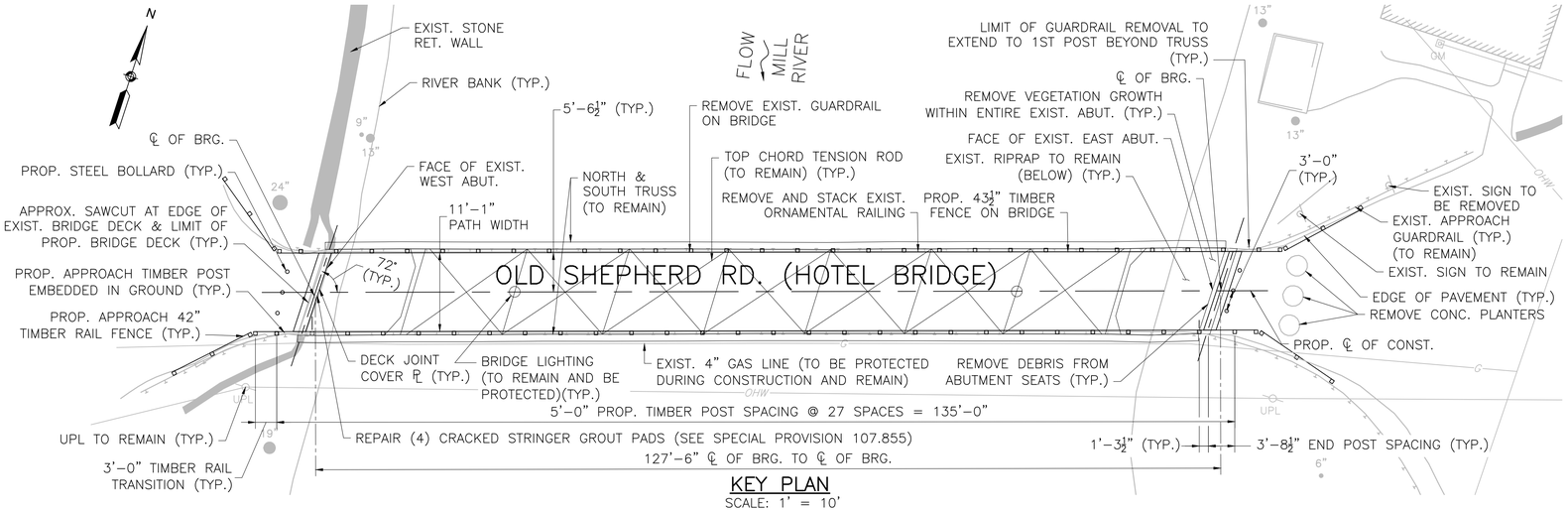
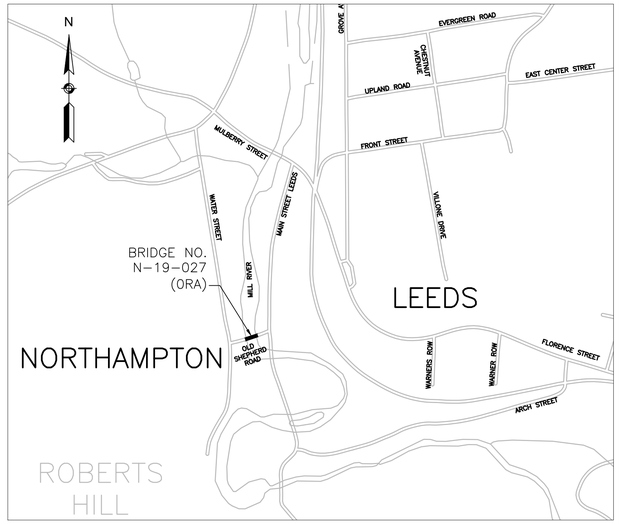
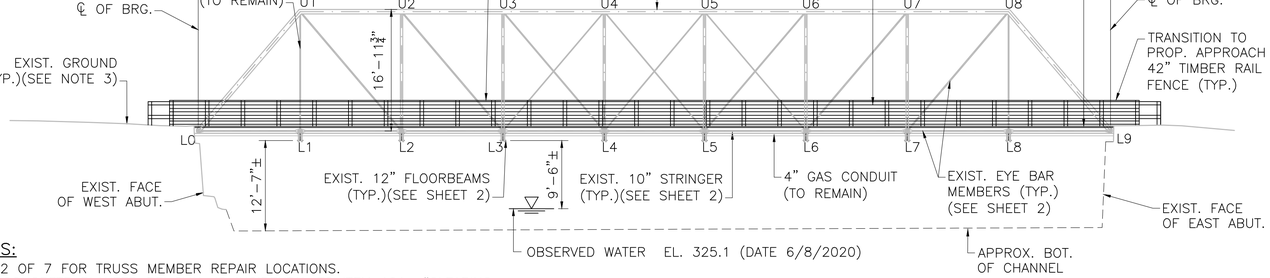


KEY PLAN
SCALE: 1" = 10'



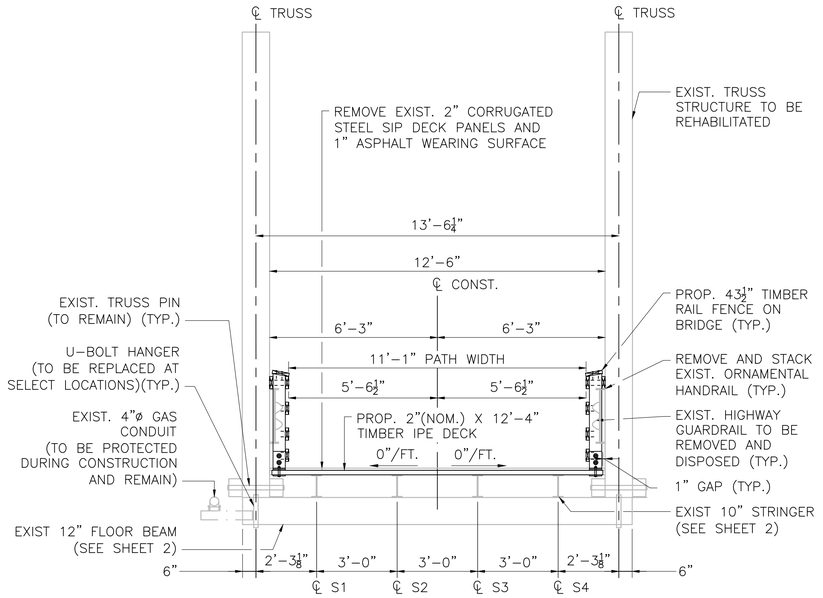
LOCUS MAP
SCALE: 1" = 500'



ELEVATION (LOOKING NORTH)
SCALE: 1" = 10'

EXISTING BRIDGE RAILING NOT SHOWN FOR CLARITY.

REPAIR NOTES:
1. SEE SHEET 2 OF 7 FOR TRUSS MEMBER REPAIR LOCATIONS.
2. COSTS FOR CONCRETE PLANTER REMOVAL IS INCIDENTAL TO ITEM 101., "CLEARING AND GRUBBING".
3. THE CONTRACTOR SHALL SUBMIT A PROPOSED APPROACH GRADING PLAN TO THE ENGINEER FOR APPROVAL. THE GRADING PLAN SHALL INCLUDE DECK JOINT COVER PLATES. FINAL LONGITUDINAL GRADING SHALL NOT EXCEED 5% AT ANY LOCATION.



BRIDGE SECTION (LOOKING WEST)
SCALE: ⅜" = 1'-0"

REPAIR NOTES (CONT'D):
4. PERMIT FOR WORK IN THE WATER AS IT HAS BEEN ASSUMED WORK CAN BE PERFORMED FROM LAND AND THE BRIDGE. FOR INSTALLATION OF TEMP. SHIELDING, TARPS ARE ASSUMED TO BE SPREAD UNDER THE BRIDGE AT THE ABUTMENT AND THEN CARRIED OUT TO THEIR FINAL LOCATIONS. IF THE CONTRACTOR ELECTS TO WORK FORM THE WATER, COORDINATION WITH THE LOCAL CONSERVATION COMMISSION AND ACQUISITION OF THE PERMITS THEY REQUEST IS REQUIRED. IF PERMITTING IS ANTICIPATED, IT SHALL BE INCLUDED IN ITEM 994.01 AND NO FURTHER COMPENSATION WILL BE GIVEN.

ESTIMATED QUANTITIES
(NOT GUARANTEED)

ITEM DESCRIPTION	QUANTITY	UNIT
CLEARING AND GRUBBING	0.01	A
REMOVE DEBRIS FROM ABUTMENT SEATS	1	LS
PRESSURE INJECTION OF CRACKS	4	EA
REMOVAL OF METAL PLANK BRIDGE DECK	175	SY
OLD PAVEMENT EXCAVATION	175	SY
CRUSHED STONE FOR BRIDGE FOUNDATION	10	CY
SAWCUTTING ASPHALT PAVEMENT	30	FT
HIGHWAY GUARD REMOVED AND DISCARDED	270	FT
TIMBER RAIL FENCE	60	FT
TIMBER RAIL FENCE ON BRIDGE	270	FT
TEMPORARY FENCE	125	FT
FENCE REMOVED AND STACKED	260	FT
STEEL BOLLARD	6	EA
MOBILIZATION	1	LS
TRAFFIC SIGN REMOVED AND STACKED	1	EA
TEMPORARY SHORING	1	LS
TIMBER (IPE) DECKING	2630	FT
TURNBUCKLE FOR EYE BAR REPAIR	19	EA
3/4" DIAMETER WIRE ROPE FOR EYE BAR REPAIRS	410	FT
STRUCTURAL STEEL – FLOORBEAM REPAIR/REPLACEMENTS	4	EA
STRUCTURAL STEEL – STRINGER REPLACEMENTS	5400	LB
STRUCTURAL STEEL – TIGHTEN TRUSS DIAGONAL CHORDS	7	EA
STRUCTURAL STEEL – U-BOLT HANGER REPLACEMENTS	7	EA
STRUCTURAL STEEL – BOTTOM LATERAL BRACING REPLACEMENTS	470	LB
STRUCTURAL STEEL – FLOORBEAM BEARING STIFFENER REPLACEMENTS	130	LB
REPLACE RIVET WITH BOLT (AS DIRECTED BY THE ENGINEER)	50	EA
TEMPORARY PROTECTIVE SHIELDING	1	LS

INDEX OF SHEETS:

GENERAL NOTES:

EXISTING TRUSS ANALYSIS: REFERENCED EXISTING RATING BY STANTEC, JUNE 2014. IN ACCORDANCE WITH AASHTO MANUAL FOR BRIDGE EVALUATION, 2ND ED. (TRUSS MEMBER ANALYSIS AND REPAIR) FOR BOTH LRFD AND ASD. CRITERIA CONSIDERED FOR TRUSS MEMBERS TO PASS RATING ANALYSIS IS IN ACCORDANCE WITH THE AASHTO BRIDGE DESIGN ASD CRITERIA AND UTILIZING 85 PSF PEDESTRIAN LIVE LOAD FOR A HISTORIC BRIDGE.

PROPOSED TRUSS REPAIR DESIGN: IN ACCORDANCE WITH WITH 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND UTILIZING 85 PSF PEDESTRIAN LIVE LOAD FOR A HISTORIC BRIDGE.

PROPOSED TIMBER DECK AND RAILING DESIGN: IN ACCORDANCE WITH THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND UTILIZING 90 PSF PEDESTRIAN LIVE LOAD IN ACCORDANCE WITH THE 2009 AASHTO LRFD GUIDE SPEC FOR PEDESTRIAN BRIDGES.

EXISTING BRIDGE PLANS & FIELD VERIFICATION: NO EXISTING BRIDGE PLANS HAVE BEEN LOCATED. DIMENSIONS SHOWN ON THESE DRAWINGS ARE FROM THE PREVIOUS RATING REPORT BY STANTEC, JUNE 2014 & SUPPLEMENTED BY LIMITED FIELD MEASUREMENTS & PHOTOGRAPHIC ESTIMATIONS. NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE DIMENSIONS SHOWN IS GIVEN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING AND PROPOSED DIMENSIONS, INCLUDING U-BOLT HANGER GEOMETRY, RIVETED AND BOLTED CONNECTION DIAMETERS/FASTENER ARRANGEMENTS & FASTENER CLEARANCES TO ENSURE A PROPER FIT-UP OF ALL REPAIR COMPONENTS PRIOR TO SUBMITTING SHOP DRAWINGS & FABRICATION OF ANY STEEL OR OTHER MATERIALS NEEDED FOR BRIDGE REHABILITATION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS BETWEEN THE PROPOSED REPAIRS SHOWN ON THE CONTRACT PLANS AND THE EXISTING CONDITIONS ENCOUNTERED.

TRUSS & FRAMING: EXISTING TRUSS MEMBERS & FRAMING ARE COMPRISED OF MATERIAL DATING PRE 1905 AND IDENTIFIED AS WROUGHT IRON WITH ASSUMED F_U=48KSI AND F_Y=26KSI.

WELDING: ALL WELDING AND THE PREPARATION AND ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, AND THE AASHTO/AWS BRIDGE WELDING CODE (ANSI/AASHTO/AWS 1.5).

GALVANIZING: ALL NEW STRUCTURAL STEEL SHALL BE GALVANIZED. ANY DAMAGE TO EXISTING COATINGS TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

TEMPORARY PROTECTIVE SHIELDING: THE CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTIVE SHIELDING TO PREVENT ANY DEBRIS FROM FALLING INTO THE WATER BELOW. ANY DEBRIS THAT FALLS INTO THE WATER DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE PROMPTLY REMOVED AT NO ADDITIONAL COST. WORK SHALL BE PERFORMED UNDER ALL RELEVANT SECTIONS OF SECTION 961 OF THE MASSDOT STANDARD SPECIFICATION. SEE ITEM 994.01 AND ITEM 114.1 OF THE SPECIAL PROVISIONS FOR FURTHER INFORMATION.

TEMPORARY SHORING: TEMPORARY SHORING IS LIMITED TO FLOORBEAMS REQUIRING U-BOLT HANGER REPLACEMENT & STRINGERS TO BE RETAINED IN THE FINAL CONDITION THAT ARE SUPPORTED BY FLOORBEAMS BEING REPLACED. ALTERNATIVELY, SHORING OF STRINGERS MAY BE AVOIDED BY TEMPORARILY REMOVING & RE-INSTALLING STRINGERS TO ACCOMMODATE FLOORBEAM REPLACEMENT. CONTRACTOR TO INCLUDE PRICE FOR PREFERRED METHOD IN THE BID.

GAS UTILITY: THE 4"ø GAS CONDUIT CARRIED BY THE BRIDGE IS ASSUMED ACTIVE AND WILL REMAIN IN-SERVICE THROUGHOUT CONSTRUCTION. THE GAS CONDUIT REQUIRES TEMPORARY SUPPORT TO ACCOMMODATE FLOORBEAM REPAIRS. THE CONTRACTOR SHALL NOTIFY THE GAS OWNER PRIOR TO BEGINNING CONSTRUCTION AND COORDINATE TEMPORARY CONDUIT SUPPORT AS NECESSARY TO COMPLETE THE BRIDGE REPAIRS.

AERIAL UTILITIES: AERIAL WIRES ARE ASSUMED TO BE ELECTRIC AND ENERGIZED. THE CONTRACTOR SHALL MAINTAIN ALL APPLICABLE MINIMUM LEGAL CLEARANCES AND COORDINATE WITH UTILITY OWNERS FOR SERVICE INTERRUPTIONS AND AS NECESSARY TO COMPLETE THE BRIDGE REPAIRS.

BRIDGE LIGHTING: THE EXISTING LIGHT LAMP CONDUITS ARE ASSUMED TO BE ENERGIZED AND SHALL BE PROTECTED DURING CONSTRUCTION.

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

OLD SHEPHERD RD. OVER MILL RIVER (HOTEL BRIDGE) BRIDGE NO. N-19-027 (0RA) NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE
BRYAN W. WELDHONNO
NO. 14556
LICENSED PROFESSIONAL ENGINEER
4/19/2023

REVISIONS		
NO.	REVISION	DATE
DRAWN/DESIGN BY	CHECKED BY	

COVER SHEET & GENERAL NOTES

SCALE: AS NOTED

2019214.00

1 OF 7

V:\MAX-2019214.00 - NORTHAMPTON, MA - GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR01(N19027)-PLAN LOCUS ELEV & SECT.DWG

TEMPORARY CONSTRUCTION LOADING RESTRICTION NOTES:

1. THE EXISTING STRINGERS AND FLOORBEAMS ARE DETERIORATED AND HAVE BEEN ANALYZED TO IDENTIFY DECK AREAS THAT CANNOT SUPPORT TEMPORARY CONSTRUCTION LOADS PRIOR TO THE PROPOSED REPAIRS. THE RESULTING AREAS TO BE KEPT FREE OF CONSTRUCTION LOADS ARE SHOWN ON THE "EXISTING FLOOR SYSTEM – PLAN" ON THIS SHEET. THE DETERIORATION MODELED IS BASED ON A JULY 2022 INSPECTION AND THE CONDITIONS AT THE TIME OF CONSTRUCTION ARE EXPECTED TO MATCH. THE EXISTING DECK WAS NOT EVALUATED.

2. CONSTRUCTION LOADING ASSUMPTIONS CONSIDERED ARE AS FOLLOWS:
   - THE EXISTING 2" CORRUGATED STEEL S.I.P. DECK PANELS AND ASPHALT WEARING SURFACE HAVE NOT BEEN REMOVED YET.
   - CONSTRUCTION EQUIPMENT CONSIDERED IS A 2–AXLE SKID–STEER LOADER STYLE VEHICLE WITH ONLY A SINGLE UNIT PERMITTED ON THE BRIDGE AT ANY GIVEN TIME. THE FOLLOWING DESIGN VEHICLE PARAMETERS WERE CONSIDERED:
     A) WEIGHT = 1.0 KIP PER WHEEL MAXIMUM (LOADED)
     B) GAGE DISTANCE = 2'–6" MINIMUM
     C) AXLE SPACING = 3'–0" MINIMUM
   - TEMPORARY STEEL ROAD PLATE: $\frac{7}{16}$" THICK X 10' WIDTH PLATE LAID LONGITUDINALLY ACROSS THE BRIDGE.
   - SKID–STEER VEHICLE PATHS CONSIDERED INCLUDE THE FOLLOWING:
     A) VEHICLE CENTERED OVER STRINGERS 2 AND 3
     B) OUTSIDE WHEEL POINT LOADS POSITIONED 3" FROM THE NORTH FACE OF DECK
     C) OUTSIDE WHEEL POINT LOADS POSITIONED 3" FROM THE SOUTH FACE OF DECK

3. THE CONTRACTOR SHALL SUBMIT A DECK DEMOLITION PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING CONSTRUCTION EQUIPMENT ON THE BRIDGE. THE SUBMITTAL SHALL INCLUDE SKID–STEER STYLE LOADER DETAILS, OPERATING WEIGHTS, RATED OPERATING CAPACITY, AND MAXIMUM LOADED TIRE REACTIONS NOT EXCEEDING THE PARAMETERS LIMITATIONS NOTED ABOVE.

4. THE CONTRACTOR SHALL NOT PLACE CONSTRUCTION LOADS ON THE NEW DECKING EXCEEDING 85 PSF.

5. TEMPORARY DECKING INCLUDING METAL ROAD PLATES AND PROTECTION OF NEW IPE DECKING ARE CONSIDERED THE CONTRACTOR'S MEANS AND METHODS WITH NO SEPARATE PAYMENT MADE. ALL COSTS FOR TEMPORARY DECKING AND PROTECTION OF IPE DECKING ARE INCIDENTAL TO ITEMS114.4 AND 955.1, RESPECTIVELY.

6. IF THE TEMPORARY PROTECTIVE SHIELDING IS SUPPORTED BY THE EXISTING BRIDGE, IT SHALL BE EMPTIED AS REQUIRED BY THE CONTAINMENT DESIGN.

7. THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILED DRAWINGS OF THE TEMPORARY PROTECTIVE SHIELDING TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING WORK. THE SUBMITTAL SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS. REFER TO ITEM 994.01 FOR MORE INFORMATION.

FLOORBEAM REPAIR TABLE

FLOOR BEAM	TOP FLANGE REPAIR	BOTTOM FLANGE REPAIR	STR–FB CONN BOLTS *	BEARING STIFFENER PAIR REPAIRS	REPLACE U–BOLT HANGERS
FB1	X	X	0	1–SOUTH	1–SOUTH
FB2	0	0	X	0	0
FB3	X	0	0	0	0
FB4	0	0	0	1–SOUTH	1–SOUTH
FB5	0	0	0	1–SOUTH	1–SOUTH
FB6	X	0	0	0	0
FB7	REPLACE FLOORBEAM (W12X53)				2–BOTH
FB8	0	0	0	2–BOTH	2–BOTH
TOTAL	3	1	1	5	7

*THIS COLUMN REFLECTS CONNECTION REPLACEMENT LOCATIONS NOT PART OF A STRINGER REPLACEMENT ONLY. SEE STRINGER REPLACEMENT DETAILS FOR ADDITIONAL INFORMATION.

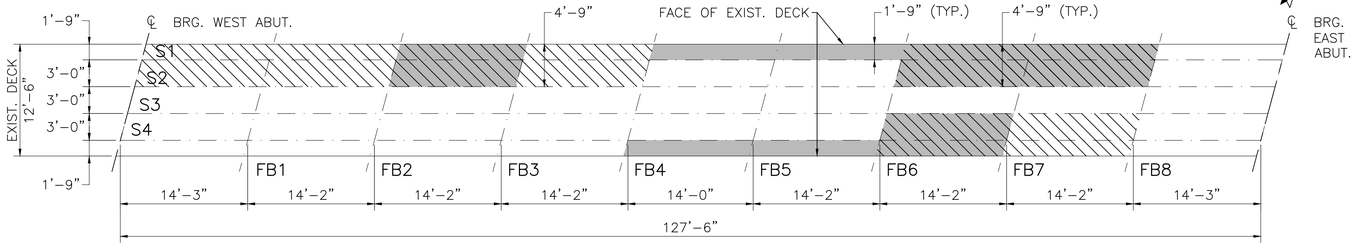
STRINGER REPLACEMENT TABLE

STRINGER LOCATION	REPLACEMENT	QUANTITY
S1, FB2 TO FB8	PROP. W10x22	6
S2, FB4 TO FB6	PROP. W10x22	2
S3, FB4 TO FB6	PROP. W10x22	2
S4, FB2 TO FB3 & FB4 TO FB7	PROP. W10x22	4
	TOTAL	14

REQUIRED SEQUENCE OF REPAIRS:

1. TEMPORARILY INSTALL MISSING U–BOLT HANGER AT FB7 FOR CONSTRUCTION SAFETY. SEE HANGER DETAILS ON SHEET 4.
2. TIGHTEN DIAGONAL CHORDS UTILIZING THE EXISTING TAPPED HEX TURNBUCKLES. SEE EYE–BAR REPAIR LOCATIONS, THIS SHEET
3. INSTALL BOTTOM CHORD AND DIAGONAL EYE–BAR TURNBUCKLE REPAIRS UTILIZING WIRE ROPE AND TURNBUCKLES, SEE EYE–BAR REPAIR LOCATIONS, THIS SHEET.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVISING A SEQUENCE OF REPAIRS/STAGING TO ACCESS THE FLOOR SYSTEM REPAIR AREAS AS SHOWN AND COMPLETE THE FOLLOWING WORK AS PART OF HIS OR HER MEANS AND METHODS:
   - INSTALL TEMPORARY DEBRIS CONTAINMENT SYSTEM BELOW ACTIVE WORK AREAS. REMOVE AND RESET AS NEEDED.
   - PLACE TEMPORARY DECKING OVER DECK DETERIORATION AS REQUIRED TO ACCOMMODATE STAGING AND MOVEMENT OF MATERIAL. SEE TEMPORARY CONSTRUCTION LOADING RESTRICTION NOTES.
   - DEMOLISH THE EXISTING BRIDGE GUARDRAILS.
   - DEMOLISH BITUMINOUS WEARING SURFACE AND CORRUGATED METAL SIP FORMS.
   - REMOVE STRINGERS AND BOTTOM DIAGONAL BRACING TO BE REPLACED.
   - INSTALL FLOORBEAM REPAIRS/FLOORBEAM REPLACEMENT. INSTALL FLOORBEAM TEMPORARY SHORING AS REQUIRED. SEE FLOOR SYSTEM REPAIR PLAN AND FLOORBEAM REPAIR TABLE ON THIS SHEET. SEE DETAILS ON SHEETS 3 & 4.
     A) THE EXISTING ASPHALT AND CORRUGATED METAL SIP FORMS SHALL BE REMOVED FROM BOTH ADJACENT STRINGER BAYS PRIOR TO BEGINNING ANY FLOORBEAM REPAIR UNLESS THE FLOORBEAM IS INITIALLY SHORED TEMPORARILY TO RELIEVE ALL LOADS.
     B) FLOORBEAM REPAIRS/REPLACEMENTS AND BOT. LATERAL BRACING REMOVAL/REPLACEMENT SHALL BE RESTRICTED TO A SINGLE FLOORBEAM LOCATION AT A TIME.
     C) TEMPORARY SHORING OF FLOORBEAM ENDS IS REQUIRED PRIOR TO U–BOLT HANGER REMOVAL/REPLACEMENT.
   - INSTALL NEW STRINGERS AND BOTTOM DIAGONAL BRACING, SEE FLOOR SYSTEM REPAIR PLAN AND STRINGER REPLACEMENT TABLE ON THIS SHEET. SEE DETAILS ON SHEET 5.
   - INSTALL NEW TIMBER DECK BOARDS AND STRINGER CONNECTION PLATES. SEE DETAILS ON SHEET 5.
   - INSTALL TIMBER RAILINGS. SEE SHEETS 1 & 7.
5. VERIFY BOTTOM CHORD AND DIAGONAL EYE–BAR REPAIRS ARE TAUT. RE–TENSION EYE–BARS TO AVOID SLACK AS NECESSARY.
6. REMOVE TEMP. SHORING AND DEBRIS CONTAINMENT SYSTEM AS APPLICABLE FOLLOWING THE COMPLETION OF ALL BRIDGE REPAIRS.

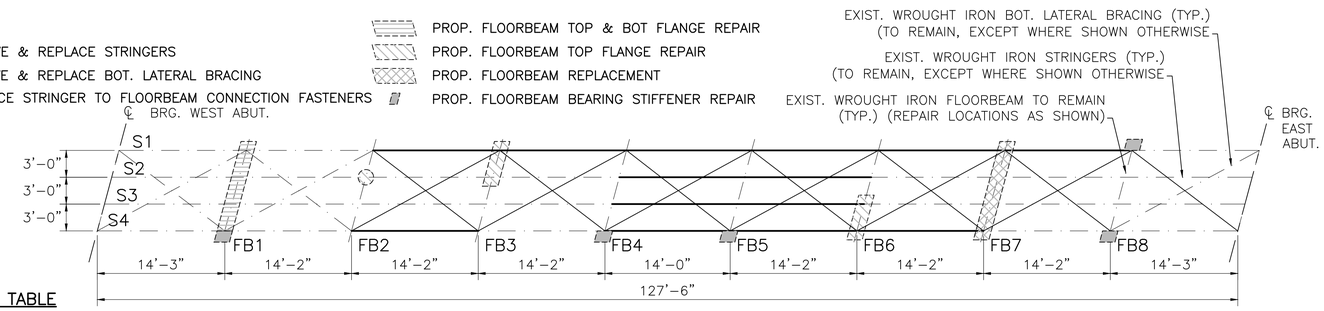
LEGEND:
RESTRICTED AREA DUE TO STRINGER DETERIORATION
RESTRICTED AREA DUE TO FLOORBEAM DETERIORATION
AREA SKID STEER USE IS ACCEPTABLE



NOTES:
1. CONSTRUCTION LOADS ARE PROHIBITED PRIOR TO PROPOSED TRUSS REPAIRS. SEE REQUIRED SEQUENCE OF REPAIRS THIS SHEET.
2. THE CONTRACTOR IS ALERTED THAT THE EXISTING CORRUGATED METAL SIP FORM DECKING IS DETERIORATED WITH LOCALIZED HOLES. A DETAILED INSPECTION OF THE DECK WAS NOT PERFORMED. CONSTRUCTION LOADS ON THE EXISTING DECK SHOULD BE MINIMIZED AND RESTRICTED TO AREAS DIRECTLY ABOVE THE STRINGERS.

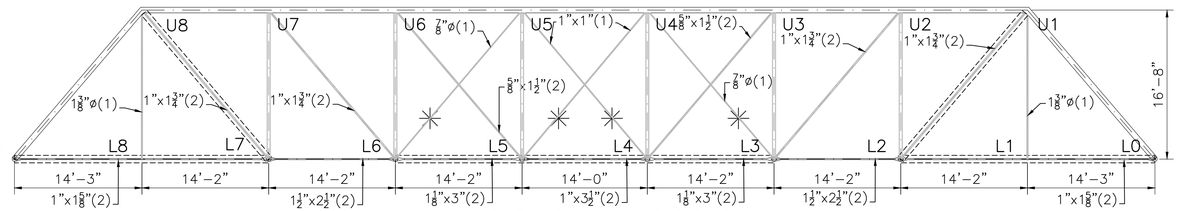
RESTRICTED CONSTRUCTION LOAD AREAS – PLAN
SCALE: $\frac{1}{8}$" = 1'–0"

LEGEND:
REMOVE & REPLACE STRINGERS
REMOVE & REPLACE BOT. LATERAL BRACING
REPLACE STRINGER TO FLOORBEAM CONNECTION FASTENERS
PROP. FLOORBEAM TOP & BOT FLANGE REPAIR
PROP. FLOORBEAM TOP FLANGE REPAIR
PROP. FLOORBEAM REPLACEMENT
PROP. FLOORBEAM BEARING STIFFENER REPAIR



FLOOR SYSTEM REPAIRS – PLAN
SCALE: $\frac{1}{8}$" = 1'–0"

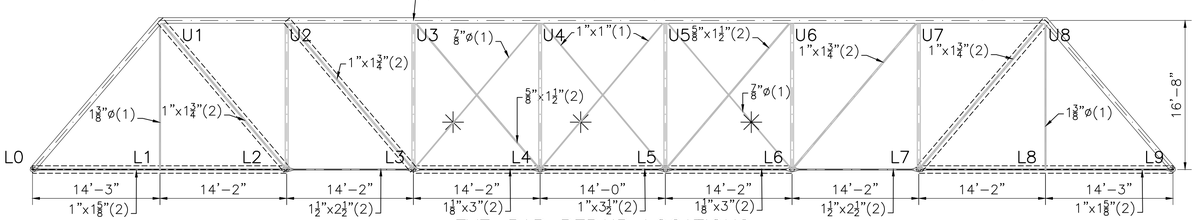
LEGEND:
EYE BAR TURNBUCKLE & WIRE ROPE REPAIR
TIGHTEN DIAGONAL CHORDS



EYE–BAR REPAIR LOCATIONS (NORTH TRUSS – LOOKING SOUTH)
SCALE: $\frac{1}{8}$" = 1'–0"

NOTE: VERTICAL MEMBERS AND TOP CHORD MEMBERS SHALL REMAIN AS IS.

TIGHTEN NUT AT LATERAL BRACING CONNECTION (SUBSIDIARY TO ITEM 960.012, "$\frac{3}{4}$" DIAMETER WIRE ROPE FOR EYE BAR REPAIR")



EYE–BAR REPAIR LOCATIONS (SOUTH TRUSS – LOOKING NORTH)
SCALE: $\frac{1}{8}$" = 1'–0"

NOTE: VERTICAL MEMBERS AND TOP CHORD MEMBERS SHALL REMAIN AS IS.

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

OLD SHEPHARD ROAD OVER MILL RIVER (HOTEL BRIDGE)
BRIDGE NO. N-19-027 (0RA)
NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE – RYAN W. MELOHONNO No. 14595 LICENSED PROFESSIONAL ENGINEER
4/19/2023

REVISIONS		
NO.	REVISION	DATE
DRAWN/DESIGN BY	CHECKED BY	

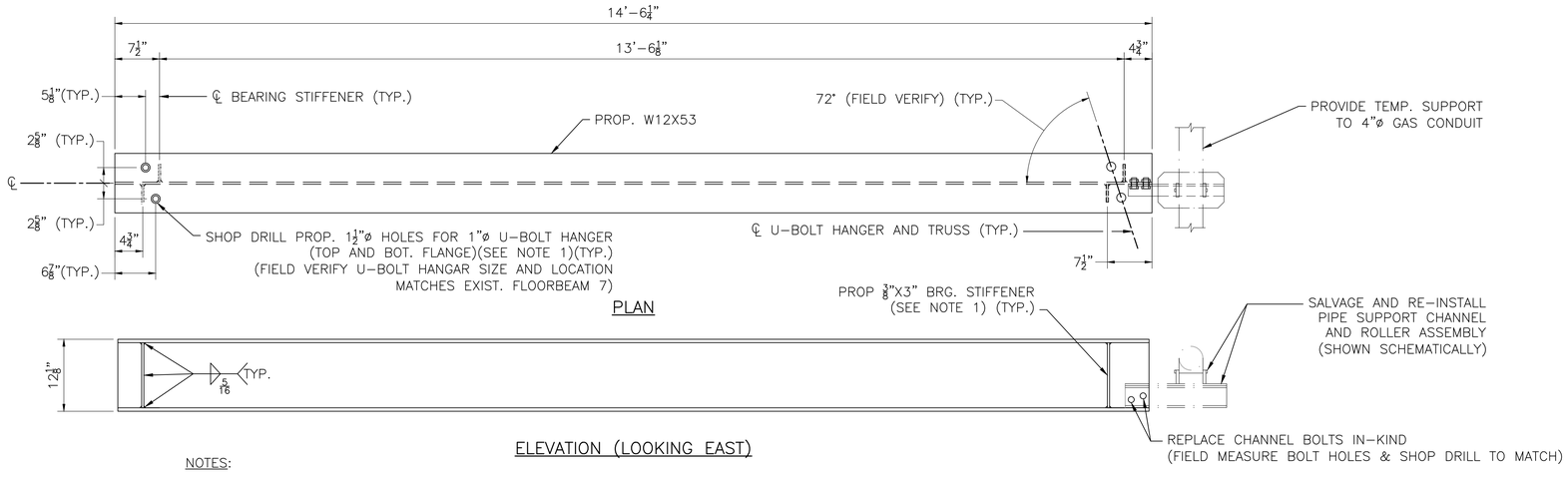
BRIDGE REPAIR LOCATION PLAN AND ELEVATIONS

SCALE: AS NOTED

2019214.00

2 OF 7

V:\MAX–2019214.00 – NORTHAMPTON, MA – GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR02–06(N19027)–BRIDGE REPAIR DETAILS.DWG

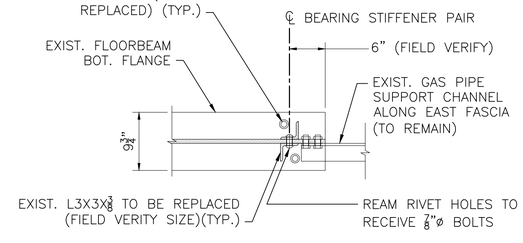


NOTES:

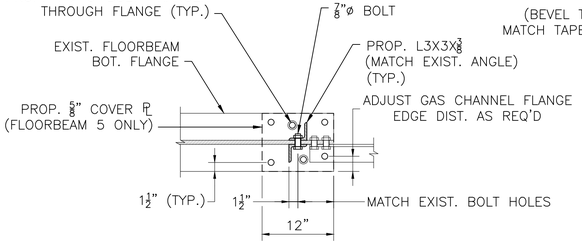
1. SEE SHEET 4 FOR U-BOLT HANGER REPLACEMENT AND BEARING STIFFENER CLIP DETAILS.

FLOORBEAM 7 REPLACEMENT DETAILS

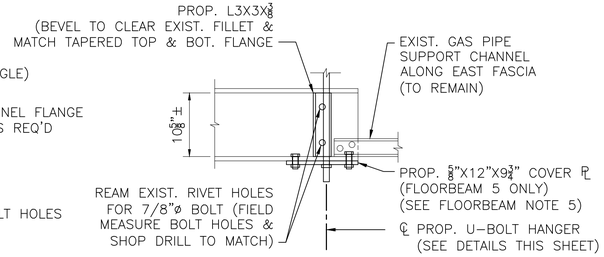
SCALE: 1" = 1'-0"



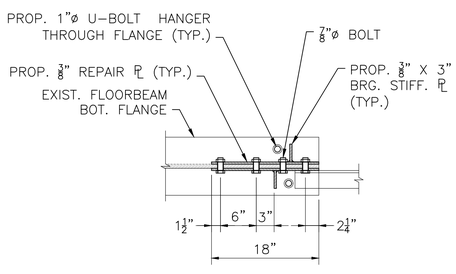
EXIST. BEARING STIFFENERS
(BOT. FLANGE LOOKING DOWN)



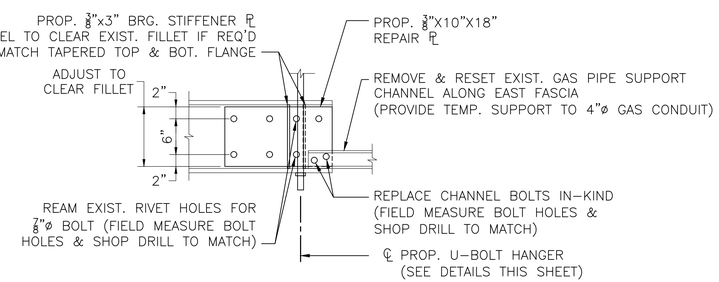
TYPICAL BEARING STIFFENER REPAIRS
(BOT. FLANGE LOOKING DOWN)



TYPICAL BEARING STIFFENER REPAIR
(ELEVATION-LOOKING NORTH)



PROP. REPAIR AT FLOORBEAM 4
(BOT. FLANGE LOOKING DOWN)



PROP. REPAIR AT FLOORBEAM 4
(ELEVATION-LOOKING NORTH)

NOTES:
1. SOUTH FLOORBEAM ENDS SHOWN, NORTH FLOORBEAM ENDS ARE SIMILAR.
2. ALL COSTS OF BEARING STIFFENER REPAIRS AND FLOORBEAM 5 BOTTOM FLANGE REPAIR PLATE SHALL BE PAID UNDER ITEM 960.07 "STRUCTURAL STEEL-FB BEARING STIFFENER REPLACEMENTS".

FLOORBEAM BEARING STIFFENER REPAIR DETAILS

SCALE: 1" = 1'-0"

STEEL REPAIR NOTES:

1. THE CONTRACTOR SHALL ASSUME THAT THE COATINGS ON THE STEEL CONTAIN LEAD, UNLESS OTHERWISE DETERMINED BY TESTING. THE CONTRACTOR SHALL CERTIFY IN WRITING TO THE ENGINEER THE RESULTS OF ALL TESTING.
2. STRUCTURAL STEEL:
   ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 50 (GALVANIZED) AND BE PAINTED TO MATCH EXISTING. ANY CONTRACTOR DESIGNED TEMPORARY SUPPORTS SHALL BE GRADE 36 MINIMUM.
3. HIGH STRENGTH BOLTS:
   EXCEPT AS NOTED ON SHEET 5, ALL BOLTS SHALL CONFORM TO AASHTO M164/ASTM F3125, GRADE A325 TYPE I, AND GALVANIZED IN ACCORDANCE WITH AASHTO M232 EXCEPT WHERE NOTED OTHERWISE. NUTS AND WASHERS SHALL CONFORM TO ASTM TYPE I GALVANIZED.
4. ALL BOLTS SHALL BE SIZED AS LABELED ON THE DETAILS WITHIN THE PLANS AND SET IN STANDARD HOLE SIZES.
5. BOLTED FASTENERS MAY USE EITHER DIRECT TENSION INDICATORS (DTI'S) OR DIRECT TENSION (TC) BOLTS. THE CONTRACTOR SHALL SPECIFY TYPE IN THE SHOP DRAWINGS.

   DIRECT TENSION INDICATORS CONFORMING TO THE REQUIREMENTS OF ASTM F959 MAY BE USED IN CONJUNCTION WITH BOLTS, NUTS, AND WASHERS. CAPTIVE DTI/NUTS SHALL BE CONSIDERED PERMISSIBLE FOR USE, PROVIDED BOTH THE DTI AND HARDENED HEAVY HEX NUT MEET THE MECHANICAL PROPERTY REQUIREMENTS OF THEIR RESPECTIVE ASTM STANDARDS. DTIs THAT INCORPORATE A SELF-INDICATING FEATURE SHALL ALSO BE CONSIDERED PERMISSIBLE.

   TC BOLTS SHALL CONFORM TO ASTM F3125 GRADE F1852 (ALSO KNOWN AS A325 TC BOLTS).
6. BOLTS SHALL BE SUFFICIENTLY LONG SUCH THAT THREADS OF BOLTS WILL NOT BE IN THE SHEAR PLANE. BOLT LENGTHS REQUIRED AT THE VARIOUS CONNECTION LOCATIONS SHALL BE DETERMINED AND FIELD VERIFIED BY THE CONTRACTOR.

FLOORBEAM REPAIR NOTES:

1. THE CONTRACTOR HAS THE OPTION TO REPLACE FLOORBEAMS 1, 3 AND 6 AS AN ALTERNATIVE TO REPAIRING AS SHOWN. SEE FLOORBEAM REPLACEMENT DETAILS ON THIS SHEET. NO ADDITIONAL PAYMENT WILL BE MADE IF THE CONTRACTOR ELECTS TO REPLACE FLOORBEAMS.
2. ALL OVERHEAD STRINGERS LEFT IN PLACE DURING REMOVAL AND REPLACEMENT OF A FLOORBEAM SHALL BE TEMPORARILY SUPPORTED PRIOR TO BEGINNING FLOORBEAM REMOVAL. TEMPORARY SUPPORT OF STRINGERS SHALL BE INCIDENTAL ITEM 960.04, STRUCTURAL STEEL – FLOORBEAM REPAIR/REPLACEMENTS.
3. THE CONTRACTOR MAY TEMPORARILY REMOVE AND REINSTALL EXISTING STRINGERS TO REPAIR OR REPLACE FLOORBEAMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL NECESSARY PRECAUTIONS TO AVOID DAMAGING EXISTING STRINGERS THAT ARE TO REMAIN PERMANENTLY. TEMPORARY REMOVAL OF EXISTING STRINGERS SHALL BE INCIDENTAL ITEM 960.04, STRUCTURAL STEEL – FLOORBEAM REPAIR/REPLACEMENTS.
4. REMOVE PACK-RUST AND FILL FLOORBEAM GAPS BETWEEN THE TOP FLANGE AND PROPOSED REPAIR ANGLE WITH EPOXY FILLER COMPOUND PRIOR TO TIGHTENING THE STRINGER-TO-FLOORBEAM CONNECTION BOLTS.
5. REMOVE PACK-RUST AND FILL GAPS BETWEEN THE BOT. FLANGE AND PROPOSED REPAIR PLATE ANGLE WITH EPOXY FILLER COMPOUND PRIOR TO TIGHTENING THE BOLTS.
6. ALL COSTS INCLUDING LABOR AND MATERIAL FOR REMOVING PACK-RUST AND FILLING THE GAPS SHALL BE INCIDENTAL TO ITEM 960.02, STRUCTURAL STEEL-FLOORBEAM REPAIR/REPLACEMENTS.
7. EPOXY FILLER COMPOUND SHALL BE CHOCKFAST ITW REPAIR COMPOUND BY ITW PERFORMANCE POLYMERS OR APPROVED EQUAL.
8. ALL COSTS FOR PROVIDING GAS PIPE TEMP. SUPPORT AND SALVAGING/REINSTALLING THE PIPE ROLLER ASSEMBLY SHALL BE INCIDENTAL TO RESPECTIVE ITEMS 960.02 "STRUCTURAL STEEL – FLOORBEAM REPAIR/REPLACEMENT" AND ITEM 960.07, "STRUCTURAL STEEL-FLOORBEAM BEARING STIFFENER REPLACEMENTS" WITH NO SEPARATE PAYMENT.

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

OLD SHEPHARD ROAD OVER MILL RIVER (HOTEL BRIDGE)
BRIDGE NO. N-19-027 (0RA)
NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE
BRYAN W. WELDHONNO
NO. 13555
LICENSED PROFESSIONAL ENGINEER
4/19/2023

REVISIONS		
NO.	REVISION	DATE
DRAWN/DESIGN BY	CHECKED BY	

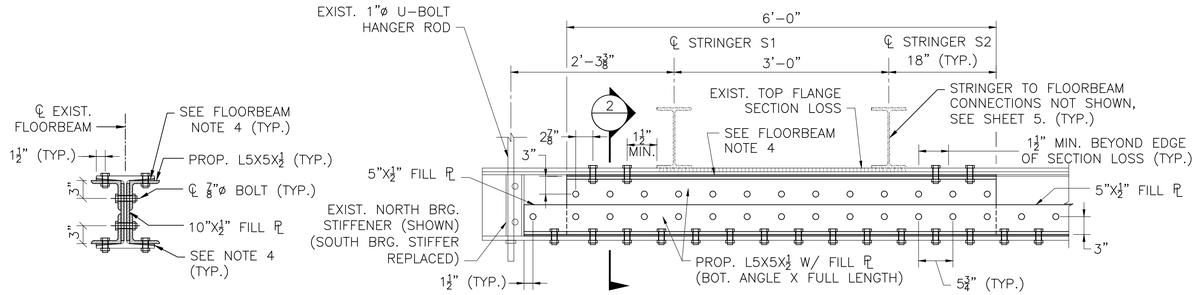
FLOORBEAM REPAIR DETAILS
1 OF 2

SCALE: AS NOTED

2019214.00

3 OF 7

V:\MAX-2019214.00 – NORTHAMPTON, MA – GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR02-06(N19027)-BRIDGE REPAIR DETAILS.DWG

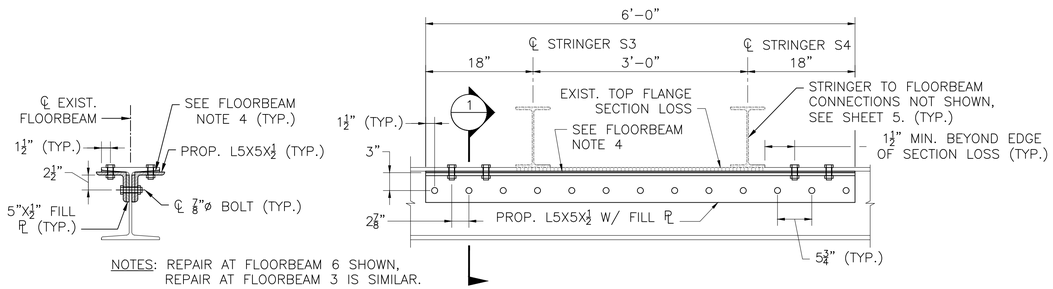


SECTION 2

ELEVATION LOOKING EAST

FLOORBEAM TOP AND BOT. FLANGE REPAIR DETAILS

SCALE: 1" = 1'-0"



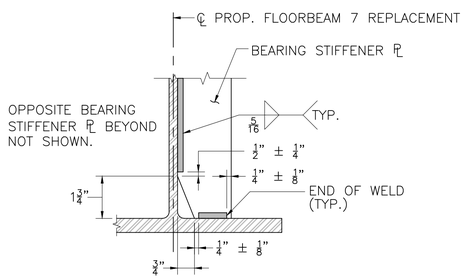
NOTES: REPAIR AT FLOORBEAM 6 SHOWN, REPAIR AT FLOORBEAM 3 IS SIMILAR.

SECTION 1

ELEVATION LOOKING EAST

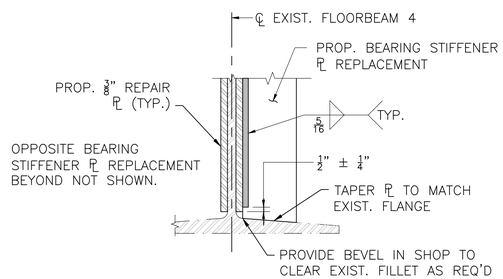
FLOORBEAM TOP FLANGE REPAIR DETAILS

SCALE: 1" = 1'-0"



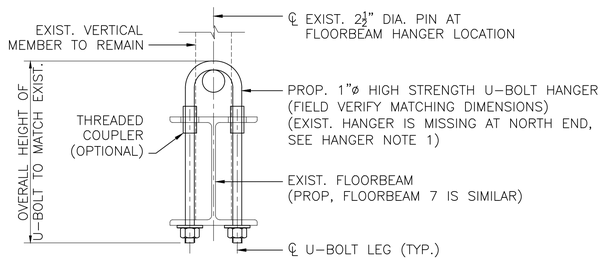
FLOORBEAM 7 BEARING STIFFENER CLIP DETAIL

NOT TO SCALE



FLOORBEAM 4 BEARING STIFFENER DETAIL

NOT TO SCALE



U-BOLT HANGER REPLACEMENT DETAIL

SCALE: 1½" = 1'-0"

U-BOLT HANGER REPLACEMENT NOTES:

1. FLOORBEAM 7 (NORTH END) MISSING U-BOLT HANGER SHALL BE TEMPORARILY REPLACED OR TEMPORARY BRIDGE SUPPORT SHALL BE APPROVED BY THE ENGINEER AND INSTALLED BELOW FLOORBEAM 7 PRIOR TO ANY LOADING OR CONSTRUCTION WORK ON THE BRIDGE.
2. FLOORBEAMS SHALL BE PROPERLY SUPPORTED FROM THE TRUSS DURING ALL PHASES OF HANGER REMOVAL AND TEMPORARY REPLACEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A TEMPORARY SUPPORT AND HANGER REPLACEMENT PROCEDURE SUBMITTAL. THIS SUBMITTAL MUST BE APPROVED BY THE ENGINEER PRIOR TO BEGINNING HANGER REPLACEMENT. (SEE ITEM 950.1 OF THE SPECIAL PROVISIONS FOR FURTHER INFORMATION).
3. U-BOLTS SHALL BE AN ASTM F3125, GRADE A325 HIGH STRENGTH BOLT THRU THE EXISTING TOP FLANGE HOLE. THE CONTRACTOR SHALL FIELD VERIFY THE DIAMETER OF EXISTING U-BOLTS AND HOLES TO ENSURE THAT THE PROPOSED BOLT SIZE MATCHES THE EXISTING BOLTS AND WILL FIT IN THE EXISTING HOLES.
4. CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS, INCLUDING BUT NOT LIMITED TO THE OVERALL DEPTH, TOTAL LENGTH, RADIUS AND DIAMETER OF THE EXISTING U-BOLTS PRIOR TO THE FABRICATION OF THE REPLACEMENT U-BOLTS. CONTRACTOR MUST ALSO VERIFY THE GEOMETRY AT THE PIN LOCATION TO ENSURE THAT THERE IS ENOUGH SPACE TO INSTALL THE REPLACEMENT U-BOLT WITH THE EXISTING STRUCTURE REMAINING IN PLACE. THE CONTRACTOR SHALL SUBMIT A REPLACEMENT PROCEDURE TO THE ENGINEER FOR APPROVAL PRIOR TO PERFORMING ANY WORK.

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

OLD SHEPHARD ROAD OVER MILL RIVER (HOTEL BRIDGE)
BRIDGE NO. N-19-027 (0RA)
NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE - RYAN W. MELCHIONNO No. 14595 LICENSED PROFESSIONAL ENGINEER
4/19/2023

REVISIONS

NO.	REVISION	DATE

DRAWN/DESIGN BY | CHECKED BY

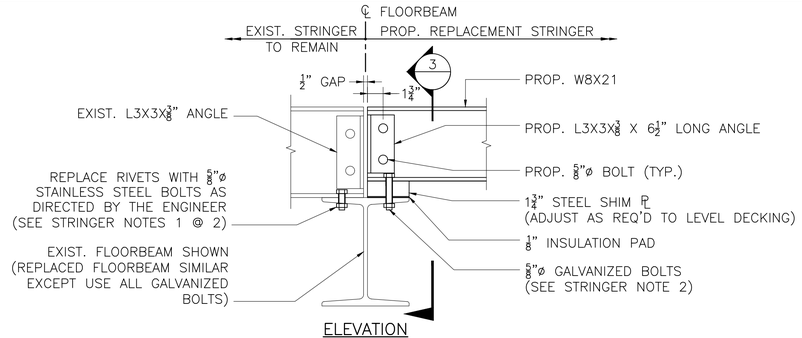
FLOORBEAM REPAIR DETAILS 2 OF 2

SCALE: AS NOTED

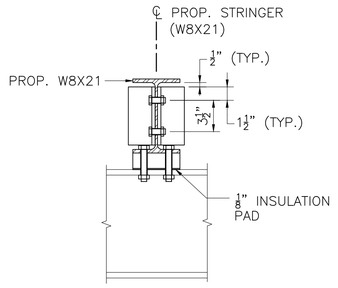
2019214.00

4 OF 7

V:\MAX-2019214.00 - NORTHAMPTON, MA - GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR02-06(N19027)-BRIDGE REPAIR DETAILS.DWG



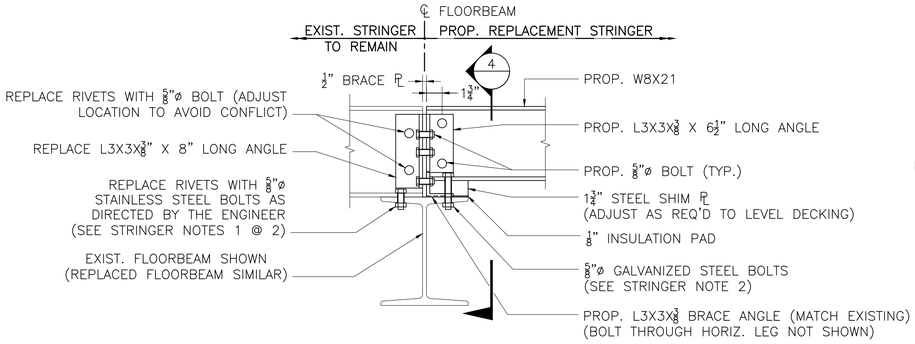
ELEVATION



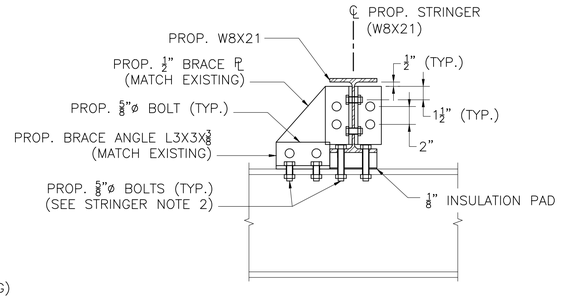
SECTION 3

INTERIOR STRINGER REPLACEMENT DETAILS (EXISTING FLOORBEAM)

SCALE: 1½" = 1'–0"



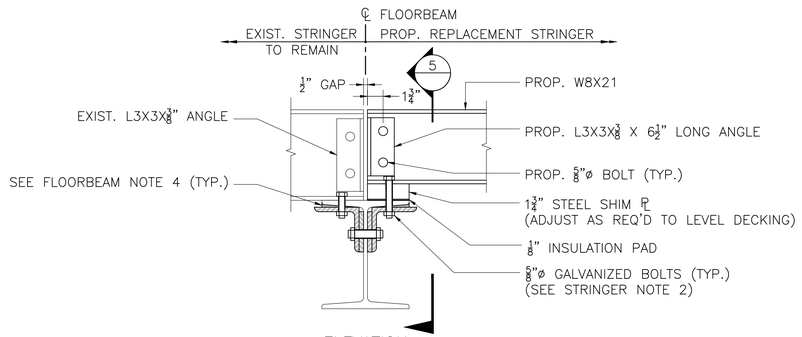
ELEVATION



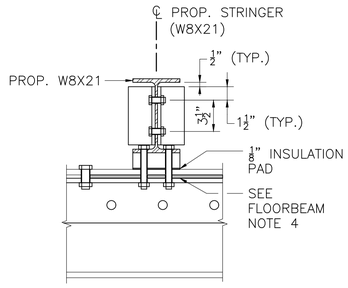
SECTION 4

EXTERIOR STRINGER REPLACEMENT DETAILS (EXISTING FLOORBEAM)

SCALE: 1½" = 1'–0"



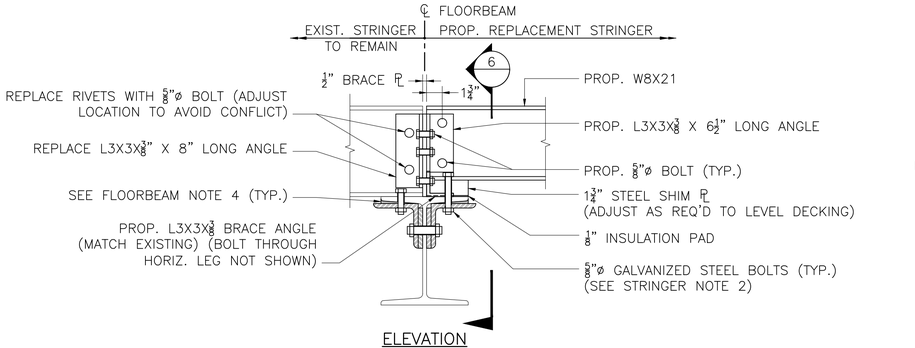
ELEVATION



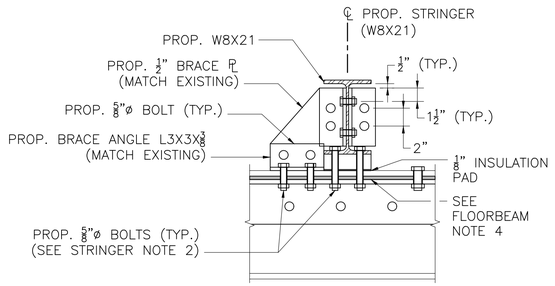
SECTION 5

INTERIOR STRINGER REPLACEMENT DETAILS (REPAIRED FLOORBEAM)

SCALE: 1½" = 1'–0"



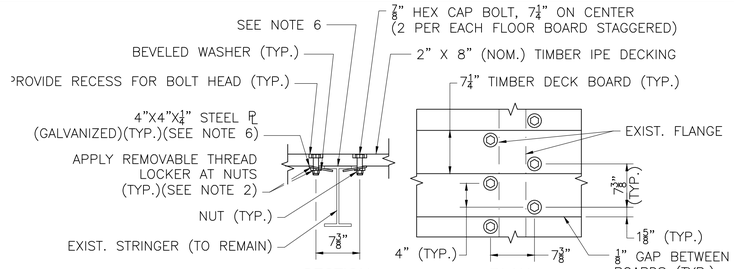
ELEVATION



SECTION 6

EXTERIOR STRINGER REPLACEMENT DETAILS (REPAIRED FLOORBEAM)

SCALE: 1½" = 1'–0"



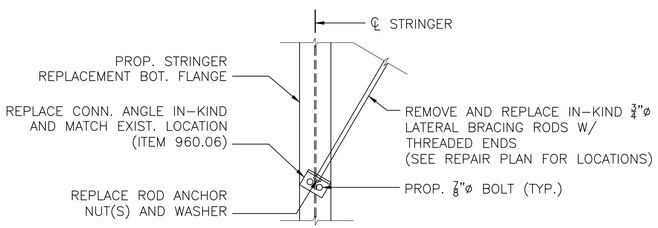
SECTION PLAN

NOTES:

1. THE CONTRACTOR MAY SUBMIT AN ALTERNATE METHOD OF CONNECTING THE PROPOSED DECK TO THE STRINGERS FOR APPROVAL BY THE ENGINEER.
2. REMOVABLE THREAD LOCKER SHALL SATISFY THE REQUIREMENTS OF ASTM D 5363.
3. THE CONTRACTOR SHALL BE PERMITTED TO OPERATE THE SKID–STEER STYLE DESIGN VEHICLE OVER THE NEW DECKING AND REPAIRED FLOOR SYSTEM.
4. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID DAMAGING THE NEW DECKING. DECKING THAT IS DEEMED BY THE ENGINEER TO HAVE BEEN DAMAGED BY THE CONTRACTOR SHALL BE REPLACED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL SUBMIT THEIR PROPOSED METHOD OF PROTECTING THE NEW DECK DURING CONSTRUCTION TO THE ENGINEER FOR APPROVAL.
6. INSTALL 6" WIDE WATERPROOFING MEMBRANE TO TOP OF ALL STRINGER TOP FLANGES AND CONNECTION PLATES. THE MEMBRANE SHALL BE "DECK FLASH BARRIER" BY CONFAIR PRODUCTS OR APPROVED EQUAL. ALL COSTS OF THE MEMBRANE SHALL BE INCIDENTAL TO ITEM 955.1, "TIMBER (IPE) DECKING".

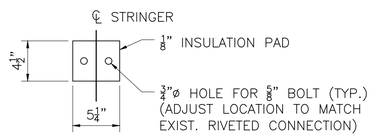
DECK TO STRINGER CONNECTION

SCALE: 1" = 1'–0"



BOTTOM LATERAL BRACING CONNECTION DETAIL (LOOKING UP)

SCALE: 1" = 1'–0"



INSULATION PAD – DETAIL

SCALE: 1½" = 1'–0"

STRINGER REPAIR NOTES:

1. STAINLESS STEEL FASTENERS: REPLACEMENTS FOR CONNECTIONS OF EXISTING STRINGERS INTO EXISTING FLOORBEAMS SHALL BE DIRECTED BY THE ENGINEER. BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL ALLOY TYPE 316. BOLTS SHALL BE COLD FINISHED, HEAVY HEX, WITH THREADS OUTSIDE THE SHEAR PLANE, AND HAVE A MINIMUM ALLOWABLE SHEAR STRESS OF 25 KSI. BOLTS SHALL CONFORM TO ASTM F593. NUTS SHALL BE STAINLESS STEEL CONFORMING TO ASTM 594.
2. REAM EXISTING RIVET HOLES AS NECESSARY AT STRINGER TO FLOOR BEAM CONNECTIONS BEING REPLACED WITH BOLTS.
3. EXIST. STRINGER ENDS AT ADJACENT BAYS MAY BE RIVETED TOGETHER AT THE BEARING STIFFENER PERPENDICULAR LEGS. REMOVE THE ADJOINING RIVETS AS NECESSARY TO COMPLETE STRINGER REPLACEMENT WORK.
4. BEAM CONNECTION DESIGN IS SCHEMATIC. CONTRACTOR MAY PROVIDE ALTERNATIVE METHODS OF CONNECTION TO THE ENGINEER FOR APPROVAL. NO HOLES WILL BE ALLOWED IN THE TOP OF THE EXISTING STEEL BEAMS.
5. INSULATION PADS SHALL BE NEOPRENE OR NATURAL RUBBER WITH MIN. HARDNESS OF 50 DUROMETER, AND CONFORMING TO THE REQUIREMENTS OF AASHTO M251, GRADE 2. ALL COSTS FOR INSULATION PADS SHALL BE INCIDENTAL TO ITEM 960.03, STRUCTURAL STEEL–STRINGER REPLACEMENTS.
6. EXISTING RIVETS OR BOLTS REPLACED WITH NEW BOLTS NOT ASSOCIATED WITH STEEL REPAIR LOCATIONS SHALL BE PAID UNDER ITEM 960.07, "REPLACE RIVET WITH BOLT (AS DIRECTED BY THE ENGINEER)".
7. MISSING STRINGER BEARING ANCHOR BOLTS AT THE EAST ABUTMENT SHALL BE REPLACED. ALL COSTS SHALL BE INCIDENTAL TO ITEM 108.855, PRESSURE INJECTION OF CRACKS.

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

OLD SHEPHARD ROAD OVER MILL RIVER (HOTEL BRIDGE)
BRIDGE NO. N-19-027 (0RA)
NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE – RYAN W. MELCHIONNO No. 14595 LICENSED PROFESSIONAL ENGINEER
4/19/2023

REVISIONS		
NO.	REVISION	DATE

DRAWN/DESIGN BY	CHECKED BY

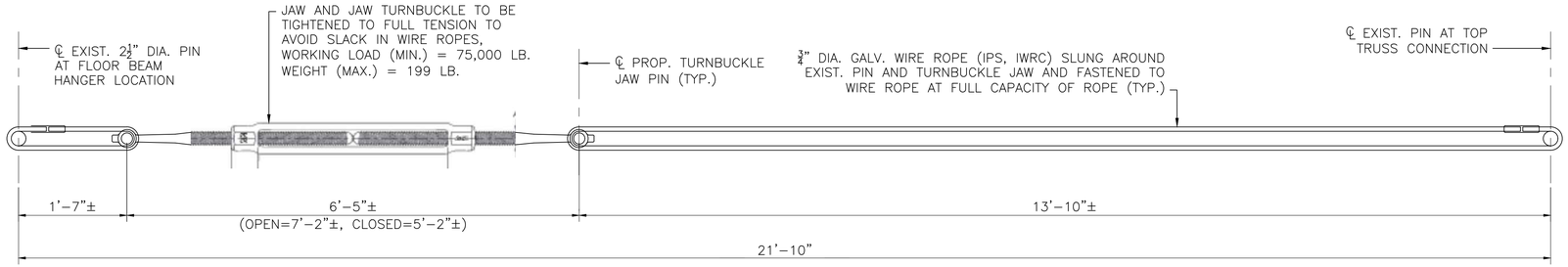
STRINGER REPAIR AND DECK DETAILS

SCALE: AS NOTED

2019214.00

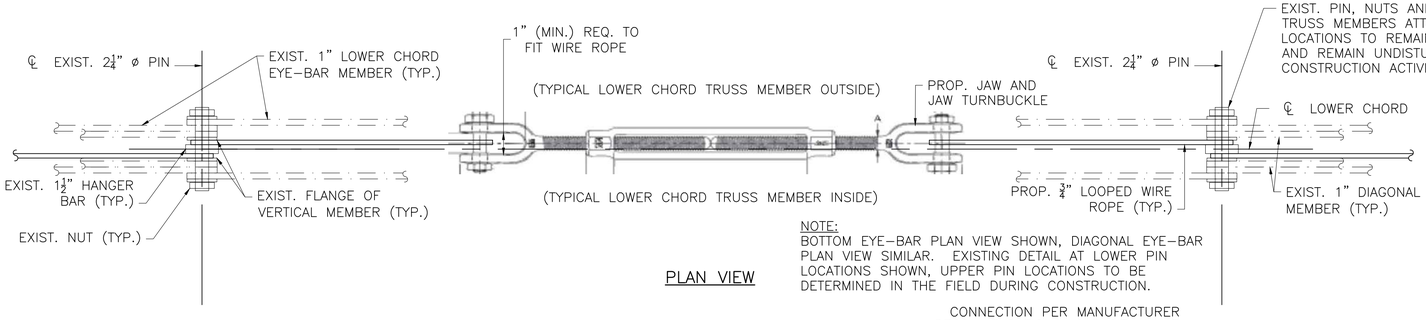
5 OF 7

V:\MAX–2019214.00 – NORTHAMPTON, MA – GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR02–06(N19027)–BRIDGE REPAIR DETAILS.DWG



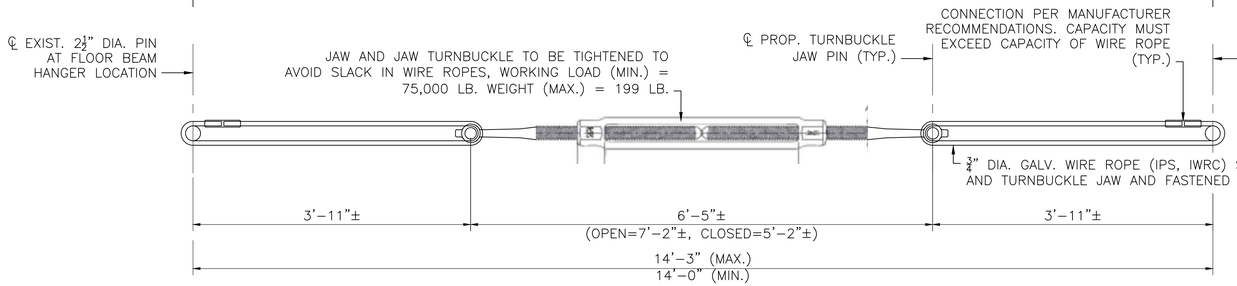
DIAGONAL EYE-BAR REPAIR DETAIL
(NORTH TRUSS U1-L2, L7-U8)
(SOUTH TRUSS U1-L2, U2-L3, L7-U8)

SCALE: 1" = 1'-0"



PLAN VIEW

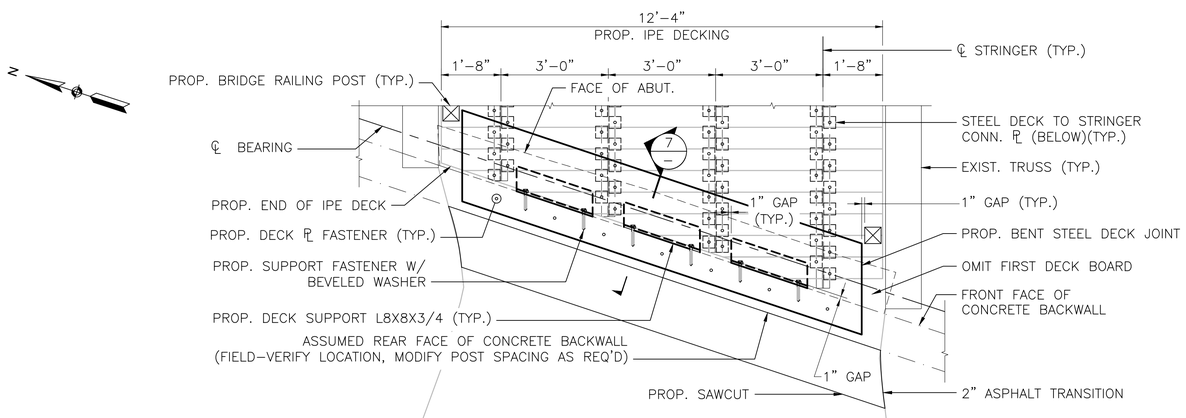
NOTE:
BOTTOM EYE-BAR PLAN VIEW SHOWN, DIAGONAL EYE-BAR PLAN VIEW SIMILAR. EXISTING DETAIL AT LOWER PIN LOCATIONS SHOWN, UPPER PIN LOCATIONS TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION.



ELEVATION

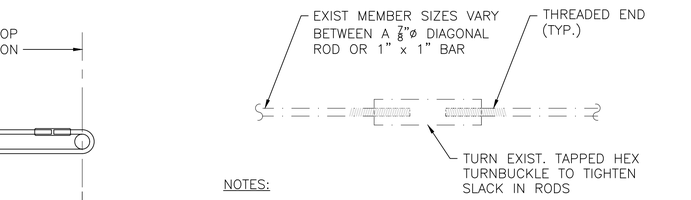
BOTTOM CHORD EYE-BAR REPAIR DETAIL
(NORTH TRUSS L0-L1, L1-L2, L3-L4, L4-L5, L5-L6, L7-L8, L8-L9)
(SOUTH TRUSS L0-L1, L1-L2, L3-L4, L4-L5, L5-L6, L7-L8, L8-L9)

SCALE: 1" = 1'-0"



END OF DECK - PARTIAL PLAN

(WEST ABUTMENT SHOWN, EAST ABUTMENT IS SIMILAR)
SCALE: ½" = 1'-0"

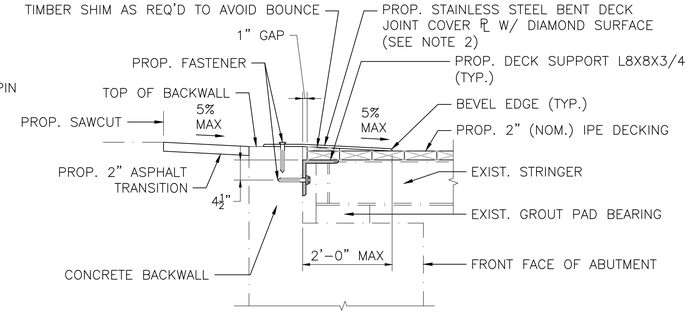


NOTES:

1. THE EXISTING TURNBUCKLES MAY BE CEASED. THE USE OF A PENETRATING OIL TO LOOSEN THE INTERNAL THREADS IS RECOMMENDED.
2. THE CONTRACTOR SHALL STABILIZE BOTH DIAGONAL ROD ENDS AT THE TURNBUCKLE TO PREVENT THE MEMBER FROM BEING DAMAGED BY TWISTING WHILE THE TURNBUCKLE IS TURNED.
3. THE CONTRACTOR SHALL SUBMIT THEIR PROPOSED PROCEDURE TO STABILIZE AND TIGHTEN THE DIAGONAL RODS TO THE ENGINEER FOR APPROVAL.
4. HEATING THE EXISTING DIAGONAL RODS OR TURNBUCKLES SHALL NOT BE PERMITTED.
5. ALL COSTS FOR TIGHTENING DIAGONAL RODS SHALL BE INCLUDED IN PAY ITEM 960.04, "STRUCTURAL STEEL, - TIGHTEN TRUSS DIAGONAL CHORDS".

TIGHTEN DIAGONAL ROD - DETAIL
(NORTH TRUSS: L6-U5, L5-U4, U5-L4, & U4-L3)
(SOUTH TRUSS: L6-U5, U5-L4 & U4-L3)

SCALE: 1½" = 1'-0"



SECTION 7
(SHOWN SCHEMATICALLY)

NOT-TO-SCALE

END OF DECK NOTES:

1. THE DECK END DETAILS ABOVE ARE CONCEPTUAL AND SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE TOP OF BACKWALL IS BURIED BENEATH THE EXISTING ASPHALT APPROACH AND COULD NOT BE LOCATED DURING THE DESIGN PHASE.
2. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A PROPOSED METHOD OF CONSTRUCTING THE NEW DECK ENDS TO THE ENGINEER FOR APPROVAL. THE SUBMITTAL SHALL INCLUDE THE FOLLOWING:
   - VERTICAL LOCATION OF THE EXISTING TOP OF BACKWALL.
   - SUPPORT ANGLE AND CONNECTION DETAILS WITH FASTENER CATALOGUE CUTS DEMONSTRATING THE FASTENERS CAN SUPPORT A 90 PSF PEDESTRIAN LIVE LOAD.
   - PROPOSED DECK JOINT COVER PLATE AND METHOD OF FASTENING THE PLATE TO THE EXISTING CONCRETE BACKWALL. THE COVER PLATE SHALL ALLOW FOR THERMAL MOVEMENT OF THE BRIDGE FLOOR SYSTEM AND BEHAVE RIGIDLY UNDER FOOT TRAFFIC. COVER PLATE FASTENERS SHALL SHALL BE DETAILED TO AVOID A TRIPPING HAZARD.
   - PROPOSED ASPHALT TRANSITION AND COVER PLATE GRADING DEMONSTRATING THE MAXIMUM 5% GRADE IS NOT EXCEEDED.
3. ALL COSTS FOR LABOR AND MATERIALS FOR CONSTRUCTING THE DECK END, INCLUDING STEEL SUPPORT ANGLES, BENT DECK JOINT COVER PLATES, OLD PAVEMENT EXCAVATION AT APPROACHES, NEW ASPHALT TRANSITIONS, FASTENERS, OR OTHER COSTS ASSOCIATED WITH A DIFFERENT CONCEPT PROVIDED BY THE CONTRACTOR SHALL BE INCIDENTAL TO ITEM 955.1, "TIMBER (IPE) DECKING".

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

OLD SHEPHARD ROAD OVER MILL RIVER (HOTEL BRIDGE)
BRIDGE NO. N-19-027 (0RA)
NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE
BRYAN W. MELCHIONNO
NO. 14595
LICENSED PROFESSIONAL ENGINEER
4/19/2023

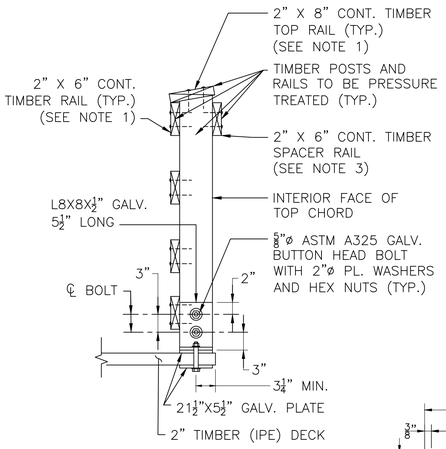
REVISIONS		
NO.	REVISION	DATE

DRAWN/DESIGN BY | CHECKED BY

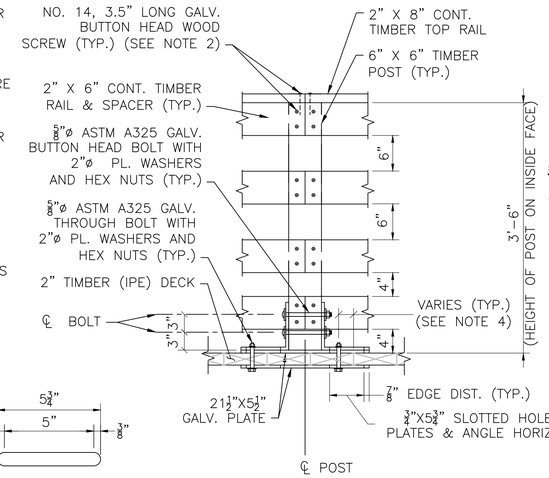
TRUSS AND MISC. REPAIR DETAILS

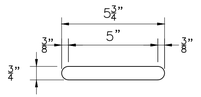
SCALE: AS NOTED
2019214.00
6 OF 7

3/3/2020 12:12 PM
V:\MAX-2019214.00 - NORTHAMPTON, MA - GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR02-06(N19027)-BRIDGE REPAIR DETAILS.DWG



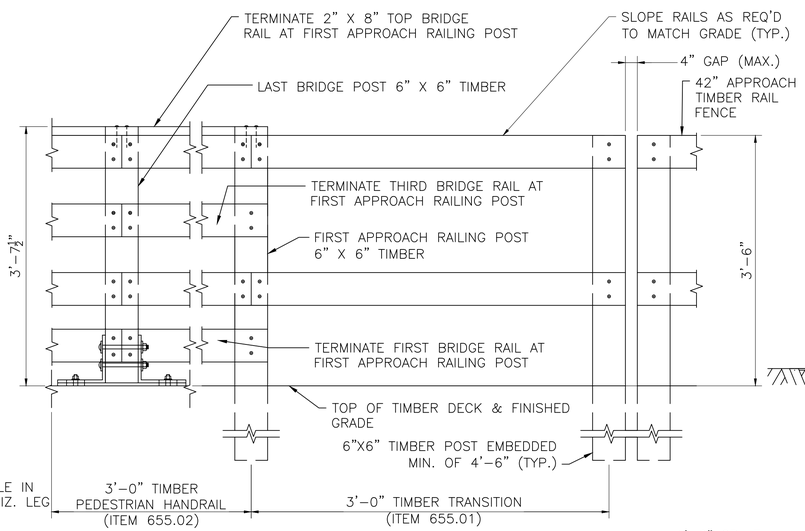
TRANSVERSE SECTION





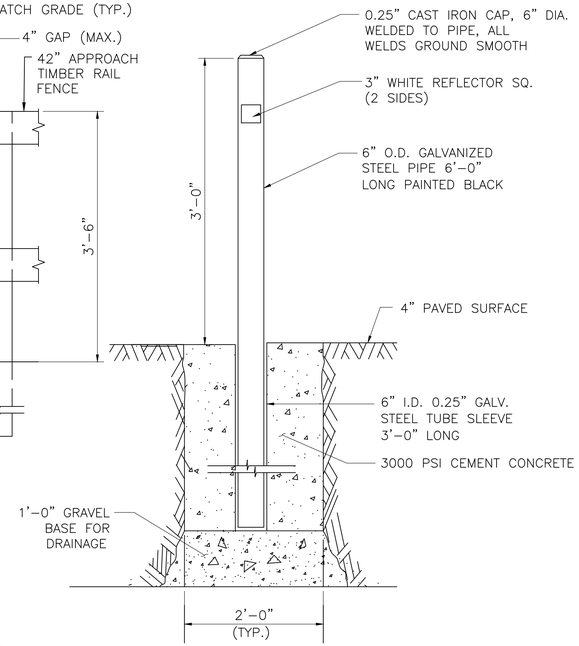
SLOTTED HOLE DETAIL
NOT-TO-SCALE

ELEVATION



TIMBER RAIL FENCE ON BRIDGE TRANSITION TO APPROACH TIMBER RAIL FENCE

SCALE: 1" = 1'-0"



STEEL BOLLARD

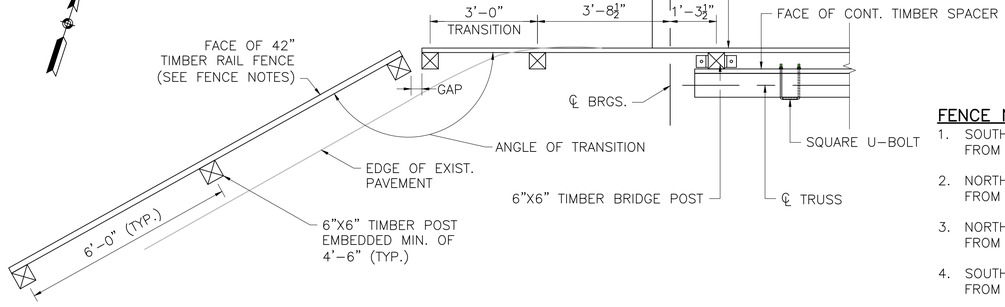
SCALE: NTS

NOTES:

1. TIMBER RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF TWO POSTS WHERE POSSIBLE.
2. ELEVATION SHOWN REFLECTS LOCATION OF RAIL BUTT JOINT, AT INTERMEDIATE JOINT ONLY TWO WOOD SCREWS REQUIRED PER RAILING.
3. INSTALL TIMBER SHIMS TO FILL GAPS BETWEEN INTERIOR VERTICAL CHORDS. SEE SQUARE U-BOLT DETAIL ON THIS SHEET.
4. VARY BOLT SPACING TO MAINTAIN 2½" CLEARANCE FROM JOINTS BETWEEN IPE BOARDS.

TIMBER RAIL FENCE ON BRIDGE DETAIL

SCALE: 1" = 1'-0"

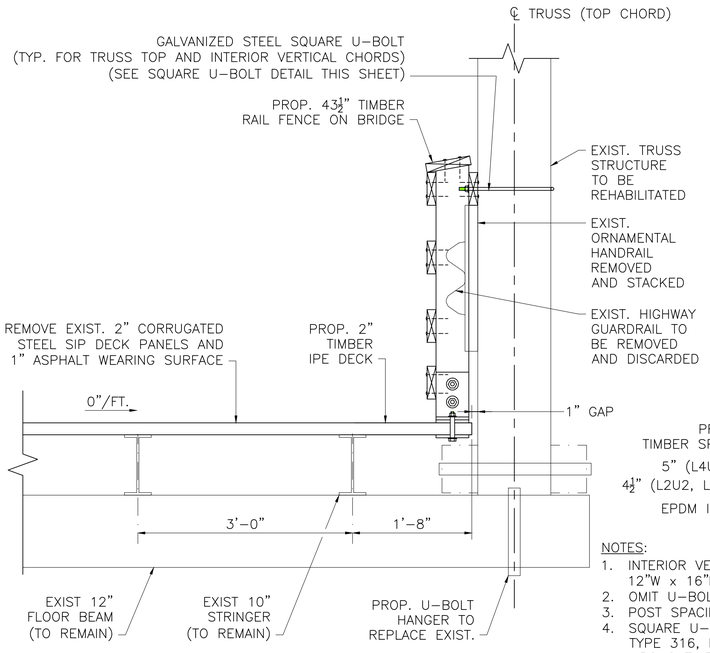


SOUTHWEST APPROACH TIMBER RAIL FENCE – PLAN

SCALE: ½" = 1'-0"

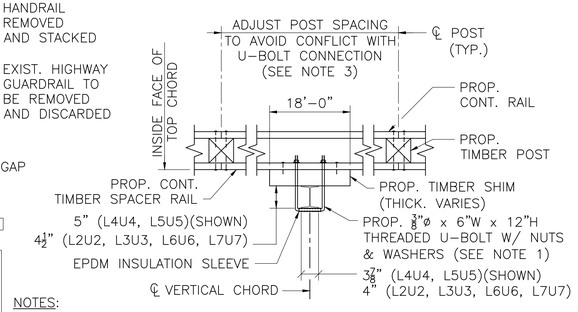
FENCE NOTES:

1. SOUTHWEST CORNER HAS AN ANGLE OF TRANSITION AT 153 DEGREES FROM THE ℄ OF CONSTRUCTION.
2. NORTHWEST CORNER HAS AN ANGLE OF TRANSITION AT 125 DEGREES FROM THE ℄ OF CONSTRUCTION.
3. NORTHEAST CORNER HAS AN ANGLE OF TRANSITION AT 152 DEGREES FROM THE ℄ OF CONSTRUCTION.
4. SOUTHEAST CORNER HAS AN ANGLE OF TRANSITION AT 145 DEGREES FROM THE ℄ OF CONSTRUCTION.
5. PROPOSED APPROACH RAIL POSTS MAY BE SHIFTED TO AVOID CONFLICT WITH THE EXISTING GUARDRAIL/POSTS.



TIMBER BRIDGE DECK DETAIL

SCALE: 1" = 1'-0"

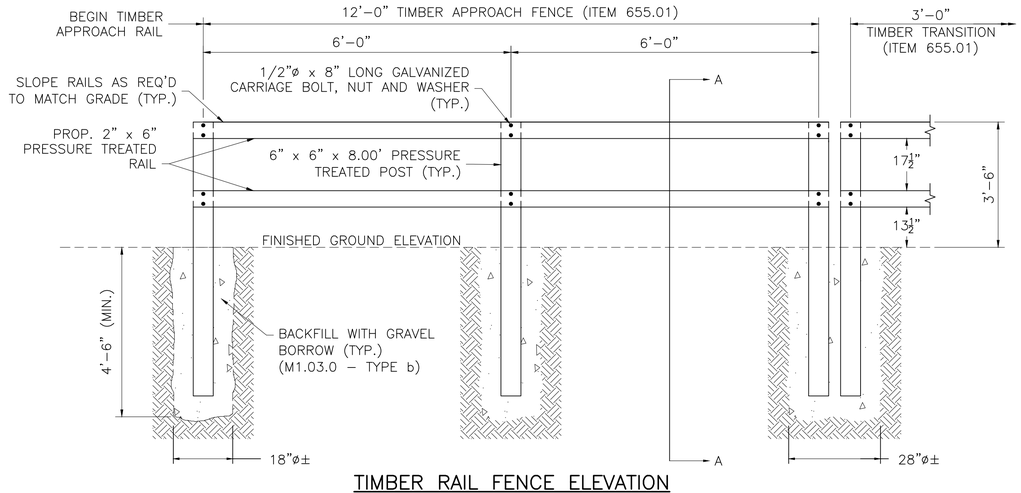


NOTES:

1. INTERIOR VERTICAL CHORDS SHOWN, TOP CHORDS ARE SIMILAR W/ ⅝"ø x 12"W x 16"H SQUARE U-BOLT.
2. OMIT U-BOLT AT U1L1 & U8L8, EACH TRUSS.
3. POST SPACING ON BRIDGE SHALL NOT EXCEED 5'-0".
4. SQUARE U-BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL ALLOY TYPE 316, LINED WITH AN EPDM RUBBER INSULATION SLEEVE BETWEEN WROUGHT IRON CONTACT SURFACES.
5. ALLS COST OF SQUARE U-BOLT CONNECTIONS INCLUDING LABOR AND HARDWARE SHALL BE INCIDENTAL TO ITEM 655.02, "TIMBER RAIL FENCE ON BRIDGE".

SQUARE U-BOLT DETAIL

SCALE: 1" = 1'-0"



TIMBER RAIL FENCE ELEVATION

SCALE: NTS

GPI Engineering Design Planning Construction Management
978.570.2999 GPINET.COM
Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887

PREPARED FOR
CITY OF NORTHAMPTON
DEPARTMENT OF PUBLIC WORKS
125 LOCUST STREET
NORTHAMPTON, MA

HOTEL BRIDGE OVER MILL RIVER
BRIDGE NO. N-19-027(0RA)
NORTHAMPTON, MASSACHUSETTS

STATE OF NEW HAMPSHIRE – RYAN W. MELCHIONNO NO. 14595 – LICENSED PROFESSIONAL ENGINEER
4/19/2023

REVISIONS

NO.	REVISION	DATE

DRAWN/DESIGN BY	CHECKED BY

TIMBER RAILING DETAILS

SCALE: AS NOTED

2019214.00

7 OF 7

3/3/2020 12:12 PM
V:\MAX-2019214.00 – NORTHAMPTON, MA – GENERAL SERVICES\0.00 HOTEL BRIDGE\CADD\BR07(N19027)-TIMBER RAILING DETAILS.DWG