

GENERAL:

THE REQUIREMENTS OF ITEM# 562.0101 – REINFORCED CONCRETE SPAN UNITS, (THE PROVISIONS OF SECTION 562 OF THE NYS DOT STANDARD SPECIFICATIONS (REINFORCED CONCRETE THREE–SIDED STRUCTURES)), AND THE PCCM SHALL APPLY TO THIS WORK.

DESCRIPTION OF FABRICATING FACILITIES FOR UNIT PRODUCTION:

- ALL CONCRETE TO BE SUPPLIED BY THE FORT MILLER CO., INC. NYS DOT APPROVED AUTOMATED BATCH PLANT (NYS DOT FACILITY CERTIFICATION NUMBER 20305)
- CONCRETE TO BE DELIVERED FROM BATCH PLANT DIRECTLY TO THE FORM USING A MIXER TRUCK AND CONCRETE BUCKET, THE CONCRETE MIXTURE SHALL NOT DROP FROM A HEIGHT GREATER THAN 12" ABOVE THE TOP OF THE FORM.
- ALL CONCRETE TO BE CONSOLIDATED USING INTERNAL VIBRATION. USE RUBBER TIPPED VIBRATOR.
- QUALITY CONTROL EQUIPMENT:
 - COMPRESSION MACHINE: FORNEY MODEL QC-410
 - HIGH PRESSURE AIR METER – FORNEY MODEL LA-316.

CONCRETE DATA:

FMC SHALL USE INTERNAL MIX ID SP786 OR SP731 OR SP731S FOR SPAN UNITS. 28 DAY STRENGTH = 7,500 PSI. MINIMUM STRIPPING STRENGTH = 3,000 PSI

MIX DESIGN (YIELD: 1 CUBIC YARD)		SCC CONCRETE WILL NOT BE USED.	
CEMENT:	500 lbs/CY	UNIT WEIGHT:	139 lbs/CF
COARSE AGGREGATE:	1718 lbs/CY	AIR CONTENT:	5.0% TO 9.0%
FINE AGGREGATE (TOTAL):	1156 lbs/CY	WATER CEMENT RATIO:	0.320
FLY ASH:	135 lbs/CY	28 DAY STRENGTH:	7,500 PSI
WATER CONTENT (TOTAL):	216 lbs/CY	HANDLING STRENGTH:	3,000 PSI
HIGH RANGE WATER REDUCER:	2-12 oz/cwt	70% STRENGTH:	5,250 PSI
AIR ENTRAINING AGENT:	AS REQ'D oz/CY	SLUMP:	9" (MAX)
CORROSION INHIBITOR:	640 oz/CY	MICROSILCA	40 lbs/CY
SET RETARDER:	0-5 oz/cwt		

MATERIAL SOURCES:

CEMENT: HOLCIUM (US) INC.; TYPE I/II BRAND CODE 05
 COARSE AGGREGATE: THE FORT MILLER CO. INC, GLENS FALLS, NY SOURCE #: 1-104G; TEST #: 21AG006C
 FINE AGGREGATE: THE FORT MILLER CO. INC, GLENS FALLS, NY SOURCE #: 1-104F; TEST #: 22AF020
 FINE AGGREGATE LIGHTWEIGHT: NORLITE CORP. COHOES, NY SOURCE #: 1-1LFM; TEST #: 22AF001
 FLY ASH: WM FLYASH DIRECT, NEW HAVEN, WV, SOURCE CODE 37 OR SEPARATION TECHNOLOGIES, PA SOURCE CODE 20
 H.R. WATER REDUCER: MAPEI DYNAMON SX 37 BRAND CODE 4104 OR MB MASTERGLENIUM 3400 BRAND CODE 4046
 AIR ENTRAINMENT: MAPEI POLYCHEM SA-50 BRAND CODE 1060 OR MB MASTERAIR AE90 BRAND CODE 1037
 CORROSION INHIBITOR: MAPEI PLOYCHEM CI OR MB MASTERLIFE C130 BRAND CODE 711-1300
 SET RETARDER: MAPEI POLYCHEM RENU BRAND CODE 2040 OR MB MASTERSSET DELVO BRAND CODE 2036
 MICROSILICA: MASTER BUILDERS MASTERLIFE SF100 CODE 6007

TESTING:

- DEFINITIONS:
 - LOT – A SINGLE PRECAST UNIT.
 - PRIMARY LOAD – A SINGLE TRUCK LOAD OF CONCRETE DELIVERED TO THE FORM. THE PRIMARY LOAD SHALL REQUIRE ALL TESTING AS SPECIFIED UNDER ITEM (B)(a thru h) BELOW. THERE WILL BE ONE PRIMARY LOAD PER PRECAST UNIT.
 - SECONDARY LOAD – A SINGLE TRUCK LOAD OF CONCRETE, IN ADDITION TO A PRIMARY LOAD DELIVERED TO THE FORM. A SECONDARY LOAD(S) SHALL REQUIRE TESTING AS SPECIFIED UNDER ITEM (B) BELOW, WITH THE EXCEPTION OF ITEM (B)(f thru h). SECONDARY LOADS MAY REQUIRE ITEM (B)(i).
 - EACH LOAD OF CONCRETE DELIVERED TO THE FORMS SHALL BE IDENTIFIED AS A PRIMARY OR SECONDARY LOAD. THERE SHALL BE DESIGNATED AT LEAST ONE PRIMARY LOAD PER LOT. ALL OTHER DELIVERED LOAD(S) SHALL BE DESIGNATED AS SECONDARY LOAD(S).
- THE FOLLOWING CONCRETE SAMPLING AND SPECIMEN FABRICATION SHALL BE PERFORMED AT THE FREQUENCY REFERENCED ABOVE:
 - ASTM C173 – SAMPLING OF FRESH CONCRETE
 - ASTM C231 (NORMAL CONCRETE)/ASTM C173 (LIGHTWEIGHT CONCRETE) – PERCENT AIR CONTENT
 - ASTM C138 – UNIT WEIGHT/YIELD
 - ASTM C143/ASTM C1611 – NORMAL CONCRETE SLUMP/SCC SLUMP FLOW
 - ASTM C1064 – TEMPERATURE OF FRESH CONCRETE
 - ASTM C31 – COMPRESSION TEST CYLINDER FABRICATION
 - ASTM C39 – COMPRESSION TESTING
 - FABRICATION OF COMPRESSIVE STRENGTH CYLINDERS.
 - CYLINDERS SHALL BE 4"Ø X 8" HEIGHT, UTILIZING PLASTIC OR STEEL MOLDS.
 - TWO (2) CYLINDERS SHALL REPRESENT A SINGLE COMPRESSION STRENGTH TEST. FOR UNITS WEIGHING OVER 55 TONS A MINIMUM OF FOUR (4) CYLINDERS SHALL BE TESTED.
 - A MINIMUM OF EIGHT (8) CYLINDERS SHALL BE FABRICATED.
 - FOR UNITS WEIGHING OVER 55 TONS A MINIMUM OF SIXTEEN (16) CYLINDERS SHALL BE FABRICATED.
 - ALL CYLINDERS SHALL BE TESTED IN CONFORMANCE WITH ASTM C39 ON A CALIBRATED TESTING MACHINE.
 - A SUFFICIENT NUMBER OF CONCRETE TEST CYLINDERS TO FULFILL THE CONCRETE STRENGTH TEST REQUIREMENTS AS STATED BELOW.

MINIMUM LIFTING STRENGTH VERIFICATION:

FOR THIS STRENGTH VERIFICATION CYLINDERS SHALL BE CURED IN THE SAME MANNER AS THE UNIT THEY REPRESENT. TEST CYLINDERS FROM EACH LOT (PRIMARY LOAD) SHALL BE TESTED IN IMMEDIATE SUCCESSION TO VERIFY LIFTING STRENGTH. THE STRENGTH OF EACH CYLINDER SHALL BE AT LEAST 95 PERCENT OF THE REQUIRED LIFTING STRENGTH. THE AVERAGE STRENGTH OF THE TESTED CYLINDERS SHALL BE EQUAL TO OR GREATER THAN THE REQUIRED LIFTING STRENGTH. IF THIS REQUIREMENT IS NOT MET, ANOTHER SET OF CYLINDERS MAY BE TESTED AT A LATER TIME.

28 DAY COMPRESSIVE STRENGTH VERIFICATION:

AT 28 DAYS OF AGE, OR AS NEAR TO THAT AGE RESULTING FROM WEEKEND OR HOLIDAY INTERRUPTION, TEST CYLINDERS FROM EACH LOT (PRIMARY LOAD) SHALL BE TESTED IN IMMEDIATE SUCCESSION FOR THIS STRENGTH VERIFICATION. CYLINDERS SHALL BE CURED IN THE SAME MANNER AS THE UNIT THEY REPRESENT. EACH CYLINDER SHALL HAVE A STRENGTH OF AT LEAST 95 PERCENT OF THE REQUIRED STRENGTH. THE AVERAGE STRENGTH OF THE TESTED CYLINDERS SHALL BE EQUAL TO OR GREATER THAN THE REQUIRED 28-DAY STRENGTH. TESTING OF THESE CYLINDERS MAY BE AT AN AGE EARLIER THAN 28 DAYS. ONCE THIS REQUIREMENT IS MET, THE SHIPPING STRENGTH REQUIREMENT FOR THE UNIT REPRESENTED SHALL BE CONSIDERED SATISFIED. NO FURTHER TESTING OF THE PRIMARY LOAD SHALL BE REQUIRED. ANY REMAINING CYLINDERS MAY BE DISCARDED.

i. AASHTO T318 – WATER/CEMENTITIOUS RATIO

THE WATER/CEMENTITIOUS MATERIALS RATIO SHALL BE MEASURED ACCORDING TO AASHTO T318. THE WATER/CEMENTITIOUS RATIO SHALL BE MEASURED BY THE FABRICATOR FOR THE FIRST BATCH OF CONCRETE IN A DAY'S PLACEMENT AND MONITORED BY SLUMP TESTS THROUGHOUT PRODUCTION.

CURING (NON-ACCELERATED CURE / SATURATED COVER):

PRODUCTION OF THESE PRECAST UNITS WILL OCCUR INSIDE A HEATED BUILDING.

1) INITIAL CURING PHASE:

TO PREVENT MOISTURE LOSS ON EXPOSED SURFACES DURING THE INITIAL CURING PHASE, UNITS SHALL BE COVERED AS SOON AS THE CONCRETE CAN BE COVERED WITHOUT MARRING THE SURFACE, OR THE EXPOSED SURFACES SHALL BE KEPT WET BY FOG SPRAY OR WET BLANKETS. DURING THE INITIAL CURING PHASE, TEMPERATURE IN THE ENCLOSURE SHALL NOT BE LESS THAN 50° F.

2) FINAL CURING PHASE:

THE FINAL CURING PHASE MAY BEGIN AT ANY TIME AFTER COMPLETION OF THE INITIAL CURING PHASE. EACH UNIT SHALL BE COVERED WITH HEAVY, WATER-SATURATED BURLAP (OR OTHER MATERIAL ACCEPTABLE TO THE INSPECTOR), THE BURLAP SHALL BE KEPT SATURATED, AND THE CONCRETE SURFACE TEMPERATURE SHALL NOT DROP BELOW 68° F. THESE CONDITIONS SHALL BE MAINTAINED FOR THREE DAYS OR UNTIL THE CONCRETE HAS REACHED 70% OF THE SPECIFIED 28-DAY STRENGTH.

3) RECORD OF CURING TIME & TEMPERATURE

PER THE PCCM, AUTOMATIC TEMPERATURE RECORDERS SHALL BE PROVIDED WHICH SHALL CONTINUOUSLY RECORD CURING TEMPERATURES FOR THE INITIAL & FINAL CURING PHASES. AFTER COMPLETION OF THE FINAL CURING PHASE, CHARTS SHALL BE PROPERLY MARKED AND FORWARDED TO THE INSPECTOR. TEMPERATURES RECORDED ON THESE CHARTS SHALL BE CONSIDERED AS VERIFICATION THAT UNITS HAVE BEEN CURED IN ACCORDANCE WITH THESE APPROVED FABRICATION DRAWINGS.

4) FALL/WINTER WEATHER CURING PROCEDURES

ALL CASTING WILL BE DONE IN HEATED PRODUCTION BUILDINGS WHERE THE AMBIENT AIR TEMPERATURE IS ABOVE 40° F. IF THE NECESSITY ARISES FOR PLACING CONCRETE AT A TEMPERATURE BELOW 40° F, A SEPARATE PROCEDURE WILL BE SUBMITTED FOR REVIEW.

REINFORCING STEEL DATA

BLACK REINFORCEMENT IN CONFORMANCE WITH NYS DOT 709-14, ASTM A615 GRADE 75 (MIN), AND EPOXY COATED (IF REQUIRED) IN CONFORMANCE WITH NYS DOT 709-04 AS SUPPLIED BY:

- NUCOR STEEL AUBURN, AUBURN, NY (BAR SUPPLIER)
- CMC; SAYREVILLE, NJ (BAR SUPPLIER & EPOXY APPLICATOR)
- CORROSION CONTROL, INC.; AUBURN, NY (EPOXY APPLICATOR)
- OTHER NYS DOT APPROVED SOURCE

TOLERANCES - ALL PRECAST UNITS (U.N.O.)

ALL UNITS, FORMS, REINFORCING STEEL, ETC. SHALL BE CHECKED FOR COMPLIANCE WITH THE TOLERANCES LISTED BELOW:

- SLAB THICKNESS: -¼", +½"
- REINFORCEMENT COVER: -0, +½" END COVER LONGITUDINAL BARS ±1"
- REINFORCEMENT SPACING: ±2" NON-CUMULATIVE
- LOCATION OF PROJECTING REINFORCEMENT: ±½"
- SPAN: ±1"
- RISE: ±1"
- HAUNCH: ± ¼" OF DESIGN DIMENSIONS
- LAYING LENGTH OF TWO ADJACENT UNITS SHALL NOT VARY BY MORE THAN 5/8" MAX. IN ANY SECTION, EXCEPT WHERE BEVELED ENDS FOR LAYING OF CURVES ARE SPECIFIED.
- LENGTH OF SECTION: UNDER RUN IN ANY SECTION SHALL NOT BE MORE THAN ½" MAX.
- LOCAL SMOOTHNESS OF ANY SURFACE: ¼" PER 10FT.
- LOCATION OF INSERTS/SPLICERS: ±½"
- VARIATION FROM SPECIFIED END SQUARENESS OR SKEW: ±¼"
- LOCATION OF HANDLING DEVICES: ±3"

COATING

ALL UNITS SHALL BE COATED ON ALL SURFACES (EXCEPT AREAS TO RECEIVE CIP CONCRETE) WITH MIN. (2) COATS EVONIK PROTETOSIL 300S PENETRATING SEALANT. APPLICATION RATE: 250 ft²/gal. SURFACES MUST BE PREPARED BY BLAST CLEANING (WATER) TO REMOVE ALL LAITANCE, LOOSE PARTICLES, ETC. AND ALLOWED TO DRY FOR 24 HOURS AFTER WETTING FOR ANY REASON. ALL SURFACE PREPARATION WORK MUST BE COMPLETED & APPROVED BY THE INSPECTOR PRIOR TO SEALANT APPLICATION. UNITS EXPOSED TO WETTING WITHIN 12 HOURS OF SEALANT APPLICATION SHALL BE RECOATED.

BASIS OF ACCEPTANCE

ALL UNITS WHICH ARE COMPLETE IN ALL ASPECTS AND ARE FABRICATED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND MEETING EACH OF THE FOLLOWING CRITERIA SHALL BE APPROVED FOR THE INSPECTOR'S MARK OF ACCEPTANCE FOR SHIPMENT.

- CONCRETE STRENGTH REQUIREMENTS
- PERFORMANCE CRITERIA – ESTABLISHED IN THE CONTRACT DOCUMENTS.
- DURABILITY – UNIT IS FREE OF CRACKS, HONEYCOMBED AREAS, COLD JOINTS, EXPOSED STEEL, INADEQUATE COVER OVER STEEL, AND ANY OTHER DEFECT WHICH MAY REDUCE THE DURABILITY OF THE COMPLETED STRUCTURE.
- INJURIOUS MATERIALS – UNIT IS FREE OF MATERIAL INJURIOUS TO CONCRETE OR TO STEEL WITHIN CONCRETE. CONCENTRATIONS OF TOTAL CHLORIDE ION IN EXCESS OF 0.06% BY WEIGHT OF CEMENT ARE CONSIDERED INJURIOUS. OTHER MATERIALS WITH INJURY POTENTIAL WILL BE DETERMINED BY THE DCES.
- TOLERANCES

DEFECTIVE UNITS

- ANY UNIT NOT MEETING THE "BASIS OF ACCEPTANCE" CRITERIA ABOVE IS A DEFECTIVE UNIT.
- COSMETIC DEFECTS – DEFECTS THAT DO NOT AFFECT THE ABILITY OF THE UNIT TO RESIST CONSTRUCTION OR SERVICE LOADS, OR REDUCE THE LIFE EXPECTANCY OF THE STRUCTURE. THIS CATEGORY OF DEFECT INCLUDES SUPERFICIAL DISCONTINUITIES SUCH AS MINOR CRACKS, SMALL SPALLS, SMALL HONEYCOMBED AREAS, OR ANY DEFECT THAT DOES NOT EXTEND BEYOND THE CENTERLINE OF ANY REINFORCING STEEL. REPAIR OF COSMETIC DEFECTS SHALL BE MADE IN A MANNER SUCH THAT THE AESTHETICS AND STRUCTURAL INTEGRITY OF THE UNIT IS RESTORED. REPAIRS SHALL BE DONE IN THE PRESENCE OF THE INSPECTOR USING A WRITTEN PROCEDURE APPROVED BY THE DCES.
 - STRUCTURAL DEFECT – DEFECTS OF STRUCTURAL SIGNIFICANCE ARE DEFECTS THAT WILL REDUCE THE LIFE EXPECTANCY OF THE STRUCTURE. EXAMPLES INCLUDE SIGNIFICANT CRACKS, LARGE SPALLS AND HONEYCOMBED AREAS, MAJOR SEGREGATION OR BREAKAGE OF CONCRETE, ETC. DETERMINATION BY THE DCES THAT A DEFECT IS STRUCTURAL OR COSMETIC WILL BE FINAL. REPAIR OF UNITS WITH DEFECTS OF STRUCTURAL SIGNIFICANCE SHALL BE ACCORDING TO PROVISIONS OF THE PCCM.

PRODUCTION SCHEDULE

UNITS SHALL BE FABRICATED ON A FIVE DAY SCHEDULE. NUMBER OF UNITS TO BE PRODUCED PER WEEK SHALL BE (3)±.

IDENTIFICATION INFORMATION - BRIDGE N21:

- MARKING: THE FOLLOWING INFORMATION SHALL BE PLACED ONTO A BACKFILL FACE OF EACH UNIT:
 D900054 I-81 VIADUCT PROJECT BRIDGE N-20

INSPECTION

- NYS DOT - STRUCTURES

MARK #:
DATE CAST:
FM JOB#:

STORAGE

UNITS SHALL BE STORED ON GOOD QUALITY DUNNAGE, IN A MANNER THAT PREVENTS RACKING. UNITS SHOULD BE SPACED FAR ENOUGH APART TO ALLOW VISUAL INSPECTION ALONG A UNIT'S LENGTH. NO STACKING OF UNITS ALLOWED, UNLESS APPROVED BY THE DCES. STORAGE AREAS SHALL ALLOW FOR PROPER DRAINAGE.

SHIPPING

NO UNIT SHALL BE SHIPPED WITHOUT THE INSPECTOR'S MARK OF ACCEPTANCE FOR SHIPPING. THE POST-POUR SPAN MEASUREMENT FOR EA. UNIT SHALL BE RECORDED ON SHIPPING PAPERWORK PRIOR TO DEPARTURE FROM THE PLANT. SEE DWG# S5 FOR 3-SIDED STRUCTURE SHIPPING DETAILS.

SHIPPING SUPPORT

- UNITS SHALL BE PLACED ON WOOD DUNNAGE SPACED NEAR EACH END.
- ALL PRECAST UNITS SHALL BE STRAPPED TO THE TRAILER AT A MINIMUM OF TWO PLACES PER UNIT.
- STRAPPING TO BE LOCATED OVER DUNNAGE.
- CHAIN GUARDS SHALL BE USED TO PROTECT PRECAST WHERE ANCHOR CHAINS WOULD OTHERWISE CONTACT CONCRETE.

MISCELLANEOUS NOTES:

- POSITION OF REINFORCEMENT MAINTAINED WITH THERMOPLASTIC CHAIRS.
- ALL FIELD LIFTING DEVICES TO BE 20T DOGBONE LIFTING ANCHORS UNLESS NOTED OTHERWISE.
- ALL LIFTING DEVICES SHALL BE HOT-DIPPED GALVANIZED.
- FORT MILLER SUPPLIED ITEMS INCLUDE THE FOLLOWING:
 - 1" CLOSED-CELL FOAM FOR VERTICAL JOINTS.
 - ITEMS SHOWN IN "SHIP LOOSE" BELOW
- CONTRACTOR SUPPLIED ITEMS INCLUDE (& ARE NOT LIMITED TO) THE FOLLOWING:
 - APPROVED GROUT USED FOR SEALING JOINTS & FOOTER KEY.
 - STEEL OR OTHER APPROVED NON-COMPRESSIBLE SHIMS.
 - CABLES/SHACKLES/UNEQUAL LENGTH SLINGS FOR UNLOADING & SETTING.
 - 1"Ø MIN. FOAM BACKER ROD & CAULK FOR JOINTS.
 - ALL MATERIALS FOR C.I.P. CONSTRUCTION.

SHIP LOOSE:

NOTE: ITEMS DESIGNATED AS "TO BE RETURNED" SHALL BE RETURNED VIA COMMON CARRIER BY AND AT THE EXPENSE OF THE CONTRACTOR.

- 20T SC-1 LIFTING EYES (TO BE RETURNED) QTY. (4) (ITEM 5340)
- 21T COFFEE POT LIFTING DEVICE w/ SWEDGED LIFTING SLINGS QTY (2) (ITEM 5362)
- (8) CLIP ANGLE ASSEMBLIES (TO BE RETURNED)

EACH ASSEMBLY SHALL CONSIST OF THE FOLLOWING:

- ITEM#: 5115 – (2) 6"x6"x½"x6"L ANGLES (16 TOTAL)
- ITEM#: 5128 – (2) 1"Øx3"L BOLTS (16 TOTAL)
- ITEM#: 5129 – (2) 1"Ø WASHERS (16 TOTAL)
- ITEM#: 5154 – (1) ¾"Øx30"L COIL ROD ASSEMBLY (8 TOTAL)
- ITEM#: 5178 – (1) ¾"Ø COIL NUT (8 TOTAL)
- ITEM#: 5171 – (1) ¾"Ø FLAT WASHER (8 TOTAL)

- #6 x 30" GR 80 D101 EPOXY REBAR DOWEL QTY. (136) (ITEM 64223)
- #5 x 30" GR 80 D101 EPOXY REBAR DOWEL QTY. (44) (ITEM 64222)

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SHEET No.	DWG. No.	SUBJECT	REV. No.
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2	T2	BRIDGE LAYOUT & DETAILS	1
3	T3	HANDLING & REINFORCEMENT	1
1	IN1	INSTALLATION DRAWING 1	1
2	IN2	INSTALLATION DRAWING 2	0

LOAD RATING - STRUCTURE N-20		
LOAD & RESISTANCE FACTOR METHOD		
LIVE LOADING	INVENTORY	OPERATING
HL-93	1.28	1.66

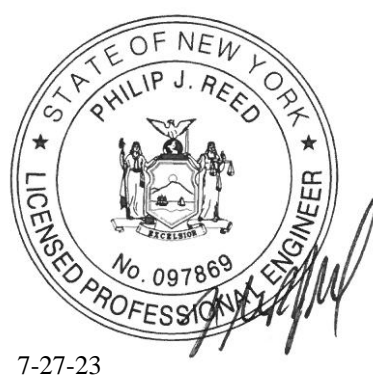
LOAD RATING - STRUCTURE N-20		
LOAD FACTOR METHOD		
INVENTORY	HS-22.20	39.96 T
OPERATING	HS-37.20	66.96 T

TABLE OF UNITS: N-20					
MK#	Qty	Product	Length	Vol (CY)	Wt (T)
N1	2	Hyspan	4'-11 1/2"	15.46	29.85
N2	7	Hyspan	4'-11 1/2"	15.46	29.85
N3	21	Hyspan	4'-11 1/2"	15.46	29.85
N3A	3	Hyspan	4'-7 1/2"	14.41	27.82
N4	9	Hyspan	4'-8 1/4"	14.62	28.22
N5	2	Hyspan	4'-8 1/4"	14.62	28.22

NOTES:

THE VOLUMES & WEIGHTS LISTED ARE BASED ON DESIGN THICKNESSES. ACTUAL VALUES CAN & DO VARY IN ACCORDANCE WITH ALLOWABLE TOLERANCES. IT IS NECESSARY TO SIZE ALL LIFTING EQUIPMENT TAKING THIS FACT INTO CONSIDERATION.

ITEM 562.0101 REINFORCED CONCRETE SPAN UNITS



FED. ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
3	N.Y.	D900054		
P.I.N. #: 3501.90		BRIDGES: N-20		
I-81 SB, I-81 NB, & I-481 TO I-81 SB ON RAMP; I-81 NB TO SR-481 NB RAMP				
CULVERT REPLACEMENT PROJECT				
CITY OF SYRACUSE				
ONONDAGA COUNTY				

FMC

THE FORT MILLER Co., Inc.
 P.O. BOX 98
 SCHUYLERVILLE, NY 12871
 (518) 695-5000
 (518) 695-4970 FAX
 www.fortmiller.com

NO.	DATE	BY	DESCRIPTION
1	7/27/23	PJR	TABLE OF CONTENTS, TABLE OF UNITS

D900054 - ONONDAGA COUNTY
 P.I.N. 3501.90 I-81 VIADUCT PROJECT
 STRUCTURE N-20
 CITY OF SYRACUSE, NEW YORK

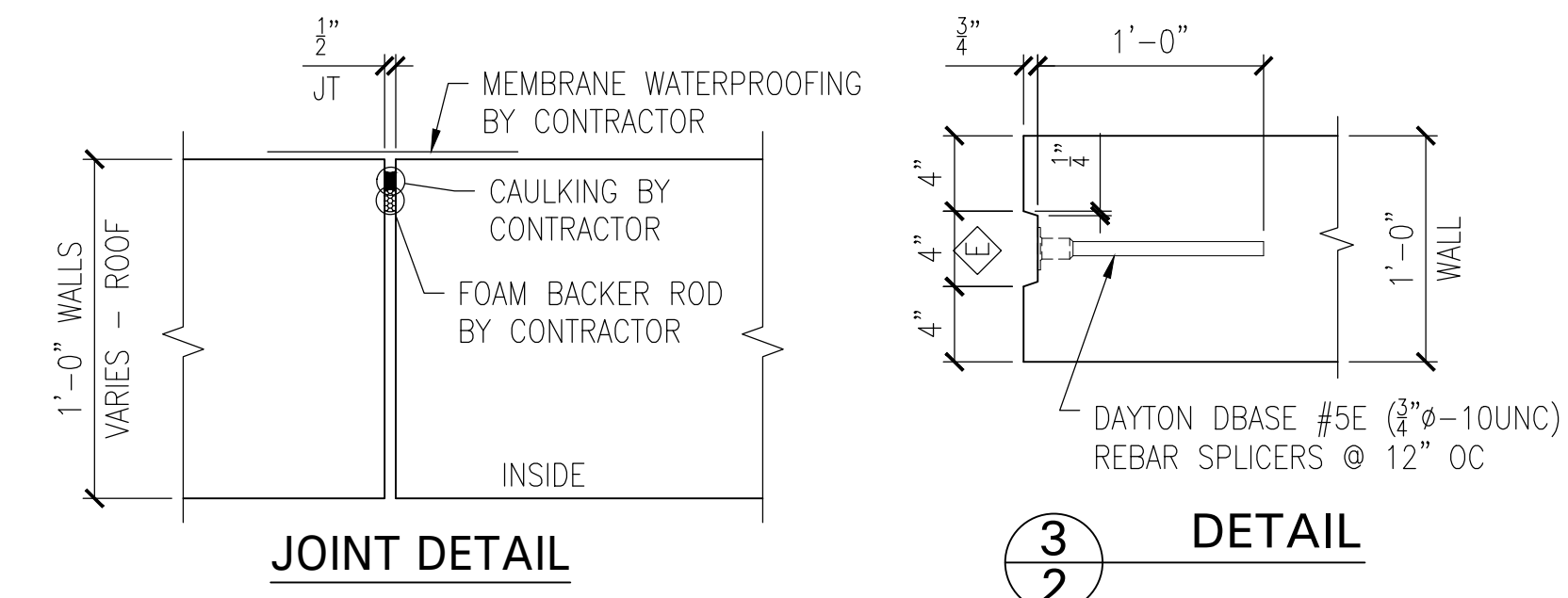
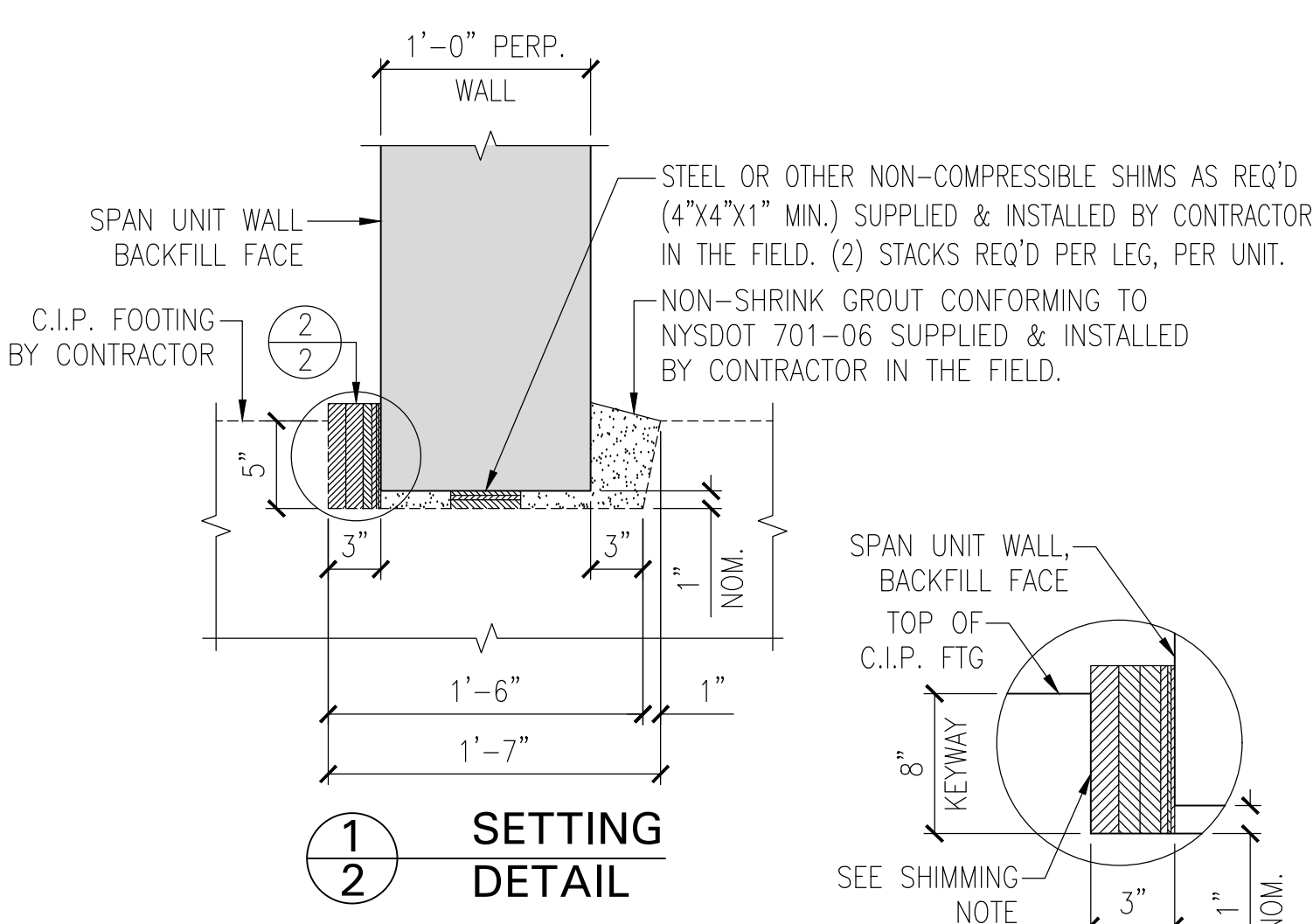
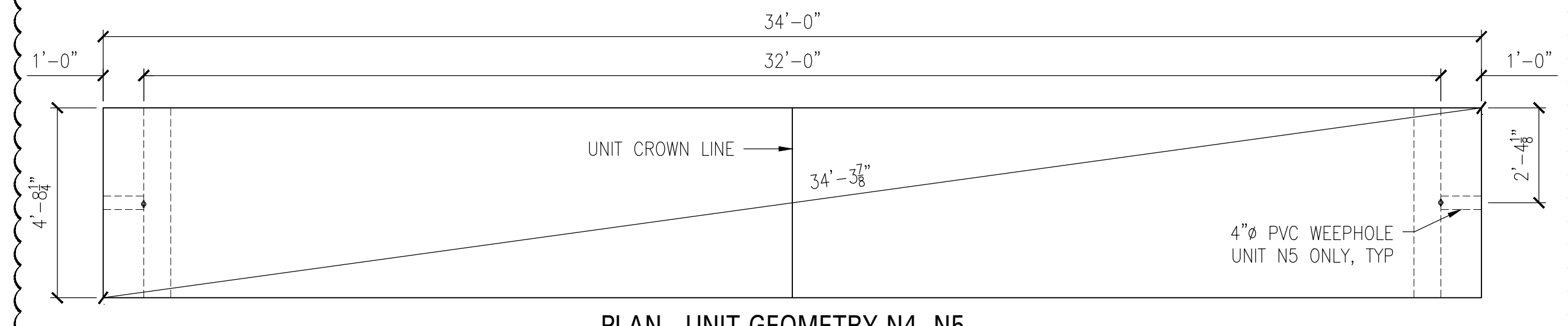
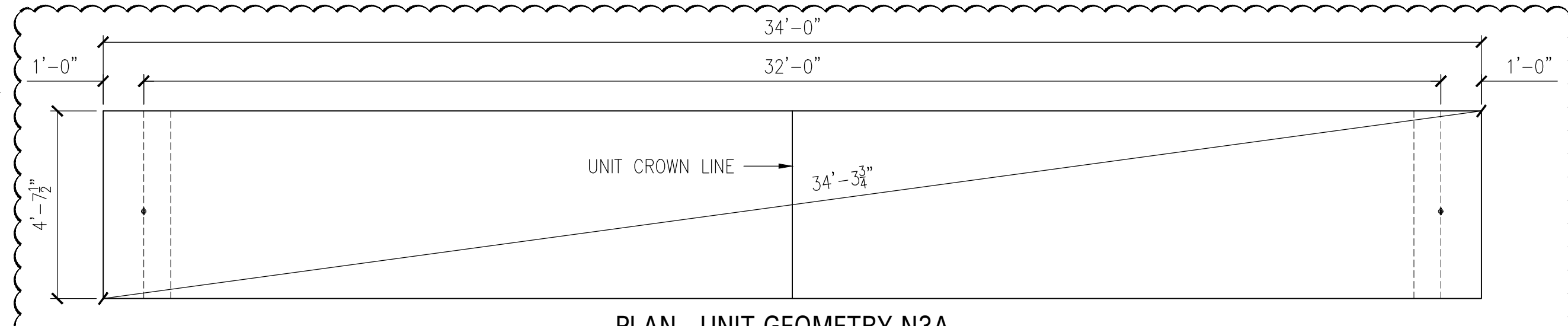
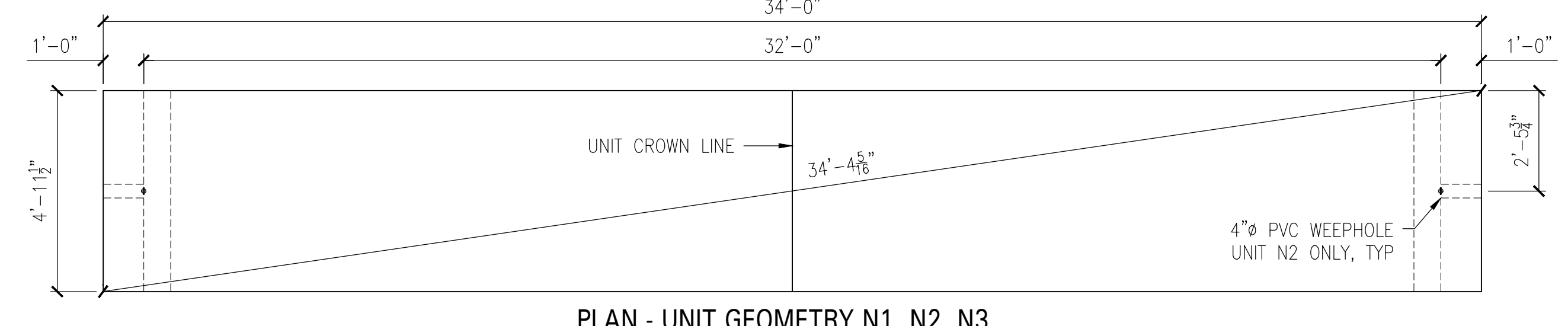
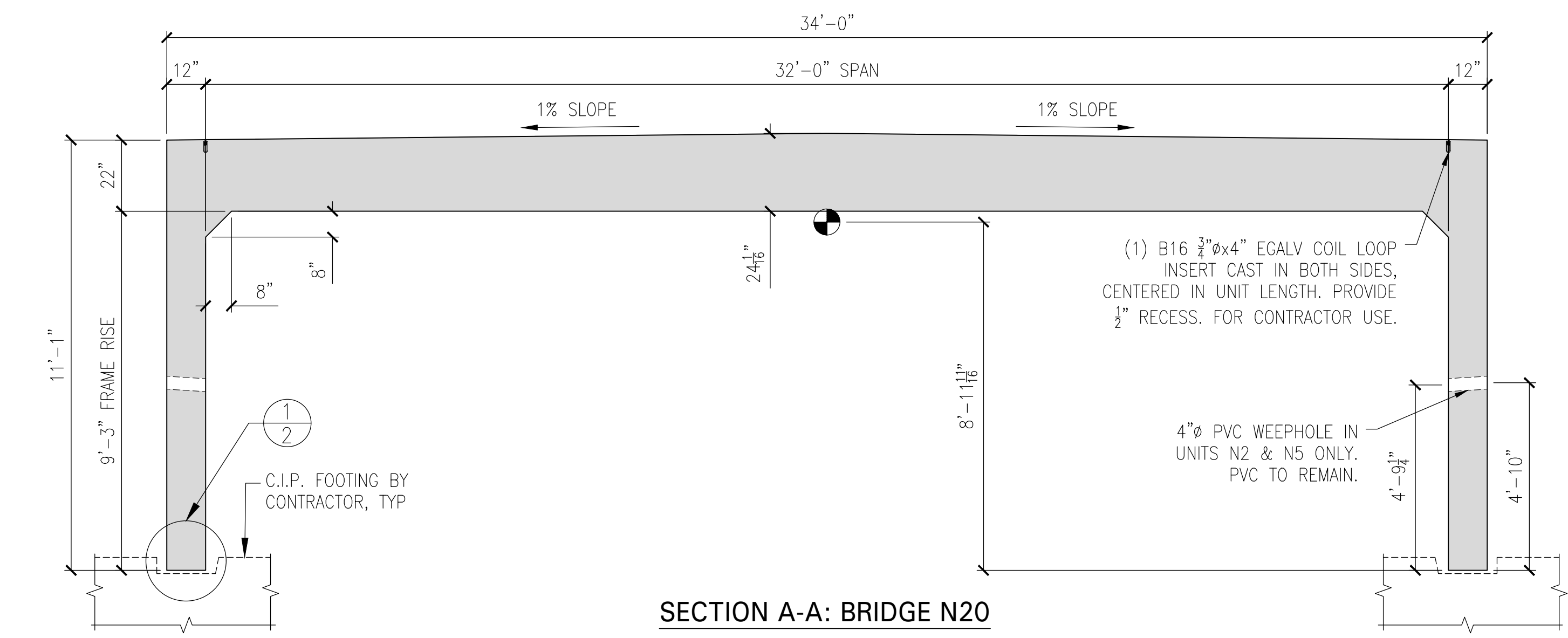
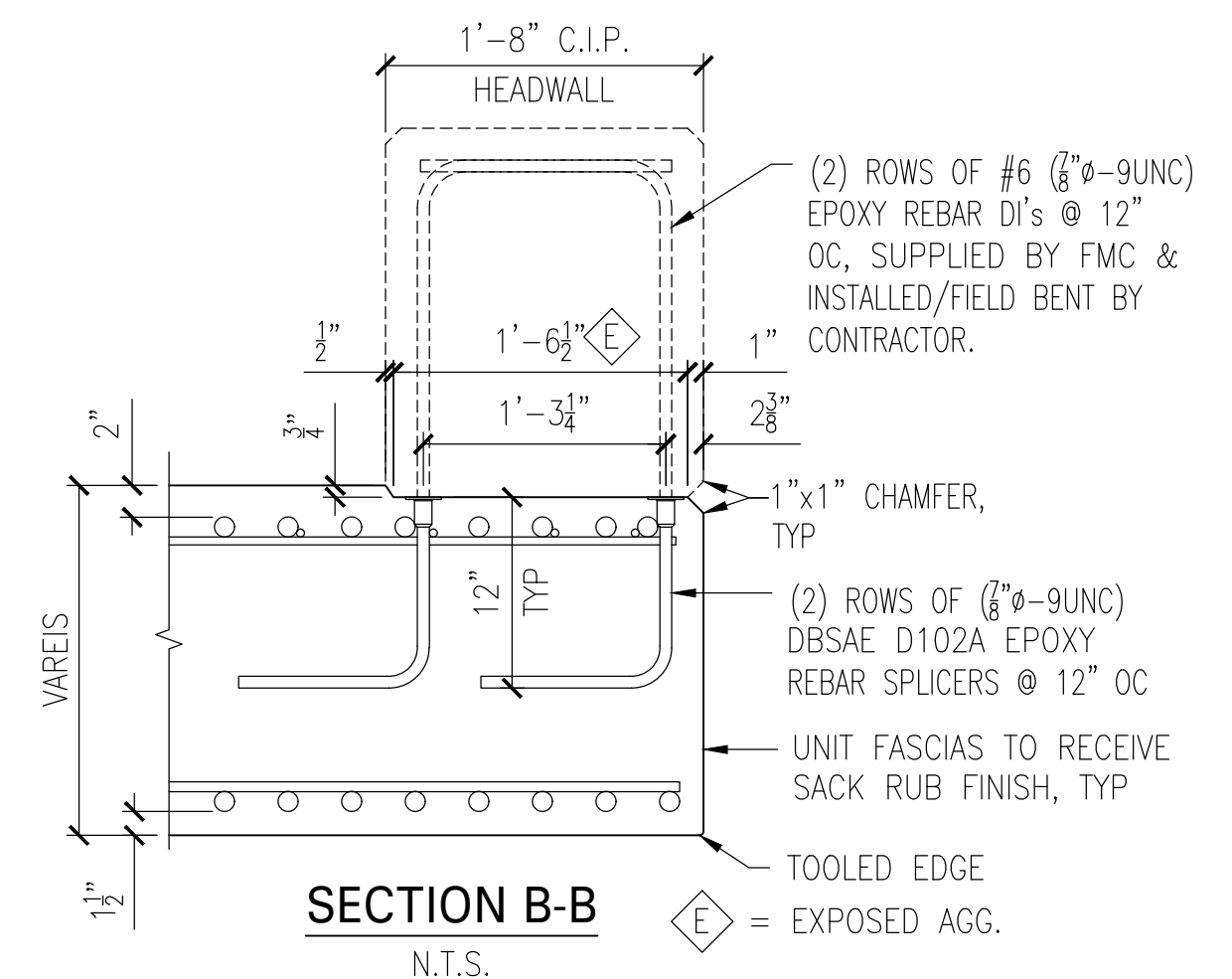
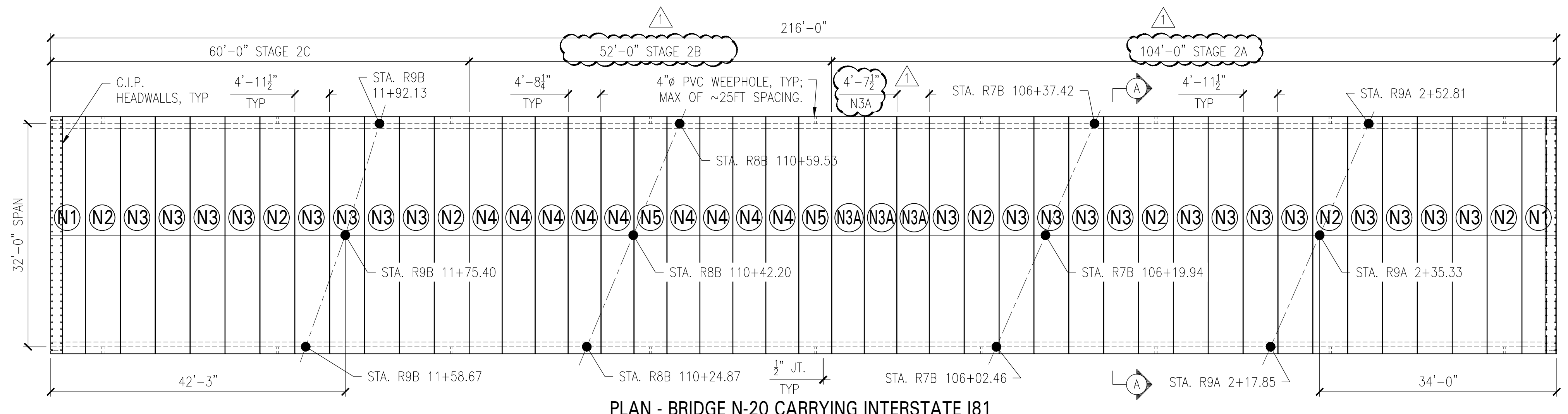
PRODUCTION NOTE SHEET

CONTRACTOR: SALT CITY CONSTRUCTORS
 145 POSPADIC ROAD
 RICHMONDVILLE, NY 12149

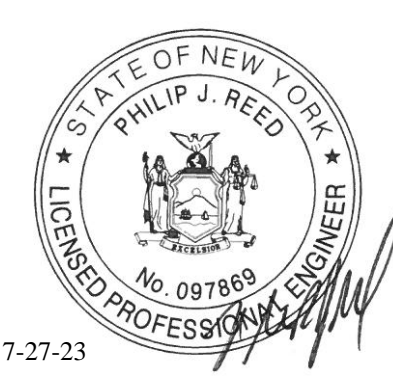
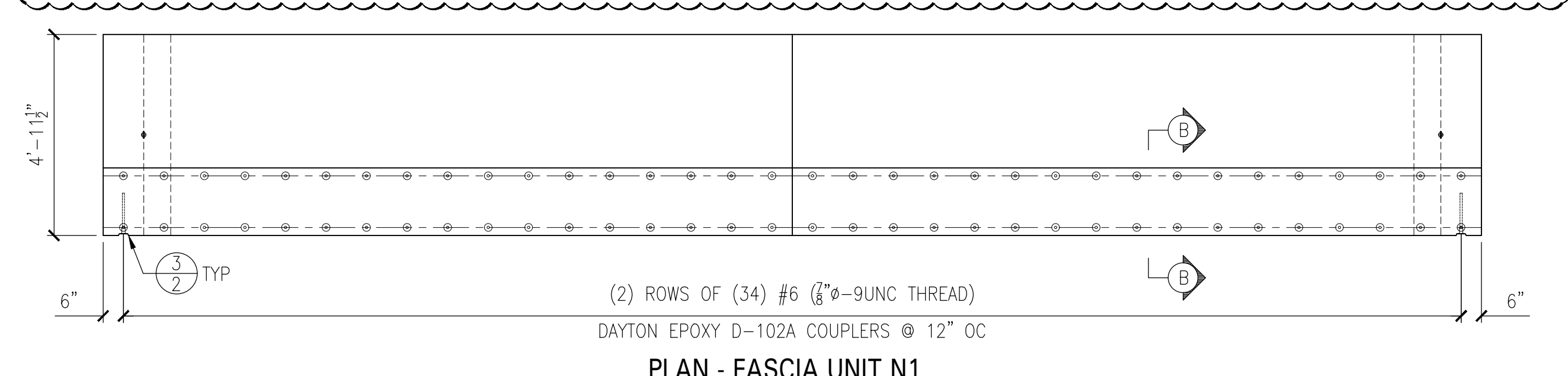
ENGINEER: HNTB

DRAWN BY: PJR DATE: 5/24/23 CHK'D BY: TMT SHEET: 1 SCALE: NONE F.M. JOB No.: 24695 DWG.: T1

REVISIONS



SHIMMING NOTE:
6"x6" NON-COMPRESSIBLE SHIMS, VARYING THICKNESSES MIN. (2) PACKS PER LEG PER UNIT, SUPPLIED & INSTALLED (TIGHT FIT) BY CONTRACTOR ON BACKFILL FACE PRIOR TO UNIT'S WEIGHT RELEASE FROM CRANE. (TO MAINTAIN UNIT SPAN DIMENSION AT BOTTOM OF WALL.)



FED. ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
3	N.Y.	D900054		
P.I.N. #: 3501.90		BRIDGES: N-20		
1-81 SB, 1-81 NB, & 1-481 TO 1-81 SB ON RAMP; 1-81 NB TO SR-481 NB RAMP				
CULVERT REPLACEMENT PROJECT				
CITY OF SYRACUSE				
ONONDAGA COUNTY				

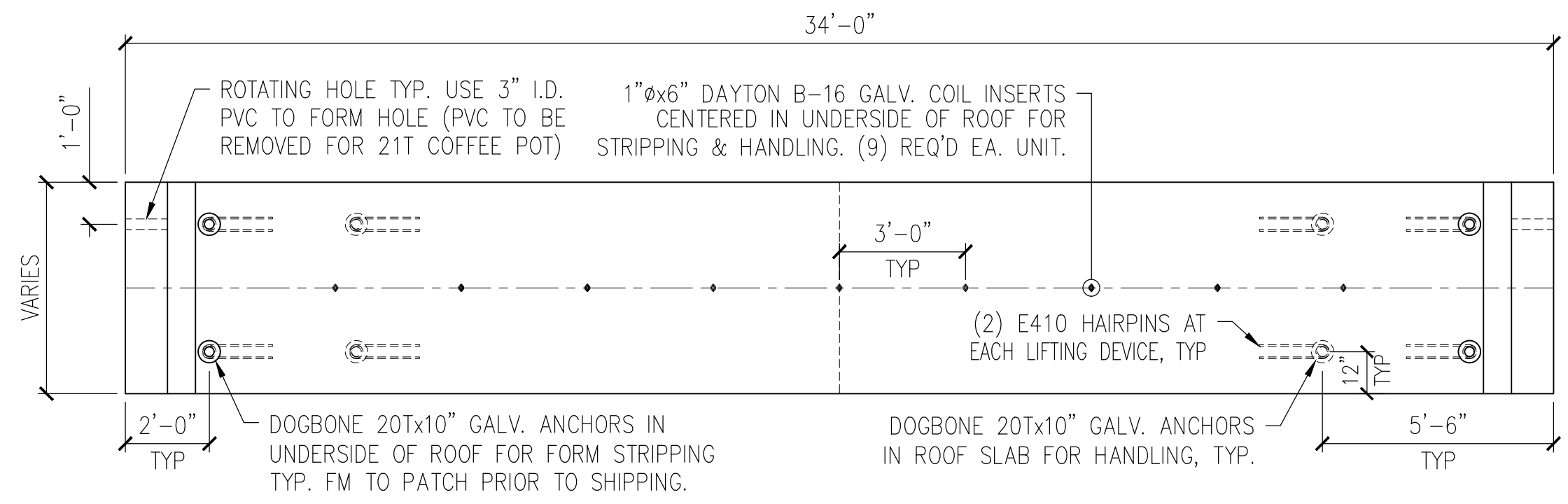
THE FORT MILLER Co., Inc.
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www.fortmiller.com

NO.	DATE	BY	DESCRIPTION
1	7/27/23	PJR	STAGE LINES, UNIT DETAILS

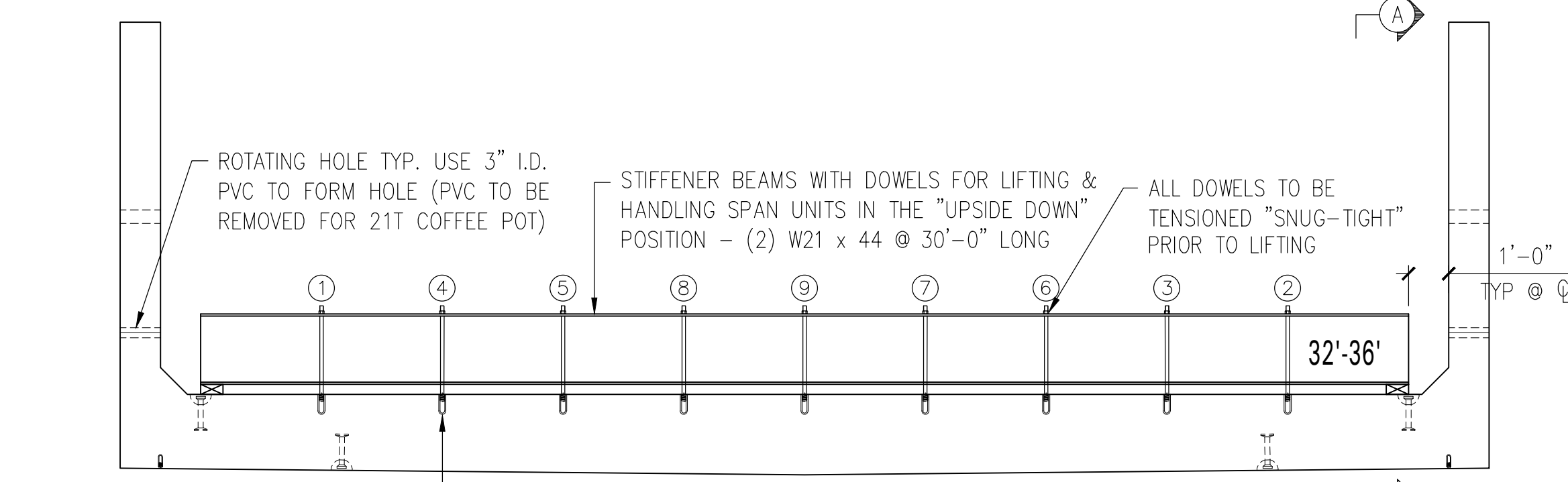
D900054 - ONONDAGA COUNTY			
P.I.N. 3501.90 VIADUCT PROJECT			
STRUCTURE N-20			
CITY OF SYRACUSE, NEW YORK			
BRIDGE LAYOUTS & DETAILS		CONTRACTOR:	
ENGINEER:		SALT CITY CONSTRUCTORS	
HNTB		145 POSPADIC ROAD	
DRAWN BY: PJR		RICHMONDVILLE, NY 12149	
DATE: 5/24/23	CHK'D BY: TMT	SHEET: 2	SCALE: NONE
F.M. JOB No. 24695		DWG. T2	

ITEM 562.0101 REINFORCED CONCRETE SPAN UNITS

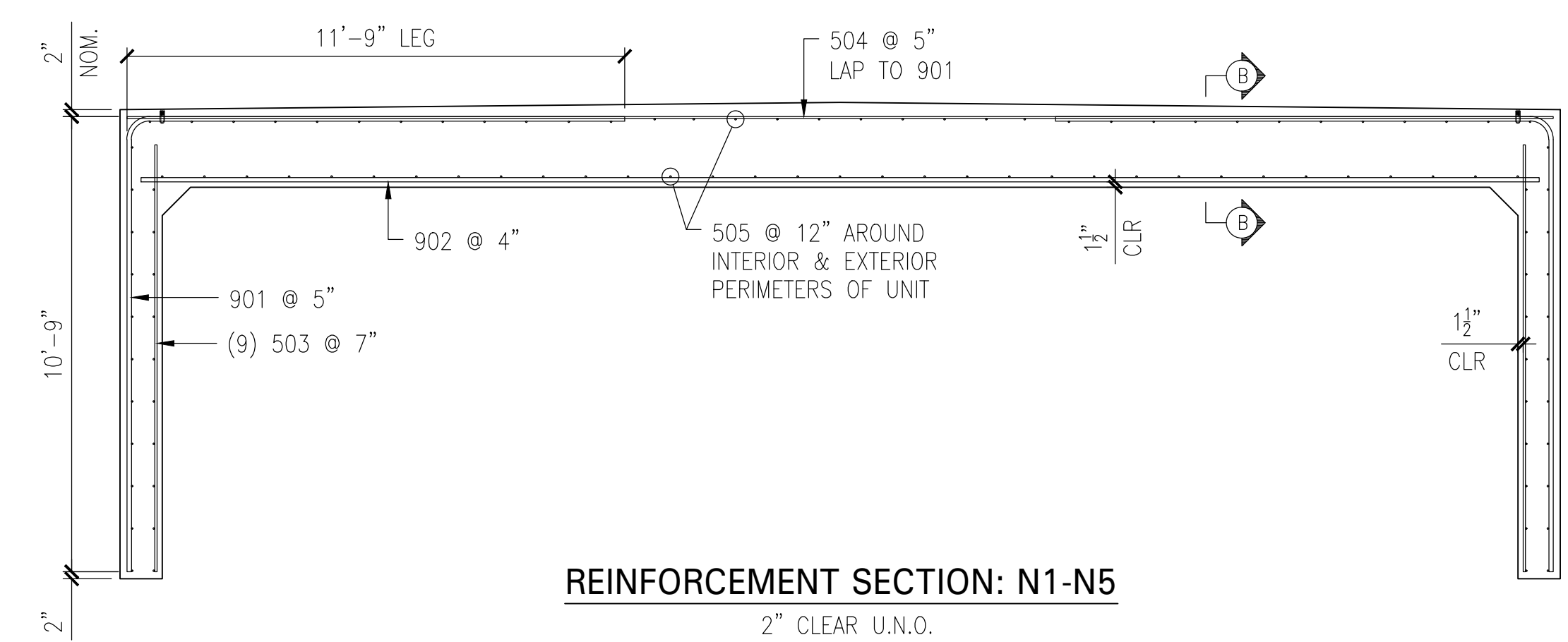
REVISIONS



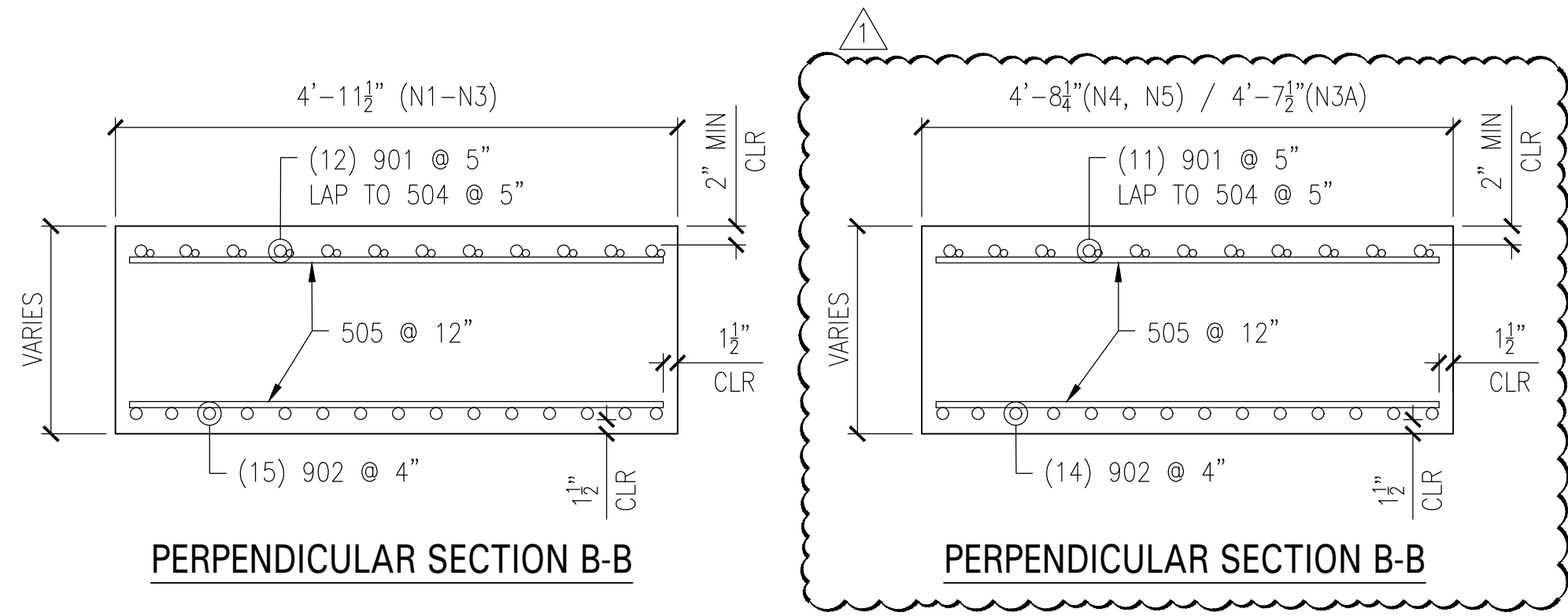
PLAN - UNIT LIFTING
SHOWN IN FORM



FORM REMOVAL DETAIL - FMC USE ONLY
SHOWN IN FORM - TYP EACH UNIT



REINFORCEMENT SECTION: N1-N5
2" CLEAR U.N.O.



PERPENDICULAR SECTION B-B

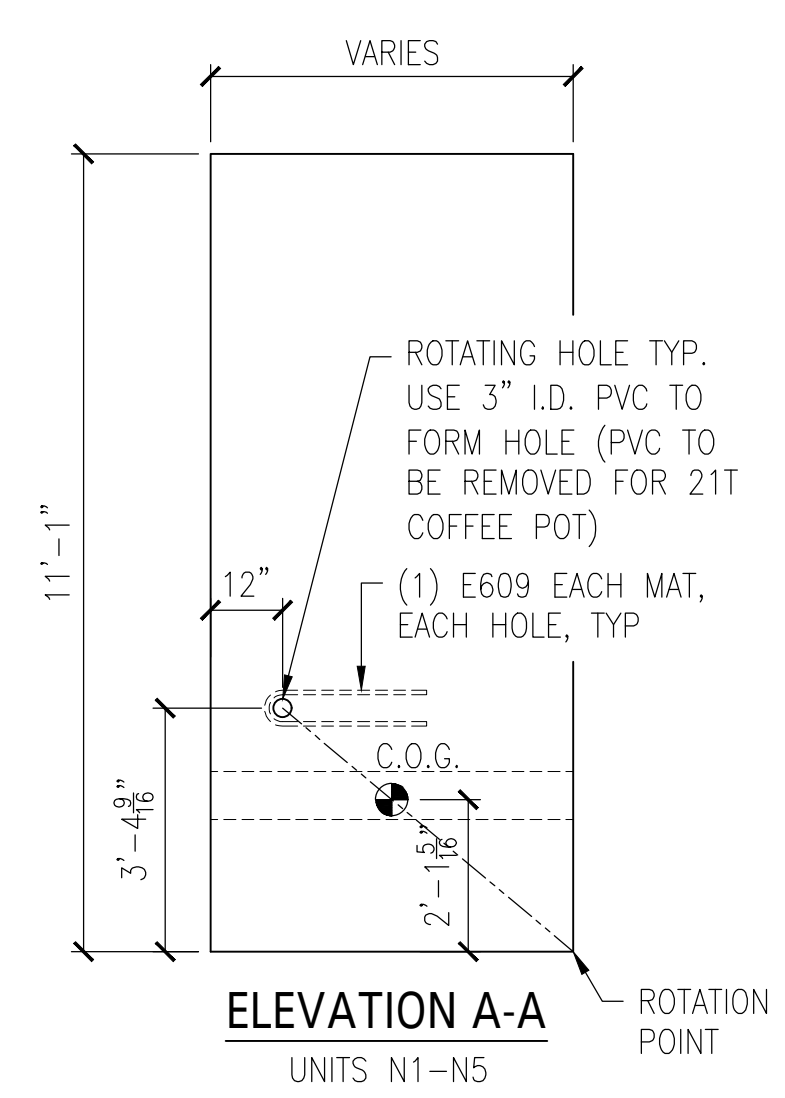
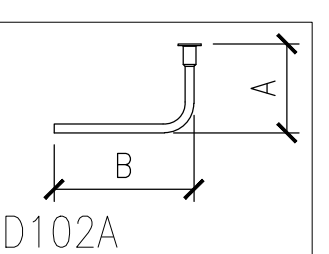
PERPENDICULAR SECTION B-B

TYPICAL N1-N3 UNIT REINFORCEMENT SCHEDULE									
MK#	Qty	Size	Type	Length	A	B	C	H	O
901	24	9	2	22'-6"	10'-9"	11'-9"			
902	15	9		33'-0"					
503	18	5		10'-0"					
504	12	5		33'-0"					
505	109	5		4'-8 1/2"					
E409	16	E4	S11	3'-1 1/2"	@ Lifting Devices			1'-6"	4"
E610	4	E6	S11	4'-9 1/2"	@ Rotating Holes			2'-3"	6"

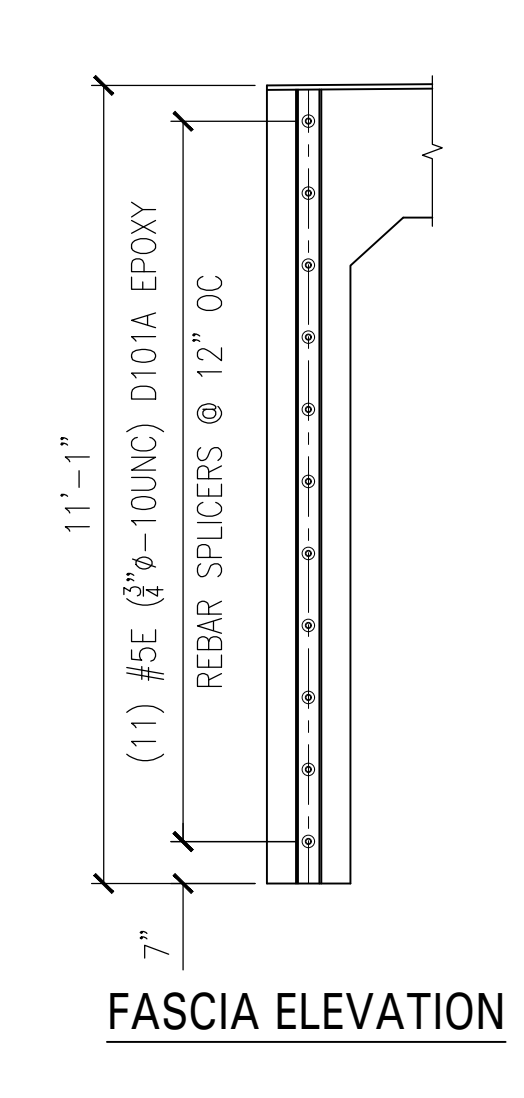
TYPICAL N3A UNIT REINFORCEMENT SCHEDULE									
MK#	Qty	Size	Type	Length	A	B	C	H	O
901	22	9	2	22'-6"	10'-9"	11'-9"			
902	14	9		33'-0"					
503	18	5		10'-0"					
504	12	5		33'-0"					
505	109	5		4'-4 1/2"					
E409	16	E4	S11	3'-1 1/2"	@ Lifting Devices			1'-6"	4"
E610	4	E6	S11	4'-9 1/2"	@ Rotating Holes			2'-3"	6"

TYPICAL N4-N5 UNIT REINFORCEMENT SCHEDULE									
MK#	Qty	Size	Type	Length	A	B	C	H	O
901	22	9	2	22'-6"	10'-9"	11'-9"			
902	14	9		33'-0"					
503	18	5		10'-0"					
504	12	5		33'-0"					
505	109	5		4'-5 1/4"					
E409	16	E4	S11	3'-1 1/2"	@ Lifting Devices			1'-6"	4"
E610	4	E6	S11	4'-9 1/2"	@ Rotating Holes			2'-3"	6"

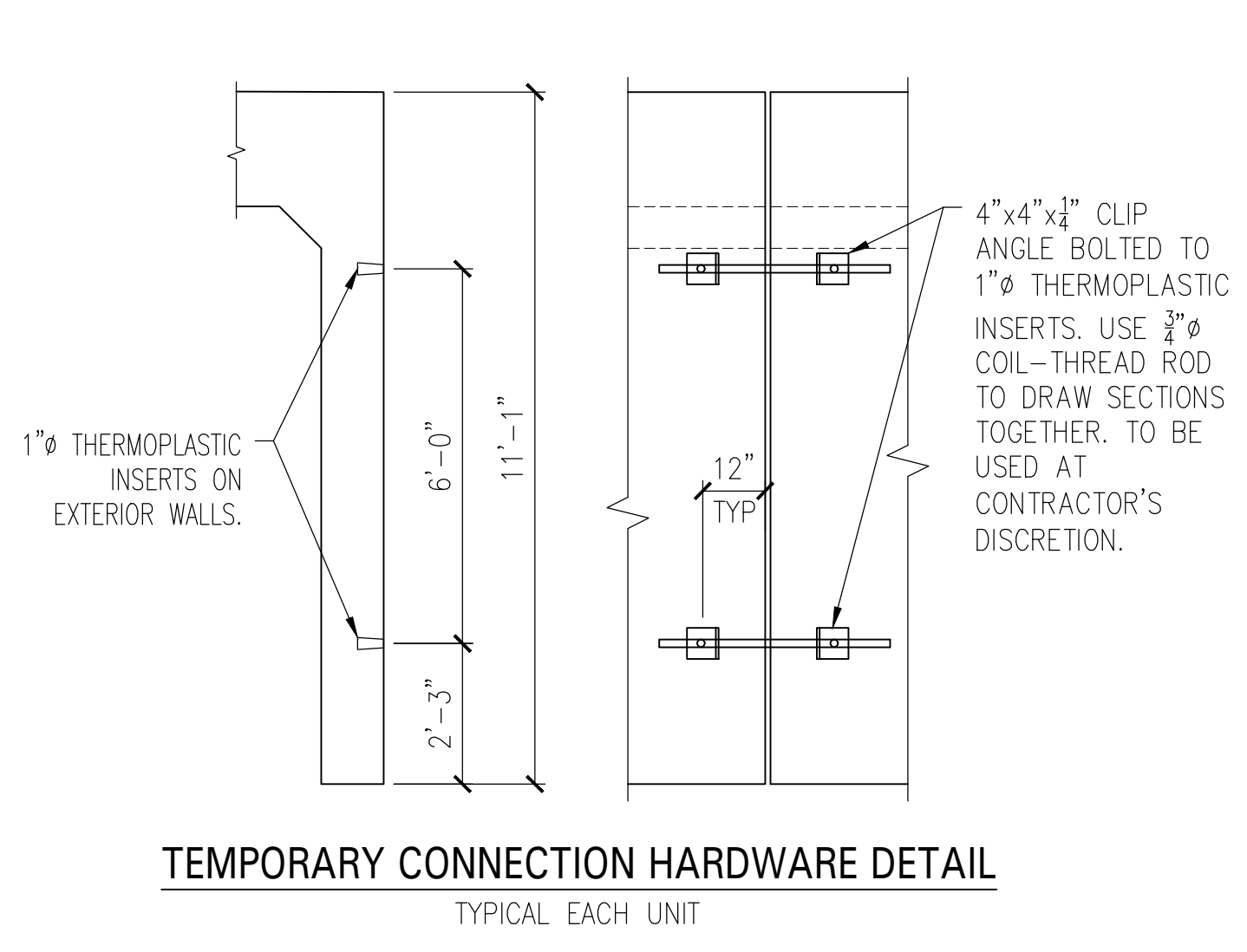
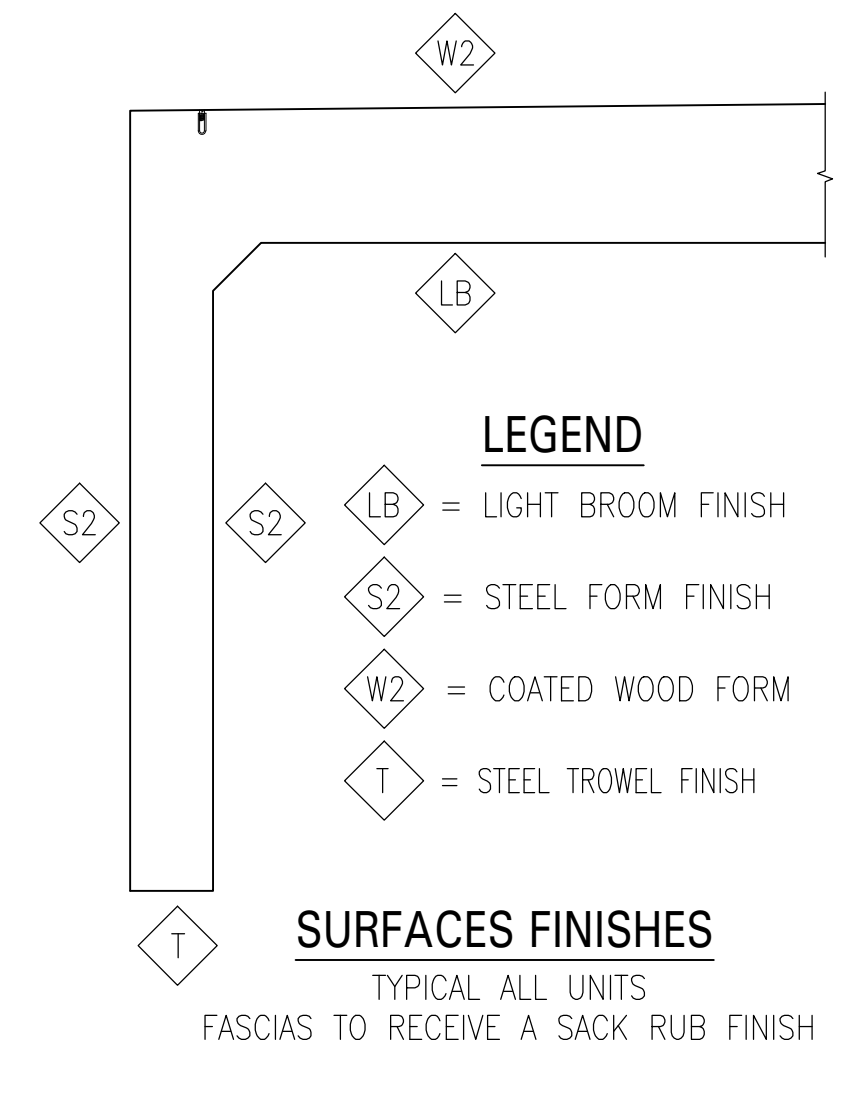
REBAR SPLICER SCHEDULE - FASICA UNITS						
MK#	Qty	Size	Type	Length	A	B
E650	68	E6	D102A	2'-0"	12"	12"
E551	22	E5	D101A	1'-0"		



ELEVATION A-A
UNITS N1-N5



FASCIA ELEVATION



TEMPORARY CONNECTION HARDWARE DETAIL
TYPICAL EACH UNIT



FED. ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
3	N.Y.	D900054		
P.I.N. #: 3501.90		BRIDGES: N-20		
I-81 SB, I-81 NB, & I-481 TO I-81 SB ON RAMP; I-81 NB TO SR-481 NB RAMP				
CULVERT REPLACEMENT PROJECT				
CITY OF SYRACUSE				
ONONDAGA COUNTY				

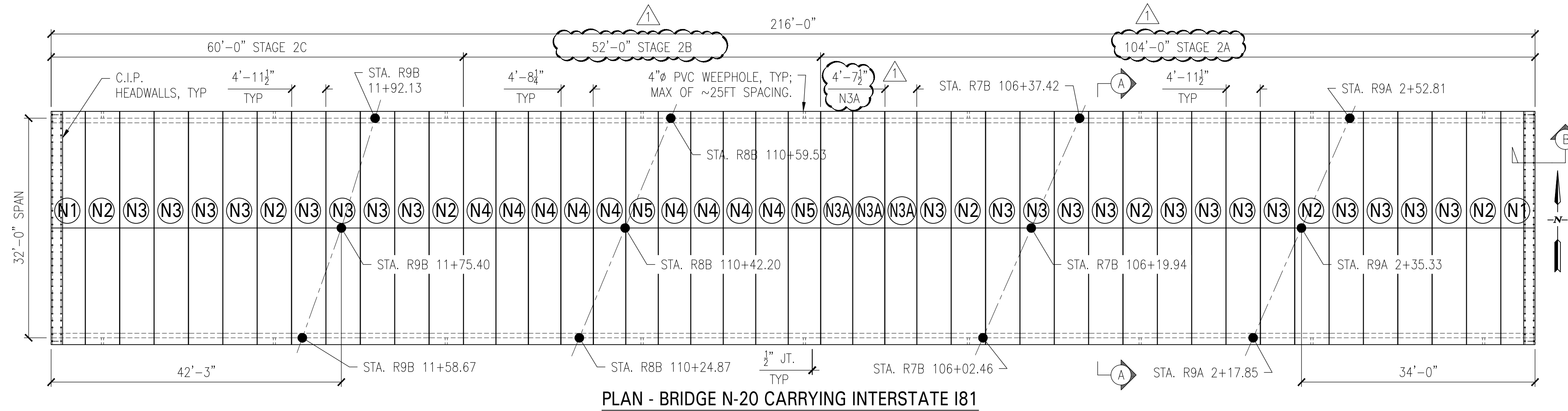
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NO.	DATE	BY	DESCRIPTION
1	7/27/23	PJR	UNIT REINFORCEMENT DETAILS

D900054 - ONONDAGA COUNTY			
P.I.N. 3501.90 I-81 VIADUCT PROJECT			
STRUCTURE N-20			
CITY OF SYRACUSE, NEW YORK			
HANDLING & REINFORCEMENT			CONTRACTOR:
ENGINEER:			SALT CITY CONSTRUCTORS
HNTB			145 POSPADIC ROAD
DRAWN BY: PJR			RICHMONDVILLE, NY 12149
DATE: 5/24/23	CHK'D BY: TMT	SHEET: 3	SCALE: NONE
F.M. JOB No. 24695	DWG. T3		

ITEM 562.0101 REINFORCED CONCRETE SPAN UNITS

REVISIONS



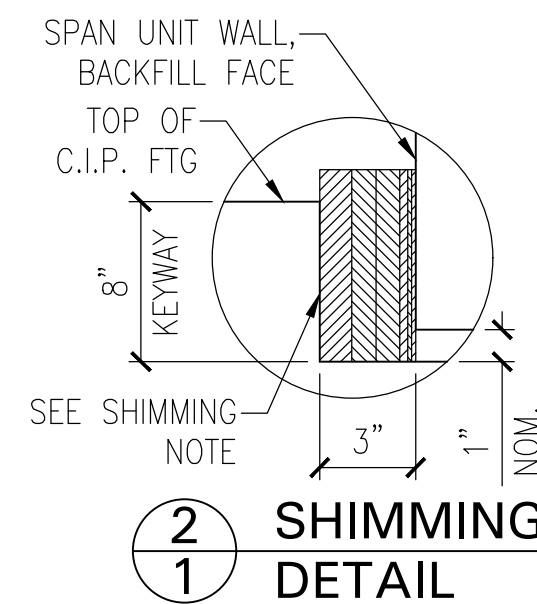
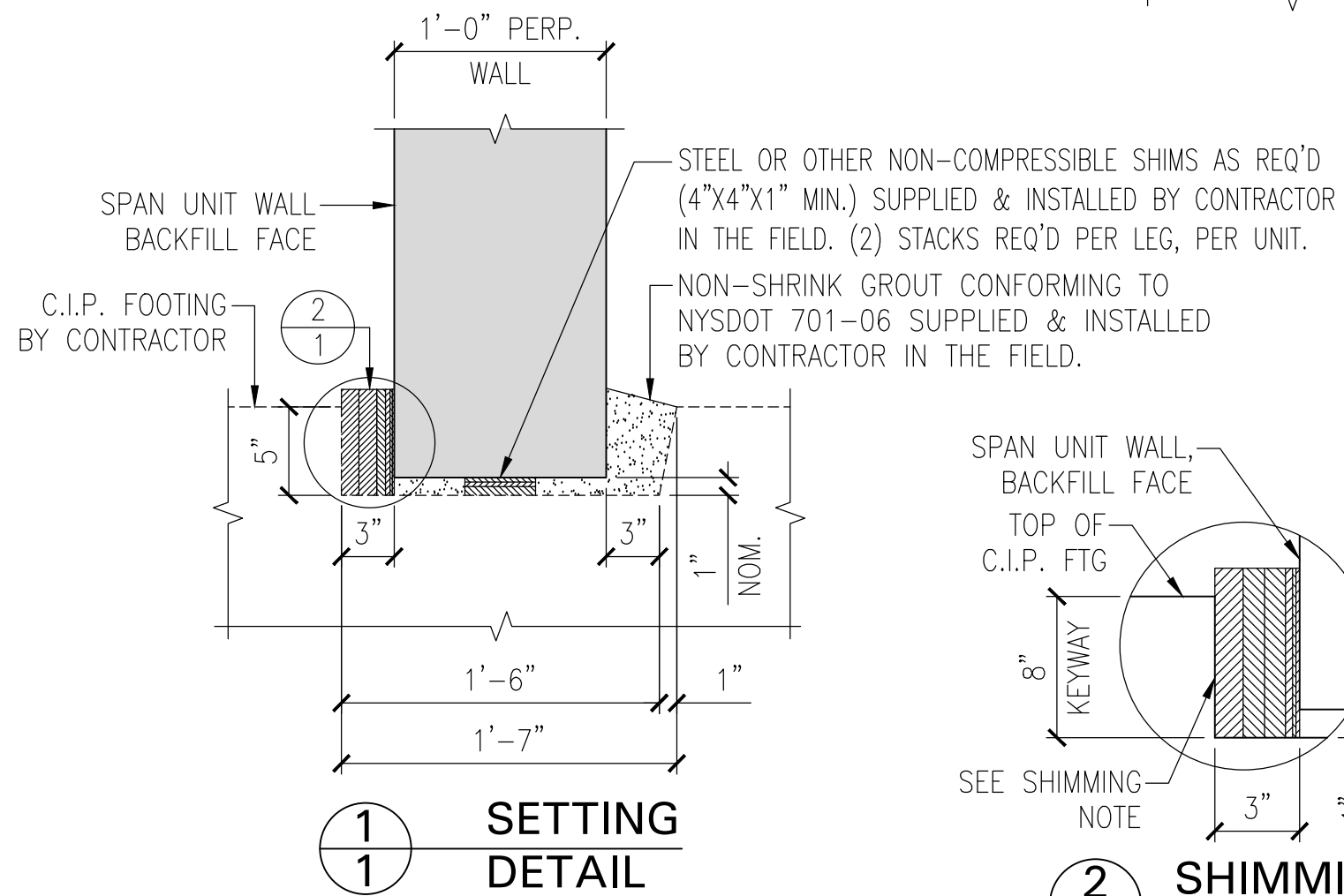
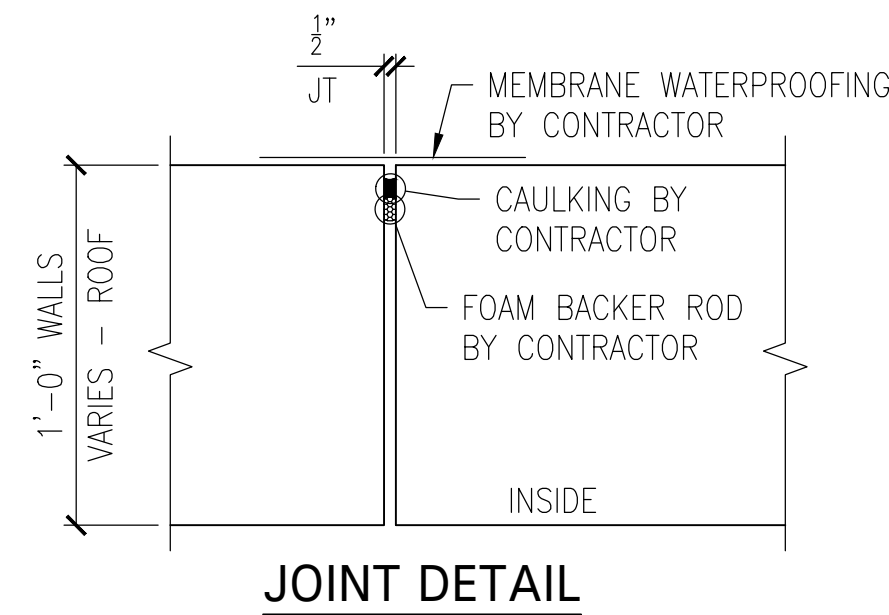
GENERAL NOTES

- THE REQUIREMENTS OF ITEM #562.0101 - REINFORCED CONCRETE SPAN UNITS - THE PROVISIONS OF SECTION 562 OF THE NYS DOT STANDARD SPECIFICATION (REINFORCED CONCRETE THREE-SIDED STRUCTURES), AND THE NYS DOT PCCM SHALL APPLY TO THIS WORK.
- ALL SPAN UNIT FIELD LIFTING DEVICES TO BE DAYTON/SUPERIOR 20T, GALV. P-52 SWIFT LIFT ANCHORS (OR APPROVED EQUAL) UNLESS NOTED OTHERWISE. SPAN UNIT LIFTING ANCHORS, THERMOPLASTIC INSERT HOLES, AND ROTATING HOLES TO BE PATCHED BY THE CONTRACTOR FOLLOWING INSTALLATION, USING NYS DOT APPROVED MATERIALS, AND PER THE MANUFACTURER'S INSTRUCTIONS (INCL. CURING).
- FMC SUPPLIED INSTALLATION ITEMS:
 - 20T SC-1 LIFTING EYES (TO BE RETURNED) QTY. (4)
 - #5 THREADED EPOXY DOWEL-IN x 30" LONG QTY (44) (ITEM 64222)
 - #6 THREADED EPOXY DOWEL-IN x 30" LONG QTY (136) (ITEM 64223)
 - CLIP ANGLE ASSEMBLIES (TO BE RETURNED) QTY. (8) SETS TOTAL PIECE COUNT FOR (8) SETS:
 - (8) - 3/4" x 30" COIL ROD ASSEMBLY (ITEM 5154)
 - (16) - 6" x 6" x 1/2" X 6" ANGLES (ITEM 5115)
 - (16) - 1" x 3" BOLTS (ITEM 5128)
 - (8) - 3/4" COIL NUTS (ITEM 5178)
 - (8) - 3/4" WASHER (ITEM 5171)
 - (16) - 1" WASHERS (ITEM 5129)
- CONTRACTOR SUPPLIED INSTALLATION ITEMS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 - NYS DOT APPROVED NON-SHRINK GROUT, TO BE USED FOR SEALING JOINTS, FOOTER KEYS, ETC.
 - STEEL OR OTHER NYS DOT APPROVED NON-COMPRESSIBLE SHIMS: VARIOUS THICKNESSES
 - CABLES, SHACKLES, CHOKERS, UNEQUAL LENGTH SLINGS, ANY AND ALL ADDITIONAL RIGGING REQUIRED FOR OFF-LOADING, LANDING, AND INSTALL OF PRECAST ELEMENTS.
 - 1" (MIN.) FOAM BACKER ROD (GROUT STOP FOR JOINTS)
 - ANY AND ALL ADDITIONAL MATERIALS REQUIRED FOR CAST-IN-PLACE CONSTRUCTION.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASPECTS OF STRUCTURE ERECTION, INCLUDING BUT NOT LIMITED TO: ERECTION SEQUENCE, SITE CONDITIONS, ERECTION OPERATIONS, SELECTION & SIZING OF ALL EQUIPMENT NECESSARY FOR SUCCESSFUL OFF-LOADING & INSTALL, ETC.

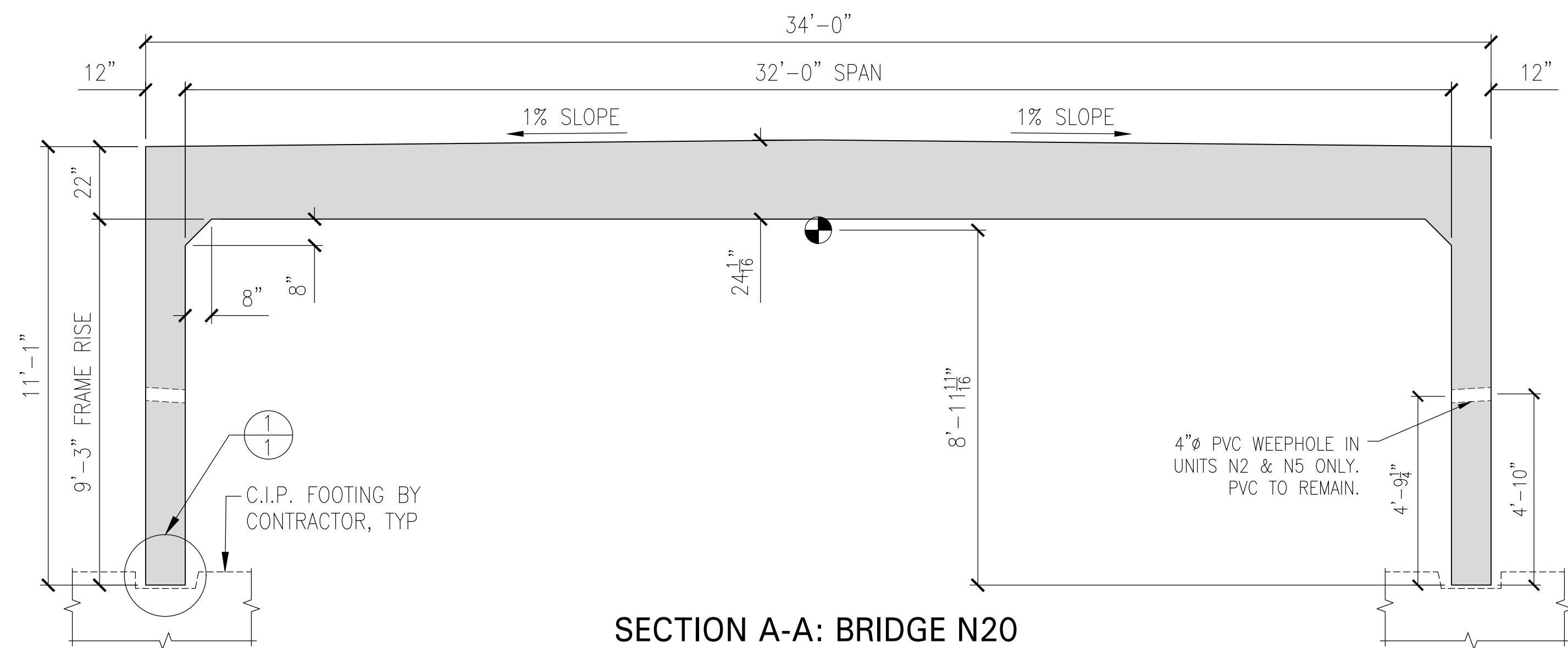
NOTE: ABOVE ITEMS DESIGNATED AS "TO BE RETURNED" SHALL BE RETURNED VIA COMMON CARRIER BY AND AT THE EXPENSE OF THE CONTRACTOR.

OFF-LOADING, SETTING, & INSTALLATION SEQUENCE

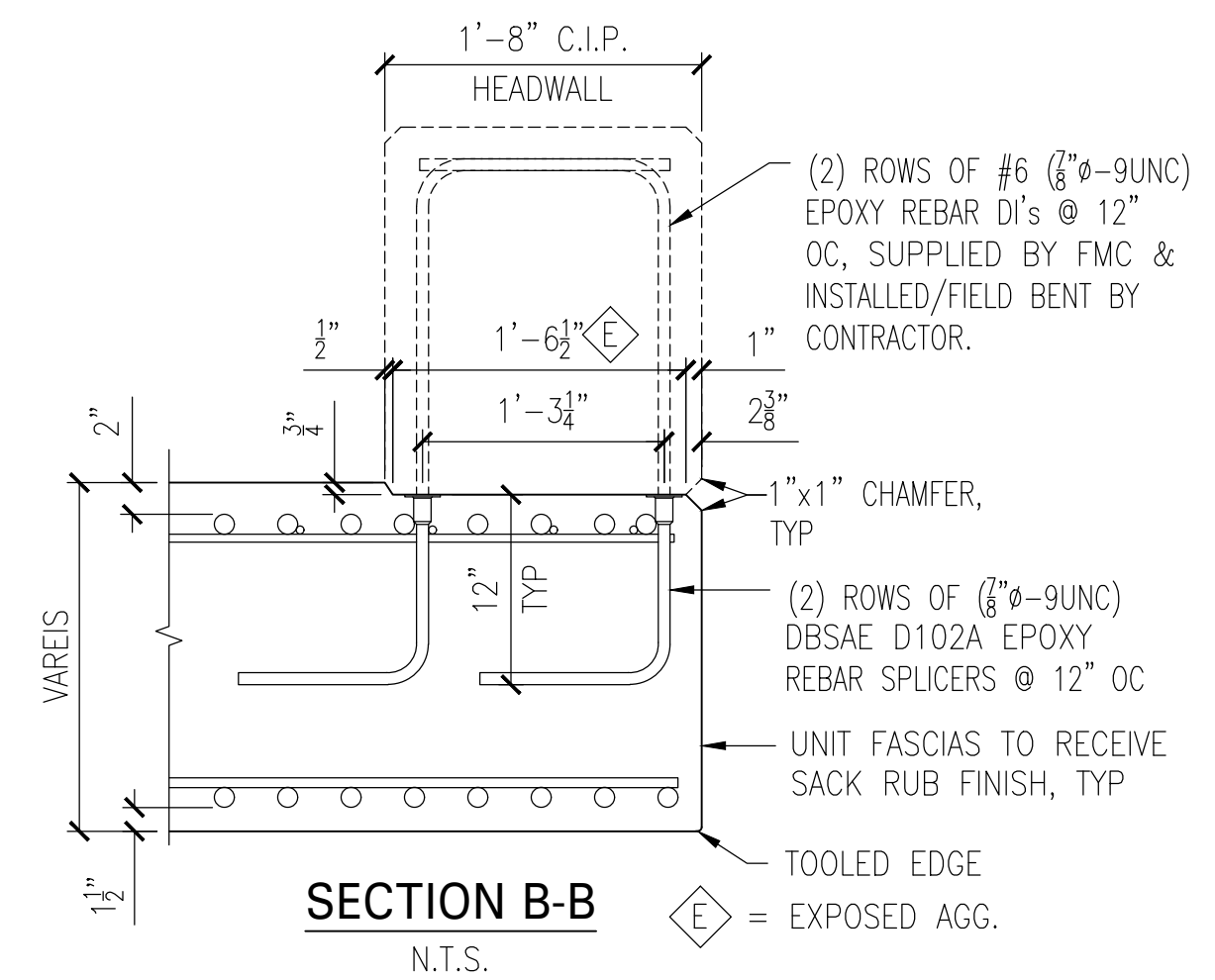
- FOR EACH CONSTRUCTION PHASE, SETTING SEQUENCE SHALL BE DETERMINED BY THE CONTRACTOR.
- NON-COMPRESSIBLE SHIMS SHALL BE USED IN THE FOOTING KEYWAY TO MAINTAIN PROPER ELEVATION & ALIGNMENT OF EACH UNIT.
- THE BACKFILL FACE OF EACH WALL, EACH UNIT, SHALL BE SHIMMED, PER DETAILS ON SHEET IN2, PRIOR TO THE UNIT'S WEIGHT RELEASE FROM THE CRANE.
- CLIP ANGLE ASSEMBLIES SHALL BE USED, AT THE DISCRETION OF THE CONTRACTOR, TO TEMPORARILY CONNECT AND DRAW ADJACENT UNITS TOGETHER WHILE SETTING.
- POST-ERECTION TOLERANCES, PER SECTION 562, INCLUDING INTERIOR SPAN DIMENSION & MID-SPAN DEFLECTION (IF ANY), TO BE VERIFIED WITH THE E.I.C. PRIOR TO GROUTING AND BACKFILLING.
 - POST-ERECTION TOLERANCES: JOINT WIDTH: ± 3/8"
 - VERTICAL DIFFERENCE BETWEEN TOP OF ADJACENT UNITS: ± 1/2"
 - SPAN VARIATION FROM POST-POUR MEASUREMENT (RECORDED ON SHIPPING PAPERWORK): ± 3/8"
- GROUTING TO BE EXECUTED IN TWO STAGES: FOOTING KEYWAY TO BE GROUTED INITIALLY. VERTICAL & HORIZONTAL JOINTS TO BE GROUTED 24 HOURS SUBSEQUENT. ALL GROUT SHALL BE INSTALLED USING NYS DOT APPROVED MATERIALS, AND IN A MANNER APPROVED BY THE MATERIAL'S MANUFACTURER.
- PER SECTION 562, ALL PRECAST ELEMENTS TO BE INSPECTED FOR CRACKS AND VISIBLE DEFECTS, PRIOR TO BACKFILLING, AND VERIFIED WITH THE E.I.C.
- BACKFILL OPERATIONS WILL BE CONDUCTED SIMULTANEOUSLY AT EACH ABUTMENT, IN ACCORDANCE WITH CONTRACT PLANS AND SECTION 562.
- C.I.P. WINGWALLS, BRIDGE RAILING, MEMBRANE WATERPROOFING, SUBASE AND OTHER ROADWAY MATERIALS TO BE INSTALLED PER THE CONTRACT PLANS.



SHIMMING NOTE:
6"x6" NON-COMPRESSIBLE SHIMS, VARYING THICKNESSES MIN. (2) PACKS PER LEG PER UNIT, SUPPLIED & INSTALLED (TIGHT FIT) BY CONTRACTOR ON BACKFILL FACE PRIOR TO UNIT'S WEIGHT RELEASE FROM CRANE. (TO MAINTAIN UNIT SPAN DIMENSION AT BOTTOM OF WALL.)

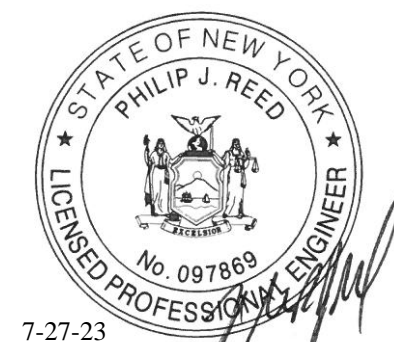


SECTION A-A: BRIDGE N20

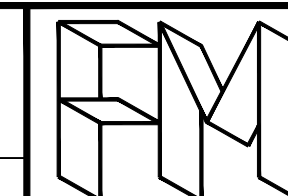


SECTION B-B
N.T.S.

ITEM 562.0101 REINFORCED CONCRETE SPAN UNITS



FED. ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
3	N.Y.	D900054		
P.I.N. #: 3501.90		BRIDGES: N-20		
I-81 SB, I-81 NB, & I-481 TO I-81 SB ON RAMP; I-81 NB TO SR-481 NB RAMP				
CULVERT REPLACEMENT PROJECT				
CITY OF SYRACUSE				
ONONDAGA COUNTY				

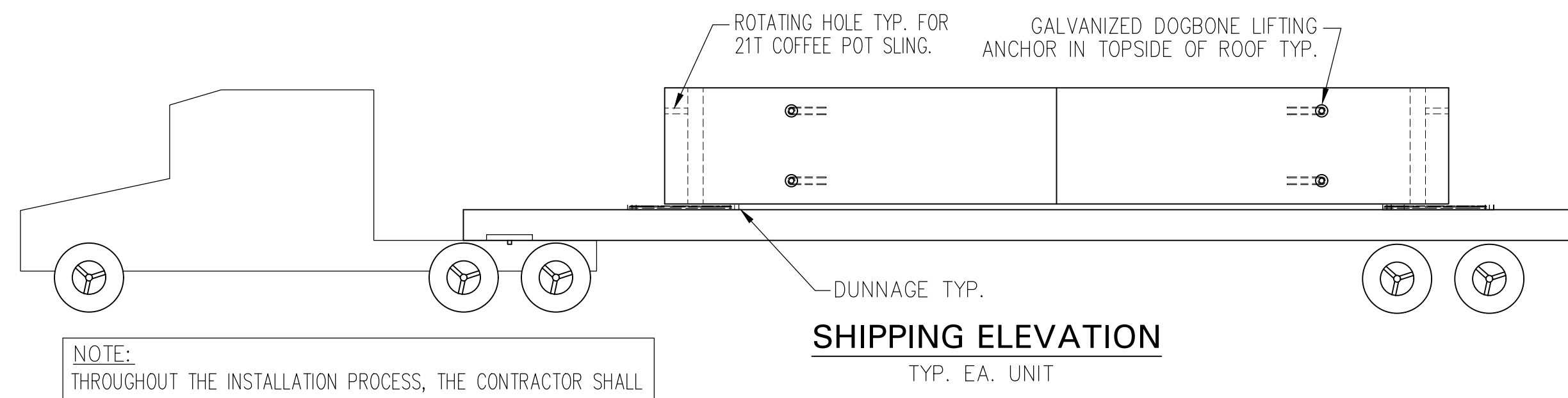


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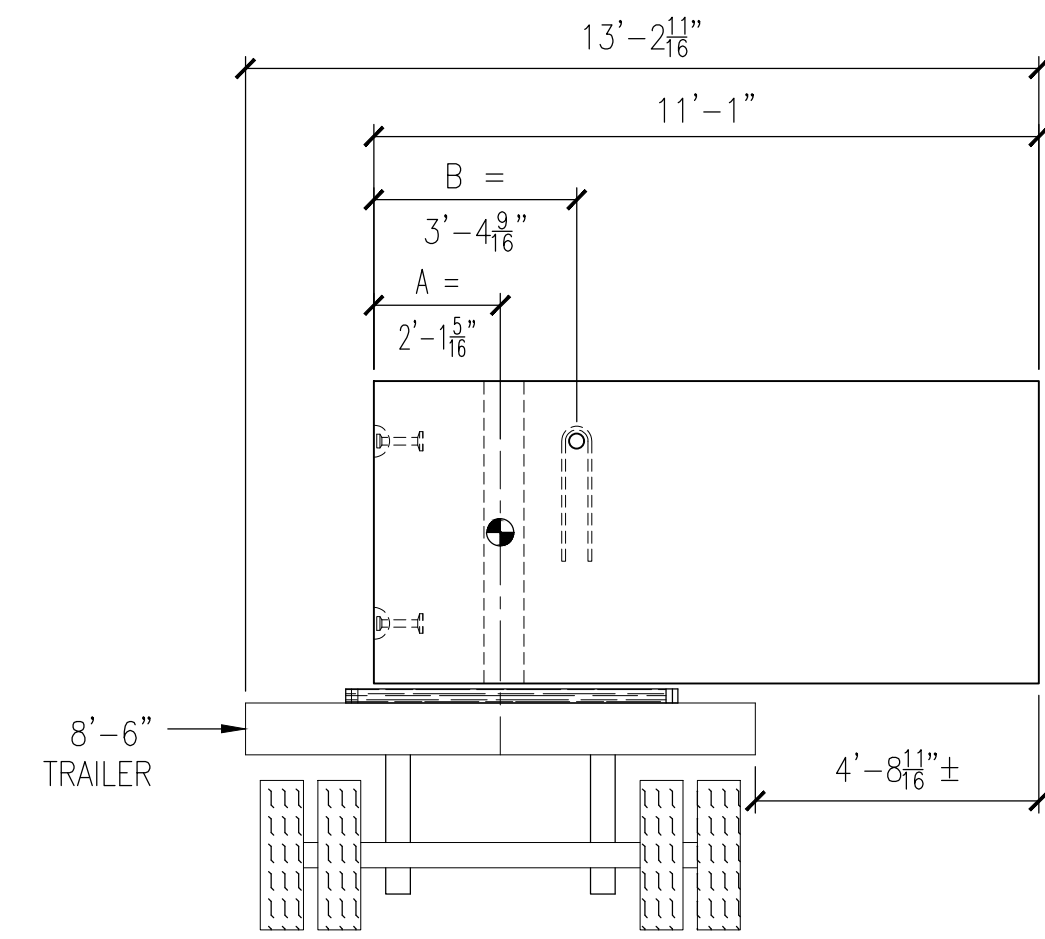
NO.	DATE	BY	DESCRIPTION
1	7/27/23	PJR	STAGE LINES

D900054 - ONONDAGA COUNTY			
P.I.N. 3501.90 I-81 VIADUCT PROJECT			
STRUCTURE N-20			
CITY OF SYRACUSE, NEW YORK			
INSTALLATION DRAWING 1		CONTRACTOR:	
ENGINEER:		SALT CITY CONSTRUCTORS	
HNTB		145 POSPADIC ROAD	
DRAWN BY: PJR		RICHMONDVILLE, NY 12149	
DATE: 5/24/23	CHK'D BY: TMT	SHEET: 1.1	DWG. IN1
SCALE: NONE	F.M. JOB No. 24695		

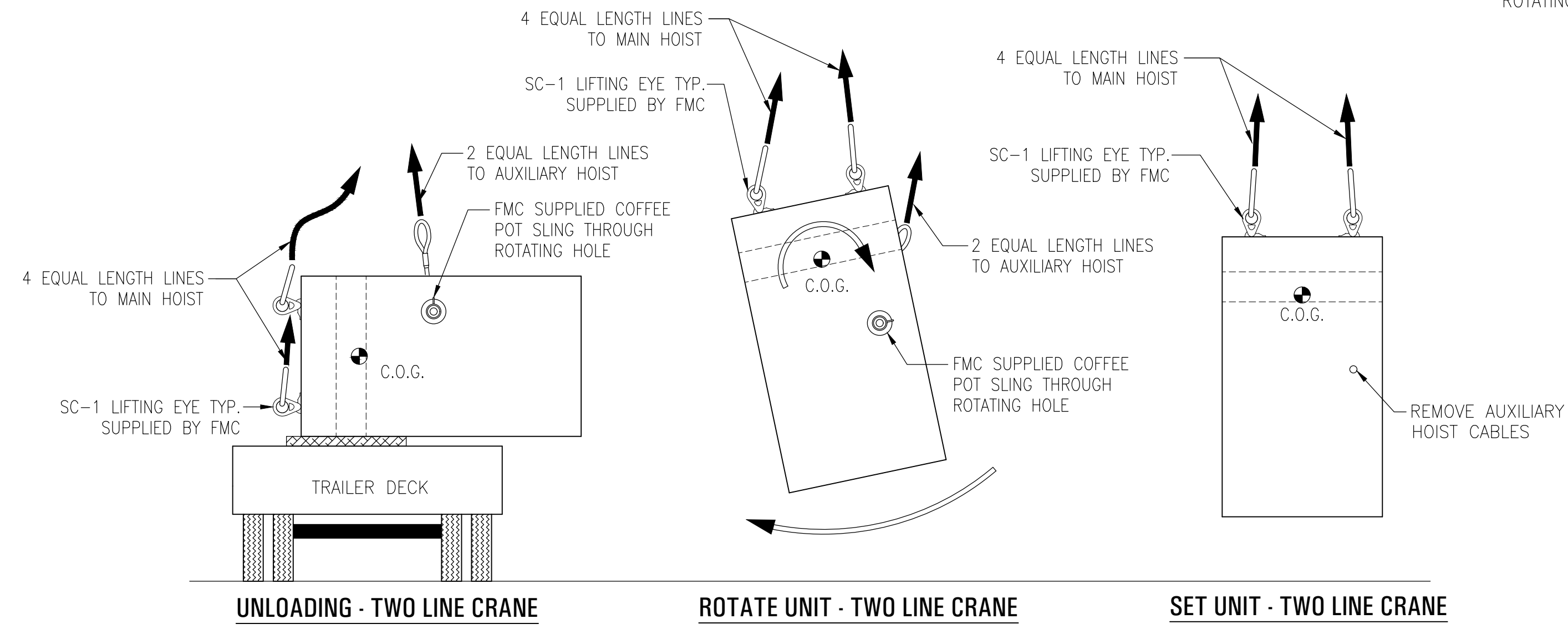
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NOTE:
THROUGHOUT THE INSTALLATION PROCESS, THE CONTRACTOR SHALL PROTECT VULNERABLE EDGES OF PRECAST FROM DAMAGE.



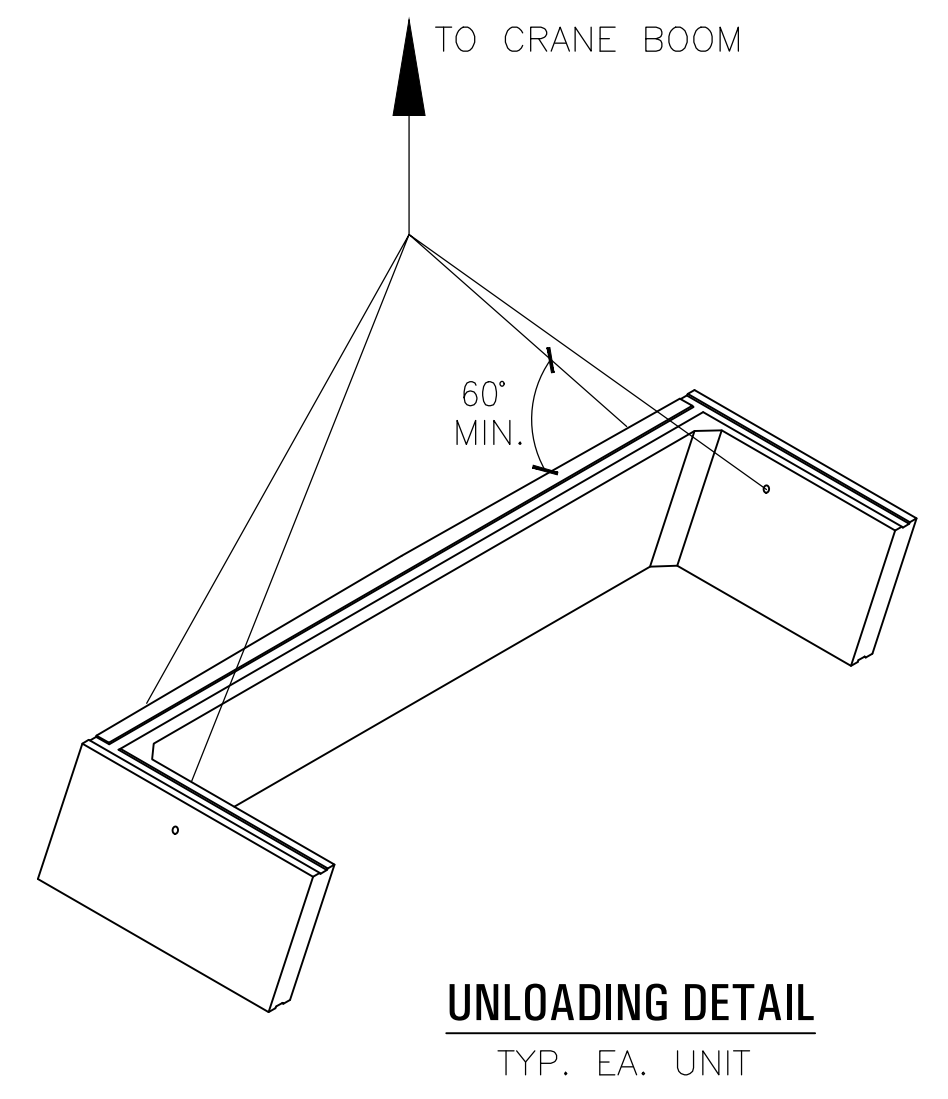
SHIPPING - END ELEVATION: N1-N5
ROTATING HOLE REQ'D CAPACITY = $\frac{1}{2}(U)(W)$ = 9.4 TONS



HANDLING SEQUENCE (TWO LINE CRANE ONLY)

1. ATTACH 4 EQUAL LENGTH LINES FROM MAIN HOIST TO (4) ANCHOR LIFTING ANCHORS IN ROOF SLAB.
2. ATTACH 2 EQUAL LENGTH LINES FROM AUXILIARY HOIST TO COFFEE POT SLINGS.
3. LIFT UNIT OFF TRUCK BED, DRIVE TRUCK OUT FROM UNDER LOAD OR SWING LOAD AWAY FROM VEHICLE.
4. LOWER AUXILIARY HOIST AND RAISE MAIN HOIST TO ROTATE UNIT.
5. ONCE PIECE IS UPRIGHT, REMOVE AUXILIARY HOIST CABLES.
6. SET UNIT USING DOGBONE LIFTING ANCHORS IN ROOF.
7. SHIMMING: SEE "SETTING DETAIL" AND "SHIMMING DETAIL" ON DWG. No. IN1. DO NOT REMOVE PIECE WEIGHT FROM CRANE UNTIL SHIMS ARE INSTALLED.

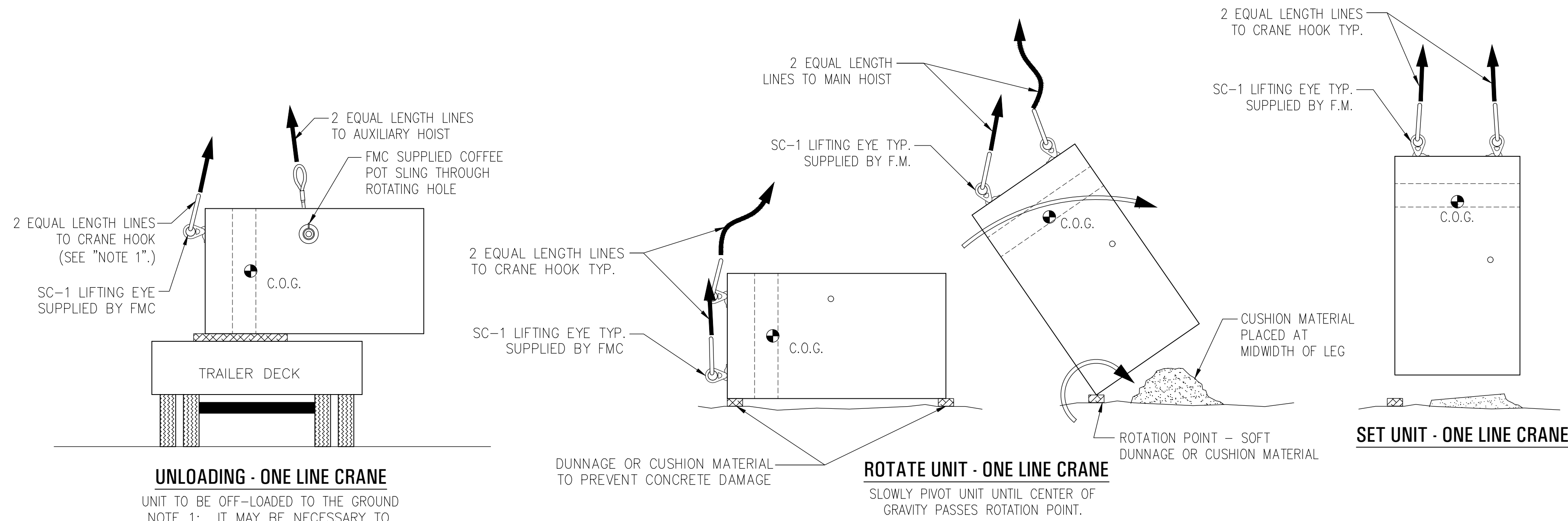
NOTES:
- AUXILIARY LINE MUST BE CAPABLE OF SUPPORTING MORE THAN HALF OF THE UNIT WEIGHT. SEE "SHIPPING - END ELEVATION", THIS SHEET.



NOTE TO CONTRACTOR:
UNEQUAL LENGTH SLINGS REQUIRED FOR INSTALLATION (DURING ROTATION - (2) EQUAL LENGTH IN ROOF SLAB AND (2) EQUAL LENGTH TO AUXILIARY).

SPAN UNIT HANDLING NOTES:

1. (2) "ROTATING HOLES" & THE TOPSIDE LIFTING ANCHORS SHALL BE USED WHEN LIFTING THE UNIT IN THE "LAID DOWN" (UNIT ON ITS SIDE) POSITION.
2. ALL LIFTING HARDWARE TO BE PROPERLY SIZED TO PROVIDE MINIMUM 60° SLING ANGLE, AS SHOWN.



HANDLING SEQUENCE (ONE LINE CRANE ONLY)

1. ATTACH 2 EQUAL LENGTH LINES FROM CRANE TO (2) UPPER P-52 LIFTING ANCHORS IN ROOF SLAB & TO COFFEE POT SLINGS.
2. LIFT UNIT OFF TRUCK BED; DRIVE TRUCK OUT FROM UNDER LOAD OR SWING LOAD AWAY FROM VEHICLE.
3. PLACE UNIT ONTO DUNNAGE LOCATED ON GROUND TO PREVENT DAMAGE.
4. REMOVE COFFEE POT SLINGS AND ATTACH SLINGS TO LOWER P-52 ANCHORS IN ROOF SLAB.
5. SLOWLY ROTATE UNIT ONTO CUSHION MATERIAL.
6. SET UNIT USING (4) DOGBONE LIFTING ANCHORS IN ROOF.
7. SHIMMING: SEE "SETTING DETAIL" AND "SHIMMING DETAIL" ON DWG. No. IN1. DO NOT REMOVE PIECE WEIGHT FROM CRANE UNTIL SHIMS ARE INSTALLED.

NOTES:
- LINES TO ROTATING HOLE MUST BE CAPABLE OF SUPPORTING MORE THAN HALF OF THE UNIT WEIGHT. SEE "SHIPPING - END ELEVATION", THIS SHEET

UNLOADING - ONE LINE CRANE

UNIT TO BE OFF-LOADED TO THE GROUND
NOTE 1: IT MAY BE NECESSARY TO ADJUST THE LENGTH OF ROOF SLAB SLINGS TO OBTAIN A LEVEL PICK.



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P.I.N. #: 3501.90		BRIDGES: N-20		
1-81 SB, 1-81 NB, & 1-481 TO 1-81 SB ON RAMP; 1-81 NB TO SR-481 NB RAMP				
CULVERT REPLACEMENT PROJECT				
CITY OF SYRACUSE				
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NO.	DATE	BY	DESCRIPTION

ITEM 562.0101 REINFORCED CONCRETE SPAN UNITS

D900054 - ONONDAGA COUNTY
P.I.N. 3501.90 I-81 VIADUCT PROJECT
STRUCTURE N-20
CITY OF SYRACUSE, NEW YORK

INSTALLATION DRAWING 2

CONTRACTOR: SALT CITY CONSTRUCTORS
145 POSPADIC ROAD
RICHMONDVILLE, NY 12149

ENGINEER: HNTB

REVISIONS

DRAWN BY: PJR	DATE: 5/24/23	CHK'D BY: TMT	SHEET: 1.2	SCALE: NONE	F.M. JOB No.: 24695	DWG. IN2
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