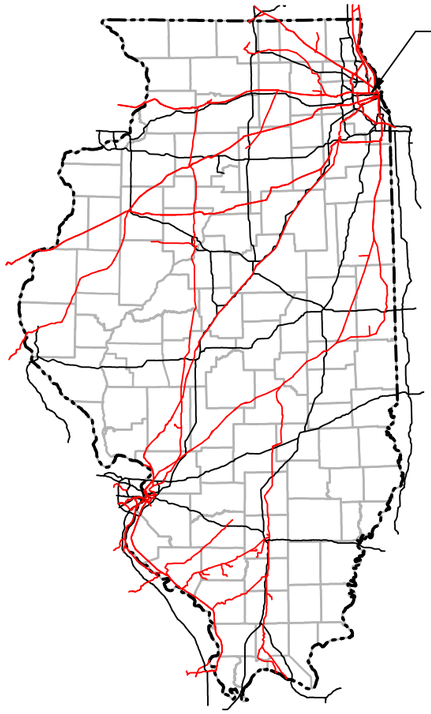
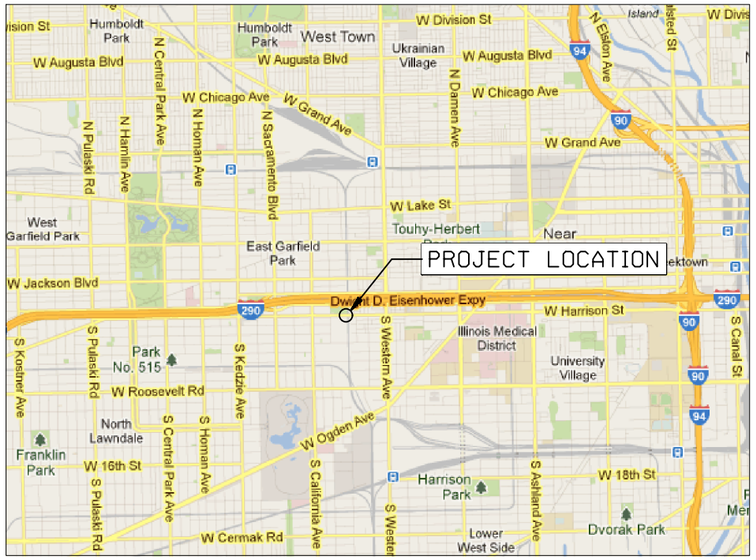
ENGINEERING
DESIGN & CONSTRUCTION





2600 WEST HARRISON ST
CHICAGO, IL

Project Location Map

benesch
engineers · scientists · planners
Alfred Benesch & Company
35 W. Wacker Drive, Suite 3300
Chicago, IL 60601
312-565-0450

MP 1.55 ROCKWELL SUB.
UNION PACIFIC RAILROAD
HARRISON ST BRIDGE REPLACEMENT

FINAL PLANS

CREATE PROJECT#:
WA1–UP–XXB–003–B–FE

WORK ORDER: 31876
PROJECT NUMBER: N/A
BUDGET REFERENCE: N/A

LAST REVISED
May 28, 2021

PROJECT INDEX

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G-002	PROJECT INDEX & REVISION SHEET
G-003	GENERAL NOTES & PROJECT CONTACTS
G-004	ABBREVIATIONS & LEGEND
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N1 TO N43	BRIDGE 1.55 STUCTURAL PLANS
UPRR 531100 Sht. T2	UPRR H-PILE FOUNDATION DETAILS
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BILL OF MATERIAL	LOCATION
REMOVAL	R-001
RESTORATION	R-002
TRAFFIC CONTROL	R-003
LIGHTING	L-002
STRUCTURES	N4

TRAVIS KLUEGEL
062-059481
LICENSED PROFFESSIONAL ENGINEER OF ILLINOIS

EXPIRATION DATE: 11-30-2021
DATE: 05-28-2021
(CIVIL SHEETS)

GEOFFREY H. THIESSE
062-060445
LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

EXPIRATION DATE: 11-30-2021
DATE: 05-28-2021
(ELECTRICAL SHEETS)

MATTHEW F. BECKER
081-007755
LICENSED STRUCTURAL ENGINEER OF ILLINOIS

EXPIRATION DATE: 11-30-2022
DATE: 05-28-2021
(STRUCTURAL SHEETS)

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ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER: G-002

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
PROJECT INDEX & REVISION SHEET

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5/26/2021

GENERAL NOTES

1. UPRR forces will perform all track work, with the exception of removal of existing tracks. UPRR will cut the existing rails and the contractor shall remove and dispose of all track material with the bridge removal work. The Contractor will be responsible for constructing proposed track bed up to the top of the sub-ballast layer. UPRR will furnish & install all ballast, ties, rail, and other track materials.
2. Existing and new track within the project limits will be surfaced and lined by UPRR forces once all other work is complete.
3. Contractors shall notify Service Alert, (800) 642-2444, UPRR Fiber Optics Hotline (800) 336-9193, and the Chicago Utility Alert Network (312) 744-7000 48 hours prior to any excavation. The USA Authorization Numbers shall be kept at the job site.
4. No work whatsoever shall be commenced without first notifying the UPRR Engineer.
5. The Contractor shall comply with all Federal, State, County, and City Laws and Ordinances and Regulations of the Department of Industrial Relations, OSHA, NPDES and Industrial Accident Commission related to the safety and character of the work, equipment and labor personnel.
6. Contractor shall be responsible for coordinating with all Utility agencies.
7. Contractor shall protect in place (by any means necessary) all existing utilities to remain unless otherwise specified herein, contractor shall be responsible for the complete repair at his expense, for any damage to existing utilities, structures, or other site features, as a result of his work.
8. Prior to placing curbs, pavements, base, subbase, track, etc., all underground utilities shall be installed, backfill completed, and the Engineer notified by each of the utility companies having facilities within the work area, that the utility installation has satisfactorily passed acceptance tests.
9. All existing underground utilities within the UPRR ROW, that are not to be re-used shall be abandoned in place. All existing pipelines to be abandoned in place shall be cement slurry filled and capped at least 3'-0" below top of proposed subgrade.
10. Contractor shall verify locations and elevations of existing utilities whether known or unknown prior to beginning construction.
11. Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, and pipelines not located prior to construction shall be brought to the attention of the engineer for determiniation of appropriate action such as removal or treatment in a manner judged suitable to the engineer.
12. Contractor shall coordinate location of all proposed utilities with UPRR to assure accuracy of utility connections and compliance with local codes.
13. Any existing conditions found to be a variance with these drawings must be immediately reported to the Engineer.
14. Contractor shall maintain and clean to the satisfaction of the Engineer, all access and service roads used during construction.
15. Contractor shall perform all construction in such a manner as to protect adjacent existing buildings, and other site elements which are to remain in service.
16. Contractor shall provide As-built Drawings for all improvements.
17. No field changes will be permitted without direct written authorization from the UPRR Engineer or his representative.
18. Contractor shall coordinate work which affects adjacent property owners. Any questions or agreements between adjacent property owners and contractor shall be made in writing. A copy of such agreement shall be provided to the UPRR Engineer or his representative.
19. The contractor is responsible for preparing a Stormwater Pollution Prevention Plan (SWPPP) to comply with State regulations.
20. Right-of-way lines shown on the plans were taken from existing UPRR right-of-way map and are approximate.
21. Match lines for sheets are based on the existing Main Line stationing unless otherwise specified.
22. Track laying, ballasting, and installation of road crossing panels will be done by UPRR unless otherwise stated.
23. The contractor is responsible for the removal of all pavement markings that will be in conflict with the proposed work.
24. Contractor shall comply with all IDOT specifications for construction of public improvements requirements.
25. Contractor shall maintain at least one access to all affected business. If necessary, multiphase construction shall be utilized.
26. All work must be coordinated with the UPRR to minimize track outage time and disruption of train service. The contractor shall submit for approval his proposed sequence of operations prior to the start of construction.
27. Removal of existing viaduct lighting equipment will be performed by the City of Chicago, Department of Streets and Sanitation, Bureau of Electric. The contractor must schedule and coordinate this work with the city. All expenses or charges by the city related to this work will be incidental to this contract.
28. The contractor shall take special care to avoid damage to the existing utilities under the public streets from excessive surface loads during construction activities. Video inspection of the existing sewer shall be performed before and after construction in accordance with the requirements of the City of Chicago Department of Water Management. Any damage to the existing utilities caused by work under this contract must be repaired or replaced at the contractor's expense.
29. All frames and lids removed from abandoned sewers and appurtenances must be returned to the Chicago Department of Water Management, Sewer Section.
30. In case of damage to the City of Chicago sewers, private and public drains,sewer structures and/or bench monuments, the contractor shall immediately contact the Department of Water Management at (312) 747-7892 or (312) 747-7893.
31. Stockpiling of removed materials and/or construction debris on the job site will not be permitted and shall be removed from the job site each and every day and disposed of in accordance with article 202.03 of the Standard Specifications. Failure to comply with this requirement shall be considered a traffic control deficiency and will be subject to charges in accordance with the item Traffic Control Complete.
32. The contractor must notify the Department of Streets and Sanitation at 312-746-4524 72 hours prior to the need for towing/relocation of vehicles. The City of Chicago will be responsible for removing parked vehicles located in the scheduled work area. Signs preventing parking will be posted by the commissioner or his staff 72 hours before the work is scheduled. Prior to posting signs the commissioner shall notify the Alderman's office of the resurfacing schedule. The police are to be present to issue tickets and supervise towing prior to the relocation of vehicles.
33. In the event that the work to be performed on a street segment where parking has been prohibited will be postponed for 5 working days or more, the contractor must notify the commissioner to remove the "No Parking" signs and advise the commissioner when the work will resume for the commissioner or his staff to re-post the "No Parking" signs 48 hours prior to resumption of work.
34. The contractor will not be allowed to set up a yard or field office on city or state property without written permission from IDOT or the City of Chicago.
35. The contractor is to restore all unpaved areas damaged during construction operations to their original condition at no additional cost to the city or railroad.
36. The contractor shall provide access to abutting property at all times during the construction of this project, except for periods of short duration.
37. Dimensions: it shall be the contractor's responsibility to verify all dimensions and conditions existing in the field prior to ordering materials and beginning of construction.
38. Station and offsets given for proposed catch basins are to the center of the lid. Adjust the base as necessary to connect to existing sewer.
39. The Contractor is responsible for obtaining all permits (including payment of permit fees), bonds and insurance for permits required by the City of Chicago for construction of the project. This includes permits issued by the Department of Transportation, Department of Water Management, and others.
40. The Contractor is responsible to coordinate work for the project. CDOT will complete water main replacement, lighting removal and some roadway work before Contractor begins. CDOT will also complete work after Contractor work is completed. Any new CDOT roadway work shall be protected by Contractor, Any damage of this new CDOT work must be repaired at the expense of the Contractor.
41. The Contractor is responsible to coordinate with the CTA at least two (2) weeks prior to any sidewalk, lane, or street closures, or the removal of any Bus Stop signs so that the CTA can facilitate any necessary detours or bus stop relocations.
41. The Contractor shall install posted clearance sign for proposed bridge. Contractor shall coordinate with the City of Chicago regarding the clearance to be posted, sign type and sign location. The furnishing and installation of vertical clearance signs is considered incidental to the project work.

PROJECT CONTACTS

CONTACT	PHONE NUMBER	UPRR
Curt Nystron	(515) 298-1131	Construction Field Manager
Adam Studts	(402) 544-3541	Structures Design Sr. Manager
Paul Pino	(402) 544-3582	Information Technology - Fiber
Stan Dulinski	(402) 544-0353	Real Estate - Utilities

PHONE NUMBER	GENERAL
(800) 336-9193	CALL UPRR BEFORE YOU DIG
(888) 258-0808	CALL BEFORE YOU DIG (NATIONAL DIRECTORY)
(888) 877-7267	UPRR Response Management Communications Center (RMCC)

DESIGN CRITERIA

1. UPRR Standard Plans and Specifications
2. Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction
3. Chicago Department of Transportation (CDOT) Regulations for Openings, Construction and Repair in the Public Way

SURVEY NOTES

1. Railroad stationing for project profiles and alignments is based on stations established for chord definition spiraled curves at the centerline of the existing UPRR Main Line unless otherwise noted.
2. The contractor is responsible for the preservation of all survey control monuments. In the event monuments are damaged or destroyed by the contractor, the Engineer will replace the monument solely at the contractor's expense.

TRAFFIC NOTES

1. All barricades, warning signs, lights, devices, etc. for the guidance of vehicle traffic and pedestrians must conform to the Manual on Uniform Traffic Control Devices (MUTCD), current edition, IDOT and CDOT standards.
2. The contractor will ensure that all barricades, signs, lights, and other devices installed by him are operational every day, including Sundays and holidays. The contractor shall make twice daily inspections of barricades, signs, lights and other devices installed by him to ensure proper placement and functioning of warning devices. In the event of severe weather conditions, the contractor must furnish any additional personnel required to properly maintain all traffic control devices. The contractor shall provide a manned 24-hour / 7 day a week contact number to respond to requestrequests and emergencies related to the placement and maintenance of the traffic control devices throughout the project duration.
3. The contractor is responsible for the prompt replacement and/or repair of all traffic control devices and appurtenances damaged or disturbed due to construction.

BENCHMARKS

City of Chicago Benchmark: BM #276
6.4 feet north of south line of W Congress Parkway and 47.1 feet east of east line of S Washtenaw Avenue. Elev. = 14.66 (CCD)

	DATUM
HORIZONTAL	Illinois East State Plane (1201) North American Datum of 1983 (NAD83)
VERTICAL	Chicago City Datum (CCD)

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REVISION	BY	DATE	DESCRIPTION

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Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER G-003

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
GENERAL NOTES & PROJECT CONTACTS

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5/25/2021

ABBREVIATIONS

MISCELLANEOUS

Ac.	Acres
Ave.	Avenue
Blvd.	Boulevard
Bldg.	Building
BNSF	BNSF Railway
C.Y.	Cubic Yards
Conc.	Concrete
Const.	Construct
°	Degree (s)
Dia.	Diameter
Dr.	Drive
Dwg.	Drawing
E	East
Elev.	Elevation
Exist.	Existing
'	Foot, Feet or Minute (s)
F.S.	Finished Surface
Horiz.	Horizontal
"	Inch, Inches or Second (s)
Inst.	Install
Inv.	Invert
Lt.	Left
L	Length
L.F.	Lineal Feet
Max.	Maximum
Min.	Minimum
N	North
NTS	Not to Scale
No.	Number
OH	Overhead
OHP	Overhead Power Line
PGL	Profile Grade Line
Prop.	Proposed
RR	Railroad
Rwy	Railway
R/W	Right of Way
Rt.	Right
S	South
S.F.	Square Feet
Sta.	Station
Std.	Standard
St.	Street
TT	Timetable
Twp.	Township
Typ.	Typical
UG	Underground
UPRR	Union Pacific Railroad
V	Velocity
Wt.	Weight
W	West
X-ing	Crossing

SIGNAL

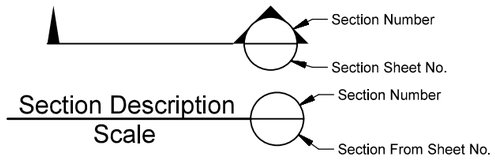
ABS	Automatic Block Signal
ATC	Automatic Train Control
CTC	Centralized Traffic Control
DED	Dragging Equipment Detector
DTC	Direct Traffic Control
ELTO	Electric Lock Turnout
HBD	Hot Box Detector
HTTO	Hand Throw Turnout
HWD	High Wide Dectector
POTO	Power Operated Turnout
TWC	Track Warrant Control
WILD	Wheel Impact Load Dectector

STRUCTURES

Bldg.	Building
Br.	Bridge
CB	Catch Basin
CPT	Concrete Pile Trestle - Ballast Deck
CIP	Cast Iron Pipe
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CSP	Corrugated Steel Pipe
Culv.	Culvert
DI	Drop Inlet
DPGBD	Deck Plate Girder - Ballast Deck
DPGOD	Deck Plate Girder - Open Deck
EBW	East Backwall
F.L.	Flowline
F.F.	Finished Floor
GIP	Galvanized Iron Pipe
Hdwl	Headwall
NBW	North Backwall
PSCT	Prestressed Concrete Trestle
RCA	Reinforced Concrete Arch
RCB	Reinforced Concrete Box
RCP	Reinforced Concrete Pipe
SBW	South Backwall
SSP	Smooth Steel Pipe
SPTBD	Steel Pile Trestle - Ballast Deck
SPTOD	Steel Pile Trestle - Open Deck
SPP	Structural Plate Pipe
TPGBD	Through Plate Girder - Ballast Deck
TPGOD	Through Plate Girder - Open Deck
TPTBD	Timber Pile Trestle - Ballast Deck
TPTOD	Timber Pile Trestle - Open Deck
TTBD	Through Truss - Ballast Deck
TTOD	Through Truss - Open Deck
TWB	Treated Wood Box
VCP	Vitrified Clay Pipe
Viad.	Viaduct
WBW	West Backwall
WIP	Wrought Iron Pipe

TRACK

ATR	Above Top of Rail
Align.	Alignment
BBR	Below Base of Rail
Cntrs.	Centers
CWR	Continuous Welded Rail
DSPD	Double Switch Point Derail
EOT	End of Track
HH	Head Hardened
Jtd.	Jointed Rail
LH	Left Hand
ML	Main Line
MM	Mile Marker
MP	Mile Post
NSC	Not Sufficient Clearance
OTM	Other Track Material
PCC	Point of Compound Curve
PC	Point of Curve
PCS	Point of Curve to Spiral
POC	Point on Curve
PF	1/2" Point of Frog
PI	Point of Intersection
PITO	Point of Intersection of Turnout
PS	Point of Spiral
PSC	Point of Spiral to Curve
POS	Point on Spiral
PT	Point of Tangent
POT	Point on Tangent
Pt. Sw.	Point of Switch
PVC	Point of Vertical Curve
PVI	Point of Vertical Intersection
PVT	Point of Vertical Tangent
RH	Right Hand
SH	Second Hand
SSPD	Single Switch Point Derail
TC	Track Centers
T.F.	Track Feet
Trk.	Track
UXO	Universal Cross-Over
X-Over	Cross-Over



SYMBOLS

UTILITIES

- Compressed Air (AIR)
- Fiber Optic Cable (F/O)
- Gas Pipeline (G)
- Overhead Power Line (OHP)
- Sanitary Sewer (SS)
- Overhead Signal Line
- Underground Signal Line (UGS)
- Steam Line
- Storm Sewer (S)
- Telephone (T)
- Underground Electric (UGE)
- Water Main (W)
- Underground Wire
- Under Drain (UD)
- Water Valve
- Gas Buffalo Box
- Manhole
- Catch Basin
- Fire Hydrant
- Junction Box Electric (E)
- Junction Box Telephone (T)
- Junction Box Water (W)
- Power Pole
- Generator (G)

TRACK

- Existing Mainline
- Existing Siding or Spur
- Proposed
- Remove
- Shift
- Relay
- Future
- Foreign Railroad or Industry
- In Buildings or Under Structures
- Turnout
- Wheel Stop
- Bumping Post
- Earthen Bumper
- Inert Retarder (56')
- Dowty Retarder (52')
- Derail
- Switch Point Derail or Double Switch Point Derail

PROPERTY

- Section Line
- Center Section Line
- Parcel or Easement Line
- Right of Way
- Former Right of Way
- Right of Way to be Acquired
- Foreign Right of Way

ROAD CROSSING WARNING DEVICES

- Crossbuck Sign
- Flashing Light Warning Device
- Flashing Light Warning Device with Gate
- Cantilever Flashing Light Warning Device
- Cantilever Flashing Light Signal with Gate

SIGNAL

- Absolute Signal
- Signal Bridge
- Cantilever Signal
- ACS or CTC Signal
- Dwarf Signal
- Begin CTC
- Microwave Tower
- AEI
- Battery Box (BB)
- Dragging Equipment Detector
- Generator (GEN.)
- Hot Box Detector
- Hot Air Blower
- Plastibeton

STRUCTURES

- Culvert
- Culvert with Headwalls
- Double Culvert
- Railroad Bridge
- Highway Overpass
- Highway Underpass
- Tunnel
- Retaining Wall
- Building
- Flag Pole (FP)

LIGHTING

- Light Pole
- Light Tower

SIGNS

- Sign
- Yard Limit
- 1 Mile to Yard Limit
- Whistle Post (W)
- Flanger
- Station
- Reduce Speed
- Resume Speed

FENCES

- Barbed Wire
- Chain Link
- Ornamental Fence
- Snow / Sand

ROADS

- Paved Road
- Unimproved Road
- Interstate Highway (80)
- Federal Highway (20)
- State Highway (58)
- County Highway (C3)

OTHER

- Wetlands
- River or Lake
- Embankment
- Flow Line
- Milepost
- Milemarker (MM)
- Revision Number (1)
- Revision Cloud
- Tree
- Bush
- Stump
- Traffic Signal
- Soil Boring (E-T-01)
- Control Point (CP-01)

CONSTRUCTION

- Proposed Note (Work by Contractor) (Note)
- Proposed Note (Work by Others) (Note)
- Cut Lines
- Fill Lines
- Profile Grade Line (PGL)
- Removal Note (Work by Contractor) (Note)
- Removal Note (Work by Others) (Note)
- Shift Note (Work by Contractor) (Note)
- Shift Note (Work by Others) (Note)

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Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

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DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER G-004

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
ABBREVIATIONS & LEGEND

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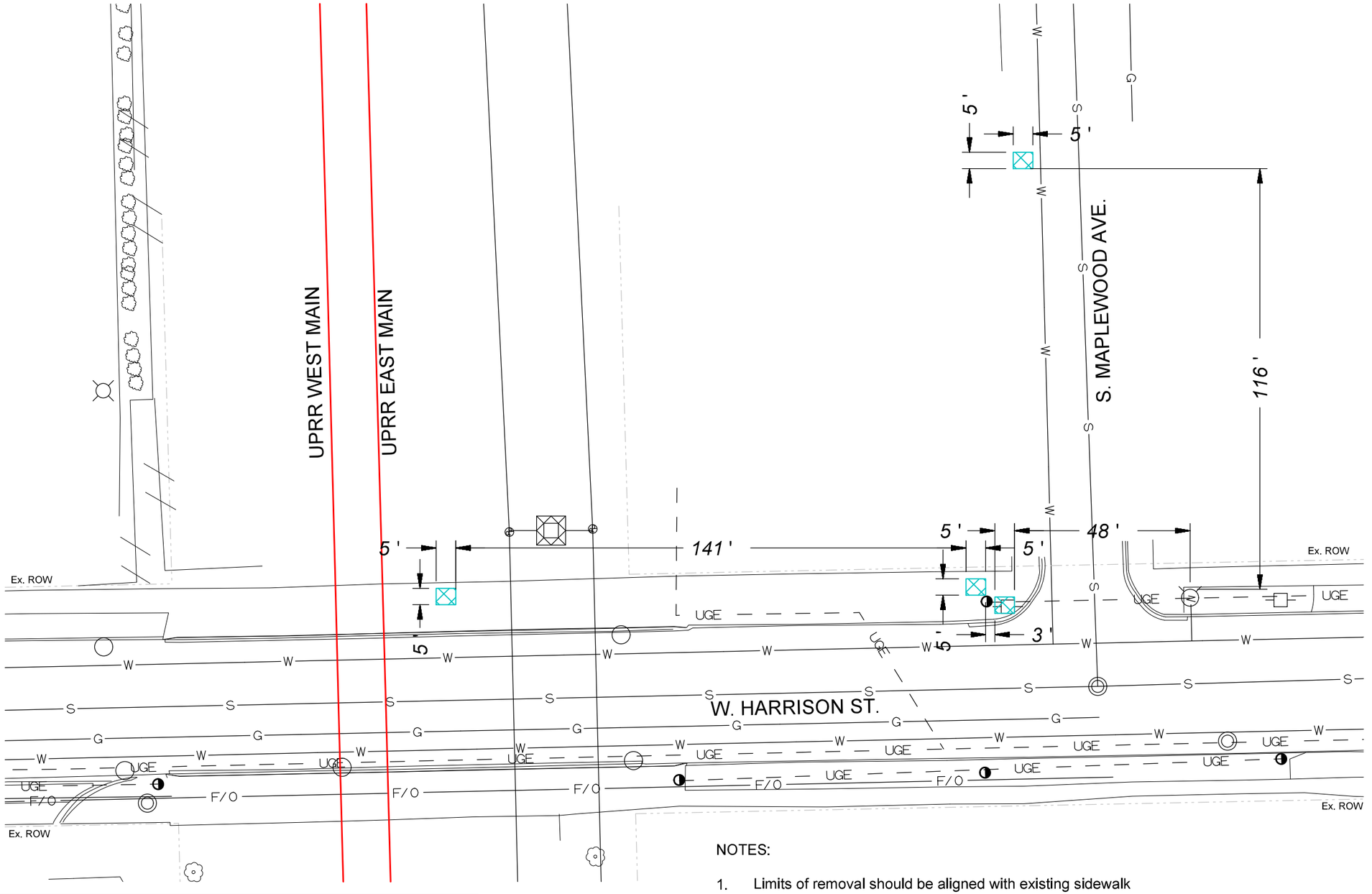
5/24/2021



PAY ITEM	UNIT	TOTAL
SIDEWALK REMOVAL	SQ FT	100
SAWCUT AND SEAL NEW JOINTS	FOOT	80

NOTES:

1. Limits of removal should be aligned with existing sidewalk joints.
2. Limits of all sidewalk removals shall be sealed per section 442 of the Standard Specifications

LEGEND

Sidewalk Removal

30 0 30 60

SCALE IN FEET

WARNING !
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ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: 1"=30'	SHEET NUMBER R-001

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
ROADWAY EX. CONDITIONS AND REMOVAL PLAN

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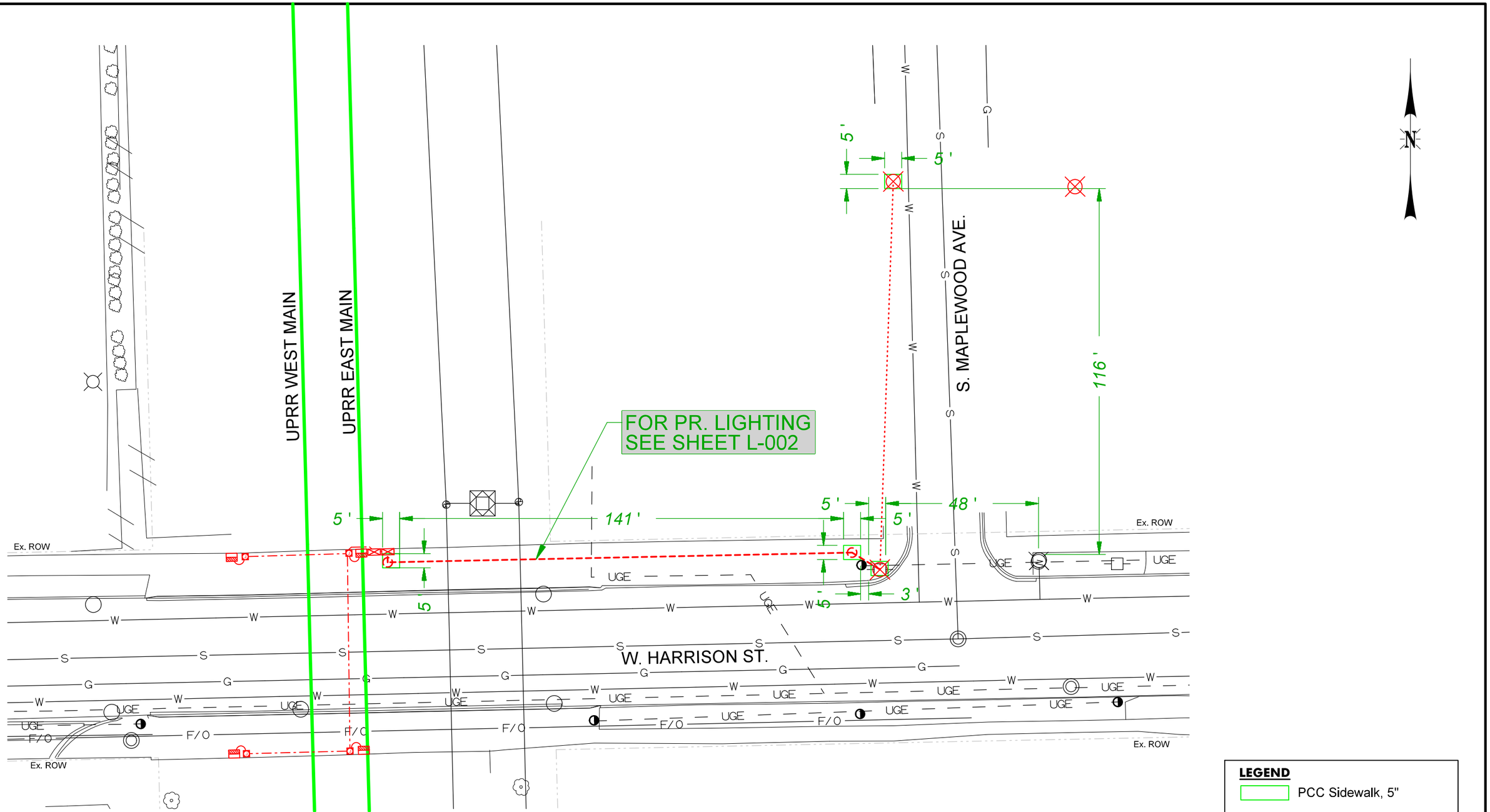

LEGEND

PCC Sidewalk, 5"

PAY ITEM	UNIT	TOTAL
PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	100

30 0 30 60

SCALE IN FEET

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Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: KP	WORK ORDER: 31876	UNION PACIFIC RAILROAD	Director Structures Design
CHECKED BY: TK	PID:	LOCATION & DESCRIPTION: MP 1.55 ROCKWELL SUBDIVISION HARRISON STREET BRIDGE REPLACEMENT	
DATE: 05/28/21	BUDGET REF:		
SCALE: 1"=30'	SHEET NUMBER R-002	SHEET TITLE: ROADWAY RESTORATION PLAN	

TRAFFIC CONTROL GENERAL NOTES:

1. All signing must be in accordance with the latest applicable provisions of the State of Illinois "Standard Specifications for Road and Bridge Construction", the details in these plans must be in accordance with the latest edition of the IDOT Bureau of Design and Environment highway standards and the latest edition of the "Manual on Uniform Traffic Control Devices", in effect on the date of invitation for bids.
2. Longitudinal dimensions shown on these plans may be adjusted to fit field conditions as directed by the Commissioner.
3. The Contractor must be responsible for ensuring that all barricades, signs, lights and other devices installed by him/her are in place and operating 24 hours each day including Sundays and holidays during the time this construction is in effect.
4. All existing signing that is not applicable while the construction is in effect must be completely covered by the Contractor.
5. The sizes of all signs not specified in these plans must be as required by the Manual on Uniform Traffic Control Devices.
6. As a minimum, all amber flashing lights that are required must meet the requirements for Type A - low intensity flashing lights in article 702.04 of the standard specifications. All lights shall operate during hours of darkness. Only lights that have been approved by the Illinois Department of Transportation must be used.
7. The Contractor must maintain access to all private and commercial driveways during construction.
8. Sidewalk access must be maintained on one side of the street during all stages, except when there is a full closure. Any closed sidewalks must be appropriately barricaded. Use Standard 701801.
9. All walkways must be clearly identified and adequately protected from motor vehicle traffic and free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc.
10. Proposed maintenance of traffic signing must be covered or removed when not required during a specific stage of construction.
11. Changeable message signs to be provided at locations shown on plans or determined by the Commissioner.
12. The Contractor must conduct his/her work in such a manner that emergency vehicles will have access to the work area at all times.
13. The Contractor will be responsible for the proper location, installation, maintenance, relocation, and removal of all traffic control devices.
14. The Contractor is responsible for recording the existing pavement marking patterns and limits prior to existing striping removal.
15. All existing pavement markings removed or impacted within the project limits must be replaced in-kind and to CDOT rules and regulations.
16. Unwanted temporary pavement markings must be removed by the Contractor as ordered by the Commissioner.
17. The Contractor must notify CDOT 72 hours before commencing construction.
18. The Contractor must notify the CTA two weeks in advance of any lane or street closure.
19. The Contractor is responsible for all no parking notifications required by traffic shifts.

BILL OF MATERIAL

	REQD.	UNIT	DESCRIPTION	STORE ITEM NO.	ORDERED BY
✳	1341.43	FOOT	TEMPORARY PAVEMENT MARKING, LINE 4"		CONSTRUCTOR ↓
	137.5	FOOT	TEMPORARY CONCRETE BARRIER		
	137.5	FOOT	RELOCATE TEMPORARY CONCRETE BARRIER		
	1	EACH	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 2		
	1	EACH	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 2		
	4	EACH	BARRICADES, TYPE III WITH WARNING LIGHT		
	2	EACH	BARRICADES, TYPE III WITH WARNING LIGHT AND ROAD CLOSED SIGN		
	3	EACH	DRUM WITH WARNING LIGHT or BARRICADES, TYPE I WITH EXTENDED LEGS AND WARNING LIGHT		
✳	447.1	SQ FOOT	PAVEMENT MARKING REMOVAL - WATER BLASTING		
	1	L SUM	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)		
	2	EACH	BARRICADES, TYPE III		

✳ Nominal Quantity to be used as needed and as approved by the Comissioner.

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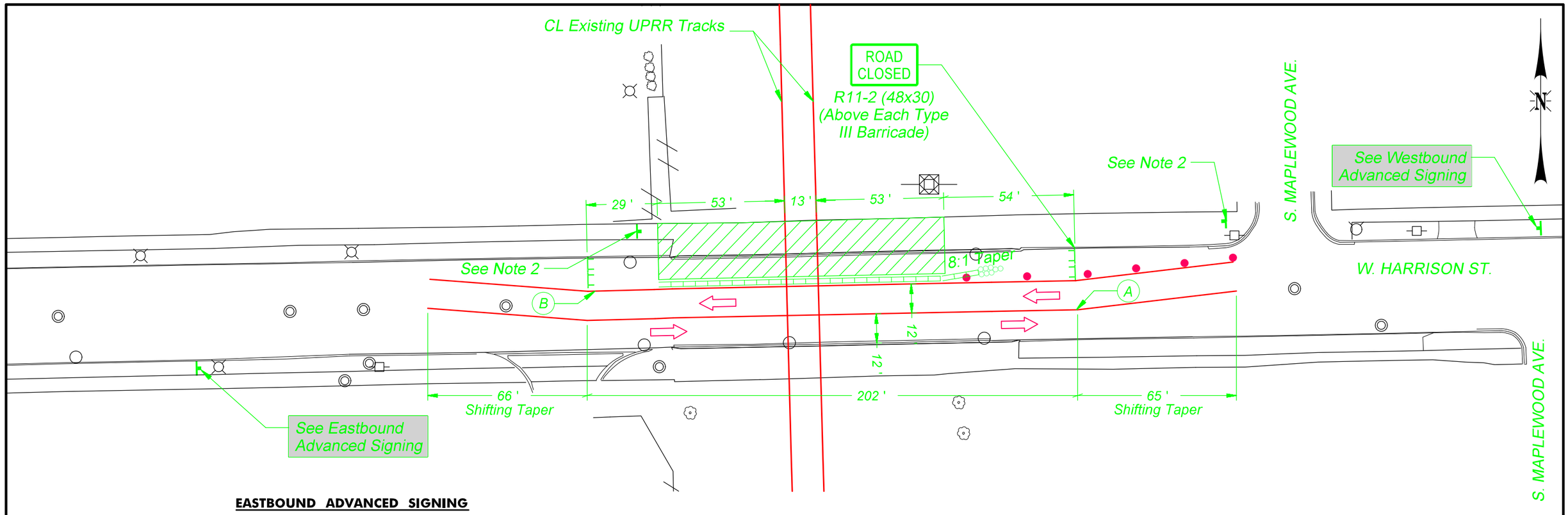
ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

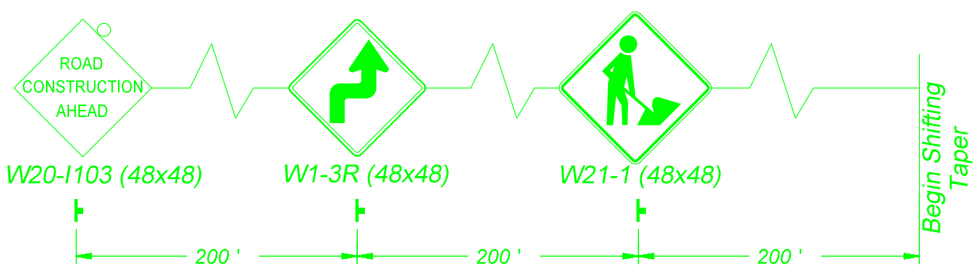
benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

DRAWN BY: KP	WORK ORDER: 31876	UNION PACIFIC RAILROAD	Director Structures Design
CHECKED BY: TK	PID:	LOCATION & DESCRIPTION: MP 1.55 ROCKWELL SUBDIVISION HARRISON STREET BRIDGE REPLACEMENT	
DATE: 05/28/21	BUDGET REF:		
SCALE: N.T.S	SHEET NUMBER R-003	SHEET TITLE: TRAFFIC CONTROL GENERAL NOTES	



EASTBOUND ADVANCED SIGNING



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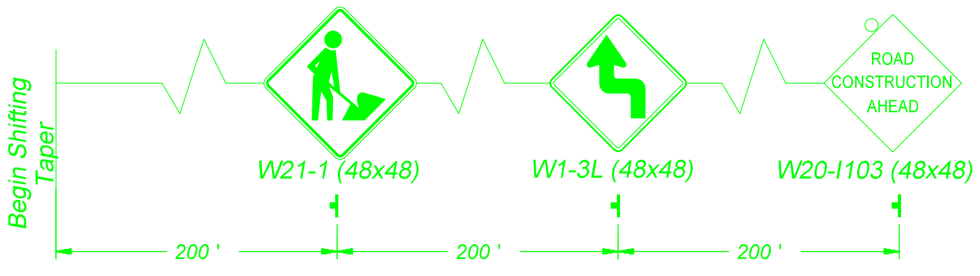

LEGEND

- Abutment Work Zone (No Roadway Related Work)
- Temporary Concrete Barrier
- Proposed Temporary Pavement Marking
- Drum Or Type I Barricade W/ Flashing Amber Light @ 25' C-C (20' C-C in Taper)
- Type III Barricade
- Impact Attentuator Test Level 2
- Traffic Direction
- Temporary Traffic Sign
- (A) Temporary Pavement Marking, 4" Yellow Line
- (B) Temporary Pavement Marking, 4" White Line

MOT NOTES:

1. The maintenance of traffic configuration shown on this plan is for when work is being done on the north side of the abutment.
2. Contractor shall close north side sidewalk within the work zone limits. Contractor shall place local and advance signing to inform pedestrians of sidewalk closure. Use IDOT Highway Standard 701801 for proper signing.

20 0 20 40
SCALE IN FEET

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312-565-0450 Job No. 210070.11

UNION PACIFIC

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: 1" = 20'	SHEET NUMBER: R-004

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
MOT - EASTBOUND W HARRISON ST

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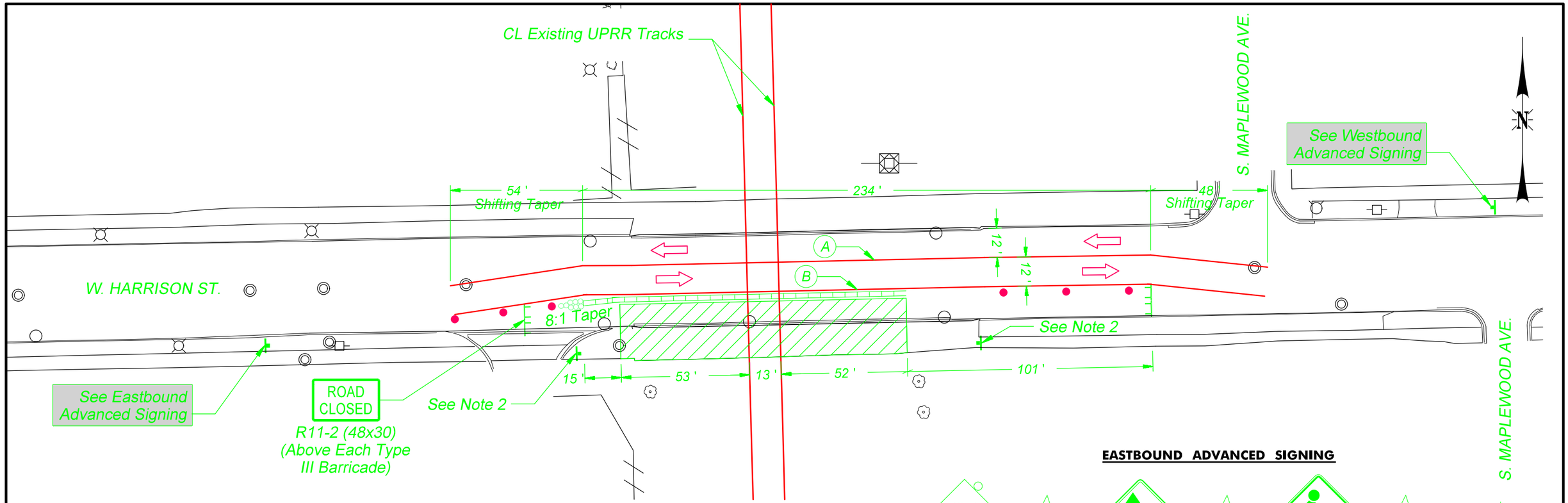
5/24/2021



LEGEND

- Abutment Work Zone (No Roadway Related Work)
- Temporary Concrete Barrier
- Proposed Temporary Pavement Marking
- Drum Or Type I Barricade W/ Flashing Amber Light @ 25' C-C
- Type III Barricade
- Impact Attentuator Test Level 2
- Traffic Direction
- Temporary Traffic Sign
- (A) Temporary Pavement Marking, 4" Yellow Line
- (B) Temporary Pavement Marking, 4" White Line

MOT NOTES:

1. *The maintenance of traffic configuration shown on this plan is for when work is being done on the south side of the abutment.*
2. *Contractor shall close south side sidewalk within the work zone limits. Contractor shall place local and advance signing to inform pedestrians of sidewalk closure. Use IDOT Highway Standard 701801 for proper signing.*

EASTBOUND ADVANCED SIGNING

WESTBOUND ADVANCED SIGNING

20 0 20 40

SCALE IN FEET

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CHECKED BY: TK	PID:	LOCATION & DESCRIPTION: MP 1.55 ROCKWELL SUBDIVISION HARRISON STREET BRIDGE REPLACEMENT	
DATE: 05/28/21	BUDGET REF:		
SCALE: 1" = 20'	SHEET NUMBER R-005	SHEET TITLE: MOT - WESTBOUND W HARRISON ST	

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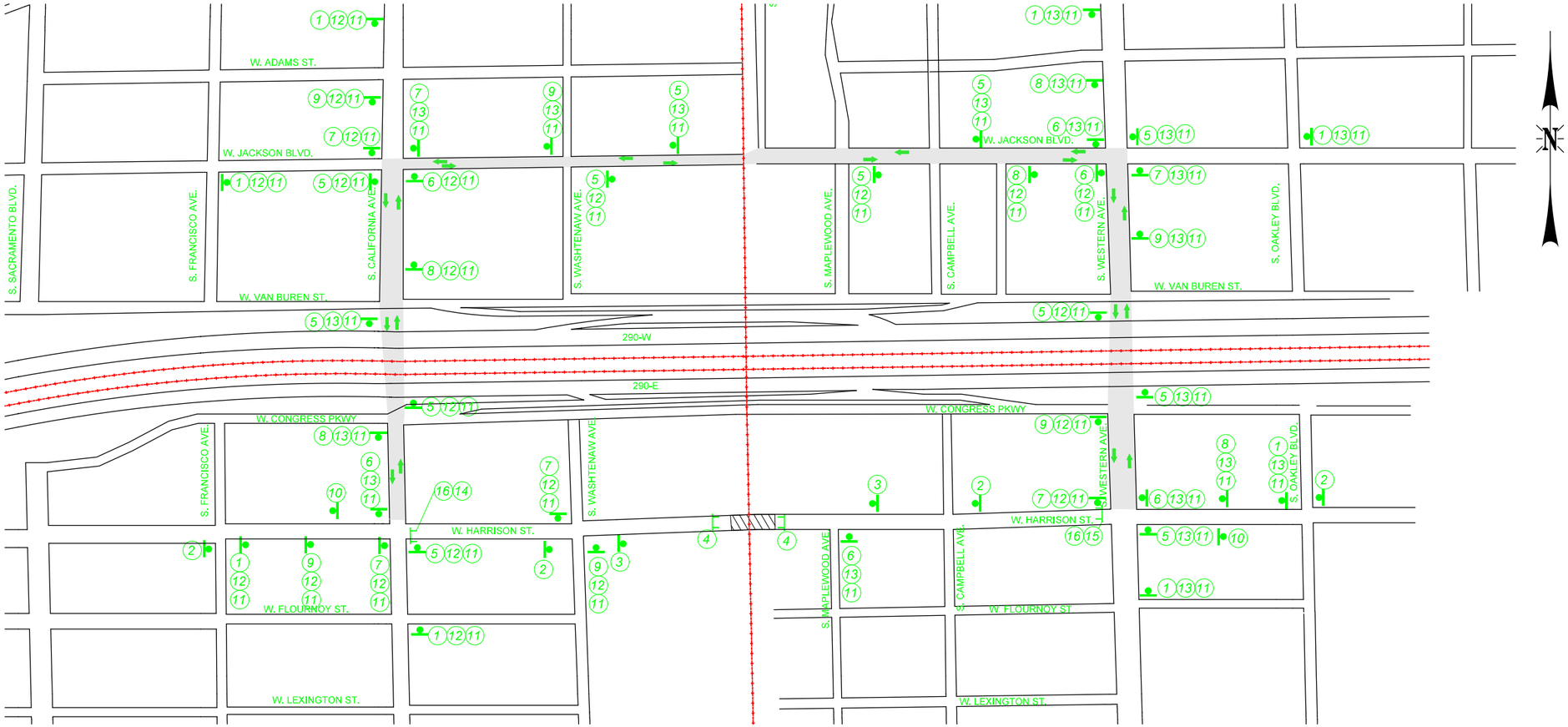
5/24/2021

DETOUR NOTES:

1. Full closure of Harrison St will take place when the railroad superstructure will be erected. Closure shall take place between the hours of 7 PM to 5 AM.



SIGN LEGEND

1	DETOUR AHEAD W20-2 (48x48)	5	DETOUR M4-9 (24x30)	9	DETOUR M4-9L (24x30)	13	WEST M3-4 (24x12)
2	ROAD CLOSED AHEAD W20-3 (48x48)	6	DETOUR M4-9R (24x30)	10	END DETOUR M4-8A (24x18)	14	DETOUR M4-10L (48x18)
3	ROAD CLOSED 500 FT. W20-3 (48x48)	7	DETOUR M4-9L (24X30)	11	W HARRISON ST SPECIAL (48x10)	15	DETOUR M4-10R (48X18)
4	ROAD CLOSED R11-2 (48x30)	8	DETOUR M4-9 R (24x30)	12	EAST M3-2 (24x12)	16	ROAD CLOSED TO THRU TRAFFIC R11-4 (60x30)

TYPICAL LAYOUT OF SIGNS

DETOUR
EAST
W HARRISON ST

LEGEND

- Work Area
- Detour Route
- 1 6 13 Traffic Sign Key (Combination Of Signs)
- Type III Barricade With Amber Flashing Lights
- Sign On Portable Or Permanent Support
- 48"x48" Construction Warning Sign, With Amber Flashing Light
- Detoured Traffic Direction

Scale: None

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312-565-0450 Job No. 210070.11

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DATE: 05/28/21	BUDGET REF:		
SCALE: N.T.S	SHEET NUMBER R-006	SHEET TITLE: FULL CLOSURE DETOUR - W HARRISON ST	

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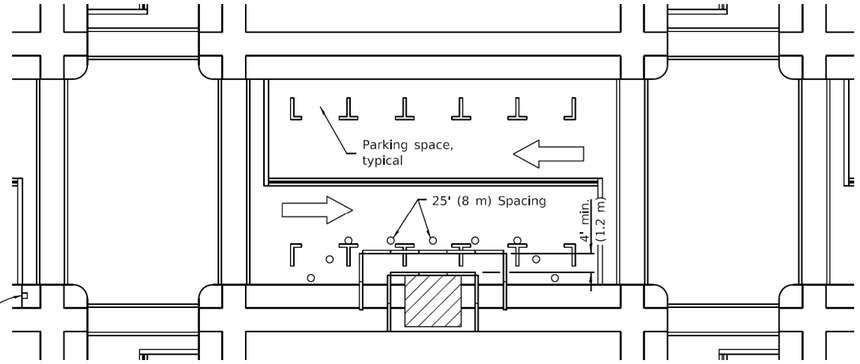


① ROAD CONSTRUCTION AHEAD — W20-I103(0)-48 for contract construction projects

Or

① ROAD WORK AHEAD — W20-1(0)-48 for maintenance and utility projects

SIDEWALK DIVERSION

① Omit whenever duplicated by road work traffic control.

GENERAL NOTES

This Standard is used where, at any time, pedestrian traffic must be rerouted due to work being performed.

This Standard must be used in conjunction with other Traffic Control & Protection Standards when roadway traffic is affected.

Temporary facilities shall be detectable and accessible.

The temporary pedestrian facilities shall be provided on the same side of the closed facilities whenever possible.

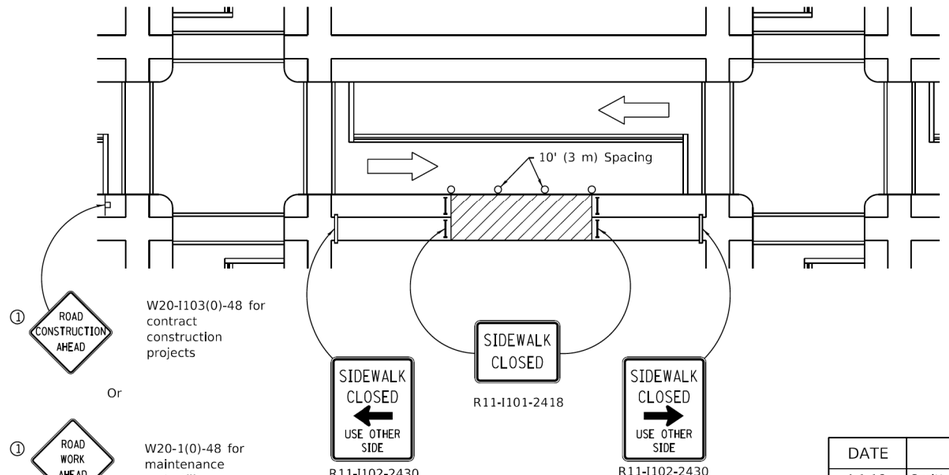
The SIDEWALK CLOSED / USE OTHER SIDE sign shall be placed at the nearest crosswalk or intersection to each end of the closure. Where the closure occurs at a corner, the signs shall be erected on the corners across the street from the closure. The SIDEWALK CLOSED signs shall be used at the ends of the actual closures.

Type III barricades and R11-2-4830 signs shall be positioned as shown in "ROAD CLOSED TO ALL TRAFFIC" detail on Standard 701901.

All dimensions are in inches (millimeters) unless otherwise shown.

SYMBOLS

- Work area
- Sign on portable or permanent support
- Barricade or drum
- Cone, drum or barricade
- Type III barricade
- Detectable pedestrian channelizing barricade



① ROAD CONSTRUCTION AHEAD — W20-I103(0)-48 for contract construction projects

Or

① ROAD WORK AHEAD — W20-1(0)-48 for maintenance and utility projects

SIDEWALK CLOSURE

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
4-1-16	Omitted orange safety fence
	from standard as this is
	covered in the std. spec.
1-1-12	Added SIDEWALK DIVERSION.
	Modified appearance of
	plan views. Renamed Std.

SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 1 of 2)

STANDARD 701801-06

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312-565-0450 Job No. 210070.11

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DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER: R-007

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
IDOT HIGHWAY STANDARD

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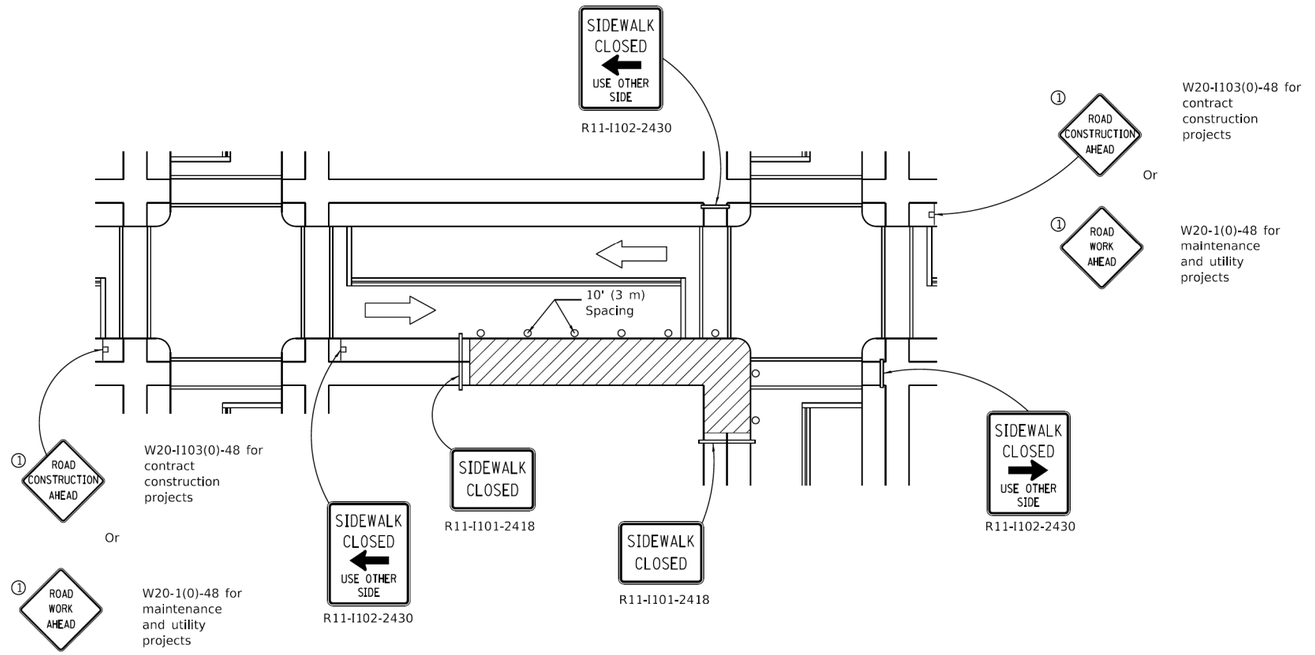
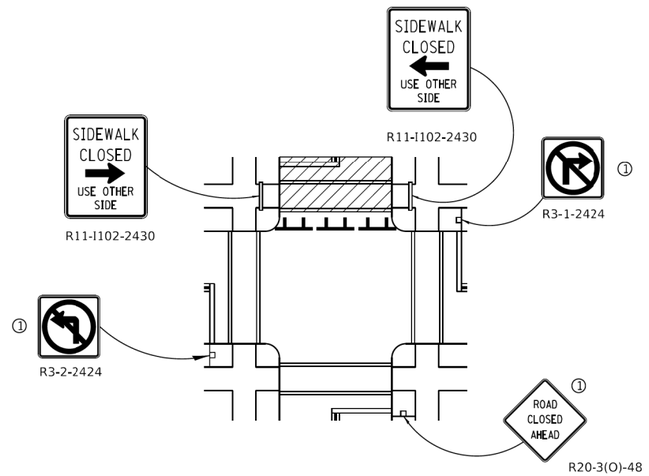


CORNER CLOSURE



CROSSWALK CLOSURE

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 2 of 2)

STANDARD 701801-06

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Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

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CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER R-008

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
IDOT HIGHWAY STANDARD

N051 N065

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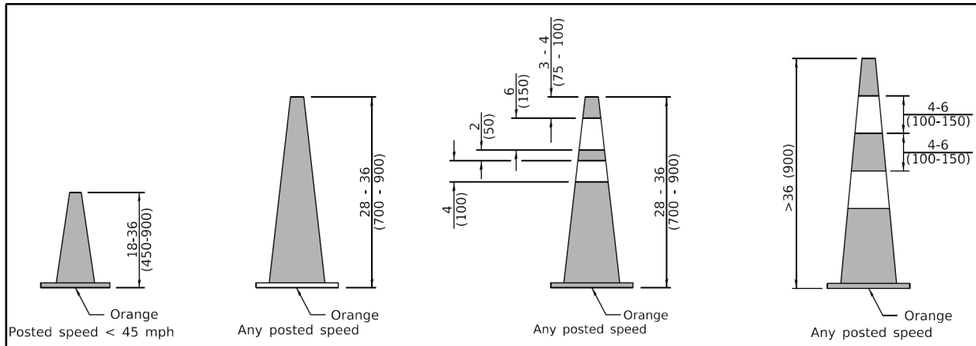
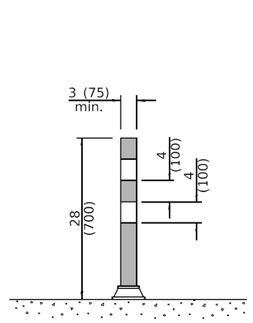


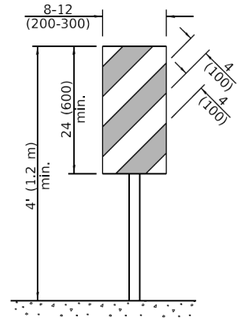
DAYTIME USE

DAY OR NIGHTTIME USE

CONES

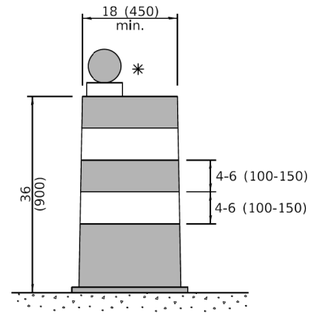


TUBULAR MARKER



VERTICAL PANEL

POST MOUNTED



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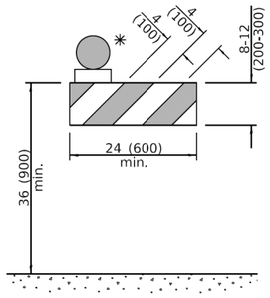
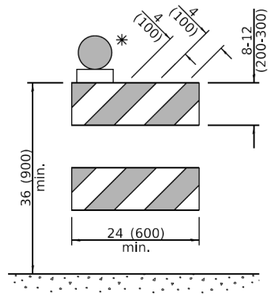
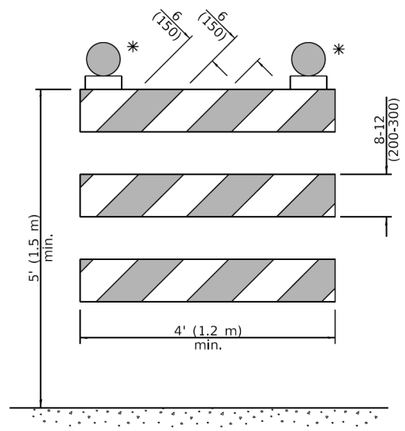


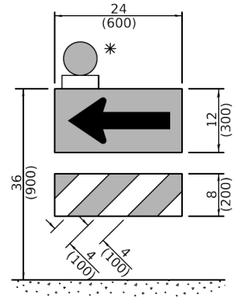
TYPE I BARRICADE



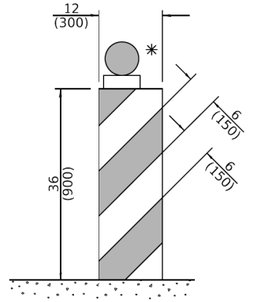
TYPE II BARRICADE



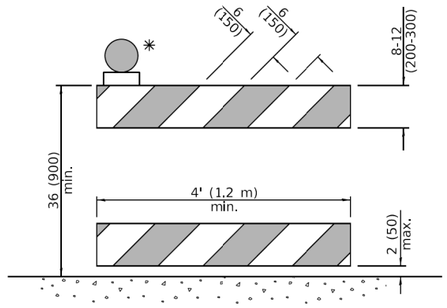
TYPE III BARRICADE



DIRECTION INDICATOR BARRICADE



VERTICAL BARRICADE



DETECTABLE PEDESTRIAN CHANNELIZING BARRICADE

✳ Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-19

DATE	REVISIONS
1-1-19	Revised cone usage and
	added cones >36" (900 m) height.
1-1-18	Revised END WORK ZONE
	SPEED LIMIT sign from
	orange to white background.

TRAFFIC CONTROL DEVICES

(Sheet 1 of 3)

STANDARD 701901-08

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Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER: R-009

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
IDOT HIGHWAY STANDARD

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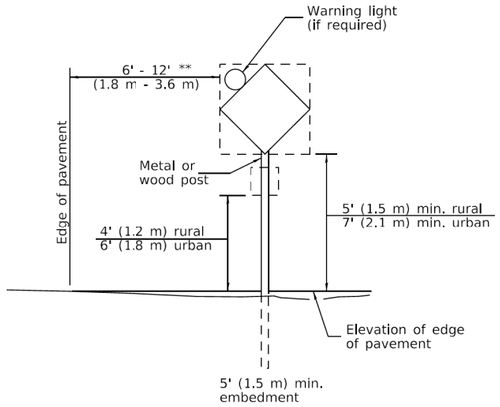
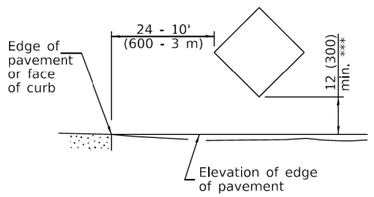
5/24/2021



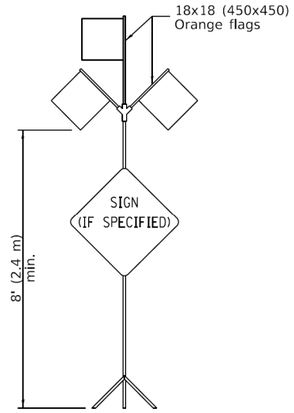
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.

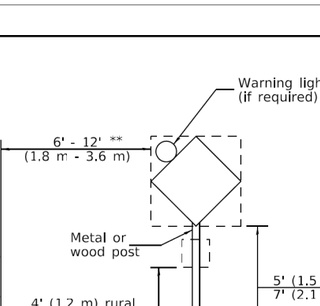


SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



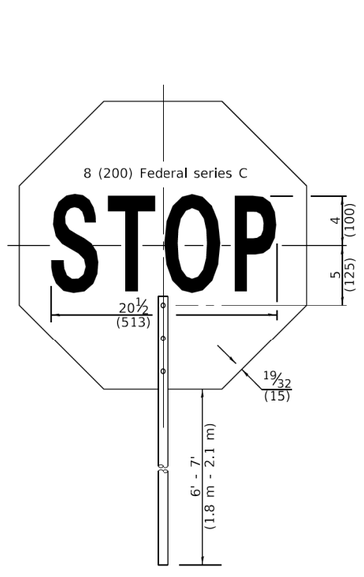
HIGH LEVEL WARNING DEVICE



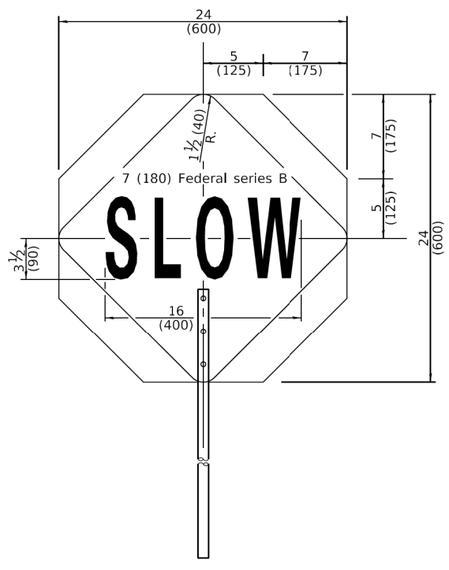
W12-I103-4848

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.



FRONT SIDE



REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN

ROAD CONSTRUCTION NEXT X MILES	END CONSTRUCTION
G20-I104(0)-6036	G20-I105(0)-6024

This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING

WORK ZONE	W21-III5(0)-3618
SPEED LIMIT XX	R2-1-3648
PHOTO ENFORCED	R10-I108p-3618 ****
$XXX FINE MINIMUM	R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.

END WORK ZONE SPEED LIMIT	G20-I103-6036

This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

**** R10-I108p shall only be used along roadways under the juristiction of the State.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

STANDARD 701901-08

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER R-010

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
IDOT HIGHWAY STANDARD

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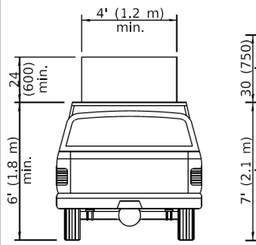
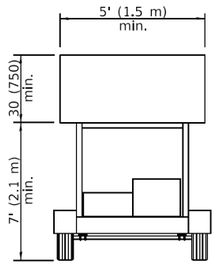
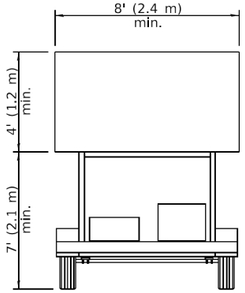
5/24/2021



TYPE A
ROOF
MOUNTED

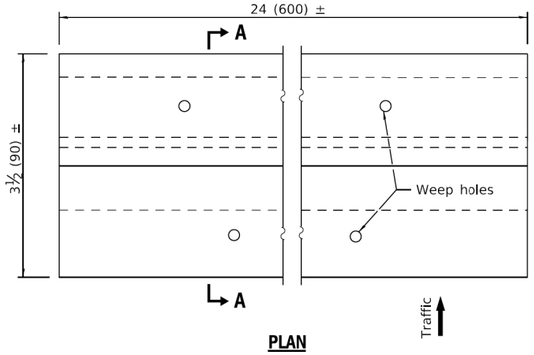


TYPE B
ROOF OR TRAILER
MOUNTED

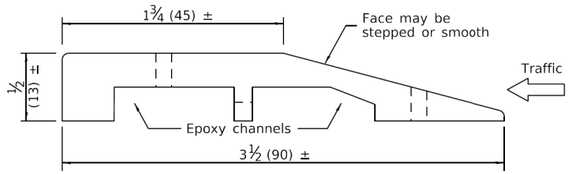


TYPE C
TRAILER
MOUNTED

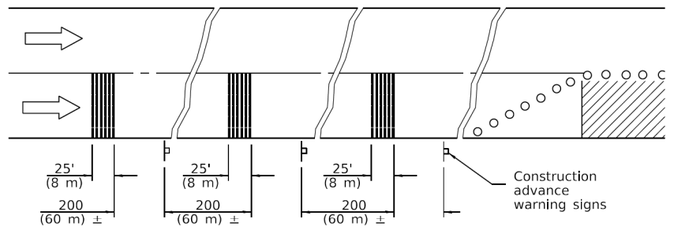
ARROW BOARDS

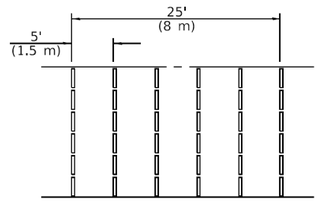


PLAN



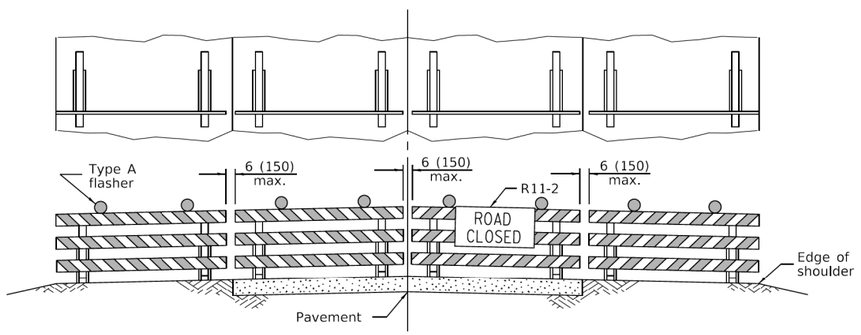
SECTION A-A





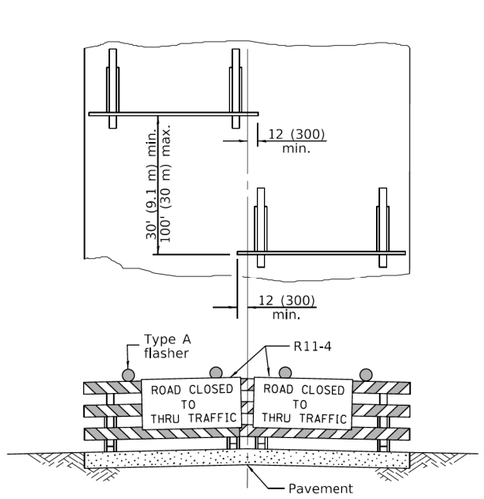
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

STANDARD 701901-08

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: KP	WORK ORDER: 31876	UNION PACIFIC RAILROAD	Director Structures Design
CHECKED BY: TK	PID:	LOCATION & DESCRIPTION: MP 1.55 ROCKWELL SUBDIVISION HARRISON STREET BRIDGE REPLACEMENT	
DATE: 05/28/21	BUDGET REF:		
SCALE: N.T.S	SHEET NUMBER R-011	SHEET TITLE: IDOT HIGHWAY STANDARD	

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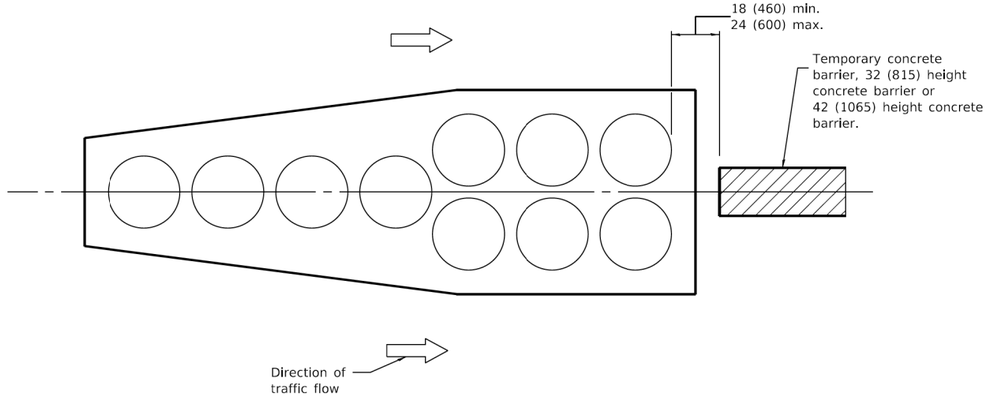
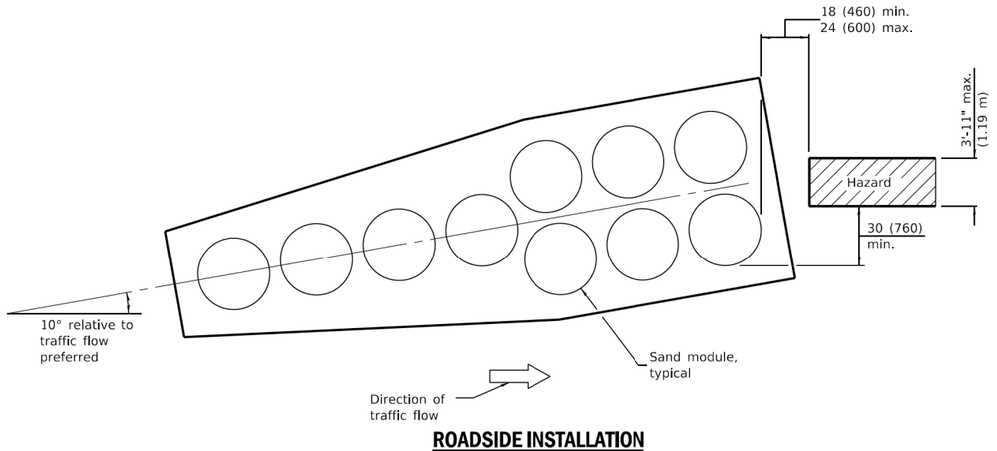
Default
5/24/2021



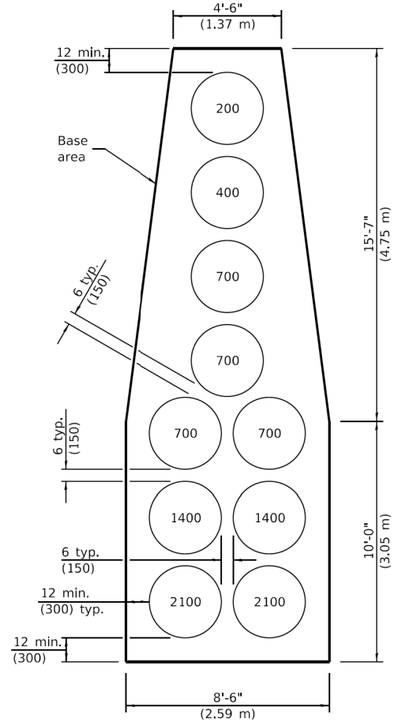
GORE INSTALLATION

(Traffic approaches on both sides)
(Test Level 2 array shown)



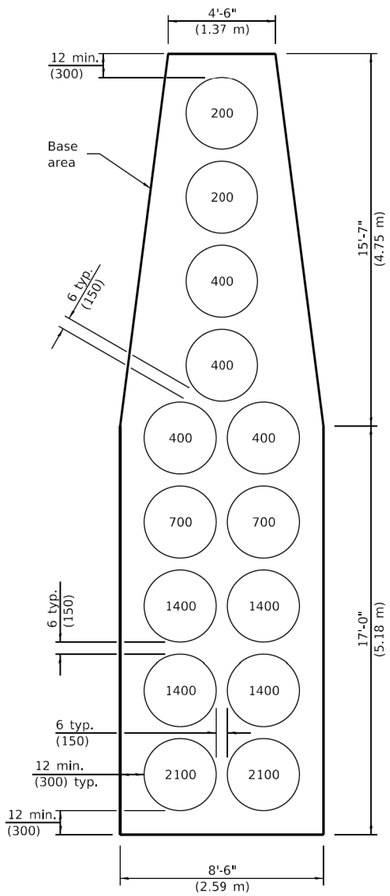
ROADSIDE INSTALLATION

(Traffic approaches on one side)
(Test Level 2 array shown)



TEST LEVEL 2 ARRAY

(For design speed less than or equal to 45 mph.)
(Numbers inside sand modules indicate sand weight in pounds.)



TEST LEVEL 3 ARRAY

(For design speed greater than 45 mph.)
(Numbers inside sand modules indicate sand weight in pounds.)

GENERAL NOTES

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2014
Michael Brand
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT
ISSUED 1-1-97

DATE	REVISIONS
1-1-14	Revised distance from
	barrels to hazard.
1-1-13	Changed 'posted speed' to
	'design speed'.

SAND MODULE IMPACT ATTENUATORS

STANDARD 643001-02

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER R-012

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
IDOT HIGHWAY STANDARD

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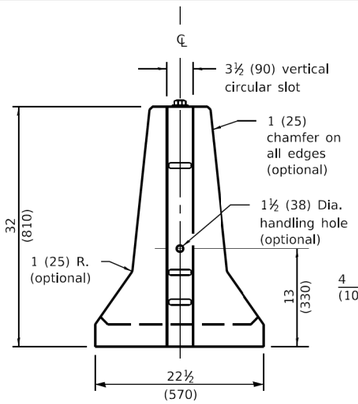
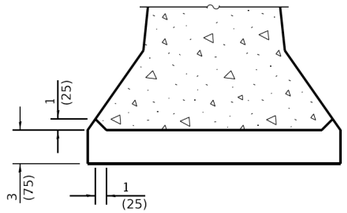
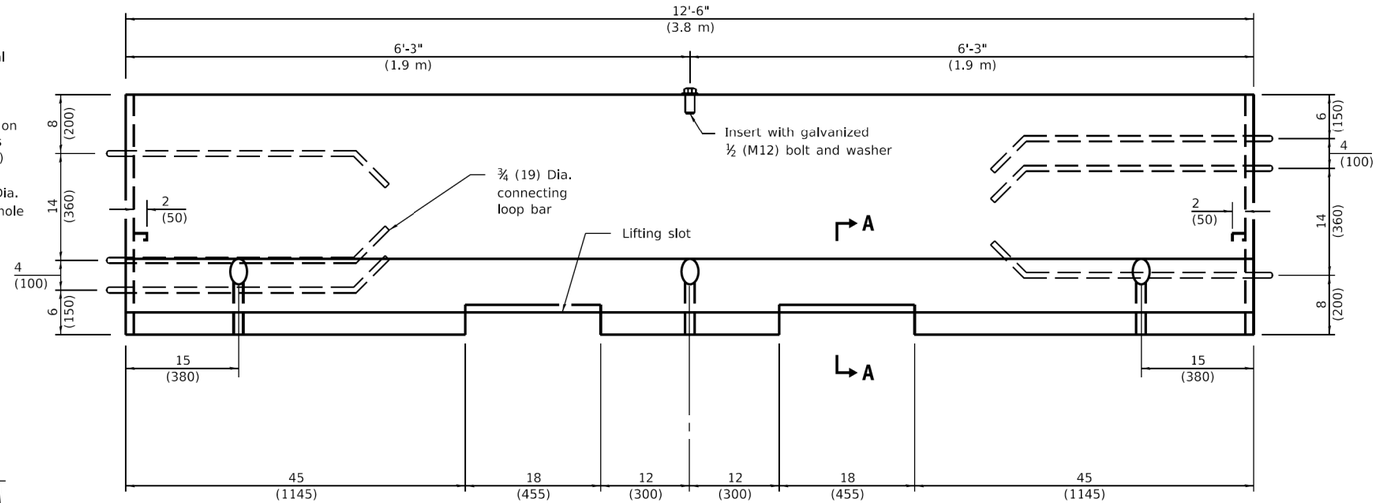
5/24/2021



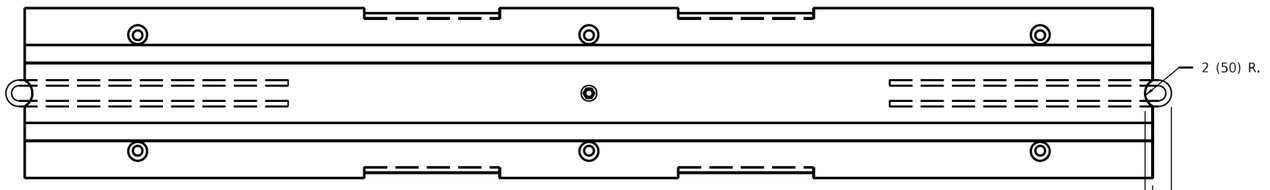
END VIEW
(Showing lifting slot)



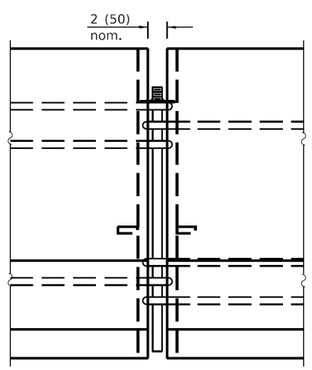
SECTION A-A
LIFTING SLOT



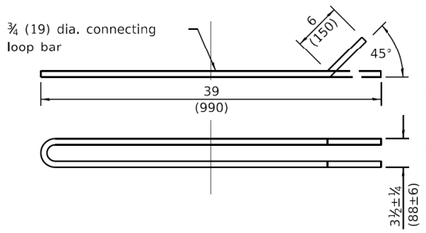
ELEVATION
(Showing connecting loop bars and vertical panel bolt/insert)



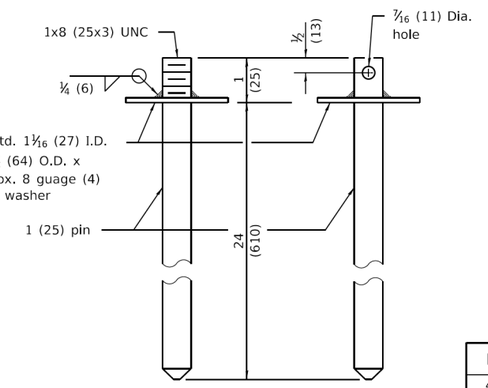
PLAN



CONNECTING DETAIL

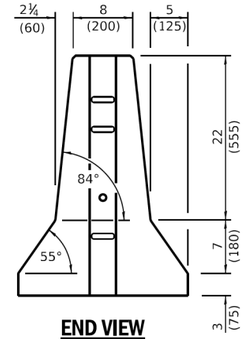


CONNECTING LOOP BAR

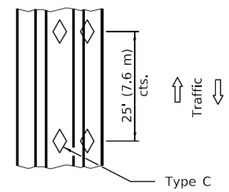


CONNECTING AND ANCHOR PINS
(End may be beveled ¼ (6) max.)

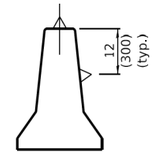
F SHAPE DESIGN



END VIEW



TOP VIEW



BARRIER WALL REFLECTORS

2½ (63) measured from face of barrier to end of loop bar

GENERAL NOTES

Each F shape barrier shall be clearly marked with "ILLINOIS F SHAPE", the Producer's mark and the date of manufacture. The markings shall be indented on the barrier or painted thereon with waterproof paint/ink.

The insert for the ½ (M12) bolt shall be capable of 3,000 lb (13 kN) pull-out strength.

When barrier separates opposing flows of traffic markers shall be on both sides of barrier.

See Standard 782006 for dimensions of Type C reflector.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016
Michael Brand
ENGINEER OF POLICY AND PROCEDURES

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 10-1-02

DATE	REVISIONS
4-1-16	Rev. opt. chamfer on all
	edges to 1 (25). Reference
	to Std. 635011 now 782006.
1-1-12	Omitted 'ALTERNATE' from
	connecting and anchoring
	pins detail.

TEMPORARY CONCRETE BARRIER

(Sheet 1 of 2)

STANDARD 704001-08

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

DRAWN BY: KP	WORK ORDER: 31876
CHECKED BY: TK	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER: R-013

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
IDOT HIGHWAY STANDARD

Color table: UPRR.tbl
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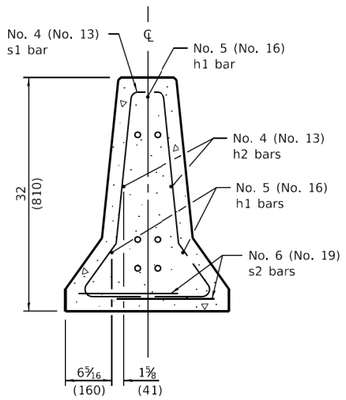
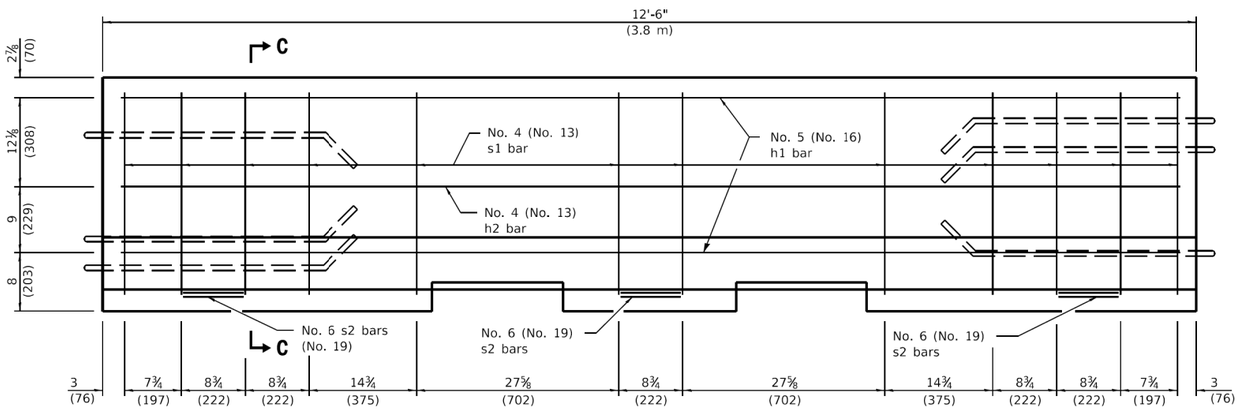
5/24/2021

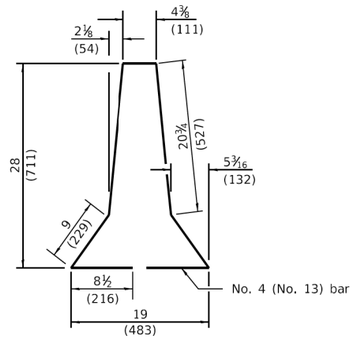
F SHAPE DESIGN



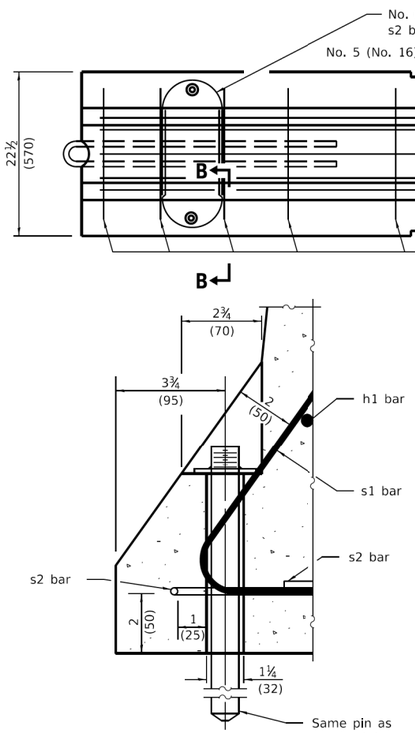
SECTION C-C



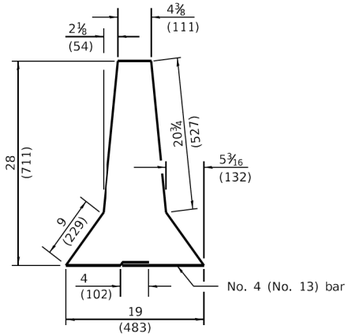
ELEVATION
(Reinforcement)



s1 BAR

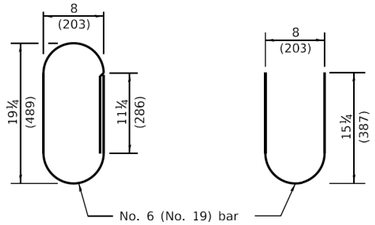


PLAN



ALTERNATE s1 BAR

SECTION B-B
ANCHORING DETAIL



ALTERNATE s2 BARS

Illinois Department of Transportation

PASSED April 1, 2016
Michael Brand
ENGINEER OF POLICY AND PROCEDURES
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 10-1-02

TEMPORARY CONCRETE BARRIER

(Sheet 2 of 2)

STANDARD 704001-08

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: KP	WORK ORDER: 31876	UNION PACIFIC RAILROAD	Director Structures Design
CHECKED BY: TK	PID:	LOCATION & DESCRIPTION: MP 1.55 ROCKWELL SUBDIVISION HARRISON STREET BRIDGE REPLACEMENT	
DATE: 05/28/21	BUDGET REF:		
SCALE: N.T.S	SHEET NUMBER R-014	SHEET TITLE: IDOT HIGHWAY STANDARD	

GENERAL UTILITY NOTES :

COMED :
USE EXTREME CAUTION NEAR ComEd FACILITIES. HAND DIG WHILE CROSSING 69/138/345 kv TRANSMISSION LINE. ComEd TRANSMISSION SHALL BE NOTIFIED 2 BUSINESS DAYS PRIOR TO THE START OF THE WORK. TO SCHEDULE AN ON SITE INSPECTOR DURING CONSTRUCTION, CONTACT LESLIE PASCHAL AT (630) 437-4767.

NO DIRECTIONAL BORING WITHIN 5 FEET OF COMED CONDUITS. CITY CONTRACTORS ARE REQUESTED TO TAKE EXTRA PRECAUTIONS WHEN WORKING NEAR COMED OVERHEAD WIRES. THESE WIRES ARE NOT INSULATED. COMED REQUESTS THAT THE CITY DIRECTIONAL BORE CONTRACTORS PROTECT ALL EXISTING COMED MANHOLES & CONDUITS WHEN CROSSING, ADJACENT TO OR IN THE NEAR VICINITY, BY DIGGING TEST HOLES TO ASSURE COMED FACILITIES ARE NOT DAMAGED, DURING THE DIRECTIONAL BORE PROCESS, & HAND DIG WHEN WITHIN 5 FT OR CROSSING FACILITIES. IF NEEDED CONTACT MICHELLE HO, 331-481-9108 WITH A 6-WEEK NOTICE.

CHICAGO DEPARTMENT OF WATER MANAGEMENT :
WATER MAINS AND SERVICES:

THE MINIMUM VERTICAL CLEARANCE (EDGE-TO-EDGE) FROM WATER MAINS AND SERVICES IS 18-INCHES. FOR GRID MAINS (WATER MAINS LESS THAN 16-INCHES) AND WATER STRUCTURES (VALVE BASINS, SERVICE CONTROL VALVES, ETC.) THE MINIMUM HORIZONTAL CLEARANCE (EDGE-TO-EDGE) IS THREE (3) FEET. FOR FEEDER MAINS (WATER MAINS 16-INCHES AND LARGER), THE MINIMUM HORIZONTAL CLEARANCE (EDGE-TO-EDGE) IS FIVE (5) FEET. ALL LIGHT POLE FOUNDATIONS MUST MAINTAIN A MINIMUM OF FIVE (5) FEET HORIZONTAL CLEARANCE (EDGE-TO-EDGE) TO ALL EXISTING WATER FACILITES.

FIRE HYDRANTS :

IN NO CASE SHALL THE INSTALLATION OF ANY PROPOSED FACILITY BE CLOSER THAN FIVE (5) FEET FROM A FIRE HYDRANT OR FIRE HYDRANT LEAD. EXTREME CAUTION IS TO BE TAKEN TO ENSURE THAT NO FACILITY OWNED AND MAINTAINED BY THIS DEPARTMENT (DWM) IS DAMAGED DURING CONSTRUCTION. IF DAMAGE OCCURS TO ANY FACILITIES, THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE COST OF REPAIRING OR REPLACING THE FACILITIES.

DEPARTMENT OF WATER MANAGEMENT (DWM) SEWER REQUIREMENTS FOR EXISTING FACILITIES PROTECTION.
AUGUST 2016.
FOR ALL GENERAL CLEARANCE REQUIREMENTS (NON-WATER):
UPON PROJECT COMPLETION, RESIDENT ENGINEERS MUST CONTACT THE DWM SEWER EVALUATION SECTION AT 312-747-4680 TO SCHEDULE A FIELD MEETING FOR PROJECT ACCEPTANCE.
DWM REQUIRES A MINIMUM HORIZONTAL CLEARANCE OF ID (INNER DIAMETER OF THE SEWER) + 4' CENTER-TO-CENTER OR 4 FEET EDGE-TO-EDGE, WHICHEVER IS LARGER, AND A MINIMUM VERTICAL CLEARANCE OF 18" EDGE-TO-EDGE. IF EITHER OF THESE CONDITIONS ARE NOT MET, THE SEWER MUST BE REPLACED OR LINED.

ONLY FOR PARALLEL UTILITY INSTALLATIONS IN THE PARKWAY:
UPON PROJECT COMPLETION, RESIDENT ENGINEERS MUST CONTACT THE DWM SEWER EVALUATION SECTION AT 312-747-4680 TO SCHEDULE A FIELD MEETING FOR PROJECT ACCEPTANCE.
PRIVATE SEWER DRAINS (W/BASEMENTS) TYPICALLY HAVE APPROXIMATELY 5 FEET OF COVER. DUE TO POTENTIAL VERTICAL CONFLICTS IN THE PARKWAY, THE CONTRACTOR MUST TELEVISE ALL PRIVATE DRAINS AFTER CONSTRUCTION. A COPY OF THE DVD MUST BE PRESENTED TO THE DWM SEWER INSPECTOR FOR PROJECT ACCEPTANCE.

THE FOLLOWING NOTE MUST BE DISPLAYED ON THE CONSTRUCTION PLANS:
THE PROPOSED WORK ENCROACHES UPON MINIMUM CITY SEWER CLEARANCE REQUIREMENTS. EXTREME CAUTION IS REQUIRED DURING CONSTRUCTION. THE CITY SEWER MUST BE TELEVISED BEFORE AND AFTER CONSTRUCTION TO ASSESS ITS CONDITION. CONTACT THE DWM SEWER EVALUATION SECTION TWO BUSINESS DAYS PRIOR TO CONSTRUCTION AT (312) 747-4680 TO COORDINATE THE WORK.
IF SEWER DAMAGE OCCURS, THE CONTRACTOR AND/OR OWNER WILL BE RESPONSIBLE FOR THE COST OF REPAIRING, LINING OR REPLACING THE DAMAGED FACILITIES.

PEOPLES GAS :
PEOPLES GAS FACILITIES ARE PRESENT WITHIN CONSTRUCTION. USE EXTREME CAUTION NEAR ALL GAS FACILITIES DURING CONSTRUCTION AND RELATED EXCAVATION ACTIVITIES. HAND EXCAVATION IS REQUIRED TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF GAS MAIN(S) PRIOR TO CROSSING AND WORKING WITHIN 3' OF ALL GAS FACILITIES. A MINIMUM OF 3' HORIZONTAL EDGE-TO-EDGE CLEARANCE IS REQUIRED FOR GAS MAINS WITH DIAMETERS OF 16" OR SMALLER, & 5' EDGE-TO-EDGE CLEARANCE FOR GAS MAINS WITH DIAMETERS 18" AND LARGER. MAINTAIN A MINIMUM OF 1.5' EDGE-TO-EDGE VERTICAL CLEARANCE ON GAS MAINS 16" OR LESS IN DIAMETER, AND 2' EDGE-TO-EDGE VERTICAL CLEARANCE ON 18" AND LARGER DIAMETER GAS MAINS. CONTACT DIGGER 312-744-7000 FOR LOCATES 48 HOURS PRIOR TO START OF CONSTRUCTION.

THE USE OF CONCRETE, FLOW FILL, OR THE LIKE IS PROHIBITED WITHIN 24" OF ALL GAS FACILITIES, NOR SHALL IT ENCASE ANY GAS FACILITY. A BUFFER OF 24" SAND IS TO USED BETWEEN FLOW FILL AND ALL GAS FACILITIES. A MINIMUM OF 6" FA-02 OR FM-02 SAND SHALL BE USED WHEN BACKFILLING OTHER MATERIALS AROUND ANY EXPOSED GAS FACILITY. CONTRACTOR EXPOSING GAS FACILITY IS RESPONSIBLE FOR PROVIDING THE SAND. ANY DAMAGES TO PEOPLES GAS FACILITIES SHALL BE THE RESPONSIBILITY OF THE INSTALLING UTILITY AND THEIR CONTRACTOR(S).

SERVICE MAY BE EFFECTED. USE EXTREME CAUTION NEAR ALL GAS FACILITIES HAND EXCAVATION IS REQUIRED TO LOCATE AND EXPOSE GAS FACILITIES PRIOR TO CROSSING AND WORKING WITHIN 3' OF ALL GAS FACILITIES. CONTACT DIGGER FOR LOCATES 48 HOURS PRIOR TO START OF CONSTRUCTION. PEOPLES GAS FACILITIES ARE PRESENT WITHIN AREA OF CONSTRUCTION. DIRECTIONAL DRILLING IS CONSIDERED A HIGH RISK EXCAVATION AS DETERMINED BY PHMSA AND NTSB; AS SUCH SPECIAL CONSIDERATIONS SHALL TAKE PLACE NEAR NATURAL GAS DISTRIBUTION LINES. USE EXTREME CAUTION NEAR ALL GAS FACILITIES DURING CONSTRUCTION AND RELATED EXCAVATION ACTIVITIES. HAND DIG OR NON-INVASIVE EXCAVATION IS REQUIRED TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF GAS FACILITIES PRIOR TO CROSSING AND WORKING WITHIN 3' OF ALL GAS FACILITIES. A MINIMUM OF 3' HORIZONTAL EDGE-TO-EDGE CLEARANCE IS REQUIRED FOR GAS MAINS WITH DIAMETERS OF 16" OR SMALLER, & 5FT EDGE-TO-EDGE CLEARANCE FOR GAS MAINS WITH DIAMETERS 18" AND LARGER.MAINTAIN A MINIMUM OF 1.5' EDGE-TO-EDGE VERTICAL CLEARANCE ON GAS MAINS 16" OR LESS IN DIAMETER, AND 2' EDGE-TO-EDGE VERTICAL CLEARANCE ON 18" AND LARGER DIAMETER GAS MAINS. CONTRACTOR MUST OBSERVE BORE HEAD WHILE CROSSING GAS FACILITIES AND VERIFY THAT MINIMUM VERTICAL CLEARANCE IS OBTAINED. LOCATIONS OF EXISTING GAS FACILITIES MUST BE VERIFIED AT SUFFICIENT INTERVALS, OR A MAX OF DISTANCE OF 50', WHEN PARALLELING TO ENSURE SEPARATION IS MAINTAINED. CONTACT SYSTEM INTEGRITY OPERATIONS SUPERVISOR, A MINIMUM OF 5 BUSINESS DAYS PRIOR TO EXCAVATION TO SET UP ON-SITE INSPECTION.CONTACT DIGGER 312-744-7000 FOR LOCATES 48 HOURS PRIOR TO START OF CONSTRUCTION AND SPECIFY EXCAVATION TYPE.

North Shop: North of Chicago Ave/Ashland Ave /North Ave
Robert Goral, 773 647-0537
Central Shop: South of Chicago Ave/ Ashland Ave / North Ave to North of 87th St / Ashland Ave / Chicago River / Cermak Rd
Dave Marquez, 773-858-1825
South Shop: South of 87th St / Ashland Ave / Chicago River / Cermak Rd
Jacob Weber, 312-806-0559

THE USE OF CONCRETE, FLOW FILL, OR THE LIKE IS PROHIBITED WITHIN 24" OF ALL GAS FACILITIES, NOR SHALL IT ENCASE ANY GAS FACILITY. A BUFFER OF 24" SAND IS TO USED BETWEEN FLOW FILL AND ALL GAS FACILITIES. A MINIMUM OF 6" FA-02 OR FM-02 SAND SHALL BE USED WHEN BACKFILLING OTHER MATERIALS AROUND ANY EXPOSED GAS FACILITY. CONTRACTOR EXPOSING GAS FACILITY IS RESPONSIBLE FOR PROVIDING THE SAND. ANY DAMAGES TO PEOPLES GAS FACILITIES SHALL BE THE RESPONSIBILITY OF THE INSTALLING UTILITY AND THEIR CONTRACTOR(S). CALL 866-556-6002 IMMEDIATELY FOR ANY DAMAGES TO THE GAS FACILITIES. ALL GAS FACILITIES ARE TO BE MAINTAINED. THIS PROJECT WILL BE PLACED ON PEOPLES GAS WATCH & PROTECT.

BUREAU OF FORESTRY :
TREE PROTECTION MEASURES:
AT A MINIMUM, NEED TO INCLUDE ORANGE SNOW FENCE TO BE INSTALLED ALONG BACK OF THE CURB-LINE, 10 FEET FROM THE BACK OF THE CURB-LINE AND AT A DISTANCE OF 5 FEET FROM EITHER SIDE OF THE TREE. IF TRIMMING IS REQUIRED FOR LINE INSTALLATION, IT WILL BE DONE BY AN INSURED TREE SERVICE COMPANY. TRIMMING WILL BE DONE IN ACCORDANCE TO AMERICAN NATIONAL STANDARDS INSTITUTE GUIDELINES, LEAVING THE FORM AND STRUCTURE OF THE TREES INTACT.

TUNNELING SPECIFICATIONS (EACH SIDE OF TREE)

TREE SIZE*	TUNNEL/TRENCH DISTANCE
< 10"	5 FEET
10" TO 19"	10 FEET
> 19"	15 FEET

* DBH - DIAMETER AT BREAST HEIGHT (4.5')

. STAY OUT OF THE DRIP LINE
. STOP TRENCHING WHEN ROOTS OF (2) INCHES OR LARGER ARE ENCOUNTERED.

CTA BUS ROUTES :
PLEASE NOTIFY CTA AT LEAST (2) TWO WEEKS PRIOR TO ANY SIDEWALK, LANE, OR STREET CLOSURES, OR THE REMOVAL OF ANY BUS STOP SIGNS SO THAT CTA CAN FACILITATE ANY NECESSARY DETOURS OR BUS STOP RELOCATIONS.

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Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

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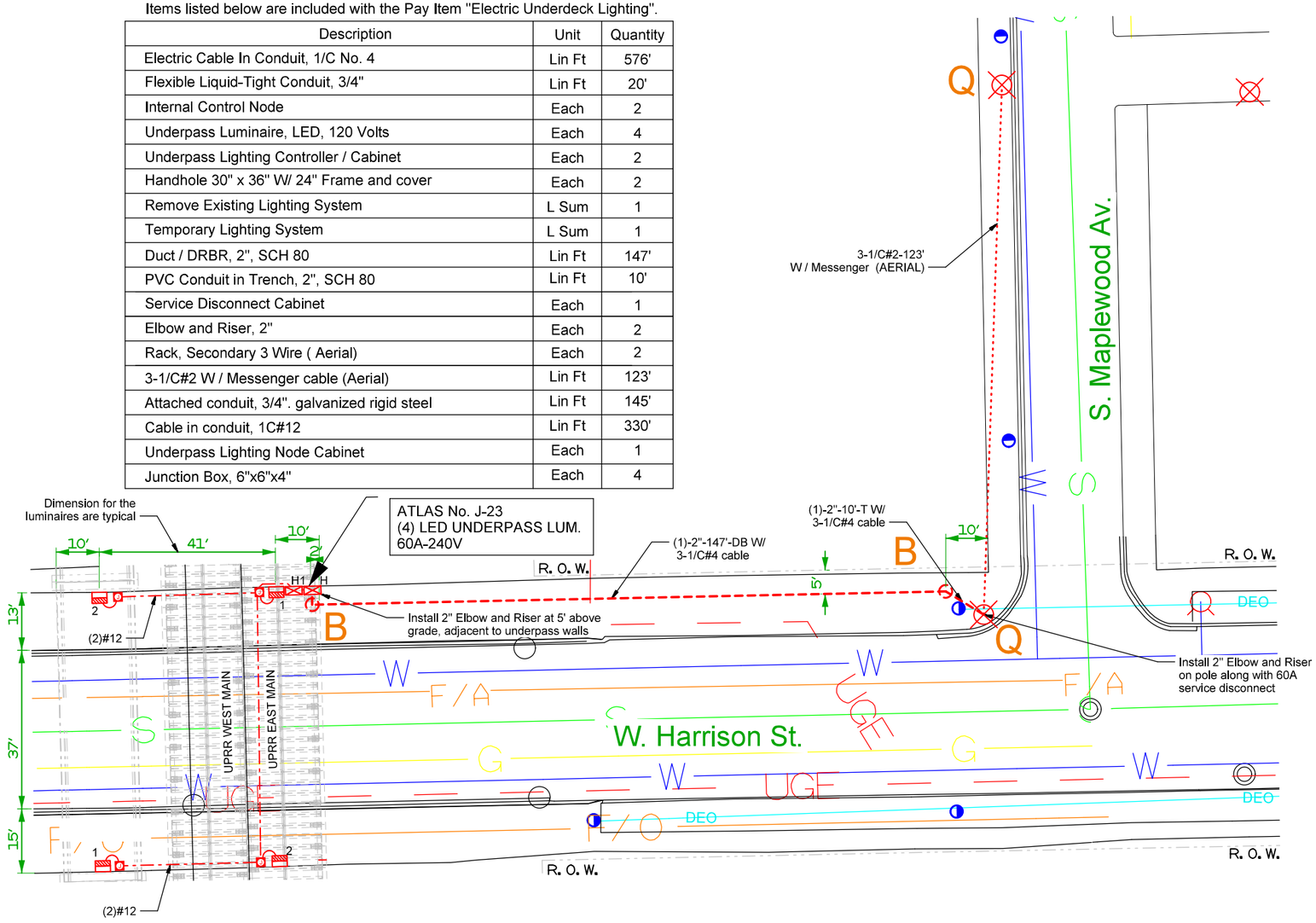
CHECKED BY: GT	PID:	LOCATION & DESCRIPTION: MP 1.55 ROCKWELL SUBDIVISION HARRISON STREET BRIDGE REPLACEMENT	
DATE: 05/28/21	BUDGET REF:		
SCALE: N.T.S	SHEET NUMBER L-001	SHEET TITLE: ELECTRICAL GENERAL NOTES	

BILL OF MATERIALS

Items listed below are included with the Pay Item "Electric Underdeck Lighting".

Description	Unit	Quantity
Electric Cable In Conduit, 1/C No. 4	Lin Ft	576'
Flexible Liquid-Tight Conduit, 3/4"	Lin Ft	20'
Internal Control Node	Each	2
Underpass Luminaire, LED, 120 Volts	Each	4
Underpass Lighting Controller / Cabinet	Each	2
Handhole 30" x 36" W/ 24" Frame and cover	Each	2
Remove Existing Lighting System	L Sum	1
Temporary Lighting System	L Sum	1
Duct / DRBR, 2", SCH 80	Lin Ft	147'
PVC Conduit in Trench, 2", SCH 80	Lin Ft	10'
Service Disconnect Cabinet	Each	1
Elbow and Riser, 2"	Each	2
Rack, Secondary 3 Wire (Aerial)	Each	2
3-1/C#2 W / Messenger cable (Aerial)	Lin Ft	123'
Attached conduit, 3/4". galvanized rigid steel	Lin Ft	145'
Cable in conduit, 1C#12	Lin Ft	330'
Underpass Lighting Node Cabinet	Each	1
Junction Box, 6"x6"x4"	Each	4



Size of Conduit — Length in Feet
Number of Conduits — DB = Directional Bored, T = Trench
(X)-X"-X'-DB

PROPOSED CONDUIT CALLOUT

Controller 1:
Circuit 1 - (2) Underpass LED Luminaire
Circuit 2 - (2) Underpass LED Luminaire

Electrical Notes:

1. All electrical work shall conform with all national, state, and local codes.
2. No luminaires, conduit, junction boxes, or any appurtanances shall be mounted to the bridge superstructure without prior approval from Union Pacific Railroad.
3. Contractor shall field verify exact locations, quantities, and type of utilities in the area prior to commencement of any work.
4. Coordinate all electrical installation work with civil, structural drawings, construction phases schedule and City of Chicago Department of Transportation, Division Electrical Operations.
5. Coordinate installation and connection of new electrical service and underpass lighting controller with ComEd and City of Chicago Department of Transportation, Division Electrical Operations. The Underpass Controller and Cabinet shall be grounded with #8 wire on 1/2" GRS conduit.
6. See electrical detail drawings for typical standard underpass lighting details and underpass lighting controller.
7. Luminaires shall be mounted by expansion anchors to the face of the pier cap as high as possible. All conduits to be fastened securely at 5' intervals with beam clamps
8. Luminaires mounted over roadway to be pivoted at an angle of 45 deg from vertical and luminaires mounted over sidewalk to be pivoted at an angle of 35 deg from vertical.
9. Refer civil plans for pavement removal / replacement quantities.

Electrical Demolition Notes:

1. Removal and maintenance of underdeck lighting shall be incidental to the pay item "Electric Underdeck Lighting".
2. Temporary lighting design shall be submitted and approved to the engineer prior to construction. The approved design shall then be installed prior to stage construction.

LEGEND

- Proposed junction box attached to structure, stainless steel, 6"x6"x4" unless otherwise noted
- Proposed underpass luminaire, LED, 120 volts New Star Lighting Model ADLLP-WLR-C-MIC-W8-PCR-CHI
- Proposed 3/4" liquid tight conduit, with (2)#12 cable
- Proposed (3)#12 cable to be installed in 3/4" conduit, unless otherwise noted
- H — Proposed underpass lighting controller, 120V/240V
- H1 — Proposed underpass node cabinet with 2 nodes
- Existing Comed pole
- B — Install 30" Handhole as per Dwg. No. 867 with 24" Frame and Cover
- Q — Install 3W rack, secondary, aerial
- Proposed DEO conduit (SCH 80)

30 0 30 60
SCALE IN FEET

CDOT DWG. NO. 21945

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Chicago, Illinois 60601
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DATE: 05/28/21	BUDGET REF:		
SCALE: 1" = 30'	SHEET NUMBER L-002	SHEET TITLE: PROPOSED UNDERDECK LIGHTING	

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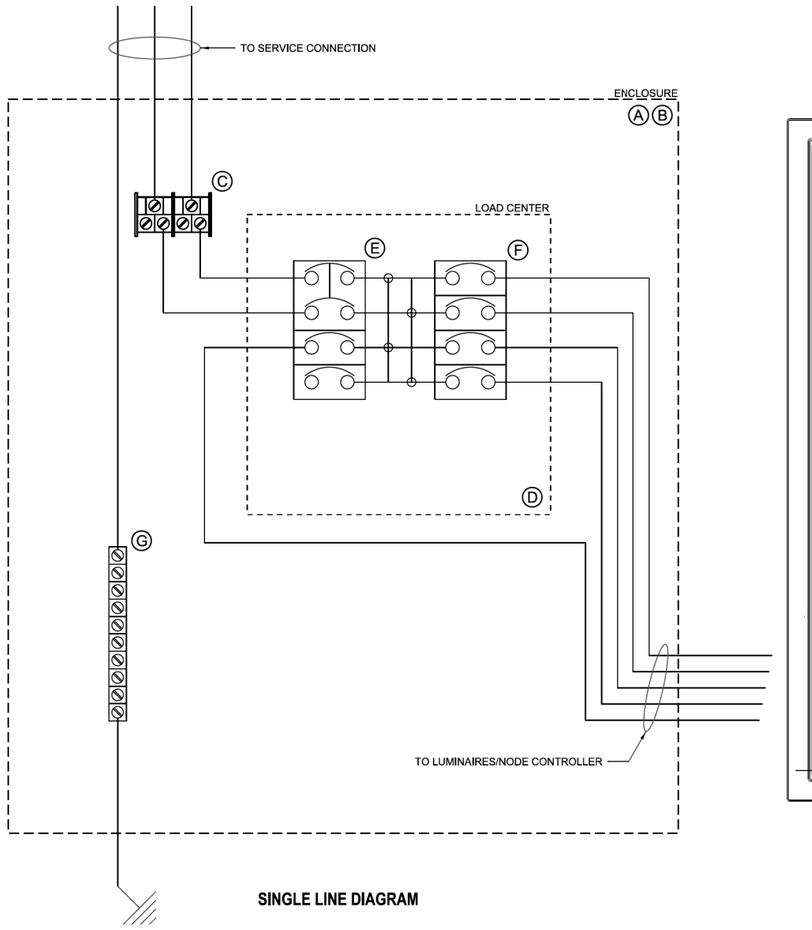
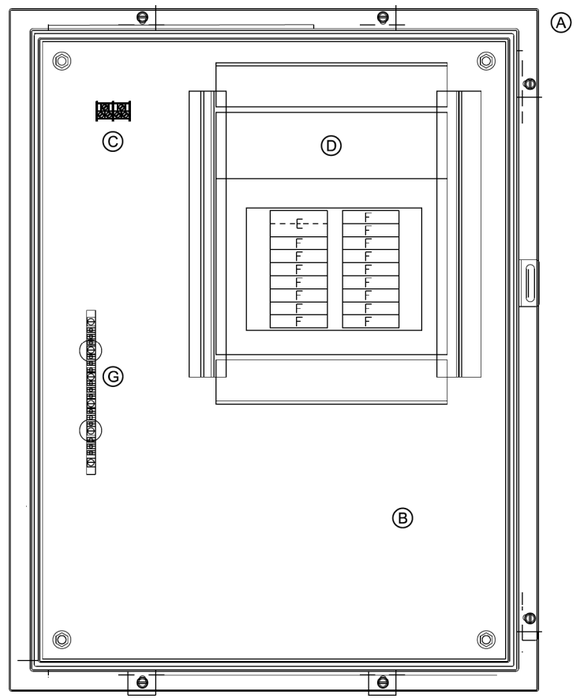


SINGLE LINE DIAGRAM



UNDERPASS CONTROLLER
DEVICE LAYOUT

NOTES:

1.) ENCLOSURE SHALL HAVE A PIANO HINGE, DOOR CLAMPS AND HASP/STAPLE FOR PADLOCK.

2.) TERMINAL BLOCK SHALL HAVE A MINIMUM CURRENT RATING OF 200A. LINE SIDE SHALL ACCEPT #2 THROUGH #3/0 CABLE. LOAD SIDE SHALL ACCEPT (1) #2 AND (1) #2/0 CABLE.

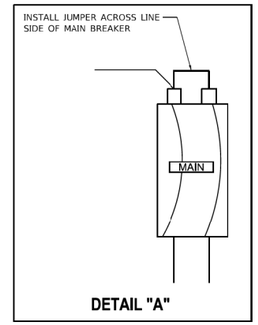
3.) LOAD CENTER SHALL INCLUDE PROVISIONS FOR MAIN AND BRANCH BREAKERS. LIVE BUS SHALL BE PROTECTED IN A MANNER WHICH ALLOWS FUTURE INSTALLATION OF INDIVIDUAL CIRCUIT BREAKERS WITHOUT AFFECTING PROTECTION OF REMAINING BUS.

4.) MAIN BREAKER SHALL BE SIZED AS NOTED ON THE PLANS.

5.) THE NUMBER OF 15A SINGLE POLE CIRCUIT BREAKERS SHALL BE AS NOTED ON THE PLANS. A MINIMUM OF 4 BREAKERS SHALL BE PROVIDED.

6.) FOR 2-WIRE 120V APPLICATION, SEE DETAIL "A".

DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	ENCLOSURE, NEMA 4X, TYPE 304 STAINLESS STEEL, 30" X 24" X 8" (SEE NOTE 1)
B	1	BACK PANEL, PAINTED STEEL, REMOVABLE
C	2	TERMINAL BLOCK, 600V (SEE NOTE 2)
D	1	18-SPACE LOAD CENTER, 120/240V, 1 PHASE, 3 WIRE, 100A, 10K AIC FULLY RATED (SEE NOTE 3)
E	1	CIRCUIT BREAKER, 60A OR 100A, 2PST, THERMAL MAGNETIC, 10KAIC@240V (SEE NOTE 4)
F	NOTE 5	CIRCUIT BREAKER, 15A, SPST, THERMAL MAGNETIC, 10KAIC@240V
G	1	NEUTRAL BUS TERMINAL LUGS



DETAIL "A"

REV	DATE	DESCRIPTION
A		

UNDERPASS LIGHTING CONTROLLER, CONSTANT POWER, 120/240 VOLT

CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING

DRAFTSMAN:	M. STANGEL	DWG. NO.
ENGINEER:	J. VONDRA	861A
ENGINEER OF ELECTRICITY:		
DEPUTY COMMISSIONER:		
SIZE: 22" | 34"	SCALE: NONE	DATE: 10/30/2019

DATE PLOTTED: 18/2020
FILE NAME: N:\PROJ\2020\231.0\00\20231.0100-New Specs & Standards\XXX-Underpass Lighting Controller\Underpass Lighting Controller Detail.dgn

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5/24/2021

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UNION PACIFIC

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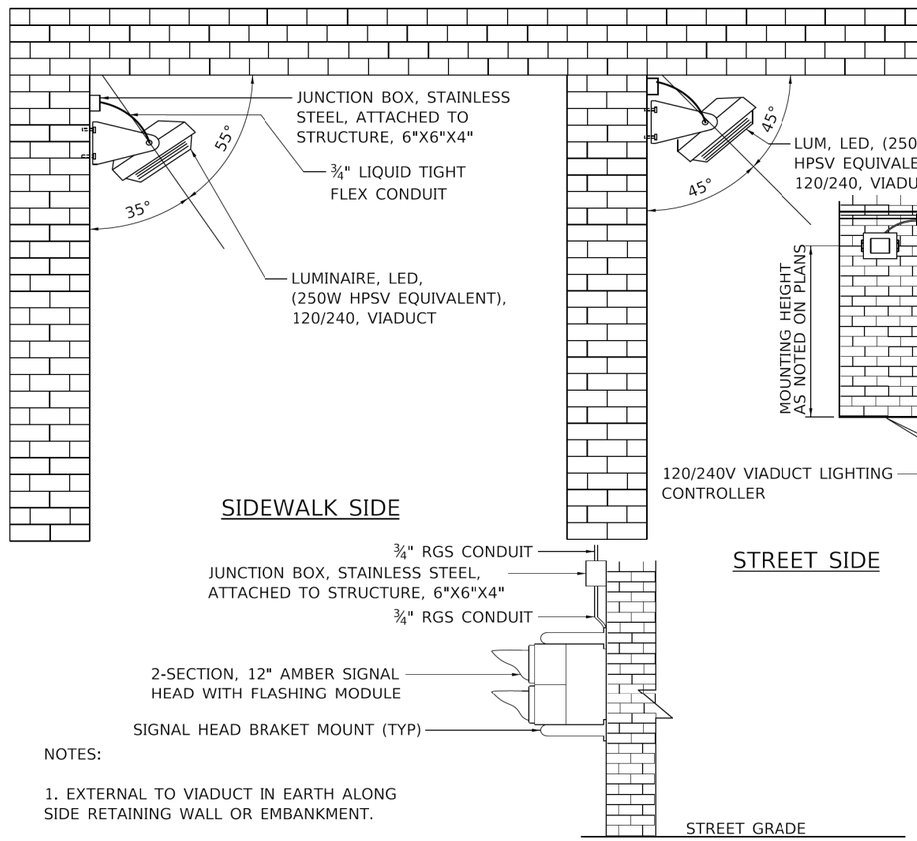
SCALE: N.T.S	SHEET NUMBER L-003	SHEET TITLE: LIGHTING DETAILS	

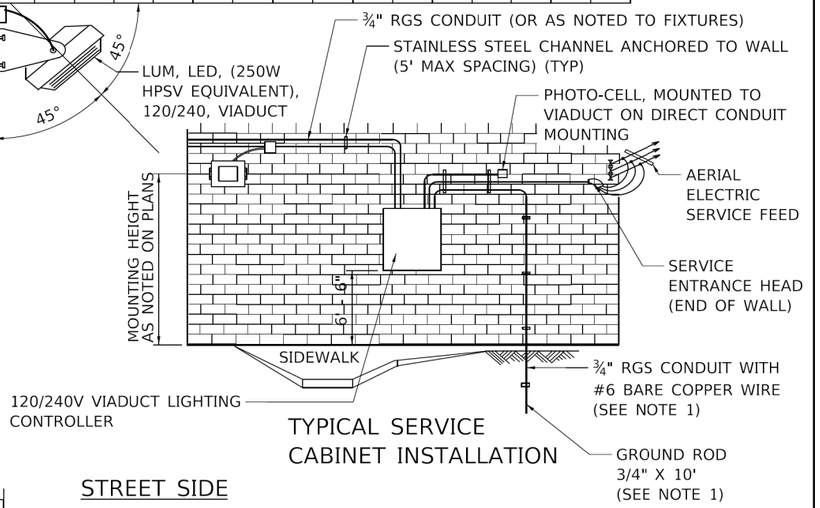


NOTES:

1. EXTERNAL TO VIADUCT IN EARTH ALONG SIDE RETAINING WALL OR EMBANKMENT.

2. ALL VIADUCT LIGHTING EQUIPMENT SHALL BE MOUNTED USING APPROVED CONCRETE ANCHOR OR BEAM CLAMPS AS APPLICABLE.

TYPICAL HAZARD LIGHT MOUNTING FOR MEDIAN PIERS WITHIN ROADWAY



TYPICAL SERVICE CABINET INSTALLATION

A	DATE	REVISION

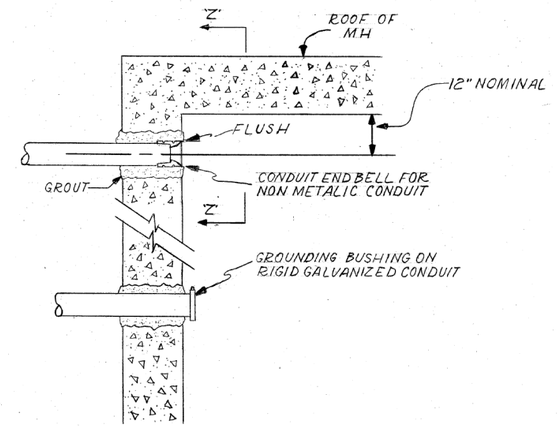
TYPICAL VIADUCT LIGHTING DETAILS

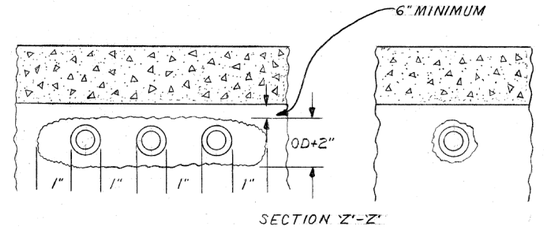
CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING - ELECTRICAL SECTION

DRAFTSMAN/ENGINEER :	M. STANGEL	DWG. NO.
SUP. ENGINEER/PM :	O.LETAMENDI	
PROFESSIONAL ENGINEER :	J. VONDRA	869
ENGINEER OF ELECTRICITY:		
DEPUTY COMMISSIONER:		
SIZE: 11" 17"	SCALE: NONE	DATE: 11/7/2019

DATE: 11/7/2019
FILE: \\172.16.45.7\Public\PROJ\2022\21.801-2022\21.801-Res Specs & Standards\869-Underpass Lighting Typical Details\869 - Underpass Lighting Typical Details.dgn

CONDUIT INSTALLATION THROUGH EXISTING MANHOLE OR HANDHOLE WALL





SECTION 'Z'-'Z'

OPENING THROUGH WALL TO BE KEPT TO MINIMUM SIZE TO ADMIT CONDUIT AND SUFFICIENT GROUT TO ASSURE SEALING WALL.

INSTALLATION METHOD OF INSTALLING CONDUIT THRU MANHOLE WALL

CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

DRAWN	CHECKED	ENGINEER
A.M. JOHNSON	R. SYCKOWSKI	R.L. MARTIN
ENGINEER OF ELECTRICITY: Thomas Kilcoyne		DRG. NO. 814
DEPT. COMMR.: Charles E. Brumley	DEPUTY COMMR.	
SIZE 8½"X14"	SCALE N.T.S	DATE 3-13-81

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DATE: 05/28/21	BUDGET REF:		
SCALE: N.T.S	SHEET NUMBER L-004	SHEET TITLE: LIGHTING DETAILS	

Color table: UPRR.tbl
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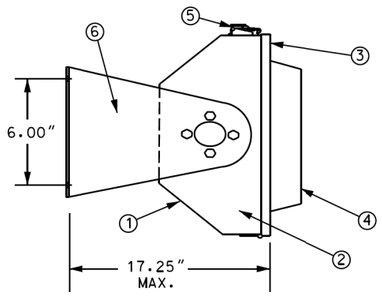
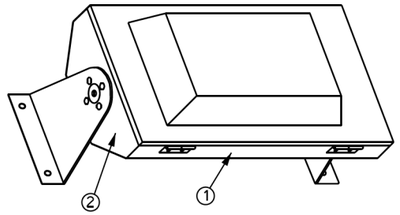
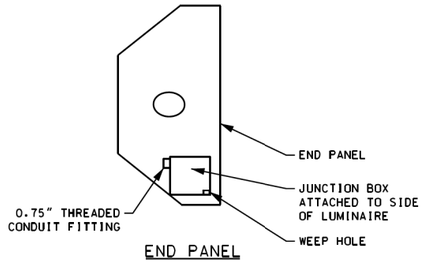
5/24/2021



SIDE VIEW



BACK VIEW



END PANEL

1) HOUSING
2) END PANEL
3) LENS DOOR/COVER ASSEMBLY
4) LENS
5) LATCHES
6) END MOUNT TRUNNION BRACKET

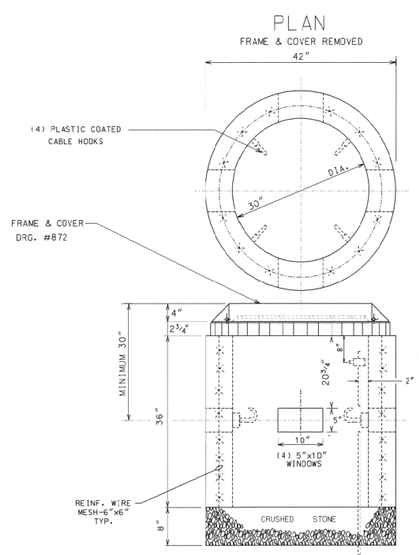
VIADUCT / EL STRUCTURE LUMINAIRE

CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

DRAFTSMAN	CHIEF DRAFTSMAN	ENGINEER
	D. CARTER	F. KARAGIANES
SUPERVISING ENGINEER	ELEC. DESIGN ENGINEER	DWG. NO
ENGINEER OF ELECTRICITY		981
GEN'L SUPT. OF ELECTRICITY		
DEPUTY COMMISSIONER		
SCALE: NONE	DATE: 4/25/04	MAT. SPEC. 1532

DATE: 4/6/2016
FILE#: N:\Specifications\MISC\New Drawings\981_033020116.dgn

PLAN
FRAME & COVER REMOVED



COMPLETE COMMODITY CODE NO. 05-6610-5310M			
CODE NO.	MATERIALS	SIZE	CUAN.
(1) 05-6610-5310	PRE-CAST HANDHOLE	30"X36"	1
(2) 05-9075-5470	STONE 3/4" CRUSHED	BAG	5
(2) 05-5082-5330	SONO TUBE	30"	1
(2) 05-5082-5342	SONO TUBE	42"	1
(2) 05-3267-2940	CONC. REDI-MIX	CU. YD.	1/2
(2) 57-0770-0000	6" X 6" MESH	36"X10'	1
05-1452-9720	BRICK		24
02-4299-5524	FRAME MANHOLE	24"	1
02-4574-5040	COVER, MANHOLE	24"	1
09-7796-9312	GROUND ROD	3/4"X12'	1
09-2630-3240	GROUND CLAMP		1

(1) PRE-CAST HANDHOLE SHALL INCLUDE CABLE HOOKS AND CONDUIT KNOCKOUTS.
(2) THESE ITEMS ARE FOR POURED-IN-PLACE HANDHOLES ONLY.

CONSTRUCTION NOTES:

1. 8" BED OF STONE FOR DRAINAGE.
2. ALL METALLIC CONDUITS ENTERING HANDHOLE SHALL EXTEND MINIMUM 1" & MAXIMUM 3" INSIDE INNER WALL AND BE EQUIPPED WITH AN APPROVED TYPE OF THREADED GROUNDING BUSHING.

REVISIONS			
NO.	DATE	DESCRIPTION	BY
B	01-22-08	ADDED CABLE HOOKS PER COMMISSIONER MURPHY	RC/RS
A	12-01-95	REDRAW (CAD)	MP

30" DIA.
CONCRETE HANDHOLE

CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

DRAFTSMAN	CHIEF DRAFTSMAN	ENGINEER
M. PATTON	D. CARTER	THOMAS DEBATTISTO
SUPERVISING ENGINEER	ELEC. DESIGN ENGINEER	DWG. NO.
ENGINEER OF ELECTRICITY		867
GEN'L SUPT. OF ELECTRICITY		
DEPUTY COMMISSIONER		
SCALE: 1½"	1½" SCALE: NONE	DATE: 12-8-95

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

UNION PACIFIC

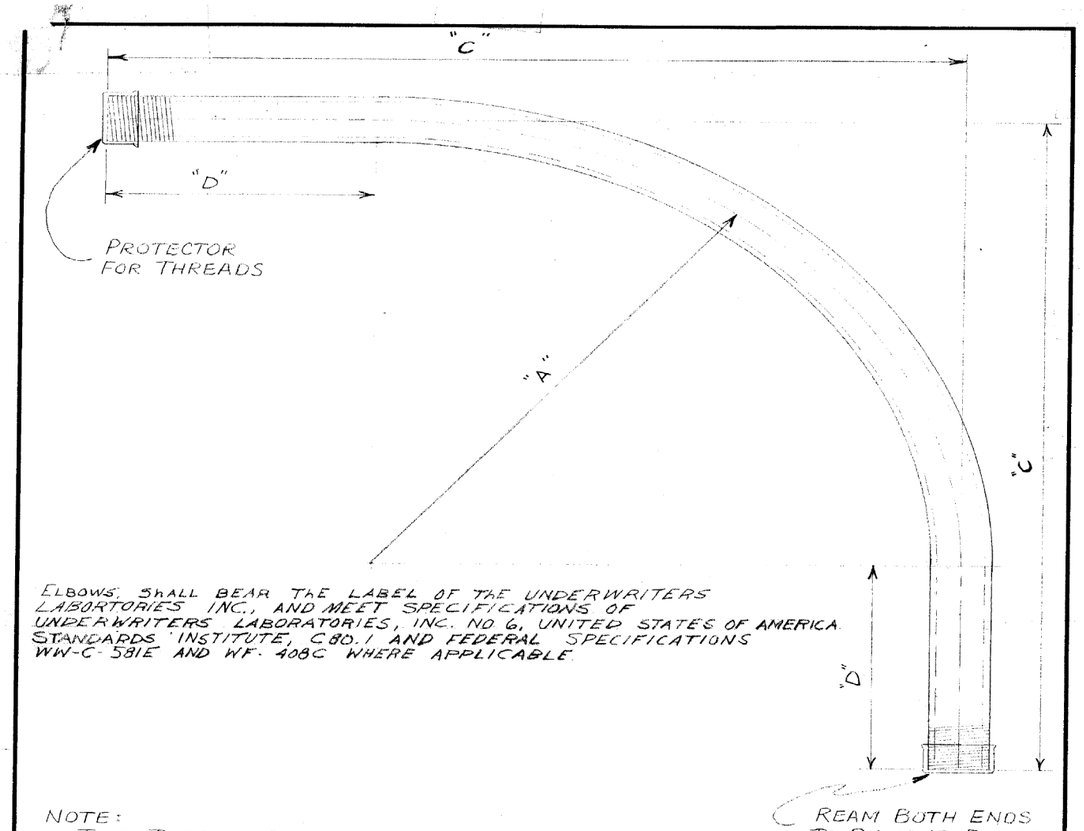
DRAWN BY: RS	WORK ORDER: 31876
CHECKED BY: GT	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER L-005

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
LIGHTING DETAILS

Color table: UPRR.tbl
pw:\\benesch-pw.bentley.com:benesch-pw-01\Documents\210000s\210070.11\Engineering Docs\UPRR Civil\Pentable\12N-UPRR_Harrison_Color_Half_UP.tbl
pw:\\benesch-pw.bentley.com:benesch-pw-01\Documents\210000s\210070.11\Engineering Docs\UPRR Civil\Sheets\12_Harrison\210070.11-sht-L005-Harrison.dgn
Default
5/24/2021



ELBOWS SHALL BEAR THE LABEL OF THE UNDERWRITERS LABORTORIES INC., AND MEET SPECIFICATIONS OF UNDERWRITERS LABORATORIES, INC. NO 6, UNITED STATES OF AMERICA STANDARDS INSTITUTE, C80.1 AND FEDERAL SPECIFICATIONS WW-C-581E AND WF-408C WHERE APPLICABLE.

NOTE:
TWO THREAD PROTECTORS TO BE FURNISHED ON EACH ELBOW, PROTECTOR TO COVER A MINIMUM OF TEN THREADS.

TABLE OF DIMENSIONS

CONDUIT SIZE	DIMENSIONS "A"	"C"	"D"	COMMODITY CODE
1 1/4"	24"	35"	11"	09-4001-0510
1 1/2"	24"	35"	11"	09-4001-0520
2"	24"	35"	11"	09-4001-4126
2 1/2"	24"	35"	11"	09-4001-4128
3"	24"	35"	11"	09-4001-4230
4"	24"	35"	11"	09-4001-0000

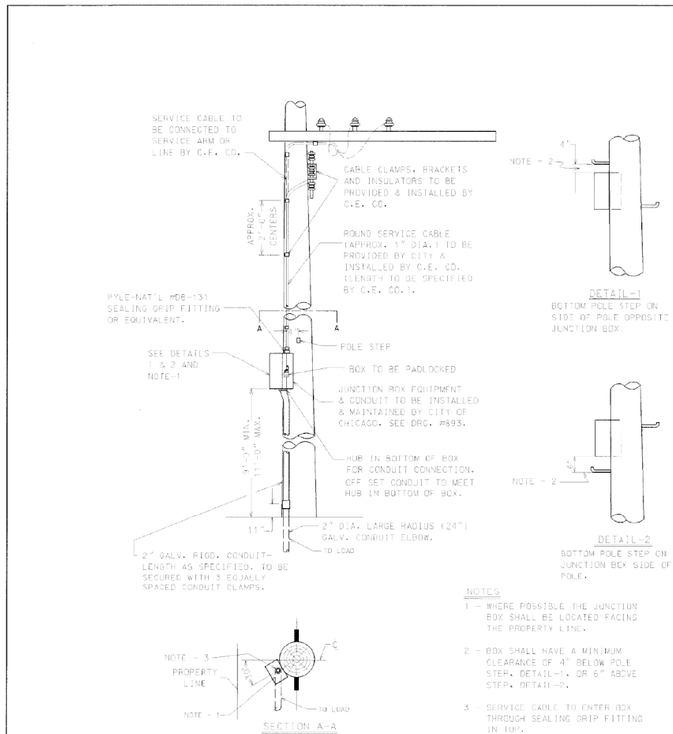
REVISED	
B	SPECIFICATIONS REVISED
A	REVISED DIMENSIONS ON 3" & 4" CONDUIT L.P.

ELBOW, CONDUIT, RIGID GALVANIZED STEEL, LARGE RADIUS

CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

REVISED	
A	7-22-71
B	4-3-79
C	
D	
E	
F	
G	

DRAWN: LON BURDY | CHECKED: M.S. | ENGINEER: M. SHINE
ENG. IN CHARGE: | SUPT. OF COMST.: | DEPUTY COMM.:
DRG. NO. 11825
SIZE 8½" x 14" | SCALE: 3/16" | DATE 6-2-71



REVISION	BY	DATE	DESCRIPTION
A		1-5-96	REPRIN

INSTALLATION OF SERVICE EQUIPMENT ON C.E. CO. WOOD POLES

CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

DRAFTSMAN: S. LEMASTER | CHIEF DRAFTSMAN: J. BORE | ENGINEER: J. BORE
SUPERVISING ENGINEER: S.W. BERMAN
ENGINEER OF ELECTRICITY:
DEP'T. SUPT. OF ELECTRICITY:
DEPUTY COMMISSIONER: Brian S. Murphy
DWG. NO. 11925
SIZE: | SCALE: | DATE: 12-26-96

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

ISSUED FOR CONSTRUCTION

REVISION	BY	DATE	DESCRIPTION

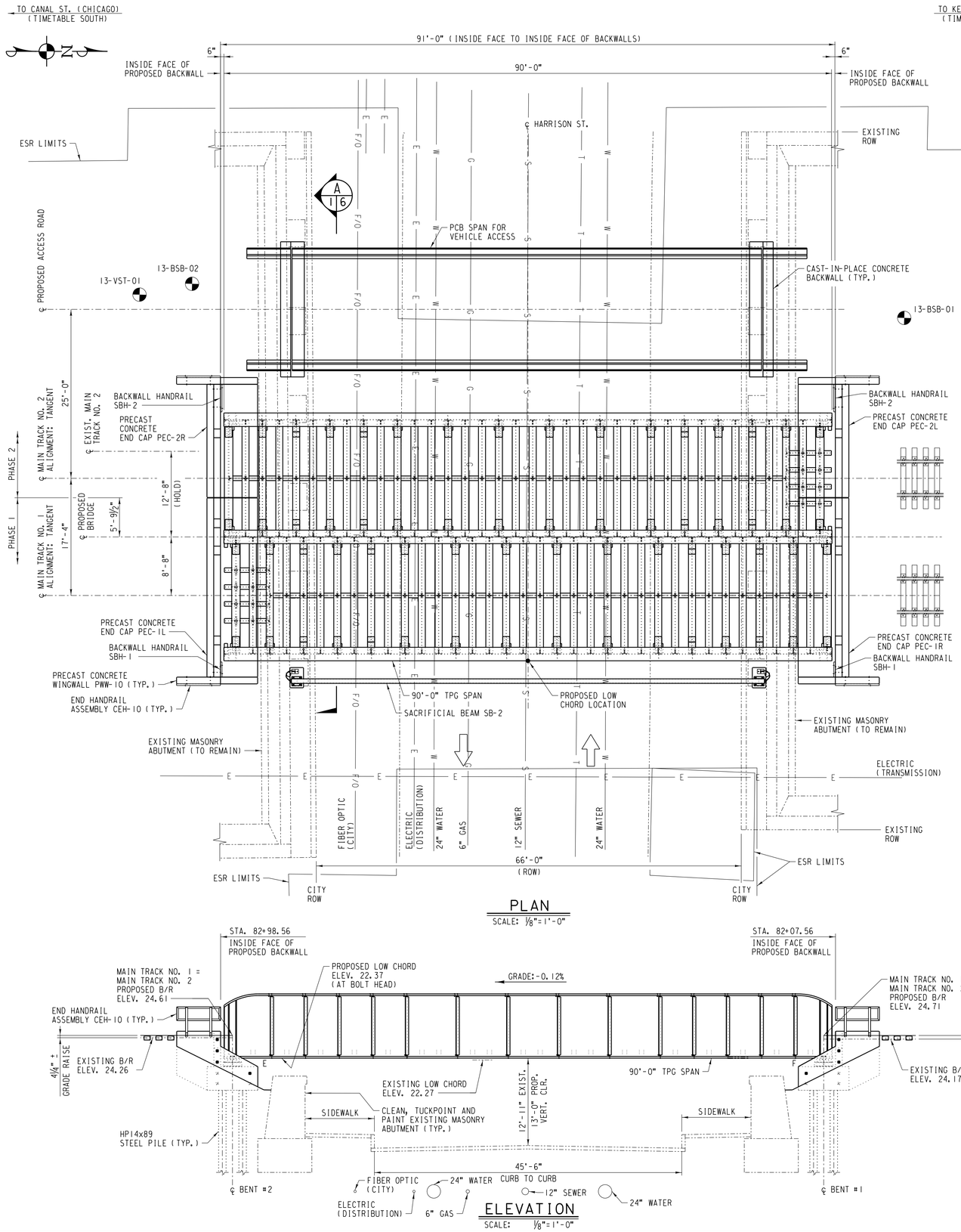
benesch
Alfred Benesch & Company
35 W. Wacker Drive Suite 3300
Chicago, Illinois 60601
312-565-0450 Job No. 210070.11

DRAWN BY: RS	WORK ORDER: 31876
CHECKED BY: GT	PID:
DATE: 05/28/21	BUDGET REF:
SCALE: N.T.S	SHEET NUMBER L-006

UNION PACIFIC RAILROAD — Director Structures Design

LOCATION & DESCRIPTION:
MP 1.55 ROCKWELL SUBDIVISION
HARRISON STREET BRIDGE REPLACEMENT

SHEET TITLE:
LIGHTING DETAILS



PLAN
SCALE: ⅛"=1'-0"

ELEVATION
SCALE: ⅛"=1'-0"

DRAWING SCHEDULE

THIS SET

SHEET NO.	DESCRIPTION
N1	GENERAL ARRANGEMENT
N2	PILE LAYOUT AND PILE DRIVING DIAGRAM
N3	SUBSTRUCTURE LAYOUT
N4	GENERAL NOTES AND BILL OF MATERIAL
N5	REMOVAL DETAILS
N6	TYPICAL SECTIONS
N7	SACRIFICIAL BEAM AND MISCELLANEOUS DETAILS
N8	BORING LOGS
N9	PRECAST CONCRETE END CAP 1R DETAILS
N10	PRECAST CONCRETE END CAP 1L DETAILS
N11	PRECAST CONCRETE END CAP 2R DETAILS
N12	PRECAST CONCRETE END CAP 2L DETAILS
N13	PRECAST CONCRETE WINGWALL PWW-10 DETAILS
N14	ACCESS BRIDGE CAST-IN-PLACE ABUTMENTS
N15	ACCESS BRIDGE PLAN AND CROSS SECTION
N16	ACCESS BRIDGE PARAPET DETAILS
N17	ACCESS BRIDGE EXPANSION JOINT DETAILS
N18	ACCESS BRIDGE REINFORCEMENT DETAILS (SHEET 1 OF 2)
N19	ACCESS BRIDGE REINFORCEMENT DETAILS (SHEET 2 OF 2)
N20	ACCESS BRIDGE MISCELLANEOUS DETAILS
N21	TPG FRAMING PLAN
N22	TPG BALLAST PAN AND GRATING PLAN
N23	TPG GIRDER ELEVATIONS AND DETAILS
N24	TPG TYPICAL SECTIONS (SHEET 1 OF 2)
N25	TPG TYPICAL SECTIONS AND NOTES (SHEET 2 OF 2)
N26	TPG ASSEMBLY DETAILS
N27	TPG KNEE BRACE DETAILS (SHEET 1 OF 2)
N28	TPG KNEE BRACE DETAILS (SHEET 2 OF 2)
N29	TPG FLOORBEAM CONNECTION PIECE DETAILS
N30	TPG MISCELLANEOUS PIECE DETAILS AND GRATING PANELS
N31	TPG FLOORBEAM DETAILS (SHEET 1 OF 2)
N32	TPG FLOORBEAM DETAILS (SHEET 2 OF 2)
N33	TPG STIFFENER ANGLE DETAILS
N34	TPG BEARING STIFFENER DETAILS
N35	TPG BALLAST PAN DETAILS
N36	TPG BALLAST PLATE DETAILS
N37	TPG STRESS, MATERIAL LIST AND LIFTING WEIGHT TABLES
N38	TPG BEARING LAYOUT
N39	TPG BEARING DETAILS - TYPE A
N40	TPG BEARING DETAILS - TYPE B
N41	TPG BEARING DETAILS - TYPE C
N42	TPG BEARING DETAILS - TYPE D
N43	NONSTANDARD MISCELLANEOUS STEEL DETAILS

REF.

NO.	DWG. NO.	SHEET NO.	REV. NO.	DESCRIPTION
1	531100	T2 & T3	-	GENERAL NOTES
2	531110	H1	-	PILE INSTALLATION DETAILS AND NOTES

F/O —— = FIBER OPTIC CABLE
OVERHEAD POWER —— = OVERHEAD POWER LINE

NOTES:
1. FOR PILE LAYOUT AND PILE DRIVING DIAGRAM, SEE SHEET NO. 2.
2. LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VERIFIED PRIOR TO CONSTRUCTION. NOTIFY DIGGER/811 CHICAGO AT 312-744-7000 TO HAVE THE LOCATION OF EXISTING UTILITIES STAKED TWO WORKING DAYS, 48 HOURS, BEFORE STARTING EXCAVATION.
3. E = EXPANSION
   F = FIXED

EST. WT. OF EXISTING SPAN
70'-0" TPGOD (STEEL ONLY) = 310,000 LB. (155.0 TON)
EST. WT. OF STEEL SPAN
90' TPG (PHASE 1, ASSEMBLED) = 335,680 LB. (167.8 TON)
90' COMMON GIRDER = 82,655 LB. EA. (41.3 TON)
90' SIDE GIRDER = 83,080 LB. EA. (41.5 TON)
EST. WT. OF PRECAST CONCRETE
END CAP PEC-1L = 121,455 LB. EA. (60.8 TON)
END CAP PEC-1R = 121,455 LB. EA. (60.8 TON)
END CAP PEC-2L = 77,910 LB. EA. (39.0 TON)
END CAP PEC-2R = 77,910 LB. EA. (39.0 TON)
WINGWALL PWW-10 = 11,955 LB. EA. (6.0 TON)

LETTER SERIES
SHEET NO. CUT ON — SHEET NO. SHOWN ON

SECTION DESIGNATION

POSTCONSTRUCTION COMPLIANCE

Contractor or UPRR Manager in charge of construction to provide to the office of the Director Structures Design as-built drawings confirming that the project was constructed in compliance with the plans and indicating any construction variances.

IN CHARGE OF CONSTRUCTION — DATE

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

MATTHEW F. BECKER
081-007755
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

EXPIRATION DATE: 11-30-2022
DATE: 02-12-2021

UNION PACIFIC

DSN/CHK BY:	FNF / MFB
DRAWN/CHK BY:	RR / MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N1 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

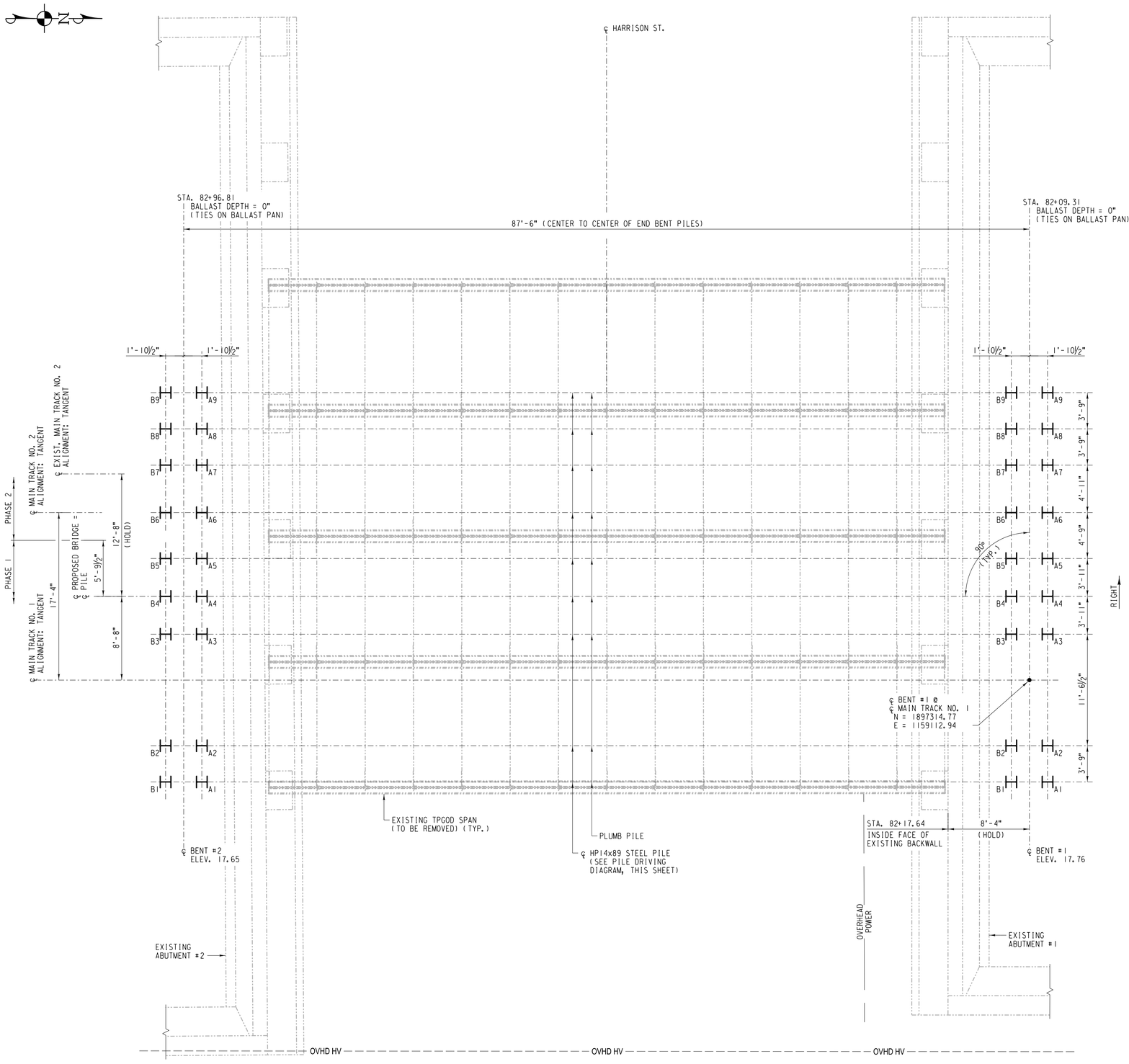
SHEET TITLE: GENERAL ARRANGEMENT

FILE NAME: C:\Users\rcramer\Desktop\rc00155_b11.dgn

PLOTTED: 5/21/2021 4:39:56 PM

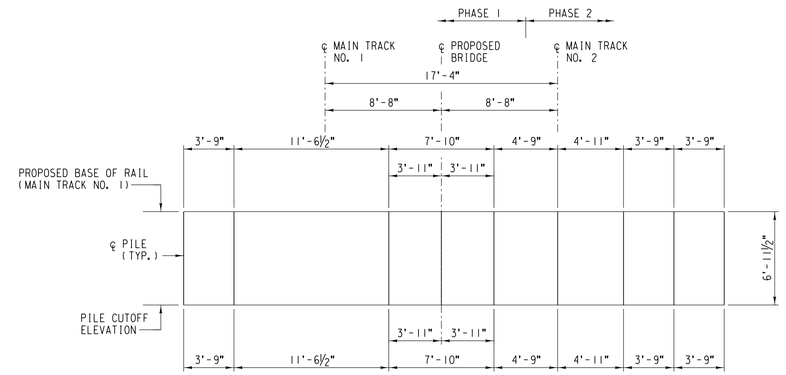
TO CANAL ST. (CHICAGO)
(TIMETABLE SOUTH)

TO KEDZIE (CHICAGO)
(TIMETABLE NORTH)



PILE LAYOUT

SCALE: 3/16"=1'-0"
AT PILE CUTOFF



PILE DRIVING DIAGRAM

SCALE: NO SCALE
BENT #1 AND #2

NOTE:
CCD = CHICAGO CITY DATUM

EST. PILE TIP DATA	
BENT	ELEV.
#1	-57.50 CCD
#2	-53.00 CCD

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

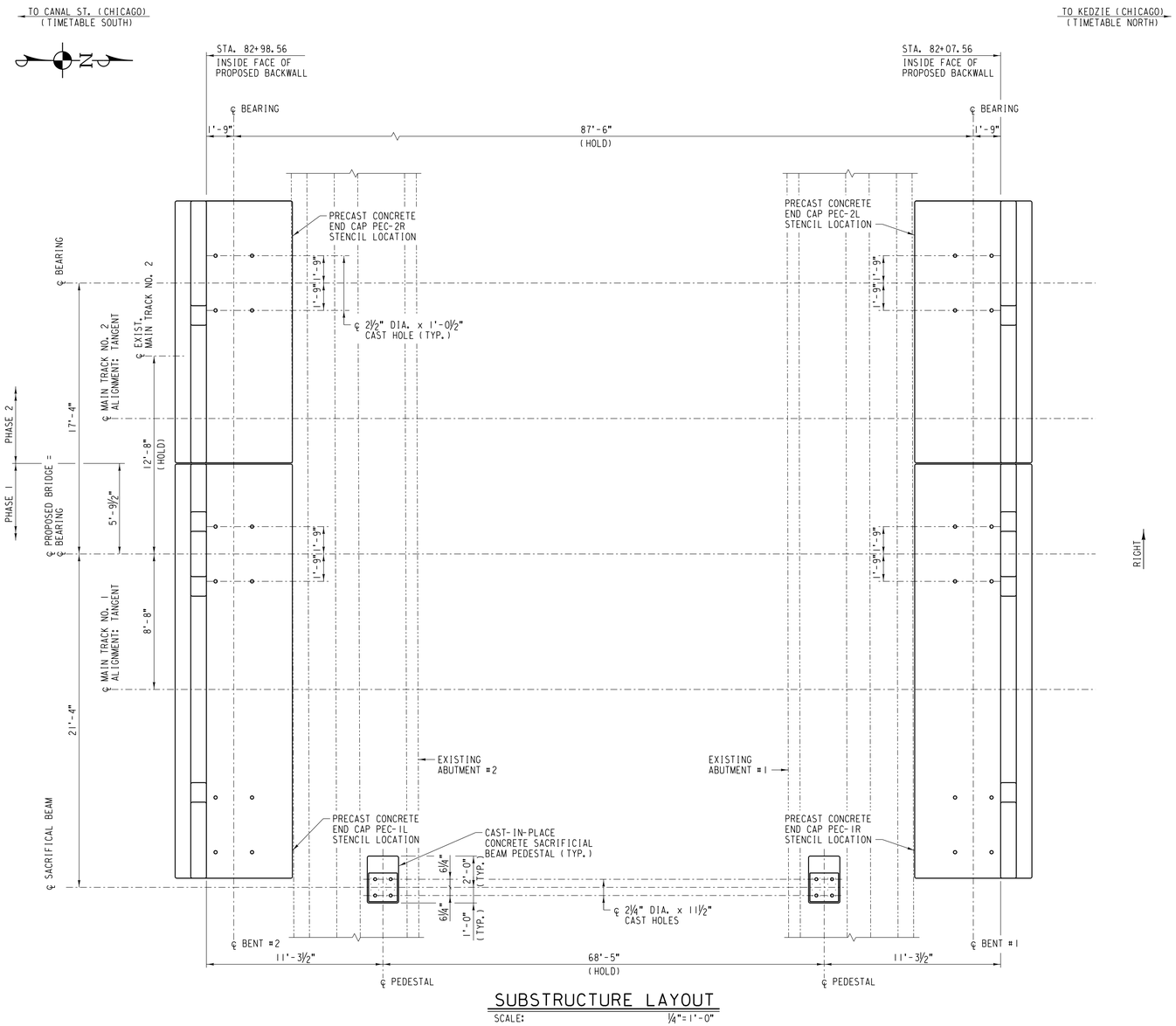
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N2 of N43	SHEET TITLE: PILE LAYOUT AND PILE DRIVING DIAGRAM

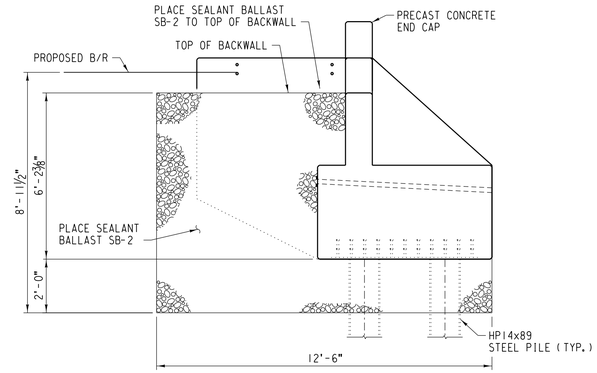
FILE NAME: C:\Users\rramirez\Desktop\rc00155_bill.dgn

PLOTTED: 5/21/2021 4:39:56 PM



SUBSTRUCTURE LAYOUT

SCALE: ¼"=1'-0"



END BENT BACKFILL DETAIL

SCALE: 3/16"=1'-0"

END HANDRAIL ASSEMBLY AND TPG
SPAN NOT SHOWN FOR CLARITY

NOTE:
FOR CONSTRUCTION SEQUENCE, SEE SHEET NO. 4.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB
DRAWN/CHK BY: RR /MFB
UPRR ENGINEER: DEH / ADS
SHT NO.: N3 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE:
SUBSTRUCTURE LAYOUT

FILE NAME: C:\Users\ecorrea\Desktop\roc00155_bil.dgn

PLOTTED: 5/21/2021 4:39:56 PM

DESIGN NOTES

1. In the event of a conflict between the design plans and the standards, the design plans shall control.
2. Location of known utilities is approximate. Location shall be verified prior to construction. Notify DIGGER/811 CHICAGO, 1-312-744-7000, at least 48 hours prior to construction.

RIGHT-OF-WAY

1. Approx. 43'-0" east of existing Main Track No. 1 centerline.
2. Approx. 47'-0" west of existing Main Track No. 2 centerline.

LAYOUT

1. Stationing: Sta. 82+17.64, south face of north abutment backwall of existing Bridge No. 1.55.
2. Elevation Datum: Chicago City Datum (CCD)
3. Benchmark: BM #276, Elev. 14.66 (CCD), 6.4 feet north of south line of W Congress Parkway and 47.1 feet east of east line of S Washtenaw Avenue.
4. Profile: Increase in rail elevation varies, 4" to 6".

   Rail Size: 136# (Main Track No. 1), 136# (Main Track No. 2)
5. Alignment: Tangent.
6. Information used to prepare this drawing in addition to reference drawings:

   Survey conducted by AMERICAN SURVEYING & ENGINEERING, from 2012 to 2017.

   Geotechnical Design Report prepared by WANG ENGINEERING, INC., dated 01/05/2021.

PILE DRIVING

1. All piles shall be driven to 123 ton service capacity.
2. Constructor shall assume one pile load test will be required in accordance with City of Chicago Department of Buildings. If pile load test is required, Constructor shall be performed in accordance with ASTM D1143 using Procedure A.

DESIGN

1. The proposed superstructure and substructure have been designed in accordance with the AREMA Manual for Railway Engineering, Chapter 8: Concrete Structures and Foundations and Chapter 15: Steel Structures, except longitudinal load, which is designed per the 1996 AREA Manual for Railway Engineering.
2. This superstructure was designed for Cooper E80 Live Load or alternate loading, where applicable, plus impact with a 30" maximum total depth of ballast. The substructure was similarly designed, but without impact (AREMA Chapter 8: Article 2.2.3.d.3).
3. This drawing was prepared using 0" (min.) of ballast under timber ties.

EXISTING MASONRY ABUTMENT RESTORATION NOTES

Existing Masonry Abutment Restoration consists of tuckpointing the joints and cleaning and painting the exposed surface of the existing masonry abutments. Limits include the width of railroad ROW, both abutments. All surfaces exposed to the roadway below should receive restoration treatment.

TUCKPOINTING

1. Loose, unsound or disintegrated mortar pointing between the masonry joints shall be removed and the joints cleaned and washed before pointing with new mortar. The exposed beds and joints shall be thoroughly cleaned by chipping with chisels or similar tools, scraping and brushing out the mortar to a minimum depth of 1-1/2 inches, and washing thoroughly with clean water.
2. Areas to be tuckpointed should be wet thoroughly to prevent absorption of water from the mortar.
3. Mortar shall be tucked into the joints and finished with a smooth face struck flush with masonry face. All excess material shall be removed and the joint tooled to a neat workmanlike finish.
4. Tuckpointing mortar shall be FX 262 Repair Mortar as manufactured by Fox Industries or Commercial Grade FastSet Repair Mortar as manufactured Quikrete, or an approved equal. The mortar shall be applied according to the manufacturer's specifications.

CLEANING

1. Constructor shall use water cleaning to clean the existing abutment masonry surfaces of paint, heavy soiling, staining, organic and inorganic contaiminants, and all loose, foreign material to teh satifsfaction of the Engineer. Cleaning operations shall consist of pressure spraying, hand scrubbing and rinsing. Cleaning operations shall be performed after all tuckpointing repairs are performed to the existing abutments.
2. Constructor shall provide water cleaning equipment including a trailer-mounted water tank, pumps, high-pressure hose, wand with safety release cutoff control, nozzle, and auxiliary water re-supply equipment. Water used for cleaning shall be potable and obtained from a local source. Water shall also be filtered to remove minerals resulting in a neutral pH prior to its use.
3. Hand scrubbing of masonry shall be performed with natural- or nylon-bristled, hand held brushes. Wire brushes shall not be used.
4. Protective covers and barriers shall be provided as required to prevent over-spray onto adjacent surfaces or new steel superstructure and bearings.
5. Pressure spraying and rinsing equipment shall be capable of a discharge capacity of 55 to 400 psi and 2.5 to 3.0 gallons per minute for general surface cleaning operations. The water tank and auxiliary re-supply equipment shall be of sufficient capacity to permit continuous operations. Equipment shall not be operated at a pressure which will cause etching or other damage to the masonry surface or mortar joints.
6. Cleaning operations shall commence when the air temperature is above, and expected to remain above, 40 degrees F for not less than 7 consecutive days.
7. Adjust cleaning operations as required to ensure masonry and mortar joints are not damaged and an accesptable process is obtained.

PAINTING

1. Apply paint to all existing and new abutment surfaces in accordance with paint manufacturer's specifications.
2. Constructor shall coordinate paint system type, color and sheen with the CDOT - Division of Engineering.

PROPOSED CONSTRUCTION SEQUENCE

1. All work to be performed by Contractor, except where noted in parentheses. Both tracks shall remain in service except for natural windows and/or prearranged work blocks. Contractor and Railroad shall define Existing Main Track No. 1 and Track No. 2 extended work block date and duration. Extended work block shall be prearranged during one weekend in each construction phase. Work shall generally include, but is not limited to:

PHASE 1

1. Existing Main Track No. 1 and No. 2 to remain in service except during extended work block.
2. During work windows, install temporary shoring between Phase 1 and Phase 2 and drive pile for Phase 1 construction (immediately remove pile to B/R).
3. Close traffic service on Existing Main Track No. 1 for extended work block (Railroad).
4. Remove existing rail, ties, ballast and OTM (Railroad).
5. Remove existing steel span (eastern girder with floor system), bearings, riser blocks and excavate as required to remove existing backwall on both abutments for installation of new bridge for Proposed Main Track No. 1.
6. Excavate as required and remove driven pile to final cutoff elevations.
7. Install precast concrete end caps and wingwalls.
8. Install Phase 1 portion of TPG span.
9. Install portion of abutment backfill and subballast.
10. Place ties, rail and OTM (Railroad).
11. Place Main Track No. 1 back in service on proposed alignment (Railroad).
12. Construct cast-in-place pedestals for sacrificial beam.
13. Install sacrificial beam.

PHASE 2

1. Main Track No. 1 and Existing Main Track No. 2 to remain in service except during extended work block.
2. During work windows, drive pile for Phase 2 construction (immediately remove pile to B/R).
3. Close traffic service on Existing Main Track No. 2 for extended work block (Railroad).
4. Remove existing rail, ties, ballast and OTM (Railroad).
5. Remove remaining existing steel spans, bearings, riser block and excavate to remove existing backwall on both abutments as required for installation of new bridge for Proposed Main Track No. 2.
6. Excavate as required and remove driven pile to final cutoff elevations.
7. Install remaining precast concrete end caps and wingwalls.
8. Install Phase 2 portion of TPG span for Proposed Main Track No. 2.
9. Install remaining portion of abutment backfill and subballast.
10. Remove temporary shoring.
11. Place ties, rail and OTM (Railroad).
12. Place Main Track No. 2 back in service on proposed alignment (Railroad).
13. Remove remaining existing riser blocks and backwall on both abutments and excavate as required for installation of new bridge for Access Road.
14. Construct cast-in-place concrete bridge seat for proposed Access Road Bridge.
15. Install 33" x 36" PPC Deck Beams.
16. Construct cast-in-place backwalls and wingwalls for proposed Access Road Bridge.
17. Install remaining portion of abutment backfill as required.
18. Install cast-in-place concrete parapet on Access Road Bridge.
19. Install waterproofing and aggregate surface course on Access Road Bridge.
20. Restore area to original condition or better.

BILL OF MATERIAL

TOTAL	PHASE 1	PHASE 2	UNIT	DESCRIPTION	STORE ITEM NO.	ORDERED BY
1	1	-	EA.	STRUCTURAL STEEL AND FASTENERS, INCLUDING BEARING MATERIAL, FOR ONE 90'-0" TPG STEEL SPAN, COMPLETE (PER NOTES, SHEET NO. N25, DETAILS, SHEET NOS. N21 THRU N36, BEARINGS, SHEET NOS. N38 THRU N42 AND MATERIAL LISTS, SHEET NO. N37)	122529-1	MANAGER TRACK PROJECTS
1	1	-	EA.	PRECAST CONCRETE END CAP PEC-1R (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N9)	122529-2	
1	1	-	EA.	PRECAST CONCRETE END CAP PEC-1L (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N10)	122529-3	
1	-	1	EA.	PRECAST CONCRETE END CAP PEC-2R (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N11)	122529-4	
1	-	1	EA.	PRECAST CONCRETE END CAP PEC-2L (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N12)	122529-5	
4	2	2	EA.	PRECAST WINGWALL PWW-10 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N13)	122529-6	
1	1	-	LOT	NON-STANDARD MISCELLANEOUS STEEL (PER SCHEDULE, SHEET N7)	122529-7	
4	2	2	EA.	END HANDRAIL ASSEMBLY CEH-10 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N43)	122529-8	
2	2	-	EA.	BACKWALL HANDRAIL SBH-1 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N43)	122529-9	
2	-	2	EA.	BACKWALL HANDRAIL SBH-2 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N43)	122529-10	
1	1	-	LOT	4,000 PSI CONCRETE FOR SACRIFICIAL BEAM PEDESTALS (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N7)	122529-11	
1	1	-	LOT	REINFORCING STEEL FOR SACRIFICIAL BEAM PEDESTALS (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N7)	122529-12	
1	1	-	LOT	EMBED PLATE EB-10 FOR SACRIFICIAL BEAM PEDESTALS (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. N7)	122529-13	
36	20	16	EA.	HP14x89x 40'-0" STEEL PILE (ASTM A572 GRADE 50, PLAIN)	510-7557	
36	20	16	EA.	HP14x89x 50'-0" STEEL PILE (ASTM A572 GRADE 50, PLAIN)	510-7565	
36	20	16	EA.	HP14 x 89 PILE POINTS (PER NOTES & DETAIL, STD. DWG. 531110 SHT. H1)	510-8063	
36	20	16	EA.	HP14 x 89 PILE SPLICER (PER NOTES & DETAIL, STD. DWG. 531110 SHT. H1)	510-8065	
1	-	1	EA.	C10x15.3x 20'-0" STEEL BRACING (ASTM A572 GR. 50, PLAIN)	247-6649	
2	1	1	QT.	ZRC COLD GALVANIZING COMPOUND OR APPROVED ALTERNATE	513-3960	
1	-	1	EA.	BRIDGE MARKER AND NO TRESPASSING SIGNS, MOUNTING POST AND MOUNTING HARDWARE (PER STD. DWG. 0502, 0507, 0538 AND 0599)	P00-2616	
55.8	-	55.8	CU. YD.	4000 PSI CONCRETE, 29.7 CU. YD. FOR ACCESS BRIDGE ABUTMENTS, 25.5 CU. YD. FOR ACCESS BRIDGE PARAPETS AND 0.6 CU. YD. FOR ACCESS BRIDGE EXPANSION JOINTS (PER PROJECT SPECIFICATIONS AND PER DETAILS, SHEET NO. N14, N16 AND N17)		CONSTRUCTOR
1	-	1	LOT	REINFORCING STEEL FOR ACCESS BRIDGE ABUTMENTS, ACCESS BRIDGE PARAPETS AND ACCESS BRIDGE EXPANSION JOINTS (PER PROJECT SPECIFICATIONS AND PER NOTES AND SCHEDULES, SHEET NOS. N14, N16 AND N17)		
1	-	1	LOT	DRILL AND EPOXY GROUT BARS FOR ACCESS BRIDGE ABUTMENTS (PER PROJECT SPECIFICATIONS AND PER NOTES AND DETAILS, SHEET NO. N14)		
1	-	1	LOT	LIQUID SPRAY-ON-WATERPROOFING FOR ACCESS BRIDGE SPAN (PER PROJECT SPECIFICATIONS AND PER NOTES AND SCHEDULE, SHEET NO. N15)		
1	-	1	LOT	AGGREGATE SURFACE COURSE FOR ACCESS BRIDGE SPAN (PER PROJECT SPECIFICATIONS AND PER NOTES AND SCHEDULE, SHEET NO. N15)		
1	-	1	LOT	PREFORMED JOINT STRIP SEAL FOR ACCESS BRIDGE SPAN (PER PROJECT SPECIFICATIONS AND PER NOTES AND SCHEDULE, SHEET NO. N17)		
1	-	1	LOT	PRECAST PRESTRESSED CONCRETE DECK BEAMS FOR ACCESS BRIDGE SPAN (PER PROJECT SPECIFICATIONS AND PER NOTES, DETAILS AND SCHEDULE SHEET NOS. N18 AND N19)		
1	-	1	LOT	STRUCTURAL STEEL FOR APRON PLATE AND SIDE PLATES (PER PROJECT SPECIFICATIONS AND PER NOTES, DETAILS AND SCHEDULE SHEET NO. N20)		
1	-	1	LOT	EXISTING MASONRY ABUTMENT RESTORATION (PER NOTES, THIS SHEET)		
28	14	14	GAL	CARLISLE CCW-201 POLYURETHANE SEALANT (PER NOTES, SHEET NO. N22)		
2	1	1	LOT	NON-SHRINK CEMENTITIOUS GROUT FOR TPG BEARING ANCHOR RODS, SACRIFICIAL BEAM ANCHOR RODS AND ACCESS BRIDGE DOWEL RODS AND ANCHOR RODS		
370	187	183	TON	SEALANT BALLAST (PER STANDARD DRAWING 0010E AND DETAILS, SHEET NOS. N3 AND N14)	562-5428	
1	1	-	LOT	TEMPORARY SHORING AS REQUIRED (PER NOTES, STD. DWG. 531100 SHT. T2)		

EST. WT. OF STRUCTURAL STEEL (NOT INCL. BOLTS) = 626,000 LB.
EST. WT. OF NON-STANDARD STRUCTURAL STEEL (SACRIFICIAL BEAM) = 7,963 LB.
EST. WT. OF NON-STANDARD STRUCTURAL STEEL (HANDRAILS) = 1,176 LB.
EST. WT. OF STEEL PILING = 288,360 LB.

BULK MATERIAL QUANTITIES ARE ESTIMATED.

NOTE:
CONSTRUCTOR DESIGNATES MANAGER BRIDGE CONSTRUCTION IF CONSTRUCTION BY UPRR AND CONTRACTOR IF CONSTRUCTION BY CONTRACTOR.

NOTE:
ALL NOTES NOT PROVIDED IN THESE PLANS SHALL BE PER STD. DWG. 531100 SHT. T2.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

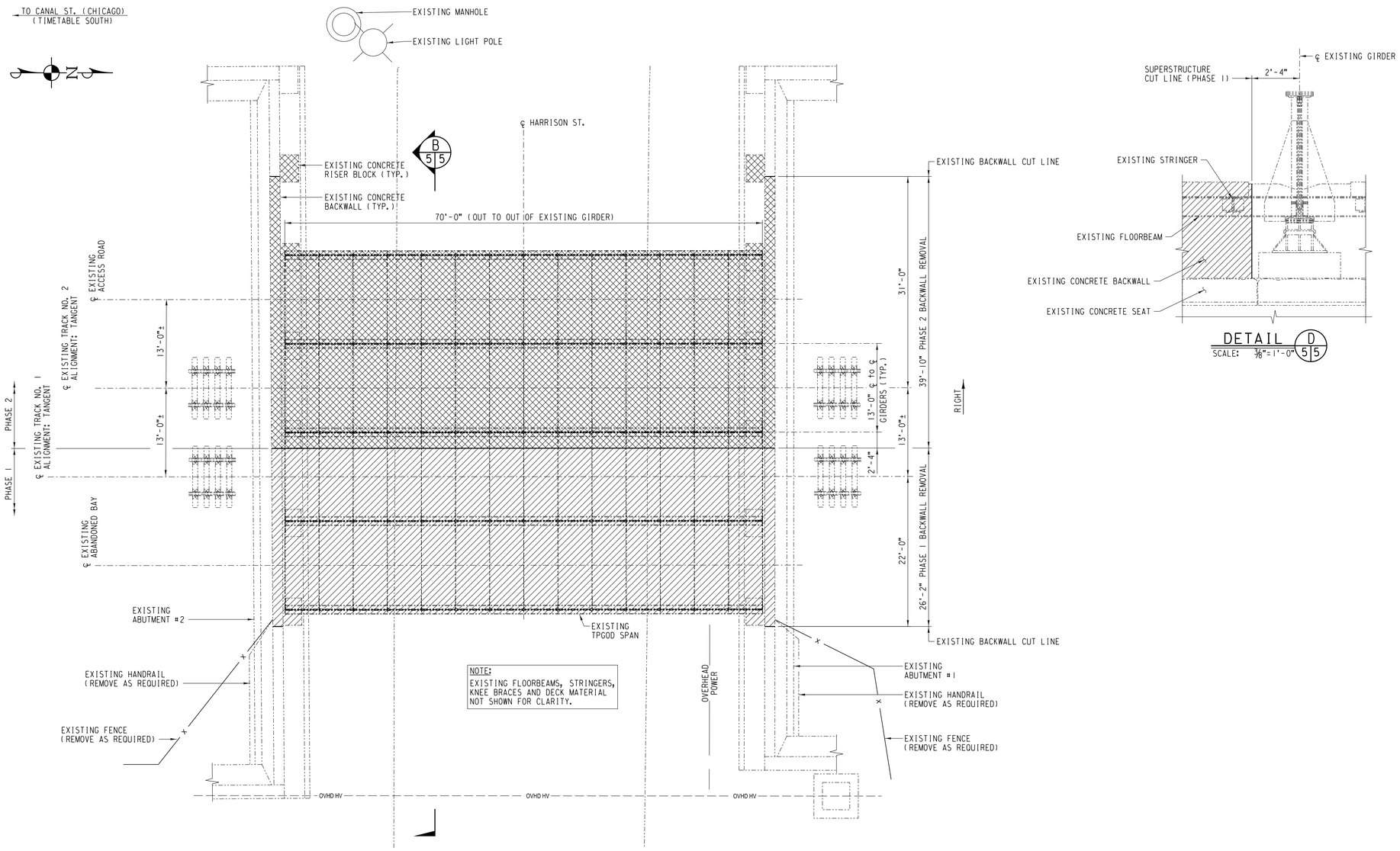
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N4 of N43	SHEET TITLE: GENERAL NOTES AND BILL OF MATERIAL

FILE NAME: C:\Users\rromirez\Desktop\roc00155_bill.dgn

PLOTTED: 5/21/2021 4:39:57 PM

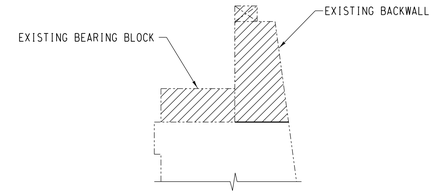


REMOVAL PLAN

SCALE: 1/8"=1'-0"

DETAIL D 5|5

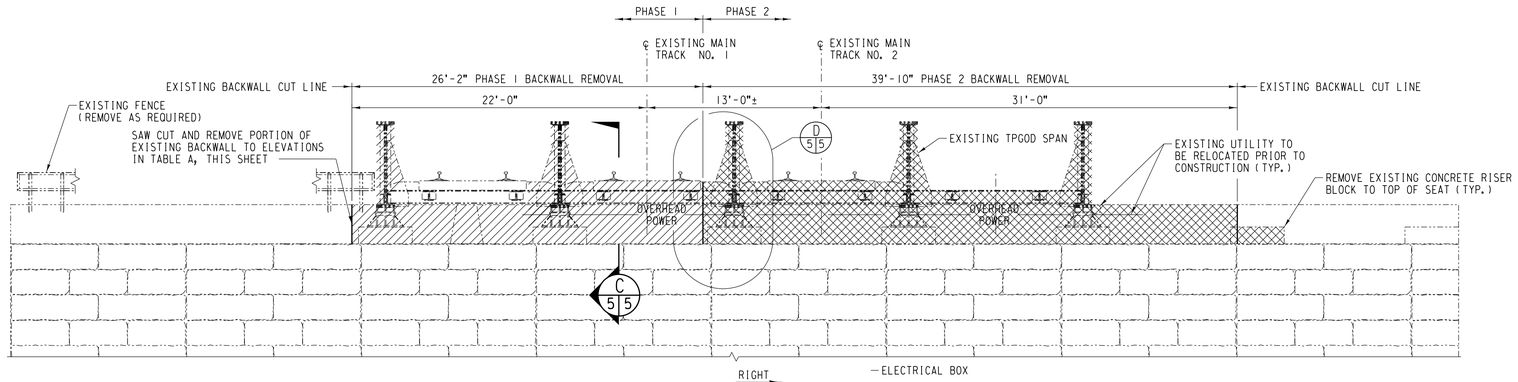
SCALE: 3/8"=1'-0"



DETAIL C 5|5

SCALE: 3/8"=1'-0"

EXISTING GIRDER AND BEARING NOT SHOWN, FOR CLARITY



SECTION B 5|5

SCALE: 3/16"=1'-0"

ABUTMENT #2 SHOWN, ABUTMENT #1 SIMILAR

TABLE A	
LOCATION	REMOVAL ELEV.
UNDER PROP. SUPERSTRUCTURE	TOP OF EXIST. RISER BLOCKS
OUTSIDE PROP. SUPERSTRUCTURE	EXIST. MASONRY ABUT. SEAT

NOTES:

1. CONTRACTOR TO FIELD VERIFY EXISTING SUPERSTRUCTURE AND REQUIRED REMOVAL PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR TO VERIFY LIFTING WEIGHTS OF EXISTING TPG-OD SPANS AND METHOD OF REMOVAL PRIOR TO CONSTRUCTION

NOTE:

EXISTING SPAN ESTIMATED WEIGHT = 405,000 LB (STEEL ONLY)

PHASE 1 REMOVAL

PHASE 2 REMOVAL

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N5 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE: REMOVAL DETAILS

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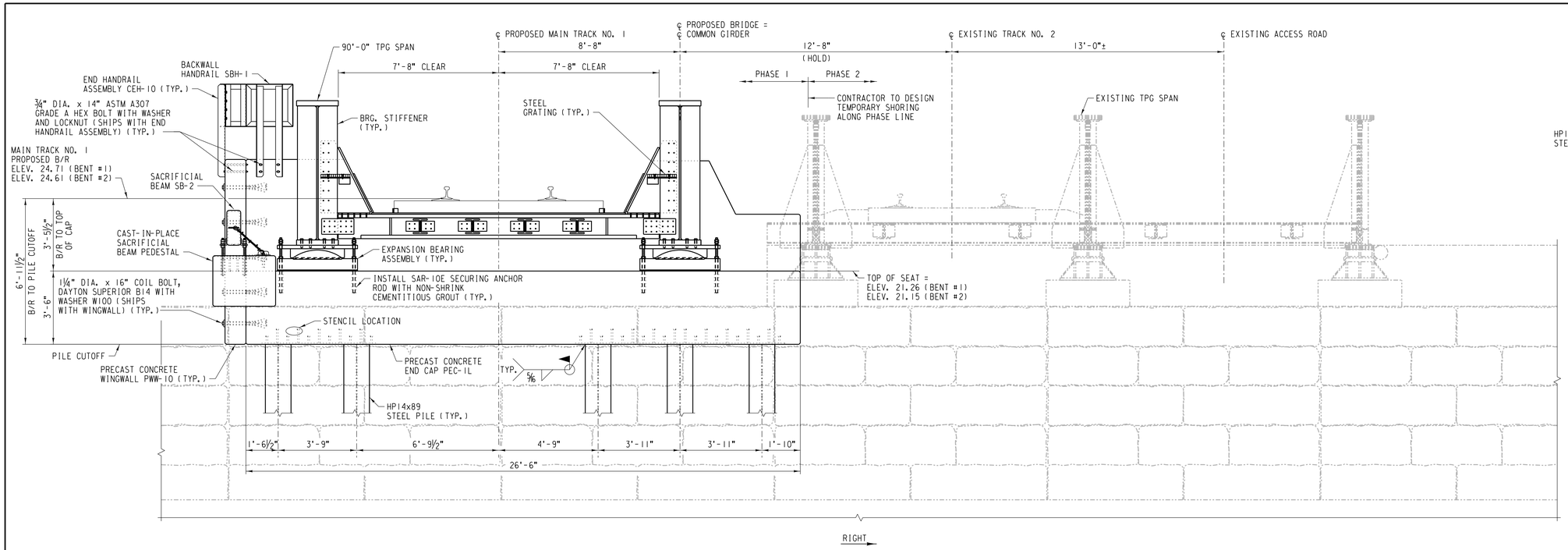
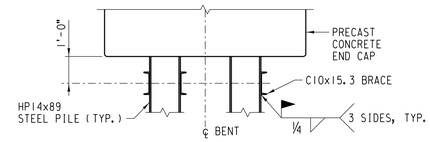
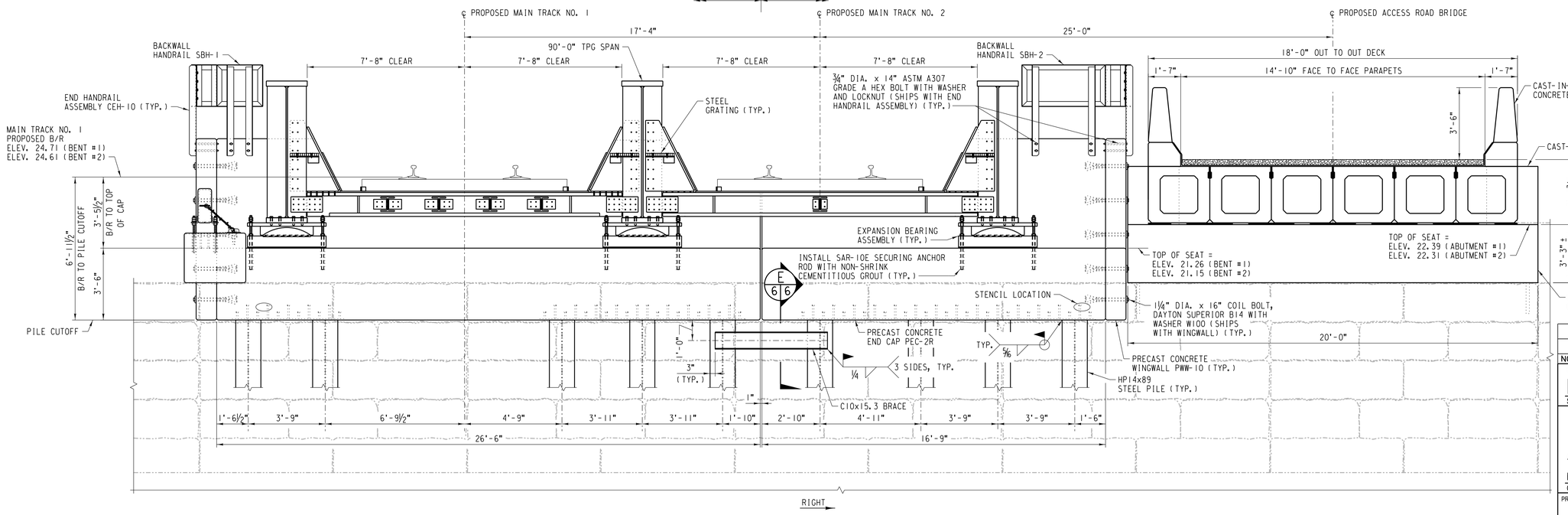


PHASE 1 SECTION (A) 1 | 6
SCALE: 3/8"=1'-0"



SECTION (E) 6 | 6
SCALE: 3/8"=1'-0"

NOTE:
FOR GRATING CONNECTION DETAILS, SEE SHEET NO. 27 AND 28.



PHASE 2 SECTION (A) 1 | 6
SCALE: 3/8"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N6 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE:
TYPICAL SECTIONS

FILE NAME: c:\Users\wrcmirex\Desktop\roc00155_b11.dgn

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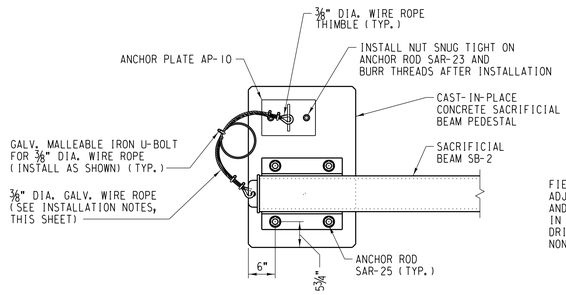
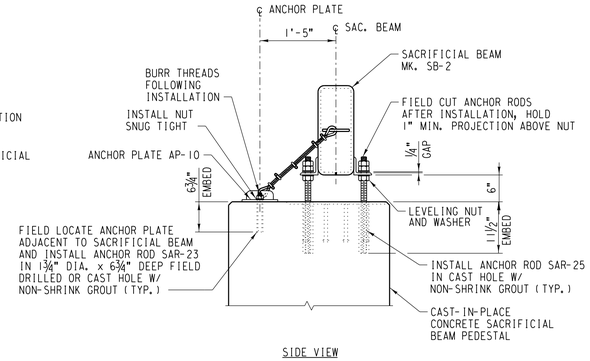
SACRIFICIAL BEAM INSTALLATION NOTES

1. Contractor is responsible for field verifying minimum vertical clearance from low chord to roadway at proposed bridge and match vertical clearance at sacrificial beam location.
2. Sacrifical beam shall be set level using leveling nuts as neccessary.
3. Field adjust location of anchor plate as required for installation. Maintain 6" clear from anchor rod to edge of sacrificial beam pedestal.



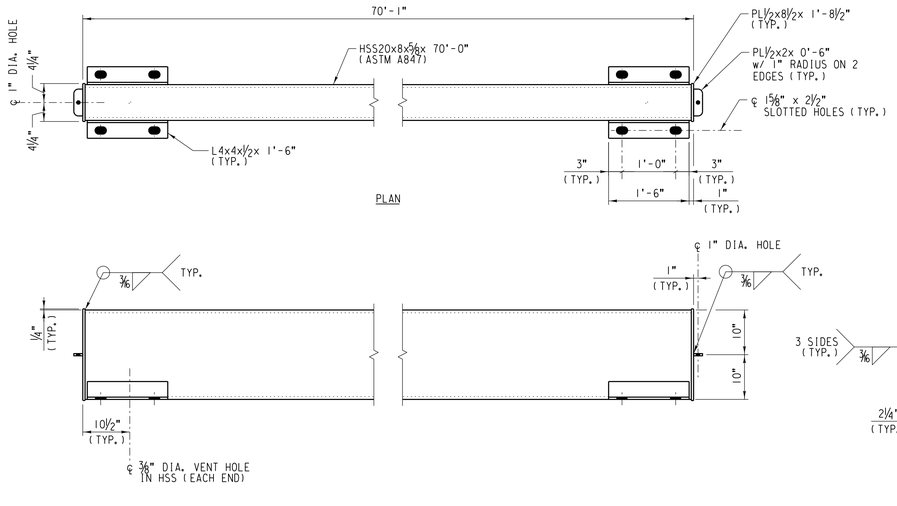
PLAN



SIDE VIEW

SACRIFICIAL BEAM INSTALLATION DETAIL

SCALE: ¾"=1'-0"



PLAN

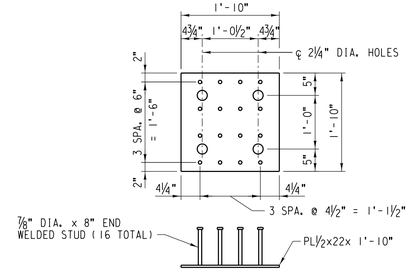
ELEVATION

SECTION

SACRIFICIAL BEAM SB-2

SCALE: ¾"=1'-0"

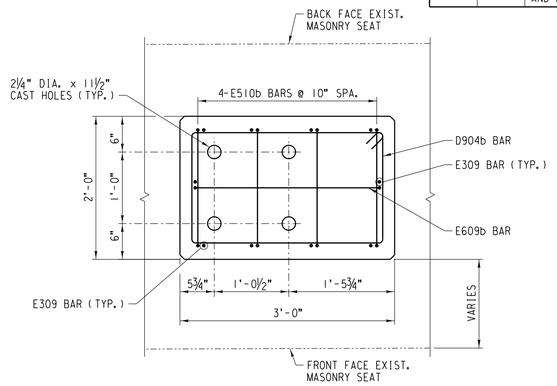
EST. WT. = 7,855 LB. EACH



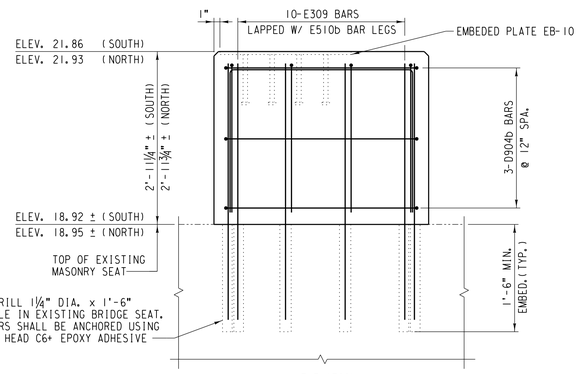
EMBED PLATE EB-10

SCALE: ¾"=1'-0"

EST. WT. = 92.2 LB. EACH



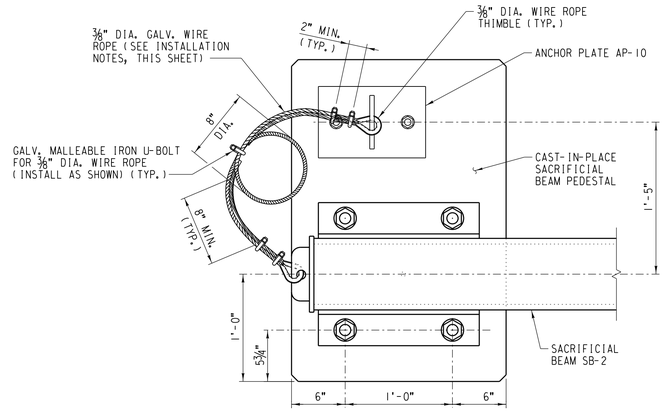
PLAN



ELEVATION

CAST-IN PLACE PEDESTAL

SCALE: 1"=1'-0"

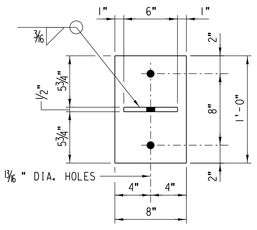


WIRE ROPE INSTALLATION DETAIL

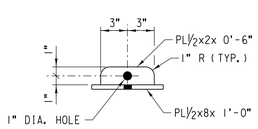
SCALE: 1½"=1'-0"

WIRE ROPE INSTALLATION INSTRUCTIONS FOR SACRIFICIAL BEAMS:

1. THREAD WIRE ROPE THROUGH PL½x2x 0'-6" ON SACRIFICIAL BEAM AND FASTEN WITH U-BOLTS.
2. CREATE 8" DIA. LOOP IN WIRE ROPE, STRETCH WIRE ROPE, THREAD THROUGH HOLE IN ANCHOR PLATE, AND FASTEN. LEAVE CLIP LOOSE.
3. REMOVE ALL SAG BETWEEN CONNECTION POINTS TO 4-6 INCHES. TIGHTEN ALL U-BOLTS.



PLAN

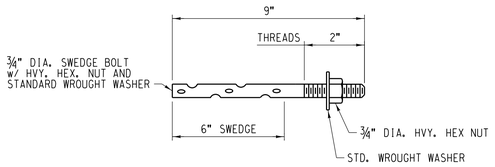


ELEVATION

ANCHOR PLATE AP-10

SCALE: 1½"=1'-0"

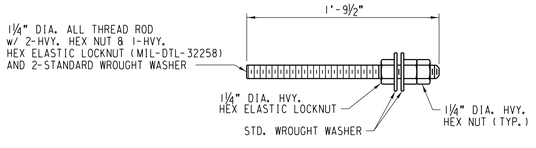
EST. WT. = 15.3 LB. EACH



ANCHOR ROD SAR-23

SCALE: NONE

EST. WT. = 1.4 LB. EACH
ASTM F1554 GR. 36



ANCHOR ROD SAR-25

SCALE: NONE

EST. WT. = 8.8 LB. EACH
ASTM F1554 GR. 36

NON-STANDARD MISCELLANEOUS STEEL SCHEDULE

REQ'D.	UNIT	DESCRIPTION
2	EA.	ANCHOR PLATE AP-10 (PER NOTES, STD. DWG 531100 SHT. T3 AND DETAIL, THIS SHEET)
8	EA.	ANCHOR ROD SAR-25 (PER NOTES & DETAILS, THIS SHEET)
4	EA.	HEAVY PATTERN-HEAVY DUTY GALVANIZED CARBON STEEL WIRE ROPE THIMBLE FOR ⅜" DIA. WIRE ROPE, ZINC PLATED
1	EA.	SACRIFICIAL BEAM SB-2 (PER NOTES, STD. DWG 531100 SHT. T3 AND DETAIL, THIS SHEET)
4	EA.	ANCHOR ROD SAR-23 (PER NOTES & DETAILS, THIS SHEET)
20	LIN. FT.	⅜" NOMINAL DIAMETER WIRE ROPE, 7 WIRE, GALV. STEEL STRAND, SIEMENS MARTINS GRADE, A-COATING
10	EA.	GALV. MALLEABLE IRON U-BOLT w/ 2 ELASTIC LOCKNUTS (MIL-DTL-32258), ZINC PLATED, FOR ⅜" DIA. WIRE ROPE

EST. WT. OF NON-STANDARD MISCELLANEOUS STEEL = 7,963 LB.

MATERIAL SCHEDULE (PER PEDESTAL)

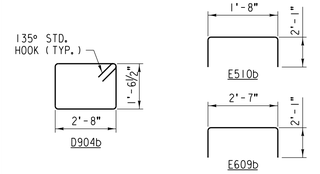
REQ'D.	UNIT	DESCRIPTION
0.7	CU. YD.	4,000 PSI CONCRETE (PER NOTES, STD. DWG 531100 SHT. T3)
1	LOT	REINFORCING STEEL (PER NOTES, STD. DWG 531100 SHT. T3 AND SCHEDULE, THIS SHEET)
1	EA.	EMBED PLATE EB-10 (PER NOTES, STD. DWG 531100 SHT. T3 AND DETAILS, THIS SHEET)

REINFORCING SCHEDULE (PER PEDESTAL)

TOTAL	MARK	SIZE	LENGTH	SHAPE
3	D904b	#5	9'-4"	□
10	E309	#6	3'-9"	—
4	E510b	#6	5'-10"	⊓
1	E609b	#6	6'-9"	⊓

BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 140 LB.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N7 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE: SACRIFICIAL BEAM AND MISCELLANEOUS DETAILS

FILE NAME: C:\Users\rramirez\Desktop\cc00155_bill.dgn

PLOTTED: 5/21/2021 4:39:58 PM

Wang Engineering
wangeng@wangeng.com
1145 North Main Street
Lombard, IL 60148
Telephone: 630-953-9928
Fax: 630-953-9938

BORING LOG 13-BSB-01

WEI Job No.: 815-13-01

Client: Alfred Benesch & Company
Project: CREATE WA-1
Location: Chicago, IL

Datum: CCD
Elevation: 23.47 ft
North: 1897325.63 ft
East: 1159071.57 ft
Station: 81+97.30
Offset: 32.68 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
	23.5							
	22.5	12-inch thick, brown, well-graded SAND with GRAVEL and SILT (SW-SM); dry						
		--FILL--			1	5 4 3	2.00 P	17
		Very stiff, brown LEAN CLAY with SAND (CL)						
		--FILL--			2	4 7 4	2.00 P	15
		--3-inch thick, poorly-graded sand lens--	5					
		--gray--			3	4 4 3	2.25 P	20
	14.7							
	13.0	Loose, black, poorly-graded SAND with SILT (SP-SM); dry			4	3 3 2	NP	12
		--FILL--	10					
		Stiff to very stiff, gray and brown LEAN CLAY with SAND (CL)			5	3 3 5	2.05 B	25
					6	3 3 3	2.21 B	23
			15					
					7	5 4 6	2.62 B	25
	-18.3	Medium stiff to very stiff, gray LEAN CLAY with SAND (CL)						
		--L_L(%)=31, P_L(%)=17--			8	2 3 3	1.80 B	26
		--%Gravel=1.6--						
		--%Sand=18.6--45	20					
		--%Silt=35.4--						
		--%Clay=44.4--						
	3.0	Very soft to soft, gray LEAN CLAY with SAND (CL); moist to wet			9	1 2 3	0.25 B	27
					10	0 0 0	0.08 B	28
		--L_L(%)=32, P_L(%)=17--	25					
		--%Gravel=0.5--						
		--%Sand=19.5--50						

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
			30		11	0 0 0	0.16 B	29
					12	0 0 0	0.08 B	28
			35		13	0 0 0	0.33 B	25
					14	0 0 0	0.41 B	24
			40					
					15	3 4 6	0.98 B	20
					16	5 6 9	2.13 B	18

GENERAL NOTES

Begin Drilling: 12-16-2016 Complete Drilling: 12-16-2016
Drilling Contractor: Wang Testing Services Drill Rig: D50 ATV [88%]
Driller: J&M Logger: J. Foote Checked by: J. Rowells
Drilling Method: 3.25" IDA HSA; autohammer; backfilled with lean grout and bentonite chips upon completion

WATER LEVEL DATA

While Drilling: 24.50 ft
At Completion of Drilling: 75.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG#: 815130 \ GPJ \ WANGENG.GDT 1/7/21

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wangeng@wangeng.com
1145 North Main Street
Lombard, IL 60148
Telephone: 630-953-9928
Fax: 630-953-9938

BORING LOG 13-BSB-02

WEI Job No.: 815-13-01

Client: Alfred Benesch & Company
Project: CREATE WA-1
Location: Chicago, IL

Datum: CCD
Elevation: 22.97 ft
North: 1897220.13 ft
East: 1159069.31 ft
Station: 83+02.73
Offset: 37.83 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
	23.4							
	22.7	3-inch thick, brown, well-graded GRAVEL with SAND (GW)						
		--FILL--			1	3 3 3	NP	18
	20.0	9-inch thick, brown LEAN CLAY (CL), some gravel						
		--FILL--			2	3 2 2	2.50 P	17
	19.1	Loose, brown, poorly-graded SAND (SP), moist	5					
		--FILL--			3	4 5 6	3.53 B	18
	17.4	Very stiff, gray LEAN CLAY (CL)						
		--FILL--			4	3 4 7	3.69 B	16
		Brown, poorly-graded SAND (SP); dry to moist						
		--FILL--	10					
		Very stiff, brown to gray LEAN CLAY (CL), trace slag						
		--FILL--			5	3 3 6	2.00 P	31
	11.7							
	10.0	Very stiff, black SILTY CLAY (CL-ML)						
		--BURIED TOPSOIL--						
		Stiff to very stiff, gray LEAN CLAY with SAND (CL)			6	2 2 5	1.80 B	22
			15					
					7	3 3 4	2.54 B	25
					8	2 3 3	1.31 B	23
			20					
	2.5	Very soft to soft, gray LEAN CLAY with SAND (CL); wet to saturated			9	1 1 2	0.25 B	24
					10	0 0 0	0.25 B	25
			25					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
		--L_L(%)=37, P_L(%)=19--			11	0 0 0	0.16 B	27
		--%Gravel=0.5--						
		--%Sand=15.3--30	30		12	0 0 0	0.16 B	27
		--%Silt=31.1--						
		--%Clay=53.1--						
			35		13	0 0 1	0.16 B	25
	-13.8	Soft to very stiff, gray LEAN CLAY with SAND (CL)						
					14	2 2 4	0.33 B	19
			40					
					15	2 2 4	1.31 B	19
			45					
					16	5 5 7	1.56 B	20
			50					

GENERAL NOTES

Begin Drilling: 12-12-2016 Complete Drilling: 12-13-2016
Drilling Contractor: Wang Testing Services Drill Rig: D50 ATV [88%]
Driller: NC&JA Logger: J. Foote Checked by: J. Rowells
Drilling Method: 3.25" IDA HSA; autohammer; backfilled with lean grout and bentonite chips upon completion

WATER LEVEL DATA

While Drilling: 32.00 ft
At Completion of Drilling: 25.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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Fax: 630-953-9938

BORING LOG 13-VST-01

WEI Job No.: 815-13-01

Client: Alfred Benesch & Company
Project: CREATE WA-1
Location: Chicago, IL

Datum: CCD
Elevation: 22.90 ft
North: 1897212.40 ft
East: 1159071.12 ft
Station: 83+10.50
Offset: 36.23 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
	4.4	--VST#1: 18.5 feet--						
		--S$_u$ undis = 2,327.0 psf--			1	VANE	VST	
		--S$_{u\ remold}$= 818.8 psf--20						
		--VST#2: 21.0 feet--						
		--S$_u$ undis = 818.8 psf--			2	VANE	VST	
		--S$_{u\ remold}$= 430.9 psf--						
		--VST#3 23.5 feet--						
		--S$_u$ undis = 624.9 psf--			3	VANE	VST	
		--S$_{u\ remold}$= 280.1 psf--25						
			30					
			35					
			40					
			45					
			50					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
		--VST#4: 26.0 feet--						
		--S$_u$ undis = 603.3 psf--			4	VANE	VST	
		--S$_{u\ remold}$= 280.1 psf--						
		--VST#5 28.5 feet--						
		--S$_u$ undis = 581.8 psf--			5	VANE	VST	
		--S$_{u\ remold}$= 301.7 psf--30						
		--VST#6: 31.0 feet--						
		--S$_u$ undis = 732.6 psf--			6	VANE	VST	
		--S$_{u\ remold}$= 323.2 psf--						
		--VST#7: 33.5 feet--						
		--S$_u$ undis = 818.8 psf--			7	VANE	VST	
		--S$_{u\ remold}$= 387.8 psf--35						
		--VST#8: 36.0 feet--						
		--S$_u$ undis = 948.1 psf--			8	VANE	VST	
		--S$_{u\ remold}$= 560.2 psf--						
		--VST#9: 38.5 feet--						
		--S$_u$ undis = 1,335.9 psf--			9	VANE	VST	
		--S$_{u\ remold}$= 861.9 psf--40						
		--VST#10: 40.5 feet--						
		--S$_u$ undis = 1,378.4 psf--			10	VANE	VST	
		--S$_{u\ remold}$= 948.1 psf--						
	-19.1	Boring terminated at 42.00 ft						

GENERAL NOTES

Begin Drilling: 01-30-2017 Complete Drilling: 01-31-2017
Drilling Contractor: Wang Testing Services Drill Rig: D50 TMR [78%]
Driller: RH&NC Logger: F. Bozga Checked by: J. Bensen
Drilling Method: 3.25" IDA HSA; boring backfilled upon completion

WATER LEVEL DATA

While Drilling: NA
At Completion of Drilling: NA
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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Lombard, IL 60148
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BORING LOG 13-BSB-01

WEI Job No.: 815-13-01

Client: Alfred Benesch & Company
Project: CREATE WA-1
Location: Chicago, IL

Datum: CCD
Elevation: 23.47 ft
North: 1897325.63 ft
East: 1159071.57 ft
Station: 81+97.30
Offset: 32.68 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
		--%Silt=37.9--						
		--%Clay=42.0--						
		--3-inch thick, well-graded sand; saturated--	55		17	10 11 11	3.28 B	18
	33.3	Medium dense, gray SILT (ML); wet to saturated						
			60		18	9 10 10	NP	24
					19	5 6 8	NP	24
	43.3	--hard drilling--	65					
		Hard, gray LEAN CLAY with SAND (CL)						
			70		20	19 27 28	8.20 B	10
	48.3	--hard drilling--						
		Dense to very dense, gray, well-graded SAND with GRAVEL (SW); saturated	75		21	12 19 24	NP	11

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
		--hard drilling--						
		--rig chatter--						
			80		22	10 23 50/5	NP	11
		--heavy rig chatter--						
	-58.5	--DRILLING REFUSAL--						
		Poor to fair, gray DOLOSTONE, trace fossils						
		--BEDROCK--						
		--Run 1: 82.0 to 92.0 feet--						
		--RECOVERY= 95%--						
		--RQD = 35%--	85					
			90					
		--Run 2: 92.0 to 97.0 feet--						
		--RECOVERY= 100%--						
		--RQD = 75%--	95					
	-73.5	Boring terminated at 97.00 ft						
			100					

GENERAL NOTES

Begin Drilling: 12-16-2016 Complete Drilling: 12-16-2016
Drilling Contractor: Wang Testing Services Drill Rig: D50 ATV [88%]
Driller: J&M Logger: J. Foote Checked by: J. Rowells
Drilling Method: 3.25" IDA HSA; autohammer; backfilled with lean grout and bentonite chips upon completion

WATER LEVEL DATA

While Drilling: 24.50 ft
At Completion of Drilling: 75.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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Fax: 630-953-9938

BORING LOG 13-BSB-02

WEI Job No.: 815-13-01

Client: Alfred Benesch & Company
Project: CREATE WA-1
Location: Chicago, IL

Datum: CCD
Elevation: 22.97 ft
North: 1897220.13 ft
East: 1159069.31 ft
Station: 83+02.73
Offset: 37.83 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
		--few, poorly-graded sand seams--	55		17	8 10 12	3.69 B	18
	33.8	--hard drilling--						
		Medium dense, gray SILT (ML); saturated						
			60		18	10 14 12	NP	24
					19	5 5 8	NP	25
	-41.5	Gray SILTY CLAY (CL-ML); wet	65					
	43.8	Hard, gray LEAN CLAY with SAND (CL)						
			70		20	13 20 33	8.20 B	15
	-52.0	Very dense, gray SILT (ML); saturated						
		--hard drilling--75			21	8 50/5	NP	22

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blow/6 in)	Qu (tsf)	Moisture Content (%)
		Very dense, gray, well-graded SAND with GRAVEL (SW), some clay; moist						
		--few, 1-inch thick, poorly-graded sand seams--						
			80		22	27 50/5	NP	17
		--slow advancement--						
	-60.5	--DRILLING REFUSAL--						
		Poor, gray DOLOSTONE; trace fossils						
		--BEDROCK--	85					
		--Run 1: 83.5 to 93.5 feet--						
		--RECOVERY= 92%--						
		--RQD = 31%--						
		--Q_u= 11,450 psi--	90					
		--Run 2: 93.5 to 99.5 feet--						
		--RECOVERY= 92%--						
		--RQD = 33%--95						
	-76.5	Boring terminated at 99.50 ft	100					

GENERAL NOTES

Begin Drilling: 12-12-2016 Complete Drilling: 12-13-2016
Drilling Contractor: Wang Testing Services Drill Rig: D50 ATV [88%]
Driller: NC&JA Logger: J. Foote Checked by: J. Rowells
Drilling Method: 3.25" IDA HSA; autohammer; backfilled with lean grout and bentonite chips upon completion

WATER LEVEL DATA

While Drilling: 32.00 ft
At Completion of Drilling: 25.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG#: 815130 \ GPJ \ WANGENG.GDT 1/7/21

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY:	UNION PACIFIC RAILROAD
FNF/MFB	Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
UPRR ENGINEER: DEH / ADS	1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N8 of N43	SHEET TITLE: BORING LOGS

FILE NAME: C:\Users\kcrmirzo2\Desktop\rcd00155.bii.dgn

PLOTTED: 5/21/2021 4:40:01 PM

MATERIAL SCHEDULE

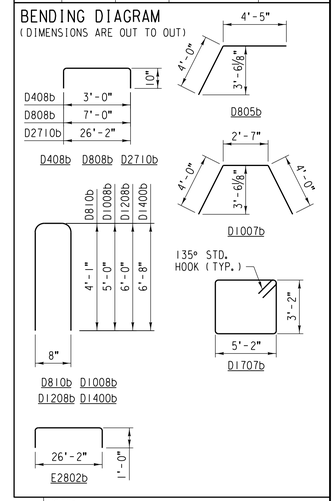
REQ'D.	UNIT	DESCRIPTION
29.1	CU. YD.	5000 PSI CONCRETE (PER NOTES, STD. DWG. 531100 SHT. T3)
1	LOT	REINFORCING STEEL (PER NOTES, STD. DWG. 531100 SHT. T3 AND SCHEDULE, THIS SHEET)
1	EA.	EMBED PLATE EP-1 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, SHEET NO. 10)
1	EA.	EMBED PLATE EP-2 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, SHEET NO. 10)
7	EA.	1¼" DAYTON SUPERIOR B17 DOUBLE FLARED COIL LOOP INSERT
8	EA.	LIFTING LOOP (PER NOTES AND DETAIL, THIS SHEET)
2	EA.	4" SQUARE ALUMINUM #4 MESH HARDWARE CLOTH
16	LIN. FT.	2" DIA. PVC PIPE, SCHEDULE 40

REINFORCING SCHEDULE

TOTAL	MARK	SIZE	LENGTH	SHAPE
2	D300	#5	3'-0"	—
2	D306	#5	3'-6"	—
2	D401	#5	4'-1"	—
10	D408b	#5	4'-8"	[
2	D408	#5	4'-8"	—
2	D409	#5	4'-9"	—
2	D500	#5	5'-0"	—
2	D503	#5	5'-3"	—
2	D507	#5	5'-7"	—
2	D805b	#5	8'-5"	⌐
10	D808b	#5	8'-8"	[
33	D810b	#5	8'-10"	∩
3	D1008b	#5	10'-8"	∩
2	D1007b	#5	10'-7"	⌒
3	D1208b	#5	12'-8"	∩
14	D1400b	#5	14'-0"	∩
125	D1707b	#5	17'-7"	□
20	D2602	#5	26'-2"	—
13	D2710b	#5	27'-10"	⌐ ¬
11	E2602	#6	26'-2"	—
13	E2802b	#6	28'-2"	⌐ ¬

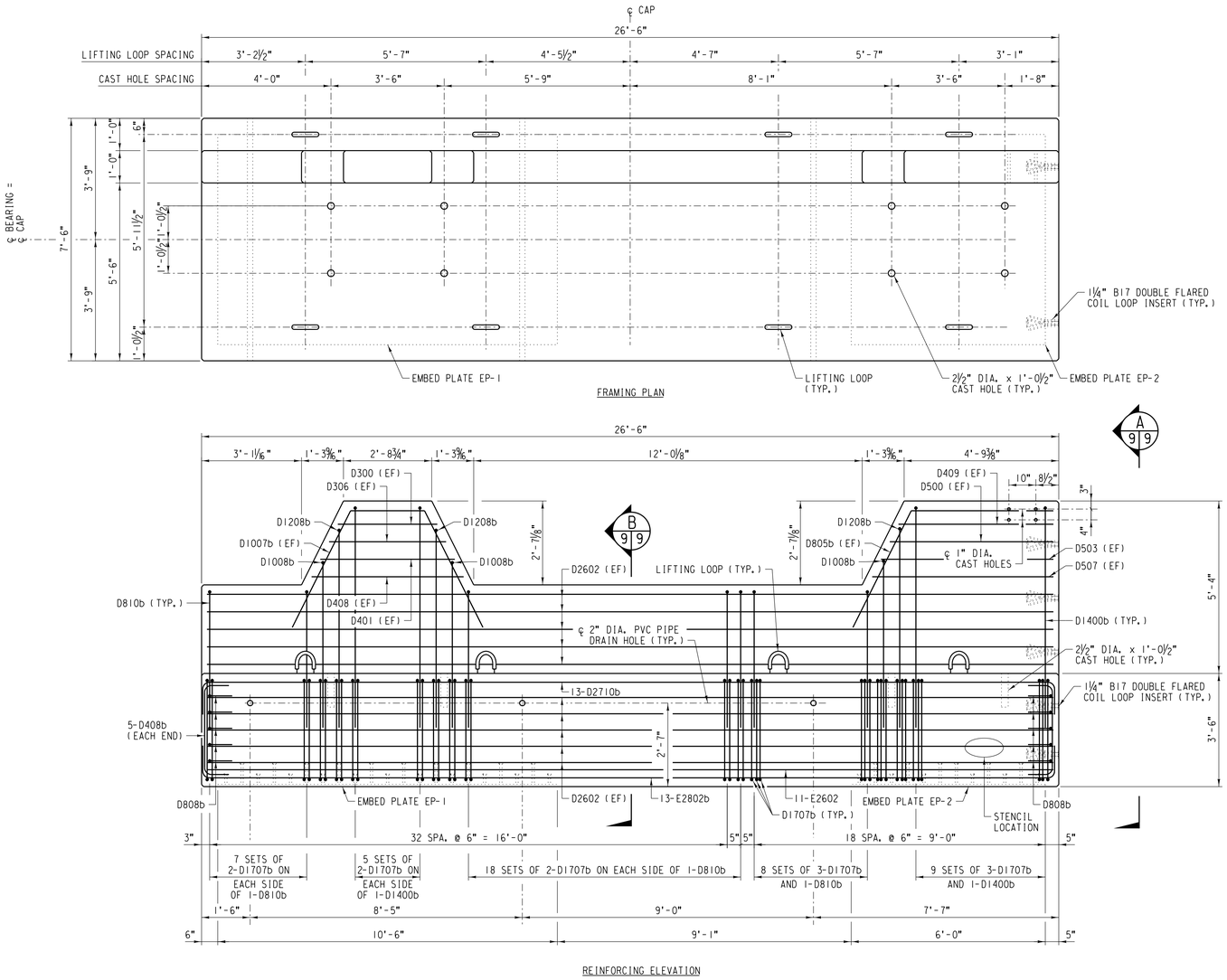
BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 5,035 LB.

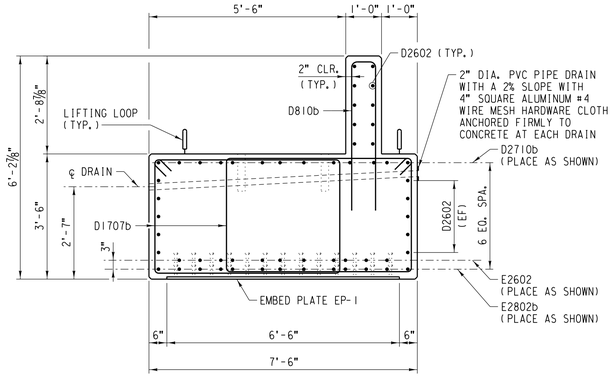


FRAMING PLAN

REINFORCING ELEVATION

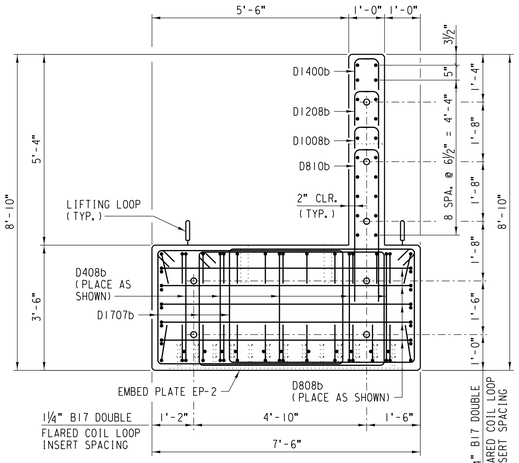
PRECAST CONCRETE END CAP PEC-1R

SCALE: ½"=1'-0"



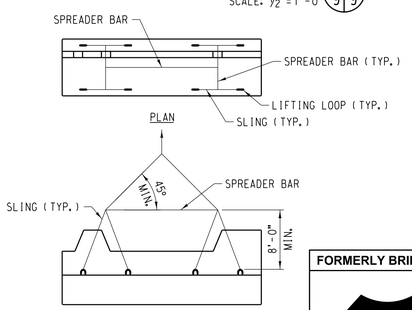
SECTION B (9|9)

SCALE: ½"=1'-0"



VIEW A (9|9)

SCALE: ½"=1'-0"

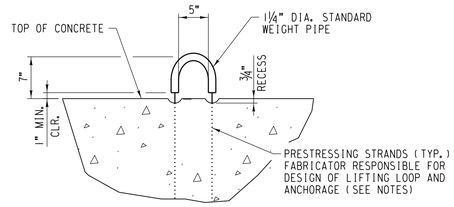


ELEVATION

8-POINT PICK-UP

SCALE: NONE

PIN OR HOOK FOR ENGAGING LIFTING LOOPS SHALL HAVE A MINIMUM DIAMETER OF 1"



LIFTING LOOP DETAIL

SCALE: 1"=1'-0"

NOTES:

1. END CAP PEC-1L, PEC-1R, PEC-2L, PEC-2R AND WINGWALL PWW-10 SHALL BE FIT UP AT THE FABRICATION PLANT PRIOR TO SHIPMENT TO ENSURE ACCURACY OF CONNECTIONS.
2. FABRICATOR IS RESPONSIBLE FOR DEVELOPING LIFTING LOOP ANCHORAGE DETAIL TO PROVIDE A SAFETY FACTOR OF 4 ON THE WORKING LOAD. DETAIL SHALL BE PROOF-TESTED WITH TEST RESULTS KEPT ON FILE BY THE FABRICATOR AND AVAILABLE FOR INSPECTION BY THE RAILROAD.
3. THE AREA AROUND LIFTING LOOPS SHALL BE RECESSED TO A DEPTH OF ¾". AFTER CAP INSTALLATION, STRANDS SHALL BE BURNED OFF AND RECESSED TO A DEPTH OF ¾". FILL AND FINISH THE RECESSES FLUSH TO PLAN DIMENSIONS USING AN EPOXY BONDING COMPOUND AND GROUT.
4. INSIDE SURFACE OF CAST HOLES SHALL BE EXPOSED UNCOATED CONCRETE. ALTERNATIVELY, CORRUGATED GALVANIZED STEEL DUCT WITH 2½" INSIDE DIAMETER MAY BE USED AS A STAY-IN-PLACE FORM.
5. COVER OR FILL CAST HOLES WITH APPROVED MATERIAL TO PREVENT MOISTURE OR DEBRIS FROM ENTERING DURING STORAGE AND TRANSPORT.
6. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES AND EMBEDDED ITEMS.
7. EF = EACH FACE

EST. WT. OF PRECAST CONCRETE

END CAP PEC-1R = 121,455 LB. EA. (60.8 TON)

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION	31876	122533

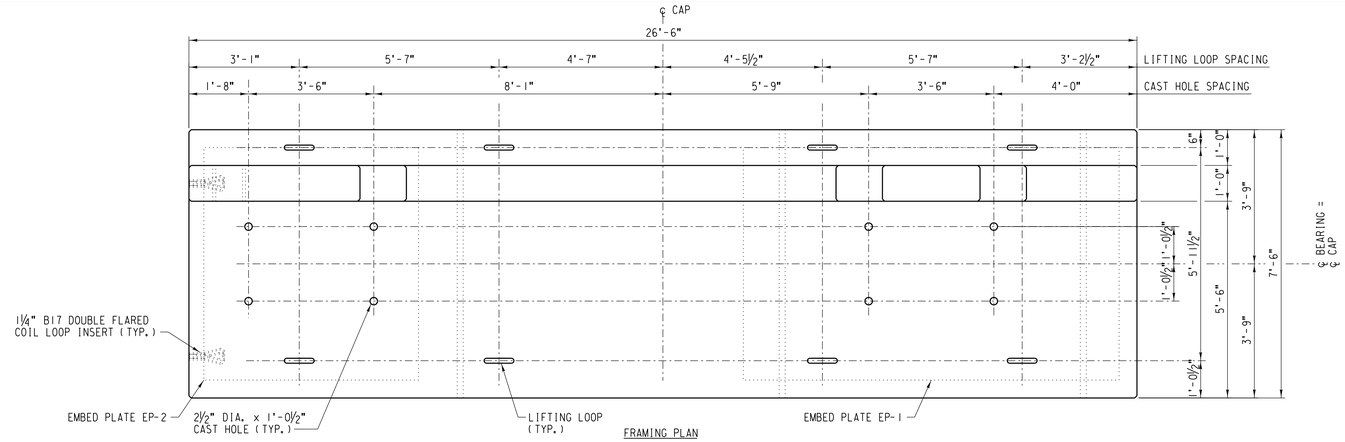
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

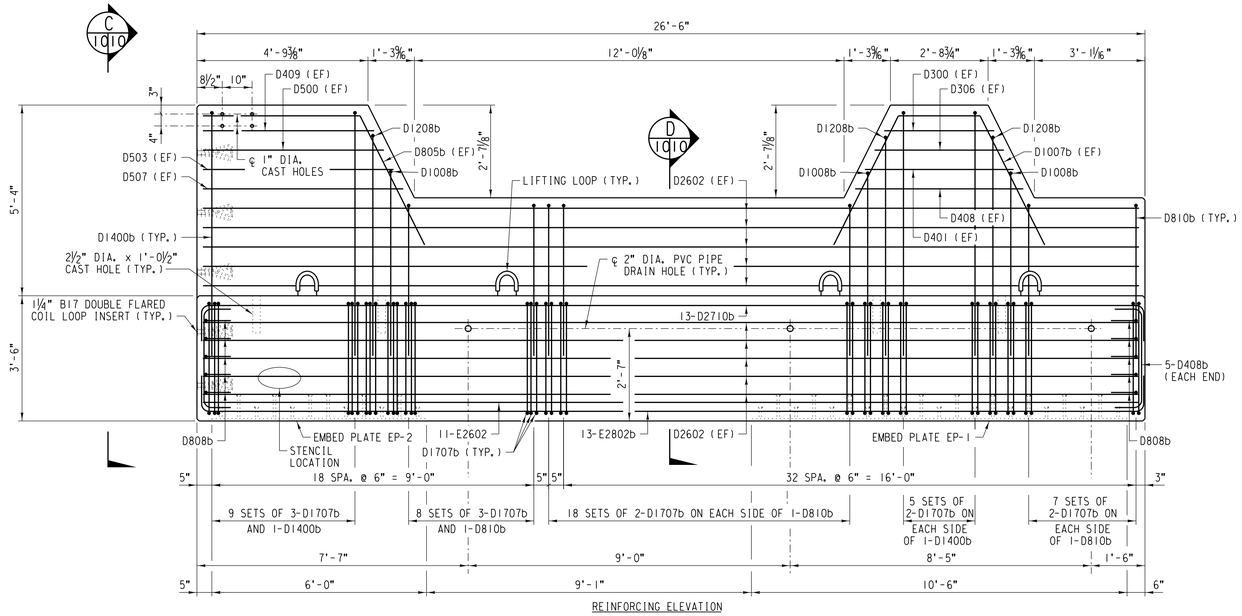
UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
UPRR ENGINEER: DEH / ADS	1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N9 of N43	SHEET TITLE: PRECAST CONCRETE END CAP 1R DETAILS

FILE NAME: C:\Users\rramirez\Desktop\rcd00155_bi1.dgn

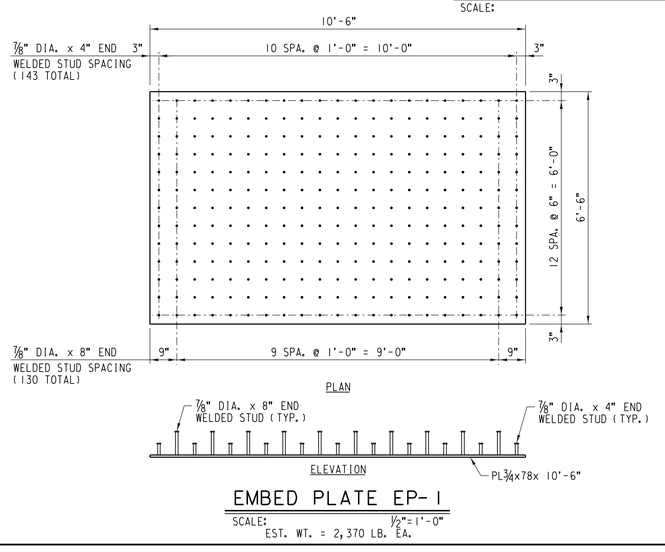
PLOTTED: 5/21/2021 4:40:27 PM





PRECAST CONCRETE END CAP PEC-1L

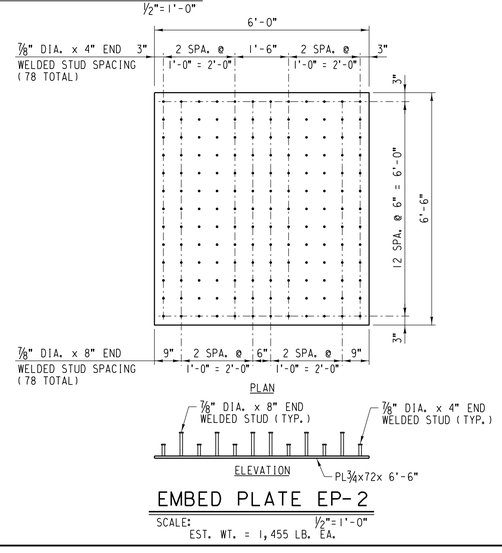
SCALE: ½"=1'-0"



EMBED PLATE EP-1

SCALE: ½"=1'-0"

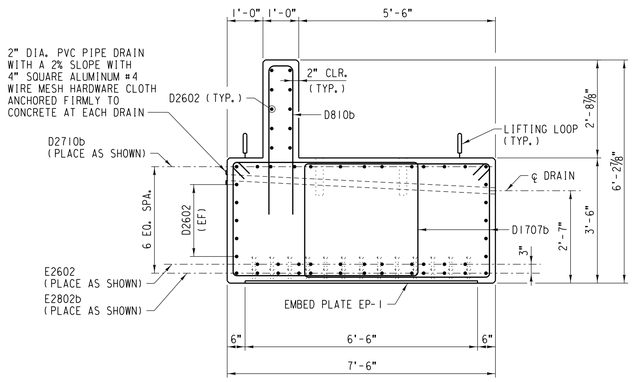
EST. WT. = 2,370 LB. EA.



EMBED PLATE EP-2

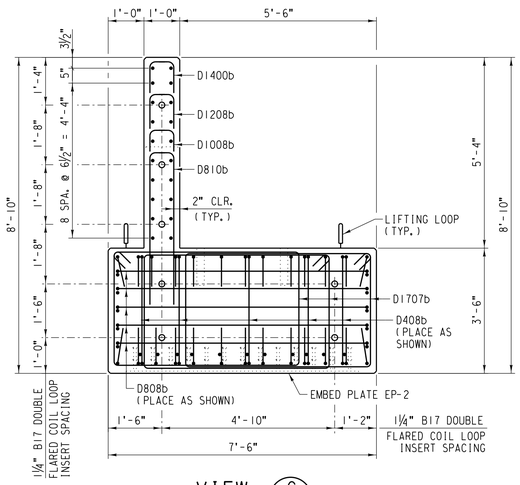
SCALE: ½"=1'-0"

EST. WT. = 1,455 LB. EA.



SECTION D 1010

SCALE: ½"=1'-0"



VIEW C 1010

SCALE: ½"=1'-0"

NOTES:

1. END CAP PEC-1L, PEC-1R, PEC-2L, PEC-2R AND WINGWALL PWW-10 SHALL BE FIT UP AT THE FABRICATION PLANT PRIOR TO SHIPMENT TO ENSURE ACCURACY OF CONNECTIONS.
2. FABRICATOR IS RESPONSIBLE FOR DEVELOPING LIFTING LOOP ANCHORAGE DETAIL TO PROVIDE A SAFETY FACTOR OF 4 ON THE WORKING LOAD. DETAIL SHALL BE PROOF-TESTED WITH TEST RESULTS KEPT ON FILE BY THE FABRICATOR AND AVAILABLE FOR INSPECTION BY THE RAILROAD.
3. THE AREA AROUND LIFTING LOOPS SHALL BE RECESSED TO A DEPTH OF ¾". AFTER CAP INSTALLATION, STRANDS SHALL BE BURNED OFF AND RECESSED TO A DEPTH OF ¾". FILL AND FINISH THE RECESSES FLUSH TO PLAN DIMENSIONS USING AN EPOXY BONDING COMPOUND AND GROUT.
4. INSIDE SURFACE OF CAST HOLES SHALL BE EXPOSED UNCOATED CONCRETE. ALTERNATIVELY, CORRUGATED GALVANIZED STEEL DUCT WITH 2½" INSIDE DIAMETER MAY BE USED AS A STAY-IN-PLACE FORM.
5. COVER OR FILL CAST HOLES WITH APPROVED MATERIAL TO PREVENT MOISTURE OR DEBRIS FROM ENTERING DURING STORAGE AND TRANSPORT.
6. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES AND EMBEDDED ITEMS.
7. FOR 8-POINT PICK-UP DETAILS, SEE SHEET NO. 9
8. EF = EACH FACE

MATERIAL SCHEDULE

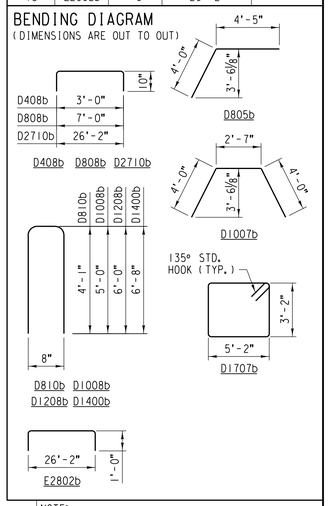
REQ'D.	UNIT	DESCRIPTION
29.1	CU. YD.	5000 PSI CONCRETE (PER NOTES, STD. DWG. 531100 SHT. T3)
1	LOT	REINFORCING STEEL (PER NOTES, STD. DWG. 531100 SHT. T3 AND SCHEDULE, THIS SHEET)
1	EA.	EMBED PLATE EP-1 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, THIS SHEET)
1	EA.	EMBED PLATE EP-2 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, THIS SHEET)
7	EA.	1¼" DAYTON SUPERIOR B17 DOUBLE FLARED COIL LOOP INSERT
8	EA.	LIFTING LOOP (PER NOTES AND DETAIL, SHEET NO. 9)
2	EA.	4" SQUARE ALUMINUM #4 MESH HARDWARE CLOTH
16	LIN.FT.	2" DIA. PVC PIPE, SCHEDULE 40

REINFORCING SCHEDULE

TOTAL	MARK	SIZE	LENGTH	SHAPE
2	D300	#5	3'-0"	—
2	D306	#5	3'-6"	—
2	D401	#5	4'-1"	—
10	D408b	#5	4'-8"	[
2	D408	#5	4'-8"	—
2	D409	#5	4'-9"	—
2	D500	#5	5'-0"	—
2	D503	#5	5'-3"	—
2	D507	#5	5'-7"	—
2	D805b	#5	8'-5"	⌜
10	D808b	#5	8'-8"	[
33	D810b	#5	8'-10"	∩
3	D1008b	#5	10'-8"	∩
2	D1007b	#5	10'-7"	⌒
3	D1208b	#5	12'-8"	∩
14	D1400b	#5	14'-0"	∩
125	D1707b	#5	17'-7"	□
20	D2602	#5	26'-2"	—
13	D2710b	#5	27'-10"	⌐ ¬
11	E2602	#6	26'-2"	—
13	E2802b	#6	28'-2"	⌐ ¬

BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 5,035 LB.

EST. WT. OF PRECAST CONCRETE

END CAP PEC-1L = 121,455 LB. EA. (60.8 TON)

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N10 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

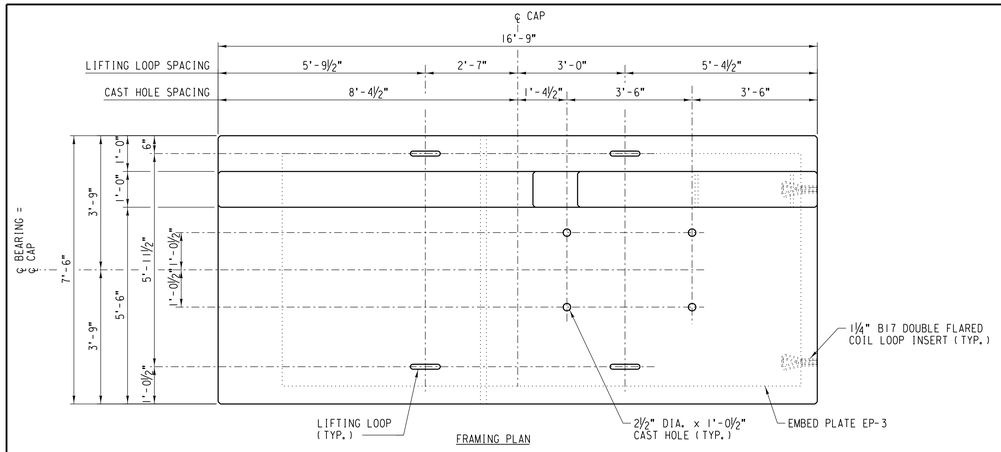
LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

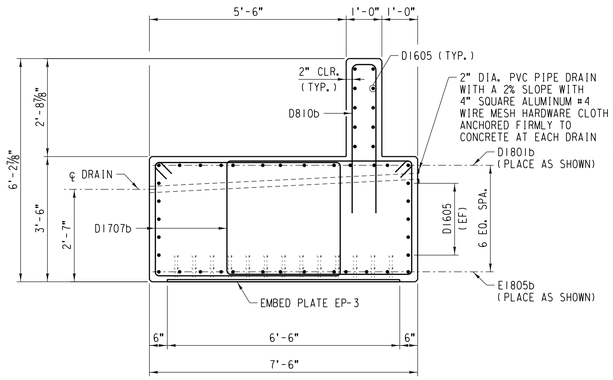
SHEET TITLE: PRECAST CONCRETE END CAP 1L DETAILS

FILE NAME: C:\Users\mercmirza\Desktop\rac00155_bii.dgn

PLOTTED: 5/21/2021 4:40:27 PM

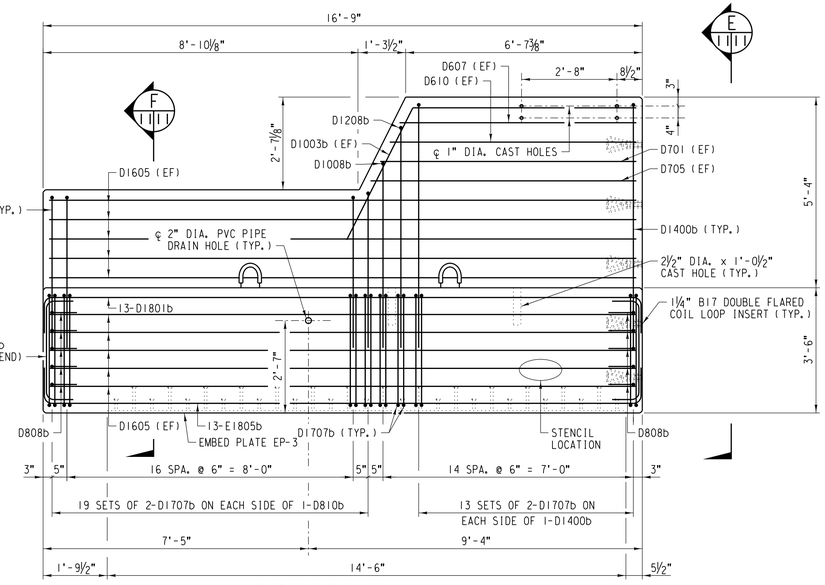


FRAMING PLAN

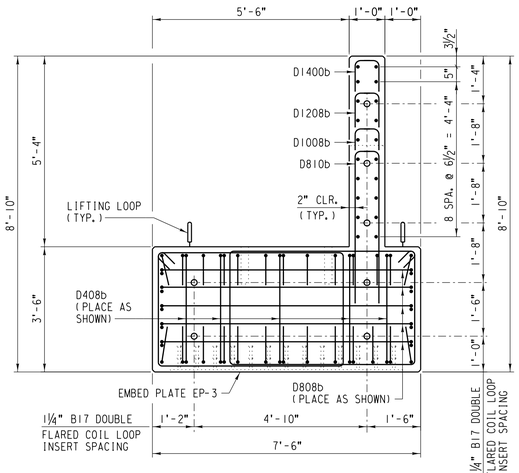


SECTION F

SCALE: ½"=1'-0"



REINFORCING ELEVATION

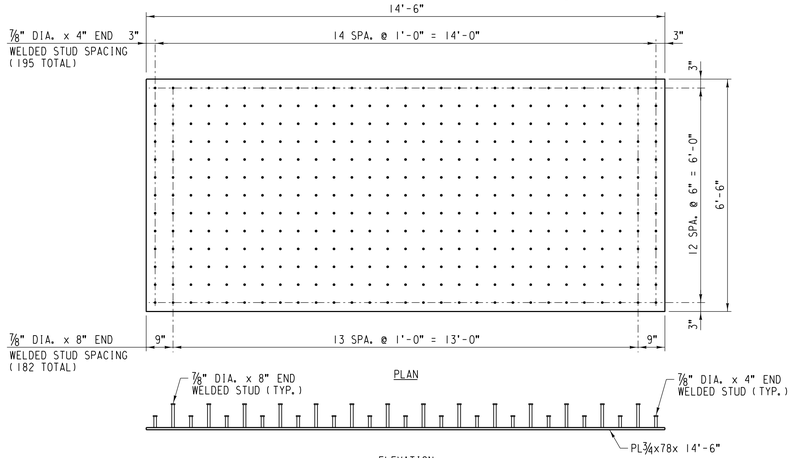


VIEW E

SCALE: ½"=1'-0"

PRECAST CONCRETE END CAP PEC-2R

SCALE: ½"=1'-0"



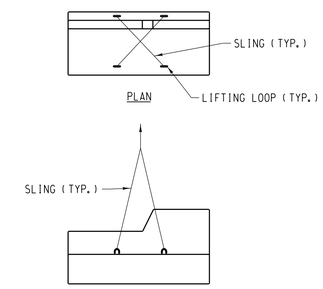
PLAN

ELEVATION

EMBED PLATE EP-3

SCALE: ½"=1'-0"

EST. WT. = 3,270 LB. EA.



4-POINT PICK-UP

SCALE: NONE

PIN OR HOOK FOR ENGAGING LIFTING LOOPS SHALL HAVE A MINIMUM DIAMETER OF 1"

NOTES:

1. END CAP PEC-1L, PEC-1R, PEC-2L, PEC-2R AND WINGWALL PWW-10 SHALL BE FIT UP AT THE FABRICATION PLANT PRIOR TO SHIPMENT TO ENSURE ACCURACY OF CONNECTIONS.
2. FABRICATOR IS RESPONSIBLE FOR DEVELOPING LIFTING LOOP ANCHORAGE DETAIL TO PROVIDE A SAFETY FACTOR OF 4 ON THE WORKING LOAD. DETAIL SHALL BE PROOF-TESTED WITH TEST RESULTS KEPT ON FILE BY THE FABRICATOR AND AVAILABLE FOR INSPECTION BY THE RAILROAD.
3. THE AREA AROUND LIFTING LOOPS SHALL BE RECESSED TO A DEPTH OF ¾". AFTER CAP INSTALLATION, STRANDS SHALL BE BURNED OFF AND RECESSED TO A DEPTH OF ¾". FILL AND FINISH THE RECESSES FLUSH TO PLAN DIMENSIONS USING AN EPOXY BONDING COMPOUND AND GROUT.
4. INSIDE SURFACE OF CAST HOLES SHALL BE EXPOSED UNCOATED CONCRETE. ALTERNATIVELY, CORRUGATED GALVANIZED STEEL DUCT WITH 2½" INSIDE DIAMETER MAY BE USED AS A STAY-IN-PLACE FORM.
5. COVER OR FILL CAST HOLES WITH APPROVED MATERIAL TO PREVENT MOISTURE OR DEBRIS FROM ENTERING DURING STORAGE AND TRANSPORT.
6. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES AND EMBEDDED ITEMS.
7. EF = EACH FACE

MATERIAL SCHEDULE

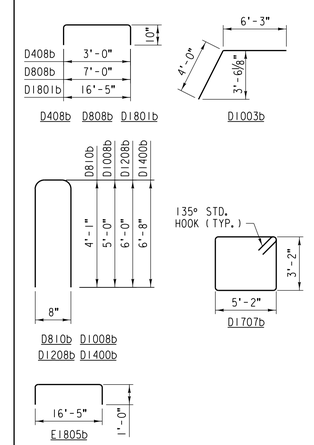
REQ'D.	UNIT	DESCRIPTION
18.5	CU. YD.	5000 PSI CONCRETE (PER NOTES, STD. DWG. 531100 SHT. T3)
1	LOT	REINFORCING STEEL (PER NOTES, STD. DWG. 531100 SHT. T3 AND SCHEDULE, THIS SHEET)
1	EA.	EMBED PLATE EP-3 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, THIS SHEET)
7	EA.	1¼" DAYTON SUPERIOR B17 DOUBLE FLARED COIL LOOP INSERT
4	EA.	LIFTING LOOP (PER NOTES AND DETAIL, SHEET NO. 9)
1	EA.	4" SQUARE ALUMINUM #4 MESH HARDWARE CLOTH
8	LIN. FT.	2" DIA. PVC PIPE, SCHEDULE 40

REINFORCING SCHEDULE

TOTAL	MARK	SIZE	LENGTH	SHAPE
2	D607	#5	6'-7"	——
10	D408b	#5	4'-8"	⊏
2	D610	#5	6'-10"	——
2	D701	#5	7'-1"	——
2	D705	#5	7'-5"	——
10	D808b	#5	8'-8"	⊏
2	D1003b	#5	10'-3"	⌐
19	D810b	#5	8'-10"	∩
1	D1008b	#5	10'-8"	∩
1	D1208b	#5	12'-8"	∩
20	D1605	#5	16'-5"	——
13	D1400b	#5	14'-0"	∩
68	D1707b	#5	17'-7"	□
13	D1801b	#5	18'-1"	⌐¬
13	E1805b	#6	18'-5"	⌐¬

BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 2,805 LB.

EST. WT. OF PRECAST CONCRETE

END CAP PEC-2R = 77,910 LB. EA. (39.0 TON)

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N11 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

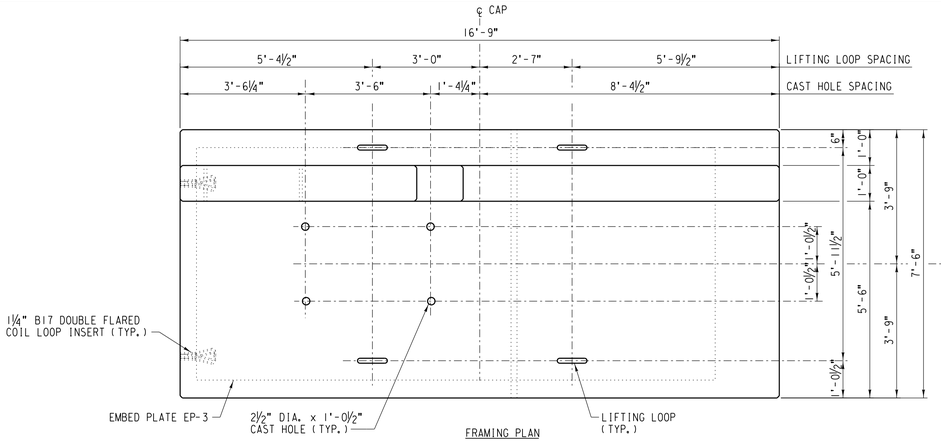
LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

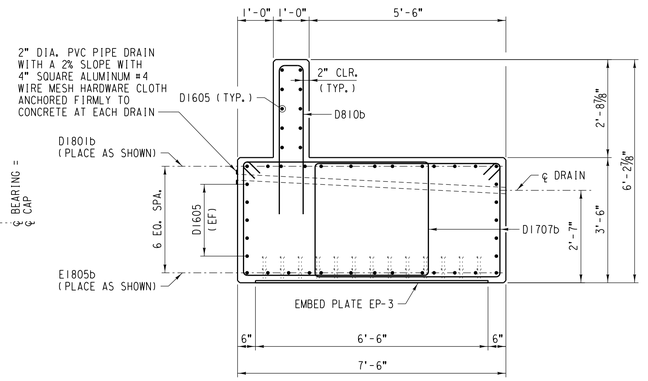
SHEET TITLE: PRECAST CONCRETE END CAP 2R DETAILS

FILE NAME: C:\Users\rramirez\Desktop\rcx00155_b11.dgn

PLOTTED: 5/21/2021 4:40:27 PM



FRAMING PLAN

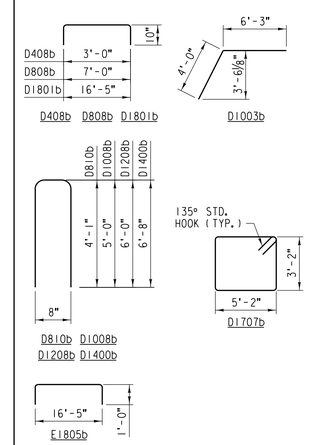


SECTION H (1212)
SCALE: ½"=1'-0"

MATERIAL SCHEDULE		
REQ'D.	UNIT	DESCRIPTION
18.5	CU. YD.	5000 PSI CONCRETE (PER NOTES, STD. DWG. 531100 SHT. T3)
1	LOT	REINFORCING STEEL (PER NOTES, STD. DWG. 531100 SHT. T3 AND SCHEDULE, THIS SHEET)
1	EA.	EMBED PLATE EP-3 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, SHEET NO. 11)
7	EA.	1¼" DAYTON SUPERIOR B17 DOUBLE FLARED COIL LOOP INSERT
4	EA.	LIFTING LOOP (PER NOTES AND DETAIL, SHEET NO. 9)
1	EA.	4" SQUARE ALUMINUM #4 MESH HARDWARE CLOTH
8	LIN.FT.	2" DIA. PVC PIPE, SCHEDULE 40

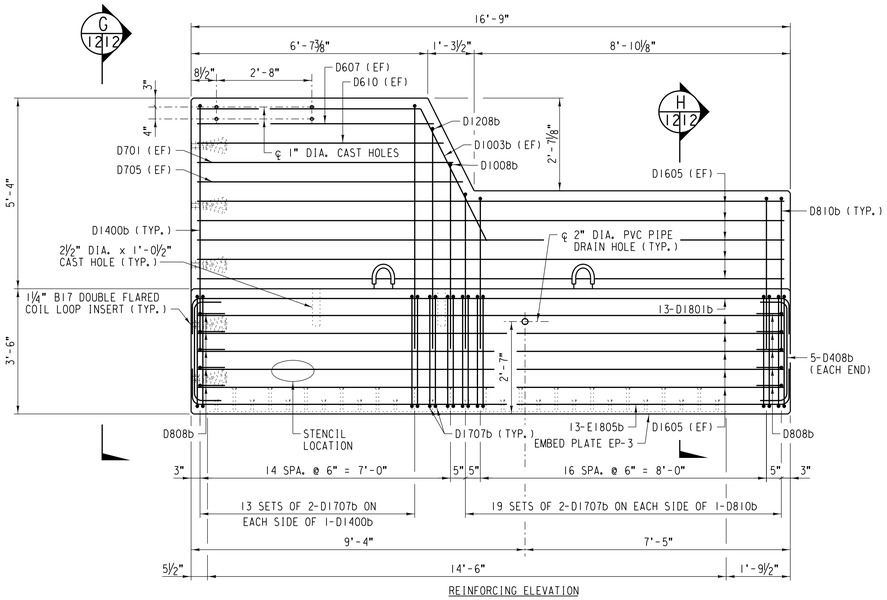
REINFORCING SCHEDULE				
TOTAL	MARK	SIZE	LENGTH	SHAPE
2	D607	#5	6'-7"	
10	D408b	#5	4'-8"	
2	D610	#5	6'-10"	
2	D701	#5	7'-1"	
2	D705	#5	7'-5"	
10	D808b	#5	8'-8"	
2	D1003b	#5	10'-3"	
19	D810b	#5	8'-10"	
1	D1008b	#5	10'-8"	
1	D1208b	#5	12'-8"	
20	D1605	#5	16'-5"	
13	D1400b	#5	14'-0"	
68	D1707b	#5	17'-7"	
13	D1801b	#5	18'-1"	
13	E1805b	#6	18'-5"	

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



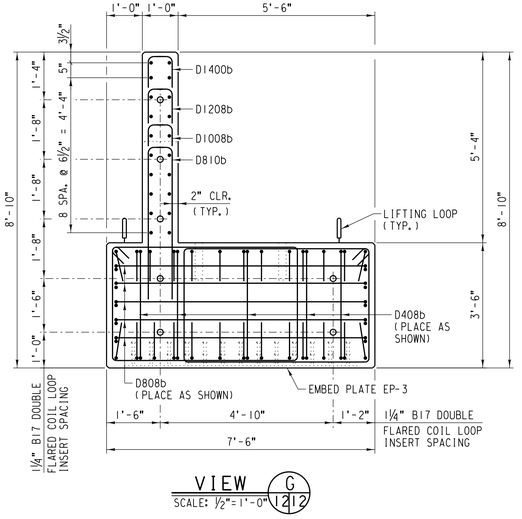
NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 2,805 LB.



REINFORCING ELEVATION

PRECAST CONCRETE END CAP PEC-2L
SCALE: ½"=1'-0"



VIEW G (1212)
SCALE: ½"=1'-0"

NOTES:
1. END CAP PEC-1L, PEC-1R, PEC-2L, PEC-2R AND WINGWALL PWW-10 SHALL BE FIT UP AT THE FABRICATION PLANT PRIOR TO SHIPMENT TO ENSURE ACCURACY OF CONNECTIONS.
2. FABRICATOR IS RESPONSIBLE FOR DEVELOPING LIFTING LOOP ANCHORAGE DETAIL TO PROVIDE A SAFETY FACTOR OF 4 ON THE WORKING LOAD. DETAIL SHALL BE PROOF-TESTED WITH TEST RESULTS KEPT ON FILE BY THE FABRICATOR AND AVAILABLE FOR INSPECTION BY THE RAILROAD.
3. THE AREA AROUND LIFTING LOOPS SHALL BE RECESSED TO A DEPTH OF ¾". AFTER CAP INSTALLATION, STRANDS SHALL BE BURNED OFF AND RECESSED TO A DEPTH OF ¾". FILL AND FINISH THE RECESSES FLUSH TO PLAN DIMENSIONS USING AN EPOXY BONDING COMPOUND AND GROUT.
4. INSIDE SURFACE OF CAST HOLES SHALL BE EXPOSED UNCOATED CONCRETE. ALTERNATIVELY, CORRUGATED GALVANIZED STEEL DUCT WITH 2½" INSIDE DIAMETER MAY BE USED AS A STAY-IN-PLACE FORM.
5. COVER OR FILL CAST HOLES WITH APPROVED MATERIAL TO PREVENT MOISTURE OR DEBRIS FROM ENTERING DURING STORAGE AND TRANSPORT.
6. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES AND EMBEDDED ITEMS.
7. FOR 4-POINT PICK-UP DETAILS, SEE SHEET NO. 11
8. EF = EACH FACE

EST. WT. OF PRECAST CONCRETE
END CAP PEC-2L = 77,910 LB. EA. (39.0 TON)

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N12 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE:
PRECAST CONCRETE END CAP 2L DETAILS

FILE NAME: C:\Users\rmorin\Desktop\rac00155_b11.dgn

PLOTTED: 5/21/2021 4:40:28 PM

MATERIAL SCHEDULE
(QUANTITY PER WINGWALL PWW-10)

REQ'D.	UNIT	DESCRIPTION
3.0	CU. YD.	5000 PSI CONCRETE (PER NOTES, STD. DWG. 531100 SHT. T3)
1	LOT	REINFORCING STEEL (PER NOTES, STD. DWG. 531100 SHT. T3 AND SCHEDULE, THIS SHEET)
1	EA.	8-TON SWIFT LIFT ANCHOR
8	EA.	WASHER W100 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAIL, THIS SHEET)
8	EA.	1¼" DIA. x 16" COIL BOLT, DAYTON SUPERIOR B-14

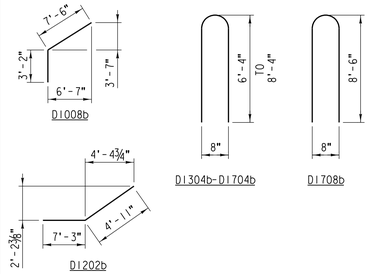
REINFORCING SCHEDULE
(QUANTITY PER WINGWALL PWW-10)

TOTAL	MARK	SIZE	LENGTH	SHAPE
2	D1008b	#5	10'-8"	
2	D1202b	#5	12'-2"	
2	D1708b	#5	17'-8"	
10	E602	#6	6'-2"	
4	E1108	#6	11'-8"	

SET LIST

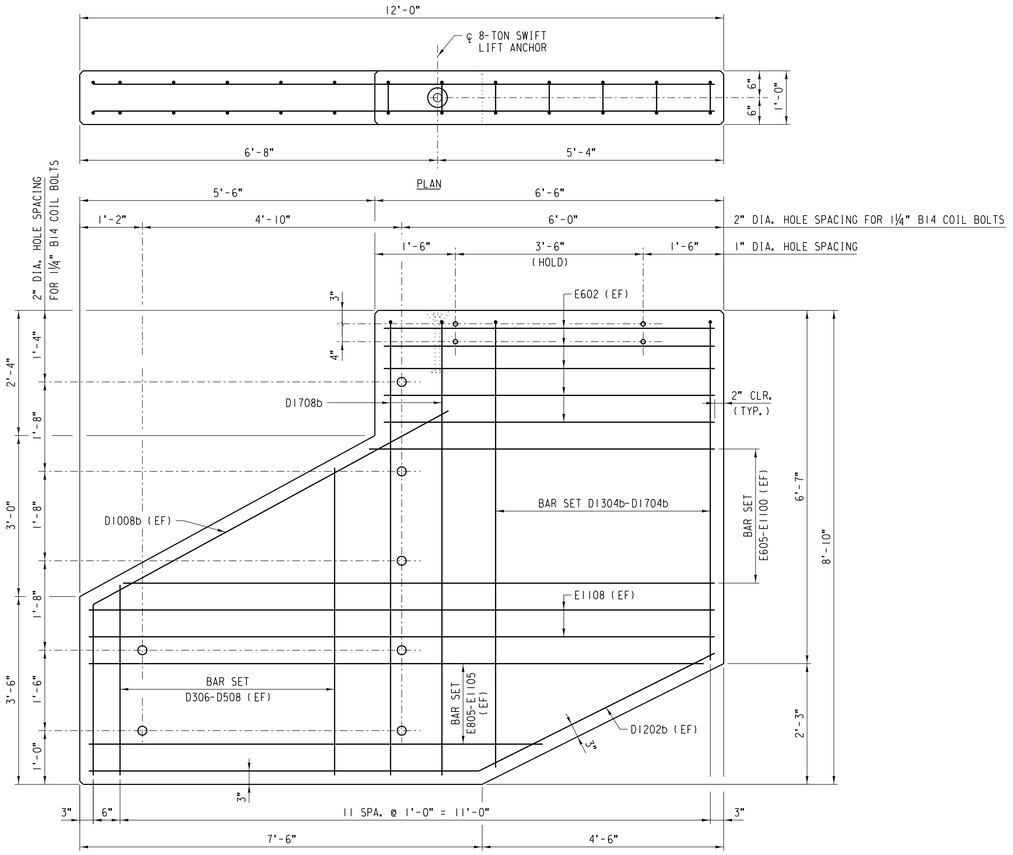
MARK	SIZE	MIN. LENGTH	MAX. LENGTH	INCREMENT	NO. OF BARS/SET	NO. OF SETS	SHAPE
D306-D508	#5	3'-6"	5'-8"	6½"	5	2	
D1304b-D1704b	#5	13'-4"	17'-4"	1'-0"	5	2	
E605-E1100	#6	6'-5"	11'-0"	11"	6	2	
E805-E1105	#6	8'-5"	11'-5"	1'-0"	4	2	

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)

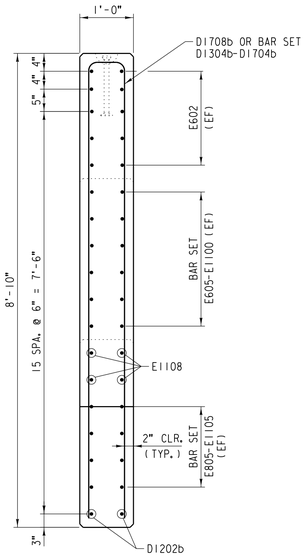


NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 735 LB.

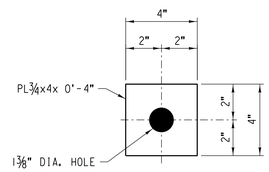


ELEVATION



SECTION

PRECAST CONCRETE WINGWALL PWW-10
SCALE: ¾"=1'-0"



WASHER W100
SCALE: 3"=1'-0"
EST. WT. = 3.4 LB. EA.
GALVANIZE AFTER FABRICATION

NOTES:
1. END CAP PEC-1L, PEC-1R, PEC-2L, PEC-2R AND WINGWALL PWW-10 SHALL BE FIT UP AT THE FABRICATION PLANT PRIOR TO SHIPMENT TO ENSURE ACCURACY OF CONNECTIONS.
2. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES AND EMBEDDED ITEMS.
3. EF = EACH FACE

EST. WT. OF PRECAST CONCRETE
WINGWALL PWW-10 = 11,955 LB. EA. (6.0 TON)

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N13 of N43

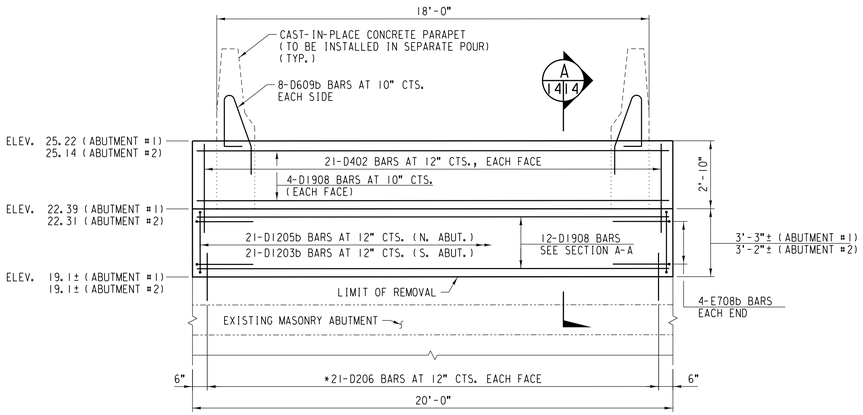
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE:
PRECAST CONCRETE WINGWALL PWW-10 DETAILS

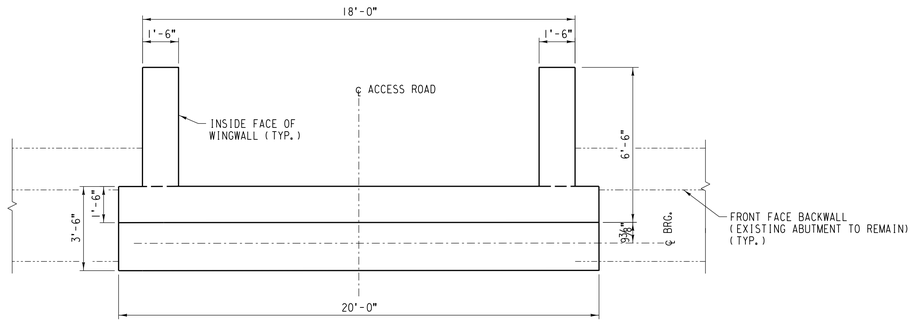
FILE NAME: C:\Users\mcrmire\Desktop\rac00155_b11.dgn

PLOTTED: 5/21/2021 4:40:34 PM



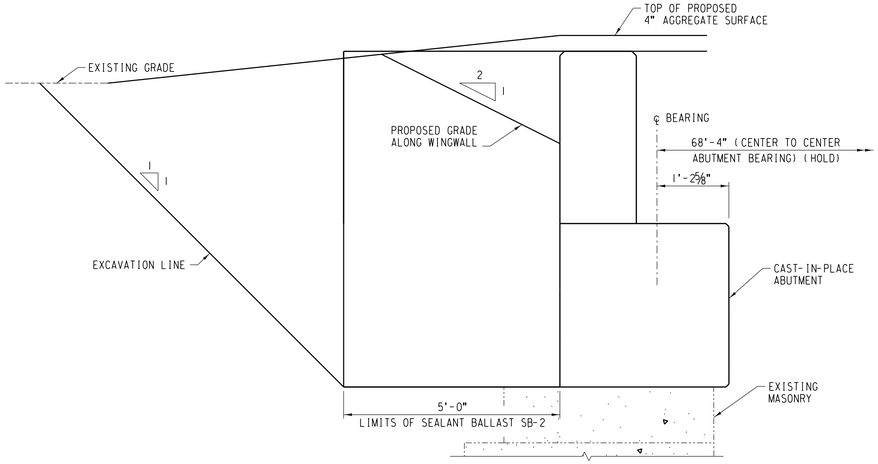
PROPOSED BACKWALL ELEVATION

SCALE: NO SCALE



PROPOSED BACKWALL PLAN

SCALE: NO SCALE



EXCAVATION DETAIL

SCALE: NO SCALE

MATERIAL SCHEDULE
(INCLUDES BOTH ABUTMENTS)

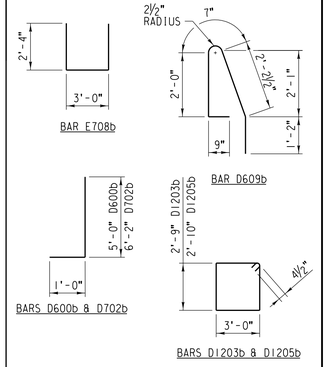
REQ'D.	UNIT	DESCRIPTION
29.7	CU. YD.	4000 PSI CAST-IN-PLACE CONCRETE
1	LOT	REINFORCING STEEL
84	EA.	EPOXY GROUTING OF REIN. BARS

QUANTITIES SHOWN FOR INFORMATION ONLY.

REINFORCING SCHEDULE
(INCLUDES BOTH ABUTMENTS)

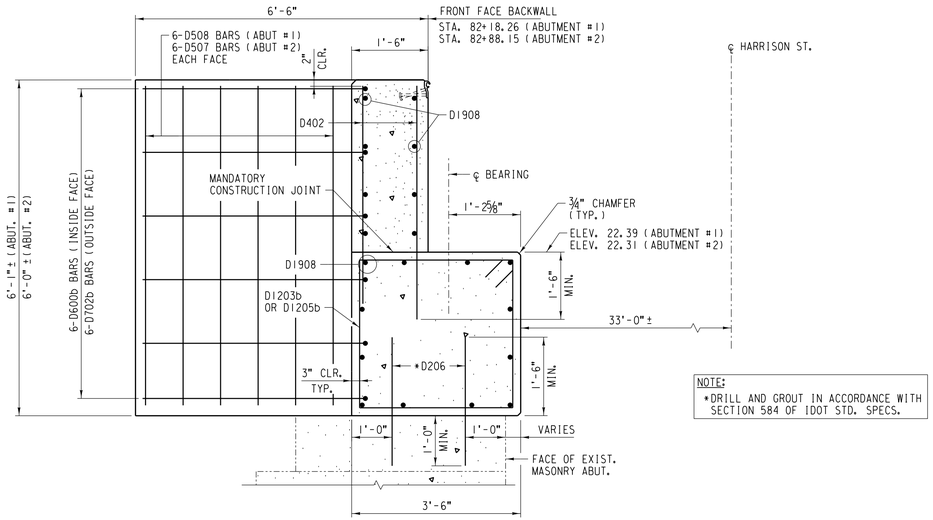
TOTAL	MARK	SIZE	LENGTH	SHAPE
84	D206	#5	2'-6"	
84	D402	#5	4'-2"	
24	D507	#5	5'-7"	
24	D508	#5	5'-8"	
24	D600b	#5	6'-0"	
32	D609b	#5	6'-9"	
24	D702b	#5	7'-2"	
21	D1203b	#5	12'-3"	
21	D1205b	#5	12'-5"	
40	D1908	#5	19'-8"	
16	E708b	#6	7'-8"	

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 2,970 LB.



SECTION A-A

SCALE: NO SCALE

NOTE:
*DRILL AND GROUT IN ACCORDANCE WITH SECTION 584 OF IDOT STD. SPECS.

NOTES:

1. CAST BACKWALL AFTER BEAMS HAVE BEEN ERECTED.
2. D609b BARS SHALL BE INSTALLED WITH BACKWALL AND WINGWALLS.
3. CAST PARAPETS ON BACKWALL AFTER BACKWALL AND WINGWALLS HAVE BEEN ERECTED ALONG WITH BRIDGE PARAPETS.
4. EXISTING MASONRY SURFACE AT REMOVAL LINE SHALL BE CLEANED PRIOR TO POURING NEW ABUTMENT.
5. PARAPET REINFORCEMENT AND DIMENSIONS SHOWN ON SHEET NO. 16.
6. ALL BAR DIMENSIONS ARE OUT TO OUT.
7. COST OF DRILLING D206 BARS SHALL BE INCLUDED WITH EPOXY GROUTING OF REINFORCEMENT BARS.
8. D402 BARS CAST WITH ABUTMENT SEAT.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N14 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

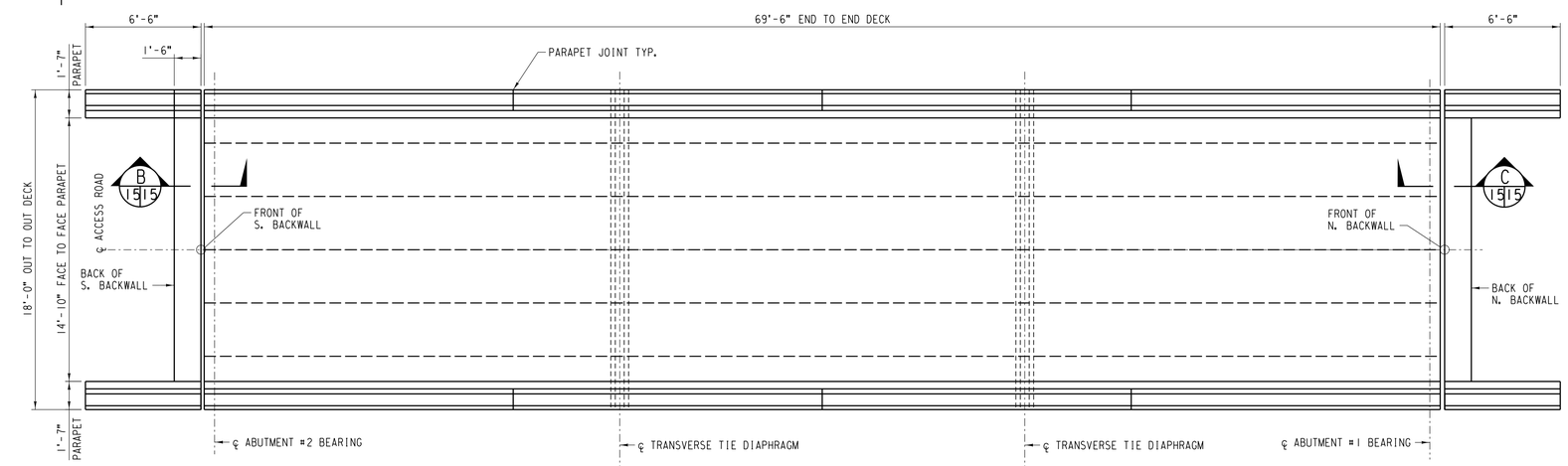
SHEET TITLE:
ACCESS BRIDGE CAST-IN-PLACE ABUTMENTS

FILE NAME: C:\Users\mercmire\Desktop\roc00155_bill.dgn

PLOTTED: 5/21/2021 4:40:34 PM

TO CANAL ST. (CHICAGO)
(TIMETABLE SOUTH)

TO KEDZIE (CHICAGO)
(TIMETABLE NORTH)



PLAN
SCALE: NO SCALE

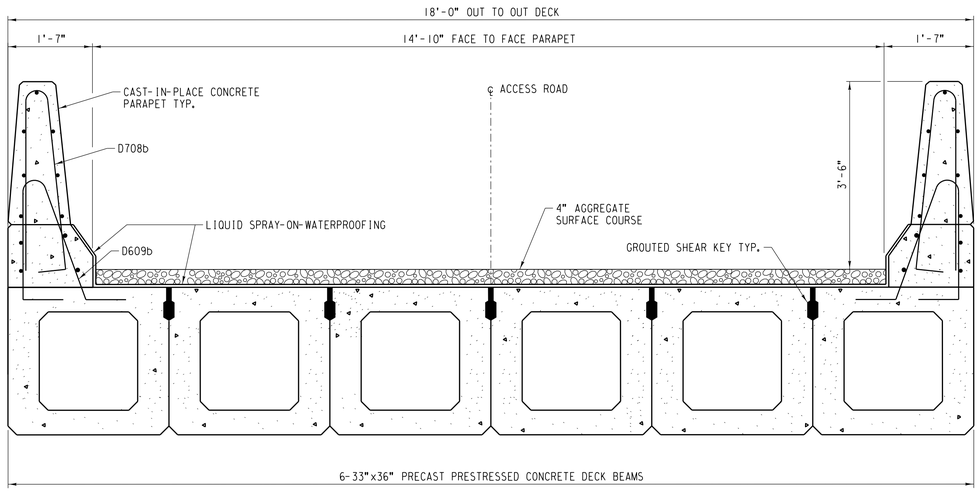
ESTIMATED QUANTITIES

REQ'D.	UNIT	DESCRIPTION
1,520	S.F.	LIQUID SPRAY-ON-WATERPROOFING
15.5	CU.YD.	AGGREGATE SURFACE COURSE

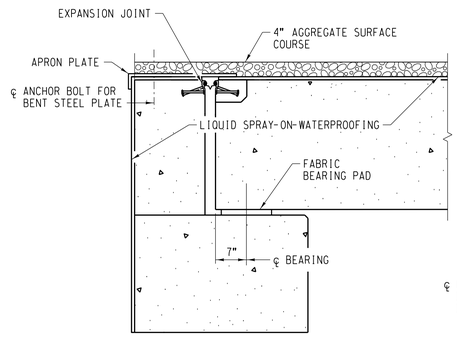
QUANTITIES SHOWN FOR INFORMATION ONLY.

NOTES:

1. FOR PARAPET DETAILS AND MATERIAL SCHEDULE SEE SHEET NO. 16.
2. FOR FABRIC BEARING PAD DETAILS SEE SHEET NO. 19.
3. AFTER BEAMS HAVE BEEN ERECTED, HOLES SHALL BE DRILLED INTO SUBSTRUCTURE AND ANCHOR DOWELS PLACED.
4. ALL HORIZONTAL DIMENSIONS ARE AT RIGHT ANGLES TO BEAM ENDS.
5. LIQUID SPRAY-ON-WATERPROOFING SHALL BE APPLIED TO DECK, PARAPETS, TOP FACE OF BACKWALL AND BACK FACE OF ABUTMENTS AND BACKWALLS.
6. LIQUID SPRAY-ON-WATERPROOFING SHALL BE APPLIED TO THE LOWEST TWO INSIDE FACES OF THE PARAPETS AS SHOWN ON THE CROSS SECTION.
7. LIQUID SPRAY-ON-WATERPROOFING APPLIED TO THE DECK SHALL END AT THE WELDED RAIL JOINTS. SEE SECTION THRU STRIP SEAL JOINT ON SHEET NO. 17.
8. AGGREGATE SURFACE COURSE MATERIAL SHALL BE PER SECTION 402 OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
9. AGGREGATE SURFACE COURSE SHALL BE PLACED ON THE DECK AND APPROACHES. AGGREGATE SURFACE COURSE TO BE PLACED ON APPROACHES SHALL BE ADEQUATE TO TRANSITION FROM DECK TO EXISTING GRADE AT A 8% MAXIMUM GRADE. LIMITS EXTEND TO A MINIMUM OF 1'-0" BEYOND WINGWALL BARRIERS.
10. COST OF GROUT FOR GROUTED SHEAR KEY INCLUDED WITH COST OF PRECAST PRESTRESSED CONCRETE DECK BEAMS.

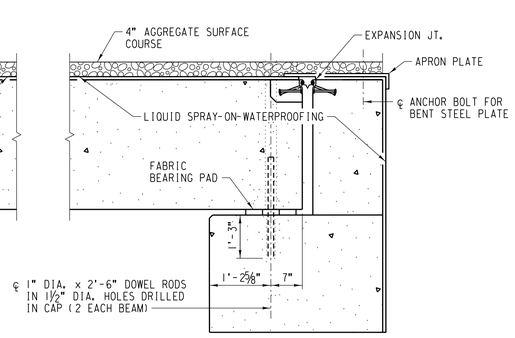


CROSS SECTION
SCALE: NO SCALE



SECTION B
SCALE: NO SCALE
1515

EXPANSION END WITH EXPANSION JOINT
DIMENSIONS ARE AT RIGHT ANGLES



SECTION C
SCALE: NO SCALE
1515

FIXED END WITH EXPANSION JOINT
DIMENSIONS ARE AT RIGHT ANGLES

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N15 of N43	SHEET TITLE: ACCESS BRIDGE PLAN AND CROSS SECTION

FILE NAME: C:\Users\rmcmirray\Desktop\rac00155_bil.dgn

PLOTTED: 5/21/2021 4:40:34 PM

MATERIAL SCHEDULE

(QUANTITIES SHOWN ARE FOR BOTH PARAPETS)

REQ'D.	UNIT	DESCRIPTION
25.5	CU. YD.	CAST-IN-PLACE CONCRETE
1	LOT	REINFORCING STEEL

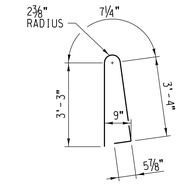
REINFORCING SCHEDULE

(QUANTITIES SHOWN ARE FOR BOTH PARAPETS)

TOTAL	MARK	SIZE	LENGTH	SHAPE
36	C602	#4	6'-2"	
56	C1700	#4	17'-0"	
12	C2409	#4	24'-9"	
200	D708b	#5	7'-8"	
8	G602	#8	6'-2"	
12	G2609	#8	26'-9"	

BENDING DIAGRAM

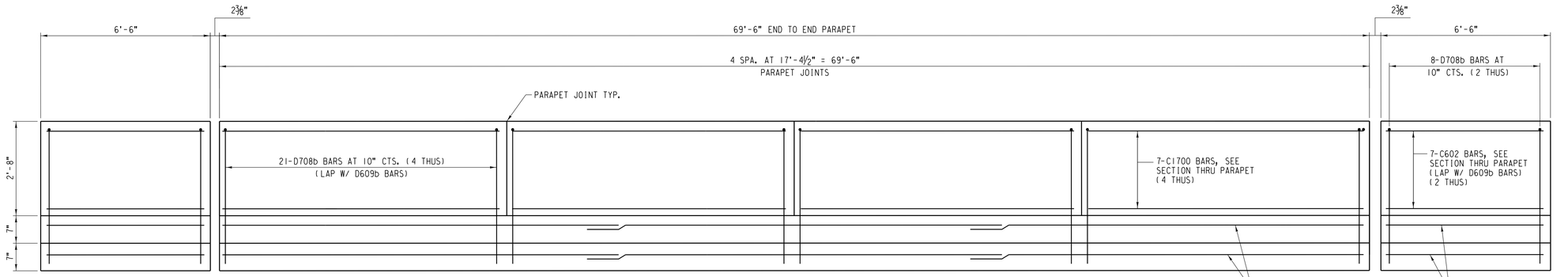
(DIMENSIONS ARE OUT TO OUT)



BAR D708b

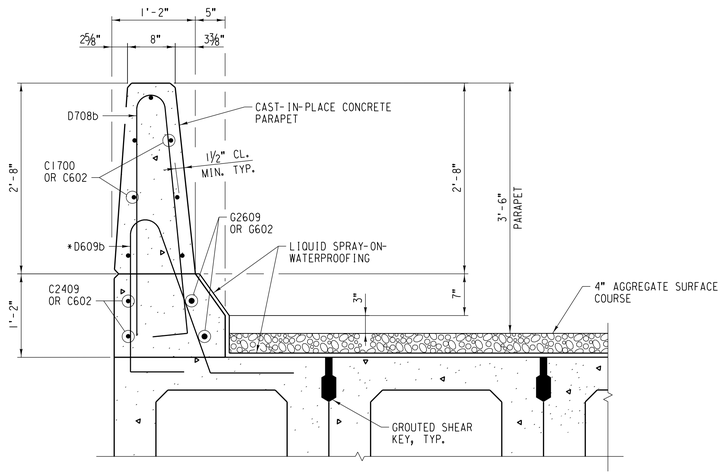
NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF REINFORCING STEEL = 3,580 LB.



INSIDE ELEVATION OF PARAPET

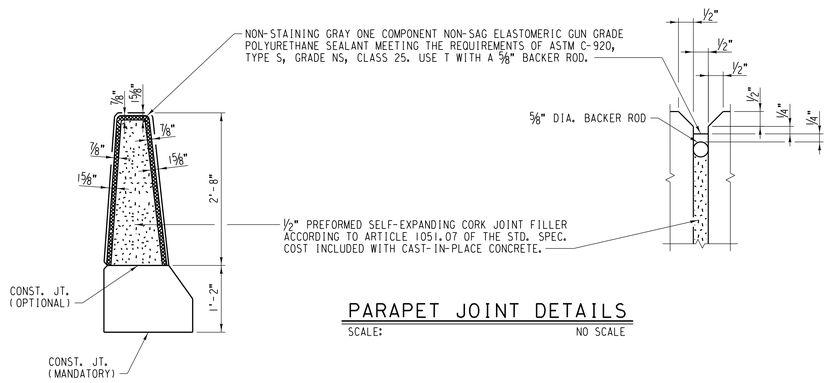
SCALE: NO SCALE



SECTION THRU PARAPET

SCALE: NO SCALE

*AT BEAM, PLACE D609b BARS AT 10" CTS. IN FASCIA BEAM. D609b BAR INCLUDED IN COST OF BEAM.
*AT WINGWALL, PLACE D609b BARS AT 10" CTS. IN WINGWALL. D609b BAR INCLUDED IN COST OF REINFORCEMENT BARS.



PARAPET JOINT DETAILS

SCALE: NO SCALE

NOTE:
BARS INDICATED THUS 20x2-#4 ETC. INDICATES 20 LINES OF BARS WITH 2 LENGTHS PER LINE.

NOTE:
MINIMUM BAR LAP: #4 BAR = 2'-0"
#8 BAR = 5'-2"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N16 of N43	SHEET TITLE: ACCESS BRIDGE PARAPET DETAILS

FILE NAME: C:\Users\mercmire2\Desktop\rac00155_bii.dgn

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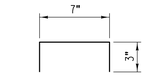
MATERIAL SCHEDULE
(QUANTITIES SHOWN ARE FOR BOTH END TREATMENTS)

REQ'D.	UNIT	DESCRIPTION
0.6	CU. YD.	CAST-IN-PLACE CONCRETE
1	LOT	REINFORCING STEEL
34	L.F.	PREFORMED JOINT STRIP SEAL

REINFORCING SCHEDULE
(QUANTITIES SHOWN ARE FOR BOTH END TREATMENTS)

TOTAL	MARK	SIZE	LENGTH	SHAPE
8	D1708	#5	17'-8"	——
36	C101b	#4	1'-1"	⊓

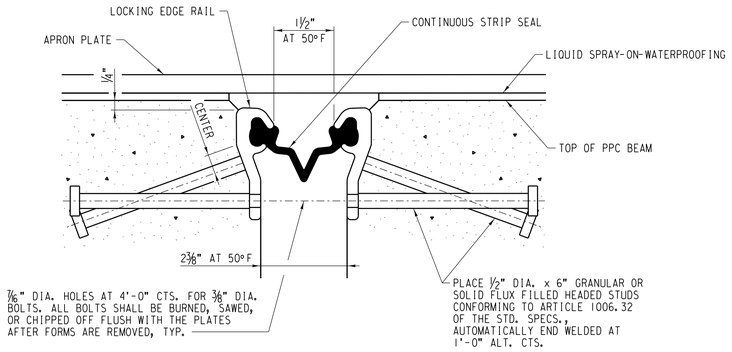
BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



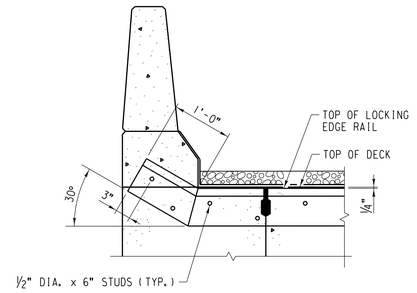
C101b

NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

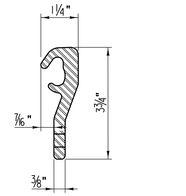
EST. WT. OF REINFORCING STEEL = 180 LB.



SECTION THRU STRIP SEAL JOINT
SCALE: NO SCALE

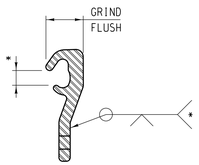


TYPICAL SEAL JOINT END TREATMENTS AT PARAPET
SCALE: NO SCALE



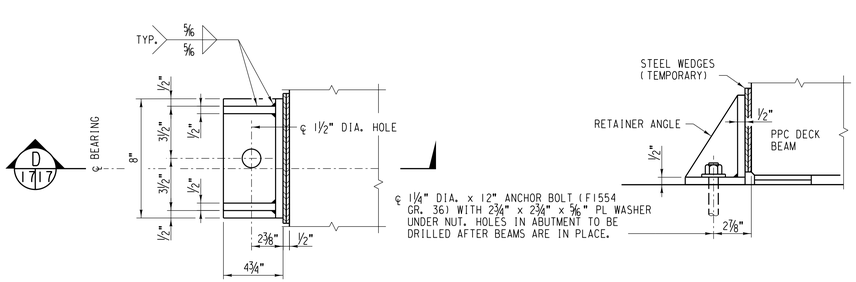
LOCKING EDGE RAIL
SCALE: NO SCALE

NOTE:
*OMIT WELD AT SEAL OPENING.



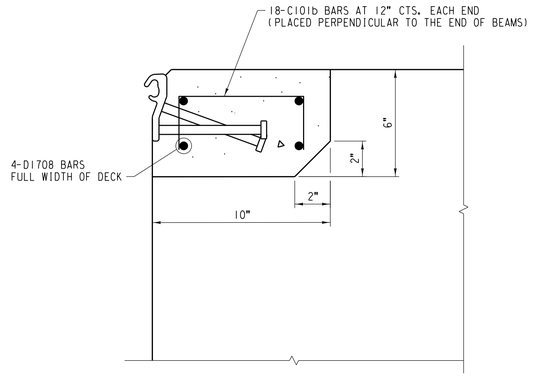
LOCKING EDGE RAIL SPLICE
SCALE: NO SCALE

NOTES:
1. THE STRIP SEAL SHALL BE MADE CONTINUOUS AND SHALL HAVE A MINIMUM THICKNESS OF ¼". THE CONFIGURATION OF THE STRIP SEAL SHALL MATCH THE CONFIGURATION OF THE LOCKING EDGE RAILS. OPEN OR "WEBBED" STRIP SEAL GLAND CONFIGURATIONS ARE NOT PERMITTED. THE GLAND SHALL BE SIZED FOR A MAXIMUM RATED MOVEMENT OF 4 INCHES.
2. THE LOCKING EDGE RAILS DEPICTED ARE CONCEPTUAL ONLY, EXCEPT FOR THE MINIMUM DIMENSIONS SHOWN. THE ACTUAL CONFIGURATION OF THE LOCKING EDGE RAILS AND MATCHING STRIP SEAL MAY VARY FROM MANUFACTURER TO MANUFACTURER. FLANGED EDGE RAILS WILL NOT BE ALLOWED. THE INSIDE OF THE LOCKING EDGE RAIL GROOVE SHALL BE FREE OF WELD RESIDUE. LOCKING EDGE RAILS MAY BE SPLICED AT SLOPE DISCONTINUITIES.
3. THE MANUFACTURER'S RECOMMENDED INSTALLATION METHODS SHALL BE FOLLOWED.
4. THE JOINT OPENING AND DECK DIMENSIONS DETAILED ON THE SUPERSTRUCTURE ARE BASED ON A ROLLED RAIL EXPANSION JOINT. IF THE CONTRACTOR ELECTS TO USE THE WELDED RAIL EXPANSION JOINT, THE OPENING AND DECK DIMENSIONS SHALL BE MODIFIED ACCORDINGLY. REQUIRED MODIFICATIONS SHALL BE MADE AT NO ADDITIONAL COST TO UPRR.
5. ALL STRIP SEAL EXPANSION JOINT STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION ACCORDING TO ARTICLE 520.03 OF THE STANDARD SPECIFICATIONS.
6. COST OF SIDE RETAINERS AND ACCESSORIES ARE INCLUDED WITH PRECAST PRESTRESSED CONCRETE DECK BEAMS.
7. EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.
8. THE SIDE RETAINERS SHALL BE GALVANIZED AFTER SHOP FABRICATION ACCORDING TO AASHTO M 111 AND ASTM 385.
9. ANCHOR BOLTS SHALL BE ASTM F1554 ALL-THREAD (OR AN ENGINEER-APPROVED ALTERNATE MATERIAL) OF THE GRADE AND DIAMETER SPECIFIED. ASTM A307 GRADE C ANCHOR BOLTS MAY BE USED IN LIEU OF ASTM F1554 GRADE 36 (Fy = 36 KSI). THE CORRESPONDING SPECIFIED GRADE OF AASHTO M314 ANCHOR BOLTS MAY BE USED IN LIEU OF ASTM F1554. ANCHOR BOLTS AND PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO AASHTO M 232.
10. DRILLED AND SET ANCHOR BOLTS FOR SIDE RETAINERS SHALL BE INSTALLED ACCORDING TO ARTICLE 521.06 OF THE STANDARD SPECIFICATIONS.
11. AFTER THE OVERLAY IS PLACED AND THE DECK PARAPETS ARE POURED AND CURED, THE STEEL WEDGES SHALL BE REMOVED.



SIDE RETAINER ANGLE
SCALE: NO SCALE

SECTION D
SCALE: NO SCALE 17|17



SECTION THRU EXPANSION END BLOCK
SCALE: NO SCALE

INSERTS AND COIL RODS NOT SHOWN FOR CLARITY.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N17 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

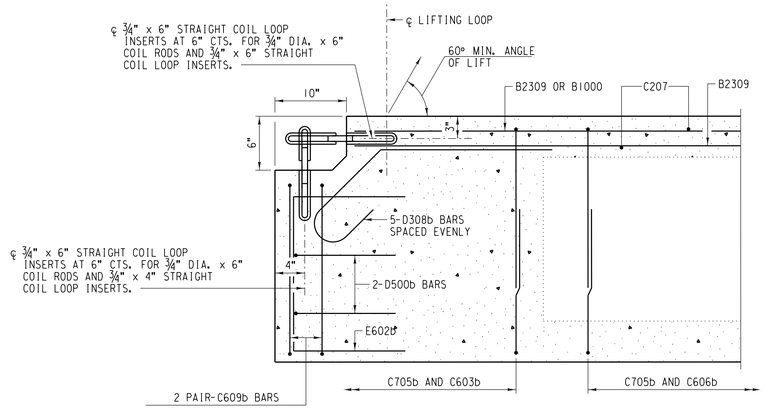
SHEET TITLE:
ACCESS BRIDGE EXPANSION JOINT DETAILS

FILE NAME: C:\Users\mercomir\Desktop\rock00155_bii.dgn

PLOTTED: 5/21/2021 4:40:35 PM

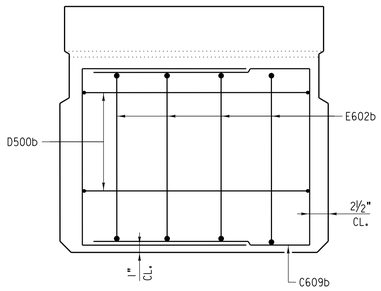
MATERIAL SCHEDULE

ITEM	UNIT	TOTAL
36" x 33" PRECAST PRESTRESSED CONCRETE DECK BEAMS	S.F.	1,251
1" x 9" x 1'-1½" FABRIC BEARING PAD	EACH	4
1" x 9" x 2'-3" FABRIC BEARING PAD	EACH	10
1" DIA. x 2'-6" DOWEL RODS	EACH	12
TRANSVERSE TIE DIAPHRAGM	EACH	2



SECTION G
SCALE: NO SCALE

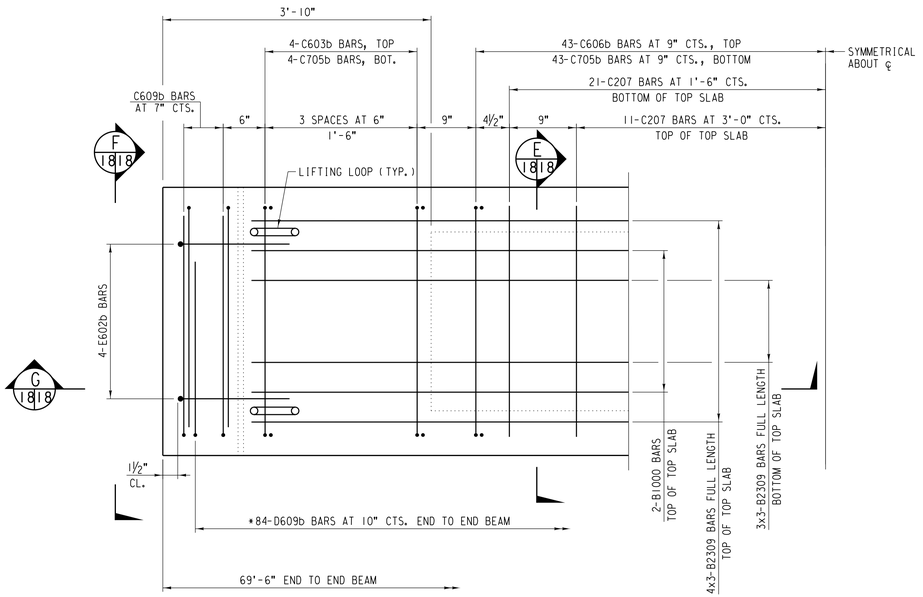
NOTES:
1. 1½" CL. FOR REINFORCEMENT BARS UNLESS OTHERWISE NOTED.
2. COST OF INSERTS AND COIL RODS INCLUDED WITH PRECAST PRESTRESSED CONCRETE DECK BEAMS.



VIEW F
SCALE: NO SCALE

NOTE:
INSERTS AND COIL RODS NOT SHOWN FOR CLARITY. SEE SECTION G.

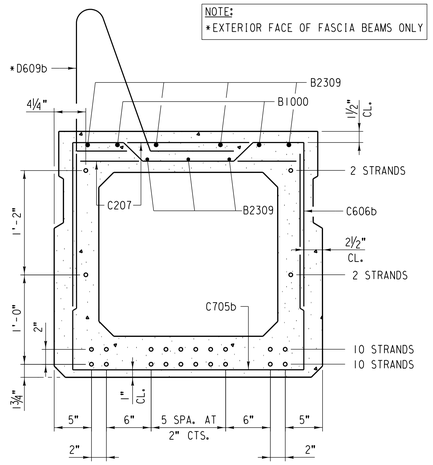
NOTE:
FOR ADDITIONAL DETAILS AND REINFORCING SCHEDULE SEE SHEET NO. 19.



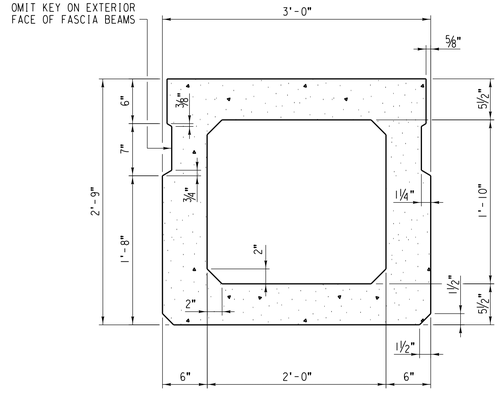
PLAN VIEW
SCALE: NO SCALE

NOTES:
1. SPACING OF C705b AND C603b BARS MAY BE ADJUSTED UP TO 4" IN THE IMMEDIATE AREA OF THE TRANSVERSE TIE DIAPHRAGMS TO MISS THE BLOCK OUTS FOR THE TRANSVERSE TIES.
2. INSERTS AND COIL RODS NOT SHOWN FOR CLARITY. SEE SECTION G.
3. SEE SHEET 19 FOR DOWEL ROD CAST HOLE LOCATIONS.

NOTE:
*EXTERIOR FACE OF FASCIA BEAMS ONLY



SECTION E
SCALE: NO SCALE
INCLUDES 24 - ½" DIA. 270 KSI STRANDS PER BEAM



SECTION E
SCALE: NO SCALE
SHOWING DIMENSIONS

NOTE:
MINIMUM BAR LAP: #3 BAR = 1'-6"
#4 BAR = 2'-0"
#5 BAR = 2'-6"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

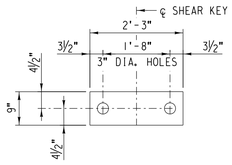
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N18 of N43	SHEET TITLE: ACCESS BRIDGE REINFORCEMENT DETAILS (SHEET 1 OF 2)

FILE NAME: C:\Users\ramirezm\Desktop\roc00155.bil.dgn

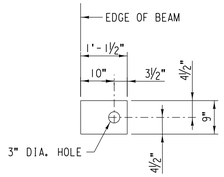
PLOTTED: 5/21/2021 4:40:35 PM



FABRIC BEARING PAD

SCALE: NO SCALE

INTERIOR



FABRIC BEARING PAD

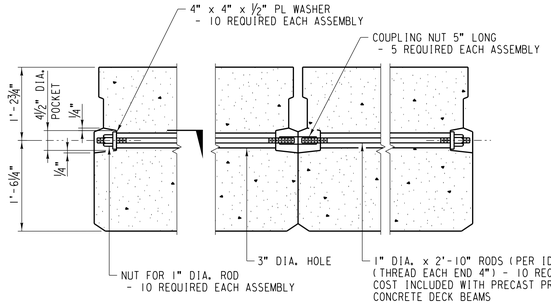
SCALE: NO SCALE

EXTERIOR

FIXED

SCALE: NO SCALE

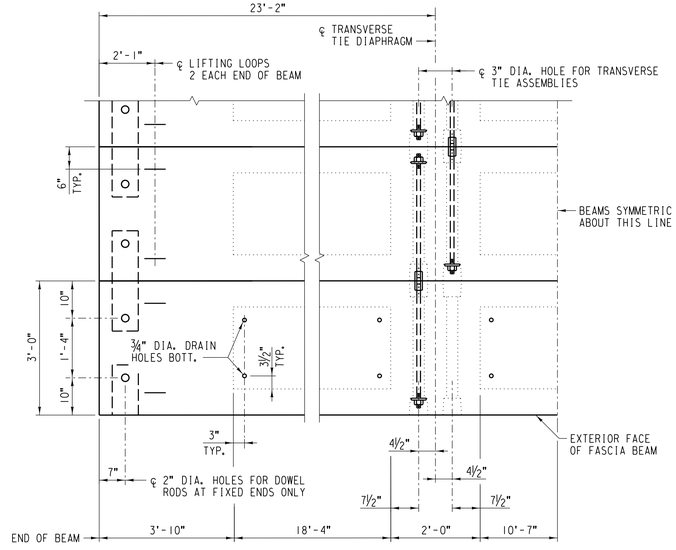
NOTE:
ALL BEARING PADS SHALL BE 1" THICK.
OMIT HOLES WHEN USING EXPANSION BEARINGS.
EXPANSION BEARING PAD SHALL BE BONDED TO THE SUBSTRUCTURE.



H 1919

TYPICAL TRANSVERSE TIE ASSEMBLY

SCALE: NO SCALE



PLAN VIEW

SCALE: NO SCALE

NOTE:
CONNECT BEAMS IN PAIRS WITH THE TRANSVERSE TIE DIAPHRAGM CONFIGURATION SHOWN.

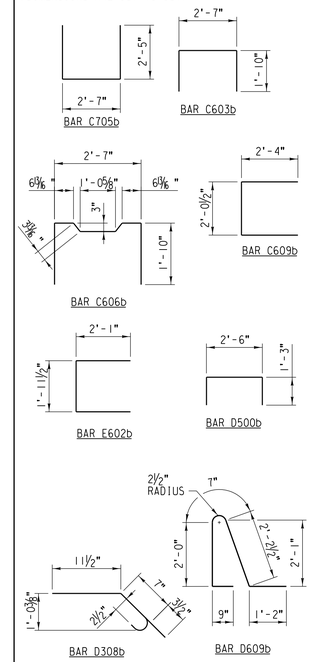
NOTE:
*EXTERIOR FACE OF FASCIA BEAMS ONLY

REINFORCING SCHEDULE
(QUANTITY FOR ONE BEAM ONLY)

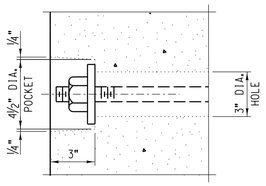
TOTAL	MARK	SIZE	LENGTH	SHAPE
4	B1000	#3	10'-0"	
21	B2309	#3	23'-9"	
64	C207	#4	2'-7"	
8	C603b	#4	6'-3"	
86	C606b	#4	6'-6"	
8	C609b	#4	6'-9"	
94	C705b	#4	7'-5"	
10	D308b	#5	3'-8"	
4	D500b	#5	5'-0"	
168	*D609b	#5	6'-9"	
8	E602b	#6	6'-2"	

COST OF REINFORCEMENT BARS INCLUDED IN PRECAST PRESTRESSED CONCRETE DECK BEAMS.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)

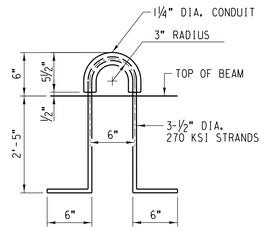


NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.



SECTION H 1919

SCALE: NO SCALE



LIFTING LOOP DETAIL

SCALE: NO SCALE

NOTES:
1. PRESTRESSING STEEL SHALL BE UNCOATED HIGH STRENGTH, LOW RELAXATION 7-WIRE STRAND, ASTM A416 GRADE 270. THE NOMINAL DIAMETER SHALL BE ½" AND THE NOMINAL CROSS-SECTIONAL AREA SHALL BE 0.153 SQ. IN.
2. THE 1" DIA. RODS IN THE TRANSVERSE TIE ASSEMBLY SHALL BE TIGHTENED TO A SNUG FIT AND THE THREADS SET. POCKETS ON EXTERIOR FACES OF BRIDGE SHALL BE FILLED WITH GROUT AFTER TRANSVERSE TIE ASSEMBLY IS IN PLACE.
3. REINFORCEMENT BARS SHALL CONFORM TO ASTM A 706, GRADE 60.
4. TWO ⅛" FABRIC ADJUSTING SHIMS OF THE DIMENSIONS OF THE EXTERIOR BEARING PAD SHALL BE PROVIDED FOR EACH BEARING PAD LOCATION.
5. FABRIC BEARING PADS SHALL CONFORM TO IDOT STANDARD SPECIFICATION 1082.01.
6. EACH BEAM SHALL HAVE FOUR LIFTING LOOPS, TWO CAST IN EACH END. LOOPS SHALL BE BURNED OFF AFTER BEAMS HAVE BEEN ERECTED.
7. A MINIMUM 2½" DIA. LIFTING PIN SHALL BE USED TO ENGAGE THE LIFTING LOOPS DURING HANDLING.
8. CORROSION INHIBITOR, PER ARTICLE 1020.05(B)(12) AND 1021.06 OF THE STANDARD SPECIFICATIONS, SHALL BE USED IN THE CONCRETE FOR PRECAST PRESTRESSED CONCRETE DECK BEAMS.
9. COMPRESSIVE STRENGTH OF PRESTRESSED CONCRETE, f'c, SHALL BE 6000 PSI.
10. COMPRESSIVE STRENGTH OF PRESTRESSED CONCRETE AT RELEASE, f'ci, SHALL BE 5000 PSI.
11. KEYWAY SURFACES SHALL BE CLEANED TO REMOVE FORM OIL OR OTHER BOND BREAKING MATERIAL PRIOR TO SHIPMENT OF THE BEAMS. CLEANING SHALL BE DONE BY SANDBLASTING INTO THE KEYWAY AREAS BETWEEN TOP OF THE BEAM AND THE BOTTOM EDGE OF THE BEAM.
12. ALL BAR DIMENSIONS ARE OUT TO OUT.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	UNION PACIFIC RAILROAD — Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION — 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
UPRR ENGINEER: DEH / ADS	
SHT NO.: N19 of N43	SHEET TITLE: ACCESS BRIDGE REINFORCEMENT DETAILS (SHEET 2 OF 2)

FILE NAME: C:\Users\mromine2\Desktop\r0d00155_bii.dgn

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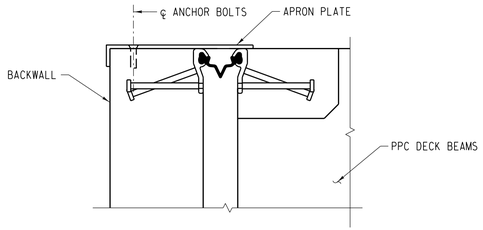
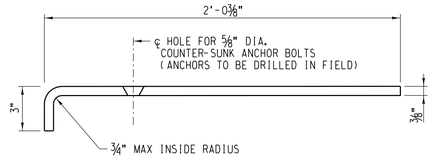
MATERIAL SCHEDULE

(QUANTITIES SHOWN ARE FOR BOTH ENDS)

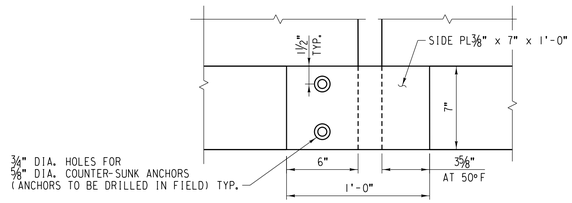
REQ'D.	UNIT	DESCRIPTION
1,070	LB.	STRUCTURAL STEEL FOR APRON PLATE AND SIDE PLATES
38	EACH	5/8" DIA. 5" COUNTER-SUNK BOLTS



SECTION J 2020
SCALE: NO SCALE



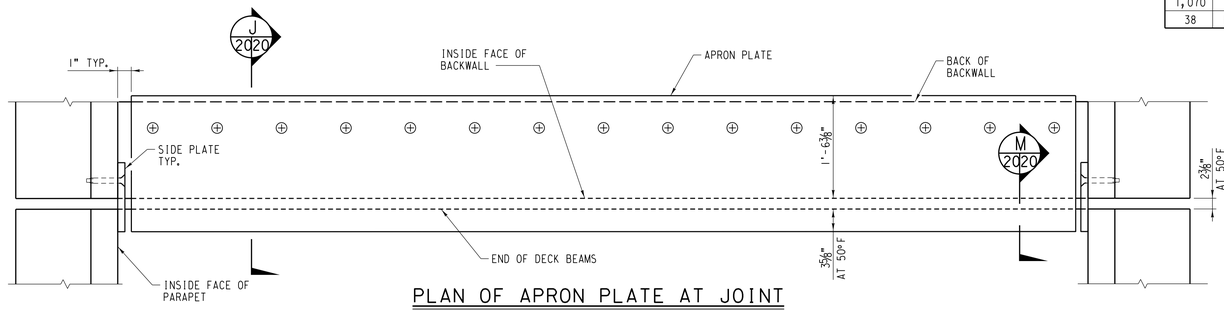
SECTION L 2020
SCALE: NO SCALE



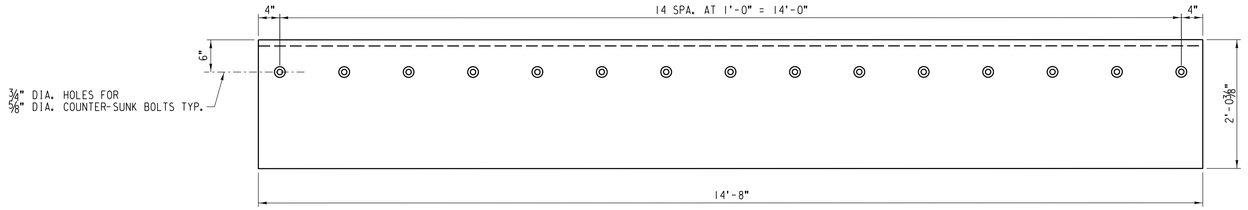
VIEW M 2020
SCALE: NO SCALE

NOTES:

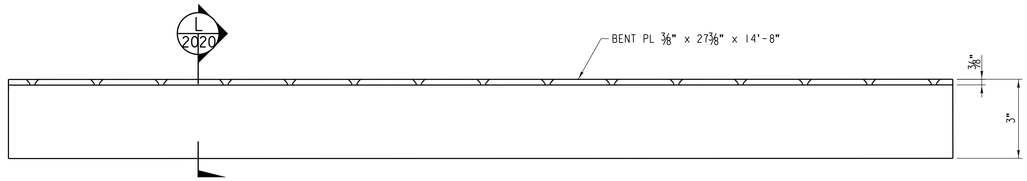
1. STEEL PLATES TO BE ASTM A36, GALVANIZED PER ASTM A123.
2. APRON PLATES WILL BE CONNECTED TO ABUTMENT BACKWALL BY COUNTER-SUNK BOLTS PLACED IN THE FIELD AT LOCATIONS SHOWN ON THIS SHEET. PLACE APRON PLATES SUCH THAT SHORT LEG OF PLATE IS FLUSH WITH BACK OF BACKWALL AS SHOWN ON THIS SHEET.
3. COUNTER-SUNK BOLTS SHALL BE INSTALLED WITH NON-SHRINK CEMENTITIOUS GROUT.
4. COST OF DRILLING & INSTALLING ANCHORS IS INCLUDED IN THE COST OF CAST-IN-PLACE CONCRETE.
5. LIQUID SPRAY-ON DECK WATERPROOFING SHALL BE APPLIED TO DECK, PARAPETS AND TOP FACE OF BACKWALL PRIOR TO INSTALLATION OF APRON PLATES AND SIDE PLATES.



PLAN OF APRON PLATE AT JOINT
SCALE: NO SCALE



PLAN



ELEVATION

APRON PLATE
SCALE: NO SCALE

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N20 of N43

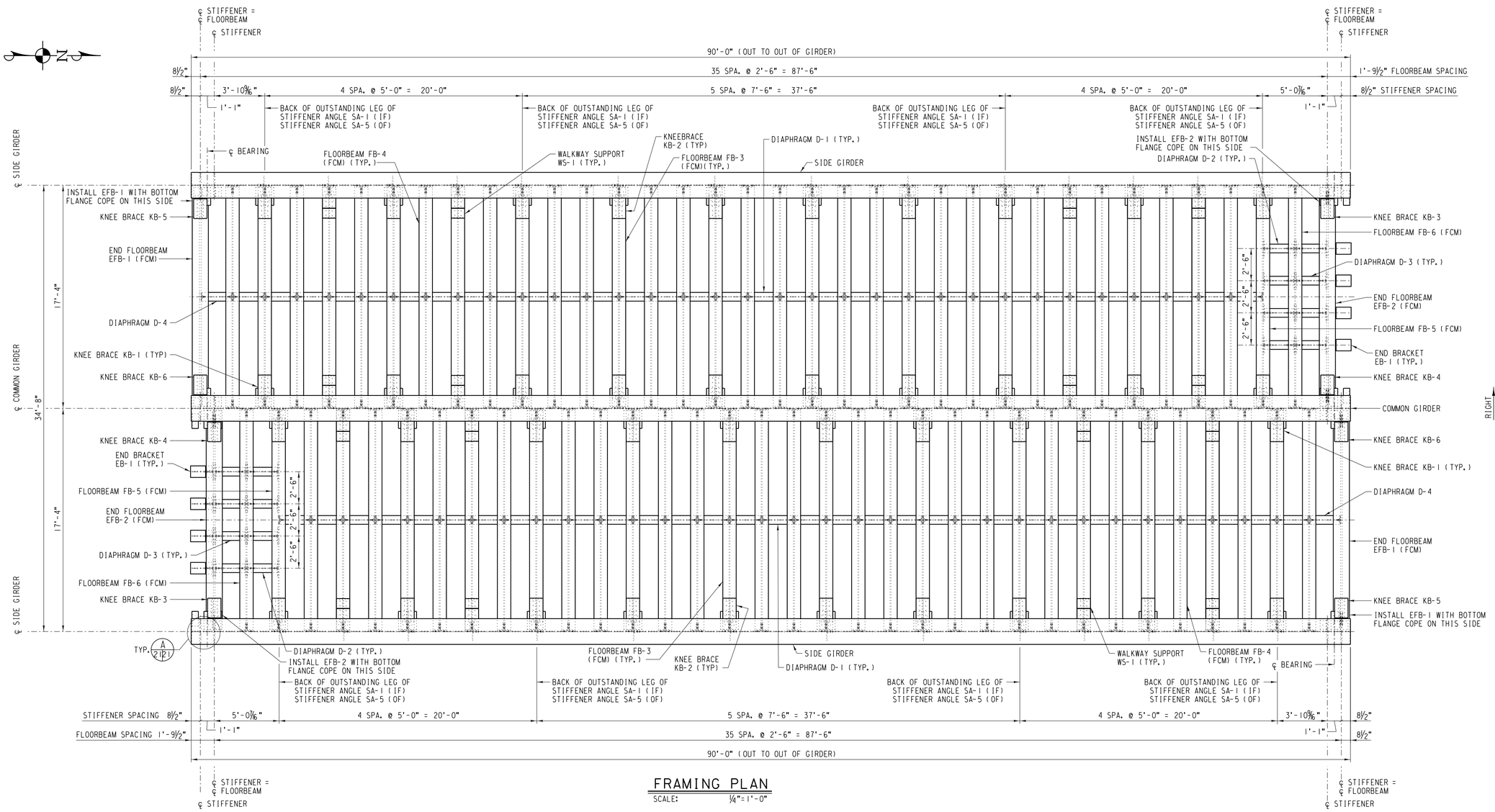
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

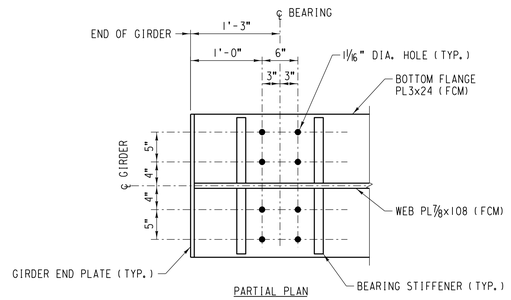
SHEET TITLE: ACCESS BRIDGE MISCELLANEOUS DETAILS

FILE NAME: c:\Users\rrramirez\Desktop\rc00155_bii.dgn

PLOTTED: 5/21/2021 4:40:36 PM



FRAMING PLAN
SCALE: ¼"=1'-0"



PARTIAL PLAN

DETAIL A 2 12 1
SCALE: 1"=1'-0"

BOTTOM FLANGE OF SIDE GIRDER SHOWN, BOTTOM FLANGE OF COMMON GIRDER SIMILAR

NOTES:
1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

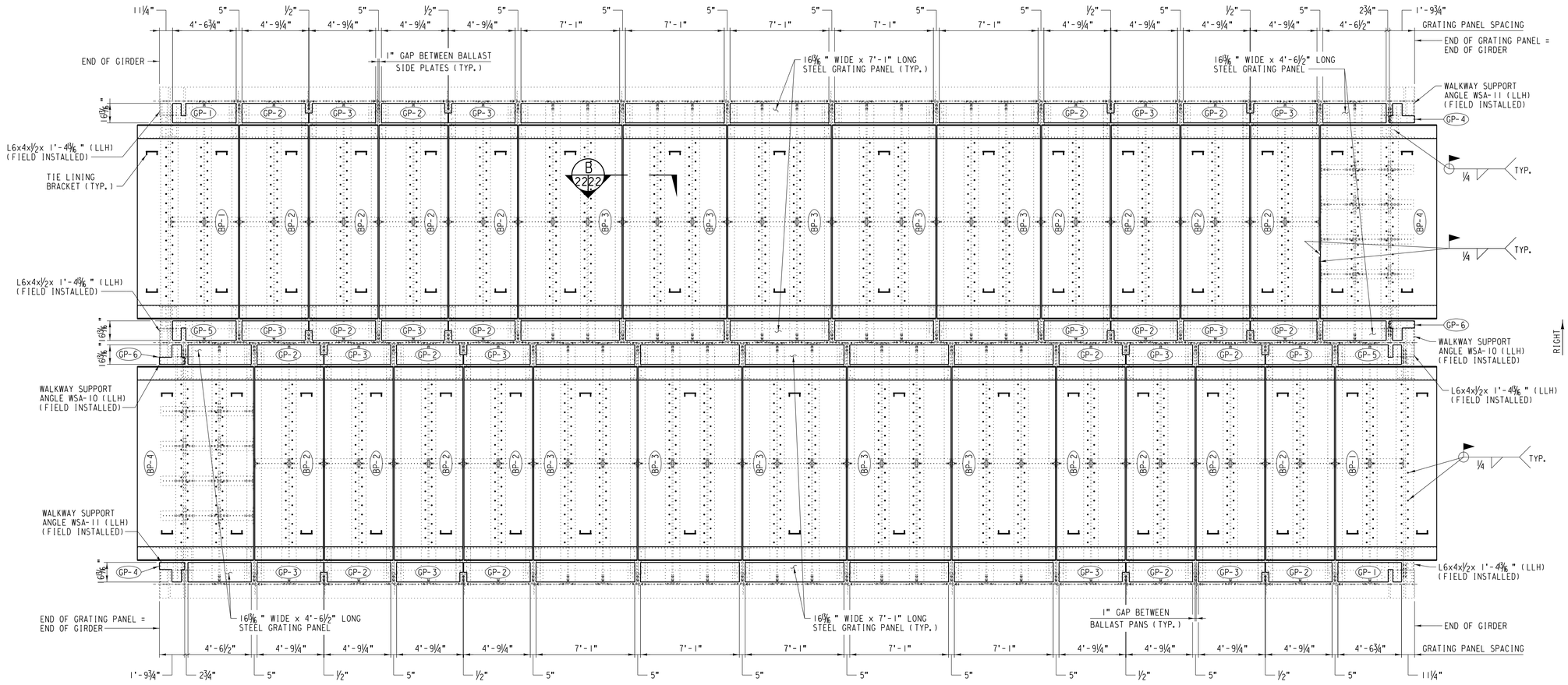
DSN/CHK BY: FNF/MFB	
DRAWN/CHK BY: RR /MFB	
UPRR ENGINEER: DEH / ADS	
SHT NO.: N21 of N43	SHEET TITLE: TPG FRAMING PLAN

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

FILE NAME: C:\Users\rramirez\Desktop\rac00155_bri.dgn

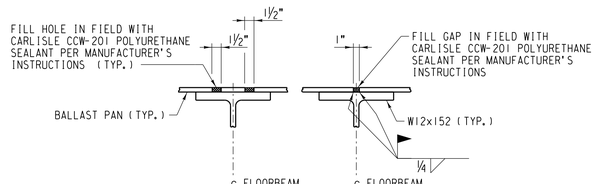
PLOTTED: 5/21/2021 4:40:36 PM



BALLAST PAN AND GRATING PLAN

SCALE: ¼"=1'-0"

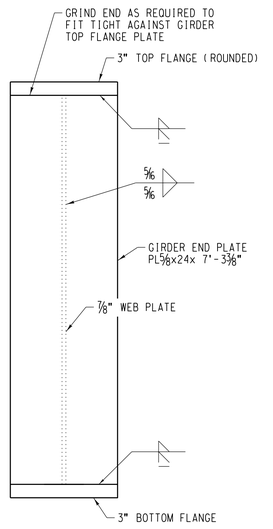
NOTE:
TOP FLANGES OF GIRDERS AND FLANGES OF KNEE BRACES NOT SHOWN FOR CLARITY.



SECTION B 2222

SCALE: 1"=1'-0"

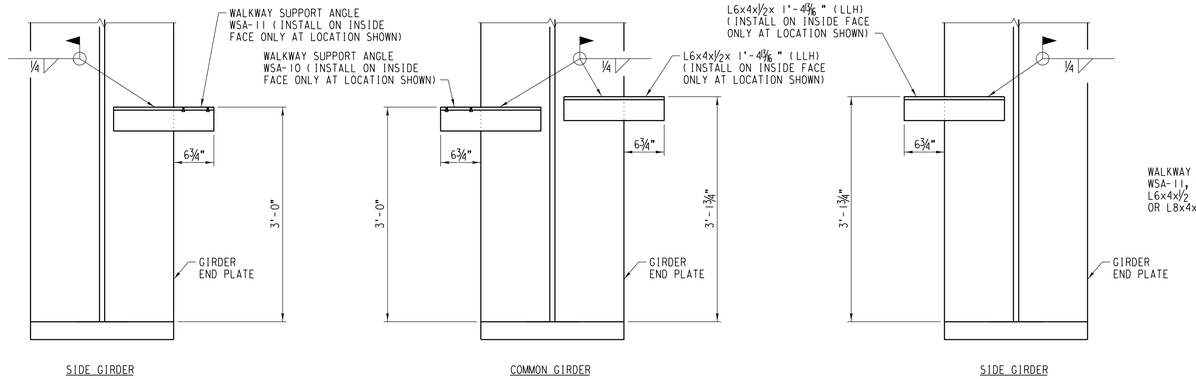
NOTES:
1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. THE REQUIREMENTS OF FULLY AUTOMATIC SUBMERGED ARC WELDING MAY BE WAIVED FOR FIELD WELDING THE BALLAST PANS TO THE FLOORBEAMS, KNEE BRACES AND WALKWAY SUPPORTS.
3. PLACE BALLAST PANS AND GRATING PANELS WITH PIECE MARKS AS SHOWN.
4. INSTALL BALLAST PANS STARTING WITH BP-3 AND THEN WORK TOWARDS BP-1 AND BP-4 ENDS.
5. LLH = LONG LEG HORIZONTAL



GIRDER END PLATE INSTALLATION DETAIL

SCALE: ⅜"=1'-0"

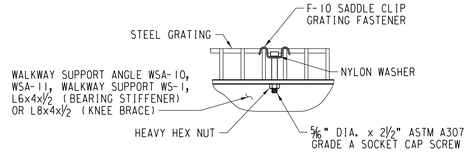
END VIEW OF GIRDER AT END PLATE, TYP. FOR SIDE AND COMMON GIRDER



WALKWAY SUPPORT ANGLE INSTALLATION DETAIL

SCALE: 1"=1'-0"

SECTION THRU GIRDER AT END PLATE



GRATING CONNECTION DETAIL

SCALE: 3"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	
DRAWN/CHK BY: RR /MFB	
UPRR ENGINEER: DEH / ADS	
SHT NO.: N22 of N43	SHEET TITLE: TPG BALLAST PAN AND GRATING PLAN

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

FILE NAME: C:\Users\kramirez\Desktop\roc00155_bil.dgn

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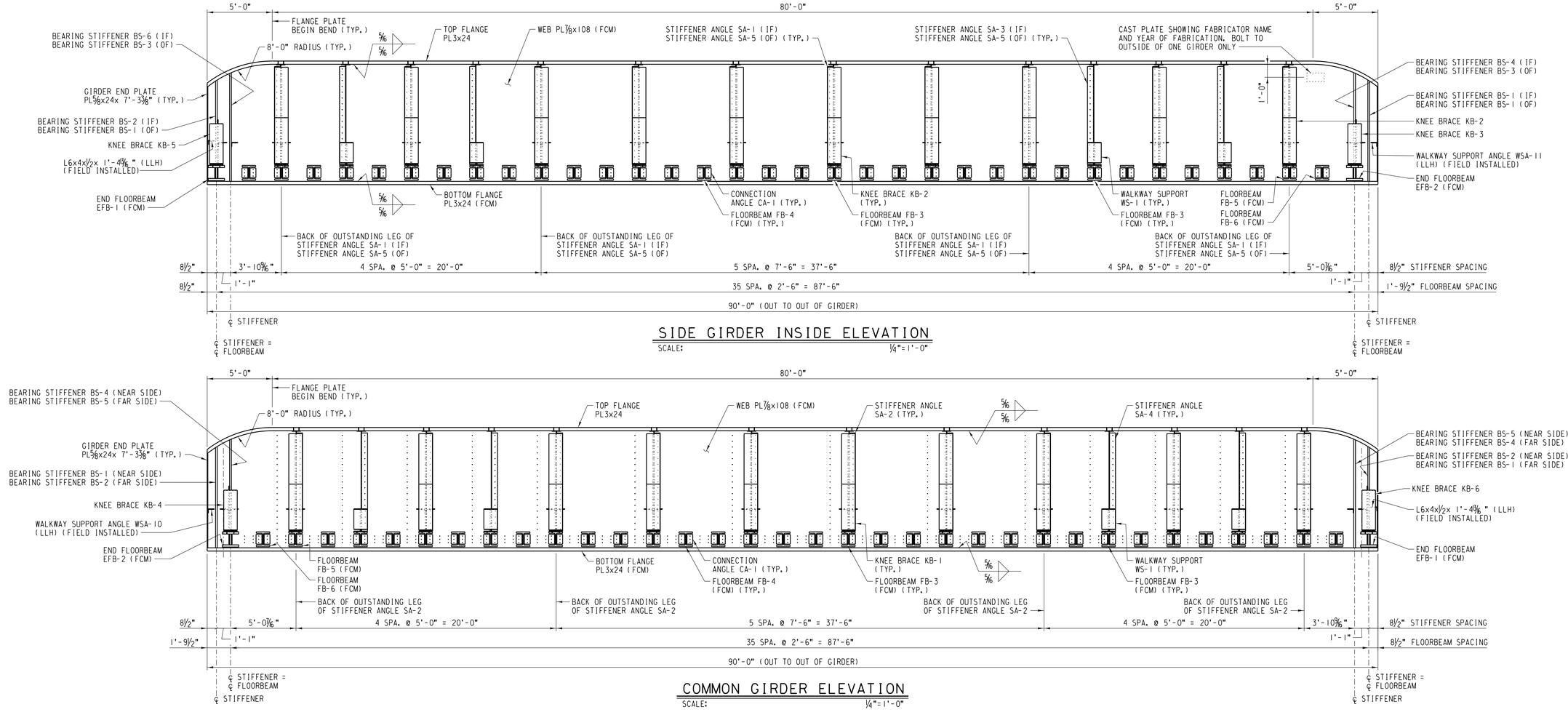


SIDE GIRDER INSIDE ELEVATION

SCALE: 1/4"=1'-0"

COMMON GIRDER ELEVATION

SCALE: 1/4"=1'-0"

PERMISSIBLE 3" FLANGE SPLICE B-U3c-S

SCALE: 3"=1'-0"

NOTE A: BACK GOUGE TO SOUND METAL PRIOR TO WELDING OTHER SIDE

PERMISSIBLE 7/8" WEB SPLICE B-L2c-S

SCALE: 3"=1'-0"

NOTE A: BACK GOUGE TO SOUND METAL PRIOR TO WELDING OTHER SIDE

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER
   IF = INSIDE FACE
   LLH = LONG LEG HORIZONTAL
   OF = OUTSIDE FACE
3. NO CAMBER IN PROPOSED GIRDERS.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N23 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

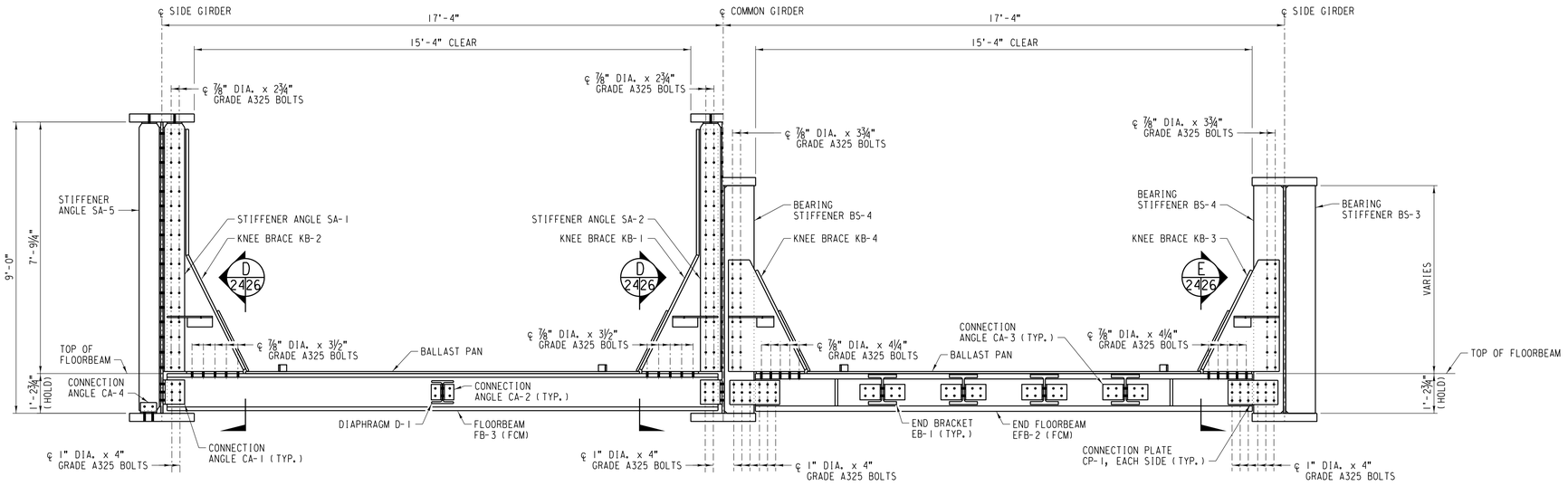
LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE: TPG GIRDER ELEVATIONS AND DETAILS

FILE NAME: C:\Users\wrcmirex\Desktop\roc00155_b11.dgn

PLOTTED: 5/21/2021 4:40:37 PM



AT FLOORBEAM FB-3 & KNEEBRACE

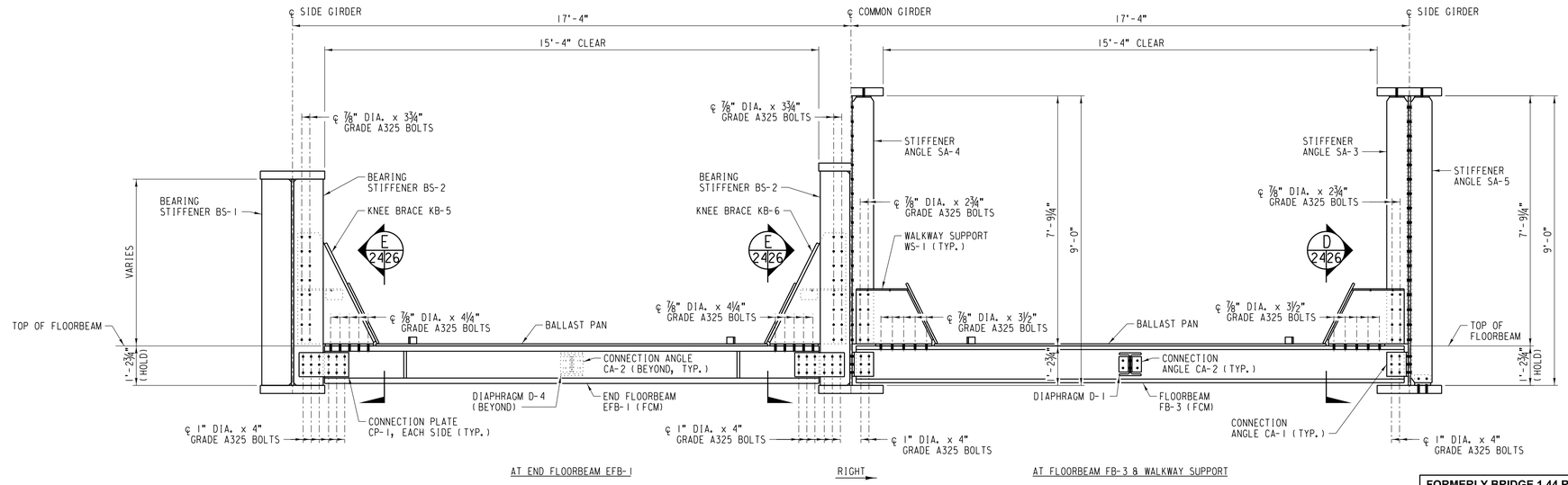
AT END FLOORBEAM EFB-2

RIGHT

PARTIAL SECTION

SCALE: ½"=1'-0"

NOTE:
STEEL GRATING NOT SHOWN FOR CLARITY.



AT END FLOORBEAM EFB-1

RIGHT

AT FLOORBEAM FB-3 & WALKWAY SUPPORT

PARTIAL SECTION

SCALE: ½"=1'-0"

NOTE:
STEEL GRATING NOT SHOWN FOR CLARITY.

NOTES:
1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N24 of N43	SHEET TITLE: TPG TYPICAL SECTIONS (SHEET 1 OF 2)

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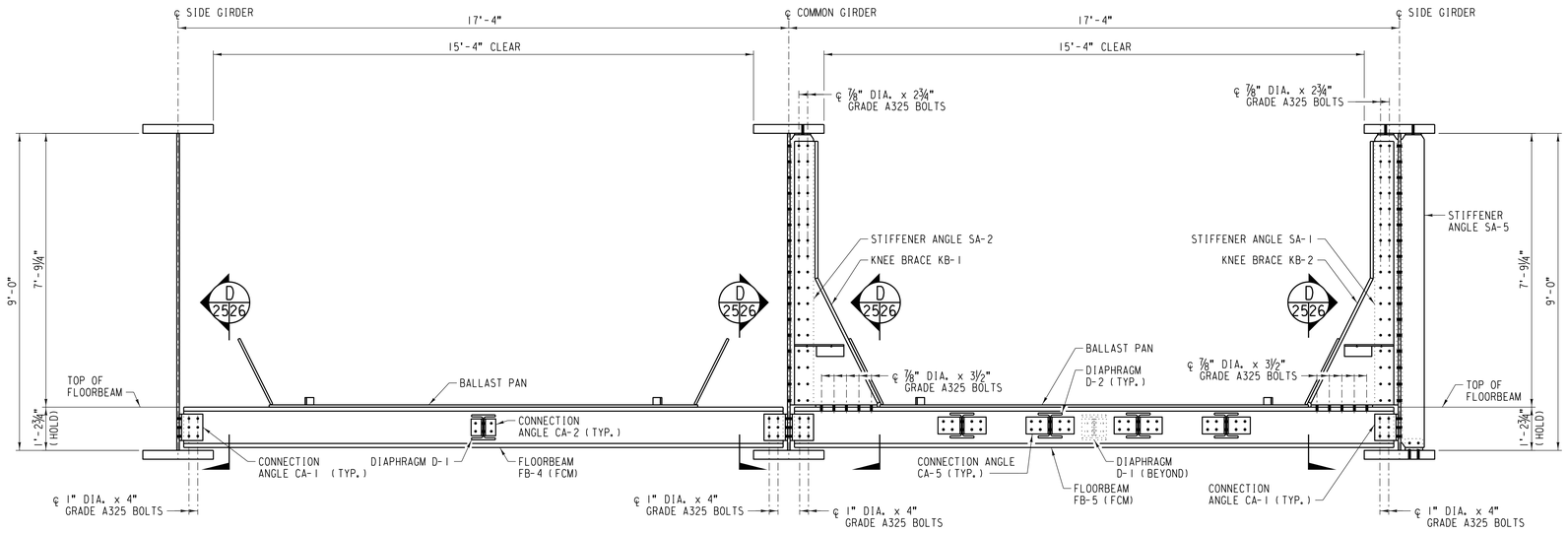

AT FLOORBEAM FB-4 — RIGHT → — AT FLOORBEAM FB-5

PARTIAL SECTION

SCALE: ½"=1'-0"

NOTE:
STEEL GRATING NOT SHOWN FOR CLARITY.

TPG STRUCTURAL STEEL NOTES

1. Materials, fabrication and erection shall be in accordance with Chapter 15: Steel Structures of the AREMA Manual for Railway Engineering.

2. Fabrication of structural steel shall be performed by a Fabricator certified under AISC Quality Certification Program for Major Steel Bridges (CBR) and Fracture Critical Endorsement (FCE).

3. Fabrication of bearings shall be performed by a Fabricator certified under AISC Quality Certification Program for Certified Metal Component Manufacturer (CPT).

4. Material shall conform to the following requirements:

Girder Web, Bottom Flange and Floorbeams	ASTM A709 Grade 50W F2
Girder Top Flanges and Bearing Stiffeners	ASTM A709 Grade 50W T2
Side and Floor Plates	ASTM A709 Grade 50 T2
All Other Structural Steel	ASTM A588
Anchor Rods	ASTM F1554 Grade 105
TPG Bearings	Per notes, Sheet No. 39 thru 42

5. Girders shall not be cambered. Floorbeams shall not be cambered, but shall be fabricated with natural camber up.

6. Steel designated as fracture critical (FCM) shall comply with the requirements of AREMA Chapter 15, Section 1.14. Testing shall be performed for a minimum service temperature corresponding to Zone 2. Killed fine grain practice shall be used in the manufacture of FCM steel. Supplementary requirements S84 and S93 of ASTM A709 shall be mandatory.

7. Structural steel shall be of the type and quality as designated on the drawings. Material supplied shall meet the longitudinal Charpy V-notch requirements for Zone 2 as specified in the AREMA Manual for Railway Engineering.

8. All shop and field bolted connections shall use ⅞" or 1" dia. high strength bolts with nut and hardened steel washer. High strength bolts shall conform to ASTM F3125 Grade A325, Type 3. Nuts shall conform to ASTM A563, lubricated. Washers shall conform to ASTM F436 and shall be placed under the element to be turned. Diameter of bolt holes shall be 1/16" larger than the nominal bolt diameter, unless noted otherwise.

9. High strength steel bolts shall be installed in accordance with the "Turn of Nut Method". The procedure for installation is as specified by the Research Council on Structural Connections. Alternative bolt installation methods are subject to approval by the UPRR Office of Director Structures Design with verification performed in accordance with AREMA Chapter 15, Articles 3.2.2.h and 3.2.2.k.

10. Bolts shall be installed so that the bolt heads are on the outside (exposed) surface of the member unless shown otherwise on the drawings. Threads shall be excluded from the shear plane in all connections.

11. Any machine bolts required for shipment shall be ASTM A307.

12. All welding shall be in accordance with the Bridge Welding Code, AWS D1.5. Welding of fracture critical members shall also conform to the applicable provisions of AREMA Manual for Railway Engineering, Chapter 15: Steel Structures. Welding to be allowed only as shown on the drawings and approved shop drawings. Weld metal material properties shall match structural steel.

13. Welded joints are to be AWS prequalified. Alternate joint details are subject to approval by the UPRR Office of Director Structures Design. All welding shall be done to minimize distortion. The welding sequence and procedures to be used shall be submitted for approval to the UPRR Office of Director Structures Design.

TPG STRUCTURAL STEEL NOTES - CONT.

14. Fully automatic submerged arc welding shall be required for this project unless otherwise noted. Manual shielded arc welding or semi-automatic submerged arc welding shall be allowed only if fully automatic submerged arc welding is not practical. Alternate welding methods are subject to approval by the UPRR Office of Director Structures Design.

15. When welding ASTM A709 Grade 50W or ASTM A588 steel, weld metal shall be equivalent to ASTM A709, Grade 50W or ASTM A588 steel in corrosion resistance and weathered appearance.

16. The Fabricator shall submit copies of welders' certificates for all welding processes. Welders shall possess valid qualifications.

17. Permissible Shop Splice - Steel fabricator may provide welded, shop flange and web splices where required in accordance with the following:

    a. Splices shall be located 1'-0" minimum clear from all bolted and/or welded attachments to the girders.
    b. Splices shall not be located within the middle third of the girder span, nor any location where weld metal may be subject to drilling.
    c. One shop splice shall be permitted in the bottom flange plate at a minimum distance of 3'-0" from nearest top flange splice.
    d. Web plate splices shall be located a minimum of 1'-0" from back face of nearest intermediate web stiffener angle and a minimum of 2'-0" from centerline of nearest flange splice.
    e. All shop splice welds for flanges shall be ground smooth in the direction of stress.
    f. Plates shall be provided in maximum lengths as practical to minimize the number of splices required.
    g. Final locations of shop splices in flanges to be approved by the UPRR Office of Director Structures Design.
    h. Electroslag and electrogas welding process shall not be used.

18. Nondestructive testing of welds shall be performed in accordance with the AREMA Manual for Railway Engineering Chapter 15: Steel Structures, the Bridge Welding Code, AWS D1.5, Sections 6.7 and 12.16 and as follows:

    a. 100% RT inspection of full penetration welds in girder webs and bottom flanges.
    b. 100% UT inspection of full penetration groove welds in top flanges.
    c. 100% MP inspection of all flange to web welds.
    d. 100% MP inspection of fillet welds on bearing stiffeners.
    e. 25% MP inspection of all other welds. If any defects are found, then 100% MP inspection shall be required.

    Test results shall be furnished to the UPRR Office of AVP Engineering Design.

19. All bearing stiffeners shall be vertical under final dead loads. All intermediate stiffeners shall be placed normal to the girder bottom flange. All stiffeners and girder end plates shall be placed perpendicular to the web.

20. Flame cutting of girder webs and flanges shall be performed in accordance with the AREMA Manual for Railway Engineering Chapter 15, Article 3.1.6: Thermal Cutting, Copes and Access Holes. Preheating is required. Preheating shall be in accordance with the following:

Thickness	Minimum Preheat Temperature
Up to 1"	50° F
Over 1" to 2"	100° F
Over 2"	200° F

    The piece shall be preheated in such a manner that it is heated through its thickness and that both surfaces are above the minimum temperature for a distance equal to the thickness of the part being cut, but not less than 3", both laterally and in advance of the cut. The Fabricator shall furnish a calibrated electrical contact pyrometer to verify compliance with the preheat requirements during fabrication.

TPG STRUCTURAL STEEL NOTES - CONT.

21. For welds designated to be ground flush, grinding shall be in the direction of applied stress.

22. All joints and edge preparation, removal of unacceptable weld or base metal, and backgouging shall be completed by machining. Rough removals may be completed by non-mechanical means.

23. The Fabricator shall submit detailed shop drawings prior to beginning fabrication. Fabrication shall not begin until shop drawings are approved.

24. All Fabricator questions and correspondence shall be addressed to Adam Studts:

    Union Pacific Railroad
    1400 Douglas St., STOP 0910
    Omaha, NE 68179
    (402) 544-3541
    adstudts@up.com

25. The Fabricator shall shop assemble the entire span prior to shipping. During assembly and reaming, all bolts shall be placed in holes as work progresses to assure proper fit.

26. Shop assembled span shall be made available for inspection by the Railroad at the Fabricator's plant before the steel is disassembled and shipped to the erection site at the Railroad's discretion. Pieces shall be match-marked as required.

27. Reaming of holes during field erection is not allowed, unless approved by the Railroad.

28. All structural steel shall be blast cleaned prior to shipment as follows, unless noted otherwise. All ASTM A709 steel, other surfaces visible from sides and all faying surfaces regardless of location: Minimum SSPC-SP6, Commercial Blast Cleaning. All remaining steel surfaces: SSPC-SP1, Solvent Cleaning. All steel members shall be clearly marked after blast cleaning has been completed.

29. All steel components shall be inspected before shipment. Photographs of Fabricator's progress shall be submitted to the UPRR Office of the Director Structures Design.

30. Bearing pads shall be shipped flat.

31. All material certifications and quality control test results shall be submitted to Union Pacific Railroad at project completion.

32. Walkway grating shall be type WB as manufactured by IKG Borden with 1¾"x⅜" serrated bearing bars (galvanized). Any cuts made to grating after galvanizing process shall be treated with ZRC Cold-Galvanizing compound.

TPG DESIGN NOTES

1. The TPG span has been designed in accordance with the AREMA Manual for Railway Engineering, Chapter 15: Steel Structures.

2. The TPG span has been designed for Cooper E80 Live Load plus Impact with a 30" maximum total depth of ballast.

3. The floorbeams have been designed for Alternate Live Load plus Impact with a 30" maximum total depth of ballast.

NOTE:
FCM = FRACTURE CRITICAL MEMBER

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N25 of N43	SHEET TITLE: TPG TYPICAL SECTIONS AND NOTES (SHEET 2 OF 2)

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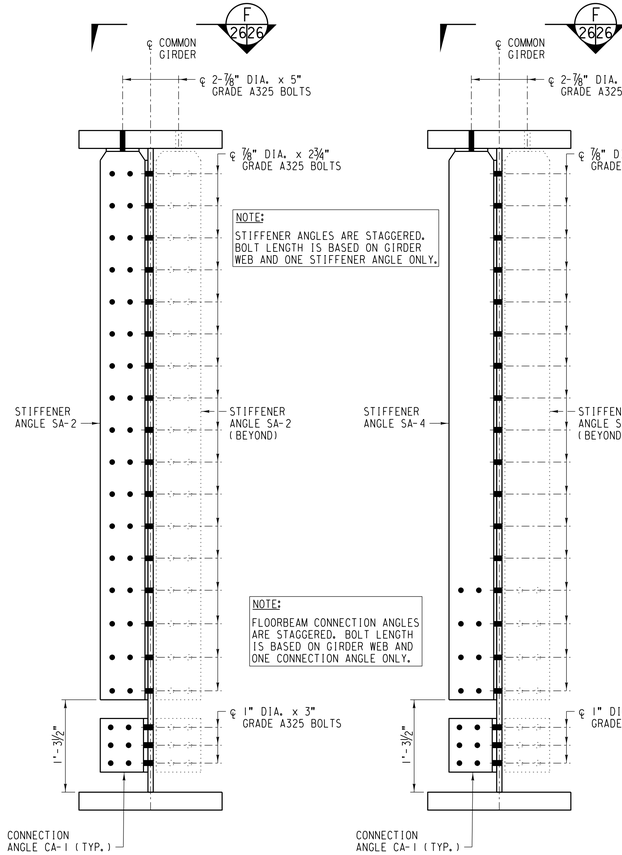
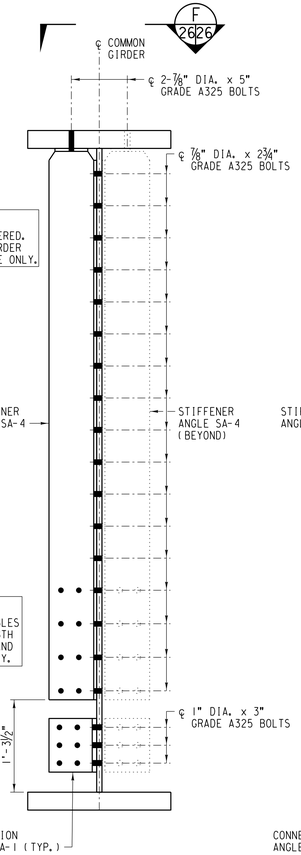
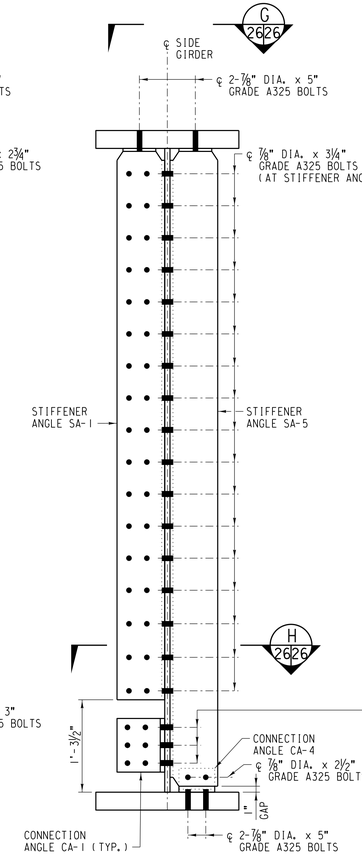
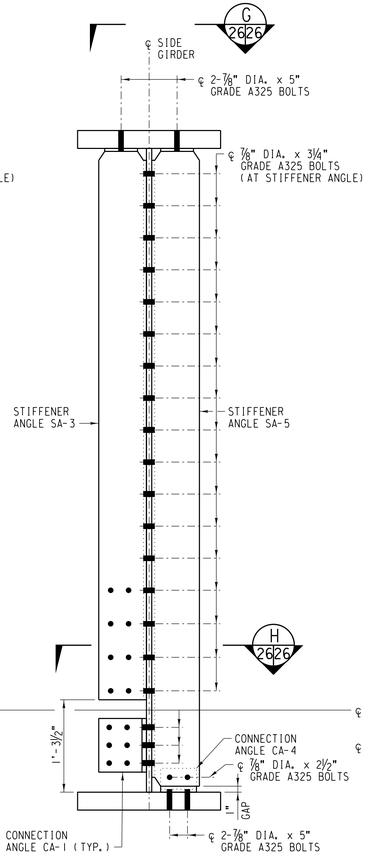




COMMON GIRDER INTERMEDIATE STIFFENER

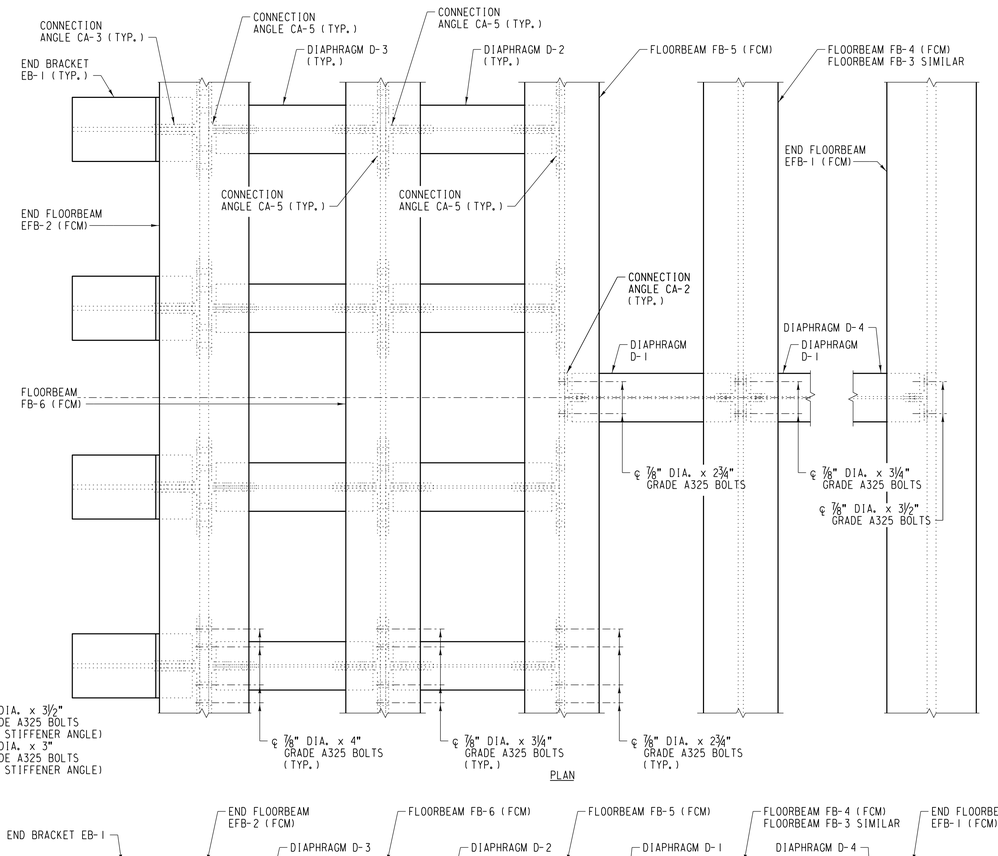
SCALE: 1"=1'-0"

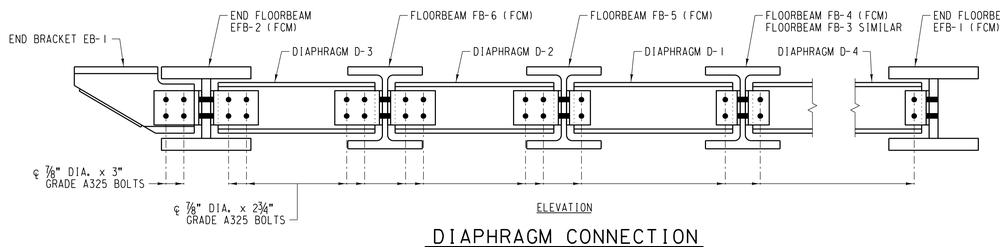




SIDE GIRDER INTERMEDIATE STIFFENER

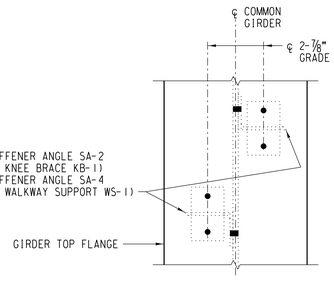
SCALE: 1"=1'-0"





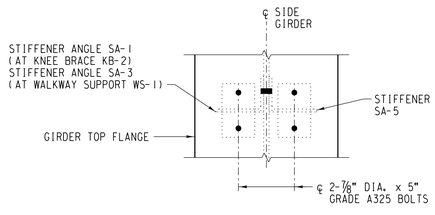
DIAPHRAGM CONNECTION

SCALE: 1"=1'-0"



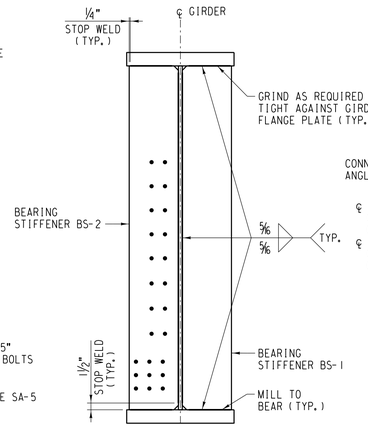
VIEW F 2626

SCALE: 1"=1'-0"



VIEW G 2626

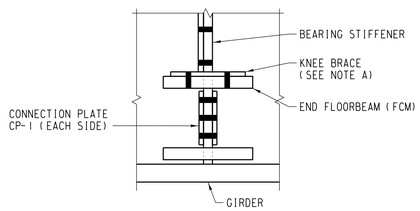
SCALE: 1"=1'-0"



BEARING STIFFENER

SCALE: ¾"=1'-0"

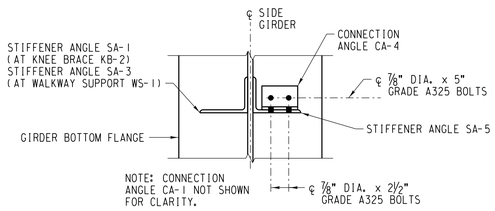
BEARING STIFFENER BS-3 THRU BS-6 SIMILAR SIDE GIRDER SHOWN



SECTION E 2426

SCALE: 1"=1'-0"

NOTE A:
COMMON GIRDER SHOWN. SIDE GIRDER OPPOSITE HAND.



SECTION H 2626

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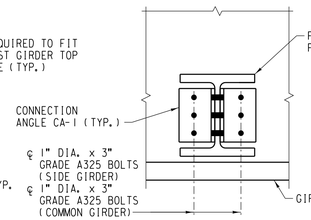
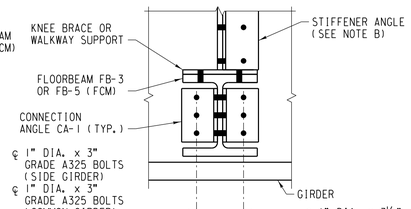


AT FLOORBEAM FB-4



AT FLOORBEAM FB-3 OR FB-5

SECTION D 2426 D 2526

SCALE: 1"=1'-0"

NOTE B:
COMMON GIRDER SHOWN. SIDE GIRDER OPPOSITE HAND.

NOTES:
1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION	31876	122533

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N26 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

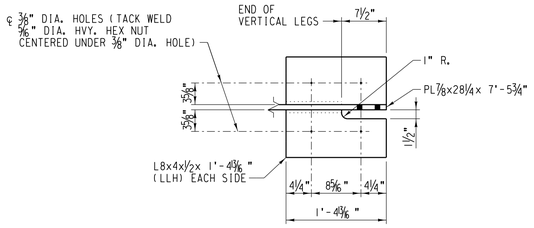
LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE: TPG ASSEMBLY DETAILS

FILE NAME: C:\Users\mercmi2a\Desktop\rac00155_bii.dgn

PLOTTED: 5/21/2021 4:40:38 PM



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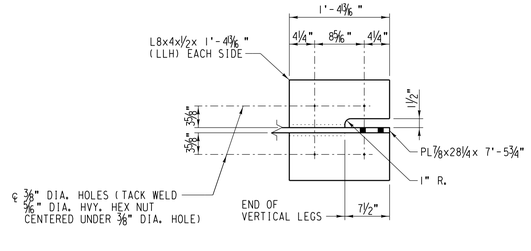

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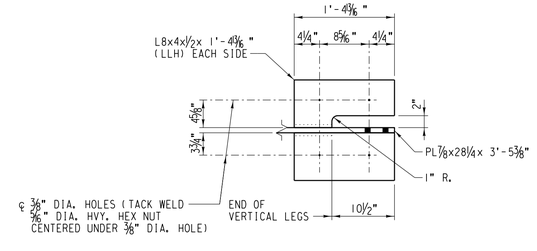

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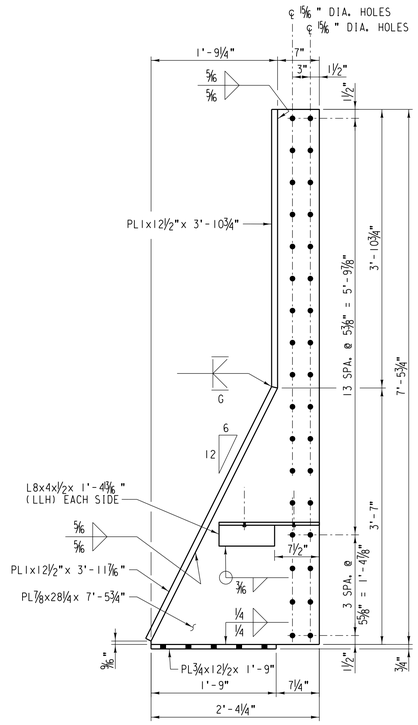
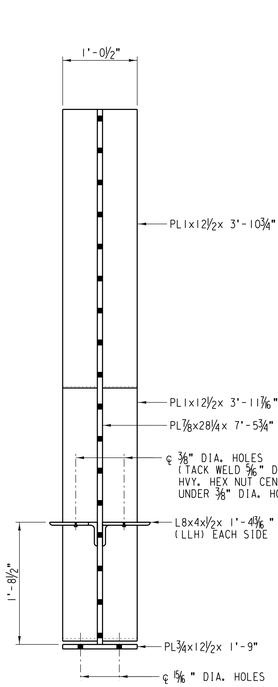
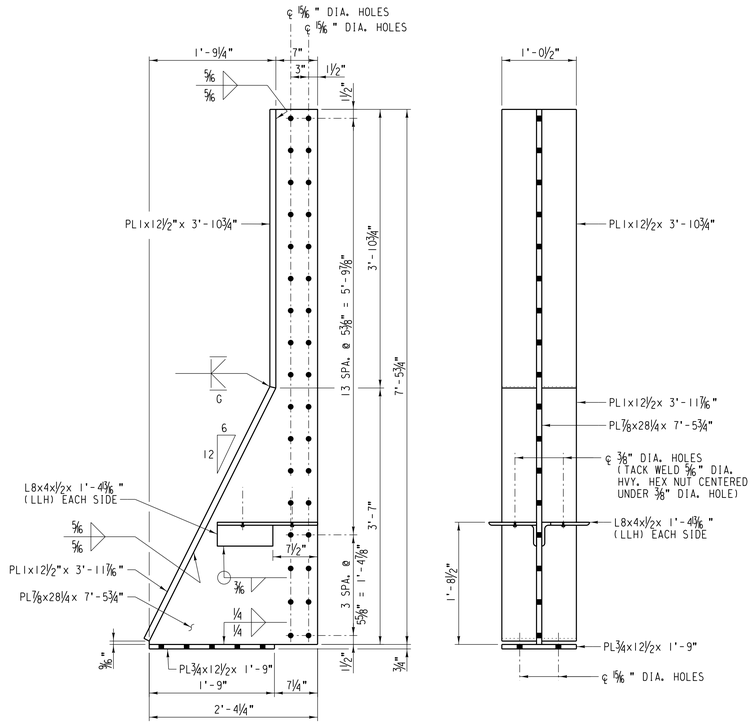


ELEVATION

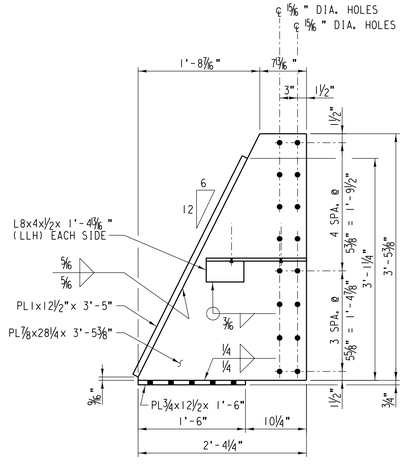


SIDE VIEW

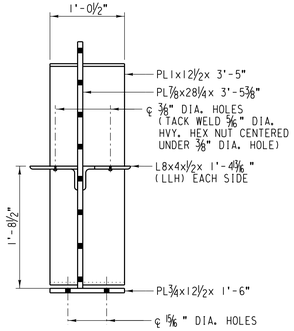


ELEVATION

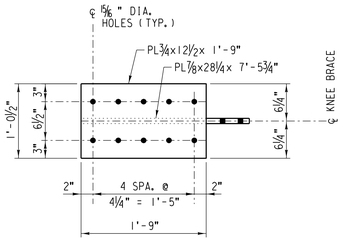
SIDE VIEW



ELEVATION



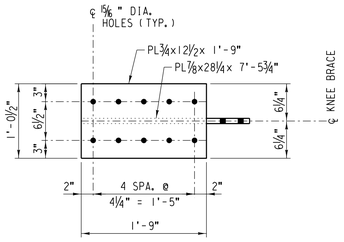
SIDE VIEW



BOTTOM PLAN

KNEE BRACE KB-1

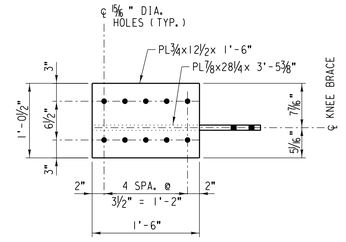
SCALE: 1"=1'-0"
EST. WT. = 716 LB. EA.
HEAVY HEX NUT (ASTM A563)



BOTTOM PLAN

KNEE BRACE KB-2

SCALE: 1"=1'-0"
EST. WT. = 716 LB. EA.
HEAVY HEX NUT (ASTM A563)



BOTTOM PLAN

KNEE BRACE KB-3

SCALE: 1"=1'-0"
EST. WT. = 435 LB. EA.
HEAVY HEX NUT (ASTM A563)

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. LLH = LONG LEG HORIZONTAL

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

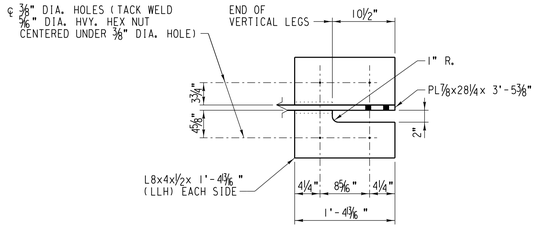
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

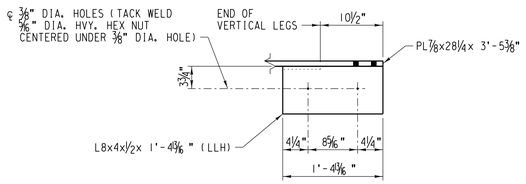
DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION — 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
UPRR ENGINEER: DEH / ADS	
SHT NO.: N27 of N43	SHEET TITLE: TPG KNEE BRACE DETAILS (SHEET 1 OF 2)

FILE NAME: C:\Users\mromirez\Desktop\rc00155_bill.dgn

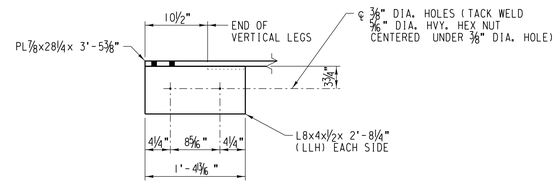
PLOTTED: 5/21/2021 4:40:39 PM



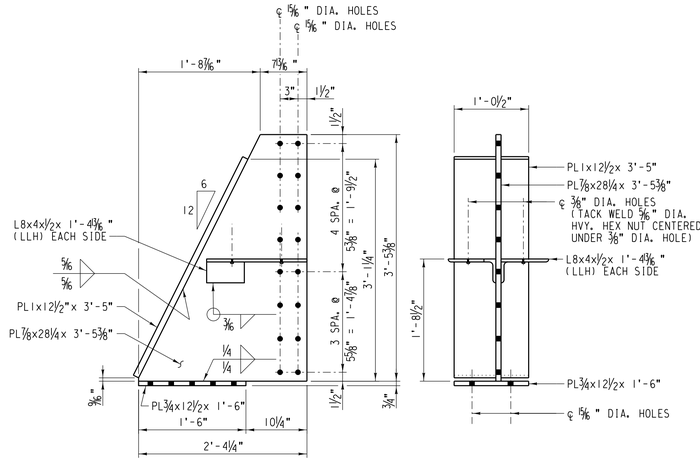
SECTION



SECTION

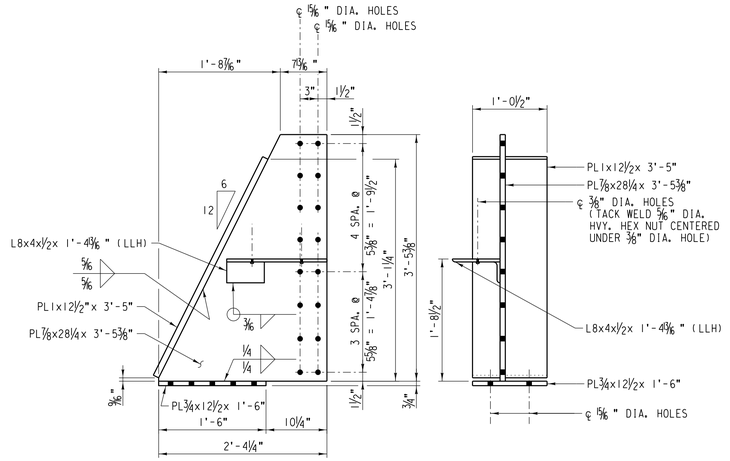


SECTION



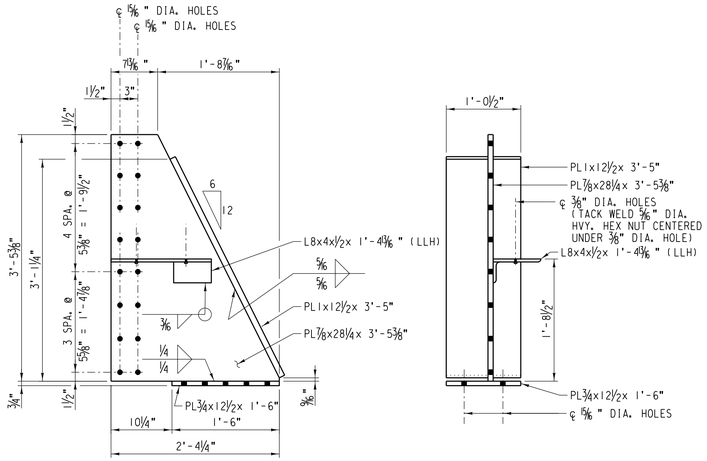
ELEVATION

SIDE VIEW



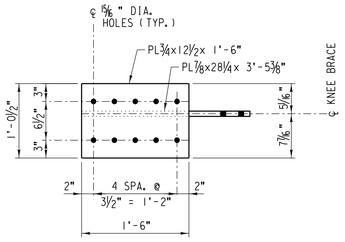
ELEVATION

SIDE VIEW



ELEVATION

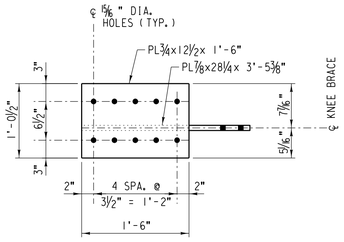
SIDE VIEW



BOTTOM PLAN

KNEE BRACE KB-4

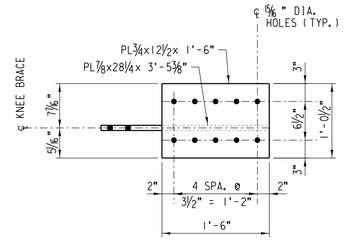
SCALE: 1"=1'-0"
EST. WT. = 435 LB. EA.
HEAVY HEX NUT (ASTM A563)



BOTTOM PLAN

KNEE BRACE KB-5

SCALE: 1"=1'-0"
EST. WT. = 408 LB. EA.
HEAVY HEX NUT (ASTM A563)



BOTTOM PLAN

KNEE BRACE KB-6

SCALE: 1"=1'-0"
EST. WT. = 408 LB. EA.
HEAVY HEX NUT (ASTM A563)

NOTES:
1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. LLH = LONG LEG HORIZONTAL

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

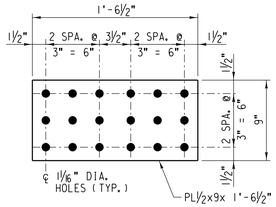
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N28 of N43	SHEET TITLE: TPG KNEE BRACE DETAILS (SHEET 2 OF 2)

FILE NAME: C:\Users\ramirezm\Desktop\coc00155_pli.dgn

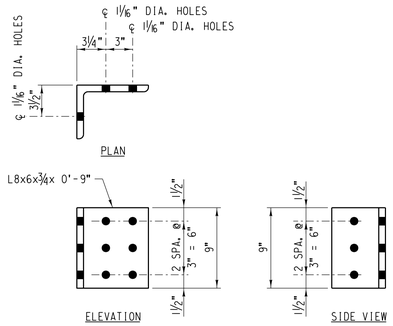
PLOTTED: 5/21/2021 4:40:39 PM



CONNECTION PLATE CP-1

SCALE: 1½"=1'-0"

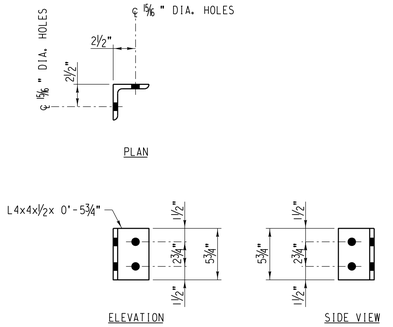
EST. WT. = 23.6 LB. EA.



CONNECTION ANGLE CA-1

SCALE: 1½"=1'-0"

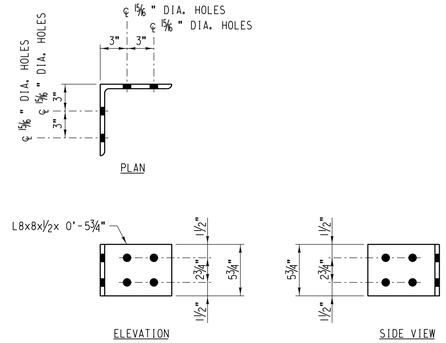
EST. WT. = 25.4 LB. EA.



CONNECTION ANGLE CA-2

SCALE: 1½"=1'-0"

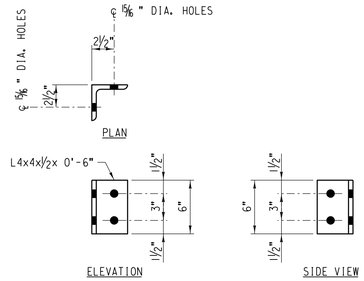
EST. WT. = 6.1 LB. EA.



CONNECTION ANGLE CA-5

SCALE: 1½"=1'-0"

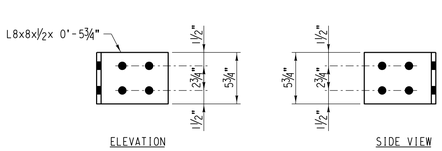
EST. WT. = 12.6 LB. EA.



CONNECTION ANGLE CA-4

SCALE: 1½"=1'-0"

EST. WT. = 6.4 LB. EA.



CONNECTION ANGLE CA-3

SCALE: 1½"=1'-0"

EST. WT. = 12.6 LB. EA.

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER
   LLH = LONG LEG HORIZONTAL

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

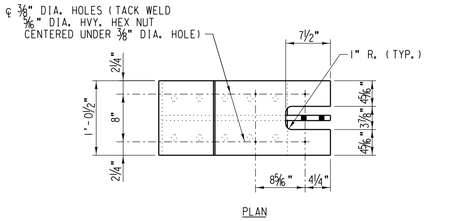
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

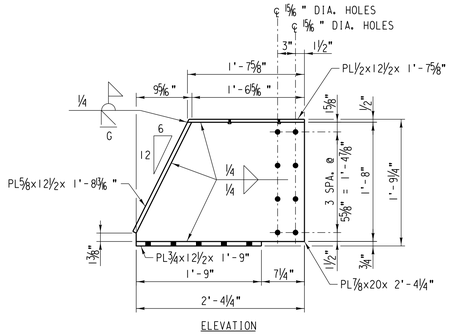
DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N29 of N43	SHEET TITLE: TPG FLOORBEAM CONNECTION PIECE DETAILS

FILE NAME: C:\Users\mromirez\Desktop\roc00155_bil.dgn

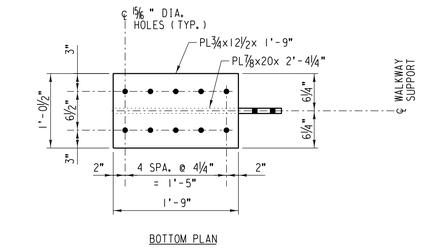
PLOTTED: 5/21/2021 4:40:39 PM



PLAN



ELEVATION

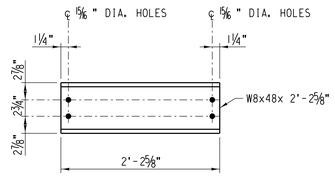


BOTTOM PLAN

WALKWAY SUPPORT WS-1

SCALE: 1"=1'-0"

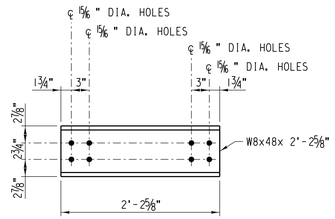
EST. WT. = 256 LB. EA.
HEAVY HEX NUT (ASTM A563)



DIAPHRAGM D-1

SCALE: 1"=1'-0"

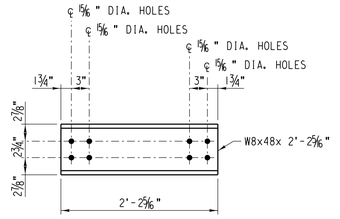
EST. WT. = 107 LB. EA.



DIAPHRAGM D-2

SCALE: 1"=1'-0"

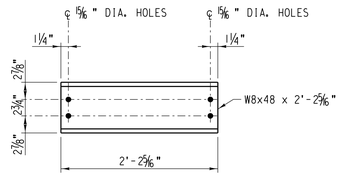
EST. WT. = 107 LB. EA.



DIAPHRAGM D-3

SCALE: 1"=1'-0"

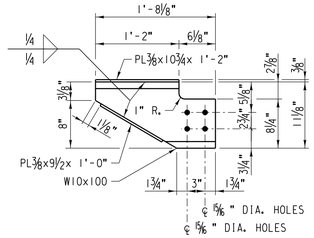
EST. WT. = 106 LB. EA.



DIAPHRAGM D-4

SCALE: 1"=1'-0"

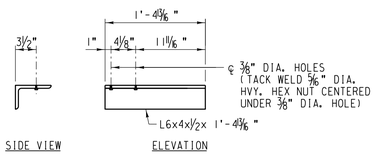
EST. WT. = 106 LB. EA.



END BRACKET EB-1

SCALE: 1"=1'-0"

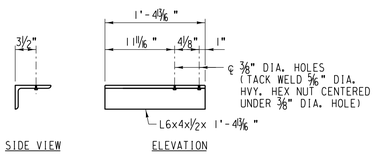
EST. WT. = 196 LB. EA.



WALKWAY SUPPORT ANGLE WSA-10

SCALE: 1"=1'-0"

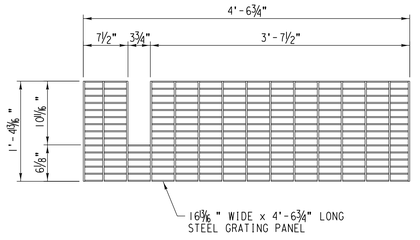
EST. WT. = 22.7 LB. EA.
HEAVY HEX NUT (ASTM A563)



WALKWAY SUPPORT ANGLE WSA-11

SCALE: 1"=1'-0"

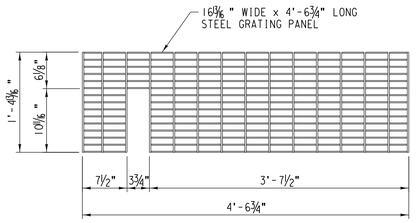
EST. WT. = 22.7 LB. EA.
HEAVY HEX NUT (ASTM A563)



GRATING PANEL GP-1

SCALE: 1"=1'-0"

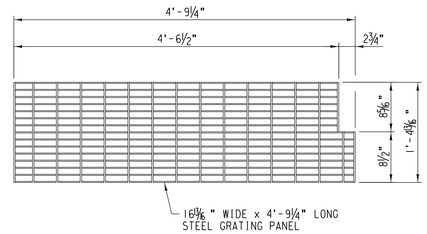
EST. WT. = 79.9 LB. EA.



GRATING PANEL GP-5

SCALE: 1"=1'-0"

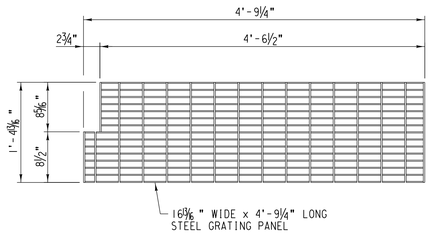
EST. WT. = 79.9 LB. EA.



GRATING PANEL GP-2

SCALE: 1"=1'-0"

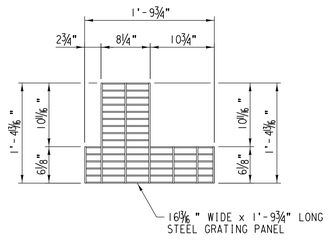
EST. WT. = 83.6 LB. EA.



GRATING PANEL GP-3

SCALE: 1"=1'-0"

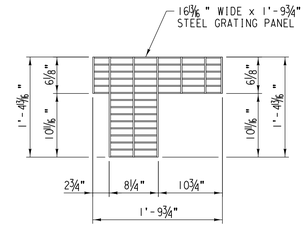
EST. WT. = 83.6 LB. EA.



GRATING PANEL GP-4

SCALE: 1"=1'-0"

EST. WT. = 31.7 LB. EA.



GRATING PANEL GP-6

SCALE: 1"=1'-0"

EST. WT. = 31.7 LB. EA.

NOTE:
FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N30 of N43

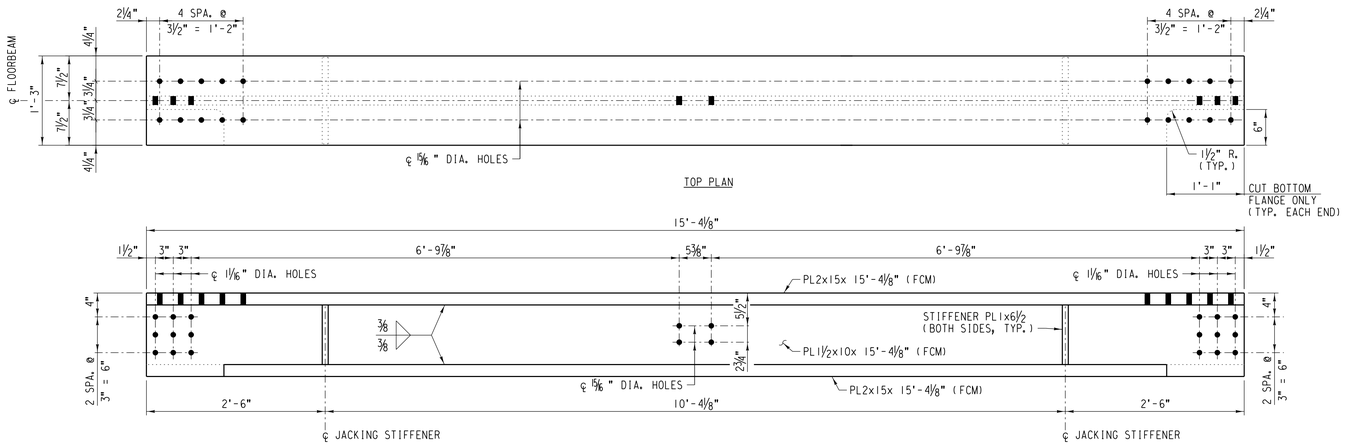
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE:
TPG MISCELLANEOUS PIECE DETAILS AND GRATING PANELS

FILE NAME: C:\Users\rramirez\Desktop\rac00155_bii.dgn

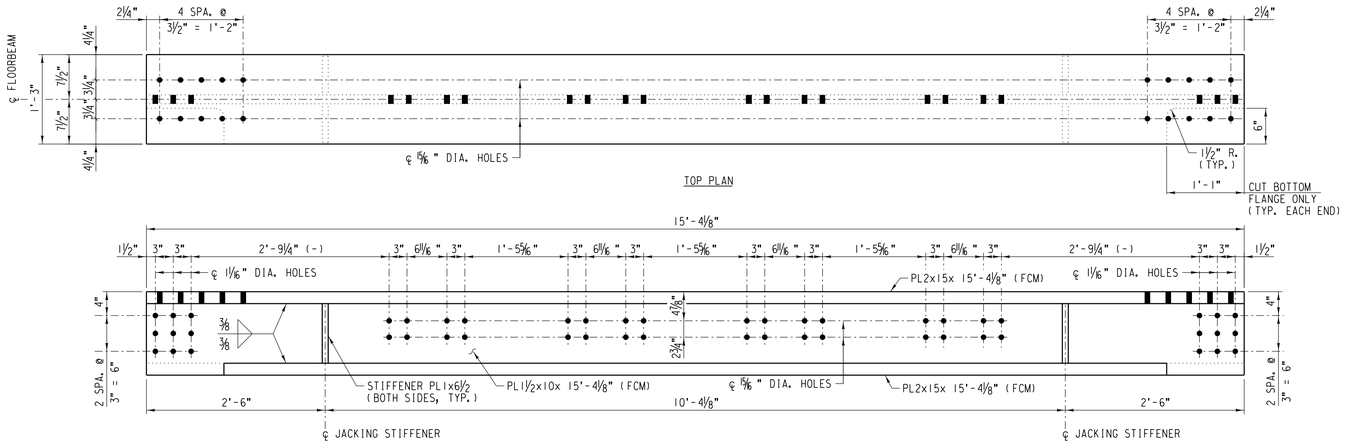
PLOTTED: 5/21/2021 4:40:40 PM



END FLOORBEAM EFB-1

SCALE: 1"=1'-0"

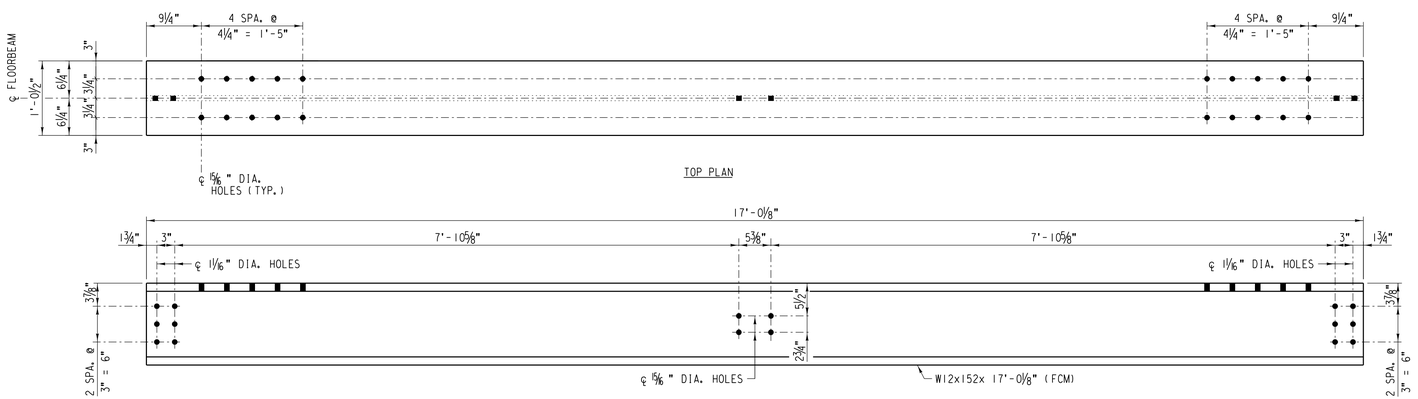
EST. WT. = 3,990 LB. EA.



END FLOORBEAM EFB-2

SCALE: 1"=1'-0"

EST. WT. = 3,990 LB. EA.



FLOORBEAM FB-3

SCALE: 1"=1'-0"

EST. WT. = 2,586 LB. EA.

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

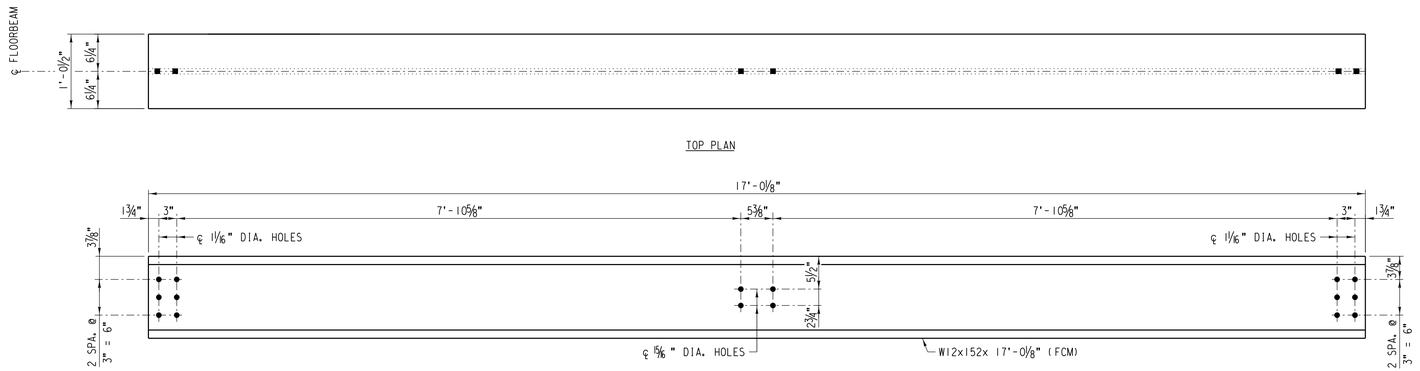
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N31 of N43	SHEET TITLE: TPG FLOORBEAM DETAILS (SHEET 1 OF 2)

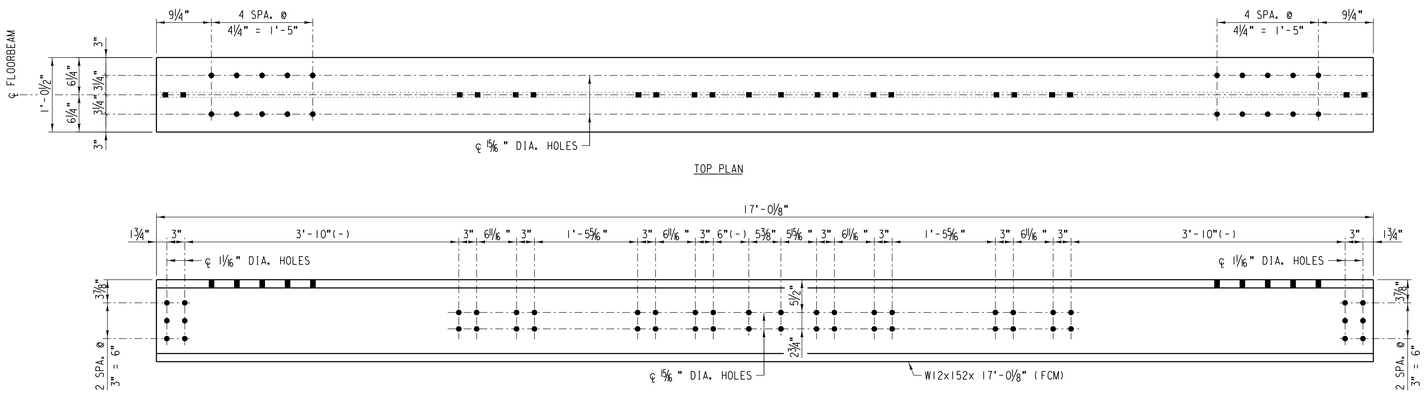
FILE NAME: C:\Users\mcarrion2\Desktop\cad00155_pli.dgn

PLOTTED: 5/21/2021 4:40:40 PM



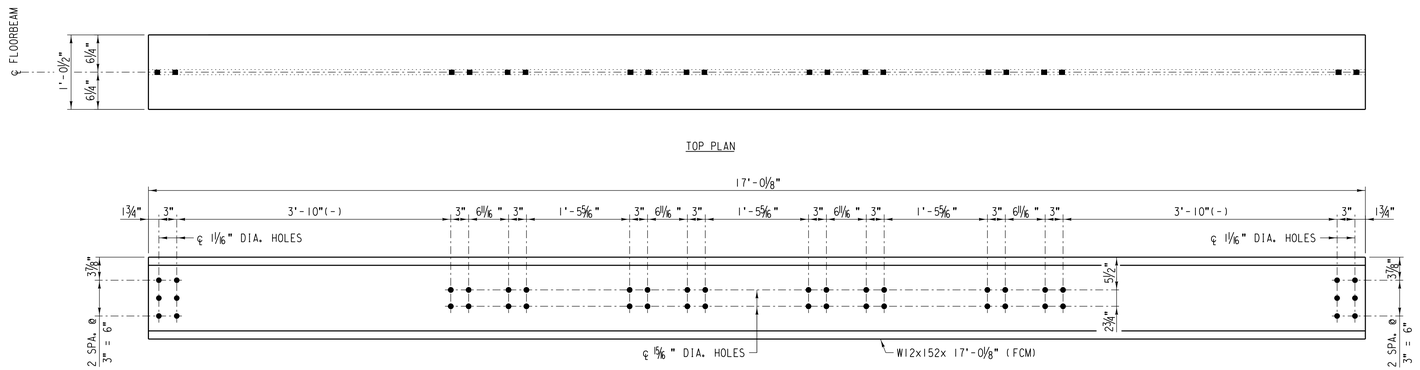
FLOORBEAM FB-4

SCALE: 1"=1'-0"
EST. WT. = 2,586 LB. EA.



FLOORBEAM FB-5

SCALE: 1"=1'-0"
EST. WT. = 2,586 LB. EA.



FLOORBEAM FB-6

SCALE: 1"=1'-0"
EST. WT. = 2,586 LB. EA.

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. FCM = FRACTURE CRITICAL MEMBER

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

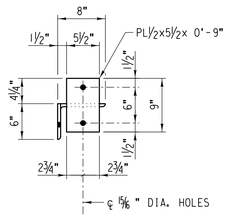
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

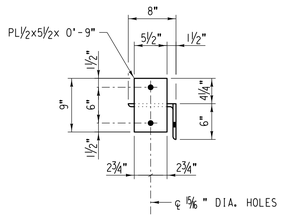
DSN/CHK BY: FNF/MFB	UNION PACIFIC RAILROAD — Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
UPRR ENGINEER: DEH / ADS	1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N32 of N43	SHEET TITLE: TPG FLOORBEAM DETAILS (SHEET 2 OF 2)

FILE NAME: C:\Users\rromero\Desktop\roc00155_bii.dgn

PLOTTED: 5/21/2021 4:40:40 PM



PLAN



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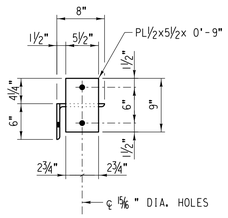

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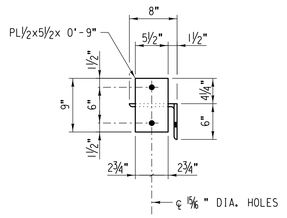

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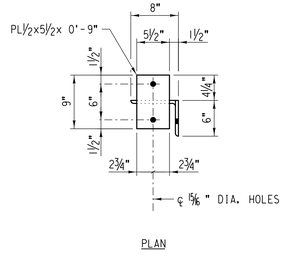
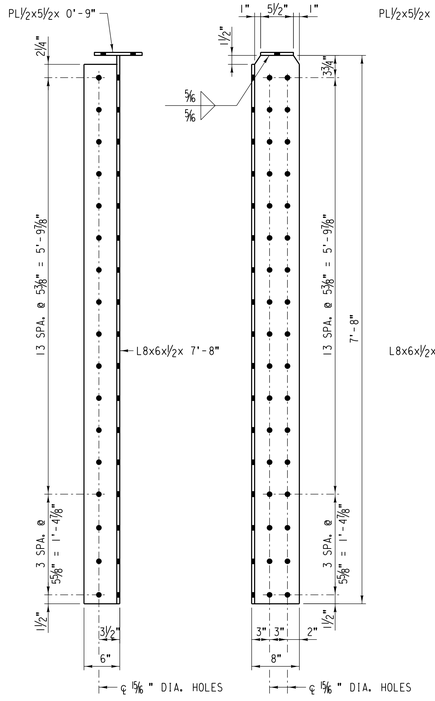


PLAN

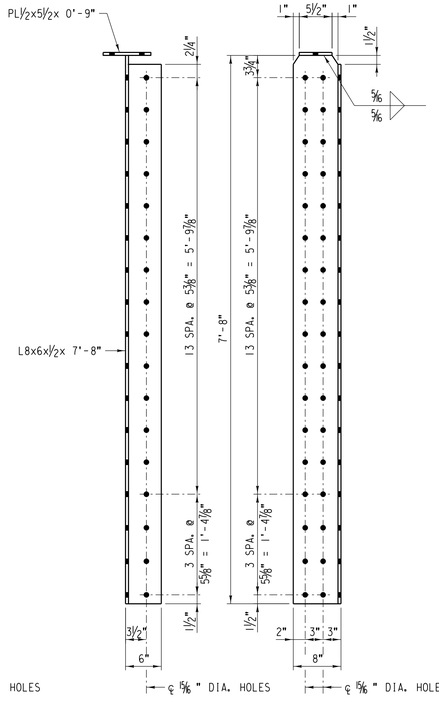


ELEVATION SIDE VIEW

STIFFENER ANGLE SA-1

SCALE: 1"=1'-0"

EST. WT. = 184 LB. EA.

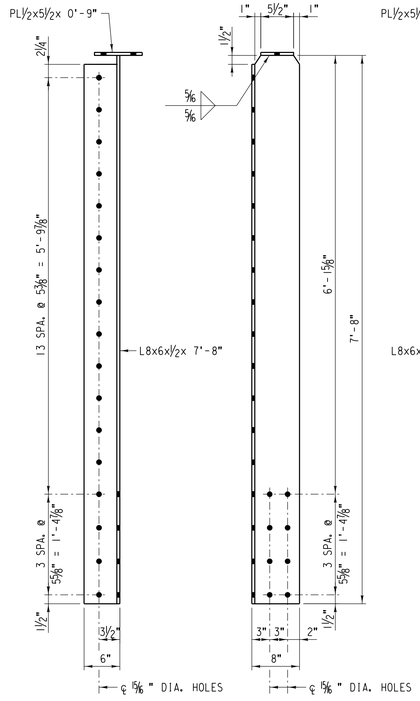


ELEVATION SIDE VIEW

STIFFENER ANGLE SA-2

SCALE: 1"=1'-0"

EST. WT. = 184 LB. EA.

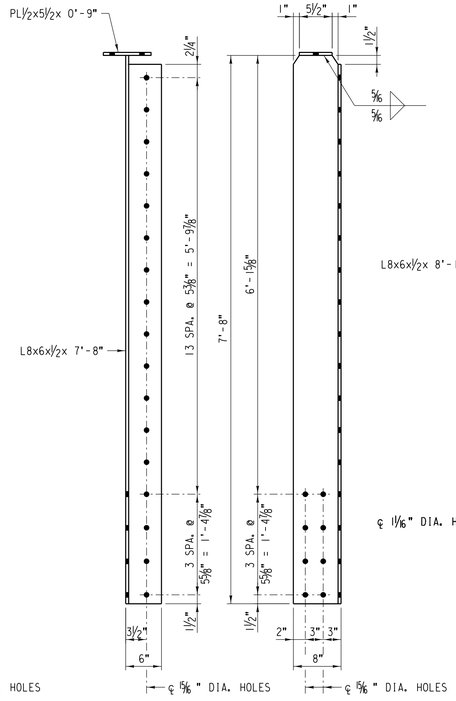


ELEVATION SIDE VIEW

STIFFENER ANGLE SA-3

SCALE: 1"=1'-0"

EST. WT. = 184 LB. EA.

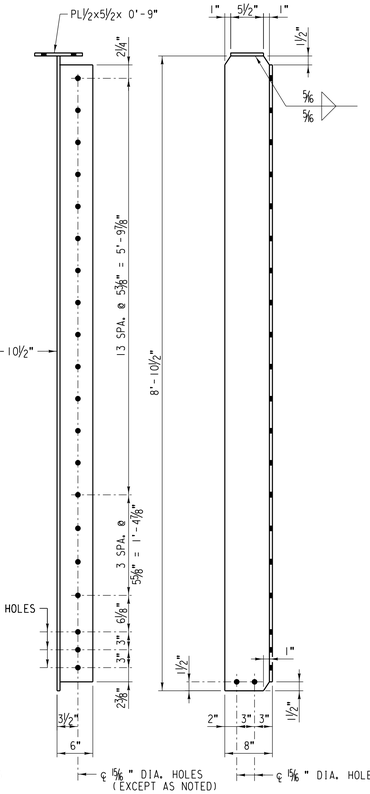


ELEVATION SIDE VIEW

STIFFENER ANGLE SA-4

SCALE: 1"=1'-0"

EST. WT. = 184 LB. EA.



ELEVATION SIDE VIEW

STIFFENER ANGLE SA-5

SCALE: 1"=1'-0"

EST. WT. = 212 LB. EA.

NOTE:
FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

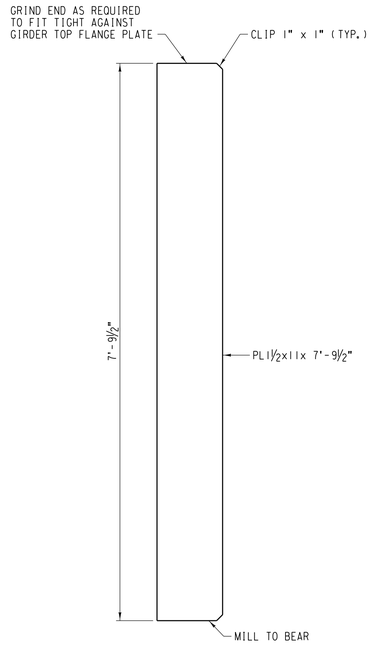
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
UPRR ENGINEER: DEH / ADS	1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N33 of N43	SHEET TITLE: TPG STIFFENER ANGLE DETAILS

FILE NAME: C:\Users\emorin2\Desktop\rock00155_bill.dgn

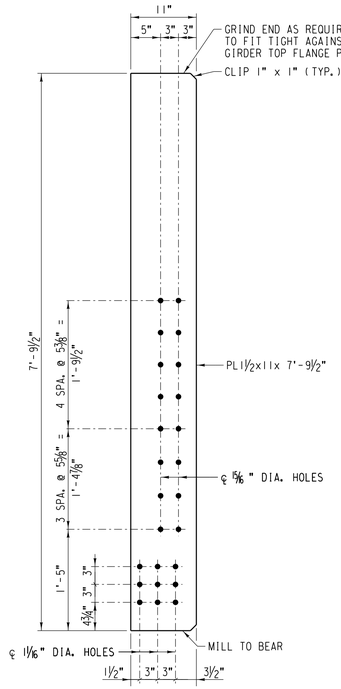
PLOTTED: 5/27/2021 4:40:41 PM



BEARING STIFFENER BS-1

SCALE: 1"=1'-0"

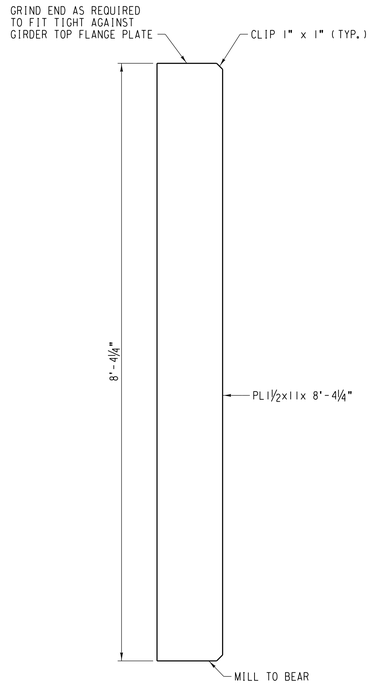
EST. WT. = 438 LB. EA.



BEARING STIFFENER BS-2

SCALE: 1"=1'-0"

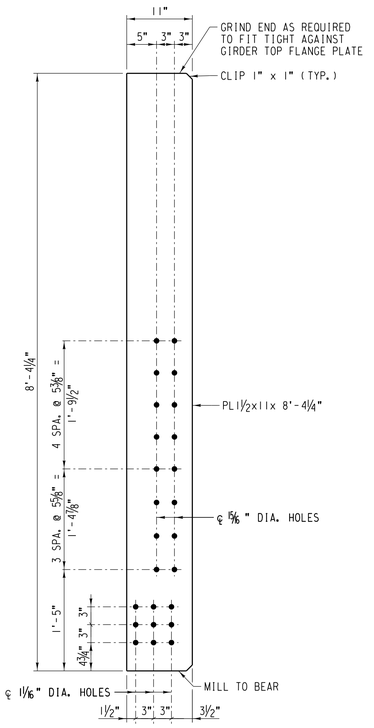
EST. WT. = 438 LB. EA.



BEARING STIFFENER BS-3

SCALE: 1"=1'-0"

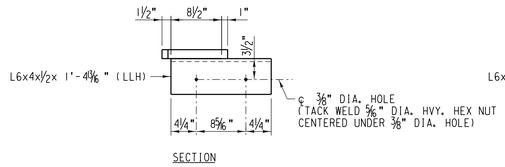
EST. WT. = 469 LB. EA.

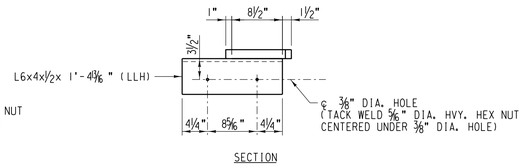


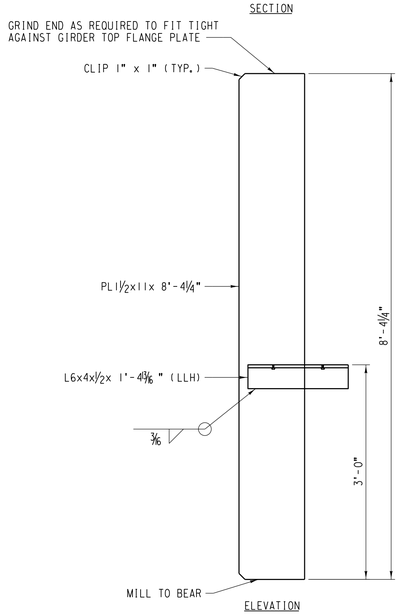
BEARING STIFFENER BS-4

SCALE: 1"=1'-0"

EST. WT. = 469 LB. EA.



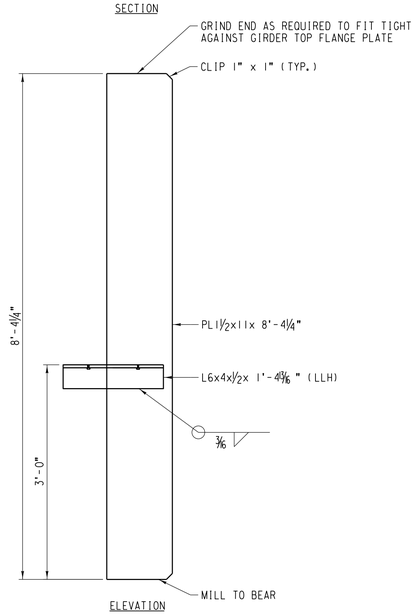




BEARING STIFFENER BS-5

SCALE: 1"=1'-0"

EST. WT. = 492 LB. EA.



BEARING STIFFENER BS-6

SCALE: 1"=1'-0"

EST. WT. = 492 LB. EA.

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. LLH = LONG LEG HORIZONTAL

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N34 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

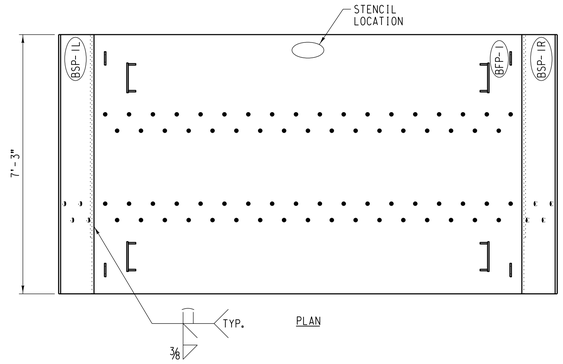
LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION

1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

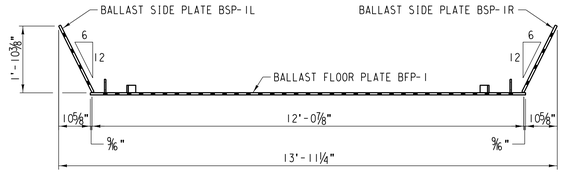
SHEET TITLE: TPG BEARING STIFFENER DETAILS

FILE NAME: c:\Users\mrcontreras\Desktop\roc00155_bil.dgn

PLOTTED: 5/21/2021 4:40:41 PM



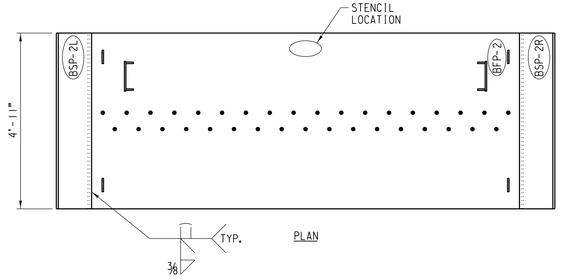
PLAN



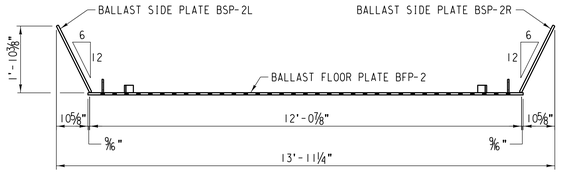
ELEVATION

BALLAST PAN BP-1

SCALE: 1/2"=1'-0"
EST. WT. = 3,639 LB. EA.



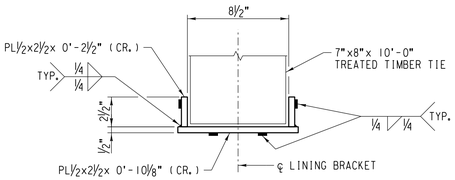
PLAN



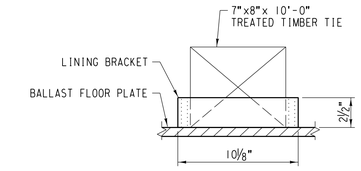
ELEVATION

BALLAST PAN BP-2

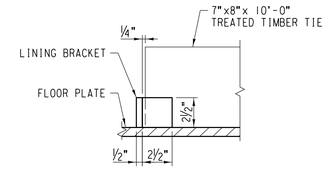
SCALE: 1/2"=1'-0"
EST. WT. = 2,471 LB. EA.



PLAN



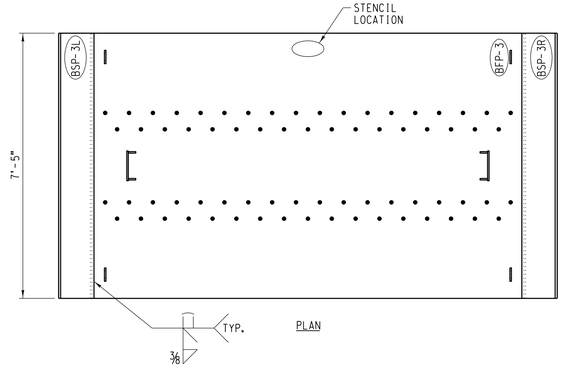
END VIEW



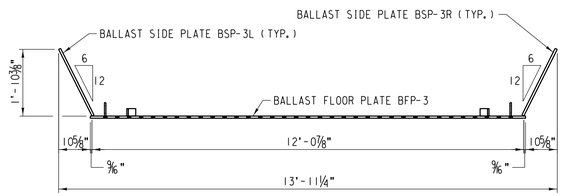
SIDE VIEW

LINING BRACKET DETAIL

SCALE: 2"=1'-0"
EST. WT. = 5.4 LB. EA.



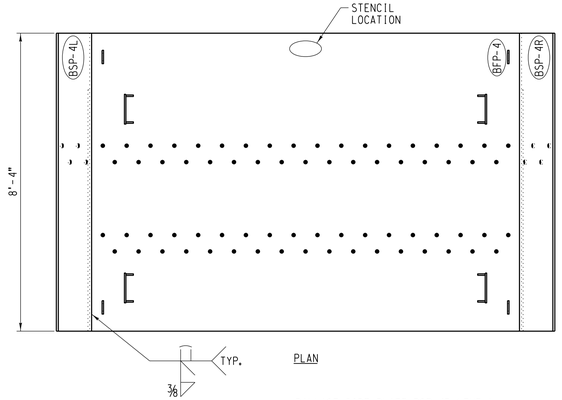
PLAN



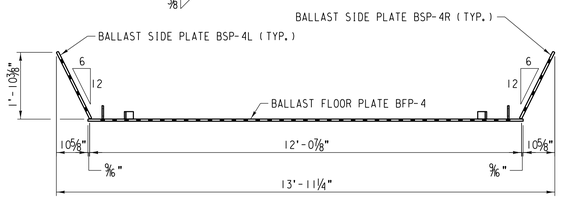
ELEVATION

BALLAST PAN BP-3

SCALE: 1/2"=1'-0"
EST. WT. = 3,722 LB. EA.



PLAN



ELEVATION

BALLAST PAN BP-4

SCALE: 1/2"=1'-0"
EST. WT. = 3,978 LB. EA.

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. ESTIMATED WEIGHT OF THE BALLAST PANS EXCLUDE THE WEIGHT OF THE TIE LINING BRACKETS.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

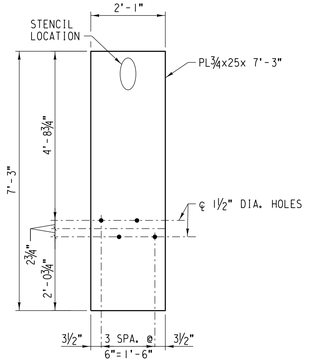
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N35 of N43	SHEET TITLE: TPG BALLAST PAN DETAILS

FILE NAME: C:\Users\rramirez\Desktop\rac00155_bll.dgn

PLOTTED: 5/21/2021 4:40:41 PM

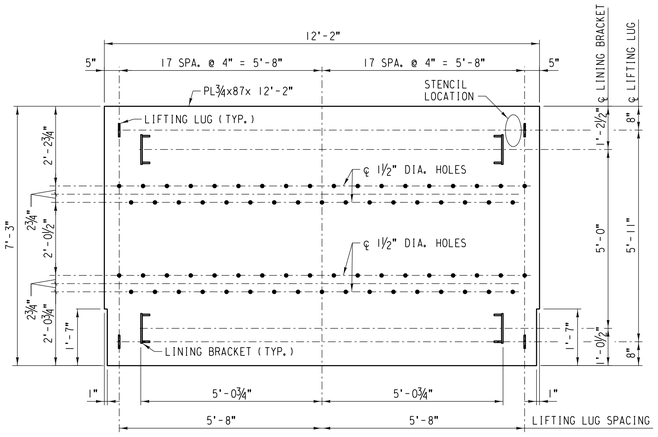


PLAN

BALLAST SIDE PLATE BSP-1L/1R

SCALE: ½"=1'-0"

EST. WT. = 463 LB. EA.
(BSP-1L SHOWN, BSP-1R OPPOSITE HAND)

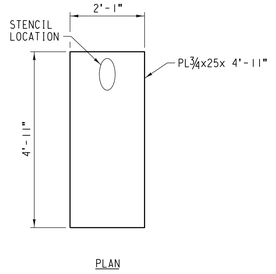


PLAN

BALLAST FLOOR PLATE BFP-1

SCALE: ½"=1'-0"

EST. WT. = 2,713 LB. EA.

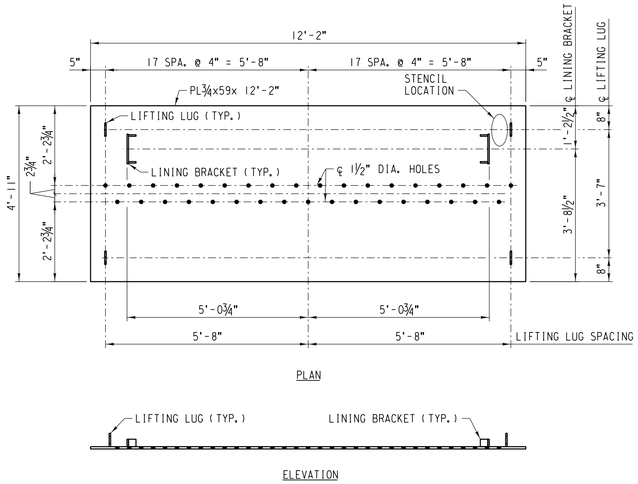


PLAN

BALLAST SIDE PLATE BSP-2L/2R

SCALE: ½"=1'-0"

EST. WT. = 314 LB. EA.
(BSP-2L SHOWN, BSP-2R OPPOSITE HAND)



PLAN

ELEVATION

BALLAST FLOOR PLATE BFP-2

SCALE: ½"=1'-0"

EST. WT. = 1,844 LB. EA.

PLAN

BALLAST SIDE PLATE BSP-3L/3R

SCALE: ½"=1'-0"

EST. WT. = 473 LB. EA.
(BSP-3L SHOWN, BSP-3R OPPOSITE HAND)

PLAN

ELEVATION

BALLAST FLOOR PLATE BFP-3

SCALE: ½"=1'-0"

EST. WT. = 2,776 LB. EA.

PLAN

BALLAST SIDE PLATE BSP-4L/4R

SCALE: ½"=1'-0"

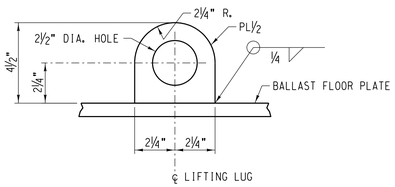
EST. WT. = 431 LB. EA.
(BSP-4L SHOWN, BSP-4R OPPOSITE HAND)

PLAN

BALLAST FLOOR PLATE BFP-4

SCALE: ½"=1'-0"

EST. WT. = 3,117 LB. EA.



SECTION J 36 36

SCALE: 3"=1'-0"

NOTES:

1. FOR TPG STRUCTURAL STEEL NOTES, SEE SHEET NO. 25.
2. ESTIMATED WEIGHT OF THE BALLAST FLOOR PLATES EXCLUDE THE WEIGHT OF THE TIE LINING BRACKETS.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER
05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N36 of N43	SHEET TITLE: TPG BALLAST PLATE DETAILS

FILE NAME: C:\Users\rramirez\Desktop\rac00155_bil.dgn

PLOTTED: 5/21/2021 4:40:41 PM

GIRDER STRESS TABLE

SPAN LENGTH (L)	GIRDER LOCATION	TOP FLANGE SIZE	BOTTOM FLANGE SIZE	WEB SIZE	SHEAR							MOMENT							LIVE LOAD + IMPACT DEFLECTION		
					DEAD LOAD (k)	LIVE LOAD E 80 (k)	LIVE LOAD ALTERNATE (k)	IMPACT (k)	TOTAL (k)	WEB AREA (Aw) REQUIRED (in^2)	WEB AREA (Aw) PROVIDED, GROSS (in^2)	DEAD LOAD (k-ft)	LIVE LOAD E 80 (k-ft)	LIVE LOAD ALTERNATE (k-ft)	IMPACT (k-ft)	TOTAL (k-ft)	SECTION MODULUS (S) REQUIRED (in^3)	SECTION MODULUS (S) PROVIDED, NET (in^3)	ALLOWABLE (in)	MOMENT OF INERTIA (I) REQUIRED (in^4)	MOMENT OF INERTIA (I) PROVIDED, GROSS (in^4)
90'-0"	***COMMON	3" x 24"	3" x 24"	**⅞" x 96¾"	294.0	535.9	-	155.3	985.2	56.3	84.7	6,432	10,168	-	2,947	19,547	8,530	9,065	1.64	379,888	535,518

NOTES:
L = LONGITUDINAL DIMENSION, OUT TO OUT OF GIRDERS
** WEB SIZE AT LOCATION OF MAXIMUM SHEAR (℄ BEARING)
*** ALL GIRDERS ARE DESIGNED AS COMMON GIRDERS

FLOORBEAM STRESS TABLE

LENGTH (Lf)	FLOORBEAM LOCATION	BEAM SIZE OR FLANGE SIZE	BEAM SIZE OR WEB SIZE	SHEAR							MOMENT							LIVE LOAD + IMPACT DEFLECTION		
				DEAD LOAD (k)	LIVE LOAD E 80 (k)	LIVE LOAD ALTERNATE (k)	IMPACT (k)	TOTAL (k)	WEB AREA (Aw) REQUIRED (in^2)	WEB AREA (Aw) PROVIDED, GROSS (in^2)	DEAD LOAD (k-ft)	LIVE LOAD E 80 (k-ft)	LIVE LOAD ALTERNATE (k-ft)	IMPACT (k-ft)	TOTAL (k-ft)	SECTION MODULUS (S) REQUIRED (in^3)	SECTION MODULUS (S) PROVIDED, NET (in^3)	ALLOWABLE (in)	MOMENT OF INERTIA (I) REQUIRED (in^4)	MOMENT OF INERTIA (I) PROVIDED, GROSS (in^4)
17'-4"	INTERIOR	W12x152	W12x152	7.0	-	28.8	11.7	47.5	2.8	9.5	36.9	-	177.3	72.1	286.3	***128.6	***209.0	0.33	1,428	1,430
17'-4"	END	2" x 15"	1½" x 10"	7.9	-	28.8	11.7	48.4	2.8	15.0	40.8	-	177.3	72.1	290.2	***129.1	***329.3	0.33	1,428	2,305
17'-4"	**END	2" x 15"	1½" x 10"	171.9	-	-	-	171.9	6.6	15.0	429.7	-	-	-	429.7	***127.4	***329.3	0.33	1,428	2,305

NOTES:
Lf = LENGTH OF FLOORBEAM, ℄ TO ℄ OF GIRDERS
** END FLOORBEAM DESIGN STRESSES ARE BASED ON JACKING LOAD, UTILIZING 150% ALLOWABLE OVERSTRESS.
*** COMPRESSION FLANGE CONTROLS CAPACITY

ONE GIRDER MATERIAL LIST

SPAN LENGTH (L)	GIRDER LOCATION	TOP FLANGE PL3x24x 90'-9⅝" (Ea.)	BOTTOM FLANGE PL3x24x 90'-0" (Ea.)	WEB PL⅞x108 (Lw)	BEARING STIFFENER BS-1 (Ea.)	BS-2 (Ea.)	BS-3 (Ea.)	BS-4 (Ea.)	BS-5 (Ea.)	BS-6 (Ea.)	STIFFENER ANGLE SA-1 (Ea.)	SA-2 (Ea.)	SA-3 (Ea.)	SA-4 (Ea.)	SA-5 (Ea.)	CONNECTION ANGLE CA-4 (Ea.)	GIRDER END PLATE (Ea.)	⅞" DIA. GRADE A325 BOLTS x 5" (Ea.)	x 3¼" (Ea.)	x 2¾" (Ea.)	x 2½" (Ea.)
90'-0"	COMMON	1	1	89'-10¾"	2	2	-	2	2	-	-	20	-	8	-	-	2	56	-	476	-
90'-0"	SIDE	1	1	89'-10¾"	3	1	2	1	-	1	10	-	4	-	14	14	2	84	238	-	28

NOTES:
L = LONGITUDINAL DIMENSION, OUT TO OUT OF GIRDER
Lw = LENGTH OF GIRDER WEB

TOTAL MATERIAL LIST

SPAN LENGTH (L)	COMMON GIRDER (Ea.)	SIDE GIRDER (Ea.)	END FLOORBEAM EFB-1 (Ea.)	END FLOORBEAM EFB-2 (Ea.)	FLOORBEAM FB-3 (Ea.)	FB-4 (Ea.)	FB-5 (Ea.)	FB-6 (Ea.)	DIAPHRAGM D-1 (Ea.)	D-2 (Ea.)	D-3 (Ea.)	D-4 (Ea.)	END BRACKET EB-1 (Ea.)	KNEE BRACE KB-1 (Ea.)	KB-2 (Ea.)	KB-3 (Ea.)	KB-4 (Ea.)	KB-5 (Ea.)	KB-6 (Ea.)	WALKWAY SUPPORT WS-1 (Ea.)	WALKWAY SUPPORT ANGLE WSA-10 (Ea.)	WALKWAY SUPPORT ANGLE WSA-11 (Ea.)	L6x4x½x 1'-4⅜" (Ea.)	CONNECTION ANGLE CA-1 (Ea.)	CA-2 (Ea.)	CA-3 (Ea.)	CA-5 (Ea.)	END FLOORBEAM CONNECTION PLATE CP-1 (Ea.)	BALLAST PAN BP-1 (Ea.)	BP-2 (Ea.)	BP-3 (Ea.)	BP-4 (Ea.)
90'-0"	1	2	2	2	26	38	2	2	64	8	8	2	8	20	20	2	2	2	2	16	2	2	4	272	264	16	64	16	2	16	10	2

TOTAL MATERIAL LIST (CON'T.)

SPAN LENGTH (L)	FIXED BEARING ASSEMBLY (COMMON) (Ea.)	FIXED BEARING ASSEMBLY (SIDE) (Ea.)	EXPANSION BEARING ASSEMBLY (COMMON) (Ea.)	EXPANSION BEARING ASSEMBLY (SIDE) (Ea.)	ANCHOR ROD SAR-10E (Ea.)	ANCHOR ROD SAR-10F (Ea.)	1" DIA. GRADE A325 BOLTS x 4½" (Ea.)	GRATING PANEL GP-1 (Ea.)	GP-2 (Ea.)	GP-3 (Ea.)	GP-4 (Ea.)	GP-5 (Ea.)	GP-6 (Ea.)	WALKWAY GRATING 16⅜" W. x 7'-1" L. (Ea.)	WALKWAY GRATING 16⅜" W. x 4-6½" L. (Ea.)	⅝" DIA. ASTM A307 GRADE A HEX BOLT x 2½" (Ea.)	F-10 FASTENER (Ea.)	⅞" DIA. GRADE A325 BOLTS x 4¼" (Ea.)	x 4" (Ea.)	x 3¾" (Ea.)	x 3½" (Ea.)	x 3¼" (Ea.)	x 3" (Ea.)	x 2¾" (Ea.)	1" DIA. GRADE A325 BOLTS x 4" (Ea.)	x 3½" (Ea.)	x 3" (Ea.)
90'-0"	1	2	1	2	12	12	48	2	16	16	2	2	2	20	4	264	264	80	64	128	568	320	32	1,952	960	84	732

NOTE:
L = LONGITUDINAL DIMENSION, OUT TO OUT OF GIRDERS

LIFTING WEIGHT OF TPG SPAN

SPAN LENGTH	COMMON GIRDER (LB.)	COMMON GIRDER (TON)	SIDE GIRDER (LB.)	SIDE GIRDER (TON)	PHASE I ASSEMBLED SPAN (LB.)	PHASE I ASSEMBLED SPAN (TON)
90'-0"	82,675	41.3	83,090	41.5	335,775	167.9

NOTES:
1. COMMON GIRDER WEIGHT DOES NOT INCLUDE CONNECTION ANGLE CA-1.
2. SIDE GIRDER WEIGHT DOES NOT INCLUDE CONNECTION ANGLE CA-1.
3. ASSEMBLED SPAN WEIGHT SHOWN IS FOR STEEL ONLY (INCLUDING GRATING, NOT INCLUDING BEARINGS).
4. ASSEMBLED SPAN WEIGHT INCLUDES ONE COMMON GIRDER, ONE SIDE GIRDER AND FLOOR SYSTEM FOR ONE BAY ONLY.
5. TOTAL WEIGHT OF STRUCTURAL STEEL FOR TPG SPAN = 626,000 LB.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	DRAWN/CHK BY:	UPRR ENGINEER:	SHT NO.:
FNF/MFB	RR /MFB	DEH / ADS	N37 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

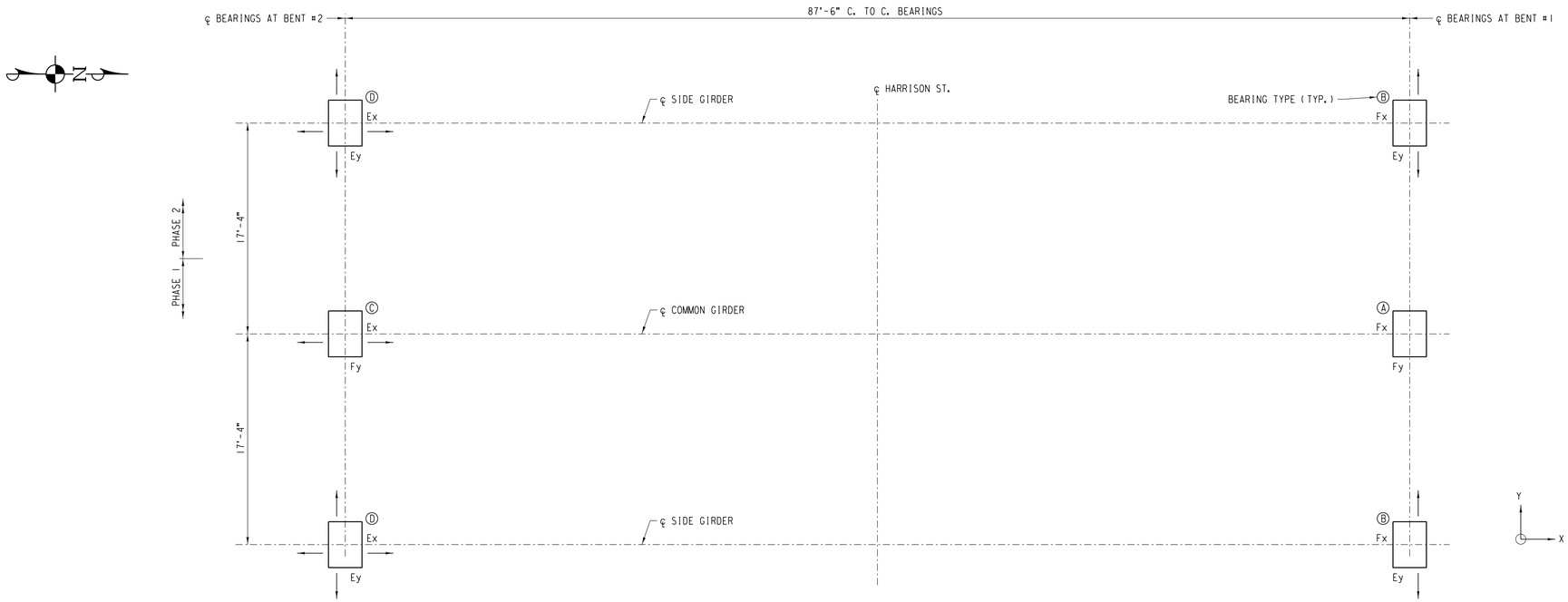
SHEET TITLE:
TPG STRESS, MATERIAL LIST AND LIFTING WEIGHT TABLES

FILE NAME: C:\Users\mrcmirez\Desktop\rac00155_bii.dgn

PLOTTED: 5/21/2021 4:40:42 PM

TO CANAL ST. (CHICAGO)
(TIMETABLE SOUTH)

TO KEDZIE (CHICAGO)
(TIMETABLE NORTH)



BEARING KEY PLAN

SCALE: 3/16"=1'-0"

NOTE:
WORK THIS SHEET WITH SHEET NOS. 39-42.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 05/28/2021 — DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N38 of N43

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE: TPG BEARING LAYOUT

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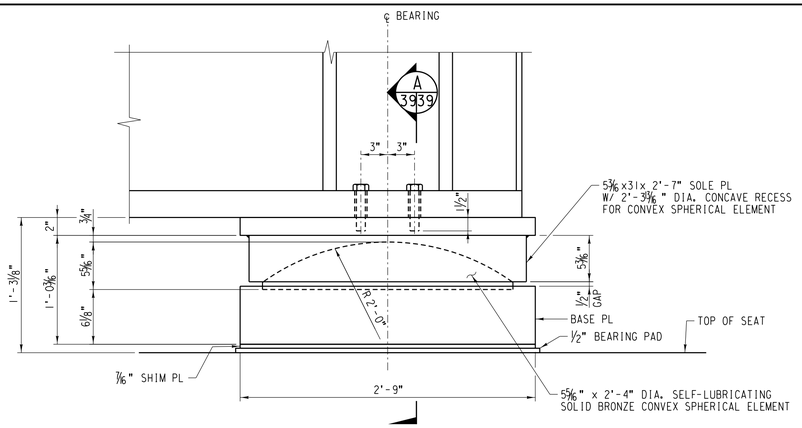
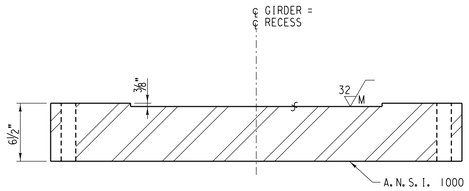


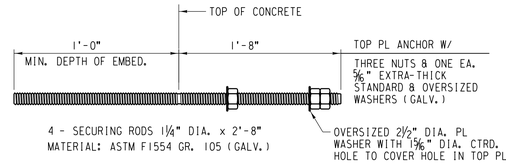
BEARING TYPE A ELEVATION

SCALE: 1½"=1'-0"
(SECURING RODS AND FLOORBEAMS NOT SHOWN FOR CLARITY)



SECTION C 3939

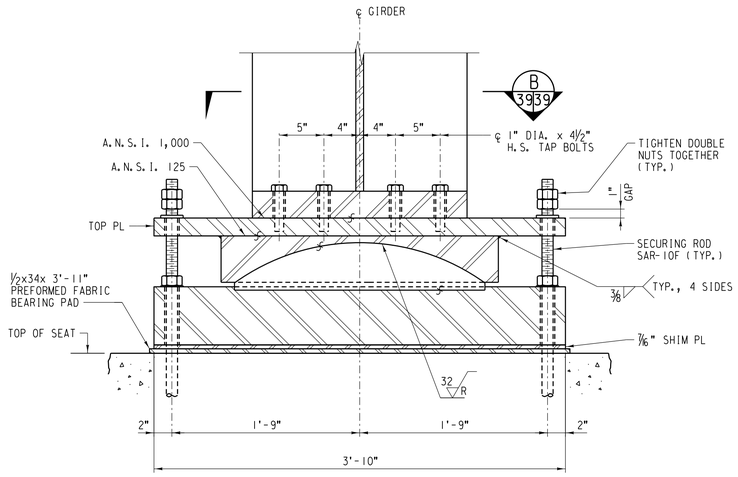
SCALE: 1½"=1'-0"



SAR-1OF SECURING ANCHOR ROD

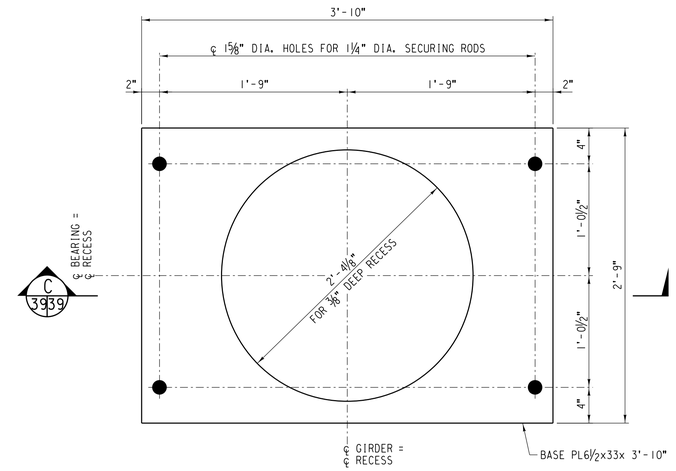
SCALE: NONE

NOTES:
1. SECURING RODS SHALL BE MADE FROM HIGH-STRENGTH MATERIAL MEETING THE REQUIREMENTS OF ASTM F1554, GRADE 105. THE RODS SHALL BE SUPPLIED WITH HEAVY HEX NUTS MEETING THE REQUIREMENTS OF ASTM A194 GRADE 2H OR ASTM A563 GRADE DH AND HARDENED WASHERS MEETING THE REQUIREMENTS OF ASTM F436. SECURING RODS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.
2. THE CONTRACTOR SHALL INSTALL THE SECURING RODS INTO THE CONCRETE ABUTMENTS USING NON-SHRINK CEMENTITIOUS GROUT.



SECTION A 3939

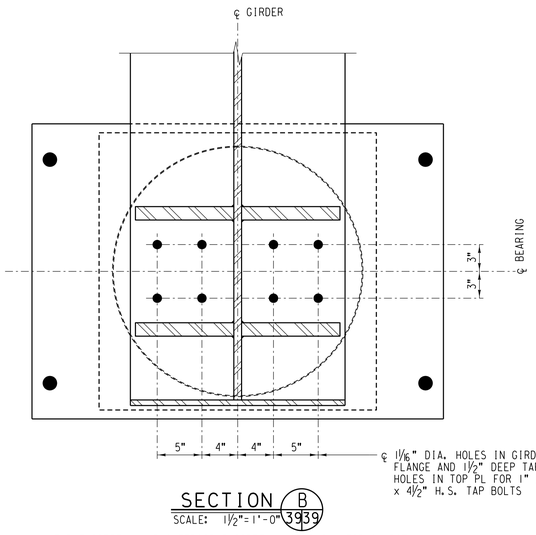
SCALE: 1½"=1'-0"



BASE PLATE DETAIL

SCALE: 1½"=1'-0"

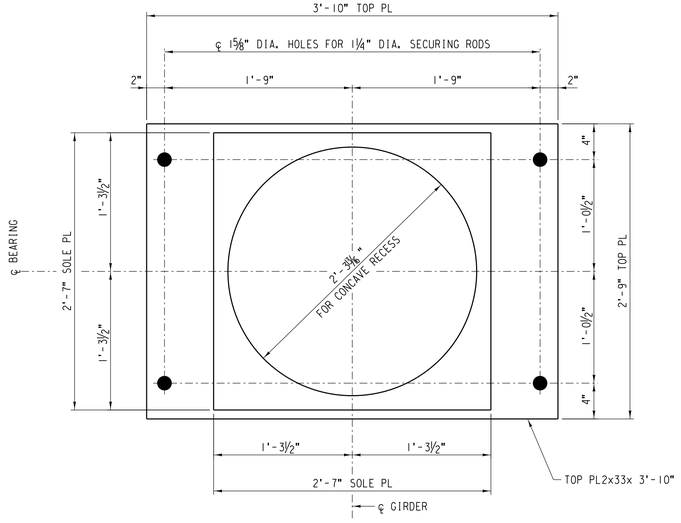
NOTES:
1. ALL SURFACES MARKED "⅓" SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
2. BEARING ASSEMBLIES SHALL BE STRESS RELIEVED AFTER WELDING.
3. BEARINGS SHALL BE ASSEMBLED COMPLETE IN THE SHOP AND CHECKED FOR FIT AND BEARING OF ALL CONTACT SURFACES, THEN MATCH MARKED FOR INSTALLATION IN THE FIELD.
4. STRUCTURAL STEEL PLATE FOR THE BEARINGS SHALL CONFORM TO ASTM A709 GR. 36 OR ASTM A36 SPECIFICATIONS.
5. BRONZE ELEMENTS SHALL CONFORM TO ASTM B22, COPPER ALLOY C91100.
6. TAP BOLTS SHALL BE 1" DIAMETER HIGH STRENGTH BOLTS CONFORMING WITH ASTM F3125 GRADE A325, TYPE 3.
7. END FLOORBEAMS NEAR BEARINGS SHALL HAVE THEIR BOTTOM FLANGES COPED TO AVOID CONFLICT WITH SECURING ANCHOR RODS.



SECTION B 3939

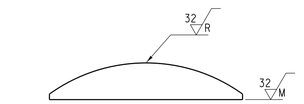
SCALE: 1½"=1'-0"

(END FLOORBEAM AND INTERIOR FLOORBEAM NOT SHOWN FOR CLARITY)



TOP & SOLE PLATE DETAILS

SCALE: 1½"=1'-0"
(UNDERSIDE SHOWN)



SPHERICAL ELEMENT SURFACE FINISH DETAIL

SCALE: N.T.S.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 05/28/2021 (DATE)

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER (CONSULTANT ENGINEER) 05/28/2021 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY:	FNF/MFB
DRAWN/CHK BY:	RR /MFB
UPRR ENGINEER:	DEH / ADS
SHT NO.:	N39 of N43

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 1.55 ROCKWELL SUBDIVISION
1 SPAN TPG x 90'
REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)

SHEET TITLE:
TPG BEARING DETAILS - TYPE A

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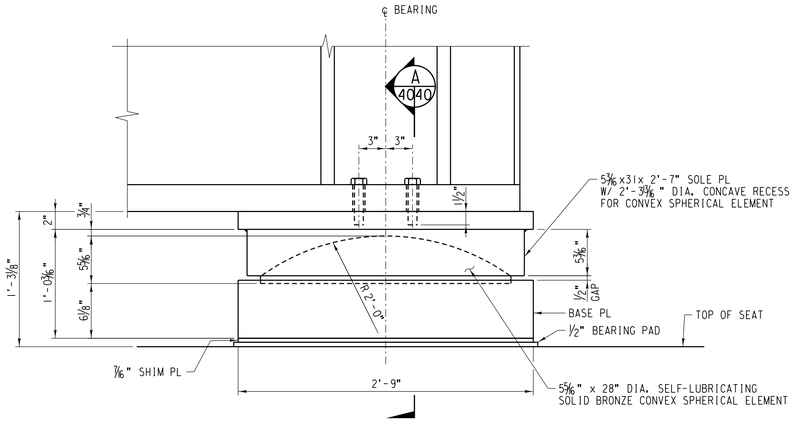
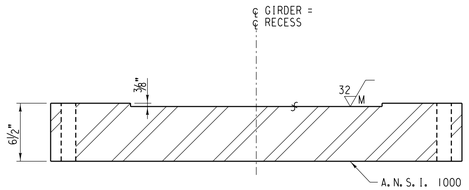


BEARING TYPE B ELEVATION

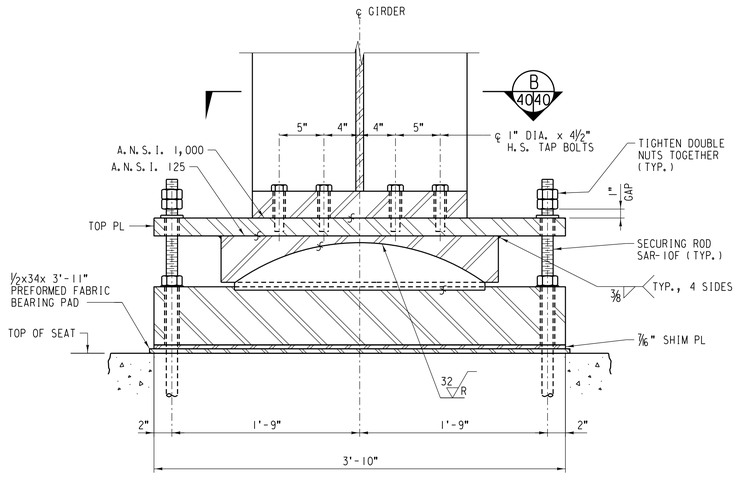
SCALE: 1½"=1'-0"

(SECURING RODS AND FLOORBEAMS NOT SHOWN FOR CLARITY)



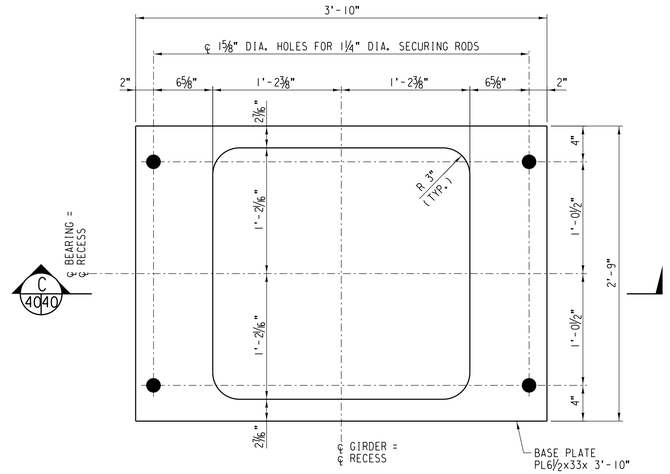
SECTION C 4040

SCALE: 1½"=1'-0"



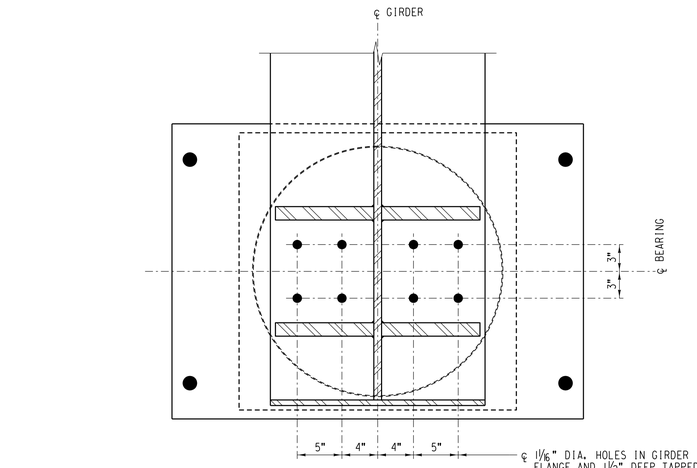
SECTION A 4040

SCALE: 1½"=1'-0"



BASE PLATE DETAIL

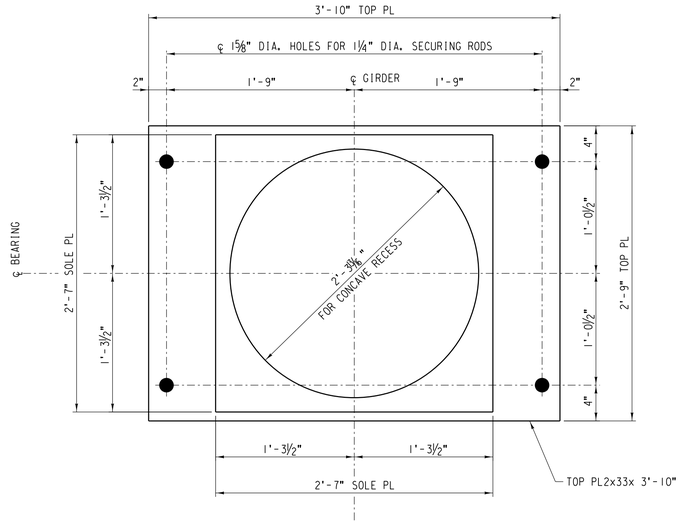
SCALE: 1½"=1'-0"



SECTION B 4040

SCALE: 1½"=1'-0"

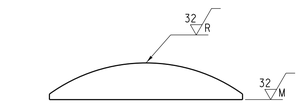
(END FLOORBEAM AND INTERIOR FLOORBEAM NOT SHOWN FOR CLARITY)



TOP & SOLE PLATE DETAILS

SCALE: 1½"=1'-0"

(UNDERSIDE SHOWN)



SPHERICAL ELEMENT SURFACE FINISH DETAIL

SCALE: N.T.S.

NOTES:

1. ALL SURFACES MARKED "32" SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
2. BEARING ASSEMBLIES SHALL BE STRESS RELIEVED AFTER WELDING.
3. BEARINGS SHALL BE ASSEMBLED COMPLETE IN THE SHOP AND CHECKED FOR FIT AND BEARING OF ALL CONTACT SURFACES, THEN MATCH MARKED FOR INSTALLATION IN THE FIELD.
4. STRUCTURAL STEEL PLATE FOR THE BEARINGS SHALL CONFORM TO ASTM A709 GR. 36 OR ASTM A36 SPECIFICATIONS.
5. BRONZE ELEMENTS SHALL CONFORM TO ASTM B22, COPPER ALLOY C91100.
6. TAP BOLTS SHALL BE 1" DIAMETER HIGH STRENGTH BOLTS CONFORMING WITH ASTM F3125 GRADE A325, TYPE 3.
7. END FLOORBEAMS NEAR BEARINGS SHALL HAVE THEIR BOTTOM FLANGES COPED TO AVOID CONFLICT WITH SECURING ANCHOR RODS.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

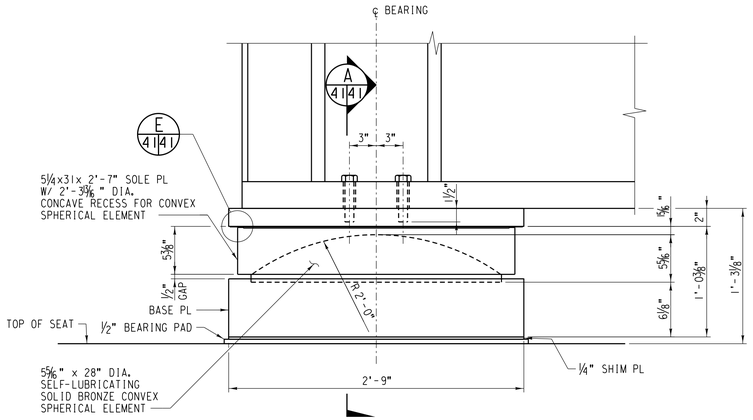
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	UNION PACIFIC RAILROAD — Office of Director Structures Design
DRAWN/CHK BY: RR /MFB	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION — 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
UPRR ENGINEER: DEH / ADS	
SHT NO.: N40 of N43	SHEET TITLE: TPG BEARING DETAILS - TYPE B

FILE NAME: c:\Users\mcomirow\Desktop\roc00155_bill.dgn

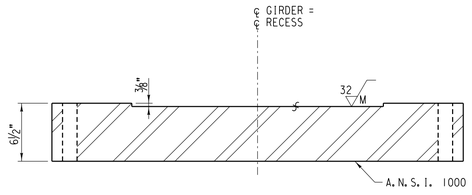
PLOTTED: 5/21/2021 4:40:43 PM



BEARING TYPE C ELEVATION

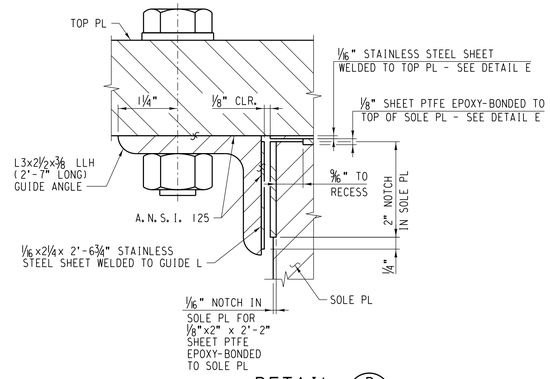
SCALE: 1½"=1'-0"

(SECURING RODS AND FLOORBEAMS NOT SHOWN FOR CLARITY)



SECTION C 41|41

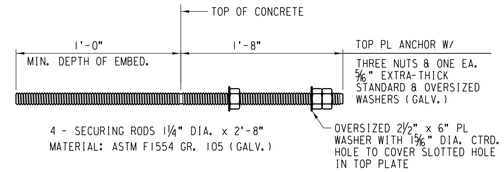
SCALE: 1½"=1'-0"



DETAIL D 41|41

SCALE: NONE

(SHOWN IN SECTION NEAR ℄ OF BEARING)

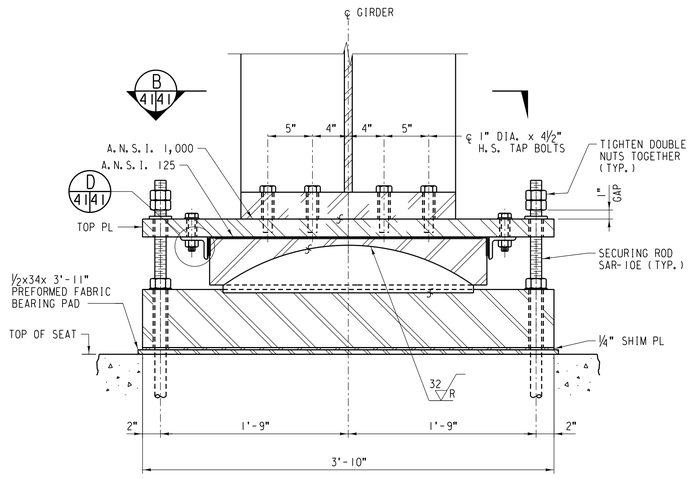


SAR-10E SECURING ANCHOR ROD

SCALE: NONE

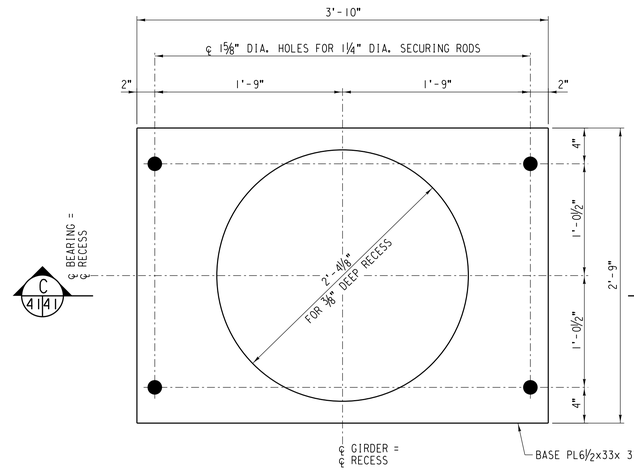
NOTES:

1. SECURING RODS SHALL BE MADE FROM HIGH-STRENGTH MATERIAL MEETING THE REQUIREMENTS OF ASTM F1554, GRADE 105. THE RODS SHALL BE SUPPLIED WITH HEAVY HEX NUTS MEETING THE REQUIREMENTS OF ASTM A194 GRADE 2H OR ASTM A563 GRADE DH AND HARDENED WASHERS MEETING THE REQUIREMENTS OF ASTM F436. SECURING RODS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.
2. THE CONTRACTOR SHALL INSTALL THE SECURING RODS INTO THE CONCRETE ABUTMENTS USING NON-SHRINK CEMENTITIOUS GROUT.



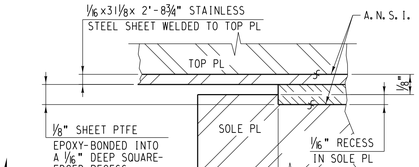
SECTION A 41|41

SCALE: 1½"=1'-0"



BASE PLATE DETAIL

SCALE: 1½"=1'-0"



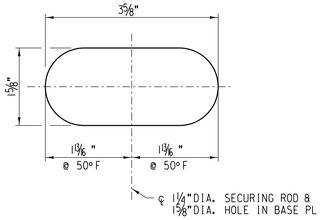
DETAIL E 41|41

SCALE: NONE

(SHOWN IN SECTION NEAR ℄ OF GIRDER)

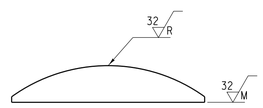
NOTES:

1. ALL SURFACES MARKED "⅄" SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
2. BEARINGS SHALL BE ASSEMBLED COMPLETE IN THE SHOP AND CHECKED FOR FIT AND BEARING OF ALL CONTACT SURFACES, THEN MATCH MARKED FOR INSTALLATION IN THE FIELD.
3. STAINLESS STEEL SHEETS SHALL CONFORM TO ASTM A167 OR ASTM A240 TYPE 304.
4. TYPE 309L ELECTRODES SHALL BE USED TO WELD THE STAINLESS STEEL SHEETS TO THE TOP PL & GUIDE Ls.
5. STRUCTURAL STEEL PLATES AND Ls FOR THE BEARINGS SHALL CONFORM TO ASTM A709 GR. 36 OR ASTM A36 SPECIFICATIONS.
6. BRONZE ELEMENTS SHALL CONFORM TO ASTM B22, COPPER ALLOY C91100.
7. TAP BOLTS SHALL BE 1" DIAMETER HIGH STRENGTH BOLTS CONFORMING WITH ASTM F3125 GRADE A325, TYPE 3.
8. BOLTS FOR GUIDE ANGLES SHALL BE " DIAMETER HIGH STRENGTH BOLTS CONFORMING WITH ASTM F3125 GRADE A325. TYPE 1.
9. END FLOORBEAMS NEAR BEARINGS SHALL HAVE THEIR BOTTOM FLANGES COPED TO AVOID CONFLICT WITH SECURING ANCHOR RODS.
10. POLYTETRAFLUOROETHYLENE (PTFE) SHEET SHALL BE MANUFACTURED FROM PURE VIRGIN (NOT REPROCESSED) PTFE RESIN. PTFE SHEET SHALL MEET THE APPLICABLE MATERIAL REQUIREMENTS OF AREMA CHAPTER 15, SECTION 5.11. FINISHED PTFE SHEET SHALL BE RESISTANT TO ALL ACIDS, ALKALIS, AND PETROLEUM PRODUCTS, BE NON-FLAMMABLE, AND NON-ABSORBING OF WATER.



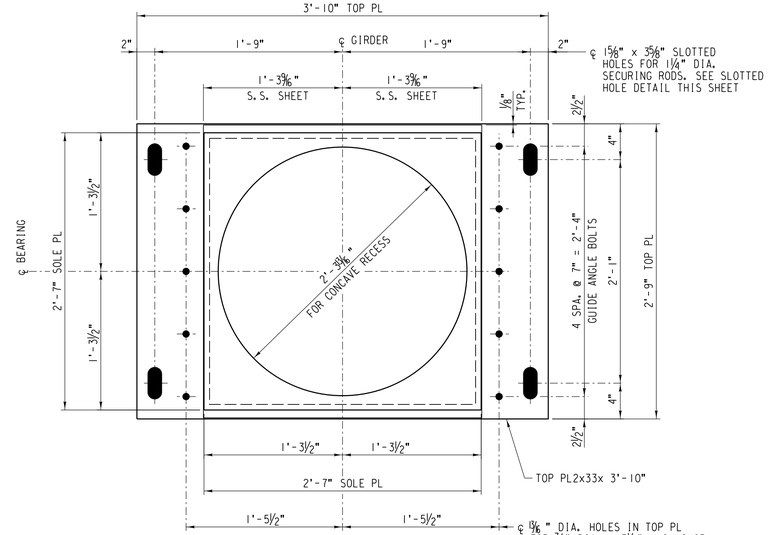
SLOTTED HOLE DETAIL

SCALE: NONE



SPHERICAL ELEMENT SURFACE FINISH DETAIL

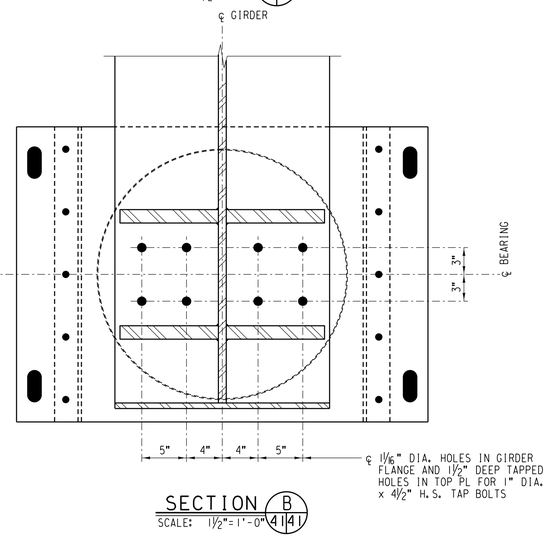
SCALE: N.T.S.



TOP & SOLE PLATE DETAILS

SCALE: 1½"=1'-0"

(UNDERSIDE SHOWN)



SECTION B 41|41

SCALE: 1½"=1'-0"

(END FLOORBEAM AND INTERIOR FLOORBEAM NOT SHOWN FOR CLARITY)

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

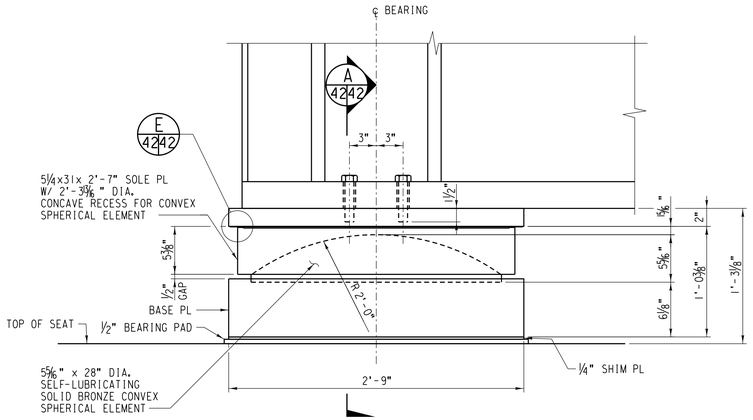
FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N41 of N43	SHEET TITLE: TPG BEARING DETAILS - TYPE C

FILE NAME: C:\Users\ermirez\Desktop\cad00155_bli.dgn

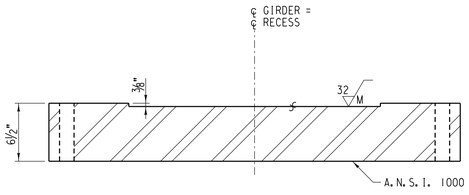
PLOTTED: 5/21/2021 4:40:43 PM



BEARING TYPE D ELEVATION

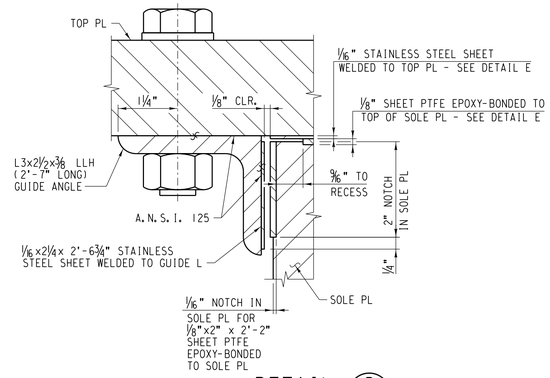
SCALE: 1½"=1'-0"

(SECURING RODS AND FLOORBEAMS NOT SHOWN FOR CLARITY)



SECTION C

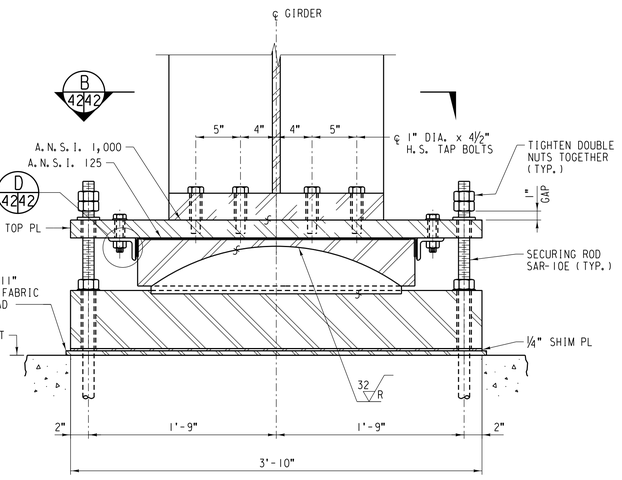
SCALE: 1½"=1'-0" 4242



DETAIL D

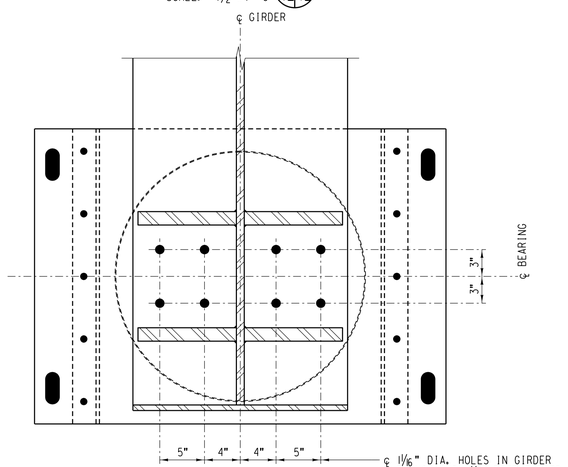
SCALE: NONE 4242

(SHOWN IN SECTION NEAR ℄ OF BEARING)



SECTION A

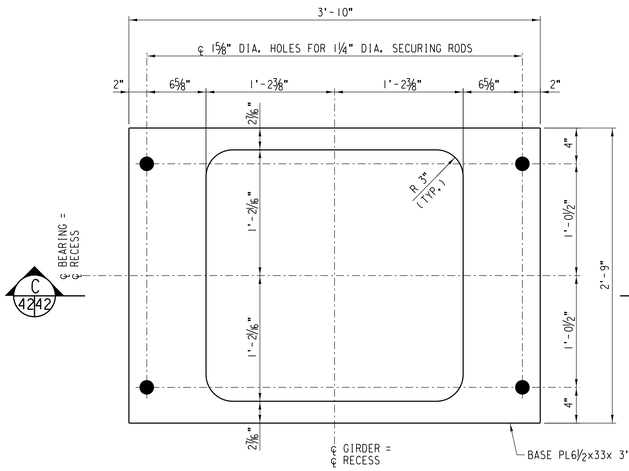
SCALE: 1½"=1'-0" 4242



SECTION B

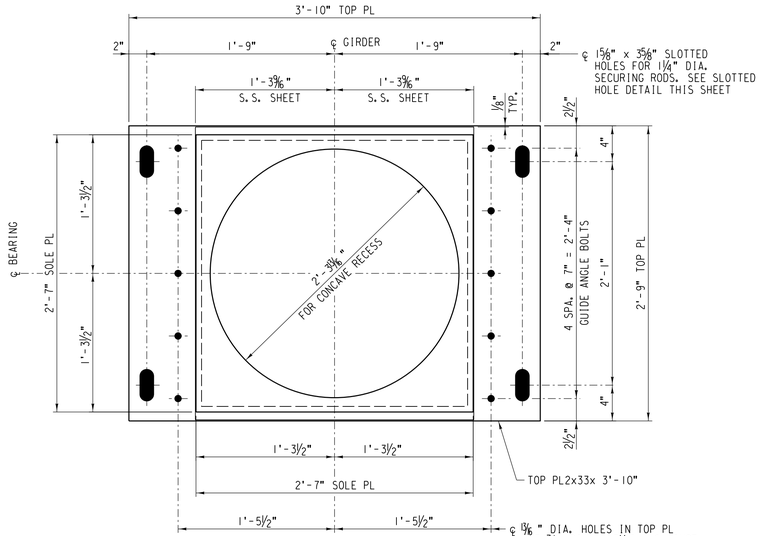
SCALE: 1½"=1'-0" 4242

(END FLOORBEAM AND INTERIOR FLOORBEAM NOT SHOWN FOR CLARITY)



BASE PLATE DETAIL

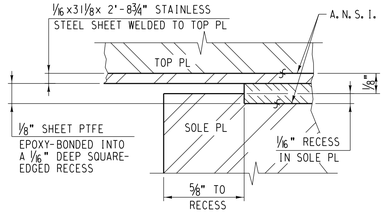
SCALE: 1½"=1'-0"



TOP & SOLE PLATE DETAILS

SCALE: 1½"=1'-0"

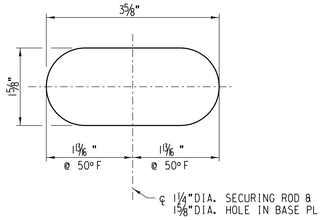
(UNDERSIDE SHOWN)



DETAIL E

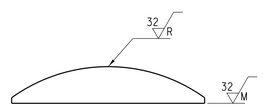
SCALE: NONE 4242

(SHOWN IN SECTION NEAR ℄ OF GIRDER)



SLOTTED HOLE DETAIL

SCALE: NONE



SPHERICAL ELEMENT SURFACE FINISH DETAIL

SCALE: N.T.S.

NOTES:

1. ALL SURFACES MARKED "⅀" SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.
2. BEARINGS SHALL BE ASSEMBLED COMPLETE IN THE SHOP AND CHECKED FOR FIT AND BEARING OF ALL CONTACT SURFACES, THEN MATCH MARKED FOR INSTALLATION IN THE FIELD.
3. STAINLESS STEEL SHEETS SHALL CONFORM TO ASTM A167 OR ASTM A240 TYPE 304.
4. TYPE 309L ELECTRODES SHALL BE USED TO WELD THE STAINLESS STEEL SHEETS TO THE TOP PL & GUIDE Ls.
5. STRUCTURAL STEEL PLATES AND Ls FOR THE BEARINGS SHALL CONFORM TO ASTM A709 GR. 36 OR ASTM A36 SPECIFICATIONS.
6. BRONZE ELEMENTS SHALL CONFORM TO ASTM B22, COPPER ALLOY C91100.
7. TAP BOLTS SHALL BE 1" DIAMETER HIGH STRENGTH BOLTS CONFORMING WITH ASTM F3125 GRADE A325, TYPE 3.
8. BOLTS FOR GUIDE ANGLES SHALL BE " DIAMETER HIGH STRENGTH BOLTS CONFORMING WITH ASTM F3125 GRADE A325. TYPE 1.
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NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:

MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

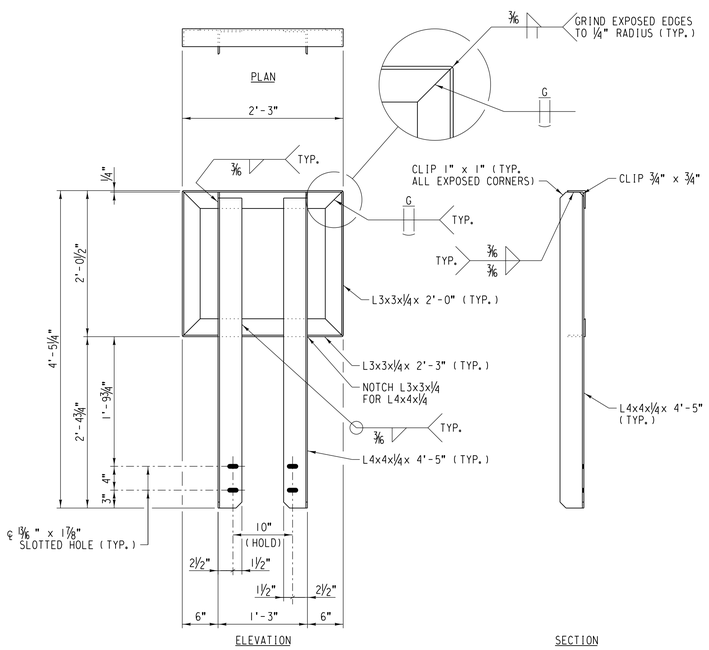
LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

UNION PACIFIC

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION
SHT NO.: N42 of N43	1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
	SHEET TITLE: TPG BEARING DETAILS - TYPE D

FILE NAME: C:\Users\cmirez\Desktop\cc00155_bii.dgn

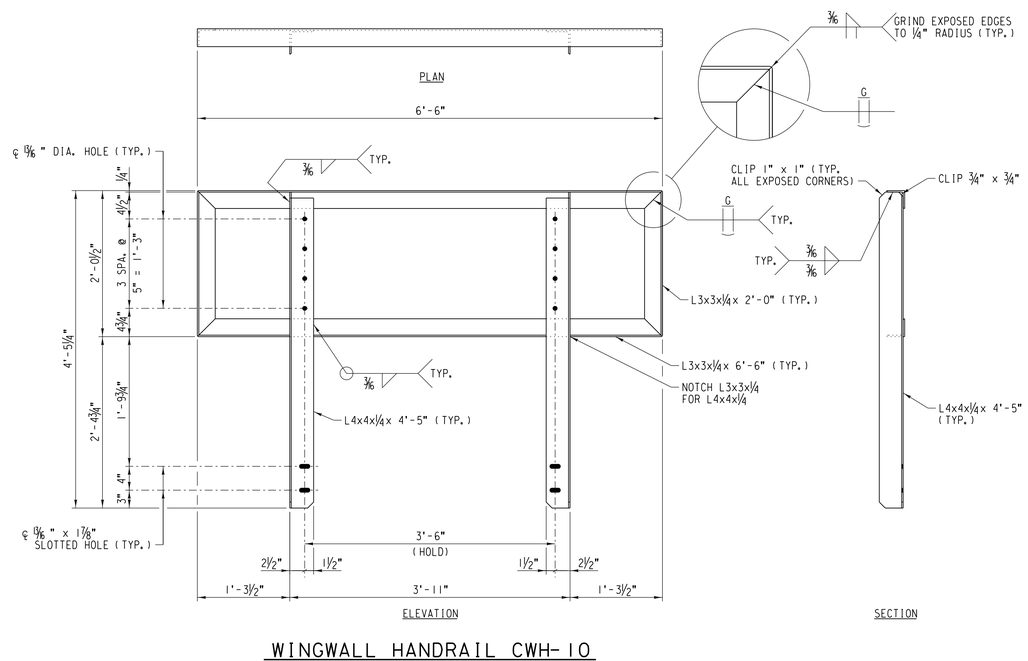
PLOTTED: 5/21/2021 4:40:43 PM



BACKWALL HANDRAIL SBH-1

SCALE: 1"=1'-0"

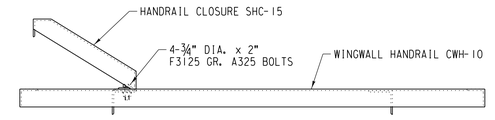
EST. WT. = 100 LB. EA.
SHIPS WITH 4-3/4" DIA. x 14" ASTM A307 GRADE A HEX BOLT WITH HEX ELASTIC LOCKNUT (MIL-DTL-32258) AND FLAT CIRCULAR WASHER (ASTM F436), EACH COMPONENT HOT DIPPED OR MECHANICALLY ZINC COATED



WINGWALL HANDRAIL CWH-10

SCALE: 1"=1'-0"

EST. WT. = 142 LB. EA.



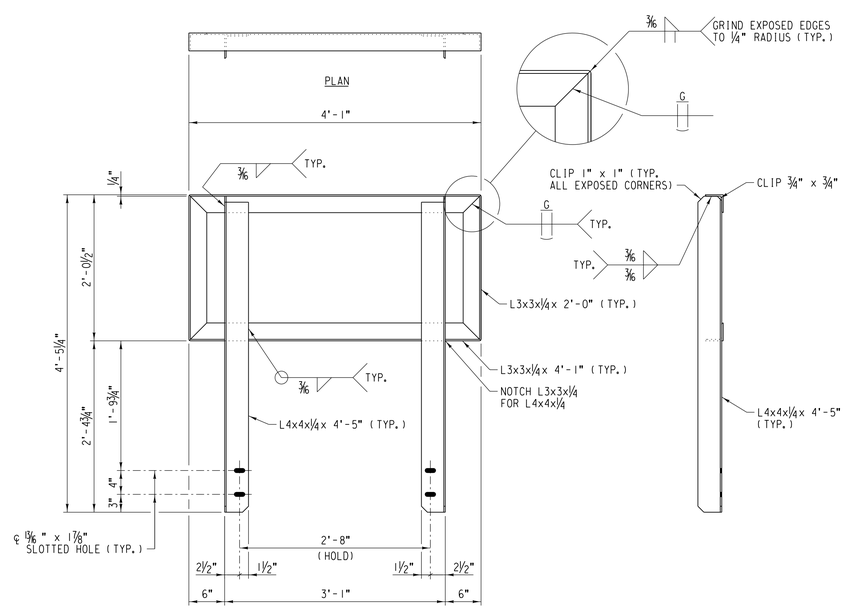
PLAN

NOTE:
LEFT ASSEMBLY SHOWN, CONNECT SHC-15 TO OTHER LEG OF CWH-10 FOR RIGHT ASSEMBLY.

END HANDRAIL ASSEMBLY CEH-10

SCALE: 1"=1'-0"

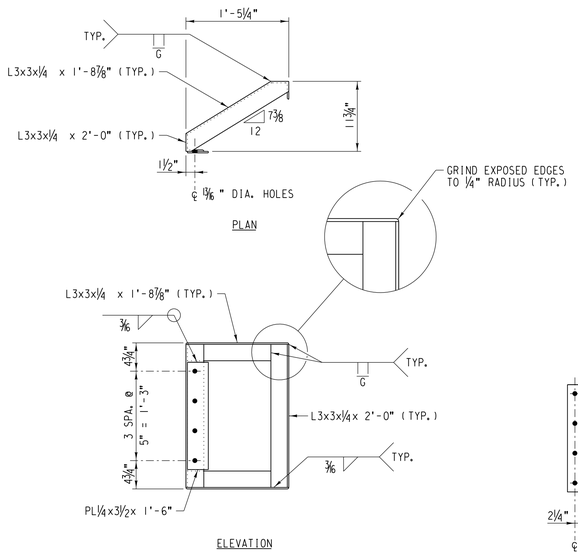
EST. WT. = 185 LB. EA.
(SHOP ASSEMBLED)
SHIP WITH 3/4" DIA. x 14" BOLTS WITH LOCKNUT AND WASHER PER SCHEDULE, THIS SHEET



BACKWALL HANDRAIL SBH-2

SCALE: 1"=1'-0"

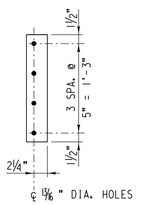
EST. WT. = 118 LB. EA.
SHIPS WITH 4-3/4" DIA. x 14" ASTM A307 GRADE A HEX BOLT WITH HEX ELASTIC LOCKNUT (MIL-DTL-32258) AND FLAT CIRCULAR WASHER (ASTM F436), EACH COMPONENT HOT DIPPED OR MECHANICALLY ZINC COATED



HANDRAIL CLOSURE SHC-15

SCALE: 1"=1'-0"

EST. WT. = 41.2 LB. EA.
GALVANIZE AFTER FABRICATION



PL1/4x3 1/2x 1'-6"

SCALE: 1"=1'-0"

MATERIAL SCHEDULE

(QUANTITY PER END HANDRAIL ASSEMBLY CEH-10)

REQ'D.	UNIT	DESCRIPTION
1	EA.	WINGWALL HANDRAIL CWH-10 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. 43)
1	EA.	HANDRAIL CLOSURE SHC-15 (PER NOTES, STD. DWG. 531100 SHT. T3 AND DETAILS, SHEET NO. 43)
4	EA.	3/4" DIA. x 2" F3125 GR. A325 HVY. HEX BOLT, TYPE 1 w/ HVY. HEX NUT (A563, LUBRICATED) AND FLAT CIRCULAR WASHER (F436), EACH COMPONENT HOT DIP OR MECHANICALLY ZINC COATED
5	EA.	3/4" DIA. x 14" A307 GRADE A HVY. HEX BOLT w/ HVY. HEX ELASTIC LOCKNUT (MIL-DTL-32258) & FLAT CIRCULAR WASHER (F436), GALVANIZED

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 05/28/2021 DATE

benesch

APPROVED FOR UNION PACIFIC RAILROAD BY:
MATTHEW BECKER — CONSULTANT ENGINEER — 05/28/2021 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
	31876	122533

FORMERLY BRIDGE 1.44 ROCKWELL SUBDIVISION

LATITUDE: 41.87395°N LONGITUDE: -87.69135°W

DSN/CHK BY: FNF/MFB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: RR /MFB	Office of Director Structures Design
UPRR ENGINEER: DEH / ADS	LOCATION & DESCRIPTION: BRIDGE 1.55 ROCKWELL SUBDIVISION 1 SPAN TPG x 90' REPLACING 1 SPAN TPGOD x 70' (2 TRACKS)
SHT NO.: N43 of N43	SHEET TITLE: NONSTANDARD MISCELLANEOUS STEEL DETAILS

FILE NAME: C:\Users\rrcmirez\Desktop\rrc001155.bll.dgn

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GENERAL NOTES

GENERAL

1. All work requirements shown on the design and not otherwise detailed shall be accomplished as specified in Union Pacific Railroad (UPRR) Specifications and the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. In the event of conflicts between specifications, the more restrictive shall apply.

2. Construction means and methods shall comply with the All Permits Issued (API) package.

3. Field verify all dimensions, stations and elevations prior to start of construction.

4. Beams shall be supported by blocking within 1'-6" of ends during storage and transport. Store beams in level position. Beams shall be stacked no more than 3 high.

5. Contact the Union Pacific "Call Before You Dig" number 90 days (not less than 60 days) prior to proposed construction start date. Prior to construction, confirm that all necessary relocations have been completed. The CBYD number is: 1-800-336-9193.

6. Location of known utilities is approximate. Location shall be verified prior to construction. Notify Call Bll "Call Before you Dig" number at least 48 hours prior to construction.

PILE DRIVING

1. All piles shall be driven to capacity shown in design plan set.

2. If any numbered pile cannot be driven to these capacities, the UPRR Office of Structures Design shall be notified.

3. Estimated capacity of driven piles shall be calculated using the Modified ENR formula, with Factor of Safety of 5. Direct questions to the UPRR Office of Structures Design. Pile driving records and estimated capacities shall be submitted to the UPRR Office of Structures Design.

4. Vibratory hammers shall not be permitted to drive any portion of any bearing piles.

5. Splice pile per standard drawing Plan No. 531110, Sheet No. H1 for H-Piles or Plan No. 531120, Sheet No. 1 for pipe piles. Pile splices shall be located a minimum of 10' below the proposed or existing ground surface, whichever is lower.

6. Mark every pile with a dimension indicating the pile depth from cutoff to point of pile. The dimension shall be rounded to the nearest foot. The mark shall be welded on the outside face, low mile post side on the pile flange, approximately 1'-0" below the bottom of the cap, and in numbers of approximately 3" in height. If a pile is not exposed, no mark is required.

7. After pile driving is complete, provide pile driving logs to:

UPRR Senior Manager Structures Design
1400 Douglas St., Stop 0910
Omaha, NE 68179

FIELD WELDING

1. Welding shall be accomplished with the SMAW or FCAW Process.

2. Welding shall be in compliance with the requirements specified in AWS D1.5, except ⅜" fillet welds may be made with a single pass.

3. Welding electrodes shall be E7018 for SMAW or E71T-7 for FCAW. For other acceptable electrodes, refer to AWS D1.5.

4. Union Pacific Railroad Employees engaged in welding on structures shall have valid certification through Course ES20, Advanced Welding.

5. Contract welders shall possess valid AWS qualifications. Welders shall submit a Procedure Qualification Report (PQR) and Weld Procedure Specification (WPS) for each weld type to be performed. Welders shall be able to present documentation verifying that they have performed the specific weld(s) within the prior six months upon request.

GRADING

1. Provide and place all fill and subballast material per UPRR Grading Specifications. Perform grading as required to drain and match existing embankments and upstream and downstream channel flowline.

2. Perform grading as required for construction of the new structure and replace areas removed and disturbed in the course of construction to a condition equal to or better than existing.

WELL-COMPACTED FILL

1. Well-compacted fill shall be well-graded granular soil free of any organic material, stones larger than 3 inches, frozen lumps, debris or excessive moisture. All compaction shall be determined using ASTM D1556 for field test and ASTM D1557 for moisture and density. Fill shall be compacted to 95% of maximum dry density as defined in ASTM D1557 (Modified Proctor). Fill shall be placed in layers not to exceed 12 inches.

GROUT NOTES

NON-SHRINK GROUT

1. Non-shrink grout shall conform to the requirements of ASTM C1107.

2. Non-shrink grout shall meet the following strength requirements:

1 day: 3,200 psi
7 days: 6,000 psi

EPOXY GROUT

1. Epoxy grout shall consist of a 3-component epoxy resin system.

Two liquid epoxy components.
One inert aggregate filler component.

CONTROLLED LOW-STRENGTH MATERIAL (CLSM)

1. Controlled Low-Strength Material is a self-compacting, cementitious fill material with an unconfined compressive strength of 50 to 300 psi. The mixture shall consist of water, Portland cement, fly ash, and sound fine or coarse aggregate or both. The mix design shall allow adequate flowability without segregation of aggregates. Hardening time is of prime importance and CLSM should develop 50 psi in about one hour. The maximum layer thickness for CLSM shall be three feet. Additional layers shall not be placed until the CLSM has lost sufficient moisture to be walked on without indenting more than two inches.

CONSTRUCTOR NOTES (WHEN APPLICABLE)

CONSTRUCTOR DEFINITION

Construction By	Term	Refers To
UPRR	Constructor	Manager Bridge Construction
Contractor	Constructor	Contractor

DIVISION OF RESPONSIBILITY

A. RAILROAD (Unless Noted Otherwise by MBC)

1. Remove ties, rail and OTM from existing bridge.

2. Provide and install ballast, ties, rail and OTM for proposed bridge.

3. Provide material as shown in the Bill of Material.

4. Provide and install Private Property/No Trespassing sign and bridge marker signs on right side at each end of bridge.

B. CONSTRUCTOR

1. Coordinate all construction activities with the Railroad.

2. Before ordering any material, Constructor shall make a detailed field inspection of the site verifying all pertinent dimensions and elevations. Any variations in dimensions or elevations from those shown on the drawings shall be reported immediately to the UPRR Project Manager.

3. Any modifications to this design shall be approved by the UPRR Office of Structures Design prior to construction.

4. Verify the location, relocation, abandonment, and/or temporary support of all utilities affected by the construction of the structure and embankment and coordinate these activities with the appropriate utility companies, agencies and/or authorities.

5. Apply for and obtain all construction permits necessary to perform the work.

6. Bill of Material and Schedules are provided for information only. Constructor shall be responsible for providing all material, not provided by the Railroad, required to complete the work.

7. Perform all work not performed by the Railroad.

8. Provide the Railroad with a detailed construction plan defining the activity, schedule and procedure for each aspect of the work. Construction shall not begin until the construction plan has been approved by the Railroad.

9. Provide all temporary structures (shoring, bracing and/or falsework) required to support and protect the existing embankments and structures affected by the work. Provide the Railroad with details, design and procedure for all temporary structures. All temporary structures shall be designed, signed and sealed by a professional engineer registered in the State that the structure is to be constructed. All temporary structures shall be approved by the UPRR Office of Structures Design prior to beginning construction.

10. Provide temporary guardrail system as directed by UPRR Project Manager. Guardrails on shoring shall include but not be limited to the following:

The top edge height of the top rail shall be 42" +/- 3" above the walking/working surface.

At least one midrail shall be provided, evenly spaced between walking/working surface and top rail.

Metal or timber posts or uprights shall be spaced at maximum intervals of 10'-0".

Entire guardrail system, including anchorages, shall be capable of withstanding without failure, a force of 200 lbs. applied in any outward or downward direction at any point.

Guardrail system shall be surfaced to prevent injuries from punctures and lacerations and prevent snagging of clothing. The ends of top rails and midrails shall not extend past the posts or uprights.

If conditions warrant, i.e. pedestrian traffic/weather, additional protection shall be provided such as screens or mesh to prevent slipping between the midrail and walking/working surface.

11. Direct channel flow as required to perform work.

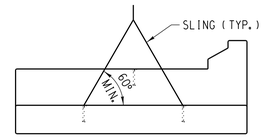
12. Remove debris and ballst from channel as directed by the Railroad.

13. Accomplish activities within the schedule specified in the approved construction plan.

CONCRETE CAP NAMING CONVENTION KEY

P = Precast Concrete, C = Cast-in-Place Concrete
C = Cap, WW = Wingwall, A = Assembly, BW = Backwall, SC = Supercap
2 Digit Number for Beam Depth in Inches (14, 20, 30, or 42)
E = End, I = Interior
1 = 1 Piece, 2 = 2 Piece
S = Single Track, L = Left, R = Right, C = Center, D = Dowels

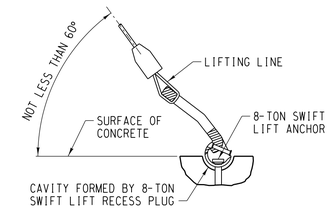
PC42E1S



2 POINT PICK DETAIL

SCALE: NONE

SINGLE PIECE END CAP AND LIFTING ANCHORS SHOWN, OTHER CAPS AND BACKWALLS AND LIFTING LOOPS SIMILAR



TYPICAL LIFTING DETAIL

SCALE: NONE

NOTE:
8-TON SWIFT LIFT RECESS PLUGS, ANCHORS AND LIFTING EYES ARE AVAILABLE FROM DAYTON SUPERIOR CORP., 1125 BYERS ROAD, MIAMISBURG, OHIO 45342, TELEPHONE (937) 866-0711. THE MATERIALS FOR THIS LIFTING SYSTEM ARE NOT INCLUDED IN THE BILL OF MATERIAL BUT ARE TO BE ORDERED AS REQUIRED.

REVISIONS		
DATE	LTR.	DESCRIPTION
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DESIGN BY: UPRR | DRAWN BY: UPRR | CHECKED BY: HDR

APPROVED:

05-04-2020
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS
CONCRETE BEAM BRIDGES
GENERAL NOTES

FILE OWNER: UPRR | DATE: MAY, 2020
PLAN NO.: 531100 | SHEET: T2

PLOTTED: 5/4/2020 2:28:12 PM

FILE NAME: pw://HDR_US_National.OI/41951/10153247/531100_Single Track_General Arrangement.dgn

INCHES 1 2 3 4 5 6 7 8 9 10 11 12

PRECAST CONCRETE NOTES:

CONCRETE:

1. All concrete materials, placement and workmanship shall be in accordance with Part 1, Chapter 8 of the current AREMA Manual for Railway Engineering.
2. Minimum compressive strength - 4000 Lb. per square inch at 28 days.
3. Exposed surfaces shall be formed in a manner which will produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90 degrees or less are to be chamfered ¾" x ¾". Top surface to have a smooth finish, free of all float or trowel marks.
4. Concrete shall be proportioned such that the water - cement ratio (by weight) does not exceed 0.45. Concrete must contain a minimum of 6½ sacks of cement per cubic yard of concrete. Flyash replacement may account for up to 25% of the cement.
5. Cement shall be Type I, Type II or Type III Portland Cement in accordance with ASTM C150 specifications.
6. Aggregates shall be graded in accordance with ASTM C33 specifications. Coarse aggregate shall be no. 67. Fine aggregate shall be natural sand.
7. Air content shall be between 5% and 7% (by volume).
8. Admixtures shall not be used without approval by Engineer.
9. Curing shall be accomplished by wet curing or the application of a Type 2 membrane.
10. The fabricator shall stencil the item name, date manufactured, name of manufacturer and actual lifting weight at location shown.
11. Production procedures for the manufacture of precast members shall be in accordance with the AREMA Manual for Railway Engineering and the Precast/Prestressed Concrete Institute's Manual MNL 116 for Quality Control.
12. Dimensional tolerances governing the manufacture of precast members shall conform to Division VI, Section 6.4 of the Precast/Prestressed Concrete Institute's Manual MNL 116 for Quality Control. Tolerance for location of lifting devices shall be ±½".
13. The fabricator will be responsible for loading and properly securing all precast concrete members for shipment. All concrete components shall be made available for inspection by the Railroad at the fabricator's plant prior to shipment, at the Railroad's discretion.

REINFORCING STEEL:

1. Reinforcing steel shall be deformed, new billet bars per current ASTM A615 Specifications and to meet grade 60 requirements.
2. Fabrication of reinforcing steel shall be per Chapter 7 of the CRSI Manual of standard practice. Dimensions of bending details are out to out of bar.
3. Reinforcing steel is to be blocked to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcement not otherwise noted shall meet current AREMA Manual for Railway Engineering requirements.

EMBEDDED STEEL:

1. Steel plate shall conform to ASTM A36 OR A709-Grade 36 Specifications. Studs shall be C1015, C1017 or C1020 cold drawn steel which conform to ASTM A108 Specifications.
2. Deformed bar anchors shall conform to ASTM A706 specifications. Welding of deformed bar anchors shall conform to AWS D1.4. Welding shall be performed by certified welder.
3. Where galvanizing is not indicated, material shall be plain.

LIFTING ANCHORS:

1. Swift lift anchors shall be Dayton Superior P-52 anchors or approved alternate with a minimum safe working load sufficient for the weight of the precast element including form removal. The safe working load shall provide a minimum safety factor of 4.

MISCELLANEOUS HARDWARE:

1. 8" T-Bar Anchors as manufactured by Meadow Burke Company, or approved alternate.

BEARING PAD SPECIFICATIONS:

1. Bearing pads shall be Random Oriented Fiber elastomeric material comprised of high-quality ozone-resistant virgin elastomer and synthetic fibers. Pads shall conform to the following minimum material properties:

Hardness (Shore A, ASTM D2240)	80 ± 5
Tensile Strength, psi (ASTM D412, Die C)	1000 ± 100
Ultimate Elongation, minimum %	40
Heat Aging (ASTM D573, 70 Hrs. @ noted temperature):	
Durometer, 212 °F, maximum point change	± 10
Tensile Strength, 158 °F, maximum % change	± 25
Ultimate Elongation, 212 °F, maximum % change	± 25
Compression, minimum ultimate strength, psi	8000
Apparent Shear Modulus (GA), psi, based on tests conducted at 70 °F to 80 °F under uniform compressive stresses of 500, 1000, and 1500 psi and at applied horizontal shear plus slip strain of 50%. GA is constant in all directions parallel to the bearing plane.	230 ± 30

2. Bearing pads shall be Voss Engineering, Inc., "Fiberlast" expansion bearing pads or approved equal.
3. Cutting of the pads shall be done so that the edges have no tears or other jagged areas.
4. Permissible tolerances of the pad shall be as stated in Chapter 15, Section 5.12.6 of the 2019 AREMA Manual for Railway Engineering.
5. The cap fabricator shall fasten the bearing pads to the cap by using the following procedure: clean pads according to manufacturer's recommendations; prime contact surface and glue to cap with Sikadur 31 Hi-Mod Gel (1:1 mix ratio) or approved equal.

MISCELLANEOUS STEEL NOTES:

1. Materials, fabrication, workmanship and erection per the current AREMA Manual for Railway Engineering, Chapter 15, Steel Structures.
2. Material shall conform to the following requirements:

Rolled Shapes & Plates	ASTM A36
Pipe	ASTM A53 Gr. B
Bolts	ASTM A307 Gr. A
Elastic Locknut	MIL-DTL-32258
Steel Washer	ASTM F436

3. Grating panels and fasteners shall conform to the following requirements:

Grating Fasteners:	
Saddle Clips	F-10 Galvanized Saddle Clips
Socket Cap Screws	SAE J429, Gr. 8, Zinc Coated
Elastic Locknut	MIL-DTL-32258
Steel Washer	ASTM F436
Nylon Washer	Nylon G16
Grating Panels:	
Material shall comply with NAAMM Standard MBG 531-17	
Size = W-19-4 (1¾ x 3/16 Serrated) Steel Galvanized.	

4. Welding requirements:
   A. All welding shall be with the SAW, SMAW, or FCAW process.
   B. All welding per AWS D1.1, Structural Welding Code.
   C. Welders shall possess valid qualifications, including a Procedure Qualification Report (PQR) and Weld Procedure Specification (WPS) for each weld type to be performed as well as documentation verifying that they have performed the specific weld(s) within the prior six months.
5. Miscellaneous steel shall be plain unless noted otherwise.
6. Pieces or assemblies designated as galvanized shall be galvanized after fabrication in accordance with ASTM A123. After galvanizing, all elements shall be free of fins, abrasions, rough or sharp edges, and other surface defects.
7. Bolts and nuts to be zinc plated in accordance with ASTM A153 unless noted otherwise.

CAST-IN-PLACE CONCRETE NOTES:

CONCRETE:

1. All concrete materials, placement, workmanship and testing shall be in accordance with Part 1, Chapter 8 of the current AREMA Manual for Railway Engineering.
2. Minimum compressive strength at 28 days shall be as indicated on the design plans.
3. Exposed surfaces shall be formed in a manner which will produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90 degrees or less are to be chamfered ¾" x ¾". Top surface to have a smooth finish, free of all float or trowel marks.
4. Concrete shall be proportioned as follows:

Concrete Strength:	3,000 psi	4,000 psi	5,000 psi	6,000 psi
Max. Water/Cement Ratio (by weight):	0.50	0.45	0.42	0.40
Min. Sacks of Cement per Cu. Yd.:	5.5	6.0	6.5	7.0

5. Flyash replacement may account for up to 25% of the cement by substitution.
6. Cement shall be Type I, Type II or Type III Portland Cement in accordance with ASTM C150 specifications.
7. Aggregates shall be graded in accordance with ASTM C33 specifications. Coarse aggregate shall be no. 67. Fine aggregate shall be natural sand.
8. Allowable air content shall be indicated on the design plans based on the following guidelines:

   Severe Exposure - 5% to 7%
   Exposed to wet freeze-thaw, de-icers, or other aggressive agents.

   Moderate Exposure - 4% to 7%
   Exposed to dry freeze-thaw and no de-icers or other aggresive agents.

   Mild Exposure - 3% to 5%
   Not exposed to freezing, de-icers or other aggressive agents.

9. Admixtures shall not be used without approval by Engineer. Where multiple admixtures are used, it is recommended that all admixtures be obtained from the same company.
10. Where exposed to air, curing shall be accomplished by wet curing or membrane curing compound. Membrane curing compound shall conform to ASTM C309, Type 2.
11. Do not use calcium chloride or any admixture containing intentionally added chloride ions. Testing for chloride ions is not required.
12. Apply a structural bonding agent to construction joints or when placing new concrete against existing concrete. Submit bonding agent to the Engineer for approval.

[Note 13 applies only when specifically stated in the Bill of Material descriptions.]
13. DCI-S, as manufactured by W.R. Grace, or approved alternate shall be added at a quantity of 5 gallons per cubic yard. Calcium nitrite solution shall contain 30% solids and shall provide 15.0 lbs. per cubic yard chloride protection. Mix shall also include 7%, by weight of cement, force 10,000 microsilllica slurry by W.R. Grace or approved addendum shall be used. Adjust weight of concrete mix water for weight of DCI-S used.

REINFORCING STEEL:

1. Reinforcing steel shall be deformed, new billet bars per current ASTM A615 Specifications and to meet grade 60 requirements.
2. Fabrication of reinforcing steel shall be per Chapter 7 of the CRSI Manual of standard practice. Dimensions of bending details are out to out of bar.
3. Reinforcing steel is to be blocked to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcement not otherwise noted shall meet current AREMA Manual for Railway Engineering requirements.

[Note 4 applies only when specifically stated in the Bill of Material descriptions.]
4. Reinforcing steel shall be epoxy coated per ASTM A775 specifications meeting Annex A1 for epoxy coating.

EMBEDDED STEEL:

1. Steel plate shall conform to ASTM A36 OR A709-Grade 36 Specifications. Studs shall be C1015, C1017 or C1020 cold drawn steel which conform to ASTM A108 Specifications.
2. Deformed bar anchors shall conform to ASTM A706 specifications. Welding of deformed bar anchors shall conform to AWS D1.4. Welding shall be performed by certified welder.
3. Where galvanizing is not indicated, material shall be plain.

REVISIONS		
DATE	LTR.	DESCRIPTION
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DESIGN BY: HDR | DRAWN BY: HDR | CHECKED BY: AJB

APPROVED:

05-04-2020

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

UNION PACIFIC

BRIDGE STANDARDS

CONCRETE BEAM BRIDGES

PIECE FABRICATION NOTES

FILE OWNER: UPRR | DATE: MAY, 2020

PLAN NO.: 531100 | SHEET: T3

 PLOTTED: 5/4/2020 2:28:13 PM

FILE NAME: pw://HDR_US_National.DI/4195/10152647/531100_Single Track_General Arrangement.dgn

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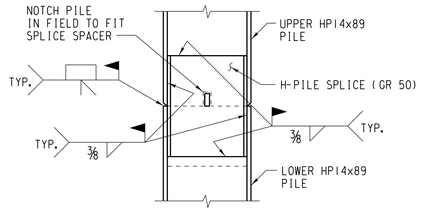


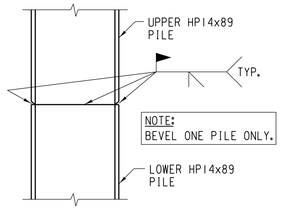
INSTALLATION INSTRUCTIONS:

(NOTE: SPLICE IS SHOWN INSTALLED ON UPPER PILE SECTION FIRST. ALTERNATIVELY, SPLICE MAY BE INSTALLED ON BOTTOM SECTION FIRST.)

1. NOTCH THE END OF H-PILE SECTION TO RECEIVE SPLICE FIRST (NOTCH TO ACCOMMODATE THE SPLICE SPACER BAR).
2. FIT SPLICE OVER NOTCHED END OF H-PILE AND FILLET WELD SPLICE END TO PILE WEB AS SHOWN.
3. PLACE THE UPPER H-PILE SECTION INTO POSITION ONTO THE LOWER SECTION.
4. COMPLETE FILLET WELD ALONG SPLICE EDGES.
5. WELD FLANGE JOINT BETWEEN UPPER AND LOWER PILE SECTIONS.

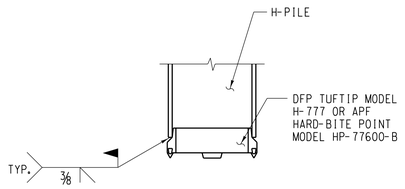
PILE SPLICE DETAIL

SCALE: 1"=1'-0"



ALTERNATE PILE SPLICE DETAIL

SCALE: 1"=1'-0"

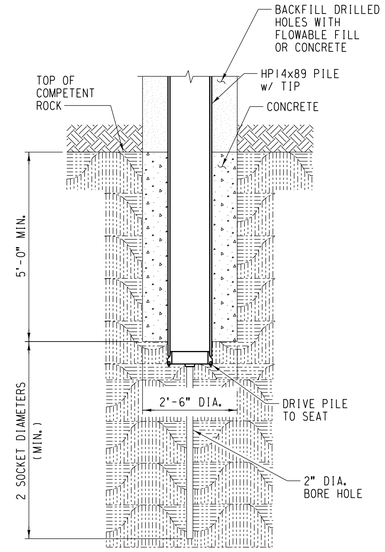


TIP REINFORCEMENT INSTALLATION INSTRUCTIONS:

1. FIT POINT ONTO SQUARE CUT PILE.
2. WELD POINT TO THE PILE IN EITHER FLAT OR VERTICAL POSITION.
3. FILL THE AREA ACROSS BOTH FLANGES WITH WELD.

PILE TIP DETAIL

SCALE: 1"=1'-0"



PILE SOCKET DETAIL

SCALE: ½"=1'-0"

EST. VOLUME OF CONCRETE = 0.9 CU.YD. PER 5' SOCKET DEPTH

PILE SOCKET NOTES:

1. SEE BENT DESIGN NOTES TO DETERMINE WHEN PILE SOCKETING IS REQUIRED.
2. PILING SHALL BE SEATED IN PREDRILLED HOLES IN THE ROCK AND ENCASED IN CONCRETE WITHIN THE BEDROCK (SEE DETAIL).
3. MINIMUM DEPTH OF PILE SOCKET SHALL BE 5'-0" INTO COMPENTENT ROCK.
4. PILING WITH TIP REINFORCEMENT SHALL BE PLACED INTO ROCK SOCKET AND DRIVEN TO ACHIEVE REQUIRED CAPACITY.
5. SEATED PILE SHALL BE ENCASED IN ROCK SOCKET WITH CONCRETE.
6. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4000 LB. PER SQUARE INCH AT 28 DAYS.
7. BORE 2" DIA. HOLE IN CENTER OF PILE SEAT TO A MINIMUM DEPTH OF 2 SOCKET DIAMETERS.

GENERAL NOTES:

Longitudinal bracing between bents required in selected bays on bridges longer than 200 ft and some bridges not composed entirely of concrete spans. See Sheets H5 & H6.

Pile capacities:
For required driven pile capacities, see "Maximum Pile Load" table.

Steel:
Piles - ASTM A572, GR. 50
Pile splices - ASTM A572 Gr. 50
Bracing - ASTM A572

Coating Notes:
Where specified, coal tar coating shall be applied to the external face of piles in accordance with the following guidelines:

Surface Preparation	SSPC-SP6/NACE 3
Coating	2 Coats @ 8 Mils For A Total 16 Mil DFT
Masking	3" Mask On Each End
Material Specification	Corp of Engineers Formula C-200a & SSPC Paint 16

Welding:
Use shielded metal arc welding (SMAW) or flux core arc welding (FCAW) process per AWS D1.5. Acceptable welding electrodes shall be E7018 for SMAW or E71T-7 for FCAW. For other acceptable electrodes, refer to AWS D1.5.

Splices:
Splices shall be made a sufficient distance above the ground or water (not less than one foot) so that the splice can be observed during driving. The number of splices shall be kept to a minimum. Splicing cut-offs or short pieces to make a main bearing pile is not permitted. The pile shall be driven so that the upper splice is at least 10 feet below the ground surface.

Tip reinforcement:
Pile tip reinforcement shall be used where piles may be damaged by driving through heavy gravel, cobbles, boulders or formations known to contain obstructions. Tip reinforcement shall also be used when the pile will bear on rock.

Driving tolerances:
Variations greater than ¼ inch per foot from vertical or batter line shall not be allowed. The deviation of the top of piles in a bent shall not exceed one inch from the plan location. Rotation of pile about its centerline shall not exceed 5 degrees from its orientation as shown in plans. Piles not meeting tolerance requirements or out of line as to impair usefulness, or piles that are damaged in driving as to impair structural capacity, shall be pulled and redriven or an additional pile shall be driven to provide added support. If any numbered pile cannot be driven to their capacity, notify the UPRR Office of Structures Design.

BENT DESIGN NOTES:

Selection of pile configuration and maximum heights based on equilibrium superelevation (regardless of actual superelevation installed). Refer to UPRR Track Standards Book, Std. Dwg. 0020 latest revision.

Standard design is valid for minimum pile penetration of 10' if geotechnical investigation demonstrates that piles can be firmly seated in hard rock or shale; otherwise minimum pile penetration of 25' required. If these values cannot be achieved, piles shall be socketed into rock per detail on this sheet. For any other conditions, special design is required.

For span lengths less than 28', use values shown for 28' spans.

Bent shall be driven per requirements of longer span length supported. For example, for a bent supporting 28' and 34' spans, drive per 34' span requirements.

Maximum track offset (from bridge centerline) is 6" with this bent standard.

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DATE	LTR.	DESCRIPTION	APPROVED:		
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05-04-2020
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

UNION PACIFIC

BRIDGE STANDARDS

CONCRETE BEAM BRIDGES

H-PILE FOUNDATIONS PILE INSTALLATION NOTES AND DETAILS

FILE OWNER: UPRR	DATE: MAY. 2020
PLAN NO.: 531110	SHEET: H1

PLOTTED: 5/4/2020 2:30:16 PM

FILE NAME: pw://HDR.US.National.01/4195/10153247/531110.Single Track.H Pile Substructure.dgn

INCHES 1 2 3 4 5 6 7 8 9 10 11 12