MPDM Chapter 3
Engineering and Environmental Considerations

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Chapter 3 Subcommittee Members

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- Duane Hansel, Bolton & Menk
- Kris Sigford, MCEA
- Les Everett, University of MN
- Nathan Kestner, DNR
- Nick Gervino, MPCA
- Rebecca Kluckhohn, Wenck
- Rob Sip, MDA
- Ron Mortenson, Meeker County
- Scott Henderson, Sauk River Watershed District
Primary Purposes of Chapter 3

• Guidance to Engineers in completing their duties
• Guidance to regulators on what should be in an Engineer’s Report
• Inform stakeholders (D.A., regulators, viewers, landowners, etc.) of the Engineer’s role and basis for their recommendation
• Guidance to Drainage Authority on what to expect and request from their Engineer
What has changed since 1991?
What has changed since 1991?

STATUTES

REGULATION

COMMUNICATION

TECHNOLOGY

PRIORITIES
Major Changes to MPDM Chapter 3

• Environmental Considerations
  • 103E.015 considerations
  • Potentially applicable regulatory requirements
  • Water Quality / TMDL

• Repair Reports / As Constructed and Subsequently Improved Condition (ACSIC)

• Resources
  • Links
  • Checklists
  • Sample Reports
Points of Emphasis in Update

• Reflect changes in law
• Consistent language
  • “May” or “should” vs. “must” or “shall”
• Consistent with current engineering practice
• Guidance, not rule!
### CHAPTER 3 CHANGES

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Introduction

Roles and Responsibilities of the Engineer

- Technical expertise

- Technical application of drainage law;
- Surveying;
- Hydrology and hydraulics;
- Culvert, roadway, and structural design;
- Construction plan development;
- Construction management and observation;
- Erosion and sediment control design;
- Wetland delineation;
- Water quality analysis;
- Communication/liaison between drainage authority and other decision-makers and/or reviewers;
- Environmental review and permitting; and
- Soil and water conservation.

.....and many others
Introduction
Roles and Responsibilities of the Engineer
• Understanding of drainage law
• Understanding and addressing applicable regulatory requirements
• Evaluating nine 103E.015 considerations
• Key technical advisor for the drainage authority
Introduction

103E.015 Considerations

• Scope of the Engineer’s evaluation of these nine criteria can substantially affect the cost of the Engineer’s Report(s)

• Inadequate scope can lead to:
  • DNR and/or BWSR recommending report to be amended
  • Drainage Authority requesting an amendment
  • Challenges to a Drainage Authority decision

**Bottom line:** Drainage Authority and the Engineer need early coordination on the scope of the evaluation necessary for the project
Specific Environmental Considerations
Specific Environmental Considerations

General

• Roles of Engineer and Regulatory Reviewer
• Pertinent regulations (table)
• Overviews about pertinent regulations w/links
• Contact info (link)
• Early Coordination

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Specific Environmental Considerations

Wetlands

- Wetland Conservation Act (WCA)
- Clean Water Act (CWA)
- Swampbuster
- Evaluating, Avoiding, or Mitigating Wetland Impacts
- Downgradient Wetland Effects
Specific Environmental Considerations
Public Waters

• Work in public waters
• Links to DNR site
• Checklist
Specific Environmental Considerations

Other

• Environmental Review
• Threatened and Endangered Species
• Water Quality
  • NPDES
  • State Standards and Goals
Subcommittee Topics
Cumulative Impacts

Issue: Can/should the Engineer consider cumulative hydrology/hydraulic/water quality impacts?

Consensus: In role as advisor to Drainage Authority (and advocate for benefitting landowners) – No.

However, 103E.015 considerations apply for “drainage projects” and County or Watershed District may “wear other hats”
“HATS” A COUNTY OR WATERSHED DISTRICT BOARD WEARS

- ZONING AUTHORITY
- TAXING AUTHORITY
- LOCAL GOV. UNIT (LGU)
- LOCAL WATER PLANNER
- ROAD AUTHORITY
- RESPONSIBLE GOV. UNIT (RGU)
- DRAINAGE AUTHORITY
How a Drainage Authority May Consider Cumulative Impacts (under a different hat)

- Water planning implementation plans
- Rules (e.g., maximum drainage coefficient, culvert sizing)
- Cost share programs
- Regional projects
- Multi-purpose drainage management projects
Preliminary Survey and Engineer’s Preliminary Report
Preliminary Survey and Engineer’s Preliminary Report
Considerations

• Be clear on scope!
• Consider alternatives as appropriate
• Watch for cost vs. petitioner’s bond
• Advisory report(s)
Detailed Survey and Engineer’s Final Report

• Address advisory reports
• Address requested changes from preliminary hearing
• Add detail necessary for staking and construction
Adequacy of Outlet
Adequacy of Outlet
Basic Requirements

• No loss of function to downstream drainage outlets
• No excessive scour/deposition of sediment
• No flood damages, *unless compensation is made*

Note: These are more or less unchanged from 1991
Subcommittee Topics
Adequacy of Outlet

Issue: How far downstream does the Engineer need to consider downstream for adequacy? ¼ mile? 1 mile? 10 miles?

Consensus: No one-size-fits-all solution. Engineer needs to use judgement.
New Drainage Systems, Improvements, Laterals, and Other Modifications of Drainage System

- Engineering requirements
- Example reports (Appendix)
- Buffer strip requirements
Repair/Maintenance of Drainage System

• Defining “repair”.....major vs minor vs petitioned vs maintenance

• Content in a repair report

• Contracting and levying for a repair

• Determining As-Constructed and Subsequently Improved Condition (ACSIC)
Repair/Maintenance of Drainage Systems
Determination of the As-Built Condition

• For Repairs and/or Reestablishement of Drainage System Records
• Test pits
• Soil Borings
• Culvert Comparison
• Cut Sheets
• Drainage Records Modernization
Questions?