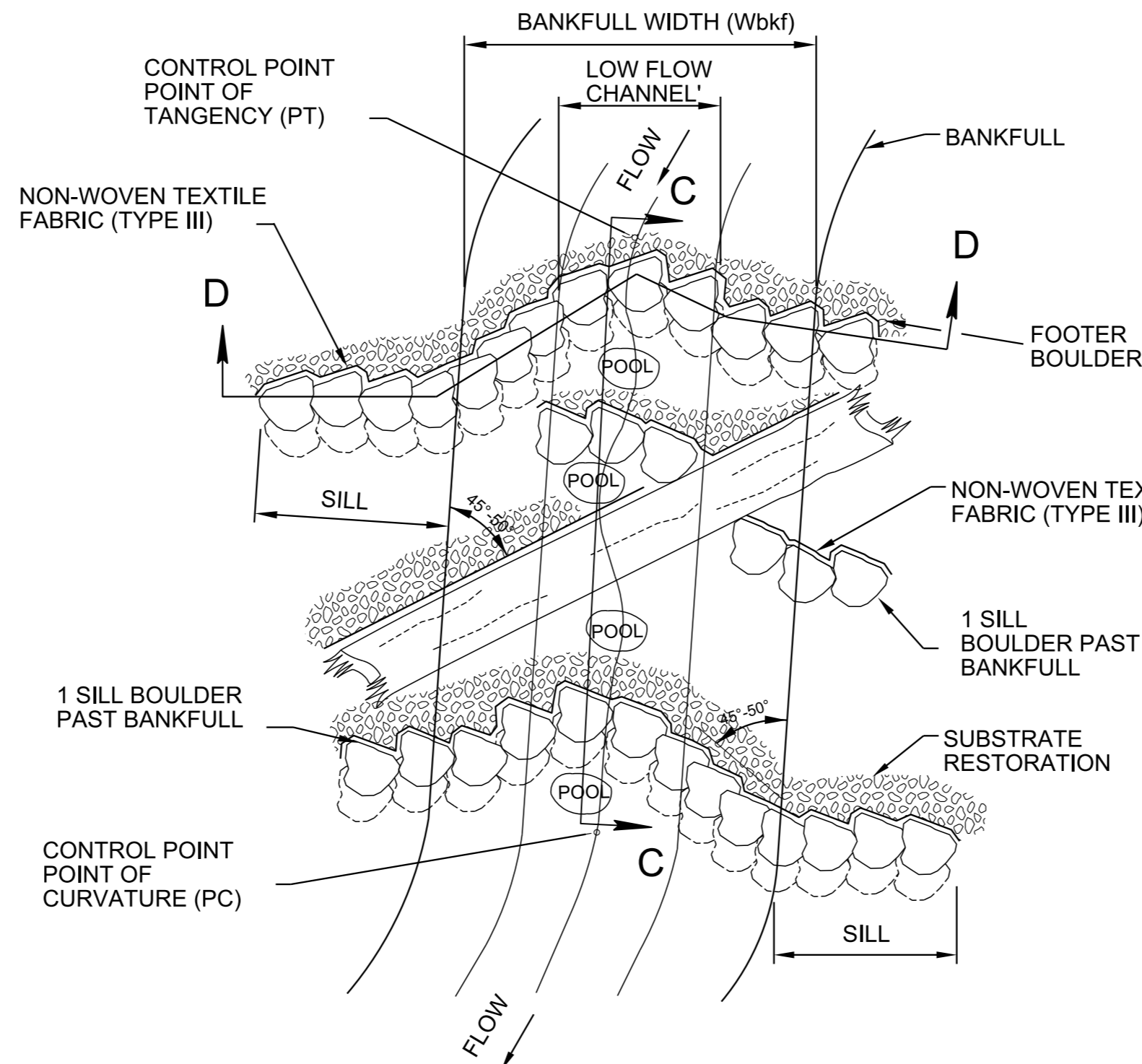
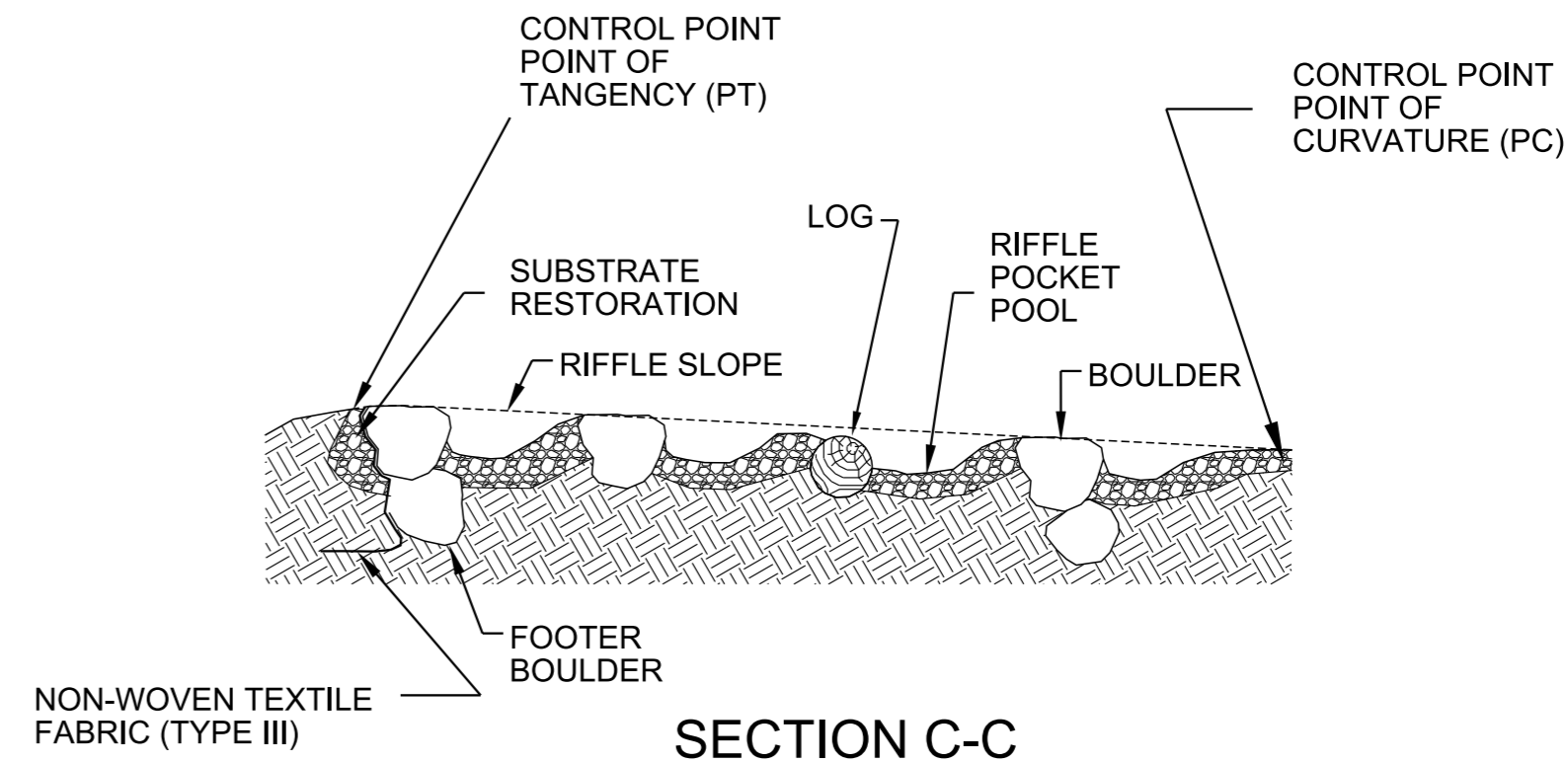


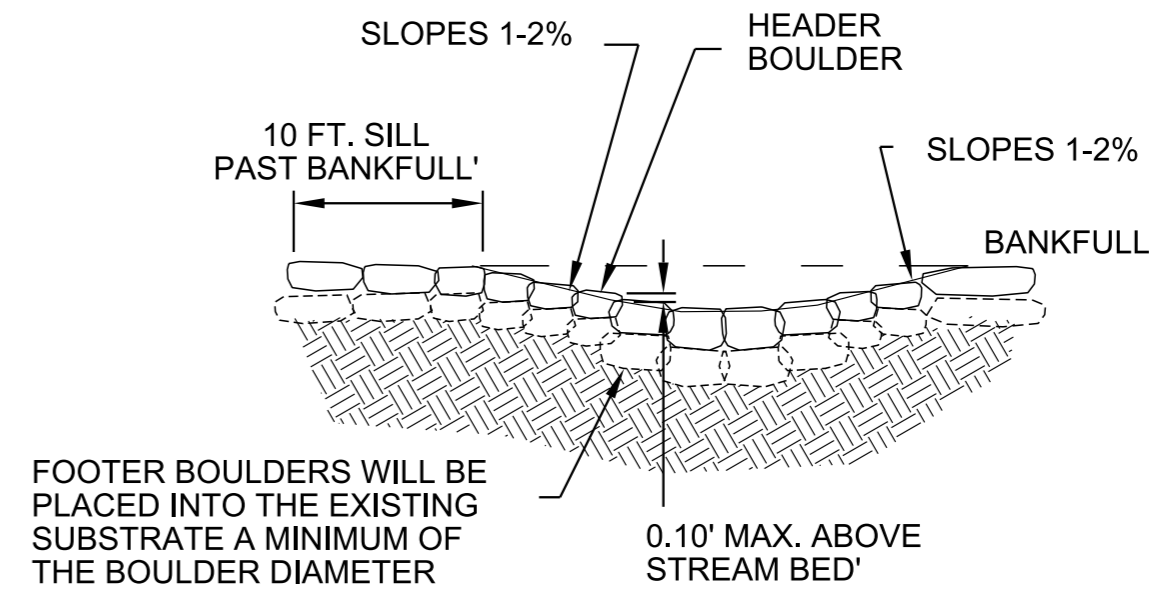
BOULDER RIFFLE
PLAN VIEW



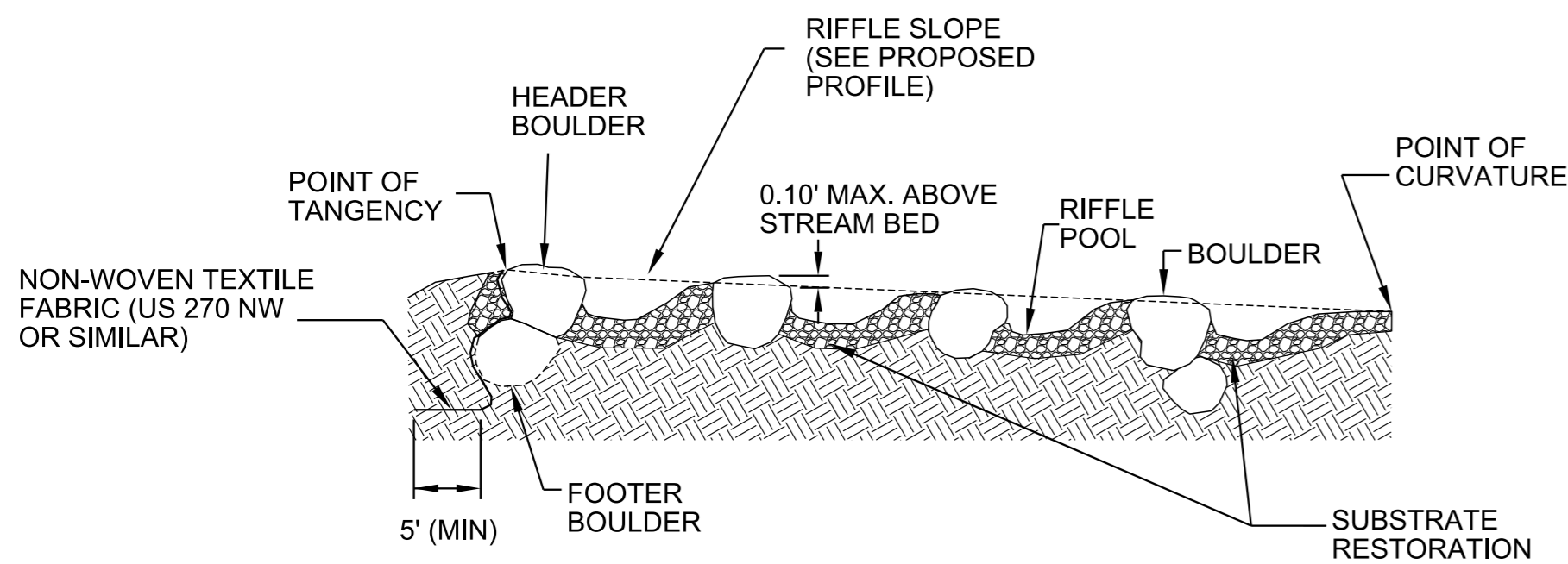
ALTERNATIVE BOULDER AND LOG RIFFLE
PLAN VIEW



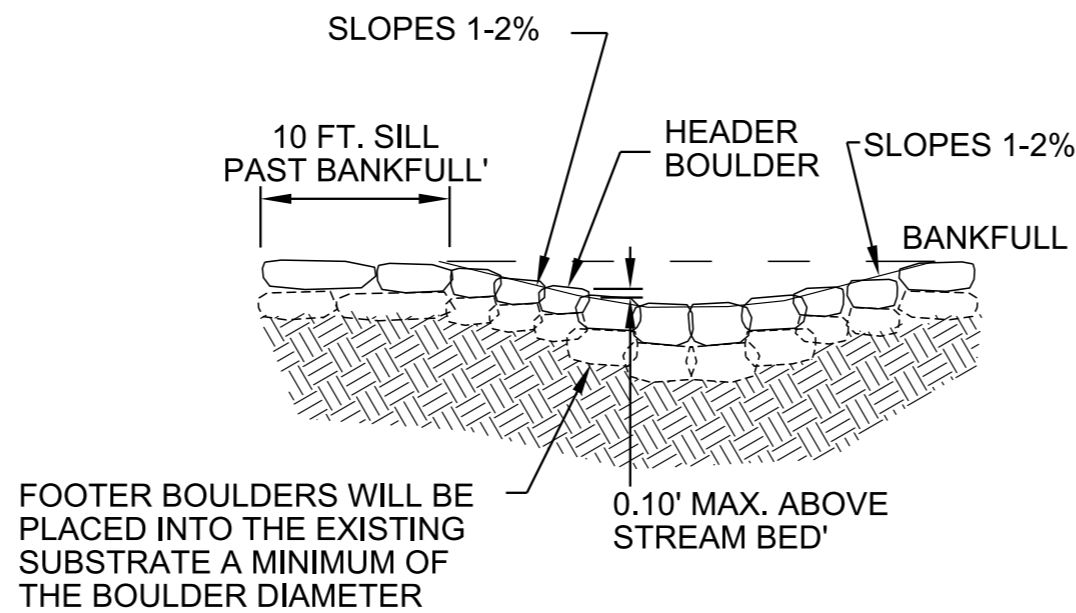
SECTION C-C



SECTION D-D



SECTION A-A

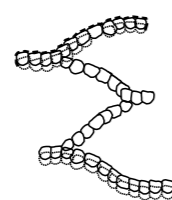


SECTION B-B

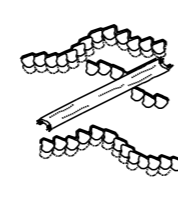
BOULDER RIFFLES NOTES

- (A) CONSTRUCT BOULDER AND LOG-BOULDER RIFFLE STRUCTURES BY:
- (1) SHAPE THE CHANNEL AND FLOODPLAIN TO THE SPECIFIED GRADES AND DIMENSIONS.
 - (2) EXCAVATE ENOUGH BED MATERIAL TO PLACE THE BOULDER MINI-VANES, RIFFLE LOGS, NON-WOVEN GEOTEXTILE FABRIC (TYPE III) AND ALLUVIUM OR SELECT MATERIAL BACKFILL.
 - (3) FOR THE UPSTREAM BOULDER MINI-VANE, PLACE FOOTER AND SURFACE BOULDERS, THE DOWNSTREAM MINI-VANES AND RIFFLE LOGS ARE INSTALLED WITHOUT FOOTERS. INSTALL VANES AND LOGS AT THE INVERTS SPECIFIED IN THE PLANS AND THEN CHECK THE ELEVATIONS OF THE INVERTS WITH SURVEY EQUIPMENT. PLACE BOULDERS TO MINIMIZE VOIDS AND TO PRODUCE A SMOOTH COMPACT SURFACE.
 - (4) ONCE THE INVERTS HAVE BEEN ESTABLISHED, FILL THE VOIDS BETWEEN BOULDERS ON THE UPSTREAM SIDE OF THE STRUCTURES.
 - (5) PLACE NON-WOVEN GEOTEXTILE FABRIC (TYPE III) ALONG THE ENTIRE UPSTREAM FACE OF EACH MINI-VANE OR RIFFLE LOG. THE GEOTEXTILE SHALL EXTEND FROM THE BOTTOM OF THE FOOTER (WHERE PRESENT) TO THE FINISHED GRADE ELEVATION OF THE SURFACE BOULDERS OR LOG. ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED. FOR RIFFLE LOGS, NAIL GEOTEXTILE FABRIC (TYPE III) TO THE SURFACE LOG APPROXIMATELY ONE QUARTER OF THE CIRCUMFERENCE DOWN FROM THE TOP OF THE SURFACE LOG USING TWO-INCH GALVANIZED ROOFING NAILS ON ONE-FOOT SPACING ALONG THE ENTIRE LENGTH OF THE LOG.
 - (6) BACKFILL STRUCTURE AND NON-WOVEN GEOTEXTILE FABRIC (TYPE III) WITH EXCAVATED ON-SITE STREAM ALLUVIUM (IF AVAILABLE). OTHERWISE USE THE SPECIFIED SELECT MATERIAL. SOIL SHALL BE COMPACTED WELL AROUND BURIED PORTIONS OF THE STRUCTURE. TRIM ANY EXPOSED NON-WOVEN GEOTEXTILE FABRIC (TYPE III).
- (B) BOULDER RIFFLES SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:
- 209-03.41 STREAM MITIGATION - BOULDER RIFFLE PER LINEAR FOOT
- PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR TO CONSTRUCT THE LOG RIFFLE, BOULDER RIFFLE, OR LOG AND BOULDER RIFFLES.
- (C) FOR LOG RIFFLES DETAILS, SEE D-NSD-28A.

STREAM MITIGATION PLAN LEGEND:



BOULDER RIFFLE



BOULDER AND LOG RIFFLE

MATERIAL SHOWN ARE ONLY A GRAPHICAL REPRESENTATION AND DO NOT DEPICT THE ACTUAL DEPTH OR QUANTITY OF MATERIALS TO APPROPRIATELY CONSTRUCT OR STABILIZE THE CHANNEL.

NOT TO SCALE

STATE OF TENNESSEE
DEPARTMENT OF
TRANSPORTATION

BOULDER
RIFFLES