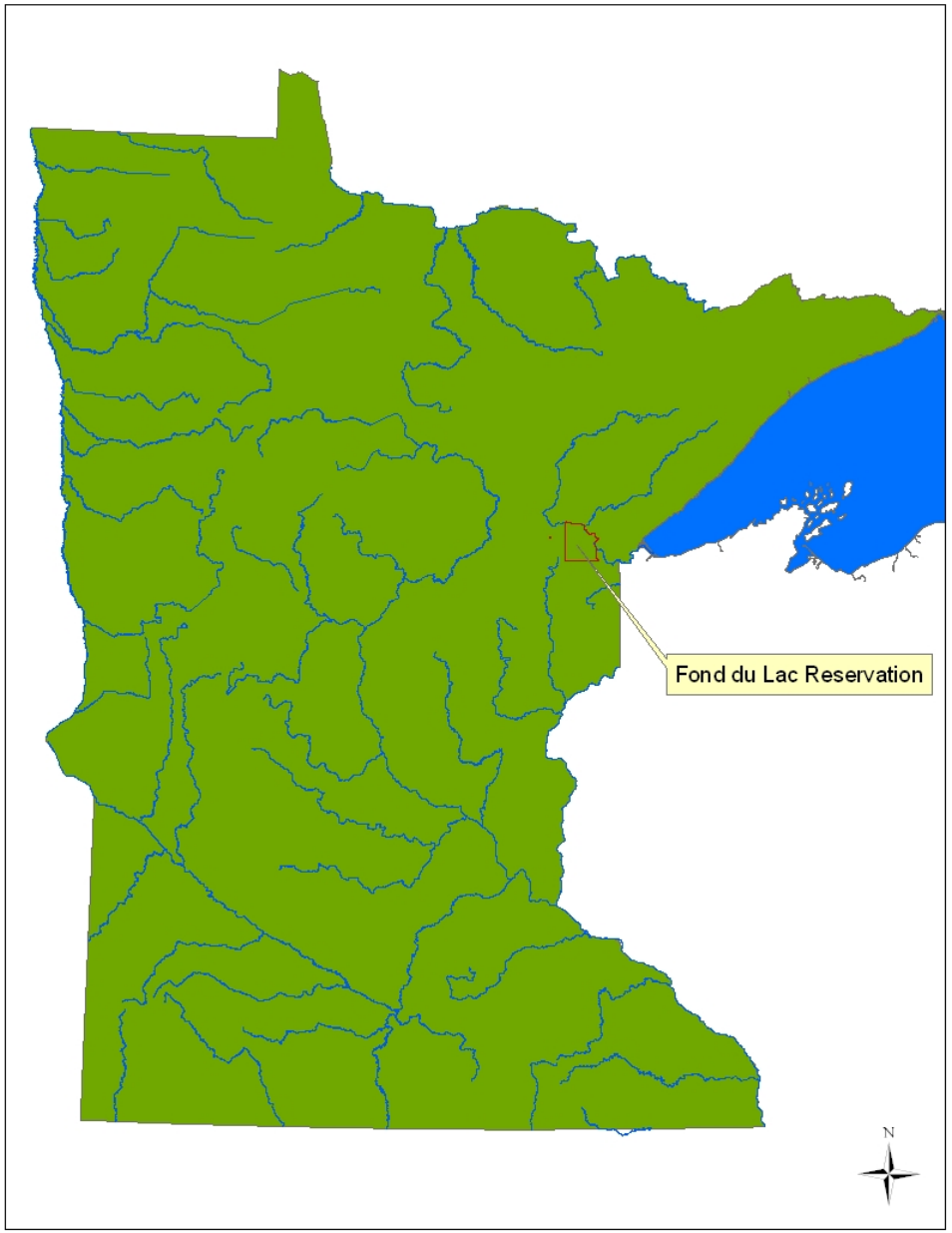
Restoring Connectivity of a Fond du Lac Reservation trout stream

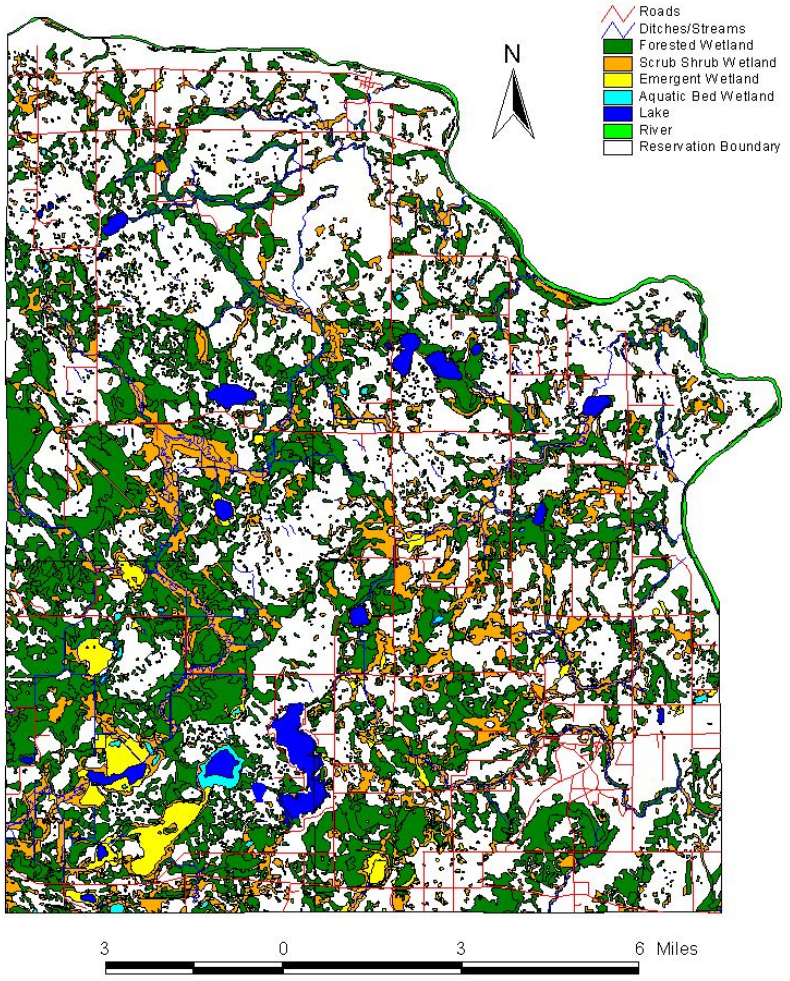
Presentation to National Tribal Water Quality Conference

Pojoaque Pueblo

November 2011



Fond du Lac Wetland Types



Martin Branch

- Coldwater tributary to Stoney Brook
- Headwaters is Joe Martin Lake
- Naturally reproducing native brook trout (*Salvelinus fontinalis*) stream
- Watershed is mostly undisturbed, but two road crossings have impacted habitat
- Beaver activity has also altered hydrology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5
4
Marshall Rd
8
9
N Main St

Brook trout are sensitive species

- Native to small streams, creeks, lakes, spring ponds in eastern North America
- Cold, clear, well-oxygenated water; narrow pH range
- Many populations have been lost or impacted by damming, pollution (including acid rain), sedimentation
- Land development, forest clear-cutting, industrial development
- Replaced by stocked non-native brown trout in many places

Monitoring

- Complete water chemistries: nutrients, hardness, alkalinity, color, toxics/metals, specific conductance, pH, DO
- Productivity (chlorophyll *a*, ash free dry mass)
- Habitat assessment (RBP)
- Benthic macroinvertebrate sampling
- Annual electroshocking fish surveys
- Continuous temperature loggers since 2003
- Gage installed 2010
- Intensive habitat assessment, BMI sampling in 2010

Assessment

- Habitat impaired because of collapsed culvert
- Temperature regime marginal because of ponding upstream
- Benthic invertebrate community is impaired (low species richness, tolerant species)
- Recommend habitat restoration to protect trout stream functional integrity: restore natural flow, maintain optimum stream temperature
- “Measure N” candidate

REPORTING WATER QUALITY IMPROVEMENT*

Based on Impairment Removal – these are waters identified as impaired based on Tribal WQS, Draft Tribal Standards, Adjacent State Standards, etc.

Overview Information

a	Tribe	*Fond du Lac Band of Lake Superior Chippewa*
b	Point of Contact	*Nancy Schuldt, Water Projects Coordinator* *1720 Big Lake Road* *Cloquet, MN 55720* *nancyschuldt@fdlrez.com* *218-878-8010*
	Project Title	*Culvert replacement on Martin Branch*

Description of Baseline Condition

d	Waterbody/Station ID	*Martin Branch Station 203 A (Marshall Road)*
e	Impairment(s)	*Martin Branch; impaired for aquatic life (brook trout stream) because of collapsed culvert which has caused ponding on the upstream side of the gravel road (Marshall Road). This physical impact has caused warming of the water and oxygen depletion for some distance downstream. The impact has been ongoing since at least 2000. The Fond du Lac Environmental Program, Office of Water Protection, monitors this stream three times per year (spring, summer, fall) for water chemistries, physical parameters, benthic invertebrates, and electroshocks the reach once a year for fish community data.*
f	Map	*Attached*

Description of Restoration Efforts

g	Area of Effort	*Proposed restoration activities are confined to stream crossing improvements that will restore the natural hydrology of the stream at this point.*
h	Restoration Work or other expected improvements	*Fond du Lac has secured funding and technical support from the Natural Resources Conservation Service Environmental Quality Incentives Program (EQIP) to design construction schematics for a properly size and installed culvert and road improvement that will maintain natural hydrology in the stream channel. As natural flows are restored, the temperature and oxygen regimes of the stream should revert back to pre-impact conditions.*

Evidence of Impairment Removal/No Deteriorating Trends

i	Impairments Removed and Discussion	*List waterbody names and IDs sufficient to demonstrate that one or more impairment causes have been removed. Include the date of the Tribal WQ assessment that reported the impairment removal (or a State report if this is a state-listed waterbody). Discuss environmental significance of the improvement.*
j	Deteriorating Trends	*Provide evidence that deteriorating trends in related parameters included in reporting for this measure are not occurring.*
k	Supporting Material	*Monitoring is conducted according to the approved "Quality Assurance Project Plan for Surface Water Quality Assessment", and assessment is conducted by comparing measure water quality parameters to the narrative and numerical criteria found in the Band's Water Quality Standards (Ordinance #1298, as amended).*

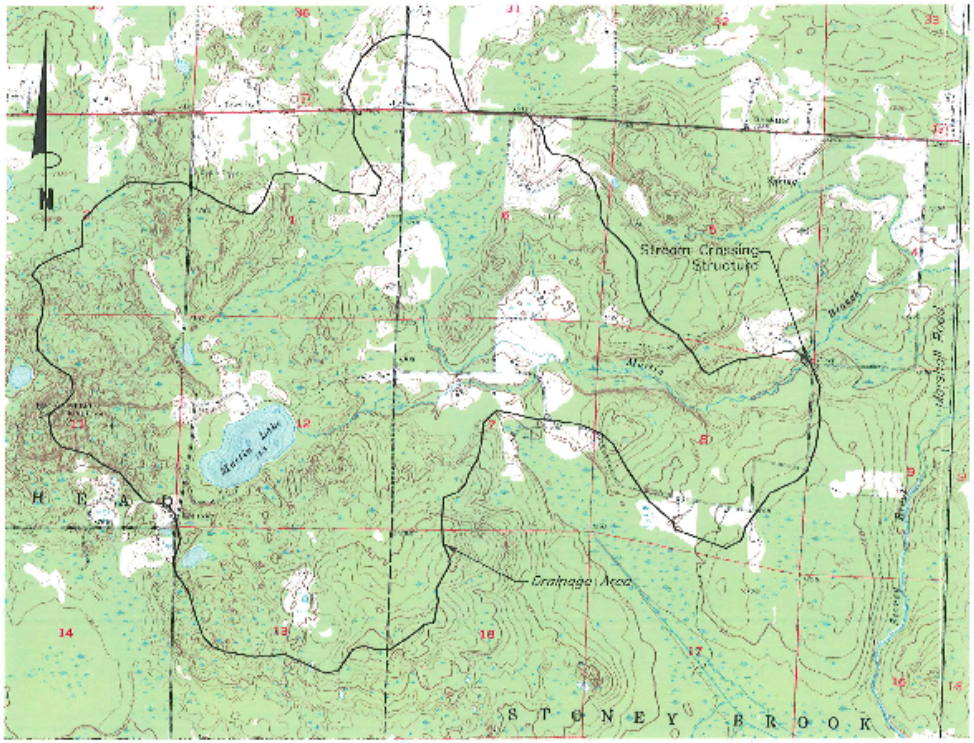
USDA/NRCS

- Environmental Quality Incentives Program (EQIP)
- Submitted project proposal in 2002; accepted for funding in 2003
- Long delay at NRCS because of project backlog; needed engineering design completed
- Managed several extensions of the Conservation Plan
- USDA Farm Bill changes – different cost share %
- Final ‘drop-dead’ completion date June 2011

CONSTRUCTION PLANS FOR
FOND DU LAC R.B.C.
MARTIN BRANCH STREAM CROSSING

FOND DU LAC RESERVATION COMMITTEE
IN COOPERATION WITH CARLTON COUNTY SWCD
SECTION 4 & 5, ARROWHEAD TOWNSHIP
T50N, R18W
SAINT LOUIS COUNTY, MINNESOTA
2010

SHEET INDEX



SUMMARY OF ESTIMATED QUANTITIES*

NO.	UNIT	ITEM
	Job	Structural Removal
	Job	Channel Clearing and Shaping
	Job	Pollution Control
	Job	Topsoiling
0.2	Acre	Seeding, Sprigging and Mulching
325	Cu.Yd	Excavation
111	Cu.Yd.	Clean Rock Fill (D50 = 0.75')
259	Cu.Yd.	MNDOT Granular Backfill
16	Lin.Ft.	10' x 5' Precast Concrete Box Culvert with End Sections
22	Cu.Yd.	Rock Riprap
675	Sq.Ft.	Bidirectional Geogrid
440	Sq.Ft.	Nonwoven Geotextile

* All quantities are to neat line and grade

UNIFIED SOIL CLASSIFICATION SYSTEM

SC–SM	Silty Clayey Sand
SC	Clayey Sand
SM	Silty Sand
CL	Lean Clay of Low to Medium Plasticity
ML	Silt of Non Plastic to Low Plastic Fines
CL–ML	Silty Clay

The design is based on the soil borings as shown on the drawings. During construction, if the existing soils are different than the soil borings and do not support the design intent, an alternate design may be required.

Before start of construction, the owners of any utilities involved must be notified. The excavator is responsible for giving this notice by calling "Gopher State One-Call at (651) 454 0002 (Twin Cities Metro Area) or (800) 252-1166 (all other locations) at least 48 hours prior to any excavation.

CONSTRUCTION SPECIFICATIONS

MN-2	Clearing and Grubbing
MN-3	Structural Removal
MN-5	Pollution Control
MN-6	Seeding and Mulching for Protective Cover
MN-11	Removal of Water
MN-21	Excavation
MN-23	Earthfill
MN-42	Concrete Pipe Conduits and Drains
MN-61	Rock Riprap
MN-95	Geotextiles

MATERIAL SPECIFICATIONS

MN-523	Rock for Riprap
MN-542	Concrete Culvert Pipe

Note: Changes in the drawings or specifications must be authorized by the owner and the NRCS representative with the proper approval authority.

ENG. JOB CLASS V

Designed L. Halter 12/10
Drawn L. Halter 12/10
Checked S. Svanberg 12/10

FOND DU LAC MARTIN BRANCH STREAM CROSSING
Cover Sheet

NRCS

File No.
Drawing No.
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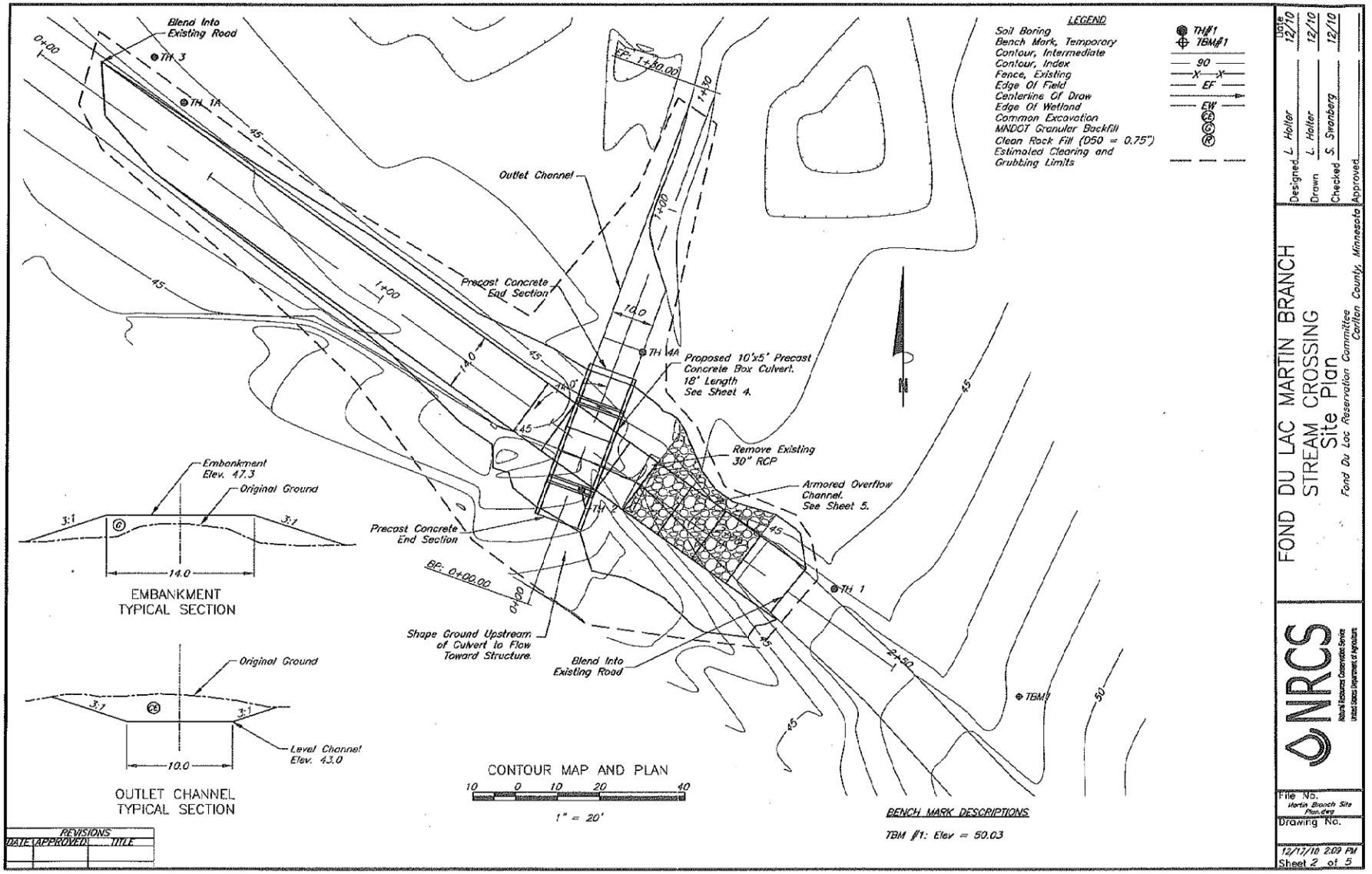
Sheet 1 of



REVISIONS		
DATE	APPROVED	TITLE

		Date
Designed	L. Holter	12/10
Drawn	L. Holter	12/10
Checked	S. Swanberg	12/10
Approved		

FOND DU LAC MARTIN BRANCH STREAM CROSSING Site Plan

Fond Du Lac Reservation Committee
Carlton County, Minnesota

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No. Martin Branch Site Plan.dwg
Drawing No.

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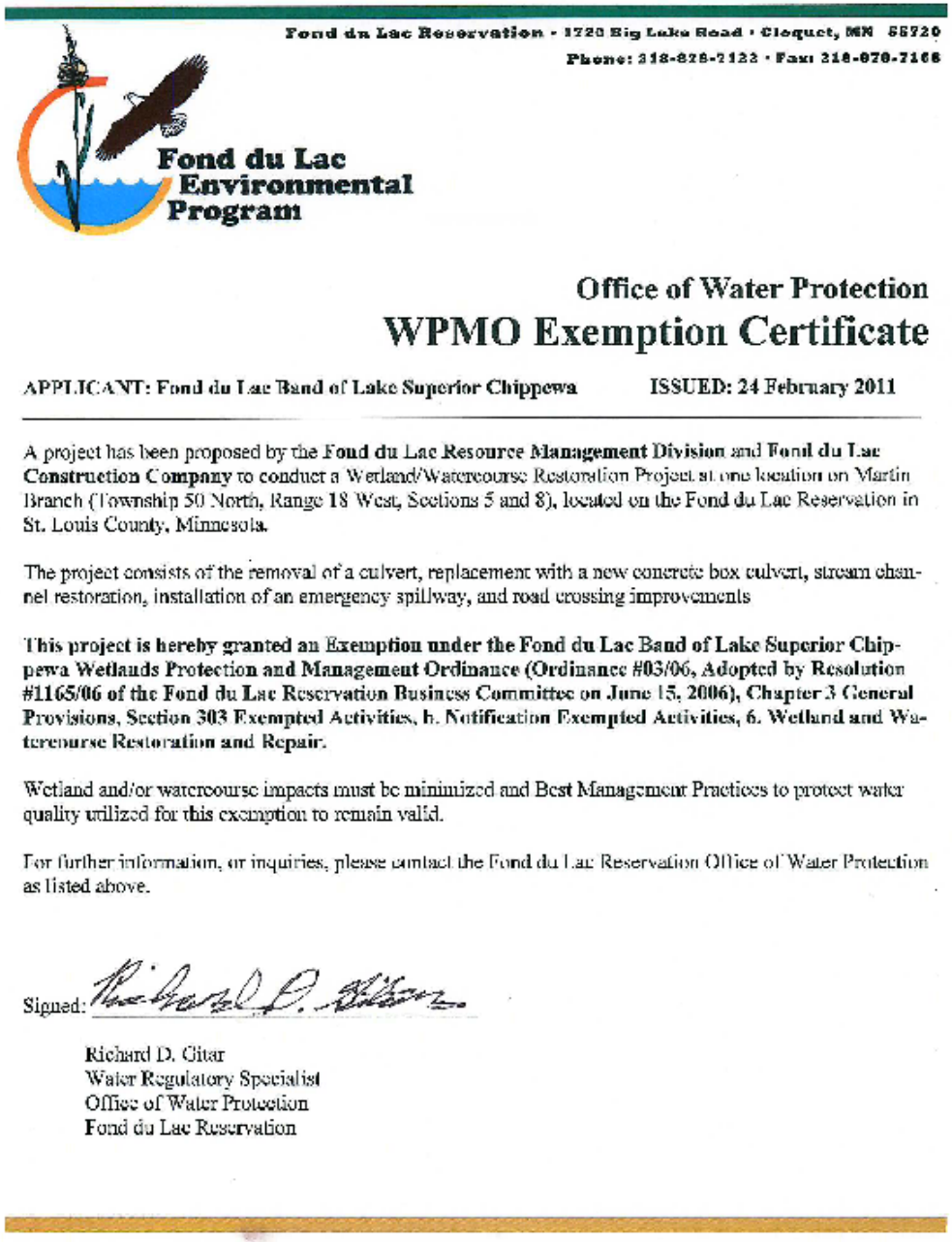
Sheet 2 of 5

Tribal match

- Reimbursed by NRCS EQIP at 75% (because of time elapsed, escalating construction and materials costs, NRCS recalculated their reimbursement maximum)
- Used Fond du Lac Construction company; bid came in lower than NRCS estimate
- Pre-construction meeting with FDL Construction, FDL Environmental Program, NRCS, USACE
- Expedited tribal environmental review process

- US Army Corps of Engineers – Letter of Permission
- Fond du Lac Wetland Protection and Management Ordinance- Exemption Certificate
- Operation & Maintenance Plan
- Demonstrate control of land
- Construction & materials specifications
- Outreach to adjacent fee land owner



Fond du Lac Reservation • 1720 Big Lake Road • Cloquet, MN 55720
Phone: 218-878-7122 • Fax 218-878-7168

Fond du Lac Environmental Program

Office of Water Protection

WPMO Exemption Certificate

APPLICANT: Fond du Lac Band of Lake Superior Chippewa **ISSUED: 24 February 2011**

A project has been proposed by the **Fond du Lac Resource Management Division** and **Fond du Lac Construction Company** to conduct a Wetland/Watercourse Restoration Project at one location on Martin Branch (Township 50 North, Range 18 West, Sections 5 and 8), located on the Fond du Lac Reservation in St. Louis County, Minnesota.

The project consists of the removal of a culvert, replacement with a new concrete box culvert, stream channel restoration, installation of an emergency spillway, and road crossing improvements

This project is hereby granted an Exemption under the Fond du Lac Band of Lake Superior Chippewa Wetlands Protection and Management Ordinance (Ordinance #03/06, Adopted by Resolution #1165/06 of the Fond du Lac Reservation Business Committee on June 15, 2006), Chapter 3 General Provisions, Section 303 Exempted Activities, b. Notification Exempted Activities, 6. Wetland and Watercourse Restoration and Repair.

Wetland and/or watercourse impacts must be minimized and Best Management Practices to protect water quality utilized for this exemption to remain valid.

For further information, or inquiries, please contact the Fond du Lac Reservation Office of Water Protection as listed above.

Signed: Richard D. Gitar

Richard D. Gitar
Water Regulatory Specialist
Office of Water Protection
Fond du Lac Reservation


CAT


FON DU LAC
MARTIN CREEK
10x5 CL1


FON DU
10×5


CAT
FON DU LAC
MARTIN CREEK
10x5
Hancock
5-11
Hancock

Measure Results, Document Outcomes

- Will repeat intensive habitat assessment and BMI sampling in 2012
- Continue routine physical, chemical, biological monitoring
- Continue stream gage and continuous temperature measurements
- Evaluate revegetation, and if necessary, supplement bank stabilization plantings