

NORTH DAKOTA STATEMENT OF WORK**Drainage Water Management (554)****Issued: July 2012****Contact: State Conservation Engineer at 701-530-2091**

These deliverables apply to this individual practice. For other planned practice deliverables refer to those specific Statements of Work.

DESIGN

Deliverables:

1. Design documentation that will demonstrate that the criteria in NRCS practice standard have been met and are compatible with other planned and applied practices.
 - a. Practice purpose(s) as identified in the conservation plan
 - b. List of required permits to be obtained by the client
 - c. Compliance with NRCS national and state utility safety policy (NEM Part 503-Safety, Subpart A - Engineering Activities Affecting Utilities 503.00 through 503.06)
 - d. List of facilitating/component practices
 - e. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
 - i. Geology and Soil Mechanics (NEM Subpart 531a)
 - ii. Hydrology/Hydraulics
 - iii. Structural
 - iv. Vegetation
 - v. Environmental Considerations
 - vi. Safety Considerations (NEM Part 503-Safety, Subpart A, 503.10 through 503.12)
2. Written plans and specifications including sketches and drawings shall be provided to the client that adequately describes the requirements to install the practice and obtain necessary permits. Drainage Water Management (DWM) plans shall include, but are not limited to:
 - a. A tile map that includes tile sizes, materials, depth, and locations of all tile in or influencing the DWM work area. This map shall also show the flowline elevation of all tile lines leaving the DWM work area.
 - b. A field map that includes field boundaries and soils, with the predominant soils listed. If the area drained by the tile influencing the DWM work area (*drained area*) is a subset of the field(s) in the map, the boundaries of the DWM plan acreage shall also be delineated on the map.

“Drained area” is defined by the lateral spacing recommendations specified in the *Illinois Drainage Guide* based on predominant soil type. The outer boundary of the drained area shall be a distance of ½ the recommended lateral spacing away from the tile line(s).
 - c. A topographic map developed with a maximum grid of 120 ft, with contour lines plotted on a 6 inch interval. The map shall contain at a minimum the *drained area* as defined above.
 - d. A map showing the location of each planned or existing water control structure and the *impacted area* of each water control structure. The map shall also include the information in the maps listed above (contours, field boundaries, and tile.)
 - *“Impacted area”* of a structure is defined as the drained area contained within the control elevation of the given structure, up to the control elevation of the structure immediately above the given structure, on the same tile line (or 2 feet above the control elevation for the given structure, whichever is less.)
 - *“Control elevation”* is defined as the elevation of the soil surface at the lowest spot in the area of the field impacted by the operation of the structure for water control.
3. Operation and Maintenance Plan (National Operation and Maintenance Manual 500.70 and 500.40 through 500.42)
4. Certification that the design meets practice standard criteria and comply with applicable laws and regulations (NEM Subpart A, 505.03 (a) (3)).
5. Design modifications during installation as required.

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REFERENCES

- NRCS Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard - Drainage Water Management, 554
- NRCS National Engineering Handbook, Part 624, Section 16, Drainage
- NRCS National Engineering Handbook, Part 650, Chapter 14, Water Management (Drainage)
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook