VIRGINIA DEPARTMENT OF TRANSPORTATION

LOCATION AND DESIGN DIVISION

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: MINOR STRUCTURE EXCAVATION	NUMBER: IIM-LD-71.8
SPECIFIC SUBJECT: MEASUREMENT OF EXCAVATION FOR PIPE AND BOX CULVERT WINGS	DATE: JULY 29, 1991
	SUPERSEDES: LD-82 (D) 71.7
DIVISION ADMINISTRATOR APPROVAL: *E. C. Cochran, Jr.*	

CURRENT REVISION

- All previous revisions and errata have been incorporated into this memorandum.

EFFECTIVE DATE

- This memorandum is effective on all projects beginning with the October 1991 advertisement and on all subsequent projects.

POLICY

- Quantities for minor structure excavation for pipes and box culverts having spans or openings of 48” and larger, will be computed to a point 18” outside the periphery of the barrel section, or to a point bound by vertical planes coincident with the bedding limits shown on the plans or standard drawings.

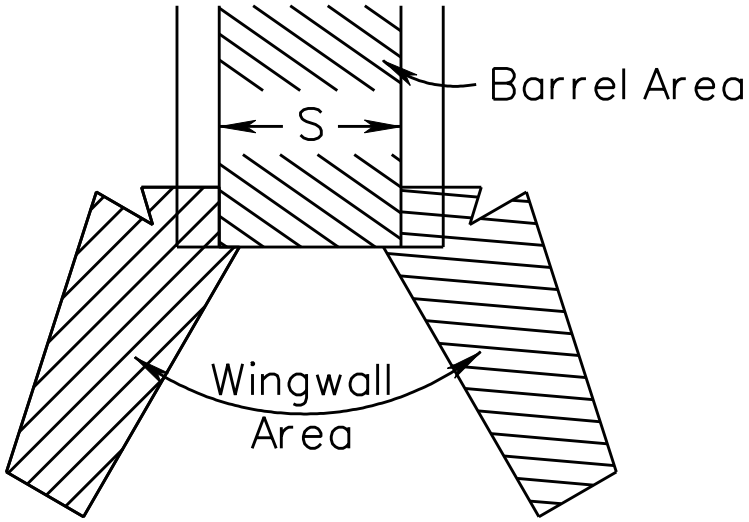
- Excavation quantity for wingwalls and other appurtenances will be based on the ratio of the plan area of the wingwalls or appurtenances to the plan area of the barrel.

PROCEDURE

- For single line culverts, the width of the barrel will be the nominal span or opening of the pipe or box culvert; for multiple spans, the barrel width will be the overall distance (S+D) between inner faces of the outermost barrel openings. (See Appendix D in the Road Design Manual) The length of all culverts will be from out to out of the culvert. The outside wall thickness and the 18" outside the neat lines of the culvert are not to be included in the computing the ratio.

- Once the ratio has been determined, it is used to compute the total Cu. Yds. of Minor Structure Excavation for the structure and appurtenances, by using the excavation quantity for the barrel section and increasing this quantity by the ratio.

- The sketch below denotes the area to compute the typical plan area for determination of box culvert ratio. For computation of ratio for pipes see Appendix D, Table D-28 through D-43 in the Road Design Manual.



TYPICAL BOX CULVERT

- Where End Sections are required and the option of C.M. or Conc. is allowed, use the ES-2 (metal) end section for computing the ratio.

- The designer must be sure that he has adequate survey data in order to accurately determine minor structure excavation quantities. If additional survey is needed, it must be acquired and incorporated before the project reaches right-of-way acquisition stage.

PAYMENT

- Minor Structure Excavation is paid for on a Plan Quantity basis.
- Payment for excavation for wingwalls and other appurtenances will be based on the ratio of the plan area of the wingwalls or appurtenances to the plan area of the barrel.
- A separate entry is to be shown on the Summary Sheet for Cu. Yds. of Minor Structure Excavation for Pipes and Cu. Yds. Of Minor Structure Excavation for Box Culverts.

PLAN NOTES

- In all cases where minor structure excavation is applicable the following note will be included with the culvert description on the plans.

_____Cu. Yds. Minor Structure Excavation