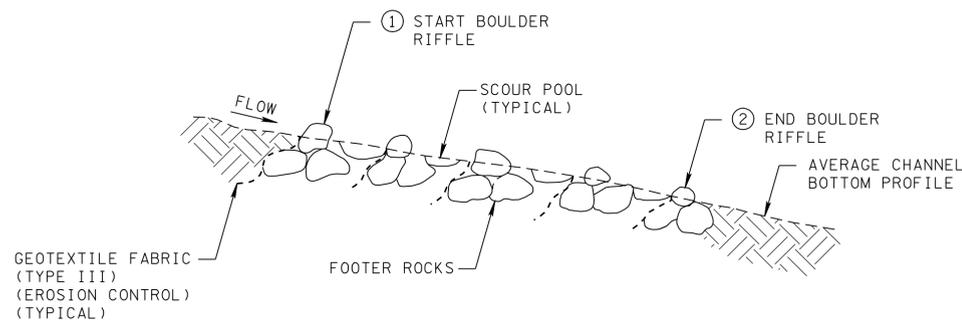
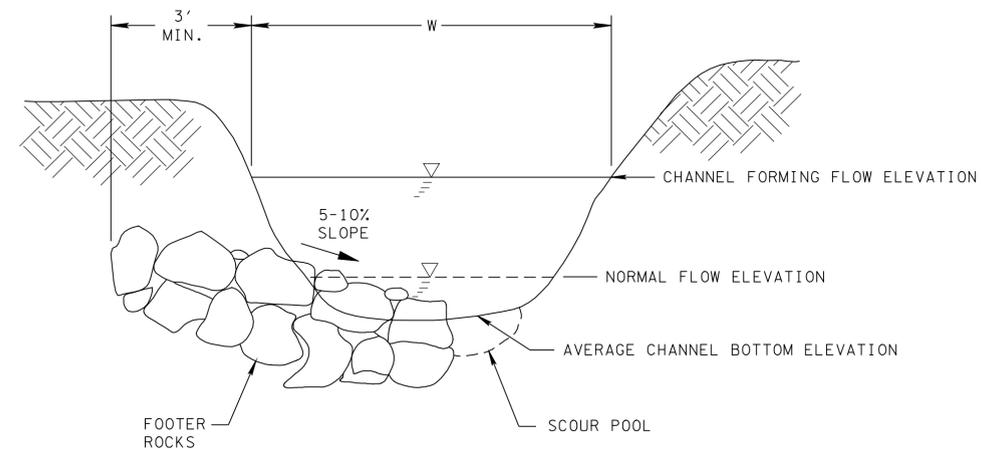


- NOTE ①: CONTROL POINT BEGINNING OF RIFFLE
SEE NOTE (B)
- NOTE ②: CONTROL POINT END OF RIFFLE
SEE NOTE (B)
- NOTE ③: SEE NOTE (H)

PLAN VIEW



PROFILE VIEW



SECTION VIEW

BOULDER RIFFLE GENERAL NOTES

- (A) BOULDER RIFFLES ARE HYDRAULIC CONTROL MEASURES THAT MAY BE USED TO RECREATE HABITAT IN A RELOCATED STREAM BY CREATING POOLS AND A MEANDERING PATH FOR LOW FLOWS. THEY ALSO CREATE FLOW TURBULENCE WHICH HELPS TO INCREASE DISSOLVED OXYGEN. THEY CONSIST OF BOULDER SPURS KEYED INTO THE CHANNEL BANK AND EXTENDING TO AT LEAST THE CENTER OF THE CHANNEL.
- (B) ELEVATIONS, STATIONS AND OFFSETS FOR THE BEGINNING AND ENDING POINTS OF THE BOULDER RIFFLE WILL BE INDICATED IN THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS. BOULDER SPURS SHOULD BE PLACED AT AN EVEN SPACING BETWEEN THESE POINTS OR AS DIRECTED BY THE ENGINEER.
- (C) BOULDER RIFFLES SHOULD BE APPLIED WITH CAUTION IN STREAMS WITH BEDS COMPOSED OF CLAY, SILT OR OTHER SOFT MATERIAL. THE SIZE AND DEPTH OF THE FOOTER ROCKS MUST BE SUFFICIENT TO ENSURE THAT THE STRUCTURE WILL NOT SUBSIDE.
- (D) THE ROCKS USED TO CONSTRUCT BOULDER RIFFLES SHOULD BE SIZED TO REMAIN STABLE IN THE 50-YEAR STORM EVENT. THE MINIMUM SIZE OF THE ROCKS WILL BE PROVIDED IN THE PROJECT PLANS. LARGER STONES MAY BE REQUIRED FOR THE FOOTER ROCKS IN ORDER TO PROVIDE A STABLE BASE FOR THE STRUCTURE.
- (E) THE LOWEST COURSE OF FOOTER ROCKS SHALL BE PLACED AT A DEPTH BELOW THE SCOUR HOLE DEPTH INDICATED IN THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS.
- (F) WHERE THE STREAM BED IS COMPOSED OF SAND OR FINER MATERIALS, THE BOTTOM AND UPSTREAM FACE OF EACH SPUR SHALL BE LINED WITH GEOTEXTILE FABRIC (TYPE III) (EROSION CONTROL) TO PREVENT THE PIPING OF FINE MATERIALS THROUGH THE ROCKS. ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED. REFER TO SECTION A-A ON STANDARD DRAWING D-NSD-2.
- (G) THE ENDS OF THE SPURS SHALL BE KEYED INTO THE BANK A MINIMUM DISTANCE OF 3 FEET OR AS DIRECTED BY THE ENGINEER.
- (H) THE TIP OF AN INDIVIDUAL BOULDER SPUR SHALL BE ALIGNED WITH THE POINT AT WHICH THE EDGE OF THE NEXT UPSTREAM SPUR INTERSECTS THE STREAM BANK.
- (I) BOULDER RIFFLES SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:

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PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR THE CONSTRUCTION OF THE BOULDER RIFFLE.