

SOUTH ELEVATION OF DEFLECTED TRUSS WITH END JACKS DISENGAGED
(DEFLECTION EXAGGERATED)

PANEL POINT	TEMPERATURE (SEE NOTE 4)	TABLE A - TRUSS DEFLECTIONS (SEE NOTE 4)		
		SOUTH EDGE OF SOUTH SIDEWALK	ROADWAY CENTERLINE	NORTH EDGE OF NORTH SIDEWALK
L0	40° F	1 1/2"	1 5/8"	1 5/8"
	60° F	1 7/16"	1 5/8"	1 5/8"
	80° F	1 3/8"	1 5/8"	1 5/8"
L16	40° F	1/4"	1/4"	1/4"
	60° F	1/4"	3/8"	1/4"
	80° F	3/8"	1/2"	1/4"

TEMPORARY SUPPORT NOTES:

THIS WORK CONSISTS OF THE DESIGN, FABRICATION, ERECTION AND MONITORING OF TEMPORARY SUPPORT STRUCTURES. THE CONTRACTOR SHALL SUBMIT DETAILS AND CALCULATIONS, PREPARED AND SEALED BY AN OHIO LICENSED ENGINEER. SOIL INFORMATION AT THE TEMPORARY SUPPORT LOCATIONS ARE NOT AVAILABLE. THE DESIGN SHALL INCLUDE THE NECESSARY SOIL BORINGS AND INVESTIGATION TO COMPUTE ALLOWABLE BEARING PRESSURES TO COMPLETE THE DESIGN OF THE TEMPORARY SUPPORTS, AND PROVIDE DESIGN CALCULATIONS FOR THE SUPPORTS, AND DRAWINGS PER CMS 501.05. AN AGGREGATE LEVELING BASE MAY BE USED BELOW ANY TIMBER MATS OR OTHER SUPPORT STRUCTURE. CONTRACTOR IS TO ENSURE THAT ADDITIONAL LOADS FROM THE TEMPORARY SUPPORT WILL NOT COMPROMISE THE ADJACENT RIVER BULKHEAD.

THE TEMPORARY SUPPORTS SHALL BE DESIGNED IN ACCORDANCE WITH THE AASHTO GUIDE SPECIFICATIONS FOR BRIDGE TEMPORARY WORKS (2ND EDITION, 2017) TO SUPPORT THE FULL DEAD LOAD OF THE SWING SPANS AND THE EQUIPMENT REACTION LOADS OF THE END JACKS AND ANY OTHER MINOR, TEMPORARY LOADING NECESSARY FOR THE WORK TO BE COMPLETED.

THE UNFACTORED, VERTICAL DEAD LOADS AT EACH BEARING WERE COMPUTED FROM TRUSS MEMBER DEAD LOADS TAKEN FROM THE OCTOBER 6, 2017 RICHLAND ENGINEERING TRUSS BRIDGE ANALYSIS AND RATING REPORT AND ARE SHOWN BELOW:

L0 = 80 K
L16 = 105 K

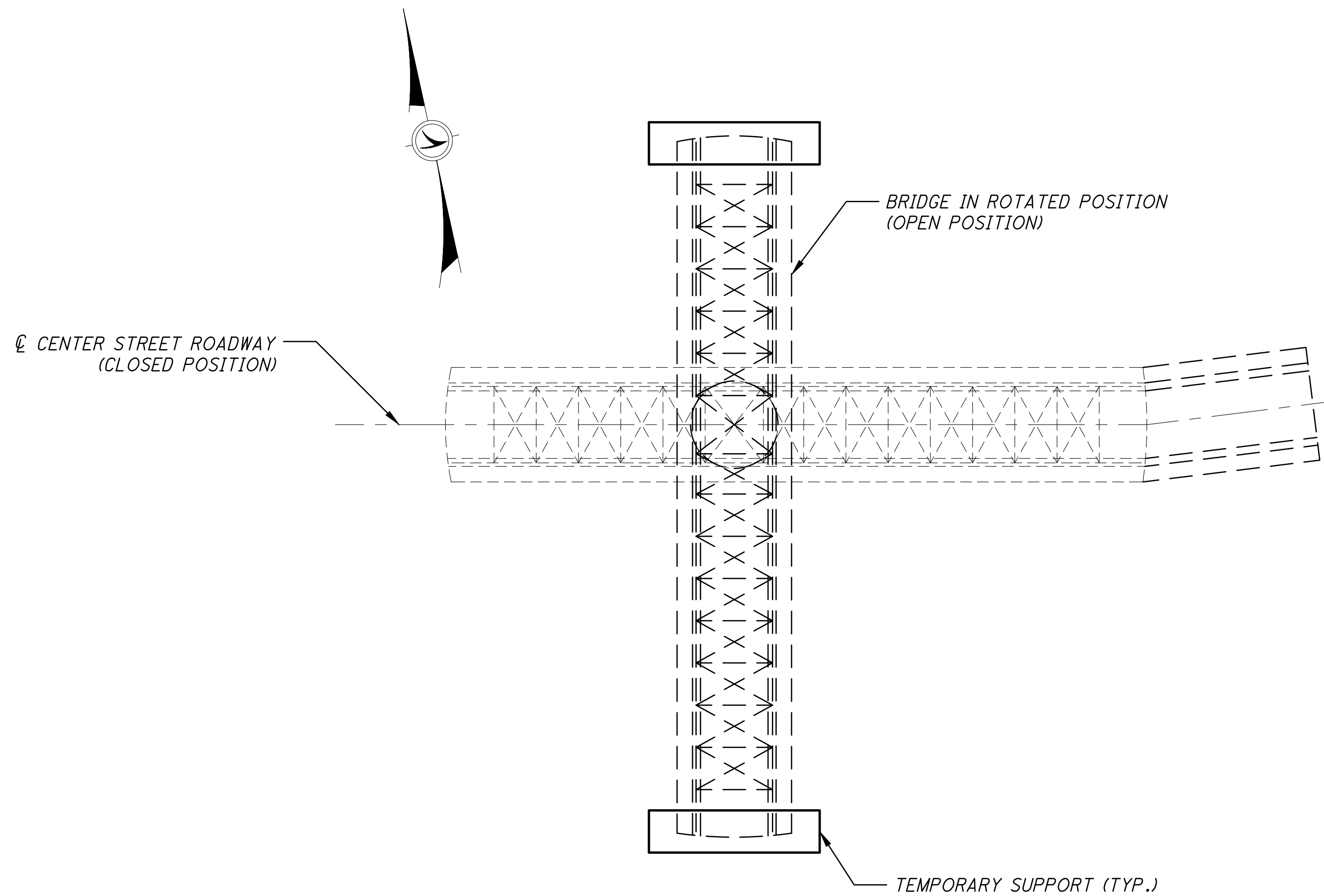
THE DESIGN SHALL BE BY LRFD OR ASD USING THE APPROPRIATE LOAD FACTOR COMBINATIONS OR FACTORS OF SAFETY FOR THE CHOSEN MATERIALS AND DESIGN METHODOLOGY.

THE CONTRACTOR SHALL RETAIN THE TEMPORARY SUPPORT MATERIALS AFTER THE TEMPORARY SUPPORT IS NO LONGER REQUIRED. RETURN THE GROUND TO THE CONDITION PRIOR TO TEMPORARY SUPPORT ERECTION.

THIS WORK, INCLUDING THE SOIL INVESTIGATION, SUPPORT DESIGN, ELEVATION SURVEY, REMOVAL OF TEMPORARY SUPPORTS, AND ALL MATERIALS AND LABOR TO TEMPORARILY SUPPORT THE ENDS OF THE SWING SPAN IS INCLUDED WITH THE TEMPORARY SUPPORT. SEE NOTE 2 ON THIS SHEET.

NOTES:

- ALL WORK ON THE STRUCTURE IS TO BE PERFORMED WITH THE BRIDGE CLOSED TO VEHICULAR AND PEDESTRIAN TRAFFIC WITH THE BRIDGE SWING OVER LAND.
- CONTRACTOR IS TO PROVIDE TEMPORARY SUPPORT AT THE TOES OF THE TRUSS AND JACK THE TRUSS SO THAT IT RETURNS TO ITS NORMAL CLOSED (NON-DEFLECTED) SHAPE IN ORDER TO PERFORM THE STRINGER REPLACEMENT OPERATIONS. TEMPORARY SUPPORT AND JACKING SHALL BE PAID FOR UNDER ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE.
- CONTRACTOR IS TO SURVEY DEFLECTIONS OF SPAN WITH END JACKS DISENGAGED PRIOR TO PERFORMING WORK TO VERIFY THE VALUES SHOWN IN TABLE A. CONTRACTOR IS TO NOTIFY ENGINEER IF VALUES DIFFER FROM THOSE SHOWN ON THIS SHEET. FOLLOWING THE COMPLETION OF WORK, THE CONTRACTOR IS TO VERIFY THAT THE DEFLECTION IS LESS THAN OR EQUAL THAN THE DEFLECTION MEASURED PRIOR TO CONSTRUCTION. THE COST FOR MEASURING THESE DEFLECTIONS SHALL BE CONSIDERED INCIDENTAL TO ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE.
- FOR TEMPERATURES IN BETWEEN THOSE SHOWN, CONTRACTOR IS TO LINEARLY INTERPOLATE THE DEFLECTION VALUES. VALUES IN TABLE ARE "AS IS" WITH DAMAGED EYEBARS.
- SEE SHEET [S13A/S51] FOR SUGGESTED SEQUENCE OF CONSTRUCTION AND END FLOORBEAM TEMPORARY SUPPORT DETAILS.



PLAN VIEW

3/4/2021

DESIGN AGENCY: **wsp** 1660 WEST 2ND STREET SUITE 820 CLEVELAND, OHIO 44113

DATE: 09/11/20

REVIEWED: WRW (STRUCTURE FILE NUMBER: 1869345)

DRAWN: NRF

DESIGNED: NRF

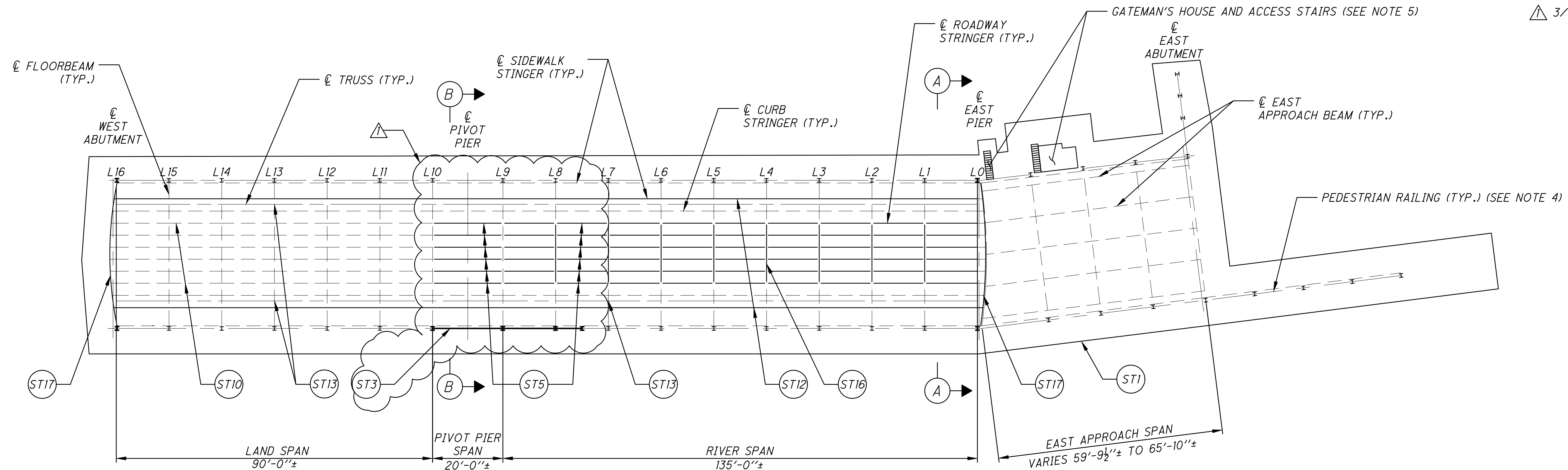
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TEMPORARY SUPPORT DETAILS
CITY OF CLEVELAND BRIDGE NO. 1:003M
CENTER STREET SWING BRIDGE OVER THE CUYAHOGA RIVER

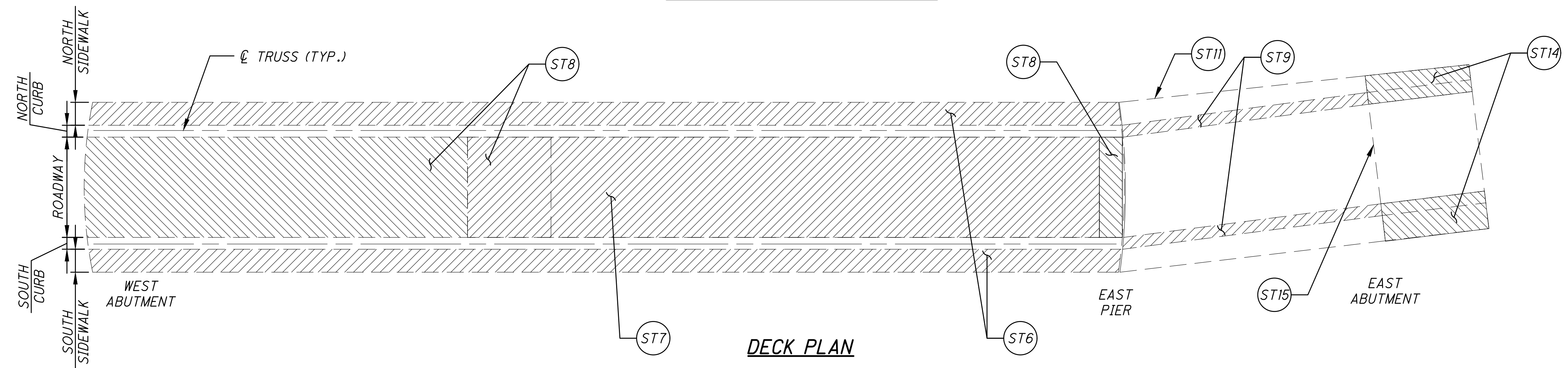
CUY-CENTER ST. SWING BRIDGE
PID NO: 109597

S13/S51

29/109



FRAMING AND RAILING PLAN



DECK PLAN

DECK AND FRAMING PLAN STRUCTURAL WORK IDENTIFICATION SCHEDULE

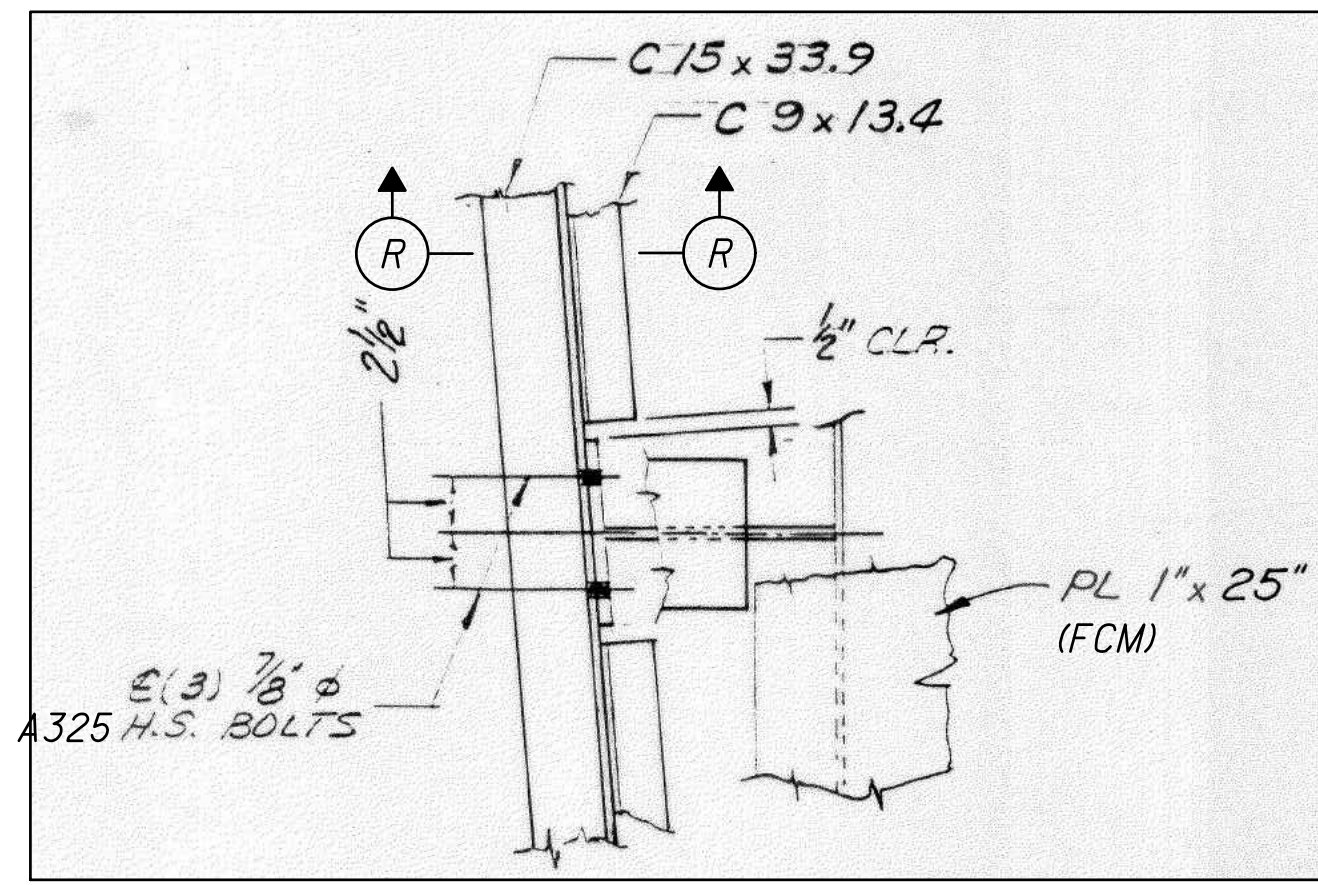
MARK NO.	DESCRIPTION	REFERENCE DRAWINGS
ST1	CLEAN AND PAINT ENTIRE STRUCTURE, INCLUDING TRUSS SPANS AND EAST APPROACH SPAN	S16-S18, S42
ST3	RELOCATE OPERATOR'S HOUSE STAIRS	S30-S38
ST5	REMOVE AND REPLACE EXISTING ROADWAY STRINGERS IN RIVER AND PIVOT PIER SPAN (PP0 TO PP10)	S19-S22
ST6	REMOVE AND REPLACE EXISTING SIDEWALK ON TRUSS SPANS	S24-S25
ST7	REMOVE AND REPLACE EXISTING OPEN GRID STEEL ROADWAY DECK IN RIVER SPAN (PP0 TO PP9)	S24-S25
ST8	REMOVE AND REPLACE CONCRETE FILLED GRID STEEL ROADWAY DECK IN LAND SPAN (PP9 TO PP16)	S24-S25
ST9	REMOVE EXISTING GUARDRAIL AND CURB ON EAST APPROACH AND REPLACE WITH WYOMING TYPE RAIL	S40-S44
ST10	MODIFY COUNTERWEIGHT ACCESS HATCHES	S39
ST11	PATCH SPALL IN EDGE OF DECK	S40
ST12	REMOVE AND REPLACE EXISTING INTERIOR SIDEWALK STRINGERS ON TRUSS SPANS	S23
ST13	REPAIR CURB PLATE	S26
ST14	REMOVE AND REPLACE EXISTING MEDIAN AND SIDEWALK ON EAST APPROACH SLAB	S45-S48

DECK AND FRAMING PLAN STRUCTURAL WORK IDENTIFICATION SCHEDULE

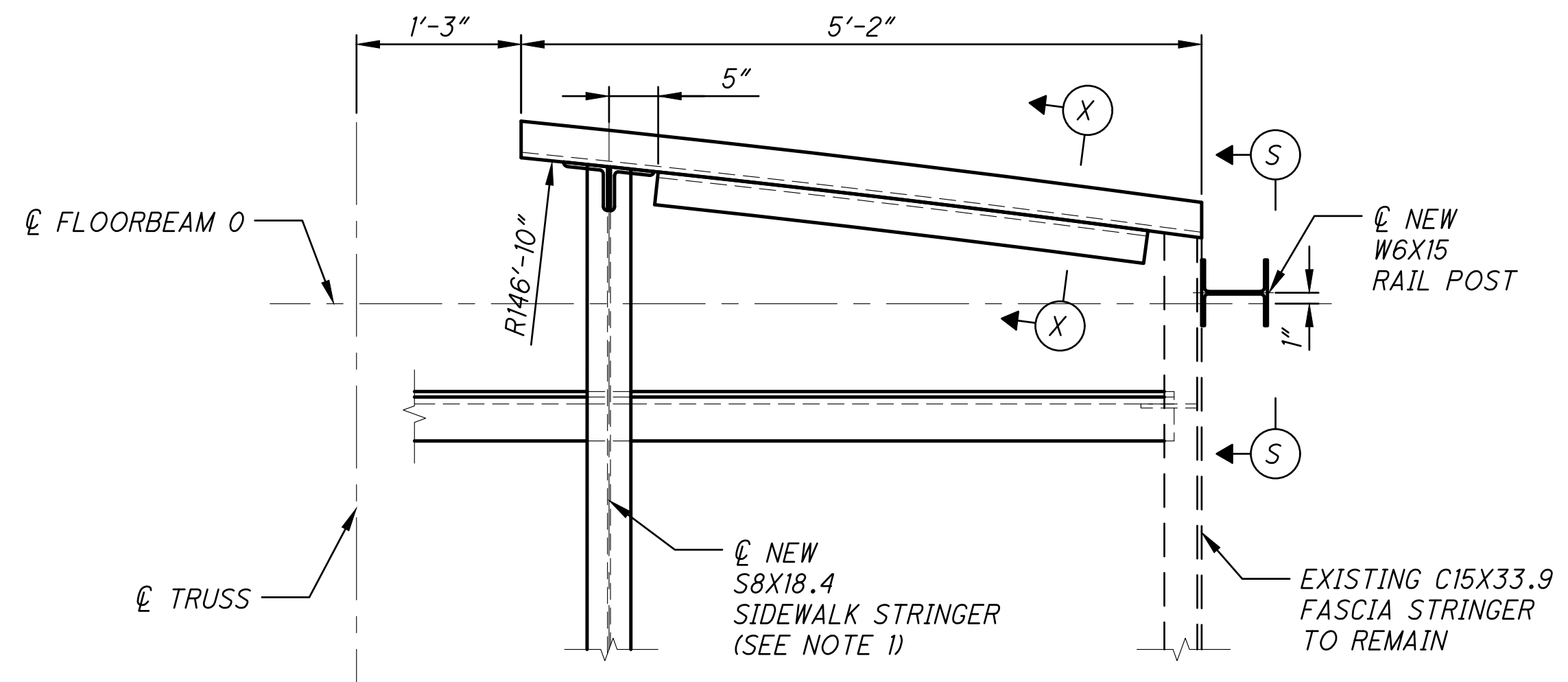
MARK NO.	DESCRIPTION	REFERENCE DRAWINGS
ST15	REMOVE AND REPLACE EXISTING COMPRESSION SEAL AT EAST ABUTMENT	S48
ST16	INSTALL NEW FLOORBEAM BOTTOM FLANGE COVER PLATES ON FLOORBEAMS 1 THRU 8	S19
ST17	REMOVE AND REPLACE END FLOORBEAMS AND JOINT COMPONENTS AT FLOORBEAMS 0 AND 16	S19A-S19E

NOTES:

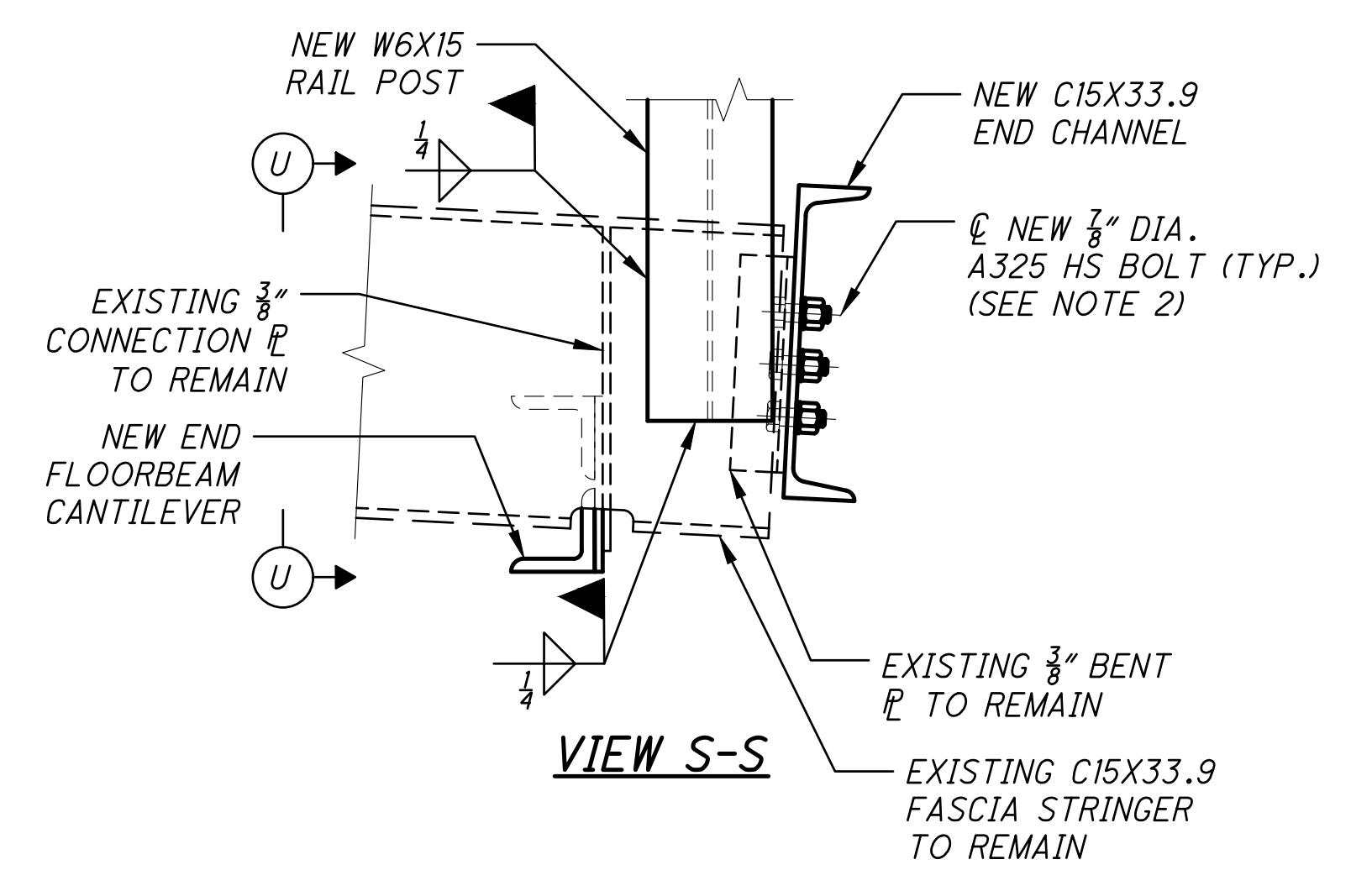
- SEE SHEET **S16/S51** FOR SECTION A-A.
- SEE SHEET **S17/S51** FOR SECTION B-B.
- FOR TYPICAL TRUSS SECTION, SEE SHEET **S18/S51**.
- ALL PEDESTRIAN RAILING, INCLUDING RAILING EXTENDING PAST BRIDGE LIMITS ONTO EAST APPROACH ROADWAY IS TO BE PAINTED UNDER ITEM 514.
- SECURITY FENCING AND STAIR ACCESS ADJACENT TO GATEMAN'S HOUSE AND EAST PIER ARE TO BE PAINTED UNDER ITEM 514.



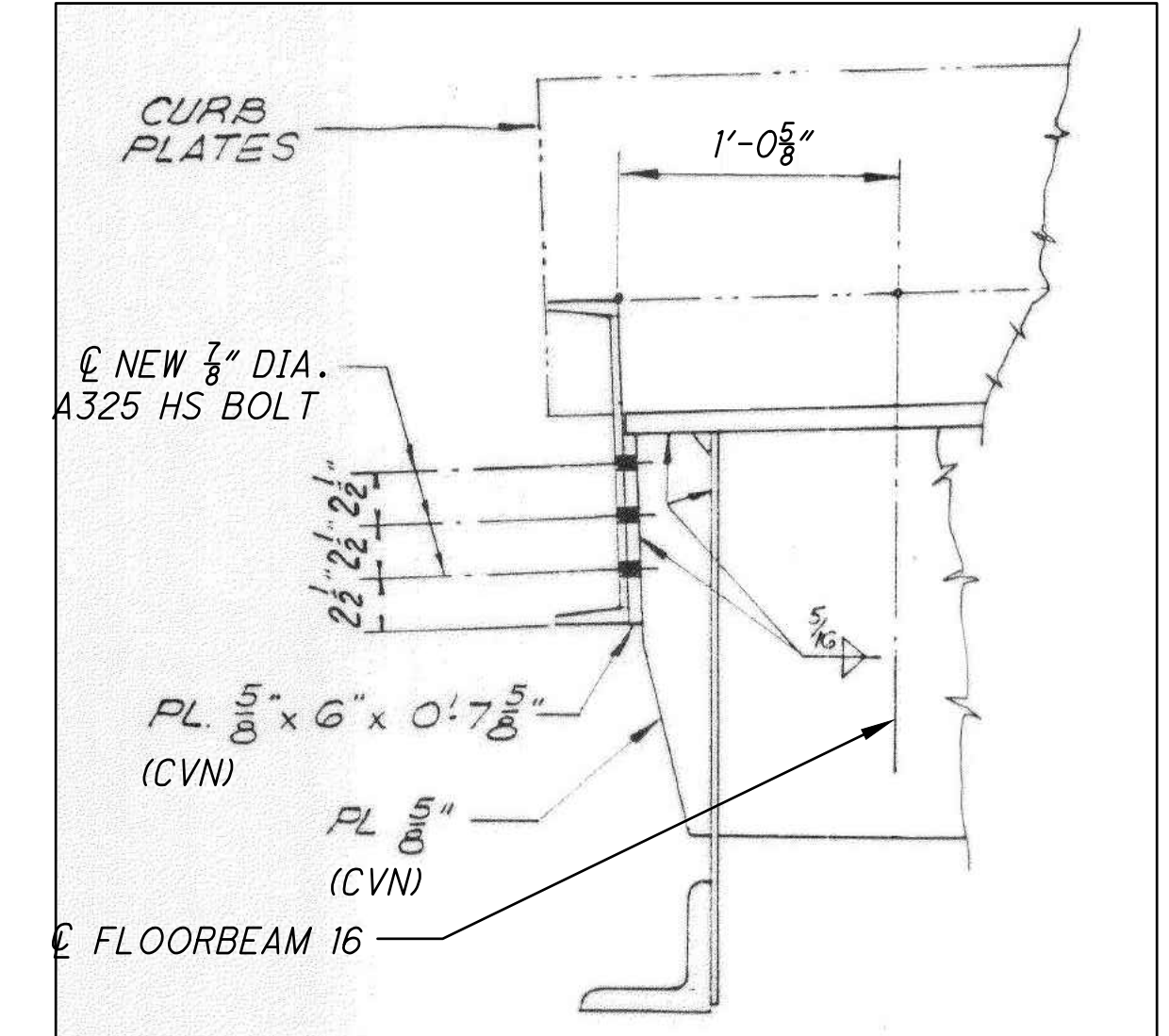
VIEW J-J *



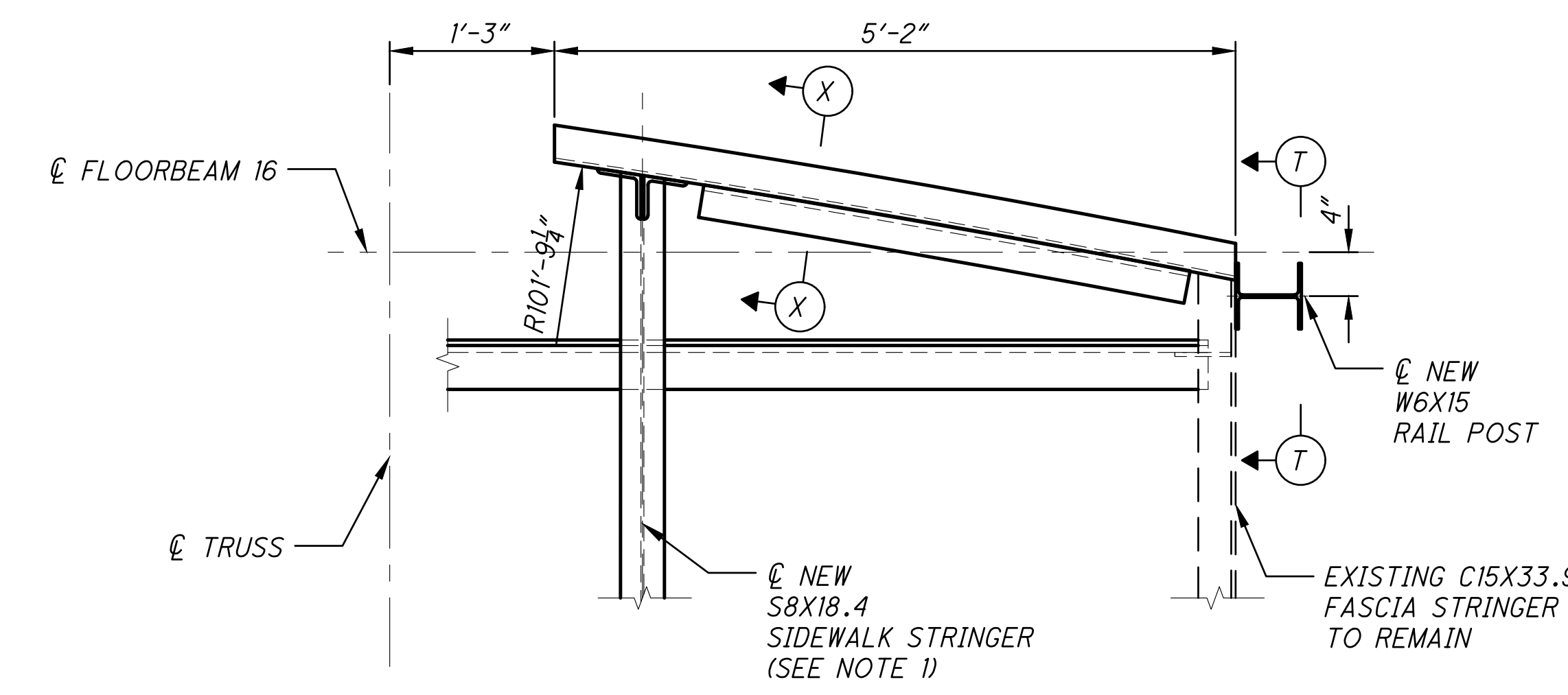
DETAIL 1 (FLOORBEAM 0)



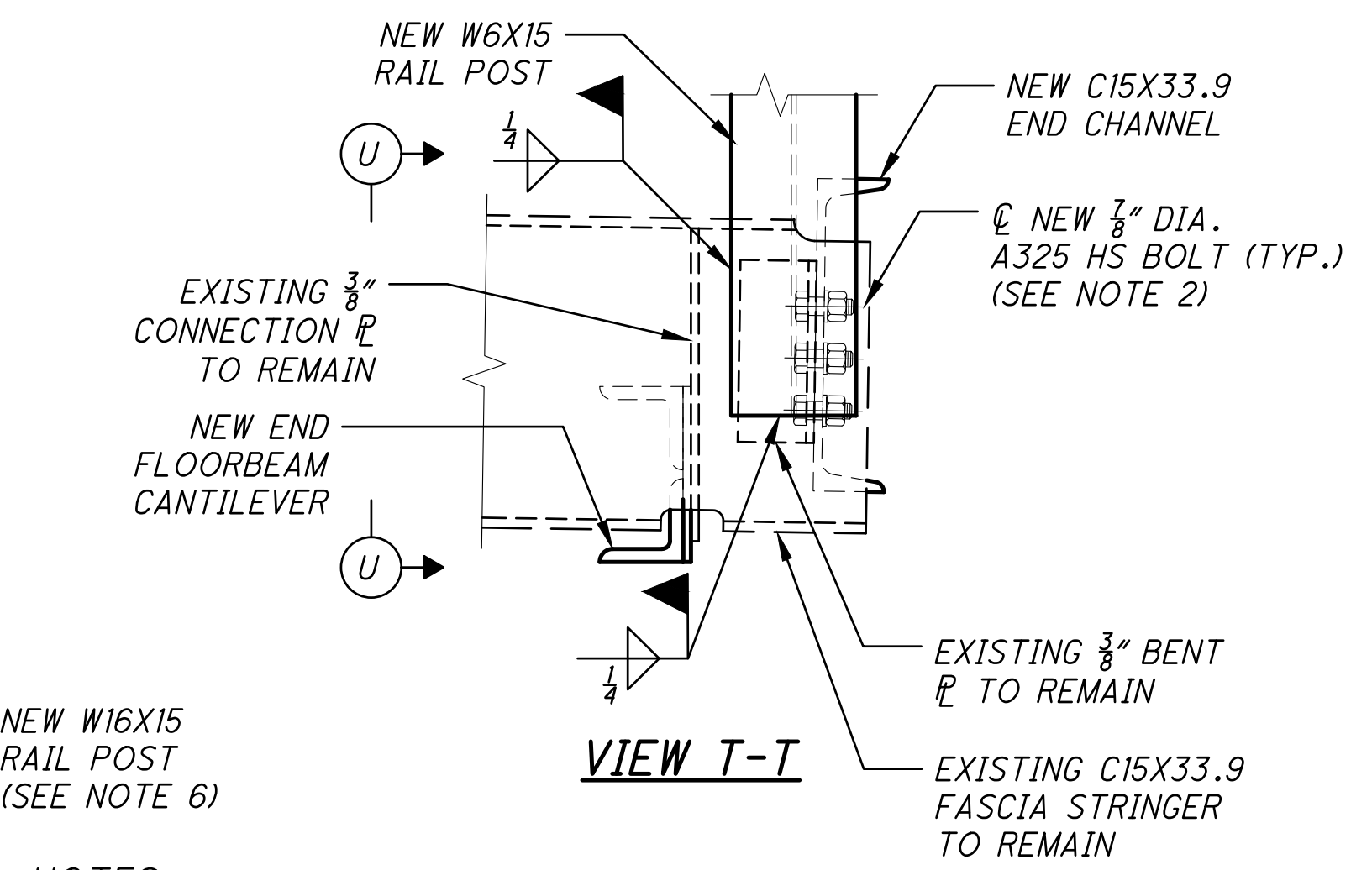
VIEW S-S



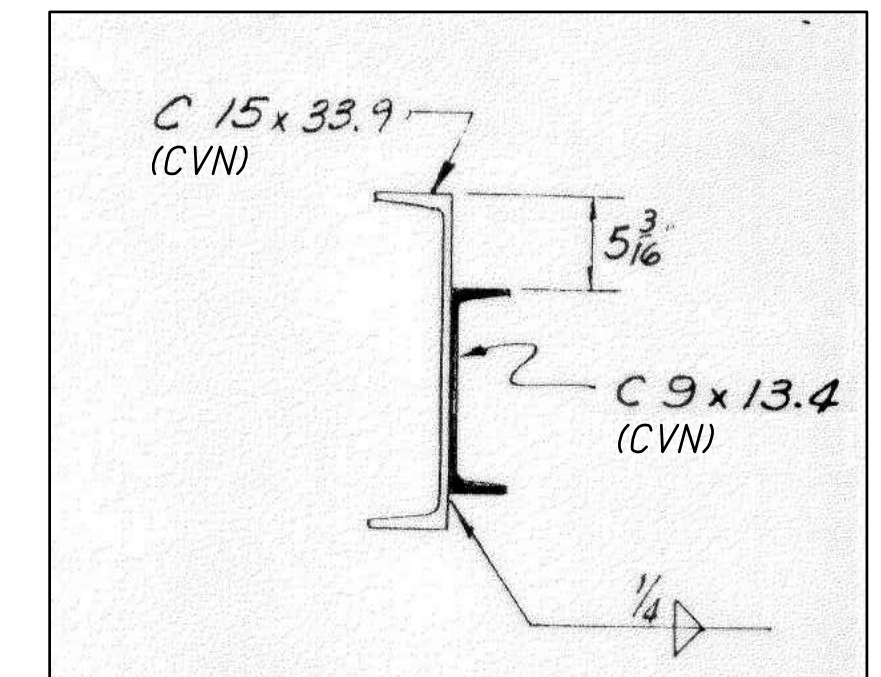
SECTION L-L *



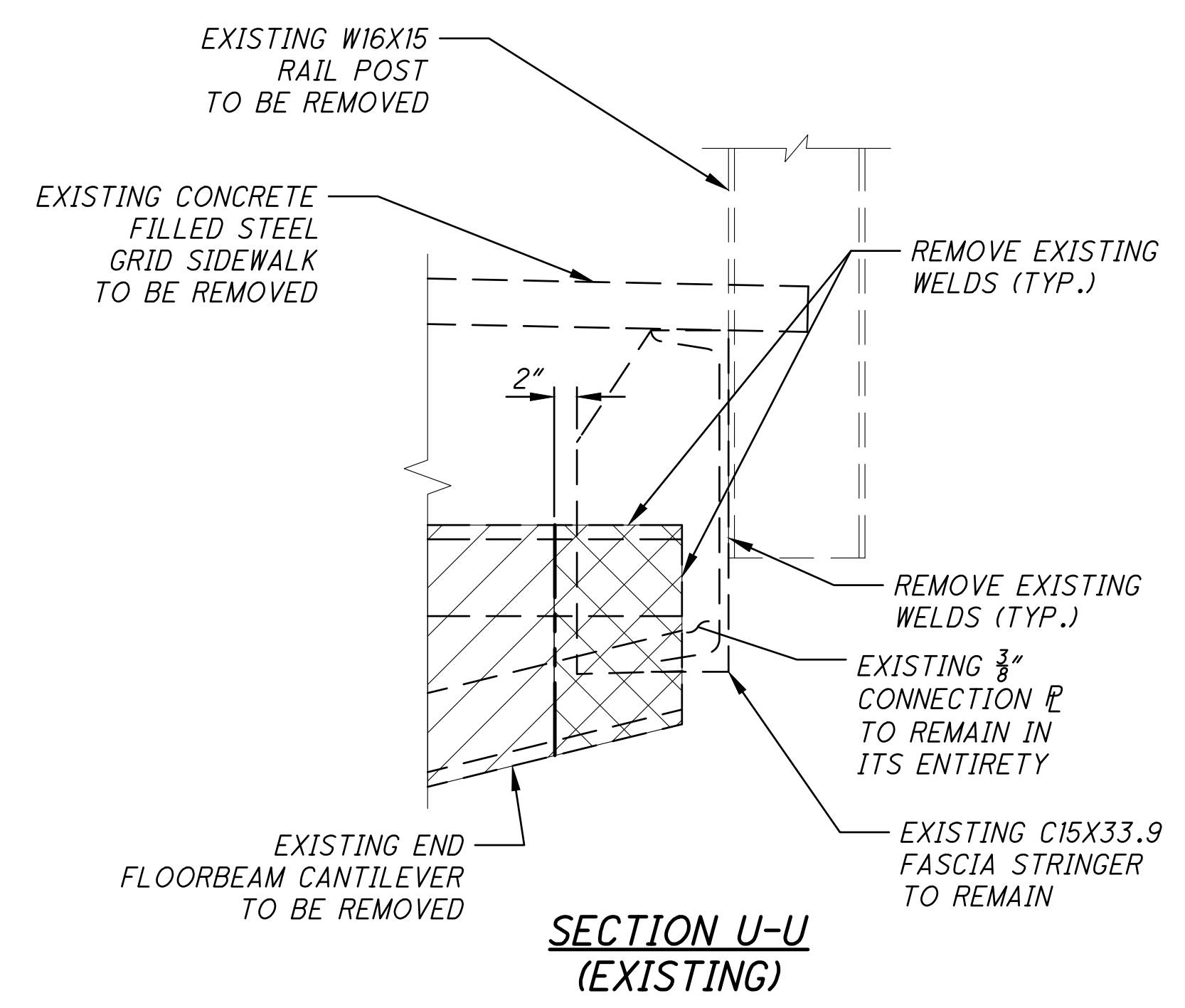
DETAIL 2 (FLOORBEAM 16)



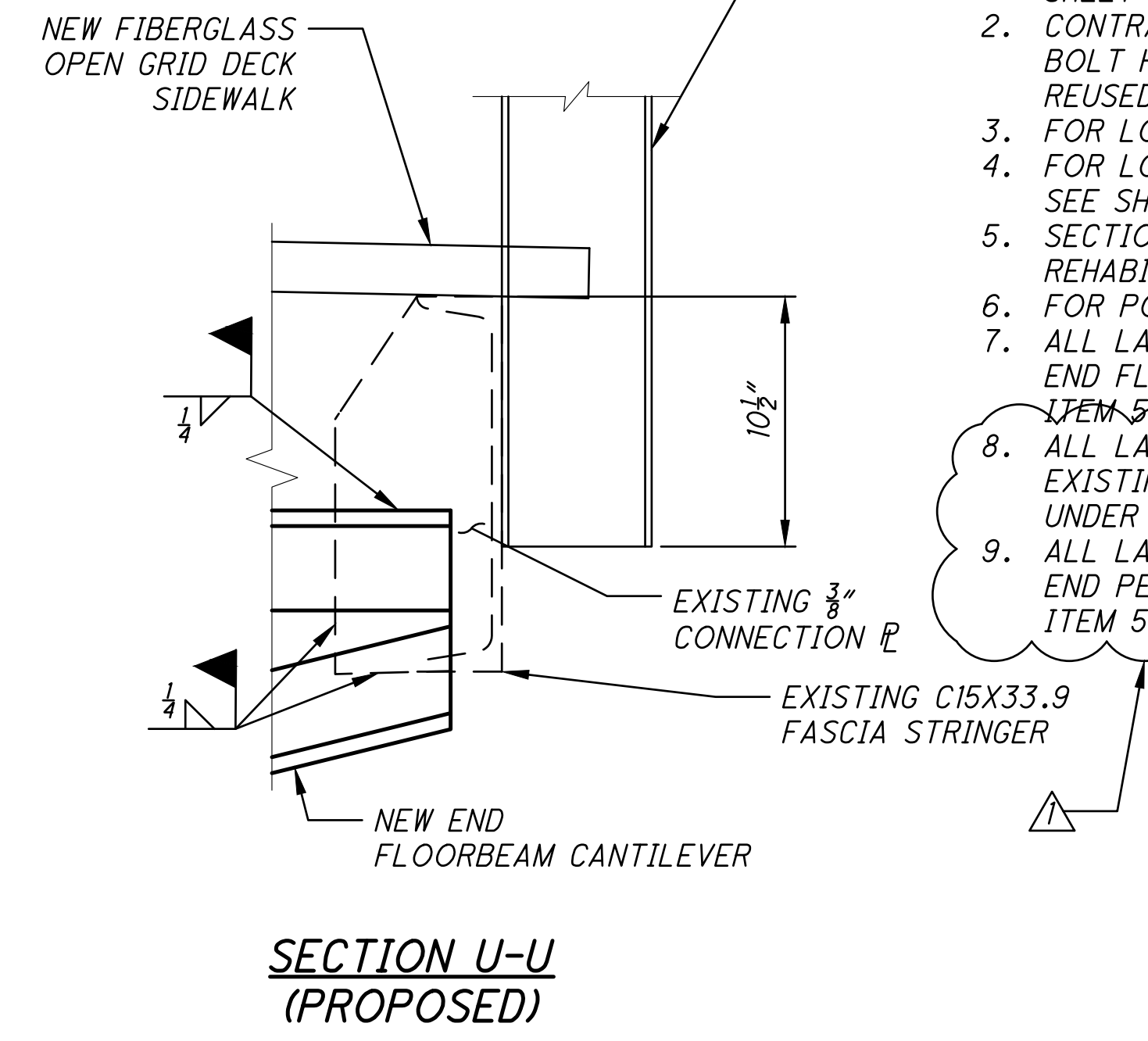
VIEW T-T



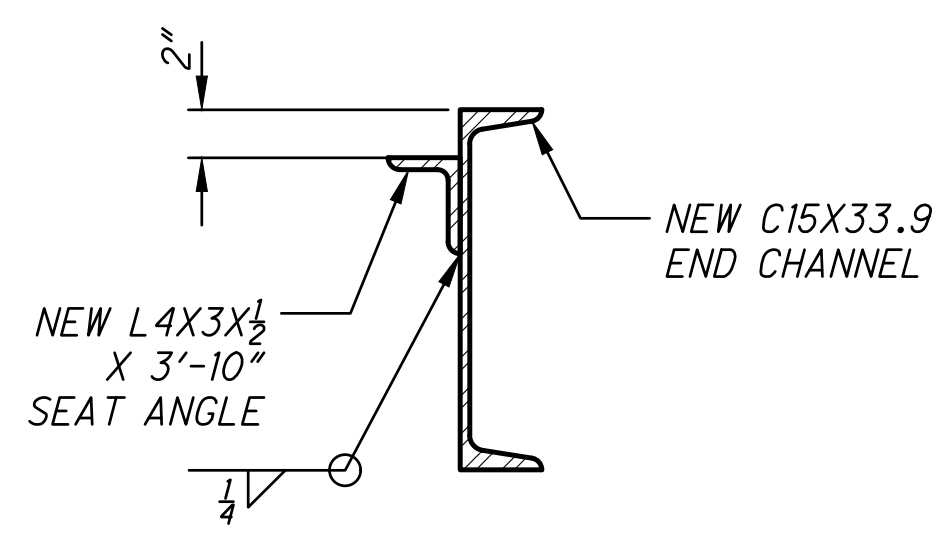
SECTION R-R *



SECTION U-U (EXISTING)



SECTION U-U (PROPOSED)



SECTION X-X

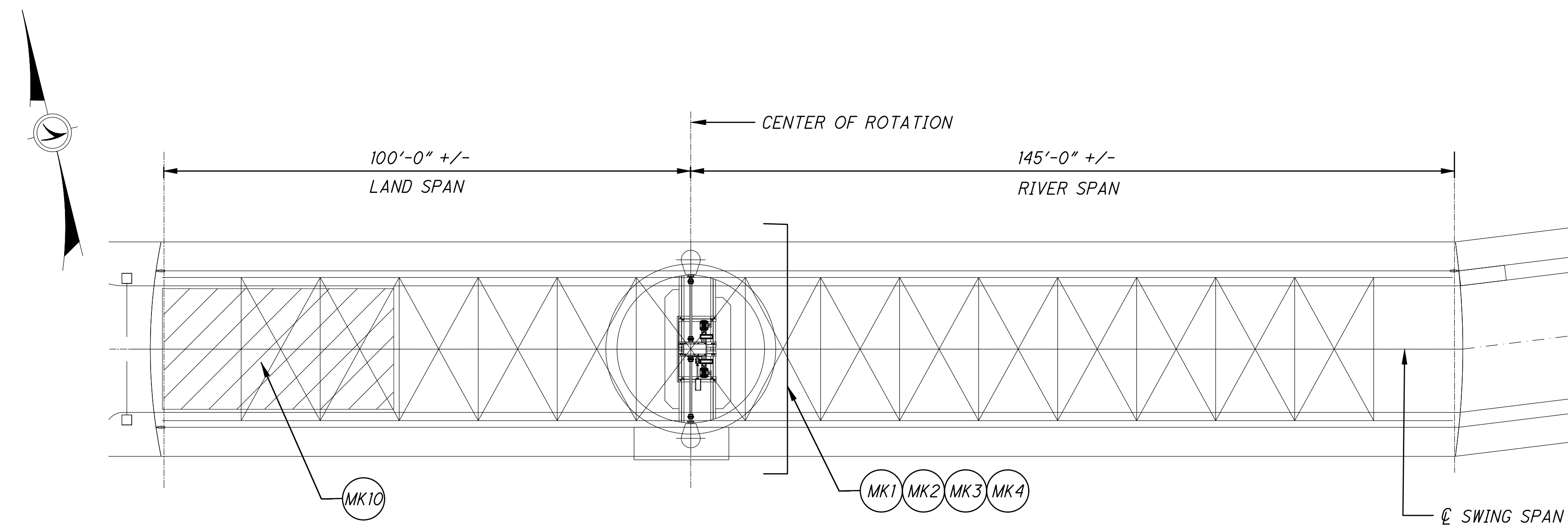
NOTES:

1. FOR NEW SIDEWALK STRINGER REMOVAL AND REPLACEMENT DETAILS, SEE SHEET [S23/S51].
2. CONTRACTOR IS TO FIELD VERIFY LOCATION AND SPACING OF EXISTING BOLT HOLES IN BENT PLATE CONNECTION ON FASCIA STRINGER TO BE REUSED.
3. FOR LOCATION OF DETAIL 1, SEE SHEET [S22A/S51].
4. FOR LOCATION OF DETAIL 2, SECTION J-J, AND VIEW L-L, SEE SHEET [S22B/S51].
5. SECTION L-L, VIEW J-J, AND SECTION R-R ARE TAKEN FROM THE 1985 REHABILITATION PLANS.
6. FOR POST DETAILS SEE SHEET [S37/S51].
7. ALL LABOR AND MATERIALS ASSOCIATED WITH THE INSTALLATION OF THE END FLOORBEAM AND END CHANNEL ASSEMBLY SHALL BE PAID FOR UNDER ITEM 513 - STRUCTURAL STEEL, LEVEL 6.
8. ALL LABOR AND MATERIALS ASSOCIATED WITH THE REMOVAL OF THE EXISTING PEDESTRIAN RAILING POSTS SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
9. ALL LABOR AND MATERIALS ASSOCIATED WITH THE INSTALLATION OF NEW PEDESTRIAN RAILING POSTS ARE INCLUDED FOR PAYMENT UNDER ITEM 513 - STRUCTURAL STEEL, LEVEL UF.

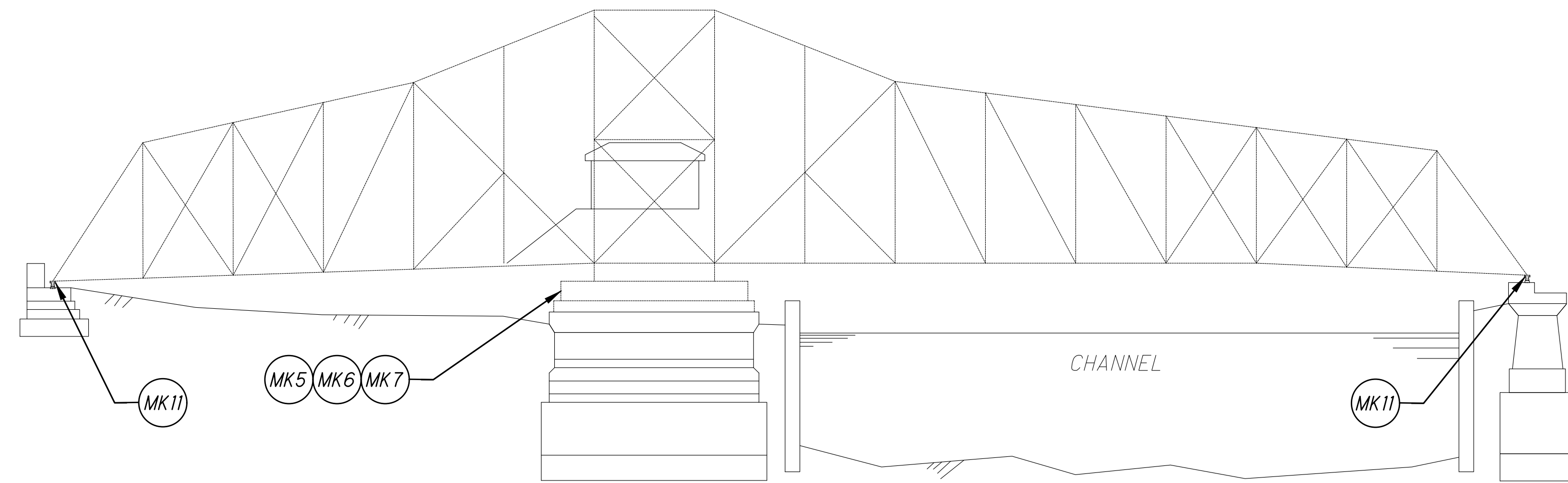
* = TAKEN FROM THE 1985 REHABILITATION PLANS.

LEGEND:

- PORTIONS OF STRUCTURE TO BE REMOVED, BY FLAME CUTTING
- PORTIONS OF STRUCTURE TO BE REMOVED, BY MECHANICAL HAND METHODS



SWING SPAN PLAN



SWING SPAN ELEVATION

MACHINERY NOTES:

1. ALL EXISTING DIMENSIONS ARE TAKEN FROM THE EXISTING BRIDGE PLANS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ALL DEVIATIONS, IF ANY, BEFORE WORK BEGINS.
2. DETAILS OF MACHINERY SHALL CONFORM TO AASHTO LRFD MOVABLE BRIDGE SPECIFICATIONS, 2ND EDITION, AND ALL SUBSEQUENT INTERIM REVISIONS. WELDING SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5 BRIDGE WELDING CODE 7TH EDITION.
3. ALL DIMENSIONS FOR MACHINE FINISHED SURFACES SHALL BE HELD TO 0.010 INCH EXCEPT AS OTHERWISE REQUIRED, SHOWN ON THE PLANS, BY SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.
4. MATERIALS: THE FOLLOWING ITEMS SHALL BE OF THE MATERIAL SPECIFIED AND CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED
- WELDMENTS AND PLATES: ASTM A709 GRADE 50
5. ALL MACHINERY SUPPORT SURFACES SHALL BE FLAT, LEVEL, AND PARALLEL TO EACH OTHER AND THE MOUNTING BASE PLATE. THICKNESS OF MOUNTING PLATES GIVEN ARE FOR AFTER FINISHING.
6. PROVIDE ASTM A449 FINISHED BODY H.S. (HIGH STRENGTH) BOLTS AS REQUIRED TO CONNECT MACHINERY TO STRUCTURAL STEEL. ALL ASTM A449 H.S. BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE REAMED TO PROVIDE A CLEARANCE OF NOT MORE THAN 0.010 INCH BETWEEN THE BODY OF THE BOLT AND THE HOLE. ALL TURNED BOLTS SHALL BE FITTED IN HOLES TO AN LC6 FIT.
7. ALL H.S. FASTENERS SHALL HAVE NUTS CONFORMING TO ASTM A563. ALL NUTS SHALL BE SECURED BY EFFECTIVE LOCKS. IF DOUBLE NUTS ARE USED, BOTH NUTS SHALL BE OF THE SAME THICKNESS. ALL HIGH STRENGTH FASTENERS SHALL HAVE A HARDENED PLAIN WASHER UNDER THE HEAD AND OF THE NUT. ALL HARDENED STEEL PLAIN WASHERS SHALL CONFORM TO ASTM F436. BOLTS THAT HAVE BEEN TORQUED SHALL NOT BE REUSED.
8. REPLACEMENT OF TURNED BOLTS IN EXISTING HOLES SHALL BE OF THE SAME NOMINAL SIZE AS THE EXISTING, EXCEPT AS SHOWN. EXISTING BOLT AREA AND BOLT HOLES SHALL BE CLEANED BY A WIRE BRUSH BEFORE NEW BOLT INSTALLATION.
9. PROVIDE TYPE 316 STAINLESS STEEL SHIMS FOR LEVELING AND ALIGNING ALL MACHINERY COMPONENTS. SHIMS SHALL BE 1/2 INCH NOMINAL THICKNESS, UNLESS OTHERWISE SPECIFIED, WITH ADJUSTMENT VARIATIONS AS DESCRIBED IN THE SPECIFICATIONS.
10. ANY REFERENCE TO THE "SPECIFICATIONS" INCLUDES REFERENCE TO ALL SPECIAL PROVISIONS AND SPECIFICATIONS REFERENCED HERE-IN.
11. THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SUCH THAT ANY MATERIALS THAT ARE TO REMAIN IN PLACE, THAT ARE TO BE RE-USED, OR THAT ARE TO REMAIN THE PROPERTY OF THE CITY OF CLEVELAND WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY SUCH MATERIALS, THE DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER, AT NO ADDITIONAL COST TO THE PROJECT.
12. ALL SHOP DRAWINGS SHALL BE SUBMITTED WITH FIELD MEASUREMENTS.

MECHANICAL WORK IDENTIFICATION SCHEDULE

ID NO.	QNTY.	COMPONENT	DESCRIPTION (SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION)	REFERENCE DRAWINGS
MK1	1	BRAKES	PROVIDE AND INSTALL NEW CUSTOM MOTOR AND MACHINERY BRAKE COVERS	M2
MK2	1	PRIMARY REDUCER	REPLACE SEALS ON PRIMARY REDUCER ACCESS COVERS	M2
MK3	1	PRIMARY REDUCER	DRAIN AND FLUSH-CLEAN PRIMARY REDUCER OF EXISTING OIL, REPLACE WITH NEW OIL, AND REPLACE EXISTING BREATHER FILTER	M2
MK4	1	COUPLINGS	CLEAN, RELUBRICATE, AND REPLACE SEALS ON ALL FLOATING SHAFT AND PINION SHAFT GEAR COUPLINGS	M2
MK5	1	SPAN SUPPORT MACHINERY	REMOVE EXISTING, FURNISH AND INSTALL NEW SLEWING RING BEARING ACCESS UPPER AND LOWER COVER PLATES	M3
MK6	1	SPAN SUPPORT MACHINERY	CLEAN, PURGE AND LUBRICATE EXISTING SLEWING RING BEARING; INSTALL NEW GASKET AT ACCESS COVER PLATE	M3
MK7	1	SPAN SUPPORT MACHINERY	REPLACE SLEWING RING BEARING MOUNTING FASTENERS EXHIBITING SECTION LOSS	M3
MK8	1	N/A	CLEAN CORROSION AND PAINT ALL MACHINERY COMPONENTS	N/A
MK9	1	N/A	CLEAN, PURGE AND LUBRICATE ALL MACHINERY COMPONENTS	N/A
MK10	1	N/A	BALANCE THE BRIDGE IN ACCORDANCE WITH THE SPECIFICATIONS	M5
Mk11	1	END LIFT MACHINERY	TEMPORARILY REMOVE EXISTING END JACK MACHINERY AND STORE DURING FLOORBEAM REPLACEMENT. REINSTALL EXISTING END JACK MACHINERY ON NEW FLOORBEAM.	M5A

MECHANICAL PAY ITEMS

ITEM	EXTEN	TOTAL QUANTITY	DESCRIPTION	ID NOS.
SPECIAL	690E98400	LUMP SUM	SPECIAL - MECHANICAL WORK - REHABILITATE SPAN DRIVE MACHINERY	MK1, MK2, MK3, MK4
SPECIAL	690E98400	LUMP SUM	SPECIAL - MECHANICAL WORK - REHABILITATE SPAN SUPPORT MACHINERY	MK5, MK6, MK7
SPECIAL	690E98400	LUMP SUM	SPECIAL - MECHANICAL WORK - CLEAN, PAINT, AND LUBRICATE ALL MECHANICAL COMPONENTS	MK8, MK9
SPECIAL	690E98400	LUMP SUM	SPECIAL - MECHANICAL WORK - SPAN BALANCE	MK10
SPECIAL	690E98400	LUMP SUM	SPECIAL - MECHANICAL WORK - SPARE PARTS	-
SPECIAL	690E98400	LUMP SUM	SPECIAL - MECHANICAL WORK - END FLOORBEAM REPLACEMENT	MK11

3/1/2021

DESIGN AGENCY: **wsp** 1660 WEST 2ND STREET SUITE 820 CLEVELAND, OHIO 44113

DATE: 09/11/20
REVIEWED: WRW
STRUCTURE FILE NUMBER: 1869345

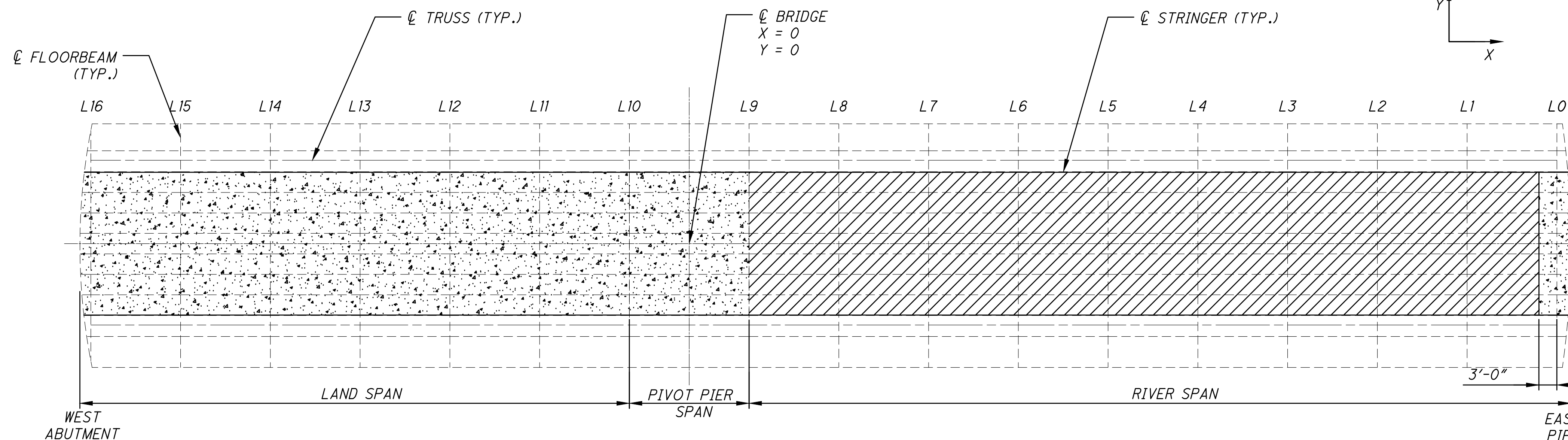
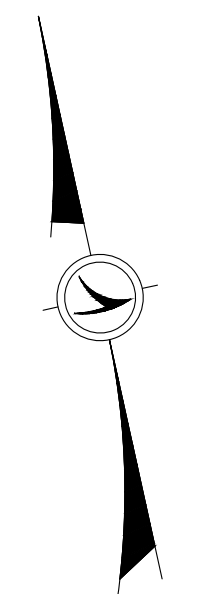
DRAWN: RA
CHECKED: DN

MECHANICAL WORK IDENTIFICATION
CITY OF CLEVELAND BRIDGE NO. 1:003M
CENTER STREET SWING BRIDGE OVER THE CUYAHOGA RIVER

CUY-CENTER ST. SWING BRIDGE
PID NO: 109597

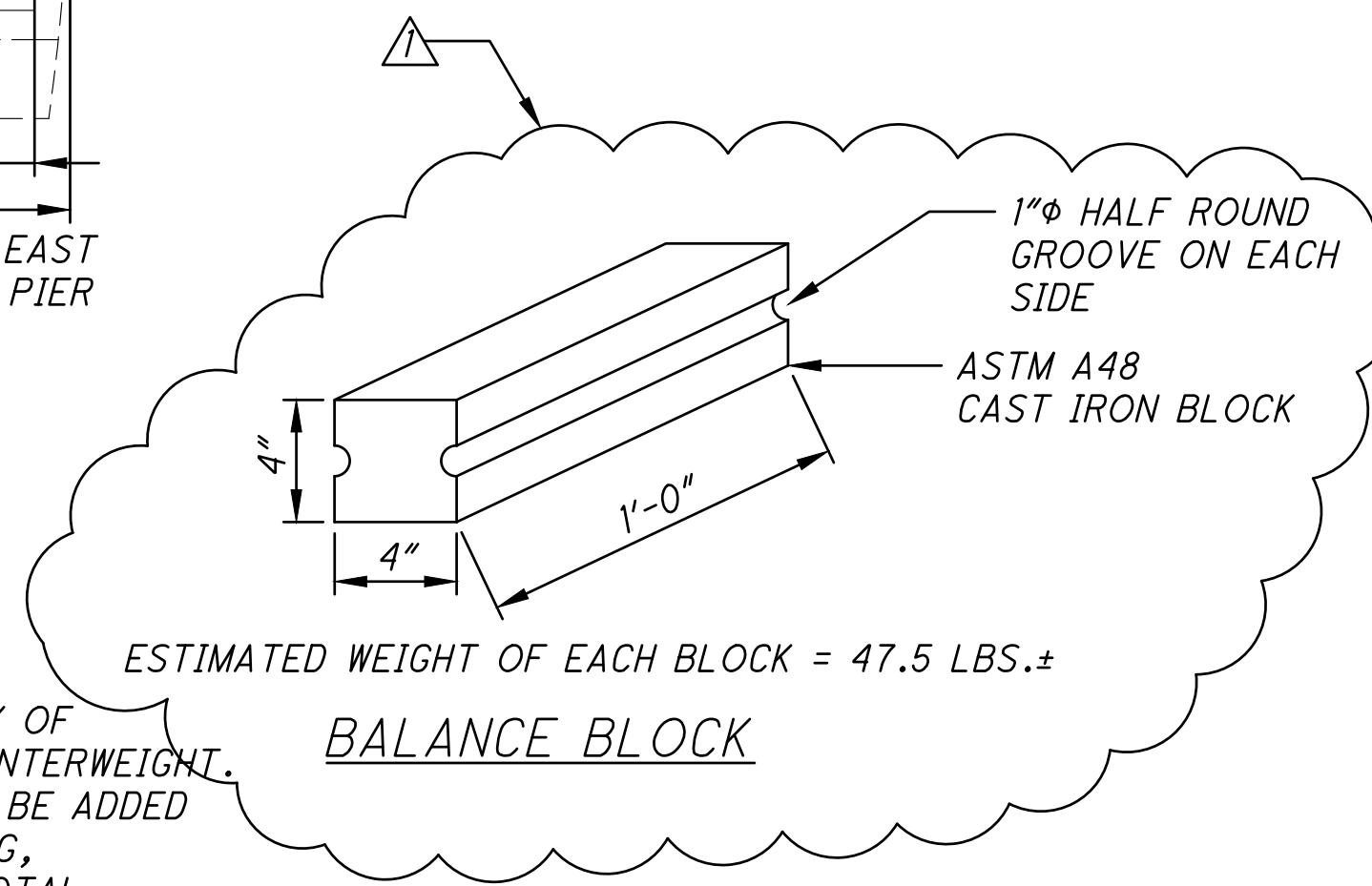
M1 / M5

68 / 109



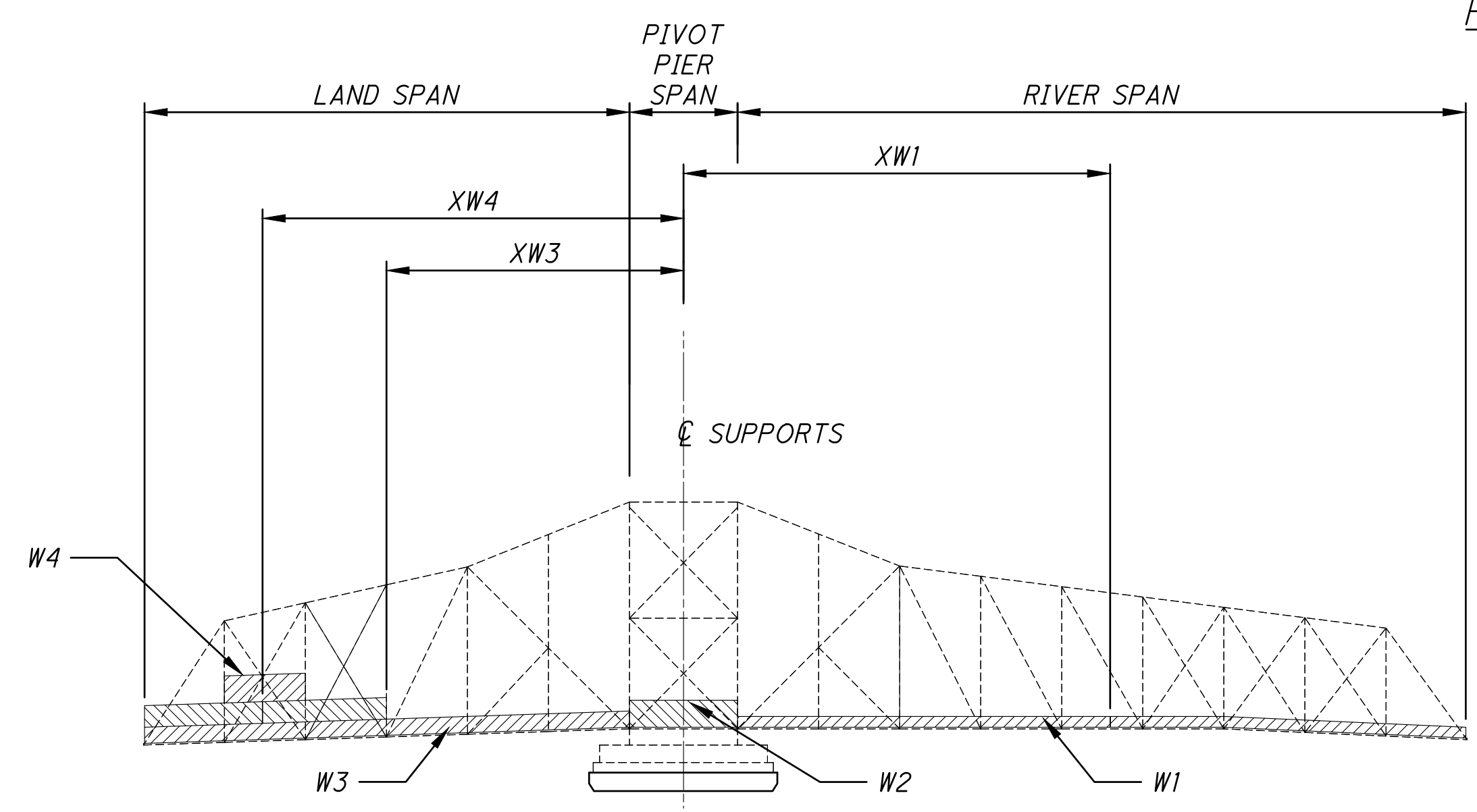
LEGEND

	CONCRETE FILLED GRID DECK
	OPEN GRID DECK

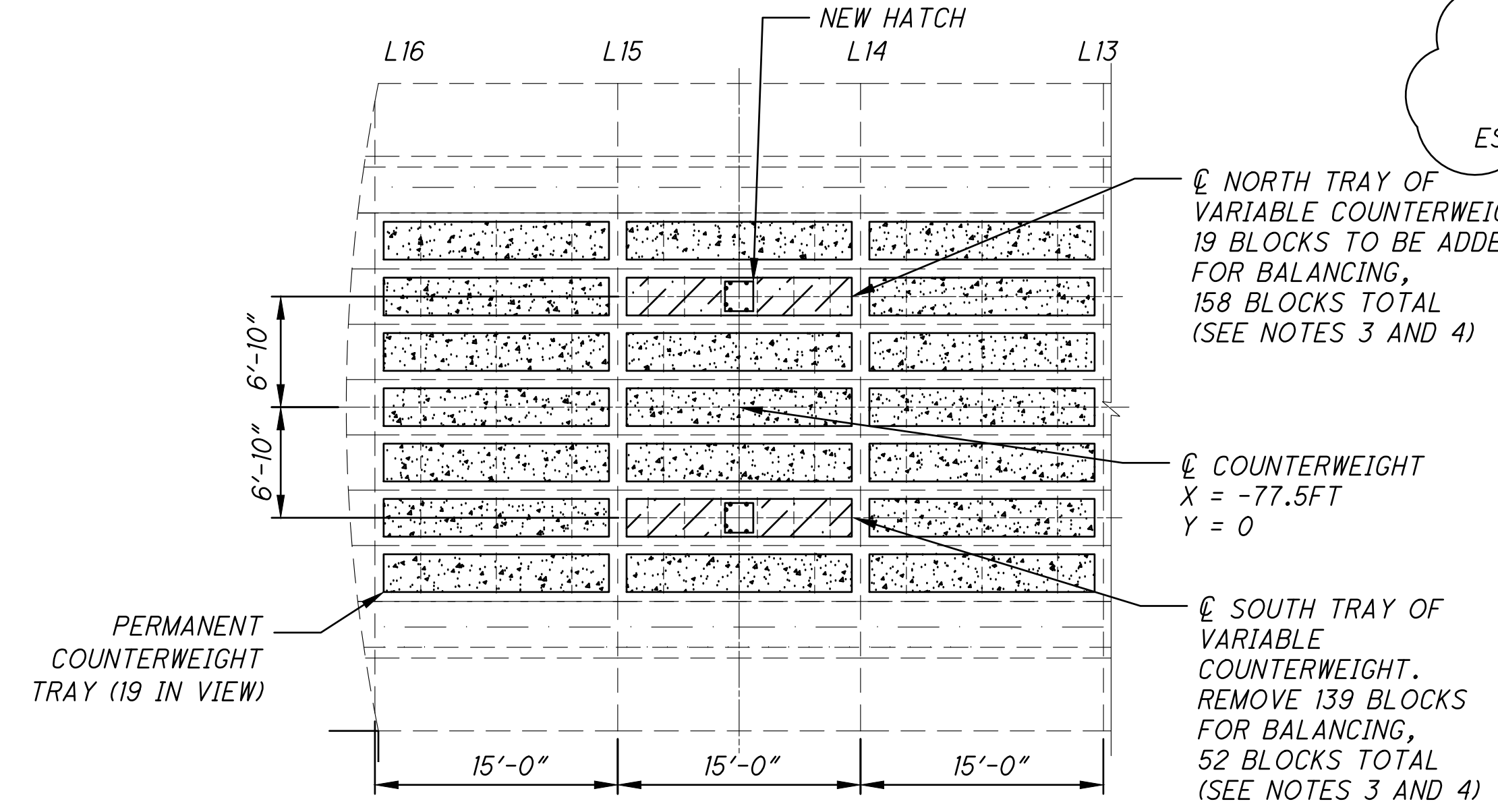


NUMBER OF BLOCKS FOR BALANCING: 210 BLOCKS
 NUMBER OF BLOCKS FOR FUTURE USE: 300 BLOCKS
 TOTAL NUMBER OF BLOCKS REQUIRED: 510 BLOCKS

- NOTES:**
1. PROVIDE INVENTORY OF WEIGHTS AND CENTER OF GRAVITY LOCATIONS OF MATERIALS REMOVED AND ADDED FROM THE EXISTING SWING SPANS IN ACCORDANCE TO THE SIGN CONVENTION SHOWN ON THIS SHEET AND PER THE REQUIREMENTS OF THE MECHANICAL SPECIAL PROVISIONS.
 2. REMOVALS AND ADDITIONS SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING LISTED IN THE STRUCTURAL PLANS AND THE REQUIREMENTS OF THE MECHANICAL SPECIAL PROVISIONS.
 3. ALL COUNTERWEIGHT BLOCKS ARE TO BE REMOVED AND REPLACED WITH NEW BLOCKS.
 4. THE NUMBER OF BLOCKS TO BE PLACED IN EACH COUNTERWEIGHT IS BASED ON LIMITED PLAN DETAILS. CONTRACTOR IS TO TAKE INVENTORY OF EXISTING BLOCKS DURING REMOVAL AND ADJUST THE NUMBER OF BLOCKS ACCORDINGLY. THE FINAL NUMBER OF BLOCKS TO BE PLACED IN EACH POCKET WILL BE DETERMINED THROUGH FINAL BALANCE TESTING.
 5. LOADS DENOTED W1 TO W4 IN THE TABLE ARE APPROXIMATE AND ARE PROVIDED AS INFORMATION TO AID IN BRIDGE BALANCING.
 6. ALL MATERIALS REMOVED SHALL BE VERIFIED BY WEIGHING TO CONFIRM CALCULATED WEIGHTS.
 7. ALL LABOR, MATERIALS, AND WORK INVOLVED WITH BALANCING, TESTING, SURVEYING, REMOVAL OF EXISTING BALANCE BLOCKS, FURNISHING OF NEW BALANCE BLOCKS, PLACEMENT OF NEW BALANCE BLOCKS, AND ALL OTHER WORK DESCRIBED IN THE MECHANICAL SPECIAL PROVISIONS PERTAINING TO THE SPAN BALANCING SHALL BE PAID FOR UNDER ITEM SPECIAL - MECHANICAL WORK - SPAN BALANCE.



SWING SPAN BALANCING DETAILS



COUNTERWEIGHT FRAMING PLAN

DESIGNATION	NET WEIGHT(LBS.)	DISTANCE TO \bar{C} OF SUPPORT		DESCRIPTION
		X(FT)	Y(FT)	
W1	-33,128	71.86	0	NET CHANGE IN THE RIVER SPAN
W2	-4,535	0.89	3.33	NET CHANGE IN THE CENTER SPAN
W3	-38,441	-55.52	0.5	NET CHANGE IN THE SHORE SPAN
W4	903	-77.5	6.83	NET CHANGE IN THE NORTH VARIABLE COUNTERWEIGHT
W4	-4,137	-77.5	-6.83	NET CHANGE IN THE SOUTH VARIABLE COUNTERWEIGHT
TOTAL	-79,337			

SPAN BALANCING MOMENTS	$W \times X$ (LB-FT)	$W \times Y$ (LB-FT)
W1 x (X,Y)	-2,380,610	0
W2 x (X,Y)	-4,030	-15,110
W3 x (X,Y)	2,134,370	-19,090
W4 x (X,Y)	250,589	34,442
TOTALS	318	242