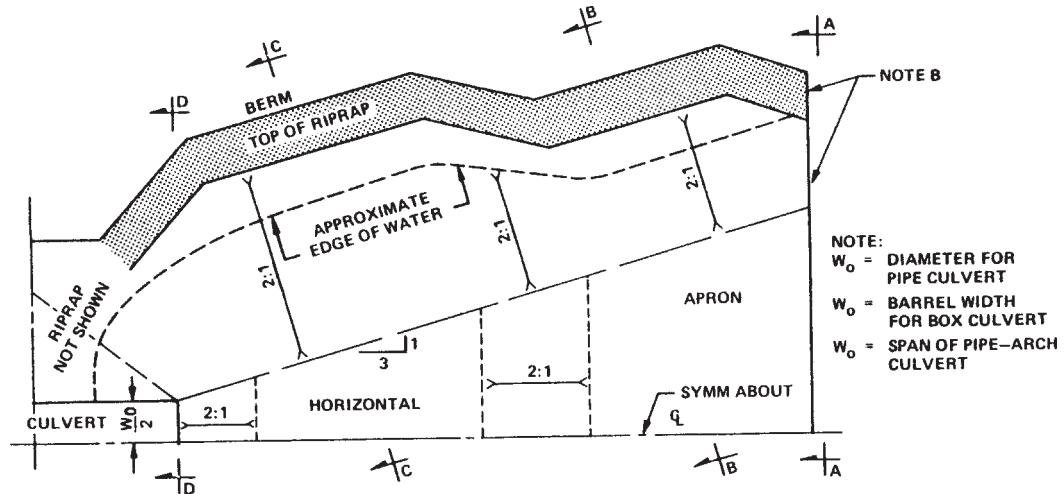


Standard Detail & Specifications

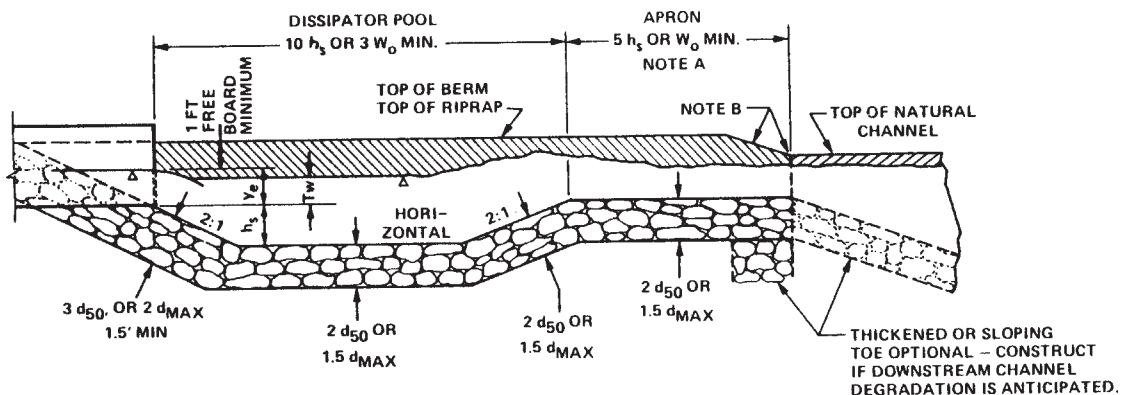
Riprap Stilling Basin



Half - Plan

NOTE A – IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS-SECTIONAL AREA AT SECTION A-A SUCH THAT $Q_{des}/(\text{CROSS SECTION AREA AT SEC. A-A})$ = SPECIFIED EXIT VELOCITY.

NOTE B – Warp basin to conform to natural stream channel. Top of riprap in floor of basin should be at the same elevation or lower than natural channel bottom at Sec. A-A.

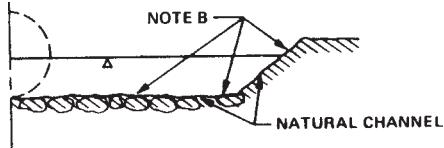


Profile thru C Basin

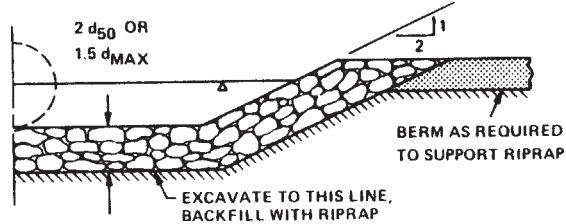
| Source: | Symbol: | Detail No. |
|-----------------------------|---------|--|
| Adapted from FHWA HEC-14 | | DE-ESC-3.3.11 Sheet 1 of 3 Effective January 2026 |

Standard Detail & Specifications

Riprap Stilling Basin

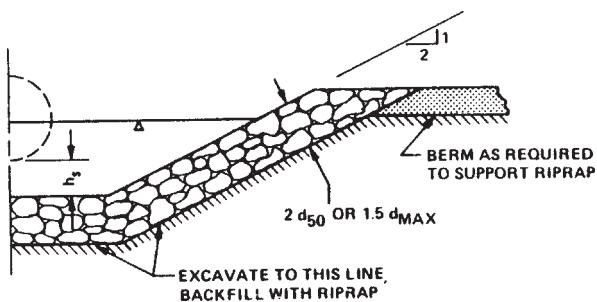


Section A-A

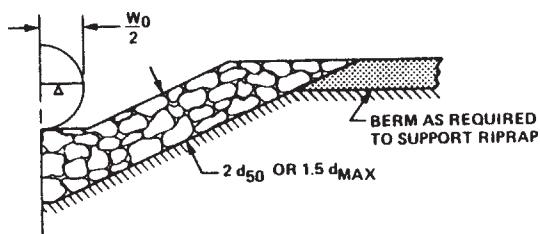


Section B-B

NOTE B – WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE AT THE SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A-A.



Section C-C



Section D-D

DATA

Culvert dimension (w_0)
 Depth of basin from culvert invert (h_s)
 Riprap size (R No.)

Source:

Adapted from
 FHWA HEC-14

Symbol:



Detail No.

DE-ESC-3.3.11

Sheet 2 of 3

Effective January 2026

Standard Detail & Specifications

Riprap Stilling Basin

Construction Notes:

1. The subgrade for the riprap shall be prepared to the required lines and grades as shown on the plan. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The riprap shall conform to the grading limits as shown on the plan.
3. Geotextile shall be a Type GS-I. Fabric shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire section.
4. Stone for the riprap or gabion outlets may be placed by equipment. Riprap shall be placed in a manner to prevent damage to the geotextile fabric. Hand placement will be required to the extent necessary to prevent damage to the conduits, structures, etc.

| | | |
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| Source: Adapted from FHWA HEC-14 | Symbol:  | Detail No. DE-ESC-3.3.11 Sheet 3 of 3 Effective January 2026 |
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