Madison, Wisconsin

CITY OF MADISON

CITY ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
PLAN OF PROPOSED IMPROVEMENT

JOHN NOLEN BRIDGE REPAIRS - 2023

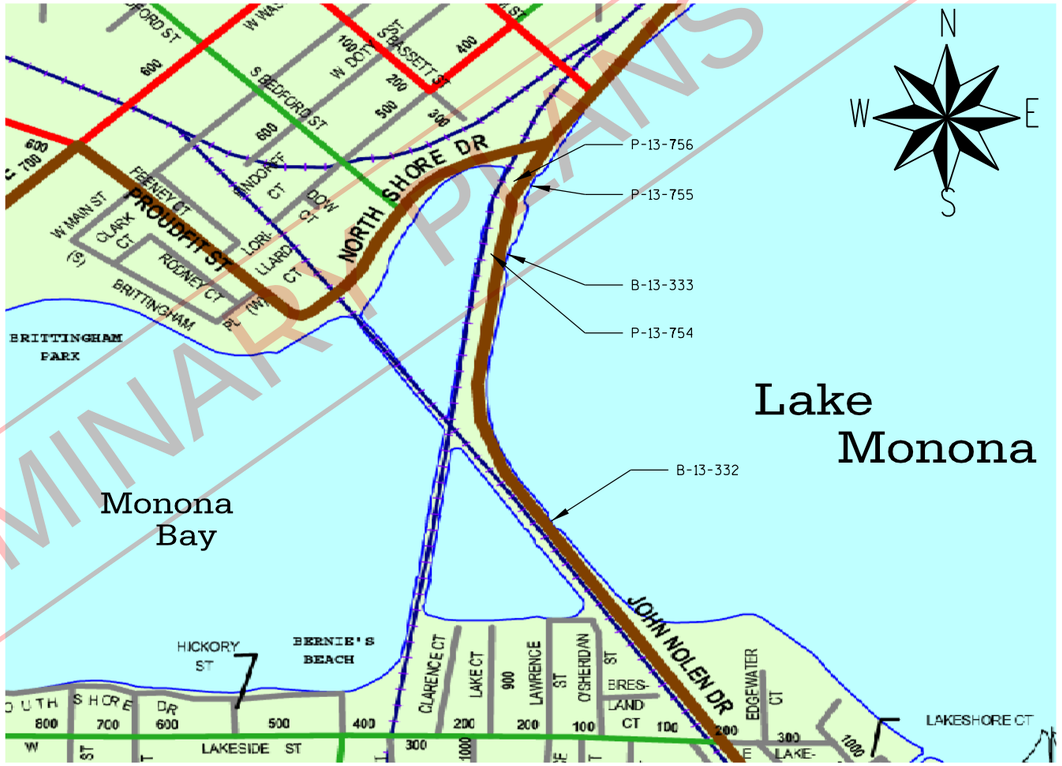
CITY PROJECT NO. 14360
CITY CONTRACT NO. 8707

INDEX OF SHEETS

CONVENTIONAL SIGNS
FIELD VERIFY ALL UTILITY LOCATIONS

GAS	G
STORM SEWER	ST
SANITARY SEWER	SAN
WATER	W
BURIED ELECTRIC	E
OVERHEAD ELECTRIC	OH
POWER POLE	
ADA COMPLIANT RAMP W/ DETECTABLE WARNING FIELD	
COMBUSTIBLE FLUIDS	CAUTION

NOTES:
ALL GUTTERS SHALL DRAIN WITH A MINIMUM GRADE OF 0.50% TOWARD STORM SEWER INLETS.



PROJECT LOCATION

PUBLIC IMPROVEMENT PROJECT APPROVED

MAY 16, 2023

BY THE COMMON COUNCIL OF MADISON, WISCONSIN

PUBLIC IMPROVEMENT DESIGN APPROVED BY:

City Engineer _____ Date _____

STRUCTURE DESIGNED BY:

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS AND THE 1995 DECK REPLACEMENT PLANS. CONTRACTOR SHALL FIELD VERIFY AND ADJUST IN THE FIELD AS NECESSARY.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.

THIS PROJECT WILL REHABILITATE THE EXISTING JOHN NOLEN DRIVE PRESTRESSED GIRDER STRUCTURES, LISTED BELOW:

- B-13-332, A TWO SPAN 112.2' LONG PRESTRESSED GIRDER BRIDGE SET ON CONCRETE ABUTMENTS AND PIERS.
- B-13-333, A THREE SPAN 168.6' LONG PRESTRESSED GIRDER BRIDGE SET ON CONCRETE ABUTMENTS AND PIERS.
- P-13-754, A THREE SPAN 168.6' LONG PRESTRESSED GIRDER BRIDGE SET ON CONCRETE ABUTMENTS AND PIERS.
- B-13-333, A THREE SPAN 168.6' LONG PRESTRESSED GIRDER BRIDGE SET ON CONCRETE ABUTMENTS AND PIERS.

IMPROVEMENTS INCLUDE NON-STRUCTURAL REPAIRS TO THE PRESTRESSED GIRDER ELEMENTS, REHABILITATION OF THE SIDEWALK EXPANSION JOINTS, REHABILITATION OF THE SIDEWALK METAL COVER PLATES, BRIDGE JACKING AND SHIMMING OF GIRDER BEARINGS, AND THE INSTALLATION OF A NEW EXPANSION BEARING ASSEMBLY BRACKET.

CLEAN PARAPET SURFACES IN ACCORDANCE WITH THE SPECIAL PROVISION. REAPPLY PIGMENTED SURFACE SEALER TO THE TOP SURFACE, ROADWAY FACE, ENDS AND OUTSIDE (SIDEWALK) FACE OF EXISTING SLOPED FACE PARAPETS.

THE COLOR OF PAINT FOR THE SUPERSTRUCTURE ELEMENTS SHALL MATCH EXISTING BRACKETS OR SIMILAR COLOR APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL FIELD VERIFY AND COLOR MATCH THE EXISTING PAINT COLOR.

APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF DECK PORTION REPLACED WITH THE JOINT REPLACEMENTS.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEM	ITEM DESCRIPTION	QTY	UNITS
1	203.0335.01	Debris Containment over Waterway B-13-332	1	EA
2	203.0335.01	Debris Containment over Waterway B-13-333	1	EA
3	203.0335.01	Debris Containment over Waterway P-13-755	1	EA
4	203.0335.01	Debris Containment over Waterway P-13-756	1	EA
5	506.6000	Bearings Assemblies Expansion P-13-754	1	EA
6	506.7061.S	Bridge Jacking B-13-332	1	EA
7	506.7061.S	Bridge Jacking B-13-333	1	EA
8	506.7061.S	Bridge Jacking P-13-754	1	EA
9	506.7061.S	Bridge Jacking P-13-755	1	EA
9	506.7061.S	Bridge Jacking P-13-756	1	EA
10	509.1500	Concrete Surface Repair	165	SF
11	619.1000	Mobilization	1	LS
12	643.5000	Traffic Control	1	LS
13	SPV.0165	Fiber Wrap Reinforcing Non-Structural	120	SF
14		Steel Support Bracket Assembly	1	EA
15		Steel Wedging at Existing Bearing Assemblies	3	EA
16		Steel Expansion Joint Cover Plate Repairs	1	EA
		Incidentals (10%)	1	LS

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

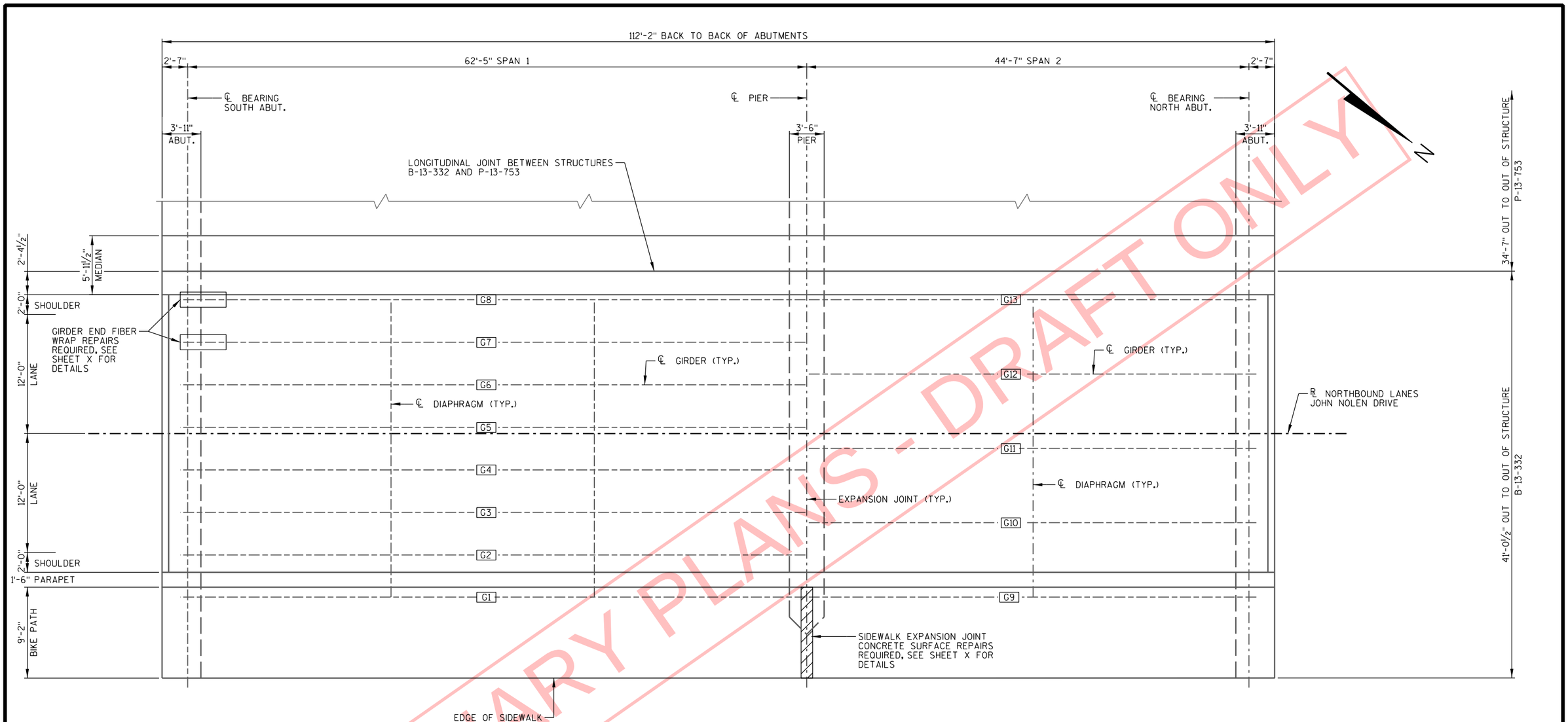
STRUCTURE REHABILITATION

Drawn By RLR | Plans Checked NJK

QUANTITIES & NOTES

MSA PROJECT NUMBER 00373129

373129_02_QUANT_NOTES.dgn 4/25/2023 12:19:50 PM rrubeka



FRAMING PLAN

GIRDER/TRUSS REACTIONS AT BEARINGS (KIPS)

		℄ BEARING WEST ABUTMENT	℄ BEARING PIER 1
INTERIOR GIRDER	DL	XX KIP	N/A
	LL	-	N/A
EXTERIOR GIRDER	DL	XX KIP	XXX KIP
	LL	-	-

BRIDGE JACKING AND ADJUSTING BEARING NOTES

THE THEORETICAL SERVICE LOADS (UNFACTORED) SHOWN IN THE TABLE ARE BASED ON THE BRIDGE IN ITS FINAL CONFIGURATION. ADDITIONAL LOAD RESULTING FROM STAGING AND/OR CONTRACTOR OPERATIONS, SUCH AS UNEVEN JACKING OF ADJACENT GIRDERS OF ADJACENT SUBSTRUCTURE UNITS AND OTHER OPERATIONS, IS NOT INCLUDED.

THE BRIDGE WILL BE OPEN TO TRAFFIC DURING CONSTRUCTION.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE ADEQUACY AND STABILITY OF THE GIRDER AT THE JACKING LOCATION.

ALL WORK PAID FOR UNDER BID ITEM "BRIDGE JACKING AND ADJUSTING BEARING B-13-332". SEE SPECIAL PROVISION FOR ADDITIONAL DETAILS.

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

STRUCTURE B-13-332

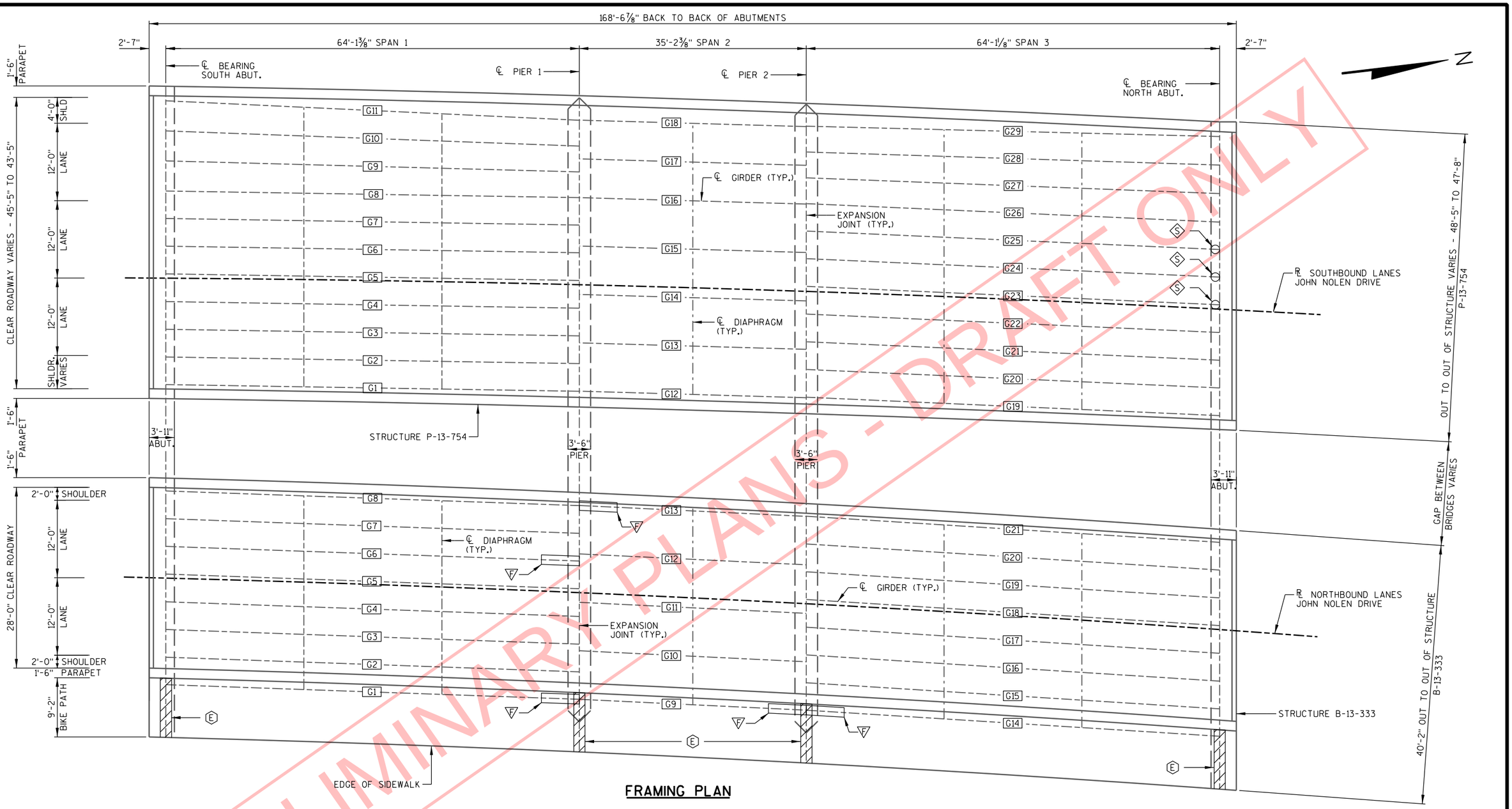
Drawn By RLR | Plans Checked JRS

SUPERSTRUCTURE FRAMING PLAN

SHEET 3 OF 8

MSA PROJECT NUMBER 00373129

373129_01_B-13-332_FRAMING PLAN.dgn 4/25/2023 12:49:39 PM rrabeka



FRAMING PLAN

LEGEND

- G1 — INDICATES GIRDER NUMBER.
- F — GIRDER END FIBER WRAP REPAIRS REQUIRED. SEE SHEET X FOR DETAILS.
- S — SHIM GAPS UNDER EXPANSION BEARING. SEE SHEET X FOR DETAILS.
- E — SIDEWALK EXPANSION JOINT CONCRETE SURFACE REPAIRS REQUIRED. SEE SHEET X FOR DETAILS.

BRIDGE JACKING AND ADJUSTING BEARING NOTES

THE THEORETICAL SERVICE LOADS (UNFACTORED) SHOWN IN THE TABLE ARE BASED ON THE BRIDGE IN ITS FINAL CONFIGURATION. ADDITIONAL LOAD RESULTING FROM STAGING AND/OR CONTRACTOR OPERATIONS, SUCH AS UNEVEN JACKING OF ADJACENT GIRDERS OF ADJACENT SUBSTRUCTURE UNITS AND OTHER OPERATIONS, IS NOT INCLUDED.

THE BRIDGE WILL BE OPEN TO TRAFFIC DURING CONSTRUCTION.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE ADEQUACY AND STABILITY OF THE GIRDER AT THE JACKING LOCATION.

ALL WORK PAID FOR UNDER BID ITEM "BRIDGE JACKING AND ADJUSTING BEARING B-13-332". SEE SPECIAL PROVISION FOR ADDITIONAL DETAILS.

GIRDER/TRUSS REACTIONS AT BEARINGS (KIPS)

		℄ BEARING SOUTH ABUTMENT	℄ BEARING PIER 1
INTERIOR GIRDER	DL	XX KIP	N/A
	LL	-	N/A
EXTERIOR GIRDER	DL	XX KIP	XXX KIP
	LL	-	-

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779
www.msa-ps.com

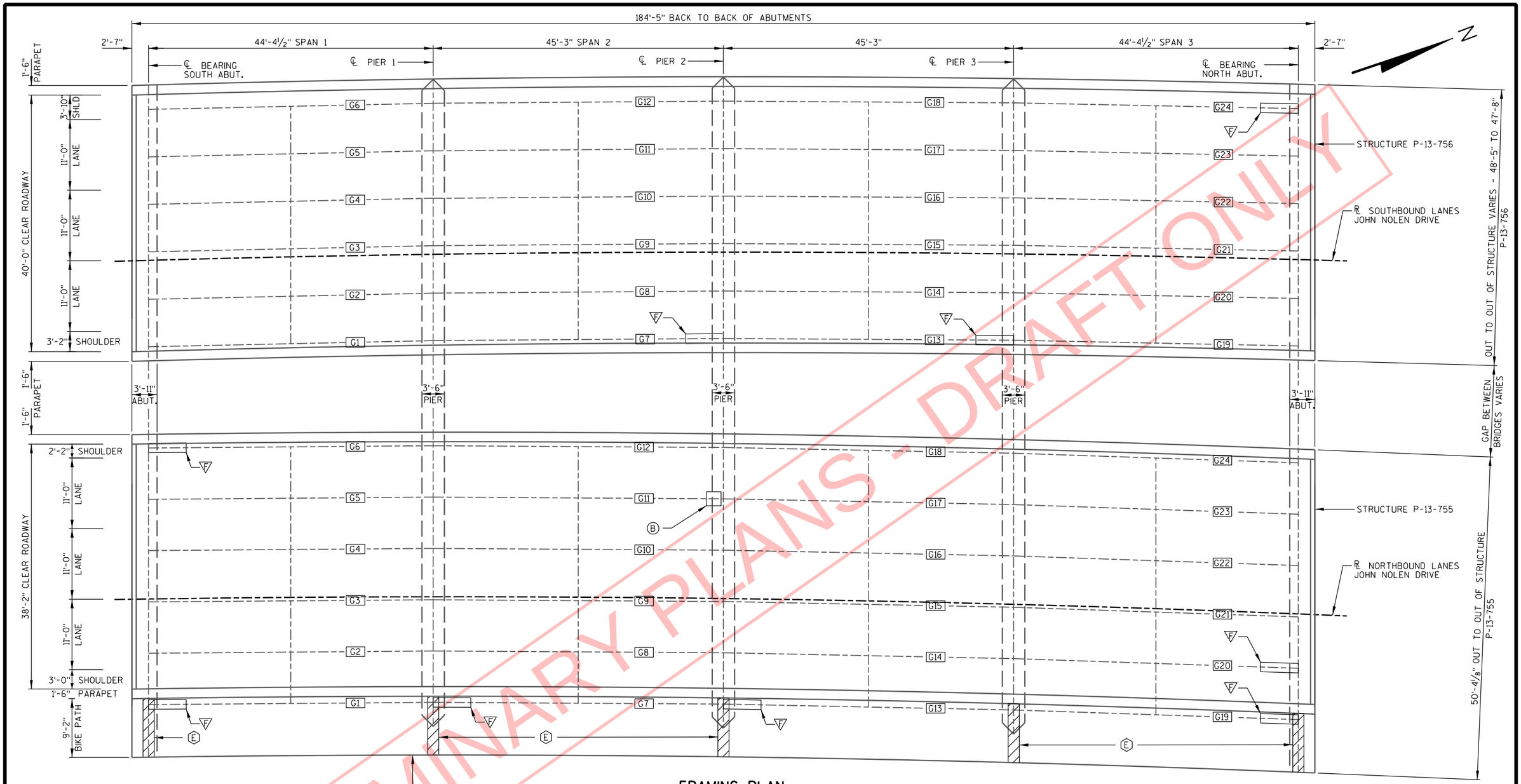
STRUCTURE P-13-754, B-13-333

Drawn By RLR | Plans Checked NJK

SUPERSTRUCTURE FRAMING PLAN

SHEET 4 OF 8

MSA PROJECT NUMBER 00373129



FRAMING PLAN

LEGEND

G1 — INDICATES GIRDER NUMBER.

(F) — GIRDER END FIBER WRAP REPAIRS REQUIRED, SEE SHEET X FOR DETAILS.

(B) — INSTALL NEW EXPANSION BEARING ASSEMBLY AND BEARING BRACKET SEE SHEET X FOR DETAILS.

(E) — SIDEWALK EXPANSION JOINT CONCRETE SURFACE REPAIRS AND SIDEWALK STEEL EXPANSION JOINT COVER PLATE REPAIR REQUIRED, SEE SHEET X FOR DETAILS.

BRIDGE JACKING AND ADJUSTING BEARING NOTES

THE THEORETICAL SERVICE LOADS (UNFACTORED) SHOWN IN THE TABLE ARE BASED ON THE BRIDGE IN ITS FINAL CONFIGURATION. ADDITIONAL LOAD RESULTING FROM STAGING AND/OR CONTRACTOR OPERATIONS, SUCH AS UNEVEN JACKING OF ADJACENT GIRDERS OF ADJACENT SUBSTRUCTURE UNITS AND OTHER OPERATIONS, IS NOT INCLUDED.

THE BRIDGE WILL BE OPEN TO TRAFFIC DURING CONSTRUCTION.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE ADEQUACY AND STABILITY OF THE GIRDER AT THE JACKING LOCATION.

ALL WORK PAID FOR UNDER BID ITEM "BRIDGE JACKING AND ADJUSTING BEARING B-13-332". SEE SPECIAL PROVISION FOR ADDITIONAL DETAILS.

GIRDER/TRUSS REACTIONS AT BEARINGS (KIPS)

		℄ BEARING SOUTH ABUTMENT	℄ BEARING PIER 1
INTERIOR GIRDER	DL	XX KIP	N/A
	LL	-	N/A
EXTERIOR GIRDER	DL	XX KIP	XXX KIP
	LL	-	-

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

STRUCTURE P-13-755, P-13-756

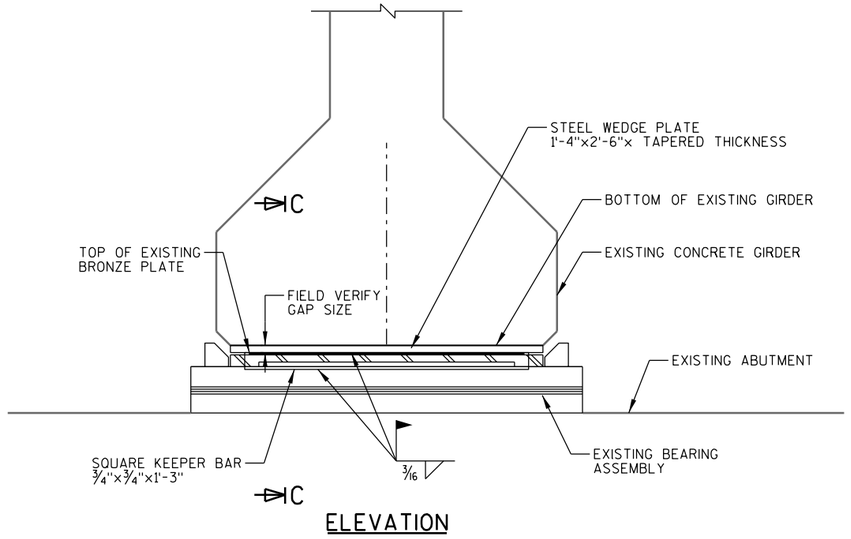
Drawn By RLR | Plans Checked NJK

SUPERSTRUCTURE FRAMING PLAN

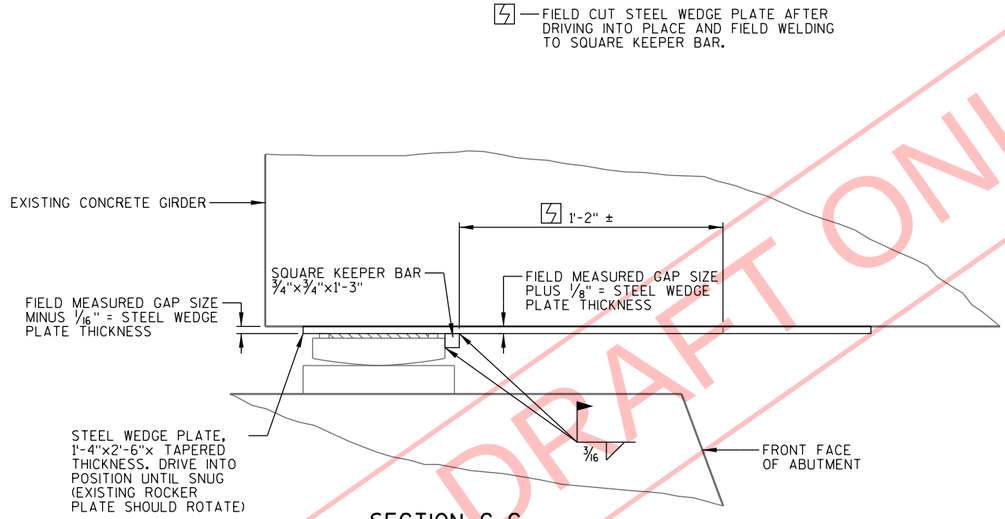
SHEET 5 OF 8

MSA PROJECT NUMBER 00373129

373129_05_P-13-755 P-13-756_FRAMING PLAN.dgn 4/25/2023 12:53:29 PM rrabaka



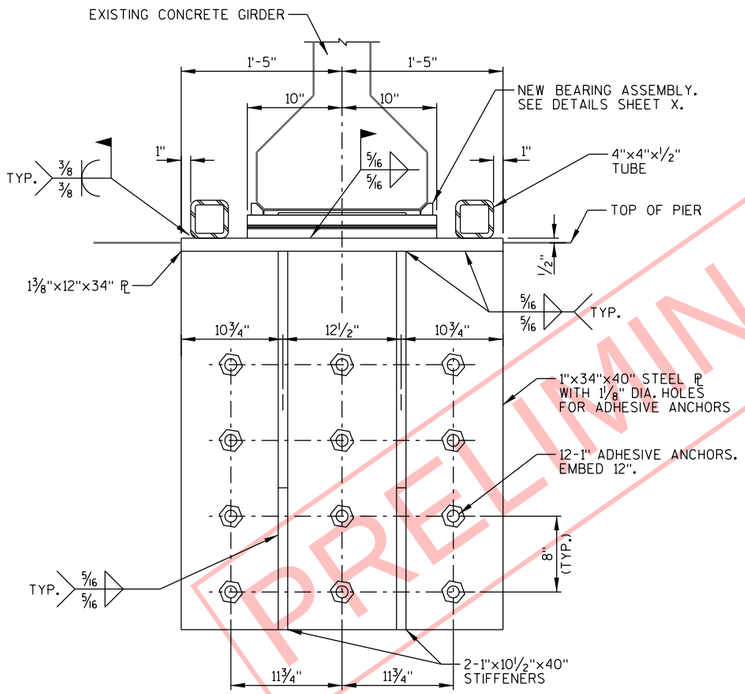
ELEVATION



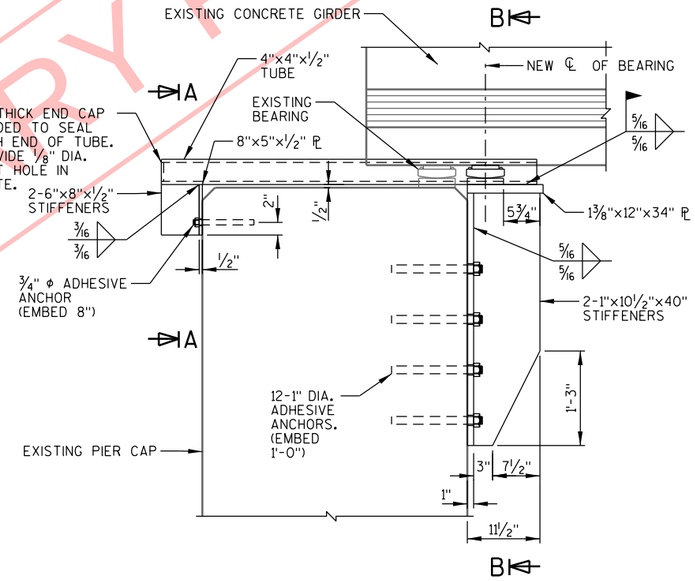
SECTION C-C

STEEL WEDGING AT EXISTING BEARING DETAIL

STRUCTURE P-13-754

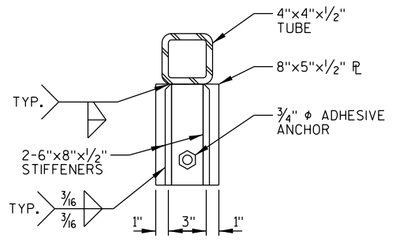


SECTION B-B



ELEVATION - BRACKET ASSEMBLY

STRUCTURE P-13-755



SECTION A-A

BEARING REHABILITATION NOTES

STRUCTURAL STEEL PLATES AND TUBES SHALL CONFORM TO ASTM A36 AND ASTM A500 GRADE B, RESPECTIVELY.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

BRACKET AND STEEL WEDGE PLATE MATERIAL SHALL BE SHOP PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL BRACKET OR WEDGE PLATE INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST.

BRACKETS SHALL BE INSTALLED IN THREE STEPS. STEP ONE SHALL BE TO INSTALL FRONT BRACKET AND BEARING ASSEMBLY TIGHT UNDER BEAM. STEP TWO SHALL BE TO INSTALL BACK BRACKET AND 4" SQUARE TUBES TIGHT TO BACK SIDE OF PIER. STEP THREE SHALL BE TO FIELD WELD THE 4" SQUARE TUBES TO THE FRONT BRACKET AS SHOWN.

SEE SPECIAL PROVISIONS FOR APPROVED ADHESIVE ANCHORS AND REQUIREMENTS.

CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

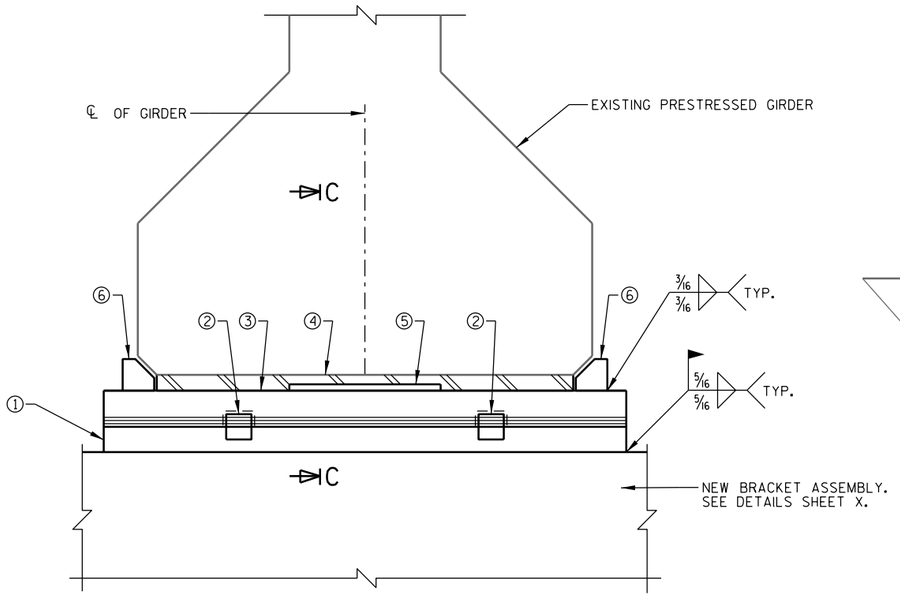
STRUCTURE P-13-754, P-13-755

Drawn By RLR | Plans Checked NJK

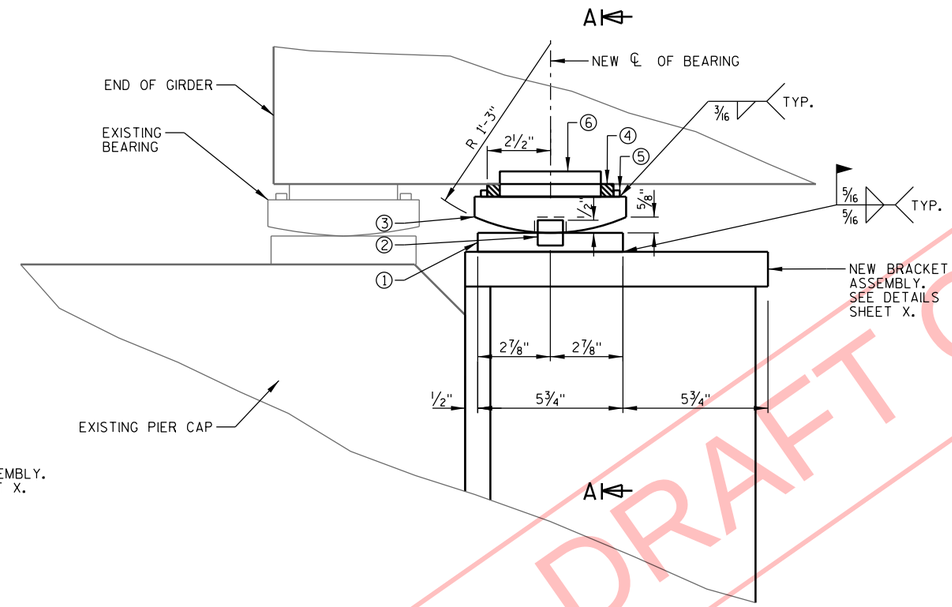
BEARING REHABILITATION DETAILS

SHEET 6 OF 8

MSA PROJECT NUMBER 00373129



SECTION A-A



ELEVATION

LEGEND

① MASONRY PLATE, ¾" X 5¾" X 1'-10". DRILL 1" DIA. HOLES TO PROVIDE DRIVING FIT FOR STEEL PINTLES 2 .

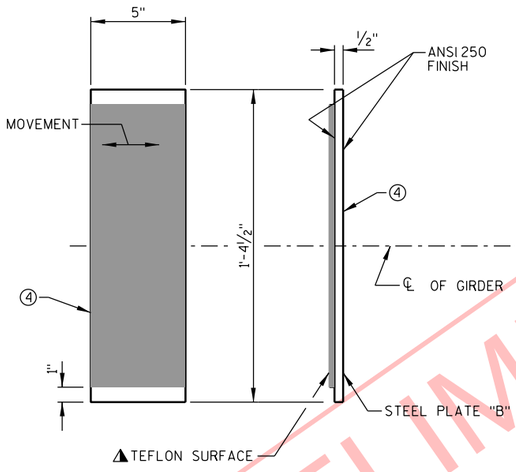
② STEEL PINTLE, 1" DIA. x 1". DRIVE INTO TOP OF MASONRY PLATE 1 AND WELD BOTTOM. CHAMFER TOP OF PINTLE ⅛".

③ ROCKER PLATE, 1 1/16"x6"x1'-8". MACHINE FINISH BOTTOM SURFACE TO ANSI 250. PROVIDE 1⅛" DIA. x ⅝" DEEP HOLES IN BOTTOM, CENTERED ON PINTLES. MACHINE FINISH IN DIRECTION PARALLEL TO ℄ OF GIRDER.

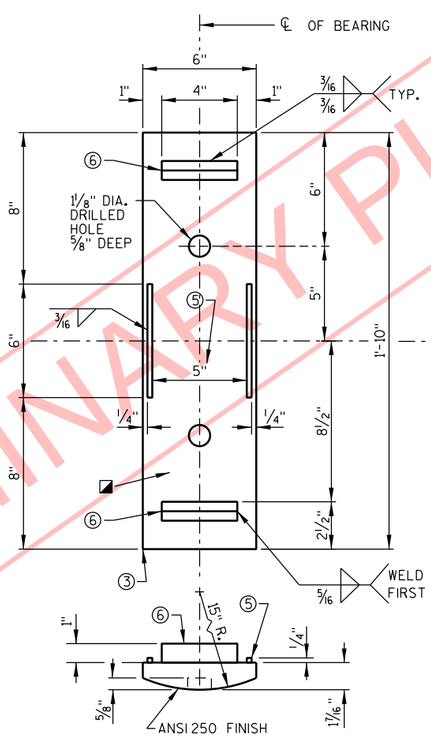
④ STAINLESS STEEL PLATE, ½"x5"x1'-4½", WITH TEFLON SURFACE ON TOP SIDE ONLY. TEFLON SURFACE SHALL BE UNFILLED WITH MINIMUM 1/16" THICKNESS. PLACE WITH SCRIVE MARKS IN DIRECTION OF MOVEMENT. BOND STAINLESS STEEL PLATE 4 AND TEFLON WITH ADHESIVE MATERIAL MEETING THE REQUIREMENTS FOUND IN THE WISDOT STANDARD SPECIFICATION.

⑤ KEEPER BAR EACH SIDE. ¼"x¼"x6".

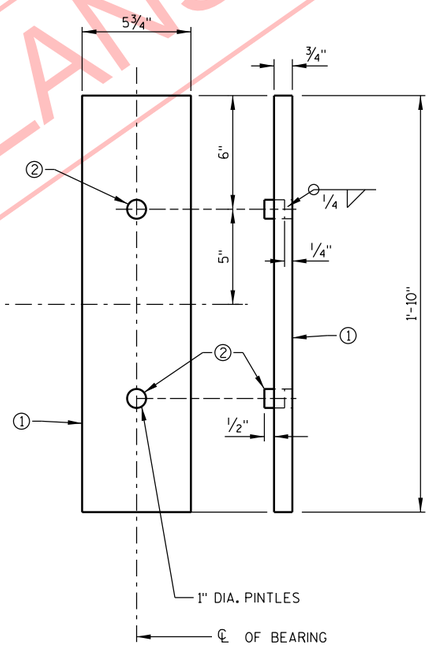
⑥ BAR 1"x1"x4". CHAMFER ½".



TEFLON SURFACE
ON STAINLESS STEEL PLATE ④



ROCKER PLATE ③



MASONRY PLATE ①

EXPANSION BEARING

BEARING NOTES

BEARINGS ARE SYMMETRICAL ABOUT ℄ OF GIRDER AND ℄ OF BEARING.

ALL MATERIAL IN BEARINGS, BUT EXCLUDING STAINLESS STEEL PLATE, TEFLON SURFACE, AND PINTLES, SHALL CONFORM TO ASTM A709 GRADE 50W.

STAINLESS STEEL PLATE SHALL CONFORM TO ASTM A240, TYPE 304.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR ASTM 572 GRADE 50.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

MASONRY PLATE ① AND ROCKER PLATE ③ SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS "C". STEEL PLATE ④ SHALL BE STAINLESS STEEL WITH TEFLON SURFACE.

TEFLON SURFACE, USE UNFILLED WITH MINIMUM 1/16" THICKNESS. PLACE WITH SCRIVE MARKS IN DIRECTION OF MOVEMENT. BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING THE REQUIREMENTS FOUND IN THE STANDARD SPECIFICATION.

ALL MATERIAL IN "STEEL BEARINGS FOR PRESTRESSED CONCRETE GIRDERS", INCLUDING BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-_-_", EACH.

PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

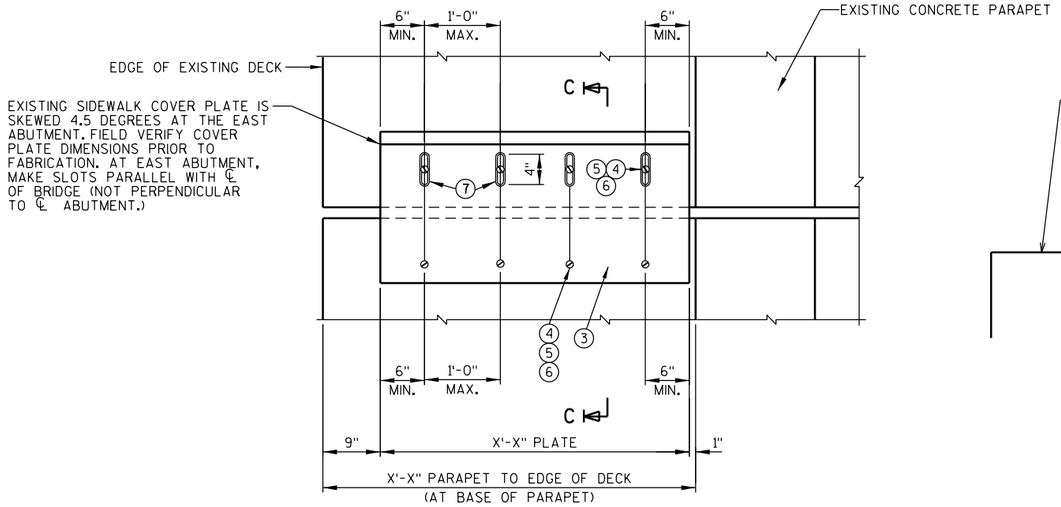
STRUCTURE P-13-755

Drawn By RLR | Plans Checked NJK

EXPANSION BEARING ASSEMBLY DETAILS

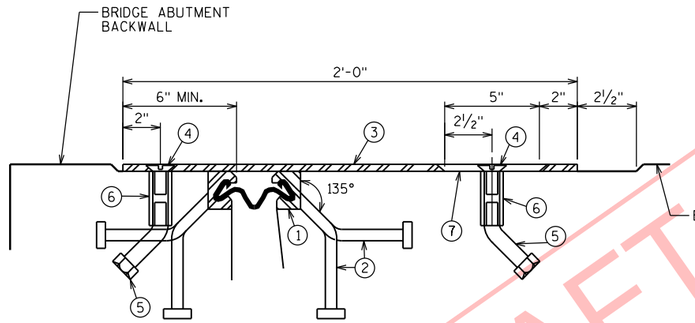
SHEET 7 OF 8

MSA PROJECT NUMBER 00373129



PLAN - SIDEWALK PLATE AT ABUTMENTS

CORNER OF DECK AT NORTH END OF WEST ABUTMENT SHOWN



SECTION C-C

LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS ⅝" DIA. X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
3. SIDEWALK COVER PLATE AT ABUTMENTS. ⅜" X 2'-0" X 4'-1". GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED. PLATE SHALL CONFORM TO ASTM A709 GRADE 36. (4 REQ'D.)
4. ¾" DIA. X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
5. ¾" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
6. ¾" DIA. X 2¼" GALVANIZED THREADED COUPLING.
7. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT. DIRECTION OF MOVEMENT IS CONSIDERED PARALLEL WITH THE ℄ OF THE STRUCTURE.

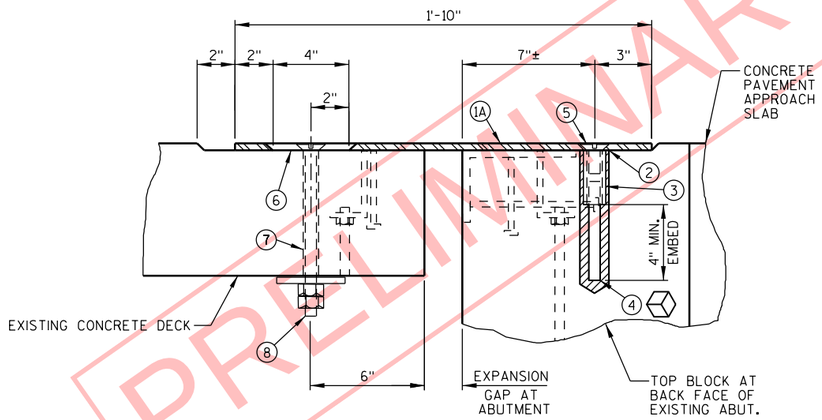
NOTES

SANDBLAST PLATE AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATE SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATE BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

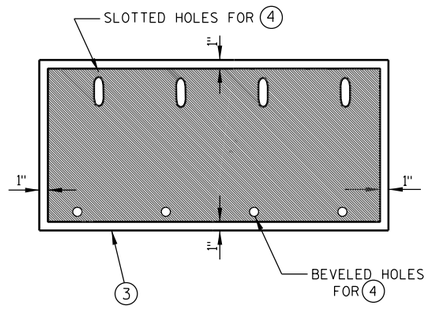
ANCHOR SYSTEM NO. 5 AND NO. 6 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS, HARDWARE, AND COVER PLATES SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

SIDEWALK COVER PLATE NO. 3 SHALL BE FABRICATED AFTER FIELD VERIFICATION/MEASUREMENTS BY THE CONTRACTOR TO ENSURE PROPER FIT.



SECTION PL1-PL1



PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

No.	Date	Revision	By

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 PANKRATZ STREET, MADISON WI 53704
(608) 242-7779 www.msa-ps.com

STRUCTURE REHABILITATION

Drawn By RLR | Plans Checked NJK

SIDEWALK JOINT COVER PLATES

SHEET 8 OF 8

MSA PROJECT NUMBER 00373129

373129_08_SIDEWALK PLATES.dgn 4/25/2023 12:06:49 PM mlabka