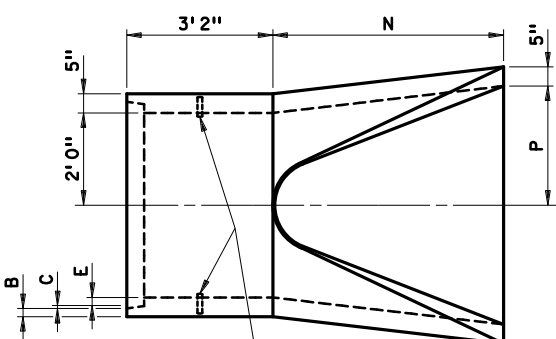


PLOTTED/REVISED: 10-JAN-2019

PATH & FILE NAME: Q:\S\DesignStandards\Development\Standard\Plates\DEV\2018\3020_s3020_spt.dgn

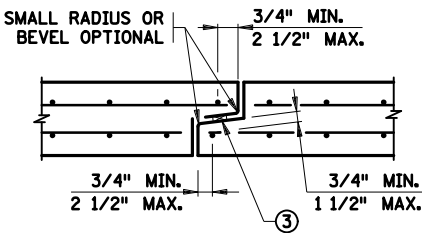
PLOT NAME: s3020_spt

PLOT NAME: s3020_spt

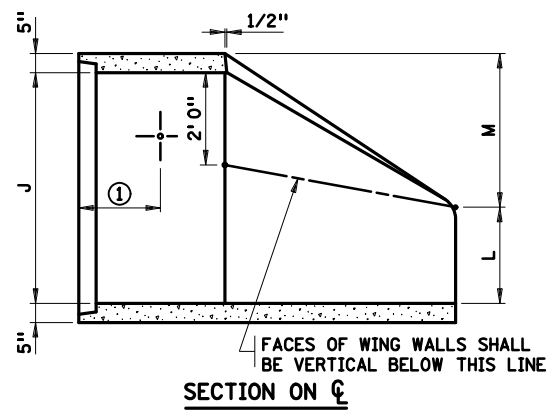


1-1/4" CAST HOLES PLACED AT 75° FROM VERTICAL TO ACCOMMODATE CULVERT TIES (SEE STANDARD PLATE 3145)

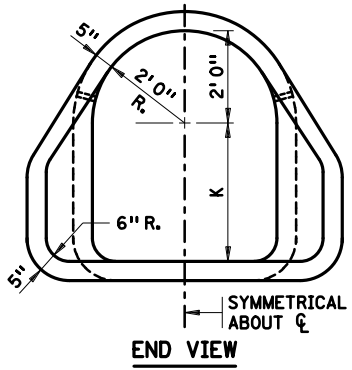
TOP VIEW



TONGUE AND GROOVE JOINT DETAIL ②



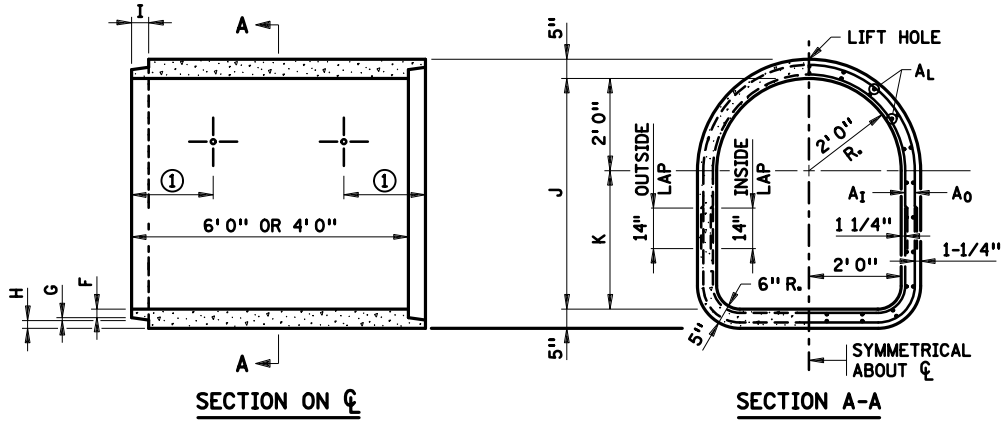
SECTION ON CL



END VIEW

DETAILS OF FLARED END SECTION

(REINFORCEMENT NOT SHOWN)



SECTION ON CL

SECTION A-A

DETAILS OF INTERMEDIATE SECTION

BASIS OF DESIGN:

DESIGNED IN ACCORDANCE WITH 2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION AND MnDOT LRFD BRIDGE DESIGN MANUAL.

WELDED WIRE REINFORCEMENT MINIMUM SPECIFIED YIELD STRESS = 65 KSI

MINIMUM SPECIFIED CONCRETE STRENGTH = 4 KSI

CONSTRUCTION NOTES:

USE 4 FT. SECTIONS ONLY AS NEEDED TO MATCH REQUIRED PLAN LENGTH, BUT NOT MORE THAN TWO 4 FT. SECTIONS PERMITTED IN ANY CATTLE PASS. PLACE SHORT SECTIONS NEAR ENDS OF CATTLE PASS.

FILL OVER TOP OF CATTLE PASS; 1 FT. MINIMUM, 15 FT. MAXIMUM.

CONFORM DESIGN OF FLARED END SECTION TO MATCH INTERMEDIATE SECTION.

ROUNDED EDGE PERMITTED ON SLOPED END.

PLACE GROOVED END UP GRADE AND TONGUE END DOWNGRADE.

CAST NO MORE THAN ONE LIFT HOLE IN EACH INTERMEDIATE SECTION OF PIPE. FURNISH TAPERED CONCRETE PLUGS FOR CLOSING LIFT HOLES.

PLACE U-BOLT, SINGLE, OR DOUBLE CONNECTION TIE AS SHOWN ON STANDARD PLATE 3145, INSERTED FROM THE INSIDE WITH THE NUTS ON THE OUTSIDE.

① REFER TO STANDARD PLATE 3145.

② LONGITUDINAL END WIRE MAY BE EXTENDED TO THE END SURFACE OF THE JOINT IN LIEU OF USING A BAR CHAIR.

③ REFER TO SPEC, 2412 FOR SEALANT REQUIREMENTS.

DIMENSIONS

CATTLE PASS SIZE	CATTLE PASS SIZE	
	60"	72"
B	2-1/8"	2"
C	5/8"	3/4"
E	2-1/4"	2-1/4"
F	2-1/16"	2"
G	5/8"	3/4"
H	2-5/16"	2-1/4"
I	4-1/2"	5"
J	5' 0"	6' 0"
K	3' 0"	4' 0"
L	2' 6"	2' 11"
M	2' 11"	3' 6"
N	5' 0"	7' 0"
P	3' 0"	3' 6"

ESTIMATED WEIGHT OF FLARED END SECTIONS:
7,320 LBS. (60")
10,650 LBS. (72")

CONCRETE 4000 PSI

STEEL AREA SQ. IN. PER LIN. FT.		
A _I	A _O	A _L
0.35	0.35	0.05 EF

A_L = LONGITUDINAL, EACH FACE
A_I = INSIDE, A_O = OUTSIDE
APPROX. WEIGHT OF INTERMEDIATE SECTIONS:
(60") 1110 LBS. PER FT.
(72") 1240 LBS. PER FT.

APPROVED JANUARY 9, 2019

Rom Sja
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE CATTLE PASS (60 IN. & 72 IN.)

SPECIFICATION REFERENCE

3236
2412
2501

STANDARD PLATE NO.

3020H