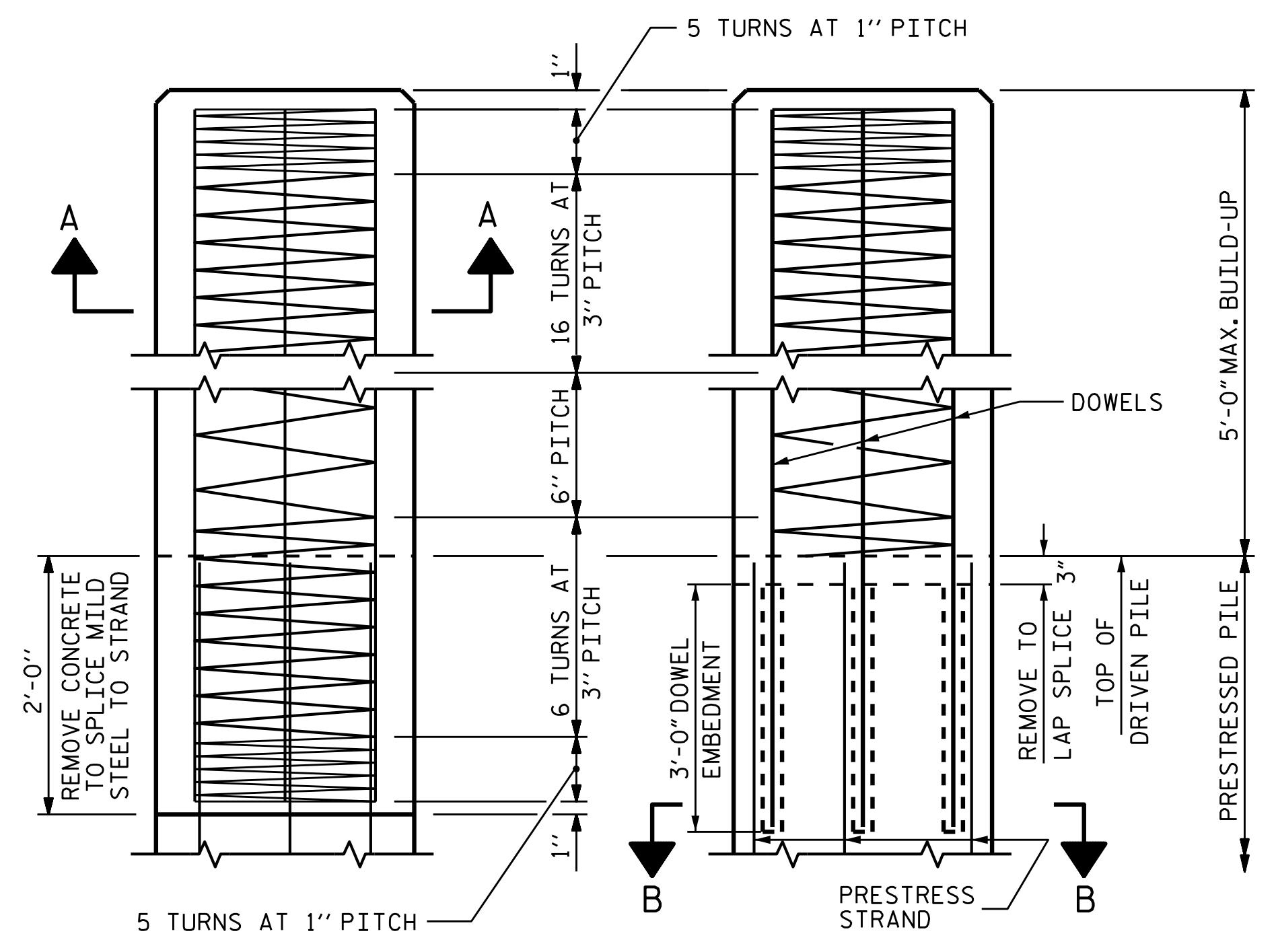
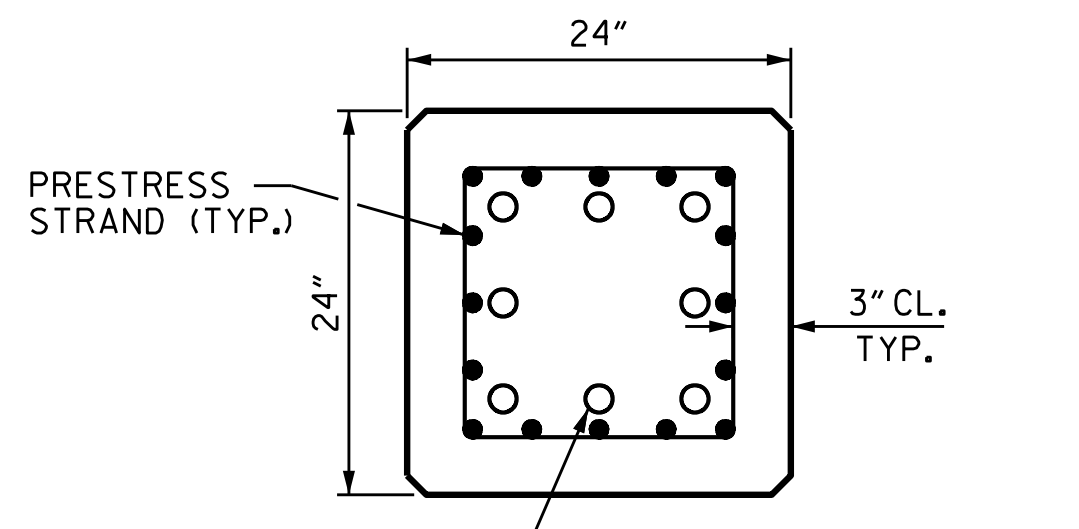


**ELEVATION**



**BUILD-UP AND SPIRAL REINFORCING**

**OPTIONAL BUILD-UP WITH DOWELS**

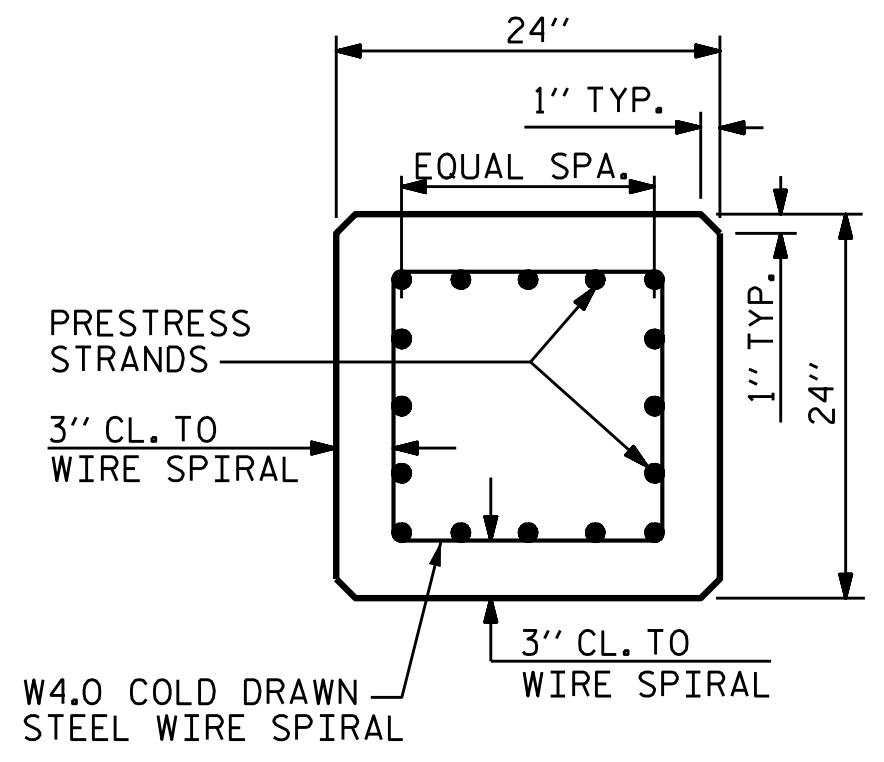


**SECTION "B-B"**

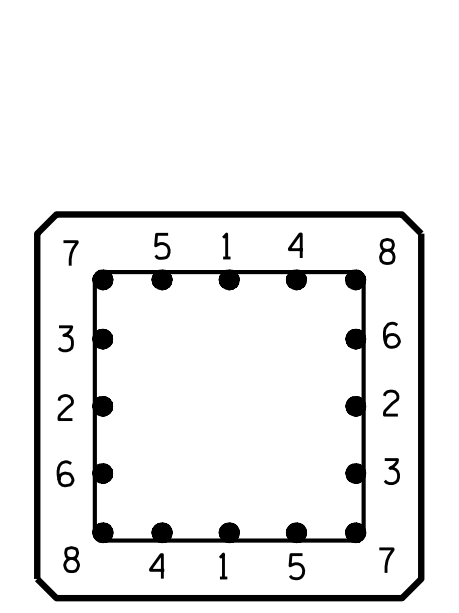
(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP	
			0.3L	0.7L
25'-0"	3.69	7.47	7'-6"	17'-6"
30'-0"	4.43	8.97	9'-0"	21'-0"
35'-0"	5.17	10.46	10'-6"	24'-6"
40'-0"	5.91	11.96	12'-0"	28'-0"
45'-0"	6.64	13.45	13'-6"	31'-6"
50'-0"	7.38	14.95	15'-0"	35'-0"
55'-0"	8.12	16.44	16'-6"	38'-6"
60'-0"	8.86	17.94	18'-0"	42'-0"
65'-0"	9.60	19.43	19'-6"	45'-6"
70'-0"	10.33	20.93	21'-0"	49'-0"

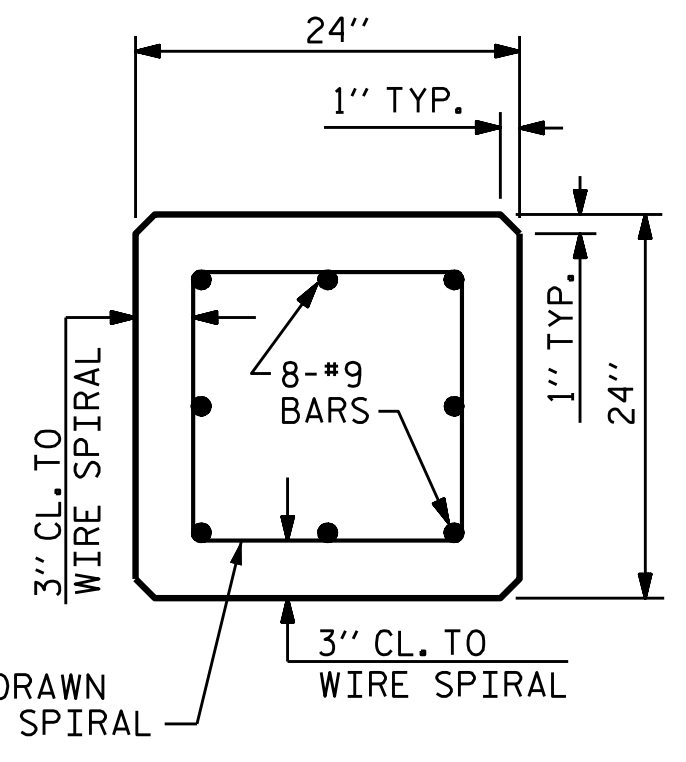
**QUANTITIES FOR ONE 24" SQUARE PILE**



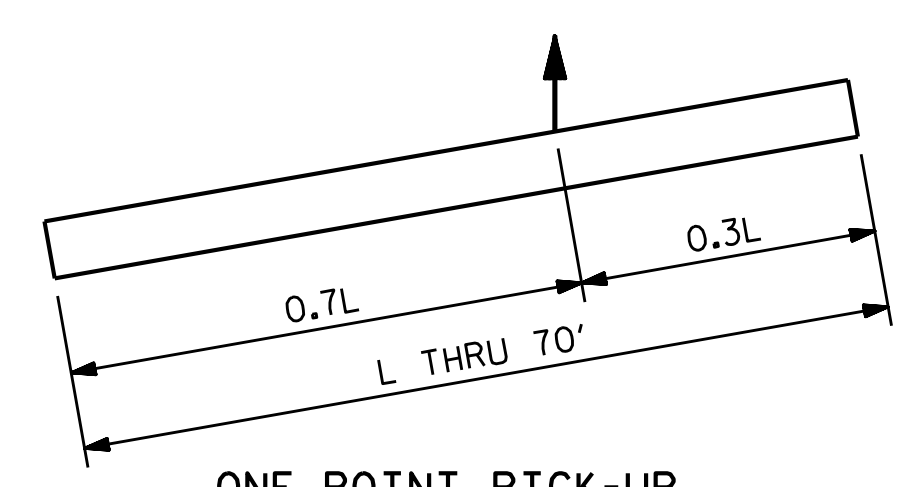
**TYPICAL SECTION**



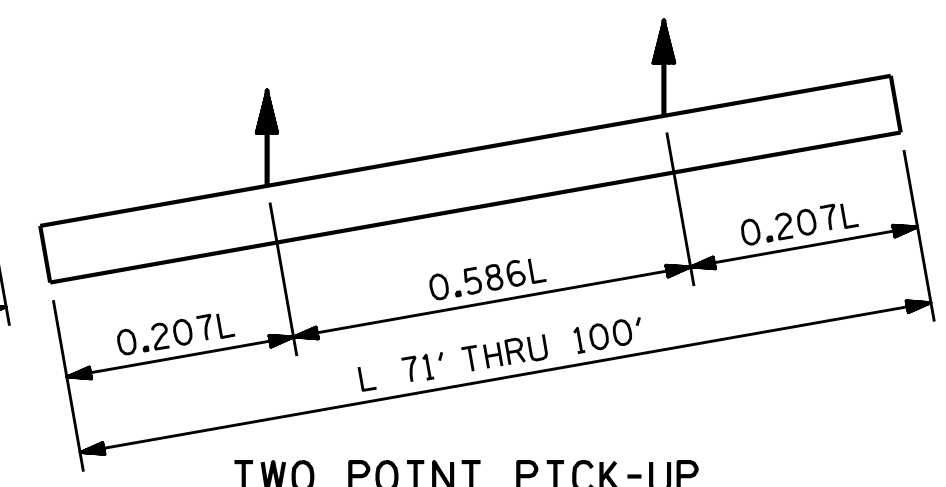
**TYPICAL PATTERN FOR BURNING STRANDS**



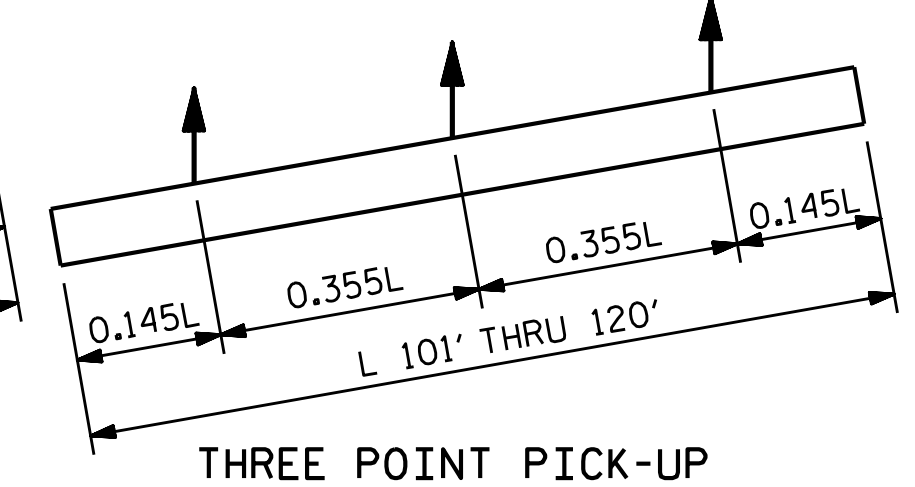
**SECTION A-A**



**ONE POINT PICK-UP**



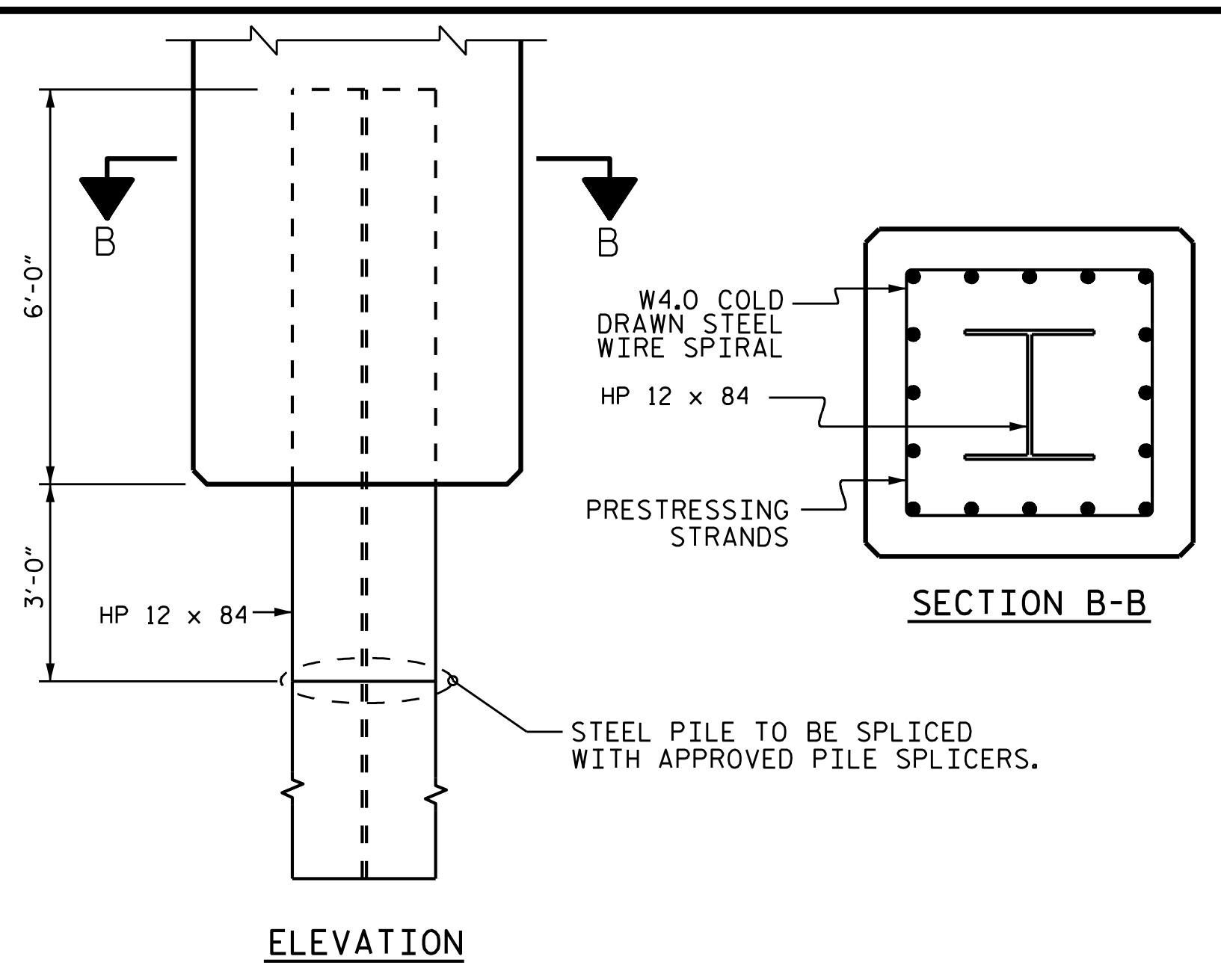
**TWO POINT PICK-UP**



**THREE POINT PICK-UP**

**PICK-UP POINTS**

**0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS**



**ELEVATION**

**PILE TIP DETAILS**

FOR 24" SQUARE PRESTRESSED CONCRETE PILE

**DOWEL INSTALLATION FOR OPTIONAL BUILD-UP**

GROUT COMPRESSIVE STRENGTH:  $f'c = 5,000$  PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

**NOTES**

PRESTRESSED CONCRETE STRENGTH :  $f'c = 7,500$  PSI  
 BUILD-UP CONCRETE STRENGTH :  $f'c = 7,500$  PSI

**STRAND DATA:**

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
0.6"	270 L.R.	0.217	58,600* PER STRAND	43,940* PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

APPLY AN 8 MIL THICK 1350 ALUMINUM (W-AL-1350) THERMAL SPRAY COATING WITH 0.5 MIL THICK SEAL COAT TO THE PILES, IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

FOR THE PILE TIP, APPLY 1 COAT EACH OF 1080-12 BROWN AND 1080-12 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

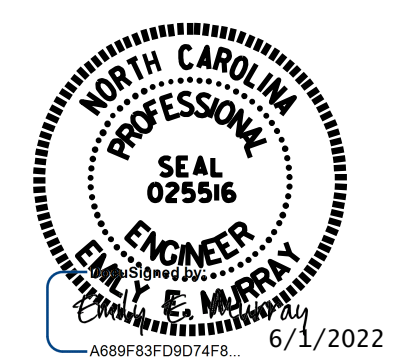
PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CONTAIN CALCIUM NITRITE CORROSION INHIBITOR, SEE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE PILES OF BENT 1 AND BENT 2 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH TO 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PROJECT NO. B-4593  
PAMLICO COUNTY  
 STATION: 17+02.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**24" PRESTRESSED  
 CONCRETE COMPOSITE  
 PILE**



**VOLKERT**  
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 NC License No. F-0765

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS 42
2			4			

ASSEMBLED BY : J.R. MCROY DATE : 11/18  
 CHECKED BY : P.N. HOLDER DATE : 11/18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED