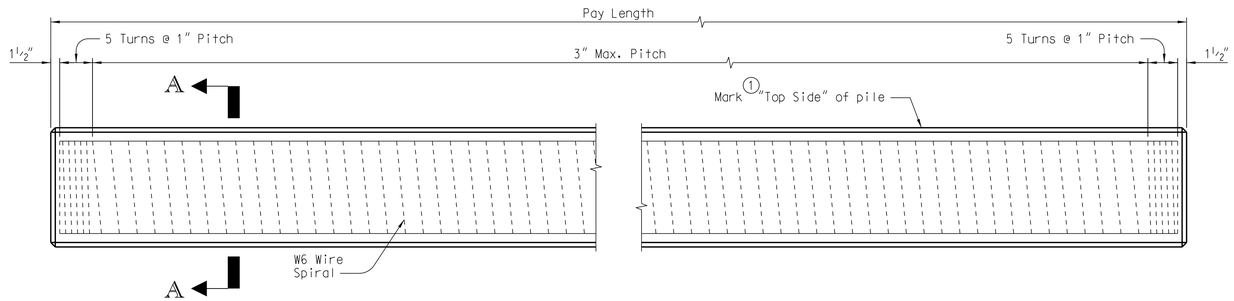
PCP.dgn

BRIDGE PLANS ID	SHEET NO.
XXXXXXX-BXX	XX

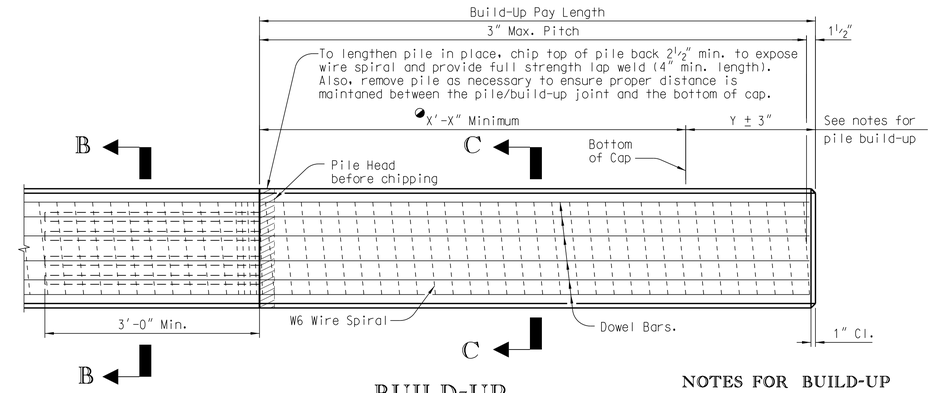
Design Piles using strands in the table below.

STRAND DATA

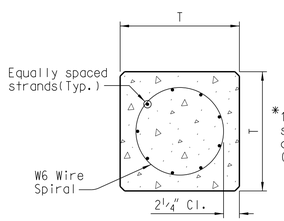
DIAMETER	AREA (in²)	TENSIONING LOAD	DIAMETER	AREA (in²)	TENSIONING LOAD
1/2"	0.153	31.0 kips	9/16"	0.192	38.9 kips
1/2" Special	0.167	33.8 kips	0.6"	0.217	43.9 kips



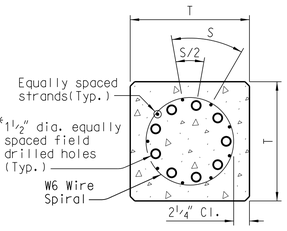
TYPICAL PILE ELEVATION



BUILD-UP

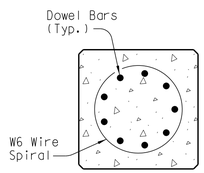


SECTION A-A



SECTION B-B

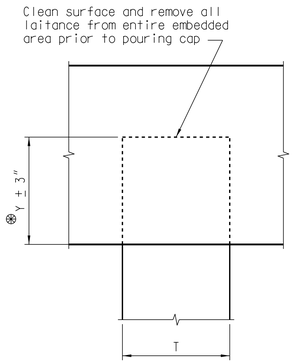
*Field drill dowel holes. Locate dowel holes to provide 1/2" cl. to wire spiral.



SECTION C-C

PILE DATA

PILE SIZE "T"	PILE EMBEDMENT "Y"	STRANDS	STRESS (ksi)	DOWEL BARS	MAXIMUM L 1 PICK-UP POINT	2 PICK-UP POINTS	3 PICK-UP POINTS
18"	23"	7 - 9/16"	0.710	7 # 29	61'	86'	123'
		8 - 1/2" S	0.705	8 # 29	61'	86'	123'
		9 - 1/2"	0.725	9 # 25	61'	87'	124'
		9 - 9/16"	0.890	9 # 25	66'	94'	134'
		8 - 0.6"	0.890	8 # 29	66'	94'	134'
20"	26"	9 - 9/16"	0.735	9 # 29	65'	92'	132'
		10 - 1/2" S	0.715	10 # 25	64'	91'	130'
		11 - 1/2"	0.720	11 # 25	64'	91'	131'
		11 - 9/16"	0.880	11 # 25	69'	98'	141'
		10 - 0.6"	0.900	10 # 29	70'	99'	142'



PILE ANCHORAGE DETAILS

If this dimension is less than Y - 3", build up the pile as detailed above.

NOTES FOR BUILD-UP

Chip back top of piles and field drill holes as shown. Grout dowel bars in the holes using an approved non-shrink grout with f'c = 5ksi. Terminate dowel bars 1" clear from the top of pile. Submit dowel bar lengths to the RCE for approval. Include all costs associated with preparation of the pile for build-up in the unit price bid for Pile Build-up Preparation.

Build up all piles that have an embedment length less than the minimum shown in the plans. Use the build-up details shown on this sheet. The option is available to cast build-ups with bent caps provided rebar and wire spiral are continued a distance equal to "Y" into the cap and the cap is cast with Class 5000 concrete. Pay for cap concrete as Class 4000 concrete regardless of the actual class used. Include an embedment length of "Y" in the pile build-up length measured for payment. Pay for the pile build-up, including all costs for dowel bars, wire spirals, and build-up concrete, as an additional length of prestressed concrete piling equal to the build-up pay length shown in the build-up detail.

GENERAL NOTES

Splice wire spiral using full strength lap welds.

Submit dowel bar lengths to the RCE for approval.

Chamfer all exposed edges 3/4" unless noted otherwise.

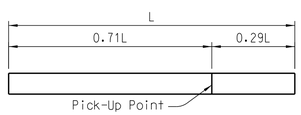
All dimensions relative to reinforcing steel are to centers of bars (except as noted).

Release alternate strands simultaneously at opposite ends without shock.

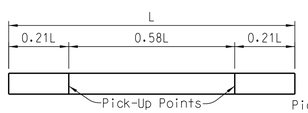
Tie wire spiral to cables and reinforcing bars as required to maintain pitch of the spiral.

Mark piles at pick-up points to indicate proper points for attaching handling lines.

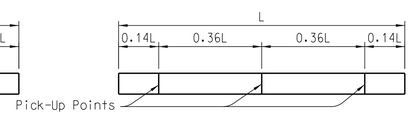
Anchor the piles into the bent caps using the details shown on this sheet. Include all costs for this work in the unit price bid for prestressed concrete piling.



SINGLE POINT PICK-UP



DOUBLE POINT PICK-UP



TRIPLE POINT PICK-UP

Note to Designer:

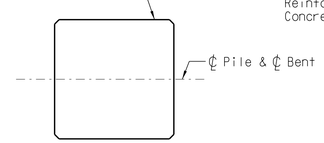
Check prestressed concrete pile design and pile anchorage details for project-specific requirements and revise as applicable.

◪ - Detail the pile orientation such that the "Top Side" of the pile experiences the smaller moment demand.

◪ - Designer to input minimum dimension as required by design to keep dowel anchorages out of the plastic hinge region.

This drawing is furnished for information only. All dimensions shown are sheet specific. Any use of this design and drawing, including dimensions, must be checked by the User's Engineer to ensure design is adequate for the intended use. All drawings must be signed and sealed by a South Carolina Registered Professional Engineer when used.

Orient pile such that ① "Top Side" of pile is parallel to ℄ Bent

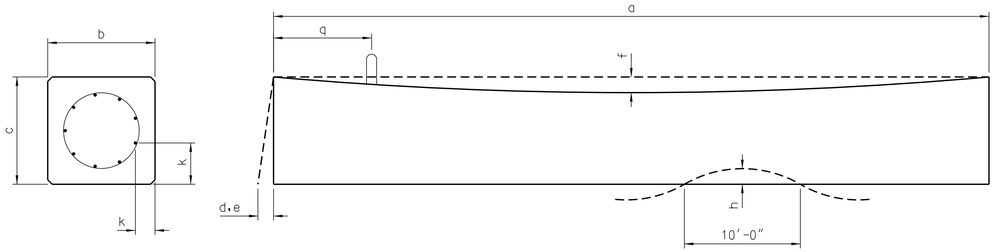


◪ PILE ORIENTATION DETAIL

① "Top Side" is the top surface of the pile when it was poured in the casting bed.

MATERIALS

Prestressing Strand	- Grade 270, Low Relaxation	AASHTO M 203
Wire Spiral	-	AASHTO M 32, M 225
Reinforcing Steel	- Grade 60	AASHTO M 31, Type W
Concrete	- Class 5000	Standard Spec. Sect. 701



CROSS SECTION

ELEVATION

TOLERANCES

a. Length ---------- ± 1"
b. Width or Diameter---------- ± 3/8", + 1/2" (including form draft)
c. Depth---------- ± 3/8"
d. Variation from Specified Plan End Squareness or Skew---------- ± 1/4" per 12", ± 1/2" maximum
e. Variation from Specified Elevation End Squareness or Skew---------- ± 1/4" per 12", ± 1/2" maximum
f. Sweep (Variation from straight line parallel to centerline of member) (considered to be a form tolerance)---- ± 1/8" per 10'
h. Local Smoothness of Any Surface-------- 1/4" in 10'
k. Location of Strand---------- ± 1/4"
q. Location of Handling Device---------- ± 6"
Longitudinal Spacing of Stirrups or Spiral Reinforcement---------- ± 3/4"

DESIGN DATA

Low Relaxation Strands

Tensile Strength (fpu) = 270 ksi
Initial Prestress (0.75 fpu) = 202.5 ksi

Class 5000 Concrete

f'c = 5 ksi
f'ci = 3.5 ksi

REV.				
REV.	PCW	HL	10-20	
	AASHTO M31			
REV.	JXY	SAN	3-14	
	New Border			
REVIEWED				
QUAN.				
DR.	SAM / PNP	PCP / SAN	12-07	
DES.	GFD	SAN	12-07	
	BY	CHK.	DATE	

SOUTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PRESTRESSED CONCRETE PILES

COUNTY: XXXXXXXX
ROUTE: XXXXXX

DRAWING NO. 704-01

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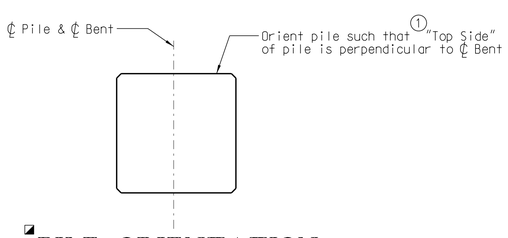

PILE ORIENTATION DETAIL

① "Top Side" is the top surface of the pile when it was poured in the casting bed.

REV.			
REV.	JXY	SAN	3-14
	Add Border		
DR.	MRW	SAN	11-12

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DRAWING NO. 704-01