

## **NEBRASKA PRACTICE DOCUMENTATION REQUIREMENTS**

### **WATER AND SEDIMENT CONTROL BASIN (638) SEDIMENT BASIN (350)**

#### **I. GENERAL**

Minimum documentation requirements for this practice are outlined below. Documentation for associated practices or system components shall follow the appropriate practice documentation requirements. Additional documentation requirements can be found in the General Documentation Requirements section of the Nebraska Practice Documentation Requirements Manual.

##### **A. References**

1. National Engineering Manual (NEM)
2. Nebraska Field Office Technical Guide (FOTG)
3. National Engineering Handbook (NEH), Part 650, Chapters 2, 3, and 8
4. Conservation plan for the unit
5. Computer software: EFH-2, Nebraska Terrace and Diversion Program, OHIO Engineering programs (including WASCB program), TR-55
6. Local supplemental criteria

#### **II. RESOURCE INVENTORY AND SURVEYS**

##### **A. Design Investigations**

1. Soils map
2. Aerial photo
3. Purpose of the structure
4. Location of underground utilities (consider erosion, sedimentation, and drainage laws)
5. Topographic map of area as needed

##### **B. Design Surveys: The design surveys can be combined with the layout surveys, dependent on the judgment and experience of the responsible designer.**

1. Sketch of basin location, showing basin number, direction of flow, etc.
2. On systems where a topographic map is not considered necessary for design, the design survey is usually combined with the layout surveys and recorded on loose leaf survey notes, or summarized on the NE-ENG-19 or computer printouts. All supplementary design information (surveys, etc.), should be on field notes, CADD files, or worksheets.
3. Cross-sections for the computation of earthwork quantities and design of basins when using the WASCB OHIO program.
4. Benchmarks elevations, descriptions, and locations.
5. Embankment, grade, and land slope changes.
6. Initials and dates of person(s) staking the system, reducing and checking of survey notes.

7. Field survey notes will conform to NEM Part 540 and follow standard field note documentation as illustrated in Technical Release 62 (TR-62) and/or Nebraska Standard Format for Engineering Notes Transmittal Sheets No. 3. Survey notes will be prepared such that they exhibit legible, logical, clear and concise data.
- C. Environmental Inventory
1. NEPA inventory of resources -- form NE-CPA-52 must be completed by NRCS during planning
  2. Wetland effects, if applicable
  3. Archeological/Historical/Cultural Resources
    - a. Complete all continuing environmental requirements stemming from planning as expressed in the General Documentation Requirements section of the Nebraska Practice Documentation Requirements Manual.

### **III. DESIGN**

- A. Design Data
1. Sketch of basin system layout.
  2. Planned basin dimensions, grades, channel widths, and lengths.
  3. Hydrologic data to include: drainage area, RCN, watershed slope, sediment delivery/storage required,  $Q_{10}$  rainfall.
  4. Initials/signatures and dates by the person(s) responsible for the design, approval, and checking of the design.
- B. Permits
1. 404 Permit -- document if individual permit obtained, nationwide permit applies, or if practice is exempt.
  2. County road ditch discharge permits.

### **IV. PLANS AND SPECIFICATIONS**

- A. Plans
1. Use NE-ENG-19, computer printouts for construction layout and checkout, or appropriate "D" or "B" sized sheets. Complement these drawings with notes to facilitate layout and construction of the practice.
  2. Plan view of the system should include numbering of each basin, stationing reference, and significant cultural features that would impact construction. Include map orientation. Plan views can be shown on a USGS Quadrangle map, aerial photo, or a sketch showing the above items.
  3. Location map with legal description.
  4. Benchmarks with elevation, description, and location.
  5. Typical cross-section.
  6. Channel grades and elevations for design channel and ridge for each station or channel reach.
  7. Basin dimensions such as channel widths, cutslopes, stationing, embankment slopes, and locations of risers and outlets.

8. Construction notes -- add notes to clarify a component and furnish directions for installations to supplement standard specifications as needed.
  - a. Construction plans shall include a statement requiring the contractor to notify the Nebraska One-Call System (Diggers Hotline) regarding utilities on the construction site. See the General Documentation Requirements section of the Nebraska Practice Documentation Requirements Manual for the recommended statement.
  - b. Add notes as necessary to identify avoidance and, if needed, protection areas and boundaries associated with cultural resources, threatened or endangered species, or other resources needing temporary protection during installation.
9. Table of quantities.
10. NRCS Engineering Job Class from NE-ENG-14.

**B. Specifications**

1. Nebraska FOTG Conservation Practice specifications, component specifications from NEH Part 650, Engineering Field Handbook Appendix 1, or equivalent, modified as needed. Additional specifications may be written to provide full material and installation instructions.

**C. O&M Plans**

1. As specified in Water and Sediment Control Basin (638) and Sediment Basin (650) Standards in Nebraska FOTG

**D. Plans, Specifications, O&M Plans Delivery**

1. Case folder
2. Transmittal letter copy

## **V. LAYOUT**

**A. Layout Surveys**

1. Use field notebook, forms (NE-ENG-19), computer printouts, etc.
2. Channel flags or stakes at consistent intervals.
3. Location of the riser for the underground outlet.

**B. Quantity Computations**

1. Final quantities are based on staked lines and grades or approved changes.
2. Basins designed with the Nebraska Terrace program with double base widths will have earthwork computations determined by the double end area method.

## **VI. COMPLIANCE CHECKING**

**A. Record in field notes, drawing sheets, NE-ENG-19, or on the construction checkout sheet of the computer printout.**

1. Profile and cross-section notes of channel and ridge for all basins including bottom width of channels, side slopes, berm widths, etc.
2. Cross-sections at the riser.
3. Check for maximum allowable channel grades.
4. Size, slope, and type of underground outlet (UGO) where appropriate.
5. Adequacy or status of seeding for disturbed areas.
6. Installed quantity of work or materials to include earthwork quantities and seeding area.

7. Construction inspection report -- form NE-ENG-49.
  8. Statement of compliance -- statement that construction is completed according to plans and specifications, signed and dated by the person certifying completion.
- B. "As Built" Plans
1. Refer to NEM, 512.51 and 512.52
  2. "As Built" plans are a record of constructed facilities. "As Built" plans are required when a significant change in design occurs during construction or when the job is designated Class V or higher. Changes are superimposed in a different color (usually red), or differentiated in some other manner (such as a drawing a box around the as-built value) on the official file copy and show:
    - a. Significant<sup>1</sup> design changes.
    - b. Significant<sup>1</sup> changes in linear measurement.
    - c. Final quantities -- may be based on layout stake notes, if no changes were approved and work meets planned lines and grades.
    - d. Identify as "As Built" on plans.

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<sup>1</sup> Determination of "significant" is a matter of judgment by the technician. As a general rule, changes that exceed normal measuring error allowances, normal construction tolerances, and methods of mathematical computation, should be considered as significant.