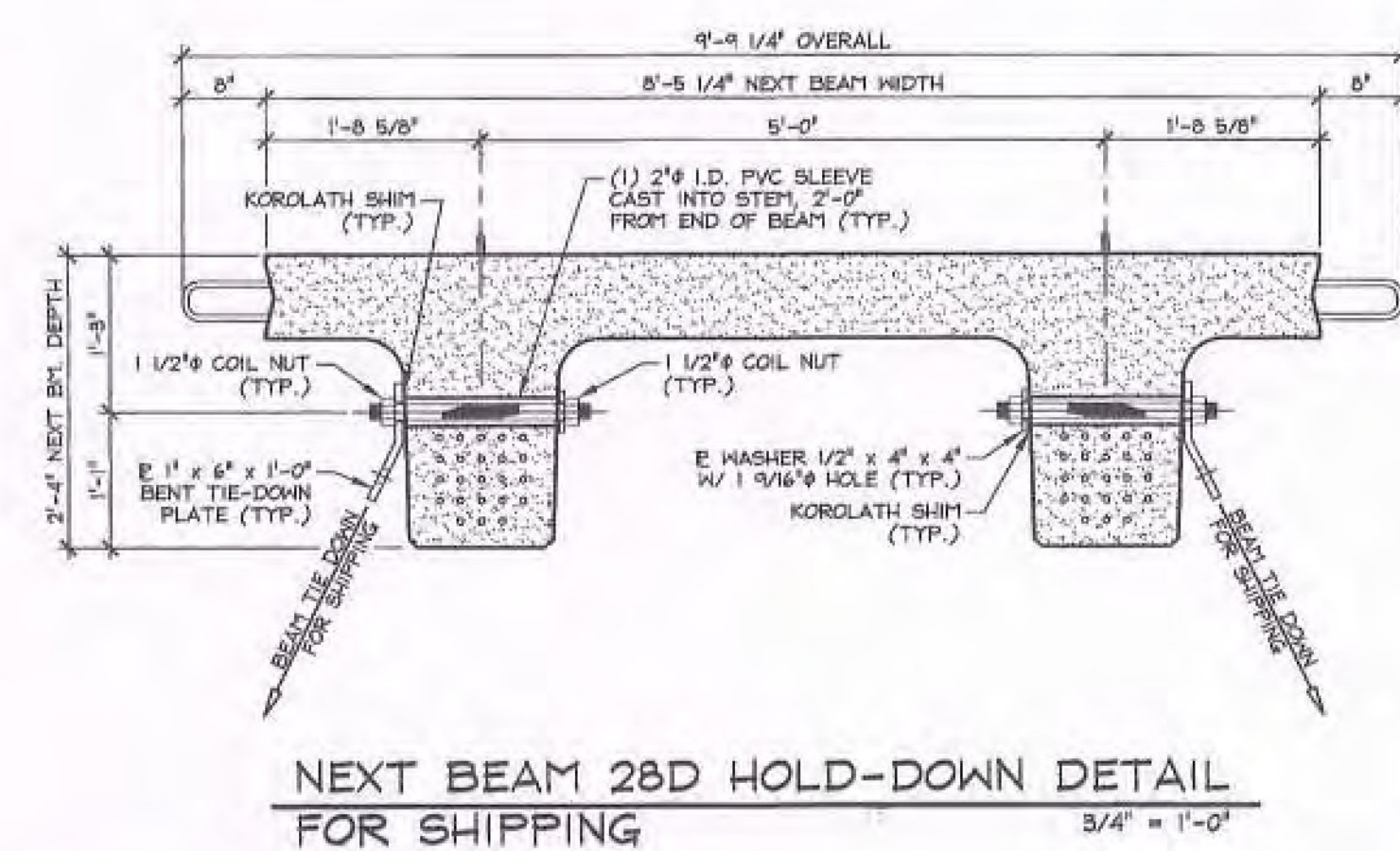
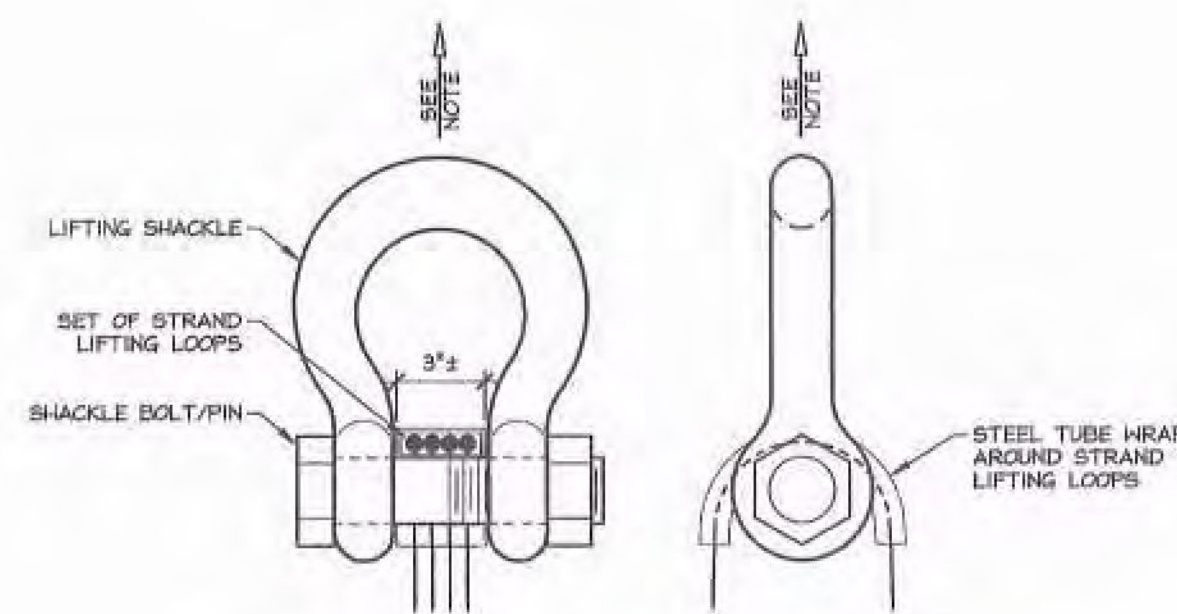


1 PRESTRESSED NEXT BEAM LAYOUT DESIGN LIVE LOAD: HL-9B 1/4" = 1'-0"



NEXT BEAM 28D HOLD-DOWN DETAIL FOR SHIPPING 3/4" = 1'-0"



LIFTING SHACKLE DETAILS N.T.S.

NEXT BEAM GENERAL NOTES

- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 10,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 7,000 PSI.
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO F31) LEVEL II (DUAL COATED).
- PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203) AND SHALL CONSIST OF 0.60"Ø x 270 KSI 7-WIRE LOW RELAXATION STRANDS.
- PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0 K AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION. (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET.)
- ENDS OF PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH END OF NEXT BEAM STEPS (UNLESS NOTED OTHERWISE) AND EPOXY PAINTED.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
- THE TOP OF BEAMS SHALL RECEIVE A TRANSVERSE RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL RECEIVE A ROUGHENED SURFACE.
- BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH OF THE TWO LIFTING LOOPS AT EACH END OF THE BEAM. THE PINS OF THE SHACKLES SHALL BE PLACED THROUGH THE LIFTING LOOPS. SEE DETAIL, THIS SHEET. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE BEAM ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
- MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. PS10.02 AND PS10.05 RESPECTIVELY. DESIGN MIX: J.P.C. BRIDGE MIX #4301
- QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
- CURING METHOD: AS SOON AS THE TOP OF BEAM IS FINISHED, A COVER OF INSULATED POLY. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 70°. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED. EACH CHART SHALL BE MARKED WITH THE CASTING DATED AND LOCATION OF THE RECORDER. IF NECESSARY TO MAINTAIN CASTING BED TEMPERATURE PRIOR TO CONCRETE PLACEMENT OR TO ACCELERATE EARLY AGE STRENGTH GAIN, EXTERNAL RADIANT HEAT MAY BE EMPLOYED VIA HOT WATER DUCTS BENEATH AND WITHIN THE PERIPHERY OF THE CASTING BED. MAXIMUM CURING TEMPERATURE SHALL NOT EXCEED PCI SPECIFIED LIMITS.
- OWNER SHALL PROVIDE APPROPRIATE WATERPROOFING TO GROUDED AND/OR EPOXYED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUDED AND/OR EPOXYED SHEAR KEYS.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING
(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60"Ø x 270 KSI
 AREA: 0.217 IN²
 TENSION: 44,000 LB. EACH STRAND
 GRIP-TO-GRIP: 252'-0" = 252.00'
 E_s = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:
 $\Delta = \frac{P_L}{AE} = \frac{(44,000 - 3,000) \times 252.00 \times 12}{0.217 \times 28,600,000} = 19.977'$
 THEREFORE: (TOLERANCES ± 5%)
 Δ UPPER LIMIT = 1.05 x 19.977' = 20.98' = 21'
 Δ LOWER LIMIT = 0.95 x 19.977' = 18.98' = 19'

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:
 $\Delta P = \frac{0.5 \times 41,000}{19.977} = 1,026$ LBS.
 TOTAL TENSIONING FORCE = 44,000 + 1,026 = 45,026 LBS.

STRAND TENSIONING PROCEDURE:

- PULL EACH STRAND INITIALLY TO 3,000# LBS. AND MARK STRAND.
 - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,026# LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 19'± AND 21'±.
- NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

SHOP DRAWING REVIEW

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED REVISE AND RESUBMIT FURNISH AS CORRECTED

CONFESSIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR: CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATING HIS WORK WITH THAT OF ALL OTHER TRADES; AND PERFORMING HIS WORK IN A SAFE AND SATISFACTORY MANNER.

VHB Vermont Highway Builders, Inc.
 Job Number: 57438-00
 Reviewed By: B. Moore
 Date: 2-14-14

Vermont Agency of Transportation

RECEIVED
 ON: February 12, 2014
 and Checked for
CONFORMANCE
 BY: Jennifer Fitch DATE: 02/27/14

SUBMITTED
 FEB 12 2014
 J.P. CARRARA & SONS, INC.
 MIDDLEBURY, VT 05753

APPROVAL STAMP:		J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 264 GEE ST., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9910		T. BUCK CONSTRUCTION CONTRACTOR AUBURN, MAINE	
STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF ADDISON		TOWN OF MIDDLEBURY ROUTE NO. VT 125, EAST MIDDLEBURY GORGE BRIDGE NO.: 13 PROJECT NO.: RS 0174(B)		DATE: OCT. 9, 2013 SCALE: NOTED CHKD: DFTM: B.L. JOB NO: 28411-013	
PRESTRESSED NEXT BEAM LAYOUT				DWG. NO: F1	