WETLAND RESTORATION PLAN

CONSTRUCTION SPECIFICATIONS (GENERAL):

REMOVING, SALVAGING AND SPREADING TOPSOIL
The work shall consist of the removal of topsoil from borrow, embankment and spillway area(s), stockpiling the suitable topsoil material and then spreading it back on those areas as directed after construction is completed. Suitable topsoil material shall consist of friable surface soil reasonably free of grass, roots, weeds, sticks, stones or other foreign materials.

Spreading shall not be done when the ground or topsoil is frozen or excessively wet. Surfaces to be covered shall be lightly scarified just prior to the spreading operation. Upon completing construction of the embankment(s) and spillway(s), blend topsoil against the borrow, embankment and spillway area(s) and trim to blend with the area or slopes. Respread topsoil evenly over the entire crest and side slopes of the embankment(s), spillway(s) and/or the surface of borrow area(s) in a 4-6 inch layer or as otherwise directed. The surface of the topsoil shall be finished to a reasonably smooth surface free of low spots, humps, or large stones and ready for seed.

EXCAVATION
This work shall include all labor, materials, and equipment required for the excavation, hauling and spreading of materials as required by the drawings or as staked. The work includes the control of water during excavation, the shaping of slopes to the lines and grades shown and the disposal of unsuitable materials.

To the extent they are needed, suitable materials from the specified excavations may be used in the construction of permanent earthfill. Borrow area(s) shall be excavated and finally dressed in a manner to eliminate steep or unstable side slopes or other hazardous or unsightly conditions.

EARTHFILL/EMBANKMENTS
All fill materials for the embankment construction shall be obtained from required excavations and designated borrow areas. Fill materials shall contain no sod, brush, roots or other perishable materials. Rock larger than 4 inches in diameter shall be removed prior to compaction of the fill. Under no circumstances shall frozen materials be used in the construction of earthfills or embankments.

Fill shall not be placed until the required excavation and foundation preparations have been completed and inspected and approved by the Project Technician. Fill material shall be placed in approximately horizontal layers. Materials placed by dumping in piles or windrows shall be spread uniformly. Each layer shall be graded, shaped, and compacted. The maximum thickness of each layer before compaction shall be as specified. If the surface of any layer becomes too hard and smooth for a proper bond with the succeeding layer, it shall be scarified parallel to the axis of the fill to a depth of not less than 2 inches before the next layer is placed.

The top surfaces of embankments shall be maintained approximately level during construction, except that a crown or cross-slope of approximately 2 percent shall be maintained to ensure effective drainage

The moisture content of the fill material shall be maintained within the limits required to: a) allow the soil to form a ball that does not readily separate when kneaded in the hand; b) prevent adherence of the fill material to the equipment treads or tracks; c) prevent rutting by equipment, and; d) ensure that blending of the soil results in a reasonably homogenous mass.

Material that is too wet when deposited on the fill shall either be removed or dried to the specified moisture content prior to compaction. If the top surface of the preceding layer of compacted fill or a foundation or abutment surface in the zone of contact with the fill becomes too dry to permit suitable bond, it shall either be removed or scarified and moistened by sprinkling to an acceptable moisture content prior to placement of the next layer of fill.

FERTILIZING AND SEEDING
The work shall consist of preparing the area for treatment, furnishing and placing fertilizer and seed in the designated areas, as specified.

Fertilizer - Unless otherwise specified, the fertilizer shall be of a commercial grade. The fertilizer shall meet the standard for grade and quality specified by state law. Where fertilizer is furnished from bulk storage, the Contractor shall furnish a supplier's certification of analysis and weight. Fertilizer shall be applied at the rates indicated. The fertilizer shall be applied during seedbed preparation and shall be thoroughly incorporated into the soil.

Seed - All seed shall conform to the current rules and regulations of the state where it is being used and from the latest crop available. All native seed must be applied at rates based on PLS (Pure Live Seed) from seed viability tests that are not more than 9 mos. old. Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be accepted. The percent of noxious weed seed allowable shall be as defined in the current state laws relating to agricultural seeds. Areas to be treated shall be dressed to a smooth, firm surface. All seeding operations shall be performed in such a manner that the seed is applied in the specified quantities uniformly on the designated areas. Unless otherwise specified, seeding shall be done within 2 days after final grading is complete or as soon as weather conditions permit.

Seedbed preparation will be required. On sites where equipment can safely operate, the seedbed shall be adequately loosened (4 to 6 inches deep) and smoothed. Both disking or cultipacking may be necessary. On sites where equipment cannot operate, the seedbed shall be prepared by hand by scarifying to provide a roughened surface so that broadcast seed will stay in place.

Uless otherwise indicated, the dates for normal seeding shall be from April 1 - September 10 and for dormant seeding after November 1. No seeding will be allowed from September 10 - November 1. The seed mixture and rate of application shall be as indicated in the attached seeding plan.

MULCHING
The work shall consist of preparing the area for treatment, furnishing and placing mulch in the designated areas, as specified. Mulch materials shall consist of wheat, oat, or rye straw, or hay cut from native grasses or other plants. Wild hay/Native grass hay shall not be used unless it is certified to be weed free according to MN/DOT type I mulch specifications. The mulch material shall be air dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The use of mulch that contains noxious weeds will not be permitted. Mulches shall be applied uniformly to the designated areas, and shall be applied to the seeded areas not later than 48 hours after seeding has been performed. Application rates shall be as shown.

Straw mulch materials shall be stabilized by the use of a disk type mulch-anchoring tool or by another method approved by the Project Technician. Mulch-anchoring tools shall have cutaway straight disks, a disk spacing of about 8 inches, and be weighted sufficiently so as to be capable of punching the mulch vertically 2 to 3 inches into the seedbed. A disk harrow with concave disks shall not be used.

Mulching materials, such as wood cellulose fiber mulch, synthetic fiber mulch, netting, and mesh may be required for specialized locations and conditions. These materials, when specified, must be accompanied by and follow the manufacturers' recommendations for methods of application.

OTHER:

LOCATION MAP
SCALE: 1" = 1320'

SEEDING TABLE

	SPECIES/MIX	APPLICATION RATE (PLS/Ac.)
SEEDING	SLENDER WHEATGRASS	1
	KENTUCKY BLUEGRASS	10
	TIMOTHY	3
	SWITCHGRASS	5
	PERENNIAL RYEGRASS	3
	NURSE CROP-OATS	32
	OPTIONAL (SEED MIXTURE:)	
FERT.	FERTILIZER TYPE:	$N-P_2O_5--K_2O$
	APPLICATION RATES:	80-80-80 LBS/ACRE OR 1.8-1.8-1.8 LBS/1000 FT^2
MULCH	AREAS REQUIRING MULCHING (MARK ALL THAT APPLY): ☐ EARTHEN EMBANKMENT(S) ☐ SPILLWAY(S) ☐ BORROW AREA(S)	
	APPLICATION RATES:	70-90 LBS/1000 FT^2 OR 1.5-2.0 TONS/ACRE

ESTIMATED QUANTITIES

ITEM #	ITEM DESCRIPTION	QUAN.	UNIT

NOTE:
The use of this cover sheet and all attached design sheets is limited only to those projects meeting the conditions and requirements of NRCS MN Practice Standards.

Project Engineering Job Class

WETLAND RESTORATION PROJECT

CONSTRUCTION CERTIFICATION STATEMENT

I HEREBY CERTIFY THAT A FINAL INSPECTION OF THIS PROJECT HAS BEEN PERFORMED AND THAT THE WORK COMPLETED IS IN ACCORDANCE WITH THE PLANS AND CONSTRUCTION SPECIFICATIONS AND THAT ANY CHANGES TO THE PLANS AND SPECIFICATIONS ARE SO NOTED.

SIGNATURE: DATE:

BEFORE START OF CONSTRUCTION, THE OWNER 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.

THE OWNER IS RESPONSIBLE FOR SECURING ALL NECESSARY LAND RIGHTS, PERMITS & LICENSES REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

THE CONSTRUCTION AND MATERIAL SPECIFICATIONS PREPARED FOR THIS PROJECT SHALL GOVERN.

CHANGES IN THE DRAWINGS OR SPECIFICATIONS MUST BE AUTHORIZED BY THE OWNER AND THE RESPONSIBLE ENGINEER.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: _____
SIGNATURE: _____
DATE: _____ LICENSE #: _____

Surveyed	Date	Designed	Date
Drawn	Date	Drawn	Date
Checked	Date	Checked	Date

COVER SHEET/SPECIFICATIONS

Approved By Date
Title
Sec. T. N. R. W.

BWSR
NRCS
USFWS

Easement No.	Project No.	County	Near	Plan Sheet of	DWG # MN-ENG-200