

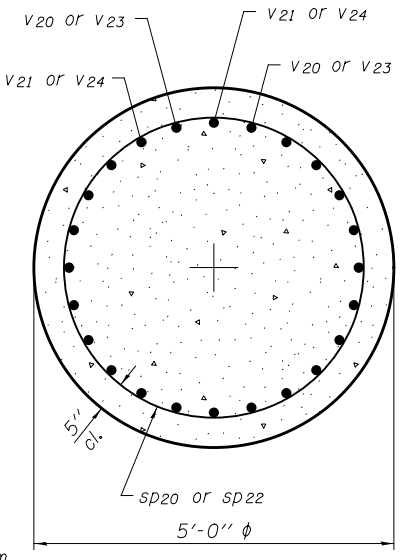
SECTION B-B

Note A:
The quantities and reinforcement detailing are based on the estimated top of rock elevations shown and may change based on the actual elevations encountered at each shaft.

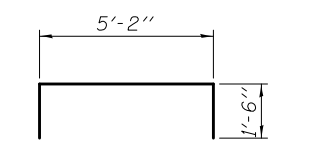
Note:
The compressive strength of the concrete in the drilled shafts shall be 4,000 psi. min. at 14 days.

* 3/4" φ x 8" Granular or solid flux filled headed studs conforming to Art. 1006.32 of the Std. Specifications automatically end welded at 12" cts. along each angle leg with 6" alternate centers from leg to leg. Cost shall be included with Furnishing and Erecting Structural Steel.

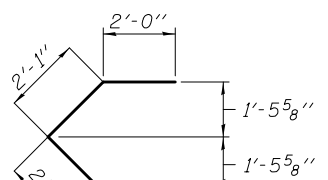
** L8 x 8 x 1/2 AASHTO M270 Gr. 50 galvanized in accordance with AASHTO M111. Cost included with Furnishing and Erecting Structural Steel.



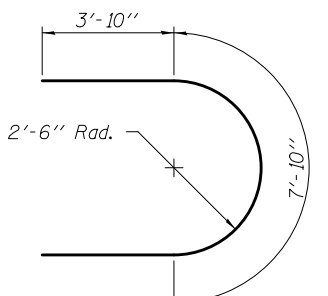
SECTION C-C



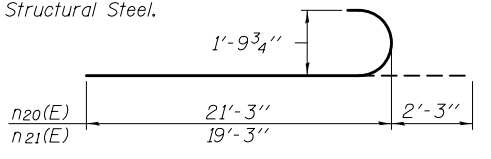
BAR s21(E)



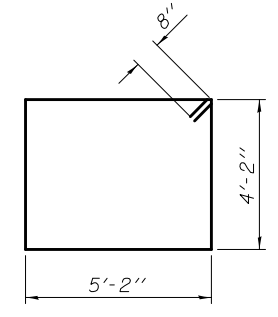
BAR u21(E)



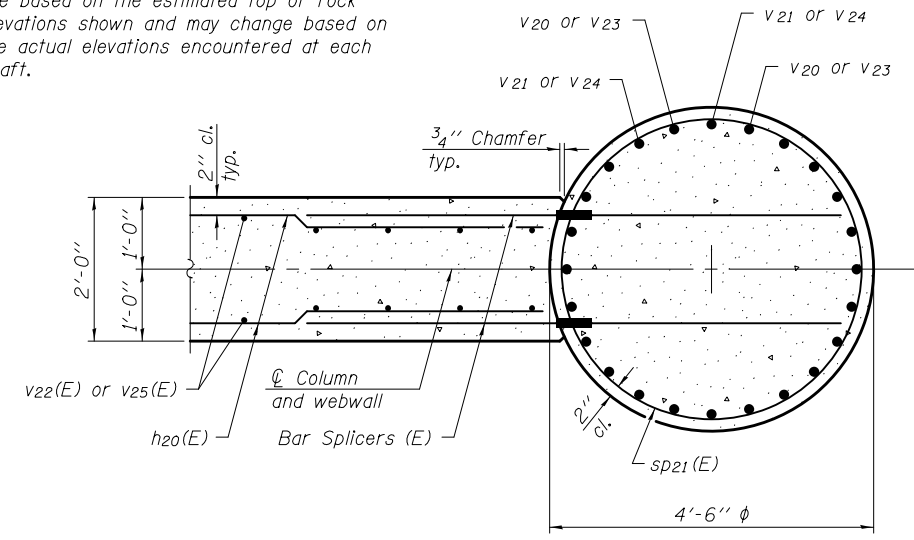
BAR u20(E)



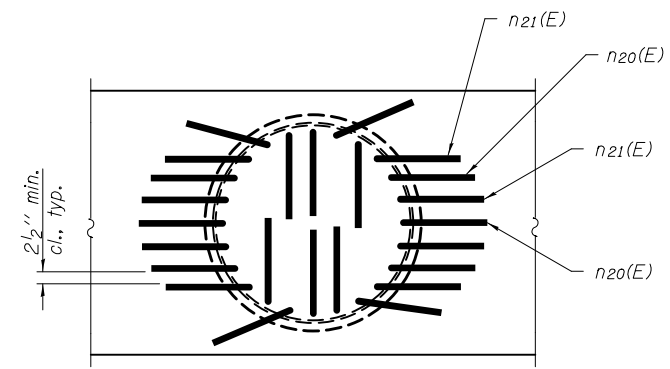
BARS n20(E) & n21(E)



BAR s20(E)



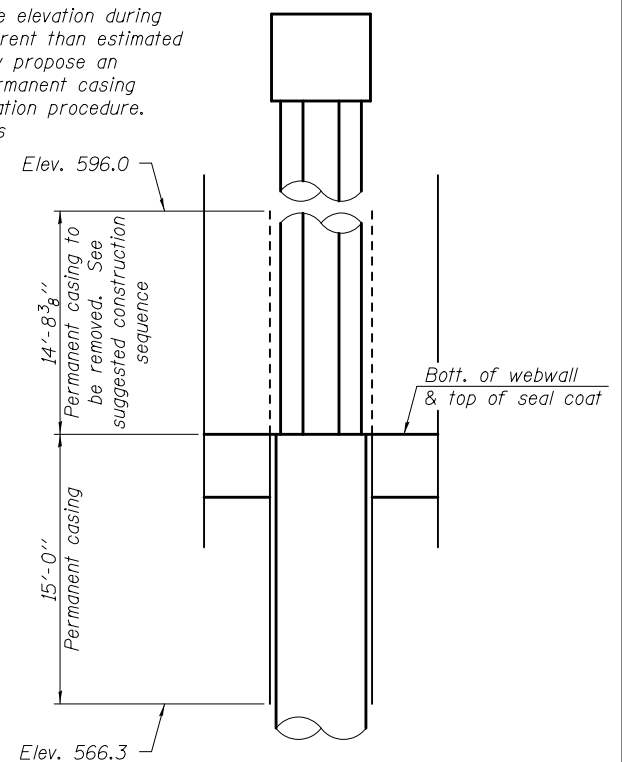
SECTION D-D



DETAIL A

Plan view of partial cap showing possible hook orientation of n20(E) thru n23(E).

Note:
If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the Contractor may propose an adjustment to the top of the permanent casing elevation as part of their installation procedure. The top of all permanent casings within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantity shown for permanent casing is based on the top of the casing being 1' above the E.W.S.E. and may change, as noted, subject to approval of the installation procedure.



PERMANENT CASING DETAIL

**PIER 2 - 046-0135 (N.B.)
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h20(E)	126	#5	10'-2"	—
h21(E)	5	#4	8'-6"	—
n20(E)	48	#14	23'-6"	⌋
n21(E)	48	#14	21'-6"	⌋
p20(E)	30	#8	27'-10"	—
p21(E)	18	#9	28'-10"	—
s20(E)	48	#6	20'-0"	⌈
s21(E)	9	#4	8'-2"	⌈
sp20	4	#5	41'-10"	⌋
sp21(E)	4	#5	21'-0"	⌋
u20(E)	10	#6	15'-6"	⌋
u21(E)	21	#5	8'-2"	⌋
v20	48	#14	44'-8"	—
v21	48	#14	46'-8"	—
v22(E)	71	#5	20'-5"	—
Cofferdam Excavation		Cu. Yd.	117.0	
Cofferdam (Type 2) (Location 3)		Each	1	
Concrete Structures		Cu. Yd.	148.6	
Seal Coat Concrete		Cu. Yd.	88.7	
Reinforcement Bars		Pound	38,270	
Reinforcement Bars, Epoxy Coated		Pound	28,910	
Permanent Casing		Foot	118.8	
Drilled Shaft in Soil		Cu. Yd.	92.5	
Drilled Shaft in Rock		Cu. Yd.	23.6	

**PIER 2 - 046-0136 (S.B.)
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h20(E)	126	#5	10'-2"	—
h21(E)	5	#4	8'-6"	—
n20(E)	48	#14	23'-6"	⌋
n21(E)	48	#14	21'-6"	⌋
p20(E)	30	#8	26'-7"	—
p21(E)	18	#9	26'-7"	—
s20(E)	48	#6	20'-0"	⌈
s21(E)	9	#4	8'-2"	⌈
sp21(E)	4	#5	21'-0"	⌋
sp22	4	#5	45'-4"	⌋
u20(E)	10	#6	15'-6"	⌋
u21(E)	21	#5	8'-2"	⌋
v22(E)	71	#5	20'-5"	—
v23	48	#14	48'-2"	—
v24	48	#14	50'-2"	—
Cofferdam Excavation		Cu. Yd.	117.0	
Cofferdam (Type 2) (Location 4)		Each	1	
Concrete Structures		Cu. Yd.	148.7	
Seal Coat Concrete		Cu. Yd.	88.7	
Reinforcement Bars		Pound	41,210	
Reinforcement Bars, Epoxy Coated		Pound	28,910	
Permanent Casing		Foot	118.8	
Drilled Shaft in Soil		Cu. Yd.	102.7	
Drilled Shaft in Rock		Cu. Yd.	23.6	

SUGGESTED CONSTRUCTION SEQUENCE

- Cofferdam can be placed before permanent casings have been set or after shafts have been poured.
- Set permanent casing in soil (thru water) to 15 ft below the elevation of the bottom of the web wall. The permanent casing should extend to 1 ft above EWSE.
- Drill out soil and rock socket (thru casing).
- Clean shaft excavation and set shaft rebar.
- Pour concrete in shafts to an elevation some distance above bottom of web wall and:
 - Option A: Immediately remove all water and tainted concrete in the shaft down to the elevation of the bottom of web wall.
 - Option B: Leave excess shaft concrete in place until it can be removed in a later step.
- Cofferdam needs to be in place or be placed at this time, then excavate for and pour sealcoat to bottom of web wall.
- Dewater the cofferdam.
- Burn off permanent casing down to elevation of bottom of web wall/top of seal coat. If Option B has been followed, then also chip away the over poured concrete in the shaft to the elevation of the bottom of web wall/top of seal coat.
- Set up column reinforcement with inserts (for web walls).
- Pour concrete for columns.
- Construct webwalls.
- Construct cap.

Minimum lap for spirals = 1/2 turns
*** Length is height of spiral.