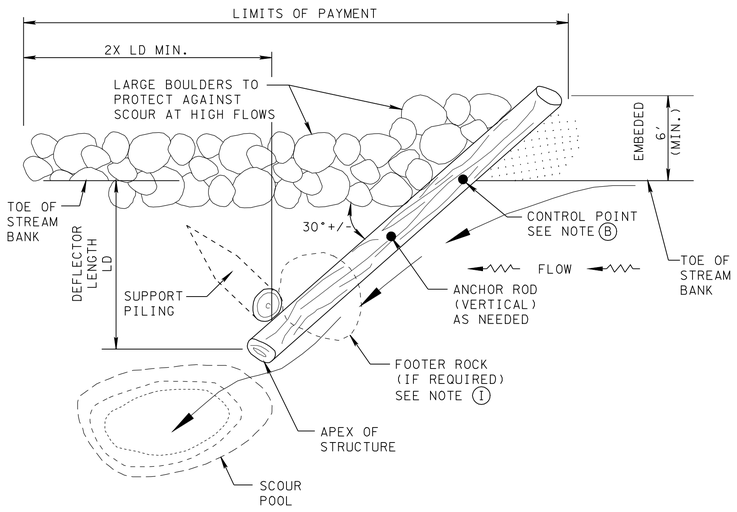
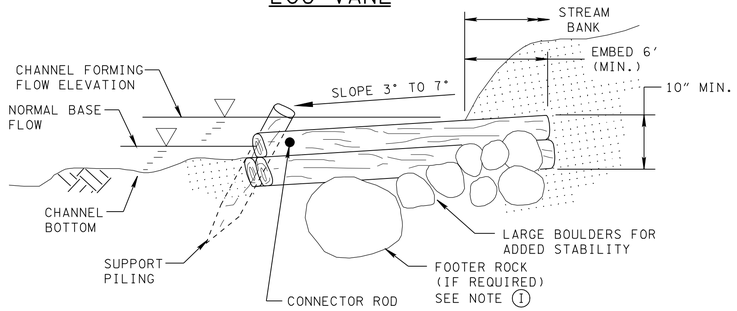
LOG VANE

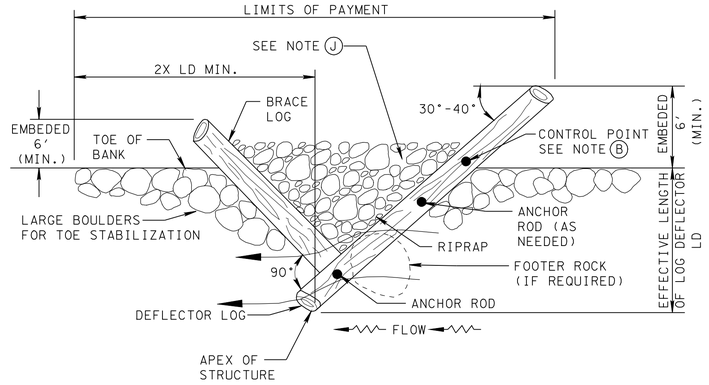


PLAN VIEW
LOG VANE

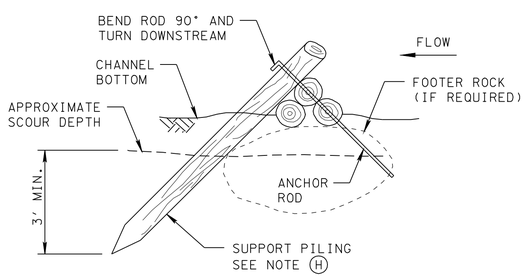


SECTION VIEW
LOG VANE
SHOWING MULTIPLE LOGS

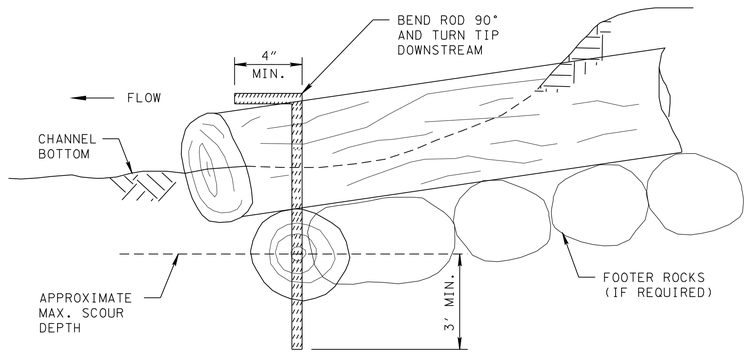
LOG DEFLECTOR



PLAN VIEW
LOG DEFLECTOR



ELEVATION VIEW
SUPPORT PILING INSTALLATION
(SINGLE OR MULTIPLE LOGS)



ANCHOR ROD
INSTALLATION DETAIL
FOR LOG DEFLECTOR

LOG DEFLECTORS AND VANES GENERAL NOTES

(A) LOG DEFLECTORS AND VANES ARE HYDRAULIC CONTROL MEASURES THAT EXTEND FROM THE BANK INTO THE STREAM TO REDUCE THE WIDTH TO DEPTH RATIO OF THE BANKFULL CHANNEL. THEY MAY BE USED IN WIDE, SHALLOW, AND SLUGGISH CHANNELS UP TO 30 FEET WIDE TO CREATE SCOUR POOLS, DEEPEN THE CHANNEL, CREATE A MEANDERING ALIGNMENT OR DEFLECT CURRENT FROM AN ERODING CHANNEL BANK ON THE OUTSIDE OF A BEND.

(B) DEFLECTORS AND VANES SHALL BE INSTALLED AT THE CONTROL POINT STATIONS AND OFFSETS INDICATED IN THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS. THE TABLE WILL ALSO PROVIDE THE REQUIRED DEFLECTION LENGTH, LD.

(C) LOGS SHOULD BE TAKEN FROM LOCALLY AVAILABLE, DECAY-RESISTANT SPECIES SUCH AS CEDAR, WHITE OAK, ETC. THE MINIMUM LOG DIAMETER SHALL BE 10 INCHES. WHERE SUFFICIENTLY LARGE LOGS ARE NOT AVAILABLE, THREE SMALLER LOGS MAY BE STACKED AS SHOWN ON THIS DRAWING. USE ANCHOR RODS DRIVEN AT A MAXIMUM SPACING OF 6 FEET ON CENTERS TO ATTACH AND SECURE THE LOGS.

(D) THE TIP OF THE LOG AT THE APEX SHALL BE EMBEDDED INTO THE CHANNEL BED A DISTANCE EQUAL TO HALF OF ITS DIAMETER AND SHOULD BE NO MORE THAN 6 INCHES ABOVE THE NORMAL BASE FLOW ELEVATION.

(E) THE DISTANCE LD SHALL BE NO MORE THAN 50% OF THE CHANNEL WIDTH FOR AN ALTERNATING LAYOUT OR 25% FOR AN OPPOSITE LAYOUT AS SHOWN IN THE DRAINAGE MANUAL.

(F) LARGE NATURAL STONES SHOULD BE USED FOR EROSION PREVENTION ON THE STREAM BANK DOWNSTREAM OF THE STRUCTURE. OPTIONAL MEANS OF PROVIDING EROSION PROTECTION INCLUDE ROOT WADS OR VEGETATED RIPRAP. EROSION PROTECTION SHOULD EXTEND A MINIMUM DISTANCE OF 2X LD FROM THE APEX OF THE STRUCTURE.

(G) ANCHOR RODS SHOULD CONSIST OF #6 REBAR PINS AND SHOULD BE DRIVEN INTO FIRM MATERIAL A MINIMUM OF 3 FEET BELOW THE APPROXIMATE SCOUR DEPTH. ANCHOR RODS SHOULD BE DRIVEN VERTICALLY EXCEPT WHERE USED TO CONNECT A SUPPORT PILING.

(H) SUPPORT PILINGS FOR LOG VANES SHOULD BE DRIVEN AT AN ANGLE TO PREVENT DISPLACEMENT AND UPLIFT OF THE LOGS. THEY SHOULD BE DRIVEN TO A DEPTH OF 3 FEET BELOW THE APPROXIMATE SCOUR DEPTH.

(I) FOOTER ROCKS SHOULD BE USED WHERE THE CHANNEL BOTTOM CONSISTS OF ERODIBLE MATERIALS SUCH AS SAND THAT COULD ALLOW THE STRUCTURE TO BECOME UNDERMINED. THE ROCKS SHOULD BE NATURAL BOULDERS SUFFICIENTLY LARGE TO EXTEND A MINIMUM OF 2 FEET BELOW THE APPROXIMATE SCOUR DEPTH.

(J) FILL MATERIAL FOR A LOG DEFLECTOR SHALL CONSIST OF MACHINED OR VEGETATED RIPRAP ON GEOTEXTILE FABRIC (TYPE III) (EROSION CONTROL). THE REQUIRED CLASS OF MACHINED RIPRAP WILL BE INDICATED IN THE STREAM MITIGATION DATA TABLE. ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.

(K) LOG DEFLECTORS AND VANES SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS:

209-03.33 STREAM MITIGATION - LOG STRUCTURES AND DEFLECTORS PER LINEAR FOOT
209-03.34 STREAM MITIGATION - LOG VANES PER LINEAR FOOT

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR THE CONSTRUCTION AND MAINTENANCE OF THE LOG DEFLECTOR OR VANE INCLUDING EROSION PREVENTION MEASURES DOWNSTREAM OF THE STRUCTURE.

STREAM MITIGATION PLAN LEGEND: LOG VANE

STREAM MITIGATION PLAN LEGEND: LOG DEFLECTOR

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOG DEFLECTORS AND LOG VANES

NOT TO SCALE | 8-01-11 | D-NSD-3