
Topsoil Replacement

Design Manual
Chapter 10
Roadside Development
and Erosion Control

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This section provides guidelines for topsoil replacement and serves as a supplement to Sections [314.12](#) and [314.12A](#) of the Code of Iowa as well as [Iowa DNR NPDES General Permit No. 2](#).

Topsoil Replacement Policy

To help the Department establish vegetation and reduce erosion, a minimum of 4 inches of topsoil should be placed in all areas not to be covered by concrete, asphalt or gravel. Exempt areas are discussed later in the section. To help fulfill this goal, the Office of Design has established the following guidelines:

- **Preferable:** If sufficient topsoil can be generated from the project, cover all disturbed areas of the final template, other than pavement and shoulders, with 8 inches of topsoil.
- **Acceptable:** When topsoil quantity is limited, place 8 inches on borrows and the specified critical areas described below and 4 inches on all remaining disturbed areas.
- **Minimum:** 4 inches of topsoil is required on all disturbed areas.

Topsoil is a valuable resource, so stripping, salvaging, and spreading topsoil should be considered whenever possible. This will reduce the quantity of topsoil contractors will need to furnish.

Topsoil can be purchased if sufficient quantities cannot be generated from the project (discuss with Soils Design Section, Roadside Development, and the District). This will be more common with urban projects.

A. Borrows

For topsoil replacement in borrows, the top 12 inches of material at the borrow location (prior to construction) should be used to provide for a replacement depth of 8 inches. At pond borrows, topsoil should be replaced down to the design (stabilized) water level in the borrow.

B. Specified Critical Locations

Topsoil placement thicker than the 4 inch minimum required is desirable at the following locations:

1. All sand/gravel cuts and fills including foreslopes, backslopes, ditch bottoms, etc. This will also address "slope dressing" concerns with sand.
2. Exposed shale in backslopes and ditch bottoms.
3. Exposed rock of any kind (including shale) in medians and in foreslopes.
4. Backslopes, foreslopes, ditch bottoms, and internal borrows in very dense, hard clays or similar materials where establishment of vegetation is difficult. The Roadside Development Section may be consulted to assist in identifying these areas.
5. Construction through unique areas such as abandoned coal mines, acidic soil locations, etc.
6. Other specified critical locations identified by the Soils Design Section and/or others.

Topsoil should be placed within the final template as shown on the cross sections.

C. Exempt Areas

Topsoil should not be placed at the following locations:

1. Outside ditch bottoms in rock-cut areas (except shale).
2. Backslopes in rock-cut areas (except shale), whether the backslope cut is a steep “rock-type” backslope or a more “gentle” normal (i.e. 3:1) backslope.

Specific Responsibilities

Office of Right of Way

The Office of Right of Way is responsible for identifying commercial or non-commercial potential of Department furnished borrows during appraisal and informing the Design Sections.

Soils Design Section

The Soils Design Section is responsible for:

1. Marking existing topsoil thicknesses on all cross sections.
2. Identifying the specified critical locations as listed in Section B.
3. Providing shrinkage estimates for topsoil.
4. Providing consultation on priorities for additional topsoiling depth when material is available.
5. Providing consultation on disposal methods (i.e., Type B) for any topsoil materials that remain after all locations discussed in Sections A and B have been topsoiled.
6. Identifying the most optimum additional areas for obtaining topsoil if template cut locations do not provide enough material.

Design Sections

The Design Sections are responsible for:

1. Computing quantities and filling out Tabulation [103-10](#) and/or the T sheets.
2. Specifically separating topsoil replacement quantities (bid items) from Class 10 or other quantities (bid items) to avoid “double payment.”
3. Verifying that enough topsoil is generated to provide replacement in all areas.
4. Identifying general areas available for stockpiling topsoil, when requested.
5. Reviewing right-of-way contracts to ensure that all agreements for topsoil have been addressed.

Considerations Regarding Topsoil Replacement

Designers will encounter one of several situations:

- **Not enough topsoil is available to meet the minimum guidelines for the project.**
For this situation, strip and salvage available topsoil. Remaining topsoil will need to be purchased. Place topsoil according to the minimums as stated in the Topsoil Replacement Policy guidelines above.
- **Enough topsoil is available to meet minimum guidelines, but not enough to meet acceptable guidelines.**
For this situation, strip and salvage available topsoil. Place topsoil according to the minimums as stated in the Topsoil Replacement Policy guidelines above. If excess topsoil remains, place it as directed by Soils Design Section.
- **Enough topsoil is available to meet acceptable guidelines, but not enough to meet preferable guidelines.**
For this situation, strip and salvage available topsoil. Place topsoil according to the Topsoil Replacement Policy acceptable guidelines above. If excess topsoil remains, place it as directed by the Soils Design Section.
- **Enough topsoil is available to meet preferable guidelines.**
Strip and salvage topsoil needed. Place according to the Topsoil Replacement Policy preferred guidelines above. If excess topsoil is available, contact the Soils Design Section for direction regarding use.

Earth shoulders should not be constructed or reconstructed full depth with topsoil unless sufficient quantities are available without the need for the contractor to furnish additional topsoil.

Article [1105.18](#) of the Standard Specifications directs contractors to strip and stockpile topsoil when constructing a haul road. With grade and pave projects, the paver's haul road may contaminate topsoil placed by the grading contractor. In cases such as these, direct the grading contractor to stockpile the topsoil for the haul road area, which will then be placed with the paving project.

Chronology of Changes to Design Manual Section:

010A-001 Topsoil Replacement

8/9/2018	Revised On page 2, changed reference to Tab 103-4 to reference Tab 103-10.
1/7/2016	Revised Removed language stating Iowa DNR NPDES General Permit No. 2 requires a minimum 4 inch topsoil replacement. Revised Topsoil Replacement Policy and Considerations Regarding Topsoil Replacement subsections to reflect this change. Replaced references to voided Standard Notes with reference to Standard Specifications.
5/15/2014	Revised Revised as result of change to contractor furnished borrow. Added considerations regarding topsoil replacement.
9/20/2012	Revised Revised to comply with changes to Iowa DNR NPDES General Permit No. 2 which requires min. 4 inches of topsoil on disturbed areas.
9/1/1995	NEW New material.