SOUTH PERKASIE COVERED BRIDGE
FOR
BOROUGH OF PERKASIE (PA)
RESTORATION DRAWINGS
MARCH 2025

ENGINEER OF RECORD (EOR)
WOOD RESEARCH AND DEVELOPMENT
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P50 DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

	REASON FOR ISSUANCE:	DATE:	DRAWN BY	CHKD BY	APPR BY
-	P50 DRAWINGS FOR REVIEW	03/07/2025	LK	CH	KK

COVER SHEET

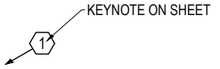
DRAWING # 0.0

SHEET # 1 OF 32 -

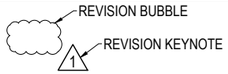
PROJECT #9101S

DRAWING INDEX

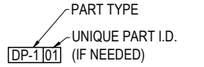
SECTION & DETAIL DESIGNATIONS



SHEET KEYNOTE



REVISION KEYNOTE



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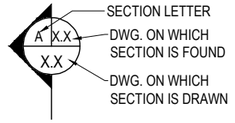

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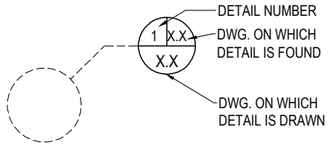

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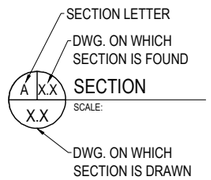

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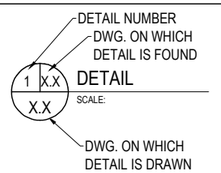

DETAIL TITLE

LIST OF ABBREVIATIONS

A	
ABUTMENT	ABUT., AB-#
ADDITIONAL	ADD'L.
ALTERNATE	ALT.
ANCHOR SEAL	A.S.
ANGLE BRACE	A.B.
APPROVED	APPD.
APPROXIMATE	APPROX.
AT	@
AVERAGE	AVG.
B	
BASELINE OF CONSTRUCTION	BL., ℄
BEAM	BM.
BEARING	BRG.
BENT	BT.
BITUMEN	BIT.
BUILDING	BLDG.
BOTTOM	BOT.
BOTTOM OF PILE	B.O.P.
C	
CENTER LINE	CL., ℄
CIRCLE	CIR.
CLEARANCE	CLR.
COLUMN	COL.
CONCRETE	CONC.
CONNECTION	CONN.
CONSTRUCTION	CONST.
COPPER NAPHTHENATE	C.N.
COUNTERSINK	CSK.
COUPLING	CPLG.
CROSSHEAD	CRHD.
D	
DETAIL	DET.
DIAGONAL	DIAG.
DIAMETER	DIA, Ø
DIMENSION	DIM.
DRAWING	DWG.
DRAIN	DR.
E	
EACH	EA.
EAST	E.
EASTBOUND	EB.
ELECTRIC	ELECT.
ELEVATION	EL.
EXISTING	EXIST.
EXPANSION	EXP.
F	
FABRICATE	FAB.
FOOTING	FTG.
FOUNDATION	FDN.
G	
GALVANIZE	GALV.
GIRDER	GDR.
GRADE	GR.
GROUND	GND.
H	
HEIGHT	HT.
HORIZONTAL	HORIZ.
L	
LEFT	Lt.
LENGTH	LGTH.
LONG	LG.

M	
MATERIAL	MATL.
MINIMUM	MIN.
MISCELLANEOUS	MISC.
N	
NORTH	N.
NOT TO SCALE	N.T.S.
NUMBER	NO.
NOT IN CONTRACT	N.I.C.
O	
ON CENTER	O.C.
OUTSIDE DIAMETER	O.D.
OPTIONAL	OPT.
P	
PEDESTRIAN	PED.
PERPENDICULAR	PERP., ⊥
PILE	P-#
PILE BENT	P.B.
PLATE	PL., ▭
POINT	PT.
POST TENSION	P/T
POUNDS PER SQUARE INCH	PSI
PRECAST	P/C
PRESTRESSED	P/S
PROPOSED	PROP.
Q	
QUANTITY	QTY.
R	
RADIUS	RAD., R
RAILROAD	RR.
REINFORCED	REINF.
REHABILITATION	REHAB.
REQUIRED	REQD.
RETROWRAP	R.W.
RIGHT	Rt.
S	
SCHEDULE	SCH.
SECTION	SECT.
SHEET	SH., SHT.
SOUTH	S.
SPACING	SPC.
SPAN	SP-#
SQUARE	SQ.
STANDARD	STD.
STAINLESS STEEL	S.S.
STIFFENER	STIFF.
STRUCTUREFILL	SF.
SYMMETRICAL	SYM.
T	
TEMPORARY	TEMP.
TRANSVERSE	TRANS.
TYP.ICAL	TYP.
TYP.ICAL AS NEEDED	T.A.N.
TIMBER	TBR.
V	
VARIES	VAR.
VERTICAL	VERT.
W	
WORK POINT	W.P.
WORKING DRAWINGS	W.D.

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-	P50 DRAWINGS FOR REVIEW	LK	CH	KK
	DATE: 03/07/2025			

INDEX & ABBREVIATIONS

DRAWING # 0.1

SHEET # 2 OF 32 -

PROJECT #9101S

DESIGN STANDARDS:

NEW WORK IS DESIGNED IN ACCORDANCE WITH AASHTO *LRFD BRDIGE DESIGN SPECIFICATION* AND ANSI/AWC NDS-2012 *NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION*. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THESE STANDARDS AND ALL APPLICABLE LOCAL STANDARDS.

GENERAL NOTES:

1. THESE INSTRUCTIONS, REFERENCED SPECIFICATIONS AND DRAWINGS ARE REQUIRED TO FULLY UNDERSTAND THE SCOPE AND REQUIREMENTS FOR THIS WORK. CONTRACTOR SHALL FAITHFULLY FOLLOW ALL OF THESE AND OBTAIN APPROVAL OF ENGINEER FOR ANY VARIATION FROM THESE.
2. DRAWINGS ARE SCHEMATIC IN NATURE. DO NOT SCALE OFF OF DRAWINGS. DIMENSIONS SHOWN ARE DEEMED TO BE ACCURATE. DIMENSION OF EXISTING PARTS SHALL BE VERIFIED IN FIELD. WHERE CONFLICT OR QUESTIONS OCCUR, REFER TO EOR BEFORE PROCEEDING.
3. THE CONTRACTOR SHALL REPORT TO THE ENGINEER ANY DECAYED WOOD AREAS DISCOVERED DURING INSTALLATION OF RETROFIT MATERIALS. DECAY MAY BE RECOGNIZED AS SOFT OR PUNKY WOOD, FRUITING BODIES IN CRACKS OR ON THE WOOD SURFACE, OR CRUMBLY OR CHECKERED SURFACE.
4. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY DIMENSIONS PRIOR TO INSTALLATION OF RETROFIT OR REPLACEMENT MATERIALS. THE ENGINEER SHALL BE NOTIFIED OF DISCREPANCIES.
5. THE CONTRACTOR SHALL REPORT TO THE ENGINEER ANY STRUCTURAL FAILURES OR DISTRESSED STRUCTURAL MEMBERS.

FiRP® HIGH STRENGTH FIBER REINFORCED LAMINATE:

FiRP® HIGH STRENGTH FIBER REINFORCED LAMINATE MATERIALS USED IN THIS RETROFIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ICC ES EVALUATION REPORT #6046 AND AITC 117-MANUFACTURING. WOOD USED TO COVER FiRP® HIGH STRENGTH FIBER REINFORCED LAMINATE SHALL BE CONSTRUCTED FROM DOUGLAS FIR / LARCH.
REINFORCEMENT SHALL BE ARAMID REINFORCED PANEL (ARP), GLASS-ARAMID REINFORCED PANEL (GARP), OR CARBON-ARAMID REINFORCED PANEL (CARP), AS SPECIFIED BY THE EOR. MINIMUM REQUIREMENTS OF THE REINFORCEMENT ARE AS FOLLOWS:

	SP ALLOWED (psi)	MOE rt (psi)	MOE rc (psi)
ARP	143,000	11,600,000	0.0
GARP	35,000	8,000,000	8,000,000
CARP	121,000	16,600,000	16,600,000

THE PRODUCTION OF ALL FiRP® HIGH STRENGTH FIBER REINFORCED LAMINATE SHALL BE QUALIFIED AND MONITORED BY A THIRD PARTY QUALITY ASSURANCE AGENCY WITH ICC EVALUATION SERVICE CERTIFICATION.

EPOXY ADHESIVE SPECIFICATIONS:

ALL SURFACES INTENDED FOR STRUCTURAL RETROFIT MUST BE FREE OF ALL PAINT AND OTHER SURFACE COATINGS. PLANE ALL CONTACT SURFACES FLAT TO ACCOMMODATE A STRUCTURAL EPOXY ADHESIVE. AVOID SCORING OR GOUGING, UNDULATION IS ACCEPTABLE ON A MAXIMUM 12" CYCLE. SANDING, GRINDING, OR OTHER ABRASIVE METHODS OF REMOVING THE EXISTING COATINGS OR WOOD IS NOT PERMITTED. THE REINFORCED TENSION LAMINATION SHALL BE INSTALLED A MAXIMUM OF 48 HOURS AFTER PLANING TO ENSURE A FRESH WOOD SURFACE SUITABLE FOR BONDING.

EPOXY ADHESIVES SHALL BE A RETROBOND TWO PART EPOXY. MIXING, APPLICATION, AND SAFETY PRACTICES SHALL BE STRICTLY IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND THE PUBLISHED MATERIAL SAFETY DATA SHEET PROVIDED BY THE EPOXY MANUFACTURER. STRICTLY CONFORM TO TEMPERATURE LIMITS AS PUBLISHED BY EPOXY MANUFACTURER. EPOXY ADHESIVES SHALL BE USED TO BOND RETROFIT MATERIAL TO EXISTING BEAMS. THE EPOXY SHALL BE UNIFORMLY APPLIED TO BOTH THE PLANED SURFACE OF THE EXISTING BEAM AND THE MATING SURFACE OF THE RETROFIT MATERIALS TO AN AVERAGE THICKNESS OF 1/32". SOME SQUEEZE-OUT FROM ALL SIDES DURING CLAMPING IS REQUIRED TO INDICATE ADEQUATE CLAMPING PRESSURE AND EPOXY COVERAGE.

EPOXY ADHESIVES ARE CORROSIVE AND MAY CAUSE SKIN IRRITATION. RESINS AND HARDENERS ARE ALSO SENSITIZERS AND MAY CAUSE AN ALLERGIC REACTION. AVOID SKIN CONTACT WITH RESIN, HARDENER, AND MIXED EPOXY. AVOID BREATHING CONCENTRATED VAPORS AND PROVIDE AMPLE VENTILATION WHEN WORKING WITH EPOXY. AVOID INGESTION. MIXED EPOXY UNDERGOES AN EXOTHERMIC REACTION WHILE CURING AND MAY GENERATE A SIGNIFICANT AMOUNT OF HEAT. DO NOT ALLOW MIXED BATCHES OF EPOXY TO SIT IN THE MIXING CONTAINER (SIGNIFICANT RISK OF SPONTANEOUS COMBUSTION). AFTER MIXING, THE EPOXY SHALL BE SPREAD ONTO A CLEAN FLAT PALETTE.

THE CONTRACTOR SHALL TAKE MEASURES TO ENSURE THAT THE EPOXY DOES NOT BEGIN TO GEL BEFORE THE REINFORCED TENSION LAMINATION IS FULLY INSTALLED WITH ALL LAG SCREWS PROPERLY TORQUED. RETORQUE ALL LAG BOLTS AS DIRECTED IN INSTRUCTIONS.

MECHANICAL FASTENERS:

ALL FASTENERS SHALL BE ASTM A36 MILD STEEL, HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM F2329 *STANDARD SPECIFICATION FOR ZINC COATING, HOT-DIP, REQUIREMENTS FOR APPLICATION TO CARBON AND ALLOY STEEL BOLTS, SCREWS, WASHERS, NUTS, AND SPECIAL THREADED FASTENERS.*

LAG SCREWS

ALL LAG SCREWS SHALL CONFORM TO ASME B18.2.1 *SQUARE, HEX, HEAVY HEX, AND ASKEW HEAD BOLTS AND HEX, HEAVY HEX, HEX FLANGE, LOBED HEAD, AND LAG SCREWS (INCH SERIES).*

DRILL LEAD HOLE TO DEPTH OF SHANK PART OF LAG SCREWS (NOT THREAD PART) EQUAL TO THE SHANK DIAMETER. DIAMETER OF PILOT HOLE ACCOMMODATING THE THREADED PORTION OF THE LAG BOLT SHALL BE 85% OF SHANK DIAMETER IN HARDWOODS OR 65% OF SHANK DIAMETER IN SOFTWOODS. PILOT HOLE DIAMETER TO BE CONFIRMED ON SITE WITH A TRIAL HOLE. ALL LAG SCREWS SHALL BE INSTALLED BY TURNING WITH A WRENCH, NOT DRIVING WITH A HAMMER. LUBRICANT SUCH AS GREASE SHALL BE USED TO FACILITATE INSERTION AND PREVENT DAMAGE TO THE LAG SCREW. PROVIDE HOT-DIPPED GALVANIZED STEEL WASHER UNDER THE HEAD OF EACH LAG SCREW.

FOR RETROTEN® INSTALLATION, TORQUE LEVEL SHALL BE DETERMINED BY THE MAXIMUM TORQUE OBTAINED BY THE TRIAL HOLE. IF THE TORQUE VALUE OBTAINED IS LESS THAN 125ft-lb CALL EOR FOR DIRECTION ON HOW TO PROCEED. TORQUE ALL LAG SCREWS TO 80ft-lb MIN. IT IS IMPORTANT TO NOT SPIN-OUT LAG SCREWS. THEREFORE, DO NOT OVER-TORQUE LAG SCREWS. IF SPIN-OUT OR LAG SCREW FAILURE OCCURS DRILL NEW PILOT HOLE IN CLOSE PROXIMITY IMMEDIATELY, AND PLACE NEW LAG SCREW.

BOLTS

BOLTS SHALL CONFORM TO ASME B18.2.1 *SQUARE, HEX, HEAVY HEX, AND ASKEW HEAD BOLTS AND HEX, HEAVY HEX, HEX FLANGE, LOBED HEAD, AND LAG SCREWS (INCH SERIES).* WHERE TIMBER BOLTS ARE SPECIFIED, UTILIZE STANDARD DOME-HEAD TIMBER BOLTS.

BOLTS FOR TIMBER CONNECTIONS SHALL BE TIGHTENED ONLY TO A SNUG-TIGHT FIT. DO NOT OVERTIGHTEN. WHERE LOCK WASHERS ARE USED, THE WASHER SHOULD BE FLATTENED AND THE NUT TURNED AN ADDITIONAL ¼ TO ½ TURN. STEEL SIDE PLATES, SUCH AS ON JACK-POSTS AND HINGE-CONNECTORS SHOULD NOT BE BENT INTO THE WOOD.

UNLESS OTHERWISE SPECIFIED BY THE EOR, THE MAXIMUM TORQUE FOR BOLTED CONNECTIONS IS 30 ft-lb; THERE IS NO MINIMUM TORQUE REQUIREMENT.

WASHERS

WASHERS SHALL BE AT LEAST THE SIZE OF STANDARD CUT WASHERS AND HOT-DIPPED GALVANIZED IN COMPLIANCE WITH ASTM F2329. WHERE TIMBER WASHERS ARE SPECIFIED, UTILIZE STANDARD MALLEABLE IRON TIMBER WASHERS.

FABRICATION OF NEW METAL BRACKETS AND JACK POSTS:

ALL NEW FABRICATED STEEL ASSEMBLIES SHALL BE ASTM A36 MILD STEEL. SHEAR CUT PLATE WHEREVER POSSIBLE. TORCH CUT WITH STRAIGHT-LINE JIG WHERE NECESSARY. ALL PLATE SHALL BE ±1/64" TOLERANCE TO ALL GIVEN DIMENSIONS. TORCH CUT EDGES SHALL BE GROUND FREE OF SLAG.

PROVIDE ½" THICK BRIDGE BEARING NEOPRENE RUBBER PADS FOR ALL ENDS OF BEAMS IN THEIR POCKETS. DESIGN DEFLECTION SHALL BE 1/16". PADS SHALL COVER FULL WIDTH AND DEPTH OF SEAT.

FABRICATED PARTS SHALL HAVE HOT-DIPPED GALVANIZED (ZINC) COATINGS IN ACCORDANCE WITH ASTM A123 *STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS.*

MINIMUM REQUIREMENTS FOR COATING THICKNESS AND MASS PER ASTM A123			
ARTICLE THICKNESS in.	AVERAGE COATING THICKNESS GRADE MIN.	AVERAGE COATING THICKNESS MIN. mils	AVERAGE COATING MASS MIN. oz/ft²
<1/16"	45	1.8	1.0
≥1/16" <1/8"	65	2.6	1.5
≥1/8" ≤3/16"	75	3.0	1.7
>3/16" <1/4"	85	3.3	2.0
≥1/4"	100	3.9	2.3

FIELD TREATMENT:

TREAT ALL FIELD-DRILLED HOLES TO REFUSAL / SATURATION WITH COPPER NAPHTHENATE FIELD TREATMENT PRESERVATIVE. TREAT HOLES AS SOON AS POSSIBLE AFTER DRILLING. ENSURE HOLES ARE CLEAN FREE OF SAWDUST OR DEBRIS PRIOR TO TREATING.

TREAT EXPOSED BEAM ENDS TO REFUSAL / SATURATION WITH COPPER NAPHTHENATE FIELD TREATMENT PRESERVATIVE AND ANCHOR-SEAL PARAFFIN SEALANT. TREAT BEAMS AS SOON AS POSSIBLE AFTER CUTTING. ENSURE CUTS ARE CLEAN AND FREE OF SAWDUST OR DEBRIS PRIOR TO TREATING.

INJECTION:

WHEN INJECTING A PILE OR BEAM WITHOUT THE EXTENSION WAND USE A ¾" DIAMETER HOLE TO INSURE A TIGHT SEAL SO PRESSURE CAN BUILD UP.

PILES: INJECT PILES FROM THE BOTTOM OF THE CAVITY UP. INJECTION HOLES MUST BE CLOSED WITH BUNGS TO MAINTAIN PRESSURE.

BEAMS: DRILL INJECTION HOLES IN BEAMS IN A VERTICALLY STAGGERED PATTERN ALONG THE LENGTH. INJECT BEAMS FROM THE LARGE END OF THE CAVITY TOWARDS THE SMALL END. BUNG HOLES AS YOU GO. WHEN INJECTING A BEAM WITH A VERTICAL SPLIT USE THE EXTENSION WAND IN A ½" HOLE TO BUILD GREATER PRESSURE. IT IS PARTICULARLY IMPORTANT ON SPLIT BEAMS TO DRILL PAST THE SPLIT, 1-1/8" IF POSSIBLE, TO PIN THE INJECTION TO THE FAR SIDE.

ASPHALT SPECIFICATIONS (PROVIDED BY OTHERS):

DECK PREPARATION: SEAL DECK PANEL JOINTS WITH FOAM BACKER ROD OR BITUMINOUS JOINT TAPE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS PRIOR TO THE APPLICATION OF THE NOMINATED PRIMER SEAL. KEEP DECK CLEAN AND DRY. SURFACE MOISTURE CONTENT OF THE DECK MUST BE BELOW 20% AT THE TIME OF ASPHALT APPLICATION.

PRIMER SEAL COAT: APPLY PRIMER SEAL TO THE DECK WITHIN 2 DAYS OF DECK COMPLETION. PRIMER MUST BE PETROLEUM BASED WITH A RECOMMENDED NOMINATED CUTTER RATE OF 10.0%, DEPENDING ON ACTUAL SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURES SPECIFICATIONS. DO NOT EXCEED 340 DEGREES FAHRENHEIT.

WEAR SURFACE: SUPPLY AND APPLY ASPHALT WEAR SURFACE TO A RECOMMENDED DEPTH OF 1-½" AT CROWN, FEATHERING TO 1" AT EDGES.

ASPHALT RESURFACING: TOTAL DEPTH OF ASPHALT WHEN RESURFACING SHALL NOT EXCEED A CROWN THICKNESS OF 4" TAPERING TO 2-½" AT EDGES.

PROPER COMPACTION SHALL BE ACHIEVED WITH 12 TON MAXIMUM STATIC ROLLER.

MINIMUM TEMPERATURE FOR ALL LIFTS IS 340 DEGREES FAHRENHEIT.

NO WATERBORNE PRODUCTS ARE ALLOWED IN THESE WORKS.

MATERIALS AND WORKMANSHIP SHALL CONFORM TO ALL APPLICABLE CODES AND STANDARDS.

MATERIAL SPECIFICATIONS:

ANCHOR SEAL: AQUEOUS EMULSION OF PARAFFIN WAX WITH PROPYLENE GLYCOL.
MANUFACTURER: U-C COATINGS CORPORATION, PO BOX 1066, BUFFALO, NEW YORK USA 14215

COPPER NAPHTHENATE: 1% - 3% (PREFERRED) SOLUTION, COPPER NAPHTHENATE AND HYDROCARBON SOLVENT WOOD PRESERVATIVE.
SUPPLIER: ADVANCED RESEARCH LTD., PO BOX 50, 10476 SUNNYSIDE RD SE, JEFFERSON, OREGON USA 97352

DIFFUSER RODS: Decaystop™ SODIUM BORATE DERIVATIVE WOOD PRESERVATIVE.
SUPPLIER: ADVANCED RESEARCH LTD., PO BOX 1705, OREGON CITY, OREGON USA 97045

EPOXY ADHESIVE: Retrobond™ TWO PART EPOXY RESIN AND HARDENER.
SUPPLIER: ADVANCED RESEARCH LTD., PO BOX 1705, OREGON CITY, OREGON USA 97045

FASTENERS: ALL NUTS, BOLTS, WASHERS, LAG SCREWS, AND THREADED ROD SHALL BE A307 GRADE A MILD STEEL, HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM F2329.

FABRICATED STEEL PARTS: ALL BRACKETS AND OTHER FABRICATED STEEL PARTS SHALL BE MANUFACTURED FROM ASTM A36 MILD STEEL AND HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123.

FiRP FIBER REINFORCED LAMINATE: HIGH STRENGTH GLASS, CARBON OR ARAMID REINFORCED RESIN POLYMER.
SUPPLIER: FiRP® TECHNOLOGIES, PO BOX 70, 10476 SUNNYSIDE RD. SE, JEFFERSON, OR USA 97352

GLULAM DECKING: PENTACHLOROPHENOL TREATED COASTAL DOUGLAS FIR.
SUPPLIER: FiRP® TECHNOLOGIES, PO BOX 70, 10476 SUNNYSIDE RD. SE, JEFFERSON, OR USA 97352
PENTA TREATMENT SUPPLIER: PACIFIC WOOD PRESERVING, 22125 ROCK CREEK ROAD, SHERIDAN, OR USA 97378

HIGH-STRENGTH FIBER WRAP: FIBERGLASS REINFORCED UNIDIRECTIONAL AND BIDIRECTIONAL CLOTH.
MANUFACTURER: COLLINSCRAFT COMPOSITES GROUP, INC., PO BOX 159, 1857 WESTMINSTER HWY, WALHALLA, SC USA 29691

RETROTEN: FiRP® TECHNOLOGIES HIGH STRENGTH FIBER REINFORCED RESIN POLYMER ATTACHED TO DOUG FIR
SUPPLIER: FiRP® TECHNOLOGIES, PO BOX 70, 10476 SUNNYSIDE RD. SE, JEFFERSON, OR USA 97352

Structurfill™: GAP FILLING EPOXY ADHESIVE WITH SHEAR AND COMPRESSION ALLOWABLE CAPACITY = 10,000psi.
SUPPLIER: ADVANCED RESEARCH LTD., PO BOX 1705, OREGON CITY, OREGON USA 97045

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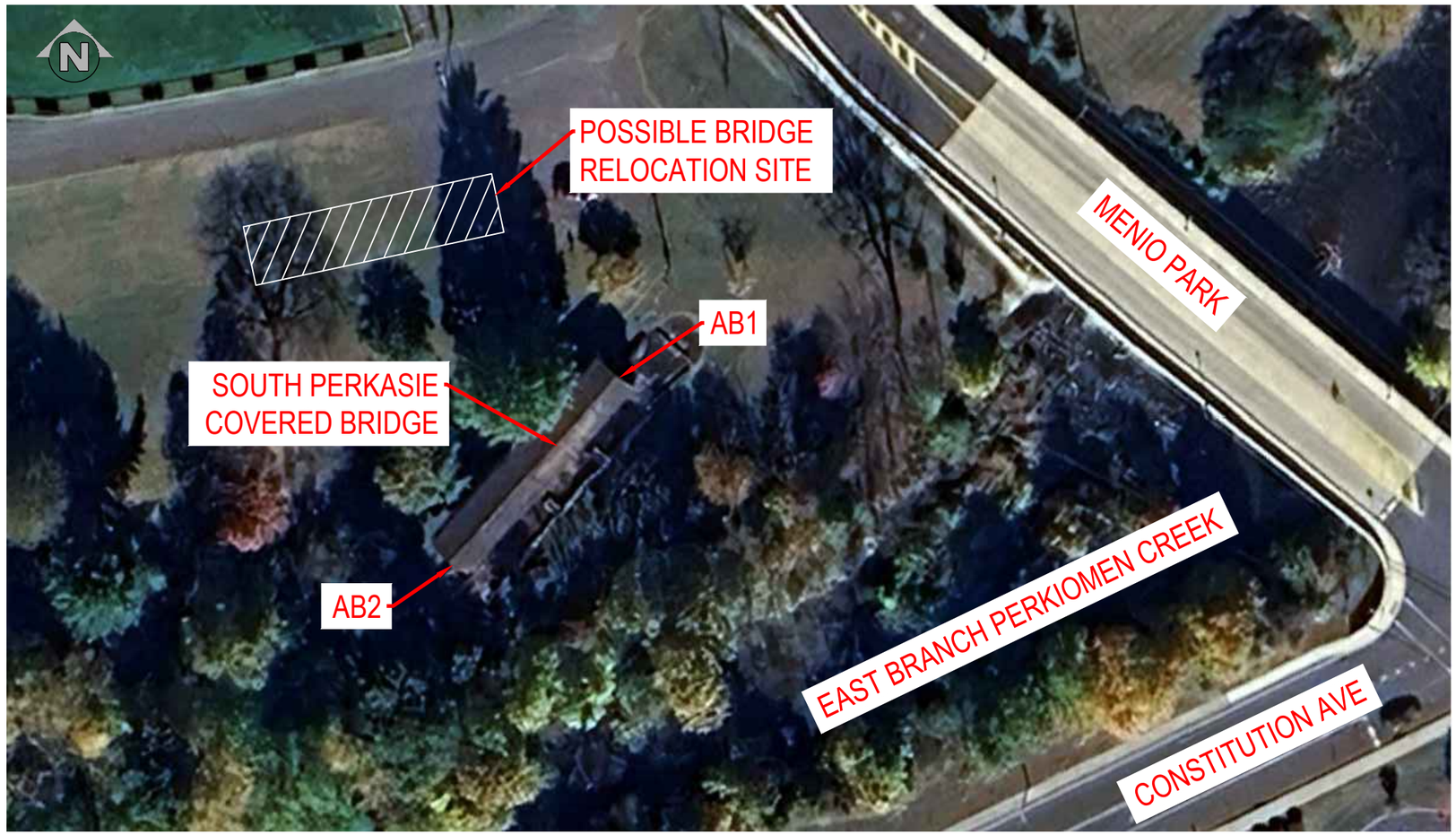
SPECIFICATIONS

DRAWING # 0.2

SHEET # 3 OF 32

PROJECT #9101S



SITE PLAN

WOOD
RESEARCH AND
DEVELOPMENT
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SITE PLAN

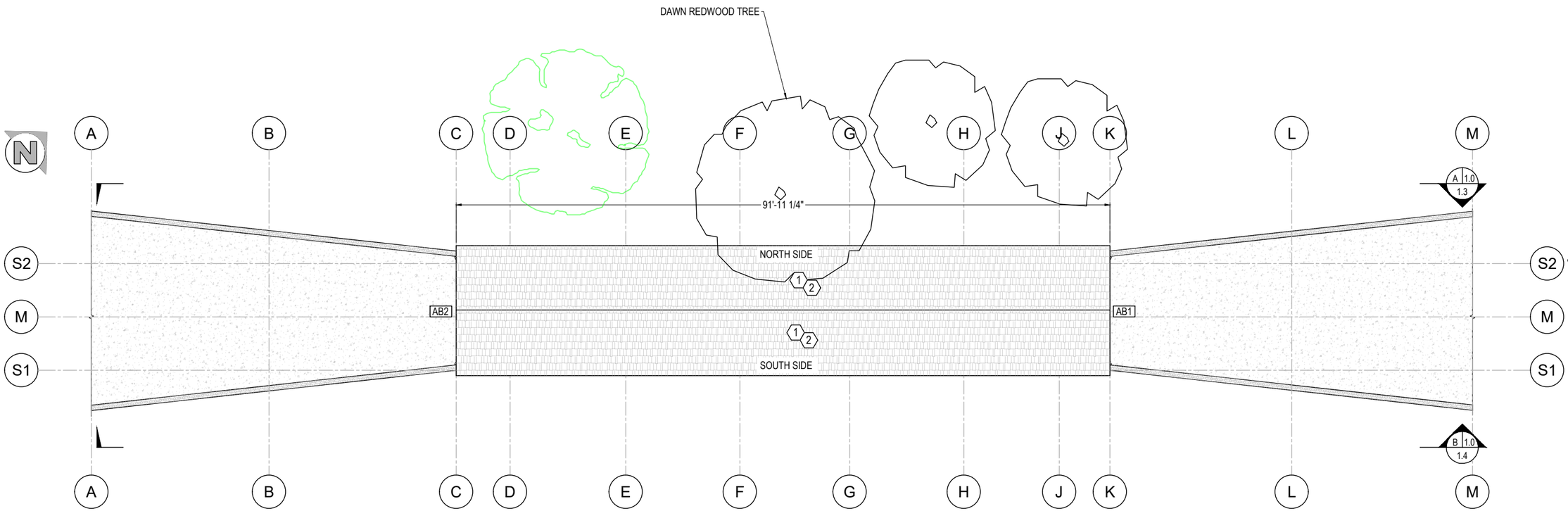
DRAWING # 0.3

SHEET # 4 OF 32 -

PROJECT #9101S

REPAIR - SHEET KEYNOTES - ROOF SHAKES & SHINGLES

1. ROOF SHAKES - REMOVE ONE LAYER AND REPLACE.
2. APPLY WATER BASED BORATE TOPICAL SOLUTION TO ROOF SHINGLES.



PLAN VIEW - AREIAL

SCALE: 1:180

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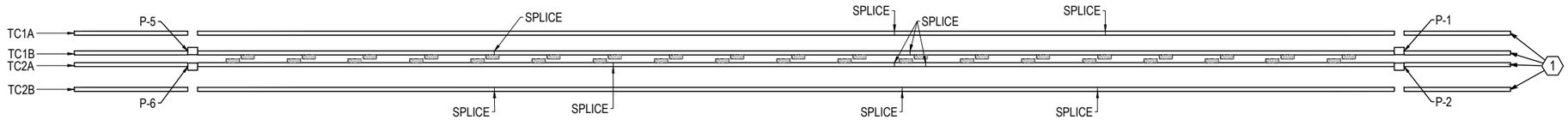
RESTORATION DRAWINGS
REPAIR PLANS
ROOF SHINGLES & SHAKES

DRAWING # 1.0

SHEET # 5 OF 32 -

PROJECT #9101S



TOP CHORD 1 & 2 - PLAN

SCALE: 1:100

REPAIR - SHEET KEYNOTES - TOP CHORD & UPPER CROSS BRACES

1. REPAIR CONNECTIONS (USING FASTENER AND/OR DOWEL CONNECTION)
2. SISTER TIMBER ELEMENT
3. REPLACE TIMBER ELEMENT

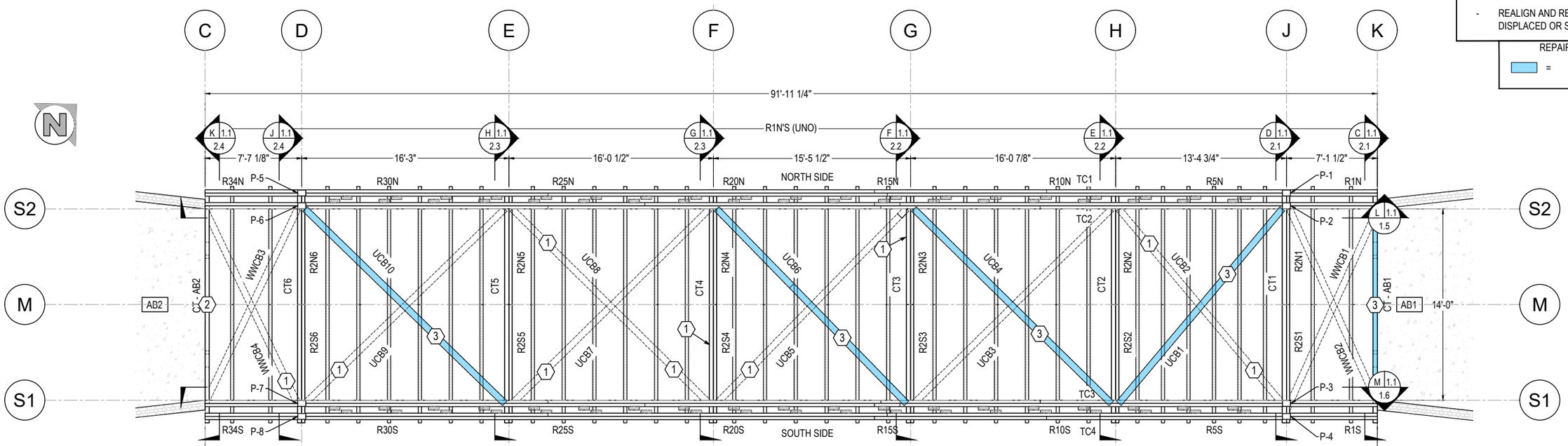
- RETROSHEAR® PANEL (SEE SHEET 4.0 FOR DETAILS)
- RETROTEN® (SEE SHEET 4.1 FOR DETAILS)
- SISTER DETAIL (SEE SHEET 4.2 FOR DETAILS)

GENERAL NOTES:

- REALIGN AND RESTORE CONNECTIONS FOR DISPLACED OR SEPARATED ELEMENTS.

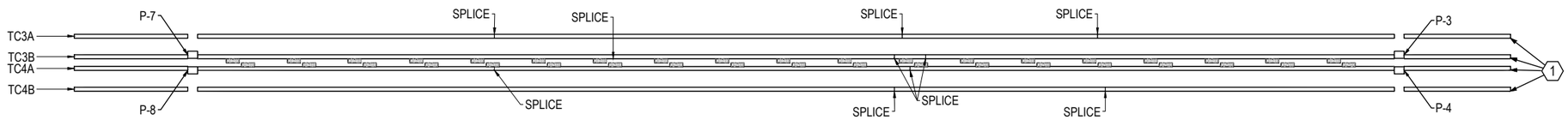
REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



F 1.3 / 1.1 PLAN VIEW - ROOF MEMEBERS

SCALE: 1:100



TOP CHORD 3 & 4 - PLAN

SCALE: 1:100

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P50
DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

	REASON FOR ISSUANCE:	DATE:	DRAWN BY:	CHKD BY:	APPR BY:
-	P50 DRAWINGS FOR REVIEW	03/07/2025	LK	CH	MK

RESTORATION DRAWINGS
REPAIR PLANS
ROOF MEMBERS

DRAWING # 1.1

SHEET # 6 OF 32 -

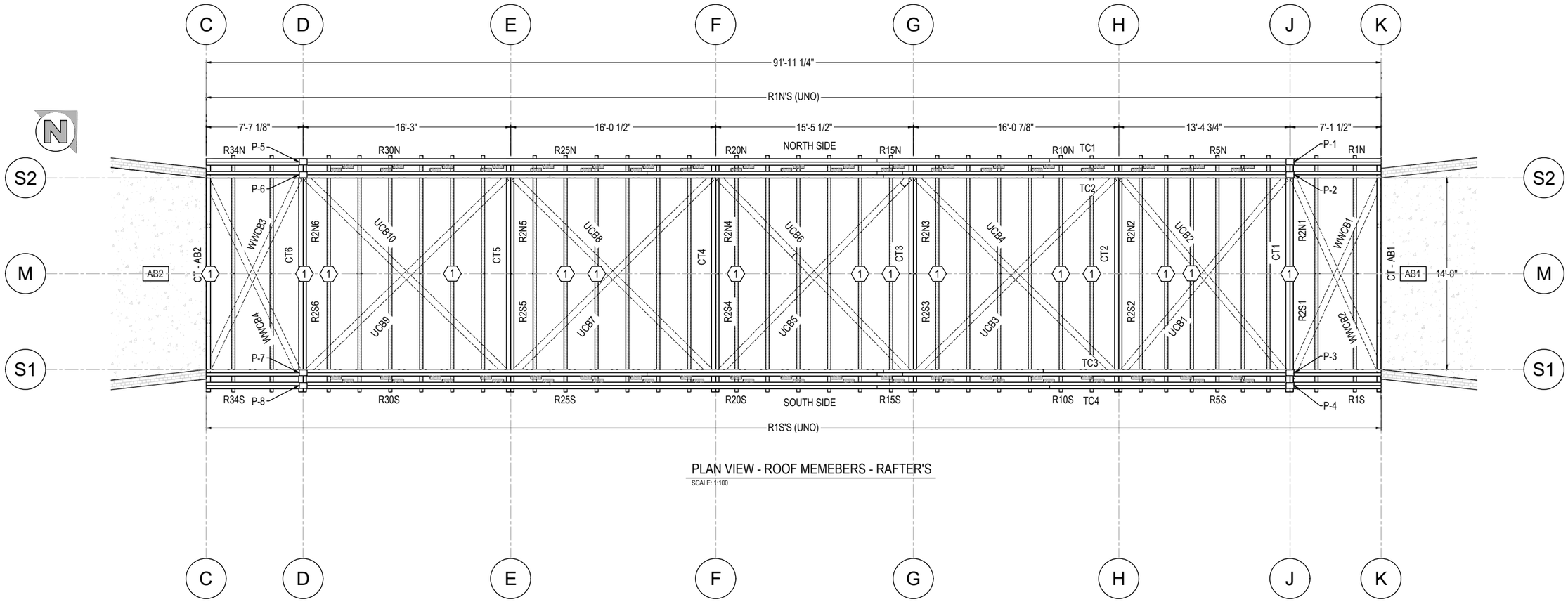
PROJECT #9101S

REPAIR - SHEET KEYNOTES - MAIN & SECONDARY RAFTERS

1. SISTER WITH NEW TIMBER ELEMENTS BOTH SIDES OF THE RIDGE. (SEE SHEET 4.2 FOR DETAILS)

GENERAL NOTES:

- UP TO 75% OF THE TOTAL RAFTERS WILL REQUIRE SISTER ELEMENTS BASED ON DECAY (FIELD VERIFY).



PLAN VIEW - ROOF MEMEBERS - RAFTER'S

SCALE: 1:100

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RESTORATION DRAWINGS
REPAIR PLANS
MAIN/SECONDARY - RAFTERS

DRAWING # 1.2

SHEET # 7 OF 32 -

PROJECT #9101S

REPAIR - SHEET KEYNOTES - SIDING

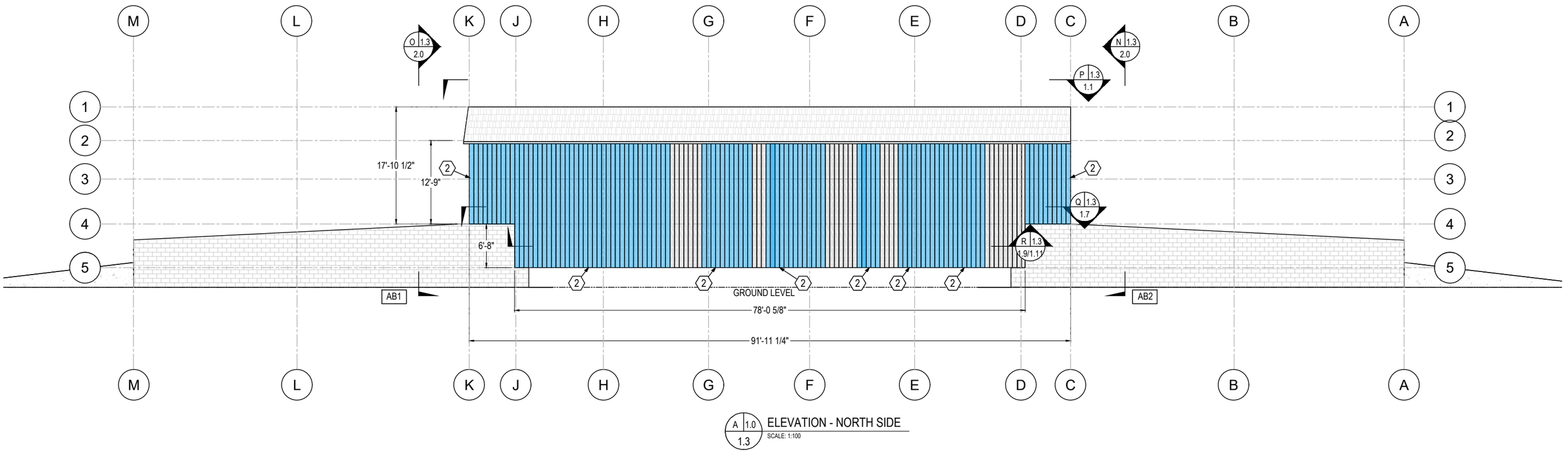
1. SIDING - REINSTALL LOOSE AND MISALIGNED SIDING BOARDS AND REPLACE MISSING SIDING BOARDS.
2. REPLACE MISSING AND DAMAGED SIDING BOARDS.

GENERAL NOTES:

1. FIELD VERIFY ALL SIDING TO BE SECURED AND REPLACED.
2. REMOVE AND REPLACE SIDING AS NECESSARY ON THE NORTH, SOUTH, AND INTERIOR WING WALLS TO PERFORM REPAIRS TO THE TENSION CHORD, VERTICAL POSTS, AND FOUNDATION CONNECTIONS.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



A 1.0 / 1.3 ELEVATION - NORTH SIDE
SCALE: 1:100

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RESTORATION DRAWINGS
REPAIR PLANS - SIDING
OUTSIDE VIEW (NORTH)

DRAWING # 1.3

SHEET # 8 OF 32 -

PROJECT #9101S

REPAIR - SHEET KEYNOTES - SIDING

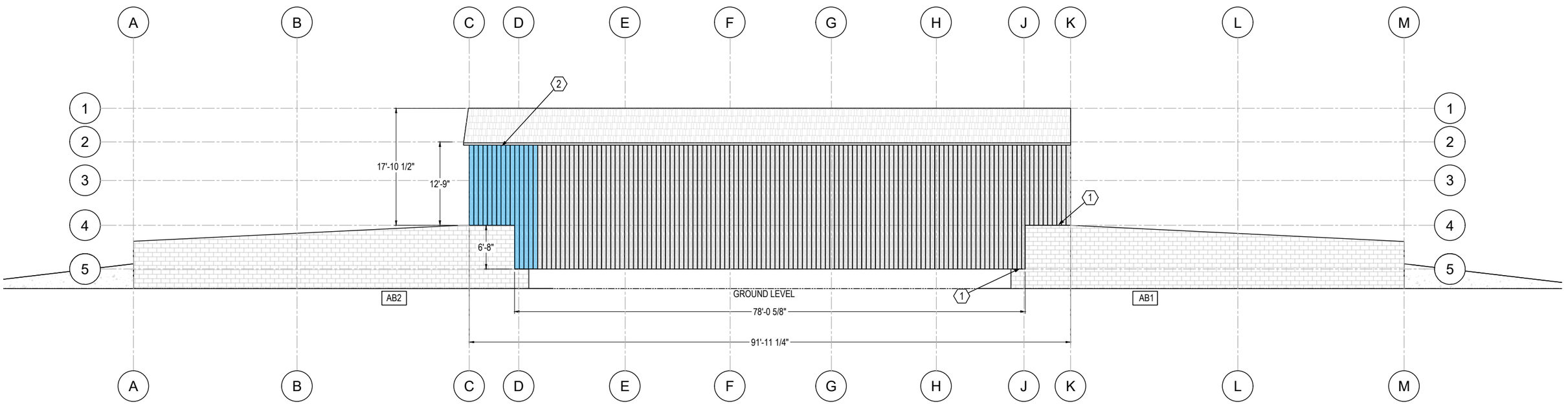
1. SIDING - REINSTALL LOOSE AND MISALIGNED SIDING BOARDS AND REPLACE MISSING SIDING BOARDS.
2. REPLACE MISSING AND DAMAGED SIDING BOARDS.

GENERAL NOTES:

1. FIELD VERIFY ALL SIDING TO BE SECURED AND REPLACED.
2. REMOVE AND REPLACE SIDING AS NECESSARY ON THE NORTH, SOUTH, AND INTERIOR WING WALLS TO PERFORM REPAIRS TO THE TENSION CHORD, VERTICAL POSTS, AND FOUNDATION CONNECTIONS.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



B 1.0 / 1.4 ELEVATION - SOUTH SIDE

SCALE: 1:180

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	REASON FOR ISSUANCE:	DRAWN BY	CHKD BY	APPR BY
	DATE:			
	REASON FOR ISSUANCE:	DRAWN BY	CHKD BY	APPR BY
	DATE:			
	REASON FOR ISSUANCE:	DRAWN BY	CHKD BY	APPR BY
	DATE:			

RESTORATION DRAWINGS
REPAIR PLANS - SIDING
OUTSIDE VIEW (SOUTH)

DRAWING # 1.4

SHEET # 9 OF 32 -

PROJECT #9101S

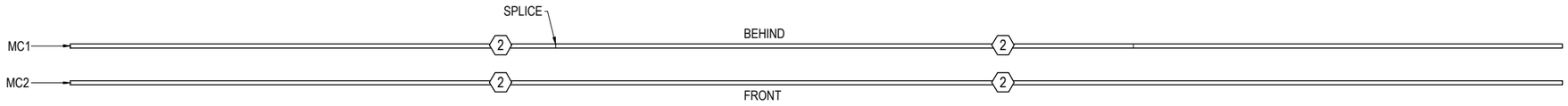
REPAIR - SHEET KEYNOTES - LATTICE MEMBERS & MIDDLE CHORDS

1. RETROSHEAR® PANEL REPAIR BOTH SIDES
2. REPAIR CONNECTIONS (USING FASTENER AND/OR DOWEL CONNECTION)

- RETROSHEAR® PANEL (SEE SHEET 4.0 FOR DETAILS)
- RETROTEN® (SEE SHEET 4.1 FOR DETAILS)

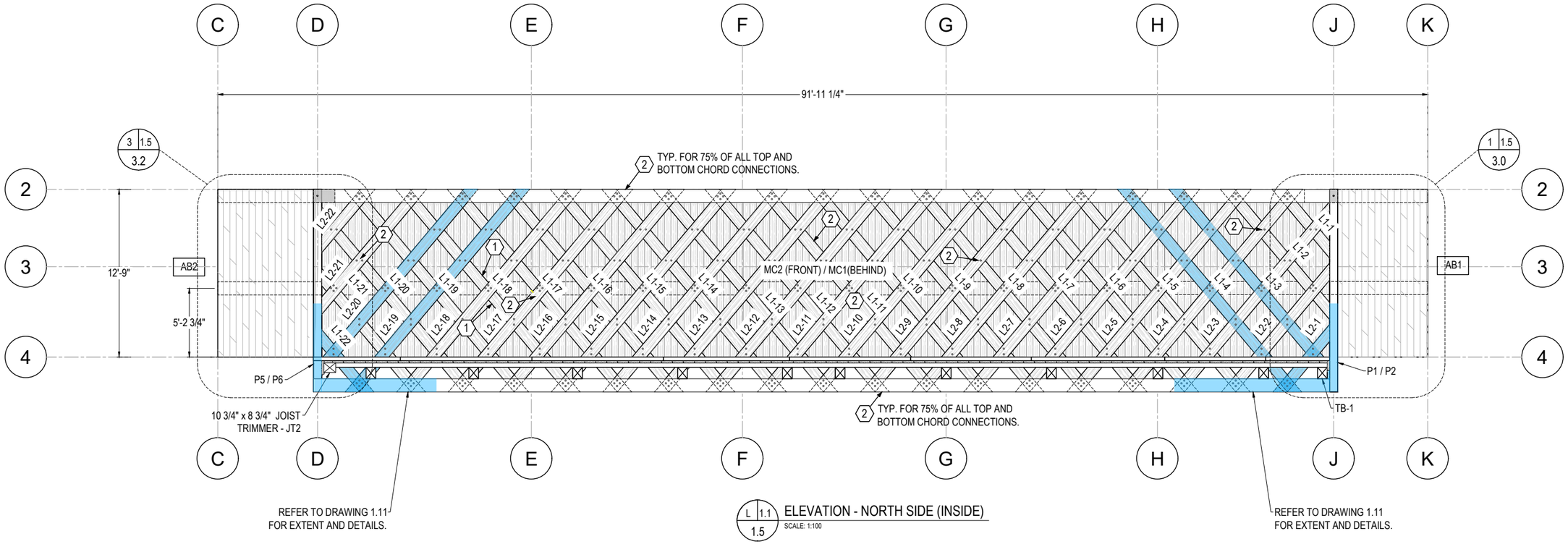
REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



MIDDLE CHORD 1 & 2 - PLAN

SCALE: 1:100



L 1.1 / 1.5 ELEVATION - NORTH SIDE (INSIDE)

SCALE: 1:100

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RESTORATION DRAWINGS
REPAIR PLANS - NORTH SIDE
INSIDE VIEW

DRAWING # 1.5

SHEET # 10 OF 32 -

PROJECT #9101S

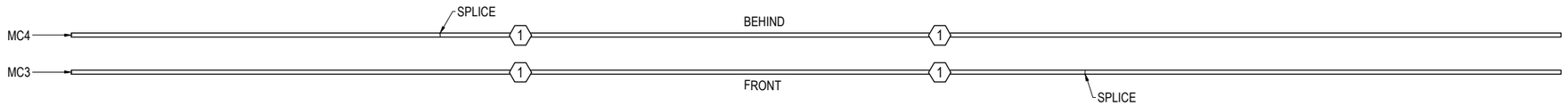
REPAIR - SHEET KEYNOTES - LATTICE MEMBERS & MIDDLE CHORDS

1. RETROSHEAR® PANEL REPAIR BOTH SIDES
2. REPAIR CONNECTIONS (USING FASTENER AND/OR DOWEL CONNECTION)

- RETROSHEAR® PANEL (SEE SHEET 4.0 FOR DETAILS)
- RETROTEN® (SEE SHEET 4.1 FOR DETAILS)

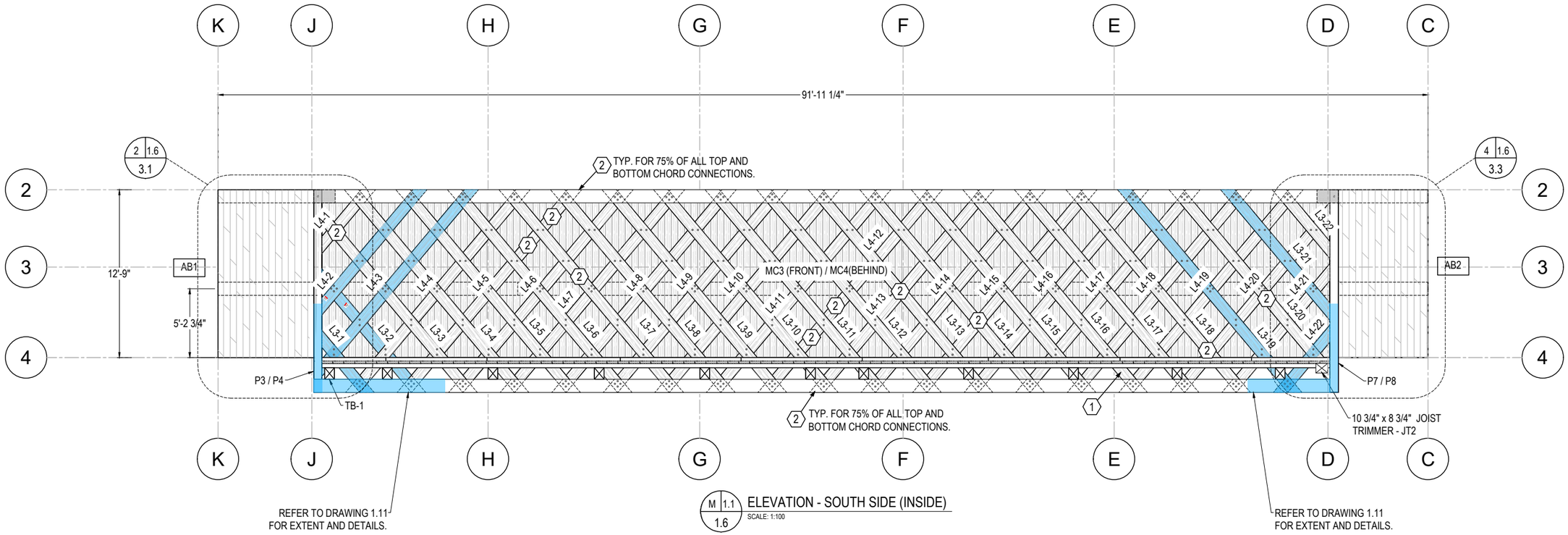
REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



MIDDLE CHORD 3 & 4 - SWT DATA - PLAN

SCALE: 1:100



M 1.1 1.6 ELEVATION - SOUTH SIDE (INSIDE)

SCALE: 1:100

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RESTORATION DRAWINGS
REPAIR PLANS - SOUTH SIDE
INSIDE VIEW

DRAWING # 1.6

SHEET # 11 OF 32 -

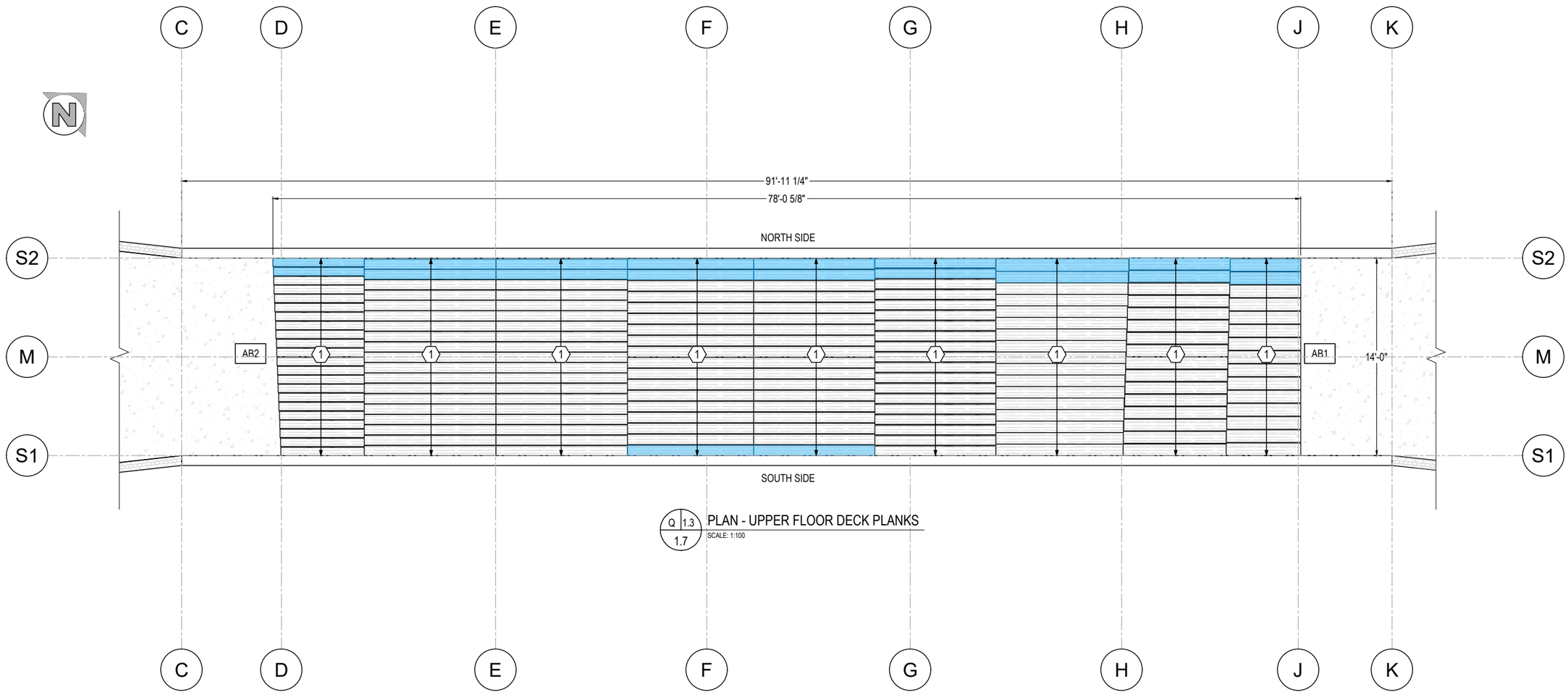
PROJECT #9101S

REPAIR - SHEET KEYNOTES - FLOOR DECKING

1. LIFT BOTH LAYERS OF DECKING BOARDS TO RE-SEAT JOISTS THEN REPLACE DECKING, AND PLANE AS NECESSARY.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



Q 1.3 / 1.7 PLAN - UPPER FLOOR DECK PLANKS

SCALE: 1:100

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	DATE: 03/07/2025			

RESTORATION DRAWINGS
REPAIR PLANS
UPPER FLOOR DECK PLANKS

DRAWING # 1.7

SHEET # 12 OF 32 -

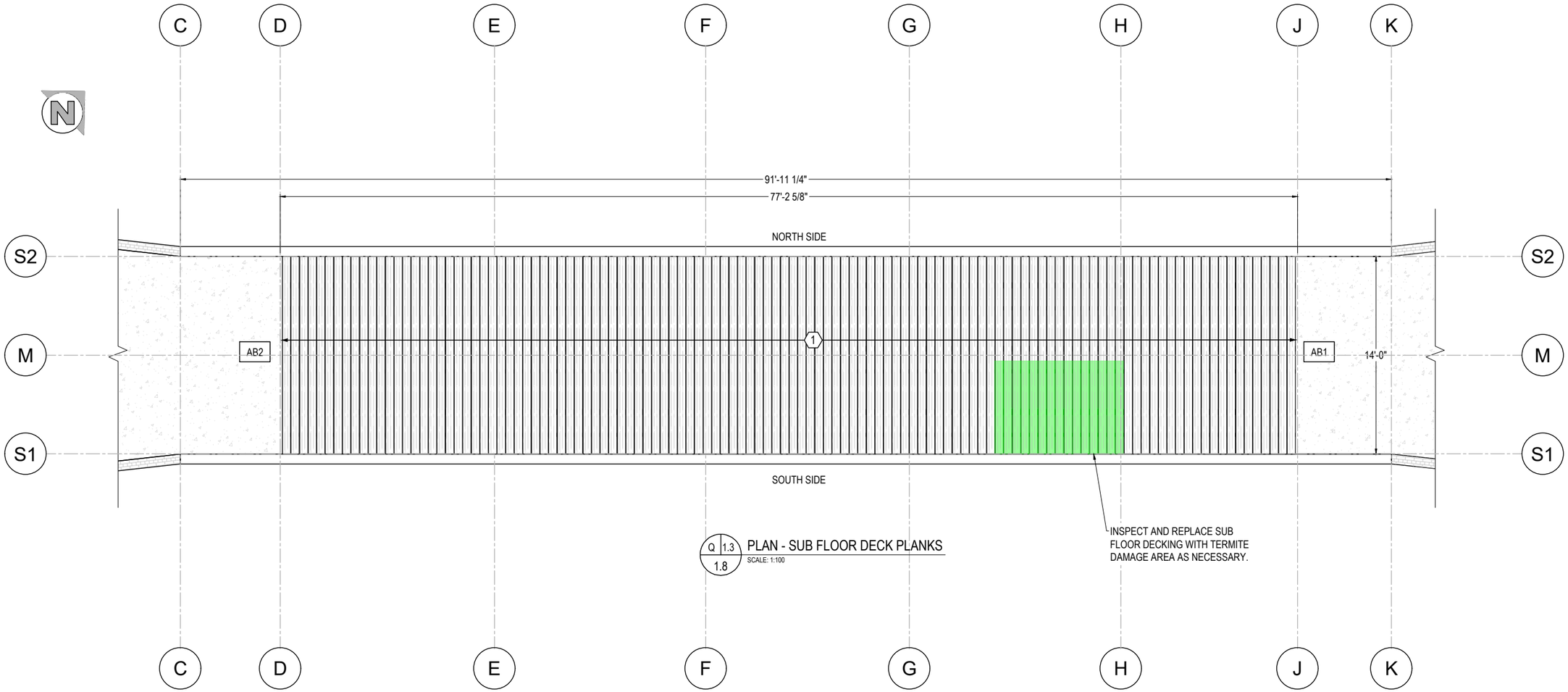
PROJECT #9101S

REPAIR - SHEET KEYNOTES - FLOOR DECKING

1. LIFT BOTH LAYERS OF DECKING BOARDS TO RE-SEAT JOISTS THEN REPLACE DECKING, AND PLANE AS NECESSARY.

REPAIR LEGEND:

= TERMITE DAMAGE AREA



Q 1.3 / 1.8 PLAN - SUB FLOOR DECK PLANKS

SCALE: 1:100

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RESTORATION DRAWINGS
REPAIR PLANS
SUB FLOOR DECK PLANKS

DRAWING # 1.8

SHEET # 13 OF 32 -

PROJECT #9101S

JOIST'S (STRINGERS) / LOWER CROSS BRACE NOTES:		
NOTE #	NOTE:	NOMINAL MEMBER SIZE:
1	JOIST SIZE	6"X5"
2	LOWER CROSS BRACE SIZE	6"X5"

FLOOR JOISTS (BAY 1) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J1-1	RESEAT / SISTER REPAIR	SHEET # 4.2
J1-2	RESEAT	
J1-3	RESEAT	
J1-4	RESEAT	
J1-5	RESEAT	
J1-6	RESEAT	
J1-7	RESEAT	
J1-8	RESEAT / SISTER REPAIR	SHEET # 4.2

FLOOR JOISTS (BAY 2) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J2-1	PUT IN NEW TIMBER MEMBER	
J2-2	RESEAT	
J2-3	RESEAT	
J2-4	RESEAT	
J2-5	RESEAT	
J2-6	RESEAT	
J2-7	RESEAT	
J2-8	RESEAT / SISTER REPAIR	SHEET # 4.2

FLOOR JOISTS (BAY 3) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J3-1	RESEAT / SISTER REPAIR	SHEET # 4.2
J3-2	RESEAT	
J3-3	RESEAT	
J3-4	RESEAT	
J3-5	RESEAT	
J3-6	RESEAT	
J3-7	RESEAT	
J3-8	RESEAT / SISTER REPAIR	SHEET # 4.2

FLOOR JOISTS (BAY 4) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J4-1	RESEAT / SISTER REPAIR	SHEET # 4.2
J4-2	RESEAT	
J4-3	RESEAT	
J4-4	RESEAT	
J4-5	RESEAT	
J4-6	RESEAT	
J4-7	RESEAT / SISTER REPAIR	SHEET # 4.2
J4-8	RESEAT	

FLOOR JOISTS (BAY 5) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J5-1	RESEAT / RETROSHEAR® PANELS	SHEET # 4.0
J5-2	RESEAT	
J5-3	RESEAT	
J5-4	RESEAT	
J5-5	RESEAT	
J5-6	RESEAT	
J5-7	RESEAT / SISTER REPAIR	SHEET # 4.2
J5-8	RESEAT	

FLOOR JOISTS (BAY 6) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J6-1	PUT IN NEW TIMBER MEMBER	
J6-2	RESEAT	
J6-3	RESEAT	
J6-4	RESEAT	
J6-5	RESEAT	
J6-6	RESEAT	
J6-7	RESEAT / SISTER REPAIR	SHEET # 4.2
J6-8	PUT IN NEW TIMBER MEMBER	

FLOOR JOISTS (BAY 7) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J7-1	PUT IN NEW TIMBER MEMBER	
J7-2	RESEAT	
J7-3	RESEAT	
J7-4	RESEAT	
J7-5	RESEAT	
J7-6	RESEAT	
J7-7	RESEAT	
J7-8	PUT IN NEW TIMBER MEMBER	

FLOOR JOISTS (BAY 8) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J8-1	RESEAT	
J8-2	RESEAT	
J8-3	RESEAT	
J8-4	RESEAT	
J8-5	RESEAT	
J8-6	RESEAT	
J8-7	RESEAT	
J8-8	SISTER REPAIR	SHEET # 4.2

FLOOR JOISTS (BAY 9) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J9-1	RESEAT / SISTER REPAIR	SHEET # 4.2
J9-2	RESEAT / SISTER REPAIR	SHEET # 4.2
J9-3	RESEAT	
J9-4	RESEAT	
J9-5	RESEAT	
J9-6	RESEAT	
J9-7	RESEAT	
J9-8	RESEAT	

FLOOR JOISTS (BAY 10) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J10-1	RESEAT / SISTER	SHEET # 4.2
J10-2	RESEAT / SISTER	SHEET # 4.2
J10-3	RESEAT / SISTER	SHEET # 4.2
J10-4	RESEAT / SISTER	SHEET # 4.2
J10-5	RESEAT / SISTER	SHEET # 4.2
J10-6	RESEAT / SISTER	SHEET # 4.2
J10-7	RESEAT / SISTER	SHEET # 4.2
J10-8	RESEAT / SISTER	SHEET # 4.2

FLOOR JOISTS (BAY 11) - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
J11-1	RESEAT / SISTER	SHEET # 4.2
J11-2	RESEAT / SISTER	SHEET # 4.2
J11-3	RESEAT / SISTER	SHEET # 4.2
J11-4	RESEAT / SISTER	SHEET # 4.2
J11-5	RESEAT / SISTER	SHEET # 4.2
J11-6	RESEAT / SISTER	SHEET # 4.2
J11-7	RESEAT / SISTER	SHEET # 4.2
J11-8	RESEAT / SISTER	SHEET # 4.2

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DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

	REASON FOR ISSUANCE:	DRAWN BY:	CHKD BY:	APPR BY:
- P50 DRAWINGS FOR REVIEW	DATE: 03/07/2025	LK	CH	KK

RESTORATION DRAWINGS
REPAIR PLANS
JOISTS (STRINGERS)

DRAWING # 1.9

SHEET # 14 OF 32 -

PROJECT #9101S

REPAIR - SHEET KEYNOTES - FLOOR JOISTS

1. RESEAT JOISTS TO ENSURE THEY ARE LEVEL
2. RETROSHEAR® REPAIR
3. RETROTEN® REPAIR
4. SISTER ELEMENT
5. NEW TIMBER ELEMENT INSTALL
6. POSTING REPAIR DETAIL

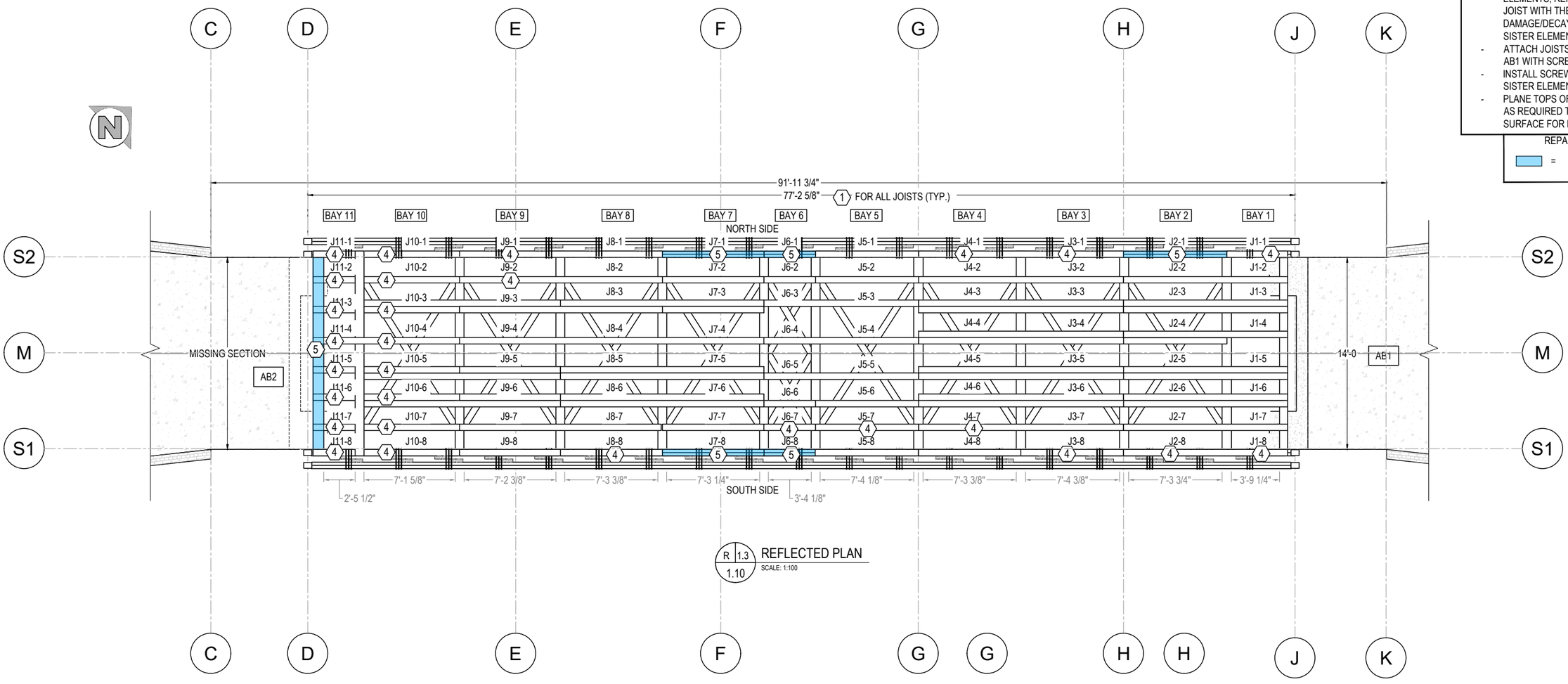
- RETROSHEAR PANEL® (SEE SHEET 4.0 FOR DETAILS)
- RETROTEN® (SEE SHEET 4.1 FOR DETAILS)
- SISTER (SEE SHEET 4.2 FOR DETAILS)
- POSTING (SEE SHEET 4.3 FOR DETAILS)

GENERAL NOTES:

- INSTALL SISTER ELEMENTS AS SHOWN, WHERE THERE ARE ALREADY SISTER ELEMENTS, REMOVE THE REDUNDANT FLOOR JOIST WITH THE MOST SEVERE DAMAGE/DECAY AND REPLACE WITH NEW SISTER ELEMENT.
- ATTACH JOISTS TO TRANSVERSE BEAM AT AB1 WITH SCREW DETIAL.
- INSTALL SCREW ANCHORING BETWEEN SISTER ELEMENTS PER SCHEDULE.
- PLANE TOPS OF JOISTS AND ADD BLOCKING AS REQUIRED TO PROVIDE NORMAL SURFACE FOR DECK SUPPORT.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



R 1.3 / 1.10 REFLECTED PLAN
SCALE: 1:100

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P50 DRAWINGS FOR REVIEW

PREPARED FOR:

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RESTORATION DRAWINGS
REPAIR PLANS
FLOOR MEMBERS (JOISTS)

DRAWING # 1.10

SHEET # 15 OF 32 -

PROJECT #9101S

LOWER CROSS BRACE'S - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
LCB1	REPLACE	
LCB2	NO REPAIRS	
LCB3	REPLACE	
LCB4	SECURE CONNECTIONS	
LCB5	SECURE CONNECTIONS	
LCB6	SECURE CONNECTIONS	
LCB7	SECURE CONNECTIONS	
LCB8	SECURE CONNECTIONS	
LCB9A	REPLACE	
LCB9B	SECURE CONNECTIONS	
LCB10B	SECURE CONNECTIONS	
LCB10A	SECURE CONNECTIONS	
LCB11	NO REPAIRS	
LCB12	SECURE CONNECTIONS	
LCB13	SECURE CONNECTIONS	
LCB14	REPLACE	
LCB15	SECURE CONNECTIONS	
LCB16	SECURE CONNECTIONS	
LCB17	SECURE CONNECTIONS	
LCB18	REPLACE	

TRANSVERSE BEAM'S - REPAIR PLAN		
ELEMENT ID:	REPAIR OPTIONS:	REPAIR DETAIL SHT #
TB1	NO REPAIRS	
TB2	RESEAT / RETROTEN® / RETROSHEAR® PANELS	SHEET # 4.0 / 4.1
TB3	RESEAT / RETROTEN®	SHEET # 4.1
TB4	RESEAT / RETROTEN®	SHEET # 4.1
TB5	RESEAT / RETROTEN® / RETROSHEAR® PANELS	SHEET # 4.0 / 4.1
TB6	RESEAT / RETROTEN® / RETROSHEAR® PANELS	SHEET # 4.0 / 4.1
TB7	RESEAT / RETROTEN®	SHEET # 4.1
TB8	RESEAT / RETROTEN®	SHEET # 4.1
TB9	RESEAT / RETROTEN®	SHEET # 4.1
TB10	RESEAT / RETROTEN®	SHEET # 4.1
TB11	RESEAT / RETROTEN®	SHEET # 4.1
JT2	REPLACE	

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	DATE:			
	DATE:			

RESTORATION DRAWINGS
REPAIR PLANS
LOWER CROSS BRACES / TB'S

DRAWING # 1.11

SHEET # 16 OF 32 -

PROJECT #9101S

REPAIR - SHEET KEYNOTES - LOWER CROSS BRACES & TRANSVERSE BEAMS

1. RESEAT TRANSVERSE BEAM TO ENSURE THEY ARE LEVEL
2. SECURE CONNECTIONS
3. RETROSHEAR® PANEL REPAIR
4. RETROTEN® REPAIR
5. NEW CONNECTIONS TO BE INSTALLED.
6. BOTTOM CHORD SEGMENT REPLACEMENT
7. SISTER TIMBER ELEMENT

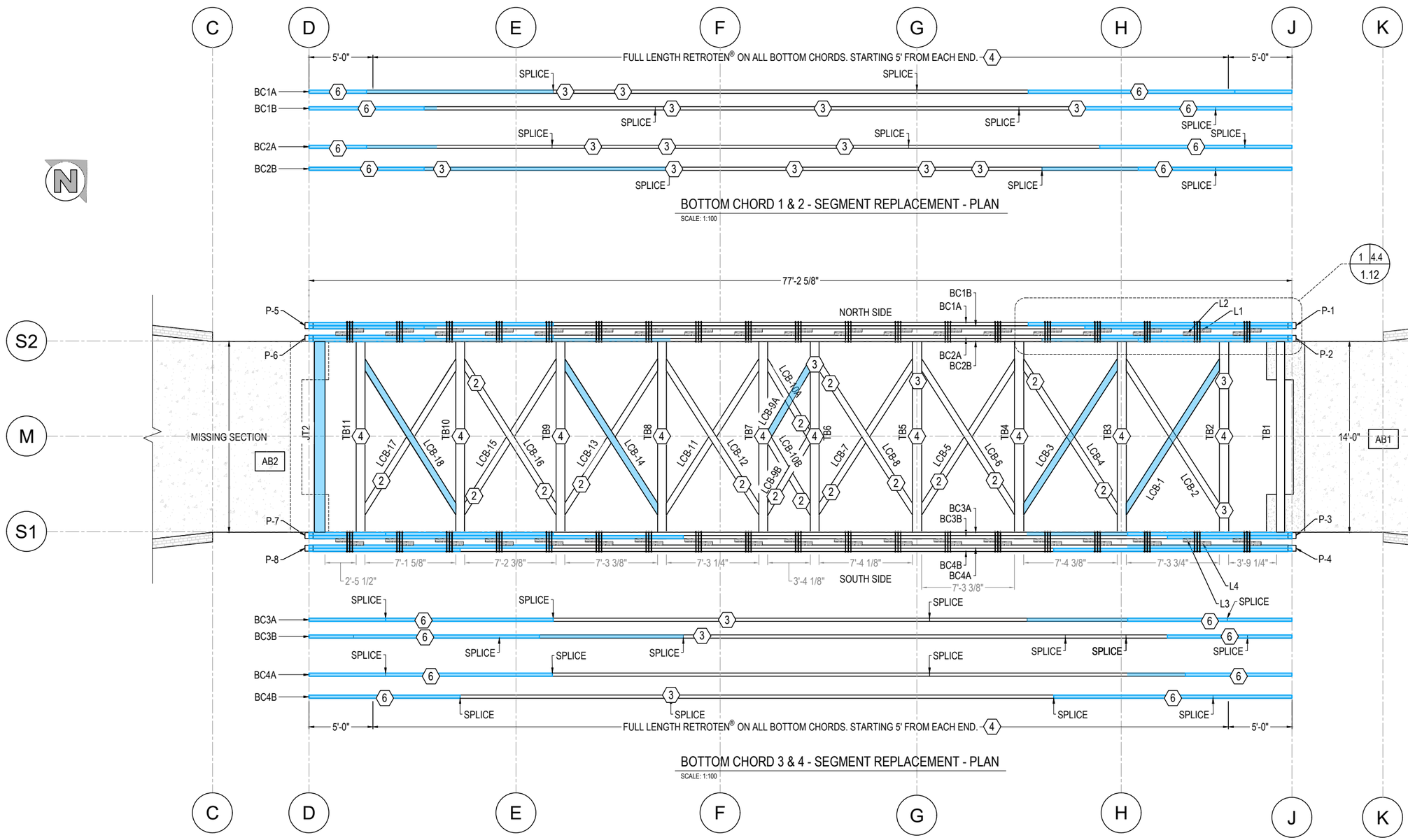
- RETROSHEAR® PANEL (SEE SHEET 4.0 FOR DETAILS)
- RETROTEN® (SEE SHEET 4.1 FOR DETAILS)
- SISTER (SEE SHEET 4.2 FOR DETAILS)
- BOTTOM CHORD SEGMENT REPLACEMENT DETAILS (SEE SHEET 4.4 FOR DETAILS)

GENERAL NOTES:

- FIELD VERIFY SPLICE LOCATIONS ON BOTTOM CHORDS.

REPAIR LEGEND:

- REPLACE TIMBER ELEMENT



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P50 DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

	REASON FOR ISSUANCE	DATE	DRAWN BY	CHKD BY	APPR BY
-	P50 DRAWINGS FOR REVIEW	03/07/2025	LK	CH	KK

RESTORATION DRAWINGS
REPAIR PLANS
REFLECTED PLAN

DRAWING # 1.12

SHEET # 17 OF 32 -

PROJECT #9101S

C D E F G H J

N

5'-0" FULL LENGTH RETROTEN® ON ALL BOTTOM CHORDS. STARTING 5' FROM EACH END. 3 5'-0"

BC1A — SEGMENT REPLACEMENT- 19'-2 1/8" — SEGMENT REPLACEMENT- 20'-8 5/8" — BC1A

BC1B — SEGMENT REPLACEMENT- 10'-0 1/8" — SEGMENT REPLACEMENT- 16'-3 1/4" — BC1B

BC2A — SEGMENT REPLACEMENT- 10'-0 1/8" — SEGMENT REPLACEMENT- 20'-8 5/8" — BC2A

BC2B — SEGMENT REPLACEMENT- 28'-3 1/2" — SEGMENT REPLACEMENT- 19'-7 3/4" — BC2B

AB2 JT2 TB11 TB10 TB9 TB8 TB7 TB6 TB5 TB4 TB3 TB2 TB1 AB1

BC3A — SEGMENT REPLACEMENT- 19'-2" — SEGMENT REPLACEMENT- 20'-9 5/8" — BC3A

BC3B — SEGMENT REPLACEMENT- 29'-4 3/4" — SEGMENT REPLACEMENT- 9'-9 3/8" — BC3B

BC4A — SEGMENT REPLACEMENT- 19'-1 3/8" — SEGMENT REPLACEMENT- 12'-11" — BC4A

BC4B — SEGMENT REPLACEMENT- 11'-10 3/8" — SEGMENT REPLACEMENT- 18'-8 5/8" — BC4B

SHEET KEYNOTES

1. REPLACE BOTTOM CHORD SEGMENT
2. RETROSHEAR® PANEL REPAIR
3. RETROTEN® REPAIR

- BOTTOM CHORD SEGMENT REPLACEMENT DETAILS (SEE SHEET 4.4 FOR DETAILS)
- RETROSHEAR PANEL® (SEE SHEET 4.0 FOR DETAILS)
- RETROTEN® (SEE SHEET 4.1 FOR DETAILS)

GENERAL NOTES:

- FIELD VERIFY SPLICE LOCATIONS ON BOTTOM CHORDS.

REPAIR LEGEND:

- REPLACE TIMBER ELEMENT

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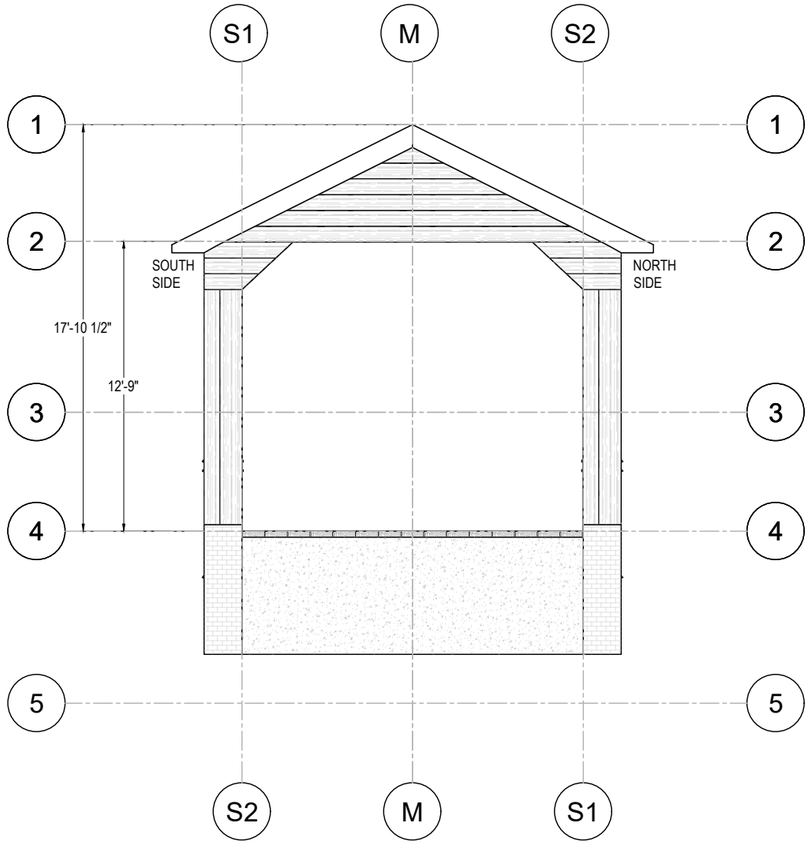
RESTORATION DRAWINGS
REPAIR PLANS
BOTTOM CHORD SEGMENTS

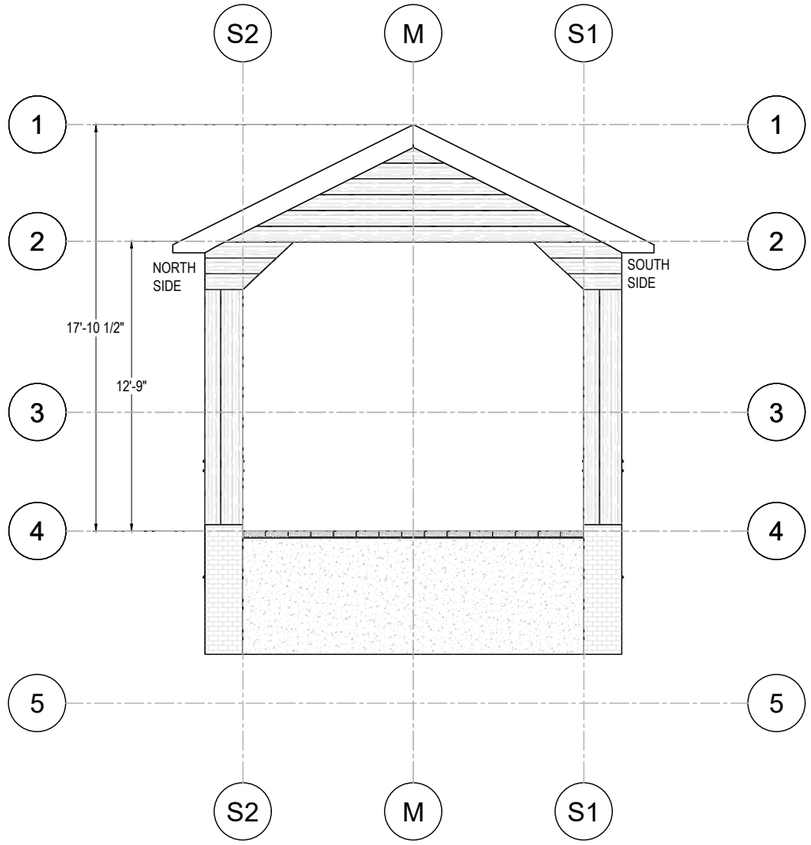
DRAWING # 1.13

SHEET # 18 OF 32 -

PROJECT #9101S



N 1.3 / 2.0 SECTION - AB1 (FRONT)
SCALE: 1:80



O 1.3 / 2.0 SECTION - AB2 (FRONT)
SCALE: 1:80

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PREPARED FOR:

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SOUTH PERKASIE COVERED BRIDGE

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RESTORATION DRAWINGS
REPAIR PLANS
ABUTMENTS - OUTSIDE

DRAWING # 2.0

SHEET # 19 OF 32 -

PROJECT #9101S

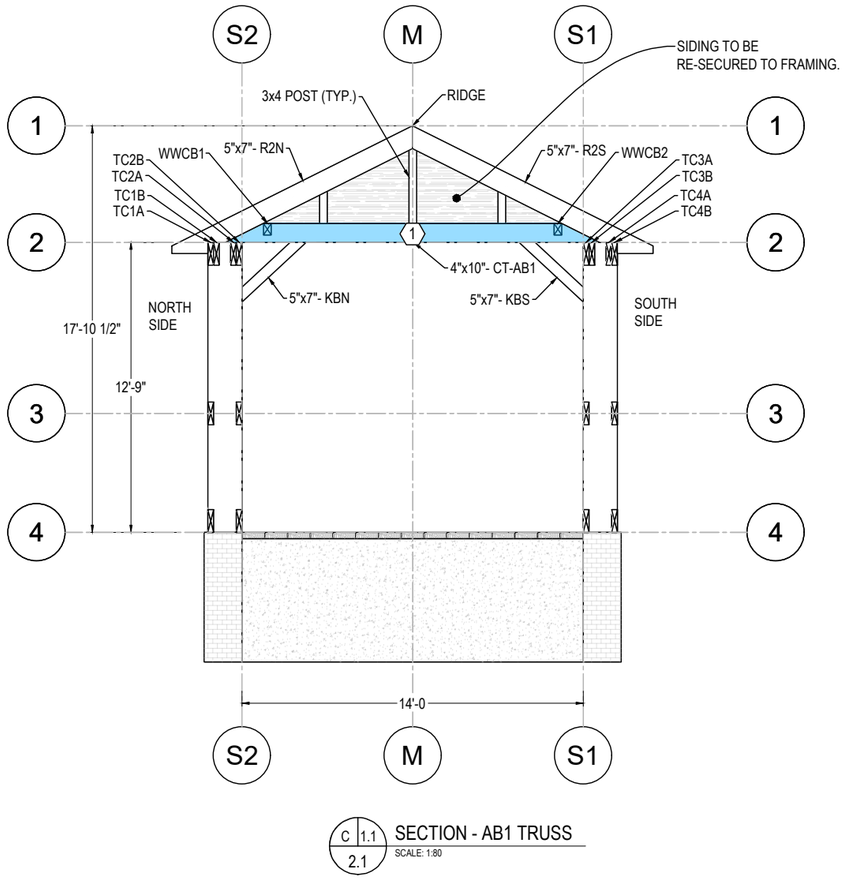
REPAIR - SHEET KEYNOTES - COLLAR TIES & KNEE BRACES

1. REPLACE TIMBER ELEMENT
2. POSTING REPAIR

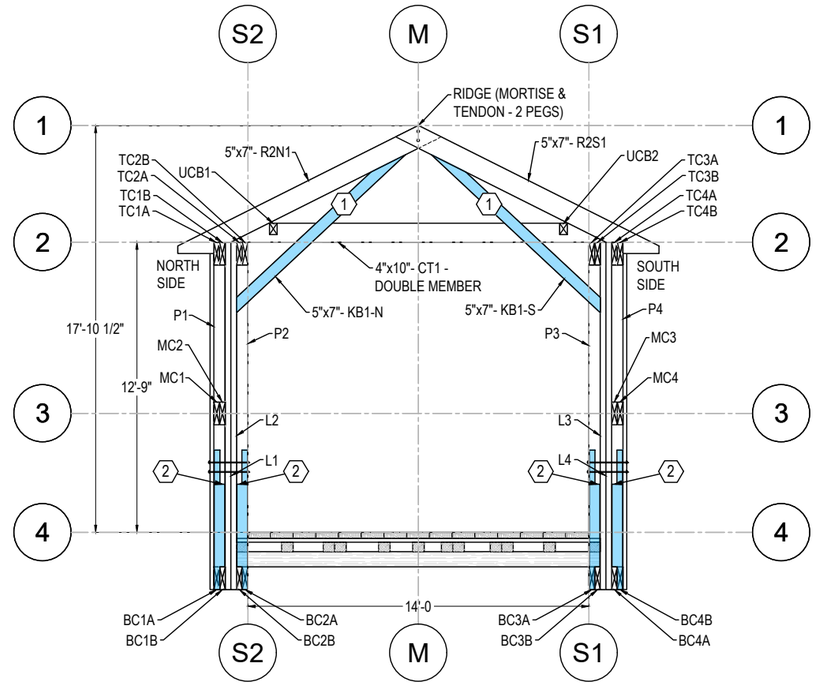
- POSTING REPAIR (SEE SHEET 4.3 FOR DETAILS)

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



C 1.1 / 2.1 SECTION - AB1 TRUSS
SCALE: 1:80



D 1.1 / 2.1 SECTION - TRUSS GRID LINE J
SCALE: 1:80

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RESTORATION DRAWINGS
REPAIR PLANS
AB1 & GRID LINE J - SECTIONS

DRAWING # 2.1

SHEET # 20 OF 32 -

PROJECT #9101S

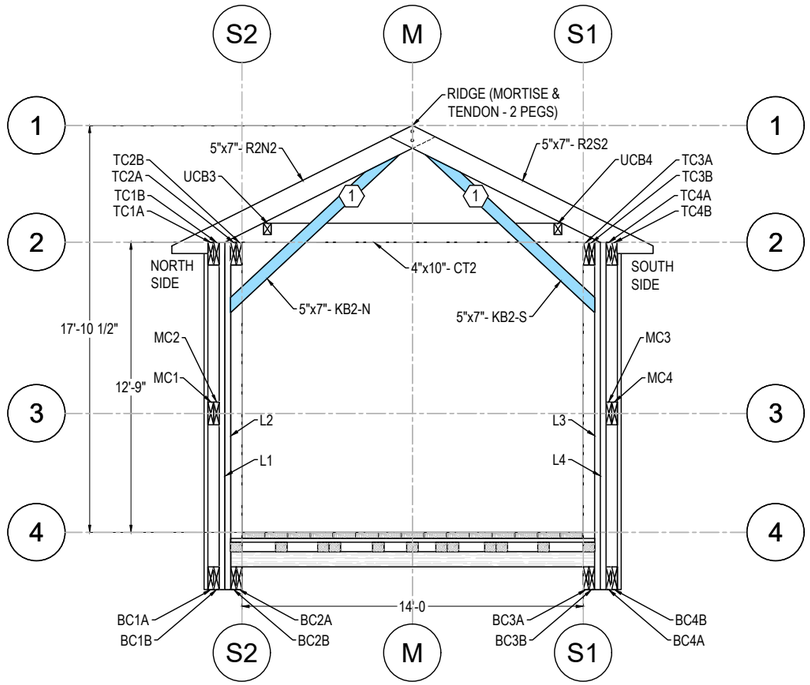
REPAIR - SHEET KEYNOTES - COLLAR TIES & KNEE BRACES

1. REPLACE TIMBER ELEMENT
2. POSTING REPAIR

- POSTING REPAIR (SEE SHEET 4.3 FOR DETAILS)

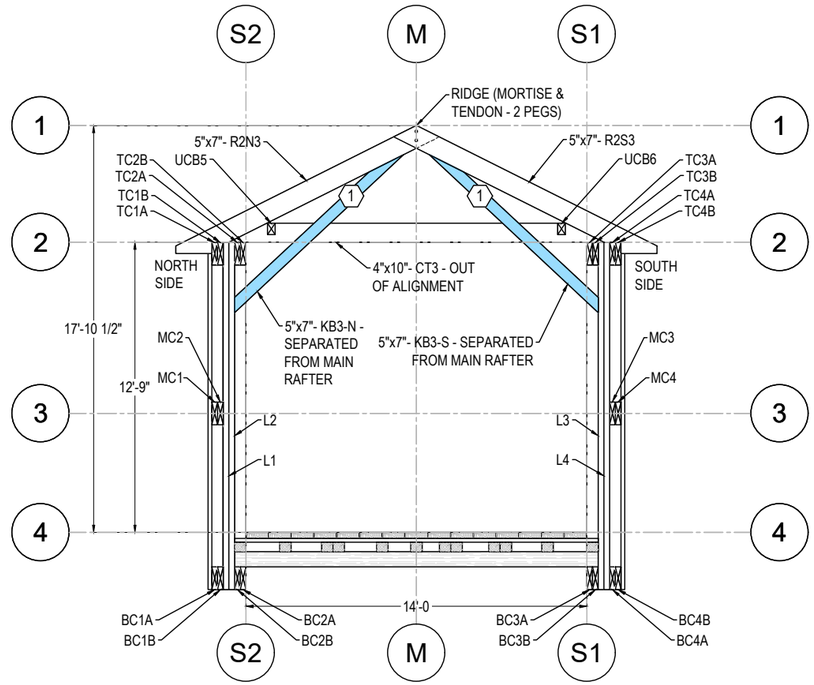
REPAIR LEGEND

= REPLACE TIMBER ELEMENT



E | 1.1 / 2.2 SECTION - TRUSS GRID LINE H

SCALE: 1:80



F | 1.1 / 2.2 SECTION - TRUSS GRID LINE G

SCALE: 1:80

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RESTORATION DRAWINGS
REPAIR PLANS
GRID LINES H & G

DRAWING # 2.2

SHEET # 21 OF 32 -

PROJECT #9101S

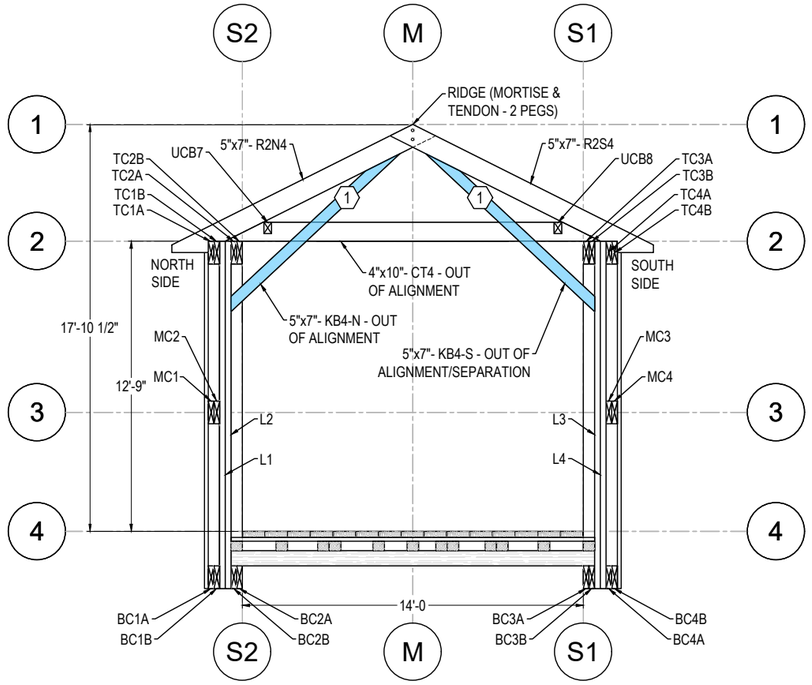
REPAIR - SHEET KEYNOTES - COLLAR TIES & KNEE BRACES

1. REPLACE TIMBER ELEMENT
2. POSTING REPAIR

- POSTING REPAIR (SEE SHEET 4.3 FOR DETAILS)

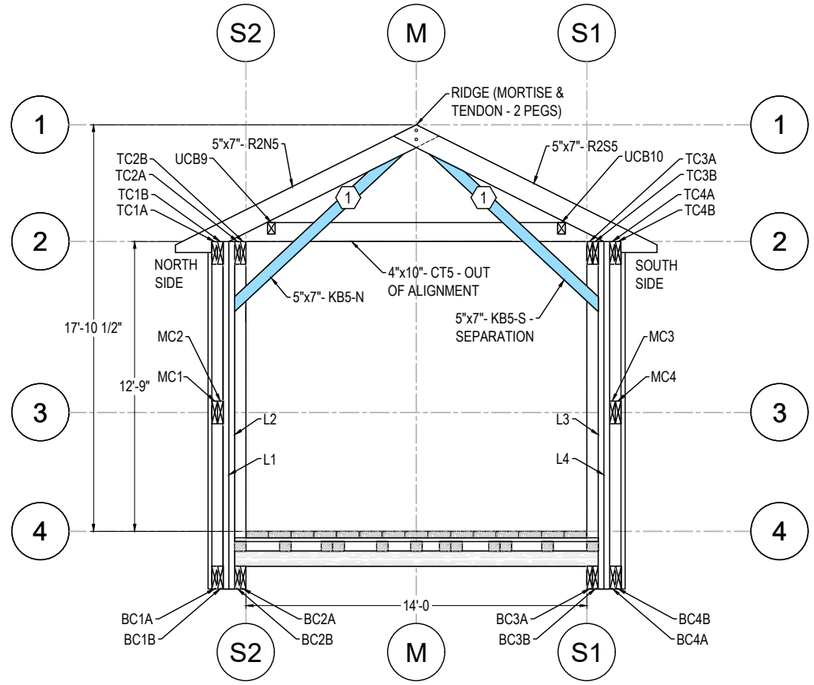
REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



G | 1.1 / 2.3 SECTION - TRUSS GRID LINE F

SCALE: 1:80



H | 1.1 / 2.3 SECTION - TRUSS GRID LINE E

SCALE: 1:80

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RESTORATION DRAWINGS
REPAIR PLANS
GRID LINE F & E

DRAWING # 2.3

SHEET # 22 OF 32 -

PROJECT #9101S

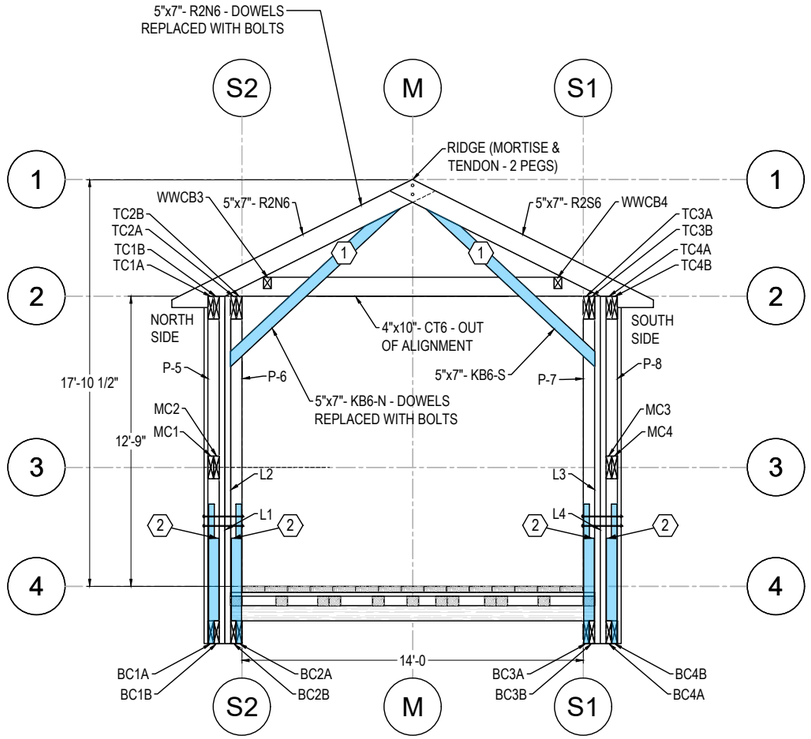
REPAIR - SHEET KEYNOTES - COLLAR TIES & KNEE BRACES

1. REPLACE TIMBER ELEMENT
2. POSTING REPAIR
3. SISTER TIMBER ELEMENT

- POSTING REPAIR (SEE SHEET 4.3 FOR DETAILS)
- SISTER REPAIR (SEE SHEET 4.2 FOR DETAILS)

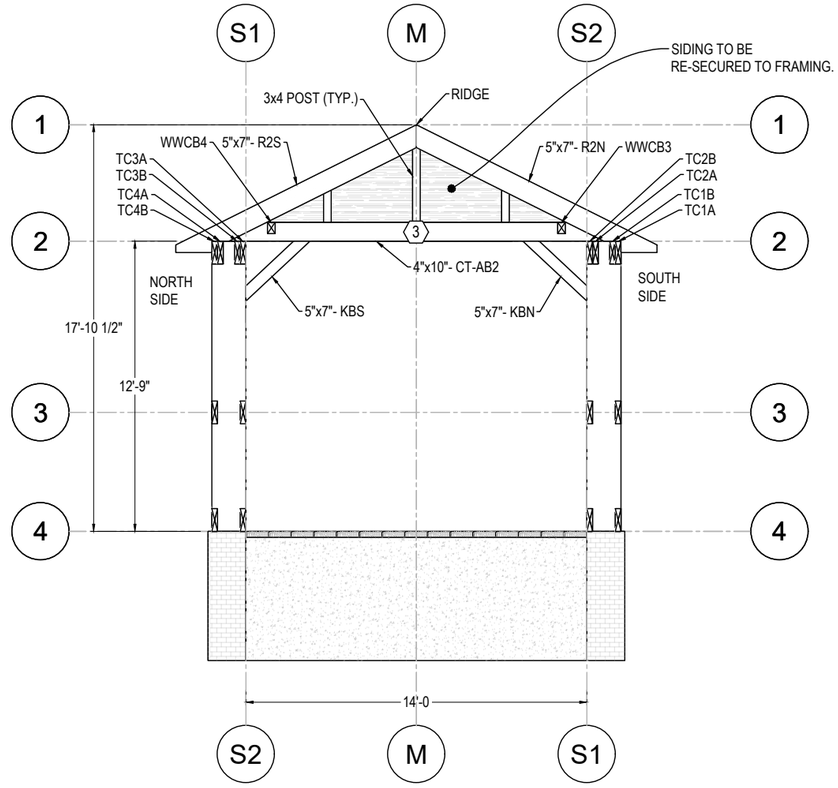
REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



J | 1.1 / 2.4 SECTION - TRUSS GRID LINE D

SCALE: 1:80



K | 1.1 / 2.4 SECTION - AB2 TRUSS

SCALE: 1:80

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PREPARED FOR:

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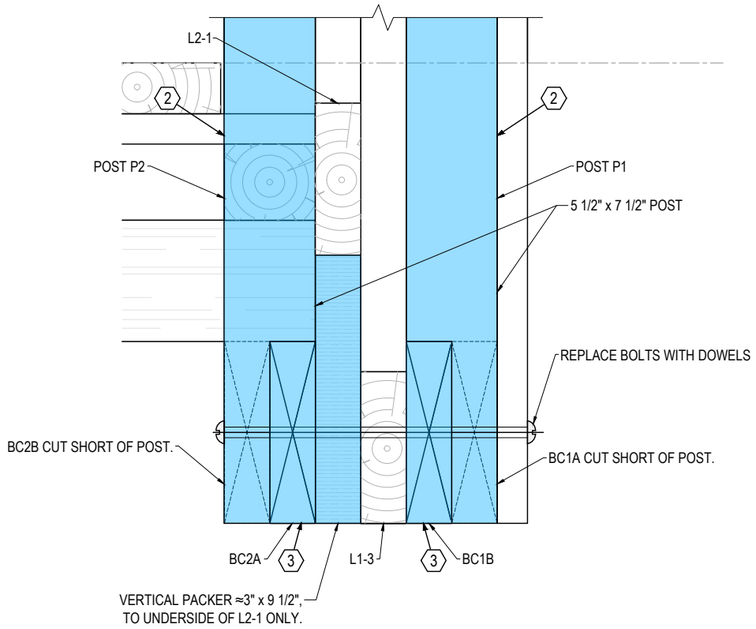
RESTORATION DRAWINGS
REPAIR PLANS
GRID LINE D & AB2 TRUSS

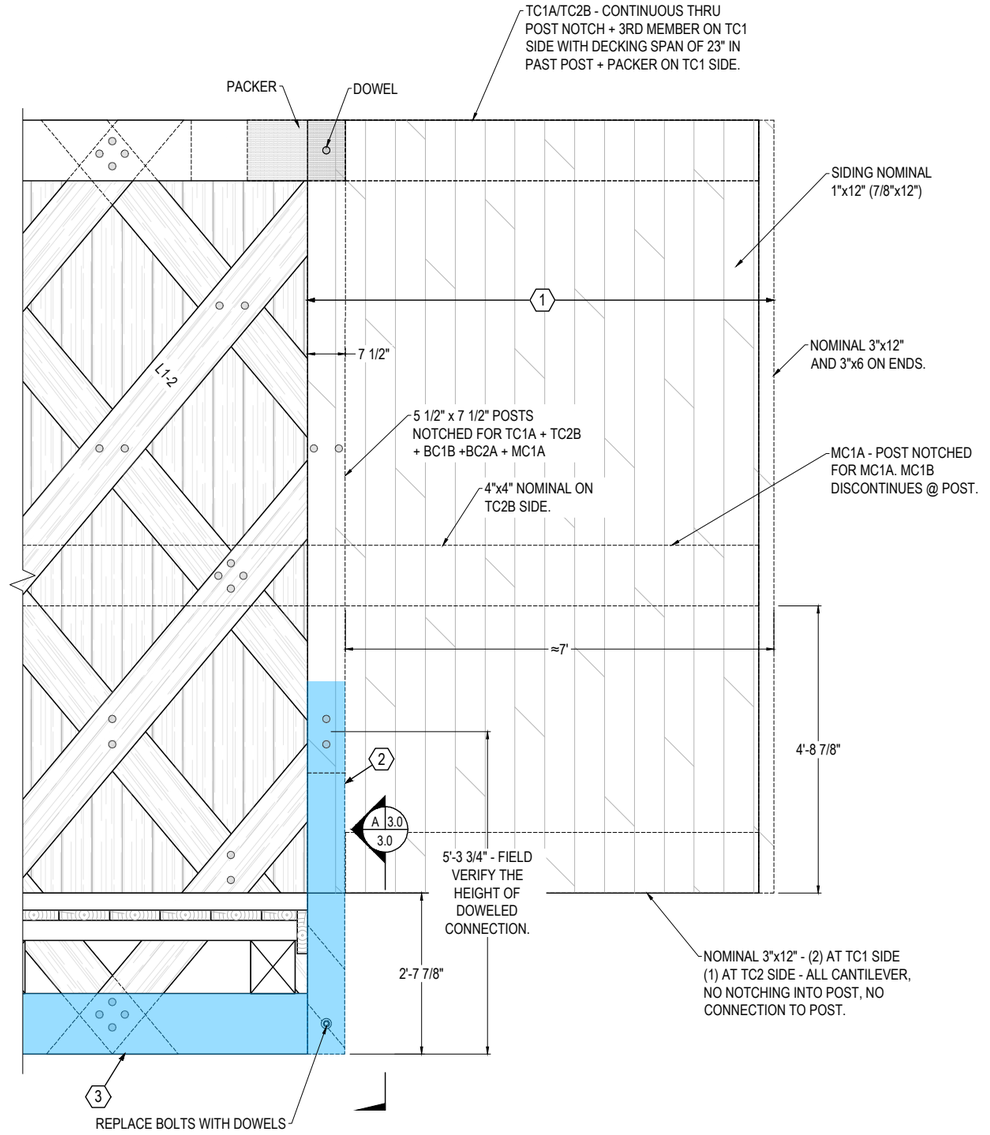
DRAWING # 2.4

SHEET # 23 OF 32 -

PROJECT #9101S



A 3.0 / 3.0 AB1 NORTH CORNER DETAIL (POST 1 & 2)
SCALE: 1:10



1 3.0 / 1.5 AB1 NORTH WEST WING WALL DETAIL (POST 1 & 2)
SCALE: 1:30

REPAIR - SHEET KEYNOTES - WING WALL SIDING, POSTS, BOTTOM CHORDS

1. REINSTALL LOOSE AND MISALIGNED SIDING BOARDS AND REPLACE MISSING SIDING BOARDS.
2. POSTING REPAIR - AMPUTATE POOR SEGMENTS AND POST WITH NEW SEGMENTS DESIGNED TO SUPPORT AND TRANSFER LOAD TO EXISTING ELEMENTS.
3. BOTTOM CHORD SEGMENT REPLACEMENT

- POSTING (SEE SHEET 4.3 FOR DETAILS)
- BOTTOM CHORD SEGMENT REPLACEMENT (SEE SHEET 4.4 FOR DETAILS)

GENERAL NOTES:

- REPLACE BLOCKING BETWEEN POST 1 & 2.
- RESTORE CONNECTIONS TO LATTICE ELEMENTS AS REQUIRED.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT

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DRAWINGS FOR REVIEW

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	REASON FOR ISSUANCE:	DATE:	DRAWN BY:	CHKD BY:	APPR BY:
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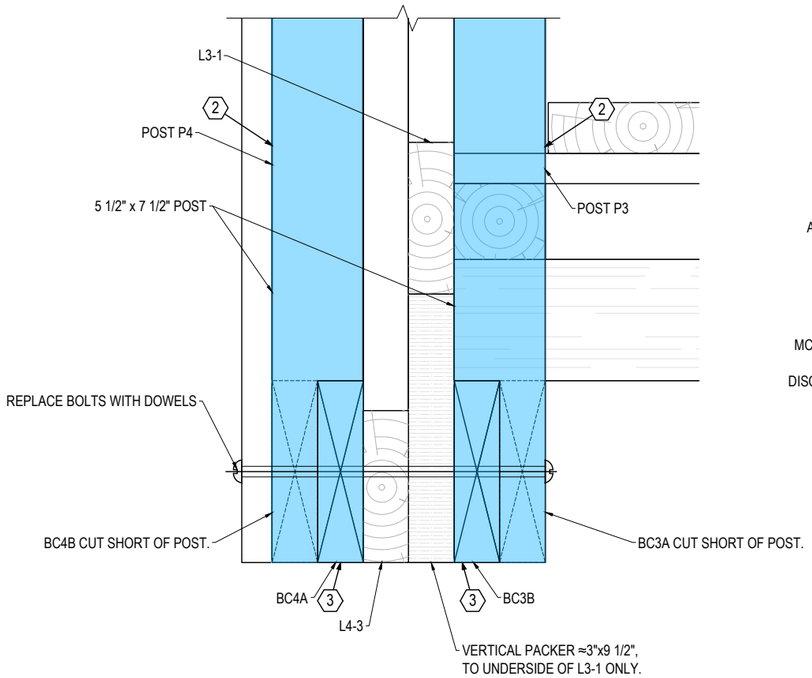
RESTORATION DRAWINGS
REPAIR DETAILS
AB1 NW WING WALL

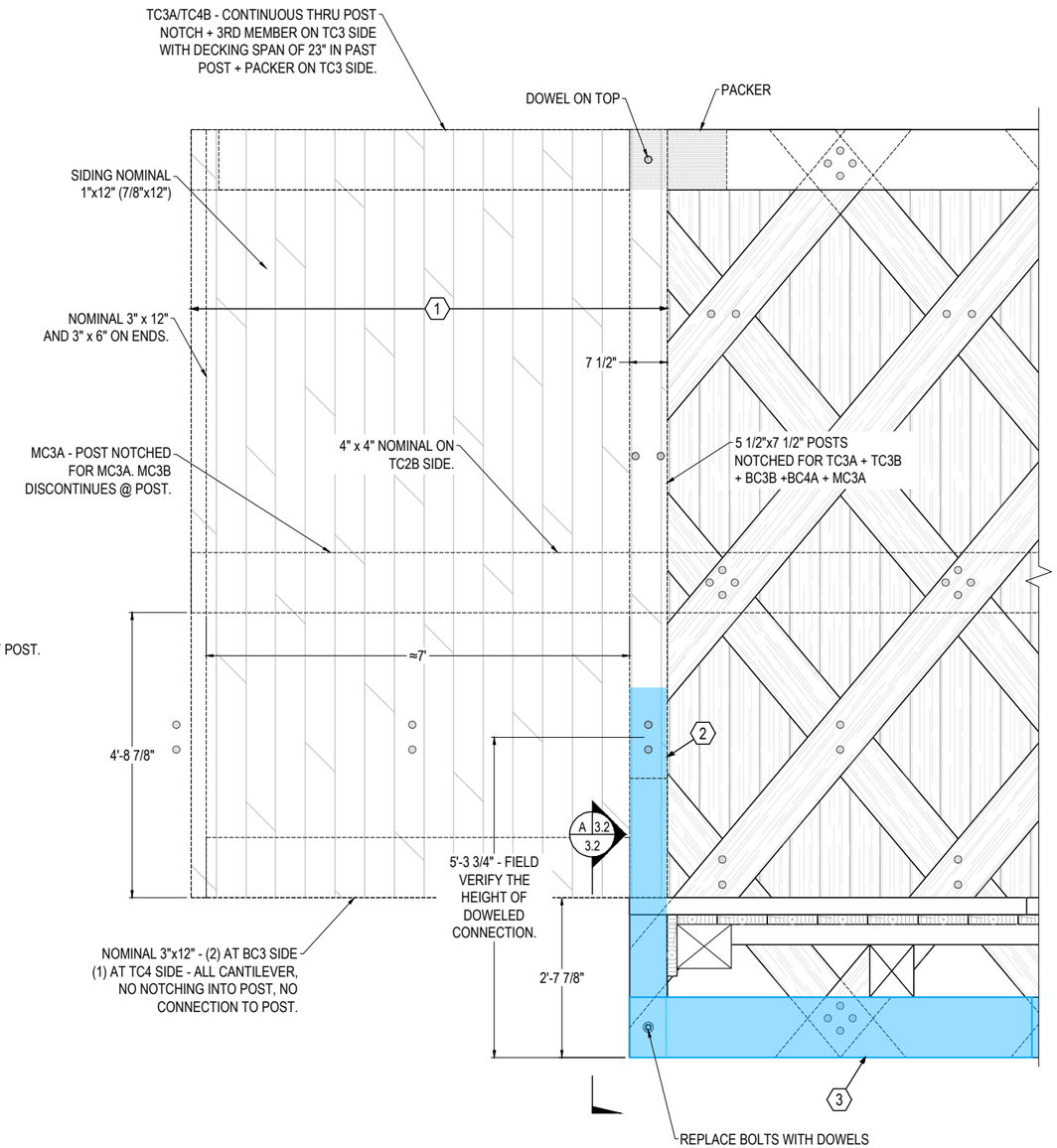
DRAWING # 3.0

SHEET # 24 OF 32 -

PROJECT #9101S



A 3.1 / 3.1 AB1 SOUTH CORNER DETAIL (POST 3 & 4)
SCALE: 1:10



2 3.1 / 1.5 AB1 SOUTH WEST WING WALL DETAIL (POST 3 & 4)
SCALE: 1:30

REPAIR - SHEET KEYNOTES - WING WALL SIDING, POSTS, BOTTOM CHORDS

1. REINSTALL LOOSE AND MISALIGNED SIDING BOARDS AND REPLACE MISSING SIDING BOARDS.
2. POSTING REPAIR - AMPUTATE POOR SEGMENTS AND POST WITH NEW SEGMENTS DESIGNED TO SUPPORT AND TRANSFER LOAD TO EXISTING ELEMENTS.
3. BOTTOM CHORD SEGMENT REPLACEMENT

- POSTING (SEE SHEET 4.3 FOR DETAILS)
- BOTTOM CHORD SEGMENT REPLACEMENT (SEE SHEET 4.4 FOR DETAILS)

GENERAL NOTES:

- REPLACE BLOCKING BETWEEN POST 3 & 4.
- RESTORE CONNECTIONS TO LATTICE ELEMENTS AS REQUIRED.

REPAIR LEGEND

= REPLACE TIMBER ELEMENT

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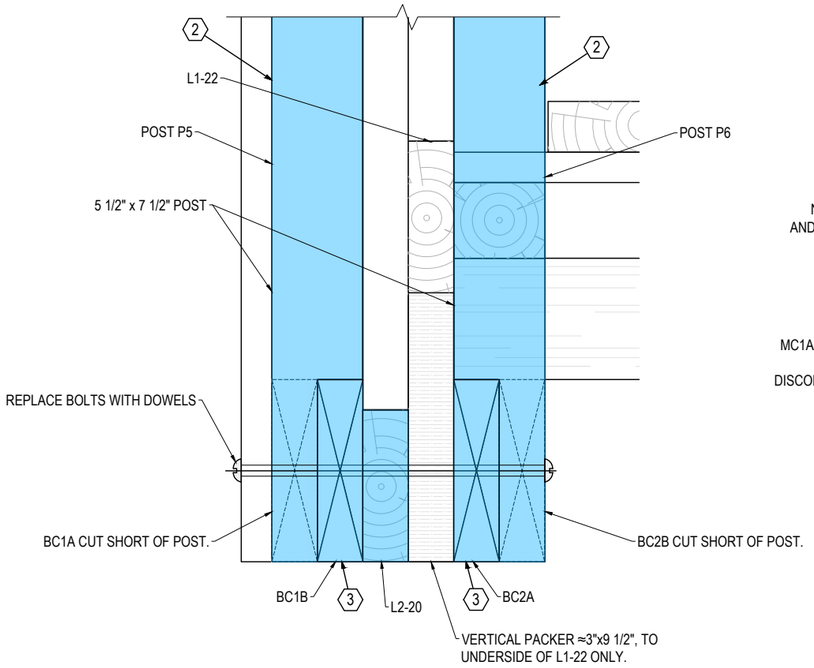
RESTORATION DRAWINGS
REPAIR PLANS
AB1 SW WING WALL

DRAWING # 3.1

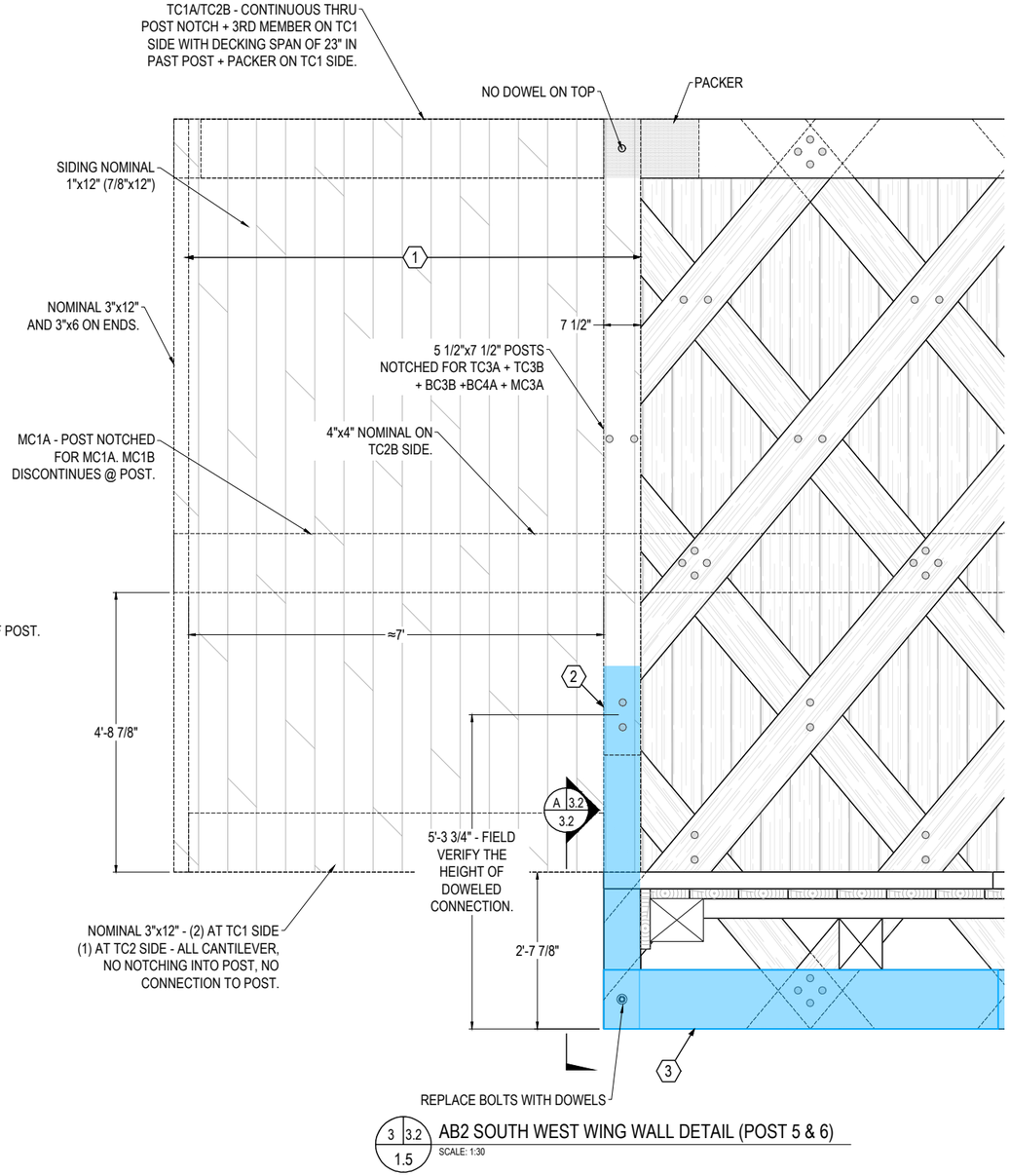
SHEET # 25 OF 32

PROJECT #9101S



A 3.2 / 3.2 AB2 SOUTH CORNER DETAIL (POST 5 & 6)

SCALE: 1:10



3 3.2 / 1.5 AB2 SOUTH WEST WING WALL DETAIL (POST 5 & 6)

SCALE: 1:30

REPAIR - SHEET KEYNOTES - WING WALL SIDING, POSTS, BOTTOM CHORDS

1. REINSTALL LOOSE AND MISALIGNED SIDING BOARDS AND REPLACE MISSING SIDING BOARDS.
2. POSTING REPAIR - AMPUTATE POOR SEGMENTS AND POST WITH NEW SEGMENTS DESIGNED TO SUPPORT AND TRANSFER LOAD TO EXISTING ELEMENTS.
3. BOTTOM CHORD SEGMENT REPLACEMENT

- POSTING (SEE SHEET 4.3 FOR DETAILS)
- BOTTOM CHORD SEGMENT REPLACEMENT (SEE SHEET 4.4 FOR DETAILS)

GENERAL NOTES:

- REPLACE BLOCKING BETWEEN POST 5 & 6.
- RESTORE CONNECTIONS TO LATTICE ELEMENTS AS REQUIRED.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT

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P50 DRAWINGS FOR REVIEW

PREPARED FOR:

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SOUTH PERKASIE COVERED BRIDGE

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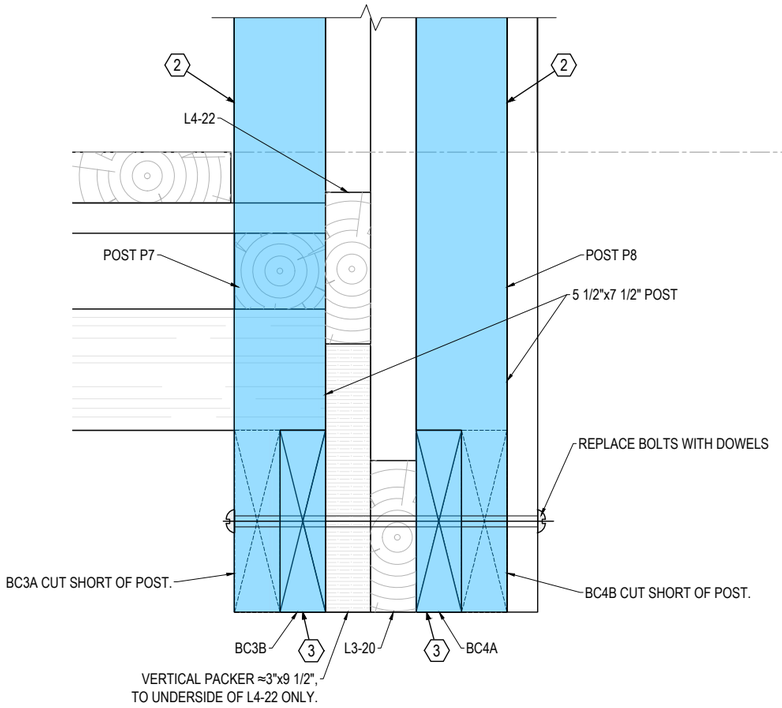
RESTORATION DRAWINGS
REPAIR PLANS
AB2 SW WING WALL

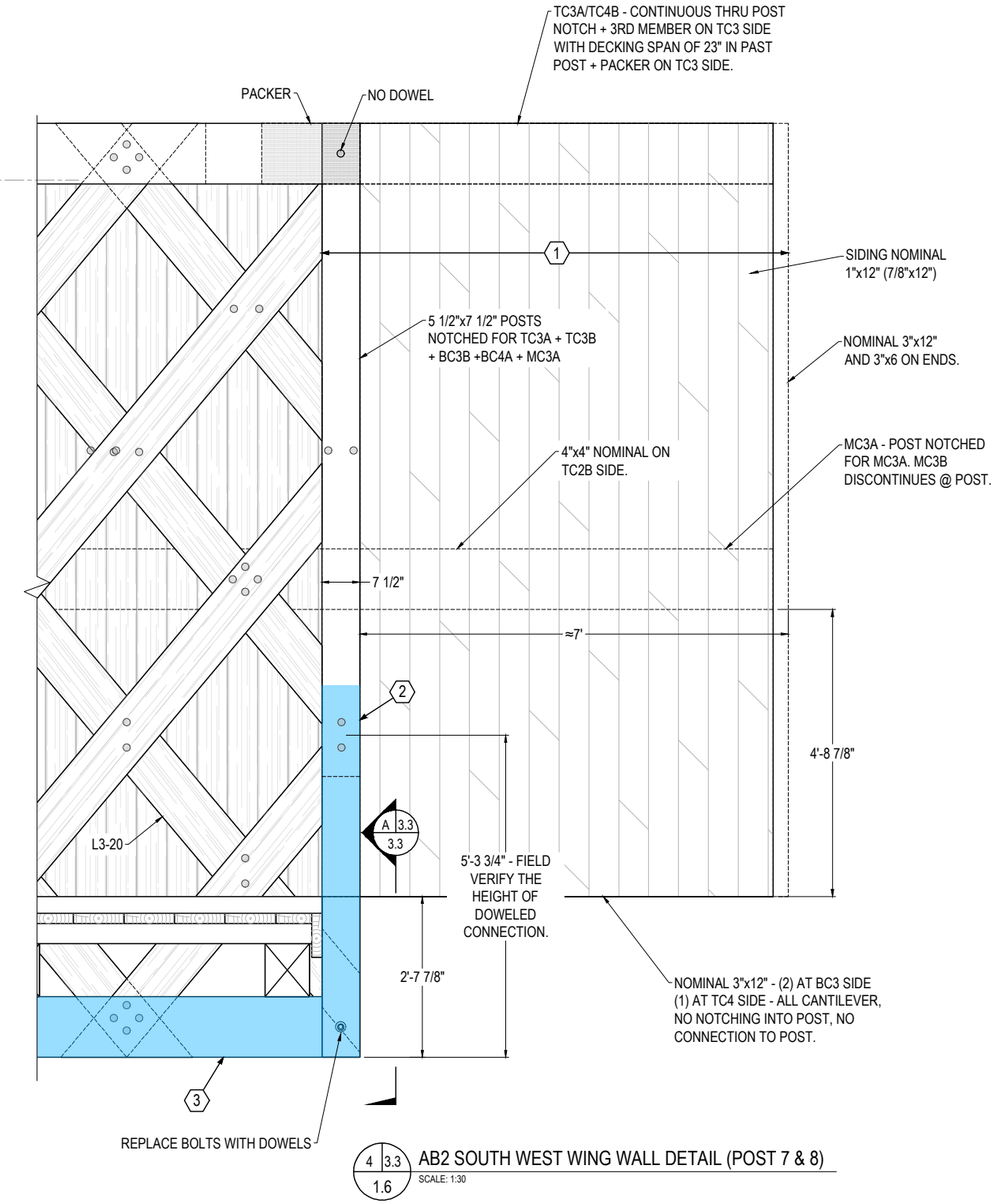
DRAWING # 3.2

SHEET # 26 OF 32 -

PROJECT #9101S



A 3.3 / 3.3 AB2 SOUTH CORNER DETAIL (POST 7 & 8)
SCALE: 1:10



4 3.3 / 1.6 AB2 SOUTH WEST WING WALL DETAIL (POST 7 & 8)
SCALE: 1:30

REPAIR - SHEET KEYNOTES - WING WALL SIDING, POSTS, BOTTOM CHORDS

1. REINSTALL LOOSE AND MISALIGNED SIDING BOARDS AND REPLACE MISSING SIDING BOARDS.
2. POSTING REPAIR - AMPUTATE POOR SEGMENTS AND POST WITH NEW SEGMENTS DESIGNED TO SUPPORT AND TRANSFER LOAD TO EXISTING ELEMENTS.
3. BOTTOM CHORD SEGMENT REPLACEMENT

- POSTING (SEE SHEET 4.3 FOR DETAILS)
- BOTTOM CHORD SEGMENT REPLACEMENT (SEE SHEET 4.4 FOR DETAILS)

GENERAL NOTES:

- REPLACE BLOCKING BETWEEN POST 7 & 8.
- RESTORE CONNECTIONS TO LATTICE ELEMENTS AS REQUIRED.

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT

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P50 DRAWINGS FOR REVIEW

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RESTORATION DRAWINGS
REPAIR PLANS
AB2 SW WING WALL

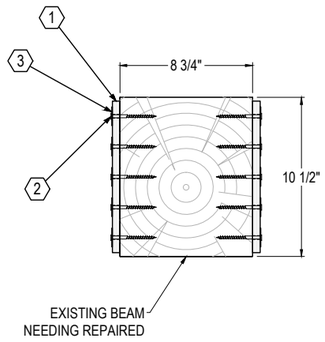
DRAWING # 3.3

SHEET # 27 OF 32 -

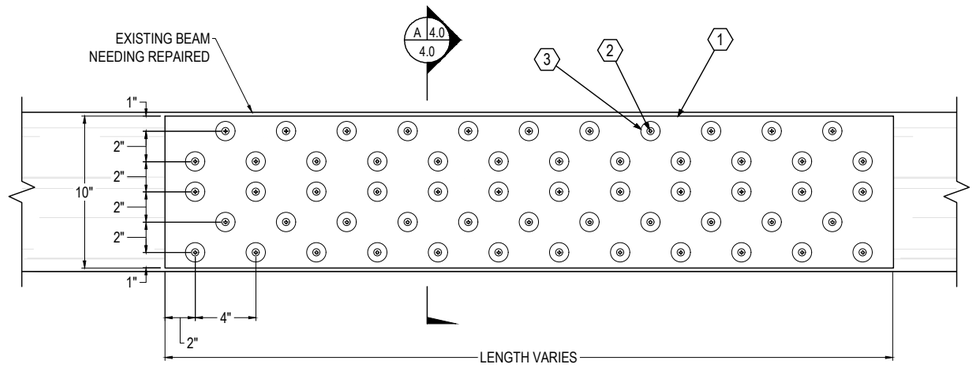
PROJECT #9101S

SHEET KEYNOTES

1. RETROSHEAR® PANEL (1" OR 1/2" THICK, AS SPECIFIED)
2. WOOD SCREW - #10 x 3"
3. FENDER WASHER - 1-1/4" OUTSIDE DIA.



A 4.0 / 4.0 SECTION
SCALE: 1:10



RETROSHEAR® PANEL DETAIL
SCALE: 1:10

RETROSHEAR™ WORKS SCHEDULE:

1. COMPLETE PRE-RETROFIT MEETING AND ASSIGN TASKS. REVIEW DRAWINGS.
2. CONFIRM ACCESS REQUIREMENTS.
3. OBTAIN RETROSHEAR™ LENGTH AND THICKNESS REQUIREMENTS PER EOR.
4. DOUBLE CHECK DRAWINGS FOR RETROSHEAR™ REQUIREMENTS. FINISH PLANE THE GLUE SURFACE OF THE EXISTING TIMBER. LEVEL II TECHNICIANS TO MONITOR PLANING QUALITY. AVOID UNNECESSARY SCOUR.
5. LOCATE, ORGANIZE, AND COUNT INSTALLATION MATERIALS REQUIRED. ENSURE EXTRA SCREWS AND WASHERS ARE AVAILABLE IF NEEDED DURING INSTALLATION.
6. CHECK EQUIPMENT AND TOOLS. HAVE DRILL MOTOR AND BITS ON STANDBY IN THE EVENT NEW HOLES ARE REQUIRED TO REPLACE "SPUN-OUT" SCREWS. ENSURE FLUID LEVELS. TURN ON AND TEST EQUIPMENT PRIOR TO MIXING EPOXY.
7. STAGE KITCHEN STATION ON FLAT TERRAIN, AWAY FROM MOISTURE AND POTENTIAL CONTAMINANTS. IF RAINING, EXTREME CARE SHALL BE TAKEN TO ENSURE EPOXY DOES NOT RECEIVE MOISTURE.
8. CHECK MOISTURE CONTENT READINGS ON GLUE SURFACES TO RECEIVE EPOXY. DO NOT PROCEED WITH RETROFIT IF SURFACE MOISTURE CONTENT IS ABOVE 20%.
9. ONCE ALL PERSONNEL HAVE BEEN GIVEN THE GO AHEAD, THE ASSIGNED COOK SHALL MIX THE FIRST BATCH OF RETROBOND™ EPOXY. USE RETROBOND™ 277B, 275B, OR 273B HARDENER WITH RETROBOND™ 175A RESIN. THE USE OF THE DIFFERENT HARDENERS SHALL BE DETERMINED BE LEVEL II TECHNICIANS AND BASED ON AVAILABILITY, ENVIRONMENTAL CONDITIONS, AND COMPLEXITY OF JOB. START CLOCK.
10. IF CREOSOTED TIMBER, WIPE GLUE FACE WITH CLEAN DRY RAG TO REMOVE THE OILY SURFACE. DO NOT USE SOLVENTS.
11. SPREAD MIXED EPOXY ON BOTH GLUE FACES (RETROSHEAR™ AND EXISTING TIMBER). LEVEL II TECHNICIANS TO MONITOR SPREAD RATE. SQUEEZE OUT SHOULD BE NO LARGER THAN A 6mm BEAD AND NO SMALLER THAN 1.5mm.
12. PLACE RETROSHEAR™ IN PLACE. UNLESS OTHERWISE SPECIFIED BY LEVEL II TECHNICIANS, DRIVE THE CENTER ROW OF SCREWS FIRST, THEN WORK TO TOP AND BOTTOM.
13. CONTINUE DRIVING REMAINING SCREWS WORKING FROM THE CENTER OUT, UNLESS OTHERWISE SPECIFIED.
14. LEVEL II TECHNICIANS TO TRACK AND RECORD ALL APPLICATION DETAILS ALONG WITH MATERIALS QUANTITIES CONSUMED ON AS-BUILT DRAWINGS. **TAKE FINAL PHOTOS.**

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P50 DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

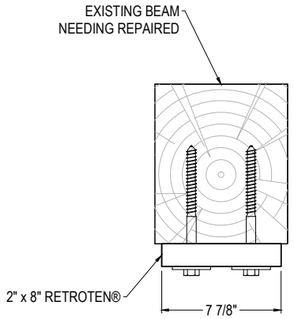
	REASON FOR ISSUANCE:	DATE:	DRAWN BY:	CHKD BY:	APPR BY:
-	P50 DRAWINGS FOR REVIEW	03/07/2025	LK	CH	KK

RETROSHEAR® PANEL DETAIL

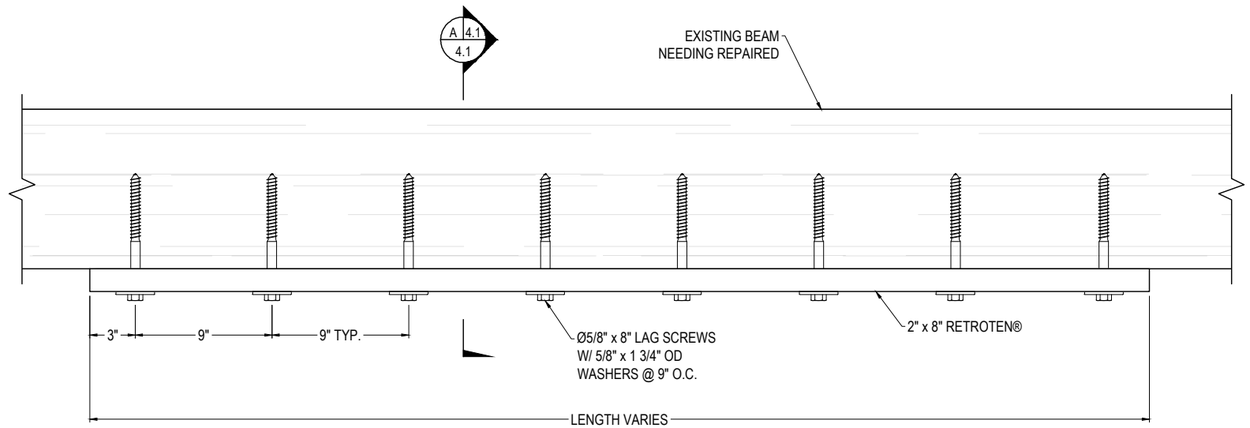
DRAWING # 4.0

SHEET # 28 OF 32 -

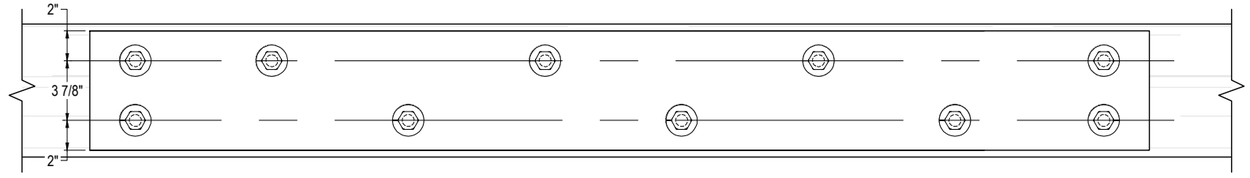
PROJECT #9101S



A 4.1
4.1 SECTION
SCALE: 1:10



RETROTEN® DETAIL
SCALE: 1:10



RETROTEN® WORKS SCHEDULE:

1. COMPLETE PRE-RETROFIT MEETING AND ASSIGN TASKS. REVIEW DRAWINGS.
2. CONFIRM ACCESS REQUIREMENTS.
3. CALCULATE RETROTEN® LENGTH REQUIREMENTS. RETROTEN® SHALL USE ALL POSSIBLE LENGTH, A MINIMUM 76% OF THE STRINGER SPAN, UNLESS OTHERWISE STATED BY EOR.
4. BEGIN STRINGER PREPARATIONS. DOUBLE CHECK DRAWINGS FOR RETROTEN® WIDTH REQUIREMENTS.
5. REMOVE VERTICAL THROUGH BOLTS AS DIRECTED BY EOR.
6. DOUBLE CHECK DRAWINGS FOR RETROTEN® WIDTH REQUIREMENTS. CHAIN SAW ROUND LOG STRINGERS AS REQUIRED ACHEIVING A FLAT GLUE FACE. FOLLOWING CHAIN SAW WORK, OR ON STRINGERS WITH EXISTING FLAT FACES, FINISH PLANE THE GLUE SURFACE OF THE STRINGER. LEVEL II TECHNICIANS TO MONITOR PLANING QUALITY. AVOID UNNECESSARY SCOUR.
7. LOCATE, ORGANIZE, AND COUNT INSTALLATION MATERIALS REQUIRED. ENSURE EXTRA SCREWS AND WASHERS ARE AVAILABLE IF NEEDED DURING INSTALLATION.
8. CHECK EQUIPMENT AND TOOLS. HAVE DRILL MOTOR AND BITS ON STANDBY IN THE EVENT NEW HOLES ARE REQUIRED TO REPLACE "SPUN-OUT" LAG SCREWS. ENSURE FLUID LEVELS. TURN ON AND TEST EQUIPMENT PRIOR TO MIXING EPOXY.
9. PLACE LUBRICANT ON THREADS OF LAG BOLTS. DO NOT GET LUBRICANT ON GLUE SURFACES. DO NOT USE WATER BASED LUBRICANT.
10. PRIOR TO SANDING RETROTEN®, DRY PLACE IN POSITION ON GIRDER AND USE AS TEMPLATE TO DRILL PILOT HOLES WORKING FROM THE CENTER OUT. INSTALL LAGS WITH 1-3/4" O.D. MINIMUM WASHERS TIGHT BEFORE MOVING TO THE NEXT HOLE. TEST THE TORQUE AND USE THE MAXIMUM TORQUE ATTAINABLE IN THE DRY FIT BEFORE GLUING. THE TARGET IS 225 ft-lbs OR GREATER. IF THE TORQUE VALUE THAT THE WOOD CAN HOLD IS LESS THAN 148 ft-lbs, CALL EOR FOR DIRECTION ON HOW TO PROCEED. BLOW DEBRIS FROM PILOT HOLES WITH COMPRESSED AIR.

    NOTE: DO NOT ADD CN OR SEALER TO PILOT HOLES TO PREVENT CONTAMINATION OF THE RETROFIT BOND.
11. PROVIDE TOUCH-UP PLANING AND/OR SANDING ON RETROTEN® AS REQUIRED. THE RETROTEN® MUST BE CROSS SANDED AT 45 DEGREES (60 DEGREES MAXIMUM) TO THE LONG AXIS USING 40 TO 60 GRIT BELT PAPER. NO GOUGES OR SCORES ARE ACCEPTABLE. HAND SAND SMALL SHINY PATCHES WITH SANDING BLOCK AND 40 TO 60 GRIT SAND PAPER IN CROSS DIRECTION.
12. STAGE KITCHEN STATION ON FLAT TERRAIN, AWAY FROM MOISTURE AND POTENTIAL CONTAMINANTS. IF RAINING, EXTREME CARE SHALL BE TAKEN TO ENSURE EPOXY DOES NOT RECEIVE MOISTURE.
13. CHECK MOISTURE CONTENT READINGS ON GLUE SURFACES TO RECEIVE EPOXY. DO NOT PROCEED WITH RETROFIT IF SURFACE MOISTURE CONTENT IS ABOVE 20%.
14. ONCE ALL PERSONNEL HAVE GIVEN GO AHEAD, THE ASSIGNED COOK SHALL MIX THE FIRST BATCH OF RETROBOND™ EPOXY. USE RETROBOND™ 277B, 275B, OR 273B HARDENER WITH RETROBOND™ 175A RESIN. THE USE OF THE DIFFERENT HARDENERS SHALL BE DETERMINED BE LEVEL II TECHNICIANS AND BASED ON AVAILABILITY, TRACK TIME, ENVIRONMENTAL CONDITIONS, AND COMPLEXITY OF JOB. START CLOCK.
15. IF CREOSOTED TIMBER, WIPE GLUE FACE WITH CLEAN DRY RAG TO REMOVE THE OILY SURFACE. DO NOT USE SOLVENTS.
16. SPREAD MIXED EPOXY ON BOTH GLUE FACES (RETROTEN® AND EXISTING TIMBER). LEVEL II TECHNICIANS TO MONITOR SPREAD RATE. SQUEEZE OUT SHOULD BE NO LARGER THAN A 1/4" BEAD AND NO SMALLER THAN 1/16".
17. PLACE RETROTEN® IN PLACE. UNLESS OTHERWISE SPECIFIED BY LEVEL II TECHNICIANS, DRIVE THE CENTER LAG SCREW FIRST TO TOUCHING WASHER. **DO NOT USE IMPACT GUNS TO TORQUE SCREW.**
18. CONTINUE DRIVING REMAINING SCREWS WORKING FROM THE CENTER OUT, UNLESS OTHERWISE SPECIFIED.
19. TORQUE LAG SCREWS USING TORQUE WRENCH TO MINIMUM 240N-m (175 ft-lbs) OR VALUE DETERMINED IN STEP 10 ABOVE, STARTING AT THE CENTER OF THE RETROTEN® AND WORKING TO BOTH ENDS. RETURN TO THE STARTING POINT AND RE-TORQUE TO 305N-m (225 ft-lbs). RE-TORQUE EVERY 15-MINUTES UNTIL ALL SCREWS CLICK WITHOUT TURNING.
20. LEVEL II TECHNICIANS TO TRACK AND RECORD ALL APPLICATION DETAILS ALONG WITH MATERIALS QUANTITIES CONSUMED ON AS-BUILT DRAWINGS. **TAKE FINAL PHOTOS**.

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P50
DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

	REASON FOR ISSUANCE:	DATE:	DRAWN BY	CHKD BY	APPR BY
-	P50 DRAWINGS FOR REVIEW	03/07/2025	LK	CH	RK

RETROTEN® DETAIL

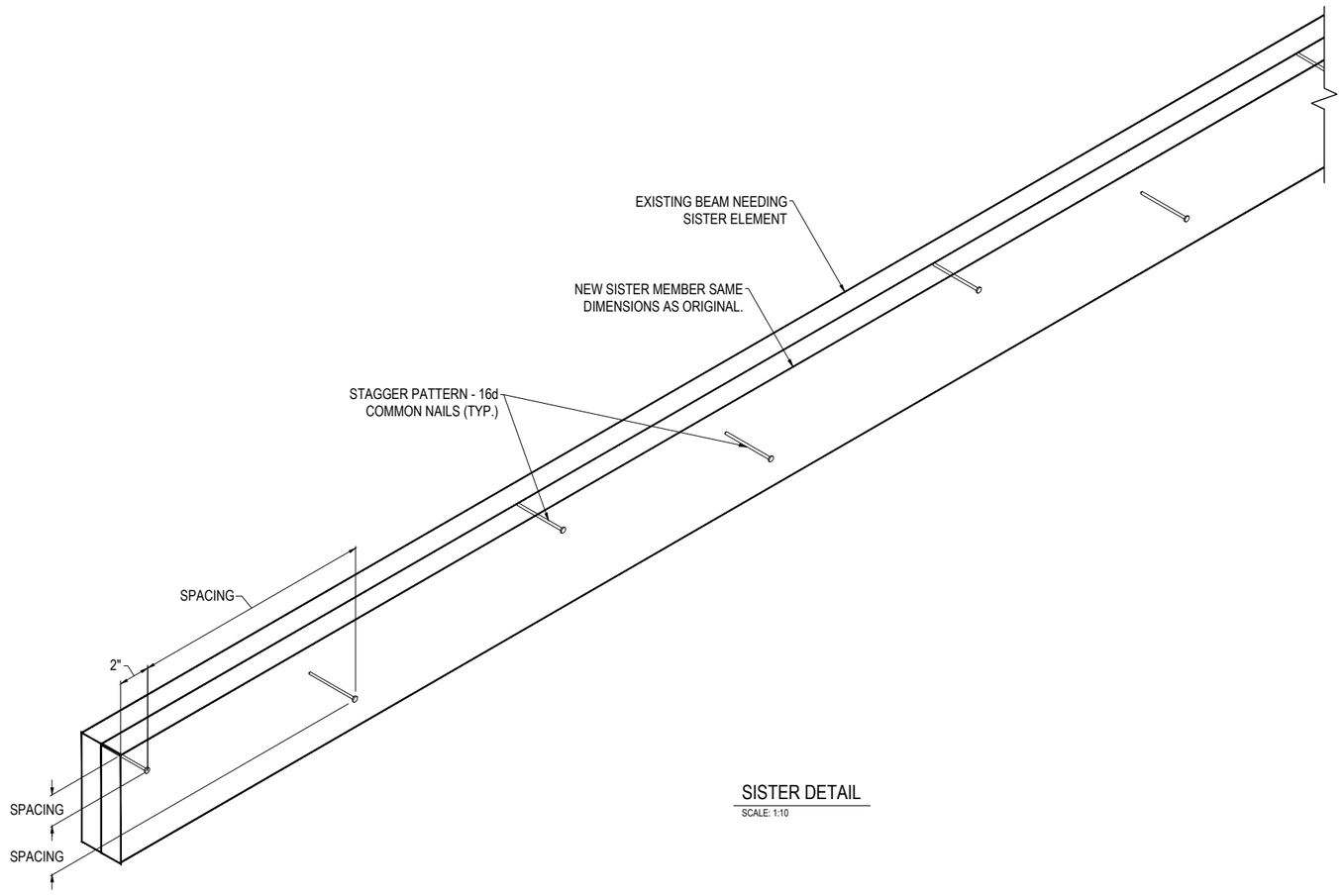
DRAWING # 4.1

SHEET # 29 OF 32 -

PROJECT #9101S

NOTE:

- FIELD MEASUREMENTS REQUIRED FOR MANUFACTURE AND INSTALLATION OF BRIDGE RETROFIT (MEASUREMENTS ARE APPROXIMATE)
- FIELD DRILLING OR CUTTING NOT SHOWN ON THESE PLANS IS NOT ALLOWED WITHOUT ENGINEERING APPROVAL. ALL FIELD DRILLED HOLES OR CUT SURFACES REQUIRE TRIPLE CN TREATMENT THEN SEALING WITH ANCHOR SEAL



SISTER DETAIL
SCALE: 1:10

WOOD RESEARCH AND DEVELOPMENT 10476 Sunnyside Rd. SE P.O. Box 70 Jefferson, Or. 97352 541.752.0188 info@woodrandd.com	**P50** DRAWINGS FOR REVIEW	PREPARED FOR: BOROUGH OF PERKASIE (PA)	SOUTH PERKASIE COVERED BRIDGE	- P50 DRAWINGS FOR REVIEW REASON FOR ISSUANCE: DATE: 03/07/2025	LK / CH / KK	SISTER DETAIL	DRAWING # 4.2 SHEET # 30 OF 32 - PROJECT #9101S

NOTE:

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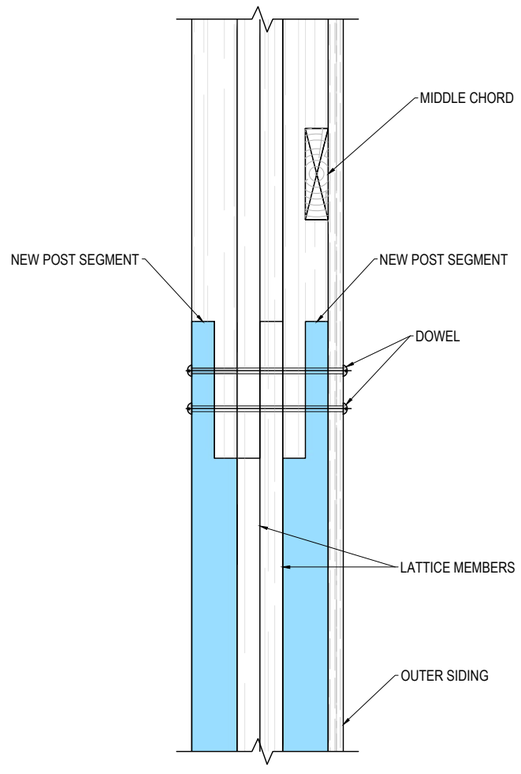
REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



POSTING DETAIL

SCALE: 1:10

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P50
DRAWINGS FOR REVIEW

PREPARED FOR:

BOROUGH OF PERKASIE (PA)

SOUTH PERKASIE COVERED BRIDGE

	REASON FOR ISSUANCE:	DRAWN BY:	CHKD BY:	APPR BY:
- P50 DRAWINGS FOR REVIEW	DATE: 03/07/2025	LK	CH	KK

POSTING DETAIL

DRAWING # 4.3

SHEET # 31 OF 32 -

PROJECT #9101S

NOTE:
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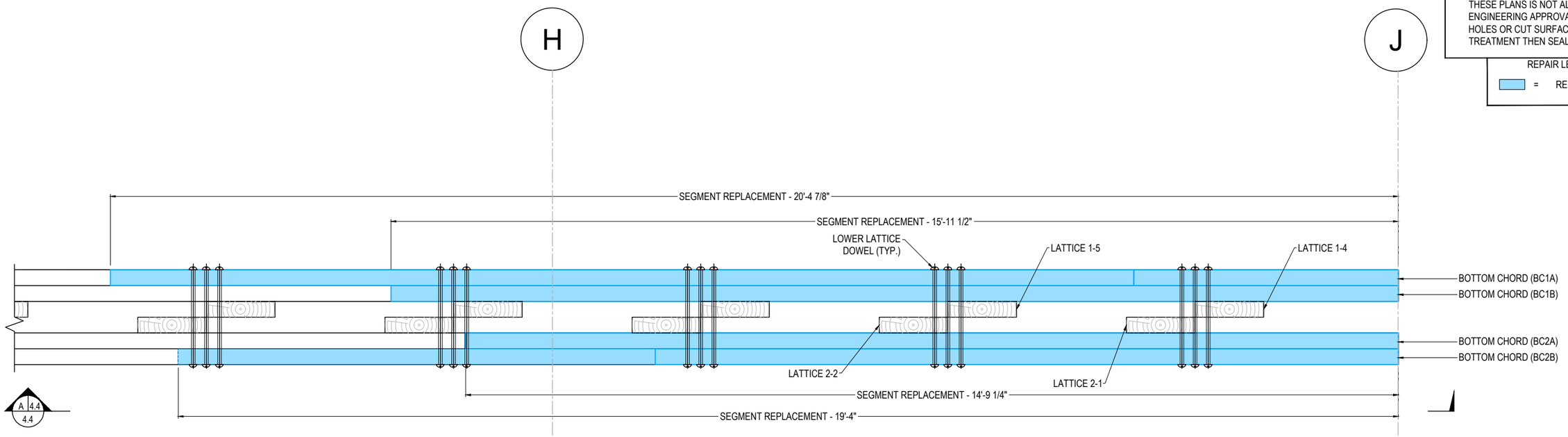
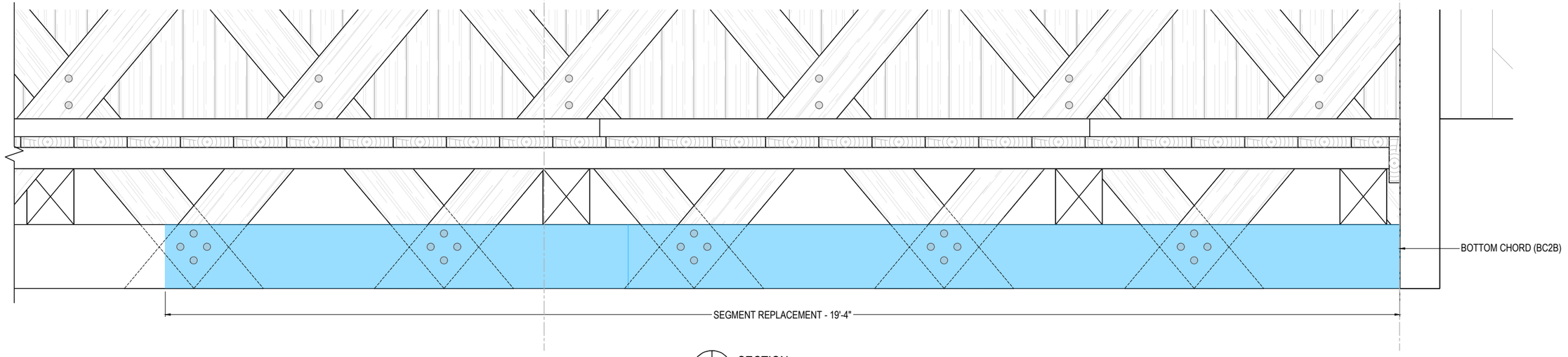
- FIELD DRILLING OR CUTTING NOT SHOWN ON THESE PLANS IS NOT ALLOWED WITHOUT ENGINEERING APPROVAL. ALL FIELD DRILLED HOLES OR CUT SURFACES REQUIRE TRIPLE CN TREATMENT THEN SEALING WITH ANCHOR SEAL

REPAIR LEGEND:

= REPLACE TIMBER ELEMENT



1 4.4 / 1.12 BOTTOM CHORD SEGMENT REPLACEMENT DETAIL
SCALE: 1:20



A 4.4 / 4.4 SECTION
SCALE: 1:20

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P50 DRAWINGS FOR REVIEW

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-	P50 DRAWINGS FOR REVIEW	03/07/2025	LK	CH	KK

BOTTOM CHORD SEGMENT REPLACEMENT DETAIL

DRAWING # 4.4

SHEET # 32 OF 32 -

PROJECT #9101S