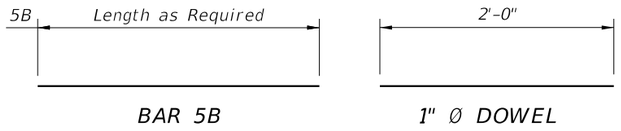
REINFORCING STEEL BENDING DIAGRAMS

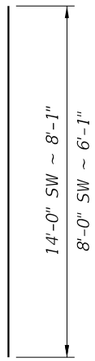
BILL OF REINFORCING STEEL

MARK	SIZE	LENGTH
A (8'-0" NW)	5	6'-1"
A (14'-0" NW)	5	8'-1"
B	5	AS REQD.
T	5	4'-3"
V	5	3'-10"
DOWEL	1" Ø Smooth Bar	2'-0"

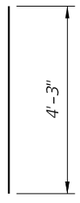


BAR 5B

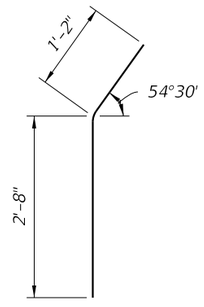
1" Ø DOWEL



BAR 5A



BAR 5T



BAR 5V

REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints will have a 2" minimum cover.
3. Lap splices for Bars 5B will be a minimum of 2'-2".
4. Lap splices Bars 5T and 5V with 5U1 will be a minimum of 2'-2".
5. The Contractor may use Welded Wire Reinforcement (WWR) when approved by the Engineer. WWR must consist of Deformed wire meeting the requirements of Specification Section 931.

NOTES

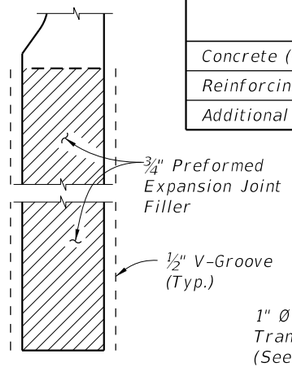
1. CONSTRUCTION REQUIREMENTS: Construct the Trench Footing and expansion joints plumb; do not construct the Trench Footing perpendicular to the roadway surface.
2. CONCRETE: Use Class II concrete for slightly aggressive environments. Use Class VI concrete for moderately or extremely aggressive environments. Concrete will be in accordance with Specification Section 346.
3. DOWELS: Dowel Load Transfer Devices will be hot-dip galvanized ASTM A36 smooth round bar or GFRP smooth round bars with a minimum shear strength of 22ksi in accordance with ASTM D7617.
   Install Dowel Load Transfer Devices in accordance with Specification Section 350.
4. Construct ¾" Expansion Joints plumb and perpendicular or radial to Gutter Line. Provide at 90'-0" maximum intervals as shown.
5. Shear Keys in footing are required when GFRP bars are used for Dowel Transfer Devices and are optional with steel dowel bars. Tongue Slope on Shear Key must be constant and between 5° to 45° from the transverse vertical plane.
6. Construct ½" V-Grooves plumb and provide at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Expansion Joints and/or Begin or End Trench Footing. V-Groove locations are to coincide with V-Groove locations in the Railing/Noise Wall.
7. FILL REQUIREMENTS: Fill is required a distance of 4'-0" on both sides for the entire depth of the trench footing. See Typical Section for details.
8. Match Cross Slope of Travel Lane or Shoulder.
9. Spacing shown is along the Gutter Line.
10. Work this Standard Drawing with one or both of the following:
    a. Index 5210 – Traffic Railing/Noise Wall (8'-0").
    b. Index 5211 – Traffic Railing/Noise Wall (14'-0").

LEGEND: NW = Traffic Railing Barrier/Noise Wall

ESTIMATED TRENCH FOOTING QUANTITIES

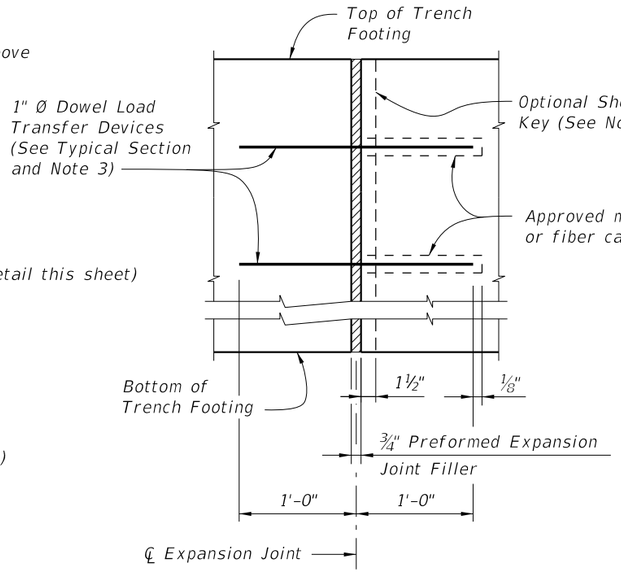
ITEM	UNIT	QUANTITY	
		8'-0" NW	14'-0" NW
Concrete (Footing)	CY/FT	0.336	0.439
Reinforcing Steel (Typical)	LB/FT	56.84	69.36
Additional Reinf. @ Expansion Joint	LB	21.36	21.36

(Subtract 12.69 lb/ft from typical reinforcing steel quantity shown on Index No. 5210 to account for the absence of Stirrup Bars 5V and 5S1 in Trench Footings.)



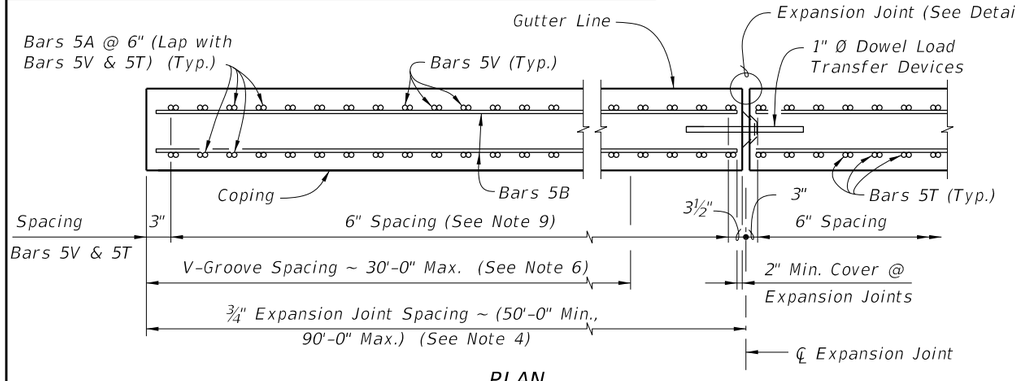
DETAIL "A"

(Showing Locations of ½" V-Grooves and ¾" Preformed Expansion Joint Filler)

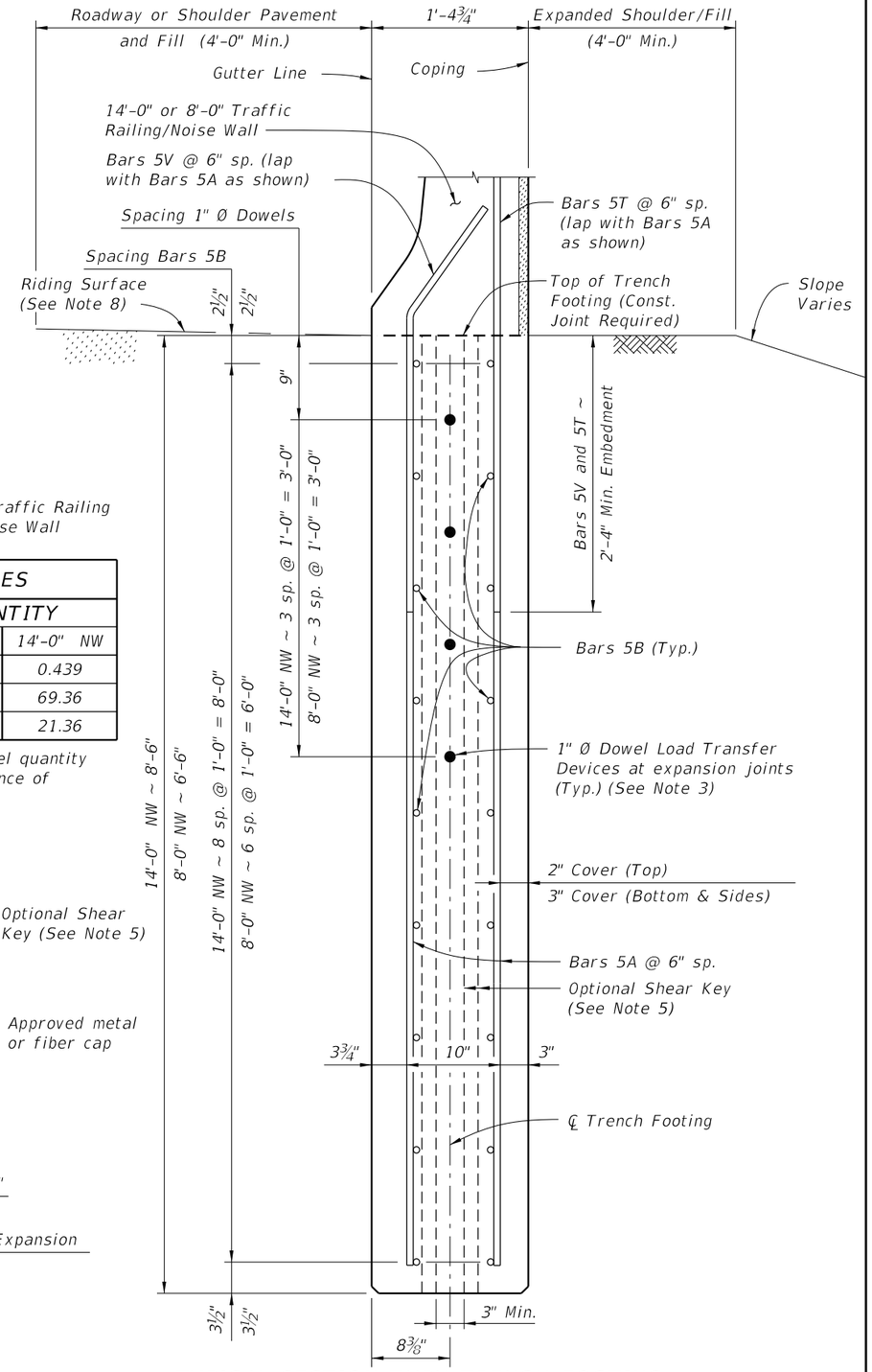


EXPANSION JOINT DETAIL

(Trench Footing expansion joints are required at ¾" open joints in Traffic Railing/Noise Wall)



PLAN



TYPICAL SECTION THRU TRENCH FOOTING

(Bars 5P, 5R and 5S1 in Traffic Railing Barrier/Noise Wall not shown for clarity)

10/26/2016 8:38:47 AM

LAST REVISION	REVISION	DESCRIPTION:			
11/01/16			FY 2017-18 DESIGN STANDARDS	TRAFFIC RAILING/NOISE WALL TRENCH FOOTING	INDEX NO. 5215 / SHEET NO. 1 of 1