

MINNESOTA DRAINAGE WATER MANAGEMENT PLAN CRITERIA PRACTICE/ACTIVITY CODE (130) (NO.)

1. Definition of a Drainage Water Management Plan

The objective of Drainage Water Management (DWM) is to control soil water table elevations and the timing of water discharges from subsurface or surface agricultural drainage systems for one or more of the following purposes:

- Reduce nutrient, pathogen, and/or pesticide loading from drainage systems into downstream receiving waters
- Improve productivity, health, and vigor of plants
- Reduce oxidation of organic matter in soils
- Reduce wind erosion or particulate matter (dust) emissions
- Provide seasonal wildlife habitat
- Peak discharge modification

The objective of a Drainage Water Management Plan (DWMP) is to provide the producer a framework for the implementation of DWM on cropland. The desirability and potential benefits of a DWM system can be effectively determined by interviewing the producer, identifying field boundaries and soil types, obtaining a system drainage map, developing a topographic map, and then combining these components to produce a DWMP for the field or farm.

2. DWMP Criteria

This section establishes the minimum criteria to be addressed in the development of Drainage Water Management Plans.

A. General Criteria:

1. The Environmental Quality Incentive Program (EQIP) program provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of Drainage Water Management Plans. The list of specific TSP credentials required for DWMP development is located on the TSP registry (TechReg) web site at: <http://techreg.usda.gov/>

B. DWMP Technical Criteria. The DWMP should include, but not be limited to, the following components:

1. Farm and field information:
 - a. Name of producer.
 - b. Farm number.
 - c. Field and/or Tract number.
 - d. Crops grown and planned rotation by field.
 - e. Name of contractor or consultant developing plan
 - f. Date of plan development

Minnesota, October 2012

2. The objectives of the producer, which should involve one or more of the purposes listed in Section 1 above (Definition of a Drainage Water Management Plan), along with a copy of the MN Conservation Practice Standard 554, Drainage Water Management.
3. A map that includes field boundaries, and a soils map with the predominant soils listed. If the qualifying acres for the plan are a subset of field(s), the boundaries of the DWMP acreage should also be delineated.
4. A Drainage System Map that includes the materials, diameters or dimensions, and locations of the laterals and mains.
5. A wetland delineation map, if applicable.
6. A Topographic Map on a maximum scale of 1:2,400 that shows elevation contours on a 6-inch increment (drainage system map and topographic map need to be the same scale). The topographic map should include, at a minimum, all of the drained area as defined above.
7. An overlay of the above maps (e.g., field boundaries, drain locations, contour map) with the location, size, and impacted area identified for each planned control structure. The minimum impacted area for each structure must be 10 acres. Exceptions may be granted by the Minnesota State Conservation Engineer.
 - If the control structures are set on a 2-foot elevation interval, the impacted area is defined as the drained area (from item 5) contained within the 2-foot contour above the control elevation.
 - If the control structures are set at an elevation interval less than 2 feet, then the impacted area is the drained area contained within the control elevation interval at which the control structures are set.
 - If the control structures are set at an elevation interval greater than 2 feet, then the impacted area is the drained area contained within the 2-foot contour above the control elevation.
 - If buried float-activated structures are used, the design must consider the maximum interval for which the structure is effective and not exceed that interval between structures.
 - Generally a stoplog structure at the edge of a field can control a larger interval of elevation than the buried float structures. However, the buried float structures can be farmed over.
8. A profile is highly recommended but optional for each of the main tile lines which has at least one control structure on it, whether stoplog or buried float. Each profile is to show the structures with the recommended water level elevation for the growing season, high point and low point in the field drained by the drainage system, main tile grade.
9. The management instructions should follow the Operation and Maintenance section of Conservation Practice Standard (CPS) 554 Drainage Water Management (DWM), which states that to reduce soil oxidation and to minimize wind erosion and nitrate transport, the outlet elevation at the water control structure shall be set to allow the water table to rise to within 6 inches or less of the ground surface at the designated control elevation during fallow periods and when practical. The DWMP also must include the following instructions:

Minnesota, October 2012

- a. The time after harvest to replace boards and the designated outlet elevation during the winter months (or fallow season),
 - b. The time in the spring to release water (this will vary depending on the crop: e.g. March for corn and April for soybeans), and
 - c. Guidelines for the control of drainage and the management of the water table during the growing season (see CPS 554), and
 - d. Evaluation of the DWMP's effect on wetlands if applicable, and compliance with the National Food Security Act.
11. A summary sheet that lists the pipe diameter or dimensions of each water control structure, control elevations, exact location of the structure preferably in GPS coordinates, and the area impacted by each structure.
 12. A signature page, with names, dates and signatures of all contract holders and the person who prepared the plan. The signature page will also contain a space for the NRCS District Conservationist to indicate that the checklist has been completed.
 13. A checklist for NRCS District Conservationist, covering each component of the DWMP, should also be included.
 14. The DWMP should be packaged as one plan. An example of a DWMP is available on the Minnesota NRCS web site
http://www.mn.nrcs.usda.gov/technical/eng/Drainage_water.html

C. Associated Practice Standards. The DWMP should address the resource concerns identified, and the conservation practices needed to comprise a conservation system for DWM. In addition to the water control structures as described in CPS 554, Drainage Water Management, existing drainage systems may require augmentation, modification, or replacement of existing components. NRCS Conservation Practice Standards to be incorporated in a DWMP could include:

- Drainage Water Management (554)
- Subsurface Drain (606)
- Surface Drain, Field Ditch (607)
- Surface Drainage, Main or Lateral (608)
- Denitrifying Bioreactor (747)
- Structure for Water Control (587)
- Wetland Creation (658)
- Wetland Enhancement (659)
- Wetland Restoration (657)
- Nutrient Management (590)
- Waste Utilization (633)
- Shallow Water Development and Management (646)
- Vegetated Subsurface Drain Outlet (739)
- Wildlife Habitat Management (644)

D. References:

USDA-NRCS, National Engineering Handbook, Part 624, Section 16, Drainage.

USDA-NRCS, National Engineering Handbook, Part 650, Engineering Field Handbook, Chapter 14, Water Management (Drainage).

3. Deliverables for the Client and the NRCS Field Office:

Cover page – name, address, and phone numbers of producer and TSP

Complete Hardcopy and Electronic copy of the client's plan (Microsoft Word file or .pdf file).

Last revised: October 15, 2012

Minnesota, October 2012

Conservation system plans are reviewed periodically and updated if needed. To obtain the current version of this system plan, contact your Natural Resources Conservation Service [State Office](#) or visit the [electronic Field Office Technical Guide](#).