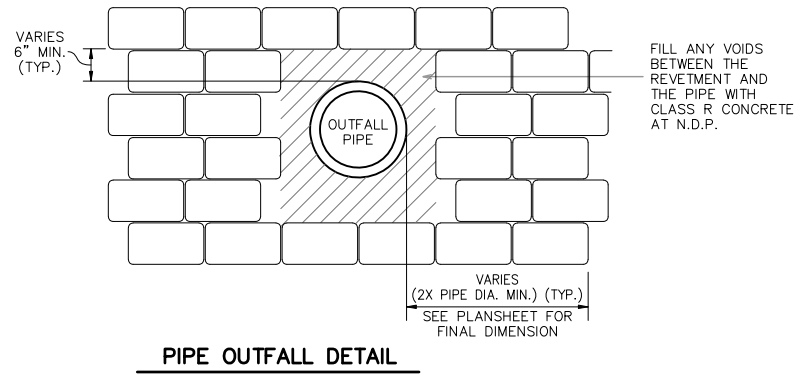
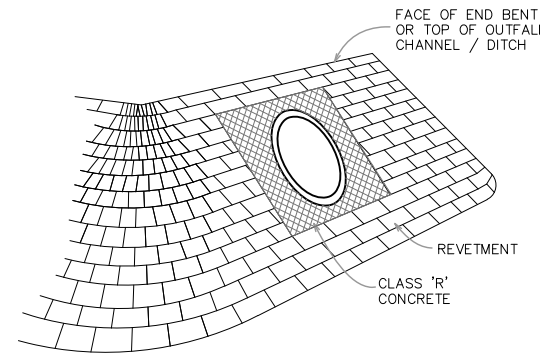


GENERAL VIEW OF EMBANKMENT SLOPE PROTECTION



PIPE OUTFALL DETAIL

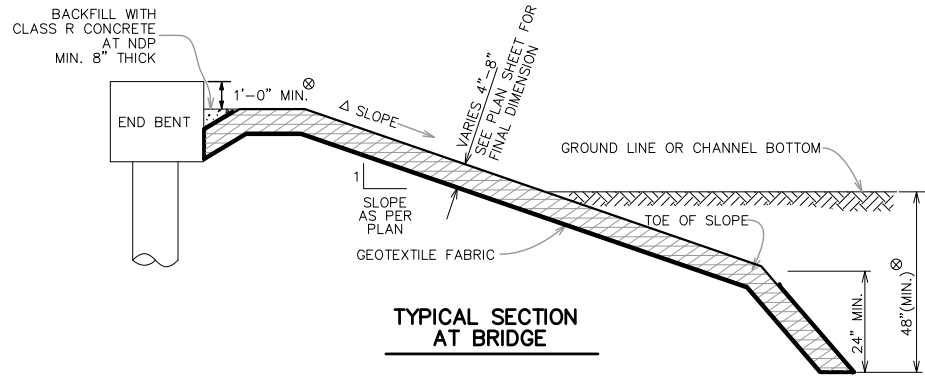


PERSPECTIVE VIEW OF TYPICAL OUTFALL PIPE INSTALLATION

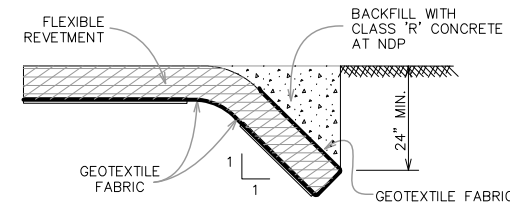
NOTES

- 1) * REVETMENT SHALL BE FLEXIBLE REVETMENT OR CAST-IN-PLACE CONCRETE OR CONCRETE CLOTH. FLEXIBLE REVETMENT AND CAST-IN-PLACE CONCRETE SHALL BE PLACED IN ACCORDANCE WITH THE LATEST SECTION 712 OF THE LCG STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
- 2) FLEXIBLE REVETMENT SHALL BE FABRIFORM ARTICULATING BLOCK MATTING WITH 2-WAY CABLES OR AN APPROVED EQUAL. FLEXIBLE REVETMENT SHALL BE A MINIMUM OF 4" THICK, UNLESS OTHERWISE DESIGNATED ON THE CONSTRUCTION PLANS.
- 3) CONCRETE CLOTH SHALL BE RCR 7 OR RCR 12 AS MANUFACTURED BY INLAND TARP AND LINER OR APPROVED EQUAL. UTILIZATION SHALL BE LIMITED TO 18" OR SMALLER PIPE DIAMETERS. ADDITIONALLY THIS REVETMENT OPTION IS NOT ALLOWED IN NAMED CHANNELS. ANCHORING AND BACKFILL TREATMENT AROUND PIPE PENETRATION SHALL BE IN ACCORDANCE WITH THIS DETAIL SHEET. INSTALLATION OF CONCRETE CLOTH SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS.
- 4) ELEVATION OF TOE OF SLOPE TO REMAIN CONSTANT FOR ALL PROTECTED SIDES OF THE EMBANKMENT, UNLESS OTHERWISE NOTED.
- 5) PIPES AND PILES LOCATED WITHIN THE LIMITS OF REVETMENT SHALL BE INSTALLED PRIOR TO THE INSTALLATION OF THE REVETMENT.
- 6) REVETMENT SHALL BE PLACED AROUND OUTFALL PIPES AND PILES AS PER THE MANUFACTURER'S RECOMMENDATIONS OR THE LCG STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES. FILL ALL VOID AREAS INCLUDING THE INTERFACE OF THE REVETMENT WITH ALL PENETRATIONS WITH CLASS 'R' CONCRETE.
- 7) REVETMENT SHALL BE ANCHORED AS PER THE MANUFACTURER'S RECOMMENDATIONS. DEPTH OF EMBEDMENT SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS AS SHOWN ON THIS SHEET. A CONCRETE CLOTH UPON COMPLETION OF FINAL GRADING OF THE EXISTING CHANNEL/DITCH AROUND THE REVETMENT.
- 8) FLEXIBLE REVETMENT AND STONE REVETMENT SHALL BE PLACED ON GEOTEXTILE FABRIC CLASS 'D' OR 'S' CONFORMING TO THE DOTD APPROVED MATERIALS LIST (AML).
- 9) CAST-IN-PLACE CONCRETE MAY BE USED IN LIEU OF FLEXIBLE REVETMENT IN ACCORDANCE WITH THIS DETAIL. CONCRETE SHALL BE 'M1' AND SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI. CAST-IN-PLACE CONCRETE SHALL BE ANCHORED ON ALL SIDES TO THE DEPTHS SHOWN IN THIS DETAIL.
- 10) WHEN THE REVETMENT IS PLACED AROUND AN OUTFALL PIPE, SOD CONFORMING TO SECTION 714 OF THE LCG SPECIFICATIONS FOR ROADS AND BRIDGES SHALL BE PLACED IN ACCORDANCE WITH SECTION 714 ALONG THE PERIMETER OF THE CAST-IN-PLACE CONCRETE SLOPE PAVING, OR FLEXIBLE REVETMENT, OR CONCRETE CLOTH UPON COMPLETION OF FINAL GRADING OF THE EXISTING CHANNEL/DITCH AROUND THE REVETMENT.
- 11) WHEN REVETMENT IS PLACED AS A CHANNEL LINER IN CONJUNCTION WITH A BRIDGE REPLACEMENT OR CHANNEL IMPROVEMENT, A TOEWALL (2' min.) SHALL BE CONSTRUCTED FOR THE ENTIRE LENGTH OF THE CROSS SECTION AT THE INTERFACE OF THE REVETMENT SECTION WITH THE EXISTING CHANNEL SECTION. THE TOEWALL SHALL BE BACKFILLED WITH CLASS 'R' CONCRETE AND PAYMENT SHALL BE INCLUDED IN THE BID PRICE FOR REVETMENT.

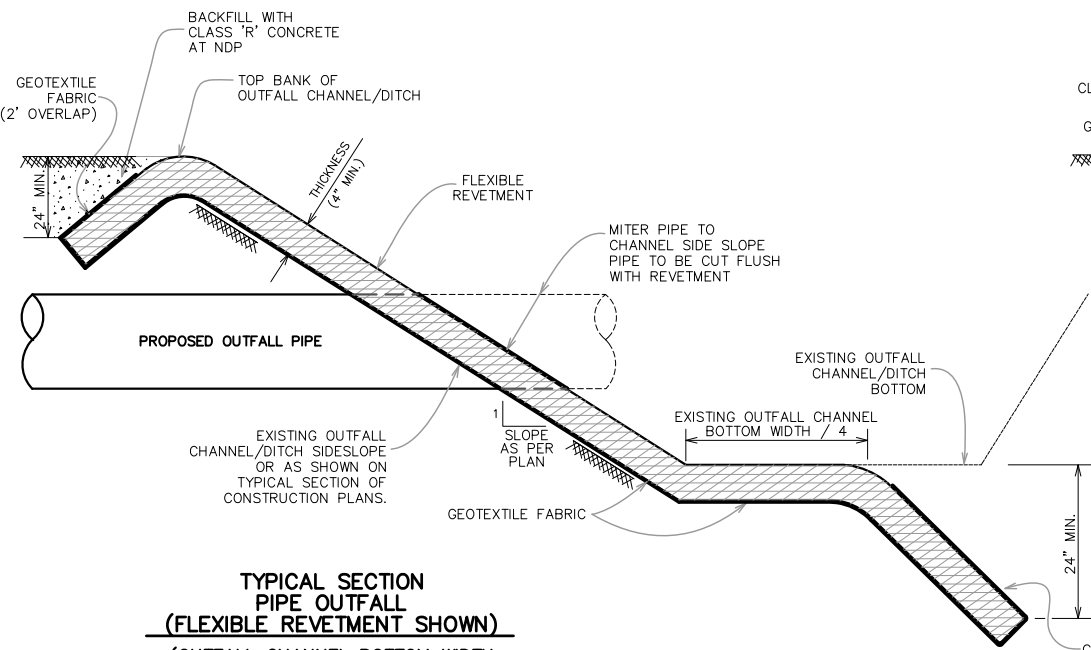
* IN LOCATIONS THAT ARE NOT NAMED CHANNELS, AND UNDER LIMITED CIRCUMSTANCES, WITH PRIOR WRITTEN APPROVAL FROM PUBLIC WORKS DESIGN AND DEVELOPMENT, STONE REVETMENT, NOT RECYCLED CONCRETE, MAY BE UTILIZED. MATERIALS AND INSTALLATION SHALL CONFORM TO SECTION 711 AND 712 OF LCG STANDARD SPECIFICATIONS AND SUPPLEMENTALS.



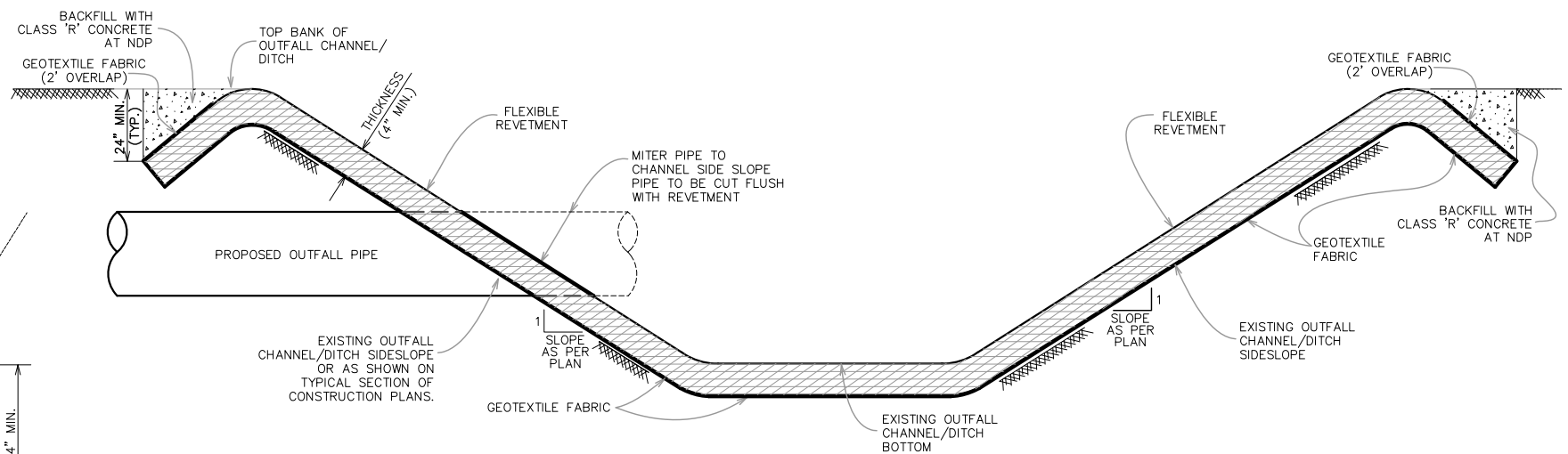
TYPICAL SECTION AT BRIDGE



SECTION A-A



TYPICAL SECTION PIPE OUTFALL (FLEXIBLE REVETMENT SHOWN)
(OUTFALL CHANNEL BOTTOM WIDTH GREATER THAN OR EQUAL TO 10' AND/OR PIPE DISCHARGE VELOCITY LESS THAN 3 ft./sec.)



TYPICAL SECTION PIPE OUTFALL (FLEXIBLE REVETMENT SHOWN)
(CHANNEL BOTTOM WIDTH LESS THAN 10' AND/OR PIPE DISCHARGE VELOCITY GREATER THAN 3 ft./sec.)

LEGEND

- ⊗ UNLESS OTHERWISE SHOWN ON PLANS, CONTRACTOR TO PROTECT EXPOSED BOLTS/FRAEMWORK WHEN PLACING CLASS 'R' CONCRETE NEAR BENTS.
- Δ SEE GENERAL PLAN FOR EMBANKMENT HEADER SLOPE AND LIMITS OF SLOPE PROTECTION ALONG ROADWAY EMBANKMENT.