Day Five

MN Wetland Professional Certification Program
Basic Class- Day 5

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Professional Certification Program

1

WCA Enforcement

BOARD OF WATER AND SOIL RESOURCES

2

Enforcement Procedure Overview

3

8420.0900 Subp. 3. **Restoration and Replacement orders.**

- B. Promptly upon being informed by the enforcement authority or the local government unit of the need, a soil and water conservation district staff person **must** inspect the site and prepare a plan in consultation with the local government unit and the enforcement authority for restoring the site to its pre-altered condition.

4

SWCD Role in a violation

- Landowner contact for CDO or RPN
- Site visit- gather information/evidence
- Prepare Restoration/Replacement Order
- Monitor restoration/ replacement site.
- Certificate of Satisfactory Completion
- Track the cases.

5

LGU Role in a violation

- Help Determine if site has permit for work or prior work done.
- Assist SWCD on Restoration/Replacement Orders
- Assist with gathering evidence
- Receive application from landowner for exemption, no-loss determinations, and replacement plans
- Track the cases

6

BWSR's Role in a violation

- Rule interpretation
- Bounce ideas back and forth (appropriate seed mixes)
- May contact more specialist BWSR staff to assist in difficult projects
- Assist SWCD/LGU in developing RO's
- Assist in technical findings

7

DNR Enforcement Role

- Landowner contact if Cease and Desist Orders
- Write Summary of information on violation
- Gather Evidence of the violation including contractors' info
- Issue Restoration and Replacement Order
- Grant Extensions
- Initiate enforcement action
- Follow and track all violation cases
- Issue RPN for after the fact cases. (not in progress)

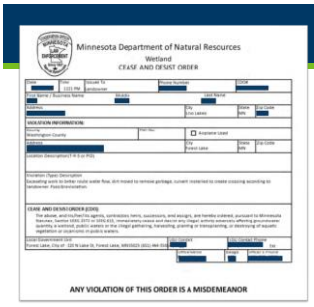
8

Resource Protection Notices

Used as a notice when activity is complete and no sign it will continue

9

Cease & Desist Orders


Minnesota Department of Natural Resources
Wetland
CEASE AND DESIST ORDER

ANY VIOLATION OF THIS ORDER IS A MISDEMEANOR

Used when equipment is on site, and it appears the activity will continue to impact wetlands.

10

Data Collection

Who – landowner and/or responsible party, contractor
- RO will go to all

What – type of disturbance or activity that occurred
- Useful for determining impact

Why – purpose of action? Were goals achieved? (i.e. some drainage is not effective…)

11

Data Collection

When – estimated time of activity occurrence
- Helpful in determining responsible party if ownership change has occurred
- Aerial photos/PID information
- Did the activity work?

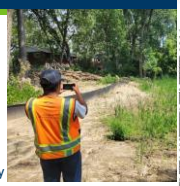
Where – Property location (critical), but also landscape position, slope, etc.

12

Data Collection

Photos

- Maps
- Illustrations
- TEP Findings and Recommendation
- Discussions with landowner/responsible party
- Survey information
- You may only have one opportunity to be on site



Minnesota Wetland Conservation Act
Determination Notice Form

13

The RO

Restoration Order Gives the Landowner Options

- Restoration is priority
- Apply for replacement, exemption, no-loss
- Appeal- w/in 30 days + $500 fee
- Court/Deed Restriction if no action is taken by landowner

Minnesota Wetland Conservation Act
Restoration Order

After-the-fact replacement ratio must be twice the ratio otherwise required but may be reduced by LGU and DNR Enf.

14

The RO

- Send RO to the Officer OR WREO ASAP Enforcement will serve the order (must be served in person or certified mail)
  - We recommend to officers to use only certified mail
  - Easy for everyone to track timeline
- MAKE SURE YOU SIGN YOUR COPY BEFORE SENDING IT TO CO OR WREO.
- Extensions are issued **only** by enforcement and if:
  - The landowner has a good reason for not getting it done
  - Has made some progress
  - Maybe weather related (heavy rains, early freeze)
  - Submitted application
  - Filed an Appeal

15

Is a formal Restoration Order Always Required?

- No, voluntary restoration is allowed but should consider
  - Willingness to cooperate
  - Past history
  - Shortened timeframe for completion to allow for formal RO process
  - Some kind of written plan or agreement with deadlines
  - Communication and agreement with DNR Enforcement
  - No formal way to make other responsible parties liable

16

Voluntary Restoration

17

Certificate of Successful Restoration

Prepared and issued by the SWCD

18

RO Non-Compliance

The landowner does not comply with the RO. Now what?

- Enforcement will work with you!
  - CO Sends a Letter
  - CO Makes a Phone call
  - Deed restriction in some cases
  - Landowner Served a Criminal Citation
  - Court

19

Contractors Responsibility

Prior to working in wetlands:

- Must have obtained signed statement from landowner
- Mailed a copy to the LGU
- They do not need to verify if the landowner has a permit or not. Just have the signed form and mailed it.

Landowner Statement and Contractor Responsibility
For Work in Wetlands or Public Waters

1. PROJECT INFORMATION

2. LANDOWNER STATEMENT

3. CONTRACTOR VERIFICATION

20

Appeals

- Landowner has 30 days to appeal Order
- RO must allow minimum of 30 days to comply with Order
- TEP, in consultation with DNR Enforcement, may allow longer to complete restoration.

21

Scenario- lake fringe fill

- What kind of information is relevant to collect?
  - Who, when, why?
  - Extent of fill and depth
  - Wetland boundary and type
  - Impact amount
  - Applicable exemptions?
  - Jurisdiction(s)?
- How should this be handled?

22

Submitting & Reviewing Wetland Delineation Reports

BOARD OF WATER AND SOIL RESOURCES

23

Guidance for Submitting Delineation Reports in MN

- Delineation report content
- Delineation Method and data collection
- On-site field demarcation
- Field Notes
- Basic Report Components
- Field Review
- Non-Routine Wetland Delineations

St. Paul District REGULATORY
US Army Corps of Engineers

March 8, 2013

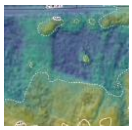
Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and Wetland Conservation Act Local Governmental Units in Minnesota, Version 2.0

Introduction - Purpose and Background and Guidance

24

What to Record While in the Field

- Plant communities
  - Describe and sketch on aerial photograph
- Landscape settings
  - Topographic changes from wetland to upland
    - Gradual, abrupt?

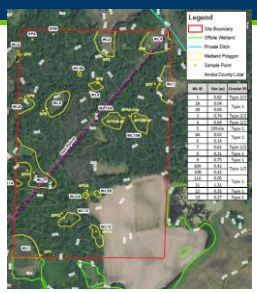


- Vegetation
  - Dominant veg
  - changes from wetland to upland
- Soil
  - Changes from wetland to upland
  - Textures, Colors
- Hydrology indicators
  - Changes from wetland to upland

25

What to Record

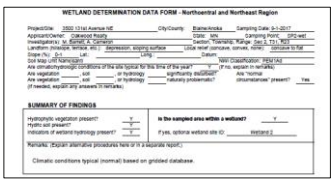
- Area of wetland within project area
- Wetland type
  (HGM, Eggers & Reed)
- General site description
  - Buildings, ditches, culverts, etc.
  - Field conditions
  - Precip. before site visit,
  cloud cover, drought, etc.



26

Notes on Field Notes (cont.)

- Note taking skills improve with experience as you figure out what is important and what is not
- Take time to organize, refine, and augment field notes immediately following your field visit.
- Label and organize photos so you know where you took them and what they are intended to show.



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

SUMMARY OF FINDINGS

27

Field Mapping

28

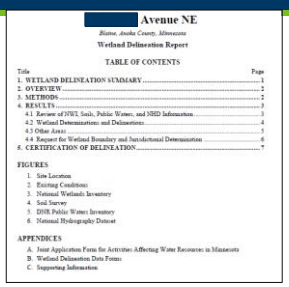
Marking Wetland Boundaries

- Mark with:
  - Flagging tape, lath, pin flags
  - Will vary depending on situation.
- Locate via GPS or land survey methods (find out local requirements).
- Wetland boundaries must be usable for the regulatory purposes intended (grading plans, plat maps, etc.).

29

Typical Report Format

- **Introduction**
- **Methods**
- **Results**
- **Discussion (optional)**
- **Figures**
- **Field Data Forms**



[redacted] Avenue NE
Blaine, Anoka County, Minnesota
Wetland Delineation Report

TABLE OF CONTENTS

FIGURES

1. Site Location
2. Existing Conditions
3. National Wetlands Inventory
4. Soil Survey
5. DNR Public Waters Inventory
6. National Hydrography Dataset

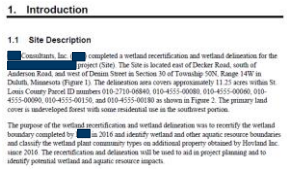
APPENDICES

A. Joint Application Form for Activities Affecting Water Resources in Minnesota
B. Wetland Delineation Data Forms
C. Supporting Information

30

Introduction

- Who did you do this for?
  - Developer, public entity
- Where is the project
  - General location and size of project area
  - General description of plant communities: Wooded, meadow, urban etc
  - Why are you doing it?
  - Identify wetlands on potential development site
  - Identify wetlands in road corridor
- When did you do it?



1. Introduction

1.1 Site Description

[redacted] Consultants, Inc. ([redacted]) completed a wetland recertification and wetland delineation for the [redacted] project (Site). The Site is located east of Decker Road, south of Anderson Road, and west of Denim Street in Section 30 of Township 50N, Range 14W in Duluth, Minnesota (Figure 1). The delineation area covers approximately 11.25 acres within St. Louis County Parcel ID numbers 010-2710-00840, 010-4555-00080, 010-4555-00090, 010-4555-00090, 010-4555-00150, and 010-4555-00180 as shown in Figure 2. The primary land cover is undeveloped forest with some residential use in the southwest portion.

The purpose of the wetland recertification and wetland delineation was to recertify the wetland boundary completed by [redacted] in 2016 and identify wetland and other aquatic resource boundaries and classify the wetland plant community types on additional property obtained by Hovland Inc. since 2016. The recertification and delineation will be used to aid in project planning and to identify potential wetland and aquatic resource impacts.

31

Methods

- **Level 1 or 2?**
- **Off site aerial review?**
- **Monitoring data?**
- **Reference wetlands?**
- **Problem area or atypical procedures?**

2.2 Methodology

2.2.1 Resource Review

Topographic maps, the U. S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map, and the Minnesota Department of Natural Resources (MNDNR) Public Waters Inventory (PWI) map, the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2022) for St. Louis County, the St. Louis County hydric soils list, and LiDAR data were reviewed prior to visiting the site to locate potential wetland habitats. Figure 4 is a copy of the NWI and the PWI map, and Figure 5 is a copy of the NRCS Web Soil Survey map. Figure 6 shows the AOI on two-ft LiDAR contours and a digital elevation model.

2.2.2 Field Procedures

The study area was examined on August 7th, 2022 for areas meeting the technical wetland criteria per the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE 2012). The delineation procedures in the Corps Manual (i.e., the Routine Onsite Determination Method), in combination with wetland indicators and guidance provided in the *Regional Supplement*, were applied for this delineation. Where differences in the two documents occur, the *Regional Supplement* takes precedence over the Corps Manual for applications in the Northcentral and Northeastern Region (USACE 2012).

Field notes, samples, and photographs were taken at representative locations in each wetland taxon, with data transect locations following spacing guidelines in the *Regional Supplement*. The respective wetland and upland plots for each wetland were documented on Wetland Determination Data Forms (**Appendix A**). Relevant photographs of the site and representative sample locations are included in **Appendix B**.

Wetland boundaries were located and marked with pin flags and/or flagging labeled with "WETLAND BOUNDARY" to allow for field review. The locations of the delineated wetland boundaries were collected with a sub-meter accuracy Global Positioning System (GPS) unit and mapped. The results of the delineation are shown on **Figure 7**. The sample points noted identify where data was collected.

32

RESULTS and Discussion

Describe wetlands

- Wetland Type – Circular 39 and Eggers & Reed
- Hydrology Indicators
- Dominant Vegetation for each community/type
- Hydric Soil Indicators
- Other Observations (NWI, connections, excavated?)

33

Text Examples

Wetland A is a Type 7 – Hardwood Swamp located in the northcentral part of the delineation area and covers +/- 1.04 acres. Wetland A hydrophytic vegetation criteria were met by the Dominance Test (>50% FAC, FACW, or OBL) and the Prevalence Index. The Wetland A sampling point met hydrology indicators B9 – Water-Stained Leaves, D2 – Geomorphic Position, and D5 – FAC-Neutral Test. Hydric soil indicators A11 – Depleted Below Dark Surface and F3 – Depleted Matrix were present. Wetland A is not identified on the NWI or PWI. The source of hydrology for Wetland A appears to be from precipitation.

34

Outlined Text Examples

Wetland A – Type 3/6/7; Shallow Marsh/Shrub Swamp/Hardwood Swamp

Wetland A is a wetland located along the central portion of the project area. The wetland is connected through drainage and groundwater discharge from nearby uplands. Data point DP_WET_A1, DP_WET_A2, DP_WET_A3, and DP_WET_A4 was documented to show wetland characteristics.

Data Point DP_WET_A1 (Type 7; Hardwood Swamp)

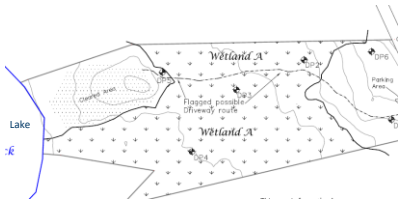
- Hydrology – Wetland hydrology indicators observed at data point DP_WET_A1 included: High Water Table (A2), Saturation (A3), Water-stained Leaves (B9), Hydrogen Sulfide Odor (C1), Thin Muck Surface (C7), Drainage Patterns (B10), Moss Trim Lines (B16), Stunted or Stressed Plants (D1), Geomorphic Position (D2), Shallow Aquitard (D3), Microtopographic Relief (D4), and FAC-Neutral Test (D5).
- Vegetation – Dominant vegetation observed included: **Trees** – Balsam Fir (*Abies balsamea*, FAC), and Quaking Aspen (*Populus tremuloides*, FAC). **Saplings/Shrubs** – Speckled Alder (*Alnus incana*, FACW), and Quaking Aspen (*Populus tremuloides*, FAC). **Herbaceous** – Reed-canary Grass (*Phalaris arundinacea*, FACW), Jewelweed (*Impatiens capensis*, FACW), Dwarf Raspberry (*Rubus pubescens*, FACW), and Bristly Sedge (*Carex comosa*, FACW).
- Soil – The soil within this portion of the wetland complex was classified as a silty clay loam with a matrix color of 10YR 3/1 from 0-6 inches bgs. Hydric soil indicators Loamy Mucky Mineral (F1), and 2 cm Muck (A10) were met at DP_WET_A1.

35

Report Components – Figures

1. Site Location
2. National Wetland Inventory (NWI)*
3. Soils
4. Public Waters Inventory (PWI)*
5. Wetland Boundary Map

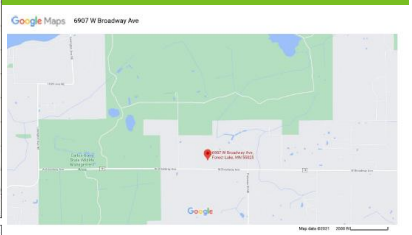
*often combined



36

36

Report Components – Site Location

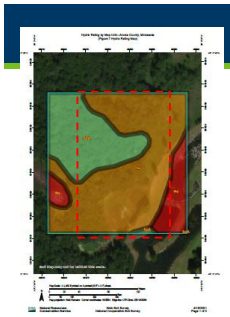


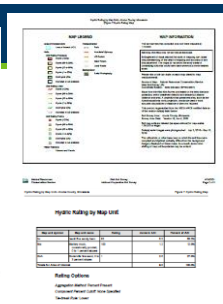
37

NWI/PWI

38

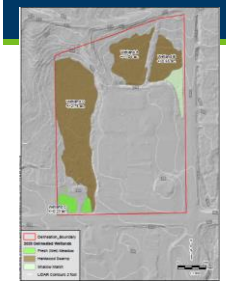
Soils





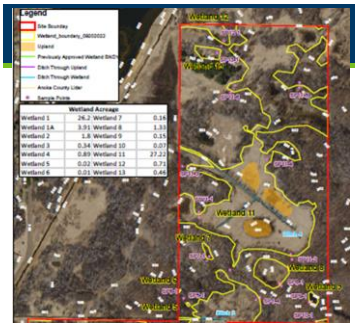
39

Use LiDAR



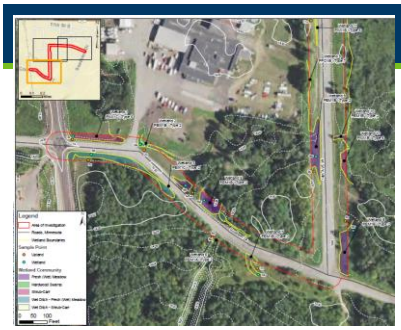
40

Delineation Figure



41

Linear Projects



42

Data Forms

- Fille out completely
- Correspond to sample locations indicated on a map
- Remember that sample locations should be representative
- Not needed if doing a Routine Level 1
- Do a complete job, but keep in mind that these are field assessments, not a scientific study, spend a reasonable amount of time.

43

Field Review

Who should conduct site review?

- At least 1 member of TEP
- LGU may request assistance from TEP (SWCD and BWSR) or other tech. prof.
- Corps invited/coordination
- Delineator invited (but does not need to be present)

44

44

Non-Routine Wetland Delineations

- Informal Delineations
- Landowner wanted to fill an area mapped as non-hydric soil
- Site visit to estimate and stake wetland boundary
- Be sure to document with map and memo

45

45

46

MINNESOTA WETLAND PROFESSIONAL CERTIFICATION PROGRAM CORE CURRICULUM

- **Critical Definitions**
- **Classification Systems & Functions**
- **Wetland Delineation**
  - Vegetation – hydrophyte, Dominance
  - Soil – hydric indicators
  - Hydrology- inputs/outputs, indicators, monitoring
- **Wetland Conservation Act**
  - Purpose & Scope
  - Application Procedures & Noticing Requirements
  - Basic Decisions
    - Boundary/Type
    - No-Loss
    - Exemptions
- Replacement plans
- Wetland Banking
- Enforcement & Appeals

Minnesota Wetland Professional Certification Program

47

What is a Wetland?

Definition: Those areas 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 to life in saturated soil conditions.

Hydrology + Vegetation + Soil = Wetland

48

3-Parameter/ Indicator Approach

1. **Soils** –Historic conditions, may not reflect current condition.
2. **Hydrology** –Current condition, but heavily influenced by recent climate conditions
3. **Vegetation** – Somewhere between

The 87 Manual requires 3 parameters because no one source typically gives the answer in all situations

49

Wetland Functions & Values

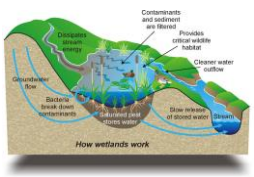
Wetland Functions: in scientific assessments means natural processes

Wetland Value: wetland goods and services providing monetary or social welfare benefit.

50

Wetland Functions

- Act as a natural "filter" to maintain water quality
- Facilitates infiltration recharging groundwater
- Stabilize base flow
- Decreases fluid velocity during high flow events which decreases turbidity
- Storm water retention (i.e. storage)
- Provides habitat
- Shoreline protection



BWSR Wetland Section | www.bwsr.state.mn.us/wetlands

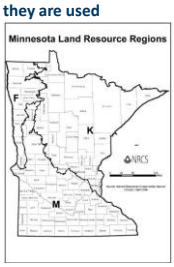
51

Land Resource Regions

- **Regions dictate which indicators are used and how they are used**

a) The indicator descriptions in this guide are abbreviated versions of the full descriptions found the Regional Supplements to the Corps of Engineers Wetland Delineation Manual (Great Plains, North-Central/North-East, Midwest). Users are encouraged to reference the full descriptions and user notes found in those documents.

b) An indicator is applicable statewide unless otherwise indicated below the indicator description.



52

Land Resource Regions

- **Regions dictate which indicators are used and how they are used**

53

Wetland Delineation Types

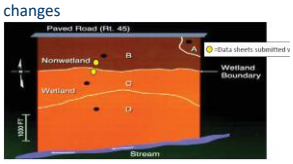
ROUTINE

- **Level 1** - Onsite Inspection Unnecessary
- **Level 2** - Onsite Inspection Necessary
- **Level 3** - Combination of Levels 1 and 2

54

Sampling Location Should Be Representative

- Representative of soil changes (from upland to wetland)
- Representative of vegetation changes
- Representative of hydrology indicator changes
- Representative of landscape changes



55

Wetland Classification Systems in MN

- Circular 39
- Eggers & Reed
- Cowardin
- Hydrogeomorphic Method

Circular 39	Eggers & Reed
1	Seasonally Flooded Basins
1	Floodplain Forests
2	Sedge Meadows
2	Fresh (wet) Meadows
2	Wet to Wet-Mesic Prairies
2	Calcareous Fens
3	Shallow Marsh
4	Deep Marsh
5	Shallow, Open Water
6	Shrub-Carr
6	Alder Thicket
7	Hardwood Swamp
7	Coniferous Swamp
8	Open Bog
8	Coniferous Bog

56

Research Data Sources

- Aerial Photos (current and historic)
- Soil map (Web Soil Survey)
- Topographic\LiDAR
- NWI Map (updated version in MN)
- DNR Protected Waters Map

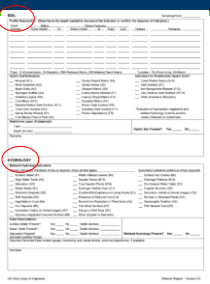
57

Critical Definitions

- Wetlands
- Growing Season
- Atypical Situations
- Problem Areas
- Normal Circumstances

58

It's all about the documentation!



59

Hydrology

…"inundated or saturated by surface or ground water at a frequency and duration"

- Technical standard of 14 or more consecutive days of flooding or ponding;
- Water table 12 in. or less below soil surface;

60

Hydrology Indicators

Evidence that there is continuing hydrology and confirms that an episode of inundation/saturation occurred recently.

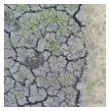
Wetland hydrology indicators are divided into two categories:

- Primary – provide stand-alone evidence of a current or recent hydrologic event; and
- Secondary – provide evidence of recent hydrology when supported by one or more other hydrology indicators.

61

Hydrology Indicator Groups

Group A – direct observation of *water*



Group B – evidence of *flooding/ponding*

Group C – evidence of *current or recent saturation*.

Group D – *Landscape and veg. characteristics* that indicate contemporary wetland conditions.

62

Soil

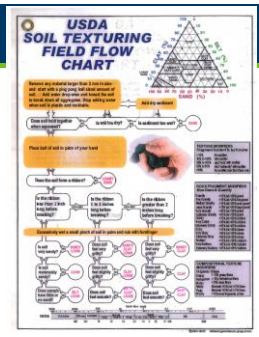
- Basics of Soil
  - Soil formation
  - Landscape position
- Soil Properties
  - Texture
  - Color
- Hydric soil development
- Web Soil Survey
  - Interpreting soil reports
- Hydric soil indicators
  - All
  - Fine
  - Sandy
- Common soil indicators

63

Field Indicators of Hydric Soils

64

Soils



65

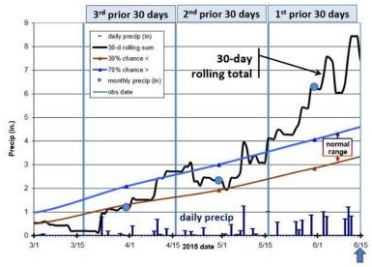
Web Soil Survey

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
C60B	Bushville loamy sand, Rainy till phase, 0 to 3 percent slopes	31.8	25.3%
C163B	Brainerd sandy loam, 1 to 4 percent slopes	13.0	10.3%
C164B	Brainerd-Fisk complex, 4 to 8 percent slopes	13.3	10.6%
C166A	Nokay-Pinebob complex, 0 to 2 percent slopes	56.3	44.8%
W	Water	11.3	9.0%
Totals for Area of Interest		125.7	100.0%

66

Antecedent Precipitation

To better interpret the data collected or observation made in the proper context.



67

MN Wetland Regulatory Programs

- Public Waters Permit Program
- Wetland Conservation Act (WCA)
- Clean Water Act Section 404
  - Section 401 of the Clean Water Act (401)
  - Swampbuster provisions of the Food Security Act (FSA)

DEPARTMENT OF NATURAL RESOURCES

Communities and Local Government

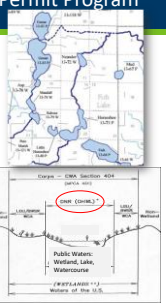
US Army Corps of Engineers

BOARD OF WATER AND SOIL RESOURCES

68

Public Waters Permit Program

- **Regulates:** changes to "course, current or cross-section"
- **Administered by:** DNR – Area Hydrologists
- **Authorities:** M.S. 103G; M.R. Chapter 6115
- **Jurisdictional boundary:** "Ordinary High-Water Level"
- **Review standards:** Public interest; reasonable/practical, Riparian rights, Availability of feasible & prudent alternatives, Compensatory mitigation
- **Appeals:** Contested case hearing
- **Enforcement:** DNR Conservation Officers; cease & desist, restoration orders
- **Application:** on-line via "MPARS"

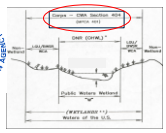


69

Clean Water Act Section 404

- **Regulates:** Discharges of dredged or fill material, including redeposit
- **Administered by**:U.S. Army Corps of Engineers – St. Paul District
- **Authorities:** 33 U.S.C. §1251; 33 CFR Parts 320-332; 40 CFR Part 230
- **Jurisdictional boundary:** 1987 Corps of Engineers Wetland Delineation Manual
- **Review Standards:** Sequencing, public interest, adequate compensatory mitigation
- **Appeals:** COE administrative appeal
- **Enforcement:** COE and USEPA; administrative orders
- **Application**: Joint Application Form for Activities Affecting Water Resources in Minnesota

US Army Corps of Engineers



70

Wetland Conservation Act

- **Regulates:** draining, filling, some excavation
- **Administered by:** Local Government Units, SWCDs, Watershed Districts
- **Oversight by:** MN Board of Water and Soil Resources
- **Authorities:** M.S. 103A, 103B, 103G; M.R. Chapter 8420
- **Jurisdictional boundary:** 1987 Corps of Engineers Wetland Delineation Manual
- **Review standards:** Avoid, minimize, replace (sequencing)
- **Enforcement:** DNR Conservation Officers; cease & desist, restoration orders
- **Application**: Joint Application Form for Activities Affecting Water Resources in Minnesota

Communities and Local Government

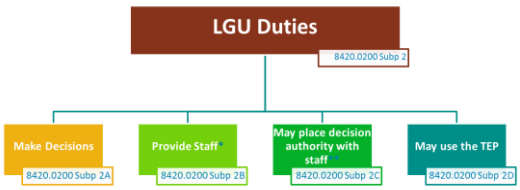
MINNESOTA WATERSHEDS

MASWCD

BWSR

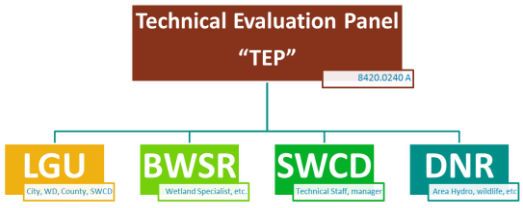
71

WCA



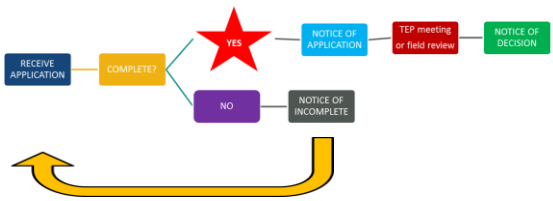
72

WCA



73

Procedures and Process



74

Overview of Wetland Vegetation

- Hydrophytic Vegetation Definition
  - Define Hydrophyte
  - What makes a plant a hydrophyte
  - Determine why matters
- Hydrophytic Vegetation Indicators
  - Field indicators
  - Indicator status
  - Dominance
- Determining Hydrophytic Plant Community
  - Rapid Test
  - Dominance Test (50/20 Rule)
  - Prevalence Index
  - Morphological Adaptations

75

75

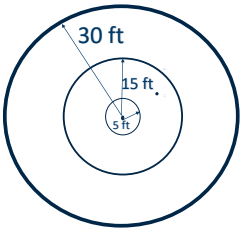
Determining Hydrophytic Vegetation

The procedure for using hydrophytic vegetation indicators is as follows:

1. Apply Indicator 1 (Rapid Test for Hydrophytic Vegetation).
2. Apply Indicator 2 (Dominance Test).
3. Apply Indicator 3 (Prevalence Index). This and the following step assume that at least one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present.
4. Apply Indicator 4 (Morphological Adaptations).

76

Vegetation Sampling



5 ft Herbaceous; 15 ft Shrub/Sapling; 30 ft Tree

77

WCA

Application Types and Procedures

Boundary/Type | No-Loss | Exemption | Sequencing | Replacement Plan | Banking

78

WCA

WCA decisions for wetland projects that DO NOT REQUIRE REPLACEMENT

- **No-Loss** 8420.0415
- **Exemption** 8420.0420

79

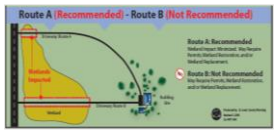
Replacement Plans

Sequencing 8420.0520

- Avoid Impact 8420.0520 subp 3
- Minimize Impact 8420.0520 subp 4
- Replace 8420.0522

8420.0330 REPLACEMENT PLAN APPLICATIONS.

Subpart 1. **Requirement.** A landowner proposing a wetland impact that requires replacement under this chapter must apply to the local government unit and receive approval of a replacement plan before impacting the wetland.



80

Overview of Wetland Banking

- Purpose of Wetland Banking
- Types of Wetland Banks
- Actions Eligible for Credit
- Establishing a Wetland Bank
- Certification and deposit of credits
- Withdrawals and transfers
- Replacement for Public Road Projects

Banking-related topics covered in other sections:

- Restoration Construction Standards
- Monitoring and Corrective Actions

81

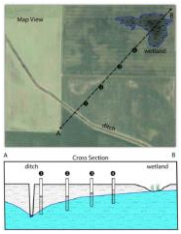
Overview of Wetland Restoration

- General considerations for successful restoration
  - MN Restoration Guide
- Restoring natural hydrology
  - Hydrogeomorphology
    - Landscape position
    - Hydrology
    - hydraulics
- Restoration techniques
  - Filling ditches
  - Removing drain tile
  - Rerouting & pump removal
- Establishing vegetation
- Monitoring
  - Timelines
  - Roles and responsibilities
  - Interpreting hydrology and vegetation monitoring data

82

Overview of Wetland Bank Monitoring

- Monitoring process
  - Construction Certification
  - Duration of monitoring
  - Deposit of Credits
- Maintenance responsibilities
  - Monitoring reports
  - Timeline
  - Reports
- Corrective Actions

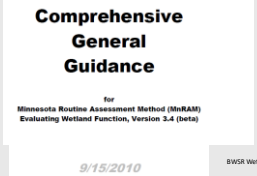


- Hydrology Monitoring
  - Performance standards
- Vegetation Monitoring
  - Performance standards

83

Functional Assessment Methods

- MN Routine Assessment Method (MNRAM)
  - Numeric model for assessing wetland functions and some values



- Floristic Quality Assessment
  - Vegetation based ecological condition assessment method

84

Enforcement- Restoration or Replacement


Minnesota Wetland Conservation Act Restoration Order

VS


Minnesota Wetland Conservation Act Replacement Order

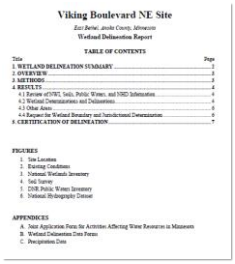
Preferred and Required unless…

…Restoration is not feasible or prudent

85

Wetland Delineation Reports

- Field Notes
- Basic Report Components
- Report Contents
- Field Review
- Non-Routine Wetland Delineations


Viking Boulevard NE Site

East Bethel, Anoka County, Minnesota

Wetland Delineation Report

TABLE OF CONTENTS

Title Page

1. WETLAND DELINEATION SUMMARY 2
2. OVERVIEW 3
3. METHODS 3
4. RESULTS 4
   - 4.1 Review of NWI, Soils, Public Waters, and NRCS Information 4
   - 4.2 Wetland Determinations and Delineations 4
   - 4.3 Other Areas 6
   - 4.4 Request for Wetland Boundary and Jurisdictional Determination 6
5. CERTIFICATION OF DELINEATION 7

FIGURES

1. Site Location
2. Existing Conditions
3. National Wetlands Inventory
4. Soil Survey
5. DNR Public Waters Inventory
6. National Hydrography Dataset

APPENDICES

A. Notice Application Form for Activities Affecting Water Resources in Minnesota
B. Wetland Delineation Data Forms
C. Precipitation Data

86

86

Final Thoughts

Questions (last chance!)

87

Summary Quiz

1) Sometimes referred to as the "60 day Rule", this Minnesota State Statute determines the agency action deadline for all WCA LGUs to make a decision on a wetland application.

A) MN Statute 8420

B) MN Statute 15.99

C) MN Statute 404

D) MN Statute 103G

88

2) An exemption is:

a) An activity that no matter how large of an impact requires replacement.

b) A regulated activity that does not require replacement.

c) An activity that requires an application everywhere in the State.

d) An activity occurring in a calcareous fen.

3) During the review of a replacement plan application, LGUs must use this process to determine whether a project avoids, minimizes then replaces wetland impacts:

a) No-loss criteria

b) Sequencing

c) Exemption standards

d) Replacement order

89

4) Per Rule, pre-settlement wetlands are wetlands or public water wetlands that:

a) Have been constructed since humans developed the area.

b) Existed at the time of Minnesota statehood in 1858.

c) Natural wetlands that have been altered since statehood.

d) Are high quality wetlands where no impacts can occur.

5) Bank Service Areas are factored into what aspect of implementing the Wetland Conservation Act?

a) Calculating de minimis

b) Wetland replacement siting

c) Determining the LGU

d) Prioritizing wetland restoration projects

90

6) A project to restore a partially drained wetland may be qualify as what under the wetland banking program:

a) Action eligible for credit
b) Compensation planning framework
c) Local Government road wetland replacement project
d) Full application

7) Who certifies construction of a wetland bank project?

a) BWSR
b) Army Corps
c) LGU
d) SWCD

91

8) Which of the following are considerations for wetland restoration projects?

a) Adjacent land uses
b) Location of existing drainage ditches
c) Drainage law implications of restoring ditches
d) All of the above

9) Which of following is a vegetation based ecological condition assessment method for wetlands:

a) MNRAM
b) Cowardin
c) Floristic Quality Assessment
d) Eggers & Reed

92

10) Which member of TEP is responsible for writing a WCA Restoration Order?

a) LGU
b) BWSR
c) SWCD
d) Army Corps

11) In the WCA, fill is defined as:

a) Any solid material added to or redeposited in a wetland

b) Woody vegetation that originated in the wetland that impairs water flow

c) Posts or pilings for linear projects such as boardwalks

d) Both a and b

93

12) A delineator utilizes air photos, soils map, topographic maps, and local wetland maps to identify and define a wetland boundary. This is an example of what?

a) A comprehensive level 3 delineation
b) An unacceptable methodology under any circumstances
c) A quantitative delineation approach
d) A routine level 1 delineation

13) A Circular 39 Type 2 wetland, is most similar to what Cowardin Classification?

a) PEMB
b) PUBF
c) PSS1C
d) PFO1B

94

14) A seasonally flooded wetland on agricultural land is normally plowed and planted in most years. For delineation purposes, which of the following conclusions is most likely true?

a) This is not a jurisdictional wetland
b) Normal circumstances are not present
c) Normal circumstances exist
d) A level 1 delineation is required

15) A wetland good and services which provides monetary or social welfare benefit is known as:

a) wetland value
b) Floristic Quality Assessment
c) wetland function
d) stormwater retention

95

16) What is the definition of depleted matrix? Describe what it looks like.

Value 4 or More
Chroma 2 or Less

17) A project is located in the 50-80% presettlement area outside of shoreland. The landowner proposes to excavate in a semipermanently flooded wetland. What is the maximum de minimis allowed for this activity?

a. 10,890 square feet
b. 4,356 square feet
c. 400 square feet
d. 100 square feet

96

18) When administering the Wetland Conservation Act, duties of the Local Government Unit include:

a) Providing knowledgeable and trained staff.
b) Making recommendations to TEP on WCA applications.
c) Writing the WCA Rule.
d) Maintaining WCA records for 5 years.

19) Which of the following is the least important when conducting hydrology monitoring with shallow wells for determining if the wetland hydrology technical standard is met for an area?

a) Growing season.
b) Depth to restrictive soil layer.
c) "A" horizon thickness.
d) Well installation methodology.

97

20) Which of the following tests is used for a wetland hydrology indicator?

a)50/20 dominance
b)FAC Neutral
c)Prevalence Index
d)Bulk density

21) When should the Prevalence Index be calculated?

a) When dominant vegetation (as determined by the 50/20 rule) is determined to be hydrophytic.
b) When non-dominant vegetation (as determined by the 50/20 rule) is determined to be hydrophytic.
c) When hydric soils and wetland hydrology indicators are absent and the wetland determination is made by vegetation alone.
d) When wetland plant communities fail the dominance test, but have indicators of hydric soils and wetland hydrology

98

22) Based on the following vegetation sampling, how many dominant species are present?

Herb Strata	Shrub Strata	Tree Strata
Species A – 45%	Species A – 4%	Species A – 10%
Species B – 35%		Species B – 5%
Species C – 30%		
Species D – 30%		

a) 2
b) 6
c) 7
d) 8

23) Which of the following does <u>not</u> qualify for a no-loss?

a) Activity that will not impact the wetland.
b) Excavation limited to sediment removal in wetlands that are utilized as a stormwater basin.
c) Excavation in wetlands that removes sediment which alters the original cross section of the wetland.
d) Seasonal water level management activities.

99

24. A primary function-based goal of a wetland restoration project should include:

a) Build structures to impound water to create ponding.

b) Reestablish a plant community that will thrive no matter the conditions.

c) Create open water habitat.

d) Restore the site to the natural hydrology.

25. When using the "Guidance for Offsite Hydrology", Area A shows what wetland signature?

a) Altered Pattern (AP)

b) Upland (UP)

c) Normal vegetative cover (NSS)

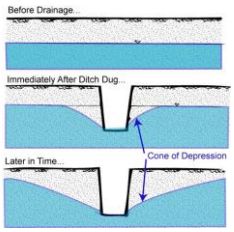
d) Drowned out (DO)

100

26) Describe the concept of lateral effect and the factors that influence lateral effect:

The distance on each side of a tile or ditch in its longitudinal direction where the ditch or tile has an influence on the hydrology. Measured perpendicular from midpoint of tile line or toe of ditch bank.

Depth, soil properties, grade, impermeable layer.



101

27) How reliable are each of the 3-indicators in relation to time?

Soils: Long term may not reflect current conditions

Veg: Medium Term, more reflective of current conditions, and susceptible to seasonal variation

Hydrology: Shortest Term reflective of snapshot conditions

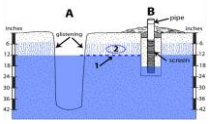
28) In the monitoring device "B", at what depth will the water level eventually equilibrate?

a) At the soil surface.

b) 6 inches below the soil surface.

c) 12 inches below the soil surface.

d) 18 inches below the soil surface.



102

MWPCP Exam Instructions

- Show State-issued ID
- Fill out name and date
- Circle the **one** best answer
- 2 hours to complete
- No cells phones allowed on desk
- Use calculators provided
- Return test and all materials
- Results in ~4 weeks

103