

Odd pluses shown for begin and end elevations for connection grades, ramp grades, etc., will preclude the need for flagging in these instances on plan and profile sheets.

Splined (not mathematically computed) grades are to be used only where computed grades are not practical and are to be noted "Spline Grade" with elevations shown, to the nearest five hundredths of a foot (meter) (or more accurately, if available), from beginning to end at 25 feet (10 meter) intervals. Approximate percent of gradient is to be shown on each tangent line and approximate vertical sight distances are to be shown for each crest vertical curve. Approximate design speeds are to be shown in accordance with [IIM LD-117](#). For splined grades, these values are to be clearly marked "approximate".

DESIGN WAIVERS

This Design Waiver Policy is for roadway projects only.

Design Waivers are required when deviations from VDOT's design criteria occur. When design criteria meet or exceed AASHTO minimal design but fall short of VDOT's minimal design, a Design Waiver shall be required. Design Waivers will be applicable to all projects regardless of functional classification and funding and shall be documented and approved in accordance with the Design Waiver Request [Form LD-448](#). Please refer to [IIM-LD-227](#) for specific guidelines on obtaining a design waiver.

DESIGN EXCEPTIONS

When plans are being prepared where, for any reason, one or more locations do not meet the AASHTO minimum design criteria (for example design speed), the location(s) and reason for difference(s) are to be noted on the title sheet. In order to alert everyone concerned, it will be necessary to identify these locations from the earliest stages of plan development. If changes are made during plan development that would alter the situation, then the title sheet must be corrected to reflect the new design. Design exceptions shall have the approval of the State Location and Design Engineer ([Form LD-440](#))* on both State and Federally funded projects. Please refer to [IIM-LD-227](#) for specific guideline on obtaining design exceptions.

The following methods will be used to show these exceptions:

- a. Plans with Functional Classification block:

* Rev. 1/09

EXCEPTIONS TO MAINLINE DESIGN SPEED			
Sta. To Sta.	Design Speed (mph)	Reasons for Exception	Approval Date*
102 + 75 to 104 + 75	50	Crest Vertical Curve	
621 + 00 to 624 + 50	60	Horizontal Alignment	

The data as indicated in the previous example is to be shown directly below the Functional Classification block.

b. Plans Without [Functional Classification block](#):

Exceptions should be noted inside the title sheet border lines immediately following the design speed classification as follows:

V = 70 mph Exceptions: 102 + 75 - 104 + 75 (50 mph) Crest Vertical Curve 621 + 00 - 624 + 00 (60 mph) Horizontal Alignment

SECTION 2D- 9 CROSS SECTIONS AND EARTHWORK QUANTITIES

PLOTTING CROSS SECTIONS

The names and phone numbers, including area code, and District, if applicable, of the following persons are to be shown in the upper left corner: Project Manager: (VDOT), Surveyed By: (L&D Survey Office Manager or Consultant Survey Project Manager), Design Supervised By: (Design Engineer in Responsible Charge) and Designed By:(Designer).

Cross sections are to be developed in the preliminary stage of the Concurrent Engineering Process and are to be updated as the design progresses. The cross sections sheets are to be archived with the plans at each milestone.

Cross sections sheets are to be developed utilizing the criteria set by the AES section.

Cross sections are plotted on a scale of 1" = 10' Imperial (1:100 Metric) and so noted at the top of each sheet. Curb and gutter projects, or other projects requiring greater detail, are plotted on a scale of 1" = 5' Imperial (1:50 Metric). Cross sections are to be cut at the following intervals, Rural - 50' and Urban - 25'.*

Cross section templates are to be plotted in accordance with the appropriate typical section, to the finished grade elevation shown. Care must be taken to correctly plot all superelevated sections, pavement widenings, pavement and shoulder transitions, gore areas, ramps, auxiliary lanes, etc. in accordance with the appropriate geometric, slope and superelevation standards (See Appendix A-1).

Pavement trenching for the proposed template will agree with the pavement design provided by the Material Division.

Unsuitable Material or Undercut Excavation limits are to be shown on the cross sections when provided by the Materials Division. GEOPAK has the capabilities to show the outline of the limits on the cross sections; however the designer will have to manually place hatching to depict the difference between regular excavation and the unsuitable material See Figure 2D-4A.

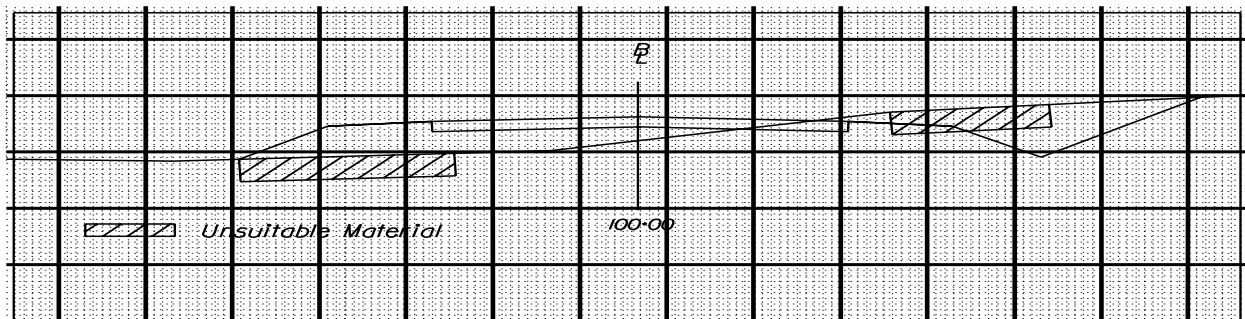


FIGURE 2D-4A

Construction baselines are to be labeled on the first and last sections on each sheet.

* Rev 1/09