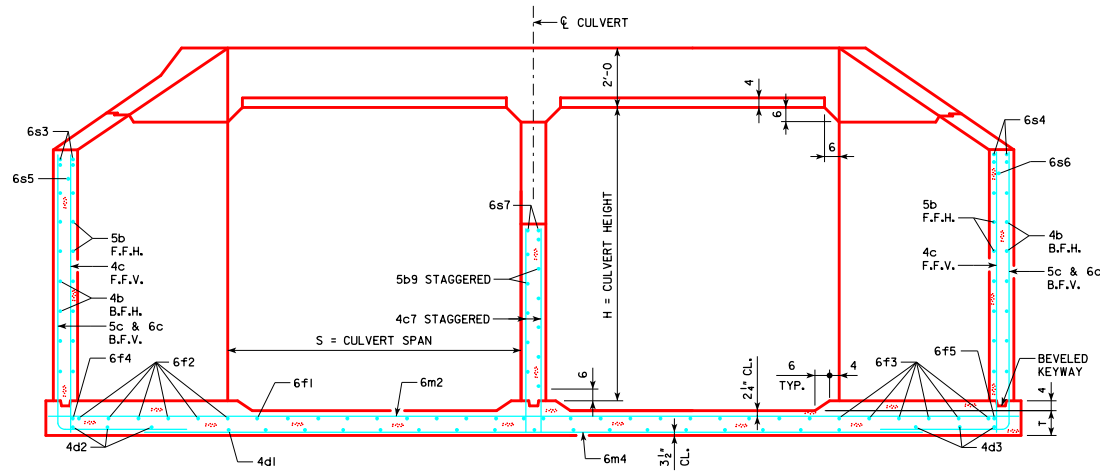
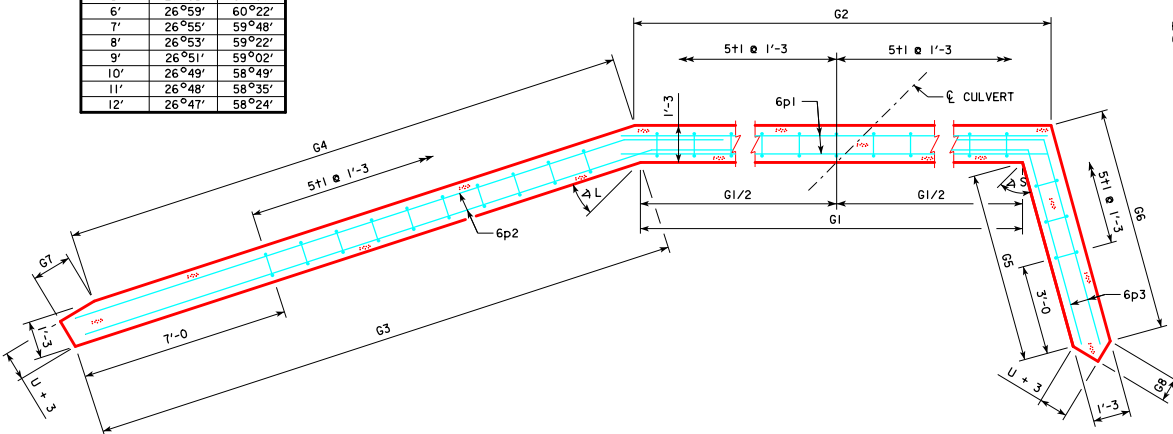


REVISED 12-2016; ADDED CURTAIN WALL CLASS 20 EXCAVATION DETAIL  
ENGLISH DESIGN INC./CULVERTS.DGN - TWH 45-5-12 - THIS SHEET ISSUED 04-12

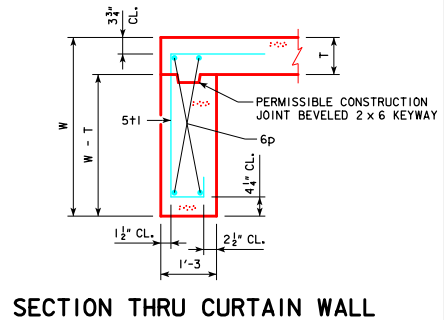
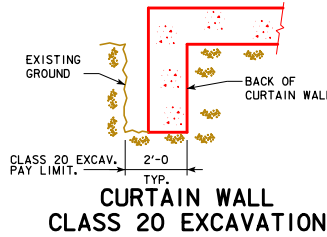


TYPICAL SECTION - NEAR CENTER OF APRON

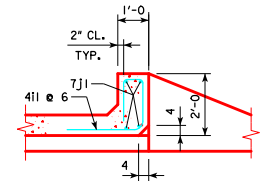
CULVERT HEIGHT (H)	ANGLE	
	Δ L	Δ S
4'	27°10'	62°06'
5'	27°03'	61°07'
6'	26°59'	60°22'
7'	26°55'	59°48'
8'	26°53'	59°22'
9'	26°51'	59°02'
10'	26°49'	58°49'
11'	26°48'	58°35'
12'	26°47'	58°24'



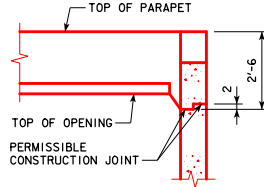
CURTAIN WALL PLAN



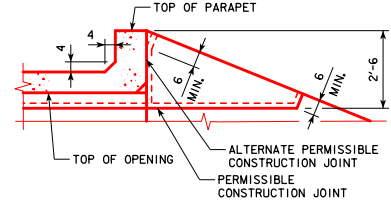
SECTION THRU CURTAIN WALL



SECTION THRU PARAPET




TOP OF WINGWALL DETAILS



**NOTES:**

1. SEE SHEET TWRCB G1-12 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
2. FOR DIMENSION TABLE SEE SHEET TWH 45-2-12.

12-2016 LATEST REVISION DATE  <i>Norman E. M. Dwyer</i> APPROVED BY BRIDGE ENGINEER	 <b>Iowa Department of Transportation</b> Highway Division
	STANDARD DESIGN <b>TWIN REINFORCED CONCRETE BOX CULVERTS</b> APRIL, 2012
	<b>FLARED WING HEADWALLS</b> 45° SKEW
<b>TWH 45-5-12</b>	