Minnesota Drainage Water Management (DWM) Plan Template

The data, maps, and specific information on the following pages are included as an example of what is the minimum content for a Drainage Water Management (DWM) Plan, also referred to as a CAP 130 (Conservation Activity Plan 130). Maps have been reduced in size for the example. Actual maps are likely to be a larger size and, in some cases, must be larger. It is the responsibility of the Technical Service Provider to include all the necessary information on the DWM Plan and annual management of the system regardless of the template format used.

Sincere thanks are expressed to Dr. Gary Sands, University of Minnesota, and Michael Lehmann, Air-Row Surveying, LLC, Mankato, MN for sharing their expertise to develop this example.

Prepared: December 21, 2012

Drainage Water Management Plan – Minnesota

Site Location and General Information

Cooperator Name	I.M. Green
County and Township	Green County, Big Township
Latitude and Longitude	45.00700, -95.00700
Farm Number	123456789
Tract Number	1111
Crops in Rotation	Sugar beets, small grain
Contractor Name developing plan	G. G. Purple
Date of Plan Development	10/15/2012

Drainage Water Management Plan boundary

The total project drained area is the same as the boundary line shown in the soils map below.

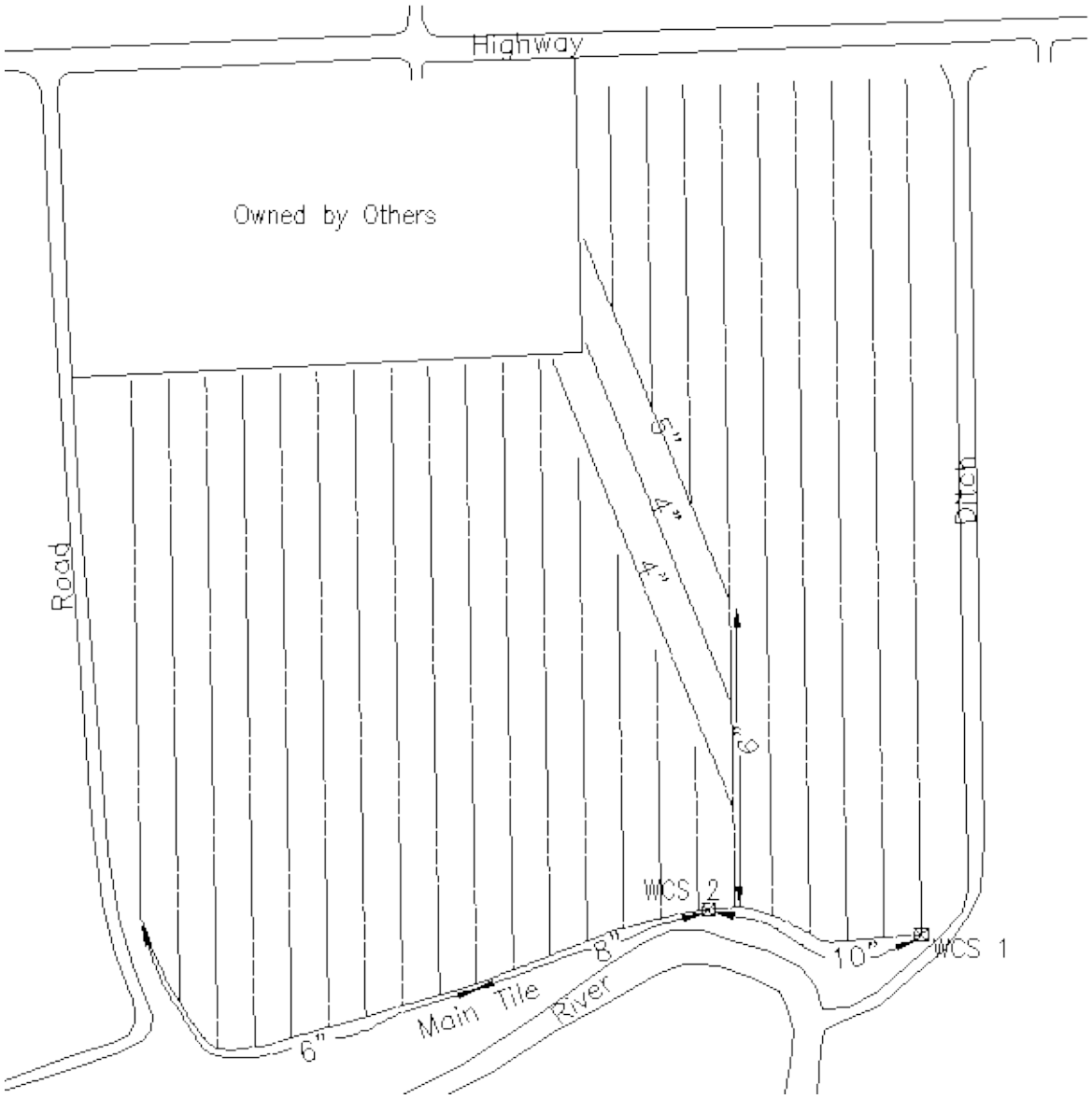
Objectives

- □ Improve water quality by reducing nitrate loading to surface waters.
- □ Improve the soil environment for vegetative growth.
- □ Reduce the rate of soil organic matter oxidation.
- □ Reduce wind and water erosion.
- □ Enable seasonal soil saturation and/or shallow flooding.
- □ Reduce drainage contribution to peak flows.

Soils Map

Map Unit Symbol	Soil Name
50	Cashel silty clay
56	Fargo silty clay loam
157C	Wapheton silty clay, 6-12 percent slopes
1006	Fluvaquents-Haploborolls complex
1871	Fargo silty clay, swales
1872	Fargo silty clay, 0-2 percent slopes, silty substratum

Proposed Tile Map



3.5’ Depth 70’ Spacing Grade of Main = 0.1%

Proposed Drainage System Installation

Component	Amount	Item
4 inch	29,150 ft	Corrugated Plastic Tubing
5 inch	735 ft	Corrugated Plastic Tubing
6 inch	1,380 ft	Corrugated Plastic Tubing
8 inch	460 ft	Corrugated Plastic Tubing
10 inch	415 ft	Corrugated Plastic Tubing
Total	32,140 ft	

All corrugated plastic tubing is 4 inches in diameter except as noted.

Topographic Map

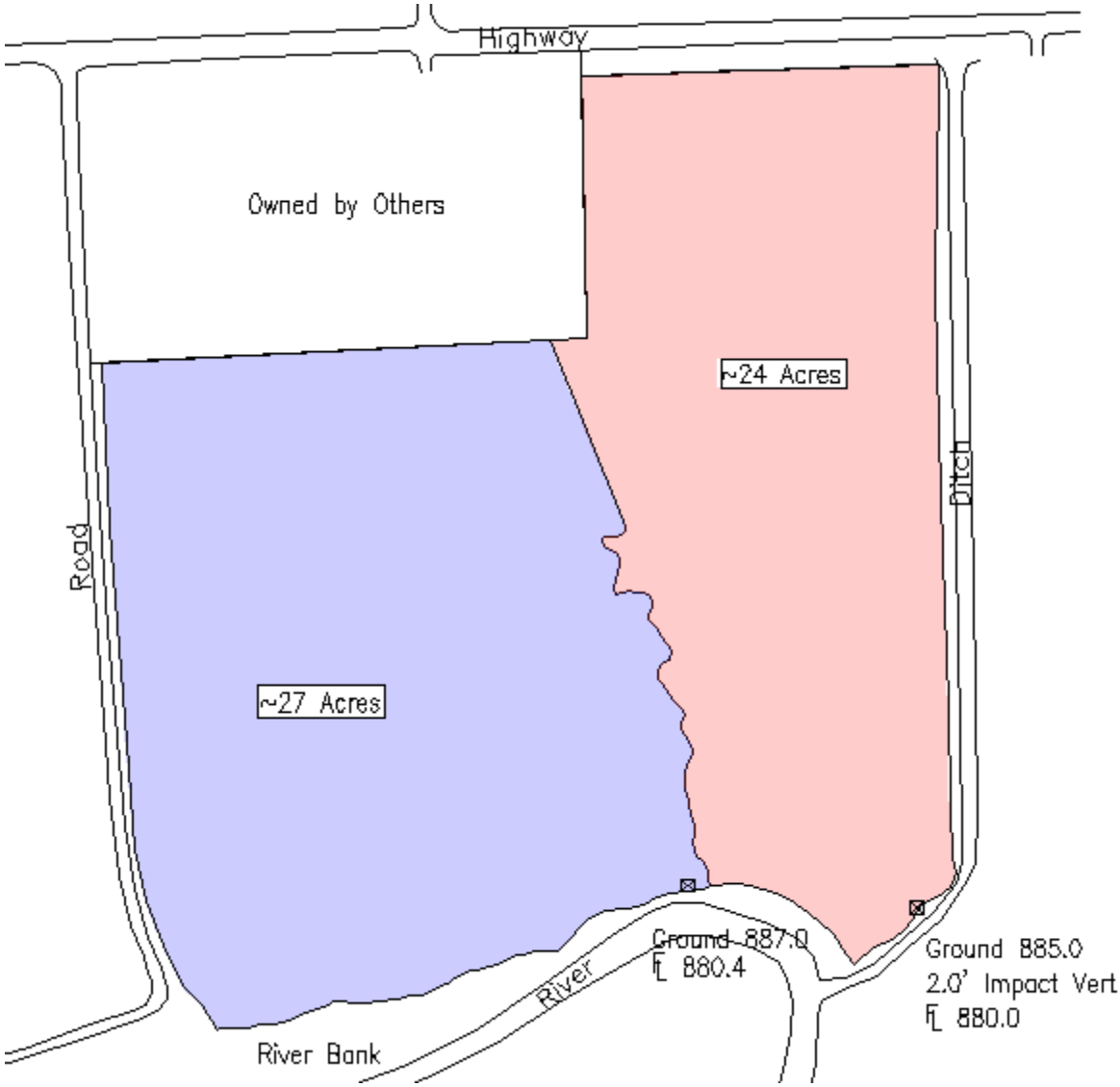
Existing Tile

The site has no existing tile.

Wetland Map

The site has no wetlands for USDA Program purposes.

Impacted Areas



Water Control Structure 1 (WCS1)

Location of Control Structure (Latitude, Longitude)	45.00700, -95.00700
Ground Elevation at Control Structure	885.0
Area of impact	24 acres
Flow Elevation of structure	880.0
Location of Outlet (Lat/Long)	45.001111, -95.00711

Water Control Structure 2 (WCS2)

Location of Control Structure (Latitude, Longitude)	45.003333, -95.003333
Ground Elevation at Control Structure	887.0 feet
Area of impact	27 acres
Flow Elevation at structure	880.4
Location of Outlet (Lat/Long)	45.001111, -95.00711

Water Table Management Plan – Control Structure 1

Winter Management

Harvest Date	September 15
Starting Date for Fallow Season Water Control	September 15 or when harvest complete
Fallow Season Control Elevation[1]	884.5
Spring Water Release Date	April 10
Planting Date or Range	May 1-15

Growing Season Management[2]

Date	**Control Elevation**
May 1 or as soon as planting is done	883.0
Summer	Remove stoplogs if large rain event occurs or add stoplogs if drought
September 1	882.0 or lower for dry soil for harvest; allow 2-3 weeks
September 30 or when harvest done	884.5

Water Table Management Plan – Control Structure 2

Winter Management

Harvest Date	September 15
Starting Date for Fallow Season Water Control	September 15 or when harvest complete
Fallow Season Control Elevation[1]	886.5
Spring Water Release Date	April 10
Planting Date or Range	May 1-15

Growing Season Management[2]

Date	**Control Elevation**
May 1 or as soon as planting is done	885.0
Summer	Remove stoplogs if large rain event occurs or add stoplogs if drought
September 1	883.0 or lower for dry soil for harvest; allow 2-3 weeks
September 30 or when harvest done	886.5

Footnotes for all zones:

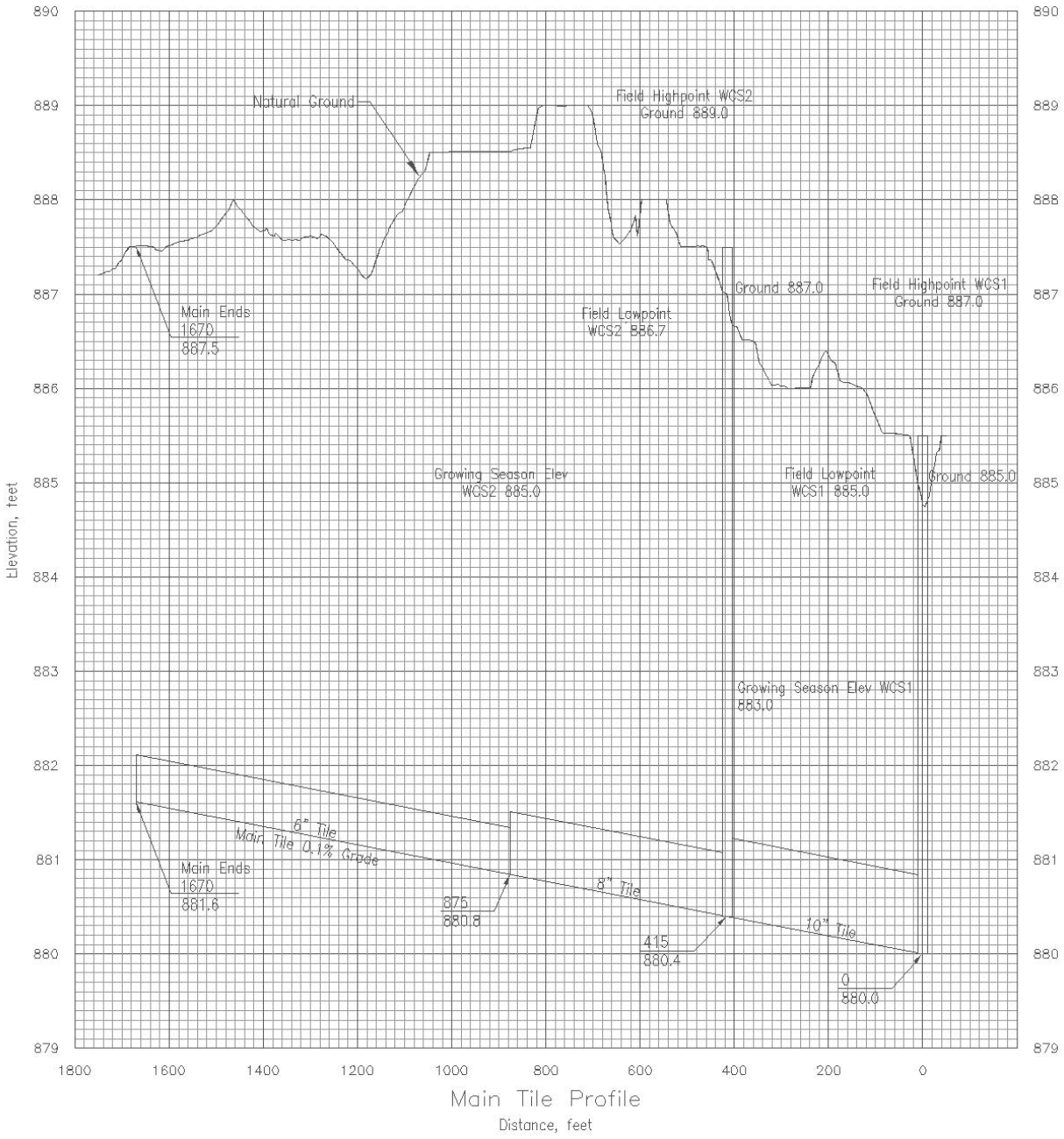
1. During the fallow period, the control structure should be operated to allow the water table to rise to the soil surface or to a designated maximum control elevation (6 inches below the soil surface at the control structure or to the lowest elevation in the drained field.)
2. For some guidelines for control of drainage and the management of the water table during the growing season, review MN NRCS practice standard 554 and brochure WQ-44.

Summary of control systems

System	Pipe Diameter at Structure Inlet	Impacted Area	Ground Elevation	Depth to Tile	Location, GPS (Lat, Long)
1	10”	24 acres	885.0	5.0 ft	45.00700, -95.00700
2	8”	27 acres	887.0	6.6 ft	45.003333, -95.003333

Overlay Map

Main Tile
Profile



Signature Page

This plan meets MN NRCS Conservation Practice Standard 554 Drainage Water Management.

Signature(s) of Contract Holder(s):

_____ _____

Contract Holder Signature Date

_____ _____

Contract Holder Signature Date

_____ _____

Contract Holder Signature Date

_____ _____

Contract Holder Signature Date

This plan meets MN NRCS Conservation Practice Standard 554 Drainage Water Management.

Signature of Preparer of Drainage Water Management Plan (DWMP):

_____ _____

Plan Preparer Signature Date

The checklist is complete. Signature of NRCS:

_____ _____

NRCS Signature Date

Check List for District Conservationist

The DWM Plan includes the following components[1]:

- ❑ Farm and field information is provided.
- ❑ Objectives have been provided.
- ❑ MN Practice Standard 554 has been provided to the landowner.
- ❑ A soil map with field boundaries is included in the plan.
- ❑ A tile map is provided in the plan.
- ❑ A map of wetlands in the field (if applicable) is included in the plan.
- ❑ Optional but highly recommended: Profile(s) of the main(s) for the tile system that have control structures on them, showing structure(s) with the water level at growing season elevation, high point and low point in the field drained by the drainage system, main tile grade.
- ❑ A topographic map of the field (on 0.5' contours) is included.
- ❑ An overlay map with field boundaries, drain location(s) and topographic contours, with a determination (location and area) of the impacted area(s) is provided.
- ❑ A water table management plan is included, detailing when the stoplogs will be adjusted and by how much.
- ❑ A summary sheet that lists the pipe diameter of each proposed control structure, control elevations, the area impacted by each structure, exact location of the structure using GPS, and the depth to tile is provided as part of this plan.
- ❑ Each of the above components has been reviewed with the landowner and the landowner understands the plan.

[1] The District Conservationist will check off each item on this list before authorization of payment.