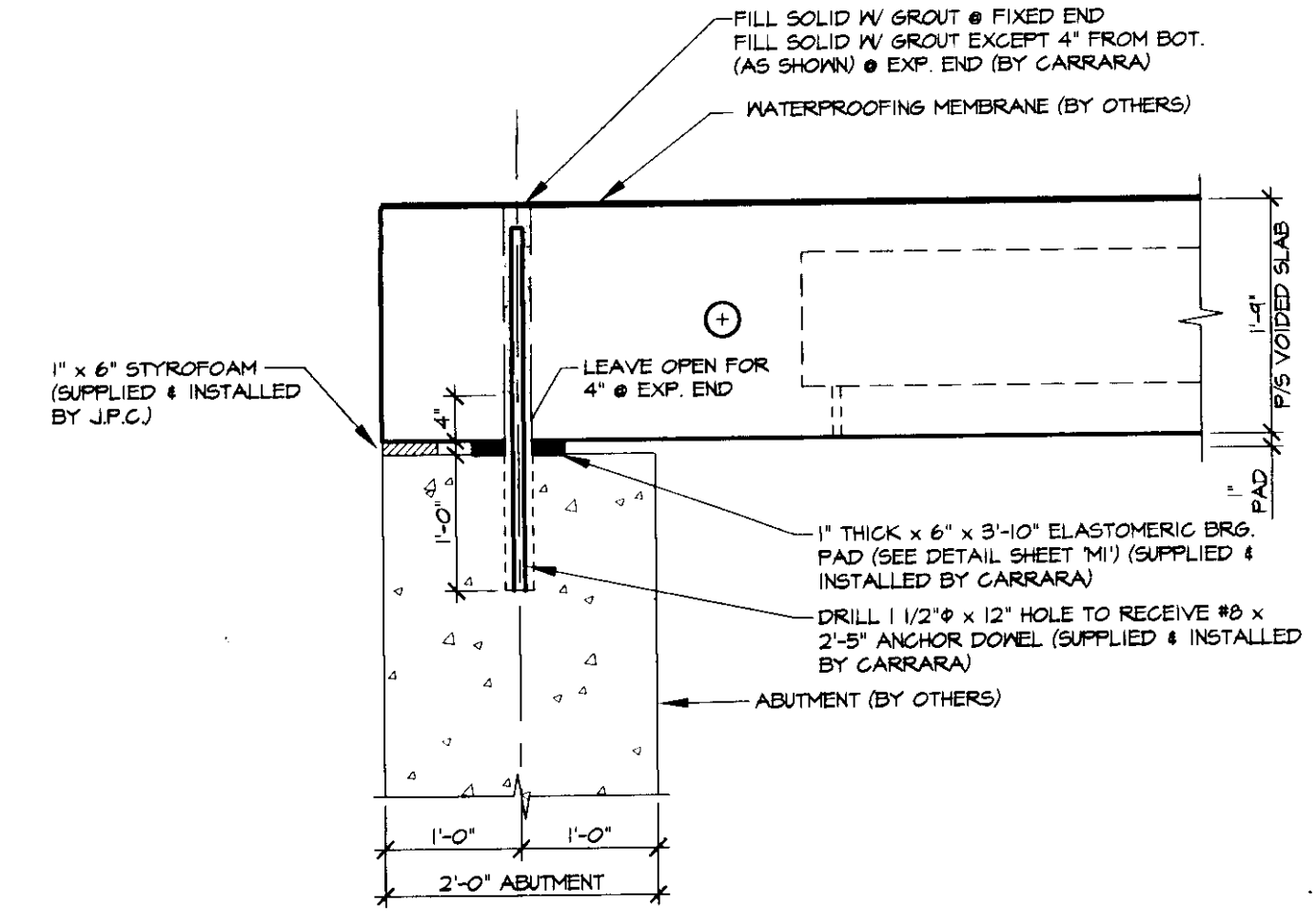
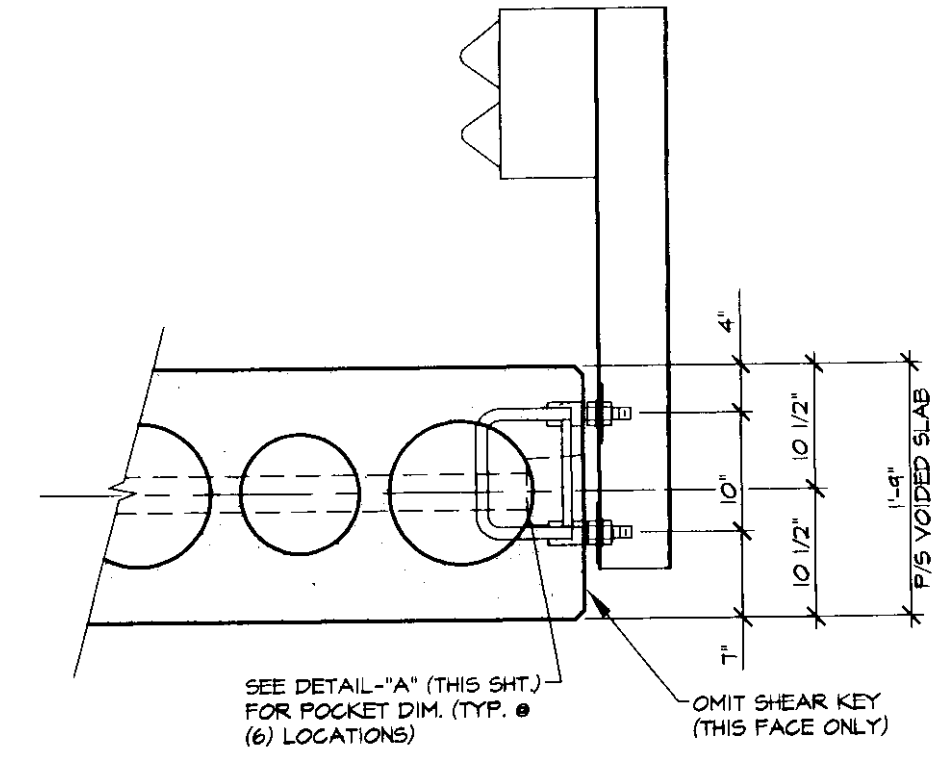


GENERAL NOTES

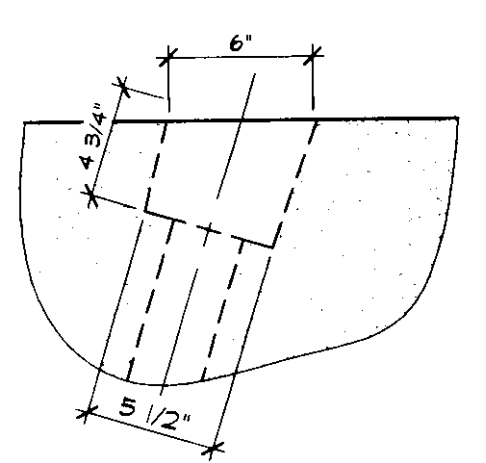
- MIN. CONCRETE STRENGTH AT 28 DAYS: $f_c = 5,000$ PSI
MIN. CONCRETE STRENGTH AT STRESS TRANSFER: $f_{ci} = 4,000$ PSI
- REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) AND SHALL BE BLACK STEEL OR EPOXY COATED (AS NOTED).
- PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203) AND SHALL CONSIST OF 0.500" ϕ x 270 KSI, 7-WIRE LOW RELAXATION STRANDS.
- PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 31.0 K AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION. SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, (THIS SHEET).
- END OF PRESTRESSING STRANDS SHALL BE CUT FLUSH & PAINTED.
- THE TOP OF THE BEAMS SHALL RECEIVE A FLOAT FINISH.
- BEAMS SHALL BE HANDLED AND ERRECTED 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.
- SHEAR KEY SURFACES SHALL BE BLAST CLEANED.
- MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. PS10.02 AND PS10.05 RESPECTIVELY.
DESIGN MIX: J.P.C. BRIDGE MIX #450
752 LBS. TYPE III CEMENT - GLENS FALLS CEMENT
1215 LBS. FINE AGGREGATE
1650 LBS. COARSE AGGREGATE
28 GAL. WATER - 233 LBS.
7% ($\pm 2\%$) AIR CONTENT (55 OZ. DAREX II) ADJUST AS REQUIRED
6.0 OZ. ADVA PER 100 LBS. CEMENT, MAX. 1" SLUMP
3 OZ. DARACEM PER 100 LBS. CEMENT
51.2 OZ. DCI
- QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
- THE ENGINEER OF RECORD WILL BE NOTIFIED IN A TIMELY MANNER SO THAT ALL PRECAST OPERATIONS MAY BE WITNESSED.
- THE VOIDS MUST BE VENTED DURING THE CURING PERIOD.
- CURING METHOD: AS SOON AS THE TOP OF THE BEAM IS FINISHED, A COVER OF POLY AND A LAYER OF HOMASOTE (OR BLUE BOARD) WILL BE PLACED OVER THE BEAM. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 10°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.
- NO INSERTS SHALL BE FIELD INSTALLED IN BEAMS WITHOUT APPROVAL OF J.P. CARRARA & SONS, INC.
- TRANSVERSE POST-TENSIONING SEQUENCE:
A. ERECT VOIDED SLABS.
B. GROUT SHEAR KEYS.
C. ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI, POST-TENSION TENDONS TO 30,000 LBS.



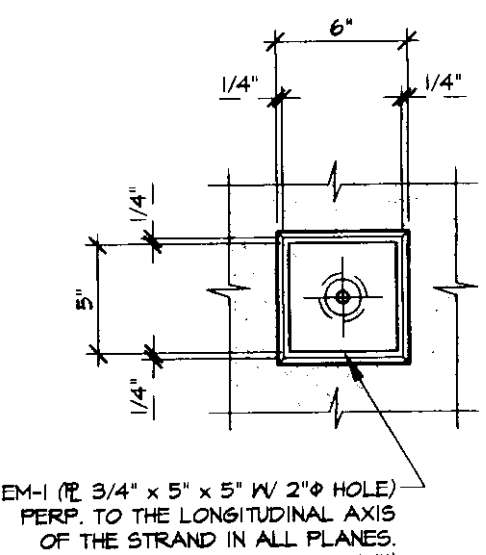
A BEARING SECTION
3/4" x 1'-0"



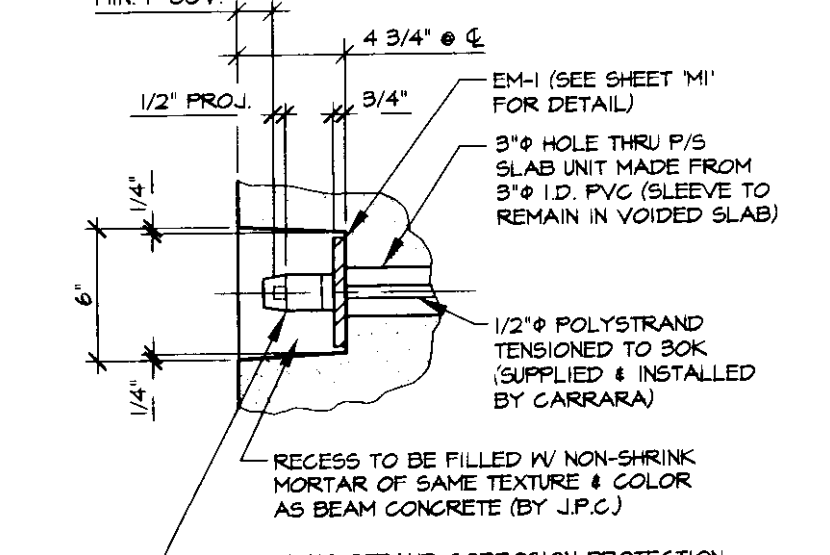
B CONNECTION SECTION
3/4" x 1'-0"



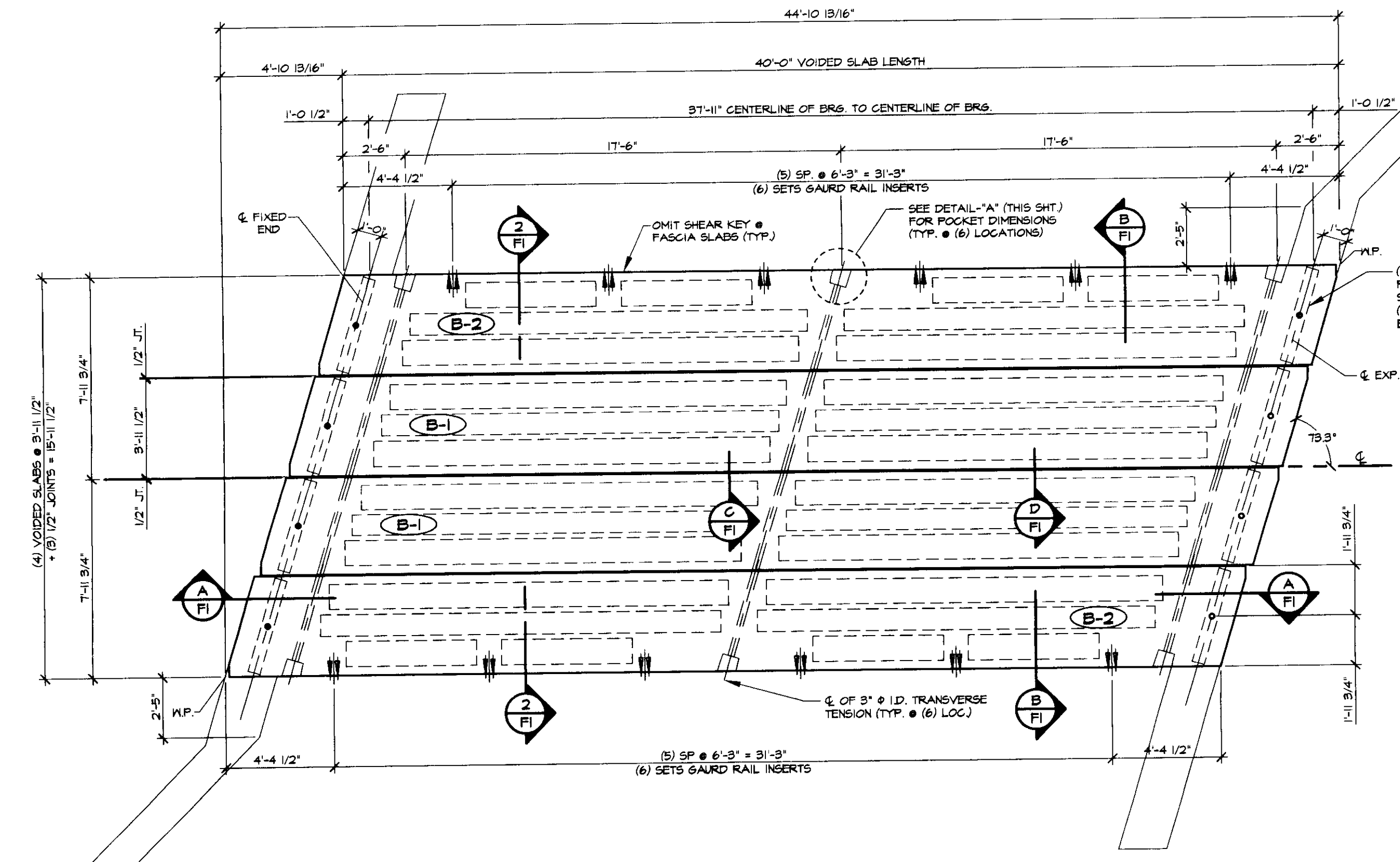
PLAN OF POCKET



FASCIA ELEVATION

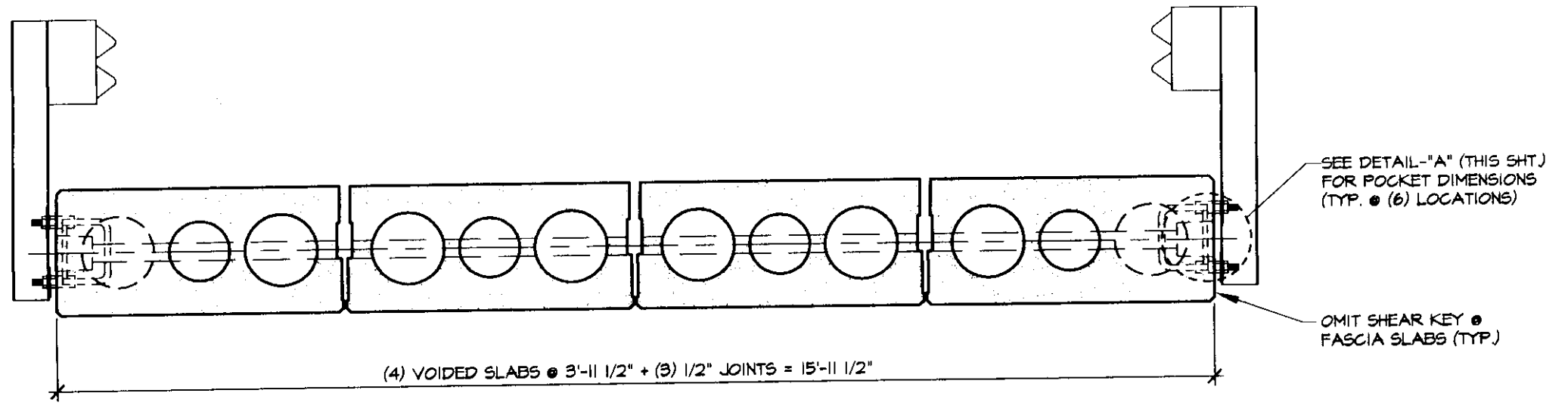


SECTION AT CENTERLINE

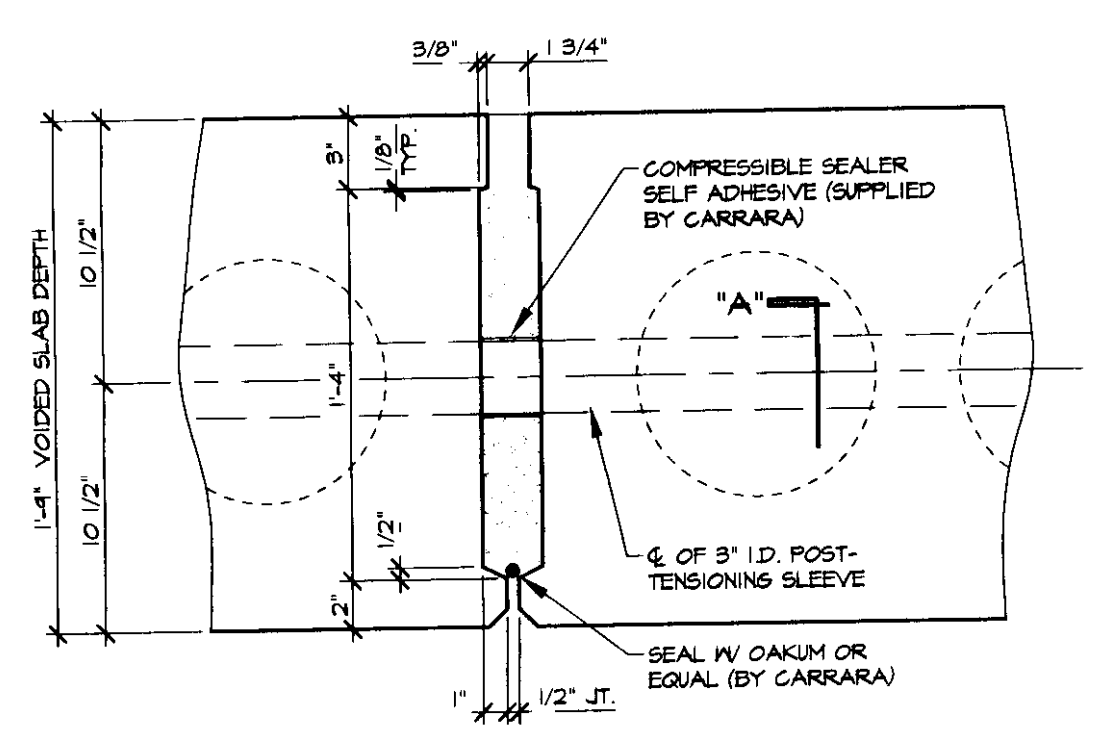


1 PRESTRESSED VOIDED SLAB LAYOUT
1/4" = 1'-0"

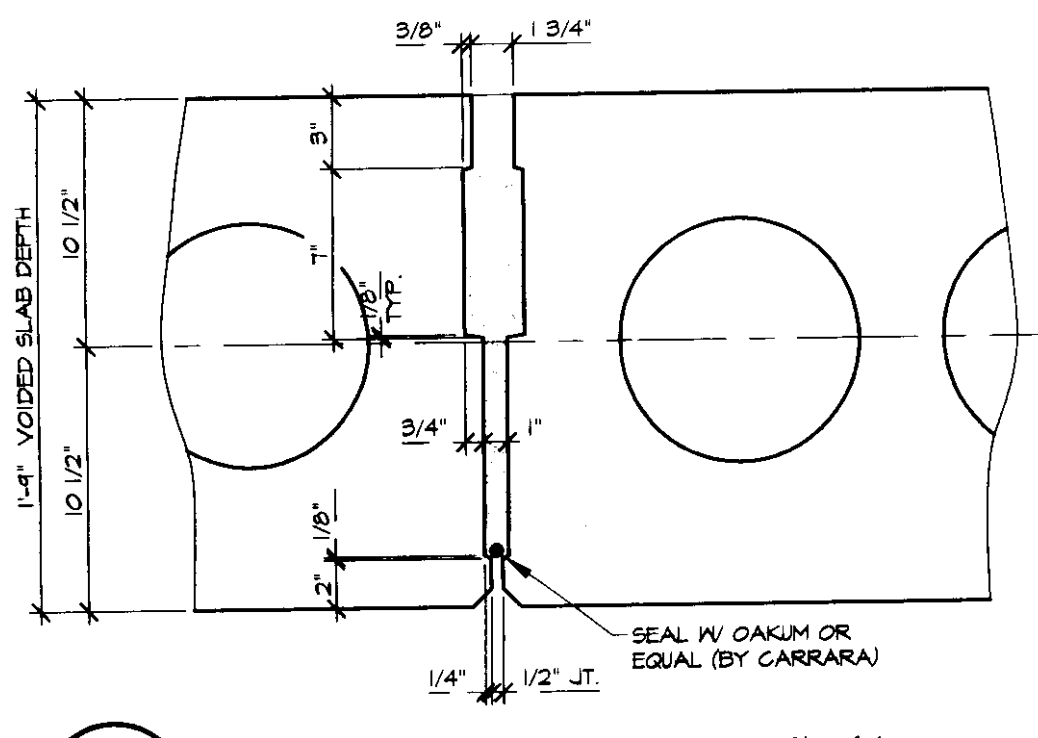
DESIGN LOAD: HS-25-44



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



C SHEAR KEY SECTION @ P.T. SLEEVE
1 1/2" = 1'-0"



D TYP. SHEAR KEY SECTION
1 1/2" = 1'-0"

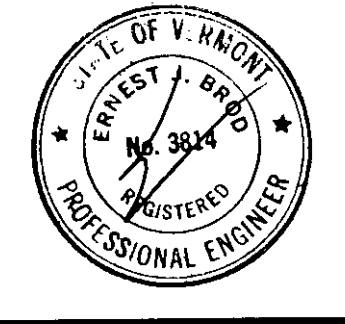
EXAMPLE PRESTRESSING STRAND ELONGATION CALCULATION AND TENSIONING
(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.600" ϕ x 270 KSI
AREA: 0.217 IN²
TENSION: 43,200 LBS. EACH STRAND
GRIP TO GRIP: 142'-9 3/4" = 142.813'
Es = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS. VALUE TO BE OBTAINED FOR STRAND SPECIALLY USED)
EXAMPLE: $\Delta = \frac{P_L}{AE} = \frac{(43,200 \times 3,000) \times 142.813 \times 12}{0.217 \times 28,600,000} = 15.21"$
THEREFORE: TOLERANCES: $\pm 5\%$
 Δ UPPER LIMIT = 1.05 x 15.21" = 15.97" = 16"
 Δ LOWER LIMIT = 0.95 x 15.21" = 14.45" = 14 7/16"
EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:
 $\Delta P = 0.5 \times 40,800 = 1,341$ LBS.
TOTAL TENSIONING FORCE = 43,200 + 1,341 = 44,541 LBS.

STRAND TENSIONING PROCEDURE

- PULL EACH STRAND INITIALLY TO 3,000* LBS. AND MARK STRAND.
 - PULL EACH STRAND TO A TOTAL TENSION OF 45141* LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 14 7/16" AND 16".
- * NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

APPROVAL STAMP:



J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		J.P. CARRARA & SONS INC. CONTRACTOR MIDDLEBURY, VERMONT	
BRIDGEWATER # 46 BRIDGE BRIDGEWATER, VT		DATE: JULY 30, 2002 SCALE: NOTED	
TOWN OF BRIDGEWATER P.O. BOX 14 SOUTH GATEHOUSE BRIDGEWATER, VT 05034		CHKD: --	DFTM: K.B.
SUPERSTRUCTURE PLAN & DETAILS		JOB NO: 23162-02	DWG. NO: FI