

VIRGINIA DEPARTMENT OF TRANSPORTATION

# LOCATION AND DESIGN DIVISION

## INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: GENERAL NOTES	NUMBER: IIM-LD-110.21
SPECIFIC SUBJECT:	DATE: SEPTEMBER 7, 2010
	SUPERSEDES: IIM-LD-110.20
DIVISION ADMINISTRATOR APPROVAL:	Mohammad Mirshahi, P.E. Location and Design Engineer Approved September 7, 2010

Changes are shaded.

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### CURRENT REVISION

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- Incidental Note I-20 has been revised.
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### EFFECTIVE DATE

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- These instructions are effective upon receipt for all projects except where otherwise noted below.
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### GENERAL INSTRUCTIONS

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- It is unlikely that any one project will need all of the available general notes. Designers should use only those notes that are applicable. It may be necessary to modify notes and/or supplement notes with additional information.
  - Notes referring to dated materials, such as Specifications or Standards, should be updated when new or revised Specifications or Standards take effect, as applicable.
  - The General Notes are available as CADD cells.

- The Drainage, Erosion and Sediment Control and Stormwater Management General Notes to be used with each project will be determined by the Hydraulics Engineer/ESC Plan Designer. The Hydraulics Engineer/ESC Plan Designer will also be responsible for completing any of these notes where project specific information is required.
  - Dual Units (Metric and Imperial) are shown for informational purposes.
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## GRADING GENERAL NOTES

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G-1 The grade line denotes top of finished pavement unless shown otherwise on typical sections or plans.

The following applicable notes are for use where settlement is uncertain. (Omit notes G-2 and G-3 if project has both Excavation and Embankment set up as pay items.)

- Applicable when the contract is on plan quantity basis:

G-2 Earthwork quantities on this project are based on anticipated settlement and may require adjusting during construction.

- Applicable when the contract is not on plan quantity basis:

G-3 Earthwork quantities on this project are based on anticipated settlement and may require adjusting during construction. Payment will be made only for quantities actually moved.

Non-significant masonry items (e.g. sidewalk, curb and gutter, paved ditch, small footings, small block or brick items, etc.) may be included in regular excavation and designated by the following note:

G-4 The cost of removal of all existing concrete items located in the area to be graded, including, but not limited to the following, shall be included in the price bid for regular excavation: \_\_\_\_\_

When a project has excavation of unsuitable material shown on the plans for a specified depth and undercut excavation is not set up as a bid item, the following note will be used:

G-5 The excavation of unsuitable material as specified on these plans is based on previously conducted subsurface soil investigation. If, during construction, it is deemed necessary to change the depth more than 1 foot (0.3 m) or the limits of such excavation, such change shall be made at the direction of the Engineer and measurement and payment shall be made in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications.

- G-6 The borrow material for this project shall be a minimum CBR\_\_\_\_\_or as approved by the Materials Engineer.
- G-7 Material from regular excavation which is suitable for stabilization with hydraulic cement (lime) shall be placed in the top portion of the subgrade.
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## DRAINAGE GENERAL NOTES

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- D-1 The horizontal location of all drainage structures shown on these plans is approximate only, with the exception of structures showing specific stations, special design bridges and storm sewer systems.
- D-2 The horizontal location and invert elevations shown for proposed culverts and storm sewer outfall pipes are based on existing survey data and required design criteria. If, during construction, it is found that the horizontal location or invert elevations shown on the plans differ significantly from the horizontal location or elevations of the stream or swale in which the culvert or storm sewer outfall pipe is to be placed, the Engineer shall confer with, and get approval from, the applicable District Drainage Engineer before installing the culvert or storm sewer outfall pipe.
- D-3 The "H" dimensions shown on the plans for drop inlets and junction boxes and the "L.F. (m)" dimensions shown for manholes are for estimating purposes and are based on the proposed invert elevations shown for the structure and the anticipated top (rim) elevation based on existing or proposed finished grade. The actual "H" or "L.F. (m)" dimensions are to be determined by the contractor from field conditions.

The following note is to apply only at specific locations that are designated on the District Administrator's Field Inspection Report. The portion regarding "Excavation For Minor Structures" will apply to single line culvert installations with a diameter or span of 48" (1200 mm) or greater or any multiple line culvert installation with an overall span (out to out) of 48" (1200 mm) or greater.

- D-4 At Station \_(specify station number)\_, the fill shall be placed and allowed to settle and displace all soft materials. Any necessary temporary drainage shall be installed. When directed by the Engineer, that part of the fill where the permanent drainage structure is to reside shall be removed and the structure placed. The cost of installing and removing the temporary drainage facility, the cost of removing the fill above the original ground for installation of permanent drainage structure and the cost of backfill shall be included in the unit price bid for regular excavation. Excavation below the original ground necessary for the installation of the permanent drainage structure will be measured and paid for in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications.

If the cost of constructing fills is to be paid for as "embankment" make the appropriate change in the previous note.

The following note is to be included for all projects that have locations that require, or allow as an option, Structural Plate Steel Pipe or Pipe Arch with a concrete invert:

D-5 At locations where Structural Plate Steel Pipe or Pipe Arch with a concrete invert is required or is allowable as an option to Corrugated Steel Pipe or Pipe Arch, the concrete invert is to be field applied and shall cover, at a minimum, the bottom 25% of the circumference of a circular shape structure or the bottom and corner plates of an arch shape structure. As an option to providing the concrete invert, the plates along the bottom 25% (minimum) of the circumference of the Structural Plate Steel Pipe or the bottom and corner plates (minimum) of the Structural Plate Steel Pipe Arch shall be a minimum of two sheet thickness (gages) heavier than the sheet thickness (gage) indicated in the applicable VDOT Road and Bridge Standard PC-1 for the specified height of cover for the structure. Example: For a pipe with height of cover requiring 0.109" (2.8 mm) sheet thickness (12 gage) plates, the bottom plates shall be 0.168" (3.5 mm) sheet thickness (8 gage). The sheet thickness (gage) of the remainder of the pipe plates shall either conform to those specified in Standard PC-1 for the applicable height of cover or to the heavier plates used in the bottom of the pipe.

The following note is to be included when multiple types of pipes are allowed (Allowable Pipe Type Table is required):

D-6 Pipes shall conform to any of the allowable types shown on sheet number (specify sheet number), within the applicable height of cover limitations. For strength, sheet thickness, or class designation, available sizes, height of cover limitations and other restrictions for a particular pipe type or height of cover, see the VDOT Road and Bridge Standard PC-1. Structural plate pipe may be substituted for corrugated pipe of the same size and a structural plate pipe arch may be substituted for a corrugated pipe arch of the same size, provided the substitution complies with the applicable sections of the VDOT Road and Bridge Standard PC-1.

The following note is to be included when only one type of pipe is allowed (Allowable Pipe Type Table is not required):

D-7 All pipe on this project shall be (specify type). For strength, sheet thickness, or class designation, available sizes, height of cover limitations and other restrictions for a particular pipe type or height of cover, see the applicable sections of the VDOT Road and Bridge Standards PC-1.

The following note should be included when the plans specify concrete pipe be be laid on a radius:

D-8 Where open joint pipe is to be used, no joint shall be opened a distance exceeding 25% of the spigot length. Sealing of the pipe joint shall be in accordance with Section 302 of the applicable VDOT Road and Bridge Specifications.

The following note should be included when the plans specify concrete pipe be be laid on a radius and specify a particular pipe joint length:

D-9 A pipe joint length different from that stated on the plans may be used. An adjustment in the percentage of open joint (not to exceed 25% of the spigot length) or amount of bevel shall be made that will obtain the radius stated on the plans. Extra payment for this adjustment will not be allowed. The proposed adjustment shall be approved by the Engineer prior to installation of the pipe line.

The following note is to be included when riprap is specified:

D-10 The proposed riprap may be omitted by the Engineer if the slope designated for placement of riprap is found to be comprised of solid rock or closely consolidated boulders with soundness, size and weight equal to, or exceeding, the specifications for the proposed riprap.

The following note is to be included when a granular filter blanket is used in lieu of geotextile fabric bedding. This does not apply to the aggregate cushion which is placed over the geotextile fabric in certain cases.

D-11 The proposed granular filter blanket for the proposed riprap may be omitted by the Engineer if the slope on which it is to be placed is found to be comprised of material which is coarser than that specified for the proposed granular filter blanket.

D-12 All existing drainage facilities labeled "To Be Abandoned" shall be left in place, backfilled and plugged in accordance with the VDOT Road and Bridge Standard PP-1. Basis of Payment will be C.Y. (m<sup>3</sup>) of Flowable Backfill.

D-13 Existing drainage facilities being utilized as a part of the drainage system, and designated on the plans "To Be Cleaned Out", shall be cleaned as directed by the Engineer. The cost incidental to this shall be included in the contract price for other items.

D-14 Proposed drop inlets with a height (H) less than the standard minimum shown in the VDOT Road and Bridge Standards shall be considered and paid for as Standard Drop Inlets for the type specified.

D-15 Where the plans specify the installation of standard curb drop inlets adjacent to the City of (specify city) Standard Curb and Gutter, the Standard Drop Inlets (as shown in the VDOT Road and Bridge Standards) shall be modified in accordance with details shown on sheet number (specify sheet number). These drop inlets shall be considered and paid for as Standard Drop Inlets for the type specified.

D-16 When Standard CG-6 or CG-7 is specified on a radius (such as at a street intersection), the Engineer may approve a decrease in the cross slope of the gutter to facilitate proper drainage.

D-17 St'd SL-1 Safety slab locations are based on the assumed use of precast structures. If cast-in-place structures are utilized, and the interior chamber dimensions (length and width, or diameter) are less than 4 feet, the safety slabs shall not be installed.

## PAVEMENT GENERAL NOTES

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- The following note applies to projects without bridge approach slabs.
- P-1 If any settlement occurs in concrete pavement adjacent to bridges prior to acceptance of the project by the Department, the contractor shall restore the pavement to the original grade either by the mud jack method or by replacing the pavement. In the event the pavement cracks or becomes damaged, it shall be replaced, if directed by the Engineer.
- P-2 The pavement materials on this project will be paid for on a tonnage basis. The weight will vary in accordance with the specific gravity of the aggregates and the asphaltic content of the mix actually used to secure the design depth. The weight of the asphalt concrete is based on 95% of theoretical maximum density. (See IIM-LD-158)
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## INCIDENTAL GENERAL NOTES

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On Primary and Secondary projects involving grade crossings to remain in place, show the following notes in the General Notes, on applicable plan sheets and in the summary. Do not include the railroad crossbuck signs in the estimate.

- I-1 Two Reflectorized Railroad Grade Crossing Crossbuck Signs, complete with posts, SHALL BE FURNISHED AND ERECTED BY THE RAILROAD COMPANY.
- I-2 Two Reflectorized Railroad Advance Warning Signs W10-1 complete with two approved posts, WILL BE FURNISHED AND ERECTED BY STATE FORCES.

The following note applies to all projects where access to private property will ultimately be by means of a service road. This note will be on the plans for all applicable projects when submitted for Right of Way Acquisition:

- I-3 Service Roads are to be constructed, and private entrances connected thereto prior to the permanent severing of private entrances by other phases of the proposed construction.
- Principal-Minor Arterial Projects:
- I-4 All trees located within the Clear Zone or within a minimum of 30 feet (9m) of the edge of pavement, within the limits of the right of way or construction easement, unless otherwise noted on plans or directed by the Engineer, shall be removed, as provided for in Section 301 of the applicable VDOT Road and Bridge Specifications.
- Secondary – Collector – Local Projects:

I-5 That portion of the right of way lying within the Clear Zone or within a minimum of 10 feet (3m), from the edge of pavement or surfacing or within the limits of the construction slopes beyond 10 feet (3m), shall be cleared and grubbed in accordance with the applicable VDOT Road and Bridge Specifications, Section 301, where sufficient right of way or construction easement is provided.

Exceptions:

I-6 Certain trees shall be preserved as noted on plans or as directed by the Engineer.

I-7 Where Standard slope roundoffs would damage trees, bushes or other desirable vegetation, they shall be omitted when so ordered by the Engineer.

The following note shall be shown on all applicable plans when submitted for right of way acquisition:

I-8 All fruit trees between Station \_\_\_\_\_ and Station \_\_\_\_\_, lying within the right of way, shall be removed and destroyed. These trees shall be removed and destroyed as soon as possible after the contractor actually commences work. The cost of this work shall be included in the price bid for clearing and grubbing.

When the following note applies to specific locations on a project, show Sta. \_\_\_\_\_ to Sta. \_\_\_\_\_.

I-8A Clearing and grubbing shall be confined to those areas needed for construction. No trees or shrubs in ungraded areas shall be cut without the permission of the Engineer. Station \_\_\_\_\_ to Station \_\_\_\_\_.

I-9 When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.

Right of Way Monuments (RM-1 and RM-2) will be set in accordance with Road and Bridge Specification 105.13 except when note I-10 and/or I-12 is shown on applicable projects:

I-10 St'd. RM-1 Right of Way Monuments shall be set by the Contractor.

I-11 VOID

I-12 St'd. RM-2 Right of Way Monuments shall be set by the Contractor.

The following notes will be included in the General Notes when "Reuse Guardrail" is specified in the plans as follows:

a) Used when the District Administrator desires to retain the guardrail component materials not used by the Contractor in the new construction:

I-13 Salvaged guardrail materials not used in the new construction shall become the property of the Department and the Contractor shall deliver and store, at no additional cost to the Department, the unused materials at the Department's maintenance yard at (location) during the Department's normal working hours.

- b) Used when the District Administrator does not wish to retain the guardrail component parts not used by the Contractor in the new construction:

I-14 Salvaged guardrail materials not used in the new construction shall become the property of the Contractor and shall be disposed of at a licensed landfill, recycled or be retained by the contractor.

The following note may be used with note I-13 or I-14:

I-15 Where Guardrail Standard GR-2 or GR-8 is shown on the plans and in the summaries, either new guardrail or reused guardrail beam shall be used as provided elsewhere in these plans. The total quantities have been proportioned between new and reuse guardrail based on an estimate of the amount of existing beam that is reusable. The Contractor will be paid for the actual quantities of Guardrail, St'd GR-2 or St'd. GR-8, or Reuse Guardrail St'd. GR-2 or St'd GR-8, as determined by the Engineer.

The following note will be included in the General Notes when the Underground Utilities" survey data on a project has been provided by a consultant. (See IIM-LD-140)

I-16 The "Underground Utilities" survey data on this project has been provided by consultant and copies are available from the Department.

The following note is applicable in accordance with VDOT's Road Design Manual:

I-17 For method of constructing Straight-Line Taper Lanes in Curb and/or Curb and gutter sections, see typical details on Sheet \_\_\_\_\_.

I-18 All pavement markings and traffic flow arrows shown on the roadway construction plans are schematic only. The actual location and application of pavement markings shall be in accordance with Section 704 of the applicable VDOT Road and Bridge Specifications, MUTCD, sequence of construction/traffic control plans, pavement marking plan sheets \_\_\_\_\_ thru \_\_\_\_\_ and as directed by the Engineer.

The following note is applicable to projects having work performed by others:

I-19 The following outside sources, under contract with VDOT, have provided information on this project.

Hydraulic Design	(Show Name of Source)
Roadway Design	" " " "
Utility Design	" " " "
Utility Designation	" " " "
Utility Location	" " " "
Survey	" " " "
Bridge Design	" " " "

If questions or problems arise during construction, please contact the Project Designer. DO NOT CONTACT THE OUTSIDE SOURCES.



The following notes are applicable to all projects:

- I-20 The Official Electronic PDF Version of the plans will override the paper copies or prints of specific layers. Portions of this plan assembly have been CADD generated. To assist in the preparation of the bid and construction of the project, Microstation format (.dgn) files will be made available to the prime contractor during bids and after award of the contract.
- I-21 All electronic plan assemblies will include the construction plans in two formats: PDF files and Microstation format (.dgn) files. Only the PDF files will be considered as part of the official plan assembly.

The Microstation format (.dgn) files are furnished only as information for the contractor. These plans are developed in layers (levels) to aid in readability. However, the construction items may or may not be in the proper layering scheme as described in the VDOT CADD Manual. The Microstation files will only match the scanned files if all required levels are turned on. A Microstation Software license is required to be able to read these files.

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## STORMWATER MANAGEMENT (SWM) GENERAL NOTES

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- S-1 CLEARING AND GRUBBING OF SWM BASIN SITE – The area where the dam is to be constructed and the area upstream of the dam, to an elevation equal to the crest of the dam (maximum ponded water elevation), shall be cleared and grubbed in accordance with Section 301 of the applicable VDOT Road and Bridge Specifications.
- S-2 SWM BASIN DAM CONSTRUCTION – The dam for detention basins (no permanent pool) shall conform to the details contained in the plans and shall be constructed in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications. The native material on which the dam will set shall meet the specifications for AASHTO Type A-4 or finer material. Where the native material does not meet this requirement, the area beneath the dam is to be excavated a minimum of 4' (1.2 m) and backfilled with a material meeting the AASHTO Type A-4 or finer classification, unless otherwise specified in the plans. The material used for the embankment of the dam shall be AASHTO Type A-4 or finer or as otherwise specified in the plans. Dams with foundation and embankment material not meeting the above requirements, dams greater than 15' (4.6 m) in height, or dams for retention basins (permanent pool) shall incorporate a membrane-lined trench, a homogenous embankment with seepage controls, a zoned embankment or other such approved designs as specified in the plans.
- S-3 SWM BASIN OUTLET PIPE – The pipe culvert under or through the dam for detention basins (no permanent pool) shall be reinforced concrete pipe with rubber gaskets in accordance with Section 232 and 212 of the applicable VDOT Road and Bridge Specifications. A concrete cradle shall extend the full length of the pipe culvert in accordance with the Standard Drawings. The connection between the pipe culvert and the SWM-1 Drainage Structure (or other control structure) shall be made watertight as approved by the Engineer and the cost shall be included in the price bid for the pipe.

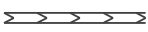







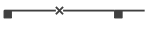

















- S-4 The SWM-1 Drainage Structure (or other control structure) shall have 4" (100 mm) high numbers and 1" (25 mm) wide stripes painted at 1' (300 mm) intervals as shown on the Standard Drawings or detail sheets. The numbers and stripes are to be installed at the time of the initial installation of the SWM-1 Drainage Structure (or other control structure). Paint and application shall be in accordance with Section 231 and 411 of the applicable VDOT Road and Bridge Specifications and the cost is to be included in the price bid for the applicable structure.
- S-5 All SWM Basins designated for use as temporary sediment basins shall be constructed during the initial phase of earth moving activities or as specified by the plans or directed by the Engineer. During project construction, the SWM-1 Drainage Structure (or other control structure) shall be modified in accordance with the Standard Drawings or plan details in order to provide a temporary sediment basin with both a "wet" storage volume (permanent pool) and a "dry" storage volume. Sediment accumulated in the basin shall be removed when the volume of the "wet" storage (permanent pool) has been reduced by 50%. Sediment shall be disposed of in accordance with Section 106.04 of the applicable VDOT Road and Bridge Specifications. When project construction is complete to a stage where no additional sediment from the project is expected to enter the basin, as determined by the Engineer, the basin shall be cleaned out and restored to the original design elevations, the area stabilized and all temporary modifications to the SWM-1 Drainage Structure (or other control structure) removed.

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## EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES

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- E-1 If the removal of Brush Silt Barrier is specified by the plans or required by the Engineer, the cost of removal and disposal of brush shall be in accordance with Section 109 of the applicable VDOT Road and Bridge Specifications.
- E-2 Rock for Check Dams, Inlet Protection, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.
- E-3 The following symbols are used to depict Erosion and Sediment Control items in the plan assembly:

		Denotes Protective Covering, St'd. EC-2
		Denotes Soil Stabilization Mat. St'd. EC-3 Type A, B or C
		
		
		Denotes Temporary Filter Barrier, St'd EC-5
		Denotes Temporary Silt Fence, St'd EC-5
		Denotes Temporary Diversion Channel, St'd EC-12
		Denotes Temporary Diversion Dike, St'd EC-9
		Denotes Turbidity Curtain, Type - Impervious
		Denotes Turbidity Curtain, Type - Pervious
		Denotes Rock Check Dam, Type I; St'd EC-4
		Denotes Rock Check Dam, Type II; St'd EC-4
		Denotes Inlet Protection, Type A; St'd EC-6
		Denotes Inlet Protection, Type B; St'd EC-6

The ESC symbols are to be used to denote proposed erosion and sediment control items on the plans and are available in the CADD Cell and Custom Line Style Libraries and the GeoPak Road Plan View Labels.

The location (sheet number) of the ESC legend is to be noted in the "References" block on each applicable sheet of the plan set.

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## ELECTRONIC SELECTION OF GENERAL NOTES

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Microstation has the capability of incorporating the necessary inserts in the General Notes (e.g. sheet number, station, etc.) and also incorporating any additional notes that are required for the project. The General Notes are to be shown for the applicable unit of measurement (Imperial or Metric). General Notes with metric units are denoted by the suffix "M".

- A General Notes Sheet file is created as follows:
  - Create a file in MicroStation by using the **SEEDGEN.DGN** seed file.
  - Ensure that the **LGENNOTE.CEL** is part of the workspace search list for MicroStation cell library. (If you are using the **LD** workspace, then this is already set.)

Type **macro gnote** into the "Key-in Windows". This will start a MicroStation macro command that will prompt you for information about the General Notes Sheet.

- Select the notes needed, or select the **Select All** button, then de-select the notes that are not needed. The **Add Sp** button will prompt you for additional spaces that you may need between each note header.