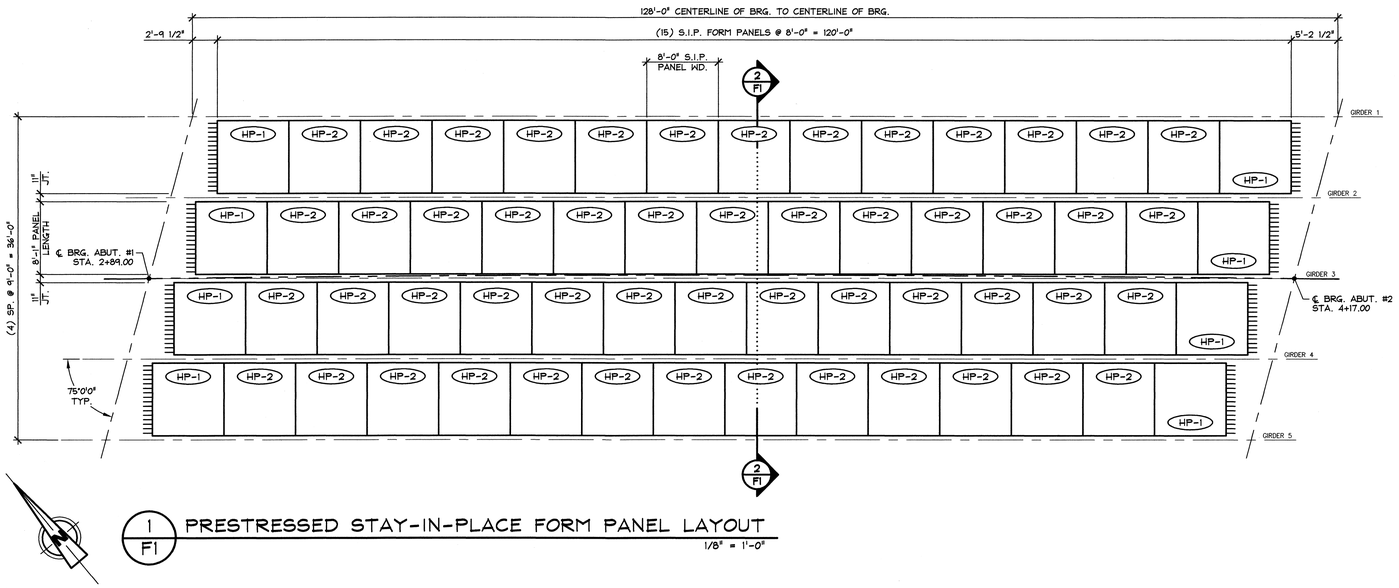
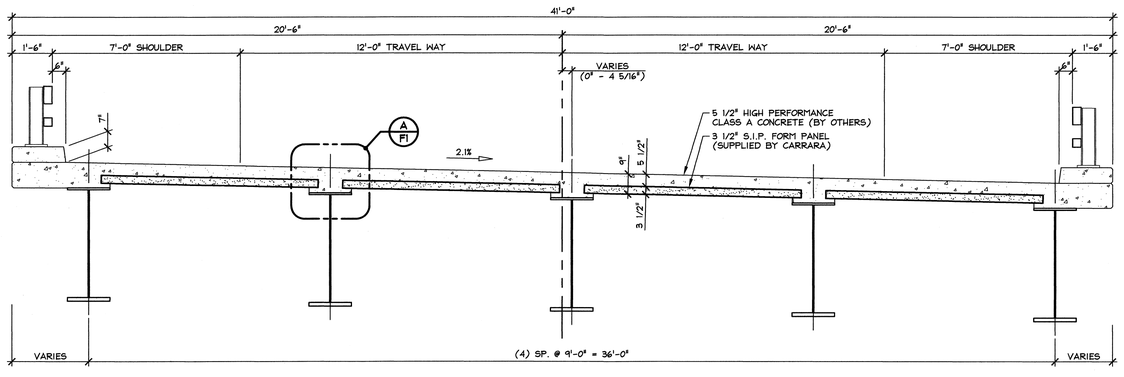


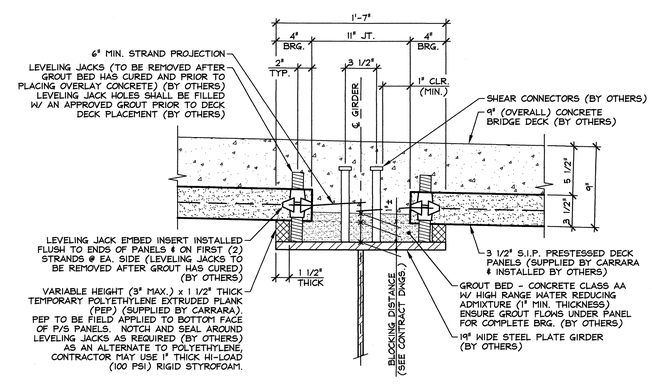
1/F1 PRESTRESSED STAY-IN-PLACE FORM PANEL LAYOUT

1/8" = 1'-0"



2/F1 TRANSVERSE SECTION

3/8" = 1'-0"



A/F1 SECTION

1 1/2" = 1'-0"

GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 4,000 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31), AND SHALL BE LEVEL II, DUAL-COATED.
4. PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203M1), AND SHALL CONSIST OF 3/8"ϕ x 270 KSI 7 WIRE LOW RELAXATION STRANDS.
5. PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 17.2 K (U.N.O.) AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION, (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET).
6. ENDS OF PRESTRESSING STRANDS SHALL PROJECT 6" MIN. FROM EACH END OF PANEL
7. THE TOPS OF THE PANELS SHALL BE BROOMED TO A SURFACE ROUGHNESS OF 1/16" (U.N.O.) (BROOM DIRECTION PARALLEL TO STRANDS).
8. PANELS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. PANELS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE PANEL ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
9. DESIGN MIX: J.P.C. BRIDGE MIX #425M
10. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS, CONTRACT DOCUMENTS & SPECIFICATIONS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
11. THE ENGINEER WILL BE NOTIFIED AT LEAST 14 DAYS PRIOR TO THE SCHEDULED START OF CASTING AND AT LEAST 2 DAYS BEFORE THE ACTUAL WORK BEGINS.
12. CURING METHOD: AS SOON AS THE TOP OF THE PANEL IS FINISHED A COVER OF POLY AND A LAYER OF HOMOSOTE, (OR BLUEBOARD) WILL BE PLACED OVER THE PANEL IN A MANNER THAT WILL NOT DISTURB THE BROOM FINISH. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 70°F. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS SPACED NOT MORE THAN 50 FEET APART & WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED AND GIVEN TO THE INSPECTOR (IF APPLICABLE).
13. THE DRILLING OF HOLES OR USE OF POWER ACTUATED TOOLS ON PANELS SHALL NOT BE PERMITTED.
14. THE PANELS SHALL BE ORIENTED AND ERECTED WITH THE MARK-END AS SHOWN ON PLANS.
15. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FORMING THE END OF THE DECK SLAB PRIOR TO CASTING DECK.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 3/8"ϕ x 270 KSI

AREA: 0.085 IN^2

TENSION: 17,200 LBS. EACH STRAND

GRIP TO GRIP: 120'-6" = 120.5'

Es = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE: $\Delta = \frac{PL}{AE} = \frac{(17{,}200 - 3{,}000) \times 120.5 \times 12}{0.085 \times 28{,}600{,}000} = 8.45"$

THEREFORE: TOLERANCES: ± 5%

Δ UPPER LIMIT = 1.05 x 8.45" = 8.87" = 8 7/8"

Δ LOWER LIMIT = 0.95 x 8.45" = 8.03" = 8"

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:

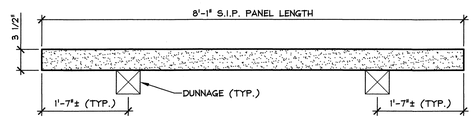
$\Delta P = \frac{0.5 \times 14{,}200}{8.45} = 840$ LBS.

TOTAL TENSIONING FORCE = 17,200 + 840 = 18,040 LBS.

STRAND TENSIONING PROCEDURE:

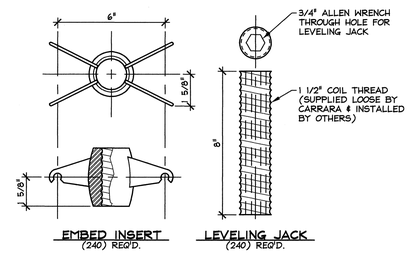
1. PULL EACH STRAND INITALLY TO 3,000 LBS.# AND MARK STRAND.
2. THEN PULL EACH STRAND TO A TOTAL TENSION OF 18,404 LBS.# AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 8" AND 8 7/8".

NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.



TYP. STORAGE & SHIPPING DUNNAGE LOCATIONS

N.T.S.



LEVELING EMBED & JACK DETAIL

PLASTIC

N.T.S.

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

A.L. St. ONGE CONTRACTOR, INC.
CONTRACTOR
MONTGOMERY, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF LAMOILLE

TOWN OF HYDE PARK
VT ROUTE 15 (MINOR ARTERIAL)
BRIDGE NO.: 42 PROJECT NO.: STP CULV(26)

SUPERSTRUCTURE PLAN & SECTIONS

DATE: APRIL 10, 2014	
SCALE: NOTED	
CHKD: -	DFTM: B.L.
JOB NO: 23427-014	
DWG. NO: F1	

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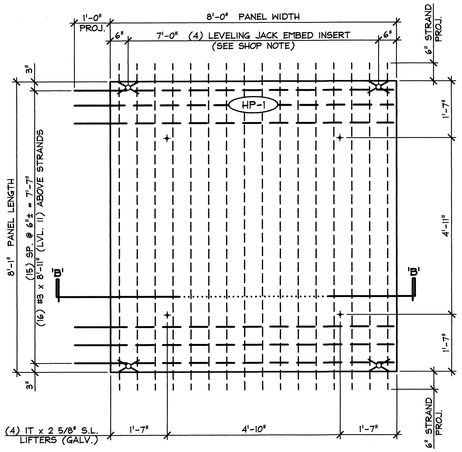
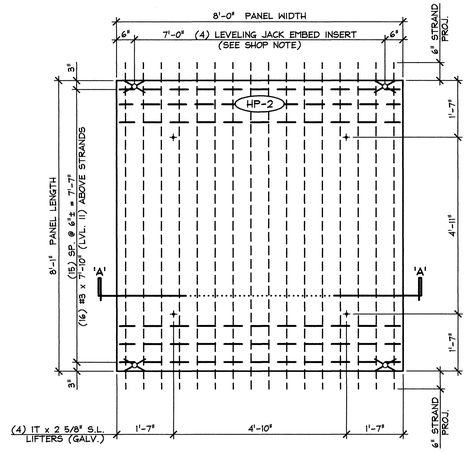


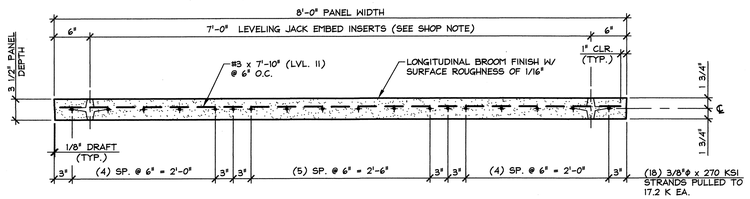
DECK PANEL - 'HP-1'

1/2" = 1'-0"



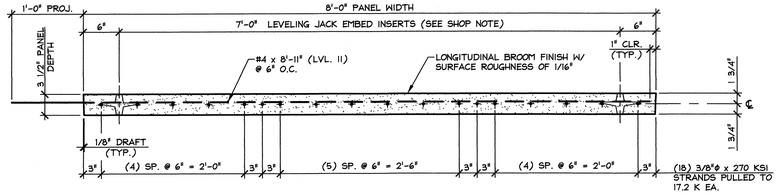
DECK PANEL - 'HP-2'

1/2" = 1'-0"



DECK PANEL SECTION - 'A-A'

1" = 1'-0"



DECK PANEL SECTION - 'B-B'

1" = 1'-0"

(1) (3) (5) (7) (9) (11) (13) (15) (17) (18) (16) (14) (12) (10) (8) (6) (4) (2)

DETENSIONING SCHEDULE

N.T.S.

SHOP NOTE:
INSTALL LEVELING JACK INSERTS FLUSH TO FORM AT ENDS OF PANELS ON FIRST TWO (2) STRANDS AT EA. SIDE OF PANEL

MARK:	HP-1	QTY.:	8	WT.:	1.4 T	VOL.:	0.69 cy
MARK:	HP-2	QTY.:	52	WT.:	1.4 T	VOL.:	0.69 cy
MARK:	-	QTY.:	-	WT.:	-	VOL.:	-

MATERIAL LIST / PANEL

ITEM	DESCRIPTION	QTY./PANEL HP-1	HP-2	-
1	#3 x 7'-10" (LEVEL II, DUAL COATED)		16	
2	#3 x 8'-11" (LEVEL II, DUAL COATED)	16		
3				
4				
5				
6	1T x 2 5/8" SWIFT LIFT LIFTER (GALV.)	4	4	
7				
8	LEVELING JACK EMBED INSERTS	4	4	
9				
10				
11				

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PRESTRESSED S.I.P. FORM PANEL DETAILS

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CHKD: - DFTM: B.L.
JOB NO: 23427-014
DWG. NO: P1

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