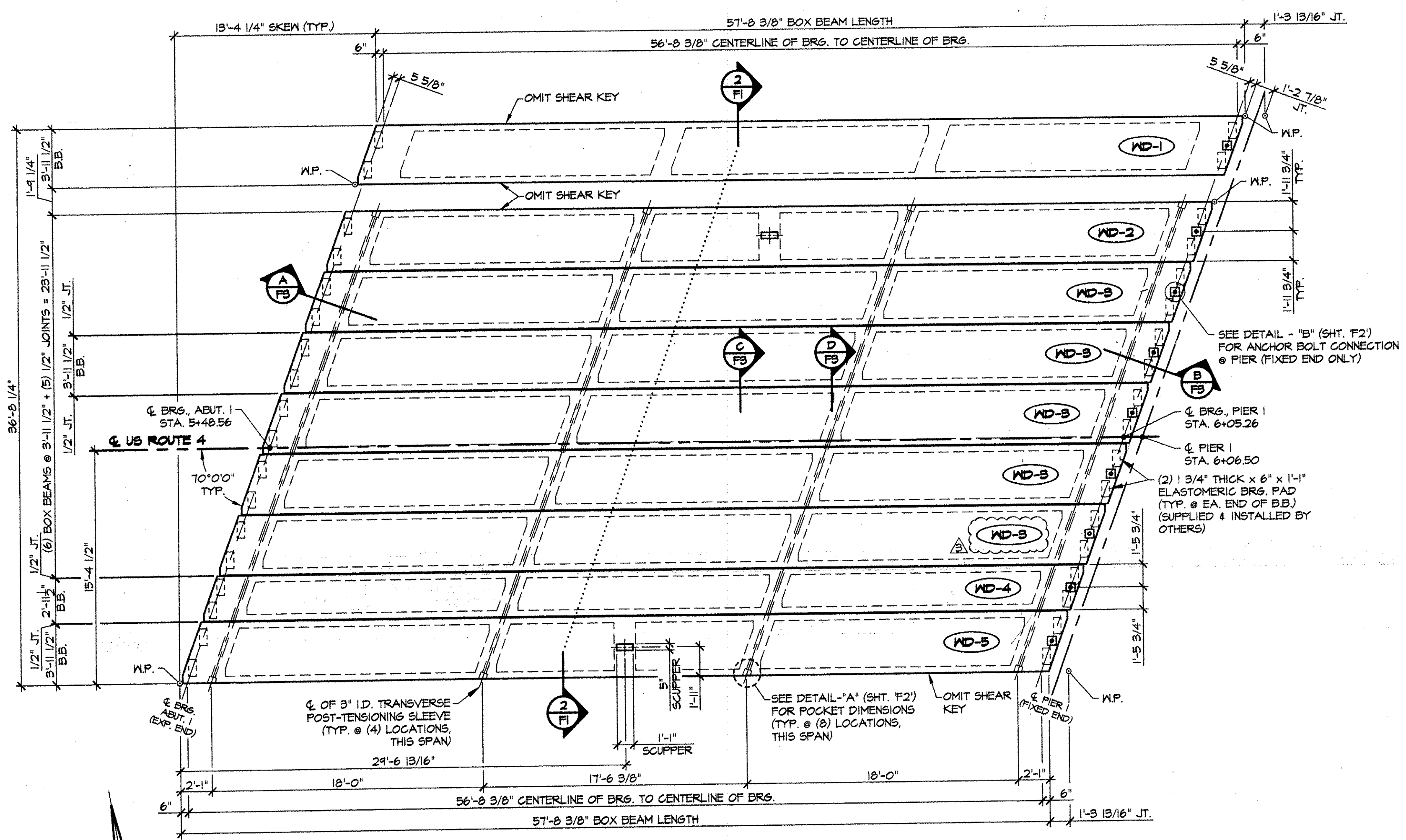


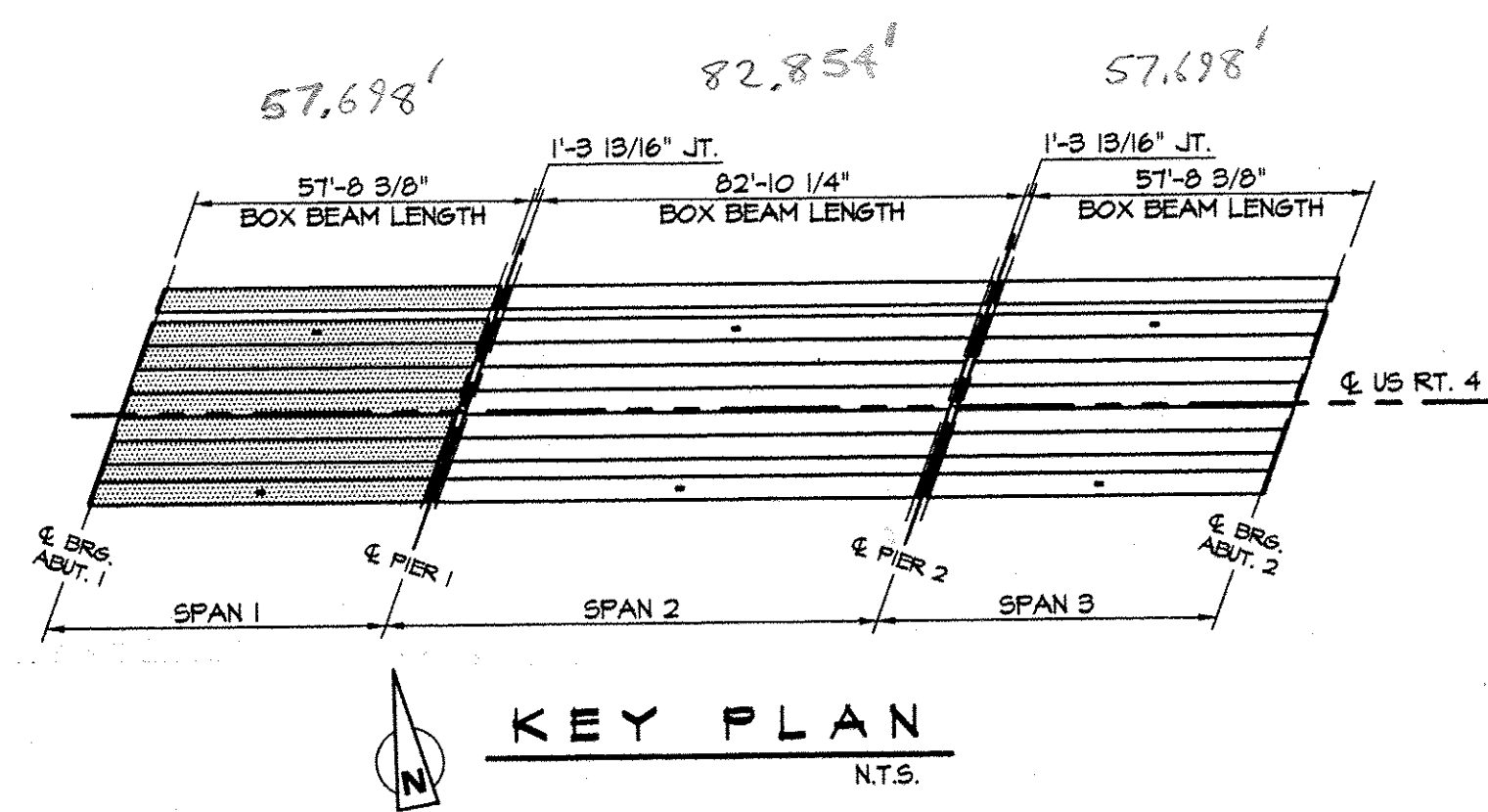
2 TRANSVERSE SECTION
 1/2" = 1'-0"

- GENERAL NOTES**
- MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 6000 PSI.
 - MIN CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 5000 PSI.
 - REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M51) AND SHALL BE EPOXY COATED.
 - PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M208) 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 44,000 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 BOX BEAMS (UNLESS NOTED OTHERWISE) & EPOXY PAINTED.
 - ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
 - THE TOPS OF BEAMS SHALL RECEIVE A TRANSVERSE RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE.
 - SHEAR KEY SURFACES SHALL BE BLASTED CLEAN.
 - BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. 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. FSI0.02 AND FSI0.05 RESPECTIVELY.
 DESIGN MIX: J.P.C. BRIDGE MIX #432 MSCC DC1 [LIGHT WEIGHT SCC]
 - QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS INC. IS A PCI CERTIFIED PLANT.
 - THE VOIDS MUST BE VENTED DURING CURING PERIOD.
 - CURING METHOD: AS SOON AS THE TOP OF THE BEAM IS FINISHED, A COVER OF POLY AND A LAYER OF HOMOGENEOTE (OR BLUE BOARD) WILL BE PLACED OVER THE BEAM. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW TO DEGREES F. 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 (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED.
 - TRANSVERSE POST-TENSIONING SEQUENCE:
 - ONCE BOX BEAMS ARE ERECTED, POST-TENSION TENDONS TO APPROXIMATELY 5,000 LBS.
 - GROUT SHEAR KEYS.
 - ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI, POST-TENSION TENDONS TO 30,000 LBS.



1 PRESTRESSED BOX BEAM LAYOUT (SPAN 1)
 3/16" = 1'-0"
DESIGN LOAD: HS25

1387.75' Grouting keys
198.25' 36" Boxes
1586.00' 48" Boxes



KEY PLAN
 N.T.S.

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

SIZE & GRADE: 0.60"Ø 270 KSI
 AREA: 0.21 IN²
 TENSION: 44,000 LB EACH STRAND
 GRIP TO GRIP: 142'-4 3/4" = 142.813'
 $E_s = 28,600,000$ PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:
 $\Delta = \frac{PL}{AE} = \frac{(44,000 - 3,000) \times 142.813 \times 12}{0.21 \times 28,600,000} = 15.24"$

TOLERANCES: ± 5%
 THEREFORE
 Δ UPPER LIMIT = $1.05 \times 15.24" = 16.05" = 16 \frac{1}{16}"$
 Δ LOWER LIMIT = $0.95 \times 15.24" = 14.53" = 14 \frac{1}{2}"$

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE.
 $\Delta P = \frac{0.5 \times 28,000}{15.24} = 1,341$ LB

TOTAL TENSIONING FORCE = 44,000 + 1,341 = 45,341 LB

- STRAND TENSIONING PROCEDURE:**
- FULL EACH STRAND INITIALLY TO 3,000* LB AND MARK STRAND.
 - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,341* LB AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 14 1/2" & 16 1/16"
- *NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

- △ 4-11-07 REVISE BOX BEAM MARK NUMBER
- △ 3-9-07 REVISE BOX BEAM MARK NUMBER
- △ 2-18-07 GENERAL REVISIONS

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 GAGE STR., WOODSTOCK, VERMONT 05753 Phone: (802)388-8361 Fax: (802)388-9010	T. BUCK CONSTRUCTION, INC. CONTRACTOR AUBURN, MAINE
STATE OF VERMONT A.O.T. COUNTY OF WINDSOR		DATE: JAN. 9, 2007
TOWN OF WOODSTOCK US ROUTE 4 OVER OTTAUQUECHEE RIVER BRIDGE NO. 50 PROJECT NO. BHF 020-2(32)		SCALE: NOTED
SUPERSTRUCTURE PLAN & SECTION (SPAN 1)		CHKD: D.F. DFTM: B.L.
		JOB NO: 23244-06
		DWG. NO: F1