

NORTH CAROLINA SUPPLEMENT - N-606-1

U.S. DEPARTMENT OF AGRICULTURE
Soil Conservation Service

Technical Guide
Section IV
Rev. April 1991

SUBSURFACE DRAINS ENGINEERING NOTEKEEPING

Design Survey, Design and Plans

- A. A plan-profile drawing will be prepared on all class II and larger jobs. The area conservationist on the recommendation of the area engineer and with the concurrence of the state conservation engineer may eliminate the requirement for plotting a profile for class II jobs for those persons having the capability and experience to make adequate designs without the profiles. When a profile drawing is not required, all supporting information for design will be recorded and signed in the engineering field book, and a construction drawing similar to Figure 14-23, sheet 1 of 2, Engineering Field Manual, would be prepared and furnished to the landowner. Engineering plans will be prepared on standard sheets or state approved forms and will show the following:
1. Location plan showing soil type and spacing of all lines.
 2. Profile of tile main when required showing grade and elevation of points where grade changes.
 3. Profile of any lateral when required if there is any deviation from the standard specifications; otherwise, give the minimum grade of the laterals.
 4. Length, size, type, minimum grade and depth of all lines.
 5. Length, size, and type of outlet pipe.
 6. Outlet requirements:
 - a. Size and depth of outlet channel.
 - b. Improvements needed if outlet channel is not adequate.
 - c. Vertical distance between invert of outlet pipe and normal water in outlet channel.
 - d. Diversion of surface water.
 7. Specifications for filters or covers where applicable.

Construction Check

The following information shall be recorded as supporting data when the job is completed.

1. Location map with sketch of lines installed.
2. Name of drain manufacturer.
3. Length, kind of material, and size of each drain line installed.
4. Length, kind of material, and size of outlet pipe.
5. Type of material used for filter or cover when applicable.
6. Vertical distance between invert of outlet pipe and normal water in outlet ditch or stream.
7. Adequacy of surface water control at the outlet.
8. Minimum depth of cover.
9. Type of animal guard installed on outlet pipe.
10. Sufficient grade checks or a certification statement signed by the contractor, stating that all lines were installed in accordance with grades shown on the plans.
11. Date and sign construction check notes.

The need for complete grade checks and the number of lines to check will vary depending upon the size and complexity of the system, the design grades, the type of equipment used, and the experience and skill of the contractor. A certification statement signed by a qualified contractor is acceptable as supporting data in place of recorded grade checks when accompanied by the information and measurements listed above to certify that the job was installed as designed and that all standards and specifications were met. Each year a complete construction and grade check shall be made, recorded, and filed on 5% of the jobs installed by each contractor making his own certification. Should any grade check show a deficiency, additional checks will be made of other jobs completed by the contractor to assure that satisfactory work is being done. All deficiencies must be corrected or other appropriate action taken.

Recording Data

Field survey and construction check data will be recorded in a standard engineering field book in accordance with Technical Release No. 62. Cross references to appropriate engineering field books will be made on drawings and plans. Recorded data and certifications provided by qualified contractors need not necessarily follow the format used by SCS, but must be legible and understandable. NC-ENG-7 may be used by contractors for recording supporting data and making a certification.