

ABUTMENT & WING WALL GENERAL NOTES

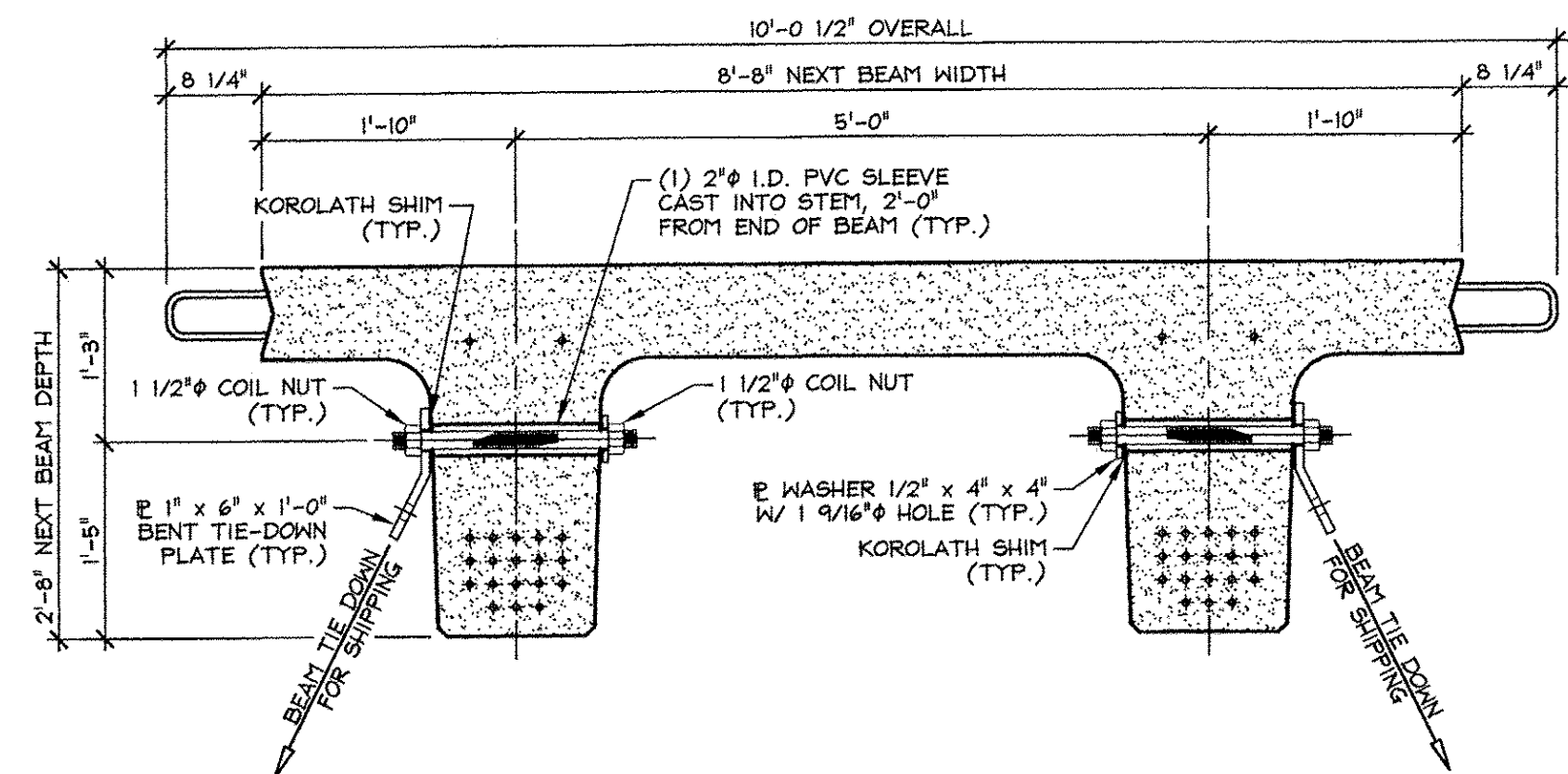
- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 3,500 PSI (UNLESS NOTED OTHERWISE).
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED) OR UNCOATED, LEVEL I (BLACK STEEL) (AS NOTED ON SHOP DRAWINGS).
- THE TOP OF ABUTMENTS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
- THE TOP OF WING WALLS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
- PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5ft POINTS, 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:
 WING WALLS: J.P.C. BRIDGE MIX #44MSCC
 APPROACH SLABS: J.P.C. BRIDGE MIX #44MSCC
 ABUTMENTS: J.P.C. BRIDGE MIX #44MSCC
 PILE CAPS: J.P.C. BRIDGE MIX #44MSCC
- 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 PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED.

NEXT BEAM GENERAL NOTES

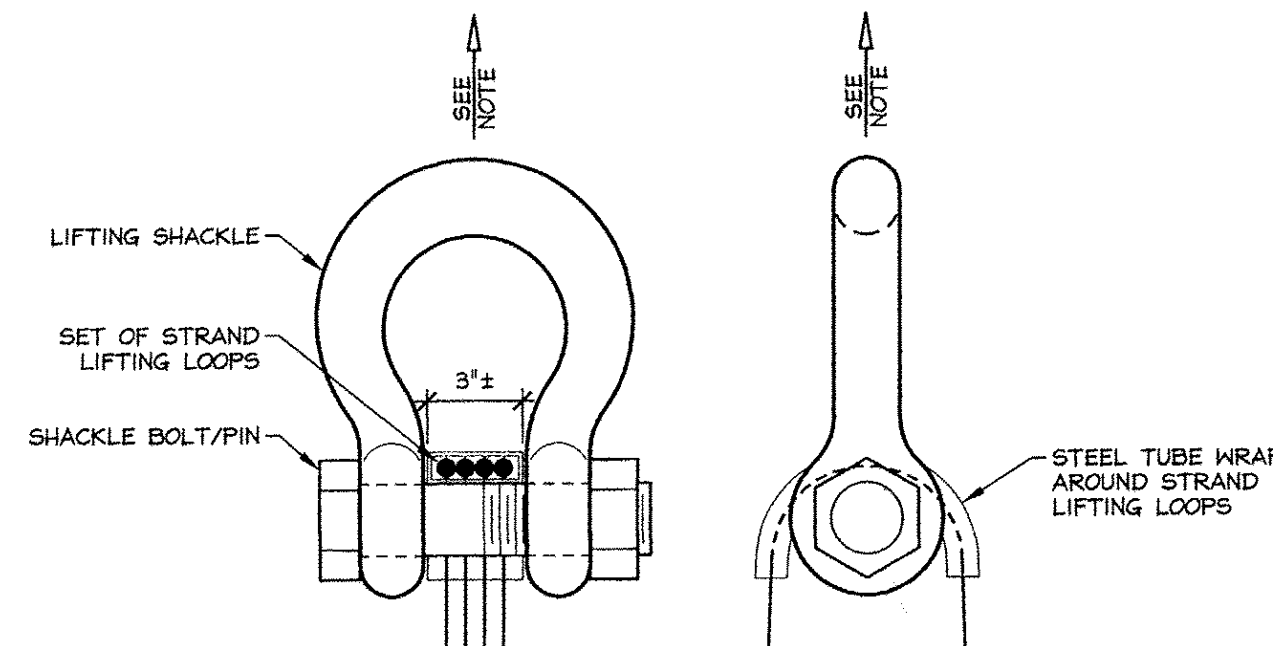
- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
- MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 6,000 PSI.
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED).
- PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M209) AND SHALL CONSIST OF 0.60" x 270 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 SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
- SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
- BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL AND VERTICAL 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 WITH 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 #426M
- 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 GROUTED AND/OR EPOXIED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUTED AND/OR EPOXIED SHEAR KEYS.

DRAWING INDEX

SHT. #	DRAWING TITLE	REV. #	REV. DATE
C1	COVER SHEET	1	4-7-14
F1	PRECAST ABUTMENT LAYOUT	1	4-7-14
F2	ABUTMENT #1 ELEVATIONS	1	4-7-14
F3	ABUTMENT #2 ELEVATIONS	1	4-7-14
F4	PRESTRESSED NEXT BEAM & APPROACH SLAB LAYOUT	1	4-7-14
F5	NEXT BEAM SECTION & CURTAIN WALL ELEVATIONS	1	4-7-14
F6	APPROACH SLAB SECTION & BEARING DETAILS	1	4-7-14
NB1	PRESTRESSED NEXT BEAM DETAILS		
NB1.1	PRECAST CURTAIN WALL DETAILS		
NB2	PRESTRESSED NEXT BEAM DETAILS "EN-NB1"		
NB2.1	PRECAST CURTAIN WALL DETAILS "EN-NB1"		
NB3	PRESTRESSED NEXT BEAM DETAILS "EN-NB2"		
NB3.1	PRECAST CURTAIN WALL DETAILS "EN-NB2"		
NB4	PRESTRESSED NEXT BEAM DETAILS "EN-NB3"		
NB4.1	PRECAST CURTAIN WALL DETAILS "EN-NB3"	1	4-7-14
AS1	PRECAST APPROACH SLAB DETAILS "EN-AS1" & "EN-AS3"	1	4-7-14
AS2	PRECAST APPROACH SLAB DETAILS "EN-AS2"	1	4-7-14
AS3	PRECAST APPROACH SLAB DETAILS "EN-AS5" & "EN-AS4"	1	4-7-14
AB1	PRECAST ABUTMENT DETAILS "EN-AB1"	1	4-7-14
AB2	PRECAST ABUTMENT DETAILS "EN-AB2"	1	4-7-14
PC1	PRECAST PILE CAP DETAILS "EN-PC1" & "EN-PC2"	1	4-7-14
WW1	PRECAST WINGWALL DETAILS "EN-WW4"	1	4-7-14
WW2	PRECAST WINGWALL DETAILS "EN-WW1", "EN-WW2" & "EN-WW3"		
M1	MATERIALS LIST (NEXT BEAMS & APPROACH SLABS)	1	4-7-14
M2	MATERIALS LIST (ABUTMENTS, PILE CAPS & WINGWALLS)	1	4-7-14



NEXT BEAM 32D HOLD-DOWN DETAIL FOR SHIPPING
3/4" x 1'-0"



LIFTING SHACKLE DETAILS
N.T.S.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60" 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:
 $\Delta = \frac{PL}{AE} = \frac{(44,000 - 3,000) \times 252.00 \times 12}{0.217 \times 28,600,000} = 19.977'$

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'

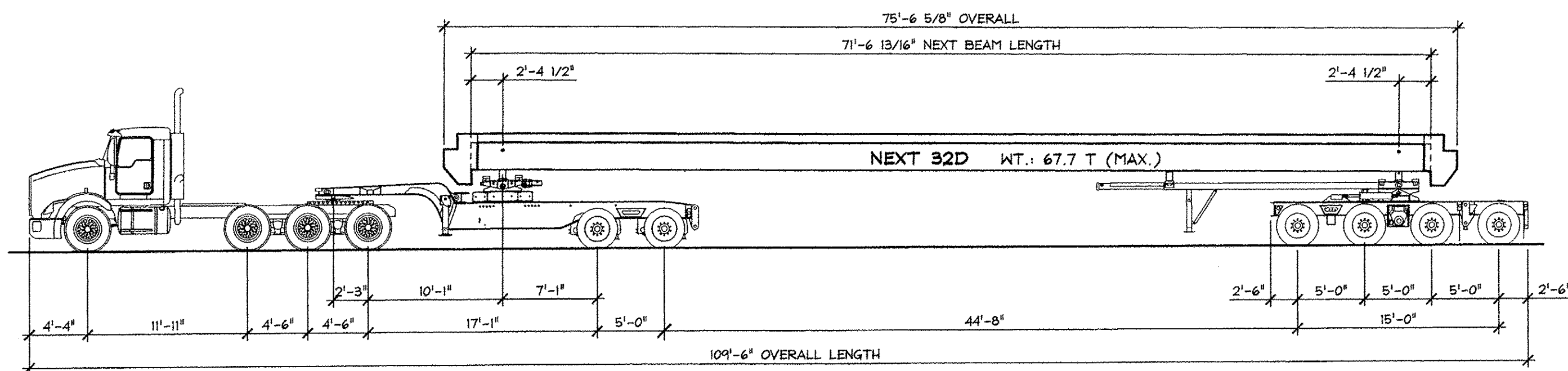
EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:
 $\Delta P = 0.5 \times \frac{41,000}{19.977} = 1,026$ LBS.

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.

DESIGN LIVE LOAD: HL-9B



SHIPPING ELEVATION
N.T.S.

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements

APPROVED AS NOTED

REVISE AND RESUBMIT

NOT REVIEWED

Date: 4-11-2014

By: James H. [Signature]

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc. approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Stantec

Vermont Agency of Transportation

RECEIVED

ON: April 9, 2014

and Checked for CONFORMANCE

BY: Rob Young DATE: 04/14/2014

ISSUED FOR PRODUCTION

APR 09 2014

J.P. CARRARA & SONS, INC.

MONTPELIER, VT 05753

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 Precast & Prestress Manufacturer CONTRACTOR
 2464 GISE STR., MONTPELIER, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010 MONTGOMERY CENTER, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF FRANKLIN	DATE: JAN. 27, 2014
TOWN OF ENOSBURG BOSTON POST ROAD T.H.2 CLASS 2 BRIDGE NO.: 48 PROJECT NO.: BRO 1448(40)	SCALE: NOTED
COVER SHEET	CHKD: M.L. DFTM: B.L. JOB NO: 23418-013 DWG. NO: C1