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 THIS FIGURE IS NOT MEANT TO REPRESENT A STANDARD DESIGN METHOD FOR THIS TYPE OF TECHNIQUE AND SHALL NOT BE USED AS SUCH.

**NOT TO SCALE**



CHARLOTTE-MECKLENBURG  
 STORM WATER SERVICES  
 GENERIC DETAIL REQUIREMENTS

**LOG J-HOOK VANE**

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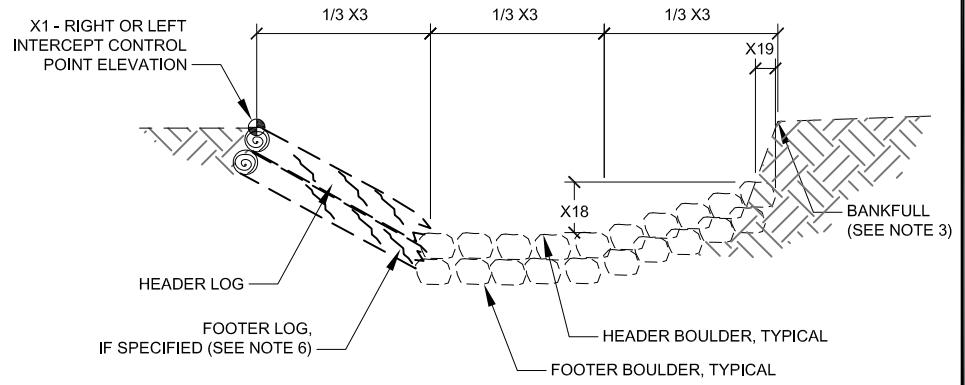
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**NOTES:**

1. A J-HOOK VANE IS A STREAM BANK PROTECTION, IN-STREAM STRUCTURE THAT DIRECTS STREAM FLOW AWAY FROM THE STREAM BANK ON THE OUTSIDE OF A MEANDER BEND (POOL) AND IN TOWARD THE CENTER OF THE CHANNEL. THE DETAIL SHALL BE "FLIPPED" DEPENDING ON WHICH STREAM BANK (LEFT OR RIGHT) IS ON THE OUTSIDE OF THE MEANDER BEND.
2. A POOL ELEVATION CONTROL POINT OR EXCAVATION TO A SPECIFIED MAXIMUM POOL DEPTH SHALL BE DESIGNATED TO ESTABLISH PART OF THE PROFILE. SURVEY OF CONTROL POINTS SHALL BE REQUIRED TO ESTABLISH ACCURATE J-HOOK INSTALLATION WITHIN THE TOLERANCE SPECIFIED BY THE DESIGNER.
3. THE VANE ARM SHALL INTERCEPT THE STREAM BANK AT A HEIGHT EQUAL TO BETWEEN 1/2 BANKFULL STAGE AND BANKFULL STAGE. ELEVATION CONTROL POINTS MAY BE ESTABLISHED AT THE LEFT OR RIGHT STREAM BANK/VANE ARM INTERCEPT POINTS. THE VANE ARM INTERCEPT LOCATION MAY BE OTHERWISE DESCRIBED BY ITS RELATIONSHIP TO BANKFULL STAGE OR BY THE LENGTH AND SLOPE OF THE VANE ARM. BANKFULL IS NOT NECESSARILY THE TOP OF THE STREAM BANK SLOPE.
4. IF PLANS DESIGNATE THE USE OF MULTIPLE LOG J-HOOK VANES A TABLE OF ALL STATION LOCATIONS AND CONTROL POINT ELEVATIONS SHALL BE PROVIDED IN THIS DETAIL OR PROVIDED ELSEWHERE IN THE PLANS AND REFERENCED HEREIN.
5. A TYPICAL POOL CROSS SECTION SHALL BE PROVIDED ELSEWHERE IN THE PLANS TO ESTABLISH THE DIMENSIONS OF THE CHANNEL GRADING INTO WHICH THE LOG J-HOOK VANES ARE TO BE INSTALLED.

6. THE LOG J-HOOK VANE SHALL BE CONSTRUCTED WITH A LOG VANE ARM AND A BOULDER HOOK. LOGS SHALL BE OF A LENGTH AND DIAMETER SPECIFIED BY THE DESIGNER AND BE RELATIVELY STRAIGHT HARDWOOD, RECENTLY HARVESTED. THE LENGTH SHALL BE SUCH THAT THE LOG IS BURIED INTO THE SOIL OF THE STREAM BANK (ON ONE END) AND STREAM BED (ON THE OTHER END) A MINIMUM DISTANCE AS SPECIFIED BY THE DESIGNER. A SINGLE LOG MAY BE USED INSTEAD OF A HEADER/FOOTER LOG COMBINATION. FLAT-SIDED BALLAST (OPTIONAL) AND HOOK BOULDERS SHALL BE OF A SIZE (LENGTH, WIDTH, AND DEPTH) AS SPECIFIED BY THE DESIGNER.
7. FILTER FABRIC OF A TYPE AND SIZE SPECIFIED BY THE DESIGNER SHALL BE USED TO SEAL THE GAPS BETWEEN THE LOGS AND UNDER THE COARSE BACKFILL MATERIAL OF THE VANE ARM. THERE SHALL BE NO FILTER FABRIC VISIBLE IN THE FINISHED WORK; EDGES SHALL BE FOLDED, TUCKED, OR TRIMMED AS NEEDED.
8. COARSE BACKFILL OF THE LOG J-HOOK VANE ARM SHALL BE OF A TYPE, SIZE, AND GRADATION AS SPECIFIED BY THE DESIGNER. COARSE BACKFILL SHALL BE PLACED TO A THICKNESS EQUAL TO THE DEPTH OF THE HEADER (AND FOOTER, IF SPECIFIED) LOGS AND SHALL EXTEND OUT FROM THE VANE ARM TO THE STREAM BANK.
9. THE VANE ARM OF THE LOG J-HOOK SHALL BE CONSTRUCTED FIRST, FOLLOWED BY THE HOOK.
10. LOG J-HOOK VANES SHALL BE BUILT TYPICALLY AS FOLLOWS:
  - A. OVER-EXCAVATE STREAM BED TO A DEPTH EQUAL TO THE TOTAL THICKNESS OF THE HEADER (AND FOOTER, IF SPECIFIED) LOGS.
  - B. PLACE FOOTER LOG OF THE VANE ARM IF SPECIFIED. THE SLOPE OF THE VANE ARM IS MEASURED ALONG THE VANE ARM WHICH IS INSTALLED AT AN ANGLE TO THE STREAM BANK AND PROFILE.
  - C. INSTALL HEADER LOG ON THE VANE ARM ON TOP OF AND SET SLIGHTLY FORWARD OR BACK FROM THE FOOTER LOG.
  - D. NAIL FILTER FABRIC TO THE HEADER LOG USING A GALVANIZED NAIL WITH A PLASTIC CAP. THE SIZE AND GAGE OF NAIL AND NAIL SPACING SHALL BE SPECIFIED BY THE DESIGNER.
  - E. PLACE COARSE BACKFILL BEHIND LOGS ENSURING THAT ANY VOIDS BETWEEN THE BOULDERS ARE FILLED.
  - F. PLACE BALLAST BOULDERS ON THE VANE ARM.
  - G. EMBED THE END OF THE HOOK BOULDERS INTO THE OPPOSITE BANK.
11. IF ANY EROSION CONTROL MATTING IS SPECIFIED FOR USE IN THE VICINITY OF THE VANE ARM INTERCEPT POINTS THE MATTING EDGES SHALL BE NEATLY SECURED AROUND THE LOGS.

DIMENSIONS (VALUES TO BE PROVIDED BY DESIGNER)			
VARIABLE	VALUES	TYPICAL UNIT	DESCRIPTION
X1		FT. (NAVD)	LEFT OR RIGHT VANE ARM INTERCEPT CONTROL POINT ELEVATION
X2		FT. (NAVD)	POOL CONTROL POINT ELEVATION
X3		FT.	BANKFULL WIDTH
X4		FT.	MAXIMUM POOL DEPTH
X5		IN.	D50 OF COARSE BACKFILL
X6		FT.	VANE ARM LENGTH
X7		FT.	VANE ARM LOG LENGTH
X8		IN.	LOG DIAMETER
X9		FT.	LENGTH OF VANE ARM BURIED INTO SOIL
X11		DEGREES	VANE ARM ANGLE WITH STREAM BANK
X12		FT. OR IN.	DIFFERENCE BETWEEN TOP OF BANK (BANKFULL) AND VANE ARM INTERCEPT POINT
X13		PERCENT	VANE ARM SLOPE
X14		IN. OR FT.	BALLAST/HOOK BOULDER LENGTH
X15		IN. OR FT.	BALLAST/HOOK BOULDER WIDTH
X16		IN. OR FT.	BALLAST/HOOK BOULDER THICKNESS
X17		IN.	HEADER LOG SET BACK
X18		IN.	OPPOSITE BANK TIE IN HEIGHT
X19		IN.	OPPOSITE BANK EMBEDMENT LENGTH



**CROSS SECTION B-B'** **NOT TO SCALE**

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