

013

04-26-2019 LETTING ITEM 013

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	1
CONTRACT NO. 62G97				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

**PROPOSED
HIGHWAY PLANS**

F.A.U. ROUTE 341 – BRANDON ROAD
OVER DES PLAINES RIVER
SECTION: 2018-048-B-R
PROJECT STP-JZG0(324)
BASCULE BRIDGE REPAIR & PAINTING
WILL COUNTY
C-91-284-18

D-91-359-18



FOR INDEX OF SHEETS, SEE SHEET NO. 2

TRAFFIC DATA:

BRANDON ROAD

EXISTING ADT = 5550 (2015)
POSTED SPEED = 35 MPH

FUNCTIONAL CLASSIFICATION

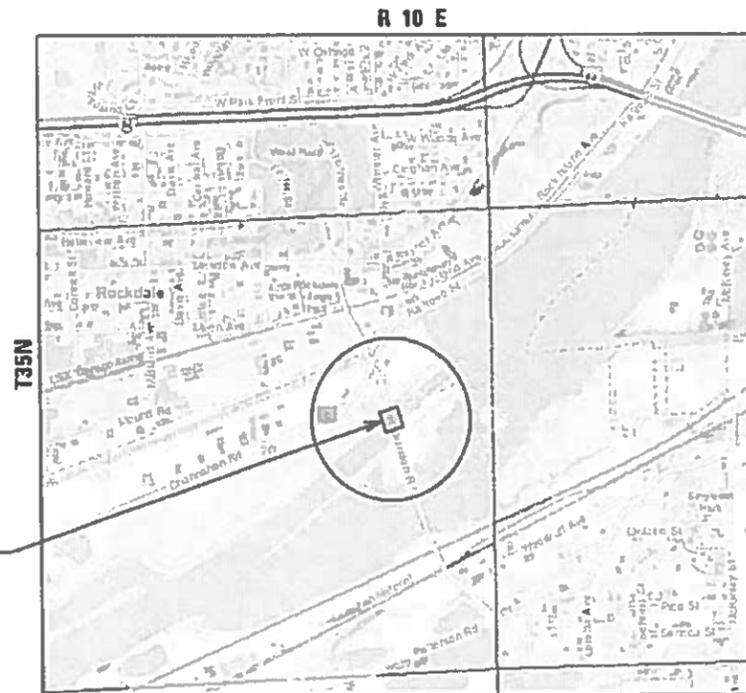
MINOR ARTERIAL

PROJECT IS LOCATED IN THE
CITY OF JOLIET



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD
ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT
CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS
ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811



IMPROVEMENT LOCATION
BRANDON ROAD OVER
DES PLAINES RIVER
S.N. 099-9903

JOLIET TOWNSHIP



QUIGG ENGINEERING INC.
SHEETS
01-08

DATE: 1/25/2019
L. LICENSED STRUCTURAL
LICENSE EXPIRES ON 11/30/2020

WSP USA INC.
SHEETS
09-21

DATE: 1/25/2019
L. LICENSED STRUCTURAL
LICENSE EXPIRES ON 11/30/2020

WSP USA INC.
SHEETS
22-30

DATE: 1/25/2019
L. LICENSED PROFESSIONAL
LICENSE EXPIRES ON 11/30/2019

WSP USA INC.
SHEETS
31-43

DATE: 1/25/2019
L. LICENSED PROFESSIONAL
LICENSE EXPIRES ON 11/30/2019

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED January 29 20 19

Anthony J. Pappalardo
REGIONAL ENGINEER

March 22 20 19

James D. Stevins
ENGINEER OF DESIGN AND ENVIRONMENT

March 20 20 19

Paul P. Chy
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PROJECT MANAGER: FAWAD AQUEEL, PE, PTOE (847) 705-4247

CONTRACT NO. 62G97



PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

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HIGHWAY STANDARDS

STANDARD NO	DESCRIPTION
701901-08	TRAFFIC CONTROL DEVICES

GENERAL NOTES

- BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT 800-892-0123 OR 811 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS FACILITIES (48 HOUR NOTIFICATION IS REQUIRED).
- THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES AND THE CITY OF JOLIET.
- PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING PLANS ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND DETAILS AFFECTING NEW CONSTRUCTION AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE OF THE WORK, HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED BASED AT THE UNIT PRICE BID FOR THE WORK.
- THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.
- ALL DAMAGE TO EXISTING PAVEMENT MARKINGS OR RAISED REFLECTIVE PAVEMENT MARKERS OUTSIDE THE REMOVAL LINE SHOWN ON THE PLANS SHALL BE REPLACED AT NO ADDITIONAL COST TO THE DEPARTMENT.
- THE CONTRACTOR SHALL CONTACT THE DISTRICT ONE TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 A MINIMUM OF 72 HOURS IN ADVANCE OF BEGINNING WORK.
- THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 24 HOURS ADVANCE NOTICE REQUIRING THE BRIDGE OPERATOR SERVICES.
- THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ACCESS TO ABUTTING PROPERTY AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT.
- DO NOT SCALE PLANS FOR CONSTRUCTION DIMENSIONS.
- THE CONTRACTOR SHALL OBTAIN COAST GUARD APPROVAL FOR ANY WORK THAT MAY INTERFERE WITH NAVIGATIONAL OPERATIONS OF THE NAVIGABLE WATERS. A WORK PLAN SHALL BE PREPARED BY THE CONTRACTOR, REVIEWED AND APPROVED BY THE ENGINEER AND BE SUBMITTED BY THE ENGINEER TO THE COAST GUARD AT THE ADDRESS LISTED BELOW FOR APPROVAL:

Mr. Eric Washburn
 US COAST EIGHT GUARD
 COAST GUARD DISTRICT
 1222 SPRUCE STREET
 ST. LOUIS, MISSOURI 63103-2832
 PHONE: (314) 269-2378

GENERAL PAINT NOTES

- CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES."
- THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.
- A MINIMUM OF TWO (2) AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES."
- ITEMS AS HIGHLIGHTED IN THE PLANS (SUCH AS, BUT NOT LIMITED TO: (TRUSS MEMBERS, FLOOR BEAMS, STRINGERS, LATERAL BRACING, BEARINGS) SHOULD BE CLEANED AND PAINTED.
- ALL PORTIONS OF THE STRUCTURE THAT COULD BE DAMAGED BY THE SURFACE PREPARATION AND PAINTING OPERATIONS (E.G., UTILITIES), INCLUDING ANY SOUND PAINT THAT IS ALLOWED TO REMAIN ACCORDING TO THE CONTRACT DOCUMENTS, SHALL BE PROTECTED BY COVERING OR SHIELDING. TARPULAINS DROP CLOTHS, OR OTHER APPROVED MATERIALS SHALL BE EMPLOYED. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF THE ILLINOIS ENVIRONMENTAL PROTECTION ACT. PAINT DRIPS, SPILLS, AND OVERSPRAY ARE NOT PERMITTED TO ESCAPE INTO THE AIR OR ONTO ANY OTHER SURFACES OR SURROUNDING PROPERTY NOT INTENDED TO BE PAINTED.
- THE CONTRACTOR SHALL EVALUATE PROJECT-SPECIFIC CONDITIONS TO DETERMINE THE SPECIFIC TYPE AND EXTENT OF CONTAINMENT NEEDED TO CONTROL THE PAINT EMISSIONS AND SHALL SUBMIT A PLAN FOR CONTAINING OR CONTROLLING PAINT DEBRIS (DROPLETS, SPILLS, OVERSPRAY, ETC.) TO THE ENGINEER FOR ACCEPTANCE PRIOR TO STARTING THE WORK. ACCEPTANCE BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THEIR ULTIMATE RESPONSIBILITY FOR CONTROLLING PAINT DEBRIS FROM ESCAPING THE WORK ZONE.
- WHEN THE PROTECTIVE COVERINGS NEED TO BE ATTACHED TO THE STRUCTURE, THEY SHALL BE ATTACHED BY BOLTING, CLAMPING, OR SIMILAR MEANS. WELDING OR DRILLING INTO THE STRUCTURE IS PROHIBITED UNLESS APPROVED BY THE ENGINEER IN WRITING. WHEN REMOVING COATINGS CONTAINING LEAD THE CONTAINMENT AND DISPOSAL OF THE RESIDUES SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES CONTAINED ELSEWHERE IN THIS CONTRACT. WHEN REMOVING COATINGS NOT CONTAINING LEAD THE CONTAINMENT AND DISPOSAL OF THE RESIDUES SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES CONTAINED ELSEWHERE IN THIS CONTRACT.
- STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED ACCORDING TO SECTION 506. THE INSIDE STEEL SHALL BE PAINTED STANDARD LIGHT GREY COLOR, AS APPROVED BY THE ENGINEER OR AS DIRECTED. THE EXTERIOR PAINT COLOR OF THE MAIN GIRDERS SHALL MATCH THE EXISTING PAINT.
- THE BLASTING AND PAINTING PROCESS SHALL NOT ADVERSELY IMPACT THE MACHINERY, PARTICULARLY OPEN GEARS, CONTRACTOR SHALL PROTECT ALL MACHINERY AND GEARS. ALL COSTS INCURRED BY THE CONTRACTOR IN COMPLYING WITH THE PROTECTION OF MACHINERY AND GEARS SHALL BE CONSIDERED AS COMPLETELY COVERED BY THE PRICES BID FOR THE VARIOUS ITEMS OF WORK INCLUDED IN THE CONTRACT.

PAINTING SCOPE OF WORK

- POINTS WHERE FLOORBEAMS FRAME INTO BASCULE GIRDERS. FOR FLOORBEAMS 1-7, 5LF OF THE FLOORBEAM & 3LF OF THE GIRDER INSIDE FACE EITHER SIDE OF THE FLOORBEAM.
- INSIDE FACE OF BASCULE GIRDER FROM END OF RACK SUPPORT TO THE LOWER LEVEL ANCHOR AT FLOORBEAM #8
- 6LF OF THE TRUNNION BOX GIRDER AT EACH END WHERE IT FRAMES INTO BASCULE GIRDER.
- JACK COLUMNS AND FLOORBEAM #9
- STRINGER ENDS OVER FLOORBEAM #9 AND ALL OF THE OUTSIDE STRINGERS IN FIXED SPAN.
- FOLLOWING ITEMS SHALL BE SANDBLASTED AND PAINTED:
 - 2 MOTOR BEARING PLATES (PLEASE NOTE THAT THE MOTOR IS NOT TO BE PAINTED AS IT WILL BE REFURBISHED/REPLACED)
 - 2 CAM LIMIT & SYNCHRO METER BASES
 - 2 CAM LIMIT BOXES
 - 2 SYNCHRO METER BOXES
 - 2 SPEED REDUCER & MANUAL DRIVES
 - 4 TRUNNION BEARING BASES & CAPS
 - 4 PINION BEARING PLATE
 - 4 PINION BEARING BASES & CAPS

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	DRAWN - LEG	REVISED -
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PLOT DATE = 3/22/2019	DATE - 1/24/2019	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS, HIGHWAY STANDARDS,
 GENERAL NOTES, AND GENERAL PAINTING NOTES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	2
			CONTRACT NO. 62G97	
		ILLINOIS	FED. AID PROJECT	

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CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE
				0047
				80% FED / 20% STATE S.N. 099-9903
50102400	CONCRETE REMOVAL	CU YD	0.6	0.6
50300225	CONCRETE STRUCTURES	CU YD	0.6	0.6
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	9	9
67100100	MOBILIZATION	L SUM	1	1
X0323078	REMOVE AND RE-ERECT EXISTING BRIDGE RAIL	FOOT	34	34
X0325925	REPAIR OF EXISTING OPEN STEEL FLOOR WELDS	EACH	3	3
X0326557	REFURBISHING OF OPERATING MACHINERY	L SUM	1	1
X0326558	REPLACEMENT OF CENTER LOCKS	EACH	2	2
X0327739	MISCELLANEOUS ELECTRICAL WORK	L SUM	1	1
X0900033	BRIDGE BALANCING	L SUM	1	1
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1	1
Z0001902	OPEN STEEL FLOOR	SQ FT	180	180
Z0001905	STRUCTURAL STEEL REPAIR	POUND	5885	5885
Z0003500	BEAM STRAIGHTENING	EACH	2	2
Z0007112	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES	L SUM	1	1
Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM	1	1

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE
				0047
				80% FED / 20% STATE S.N. 099-9903
Z0030850	TEMPORARY INFORMATION SIGNING	SQFT	22	22
Z0032300	JACKING EXISTING SUPERSTRUCTURE	L SUM	1	1
Z0068508	STEEL GRID DECK REPAIRS	L SUM	1	1
Z0073400	TEMPORARY SUPPORT SYSTEM	EACH	2	2
Z0073510	TEMPORARY TRAFFIC SIGNAL TIMING	EACH	8	8
∅ Z0076600	TRAINEES	HOUR	500	500
∅ Z0076604	TRAINEES TRAINING PROGRAM GRADUATE	HOUR	500	500
				∅ 0042
				REV. - MS



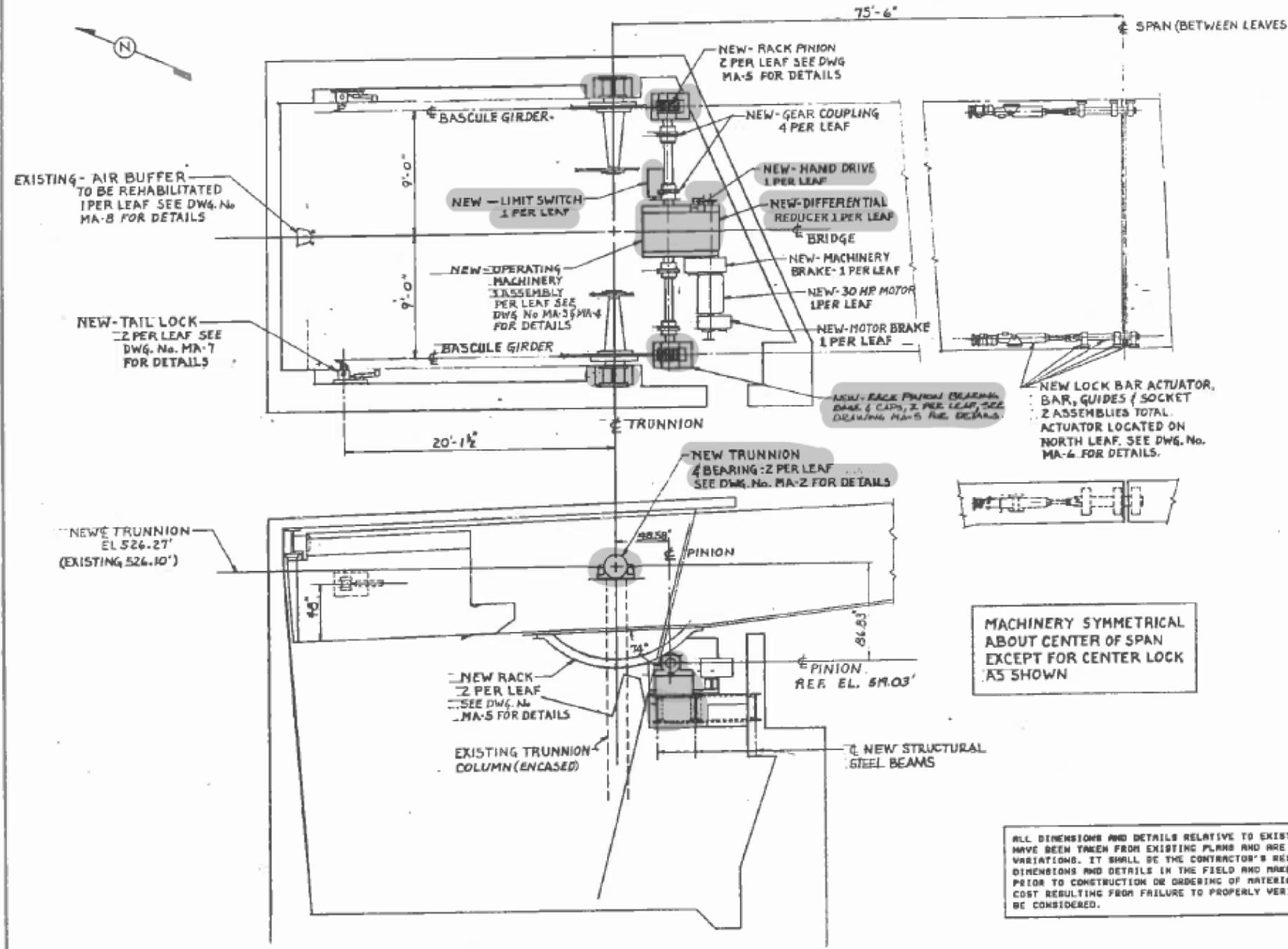
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PLOT DATE = 2/4/2019	CHECKED - MO	REVISED +
	DATE - 1/24/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRANDON RD OVER DES PLAINES RIVER S.N. 099-9903
SUMMARY OF QUANTITIES

F.A.U. RTE. 0341	SECTION 2018-048-B-R	COUNTY WILL	TOTAL SHEETS 45	SHEET NO. 3
SCALE: SHEET OF SHEETS STA. TO STA.			CONTRACT NO. 62G97	
ILLINOIS FED. AID PROJECT				

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAU-0341	*	WILL	44	56
TO STA.		ILLINOIS PROJECT		
FED. ROAD DIST. NO. 7		#1981-082B-I		



GENERAL MACHINERY NOTES:

1. ALL MACHINERY SHALL BE FABRICATED AND ERRECTED PER ASMTO STANDARD SPECIFICATIONS FOR MOVABLE HIGHWAY BRIDGES, 1978, PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS. FITS AND FINISHES FOR MACHINERY SURFACES NOT OTHERWISE SPECIFIED IN THE PLANS SHALL BE PER AMERICAN NATIONAL STANDARDS INSTITUTE PUBLICATION SA-1(1979) AND SA-1(1978), SPECIFICALLY AS FOLLOWS:

SURFACE	FIT	FINISH
MACHINERY BASE ON STEEL	-	250
SHAFT JOURNAL	H6	8
JOURNAL BUSHING	H6	16
SPLIT BUSHING IN BASE	L61	125
SOLID BUSHING IN BASE (WALL TO 1/8")	F61	63
SOLID BUSHING IN BASE (WALL > 1/8")	F62	63
HOLES ON SHAFT	F63	63
TURNED BOLTS IN FINISHED HOLES	L65	43
SLIDING BEARING	H65	32
KEY AND KEYWAY	L6A	63
MACHINERY PARTS IN FIXED CONTACT	-	125
TEETH OF GEAR AND PINION	-	125

THE ABOVE FITS FOR CYLINDRICAL PARTS SHALL ALSO APPLY TO CONE-CYLINDRICAL PARTS.

2. ALL MACHINERY SHALL BE ERRECTED BY MILLWRIGHTS WITH DEMONSTRATED COMPETENCE IN MACHINERY ERRECTION WORK.

CRSS **CRS BIRNINE**
CLARK DIETZ DIVISION

DATE	TO	PROJECT CONTROL	FOR



ACTIVITY	NAME	DATE	SCALE
DESIGNED BY:	B.R.H.	3/87	DATE: MARCH, 1990
DRAWN BY:	A.J.R.	3/87	
CHECKED BY:	T.L.K.	3/87	
APPROVED BY:	Peter Slawka	3/11	
REGISTRATION NO.:	022-073657	REG. DATE	

DRAWING NO.
MA-1

STERMAN, BOYBTON, INC.
NEW YORK CONSULTING ENGINEERS ILLINOIS
MACHINERY PLAN & ELEVATION
BRANDON ROAD (FAU-0341) OVER
DES PLAINES RIVER
SNO99-9903
SEC. 081-082B-I WILL COUNTY

AREA TO BE PAINTED IS SHADED

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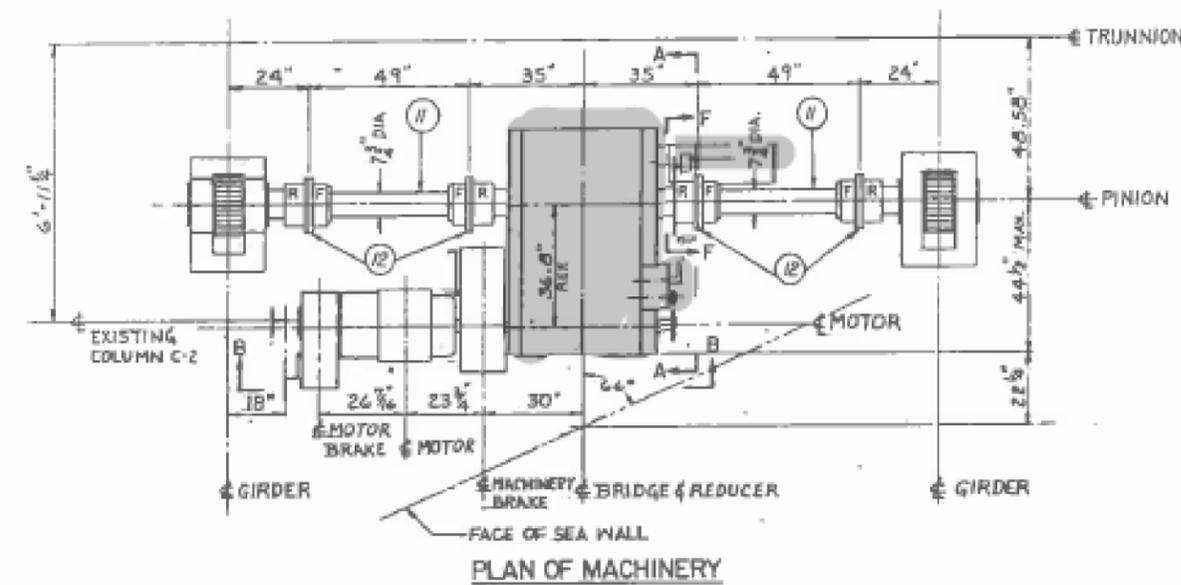
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PLOT DATE = 3/21/2019	CHECKED - MO	REVISED -
	DATE - 1/24/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRANDON RD OVER DES PLAINES RIVER S.N. 099-9903
PAINTING PLANS
SCALE: SHEET OF SHEETS STA. TO STA.

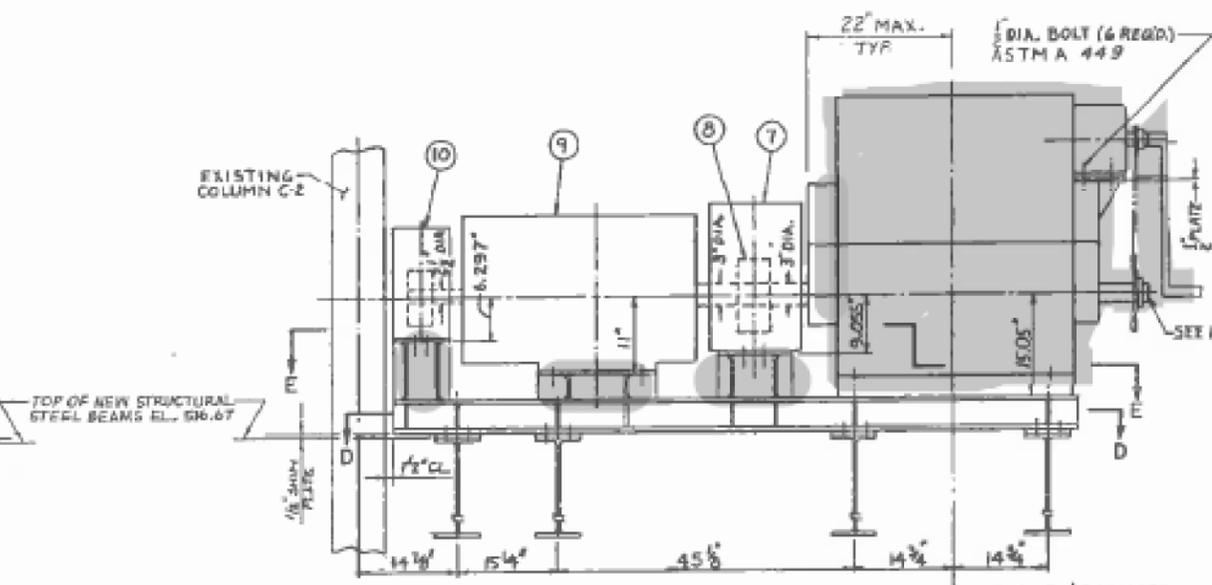
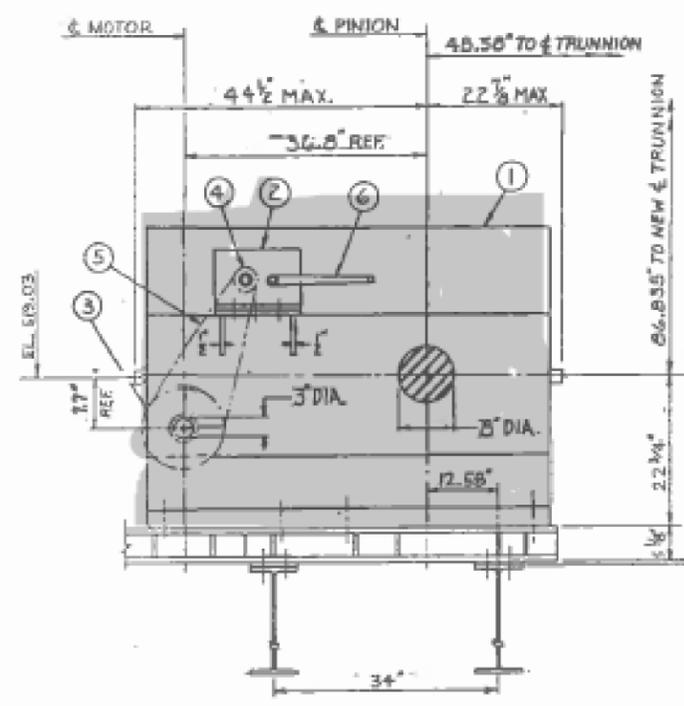
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	4
CONTRACT NO. 62G97				ILLINOIS FED. AID PROJECT

PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAU-0341	8	WILL	64	52
STA.	TO STA.			
118	120			
DATE	BY	CHECKED		
1/24/2019	LEG	MO		



- NOTES:**
- SEE DRAWING BR-1 FOR GENERAL NOTES.
 - DIFFERENTIAL GEAR REDUCER, MOTOR, MOTOR BRAKE, MACHINERY BRAKE AND HAND DRIVE EQUIPMENT SHALL BE SHOP ASSEMBLED AND CONNECTED TO THE MACHINERY FRAME. TESTS TO BE MADE PRIOR TO INSTALLATION ON THE BRIDGE SHALL BE MADE IN THE SHOP. THE COMPLETED, SHOP ASSEMBLED AND TESTED UNIT OF FRAME, GEAR REDUCER, MOTOR, MOTOR BRAKE, MACHINERY BRAKE AND HAND DRIVE EQUIPMENT SHALL BE SHIPPED TO THE SITE AND CONNECTED AS ONE UNIT TO THE NEW STRUCTURAL STEEL FRAMING.
 - MACHINERY SHALL BE ERECTED ONTO THE BRIDGE SO THAT BACK PINION SHAFTS, 7 3/4" DIAMETER FLOATING SHAFTS, AND DIFFERENTIAL GEAR REDUCER ARE CORNERAL WITHIN .010" THROUGHOUT THE DISTANCE FROM BACK PINION TO BACK PINION.
 - HAND DRIVE SHOWN OPERATIONAL. HAND DRIVE INPUT SHAFT EXTENSION OF MAIN DIFFERENTIAL SPEED REDUCER SHALL BE PROVIDED WITH A REMOVABLE, PROTECTIVE COVER TO CONCEAL THE 8" DIAMETER SHAFT. WITH THE SPROCKET AND CHAIN REMOVED. THE COVER SHALL BE ELECTRICALLY INTERLOCKED TO THE MOTOR SO THAT WHEN THE COVER IS REMOVED NO POWER CAN BE APPLIED TO THE MOTOR.
 - SEE DRAWING BR-4 FOR SECTIONS A, E AND F.

- EQUIPMENT LIST:**
- MAIN DIFFERENTIAL SPEED REDUCER
570 RPM
30 HORSE POWER
200:1 RATIO
AGMA SERVICE FACTOR 1.0
 - HAND DRIVE REDUCER
1750 RPM INPUT RATING
24 HORSE POWER
2.38:1 RATIO
AGMA SERVICE FACTOR 1.0
LINK BELT PARALLEL SHAFT SIZE HS 400
OR APPROVED EQUAL
 - 72 TOOTH SPROCKET WITH KEY AND SET SCREW
12" PITCH
BROWNING 40872 OR APPROVED EQUAL
 - 26 TOOTH SPROCKET WITH KEY AND SET SCREW
12" PITCH
BROWNING 40826 OR APPROVED EQUAL
 - STAINLESS STEEL SINGLE STRAND ROLLER CHAIN
12" PITCH
1850 LBS AVERAGE TENSILE STRENGTH
 - 15" REMOVABLE HAND CRANK WITH KEY
AND SET SCREW
 - THRUSTOR OPERATED MACHINERY BRAKE
TYPE 2 DRIP TIGHT COVER
CORROSION RESISTANT FITTINGS
HAND RELEASE WITH ELECTRICAL INTERLOCK
TIME DELAY
ALL WEATHER THRUSTOR OIL NO. 9621
FACTORY SET AT 400 FT-LBS RETARDING TORQUE
GENERAL ELECTRIC DR9318 SIZE 464 OR
LINK CONTROLS DRUM BRAKE 72-912-80
OR APPROVED EQUAL.
 - BRAKEWHEEL COUPLING WITH KEYS
FALK 10761 OR APPROVED EQUAL
 - MOUND-ROTOR MOTOR
30 HORSE POWER
570 RPM
TOTALLY ENCLOSED NON-VENTILATED
NEAR FRAME SIZE 144
DRIVE END SHAFT EXTENSION - 3" DIA. x 4" LONG
MOTOR BRAKE END SHAFT EXTENSION -
2 1/2" DIA. x 7 1/2" LONG
 - THRUSTOR OPERATED ROTOR BRAKE
BRAKEWHEEL WITH KEY
TYPE 2 DRIP TIGHT COVER
CORROSION RESISTANT FITTINGS
HAND RELEASE WITH ELECTRICAL INTERLOCK
TIME DELAY
ALL WEATHER THRUSTOR OIL NO. 9621
FACTORY SET AT 150 FT-LBS RETARDING TORQUE
LINK CONTROLS DRUM BRAKE 72-908-30
OR APPROVED EQUAL.
 - FLOATING SHAFT
7 3/4" DIAMETER
ASTM A503 CL D
AASHTO H302 CL D
 - GEAR COUPLING WITH KEYS
FALK 105551 OR APPROVED EQUAL



CRSS CR8 BIRRIE
CLARK DIETZ DIVISION

DATE	TO	PROJECT CONTROL	FOR



ACTIVITY	NAME	DATE	SCALE
DRAWN BY:	B.R.H.	3/01	
CHECKED BY:	A.J.R.	4/07	DATE: MARCH, 1990
APPROVED BY:	T.L.K.	3/87	
APPROVED BY:	Peter Slusarczyk	8/12	
REGISTERED PROFESSIONAL ENGINEER			

DRAWING NO.
MA-3

STEINMAN, BOWTON, INC.
NEW YORK CONSULTING ENGINEERS ILLINOIS

SPAN DRIVE MACHINERY
BRANDON ROAD (FAU-0341) OVER
DES PLAINES RIVER
SNO99-9903
SEC. BR1-082B-1 WILL COUNTY

AREA TO BE PAINTED IS SHADED

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USER NAME	= jahmed
DESIGNED	- LEG
DRAWN	- LEG
PLOT SCALE	= 2,000' / in.
PLOT DATE	= 3/21/2019

DESIGNED	- LEG	REVISED	-
DRAWN	- LEG	REVISED	-
CHECKED	- MO	REVISED	-
DATE	- 1/24/2019	REVISED	-

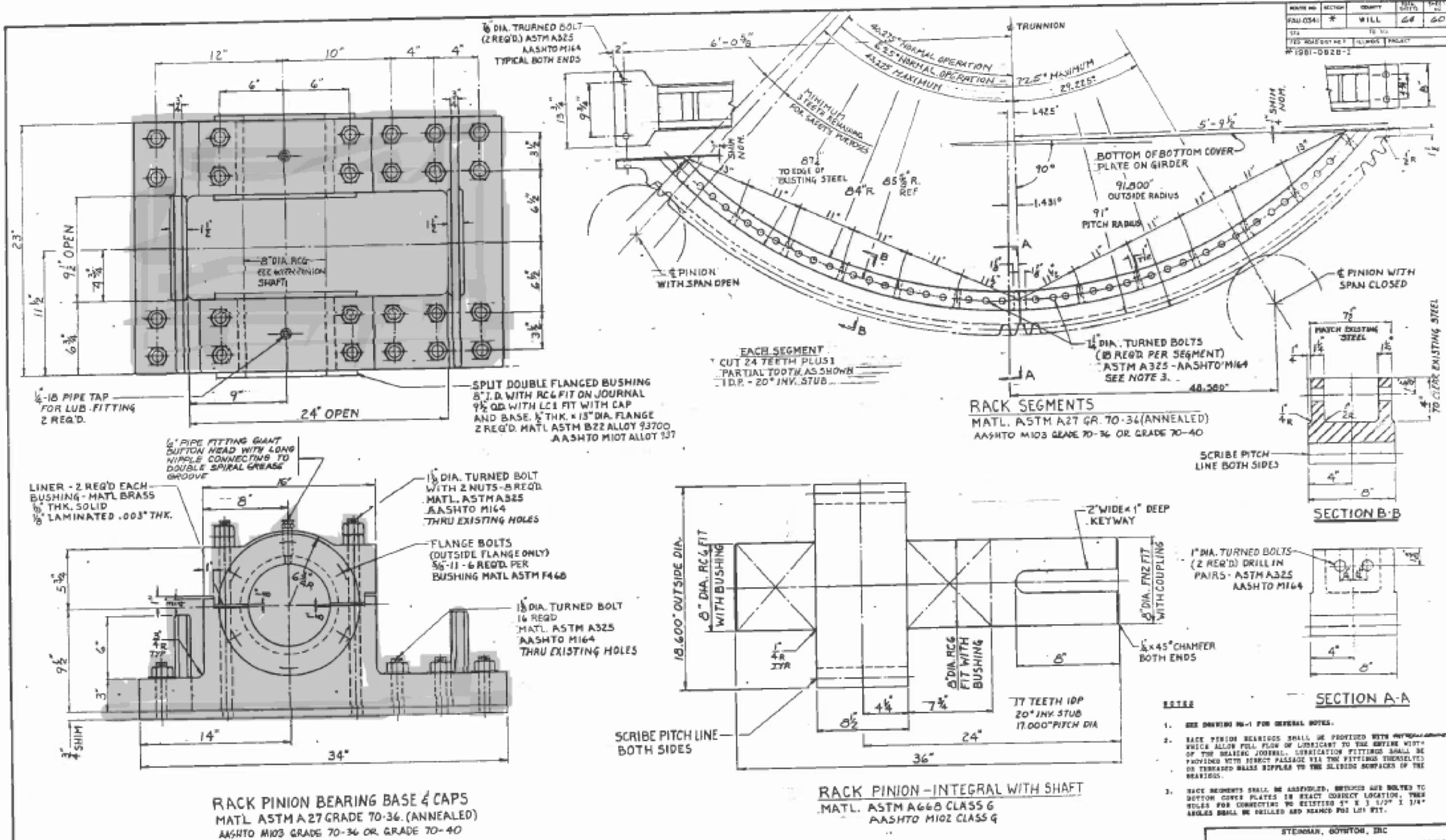
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRANDON RD OVER DES PLAINES RIVER S.N. 099-9903
PAINTING PLANS

SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	6
CONTRACT NO. 62G97			ILLINOIS FED. AID PROJECT	

DATE	SECTION	COUNT	TOTAL SHEETS	SHEET NO.
FAU 0341	*	WILL	68	60
STA	TO STA	PROJECT		
105+00 TO 107+00		ILLINOIS		
*1981-0828-1				



- NOTE**
- SEE DRAWING NO. 1 FOR GENERAL NOTES.
 - RACK PINION BEARINGS SHALL BE PROVIDED WITH INTERLOCKING BRICKS ALLOW FULL FLOW OF LUBRICANT TO THE ENTIRE WIDTH OF THE BEARING JOURNAL. LUBRICATION FITTINGS SHALL BE PROVIDED WITH PERFECT PASSAGE VIA THE FITTINGS THEMSELVES OR THERMO WELDED NIPPLES TO THE SLIDING SURFACES OF THE BEARINGS.
 - RACK SEGMENTS SHALL BE ASSEMBLED, BRIDGES AND BOLTED TO BOTTOM COVER PLATES IN EXACT CORRECT LOCATION. THESE BOLTS FOR CORRECTING TO BE SETTING 1/2" x 3/4" x 1 1/4" BOLTS SHALL BE DRILLED AND REAMED FOR LOT FIT.

CRSS CLARK DIETZ DIVISION	DESIGNED BY: B.R.H.	DATE: 3/87	SCALE: DATE: MARCH, 1990	DRAWING NO. MA-5	STEINMAN, GOYTHON, INC. CONSULTING ENGINEERS ILLINOIS
	CHECKED BY: T.L.K.	DATE: 3/87			
	APPROVED BY: <i>[Signature]</i>	DATE: 3/87			BRANDON ROAD (FAU-0341) OVER DES PLAINES RIVER SNO99-9903
	REGISTRATION NO. 061-042411				SEC. 081-0828-1 WILL COUNTY

AREA TO BE PAINTED IS SHADED

MODEL: 140001.NAMES FILE: NAME: S:\2019\1810102-AES.M12.IDOT.D11.PTB.185-0231\work_order - 12 Brandon Rd\06100618002.12.PTB.185_002.WD13_62G97.Brandon\01.CADD\Sheet07.62G97.Sht.Painting.Plan.4.dgn

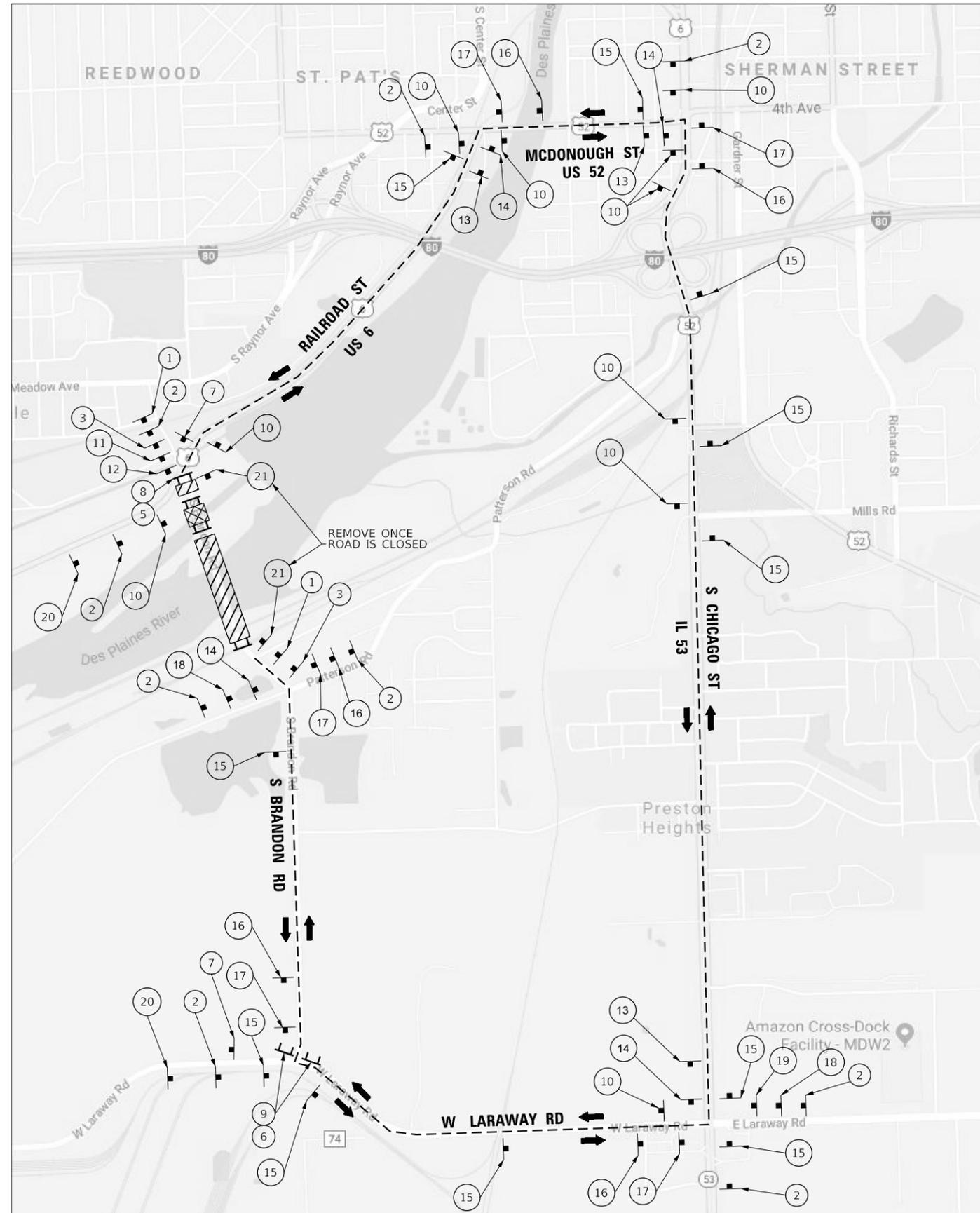


USER NAME = jahmed	DESIGNED - LEG	REVISED -
PLOT SCALE = 2,000' / in.	DRAWN - LEG	REVISED -
PLOT DATE = 3/21/2019	CHECKED - MO	REVISED -
	DATE - 1/24/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

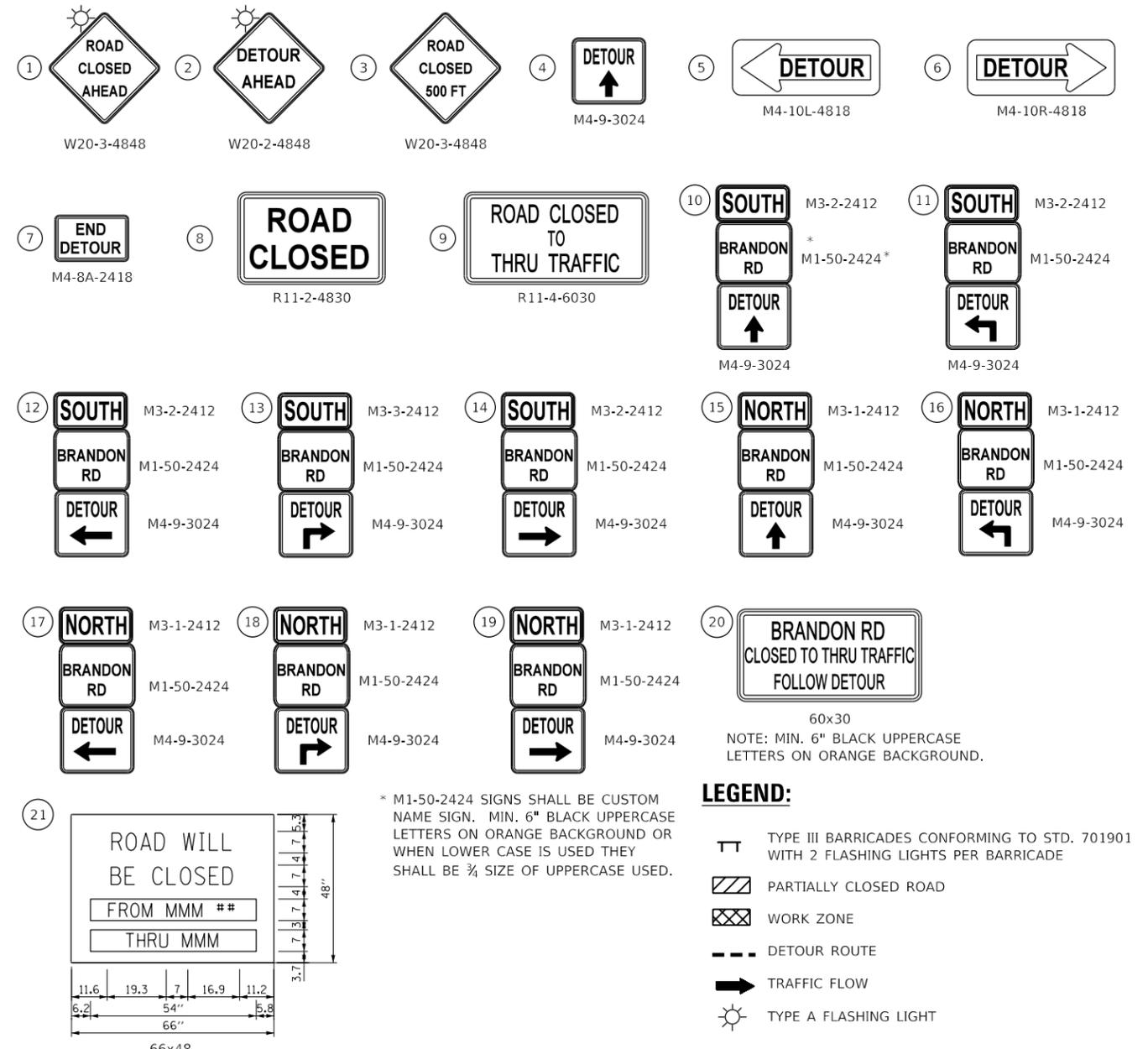
BRANDON RD OVER DES PLAINES RIVER S.N. 099-9903
PAINTING PLANS

SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
0341	2018-048-B-R	WILL	45	7		
				CONTRACT NO. 62G97		
				ILLINOIS FED. AID PROJECT		



NOTES:

1. DETOUR SIGNAGE SHALL NOT BE INSTALLED ON ANY WILL COUNTY DIVISION OF TRANSPORTATION POLES OR SIGNAL POLES. IF THEY ARE FOUND TO BE INSTALLED ON ANY WILL COUNTY POLES, THEY WILL BE IMMEDIATELY REMOVED.
2. DETOUR SIGNAGE SHALL NOT BLOCK ANY IDOT SIGNS AND CANNOT USE THE IDOT SIGN POSTS.
3. THE CONTRACTOR SHALL CONTACT THE TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 A MINIMUM OF 72 HOURS PRIOR TO THE PLACEMENT OF ANY TEMPORARY TRAFFIC CONTROL DEVICES.
4. CONTACT AND NOTIFY MR. JEFF L. RONALDSON, P.E., OF THE WILL COUNTY DIVISION OF TRANSPORTATION AT (815) 727-8476 AT LEAST 48 HOURS IN ADVANCE OF PLACING SIGNAGE ALONG THE COUNTY HIGHWAY(S).
5. DETOUR SIGN INSTALLATION CONTRACTOR SHALL CALL JULIE FOR UTILITY LOCATES. IDOT MAY HAVE STORM DRAIN, SIGNAL AND LIGHTING FACILITIES IN THESE AREAS THAT WILL REQUIRE LOCATES. CONTACT JULIE AT (800) 892-0123.
6. REFER TO IDOT DISTRICT 1 DETAIL TC 21 FOR TYPICAL SIGN LAYOUT
7. FOLLOWING SIGNALIZED INTERSECTION WILL REQUIRE TIMING ADJUSTMENTS DURING DETOUR AND SHALL BE PAID UNDER TEMPORARY TRAFFIC SIGNAL TIMING.
 - A. IL 53 & LARAWAY RD
 - B. IL 53 & MILLS RD
 - C. IL 53 & DORIS AV
 - D. IL 53 & PATTERSON RD
 - E. IL 53 & WB I-80 RAMP
 - F. IL 53 & 4TH AV
 - G. US 6 & BRANDON RD
 - H. LARAWAY RD & BRANDON RD



* M1-50-2424 SIGNS SHALL BE CUSTOM NAME SIGN. MIN. 6" BLACK UPPERCASE LETTERS ON ORANGE BACKGROUND OR WHEN LOWER CASE IS USED THEY SHALL BE 3/4 SIZE OF UPPERCASE USED.

LEGEND:

- TYPE III BARRICADES CONFORMING TO STD. 701901 WITH 2 FLASHING LIGHTS PER BARRICADE
- PARTIALLY CLOSED ROAD
- WORK ZONE
- DETOUR ROUTE
- TRAFFIC FLOW
- TYPE A FLASHING LIGHT

MODEL: 140901ENR.MXD
 FILE NAME: S:\2019\181101\042-AES PH2 IDOT D1-P1B 185-021\Work Order - 12 Brandon Bridge\0618002.12_P1B185_002_WD12_62G97 Brandon\01\CADD\Sheet\08_62G97_Sht_Detour.dgn



USER NAME = jahmed	DESIGNED - LEG	REVISED -
PLOT SCALE = 2,000' / in.	DRAWN - LEG	REVISED -
PLOT DATE = 3/21/2019	CHECKED - MO	REVISED -
	DATE - 1/24/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRANDON RD OVER DES PLAINES RIVER S.N. 099-9903
DETOUR PLAN

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	8
ILLINOIS FED. AID PROJECT			CONTRACT NO. 62G97	

Bench Marks:

All elevations are based upon the existing bridge having an elevation of 526.10 at centerline trunnion as shown on the plans for existing bridge dated 1931.

The structure is to be completely closed to traffic during construction. Traffic is to be maintained by detouring onto an alternate route.

Removed grid deck panel will be salvaged.

SCOPE OF WORK

1. Remove Machinery Enclosure from North and South Pier
2. Install Temporary Support System at North and South Pier
3. Jack existing Superstructure
4. Repair Jack Columns and Floorbeam FB-9
5. Remove Temporary Support System
6. Modify Machinery Enclosure framing and reinstall Enclosure
7. Perform NE and NW Girder web straightening and install web repair plates
8. Modify FB1 Brackets at North and South of Center Lock
9. Perform crack weld repair on NW Girder
10. Remove and Replace section of open grid deck
11. Perform crack weld repair on existing open grid deck panels
12. Perform bridge railing repairs
13. For Mechanical and Electrical Scope of Work, see sheet M-1 & E-1 respectively

DESIGN DATA (BRIDGE REHAB)

Design Specifications:

AASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002 with 2005 Interims.
AASHTO Standard Specifications for Movable Highway Bridges 1988 with Interim through 1995.

Design Loads:

Dead load: Actual weights of the structure including structural steel, concrete, railings, electrical equipment, mechanical equipment, utilities and other permanent construction and fixtures.

Live load: HS-20-44

Wearing Surface: 25 psf

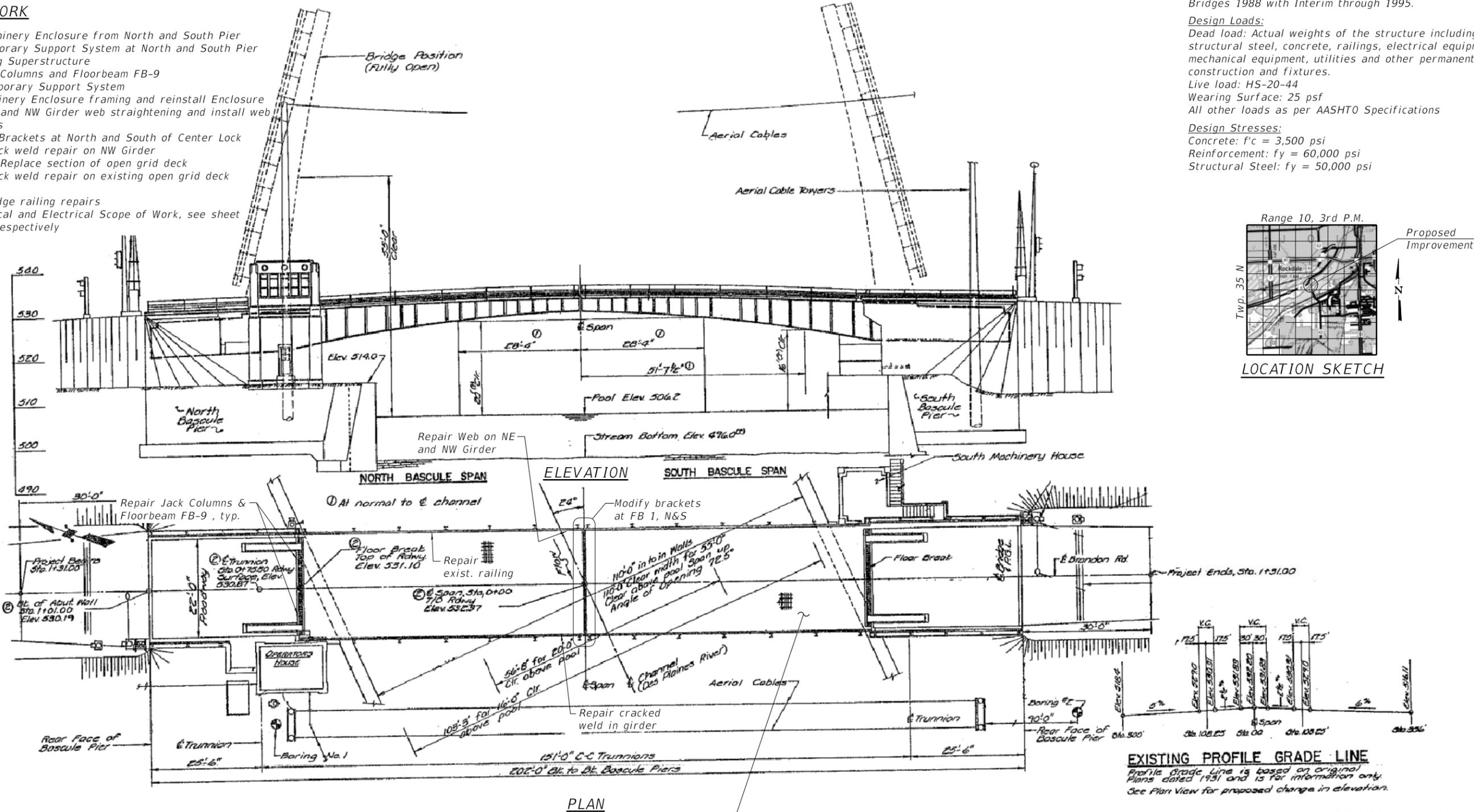
All other loads as per AASHTO Specifications

Design Stresses:

Concrete: $f'_c = 3,500$ psi

Reinforcement: $f_y = 60,000$ psi

Structural Steel: $f_y = 50,000$ psi



GENERAL NOTES

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts 7/8" Ø, holes 15/16" Ø, unless otherwise noted. Threads shall be excluded.
- All structural steel shall be AASHTO M270 Grade 50, unless otherwise noted.
- No field welding is permitted except as specified in the contract documents.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- All materials and construction methods shall conform to the Standard Specifications for Road and Bridge Construction adopted April 1, 2016 by the Illinois Department of Transportation including supplemental specifications and recurring special provisions unless otherwise specified.
- All elevation refer to mean sea level.
- Work on the structure shall be done in such a manner that the closure of the bridge to river traffic is restricted to the down position is prohibited. River traffic shall be maintained at all times.
- The Contractor shall obtain all necessary permits from the State of Illinois prior to commencing construction. The costs shall be included in the cost of the contract.
- Location and diameter of holes in new connecting members or pieces shall match holes in the existing structure. Holes in existing structure shall not be enlarged.
- It is the Contractor's responsibility to take measurement in the field of the existing structure wherever new steel is to replace or to connect into existing material prior to ordering or fabricating any new steel. The Contractor shall be responsible for the proper fitting and assembly of all parts of this work. The Contractor's shop drawings shall indicate which dimensions were obtained by actual field measurements.
- Members or pieces not specifically marked for removal or replacement are to remain in place.
- The Contractor shall preform all work with care so that any materials that are to remain in place will not be damaged. If the Contractor damages any materials that are to remain in place, the damaged materials shall be repaired or replaced in a manner satisfactory to the engineer at the expense of the Contractor.
- The Inorganic Zinc Rich Primer/Acrylic/Acrylic Paint System shall be used for shop and field painting of new structural steel. The color of the acrylic finish coat shall be Interstate Green, Munsell No. 7.5G 4/8.
- Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provisions "Cleaning and Painting Existing Steel Structures" and "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
- The Contractor shall take all necessary measures to ensure that no debris fall in the Des Plaines River. The cost of this work shall be considered incidental to the Contract.
- When the leaves of the bascule span are inoperable in the full open position, the leaves must be secured. The contractor shall submit the method and details, for securing the leaves in full open position, to the engineer for approval. The cost of this work shall be considered incidental to the Contract.

INDEX OF SHEETS

- Structure**
- S-1 General Plan And Elevation
 - S-2 General Notes And Bill Of Material
 - S-3 Navigational Clearances
 - S-4 Deck Plan And Repair Details
 - S-5 Railing Repair Details
 - S-6 Bascule Girder Web Repair Details
 - S-7 Center Lock Connection Details
 - S-8 Floorbeam 1 Bracket Details
 - S-9 Temporary Support Details
 - S-10 Jack Columns Layout Plan and FB-9 Retrofit Details
 - S-11 Jack Column Repair Details
 - S-12 Machinery Pit Enclosure (For Information Only)
 - S-13 Machinery Pit Enclosure Details (For Information Only)
- Mechanical**
- M-1 Mechanical Key Plan And Elevation
 - M-2 Machinery Room Plan And Elevation
 - M-3 Motor and Machinery Brake Details 1
 - M-4 Center Lock Details 1
 - M-5 Center Lock Details 2
 - M-6 Tail Locks
 - M-7 Buffer Cylinder
 - M-8 Load Support Shimming and Additional Buffer Details
 - M-9 Shims And Fasteners Details
- Electrical**
- E-1 Electrical Plan And Elevation
 - E-2 Electrical Legend And Abbreviations
 - E-3 Center Lock Power
 - E-4 Tail Lock Power
 - E-5 Leaf Drive Brakes Power
 - E-6 Center Lock Controls
 - E-7 Tail Lock And Leaf Position Limit Switches
 - E-8 Brakes And Leaf Position Limit Switches
 - E-9 Navigation Lighting
 - E-10 Limit Switch Developement
 - E-11 Details And Elevations
 - E-12 Center Lock/Navigation JB, TB, & Conduit Details
 - E-13 Terminal Box Details

TOTAL BILL OF MATERIALS

Pay Item Number	Description	Unit	Total
50102400	Concrete Removal	Cu Yd	0.6
50300225	Concrete Structures	Cu Yd	0.6
X0323078	Remove And Re-Erect Existing Bridge Rail	Foot	34
X0325925	Repair Of Existing Open Steel Floor Welds	Each	3
X0326557	Refurbishing Of Operating Machinery	L Sum	1
X0326558	Replacement Of Center Locks	Each	2
X0327739	Miscellaneous Electrical Work	L Sum	1
X0900033	Bridge Balancing	L Sum	1
Z0001902	Open Steel Floor	Sq Ft	180
Z0001905	Structural Steel Repair	Pound	5,885
Z0003500	Beam Straightening	Each	2
Z0032300	Jacking Existing Superstructure	L Sum	1
Z0068508	Steel Grid Deck Repairs	L Sum	1
Z0073400	Temporary Support System	Each	2

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WSP USA Inc.
30 N. LASALLE STREET
SUITE 4000
CHICAGO, IL 60602
TEL: (312) 782-4190
FAX: (312) 782-1984

USER NAME = PatelN	DESIGNED - NJP	REVISED -
	CHECKED - MS	REVISED -
PLOT SCALE = N.T.S.	DRAWN - NJP	REVISED -
PLOT DATE = 3/21/2019	CHECKED - AH	REVISED -

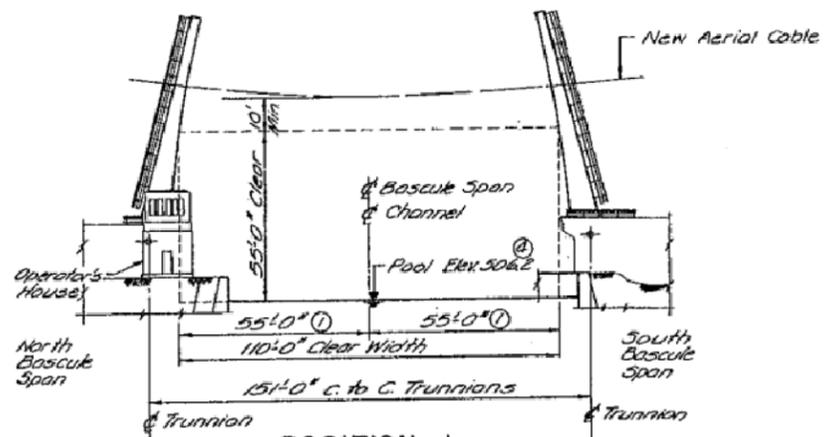
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GENERAL NOTES AND BILL OF MATERIAL
STRUCTURE NO. 099-9903**

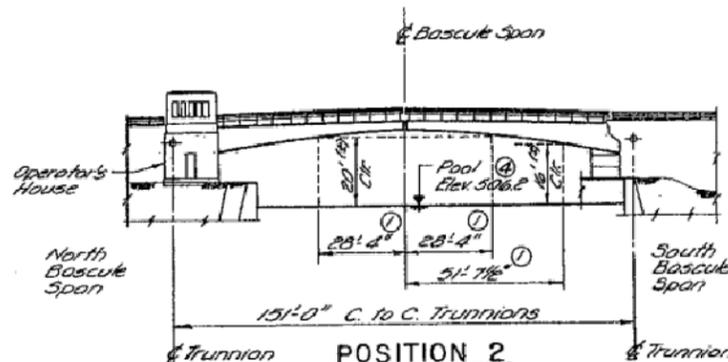
SHEET NO. S-2 OF S-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	10
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

Note: All clearances are based upon an opening angle of 72.5°. Normal angle of opening after construction is completed will be 69.5°.

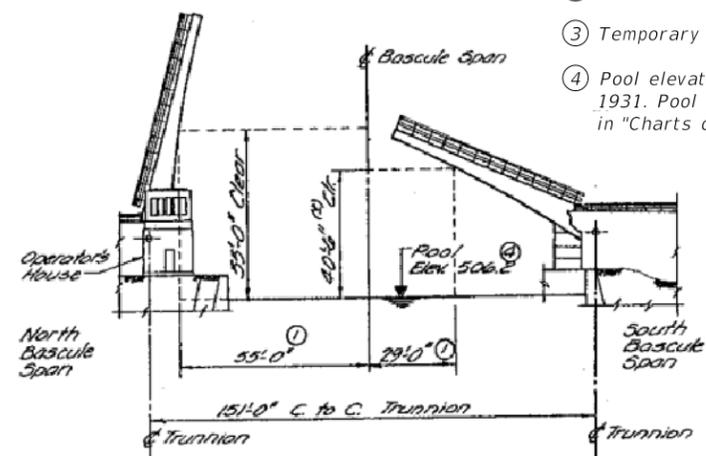


POSITION 1
Both Leaves Full Open - Bridge may be operable

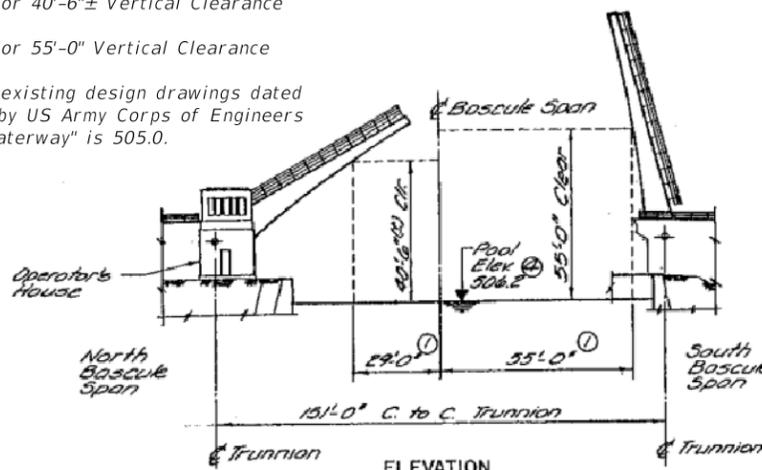


POSITION 2
Full Closed - Bridge is operable, both leaves must be raised into Full Open position (Position 1) and secured for night navigation.

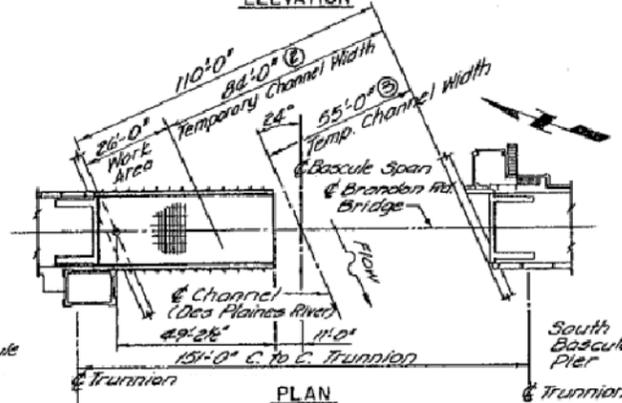
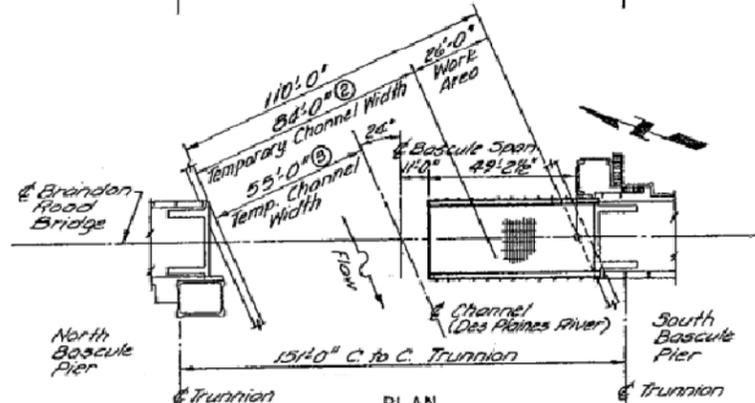
- ① At normal to ϕ Channel
- ② Temporary Channel Width for 40'-6"± Vertical Clearance
- ③ Temporary Channel Width for 55'-0" Vertical Clearance
- ④ Pool elevation as noted on existing design drawings dated 1931. Pool elevation noted by US Army Corps of Engineers in "Charts of the Illinois Waterway" is 505.0.



POSITION 3
North Leaf Full Open (72.5°) South Leaf partially open (31+)
North Leaf may be inoperable - South Leaf must be operable to be raised into Full Open position for night navigation



POSITION 4
North Leaf partially open (31+), South Leaf full open (72.5°)
South Leaf may be inoperable - North Leaf must be operable to be raised into Full Open position for night navigation



Notes:
When the leaves of the bascule span are inoperable in the full open position, the leaves must be secured. The contractor shall submit the method and details, for securing the leaves in full open position, to the engineer for approval.
The leaves shall be secured in the full open position during rehabilitation of the Mechanical and Electrical systems, which maintain the bridge leaves in position.
The new untested machinery and electrical components of the drive system shall not be used to lower the leaves without an independent support/lowering system. The contractor shall submit the method of independent support/lowering to the engineer for approval.

The contractor shall maintain proper balance of the bascule spans by securing temporary ballast in appropriate locations such that the imbalance is not more than 5% and the drive system is not overstressed. See Special Provisions.

The contractor may maintain the bridge in position 3 or position 4 for a XX-hour* daylight construction shift upon approval by the U.S. Coast Guard. Maximum encroachment into the channel is 26 feet. The contractor shall not change the bridge position from position 3 to position 4 or vice-versa without obtaining approval from the U.S. Coast Guard.

During evening and night and anytime construction has ceased, both leaves must be left in position 1 (full open). See Special Provisions.

The roadway will be closed to traffic during rehabilitation.

Work required to comply with all coast guard closure and navigation requirements shall be considered incidental to the total contract.

* To be coordinated with Coast Guard

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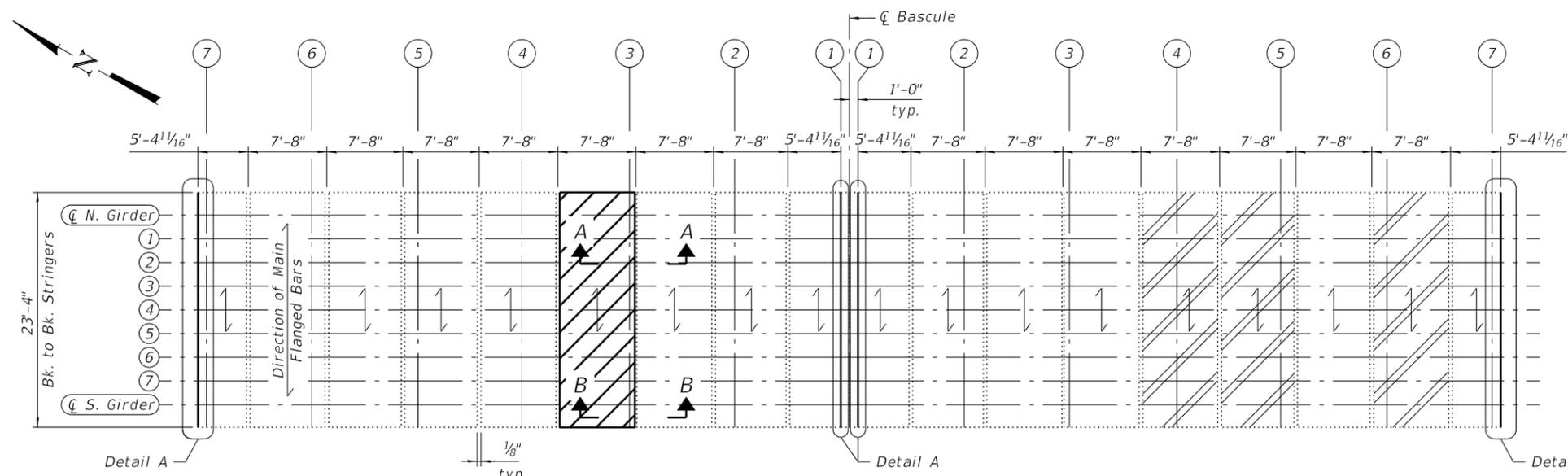
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PLOT SCALE = N.T.S.	CHECKED - MS	REVISED -
PLOT DATE = 3/21/2019	DRAWN - NJP	REVISED -
	CHECKED - AH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NAVIGATIONAL CLEARANCES
STRUCTURE NO. 099-9903

SHEET NO. S-3 OF S-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	11
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



MAIN DECK PLAN

LEGEND

- New 5 3/16"-4 way Open Steel Floor
- Panels with multiple cracked welds
- New End Bar (Cost Included in Steel Grid Deck Repairs)

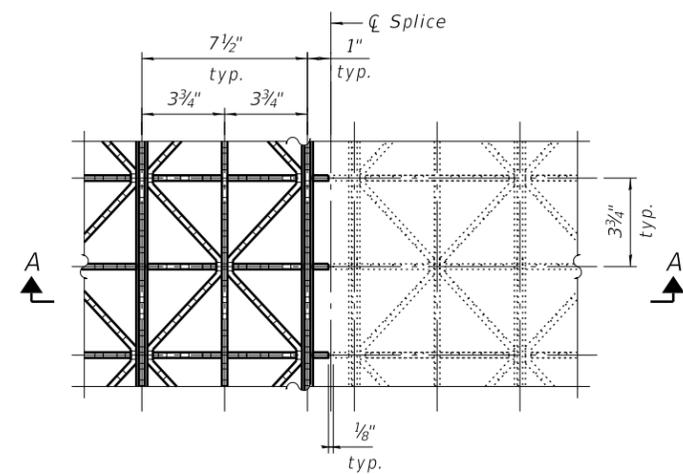
BILL OF MATERIAL

Item	Unit	Quantity
Repair of Existing Open Steel Floor Weld	Each	3
Open Steel Floor	Sq. Ft.	180
Steel Grid Deck Repairs	L. Sum	1

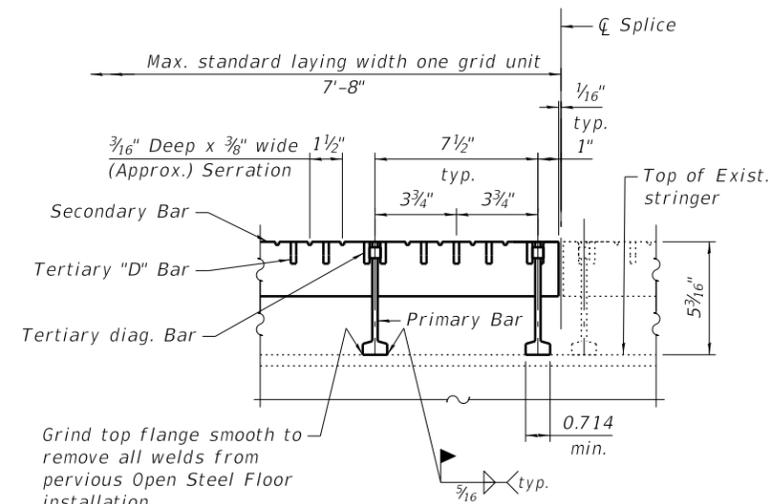
DECK GRATING CHART

Bar Type	Min. Properties
Primary Bar	$I = 4.137 \text{ in}^3$, $St = 1.408 \text{ in}^4$ $Wt. = 4.83 \text{ \#/ft}$, $S_b = 1.839 \text{ in}^4$
Secondary Bar	$2\frac{1}{4}" \times 1\frac{3}{64}"$
Tertiary "D" Bar	$1" \times \frac{7}{32}"$
Tertiary Diag. Bar	$1" \times \frac{7}{32}"$

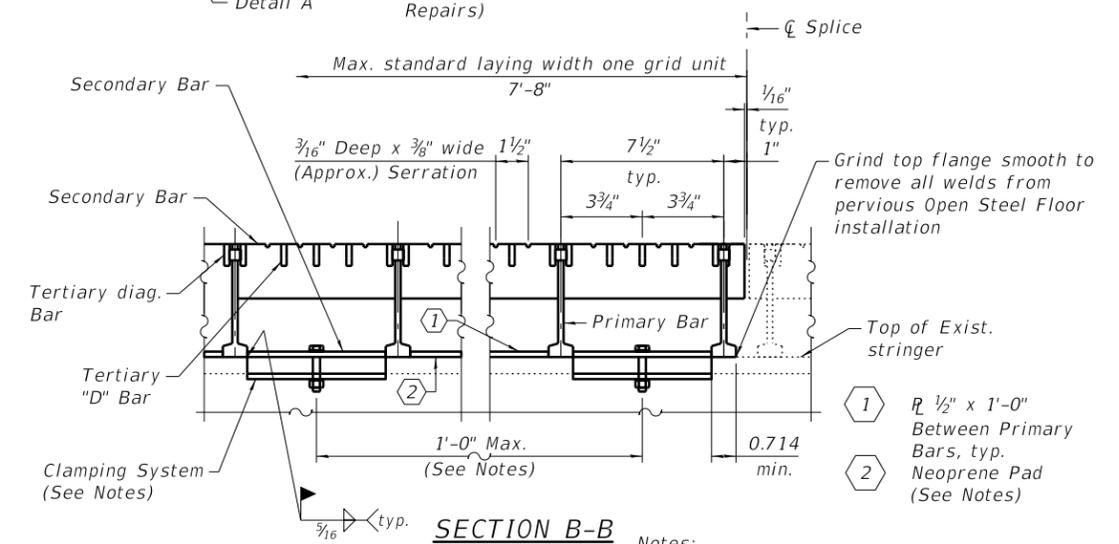
1. The minimum section modulus for a one-foot width of grating shall be 300 in³ based upon a 50% effectiveness of the intermediate and reticuline bar.
2. Grating shall weight 15.4 lbs per sq. ft with a minimum variation of 1/2 lbs, plus or minus.
3. See Special Provision.



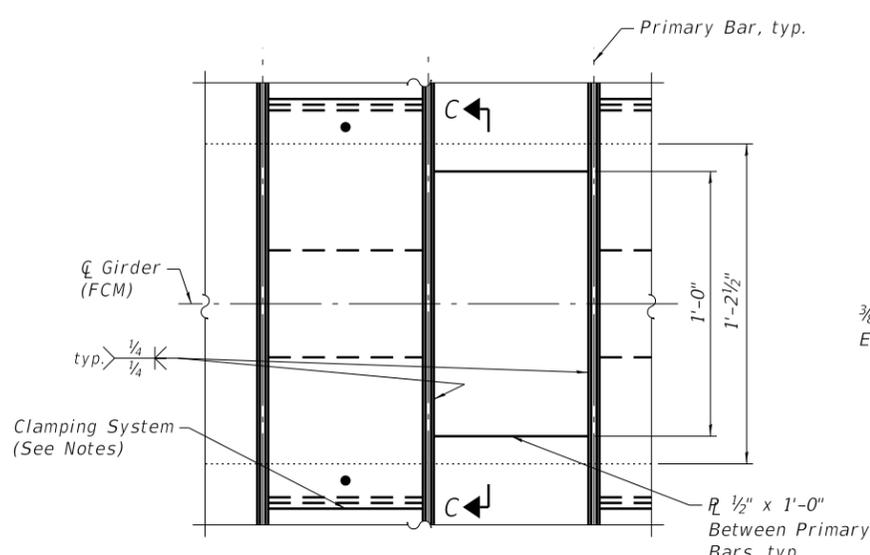
TYP. DECK GRATING DETAIL



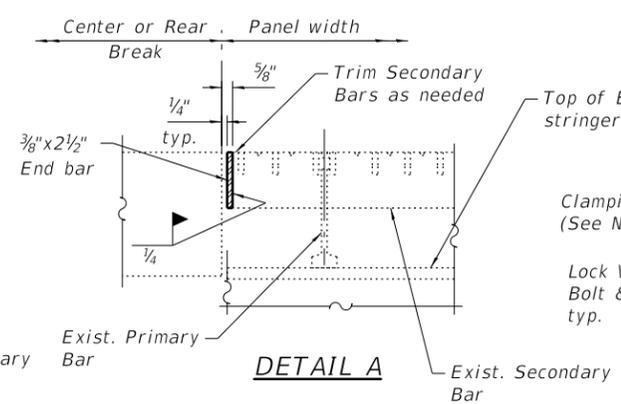
SECTION A-A



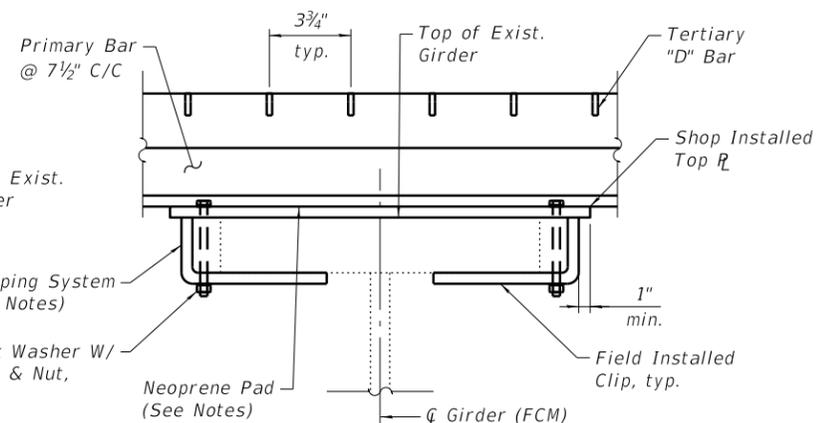
SECTION B-B



5" STEEL GRID ATTACHMENT AT GIRDER
(Top Diagonal Bars and Cross Bars not shown)



DETAIL A



SECTION C-C

Notes:

Pavement Markings shall be replaced to the satisfaction of the Engineer. Cost included in the Open Steel Floor.

Removal of existing open grid deck sections shall be included with Open Steel Deck, see Special Provision.

The Contractor shall field verify all existing open steel floor panels with welds. Any additional welds found with cracks shall be repaired as per special provision. The contractor will be paid for the quantity actually furnished at the contract unit price.

The Fabricator shall determine the final clamp spacing and method. Clamping details shown in these plans are for representation purposes only. The maximum clamp spacing shall not be greater than 1'-0" Neoprene pad shall installed under the open grid decking as per manufacture specification.

The Girder top flange shall be ground smooth to remove all welds from location where existing panel is being removed. Perform NDT on all previous weld locations on Girder top flange.

The existing panel that are being removed shall be salvaged and handed over to IDOT.

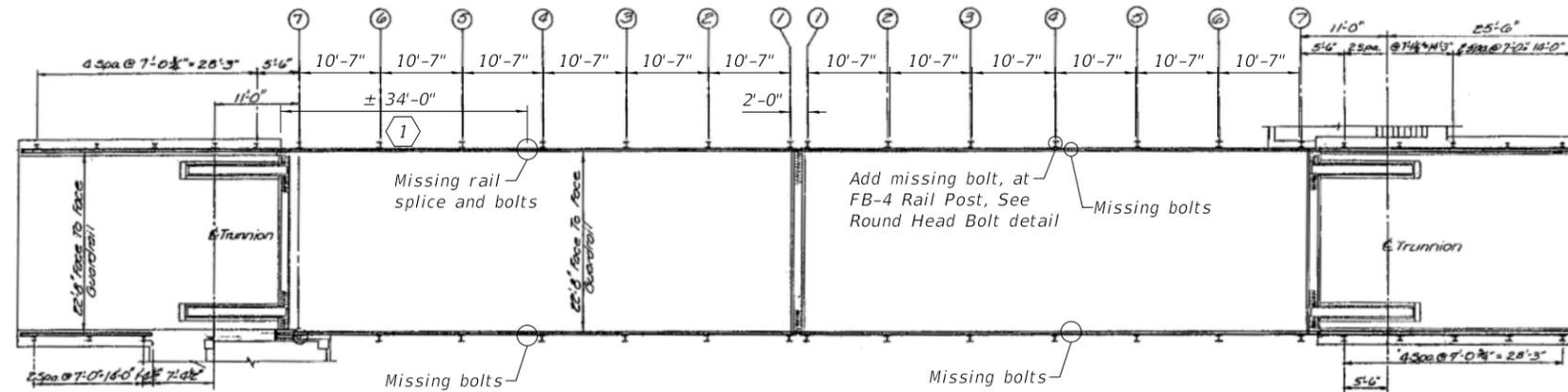
Cost of Clamping system including neoprene pad and all hardware necessary to install the grid deck shall be included in Open Steel Floor.

All hardware, plates, clamps, end bars etc. shall be galvanized, see Special Provision.

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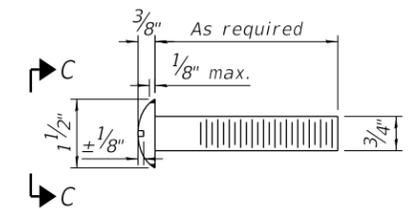
BILL OF MATERIAL

Item	Unit	Quantity
Remove and Re-Erect Existing Bridge Rail	Foot	34
Structural Steel Repair	Pound	40

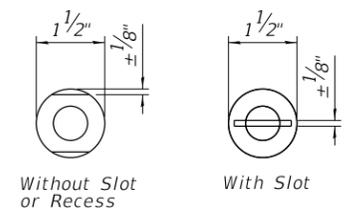


PLAN

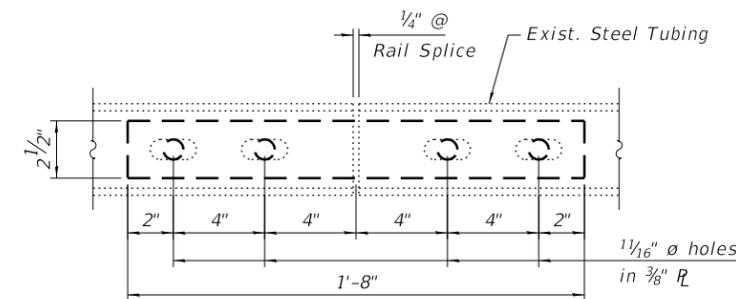
① Limits of Remove & Re-Erect, top rail only



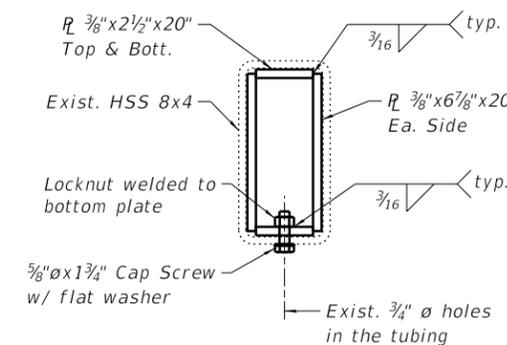
Round Head Bolt



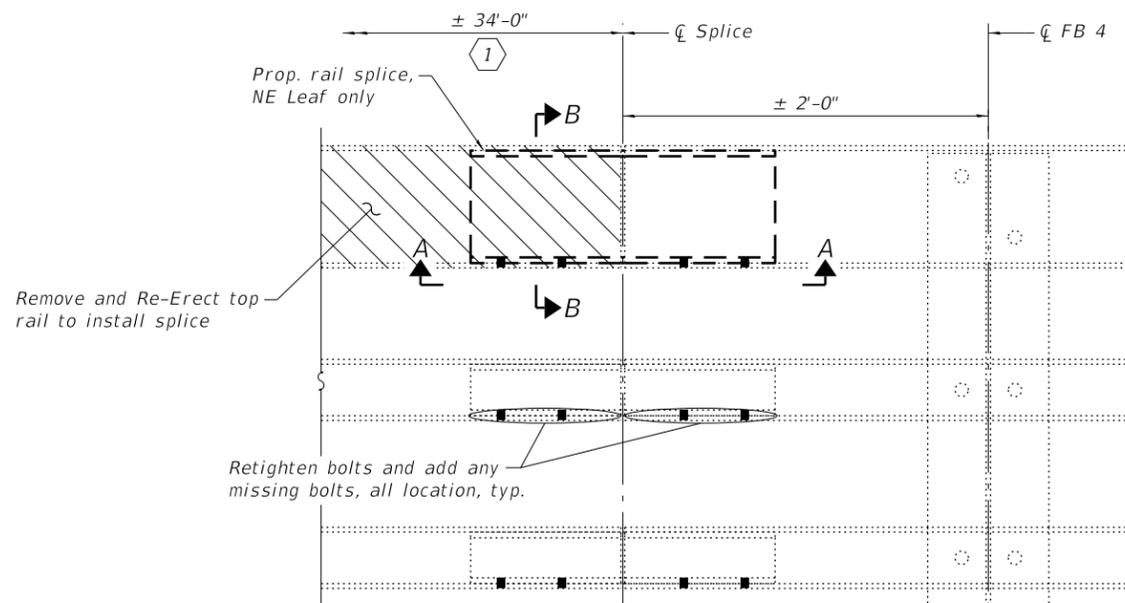
View C-C



SECTION A-A



SECTION B-B



ELEVATION

(N. Leaf shown, Looking E, S. Leaf similar but opposite)

Notes:
 All steel shapes and plates shall conform to the requirements of AASHTO H-183.
 Bolts, cap screws and nuts shall conform to the requirement of ASTH designation A-307.
 All rail splices and accessories shall be a galvanized after shop fabrication in accordance with AASHTO H-111 and ASTH A-385, galvanized rail shall not be painted.
 All bolts, nuts, cap screws and washers shall be galvanized in accordance with AASHTO M-232.
 Dimensions are based on the original 1930 plans and the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to work.
 Costs associated with replacement of missing bolts as well as tightening of loose bolts shall be included with Remove and Re-Erect Existing Bridge Rail.

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 30 N. LASALLE STREET
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 CHICAGO, IL 60602
 TEL: (312) 782-4190
 FAX: (312) 782-1884

USER NAME = PatelN	DESIGNED - NJP	REVISED -
PLLOT SCALE = N.T.S.	CHECKED - MS	REVISED -
PLLOT DATE = 3/21/2019	DRAWN - NJP	REVISED -
	CHECKED - AH	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

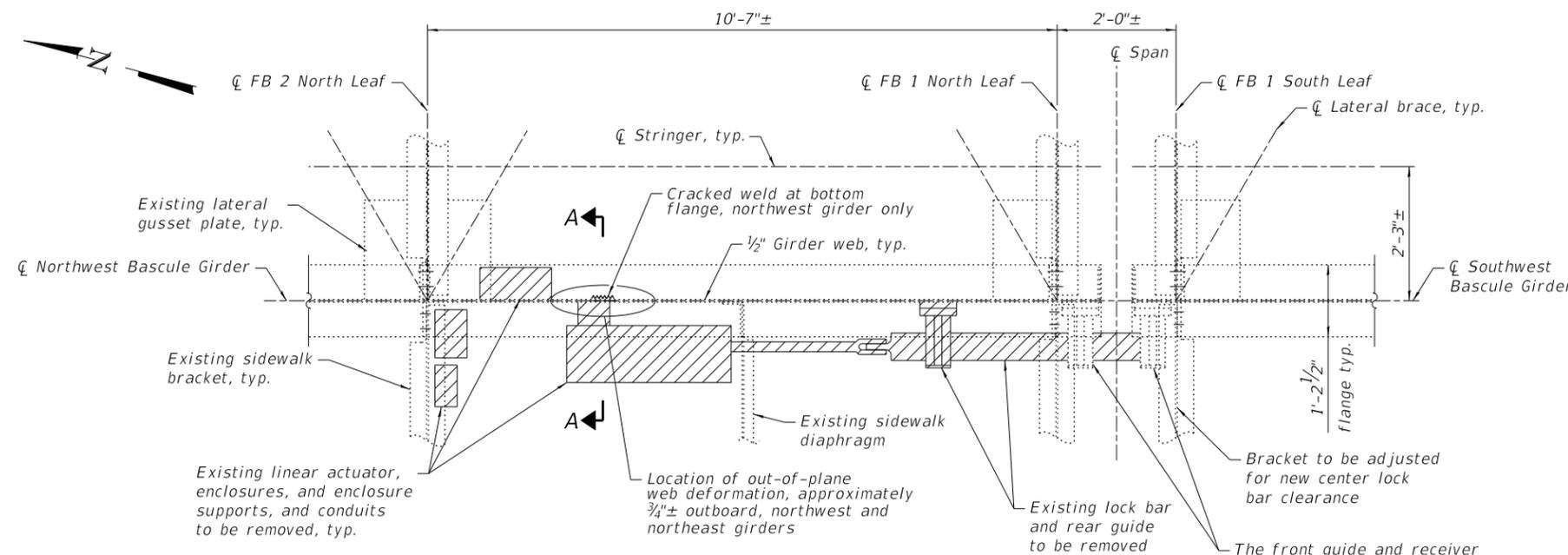
**RAILING REPAIR DETAILS
 STRUCTURE NO. 099-9903**

SHEET NO. S-5 OF S-13 SHEETS

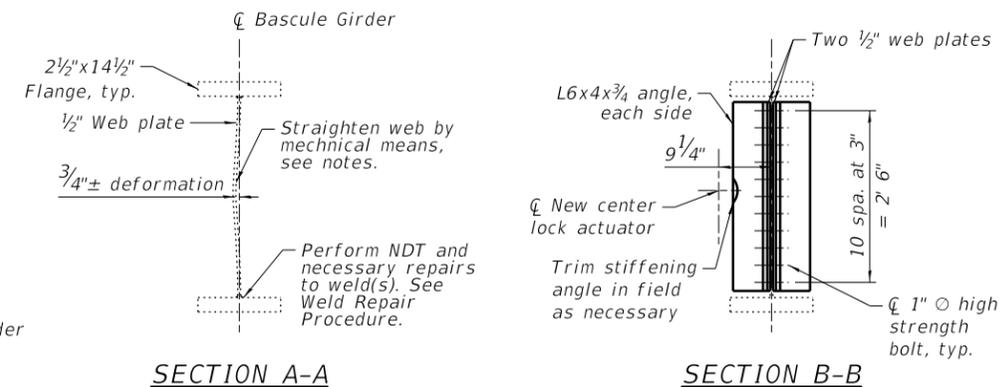
F.A.S R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	13
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repair	Pound	1,025
Beam Straightening	Each	2

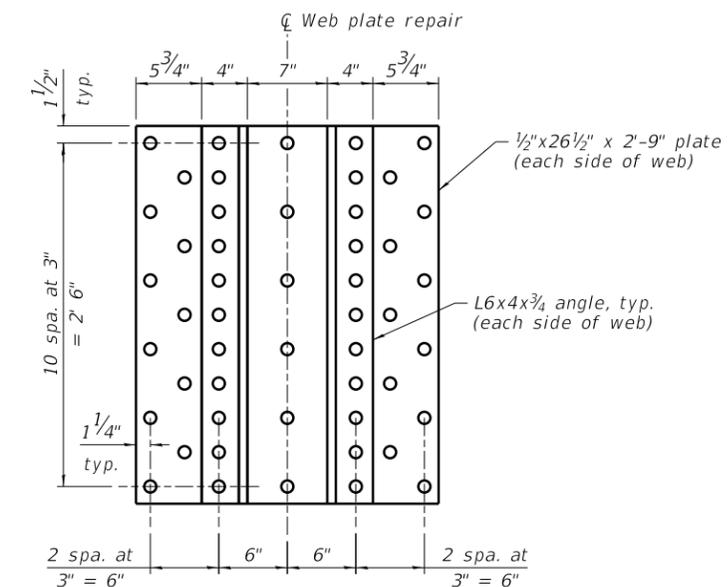


PART BASCULE GIRDER PLAN
(Northeast and Southeast Bascule Girders similar.)
Center lock conduits and platform not shown for clarity)



SECTION A-A

SECTION B-B



WEB PLATE REPAIR DETAILS

WELD REPAIR PROCEDURE

1. After web straightening, perform NDT on welds between web and flanges, on both sides of the web. Locate the ends of cracked weld(s).
2. Grind or air arc gouge the length of cracked weld, leaving a V or U shaped channel. Clean and remove slag.
3. Fill in gouged channel with beads of weld with an ultimate tensile strength of 60ksi and with a low hydrogen electrode.
4. Install the web repair plates and angles.

Notes:

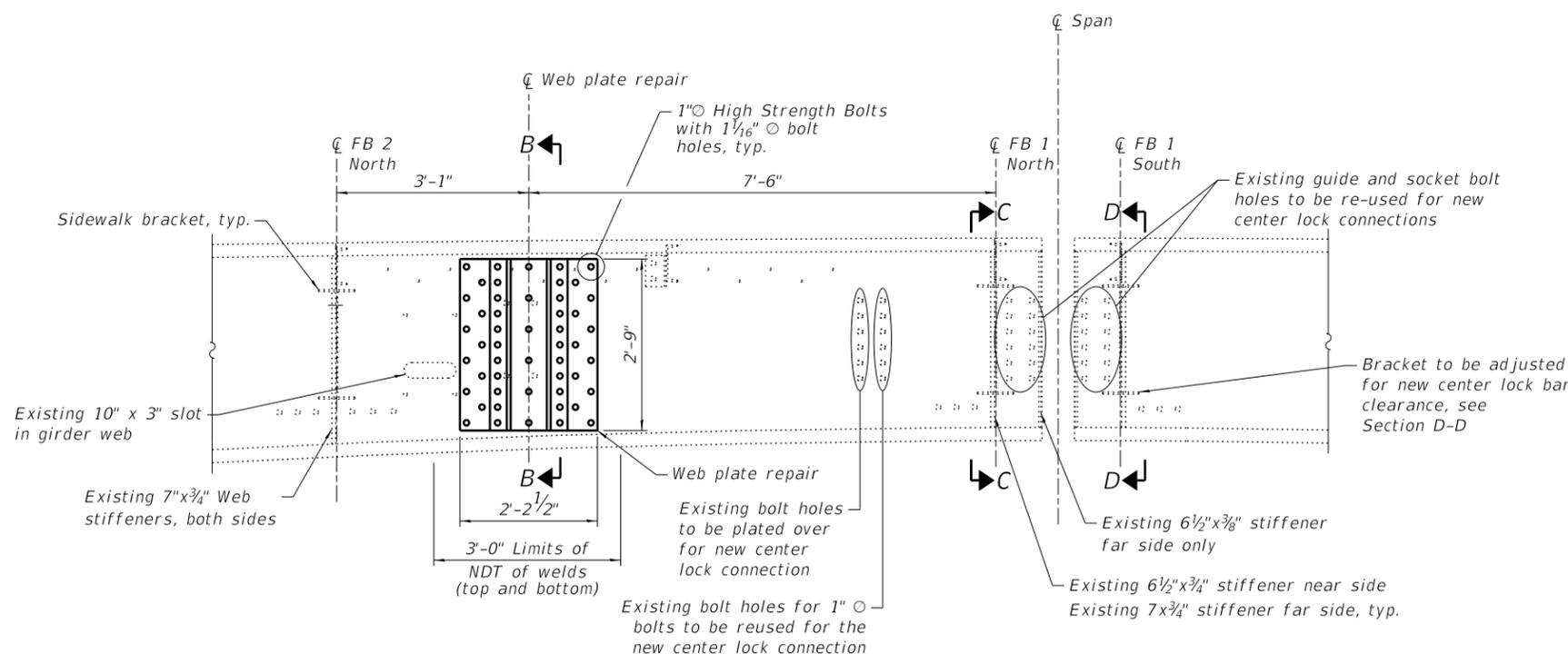
The Girder webs shall be straightened by cold mechanical means per Contractor's means and methods before performing weld NDT, weld repair, and installation of repair plates and angles.

The straightening of each deformed web shall be included with Beam Straightening pay item. See Special Provisions.

Dimensions are based on the original 1930 plans and the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to work.

For web plate strengthening repairs and details, see sheet S-7.

For Sections C-C and D-D, see sheet S-8.



PART BASCULE GIRDER REPAIR ELEVATION
(Northeast and Southeast Bascule Girders similar.)
New center lock stiffened web connections not shown for clarity)

LEGEND

- Removal of center lock equipment, included with Replacement of Center Locks, see sheets M-5 and M-6.

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WSP USA Inc.
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PLOT SCALE = N.T.S.	CHECKED - MS	REVISED -
PLOT DATE = 3/21/2019	DRAWN - NBR	REVISED -
	CHECKED - AH	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

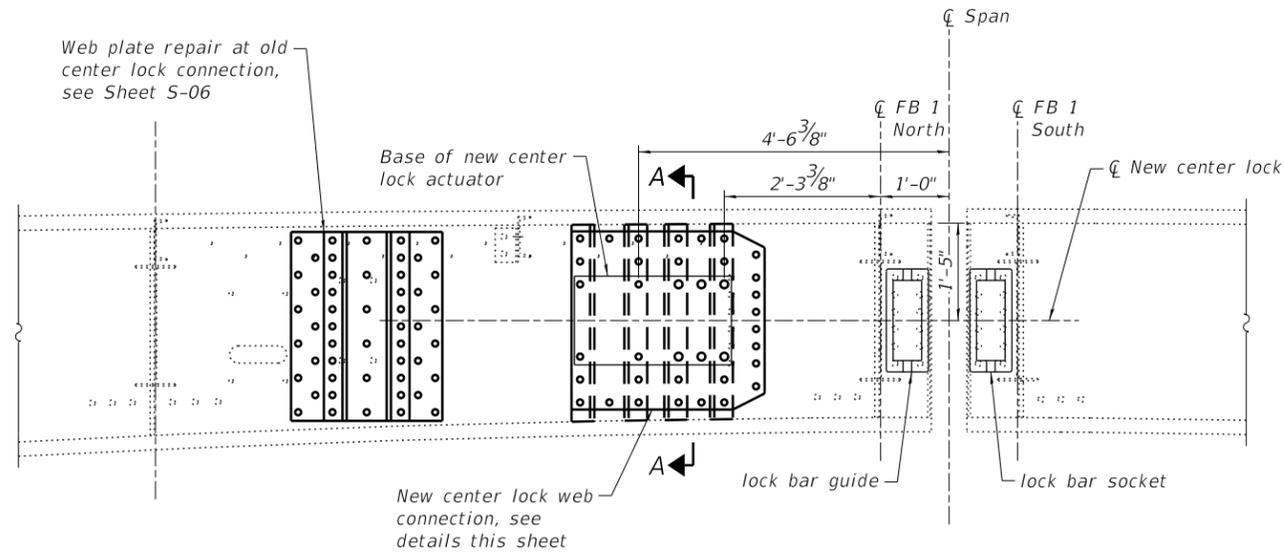
**BASCULE GIRDER WEB REPAIR DETAILS
STRUCTURE NO. 099-9903**

SHEET NO. S-6 OF S-13 SHEETS

F.A.S R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	14
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

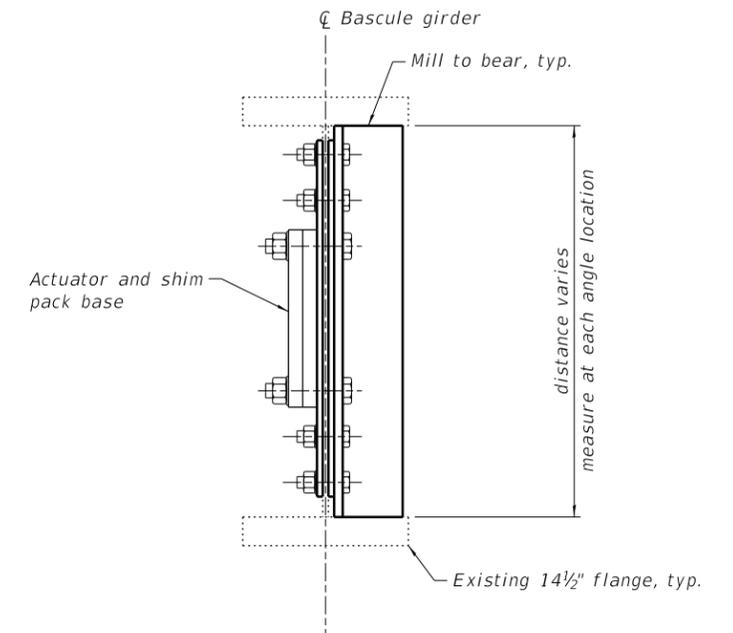
BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repair	Pound	1,150

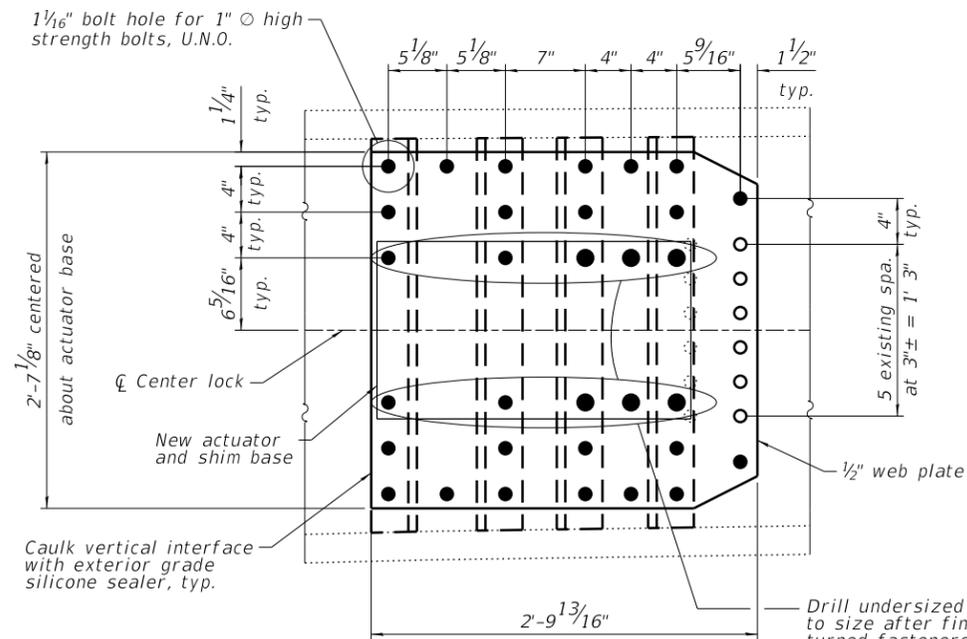


EXTERIOR WEST BASCULE GIRDER PARTIAL ELEVATION

(Northeast and Southeast Bascule Girders similar. Center lock platform not shown for clarity)

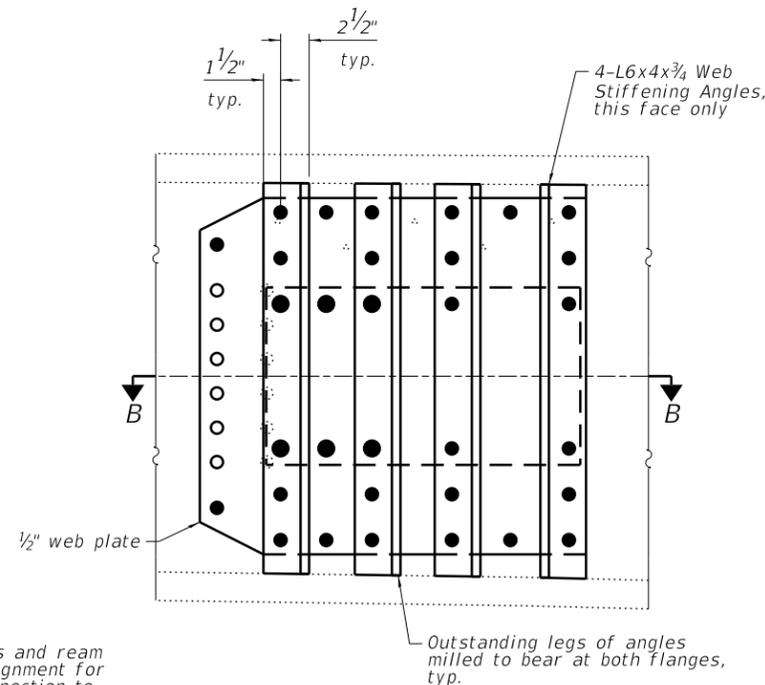


SECTION A-A

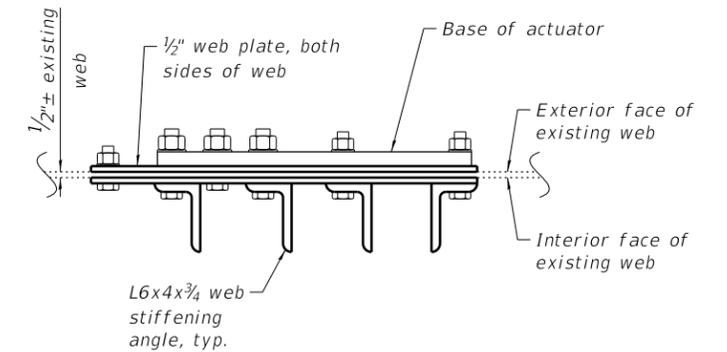


EXTERIOR FACE CENTER LOCK CONNECTION DETAIL

Dimensions for bolt holes are provided for guidance. Final details and locations of holes, stiffening angles, and web plates shall be coordinated with mating components.



INTERIOR FACE CENTER LOCK CONNECTION DETAIL



SECTION B-B

Notes:

The straightening of the bascule girder web is incidental to the web strengthening repair and is included with Structural Steel Repair. See the Special Provisions.

Dimensions are based on the original 1930 plans and the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to work.

For web plate strengthening repairs and details, see sheet S-6.

For Center Lock machinery, see sheets M-5 and M-6.

LEGEND

- Holes to be field drilled in existing steel using new plate as template
- Holes to be field drilled in new steel plate using existing holes as template

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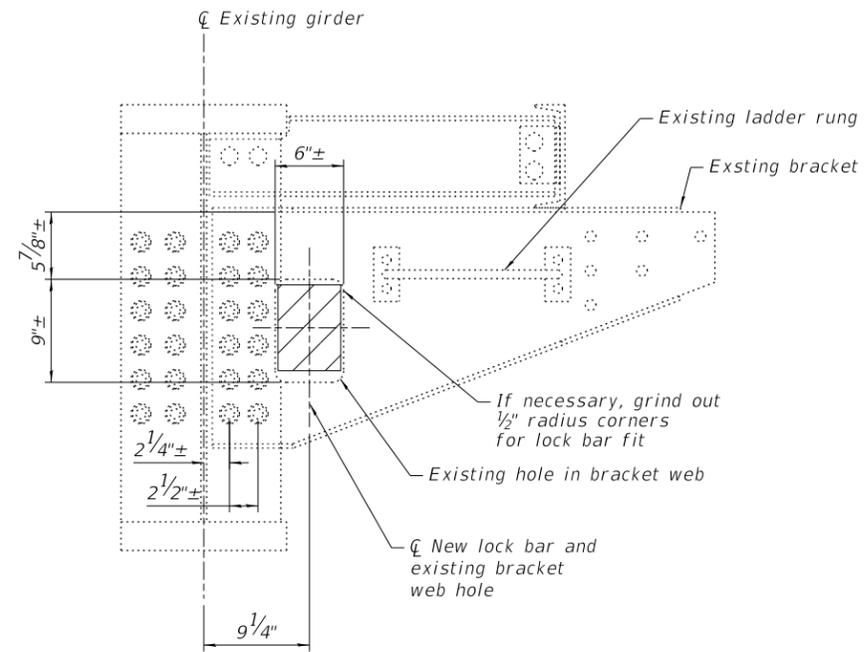
**CENTER LOCK CONNECTION DETAILS
STRUCTURE NO. 099-9903**

SHEET NO. S-7 OF S-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	15
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

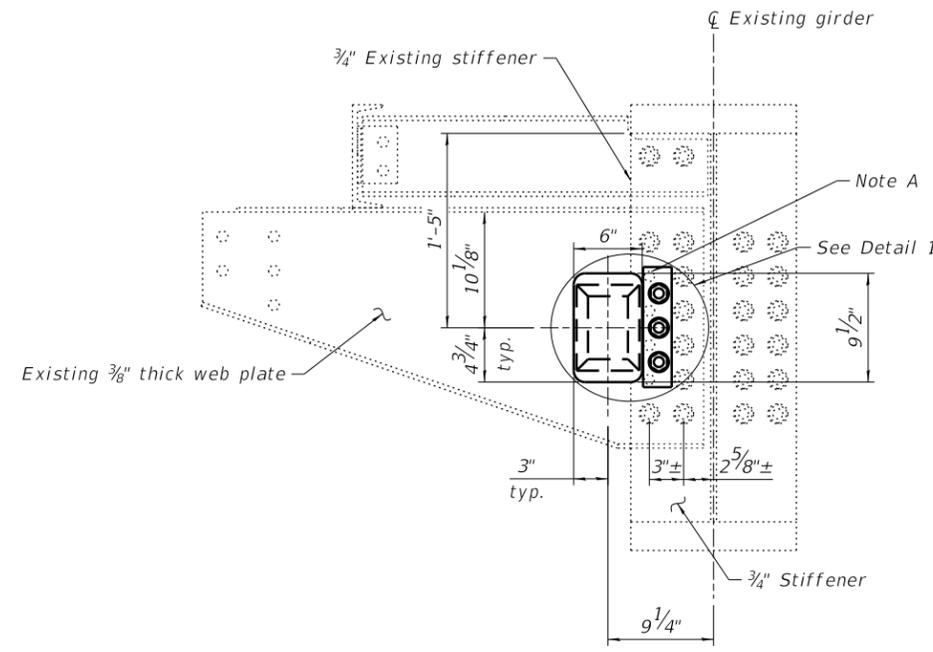
BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repair	Pound	15



SECTION C-C

(Northwest girder shown, Northeast opposite hand. Floor beam, deck, sidewalk, and center lock platform not shown for clarity.)

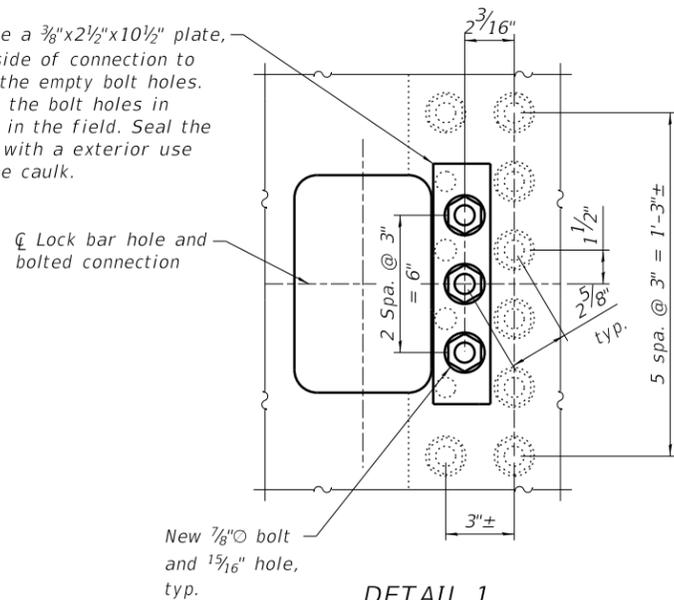


SECTION D-D

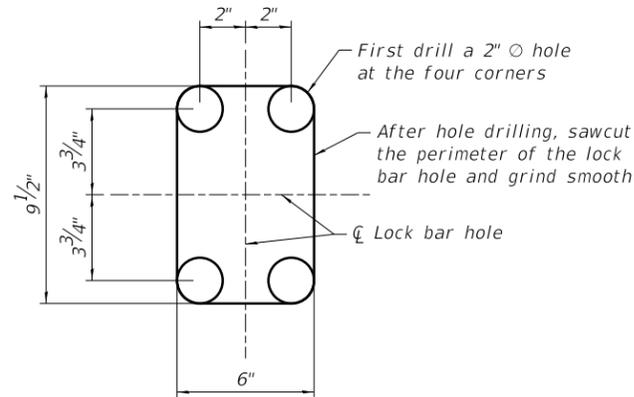
(Southwest girder shown, Southeast opposite hand. Floor beam, deck, and sidewalk not shown for clarity.)

Note A:
Remove the four closest 7/8" bolts prior to cutting web hole and trimming stiffener. After the hole is cut and ground smooth, install the new bolts as shown in Detail 1.

Provide a 3/8"x2 1/2"x10 1/2" plate, each side of connection to cover the empty bolt holes. Locate the bolt holes in plates in the field. Seal the edges with a exterior use silicone caulk.



DETAIL 1



HOLE CUTTING DETAIL

LEGEND



Notes:
The modification to the bracket, including the web hole and drilling, cutting, grinding and caulking are incidental to and is included with Structural Steel Repair. See Special Provisions.
Dimensions are based on the 1992 shop drawings for the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to work.
For locations of Sections C-C and D-D, see sheet S-6.

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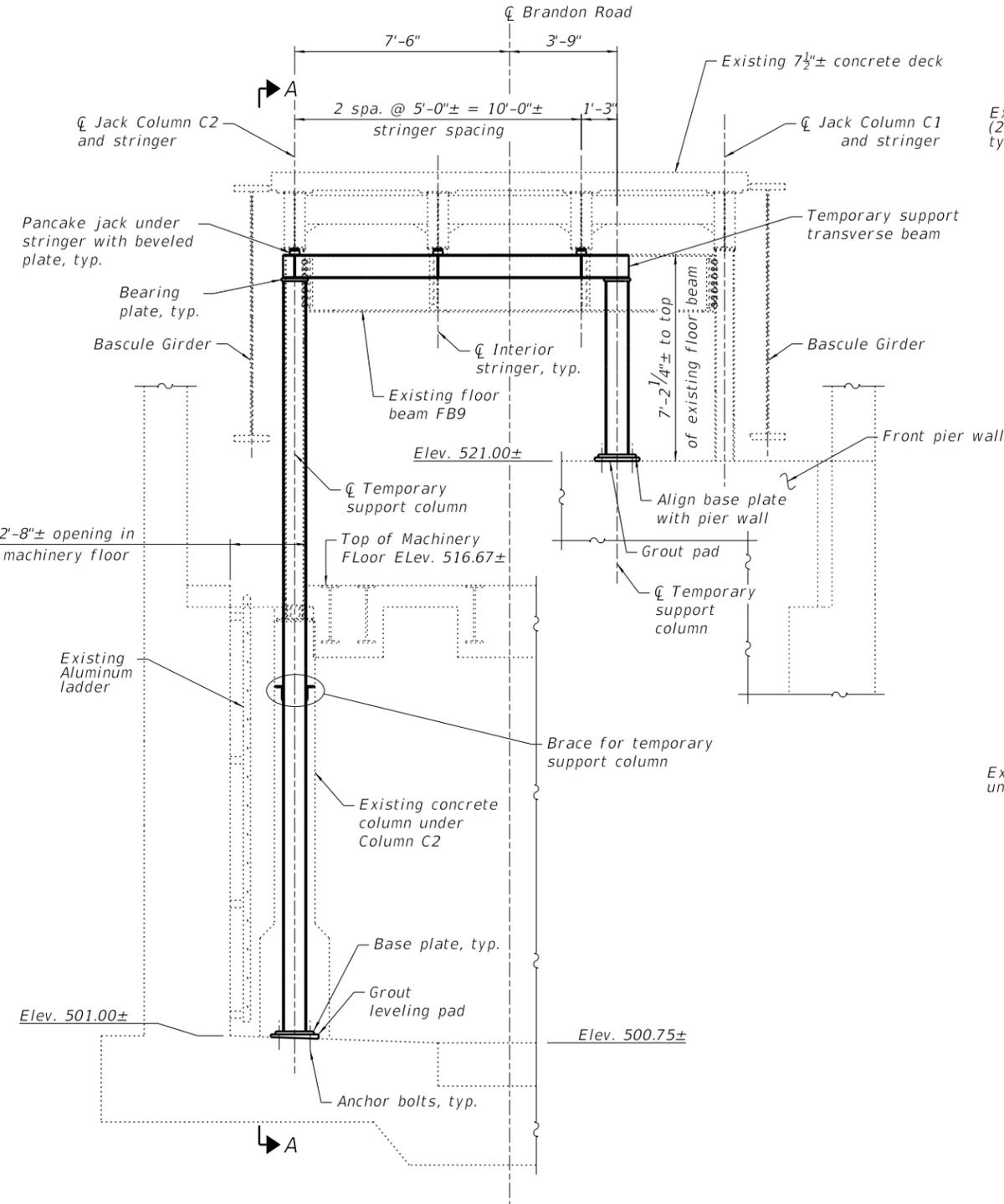
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**FLOOR BEAM 1 BRACKET DETAIL
STRUCTURE NO. 099-9903**

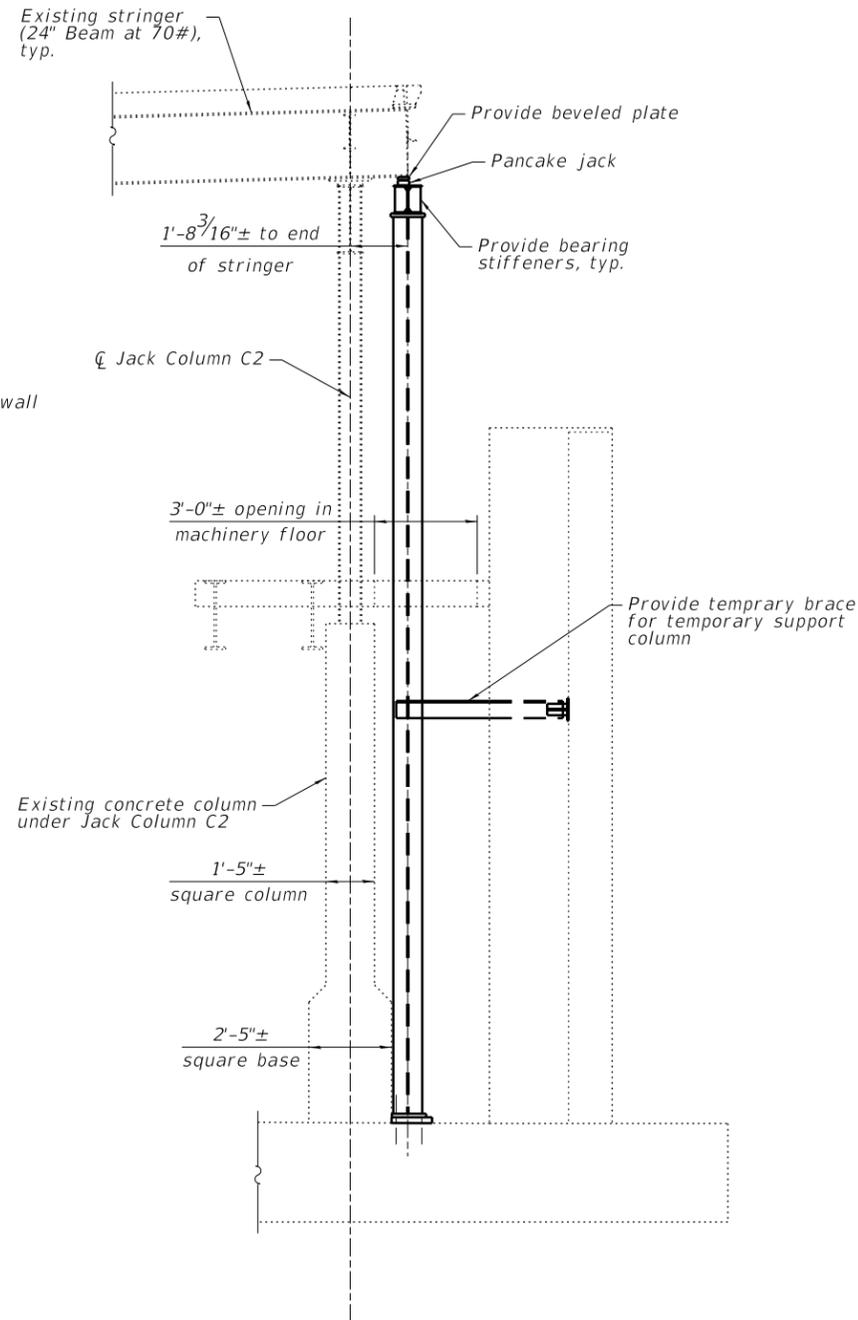
SHEET NO. S-8 OF S-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	16
CONTRACT NO. 62G97				

ILLINOIS FED. AID PROJECT



TEMPORARY SUPPORT ELEVATION



SECTION A-A

BILL OF MATERIAL

Item	Unit	Quantity
Temporary Support System	Each	2
Jacking Existing Superstructure	L. Sum	1

Unfactored Stringer Reactions	
Dead Load	11 k
Live Load	0 k

TEMPORARY SUPPORT AND JACKING PROCEDURE:

The bridge shall be closed to all traffic, including construction vehicles. No storage of construction materials shall be placed on the pier span while stringers are temporarily supported.

The contractor shall submit for approval by the Engineer, plans for jacking and temporarily supporting the stringers for repairing Columns C1 and C2. The minimum jack capacity shall be 22 kips.

Once the temporary support frame is installed, the bolts that connect the stringer to the bearings on the floor beams shall be loosened. The stringers shall be jacked until a 1/16" gap between stringer and bearing is achieved.

Perform the repairs on Floor Beam 9 and on Columns C1 and C2.

Lower the stringers back onto the bearings. Connect the stringers to the bolsters with new bolts.

Remove the temporary support frame.

Notes:
The temporary support system shown is a general representation of a possible support system. The contractor shall employ a licensed Structural Engineer in the State of Illinois to design the temporary support system. See Special Provision.

Dimensions are based on the original 1930 plans and the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to work.

For a plan view of the temporary support, see sheet S-10.

For repair details for Jack Columns C1 and C2, see sheets S-10 and S-11.

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DEPARTMENT OF TRANSPORTATION

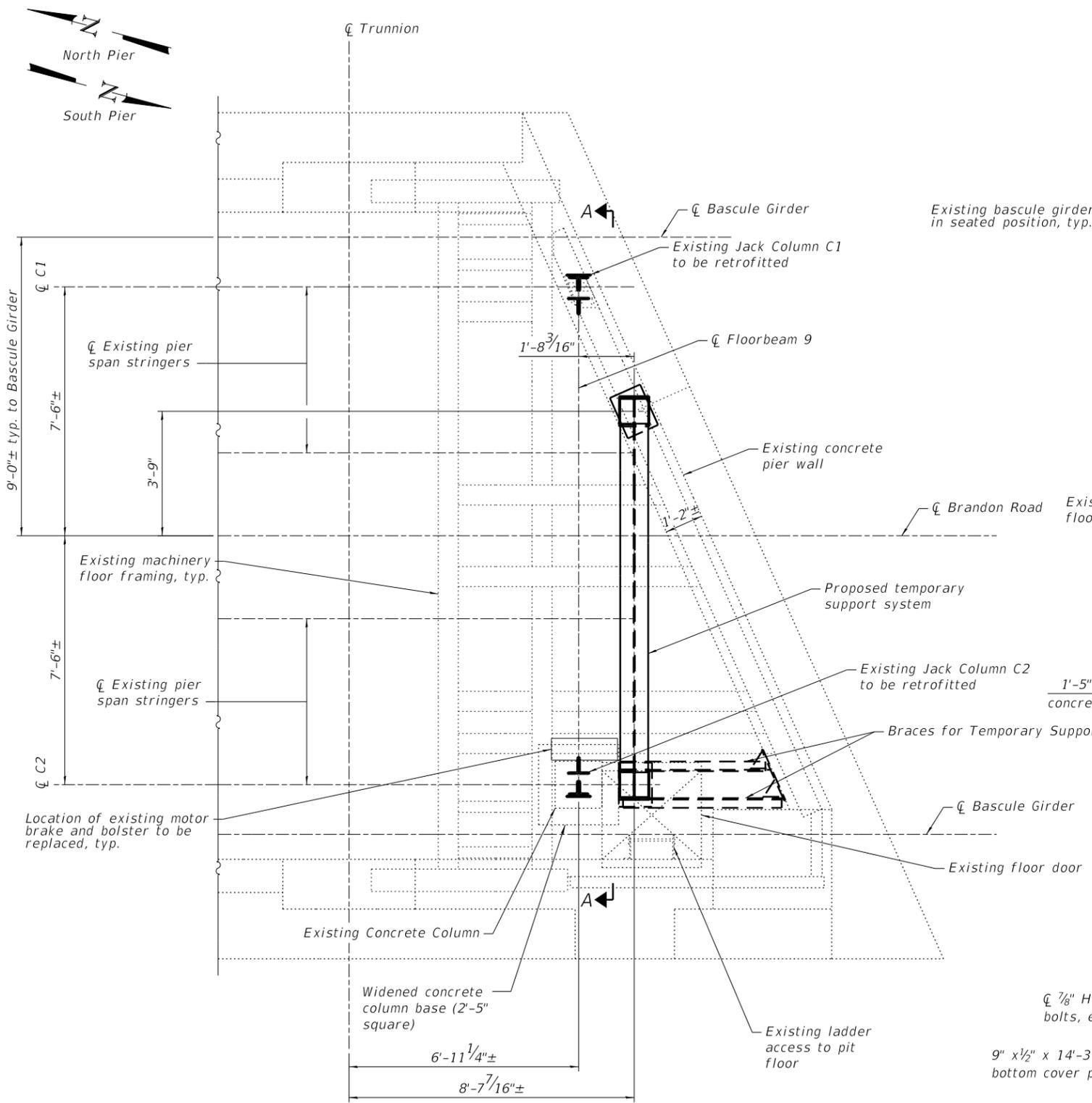
TEMPORARY SUPPORT DETAILS
STRUCTURE NO. 099-9903

SHEET NO. S-9 OF S-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

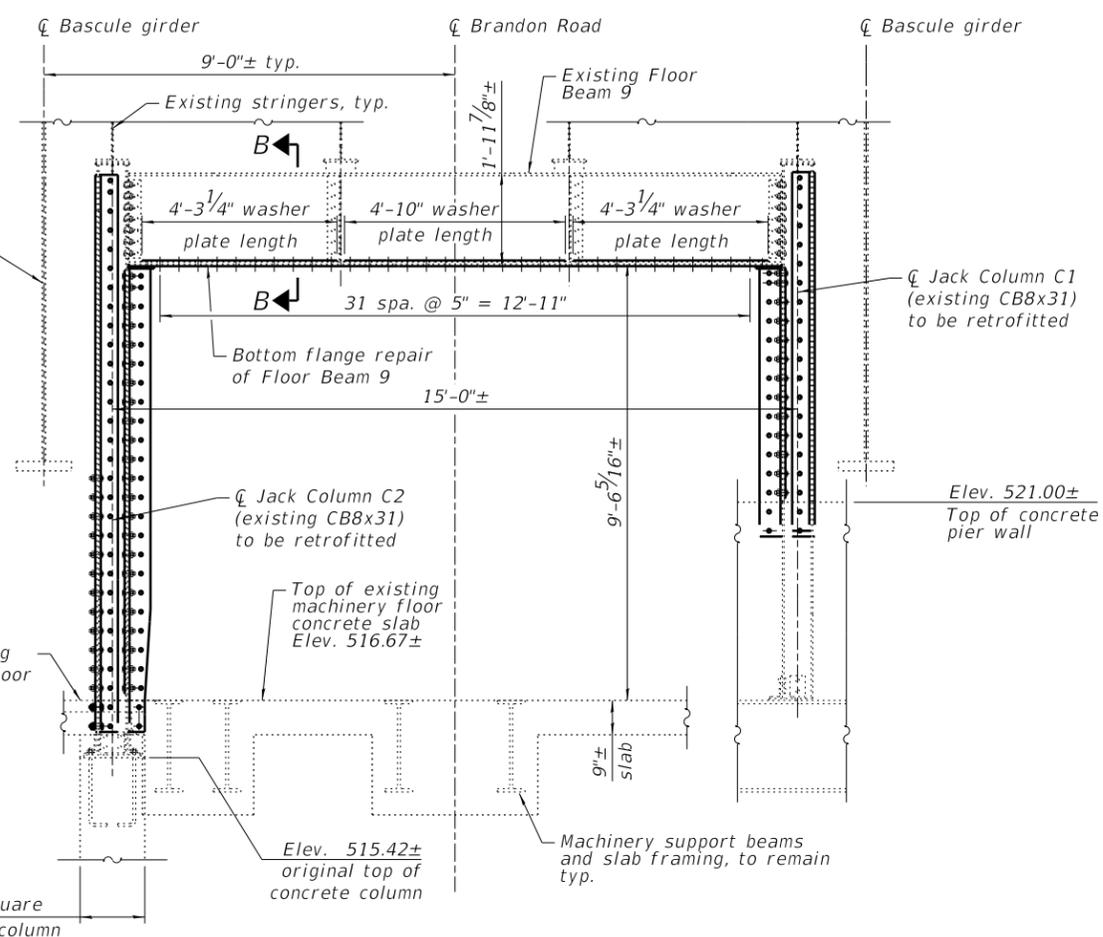
BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repairs	Pound	625



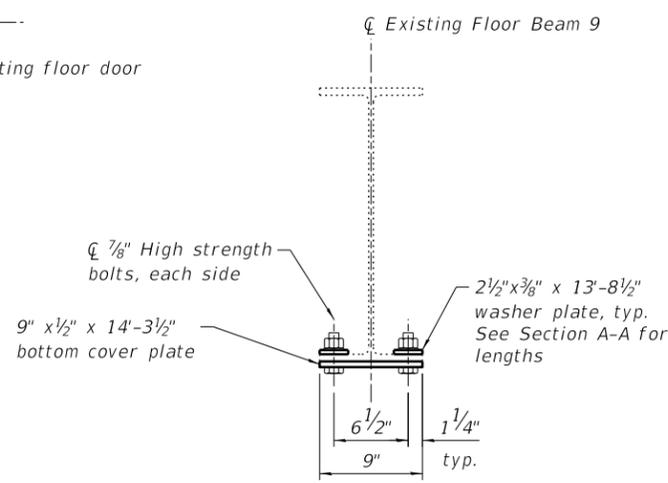
Part Pier Plan

(Machinery not shown for clarity)



Section A-A

(Existing machinery, supports and enclosure to be removed and are not shown for clarity)



Section B-B

Notes:
 Remove and reinstall machinery support enclosure to erect the temporary support system and to perform the floor beam and jack column repairs. Modify the enclosure attachment to the jack columns as necessary. Cost for removal and reinstall of enclosure to be included with Temporary Support System.
 Dimensions are based on the original 1930 plans and the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to work. Prior to floor beam and jack column repair work, remove the motor brake, brake bolster, and the machinery enclosure.
 For repair details for Jack Columns C1 and C2, see sheet S-11.
 For temporary support details and notes, see sheet S-9.

T:\16933P-WO#16 Brandon Road\Cadd\Sheets\0999903-62G97-010-COL.dgn



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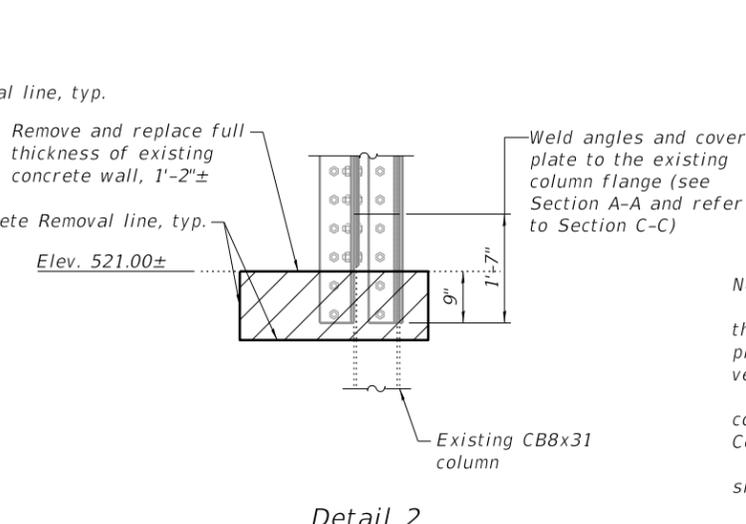
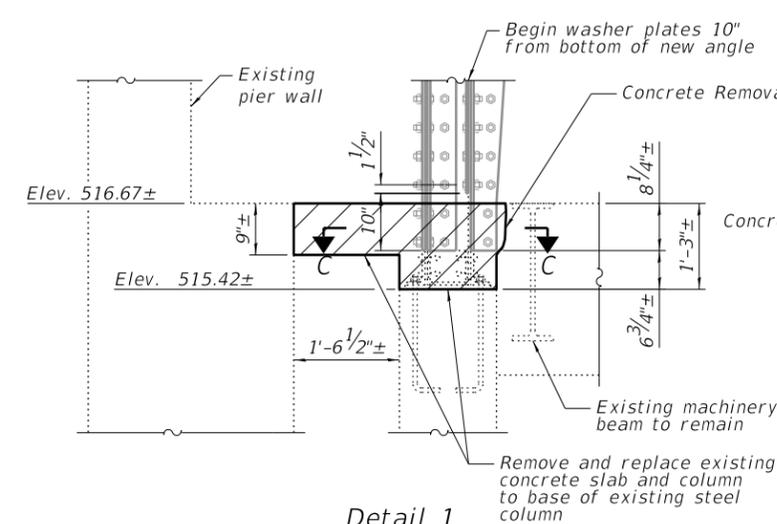
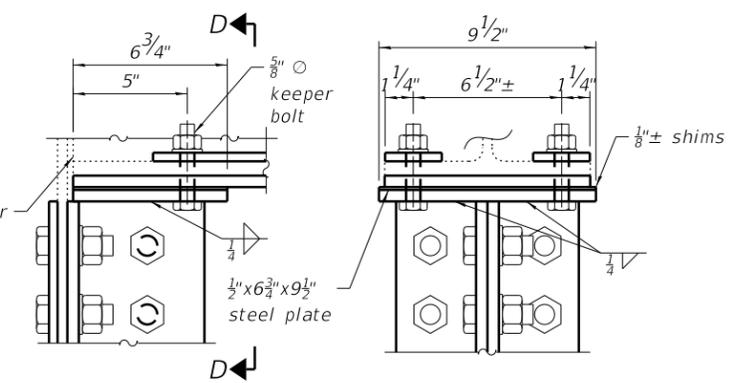
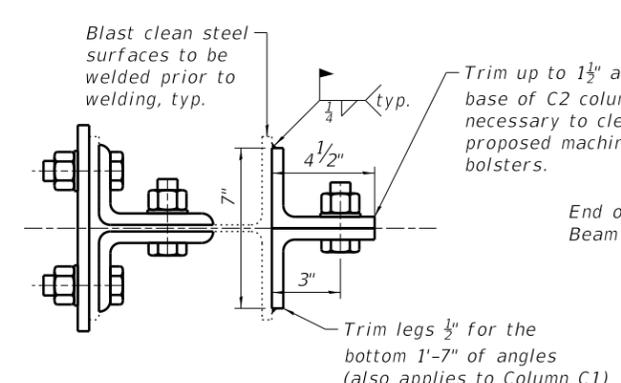
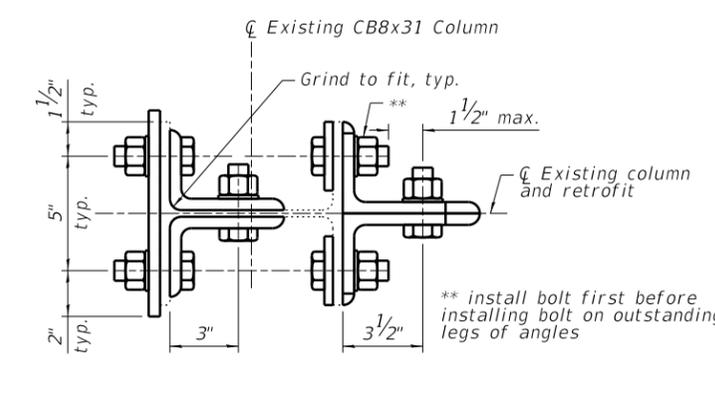
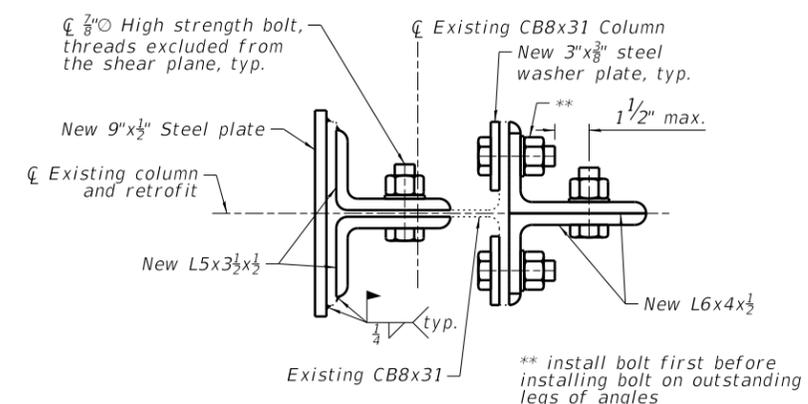
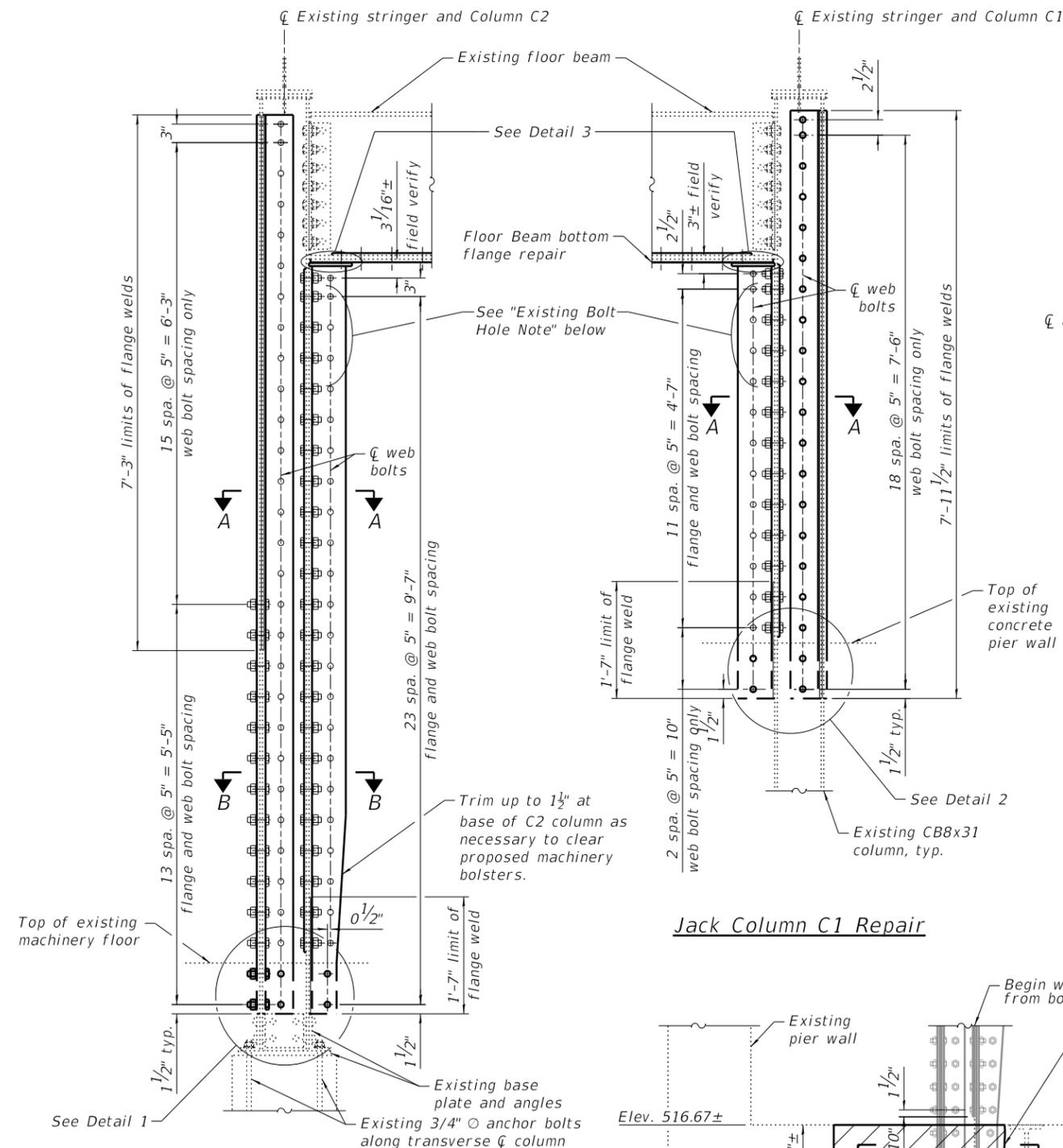
**JACK COLUMNS LAYOUT PLAN AND FB-9 RETROFIT DETAILS
 STRUCTURE NO. 099-9903**

SHEET NO. S-10 OF S-13 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	18
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

BILL OF MATERIAL

Item	Unit	Quantity
Concrete Removal	Cu Yd	0.6
Concrete Structures	Cu Yd	0.6
Structural Steel Repairs	Pound	3,030



LEGEND
 - Concrete Removal, and replacement Concrete Structures

Notes:
 Dimensions are based on the original 1931 plans, the 1931 shop drawings, and the 1991 rehabilitation plans. All dimensions and clearances shall be field verified prior to ordering material and starting work.
 Remove electrical conduit attached to the jack columns and reinstall after completion of retrofit. Cost is included with Structural Steel Repair.
 For Floor Beam 9 bottom flange repair details, see sheet S-10.
 For temporary support details and notes, see sheet S-9.

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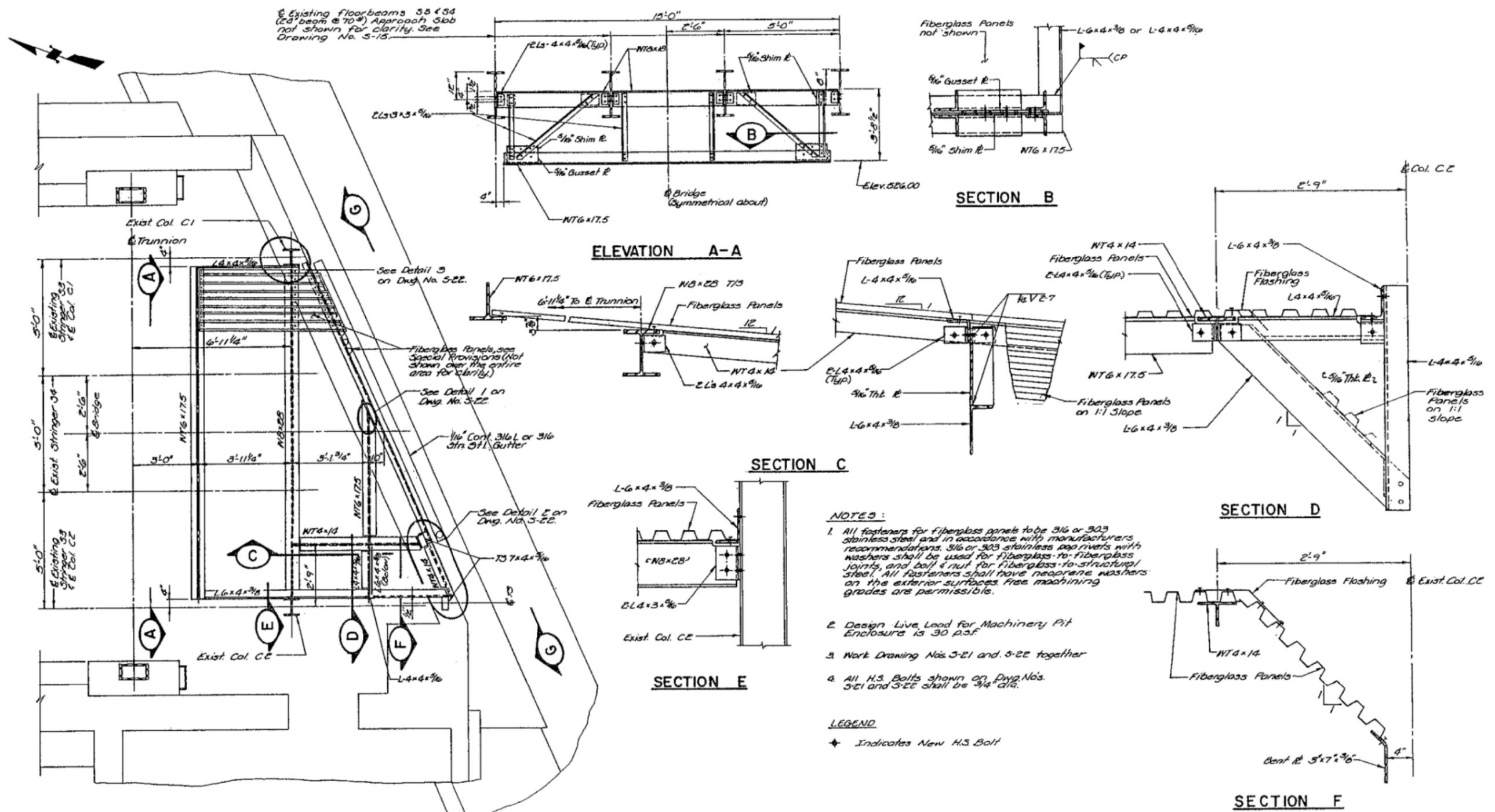


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PLLOT DATE = 3/21/2019	DRAWN - NBR	REVISD -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

JACK COLUMN REPAIR DETAILS
STRUCTURE NO. 099-9903
 SHEET NO. S-11 OF S-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	19
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



**PLAN-NORTH ABUTMENT
MACHINERY ENCLOSURE**
(South Abutment Similar)

- NOTES:**
1. All fasteners for fiberglass panels to be 316 or 303 stainless steel and in accordance with manufacturers recommendations. 316 or 303 stainless pop rivets with washers shall be used for fiberglass-to-fiberglass joints, and bolt & nut for fiberglass-to-structural steel. All fasteners shall have neoprene washers on the exterior surfaces. Free machining grades are permissible.
 2. Design Live Load for Machinery Pit Enclosure is 30 p.s.f.
 3. Work Drawing Nos. 3-21 and 3-22 together
 4. All H.S. Bolts shown on Dwg. No's. 3-21 and 3-22 shall be 3/4" dia.

LEGEND
 ◆ Indicates New H.S. Bolt

FOR INFORMATION ONLY

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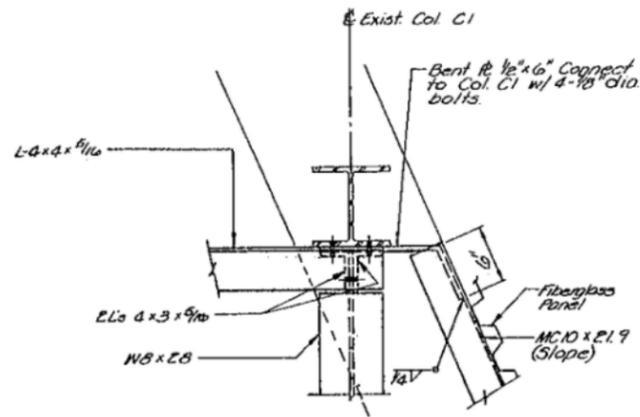
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MACHINERY PIT ENCLOSURE
STRUCTURE NO. 099-9903

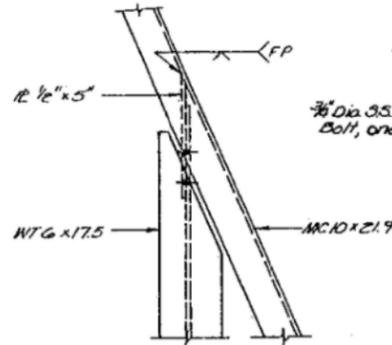
SHEET NO. 5-12 OF 5-13 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	20
CONTRACT NO. 62G97				

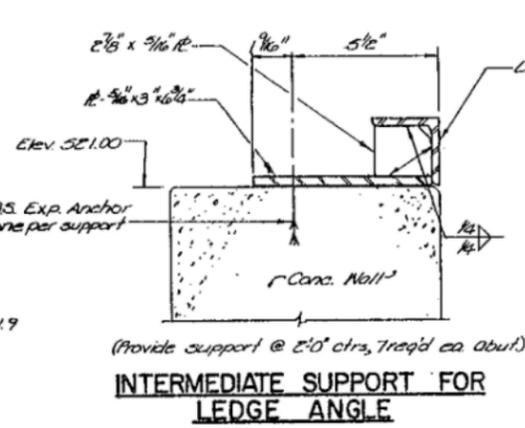
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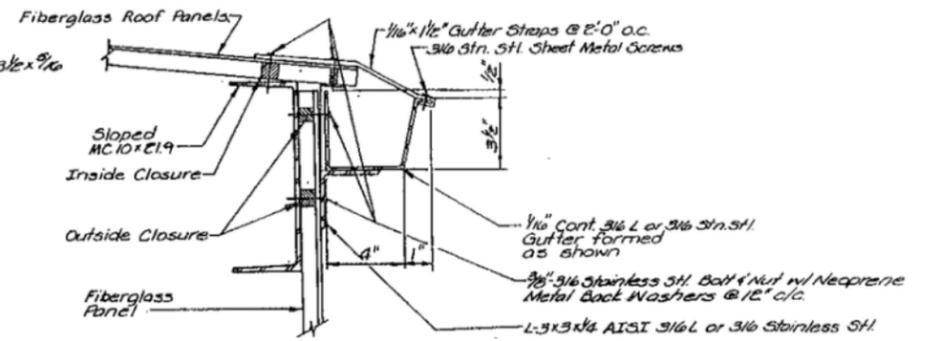
DETAIL 3



DETAIL 1



INTERMEDIATE SUPPORT FOR LEDGE ANGLE

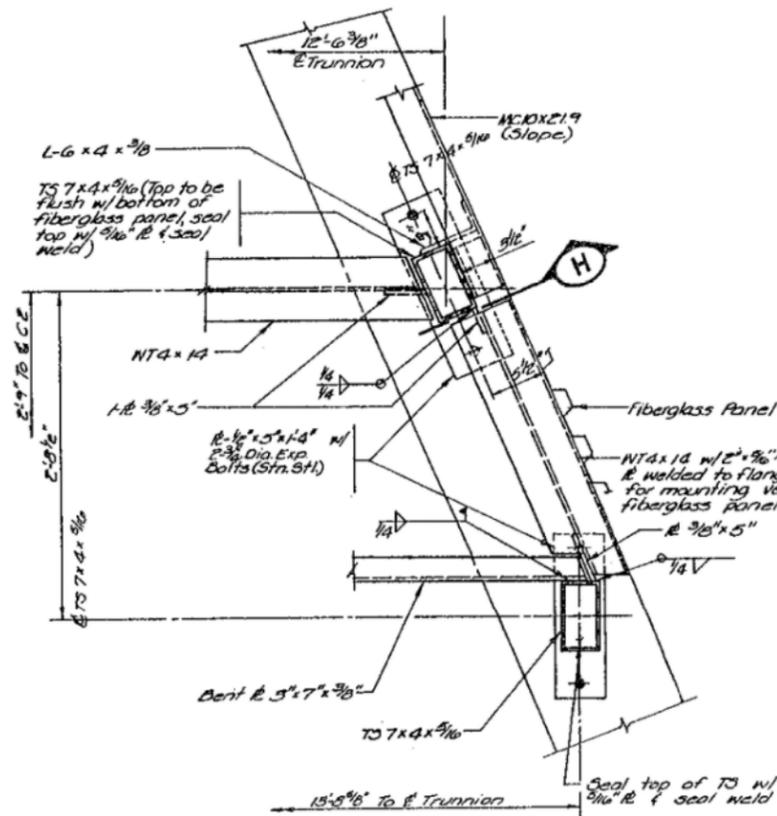


DETAIL 4

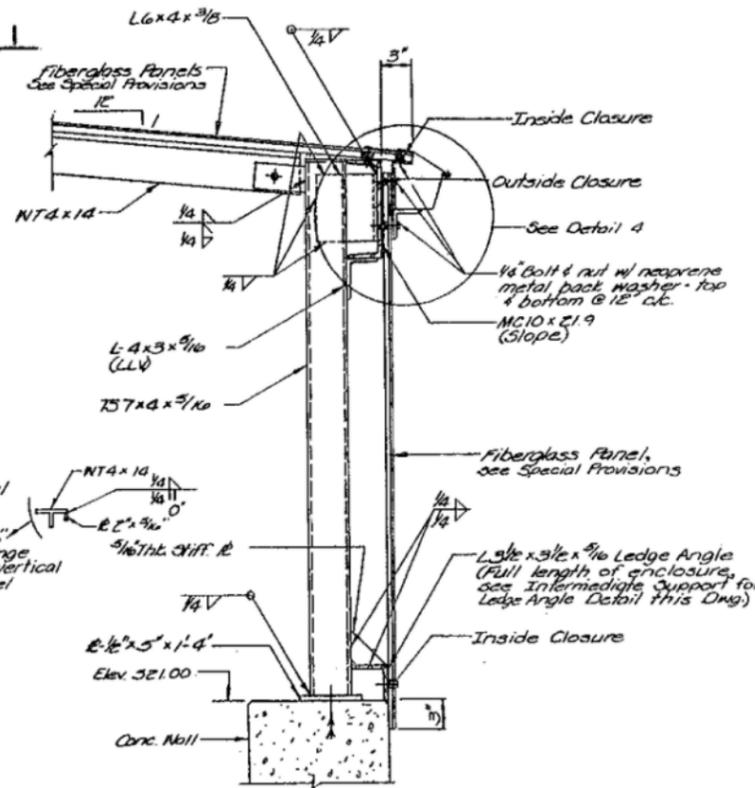
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Machinery Pit Enclosure	Lump Sum	1
Expansion Bolts (Special)	Ea	22

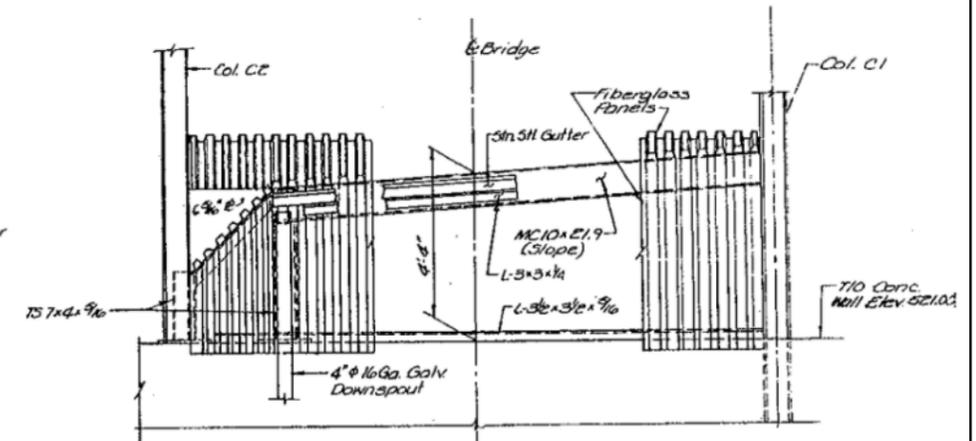
Quantities shown are for two Machinery Pit Enclosures.



DETAIL 2



SECTION H



ELEVATION G-G

FOR INFORMATION ONLY

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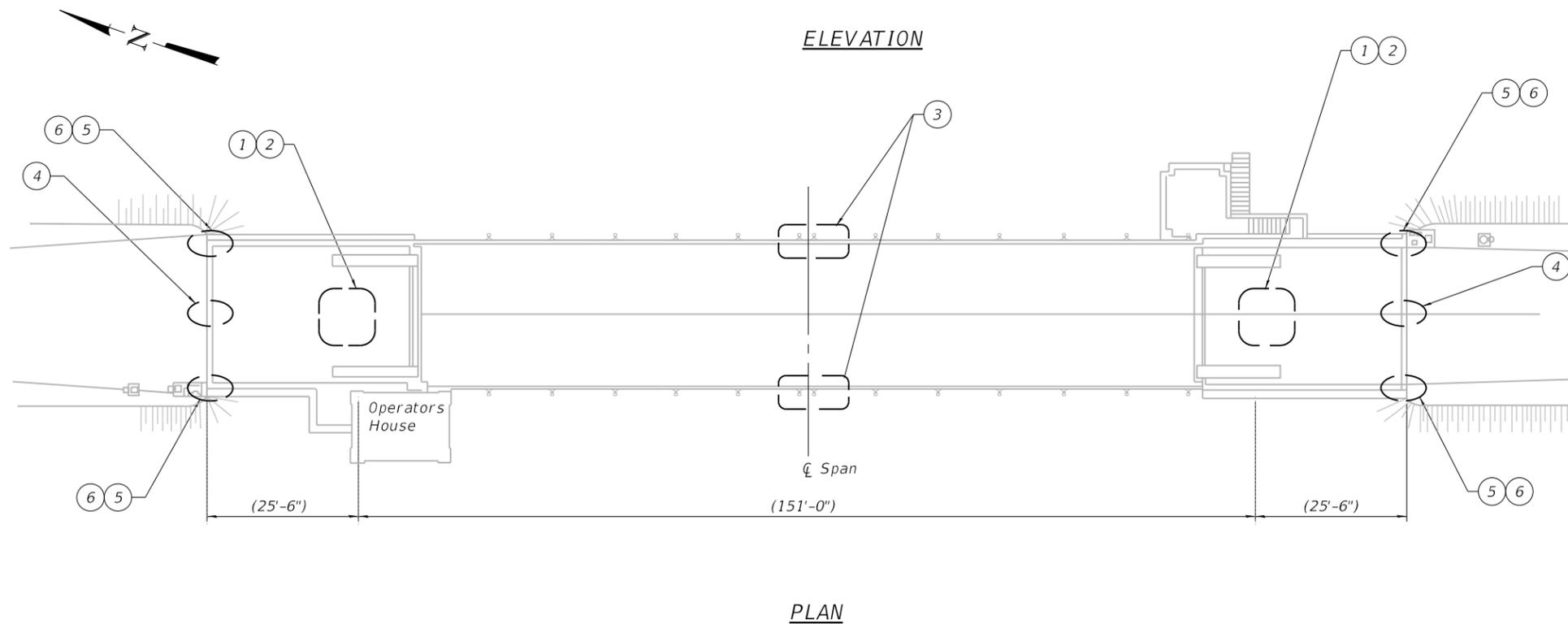
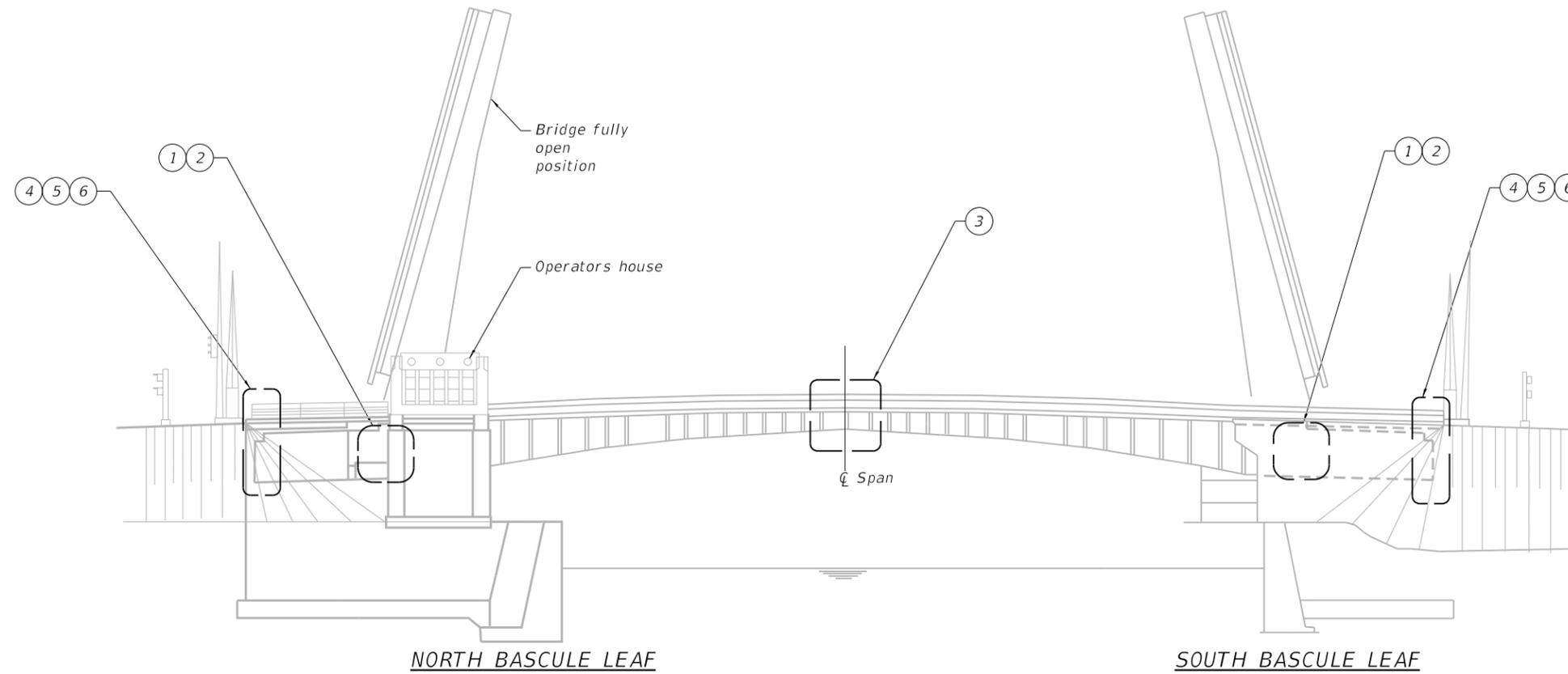
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MACHINERY PIT ENCLOSURE DETAILS
STRUCTURE NO. 099-9903

SHEET NO. 5-13 OF 5-13 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	21
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



MECHANICAL WORK

- ① Remove and replace existing span drive motor brakes, span drive motor brake wheels, and span drive motor brake enclosures. Remove and replace mounts.
- ② Remove and replace existing span drive machinery brakes, span drive machinery brake wheels, brake wheel couplings, and span drive machinery brake enclosures. Remove and replace mounts.
- ③ Remove and replace existing center lock actuator and lockbar. Remove and dispose of rear guide. Align and shim center lock forward guides and receivers where they mount to main girder web. Align and adjust span lock bar clearance with respect to guides and receivers by shimming bronze shoes.
- ④ Remove and replace in kind span buffer cylinders.
- ⑤ Remove and replace tail lock actuators.
- ⑥ Shim live load supports. Replace fasteners.

LEGEND

- Existing to Remain
- New Members
- XXX Signifies that the actual dimension at the mating component is to be used to determine the exact value.
- (XXX) Reference dimension indicating that the dimensions shown are for information only and requires field verification.
- ∅ Diameter
- ✓ Surface finish in micro-inches
- ℄ Centerline



Signed *Michael J. Elza*
 MICHAEL J. ELZA, M.E., IL Lic. No. 062-055956
 Expires 11-30-2019
 Date *January 24, 2019*
M-1 thru M-9

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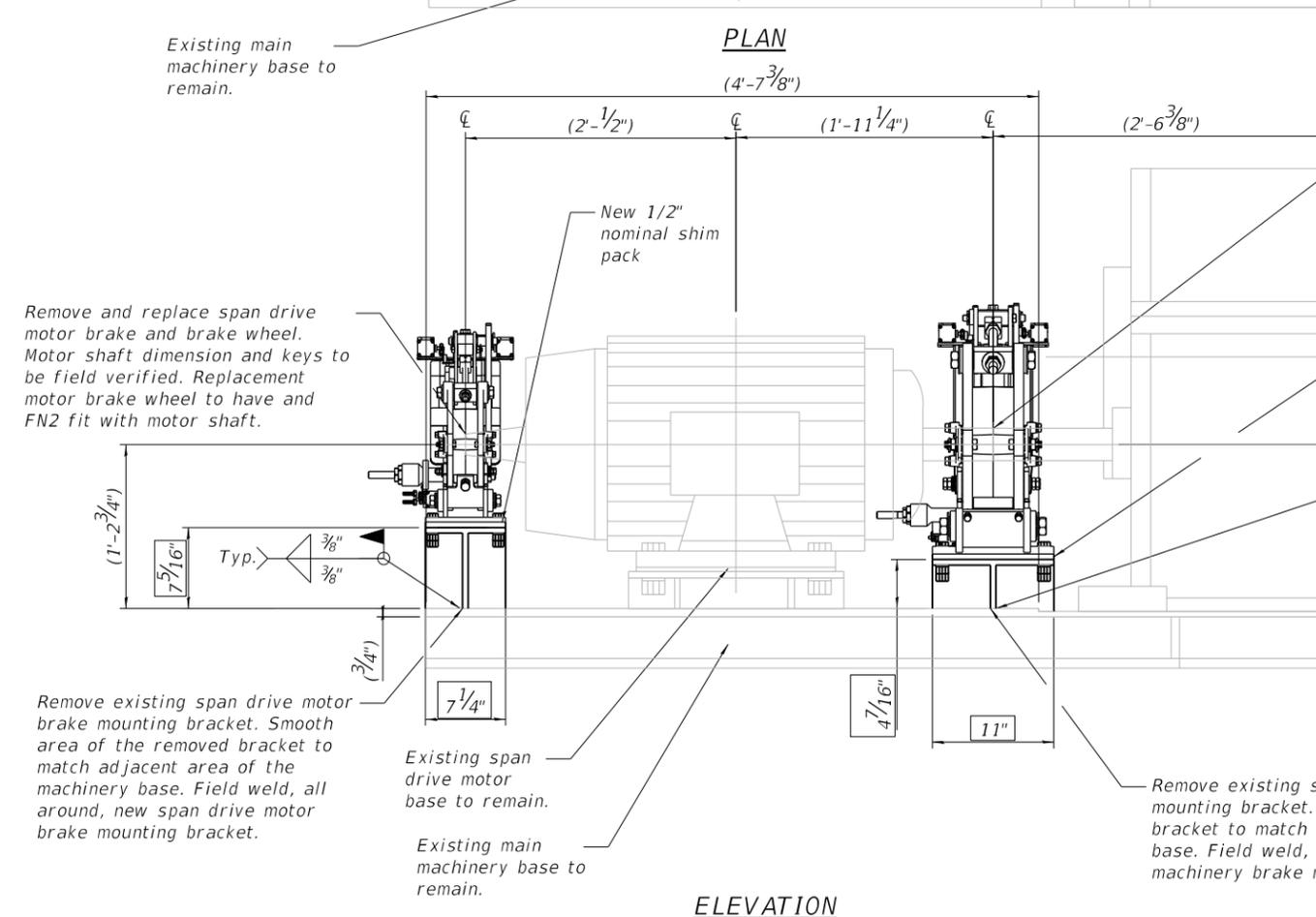
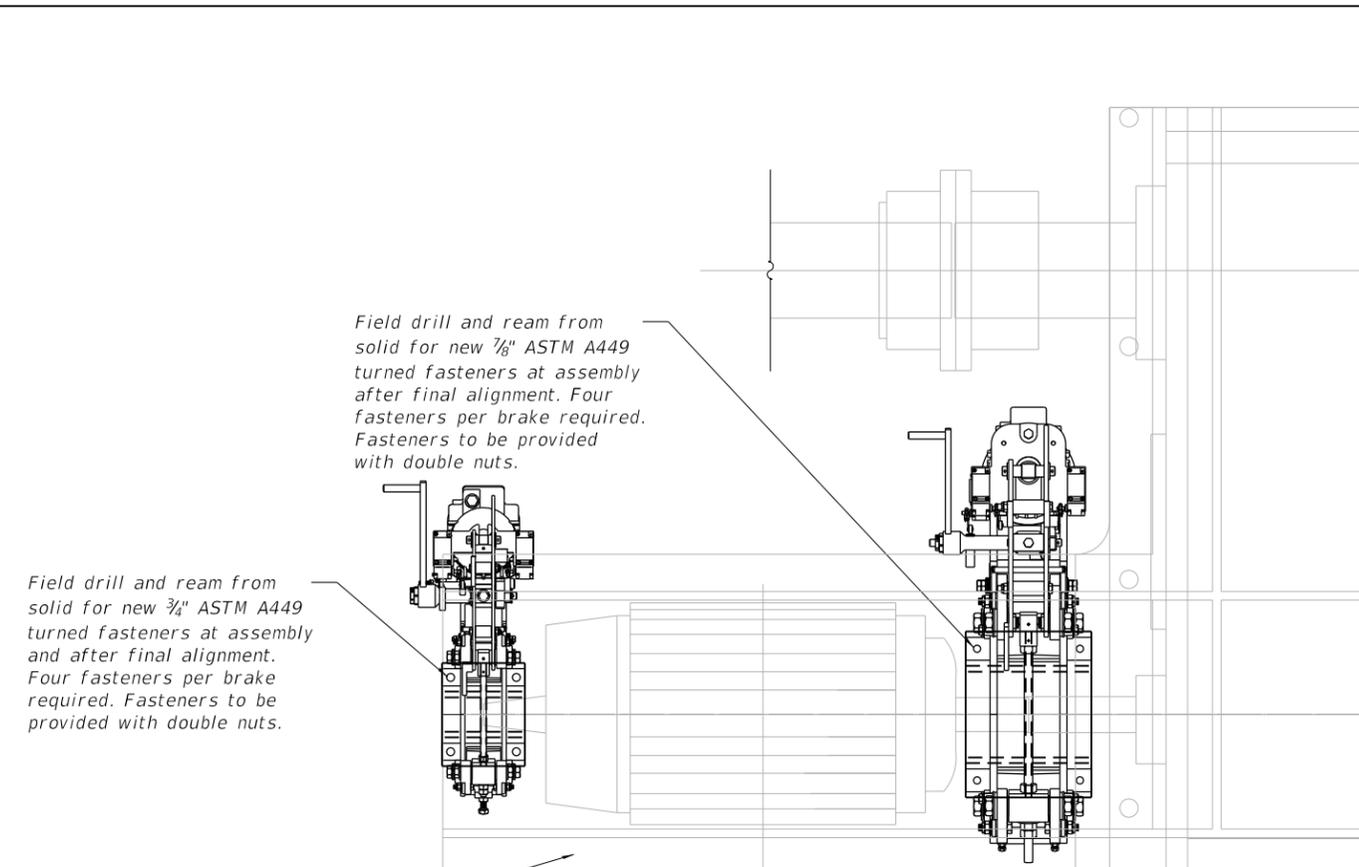
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PLOT DATE = 1/24/2019	CHECKED - PB	REVISED -

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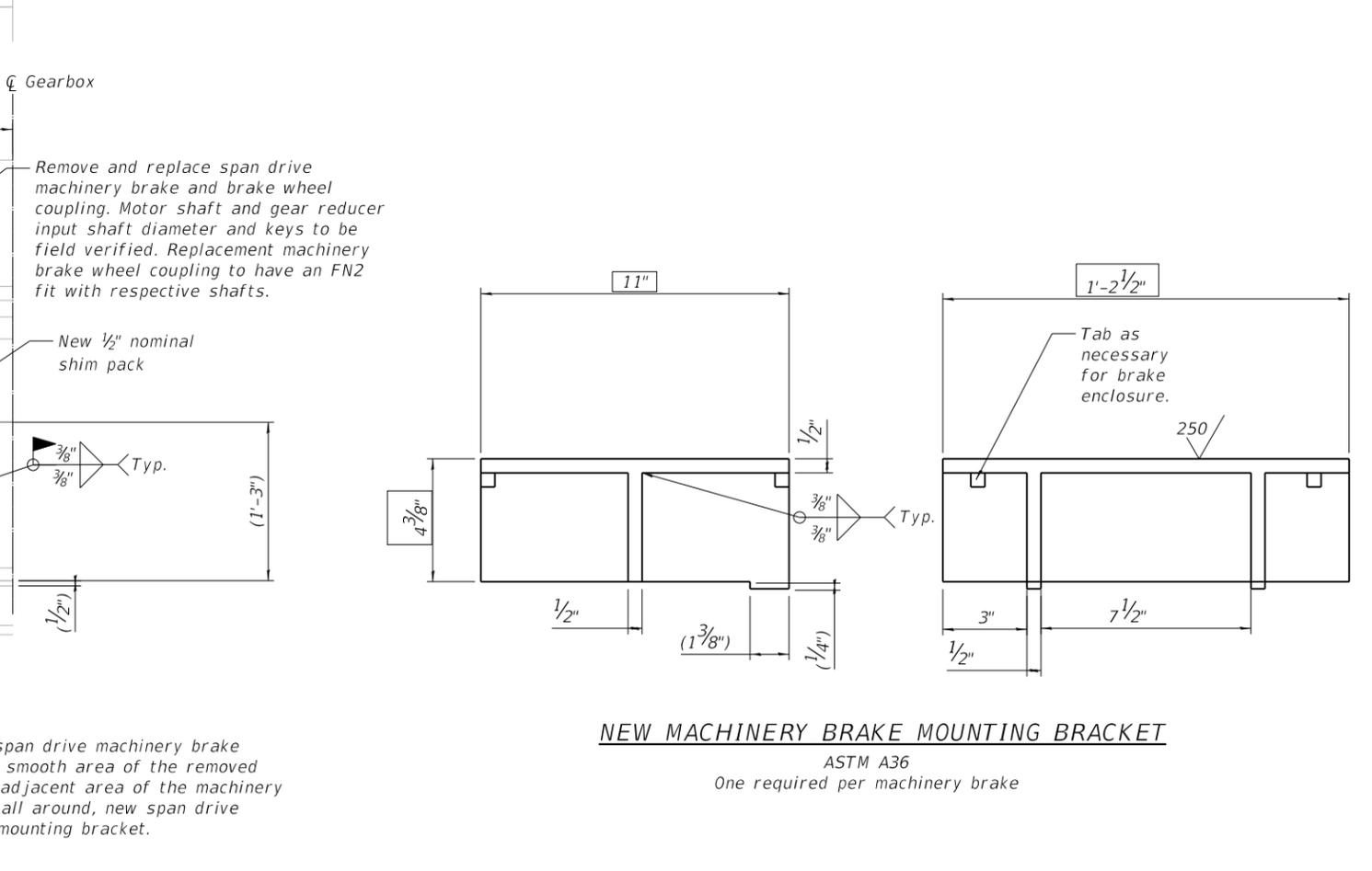
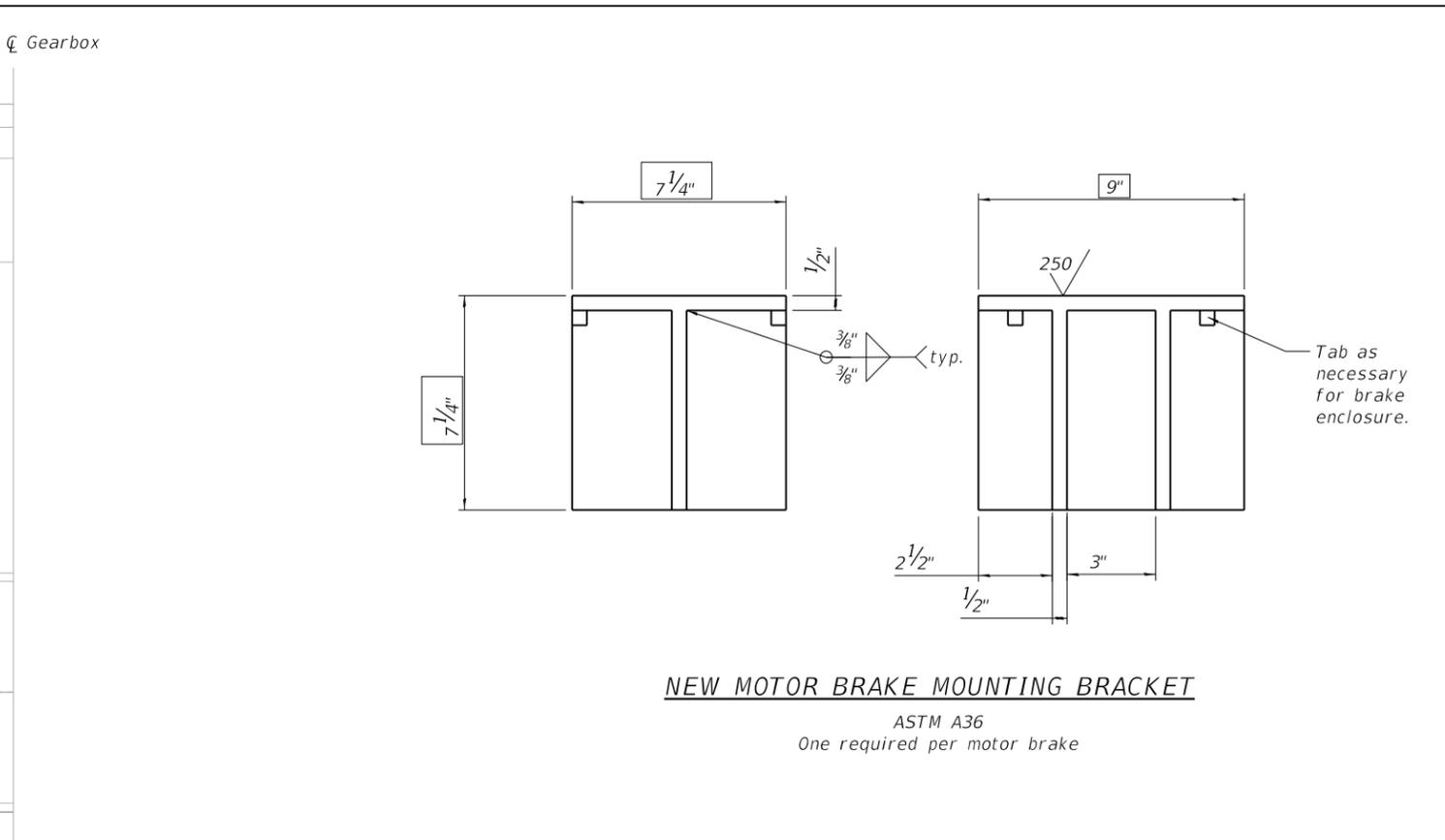
**MECHANICAL KEY PLAN AND ELEVATION
 STRUCTURE NO. 099-9903**

SHEET NO. M-1 OF M-9 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	22
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

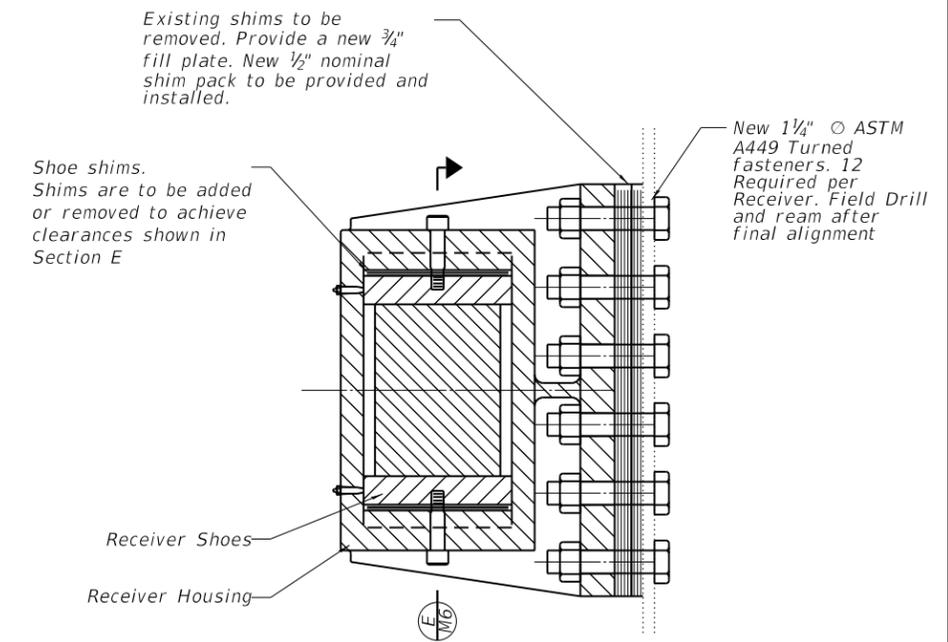
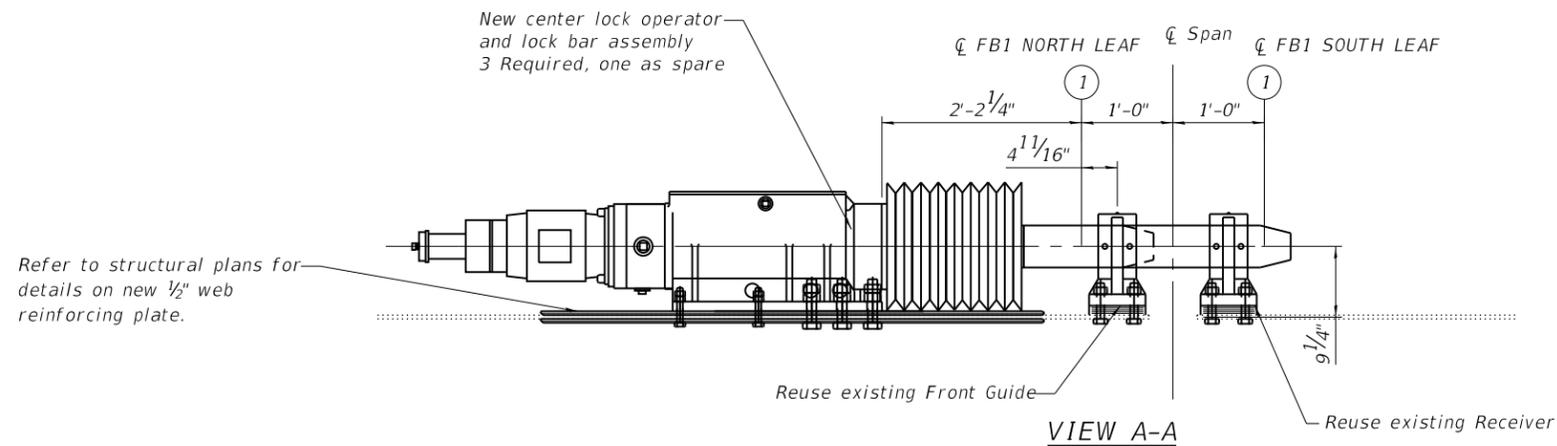
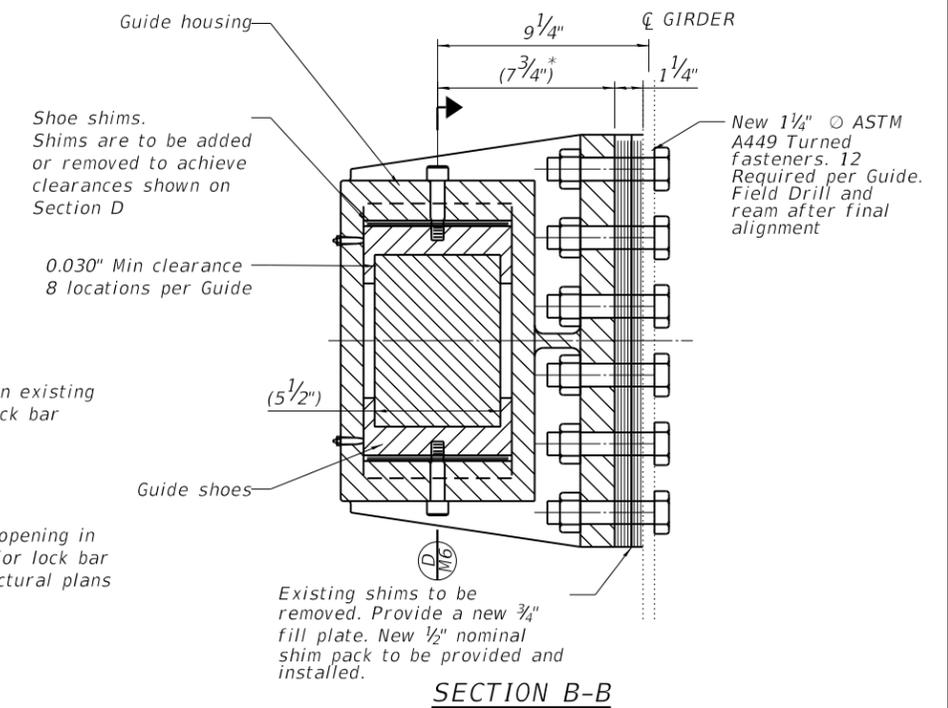
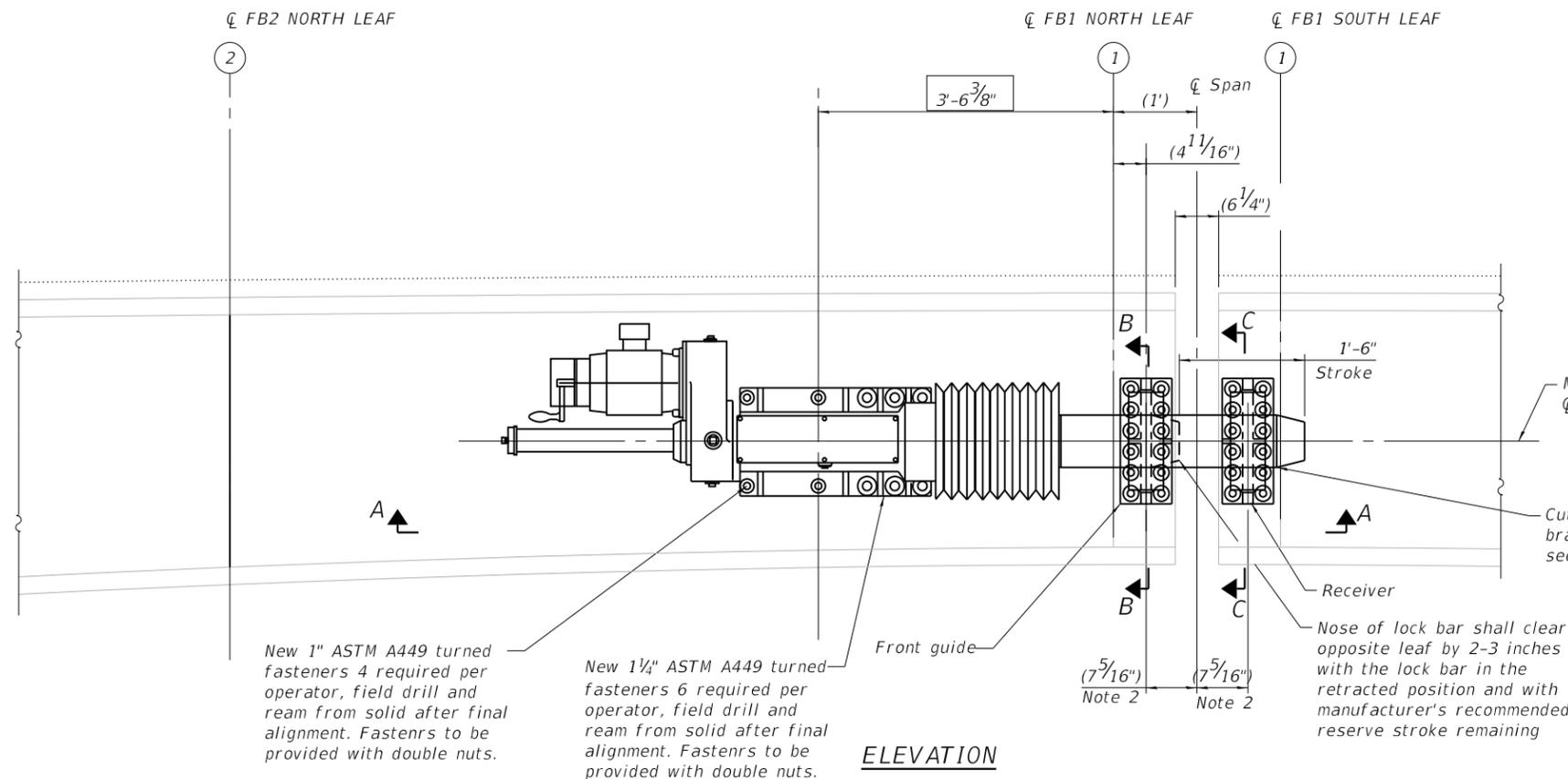


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STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		MOTOR AND MACHINERY BRAKE DETAILS 1 STRUCTURE NO. 099-9903		F.A.S. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
				0341	2018-048-B-R	WILL	45	24
SHEET NO. M-3 OF M-9 SHEETS				CONTRACT NO. 62G97				
				ILLINOIS FED. AID PROJECT				

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- Notes:**
- Operator, lock bar, guide, and receivers to be installed level, after live load supports have been shimmed to achieve proper alignment of leaves.
 - Maintain forward guide and receiver locations relative to the centerline of the span.

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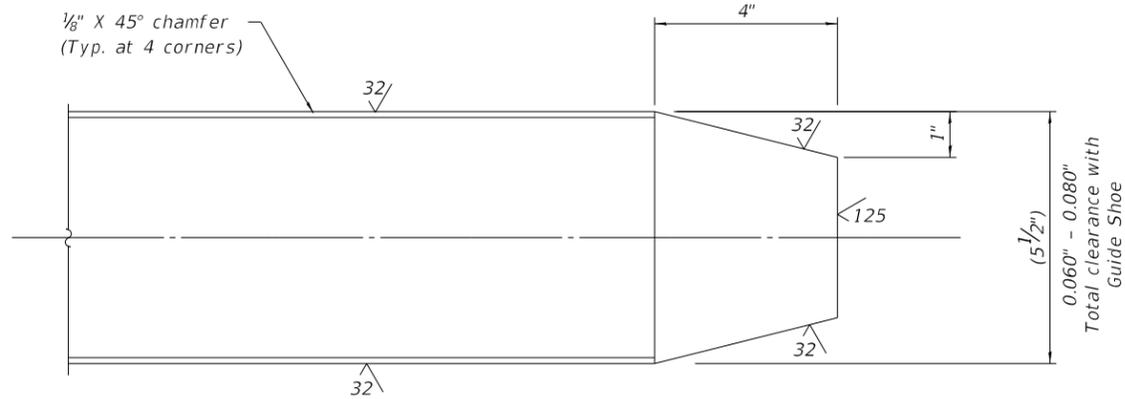
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CENTER LOCK DETAILS 1
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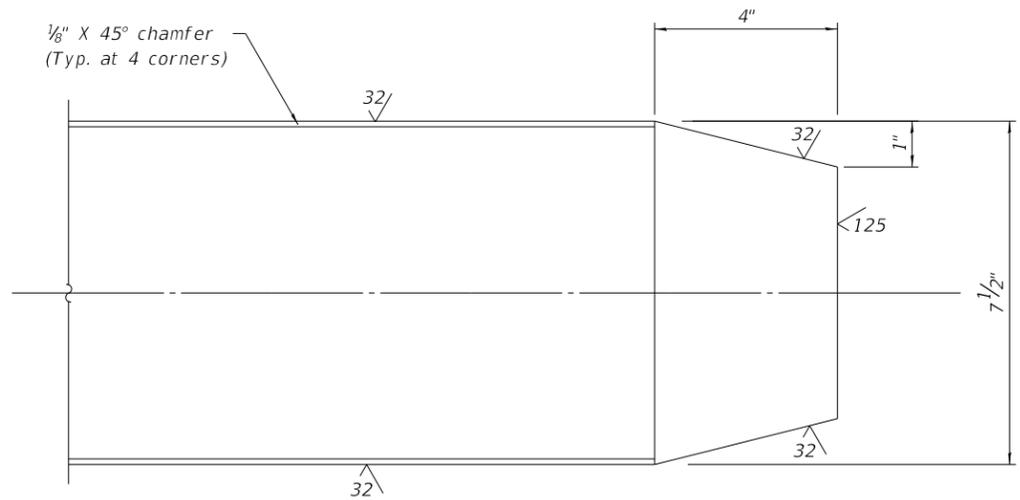
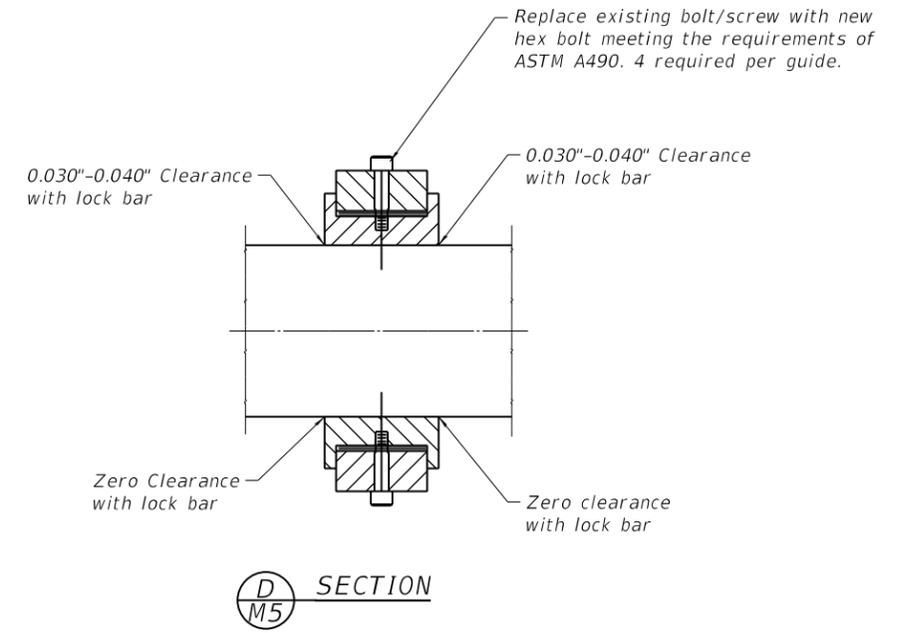
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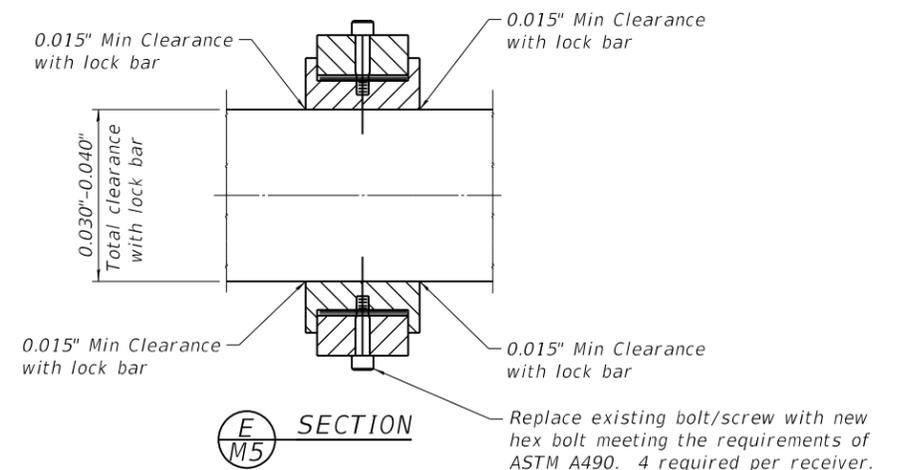


NEW LOCKBAR END DETAIL PLAN VIEW



NEW LOCKBAR END DETAIL ELEVATION VIEW

ASTM A668 Class D



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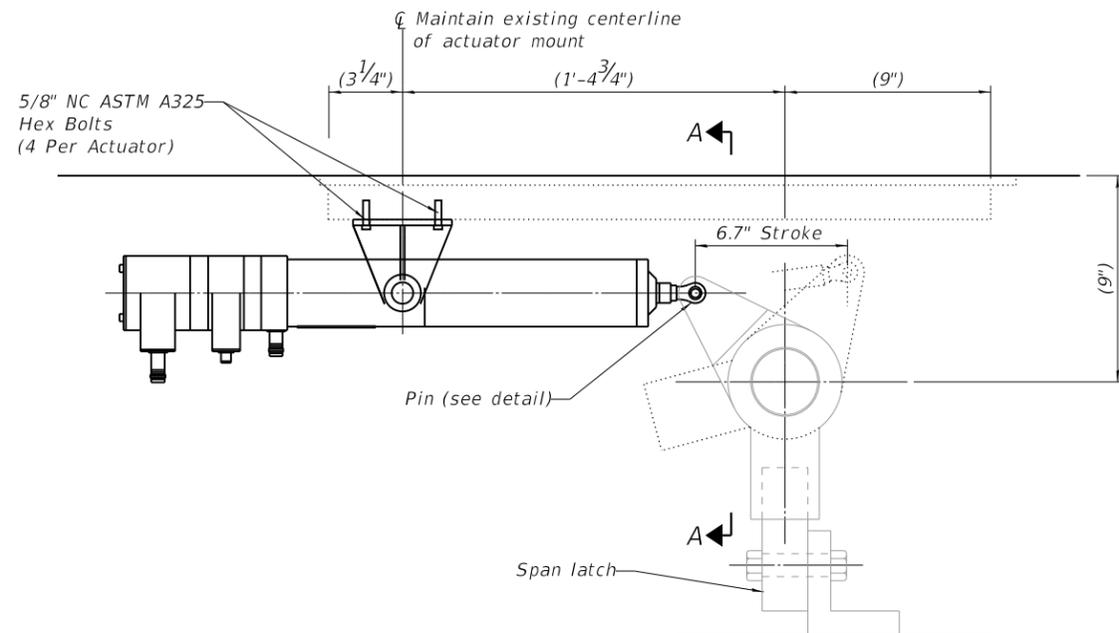
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**CENTER LOCK DETAILS 2
STRUCTURE NO. 099-9903**

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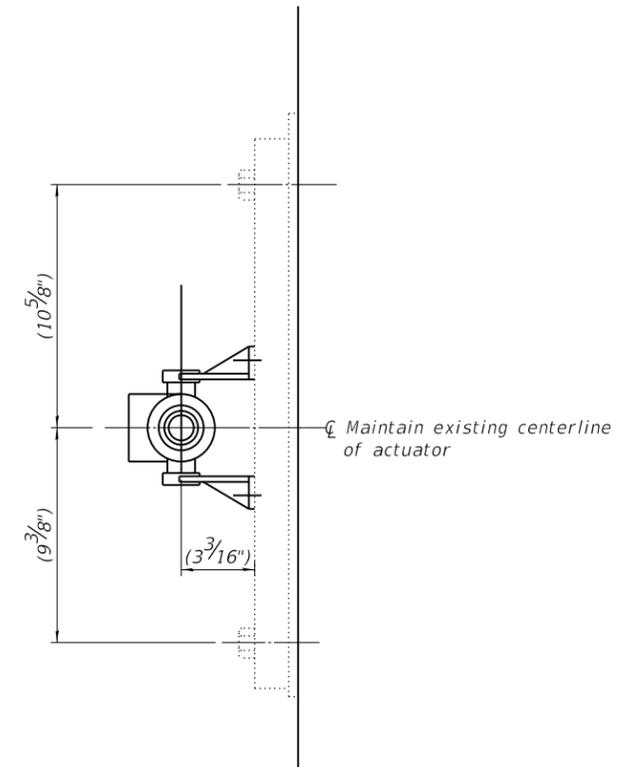
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CONTRACT NO. 62G97				

ILLINOIS FED. AID PROJECT

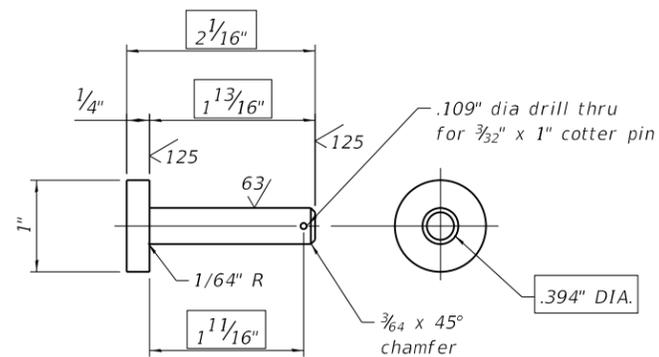


NEW TAIL LOCK ACTUATOR PLAN

(Complete tail lock not shown for clarity)
5 Required
(Includes 1-spare)



VIEW A-A



NEW PIN

Material: ASTM A108, GR 1018
4 Required

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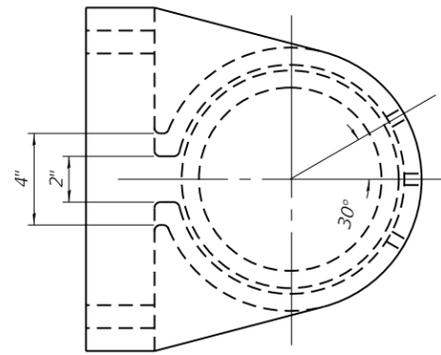
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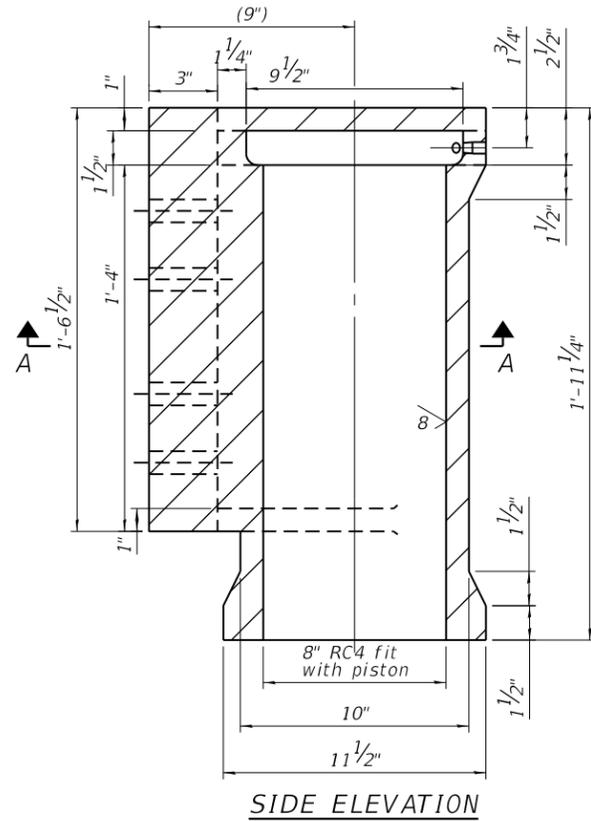
**TAIL LOCKS
STRUCTURE NO. 099-9903**

SHEET NO. M-6 OF M-9 SHEETS

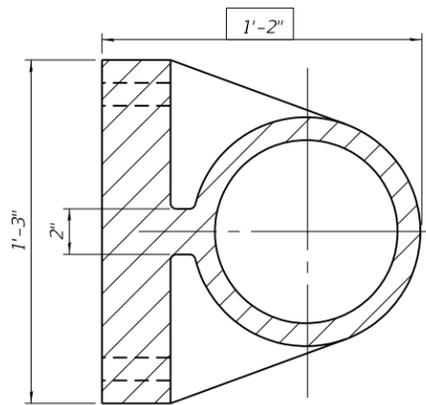
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CONTRACT NO. 62G97			ILLINOIS FED. AID PROJECT	



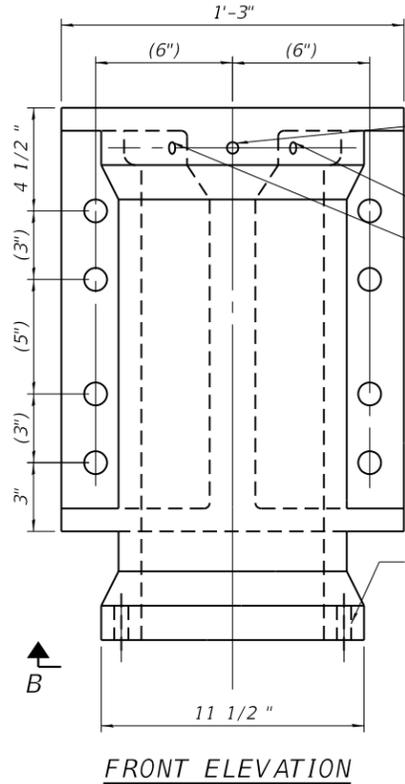
PLAN



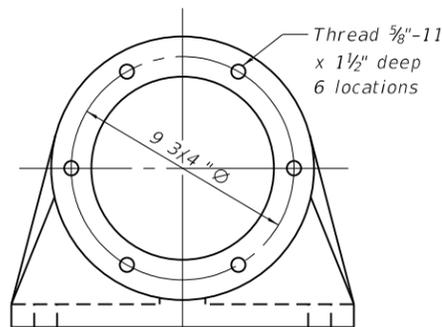
SIDE ELEVATION



SECTION A-A



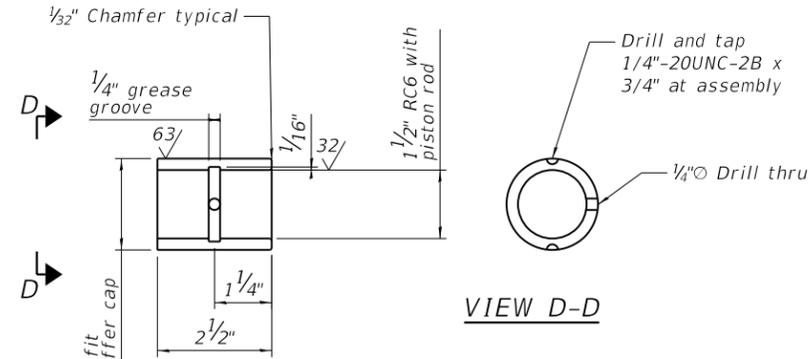
FRONT ELEVATION



SECTION B-B

BUFFER HOUSING

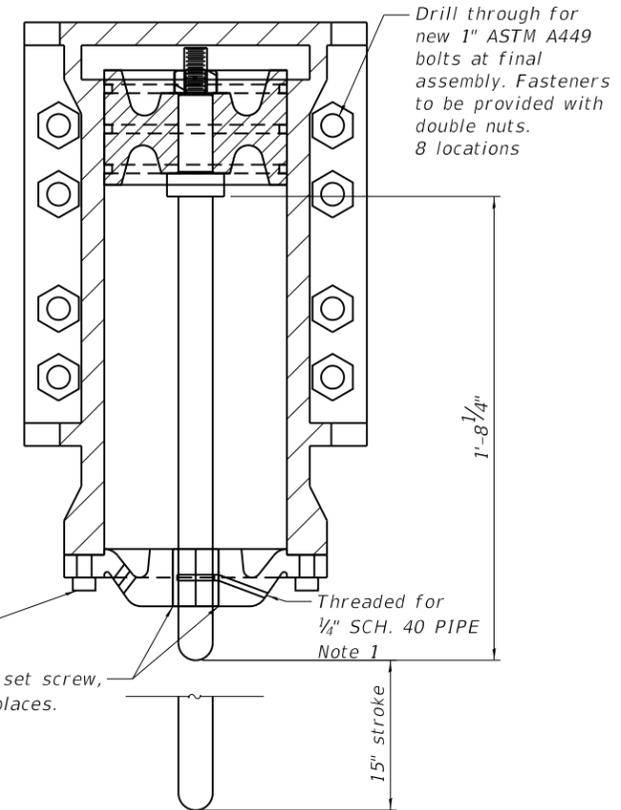
Material: Steel Casting A27 GR 70-36
2 Required



PISTON ROD BUSHING

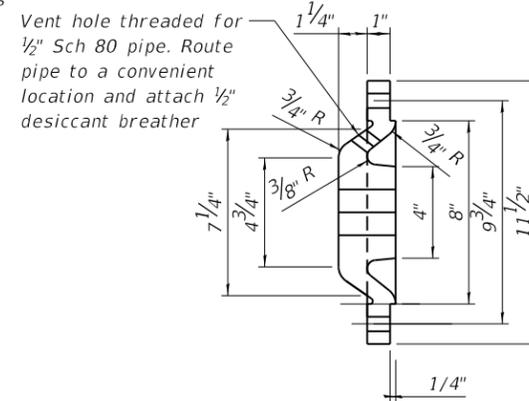
Material: ASTM B22 Alloy C93700
2 Required

VIEW D-D



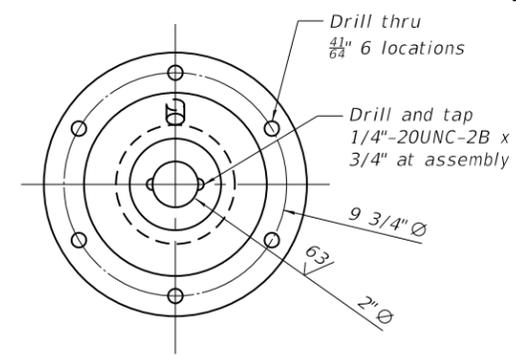
BUFFER ASSEMBLY

2 Required



BUFFER CAP

Material: Steel Casting A27-GR 70-36
2 Required



- Notes:
- Lubrication lines shall be 1/4" Sch 40 Pipe routed to a convenient location and fitted with 1/4" giant button head grease fitting.
 - Air intake shall be routed to a convenient location using a 1/2" Sch 80 Pipe and fittings. Attach a 1/2" check valve, 1/2" air filter and 1/2" desiccant breather at a convenient location.
 - Route air exhaust using 1/2" Sch 80 pipe and fittings. Attach a 1/2" pressure gauge and 1/2" needle valve at a convenient location.

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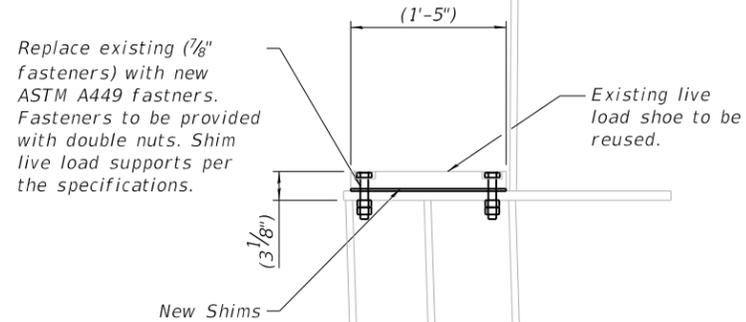
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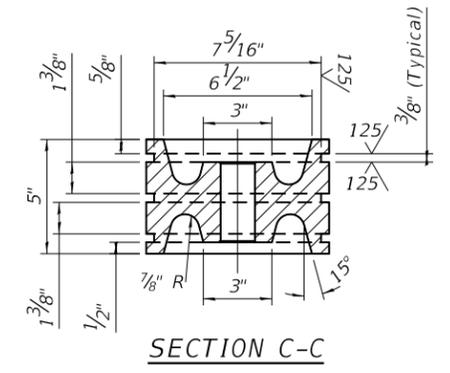
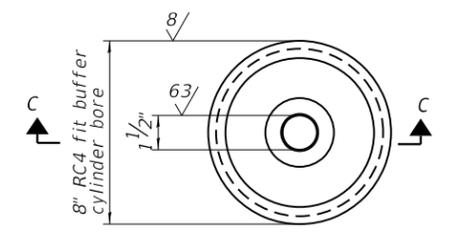
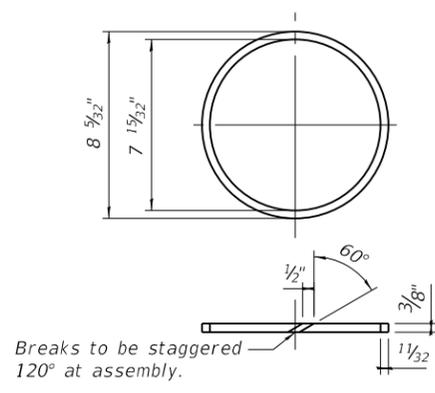
BUFFER CYLINDER
STRUCTURE NO. 099-9903

SHEET NO. M-7 OF M-9 SHEETS

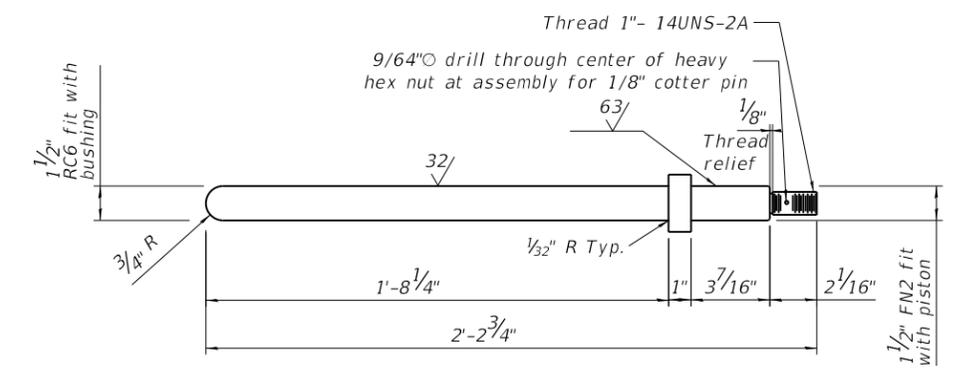
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0341	2018-048-B-R	WILL	45	28
CONTRACT NO. 62C97				
ILLINOIS FED. AID PROJECT				



GIRDER TAIL DETAIL



BUFFER PISTON
Material: Cast Iron A48 Class 40B
2 Required



PISTON ROD
Material: ASTM A29-8620 Annealed
2 Required

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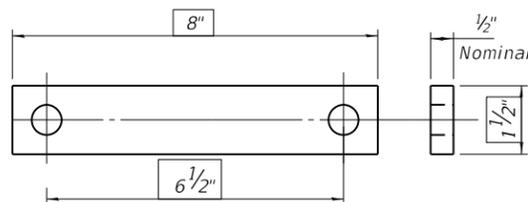
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**LOAD SUPPORT SHIMMING AND ADDITIONAL BUFFER DETAILS
STRUCTURE NO. 099-9903**

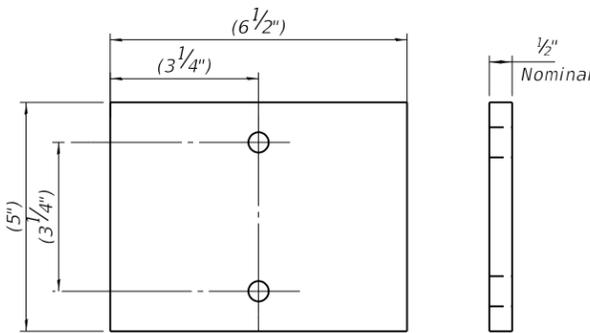
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CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



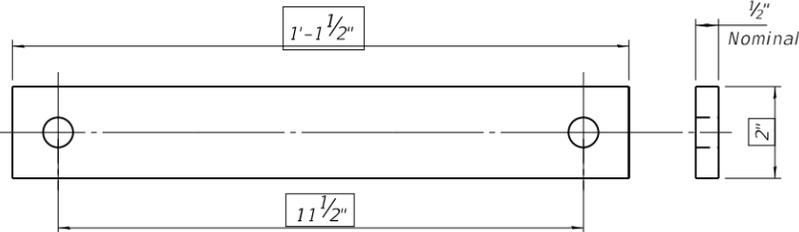
SPAN DRIVE MOTOR BRAKE SHIM PACK

Material: ASTM A666
Type 316 stainless steel
Quantity: 4



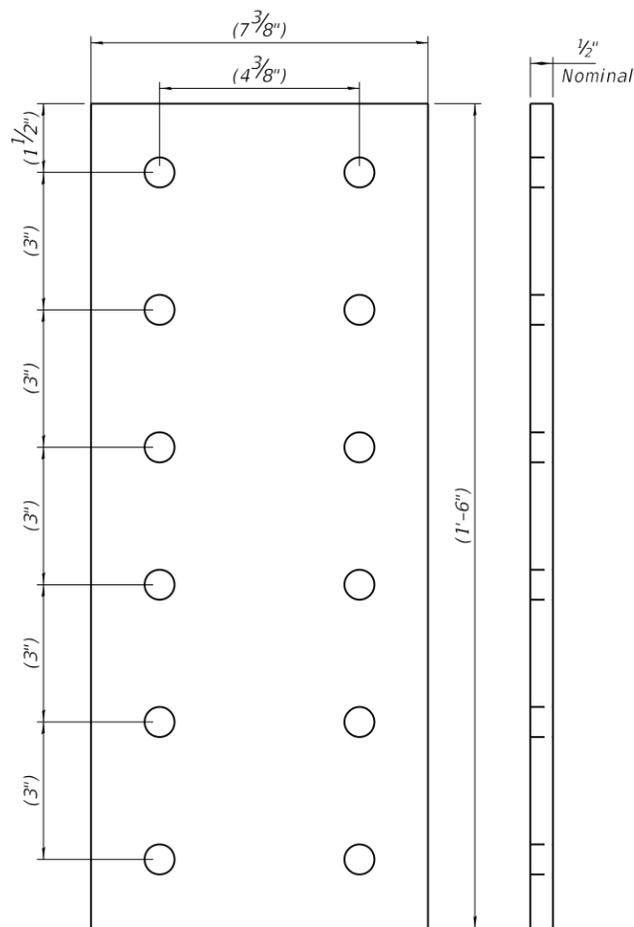
CENTER LOCK SHOE SHIM PACK

Material: ASTM A666
Type 316 stainless steel
Quantity: 8



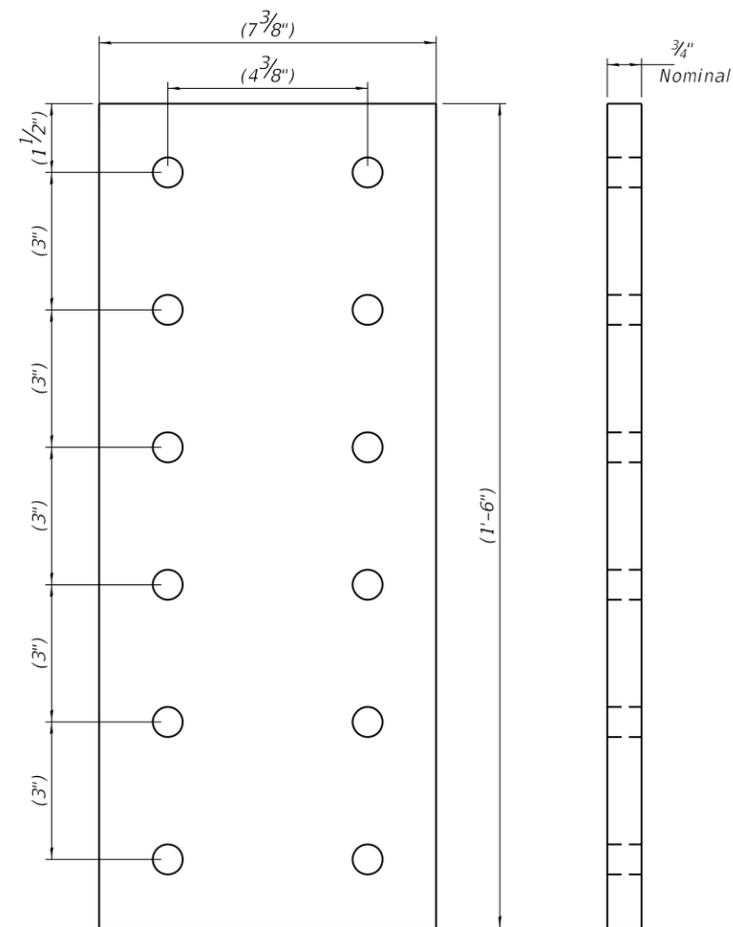
SPAN DRIVE MACHINERY BRAKE SHIM PACK

Material: ASTM A666
Type 316 stainless steel
Quantity: 4



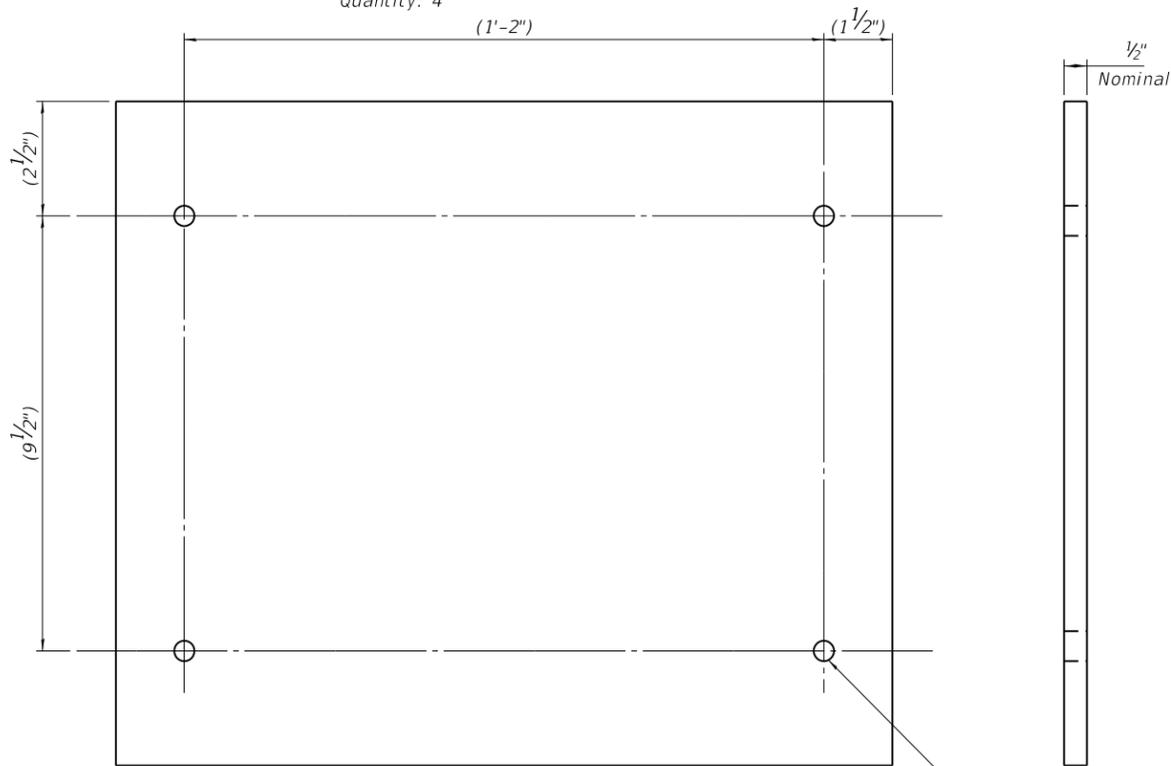
CENTER LOCK GUIDE AND RECEIVER SHIM PACK

Material: ASTM A666
Type 316 stainless steel
Quantity: 4



CENTER LOCK GUIDE AND RECEIVER FILL PLATE

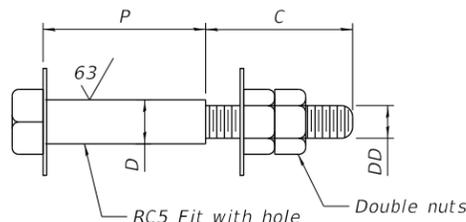
Material: ASTM A36
Quantity: 4



LIVE LOAD SUPPORT SHIM PACK

Material: ASTM A666
Type 316 stainless steel
Quantity: 4

Holes for (7/8") bolts.



DD= Thread size, one standard size smaller than nominal bolt diameter.

C= Thread length, sufficient for washer and double nut plus nominal shim thickness

P= Shank length, grip less nominal shim thickness

TURNED BOLTS

NTS
Bolts: ASTM A449
Nuts: ASTM A563
Washers: ASTM F436

Notes:
1. Holes in shims may be predrilled 1/16" larger than the bolt shank.

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**SHIMS AND FASTENERS DETAILS
STRUCTURE NO. 099-9903**

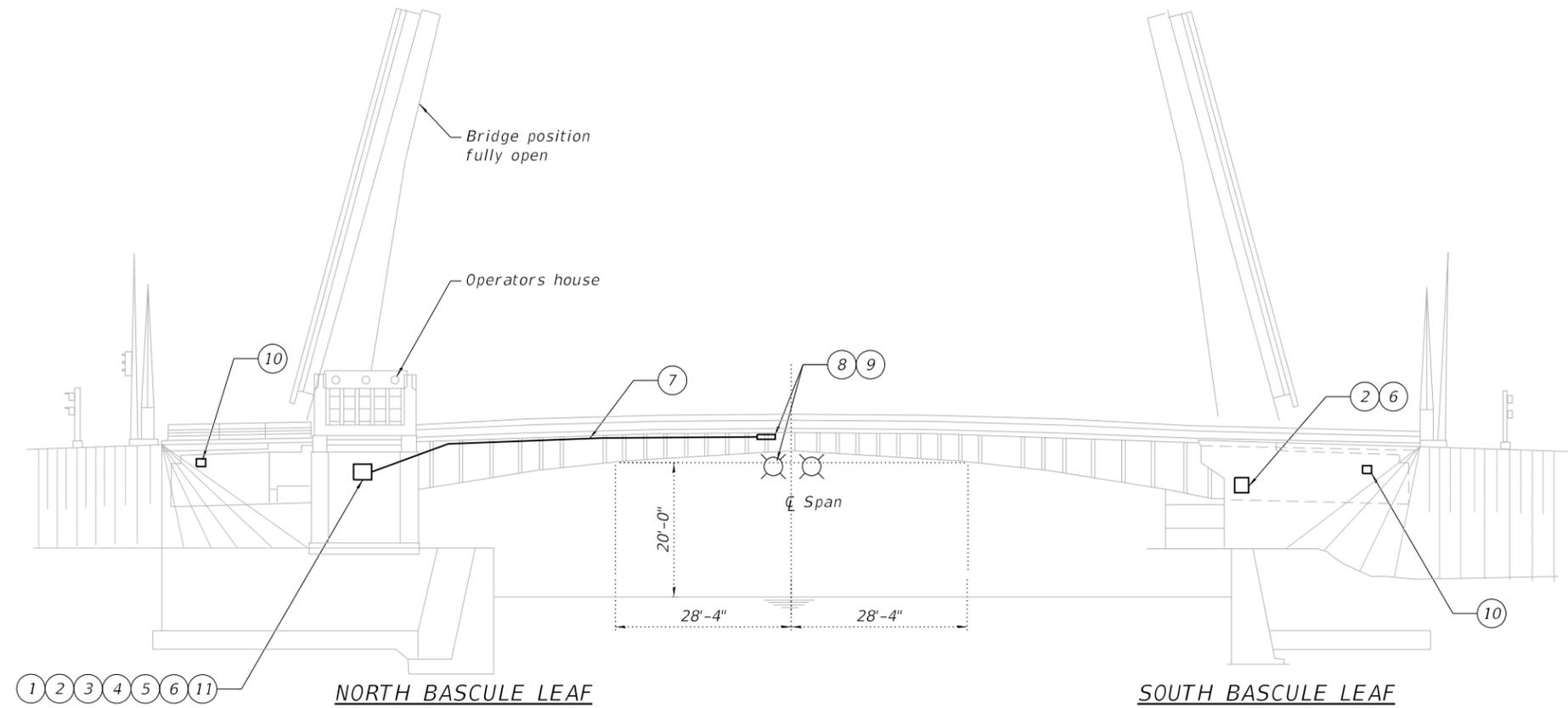
SHEET NO. M-9 OF M-9 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 62G97				

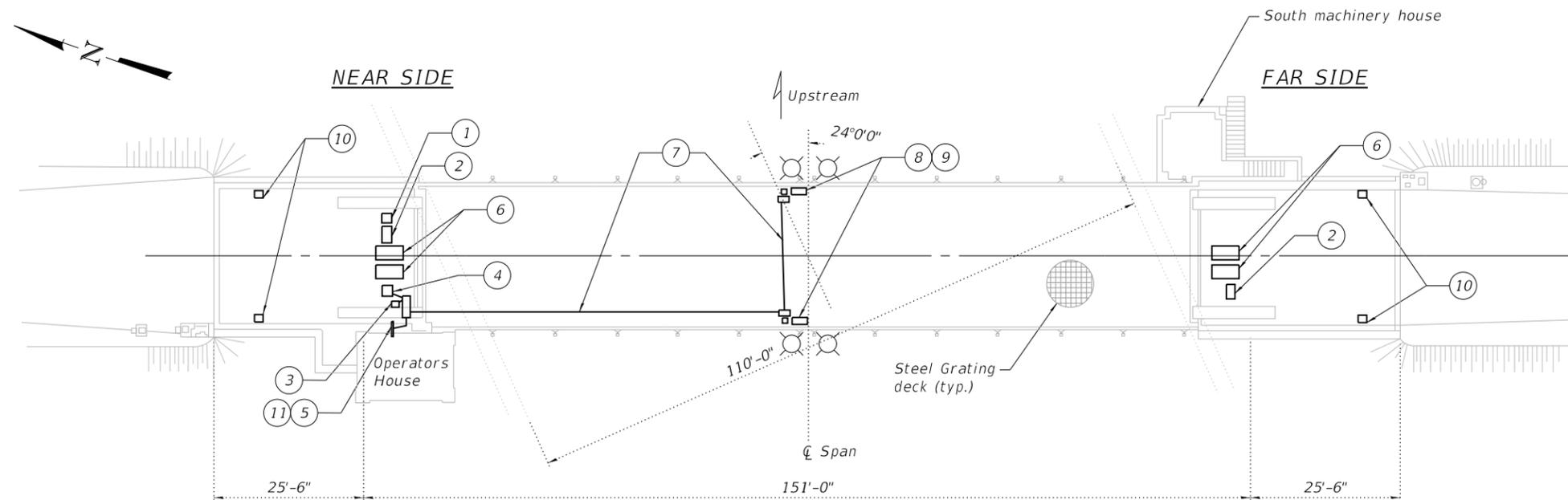
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ELECTRICAL WORK

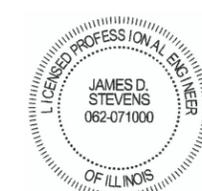
- ① Repair/replace near side synchro-transmitter.
- ② Replace near and far side leaf position rotary limit switches. Reconnect existing wiring.
- ③ Replace near side droop cables and droop cable boxes.
- ④ Replace conduits and pull new conductors between stationary droop cable box and main distribution cabinet in near machinery area.
- ⑤ Install new conduit and conductors between main distribution cabinet in near machinery area and auxiliary cabinet in bottom of operators house. Replace latches and gaskets on near side machinery area main distribution cabinet.
- ⑥ Disconnect electrical connections from old brakes (to be replaced) and electrically connect new brakes. Replace conduits and conductors to brake thrusters and limit switches.
- ⑦ Replace near side conduits, conductors, and boxes between span mounted droop cable box, center lock actuators, and near leaf clearance/navigation lights.
- ⑧ Disconnect electrical connections from old center lock actuators (to be replaced) and electrically reconnect new center lock operators. Replace safety disconnect switches at center locks.
- ⑨ Replace wiring, conduits, and enclosures from center lock terminal boxes to existing navigation clearance lights on the near leaf.
- ⑩ Disconnect electrical connections from old tail lock actuators (to be replaced), and electrically reconnect new tail lock actuators. Replace flexible cables to actuators.
- ⑪ Replace circuit breakers, starters, and overload protection modules for center locks.



ELEVATION



PLAN



Signed *James D. Stevens*
 JAMES D. STEVENS, E.E. Il. Lic. No. 062-071000
 Expires 11-30-2019.
 Date 1/29/2019
E1-E13

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	CHECKED - JDS	REVISED -

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 DEPARTMENT OF TRANSPORTATION**

**ELECTRICAL PLAN AND ELEVATION
 STRUCTURE NO. 099-9903**

SHEET NO. E-1 OF E-13 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	31
CONTRACT NO. 62G97				

ILLINOIS FED. AID PROJECT

SYMBOLS

— Existing conduit or wire

— New conduit or wire

 Droop cable

 AC Motor
= Horsepower

 Disconnect Switch
Non-fused

 Box/Cabinet
JB = Junction box
PB = Pull box
TB = Termination Box

 Navigation Light
CL = Clearance light

HAND SWITCHES - HS

 Toggle switch

PUSH BUTTON

 Normally open

 Normally closed

 Mushroom head maintained
push button

 Indicating Light Color
R = Red G = Green
A = Amber B = Blue
W = White

 Relay Coil
CR = Control relay
M = Motor contactor

RELAY CONTACTS

 Normally open contact

 Normally closed contact

 Center lock operator

 Gate operator

 Spanlock operator (local control)

 Emergency gen. panel

 Auto transfer switch

 Tail lock actuator

 Terminal
X = Panel or Box
XXX = Wire number

POSITION (LIMIT) SWITCHES - LS

 Normally closed

 Normally closed
held open

 Normally open

 Normally open
held closed

Limit switches are shown with bridge down,
locks driven and traffic gates up

ABBREVIATIONS

A, AMPS	AMPERES
AP	AUXILIARY PANEL
C	CONSOLE
CB	CIRCUIT BREAKER
CR	CONTROL RELAY
D	DRIVE
DISC	DISCONNECT
DCL	DOWNSTREAM CENTER LOCK
DCLC	DOWNSTREAM CENTER LOCK CONTROL
DCLI	DOWNSTREAM CENTER LOCK IN
DCLO	DOWNSTREAM CENTER LOCK OUT
FS	FAR SIDE
FSB(#)	FAR SIDE BRAKE
FSDTL	FAR SIDE DOWNSTREAM TAIL LOCK
FSFO	FAR SIDE FULLY OPEN
FSLLS(#)	FAR SIDE LEAF LIMIT SWITCH
FSTGD	FAR SIDE TRAFFIC GATE DOWN
FSUTL	FAR SIDE UPSTREAM TAIL LOCK
GND	GROUND
HR	HAND RELEASED
IL	INDICATOR LIGHT
LCP	LEAF CONTROL PANEL
LLCBPR	LEAF LOCK CONTROL BYPASS RELAY
LS	LIMIT SWITCH
M	MOTOR
MDP	NEAR SIDE MACHINERY AREA MAIN DISTRIBUTION PANEL
NAV	NAVIGATION
NL	NAVIGATION LIGHTS
NS	NEAR SIDE
NSB(#)	NEAR SIDE BRAKE
NSDC	NEAR SIDE DROOP CABLE
NSDTL	NEAR SIDE DOWNSTREAM TAIL LOCK
NSFO	NEAR SIDE FULLY OPEN
NSLLS(#)	NEAR SIDE LEAF LIMIT SWITCH
NSTGD	NEAR SIDE TRAFFIC GATE DOWN
NSUTL	NEAR SIDE UPSTREAM TAIL LOCK
OL	OVERLOAD
OPM	OVERLOAD PROTECTION MODULE
P	PULL
PH	PHASE
UCL	UPSTREAM CENTER LOCK
UCLC	UPSTREAM CENTER LOCK CONTROL
UCLI	UPSTREAM CENTER LOCK IN
UCLO	UPSTREAM CENTER LOCK OUT

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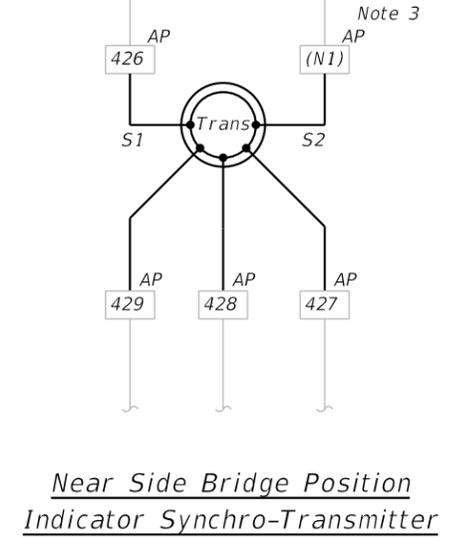
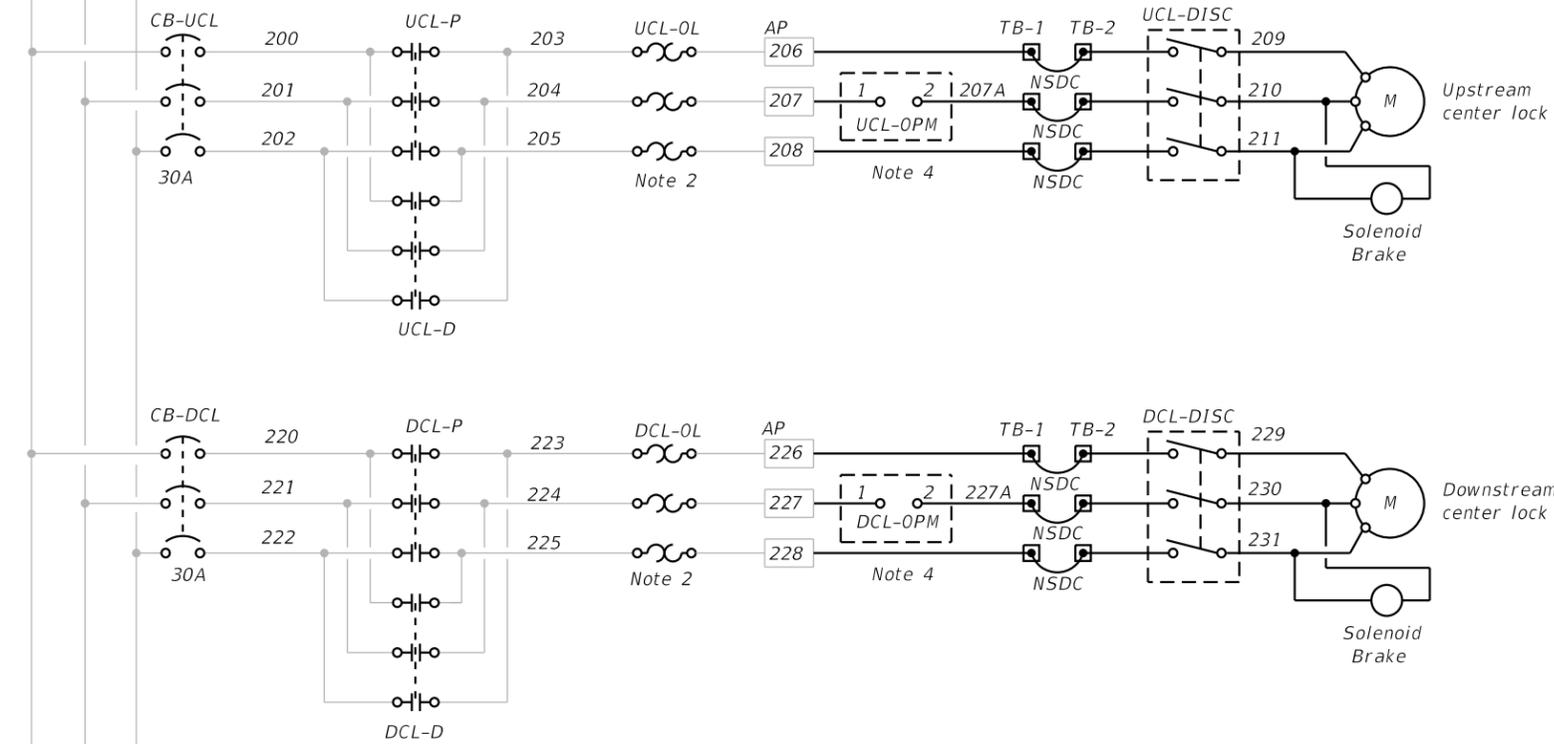
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ELECTRICAL LEGEND AND ABBREVIATIONS
STRUCTURE NO. 099-9903

SHEET NO. E-2 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	32
ILLINOIS FED. AID PROJECT				CONTRACT NO. 62G97

460V, 3 PH
180 181 182



Continued to
sheet E-4

- Note:
1. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 2. Replace overload heaters as needed for 125% of full load current at 480 V.a.c.
 3. Change "G" to "N1" for neutral.
 4. CB-UCL, CB-DCL, UCL-OPM and DCL-OPM to be replaced with new.

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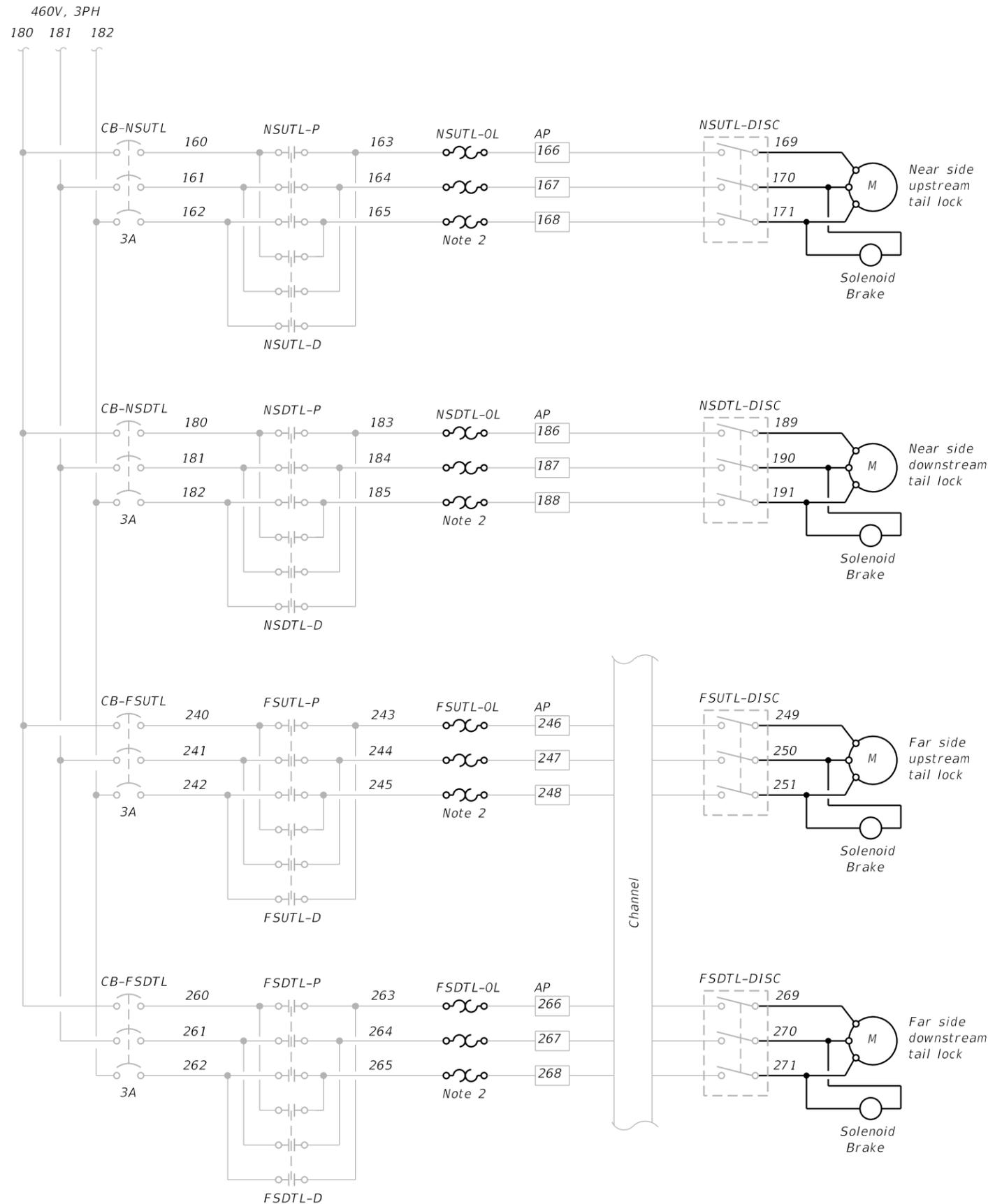
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	CHECKED - JDS	REVISED -

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CENTER LOCK POWER
STRUCTURE NO. 099-9903

SHEET NO. E-3 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	33
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



Note:
 1. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 2. Replace overload heaters as needed for 125% of nameplate full load current at 480 V.a.c.

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 TEL: (312) 782-8150
 FAX: (312) 782-1884

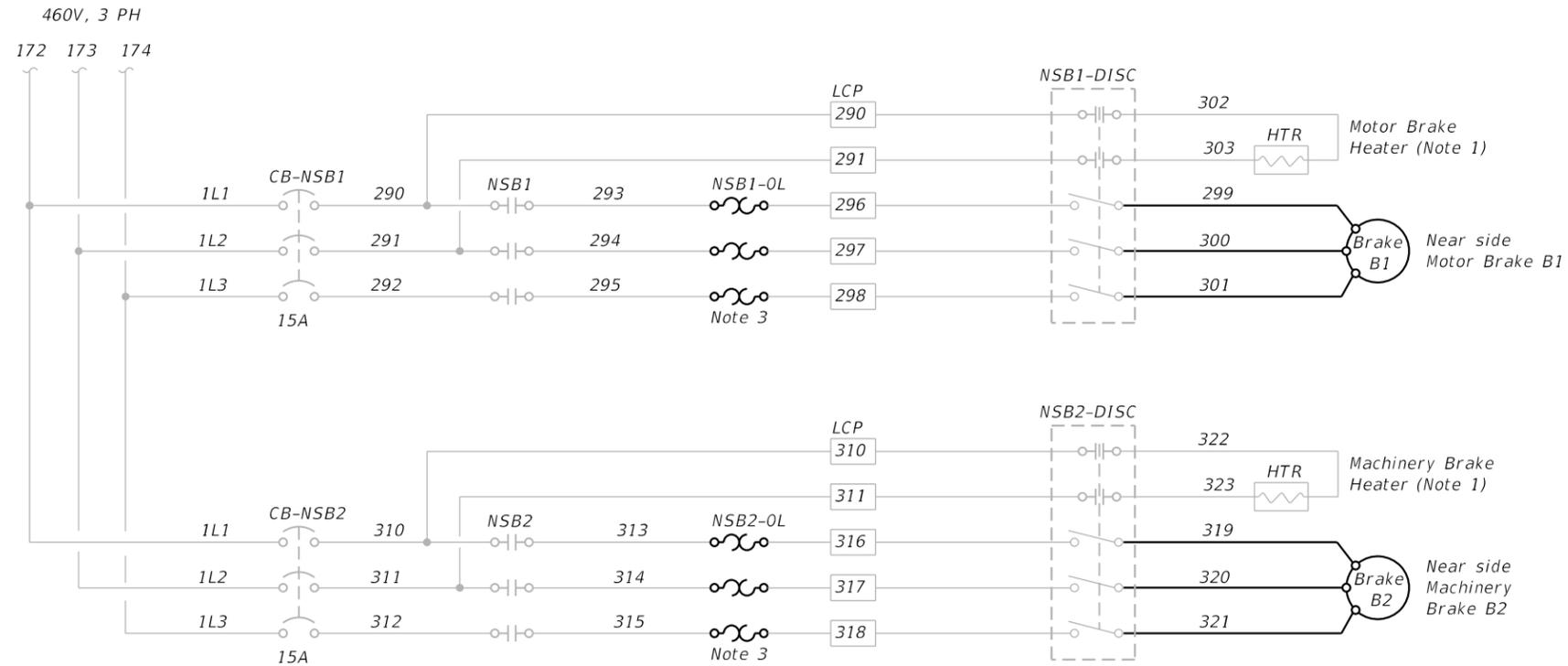
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	CHECKED - BLC	REVISED -
PLOT SCALE = N.T.S.	DRAWN - RP	REVISED -
PLOT DATE = 1/24/2019	CHECKED - JDS	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

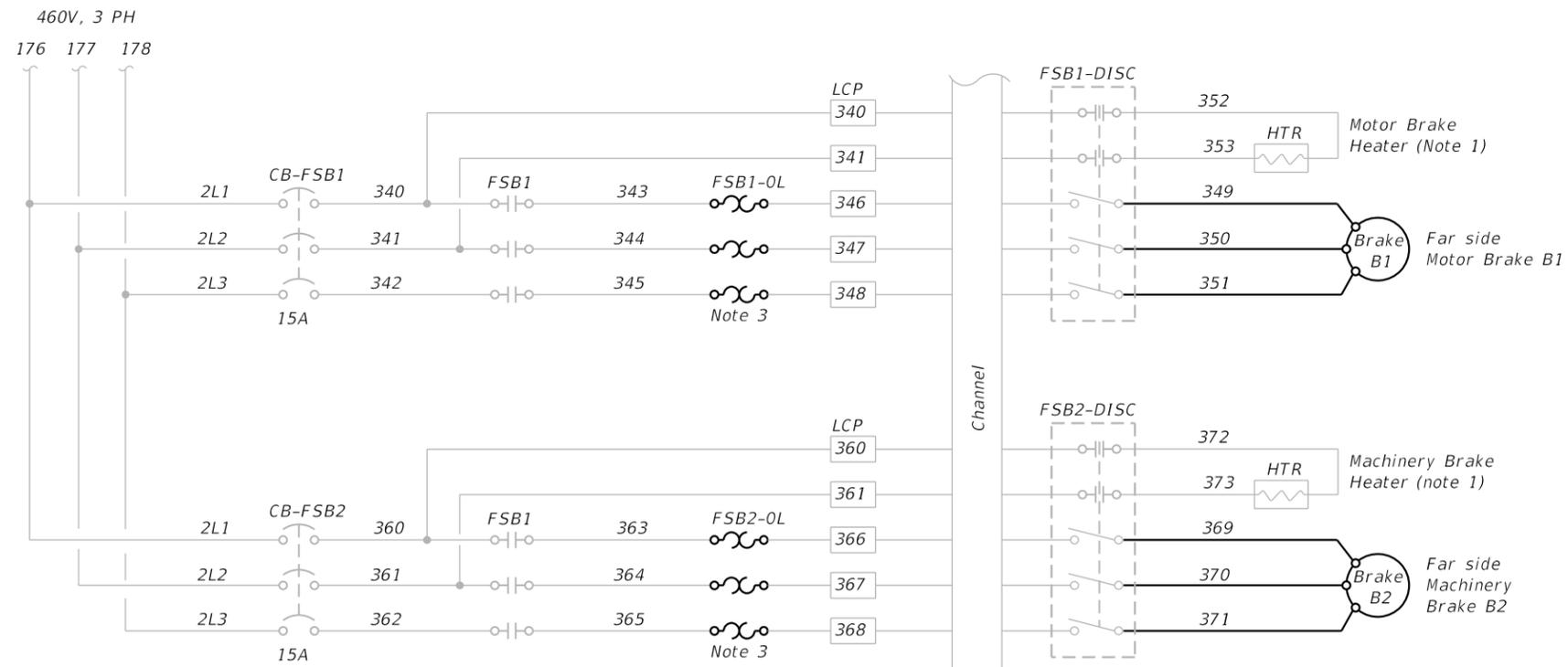
TAIL LOCK POWER
 STRUCTURE NO. 099-9903

SHEET NO. E-4 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	34
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



NEAR SIDE LEAF DRIVE BRAKES



FAR SIDE LEAF DRIVE BRAKES

- Notes:
1. Heater circuit may not exist. clarify in as-found drawings.
 2. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 3. Replace overload heaters as needed for 125% of nameplate full load current at 480 Va.c.

T:\Sys\Projects\16933P-Brandon Rd\DWG\ELEC\16933P-E5.dgn



WSP USA Inc.
30 N. LASALLE STREET
SUITE 4200
CHICAGO, IL 60602
TEL: (312) 782-8180
FAX: (312) 782-1884

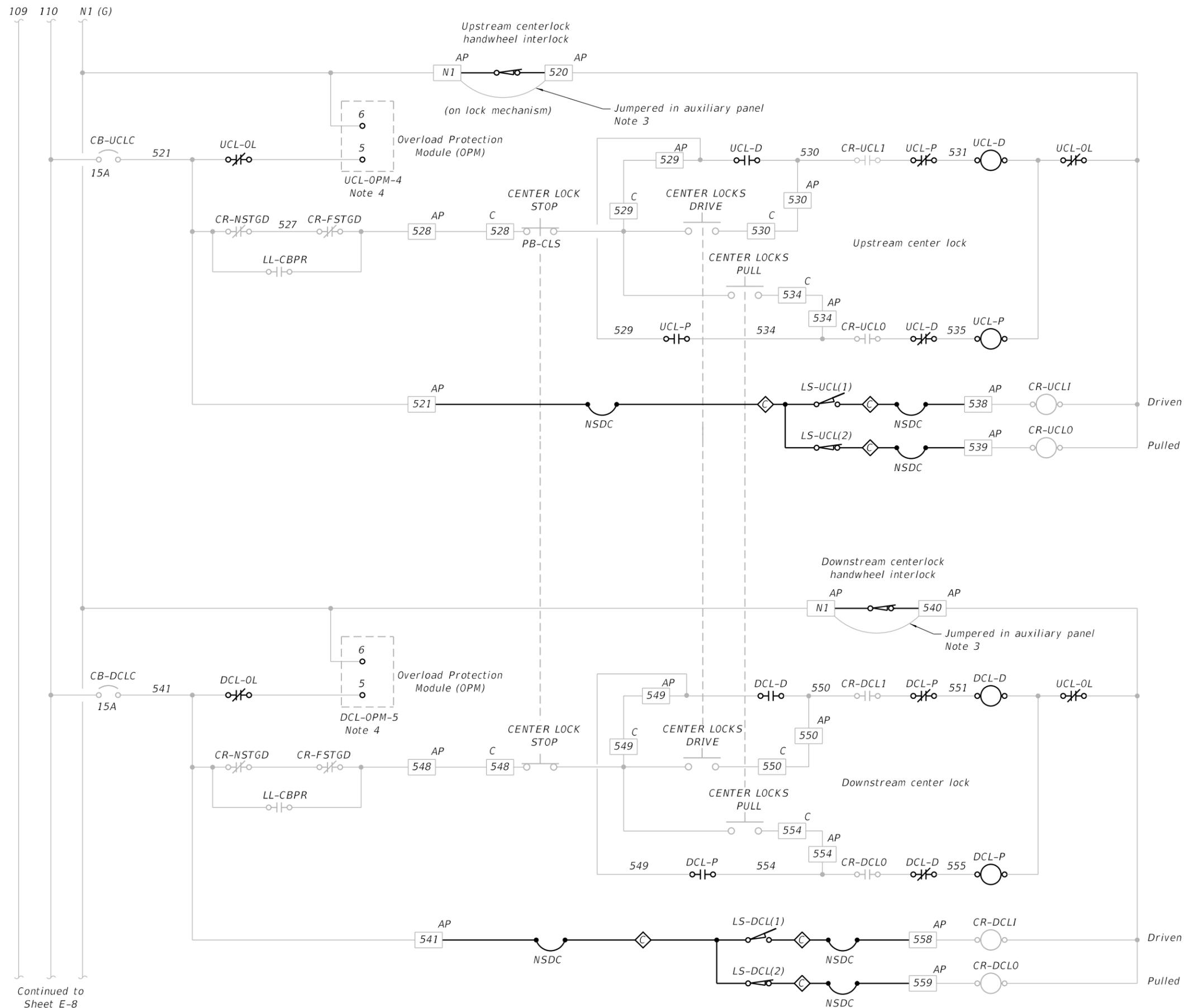
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	CHECKED - BLC	REVISED -
PLOT SCALE = N.T.S.	DRAWN - RP	REVISED -
PLOT DATE = 1/24/2019	CHECKED - JDS	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**LEAF DRIVE BRAKES POWER
STRUCTURE NO. 099-9903**

SHEET NO. E-5 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	35
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



- Note:
1. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 2. "G" from shop drawings replaced with "N1" (typical).
 3. Jumper to be removed after installation of new center lock operator and starter.
 4. Overload protection module to be replaced with new.
 5. Coil and contact replacements shown are from center lock starters replacement. Contactor N.O. Aux Contact for brake actuator not required. Brake circuit removed from schematic for clarity.

Continued to Sheet E-8

T:\SysProjects\16933P-Brandon.Rd\DWG\ELEC\16933P-E6.dgn



USER NAME = PerezR	DESIGNED - JDS	REVISED -
CHECKED - BLC	REVISED -	
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PLOT DATE = 1/24/2019	CHECKED - JDS	REVISED -

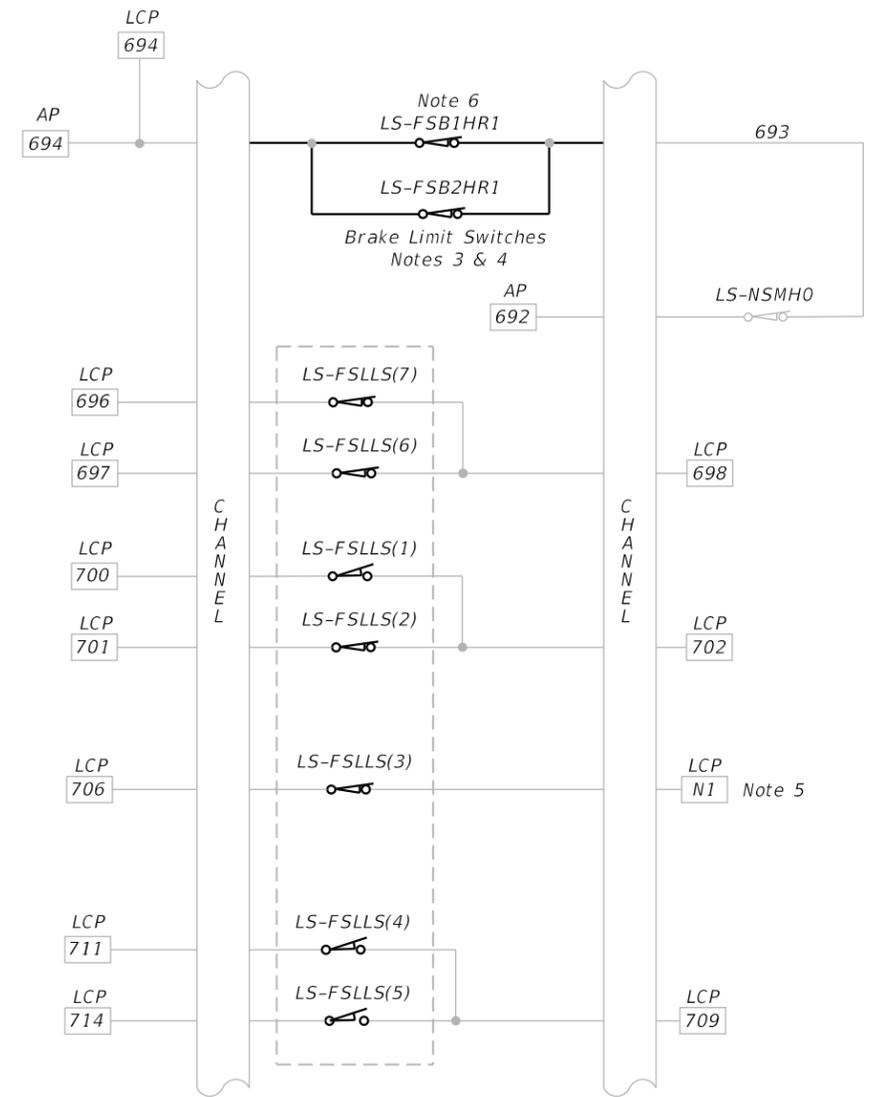
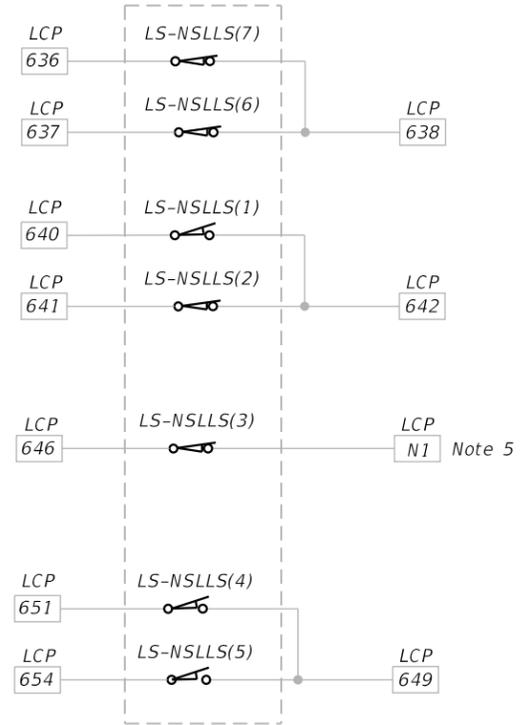
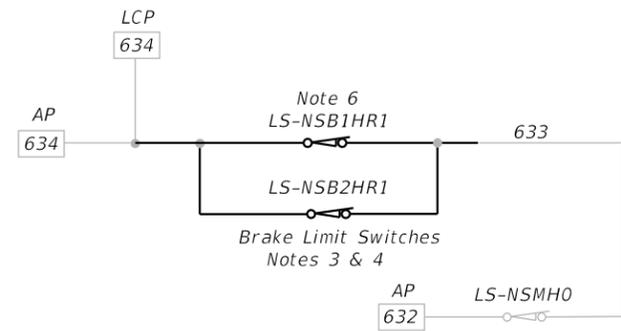
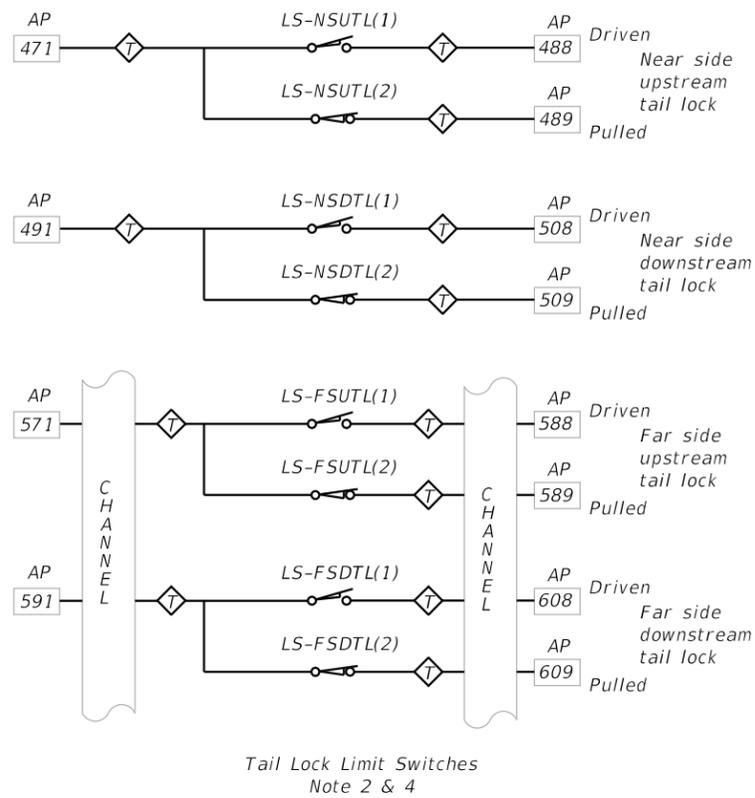
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CENTER LOCK CONTROLS
STRUCTURE NO. 099-9903

SHEET NO. E-6 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	36
CONTRACT NO. 62G97				

ILLINOIS FED. AID PROJECT



- Notes:**
1. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 2. Connection of new SOW flexible cable, for tail lock limit switches to existing wiring may be made in existing junction boxes using heat shrink covered compression lugs.
 3. If necessary to extend the brake limit switch wires, heat shrink covered compression lugs may be used in local safety disconnect switches.
 4. See limit switch contact development Sheet E-10
 5. "G" replaced with "N1"
 6. Replace wire and conduits between safety disconnect and brake thrusters and limit switches.

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USER NAME = PerezR	DESIGNED - JDS	REVISED -
PLOT SCALE = N.T.S.	CHECKED - BLC	REVISED -
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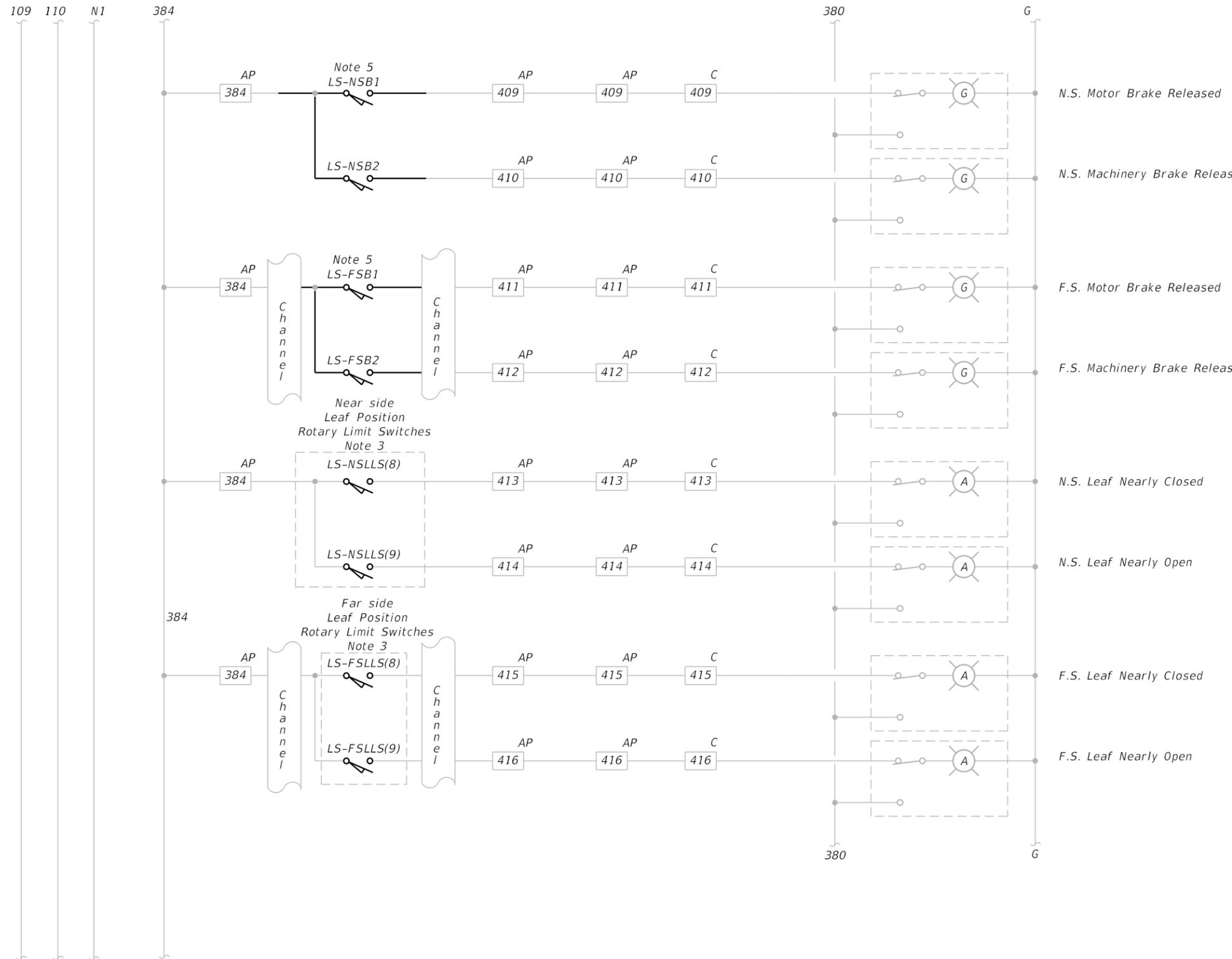
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TAIL LOCK, BRAKE, AND LEAF POSITION LIMIT SWITCHES
STRUCTURE NO. 099-9903**

SHEET NO. E-7 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	37
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

Continued from
Sheet E-6



Note 2

Note 2

- Note:
1. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 2. If necessary to extend the brake limit switch wires, heat shrink covered compression lugs may be used in local safety disconnect switches.
 3. See limit switch contact development Sheet E-10.
 4. "G" replaced with "N1".
 5. Replace wire and conduits between safety disconnects and brake thrusters and limit switches.

T:\Sys\Projects\16933P-Brandon.Rd\DWG\ELEC\16933P-EB.dgn



USER NAME = PerezR	DESIGNED - JDS	REVISED -
	CHECKED - BLC	REVISED -
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PLOT DATE = 1/24/2019	CHECKED - JDS	REVISED -

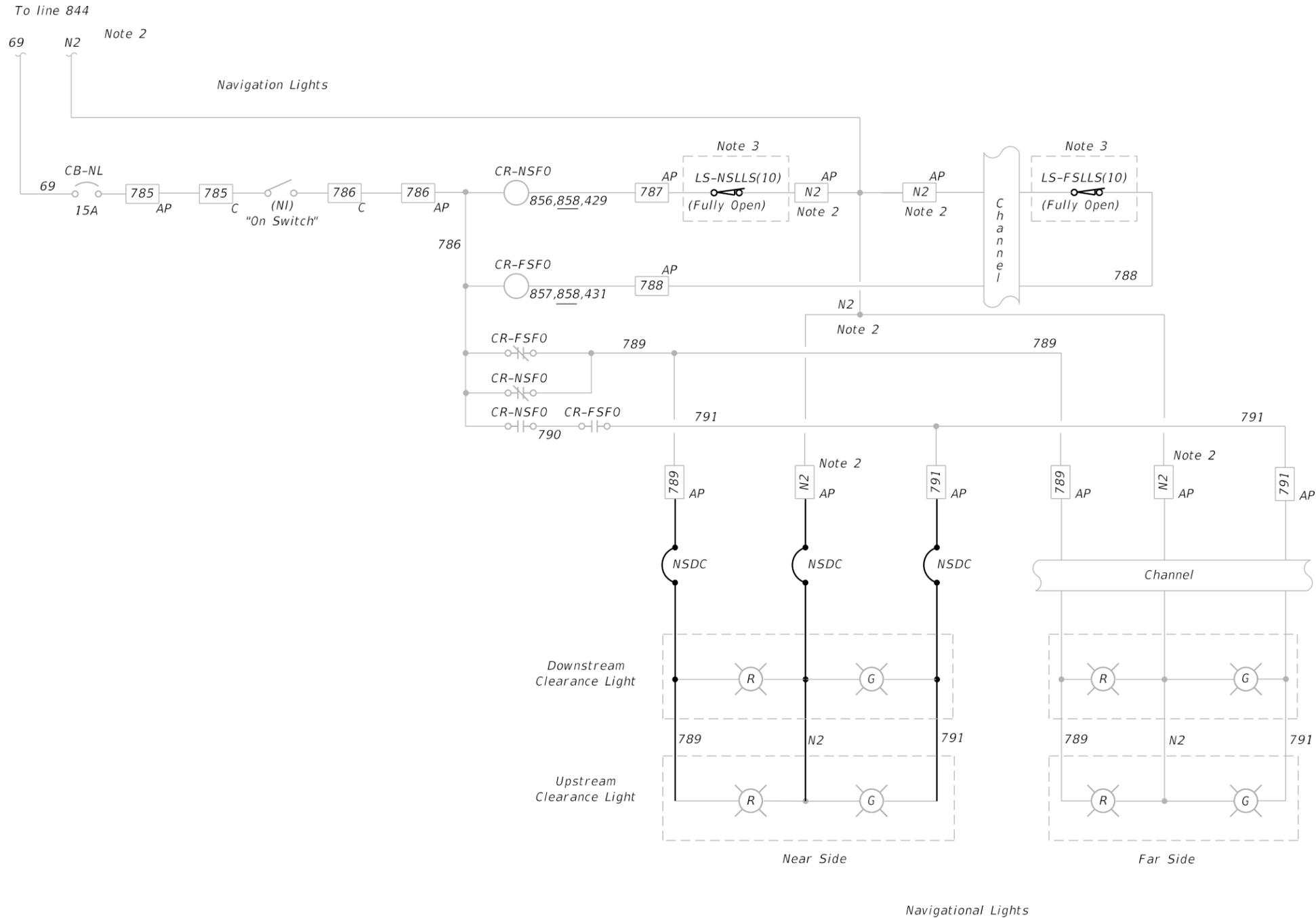
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**BRAKES AND LEAF POSITION LIMIT SWITCHES
STRUCTURE NO. 099-9903**

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	38
CONTRACT NO. 62G97				

SHEET NO. E-8 OF E-13 SHEETS

ILLINOIS FED. AID PROJECT



Note:
 1. Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 2. "G" and "C" replaced with "N2".
 3. Rotary limit switch contact. See limit switch contact development Sheet E-10.

T:\Sys\Projects\16933P-Brandon Rd\DWG\ELEC\16933P-E9.dgn



WSP USA Inc.
 30 N. LASALLE STREET
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 CHICAGO, IL 60602
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USER NAME = PerezR	DESIGNED - JDS	REVISED -
	CHECKED - BLC	REVISED -
PLOT SCALE = N.T.S.	DRAWN - RP	REVISED -
PLOT DATE = 1/24/2019	CHECKED - JDS	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

NAVIGATION LIGHTING
 STRUCTURE NO. 099-9903

SHEET NO. E-9 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	39
ILLINOIS FED. AID PROJECT			CONTRACT NO. 62G97	

Lock Limit Switches

Contact Number	Near Side Tail Locks		Center Locks		Far Side Tail Locks		Development	Function
	LS-NSUTL	LS-NSDTL	LS-UCL	LS-DCL	LS-FSUTL	LS-FSDTL		
1	471 488	491 508	521 538	541 558	571 588	591 608		Operate "In" Relay
2	471 489	491 509	521 539	541 599	571 589	591 609		Operate "Out" Relay

Brake Limit Switches

Contact Number	Near Side Motor	Near Side Machinery	Far Side Motor	Far Side Machinery	Development	Function
	LS-NSB1	LS-NSB2	LS-FSB1	LS-FSB2		
1	384 409	384 410	384 411	384 412		Brake Released
2						Spare

Brake Hand Operated

Contact Number	Near Side Motor	Near Side Machinery	Far Side Motor	Far Side Machinery	Function
	LS-NSB1HR1	LS-NSB2HR1	LS-FSB1HR1	LS-FSB2HR1	
1	633 634	633 634	693 694	693 694	Contact Opens When Brake Is Hand Released
2	SPARE	SPARE	SPARE	SPARE	Contact Closes When Brake Is Hand Released

Near Side And Far Side Leaf Limit Switches

Contact Number	LS-NSLLS	LS-FSLLS		Development	Function
1	642 640	702 700			Bypass Available Opening
2	642 641	702 701			Bypass Available Closing
3	N1 646	N1 706	Note 2		Seating Available
4	649 651	709 711			Set Brakes
5	649 654	709 714			Motor Off
6	638 637	698 697			Stop 69.5°
7	638 636	698 696			Stop 72.5°
8	384 413	384 415			Leaf Nearly Closed
9	384 414	384 416			Leaf Nearly Open
10	N2 767	N2 788	Note 3		Change Navigation Lights Fully Open

FULLY SEATED 0°
 SEATING AVAILABLE 2°
 BRAKE SET (NEARLY CLOSED) 3°
 BYPASS AVAILABLE 7°
 BYPASS AVAILABLE 62.5°
 MOTOR OFF 63.5°
 BRAKE SET (NEARLY OPEN) 64.5°
 FULLY OPEN 69.5°
 FULLY OPEN 72.5°

Note: 330° rotation of limit switch equals 74° rotation of trunnion (spec sn mau)

- Note:
- Schematic diagrams are from 1990 shop drawing. All pertinent circuits and wire numbers shall be field verified by the contractor before beginning work.
 - Changed "G" to N1.
 - Changed "C" to N2.

T:\Sys\Projects\16933P-Brandon Rd\DWG\ELEC\16933P-E10.dgn



WSP USA Inc.
 30 N. LASALLE STREET
 SUITE 4200
 CHICAGO, IL 60602
 TEL: (312) 782-8180
 FAX: (312) 782-1884

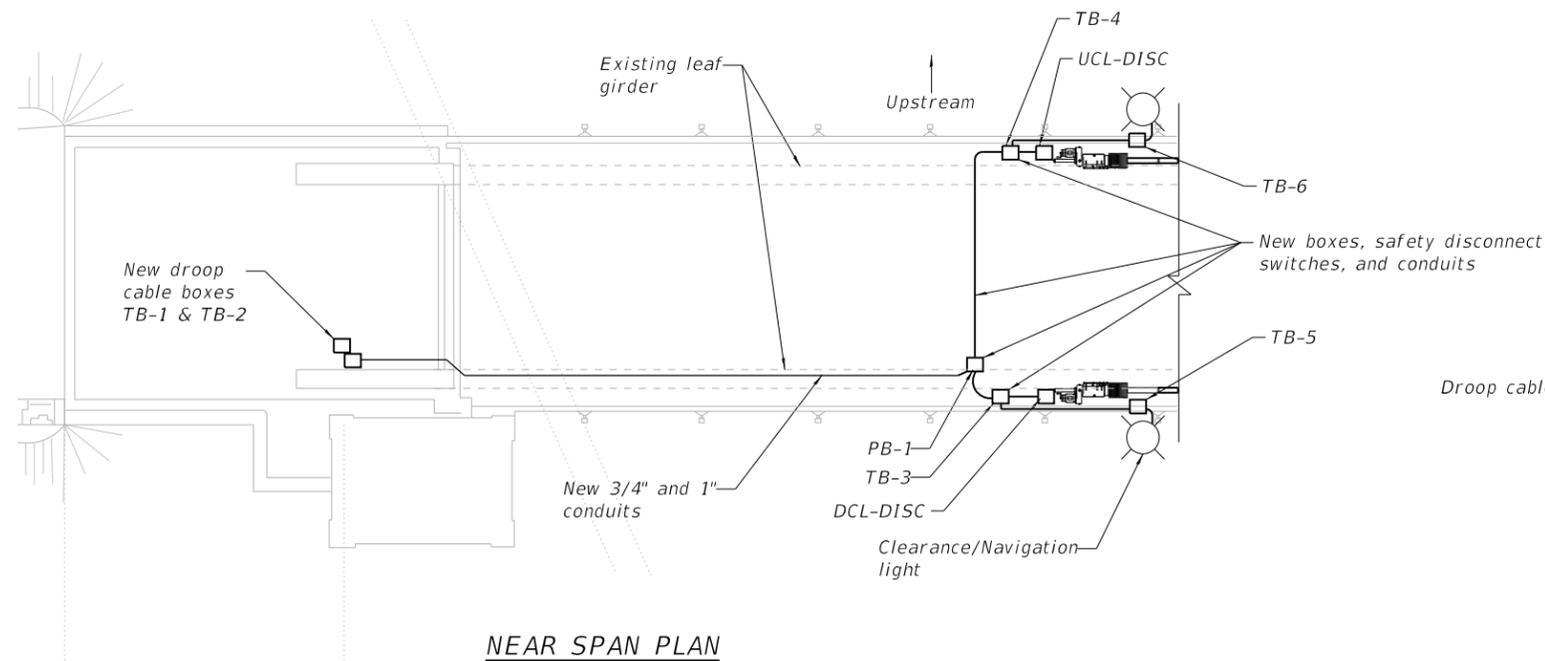
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

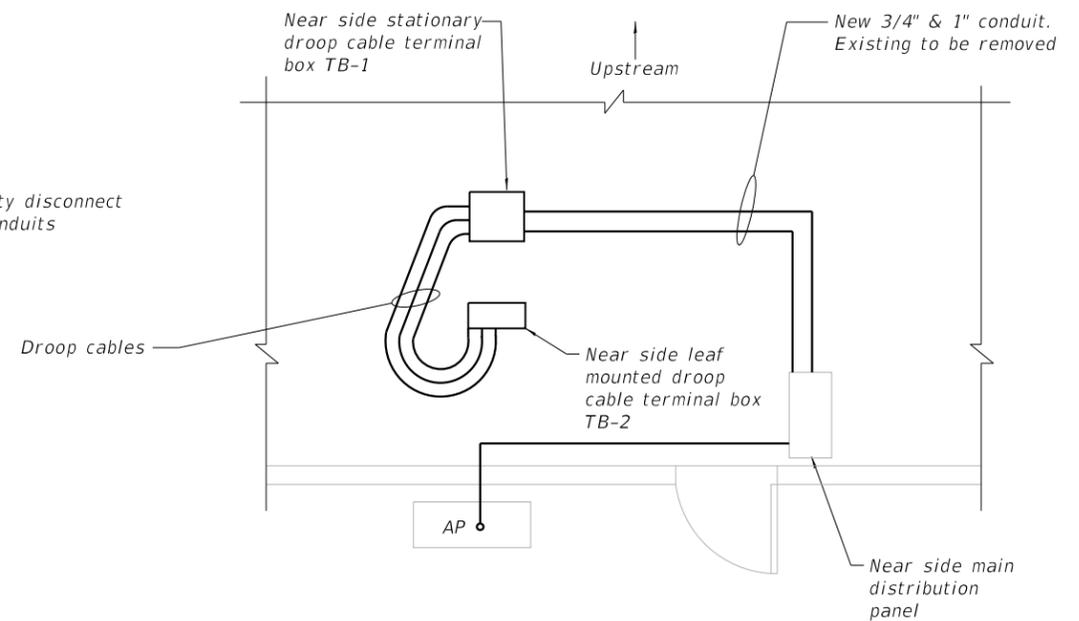
LIMIT SWITCH DEVELOPMENT
 STRUCTURE NO. 099-9903

SHEET NO E-10 OF E-13 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	40
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

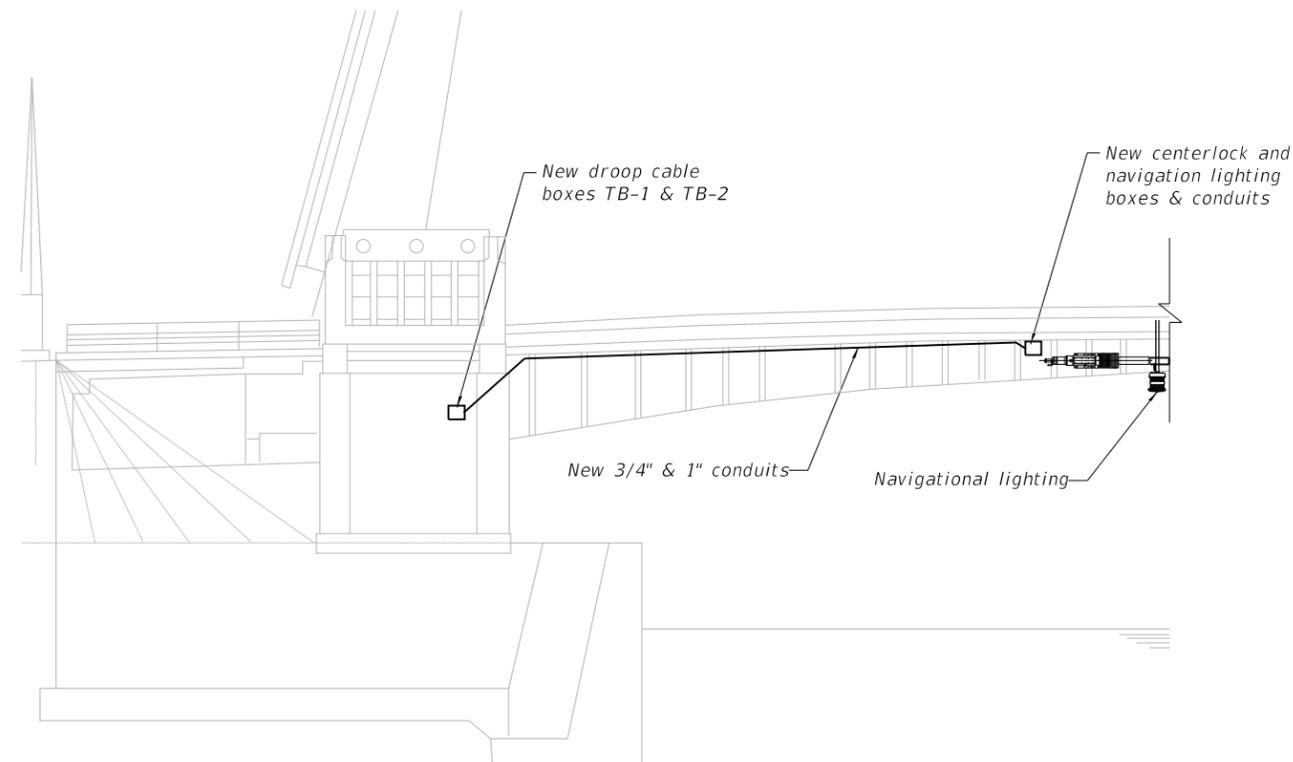


NEAR SPAN PLAN



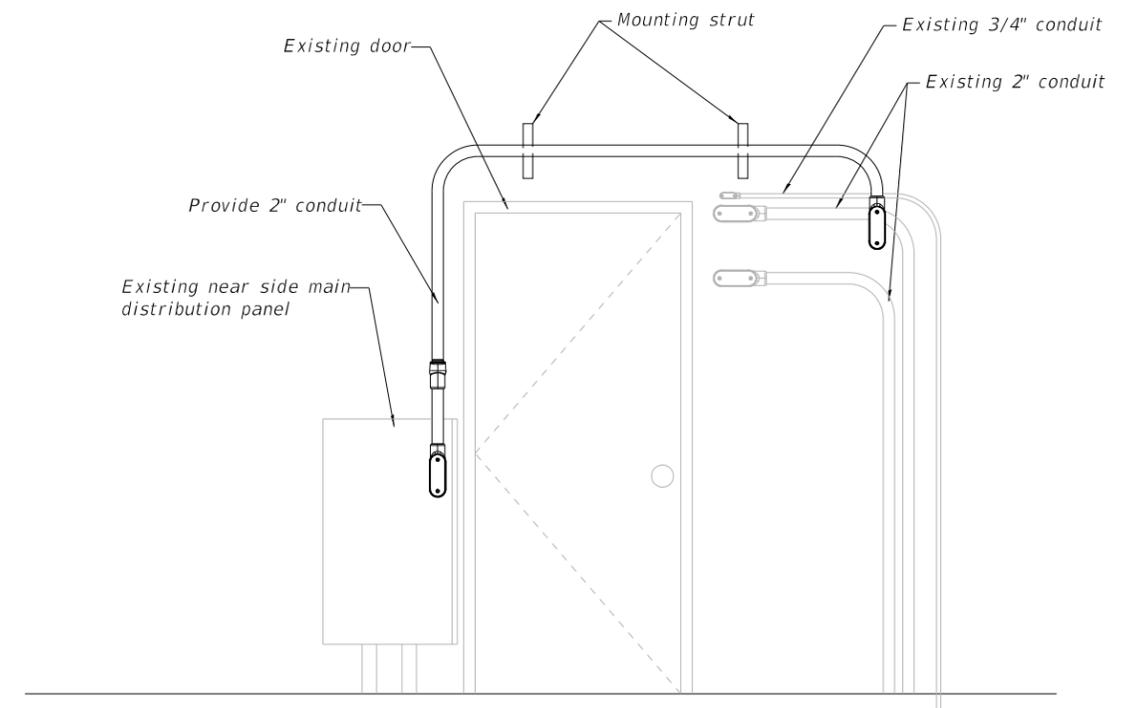
NEAR SIDE MACHINERY AREA PLAN

*Not To Scale
Boxes, motors, limit switches, bridge structure,
and machinery not shown for clarity*



NEAR SPAN ELEVATION

*Conduit shown is mounted
on the inside of the downstream girder*



NEW CONDUIT TO AUXILIARY PANEL ELEVATION

*Not To Scale
near side machinery area
view facing downstream (west)*

- Notes:
1. Conduit and box sizes, quantities, and mounting locations are intended to be "Replaced In-kind" except as noted herein and in the Technical Special Provisions.
 2. Enclosures to be located similar to existing to be removed except for TB-5 and TB-6 that shall be located within 48" of clearance/navigation lights.

T:\SysProjects\16933P-Brandon Rd\DWG\ELEC\16933P-E11.dgn



WSP USA Inc.
30 N. LASALLE STREET
SUITE 4000
CHICAGO, IL 60602
TEL: (312) 782-6100
FAX: (312) 792-1884

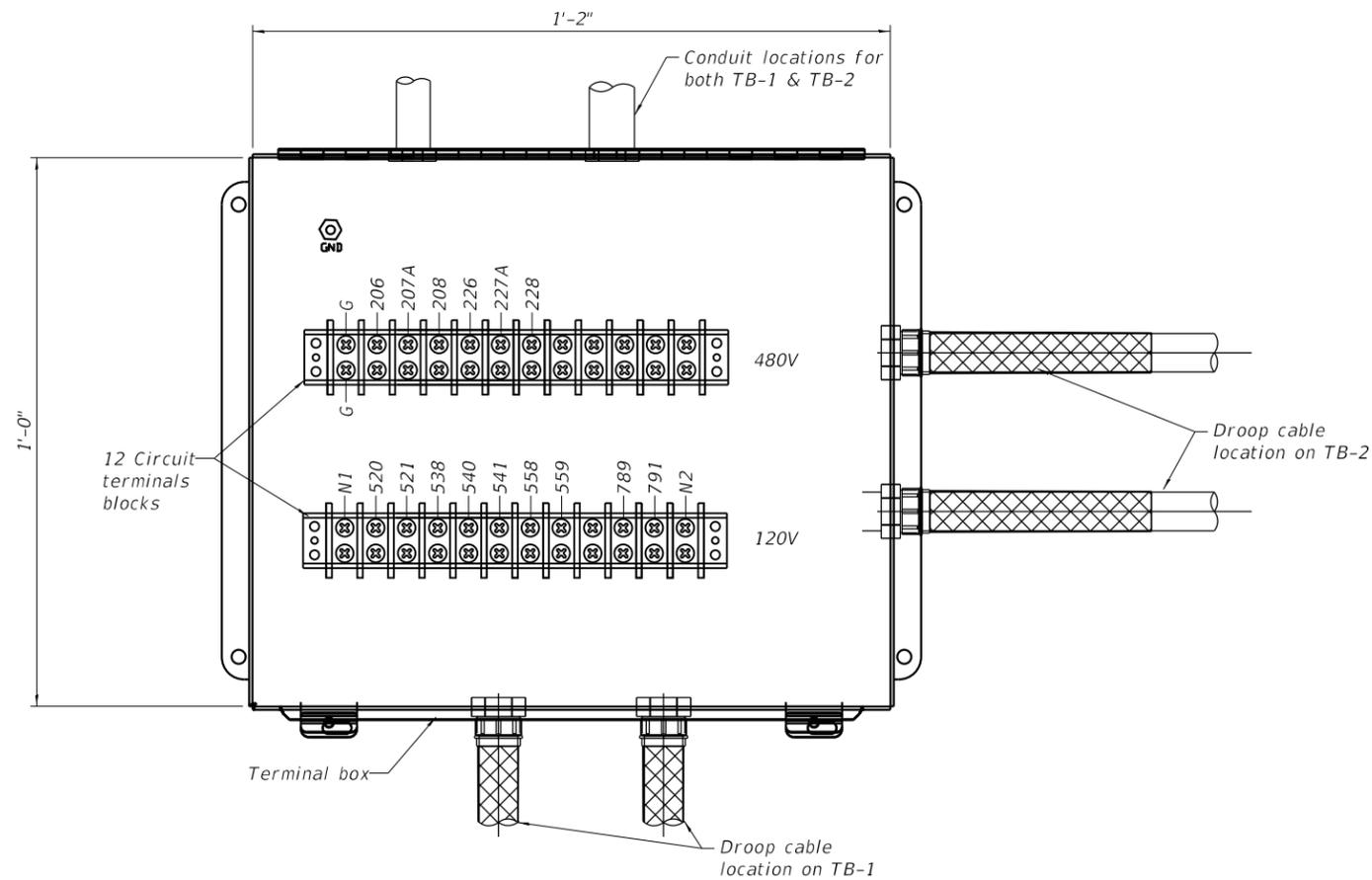
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

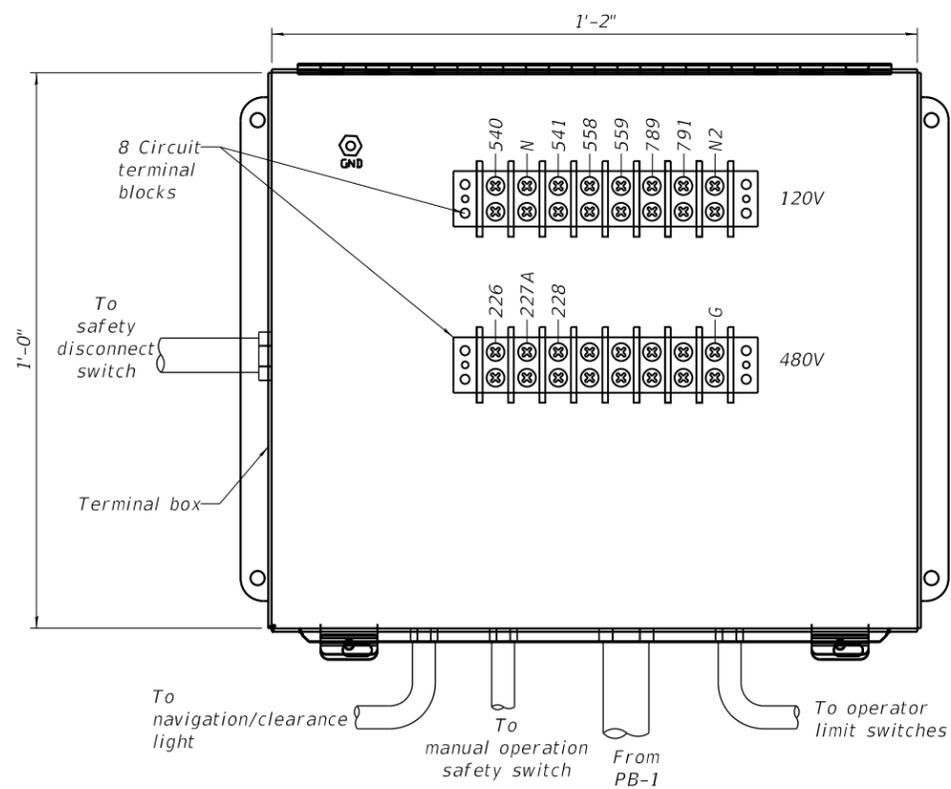
**DETAILS AND ELEVATIONS
STRUCTURE NO. 099-9903**

SHEET NO. E-11 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	41
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				



TERMINAL BOXES TB-1 AND TB-2



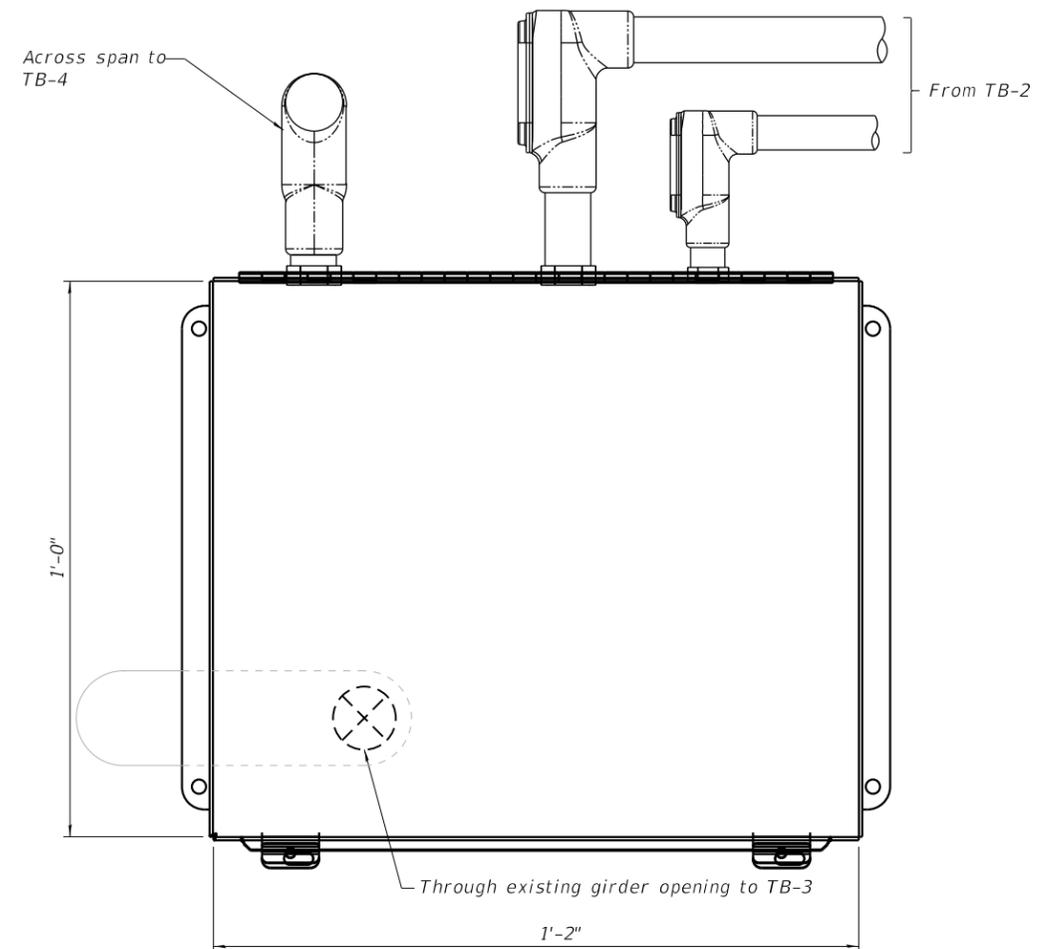
TERMINAL BOXES TB-3 AND TB-4

(Shown for TB-3.
TB-4 Similar but opposite hand)

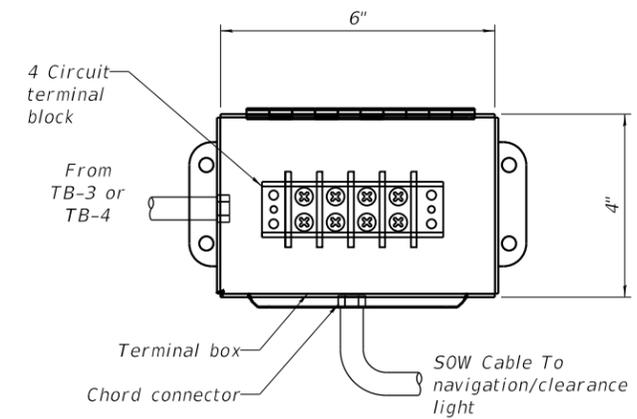
TB-4 WIRE NUMBERS

480V	120V
206	520
207A	521
208	538
	539
	789
	791
	N1
	N2

Provide ground also.



PULL BOX PB-1



TERMINAL BOXES TB-5 AND TB-6

T:\Sys\Projects\16933P-Brandon Rd\DWG\ELEC\16933P-E13.dgn



WSP USA Inc.
30 N. LASALLE STREET
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CHICAGO, IL 60602
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USER NAME = PerezR	DESIGNED - JDS	REVISED -
	CHECKED - BLC	REVISED -
PLOT SCALE = N.T.S.	DRAWN - RP	REVISED -
PLOT DATE = 1/24/2019	CHECKED - JDS	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TERMINAL BOX DETAILS
STRUCTURE NO. 099-9903**

SHEET NO. E-13 OF E-13 SHEETS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	43
CONTRACT NO. 62G97				
ILLINOIS FED. AID PROJECT				

ROUTE MARKERS

 FOR U.S. ROUTES
M1-40-2424

 FOR ILLINOIS ROUTES
M1-50-2424

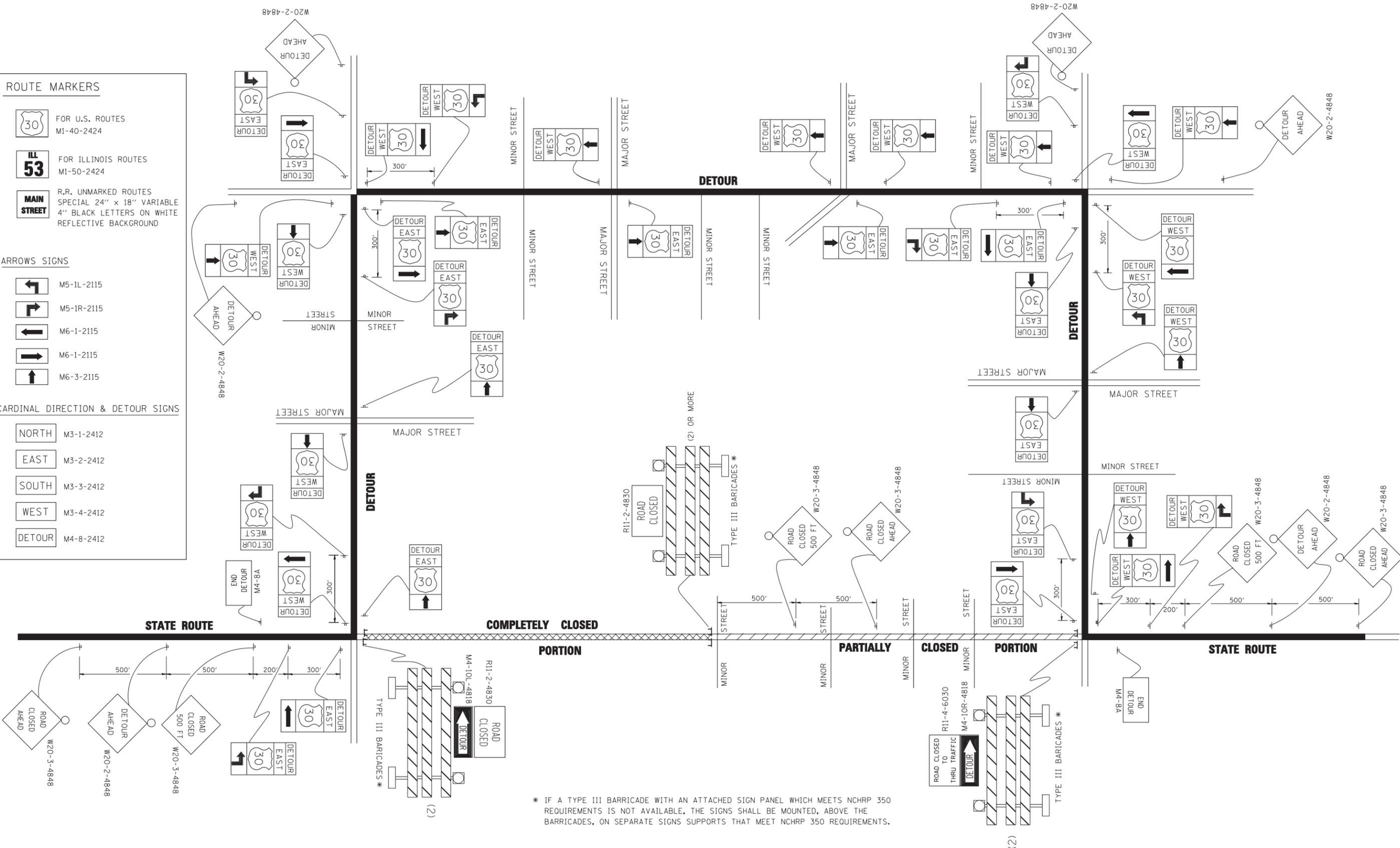
 R.R. UNMARKED ROUTES
SPECIAL 24" x 18" VARIABLE
4" BLACK LETTERS ON WHITE
REFLECTIVE BACKGROUND

ARROWS SIGNS

-  M5-1L-2115
-  M5-1R-2115
-  M6-1-2115
-  M6-1-2115
-  M6-3-2115

CARDINAL DIRECTION & DETOUR SIGNS

-  NORTH M3-1-2412
-  EAST M3-2-2412
-  SOUTH M3-3-2412
-  WEST M3-4-2412
-  DETOUR M4-8-2412



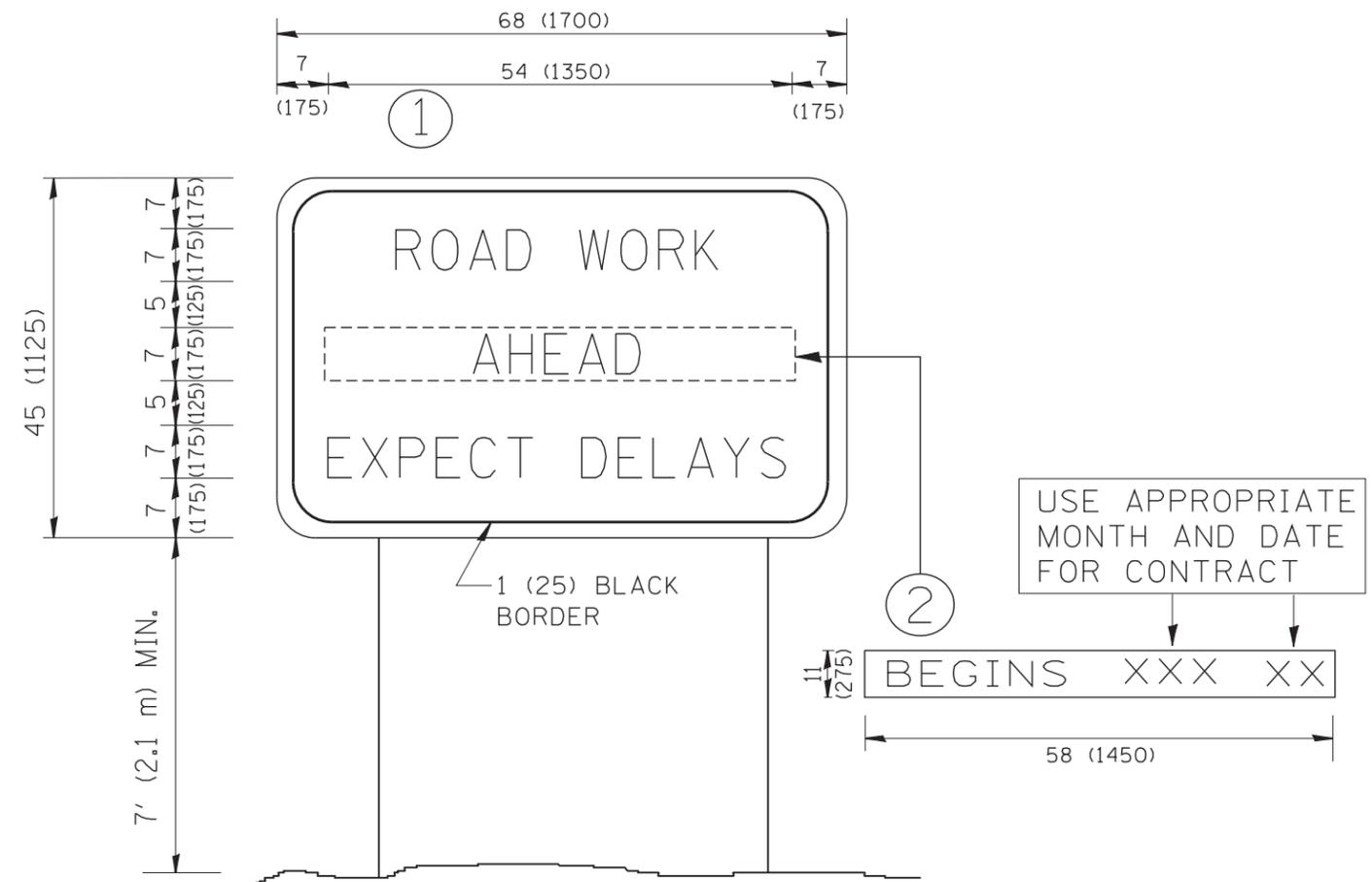
* IF A TYPE III BARRICADE WITH AN ATTACHED SIGN PANEL WHICH MEETS NCHRP 350 REQUIREMENTS IS NOT AVAILABLE, THE SIGNS SHALL BE MOUNTED, ABOVE THE BARRICADES, ON SEPARATE SIGNS SUPPORTS THAT MEET NCHRP 350 REQUIREMENTS.

FILE NAME =	USER NAME = drivakosgn	DESIGNED -	REVISED - 10-18-02
ct:\pw\work\PWIDOT\DRIVAKOSGN\108315\1421.dgn		DRAWN -	REVISED - R. BORO 09-14-09
		PLOT SCALE = 49.9999' / IN.	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

DETOUR SIGNING FOR CLOSING STATE HIGHWAYS			
SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0341	2018-048-B-R	WILL	45	44
TC-21		CONTRACT NO. 62G97		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



NOTES:

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN ① WITH INSTALLED PANEL ② ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL ② SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

FILE NAME = W:\diststd\22x34\tc22.dgn	USER NAME = gegltonbt	DESIGNED -	REVISED - R. MIRS 09-15-97
		DRAWN -	REVISED - R. MIRS 12-11-97
	PLOT SCALE = 50.000' / IN.	CHECKED -	REVISED - T. RAMMACHER 02-02-99
	PLOT DATE = 1/4/2008	DATE -	REVISED - C. JUCIUS 01-31-07

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ARTERIAL ROAD
INFORMATION SIGN**

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

F.A. RTE. 0341	SECTION 2018-048-B-R	COUNTY WILL	TOTAL SHEETS 45	SHEET NO. 45
TC-22		CONTRACT NO. 62G97		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				