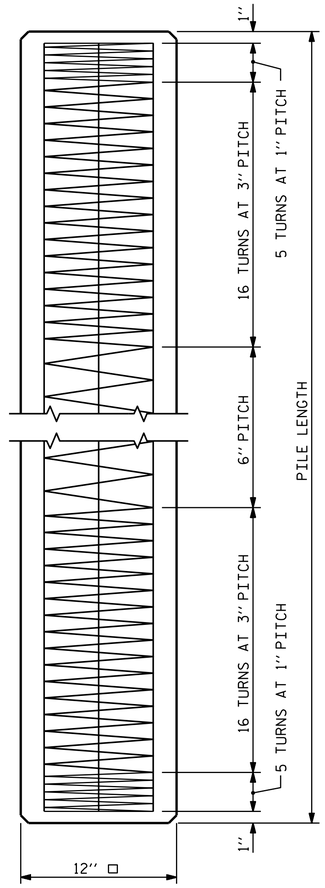
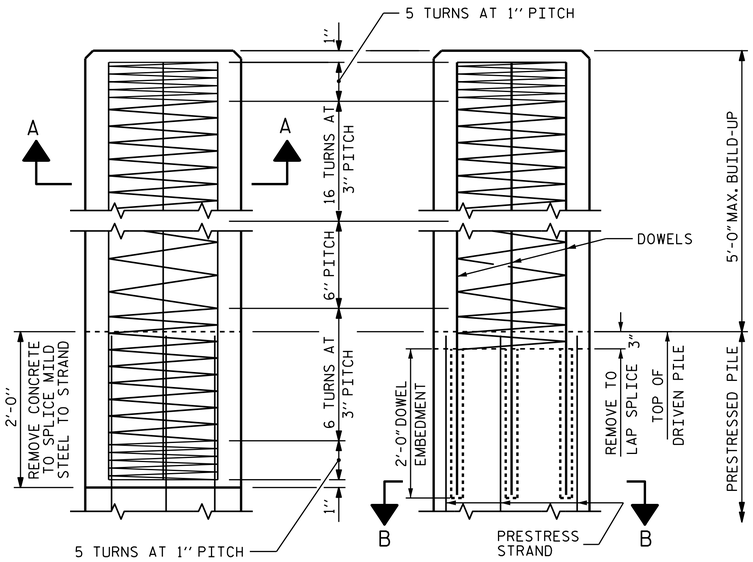
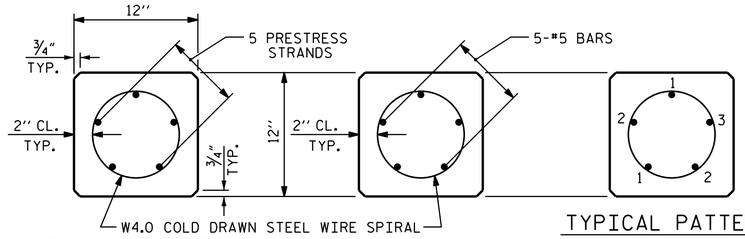



ELEVATION



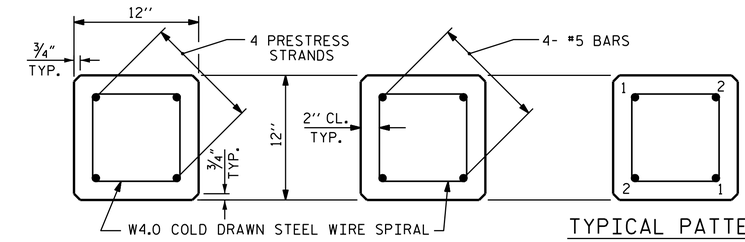

BUILD-UP AND SPIRAL REINFORCING

OPTIONAL BUILD-UP WITH DOWELS




TYPICAL SECTION SECTION ''A-A'' TYPICAL PATTERN FOR BURNING STRANDS

1/2'' OR 0.6'' Ø GRADE 270 L.R. PRESTRESS STRANDS

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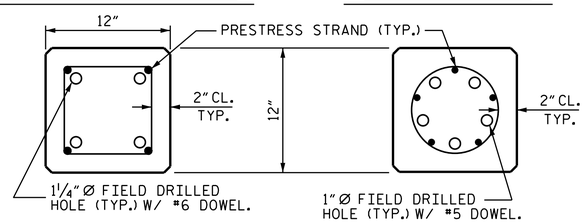
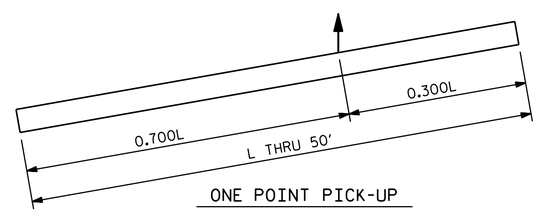
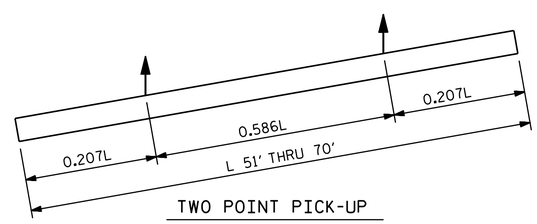



SECTION ''B-B''

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




ONE POINT PICK-UP




TWO POINT PICK-UP

PICK-UP POINTS

## 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 |
|---|---|---|---|---|
| 1/2'' | 270 L.R. | 0.153 | 41,300# PER STRAND | 30,980# PER STRAND |
| 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.

AT THE CONTRACTOR'S OPTION, 1/2'' OR 0.6'' STRANDS MAY BE USED IN EITHER THE 4 OR 5 STRAND CONFIGURATION SHOWN IN THE TYPICAL SECTION DETAIL. MIXING OF STRAND SIZE IS NOT ALLOWED.

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 PAIRS, EXCEPT WHERE 5 STRANDS ARE USED, THE LAST STRAND MAY BE BURNED SINGLY ACCORDING TO BURNING PATTERNS SHOWN. NOT MORE THAN 4 STRANDS MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME 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.

## 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.

## QUANTITIES FOR ONE 12'' PRESTRESSED PILE

| LENGTH | CONCRETE CU. YDS. | PILE WT. TONS | ONE POINT PICK-UP 0.300L | ONE POINT PICK-UP 0.700L | TWO POINT PICK-UP 0.207L | TWO POINT PICK-UP 0.586L |
|---|---|---|---|---|---|---|
| 25'-0'' | 0.91 | 1.85 | 7'-6'' | 17'-6'' | | |
| 30'-0'' | 1.10 | 2.22 | 9'-0'' | 21'-0'' | | |
| 35'-0'' | 1.28 | 2.59 | 10'-6'' | 24'-6'' | | |
| 40'-0'' | 1.46 | 2.96 | 12'-0'' | 28'-0'' | | |
| 45'-0'' | 1.64 | 3.33 | 13'-6'' | 31'-6'' | | |
| 50'-0'' | 1.83 | 3.72 | 15'-0'' | 35'-0'' | | |
| 55'-0'' | 2.01 | 4.09 | | | 11'-4 1/2'' | 32'-3'' |
| 60'-0'' | 2.19 | 4.46 | | | 12'-5'' | 35'-2'' |
| 65'-0'' | 2.38 | 4.81 | | | 13'-5 1/2'' | 38'-1'' |
| 70'-0'' | 2.57 | 5.18 | | | 14'-6'' | 41'-0'' |

PROJECT NO. B-4681

WILSON COUNTY

STATION: 16+12.50 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

12'' PRESTRESSED CONCRETE PILE

NORTH CAROLINA PROFESSIONAL SEAL 21271 ENGINEER GREGORY W. DICKEY

DocuSigned by: Greg Dickey 2/19/2015
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| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-13 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 15 |

STR. #1

STD. NO. PCP1

| | | | |
|---|---|---|---|
| ASSEMBLED BY : A. K. PATEL | | DATE : 6/20/14 | |
| CHECKED BY : P. N. HOLDER | | DATE : 6/20/14 | |
| DRAWN BY : FCJ 7/88 | REV. 5/1/06R | TLA/GM | |
| CHECKED BY : CRK 3/89 | REV. 11/30/10 | WMC/GM | |
| | REV. 10/1/11 | MAA/GM | |

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