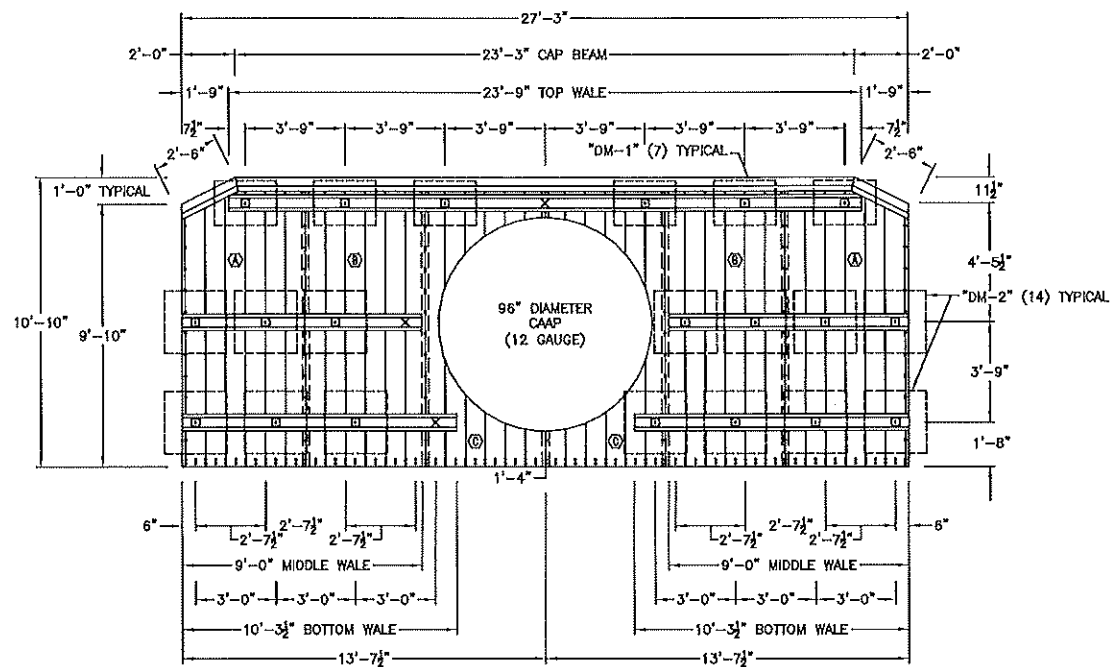


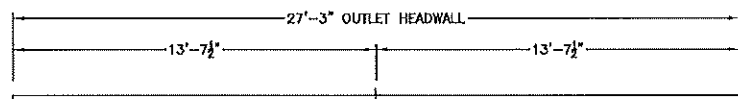
TYPE VI STIFFENING RIB BOLTED TO THE TOP AND BOTTOM ON SOIL SIDE OF EACH HEADWALL



ELEVATION VIEW

-INLET/OUTLET HEADWALL-

"X" DENOTES ROD ATTACHMENT TO PIPE



ELEVATION VIEW

-OUTLET HEADWALL-

0.200" THICK ALUMINUM STRUCTURAL SHEET (9" x 2 1/2" CORRUGATION) HEADWALL

PIPE FULLY WELDED TO HEADWALL (INSIDE & OUT)

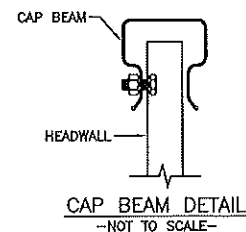
1/4" THICK ALUMINUM EXTERNAL FLANGE FULLY WELDED TO ENDS OF PIPE JOINT TO BE SUPPLIED WITH 3/4" DIAMETER BOLTS & NEOPRENE GASKET

96" DIAMETER CAAP (12 GAUGE)

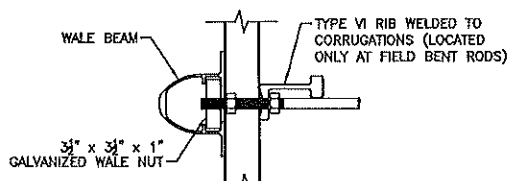
PIPE FULLY WELDED TO HEADWALL (INSIDE & OUT)

0.200" THICK ALUMINUM STRUCTURAL SHEET (9" x 2 1/2" CORRUGATION) HEADWALL

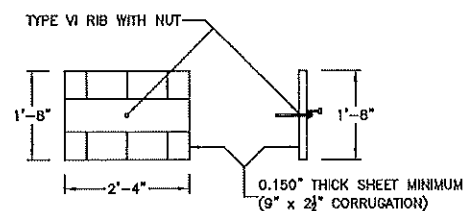
PLAN VIEW



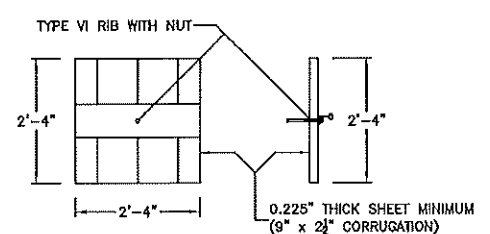
CAP BEAM DETAIL



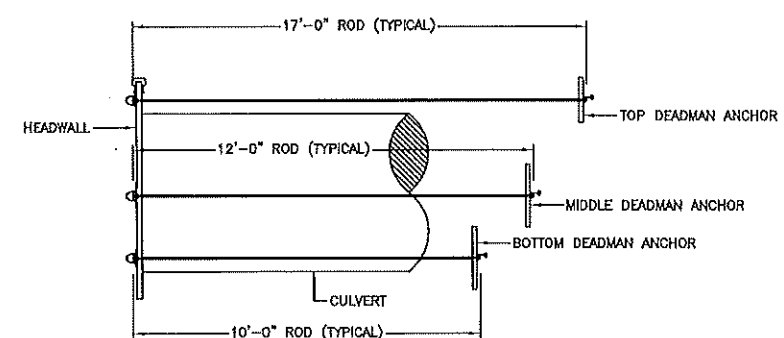
TYPE VI RIB DETAIL



TOP SINGLE ROD ANCHOR DETAIL (DM-1)



MIDDLE & BOTTOM SINGLE ROD ANCHOR DETAIL (DM-2)



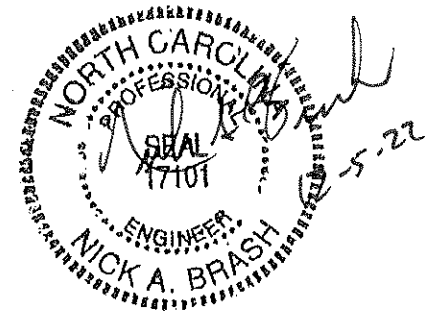
ELEVATION VIEW DETAILING RODS/DEADMAN ANCHORS

ASSEMBLY REQUIREMENTS--HEADWALLS							
HEAT NO.	RADIUS	MK	SHIP		T	REMARKS	
			PIECES	LENGTH			
X	FLAT	(A)	4	13	10.83'	.200"	BEVEL CUT ON TOP
X	FLAT	(B)	4	13	10.83'	.200"	FULL PLATE
X	FLAT	(C)	4	13	10.83'	.200"	PIPE WELDED TO PLATE
		DM1	12	2	1.67'	.225"	DEADMAN WITH TYPE VI
		DM2	28	3	2.33'	.225"	DEADMAN WITH TYPE VI
			2		23.25'		ALUMINUM CAP BEAMS
			4		2.50'		ALUMINUM CAP BEAMS
			2		23.75'		ALUMINUM WALE BEAMS
			4		10.29'		ALUMINUM WALE BEAMS
			4		9.00'		ALUMINUM WALE BEAMS
			46				WALE NUTS
			12		3/4" DIA. X 17'-0" LONG RODS FOR DEADMAN ANCHORS		
			14		3/4" DIA. X 12'-0" LONG RODS FOR DEADMAN ANCHORS		
			14		3/4" DIA. X 10'-0" LONG RODS FOR DEADMAN ANCHORS		
			6		3/4" DIA. BENT RODS ATTACHED TO PIPE		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT

X ACCEPTED
— ACCEPTED AS NOTED
- RETURNED FOR CORRECTIONS
X SEE EMAIL

BY: TMS
DATE: January 9, 2022



- NOTES:
- 1.) The Depth Of Bury Is Defined As The Amount Of Soil Cover Above The Top Of The Highest Point Of The Deadman.
 - 2.) The Minimum Burial Depth For The Top Deadman Anchor Is 2'-0" (Inlet & Outlet) From Top Of Road.
 - 3.) The Minimum Burial Depth For The Middle Deadman Anchor Is 4'-5" (Inlet & Outlet) From Top Of Road.
 - 4.) The Minimum Burial Depth For The Bottom Deadman Anchor Is 7'-6" (Inlet & Outlet) From Top Of Road.
 - 5.) All Backfill Material In The Structural Zone Is To Be #57 Stone - Separation Fabric May Be Required To Prevent Soil Migration.
 - 6.) All Rods To Be Installed Parallel To Pipe To Prevent Conflict, Bend Rods In The Field (USE NO HEAT).

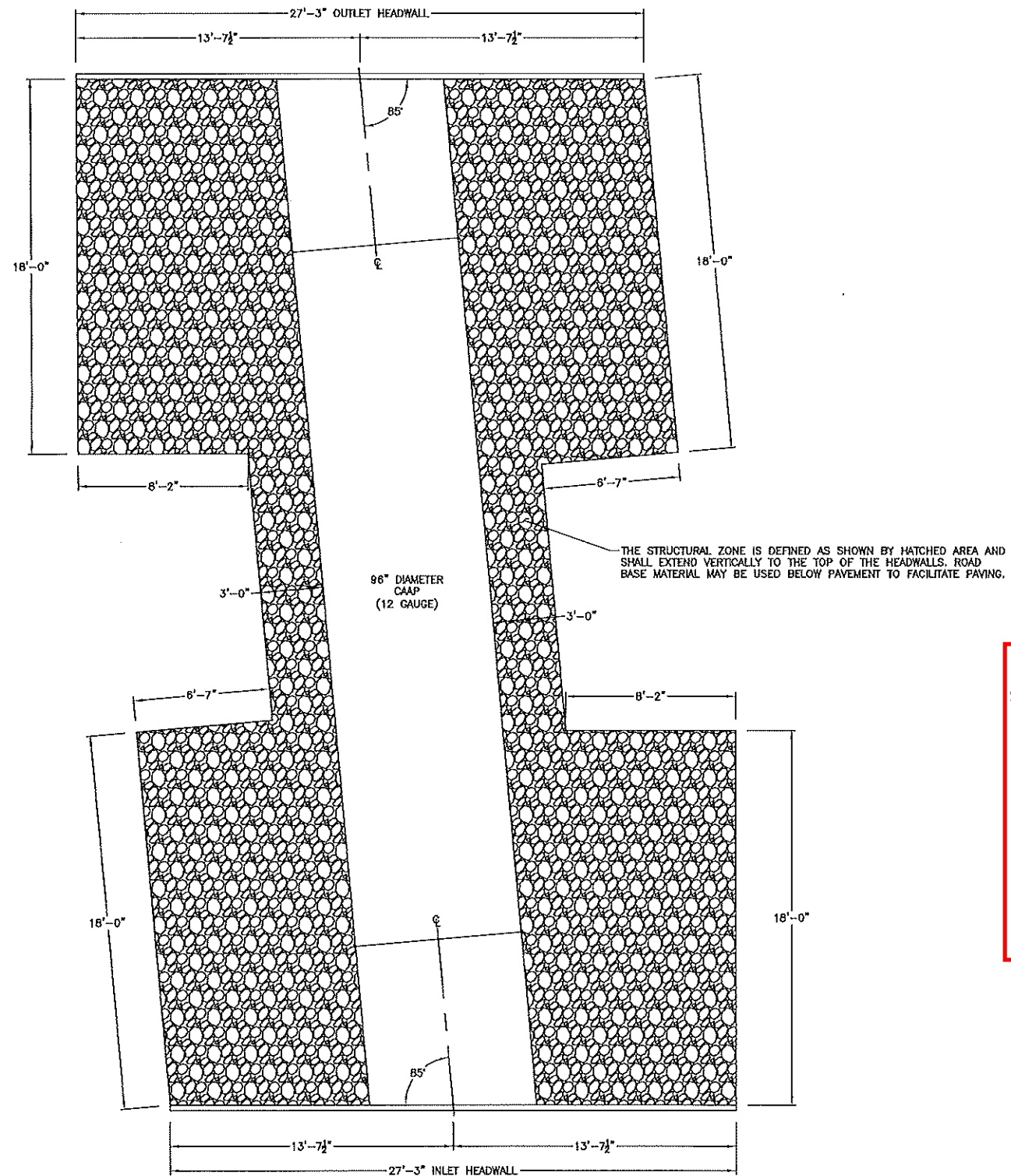
Comprehensive Construction Services, Inc.
1326 Grandin Road SW
Roanoke, VA 24015
(540) 344-3003
FAX (540) 344-3337
Firm License No. C-2875

SHIPMENT SUMMARY:

SPECIFICATIONS: AASHTO M219	GAGE:
APPROXIMATE SHIPPING WEIGHT:	TOP:
CUSTOMER:	SIDES:
	CORNER:
	BOTTOM:

PROJECT: NCDOT - DURHAM COUNTY
FERRELL ROAD (SR 1671)
HEADWALLS (0.200" THICKNESS)
96" DIAMETER, 3" x 1" CORRUGATION, 12 GAUGE

DRAWN BY: JEC	REVISIONS:			
CHECKED BY:	NO.	DATE	BY	NOTES
APPROVED BY:	1			
DATE: 12/05/2022	2			
SCALE: NTS	LANE METAL PRODUCTS DIVISION			IFB #:
	of LANE ENTERPRISES, INC.			54-MKB-12050795
	CAMP HILL, PA			LANE PROJECT NUMBER:



PLAN VIEW

THE STRUCTURAL ZONE IS DEFINED AS SHOWN BY HATCHED AREA AND SHALL EXTEND VERTICALLY TO THE TOP OF THE HEADWALLS. ROAD BASE MATERIAL MAY BE USED BELOW PAVEMENT TO FACILITATE PAVING.

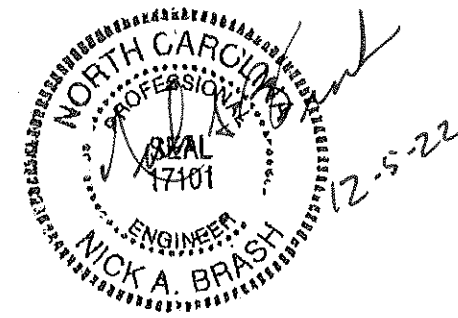
N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT

X ACCEPTED
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 — RETURNED FOR CORRECTIONS
 X SEE EMAIL

BY: TMS
 DATE: January 9, 2022

Aluminum Structural Plate Headwall Installation Instructions:

- 1.) Aluminum structural plate headwalls shall conform to the latest requirements of AASHTO M219 or ASTM B746 with a minimum thickness of 0.200".
- 2.) Headwalls may incorporate the full variety of shapes and sizes available in corrugated metal pipe and structural plate culverts (arch pipe, arch, box culvert, et al). Additionally, headwalls may be equipped with wingwalls of the same design and material. However, it shall be incumbent upon the project engineer to ensure constructability and structural adequacy through the implementation of submittal requirements (shop drawings, calculations, etc).
- 3.) It shall be the responsibility of the installation crew to implement sound installation practices consistent with AASHTO LRFD Bridge Construction Practices. As necessary and at the discretion of the project engineer, the headwall manufacturer or other expertise may be enacted to supervise construction when a bid item for such activity has been included in the contract documents or project specifications.
- 4.) The site shall be excavated per design plans and OSHA requirements. Bedding shall be prepared per Design Engineers specifications to achieve bearing capacity and establish line & grade. The headwall shall be properly placed at the design elevation by ensuring the stub is placed at grade for the culvert crossing.
- 5.) Backfill placement and compaction shall be consistent with Section 26 of the AASHTO LRFD Bridge Construction Specifications. All backfill in the structural zone shall be #57 washed stone or other as approved by the engineer of record. Deadman anchors and rods shall be attached to the headwall & wings at the predetermined design elevations per design drawings.
- 6.) The headwall shall be properly shored through the backfilling process. In general, the wall should be braced at the wale line located above the fill line until the corresponding anchor is completely embedded. The wall shall also be braced at the top anchor location until completely backfilled.
- 7.) All steel components (nuts, bolts, tie back rods) shall have a hot-dipped galvanized coating.
- 8.) As a matter of expedience and to the extent practical, the headwall-culvert system may be completely or partially assembled and lifted as a unit to facilitate placement of the unit in a prepared excavation complete with bedding to grade.



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 Firm License No. C-2875

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SPECIFICATIONS:	AASHTO M219			GAGE:
APPROXIMATE SHIPPING WEIGHT:				TOP:
CUSTOMER:				SIDES:
				CORNER:
				BOTTOM:
PROJECT: NCDOT - DURHAM COUNTY FERRELL ROAD (SR 1671) HEADWALLS (0.200" THICKNESS) 96" DIAMETER, 3" x 1" CORRUGATION, 12 GAUGE				
DRAWN BY:	JEC	REVISIONS:		
CHECKED BY:		NO.	DATE	BY
APPROVED BY:		1		
DATE:	12/05/2022	2		
SCALE:	NTS			
LANE METAL PRODUCTS DIVISION of LANE ENTERPRISES, INC. CAMP HILL, PA				IFB #: 54-MKB-12050795 LANE PROJECT NUMBER: