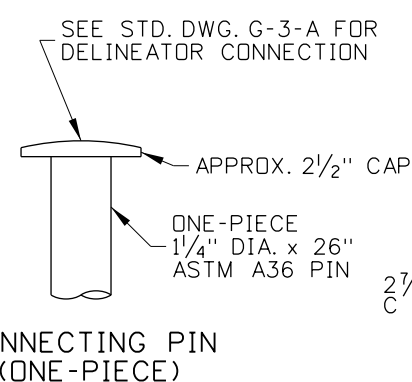
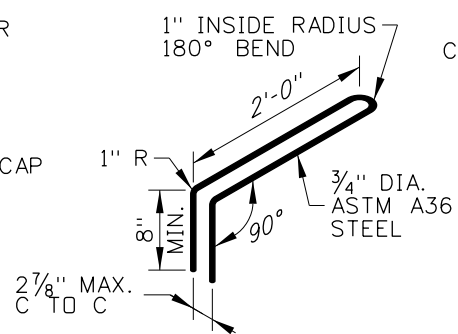


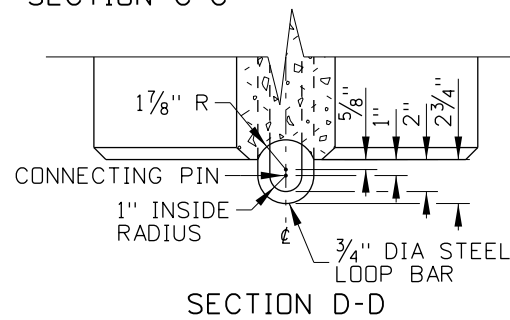
CONNECTING PIN DETAIL (SEE NOTE NO. 6)



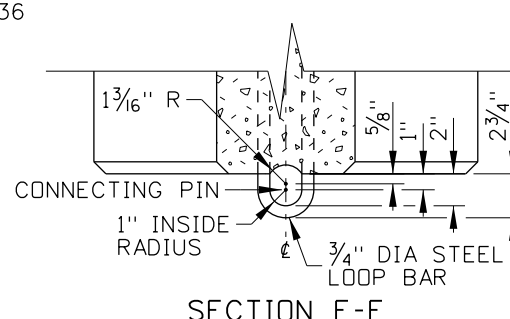
CONNECTING PIN (ONE-PIECE)



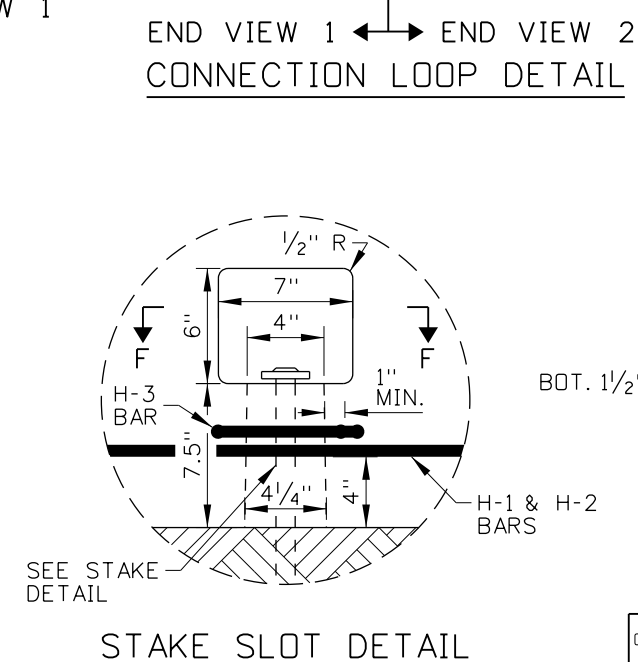
STEEL LOOP BAR DETAIL



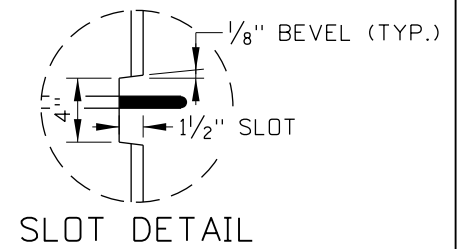
SECTION D-D



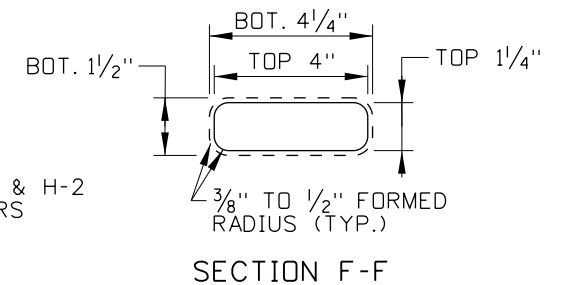
SECTION E-E



STAKE SLOT DETAIL



SLOT DETAIL



SECTION F-F

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: MAY 5, 2017

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-00	MSM	6	06-04	MSM	11	05-17
2	12-01	MSM	7	10-04	MSM		
3	07-02	MSM	8	09-10	PLR		
4	07-03	MSM	9	03-13	RDL		
5	09-03	MSM	10	04-14	RDL		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 612-15_0517.dgn

DRAWING DATE: NOVEMBER, 1999

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

20' CONCRETE BARRIER

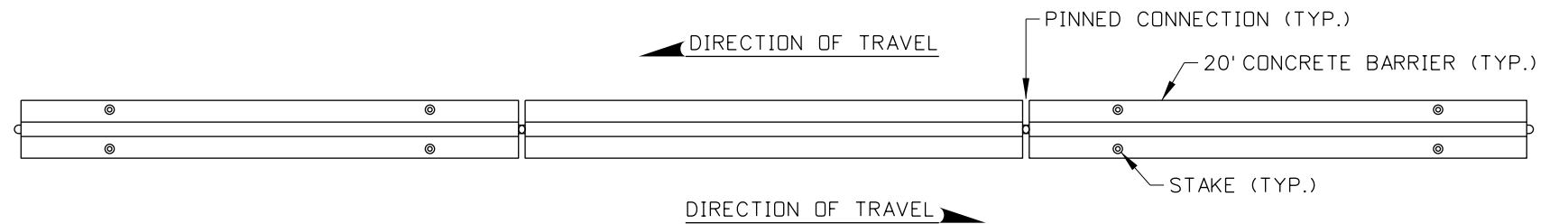
REQUIRES SHEETS 2 OF 3 AND 3 OF 3

English

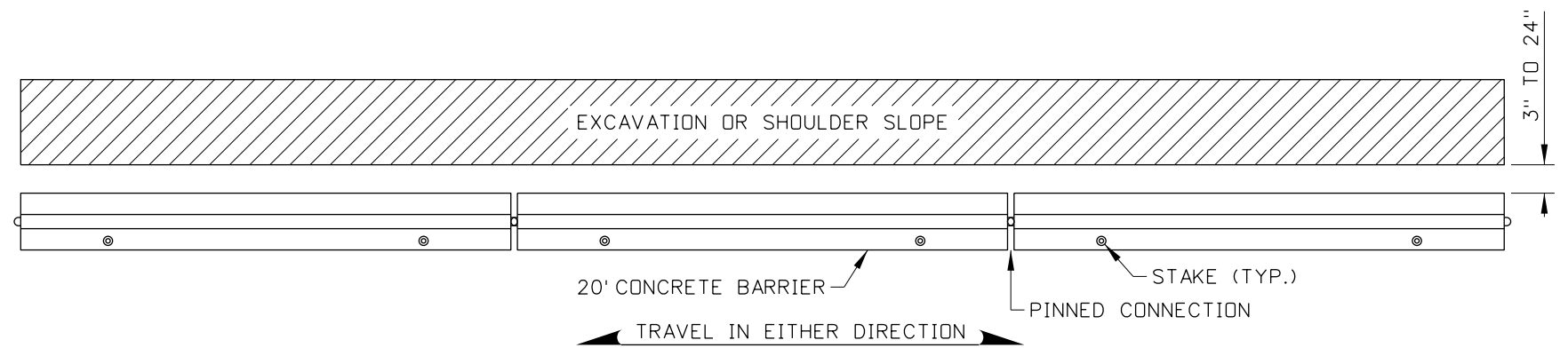
STANDARD DRAWING NO. 612-15

SHEET 1 OF 3

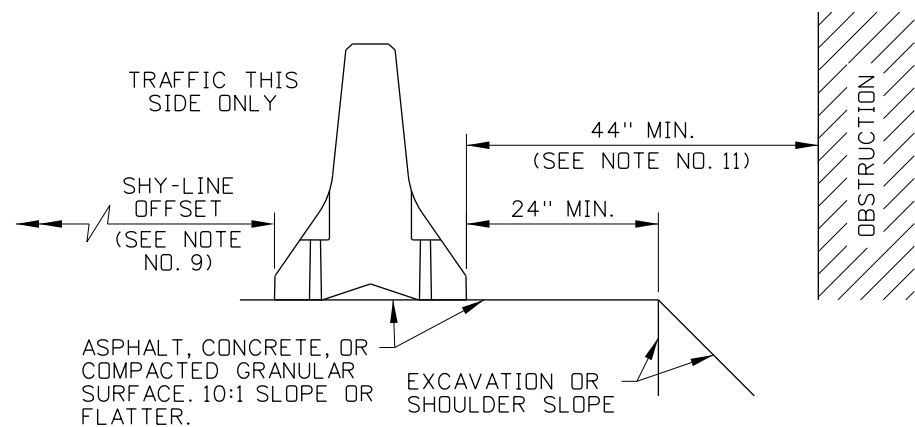
REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL BAR. TIED INSIDE V-1 BARS.	NO. 5	6	19'-3"
H-2	HORIZONTAL BAR. 3 CENTERED ABOVE EACH SCUPPER.	NO. 5	6	6'-6"
H-3	HORIZONTAL BAR. TIED TO H-1 TO SUPPORT H-2.	NO. 4	2	1'-6"
H-4	HORIZONTAL BAR. 1 AROUND EACH SLOT BETWEEN V-1 BARS.	NO. 4	2	
V-1	VERTICAL BAR. 3 AT EACH END AND SPACED 18 7/8" THEREAFTER	NO. 5	16	
V-2	VERTICAL BAR. 1 OVER EACH LIFTING HOLE.	NO. 4	2	



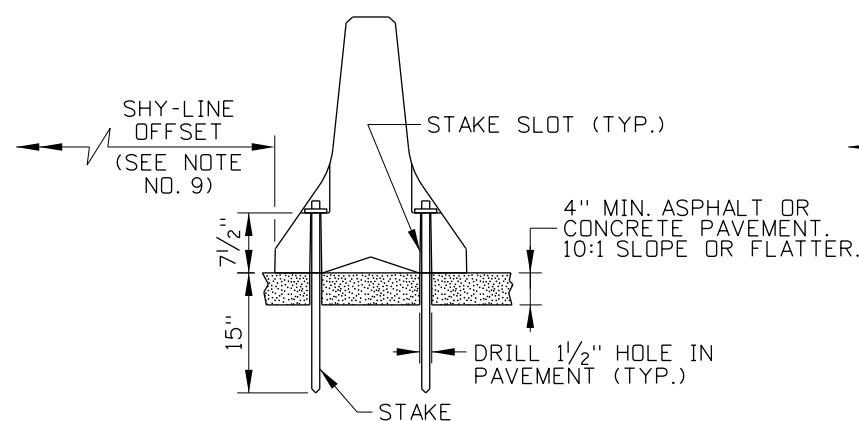
STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
(SEE NOTE NO. 11)



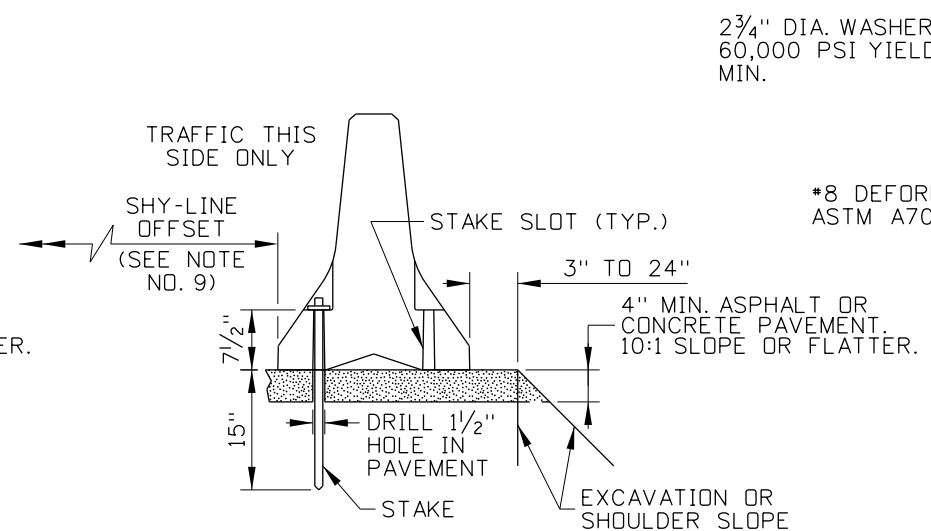
STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 11)



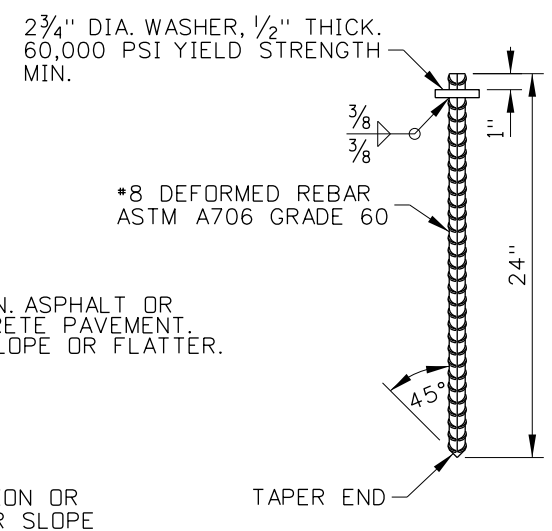
NON-STAKED BARRIER
SHOWN ADJACENT TO EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 11)



STAKED MEDIAN BARRIER
SEE STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
(SEE NOTE NO. 11)



STAKED SHOULDER BARRIER
SEE STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 11)



STAKE DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
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BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

20' CONCRETE BARRIER

REQUIRES SHEETS 1 OF 3 AND 3 OF 3

English

STANDARD DRAWING NO.

612-15

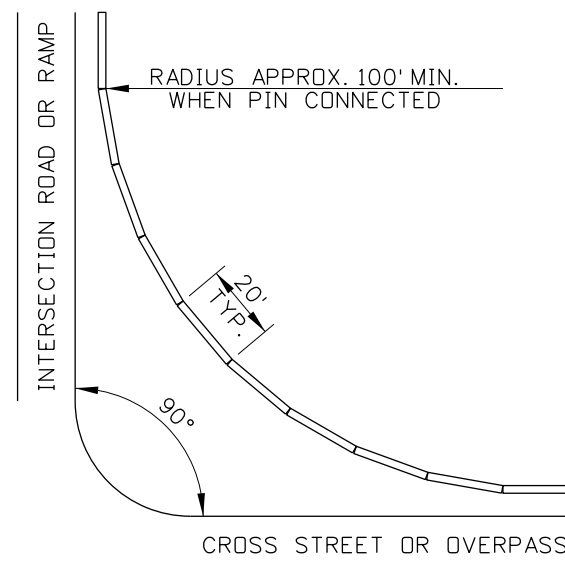
SHEET 2 OF 3

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
MAY 5, 2017

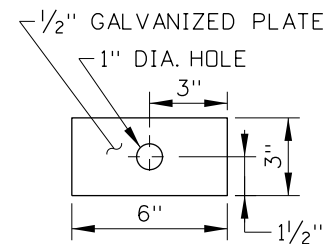
NOTES

CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE				
DESIGN SPEED (MPH)	SHY-LINE OFFSET (FT)	BARRIER FLARE RATE		
		INSIDE SHY LINE	AT OR BEYOND SHY LINE NOT STAKED	STAKED
70	9	30:1	15:1	20:1
60	8	26:1	14:1	18:1
55	7	24:1	12:1	16:1
50	6.5	21:1	11:1	14:1
45	6	18:1	10:1	12:1
40	5	16:1	8:1	10:1
30	4	13:1	7:1	8:1

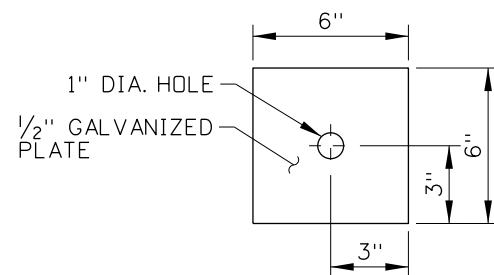


CURVED LAYOUT DETAIL
(SEE NOTE NO. 7)

1. PRECAST USING CLASS 40AF CONCRETE. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE. IF USED, LEAVE THE PVC SLEEVE IN PLACE.
5. TERMINATE THE BARRIER WITH A CRASHWORTHY END TREATMENT. ACCEPTABLE END TREATMENTS MAY INCLUDE TAPERING THE BARRIER OUTSIDE OF THE CLEAR ZONE, TRANSITION TO W-BEAM OR THRIE-BEAM GUARDRAIL, A CRASH CUSHION, OR CONNECTION TO A BRIDGE PARAPET.
6. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
7. PIN CONNECTED 20' CONCRETE BARRIERS MAY BE ANGLED APPROXIMATELY 10° AT CONNECTIONS. TEN BARRIER UNITS, ANGLED 10° BETWEEN UNITS, ARE NEEDED TO COMPLETE A 90° TURN.
8. WHEN CONNECTING 20' CONCRETE BARRIER TO 10' CONCRETE BARRIER, THE EXPOSED STEEL LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT.
9. ENSURE THAT THE BARRIER IS OFFSET 20" FROM THE EDGE OF NORMAL SHOULDER WHEN TRANSITIONING TO OR FROM W-BEAM OR THRIE-BEAM GUARDRAIL.
10. WHEN INTRODUCING THE CONCRETE BARRIER, FLARE THE BARRIER IN ACCORDANCE WITH THE CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE.
11. THE BARRIER CAN BE INSTALLED WITH OR WITHOUT STAKES.
 - A. WHEN INSTALLED WITHOUT STAKES, ALLOW FOR 44" OF DEFLECTION BEHIND THE BARRIER.
 - B. WHEN INSTALLED AS A MEDIAN BARRIER (BETWEEN TWO-WAY TRAFFIC) ON HIGHWAYS WITH LESS THAN 24" BETWEEN THE EDGE OF TRAVELED WAY AND THE BARRIER, USE FOUR STAKES IN EVERY OTHER PANEL WITH END PANELS STAKED.
 - C. WHEN PLACED 3" TO 24" FROM THE EDGE OF AN EXCAVATION OR SHOULDER HINGE POINT, USE TWO STAKES PER PANEL ALONG THE TRAFFIC SIDE.
 - D. ON BRIDGE DECKS, USE ANCHOR BOLTS OR DECK BOLTS IN LIEU OF STAKES. USE FOUR BOLTS PER BARRIER SEGMENT. ENSURE THAT ANCHOR BOLTS ARE EMBEDDED A MINIMUM DEPTH OF 6" OR PER THE INSTALLATION INSTRUCTIONS OF THE BONDING MATERIAL.
 - E. DO NOT STAKE OR BOLT BARRIER UNITS THAT EXTEND ACROSS BRIDGE EXPANSION JOINTS.
12. THE FOLLOWING APPLY WHEN STAKES, ANCHOR BOLTS, OR DECK BOLTS ARE USED:
 - A. ENSURE THAT THE STAKES OR BOLTS DO NOT PROTRUDE BEYOND THE EXTERIOR FACE OF THE BARRIER SURFACE.
 - B. DO NOT DRILL ANCHOR HOLES INTO PRESTRESSED CONCRETE DECK PANELS.
 - C. ENSURE THAT BRIDGE DECK ANCHOR HOLES ARE DRILLED OR CORED SMOOTH AND ROUND.
 - D. DO NOT USE EXPANSION ANCHORS.
 - E. TIGHTEN DECK BOLTS DOWN WELL. BOLT LENGTH SHOULD ALLOW AT LEAST ONE COURSE OF THREADS TO SHOW OUTSIDE OF THE NUT WHEN TIGHTENED.
13. DRAWINGS NOT TO SCALE.

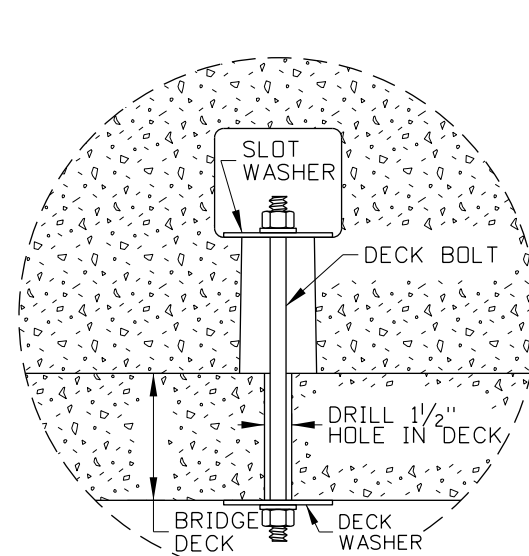


SLOT WASHER

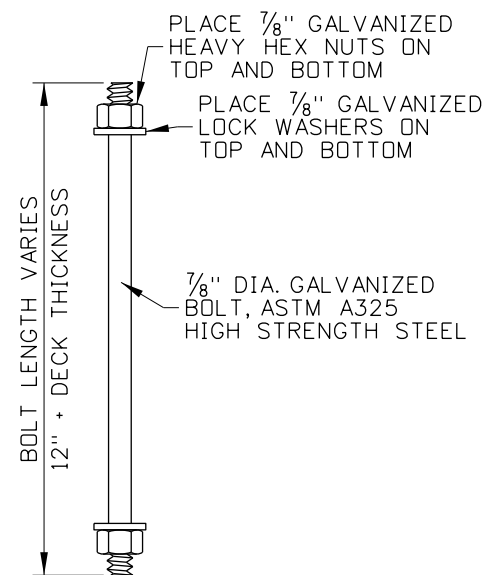


DECK WASHER

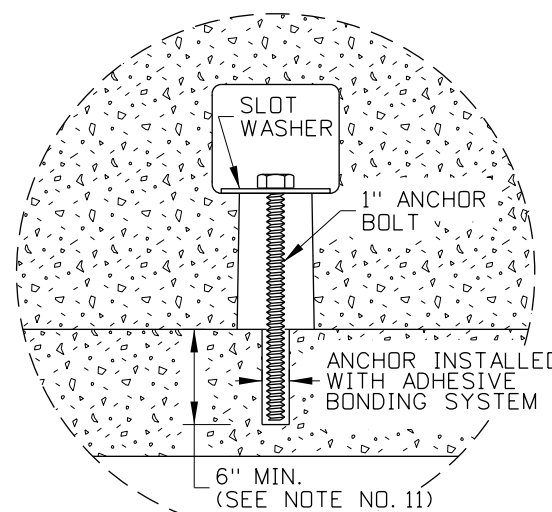
WASHER DETAILS



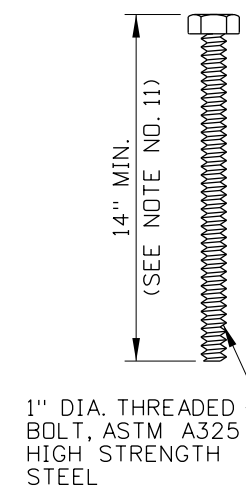
DECK BOLT ASSEMBLY



DECK BOLT



ANCHOR BOLT ASSEMBLY



ANCHOR BOLT

BRIDGE DECK ANCHOR DETAILS

(SEE NOTE NOS. 11 AND 12)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 5, 2017

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DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
20' CONCRETE BARRIER
REQUIRES SHEETS 1 OF 3 AND 2 OF 3

English
STANDARD DRAWING NO.
612-15
SHEET 3 OF 3