

**ABUTMENT DIAPHRAGMS**

**INTERMEDIATE DIAPHRAGMS AND HINGES**

D16+	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

*Peter W. Norbo*  
REGISTERED CIVIL ENGINEER

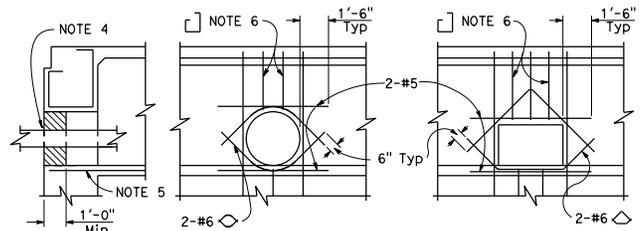
October 30, 2015  
PLANS APPROVAL DATE

Peter W. Norbo  
No. C57519  
Exp. 12-31-15  
CIVIL  
STATE OF CALIFORNIA

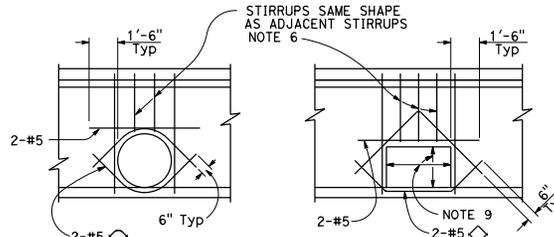
REGISTERED PROFESSIONAL ENGINEER

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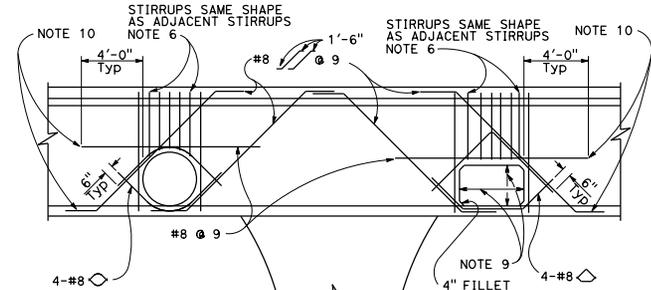
**BENT CAPS**



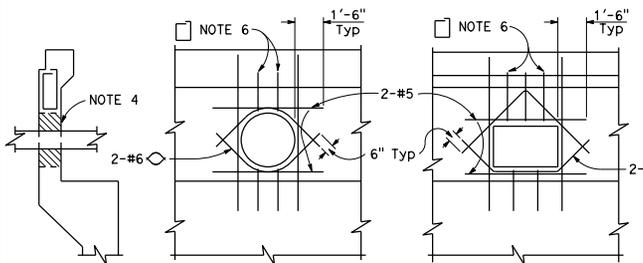
**DETAIL U-1**



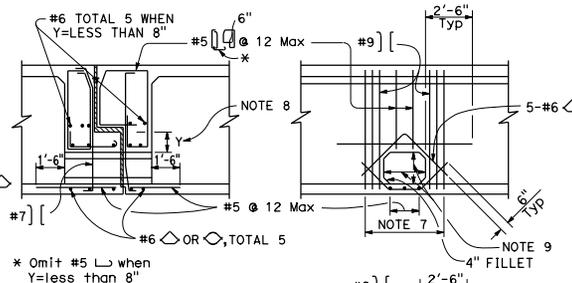
**DETAIL U-5**  
AT INTERMEDIATE DIAPHRAGM



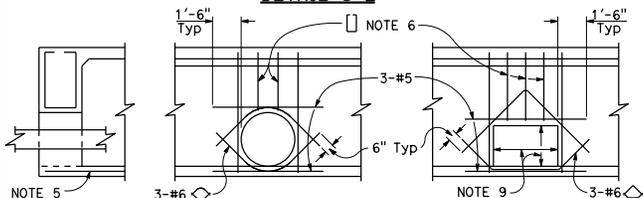
**DETAIL U-7**  
NEAR OR BETWEEN COLUMNS



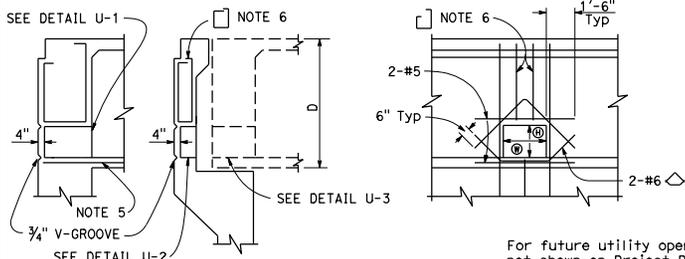
**DETAIL U-2**



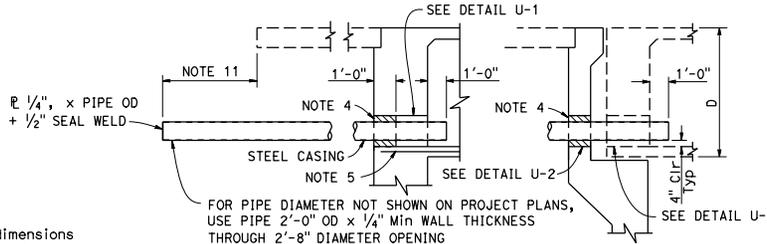
**DETAIL U-6**  
AT HINGE



**DETAIL U-3**



**DETAIL U-4**  
(FOR FUTURE UTILITY OPENING)



**DETAIL U-8**  
(FOR FUTURE UTILITY PROVISIONS UNDER APPROACH SLAB)

**NOTES:**

1. The exact location, elevation, size, and direction of openings shall be in accordance with the Project Plans and as directed by the Engineer. Girders not shown. See Project Plans.
2. All reinforcement detailed to be placed in addition to reinforcement shown on Project Plans.
3. Seal utilities at abutments with concrete or mortar, after tightly wrapping utility with 2 layers of 15 LBS building paper. If structure is prestressed, seal to be placed after stressing is completed.
4. Main reinforcement to clear opening.
5. Reinforcement to be same bar size and 2/3 the spacing of adjacent reinforcement shown on Project Plans.
6. Replace each set of 2-#9 bars cut off by opening. Place 1/2 on each side of opening.
7. When "y" is less than 8", extend top of opening to bottom of bearing seat elevation.
8. For future utility opening dimensions, see Project Plans and Detail U-4.
9. When there is insufficient space to place reinforcement as shown, hook reinforcement into exterior girder.
10. Unless otherwise shown on Project Plans, casing shall extend to the greater of 5'-0" beyond the end of the approach slab, 5'-0" beyond the end of the adjacent wingwall, or 20'-0" beyond the back of the abutment.

For future utility opening dimensions not shown on Project Plans use:

⊕ = 1/3 D or 1'-6" minimum, whichever is greater.

⊙ = 1/3 D or 2'-0" minimum, whichever is greater.

FOR PIPE DIAMETER NOT SHOWN ON PROJECT PLANS, USE PIPE 2'-0" OD x 1/4" MIN WALL THICKNESS THROUGH 2'-8" DIAMETER OPENING

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**UTILITY OPENING  
BOX GIRDER**

NO SCALE

**B7-10**