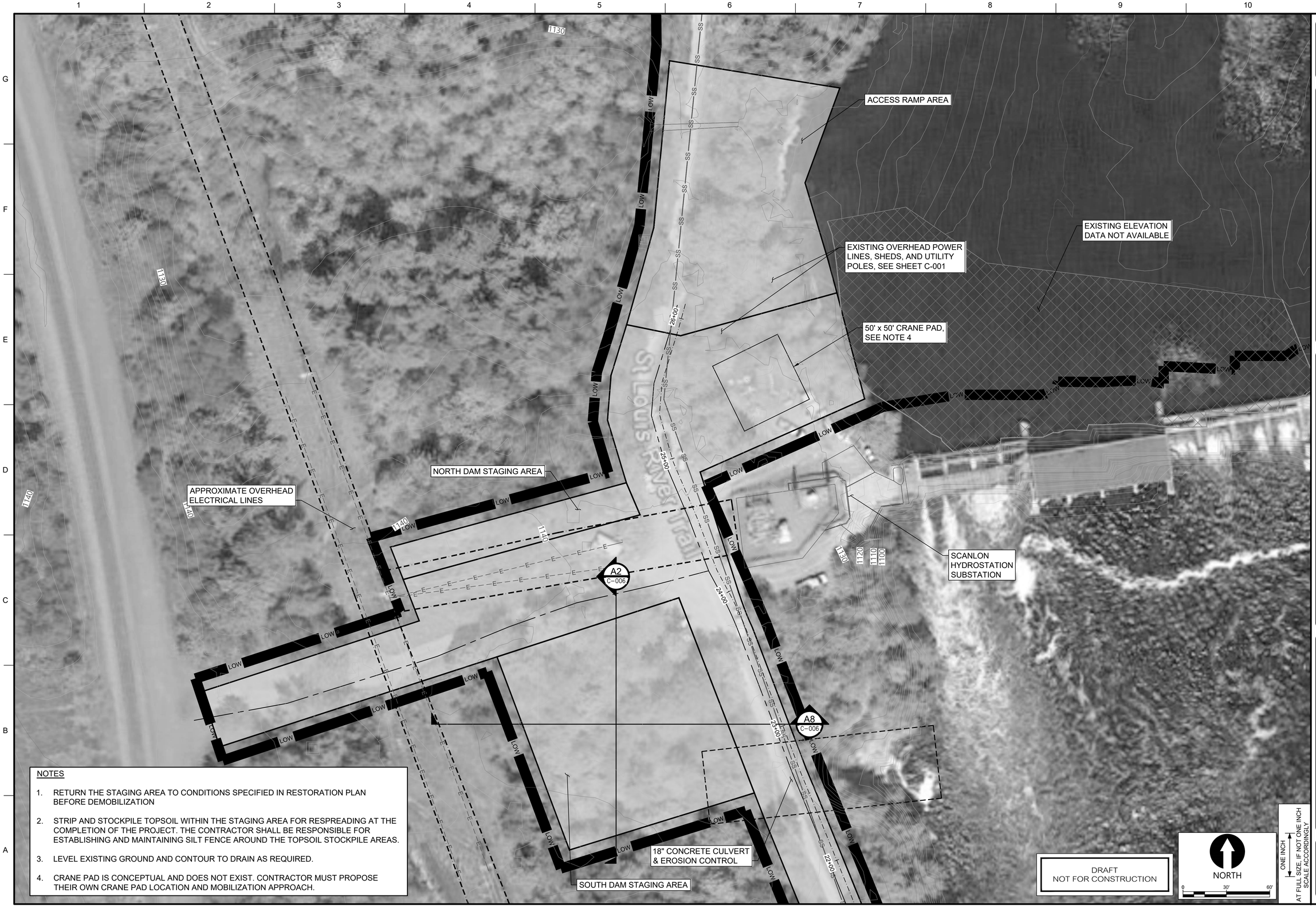
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

SHORELINE ACCESS RAMP SECTION

SHEET ID
C-007



NOTES

1. RETURN THE STAGING AREA TO CONDITIONS SPECIFIED IN RESTORATION PLAN BEFORE DEMOBILIZATION
2. STRIP AND STOCKPILE TOPSOIL WITHIN THE STAGING AREA FOR RESPREADING AT THE COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SILT FENCE AROUND THE TOPSOIL STOCKPILE AREAS.
3. LEVEL EXISTING GROUND AND CONTOUR TO DRAIN AS REQUIRED.
4. CRANE PAD IS CONCEPTUAL AND DOES NOT EXIST. CONTRACTOR MUST PROPOSE THEIR OWN CRANE PAD LOCATION AND MOBILIZATION APPROACH.

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 30' 60'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	R. BATIZA
DRAWN BY:	S. LANDRY
CHECKED BY:	M. CLARK
QUALITY CHECKED BY:	A. BRUNTON
SIZE:	ANSI D
ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	W911XK19F0040
CONTRACT NO.:	W912PH-16-D-001
SCALE:	1" = 30'-0"

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

STAGING AREA PLAN - 1 OF 2

SHEET ID
C-008

95%

APPROXIMATE OVERHEAD ELECTRICAL LINES

EXISTING VERTICAL TIMBER POSTS

PARKING LOT STAGING AREA

FISHING PIER (CLOSED TO PUBLIC DURING CONSTRUCTION)

RAMP (CLOSED TO PUBLIC DURING CONSTRUCTION)

14+00

13+00

12+00

11+00

10+00

9+00

8+00

45

NOTES

1. RETURN THE STAGING AREA TO PRECONSTRUCTION CONDITIONS BEFORE DEMOBILIZATION.
2. STRIP AND STOCKPILE TOPSOIL WITHIN THE STAGING AREA FOR RESPREADING AT THE COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SILT FENCE AROUND THE TOPSOIL STOCKPILE AREAS.

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 30' 60'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	R. BATIZA
DRAWN BY:	S. LANDRY
CHECKED BY:	M. CLARK
SUBMITTED BY:	A. BRUNTON
SIZE:	ANSI D
ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	W911XK19F0040
CONTRACT NO.:	W912P4-16-D-001
SCALE:	1" = 30'-0"

U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

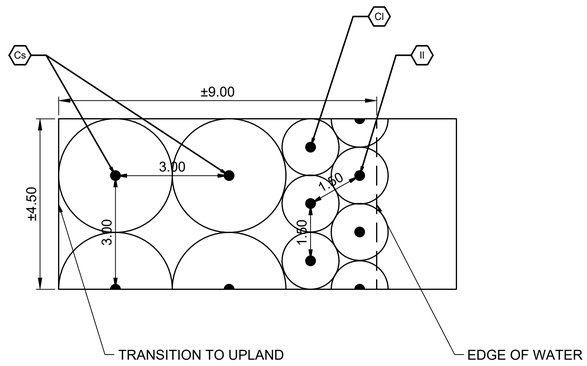
ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

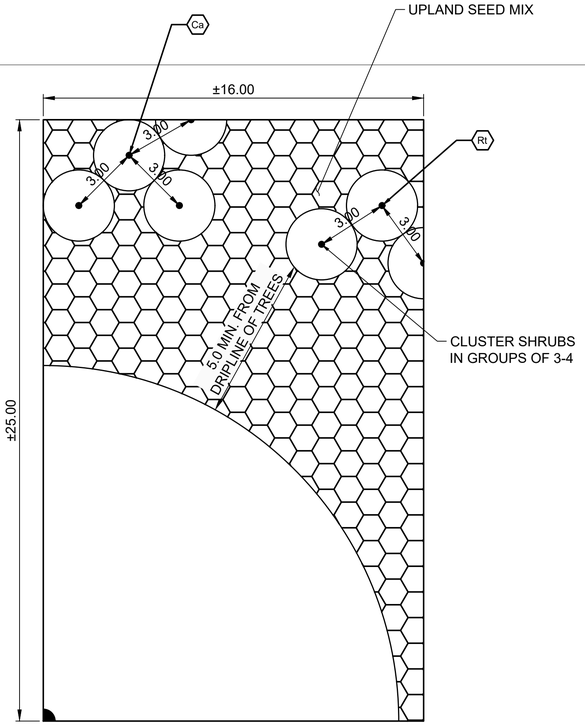
STAGING AREA PLAN - 2 OF 2

SHEET ID

C-009



F1 EMERGENT PLANT LAYOUT (TYP.)
C-010 N.T.S.



A1 UPLAND PLANT LAYOUT (TYP.)
C-010 N.T.S.

NO PLANTINGS WITHIN TRAIL FOOTPRINT

SEED MIX ONLY ON WEST SIDE OF TRAIL

UPLAND PLANTING ZONE
REFER TO DETAIL A1, THIS SHEET

PLANTING ZONE TRANSITION

EMERGENT PLANTING ZONE
REFER TO DETAIL F1, THIS SHEET

UPLAND PLANTING ZONE
REFER TO DETAIL A1, THIS SHEET

UPLAND PLANTING ZONE
REFER TO DETAIL A1, THIS SHEET

St Louis River Trail

LEGEND

- LOW — LIMIT OF WORK
- SEED MIX PLANTING
- INDIVIDUAL PLANTING

NOTES

1. COORDINATE PLANTINGS WITH PLANT SCHEDULE, SHEET C-018.

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 30' 60'

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PL-16-D-001
SCALE: 1" = 30'-0"

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
APPROVED BY: A. BRUNTON
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
POC: TOM DEST
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

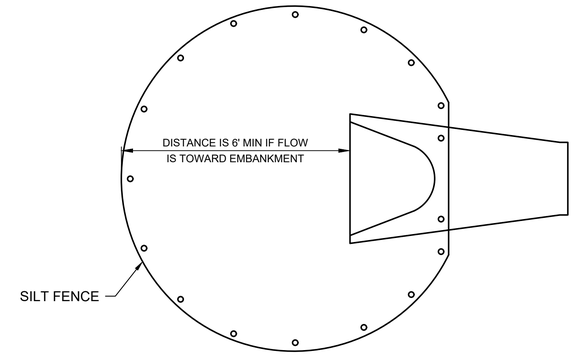
ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

PLANTING PLAN

SHEET ID
C-010

95%

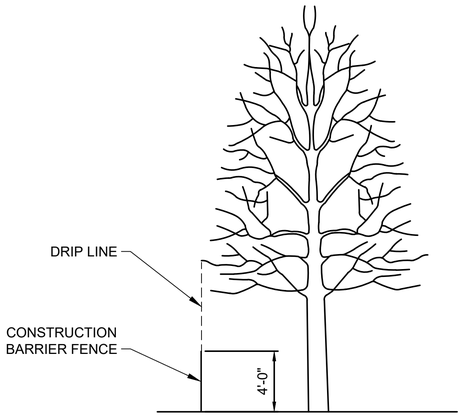


B7 / C-011 CULVERT INLET PROTECTION
SCALE: 1" = 2'-0"

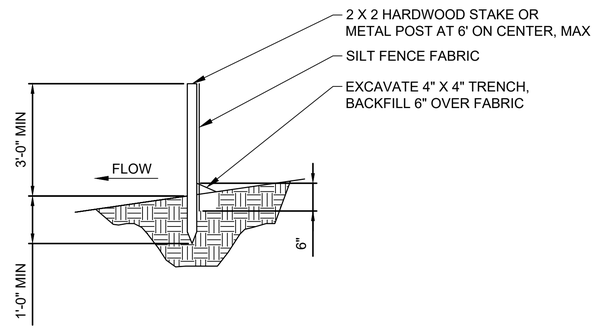
NOTES

THE CONTRACTOR(S) SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS DESCRIBED ON THIS DRAWING. THE EROSION AND SEDIMENTATION CONTROL PLAN ELEMENTS SHALL INCLUDE, BUT ARE NOT LIMITED TO:

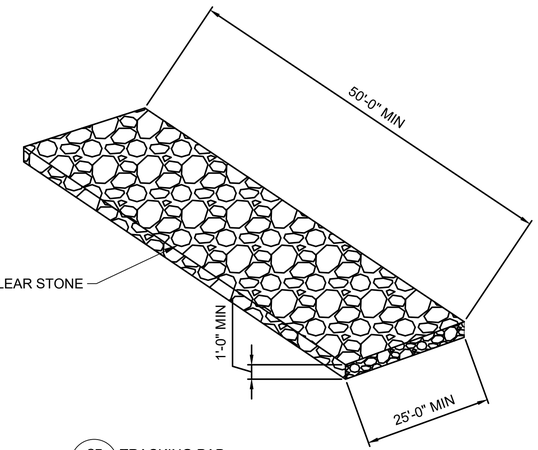
1. CONTRACTOR SHALL DEVELOP AND SUBMIT STORMWATER POLLUTION PREVENTION PLAN.
2. ALL PERIMETER SILT FENCING SHALL BE IN PLACE PRIOR TO ANY CLEARING ON SITE. CONTRACTOR SHALL MAINTAIN EROSION CONTROL FACILITIES DURING THE ENTIRE CONSTRUCTION PERIOD. FACILITIES ARE TO BE LEFT IN PLACE UNTIL PERMANENT GRASS IS IN STABLE CONDITION.
3. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 7 DAYS OF COMPLETING CLEARING AND GRUBBING ACTIVITIES.
4. INSPECT AND MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES/STRUCTURE AFTER EACH RAINFALL EVENT AND AT LEAST ONCE PER WEEK.
5. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY.
6. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
7. DRAINAGE DITCH FORESLOPE AND BACKSLOPE NOT TO EXCEED STABLE SLOPE ANGLE.



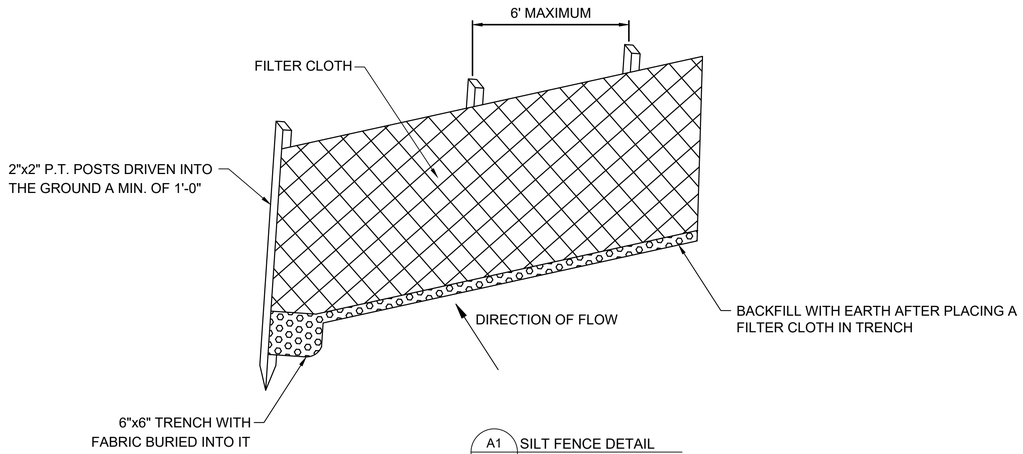
D1 / C-011 CONSTRUCTION BARRIER FENCING TREE PROTECTION
SCALE: NOT TO SCALE



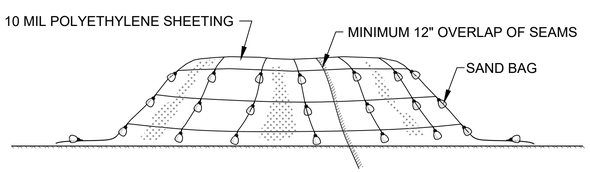
D5 / C-011 SILT FENCE
SCALE: NOT TO SCALE



C7 / C-011 TRACKING PAD
SCALE: NOT TO SCALE



A1 / C-011 SILT FENCE DETAIL
SCALE: NOT TO SCALE



NOTES:
1. STOCKPILES SHALL BE COVERED WITH MINIMUM 10 MIL POLYETHYLENE SHEETING WHENEVER INCLEMENT WEATHER (HIGH WINDS, RAIN) ARE EXPECTED.
2. SHEETING COVERING STOCKPILE SHALL BE MAINTAINED TIGHTLY IN PLACE BY USING SAND BAGS ON ROPES WITH A MAXIMUM 10'-0" GRID SPACING IN ALL DIMENSIONS.
3. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.

A6 / C-011 TYPICAL STOCKPILE COVER
SCALE: NOT TO SCALE

DRAFT
NOT FOR CONSTRUCTION

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PL-16-D-001
SCALE:

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
ROD DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

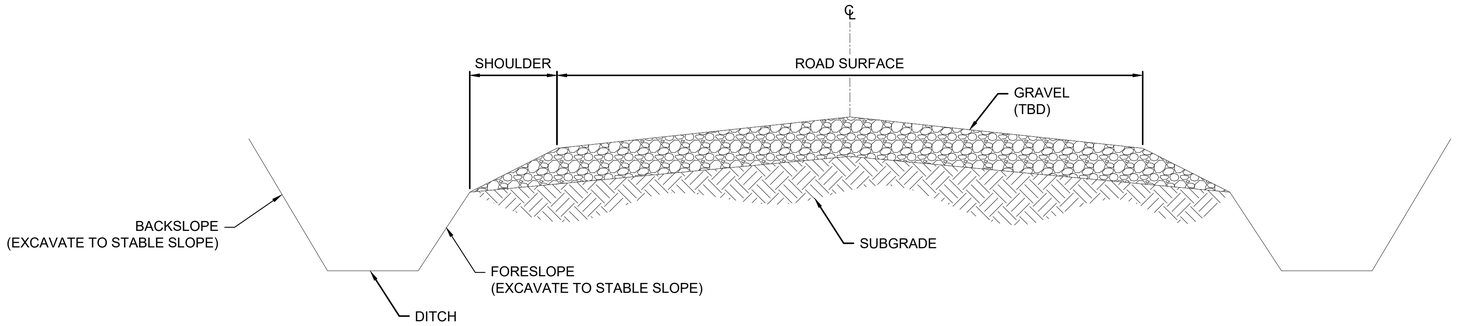
SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS

SHEET ID
C-011

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

95%

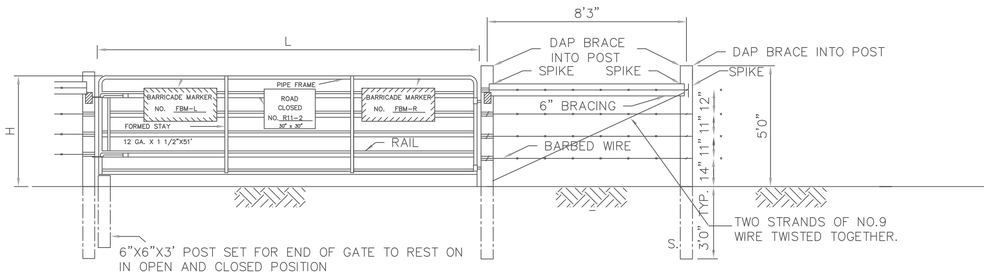


E5 TEMPORARY ACCESS ROAD - TYPICAL SECTION
SCALE: NTS

NOTES

1. ALL ROADWAY DESIGN DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY
2. CONTRACTOR IS RESPONSIBLE FOR ROADWAY DESIGN TO MEET PERFORMANCE TARGETS AS DESCRIBED ON THIS SHEET
3. WIDTH, POSITION, AND OVERALL DESIGN OF ROADWAY TO BE PERFORMED BY CONTRACTOR WITHIN BOUNDARY SHOWN ON DRAWINGS
4. CONTRACTOR SHALL NOT DISTURB ADJACENT LAND AND SURROUNDING NATURAL LANDSCAPE DURING INSTALLATION
5. ROADWAY SHALL HAVE SILT FENCE BARRIER AS SHOWN IN DRAWINGS DURING ALL CONSTRUCTION ACTIVITIES

ACCESS ROAD PERFORMANCE TARGETS	
PARAMETER	PERFORMANCE TARGET
DESIGN SPEED	LESS THAN 20 MPH
ROAD TRAVEL WAY WIDTH	MINIMUM 12 FT (PLUS ADDITIONAL WIDTH AT CURVES) FOR ONE-WAY TRAVEL
SHOULDER WIDTH	1 Ft
MAXIMUM GRADE	8%
CROSS-SECTION SLOPE	3-6%
MAXIMUM OUTSIDE TURNING RADIUS OF DESIGN VEHICLE	50 Ft



B5 / C-002 TRAFFIC CONTROL GATE TYPICAL SECTION - SEE NOTE 1
SCALE: NTS
*STANDARD DETAIL PER US DEPARTMENT OF AGRICULTURE FOREST SERVICE

DRAFT
NOT FOR CONSTRUCTION

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D
ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911KK19F0040
CONTRACT NO.: W912PH-16-D-001
SCALE:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

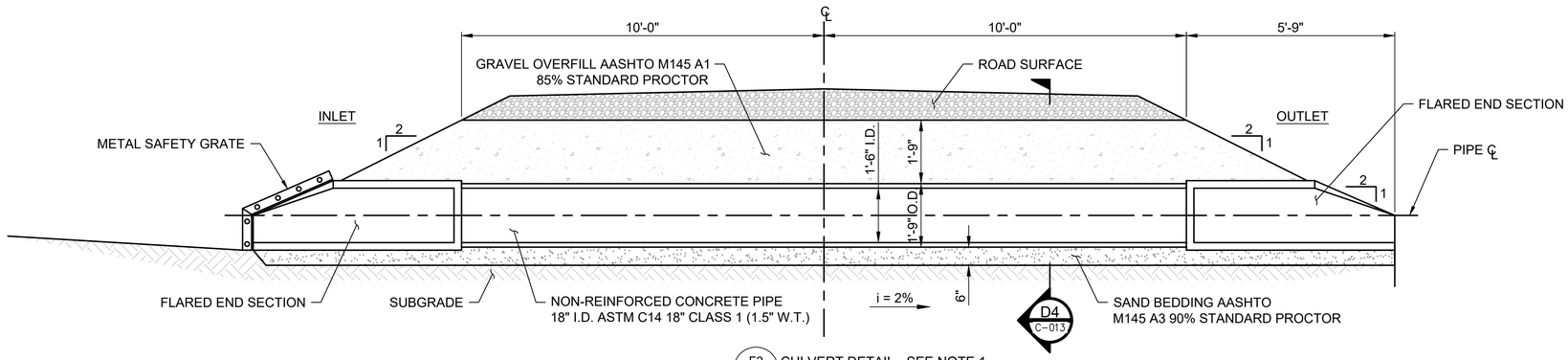
SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

PROPOSED ACCESS ROAD SECTIONS

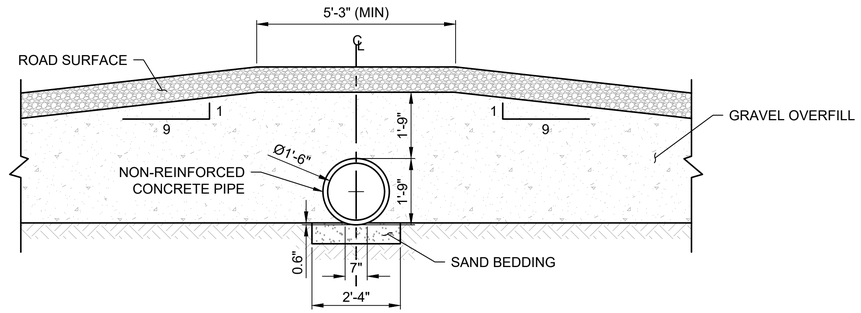
SHEET ID
C-012

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

95%



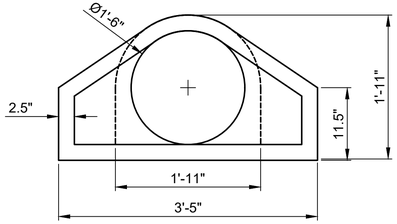
F2 / C-004 CULVERT DETAIL - SEE NOTE 1
SCALE: 1" = 2'-0"



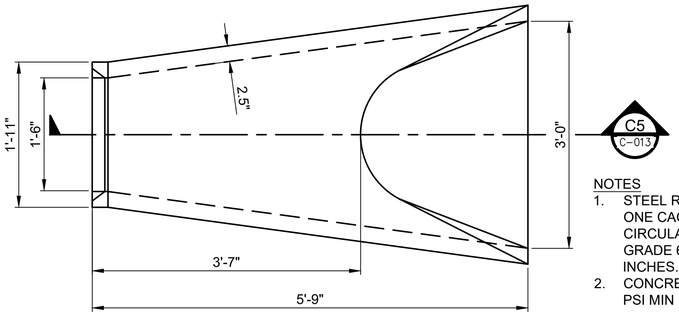
D4 / C-013 SECTION A-A - SEE NOTE 1
SCALE: 1" = 2'-0"

NOTES

1. ALL CULVERT DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY
2. CONTRACTOR IS RESPONSIBLE FOR CULVERT DESIGN
3. SIZING, POSITION, ORIENTATION, AND OVERALL DESIGN OF CULVERT TO BE PERFORMED BY CONTRACTOR
4. DESIGN OF STAGING AREA GRADING SHALL BE PERFORMED BY CONTRACTOR TO ENSURE SURFACE RUNOFF DRAINS TO CULVERT INLET
5. DESIGN OF REQUIRED HEAD WALLS, WING WALLS, AND OTHER ASSOCIATED STRUCTURES TO BE PERFORMED BY CONTRACTOR
6. CONTRACTOR SHALL KEEP DISTURBANCE OF THE CHANNEL BOTTOM, SIDES, ADJACENT LAND, AND SURROUNDING NATURAL LANDSCAPE TO A MINIMUM DURING INSTALLATION
7. CULVERT INLET SHALL HAVE SILT FENCE BARRIER AS SHOWN IN DRAWINGS DURING ALL CONSTRUCTION ACTIVITIES
8. CULVERT INLET SHALL HAVE APPROPRIATE GRATING/PROTECTION
9. DESIGN OF CULVERT OUTLET STRUCTURE TO BE PERFORMED BY CONTRACTOR
10. CONTRACTOR SHALL INSTALL ENERGY DISSIPATING STRUCTURES AND/OR ARMOR AT THE OUTLET WHERE SCOUR AND EROSION ARE LIKELY TO OCCUR TO PREVENT EROSION OF GULLY



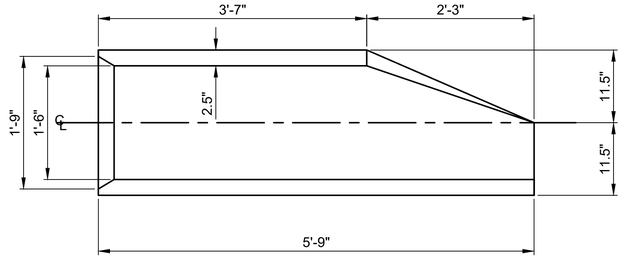
C2 / C-013 FLARED END SECTION - FRONT VIEW
SCALE: 1" = 2'-0"



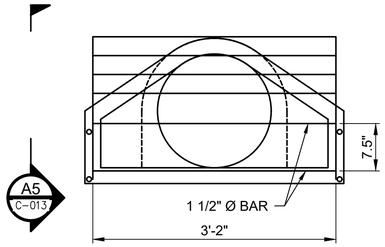
C3 / C-013 FLARED END SECTION - PLAN VIEW
SCALE: 1" = 2'-0"

C5 / C-013

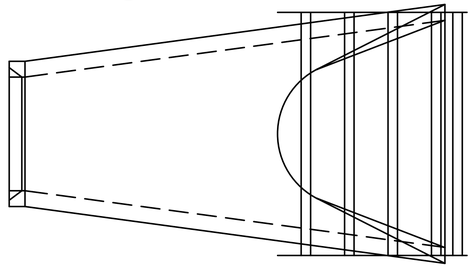
NOTES
1. STEEL REINFORCEMENT BARS: ONE CAGE OF LONGITUDINAL AND CIRCULAR REINFORCEMENT OF #4 GRADE 60 BARS SPACED AT 6 INCHES.
2. CONCRETE STRENGTH fc' = 6000 PSI MIN



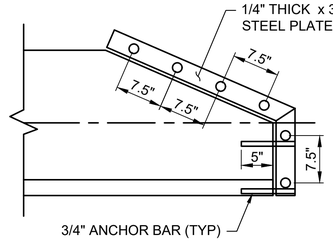
C7 / C-013 FLARED END SECTION - SECTION B-B
SCALE: 1" = 2'-0"



A2 / C-013 METAL SAFETY GRATE - FRONT VIEW
SCALE: 1" = 2'-0"



A3 / C-013 METAL SAFETY GRATE - PLAN VIEW
SCALE: 1" = 2'-0"



A7 / C-013 METAL SAFETY GRATE - SECTION C-C
SCALE: 1" = 2'-0"

NOTES
1. ALL STEEL GALVANIZED
2. STRUCTURAL STEEL A36
3. ANCHOR BARS CAN BE PRECAST EMBEDDED OR POST INSTALLED

DRAFT
NOT FOR CONSTRUCTION

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

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R. BATIZA	DECEMBER 2020
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M. CLARK	W912PL-16-D-001
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A. BRUNTON	1" = 2'-0"
SIZE:	
ANSI D	

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DETROIT, MI 48226

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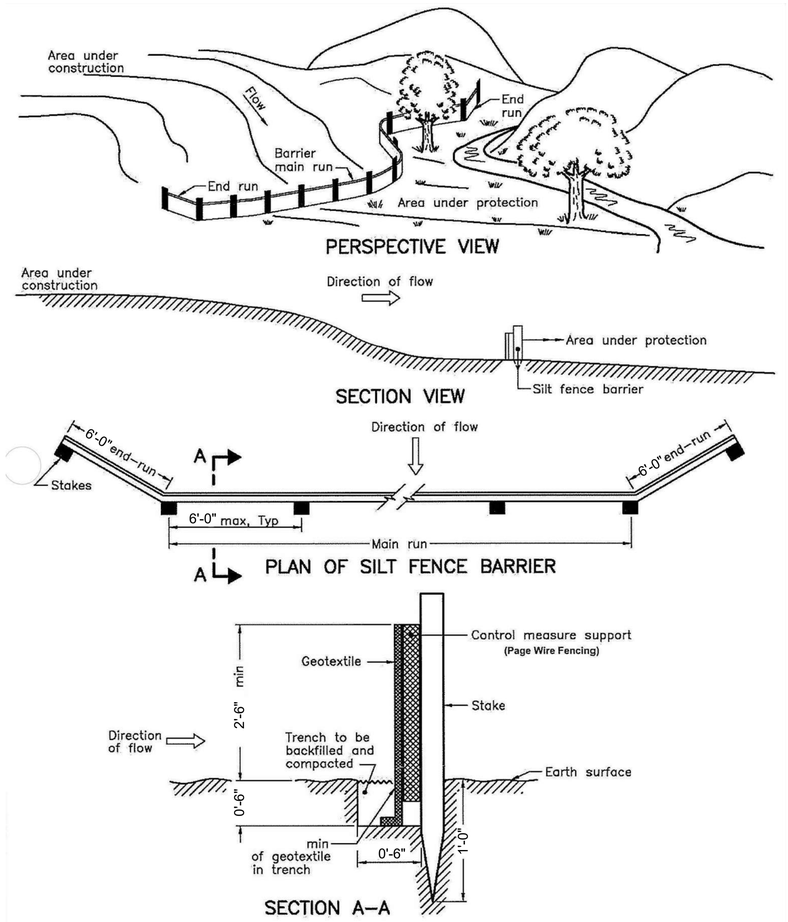
SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

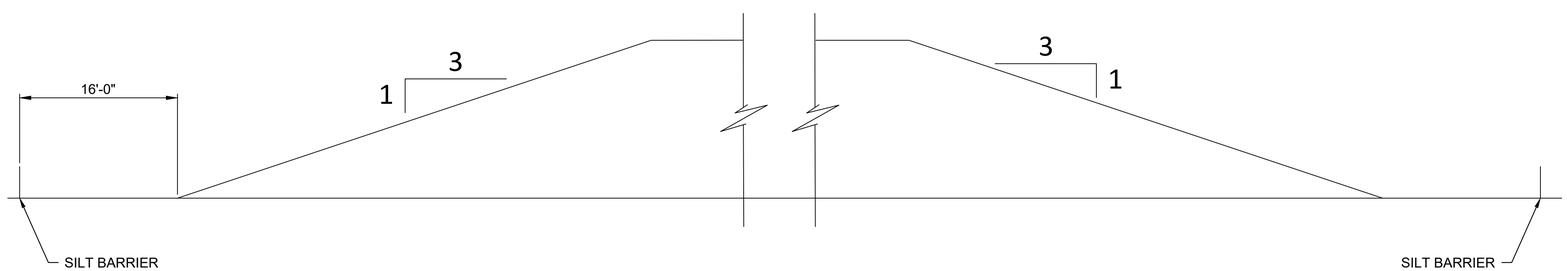
PROPOSED ACCESS ROAD DETAILS

SHEET ID
C-013

95%



C4 HEAVY DUTY SILT FENCE BARRIER
SCALE: NTS
*STANDARD DETAIL PER ONTARIO PROVINCIAL (OPSD-219.130)



A2 STOCKPILE SECTION
SCALE: NTS

NOTES

1. CONSTRUCTION MATERIALS MAY ONLY BE STOCKPILED IN THE DESIGNATED STAGING AREAS. ADDITIONAL STOCKPILE AREAS SHALL BE USED ONLY WITH PERMISSION OF THE CLIENT'S REPRESENTATIVE OR DESIGNATED DELEGATE.
2. ALL STONE MATERIAL (INCLUDING ROCK FRAGMENTS) SHALL BE REMOVED FROM STOCKPILE AREAS AT PROJECT CONCLUSION.
3. DRAINAGE AROUND MATERIAL STOCKPILES SHALL BE DESIGNED, INSTALLED AND MAINTAINED BY CONTRACTOR. MODIFICATION OF EXISTING DRAINAGE COURSES MAY BE REQUIRED.

DRAFT
NOT FOR CONSTRUCTION

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D
ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PL-16-D-001
SCALE:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

STAGING AREA DETAILS

SHEET ID
C-014

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

95%

LEGEND:

- LOW — LIMITS OF WORK
- E — ELECTRICAL LINES
- ST. LOUIS RIVER TRAIL
- 1130 — EXISTING SURFACE (2' AND 10')
- OPERATING BAND MAXIMUM WATER LEVEL (1120.58')
- AMENDMENT PLACEMENT AREA - PELLITIZED PAC
- AMENDMENT PLACEMENT AREA - GAC AND SAND BLENDED COVER
- DELINEATED WETLAND AREAS
- S — SANITARY SEWER MANHOLE
- SS — SANITARY SEWER PIPE

NOTES:

1. THE TOTAL PELLETIZED PAC PLACEMENT AREA IS 7.4 ACRES. THE TOTAL BLENDED COVER PLACEMENT AREA IS 6.1 ACRES.
2. CONTRACTOR SHALL MONITOR AND VERIFY AMENDMENT PLACEMENT IN AMENDMENT CERTIFICATION UNITS (ACU) IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. ACU MUST BE 0.5 ACRES IN AREA OR SMALLER AND MUST ONLY CONTAIN ONE AMENDMENT TYPE. ACU LIMITS SHALL BE PROPOSED IN THE CONTRACTOR'S AMENDMENT PLACEMENT PLAN.
3. CONTRACTOR IS FORBIDDEN TO USE TRACKED EQUIPMENT OR TEMPORARY ROADS THAT DISTURB EXISTING SEDIMENTS IN AMENDMENT PLACEMENT AREAS. ALL MATERIAL MUST BE PLACED BY FLOATING EQUIPMENT OR BROADCAST FROM ADJACENT AREAS.

AMENDMENT PLACEMENT AREA - PELLETIZED PAC

AMENDMENT PLACEMENT AREA - GAC AND SAND BLENDED COVER

AMENDMENT PLACEMENT AREA - PELLETIZED PAC

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT LIMIT OF WORK

APPROXIMATE LOCATION OF OVERHEAD UTILITY

APPROXIMATE LOCATION OF ST. LOUIS RIVER TRAIL CENTERLINE

EXTENT OF TREE SURVEY

CULVERT

APPROXIMATE LOCATION OF ACTIVE RAILROAD LINE

STAGING AREA

EXISTING SHORELINE ACCESS

EXISTING ELEVATION DATA NOT AVAILABLE

MANHOLE

APPROXIMATE OVERHEAD ELECTRICAL LINES

MINNESOTA POWER HYDROELECTRIC DAM

MINNESOTA POWER HYDROELECTRIC DAM

RAILROAD-DAM ACCESS ROAD (NOT FOR CONTRACTOR USE WITHOUT EXPRESS WRITTEN APPROVAL)

SAINT LOUIS RIVER

45

A C-016 · B C-016 · C C-016 · D C-017 · E C-017 · F C-017

DRAFT
NOT FOR CONSTRUCTION

NORTH
0 125' 250'

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	S. BAGNULL
DRAWN BY:	B. HURRY
CHECKED BY:	K. POWELL
APPROVED BY:	R. MOHAN
SIZE:	ANSI D
ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	TBD
CONTRACT NO.:	TBD
SCALE:	1" = 125'

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

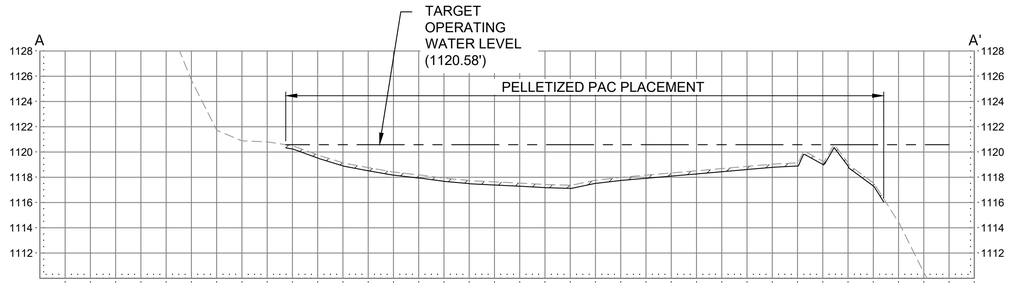
AMENDMENT PLACEMENT PLAN

SHEET ID
C-015

95%

NOTES:

1. SEE TECHNICAL SPECIFICATIONS FOR AMENDMENT DOSE, PLACEMENT REQUIREMENTS, AND PLACEMENT TOLERANCES



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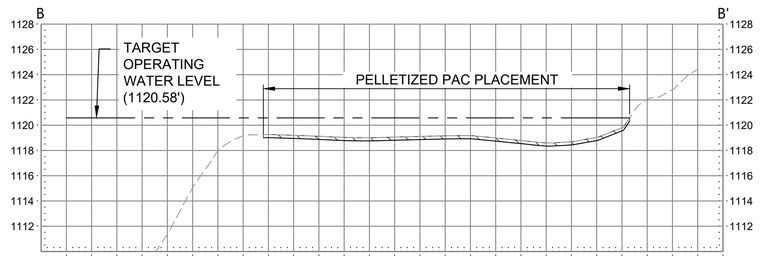

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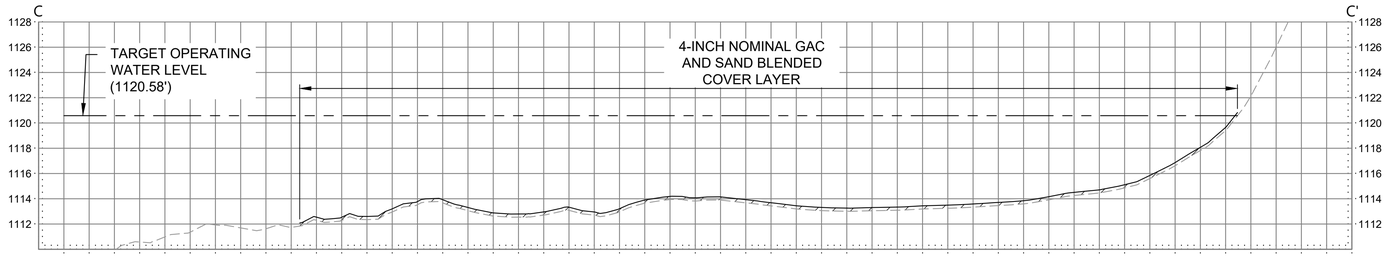


C

DRAFT
NOT FOR CONSTRUCTION

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
S. BAGNULL	DECEMBER 2020
DRAWN BY:	SOLICITATION NO.:
B. HURRY	TBD
CHECKED BY:	CONTRACT NO.:
K. POWELL	TBD
SUBMITTED BY:	SCALE:
R. MOHAN	V:1" = 4', H:1" = 20'
SIZE:	
ANSI D	

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

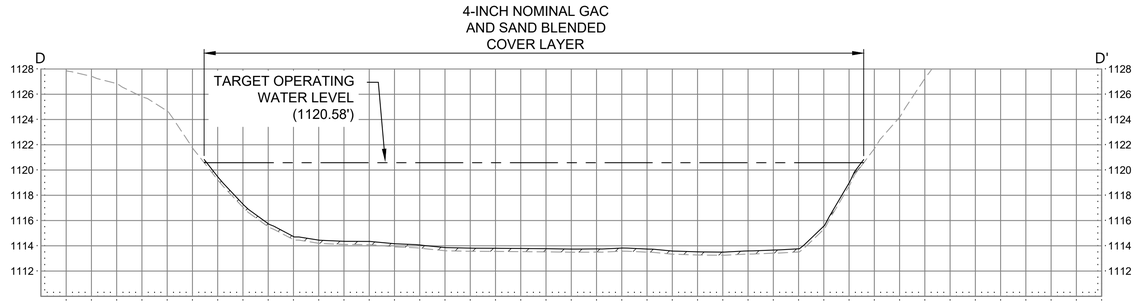
AMENDMENT PLACEMENT SECTIONS - 1 OF 2

SHEET ID
C-016

95%

NOTES:

1. SEE TECHNICAL SPECIFICATIONS FOR AMENDMENT DOSE, PLACEMENT REQUIREMENTS, AND PLACEMENT TOLERANCES



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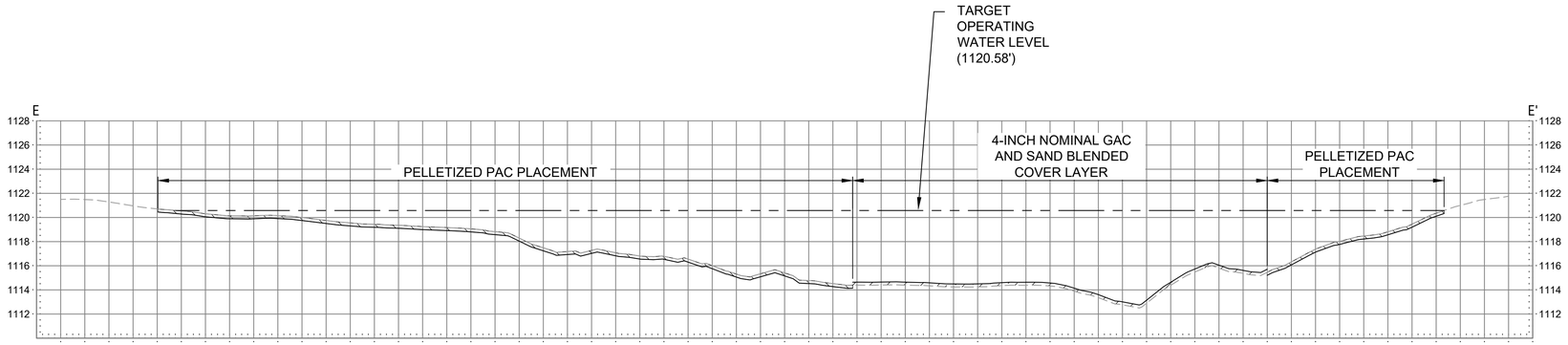
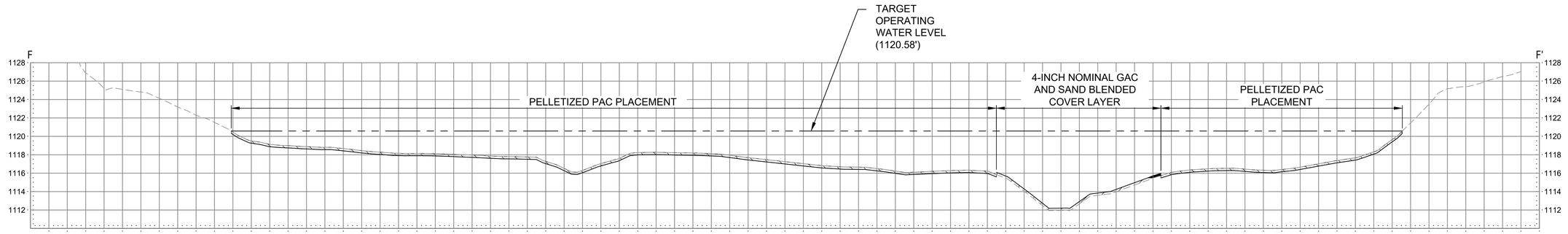


E



F

DRAFT
NOT FOR CONSTRUCTION

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE:	DECEMBER 2020
SOLICITATION NO.:	TBD
CONTRACT NO.:	TBD
SCALE:	V:1" = 4', H:1" = 20'

DESIGNED BY:	S. BAGNULL
DRAWN BY:	B. HURRY
CHECKED BY:	K. POWELL
SUBMITTED BY:	R. MOHAN
SIZE:	ANSI D

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

AMENDMENT PLACEMENT SECTIONS - 2 OF 2

SHEET ID

C-017

95%

TEMPORARY COVER CROP			
KEY	PLS Oz/Acre	BOTANICAL NAME	COMMON NAME
Lm	112.0	Lolium multiflorum	Annual Ryegrass
As	320.0	Avens sativa	Oats

EMERGENT PLANTS							
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	CAL./HEIGHT	ROOT	SPACING	REMARKS
Ba	2.0	Betula alleghensis	Yellow Birch	3" cal.	W.B.	As Shown	Straight trunk; full crown
Cl	200.0	Carex lacustris	Lake Sedge	11 cu. In. min.	Plug	1.5' O.C.	-
Cs	40.0	Cornus sericea	Red Osier Dogwood	2' height	C.G.	3' O.C.	Full bushy specimen (min. 3 stems)
Il	200.0	Irus lacustris	Dwarf Lake Iris	11 cu. In. min.	Plug	1.5' O.C.	-
Pg	1.0	Picea glauca	White Spruce	6' height	W.B.	As shown	Single straight leader; full specimen

UPLAND SEED MIX			
KEY	PLS Oz/Acre	BOTANICAL NAME	COMMON NAME
An	5.0	Aster novae-angliae	New England Aster
Ec	4.0	Elymus canadensis	Canada Wild Rye
Ep	8.0	Echinacea purpurea	Purple Coneflower
Ls	5.0	Liatris spicata	Marsh Blazingstar
Rh	5.0	Rudbeckia hirta	Black-eyed Susan
Sh	5.0	Shizachyrium scoparium	Little Bluestem
Ss	16.0	Sporobolus heterolepis	Prairie Dropseed

UPLAND PLANTS							
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	CAL./HEIGHT	ROOT	SPACING	REMARKS
Bp	16.0	Betula papyrifera	Paper Birch	3" cal.	W.B.	As Shown	Straight trunk; full crown
Ca	60.0	Cornus alternifolia	Pagoda Dogwood	2' height	C.G.	3' O.C.	Full bushy specimen (min. 3 stems)
Ps	9.0	Pinus strobus	Eastern White Pine	3" cal.	W.B.	As Shown	Single straight leader; full specimen
Rt	60.0	Rhus typhina	Staghorn Sumac	2' height	#3 Cont.	3' O.C.	-

D1/25 PLANT SCHEDULE

DRAFT
NOT FOR CONSTRUCTION

ONE INCH
AT FULL SIZE, IF NOT ONE INCH
SCALE ACCORDINGLY

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: DECEMBER 2020
SOLICITATION NO.: W911XK19F0040
CONTRACT NO.: W912PL-16-D-001
SCALE:

DESIGNED BY: R. BATIZA
DRAWN BY: S. LANDRY
CHECKED BY: M. CLARK
SUBMITTED BY: A. BRUNTON
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVENUE, STE. 700
DETROIT, MI 48226

ANCHOR QEA Baird Joint Venture

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
SCANLON, MINNESOTA

PLANTING SCHEDULE

SHEET ID
C-018

95%

Wetland Delineation Report

for
Anchor QEA/Baird Joint Venture
Scanlon Reservoir
City of Scanlon, MN 55720

(AES Project # 19-0247)

Prepared by:
Applied Ecological Services, Inc.
17921 Smith Road
Brodhead, WI53520
(608) 897-8641

Submitted to:
Anchor QEA/Baird Joint Venture
290 Elwood Davis Road, Suite 340
Liverpool, NY 13088

Applied Ecological Services, Inc.™

November 13, 2019

Attachment E
Wetland Delineation Report

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

LIST OF ABBREVIATIONS

AES	Applied Ecological Services, Inc.
AOI	Area of Interest
DP	Data Point
FAC	Facultative Indicator Species
FACU	Facultative Upland Indicator Species
FACW	Facultative Wetland Indicator Species
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
GPS	Global Positioning System
NGVD 29	National Geodetic Vertical Datum of 1929
NRCS	Natural Resources Conservation Service
NTCHS	National Technical Committee for Hydric Soils
NWI	National Wetland Inventory
OBL	Obligate Wetland Indicator Species
OHWL	Ordinary High Water Line
OHWM	Ordinary High Water Mark
PI	Prevalence Index
Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)
UPL	Upland Indicator Species
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
MNDNR	Minnesota Department of Natural Resources

WETLAND DELINEATION REPORT

1.0 INTRODUCTION

Applied Ecological Services (AES) staff conducted a wetland delineation within an Area of Interest (AOI) of approximately 51.9 acres at Scanlon Reservoir in the City of Scanlon, Carlton County, Minnesota (Appendix A, Figure 1). The AOI is located in Section 19, Township 49 North, Range 16 West and is contained within the limits of property owned by Minnesota Power. The AOI consists of a dammed reach of the St. Louis River and adjacent undeveloped forest. The downstream portion of the AOI consists of a run-of-the-river hydroelectric station and several dams. The AOI is bounded by forested land as well as the upstream and downstream portions of the St. Louis River. AES understands that sediments within Scanlon Reservoir have been found to contain elevated concentrations of polychlorinated dibenzo-p-dioxins/dibenzofurans and mercury and the USACE is investigating remediation options. Remediation actions could impact jurisdictional Waters of the U.S. and thus, a delineation of wetlands and waters was required.

This report identifies the extent of Waters of the U.S., including wetlands, within the AOI based on AES's understanding and interpretation of the wetland delineation methods described in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (Environmental Laboratory 1987), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (hereafter, Regional Supplement) (USACE 2012), Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and Wetland Conservation Act Local Governmental Units in Minnesota, Version 2.0 (USACE 2015), and Guidelines for Ordinary High Water Level (OHWL) Determinations (Scherek & Yakel 1993).

The primary objective of this determination/delineation was to provide the spatial boundary of jurisdictional wetlands and waters within the AOI. AES Ecologists Matt Parsons and Todd Polacek conducted the wetland delineation on October 2, 2019. Mr. Parsons was lead investigator and has been conducting wetland delineations throughout the country since 2012. He has taken the 40-hour Wetland Delineator Certification Program, Advanced Hydric Soils Course, and Plant Identification for Wetland Delineators Course, all through the Wetland Training Institute, Inc. He is also certified as a Wisconsin Department of Natural Resources Assured Wetland Delineator.

The report was reviewed by AES Principal Ecologist, Dr. John Larson, Ph.D., who has conducted hundreds of wetland delineations throughout the Midwest since 1995. The report was also reviewed by AES Senior Ecologist, Genesis Mickel who has conducted hundreds of wetland delineations since 2003 and has taken several wetland delineation courses. She is a Minnesota Certified Wetland Delineator.

2.0 REGULATORY DEFINITION OF WATERS OF THE U.S.

Waters of the U.S. include navigable waters, interstate waters, other waters, tributaries of waters, wetlands adjacent to waters, as well as several other categories of waters.

2.1 Navigable Waters

Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

2.2 Other Waters

Other waters include lakes, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and seasonal springs. Such areas are identified by the (seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. Other waters extend to the Ordinary High Water Mark (OHWM) on opposing channel banks in freshwater waterways.

2.3 Ordinary High Water Mark/Line

In non-tidal waters USACE jurisdiction extends to the OHWM (synonymous with OHWL in this report) which is defined in 33 CFR Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris."

The Minnesota Department of Natural Resources (MNDNR) provides guidance on determination of the OHWL. Minnesota Statutes, Section 103G.005, subdivision 14 defines the OHWL as the boundary of waterbasins, watercourses, public waters, and wetlands. For reservoirs and flowages, the OHWL is the operating elevation of the normal summer pool (Scherek & Yakel 1993).

Minnesota Power's hydroelectric system on Scanlon Reservoir is licensed with the Federal Energy Regulatory Commission (FERC). The license dictates that the operating band for Scanlon Reservoir is 1119.30 feet to 1120.30 feet with a target elevation of 1119.80 feet (NGVD 29) (Minnesota Power & Light Company 1995, ALLETE, Inc. 2008).

2.4 Wetlands

Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

3.0 METHODS

Excessively steep slopes in certain areas and access constraints at the site precluded flagging and surveying wetland/waters boundaries across the entire site. Therefore, AES used a combination of onsite and offsite techniques to delineate wetlands and waters within the AOI.

3.1 Background Information

Several information sources were consulted to evaluate the property and identify hydric soil units and potential wetlands on the site. Soil types were identified using the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey map for Carlton County, MN (Figure 2). The general topography of the site was reviewed using an online two-foot topographic map (Figure 3). Potential wetlands were identified using a National Wetlands Inventory (NWI) map (Figure 4) as well as the MNDNR Public Waters Inventory Map (Figure 5). Maps can only be used to establish the probability and approximate location of wetlands on the site; therefore, the USACE does not accept the use of these maps to make final wetland determinations. Final wetland determinations were made with onsite observations and fieldwork. Prior to the fieldwork, background information was reviewed to establish the probability and approximate location of wetlands on the site. The following maps were reviewed offsite or onsite as part of the wetland determination:

- Soil Survey Map – The NRCS Web Soil Survey Map (Figure 2) identifies one soil map unit within the AOI: Borofolists (1073). Borofolists are not classified as hydric by the NRCS but may contain inclusions of other soil map units that are classified as hydric.

- Carlton County Topographic Map – The County topographic map (Figure 3) shows the general topography and elevations of the site. The site is situated in a river valley landscape and generally slopes downward from north to south in the direction of water flow. The site has highly variable, hilly topography at the margins of the water line. Steep slopes exist on the ridge formations while gentler topography exists in the draws. Two large hilly islands exist in the center of the AOI which rise approximately 36 feet above the water line. Elevations range from approximately 1,120 feet near the water line of the reservoir to 1,138 feet on the northwest face of the northern island.

- NWI Map – The NWI Map of the area (Figure 4) indicates that two vegetated wetlands are mapped within the AOI. A semi-permanently flooded, persistent, emergent, palustrine wetland (PEM1F) is mapped in the north portion of the AOI. There is also a seasonally flooded, broad-leaved deciduous, scrub-shrub, palustrine wetland (PSS1C) mapped in the northeastern portion of the AOI. The waterway portion of the reservoir is mapped as a permanently flooded, unconsolidated bottom, lower perennial, riverine (R2UBH) water feature.

- MNDNR Public Waters Inventory Map – The Public Waters Inventory Map indicates that

Scanlon Reservoir is a public water of Minnesota meaning the MNDNR has regulatory jurisdiction over Scanlon Reservoir.

All figures are presented in Appendix A.

3.2 Offsite Desktop Wetland Mapping

Prior to the field survey, the approximate boundaries of onsite wetlands were mapped using air photo interpretation and Geographic Information System (GIS) software. These desktop delineated wetlands were digitized using an August 2010 aerial photograph taken during low water conditions so wetland signatures would be most apparent. More recent aerial photographs from 2011, 2015, and 2017 were also referenced during desktop mapping to ensure the mapped wetlands accurately reflected current conditions.

AES also digitized the OHWL using the 1,120-foot elevation contour line which is the approximate target water level elevation of the reservoir. Water levels only fluctuate by approximately 6 inches above or below the target water level elevation throughout the year per FERC requirements.

The desktop delineation wetlands, OHWL, and topographical contour lines were uploaded to a Geographic Positioning System (GPS) receiver with sub-meter accuracy so that the wetlands and OHWL could be field-verified and modified where necessary.

3.3 Onsite Field Delineation Methods

The Regional Supplement was used to provide technical guidance and procedures for identifying and delineating wetlands. The three essential characteristics of a wetland are hydrophytic vegetation, wetland hydrology, and hydric soils. All three characteristics must be present in order to be considered as wetland.

1. **Vegetation:** The principal hydrophytic vegetation criteria to be met are when greater than 50% of the dominant plant species are hydrophytes (Lichvar et al. 2016). The indicator status of plant species is expressed in terms of the estimated probabilities of that species occurring in wetland conditions within a given region. Hydrophytes include all plants classified as "FAC", "FACW" or "OBL". If the plant community failed the dominance test but indicators of hydric soils and wetland hydrology were present, the prevalence index (PI) was calculated. The PI is a weighted average wetland indicator status of all species in a plot. Absolute percent cover for each species is weighted based on the species indicator status (OBL = 1, FACW = 2, FAC = 3, FACU = 4, UPL = 5). PI is the sum of the weighted absolute cover values divided by the sum of the absolute percent cover values. If PI is 3.0 or less, the plant community is considered hydrophytic.

2. **Hydrology:** In order for an area to have wetland hydrology, it must exhibit one or more "primary indicators" or two or more "secondary indicators" for USACE jurisdictional

wetlands and isolated wetlands. Primary indicators include either the direct presence of water as inundation or saturation within the upper 12 inches of the soil profile, or direct evidence of recent inundation, such as water marks, drift lines, sediment deposits, or drainage patterns. Secondary indicators are conditions reflecting the presence of reducing or anaerobic conditions produced as a consequence of saturation or inundation. Examples of secondary indicators include conditions such as surface soil cracks, geomorphic position that could collect or concentrate water, and a positive "FAC neutral" test (i.e., the dominant vegetation is, on average, hydrophytic).

3. **Soils:** The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2018). Nearly all hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. Saturation or inundation, when combined with microbial activity in the soil, causes the depletion of oxygen. This anaerobic condition promotes certain biogeochemical processes, such as the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements. These processes result in distinctive characteristics that persist in the soil during both wet and dry periods, making them particularly useful for identifying hydric soils in the field. Some of the field indicators include dark color (low chroma), redoximorphic features, gleying, and/or the presence of a sulfurous odor. Although NRCS soil maps are useful for soil identification, they should be used only as general guides. Soils are evaluated directly by excavating a test pit at each of the Data Point (DP) locations. In this report, soil colors are described using the Munsell notation system.

On October 2, 2019, AES staff visited the reservoir to collect wetland delineation data and field-verify/refine the desktop-mapped wetlands contained within the 51.9-acre AOI. AES utilized a small boat to navigate to all accessible portions of the reservoir. Routine Wetland Delineation data forms were not taken at every individual wetland but were completed at six accessible locations (two forms at each of the six locations) that were representative of all the wetlands located at the site (Appendix B). These forms are the written documentation of how representative Data Points meet or do not meet each of the wetland criteria. Twelve (12) Data Points (DP1-DP12) were selected to document the conditions of the site (Figure 6). At each Data Point, a GPS point feature was acquired at the wetland boundary. A comprehensive plant list was taken at each wetland where data forms were completed. All wetlands were categorized based on Wetland Plants and Plant Communities of Minnesota and Wisconsin (Eggers & Reed 2015), Circular 39 – Minnesota Wetland Types, and the Cowardin Classification (Cowardin et al. 1979).

In addition to all six Data Point locations, approximately 20 other accessible locations, including all wetlands delineated throughout the site, were visited on foot to spot-GPS-survey the wetland/upland boundary. The elevation of each wetland boundary point was determined using a topographic map

on the GPS unit in the field and again using GIS once back in the office. The elevation contour that corresponded with each wetland boundary was checked on-foot to ensure elevation was reliably correlated with the wetland boundary. The contour lines of these wetland boundary elevations were used to delineate the landward limit of all wetlands in the vicinity of each wetland boundary point feature. For example, in a given area a GPS point feature was taken on the wetland boundary. Using the GPS unit, it was determined that the wetland boundary point was located approximately on the 1,122-foot contour line. The 1,122-foot contour line was walked where possible to confirm the wetland line followed it and then that contour line was used to digitize the landward wetland boundary using GIS back in the office. This technique was useful for acquiring accurate wetland lines in inaccessible locations and streamlined the amount of time required in the field. We found that the landward extent of wetland boundaries varied consistently between 1,120 feet and 1,122 feet in elevation, sometimes extending up to 1,124 feet in elevation in some localized areas.

Figure 6 depicts the final locations and spatial dispositions of the wetland and waters boundaries within the AOI. Adjacent offsite wetlands were identified and their approximate locations and dimensions are also shown on Figure 6.

Photographs of the site are presented in Appendix C. The photographs are intended to provide representative visual samples of any wetlands, Data Points, or other special features found on the site. These photographs are the visual documentation of site conditions at the time of inspections. Photos were taken at all 12 Data Points as well as all wetlands except for the smallest wetlands delineated on the site.

4.0 RESULTS AND DISCUSSION

4.1 Antecedent Precipitation

To determine whether hydrologic/climatic conditions were normal for this region and time period, AES referenced precipitation data from the NRCS Agricultural Applied Climate Information System website for the three months preceding the wetland delineation effort. Average precipitation for July-September at the Cloquet, Minnesota precipitation gauge is 12.72 inches (Table 1). At the time of the field investigation in early October 2019, precipitation from July-September was 12.65 inches. July and August exhibited normal precipitation and September was wetter than normal for this region based on the 30-year average. Completion of the rainfall documentation worksheet in Table 1 resulted in a weighted condition value sum of 15 indicating hydrologic conditions prior to October 2, 2019 were wetter than normal.

4.2 Wetlands

Field observations revealed that wetland conditions (i.e., positive indicators of wetland hydrology, vegetation, and soils) were present on the day of inspection. Sixteen (16) wetlands (Wetlands A-P) were delineated within the AOI (Figure 6). Topographic breaks and changes in vegetation and hydrology were used to determine representative transect locations and to identify the wetland boundaries. Formal Data Points were collected in Wetland A, Wetland C, Wetland H, Wetland J, Wetland L, and Wetland O. Data from these wetlands are representative of all wetlands found in the AOI. Photographs were taken of Wetlands A, C, D, F, G, H, I, J, K, L, M, N, O and P. No photos were taken of Wetland B or Wetland E as these wetlands were small and located in close proximity to other wetlands of similar vegetation structure and composition.

We identified five categories of wetlands within the AOI: Shallow Open Water, Deep Marsh, Shallow Marsh, Alder Thicket, and Floodplain Forest (Eggers & Reed 2015). All of the wetlands are associated with the St Louis River and most have formed on alluvial sediments. Some of the smaller wetlands have formed in the relatively flat reservoir coves. Hydrology for Wetland M is provided by water from the St. Louis River but is also partially influenced by hydrology from a tributary creek flowing from the west. Typical plant species observed to be associated with each of the wetland types within the AOI are presented in Table 2.

Table 1. Rainfall Documentation Worksheet

Long-term rainfall records (from WETS table)						Site determination				
	Month	3 years in 10 less than	Normal	3 years in 10 greater than		Site rainfall (in)	Condition Dry/Normal*/Wet	Condition Value**	Month Weight	Product
1st month prior	Sept	2.66	4.08	4.90		6.17	Wet	3	3	9
2nd month prior	Aug	3.08	4.41	5.24		3.28	Normal	2	2	4
3rd month prior	July	3.18	4.23	4.94		3.20	Normal	2	1	2
		Sum =	12.72		Sum =	12.65			Sum =	15

Determination:
Wet
Dry
X Normal

*Normal precipitation with 30-70% probability of occurrence

**Condition value

Dry = 1
Normal = 2
Wet = 3

**If sum is
6-9 then period is drier than normal
10-14 then period has been normal
15-18 then period has been wetter than normal

Precipitation data source: NOAA, CLOQUET, MN

Table 2. Wetland Types and Associated Plant Species

Wetland Classification System			Species
Eggers and Reed 2015	**Circular 39**	**Cowardin 1979**	
Shallow, Open Water	Shallow Open Water (Type 5)	Riverine, Lower Perennial, Aquatic Bed, Floating Vascular, Permanently Flooded, Diked/Impounded (R2AB4Hh)	white water lily (*Nymphaea odorata*), floating-leaved pondweed (*Potamogeton natans*), water milfoil (*Myriophyllum spicatum*), elodea (*Elodea canadensis*), water-celery (*Vallisneria americana*), lesser duckweed (*Lemna minor*)
Deep Marsh	Deep Marsh (Type 4)	Riverine, Lower Perennial, Emergent, Permanently Flooded, Diked/Impounded (R2EMHh)	softstem bulrush (*Schoenoplectus tabernaemontani*), narrow-leaved cattail (*Typha angustifolia*), white water lily
Shallow Marsh	Shallow Marsh (Type 3)	Riverine, Lower Perennial, Emergent, Seasonally Flooded/Saturated, Diked/Impounded (R2EMEh)	narrow-leaved cattail, bur-red (*Sparganium eurycarpum*), lake sedge (*Carex lacustris*), bottlebrush sedge (*Carex hystricina*), brown fox sedge (*Carex vulpinoidea*), yellow lake sedge (*Carex urticulata*), softstem bulrush, broad-leaved arrowhead (*Sagittaria latifolia*), water plantain (*Alisma subcordatum*), soft rush (*Juncus effusus*), wool-grass (*Scirpus cyperinus*), blue flag iris (*Iris versicolor*), bottle gentian (*Gentiana andrewsii*), American water-horehound (*Lycopus americanus*), blue-joint grass (*Calamagrostis canadensis*)
Alder Thicket	Shrub Swamp, Shrub Carr, Alder Thicket (Type 6)	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded/Saturated, Diked/Impounded (PSS1Eh)	speckled alder (*Alnus incana*), red-osier dogwood (*Cornus sericea*), sensitive fern (*Onoclea sensibilis*), ostrich fern (*Matteuccia struthiopteris*), lady fern (*Athyrium filix-femina*), willow (*Salix* sp.), blue-joint grass, American red raspberry (*Rubus idaeus* ssp. *strigosus*), American water-horehound
Floodplain Forest	Seasonally Flooded Basin, Floodplain Forest (Type 1)	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded/Saturated, Diked/Impounded (PFO1Eh)	black willow (*Salix nigra*), white cedar (*Thuja occidentalis*), riverbank grape (*Vitis riparia*), sweetflag (*Acorus americanus*), orange jewelweed (*Impatiens capensis*), red maple (*Acer rubra*), blue-joint grass, sandbar willow (*Salix interior*), fowl manna grass (*Glyceria striata*), bottlebrush sedge, nodding beggar-ticks (*Bidens cernua*), reed canary grass (*Phalaris arundinacea*), lake sedge, rice-cut grass (*Leersia oryzoides*)

Wetland A

Cowardin: PSS1Eh/R2EMEh/R2AB4Hh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket/Type 3-Shallow Marsh/Type 5-Shallow Open Water
Eggers & Reed 2015: Alder Thicket/Shallow Marsh/Shallow Open Water

Wetland A (Appendix C, Photos 1-3) in the northern portion of the AOI is approximately 1.79 acres and is composed of Alder Thicket, Shallow Marsh, and Shallow Open Water wetlands. Typical species associated with these wetland types are presented in Table 2.

Soils. The hydric soil indicator Loamy Mucky Mineral (F1) was observed at DP2 in Wetland A (Appendix B).

Hydrology. The primary indicators of wetland hydrology, Surface Water (A1), High Water Table (A2), Water Marks (B1); as well as the secondary indicators, Geomorphic Position (D2) and FAC-Neutral Test (D5), were observed at DP2 in Wetland A (Appendix B).

Vegetation. DP2 was dominated by speckled alder (*Alnus incana*) (FACW) in the sapling/shrub stratum and lake sedge (*Carex lacustris*) (OBL), water horehound (*Lycopus americanus*) (OBL), and water plantain (*Alisma subcordatum*) (OBL) in the herb stratum in Wetland A and passed the dominance test for the presence of hydrophytic vegetation.

Wetland B

Cowardin: R2EMEh
Circular 39: Type 3-Shallow Marsh
Eggers & Reed 2015: Shallow Marsh

Wetland B is an approximately 0.15-acre Shallow Marsh wetland in the northeastern portion of the AOI just south of the eastern extent of Wetland A. It is located entirely below the OHWL and is composed of the typical Shallow Marsh species listed in Table 2.

Wetland C

Cowardin: PSS1Eh/R2AB4Hh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket/Type 5-Shallow Open Water
Eggers & Reed 2015: Alder Thicket/Shallow Open Water

Wetland C (Photos 4-6) immediately east of Wetland B in the northeastern portion of the AOI is approximately 0.48 acres and is composed of Alder Thicket and Shallow Open Water wetlands.

Typical species associated with these wetland types are presented in Table 2.

Soils. The hydric soil indicators Depleted Below Dark Surface (A11), Loamy Mucky Mineral (F1), and Depleted Matrix (F3) were observed at DP6 in Wetland C (Appendix B).

Hydrology. The primary indicators of wetland hydrology, High Water Table (A2), Saturation (A3); as well as the secondary indicators, Geomorphic Position (D2) and FAC-Neutral Test (D5), were observed at DP6 in Wetland C (Appendix B).

Vegetation. DP6 was dominated by speckled alder in the sapling/shrub stratum and brown fox sedge (*Carex vulpinoidea*) (OBL) in the herb stratum in Wetland C and passed the dominance test for the presence of hydrophytic vegetation.

Wetland D

Cowardin: PSS1Eh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket
Eggers & Reed 2015: Alder Thicket

Wetland D (Photo 7) is a small, approximately 0.10-acre Alder Thicket wetland in the eastern portion of the AOI. It is located almost entirely below the OHWL and is composed of the typical Alder Thicket species listed in Table 2.

Wetland E

Cowardin: R2EMEh
Circular 39: Type 3-Shallow Marsh
Eggers & Reed 2015: Shallow Marsh

Wetland E is a small, approximately 0.06-acre Shallow Marsh wetland in the southeastern portion of the AOI. It is located on a small sediment deposit partially below the OHWL and is composed of the typical Shallow Marsh species listed in Table 2.

Wetland F

Cowardin: PSS1Eh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket
Eggers & Reed 2015: Alder Thicket

Wetland F (Photo 8) is an approximately 0.08-acre Alder Thicket wetland located in a cove in the southeastern portion of the AOI. It is located almost entirely below the OHWL within the AOI but

extends landward offsite in a low gradient area to the east. It is composed of the typical Alder Thicket species listed in Table 2.

Wetland G

Cowardin: R2AB4Hh
Circular 39: Shallow Open Water
Eggers & Reed 2015: Shallow Open Water

Wetland G (Photos 9 and 10) is an approximately 1.07-acre Shallow Open Water wetland located in the southeastern portion of the AOI. It is located almost entirely below the OHWL within the AOI but extends landward offsite in a low gradient area to the east where it transitions to Alder Thicket wetland. It is composed of the typical Shallow Open Water species listed in Table 2.

Wetland H

Cowardin: PSS1Eh/R2EMHh/R2AB4Hh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket/Type 4- Deep Marsh/Type 5-Shallow Open Water
Eggers & Reed 2015: Alder Thicket/Deep Marsh/Shallow Open Water

Wetland H (Photos 11-13) on the southern end of the south reservoir island is approximately 2.48 acres and is composed of Alder Thicket, Deep Marsh, and Shallow Open Water wetlands. Typical species associated with these wetland types are presented in Table 2.

Soils. The hydric soil indicator Loamy Mucky Mineral (F1) was observed at DP8 in Wetland H (Appendix B).

Hydrology. The primary indicators of wetland hydrology, High Water Table (A2), Saturation (A3); as well as the secondary indicators, Geomorphic Position (D2) and FAC-Neutral Test (D5), were observed at DP8 in Wetland H (Appendix B).

Vegetation. DP8 was dominated by speckled alder in the sapling/shrub stratum and lake sedge in the herb stratum in Wetland H and passed the dominance test for the presence of hydrophytic vegetation.

Wetland I

Cowardin: PSS1Eh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket
Eggers & Reed 2015: Alder Thicket

Wetland I (Photo 14) is a small, approximately 0.02-acre Alder Thicket wetland located in a cove in the eastern portion of the south reservoir island. It is located entirely below the OHWL within the AOI but extends landward offsite in a low gradient portion of the island. It is composed of the typical Alder Thicket species listed in Table 2.

Wetland J

Cowardin: R2EMEh/R2AB4Hh
Circular 39: Type 3-Shallow Marsh/Type 5-Shallow Open Water
Eggers & Reed 2015: Shallow Marsh/Shallow Open Water

Wetland J (Photos 15-18), located on a large sediment deposit between the north and south reservoir islands, is approximately 1.15 acres and is composed of Shallow Marsh and Shallow Open Water wetlands. Typical species associated with these wetland types are presented in Table 2.

Soils. The hydric soil indicator Black Histic (A3) was observed at DP4 in Wetland J (Appendix B).

Hydrology. The primary indicators of wetland hydrology, High Water Table (A2), Saturation (A3); as well as the secondary indicators, Geomorphic Position (D2) and FAC-Neutral Test (D5), were observed at DP4 in Wetland J (Appendix B).

Vegetation. DP4 was dominated by brown fox sedge, wool grass (*Scirpus cyperinus*) (OBL), narrow-leaved cattail (*Typha angustifolia*) (OBL) in the herb stratum in Wetland J and passed the dominance test for the presence of hydrophytic vegetation.

Wetland K

Cowardin: PSS1Eh/R2EMHh/R2AB4Hh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket/Type 4-Deep Marsh/Type 5-Shallow Open Water
Eggers & Reed 2015: Alder Thicket/Deep Marsh/Shallow Open Water

Wetland K (Photos 19-21) along the western shore on the south reservoir island is approximately 1.37 acres and is composed of Alder Thicket, Deep Marsh, and Shallow Open Water wetlands. Typical

species associated with these wetland types are presented in Table 2.

Wetland L

Cowardin: PFO1Eh/R2EMHh/R2AB4Hh
Circular 39: Type 1-Seasonally Flooded Basin, Floodplain Forest/Type 4-Deep Marsh/Type 5-Shallow Open Water
Eggers & Reed 2015: Floodplain Forest/Deep Marsh/Shallow Open Water

Wetland L (Photos 22-25) along the shoreline in the southwestern portion of the AOI is approximately 1.82 acres and is composed of Floodplain Forest, Deep Marsh, and Shallow Open Water wetlands. Typical species associated with these wetland types are presented in Table 2.

Soils. The hydric soil indicator Histosol (A1) was observed at DP12 in Wetland L (Appendix B).

Hydrology. The primary indicators of wetland hydrology, High Water Table (A2), Saturation (A3); as well as the secondary indicators, Geomorphic Position (D2) and FAC-Neutral Test (D5), were observed at DP12 in Wetland L (Appendix B).

Vegetation. DP12 was dominated by black willow (*Salix nigra*) (OBL) in the tree stratum, red maple (*Acer rubrum*) (FAC) and speckled alder in the sapling/shrub stratum, and rice-cut grass (*Leersia oryzoides*) (OBL) and nodding beggar-ticks (*Bidens cernua*) (OBL) in the herb stratum in Wetland L. Therefore, DP12 passed the dominance test for the presence of hydrophytic vegetation.

Wetland M

Cowardin: R2EMHh/R2AB4Hh
Circular 39: Type 4-Deep Marsh/Type 5-Shallow Open Water
Eggers & Reed 2015: Deep Marsh/Shallow Open Water

Wetland M (Photo 26) is in a cove in the west-central portion of the AOI and is approximately 0.34 acres. It is composed of Deep Marsh and Shallow Open Water wetlands. Typical species associated with these wetland types are presented in Table 2.

Wetland N

Cowardin: PSS1Eh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket
Eggers & Reed 2015: Alder Thicket

Wetland N (Photo 27) is a small cove wetland immediately north of Wetland M. It is approximately 0.06 acres and is composed of Alder Thicket wetland. Typical species associated with this wetland type are presented in Table 2.

Wetland O

Cowardin: PSS1Eh/R2EMEh/R2EMHh
Circular 39: Type 6-Shrub Swamp, Shrub Carr, Alder Thicket/Type 3-Shallow Marsh/Type 4-Deep Marsh
Eggers & Reed 2015: Alder Thicket/Shallow Marsh/Deep Marsh

Wetland O (Photos 28-31) in the northwest portion of the AOI is approximately 1.21 acres and is composed of Alder Thicket, Shallow Marsh, and Deep Marsh wetlands. Typical species associated with these wetland types are presented in Table 2.

Soils. The hydric soil indicator Loamy Mucky Mineral (F1) was observed at DP10 in Wetland O (Appendix B).

Hydrology. The primary indicators of wetland hydrology, High Water Table (A2), Saturation (A3); as well as the secondary indicators, Geomorphic Position (D2) and FAC-Neutral Test (D5), were observed at DP10 in Wetland O (Appendix B).

Vegetation. DP10 was dominated by narrow-leaved cattail in the herb stratum in Wetland O and passed the dominance test for the presence of hydrophytic vegetation.

Wetland P

Cowardin: R2EMEh
Circular 39: Type 3-Shallow Marsh
Eggers & Reed 2015: Shallow Marsh

Wetland P (Photo 32) in the northern portion of the AOI is approximately 0.08 acres and is composed of Shallow Marsh wetland. Typical species associated with this wetland type are presented in Table 2.

4.3 Navigable Waters

Per USACE, the St. Louis River is navigable to the mouth of the Embarrass River making Scanlon Reservoir a navigable waterway. Open water portions of the reservoir up to the OHWL that do not support appreciable cover of vegetation were considered "waters". One navigable water feature was mapped within the AOI: Water A (Figure 6). Water A is approximately 34.01 acres and is classified as a Riverine, Lower Perennial, Unconsolidated Bottom, Mud, Permanently Flooded, Diked/Impounded (R2UB3Hh) waterway using the Cowardin classification system.

4.4 Other Waters

A small segment of ephemeral creek that is tributary to the St. Louis River drains into Wetland M in a cove in the western portion of the AOI: Water B. We classified this feature as a Riverine, Streambed, Cobble-Gravel, Seasonally Flooded (R4SB3C) waterway using the Cowardin classification system. Water B within the AOI is approximately 0.01 acres.

4.5 Uplands

Representative and paired data points were taken in upland areas, outside of delineated wetland areas to help confirm the delineated wetland boundary limits. Upland Data Points include DP1, DP3, DP5, DP7, DP9, and DP11 (Figure 6).

Hydric soil indicators were absent from all upland data points except for DP9 where the hydric soil indicator Sandy Redox (S5) was observed (Appendix B). Wetland hydrology was absent from all upland data points except DP9 where High Water Table (A2) and Saturation (A3) were observed and DP11 where FAC-Neutral Test was observed.

Upland data points were dominated by species such as balsam fir (*Abies balsamea*) (FAC), red maple, and paper birch (*Betula papyrifera*) (FACU) in the tree stratum; common buckthorn (*Rhamnus cathartica*) (FAC) and speckled alder in the sapling/shrub stratum; and Canadian bunchberry (*Cornus canadensis*) (FAC), large-leaf wood aster (*Eurybia macrophylla*) (UPL), and Virginia strawberry (*Fragaria virginiana*) (FACU) in the herb stratum. DP1, DP7, and DP9 failed the dominance test for the presence of hydrophytic vegetation. DP9 also failed the prevalence index. DP3, DP5, and DP11 were dominated by hydrophytes and passed the dominance test for the presence of hydrophytic vegetation.

All upland data points lacked at least one of the parameters required to be considered wetland and, therefore, were classified as uplands. Upland data forms are presented in Appendix B and photographs of upland data points are in Appendix C.

5.0 JURISDICTIONAL ANALYSIS OPINION

Based on observations in 2019, it is AES's professional opinion that Wetlands A-P are likely under both the USACE and MNDNR jurisdiction. These features may also be under the jurisdiction of other Local Governmental Units.

The USACE will need to make the final decision regarding jurisdiction. The USACE and/or other regulatory entities will also need to confirm the wetland boundaries.

6.0 LITERATURE CITED

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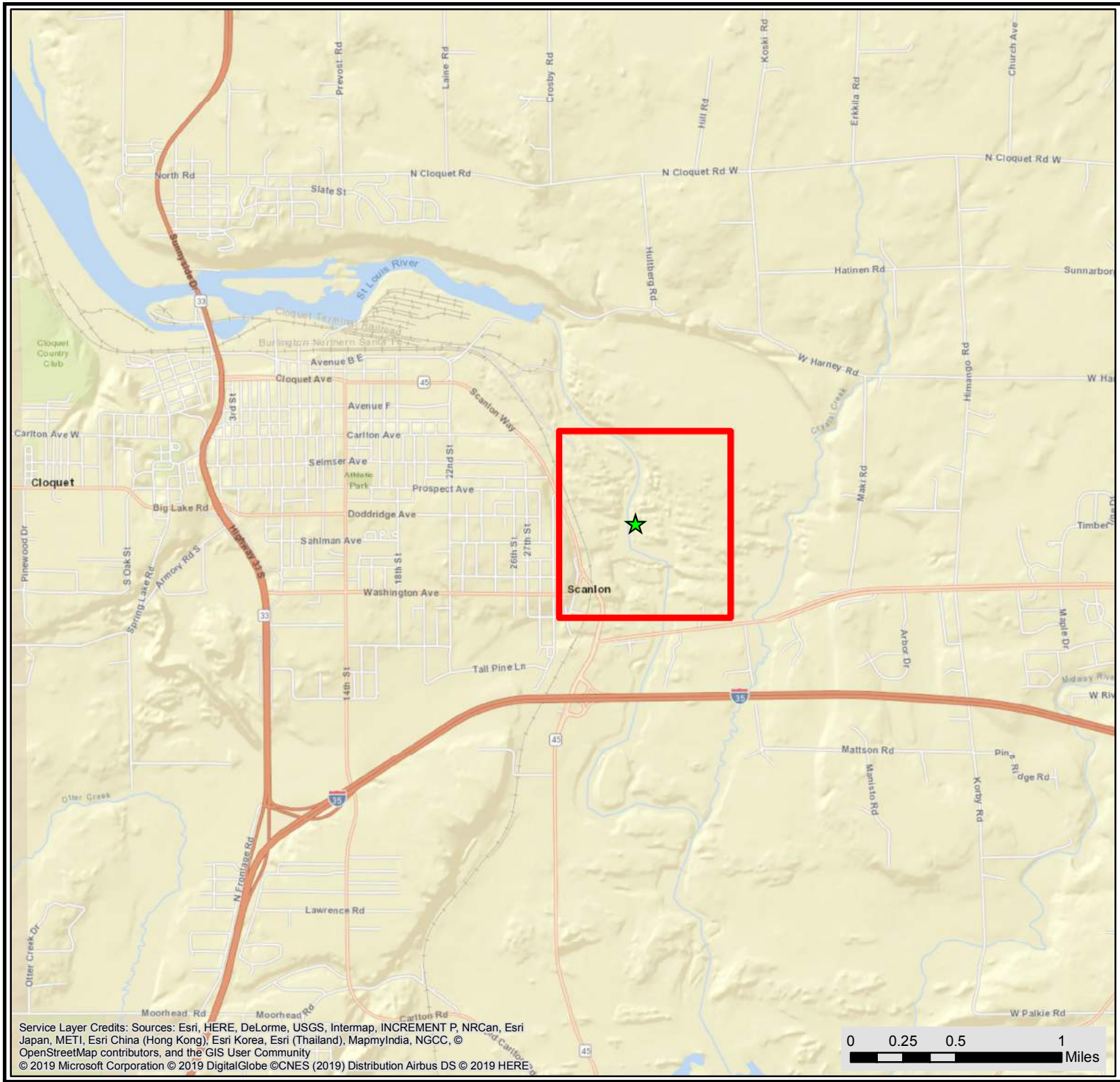
Appendix A. Figures

Scanlon Reservoir Wetland Delineation

Figure 1. Location Map

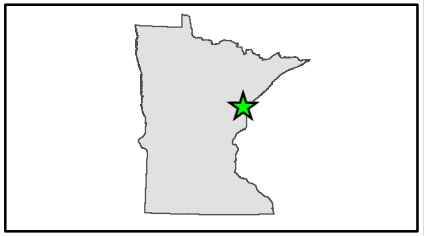


Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

0 0.25 0.5 1 Miles

Legend

★ Project Location



Closeup View

Project Location: Carlton County, MN
AES Project #: 19-0247
Mapped by: SJM
Map Date: Oct 18, 2019

N

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Brodhead, WI 53520
608.897.8641
www.appliedeco.com

Scanlon Reservoir
Wetland Delineation

Figure 2. Soils Map

Legend

- Area of Interest (AOI)
- Target Reservoir Elevation OHWL (1,120 Feet)

gSSURGO Soils

- 1073: Borofolists; Hydric - Inclusions
- W: Water

Project Boundary Air Photo: Google 8/28/2010
Project Location: Carlton County, MN
AES Project #: 19-0247
Mapped by: SJM
Map Date: Oct 21, 2019

N

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Scanlon Reservoir Wetland Delineation

Figure 3. NWI Map

Legend

- Area of Interest (AOI)
- Target Reservoir Elevation OHWL (1,120 Feet)

Wetland Type

- Freshwater Emergent Wetland
- Freshwater Shrub Wetland
- Riverine

Project Boundary Air Photo: Google 8/28/2010
Project Location: Carlton County, MN
AES Project #: 19-0247
Mapped by: SJM
Map Date: Oct 21, 2019

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Scanlon Reservoir
Wetland Delineation

Figure 4. Topographical Map

Project Boundary Air Photo: Google 8/28/2010
Project Location: Carlton County, MN
AES Project #: 19-0247
Mapped by: SJM
Map Date: Oct 21, 2019

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Scanlon Reservoir
Wetland Delineation

Figure 5. MDNR Public Waters Inventory Map

Legend

- Area of Interest (AOI)
- Target Reservoir Elevation OHWL (1,120 Feet)
- Public Waters Watercourses Delineations

Project Boundary Air Photo: Google 8/28/2010
Project Location: Carlton County, MN
AES Project #: 19-0247
Mapped by: SJM
Map Date: Oct 21, 2019

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Scanlon Reservoir
Wetland Delineation

Figure 6. Wetland Delineation Map

Legend

- Area of Interest (AOI)
- Target Reservoir Elevation OHWL (1,120 Feet)
- Data Points With ID
- Photo Point # - Direction

Delineated Wetland

Delineated Wetland Type

- 1 - Floodplain Forest
- 3 - Shallow Marsh
- 4 - Deep Marsh
- 5 - Shallow Open Water
- 6 - Alder
- Off-site Water
- Off-site Wetland
- Water A
- Water B

Project Boundary Air Photo: Google 8/28/2010
Project Location: Carlton County, MN
AES Project #: 19-0247
Mapped by: SJM
Map Date: Oct 22, 2019

N

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Appendix B. Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP1
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex
Slope (%): 40-50 Lat.: 46.71396868 Long.: -92.41853934 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches):	>6

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP1

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus resinosa*	20	Y	FACU
2	*Betula papyrifera*	10	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		30	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Cornus sericea*	30	Y	FACW
2	*Lonicera morrowii*	20	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		50	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Solidago canadensis*	10	Y	FACU
2	*Rosa carolina*	8	Y	FACU
3	*Fragaria virginiana*	5	N	FACU
4	*Viburnum lentago*	5	N	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		28	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	6	15
Sapling/Shrub Stratum	10	25
Herb Stratum	6	14
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 16.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species	73	x 4 =	292
UPL species	0	x 5 =	0
Column totals	108 (A)		367 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** DP1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/1	100					loam	weathered shale prevalent

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 6

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP2
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave
Slope (%): 0-1 Lat.: 46.71396823 Long.: -92.41855322 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland A

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	X	No	____	Depth (inches):	6
Water table present?	Yes	X	No	____	Depth (inches):	0
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP2

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	30	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		30	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex lacustris*	10	Y	OBL
2	*Lycopus americanus*	7	Y	OBL
3	*Alisma subcordatum*	7	Y	OBL
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		24	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	6	15
Herb Stratum	5	12
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	24	x 1 =	24	
FACW species	30	x 2 =	60	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	54	(A)	84	(B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/1						mucky peat	
6-15	10YR 2/1						mucky loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 15

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP3
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex
Slope (%): 20-30 Lat.: 46.71242578 Long.: -92.41939825 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	X	Depth (inches):	____
Water table present?	Yes ____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes ____	No	X	Depth (inches):	>8

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP3

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	25	Y	FAC
2	*Betula papyrifera*	10	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		35	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	35	Y	FACW
2	*Rhamnus cathartica*	20	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		55	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Cornus canadensis*	20	Y	FAC
2	*Fragaria virginiana*	15	Y	FACU
3	*Solidago gigantea*	15	Y	FACW
4	*Eurybia macrophylla*	10	N	UPL
5	*Rhamnus cathartica*	5	N	FAC
6	*Acer rubrum*	2	N	FAC
7	*Pinus strobus*	2	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		69	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	7	18
Sapling/Shrub Stratum	11	28
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 71.43% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	50	x 2 =	100	
FAC species	72	x 3 =	216	
FACU species	27	x 4 =	108	
UPL species	10	x 5 =	50	
Column totals	159	(A)	474	(B)

Prevalence Index = B/A = 2.98

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP3

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2						loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 8

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP4
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave
Slope (%): 0-1 Lat.: 46.71230175 Long.: -92.41939768 Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: R2UBH
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland J

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP4

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex vulpinoidea*	65	Y	OBL
2	*Scirpus cyperinus*	20	Y	OBL
3	*Typha angustifolia*	10	N	OBL
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		95	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	95	x 1 =	95	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	95 (A)		95	(B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP4

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 3/1	100					loamy sand	
4-12	10YR 2/1	100					mucky peat	
12-20	2.5Y 2.5/1	100					mucky fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP5
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex
Slope (%): 5-10 Lat.: 46.71267049 Long.: -92.41656276 Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: PSS1C
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	X	Depth (inches):	____
Water table present?	Yes ____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes ____	No	X	Depth (inches):	>20

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP5

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	50	Y	FAC
2	*Betula papyrifera*	30	Y	FACU
3	*Acer rubrum*	5	N	FAC
4				
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	10	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Cornus canadensis*	15	Y	FAC
2	*Eurybia macrophylla*	5	Y	UPL
3	*Acer rubrum*	5	Y	FAC
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		25	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	43
Sapling/Shrub Stratum	2	5
Herb Stratum	5	13
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	10	x 2 =	20	
FAC species	75	x 3 =	225	
FACU species	30	x 4 =	120	
UPL species	5	x 5 =	25	
Column totals	120	(A)	390	(B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP5

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/1	100					loam	
6-20	10YR 4/3	60	10YR 3/6	40	C	M	fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP6
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave
Slope (%): 0-2 Lat.: 46.71261478 Long.: -92.41659852 Datum: WGS 84
Soil Map Unit Name: Water NWI Classification: R2UBH
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland C

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	9
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP6

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	60	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		60	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex vulpinoidea*	80	Y	OBL
2	*Athyrium filix-femina*	5	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		85	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	12	30
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	80	x 1 =	80
FACW species	60	x 2 =	120
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	145 (A)		215 (B)

Prevalence Index = B/A = 1.48

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP6

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					mucky sandy loam	
6-12	10YR 4/1	90	5YR 4/6	10	C	M	fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 12

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP7
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex
Slope (%): 10-20 Lat.: 46.71023434 Long.: -92.41945098 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches):	>6

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP7

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	20	Y	FAC
2	*Betula papyrifera*	15	Y	FACU
3	*Pinus strobus*	10	Y	FACU
4	*Picea glauca*	5	N	FACU
5				
6				
7				
8				
9				
10				
		50	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus pennsylvanica*	20	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex hitchcockiana*	15	Y	UPL
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		15	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	10	25
Sapling/Shrub Stratum	4	10
Herb Stratum	3	8
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	20	x 3 =	60	
FACU species	30	x 4 =	120	
UPL species	15	x 5 =	75	
Column totals	85	(A)	295	(B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** DP7

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/1	100					loam	weathered shale prevalent

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 6

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP8
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave
Slope (%): 1-2 Lat.: 46.71019076 Long.: -92.41945584 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland H

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	8
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP8

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	50	Y	FACW
2	*Cornus sericea*	5	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		55	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex lacustris*	20	Y	OBL
2	*Carex tenera*	5	N	FAC
3	*Onoclea sensibilis*	5	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		30	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	11	28
Herb Stratum	6	15
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20	
FACW species	60	x 2 =	120	
FAC species	5	x 3 =	15	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	85	(A)	155	(B)

Prevalence Index = B/A = 1.82

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP8

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-16	10YR 3/1	100					mucky loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: gravel
Depth (inches): 16

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP9
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): convex
Slope (%): 1-2 Lat.: 46.71409441 Long.: -92.42142115 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	11
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	6

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP9

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Picea glauca*	10	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	15	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Tanacetum vulgare*	35	Y	FACU
2	*Geum canadense*	30	Y	FAC
3	*Solidago canadensis*	20	Y	FACU
4	*Poa pratensis*	5	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		90	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	2	5
Sapling/Shrub Stratum	3	8
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column totals	115 (A)		400 (B)

Prevalence Index = B/A = 3.48

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** DP9

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-16	10YR 4/1	80	5YR 4/6	20	C	M	loamy sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: gravel
Depth (inches): 16

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP10
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave
Slope (%): 1-2 Lat.: 46.71410961 Long.: -92.42135753 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland O

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP10

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Typha angustifolia*	80	Y	OBL
2	*Solidago canadensis*	10	N	FACU
3	*Fraxinus pennsylvanica*	2	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		92	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	46
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	80	x 1 =	80	
FACW species	2	x 2 =	4	
FAC species	0	x 3 =	0	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column totals	92	(A)	124	(B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP10

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-15	10YR 3/1	100					mucky loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 15

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP11
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex
Slope (%): 5-8 Lat.: 46.71105863 Long.: -92.42317883 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	X	Depth (inches):	
Water table present?	Yes ____	No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes ____	No	X	Depth (inches):	>9

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP11

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix nigra*	80	Y	OBL
2	*Acer rubrum*	10	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		90	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Rhamnus cathartica*	10	Y	FAC
2	*Fraxinus pennsylvanica*	5	Y	FACW
3	*Alnus incana*	5	Y	FACW
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus hispidus*	15	Y	FACW
2	*Solidago canadensis*	10	Y	FACU
3	*Rhamnus cathartica*	8	N	FAC
4	*Solidago gigantea*	8	N	FACW
5	*Athyrium filix-femina*	5	N	FAC
6	*Plantago major*	3	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		49	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	18	45
Sapling/Shrub Stratum	4	10
Herb Stratum	10	25
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	80	x 1 =	80	
FACW species	33	x 2 =	66	
FAC species	33	x 3 =	99	
FACU species	13	x 4 =	52	
UPL species	0	x 5 =	0	
Column totals	159	(A)	297	(B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP11

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-9	10YR 3/1	100					sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: rock
Depth (inches): 9

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 19-0247/Scanlon Reservoir City/County: Scanlon/Carlton Sampling Date: 10/2/2019
Applicant/Owner: USACE/Minnesota Power State: MN Sampling Point: DP12
Investigator(s): Matt Parsons, Todd Polacek Section, Township, Range: Sec. 19, T49N, R16W
Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave
Slope (%): 0-1 Lat.: 46.71109647 Long.: -92.42310301 Datum: WGS 84
Soil Map Unit Name: Borofolists NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland L

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

An analysis of the past 3 months of precipitation data resulted in a weighted condition value sum of 15 indicating precipitation has been wetter than normal.

HYDROLOGY

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	10
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: DP12

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix nigra*	75	Y	OBL
2				
3				
4				
5				
6				
7				
8				
9				
10				
		75	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	10	Y	FAC
2	*Alnus incana*	10	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Leersia oryzoides*	40	Y	OBL
2	*Bidens cernua*	35	Y	OBL
3	*Carex hystericina*	10	N	OBL
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		85	= Total Cover	

Woody Vine Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	4	10
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	160	x 1 =	160	
FACW species	10	x 2 =	20	
FAC species	10	x 3 =	30	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	180	(A)	210	(B)

Prevalence Index = B/A = 1.17

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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

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

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

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** DP12

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-20	10YR 2/1	100					mucky peat	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

Appendix C. Site Photographs

Photo 1. Photo Point 1 (P1) looking south at Wetland A (October 2, 2019)

Photo 2. Data Point 1 (Upland) looking north (October 2, 2019)

Photo 3. Data Point 2 (Wetland A) looking south (October 2, 2019)

Photo 4. Photo Point 4 (P4) looking north at Wetland C (October 2, 2019)

Photo 5. Data Point 5 (Upland) looking north (October 2, 2019)

Photo 6. Data Point 6 (Wetland C) looking south (October 2, 2019)

Photo 7. Photo Point 5 (P5) looking east at Wetland D (October 2, 2019)

Photo 8. Photo Point 7 (P7) looking east at Wetland F (October 2, 2019)

Photo 9. Photo Point 8 (P8) looking east at interior portion of Wetland G (October 2, 2019)

Photo 10. Photo Point 9 (P9) looking east towards Wetland G (October 2, 2019)

Photo 11. Photo Point 10 (P10) looking east at Wetland H (October 2, 2019)

Photo 12. Data Point 7 (Upland) looking north (October 2, 2019)

Photo 13. Data Point 8 (Wetland H) looking south (October 2, 2019)

Photo 14. Photo Point 6 (P6) looking west at Wetland I (October 2, 2019)

Photo 15. Photo Point 2 (P2) looking north at eastern end of Wetland J (October 2, 2019)

Photo 16. Photo Point 3 (P3) looking west at Wetland J (October 2, 2019)

Photo 17. Data Point 3 (Upland) looking north (October 2, 2019)

Photo 18. Data Point 4 (Wetland J) looking south (October 2, 2019)

Photo 19. Photo Point 11 (P11) looking southeast at Wetland K (October 2, 2019)

Photo 20. Photo Point 12 (P12) looking south at Wetland K (October 2, 2019)

Photo 21. Photo Point 13 (P13) looking west at Wetland K (October 2, 2019)

Photo 22. Photo Point 20 (P20) looking north at Wetland L (October 2, 2019)

Photo 23. Photo Point 21 (P21) looking east at Wetland L (October 2, 2019)

Photo 24. Data Point 11 (Upland) looking west (October 2, 2019)

Photo 25. Data Point 12 (Wetland L) looking northeast (October 2, 2019)

Photo 26. Photo Point 18 (P18) looking west at Wetland M (October 2, 2019)

Photo 27. Photo Point 17 (P17) looking west at Wetland N (October 2, 2019)

Photo 28. Photo Point 15 (P15) looking east at Wetland O (October 2, 2019)

Photo 29. Photo Point 16 (P16) looking north at Wetland O (October 2, 2019)

Photo 30. Data Point 9 (Upland) looking southwest (October 2, 2019)

Photo 31. Data Point 10 (Wetland O) looking east (October 2, 2019)

Photo 32. Photo Point 14 (P14) looking northwest at Wetland P (October 2, 2019)

Photo 33. Photo Point 19 (P19) looking west at Water B (October 2, 2019)

From:	Joyal, Lisa (DNR)
To:	Schoff, Steven (MPCA)
Cc:	Jensen, Patrice (MPCA); Lehto, LaRae (MPCA); Haworth, Brooke (DNR)
Subject:	Scanlon Reservoir Sediment Remediation: NH Concurrence
Date:	Friday, February 26, 2021 5:49:25 PM
Attachments:	Scanlon Reservoir Remediation NHIS 24NOV2020.pdf

I have reviewed the attached assessment of the potential for the above project to impact rare features, and concur with your assessment. As stated in the document, the construction access areas will be assessed to determine if they contain any suitable habitat for wild chives. We look forward to receiving the results of this habitat assessment.
Thank you for notifying us of this project, and for the opportunity to provide comments.
Please accept my apologies for the delayed response.
Sincerely,

Lisa Joyal

~~~~~~

Lisa Joyal
Endangered Species Review Coordinator | EWR
NHIS Data Distribution Coordinator | EWR

Minnesota Department of Natural Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155
Phone: 651-259-5109
Email: lisa.joyal@state.mn.us
mndnr.gov/eco

From: Schoff, Steven (MPCA) <steven.schoff@state.mn.us>
Sent: Tuesday, November 24, 2020 5:04 PM
To: MN_NHIS, Review (DNR) <Review.NHIS@state.mn.us>
Cc: Jensen, Patrice (MPCA) <patrice.jensen@state.mn.us>; Schoff, Steven (MPCA) <steven.schoff@state.mn.us>; Lehto, LaRae (MPCA) <larae.lehto@state.mn.us>
Subject: NHIS Review concurrence for the Scanlon Reservoir sediment remediation project
Importance: High

Hello,
I am working through the EAW/Environmental Review process with Patrice Jensen at MPCA for the Scanlon Reservoir sediment remediation project in the St. Louis River of Concern.
As part of the preparation for Environmental Review, we had Paul H. Allerding (USACE Detroit District) prepare a NHIS review. He was able to access the NHIS database through the USACE St. Paul District.
I am asking for your concurrence with the NHIS review document prepared by USACE on our behalf. The document is attached.
Please feel free to contact me with any questions or concerns.
Sincerely,

Steven M. Schoff
Project Leader/St. Louis River AOC
Remediation Division
520 Lafayette Road North/St. Paul,MN/55155-4194
~~~~~~

651-757-2701
Steven.schoff@state.mn.us/ www.pca.state.mn.us

MINNESOTA NATURAL HERITAGE REVIEW

SCANLON RESERVOIR SEDIMENT REMEDIATION PROJECT
ST. LOUIS RIVER AOC – REMEDIAL ACTION PLAN

SCANLON, MINNESOTA

Prepared for:
Minnesota Pollution Control Agency
U.S. Environmental Protection Agency

Prepared by:
US Army Corps of Engineers
Detroit District
477 Michigan Ave.
Detroit, Michigan 48226

24 November 2020
Final

TABLE OF CONTENTS

TABLES AND FIGURES

1.1 SUMMARY

The Minnesota Pollution Control Agency proposes to remediate contaminated sediments located within the Scanlon Reservoir, Scanlon, Carlton County, Minnesota. Scanlon Reservoir is part of the St. Louis River Area of Concern (AOC) for beneficial use impairments. The objective of this project is to address sediments contaminated with dioxins and furans within the reservoir. The remediation consists of placement of carbon amendments over contaminated sediments within the Scanlon Reservoir to reduce the bioavailability of the contaminants and help isolate them from the aquatic environment. Site preparation includes tree clearing activities for access and staging (work/storage) areas; installation of temporary erosion and sedimentation controls; preparation of the construction staging and access areas, and temporary contractor facilities. This Natural Heritage Review evaluates the potential effects of the proposed project actions on all identified rare species and/or significant natural features listed in the Minnesota Natural Heritage Information System (NHIS) for the project site and 1 mile beyond.

1.2 DETERMINATION OF EFFECTS

Effects determinations for species and Ecologically Significant Areas (ESAs) listed in the Minnesota Natural Heritage Information System (NHIS) database are provided in Table 1. Species included are those within a 1-mile radius of the project site that are also either State- or Federally listed. All ESAs that were at least partly within the 1-mile radius are also included.

Table 1. NHIS Listings Effects Determinations for the Scanlon Reservoir Remediation Project.

SPECIES OR ECOLOGICALLY SIGNIFICANT AREA (ESA)	STATE STATUS	FEDERAL STATUS	SHORT-TERM EFFECTS	LONG-TERM & CUMULATIVE EFFECTS
Allium schoenoprasum (wild chives)	Endangered	None	No Effect	No Effect
Lasmigona compressa (creek heelsplitter)	Special Concern	None	None to Insignificant	None to Positive
Ligumia recta (black sandshell mussel)	Special Concern	None	None to Insignificant	None to Positive
Carlton Wetlands ESA	NA	NA	No Effect	No Effect
Thomson Reservoir ESA	NA	NA	None to Insignificant	None to Positive
Thomson Wetlands ESA	NA	NA	Minor	Positive

The project actions are unlikely to have direct effects on any of these species. Only one Ecologically Significant Area (ESA) would be directly impacted—the Thomson Wetlands ESA, an ecological area occupying approximately 787 acres. The proposed Scanlon Reservoir remediation area is approximately 40 acres in the southwest corner of the Thomson Wetlands ESA and is intended to provide ecological benefits by reducing movement of contaminants from sediments to the ecosystem.

Effects on the Thomson Wetlands ESA will be limited to the 40-acre project area within the Scanlon Reservoir and will be temporary, primarily occurring during a single construction season. The project actions may also have indirect effects on NHIS species through operational noise, increase in turbidity outside of the project area, and ultimately, improvement to water quality and sediment quality in the Scanlon Reservoir part of the Thomson Wetlands ESA. Negative indirect effects will be temporary and primarily limited to a single construction season. Positive effects should persist over time as the contaminated sediment is remediated.

1.3 NATURAL HERITAGE REVIEW

The Natural Heritage Review evaluates the presence of species and significant natural features recognized by the State of Minnesota that are known to occur within or near the proposed project site. Potential effects of the proposed project actions on all identified rare species and/or significant natural features listed within an approximate one-mile radius of the proposed project are evaluated.

Rare features data included here were provided by the Division of Ecological and Water Resources, Minnesota Department of Natural Resources (DNR), and were current as of July 2019. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

2.1 PROJECT AREA

Scanlon Reservoir is located in Scanlon, Carlton County, Minnesota (MN), in a forested area east of the City of Scanlon and along the St. Louis River approximately 22 miles upstream from Duluth, MN (Figure 1). Multiple dams are located upstream and downstream of Scanlon Reservoir, including Scanlon Dam, which forms the southern boundary of the reservoir. Flow in the St. Louis River and the Scanlon Reservoir is primarily governed by the functioning of these dams.

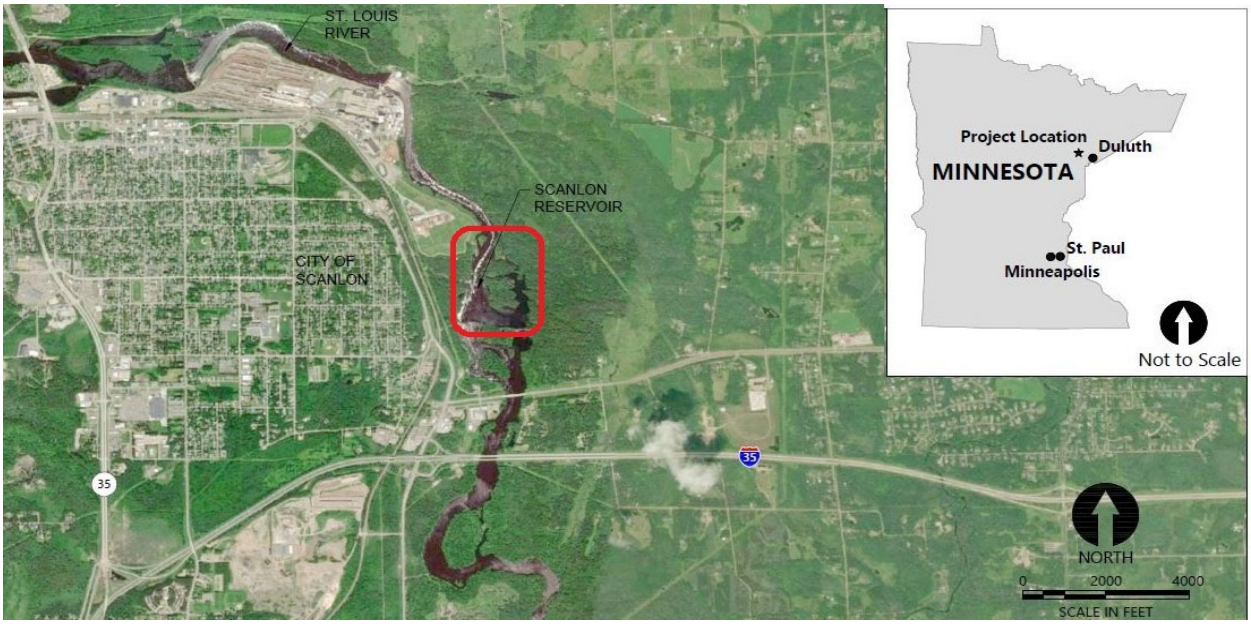

Figure 1. Scanlon Reservoir General Location and Vicinity.

2.2 PROJECT DESCRIPTION

Background and Project Vicinity: Scanlon Reservoir is bordered by forested areas owned by Minnesota Power, LLC, and Sappi Clouquet, LLC. Historic discharges, predominantly from pulp and paper mills, have contributed to the accumulation of polychlorinated dibenzo dioxin and furan (dioxin/furan) within sediments of Scanlon Reservoir. Reservoir water depths within the thalweg[1] of the river range from approximately 15 feet to 65 feet, while water depths in the eastern arm of the reservoir range from less than 1 foot to approximately 8 feet, averaging approximately 5 feet. Project work limits include the reservoir, access road, ramp, and staging areas (Figure 2).

A Burlington Northern Railroad railway is located west of the reservoir, separating access to the Scanlon Reservoir and Scanlon Dam from public roads to the west. State Highway 61 is located south of the reservoir. The St. Louis River Trail, a walking and recreational vehicle trail that can be accessed from a parking area south of the Scanlon Dam, extends north to the Scanlon Reservoir and Scanlon Dam, and continues to the north, past the project area.

[1] The thalweg is the deepest part of the river channel, generally defining the line of river flow.

Figure 2. Project Limits of Reservoir Remediation, Access, and Staging Areas.

Scanlon Reservoir is part of the St. Louis River Area of Concern (AOC), a Great Lakes site recognized by the U.S. Environmental Protection Agency (USEPA) Great Lakes National Program Office (GLNPO) and the Minnesota Pollution Control Agency (MPCA) as having beneficial use impairments (BUIs). Studies of the Scanlon and Thomson Reservoirs "found dioxins and furans in bottom sediments in some parts of the reservoirs. This contamination likely affects the smallest organisms at the bottom of the food chain, called benthic invertebrates, which live in or on the bottom sediments of rivers, streams, and lakes. As fish and birds consume these tiny organisms, the contamination moves up the food chain. Studies confirm that fish within the reservoirs also contain varying levels of the same dioxin/furans. The contaminants in the Scanlon and Thomson reservoirs potentially lead to the following benefical use impairments: restrictions on dredging; fish consumption advisories; and harm to the benthic environment where insects and vegetation live at the sediment surface."[2]

Proposed Sediment Remediation: The proposed remediation consists of placement of carbon amendment materials over contaminated sediments within the Scanlon Reservoir to reduce bioavailability of contaminants and to isolate them from the aquatic environment. The amendment areas, which are outside the main flow path of the river, are identified in Figure 3. Pelletized powdered activated carbon (PAC) would be broadcast into the shallower, wetland areas. Disturbance to the wetland vegetation would be minimized by keeping the PAC to <1 centimeter thick on the bottom. In deeper areas a blended cover of granular activated carbon (GAC) mixed with sand would be placed to a thickness of approximately 4-6 inches. Placement is expected to be achieved by broadcasting the amendment (PAC or GAC/sand blended cover) at the water surface where it would fall into the areas desired for amendment placement.

After approximately 5 years, through the process of bioturbation by benthic organisms, the amendment is expected to be incorporated homogenously into the upper 10 cm of bottom sediment, which is the most biologically active sediment zone. The activated carbon binds various contaminants, including dioxins and furans, effectively isolating them from plant and animal uptake, and from movement to the water column, thereby reducing ecological risk. This method of treating contaminated sediments is far less disruptive to existing aquatic vegetation and organisms than the alternative of excavating and/or capping the contaminated materials.

Construction Site Preparation: Site preparation includes tree clearing activities, including removal of trees as needed to accommodate site access and work staging areas; removal of large woody debris from the reservoir that may hinder amendment placement and/or break loose and flow downstream from project activities; installation of temporary erosion and sedimentation controls; preparation of the construction staging and access areas and all temporary contractor facilities. Unsatisfactory soil and other materials encountered within the limits of the work below grade would be excavated and replaced with satisfactory materials.

[2] https://www.pca.state.mn.us/news/mpca-announces-cleanup-options-scanlon-and-thomson-reservoir-sites-st-louis-river-estuary

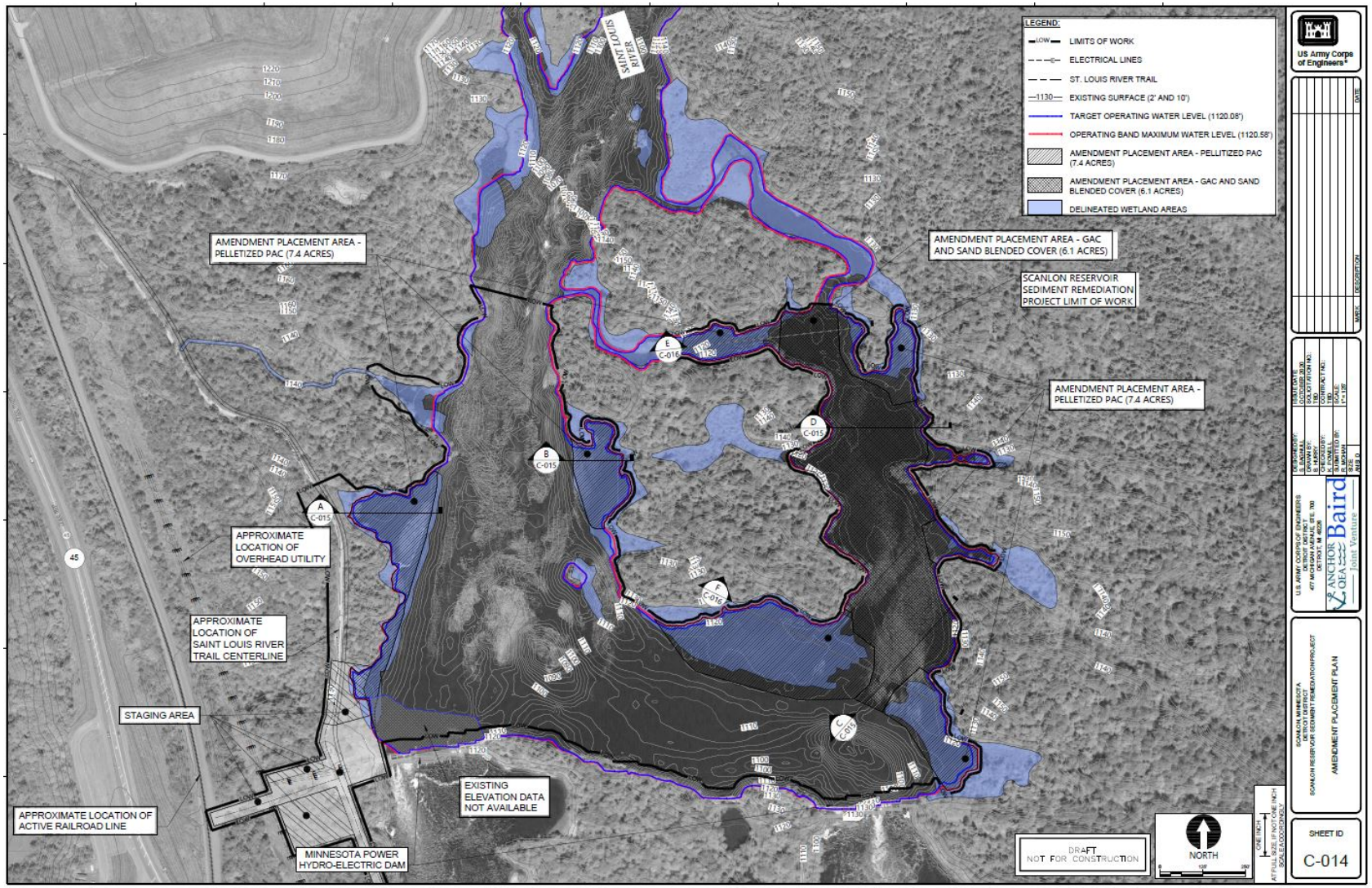

Figure 3. Scanlon Reservoir Sediment Remediation Amendment Placement Plan.

Upon completion of the remediation work, the site areas affected would be restored and revegetated and the equipment and materials removed from the site, except for those construction features that the property owner may choose to retain as permanent, such as the reservoir boat ramp, access road, and/or parts of the staging areas.

An access road would be constructed along the existing St. Louis River Trail (recreational), as well as two staging areas and a ramp to access the reservoir as shown in Figure 2. Construction of the staging areas, access road, and ramp will require removal of trees and grading. A culvert would be installed under the access road to drain surface water from the northern staging area. Additionally, an existing culvert along the St. Louis River Trail would be extended to accommodate the wider construction road. Some of these features, such as the access road and ramp into the reservoir, may be left permanent, depending upon the desires of the property owner. Those areas not to be left permanent would be restored with removal of materials and placement of appropriate soils and plantings.

An alternate access route follows the east side of the rail line, which is a wide flat area, about 20 feet wide. This route is routinely used by Minnesota Power to access the dam and could be used if real estate approvals can be obtained from the rail company. If the recreational trail is used for an access road, then recreational traffic would be prohibited in the project reach during construction. The expectation is that recreational users would bypass the area by following along the highway to the south and west of the project site.

3.1 METHODOLOGY

The NHIS database was obtained by the U.S. Army Corps of Engineers, Detroit District, from the MNDNR on 08 July 2019 and includes data on Minnesota Biological Survey Sites of Biodiversity Significance, MNDNR Native Plant Communities, and Minnesota Rare Features, among others. The NHIS database was queried for any Sites, Native Plant Communities, or Rare Features that occurred within the project area or within approximately 1 mile of the project area. All single point observations and polygons that overlapped with the 1-mile zone were identified for inclusion in this Natural Heritage Review.

The database query resulted in identification of three Ecologically Significant Areas (ESAs), one plant (state-listed as endangered), and two mussel species (both state-listed as Special Concern).

3.2 DIRECT EFFECTS FROM PROJECT ACTIVITIES

For the purposes of this Natural Heritage Review, dredging activities, site preparation, and equipment movement around the project site are all considered to have direct effects on any identified NHIS features. With respect to these activities, direct effects will include:

- Removal of all vegetation from the upland work areas, including tree cutting;
- Placement or erosion and sedimentation control barriers around the upland work areas;
- Grading the access road, staging areas, and reservoir access ramp area;
- Construction of reservoir access ramp, including rip-rap protection;
- Burial of the contaminant-impacted sediment surface;
- Re-vegetation of affected land areas, and;
- Post-construction monitoring and vegetation management.

Direct effects from the project actions will reduce the available habitat in the short term and temporarily increase turbidity within the reservoir. Following project completion, native species plantings will provide similar habitat and structure as currently exists. This habitat will likely take years to fully develop.

3.3 INDIRECT EFFECTS FROM PROJECT ACTIVITIES

Indirect effects are those that result from temporary project activities. For the sediment remediation activities, indirect effects include noise generated by dredging equipment and construction personnel, increased turbidity in the water column, and possible changes to water circulation and exchange in the reservoir. Noise and turbidity effects will be limited in time surrounding active construction periods and should have a minimal effect on NHIS features. The amount of increased turbidity passing over the dam is expected to be negligible, so downstream resources would be relatively unaffected. Changes to water circulation would be temporary and primarily occur within the areas of remediation which are outside the main flow path of the St. Louis River through the reservoir. Therefore, any impacts to water circulation would be minor.

4.1 ECOLOGICALLY SIGNIFICANT AREAS

Ecologically significant areas are habitats that are likely to contain state-listed species, intact native plant communities, and/or high-quality native animal habitats. The NHIS was queried for ecologically significant areas within the project site and occurring within approximately 1 mile of the project area. The following Ecologically Significant Areas (ESAs) were identified within this area:

CARLTON WETLANDS: The Carlton Wetlands ESA is listed as having moderate biodiversity significance. This site occupies approximately 2117 acres west of the St. Louis River and downstream from Interstate 35 and the project site. The Carlton Wetlands ESA area is effectively disconnected from the hydrology of the St. Louis River by Minnesota State Highway (MSH) 45, which runs along the eastern side of this ESA. About 2 miles south into the Carlton Wetlands ESA (and beyond MSH 210), Otter Creek, a tributary of the St. Louis River flows eastward through this ESA.

THOMSON RESERVOIR: The Thomson Reservoir ESA is listed as having high biodiversity significance. This site occupies approximately 3566 acres immediately east

of the Carlton Wetlands and MSH 45. The St, Louis River flows through the Thomson Reservoir ESA. The northern limit of the Thomson Reservoir ESA is south of Interstate 35, which is over 3000 feet downstream of the Scanlon Reservoir Dam.

THOMSON WETLANDS: The Thomson Wetlands ESA is listed as having moderate biodiversity significance. This site occupies approximately 787 acres, mostly along and east of the St. Louis River. The Scanlon Reservoir remediation site (approximately 40-acres) is in the southwest and downstream part of this ESA. The Thomson Wetlands area extends along approximately 1.6 miles of the river from approximately 600 feet below the next dam upstream to the upstream limits of the Thomson Reservoir ESA which is approximately at Interstate 35.

4.2 DIRECT AND INDIRECT EFFECTS ON ESAs

Carlton Wetlands ESA: The Carlton Wetlands ESA is downstream and outside any meaningful influence of the St. Louis River and therefore would not receive any direct or indirect effects from the project activities at the Scanlon Reservoir. No equipment will be transported through or working in the Carlton Wetlands.

Thomson Reservoir ESA: The Thomson Reservoir ESA would only receive indirect effects such as minor temporary increases in turbidity as a result of upstream construction activities in the Scanlon Reservoir and possibly a small amount of plant material disturbed by construction activities washing downstream. Likely such plant material has washed downstream in the past from natural processes and storm events. No equipment will be transported through, or working in, the Thomson Reservoir ESA at any time. All in-water work is upstream of the Scanlon Dam and would include turbidity controls, as necessary, to limit the amount of turbidity that may pass over the dam into downstream areas.

Thomson Wetlands ESA: Direct effects to the Thomson Wetlands ESA would be limited to the 40-acre reservoir project site in the southwest corner of the Thomson Wetlands ESA. Effects to the aquatic ecosystem would occur primarily from construction of the access ramp for loading barges along the west riverbank immediately upstream of the dam, and from the amendment placement over areas of contaminated sediment.

Construction of the access ramp would require measures to control turbidity until the ramp is finished and protected with rip-rap stone. Turbidity from amendment placement is expected to be minimal since the sites are all outside the main flow path of the river. Barges operating in the reservoir will produce some turbidity in shallower areas from maneuvering.

Potential for indirect effects arise from the work and storage areas, access road, and loading ramp. The work and storage areas and access road are generally buffered from the waterway by a vegetated area generally 40-80 feet wide. Additionally, erosion control measures would be implemented to prevent runoff of soil materials from the site or into waterways. Precautions would also be taken in loading amendment onto barges

to prevent spillage of amendment and to prevent tracking of material onto the access ramp area where it could then wash into the waterway.

4.3 CUMULATIVE EFFECTS ON ESAs

The project actions will isolate and help neutralize contaminants in the reservoir sediments, thereby improving water quality in this area of the Thomson Wetlands ESA. Improved water quality in the reservoir would benefit the Thomson Wetlands ESA, and indirectly the Thomson Reservor ESAs downstream. The Carlton Wetlands ESA is outside the influence of this project, being isolated by a highway, and so essentially unaffected.

4.4 DETERMINATIONS FOR ESAs

Based on the location of the Carlton Wetlands ESA outside the project area of direct effects, and isolated by a state highway from downstream effects, the determinations for this ESs are,

Temporary Effects: No Effect

Long-term and Cumulative Effects: No Effect

Based on the locations of the Thomson Reservoir ESA outside the project area of direct effects, and given the limited secondary effects downstream, the determinations for these two ESAs are,

Temporary Effects: none to insignificant.

Long-term and Cumulative Effects: none to positive.

Considering the location of the project area of direct effects within the Thomson Wetlands ESA and that the project purpose is to mitigate sediment contaminants in the reservoir, determinations for this ESA are,

Temporary Effects: minor.

Long-term and Cumulative Effects: positive.

5.1 WILD CHIVES (Allium schoenoprasum)

DISTRIBUTION: Allium schoenoprasum (wild chives), a vascular plant in the lily family that occurs in many states and much of Canada, but in Minnesota is limited to four counties in the northeast part of the state (Figure 4).

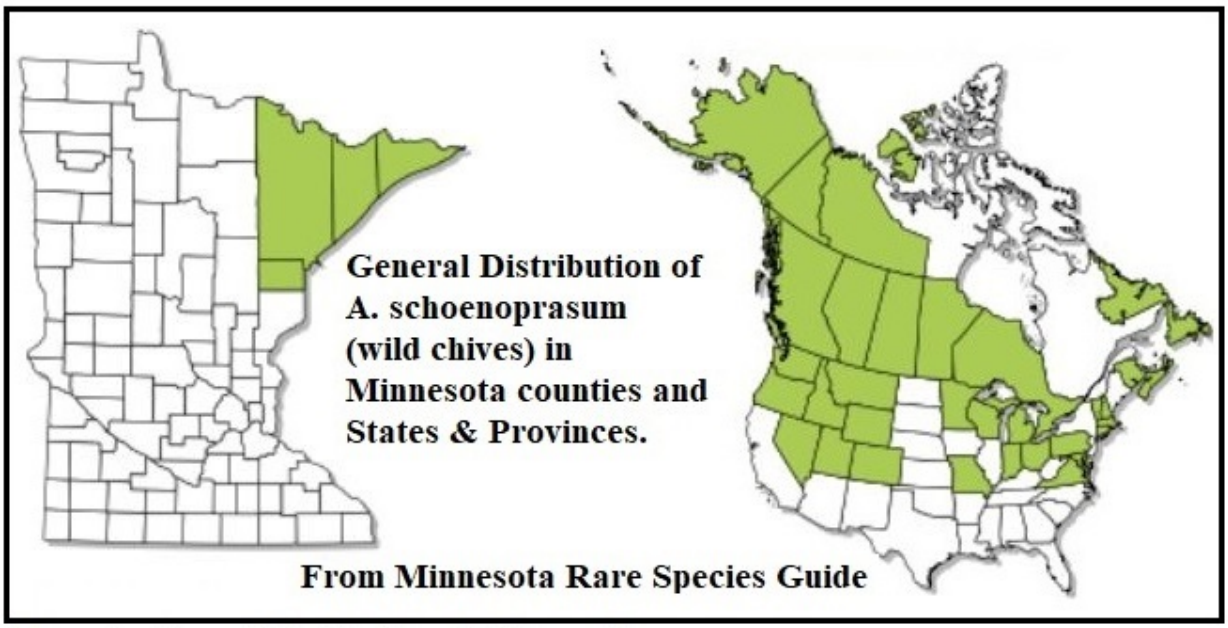

Figure 4. General Distribution of Allium schoenoprasum.

HABITAT: According to the Minnesota Department of Natural Resources' (MnDNR) Rare Species Guide,[3] A. schoenoprasum "is a circumboreal species, which occurs in Minnesota along the southern margin of its range and is apparently limited to a very specific habitat type. It occurs on rocky shorelines and ledges along Lake Superior (North Shore Highlands Subsection) and the north-facing rocky ridges above the St. Louis River (Toimi Uplands Subsection). There are only about a dozen records of this species in Minnesota."

POPULATION: In the project vicinity, the NHIS database indicates that A. schoenoprasum was observed July 2, 2008, in scattered clusters in cracks and in areas of shallow soil accumulation on exposed bedrock along the St. Louis River about 1000 feet downstream of Scanlon Dam. The plants were about 1 foot above high-water mark and approximately 2-3 vertical feet above water level on date of collection. The NHIS database indicates two records of wild chives several miles to the south of the Scanlon Reservoir, but no records upstream for at least ten miles.

5.2 EFFECTS AND DETERMINATIONS—WILD CHIVES

DIRECT AND INDIRECT EFFECTS: The location of the wild chive plants on the riverbank downstream of the dam excludes direct effects as the project work would occur upstream of the dam and the access route is sufficiently distanced and buffered from the riverbank to preclude disturbance of any specimens that may be currently present at the site. The only potential for direct effects is where construction equipment access the reservoir, primarily the construction of a boat ramp. This area would be evaluated for the presence of wild chives prior to construction. If the plant is present in

[3] https://www.dnr.state.mn.us/rsg/index.html

any of the construction access areas, the project proponent would consult with the State of Minnesota on measures to avoid impacts and may be required to apply for a take permit.

Indirect effects would not occur either since any turbidity or plant material washing down the stream would be below the typical location of the observed wild chives.

CUMULATIVE EFFECTS: There are no known cumulative effects that would occur to wild chives, the location of which is outside the area of potential direct and indirect effects. No wild chives are known to be in the reservoir access area. If during further investigation any wild chives are determined to be present in that area, this review would be updated.

REGULATORY FRAMEWORK: "The species was absent from many apparently suitable sites, and several of the previously documented populations could not be relocated. Furthermore, the significant increase in development pressures and recreational activities in the vicinity of the known populations could endanger the long-term viability of the species in Minnesota. For these reasons, the status of *A. schoenoprasum* was changed from threatened to endangered status in 2013" (MnDNR Rare Species Guide).

Federal Status: Not Listed
State Status: Endangered
State Rank: S1 (Critically Imperiled)
Global Rank: G5 (Secure)

The State Rank of S1 means that the wild chive is deemed as critically imperiled in Minnesota because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state.

DETERMINATIONS: Determinations for wild chives are based on the following factors:

1. Known location is outside the project area of direct effects, and
2. Known location is outside the area of secondary effects.

Therefore, the determinations for wild chives are,

Temporary Effects: None

Long-term and Cumulative Effects: None

As noted previously, any work areas along the reservoir bank that may have habitat for wild chives will be evaluated and appropriate measures taken. If wild chives are discovered in the work area of the reservoir bank, these determinations would be revised accordingly.

6.1 MUSSEL SPECIES

Five species of mussels were observed in the St. Louis River approximately 2300 feet downstream of the Scanlon Reservoir. These include,

Lampsilis siliquoidea (fatmucket)
Lasmigona compressa (creek heelsplitter)
Ligumia recta (black sandshell)
Pyganodon grandis (giant floater)
Strophitus undulatus (creeper or squawfoot)

Of these five mussels, two are listed as Special Concern in the State of Minnesota (L. compressa and L. recta), and three are not listed in the State of Minnesota. Nor are they Federally listed in Minnesota according to the county listings for Minnesota at the U.S. Fish and Wildlife Service's Midwest Region Endangered Species page.[4]

6.2 NON-STATE-LISTED MUSSELS

Non-listed species included in the NHIS database do not need to be addressed in the NHIS evaluations.[5] The three non-listed species of mussels are likely included in the NHIS database because, for mussel survey site data, the NHIS tracks all species from a mussel bed that includes listed mussels as an indicator of species diversity. All three of the non-listed mussels (fatmucket, giant floater, and creeper) are widespread and common throughout the Midwest, are ranked Secure (G5) on a global basis and are unranked on a state basis.

6.3 EVALUATION OF STATE-LISTED MUSSELS

This section focuses on the two listed species (creek heelsplitter and black sandshell), both State-listed as Special Concern species, which were identified within the 1-mile radius from the project site. The mussels listed in the NHIS database were identified in August 2000 in the St. Louis River, approximately 2300 feet downstream from the Scanlon Reservoir Dam. The site included 214 live mussels, 10 of which were listed mussels.

7.1 CREEK HEELSPLITTER (Lasmigona compressa)

DISTRIBUTION: Creek heelsplitter is distributed through the Upper Midwest and much of Canada (Figure 5). It is broadly distributed in Minnesota but present in low numbers.

[4] https://www.fws.gov/midwest/endangered/lists/minnesot-spp.html
[5] Per electronic mail of 20 November 2020 from the State of Minnesota coordinator for Endangered Species Review and NHIS Data Distribution.

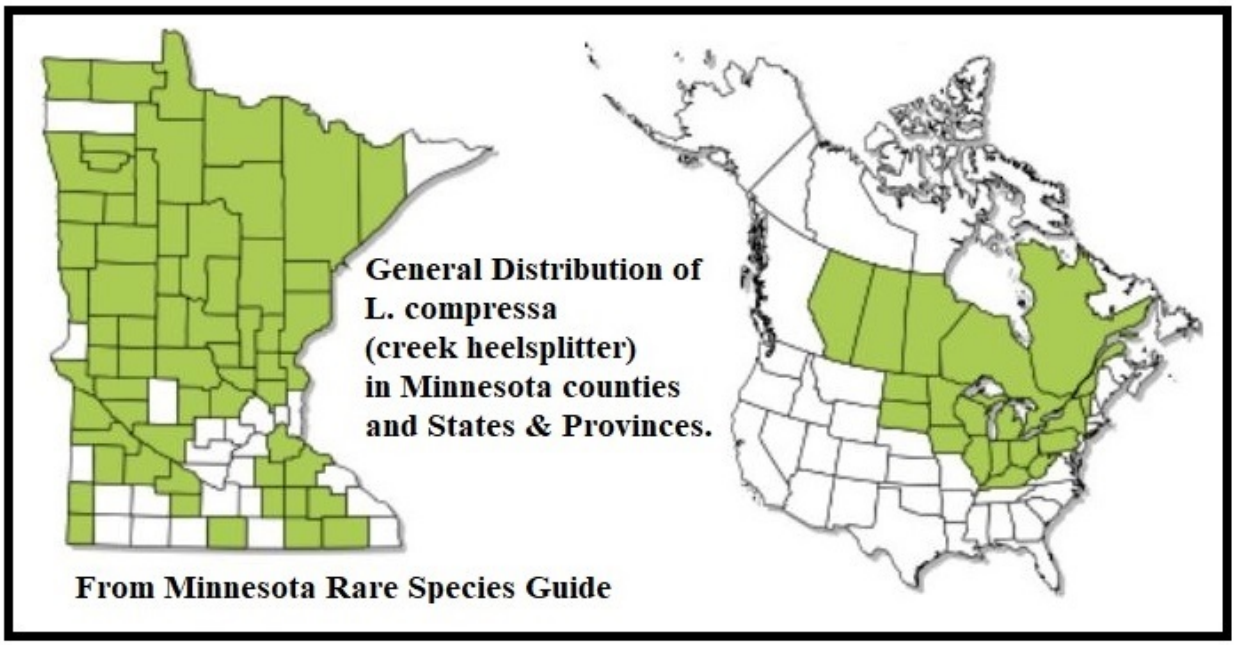

Figure 5. General Distribution of Lasmigona compressa.

HABITAT: "The creek heelsplitter typically occurs in creeks, small rivers, and the upstream portions of large rivers. Its preferred substrates are sand, fine gravel, and mud (Clarke 1985). Baker (1928) noted that the creek heelsplitter most often colonizes areas downstream of riffles in small pools, and described the habitats used as characterized by swift currents and water depths ranging from 0.3-0.9 m (1-3 ft.) deep."—MnDNR Rare Species Guide.

POPULATION: The mussel bed included in the project 1-mile radius included one live creek heelsplitter mussel in 2000. Beyond the 1-mile radius from the project site, the NHIS database indicates 3 locations within 10 miles upstream with creek heelsplitter observations, the nearest being approximately three miles upstream and past two dams. Creek heelsplitter is also indicated in downstream areas, primarily in tributaries of the St. Louis River.

7.2 EFFECTS AND DETERMINATIONS—CREEK HEELSPLITTER

DIRECT AND INDIRECT EFFECTS: Direct effects on the creek heelsplitter are not anticipated and would only occur if there were specimens within the Scanlon Reservoir. Given the nature of the creek heelsplitter's habitat as described above, especially that the typical habitat has swift water currents and shallow depths of approximately 1-3 feet, presence of creek heelsplitter in the reservoir is unlikely. The shallower areas of the reservoir (~1-3 feet deep), which would receive amendment to a thickness of <1cm are in backwater areas that do not have flow characteristics conducive to creek heelsplitter. Deeper areas (~6-8 feet) would receive a thicker amendment layer (~4-6 inches), but also are outside the main flow path of the river, and are far deeper than the typical creek heelsplitter habitat. No amendment is being placed in the main flow path of the river,

which has depths generally in the range of 10-20 feet with some areas far greater in depth.

Indirect effects on the known site where creek heelsplitter was observed would be insignificant. Indirect effects would be from any turbidity from construction operations that passes over the dam. Since turbidity controls will be implemented during construction of the boat ramp, and amendment placement would occur in areas away from the main river flow, with materials that are coarse (sand/granular carbon and pelletized carbon) turbidity movement downstream would limited and would have no measurable effect on downstream habitat.

There would be a positive effect in the primary project purpose of reduction of contaminant mobilization into the water column and biota of the reservoir. This would also provide benefits, though to a lesser degree, to downstream water quality.

CUMULATIVE EFFECTS: Cumulative effects upon the creek heelsplitter mussel are not expected to result from the proposed sediment remediation project at Scanlon Reservoir.

REGULATORY FRAMEWORK: Based on decline and the degradation of habitat, the creek heelsplitter was listed as a special concern species in Minnesota in 1996.

Federal Status: None
State Status: Special Concern
State Rank: S3 (Vulnerable)
Global Rank: G5 (Secure)

The State Rank of S3 means that the creek heelsplitter is deemed as vulnerable in Minnesota because it is rare or uncommon, found in a restricted range, and/or because of other factors making it vulnerable to extirpation.

DETERMINATIONS: The determinations for creek heelsplitter are based on the following factors:

1. Known location is outside the project area of direct effects,
2. Known location is downstream and separated from work area by a dam,
3. Effects downstream of the dam are minimal,
4. Effects at the mussel bed would not be measurable, and
5. Presence of mussel in reservoir is unlikely based on depths and flows,

Therefore, determinations for the creek heelsplitter are,

Temporary Effects: none to insignificant.

Long-term and Cumulative Effects: none to positive.

8.1 BLACK SANDSHELL (*Ligumia recta*)

DISTRIBUTION: Black sandshell is widely distributed as shown in Figure 6, but it is "uncommon in much of the Midwest."[6] NatureServe Explorer[7] notes of the black sandshell mussel, "This species is widespread in eastern and central U.S. and Canada, occurring from the Great Lakes basin south into Mississippi River drainage to Louisiana and in some Gulf Coast drainages with some declines throughout its range. Lately it has become increasingly more difficult to find with many occurrences represented by few individuals, often without evidence of recruitment. Declines appear to be localized and the species continues to maintain a wide distribution with many stable populations."

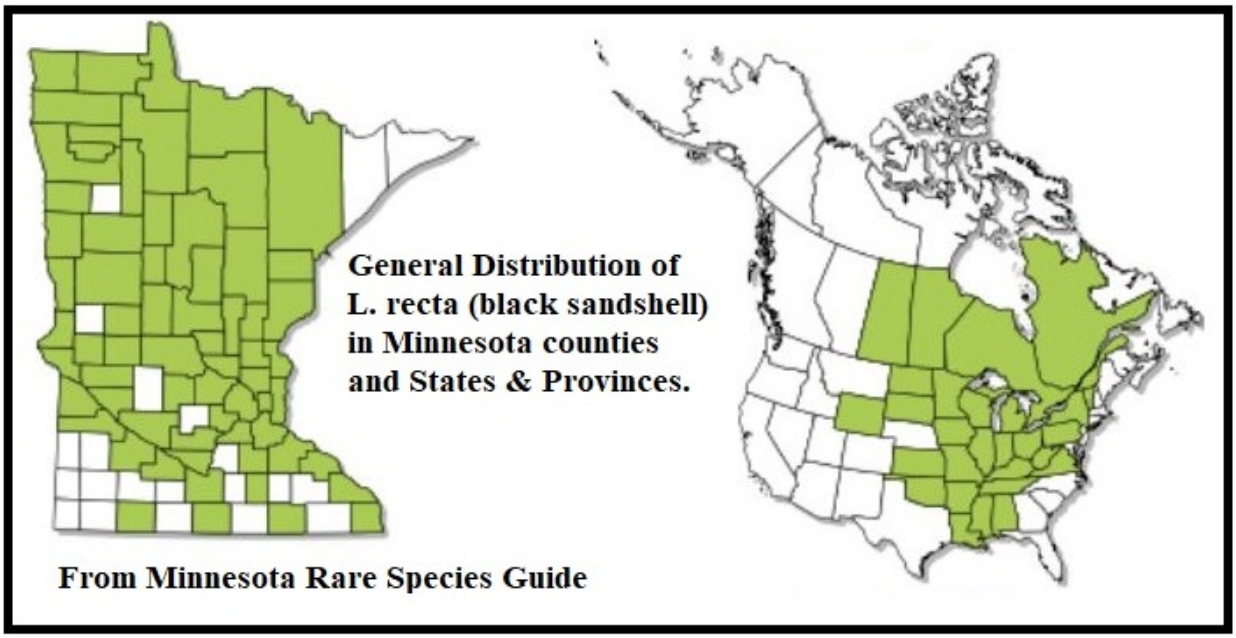

Figure 6. General Distribution of Lugumia recta.

HABITAT: "The black sandshell is usually found in the riffle and run areas of medium to large rivers in areas dominated by sand or gravel" (MnDNR Rare Species Guide). The black sandshell are typically found in locations with strong current and in water depths from several inches to six feet or more.[8]

POPULATION: The mussel bed included in the project 1-mile radius included nine live black sandshell mussels in 2000. In the ten miles of the St. Louis River extending upstream from the Scanlon Reservoir, the NHIS database indicates four locations with black sandshell mussel observations, the nearest being approximately 3 miles upstream and past two dams. Black sandshell mussels are not indicated in areas farther downstream than the site within the 1-mile project radius, except for a site over 15 miles downstream.

[6] Illinois Natural History Survey: https://www.inhs.illinois.edu/index.php?cID=1284
[7] https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.119053/Ligumia_recta
[8] New York Natural Heritage Program: https://guides.nynhp.org/black-sandshell/

8.2 EFFECTS AND DETERMINATIONS—BLACK SANDSHELL

DIRECT AND INDIRECT EFFECTS: Direct effects on the black sandshell are not anticipated and would only occur if there were specimens within the Scanlon Reservoir. While the black sandshell may occur in depths to six or more feet, which is typical of the locations for the placement of blended cover (sand and granular carbon) to a 4-6 inches thickness, these areas are outside of the main flow path for the St. Louis River and would not provide the strong currents typical of black sandshell habitat. Nevertheless, mature black sandshell mussels, if present, would likely survive an event of 4-6 inches of cover as they are large mussels ranging up to 9 inches in length.[9] Areas of stronger flow in Scanlon Reservoir would not be receiving sediment amendment.

Indirect effects on the known site where the nine black sandshell mussels were observed would be insignificant. Indirect effects would be from any turbidity from construction operations that passes over the dam. Since turbidity controls will be implemented during construction of the boat ramp, and amendment placement would occur in areas away from the main river flow, with materials that are coarse (sand/granular carbon and pelletized carbon), turbidity movement downstream would be limited and would have no measurable effect on downstream habitat or sensitive mussel live cycle stages.

There would be a positive effect in the primary project purpose of reduction of contaminant mobilization into the water column and biota of the reservoir. This would also provide benefits, though to a lesser degree, to downstream water quality.

CUMULATIVE EFFECTS: Cumulative effects upon the black sandshell mussel are not expected to result from the proposed sediment remediation project at Scanlon Reservoir.

REGULATORY FRAMEWORK: Based on decline and the degradation of habitat, the black sandshell mussel was listed as a special concern species in Minnesota in 1996.

Federal Status: None
State Status: Special Concern
State Rank: S3 (Vulnerable)
Global Rank: G4 (Apparently Secure)

The State Rank of S3 means that the black sandshell is deemed as vulnerable in Minnesota because it is rare or uncommon, found in a restricted range, and/or because of other factors making it vulnerable to extirpation.

[9] Michigan Natural Features Inventory: https://mnfi.anr.msu.edu/species/description/12376/Ligumia-recta

DETERMINATIONS: The determinations for black sandshell are based on the following factors:

1. Known location is outside the project area of direct effects,
2. Known location is downstream and separated from work area by a dam,
3. Effects downstream of the dam are minimal,
4. Effects at the mussel bed would not be measurable,
5. Presence of mussel in reservoir amendment placement areas is unlikely based on lack of sufficient flow, and
6. Mature black sandshell mussels, if present in amendment area, likely would survive the amendment placement because of their large size.

Therefore, determinations for the black sandshell mussel are,

Temporary Effects: none to insignificant.

Long-term and Cumulative Effects: none to positive.

9.1 CONCLUSIONS

The proposed Scanlon Reservoir Sediment Remediation Project is unlikely to have significant adverse effects on State Natural Heritage species or Ecological Significant Areas (ESAs). One ESA—the Thomson Wetlands—would be directly affected because the project site is within the southwest portion of this ESA. The primary effect of the project is beneficial in reducing bioavailability of sediment contaminants in the reservoir and isolating them from the aquatic environment, thereby reducing ecological risk. Adverse effects on the Thomson Wetlands ESA are limited to the 40-acre project area and will be temporary during project construction, primarily occurring during a single construction season. No state-listed species are known to be within the area of direct effect and the few that are in the broader area (1-mile radius) of potential secondary effects would not be significantly impacted. Positive effects should persist over time as the contaminated sediment is remediated.

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

ATTACHMENT G

May 6, 2021

VIA E-MAIL

Scott Cieniawski, Section Chief
Great Lakes Remediation and Restoration Section I
Great Lakes National Program Office
U.S. Environmental Protection Agency
77 West Jackson Blvd
Chicago, IL 60604-3590

RE: Sediment Remediation Project, Scanlon Reservoir
Scanlon, Carlton County
SHPO Number: 2021-0835

Dear Mr. Cieniawski,

Thank you for initiating consultation regarding the above-referenced project. Information received in our office via e-mail on January 15 and March 2, 2021 has been reviewed pursuant to the responsibilities given the State Historic Preservation Office under Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108) and its implementing federal regulations, "Protection of Historic Properties" (36 CFR Part 800).

By letter to our office dated January 25, 2021 from LaRae Lehto of the Minnesota Pollution Control Agency (MPCA), we understand that the above-referenced project will also be funded, in part, with state bond appropriations and will also be subject to permitting by both the MPCA and Minnesota Department of Natural Resources. As such, we also have completed our review of the project in accordance with the State Historic Preservation Office's responsibilities under the Minnesota Historic Sites Act (Minn. Stat. 138.665-666) and the Minnesota Field Archaeology Act (Minn. Stat. 138.40).

We have completed a review of two (2) agency letters, signed January 15, 2021 and March 2, 2021 respectively, along with documentation submitted in support of your agency's preliminary Section 106 "no effect" finding:

- Attachment 1 – Scanlon Project Topographic Map (2/8/2021);
- Attachment 2 – Scanlon Area of Potential Effect (APE) map with areas covered by archaeological surveys (12/2/2020) and Minnesota Power Shed Locations within APE (2/2/2021);
- Attachment 3 – Report titled *FY 17 Red Sites Archaeological Surveys, St. Louis River, RAP, Carlton County: Scanlon Reservoir Phase I Archaeological Survey* (7/27/2018) prepared for the U.S. Army Corps of Engineers, Detroit District by HNTB, Merjent, and WolfsHead Research Logistics;
- Attachment 4 – Report titled *Phase I Archaeological Survey for the Scanlon Reservoir, Scanlon, Minnesota* (8/13/2020) prepared for the U.S. Army Corps of Engineers, Detroit District by AECOM and LimnoTech; and
- Attachment 5 – Archaeological site 21CL0016 survey map with proposed areas of ground disturbance associated with the proposed project.

Define Undertaking and Area of Potential Effect
Based upon information provided in your letters, we understand that the U.S. Environmental Protection Agency (EPA) is proposing to cover contaminated sediments within the Scanlon Reservoir as well as adjacent wetland areas. We understand by the descriptions provided that, along with the sediment remediation, there will be access and staging areas utilized for the undertaking, as well as removal of two sheds currently owned by Minnesota Power.

We have completed our review of the documentation provided in regards to your agency's determination of the Area of Potential Effect (APE) for the Federal undertaking. We agree that this APE definition, as it is described in narrative and documented on corresponding maps (Attachment 2 included with 1/15/21 letter, and Attachment 2, Figure 1 included

with2/3/21 letter), is generally appropriate to take into account the potential direct and indirect effects of the proposed undertaking as we currently understand it. If the undertaking is significantly altered from the current scope following this review, then additional consultation with our office may be necessary.

Identification of Historic Properties

Archaeological Properties

We have reviewed two (2) archaeological survey reports submitted for this undertaking's review.

Based on the results of the investigations, we concur with your agency's determination that the following archaeological sites, subject only to Phase I reconnaissance survey at this time, may be eligible for listing in the National Register of Historic Places (NRHP): 21CL0059, 21CL0060, and 21CL0061. We understand by your January 15th letter that all three (3) of these archaeological sites are directly adjacent to but located out of the APE. As such, we agree that no further archaeological survey and evaluation is warranted for these sites based upon the scope and nature of the undertaking as it is currently proposed.

We also concur with your agency's identification of the **Brooks-Scanlon Mill Complex (21CL0016)** archaeological site which has been determined eligible for listing in the NRHP through previous federal review. As depicted portion of this historic property is located within the APE for the undertaking, specifically the project's access and staging areas.

PLEASE SUBMIT FINAL, HARD COPY VERSIONS (BOUND) OF BOTH ARCHAEOLOGICAL REPORTS TO OUR OFFICE FOR INCORPORATION INTO OUR STATEWIDE INVENTORY.

Historic/Architectural Properties

In the March 3rd submission to our office, your agency identifies the **Scanlon Hydroelectric Development (CL-THT-022)**, a historic property determines eligible through previous federal review, within the APE for the proposed undertaking. We concur with this historic property identification effort, though we point out that the maps which include this property have the property boundary incorrectly drawn.

The maps included with your submissions only identify the western portion of the historic property, the West Channel Dam (concrete gravity dam, powerhouse, spillway, and non-overflow concrete box dam), and do not include the rest of the historic property to the east, including the East Channel Dam, the East Plug Dam, or the West Plug Dam. This historic property boundary is clearly defined on the 1991 draft NRHP Nomination Form included in our records (Section 10 p. 2). We've compared the APE maps submitted by your agency and it appears as though the majority of the historic property is located directly adjacent to, but outside of the APE as it is currently defined. As such, we assume that no work associated with the undertaking will affect other portions of the historic property.

Regarding the proposed removal of two (2) storage sheds, which we understand may be the same structures pictured in the 1930s historic photographs, based upon the location outside of the currently defined historic property boundary, the lack of historic association with the Scanlon Hydroelectric Development (significant historic dates 1922-1923), and what appears to be compromised and questionable historic integrity of the structures, we agree that the structures do no contribute to the currently identified Scanlon Hydroelectric Development.

Assessment of Effect

Based on information that is available to us at this time, and considering the fact that minor ground disturbance associated with staging and access for the undertaking will take place within the boundary of NRHP-eligible archaeological site 21CL0016, and also the Scanlon Hydroelectric Development is partially located within the APE but will not be affected, a more appropriate Section 106 finding is that the undertaking, as it is currently proposed, will have **no adverse effect** on historic properties. We provide this opinion based upon the understanding that the minor grading within 21CL0016 will be limited to the depth and horizontal extent of the previously disturbed soil prism of the existing parking lot and driveways.

Consulting Parties

It is our understanding that the EPA is concurrently consulting with Native American tribes and other consulting parties regarding this project. Therefore, the EPA will need to reopen consultation with our office if a tribe or any other consulting

party expresses concerns or disagreement with agency efforts to identify historic properties and/or the assessment of adverse effect.

If there are no consulting party objections to the determinations and findings presented in this letter, then implementation of the undertaking in accordance with this finding, as documented, fulfills your agency's responsibilities under Section 106. If the project is not implemented as proposed, including, but not limited to, a situation where design changes to the currently proposed project diverts substantially from what was presented at the time of this review, then your agency will need to reopen Section 106 consultation with our office pursuant to 36 CFR 800.5(d)(1).

This review and comment letter also meets the requirements for state agency consultation with our office pursuant to Minn. Stat. 138.665-666 and Minn. Stat. 138.40. If, following this review, the scope and nature of the state undertaking's is not implemented as proposed, then the agencies will need to reopen consultation with our office.

Please contact me at (651) 201-3290 or sarah.beimers@state.mn.us if you have any questions regarding our review of this project.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

Cc via email:

Curtis Sedlacek and Amanda Holdeman, USACE, Detroit District
Meaghan Kern, EPA
LaRae Lehto, MPCA