STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	1	366

PROJ. NO. 135–87 KA–6517–01
FED PROJ. NO. ACNHP–A651(701)

Project 135-87 KA 6517-01 is tied to Project 135-87 KA 6962-01.

GRADING & SURFACING (CONCRETE)
BRIDGE
SEEDING
SIGNING & PAVEMENT MARKING

STATE OF KANSAS

DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED

STATE HIGHWAY

FEDERAL AID PROJECT
SEDGWICK COUNTY
SOUTHBOUND I–135 TO EASTBOUND US–54 RAMP

INDEX OF VOLUMES

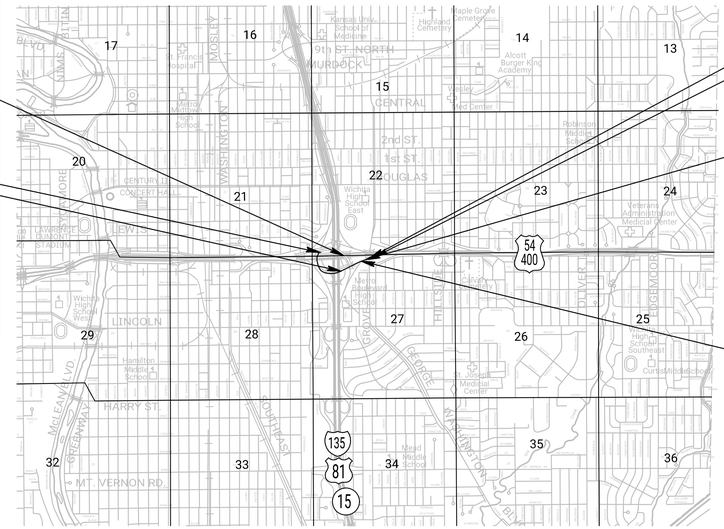
VOLUME 1 - ROADWAY, DRAINAGE, BRIDGES, QUANTITIES, EROSION CONTROL, SEEDING
VOLUME 2 - PAVEMENT MARKING, SIGNING, CONSTRUCTION SEQUENCE, TRAFFIC CONTROL, CROSS SECTIONS

SEE SHEET NO. 3 FOR INDEX OF SHEETS

Sta. 220+59.56 NO WORK
Ramp NB135-WB54
Br. No. 135-87-5.98 (299)
UNIT No. 1: 44'-72'-24'
UNIT No. 2: 75'-99'-99'-75'
UNIT No. 3: 24'-101'-119'-119'-114'-24'
UNIT No. 4: 100'-124'-124'-100'
UNIT No. 5: 24'-114'-85'
Continuous Welded Plate Girder Spans (SWGC)
24'-0" Roadway, R=818.51' Curve Lt.

Sta. 1149+25.00 BEGIN
Proj. 135-87 KA 6517-01=
Sta. 1149+25.00
Proj. (I)35W-87 K-7332-01

℄ Ramp SB135-EB54 Sta. 1162+99.35
Br. No. 135-87-5.81 (894)
Unit No. 1: 90'-120'-120'
Unit No. 2: 86'-108'-100'
Unit No. 3: 74'-100'-100'-76'
Continuous Composite Curved Welded Weathering Steel Plate Girder Spans (WWCC)
36'-0" Roadway, R=585' Curve Lt., Skew Varies Lt.



Sta. 1176+25.00 Ramp SB135-EB54
Br. No. 54-87-217.33 (302)
39.25'-51.23'-51.23'-39.25' Continuous Reinf. Conc. Slab Spans (RCSH)
36'-0" Roadway, 24°20'17" Skew Rt.
Deck Patching, Multi-Layer Polymer Overlay

Sta. 1177+11.49 END
Project 135-87 KA 6517-01=
Sta. 1513+60.10 12' Lt.
Proj. (I)35W-87 K-7332-01

Sta. 1175+27.94 SECOND BEGIN
Project 135-87 KA 6517-01=
Sta. 1511+71.40 12' Lt.
Proj. (I)35W-87 K-7332-01

Sta. 1171+57.46 FIRST END
Proj. 135-87 KA 6517-01=
Sta. 1170+01.75
Proj. (I)35W-87 K-7332-01

SCALE
½ Mile 0 ½ Mile 1 Mile

T 27 S
T 28 S
R 1 E
R 2 E

NOTE:
Traffic to be carried through stage construction. See Sh. No. 196 for construction sequence details.

DESIGN DESIGNATION

AADT (2024) = 10,900
AADT (2044) = 14,900
DHV = 10%
T = 4.2%
V = 50 MPH/40 MPH
C of A = FULL
CLEAR ZONE = 22' (50 MPH); 16' (40 MPH)

CONVENTIONAL SIGNS

COUNTY LINE		CENTER LINE OF PROJECT	50 /
CITY LIMITS		TERRACE	
STATE OR NATIONAL LINE		CULVERTS	
TOWNSHIP, SECTION or GRANT LINE		DROP INLET & STORM SEWER	
PROPERTY LINE	℄	ACCESS CONTROL	
HIGHWAY FENCE		POWER POLE	
EXISTING FENCE		TELEPHONE POLE	
GUARDRAIL		MARSH	
CONSTRUCTION LIMITS		HEDGE	
RIGHT OF WAY LINE		TREES	
TRAVELED WAY		PROFILE ELEVATION	1172.18
RAILROADS		STREAM or CREEK	

GROSS LENGTH OF PROJECT	2786.49 FT. (Includes Equations)
EXCEPTIONS	370.48

NET LENGTH OF PROJECT	2416.01 FT.	0.46 MILES
NET LENGTH OF BRIDGES	977.00 FT.	0.19 MILES
NET LENGTH OF ROAD	1439.01 FT.	0.27 MILES

PLANS PREPARED BY :
WSP

Approved: Aug 19, 2025
Date

State Transportation Engineer

By:
Chief, Bureau of Road Design

KANSAS DEPARTMENT OF TRANSPORTATION

KDOT Graphics Certified 08-11-2025

KDOT Graphics Certified

BY	DATE
SURVEY: BARTLETT & WEST. INC.	10/2022
CADD TECHNICIAN: G. BAKER, M HAYES - WSP	10/2023
DESIGNERS: A. HAMADA (BRIDGE), J. BORCHERS (ROAD) - WSP	10/2023
SQUAD: B. ROGNLIE (BRIDGE), J. SIMS (ROAD) - KDOT	

Plot Location:
Plotted By: usmh708425
File: ka651701rti01.dgn
Plot Date: 15-AUG-2025 12:39

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	2	366

Original ABDEL HAMADA LICENSED 14148 08/18/2025 KANSAS PROFESSIONAL ENGINEER Name: Abdel Hamada Co. Name: WSP USA, Inc. Plan Section: 1 - 2, 21 - 24, 54 - 133	Original JACOB M. BORCHERS LICENSED 20327 8/18/25 KANSAS PROFESSIONAL ENGINEER Name: Jacob M. Borchers Co. Name: WSP USA, Inc. Plan Section: 3 - 20, 25 - 53, 134 - 154, 341 - 366	Original DAVID A. CHURCH LICENSED 14034 08/18/25 KANSAS PROFESSIONAL ENGINEER Name: David Church Co. Name: WSP USA, Inc. Plan Section: 155 - 186	Original KAREN M.S. PETERSON LICENSED 17957 KANSAS PROFESSIONAL ENGINEER Aug 14, 2025 Name: Karen Peterson Co. Name: KDOT Plan Section: 187 - 195	Original LAWRENCE M. OQUENDO LICENSED 21722 8-18-2025 KANSAS PROFESSIONAL ENGINEER Name: Lawrence Oquendo Co. Name: WSP USA, Inc. Plan Section: 196 - 340			

NO.	DATE	REVISIONS	BY	APP'D
01	01-24-18	Initial Release	A.L.R.	S.W.K.

KANSAS DEPARTMENT OF TRANSPORTATION

Signature Seal Sheet

RD048

FHWA APPROVAL		APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 08-13-2025 Sh. No. 2

KDOT Graphics Certified

Plotted by : Bernhardt 13-AUG-2025 15:58
File : ka651701rss048.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	3	366

VOLUME 1

1	Title Sheet
2	Signature Seal
3	Index
4 - 5	Typical Sections
6	Foundation Treatment & Compaction of Earthwork
7	Salvaged Topsoil
8	General Notes
9 - 13	Plan & Profile
14 - 15	Horizontal Control
16 - 18	Paving Details
19 - 26	Pavement Details
27	Inlet Details
28	Ditch Lining
29 - 38	Guardrail
39 - 40	Superelevation
41 - 45	Concrete Safety Barrier
46 - 51	End Sections
52	Pipe Culvert Summary
53	Drainage Data Sheet
54 - 126	Bridge No. 135-87-5.81 (894)
127 - 130	Bridge No. 54-87-217.33 (302)
131	Bridge Excavation
132	Standard Pile Details
133	Supports and Spacers for Reinforcing Steel
134	Summary of Quantities
135	Project Surfacing
136 - 151	Temporary Erosion and Pollution Control
152	Seeding

VOLUME 2

153	Title Sheet
154	Index
155 - 163	Pavement Marking
164 - 195	Signing
196	Construction Sequence
197 - 337	Traffic Control
338 - 339	Concrete Safety Barrier (Temporary)
340	Inertial Barrier
341	Drainage Map
342 - 361	Ramp Cross Sections
362 - 366	I-135 Cross Sections

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:39
File : ka651701ris01.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

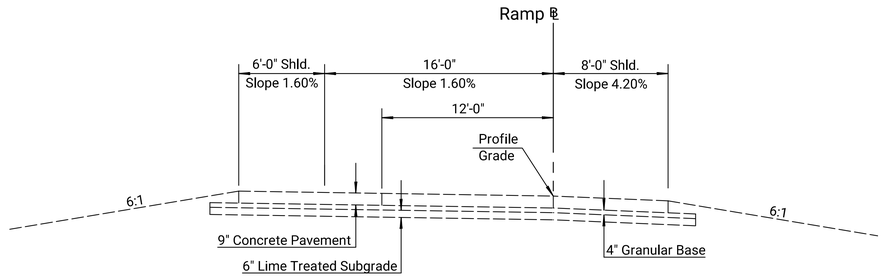
VOLUME 1

INDEX OF SHEETS

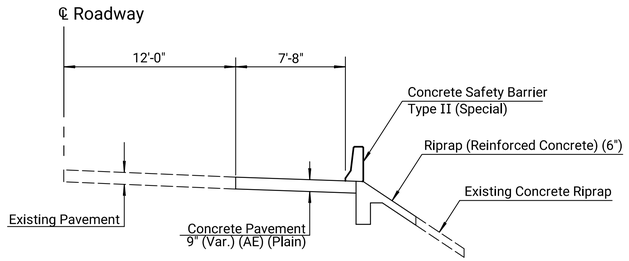
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KDOT Graphics Certified

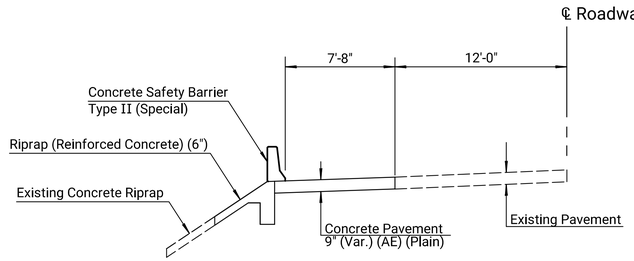
STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	4	366



EXISTING TYPICAL SECTION



SOUTHBOUND I-135
TYPICAL SECTION



NORTHBOUND I-135
TYPICAL SECTION

DATE			
BY			
REFERENCES NOTED			
REFERENCES CHECKED			

Plotted by : usmh708425 15-AUG-2025 12:40
File : ka651701rts02.dgn

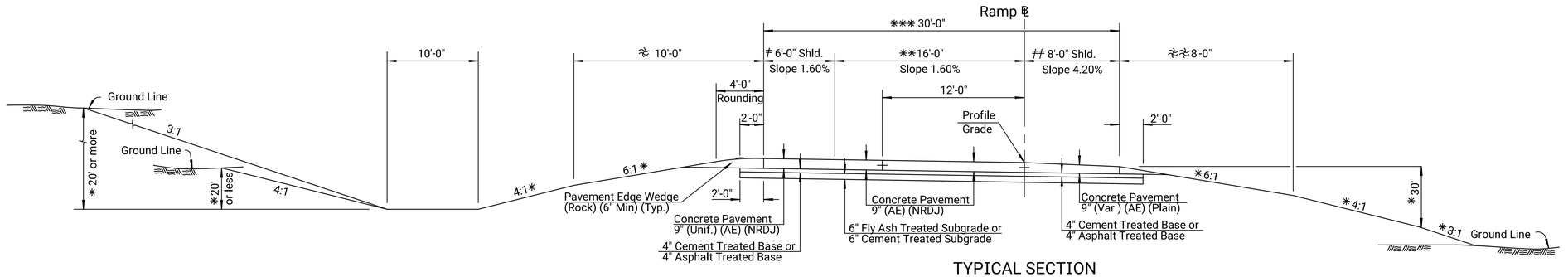
KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION

KDOT Graphics Certified 12-28-2023 Sh. No. 4

KDOT Graphics Certified

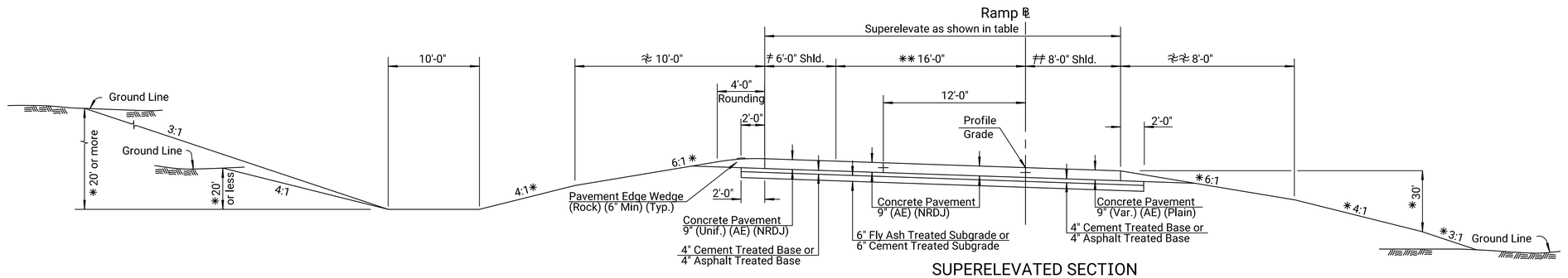
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	5	366



CUT SECTION

TYPICAL SECTION

FILL SECTION



CUT SECTION

SUPERELEVATED SECTION

FILL SECTION

✱ Dimensions and slopes for standard ditches and fills. See plan and cross-sections for variations.

Note: Intersection of all slope lines shall be softened and rounded for pleasing appearance.

≠ 12'-0" from Sta. 1156+60.52 to Sta 1167+36.49
≠ 12'-0" to 6'-0" from Sta. 1167+36.49 to Sta. 1167+89.49
≠ 6'-0" to 8'-0" from Sta. 1170+50 to Sta. 1171+57.46

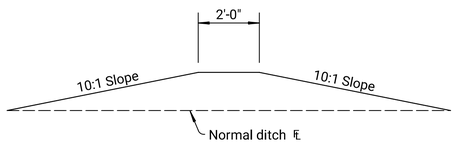
≠≠ 8'-0" to 12'-0" from Sta. 1169+20.61 to Sta 1170+08.87
≠≠ 12'-0" from Sta. 1170+08.87 to Sta. 1171+57.46

✱✱16'-0" to 12'-0" from Sta. 1170+50 to Sta. 1171+57.46

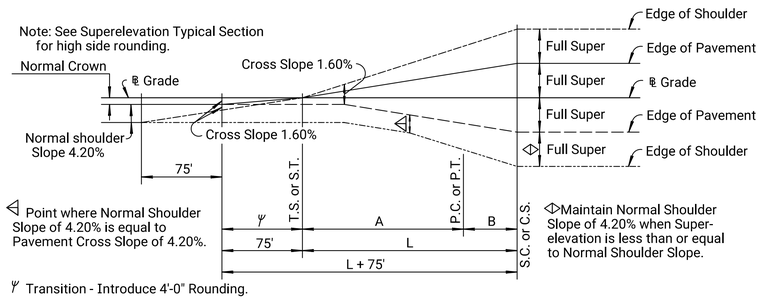
≈ 4'-0" from Sta. 1156+60.52 to Sta 1167+36.49
≈ 4'-0" to 10'-0" from Sta. 1167+36.49 to Sta. 1167+86.49
≈ 10'-0" to 8'-0" from Sta. 1170+50 to Sta. 1171+.57.46

≈≈ 8'-0" to 4'-0" from Sta. 1169+20.61 to Sta 1170+08.87
≈≈ 4'-0" from Sta. 1170+08.87 to Sta. 1171+57.46

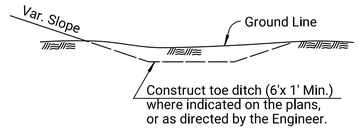
✱✱✱36'-0" from Sta. 1156+60.52 to Sta 1167+36.49
✱✱✱36'-0" to 30'-0" from Sta. 1167+36.49 to Sta. 1167+86.49
✱✱✱30'-0" to 34'-0" from St. 1169+20.61 to Sta. 1170+08.87
✱✱✱34'-0" from Sta. 1170+08.87 to Sta. 1171+57.46
✱✱✱34'-0" to 32'-0" from Sta. 1170+50 to Sta. 1171+57.46



SKETCH OF DITCH PLUG



PROFILE SHOWING METHOD OF ATTAINING



Sta. P.I. Curve	Radius	Design Speed	Super %	Transition - (Lin.Ft.)		
				L	A	B
1171+85.72	580	40	7.8%	220	165	55
					154	66
1168+76.02	970	40	6.0%	170	119	51
					128	42

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:41
File : ka651701rts01.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

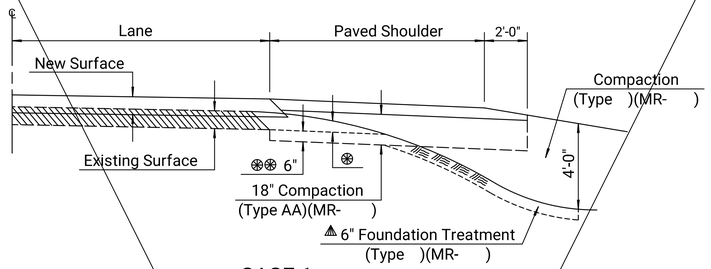
TYPICAL SECTION

KDOT Graphics Certified 05-29-2025 Sh. No. 5

KDOT Graphics Certified

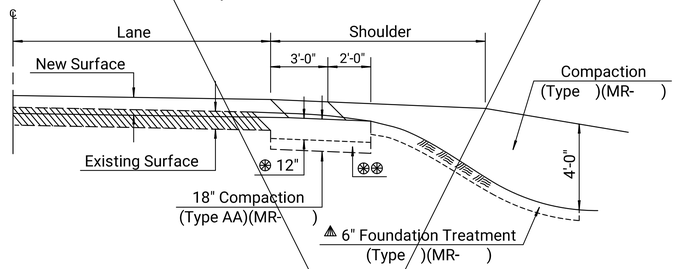
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	6	366

REHABILITATION



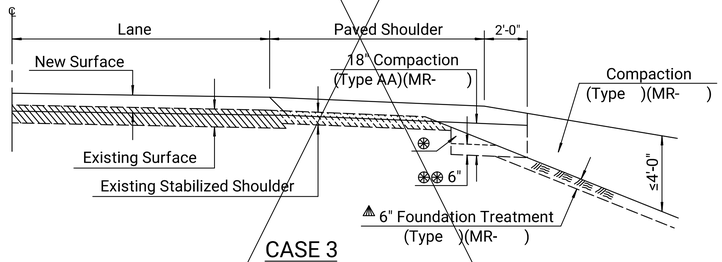
CASE 1

Overlay with Paved Shoulder



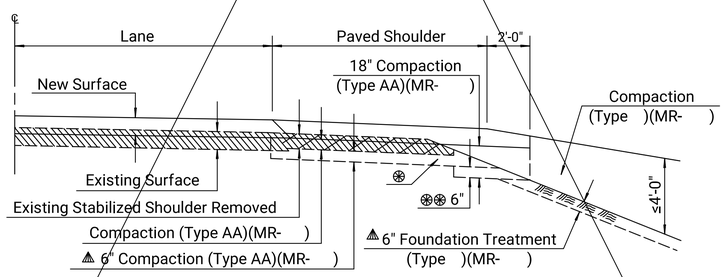
CASE 2

Overlay with Composite Shoulder



CASE 3

Overlay with Existing Paved Shoulder



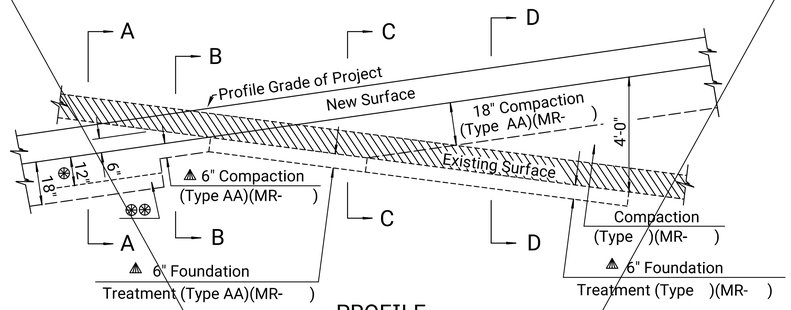
CASE 4

Overlay with Shoulder Replacement

⊛ Excavation thru Cuts not Subgraded
⊛⊛ The lower 6" of Compaction is subsidiary.
⚠ Compaction of this material shall be subsidiary.

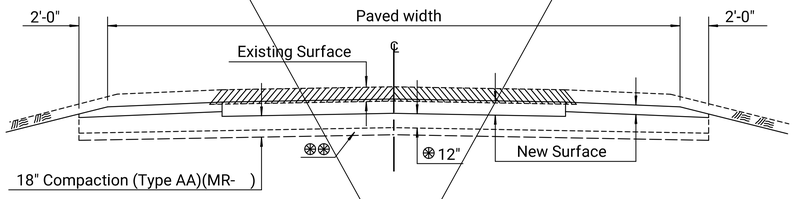
Note: These are 4 general cases. Specific compaction requirements are determined on a project-by-project basis.

RECONSTRUCTION

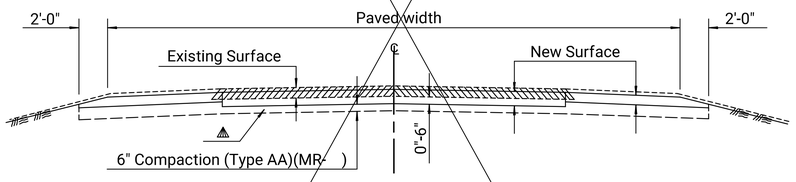


PROFILE

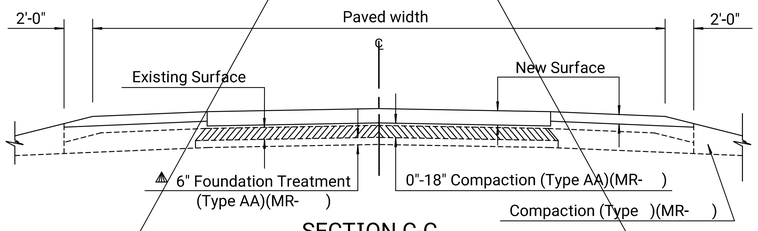
⊛ Excavation thru Cuts not Subgraded
⊛⊛ The lower 6" of Compaction is subsidiary.
⚠ Compaction of this material shall be subsidiary.



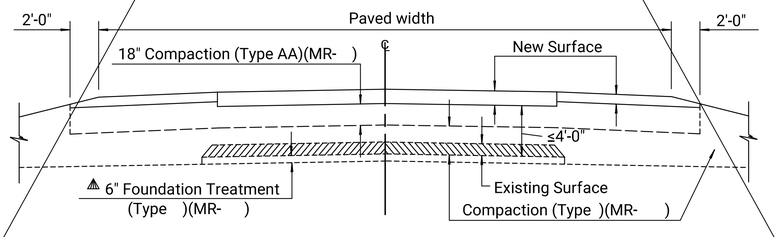
SECTION A-A



SECTION B-B

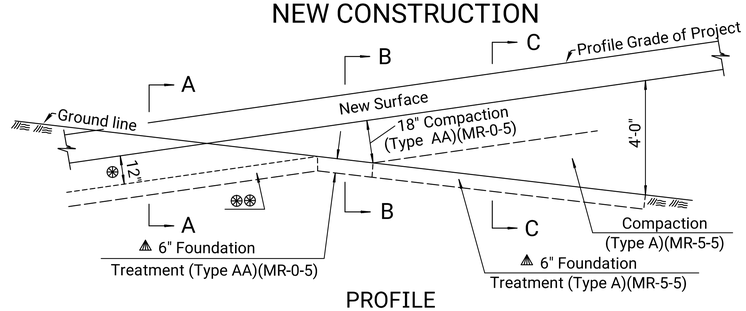


SECTION C-C



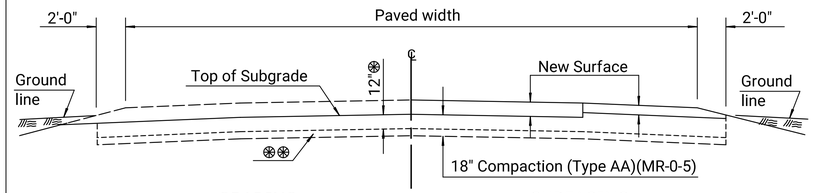
SECTION D-D

NEW CONSTRUCTION

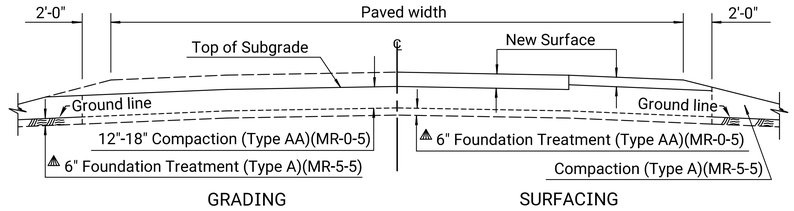


PROFILE

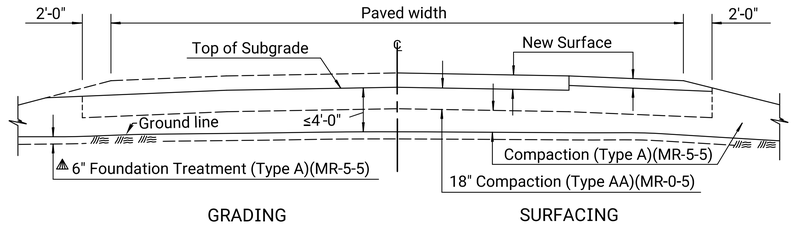
⊛ Excavation thru Cuts not Subgraded
⊛⊛ The lower 6" of Compaction is subsidiary.
⚠ Compaction of this material shall be subsidiary.



SECTION A-A



SECTION B-B



SECTION C-C

General Note

~~For materials designated to be subgraded,compaction of soils, including shales, designated for backfill refer to Standard Drawing RD605A for details.~~

Unless otherwise noted on the Plans, compact all embankment, including side roads and entrances.

NO.	DATE	REVISIONS	BY	APP'D
05	10-17-11	Revised General Note	S.W.K.	J.O.B.
04	01-05-10	Added additional subsidiary comp.	S.W.K.	J.O.B.
03	02-16-05	Redrawn, Rev. Recon. Sec. C-C & D-D	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

FOUNDATION TREATMENT & COMPACTION OF EARTHWORK

RD605

FHWA APPROVAL		12-05-11	APP'D.	James O. Brewer
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 07-31-2025 Sh. No. 6

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:41
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	7	366

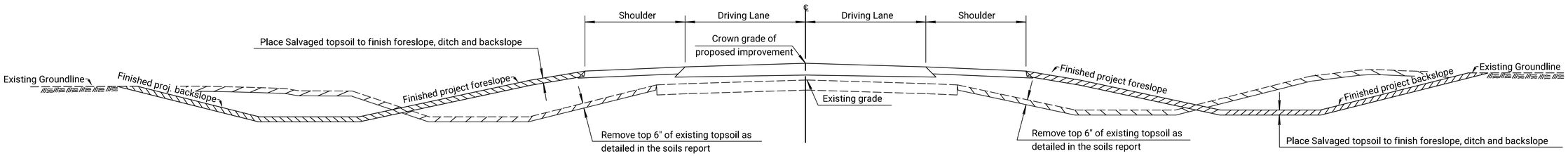
Note to Designer: Acceptable Topsoil locations on a project will be detailed in the Soils Report. The locations will be used in conjunction with the plans to measure a horizontal area in Sq. Yds of "Salvaged Topsoil" within the R/W limits.

GENERAL NOTE

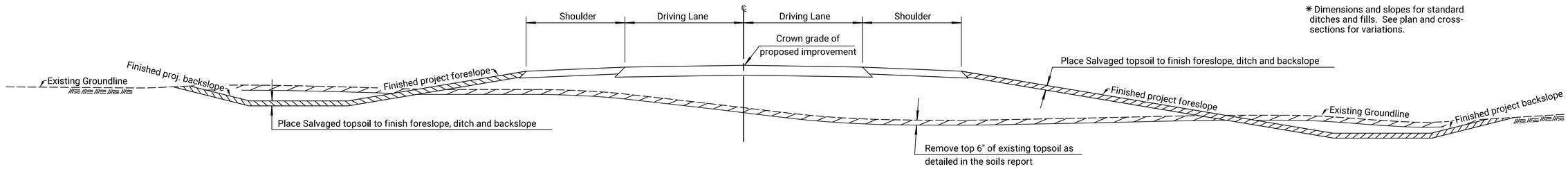
Adjust the cut and fill sections to accommodate the placement of the salvaged topsoil such that after placement the cross section will be at the final grade as shown on the plans.

Salvaging, Stockpiling and Placing Topsoil bid as "Salvaged Topsoil" in Square Yards. See KDOT Standard Specifications for details.

Soften and round the intersection of all slope lines for pleasing appearance.



RECONSTRUCTION/REHABILITATION OF EXISTING ROADWAY
(Removal and Placement of Salvaged Topsoil)



✳ Dimensions and slopes for standard ditches and fills. See plan and cross-sections for variations.

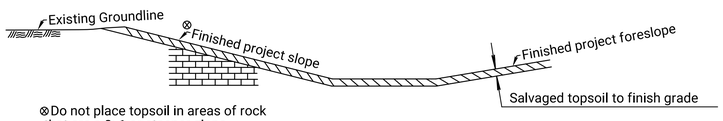
LEGEND

Topsoil to be Salvaged

Placement of Salvaged Topsoil

NEW ROADWAY ALIGNMENT
(Removal and Placement of Salvaged Topsoil)

Note: Method of showing backslope thru shallow rock or shale cuts at locations where rock protrudes a short height above the bottom of the ditch.



⊗Do not place topsoil in areas of rock that are a 3: 1 or steeper slope.

CUT SECTION

NO.	DATE	REVISIONS	BY	APP'D
01	12-16-09	Initial Release	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SALVAGED TOPSOIL

RD599A

FHWA APPROVAL		APP'D.	James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED	B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	S.W.K.

KDOT Graphics Certified 05-10-2022 Sh. No. 7

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:41
File : ka651701rss599a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	8	366

GENERAL NOTE

THE GEOLOGICAL INFORMATION SHOWN ON THESE PLANS IS FROM STUDIES MADE IN THE FIELD AND REPRESENTS THE BEST INFORMATION AVAILABLE TO THE KANSAS DEPARTMENT OF TRANSPORTATION.

SOIL FOR EMBANKMENT: ALL SOIL USED IN THE TOP 18 INCHES OF THE EMBANKMENT SHOULD CONFORM TO THE FOLLOWING REQUIREMENTS: 8 < PI < 30 AND 20 < LL < 50. SOILS WHICH CONTAIN SUBSTANTIAL ORGANIC MATTER, SUCH AS THOSE CLASSIFIED AS OL OR OH ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487) SHOULD NOT BE USED TO CONSTRUCT THE EMBANKMENT OR SUBGRADE, THE ORGANIC MATERIAL MAY BE USED AS SELECT SOIL TO CAP THE SIDESLOPES OF THE EMBANKMENT.

A GROSS VMF OF 0.79 WAS USED TO COMPUTE EARTHWORK QUANTITIES FOR THIS PROJECT. EMBANKMENT QUANTITIES FOR INITIAL CONSOLIDATION AND SETTLEMENT SHOWN IN THE EARTHWORK QUANTITIES ARE SUBSIDIARY TO OTHER EARTHWORK ITEMS. MATERIAL FOR THE EMBANKMENT IS INCLUDED IN THE EXCAVATION QUANTITIES.

ALL BORROW AREA LOCATIONS ADJACENT TO THE RIGHT-OF-WAY, UTILITY POLES MAY BE SET AT THE PERMANENT LOCATIONS PRIOR TO CONSTRUCTION AS APPROVED BY THE ENGINEER PROVIDED A MINIMUM VERTICAL CLEARANCE, IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, IS OBTAINED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND THESE POLES TO COMPLETE THE WORK.

ALL BORROW TO BE OBTAINED FROM AREAS PROVIDED BY THE CONTRACTOR SHALL BE APPROVED BY THE ENGINEER, BOTH AS TO SUITABILITY OF MATERIAL AND SITE LOCATION. LOCATIONS WHICH, IN THE OPINION OF THE ENGINEER, CONTAIN UNSUITABLE MATERIAL OR WILL LEAVE AN UNSIGHTLY APPEARANCE ON THE PROJECT WILL NOT BE APPROVED.

ALL BORROW/WASTE LOCATIONS SHALL BE SUBMITTED FOR CLEARANCE FROM THE KANSAS HISTORICAL SOCIETY AND THE KANSAS DEPARTMENT OF WILDLIFE AND PARKS PRIOR TO ANY EXCAVATION OR WASTING OF MATERIAL. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS AND OTHER CLEARANCES THAT ARE REQUIRED.

EXCAVATION SHOWN TO BE WASTED SHALL BE WASTED ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED.

ALL TREES, HEDGE ROWS, SHELTER BELTS, AND WOODY SHRUBS NOT SHOWN TO BE REMOVED AND LOCATED BETWEEN THE CONSTRUCTION LIMITS AND THE RIGHT-OF-WAY LINE OR EASEMENT LINE SHALL BE SPARED UNLESS DIRECTED BY THE ENGINEER TO BE REMOVED. ALL TREES WITHIN THE APPROPRIATE CLEAR ZONE SHALL BE REMOVED.

INFORMATION SHOWN IN THE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGES THERETO. ALL KDOT OWNED UTILITIES ARE TO BE LOCATED BY THE CONTRACTOR.

EXISTING GUARDRAILS FOR REMOVAL WILL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE PROJECT SITE.

EXISTING SIGNS FOR REMOVAL BY THE CONTRACTOR WILL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE PROJECT SITE.

DRAINAGE STRUCTURES WHICH ARE TO REMAIN, WHETHER EXTENDED OR NOT, WILL BE CLEANED OUT BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE BID ITEM "CLEANING OF EXISTING STRUCTURES."

ALL SAW CUTS SHALL BE FULL DEPTH OR AS APPROVED BY THE ENGINEER AND SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO OTHER BID ITEMS IN THE CONTRACT.

UTILITIES

Fiber Optic
CenturyLink
266 N. Main St. Suite 125
Wichita, KS 67202
Attn: Mike Stephens
mike.stephens@centurylink.com
relocations@lumen.com
Ph: 316-858-6146

Fiber Optic
KDOT Wichita Fiber
Metro Utility Coordinator
Attn: Nate Stahly
Ph: 316-744-1271

Gas
Black Hill Energy
2330 N. Hoover Rd.
Wichita, KS 67205
Attn: Chris Kelley
chris.kelley@blackhillscorp.com
Ph: 316-554-6300

Gas
Kansas Gas Service
1021 E. 26th St. N.
Wichita, KS 67219
Attn: Jordan Robl
jordan.robl@onegas.com
Ph: 316-832-3122

Water
City of Wichita
455 N. Main St. 8th Floor
Wichita, KS 67202
Attn: Kevin Yale
Ph: 316-268-4498

Storm Sewer
City of Wichita
455 N. Main St. 8th Floor
Wichita, KS 67202
Attn: Kevin Yale
Ph: 316-268-4498

Sanitary Sewer
City of Wichita
455 N. Main St. 8th Floor
Wichita, KS 67202
Attn: Kevin Yale
Ph: 316-268-4498

Telephone
AT&T
154 N. Broadway, Room 210
Wichita, KS 67202
Attn: Jason Edwards
je1682@att.com
Ph: 316-268-2008

Power
Evergy
1900 E. Central
Wichita, KS 67214
Attn: Shane Price
shane.price@evergy.com
Ph: 316-261-6315

Cable
Cox Communication
901 George Washington Blvd.
Wichita, KS 67211
Attn: Matt Bortz
matt.bortz@cox.com
Ph: 620-272-2081

SCALE

PLAN: Lat. & Long. 50' 0 50' 100'

PROFILE: Horiz. same as above

Vert. 5' 0

PROJECT SURVEY CONTROL

Hor. Datum: KRCS Zone 17 Wichita
NAD83 (2011)

Vert. Datum: North American Vertical Datum 1988 (NAVD88)

Datum Bench Mark: NGS Monument A-237 PID #HF0487 (1934)
NGS Monument E-349" PID #HF0551 (1972)

NO.	DATE	REVISIONS	BY	APP'D
01	06-06-23	Initial Release	A.L.R.	D.D.T.

KANSAS DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

RD040

FHWA APPROVAL		APP'D.	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-03-2025 Sh. No. 8

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:42
File : ka651701RD040.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	9	366

DATE	BY	
9/2023	A. MEALIFF	REFERENCES NOTED
9/2023	T. VOTH	REFERENCES CHECKED

Scale 1"=50'

Sta. 1149+25.00 BEGIN
Proj. 135-87 KA-6517-01

Sta. 1149+25.00
N 368,256.066
E 17,553,597.057

Sec. 22, T27S, R1E

Sec. 27, T27S, R1E

PI Sta. 1172+93.90 (Bk.) = 1141+10.67 (Ahd.)
Δ = 152°15'24" (LT) L = 1554.57'
R = 585.00' E = 1855.07'
T = 2368.90'
Super = 7.6%

℄ Survey Sta. 1160+49.63 REMOVE
Exist. Br. No. 35W-87-14.35
77'-122'-122'-65'-86'-113'-3@98'-65'
Continuous Reinforced Concrete
Box Girder Spans
30'-0" Roadway, R=477.46'

CAUTION!!
Existing 8' x 5' RCB Storm Sewer
with R.C. Headwall and Flapgate
(DO NOT DISTURB)

℄ Prop. Imp. Sta. 1148+31.95 =
℄ 135N-54W Sta. 227+52.75 =
Survey ℄ Sta. 1148+31.95

NW. Cor. Sec. 27, T27S, R1E
℄ Prop. Imp.
℄ Sta. 1150+60.04
14.07' Rt.
(Tan.)
Prop. Imp. ℄
℄ To Tan.
66°19'16"
℄ Sta. 1150+60.04
13.40' Rt.
℄ to Tan.

S23°01'17"W

PC 1149+25.00

℄ 135N-54W

WESTBOUND US-54/400

℄ US-54/400

EASTBOUND US-54/400

℄ Prop. Imp. Sta. 1150+83.06 =
℄ US-54/400 Sta. 493+20.94

Sec. Line

Const. Limits

Survey ℄

Misc. Util

Wichita Drainage Canal
(Chisholm Creek)

℄ I-135

NORTHBOUND I-135

SOUTHBOUND I-135

℄ Prop. Imp. Sta. 1161+88.59 =
℄ I-135 Sta. 109+87.35

℄ Prop. Imp. Sta. 1162+06.17 Construct
Br. No. 135-87-5.81 (894)
Unit No. 1: 90'-120'-120'
Unit No. 2: 86'-108'-120'
Unit No. 3: 74'-100'-100'-76'
Continuous Composite Curved Welded
Weathering Steel Plate Girder Spans (WWCC)
36'-0"Roadway, R=585', 10°26'51" Skew Varies Lt.
See Sh. No.'s 54 - 126

135S-54E

℄ Prop. Imp.=PGL

Sta. 1156+84.95 Const.
Flume Inlet (Concrete) and
60.5' Slope Drain (Stone) Rt.
See Sh. No. 27

54W-135S

Sta. 1153+00.00 Const.
24" x 74' CRP (RCP)
with End Sections
See Sh. No's. 47, 50 - 53, 134

Sta. 1156+97.76, 8.00' Rt. End
Concrete Safety Barrier Type II
See Sh. No's. 41 - 45

Sta. 1156+75.81, 8.00' Rt. Begin
Concrete Safety Barrier Type II
See Sh. No's. 41 - 45

E ¼ Cor. Sec. 21, T27S, R1E
N 370,774.433 E 17,552,887.140
1. Found "V" notch in decorative brick crosswalk
2. To Southwest corner of building 29.84' E
3. Set "X" cut on North curb return 29.12' WNW
4. Set "X" cut in Northeast corner of pedestrian signal base 37.07' W
5. Set "X" cut in North curb return 18.32' ENE

NE ¼ Cor. Sec. 27, T27S, R1E
N 368,183.403 E 17,558,204.662
1. Found existing "+" cut
2. Found existing "X" cut 6.56' SE
3. Found existing "X" cut 26.92' NE
4. Found existing and faded "X" cut 31.28' SW
5. Found existing "X" cut 41.70' NW

E ¼ Cor. Sec. 28, T27S, R1E
N 365,484.236 E 17,552,911.700
1. Found existing center of thimble
2. To existing "X" cut in North side concrete for traffic control 69.86' SW
3. To existing "X" cut in South side concrete for traffic signal 55.76' NW
4. To City of Wichita BM disc on traffic signal pole 68.04' NE
5. To existing "X" cut in front face of curb inlet 76.02' SSE

BM #105 "⊡" in the concrete on the South side of an electrical pedestal pad. North of the bridge for Westbound Highway 54/400 and North of the Southbound I-135 to Westbound 54/400 Ramp. South of the wrought iron Right-of-Way fence.
815.02' Lt. ℄ I-135 Sta. 121+21.71 Elev. 1303.69

BM #82 Rivet with KDOT washer in the Southwest Abutment wing of the Northbound I-135 to Westbound Highway 54/400 Bridge.
185.15' Lt. ℄ US 54/400 Sta. 492+59.95 Elev. 1323.31

BM #75 Rivet with KDOT washer in the top of the corral rail at the Southwest corner of the Eastbound Highway 54/400 bridge over I-135
62.04' Rt. ℄ US 54/400 Sta. 492+05.72 Elev. 1323.20

BM #108 "⊡" in the Northwest corner of the West sign pier. Sign is labeled "North I-135 to Salina" and "South I-135 to Oklahoma City"
552.67' Lt. ℄ I-135 Sta. 109+02.98 Elev. 1309.44

UTILITIES

Storm Sewer	City of Wichita
Sanitary Sewer	City of Wichita
Power	Evergy

See Sh. No's. 14 - 15 for alignment information.

KANSAS DEPARTMENT OF TRANSPORTATION

PLAN

STA. 1149+25 TO STA. 1163+00

KDOT Graphics Certified 08-01-2025 Sh. No. 9

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:43
File : ka651701rpl01.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	10	366

Balance No. 1 Sta. 1149+25 to Sta. 1158+00.00

* 3,990 Cu. Yds. Common Excavation (VMF = 0.79)
801 Cu. Yds. Rock Excavation (Existing Pavement to be Wasted) (VMF = 1.00)
9,708 Cu. Yds. Common Excavation (Contractor Furnished) (VMF = 0.79)
** 10,822 Cu. Yds. Embankment

*Includes:
23 Cu. Yds. From I-135

**Includes:
87 Cu. Yds. For I-135

+25 +00 Bridge

+56.08 Westbound US 54/400
+83.06 ℄ US 54/400
+09.83 Eastbound US 54/400
+89.14 54W-135S Ramp
+11.26 Southbound I-135
+88.59 ℄ I-135
+67.86 Northbound I-135

16'-10" Min. Vert. Clr.
16'-4" Min. Vert. Clr.
+00 24' x 74' RCP
21'-2" Min. Vert. Clr.
21'-7" Min. Vert. Clr.
25'-3" Min. Vert. Clr.

Proposed Profile Grade
300' VC
K = 107'
Existing Profile
+0.40%
+3.20%
-1.86% Sp Dit Rt
+3.30% Sp Dit Rt
-0.81% Sp Dit Lt
-0.50% Sp Dit Lt

1297.10 +50.00
1294.31 +00.00
1297.61 +00.00
1294.35 +00.00
1289.49 +00.00
1288.49 +00.00

Pr. Gr. = 1299.94
℄ Lt. = 1292.02
℄ Rt. = 1294.21

℄ Wichita Drainage Canal (Chisolm Creek)
Q500 El. 1288.71
Q100 El. 1287.29
OHW El. 1279.11
Streambed Lt.
Streambed Rt.
Ex. RCB Storm Sewer
Ex. ℄ Out = 1281.88
Ex. ℄ In = 1284.43

+25 No Dt. Lt. +00
10' x Sp. Dt. Lt.
No Dt. Lt.
Exist. Dt. Rt. +50
10' x Sp. Dt. Rt. +50
Var. x Sp. Dt. Rt. +00
'V' Dt. Rt. +05.85
No Dt. Rt.

1297.01 +25 Match Existing
PC 1151+25 EL 1297.81
PI 1152+75 1298.41
PT 1154+25 EL 1303.21
PC 1161+25 EL 1325.61

1297.31 1297.71 1298.37 1299.46 1299.94 1302.44 1305.61 1308.81 1312.01 1315.21 1318.41 1321.61 1324.81 1327.56 1328.76

1350 1340 1330 1320 1310 1300 1290 1280 1270 1260

1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:43
File : ka651701rpr01.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

PROFILE

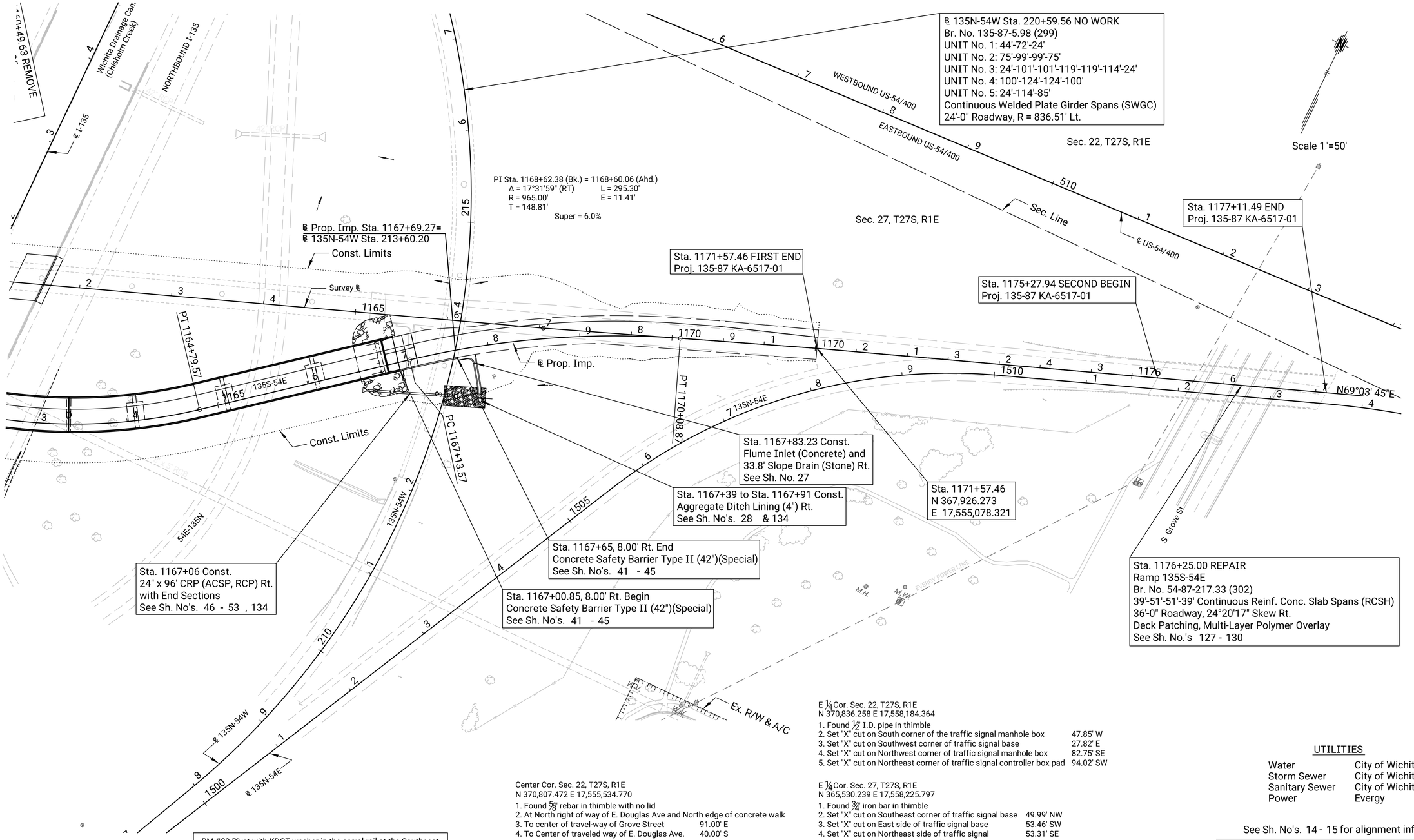
STA. 1149+25 TO STA. 1163+00

KDOT Graphics Certified 07-30-2025 Sh. No. 10

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	11	366

DATE	BY	
9/2023	A. MEALIFF	REFERENCES NOTED
9/2023	T. VOTH	REFERENCES CHECKED



Center Cor. Sec. 22, T27S, R1E
N 370,807.472 E 17,555,534.770
1. Found 5/8" rebar in thimble with no lid
2. At North right of way of E. Douglas Ave and North edge of concrete walk
3. To center of travel-way of Grove Street 91.00' E
4. To Center of traveled way of E. Douglas Ave. 40.00' S
5. To Southeast corner brick building 34.60' W

E ¼ Cor. Sec. 22, T27S, R1E
N 370,836.258 E 17,558,184.364
1. Found ½" I.D. pipe in thimble
2. Set "X" cut on South corner of the traffic signal manhole box 47.85' W
3. Set "X" cut on Southwest corner of traffic signal base 27.82' E
4. Set "X" cut on Northwest corner of traffic signal manhole box 82.75' SE
5. Set "X" cut on Northeast corner of traffic signal controller box pad 94.02' SW

E ¼ Cor. Sec. 27, T27S, R1E
N 365,530.239 E 17,558,225.797
1. Found ¾" iron bar in thimble
2. Set "X" cut on Southeast corner of traffic signal base 49.99' NW
3. Set "X" cut on East side of traffic signal base 53.46' SW
4. Set "X" cut on Northeast side of traffic signal 53.31' SE
5. Set "X" cut on South side of traffic signal base 50.83' NE

UTILITIES

Water	City of Wichita
Storm Sewer	City of Wichita
Sanitary Sewer	City of Wichita
Power	Evergy

See Sh. No's. 14 - 15 for alignment information

BM #111 "□" in the Northeast corner of the West sign pier. Along the ramp off of Northbound I-135 labeled "West 54/400 Kellog" and "East 54/400 Kellog"
347.29' Rt. ℄ I-135 Sta. 106+45.76 Elev. 1310.82

BM #39 Rivet with KDOT washer in the corral rail at the Southeast border of the Eastbound Highway 54/400 bridge over I-135
62.04' Rt. ℄ US 54/400 Sta. 502+78.68 Elev. 1320.43

BM #37 Rivet with KDOT washer in the Southwest abutment wing of the Northbound I-135 to Westbound Highway 54/400 bridge
492.54' Rt. ℄ I-135 Sta. 111+29.89 =
570.89' Rt. ℄ US 54/400 Sta. 504+66.23 Elev. 1337.17

BM #101 "□" on top of the concrete jersey barrier type of railing at the Northeast corner of the Westbound 54/400 to Southbound I-135 bridge
237.90' Rt. ℄ I-135 Sta. 120+83.67 Elev. 1322.49

BM #40 Rivet with KDOT washer in the Southwest abutment wing of the Eastbound 54/400 bridge over Grove Street.
63.27' Rt. ℄ US 54/400 Sta. 511+96.70 Elev. 1314.00

BM #112 "□" on the North side of a light tower pier. South of the gore area for the Northbound I-135 to Eastbound 54/400 ramp just East of the Eastbound 54/400 bridge over Grove St.
1605.58' Rt. ℄ I-135 Sta. 116+45.13 =
108.74' Rt. ℄ US 54/400 Sta. 516+02.34 Elev. 1303.81

KANSAS DEPARTMENT OF TRANSPORTATION

PLAN

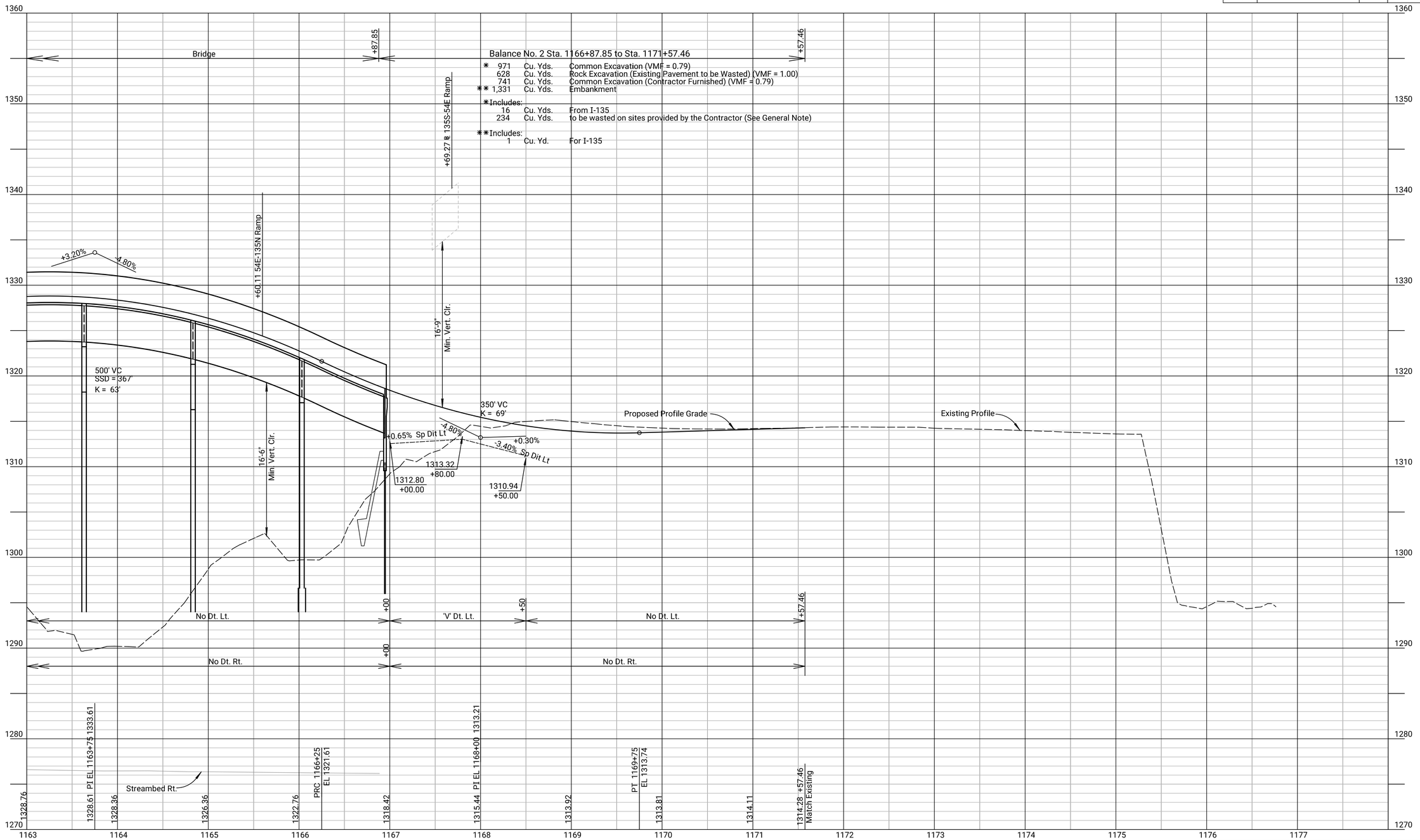
STA. 1163+00 TO STA. 1171+57.46

KDOT Graphics Certified 08-01-2025 Sh. No. 11

Plotted by : usmh708425 15-AUG-2025 15:38
File : ka651701rpl02.dgn

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STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	12	366



DATE
BY
REFERENCES NOTED
REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:45
File : ka6517701rpr02.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

PROFILE

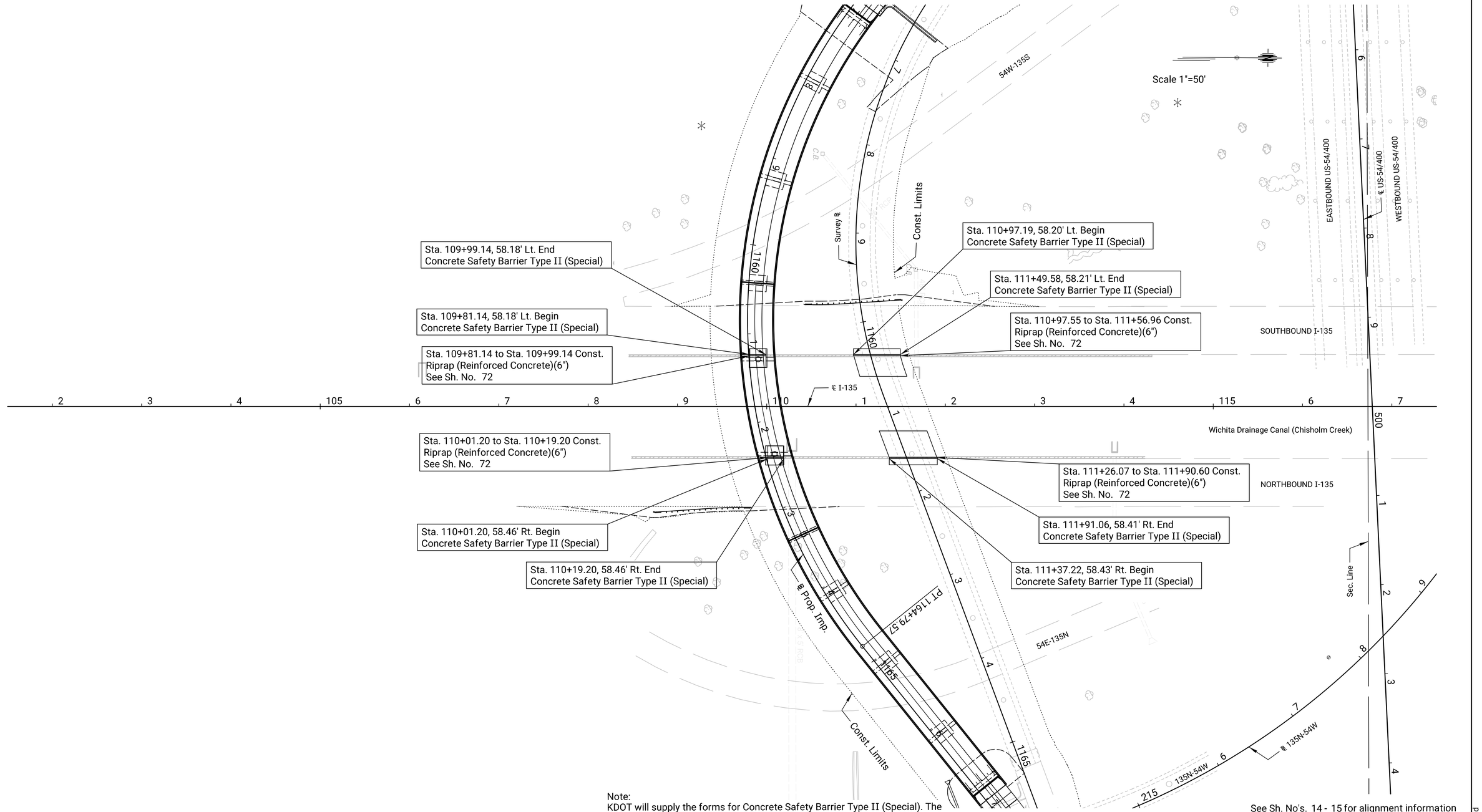
STA. 1163+00 TO STA. 1171+57.46

KDOT Graphics Certified 07-30-2025 Sh. No. 12

KDOT Graphics Certified

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	13	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



Note:
KDOT will supply the forms for Concrete Safety Barrier Type II (Special). The Contractor shall contact Dan Acridge at dan.acridge@ks.gov or 316-217-0362 to coordinate use of the forms.
Barrier shape, reinforcing, and general notes shall generally follow that for Concrete Safety Barrier Type II as shown on Sheet No. 44.
Contractor shall submit shop drawings for approval prior to construction.
All materials and work required for this construction shall be paid for as "Concrete Safety Barrier Type II (Special)".

See Sh. No's. 14 - 15 for alignment information

UTILITIES

Storm Sewer	City of Wichita
Sanitary Sewer	City of Wichita
Power	Evergy

KANSAS DEPARTMENT OF TRANSPORTATION
I-135
PLAN
STA. 102+00 TO STA. 117+00

KDOT Graphics Certified 07-24-2025 Sh. No. 13

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:45
File : ka651701rpl03.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	14	366

P.O.T. ℄ I-135 Sta. 63+72.85
N 362,837.627 E 17,554,278.929
1. Found rivet with KDOT washer in the median of the Harry St. Bridge over Highway I-135
2. Found 'x' cut in median 47.74' W
3. Found 'x' cut in median 25.05' E
4. Found 'x' cut in median 4.85' S.

P.O.T. ℄ I-135 Sta. 90+39.80
N 365,504.470 E 17,554,255.146
1. Found rivet with KDOT washer in the median of the Lincoln St. Bridge over Highway I-135
2. Found 'x' cut in median
3. Found 'x' cut in median
4. Found 'x' cut in median

P.O.T. ℄ I-135 Sta. 94+00.07
N 365,864.727 E 17,554,251.933
1. 127.10' Rt.
2. 25' Rt. Sta. 194+00 135N-54W
3. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 POT 194+00"
4. To the edge of asphalt 3.65' W

P.O.T. ℄ I-135 Sta. 115+04.74
N 367,969.313 E 17,554,233.164
1. 105' Rt.
2. Found 1/2" rebar
3. West end of a 42" RCP under I-135 120.17' SSE
4. East end of a 42" RCP 132.41' SE

P.O.T. ℄ I-135 Sta. 121+00
N 368,564.549 E 17,554,227.855
1. 125' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "125' offset I-135 121+00"
3. Set magnail in shoulder 10.0' SSW
4. Set magnail in shoulder 28.04' SSW

P.O.T. ℄ I-135 Sta. 127+00
N 369,164.525 E 17,554,222.505
1. 130' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "130' offset I-135 127+00"
3. The edge of asphalt 3.28' W
4. Set magnail in shoulder 4.99' WSW

P.O.T. ℄ I-135 Sta. 133+31.28
N 369,795.780 E 17,554,216.875
1. 125' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "125' offset I-135 133+31.28"
3. Corner of the East abutment for Northbound I-135 4.2' WSW
4. Set 'x' cut on the East face of the bridge abutment 5.1' SW

PI Sta. (Bk.) = 1139+77.10
PI Sta. (Ahd.) = 1139+69.59
Δ = 27°27'14" (RT)
D = 07°09'43"
R = 800.00'
T = 195.42'
L = 383.33'
E = 23.52'

PI Sta. (Bk.) = 1146+30.39
PI Sta. (Ahd.) = 1146+29.66
Δ = 08°55'14" (LT)
D = 02°29'28"
R = 2300.00'
T = 179.41'
L = 358.09'
E = 6.99'

PI Sta. (Bk.) = 1160+93.79
PI Sta. (Ahd.) = 1149+24.81
Δ = 133°57'31" (LT)
D = 11°36'40"
R = 493.46'
T = 1161.35'
L = 1153.72'
E = 768.38'

P.O.T. Survey ℄ Sta. 1133+00
N 369,763.649 E 17,554,115.140
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum disk stamped "Ramp K-6 POT 1133+00"
3. Edge of asphalt 6.33' E
4. Set 'x' cut in shoulder 10.01' ESE

P.C. Survey ℄ Sta. 1137+81.68
N 369,283.445 E 17,554,077.448
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum disk stamped "Ramp K-6 PC 137+81.68"
3. Edge of concrete 4.03' E
4. Set 'x' cut in shoulder 10.01' ENE

P.I. Survey ℄ Sta. 1139+77.10 (Bk.) = 1139+95.90 (Ahd.)
N 369,088.628 E 17,554,062.157
1. Not Set

P.I. Survey ℄ Sta. 1146+30.39 (Bk.) = 1146+29.66 (Ahd.)
N 3678,527.885 E 17,553,712.556
1. Not Set

P.T. Survey ℄ Sta. 1141+65.01
N 368,922.799 E 17,553,958.769
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-6 PT 1141+65.01"
3. Edge of concrete 4.34' ESE
4. Set 'x' cut in shoulder 9.97' E

P.C. Survey ℄ Sta. 1144+50.98
N 368,680.129 E 17,553,807.474
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-6 PC 1144+50.98"
3. Edge of concrete 16.44' ESE
4. Set 'x' cut in shoulder 20.00' E

P.T. Survey ℄ Sta. 1148+09.07
N 368,362.763 E 17,553,642.394
1. 25' Rt.
2. Set 5/8" x 24" Rebar with a 2" aluminum cap stamped "Ramp K-6 PT 1148+09.07"
3. Edge of concrete 16.43' ESE
4. Set 'x' cut in shoulder 19.99' E

P.C. Survey ℄ Sta. 1149+32.44
N 368,249.218 E 17,553,594.147
1. 25' Rt.
2. Set 5/8" x 24" Rebar with a 2" aluminum cap stamped "Ramp K-6 PC 1149+32.44"
3. Edge of concrete 16.51' ESE
4. Set 'x' cut in shoulder 20.00' E

P.O.C. Survey ℄ Sta. 1152+50
N 367,938.111 E 17,553,569.195
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-6 POC 1152+50"
3. Edge of concrete 16.45' ENE
4. Set 'x' cut in shoulder 20.00' NE

P.O.C. Survey ℄ Sta. 1155+00
N 367,720.470 E 17,553,686.698
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-6 POC 1155+00"
3. Edge of concrete 17.01' NE
4. Set 'x' cut in shoulder 20.01' NNE

Scale: 1"=100'

P.I. Survey ℄ Sta. 1160+93.79 (Bk.) = 1149+24.81 (Ahd.)
N 367,180.359 E 17,553,139.975
1. Not Set

P.T. Survey ℄ Sta. 1160+86.16
N 367,595.361 E 17,554,224.643
1. Not Set

P.I. Survey ℄ Sta. 1167+01.16
N 367,815.128 E 17,554,799.036
1. 15' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-6 PI 1167+01.16"
3. Edge of concrete 6.86' NW
4. Set 'x' cut in shoulder 10.01' W

P.I. Survey ℄ Sta. 1170+01.18
N 367,926.070 E 17,555,077.790
1. 15' Rt.
2. Set 5/8" x 24" Rebar with a 2" aluminum cap stamped "Ramp K-6 PI 1170+01.18"
3. Edge of concrete 2.99' NW
4. Set 'x' cut in shoulder 4.99' WNW

P.O.T. Survey ℄ Sta. 1173+67.08
N 368,056.823 E 17,555,419.531
1. 135N-54E Sta. 1511+71.40 12.00' Lt.
2. Not Set

Office Relocation
P.O.T. ℄ Sta. 1148+09.07
N 368,362.763 E 17,553,642.394
1. Survey ℄ Sta. 1148+09.07
2. Not Set.

Office Relocation
P.I. ℄ Sta. 1172+93.90 Bk. = 1141+10.67 Ahd.
N 366,075.825 E 17,552,670.639
1. 1919.01' Rt. Survey ℄ Sta. 1156+05.91
2. Not Set.

Office Relocation
P.C. ℄ Sta. 1149+25.00
N 368,256.066 E 17,553,597.057
1. Survey ℄ Sta. 1149+25.00
2. Not Set.

Office Relocation
P.T. ℄ Sta. 1164+79.57
N 367,574.173 E 17,554,505.483
1. 120.15' Rt. Survey ℄ Sta. 1163+40.89
2. Not Set.

Office Relocation
P.C. ℄ Sta. 1167+13.57
N 367,722.179 E 17,554,686.729
1. 46.68' Rt. Survey ℄ Sta. 1165+63.05
2. Not Set.

Office Relocation
P.I. ℄ Sta. 1168+62.38 Bk. = 1168+60.06 Ahd.
N 367,816.305 E 17,554,801.993
1. Survey ℄ Sta. 1167+04.34
2. Not Set.

P.T. ℄ US-54/400 Sta. 481+01.64
N 368,036.229 E 17,552,336.146
1. Found 1/2" rebar in the enter of the median of US HWY 54/400
2. Found '+' cut on the South side of the North Barrier wall 7.22' NE
3. Found West light pole bolt from previous tie 98.04' E

P.O.T. ℄ US-54/400 Sta. 491+78.24
N 368,096.616 E 17,553,411.050
1. Found 1/2" rebar in the enter of the median of US HWY 54/400
2. Southwest concrete bridge rail 47.26' SE
3. Northwest concrete bridge rail 48.09' NE

P.O.T. ℄ US-54/400 Sta. 500+00.10
N 368,142.714 E 17,554,231.618
1. Sta 116+78.15 ℄ I-135
2. Not Set

P.O.T. ℄ US-54/400 Sta. 506+03.85
N 368,176.579 E 17,554,834.421
1. Found 1/2" rebar in the center median of US HWY 54/400
2. NE corner of an area inlet 1.79' NW
3. SE corner of an area inlet 1.94' SW
4. East of area inlet 1.20' E

P.C. ℄ US-54/400 Sta. 516+51.46
N 368,235.339 E 17,555,880.374
1. Found 1/2" rebar in the center median of US 54/400
2. Found '+' cut on the South side of the North Barrier wall 8.49' NW
3. Found '+' cut on the South side of the North Barrier wall 10.08' NE

Office Relocation
P.T. ℄ Sta. 1170+08.87
N 367,871.333 E 17,554,940.259
1. Survey ℄ Sta. 1168+53.16
2. Not Set.

Office Relocation
P.I. ℄ Sta. 1171+59.89
N 367,926.070 E 17,555,077.790
1. Survey ℄ Sta. 1170+01.18
2. Not Set.

Office Relocation
P.O.T. ℄ Sta. 1177+51.63
N 368,138.598 E 17,555,633.261
1. Not Set.

KANSAS DEPARTMENT OF TRANSPORTATION

HORIZONTAL CONTROL

KDOT Graphics Certified 09-17-2024 Sh. No. 14

KDOT Graphics Certified

DATE	BY
10/2023	A. MEALIFF
10/2023	J. BORCHERS
REFERENCES NOTED	
REFERENCES CHECKED	

Plotted by : usmh708425 15-AUG-2025 12:45
File : ka6517011hcon01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	15	366

DATE	BY	
10/2023	A. MEALIFF	REFERENCES NOTED
10/2023	J. BORCHERS	REFERENCES CHECKED

P.C. ℄ 135S-54W Sta. 140+55.29
N 369,024.488 E 17,553,999.307
1. 25' Rt.
2. Survey ℄ Sta. 1140+55.29 37.00' Rt.
3. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PC 140+55.29"
4. Edge of concrete 16.23' ESE

P.I. ℄ 135S-54W Sta. 142+32.78 (Bk.)=142+26.96 (Ahd.)
N. 368,862.447 E. 17,553,926.875
1. Not set

PI Sta. (Bk.) = 142+32.78
PI Sta. (Ahd.) = 142+26.96
Δ = 25°23'15" (RT)
D = 07°16'16"
R = 788.00'
T = 177.49'
L = 349.16'
E = 19.74'

P.T. ℄ 135S-54W Sta. 144+04.45
N 368,747.108 E 17,553,791.965
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PT 144+04.45"
3. Edge of concrete 16.59' SE
4. Set 'x' cut in shoulder 19.98' E

P.C. ℄ 135S-54W Sta. 150+40.11
N 368,334.042 E 17,553,308.809
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PC 150+40.11"
3. Edge of concrete 16.49' SE
4. Set 'x' cut in shoulder 19.99' E

P.I. ℄ 135S-54W Sta. 151+64.01(Bk.)=151+59.12 (Ahd.)
N. 368,253.528 E. 17,553,214.633
1. Not set

P.T. ℄ 135S-54W Sta. 152+83.02
N 368,226.304 E 17,553,093.758
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PT 152+83.02"
3. Edge of concrete 16.54' S
4. Set magnail on top of guardrail post 18.66' SE

P.C. ℄ 135S-54W Sta. 157+20.29
N 368,130.226 E 17,552,667.174
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PC 157+20.29"
3. Edge of concrete 16.17' S
4. Set 'x' cut in shoulder 19.99' ESE

P.I. ℄ 135S-54W Sta. 157+94.89 (Bk.)=157+94.56 (Ahd.)
N. 368,113.834 E. 17,552,594.393
1. Not set

PI Sta. (Bk.) = 151+64.01
PI Sta. (Ahd.) =
Δ = 27°50'08" (RT)
D = 11°27'33"
R = 500.00'
T = 123.90'
L = 242.91'
E = 15.12'
Super =

P.T. ℄ 135S-54W Sta. 158+69.16
N 368,109.650 E 17,552,519.906
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PT 158+69.16"
3. Edge of concrete 16.13' S
4. Set 'x' cut in shoulder 20.00' SSE

P.O.T. ℄ 135S-54W Sta. 160+56.74
N 368,099.128 E 17,552,332.622
1. 25' Rt.
2. ℄ US-54/400 Sta. 481+01.65 88.00' Rt.
3. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-5 PT 160+56.74"
4. Back of curb 17.99' S

P.O.T. ℄ 135N-54E Sta. 1497+03.85
N 366,927.434 E 17,554,565.701
1. 25' Rt.
2. 135N-54W Sta. 205+00 12.00' Rt.
3. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 POT 1497+03.85"
4. Edge of concrete 16.64' WNW

P.C. ℄ 135N-54E Sta. 1505+56.82
N 367,961.768 E 17,554,944.309
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 PC 1505+56.82"
3. Edge of concrete 16.65' NNW
4. Set 'x' cut in shoulder 19.99' W

P.T. ℄ 135N-54E Sta. 1510+04.09
N 367,985.827 E 17,555,267.555
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 PT 1510+04.09"
3. Edge of concrete 17.01' NW
4. Set 'x' cut in shoulder 20.00' NNW

P.C. ℄ 135N-54E Sta. 1513+62.32
N 368,113.838 E 17,555,602.133
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 PC 1513+62.32"
3. Back of curb 18.63' NW
4. Set 'x' cut in shoulder 20.69' WNW

P.I. ℄ 135N-54E Sta. 1507+91.42 (Bk.) = 1507+69.49 (Ahd.)
N 367,901.993 E 17,555,048.443
1. Not set

P.I. ℄ 135N-54E Sta. 1515+02.62 (Bk.) = 1515+00.39 (Ahd.)
N 368,163.974E 17,555,733.173
1. Not set

P.I. ℄ 135N-54E Sta. 1517+50.12 (Bk.) = 1517+49.94 (Ahd.)
N 368,177.982 E 17,555,982.514
1. Not set

P.T. ℄ 135N-54E Sta. 1516+40.69
N 368,174.844 E 17,555,873.256
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 PT 1516+40.69"
3. Edge of concrete 16.94' N
4. Set 'x' cut in shoulder 19.99 NNW

Scale: 1"=100'

P.C. ℄ 135N-54E Sta. 1516+51.35
N 368,172.442 E 17,555,883.907
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 PC 1516+51.35"
3. Edge of concrete 16.95' N
4. Set 'x' cut in shoulder 20.02' NNW

P.T. ℄ 135N-54E Sta. 1518+48.87
N 368,181.812 E 17,556,081.202
1. 25' Rt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-1 PT 1518+48.87"
3. Edge of concrete 16.95' N
4. Set 'x' cut in shoulder 19.99 NNW

P.O.T. ℄ 135N-54W Sta. 194+00
N 365,865.634 E 17,554,353.962
1. 25' Rt.
2. ℄ I-135 Sta. 94+00.07 127.10' Rt.
3. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 POT 194+00"
4. Edge of asphalt 3.65' W

P.C. ℄ 135N-54W Sta. 199+49.06
N 366,414.025 E 17,554,380.995
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 PC 199+49.06" 0.2' below the asphalt surface in the gore of Northbound I-135 to East and Westbound US 54/400
3. Set magnail 5.02' ENE
4. Set magnail 5.00' WSW

P.I. ℄ 135N-54W Sta. 201+01.82 (Bk.)= 200+98.18 (Ahd.)
N 366,566.599 E 17,554,388.516
1. Not Set

P.T. ℄ 135N-54W Sta. 202+50.94
N 366,705.667 E 17,554,451.725
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 PT 202+50.94"
3. To the edge of concrete 2.74' ESE
4. Set 'x' cut in shoulder 5.01' E

P.C. ℄ 135N-54W Sta. 207+95.77
N 367,201.664 E 17,554,677.158
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 PC 207+95.77"
3. Edge of concrete 2.95' ESE
4. Set 'x' cut in shoulder 4.99' E

P.O.C. ℄ 135N-54W Sta. 212+00
N 367,595.148 E 17,554,750.784
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 POC 212+00"
3. Back of curb 4.72' E
4. Set 'x' cut on the NW corner of a flume 6.59' SSE

P.I. ℄ 135N-54W Sta. 224+78.52 (Bk.) = 209+69.17 (Ahd.)
N 368,733.608 E 17,555,373.434
1. Not Set

P.T. ℄ 135N-54W Sta. 226+51.92
N 368,363.855 E 17,553,731.808
1. Not Set

PI Sta. (Bk.) = 224+78.52
PI Sta. (Ahd.) = 209+69.17
Δ = 127°08'07" (LT)
D = 06°50'58"
R = 836.51'
T = 1682.75'
L = 1856.16'
E = 1042.69'

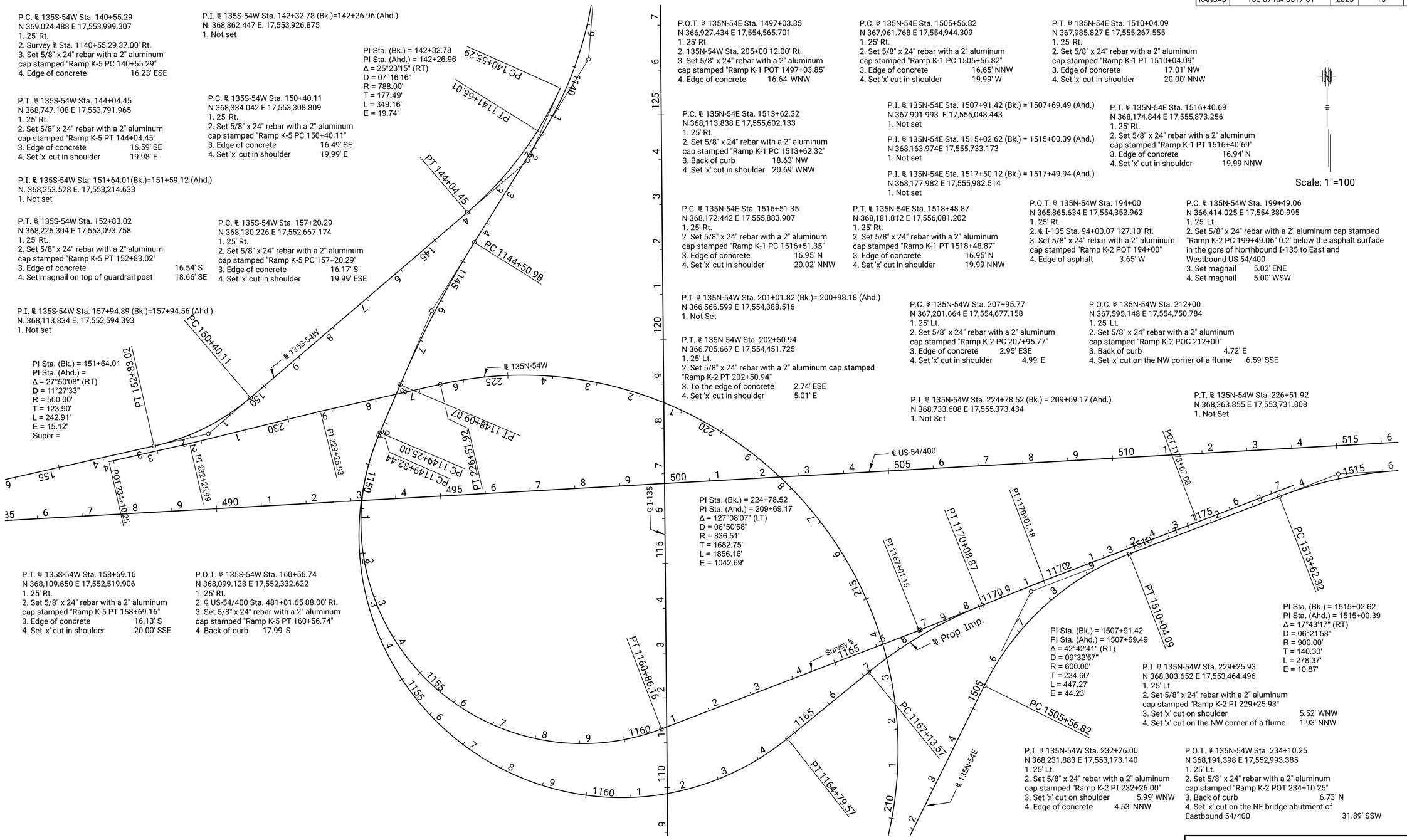
PI Sta. (Bk.) = 1507+91.42
PI Sta. (Ahd.) = 1507+69.49
Δ = 42°42'41" (RT)
D = 09°32'57"
R = 600.00'
T = 234.60'
L = 447.27'
E = 44.23'

P.I. ℄ 135N-54W Sta. 229+25.93
N 368,303.652 E 17,553,464.496
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 PI 229+25.93"
3. Set 'x' cut on shoulder 5.52' WNW
4. Set 'x' cut on the NW corner of a flume 1.93' NNW

PI Sta. (Bk.) = 1515+02.62
PI Sta. (Ahd.) = 1515+00.39
Δ = 17°43'17" (RT)
D = 06°21'58"
R = 900.00'
T = 140.30'
L = 278.37'
E = 10.87'

P.I. ℄ 135N-54W Sta. 232+26.00
N 368,231.883 E 17,553,173.140
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 PI 232+26.00"
3. Set 'x' cut on shoulder 5.99' WNW
4. Edge of concrete 4.53' NNW

P.O.T. ℄ 135N-54W Sta. 234+10.25
N 368,191.398 E 17,552,993.385
1. 25' Lt.
2. Set 5/8" x 24" rebar with a 2" aluminum cap stamped "Ramp K-2 POT 234+10.25"
3. Back of curb 6.73' N
4. Set 'x' cut on the NE bridge abutment of Eastbound 54/400 31.89' SSW



KANSAS DEPARTMENT OF TRANSPORTATION

HORIZONTAL CONTROL

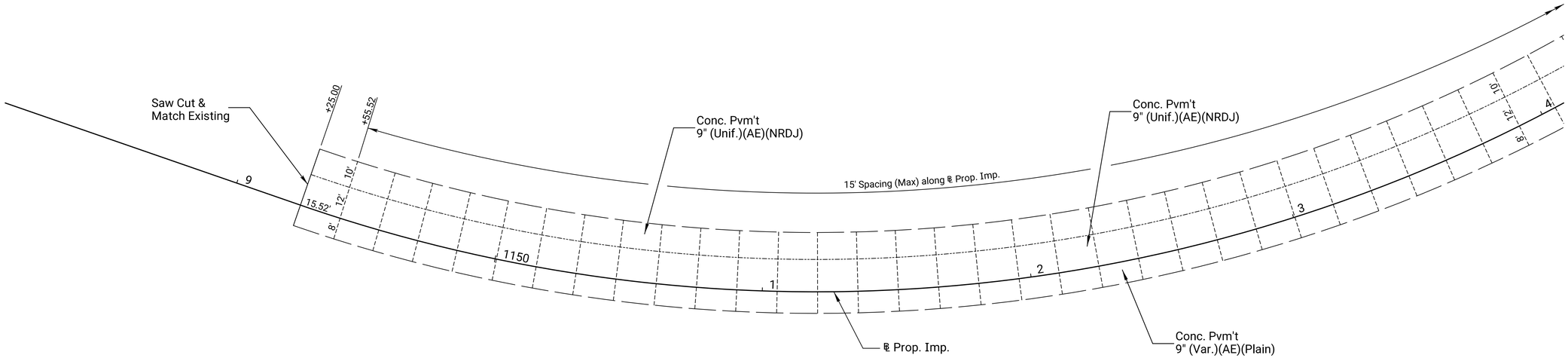
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KDOT Graphics Certified

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STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	16	366

Scale 1" = 20'



LEGEND FOR CONCRETE PAVEMENT

- Doweled Contraction Joint
- Longitudinal Joint

Note:
See Sh. No's. 11- 13 for Barrier Locations.

KANSAS DEPARTMENT OF TRANSPORTATION

PAVING DETAILS

STA. 1149+25 TO STA. 1154+00

KDOT Graphics Certified 07-31-2025 Sh. No. 16

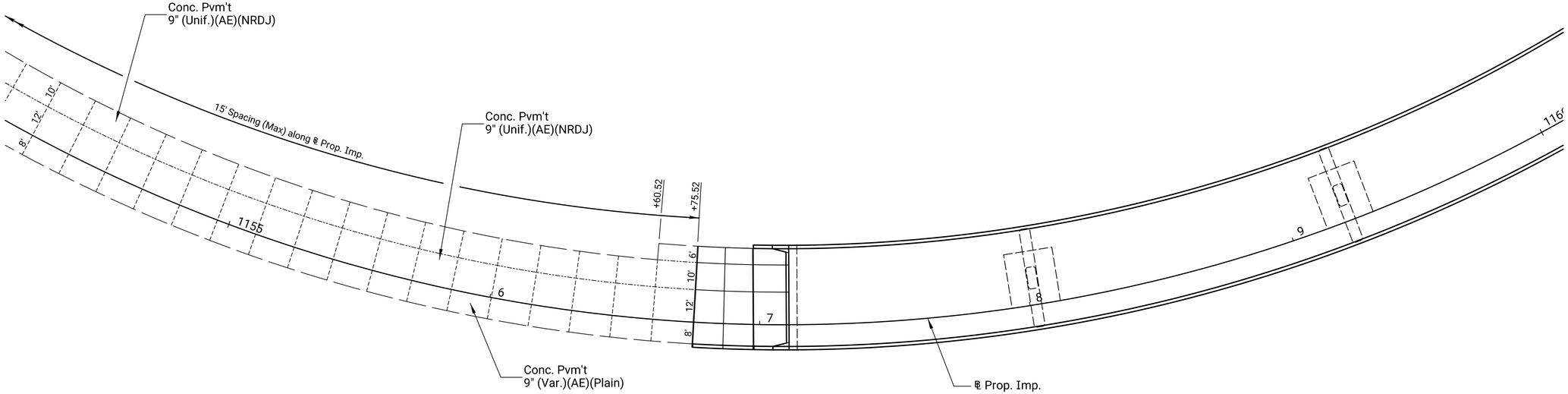
KDOT Graphics Certified

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:46
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STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	17	366

Scale 1"=20'



LEGEND FOR CONCRETE PAVEMENT

- Doweled Contraction Joint
- Longitudinal Joint

Note:
See Sh. No's. 11 - 13 for Barrier Locations.

KANSAS DEPARTMENT OF TRANSPORTATION

PAVING DETAILS

STA. 1154+00 TO STA. 1156+60.51

KDOT Graphics Certified 07-30-2025 Sh. No. 17

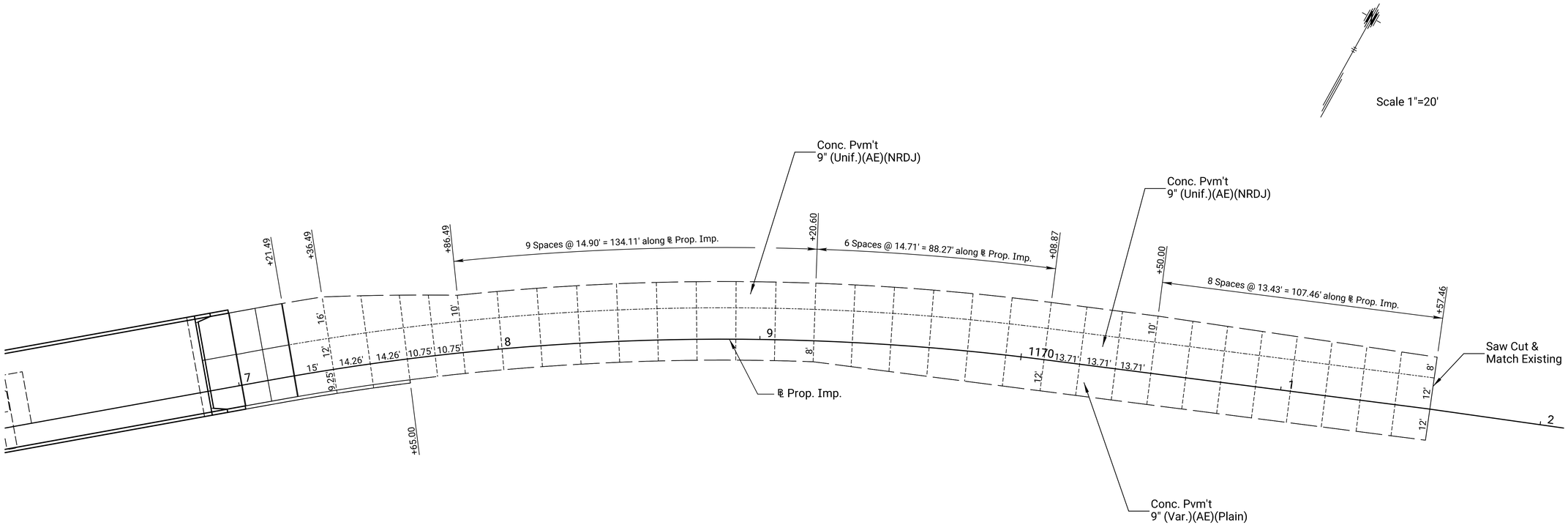
KDOT Graphics Certified

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

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File : ka651701rpv02.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	18	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



LEGEND FOR CONCRETE PAVEMENT

- Doweled Contraction Joint
- Longitudinal Joint

Note:
See Sh. No's. 11 - 13 for Barrier Locations.

KANSAS DEPARTMENT OF TRANSPORTATION

PAVING DETAILS

STA. 1167+36.25 TO STA. 1171+57.46

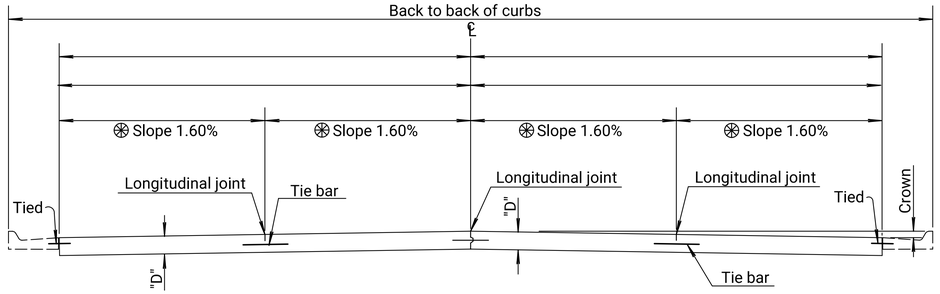
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KDOT Graphics Certified

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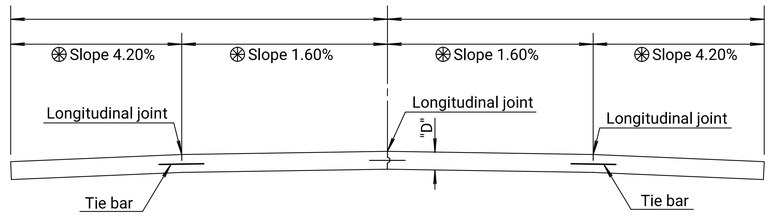
Note: Designer to add applicable dowel sizes.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	19	366



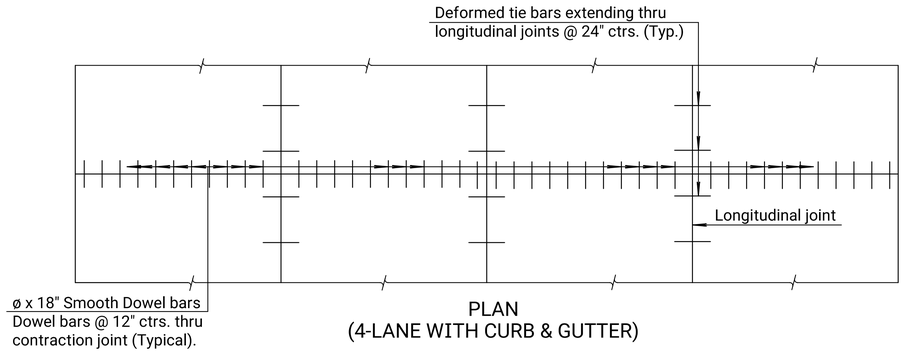
For Curb & Gutter details
See Standard Drawing RD635.

TRANSVERSE SECTION
(4-LANE WITH CURB & GUTTER)

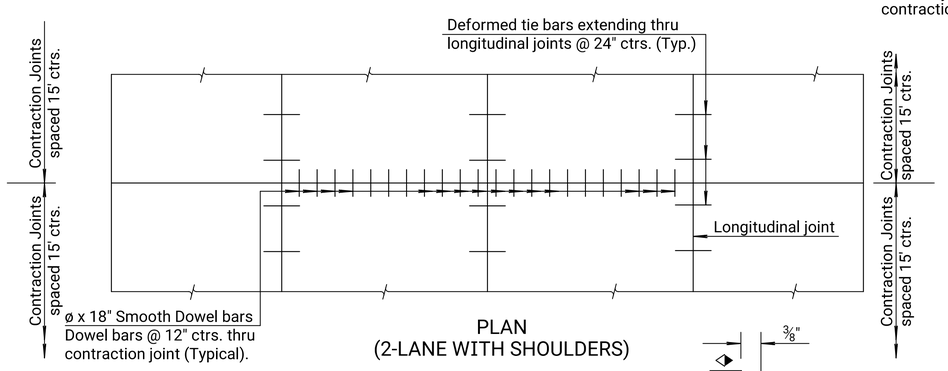


TRANSVERSE SECTION
(2-LANE WITH SHOULDERS)

⊛ Normal cross slopes. See Typical Section or Cross Sections for variations.



PLAN
(4-LANE WITH CURB & GUTTER)

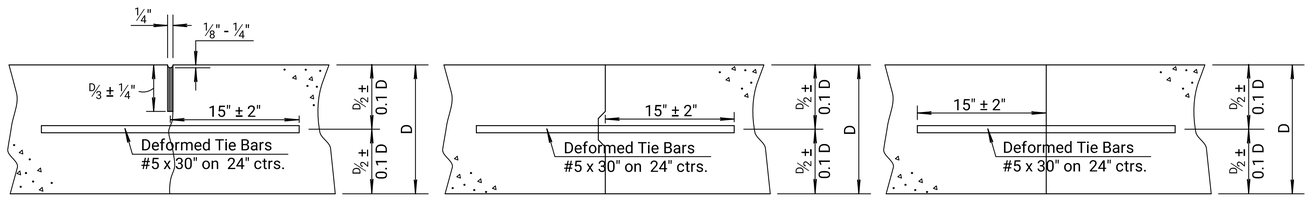


PLAN
(2-LANE WITH SHOULDERS)

Note: Designer to add applicable dowel sizes.

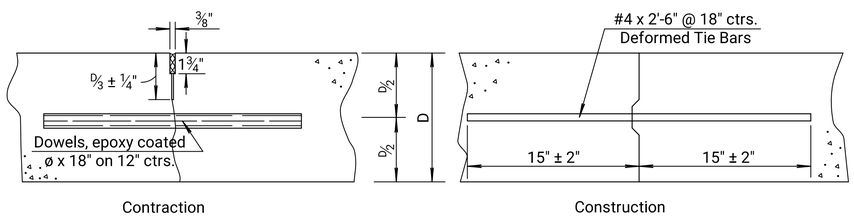
DOWEL SIZE	
D (in.)	Diameter
6 < D < 9	1"
9 ≤ D < 11	1¼"
D ≥ 11	1½"

PAVEMENT DEPTH
D= 9"



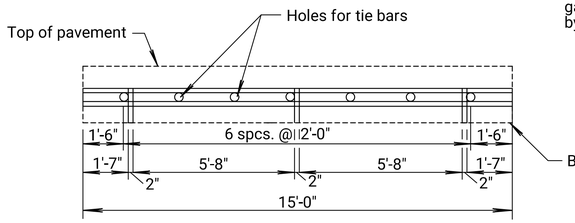
Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.

LONGITUDINAL JOINTS



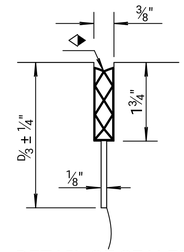
TRANSVERSE JOINTS

Note: Construct contraction joints at plan locations or at the Engineer's direction.
When necessary to interrupt continuous placement for a substantial length of time or at the end of a day's paving, the Contractor has the option of ending placement at a contraction joint or with a construction joint located a minimum of five (5) feet from a contraction joint. Construct either joint type by placing a header at the end of the pour or by paving past the joint location. After the concrete has hardened, saw joint and drill holes for tie bars or dowels.



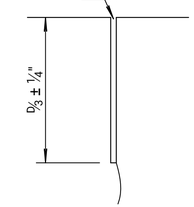
METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT

To be used only against forms, do not extend through contraction joints.
For automated placement tie bars are spaced at uniform 24" centers.
✡ Use snap-in leg or other approved design in lieu of welded leg.



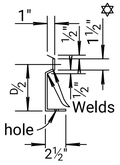
DETAIL OF SEALED
JOINT SAWCUT

Make an initial ⅛" saw cut (D/3 ± ¼" depth); the second ⅜" saw cut is a separate operation done after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.



DETAIL OF NON-SEALED
JOINT SAWCUT

Make only the initial ⅛" saw cut after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.



SECTION OF
RECESSED
FORM LEG

GENERAL NOTE

Epoxy coat all deformed tie bars that are straight. Patch any damage to the epoxy coating in accordance with the Standard Specifications.

Use billet steel Grade 40 reinforcing for deformed tie bars that require bending, may be epoxy coated at the Contractor's option.

Place pressure relief joint at the end of the bridge approach pavement slab (no bars through joint). For details of pressure relief joint see Standard Drawing RD712.

Use load transfer devices as shown in details at all construction joints on mainline pavement unless otherwise noted. Shoulder contraction joints have no dowels unless specifically shown on the plans.

✧ Fill all sawed joints on the project in accordance with the Standard Specifications with the exception of those joints in pavement constructed over Cement or Asphalt Treated Base.

✳ Use single saw cut, ⅛" wide, joint in pavement constructed over Cement or Asphalt Treated Base (Non-Sealed Joint Sawcut). Use single saw cut, ⅛" wide, joint for shoulder pavement adjacent to mainline pavement constructed over Asphalt or Cement Treated Base (Non-Sealed Joint Sawcut). See detail this sheet.

Shape all keyed joints similar to section of recessed form leg as shown on this sheet.

Evenly space tie bars along the length of slab with no tie bar within 12" of contraction joint. All longitudinal joints are tied.

NO.	DATE	REVISIONS	BY	APP'D
19	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
18	03-21-12	Revised Table, Dowel Size	S.W.K.	J.O.B.
17	01-09-12	Added Detail, Non Sealed Joint	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT DOWEL JOINTED NON-REINFORCED

RD708

FHWA APPROVAL		10-23-13	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

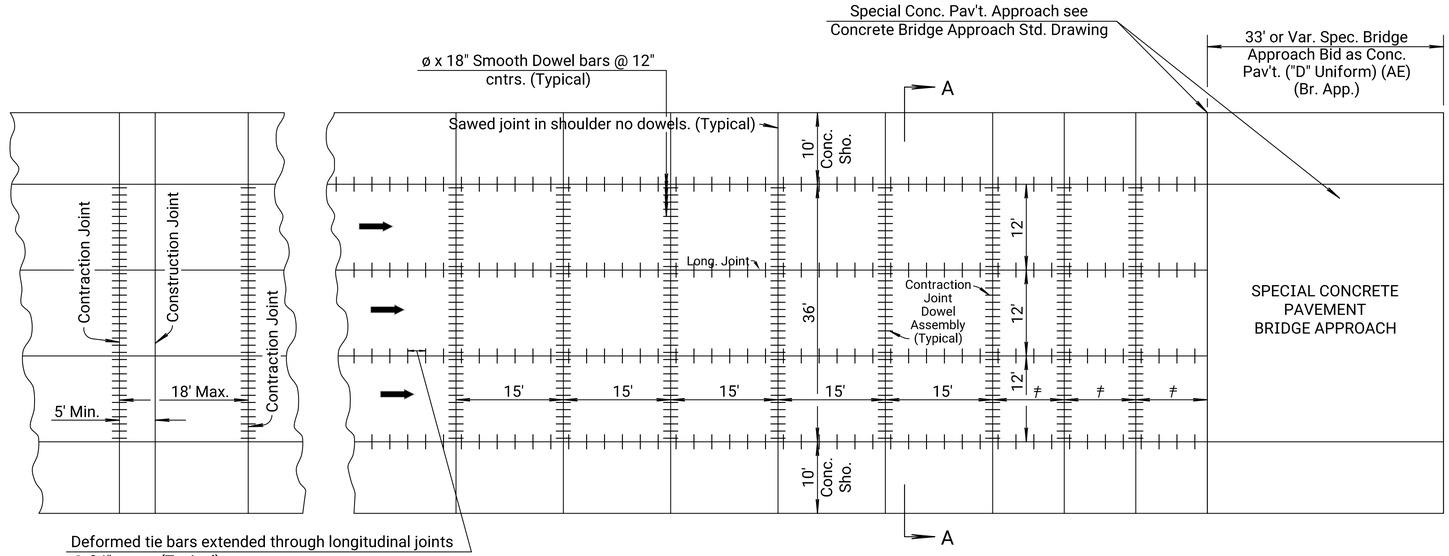
KDOT Graphics Certified 05-29-2025 Sh. No. 19

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:47
File : ka651701rss708.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	20	366

Note to Designer: Designer will add applicable dowel sizes and pavement depth "D".



≠ If necessary adjust the spacing of the joint sequence (3 slabs) preceding bridge approach pavement in order to establish slab lengths of no less than 10 ft.

DOWEL SIZE	
D (in.)	Diameter
6 < D < 9	1"
9 ≤ D < 11	1¼"
D ≥ 11	1½"

PAVEMENT DEPTH
D= 9"

JOINT LEGEND
- Tied Butt
- Tied Keyed

GENERAL NOTE

Epoxy coat all deformed tie bars that are straight. Patch any damage to the epoxy coating in accordance with the Standard Specifications.

Use billet steel Grade 40 reinforcing for deformed tie bars that require bending, may be epoxy coated at the Contractor's option.

Place pressure relief joint at the end of the bridge approach pavement slab (no bars thru joint). For details of pressure relief joint see Standard Drawing RD712.

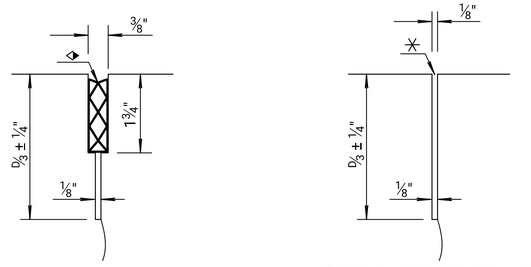
Use load transfer devices as shown in details at all contraction joints on mainline pavement unless otherwise noted. Shoulder contraction joints have no dowels unless specifically shown on the plans.

Fill all sawed joints on the project in accordance with the Standard Specifications with the exception of those joints in pavement constructed over Cement or Asphalt Treated Base.

Use single saw cut, ⅛" wide, joint in pavement constructed over Cement or Asphalt Treated Base (Non-Sealed Joint Sawcut). Use single saw cut, ⅛" wide, joint for shoulder pavement adjacent to mainline pavement constructed over Asphalt or Cement Treated Base (Non-Sealed Joint Sawcut). See detail this sheet.

Shape all keyed joints similar to section of recessed form leg as shown on this sheet.

Evenly space tie bars along the length of the slab with no tie bar within 12" of contraction joint. All longitudinal joints are tied.

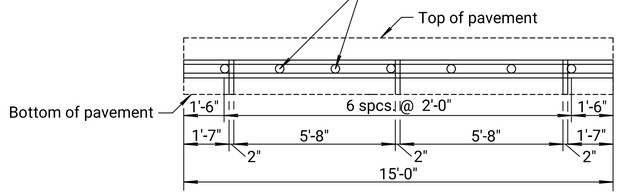


DETAIL OF SEALED JOINT SAWCUT

Make an initial ⅛" saw cut (D/3 ± ¼" depth); the second ⅜" saw cut is a separate operation done after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.

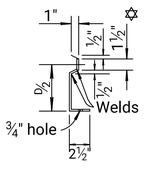
DETAIL OF NON-SEALED JOINT SAWCUT

Make only the initial ⅛" saw cut after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.

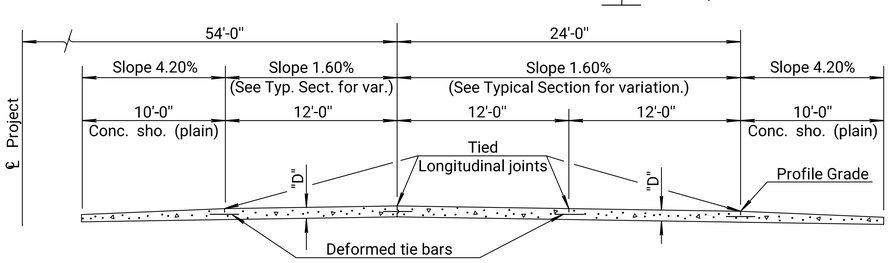


METAL STRIP FOR LONGITUDINAL KEYED CONSTRUCTION JOINT

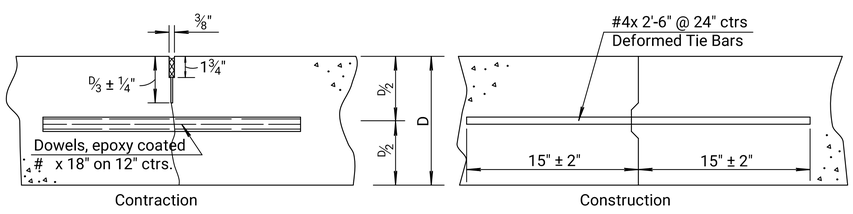
To be used only against forms, do not extend through contraction joints.
✡ Use snap-in leg or other approved designs in lieu of welded leg.



SECTION OF RECESSED FORM LEG



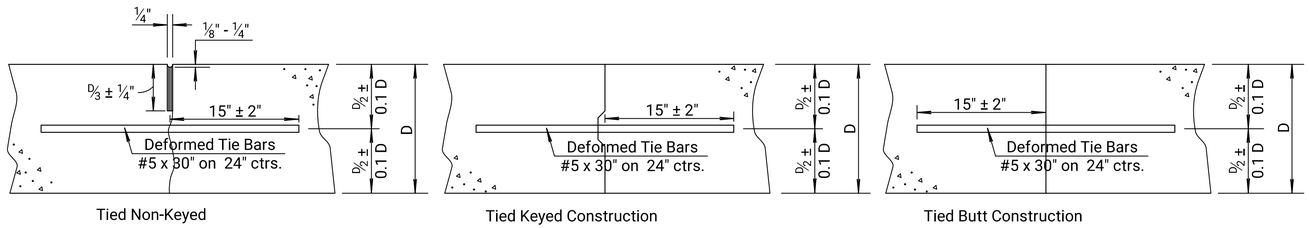
SECTION A-A
TRANSVERSE SECTION



Contraction Construction

TRANSVERSE JOINTS

Note: Construct contraction joints at plan locations or at the Engineer's direction.
When necessary to interrupt continuous placement for a substantial length of time or at the end of a day's pour, the Contractor has the option of ending placement at a contraction joint or with a construction joint located a minimum of five (5) feet from a contraction joint. Construct either joint type by placing a header at the end of the pour or by paving past the joint location. After the concrete has hardened, saw joint and drill holes for tie bars or dowels.



Tied Non-Keyed Tied Keyed Construction Tied Butt Construction

LONGITUDINAL JOINTS

Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.

NO.	DATE	REVISIONS	BY	APP'D
11	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
10	03-21-12	Rev. Table & Add. Det., Non-Seal. Joint	S.W.K.	J.O.B.
09	08-18-10	Revised Dowel Sizes & Notes	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT (NRDJ) MULTI-LANE with CONCRETE SHOULDERS

RD709

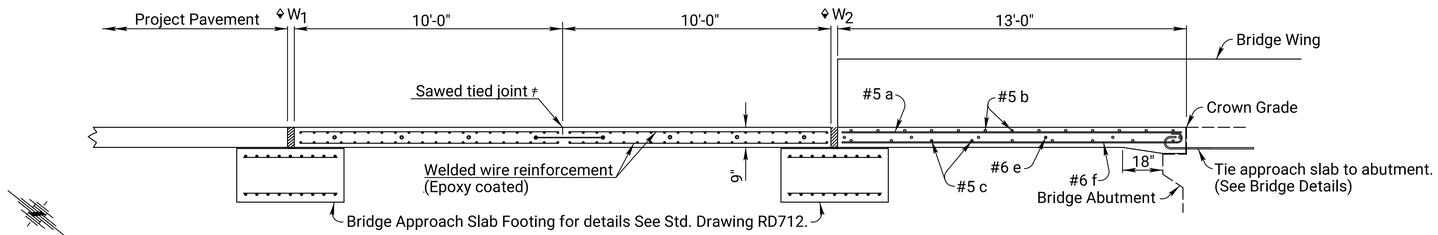
FHWA APPROVAL	10-23-13	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-16-2022 Sh. No. 20

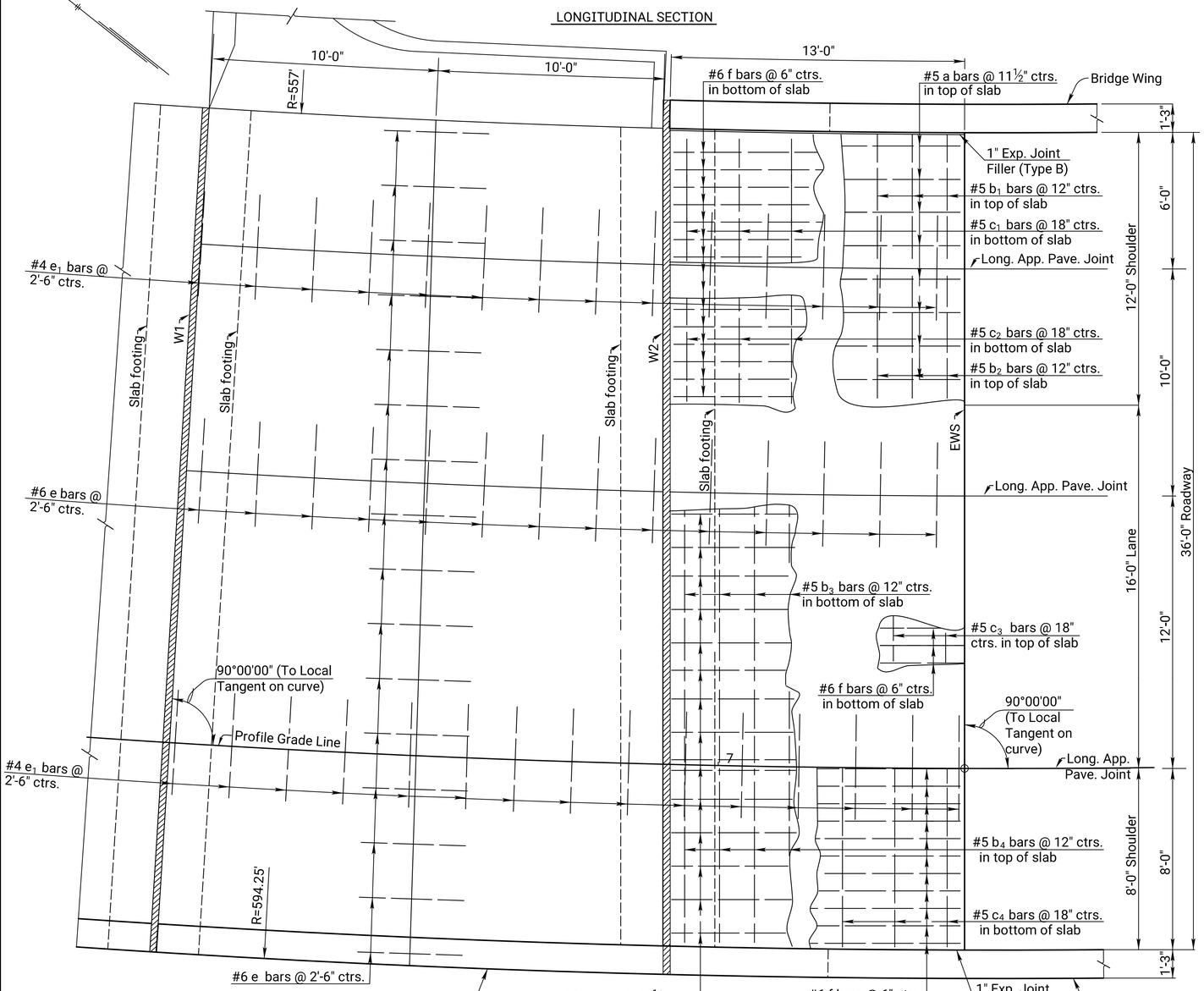
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:47
File : ka6517701rss709.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	21	366



LONGITUDINAL SECTION



PLAN

◆ W1 and W2 for Expansion/Pressure Relief Joint width and details See Standard Drawing RD712.

ǂ Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTES

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (9" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of expansion joints and pressure relief joints shall be subsidiary to this bid item.

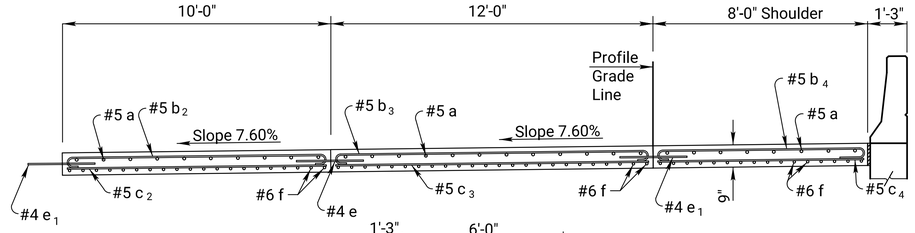
At the contractor's option #4x3'-0" ties bars @ 15" ctrs. may be substituted for the #6 1 bars @ 2'-6" ctrs.

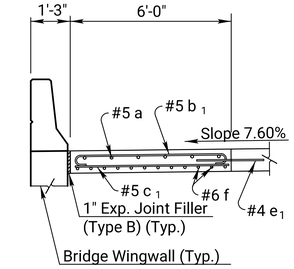
All reinforcing steel shall be epoxy coated.

See Standard Drawing RD711 for details of joints, welded wire reinforcement, and edge curb.

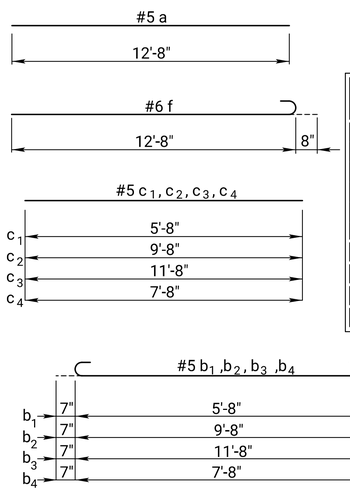
Clearance from the face of concrete for all reinforcing steel shall be 2 inches.

Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.





TRANSVERSE SECTION
(No Scale)



BENDING DIAGRAMS

Note: All dimensions are out to out on bars unless noted otherwise.

0° Skew
BILL OF MATERIALS

Bar Schedule

Bar	a	b_1	b_2	b_3	b_4	c_1	c_2	c_3	c_4	e	e_1	f
No.	42	13	13	13	13	9	9	9	9	30	29	76
Size	#5	#5	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	6'-10"	10'-10"	12'-10"	8'-10"	5'-8"	9'-8"	11'-8"	7'-8"	3'-0"	3'-0"	13'-4"

Reinforcing Steel (Grade 60) (Epoxy Coated)	3,161 lbs.
Concrete Pavement (9" Unif.)(AE)(Br. App.)	139.4 Sq. Yds.
Expansion Joint Membrane Sealant	38.5 Lin. Ft.
Pressure Relief Joint Membrane Sealant	37.3 Lin. Ft.
Bridge Approach Slab Footing	22.1 Cu. Yds.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1157+10.85
(E.W.S. No. 1)
CONCRETE BRIDGE APPROACH
PAVEMENT ABUTMENT #1
S. BD. I-135 TO E. BD. US-54 RAMP
Proj. 135-87 KA-6517-01 Sedgwick Co.

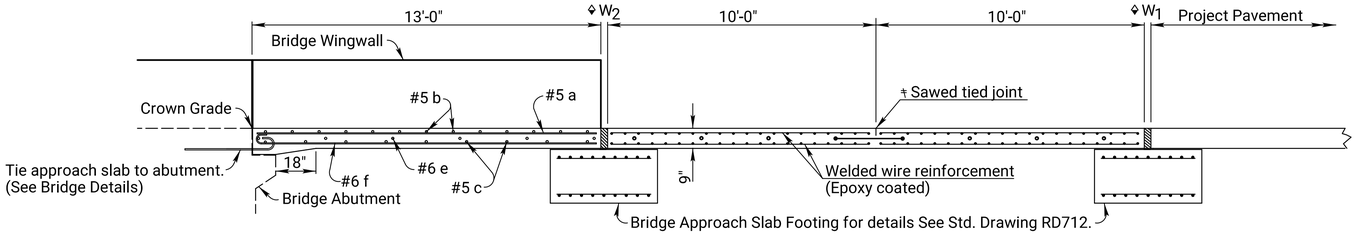
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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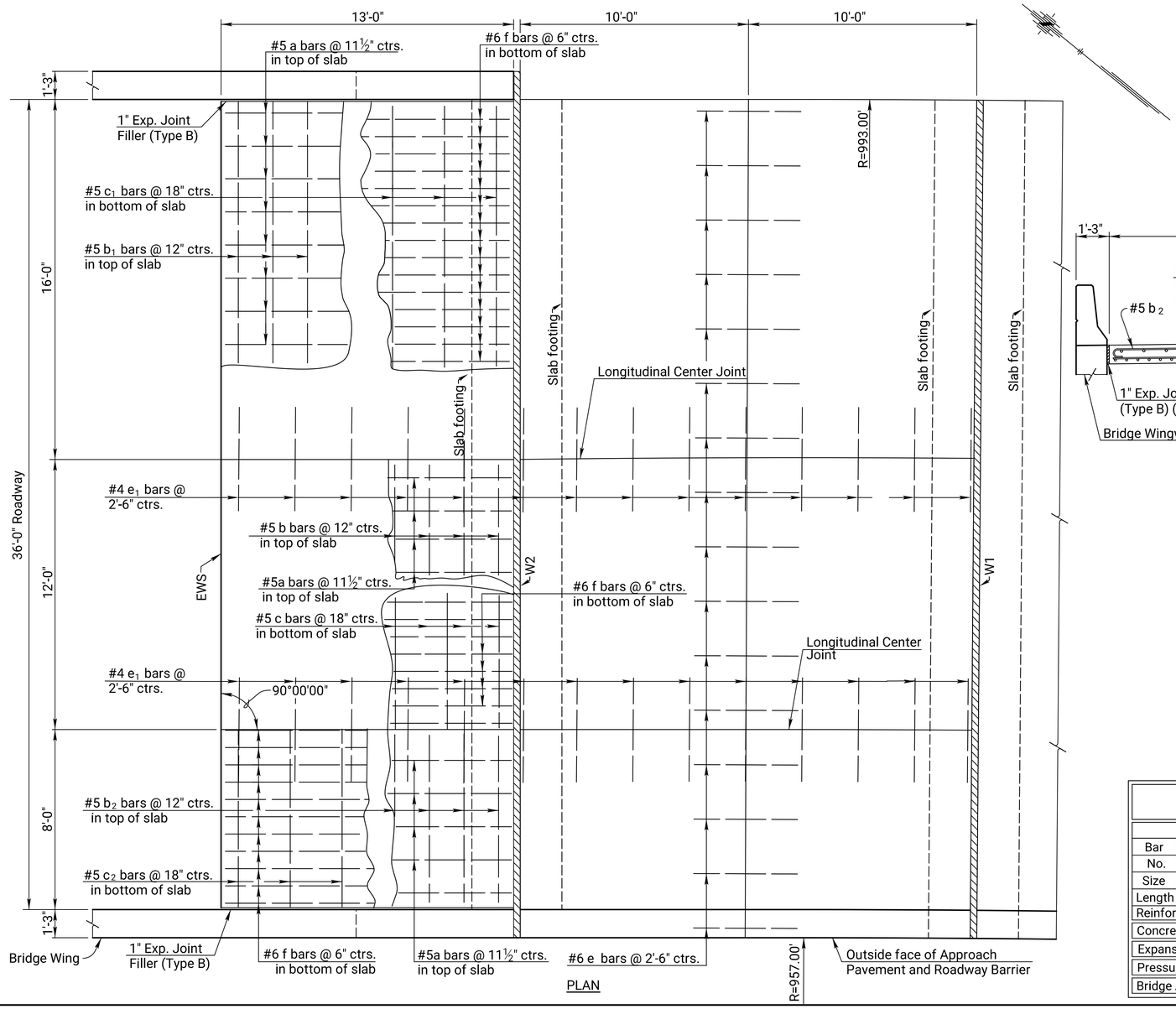
KDOT Graphics Certified

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File : ka6517101bbr-0700.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	22	366



LONGITUDINAL SECTION



PLAN

✳ For details of 4" Edge Curb, See Std. Drawing RD711.

♦ W_1 and W_2 for Expansion/Pressure Relief Joint width and details See Standard Drawing RD712.

≠ Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTES

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (9" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of expansion joints and pressure relief joints shall be subsidiary to this bid item.

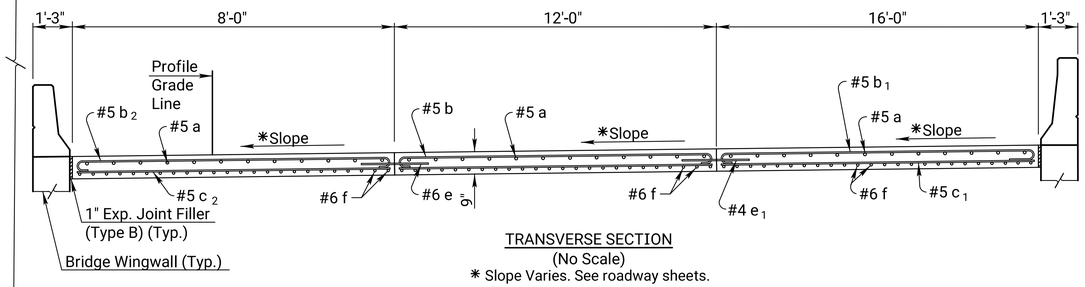
At the contractor's option #4x3'-0" ties bars @ 15" ctrs. may be substituted for the #6 1 bars @ 2'-6" ctrs.

All reinforcing steel shall be epoxy coated.

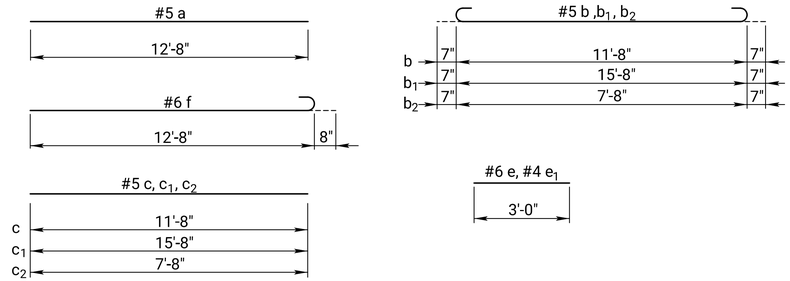
See Standard Drawing RD711 for details of joints, welded wire reinforcement, and edge curb.

Clearance from the face of concrete for all reinforcing steel shall be 2 inches.

Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.



TRANSVERSE SECTION
(No Scale)
✳ Slope Varies. See roadway sheets.



BENDING DIAGRAMS
Note: All dimensions are out to out on bars unless noted otherwise.

0° Skew
BILL OF MATERIALS

Bar Schedule

Bar	a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
No.	41	13	13	13	9	9	9	16	26	75
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	12'-10"	16'-10"	8'-10"	11'-8"	15'-8"	7'-8"	3'-0"	3'-0"	13'-4"

Reinforcing Steel (Grade 60) (Epoxy Coated)	3,022 lbs.
Concrete Pavement (9" Unif.)(AE)(Br. App.)	132.3 Sq. Yds.
Expansion Joint Membrane Sealant	38.5 Lin. Ft.
Pressure Relief Joint Membrane Sealant	37.3 Lin. Ft.
Bridge Approach Slab Footing	22.1 Cu. Yds.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1166+87.85
(E.W.S. No. 2)
CONCRETE BRIDGE APPROACH
PAVEMENT ABUTMENT #2
S. BD. I-135 TO E. BD. US-54 RAMP
Proj. 135-87 KA-6517-01 Sedgwick Co.

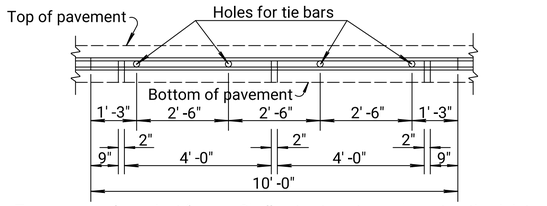
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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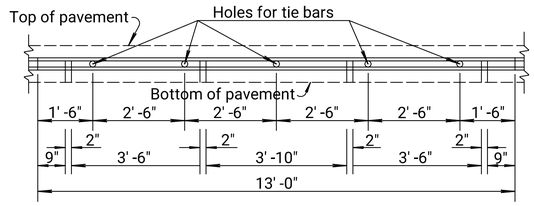
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	23	366



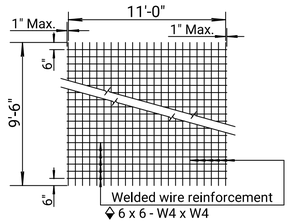
To be used only against forms. Shall not extend through contraction joints.

METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (10'-0")



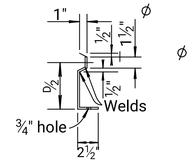
To be used only against forms. Shall not extend through contraction joints.

METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (13'-0")



TYPICAL SHEET OF WELDED WIRE REINFORCEMENT
FOR SPECIAL BRIDGE APPROACH PAVEMENT

◆ Note: Epoxy coated #3 bars longitudinally @ 12" ctrs. & #3 bars transversely @ 18" ctrs. may be substituted for each layer of epoxy coated welded wire reinforcement.



SECTION OF RECESSED
FORM LEG

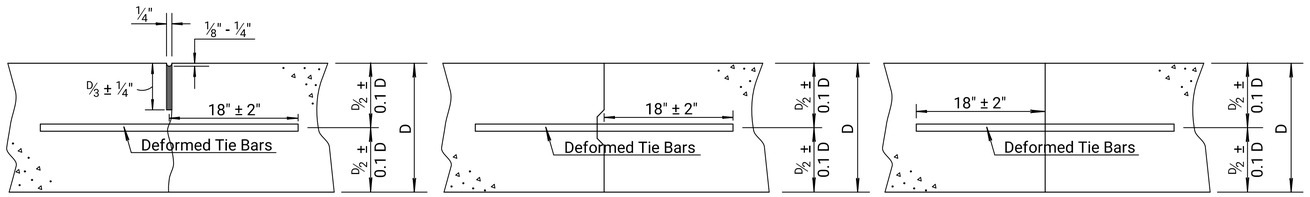
ϕ Snap-in leg or other approved designs may be used in lieu of welded leg.



DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT

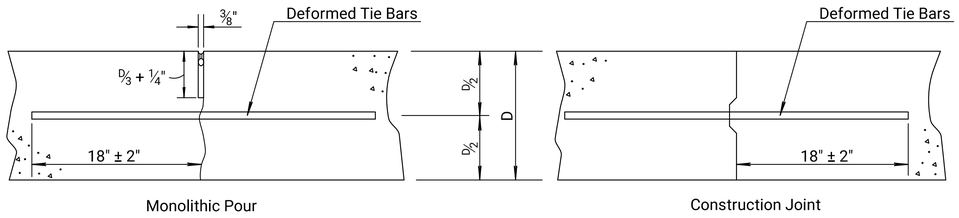
The lap shall extend beyond the first transverse or bag wire of each sheet.

The sheet shall be wired securely at the edges and at intervals not to exceed 2'-6" for the full width of the sheet. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft. Other methods for fastening the sheets of welded wire reinforcement at the laps may be used with the approval of the Engineer.



LONGITUDINAL JOINTS

Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.



TRANSVERSE JOINTS

Note: A construction joint is required when the concrete placement has been interrupted for a substantial length of time or at the end of a day's placement.

GENERAL NOTES

All work shall be done in conformity with the Standard Specifications applicable to the project.

The cost of all bars and joint material shown on this sheet is to be included in the bid price for Concrete Pavement.

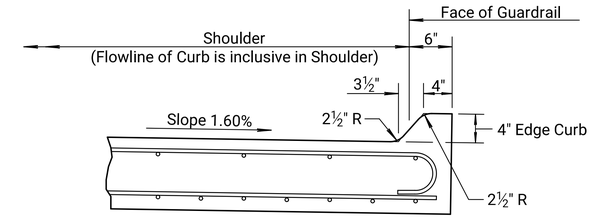
At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.

All sawed joints on this project shall be filled with sealant in accordance with Standard Specifications.

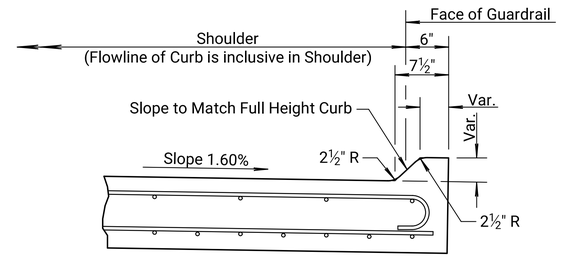
The 4 inch edge curb shall be constructed integral with the approach slab shoulder.

All materials and work required for this construction shall be subsidiary to the concrete approach slab.

Tie bars shall be evenly spaced along the length of the slab and no tie bars shall be within 12" of contraction joint.

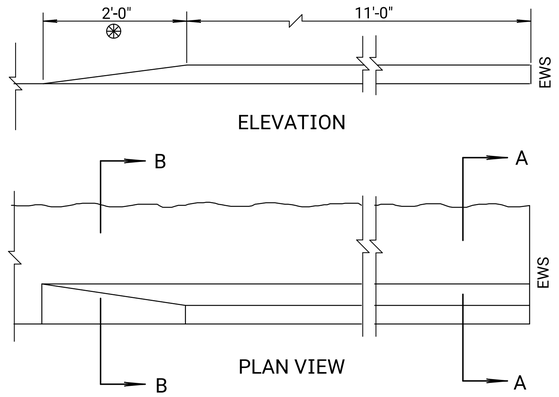


SECTION A-A



SECTION B-B

⊛ No 4" Curb transition when adjacent to Flume Inlet.



4" EDGE CURB DETAIL

NO.	DATE	REVISIONS	BY	APP'D
13	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
12	05-14-09	Pres. Relief Jt. to RD712/tie bar lab.	S.W.K.	J.O.B.
11	10-23-08	Revised Sec. A-A and Sec. B-B	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS FOR CONCRETE BRIDGE APPROACH PAVEMENT

RD711

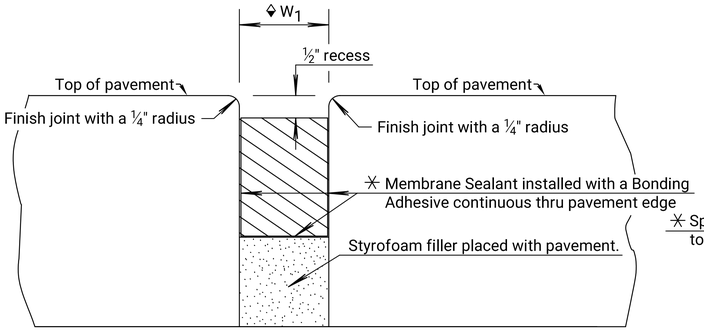
FHWA APPROVAL		10-23-13	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	

KDOT Graphics Certified 05-17-2022 Sh. No. 23

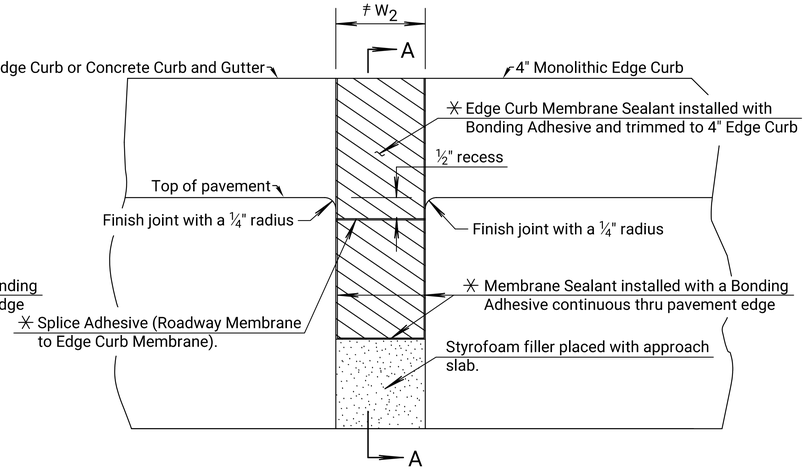
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Plotted by : usmh708425 15-AUG-2025 12:50
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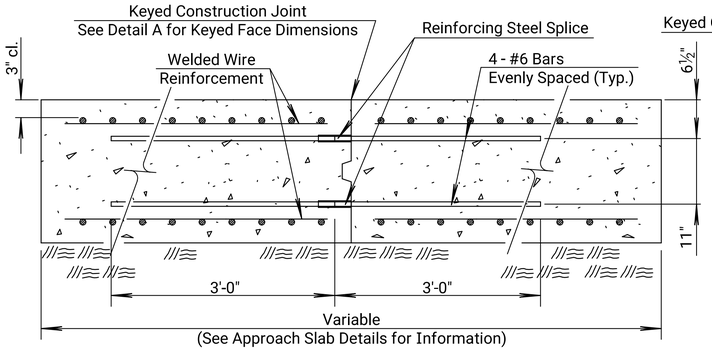
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	24	366



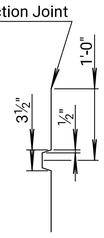
ELEVATION PRESSURE RELIEF JT.

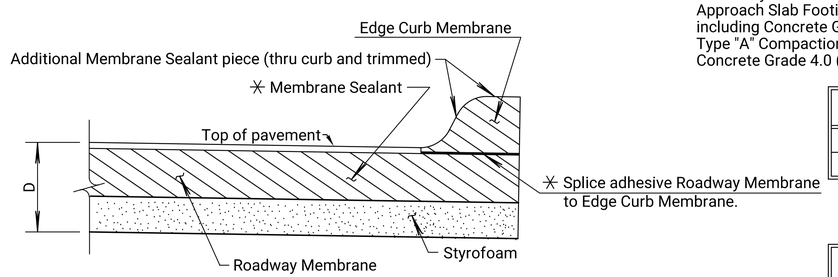


ELEVATION EXPANSION JT.



DETAIL A





SECTION A-A

(See Std. Drawing RD711 for details of 4" Edge Curb.)

GENERAL NOTES

EXPANSION/PRESSURE RELIEF JOINTS

See Concrete Bridge Approach Pavement standard drawings for location of expansion and pressure relief joints.

Form the joint opening prior to placement of the pavement approach. Remove the material used to form the joint after the pavement approach has been in place for a minimum of 6 days.

Clean and construct the joint only after the concrete in the approach slab has cured for a minimum of 7 days.

Thoroughly clean the joint by sandblasting and by high pressure air blast to remove all laitance and contaminants from the joint. When any joint is shaped by saw cutting in lieu of forming, blast the joint with water prior to sandblasting and air cleaning.

Accomplish sandblasting in two passes to clean each face of the joint (one pass for each face). Hold the nozzle 1 to 2 inches from the joint face at an angle to the joint face.

Remove any contaminants such as oil, curing compound, etc. by sandblasting to the satisfaction of the Engineer. Solvents, wire brushing, or grinding are not permitted.

Air blast the joint just prior to installing the Membrane Sealant. Equip the air compressor used to clean the joint with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. Spot check the joint to verify any residual dust or dirt has been removed. The Engineer is required to inspect the joint immediately prior to installing the joint material.

⚹ See KDOT Standard Specifications for Membrane Sealant, Bonding Adhesive and Splice Adhesive. The width of the membrane sealant is 4 inches (nominal).

Do not allow traffic on the joint for a minimum of 3 hours unless otherwise directed by the Engineer.

Use splice materials and methods recommended by the Manufacturer.

All work and materials for the preparation, construction, and installation of the joint will be subsidiary to the concrete approach pavement.

BRIDGE APPROACH SLAB FOOTING

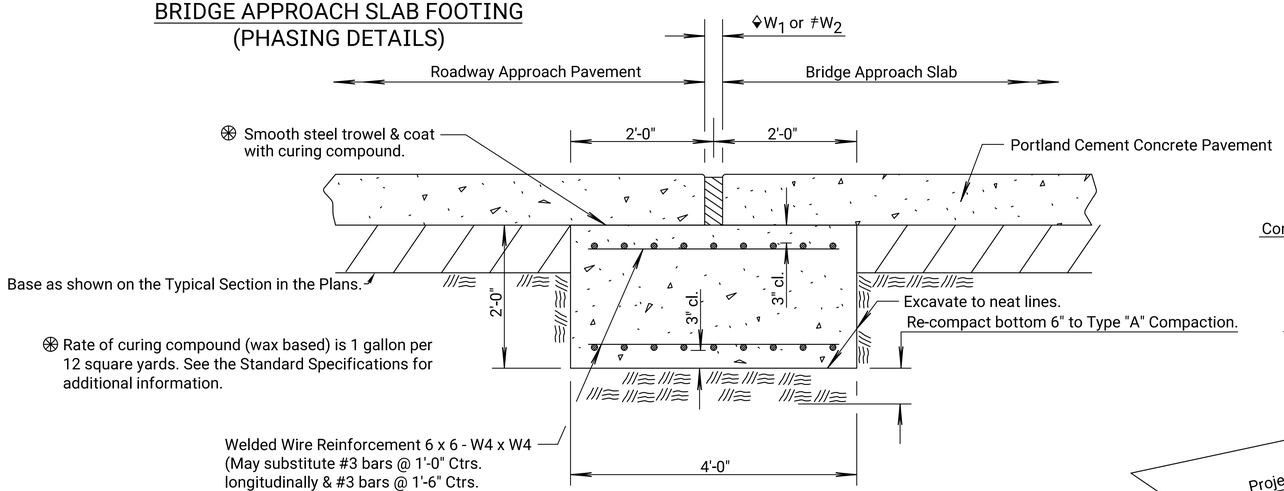
Pay for the Bridge Approach Slab Footing at the unit price bid per cubic yard for "Bridge Approach Slab Footing". This price will be full compensation for furnishing all materials and labor including Concrete Grade 4.0 (AE) Pavement, Reinforcing Steel (Gr. 60) (Epoxy Coated), excavation, Type "A" Compaction and materials used to prevent bonding of concrete. The Contractor may use Concrete Grade 4.0 (AE) or the mix used in the concrete pavement for the slab footing.

⧫ PRESSURE RELIEF JOINT WIDTH DETAILS (W_1)							
℉ Temperature (F°)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size	4.0"	3¾"	3½"	3¼"	3.0"	2¾"	2½"

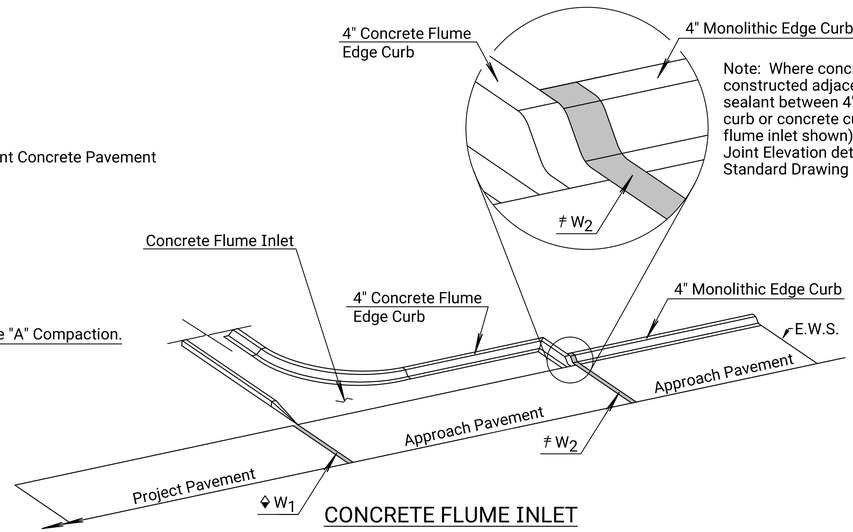
℉ Average Ambient Temperature over previous 24 hours.

≠ EXPANSION JOINT WIDTH DETAILS (W_2)
See bridge construction layout sheet for details.

BRIDGE APPROACH SLAB FOOTING
(PHASING DETAILS)



BRIDGE APPROACH SLAB FOOTING



CONCRETE FLUME INLET

(Membrane Sealant Placed Through Edge Curb Detail)

Note: Where concrete flume inlets or concrete curb and gutter are constructed adjacent to bridge approach slab pavement place membrane sealant between 4" monolithic edge curb and 4" concrete flume inlet edge curb or concrete curb and gutter as shown on this sheet (concrete flume inlet shown). See approach slab Standard Drawings, Expansion Joint Elevation detail this sheet, Standard Drawing RD628, and Standard Drawing RD635 for additional details.

LEGEND

Membrane Sealant

NO.	DATE	REVISIONS	BY	APP'D
10	01-22-16	Add. Det., Keyed Joint & Flume Inlet	T.T.R.	S.W.K.
09	10-16-13	Revised General Note	S.W.K.	J.O.B.
08	04-04-13	Rev. Joint Width Det. Table	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
EXPANSION/PRESSURE RELIEF JOINT/
BRIDGE APPROACH SLAB FOOTING

RD712

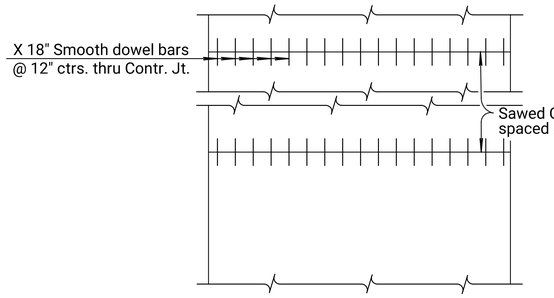
FHWA APPROVAL			02-01-16	APP'D.			Scott W. King
DESIGNED	A.H.	DETAILED	X.X.X.	QUANTITIES	X.X.X.	CADD	X.X.X.
DESIGN CK.	X.X.X.	DETAIL CK.	X.X.X.	QUAN.CK.	X.X.X.	CADD CK.	X.X.X.

KDOT Graphics Certified 06-11-2025 Sh. No. 24

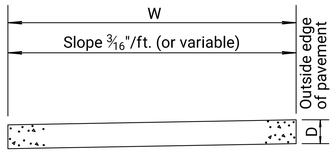
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:50
File : ka651701rss712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	25	366



PLAN



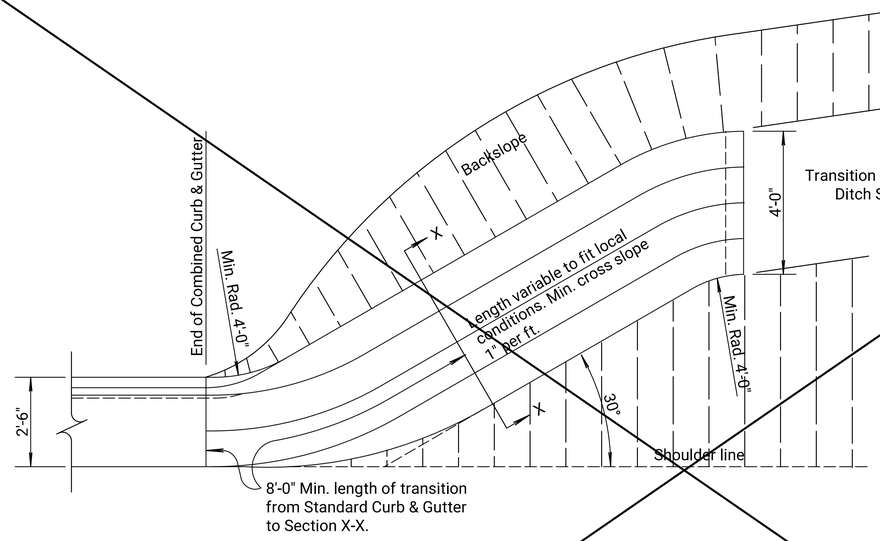
TRANSVERSE SECTION

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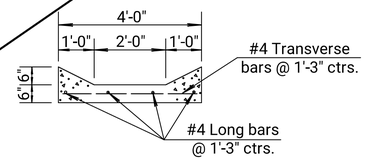
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Note: For contraction joint detail and other notes and details, see Standard Drawing RD708.

RAMP CONCRETE PAVEMENT



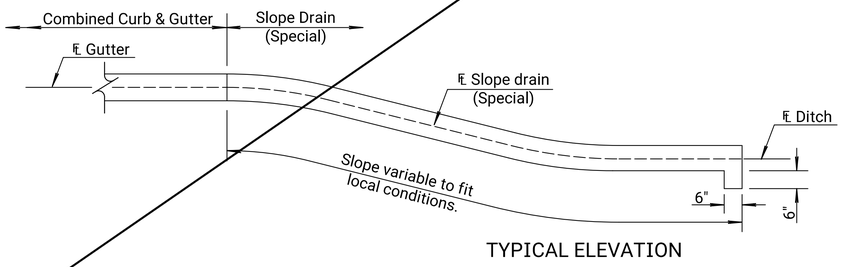
TYPICAL PLAN



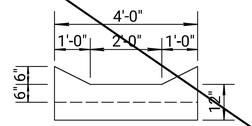
SECTION X-X

Note: Use Concrete Grade 3.0 (AE) throughout. The entire area of the Slope Drain (Special) below the curbs, to be poured and struck off with a uniform thickness of 6". The curbs are to be applied in the same manner and using the same methods as for edge curb.

Reinforcing steel to be deformed #4 bars.



TYPICAL ELEVATION

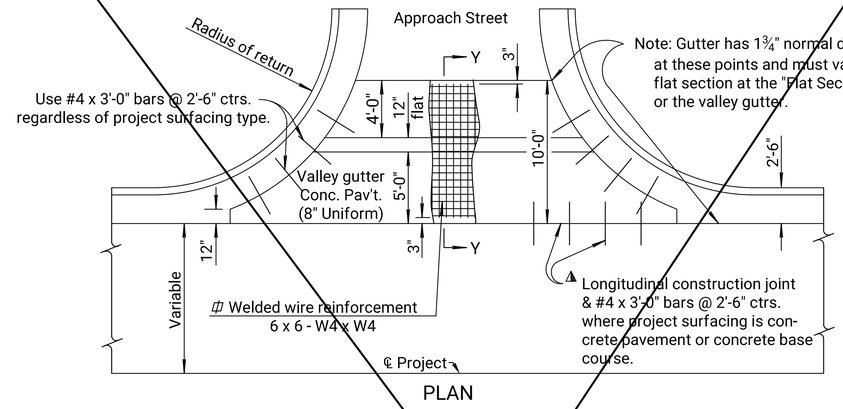


END ELEVATION
(Downstream end)

SLOPE DRAIN (SPECIAL)

NOTE: Use 8" uniform thickness valley gutter concrete pavement with welded wire reinforcement. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft.

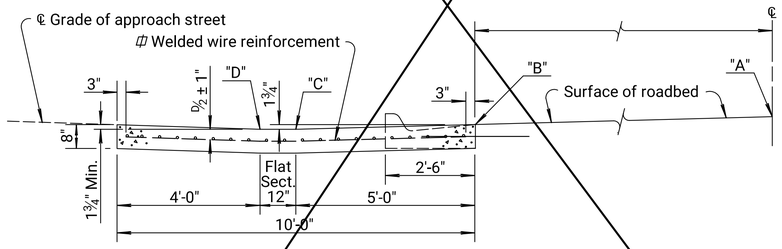
Where valley gutter, alley, and/or entrance pavement is the only pavement on the project, Concrete Grade 3.0 (AE) may be used.



PLAN

△ Where the valley gutter does not abut concrete pavement or concrete base course, omit tie bars and Longitudinal construction joint.

⎅ Welded wire can be substituted with a macro fiber. See standard specifications for macro fiber and dosage requirements.



SECTION Y-Y

VALLEY GUTTER SUMMARY

Street	Station	Side	Elev. Pt. "A"	Elev. on ℄ of Approach Str. Pt."B"	Elev. on ℄ of Approach Str. "C" & "D"	Appr. Str. Grade	Sq. Yds. Conc. pavt. (8" Uniform)	

VALLEY GUTTER

NO.	DATE	REVISIONS	BY	APP'D
13	10-20-10	Added macro fiber option	S.W.K	J.O.B.
12	01-28-05	Changed Class to Grade conc. rei	S.W.K	J.O.B.
11	10-31-01	Removed sho. corrugation details	S.W.K	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT AUXILIARY DETAILS-II

RD722

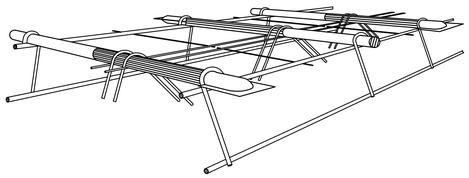
FHWA APPROVAL	06-01-11	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-03-2022 Sh. No. 25

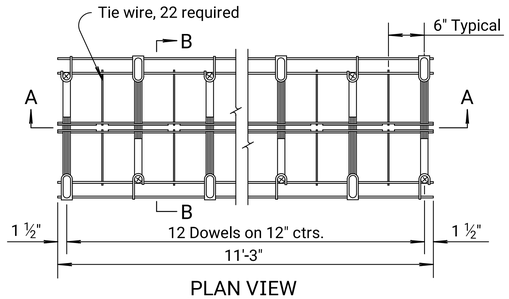
KDOT Graphics Certified

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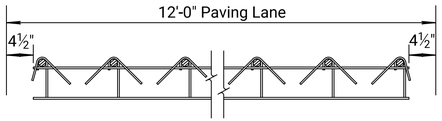
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	26	366



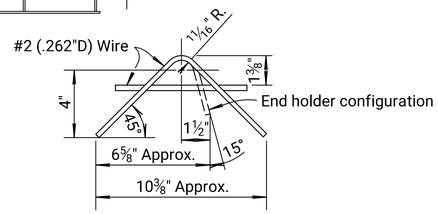
PERSPECTIVE VIEW

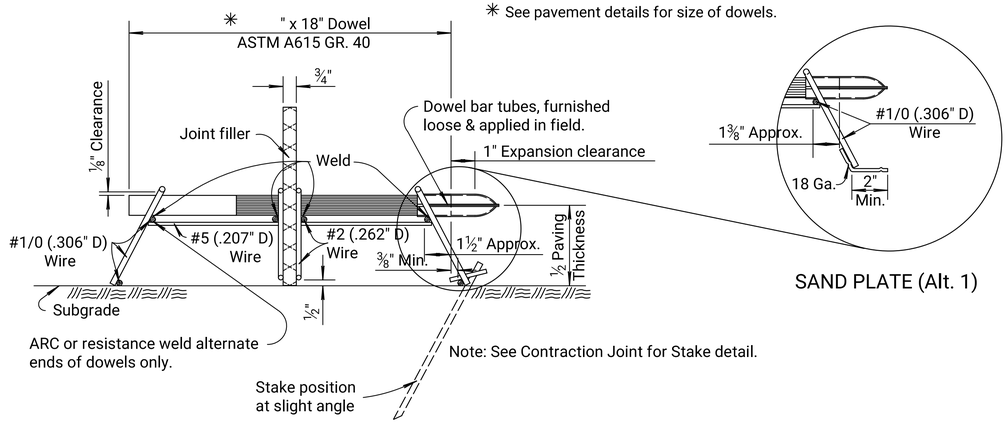


PLAN VIEW



SEC. A-A





SEC. B-B

EXPANSION JOINT

GENERAL NOTE

Coat each dowel bar with an epoxy coating that meets the standard specifications. Uniformly apply the powdered epoxy coating according to accepted practices and the coating manufacturer's recommendations. The coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting bracket by welding.

Cut the dowel bars to length in such a manner to result in no appreciable deformation of the ends.

Dowel Baskets

Wire sizes shown are minimum required.

Stake baskets to subgrade as shown. Use ramset or similar type fastener with clip when subgrade condition requires it.

Sides held together with tie wire, allowing quick separation of sides and insertion of expansion material, provided in the field.

Use one length of Preformed Expansion Joint filler (Type B), or other approved material as determined by the Engineer, cut to fit crown and subgrade for each lane of pavement as expansion joint filler.

Stretch a string line between the pavement forms along the center line of the joint.

Visually inspect bond breaker was applied to the dowel bars in accordance with KDOT's Standard Specifications prior to placing concrete pavement.

Carefully level the entire joint assembly so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Replace any coating scraped off the dowels during assembly.

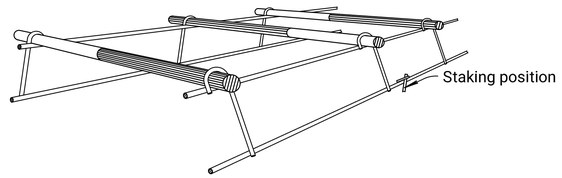
Check each completed contraction joint assembly to be certain the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless otherwise shown on the plans. Check the dowels to be certain they are level and will remain in a position parallel with the finished surface of the slab.

Place concrete over and adjacent to the joint in accordance with the requirements of the Standard Specifications.

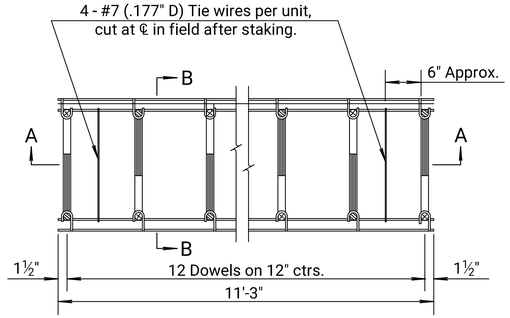
After completion of machine finishing, floating, and straight edging the surface, carefully remove the concrete over the filler and edge the joint with an edger of the proper size.

Install expansion joint material in the field.

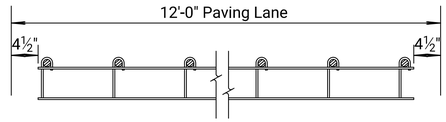
Alternative designs may be used in lieu of the type shown as approved by the Engineer.



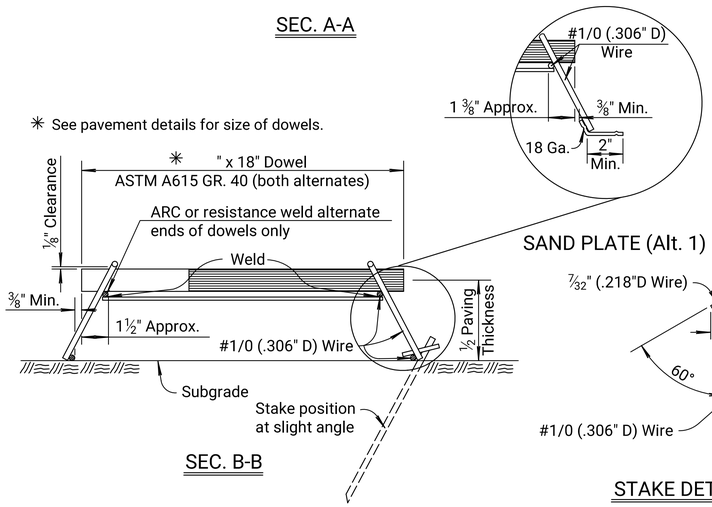
PERSPECTIVE VIEW



PLAN VIEW

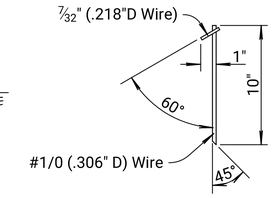


SEC. A-A



SEC. B-B

CONTRACTION JOINT



STAKE DETAIL

(6 Pieces minimum required)

GENERAL NOTE

Coat each dowel bar with an epoxy coating that meets the standard specifications. Uniformly apply the powdered epoxy coating according to accepted practices and the coating manufacturer's recommendations. The coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting bracket by welding.

Cut the dowel bars to length in such a manner to result in no appreciable deformation of the ends.

Dowel Baskets

Wire sizes shown are minimum required.

Stake baskets to subgrade as shown. Use ramset or similar type fastener with clip when subgrade condition requires it.

Stretch a string line between the pavement forms along the center line of the joint. Carefully mark the position of the joint so the saw cut will coincide with the center line of the joint.

Visually inspect bond breaker was applied to the dowel bars in accordance with KDOT's Standard Specifications prior to placing concrete pavement.

Carefully level the entire joint assembly so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Replace any coating scraped off the dowels during assembly.

Check each completed contraction joint assembly to be certain the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless otherwise shown on the plans. Check the dowels to be certain they are level and will remain in a position parallel with the finished surface of the slab.

Place concrete over and adjacent to the joint in accordance with the requirements of the Standard Specifications.

Alternative designs may be used in lieu of the type shown as approved by the Engineer.

NO.	DATE	REVISIONS	BY	APP'D
09	06-03-15	Rem. Opt., Mechanical Placement	T.T.R.	S.W.K.
08	02-15-06	Chg. Grade 60 to Grade 40 Steel	S.W.K.	J.O.B.
07	05-05-04	Revision on Epoxy coating	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONTRACTION & EXPANSION JT. DOWEL ASSEMBLIES

RD735

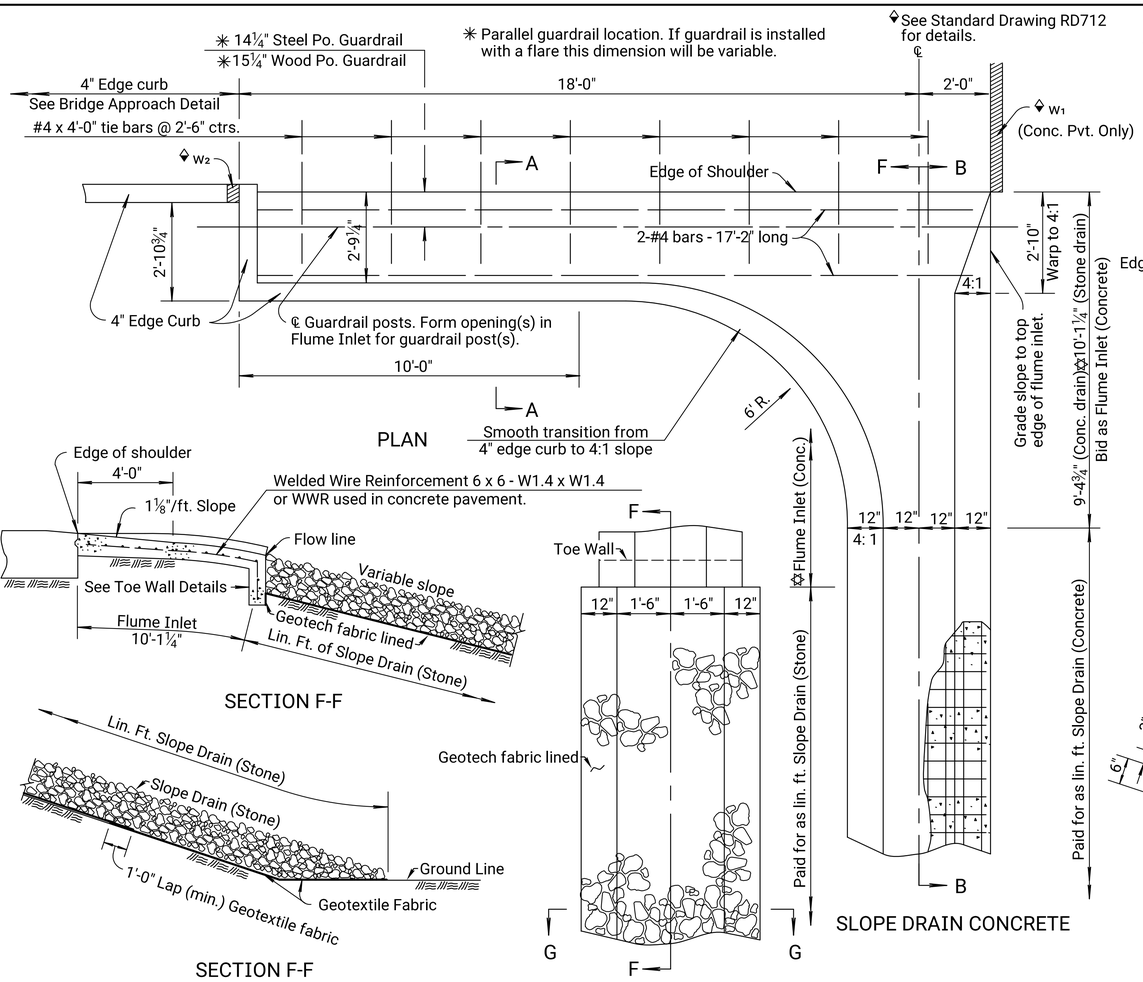
FHWA APPROVAL		03-30-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED	
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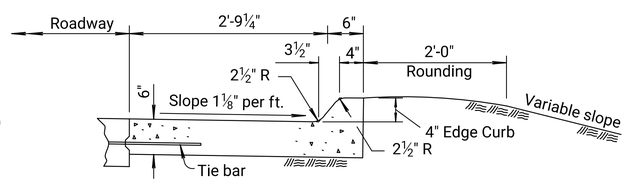
KDOT Graphics Certified 05-18-2022 Sh. No. 26

KDOT Graphics Certified

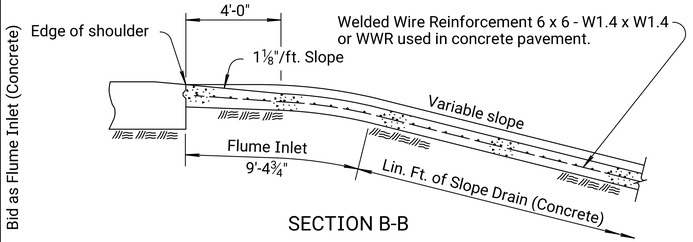
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File : ka651701rss735.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	27	366

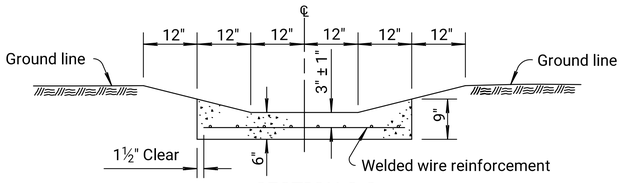




SECTION A-A



SECTION B-B

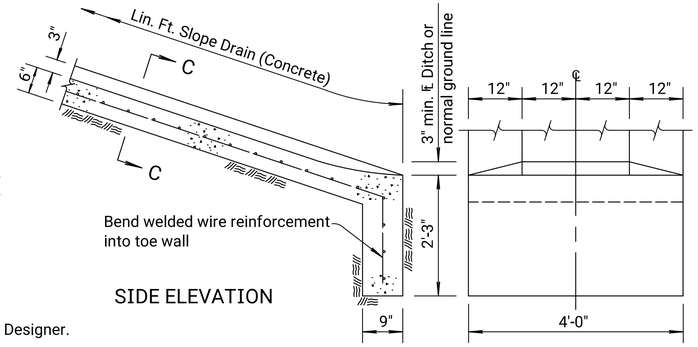


SECTION C-C

SECTION F-F

SLOPE DRAIN STONE

SECTION F-F



SIDE ELEVATION

END ELEVATION

SLOPE DRAIN & TOE WALL DETAILS

Slope Drain is shown with (STONE) or (CONCRETE) option, type to be determined by the Designer.

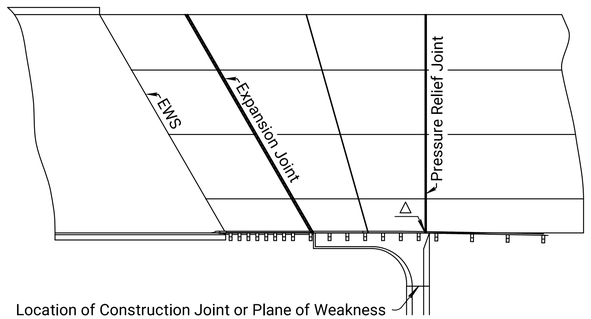
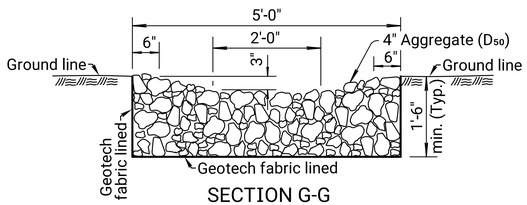
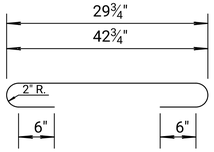


DIAGRAM of FLUME INLET at PRESSURE RELIEF JOINT

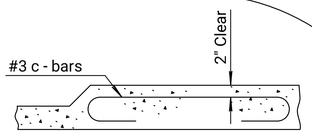
△ On projects with concrete paved shoulders where, due to skew of the bridge, the flume inlet extends beyond the 4" pressure relief joint of the special concrete bridge approach, the portion of inlet or gutter extending beyond the pressure relief joint shall not be tied to the concrete shoulder with tie bars.



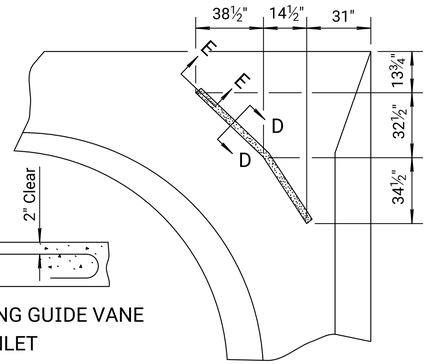
SECTION G-G



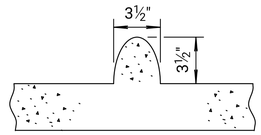
#3 c - bars
Bending Diagram
(Bend one bar each length)



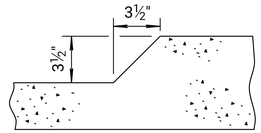
METHOD of CONNECTING GUIDE VANE to FLUME INLET



PARTIAL PLAN with GUIDE VANE



SECTION D-D
(Guide Vane formed monolithic)



SECTION E-E
(Typical both ends of vane)

GENERAL NOTE

Flume Inlets shall be paid for by unit price per each. Slope Drains (Stone or Concrete) shall be paid for by unit price per linear foot. Reinforcing steel & welded wire reinforcement are subsidiary to Flume Inlet and Slope Drain.

Flume Inlets will be constructed without Guide Vanes except at locations noted in plans or as directed by the Engineer. Construction of guide vanes, when required, shall be subsidiary to the bid item "Flume Inlet ".

The entire area of the Flume Inlet & Slope Drain shall be placed monolithic and struck off with a uniform thickness of 6 inches.

Guide Vanes may be formed monolithic with the Flume Inlet or tied to the Flume Inlet in the manner shown if constructed separately. Alternate methods of constructing Guide Vanes may be used with approval of the Engineer.

Concrete Grade 3.0 (AE) shall be used in Flume Inlet and Slope Drain.

On concrete pavement projects, the contractor may substitute the mix used in concrete pavement.

Transverse expansion and contraction joints of same type in pavement are to extend through the flume inlet and 4" edge curb, omitting load transfer devices. The edge curb section will be made continuous through any expansion joint by using a filler material approved by the Engineer to fill the void to the full height of the curb.

Joints will not extend into the Slope Drain.

All exposed edges shall be finished with an edging tool.

For details of 4" edge curb see Standard Drawing RD711.

No adjustment of guardrail post spacing will be permitted.

Flume inlet shall only be constructed adjacent to concrete pavement. Flume inlet shall be tied to the pavement with #4 x 4'-0" tie bars at 2'-6" centers. Tie bars shall be subsidiary to the Flume Inlet.

Shape of guide vane shown is approximate and may be altered slightly to simplify construction. Height and width dimension shall be as shown regardless of shape.

Aggregate for the Slope Drain (STONE) shall meet the reqirements of stone for Aggregate Ditch Lining and have a D_{50} of 4" unless otherwise noted on the plans. The Contractor shall place stone from bottom to the top of slope to produce a well graded mass without segregation of material sizes. Placement, measurement, and payment shall conform to KDOT Standard Specifications.

Slope Drain (STONE) shall be underlain with geotextile fabric that meets the KDOT Standard Specification. All work and materials for the geotextile fabric shall be subsidiary to the Slope Drain (STONE).

QUANTITIES (For information only)

SLOPE DRAIN (CONCRETE)

Flume Inlet Concrete:
1.9 cu. yds. Concrete ⊛
42 lbs. reinf. steel and WWR
Slope Drain (CONCRETE):
0.0833 cu. yds. Concrete per lin. ft.
0.79 lbs. WWR per lin. ft.
Toe wall shall be paid for as 1.5 lin. ft. of Slope drain.

SLOPE DRAIN (STONE)

Flume Inlet & Toe Wall Concrete:
2.2 cu. yds. Concrete ⊛
44 lbs. reinf. steel and WWR
Slope Drain (STONE): 4" Aggregate (D50)
0.25 cu. yds. 4" Agg. (D50) per lin. ft.
0.90 sq. yds. Geotextile fabric per lin. ft.

⊛ Does not include guide vanes.

NO.	DATE	REVISIONS	BY	APP'D
06	01-25-16	Added Note to Designer	T.T.R.	S.W.K.
05	09-12-07	Reorg. sheet, add. slope drain stone	S.W.K.	J.O.B.
04	01-28-05	Chg. Class to Grade conc., reinf.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

FLUME INLET and SLOPE DRAIN (CONCRETE/STONE)

RD628

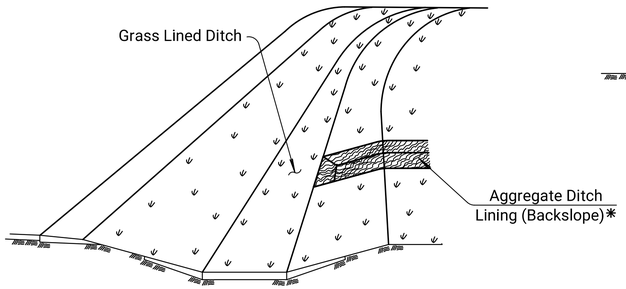
FHWA APPROVAL	02-01-16	APP'D.	Scott. W. King
DESIGNED	DETAILED	QUANTITIES	CADDED
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADDED CK.

KDOT Graphics Certified 01-28-2025 Sh. No. 27

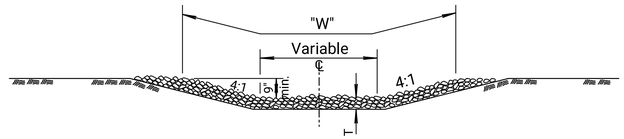
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:51
File : ka651701rss628.dgn

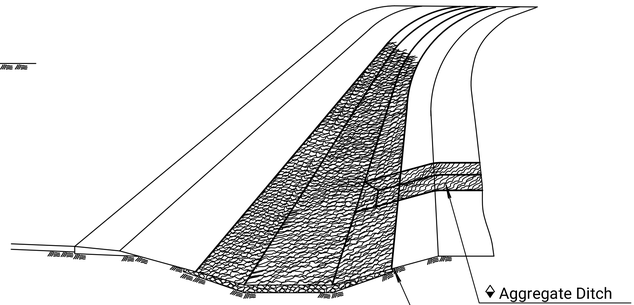
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	28	366



PERSPECTIVE VIEW
(Backslope Dt. Lining without Highway Dt. Lining)



CROSS SECTION (Backslope)



PERSPECTIVE VIEW

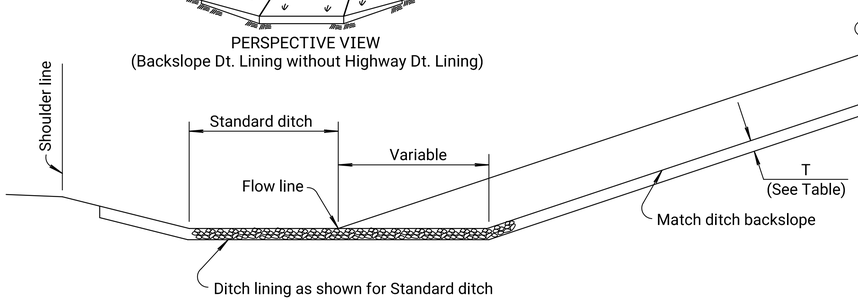
GENERAL NOTE

All work and materials required for this construction shall be paid for by the ton of "Aggregate Ditch Lining (D_{50})".

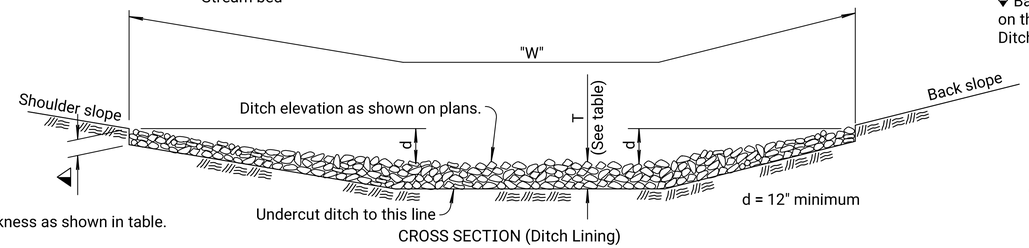
Dumped aggregate shall be spread in reasonable conformity with the ditch section as shown and as directed by the Engineer.

Aggregate Ditch Lining shall be measured and paid for by the ton in the vehicle at the location designated by the Engineer and shall be full compensation for excavation for undercutting, furnishing, hauling, placing and maintaining the material as specified to complete the work.

The weight of the aggregate is based on a standard density of 120 PCF. When the standard density of the material is more or less than 120 PCF, the thickness may vary correspondingly.



LONGITUDINAL SECTION (Backslope)



CROSS SECTION (Ditch Lining)

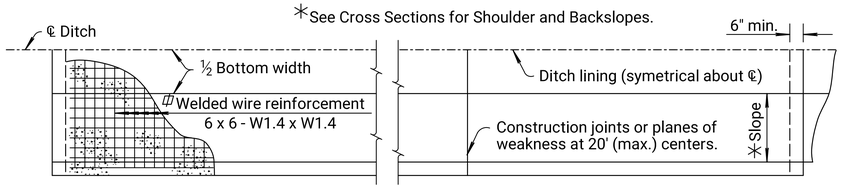
Feather edges to nominal thickness as shown in table.

◈ Backslope aggregate ditch lining, constructed as indicated on this sheet, shall be paid for by the ton of "Aggregate Ditch Lining (D_{50})."

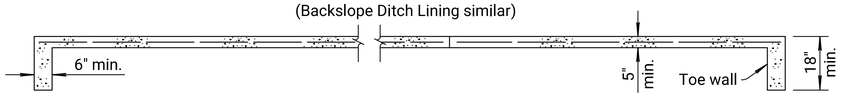
				QUANTITIES FOR TYPICAL 10' DITCH with 6:1 shoulder slope & 4:1 backslope			
D_{50}	T	◭		Approx. Excavation per Station (cu.yd.)			
				d = 1.0	d = 2.0	d = 3.0	d = 4.0
◔ 4"	12"	8"		68	99	130	161
6"	18"	12"		102	148	195	241

Note: Quantities provided for information only.
◔ Aggregate larger than 4 inches (D_{50}) should not be used within the clear zone.

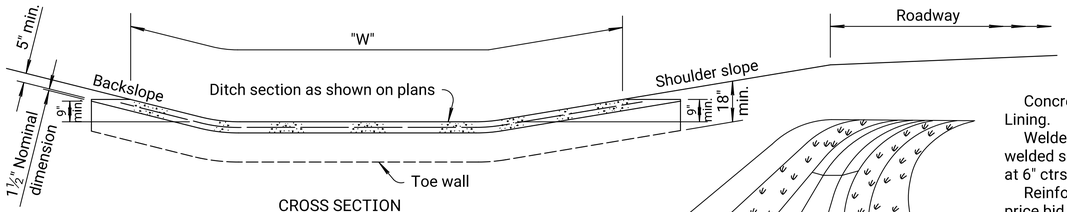
AGGREGATE DITCH LINING (D_{50})



HALF PLAN
(Backslope Ditch Lining similar)



LONGITUDINAL SECTION



CROSS SECTION

GENERAL NOTE

Concrete Grade 3.0 shall be used in Concrete Ditch Lining.

Welded wire reinforcement shall be of the electrically welded square mesh type with No. W1.4 wires spaced at 6" ctrs. each way.

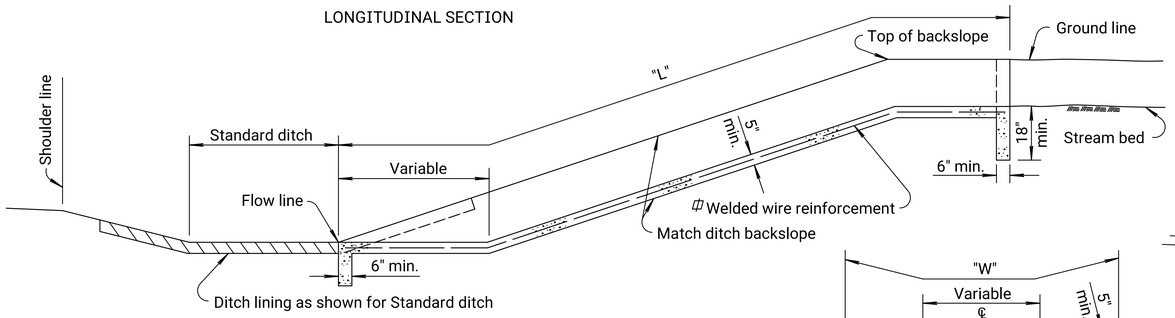
Reinforcement as shown is included in the unit price bid for "Concrete Ditch Lining".

Measurements of Concrete Ditch Lining shall be in sq. yds. of outside surface area. Add 1'-6" times "W" for each toewall.

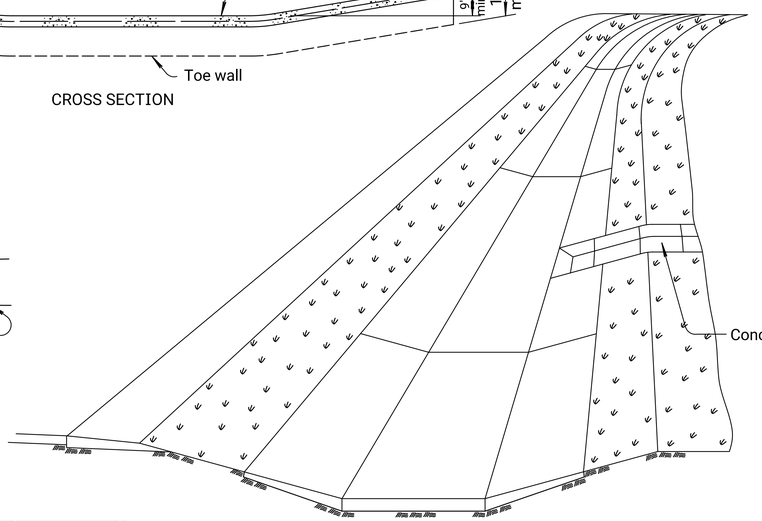
The exact location and dimensions may be adjusted, if required, by the Engineer at the time of construction.

Longitudinal construction joints may be constructed at the Contractor's option.

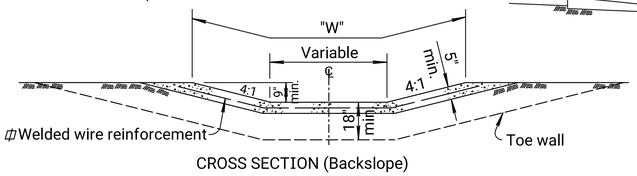
▱ Welded wire can be substituted with macro fiber reinforcement. See Standard Specifications for macro fiber and application rate requirements



LONGITUDINAL SECTION (Backslope)



PERSPECTIVE VIEW



CROSS SECTION (Backslope)

CONCRETE DITCH LINING

NO.	DATE	REVISIONS	BY	APP'D
10	03-27-18	Added Aggregate Size in Clear Zone Guidance	A.L.R.	T.T.R.
09	08-01-12	Revised General Note	S.W.K.	J.O.B.
08	03-20-08	Rev. agg. edge thickness and quant.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DITCH LINING

RD502

FHWA APPROVAL	06-19-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

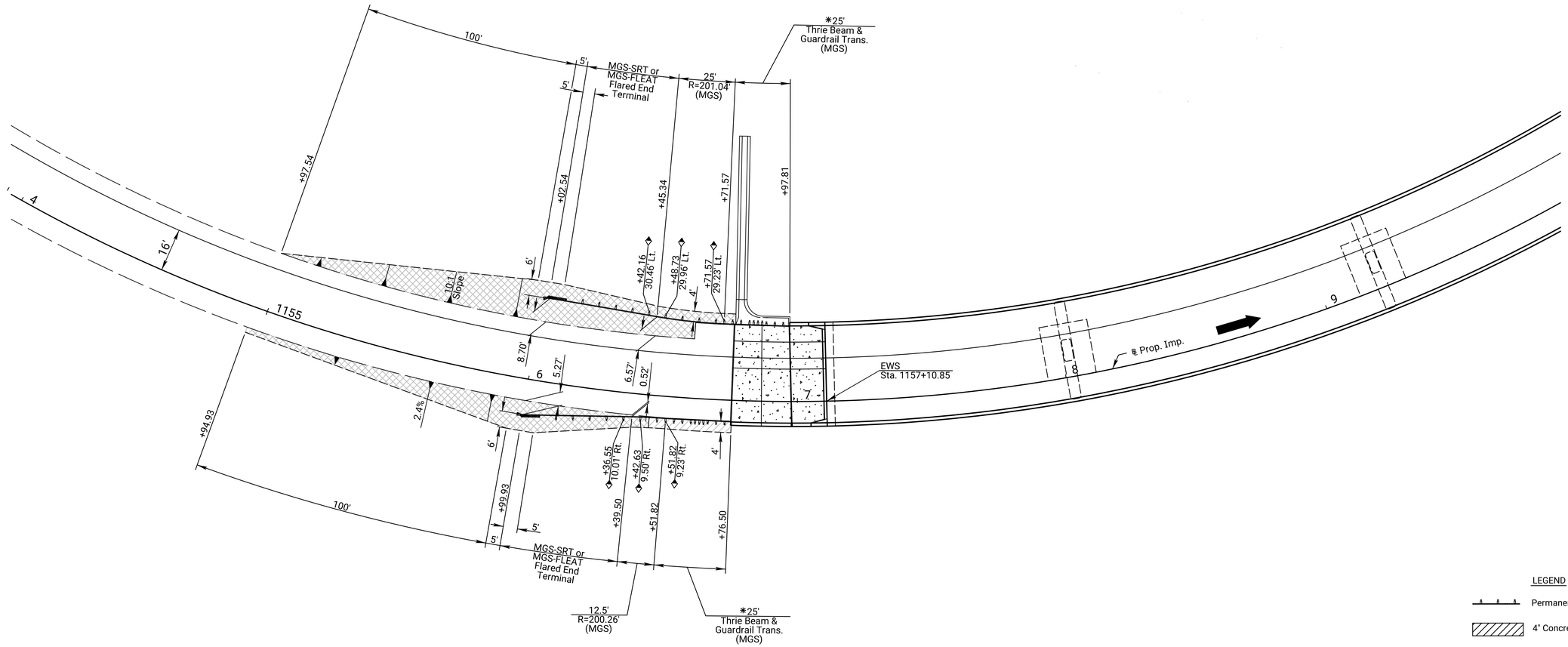
KDOT Graphics Certified 04-18-2022 Sh. No. 28

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:51
File : ka651701rss502.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	29	366

Scale: 1"=20'



PLAN AT STA. 1162+06.17

Notes:
Station, Offset and Radius information for Guardrail is to face of rail.

See Sh. No's. 31 - 38 for Guardrail Details.

Unless otherwise noted, post spacing is 6'-3" on ctrs.

* For post spacing and nesting details. See Sh. No. 36

♦ Station and Offset shown to the Face of Post.

LEGEND

- Permanent Guardrail
- 4" Concrete Pavement
- Traffic Direction
- Concrete Bridge Approach Pavement
- 4" Surfacing Material (SA-1)

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL LAYOUT

I-135 SB to US-54/400 EB RAMP

KDOT Graphics Certified 04-03-2025 Sh. No. 29

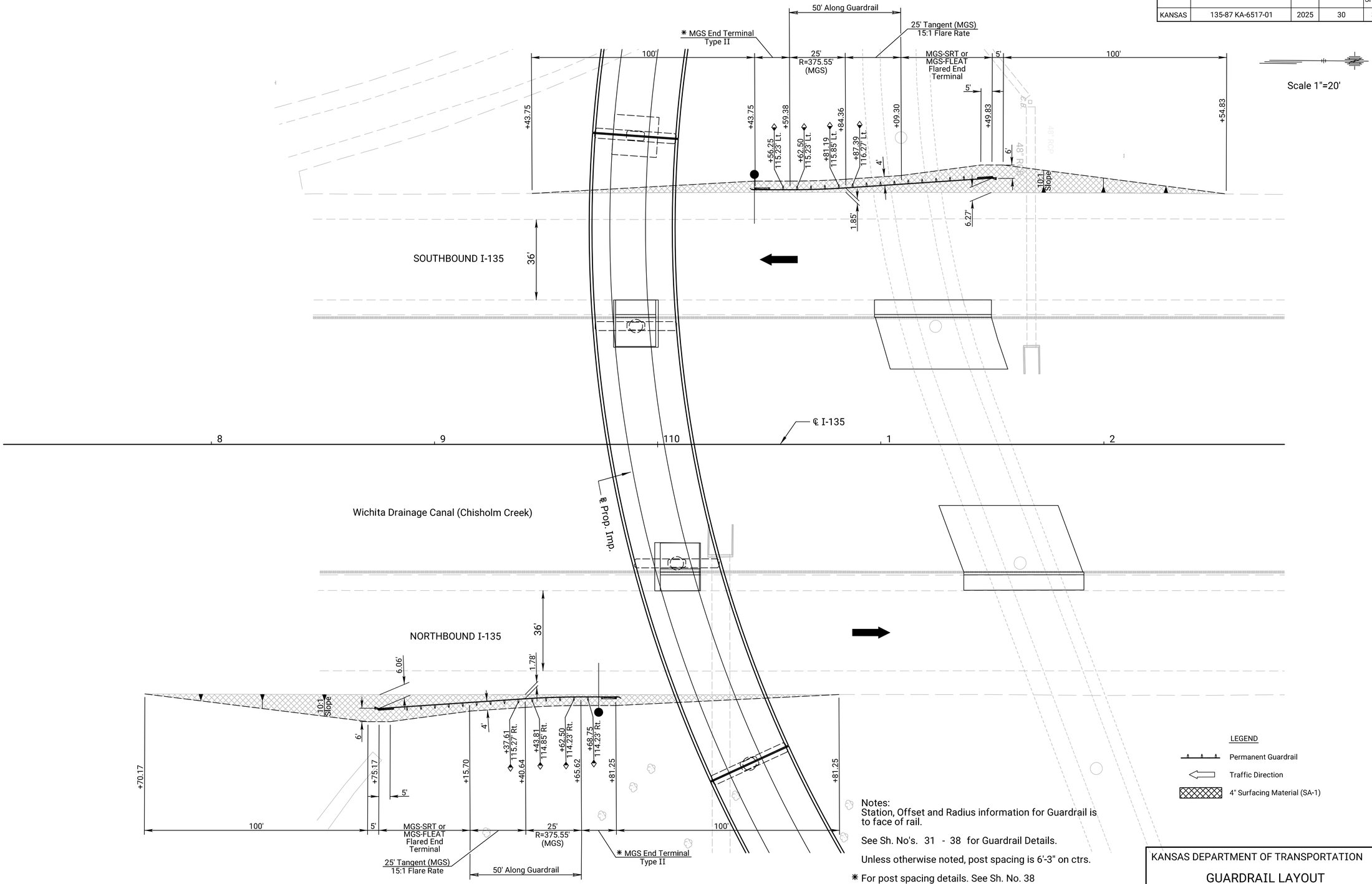
KDOT Graphics Certified

DATE | BY | REFERENCES NOTED | REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:52
File : ka6517101rgr01.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	30	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



LEGEND

- Permanent Guardrail
- Traffic Direction
- 4" Surfacing Material (SA-1)

Notes:
Station, Offset and Radius information for Guardrail is to face of rail.

See Sh. No's. 31 - 38 for Guardrail Details.

Unless otherwise noted, post spacing is 6'-3" on ctrs.

✳ For post spacing details. See Sh. No. 38

◊ Station and Offset shown to the Face of Post.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL LAYOUT

I-135

KDOT Graphics Certified 07-30-2025 Sh. No. 30

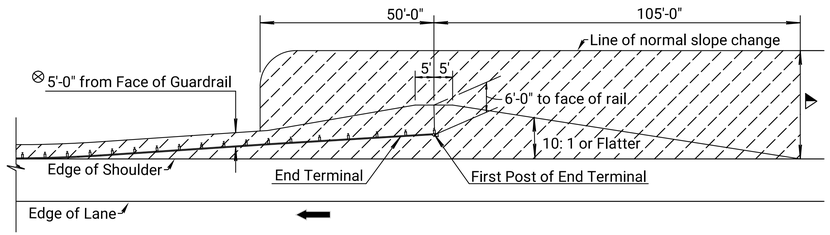
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:52
File : ka651701rgr02.dgn

Note to Designer - Design guardrail installations using guidance shown on KDOT's 'Guardrail Typical Alignments' Standard Drawings. 'Flared' guardrail installations are preferred over 'Parallel' or 'Zero Flare' installations. Where 'Flared' or 'Parallel' installations are used, the flare rate of the guardrail end terminal typically matches the flare rate of the remaining guardrail installation. For 'Zero Flare' installations, 'Parallel' guardrail end terminals should be designed using typical flare rates of 50:1 or flatter for the length of the end terminal. However, while 50:1 or flatter flare rates are typical for 'Parallel' guardrail end terminals, these end terminals may be flared as steep as 26:1 or flatter in order to offset the end terminal head as far from the edge of the through traveled lane as practicable.

GUARDRAIL CLEAR AREA

Applies to all guardrail installations unless otherwise shown in the plans.



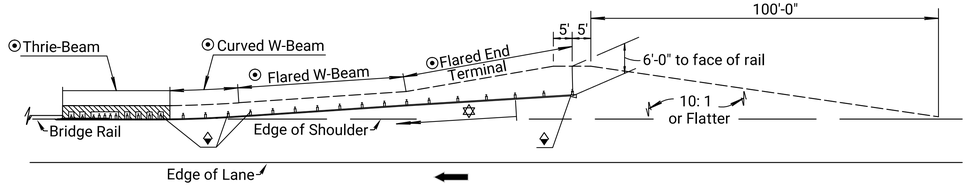
Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet behind the Face of the Guardrail through the W-Beam Portion of the Installation as Shown in the 'Guardrail Clear Area' Detail on this Sheet.

Normal Project Side Slope.

Deflection Distance for Normal Post Spacing

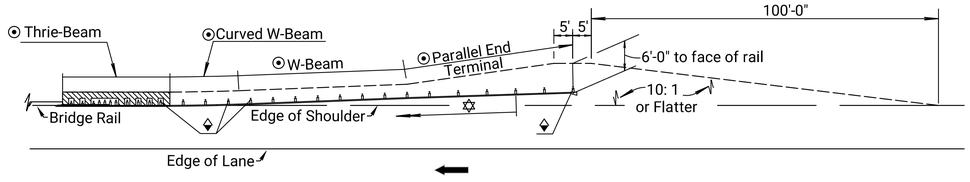
FLARED GUARDRAIL DETAIL

Applies to CGS AND MGS
(MGS Shown)



PARALLEL GUARDRAIL DETAIL

Applies to CGS AND MGS
(MGS Shown)



See Guardrail Layout Sheets for Details

On Guardrail Layout Sheets, Show Station AND Offset from the Roadway Alignment to the Face of Post at these Locations.

Length of Need (Begins at Post 3)

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	31	366

GENERAL NOTES

Install the guardrail end terminals according to the Manufacturer's Installation Manual. The Contractor will furnish a copy of the Manufacturer's Installation Manual to the Engineer prior to the start of the installation.

Use approved steel (preferred) or wood posts provided by the Manufacturer. The guardrail end terminal post type may be independent of the post type used in the remainder of the installation. However, no mixing of post types is permitted in the remaining w-beam and thrie-beam installation.

Use approved polymer (preferred) or wood blockouts provided by the Manufacturer. The guardrail end terminal blockout size and type may be independent of the blockout size and type used in the remainder of the installation. For blockout size and types for the remaining w-beam and thrie-beam portion of the installation see the details shown on KDOT's 'Guardrail Post Details' and 'Guardrail Thrie-Beam Transition Details' Standard Drawings.

Apply retroreflective sheeting to the end terminal impact head before installation.

Tighten all cable anchor assemblies as per the Manufacturer's Installation Manual.

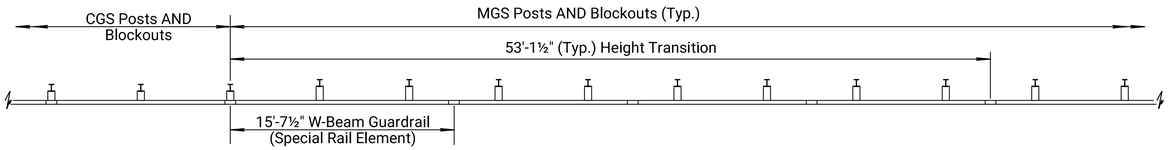
Lap w-beam and thrie-beam guardrail splices, in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Lap end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final configuration.

The minimum length of w-beam guardrail required between the thrie-beam transition and the guardrail end terminal is 12'-6" for all installations; unless otherwise stated in the Manufacturer's Installation Manual.

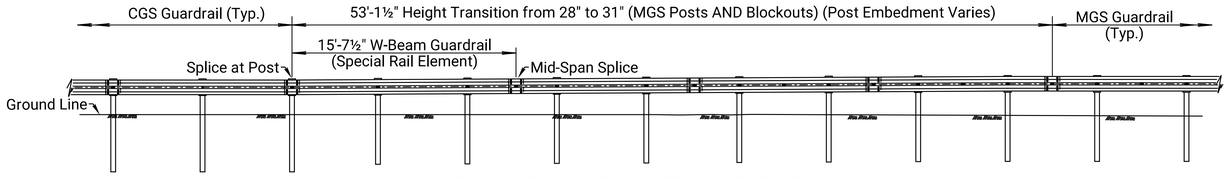
Where pavement with a thickness less than or equal to 8" is encountered during installation, use the details shown on KDOT's 'Guardrail Post Details' Standard Drawings to provide openings in the pavement for the guardrail posts. Where pavement with a thickness greater than 8" or geologic rock is encountered during installation, follow the Manufacturer's Installation Manual for guidance. Where the Manufacturer's Installation Manual does not address pavement with a thickness greater than 8" or geologic rock, contact the manufacturer for instructions or install the guardrail posts as directed by the Engineer.

All work and materials required for w-beam and thrie-bean guardrail installations are paid for under the appropriate bid items for either CGS or MGS guardrail depending on the type of installation.

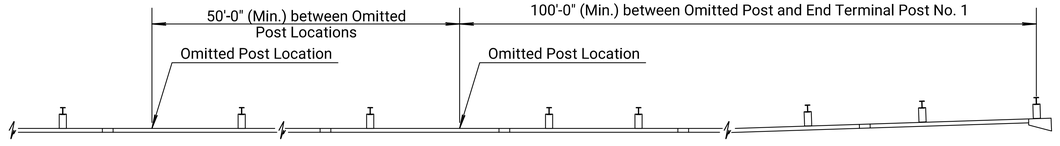
All work and materials required for guardrail end terminal installations are paid for under the bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.



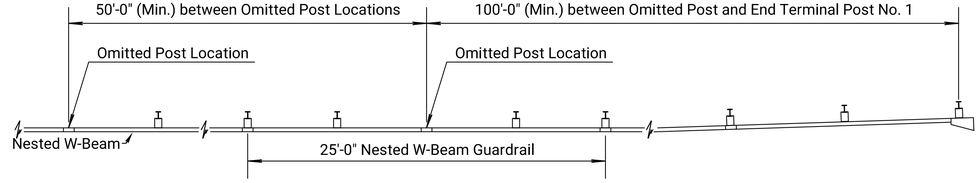
CGS TO MGS TRANSITION DETAILS (PLAN)



CGS TO MGS TRANSITION DETAILS (ELEVATION)



MGS OMITTED POST DETAIL



CGS OMITTED POST DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINALS

END TERMINAL BID ITEM	FLARED OR PARALLEL	MOUNTING HEIGHT	CRASH TESTING CRITERIA	STEEL POST DESIGN AVAILABLE	WOOD POST DESIGN AVAILABLE	ENERGY ABSORBING	MANUFACTURER	DESIGN LENGTH	MANUFACTURER SYSTEM LENGTH
Guardrail End Terminal (MGS-FLEAT)	Flared	31"	NCHRP 350	Yes	Yes	Yes	Road Systems	40'-7½"	37'-6"
Guardrail End Terminal (MGS-SRT)	Flared	31"	NCHRP 350	Yes	Yes	No	Trinity Industries	40'-7½"	37'-6"
Guardrail End Terminal (MGS-MSKT)	Parallel	31"	MASH	Yes	No	Yes	Road Systems	46'-10½"	46'-10½"
Guardrail End Terminal (MGS-SOFTSTOP)	Parallel	31"	MASH	Yes	No	Yes	Trinity Industries	46'-10½"	50'-9½"

CONVENTIONAL GUARDRAIL SYSTEM (CGS) END TERMINALS

END TERMINAL BID ITEM	FLARED OR PARALLEL	MOUNTING HEIGHT	CRASH TESTING CRITERIA	STEEL POST DESIGN AVAILABLE	WOOD POST DESIGN AVAILABLE	ENERGY ABSORBING	MANUFACTURER	DESIGN LENGTH	MANUFACTURER SYSTEM LENGTH
Guardrail End Terminal (FLEAT)	Flared	28"	NCHRP 350	Yes	Yes	Yes	Road Systems	37'-6"	37'-6"
Guardrail End Terminal (SRT)	Flared	28"	NCHRP 350	Yes	Yes	No	Trinity Industries	37'-6"	37'-6"
Guardrail End Terminal (SKT)	Parallel	28"	NCHRP 350	Yes	Yes	Yes	Road Systems	50'-0"	50'-0"

NO.	DATE	REVISIONS	BY	APP'D
02	09-05-18	ADD. OMITTED POST AND TRANS. DETAILS	A.L.R.	T.T.R.
01	06-05-18	INITIAL RELEASE	A.L.R.	T.T.R.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL AUXILIARY DETAILS

RD606

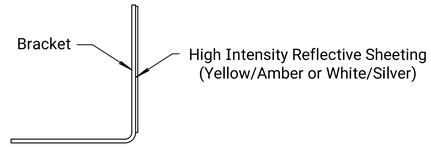
FHWA APPROVAL	09-25-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 09-09-2024 Sh. No. 31

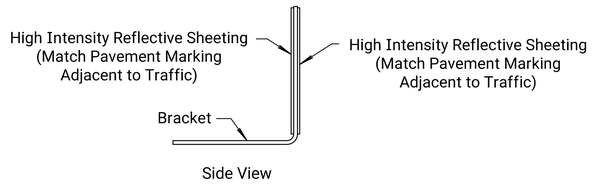
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:54
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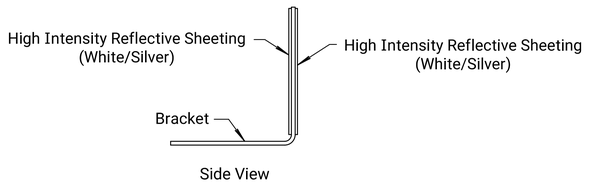
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	32	366



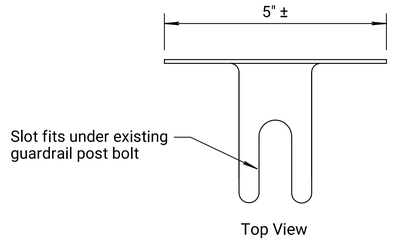
Flexible Marker
One-Way Traffic

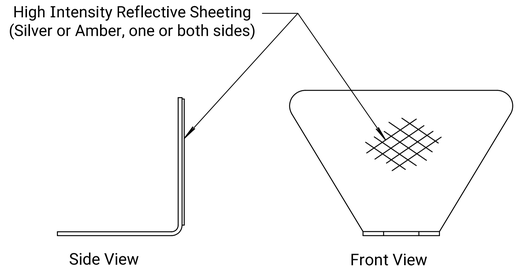


Flexible Marker
Median Locations



Flexible Marker
Two-Way Traffic





Flexible Guardrail Marker

(High Impact Polycarbonate approx. .085" thick, 5¼" x 3")

GENERAL NOTES

Install flexible markers on a post behind the guardrail bolt head on the traffic side of guardrail installations at a spacing not to exceed 25'. No marker is installed between the head and post #5 when the guardrail is terminated with a crashworthy end terminal.

Install flexible markers on the top of bridge rails at a spacing not to exceed 50', except for long bridges (greater than 200' long), where spacing may be increased to 100'.

Install flexible markers on the top of concrete safety barrier at a spacing not to exceed 100', except for barrier along a horizontal curve or along ramps and ramp tapers, where spacing is not to exceed 50'.

Where the height of the bridge rail or concrete barrier is greater than 32", mount the flexible markers on the side of the barrier at a height of 32" as shown on this sheet.

For guardrail, bridge rail, or concrete safety barrier located on two-way roadways, use flexible markers with white/silver high intensity reflective sheeting on both sides.

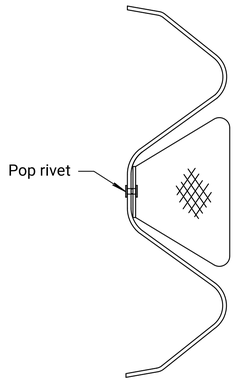
For guardrail located on one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located on the outside edge of one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located in the median, use flexible markers with reflective sheeting installed on both sides of the bracket. Match the color of the marker (yellow/amber or white/silver) to the color of the pavement marking adjacent to the traffic lane.

Use High Impact Polycarbonate Flexible Guardrail Marker with High Intensity Reflective Sheeting or an approved equivalent, see Standard Specifications.

Use zinc or cadmium plated fasteners that comply with Standard Specifications.

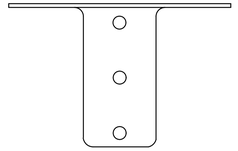
Work and materials required for installation of markers on guardrail, bridge rail, or concrete safety barrier are subsidiary to other bid items in the contract.

Install flexible markers for the final (permanent) traffic configuration.

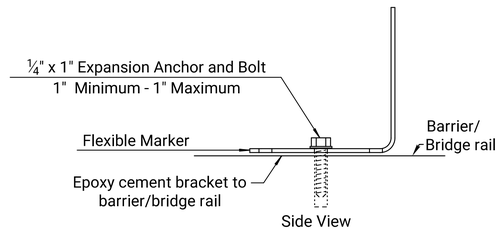


Typical Mounting on W-Beam

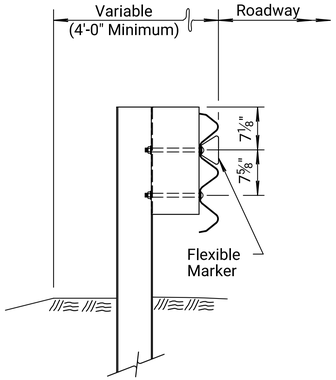
Pop rivet attachment to Guardrail when necessary.



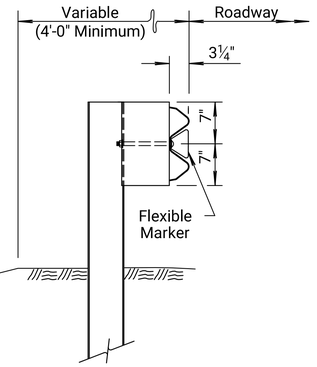
Barrier/Bridge Rail



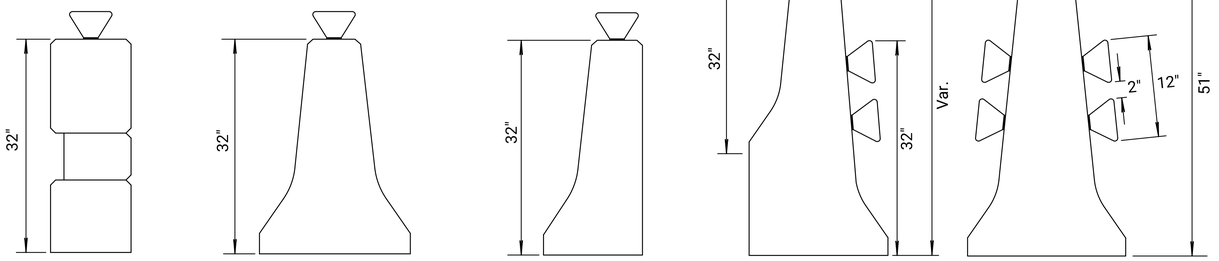
Method of Attaching Flexible
Marker to Barrier/Bridge Rail



THRIE-BEAM GUARDRAIL



W-BEAM GUARDRAIL



CORRAL RAIL | TYPE I CSB | TYPE II CSB or F-SHAPED BRIDGE RAIL | TYPE III CSB | TYPE IV CSB

TYPICAL BARRIER/BRIDGE RAIL MOUNTING DETAILS

NO.	DATE	REVISIONS	BY	APP'D
09	09-11-17	Rev. Det. Markers, Rev. Gen. Note	A.L.R.	S.W.K.
08	11-15-10	Revised notes	S.W.K.	J.O.B.
07	12-21-08	AKT marker or approved equal	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MARKER DETAILS FOR GUARDRAIL, BARRIER, AND BRIDGE RAILS

RD610

FHWA APPROVAL		03-15-18	APP'D.	Scott W. King
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 09-09-2024 Sh. No. 32

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:54
File : ka651701rss610.dgn

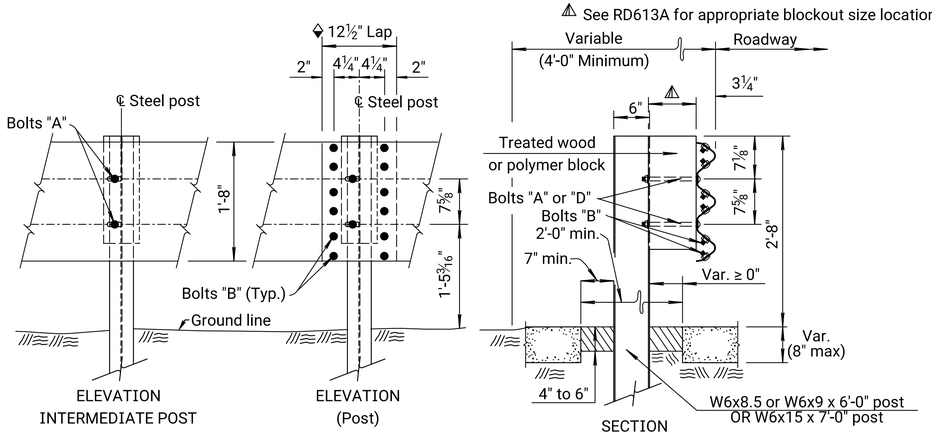
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	33	366

Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

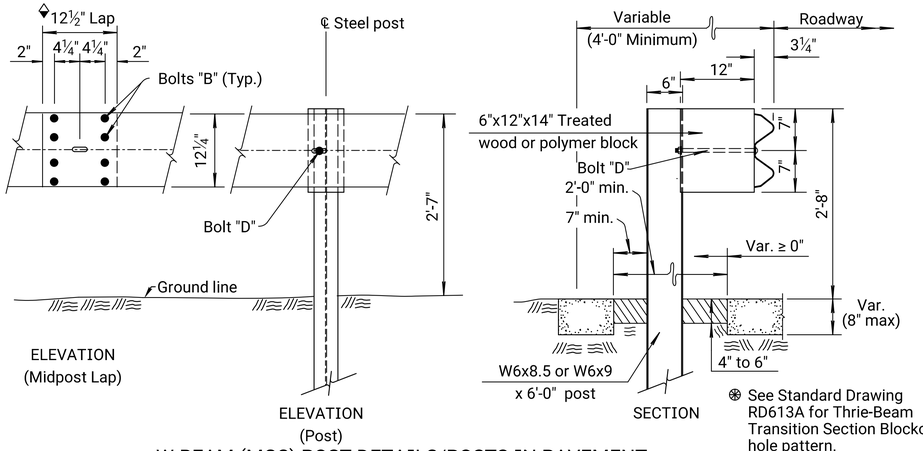
Plotted by : usmh708425 15-AUG-2025 12:54
File : ka651701rss611a.dgn

♦ Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

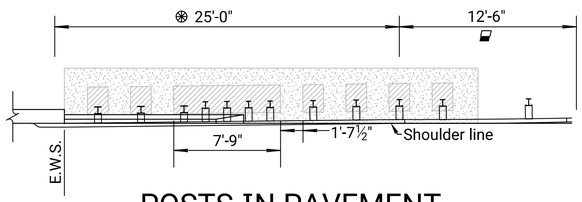
⚠ See RD613A for appropriate blockout size location.



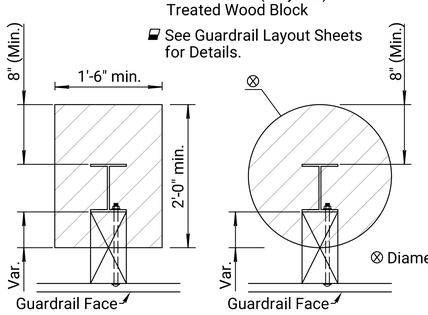
THRIE BEAM POST DETAILS/POSTS IN PAVEMENT



W-BEAM (MGS) POST DETAILS/POSTS IN PAVEMENT



POSTS IN PAVEMENT
(Not to Scale)



PLAN
(ALTERNATE GEOMETRIES)

⊛ See Standard Drawing RD613A for Thrie-Beam Transition Section Blockout hole pattern.

✡ Non-Metallic (Polymer) or Treated Wood Block

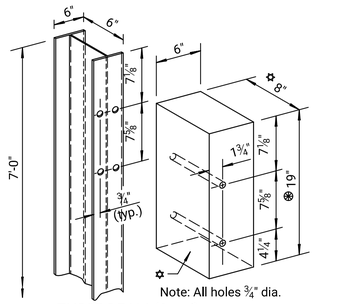
▭ See Guardrail Layout Sheets for Details.

⊗ Diameter may vary from 1'-6" (min.) to 2'-0".

▨ Slurry Grout (Low Strength)
See KDOT's Standard Specifications

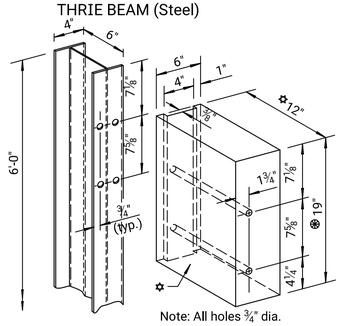
▭ Pavement (Concrete or Asphalt)

Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's option.



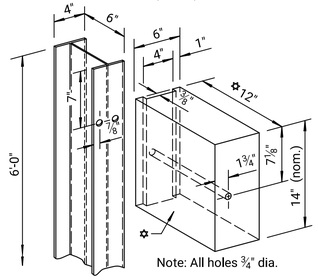
Note: All holes ¾" dia.

THRIE BEAM (Steel)



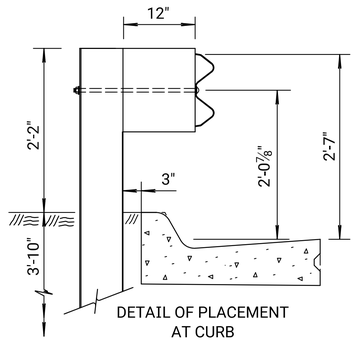
Note: All holes ¾" dia.

THRIE BEAM (Steel)



Note: All holes ¾" dia.

"W" BEAM (Steel)



DETAIL OF PLACEMENT
AT CURB

Note: Measure height of rail from the pavement surface at the curb/pavement joint as shown. A special design is needed when guardrail is not located as detailed. A Type II (laydown) curb & gutter is preferred when guardrail is adjacent to curb.

GENERAL NOTES (Steel Posts)

Use grade of steel for steel posts that meet the requirements of the standard specifications.

Hot dip galvanize the posts after fabrication, see standard specifications.

Wood blockouts may be used through the 25'-0" thrie-beam section with wood or polymer blockouts used throughout the remainder of the w-beam installation. The blockout size and material used in the guardrail end terminal may be independent from the remainder of the installation. For wood/polymer blockout requirements see standard specifications.

Use S4S rectangular blockouts for Thrie-Beam/W-Beam installation.

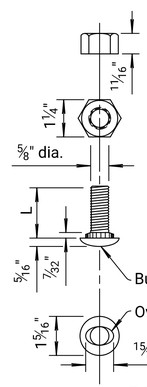
Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations.

Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered that prevents installation of a full length post.

All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made.

All bolts,nuts, and washers shall be galvanized in accordance with the Standard Specifications.

BOLT SIZE SCHEDULE	
Bolt	L
A	10"
B	1¼"
C	18"
D	14"
E	22"



BOLT & NUT DETAILS

NO.	DATE	REVISIONS	BY	APP'D
05	09-24-15	Separated Steel/Wood Post Details	S.W.K.	S.W.K.
04	11-08-12	Revised Detail, Posts in Pavement	S.W.K.	J.O.B.
03	08-01-12	Revised Note to Designer	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST (STEEL) (MGS) DETAILS

RD611A

FHWA APPROVAL	01-29-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

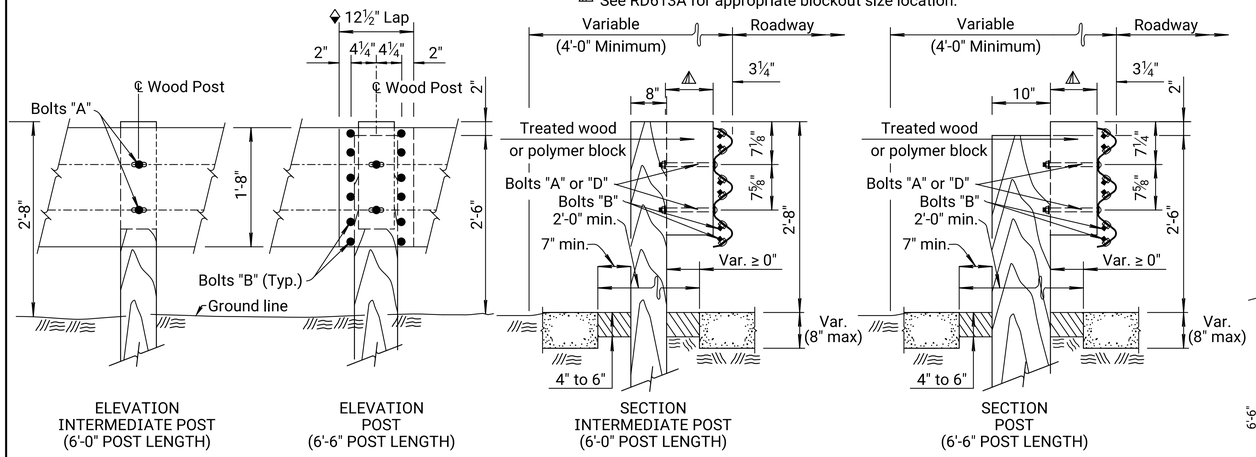
KDOT Graphics Certified 09-09-2024 Sh. No. 33

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	34	366

◈ Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

⚠ See RD613A for appropriate blockout size location.



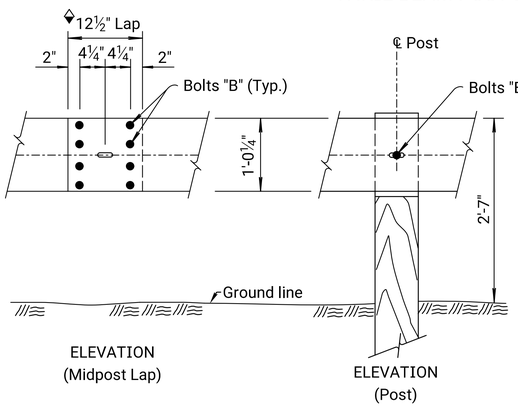
ELEVATION
INTERMEDIATE POST
(6'-0" POST LENGTH)

ELEVATION
POST
(6'-6" POST LENGTH)

SECTION
INTERMEDIATE POST
(6'-0" POST LENGTH)

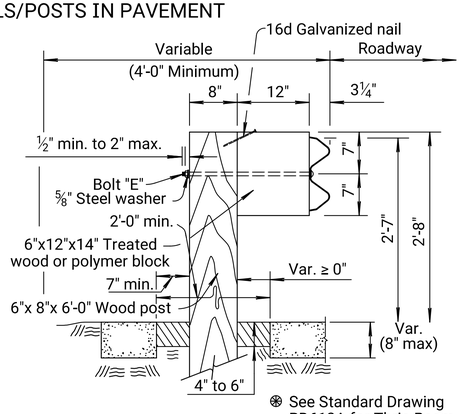
SECTION
POST
(6'-6" POST LENGTH)

THRIE BEAM POST DETAILS/POSTS IN PAVEMENT



ELEVATION
(Midpost Lap)

ELEVATION
(Post)



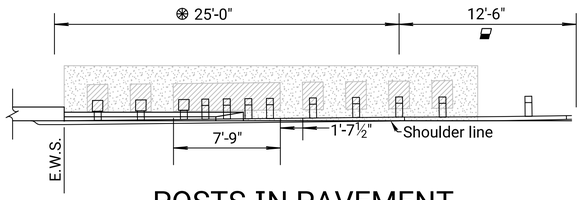
SECTION

⊛ See Standard Drawing RD613A for Thrie-Beam Transition Section Blockout hole pattern.

✡ Non-Metallic (Polymer) or Treated Wood Block

▰ See Guardrail Layout Sheets for Details.

W-BEAM (MGS) POST DETAILS/POSTS IN PAVEMENT



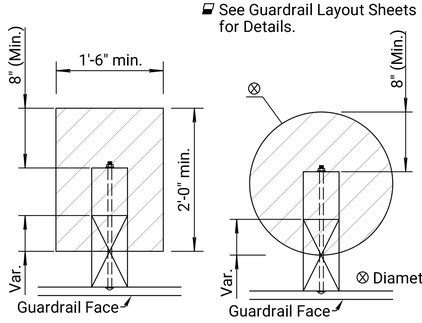
POSTS IN PAVEMENT

(Not to Scale)

▨ Slurry Grout (Low Strength)
See KDOT's Standard Specifications

☐ Pavement (Concrete or Asphalt)

Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's option.

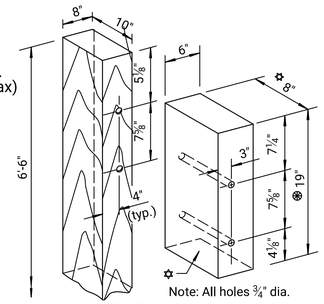


RECTANGULAR GEOMETRY

CIRCULAR GEOMETRY

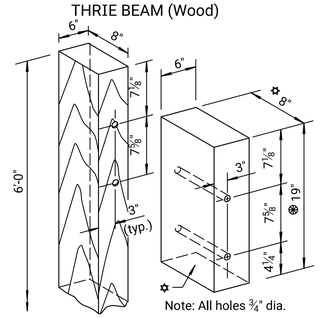
⊗ Diameter may vary from 1'-6" (min.) to 2'-0".

PLAN
(ALTERNATE GEOMETRIES)



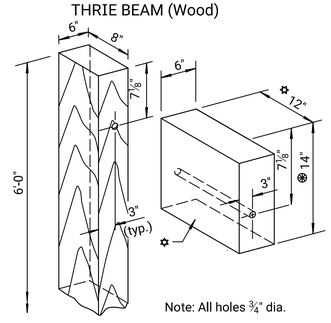
Note: All holes ¾" dia.

THRIE BEAM (Wood)



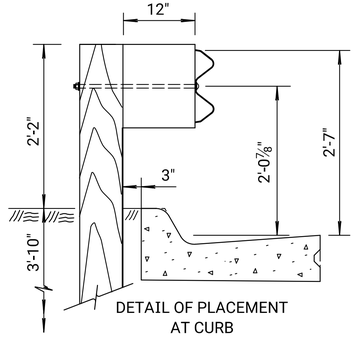
Note: All holes ¾" dia.

THRIE BEAM (Wood)



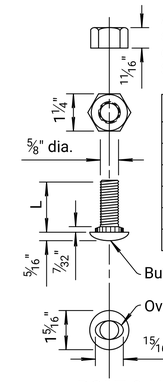
Note: All holes ¾" dia.

"W" BEAM (Wood)



DETAIL OF PLACEMENT
AT CURB

Note: Measure height of rail from the pavement surface at the curb/pavement joint as shown. A special design is needed when guardrail is not located as detailed. A Type II (laydown) curb & gutter is preferred when guardrail is adjacent to curb.



All bolts,nuts, and washers shall be galvanized in accordance with the Standard Specifications.

BOLT SIZE SCHEDULE	
Bolt	L
A	10"
B	1¼"
C	18"
D	14"
E	22"

BOLT & NUT DETAILS

GENERAL NOTES (Wood Posts)

Give all wood posts and wood blocks a preservative treatment, see standard specifications. Thoroughly saturate all cuts, injuries and bolt holes on wood posts and blocks with preservative. Use only one type of preservative treatment on a project.

Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations.

Wood blockouts may be used through the 25'-0" thrie-beam section with wood or polymer blockouts used throughout the remainder of the w-beam installation. The blockout size and material used in the guardrail end terminal may be independent from the remainder of the installation. For wood/polymer blockout requirements see standard specifications.

Use S4S rectangular posts/blockouts for Thrie Beam/W-Beam installation. See standard specifications for additional information.

Contractor must notify Engineer at the earliest time when a non-removable man-made object (footing, pipe, etc.) is encountered and prevents installation of a full length post.

All dimensions are nominal and are subject to manufacturing tolerances.

Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made.

NO.	DATE	REVISIONS	BY	APP'D
04	09-24-15	Initial Release	T.T.R.	S.W.K.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST (WOOD) (MGS) DETAILS

RD611B

FHWA APPROVAL		01-29-16	APP'D.	Scott W. King
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 09-09-2024 Sh. No. 34

KDOT Graphics Certified

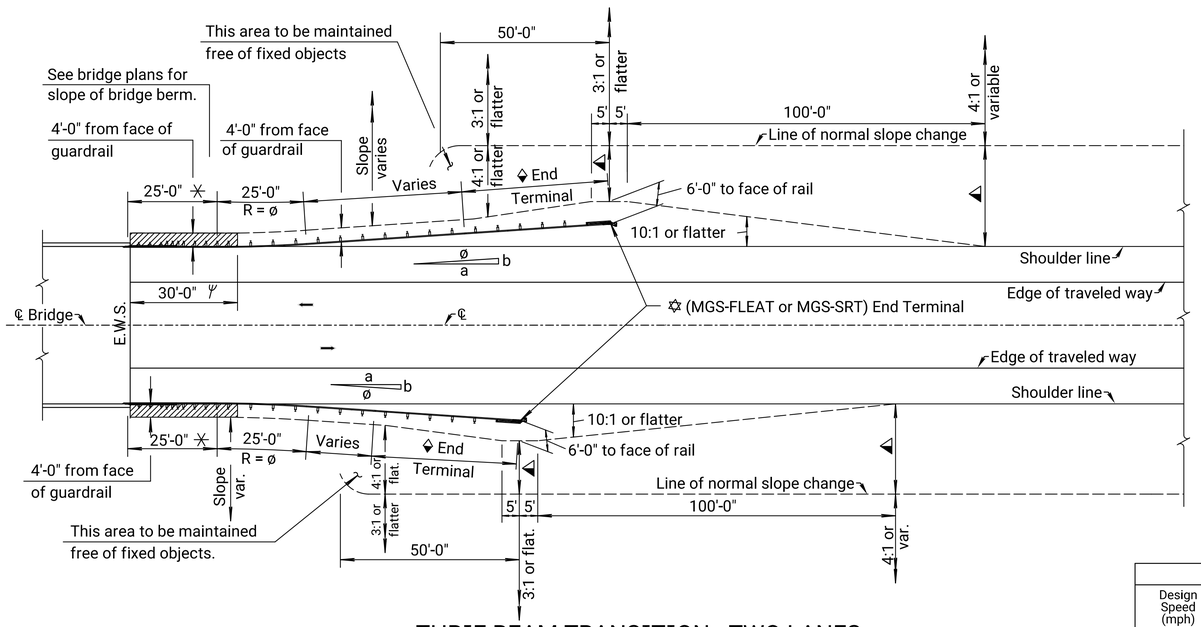
Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

Plotted by : usmh708425 15-AUG-2025 12:54
File : ka651701rss611b.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	35	366

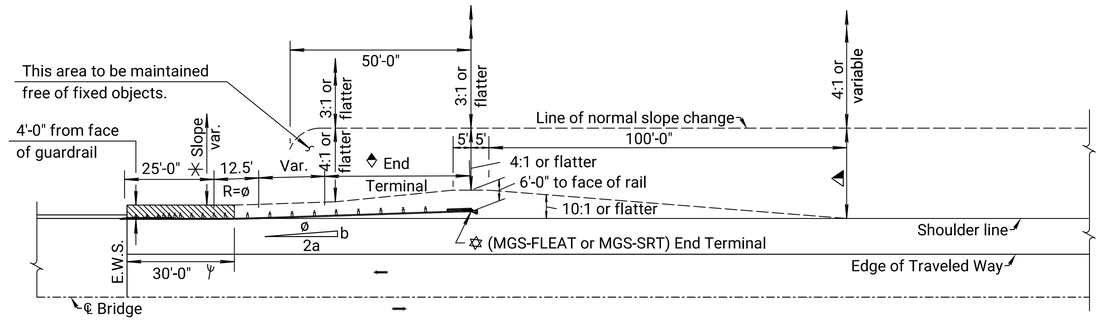
Notes to Designer: Determine guardrail length of need using either KDOT's Length of Need Equation or a graphic design approach with an L_1 distance measured from the edge of the area of concern to the P.I. of the curved guardrail section. Combine materials for asphalt widening in the plan quantities.

Optional: If approach side is within the shyline, use a flare rate of 2a:b for all quadrants.



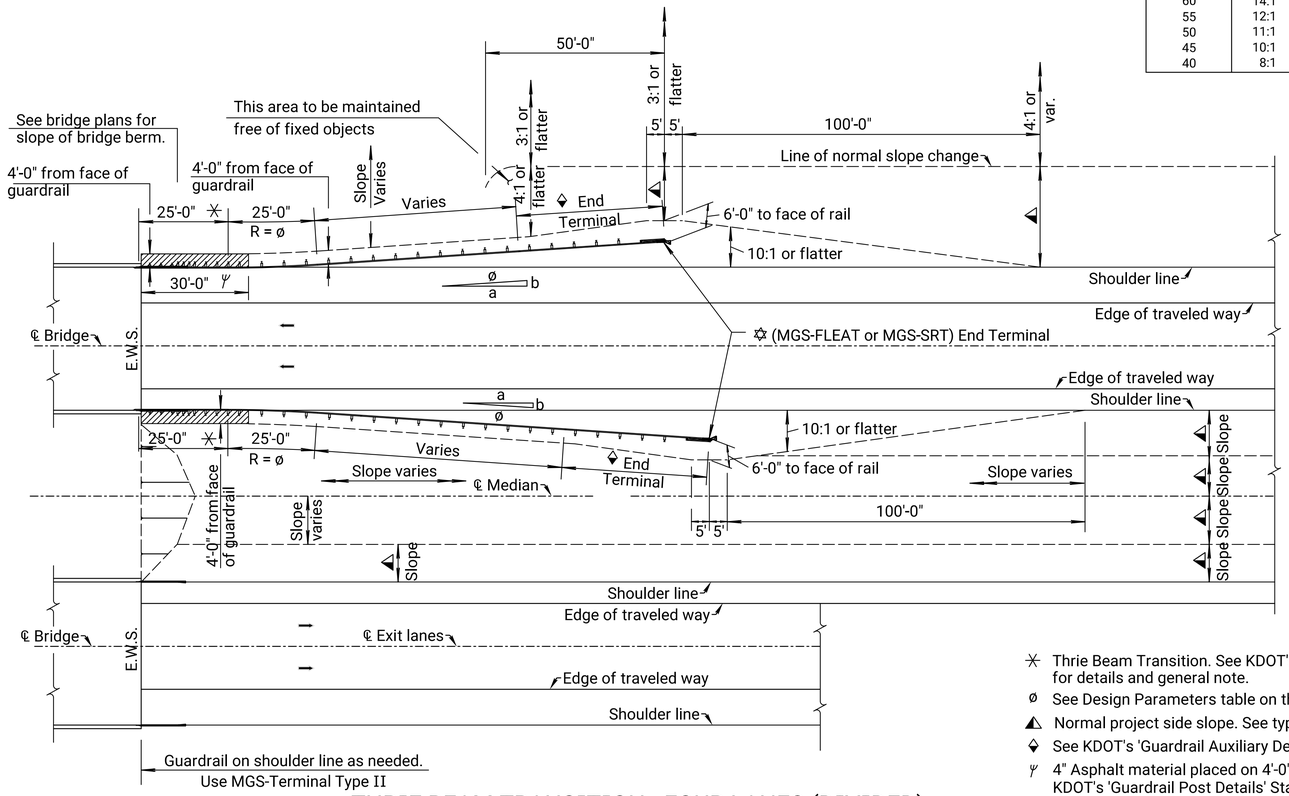
THRIE BEAM TRANSITION - TWO LANES

Note: Use flare rate of a:b and curve length of 25'-0" when guardrail is beyond shyline. Use flare rate of 2a:b and curve length of 12'-6" when guardrail is located inside the shy line.



ALTERNATE TREATMENT - TWO LANES (Flare Rate = 2a:b)

DESIGN PARAMETERS				
Design Speed (mph)	Flare Rate (a:b)	Radius (R)	Flare Rate (2a:b)	Radius (R)
70	15:1	375.55'	30:1	375.14'
60	14:1	350.59'	26:1	325.16'
55	12:1	300.69'	24:1	300.17'
50	11:1	275.76'	21:1	262.70'
45	10:1	250.83'	18:1	225.23'
40	8:1	201.04'	16:1	200.26'



THRIE BEAM TRANSITION - FOUR LANES (DIVIDED)

- Thrie Beam Transition. See KDOT's 'Thrie Beam Guardrail Transition Details' Standard Drawings for details and general note.
- ø See Design Parameters table on this sheet for radius, length of curve and flare rate information.
- Normal project side slope. See typical sections.
- See KDOT's 'Guardrail Auxiliary Details' Standard Drawing.
- 4" Asphalt material placed on 4'-0" embankment widening unless flume inlet and slope drain is constructed. See KDOT's 'Guardrail Post Details' Standard Drawings for "Post in Pavement" details.
- The minimum length of w-beam guardrail required between the guardrail end terminal and any transition section, including the thrie-beam transition, is 12'-6".

NO.	DATE	REVISIONS	BY	APP'D
04	06-05-18	Removed Flare-beyong-the-Flare	A.L.R.	T.T.R.
03	05-15-17	Removed X-LITE	A.L.R.	S.W.K.
02	06-07-12	Revised Note to Designer	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

THRIE BEAM GUARDRAIL (MGS) BRIDGE APPROACH TRANSITION TYPICAL ALIGNMENTS (FLARED)

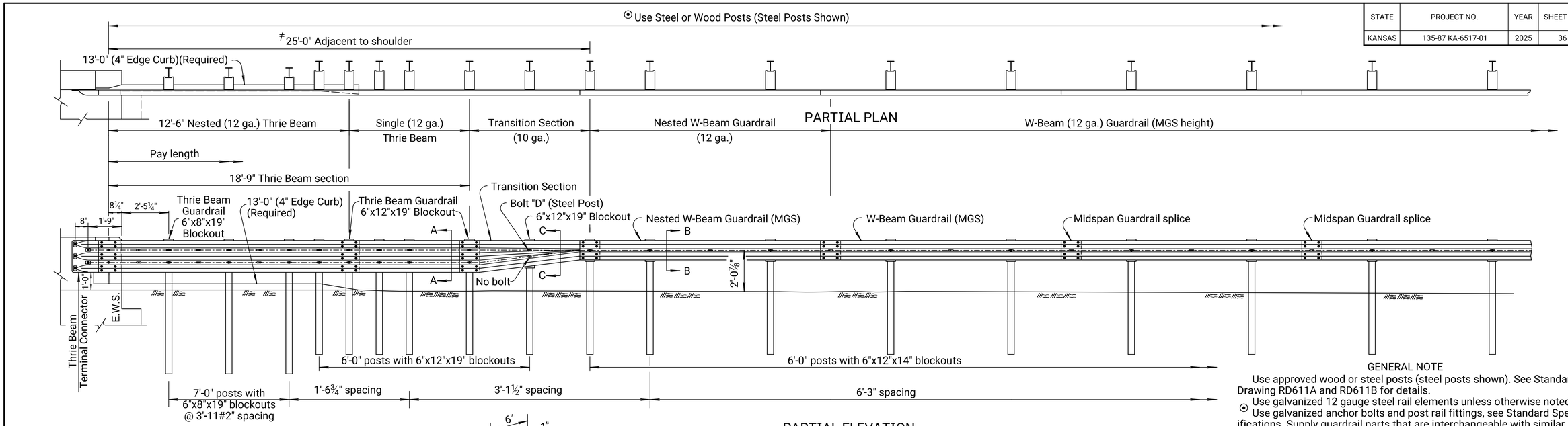
FHWA APPROVAL	06-19-18	APP'D.	Scott. W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

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Plotted by : usmh708425 15-AUG-2025 12:54
File : ka651701rss612c.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	36	366



GENERAL NOTE

Use approved wood or steel posts (steel posts shown). See Standard Drawing RD611A and RD611B for details.

⊙ Use galvanized 12 gauge steel rail elements unless otherwise noted.

Use galvanized anchor bolts and post rail fittings, see Standard Specifications. Supply guardrail parts that are interchangeable with similar parts regardless of source or manufacturer.

Wood blockouts may be used through the 25'-0" thrie-beam section with wood or composite blockouts used throughout the remainder of the w-beam installation. The blockout size and material used in the guardrail end terminal may be independent from the remainder of the installation.

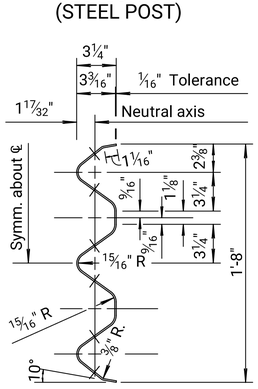
Fabricate Terminal Connector from 10 gauge steel, see Standard Specification. The connector has the same section as thrie beam guardrail. Terminal connector is Subsidiary to the bid item "Guardrail, Steel Plate (MGS)".

Shop bend curve rails when radius is less than 150'.

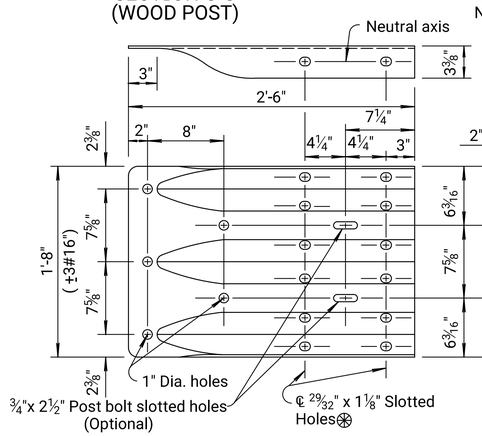
Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

Bridge to guardrail transition consists of 1- 18'-9" thrie-beam with 1- 12'-6" thrie-beam section nested in back of 18'-9" section (See Layout), 1- Thrie beam to W-beam Asymmetrical transition section, use associated hardware with post sizes and location shown. For the remainder of installation use (MGS) W-beam guardrail with only one post type used within (MGS) guardrail run.

All material and work required for this construction is Subsidiary to the bid item "Guardrail, Steel Plate (MGS)".

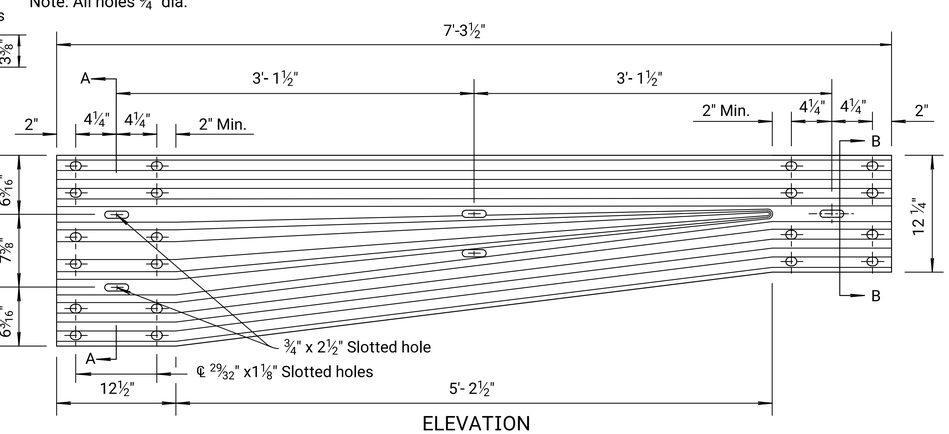


SECTION A-A
THRU RAIL ELEMENT
TYPICAL THRIE BEAM

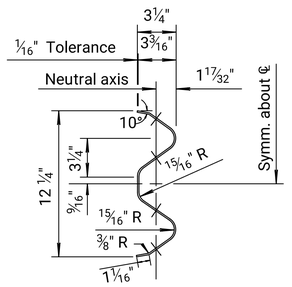


TERMINAL CONNECTOR

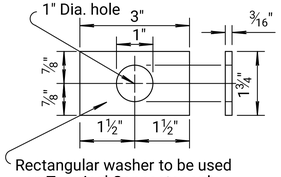
⊛ Optional 29⁄32" x 1¾" Slotted holes Rotated 50° (Typical) (12 req'd.)



ELEVATION
ASYMMETRICAL TRANSITION SECTION
(From Thrie Beam to W-Beam rail)



SECTION B-B
THRU RAIL ELEMENT
TYPICAL W-BEAM



RECTANGULAR WASHER
(Other approved washer may be used.)

NO.	DATE	REVISIONS	BY	APP'D
02	02-10-16	Added Detail, Wood Post	T.T.R.	S.W.K.
01	01-25-12	Revised Details, Thrie-Beam	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS OF THRIE BEAM to (MGS) GUARDRAIL TRANSITION

RD613A

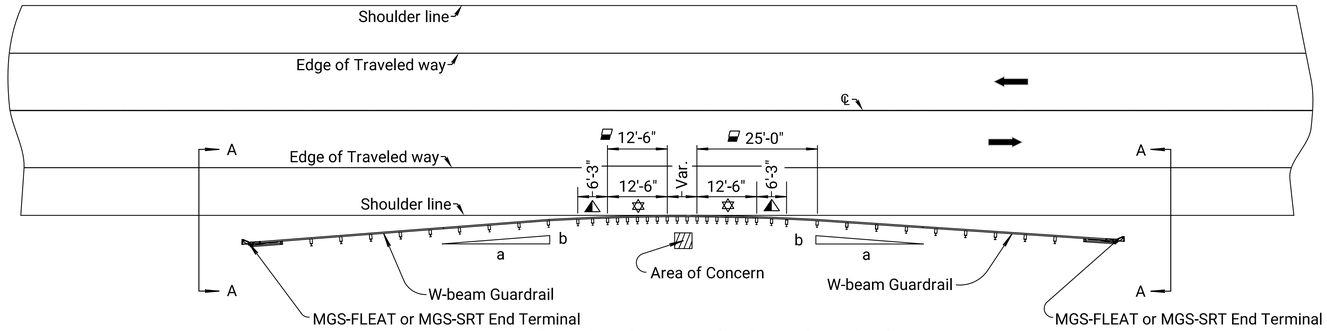
FHWA APPROVAL	04-21-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

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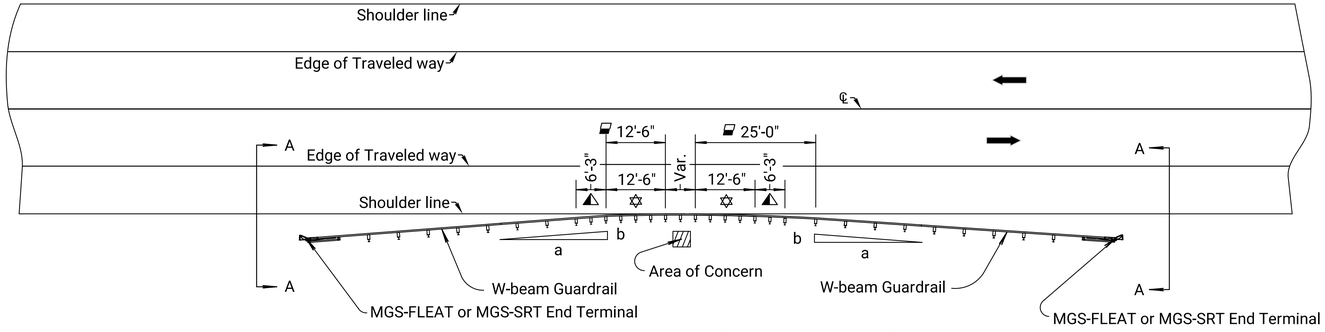
Plotted by : usmh708425 15-AUG-2025 12:54
File : ka651701rss613a.dgn

KDOT Graphics Certified

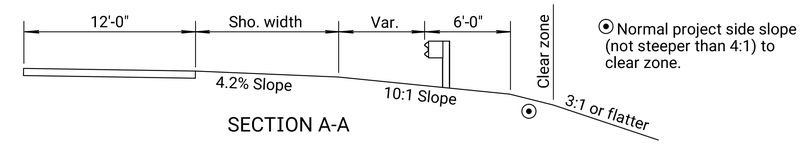
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	37	366



PLAN VIEW TWO LANE (¼ Post Spacing)

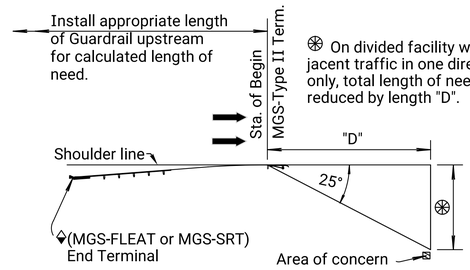


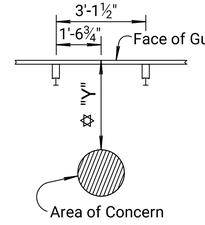
PLAN VIEW TWO LANE (½ Post Spacing)



SECTION A-A

See Design Parameters table on this sheet for radius, length of curve and flare rate information.
Additional ½ post spacing





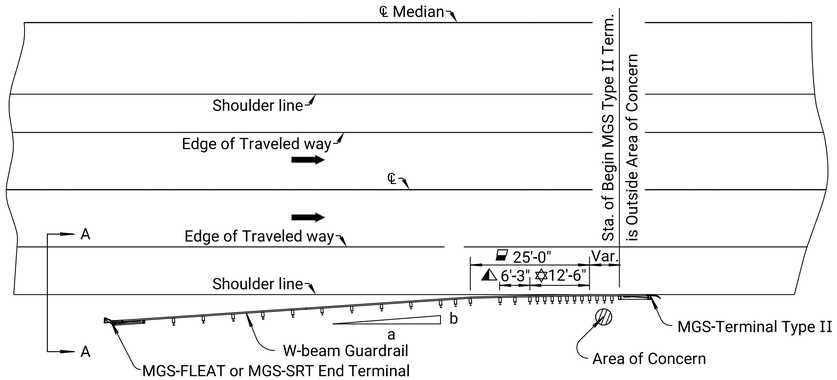
ENLARGEMENT - AREA OF CONCERN

DETAILS OF GUARDRAIL PROTECTION AT ROADSIDE OBSTACLE

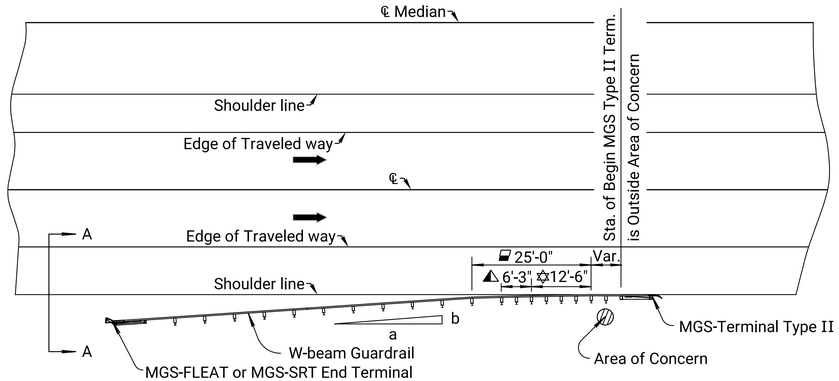
DESIGN PARAMETERS				
Design Speed (mph)	Flare Rate (a:b)	Radius (R)	Flare Rate (2a:b)	Radius (R)
70	15:1	375.55'	30:1	375.14'
60	14:1	350.59'	26:1	325.16'
55	12:1	300.69'	24:1	300.17'
50	11:1	275.76'	21:1	262.70'
45	10:1	250.83'	18:1	225.23'
40	8:1	201.04'	16:1	200.26'

Note: Use flare rate of a:b and curve length of 25'-0" when guardrail is beyond shyline. Using flare rate of 2a:b and curve length of 12'-6" when guardrail is located inside shy line.

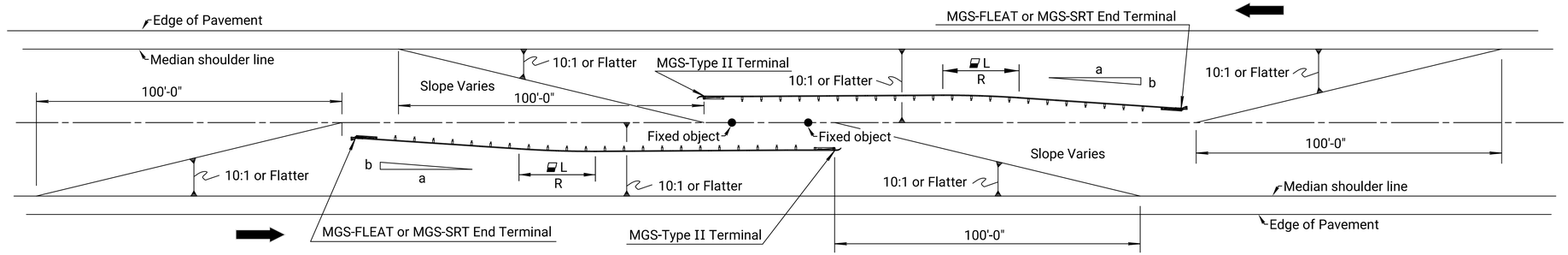
✡ GUARDRAIL AT ROADSIDE OBSTACLES	
TYPE	"Y"
Ridgid Barrier	< 3'
Full Post Spacing	≥ 5'
½ Post Spacing	≥ 4'
¼ Post Spacing	≥ 3'



PLAN VIEW FOUR LANE (¼ Post Spacing)



PLAN VIEW FOUR LANE (½ Post Spacing)



MEDIAN PIER PROTECTION (WIDE MEDIAN)

NO.	DATE	REVISIONS	BY	APP'D
04	06-05-18	Removed Flare-beyond-the-Flare	A.L.R.	T.T.R.
03	05-15-17	Removed X-LITE	A.L.R.	S.W.K.
02	05-20-14	Added Det., Med. Pier Prot. (Wide Med.)	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

(MGS) GUARDRAIL at ROADSIDE OBSTACLE (FLARED INSTALLATION)

RD614A

FHWA APPROVAL		06-19-18	APP'D.	Scott W. King
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

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Note to Designer: Coordinate with the Bureau of Structures for pier protection.

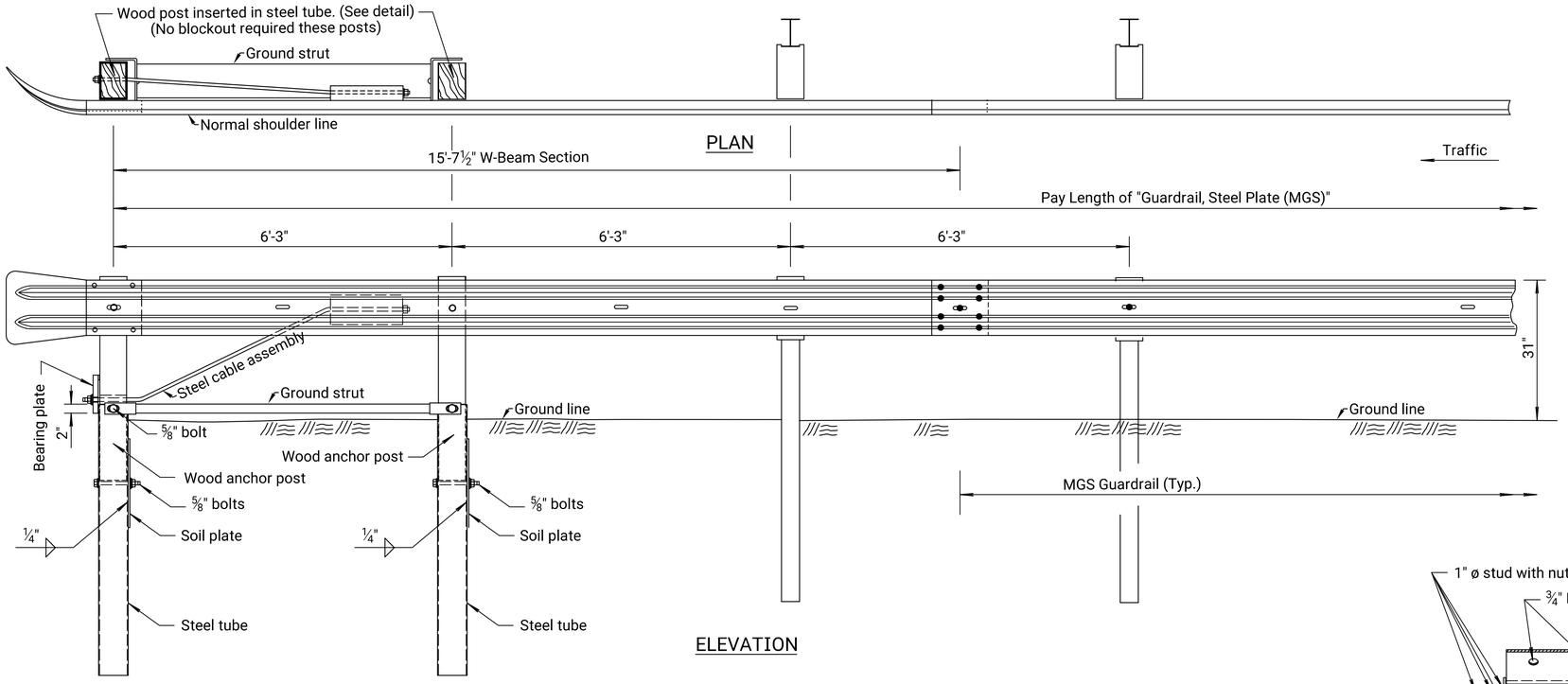
Plotted by : usmh708425 15-AUG-2025 12:54
File : ka651701rss6114a.dgn

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	38	366

Notes to Designer: Use Guardrail End Terminal, MGS Type II on the traffic departing end of barriers where end on impacts are not a consideration and at the end of entrance return.

Plotted by : usmh708425 15-AUG-2025 12:55
File : ka651701rss618a.dgn



GENERAL NOTE

Terminal end posts consist of a wood post inserted into a steel tube see details on this sheet.

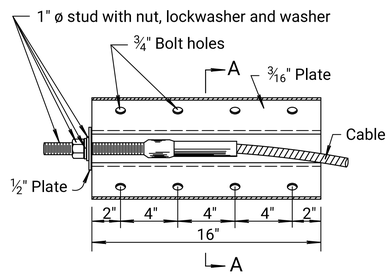
Steel soil tubes may be driven with an approved driving head. Set steel tube and soil plate before installing wood anchor post assembly. Do not drive steel soil tubes with wood post in the tube. Backfill and satisfactorily compact around steel soil tubes placed in drilled holes to prevent tube settlement.

Galvanize all steel parts after fabrication.

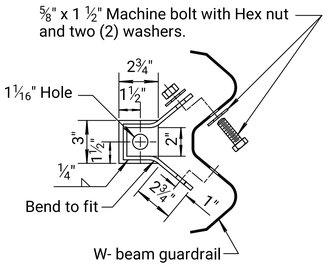
Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of the permanent traffic.

All work and materials required for the installation of MGS Terminal Type II are considered subsidiary to the bid item "Guardrail, Steel Plate (MGS)".

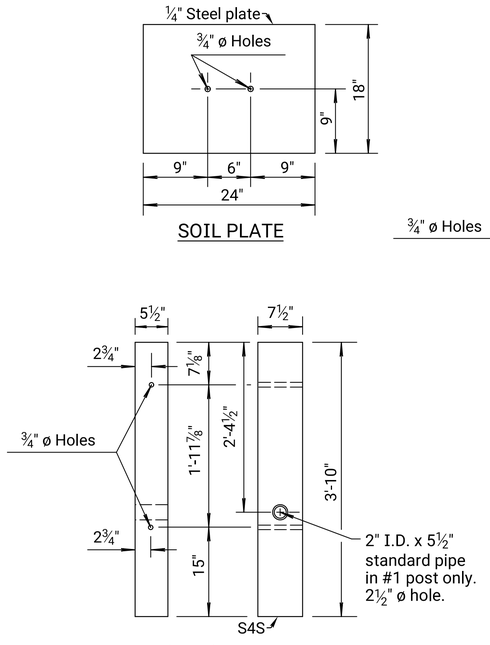
Include MGS Type II end terminal in pay length of "Guardrail, Steel Plate (MGS)".



ANCHOR PLATE

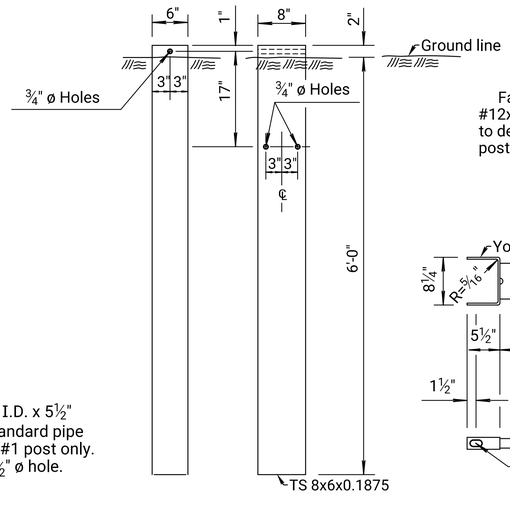


MODIFIED SECTION A-A

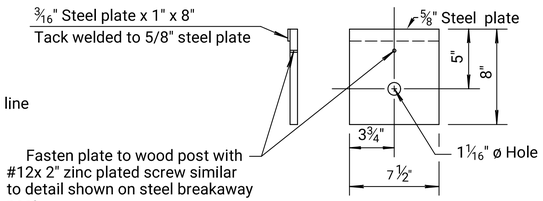


SOIL PLATE

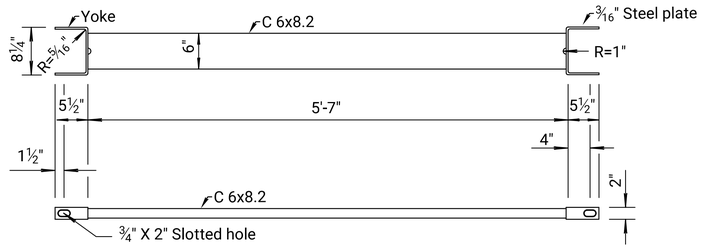
BCT (MGS) WOOD POST



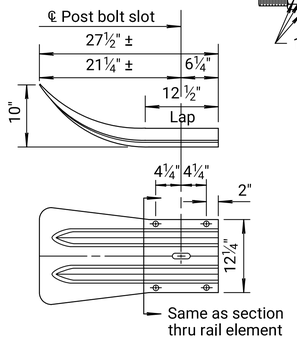
STEEL TUBE



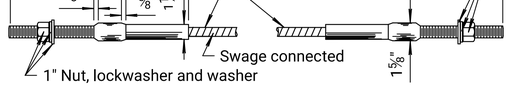
BEARING PLATE



GROUND STRUT
(Strut dimensions shown are typical)



STANDARD END SECTION
(1 each)
(Subsidiary to Steel Plate Guardrail)



CABLE ASSEMBLY (1 each)
(40,000 lbs. min. breaking strength)
Tighten cable to taut tension.

NO.	DATE	REVISIONS	BY	APP'D
02	01-05-16	Revised Layout, End Terminal	T.T.R.	S.W.K.
01	01-25-12	Revised Dimension, End Terminal	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL END TERMINAL (MGS) TYPE II

RD618A

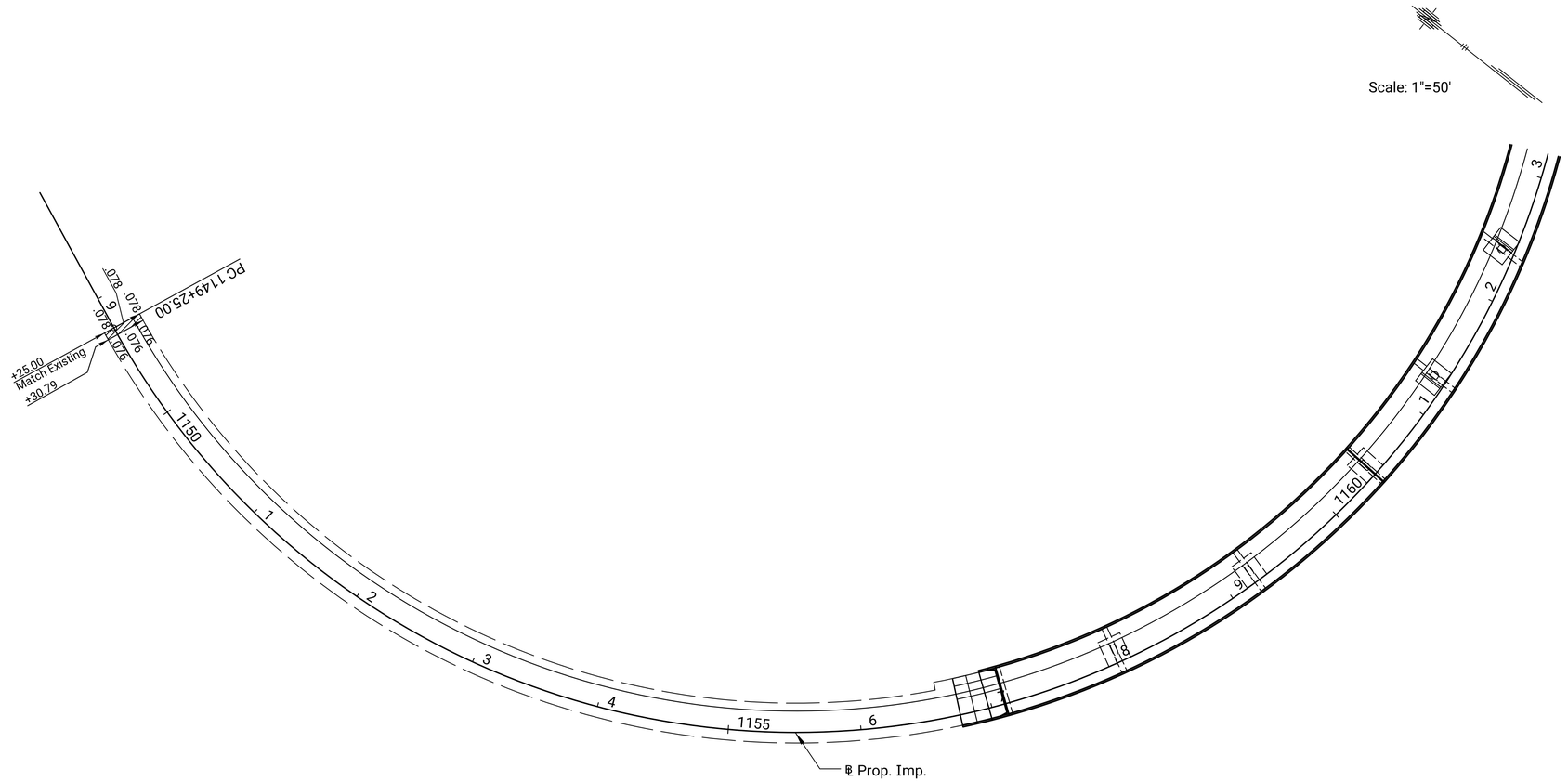
FHWA APPROVAL		01-06-16	APP'D.	Scott W. King
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-11-2022 Sh. No. 38

KDOT Graphics Certified

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	39	366

Scale: 1"=50'



LEGEND

Superelevation Transition (ft/ft)

KANSAS DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLAN

STA. 1149+25 TO STA. 1163+00

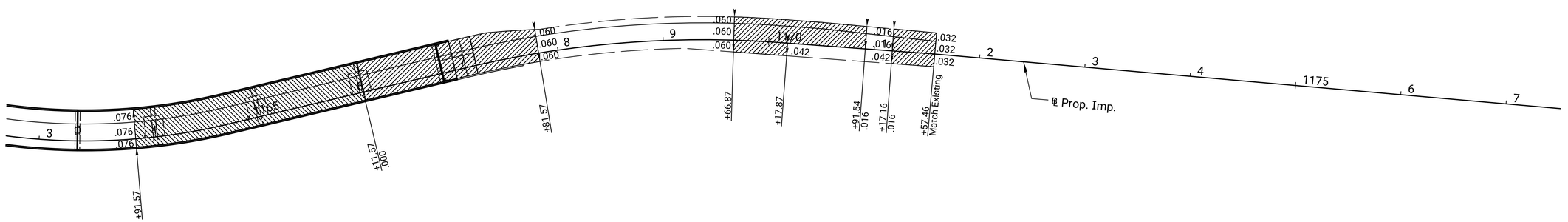
KDOT Graphics Certified 07-30-2025 Sh. No. 39

KDOT Graphics Certified

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:55
File : ka651701rse01.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	40	366



Scale: 1"=50'

LEGEND

Superelevation Transition (ft/ft)

KANSAS DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLAN

STA. 1163+91.57 TO STA. 1171+57.46

KDOT Graphics Certified 07-30-2025 Sh. No. 40

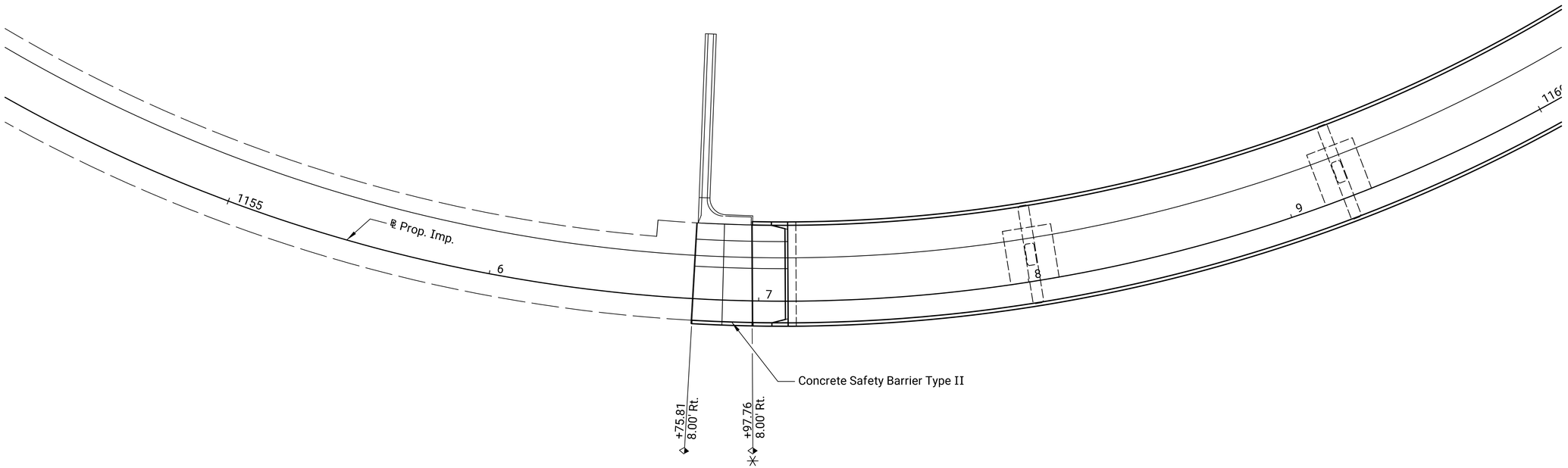
KDOT Graphics Certified

DATE
BY
REFERENCES NOTED
REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:56
File : ka651701rse02.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	41	366

Scale 1"=20'



Notes:
- Station and Offset shown to the Face of Barrier.
- For Bridge Approach Concrete Safety Barrier Details, See Sh. No. 121

For Concrete Safety Barrier Details, See Sh. No's. 44 - 45

KANSAS DEPARTMENT OF TRANSPORTATION

BARRIER DETAILS

STA. 1154+50 TO STA. 1160+00

KDOT Graphics Certified 07-30-2025 Sh. No. 41

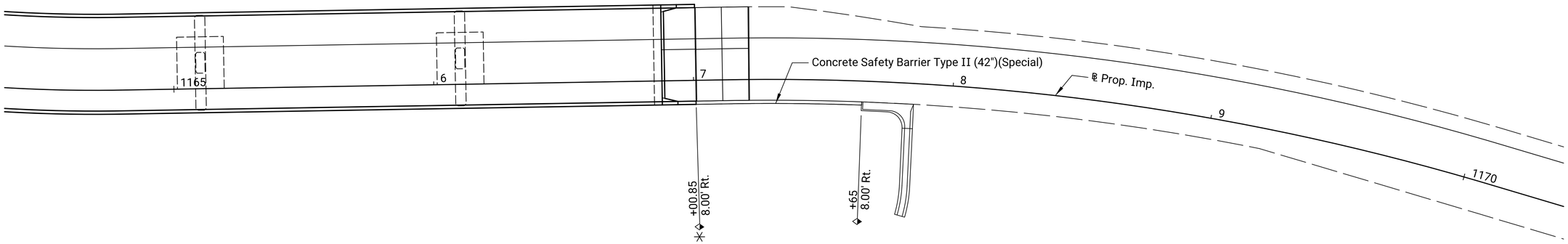
DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:56
File : ka6517101rcb03.dgn

KDOT Graphics Certified

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	42	366

Scale 1"=20'



Notes:
- ⧫ Station and Offset shown to the Face of Barrier.
- ⚹ For Bridge Approach Concrete Safety Barrier Details, See Sh. No. 121

For Concrete Safety Barrier Details, See Sh. No's. 44 - 45

KANSAS DEPARTMENT OF TRANSPORTATION

BARRIER DETAILS

STA. 1164+50 TO STA. 1170+00

KDOT Graphics Certified 07-30-2025 Sh. No. 42

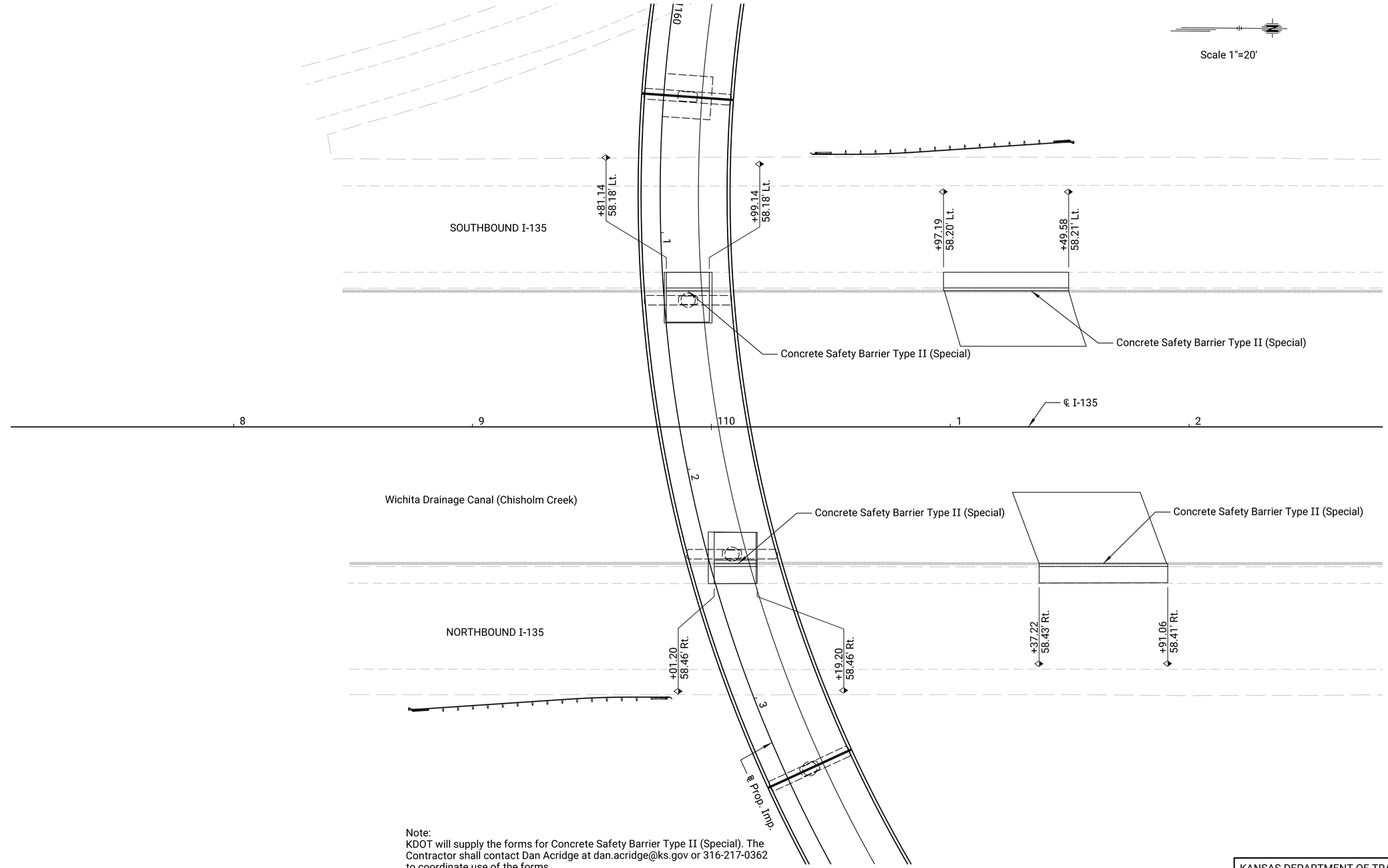
KDOT Graphics Certified

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Plotted by : usmh708425 15-AUG-2025 12:56
File : ka651701rcb02.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	43	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



Note:
KDOT will supply the forms for Concrete Safety Barrier Type II (Special). The Contractor shall contact Dan Acridge at dan.acridge@ks.gov or 316-217-0362 to coordinate use of the forms.
Barrier shape, reinforcing, and general notes shall generally follow that for Concrete Safety Barrier Type II as shown on Sheet No. 44.
Contractor shall submit shop drawings for approval prior to construction.
All materials and work required for this construction shall be paid for as "Concrete Safety Barrier Type II (Special)".

Notes:
⬙ Station and Offset shown to the Face of Barrier.

For Concrete Safety Barrier Details, See Sh. No's. 44 - 45

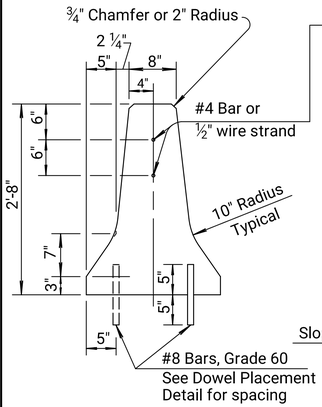
KANSAS DEPARTMENT OF TRANSPORTATION
I-135
BARRIER DETAILS
STA. 107+50 TO STA. 112+50

KDOT Graphics Certified 07-30-2025 Sh. No. 43

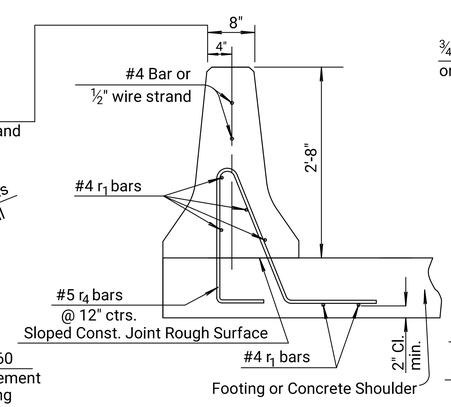
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:56
File : ka6517101rcb01.dgn

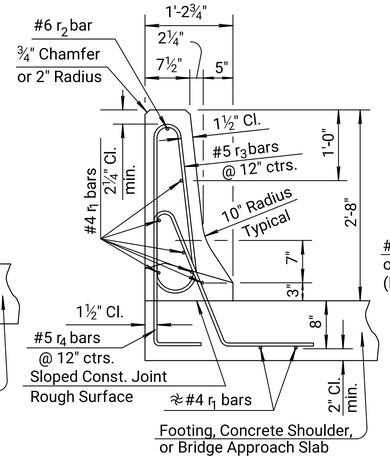
Note to Designer: The scenario depicted is for Type II CSB to Type I CSB, this sheet will need to be modified for other transition scenarios.



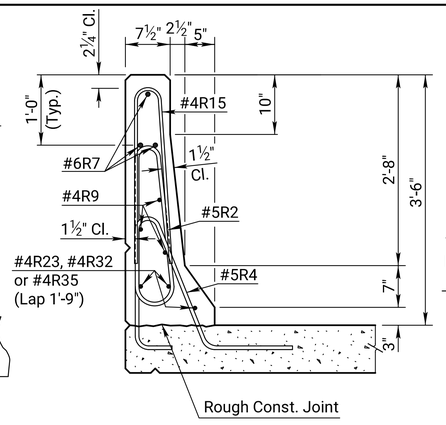
TYPE I



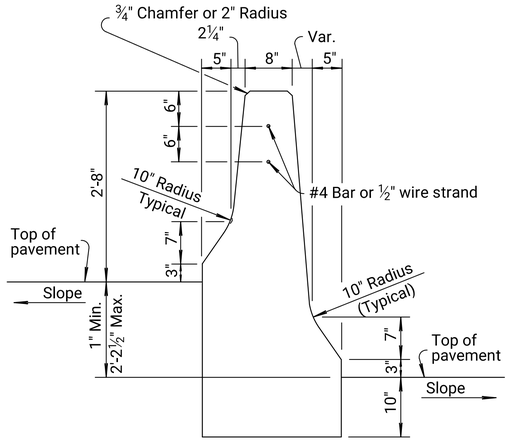
TYPE I Special Transition
See Standard Drawing 625A for Plan View



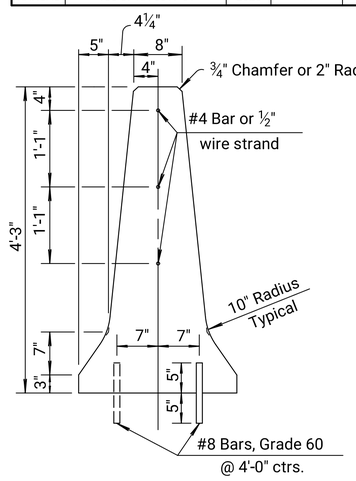
TYPE II



TYPE II (42")(Special)
See Sh. No.'s 122 - 126 for bending diagrams



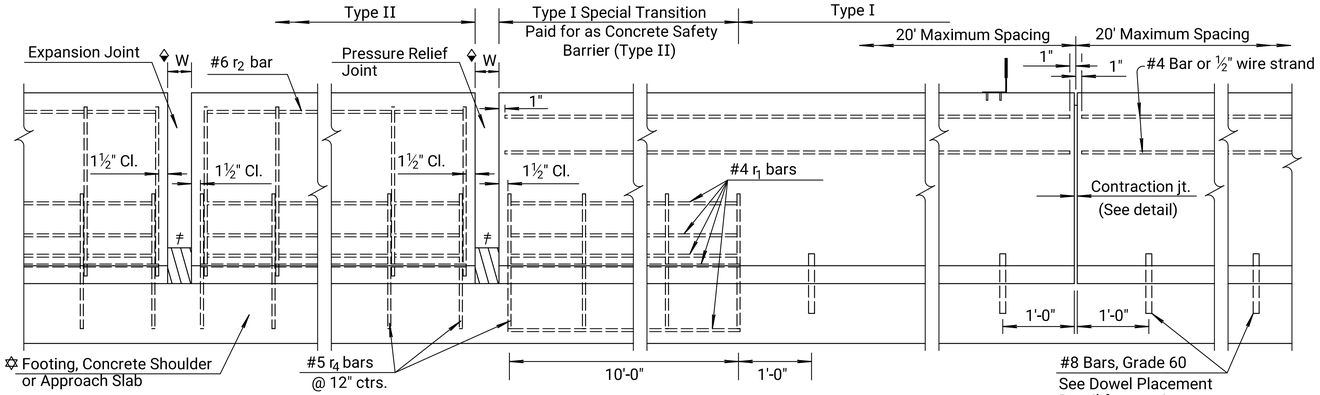
TYPE III



TYPE IV

◆ W= Formed Concrete Opening Size - See "Temperature Expansion/Pressure Relief Joint Width Table", Standard Drawing RD712.

≈ Omit r_1 bars in approach slabs. Tie r_4 bars to longitudinal reinforcement (#6 f bars) shown in the applicable Bridge Approach Pavement Standard Drawing.



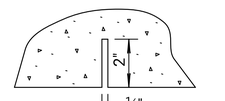
✡ See applicable Bridge Approach Pavement Standard Drawing for reinforcement in approach slab.

≠ Membrane Sealant

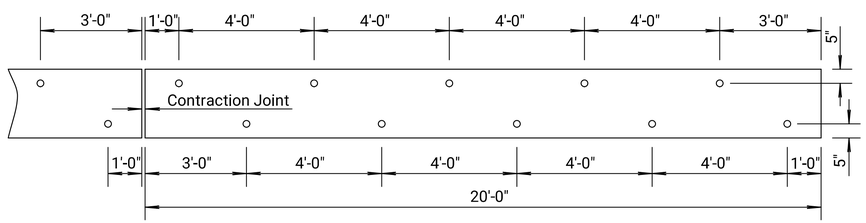
PRESSURE RELIEF/EXPANSION JOINT (Bridge Ends)

Pressure relief joint will match relief joint in bridge approach slab. Joints wider than 4" need a special design.

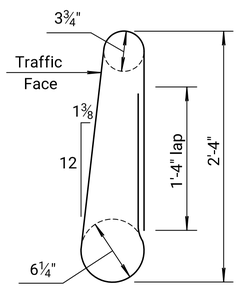
CONTRACTION JOINT

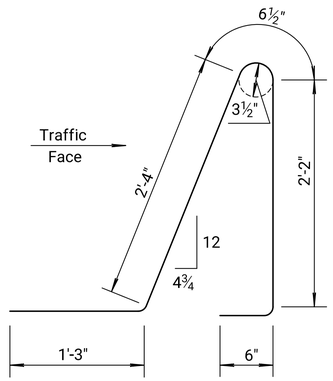


CONTRACTION JOINT DETAIL



DOWEL PLACEMENT DETAIL
(TYPE I & IV)





BENDING DIAGRAMS
Note: All dimensions are out to out of bars.

GENERAL NOTES:

Use Concrete Grade 3.0 (AE) or Concrete Pavement Mix (Contractor's Option).

Construction drainage slots where specified in the plans, inlet locations or Engineer's direction.

Use epoxy coated reinforcing steel, Grade 60. See details for spacing, keep a minimum reinforcing steel clear distance of 1½".

Payment for all reinforcing bars, joint material, median barrier filler material, reflectors and supporting materials, associated work, etc., is subsidiary.

The section furnished must generally comply with the dimensions shown. Requests for minor variations in section geometry may be submitted for review.

Permanent concrete barriers are cast in place or slip formed construction only. Precast barriers are not permitted.

CONSTRUCTION JOINTS

Place joint material (Type B or C) where shown for structures and at the end of day construction joint.

CONTRACTION JOINTS

Form or saw contraction joints on 20' centers maximum. Where barrier is on or adjacent to concrete pavement space joints to match contraction joints and definite transverse cracks in the pavement. Contraction joints not to exceed 20' centers.

BARRIER BASE

Where barrier base is not paved full width, place barrier on a 10" x 2'-0" bed of concrete Grade 3.0, or the mix used in concrete pavement or asphalt base course (Contractor's option, Engineer's approval) to assue proper alignment.

APPROACH SLAB EXPANSION/PRESSURE RELIEF JOINT

Install membrane sealant expansion joint material with a lubricant adhesive cut to the shape shown on Standard Drawing RD625A. Construct joint to match pressure relief joint of concrete pavement approach slabs.

See Standard Drawing RD712 for Expansion/Pressure Relief Joint Details.

Work and materials required for installation of joint material is subsidiary to Concrete Safety Barrier and conforms to standard specifications.

DELINEATION

See Standard Drawing RD610 for details of barrier delineation.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	44	366

NO.	DATE	REVISIONS	BY	APP'D
06	09-11-17	Added Type I transition	A.L.R.	S.W.K.
05	04-28-11	Rev. I,II,III & IV dimen. & notes	S.W.K.	J.O.B.
04	05-28-09	Revised Type III dimensions	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

PERMANENT CONCRETE SAFETY BARRIER TYPE I,II,III &IV (F-SHAPE)

~~RD625~~

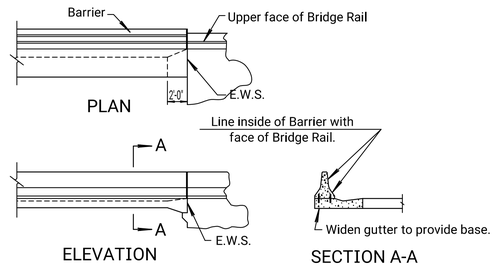
FHWA APPROVAL	03-05-18	APP'D.	Scott. W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 04-03-2025 Sh. No. 44

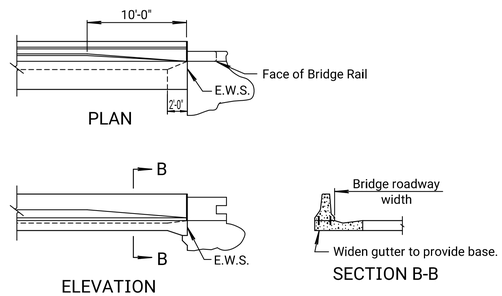
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:57
File : ka651701rss625.dgn

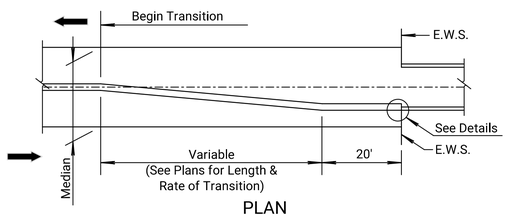
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	45	366



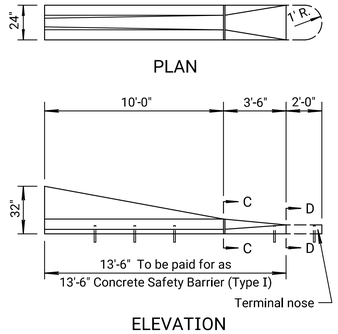
DETAIL FOR BRIDGE
WITH SAFETY TYPE RAIL



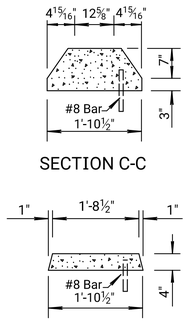
DETAIL FOR BRIDGE
WITHOUT SAFETY TYPE RAIL

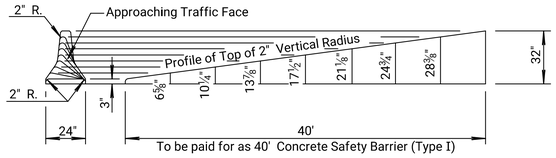


TRANSITION AT BRIDGE END



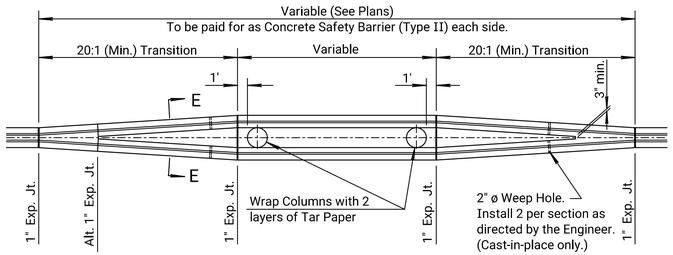
TYPE B BARRIER



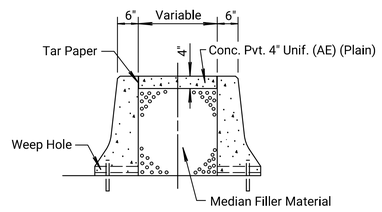


TYPE A BARRIER
BARRIER TERMINAL TRANSITIONS

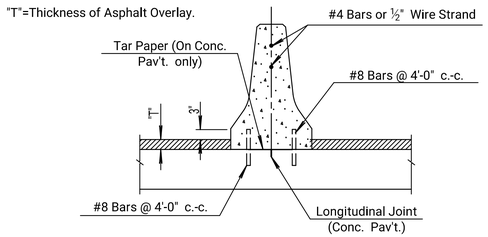
Note: Type A & B barrier transitions shall be used only for low speed (40 mph or less) applications or where a barrier terminates beyond the roadway clear zone. Where a barrier terminates within the clear zone of a high speed roadway, an appropriate impact attenuator shall be installed on the approach end.



TRANSITION AT BRIDGE COLUMNS OR SIGN SUPPORTS

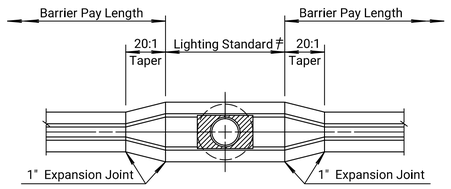


SECTION E-E

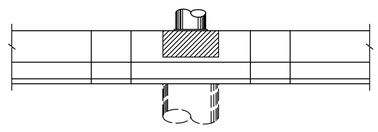


Note: All #8 Bars may be omitted when a 1" Min. thickness of Bituminous Overlay is to be placed adjacent to both sides of the Barrier.

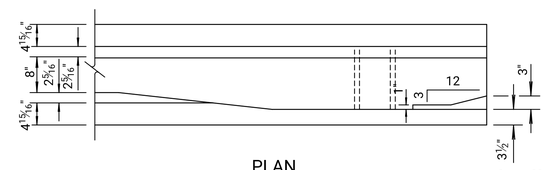
DETAILS FOR PLACING
ON EXISTING PAVEMENT

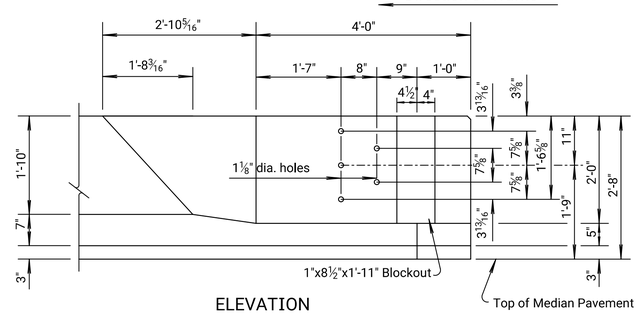


≠ See Roadway Light Standard Base Sheet for details.



TRANSITION AT ROADWAY LIGHT STANDARD BASE





GUARDRAIL ATTACHMENT TO
SAFETY BARRIER (TYPE I)

NO.	DATE	REVISIONS	BY	APP'D
02	01-10-07	Changed bituminous to asphalt	S.W.K.	J.O.B.
01	07-23-04	Revised guard fence to guardrail	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE SAFETY BARRIER AUXILIARY DETAILS

RD625A

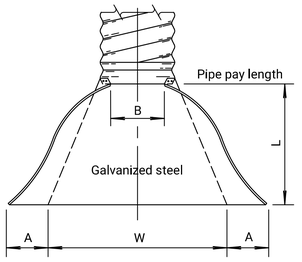
FHWA APPROVAL	11-02-04	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-13-2022 Sh. No. 45

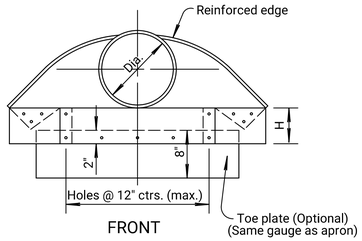
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:57
File : ka651701rss625a.dgn

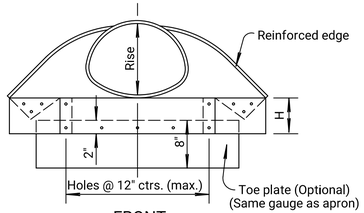
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	46	366



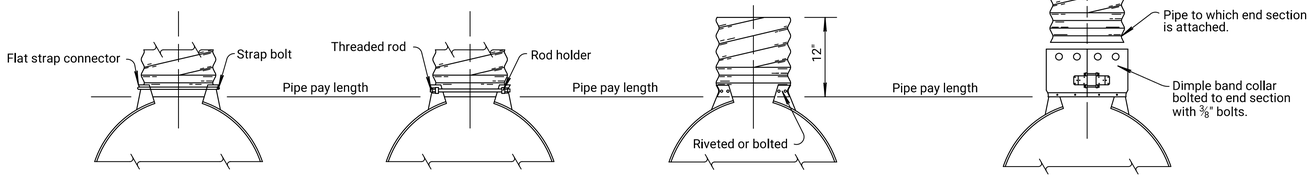
PLAN
(Illustrated with Type #3 Connection)



FRONT



FRONT



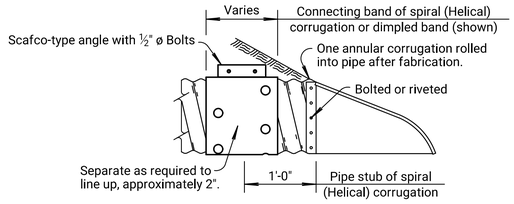
TYPE 1
Available in sizes 12" through 24" only.

TYPE 2
Available in sizes 30" and 36" Round and 17"x13" through 57"x38" Pipe-Arches.

TYPE 3
Available in sizes 42" through 96" Round and 60"x46" through 81"x59" Pipe-Arches.

TYPE 5
Available for all Round and equivalent Pipe-Arch sizes, (Type 1 and Type 2 connections are recommended for the smaller sizes with annular ends).

Note: Type 3 connection may be furnished instead of Type 1 or Type 2 for smaller round or arch pipe.



SPIRAL (HELICAL) CORRUGATION

For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.

Thickness CSP/ACSP	Thickness CAP	Gauge
0.064"	0.060"	16 ga.
0.079"	0.075"	14 ga.
0.109"	0.105"	12 ga.
0.138"	0.135"	10 ga.
0.168"	0.164"	8 ga.

Pipe Dia. (In.)	CS, ACS or CA Gauge	Dimensions in Inches A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	Approx. Slope
12"	16	5	7	6	21	22	2½: 1
15"	16	6	8	6	26	28	2½: 1
18"	16	7	10	6	31	34	2½: 1
21"	16	8	12	6	36	40	2½: 1
24"	16	9	13	6	41	46	2½: 1
30"	14	11	16	8	51	55	2½: 1
36"	14	13	19	9	60	70	2½: 1
42"	12	15	25	10	69	82	2½: 1
48"	12	17	29	12	78	88	2¼: 1
54"	12	17	33	12	84	100	2¼: 1
60"	12/10	17	36	12	87	112	2: 1
66"	12/10	17	39	12	87	118	2: 1
72"	12/10	17	44	12	87	120	2: 1
78"	12/10	17	48	12	87	130	1½: 1
84"	12/10	17	52	12	87	136	1½: 1
90"	12/10	17	58	12	87	142	1½: 1
96"	12/10	17	58	12	87	144	1½: 1

Bid Designation Sq. Ft.	Nom. W.W. Area Sq. Ft.	Pipe Arch Span & Rise	Dimensions in Inches 2⅔" x ½" Corrugations CS, ACS or CA Gauge	A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	Dimensions in Inches 3" x 1" or 5" x 1" Corr. CS, ACS or CA Gauge	A (min.)	B (max.)	H (min.)	L (±2")	W (min.)	Approx. Slope
1.0	1.1	17" x 13"	16	5	9	6	20	28							2½: 1
1.5	1.6	21" x 15"	16	6	11	6	24	34							2½: 1
2.0	2.2	24" x 18"	16	7	12	6	28	40							2½: 1
2.5	2.9	28" x 20"	16	7	16	6	32	46							2½: 1
3.0 or 4.0	4.5	35" x 24"	14	9	16	6	39	58							2½: 1
5.0 or 6.0	6.5	42" x 29"	14	11	18	7	46	73							2½: 1
7.0 or 8.5	8.9	49" x 33"	12	12	21	9	53	82							2½: 1
10.0 or 11.0	11.7	53" x 41"							12	17	26	12	63	88	2: 1
10.0 or 11.0	11.6	57" x 38"	12	16	26	12	62	88							2: 1
12.5 or 14.0	15.6	60" x 46"							12	17	36	12	70	100	2: 1
12.5 or 14.0	14.7	64" x 43"	12	17	30	12	69	100							2: 1
16.5	19.3	66" x 51"							12/10	17	36	12	70	112	1½: 1
16.5	18.1	71" x 47"	12/10	17	36	12	77	112							1½: 1
21.0	23.2	73" x 55"							12/10	17	36	12	77	124	1½: 1
21.0	21.9	77" x 52"	12/10	17	36	12	77	124							1½: 1
25.0	27.4	81" x 59"							12/10	17	44	12	77	136	1½: 1
25.0	26.0	83" x 57"	12/10	17	44	12	77	130							1½: 1
32.0	32.1	87" x 63"							12/10	17	44	12	77	136	1½: 1
36.0	37.0	95" x 67"							12/10	17	44	12	87	160	1½: 1
42.0	42.4	103" x 71"							12/10	17	44	12	87	172	1½: 1
47.0	48.0	112" x 75"							12/10	17	44	12	87	172	1½: 1

(Information listed in these tables are nominal and may vary by manufacturer.)

GENERAL NOTE for END SECTIONS

End section material shall follow KDOT Pipe Policy for geographic location. Location shall govern use of CS (Galvanized), ACS (Aluminized) or CA (Aluminum) (Type I) End Section. Pipe material and End Section material shall be the same with no mixing of types per location.

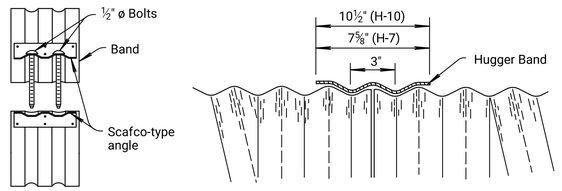
Toe plate extension, when specified, is an accessory and shall be the same gauge and metal as end section. Toe plate shall be punched to match holes in apron lip and attached with furnished 3#8" diameter nuts & bolts.

W + 10" for 12" to 30" diameter pipes inclusive.
W + 20" for 36" to 84" diameter pipes inclusive.
W + 10" for pipe-arches with a rise of 13" to 29" inclusive.
W + 20" for pipe-arches with a rise of 33" to 59" inclusive.

Multiple panel end sections may contain dual gauges of like metal and shall have lap seams which are tightly joined with rivets or bolts. For 60" and larger diameter round pipe end sections and 77"x52" arch pipe end sections, the reinforced edges are supplemented with stiffener angles. The angles are attached with nuts and bolts. Angle reinforcement may be required uder the center panel seams of 73"x55" and larger arch pipe end sections depending on manufacturer.

Other approved designs may be used in lieu of type shown.

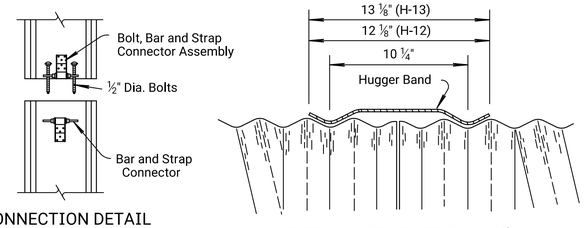
Connection of end sections by welding will not be permitted.



CONNECTION DETAIL
H-7 or H-10 BAND

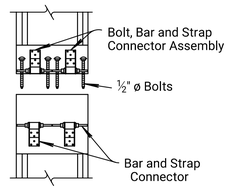
UNIVERSAL REFORMED END with
H-7 or H-10 HUGGER BAND

DETAILS FOR H-7 HUGGER BAND (12" thru 36")
or H-10 HUGGER BAND (12" thru 120")



CONNECTION DETAIL
SINGLE HARNESS

UNIVERSAL REFORMED END with
HUGGER BAND



CONNECTION DETAIL
DOUBLE HARNESS

DETAILS FOR H-12 or H-13 HUGGER BAND

Pipe Dia. Inches	Minimum Gauge of Round Pipe 2⅔" x ½" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2⅔"x ½" Corr. CAP	3" x 1" Corr. CAP
12"	14			16	
15"	14			16	
18"	14			16	
21"	14			16	
24"	14			16	
30"	14			14	
36"	14			14	16
42"	14			12	16
48"	12	14 16	14 16	12	16
54"	12	14 16	14 16	12	16
60"	10	14 16	14 16	10	16
66"	10	14 16	14 16	8	16
72"	10	14 16	14 16	8	16
78"	8	14 14	14 14		14
84"	8	14 14	14 14		12
90"		14 14	14 14		12
96"		12 12	12 12		12
102"		12 12	12 12		10
108"		12 12	12 12		10
114"		12 12	12 12		8
120"		10 10	10 10		8

Bid Designation Sq. Ft.	Pipe Dimension Span & Rise	Sq. Ft.	Equiv. Round Pipe Diameter	Minimum Gauge of Arch Pipe 2⅔"x ½" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2⅔"x ½" Corr. CAP	3" x 1" Corr. CAP
1.0	17" x 13"	1.1	15"	14			16	
1.5	21" x 15"	1.6	18"	14			16	
2.0	24" x 18"	2.2	21"	14			16	
2.5	28" x 20"	2.9	24"	14			14	
3.0 or 4.0	35" x 24"	4.5	30"	14			14	
5.0 or 6.0	42" x 29"	6.5	36"	14			12	
7.0 or 8.5	49" x 33"	8.9	42"	14			12	
10.0 or 11.0	53" x 41"	11.7	48"		14			
10.0 or 11.0	57" x 38"	11.6	48"	12			10	
12.5 or 14.0	60" x 46"	15.6	54"		14			14
12.5 or 14.0	64" x 43"	14.7	54"	12			10	
16.5	66" x 51"	19.3	60"		14			14
16.5	71" x 47"	18.1	60"	10			8	
21.0	73" x 55"	23.2	66"		14			14
21.0	77" x 52"	21.9	66"	8				
25.0	81" x 59"	27.4	72"		14	12		12
25.0	83" x 57"	26.0	72"	8				
32.0	87" x 63"	32.1	78"		12	12		12
36.0	95" x 67"	37.0	84"		12	12		12
42.0	103" x 71"	42.4	90"		12	12		10
47.0	112" x 75"	48.0	96"		12	12		8
54.0	117" x 79"	54.2	102"		10	10		
60.0	128" x 83"	60.5	108"		10	10		
67.0	137" x 87"	67.4	114"		10	10		
74.0	142" x 91"	74.5	120"		8	8		

GENERAL NOTE for METAL PIPE

Culvert "Type" listed may be CSP, ACSP, CAP, RCP, PVCP & PEP within guidelines of KDOT Pipe Policy for geographic location. More than one pipe "Type" may be acceptable for a design location with allowable types listed for each site.

There shall be no payment for gain in pipe length due to fit of pipe at connecting band.

When Hugger Bands are used, the H-7 Hugger Band may be used on circular pipes 36" diameter and smaller or pipe arches 42"x 29" and smaller. The H-10 Hugger Band may be used on 12" thru 120" pipe. The H-12 or H-13 Hugger Band are for pipe sizes larger than 36" diameter or 42"x29" arch pipe.

⊛ Pipe gauge listed in the tables on this sheet are minimum for E'=750 p.s.i. soil. Pipe gauge will be determined for each site based on the Design Manual Volume I- Part C Fill Height Tables and shall shall be listed in the Pipe Culvert Summary. Gauges shown on this Standard Drawing are KDOT minimum and may not be industry minimum gauge.

In geographic areas that allow CSP (24" or smaller arched or round pipe) for entrance and side road installation with less than 3,000 AADT, 16 gauge ACSP may be substituted for 14 gauge CSP.

Aluminum or aluminized pipes or end sections shall be coated with an asphaltic paint when in contact with fresh concrete in accordance with the Standard Specifications.

NO.	DATE	REVISIONS	BY	APP'D
04	09-10-09	Rev. Round and Arch tables, add. Alum.	S.W.K.	J.O.B.
03	01-20-09	Rev. Round and Arch tables, add. Alum.	S.W.K.	J.O.B.
02	04-18-08	Rev. layout, details, tables and notes	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

METAL END SECTION FOR ROUND & ARCH METAL CULVERTS (TYPE I) & PIPE GAUGE TABLES

RD660

FHWA APPROVAL	12-16-09	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

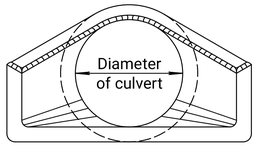
KDOT Graphics Certified 05-16-2022 Sh. No. 46

KDOT Graphics Certified

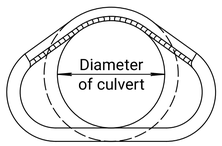
Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

Plotted by : usmh708425 15-AUG-2025 12:58
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	47	366

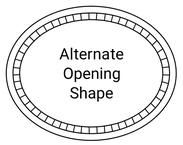


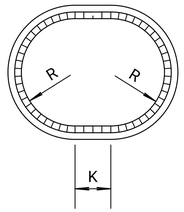
END ELEVATION (TYPE I)



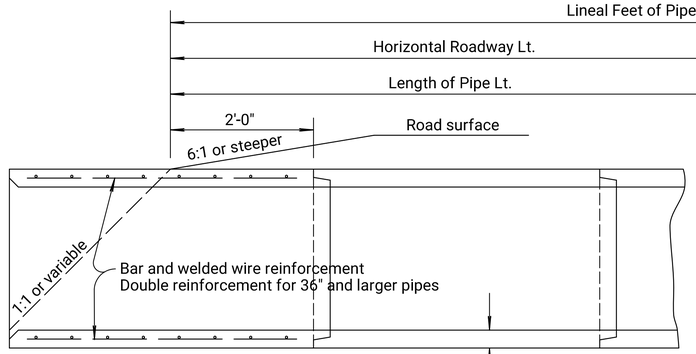
SECTION A-A

Showing rounding of inside edge of end section.

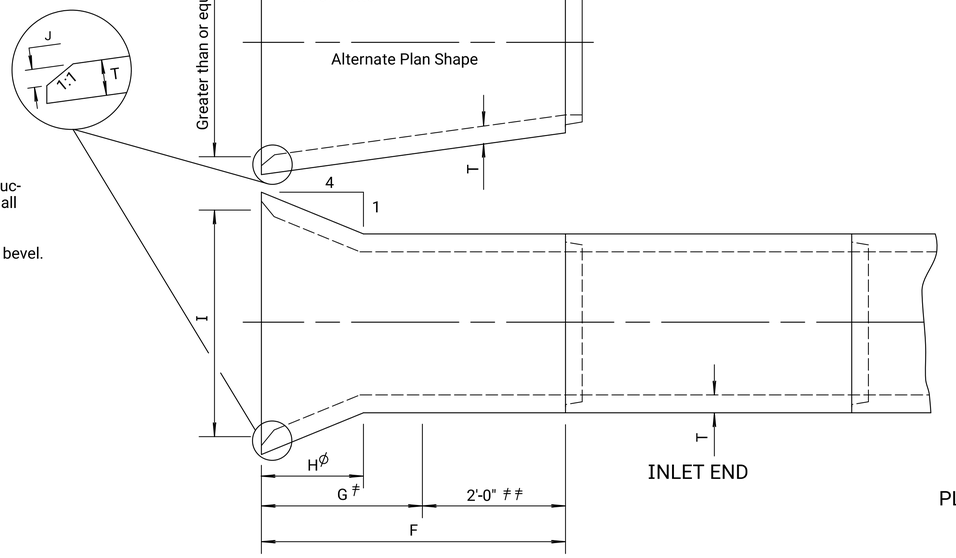


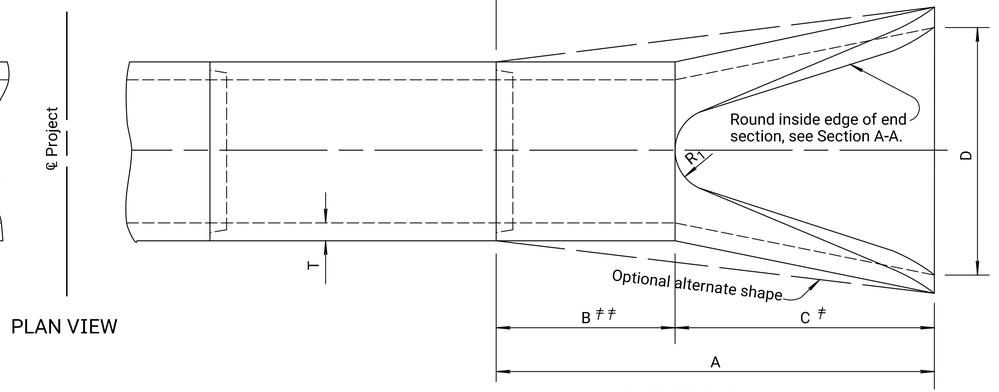


END ELEVATION
(TYPE III)



Note: There shall be no payment for gain in length due to joint fit tolerance.





∅ Transition to round pipe.

≠ Paid for as separate item of End Section, except when structures shall bid as alternates. In that case End Sections shall be subsidiary to bid item. "Drainage Structure No. ".

≠≠ Included in pay length of pipe.

⚹ Minimum waterway area is calculated at the inside of the bevel.

END SECTION (TYPE I) NOMINAL DIMENSIONS

Diam.	A	B≠≠	C≠	D	E	R_I	Slope	T
12"	6'-0 ⅞"	4'-0 ⅞"	2'-0"	2'-0"	4"	9	3:1	2"
15"	6'-1"	3'-10"	2'-3"	2'-6"	6"	11	3:1	2 ¼"
18"	6'-1"	3'-10"	2'-3"	3'-0"	9"	12	3:1	2 ½"
24"	6'-1 ½"	2'-6"	3'-7 ½"	4'-0"	9 ½"	14	3:1	3"
30"	6'-1 ¾"	1'-7 ¾"	4'-6"	5'-0"	1'-0"	15	3:1	3 ½"
36"	8'-1 ¾"	2'-10¾"	5'-3"	6'-0"	1'-3"	20	3:1	4"
42"	8'-2"	2'-11"	5'-3"	6'-6"	1'-9"	22	3:1	4 ½"
48"	8'-2"	2'-2"	6'-0"	7'-0"	2'-0"	22	3:1	5"
54"	8'-2 ¼"	2'-9 ¼"	5'-5"	7'-6"	2'-3"	24	2.4:1	5 ½"
60"	8'-3"	3'-3"	5'-0"	8'-0"	2'-11"	24	21	6"
72"	8'-3"	1'-9"	6'-6"	9'-0"	3'-0"	24	1.86:1	7"
84"	9'-3 ½"	1'-9"	7'-6 ½"	10-0"	3'-0"	24	1.6:1	8"

SIDE TAPERED INLET SECTION (TYPE III)-NOMINAL DIMENSIONS

Diam.	Min. W.W.⚹ Area Sq. Ft.	F	G	H	I	J	K	R	T
24"	4.5	4'-3"	2'-3"	1'-5 ⅛"	2'-8"	1 ½"	8"	1'-0"	3"
30"	7.0	4'-9 ½"	2'-9 ½"	1'-9 ½"	3'-4"	2"	10"	1'-3"	3 ½"
36"	10.1	5'-4"	3'-4"	2'-1 ½"	4'-0"	2"	1'-0"	1'-6"	4"
42"	13.7	5'-10 ½"	3'-10 ½"	2'-5 ⅞"	4'-8"	2 ½"	1'-2"	1'-9"	4 ½"
48"	17.9	6'-5"	4'-5"	2'-10 ⅛"	5'-4"	3"	1'-4"	2'-0"	5"
54"	22.7	6'-11 ½"	4'-11 ½"	3'-2 ½"	6'-0"	3 ½"	1'-6"	2'-3"	5 ½"
60"	28.0	7'-6"	5'-6"	3'-6 ⅞"	6'-8"	4"	1'-8"	2'-6"	6"
72"	40.3	8'-7"	6'-7"	4'-3 ⅝"	8'-0"	5"	2'-0"	3'-0"	7"
84"	54.8	9'-8"	7'-8"	5'-0 ⅜"	9'-4"	6"	2'-4"	3'-6"	8"

Dimensions for alternate shapes shall be equal to or greater than those shown in the table, unless otherwise shown.

NO.	DATE	REVISIONS	BY	APP'D
02	04-18-08	Added ref.. to KDOT Pipe Policy	S.W.K.	J.O.B.
01	04-05-05	Revised reinforcement callout	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE END SECTIONS FOR CONCRETE PIPES TYPE I & SIDE TAPERED INLET SECTION (TYPE III)

RD662

FHWA APPROVAL	06-27-08	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

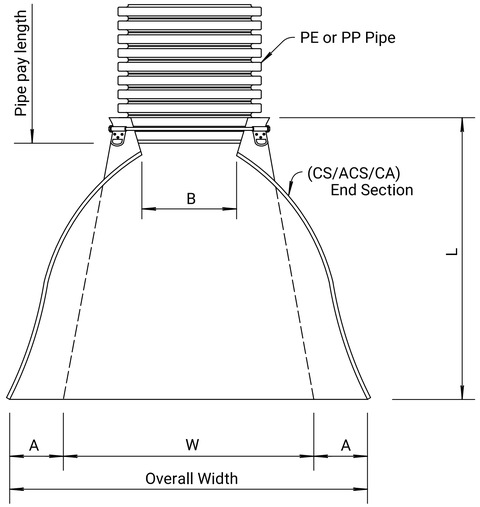
KDOT Graphics Certified 05-16-2022 Sh. No. 47

KDOT Graphics Certified

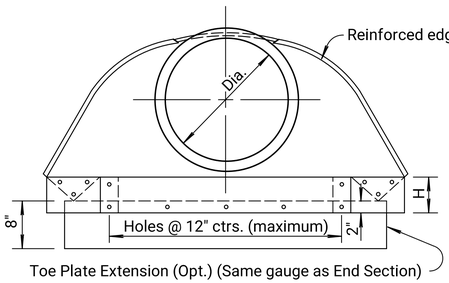
Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

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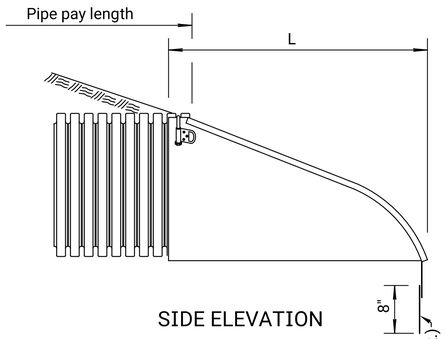
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	48	366



PLAN
(Illustrated with Type 2 Connector)

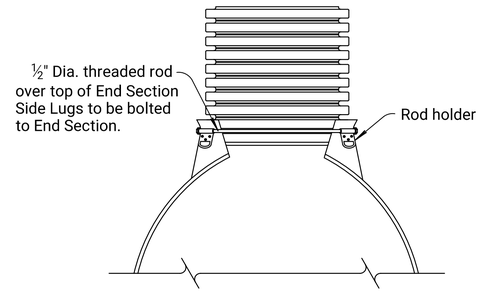


FRONT ELEVATION

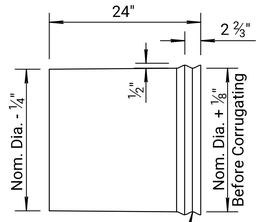


SIDE ELEVATION

✠ Toe plate extensions where specified, to be punched to match holes in apron lip and bolted with ⅜" dia. bolts. The length of toe plate to be as follows:
W + 10" for 12" to 30" diameter pipe inclusive.
W + 20" for 36" to 60" diameter pipe inclusive.

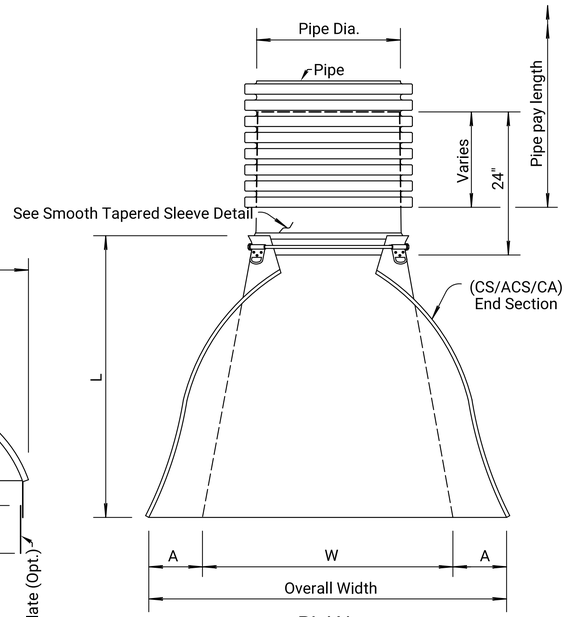


TYPE 2 CONNECTOR
(12" & Larger)

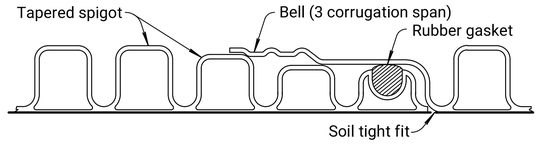


Form ½" x 2 ⅔" Corrugations in 12 ga. smooth CS (Galvanized) or ACS (Aluminized) metal, maintain inside diameter of sleeve.

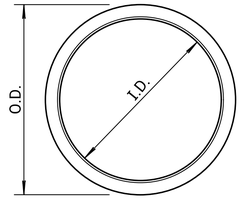
SMOOTH TAPERED SLEEVE DETAIL
(Required)



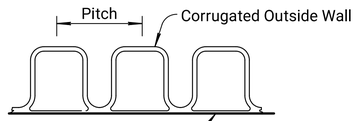
PLAN
TAPERED SLEEVE FOR ATTACHING
METAL END SECTION TO PE OR PP PIPE
(Illustrated with Type 2 Connector)



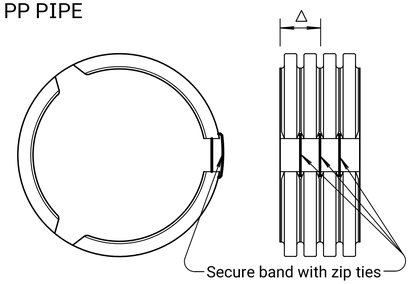
PE or PP PIPE BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT



DETAILS OF CORRUGATED
PE or PP PIPE

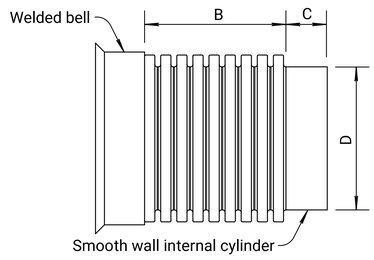


TYPICAL SECTION
CORRUGATED PE or PP PIPE

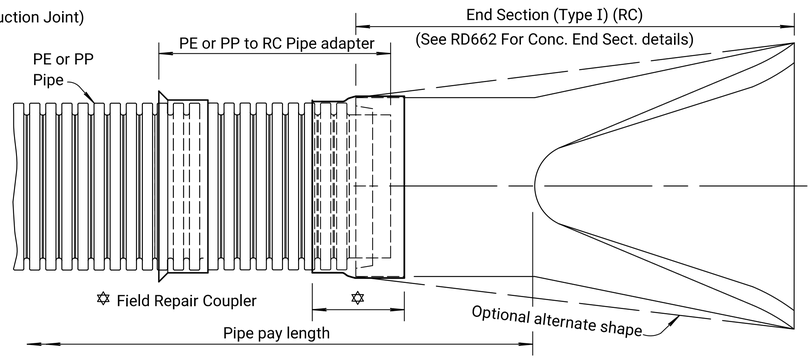


△ Two Full Corrugations (Minimum Overlap)

PE or PP PIPE SPLIT BAND COUPLER
SOIL TIGHT JOINT
This band is used for (Field Splice Construction Joint)



PE or PP to RC PIPE ADAPTER



PE or PP to RC PIPE ADAPTER to CONCRETE END SECTION
(This installation is for Acidic Soil Conditions)

(CS/ACS/CA) END SECTION FOR PE or PP PIPE

Pipe Dia. (In.)	Min. Gauge Ends	Dimensions in Inches					Slope
		A (min.)	B (max.)	H (min.)	L (+/-2")	W (min.)	
12"	16	6	7	6	21	24	2½:1
15"	16	7	8	6	26	30	2½:1
18"	16	8	10	6	31	36	2½:1
21"	16	9	12	6	36	42	2½:1
24"	16	10	13	6	41	48	2½:1
30"	14	12	16	8	51	60	2½:1
36"	14	14	19	9	60	72	2½:1
42"	12	16	25	11	69	84	2½:1
48"	12	18	29	12	78	90	2¼:1
54"	12	18	33	12	84	102	2¼:1
60"	12/10	18	36	12	87	114	2:1

PE or PP TO RC PIPE ADAPTER

Pipe Dia. (In.)	B	C	D
18"	18¼"	6"	18"
24"	25"	6"	24"
30"	32 13/16"	6"	30"
36"	36¾"	6"	36"
42"	36"	6"	41¼"
48"	36¾"	6"	41¼"
60"	36"	6"	59"

GENERAL NOTES

The culvert type shall meet the KDOT Pipe Policy & Standard Specifications.

The size of pipe designated on the plan shall be the nominal inside diameter of a two wall corrugated PE pipe (Type S) or PP pipe (Type S).

PE or PP pipe couplings shall be designed to cover at least two full corrugations on each side of a joint.

No additional payment shall be made for any gain in length due to the fit of the pipe at connections.

All corrugated PE or PP pipe, end sections, couplings, and fittings shall conform with the Standard Specifications.

See Standard Specifications for PE or PP Pipe bedding and backfill.

Multiple panel end sections shall have lap seams which are to be tightly joined by bolts & nuts. Corner plate and toe plate to be same gauge and material as end section. When required optional toe plate extension shall be overall width less 6" x 8" high.

Attachment to PE or PP pipe 12" diameter and up shall be made with Type 2 Connector.

All work and materials required for construction and installation of end section shall be included in the bid item "End Section".

Note to Designer:
KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, PPP, SRPEP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

03	5-9-22	Added Polypropylene pipe (PP) type	A.L.R.	S.W.K.
02	07-17-17	Changed tapered slv. requirement	A.L.R.	S.W.K.
01	02-08-08	Added ref. to KDOT pipe policy	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

METAL/CONCRETE END SECTION (TYPE I) for PE or PP PIPE

RD667

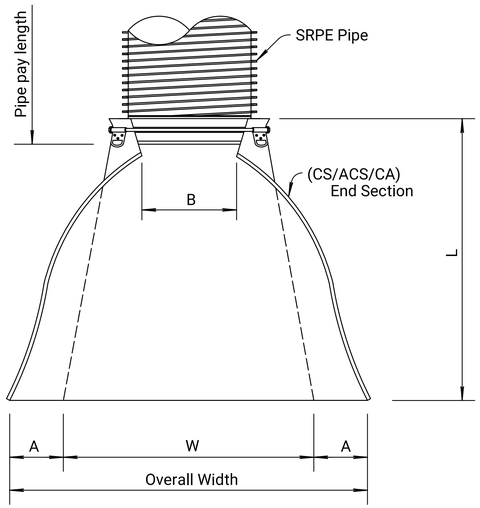
FHWA APPROVAL	06-08-22	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-22-2022 Sh. No. 48

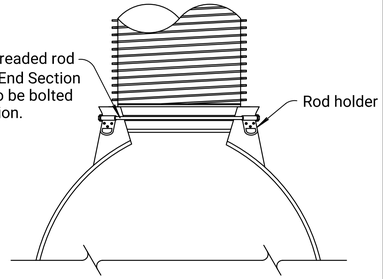
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:58
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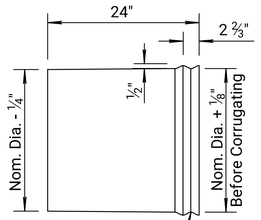
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	49	366



PLAN
(Illustrated with Type 2 Connector)

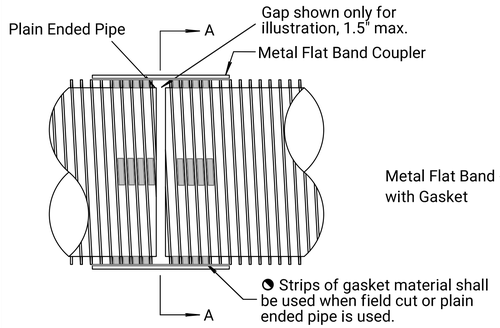


TYPE 2 CONNECTOR
(30" & Larger)



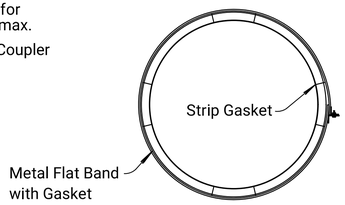
Form ½" x 2 ⅔" Corrugations in 12 ga. smooth CS (Galvanized) or ACS (Aluminized) metal, maintain inside diameter of sleeve.

SMOOTH TAPERED SLEEVE DETAIL
(Required)

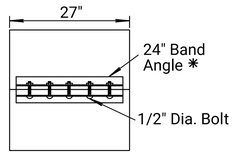


SIDE ELEVATION

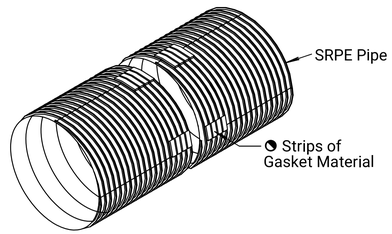
◔ Different pipe diameters require a different number of gasket strips. See Manufacturers Guide for quantities.

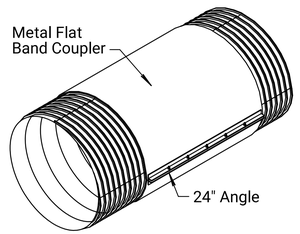


SECTION A-A



FLAT BAND COUPLER
✱ Alternate option: Double bar bolt & strap





SRPE FLAT BAND COUPLER - SOIL TIGHT JOINT (Used for Field Splice Construction Joints)

(CS/ACS/CA) END SECTION FOR SRPE PIPE

Pipe Dia. (In.)	Min. Gauge Ends	Dimensions in Inches A (min.)	B (max.)	H (min.)	L (+/-2")	W (min.)	Slope
30"	14	12	16	8	51	60	2½:1
36"	14	14	19	9	60	72	2½:1
42"	12	16	25	11	69	84	2½:1
48"	12	18	29	12	78	90	2¼:1
54"	12	18	33	12	84	102	2¼:1
60"	12/10	18	36	12	87	114	2:1

Pipe diameters up to 120" are acceptable for use. End sections are available only up to 96" pipe diameter.

GENERAL NOTES

The culvert type shall meet the KDOT Pipe Policy & Standard Specifications.

The size of pipe designated on the plan shall be the nominal inside diameter of an SRPE pipe.

No additional payment shall be made for any gain in length due to the fit of the pipe at connections.

All SRPE pipe, end sections, couplings, and fittings shall conform with the Standard Specifications.

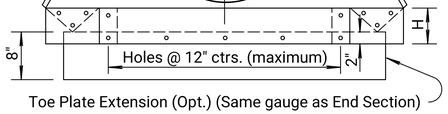
See Standard Specifications for SRPE Pipe bedding and backfill.

Multiple panel end sections shall have lap seams which are to be tightly joined by bolts & nuts. Corner plate and toe plate to be same gauge and material as end section. When required optional toe plate extension shall be overall width less 6" x 8" high.

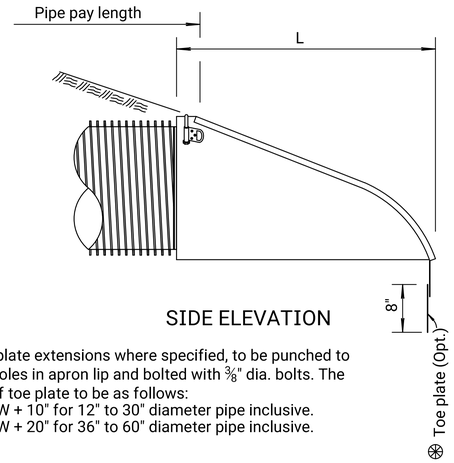
Attachment to SRPE pipe 30" diameter and up shall be made with Type 2 Connector.

All work and materials required for construction and installation of end section shall be included in the bid item "End Section".

Note to Designer:
KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, PPP, SRPEP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

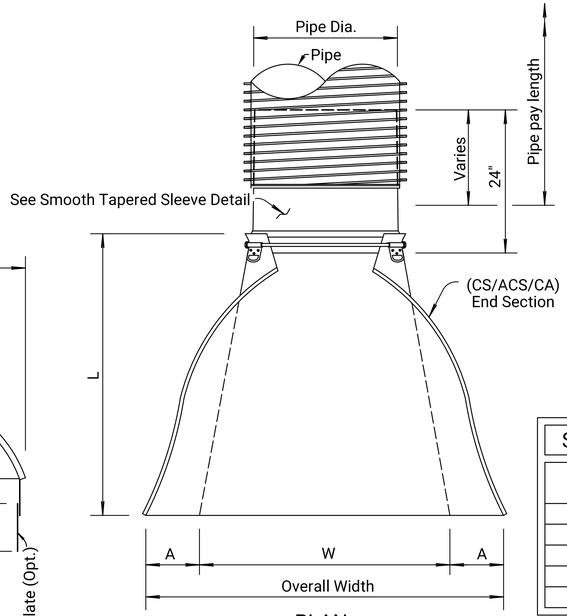


FRONT ELEVATION

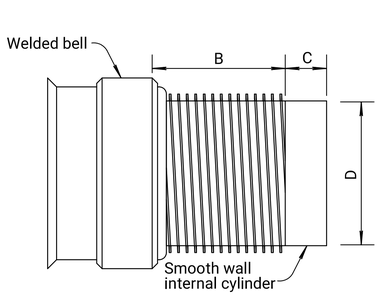


SIDE ELEVATION

✱ Toe plate extensions where specified, to be punched to match holes in apron lip and bolted with ⅜" dia. bolts. The length of toe plate to be as follows:
W + 10" for 12" to 30" diameter pipe inclusive.
W + 20" for 36" to 60" diameter pipe inclusive.



PLAN
TAPERED SLEEVE FOR ATTACHING METAL END SECTION TO SRPE PIPE
(Illustrated with Type 2 Connector)

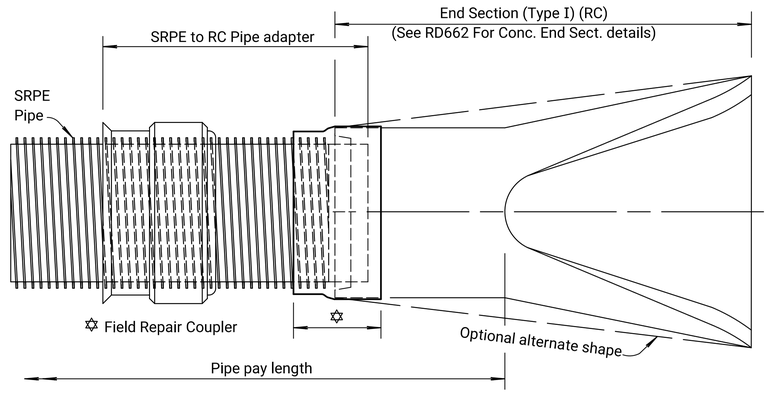


SRPE to RC PIPE ADAPTER

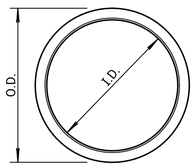
SRPE TO RC PIPE ADAPTER

Pipe Dia. (In.)	B	C	D
30"	32 13/16"	6"	29.5"
36"	36¾"	6"	35.4"
42"	36"	6"	41.3"
48"	36¾"	6"	47.2"
60"	36"	6"	59.1"

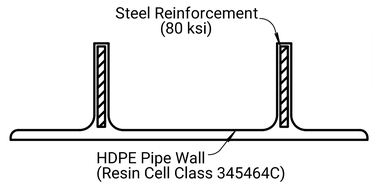
Pipe adapters are available up to 96" pipe diameter.



(This installation is for Acidic Soil Conditions)



DETAILS OF SRPE PIPE



TYPICAL SECTION SRPE PIPE

NO.	DATE	REVISIONS	BY	APP'D
01	05-09-22	Initial Release	A.L.R.	S.W.K.

KANSAS DEPARTMENT OF TRANSPORTATION

METAL/CONCRETE END SECTION (TYPE 1) FOR SRPE PIPE

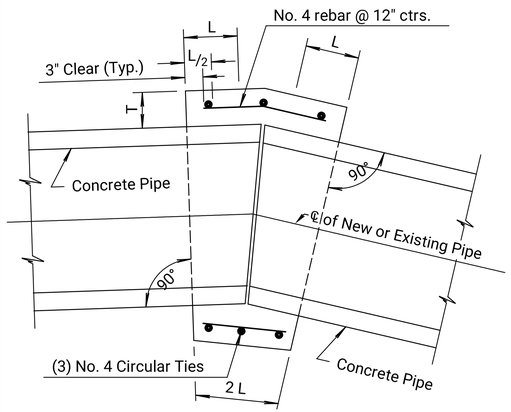
RD667D

FHWA APPROVAL	06-08-22	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-14-2022 Sh. No. 49

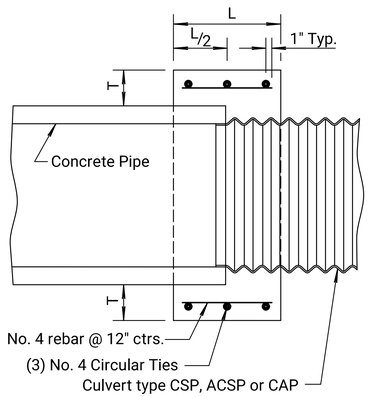
KDOT Graphics Certified

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File : ka651701rss667d.dgn



PIPE COLLAR AT CHANGE IN ALIGNMENT

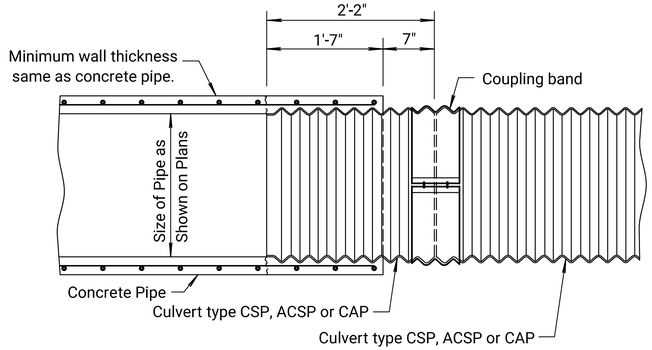
TYPE A COLLAR



PIPE COLLAR AT CHANGE IN PIPE MATERIAL

TYPE B COLLAR

CONCRETE PIPE COLLAR		
Pipe Dia.	L	T
18"	1'-0"	6"
24"	1'-0"	6"
36"	1'-6"	8"
48"	1'-6"	10"
60"	1'-9"	11"

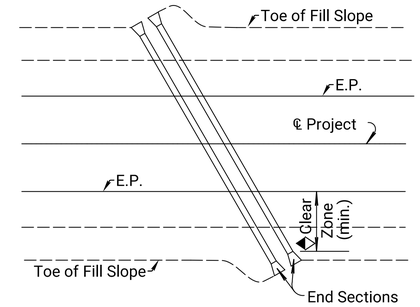


(CONCRETE PIPE CONNECTED TO CORRUGATED METAL PIPE)

TYPE C COLLAR ⚠

⚠ A section of concrete pipe (6'-0" min.) is cast 1'-7" short with the re-steel protruding. Tack weld the re-steel to the 2'-2" section of CMP and finish casting the remaining 1'-7" of RCP around the CMP. This is an approved connection provided it is fabricated as an integral part of a section of concrete pipe.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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PLACEMENT OF ROTATED PIPES

RELATIVE TO FILL SLOPE

AND CLEAR ZONE

♦ Pipe culverts 2'-0" or less in height may terminate within the clear zone with Type I or Type III End Section. Any size pipe may terminate within the clear zone with a Type IV End Section.

General Notes:

Pipe collar shall be used to join pipes of different diameters or materials or where change in alignment or grade exceeds that allowed for ordinary joints.

All concrete shall be Concrete Grade 3.0. All reinforcing steel shall be Grade 60 and shall have a minimum of 2" of cover.

The diameter of the circular ties shall be the outside diameter of the larger pipe plus "T".

The maximum allowable distance between the ends of the pipes at any point is 2".

All labor, materials and incidentals required to construct the pipe collar Type A, B or C shall not be paid for directly but shall be subsidiary to the individual pipe bid items.

Aluminum or aluminized pipes or end sections shall be coated with an asphaltic paint when in contact with fresh concrete in accordance with the Standard Specifications.

Pipe ends shall be trimmed such that the maximum distance between pipes at any point is 2".

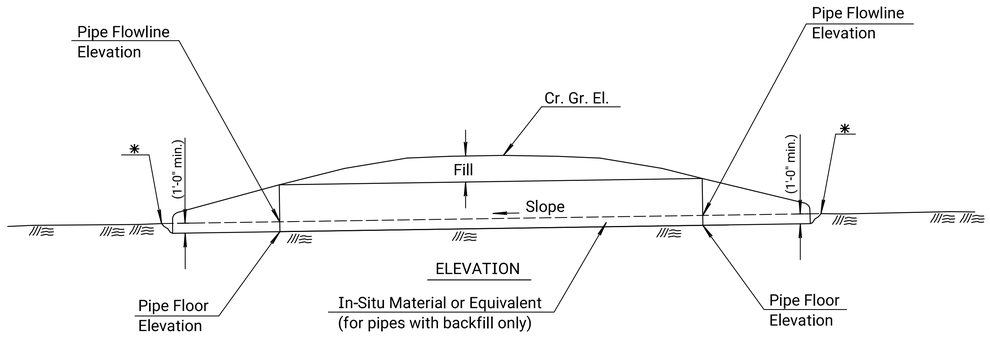
PIPE COLLARS

GENERAL NOTE

For pipes where the height or rise is greater than 4'-0" place uncompacted backfill through the pipe, including the end sections, 1'-0" (Min.). Backfill material will be reasonably free of organic material. In-situ material may be used for backfill as approved by the Engineer.

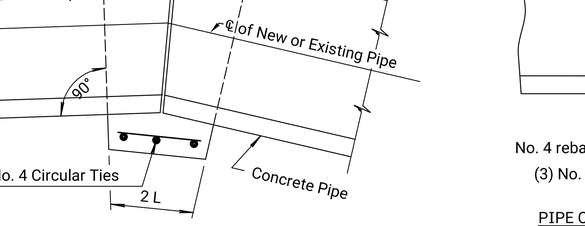
For pipes where the height or rise is less than or equal to 4'-0" install the pipe such that embedment will occur through natural sedimentation. See Pipe Embedment detail shown on this sheet.

Work and material for embedding pipes will not be paid for directly, but will be Subsidiary to the other pipe bid items in the contract.



PIPE EMBEDMENT

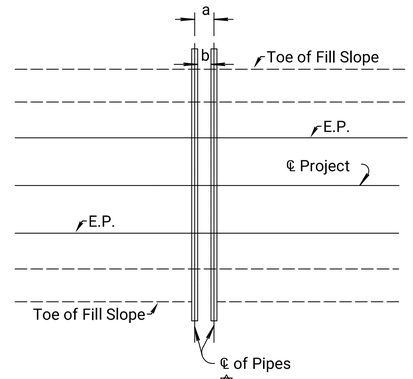
✳Natural channel or ditch flowline elevation. See profile sheets and cross sections for details.



Sketch Along ℄ CRP (CMP)

Broken-Back

SUMMARY OF BROKEN BACK PIPES											
STATION	SIZE	FLOW LINES				LENGTH			ANGLES		REMARKS
		#1	#2	#3	#4	L_1	L_2	L_3	A	B	



a = Face width of end section ✡ + 1'.

✡ Face width is equal to the following dimension shown on the end section std. drawing.

Type I Concrete = D

Type III Concrete = I

Type I CM = W+ 2A

Type III CM = G

Type IV = W+ 2A

b = Pipe diameter or span (3' min.)

Spacing shall be equal to the larger of dimensions a or b.

Spacing for three or more pipes shall be determined using a similar method.

MULTIPLE PIPE SPACING

NO.	DATE	REVISIONS	BY	APP'D
06	01-21-16	Added Details, Pipe Embedment	T.T.R.	S.W.K.
05	05-17-13	Rev. Dimension, Type B Collar	S.W.K.	J.O.B.
04	04-18-08	Added asphaltic paint note	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS
PIPE CULVERT DETAILS

RD668

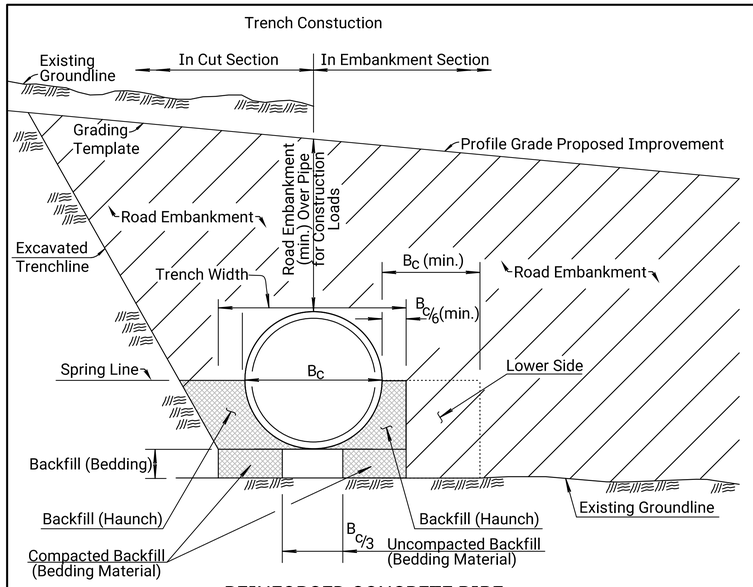
FHWA APPROVAL	03-16-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-02-2022 Sh. No. 50

KDOT Graphics Certified

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File : ka651701rss668.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	51	366



REINFORCED CONCRETE PIPE

Backfill (Bedding) Thickness: When over soil, use $B_C/_{24"}$ (min. of 4" & max of 24") of PB-2 or PB-3.
When over rock, excavate $B_C/_{12"}$ (min. of 6") below the bottom of the pipe and replace with PB-3.

Backfill Material: See KDOT's Standard Specifications, Aggregates for Backfill in Division 1100.

Compacted Backfill Material: Use Type B compaction in the haunch areas shown above. Use Type A compaction Backfill (Bedding), unless otherwise specified in the Contract Documents.

Road Embankment: For compaction See KDOT Road Standard Drawing, Foundation Treatment & Compaction of Earthwork.

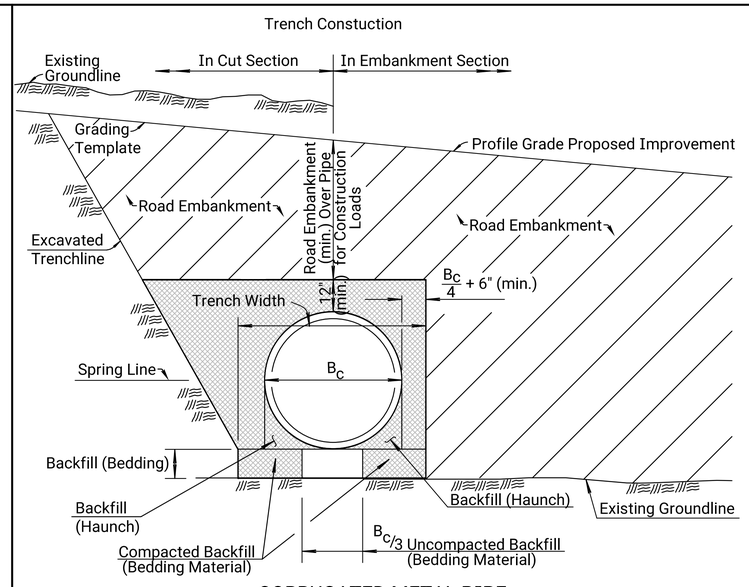
Trench Width: The minimum required trench width is the greater of:
$1.33 \times B_C$ or $B_C + 24"$

B_C: Outside Pipe Diameter

Minimum Road Embankment for Construction Loads				
Pipe Dia. (Inside Diameter)	Axle Load (Tons)			
	<25	25-37.5	37.5-55	55-75
≤ 15"	2'-0"	3'-0"	4'-6"	6'-0"
18"	2'-0"	3'-0"	4'-0"	6'-0"
21" - 24"	1'-6"	2'-6"	4'-0"	6'-0"
27"	1'-6"	2'-6"	4'-0"	5'-6"
30"	1'-0"	2'-6"	4'-0"	5'-6"
33"	1'-0"	2'-0"	4'-0"	5'-6"
36"	1'-0"	1'-6"	4'-0"	5'-6"
42"	1'-0"	1'-6"	3'-6"	5'-6"
48" - 54"	1'-0"	1'-6"	2'-6"	5'-6"
60" - 66"	1'-0"	2'-0"	2'-6"	5'-6"

Minimum Road Embankment for Construction Loads				
Pipe Dia. (Inside Diameter)	Axle Load (Tons)			
	<25	25-37.5	37.5-55	55-75
72"	1'-0"	2'-0"	3'-6"	4'-0"
66" - 84"	1'-0"	2'-0"	3'-0"	4'-0"
90"	1'-0"	2'-0"	3'-6"	4'-6"
96"	1'-0"	2'-6"	3'-6"	4'-6"
102"	0'-6"	2'-6"	3'-6"	5'-0"
108"	0'-6"	2'-0"	3'-6"	5'-0"
114"	0'-6"	2'-0"	4'-0"	5'-0"
120" - 132"	0'-6"	2'-0"	4'-0"	5'-6"
144"	1'-0"	2'-6"	4'-6"	5'-6"

Minimum Road Embankment height should be no less than the value in the provided table or the manufacturer's specification.



CORRUGATED METAL PIPE

Backfill (Bedding) Thickness: When over soil, use ½ in./ft. of fill over pipe (min. of 4" & max. of 24") of PB-2 or PB-3.
When over rock, excavate 6" below the bottom of the pipe and replace with PB-2 or PB-3.

Backfill Material: See KDOT's Standard Specifications, Aggregates for Backfill in Division 1100.

Compacted Backfill Material: See KDOT's Standard Specifications and Pipe Manufacturer's Installation Guidelines.

Compaction: Use Type B compaction in the haunch areas shown above. Use Type A compaction Backfill (Bedding), unless otherwise specified in the Contract Documents.

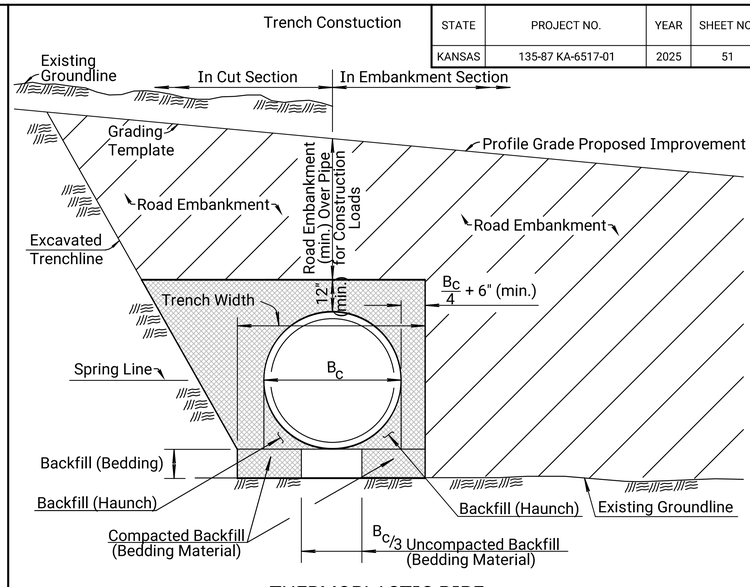
Road Embankment: For compaction See KDOT Road Standard Drawing, Foundation Treatment & Compaction of Earthwork

Trench Width: The minimum required trench width is the greater of:
$1.50 \times B_C + 12"$ or $B_C + 16"$

B_C: Outside Pipe Diameter

Corrugated Metal pipe: Minimum Road Embankment for Construction Loads				
Pipe Dia. (Inside Diameter)	Axle Load (Tons)			
	<25	25-37.5	37.5-55	55-75
< 42"	2'-0"	2'-6"	3'-0"	3'-0"
48" - 72"	3'-0"	3'-0"	3'-6"	4'-0"
78" - 120"	3'-0"	3'-6"	4'-0"	4'-0"
126" - 144"	3'-6"	4'-0"	4'-4"	4'-4"

Minimum Road Embankment height should be no less than the value in the provided table or the manufacturer's specification.



THERMOPLASTIC PIPE

Backfill (Bedding) Thickness: When over soil, use ½ in./ft. of fill over pipe (min. of 4" & max. of 24") of PB-2 or PB-3.
When over rock, excavate 6" below the bottom of the pipe and replace with PB-2 or PB-3.

Backfill Material: See KDOT's Standard Specifications, Aggregates for Backfill in Division 1100.

Compacted Backfill Material: Use Type B compaction.

Compaction: Hand-held or walk behind compaction equipment is permitted when compacting fill directly above the pipe only when the fill over the pipe is greater than or equal to 12". The use of ride-on compaction equipment is permitted for compacting fill directly above the pipe only when the fill over the pipe is greater than or equal to 36". A prime goal of pipe installation is to manipulate and compact embedment material under the pipe haunches, to achieve full contact of the material with the pipe bottom and fill voids under the pipe.

Road Embankment: For compaction See KDOT Road Standard Drawing, Foundation Treatment & Compaction of Earthwork.

Trench Width: The minimum required trench width is $1.50 \times B_C + 12"$
The maximum trench width is $1.575 \times B_C + 12\frac{1}{2}"$

B_C: Outside Pipe Diameter

Thermoplastic Pipe: Minimum Road Embankment for Construction Loads				
Pipe Dia. (Inside Diameter)	Axle Load (Tons)			
	<25	25-37.5	37.5-55	55-75
< 36"	2'-0"	2'-6"	3'-0"	3'-0"
42" - 48"	3'-0"	3'-0"	3'-6"	4'-0"
54" - 60"	3'-0"	3'-0"	3'-6"	4'-0"

Minimum Road Embankment height should be no less than the value in the provided table or the manufacturer's specification.

GENERAL NOTES

Do not drop, drag or otherwise handle pipe sections in a manner which may cause damage. Inspect the line and grade before and during placement of compacted backfill and uncompacted backfill materials.

For trench installations place pipe in the center of the excavated trench.

When installing pipe, place the uncompacted backfill and compacted backfill material in the bedding area to grade, install pipe to grade, place and compact the haunch area up to the spring line of the pipe and complete the backfill as specified in KDOT's Standard Specifications unless otherwise noted in the contract documents.

B_C for horizontal elliptical pipe, vertical elliptical pipe, arch pipe, and non bridge-sized concrete box structures will be measured along the horizontal axis; similar to the dimension shown for circular pipe on this sheet.

The spring line is a line along the side of the culvert where the tangent to the culvert wall is vertical. It occurs at the widest point in the culvert.

Material used for the roadway embankment may be used in lieu of compacted backfill material as approved by the Engineer.

The backfill load transmitted to the pipe is directly dependent on the trench width. Where maximum trench widths are not indicated in any of the contract documents, trench widths should be as a narrow as possible with side clearance adequate enough to ensure proper compaction of backfill material at the sides of the pipe. The trench width formulas provided can be used as a general guide.

NO.	DATE	REVISIONS	BY	APP'D
01	05-09-22	Initial Release	A.L.R.	T.T.R.

KANSAS DEPARTMENT OF TRANSPORTATION

PIPE INSTALLATION DETAILS

RD658

FHWA APPROVAL	06-08-22	APP'D.	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-10-2022 Sh. No. 51

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:59
File : ka651701rss658.dgn

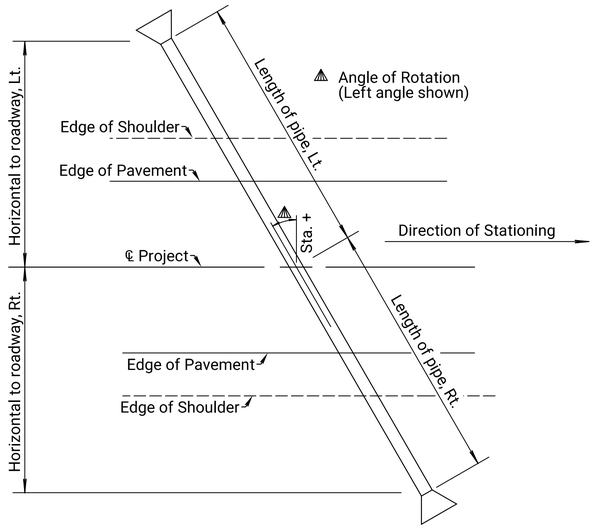
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	52	366

PIPE CULVERT SUMMARY

Station	Type	Size or Bid Designation Sq. Ft.	Crown Grade Elev.	Flow Line Lt.	Flow Line Rt.	Floor Elev. Lt.	Floor Elev. Rt.	Horizontal Roadway Lt.	Horizontal Roadway Rt.	Degree of Rotation	Length of Pipe Lt.	Length of Pipe Rt.	Lin. Ft. of Pipe	Height of Fill (max.) Ft.	Concrete Pipe AASHTO Class No.	Pipe Gauge ◔ Steel	Pipe Gauge ◔ Alum.	Pipe Corrugations ◔ Steel	Pipe Corrugations ◔ Alum.	Remarks
1153+00.00	CRP (RCP)	24"	1299.94	1292.02	1294.21			47	31		47	31	74	4	II					
1167+06.00	CRP (ACSP, RCP)	24"		1304.60	1302.00				96			96	96		II					

◔ Unless otherwise noted, minimum pipe gauge & corrugations to be as shown in RD660.
See Summary of Quantities for End Section information.

✳ Only include floor elevations for embedded pipes. See RD668 for details. For structures not embedded, the floor elevations may be omitted.



PLAN
(Showing Rotation about ℄)

Type		ALLOWABLE LOCATION ⚠				
	Mainline	Side Road	Entrance	Storm Sewer Under ML	Storm Sewer Not Under ML
✡PVCP					X
▱ PEP					X
▱ PPP					X
≈ SRPE					X
CSP					
ACSP		X			
CAP					
RCP	X	X	X	X	X

✡ When inside diameter of pipe is 36" or less.

⚠ Unless otherwise specified in the plans. Some pipe types may not be allowed at a location if the fill height exceeds the maximum allowable or is less than the minimum allowable cover.

▱ When inside diameter of pipe is 60" or less.

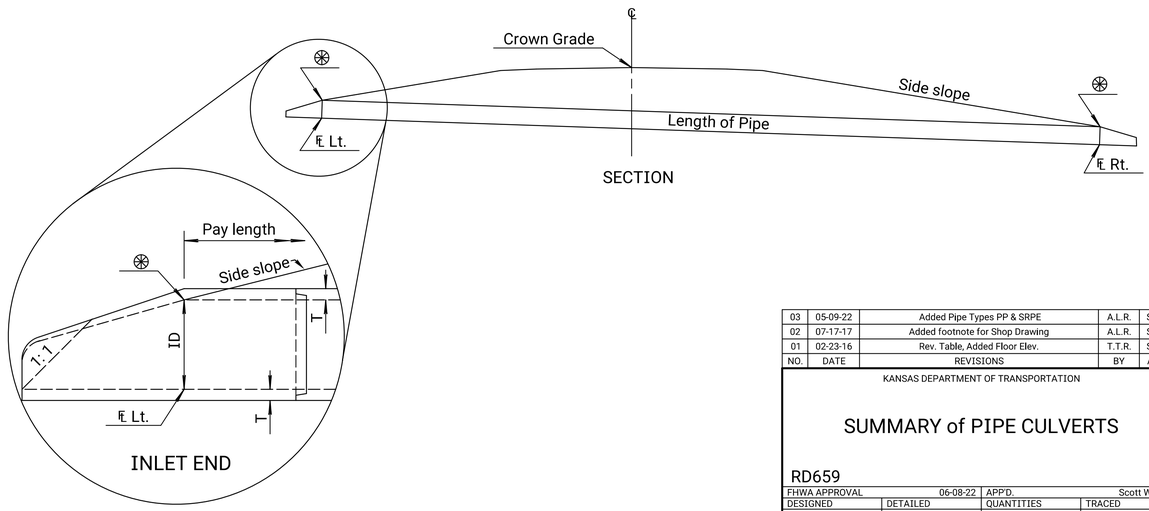
≈ For inside diameter: ≥ 30"

Type	ALLOWABLE END SECTIONS			
	◆ CS	◆ ACS	CA	RC
PVCP		X		Ψ
PEP		X		
PPP		X		
SRPE		X		
RCP				X
ACSP CAP CSP	Provide End Sections of the same material and coating type as the pipe.			

◆ Type IV End Sections are only made of CS or ACS.

Ψ Submit Shop Drawing of connection for review

✱ Design side slope to intersect inside diameter of pipe outside of Clear Zone.



Note to Designer:
KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, PPP SRPE, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

NO.	DATE	REVISIONS	BY	APP'D
03	05-09-22	Added Pipe Types PP & SRPE	A.L.R.	S.W.K.
02	07-17-17	Added footnote for Shop Drawing	A.L.R.	S.W.K.
01	02-23-16	Rev. Table, Added Floor Elev.	T.T.R.	S.W.K.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY of PIPE CULVERTS

RD659

FHWA APPROVAL	06-08-22	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 03-21-2025 Sh. No. 52

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:59
File : ka651701rss659.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	53	366

SITE DATA							HYDROLOGY				HYDRAULICS	
DRAINAGE STRUCTURE NUMBER	LOCATION STATION	DRAINAGE AREA NUMBER	DRAINAGE AREA ACREAGE	RECURRENCE INTERVAL YEARS	A. H. W. ELEVATION FEET	REMARKS	METHOD	DATA	Q_{cfs}	REMARKS	H. W. ELEVATION FEET	REMARKS
1	1153+00	A	3	25	1297.48	Sta. 1151+50	Rational	C=0.59; T$_c$=5 min; i=9.26 in/hr	14		1296.36	
2	1167+06	B	2	25	1312.06	Sta. 1169+54.41	Rational	C=0.61; T$_c$=5 min; i=9.26 in/hr	10		1306.28	

NO.	DATE	REVISIONS	BY	APP'D
02	10-08-90	Detailed on CADD, no change	R.J.S.	J.O.B.
01	05-29-80	Assigned standard number	W.L.H.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DRAINAGE DATA SHEET

RD653

FHWA APPROVAL	01-17-91	APP'D.	James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED	B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.	R.J.S.

KDOT Graphics Certified 07-31-2025 Sh. No. 53

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 12:59
File : ka651701rd653.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	54	366

SUMMARY OF QUANTITIES

Item / Location	Class III Excavation	Concrete		Reinforcing Steel		Structural Steel		Welded Stud Shear Connectors	Bearing (Disc)	Bearing (Steel)	Expansion Device Sliding Plate	Piles (Steel) (HP12x53)	Test Piles (Special) (Steel) (HP12x53)	Drilled Shaft (72") (Cased)	Sonic Test Drilled Shaft (Set Price)	Bridge Backwall Prot. System	Abutment Aggregate Drain	Substructure Waterproofing Membrane	Core Hole (Investigative)	Temporary Shoring	Bridge Deck Grooving	Slope Protection (Aggregate) (12")	Riprap (Reinforced Concrete) (6")	Bridge Drainage System	Falsework Inspection
		(Grade 4.0) (AE) (SA) (MPC)	(Grade 4.0) (AE)	(Grade 60) (Epoxy Coated)	(Grade 60)	(A709) (Gr. 50W)	(M270) (Gr. 50WT3)																		
	Cu. Yds.	Cu. Yds.	Cu. Yds.	Lbs.	Lbs.	Lbs.	Lbs.	Each	Each	Each	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Sq. Yds.	Cu. Yds.	Sq. Yds.	Lin. Ft.	Lump Sum	Sq. Yds.	Cu. Yds.	Sq. Yds.	Lump Sum	Lump Sum
Abutment No. 1	104.5	**	18.1	* 5,904	-	-	-	-	-	-	-	232.0	68.0	-	-	54.3	55.6	-	-	-	-	384.0	-	-	-
Pier No. 1	138.9	-	110.8	-	22,095	-	-	-	-	5	-	576.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Pier No. 2	142.5	-	115.5	-	22,983	-	-	-	5	-	-	540.0	46.0	-	-	-	-	-	-	-	-	-	-	-	-
Pier No. 3	130.6	-	123.4	7,196	15,640	-	-	-	10	-	36.1	640.0	-	-	-	-	-	22.2	-	-	-	-	-	-	-
Pier No. 4	12.1	-	58.7	-	16,146	-	-	-	-	5	-	-	-	60.5	-	-	-	-	70.3	-	-	-	-	-	-
Pier No. 5	11.5	-	61.2	-	17,662	-	-	-	-	5	-	-	-	60.5	-	-	-	-	70.1	-	-	-	-	-	-
Pier No. 6	10.4	-	74.1	7,664	9,311	-	-	-	10	-	36.1	-	-	59.6	-	-	-	29.2	68.7	-	-	-	-	-	-
Pier No. 7	138.9	-	123.5	-	23,828	-	-	-	5	-	-	592.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Pier No. 8	141.9	-	112.4	-	22,268	-	-	-	-	5	-	660.0	54.0	-	-	-	-	-	-	-	-	-	-	-	-
Pier No. 9	134.2	-	103	-	20,911	-	-	-	5	-	-	752.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Abutment No. 2	100.4	**	18.1	* 5,804	-	-	-	-	-	-	-	264.0	76.0	-	-	49.6	33.5	-	-	-	-	133	-	-	-
												-													
Substr. Total	1,065.9	-	918.8	19,735	170,845	-	-	-	-	-	-	4,256.0	244.0	180.6	1	103.9	89.1	51.4	209.1	-	3,392	517	†† 493	-	-
Superstr. Total	-	1,301.9	-	393,121	-	1,139	1,337,342	14,757	35	20	72.2	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Total	1,066	1,301.9	918.8	412,860	170,850	1,139	1,337,342	14,757	35	20	72	† 4,256	† 244	181	1	104	89	52	209.1	1	3,392	517	†† 493	1	1

* Reinforcing steel placed in the abutment diaphragms is included in the superstructure total quantity.

** Quantities are included in the superstructure total quantity.

†† Quantity shown includes portions near existing canal piers and at Piers 4 & 5.

NOTE: Only steel pile HP12x53 Gr. 50 shall be used on this project.

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56	General Notes II
57	Contour Map
58	Construction Layout I
59	Construction Layout II
60	Construction Layout III
61	Engineering Geology I
62	Engineering Geology II
63	Engineering Geology III
64	Geometric Layout
65	Abutment #1 Details
66	Abutment #1 Wingwall Details
67	Abutment #2 Details
68	Abutment #2 Wingwall Details
69	Abutment #1 Aggregate Drain
70	Abutment #2 Aggregate Drain
71	Bridge Berm & Slope Protection
72	Reinforced Concrete Riprap
73	Canal Lining Section & Details
74	Common Footing Details
75	Drilled Shaft Details I
76	Drilled Shaft Details II
77	Pier #1 Details
78	Pier #2 Details
79	Pier #3 Details
80	Pier #4 Details
81	Pier #5 Details
82	Pier #6 Details
83	Pier #7 Details
84	Pier #8 Details
85	Pier #9 Details
86	Fixed Bearing Details
87	HLMR Disc Bearing Details
88	Steel Erection - Fit Up Details
89	Framing Plan I
90	Framing Plan II

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92	Girder Elevations Details II
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94	Girder Elevations Details IV
95	Girder Elevations Details V
96	Girder Elevations Details VI
97	Girder Elevations Details VII
98	Girder Elevations Details VIII
99	Crossframe Details I
100	Crossframe Details II
101	Field Splice Details
102	Slab Details I
103	Slab Details II
104	Slab Details III
105	Slab Details IV
106	Slab Details V
107	Typical Section
108	Roadway Surface Elevations I
109	Roadway Surface Elevations II
110	Dead Load Deflections I
111	Dead Load Deflections II
112	Dead Load Deflections III
113	Expansion Device Details I
114	Expansion Device Details II
115	Expansion Device Details III
116	Drainage Details I
117	Drainage Details II
118	Barrier Elevations I
119	Barrier Elevations II
120	Barrier Elevations III
121	Barrier Elevations IV
122	Barrier Details I
123	Bar List I
124	Bar List II
125	Bar List III
126	Bar List IV

Bridge Standard Drawing	
Sheet No.	Drawing
131	Bridge Excavation (LRFD)
132	Stanadard Pile Details
133	Supports & Spacers for Reinforcing Steel

TRAFFIC DATA - (894)	
AADT (2025)	10,900
AADT (2045)	14,900
DHV	10%
D	-
T	4.2%

LFD & LRFR RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HS-20 (36T)	1.47	1.68
Type HET (110T)		1.08
2002 LFD Rating. 17th Edition AASHTO		
HL-93 Loading	1.24	1.61
*20XX Manual for Bridge Evaluation		

*Latest Version

† Summary of Piling	
Abut. No. 1	4 @ 58 ft. (Vert.) 1 @ 68 ft. Test Pile(Special)(Vert.)
Pier No. 1	16 @ 36 ft. (Vert.)
Pier No. 2	15 @ 36 ft. (Vert.) 1 @ 46 ft. Test Pile(Special)(Vert.)
Pier No. 3	16 @ 40 ft. (Vert.)
Pier No. 7	16 @ 37 ft. (Vert.)
Pier No. 8	15 @ 44 ft. (Vert.) 1 @ 54 ft. Test Pile(Special)(Vert.)
Pier No. 9	16 @ 47 ft. (Vert.)
Abut. No. 2	4 @ 66 ft. (Vert.) 1 @ 76 ft. Test Pile(Special)(Vert.)

DESIGN DATA

DESIGN SPECIFICATIONS: AASHTO Specifications, 9th Edition with 2021 Interim Specifications. Load and Resistance Factor Design.

DESIGN LOADING:
HL-93

Design Dead Load includes an allowance of 15 psf for a future wearing surface.

UNIT STRESSES:

Concrete (Grade 4.0)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)	f'c = 4 ksi
Concrete (Grade 4.0)(AE)(SA)(MPC)	f'c = 4 ksi
Structural Steel (M270)(Gr. 50WT3)	fy = 50 ksi
Structural Steel (A709)(Gr. 50W)	fy = 50 ksi
Structural Steel (A709)(Gr. 36)	fy = 36 ksi
Reinforcing Steel (Grade 60)	fy = 60 ksi
Steel Pile (Gr. 50)	fy = 50 ksi

LRFD DESIGN PILE LOAD:

Design Loading (Tons/Pile)	Strength I	Service I	Phi
Abutment No. 1	113	88	0.65
Pier No. 1	117	93	0.65
Pier No. 2	133	113	0.65
Pier No. 3	116	90	0.65
Pier No. 7	124	103	0.65
Pier No. 8	115	109	0.65
Pier No. 9	102	82	0.65
Abutment No. 2	108	84	0.65

LRFD DESIGN DRILLED SHAFT LOAD:

Design Loading (Tons/D.S.)	Strength I	Service I	Phi (Side)	Phi (End)
Pier No. 4	735	550	0.55	0.50
Pier No. 5	783	588	0.55	0.50
Pier No. 6	559	411	0.55	0.50

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1162+06.17

INDEX AND QUANTITIES
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED	AH,OM,FG	DETAILED	DE,GB,SK	QUANTITIES	SK,FG	CADD	DE,GB,SK
DESIGN CK.	SB,FG,SB	DETAIL CK.	SB,OM,AH	QUAN.CK.	SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 54

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:53
File : ka6517701bbr-0010.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	55	366

GENERAL NOTES

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

BRIDGE EXCAVATION: All excavation shall be Class III. See the "Bridge Excavation" sheet for limits of pay excavation.

BACKFILL COMPACTION: Compact backfill at the abutments and piers.

PILING: Drive all piling to penetrate or bear upon the wellington formation. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutment No. 1	113 Tons
Pier No. 1	117 Tons
Pier No. 2	133 Tons
Pier No. 3	116 Tons
Pier No. 7	124 Tons
Pier No. 8	115 Tons
Pier No. 9	102 Tons
Abutment No. 2	108 Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load. At any location where problems are experienced, pile damage is suspected, or the Pile Driving Formula Load occurs significantly above the design pile tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

PILING: Abutment Piling shall not be driven until 30 days after the embankment has been constructed.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SA)(MPC). Substructure concrete is bid as Concrete (Grade 4.0)(AE). The Contractor may use Concrete (Grade 4.0) in the footings and in the abutments below the construction joint. Bevel all exposed edges of all concrete with a ¾" triangular molding, except as otherwise noted on the plans. Construction joints are optional with the Contractor, but if used, place only at locations shown, or at locations approved by the Engineer.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or AASHTO M32, and are included in the bid item "Reinforcing Steel (Gr. 60)".

Where non-coated bars come in contact with epoxy coated bars, they need not be coated.

ERECTION ELEVATION CHECKS: After the abutment and pier concrete has cured and before setting any structural steel, present verification to the Engineer that the elevations at the bearings match plan elevation (± ¼"). Present verification to the Engineer that the elevations at all field splice locations match the elevations (+/- ½") in the plans before any connection is fully tightend. (For steel girders that are blocked on the ground, fully tighten the bolted connections prior to erection.)

CONCRETE PLACING SEQUENCE: The Contractor will adhere to the placing direction/sequence shown on the plans. Changes will be accepted only if the Contractors Engineer adjusts the camber diagram so the fabricator can adjust the web camber and headed stud anchor heights accordingly. This revised diagram will be approved by the design Engineer prior to deck forming. If profile grinding decreases the clearance to the top mat of reinforcement to less than 2½" a polymer overlay will be placed at no cost to the State.

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for, Abutments, will follow the "Standard Pile Details" Sheet (BR110).

CONTRACTOR CONSTRUCTION STAKING: Contractor Construction Staking for clear span bridges requires two independent surveys. See KDOT Specifications.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

COLUMN CONSTRUCTION: Cure the column footing as required by the KDOT Specifications before beginning the column construction (placing resteel or formwork). Do not place cast in place shear bolts, coil inserts or other devices used as falsework support in the column without the approval of the Engineer. Do not remove column formwork without the approval of the Engineer. Curing shall continue after the formwork is removed as required by the KDOT Specifications.

PIER BEAM CONSTRUCTION: Cure the columns as required by the KDOT Specifications before beginning the pier beam construction (placing resteel or formwork). Do not drill and grout bolts or other devices into the columns used for falsework support unless approved by the Engineer. Cure the columns as required by the KDOT Specifications before placing pier beam concrete. Do not remove falsework used to support the pier beam until the pier beam concrete has cured as required by the KDOT Specifications. Do not set girders or beams on the pier beam until after the falsework is removed or the pier beam concrete has 0.75f'c strength as tested.

ABUTMENT AGGREGATE DRAIN: See the General Notes on the "Abutment Aggregate Drain" sheet.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Aggregate Drain" sheet.

SLOPE PROTECTION (Aggregate): Place Slope Protection (Aggregate) to the limits and thicknesses shown on the plans or as directed by the Engineer. See Contour Map for thickness and details at toes of slopes. Use (12")(D50 = 6") as described in Division 1100 placed to the limits shown on the plans.

CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the slab and curbs shall be as shown, or the Contractor may submit an alternate placing sequence for review. Submit the alternate placing sequence to the Engineer at the Preconstruction Conference. Include the proposed rate of concrete placement in C.Y./h, the plant capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures, shall be at the Contractor's expense and shall be considered subsidiary to the bid item, "Concrete (Grade 4.0)(AE)(SA)(MPC)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

CONCRETE PLACING: Place and hand vibrate all concrete for the abutments above the construction joints to the bottom of the deck elevation just prior to the normal paving train operations. Do this work in a manner to avoid a cold joint in either the slab or in the abutment.

TEMPERATURE: The design temperature for all dimensions is 60° F.

CONSTRUCTION LOADS: Limited traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

CONCRETE RUBBLE: The amount of suitable concrete rubble available for slope protection is approximate and is furnished only as an aid to the Contractor.
Concrete Rubble = 322 C.Y.

EXISTING STRUCTURE: Plans of the existing structure are on file and available for inspection by qualified bidders at the State Bridge Office, KDOT, Eisenhower State Office Building, 700 SW Harrison, Topeka, KS.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

CONSTRUCTION JOINTS: The construction joints shown are optional with the Contractor. If used, place the construction joints only at locations shown or at locations approved by the Engineer.

ERECTION PLANS: This is a Category C structure. Submit detailed Erection Plans to the State Bridge Office (or Bureau of Local Projects) at least 4 weeks before beginning the erection process. Portions of the submitted details shall bear the seal of a licensed Professional Engineer. Identify, on the Erection Plans, the Erection Supervisor required by KDOT Specifications. The Erection Supervisor will attend the required pre-erection meeting before these operations begin as described in KDOT Specifications. No structural erection work will begin without approved erection plans.

BRIDGE DECK GROOVING: After the bridge deck has cured, transversely groove the deck in accordance with KDOT Specifications. For phased construction groove each completed phase before opening to traffic. Align the grooves from each adjacent phase across the bridge deck without jogs or discontinuities. For skewed bridges all grooving will be perpendicular to the centerline of the bridge.

GEOTECHNICAL REPORT: See "Bridge Foundation Geology Report" dated January 2025 regarding Br. No. 135-87-5.81 (894) for additional requirements and information. Report is considered part of the contract documents.

The geotechnical report (Dated January 2025) includes soil parameters for retaining wall (sheet pile) design. The report recommends a traffic surcharge of 250 lb/ft². The geotechnical information shown on the plans is the best information available. The report is available for inspection by qualified bidders at the State Bridge Office, KDOT, Eisenhower State Office Building, 700 SW Harrison, Topeka, KS.

WELDING: Material, Fabrication and Construction shall conform to KDOT Specifications. On the shop drawings, show a code or symbol in the tail of the weld symbol that refers to an approved, pre-qualified weld procedure.

TEST PILE SPECIAL: Drive the test pile special at the locations directed by the Engineer/Geologist or as shown on the Plans. Use Pile Driving Analyzer (PDA) equipment and methods compliant with KDOT Specifications. The test piling shall remain in place as permanent piling. Drive the test pile special piling to the resistance value of the Strength I load divided by Phi shown on the plans.

Excavation to plan grade should be performed prior to PDA testing at the abutment. At least 24 hours for each test should be allowed to account for possible restrikes. Please contact KDOT Geology in Topeka at (785) 291-3861 when a schedule for pile driving has been established. A minimum of 5 working days is necessary to allow for proper scheduling.

ERECTION: Bring each line of girders to the correct line, grade (or relative grade) and camber, and secure in place prior to connection of the girder field splices. Provide falsework bents as necessary to maintain the correct line and elevation. Leave the falsework bents in place until all girder splice connections are completed. Submit information which clearly shows the proposed layout and use of falsework bents. The Engineer shall approve such information prior to erection of structural steel.

STRUCTURAL STEEL: Girder flange plates, web plates, diaphragms, lateral bracing, abutment and pier bearing and jacking stiffeners, and field splice plates shall meet AASHTO M270 (Grade 50WT3) requirements except as noted. Abutment girder supports shall meet ASTM A709 (Grade 36) or A36 requirements. All other structural steel shall meet ASTM A709 (Grade 50W), unless noted otherwise. Shop and Field Splices shall be made only where shown on the Contract Plans as a "splice" or as an "optional splice." Elimination of any "splice" may be requested.

SHOP DETAILS: Reference blocking diagrams on the shop details to a level line running the entire length of girder.

FABRICATION OF FIELD SPLICES: Prepare joints for the field splices in accordance with KDOT Specifications. Use Type "A" shop laydown.

FILLETS: Camber the steel girders for the total dead load deflection and the vertical curvature, if necessary. The ordinates shown for concrete dead load deflection represent the amount of camber that should be in the girders after they are erected and bolted but prior to placing the floor forms. After the structural steel is completely erected and the falsework bents are removed, measure the camber in the field by taking a profile of each girder. Correct any variation between the actual camber and the concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the girders so that the finished floor is constructed to the theoretical grade. The minimum depth of the slab over the girder shall be 8½ inches.

The theoretical amount of concrete required for the fillets is 58.23 C.Y. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GENERAL NOTES I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED	AH,OM,FG	DETAILED	DE,GB,SK	QUANTITIES	SK,FG	CADD	DE,GB,SK
DESIGN CK.	SB,FG,SB	DETAIL CK.	SB,OM,AH	QUAN.CK.	SB,AF	CADD CK.	SB,OM

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KDOT Graphics Certified

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File : ka651701bbr-0015.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	56	366

GENERAL NOTES

WELDED STUD SHEAR CONNECTORS : Weld Shear Stud Connectors with automatically timed stud welding equipment connected to a suitable power source. All stud welding shall conform to KDOT Specifications. For bridges with skewed reinforcing steel the contractor has the option to place the Welded Shear Stud Connectors parallel to the skew angle.

BOLTS: All bolts, nuts and hardened flat washers shall conform to the heavy hex structural requirements of ASTM F3125 Grade A325, Type 3, and KDOT Specifications unless otherwise noted. Direct Tension Indicators (DTIs) are to comply with the requirements of the latest edition of ASTM F959. No allowance will be made for high strength bolts used for permanent or temporary connections. This work is subsidiary to the bid item, "Structural Steel". The number of bolts is shown for the convenience of the Contractor.

BOLTED CONNECTIONS: GIRDER CONNECTIONS: Use $\frac{7}{8}$ inch diameter heavy hex structural bolts for the main member connections. Use $\frac{15}{16}$ inch diameter bolt holes. Do not ream during field erection. Accurately align all connections by driving $\frac{15}{16}$ inch diameter drift pins in all corners and in $\frac{1}{4}$ of the remaining holes in each plate. See KDOT Specifications.

Use Direct Tension Indicators (DTIs) on all high strength bolts. Place the DTI under the bolt head and turn the nut to tighten. This method is preferred whenever possible. Face the protrusions on the DTI to the underside of the bolt head. Place a hardened flat washer under the nut. See KDOT Specifications.

PAINTING: Blast clean all surfaces of all weathering steel, including all contact surfaces of bolted connections, to meet SSPC-SP6 Specifications (latest Revision). Blast clean to meet SSPC-SP10 Specifications and prime coat the embedded portion of the girders, including the abutment diaphragms; the top flanges, including the shear studs; and the top flange splice plates. Paint the areas of the girder near the expansion devices in accordance with KDOT Specifications. The finish coat will be Kansas Brown. The color shall match Federal Standard #20045.

Touch-Up: Prepare and paint all bolts, nuts, studs, and other small areas of damaged paint (1 yd^2 or less), requiring touch-up, with an approved organiz zinc primer.

PAINTING TOP FLANGES:
(Studs applied in the shop) Apply a 3 mil primer coat of an approved inorganic zinc primer to the tops of the top flanges and to the studs.

(Studs applied in the field) Shop Work: Blast clean the tops of the top flanges to SSPC-SP10 Specifications (latest Revision).

Field Work: Blast clean the tops of the top flanges to SSPC-SP6 Specifications (latest Revision) before the studs are applied. After the studs are applied, blast clean the tops of the top flanges and the studs to SSPC-SP6 Specifications and paint with an approved organic zinc primer to a minimum dry film thickness of 3 mils.

SUBSTRUCTURE WATERPROOFING MEMBRANE: Apply a Substructure Waterproofing Membrane, in accordance with KDOT Specifications, to the Pier #3 and Pier #6 pier caps after the bearings are set and the girders are erected. Apply the membrane within the limits shown on the plans to drain the bridge seat and the areas around the bearings. Repair any damage done to the membrane while the bridge is under construction. All work shall be as directed and approved by the Engineer.

DECK PROTECTIVE SYSTEM: Epoxy coat all reinforcing steel in the deck and barriers.

TEMPORARY CONSTRUCTION LOADS: Without prior written approval by the KDOT Area Engineer, do not stock pile construction materials, debris, or rubble exceeding the lesser of the posted load limit, or 20 tons. Equipment on the surface must not exceed the lesser of the posted load limit, or the Operating Load Rating for the structure. To request written approval, provide the KDOT Area Engineer plans showing the location, quantity and weight of the proposed materials, debris and/or equipment exceeding the stated limits. For bridges with highway traffic on or under the bridge, the plans, and accompanying calculations, must be sealed by a licensed Professional Engineer. Calculations will be based on AASHTO Specifications and take into account the existing capacities of structural members.

CURVED GIRDERS: Heat curve the girders. Submit the heat curving procedure with the shop details for approval. Do not cold-bend the girders for curvature.

SUBSTRUCTURE CONCRETE STAIN PROTECTION AND SANDBLASTING: Protect exposed surface of the piers and the front face of the abutment (by covering with polyethylene sheeting or other approved method) prior to erecting the structural steel and until after the deck slab has been placed. After the bridge is completed and prior to acceptance; sandblast the piers and front face of the abutment to a uniform appearance by removing all laitance, staining, any visable form lines, etc. This work will be subsidiary to structural steel.

FALSEWORK PLANS: A licensed Professional Engineer shall design the falsework details. Details shall bear the seal of a licensed Professional Engineer. Submit electronic plans conforming to Section 105 of the Standard Specification with details in compliance with KDOT Specifications to the Field Engineer for review.

FALSEWORK INSPECTION: This project has falsework plan requirements which are considered “Category 1” by KDOT specifications. The falsework designer of record will conduct an inspection of the as-built falsework. The bid item, “Falsework Inspection” is full compensation for all materials, labor and equipment. See KDOT specifications.

FALSEWORK PLANS AND SHOP DRAWINGS: Use the U.S. Customary system of units on falsework plans and shop drawing details.

TEMPORARY SHORING: The bid item "Temporary Shoring" includes all labor and material necessary to furnish shoring at the location shown on the plans for the temporary bracing of the embankment during excavation. Maintain the temporary shoring until the Engineer authorizes its removal. The temporary shoring plans are to be designed and sealed by a registered Professional Engineer. Submit design calculations and shoring plans to the Field Engineer for review 6 weeks before work is scheduled to begin. Work shall not begin until the Engineer grants approval.

ANCHOR BOLTS: Anchor bolts will adhere to KDOT Standard Specification Division 1600 (Grade 55) with the following exception. The threads may be rolled or cut.

CAUSEWAY: If the Contractor chooses to build a causeway for bridge construction purposes, the Contractor shall obtain any required U.S. Army Corps of Engineers Section 404 Permit, Kansas Department of Agriculture permit, Kansas Department of Health and Environment Section 401 Permit, Kansas Department of Wildlife Parks and Tourism Permit, or any other permit required by law for causeway construction. Obtain the permit in a timely manner so as not to delay the completion of the project.

DEMOLITION PLANS: This is a Category C for Br. No. 35W-87-14.35 (305) Demolition. Submit detailed Demolition Plans to the State Bridge Office (or Bureau of Local Projects) at least 4 weeks before beginning the demolition process. Portions of the submitted details shall bear the seal of a Licensed Professional Engineer. Identify, on the plans, the Demolition Supervisor meeting the requirements of KDOT Specifications. The Demolition Supervisor will attend the required pre-demolition meeting before these operations begin, as described in KDOT Specifications. No demolition work will begin without approved Demolition Plans.

PROTECTION OF LOWER ROADWAY: Execute the work in such a manner and take any precautions necessary to prohibit broken concrete and other debris from falling on and damaging the lower roadway. The Engineer shall approve the methods of protection provided by the Contractor before any work begins.

DRILLED SHAFTS: Construct the Drilled Shafts using the Cased Method. A permanent casing is required. All excavation, concrete, reinforcing steel, pipes for Sonic Testing, casings, labor, and incidentals necessary to complete the shaft as shown on the details and as directed by KDOT Specifications shall be included in the bid item "Drilled Shafts (72")". Use Grade 4.0 Concrete in the drilled shaft. In no case shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed by the KDOT Geologist.

Drill an Investigative Core Hole at the location(s) shown on the plans. See KDOT Specifications.

If the location of the top of the shaft is such that the casing cannot be overtopped to remove concrete impurities, provide extra casing length to over-pour the concrete in the shaft and chip back to the plan elevation of the top of the shaft.

If the permanent casing is to be corrugated metal pipe (CMP) then it will be galvanized.

The Construction and inspection of the drilled shafts shall as a minimum include:

Full flight auger, the auger will not have extenders, sidebars or otherwise attachments which will enlarge the hole diameter, an auger of full diameter will be used. The only exception to the above is when the engineer bells (enlarges) the bottom of the rock socket. This can be created by use of an under-ream attachment.

A clean-out bucket or muck bucket will be of full size and not less than 95% of the diameter shown on the plans.

Sound the bottom of the finished shaft prior to placing the reinforcement. This sounding will be done in a methodical grid pattern of approximately 12” in the presence of the Engineer. Full access to all areas of the shaft is the responsibility of the Contractor. Sounding will be done by a weighted line.

Flocculate the finished shaft prior to placement of the reinforcement. Use a commercially available flocculent agent per the manufacturer’s recommendations

Video inspection is required prior to concrete placement. The Contractor will review video of the bottom and sides of the drilled shaft in the presence of the Engineer prior to concrete placement.

Cross-Hole Sonic testing is required for all shafts. Report test results directly to KDOT’s Chief Geologist. No work will be done above the top of drilled shaft without the approval of the Chief Geologist.

It is the Contractors responsibility for the quality of the finished shaft if any repairs or additional testing is required it will be at no cost to the State.

SONIC TESTING: Equip all drilled shafts with piping to allow sonic testing to be done. Install pipes at locations shown on the plans. All wet pours will be tested. Also, the Engineer has the option to require sonic, non-destructive, integrity testing at any location of concern. Sonic testing shall be paid for at the unit price set for “Sonic Test” (Drilled Shaft) (Set Price). If the sonic testing indicates defective concrete in the shaft, the Engineer will measure the first sonic test for payment, and the Contractor is responsible for subsequent sonic testing of that shaft. Report test results directly to KDOT’s Chief Geologist. No work will be done above the top of drilled shaft without the approval of the Chief Geologist.

BACKFILL: Backfilling the annular space between the temporary casing and the permanent casing, as defined in the KDOT Specifications, is not required at this location.

COLUMN CONSTRUCTION: Cure the drilled shaft footing as required by the KDOT Specifications before beginning the column construction (placing resteel or formwork). Do not place cast in place shear bolts, coil inserts or other devices used as falsework support in the column without the approval of the Engineer. Do not remove the column formwork without the approval of the Engineer. Curing shall continue after the formwork is removed as required by the KDOT Specifications.

ASBESTOS INFORMATION:
Samples of this structure were tested to determine the amount of Asbestos Containing Materials (ACM) present in the components. The results are listed below:
Concrete Column: 0%; Concrete Abutment: 0%
Concrete Box Girder: 0%; Concrete Deck: 0%
Concrete Rail: 0%
Date of Report: September 25, 2024
For any result above greater then 1%, abatement shall be performed according to KDOT Specifications. Results less than 1% require no abatement.

REMOVAL OF EXISTING STRUCTURE:
The Contractor shall remove Br. No. 135-87-05.81 (305). Bridge consists of 77'-122'-122'-65'-86'-113'-3@98'-65' Continuous Reinforced Box Girder Spans, Pile Bent Abutments, Pedestal Type Piers 30'-0" Roadway, 0° Skew, R = 477.46'. All material shall become the property of the contractor and shall be removed from the project site by the contractor. All piles interfering with the new construction shall be cut off at least three feet below the finished streambed elevation.

RIPRAP (REINFORCED CONCRETE): This bid item includes all labor, material and incidentals needed to both rebuild the existing Canal Lining (Riprap (Reinf. Conc.)(6")) following the removal of the existing structure and replace the existing Canal Lining following the construction of Piers 4 & 5. The Contractor shall follow details shown on the "Canal Lining Section & Details" and "Reinforced Concrete Riprap" sheets, KDOT Specifications 829 and any other project Special Provisions to rebuild the Canal Lining sections back to original condition.

All construction activity within flood control right-of-way must be in compliance with the Corps' levee construction manual EM 1110-2-1913.

The Contractor shall not stockpile any material, equipment, or rubble in the Wichita-Valley Center Flood Control Right-of-Way. The Contractor shall notify Jim Hardesty, Division Manager, at 316-268-8317 at least three working days prior to the starting of the project. He shall be provided a timetable of the project and the assurance that any damage occurring to the floodway will be rectified before completion of the project.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GENERAL NOTES II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK		
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM		

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File : ka651701bbr-0020.dgn

P.T. ℄ Sta. 1148+09.07
N=368362.763, E=17553642.394
1. Set ⅝" x 24" Rebar with a 2" aluminum cap stamped "Ramp K-6 PT 1148+09.07"
2. Edge of concrete — 16.43' ESE
3. Set 'x' cut in shoulder — 19.99' E
4. Set 'x' cut in shoulder — 19.99' SE

Office Relocation
P.C. ℄ Sta. 1149+33.55
N=368248.195, E=17553593.712
1. 0.001' Rt. Survey ℄ Sta. 1149+33.55
2. Not Set.

Office Relocation
P.I. ℄ Sta. 1171+49.36 Bk. = 1142+42.89 Ahd.
N=366208.852, E=17552727.164
1. 768.38' Rt. Survey ℄ Sta. 1155+09.30
2. Not Set.

Office Relocation
P.T. ℄ Sta. 1164+58.70
N=367562.102, E=17554481.741
1. 122.94' Rt. Survey ℄ Sta. 1163+14.40
2. Not Set.

Office Relocation
P.C. ℄ Sta. 1167+51.70
N=367741.045, E=17554713.751
1. 38.72' Rt. Survey ℄ Sta. 1165+95.03
2. Not Set.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	57	366

℄ Sta. 220+59.56 NO WORK
Ramp NB135-WB54 Br. No. 135-87-5.98 (299)
UNIT No. 1: 44'-72'-24'
UNIT No. 2: 75'-99'-99'-75'
UNIT No. 3: 24'-101'-119'-119'-114'-24'
UNIT No. 4: 100'-124'-124'-100'
UNIT No. 5: 24'-114'-85'
Continuous Welded Plate Girder Spans (SWGC)
24'-0" Roadway, R = 818.51' Curve Lt.

S¼, Sec. 22, T27S, R1E

Wichita Drainage Canal (Chisholm Creek)

WB54-SB135

SOUTHBOUND I-135

NORTHBOUND I-135

EB54-NB135

℄ Ramp SB135-EB54 Survey Sta. 1160+49.63 REMOVE
Br. No. 135-87-05.81 (305)
Unit No. 1: 77'-122'-105'
Unit No. 2: 18'-65'-86'-113'-24'
Unit No. 3: 25'-49'-98'-98'-65'
Reinf. Conc. Box Girder, Continuous (RBGC)
30'-0" Roadway, R = 477.46' Curve Lt.

CAUTION!!
Existing 8'x5' RCB Storm Sewer
with R.C. Headwall and Flapgate
(DO NOT DISTURB)

Const. Limits

Exist. Bridge Mounted Sign

Exist. Bridge Mounted Sign

Riprap (Reinforced Concrete)(6")(Typ.)

℄ Survey

PT 1160+86.16

PT 1164+79.57

Exist. ℄ SB135-EB54

℄ I-135

Sta. 1191+81.81 (Radial Line)

9°33'43"

℄ Prop. Imp. = PGL SB135-EB54

P.C. 1167+43.57

PI 1167+01.18

Ramp NB135-WB54

NB135-EB54

Reinforced Concrete Riprap (6")

N ¼, Sec. 27, T27S, R1E

NOTE: All Slope Protection and Riprap (Reinf. Conc.) station and offset callouts are measured along the ℄ Prop. Imp. unless otherwise notes.

℄ Prop. Imp. Sta. 1161+81.81 =
℄ I-135 Sta. 109+86.71

℄ Ramp SB135-EB54
Sta. 1162+99.35 Construct
Br. No. 135-87-5.81 (894)
Unit No. 1 = 90'-120'-120'
Unit No. 2 = 86'-108'-100'
Unit No. 3 = 74'-100'-100'-76'
Weathering Steel Welded Plate
Girder Composite, Continuous (WWCC)
36'-0"Roadway, R = 585.00' Curve Lt., Skew Varies

Scale 1" = 50'

946'-6" E.W.S. to E.W.S.
86'-0" | 113'-0" | 98'-0"

EXISTING WATERWAY OPENING
Existing Bridge No. 135-87-5.81 (305)
Total Waterway Area = 1518 Sq. Ft.

Elevations shown are referenced to the NAVD88 Vertical datum.

℄ Ramp SB135-EB54 Curve Data

PI Sta. 1168+76.02 (Bk.) =
PI Sta.1168+74.12 (Ahd.)
Δ = 16°23'36" (RT)
L = 277.53'
R = 970.00'
T = 139.71'
E = 10.01'
Super = 6.0%

℄ Ramp SB135-EB54 Curve Data

PI Sta. 1172+93.90 (Bk.) =
PI Sta. 1141+10.67 (Ahd.)
Δ = 152°15'24" (LT)
L = 1,554.57'
R = 585.00'
T = 2,368.90''
E = 1,855.07'
Super = 7.6%

Detail is for left and right sides of bridge abutments
† See Road Plans for Slope Protection details

SLOPE PROTECTION DETAILS

Utility Owners

Power:
Evergy
1900 E. Central
Wichita, KS 67214
Attn: Nate Stahly
Ph (316) 261-6315

Storm Sewer:
City of Wichita
455 N. Main St, 8th Floor
Wichita, KS 67202
Attn: Kevin Yale
Ph (316) 268-4498

#28407
N ¼ Cor., Sec. 28, T27S, R1E
N=368100.166, E=17550253.945
Found "X" in edge of W N Bd lane for Washington
R1: Found "X" cut W Curb in S Bd Washington — 47.47' W
R2: Found "X" cut on Manhole Box by E Edge of Sidewalk E of N Pier to E Bd US-54/400 — 81.03' SE
R3: Found "X" cut on S Face NE Pier of W Bd US 54/400 Bridge — 52.39' NE
R4: Set "X" cut W Curb of N Bd Washington — 2.12' W

#27507
NE Sec. Cor., Sec. 27, T27S, R1E
N=368183.403, E=17558204.662
Found "X" cut
R1: Found "+" cut — 6.56' SE
R2: Found "X" cut — 26.92' NE
R3: Found faded "X" cut — 31.28' SW
R4: Found "X" cut — 41.70' NW

#28607
E ¼ Cor., Sec. 28, T27S, R1E
N=365484.236, E=17552911.700
Found exist center of thimble
R1: Exist "X" cut N side conc for traffic control — 69.86' SW
R2: Exist "X" cut S side conc for traffic signal — 55.76' NW
R3: City of Wichita BM disc on traffic signal pole — 68.04' NE
R4: Exist "X" cut front face of curb inlet — 76.02' SSE

#27607
E ¼ Cor., Sec. 27, T27S, R1E
N=365530.239, E=17558225.797
Found ¾" Iron bar in thimble
R1: Set "X" cut SE corner of traffic signal base — 49.99' NW
R2: Set "X" cut E side of traffic signal base — 53.46' SW
R3: Set "X" cut NE side of traffic signal — 53.31' SE
R4: Set "X" cut S side of traffic signal base — 50.83' NE

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

CONTOUR MAP
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

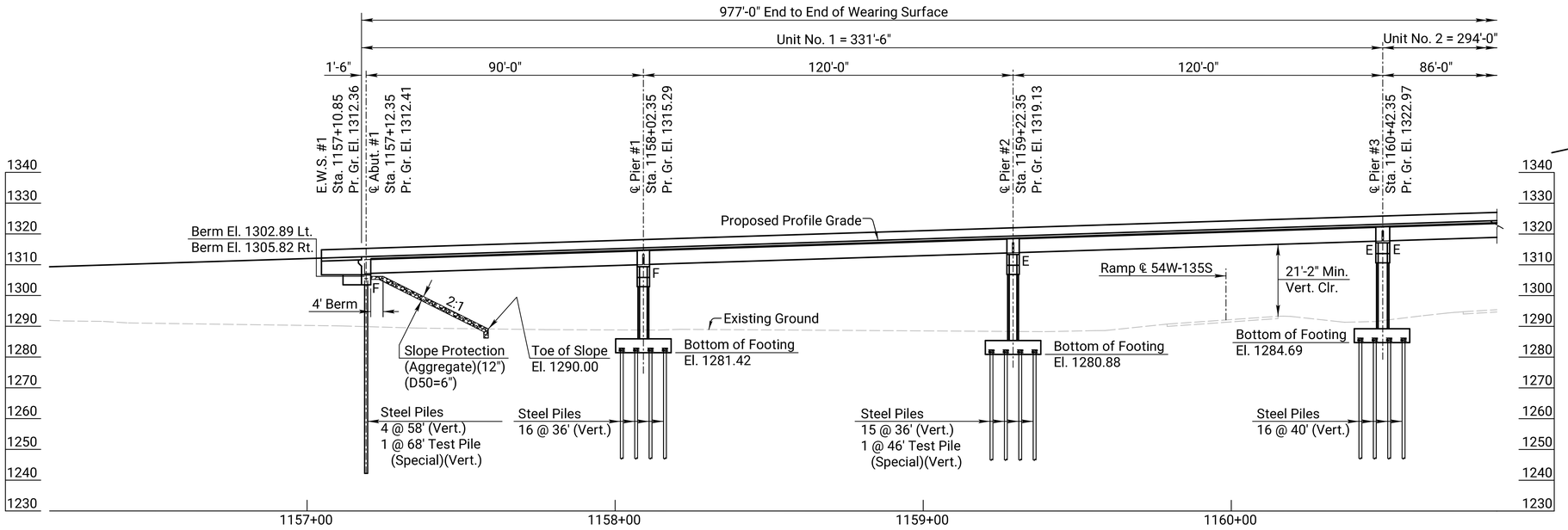
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DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

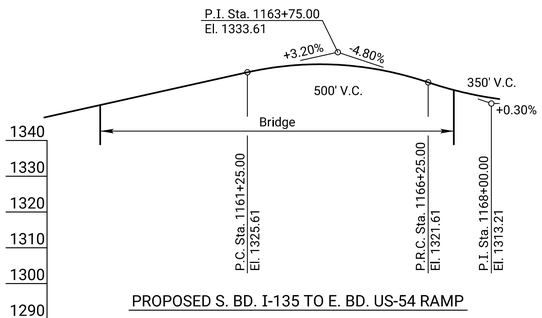
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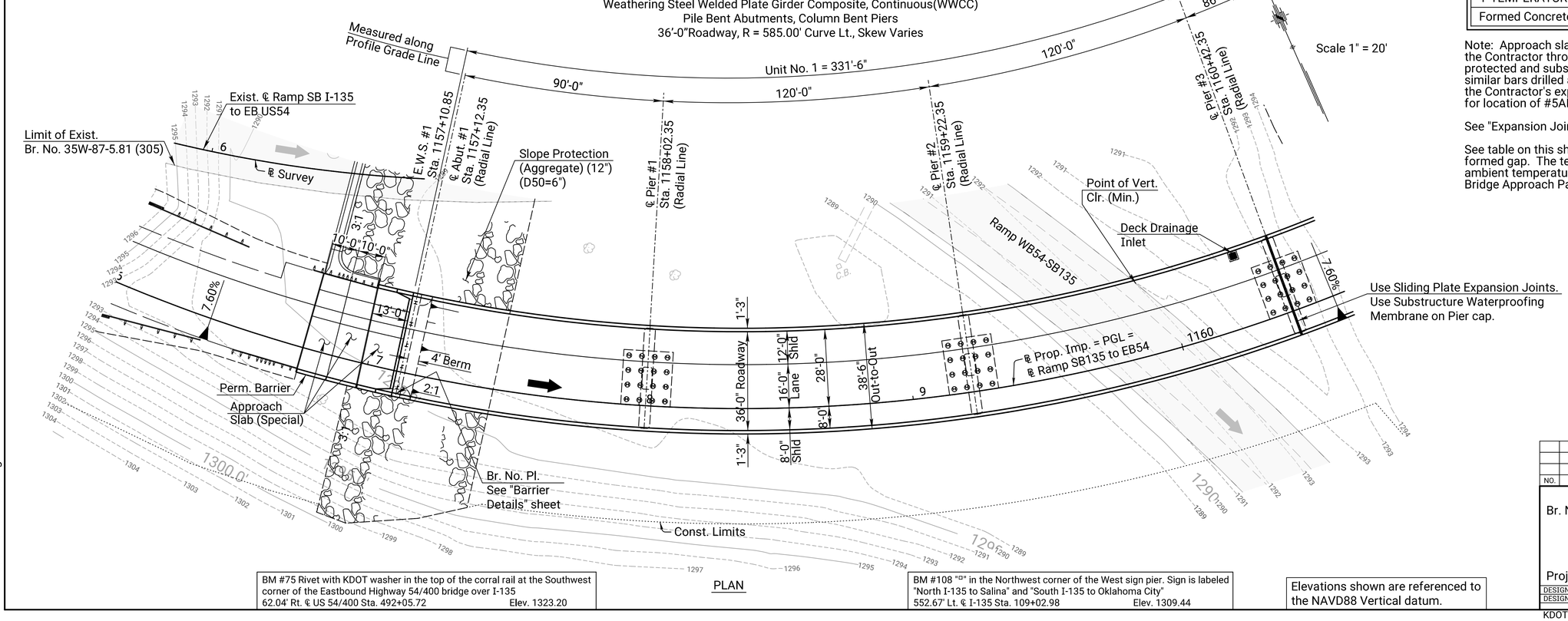
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	58	366





PROPOSED S. BD. I-135 TO E. BD. US-54 RAMP

ELEVATION
Unit No. 1: 90'-120'-120'
Unit No. 2: 86'-108'-100'
Unit No. 3: 74'-2@100'-76'
Weathering Steel Welded Plate Girder Composite, Continuous(WWCC)
Pile Bent Abutments, Column Bent Piers
36'-0"Roadway, R = 585.00' Curve Lt., Skew Varies



PLAN

THERMAL MOVEMENT OF APPROACH SLAB "W2"						
Ψ TEMPERATURE (F°)	40°	50°	60°	70°	80°	90°
Formed Concrete Opening Size	3⅛"	3"	3"	2⅞"	2⅞"	2¾"

Note: Approach slab reinforcing tie bars shall be protected by the Contractor throughout construction. Tie bars inadequately protected and subsequently damaged will be replaced with similar bars drilled and grouted into place and installed at the Contractor's expense. See "Abutment Diaphragm Details" for location of #5AD19 approach slab tie bars.

See "Expansion Joint Details".

See table on this sheet for adjusted "W2" values. "W2" is the formed gap. The temperatures in the table are the average ambient temperature over the last 24 hours. (See "Concrete Bridge Approach Pavement").

BM #75 Rivet with KDOT washer in the top of the corral rail at the Southwest corner of the Eastbound Highway 54/400 bridge over I-135
62.04' Rt. ℄ US 54/400 Sta. 492+05.72 Elev. 1323.20

BM #108 "¤" in the Northwest corner of the West sign pier. Sign is labeled "North I-135 to Salina" and "South I-135 to Oklahoma City"
552.67' Lt. ℄ I-135 Sta. 109+02.98 Elev. 1309.44

Elevations shown are referenced to the NAVD88 Vertical datum.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

CONSTRUCTION LAYOUT I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 58

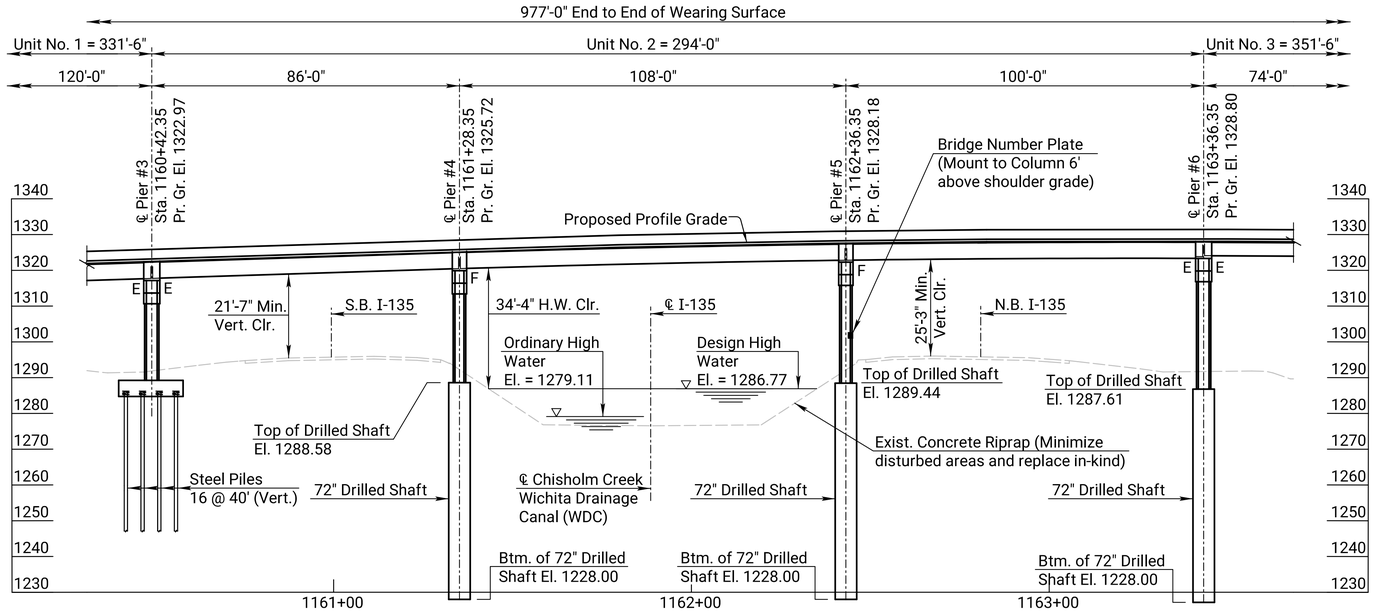
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KDOT Graphics Certified

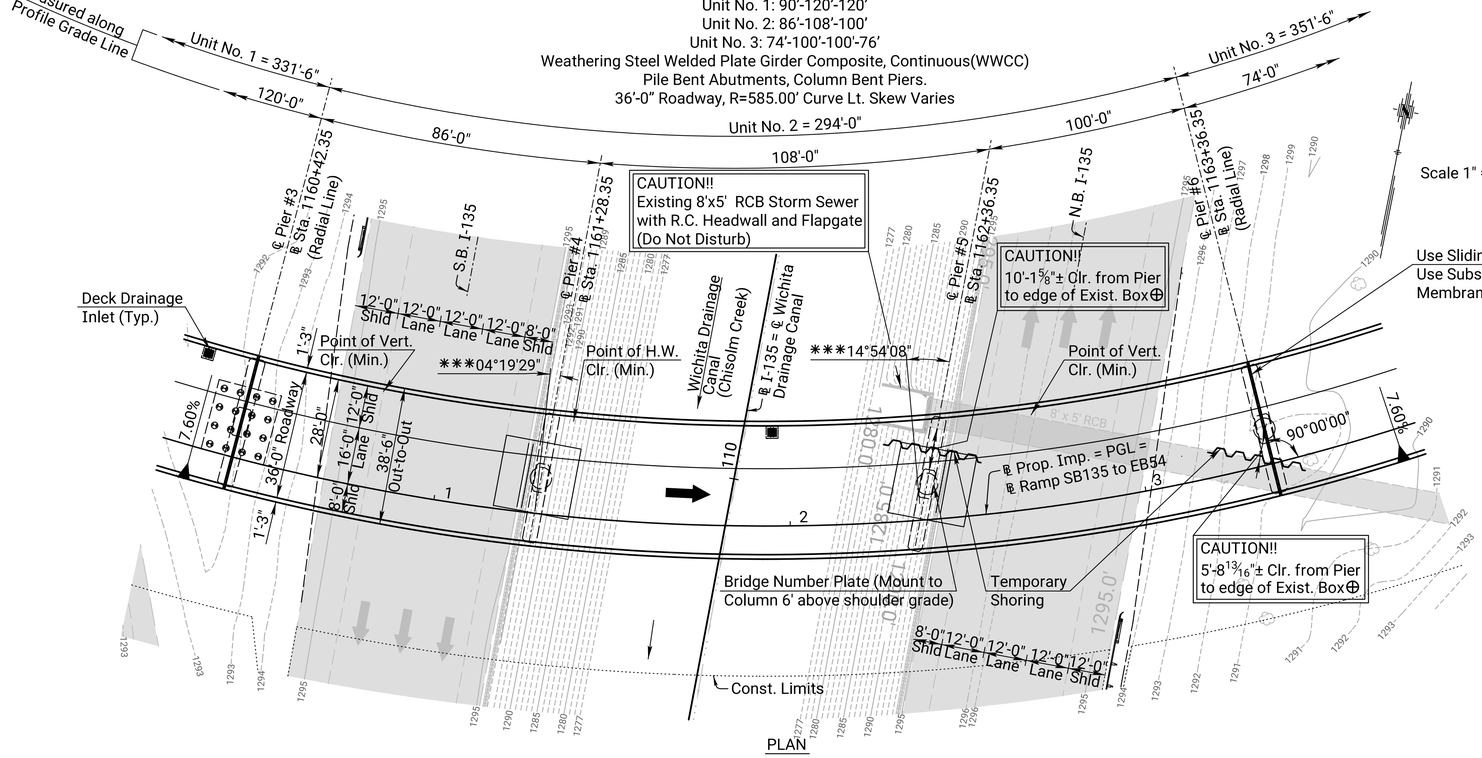
BM #40 Rivet with KDOT washer in the Southwest abutment wing of the Eastbound 54/400 bridge over Grove Street.
63.27' Rt. ℄ US 54/400 Sta. 511+96.70 Elev. 1314.00

BM #112 "⊡" on the North side of a light tower pier. South of the gore area for the Northbound I-135 to Eastbound 54/400 ramp just East of the Eastbound 54/400 bridge over Grove St.
1605.58' Rt. ℄ I-135 Sta. 116+45.13 =
108.74' Rt. ℄ US 54/400 Sta. 516+02.34 Elev. 1303.81

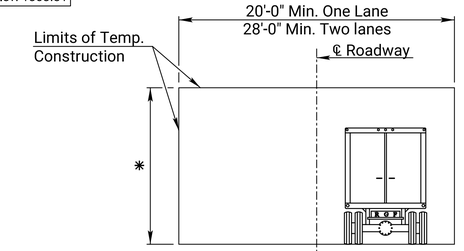
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	59	366



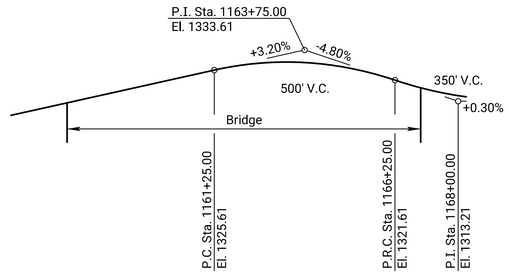
ELEVATION
Unit No. 1: 90'-120'-120'
Unit No. 2: 86'-108'-100'
Unit No. 3: 74'-100'-100'-76'
Weathering Steel Welded Plate Girder Composite, Continuous(WWCC)
Pile Bent Abutments, Column Bent Piers.
36'-0" Roadway, R=585.00' Curve Lt. Skew Varies



PLAN



CONSTRUCTION CLEARANCE DIAGRAM
* As required by Construction; Preferable is 16'-0" Advanced Signing Req'd. for clearances <15'-9" and less. Minimum is 14'-9"



PROPOSED S. BD. I-135 TO E. BD. US-54 RAMP

DRAINAGE DATA

Drainage Area	28.5	Sq. Mi.
Design Frequency	100	Years
Design Discharge (Q_{100})	10,250	cfs
Design High Water Elevation	1286.77	
Design Backwater	0.0	Ft.
Design Backwater Elevation	1286.77	
Overtopping Elevation (Sta. 1161+30.00)	1295.00	
Overtopping Discharge	25,000	cfs
Overtopping Frequency	> 500	Years
Discharge at Q_{100}	10,250	cfs
Backwater at Q_{100}	0.0	Ft.
** Backwater Elevation at Q_{100}	1286.77	
Change in backwater Elevation at 100 yr.	0.00	Ft.
Ordinary High Water Elevation	1279.11	
Estimated Ordinary High Water Discharge	1,417	cfs
Total Waterway Provided	1,518	Sq. Ft.
Design Waterway Provided	824	Sq. Ft.
Historic Highwater Elevation	1288.71	

** FEMA Base Flood Elevation (BFE)(100 yr.)(FIS Effective 12-22-16)

NOTE

⊕ Dimensions taken from plans, Contractor to verify before Pier Excavation.

*** Measured from ℄ Pier to Radial line at ℄ Prop. Improvement.

Elevations shown are referenced to the NAVD88 Vertical datum.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 135-87-5.81 (894) Sta. 1161+99.35
CONSTRUCTION LAYOUT II
S. BD. I-135 TO E. BD. US-54 RAMP
Proj. 135-87 KA-6517-01 Sedgwick Co.

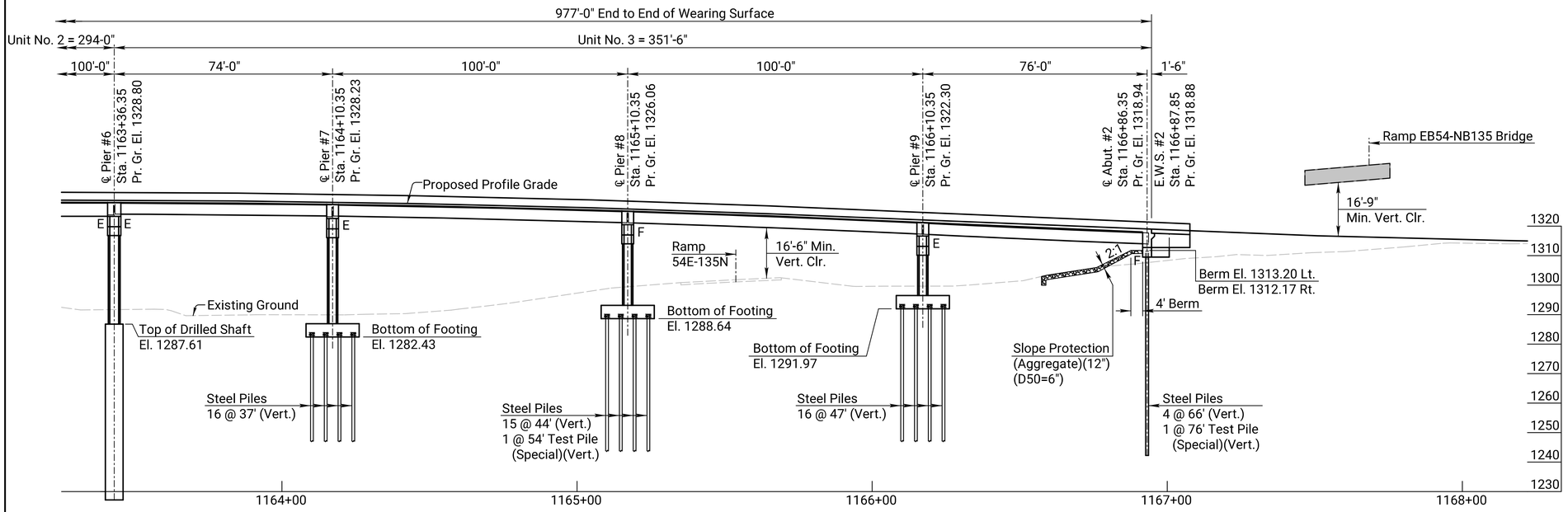
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DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 59

KDOT Graphics Certified

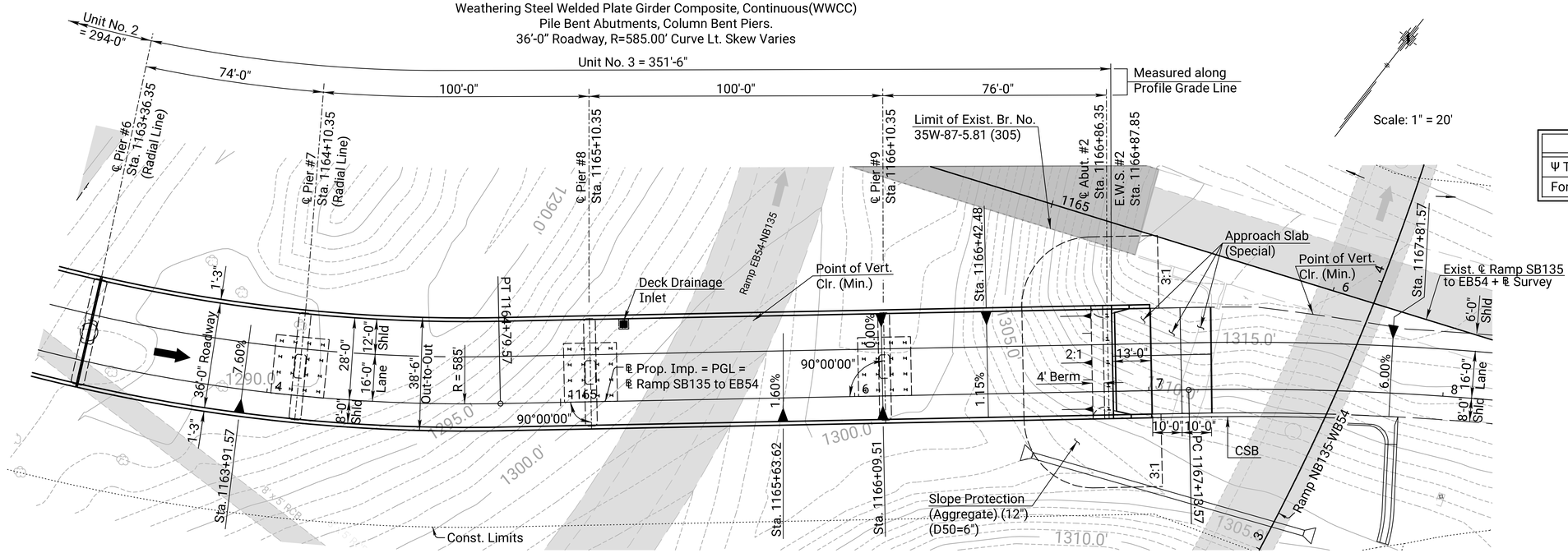
Plotted by : Bernhardt 18-AUG-2025 09:54
File : ka651701bbr-0051.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	60	366



ELEVATION

Unit No. 1: 90'-120'-120'
Unit No. 2: 86'-108'-100'
Unit No. 3: 74'-100'-100'-76'
Weathering Steel Welded Plate Girder Composite, Continuous(WWCC)
Pile Bent Abutments, Column Bent Piers.
36'-0" Roadway, R=585.00' Curve Lt. Skew Varies



PLAN

Scale: 1" = 20'

THERMAL MOVEMENT OF APPROACH SLAB "W2"						
Ψ TEMPERATURE (F°)	40°	50°	60°	70°	80°	90°
Formed Concrete Opening Size	3¼"	3¼"	3⅛"	3"	2⅞"	2¾"

UTILITIES

Storm Sewer City of Wichita

Elevations shown are referenced to the NAVD88 Vertical datum.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

CONSTRUCTION LAYOUT III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 60

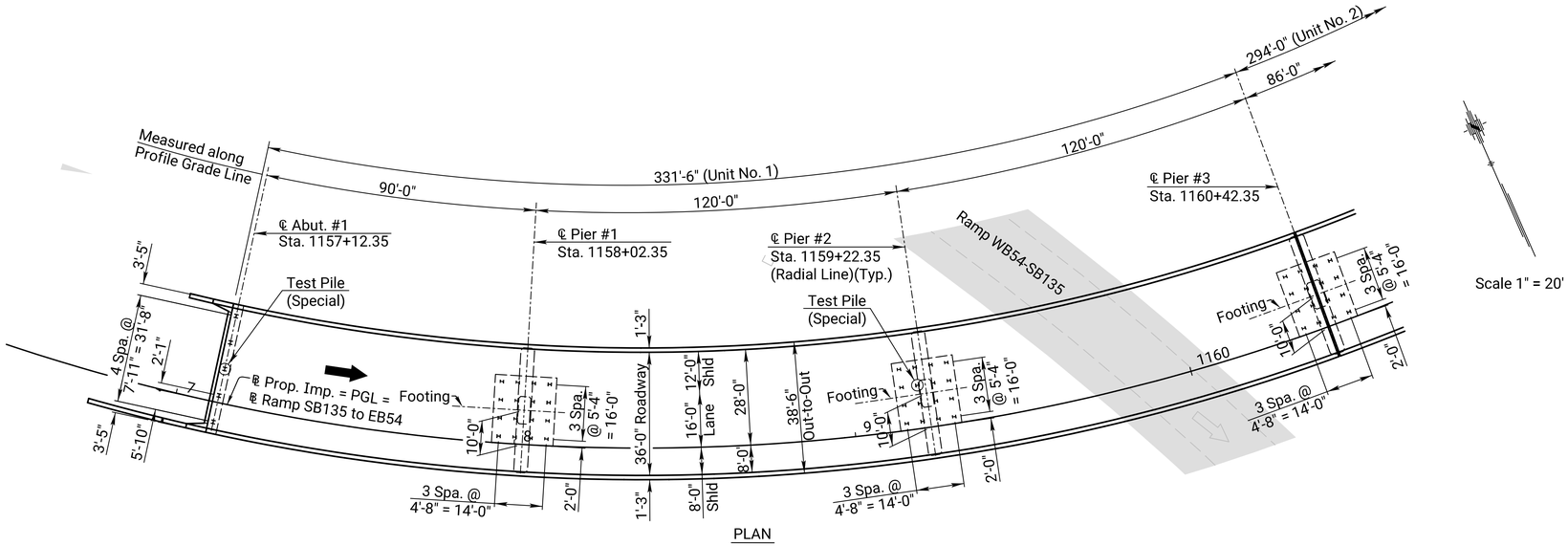
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:55
File : ka651701bbr-0052.dgn

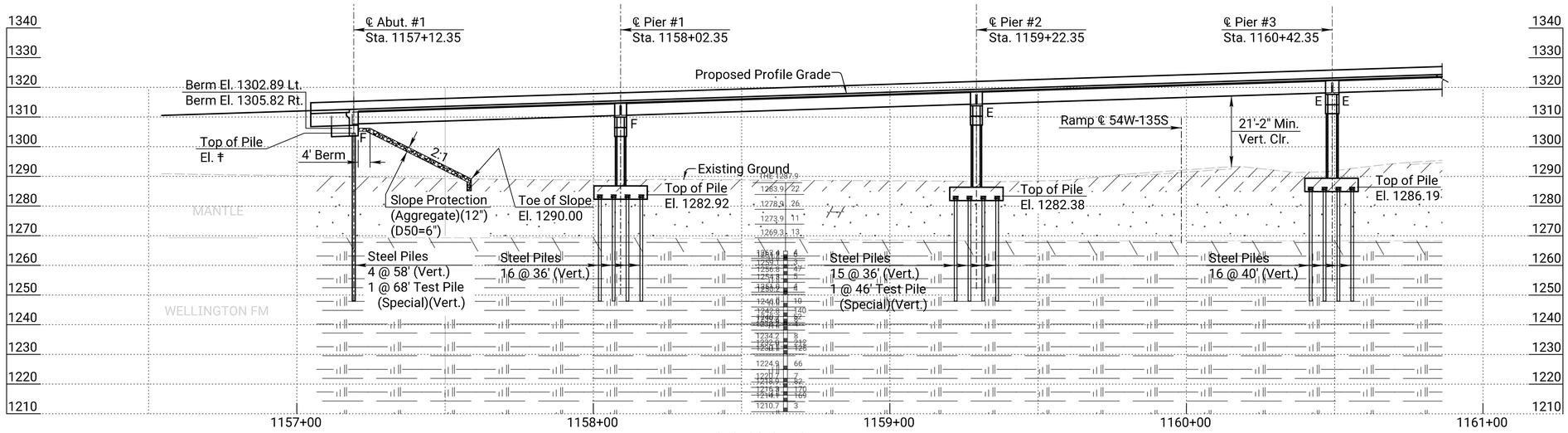
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	61	366

ǂ TOP OF PILE ELEVATIONS	
PILE NO.	ABUTMENT #1
1	1302.65
2	1303.25
3	1303.85
4	1304.46
5	1305.06

Based on 2'-0" pile embedment.



PLAN



GEOLOGIC PROFILE

STANDARD GEOLOGIC SYMBOLS

- Clay or Underclay
- Caliche
- Weathered Shale
- Limestone
- Mortar bed
- Silty Clay
- Silty Clayey Shale
- Sandstone
- Cherty Limestone
- Coal
- Silt
- Limy Shale
- Shaly Sandstone
- Shaly Limestone
- Siltstone
- Sand
- Black or Fissile Shale
- Gypsum bed
- Bentonite
- Chalk
- Gravel
- Sandy Shale
- Dolomite
- Weathered or Broken Limestone
- Wavy limestone
- Boulders
- Gypsiferous Shale
- Cross-bedded Sandstone
- Loess
- Chalky limestone

SOUNDINGS

- Core drill
- Power auger
- Hand tools
- Cone (CPT) penetrometer
- Shelby tube
- Water level 1278

NOTE: Soundings shown on these plans are taken from notes obtained in the field and represent the best information available. Logs of these soundings are provided with the bid documents, or are available from the Kansas Department of Transportation in Topeka for inspection by interested and qualified bidders.

NOTES:

PILING: Once sufficient resistance is achieved, driving must cease to avoid damage to the pile. Final pile tip elevations should be determined in the field based on recommendations provided through the use of the Pile Driving Analyzer.

Do not drive pile below plan tip elevation without utilizing restrike procedures as outlined in the Standard Specificatons, or as directed by KDOT Geology.

TEST PILE (SPECIAL): Please contact KDOT Geology in Topeka at (785) 291-3861 when a schedule for pile drving has been established. A minimum of 5 working days is necessary to allow for proper scheduling.

Excavation to plan grade should be perfromed prior to PDA testing. At least 24 hours for each test should be allowed to account for possible restrikes.

Gr. 50 Steel Pile HP 12x53 shall be used on this project.

Elevations shown are referenced to the NAVD88 Vertical datum.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ENGINEERING GEOLOGY I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

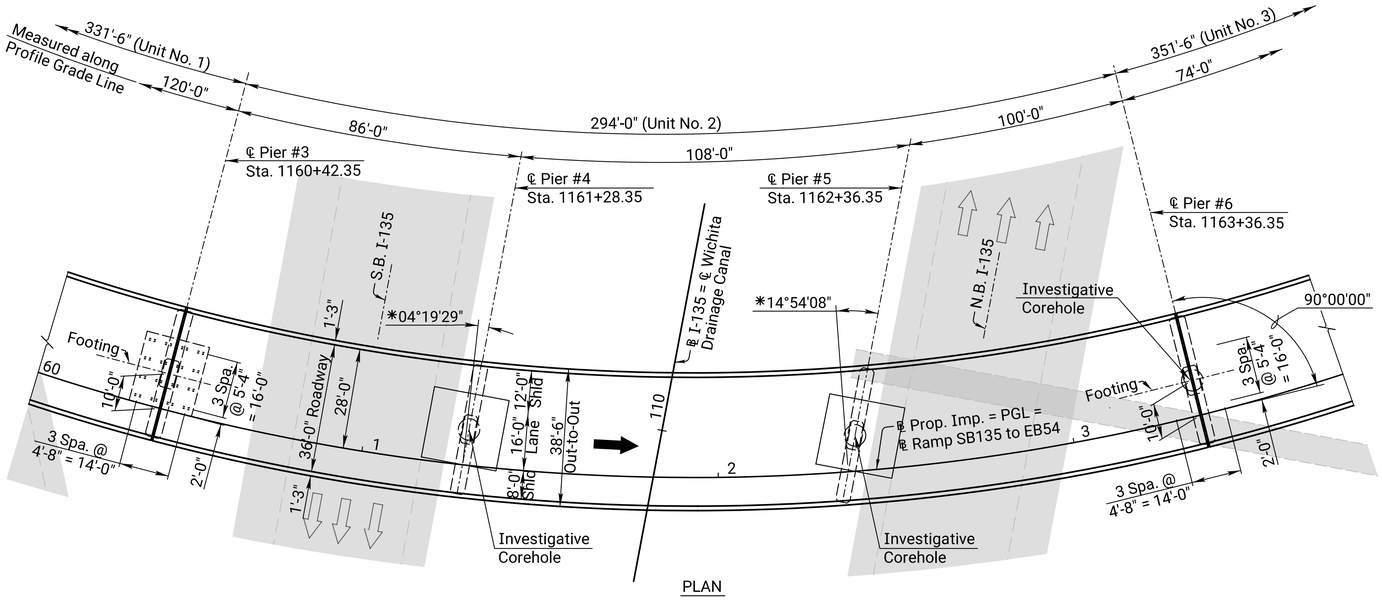
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 61

KDOT Graphics Certified

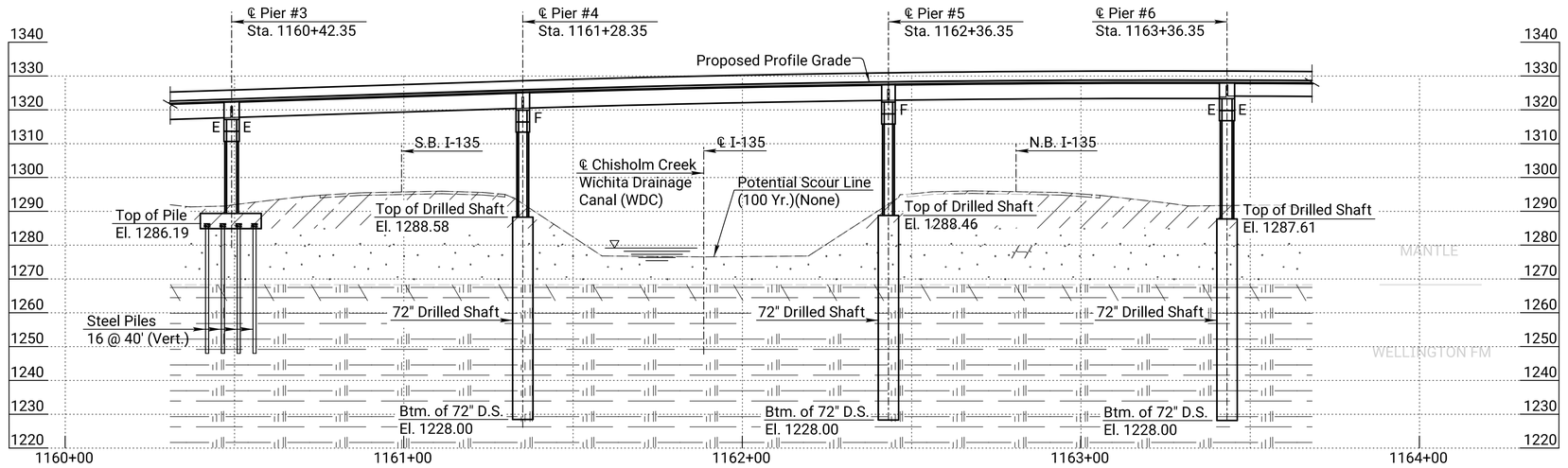
Plotted by : Bernhardt 18-AUG-2025 09:55
File : ka6517101bbr-0060.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	62	366



PLAN

Scale 1" = 20'



GEOLOGIC PROFILE

STANDARD GEOLOGIC SYMBOLS

- Clay or Underclay
- Caliche
- Weathered Shale
- Limestone
- Mortar bed
- Silty Clay
- Silty Clayey Shale
- Sandstone
- Cherty Limestone
- Coal
- Silt
- Limy Shale
- Shaly Sandstone
- Shaly Limestone
- Siltstone
- Sand
- Black or Fissile Shale
- Gypsum bed
- Bentonite
- Chalk
- Gravel
- Sandy Shale
- Dolomite
- Weathered or Broken Limestone
- Wavy limestone
- Boulders
- Gypsiferous Shale
- Cross-bedded Sandstone
- Loess
- Chalky limestone

SOUNDINGS

- Core drill
- Power auger
- Hand tools
- Cone (CPT) penetrometer
- Shelby tube
- Water level 1278

NOTES:

PILING: Once sufficient resistance is achieved, driving must cease to avoid damage to the pile. Final pile tip elevations should be determined in the field based on recommendations provided through the use of the Pile Driving Analyzer.

Do not drive pile below plan tip elevation without utilizing restrike procedures as outlined in the Standard Specificatons, or as directed by KDOT Geology.

TEST PILE (SPECIAL): Please contact KDOT Geology in Topeka at (785) 291-3861 when a schedule for pile drving has been established. A minimum of 5 working days is necessary to allow for proper scheduling.

Excavation to plan grade should be perfromed prior to PDA testing. At least 24 hours for each test should be allowed to account for possible restrikes.

Gr. 50 Steel Pile HP 12x53 shall be used on this project.

NOTES:

DRILLED SHAFTS:
Casing will be required for drilled shafts to prevent the caving and collapse of the excavation walls. Set casing in bedrock to reduce the risk of mantle, weathered bedrock, and groundwater from entering the rock socket and to ensure the rock socket of the shaft occurs in sound, unweathered bedrock. A wet pour may be anticipated if groundwater is not sufficiently sealed off or if there is water flowing into the excavation.

Note that the shafts have end bearing components and it is important that the bottom socket be clean and relatively flat. Allow no loose material within the footing when the footing is considered ready to pour.

Portions of the Wellington Formation could degrade rapidly in the presence of air and water. Place reinforcing steel and concrete no more than eight (8) hours from the completion of the excavation of the shaft to minimize exposure time of the shale to air and groundwater.

See Sh. # 75 - 76 for Drilled Shaft Details and any information not shown.

LEGEND:

∗ Measured from ℄ pier to radial line at ℔ Prop. Imp.

Elevations shown are referenced to the NAVD88 Vertical datum.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ENGINEERING GEOLOGY II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

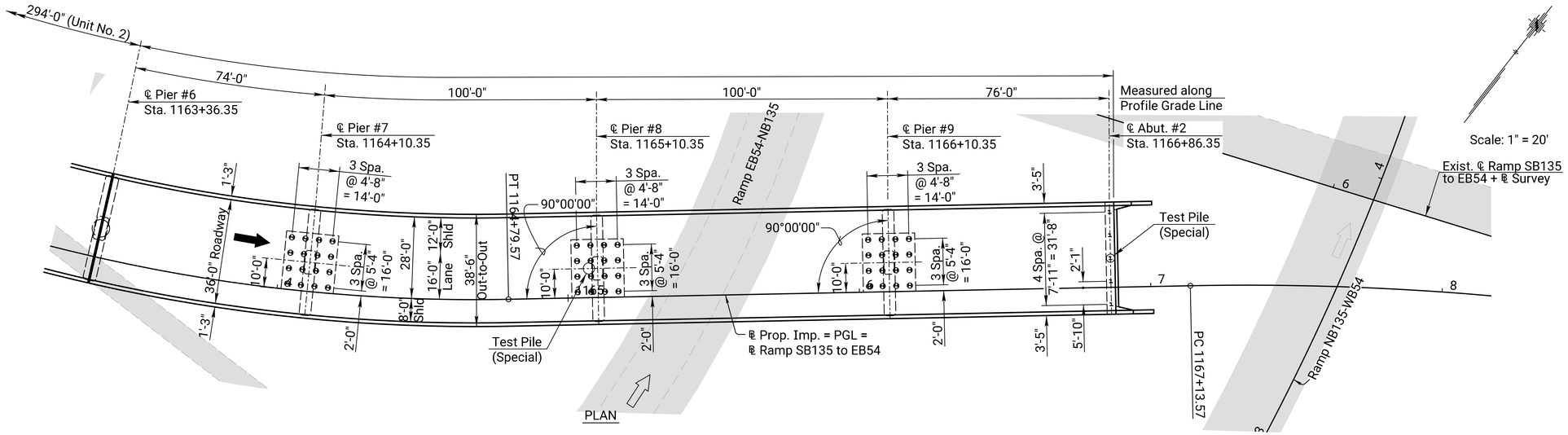
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DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

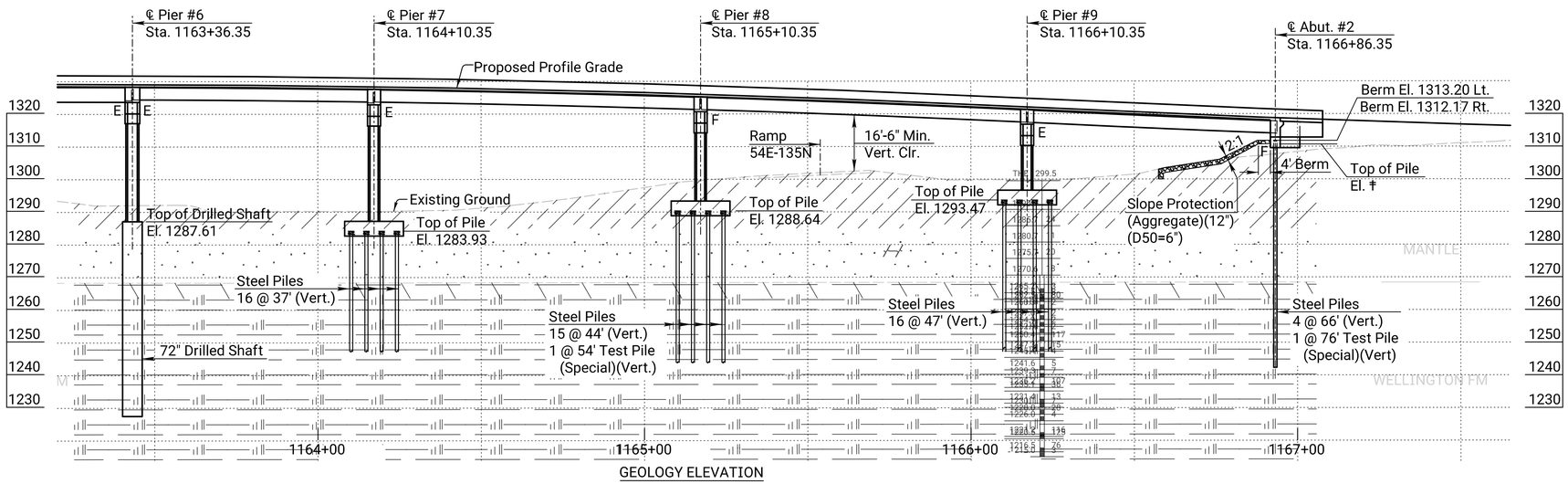
KDOT Graphics Certified 07-15-2025 Sh. No. 62

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:55
File : ka6517101bbr-0065.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	63	366





GEOLOGY ELEVATION

STANDARD		GEOLOGIC		SYMBOLS	
Clay or Underclay	Caliche	Weathered Shale	Limestone	Mortar bed	
Silty Clay	Silty Clayey Shale	Sandstone	Cherty Limestone	Coal	
Silt	Limy Shale	Shaly Sandstone	Shaly Limestone	Siltstone	
Sand	Black or Fissile Shale	Gypsum bed	Bentonite	Chalk	
Gravel	Sandy Shale	Dolomite	Weathered or Broken Limestone	Wavy limestone	
Boulders	Gypsiferous Shale	Cross-bedded Sandstone	Loess	Chalky limestone	

SOUNDINGS

- Core drill
- Power auger
- Hand tools
- Cone (CPT) penetrometer
- Shelby tube
- Water level 1278

NOTE: Soundings shown on these plans are taken from notes obtained in the field and represent the best information available. Logs of these soundings are provided with the bid documents, or are available from the Kansas Department of Transportation in Topeka for inspection by interested and qualified bidders.

✝ TOP OF PILE ELEVATIONS

PILE NO.	ABUTMENT #2
1	1312.61
2	1312.40
3	1312.19
4	1311.97
5	1311.76

Based on 2'-0" pile embedment.

NOTES:

PILING: Once sufficient resistance is achieved, driving must cease to avoid damage to the pile. Final pile tip elevations should be determined in the field based on recommendations provided through the use of the Pile Driving Analyzer.

Do not drive pile below plan tip elevation without utilizing restrike procedures as outlined in the Standard Specificatons, or as directed by KDOT Geology.

TEST PILE (SPECIAL): Please contact KDOT Geology in Topeka at (785) 291-3861 when a schedule for pile drving has been established. A minimum of 5 working days is necessary to allow for proper scheduling.

Excavation to plan grade should be perfromed prior to PDA testing. At least 24 hours for each test should be allowed to account for possible restrikes.

Gr. 50 Steel Pile HP 12x53 shall be used on this project.

Elevations shown are referenced to the NAVD88 Vertical datum.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ENGINEERING GEOLOGY III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

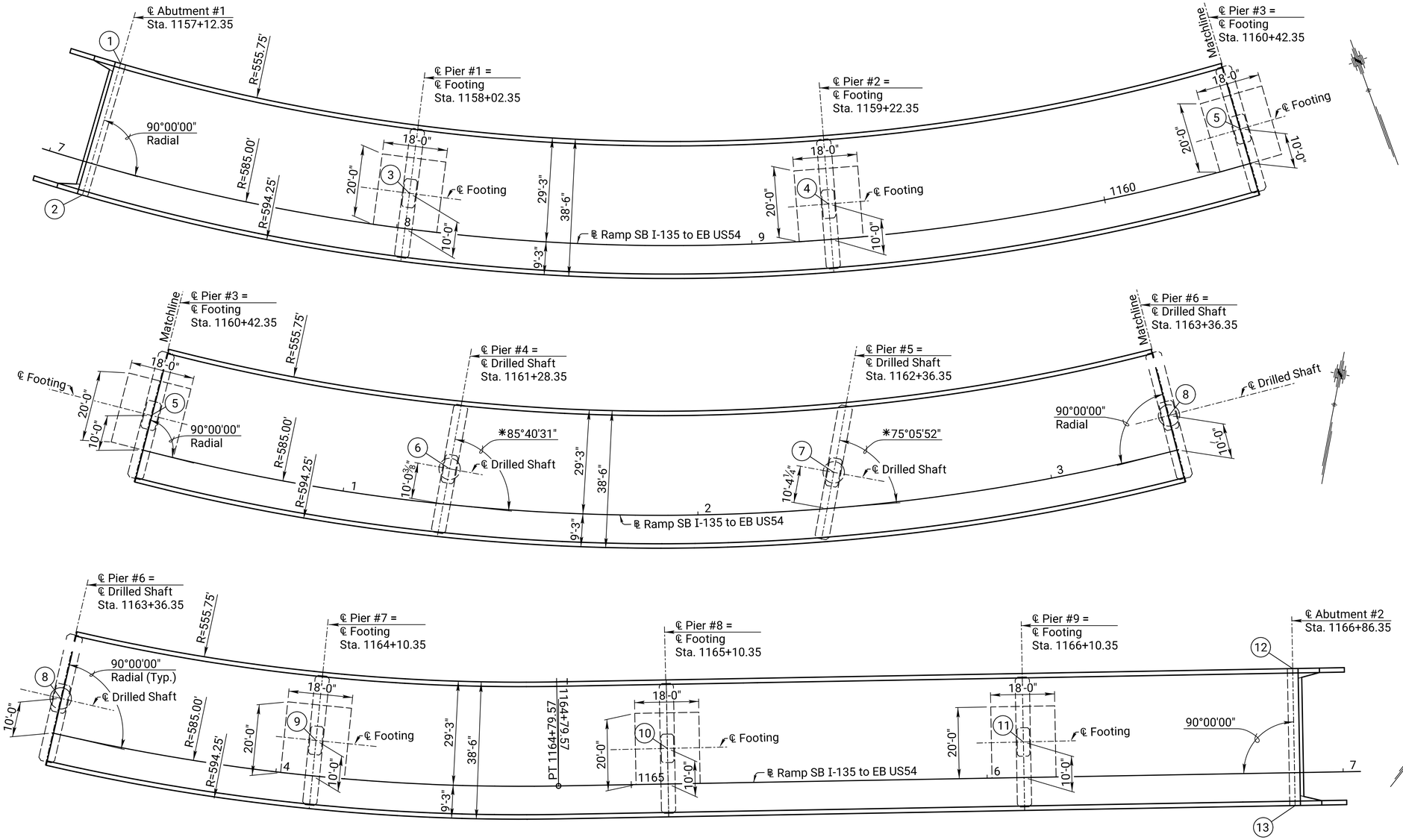
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DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 63

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:55
File : ka651701bbr-0070.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	64	366



℄ Ramp SB I-135 to EB US54 Curve Data
PI Sta. 1172+93.90 (Bk.) = 1141+10.67 (Ahd.)
Δ = 152°15'24" (Lt.)
R = 585.00'
L = 1554.57
T = 2368.90
E = 1855.07
Super = Varies

GEOMETRIC PLAN
∗ Denotes to Local Tangent

GEOMETRIC LAYOUT											
POINT	DESCRIPTION	STATION	OFFSET	NORTHING	EASTING	POINT	DESCRIPTION	STATION	OFFSET	NORTHING	EASTING
1	℄ Abutment #1 & Left Edge of Slab	1157+12.35	29.25' Lt.	367577.1466	17553809.5349	8	℄ Pier #6 & ℄ Drilled Shaft	1163+36.35	10.00' Lt.	367507.0477	17554380.3665
2	℄ Abutment #1 & Right Edge of Slab	1157+12.35	9.25' Rt.	367545.9628	17553786.9557	9	℄ Pier #7 & ℄ Footing	1164+10.35	10.00' Lt.	367542.1006	17554444.0425
3	℄ Pier #1 & ℄ Footing	1158+02.35	10.00' Lt.	367515.3797	17553873.5971	10	℄ Pier #8 & ℄ Footing	1165+10.35	10.00' Lt.	367601.3887	17554523.0014
4	℄ Pier #2 & ℄ Footing	1159+22.35	10.00' Lt.	367472.7710	17553983.3590	11	℄ Pier #9 & ℄ Footing	1166+10.35	10.00' Lt.	367664.6395	17554600.4569
5	℄ Pier #3 & ℄ Footing	1160+42.35	10.00' Lt.	367453.4132	17554099.4988	12	℄ Abutment #2 & Left Edge of Slab	1166+86.35	29.25' Lt.	367727.6202	17554647.1473
6	℄ Pier #4 & ℄ Drilled Shaft	1161+29.12	10.00' Lt.	367454.3989	17554184.7012	13	℄ Abutment #2 & Right Edge of Slab	1166+86.35	9.25' Rt.	367697.7998	17554671.4988
7	℄ Pier #5 & ℄ Drilled Shaft	1162+39.06	10.00' Lt.	367473.6842	17554290.8653						

Notes:

1. Stations shown are along ℄ Ramp SB I-135.
2. Centerlines of Abutment #1, Pier #1, Pier #2, Pier #3, Pier #6, Pier #7, Pier #8, Pier #9 and Abutment #2 are radial to baseline.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GEOMETRIC LAYOUT
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 64

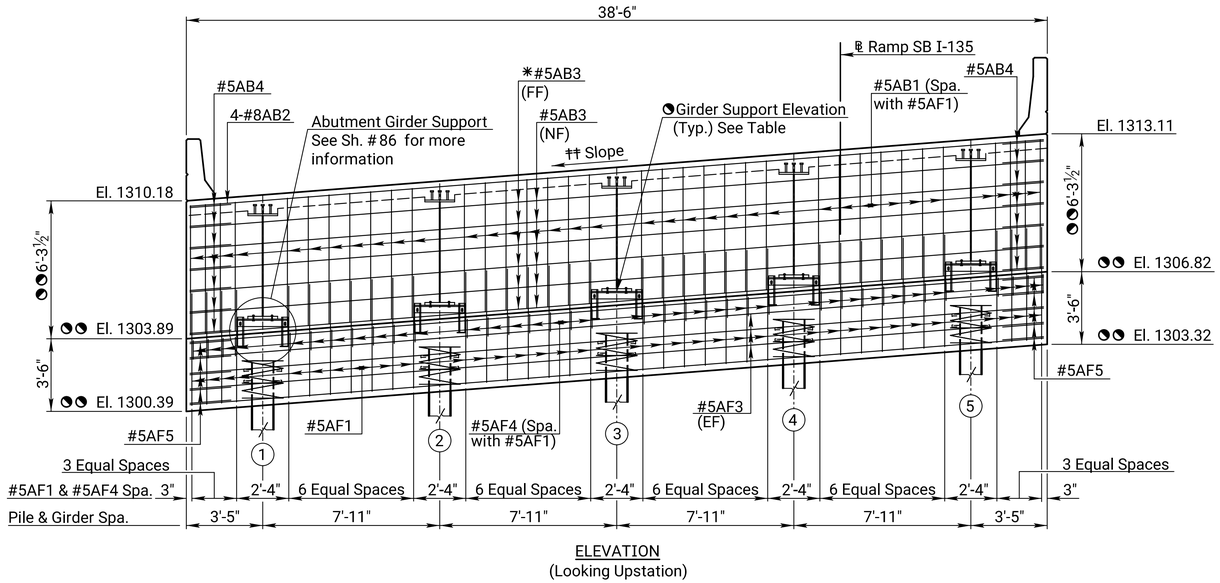
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:56
File : ka651701bbr-0160.dgn

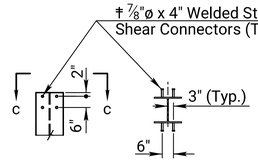
LRFD DESIGN PILE LOAD:

	Strength I	Service I	Phi
Design Loading (Tons/Pile)			
Abutment #1	113	88	0.65

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	65	366

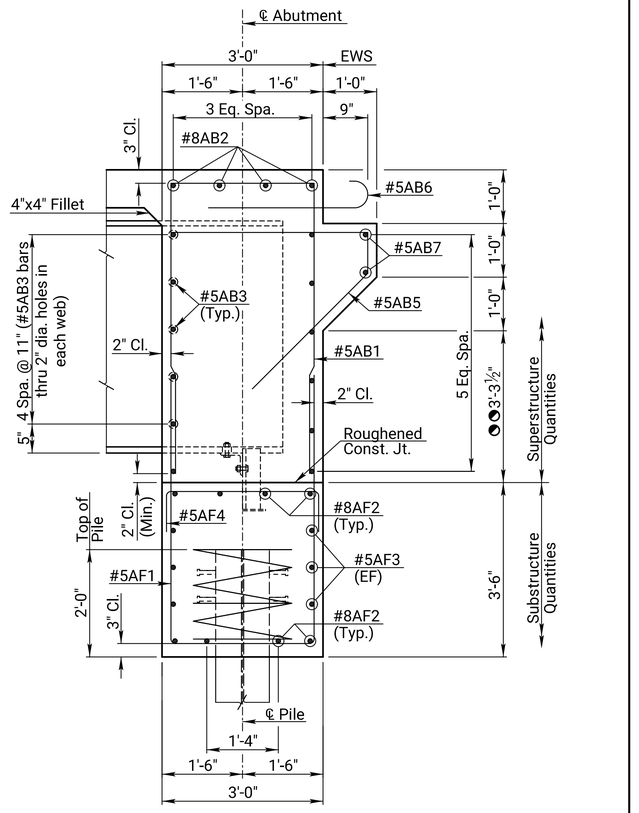


ELEVATION
(Looking Upstation)

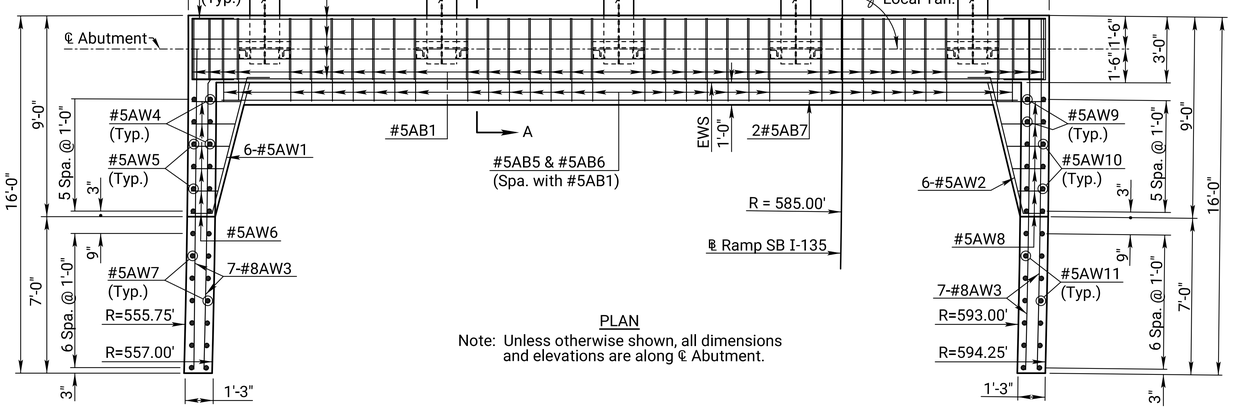


SECTION C-C

PILE WELDED STUD SHEAR CONNECTOR DETAIL
† Welded Stud Shear Anchors are subsidiary to HP 12x53 Steel Piles.

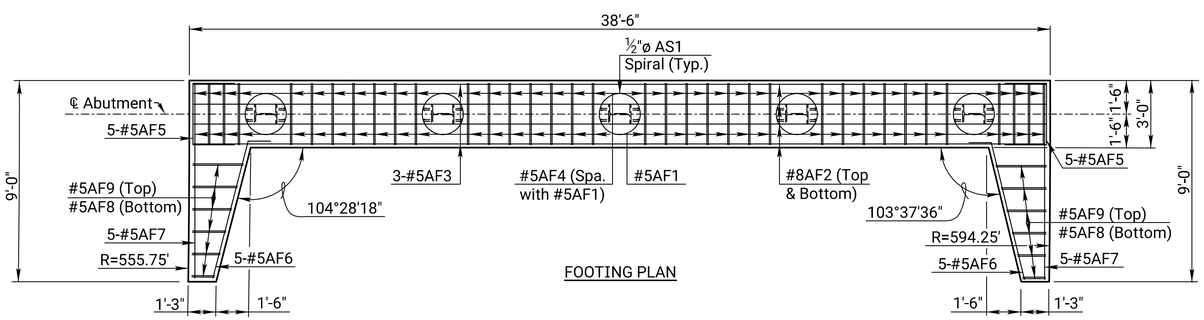


SECTION A-A



PLAN

Note: Unless otherwise shown, all dimensions and elevations are along ℄ Abutment.



FOOTING PLAN

◔◔ TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
1	1302.65
2	1303.25
3	1303.85
4	1304.46
5	1305.06

◔ GIRDER SUPPORT ELEVATIONS	
LOCATION	ELEVATION
Girder "A"	1304.79
Girder "B"	1305.39
Girder "C"	1305.99
Girder "D"	1306.59
Girder "E"	1307.19

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

‡‡ Slope 7.60% normal to PGL

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1½" bottom flange at ℄ Abutment.

◔◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1½" bottom flange + 7½" Girder Support Depth.

✳ For holes thru web for #5AB3 bars, place black mastic or expansion joint material around bars through webs to prevent concrete intrusion.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ABUTMENT #1 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

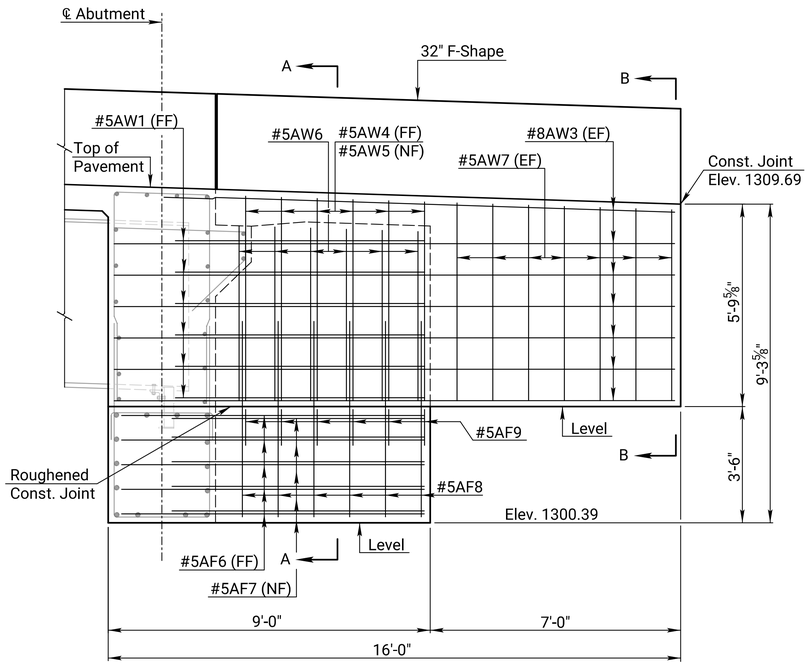
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 65

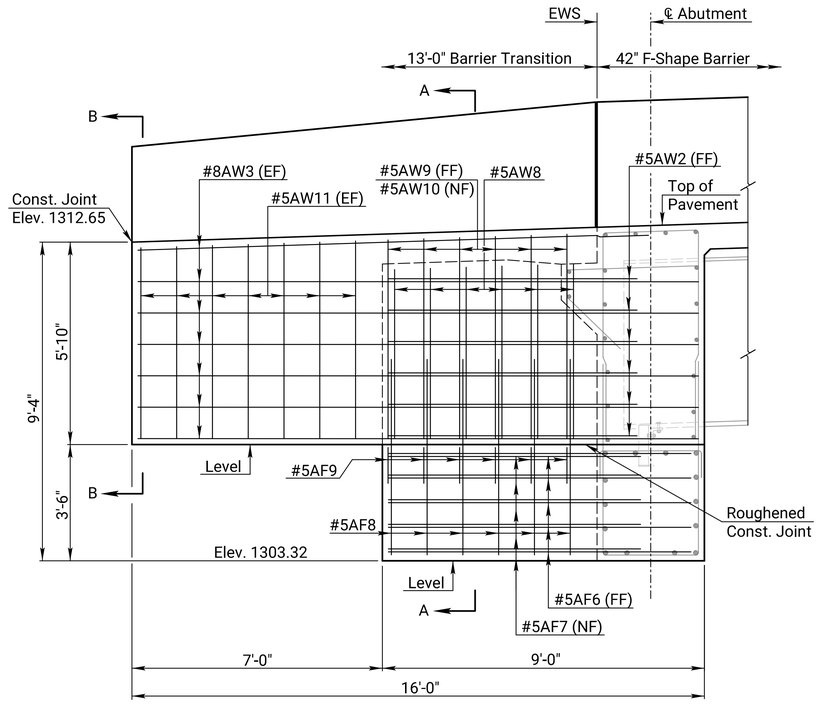
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:56
File : ka651701bbr-0260.dgn

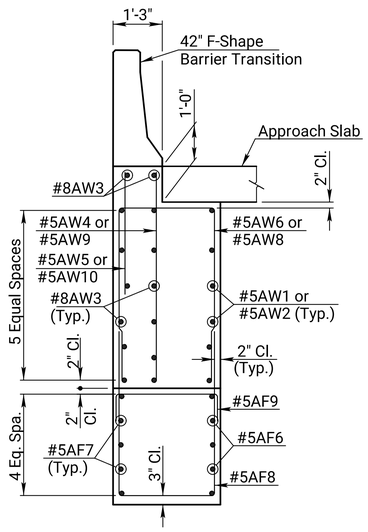
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	66	366



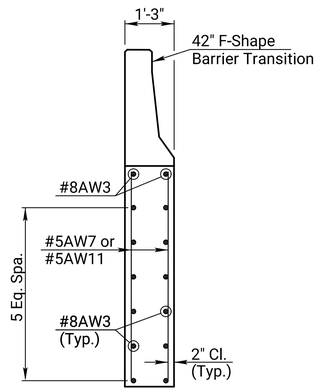
NORTH WINGWALL ELEVATION
(Shown along Outside Face)



SOUTH WINGWALL ELEVATION
(Shown along Outside Face)



SECTION A-A
(South Wingwall shown; North Wingwall similar)



SECTION B-B
(South Wingwall shown; North Wingwall similar)

Note:

For F4 Barrier details and reinforcing, see Sh. # 122 .

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ABUTMENT #1 WINGWALL DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 66

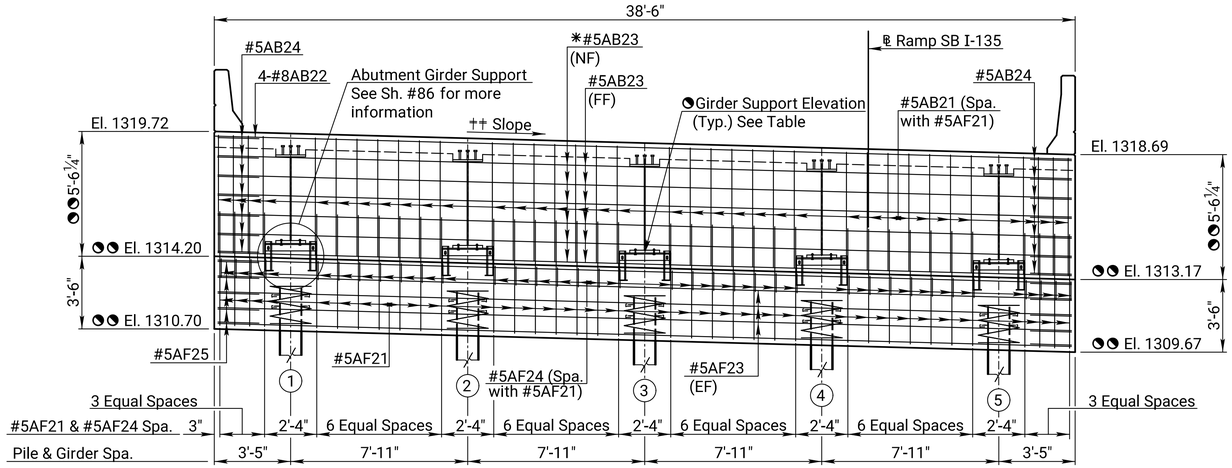
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:56
File : ka651701bbr-0265.dgn

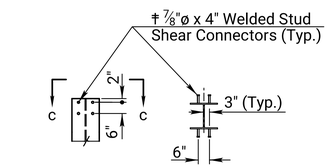
LRFD DESIGN PILE LOAD:

	Strength I	Service I	Phi
Design Loading (Tons/Pile)			
Abutment #2	108	84	0.65

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	67	366

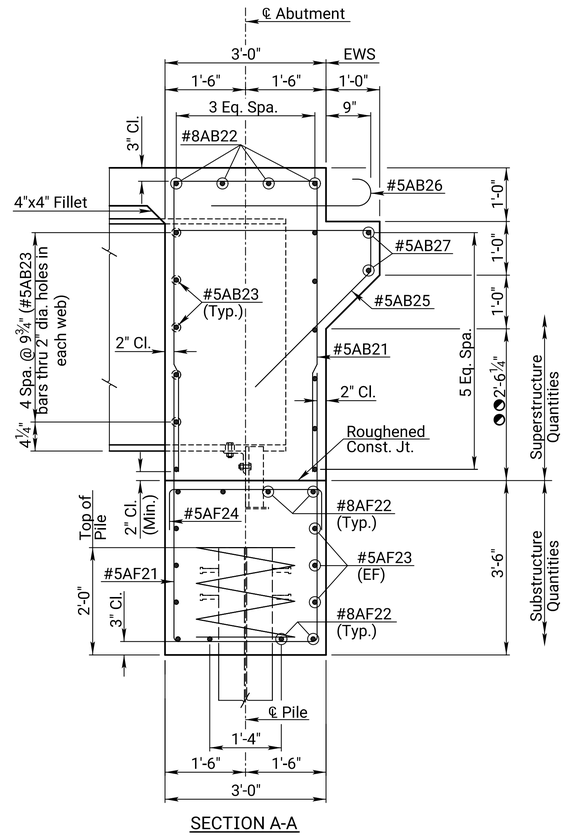


ELEVATION
(Looking Upstation)

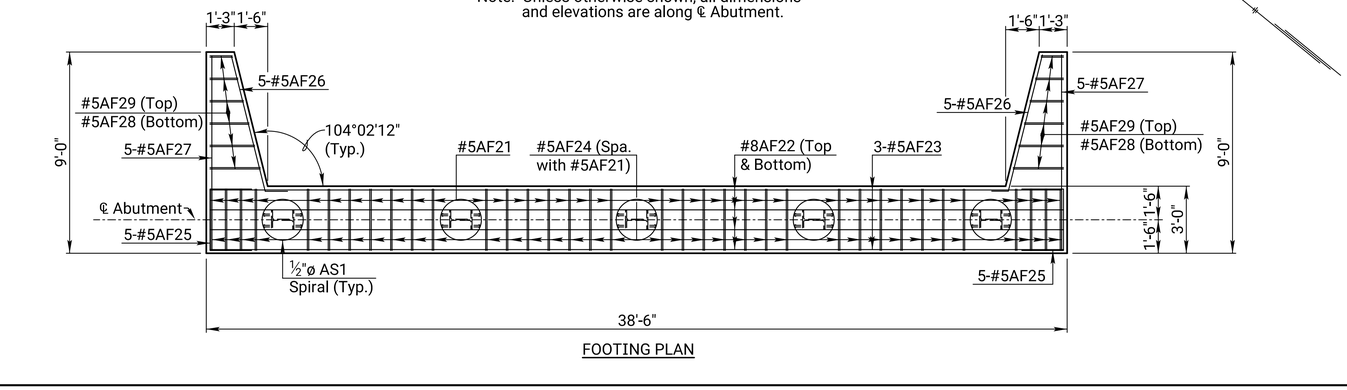


SECTION C-C

PILE WELDED STUD SHEAR CONNECTOR DETAIL
† Welded Stud Shear Anchors are subsidiary to HP 12x53 Steel Piles.



SECTION A-A



PLAN
Note: Unless otherwise shown, all dimensions and elevations are along ℄ Abutment.

FOOTING PLAN

†† Slope 2.68% normal to PGL

◔◔ TOP OF PILE ELEVATIONS

PILE NO.	ELEVATION
1	1312.61
2	1312.40
3	1312.19
4	1311.97
5	1311.76

◔ GIRDER SUPPORT ELEVATIONS

LOCATION	ELEVATION
Girder "A"	1314.74
Girder "B"	1314.53
Girder "C"	1314.31
Girder "D"	1314.10
Girder "E"	1313.89

LEGEND
EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

LEGEND

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 3'-9" web + 1¼" bottom flange at ℄ Abutment.

◔◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 3'-9" web + 1¼" bottom flange + 7½" Girder Support Depth.

✳ For holes thru web for #5AB23 bars, place black mastic or expansion joint material around bars through webs to prevent concrete intrusion.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ABUTMENT #2 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

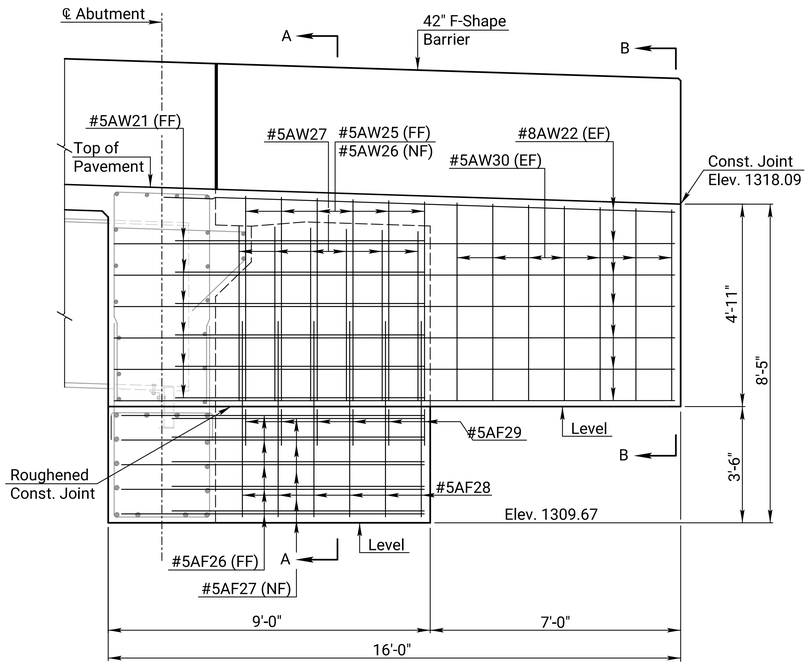
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 67

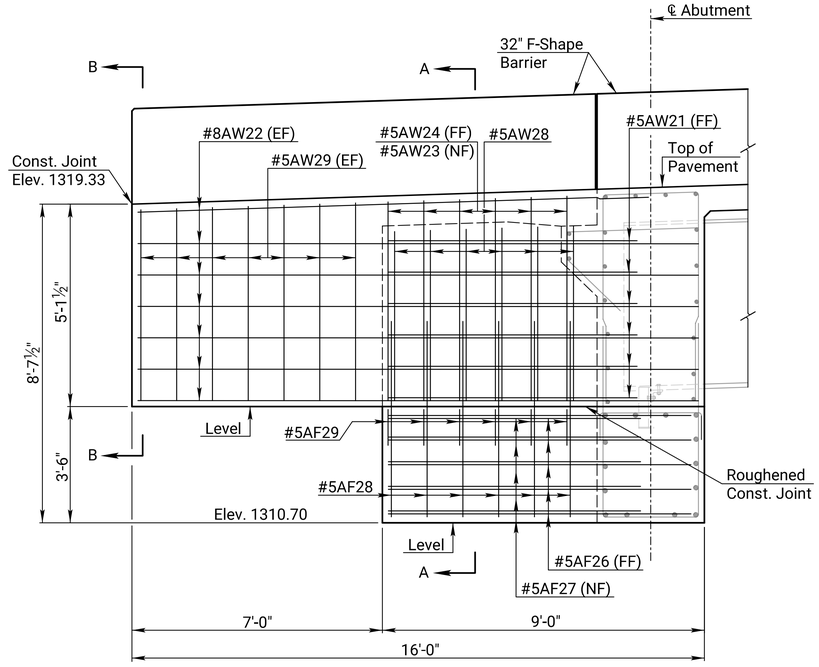
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:56
File : ka651701bbr-0270.dgn

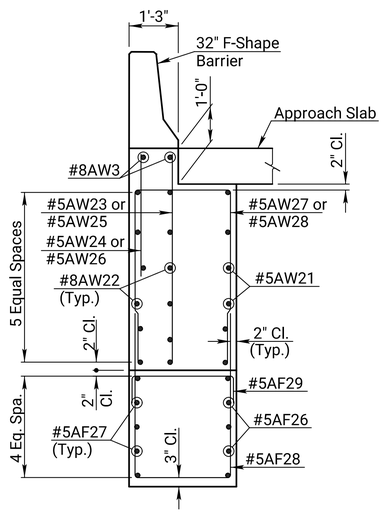
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	68	366



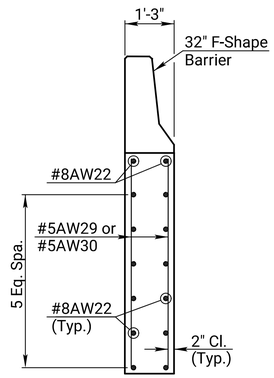
SOUTH WINGWALL ELEVATION
(Shown along Outside Face)



NORTH WINGWALL ELEVATION
(Shown along Outside Face)



SECTION A-A
(North Wingwall shown; South Wingwall similar)



SECTION B-B
(North Wingwall shown; South Wingwall similar)

Note:

For F4 Barrier details and reinforcing, see Sh. # 122

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ABUTMENT #2 WINGWALL DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

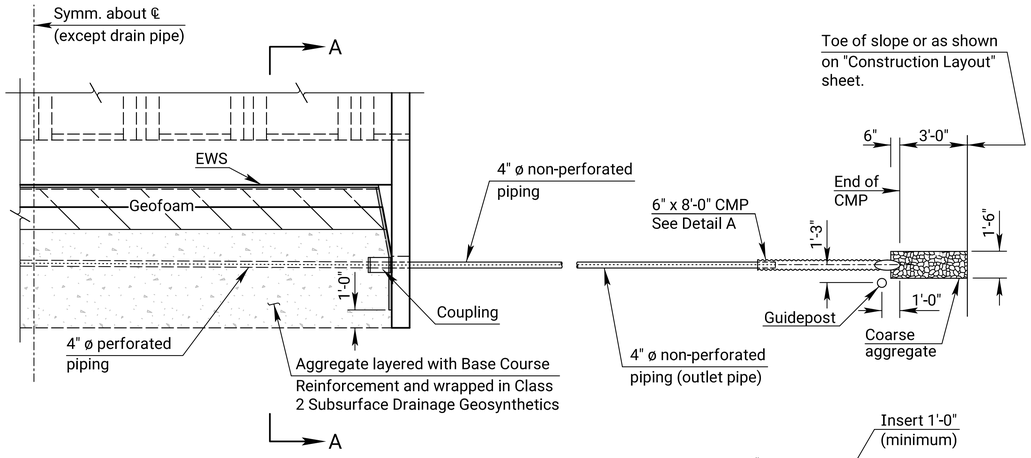
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 68

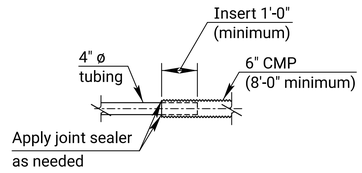
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:57
File : ka6517101bbr-0275.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	69	366

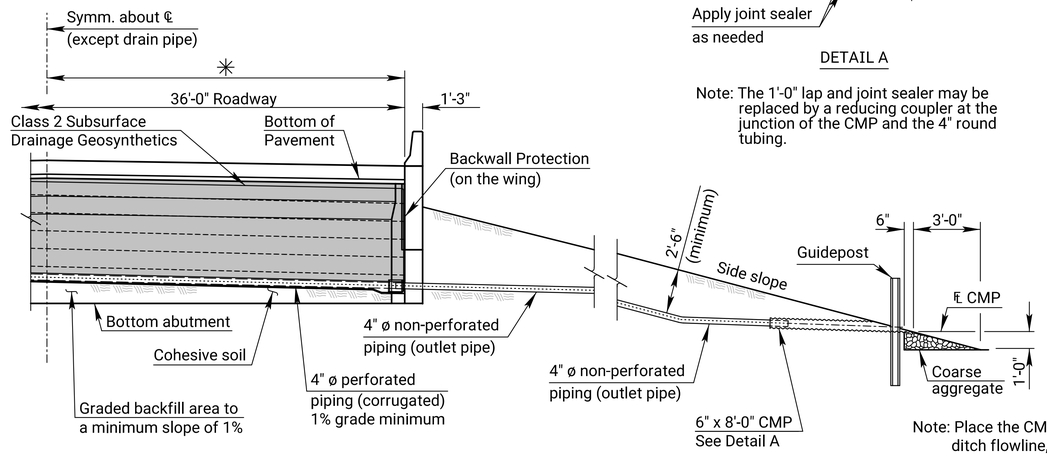


PLAN



DETAIL A

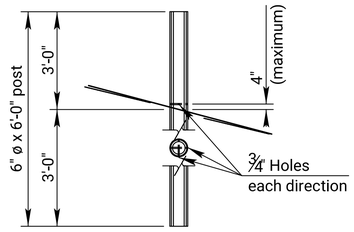
Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



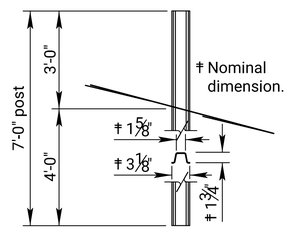
✳Limits of Bridge Backwall Protection System & Geofoam

ELEVATION

Note: Place the CMP flowline 1'-0" above ditch flowline, toe of sideslope, or as shown on the "Construction Layout" sheet. For stream crossings place outlet on downstream side of bridge.



Wood Guidepost Option
(6" ø x 6'-0")



Metal Guidepost Option
7'-0" at 3.0 lbs/ft
flanged channel

GUIDEPOST

Notes:

Wood Guideposts: Apply a preservative treatment conforming to the KDOT Specifications to the posts. Use only one type of preservative treatment on a project. Apply two coats of aluminum paint to the top 18" of the posts. Apply one coat of International Orange paint to the top 12" of the posts. State forces will apply reflectorized material.

Metal Guideposts: Posts shall conform to the KDOT Specifications. Posts shall have a galvanized or baked enamel coating. Apply one coat of International Orange paint to the top 12" of the posts.

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the sides can be overlapped and that the ends fully separate the aggregate drain from the embankment soils. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to backfill to the elevation and shape shown.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the backwall protection using materials recommended by the manufacturer.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation Sheet. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Guidepost and coarse aggregate are subsidiary to this bid item. Guidepost and coarse aggregate are not required if the CMP empties onto Slope Protection. Separate as shown the entire Abutment Aggregate Drain with the geotextile.

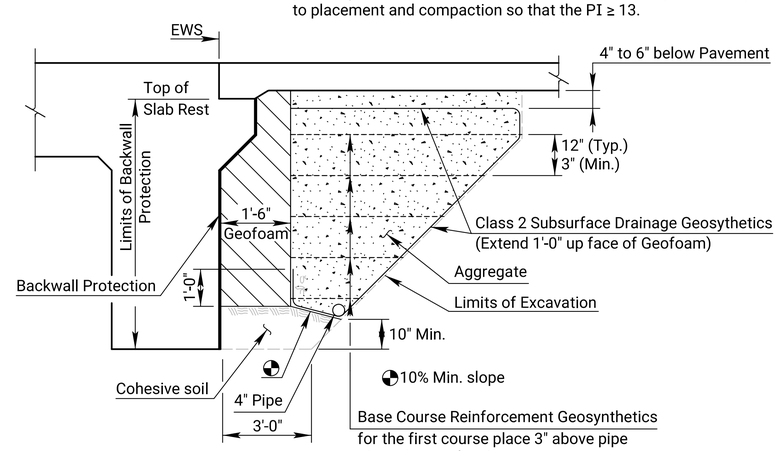
BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protection System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the state.

Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

Fit the CMP end section with ¼" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place Coarse aggregate at the outlet end as shown.

COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487 Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met add and mix Bentonite, to the soil prior to placement and compaction so that the PI ≥ 13.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ℄

SUMMARY OF QUANTITIES	
Abutment Aggregate Drain	55.6 Cu. Yds.
Bridge Backwall Protection System	54.3 Sq. Yds.
Items subsidiary to Abutment Aggregate Drain	
4" ø Perforated Pipe	40 Lin. Ft.
4" ø Outlet Pipe	40 Lin. Ft.
6" ø CMP	8 Lin. Ft.
Guidepost	1 Each
Geosynthetics (Class 2 Subsurface Drainage)	77.7 Sq. Yds.
Geosynthetics (Base Course Reinforcement)	150.7 Sq. Yds.
Geofoam	13.6 Cu. Yds.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ABUTMENT #1 AGGREGATE DRAIN
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

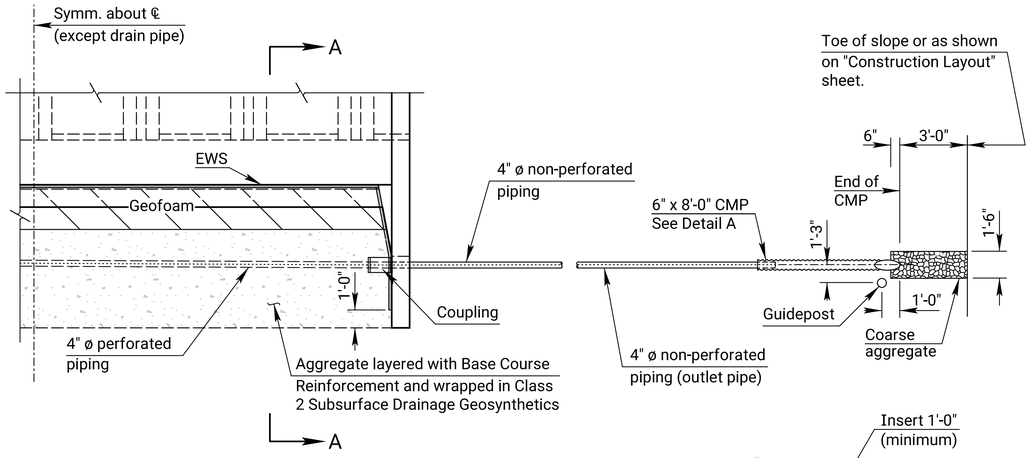
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 69

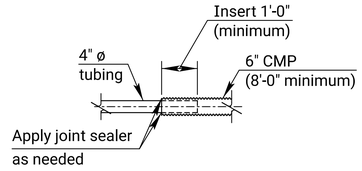
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:57
File : ka651701bbr-0290.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	70	366

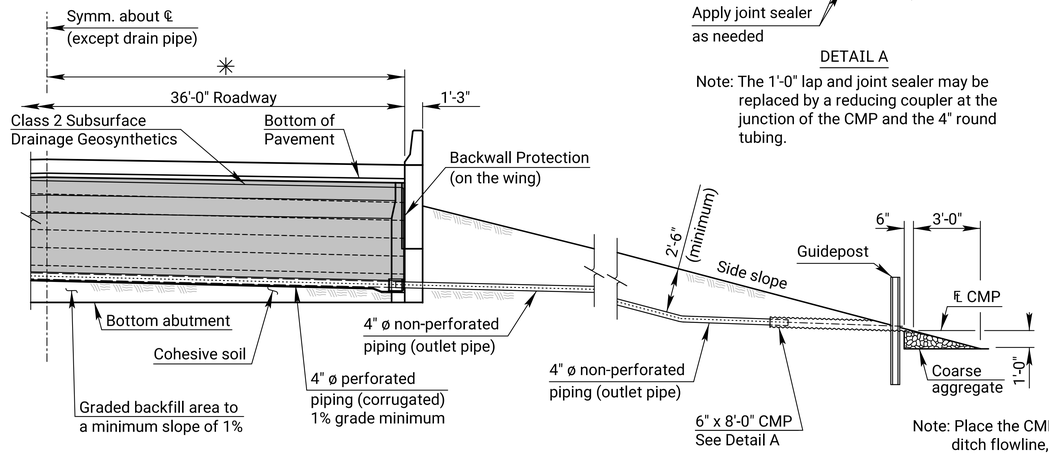


PLAN



DETAIL A

Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



✳Limits of Bridge Backwall Protection System & Geofoam

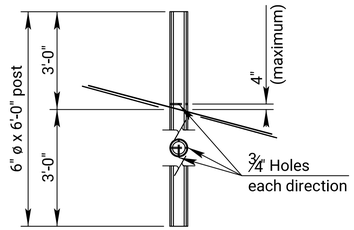
ELEVATION

Note: Place the CMP flowline 1'-0" above ditch flowline, toe of sideslope, or as shown on the "Construction Layout" sheet. For stream crossings place outlet on downstream side of bridge.

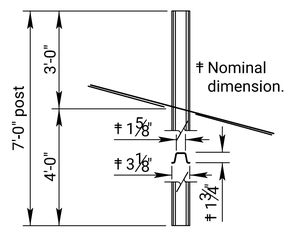
Notes:

Wood Guideposts: Apply a preservative treatment conforming to the KDOT Specifications to the posts. Use only one type of preservative treatment on a project. Apply two coats of aluminum paint to the top 18" of the posts. Apply one coat of International Orange paint to the top 12" of the posts. State forces will apply reflectorized material.

Metal Guideposts: Posts shall conform to the KDOT Specifications. Posts shall have a galvanized or baked enamel coating. Apply one coat of International Orange paint to the top 12" of the posts.



Wood Guidepost Option
(6" ø x 6'-0")



Metal Guidepost Option
7'-0" at 3.0 lbs/ft
flanged channel

GUIDEPOST

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the sides can be overlapped and that the ends fully separate the aggregate drain from the embankment soils. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to backfill to the elevation and shape shown.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the backwall protection using materials recommended by the manufacturer.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation Sheet. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Guidepost and coarse aggregate are subsidiary to this bid item. Guidepost and coarse aggregate are not required if the CMP empties onto Slope Protection. Separate as shown the entire Abutment Aggregate Drain with the geotextile.

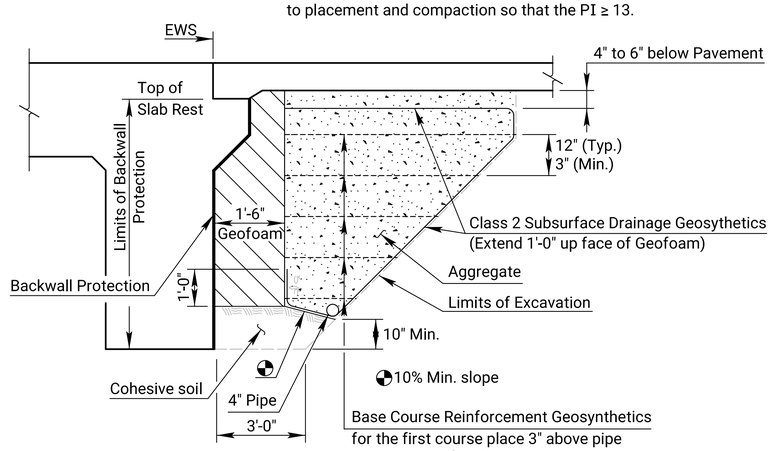
BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protection System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the state.

Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

Fit the CMP end section with ¼" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place Coarse aggregate at the outlet end as shown.

COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487 Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met add and mix Bentonite, to the soil prior to placement and compaction so that the PI ≥ 13.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ℄

SUMMARY OF QUANTITIES	
Abutment Aggregate Drain	33.5 Cu. Yds.
Bridge Backwall Protection System	49.6 Sq. Yds.
Items subsidiary to Abutment Aggregate Drain	
4" ø Perforated Pipe	40 Lin. Ft.
4" ø Outlet Pipe	40 Lin. Ft.
6" ø CMP	8 Lin. Ft.
Guidepost	1 Each
Geosynthetics (Class 2 Subsurface Drainage)	74.6 Sq. Yds.
Geosynthetics (Base Course Reinforcement)	128.1 Sq. Yds.
Geofoam	12.1 Cu. Yds.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ABUTMENT #2 AGGREGATE DRAIN
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 70

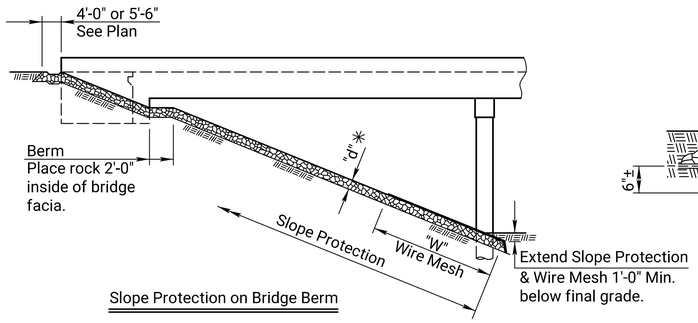
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:57
File : ka651701bbr-0295.dgn

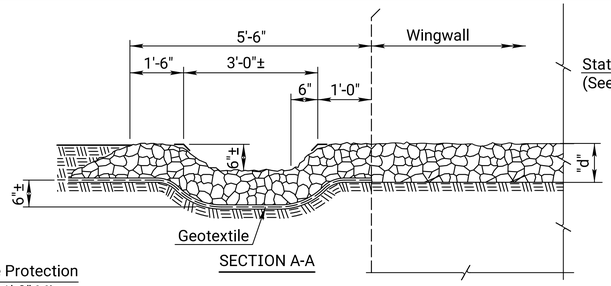
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	71	366

GENERAL NOTES

1. Limits of slope protection are shown on the Construction Layout sheet. Limits may be adjusted as needed at the direction of the Engineer to match ground elevations found at the site.
2. Gradation and aggregate for the Slope Protection (Aggregate) shall meet the requirements of stone for Aggregate Ditch Lining and have a D_{50} of 4 inches unless otherwise noted on the Plans.
3. Wire mesh shall be PVC coated and have a nominal mesh opening of 2½"x3¼". Wire mesh shall be furnished full width up to widths of 12.0 feet ("W"= 12.0 ft.). When widths greater than 12.0 feet are specified on the plans, the furnished width shall be as recommended by the manufacturer but not less than 6.0 feet. All splices shall be made with PVC coated lacing wire, PVC coated wire ties, or stainless steel fastener clips. The longitudinal edges of the wire mesh shall be securely selvedged to prevent ravelling of the mesh. Wire mesh and tie wires shall meet the material requirements for Gabions in the KDOT Specifications. Wire mesh shall not be used unless noted in the Plans and shown in the Table of Quantities. When wire mesh is specified, the bid item shall be "Slope Protection (Special)" and wire mesh shall be subsidiary.
4. Excavation and grading for placement of slope protection and all work and material to install geotextile fabric shall be subsidiary to slope protection.
5. Slope protection shall be underlain with geotextile fabric within limits shown. Fabric damaged or displaced during construction shall be replaced at no cost to KDOT. Fabric shall be installed and secured as recommended by the fabric manufacturer. One (1) copy of the fabric manufacturer's installation procedure shall be submitted to the Engineer. The installation procedure shall show details of the splices, overlaps, and pin layout. Minimum overlap of geotextile shall be 1 ft. Fabric shall be anchored along edges and splices at a maximum of 3 foot centers with staples or pins (w/washers). Interior area of fabric shall be pinned or stapled as recommended by the manufacturer but not more than 5 foot centers. Pins or staples shall be a minimum of 12 inches in length. Geotextile fabric shall meet the requirements of KDOT Specifications.
6. Unless noted otherwise on the Construction Layout, "d" shall be a minimum of 6 in., "W" shall be 12.0 ft.
7. The Contractor shall place the rock from the bottom to the top of the slope. Place the rock in a manner which produces a reasonably well graded mass of rock without segregation of the material sizes. Placement, measurement, and payment shall conform to KDOT Specifications for Slope Protection.

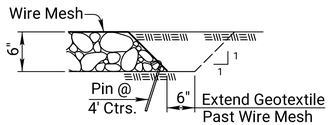


Slope Protection on Bridge Berm

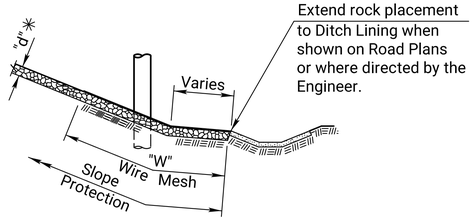


SECTION A-A

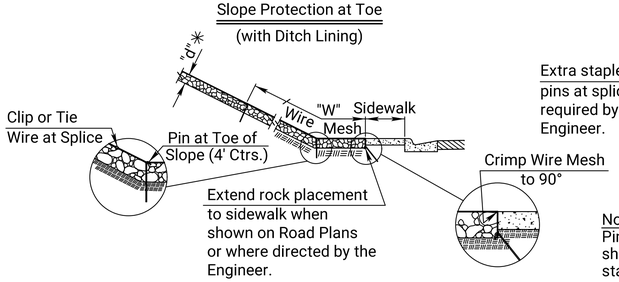
NOTE: Section A-A, Rock Flume required when curb is omitted on the approach slab or when shown on the Construction Layout sheet.



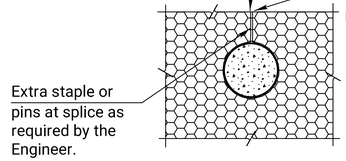
DETAIL AT EDGE OR TOE



Slope Protection at Toe
(with Ditch Lining)

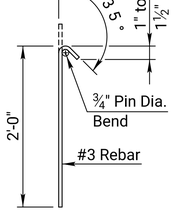


Slope Protection at Toe
(with Sidewalk)



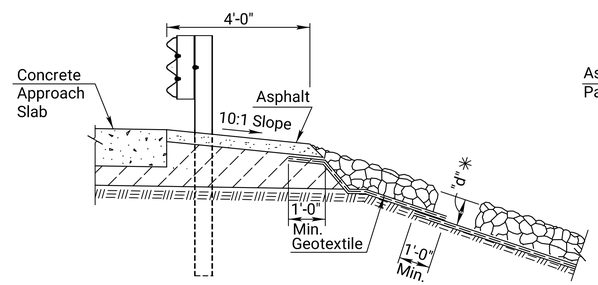
DETAIL AT COLUMNS
(Or Other Obstruction)

Note:
Pins shall be sharpened or geotextile shall be cut to allow penetration of stake without tearing or ripping the geotextile fabric.

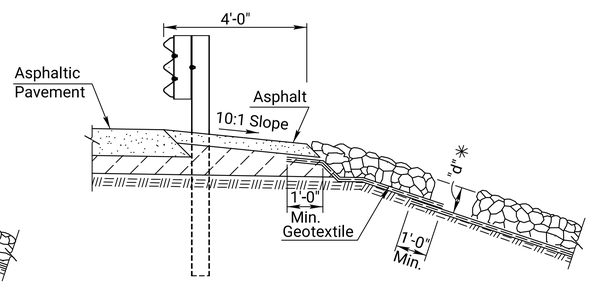


TYPICAL PIN
DETAIL

✳See General Notes
for minimum dimensions.

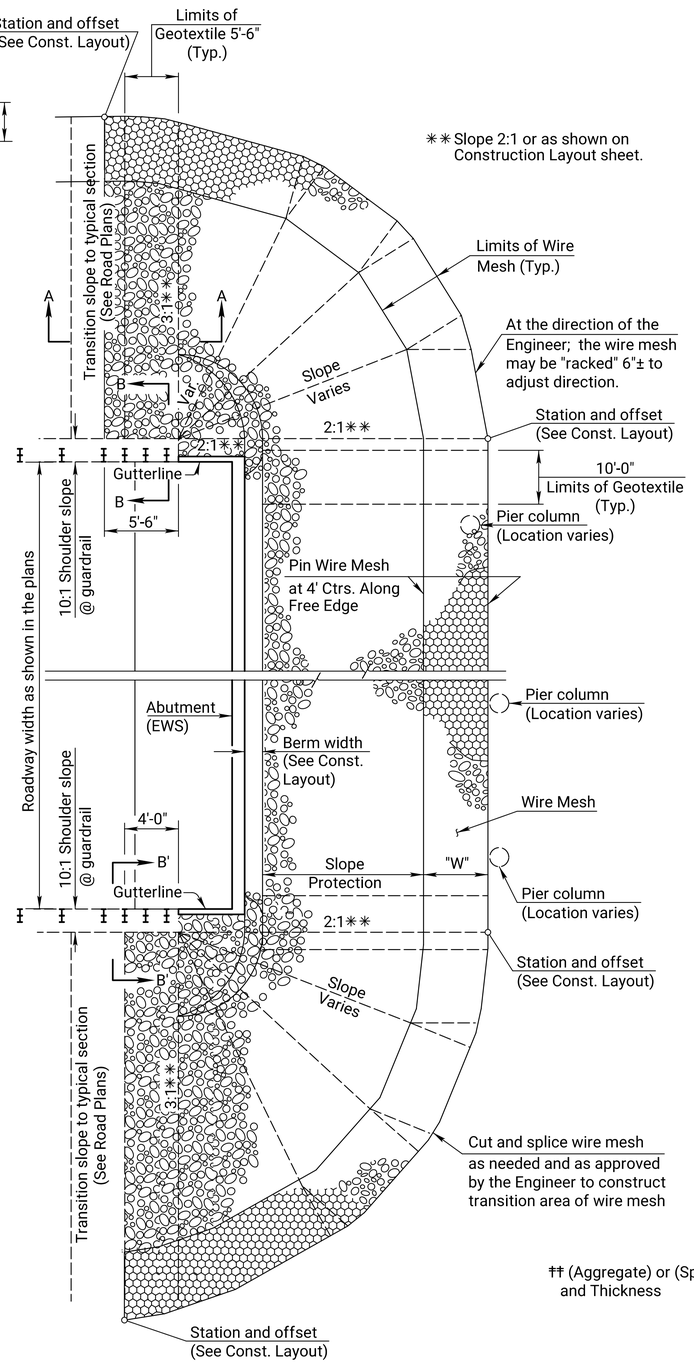


SECTION B-B
(For Concrete Approach Slab)



SECTION B'-B'
(For Asphaltic Pavement)

TYPICAL ELEVATIONS



BERM AND SLOPE PROTECTION PLAN
(U-Type Abutment)

†† (Aggregate) or (Special)
and Thickness

QUANTITIES
† For Information Only

Bridge Number	Slope Protection (††) Cu. Yds.	†Geotextile Sq. Yds.	†Wire Mesh Sq. Yds.
894	517	225	

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BRIDGE BERM & SLOPE PROTECTION
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

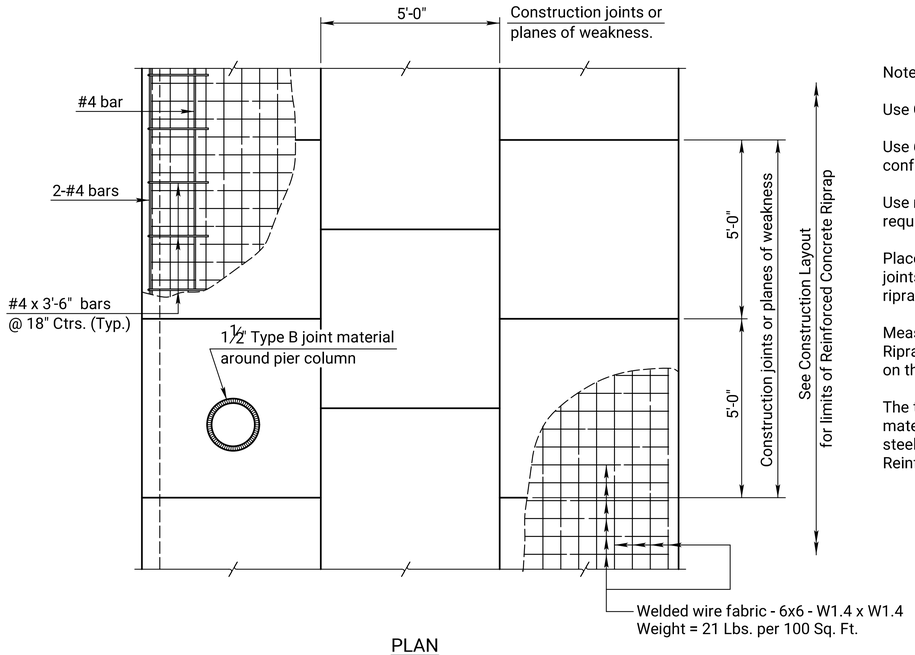
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 71

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:57
File : ka651701bbr-0296.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	72	366



PLAN

(Showing Joint Layout)

Notes:

Use Concrete (Grade 3.0)(AE) for the riprap.

Use 6x6 - W1.4 x W1.4 welded wire fabric conforming to the requirements of ASTM A185.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60.

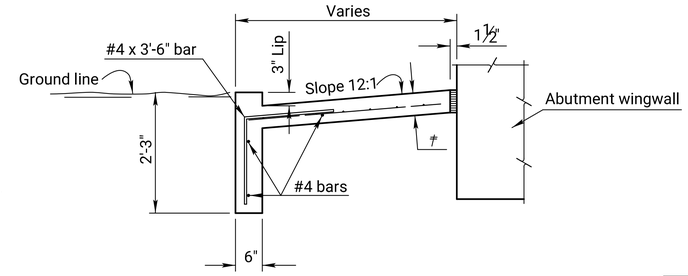
Place 1½" Type B expansion material in the joints caused by any intersection of the riprap with the abutment, wings, or columns.

Measurement of the Reinforced Concrete Riprap shall be in square yards and is based on the outside surface area.

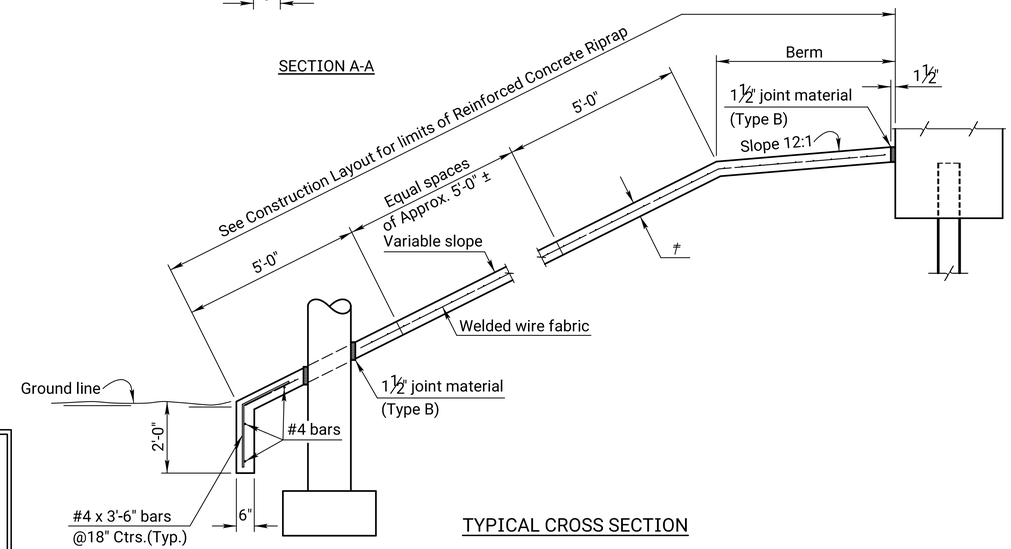
The toe walls, 3" lip, Type B expansion material, welded wire fabric, and reinforcing steel are subsidiary to the bid item Reinforced Concrete Riprap.

Note: Removal during existing bridges removal is paid as "Removal of Existing Structures", under the road item. Removal for new bridge construction is paid for as "Class III Excavation".

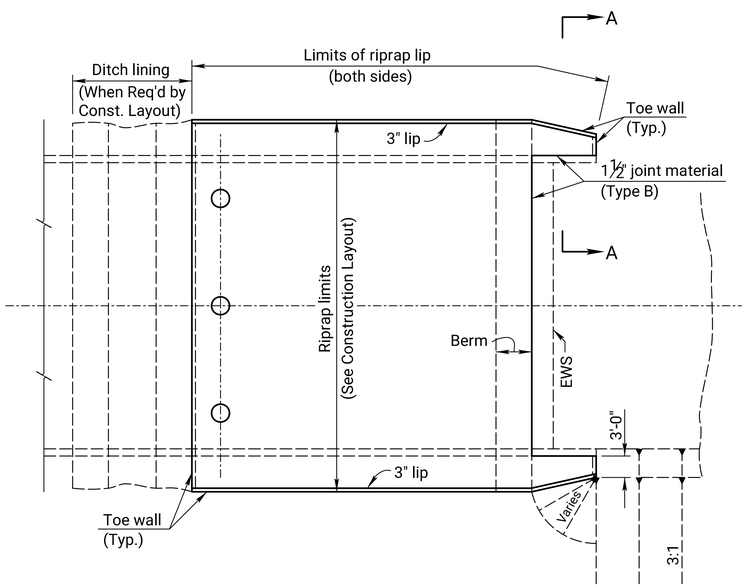
Payment to build back the riprap is paid as "Riprap (Reinf. Conc.)(6")". See original "Canal Lining" sheet for construction requirements.



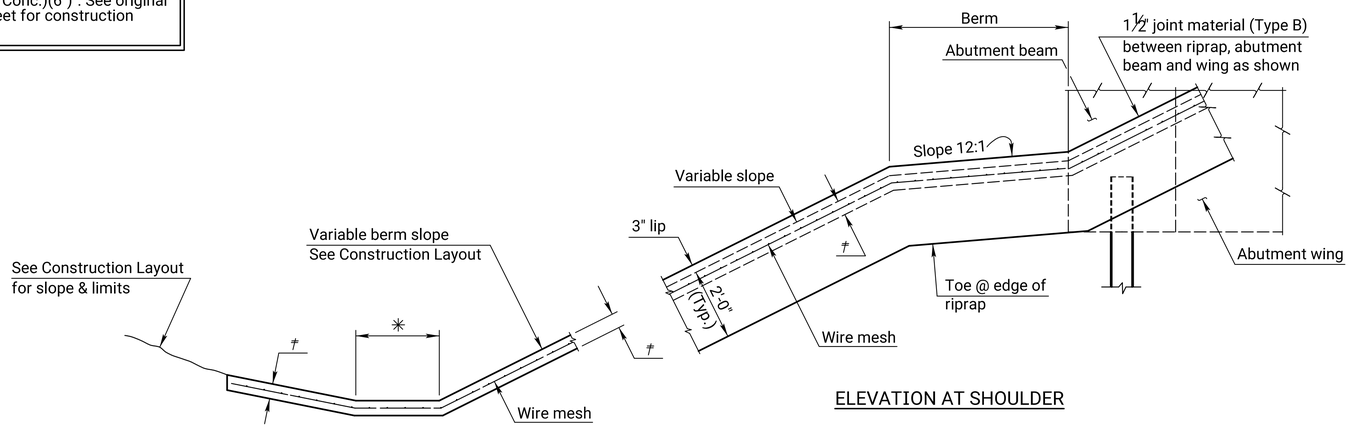
SECTION A-A



TYPICAL CROSS SECTION



TYPICAL PLAN



ELEVATION AT SHOULDER

✳ See Construction Layout for this dimension (1'-0" Min.).

† See Construction Layout for thickness.

DITCH BOTTOM

(When required by Construction Layout sheet)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

REINFORCED CONCRETE RIPRAP
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

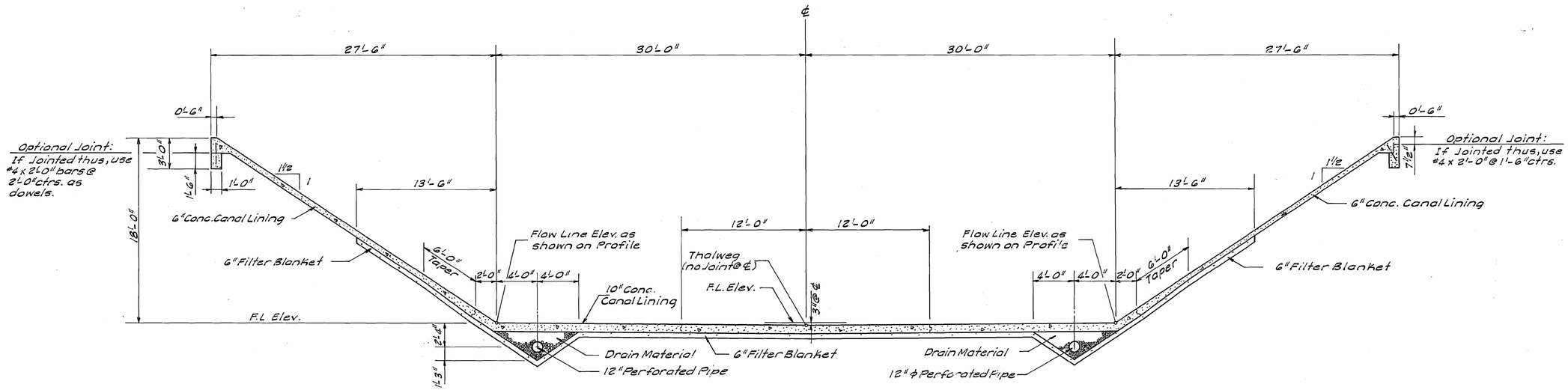
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 72

KDOT Graphics Certified

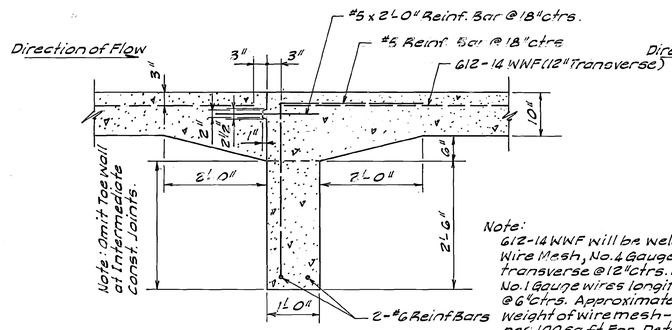
Plotted by : Bernhardt 18-AUG-2025 09:58
File : ka651701bbr-0297.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	73	366

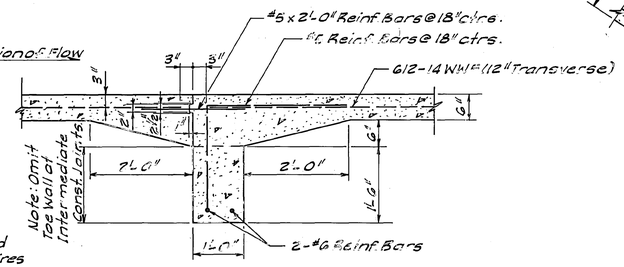


TYPICAL SECTION CANAL LINING

Scale : 1" = 6'



BOTTOM SLAB

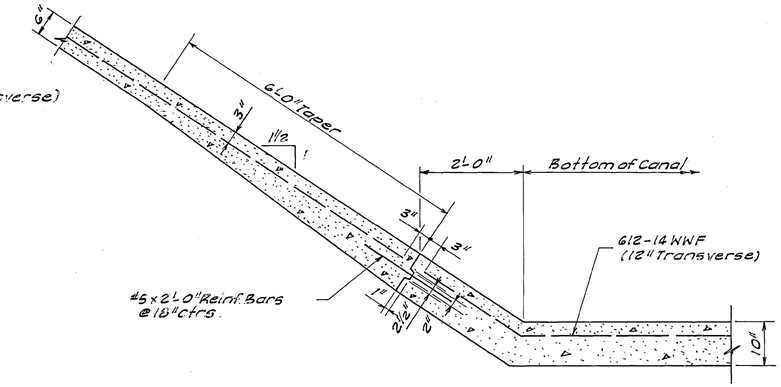


SIDE SLOPES

Note:
6x12-14 WWF will be welded Wire Mesh, No. 4 Gauge wires transverse @ 12" ctrs. and No. 1 Gauge wires longitudinal @ 6" ctrs. Approximate weight of wire mesh - 61 lbs. per 100 sq. ft. For Detail of lap wire mesh See Sh. No.

TRANSVERSE CONSTRUCTION JOINTS

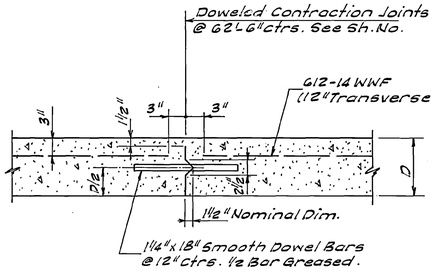
Scale : 3/4" = 1'-0"



LONGITUDINAL EDGE JOINT DETAIL

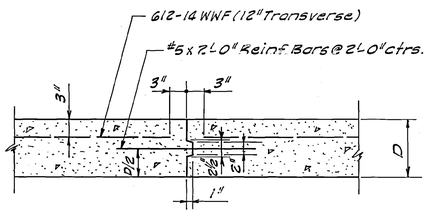
Scale : 3/4" = 1'-0"

FOR REFERENCE ONLY



CONTRACTION JOINT DETAILS

Scale : 1" = 1'-0"



LONGITUDINAL JOINT DETAIL

Scale : 1" = 1'-0"

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

CANAL LINING SECTION & DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

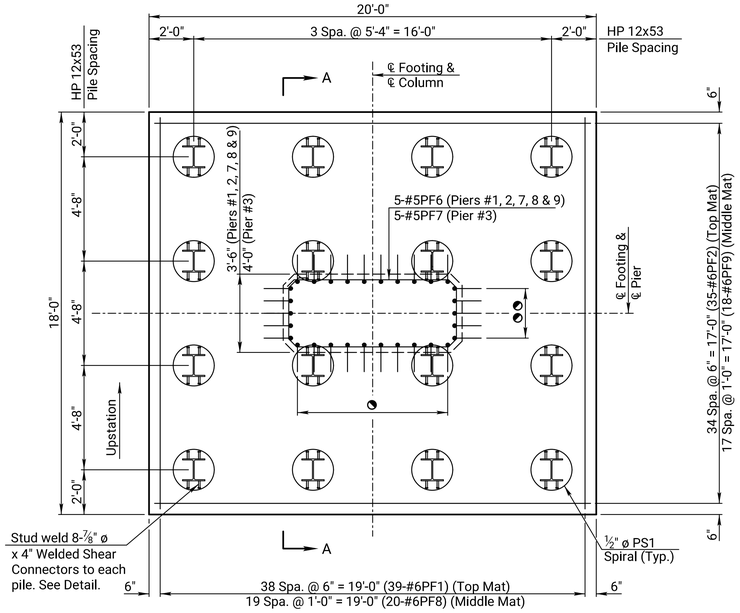
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DESIGN CK. SB,FG,SB	DETAIL CK. SB,OM,AH	QUAN. CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 73

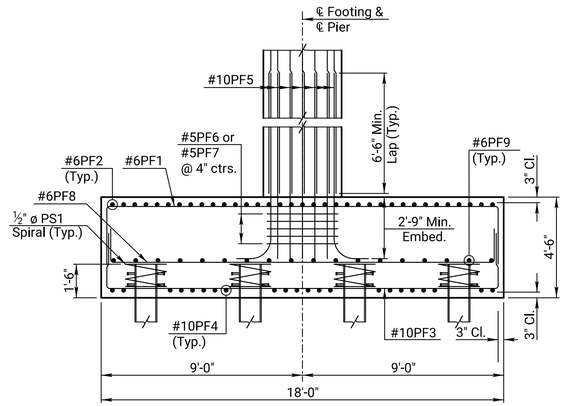
Plotted by : Bernhardt 18-AUG-2025 09:58
File : ka651701bbr-0298.dgn

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	74	366



FOOTING PLAN
(Reinforcing in Top of Footing)
(Piers #1, 2, 3, 7, 8 & 9)



SECTION A-A

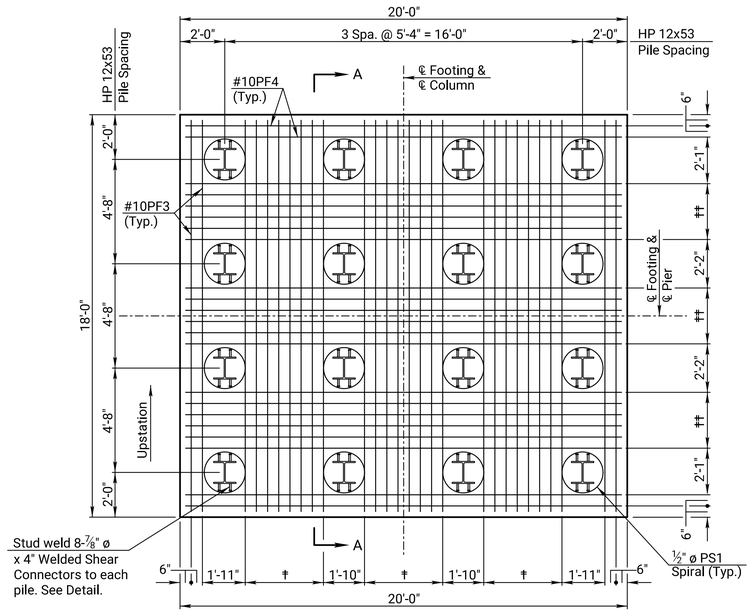
LEGEND

† 8-#10PF3; 7 Spa. @ 6" = 3'-6"

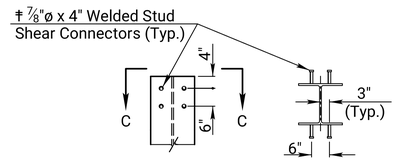
†† 6-#10PF4; 5 Spa. @ 6" = 2'-6"

◔ 10-#10PF5 @ Eq. Spa. (Piers #1, 2, 7, 8 & 9)
11-#10PF5 @ Eq. Spa. (Pier #3)

◔◔ 5-#10PF5 @ Eq. Spa. (Piers #1, 2, 7, 8 & 9)
6-#10PF5 @ Eq. Spa. (Pier #3)



FOOTING PLAN
(Reinforcing in Bottom of Footing)
(Piers #1, 2, 3, 7, 8 & 9)



VIEW C-C

PILE WELDED STUD SHEAR CONNECTOR DETAIL

† Welded Stud Shear Anchors are subsidiary to HP 12x53 Steel Piles.
(8 Welded Stud Shear Connectors per pile)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

COMMON FOOTING DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

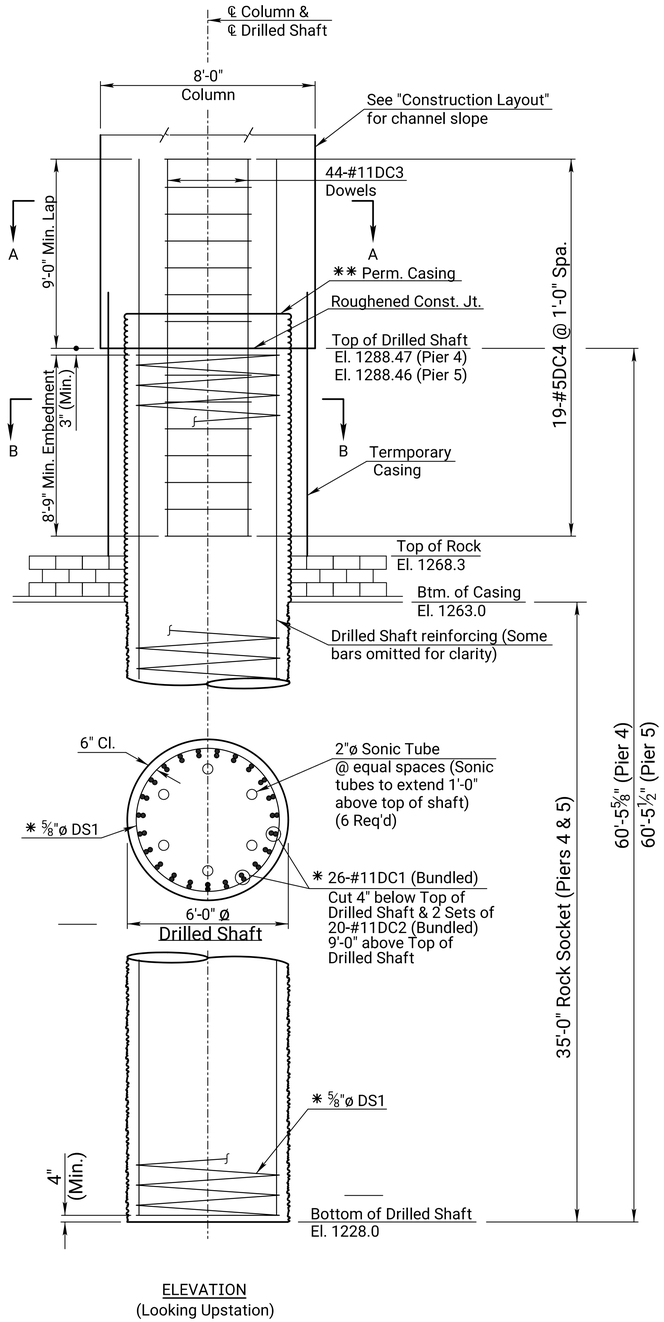
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DESIGN CK. SB,FB,SB	DETAIL CK.SB,OM,FG	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 74

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:58
File : ka6517101bbr-0300.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	75	366



ELEVATION
(Looking Upstation)

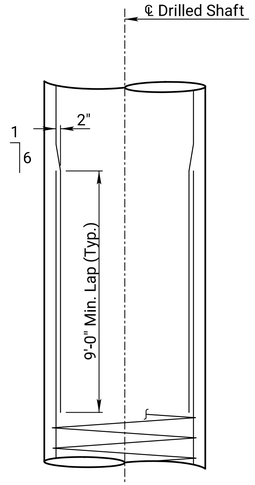
Note:

Use the Cased Method in the construction of the drilled shafts. Permanent Casings are required. See Geology Report. The casing is subsidiary to the bid item "Drilled Shaft (72") (Cased)"

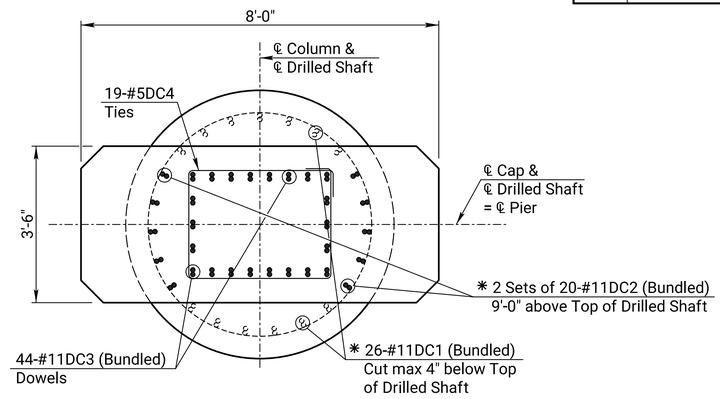
#11DC3 and #5DC4 are quantified under Pier reinforcing steel quantities.

✳ All Drilled Shaft reinforcing steel shall be subsidiary to the bid item "Drilled Shaft (72")(Cased)" unless noted otherwise.

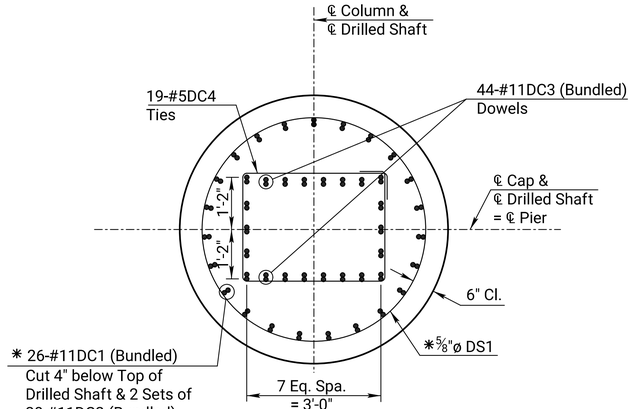
✳✳ Permanent Casing to extend 1'-0" min. above Top of Drilled Shaft.



BAR BENDING DETAIL
(FOR DRILLED SHAFT #11DC2
LAP SPLICE)



SECTION A-A
(Drilled Shaft (72")(Cased))



SECTION B-B
(Drilled Shaft (72")(Cased))
(Sonic Test Tubes not shown for clarity)

DOWELS SHOULD BE SET AND ANCHORED TO REBAR CAGE PRIOR TO POURING DRILLED SHAFT AND COLUMN CONCRETE

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DRILLED SHAFT DETAILS I
PIER #4 & #5
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

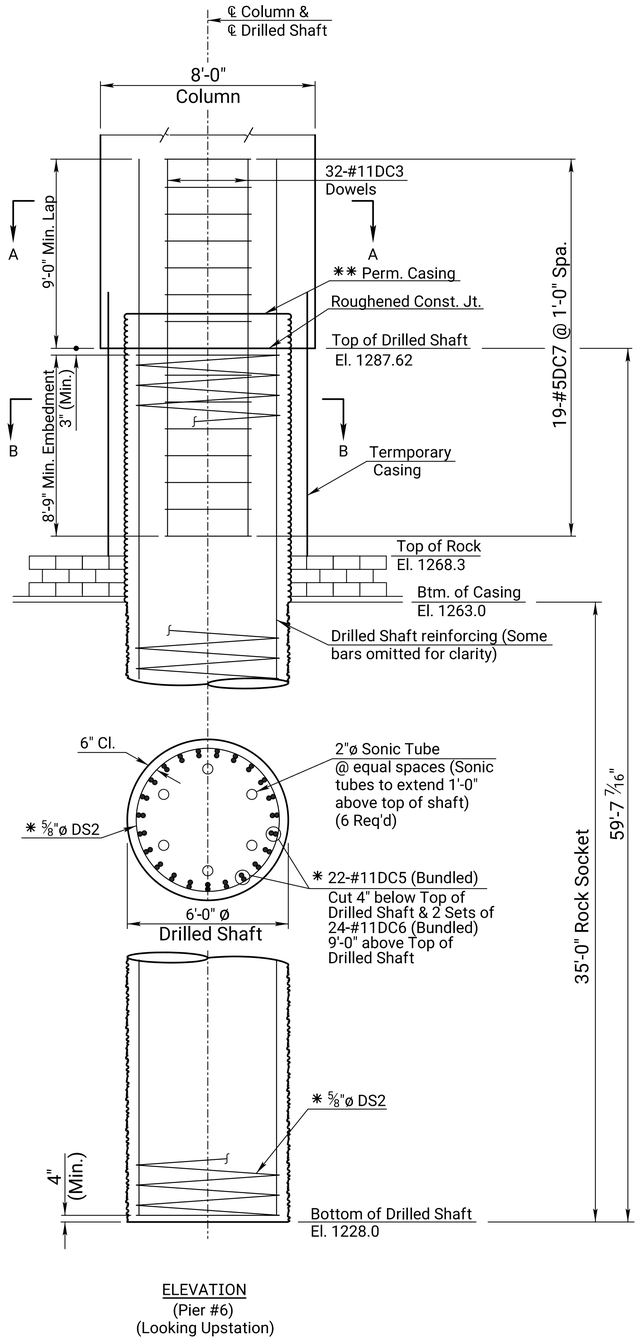
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK. SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-14-2025 Sh. No. 75

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:58
File : ka651701bbr-0305.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	76	366



ELEVATION
(Pier #6)
(Looking Upstation)

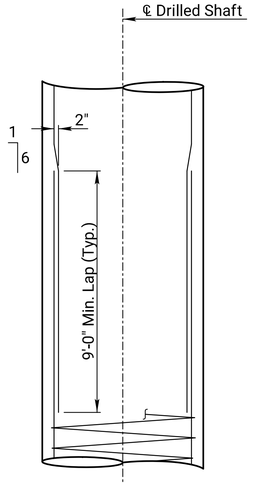
Note:

Use the Cased Method in the construction of the drilled shafts. Permanent Casings are required. See Geology Report. The casing is subsidiary to the bid item "Drilled Shaft (72") (Cased)"

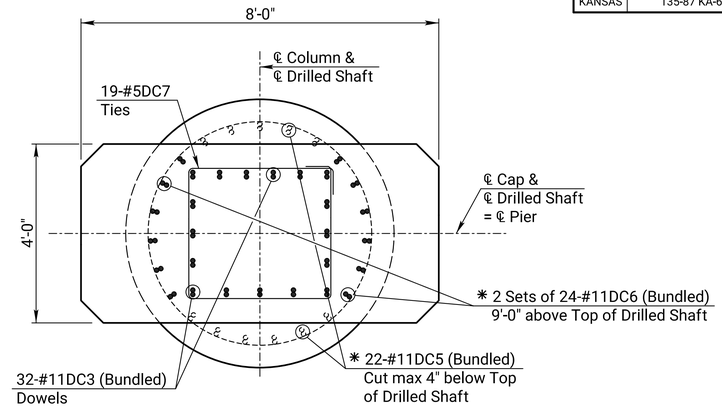
#11DC3 and #5DC7 are quantified under Pier reinforcing steel quantities.

✳ All Drilled Shaft reinforcing steel shall be subsidiary to the bid item "Drilled Shaft (72")(Cased)" unless noted otherwise.

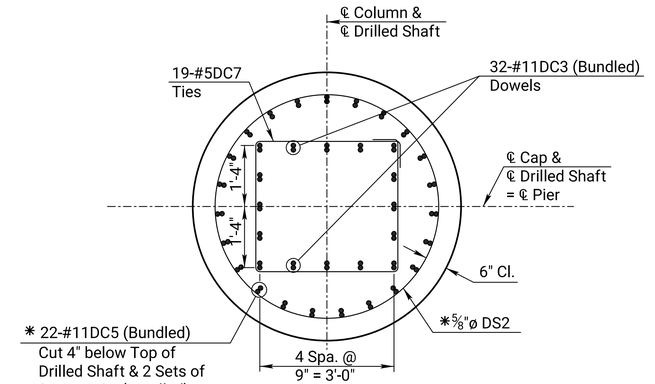
✳✳ Permanent Casing to extend 1'-0" min. above Top of Drilled Shaft.



BAR BENDING DETAIL
(FOR DRILLED SHAFT #11DC6
LAP SPLICE)



SECTION A-A
(Drilled Shaft (72")(Cased))
(Pier column reinforcing not shown for clarity)



SECTION B-B
(Drilled Shaft (72")(Cased))
(Sonic Test Tubes not shown for clarity)

DOWELS SHOULD BE SET AND ANCHORED TO REBAR CAGE PRIOR TO POURING DRILLED SHAFT AND COLUMN CONCRETE

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DRILLED SHAFT DETAILS II
PIER #6
S. BD. I-135 TO E. BD. US-54 RAMP
Proj. 135-87 KA-6517-01 Sedgwick Co.

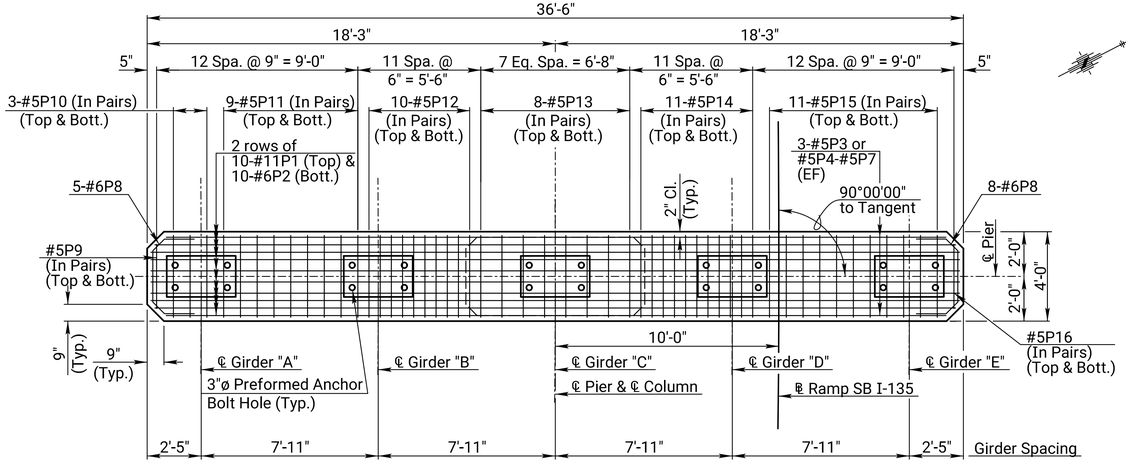
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 76

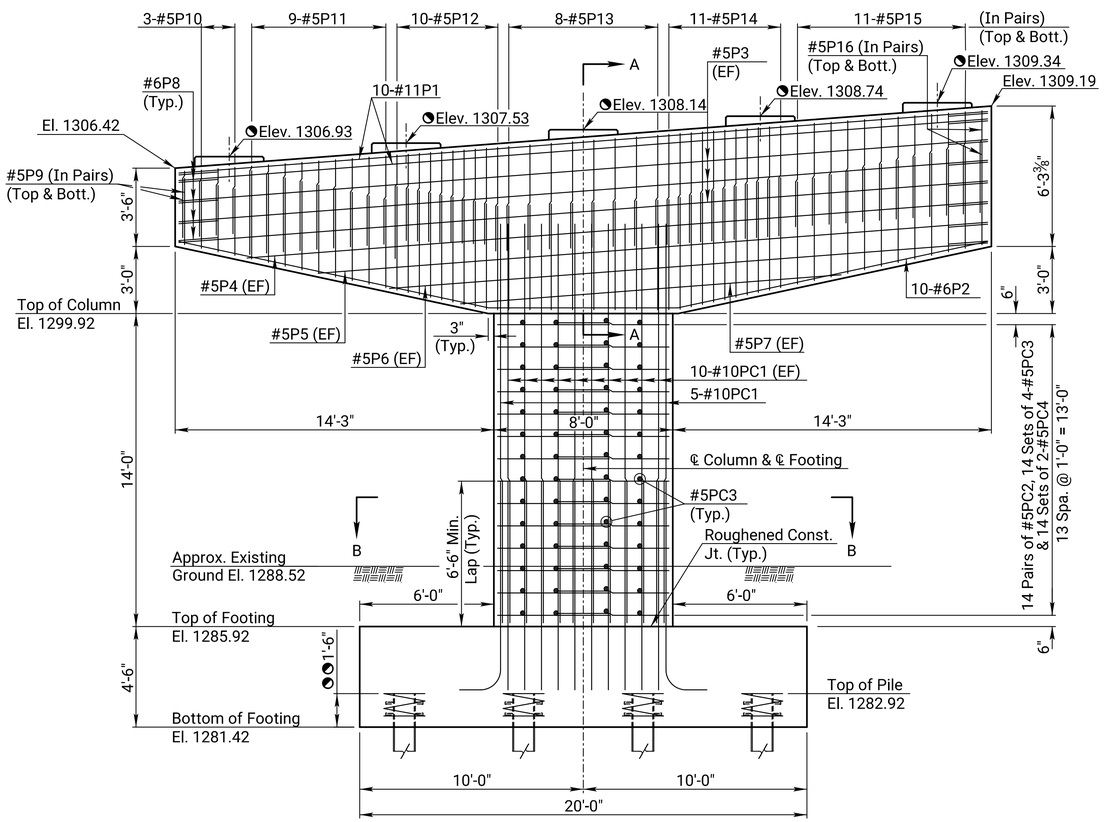
KDOT Graphics Certified

Plotted by: Bernhardt 18-AUG-2025 09:59
File : ka651701bbr-0306.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	77	366

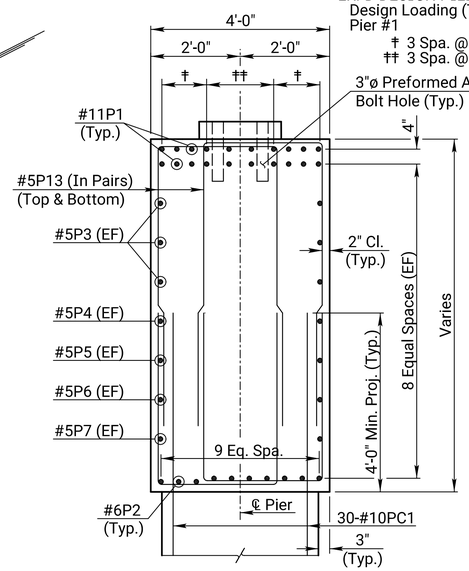


PLAN
(Pedestal reinforcing not shown for clarity)

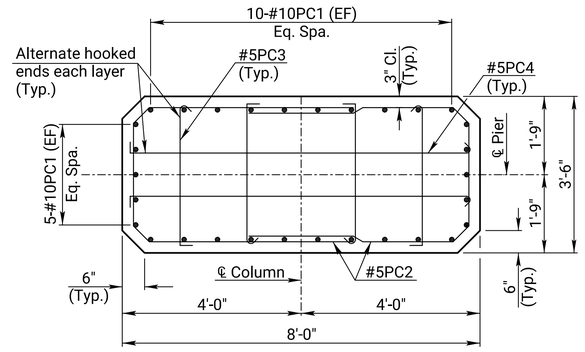


ELEVATION
(Looking Upstation)

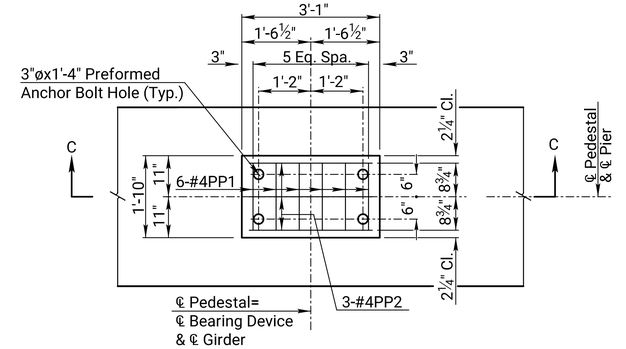
LRFD DESIGN PILE LOAD:
Design Loading (Tons/Pile) Strength I Service I Phi
Pier #1 117 93 0.65
‡ 3 Spa. @ 4" cts.
‡‡ 3 Spa. @ 6" cts.



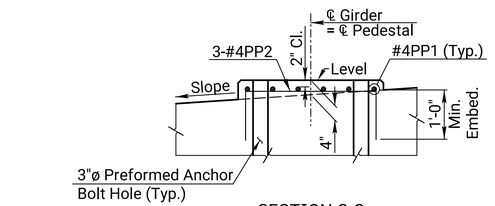
SECTION A-A



SECTION B-B



PEDESTAL DETAIL



SECTION C-C

NOTES:
1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
3. For Bearing Details, see Sh.# 86 .
4. For Footing Details not shown, see Sh.# 74 .

LEGEND
EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space
◔◔ = +1" -0'

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1¾" bottom flange + 8⅜" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #1 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED	AH,OM,FG	DETAILED	DE,GB,SK	QUANTITIES	SK,FG	CADD	DE,GB,SK
DESIGN CK.	SB,FG,SB	DETAIL CK.	SB,OM,AH	QUAN.CK.	SB,OM	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 77

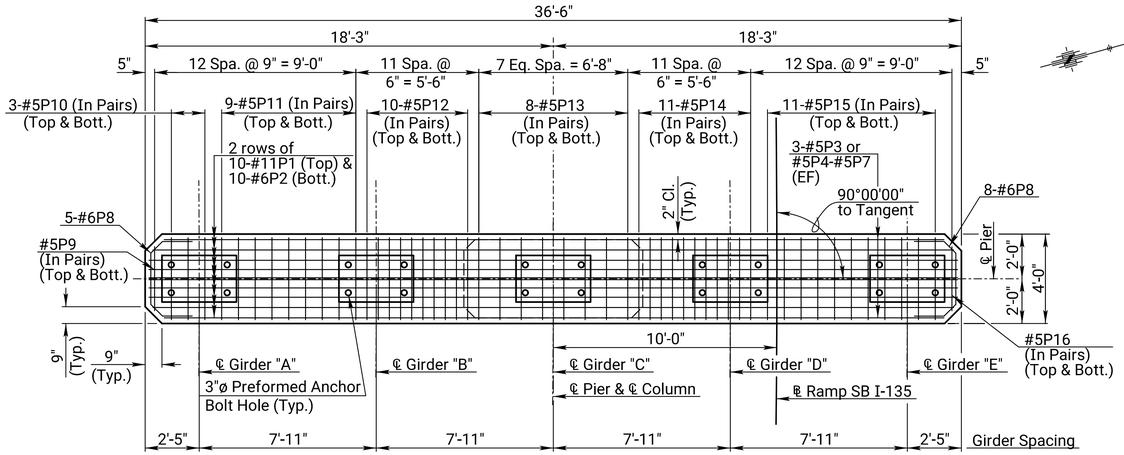
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:59
File : ka651701bbr-0310.dgn

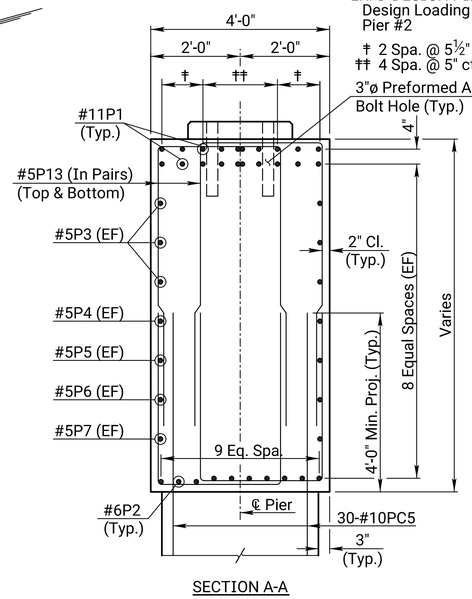
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	78	366

LRFD DESIGN PILE LOAD:
Design Loading (Tons/Pile) Strength I Service I Phi
Pier #2 133 113 0.65

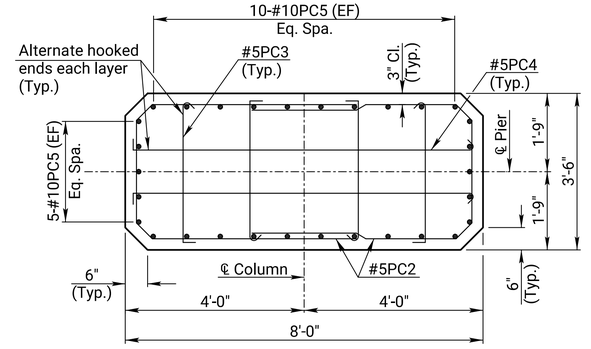
‡ 2 Spa. @ 5½" cts.
‡‡ 4 Spa. @ 5" cts.



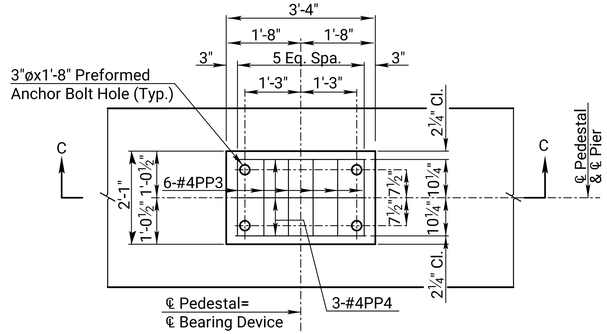
PLAN
(Pedestal reinforcing not shown for clarity)



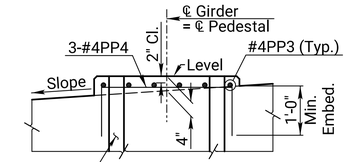
SECTION A-A



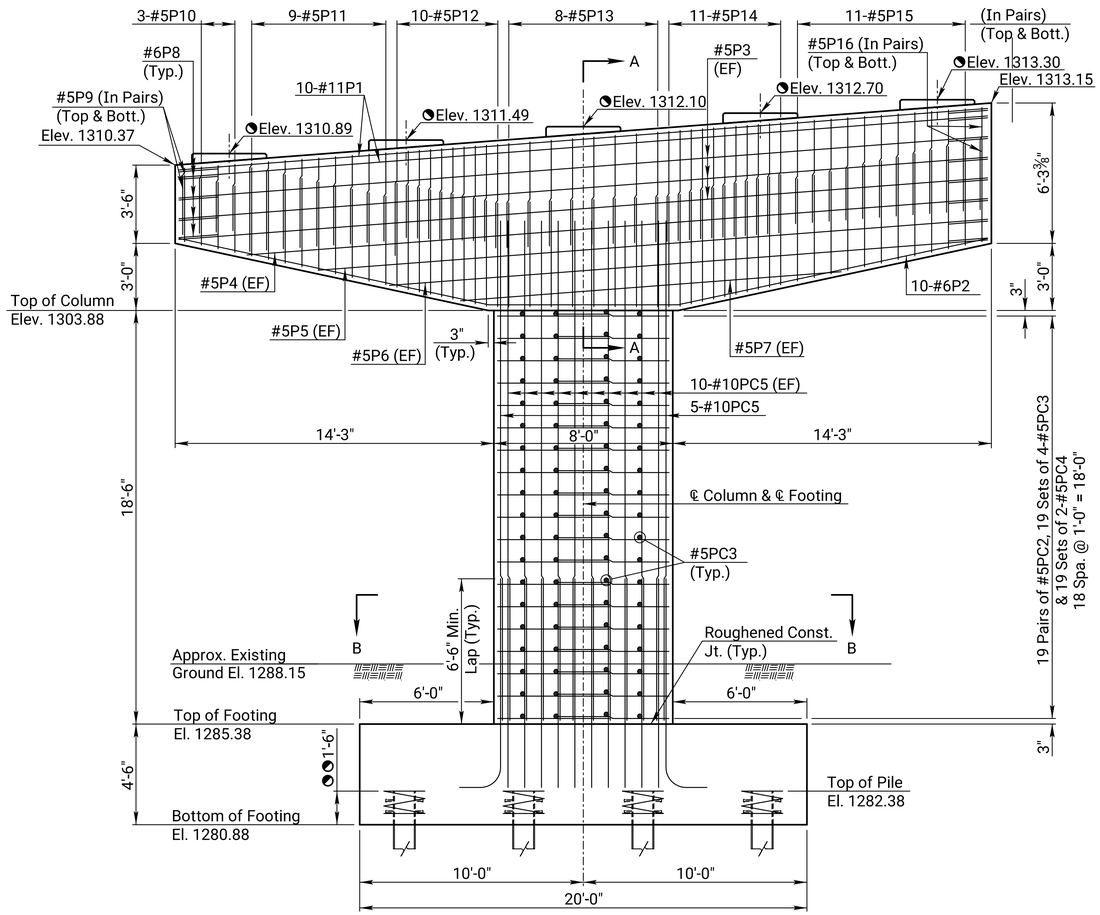
SECTION B-B



PEDESTAL DETAIL



SECTION C-C



ELEVATION
(Looking Upstation)

NOTES:
1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#87 .
3. For Footing Details not shown, see Sh.#74 .

LEGEND
EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space
◔◔ = +1" -0'

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1¾" bottom flange + 7" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #2 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

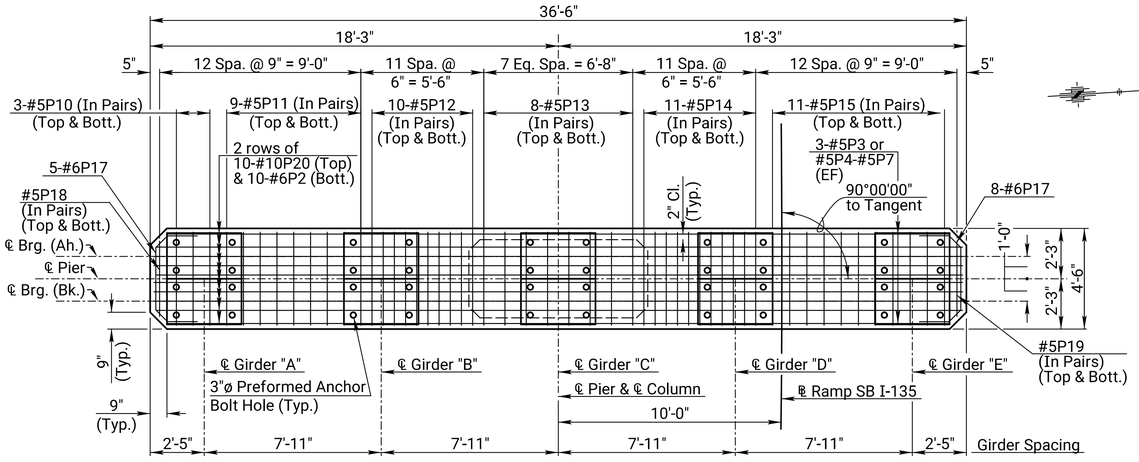
KDOT Graphics Certified 07-15-2025 Sh. No. 78

KDOT Graphics Certified

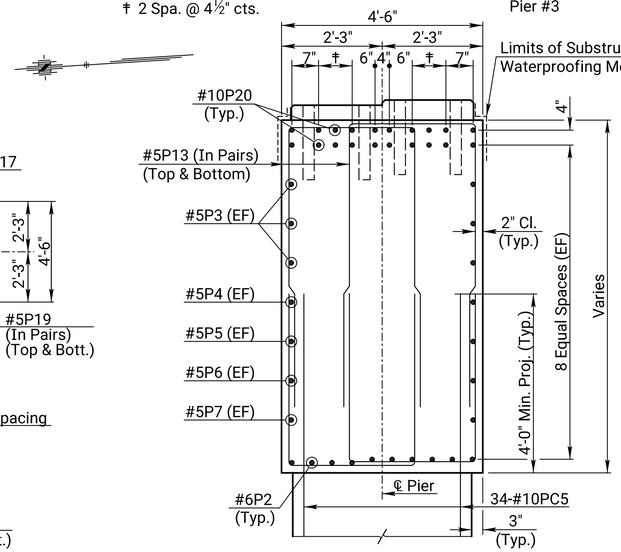
Plotted by : Bernhardt 18-AUG-2025 09:59
File : ka651701bbr-0315.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	79	366

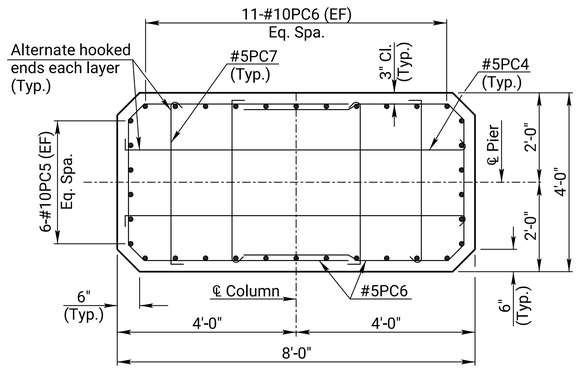
LRFD DESIGN PILE LOAD: Design Loading (Tons/Pile) Pier #3 — Strength I 116 — Service I 90 — Phi 0.65



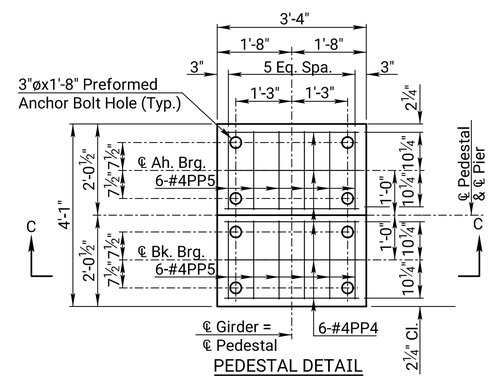
PLAN
(Pedestal reinforcing not shown for clarity)



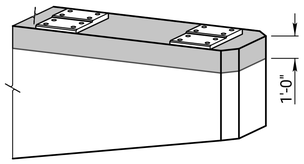
SECTION A-A



SECTION B-B



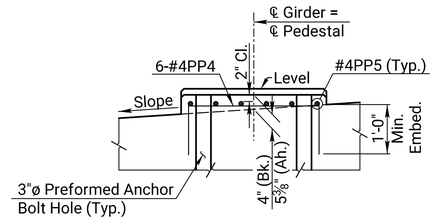
PEDESTAL DETAIL



SUBSTRUCTURE WATERPROOFING MEMBRANE

Place Substructure Waterproofing Membrane to the shaded limits shown. Color of Membrane shall be selected to blend with the adjacent concrete surface.

SUBSTRUCTURE WATERPROOFING MEMBRANE: Apply a Substructure Waterproofing Membrane, in accordance with KDOT Specifications, to the Pier #3 and Pier #6 pier caps after the bearings are set and the girders are erected. Apply the membrane within the limits shown on the plans to drain the bridge seat and the areas around the bearings. Repair any damage done to the membrane while the bridge is under construction. All work shall be as directed and approved by the Engineer.



SECTION C-C

NOTES:

1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#87 .
3. For Footing Details not shown, see Sh.# 74 .

ELEVATION
(Looking Upstation)

◔ PEDESTAL ELEVATIONS		
LOCATION	BACK	AHEAD
Girder "A"	1314.72	1314.83
Girder "B"	1315.32	1315.43
Girder "C"	1315.92	1316.03
Girder "D"	1316.53	1316.63
Girder "E"	1317.13	1317.23

LEGEND
EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space
◔◔ = +1" -0'

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1½" (Bk.) or 1" (Ah.) bottom flange + 7" bearing device at intersection of ℄ Girder and ℄ Brg, (Bk. or Ah.).

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #3 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 79

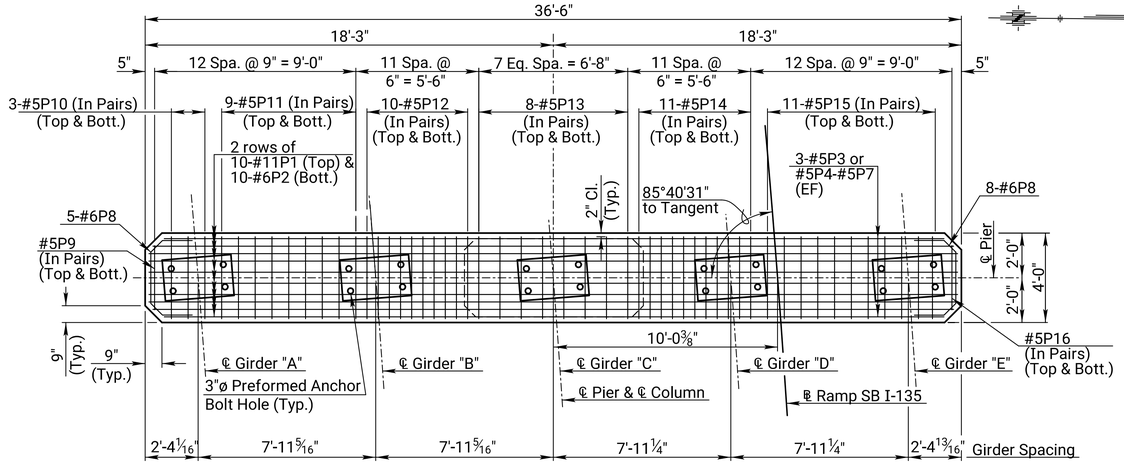
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 09:59
File : ka651701bbr-0320.dgn

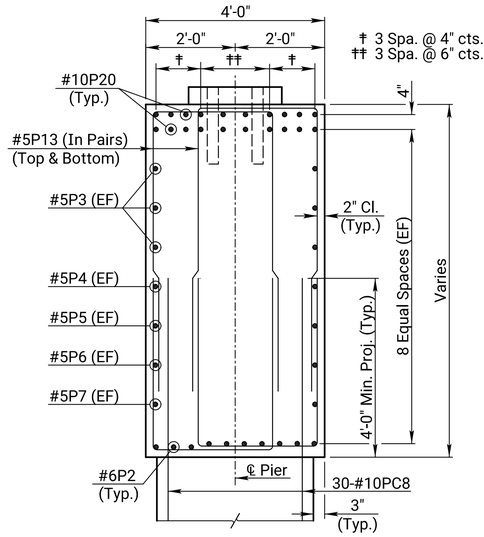
LRFD DESIGN DRILLED SHAFT LOAD:

Design Loading (Tons/D.S.)	Strength	Service	Phi(Side)	Phi (End)
Pier	995	735	0.55	0.50

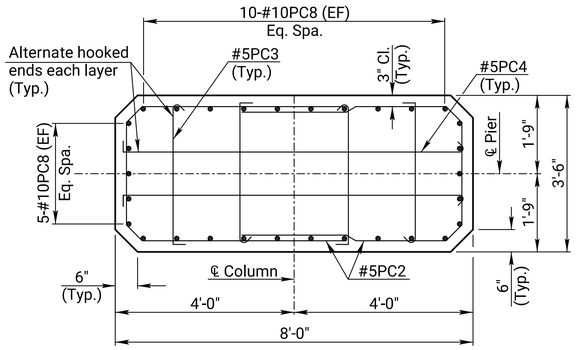
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	80	366



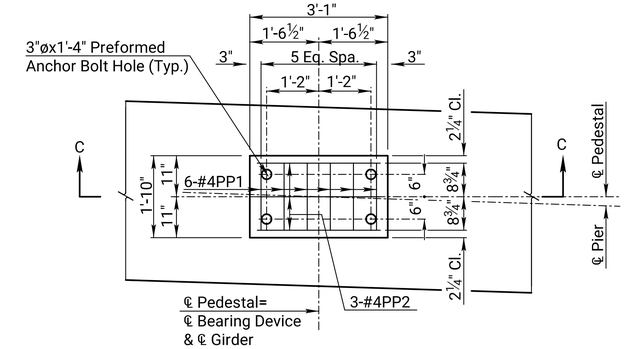
PLAN
(Pedestal reinforcing not shown for clarity)



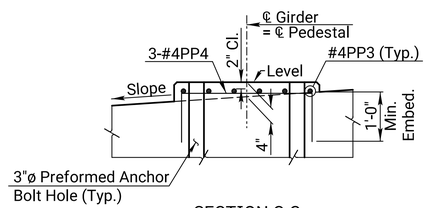
SECTION A-A



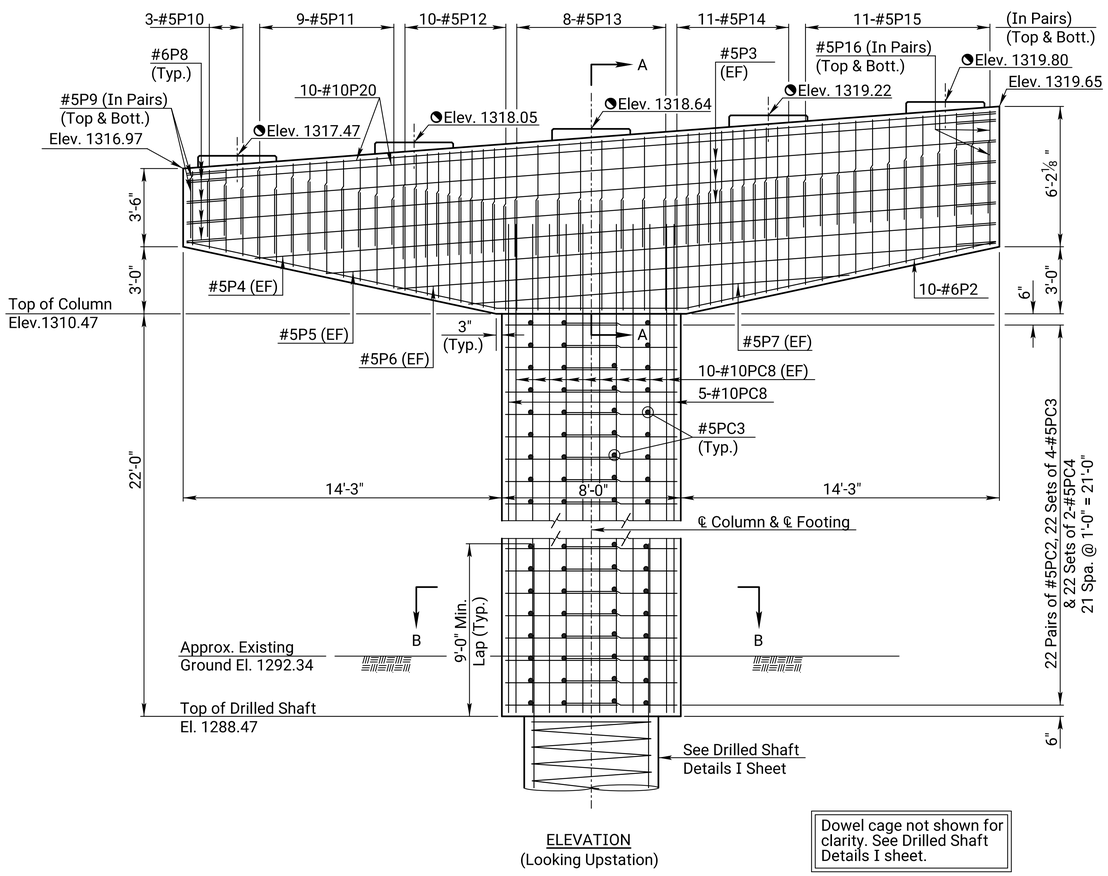
SECTION B-B



PEDESTAL DETAIL



SECTION C-C



ELEVATION
(Looking Upstation)

Dowel cage not shown for clarity. See Drilled Shaft Details I sheet.

NOTES:

1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#86 .
3. For Drilled Shaft Details not shown, see Sh.#75 .

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1¼" bottom flange + 8⅜" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #4 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD	DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 80

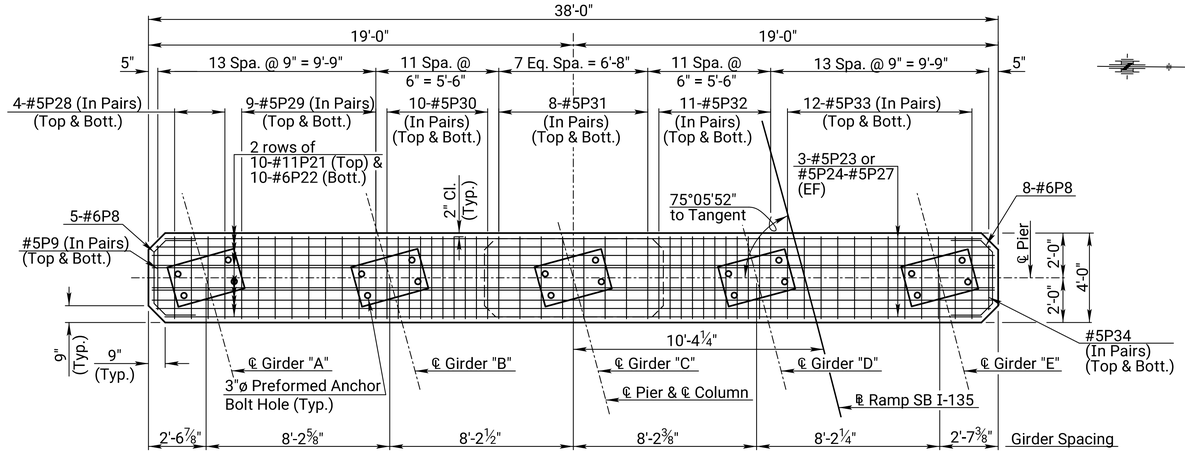
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:00
File : ka651701bbr-0325.dgn

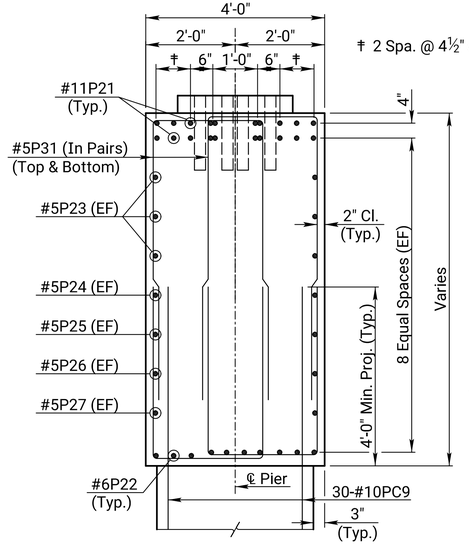
LRFD DESIGN DRILLED SHAFT LOAD:

	Design Loading (Tons/D.S.)	Strength	Service	Phi(Side)	Phi(End)
Pier		1045	789	0.55	0.50

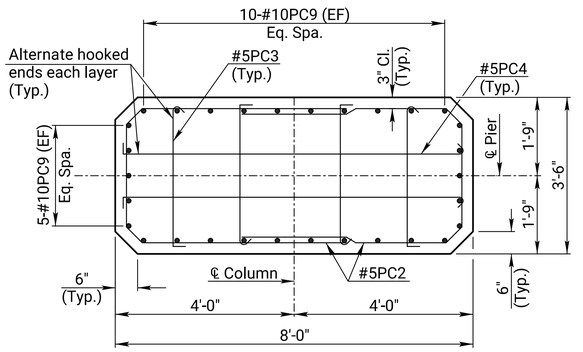
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	81	366



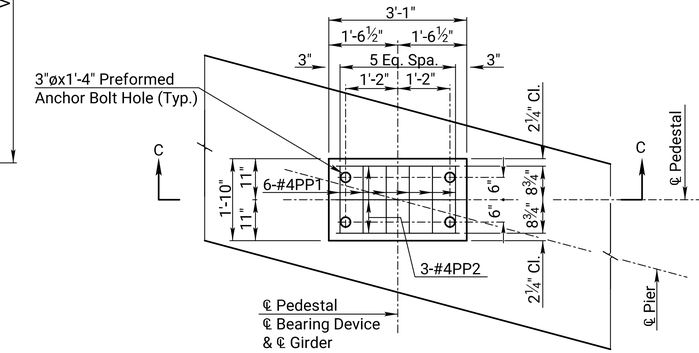
PLAN
(Pedestal reinforcing not shown for clarity)



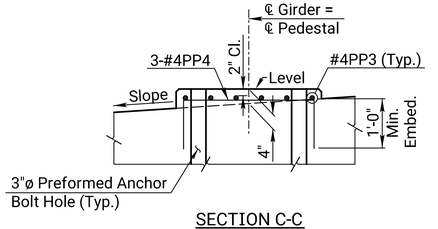
SECTION A-A



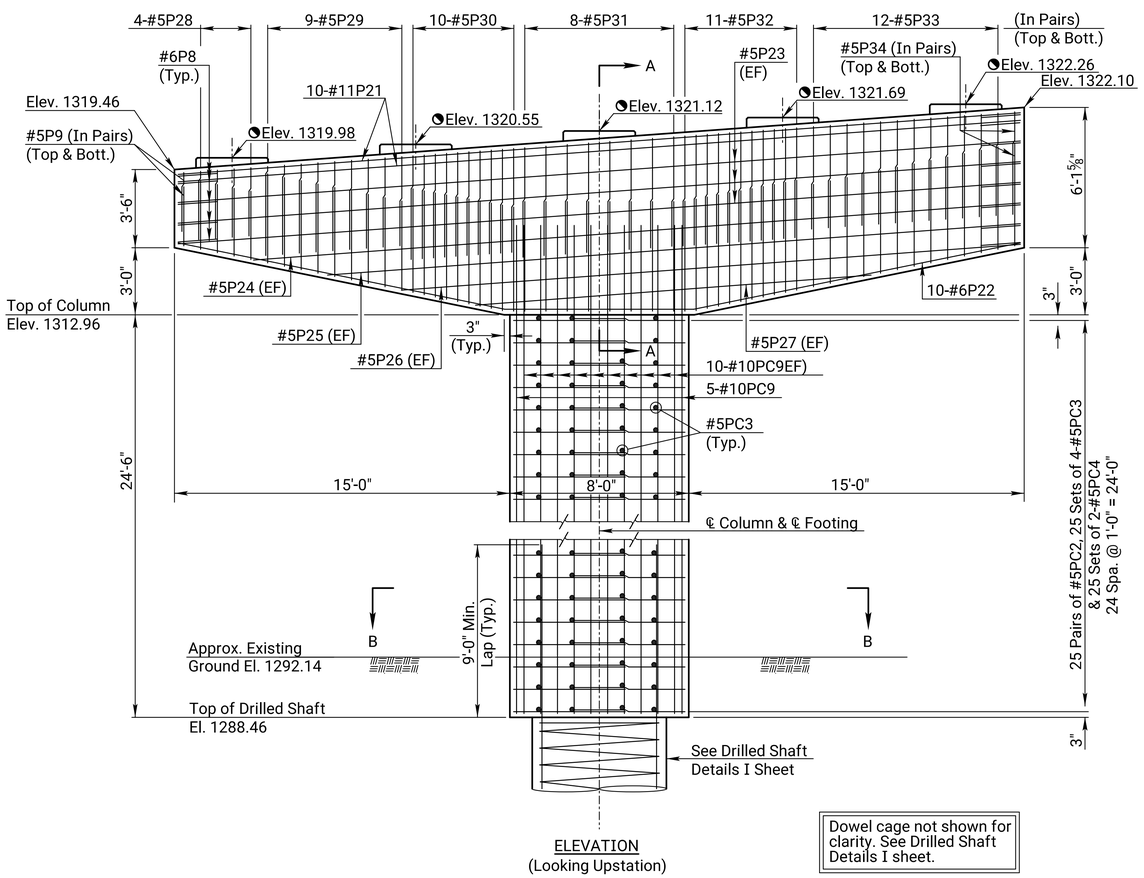
SECTION B-B



PEDESTAL DETAIL



SECTION C-C



ELEVATION
(Looking Upstation)

Dowel cage not shown for clarity. See Drilled Shaft Details I sheet.

NOTES:

1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details and bearing set angles, see Sh.# 86 .
3. For Drilled Shaft Details not shown, see Sh.# 75 .

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" web + 1¼" bottom flange + 8⅜" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #5 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD	DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 81

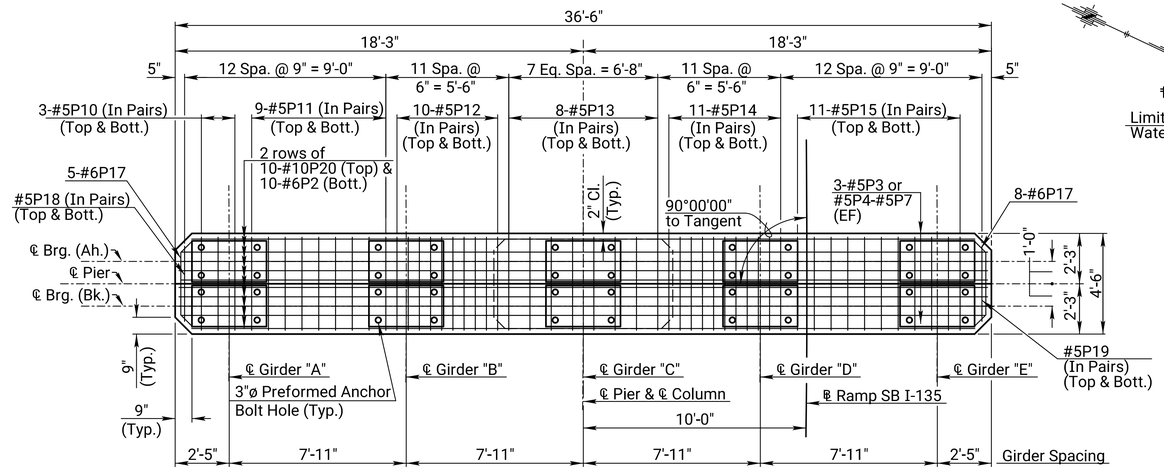
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:00
File : ka651701bbr-0330.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	82	366

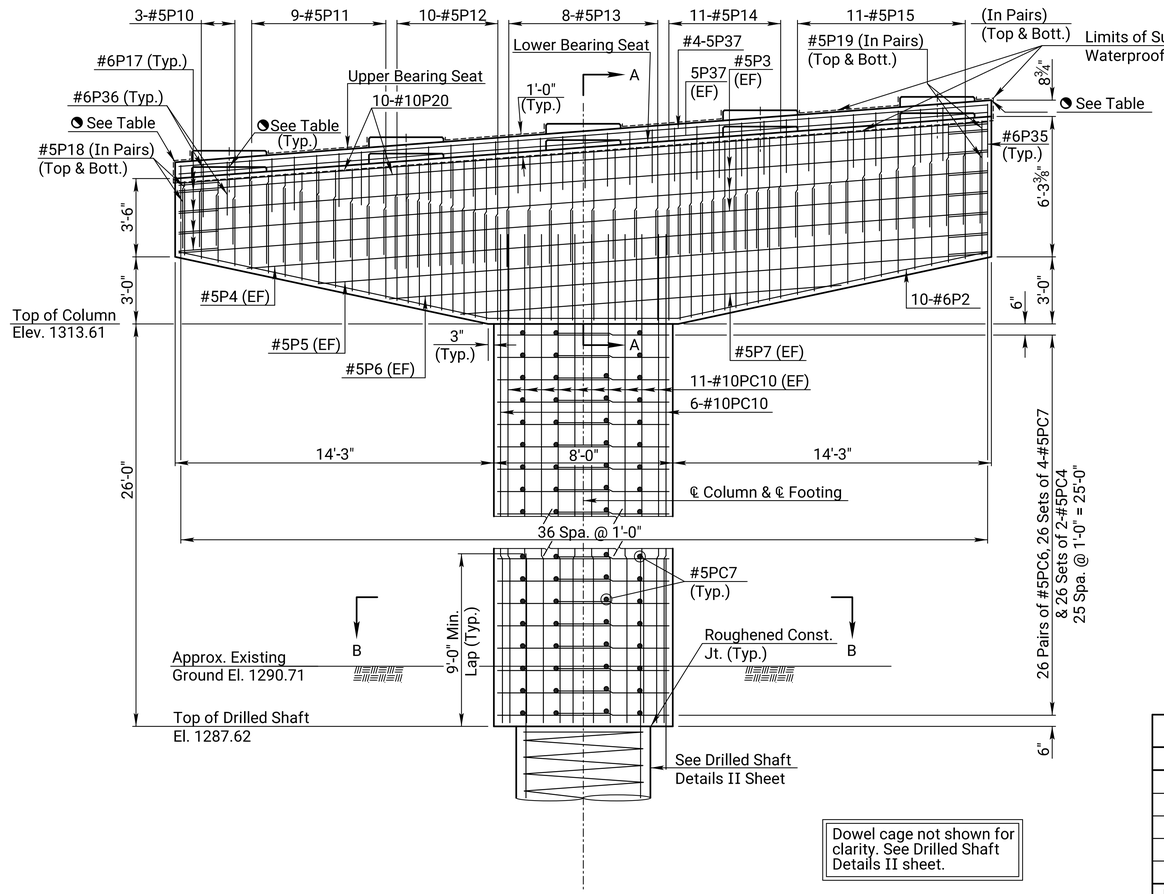
LRFD DESIGN DRILLED SHAFT LOAD:

Design Loading (Tons/D.S.)	Strength	Service	Phi(Side)	Phi(End)
Pier	801	596	0.55	0.50



PLAN

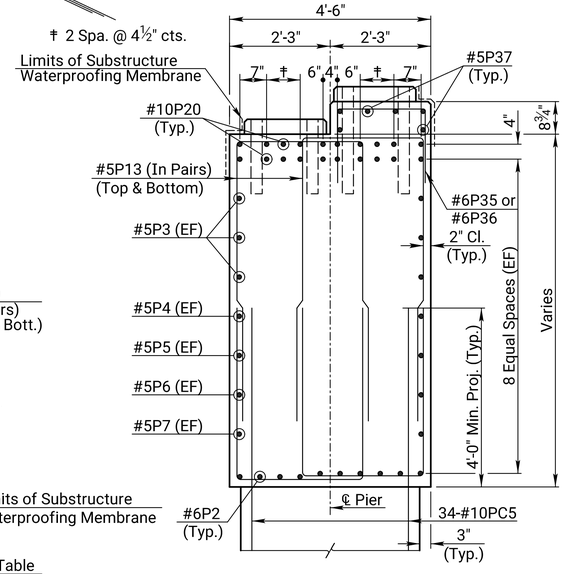
(Pedestal and upper bearing seat reinforcing not shown for clarity)



Dowel cage not shown for clarity. See Drilled Shaft Details II sheet.

ELEVATION

(Looking Upstation)

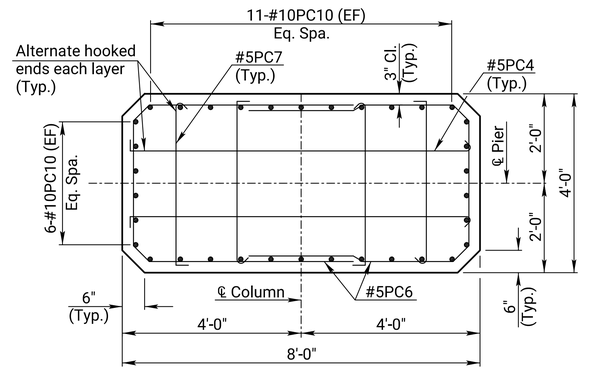


SECTION A-A

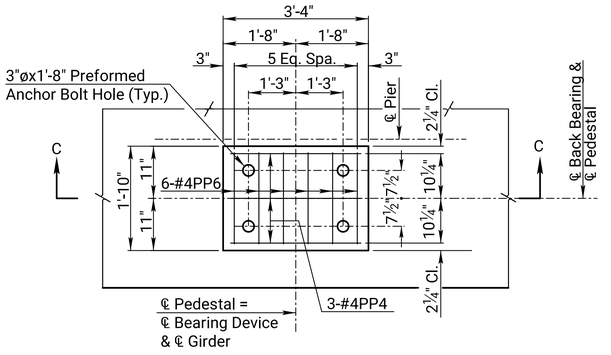
SUBSTRUCTURE WATERPROOFING MEMBRANE

Place Substructure Waterproofing Membrane to the shaded limits shown. Color of Membrane shall be selected to blend with the adjacent concrete surface.

SUBSTRUCTURE WATERPROOFING MEMBRANE: Apply a Substructure Waterproofing Membrane, in accordance with KDOT Specifications, to the Pier #3 and Pier #6 pier caps after the bearings are set and the girders are erected. Apply the membrane within the limits shown on the plans to drain the bridge seat and the areas around the bearings. Repair any damage done to the membrane while the bridge is under construction. All work shall be as directed and approved by the Engineer.

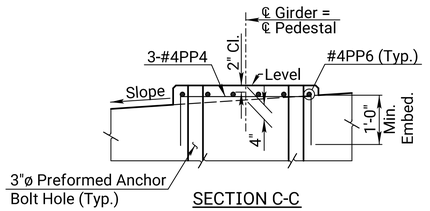


SECTION B-B



PEDESTAL DETAIL

(Back pedestal shown, ahead similar)



SECTION C-C

NOTES:

1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#87 .
3. For Drilled Shaft Details not shown, see Sh.#76 .

◔ PEDESTAL ELEVATIONS		
LOCATION	BACK	AHEAD
Girder "A"	1320.63	1321.35
Girder "B"	1321.23	1321.96
Girder "C"	1321.83	1322.56
Girder "D"	1322.43	1323.16
Girder "E"	1323.03	1323.76
Left Edge of Cap	1320.11	1320.84
Right Edge of Cap	1322.89	1323.61

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 4'-6" (Bk.) or 3'-9" (Ah.) web + 1" (Bk.) or 1¼" (Ah.) bottom flange + 7" bearing device at intersection of ℄ Girder and ℄ Brg. (Bk. or Ah.)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #6 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

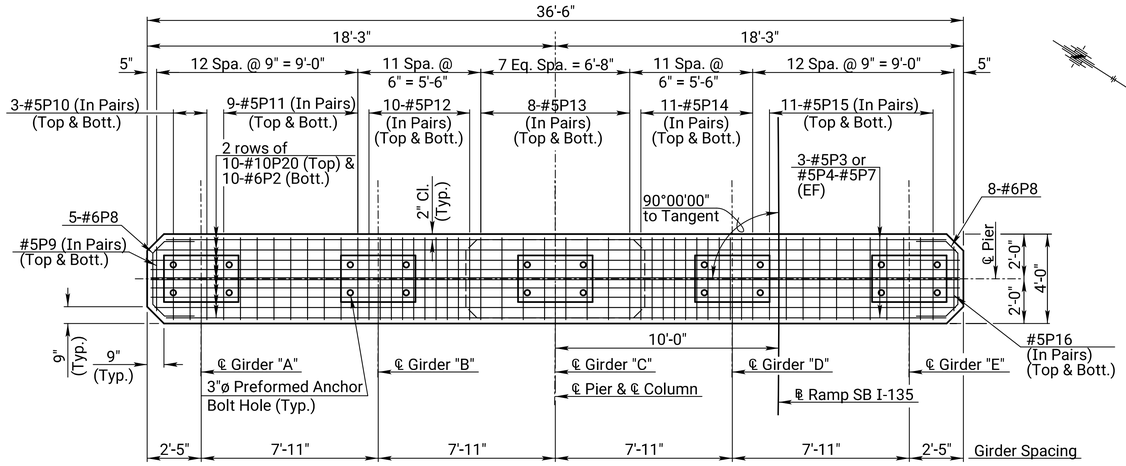
KDOT Graphics Certified 07-15-2025 Sh. No. 82

KDOT Graphics Certified

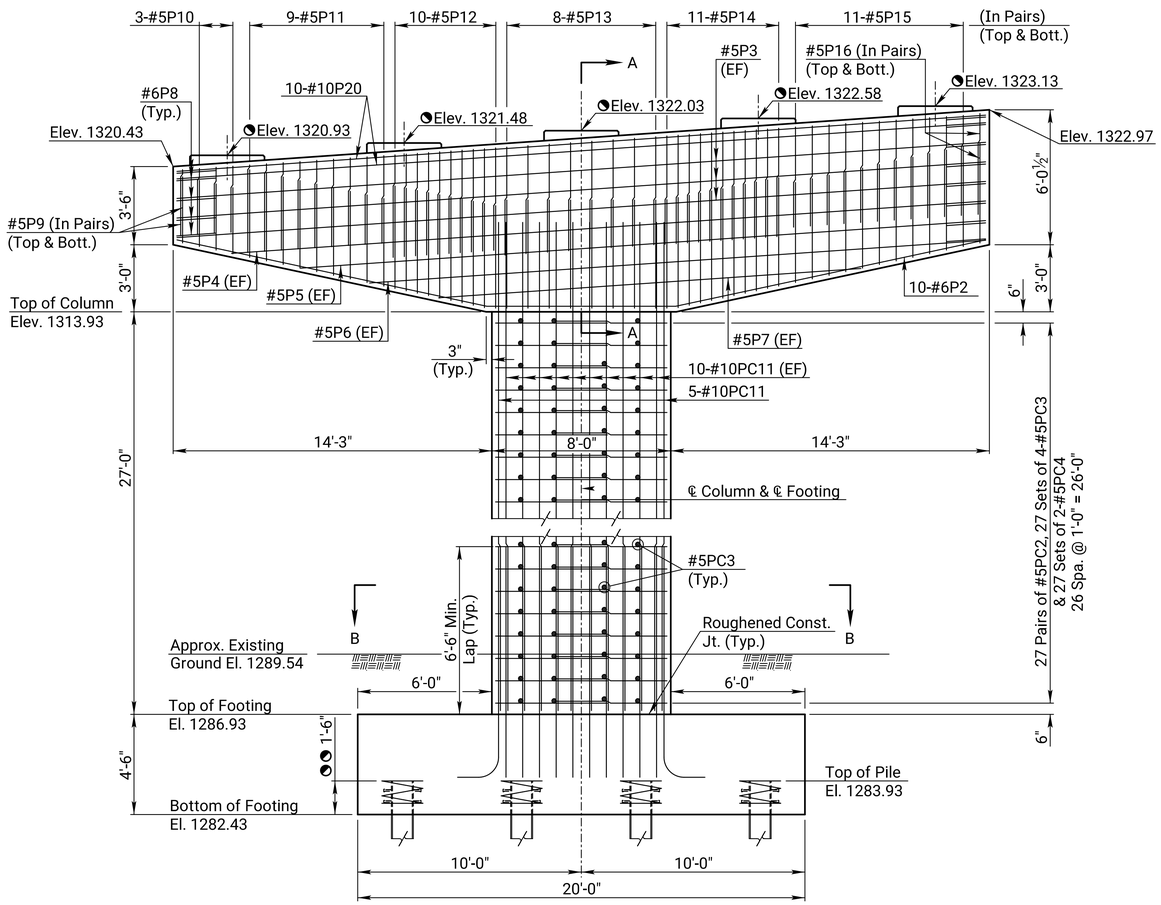
Plotted by : Bernhardt 18-AUG-2025 10:00
File : ka651701bbr-0335.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	83	366

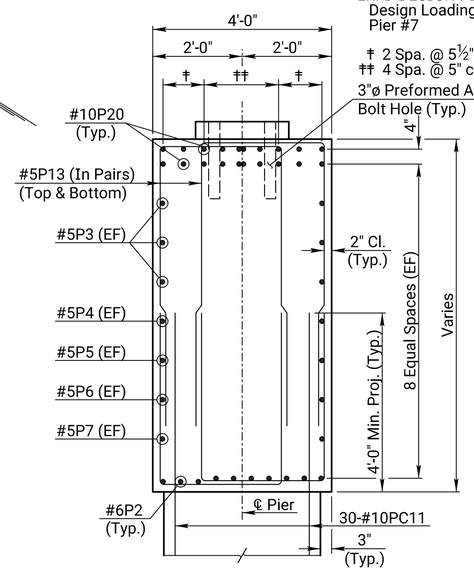
LRFD DESIGN PILE LOAD:
Design Loading (Tons/Pile) Strength I Service I Phi
Pier #7 124 103 0.65



PLAN
(Pedestal reinforcing not shown for clarity)

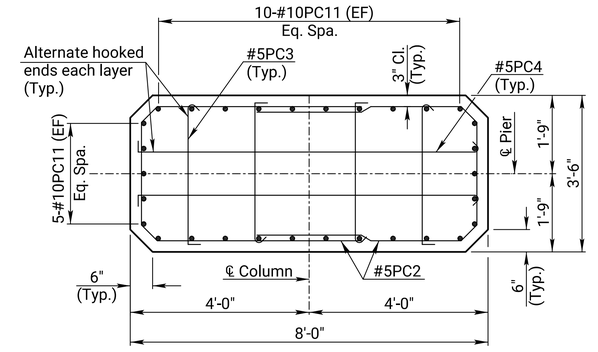


ELEVATION
(Looking Upstation)

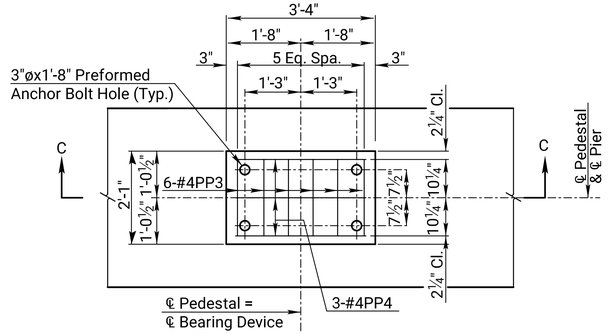


SECTION A-A

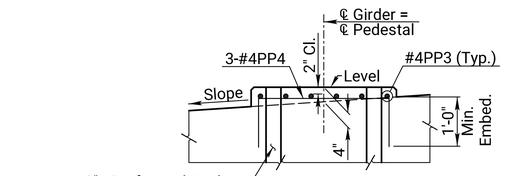
** Slight adjustment in top mat spacing will be necessary to clear Prefomed Anchor Bolt Holes.



SECTION B-B



PEDESTAL DETAIL



SECTION C-C

NOTES:
1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#87 .
3. For Footing Details not shown, see Sh.#74 .

LEGEND
EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space
◔◔ = +1" -0'
◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 3'-9" web + 1½" bottom flange + 7" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 135-87-5.81 (894) Sta. 1161+99.35
PIER #7 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP
Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

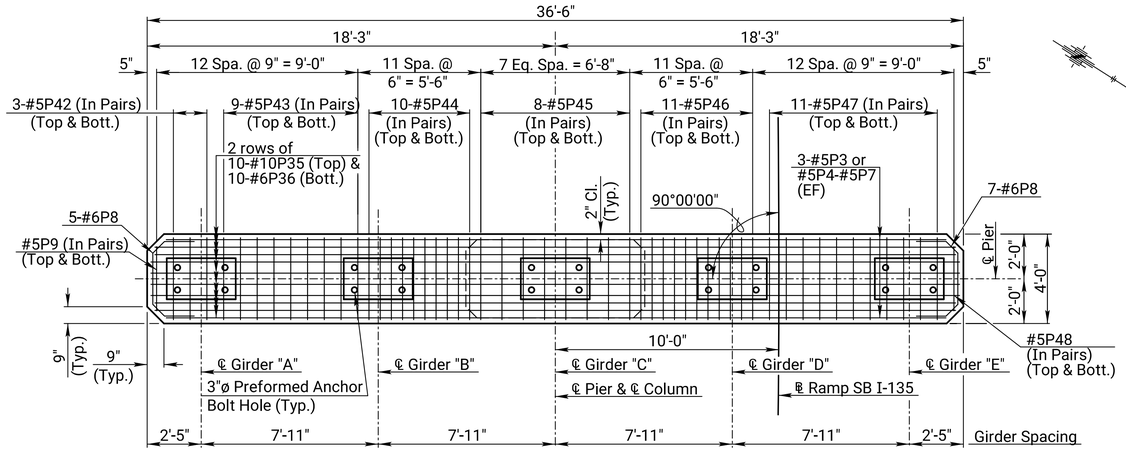
KDOT Graphics Certified 07-15-2025 Sh. No. 83

KDOT Graphics Certified

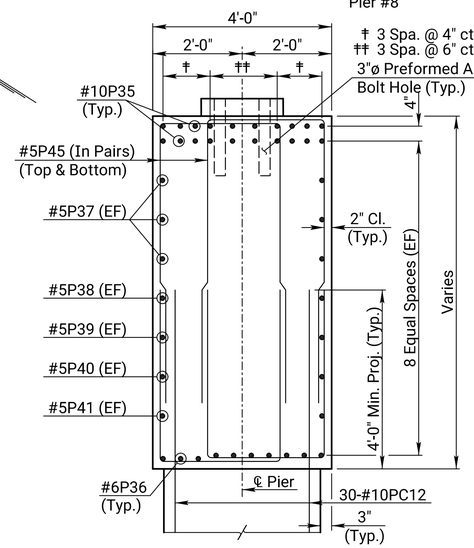
Plotted by : Bernhardt 18-AUG-2025 10:00
File : ka651701bbr-0340.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	84	366

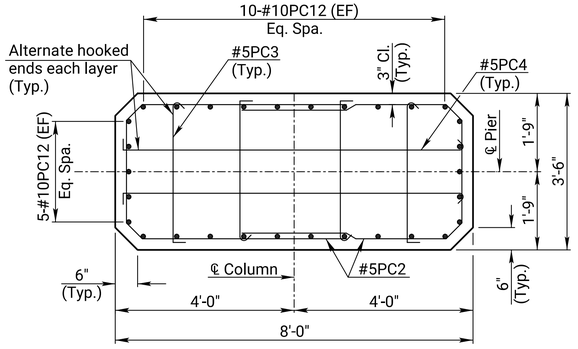
LRFD DESIGN PILE LOAD:
Design Loading (Tons/Pile) Strength I Service I Phi
Pier #8 115 109 0.65



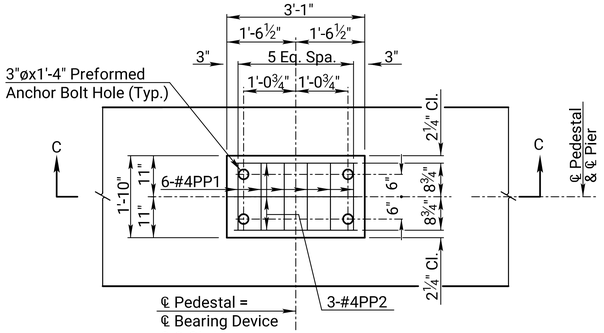
PLAN
(Pedestal reinforcing not shown for clarity)



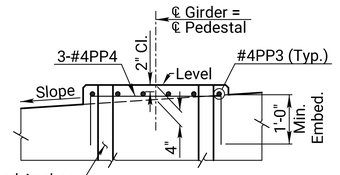
SECTION A-A



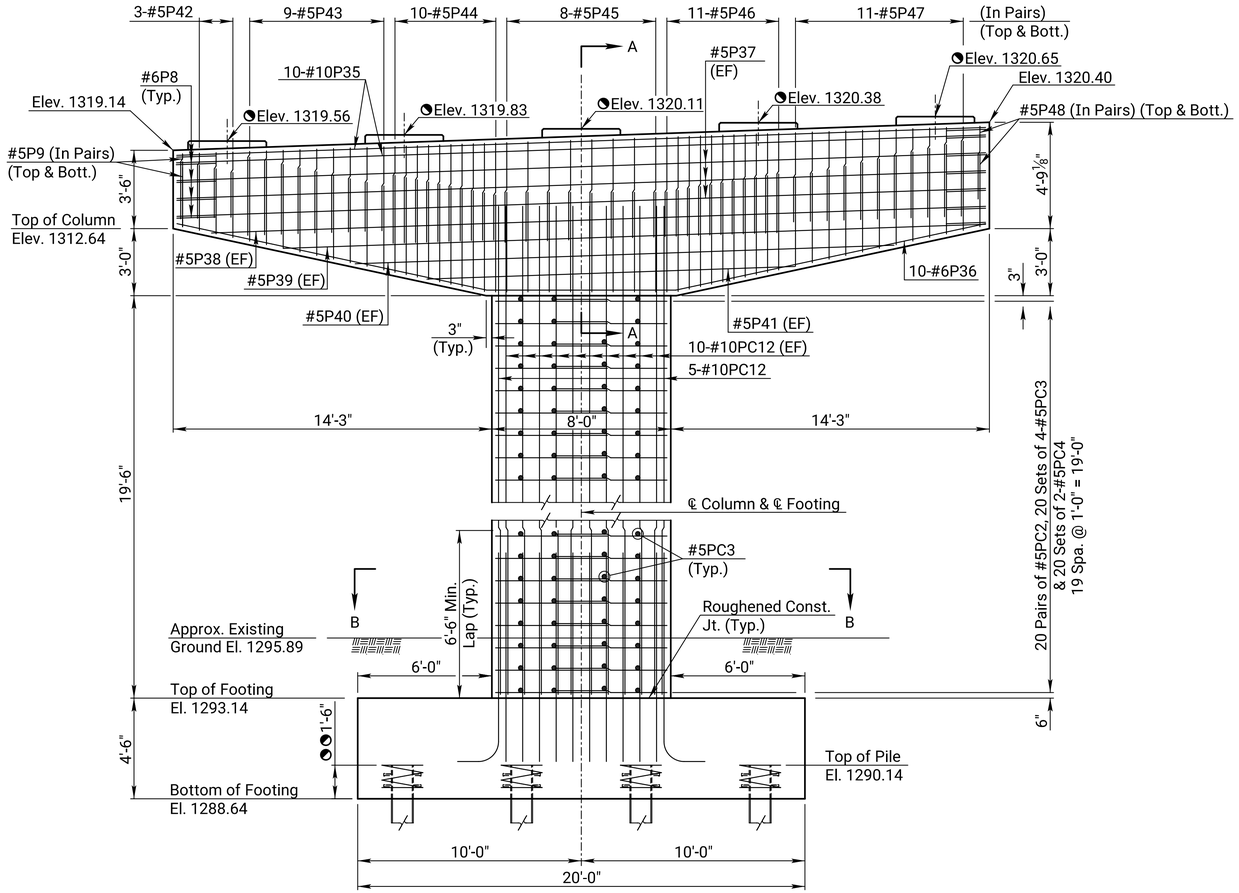
SECTION B-B



PEDESTAL DETAIL



SECTION C-C



ELEVATION
(Looking Upstation)

NOTES:

1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#86 .
3. For Footing Details not shown, see Sh.# 74 .

LEGEND

EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space
◔◔ = +1" -0'

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 3'-9" web + 1½" bottom flange + 8⅜" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER #8 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

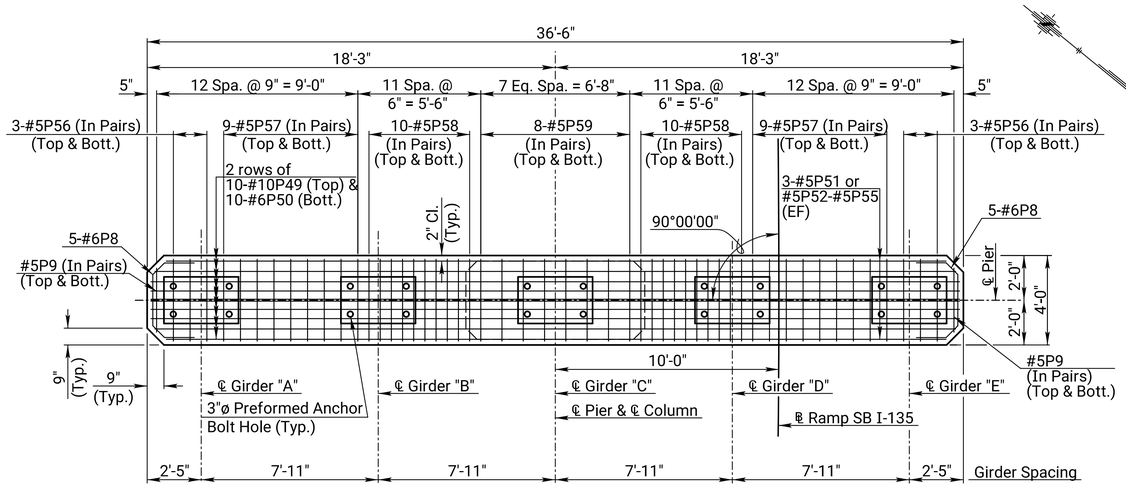
KDOT Graphics Certified 07-15-2025 Sh. No. 84

KDOT Graphics Certified

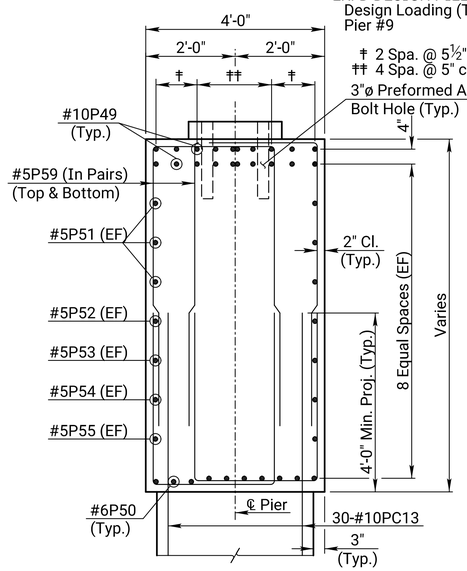
Plotted by : Bernhardt 18-AUG-2025 10:01
File : ka651701bbr-0345.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	85	366

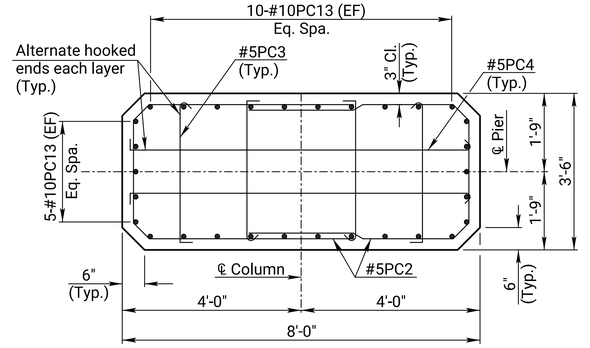
LRFD DESIGN PILE LOAD: Design Loading (Tons/Pile) Strength I Service I Phi
Pier #9 102 82 0.65



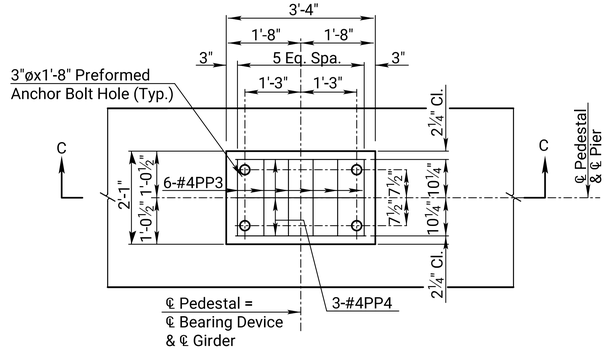
PLAN
(Pedestal reinforcing not shown for clarity)



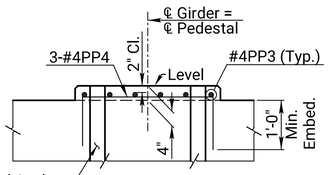
SECTION A-A
** Slight adjustment in top mat spacing will be necessary to clear Prefomed Anchor Bolt Holes.



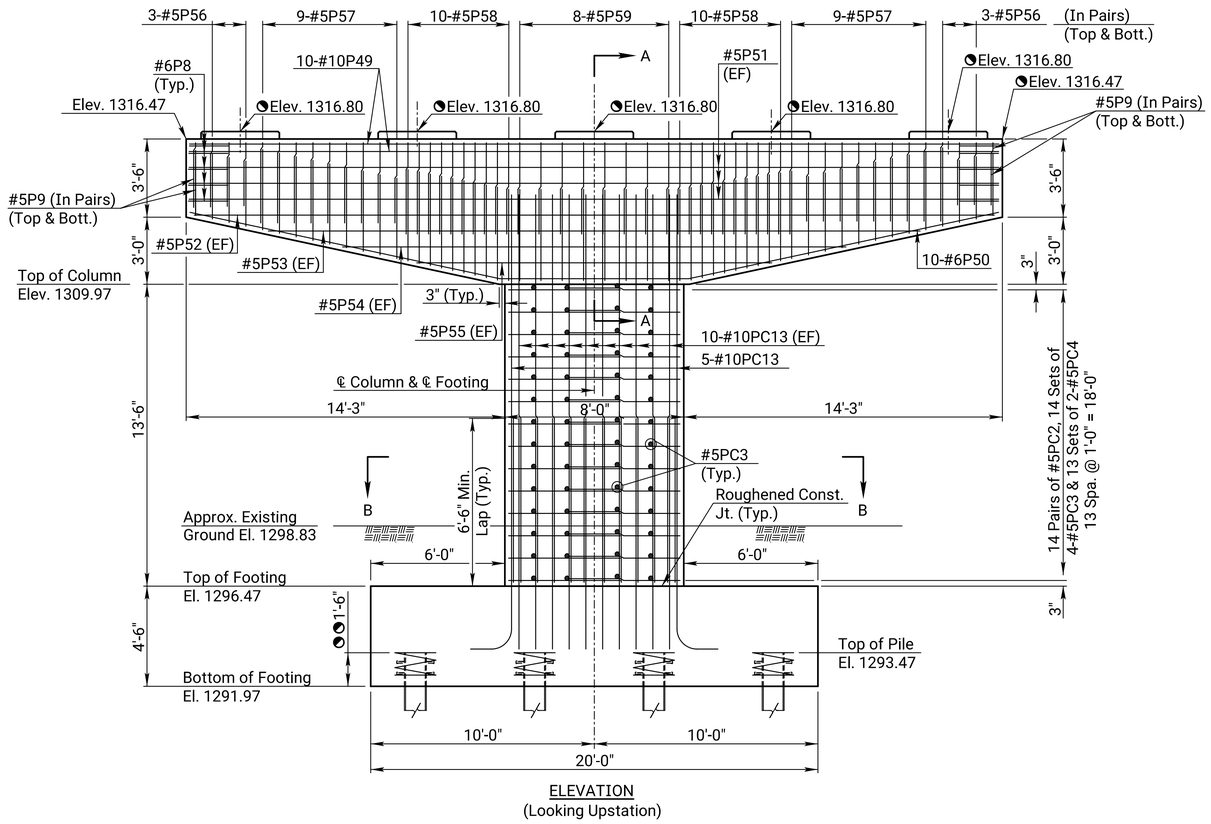
SECTION B-B



PEDESTAL DETAIL



SECTION C-C



ELEVATION
(Looking Upstation)

NOTES:
1. Adjust stirrups to avoid conflict with the preformed anchor bolt hole by 1" minimum.
2. For Bearing Details, see Sh.#87 .
3. For Footing Details not shown, see Sh.# 74 .

LEGEND
EF = Each Face
NF = Near Face
FF = Far Face
ES = Equal Space
◔◔ = +1" -0'

◔ The dimensions and elevations shown are theoretical based on 8½" deck + 4" haunch (including top flange) + 3'-9" web + 1½" bottom flange + 7" bearing device at intersection of ℄ Girder and ℄ Pier

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 135-87-5.81 (894) Sta. 1161+99.35
PIER #9 DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP
Proj. 135-87 KA-6517-01 Sedgwick Co.

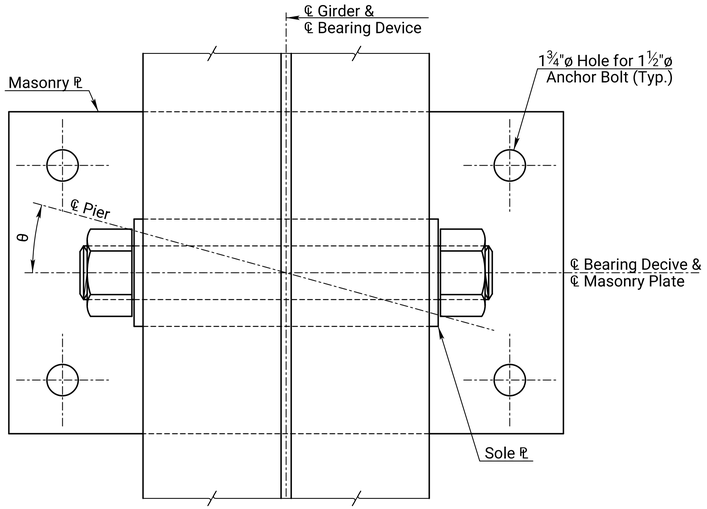
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 85

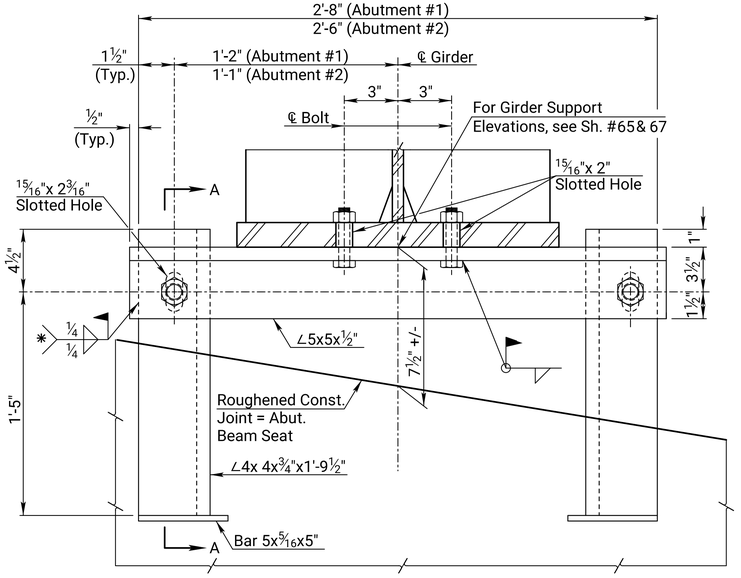
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:01
File : ka6517101bbr-0350.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	86	366

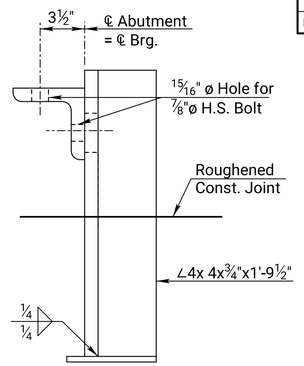


FIXED BEARING DEVICE - PLAN

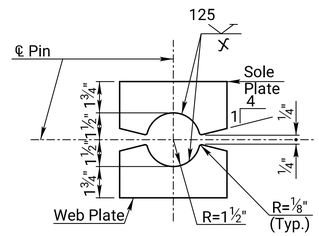


* See Notes

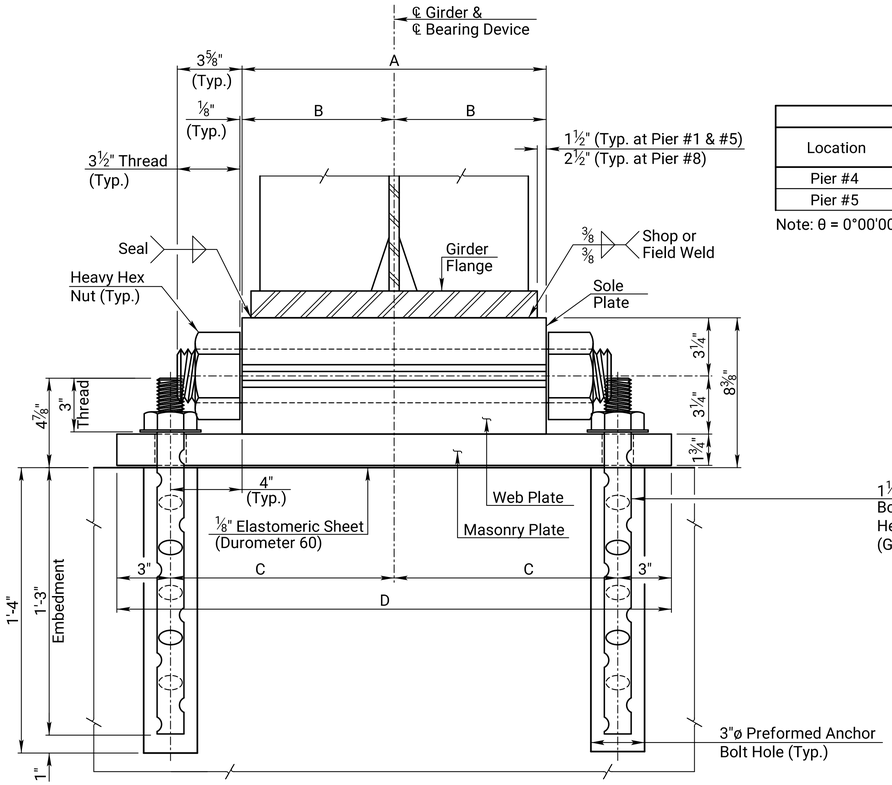
ABUTMENT GIRDER SUPPORT DETAILS
(10 req'd.)



SECTION A-A



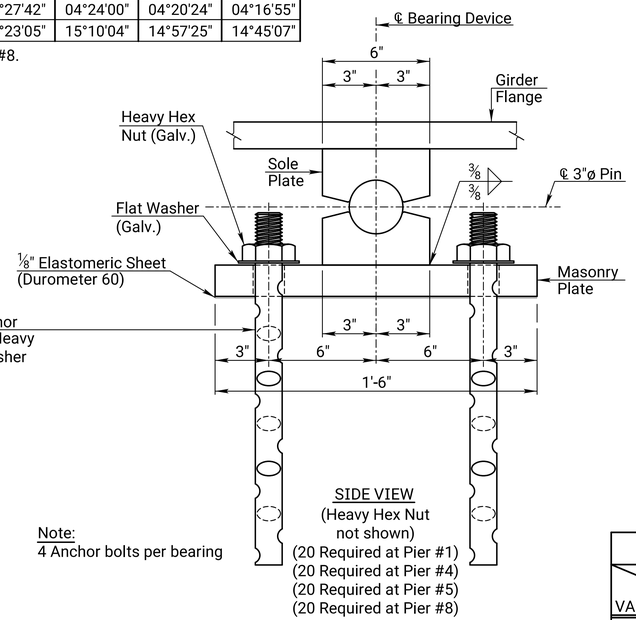
WEB PLATE & SOLE PLATE DETAIL



FIXED BEARING DEVICE AT PIER #1, #4, #5 & #8 - ELEVATION
(5 Required Pier #1)
(5 Required Pier #4)
(5 Required Pier #5)
(5 Required Pier #8)

BEARING SET ANGLE (θ)					
Location	Girder A	Girder B	Girder C	Girder D	Girder E
Pier #4	04°31'29"	04°27'42"	04°24'00"	04°20'24"	04°16'55"
Pier #5	15°36'29"	15°23'05"	15°10'04"	14°57'25"	14°45'07"

Note: θ = 0°00'00" for Piers #1 & #8.



SIDE VIEW
(Heavy Hex Nut
not shown)
(20 Required at Pier #1)
(20 Required at Pier #4)
(20 Required at Pier #5)
(20 Required at Pier #8)

Note:
4 Anchor bolts per bearing

TABLE OF VARIABLES		
VARIABLE \ LOCATION	PIER #1, #4 & #5	PIER #8
A	21¼"	17¼"
B	10½"	8¾"
C	1'-2"	1'-0¾"
D	2'-10"	2'-6¾"

NOTES

ANCHOR BOLTS: Place the reinforcing bars below the bearing devices to clear the anchor bolts.

Anchor bolts will adhere to KDOT Standard Specifications Division 1600 (Grade 55) with the following exception, the threads may be rolled or cut.

PREFORMED ANCHOR BOLT HOLES: Preformed 3 inch diameter holes using only corrugated polyethylene tubing (Type C) at the locations shown. When temperatures are expected to go below freezing, seal the preformed holes or fill them with a propylene glycol-based antifreeze to prevent expansion damage. The holes will be free of water, antifreeze or foreign materials at the time of grouting the anchor bolts. The polyethylene tubing may remain in-place. Trim the tubing flush with the top of concrete. This work shall be subsidiary to "Concrete Grade 4.0(AE)".

ABUTMENT GIRDER SUPPORT: Abutment Girder Supports shall be A709 Grade 36 or ASTM A36 (painted with prime coat), but shall be paid for a A709 Grade 50W Structural Steel.

After verifying girder support elevations, the angles shall be welded as shown.

FIXED BEARING DEVICE: All material for bearing devices shall conform to the requirements of ASTM A709, Grade 50 except as shown.

All pins, shall be ASTM A108, Grade 1018 Steel.

Finish contact surfaces in the directions of motion to conform to ANSI B46.1, Surface Texture, Roughness, Waviness and Lay, Part 1.

Machine web plates after welding.

Where flate surfaces are indicated, tolerance shall be 0.003 In./In.

Scribe the top of all base plates with longitudinal and transverse centerlines.

Set bearing devices on ⅛ inch elastomeric sheets in accordance with Sub-section 1701 of the Standard Specifications. Elastomeric sheets, nuts, and anchor bolts are subsidiary to the Bid Item "Bearing (Steel)".

Blast clean the bearings, in the shop, except for the ANSI 125 finished surfaces. Paint the bridge bearings with an inorganic Zinc Primer except for the ANSI 125 finished surfaces with an approved dry film lubricant. After erection, apply the water-borne acrylic finish coat to all exposed surfaces.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BEARING DETAILS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

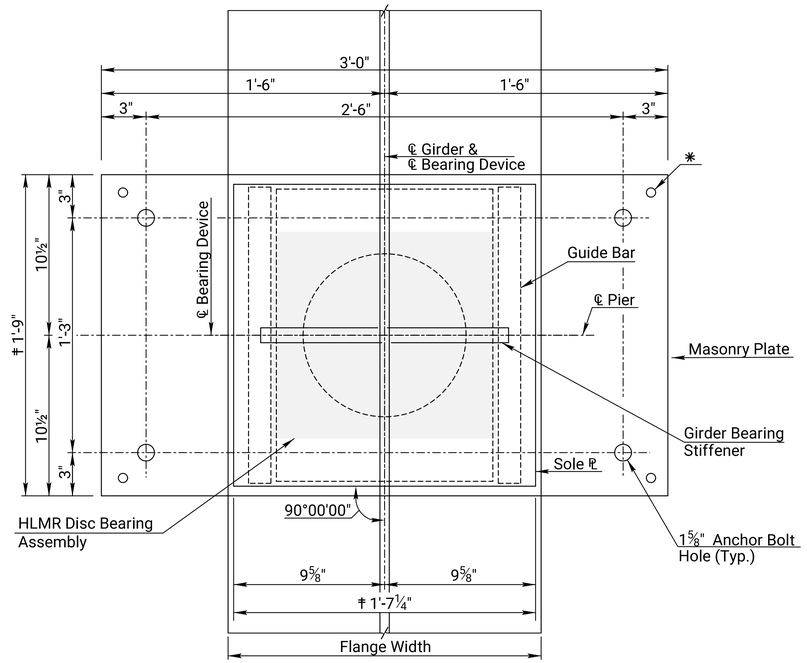
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES	SK,FG	CADD	DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK.	SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 86

KDOT Graphics Certified

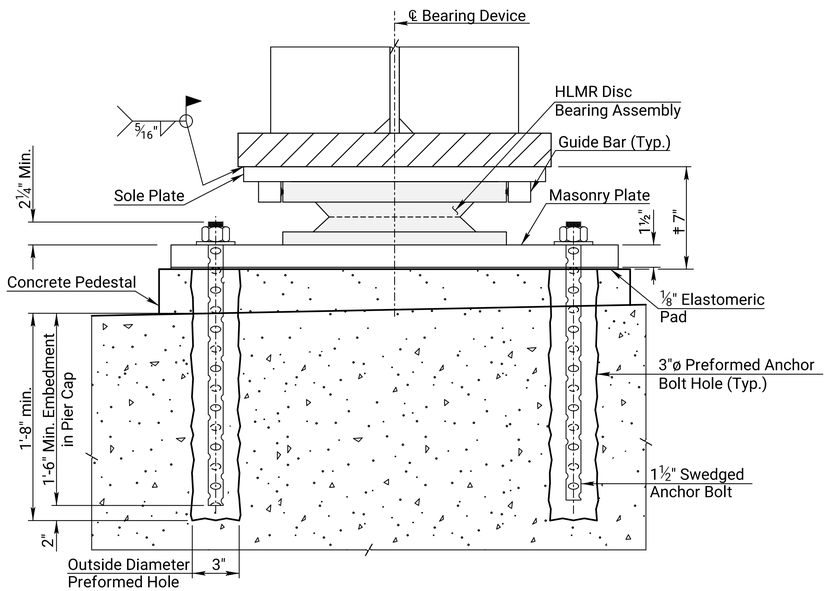
Plotted by : Bernhardt 18-AUG-2025 10:01
File : ka651701bbr-0390.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	87	366



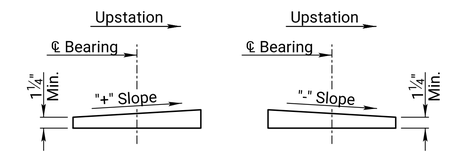
PLAN OF GUIDED DISC BEARING DEVICE
(Units #1 & #2 shown; Unit #3 similar)
(40 Required)

† See notes concerning bearing dimensions.



ELEVATION OF GUIDED DISC BEARING DEVICE

HLMR DISC BEARING DESIGN DATA									
UNITS Load: Kips Displacement: Inches Rotation: Radians		Location	Pier #2	Pier #3 (Back)	Pier #3 (Ahead)	Pier #6 (Back)	Pier #6 (Ahead)	Pier #7	Pier #9
		Quantity	5	5	5	5	5	5	5
Service Limit State (max.)	Vertical Load	Dead (DC)	220.43	73.5	45.6	57.31	36.56	140.17	139.85
		Dead (DW)	16.88	6.71	3.65	4.26	3	11.34	11.74
		Live	178.62	104.49	82.61	88.18	99.76	150.85	136.9
		Wind (WS)	10.23	5.12	3.67	4.26	3.15	7.42	7.50
		Wind (WL)	2.40	1.20	0.86	1.00	0.74	1.74	1.76
		Total	428.56	191.02	136.39	155.01	143.21	311.52	297.75
	Uplift Load		-	-	-	-	-	-	-
	Horizontal Load	Longitudinal	-	-	-	-	-	-	-
		Transverse	62.32	27.71	60.55	22.46	28.31	45.35	43.13
Strength Limit State (max. factored)	Vertical Load	Dead (DC)	275.54	91.88	57.00	71.64	45.70	175.21	174.81
		Dead (DW)	25.32	10.07	5.48	6.39	4.50	17.01	17.61
		Live	312.59	182.86	144.57	154.32	174.58	263.99	239.58
		Wind (WS)	10.23	5.12	3.67	4.26	3.15	7.42	7.50
		Wind (WL)	2.40	1.20	0.86	1.00	0.74	1.74	1.76
		Total	626.07	291.11	211.57	237.61	228.67	465.37	441.26
	Uplift Load		-	-	-	-	-	-	-
	Horizontal Load	Longitudinal	-	-	-	-	-	-	-
		Transverse	62.32	27.71	98.41	27.20	44.10	45.68	43.13
	Rotation	Live	0.005	0.005	0.003	0.004	0.003	0.003	0.003
		Fab. & Const.	-	-	-	-	-	-	-
		Tolerance	0.005	0.005	0.005	0.005	0.005	0.005	0.005
		Total	0.010	0.010	0.008	0.009	0.008	0.008	0.008
	Movement	Longitudinal	0.842	3.370	2.028	0.702	1.547	0.702	0.702
		Per 10°F	0.094	0.187	0.151	0.078	0.136	0.078	0.078
		Transverse	-	-	-	-	-	-	-



BEVELED SOLE PLATE (FT/FT)					
Location	Girder A	Girder B	Girder C	Girder D	Girder E
Pier 2	+0.0327	+0.0327	+0.0327	+0.0327	+0.0327
Pier 3 Bk.	+0.0300	+0.0300	+0.0300	+0.0300	+0.0300
Pier 3 Ah.	+0.0300	+0.0300	+0.0300	+0.0300	+0.0300
Pier 6 Bk.	0.0000	0.0000	0.0000	0.0000	0.0000
Pier 6 Ah.	0.0000	0.0000	0.0000	0.0000	0.0000
Pier 7	-0.0109	-0.0109	-0.0109	-0.0109	-0.0109
Pier 9	-0.0436	-0.0436	-0.0436	-0.0436	-0.0436

NOTES

Design, fabricate, and install the HLMR disc bearings meeting the requirements shown on the plans, KDOT specifications and in accordance with the current edition and interims of the AASHTO LRFD Bridge Design Specifications.

Submit for KDOT approval, design calculations and shop drawings of all HLMR Disc Bearing components and connections that bear the seal of a Professional Engineer licensed in the state of Kansas. Avoid significant changes to the superstructure and/or substructure components. Notify the Engineer of any revisions that are necessary to accommodate the installation of HLMR bearings. Obtain the Engineer's approval prior to fabrication.

Do not use weathering steel. Use AASHTO M270 Grade 50 for steel plates and guide bars. Provide materials for other parts of the HLMR disc bearings in accordance with KDOT Specification 1701.

See General Notes for painting bearings.

Use AASHTO M314 Grade 55 anchor bolts with ASTM A563 heavy hex nuts and ASTM F436 hardened washers. Swedge the anchor bolt meeting the requirements of KDOT Specification 1615. Provide anchor bolts, nuts and washers that have been hot-dip galvanized in accordance with ASTM F2329. The threads of the anchor bolts may be rolled or cut.

Preform 3 inch diameter holes using only corrugated polyethylene tubing (Type C) at the locations shown. When temperatures are expected to go below freezing, seal the preformed holes or fill them with a propylene glycol-based antifreeze to prevent expansion damage. The holes will be free of water, antifreeze or foreign materials at the time of grouting the anchor bolts. The polyethylene tubing may remain in -place. Trim the tubing flush with the top of concrete. This work shall be subsidiary to Concrete Grade 4.0 (AE).

If the fabricator submits a different bearing height than that shown, recalculate the bearing seat elevations as necessary. Bearing dimensions shown are approximations and shall be determined by the fabricator.

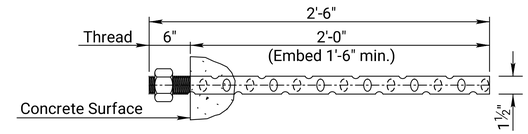
Adjust the sole plate locations accordingly for the actual temperature when girders are erected. Place the sole plates centered with the bearing base if the erection occurs at 60°F. For every 10°F rise above 60°F, offset the sole plates be the distance shown in the table (Per 10°F) away from the fixed pier in each unit. For every 10°F fall below 60°F, offset the sole plates by the distance shown in the table (Per 10°F) towards the fixed pier in each unit. In all cases, the sole plates shall be centered with the girder bearing stiffeners.

The steel temperature directly adjacent to the polyether urethane disc shall not exceed 225°F during filed welding. Do not expose the polyether urethane disc to direct flame or sparks.

Mark all bearings prior to shipping. The marking shall include the bearing location on the bridge and a direction arrow that points upstation. All marks shall be permanent and visible after installation.

✱Cut ¾" dia. threads at the corners of the masonry plate for lifiting eyes. Fill the holes with dummy bolts after bearing installation.

The bid item, "Bearing (Disc)" includes the ⅛" thick Elastomeric Pad, Sole ℙ, HLMR Disc Bearing, Masonry ℙ, Swedge Anchor bolts, nuts & washers, and all items for preformed holes.



SWEDGED ANCHOR BOLT
Galvanized (Grade 55)
(96 Req'd)(15.03 Lbs. each)
(Subsidiary to the "Bearing (Disc)" bid item.)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BEARING DETAILS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

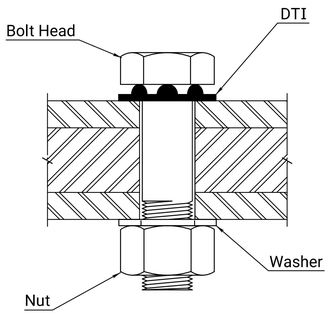
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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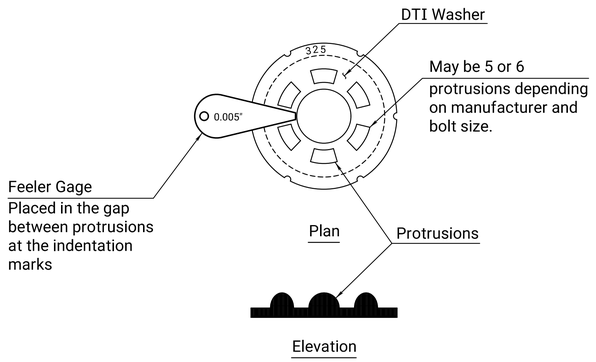
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:01
File : ka651701bbr-0395.dgn

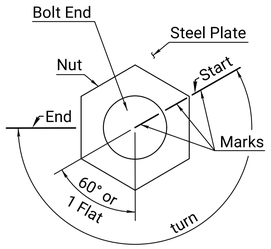
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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TYPICAL BOLT AND
DIRECT TENSION INDICATOR (DTI)

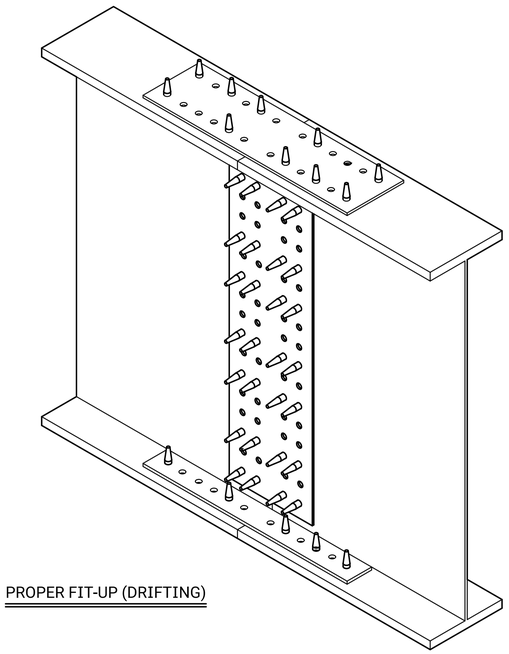


TYPICAL DIRECT TENSION INDICATOR (DTI)

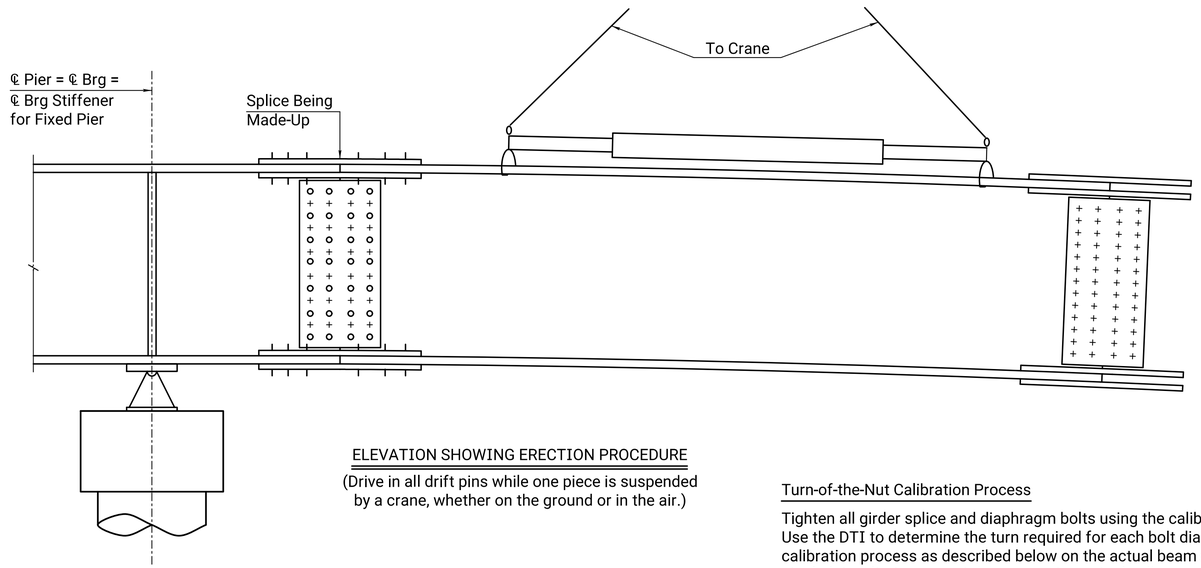


REQUIRED MARKING DETAIL

(shows calibrated turn = 3½ flats from snug tight condition.)
Example only, calibrated turn may be more or less than shown.



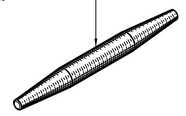
PROPER FIT-UP (DRIFTING)



ELEVATION SHOWING ERECTION PROCEDURE

(Drive in all drift pins while one piece is suspended by a crane, whether on the ground or in the air.)

Drift Pin Diameter = Hole Diameter
Hole ø = $^{15}/_{16}$" for girder splice.
Hole ø = $^{15}/_{16}$" for X-frame or diaphragm connection.



DRIFT PIN

Production Bolt Tightening

1. Install bolts and tighten to "snug tight" in a pattern, starting at the center of the splice and working toward the edge. On large girders this may have to be done twice, as the center bolts will become loose as plates are "Ironed out". This step is important because typically, any variation in results during production bolting is the result of a change in the materials, lubricant or equipment used to take the bolts to a "snug tight" condition during the calibration process.
2. Mark all of the bolts, nuts and the plate as shown in the marking detail. Mark the socket with a start and stop point. The stop point corresponds to the target rotation determined earlier.
3. Align the start mark on the socket with the line on the plate. While the bolt is being backed up, turn the nut until the stop mark on the socket lines up with the start mark on the plate.
4. Repeat with all bolts of the same length in the splice.

Acceptance and Rejection of Bolts

1. The Engineer will check all bolts with a feeler gage.
2. All nuts must be turned at least the target rotation beyond "snug tight".
3. All DTI's must have at least 3 refusals of the 0.005" gage.
4. If all gaps refuse the 0.005" gage, and the nut, plate and bolt are not marked, reject the bolt.
5. If all gaps refuse the 0.005" gage, and the turned element has not been rotated more than 45° beyond the calibrated turn, accept the bolt.
6. If all gaps refuse the 0.005" gage, and the turned element has been rotated more than 45° beyond the calibrated turn, reject the bolt.

For additional information see the structural steel section of the Bridge Construction Manual.

Suggested Impact wrench models:
CP 611
IR 2940
Cleco WS2110
ATP 1011/1040
Norbar PT1500

Fit Up

During the fit up, install drift pins in all corner bolt holes, plus 25 percent of the bolt holes (as a min.), evenly distributed throughout the splice. Fill at least 25 percent of the bolt holes with high strength bolts. Fully tighten these bolts by the calibrated turn-of-the-nut method before removing any drift pins or moving the members. These bolts may be either erection bolts or production bolts. Erection bolts are used during fit up, to compress the plies of the splice to achieve a snug condition. Erection bolts are the property of the Contractor and do not remain in the bridge permanently. Erection bolts must be A325, and can be reused. Erection bolts are required when the abutting plates are of different thickness and no fill plate is provided. This situation usually results in a slight bending of the splice plates. If erection bolts are not used, the DTI's may fully compress before the plates are in firm contact. This would be cause for rejecting the splice. Clearly mark the erection bolts so that they are not left in the splice.

Erection

Two independent crews will survey the bearing seat elevations. The Engineer will verify that the results of those surveys show that the bearing seat elevations are within ±¼ inch of the plan elevations before erection begins. Use the blocking diagram, as shown on the shop drawings, when erecting the beams/girders on the ground. Do not lift the assembled pieces into position until at least 25 percent of the holes are filled with fully tightened bolts. Locate the centerline of the bearing stiffener with the centerline of bearing device. Secure the beams/girders to the top of the pier cap prior to placement of the bearing device anchor bolts.

Turn-of-the-Nut Calibration Process

Tighten all girder splice and diaphragm bolts using the calibrated turn-of-the-nut method. Use the DTI to determine the turn required for each bolt diameter & length. Perform the calibration process as described below on the actual beam splice or using 3 plies of steel plate with the same thickness as the actual splice.

1. Bring at least 25 percent of the bolts in the splice to a "snug-tight-condition". "Snug tight condition" is defined as (with all plies in firm contact) "the full effort of a man on a spud wrench". Usually a smaller impact gun (½" drive) is used to snug the splice and a larger impact gun (1" drive) is used for final tightening. This is preferred over the use of a spud wrench. Production bolting and calibration must use the same tools and lubricating procedures. If an impact wrench is used to "iron the plates" and snug the bolts for calibration, then an impact wrench must be used during the snugging process during production bolting.
2. See "Required Marking Detail" (choose a bolt at the center of the splice and recheck snug on adjacent bolts).
   a. Mark the outside of the socket at one of the corners.
   b. Mark the bolt, plate, and nut at a corner with a start line.
   c. Align the mark on the socket with the start mark on the bolt end.
   d. While holding a backup wrench on the head of the bolt, turn the nut 1/2 turn (3 flats).
   e. Record the number of refusals.
   f. If all of the gaps refuse, go to another bolt and turn the nut 2 flats (1/3 turn).
   g. If there are fewer than 3 refusals turn the nut an additional 1/4 of a flat (15 degrees).
   h. Repeat step g., turning the nut 1/3 of a flat or less each time, until all of the gaps refuse the feeler gage. Record the amount required to cause all of the gaps to refuse the feeler gage. This is the target rotation.
3. Repeat this process for each bolt diameter and length.

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KANSAS DEPARTMENT OF TRANSPORTATION

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STEEL ERECTION, FIT-UP AND BOLTING PROCEDURE
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

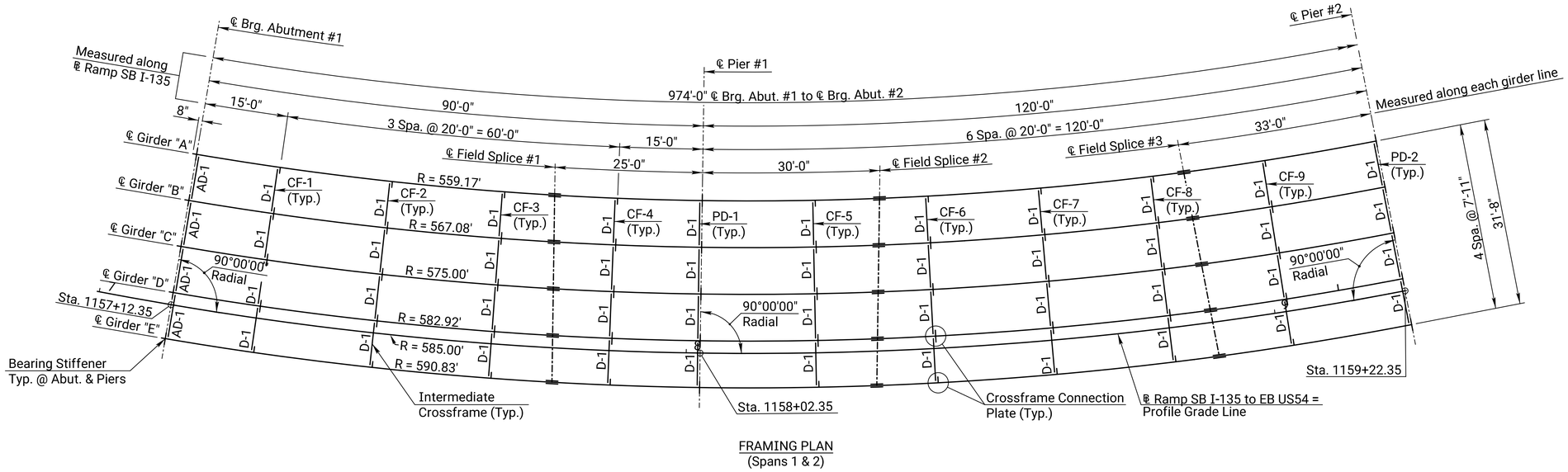
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DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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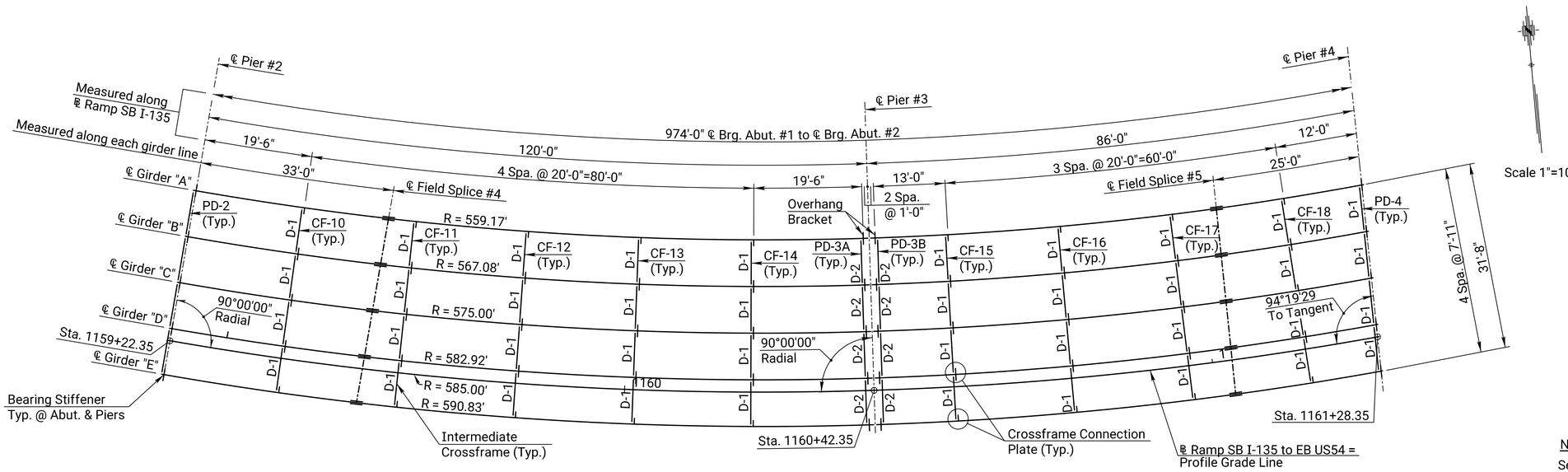
KDOT Graphics Certified

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File : ka651701bbr-0405.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	89	366



FRAMING PLAN
(Spans 1 & 2)



FRAMING PLAN
(Spans 3 & 4)

NOTES:

See Sh. # 55&56 for General Notes.
See Sh. # 91- 98 for Girder Details.
See Sh. # 101 for Field Splice Details.
See Sh. # 99&100 for Crossframe Details.

Notes:
All girder flange plates, flange splice plates, flange fill plates, crossframe connection bars, crossframe & diaphragm angles, gusset plates, bearing stiffeners, girder web plates, and web splice plates shall meet AASHTO M270 (Grade 50WT3) requirements. All other structural steel shall meet ASTM A709 (Grade 50W), unless noted otherwise.

Unless otherwise noted, all longitudinal dimensions are measured horizontally along ℄ Ramp 54W-96W. Correct length of girders as required for grade, vertical curvature and shrinkage caused by welding.

Place bearing stiffeners vertical and along skew to the girder web unless shown otherwise.

Place crossframe connection bars on the side of the web indicated on the Framing Plan, normal to the girder top flange and along skew to the web unless shown otherwise.

LEGEND

AD = Abutment Diaphragm Type & Location*
PD = Pier Diaphragm Location*
D = Cross Frame / Diaphragm Type*
CF = Cross Frame Location*
CW = Clockwise
CCW = Counterclockwise

* See "Crossframe Details" sheets for more information.
† Measured to Local Tangent

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KANSAS DEPARTMENT OF TRANSPORTATION

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FRAMING PLAN I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

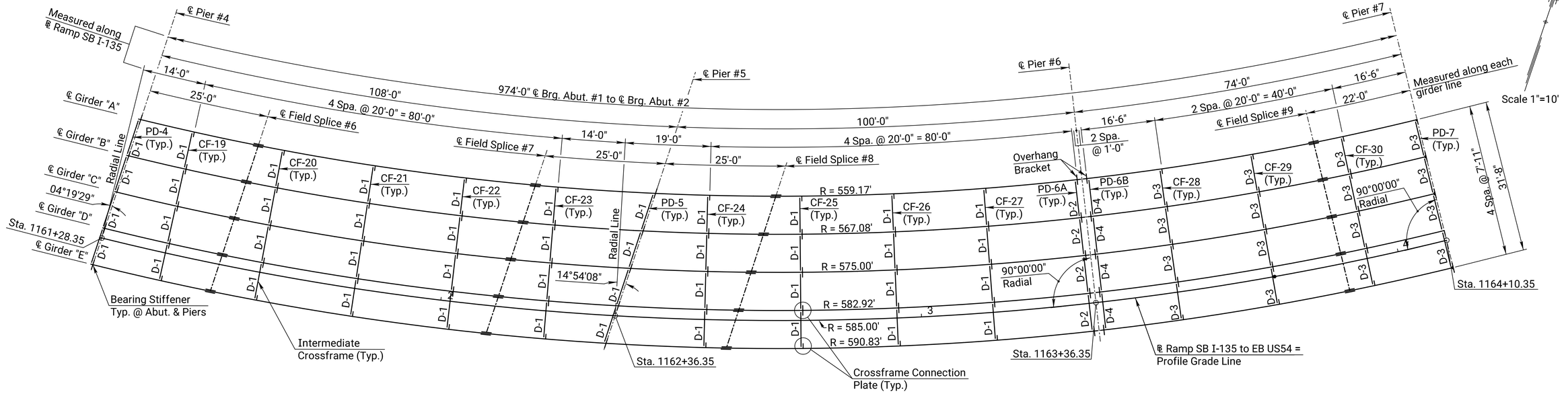
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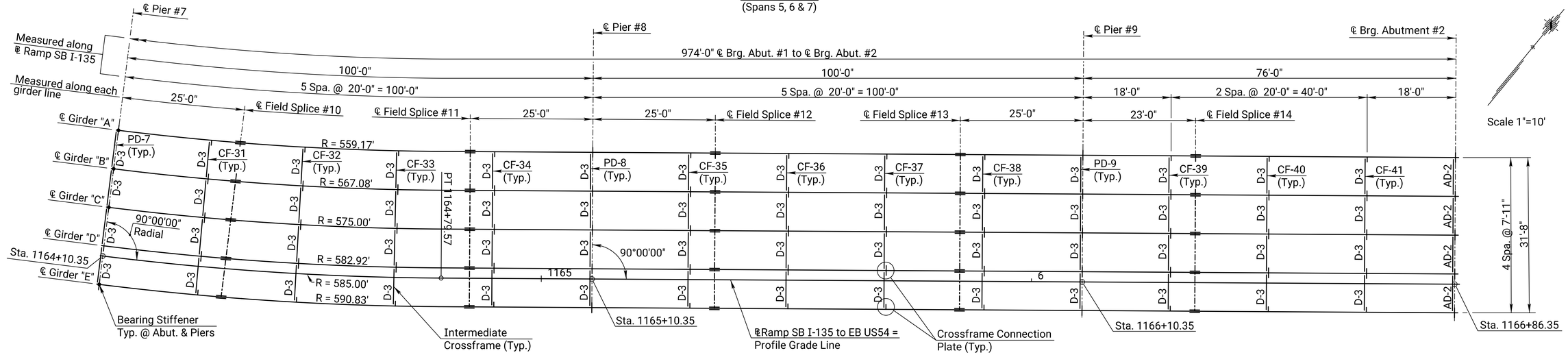
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Plotted by : Bernhardt 18-AUG-2025 10:02
File : ka651701bbr-0410.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	90	366



FRAMING PLAN
(Spans 5, 6 & 7)



FRAMING PLAN
(Spans 8, 9 & 10)

LEGEND

AD = Abutment Diaphragm Type & Location✱
PD = Pier Diaphragm Location✱
D = Cross Frame / Diaphragm Type✱
CF = Cross Frame Location✱

✱ See "Crossframe Details" sheets for more information.
‡ Measured to Local Tangent

NOTES:

See Sh. # 55&56 for General Notes.
See Sh. # 91 -98 for Girder Details.
See Sh. # 101for Field Splice Details.
See Sh. # 99- 100for Crossframe Details.

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FRAMING PLAN II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

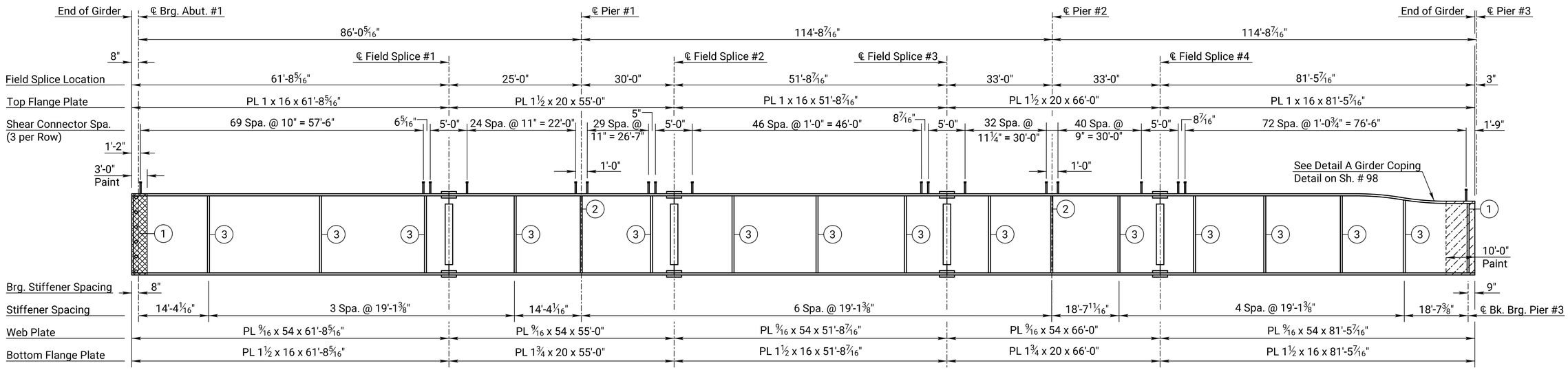
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DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 90

KDOT Graphics Certified

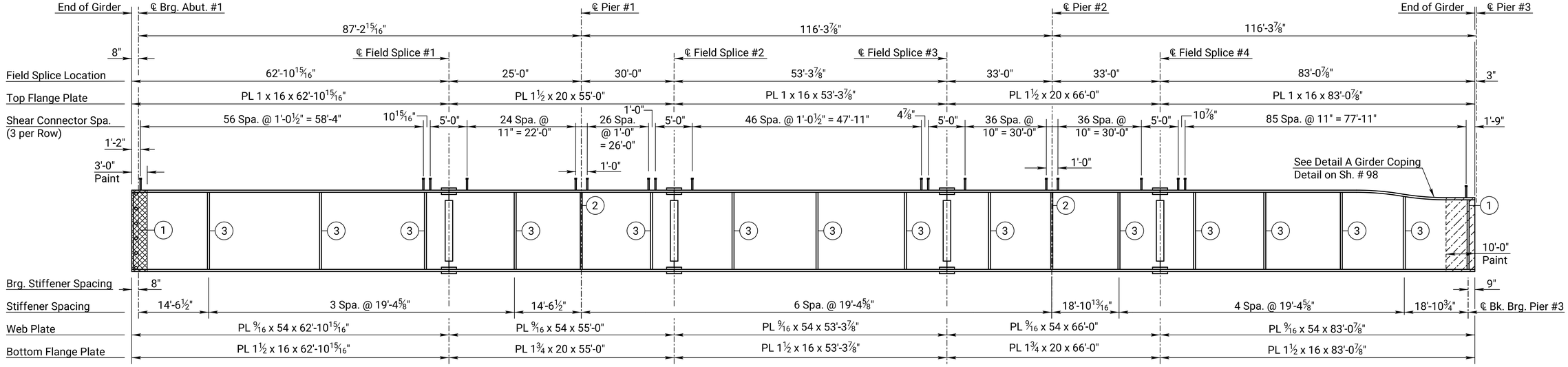
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File : ka651701bbr-0411.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	91	366



GIRDER ELEVATION - UNIT 1 (GIRDER A)

(Not to Scale)
(Dimensions measured along ℄ Girder)



GIRDER ELEVATION - UNIT 1 (GIRDER B)

(Not to Scale)
(Dimensions measured along ℄ Girder)

SUMMARY OF STIFFENERS FOR GIRDERS A & B				
Description	Size	No Req'd. Girder A	No Req'd. Girder B	A.S.T.M. Designation
Abutment #1 Bearing Stiffeners	3/4" x 7 1/2" x 4'-6"	2	2	M270 Gr. 50WT3
Pier #3 Bearing Stiffeners	3/4" x 7 1/2" x 4'-0"	2	2	M270 Gr. 50WT3
Pier #1 & Pier #2 Bearing Stiffeners	7/8" x 9 1/2" x 4'-6"	4	4	M270 Gr. 50WT3
Crossframe Connection Bar	3/4" x 7 1/2" x 4'-6"	14	28	M270 Gr. 50WT3

Note: For Detail showing Shear Connector Detail, See "Girder Elevation Details VIII"

LEGEND

1. Abutment & Pier #3 Bearing Stiffener (NS & FS)
2. Pier Bearing Stiffener (NS & FS)
3. Crossframe Connection Bar (NS Girder A) (NS & FS Girder B thru D) (FS Girder E)

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GIRDER ELEVATION DETAILS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

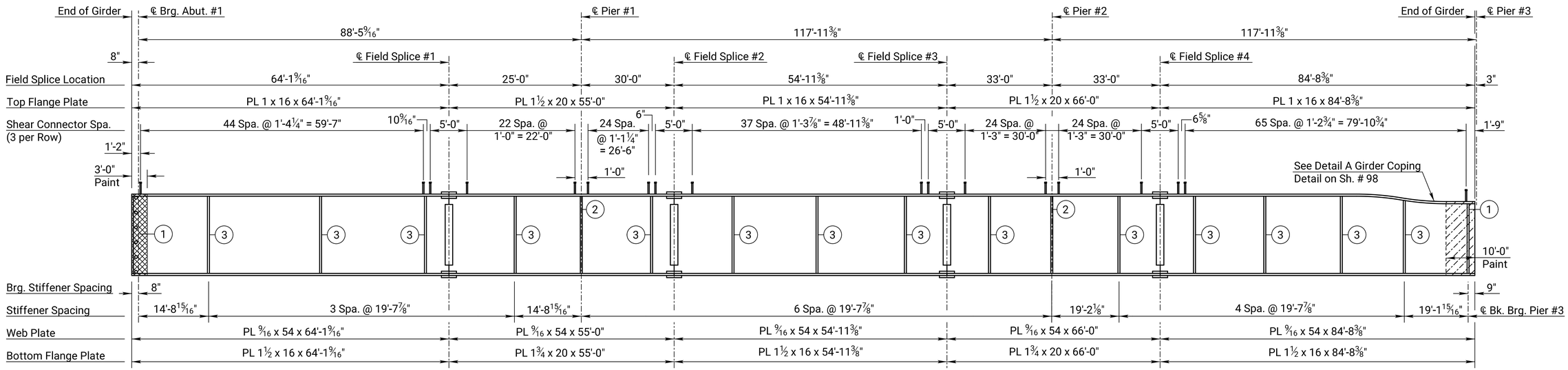
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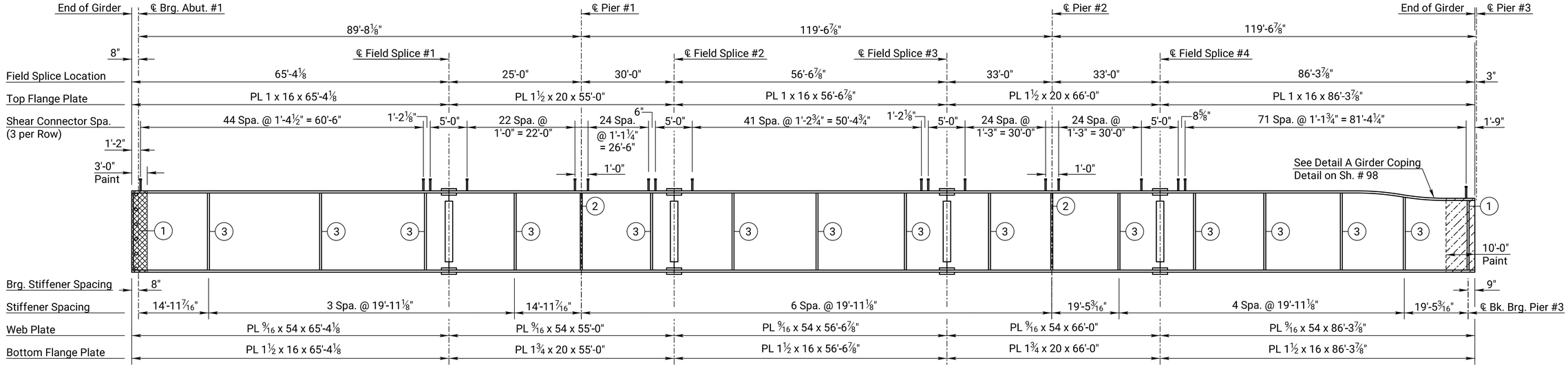
KDOT Graphics Certified

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File : ka651701bbr-0435.dgn

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GIRDER ELEVATION - UNIT 1 (GIRDER C)
(Not to Scale)
(Dimensions measured along ℄ Girder)



GIRDER ELEVATION - UNIT 1 (GIRDER D)
(Not to Scale)
(Dimensions measured along ℄ Girder)

SUMMARY OF STIFFENERS FOR GIRDERS C & D				
Description	Size	No Req'd. Girder C	No Req'd. Girder D	A.S.T.M. Designation
Abutment #1 Bearing Stiffeners	3/4" x 7 1/2" x 4'-6"	2	2	M270 Gr. 50WT3
Pier #3 Bearing Stiffeners	3/4" x 7 1/2" x 4'-0"	2	2	M270 Gr. 50WT3
Pier #1 & Pier #2 Bearing Stiffeners	7/8" x 9 1/2" x 4'-6"	4	4	M270 Gr. 50WT3
Crossframe Connection Bar	3/4" x 7 1/2" x 4'-6"	28	28	M270 Gr. 50WT3

Note: For Detail showing Shear Connector Detail, See "Girder Elevation Details VIII"

LEGEND

1. Abutment & Pier #3 Bearing Stiffener (NS & FS)
2. Pier Bearing Stiffener (NS & FS)
3. Crossframe Connection Bar (NS Girder A) (NS & FS Girder B thru D) (FS Girder E)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

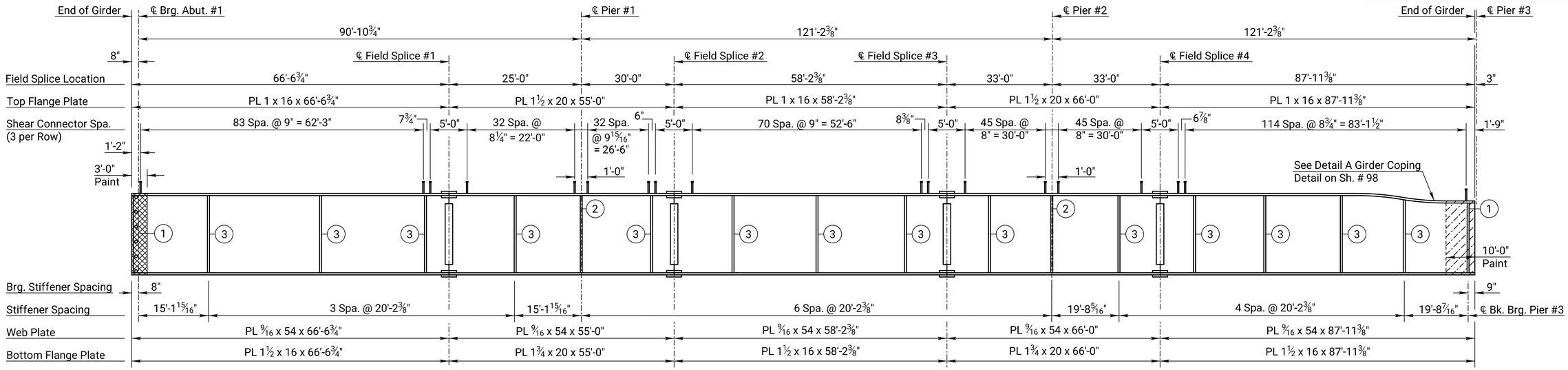
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 92

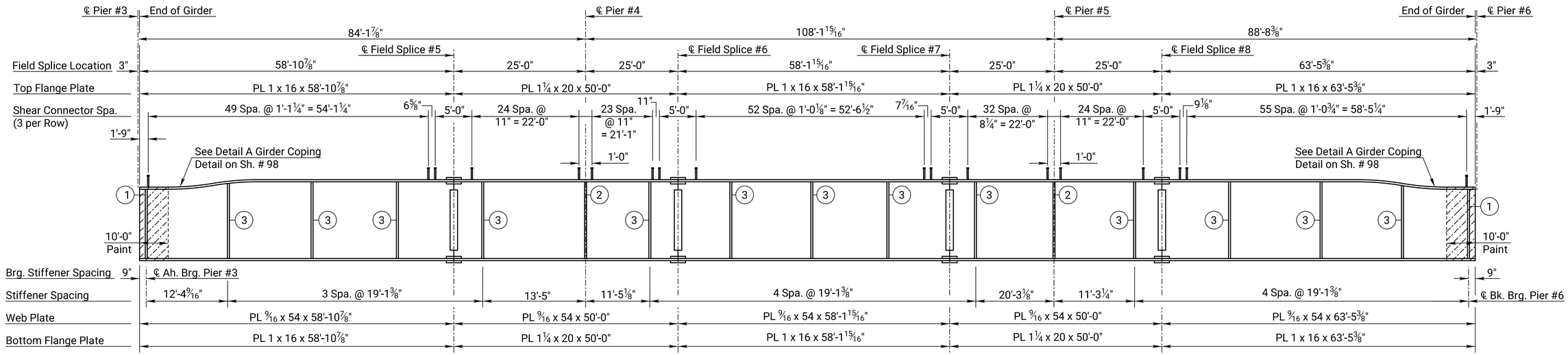
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:02
File : ka6517101bbr-0436.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	93	366



GIRDER ELEVATION - UNIT 1 (GIRDER E)
(Not to Scale)
(Dimensions measured along ℄ Girder)



GIRDER ELEVATION - UNIT 2 (GIRDER A)
(Not to Scale)
(Dimensions measured along ℄ Girder)

Note: For Detail showing Shear Connector Detail, See "Girder Details VIII"

SUMMARY OF STIFFENERS FOR GIRDER E (UNIT 1) & GIRDER A (UNIT 2)				
Description	Size	No Req'd. Girder E (Unit 1)	No Req'd. Girder A (Unit 2)	A.S.T.M. Designation
Abutment #1 Bearing Stiffeners	¾" x 7½" x 4'-6"	2	-	M270 Gr. 50WT3
Pier #3 & #6 Bearing Stiffeners	¾" x 7½" x 4'-0"	2	4	M270 Gr. 50WT3
Pier #1, #2, #4 & #5 Bearing Stiffeners	⅞" x 9½" x 4'-6"	4	4	M270 Gr. 50WT3
Crossframe Connection Bar	¾" x 7½" x 4'-6"	14	13	M270 Gr. 50WT3

LEGEND

(1) Abutment & Pier #3 & Pier #6 Bearing Stiffener (NS & FS)

(2) Pier #1, #2, #4 & #5 Bearing Stiffener (NS & FS)

(3) Crossframe Connection Bar
(NS Girder A)
(NS & FS Girder B thru D)
(FS Girder E)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

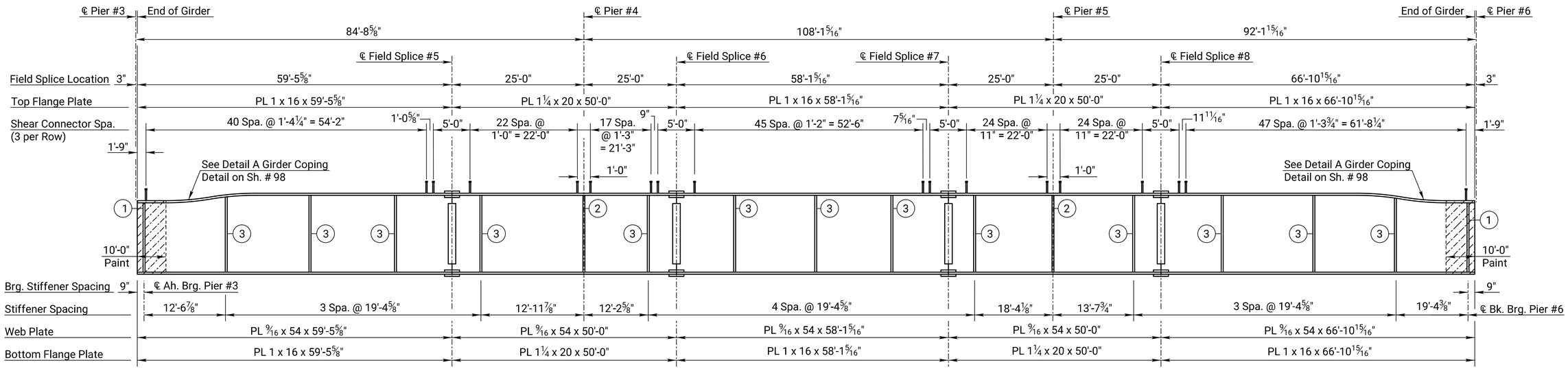
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 93

KDOT Graphics Certified

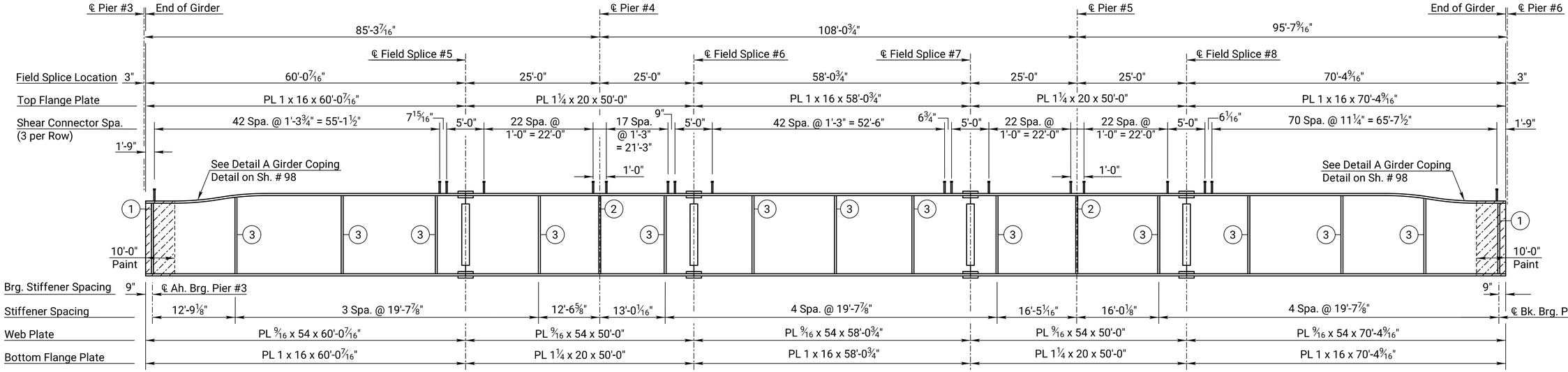
Plotted by : Bernhardt 18-AUG-2025 10:03
File : ka651701bbr-0437.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	94	366



GIRDER ELEVATION - UNIT 2 (GIRDER B)

(Not to Scale)
(Dimensions measured along ℄ Girder)



GIRDER ELEVATION - UNIT 2 (GIRDER C)

(Not to Scale)
(Dimensions measured along ℄ Girder)

SUMMARY OF STIFFENERS FOR GIRDERS B & C				
Description	Size	No Req'd. Girder B	No Req'd. Girder C	A.S.T.M. Designation
Pier #3 and Pier #6	¾" x 7½" x 4'-0"	4	4	M270 Gr. 50WT3
Pier #4 and Pier #5	⅞" x 9½" x 4'-6"	4	4	M270 Gr. 50WT3
Crossframe Connection Bar	¾" x 7½" x 4'-6"	26	26	M270 Gr. 50WT3

Note: For Detail showing Shear Connector Detail, See "Girder Elevation Details VIII"

LEGEND

(1) Pier #3 and Pier #6 Bearing Stiffener (NS & FS)

(2) Pier #4 and Pier #5 Bearing Stiffener (NS & FS)

(3) Crossframe Connection Bar
(NS Girder A)
(NS & FS Girder B thru D)
(FS Girder E)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS IV
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

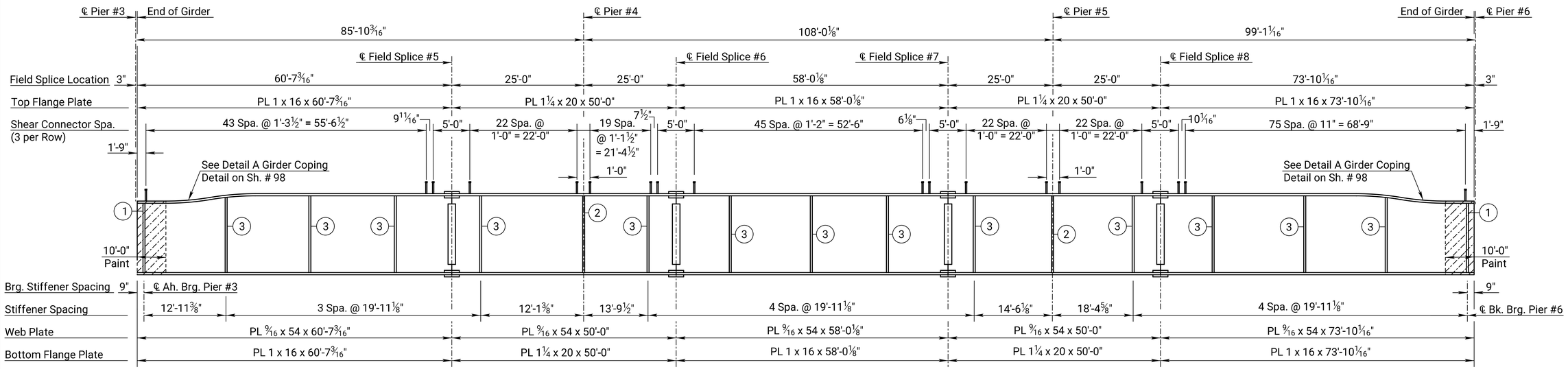
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KDOT Graphics Certified 07-15-2025 Sh. No. 94

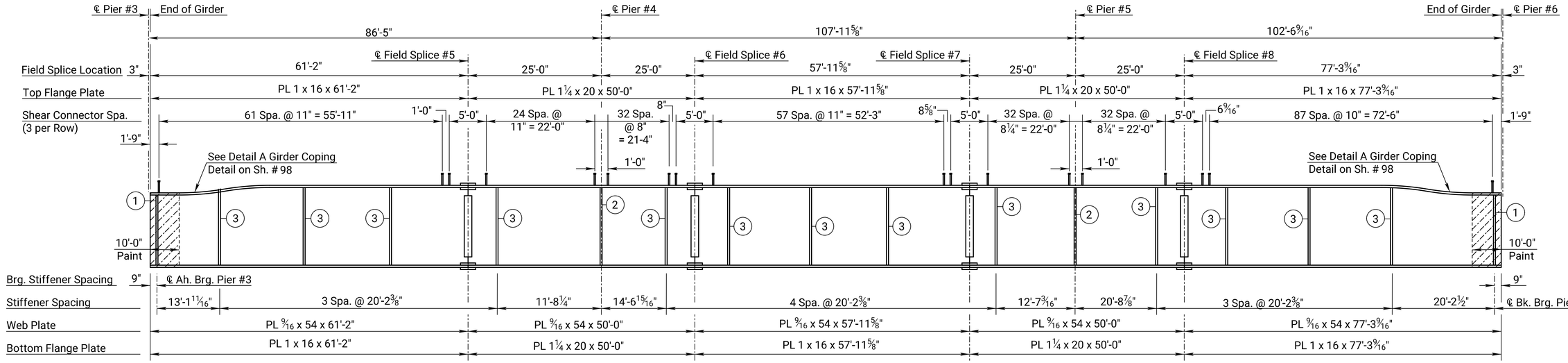
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:03
File : ka6517101bbr-0438.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	95	366



GIRDER ELEVATION - UNIT 2 (GIRDER D)
(Not to Scale)
(Dimensions measured along ℄ Girder)



SUMMARY OF STIFFENERS FOR GIRDERS D & E				
Description	Size	No Req'd. Girder D	No Req'd. Girder E	A.S.T.M. Designation
Pier #3 and Pier #6	3/4" x 7 1/2" x 4'-0"	4	4	M270 Gr. 50WT3
Pier #4 and Pier #5	7/8" x 9 1/2" x 4'-6"	4	4	M270 Gr. 50WT3
Crossframe Connection Bar	3/4" x 7 1/2" x 4'-6"	26	13	M270 Gr. 50WT3

GIRDER ELEVATION - UNIT 2 (GIRDER E)
(Not to Scale)
(Dimensions measured along ℄ Girder)

Note: For Detail showing Shear Connector Detail, See "Girder Elevation Details VIII"

LEGEND

1. Pier #3 and Pier #6 Bearing Stiffener (NS & FS)
2. Pier Bearing Stiffener (NS & FS)
3. Crossframe Connection Bar (NS Girder A) (NS & FS Girder B thru D) (FS Girder E)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS V
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

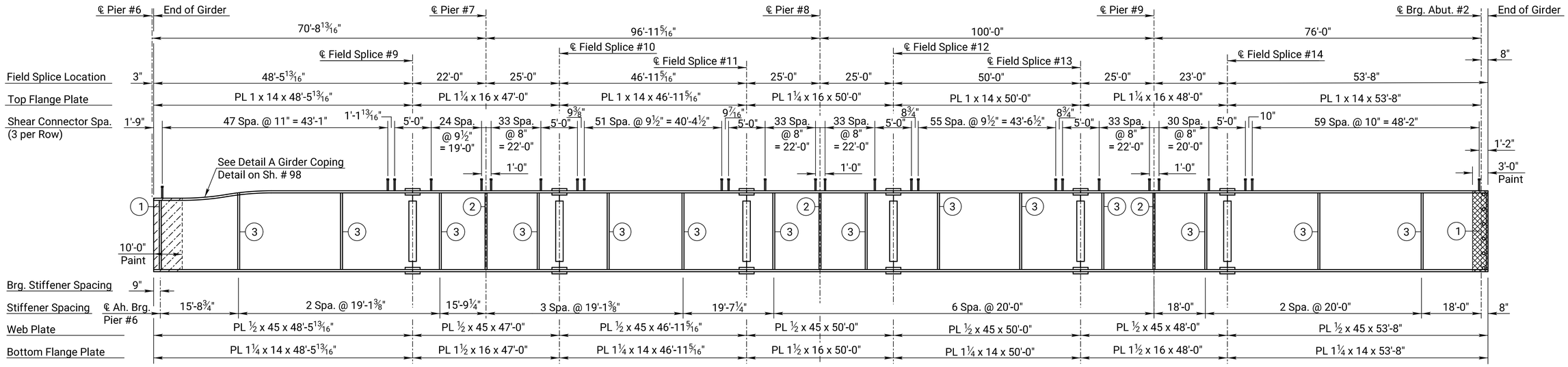
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KDOT Graphics Certified 07-15-2025 Sh. No. 95

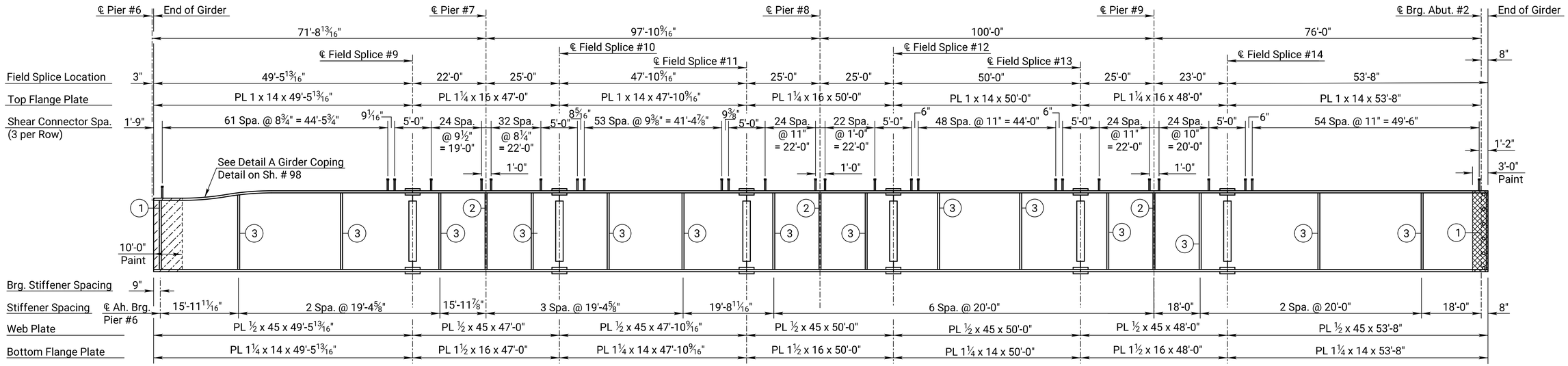
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:03
File : ka651701bbr-0439.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	96	366



GIRDER ELEVATION - UNIT 3 (GIRDER A)
(Not to Scale)
(Dimensions measured along ℄ Girder)



GIRDER ELEVATION - UNIT 3 (GIRDER B)
(Not to Scale)
(Dimensions measured along ℄ Girder)

SUMMARY OF STIFFENERS FOR GIRDERS A & B				
Description	Size	No Req'd. Girder A	No Req'd. Girder B	A.S.T.M. Designation
Pier #6 Bearing Stiffeners	3/4 x 7 1/2 x 3'-3"	2	2	M270 Gr. 50WT3
Abutment #2 Bearing Stiffeners	3/4 x 7 1/2 x 3'-9"	2	2	M270 Gr. 50WT3
Pier #7, #8, & #9 Bearing Stiffeners	7/8 x 9 1/2 x 3'-9"	3	6	M270 Gr. 50WT3
Crossframe Connection Bar	3/4 x 7 1/2 x 3'-9"	14	28	M270 Gr. 50WT3

Note: For Detail showing Shear Connector Detail, See "Girder Elevation Details VIII"

LEGEND

(1) Pier #6 & Abutment #2 Bearing Stiffener
(NS Girder A)
(NS & FS Girder B)

(2) Pier #7, #8 & #9 Bearing Stiffeners
(NS Girder A)
(NS & FS Girder B)

(3) Crossframe Connection Bar
(NS Girder A)
(NS & FS Girder B)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS VI
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

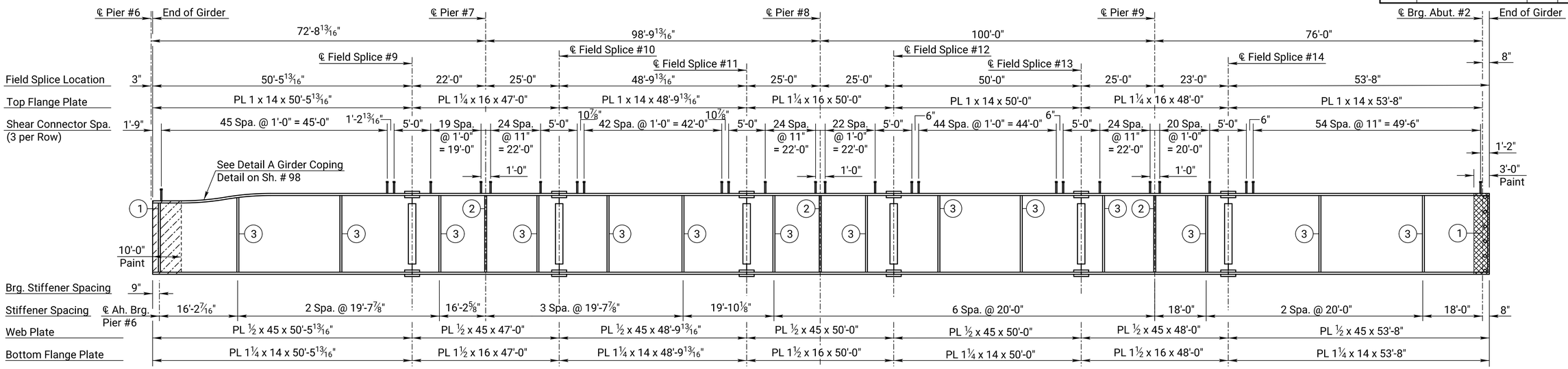
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KDOT Graphics Certified 07-15-2025 Sh. No. 96

KDOT Graphics Certified

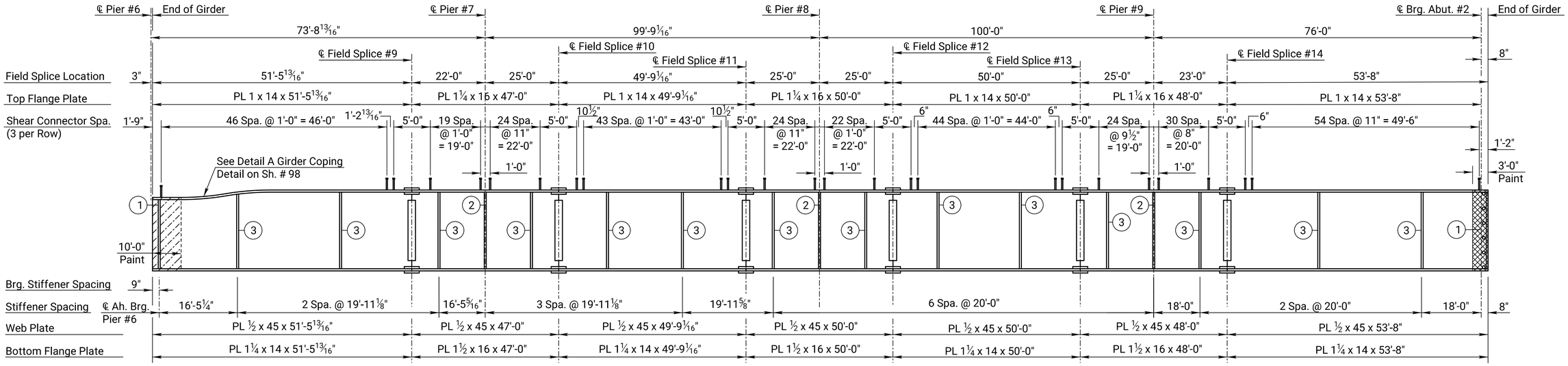
Plotted by : Bernhardt 18-AUG-2025 10:03
File : ka651701bbr-0440.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	97	366



GIRDER ELEVATION - UNIT 3 (GIRDER C)

(Not to Scale)
(Dimensions measured along ℄ Girder)



GIRDER ELEVATION - UNIT 3 (GIRDER D)

(Not to Scale)
(Dimensions measured along ℄ Girder)

SUMMARY OF STIFFENERS FOR GIRDERS C & D				
Description	Size	No Req'd. Girder C	No Req'd. Girder D	A.S.T.M. Designation
Pier #6 Bearing Stiffeners	3/4 x 7 1/2 x 3'-3"	4	4	M270 Gr. 50WT3
Abutment #2 Bearing Stiffeners	3/4 x 7 1/2 x 3'-9"	4	4	M270 Gr. 50WT3
Pier #7, #8, & #9 Bearing Stiffeners	7/8 x 9 1/2 x 3'-9"	6	6	M270 Gr. 50WT3
Crossframe Connection Bar	3/4 x 7 1/2 x 3'-9"	28	28	M270 Gr. 50WT3

Note: For Detail showing Shear Connector Detail, See "Girder Elevation Details VIII"

LEGEND

(1) Pier #6 & Abutment #2 Bearing Stiffener
(NS Girder A)
(NS & FS Girder B)

(2) Pier #7, #8 & #9 Bearing Stiffeners
(NS Girder A)
(NS & FS Girder B)

(3) Crossframe Connection Bar
(NS Girder A)
(NS & FS Girder B)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS VII
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

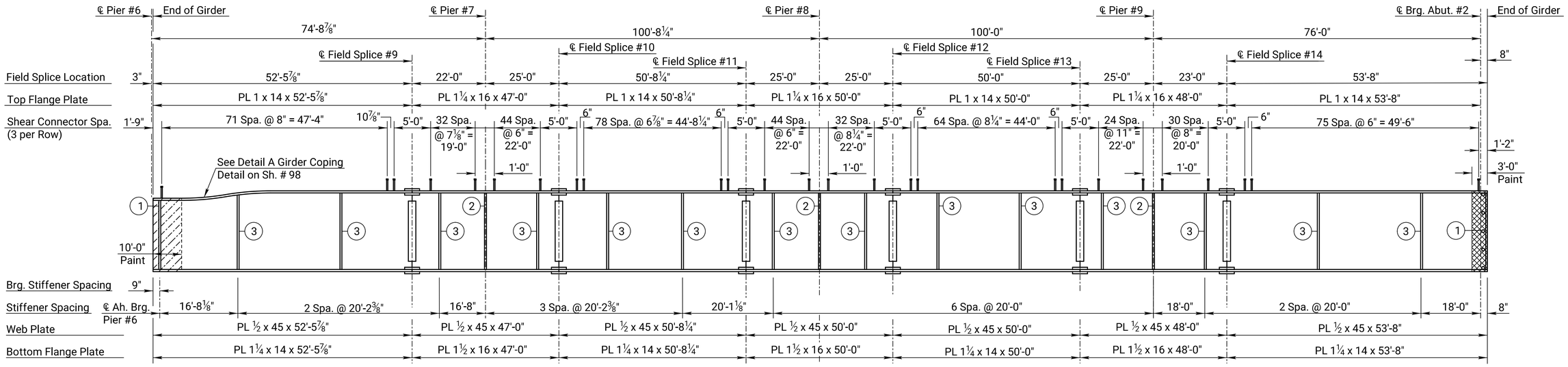
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KDOT Graphics Certified 07-15-2025 Sh. No. 97

KDOT Graphics Certified

Plotted by: Bernhardt 18-AUG-2025 10:03
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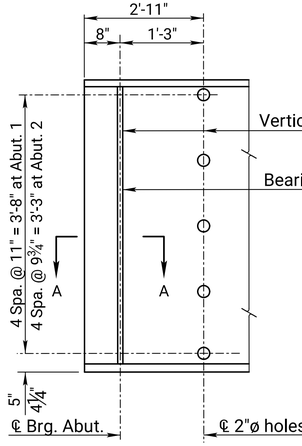
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	98	366



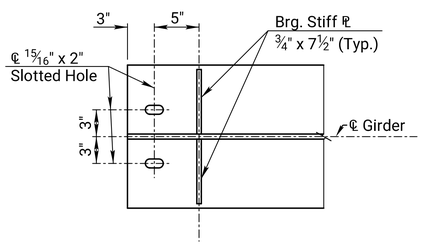
GIRDER ELEVATION - UNIT 3 (GIRDER E)

(Not to Scale)

(Dimensions measured along ℄ Girder)

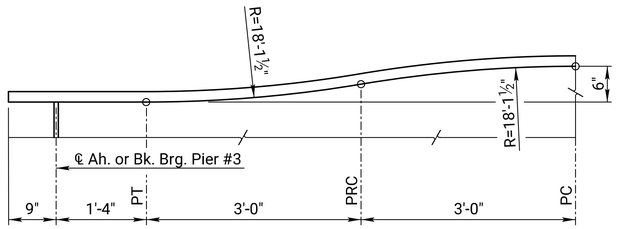


GIRDER END DETAIL AT ABUTMENTS



SECTION A-A

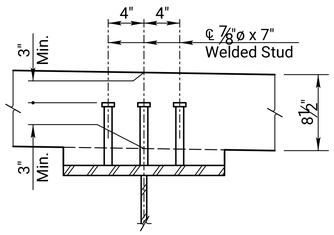
(Interior Girder shown; Exterior Girder similar)



DETAIL A - GIRDER COPING DETAIL

(Girders A thru E)

(Shown for Pier #3, Pier #6 similar)



SHEAR CONNECTOR DETAIL

SUMMARY OF STIFFENERS FOR GIRDER E			
Description	Size	No Req'd. Girder E	A.S.T.M. Designation
Pier #6 Bearing Stiffeners	¾ x 7½ x 3'-3"	4	M270 Gr. 50WT3
Abutment #2 Bearing Stiffeners	¾ x 7½ x 3'-9"	4	M270 Gr. 50WT3
Pier #7, #8, & #9 Bearing Stiffeners	⅞ x 9½ x 3'-9"	6	M270 Gr. 50WT3
Crossframe Connection Bar	¾ x 7½ x 3'-9"	14	M270 Gr. 50WT3

STRUCTURAL STEEL QUANTITIES (LBS.)		
MEMBER	A709 (Gr. 50W)	M270 (Gr. 50W T3)
Girder Web Plates	-	450,133
Girder Flange Plates	-	677,505
Bearing Stiffeners	-	12,591
Crossframe Connection Bars	-	26,504
Web Splice Plates	-	8,226
Flange Splice Plates	-	25,281
Intermediate Crossframes	-	95,606
Pier Crossframes	-	32,099
Abutment Diaphragm	-	1,990
Abutment Girder Supports ǂ	1,139	-
Flange Fill Plates	-	2,484
Totals	1,139	1,332,419

ǂ The Abutment Girder Supports shall be ASTM A709 Grade 36 or ASTM A36, but shall be paid for as "Structural Steel A709 (Gr. 50W)".

LEGEND

1. Pier #6 & Abutment #2 Bearing Stiiffener (NS Girder A) (NS & FS Girder B)
2. Pier #7, #8 & #9 Bearing Stiffeners (NS Girder A) (NS & FS Girder B)
3. Crossframe Connection Bar (NS Girder A) (NS & FS Girder B)

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

GIRDER ELEVATION DETAILS VIII
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

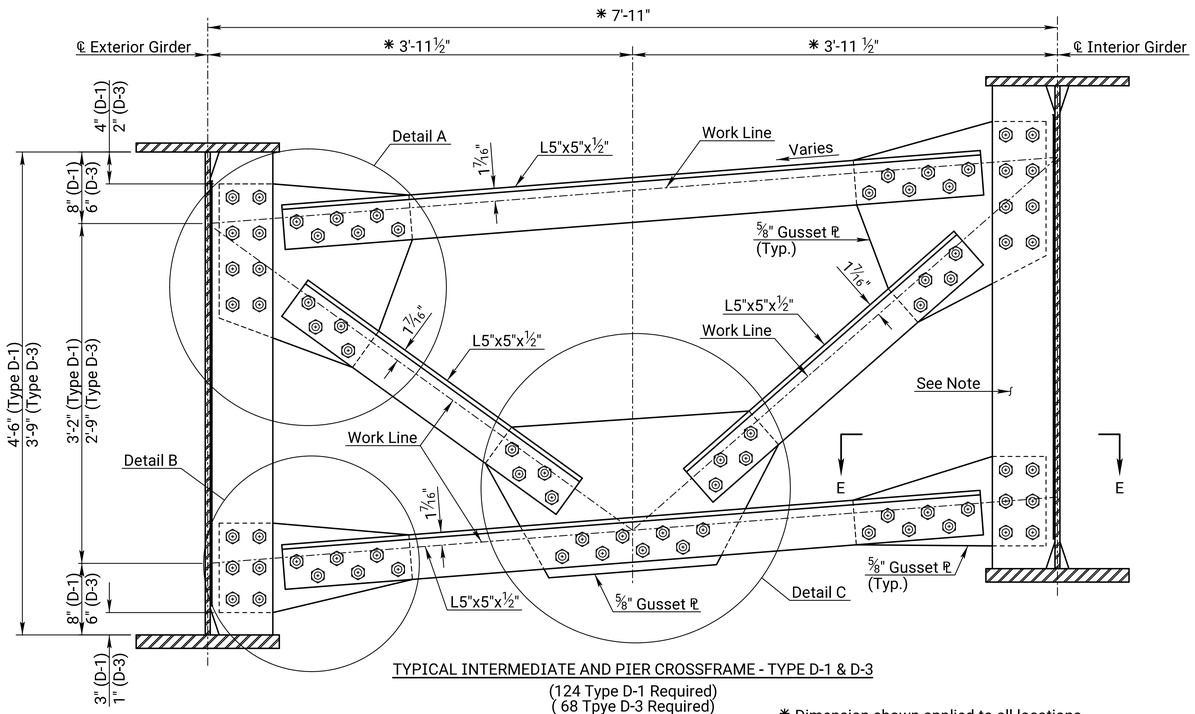
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KDOT Graphics Certified 07-15-2025 Sh. No. 98

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:04
File : ka651701bbr-0442.dgn

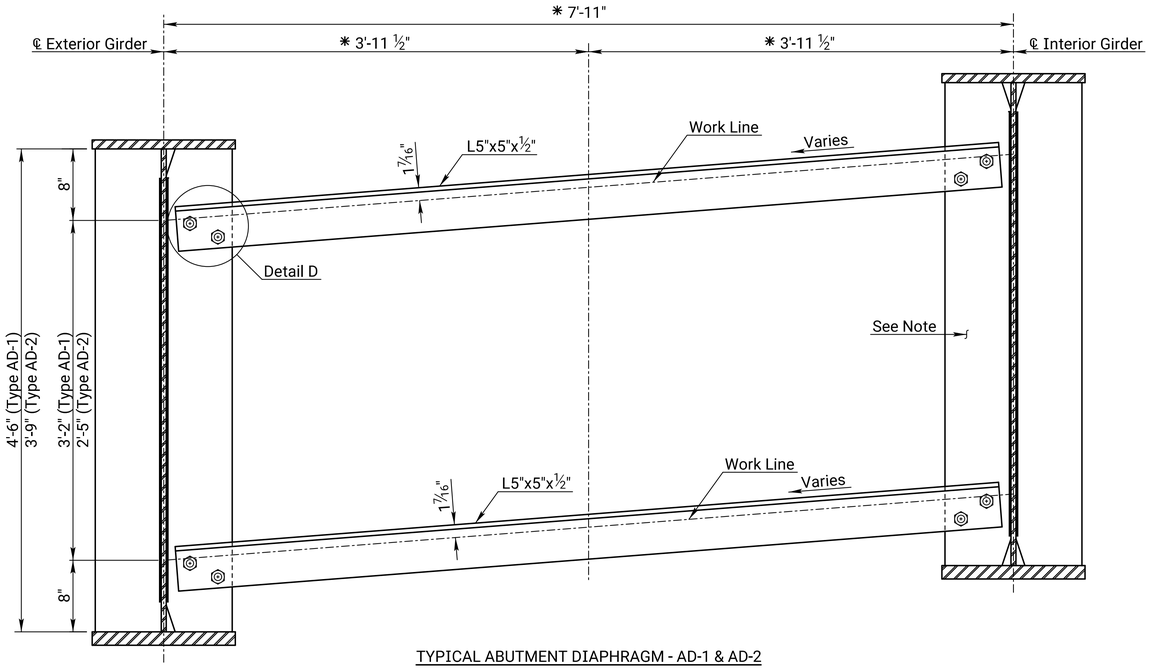
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	99	366



TYPICAL INTERMEDIATE AND PIER CROSSFRAME - TYPE D-1 & D-3

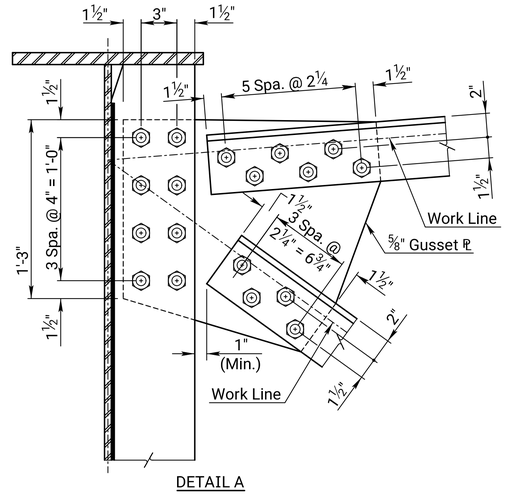
(124 Type D-1 Required)
(68 Tpye D-3 Required)

* Dimension shown applied to all locations not listed in Table A shown on this sheet.

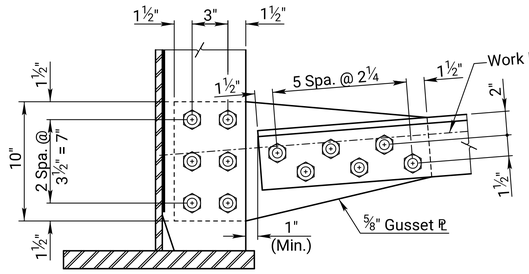


TYPICAL ABUTMENT DIAPHRAGM - AD-1 & AD-2

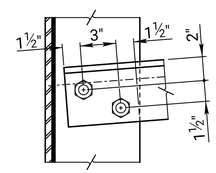
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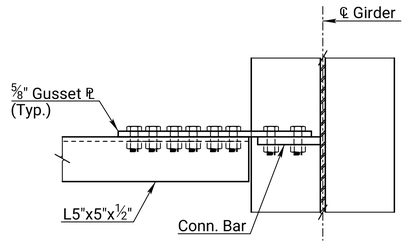
DETAIL A



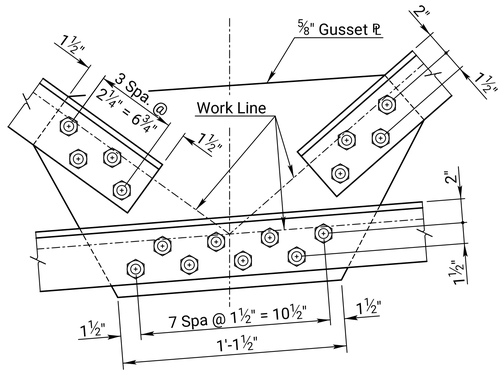
DETAIL B



DETAIL D



SECTION E-E



DETAIL C

Location		TABLE A - CROSSFRAME LENGTH			
		Girder A-B	Girder B-C	Girder C-D	Girder D-E
Pier #4	PD-4	7'-11 5/16"	7'-11 5/16"	7'-11¼"	7'-11¼"
Pier #5	PD-5	8'-2 9/16"	8'-2½"	8'-2 3/8"	8'-2 5/16"

NOTES:

Crossframes shall be detailed, fabricated and installed so that girder webs are vertical under full steel dead load prior to deck placement.

Structural steel for crossframes, diaphragms, and gusset plates shall conform to the requirements of M270 (Grade 50W T3).

All bolts shall be ⅞" ø high strength steel bolts, ASTM F3125 (Grade A325) (Type 3) and shall be installed in 15/16"ø Std. Bolt Holes.

For crossframe connection bar and bearing stiffeners details not shown, see Sh. #100

For Structural Steel Notes, see Sh. # 89 .

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

CROSSFRAME DETAILS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

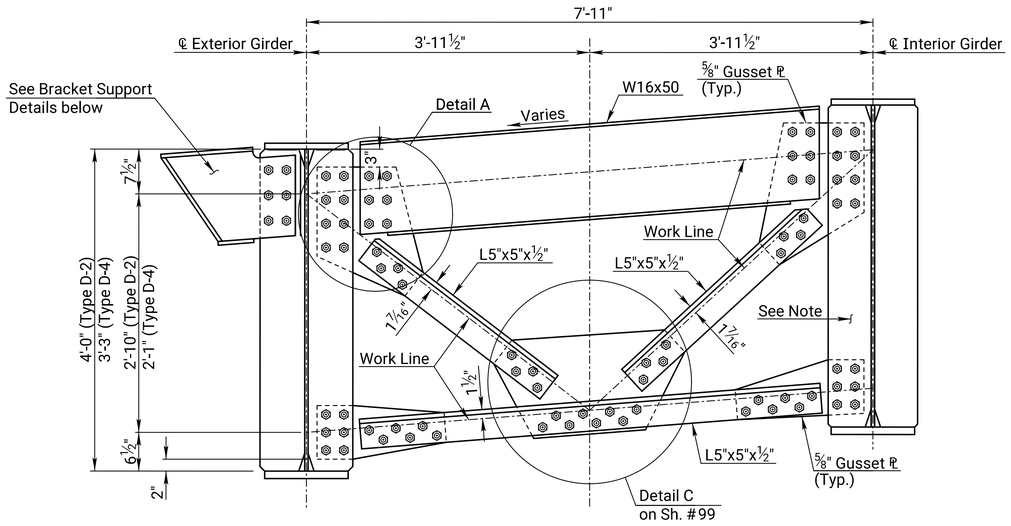
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DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 99

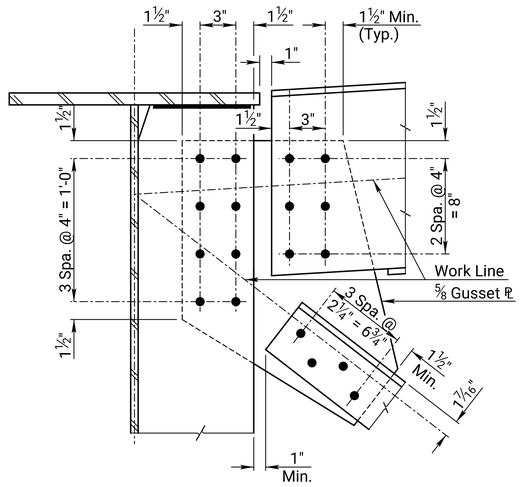
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:04
File : ka651701bbr-0450.dgn

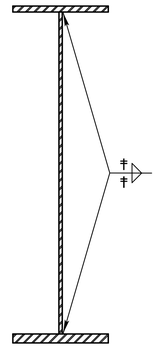
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	100	366



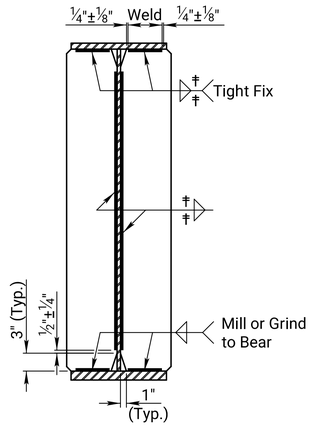
PIER CROSSFRAME - TYPE D-2 & D-4
(12 Type D-2 Required)
(4 Type D-4 Required)



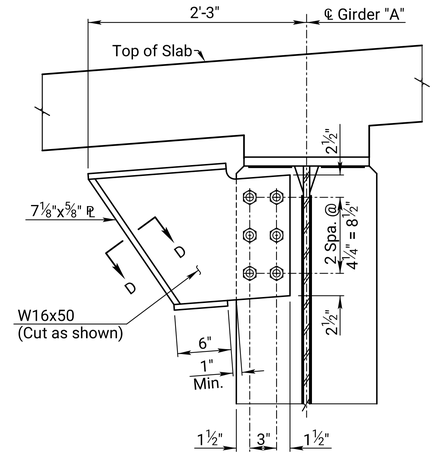
DETAIL A
(Cantilever member not shown for clarity)



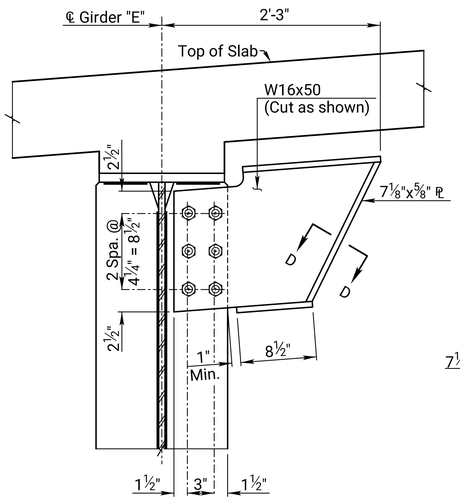
TYPICAL GIRDER SECTION



BEARING STIFFENER
Piers & Abutments

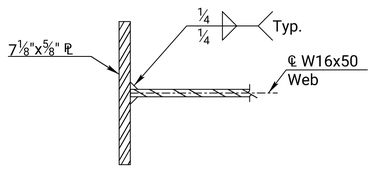


SUPPORT BRACKET - NORTH

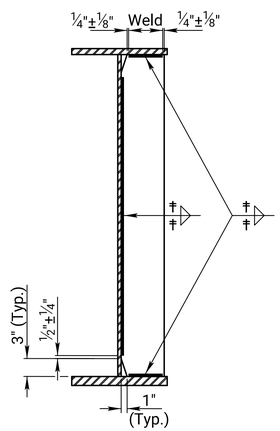


SUPPORT BRACKET - SOUTH

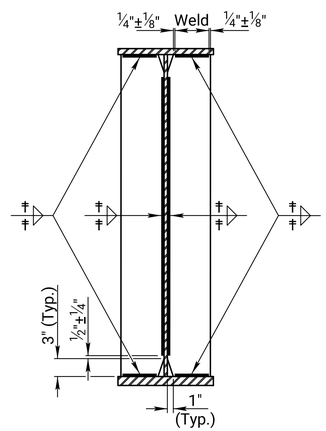
SUPPORT BRACKET DETAILS
(2 Required)



SECTION D-D



CROSSFRAME CONNECTION BAR
Exterior Girders



CROSSFRAME CONNECTION BAR
Interior Girders

NOTE:

For notes, see "Crossframe Details I" Sh. #99 .

GIRDER WELD TABLE Flanges to webs, stiffeners and crossframe connection plates to webs and flanges	
Thickness of thickest part joined	†Min. fillet weld size
¾ in. or less	¼"
over ¾ in.	⅝"
† Weld size need not exceed the thickness of the thinner part joined	

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KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

CROSSFRAME DETAILS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

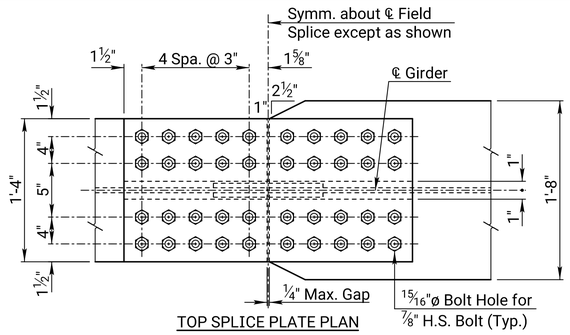
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DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 100

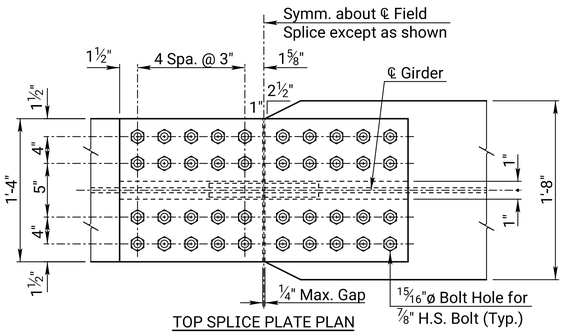
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:04
File : ka651701bbr-0465.dgn

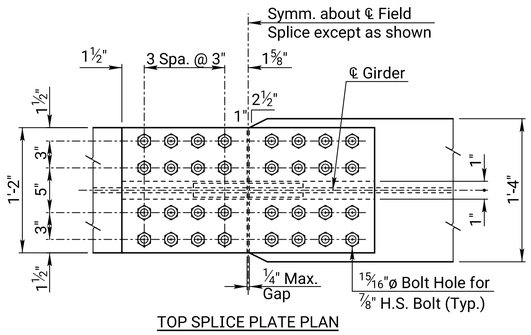
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	101	366



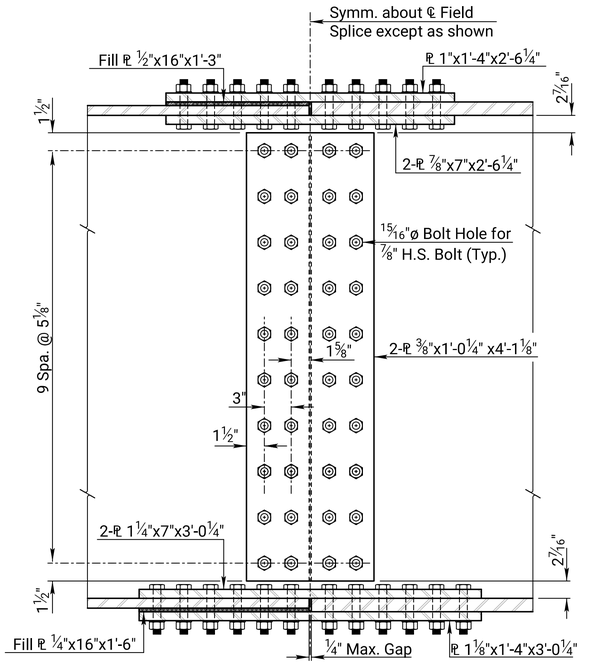
TOP SPLICE PLATE PLAN



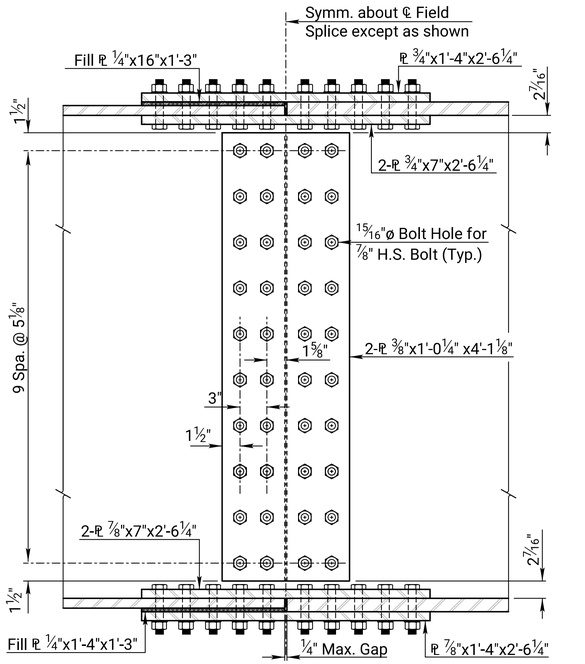
TOP SPLICE PLATE PLAN



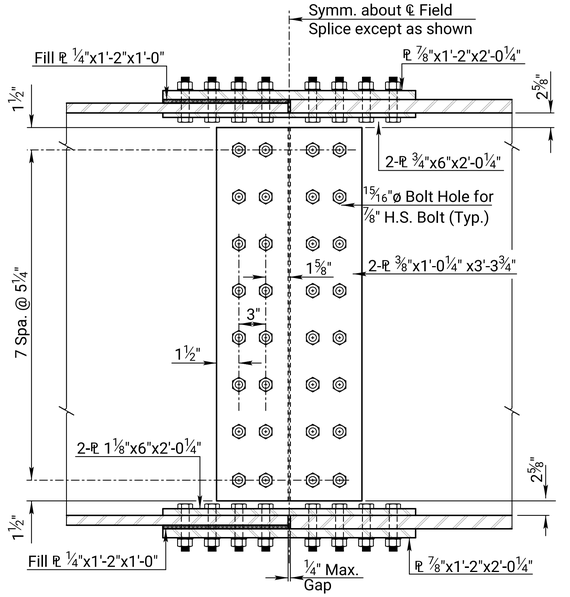
TOP SPLICE PLATE PLAN



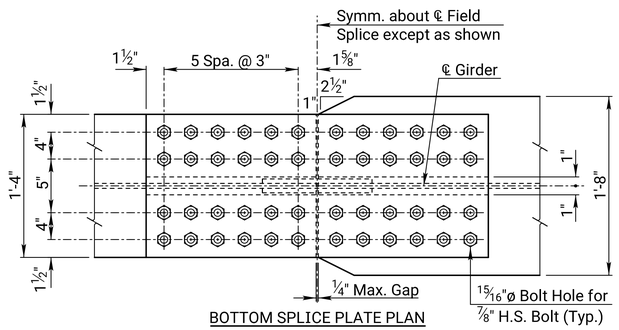
ELEVATION



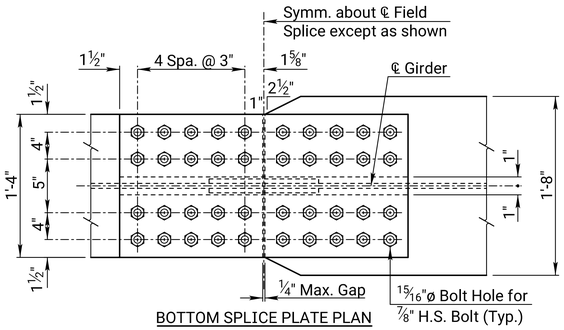
ELEVATION



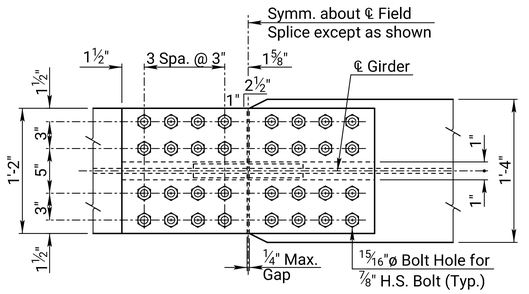
ELEVATION



BOTTOM SPLICE PLATE PLAN



BOTTOM SPLICE PLATE PLAN



BOTTOM SPLICE PLATE PLAN

TYPICAL FIELD SPLICE ASSEMBLY - UNIT 1

20 Required

(128-⅞"ø H.S. Bolts/splice)

(Weight/splice = 790 lbs.)

TYPICAL FIELD SPLICE ASSEMBLY - UNIT 2

20 Required

(120-⅞"ø H.S. Bolts/splice)

(Weight/splice = 580 lbs.)

TYPICAL FIELD SPLICE ASSEMBLY - UNIT 3

30 Required

(96-⅞"ø H.S. Bolts/splice)

(Weight/splice = 450 lbs.)

Plotted by : Bernhardt 18-AUG-2025 10:04
File : ka651701bbr-0475.dgn

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

FIELD SPLICE DETAILS
S. BD. I-135 TO E. BD. US-54 RAMP

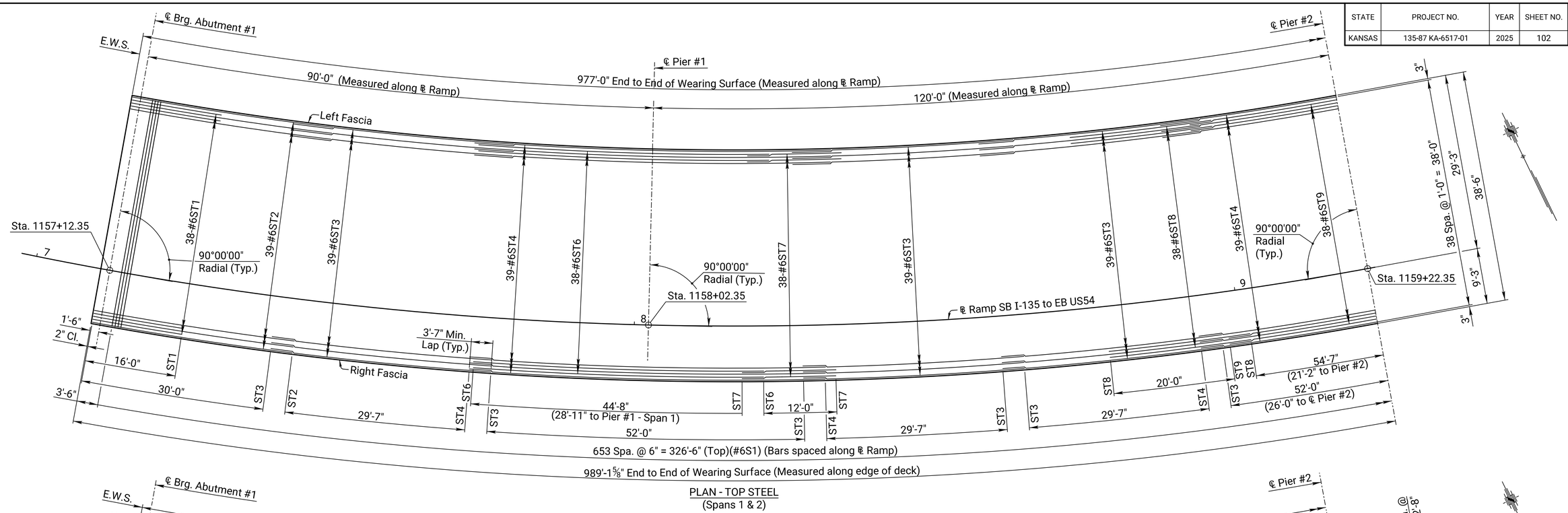
Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

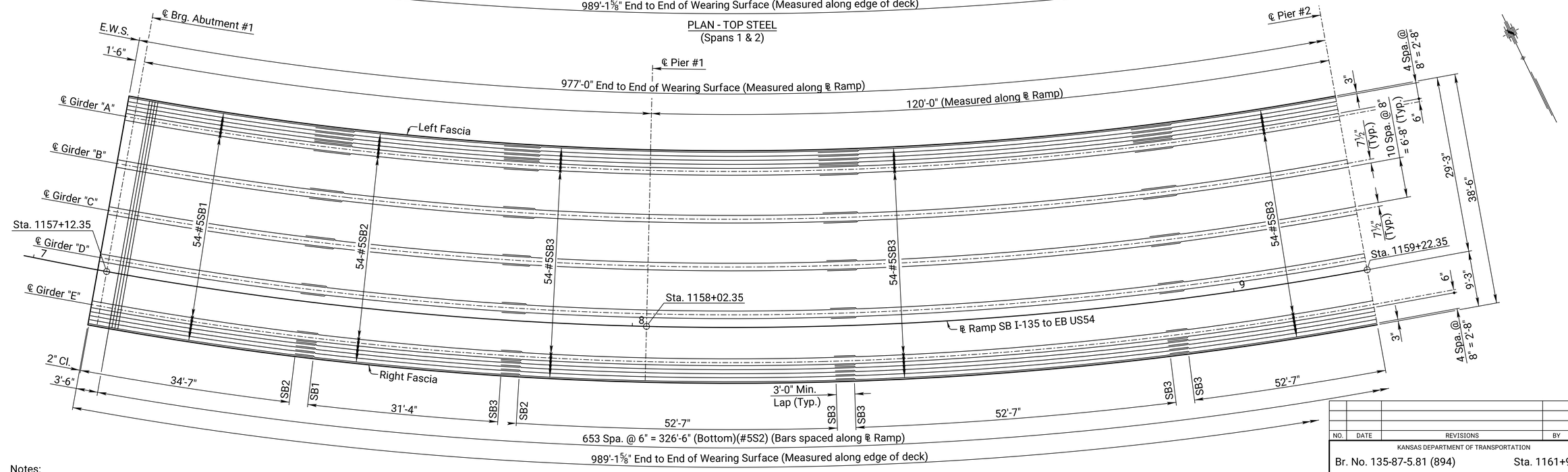
KDOT Graphics Certified 07-15-2025 Sh. No. 101

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	102	366



PLAN - TOP STEEL
(Spans 1 & 2)



PLAN - BOTTOM STEEL
(Spans 1 & 2)

Notes:
Place all transverse steel normal to ℄ Ramp.
See Sh. # 107 for Typical Section.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DECK DETAIL I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

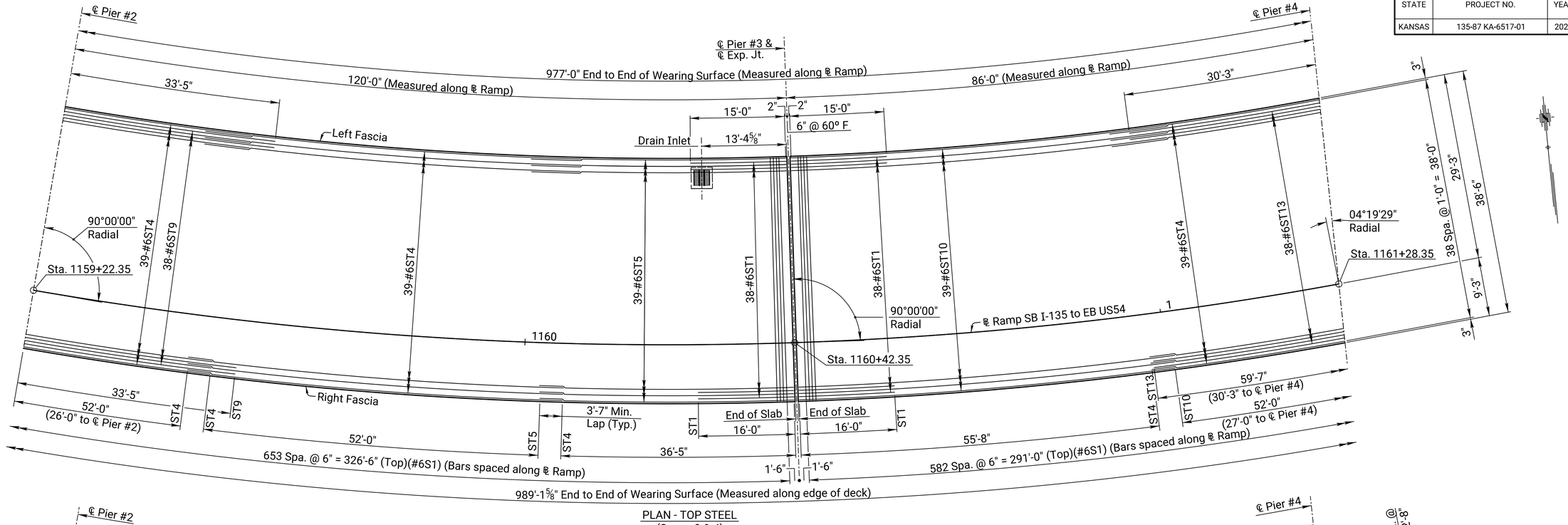
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 102

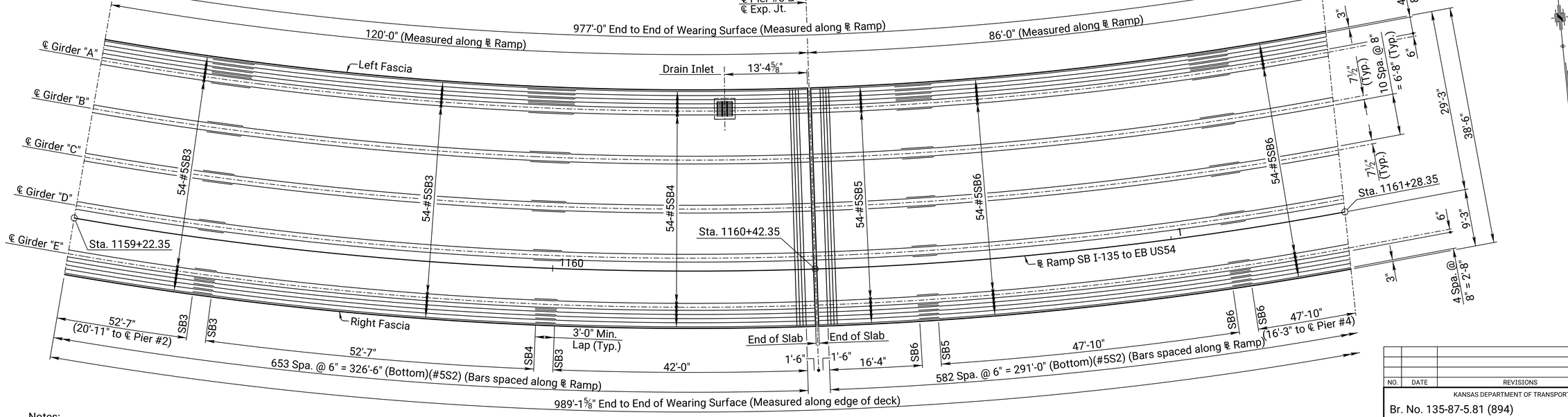
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:05
File : ka6517101bbr-0710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	103	366



PLAN - TOP STEEL
(Spans 3 & 4)



PLAN - BOTTOM STEEL
(Spans 3 & 4)

Notes:
Place all transverse steel normal to ℄ Ramp.
See Sh. #107 for Typical Section.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DECK DETAIL II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

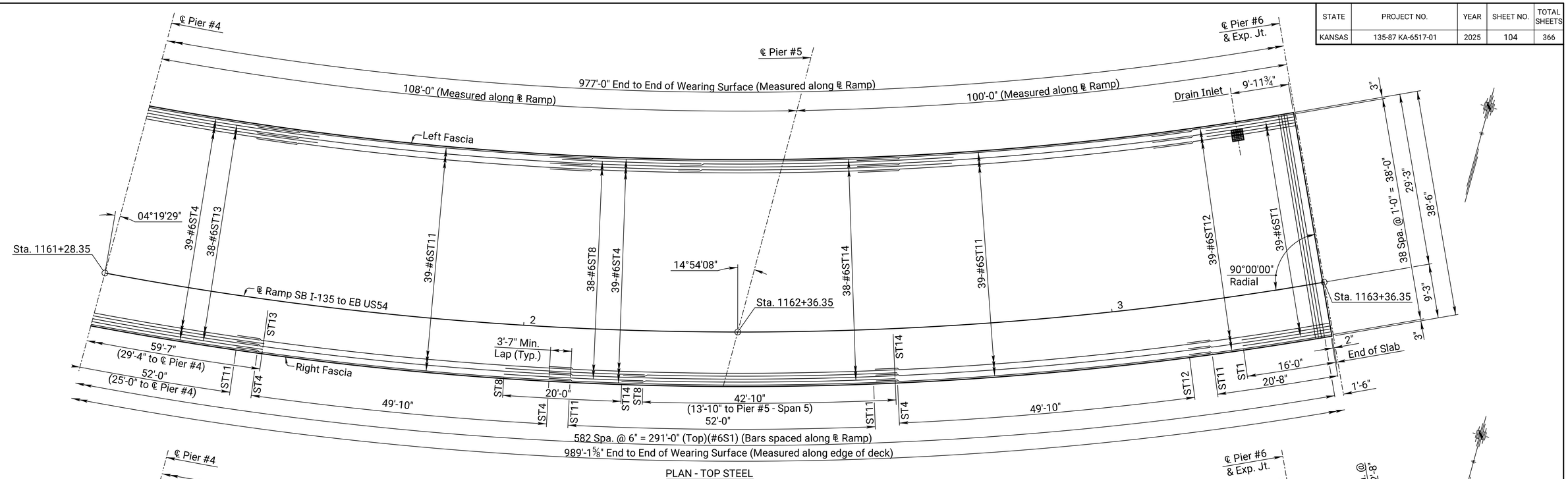
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 103

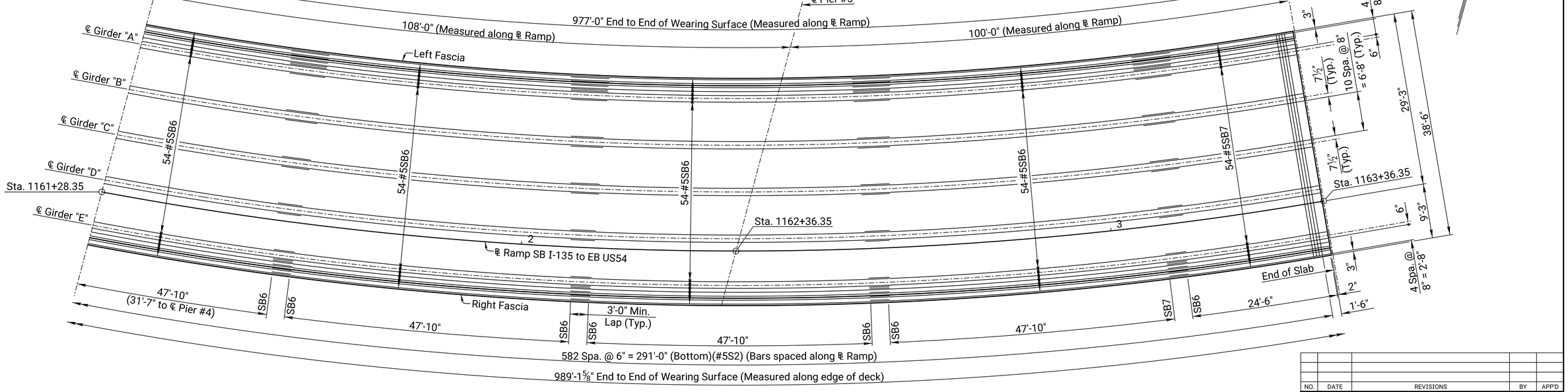
Plotted by : Bernhardt 18-AUG-2025 10:05
File : ka651701bbr-0711.dgn

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	104	366



PLAN - TOP STEEL
(Spans 5 & 6)



PLAN - BOTTOM STEEL
(Spans 5 & 6)

Notes:
Place all transverse steel normal to ℄ Ramp.
See Sh. # 107 for Typical Section.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DECK DETAIL III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

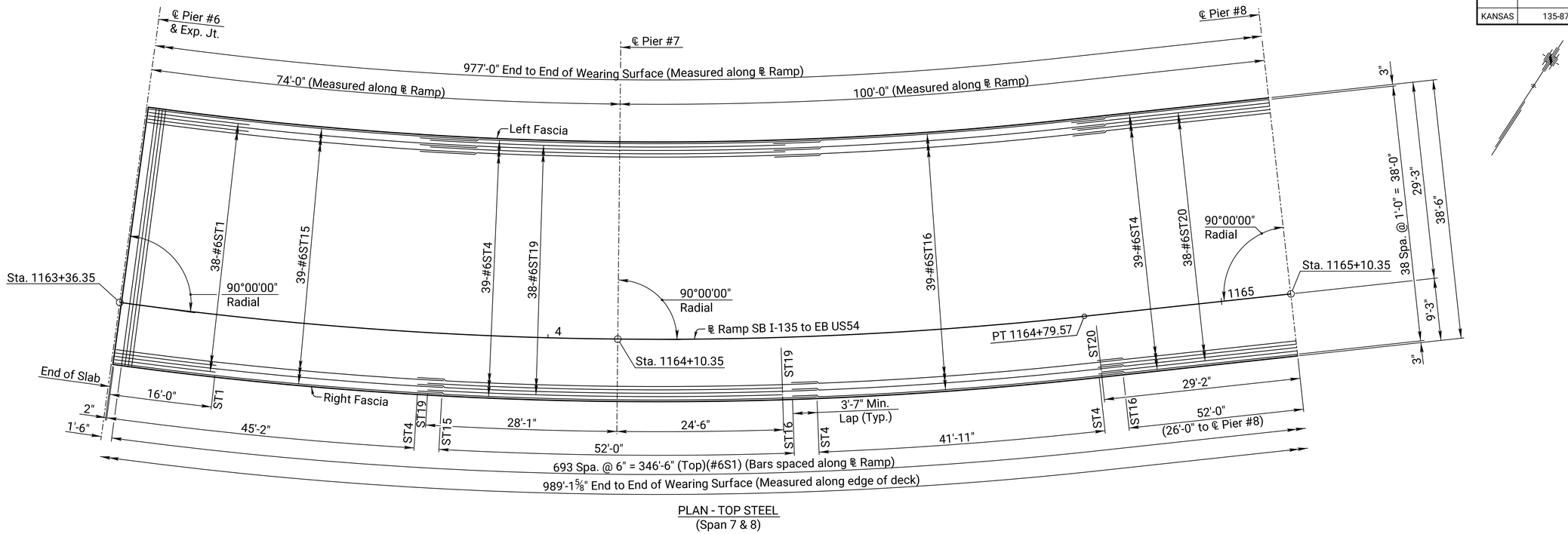
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DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 104

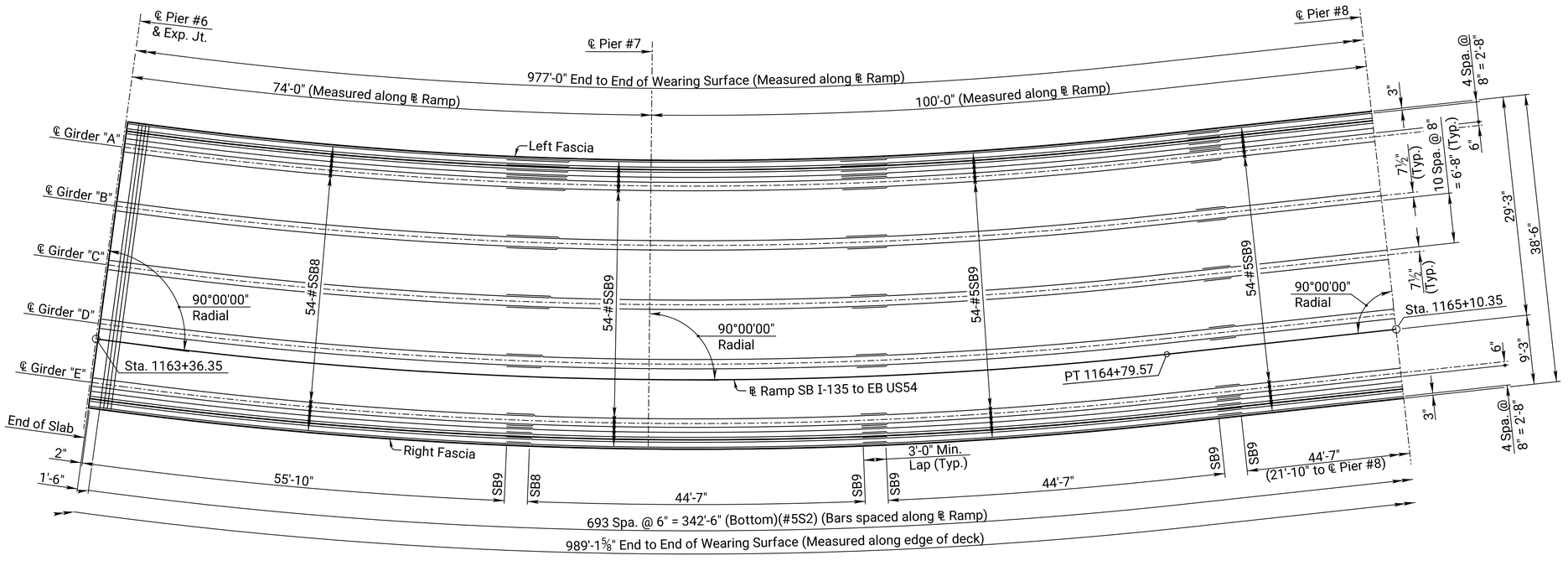
Plotted by : Bernhardt 18-AUG-2025 10:05
File : ka651701bbr-0712.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	105	366



PLAN - TOP STEEL
(Span 7 & 8)



PLAN - BOTTOM STEEL
(Span 7 & 8)

Notes:
Place all transverse steel normal to ℄ Ramp.
See Sh. # 107 for Typical Section.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DECK DETAIL IV
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

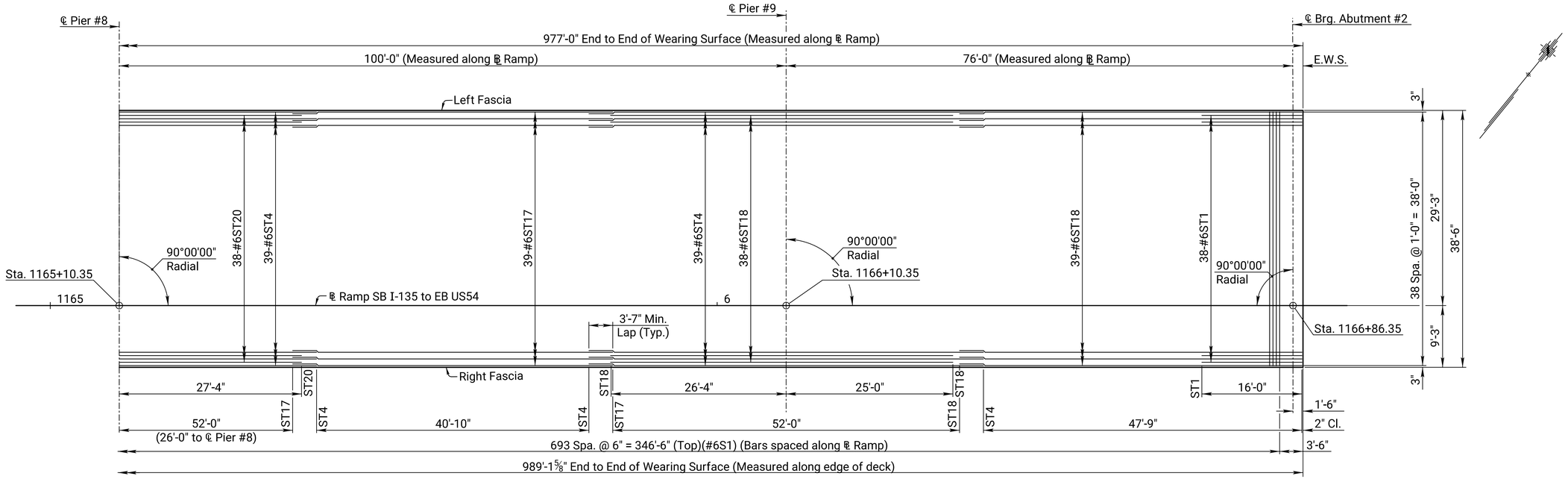
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FB,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 105

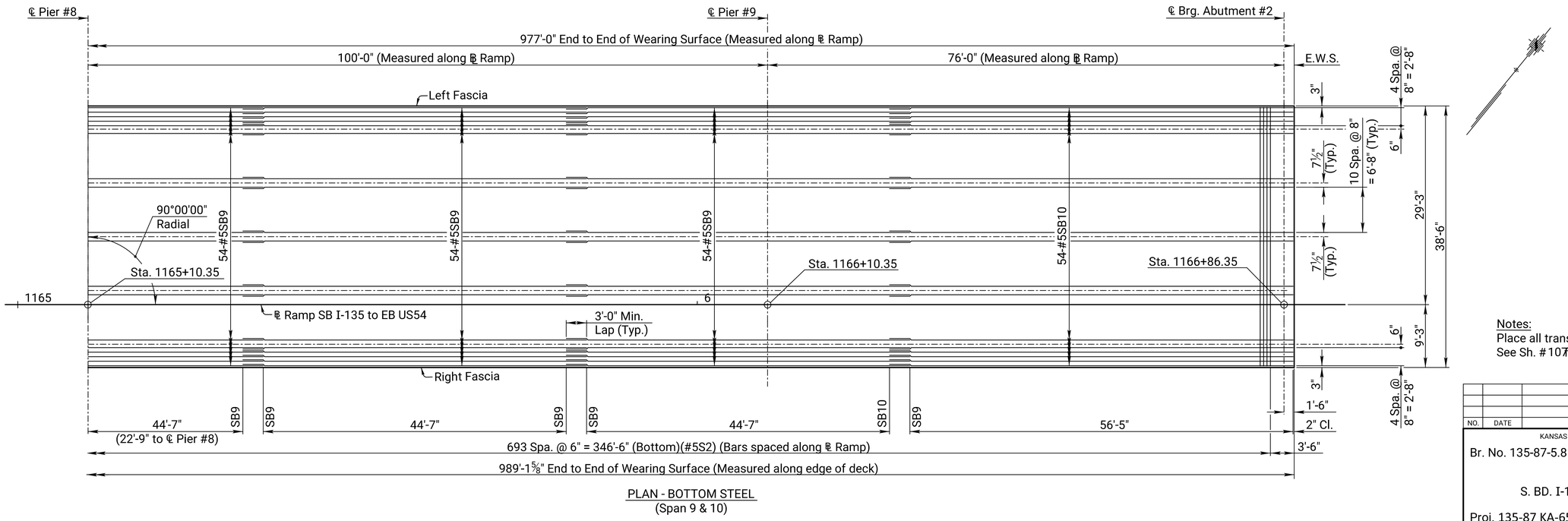
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:05
File : ka6517101bbr-0713.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	106	366



PLAN - TOP STEEL
(Span 9 & 10)



PLAN - BOTTOM STEEL
(Span 9 & 10)

Notes:
Place all transverse steel normal to ℄ Ramp.
See Sh. # 107 for Typical Section.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DECK DETAIL V
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

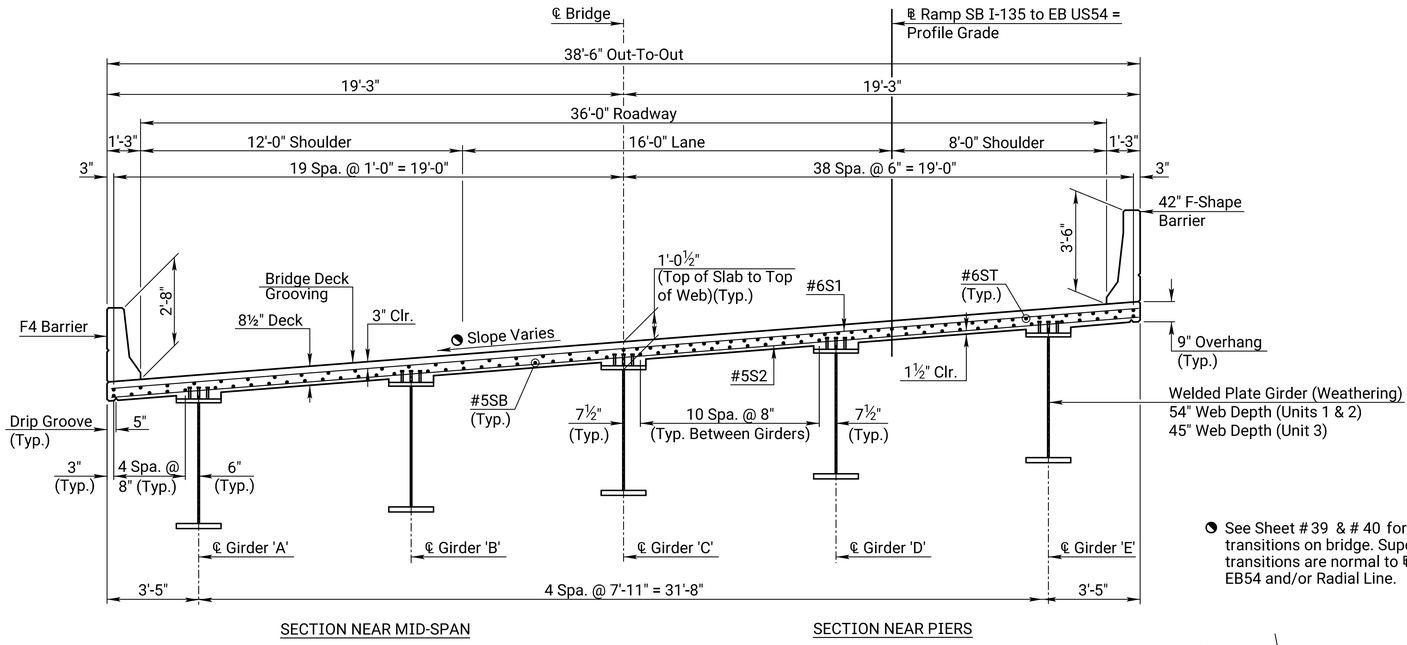
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KDOT Graphics Certified 07-15-2025 Sh. No. 106

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:06
File : ka6517101bbr-0714.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	107	366



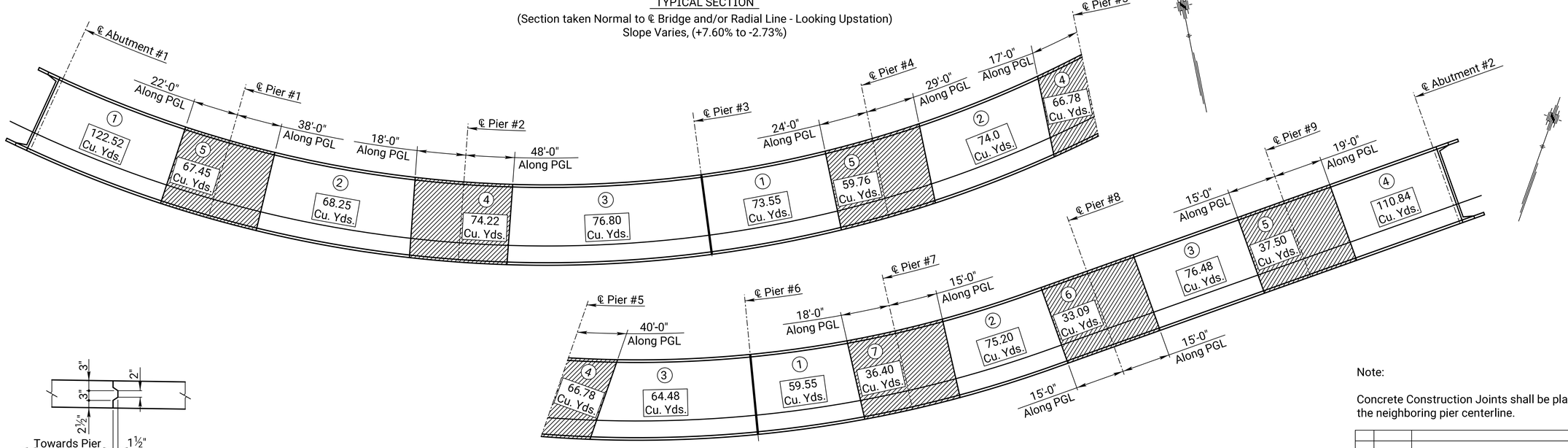
SECTION NEAR MID-SPAN

SECTION NEAR PIERS

See Sheet # 39 & # 40 for superelevation transitions on bridge. Superelevation transitions are normal to ℄ Ramp SB135 to EB54 and/or Radial Line.

TYPICAL SECTION

(Section taken Normal to ℄ Bridge and/or Radial Line - Looking Upstation)
Slope Varies, (+7.60% to -2.73%)



TRANSVERSE DECK CONSTRUCTION JOINT

CONCRETE PLACING SEQUENCE

(Concrete Quantities shown include Deck, Fillets, and Abutment Wingwalls above the construction joint and Abutment Diaphragms only.)

An approved alternate placing sequence is allowed. Any discontinuous pour must stop at a construction joint short of a pier.

The Contractor may place the F4 barrier continuously from one end of the bridge to the other.

PLACING SEQUENCE: The Contractor will adhere to the placing/sequence shown on the plans. Changes will be accepted only if the Contractors Engineer adjusts the camber diagram so the fabricator can adjust the web camber and headed stud anchor heights accordingly. This revised diagram will be approved by the Engineer prior to deck forming. If profile grinding decreases the clearance to the top mat of reinforcement to less than 2½" a polymer overlay will be placed at no cost to the State.

Note:

Concrete Construction Joints shall be placed parallel to the neighboring pier centerline.

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KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

TYPICAL SECTION
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 107

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:06
File : ka651701bbr-0730.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	108	366

† TOP OF BRIDGE DECK ELEVATIONS

	Point	Edge of Deck (Left)		℄ Girder A		℄ Girder B		℄ Girder C		℄ Girder D		Profile Grade		℄ Girder E		Edge of Deck (Right)	
		Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
℄ Brg. Abut. # 1	0	1157+12.35	1310.18	1157+12.35	1310.44	1157+12.35	1311.05	1157+12.35	1311.65	1157+12.35	1312.25	1157+12.35	1312.41	1157+12.35	1312.85	1157+12.35	1313.11
	1	1157+21.35	1310.47	1157+21.35	1310.73	1157+21.35	1311.33	1157+21.35	1311.93	1157+21.35	1312.54	1157+21.35	1312.69	1157+21.35	1313.14	1157+21.35	1313.40
	2	1157+30.35	1310.76	1157+30.35	1311.02	1157+30.35	1311.62	1157+30.35	1312.22	1157+30.35	1312.82	1157+30.35	1312.98	1157+30.35	1313.43	1157+30.35	1313.68
	3	1157+39.35	1311.05	1157+39.35	1311.31	1157+39.35	1311.91	1157+39.35	1312.51	1157+39.35	1313.11	1157+39.35	1313.27	1157+39.35	1313.71	1157+39.35	1313.97
	4	1157+48.35	1311.33	1157+48.35	1311.59	1157+48.35	1312.20	1157+48.35	1312.80	1157+48.35	1313.40	1157+48.35	1313.56	1157+48.35	1314.00	1157+48.35	1314.26
	5	1157+57.35	1311.62	1157+57.35	1311.88	1157+57.35	1312.48	1157+57.35	1313.09	1157+57.35	1313.69	1157+57.35	1313.85	1157+57.35	1314.29	1157+57.35	1314.55
	6	1157+66.35	1311.91	1157+66.35	1312.17	1157+66.35	1312.77	1157+66.35	1313.37	1157+66.35	1313.98	1157+66.35	1314.13	1157+66.35	1314.58	1157+66.35	1314.84
	7	1157+75.35	1312.20	1157+75.35	1312.46	1157+75.35	1313.06	1157+75.35	1313.66	1157+75.35	1314.26	1157+75.35	1314.42	1157+75.35	1314.86	1157+75.35	1315.12
	8	1157+84.35	1312.49	1157+84.35	1312.75	1157+84.35	1313.35	1157+84.35	1313.95	1157+84.35	1314.55	1157+84.35	1314.71	1157+84.35	1315.15	1157+84.35	1315.41
	9	1157+93.35	1312.77	1157+93.35	1313.03	1157+93.35	1313.64	1157+93.35	1314.24	1157+93.35	1314.84	1157+93.35	1315.00	1157+93.35	1315.44	1157+93.35	1315.70
℄ Pier #1	10	1158+02.35	1313.06	1158+02.35	1313.32	1158+02.35	1313.92	1158+02.35	1314.53	1158+02.35	1315.13	1158+02.35	1315.29	1158+02.35	1315.73	1158+02.35	1315.99
℄ Pier #1	0	1158+02.35	1313.06	1158+02.35	1313.32	1158+02.35	1313.92	1158+02.35	1314.53	1158+02.35	1315.13	1158+02.35	1315.29	1158+02.35	1315.73	1158+02.35	1315.99
	1	1158+14.35	1313.45	1158+14.35	1313.71	1158+14.35	1314.31	1158+14.35	1314.91	1158+14.35	1315.51	1158+14.35	1315.67	1158+14.35	1316.11	1158+14.35	1316.37
	2	1158+26.35	1313.83	1158+26.35	1314.09	1158+26.35	1314.69	1158+26.35	1315.29	1158+26.35	1315.90	1158+26.35	1316.05	1158+26.35	1316.50	1158+26.35	1316.76
	3	1158+38.35	1314.22	1158+38.35	1314.47	1158+38.35	1315.08	1158+38.35	1315.68	1158+38.35	1316.28	1158+38.35	1316.44	1158+38.35	1316.88	1158+38.35	1317.14
	4	1158+50.35	1314.60	1158+50.35	1314.86	1158+50.35	1315.46	1158+50.35	1316.06	1158+50.35	1316.66	1158+50.35	1316.82	1158+50.35	1317.26	1158+50.35	1317.52
	5	1158+62.35	1314.98	1158+62.35	1315.24	1158+62.35	1315.84	1158+62.35	1316.45	1158+62.35	1317.05	1158+62.35	1317.21	1158+62.35	1317.65	1158+62.35	1317.91
	6	1158+74.35	1315.37	1158+74.35	1315.63	1158+74.35	1316.23	1158+74.35	1316.83	1158+74.35	1317.43	1158+74.35	1317.59	1158+74.35	1318.03	1158+74.35	1318.29
	7	1158+86.35	1315.75	1158+86.35	1316.01	1158+86.35	1316.61	1158+86.35	1317.22	1158+86.35	1317.82	1158+86.35	1317.97	1158+86.35	1318.42	1158+86.35	1318.68
	8	1158+98.35	1316.14	1158+98.35	1316.39	1158+98.35	1317.00	1158+98.35	1317.60	1158+98.35	1318.20	1158+98.35	1318.36	1158+98.35	1318.80	1158+98.35	1319.06
	9	1159+10.35	1316.52	1159+10.35	1316.78	1159+10.35	1317.38	1159+10.35	1317.98	1159+10.35	1318.58	1159+10.35	1318.74	1159+10.35	1319.18	1159+10.35	1319.44
℄ Pier #2	10	1159+22.35	1316.90	1159+22.35	1317.16	1159+22.35	1317.76	1159+22.35	1318.37	1159+22.35	1318.97	1159+22.35	1319.13	1159+22.35	1319.57	1159+22.35	1319.83
℄ Pier #2	0	1159+22.35	1316.90	1159+22.35	1317.16	1159+22.35	1317.76	1159+22.35	1318.37	1159+22.35	1318.97	1159+22.35	1319.13	1159+22.35	1319.57	1158+22.35	1319.83
	1	1159+34.25	1317.28	1159+34.25	1317.54	1159+34.35	1318.15	1159+34.25	1318.75	1159+34.25	1319.35	1159+34.25	1319.51	1159+34.25	1319.95	1159+34.25	1320.21
	2	1159+46.14	1317.66	1159+46.14	1317.92	1159+46.14	1318.53	1159+46.15	1319.13	1159+46.15	1319.73	1159+46.15	1319.89	1159+46.15	1320.33	1159+46.15	1320.59
	3	1159+58.03	1318.04	1159+58.04	1318.30	1159+58.04	1318.91	1159+58.05	1319.51	1159+58.05	1320.11	1159+58.05	1320.26	1159+58.05	1320.71	1159+58.06	1320.97
	4	1159+69.93	1318.43	1159+69.93	1318.69	1159+69.94	1319.29	1159+69.94	1319.89	1159+69.95	1320.49	1159+69.95	1320.64	1159+69.95	1321.09	1159+69.96	1321.35
	5	1159+81.82	1318.81	1159+81.83	1319.07	1159+81.84	1319.67	1159+81.84	1320.27	1159+81.85	1320.87	1159+81.85	1321.03	1159+81.86	1321.47	1159+81.86	1321.73
	6	1159+93.72	1319.19	1159+93.72	1319.45	1159+93.73	1320.05	1159+93.74	1320.65	1159+93.75	1321.25	1159+93.75	1321.41	1159+93.76	1321.85	1159+93.76	1322.11
	7	1160+05.61	1319.57	1160+05.62	1319.83	1160+05.63	1320.43	1160+05.64	1321.03	1160+05.65	1321.63	1160+05.65	1321.80	1160+05.66	1322.23	1160+05.66	1322.49
	8	1160+17.51	1319.95	1160+17.51	1320.21	1160+17.53	1320.81	1160+17.54	1321.41	1160+17.55	1322.01	1160+17.55	1322.17	1160+17.56	1322.62	1160+17.56	1322.88
	9	1160+29.40	1320.33	1160+29.41	1320.59	1160+29.42	1321.19	1160+29.44	1321.79	1160+29.45	1322.40	1160+29.45	1322.56	1160+29.46	1323.00	1160+29.46	1323.26
℄ Bk. Brg. Pier #3	10	1160+41.30	1320.71	1160+41.30	1320.97	1160+41.32	1321.57	1160+41.33	1322.17	1160+41.35	1322.78	1160+41.35	1322.93	1160+41.36	1323.38	1160+41.37	1323.64
℄ Ah. Brg. Pier #3	0	1160+43.40	1320.78	1160+43.40	1321.04	1160+43.38	1321.64	1160+43.37	1322.24	1160+43.35	1322.84	1160+43.35	1322.99	1160+43.34	1323.44	1160+43.34	1323.70
	1	1160+52.13	1321.06	1160+52.10	1321.31	1160+52.02	1321.91	1160+51.94	1322.51	1160+51.87	1323.11	1160+51.85	1323.27	1160+51.80	1323.71	1160+51.77	1323.97
	2	1160+60.86	1321.34	1160+60.80	1321.59	1160+60.66	1322.19	1160+60.52	1322.79	1160+60.39	1323.39	1160+60.35	1323.54	1160+60.26	1323.98	1160+60.20	1324.24
	3	1160+69.59	1321.62	1160+69.50	1321.87	1160+69.29	1322.47	1160+69.09	1323.06	1160+68.90	1323.66	1160+68.85	1323.81	1160+68.71	1324.25	1160+68.63	1324.51
	4	1160+78.31	1321.89	1160+78.20	1322.15	1160+77.93	1322.74	1160+77.67	1323.34	1160+77.42	1323.93	1160+77.35	1324.09	1160+77.51	1324.52	1160+77.07	1324.78
	5	1160+87.04	1322.17	1160+86.90	1322.43	1160+86.57	1323.02	1160+86.24	1323.61	1160+85.93	1324.20	1160+85.85	1324.36	1160+85.63	1324.79	1160+85.50	1325.05
	6	1160+95.77	1322.45	1160+95.60	1322.71	1160+95.20	1323.30	1160+94.82	1323.88	1160+94.45	1324.47	1160+94.35	1324.63	1160+94.09	1325.06	1160+93.93	1325.32
	7	1161+04.50	1322.73	1161+04.30	1322.98	1161+03.84	1323.57	1161+03.40	1324.16	1161+02.96	1324.75	1161+02.85	1324.90	1161+02.54	1325.33	1161+02.36	1325.59
	8	1161+13.22	1323.01	1161+13.00	1323.26	1161+12.48	1323.85	1161+11.97	1324.43	1161+11.48	1325.02	1161+11.35	1325.18	1161+11.00	1325.61	1161+10.80	1325.86
	9	1161+21.95	1323.29	1161+21.70	1323.54	1161+21.11	1324.12	1161+20.55	1324.71	1161+19.99	1325.29	1161+19.85	1325.45	1161+19.46	1325.88	1161+19.23	1326.13
℄ Pier #4	10	1161+30.68	1323.57	1161+30.39	1323.82	1161+29.75	1324.40	1161+29.12	1324.98	1161+28.51	1325.56	1161+28.35	1325.72	1161+27.91	1326.15	1161+27.66	1326.40
℄ Pier #4	0	1161+30.68	1323.57	1161+30.39	1323.82	1161+29.75	1324.40	1161+29.12	1324.98	1161+28.51	1325.56	1161+28.35	1325.72	1161+27.91	1326.15	1161+27.66	1326.40
	1	1161+42.07	1323.91	1161+41.71	1324.16	1161+40.90	1324.74	1161+40.11	1325.32	1161+39.35	1325.89	1161+39.15	1326.05	1161+38.60	1326.47	1161+38.29	1326.72
	2	1161+53.46	1324.23	1161+53.03	1324.48	1161+52.05	1325.06	1161+51.11	1325.63	1161+50.19	1326.21	1161+49.95	1326.36	1161+49.29	1326.78	1161+48.92	1327.03
	3	1161+64.83	1324.53	1161+64.34	1324.78	1161+63.21	1325.35	1161+62.10	1325.93	1161+61.03	1326.50	1161+60.75	1326.66	1161+59.98	1327.07	1162+59.54	1327.32
	4	1161+76.24	1324.82	1161+75.66	1325.06	1161+74.36	1325.63	1161+73.10	1326.20	1161+71.87	1326.78	1161+71.55	1326.93	1161+70.67	1327.35	1161+70.17	1327.59
	5	1161+87.62	1325.08	1161+86.98	1325.32	1151+85.51	1325.89	1161+84.09	1326.46	1161+82.71	1327.03	1161+82.35	1327.19	1161+81.36	1327.60	1161+80.80	1327.85
	6	1161+99.01	1325.32	1161+98.29	1325.56	1161+96.66	1326.13	1161+95.08	1326.70	1161+93.55	1327.27	1161+93.15	1327.43	1161+92.05	1327.84	1161+91.42	1328.08
	7	1162+10.40	1325.54	1162+09.61	1325.78	1162+07.82	1326.35	1162+06.08	1326.92	1162+04.39	1327.49	1162+03.95	1327.64	1162.02.74	1328.06	1162+02.05	1328.30
	8	1162+21.78	1325.73	1162+20.92	1325.98	1162+18.97	1326.55	1162+17.07	1327.12	1162+15.23	1327.69	1162+14.75	1327.84	1162+13.43	1328.26	1162+12.68	1328.50
	9	1162+33.17	1325.91	1162+32.24	1326.16	1162+30.12	1326.73	1162+28.07	1327.30	1162+26.07	1327.87	1162+25.55	1328.03	1162+24.12	1328.44	1162+23.30	1328.68
℄ Pier #5	10	1162+44.56	1326.07	1162+43.56	1326.31	1162+41.28	1326.89	1162+39.06	1327.46	1162+36.91	1328.03	1162+36.35	1328.18	1162+34.81	1328.60	1162+33.93	1328.85
℄ Pier #5	0	1162+44.56	1326.07	1162+43.56	1326.32	1162+41.28	1326.89	1162+39.06	1327.46	1162+36.91	1328.03	1162+36.35	1328.18	1162+34.81	1328.60	1162+33.93	1328.85
	1	1162+53.63	1326.18	1162+52.73	1326.43	1162+50.68	1327.01	1162+48.69	1327.58	1162+46.75	1328.16	1162+46.25	1328.31	1162+44.87	1328.74	1162+44.07	1328.99
	2	1162+62.71	1326.28	1162+61.91	1326.53	1162+60.08	1327.11	1162+58.31	1327.69	1162+56.60	1328.28	1162+56.15	1328.43	1162+54.92	1328.86	1162+54.22	1329.11
	3	1162+71.78	1326.36	1162+71.08	1326.61	1162+69.49	1327.20	1162+67.94	1327.79	1162+66.44	1328.38	1162+66.05	1328.53	1162+64.98	1328.96	1162+64.36	1329.22
	4	1162+80.86	1326.43	1162+80.26	1326.69	1162+78.89	1327.28	1162+77.57	1327.87	1162+76.28	1328.46	1162+75.95	1328.62	1162+75.03	1329.05	1162+74.50	1329.31
	5	1162+89.93	1326.49	1162+89.43	1326.75	1162+88.30	1327.34	1162+87.20	1327.94	1162+86.13	1328.53	1162+85.85	1328.69	1162+85.09	1329.13	1162+84.65	1329.38
	6	1162+99.00	1326.53	1162+98.60	1326.79	1162+97.70	1327.39	1162+96.82	1327.99	1162+95.97	1328.58	1162+95.75	1328.74	1162+95.14	1329.18	1162+94.79	1329.44
	7	1163+08.08	1326.56	1163+07.78	1326.82	1163+07.11	1327.42	1163+06.45	1328.02	1163+05.82	1328.62	1163+05.65	1328.78	1163+05.20	1329.22	1163+04.94	1329.48
	8	1163+17.15	1326.58	1163+16.95	1326.84	1163+16.51	1327.44	1163+16.08	1328.04	1163+15.66	1328.64	1163+15.55	1328.80	1163+15.25	1329.25	1163+15.08	1329.50
	9	1163+26.22	1326.59	1163+26.13	1326.85	1163+25.91	1327.45	1163+25.71	1328.04	1163+25.50	1328.65	1163+25.45	1328.81	1163+25.31	1329.25	1163+25.22	1329.50
℄ Bk. Brg. Pier #6	10	1163+35.30	1326.58	1163+35.30	1326.84	1163+35.32	1327.44	1163+35.33	1328.04	1163+35.35	1328.64	1163+35.35	1328.80	1163+35.36	1329.24	1163+35.37	1329.50

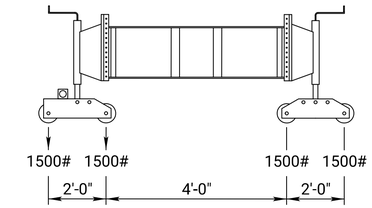
† Elevations are at top of deck over ℄ Girder.

†† TOP OF FIELD SPLICE ELEVATIONS

Field Splice No.	℄ Girder A		℄ Girder B		℄ Girder C	
	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
1	1157+76.20	1311.66	1157+76.56	1312.27	1157+76.92	1312.89
2	1158+33.74	1313.50	1158+33.30	1314.09	1158+32.87	1314.68
3	1158+87.83	1315.25	1158+88.31	1315.85	1158+88.78	1316.46
4	1159+56.88	1317.47	1159+56.39	1318.06	1159+55.92	1318.65
5	1161+04.24	1322.11	1161+03.96	1322.71	1161+03.69	1323.30
6	1161+56.55	1323.71	1161+55.54	1324.28	1161+54.56	1324.86
7	1162+17.40	1325.05	1162+15.49	1325.62	1162+13.63	1326.19
8	1162+69.71	1325.73	1162+67.06	1326.32	1162+64.49	1326.90
9	1163+87.33	1325.68	1163+87.66	1326.28	1163+87.97	1326.87
10	1164+36.51	1325.40	1164+36.14	1325.89	1164+35.79	1326.37
11	1164+85.35	1324.78	1164+85.35	1325.12	1164+85.35	1325.47
12	1165+35.35	1323.75	1165+35.35	1323.95	1165+35.35	1324.16
13	1165+85.35	1322.32	1165+85.35	1322.38	1165+85.35	1322.45
14	1166+33.35	1320.57	1166+33.35	1320.51	1166+33.35	1320.44

†† TOP OF FIELD SPLICE ELEVATIONS

Field Splice No.	℄ Girder D		℄ Girder E	
	Sta.	Elev.	Sta.	Elev.
1	1157+77.26	1313.50	1157+77.60	1314.12
2	1158+32.46	1315.27	1158+32.05	1315.85
3	1158+89.23	1317.07	1158+89.68	1317.69
4	1159+55.47	1319.24	1159+55.03	1319.84
5	1161+03.42	1323.90	1161+03.16	1324.50
6	1161+53.60	1325.43	1161+52.67	1326.01
7	1162+11.82	1326.76	1162+10.06	1327.32
8	1162+61.99	1327.48	1162+59.57	1328.06
9	1163+88.27	1327.47	1163+88.57	1328.07
10	1164+35.44	1326.86	1164+35.10	1327.34
11	1164+85.35	1325.81	1164+85.35	1326.15
12	1165+35.35	1324.36	1165+35.35	1324.56
13	1165+85.35	1322.52	1165+85.35	1322.58
14	1166+33.35	1320.37	1166+33.35	1320.31



ASSUMED FINISHING MACHINE
VALUES LOADING DIAGRAM

Notes:

Rotation (maximum = 1") in the exterior girder was calculated assuming screed wheel loads as shown and placed 3" beyond the outside of the deck. The maximum overhange bracket spacing was assumed at 3 ft. The actual screed loadings or bracket spacing will be reflected in the design calculation for a torsional analysis of the exterior girder and bracing.

The design calculations shall bear the seal of a license Professional Engineer.

Submit according to KDOT Specifications Section 700 for falsework and formwork.

†† Elevations are at top of top splice plate and include the theoretical camber before deck pour.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ROADWAY SURFACE ELEVATIONS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK		
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM		

KDOT Graphics Certified 07-15-2025 Sh. No. 108

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:06
File : ka651701bbr-0735.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	109	366

† TOP OF BRIDGE DECK ELEVATIONS

	Point	Edge of Deck (Left)		℄ Girder A		℄ Girder B		℄ Girder C		℄ Girder D		Profile Grade		℄ Girder E		Edge of Deck (Right)	
		Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
℄ Ah. Brg. Pier #6	0	1163+37.40	1326.57	1163+37.40	1326.83	1163+37.38	1327.44	1163+37.37	1328.04	1163+37.35	1328.64	1163+37.35	1328.80	1163+37.34	1329.24	1163+37.34	1329.50
	1	1163+44.70	1326.56	1163+44.69	1326.82	1163+44.68	1327.42	1163+44.67	1328.02	1163+44.65	1328.62	1163+44.65	1328.78	1163+44.64	1329.22	1163+44.64	1329.48
	2	1163+51.99	1326.53	1163+51.99	1326.79	1163+51.97	1327.39	1163+51.96	1327.99	1163+51.95	1328.59	1163+51.95	1328.75	1163+51.94	1329.20	1163+51.94	1329.45
	3	1163+59.29	1326.49	1162+59.28	1326.75	1163+59.27	1327.35	1163+59.26	1327.96	1163+59.25	1328.56	1163+59.25	1328.72	1163+59.24	1329.16	1163+59.24	1329.42
	4	1163+66.58	1326.45	1163+66.58	1326.71	1163+66.57	1327.31	1163+66.56	1327.91	1163+66.55	1328.51	1163+66.55	1328.67	1163+66.54	1329.11	1163+66.54	1329.37
	5	1163+73.88	1326.40	1163+73.87	1326.66	1163+73.87	1327.26	1163+73.86	1327.86	1163+73.85	1328.46	1163+73.85	1328.62	1163+73.85	1329.06	1163+73.84	1329.32
	6	1163+81.17	1326.33	1163+81.17	1326.59	1163+81.16	1327.20	1163+81.16	1327.80	1163+81.15	1328.40	1163+81.15	1328.56	1163+81.15	1329.00	1163+81.14	1329.26
	7	1163+88.47	1326.26	1163+88.46	1326.52	1163+88.46	1327.13	1163+88.46	1327.73	1163+88.45	1328.33	1163+88.45	1328.49	1163+88.45	1328.93	1163+88.45	1329.19
	8	1163+95.76	1326.23	1163+95.76	1326.48	1163+95.76	1327.07	1163+95.75	1327.66	1163+95.75	1328.25	1163+95.75	1328.41	1163+95.75	1328.85	1163+95.75	1329.10
	9	1164+03.06	1326.22	1164+03.06	1326.46	1164+03.05	1327.03	1164+03.05	1327.60	1164+03.05	1328.17	1164+03.05	1328.32	1164+03.05	1328.74	1164+03.05	1328.99
℄ Pier #7	10	1164+10.35	1326.20	1164+10.35	1326.43	1164+10.35	1326.98	1164+10.35	1327.53	1164+10.35	1328.08	1164+10.35	1328.23	1164+10.35	1328.63	1164+10.35	1328.87
℄ Pier #7	0	1164+10.35	1326.20	1164+10.35	1326.43	1164+10.35	1326.98	1164+10.35	1327.53	1164+10.35	1328.08	1164+10.35	1328.23	1164+10.35	1328.63	1164+10.35	1328.87
	1	1164+20.35	1326.15	1164+20.35	1326.38	1164+20.35	1326.90	1164+20.35	1327.43	1164+20.35	1327.95	1164+20.35	1328.08	1164+20.35	1328.47	1164+20.35	1328.69
	2	1164+30.35	1326.09	1164+30.35	1326.31	1164+30.35	1326.80	1164+30.35	1327.30	1164+30.35	1327.79	1164+30.35	1327.92	1164+30.35	1328.29	1164+30.35	1328.50
	3	1164+40.35	1326.02	1164+40.35	1326.22	1164+40.35	1326.68	1164+40.35	1327.15	1164+40.35	1327.62	1164+40.35	1327.74	1164+40.35	1328.09	1164+40.35	1328.29
	4	1164+50.35	1325.92	1164+50.35	1326.11	1164+50.35	1326.55	1164+50.35	1326.99	1164+50.35	1327.44	1164+50.35	1327.55	1164+50.35	1327.88	1164+50.35	1328.07
	5	1164+60.35	1325.81	1164+60.35	1325.99	1164+60.35	1326.41	1164+60.35	1326.82	1164+60.35	1327.24	1164+60.35	1327.34	1164+60.35	1327.65	1164+60.35	1327.83
	6	1164+70.35	1325.69	1164+70.35	1325.87	1164+70.35	1326.24	1164+70.35	1326.63	1164+70.35	1327.02	1164+70.35	1327.12	1164+70.35	1327.41	1164+70.35	1327.58
	7	1164+80.35	1325.56	1164+80.35	1325.72	1164+80.35	1326.06	1164+80.35	1326.42	1164+80.35	1326.78	1164+80.35	1326.88	1164+80.35	1327.15	1164+80.35	1327.30
	8	1164+90.35	1325.41	1164+90.35	1325.54	1164+90.35	1325.87	1164+90.35	1326.21	1164+90.35	1326.54	1164+90.35	1326.62	1164+90.35	1326.87	1164+90.35	1327.01
	9	1165+00.35	1325.23	1165+00.35	1325.36	1165+00.35	1325.66	1165+00.35	1325.97	1165+00.35	1326.27	1165+00.35	1326.35	1165+00.35	1326.57	1165+00.35	1326.71
℄ Pier #8	10	1165+10.35	1325.04	1165+10.35	1325.16	1165+10.35	1325.44	1165+10.35	1325.71	1165+10.35	1325.99	1165+10.35	1326.06	1165+10.35	1326.24	1165+10.35	1326.37
℄ Pier #8	0	1165+10.35	1325.04	1165+10.35	1325.16	1165+10.35	1325.44	1165+10.35	1325.71	1165+10.35	1325.99	1165+10.35	1326.06	1165+10.35	1326.24	1165+10.35	1326.37
	1	1165+20.35	1324.84	1165+20.35	1324.96	1165+20.35	1325.20	1165+20.35	1325.45	1165+20.35	1325.69	1165+20.35	1325.76	1165+20.35	1325.94	1165+20.35	1326.04
	2	1165+30.35	1324.62	1165+30.35	1324.72	1165+30.35	1324.95	1165+30.35	1325.16	1165+30.35	1325.38	1165+30.35	1325.44	1165+30.35	1325.59	1165+30.35	1325.68
	3	1165+40.35	1324.38	1165+40.35	1324.48	1165+40.35	1324.66	1165+40.35	1324.86	1165+40.35	1325.04	1165+40.35	1325.10	1165+40.35	1325.24	1165+40.35	1325.31
	4	1165+50.35	1324.14	1165+50.35	1324.21	1165+50.35	1324.38	1165+50.35	1324.54	1165+50.35	1324.70	1165+50.35	1324.75	1165+50.35	1324.87	1165+50.35	1324.94
	5	1165+60.35	1323.87	1165+60.35	1323.94	1165+60.35	1324.07	1165+60.35	1324.21	1165+60.35	1324.34	1165+60.35	1324.38	1165+60.35	1324.48	1165+60.35	1324.53
	6	1165+70.35	1323.59	1165+70.35	1323.63	1165+70.35	1323.75	1165+70.35	1323.85	1165+70.35	1323.97	1165+70.35	1324.00	1165+70.35	1324.07	1165+70.35	1324.11
	7	1165+80.35	1323.29	1165+80.35	1323.33	1165+80.35	1323.42	1165+80.35	1323.49	1165+80.35	1323.58	1165+80.35	1323.60	1165+80.35	1323.64	1165+80.35	1323.68
	8	1165+90.35	1322.97	1165+90.35	1323.00	1165+90.35	1323.05	1165+90.35	1323.11	1165+90.35	1323.16	1165+90.35	1323.18	1165+90.35	1323.22	1165+90.35	1323.23
	9	1166+00.35	1322.65	1166+00.35	1322.66	1166+00.35	1322.69	1166+00.35	1322.71	1166+00.35	1322.74	1166+00.35	1322.75	1166+00.35	1322.76	1166+00.35	1322.77
℄ Pier #9	10	1166+10.35	1322.29	1166+10.35	1322.30	1166+10.35	1322.30	1166+10.35	1322.29	1166+10.35	1322.30	1166+10.35	1322.30	1166+10.35	1322.29	1166+10.35	1322.28
℄ Pier #9	0	1166+10.35	1322.29	1166+10.25	1322.30	1166+10.35	1322.30	1166+10.35	1322.29	1166+10.35	1322.30	1166+10.35	1322.30	1166+10.35	1322.29	1166+10.35	1322.28
	1	1166+17.95	1322.02	1166+17.95	1322.02	1166+17.95	1321.99	1166+17.95	1321.98	1166+17.95	1321.95	1166+17.95	1321.94	1166+17.95	1321.93	1166+17.95	1321.91
	2	1166+25.55	1321.75	1166+25.55	1321.73	1166+25.55	1321.69	1166+25.55	1321.64	1166+25.55	1321.60	1166+25.55	1321.58	1166+25.55	1321.55	1166+25.55	1321.53
	3	1166+33.15	1321.47	1166+33.15	1321.45	1166+33.15	1321.37	1166+33.15	1321.32	1166+33.15	1321.24	1166+33.15	1321.23	1166+33.15	1321.18	1166+33.15	1321.16
	4	1166+40.75	1321.20	1166+40.75	1321.15	1166+40.75	1321.08	1166+40.75	1320.98	1166+40.75	1320.89	1166+40.75	1320.87	1166+40.75	1320.81	1166+40.75	1320.78
	5	1166+48.35	1320.93	1166+48.35	1320.89	1166+48.35	1320.77	1166+48.35	1320.67	1166+48.35	1320.56	1166+48.35	1320.53	1166+48.35	1320.45	1166+48.35	1320.41
	6	1166+55.95	1320.68	1166+55.95	1320.61	1166+55.95	1320.48	1166+55.95	1320.35	1166+55.95	1320.23	1166+55.95	1320.20	1166+55.95	1320.10	1166+55.95	1320.05
	7	1166+63.55	1320.43	1166+63.55	1320.35	1166+63.55	1320.22	1166+63.55	1320.06	1166+63.55	1319.91	1166+63.55	1319.87	1166+63.55	1319.75	1166+63.55	1319.70
	8	1166+71.15	1320.18	1166+71.15	1320.12	1166+71.15	1319.94	1166+71.15	1319.77	1166+71.15	1319.59	1166+71.15	1319.55	1166+71.15	1319.43	1166+71.15	1319.36
	9	1166+78.75	1319.95	1166+78.75	1319.86	1166+78.75	1319.67	1166+78.75	1319.48	1166+78.75	1319.29	1166+78.75	1319.24	1166+78.75	1319.11	1166+78.75	1319.02
℄ Brg. Abut. #2	10	1166+86.35	1319.73	1166+86.35	1319.63	1166+86.35	1319.42	1166+86.35	1319.21	1166+86.35	1318.99	1166+86.35	1318.94	1166+86.35	1318.79	1166+86.35	1318.69

† Elevations are at top of deck over ℄ Girder.

Plotted by : Bernhardt 18-AUG-2025 10:06
File : ka651701bbr-0740.dgn

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

ROADWAY SURFACE ELEVATIONS II
S. BD. I-135 TO E. BD. US-54 RAMP

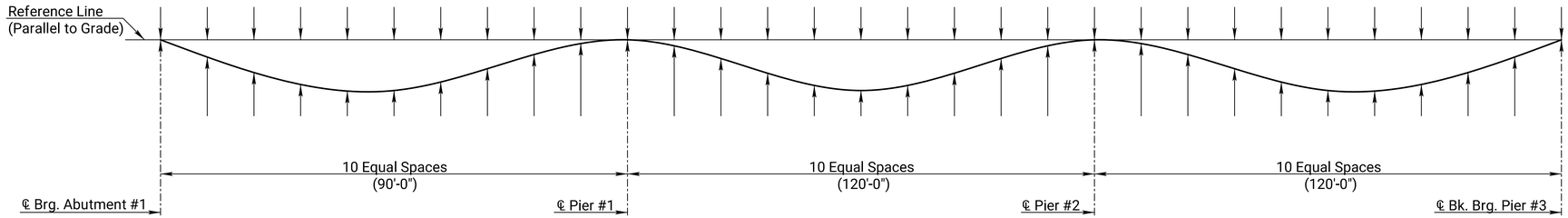
Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 109

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	110	366



	Girder	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4
Dead Load Steel	A	0.000	0.006	0.011	0.014	0.015	0.015	0.012	0.008	0.005	0.001	0.000	0.002	0.006	0.011	0.014	0.014	0.012	0.007	0.002	-0.002	0.000	0.008	0.020	0.034	0.046	0.053	0.055	0.049	0.037	0.020	0.000
	B	0.000	0.007	0.013	0.018	0.019	0.018	0.015	0.011	0.006	0.002	0.000	0.002	0.007	0.012	0.015	0.015	0.012	0.006	0.001	-0.003	0.000	0.010	0.025	0.041	0.056	0.065	0.067	0.060	0.046	0.025	0.000
	C	0.000	0.008	0.015	0.020	0.022	0.021	0.017	0.012	0.007	0.002	0.000	0.001	0.006	0.012	0.015	0.015	0.011	0.005	-0.001	-0.004	0.000	0.012	0.029	0.048	0.065	0.075	0.078	0.070	0.053	0.029	0.000
	D	0.000	0.009	0.016	0.021	0.023	0.023	0.019	0.014	0.008	0.003	0.000	0.001	0.005	0.010	0.013	0.013	0.009	0.003	-0.003	-0.005	0.000	0.014	0.033	0.055	0.073	0.084	0.087	0.078	0.059	0.032	0.000
	E	0.000	0.009	0.017	0.022	0.024	0.024	0.020	0.014	0.008	0.003	0.000	0.000	0.004	0.008	0.011	0.009	0.005	-0.001	-0.006	-0.007	0.000	0.015	0.037	0.061	0.081	0.094	0.096	0.087	0.066	0.035	0.000
Dead Load Concrete	A	0.000	0.014	0.025	0.033	0.036	0.035	0.028	0.020	0.011	0.004	0.000	0.003	0.013	0.023	0.030	0.031	0.025	0.014	0.003	-0.004	0.000	0.018	0.045	0.075	0.102	0.118	0.122	0.111	0.084	0.046	0.000
	B	0.000	0.016	0.029	0.039	0.042	0.040	0.033	0.024	0.013	0.005	0.000	0.003	0.012	0.022	0.029	0.029	0.022	0.010	-0.001	-0.007	0.000	0.022	0.055	0.090	0.122	0.142	0.146	0.132	0.101	0.054	0.000
	C	0.000	0.018	0.033	0.043	0.047	0.046	0.038	0.027	0.016	0.006	0.000	0.002	0.011	0.021	0.027	0.026	0.019	0.006	-0.005	-0.009	0.000	0.026	0.064	0.105	0.142	0.164	0.169	0.152	0.116	0.063	0.000
	D	0.000	0.020	0.036	0.048	0.052	0.051	0.043	0.031	0.018	0.007	0.000	0.001	0.009	0.018	0.024	0.022	0.014	0.002	-0.009	-0.012	0.000	0.031	0.074	0.121	0.162	0.187	0.193	0.174	0.131	0.071	0.000
	E	0.000	0.022	0.040	0.053	0.058	0.057	0.048	0.035	0.021	0.008	0.000	-0.001	0.007	0.016	0.021	0.018	0.009	-0.004	-0.014	-0.015	0.000	0.035	0.085	0.137	0.184	0.212	0.219	0.197	0.149	0.081	0.000
Total Dead Load	A	0.000	0.019	0.036	0.047	0.051	0.049	0.040	0.028	0.015	0.005	0.000	0.005	0.019	0.034	0.045	0.045	0.037	0.020	0.004	-0.006	0.000	0.026	0.065	0.109	0.147	0.171	0.177	0.160	0.122	0.066	0.000
	B	0.000	0.023	0.043	0.056	0.061	0.059	0.049	0.034	0.019	0.007	0.000	0.004	0.019	0.034	0.045	0.044	0.034	0.017	0.000	-0.009	0.000	0.032	0.080	0.132	0.178	0.206	0.213	0.193	0.146	0.079	0.000
	C	0.000	0.026	0.048	0.063	0.069	0.067	0.055	0.039	0.023	0.008	0.000	0.003	0.017	0.032	0.042	0.041	0.030	0.011	-0.005	-0.013	0.000	0.038	0.094	0.154	0.207	0.239	0.247	0.222	0.169	0.091	0.000
	D	0.000	0.028	0.052	0.069	0.076	0.073	0.062	0.044	0.026	0.010	0.000	0.002	0.014	0.029	0.037	0.035	0.023	0.004	-0.012	-0.017	0.000	0.044	0.108	0.175	0.236	0.271	0.280	0.252	0.191	0.103	0.000
	E	0.000	0.031	0.057	0.076	0.083	0.081	0.068	0.049	0.029	0.011	0.000	0.000	0.011	0.024	0.031	0.027	0.014	-0.005	-0.020	-0.022	0.000	0.051	0.122	0.198	0.265	0.306	0.315	0.283	0.215	0.116	0.000

	Girder	Field Splice Number			
		1	2	3	4
Dead Load Steel	A	0.008	0.009	0.006	0.032
	B	0.009	0.010	0.005	0.041
	C	0.011	0.009	0.004	0.045
	D	0.012	0.008	0.001	0.050
	E	0.013	0.006	-0.002	0.055
Dead Load Concrete	A	0.019	0.020	0.012	0.072
	B	0.021	0.020	0.007	0.089
	C	0.025	0.017	0.004	0.098
	D	0.028	0.014	-0.001	0.111
	E	0.031	0.011	-0.007	0.125
Total Dead Load	A	0.027	0.029	0.018	0.104
	B	0.030	0.030	0.012	0.130
	C	0.037	0.026	0.008	0.143
	D	0.040	0.022	0.000	0.161
	E	0.044	0.017	-0.010	0.179

DEFLECTION AND CAMBER NOTES:

Ordinates shown in the tables on this sheet are in feet and are at tenth points of girder spans or at the location of field splices.
The girder shall be fabricated such that under full dead load the top of the girder web will parallel the finished slab grade defined by the Table of Bridge Deck Elevations on Sheet # 108 & 109 .
"Dead Load Steel" ordinates represent the amount of deflection due to all structural steel.
"Dead Load Concrete" ordinates represent the amount of deflection due to the slab pour and barriers. These ordinates represent the amount of camber that should be in the girders after they are erected and bolted but prior to placing slab framework.
"Total Dead Load" ordinates represent the total deflection which is the sum of the steel deflections and the concrete deflections.
The distance from the top of slab to the top of girder web shall be 12½" measured at ℄ Girder at bearing locations.
Esteel = 29,000 ksi

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DEAD LOAD DEFLECTIONS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

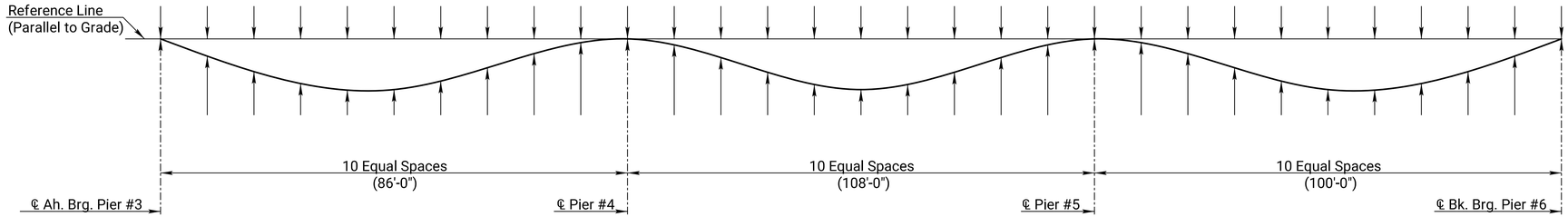
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 110

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:07
File : ka6517101bbr-0745.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	111	366



	Girder	4	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7
Dead Load Steel	A	0.000	0.006	0.011	0.015	0.016	0.015	0.012	0.008	0.004	0.001	0.000	0.003	0.008	0.014	0.019	0.021	0.019	0.014	0.007	0.002	0.000	0.002	0.006	0.011	0.017	0.020	0.021	0.020	0.015	0.008	0.000
	B	0.000	0.008	0.014	0.018	0.019	0.018	0.015	0.010	0.005	0.002	0.000	0.002	0.008	0.014	0.019	0.020	0.018	0.012	0.006	0.001	0.000	0.004	0.010	0.018	0.025	0.030	0.031	0.028	0.021	0.012	0.000
	C	0.000	0.008	0.016	0.020	0.022	0.021	0.017	0.012	0.006	0.002	0.000	0.002	0.007	0.012	0.017	0.018	0.016	0.010	0.004	0.000	0.000	0.005	0.013	0.023	0.032	0.038	0.039	0.036	0.027	0.015	0.000
	D	0.000	0.009	0.016	0.021	0.023	0.022	0.018	0.013	0.007	0.003	0.000	0.001	0.005	0.010	0.014	0.015	0.013	0.007	0.002	-0.001	0.000	0.006	0.017	0.028	0.038	0.045	0.046	0.042	0.032	0.018	0.000
	E	0.000	0.009	0.017	0.022	0.024	0.023	0.019	0.014	0.008	0.003	0.000	0.000	0.003	0.007	0.010	0.010	0.008	0.004	-0.001	-0.002	0.000	0.008	0.020	0.033	0.044	0.053	0.054	0.049	0.037	0.020	0.000
Dead Load Concrete	A	0.000	0.015	0.028	0.036	0.039	0.037	0.029	0.019	0.010	0.002	0.000	0.007	0.020	0.034	0.046	0.050	0.045	0.033	0.017	0.004	0.000	0.005	0.015	0.028	0.041	0.049	0.052	0.048	0.037	0.021	0.000
	B	0.000	0.017	0.032	0.042	0.045	0.042	0.034	0.023	0.012	0.004	0.000	0.005	0.016	0.031	0.042	0.044	0.039	0.027	0.013	0.002	0.000	0.009	0.023	0.041	0.058	0.069	0.072	0.066	0.050	0.027	0.000
	C	0.000	0.019	0.035	0.046	0.050	0.048	0.039	0.027	0.015	0.005	0.000	0.003	0.013	0.026	0.036	0.038	0.033	0.021	0.008	-0.001	0.000	0.012	0.032	0.054	0.075	0.088	0.091	0.083	0.063	0.035	0.000
	D	0.000	0.021	0.038	0.050	0.055	0.053	0.044	0.031	0.018	0.006	0.000	0.001	0.010	0.021	0.029	0.031	0.026	0.014	0.003	-0.004	0.000	0.015	0.040	0.068	0.092	0.109	0.111	0.101	0.077	0.042	0.000
	E	0.000	0.022	0.042	0.056	0.060	0.058	0.049	0.035	0.020	0.008	0.000	0.000	0.006	0.015	0.022	0.023	0.018	0.007	-0.003	-0.006	0.000	0.019	0.049	0.082	0.111	0.131	0.134	0.122	0.092	0.050	0.000
Total Dead Load	A	0.000	0.021	0.039	0.051	0.055	0.051	0.041	0.027	0.013	0.003	0.000	0.009	0.028	0.049	0.065	0.071	0.064	0.046	0.025	0.006	0.000	0.007	0.021	0.039	0.057	0.069	0.073	0.068	0.052	0.029	0.000
	B	0.000	0.025	0.046	0.060	0.064	0.060	0.049	0.033	0.017	0.005	0.000	0.007	0.024	0.045	0.060	0.064	0.057	0.039	0.019	0.003	0.000	0.012	0.033	0.059	0.083	0.099	0.103	0.094	0.071	0.039	0.000
	C	0.000	0.027	0.051	0.067	0.072	0.068	0.056	0.039	0.021	0.007	0.000	0.005	0.020	0.038	0.053	0.056	0.048	0.031	0.012	-0.001	0.000	0.017	0.045	0.077	0.107	0.126	0.131	0.119	0.090	0.050	0.000
	D	0.000	0.029	0.055	0.072	0.078	0.075	0.062	0.044	0.025	0.009	0.000	0.002	0.015	0.031	0.043	0.045	0.038	0.022	0.005	-0.005	0.000	0.022	0.057	0.096	0.131	0.154	0.158	0.144	0.109	0.060	0.000
	E	0.000	0.031	0.059	0.077	0.084	0.081	0.068	0.048	0.028	0.011	0.000	0.000	0.010	0.022	0.032	0.033	0.025	0.011	-0.003	-0.009	0.000	0.026	0.068	0.115	0.156	0.184	0.188	0.170	0.128	0.070	0.000

	Girder	Field Splice Number			
		1	2	3	4
Dead Load Steel	A	0.008	0.010	0.009	0.011
	B	0.010	0.010	0.008	0.016
	C	0.012	0.008	0.006	0.020
	D	0.013	0.007	0.004	0.023
	E	0.013	0.004	0.001	0.025
Dead Load Concrete	A	0.019	0.024	0.022	0.026
	B	0.023	0.021	0.017	0.037
	C	0.027	0.017	0.011	0.046
	D	0.030	0.013	0.006	0.056
	E	0.034	0.009	0.000	0.064
Total Dead Load	A	0.027	0.034	0.031	0.037
	B	0.033	0.030	0.025	0.052
	C	0.038	0.025	0.017	0.066
	D	0.043	0.019	0.010	0.079
	E	0.047	0.013	0.000	0.089

DEFLECTION AND CAMBER NOTES:

Ordinates shown in the tables on this sheet are in feet and are at tenth points of girder spans or at the location of field splices.
The girder shall be fabricated such that under full dead load the top of the girder web will parallel the finished slab grade defined by the Table of Bridge Deck Elevations on Sheet #108 & 109.
"Dead Load Steel" ordinates represent the amount of deflection due to all structural steel.
"Dead Load Concrete" ordinates represent the amount of deflection due to the slab pour and barriers. These ordinates represent the amount of camber that should be in the girders after they are erected and bolted but prior to placing slab framework.
"Total Dead Load" ordinates represent the total deflection which is the sum of the steel deflections and the concrete deflections.
The distance from the top of slab to the top of girder web shall be 12½" measured at ℄ Girder at bearing locations.
Esteel = 29,000 ksi

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DEAD LOAD DEFLECTIONS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

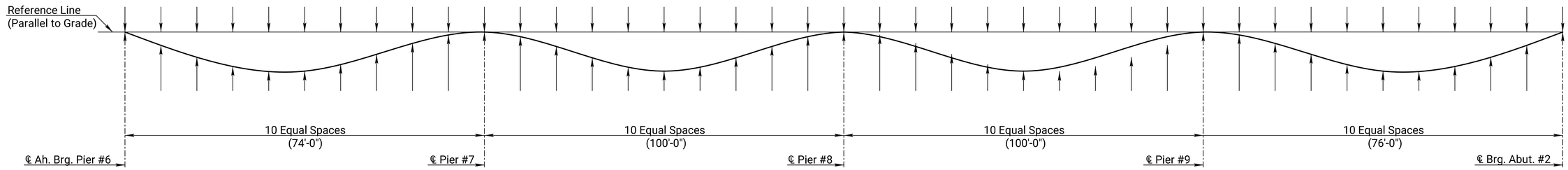
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DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	112	366



	Girder	7	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	11
Dead Load Steel	A	0.000	0.003	0.006	0.008	0.009	0.008	0.006	0.004	0.002	0.000	0.000	0.003	0.008	0.013	0.016	0.017	0.015	0.011	0.006	0.002	0.000	0.002	0.007	0.012	0.016	0.018	0.016	0.013	0.008	0.003	0.000	0.001	0.003	0.005	0.008	0.010	0.011	0.010	0.008	0.004	0.000
	B	0.000	0.005	0.008	0.011	0.012	0.011	0.008	0.005	0.002	0.000	0.000	0.003	0.009	0.016	0.020	0.022	0.020	0.014	0.008	0.003	0.000	0.002	0.008	0.013	0.018	0.020	0.018	0.014	0.008	0.003	0.000	0.001	0.003	0.007	0.010	0.012	0.013	0.012	0.009	0.005	0.000
	C	0.000	0.005	0.009	0.012	0.013	0.012	0.009	0.006	0.003	0.000	0.000	0.004	0.011	0.018	0.023	0.025	0.022	0.016	0.009	0.003	0.000	0.002	0.007	0.013	0.018	0.020	0.019	0.015	0.009	0.003	0.000	0.001	0.004	0.007	0.011	0.013	0.014	0.013	0.010	0.006	0.000
	D	0.000	0.005	0.009	0.012	0.013	0.011	0.009	0.006	0.003	0.000	0.000	0.004	0.011	0.018	0.023	0.025	0.023	0.017	0.010	0.003	0.000	0.002	0.007	0.012	0.017	0.019	0.017	0.013	0.008	0.003	0.000	0.001	0.004	0.007	0.010	0.013	0.013	0.012	0.009	0.005	0.000
	E	0.000	0.004	0.008	0.010	0.011	0.010	0.008	0.005	0.002	0.000	0.000	0.004	0.010	0.017	0.022	0.024	0.022	0.016	0.010	0.003	0.000	0.001	0.005	0.010	0.014	0.015	0.014	0.011	0.007	0.002	0.000	0.001	0.003	0.006	0.009	0.011	0.011	0.010	0.008	0.004	0.000
Dead Load Concrete	A	0.000	0.006	0.011	0.015	0.016	0.014	0.011	0.007	0.003	0.000	0.000	0.005	0.014	0.023	0.030	0.032	0.028	0.020	0.011	0.003	0.000	0.004	0.013	0.022	0.030	0.032	0.030	0.023	0.014	0.005	0.000	0.001	0.005	0.010	0.015	0.018	0.020	0.018	0.014	0.008	0.000
	B	0.000	0.010	0.018	0.024	0.026	0.023	0.018	0.012	0.005	0.001	0.000	0.007	0.021	0.035	0.044	0.048	0.043	0.031	0.018	0.006	0.000	0.005	0.016	0.029	0.039	0.043	0.040	0.031	0.018	0.006	0.000	0.002	0.007	0.015	0.022	0.027	0.029	0.027	0.021	0.012	0.000
	C	0.000	0.012	0.022	0.029	0.031	0.028	0.022	0.014	0.007	0.001	0.000	0.008	0.025	0.042	0.054	0.058	0.052	0.039	0.022	0.007	0.000	0.005	0.017	0.031	0.043	0.047	0.044	0.034	0.020	0.007	0.000	0.002	0.009	0.017	0.026	0.031	0.033	0.031	0.024	0.013	0.000
	D	0.000	0.013	0.023	0.030	0.032	0.029	0.023	0.015	0.007	0.001	0.000	0.009	0.027	0.045	0.059	0.063	0.057	0.043	0.024	0.008	0.000	0.004	0.016	0.031	0.042	0.047	0.044	0.034	0.020	0.007	0.000	0.002	0.009	0.018	0.026	0.032	0.034	0.031	0.024	0.013	0.000
	E	0.000	0.013	0.023	0.030	0.032	0.029	0.023	0.014	0.006	0.000	0.000	0.010	0.029	0.048	0.062	0.068	0.061	0.046	0.027	0.009	0.000	0.003	0.014	0.028	0.039	0.044	0.041	0.032	0.019	0.006	0.000	0.002	0.009	0.017	0.025	0.030	0.032	0.030	0.023	0.013	0.000
Total Dead Load	A	0.000	0.010	0.017	0.023	0.024	0.022	0.017	0.011	0.005	0.001	0.000	0.007	0.021	0.036	0.046	0.049	0.043	0.031	0.017	0.005	0.000	0.006	0.020	0.034	0.045	0.050	0.046	0.036	0.021	0.008	0.000	0.001	0.007	0.015	0.023	0.028	0.030	0.028	0.022	0.012	0.000
	B	0.000	0.015	0.027	0.035	0.037	0.034	0.027	0.017	0.008	0.001	0.000	0.010	0.030	0.050	0.065	0.070	0.062	0.046	0.026	0.008	0.000	0.007	0.024	0.042	0.057	0.062	0.058	0.045	0.027	0.009	0.000	0.002	0.011	0.022	0.032	0.039	0.042	0.039	0.030	0.017	0.000
	C	0.000	0.017	0.031	0.041	0.043	0.040	0.031	0.020	0.009	0.001	0.000	0.012	0.035	0.059	0.076	0.083	0.074	0.055	0.031	0.010	0.000	0.007	0.025	0.045	0.061	0.067	0.063	0.049	0.029	0.010	0.000	0.003	0.012	0.025	0.036	0.045	0.047	0.044	0.034	0.019	0.000
	D	0.000	0.017	0.032	0.041	0.044	0.040	0.032	0.021	0.009	0.001	0.000	0.013	0.038	0.063	0.082	0.088	0.079	0.059	0.034	0.012	0.000	0.006	0.023	0.043	0.059	0.065	0.061	0.047	0.028	0.009	0.000	0.003	0.013	0.025	0.036	0.044	0.047	0.043	0.033	0.018	0.000
	E	0.000	0.017	0.031	0.040	0.043	0.039	0.030	0.019	0.008	0.000	0.000	0.014	0.039	0.066	0.085	0.092	0.082	0.062	0.036	0.013	0.000	0.004	0.019	0.038	0.052	0.059	0.055	0.043	0.025	0.009	0.000	0.003	0.012	0.023	0.034	0.041	0.043	0.040	0.031	0.017	0.000

	Girder	Field Splice Number					
		1	2	3	4	5	6
Dead Load Steel	A	0.004	0.011	0.009	0.010	0.010	0.006
	B	0.006	0.013	0.012	0.011	0.011	0.007
	C	0.006	0.015	0.013	0.011	0.012	0.007
	D	0.006	0.015	0.014	0.009	0.011	0.007
	E	0.005	0.014	0.013	0.008	0.009	0.006
Dead Load Concrete	A	0.008	0.020	0.016	0.018	0.018	0.010
	B	0.013	0.029	0.026	0.023	0.024	0.015
	C	0.015	0.034	0.031	0.025	0.027	0.017
	D	0.015	0.037	0.034	0.023	0.027	0.018
	E	0.014	0.038	0.036	0.021	0.025	0.017
Total Dead Load	A	0.012	0.030	0.025	0.027	0.029	0.015
	B	0.018	0.042	0.037	0.033	0.036	0.022
	C	0.021	0.049	0.044	0.035	0.039	0.025
	D	0.021	0.052	0.048	0.033	0.038	0.025
	E	0.019	0.052	0.048	0.029	0.034	0.023

DEFLECTION AND CAMBER NOTES:

Ordinates shown in the tables on this sheet are in feet and are at tenth points of girder spans or at the location of field splices.
The girder shall be fabricated such that under full dead load the top of the girder web will parallel the finished slab grade defined by the Table of Bridge Deck Elevations on Sheet #108 & 109.
"Dead Load Steel" ordinates represent the amount of deflection due to all structural steel.
"Dead Load Concrete" ordinates represent the amount of deflection due to the slab pour and barriers. These ordinates represent the amount of camber that should be in the girders after they are erected and bolted but prior to placing slab framework.
"Total Dead Load" ordinates represent the total deflection which is the sum of the steel deflections and the concrete deflections.
The distance from the top of slab to the top of girder web shall be 12½" measured at ℄ Girder at bearing locations.
Esteel = 29,000 ksi

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DEAD LOAD DEFLECTIONS III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

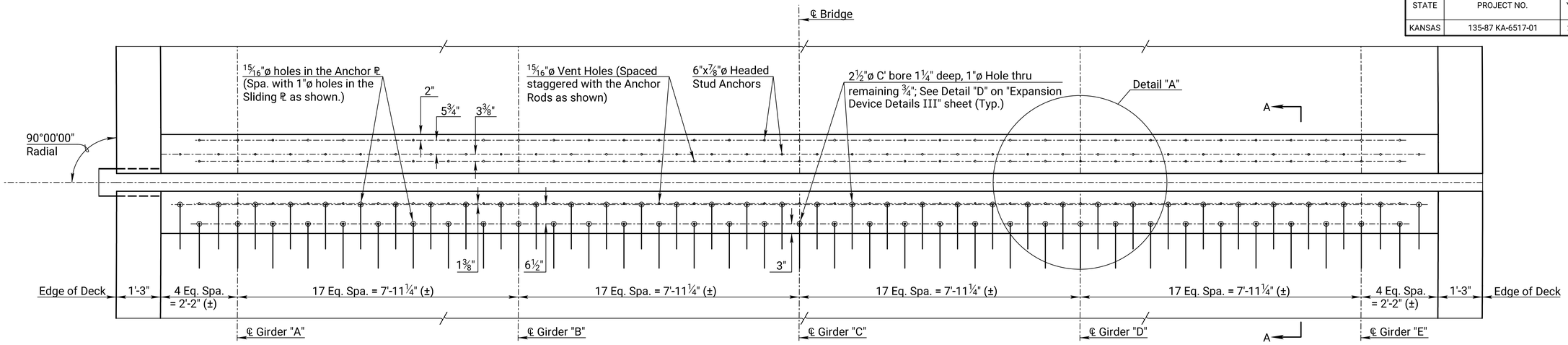
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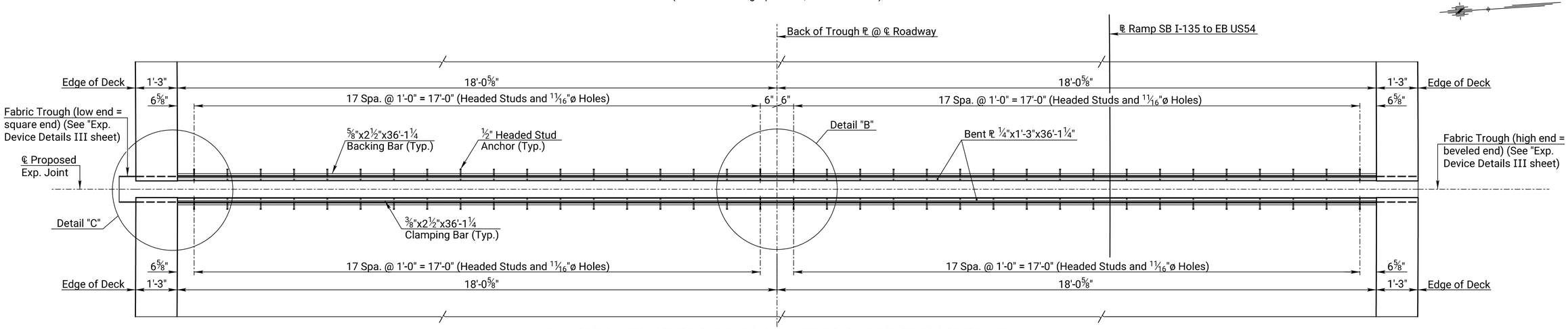
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	113	366



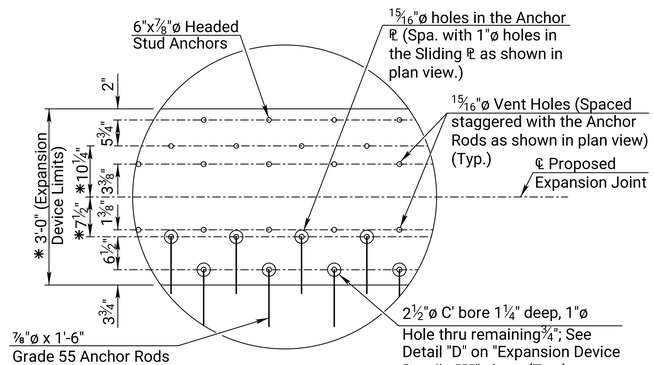
PLAN OF EXPANSION DEVICE - SLIDING PLATE & ANCHOR RODS

(Pier #3 - Looking Upstation, Pier #6 Similar)



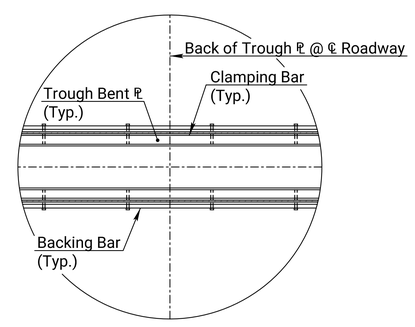
PLAN OF EXPANSION DEVICE - BACKING BAR, CLAMPING BAR, HEADED STUDS & BENT PLATE

(Barrier Concrete, Headed Studs and ⅝" End Bars not shown for clarity)
(Pier #3 - Looking Upstation, Pier #6 Similar)

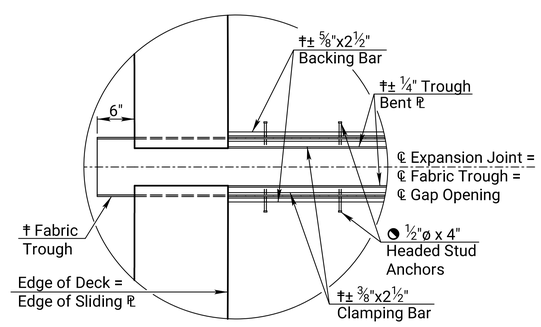


DETAIL "A"

* Dimension shown is @ 60°F



DETAIL "B"



DETAIL "C"

(Fabric Trough ONLY extends past edge of Expansion Joint at the low end)

◔ Adjust spacing of ½"ø Headed Studs to avoid Grade 55 Anchor Rods.

‡ Cut Fabric Trough as needed for trough to drain into bridge slope drain.

‡± Clamping Bars, Backing Bars and Trough Bent plates do not extend beyond Edge of Sliding Plate.

NOTE:

For Section A-A, see "Expansion Device Details II" sheet.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

EXPANSION DEVICE DETAILS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

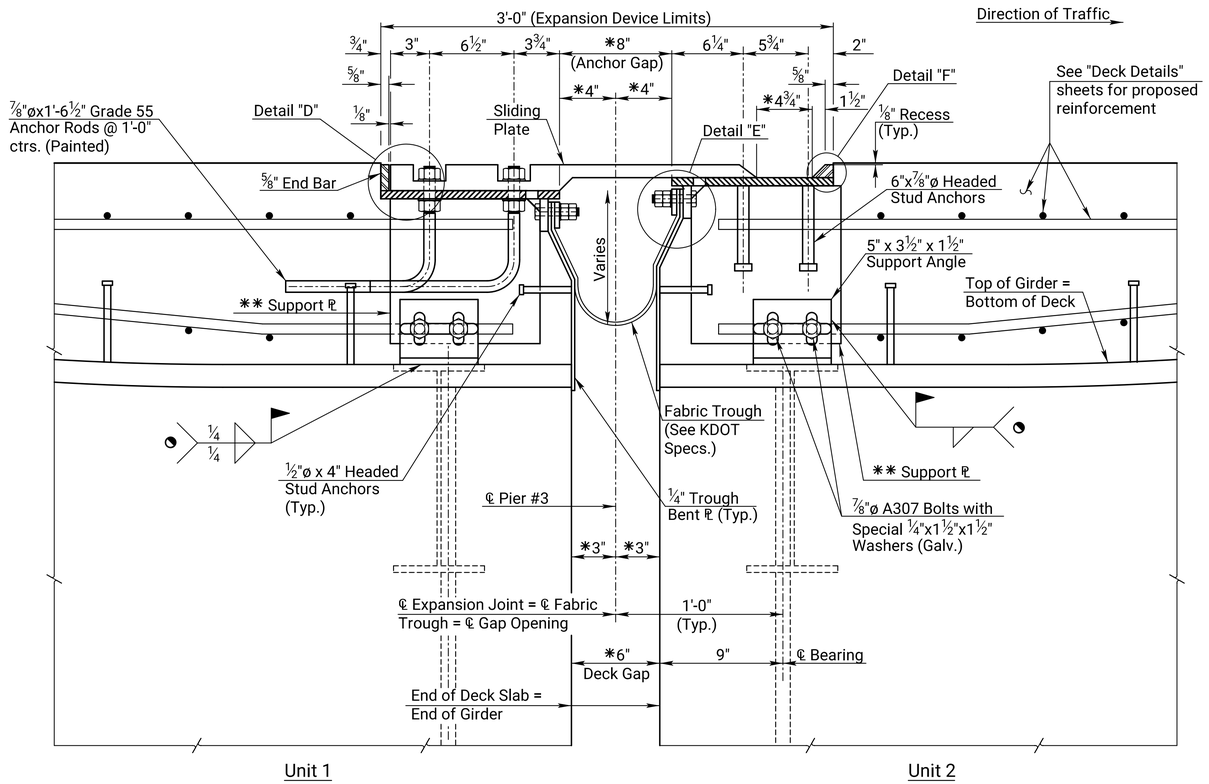
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KDOT Graphics Certified 07-15-2025 Sh. No. 113

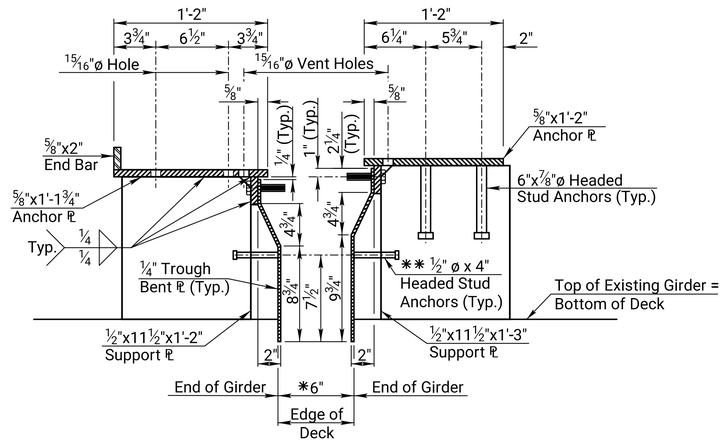
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File : ka6517101bbr-0760.dgn

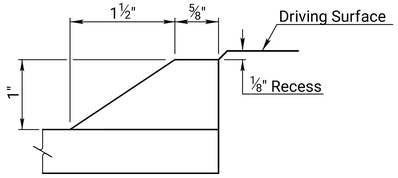
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	114	366



SECTION A-A
(Pier #3 shown, Pier #6 similar)



ANCHOR UNIT DETAIL



Detail "F"

SUGGESTED SEQUENCE OF SLIDING PLATE EXPANSION DEVICE INSTALLATION

1. Bring the anchor units to the proper grade and alignment.

2. Position the support angles against the vertical support plates on both anchor units and clamp the support angles to the top flange of the girders.

3. Bring the anchor units to the proper grade and into the same plane, centered over the gap between the girder ends. Set the top surfaces of the anchor unit parallel to the roadway slope. Check for proper alignment, then weld the support angles to the top flange of the girders.

4. Adjust the gap based on the average ambient temperature during the previous 24 hours. See table on this sheet for the gap between anchor units. Tighten the bolts connecting the support angle to the vertical plates. Place the sliding plate and make adjustments to ensure a tight fit of the sliding plate.

5. Remove the sliding plate and place the concrete on each side of the expansion joint. Thoroughly vibrate and compact concrete around the anchor units until concrete comes up through the vent holes and no voids exist under the anchor units.

6. Three days after the concrete placement the Engineer will check for voids by sounding the anchor plate. Fill any voids by drilling through the anchor plate and pumping in an approved epoxy mortar at a minimum of 75 psi. This work will be subsidiary to the bid item "Expansion Device (Sliding Plate)".

7. Install the fabric trough and sliding plate according to KDOT Specifications.

8. Install the Sliding plate according to Standard Specification 707.3 (b). After installation, the Engineer shall inspect the plate for alignment. If the Engineer determines the plate is misalignment, so that it may be struck by a snow plow, it shall be ground as directed by the Engineer.

9. Clean the trough of all foreign material after the completion of all superstructure work.

LEGEND

✱ Dimension shown is @ 60ºF

✱✱ Refer to "Expansion Device Detail I" sheet for spacing

✱✱✱ Modified Urethane Sealant shall be placed in the top holes of the sliding plates and in the ⅛ inch gap between the plate and the ⅝" x 2" outer plate.

◔ After verifying the sliding plate elevations and that they are in the same plane, parallel to the roadway, centered over the gap and aligned with scribe lines, weld the support angle to the supporting member. Shim Plates may be needed for proper elevation alignment.

◔◔ Adjust spacing of ½"ø Headed Studs to avoid Grade 55 Anchor Rods.

† Cut Fabric Trough as needed for trough to drain into bridge slope drain.

†± Clamping Bars, Backing Bars and Trough Bent plates do not extend beyond edge of Sliding Plate.

NOTE:

For location of Section A-A, see "Expansion Device I" sheet.

For Details D & E, see "Expansion Device Details III" sheet.

NOTE: Galvanize all non-shop welded elements and hardware. Prime coat with inorganic zinc all shop welded elements and hardware. An exception is the trough plate which will be galvanized.

SLIDING PLATE GAP

	Temp ºF	30	40	50	60	70	80	90	100
PIER #3	Deck Gap	7"	6 11/16"	6 5/16"	6"	5 11/16"	5 5/16"	5"	4 5/8"
	Anchor Gap	9"	8 11/16"	8 5/16"	8"	7 11/16"	7 5/16"	7"	6 5/8"
	Plate Gap	5¾"	5 7/16"	5 1/16"	4¾"	4 7/16"	4 1/16"	3¾"	3⅜"

	Temp ºF	30	40	50	60	70	80	90	100
PIER #6	Deck Gap	6⅝"	6 7/16"	6 3/16"	6"	5 13/16"	5 9/16"	5 3/8"	5 1/8"
	Anchor Gap	8⅝"	8 7/16"	8 3/16"	8"	7 13/16"	7 9/16"	7 3/8"	7 1/8"
	Plate Gap	5 3/8"	5 3/16"	4 15/16"	4¾"	4 9/16"	4 5/16"	4 1/8"	3 7/8"

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

PIER # 3 & #6 - EXPANSION DEVICE DETAILS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 114

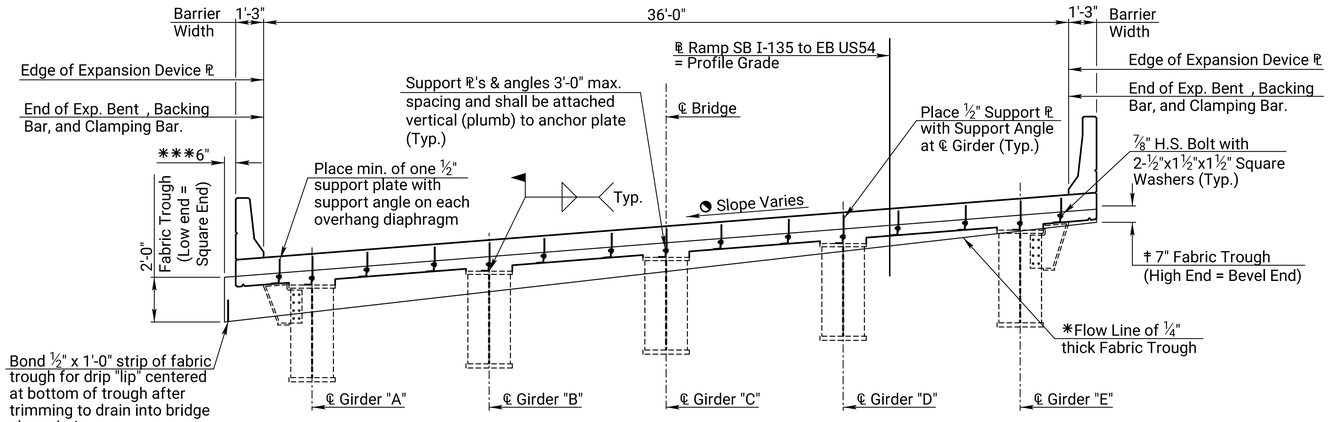
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File : ka651701bbr-0765.dgn

NOTE: Fabric Trough is subsidiary to "Expansion Device (Sliding Plate)".

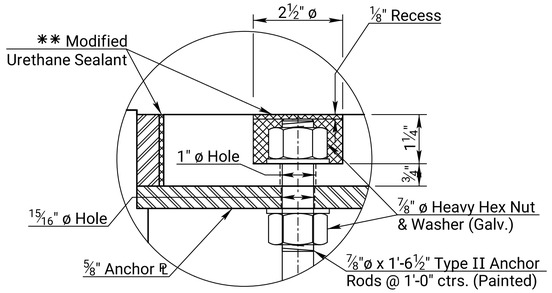
NOTE: Set the device parallel to crown grade, not level.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	115	366

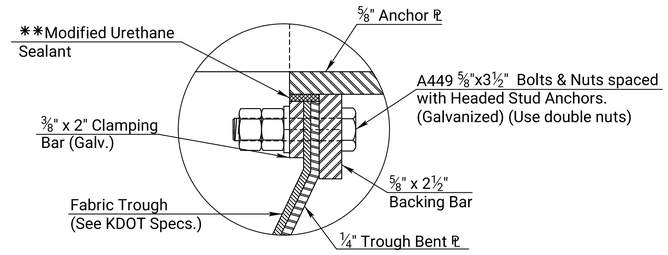


ELEVATION OF TROUGH SHOWING PROFILE

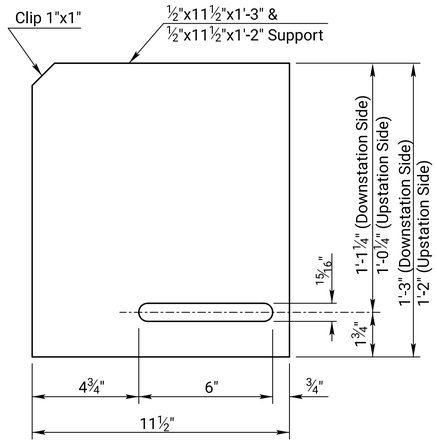
(Looking UpStation Normal to ℄ Roadway)



DETAIL "D"

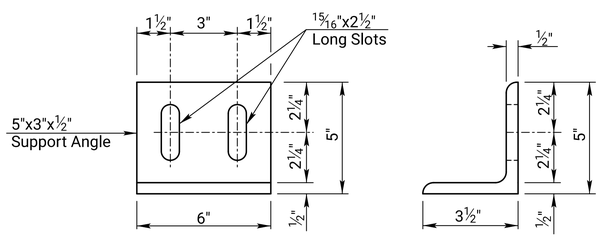


DETAIL "E"



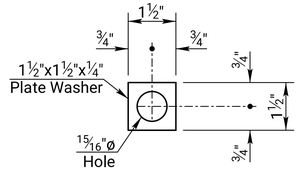
SUPPORT PLATE DETAILS

(15 Req'd @ Each Side)



SUPPORT ANGLE DETAILS

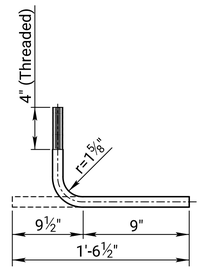
(60 Req'd.)



SPECIAL PLATE WASHER

(120 Req'd.)

Note: Place the Special Washer under both the head and nut of Bolts that grip the Support Plates.



PAINTED ⅞" DIA x 1'-6½"

Gr. 55 THREADED ANCHOR ROD

(109 Req'd)

GENERAL NOTES

All material and labor shall be paid for by the bid item "Expansion Device (Sliding Plate)". All steel plates, angles and bars shall be ASTM A36 or A709 Gr. 36 steel, except sliding plates shall be AASHTO M270 Gr. 50 (T3). No weathering steel will be allowed.

Threaded rods shall meet the requirements AASHTO M314 with 55 ksi yield strength. Tighten the high strength bolts (used to align the device) using the turn-of-the-nut method (Direct Tension Indicator (DTI) washers are not required). See Section 707 of the Standard Specifications for minimum torque values. Use plate washers over the slotted holes in the support angles and the vertical support plates. Use a hardened washer under the turned element of the fastener.

Shop paint or galvanize all structural steel except the Support Angles and Anchor Rods, which shall be painted. Shop paint Support Angles and Anchor Rods with an approved inorganic zinc primer to a nominal dry film thickness of 3 mils. Galvanize in accordance with ASTM A123.

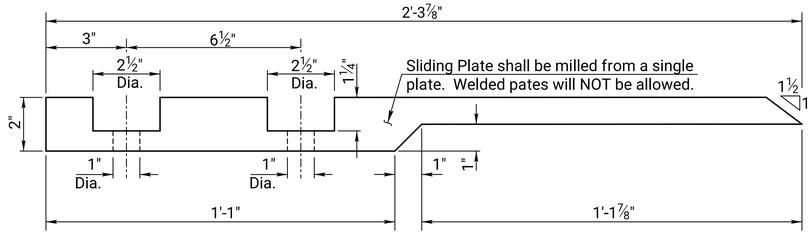
Completely remove any coating prior to welding. Also remove any coating damaged during the welding process. Touch-up any painted areas damaged by welding with an approved organic zinc primer. Touch-up any damaged galvanized areas with a zinc rich paint.

Galvanize all bolts, heavy hex nuts and washers. Shipping requirements for galvanized bolts and nuts and painted anchor rods shall meet AASHTO requirements. Ship the galvanized bolts in a plastic bag to protect the lubricants. Show proper manufacturer's markings on bolts and threaded rods. Bolts, non-threaded and threaded rods with improper bolt markings will be rejected.

Headed stud anchors shall meet the requirements of the KDOT Specifications.

The fabric material for the trough shall meet the requirements of the KDOT Specifications. Supply the trough in one continuous piece.

The Contractor may submit an alternate Installation Sequence to the Engineer for approval.



SECTION THRU SLIDING PLATE

LEGEND

◔ Normal to ℄ Roadway.

* Slope 1" per foot along Fabric Trough.

** Modified urethane sealant shall be placed in the top holes of the ⅝"x2" End Bar, and in the gap between the Anchor ℄ and Clamping Bar assembly.

*** Extension beyond Edge of Exp. Dev. applies ONLY to the low end of Fabric Trough as shown in Detail "C" on the "Expansion Device Details II" sheet.

† Theoretical dimension. Vary dimension as required to achieve required slope of fabric trough.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

EXPANSION DEVICE DETAILS III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

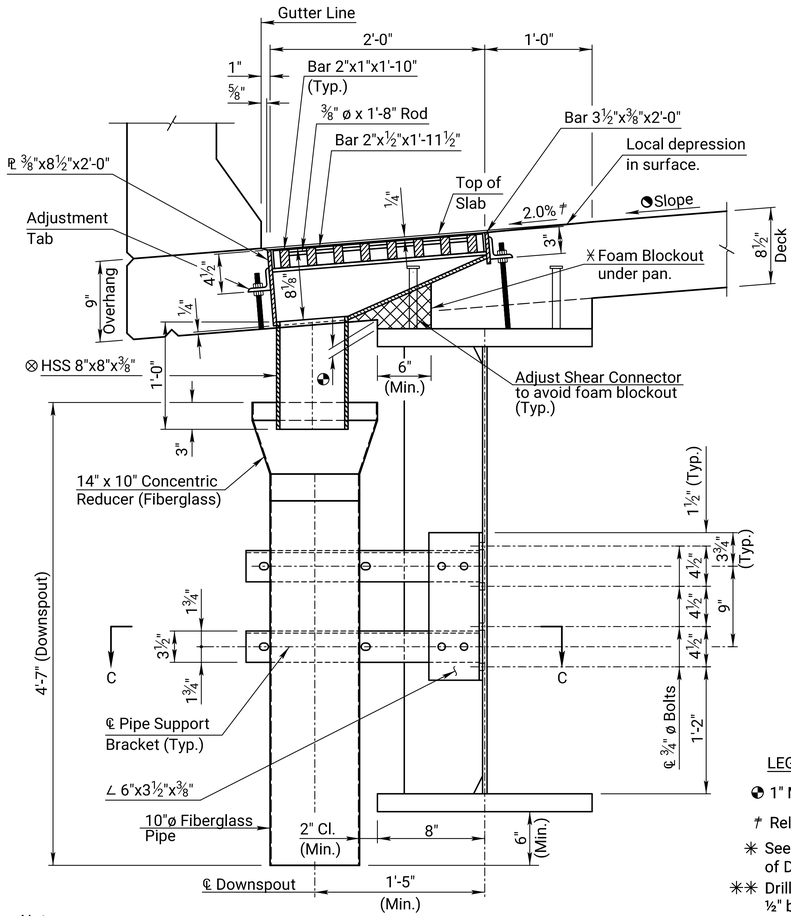
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DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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File : ka651701bbr-0770.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	116	366



SECTION A-A
(3'-5" Overhang) (See Notes)

Note:
Section A-A shown for downspout at Sta. 1161+95. For downspout details at other locations, see Sh. #117.

DECK DRAIN STATIONS (Measure along ℄ SB I35 to EB54 Ramp)	
STATION	OFFSET
1160+28	28' Lt.
1161+95	28' Lt.
1165+22	28' Lt.

LEGEND

◔ 1" Min. Fillet

ǂ Relative to the local cross slope.

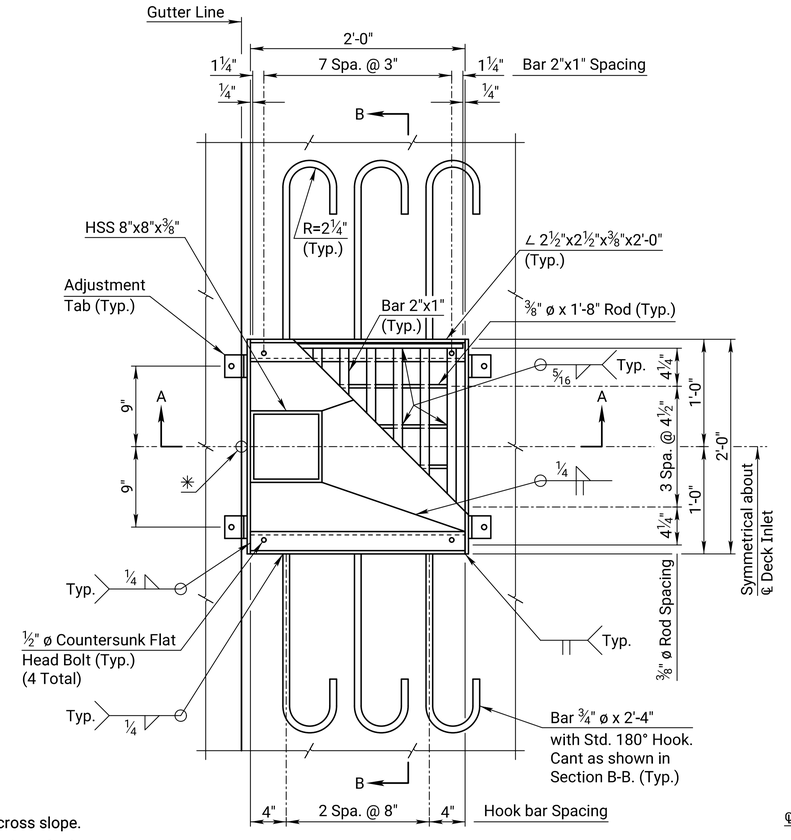
✳ See Deck Reinforcing sheet for location of Deck Inlets.

✳✳ Drill and tap angle and bar to accept ½" bolt threads.

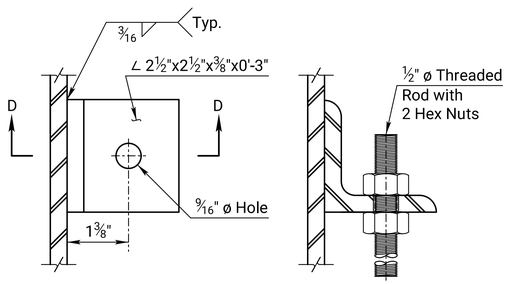
Ӿ Hand vibrate the concrete under the pan in front of the screed and prior to gang vibrating.

◔ See Construction Layout sheets for slope information.

⊗ Outlet Pipe to be vertical.

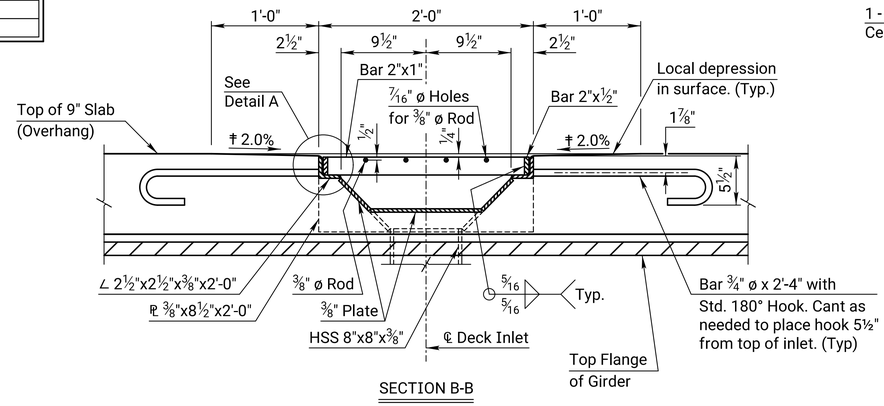


DECK INLET PLAN
(4 Required)

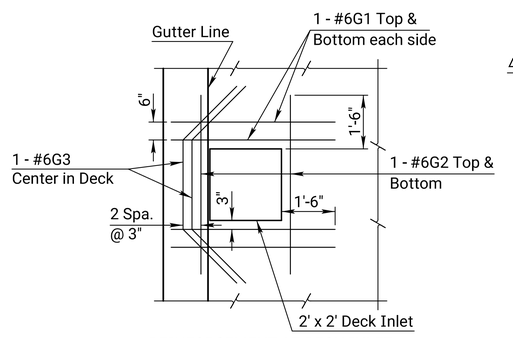


ADJUSTMENT TAB
(4 per Inlet)

SECTION D-D



SECTION B-B



REINFORCEMENT AT DECK INLET
(4 Locations)

Note: Cut slab reinforcing to clear deck inlet. Place additional reinforcing bars in the top and bottom mats of slab reinforcing (#6G1 & #6G2) and centered between top and bottom mats of reinforcing steel (#6G3) as shown.

Notes:
See Sh. #58 &60 for Construction Layout sheets.
See Sh. #102- 106 for Deck Reinforcing Sheets.

BRIDGE DRAINAGE SYSTEM NOTES

All materials for deck inlets, pipe supports and clamps shall conform to the requirements of ASTM A709 (Gr. 36), except steel tube and steel reducers shall meet ASTM A500 Grade B requirements. Support bolts and nuts shall conform to the requirements of ASTM A307. Grate connection bolts shall be Type 304SS (Stainless Steel), use an anti-seize compound on all threads. The fiberglass reducers, the tube and fittings shall conform to the requirements of ASTM D2996 RTRP. The reducers above the pier cap shall be the color of the structural steel finish coat. The steel tube and reducers from the pier cap to the ground level shall be the color of the pier finish coat.

All connections of fiberglass reducers, pipes and fittings shall be made with adhesive bonded joints or other approved method.

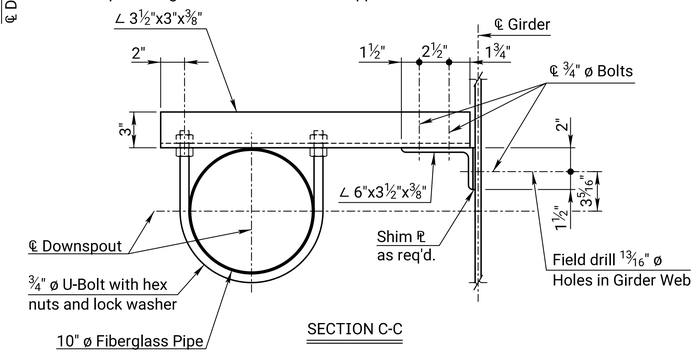
After fabrication, glavanize the deck inlets and pipe supports in accordance with ASTM A123.

All bolts, threaded rods and necessary hardware shall be galvanized in accordance with ASTM A153.

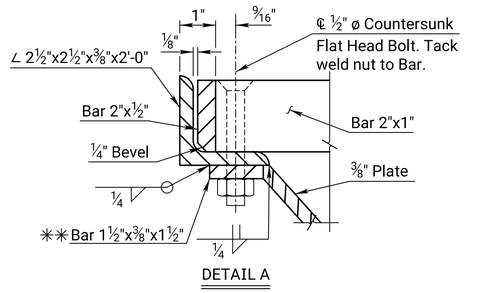
For the foam blockout under the pan, use foam as specified for "bedding for precast panels" in accordance with KDOT Specifications.

Apply a two-component, 98% polymeric epoxy, amido-amine primer tiecoat of approximately 1-2 mils in thickness to all galvanized materials, except the deck inlets, prior to application of a water-borne acrylic finish coat. Follow the manufacturer's recommendations for application and cure time. The color of the finish coat will be as specified in the Structural Steel Notes.

The bid item "Bridge Drainage System (Lump Sum)", shall include all labor and material needed to construct the bridge drainage system as shown on the plans. Included shall be all deck inlets, concentric reducers, piping and support brackets. Shop drawings shall be submitted for approval.



SECTION C-C



DETAIL A

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DRAINAGE DETAILS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

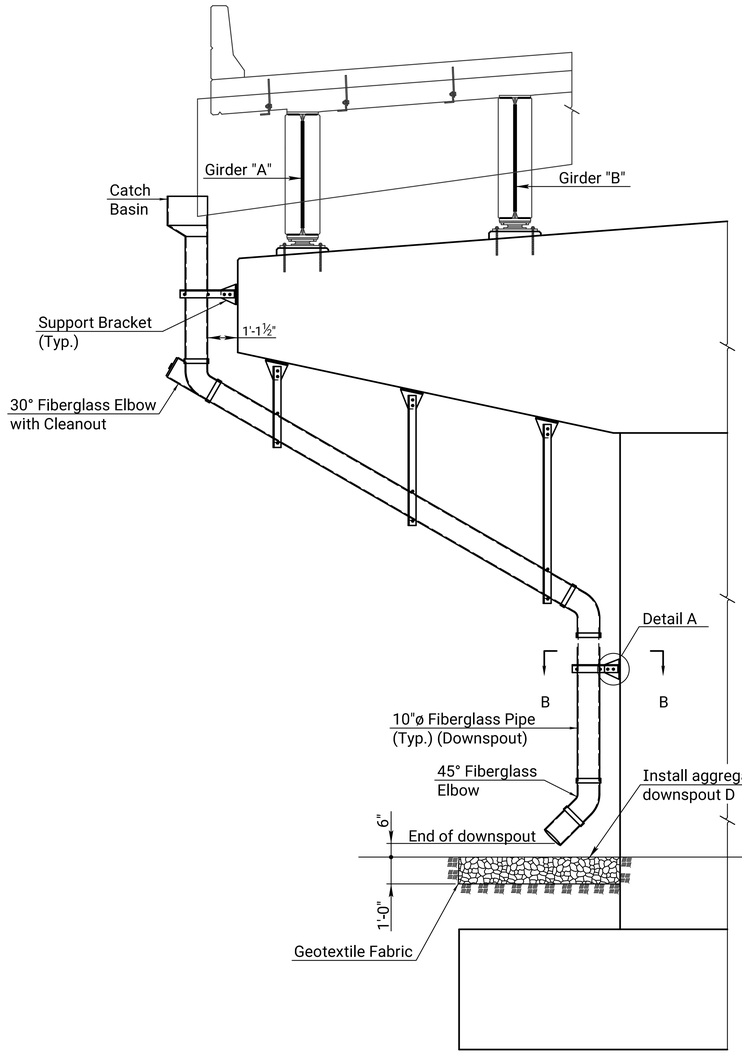
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DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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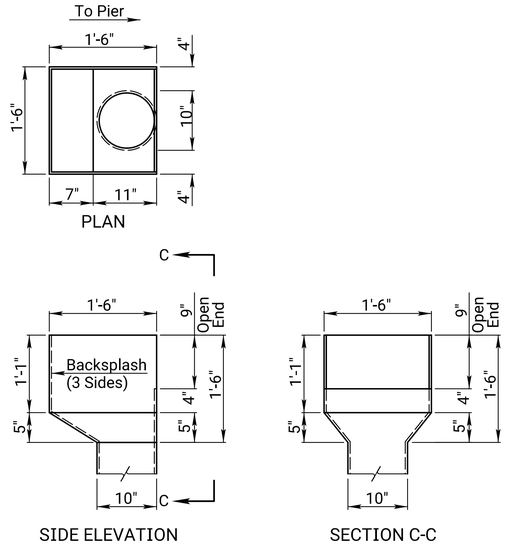
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File : ka651701bbr-0810.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	117	366

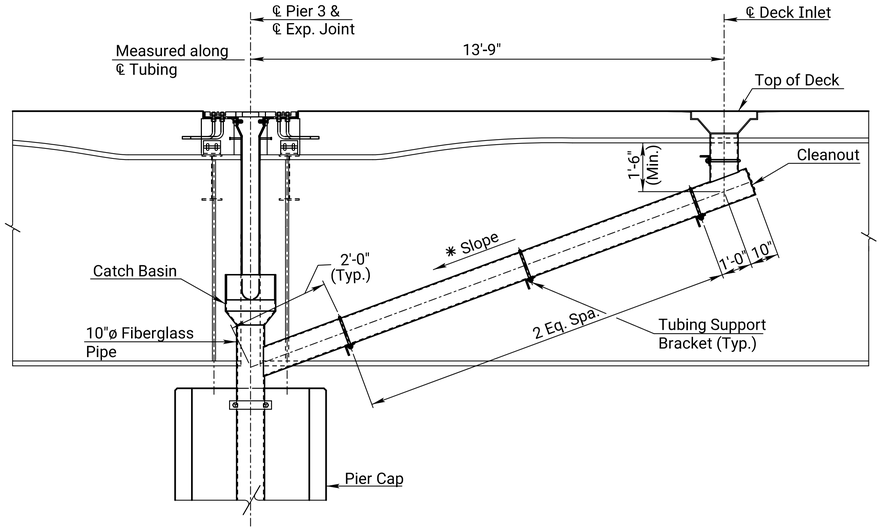


ELEVATION
(Looking Upstation)

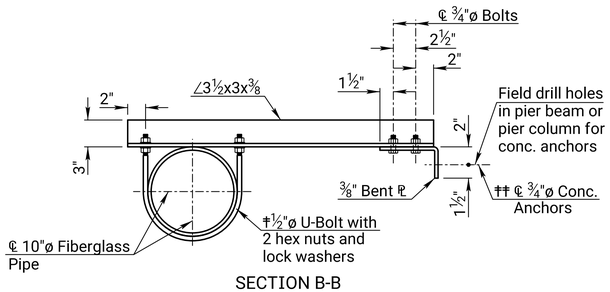
Note: Installation of geotextile fabic and aggregate shall be subsidiary to the bid tem "Bridge Drainage System" (Fiberglass).



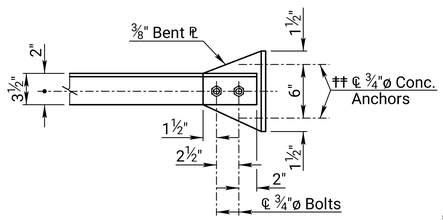
GALVANIZED CATCH BASIN
(Pier 3)



ELEVATION - PIER 3 EXPANSION JOINT



SECTION B-B



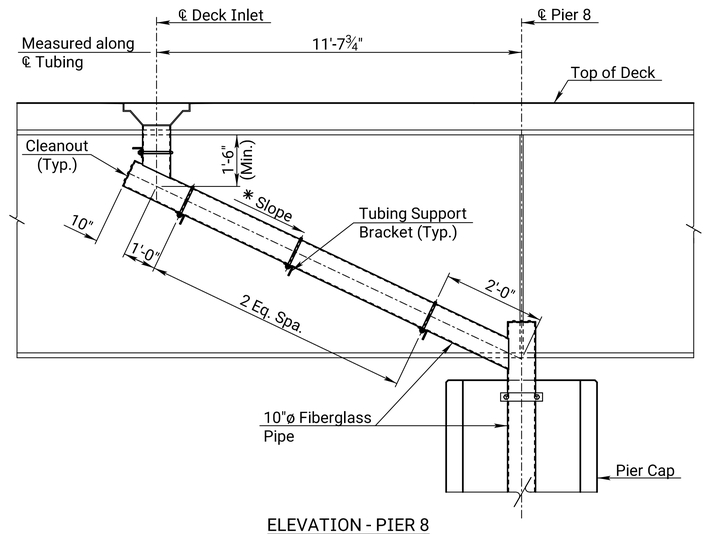
DETAIL A

DOWNSPOUT SUPPORT BRACKETS

Note: Downspout support brackets shall be Hot Dip Galvanize after fabrication.

† Field drill 9/16"ø holes in angle for U-Bolt connection

†† 13/16"ø holes in Bent ℙ



ELEVATION - PIER 8

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

DRAINAGE DETAILS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

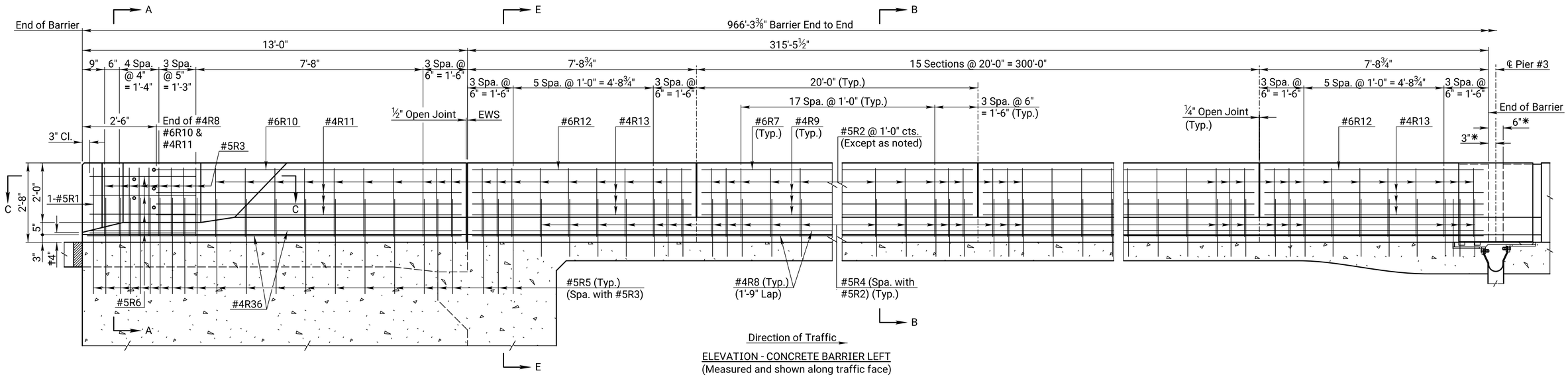
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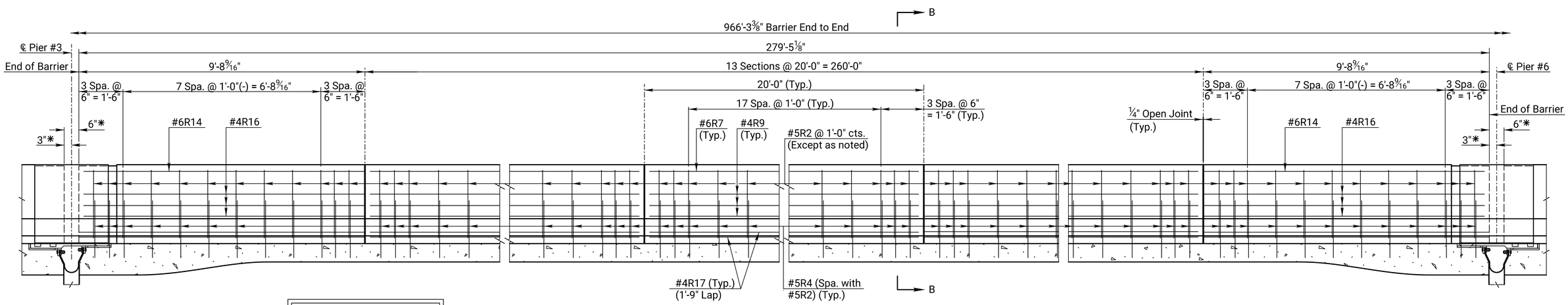
KDOT Graphics Certified 07-15-2025 Sh. No. 117

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:08
File : ka651701bbr-0815.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	118	366





NOTE: See Bridge Mounted Overhead Sign Detail Sheets for Sign Connection to Barrier.

LEGEND

† Extend the 4:1 taper to the top of the approach slab curb.

* Dimension is shown @ 60°F. See "Expansion Device Details II" for more info.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BARRIER ELEVATIONS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

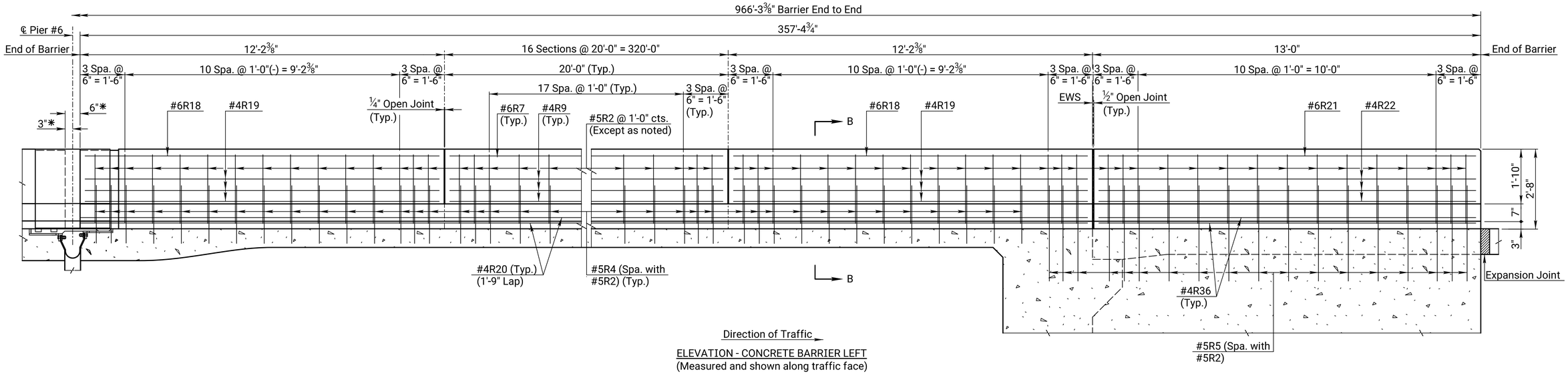
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KDOT Graphics Certified 07-15-2025 Sh. No. 118

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:08
File : ka6517016br-0850.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	119	366



ELEVATION - CONCRETE BARRIER LEFT
(Measured and shown along traffic face)

LEGEND

✳ Dimension is shown @ 60°F. See "Expansion Device Details II" for more info.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BARRIER ELEVATIONS II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

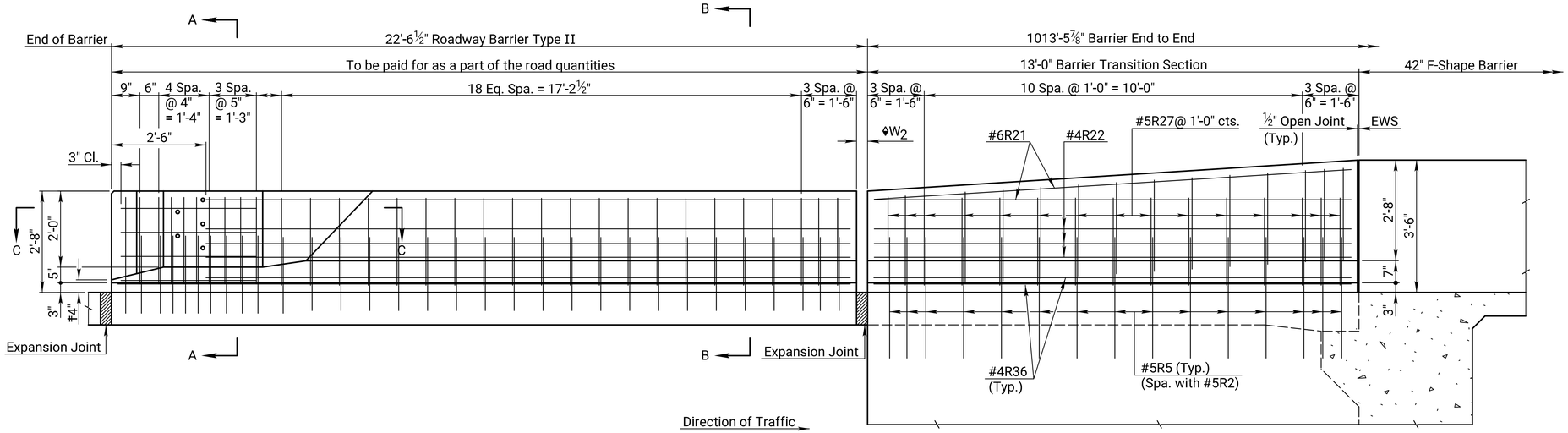
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DESIGN CK.	SB,FG,SB	DETAIL CK.	SB,OM,AH	QUAN.CK.	SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 119

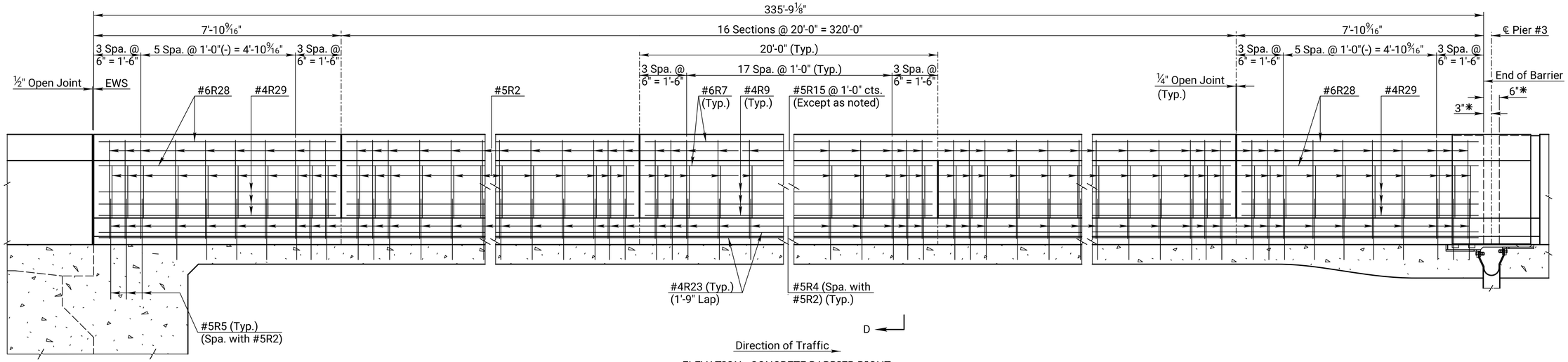
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:09
File : ka6517701bbr-0855.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	120	366



ELEVATION - CONCRETE BARRIER RIGHT
(Measured along traffic face, shown along back face)



ELEVATION - CONCRETE BARRIER RIGHT
(Measured along traffic face, shown along back face)

LEGEND

† Extend the 4:1 taper to the top of the approach slab curb.

✱ Dimension is shown @ 60°F. See "Expansion Device Details II" for more info.

℄W_2 See Concrete Bridge Approach pavement Abutment #2 for Expansion/Pressure Relief Joint Width

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BARRIER ELEVATIONS III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

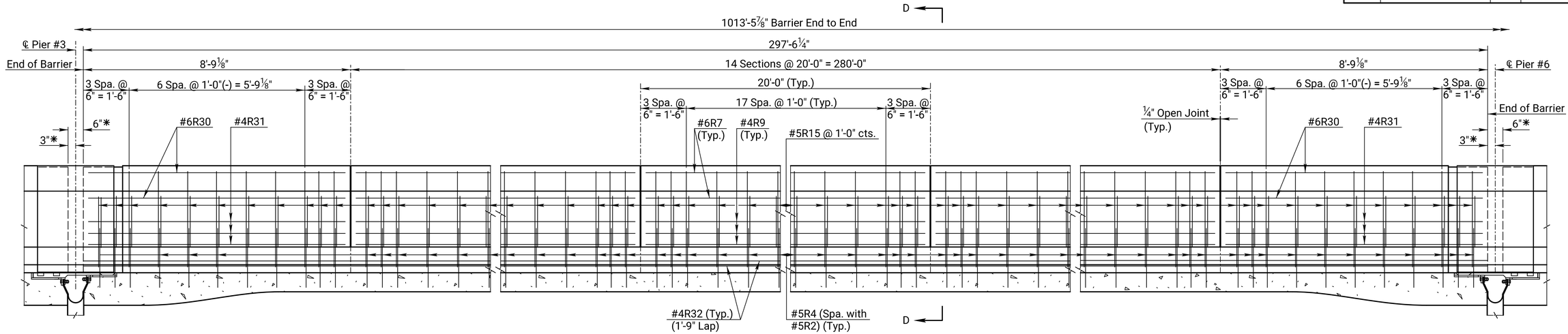
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD	DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 120

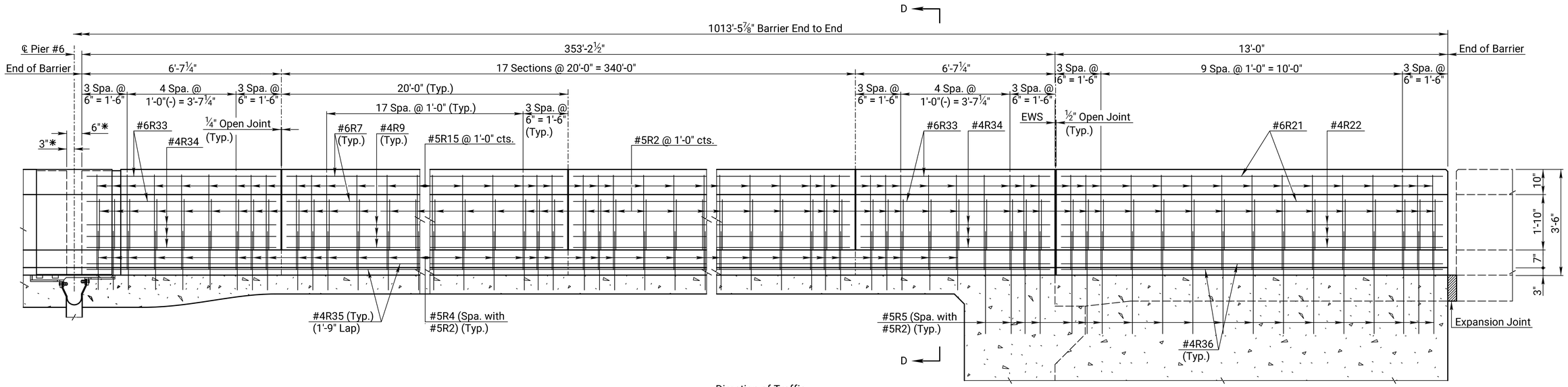
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:09
File : ka651701bbr-0860.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	121	366



NOTE: See Bridge Mounted Overhead Sign Detail Sheets for Sign Connection to Barrier.



LEGEND

* Dimension is shown @ 60°F. See "Expansion Device Details II" for more info.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BARRIER ELEVATIONS IV
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

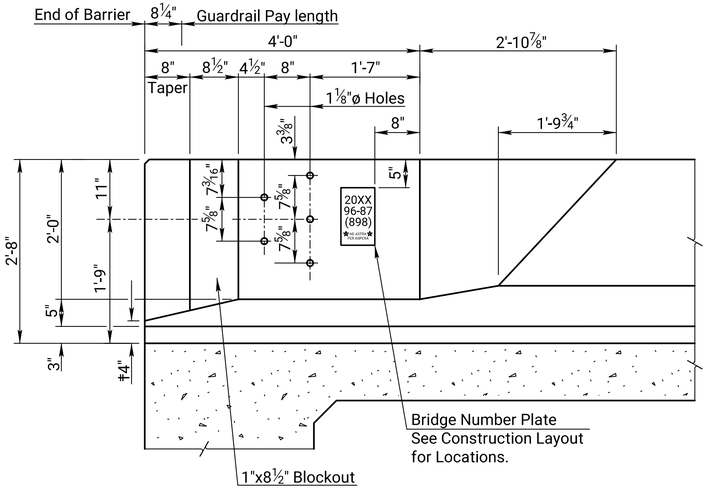
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES	SK,FG	CADD	DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK.	SB,AF	CADD CK.	SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 121

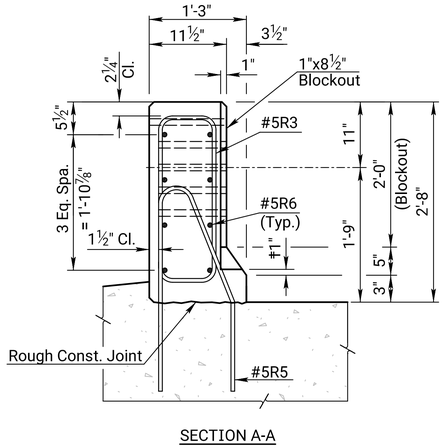
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:09
File : ka651701bbr-0865.dgn

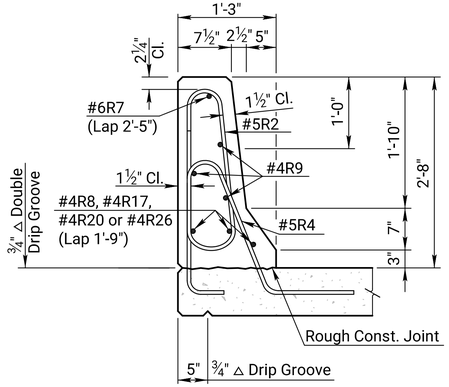
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	122	366



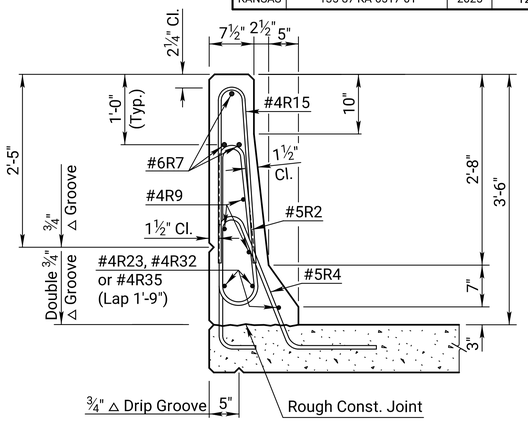
ELEVATION OF THICKENED END SECTION
(Left Barrier shown; Right Barrier similar)



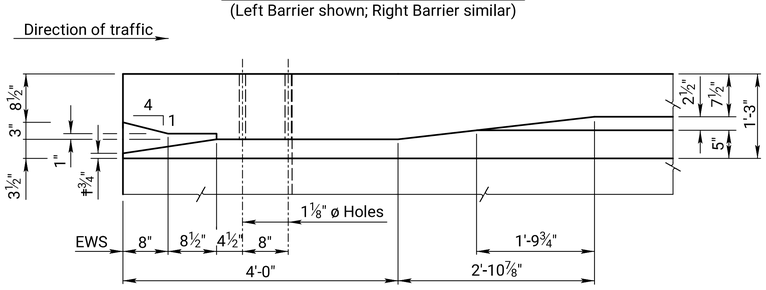
SECTION A-A



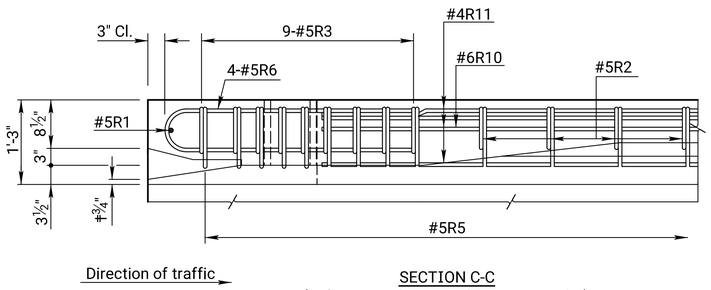
SECTION B-B
(Section thru Barrier)



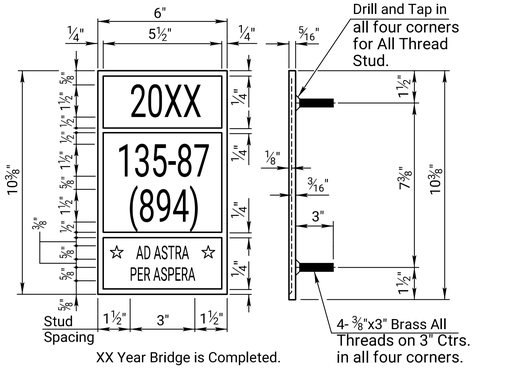
SECTION D-D
(3'-6" Section)



PLAN OF THICKENED END SECTION
(Left Barrier shown; Right Barrier similar)

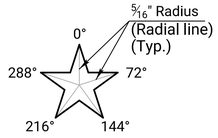


SECTION C-C
(Left Barrier shown; Right Barrier similar)

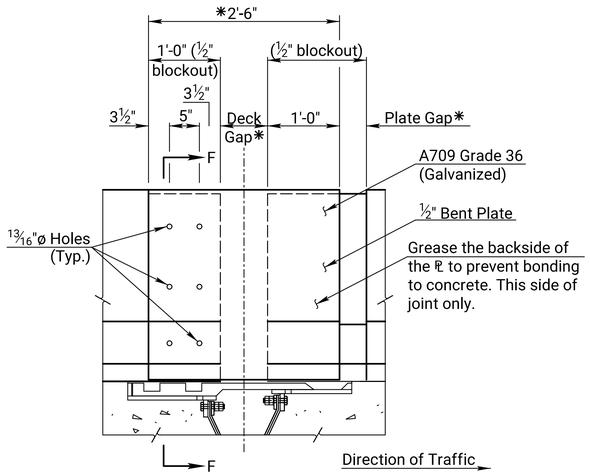


XX Year Bridge is Completed.

BRIDGE NUMBER PLATE
(1 Required)



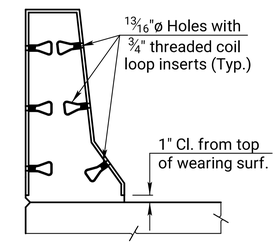
STAR GEOMETRY



* Dimension shown @ 60°F - See "Expansion Device Details II" for more information

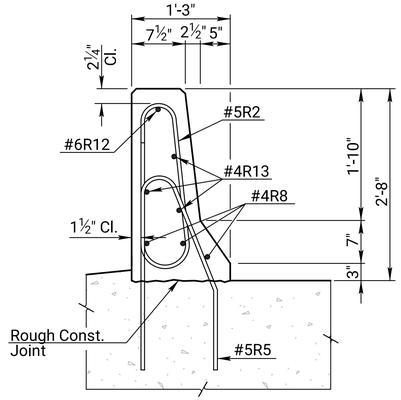
ELEVATION OF BARRIER AT EXPANSION - PIER #3

(Left Side shown, Right Side mirrored) (Pier #6 similar)
Note: Horizontal dimensions are along traffic face of barrier.



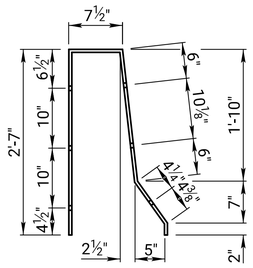
SECTION F-F

Note: All work and materials needed to fabricate and install barrier expansion plates shall be subsidiary to "Concrete Grade 4.0 (AE)".

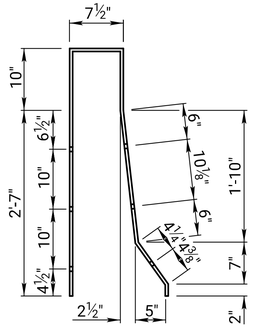


SECTION E-E

(2'-8" Barrier shown; 3'-6" Barrier similar)

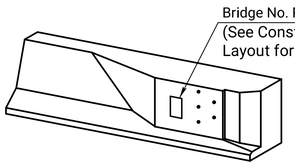


LEFT BARRIER
½"x5'-11¼" Bent ℄ (Galvanized)
ASTM A709 (Grade 36)



RIGHT BARRIER
½"x7'-7¼" Bent ℄ (Galvanized)
ASTM A709 (Grade 36)

BARRIER EXPANSION PLATE DETAIL
(2 Each Required)



BRIDGE NUMBER PLATE PLACEMENT DETAIL

NOTE:

Traffic barrier vertical dimensions are shown at the traffic face of barrier. Heights of exterior face of barrier are dependent on the slope of bridge.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BARRIER DETAILS I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 122

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:09
File : ka651701bbr-0870.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	123	366

BILL OF REINFORCING STEEL (Grade 60)

Abutment #1

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Superstructure (Epoxy Coated)	AB2	#8	4	38'-3"	AB1	#5	36	14'-5"
	AW3	#8	28	14'-3"	AB4	#5	14	5'-8"
					AB5	#5	32	6'-5"
	AB3	#5	12	38'-3"	AB6	#5	32	3'-10"
	AB7	#5	2	35'-9"	AW1	#5	6	7'-8"
	AW4	#5	6	5'-7"	AW2	#5	6	7'-8"
	AW5	#5	6	3'-0"	AW6	#5	6	⊗
	AW7	#5	14	5'-5"	AW8	#5	6	⊗
	AW9	#5	6	5'-9"				
	AW10	#5	6	3'-0"				
	AW11	#5	14	5'-5"				
Subtructure (Epoxy Coated)	AF2	#8	8	38'-3"	AF1	#5	36	13'-10"
					AF4	#5	36	5'-8"
	AF3	#5	6	38'-3"	AF5	#5	10	5'-8"
	AF7	#5	10	8'-8"	AF6	#5	10	7'-8"
					AF8	#5	12	⊗
					AF9	#5	12	⊗
					Spiral Bars			
					AS1	0.5"ø	5	1'-9"

BILL OF REINFORCING STEEL (Grade 60)

Abutment #2

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Superstructure (Epoxy Coated)	AB22	#8	4	38'-2"	AB21	#5	36	12'-10"
	AW22	#8	28	14'-3"	AB24	#5	14	5'-8"
					AB25	#5	32	6'-5"
	AB23	#5	12	38'-2"	AB26	#5	32	3'-10"
	AB27	#5	2	35'-0"	AW21	#5	12	7'-8"
					AW27	#5	6	⊗
	AW23	#5	6	4'-11"	AW28	#5	6	⊗
	AW24	#5	6	3'-0"				
	AW25	#5	6	4'-11"				
	AW26	#5	6	3'-0"				
	AW29	#5	14	4'-10"				
	AW30	#5	14	4'-7"				
Subtructure (Epoxy Coated)	AF22	#8	8	38'-2"	AF21	#5	36	12'-10"
					AF24	#5	36	5'-8"
	AF23	#5	6	38'-2"	AF25	#5	10	5'-8"
	AF27	#5	10	8'-8"	AF26	#5	10	7'-8"
					AF28	#5	12	⊗
					AF29	#5	12	⊗
					Spiral Bars			
					AS1	0.5"ø	5	1'-9"

BILL OF REINFORCING STEEL (Grade 60)

Pier #1

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Non-Epoxy Coated, Pier Cap	P1	#11	20	36'-3"	P2	#6	10	36'-10"
					P8	#6	13	6'-9"
	P3	#5	6	36'-3"				
	P4	#5	2	33'-2"	P9	#5	4	8'-6"
	P5	#5	2	30'-0"	P10	#5	12	8'-11"
	P6	#5	2	26'-9"	P11	#5	36	10'-9"
	P7	#5	2	17'-0"	P12	#5	40	12'-3"
					P13	#5	32	12'-9"
					P14	#5	44	12'-9"
					P15	#5	44	11'-11"
					P16	#5	4	11'-8"
					PP1	#4	30	3'-10"
					PP2	#4	15	5'-1"
Non-Epoxy Coated, Pier Column	PC1	#10	30	17'-9"	PC2	#5	28	12'-3"
					PC3	#5	56	4'-0"
					PC4	#5	28	8'-6"
Non-Epoxy Coated, Pier Footing					PF3	#10	28	23'-6"
					PF4	#10	22	25'-6"
					PF5	#10	30	10'-6"
					PF1	#6	39	23'-6"
					PF2	#6	35	25'-6"
					PF8	#6	20	20'-6"
					PF9	#6	18	22'-6"
					PF6	#5	5	21'-0"
					Spiral Bars			
					PS1	0.5"ø	16	1'-3"

BILL OF REINFORCING STEEL (Grade 60)

Pier #2

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Non-Epoxy Coated, Pier Cap	P1	#11	20	36'-3"	P2	#6	10	36'-10"
					P8	#6	13	6'-9"
	P3	#5	6	36'-3"				
	P4	#5	2	33'-2"	P9	#5	4	8'-6"
	P5	#5	2	30'-0"	P10	#5	12	8'-11"
	P6	#5	2	26'-9"	P11	#5	36	10'-9"
	P7	#5	2	17'-0"	P12	#5	40	12'-3"
					P13	#5	32	12'-9"
					P14	#5	44	12'-9"
					P15	#5	44	11'-11"
					P16	#5	4	11'-8"
					PP3	#4	30	4'-1"
					PP4	#4	15	5'-4"
Non-Epoxy Coated, Pier Column	PC5	#10	30	22'-3"	PC2	#5	38	12'-3"
					PC3	#5	76	4'-0"
					PC4	#5	38	8'-6"
Non-Epoxy Coated, Pier Footing					PF3	#10	28	23'-6"
					PF4	#10	22	25'-6"
					PF5	#10	30	10'-6"
					PF1	#6	39	23'-6"
					PF2	#6	35	25'-6"
					PF8	#6	20	20'-6"
					PF9	#6	18	22'-6"
					PF6	#5	5	21'-0"
					Spiral Bars			
					PS1	0.5"ø	16	1'-3"

BILL OF REINFORCING STEEL (Grade 60)

Pier #3

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Epoxy Coated, Pier Cap	P20	#10	20	36'-3"	P2	#6	10	36'-10"
					P17	#6	13	7'-3"
	P3	#5	6	36'-3"				
	P4	#5	2	33'-2"	P18	#5	4	8'-6"
	P5	#5	2	30'-0"	P10	#5	12	8'11"
	P6	#5	2	26'-9"	P11	#5	36	10'-9"
	P7	#5	2	17'-0"	P12	#5	40	12'-3"
					P13	#5	32	12'-9"
					P14	#5	44	12'-9"
					P15	#5	44	11'-11"
					P19	#5	4	11'-8"
					PP4	#4	30	5'-4"
					PP5	#4	60	3'-11"
Epoxy Coated, Pier Column	PC5	#10	34	22'-3"	PC6	#5	38	12'-9"
					PC7	#5	76	4'-6"
					PC4	#5	38	8'-6"
Non-Epoxy Coated, Pier Footing					PF3	#10	28	23'-6"
					PF4	#10	22	25'-6"
					PF5	#10	30	10'-6"
					PF1	#6	39	23'-6"
					PF2	#6	35	25'-6"
					PF8	#6	20	20'-6"
					PF9	#6	18	22'-6"
					PF7	#5	5	22'-0"
					Spiral Bars			
					PS1	0.5"ø	16	1'-3"

BILL OF REINFORCING STEEL (Grade 60)

Pier #4

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Non-Epoxy Coated, Pier Cap	P20	#10	20	36'-3"	P2	#6	10	36'-10"
					P8	#6	13	6'-9"
	P3	#5	6	36'-3"				
	P4	#5	2	33'-2"	P9	#5	4	8'-6"
	P5	#5	2	30'-0"	P10	#5	12	8'-11"
	P6	#5	2	26'-9"	P11	#5	36	10'-9"
	P7	#5	2	17'-0"	P12	#5	40	12'-3"
					P13	#5	32	12'-9"
					P14	#5	44	12'-9"
					P15	#5	44	11'-11"
					P16	#5	4	11'-8"
					PP1	#4	30	3'-10"
					PP2	#4	15	5'-1"
Non-Epoxy Coated, Pier Column	DC3	#11	44	18'-0"	PC2	#5	44	12'-3"
					PC3	#5	88	4'-0"
	PC8	#10	30	25'-9"	PC4	#5	44	8'-6"
					DC4	#5	19	12'-4"
Pier Drilled Shaft	ΔDC1	#11	26	59'-10"				
	ΔDC2	#11	40	39'-3"				
					Spiral Bars			
					ΔDS1	0.625"ø	1	59'-10"

Δ All Drilled Shaft reinforcing steel shall be subsidiary to the bid item "Drilled Shaft (72") (Cased)".

LEGEND

⊗ Variable Length

NOTES

See Sh. #124 for Pier Bending Diagrams.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BAR LIST I
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK.SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 123

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:09
File : ka651701bbr-0960.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	124	366

Pier #5 — Non-Epoxy Coated

BILL OF REINFORCING STEEL (Grade 60)

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Pier Cap	P21	#11	20	37'-9"	P22	#6	10	38'-0"
					P8	#6	13	6'-9"
	P23	#5	6	37'-9"				
	P24	#5	2	34'-4"	P9	#5	4	8'-6"
	P25	#5	2	31'-0"	P28	#5	16	8'-11"
	P26	#5	2	27'-9"	P29	#5	36	10'-9"
	P27	#5	2	17'-8"	P30	#5	40	12'-3"
					P31	#5	32	12'-9"
					P32	#5	44	12'-9"
					P33	#5	48	11'-11"
					P34	#5	4	11'-8"
					PP1	#4	30	3'-10"
					PP2	#4	15	5'-1"
Pier Column	DC3	#11	44	18'-0"	PC2	#5	50	12'-3"
					PC3	#5	100	4'-0"
	PC9	#10	30	28'-3"	PC4	#5	50	8'-6"
					DC4	#5	19	12'-4"
Pier Drilled Shaft	ΔDC1	#11	26	59'-10"				
	ΔDC2	#11	40	39'-3"				
					Spiral Bars			
					ΔDS1	0.625"ø	1	59'-10"

Δ All Drilled Shaft reinforcing steel shall be subsidiary to the bid item "Drilled Shaft (72") (Cased)".

Pier #6 — Epoxy Coated / Non-Epoxy Coated

BILL OF REINFORCING STEEL (Grade 60)

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Pier Cap (Epoxy Coated)	P20	#10	20	36'-3"	P2	#6	10	36'-10"
					P17	#6	13	7'-3"
	P3	#5	6	36'-3"	P35	#6	2	3'-8"
	P4	#5	2	33'-2"	P36	#6	35	4'-3"
	P5	#5	2	30'-0"	P10	#5	12	8'-6"
	P6	#5	2	26'-9"	P11	#5	36	8'-11"
	P7	#5	2	17'-0"	P12	#5	40	10'-9"
	P37	#5	6	36'-3"	P13	#5	32	12'-3"
					P14	#5	44	12'-9"
					P15	#5	44	12'-9"
					P18	#5	4	11'-11"
					P19	#5	4	11'-8"
					PP1	#4	60	4'-1"
					PP4	#4	30	5'-4"
Pier Column (Non-Epoxy Coated)	DC3	#11	32	18'-0"	PC6	#5	52	12'-9"
					PC7	#5	104	4'-6"
	PC10	#10	34	29'-9"	PC4	#5	52	8'-6"
					DC7	#5	19	13'-0"
Pier Drilled Shaft	ΔDC5	#11	22	58'-11"				
	ΔDC6	#11	48	38'-9"				
					Spiral Bars			
					ΔDS2	0.625"ø	1	58'-11"

Δ All Drilled Shaft reinforcing steel shall be subsidiary to the bid item "Drilled Shaft (72") (Cased)".

Pier #7 — Non-Epoxy Coated

BILL OF REINFORCING STEEL (Grade 60)

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Pier Cap	P20	#10	20	36'-3"	P2	#6	10	36'-10"
					P8	#6	13	6'-9"
	P3	#5	6	36'-3"				
	P4	#5	2	33'-2"	P9	#5	4	8'-6"
	P5	#5	2	30'-0"	P10	#5	12	8'-11"
	P6	#5	2	26'-9"	P11	#5	36	10'-9"
	P7	#5	2	17'-0"	P12	#5	40	12'-3"
					P13	#5	32	12'-9"
					P14	#5	44	12'-9"
					P15	#5	44	11'-11"
					P16	#5	4	11'-8"
					PP3	#4	30	4'-1"
					PP4	#4	15	5'-4"
Pier Column	PC11	#10	30	30'-9"	PC2	#5	54	12'-3"
					PC3	#5	108	4'-0"
					PC4	#5	54	8'-6"
Pier Footing					PF3	#10	28	23'-6"
					PF4	#10	22	25'-6"
					PF5	#10	30	10'-6"
					PF1	#6	39	23'-6"
					PF2	#6	35	25'-6"
					PF8	#6	20	20'-6"
					PF9	#6	18	22'-6"
					PF6	#5	5	21'-0"
					Spiral Bars			
					PS1	0.5"	16	1'-3"

Pier #8 — Non-Epoxy Coated

BILL OF REINFORCING STEEL (Grade 60)

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Pier Cap	P35	#10	20	36'-2"	P36	#6	10	36'-10"
					P8	#6	12	6'-9"
	P37	#5	6	36'-2"				
	P38	#5	2	34'-7"	P9	#5	8	8'-6"
	P39	#5	2	31'-5"	P42	#5	12	8'-7"
	P40	#5	2	24'-1"	P43	#5	36	10'-5"
	P41	#5	2	16'-5"	P44	#5	40	11'-7"
					P45	#5	32	11'-9"
					P46	#5	44	11'-11"
					P47	#5	44	10'-9"
					P48	#5	4	8'-11"
					PP1	#4	30	3'-10"
					PP2	#4	15	5'-1"
Pier Column	PC12	#10	30	23'-3"	PC2	#5	40	12'-3"
					PC3	#5	80	4'-0"
					PC4	#5	40	8'-6"
Pier Footing					PF3	#10	28	23'-6"
					PF4	#10	22	25'-6"
					PF5	#10	30	10'-6"
					PF1	#6	39	23'-6"
					PF2	#6	35	25'-6"
					PF8	#6	20	20'-6"
					PF9	#6	18	22'-6"
					PF6	#5	5	21'-0"
					Spiral Bars			
					PS1	0.5"	16	1'-3

Pier #9 — Non-Epoxy Coated

BILL OF REINFORCING STEEL (Grade 60)

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Pier Cap	P49	#10	20	36'-2"	P50	#6	10	36'-10"
					P8	#6	10	6'-9"
	P51	#5	6	36'-2"				
	P52	#5	2	35'-9"	P9	#5	8	8'-6"
	P53	#5	2	29'-1"	P56	#5	24	8'-7"
	P54	#5	2	22'-6"	P57	#5	72	10'-1"
	P55	#5	2	15'-10"	P58	#5	80	11'-1"
					P59	#5	32	11'-1"
					PP3	#4	30	4'-1"
					PP4	#4	15	5'-4"
Pier Column	PC13	#10	30	17'-3"	PC2	#5	28	12'-3"
					PC3	#5	56	4'-0"
					PC4	#5	26	8'-6"
Pier Footing					PF3	#10	28	23'-6"
					PF4	#10	22	25'-6"
					PF5	#10	30	10'-6"
					PF1	#6	39	23'-6"
					PF2	#6	35	25'-6"
					PF8	#6	20	20'-6"
					PF9	#6	18	22'-6"
					PF6	#5	5	21'-0"
					PS1	0.5"	16	1'-3"

LEGEND

⊗ Variable Length

NOTES

See Sh. #125 for Pier Bending Diagrams.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BAR LIST II
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

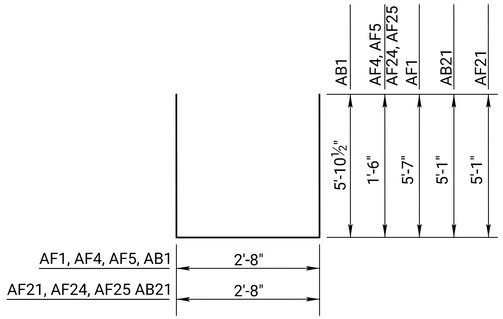
DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FB,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 124

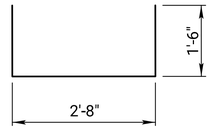
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:10
File : ka651701bbr-0965.dgn

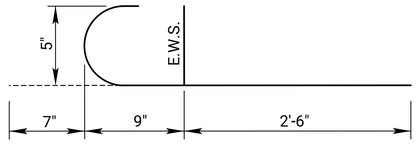
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	125	366



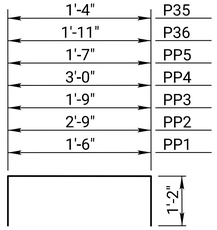
AF1, AF4, AF5, AB1, AF21, AF24, AF25, AB21



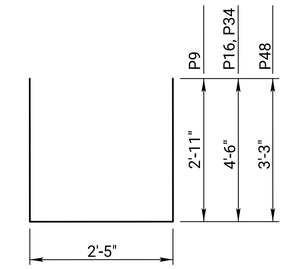
AB4, AB24



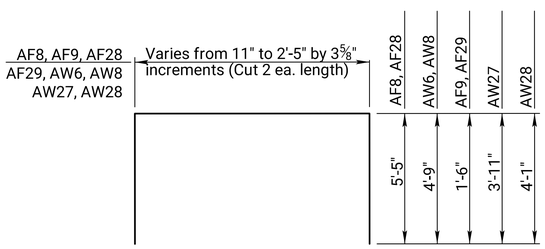
AB6, AB26



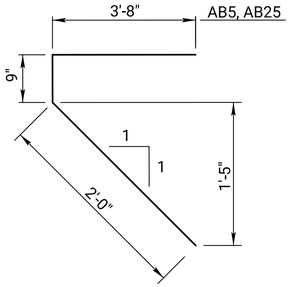
PP1, PP2, PP3
PP4, PP5
P35, P36



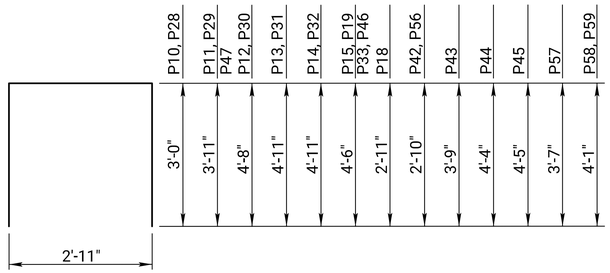
P9, P16, P34, P48



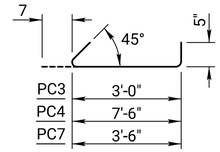
AF8, AF9, AF28, AF29
AW6, AW8, AW27, AW28



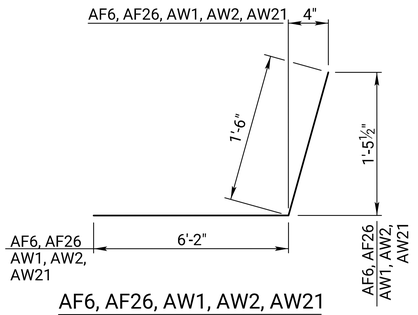
AB5, AB25



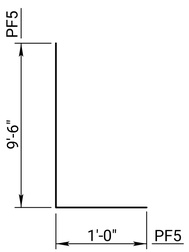
P10, P11, P12, P13, P14
P15, P18, P19, P28, P29
P30, P31, P32, P33, P42
P43, P44, P45, P46, P47
P56, P57, P58, P59



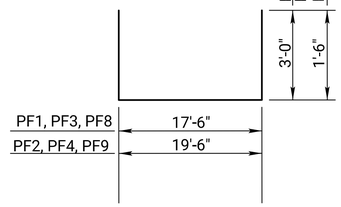
PC3, PC4, PC7



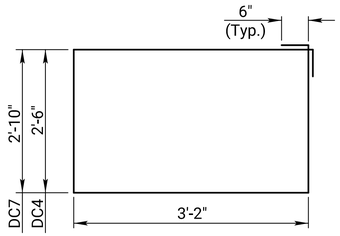
AF6, AF26, AW1, AW2, AW21



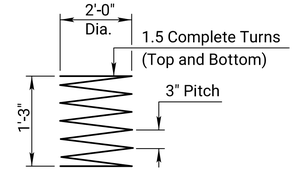
PF5



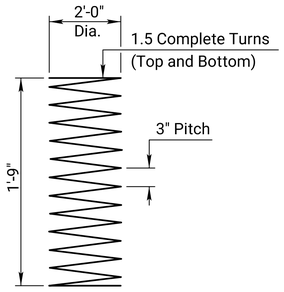
PF1, PF2, PF3, PF4, PF8, PF9



DC4, DC7

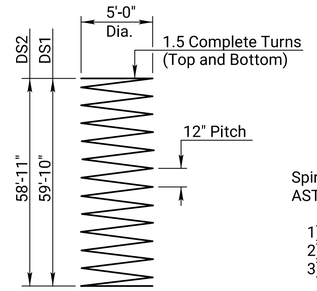


PS1
(½" ø smooth or deformed bar)

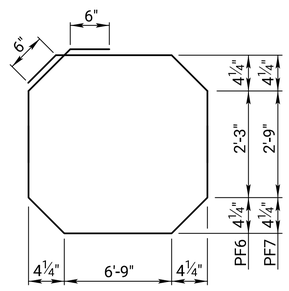


AS1
(½" ø smooth or deformed bar)

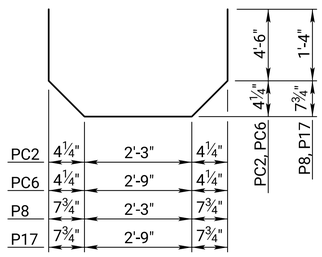
Spiral reinforcing shall meet the requirements of ASTM A615 Grade (60 or 40) or ASTM A82.
Spiral Spacer Bars:
1) Are included in the mass of reinforcing steel.
2) Minimum section modulus = 0.030 in.³
3) x required per spiral.



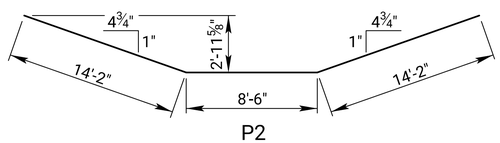
Δ DS1, DS2 Spiral
(⅝" ø smooth or deformed bar)



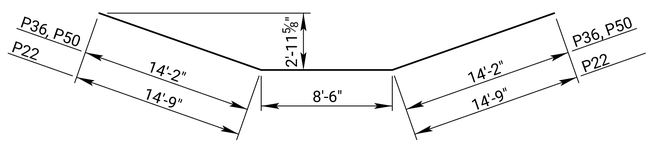
PF6, PF7



PC2, PC6, P8, P17



P2



P22, P36, P50

Δ All Drilled Shaft reinforcing steel shall be subsidiary to the bid item "Drilled Shaft (72")(Cased)"

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BAR LIST III
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK. SB,FG,SB	DETAIL CK.SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

KDOT Graphics Certified 07-15-2025 Sh. No. 125

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:10
File : ka651701bbr-0970.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	126	366

BILL OF REINFORCING STEEL (Grade 60)

Superstructure - F4 Barrier, Epoxy Coated

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Unit 1 - Left Barrier	R7	#6	15	19'-8"	R2	#5	360	6'-6"
	R10	#6	1	10'-4"	R3	#5	9	7'-6"
	R12	#6	2	7'-5"	R4	#5	347	5'-10"
					R5	#5	23	5'-10"
	R1	#5	1	3'-2"	R6	#5	4	7'-5"
	R8	#4	18	54'-0"				
	R9	#4	45	19'-8"				
	R11	#4	3	10'-4"				
	R13	#4	6	7'-5"				
	R36	#4	3	12'-8"				
Unit 1 - Right Barrier	R7	#6	48	19'-8"	R2	#5	387	6'-6"
	R21	#6	3	12'-8"	R4	#5	372	5'-10"
	R28	#6	6	7'-7"	R5	#5	18	5'-10"
					R15	#5	372	5'-0"
	R9	#4	48	19'-8"	R27	#5	15	4'-2"
	R22	#4	3	12'-8"				
	R29	#4	6	7'-7"				
	R23	#4	18	57'-6"				
	R36	#4	3	12'-8"				

BILL OF REINFORCING STEEL (Grade 60)

Superstructure - F4 Barrier, Epoxy Coated

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Unit 2 - Left Barrier	R7	#6	13	19'-8"	R2	#5	310	6'-6"
	R16	#6	6	9'-5"	R4	#5	310	5'-10"
	R9	#4	39	19'-8"				
	R14	#4	2	9'-5"				
	R17	#4	15	57'-4"				
Unit 2 - Right Barrier	R7	#6	42	19'-8"	R2	#5	330	6'-6"
	R30	#6	6	8'-5"	R4	#5	330	5'-10"
					R15	#5	330	5'-0"
	R9	#4	42	19'-8"				
	R31	#4	6	8'-5"				
	R32	#4	18	51'-0"				

BILL OF REINFORCING STEEL (Grade 60)

Superstructure - F4 Barrier, Epoxy Coated

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Unit 3 - Left Barrier	R7	#6	16	19'-8"	R2	#5	397	6'-6"
	R18	#6	2	11'-10"	R4	#5	379	5'-10"
	R21	#6	1	12'-8"	R5	#5	18	5'-10"
	R9	#4	48	19'-8"				
	R19	#4	6	11'-10"				
	R20	#4	21	52'-6"				
	R22	#4	3	12'-8"				
	R36	#4	3	12'-8"				
Unit 3 - Right Barrier	R7	#6	51	19'-8"	R5	#5	18	5'-10"
	R21	#6	3	12'-8"	R2	#5	406	6'-6"
	R33	#6	6	6'-3"	R4	#5	388	5'-10"
					R15	#5	406	5'-0"
	R9	#4	51	19'-8"				
	R22	#4	3	12'-8"				
	R34	#4	6	6'-3"				
	R35	#4	21	52'-0"				
	R36	#4	3	12'-8"				

BILL OF REINFORCING STEEL (Grade 60)

Superstructure - Unit 1 - Deck, Epoxy Coated

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
	S1	#6	654	38'-2"				
	ST1	#6	76	16'-0"				
	ST2	#6	39	33'-7"				
	ST3	#6	117	36'-9"				
	ST4	#6	117	59'-2"				
	ST5	#6	39	40'-0"				
	ST6	#6	38	48'-3"				
	ST7	#6	38	15'-7"				
	ST8	#6	38	23'-7"				
	ST9	#6	38	58'-2"				
	S2	#5	654	38'-2"				
	SB1	#5	54	37'-7"				
	SB2	#5	54	37'-4"				
	SB3	#5	216	58'-7"				
	SB4	#5	54	45'-0"				

BILL OF REINFORCING STEEL (Grade 60)

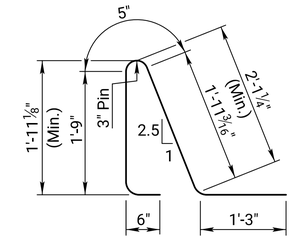
Superstructure - Unit 2 - Deck, Epoxy Coated

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
	S1	#6	583	38'-2"				
	ST1	#6	76	16'-0"				
	ST4	#6	78	59'-2"				
	ST8	#6	38	23'-7"				
	ST10	#6	39	59'-3"				
	ST11	#6	78	57'-0"				
	ST12	#6	39	24'-3"				
	ST13	#6	38	59'-7"				
	ST14	#6	38	46'-5"				
	S2	#5	583	38'-2"				
	SB5	#5	54	19'-4"				
	SB6	#5	270	53'-10"				
	SB7	#5	54	27'-6"				

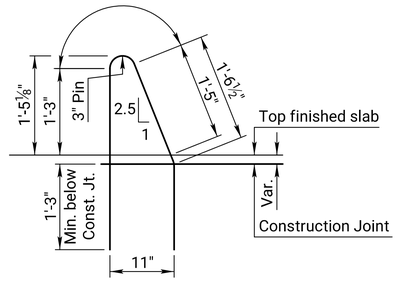
BILL OF REINFORCING STEEL (Grade 60)

Superstructure - Unit 3 - Deck, Epoxy Coated

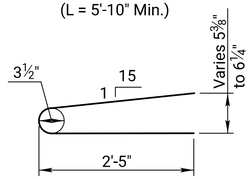
	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
	S1	#6	694	38'-2"				
	ST1	#6	76	16'-0"				
	ST4	#6	117	59'-2"				
	ST15	#6	39	48'-9"				
	ST16	#6	39	49'-1"				
	ST17	#6	39	48'-0"				
	ST18	#6	77	51'-4"				
	ST19	#6	38	52'-7"				
	ST20	#6	38	56'-6"				
	S2	#5	694	38'-2"				
	SB8	#5	54	58'-10"				
	SB9	#5	270	50'-7"				
	SB10	#5	54	59'-5"				



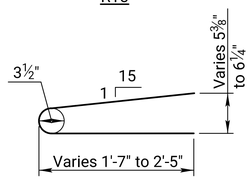
#5R4
(L = 5'-10" Min.)



#5R5
(L = 5'-10" Min.)



R15



#5R27
L = Varies from 3'-4$\frac{1}{16}$" to 5-0"

ST14 & SB10 — Increase from 2'-11" to 53'-11" by 1'-3$\frac{11}{16}$" increments (Cut 1 each length)

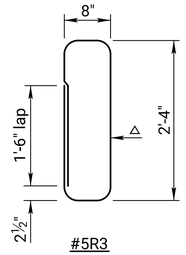
3¾" pin

ST8 — Increase from 23'-5" to 42'-0" by 5¾" increments (Cut 1 each length)

ST9 — Increase from 38'-5" to 56'-0" by 10$\frac{1}{16}$" increments (Cut 1 each length)

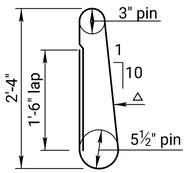
SB6 — Increase from 16'-3" to 40'-2" by 5¼" increments (Cut 1 each length)

SB8 — Increase from 22'-3" to 34'-9" by 2¾" increments (Cut 1 each length)

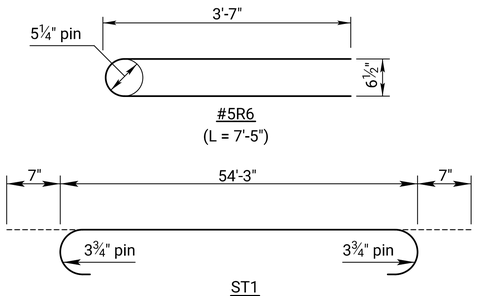


#5R3
(Thickened End Section)
(L = 7'-6")

△ Traffic side



#5R2
(L = 6'-6" min)



#5R6
(L = 7'-5")

ST1

LEGEND

Unit 1 barrier includes the rebars from Abut. #1 Wingwalls and Unit 2 barrier includes the rebars from Abut. #2Wingwalls.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 135-87-5.81 (894) Sta. 1161+99.35

BAR LIST IV
S. BD. I-135 TO E. BD. US-54 RAMP

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED AH,OM,FG	DETAILED DE,GB,SK	QUANTITIES SK,FG	CADD DE,GB,SK
DESIGN CK SB,FG,SB	DETAIL CK SB,OM,AH	QUAN.CK. SB,AF	CADD CK. SB,OM

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File : ka6517101bbr-0975.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	127	366

SUMMARY OF QUANTITIES		
ITEM	QUANTITY	UNIT
Machine Preparation (0.25")	735	Sq. Yds.
Area Prepared for Patching	30	Sq. Yds.
Area Prepared for Patching (Full Depth)	5	Sq. Yds.
Multi-Layer Polymer Overlay Concrete	735	Sq. Yds.
Reinforcing Steel (Repair)(Grade 60)(Set Price)	1	Lbs.
Reinforcing Steel (Repair)(Grade 60)(Epoxy)(Set Price)	1	Lbs.

INDEX TO BRIDGE DRAWINGS	
Sheet No.	Drawing
127	Quantities & General Notes
128	Construction Layout
129	Deck Patching Details
130	Construction Staging

DESIGN DATA

DESIGN SPECIFICATIONS (Per Existing Plans):
AASHO Specification, 1973 Edition.

EXISTING DESIGN LOADING:
HS 20-44

GENERAL NOTES

EXISTING STRUCTURE: Plans of the existing structure are on file and available for inspection by qualified bidders at the: State Bridge Office, KDOT, Eisenhower State Office Building, 700 SW Harrison St., Topeka, KS. 66603-3929.

EXISTING DIMENSION VERIFICATION: Dimensions of the existing structure are based on old plans. Verify, by field measurement, the as-built dimensions of the existing structure and submit such verification in writing to the Engineer. The verification will include sketches, drawings, photographs and descriptions as needed to clearly define the as-built dimensions that will be incorporated in the new construction.

TEMPORARY CONSTRUCTION LOADS: Without prior written approval by the KDOT Area Engineer, do not stock pile construction materials, debris, or rubble exceeding the lesser of the posted load limit, or 20 tons. Equipment on the structure must not exceed the lesser of the posted load limit, or the Operating Load Rating for the structure. To request written approval, provide the KDOT Area Engineer plans showing the location, quantity and weight of the proposed materials, debris and/or equipment exceeding the stated limits. For bridges with highway traffic on or under the bridge, the plans, and accompanying calculations, must be sealed by a licensed Professional Engineer. Calculations will be based on AASHTO Specifications and take into account the existing capacities of structural members.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

TEMPERATURE: The design temperature for all dimensions is 60° F.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

DEMOLITION PLANS: This is a Category B Demolition. Submit detailed Demolition Plans to the Field Engineer at least 2 weeks before the demolition meeting. Identify, on the plans, the Demolition Supervisor meeting the requirements of the KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

CONSTRUCTION LOADS: Limited traffic is permitted on the new deck during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Table 710-1 & 710-2 for additional information.

MULTI-LAYER POLYMER CONCRETE OVERLAY LIMITS: Apply the polymer overlay to the bridge barrier face up to the first break in geometry.

AREA PREPARED FOR PATCHING: See the "Deck Patching Details" sheet for notes.

AREA PREPARED FOR PATCHING (FULL DEPTH): See the "Deck Patching Details" sheet for notes.

SAW CUT: All saw cuts shall be subsidiary to other items in the contract.

TRAFFIC CONTROL: See "Traffic Control" sheets for more information.

MULTI-LAYER POLYMER CONCRETE OVERLAY: No concrete curing membrane will be used on structure with a polymer overlay. Roughen the bridge deck surface using a burlap drag attached to the finish machine.

When the date and temperature requirements of the specifications are met,grind profile, place a polymer overlay, and apply permanent pavement markingson the bridge deck. When the date and temperature requirements are not met, complete any required grinding and apply temporary pavement marking. Apply the polymer overlay according to the next available date(s) and temperature allowed per current specifications. See KDOT specification for complete information.

MACHINE PREPARATION: The machine prep (0.25") diamond grinding shall be done after the deck patching has been completed.

BROKEN CONCRETE: Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 54-87-217.33 (302) Sta. 1176+25.00

QUANTITES & GENERAL NOTE
RAMP K-1 OVER S. GROVE ST.

Proj. 135-87 KA-6517-01 Sedgwick Co.

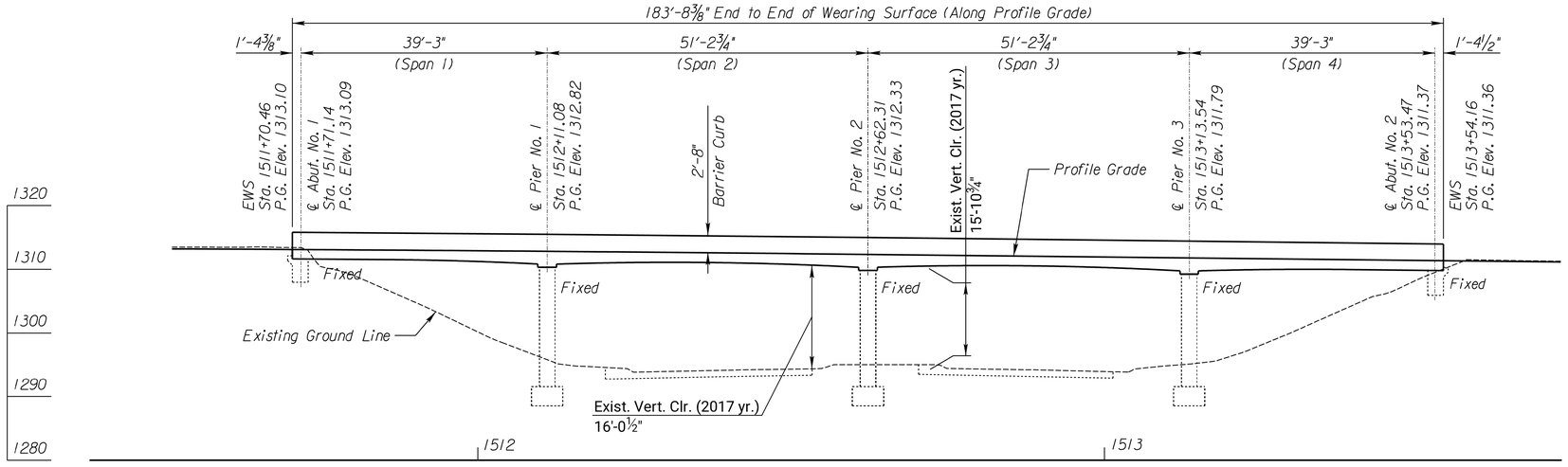
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DESIGN CK.	X.X.X.	DETAIL CK.	X.X.X.	QUAN.CK.	X.X.X.	CADD CK.	X.X.X.

KDOT Graphics Certified 04-03-2025 Sh. No. 127

KDOT Graphics Certified

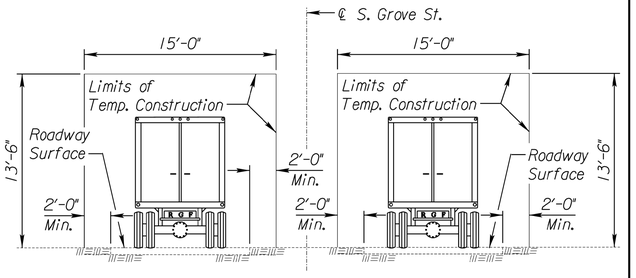
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File : ka6517701bbr-1025.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	128	366



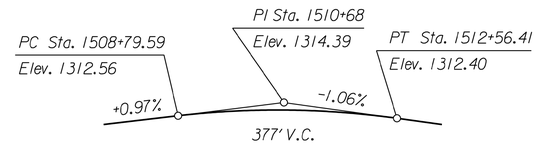
ELEVATION

Continuous Reinforced Concrete Haunched Slab Spans, (RCSH)
Pile Bent Abutments, Pedestal Type Piers.
36'-0" Roadway, 24°20'17" Rt.
Repair Deck, Overlay, Replace Barriers



N.Bd. & S.Bd. S. GROVE ST.

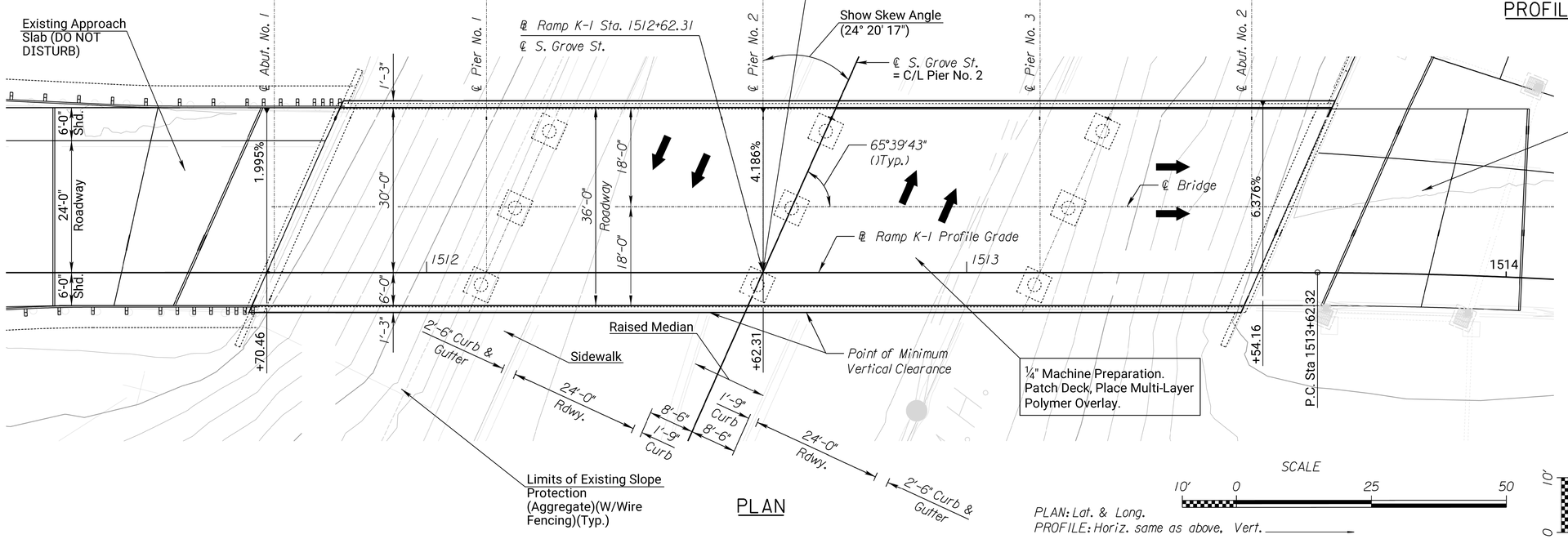
(Not to Scale)



PROFILE RAMP K-1 OVER S. GROVE ST.

(Not to Scale)

Sta. 1176+25.00 REPAIR
Br. No. 54-87-217.33 (302)
39.25'-51.23'-51.23'-39.25' Continuous Reinf. Conc. Slab Spans (RCSH)
36'-0" Roadway, 24°20'17" Skew Rt.
Deck patching, Multi-Layer Polymer Overlay



PLAN

Existing Approach Slab (DO NOT DISTURB)

Dimensions shown are from original plans. Verify dimension in the field.

SCALE
10' 0 25 50 10'
0

PLAN: Lat. & Long.
PROFILE: Horiz. same as above, Vert. _____

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 54-87-217.33 (302) Sta. 1176+25.00

CONSTRUCTION LAYOUT
RAMP K-1 OVER S. GROVE ST.

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED	A.H.	DETAILED	X.X.X.	QUANTITIES	X.X.X.	CADD	X.X.X.
DESIGN CK.	X.X.X.	DETAIL CK.	X.X.X.	QUAN.CK.	X.X.X.	CADD CK.	X.X.X.

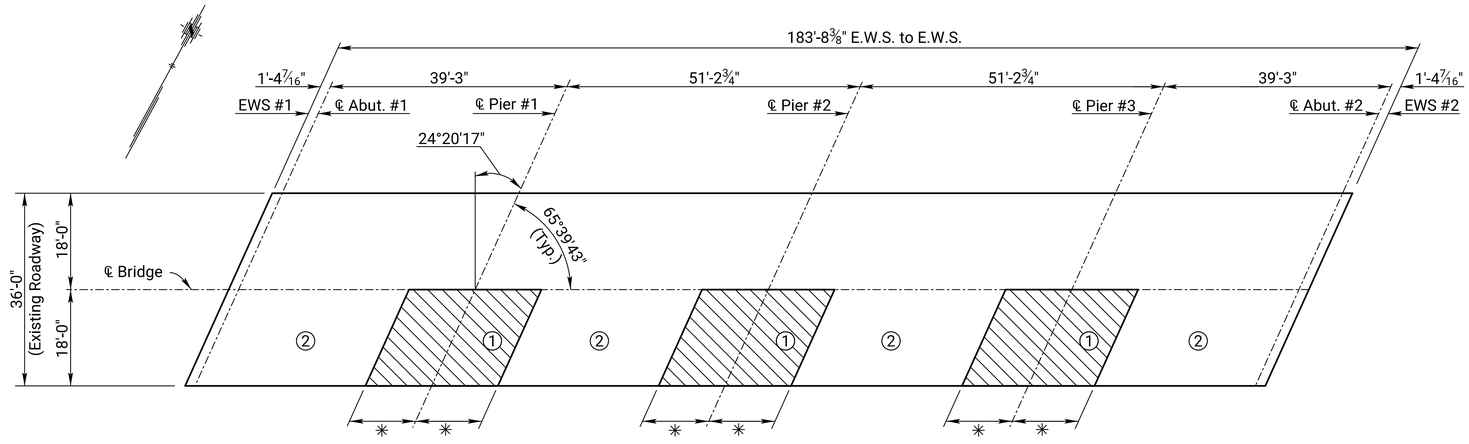
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File : ka651701bbr-1050.dgn

CADconform Certify This File

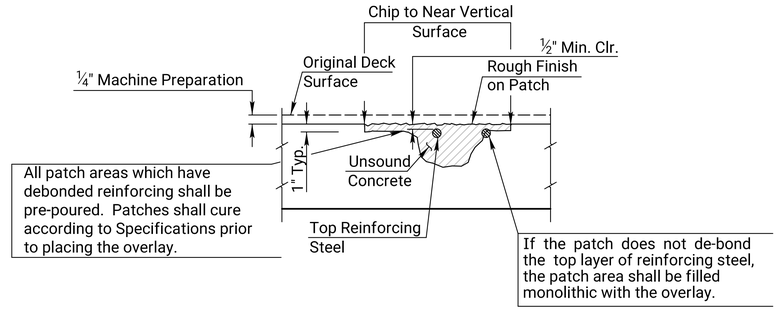
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	129	366



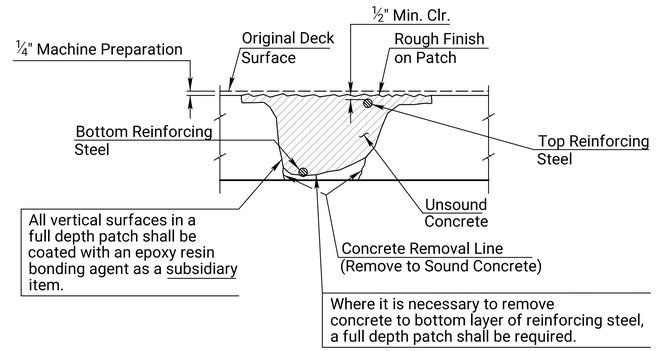
DECK PATCHING SEQUENCE

(Showing sequence for one lane only, other lane similar)

✳ Span Length /4 or as directed by the Engineer.



PARTIAL DEPTH PATCHING



FULL DEPTH PATCHING

DECK PATCHING DETAILS

GENERAL NOTES

MACHINE PREPARATION: This item shall consist ofpreparing the deck for an overlay by removing concrete from the roadway surface of the bridge deck to the depth as shown on the plans. See KDOT Specifications.

AREA PREPARED FOR PATCHING: This item shall consist of removing unsound concrete and asphalt patches from the bridge deck, cleaning reinforcing bars, and filling the removed patched areas with concrete. Quantity shown is an estimate of the areas involved. The exact areas shall be determined by tapping, before, during and after chipping operation to ensure that all unsound concrete has been removed. See KDOT Specifications.

FULL DEPTH PATCHING: Forms shall be provided to enable placement of the concrete in areas of full depth removal of bridge slab. The forms may be suspended from existing reinforcing bars by wire ties or a method approved by the Engineer. See KDOT Specifications for method of measurement and payment.

REINFORCING IN BRIDGE DECK: Care should be exercised to prevent cutting, stretching or damaging exposed reinforcing steel. Extreme care should be exercised to avoid breaking the bond between the reinforcing steel and concrete where bars are partially exposed yet remain anchored in sound concrete. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Do not wedge chipping hammer bit against reinforcement. See table for replacement bar size and minimum splice length required. Replacement of bars damaged by the Contractor shall be at no cost to the State.

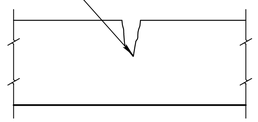
REPAIR OF EPOXY COATED REINFORCING STEEL: Replace any epoxy coating damaged or removed from the reinforcing steel during the concrete removal process. Thoroughly clean damaged areas with a stiff wire brush to remove dirt and damaged coating. Apply an approved patching material in accordance with the manufacturer's recommendations. Avoid dripping any patching material onto the existing concrete. See KDOT Specifications.

MULTI-LAYER POLYMER CONCRETE OVERLAY: Prepare and overlay the bridge roadway surface using a Polymer Overlay (Two-coat Broom and Seed). On bridges with corral rail, apply polymer to the full height of the traffic face of interior posts and to each adjacent face. On bridges with corral without curb, apply the full overlay to the outer edge of the bridge deck between the posts. On bridges with corral rail with curb, apply the polymer to the full height of the face of the curb. On bridges with continuous concrete barrier, apply the polymer up to the first break in geometry of the barrier to a minimum of 6 inches above the deck. Apply the polymer to the curb, barrier, or posts as the overlay applications are performed. All work which involves applying the polymer to additional surfaces beyond the bridge roadway width shall be subsidiary to the bid item "Multi-Layer Polymer Concrete Overlay."

PATCHING SEQUENCE: The concrete removal shall be completed in stages beginning with removal of deteriorated concrete in Area①. The maximum size of a patch with fully debonded bars is limited to 4 ft. (along CL) x 8 ft. (perpendicular to CL) in Area①. If more than 15 longitudinal bars in Area①are debonded for a distance of greater than 4 feet along the bars, the concrete removal shall stop and the patch area filled with Concrete Grade 4.0 (AE). The patches shall cure a minimum of 3 days before concrete removal resumes adjacent to newly placed patches. Following the completion of work in Area①, concrete removal may begin in Area②. Concrete removal shall not begin in Area②until the final patches in Area① have cured a minimum of 3 days. The maximum size of any full depth patch in Area②shall be limited to 4 ft. x 8 ft. in any direction. All patching and overlay concrete shall be cured according to the Specifications prior to opening the lane to traffic.

MULTI-LAYER POLYMER CONCRETE OVERLAY LIMITS: Apply the polymer overlay to the bridge barrier face up to the first break in geometry.

Clean existing cracks in deck of debris and vegetation. Blast clean with compressed air.



CRACK SEALING DETAIL

NOTE: ¼" Machine Prepartion shall be done after patching deck is completed.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 54-87-217.33 (302) Sta. 1176+25.00

DECK PATCHING DETAILS
RAMP K-1 OVER S. GROVE ST.

Proj. 135-87 KA-6517-01 Sedgwick Co.

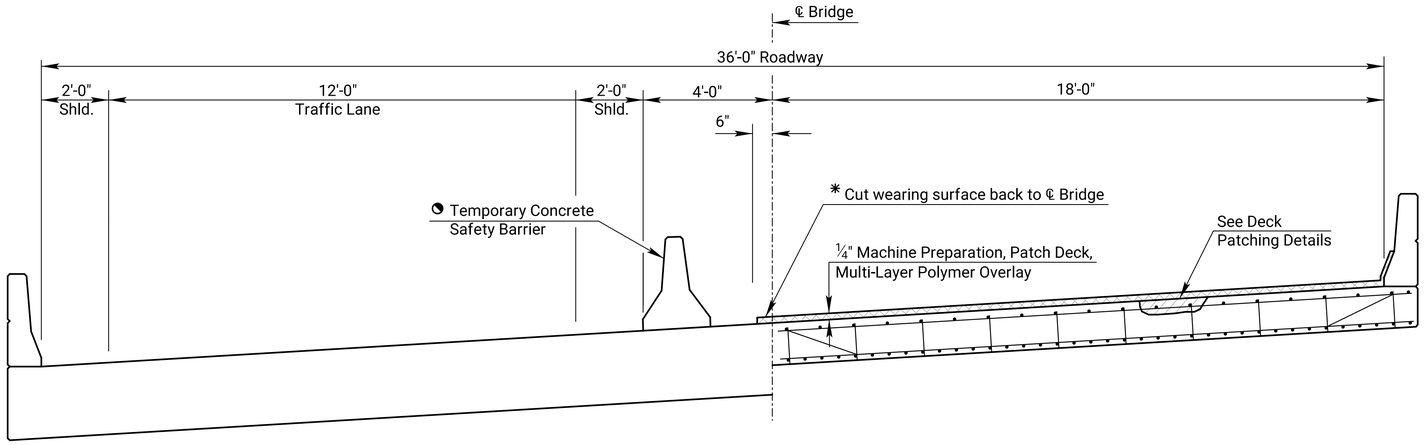
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DESIGN CK.	X.X.X.	DETAIL CK.	X.X.X.	QUAN.CK.	X.X.X.	CADD CK.	X.X.X.

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File : ka651701bbr-1060.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	130	366

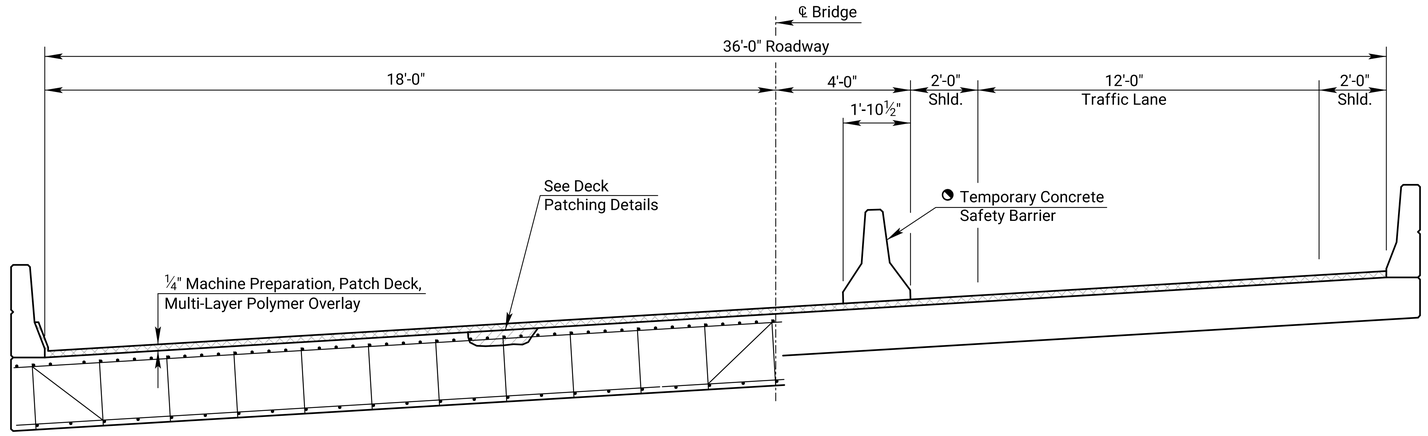


TYPICAL SECTION SHOWING FIRST STAGE OF REPAIR

◔ The type of traffic delineator to be used is found in the traffic control sheets.

✳ Note: Cutting the wearing surface back to ℄ Bridge, concrete removal, all material, equipment, and labor necessary for this item shall be subsidiary to other items.

NOTE: This sheet is provided for general information. See "Traffic Control" Sheet for details not shown.



TYPICAL SECTION SHOWING SECOND STAGE OF REPAIR

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 54-87-217.33 (302) Sta. 1176+25.00

CONSTRUCTION STAGING
RAMP K-1 OVER S. GROVE ST.

Proj. 135-87 KA-6517-01 Sedgwick Co.

DESIGNED	A.H.	DETAILED	X.X.X.	QUANTITIES	X.X.X.	CADD	X.X.X.
DESIGN CK.	X.X.X.	DETAIL CK.	X.X.X.	QUAN.CK.	X.X.X.	CADD CK.	X.X.X.

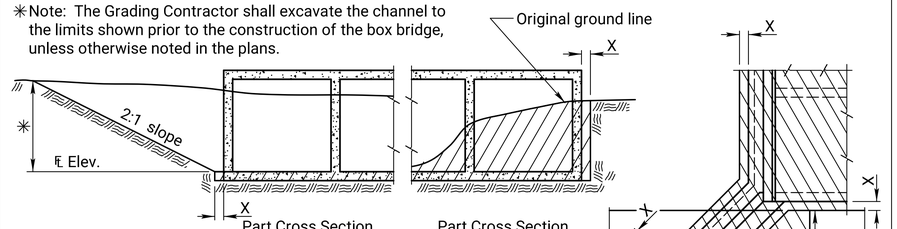
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KDOT Graphics Certified

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File : ka651701bbr-1070.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	131	366

✳Note: The Grading Contractor shall excavate the channel to the limits shown prior to the construction of the box bridge, unless otherwise noted in the plans.

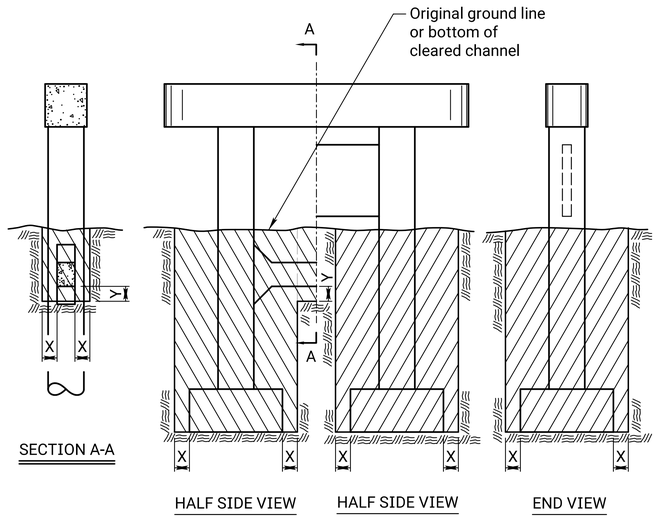


Note: Typical Class III Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

Excavation below the elevation of the bottom of the box floor and/or wingwalls is subsidiary to "Foundation Stabilization".

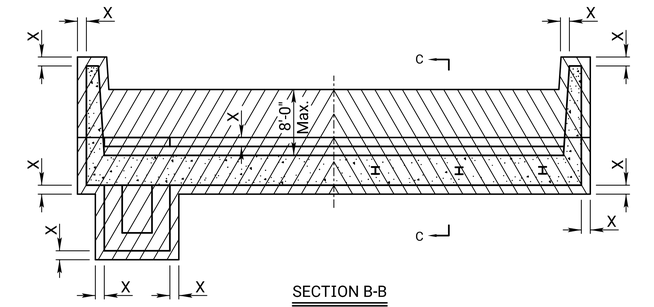
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

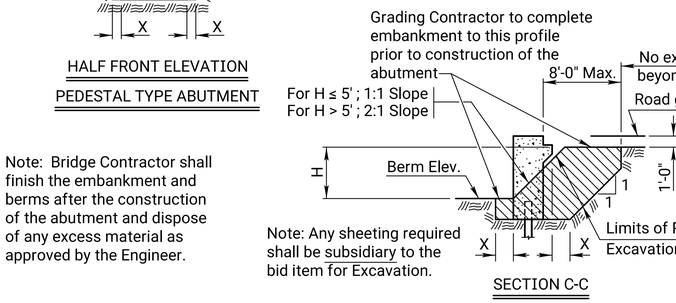
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.



EXCAVATION DETAILS FOR TYPICAL PIERS

See detail when rock or shale (rock) is encountered. ❀



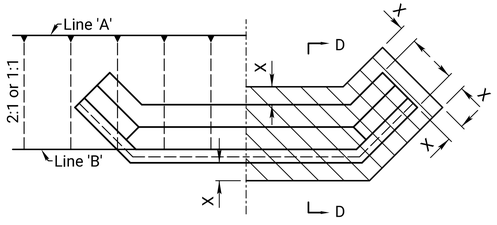


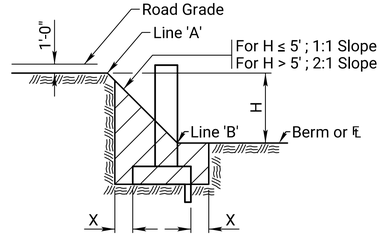
Note: Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.

Note: Any sheeting required shall be subsidiary to the bid item for Excavation.

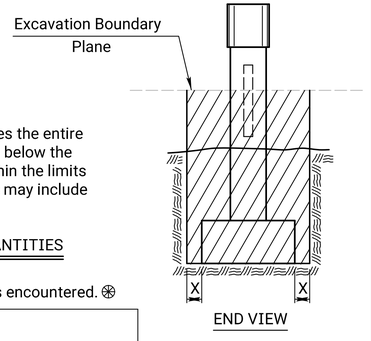
EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

See detail when rock or shale (rock) is encountered. ❀





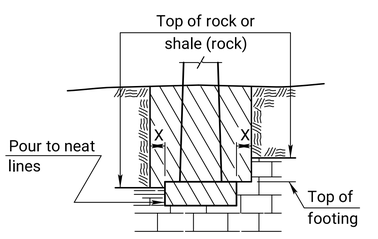
EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



Note: Class II Excavation includes the entire volume of whatever nature found below the "Excavation Boundary Plane", within the limits specified for measurement. This may include water or air.

CLASS II EXCAVATION QUANTITIES

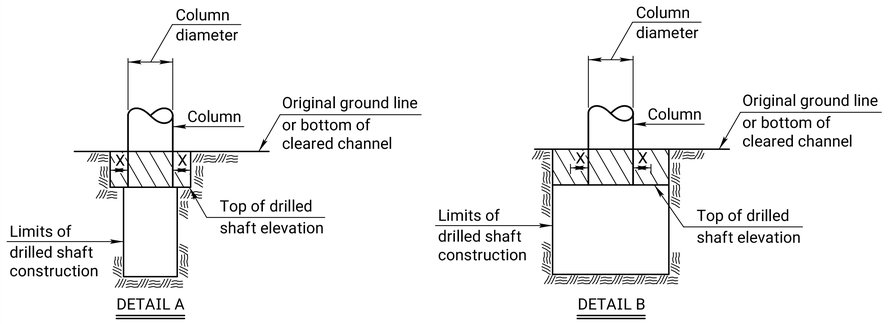
See detail when rock or shale (rock) is encountered. ❀



❀ EXCAVATION DETAIL FOR FOOTINGS IN ROCK OR SHALE (ROCK)

(Piers and Abutments)

Note: Excavation below top of rock, hard shale or below top of footing, whichever is lower, shall be to neat lines of the concrete construction.



DRILLED SHAFT DETAILS

Note: Whenever the limits of the drilled shaft construction are greater than the Column Diameter + 2X, the limits of Class I, II or III Excavation shall be the limits of the drilled shaft construction. (See Detail B)

Note: All bridge excavation shall be computed on the basis of the cross-hatch areas and boundary lines indicated on this sheet and the Excavation Boundary Plane on the Construction Layout.

Sides of trenches in hard or compacted soil including embankments shall be shored, sheeted, braced or otherwise supported when the trench is more than 5 feet in depth and 8 feet or more in length. In lieu of the shoring, the sides of the trench above the 5 foot level may be sloped to preclude collapse. The slope for average soils shall be 1:1. If the angle of repose of the soil is less, flatter slopes shall be required.

Dimension "X" shall be 2'-0" unless indicated otherwise on the general plans.

Dimension "Y" shall be 1'-6" unless indicated otherwise on the general plans.

NO.	DATE	REVISIONS	BY	APP'D
06	08-15-12	Embedment Excavation Subsidiary	J.P.J.	T.L.F.
05	05-15-12		J.P.J.	T.L.F.
04	03-03-10	Revised Wing Excavation	J.P.J.	T.L.F.

KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE EXCAVATION (LRFD)

BR100B

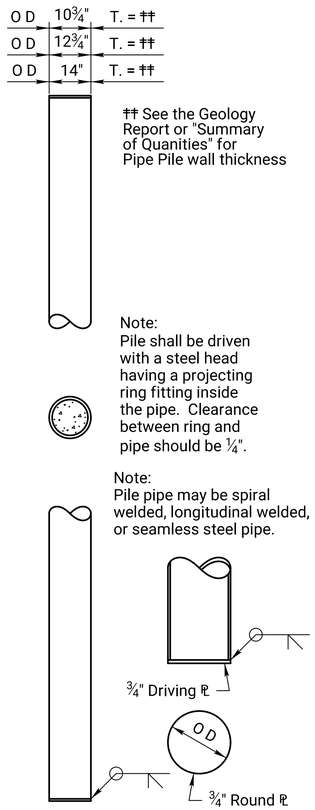
FHWA APPROVAL			04-17-10	APP'D.		Terry L. Fleck	
DESIGNED	DETAILED	R.D.R.	QUANTITIES	TRACED			
DESIGN CK.	DETAIL CK.	L.R.R.	QUAN.CK.	TRACE CK.	X.X.X.		

KDOT Graphics Certified 04-03-2025 Sh. No. 131

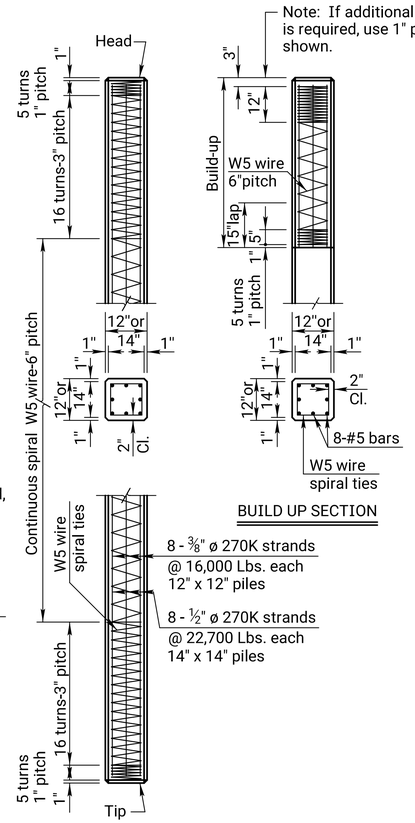
KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:13
File : ka6517701br100b.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	132	366

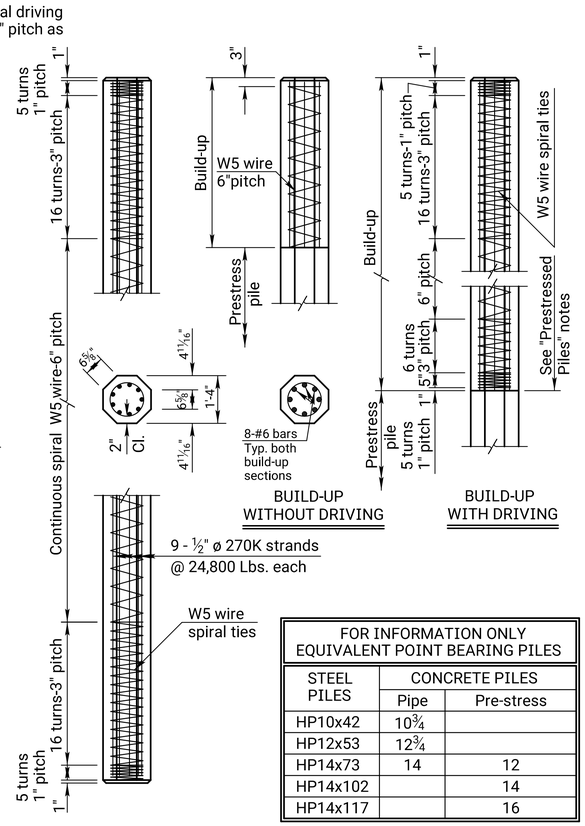


PLAIN ROUND
CAST-IN-PLACE CONCRETE PILES



12" OR 14"
PRESTRESSED
CONCRETE PILES

BUILD UP SECTION

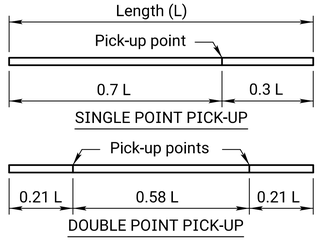


16" PRESTRESSED
CONCRETE PILES

BUILD-UP
WITHOUT DRIVING

BUILD-UP
WITH DRIVING

FOR INFORMATION ONLY EQUIVALENT POINT BEARING PILES		
STEEL PILES	CONCRETE PILES	
	Pipe	Pre-stress
HP10x42	10¾	
HP12x53	12¾	
HP14x73	14	12
HP14x102		14
HP14x117		16



PICK-UP POINTS FOR PRESTRESSED PILING

Max. length - 55' single point pick-up
Max. length - 80' double point pick-up

Note: Piles shall be marked at Pick-up points to indicate proper points for attaching handling lines.



Outside Flange



Inside Flange

SHELL PILE POINT



H-Pile Point

CAST STEEL PILE POINT

The pile point shall be a one-piece unit of cast steel. Weld pile points in accordance with manufacturer's recommendations to each steel pile before driving.

Weld Symbology Definition

Use grinder to bevel edges of splice as shown in weld symbology and drawing. In addition to bevels, produce clean, bare, and shiny surfaces at and around the splice welding location.

Lay full penetration root weld from beveled side of splice.

Back gouge root weld from side opposite of root welding application making sure to remove all foreign materials, porous steel, and inclusions from root weld. Finish welding the non beveled side of the splice.

Finish welding beveled side of the splice while removing slag, foreign materials, porous steel, and inclusions in between welding passes, use of a grinder may be needed.

Verify that enough filler metal has been correctly placed in all weld locations to obtain a flush or convex surface with no concavity produced upon completion of the final welds.

GENERAL NOTES

PRESTRESSED PILES: Fabricate prestressed concrete pile splices in accordance with the Manufacturer's recommendations subject to the approval of the Engineer.

Method of attachment of pile to build-up may be by any of the methods given in the notes on "Alternate Methods." If mild reinforcing steel is used for attachment, the area shall be no less than that used in the build-up.

ALTERNATE METHODS: Method of attachment of a pile to build-up may be by any of the following methods:

1. Cut off at least 2'-0" of pile and expose a minimum of 2'-0" of strands.
2. Cast 8-#6, or 8-#5 bars (equally spaced) into pile head. All bars shall extend into pile head and project from pile head a minimum of 2'-0".
3. Drill 8 holes in pile head (equally spaced) for installation of 8 grouted dowel bars of same size and length as in 2.
4. Provide cored holes for bars as in 3.

No bars or strands are to extend from head of pile or build-up into footing or pile cap unless approved by the Engineer.

TEST PILES: Drive test piles where called for on the bridge plans. The test piles located within the limits of the substructure will become a part of the bridge pile system.

DRIVING FORMULA: Driving formula shall conform to the Standard Specifications.

MEASUREMENT AND PAYMENT: Measurement and payment for all piles shall comply with the Standard Specifications.

REINFORCEMENT: Use reinforcing steel conforming to ASTM A615, Grade 60. Hoops and spirals may be either plain or deformed bars.

PRESTRESSING STEEL: Use uncoated seven-wire low relaxation prestressing strand conforming to ASTM A416, Gr. 270.

STEEL PILE: Steel pile shall conform to the requirements of the Standard Specifications.

PILE POINTS: Pile points shall conform to the dimensions shown and to requirements of the Standard Specifications.

SPECIFICATIONS: Standard Specifications for State Road and Bridge Construction as currently used by the Kansas Department of Transportation.

CONCRETE: Concrete for cast-in-place shall be f'c = 3,500 PSI. Concrete for prestressed shall be f'c = 5,000 PSI.

WELDING: All field welding shall meet the requirements of the Standard Specifications.

Use only Shielded Metal Arch Welding SMAW (stick welding) for pile splices.

Use only low hydrogen E7018, 7016, or 7015 series welding rod (electrode) for all welding applications during pile splicing.

New electrodes are to be purchased for each KDOT project. The electrodes shall arrive on the project in factory hermetically sealed containers, opened and labeled with indelible ink in front of the engineer. The label shall include the current date and the project number. If the container seal is questionable or shows signs of damage the electrode is to be dried in an oven at least one hour at a temperature of 700°F to 800°F.

Upon removal from intact hermetically sealed factory packaging or the drying oven the electrode is to be placed in a storage oven with a minimum temperature of 250°F.

When electrodes are removed from the hermetically sealed container or storage oven and exposed to the atmosphere for less than 4 hours place into the storage oven for at least 4 hours before removing for use.

If electrode is exposed to the atmosphere for 4 hours or more (or 9 hours for moisture resistant electrodes designated with an R in their labeling) then electrode can be dried in a drying oven at a temperature of 450°F to 550°F.

If the electrode is exposed to the atmosphere for 4 hours or more a second time or the rod becomes wet discard rod.

CAST-IN-PLACE SHELLS: Steel shells for cast-in-place concrete piles shall conform to the requirements of the Standard Specifications.

All piles driven without a mandrel shall be of the minimum thicknesses shown. Piles driven with a mandrel shall be of sufficient strength and thickness to withstand driving without injury and to resist harmful distortion and/or buckling due to soil pressure after the mandrel is removed.

Remove, replace or correct to the satisfaction of the Engineer improperly driven, broken or otherwise defective pipe piles. Otherwise drive an additional pile at no extra cost.

The Contractor shall maintain a light suitable for visual inspection of the pile on the job at all times prior to and during the filling of the pipe.

PAINT: All paint shall comply with the Standard Specifications, or as specified on the plans.

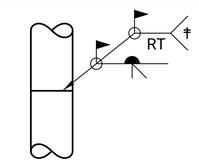
MILL TEST REPORTS: Steel piles test reports and steel shell test reports shall comply with the Standard Specifications.

SPLICES: Splices for steel piles and shell piling shall be in accordance with details shown on this sheet and the Standard Specifications.

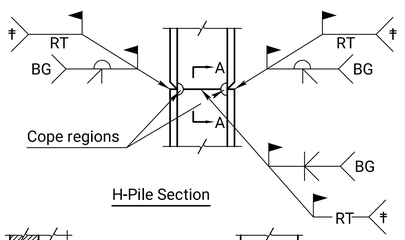
For integral pile bent abutments and piers, if a pile splice is required, do not locate the pile splice within a region extending 2'-0" above and 10'-0" below the bottom of the concrete web wall. For abutments, locate the pile splice at least 10'-0" below top of fill.

With the approval of the Engineer, one splice per bent may be allowed in the region described above without testing. If additional splices are anticipated, based on the geology, the Contractor prior to driving, will locate the splice so that the splice will not fall within the regions described above.

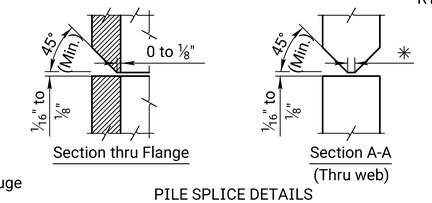
† For integral pile bent abutments and piers, if a splice is located within the regions described above, then the Contractor will test the welds by Radiograph (RT) test methods. Repair and retest any welds not passing the test(s). Each weld tested will have written confirmation of results. Report these results to the Engineer. This work is not paid for directly, but is subsidiary to "Piles".



Pipe Section



H-Pile Section



✳ Minimum as required by welding process.

BG = Backgouge

PILE SPLICE DETAILS

NO.	DATE	REVISIONS	BY	APP'D
04	08-16-18	Add splice web section, clarify note	M.L.L.	J.P.J.
03	09-15-15	Clarify Notes	J.P.J.	C.E.R.
02	06-18-12	Clarify f'c, rod type, use and weld	J.P.J.	T.L.F.

KANSAS DEPARTMENT OF TRANSPORTATION

STANDARD PILE DETAILS

BR110

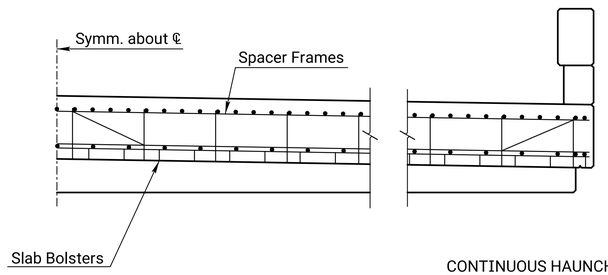
FHWA APPROVAL		10-04-12	APP'D.	Terry L. Fleck	
DESIGNED	J.P.J.	DETAILED	QUANTITIES	TRACED	R.A.A.
DESIGN CK.		DETAIL CK.	QUAN.CK.	TRACE CK.	

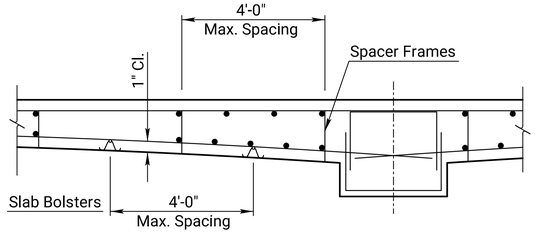
KDOT Graphics Certified 03-13-2025 Sh. No. 132

KDOT Graphics Certified

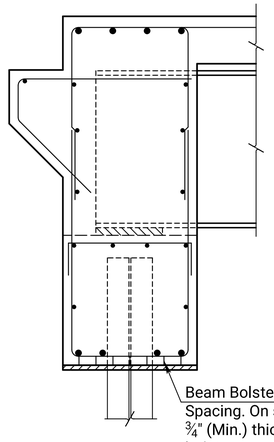
Plotted by : Bernhardt 18-AUG-2025 10:13
File : ka651701br110.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	133	366



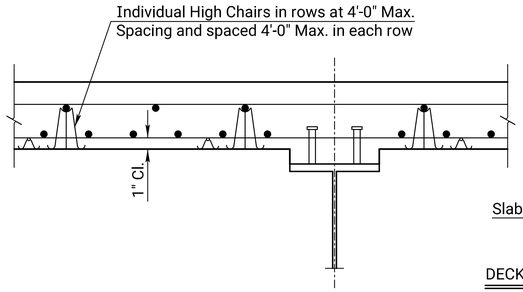


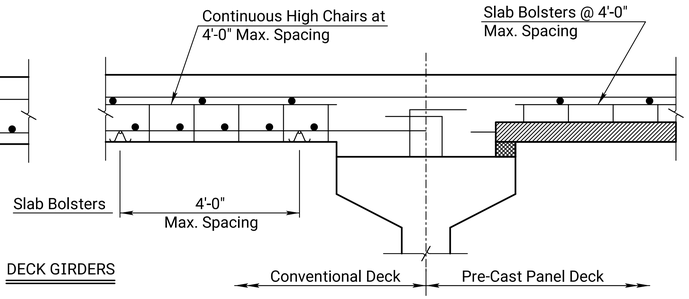
CONTINUOUS HAUNCHED SLAB



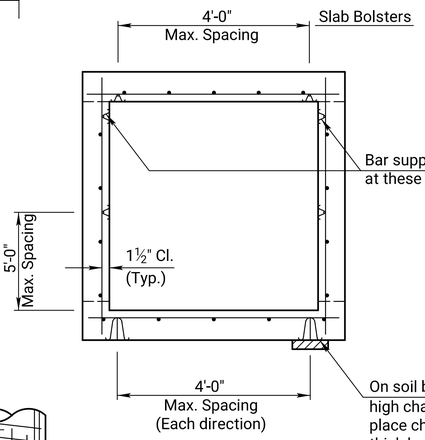
Beam Bolster at 4'-0" Max. Spacing. On soil bearing, place a ¾" (Min.) thick board under bolster.

ABUTMENT

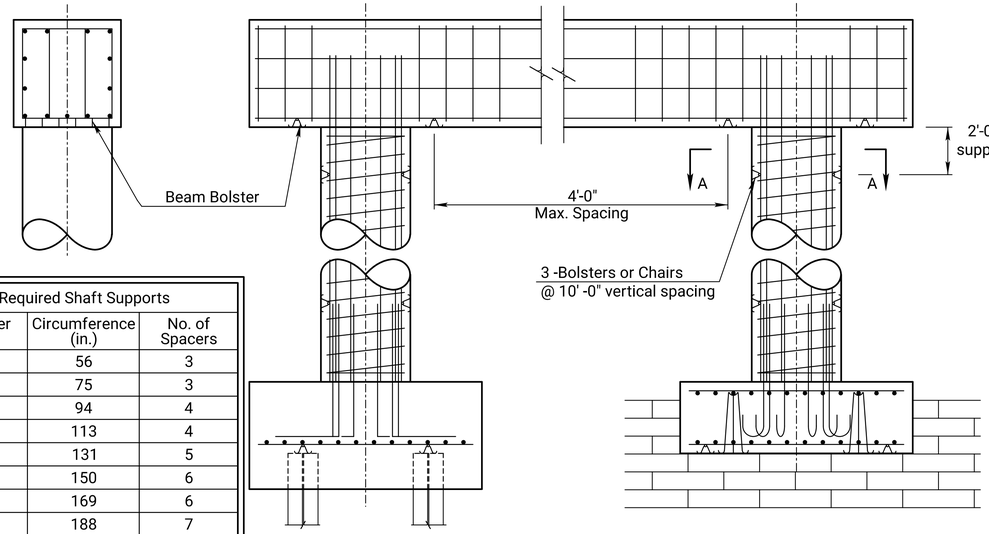




DECK GIRDERS

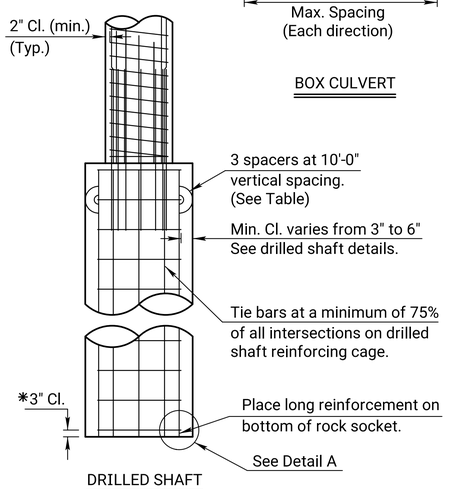


BOX CULVERT

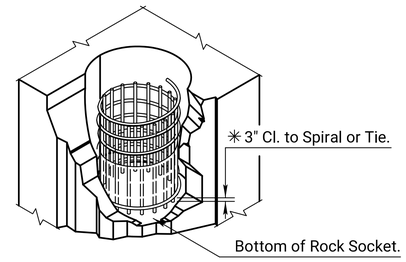


PIER

Required Shaft Supports		
Diameter (in.)	Circumference (in.)	No. of Spacers
18	56	3
24	75	3
30	94	4
36	113	4
42	131	5
48	150	6
54	169	6
60	188	7
66	207	7
72	226	8
78	244	9
84	263	9
90	282	10
96	301	11
102	320	11
108	339	12

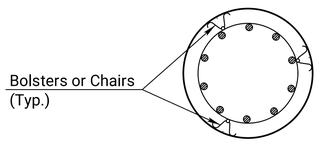


DRILLED SHAFT



DETAIL A

✳Note: Longitudinal reinforcing steel is placed on the bottom of the rock socket. Maintain 3" clearance from the bottom of rock socket to the first spiral or tie bar.



SECTION A-A

GENERAL NOTES

Reference is made to the latest edition of the CRSI "Manual of Standard Practice" for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

1) Wire Bar Supports:

   a) Epoxy coated reinforcing: Class 1 Protection
   b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection

2) Plastic Bar Supports

3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Shop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within ¼" of that indicated on the plans.

Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.

NO.	DATE	REVISIONS	BY	APP'D
05	11-10-10	Column Bar Supports Required	J.P.J.	T.L.F.
04	12-01-05	Drilled Shaft Spiral Steel Placement	J.P.J.	K.F.H.
03	08-21-00	Added Pre-Cast Panel Detail	R.A.M.	K.F.H.

KANSAS DEPARTMENT OF TRANSPORTATION

SUPPORTS AND SPACERS FOR REINFORCING STEEL

BR120

FHWA APPROVAL			11-17-10	APP'D.		Terry L. Fleck	
DESIGNED	R.A.M.	DETAILED	R.A.A.	QUANTITIES		TRACED	R.A.A.
DESIGN CK.	L.R.R.	DETAIL CK.	R.A.M.	QUAN.CK.		TRACE CK.	R.A.M.

KDOT Graphics Certified 03-13-2025 Sh. No. 133

KDOT Graphics Certified

Plotted by : Bernhardt 18-AUG-2025 10:14
File : ka6517 01br120.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	134	366

CONCRETE PAVEMENT

STATION to STATION		SIDE	CONC. PVMT. (9" UNIF.)(AE)(NRDJ)	CONC. PVMT. (9" VAR.)(AE)(PLAIN)	CONC. PVMT. (9" UNIF.)(AE)(BR APP)	CONC. PVMT. (4" UNIF.)(AE)(PLAIN)	ALT#1 4" CEMENT TREATED BASE	ALT #2 4" ASPHALT TREATED BASE	ALT #2 QAQC HMA	ALT#1 6" FLY ASH TREATED SUBGRADE MANIPULATION	ø FLY ASH	ALT #2 6" CEMENT TREATED SUBGRADE MANIPULATION	øø CEMENT	PAVEMENT EDGE WEDGE (ROCK)
			SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	TON	SQ.YDS.	TON	SQ.YDS.	TON	TON
Prop. Imp.														
1149+25.00	1156+75.52	Lt./Rt.	1809.7	671.7			2805.4	2805.4	610	2805.4	104.2	2805.4	48.6	64.3
1156+45.81	1156+75.81	Rt.				13.6								
1156+75.52	1156+75.81	Lt./Rt.			139.4		151.7	151.7	33	151.7	5.6	151.7	2.6	
1166+87.85	1167+21.49	Lt./Rt.			132.3		146.8	146.8	32	146.8	5.4	146.8	2.5	
1167+21.49	1171+57.46	Lt./Rt.	1089.4	484.3			1764.0	1764.0	384	1764.0	65.5	1764.0	30.6	46.6
I-135														
109+81.14	109+99.14	Lt.		15.6										
110+01.20	110+19.20	Rt.		16.7										
110+97.19	111+49.58	Lt.		45.4										
111+37.22	111+91.06	Rt.		48.6										
TOTALS			2899.1	1282.3	271.7	13.6	4867.9	4867.9	1059	4867.9	180.7	4867.9	84.3	110.9

ø Calculated at 15% by weight og the top 6" of soil (soil @ 110 lbs/cu. ft.)
øø Calculated at 7% by weight og the top 6" of soil (soil @ 110 lbs/cu. ft.)

EARTHWORK

BALANCE	PHASE	ALIGNMENT	STATION to STATION	EXCAVATON COMMON CU. YDS.	EXCAVATON COMMON † VMF	EXCAVATON **ROCK (EXIST PVMT) CU. YDS.	EXCAVATON **ROCK (EXIST PVMT) † VMF	EXCAVATON CONTRACTOR FURNISHED CU. YDS.	EXCAVATON CONTRACTOR FURNISHED VMF	COMPACTION TYPE AA MR-0-5 CU. YDS.	COMPACTION TYPE A MR-5-5 CU. YDS.	THRU CUTS NOT SUBGRADED COMMON EXCAVATION CU. YDS.	THRU CUTS NOT SUBGRADED TYPE AA MR-0-5 CU. YDS.	◔◔ WASTE CU. YDS.	SALVAGED TOPSOIL SQ. YDS.
1	1	Prop. Imp.	1156+00.00 - 1157+10.85	0	0.79	0	1.0	8609	0.79	230	6571	0	0	0	2007
	2	Prop. Imp.	1149+25.00 - 1156+00.00	3906	0.79	797	1.0	0	0.79	304	2573	621	621	0	6055
	3	Prop. Imp.	1156+00.00 - 1158+00.00	61	0.79	0	1.0	1012	0.79	0	1057	0	0	0	568
	1	I-135	109+81.14 - 109+99.14	0	0.79	4	1.0	0	0.79	0	0	0	0	0	0
	3	I-135	108+93.75 - 113+04.83	23	0.79	0	1.0	87	0.79	0	87	0	0	0	768
SUBTOTALS				3990		801		9708		534	10288	621	621	0	9398
2	1	Prop. Imp.	1166+87.85 - 1167+21.49	6	0.79	0	1.0	741	0.79	80	510	1	1	0	632
	2	Prop. Imp.	1167+21.49 - 1171+57.46	800	0.79	582	1.0	0	0.79	99	639	520	520	106	1345
	3	Prop. Imp.	1166+87.85 - 1167+57.46	149	0.79	42	1.0	0	0.79	0	2	0	0	116	985
	1	I-135	110+01.20 - 110+19.20	0	0.79	4	1.0	0	0.79	0	0	0	0	0	0
	3	I-135	107+20.17 - 111+31.25	16	0.79	0	1.0	0	0.79	0	1	0	0	12	246
SUBTOTALS				971		628		741		179	1152	521	521	234	3208
TOTALS				4961		1429		10449		713	11440	1142	1142	234	12606

** All existing pavement removal is to be wasted. Quantities are based on existing 9" pavement & 4" base along the existing ramp and 9" pavement along I-135.
◔◔ Does not include pavement to be wasted. For information only.
† Composite VMF.

BRIDGE APPROACH SLAB FOOTING

STATION to STATION		SIDE	LENGTH (FT.)	WIDTH (FT.)	DEPTH (FT.)	VOLUME (CU. YDS.)	REMARKS
1156+75.52	1157+10.85	Lt./Rt.	74.5	4	2	22.1	
1166+87.85	1167+21.49	Lt./Rt.	74.5	4	2	22.1	
TOTAL						44.2	

DRAINAGE STRUCTURES

STATION	SIDE	SIZE	TYPE	CROSS ROAD PIPES RCP 24"	CROSS ROAD PIPES ACSP, RCP 24"	END SECTIONS ◔ RCP 24"	END SECTIONS ◔ 24"	TYPE I LT.	TYPE I RT.	REMARKS
1153+00.00	℄	24"	CRP(RCP)	74		2		1	1	
1167+06.00	Rt.	24"	CRP		96		2		2	
TOTALS				74	96	2	2			

◔ See Pipe Culvert Summary Sheet for allowable end section types.

FLUME INLET (CONCRETE)

STATION	SIDE	FLUME INLET	SLOPE DRAIN (STONE)	REMARKS
1156+84.95	Lt.	1	60.5	
1167+83.23	Rt.	1	33.8	
TOTAL		2	94.3	

GUARDRAIL - STEEL PLATE (MGS)

STATION to STATION		SIDE	STEEL PLATE (MGS) (LIN. FT.)	ALT. #1 (MGS-FLEAT) (EACH)	ALT. #2 (MGS-SRT) (EACH)	TYPE II TERMINAL†† (EACH)	REMARKS
Prop. Imp.							
1156+02.54	1156+97.81	Lt.	50.00	1	1		
1155+99.93	1156+76.50	Rt.	37.50	1	1		
I-135							
108+75.17	109+81.25	Rt.	65.625	1	1	1	
100+43.75	111+49.83	Lt.	65.625	1	1	1	
TOTALS			218.75	4	4	2	

†† Type II End Terminal included in pay length for bid item "Guardrail, Steel Plate (MGS)"

*** REMOVAL OF EXISTING STRUCTURES (FOR INFORMATION ONLY)

STATION	SIDE	REMARKS
Survey ℄		
1153+71 - 1155+51	Lt.	171' of Guardrail
1154+34 - 1155+52	Rt.	121' of Guardrail
1155+19	Lt.	Flume Inlet & 55' of Slope Drain
1160+50	Lt./Rt.	Existing Br. No. 135-87-5.81 (305)
1165+63	Rt.	Flume Inlet & 46' of Slope Drain
I-135		
109+81 - 109+99	Lt.	18' of Concrete Barrier
109+81 - 109+99	Lt.	Concrete Riprap
110+01 - 110+19	Rt.	18' of Concrete Barrier
110+01 - 110+19	Rt.	Concrete Riprap
110+97 - 111+50	Lt.	53' of Concrete Barrier
110+98 - 111+57	Lt.	Concrete Riprap
111+26 - 111+91	Rt.	Concrete Riprap
111+26 - 111+91	Rt.	54' of Concrete Barrier

*** The Listing Shown may not be complete.
Additional structures not listed, but whose removal is required during construction as determined by the Engineer, will not be paid for directly, but will be Subsidiary to the bid item, "Removal of Existing Structures."
For Permanent Signing Removals, See Signing Plans.

MOWING

STATION to STATION		P.M.P.S.
1149+25.00	1160+68.62	0.4
1162+98.27	1171+57.46	0.4
TOTAL		0.8

**** CLEANING EXISTING STRUCTURES (FOR INFORMATION ONLY)

STATION	SIDE	SIZE	REMARKS
Survey ℄			
1158+19	Rt.		Area Inlet
1158+19 - 1159+46	Lt./Rt.	36"	36" x 162' RCP
1159+46	Lt.		Area Inlet
1159+46 - 1160+67	Lt.	48"	48" x 108' RCP

**** The Listing Shown may not be complete.
Additional structures not listed, but whose cleaning is required during construction as determined by the Engineer, will not be paid for directly, but will be Subsidiary to the bid item, "Cleaning Existing Structures."

CONCRETE SAFETY BARRIER

STATION to STATION		SIDE	LINEAR FEET TYPE II	LINEAR FEET TYPE II (SPECIAL)	LINEAR FEET TYPE II (42") (SPECIAL)	REMARKS
Prop. Imp.						
1156+75.81	1156+97.76	Rt.	22.0			
1167+00.85	1167+65.00	Rt.			63.7	
I-135						
109+81.14	109+99.14	Lt.		18.0		
110+01.20	110+19.20	Rt.		18.0		
110+97.19	111+49.58	Lt.		52.4		
111+37.22	111+91.06	Rt.		53.8		
TOTALS			22.0	142.2	63.7	

AGGREGATE DITCH LINING (4")

STATION to STATION		SIDE	d (FT.)	TONS	REMARKS
1167+39	1167+91	Rt.	Var.	47.0	
TOTALS				47.0	

RECAPITULATION OF ROAD QUANTITIES

ITEM	QUANTITY	UNIT
Cleaning Existing Structures	Lump Sum	Lump Sum
Contractor Construction Staking	Lump Sum	Lump Sum
Field Office and Laboratory (Type A)	1	Each
Foundation Stabilization (Set Price)	1	Cu. Yd.
Mobilization	Lump Sum	Lump Sum
Mobilization (DBE)	Lump Sum	Lump Sum
* Removal of Existing Structures	Lump Sum	Lump Sum
Maintenance and Restoration of Haul Roads (Set Price)	Lump Sum	Lump Sum
Concrete for Seal Course (Set Price)	Lump Sum	Lump Sum
Clearing and Grubbing	1	Cu. Yd.
Common Excavation (Urban)	6,103	Cu. Yd.
Common Excavation (Contractor Furnished)	10,449	Cu. Yd.
Rock Excavation	1,429	Cu. Yd.
Compaction of Earthwork (Type AA)(MR-0-5)	1,855	Cu. Yd.
Compaction of Earthwork (Type A)(MR-5-5)	11,440	Cu. Yd.
Salvaged Topsoil	12,606	Sq. Yd.
Water (Grading) (Set Price)	1	M. Gal.
Cross Road Pipe (24")(RCP)	74	Lin. Ft.
Cross Road Pipe (24")	96	Lin. Ft.
End Section (24")(RC)	2	Each
End Section (24")	2	Each
Guardrail, Steel Plate (MGS)	218.75	Lin. Ft.
Guardrail, End Terminal (MGS-FLEAT) Alt 1	4	Each
Guardrail, End Terminal (MGS-SRT) Alt 2	4	Each
Aggregate Ditch Lining (4")	47	Tons
Slope Drain (Stone)	95	Lin. Ft.
Flume Inlet (Concrete)	2	Each
Inertial Barrier System (TL-3)	3	Each
Replacment Modules (IBS)	15	Each
Concrete Safety Barrier (Type II)	22	Lin. Ft.
Concrete Safety Barrier (Type II)(Special)	142	Lin. Ft.
Concrete Safety Barrier (Type II)(42")(Special)	64	Lin. Ft.
Concrete Safety Barrier (Temporary)	2000	Lin. Ft.
Concrete Safety Barrier (Temporary - Relocate)	2512.5	Lin. Ft.
Mowing	0.8	PMPS
Concrete Pavement (9" Unif.)(AE)(NRDJ)	2,899	Sq. Yd.
Concrete Pavement (9" Var.)(AE)(Plain)	1,282	Sq. Yd.
Concrete Pavement (9" Unif.)(AE)(Br. App.)	272	Sq. Yd.
Concrete Pavement (4" Unif.)(AE)(Plain)	14	Sq. Yd.
Bridge Approach Slab Footing	44	Cu. Yd.
Quality Control Testing (PCCP)	4,181	Sq. Yd.
Concrete Core (Set Price)	1	Each
Curing Environment	Lump Sum	Lump Sum
Cement Treated Base (4") Alt. 1	4,868	Sq. Yd.
Quality Control Testing (CTB) Alt. 1	4,868	Sq. Yd.
Asphalt Treated Base (4") Alt. 2	4,868	Sq. Yd.
Quality Control Testing (HMA) Alt. 2	1,059	Tons
Asphalt Core (Set Price) Alt. 2	1	Each
Asphalt Air Void Pay Adjustment (Set Price) Alt. 2	1	Each
Asphalt Density Pay Adjustment (Set Price) Alt. 2	1	Each
Field Office and Laboratory (Type A) Alt. 2	1	Each
Fly Ash Alt. 1	181	Tons
Manipulation for Treated Subgrade (Fly Ash) Alt. 1	4,868	Sq. Yd.
Water (Treated Subgrade)(Set Price) Alt. 1	1	M. Gal.
Cement Alt. 2	84	Tons
Manipulation for Treated Subgrade (Cement) Alt. 2	4,868	Sq. Yd.
Water (Treated Subgrade)(Set Price) Alt. 2	1	M. Gal.
Pavement Edge Wedge (Rock)	111	Tons
Water (Earthwork Compaction)(Set Price)	1	M. Gal
* Trainees Highway Construction (Set Price)	2,460	Each
Towing (Courtesy)(Set Price)	1	Each

* Federally Non-Participating

For Bridge (894) Quantities See Sh. No. 54
For Bridge (302) Quantities See Sh. No. 127
For Surfacing Quantities See Sh. No. 135
For Erosion Control Quantities See Sh. No. 136
For Seeding Quantities See Sh. No. 152
For Pavement Marking Quantities See Sh. No. 163
For Signing Quantities See Sh. No. 178
For Traffic Control Quantities See Sh. No. 337

NO.	DATE	REVISIONS	BY	APP'D
02	01-14-08	Rem. Drainage Structure summary	S.W.K.	J.O.B.
01	01-09-91	Detailed on CADD	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

RD050

FHWA APPROVAL	05-28-08	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. S.W.K.

KDOT Graphics Certified 05-28-2025 Sh. No. 134

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:01
File : ka651701rss050.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	135	366

GENERAL NOTE:

On surfacing projects, the 6" of Compaction Type AA, shown for the center portion on the roadbed, is for the purpose of restoring the original Compaction Type AA which may have been lost since grading operations. The exact locations of this Compaction Type AA, which will be required, is to be determined by the Engineer at the time of construction. This work shall be paid under the bid item "Compaction of Earthwork (Type AA)(MR-)".

Over all structures, unless otherwise directed by the Engineer, where the top of the hubguard is level with or above the finished shoulder grade, the earth cover over the structure slab shall be removed and backfilled with material as directed by the Engineer. The removal of this material will be subsidiary.

The material used to backfill over the structure shall be paid for at the prices shown in the contract.

The earth shoulders shall be compacted full depth (Type -MR) except, when ordered by the Engineer, the top 3" shall be left uncompacted for seeding.

All side roads and house entrances shall be surfaced with to the R/W line as indicated on the detail. All side roads and house entrances with existing asphalt surface shall be surfaced with at least to the R/W line or to the end of construction, as directed by the Engineer. Each mailbox turnout (ON PROJECTS WHERE STABILIZED SHOULDERS ARE NOT SPECIFIED) shall be surfaced with to the limits shown on the detail.

Surfacing material (SA-) shall be used for surfacing house entrances and side roads (C.Y./SQ. YD.) beyond the limits of the asphalt surface to the limits of construction as determined by the Engineer.

The thickness of side road and entrance surfacing may be increased to the same thickness as the stabilized shoulder within the approximate limits of the shoulder.

On projects which specify both asphalt base and surface course materials, side roads, house entrances and mailbox turnouts may be surfaced with both materials at the contractors option, with the approval of the Engineer.

Quantities for aggregate for shoulders, AS-1, are calculated on the basis of 150 lbs. per cu. ft. Quantities for stabilized base course, AB-3, are calculated on the basis of 1 56 lbs. per cu. ft. Weight/cu. ft. includes moisture allowed by specification.

The base course shall be constructed to the plan thickness as shown.

Thicknesses indicated for all construction which is paid for on a weight or volume basis are approximate and may vary to correct for unevenness in the foundations or for other normal unevenness encountered in placement operations.

A tack coat of SS-1HP shall be provided between each lift of all base courses and surface courses and under the first lift of base or surface courses when they are placed on an existing asphalt, brick, or concrete surface, when so ordered by the Engineer and at the rate designated by him. Quantities are included for these tacks calculated at the rate of 0.06 gal. /sq. yd.

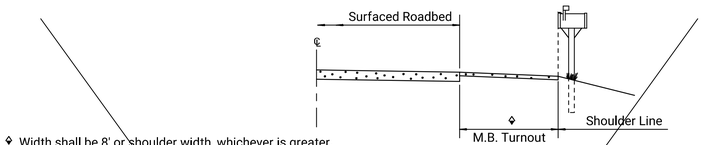
Asphalt Material quantities are calculated on the basis of 8.328 lbs. per gal.

Shoulder rumble strips will not be constructed as part of this project.

SUMMARY OF QUANTITIES

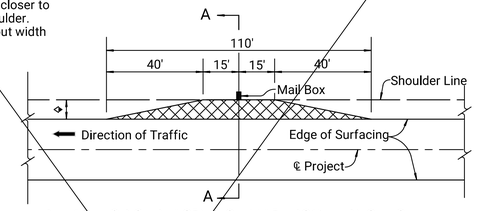
ITEM	✱GR PAD					UNIT
Surfacing Material (SA-1)						
Prop. Imp.						
Sta. 1154+94.93 to Sta. 1156+45.81 Rt.	25.60					TONS
Sta. 1154+97.54 to Sta. 1156+76.04 Lt.	45.40					TONS
I-135						
Sta. 107+70.17 to Sta. 110+81.25 Rt.	46.10					TONS
Sta. 109+43.75 to Sta. 112+54.83 Lt.	46.25					TONS

✱ Computed at the rate of 150 lb./cu. ft.
Quantities have been increased 3/8" in thickness for contingencies.

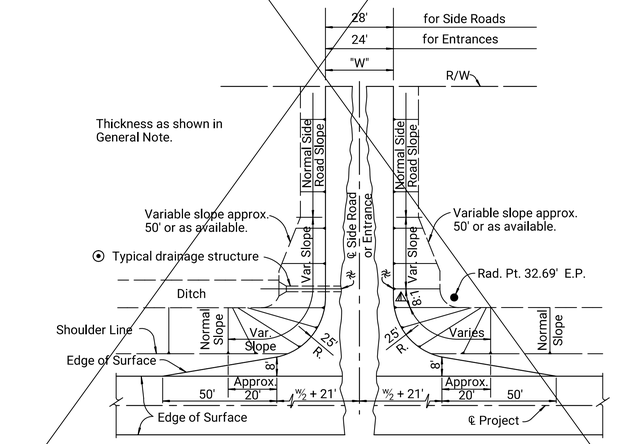


SECTION A-A

Note: The face of Mail Box should be no closer to the roadway than the edge of the shoulder. Align with edge of turnout when turnout width is greater than shoulder width.

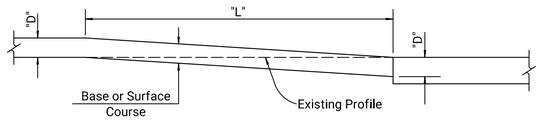


DETAIL FOR SURFACING OF MAIL BOX TURNOUTS



WITH DRAINAGE STRUCTURE — MOUND ENTRANCE OR SIDE ROAD

DETAIL FOR SURFACING OF SIDE ROADS & HOUSE ENTRANCES



TYPICAL PROFILE AT GRADE CONTROL POINTS

The Contractor shall cut the subgrade in accordance with this profile at all grade control points, i.e.; existing pavements, grade bridges and R.R. crossings, also at changes in thickness of base or surface courses. Corresponding dimensions of "D" and "L" shall be as given in the table below.

The work of cutting the subgrade and disposing of excess excavated material shall be subsidiary to other items in the contract.

TABLE OF DIMENSIONS

D	L	D	L	D	L	D	L	D	L	D	L
1"	25'	3"	75'	5"	125'	7"	175'	9"	225'	11"	275'
2"	50'	4"	100'	6"	150'	8"	200'	10"	250'	12"	300'

RATES OF APPLICATION

RATE	UNIT	ITEM		

† Computed at the rate of
†† Computed at the rate of

RECAPITULATION OF QUANTITIES

ITEM				TOTAL	UNIT
Surfacing Material (SA-1)				163	TONS

⚠ 8:1 Slope at the appropriate clear zone shall apply to all mound entrances and mound side roads to 10' fill height. Normal Slope (but not steeper than 6:1) for over 10' fill height.

⊙ Normal Slope (but not steeper than 6:1) at approximate ℄ Structure or appropriate clear zone width.

✱ On side roads and entrances which slope toward the highway, a low point approx. 6" deep shall be constructed to divert surface drainage into the highway ditch, unless otherwise shown on the plans.

NO.	DATE	REVISIONS	BY	APP'D
12	01-10-07	Changed bituminous to asphalt	S.W.K.	J.O.B.
11	08-30-06	Changed tack type/rate	S.W.K.	J.O.B.
10	03-24-05	Revised compaction, tack type/rate	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES (Surfacing)

RD051

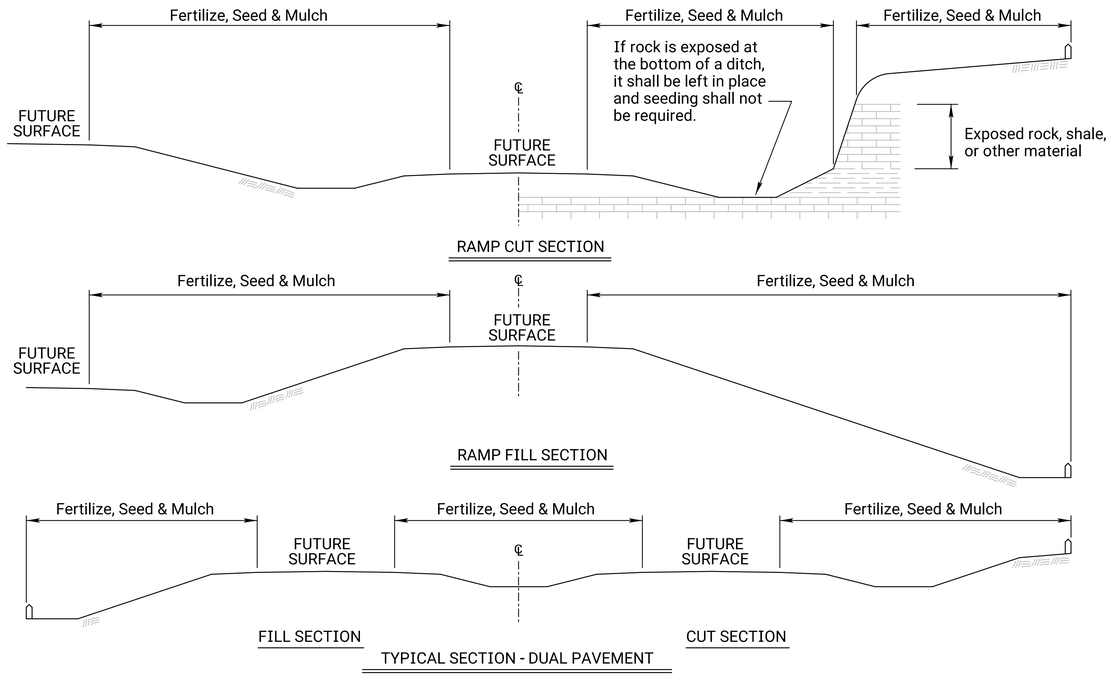
FHWA APPROVAL	09-06-06	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 04-03-2025 Sh. No. 135

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Plotted by: usmh708425 15-AUG-2025 13:01
File : ka6517 01rss051.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	136	366



FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P_2O_5, K_2O listed in Summary of Quantities will be acceptable.

* - N = Nitrogen Rate of Application
** - P_2O_5 = Phosphorous Rate of Application
*** - K_2O = Potassium Rate of Application

The Contractor will be required to finish areas of excavation, borrow and embankment in accordance with the specifications. Areas that require installation or construction of temporary water pollution control items will be finished in reasonable close conformity to the alignment, grade and cross section shown on the plans or as established by the Engineer.

CLT = Construction Limit Tract. This area is defined by the entire disturbed area of the project that requires seeding and erosion control measures to be placed. Any impervious areas (i.e. pavement, gravel, riprap, etc.) shall not be included in this measurement.

Slope = Defined by the area of the project that requires Class 1 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

Channel = Defined by the area of the project that requires Class 2 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

GENERAL NOTES

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded, and mulched. Soil preparation shall conform to the Standard Specifications.

Temporary seeding shall be done during any time of the year that the soil can be cultivated. After the temporary seeding has been completed on the entire project, permanent seeding shall be done during the normal seeding season.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching materials is generally as follows:

1¾ - 2¼ Tons per Acre = 1½" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
150		1.7		Temporary Fertilizer (16 - 20 - 0)	255	LB
	200		0.6	Temporary Fertilizer (13 - 13 - 13)	120	LB
20		1.7		Temporary Seed (Canada Wildrye)	34.0	LB
45		1.7		Temporary Seed (Grain Oats)	76.5	LB
45		1.7		Temporary Seed (Sterile Wheatgrass)	76.5	LB
	109.9		0.6	Soil Erosion Mix	65.9	LB
				Erosion Control (Class 1, Type C)	318	SQ YD
				Erosion Control (Class 2, Type E)	2610	SQ YD
				Sediment Removal (Set Price)	1	CU YD
				Synthetic Sediment Barrier		LF
				Temporary Berm (Set Price)	1	LF
				Temporary Ditch Check (Rock)	14	CU YD
				Temporary Inlet Sediment Barrier	1	EACH
				Temporary Sediment Basin		CU YD
				Temporary Slope Drain		LF
				Temporary Stream Crossing		EACH
				Biodegradable Log (9")	28	LF
				Biodegradable Log (12")	37	LF
				Biodegradable Log (20")	861	LF
				Filter Sock (18")	716	LF
				Geotextile (Erosion Control)	500	SQ YD
				Silt Fence	518	LF
				SWPPP Design †	1	LS
				SWPPP Inspection †		EACH
				Water Pollution Control Manager †		EACH
900 lbs / acre		1.7		Mulch Tacking Slurry	2295	LB
2 tons / acre		1.7		Mulching	5.1	TON
				Water (Erosion Control) (Set Price)	1	MGAL

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quantities sheet LA850 for further details.

Geotextile (Erosion Control) shall be removed prior to placement of permanent slope protection.

Regreen and Quick Guard are the approved sterile wheatgrass products.

† If the total disturbed area of the project, not just the seeding area, is 1 acre or more, then these bid items must be included.

**** List size of material.

The amount of mulch and mulch tacking slurry in the bid quantities is estimated. (Acres of Seeding X 1.5 X 2 Tons/Acre). The estimated quantity includes mulching associated with both temporary and permanent seeding operations. The total mulch and mulch tacking slurry required shall be determined in the field. The bid item for mulching and mulch tacking slurry shall be paid for according to the Standard Specifications.

Quantities for all erosion control items are estimated to give full flexibility for compliance with the NPDES permit. Final quantities will be determined in the field.

SOIL EROSION MIX

PLS RATE	NAME	QTY (lb)
0.5	Seed (Blue Grama Grass) (Lovington)	0.4
4.5	Seed (Buffalograss) (Treated)	3.2
45	Seed (Perennial Ryegrass)	31.5
2.6	Seed (Prairie Junegrass)	1.8
6.3	Seed (Side Oats Grama) (El Reno)	4.4
45	Seed (Tall Fescue) (Endophyte Free)	31.5
6	Seed (Western Wheatgrass) (Barton)	4.2
	Total (lb)	65.9

The Soil Erosion Mix is to be placed under the Class 1 and/or Class 2 erosion control material.

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.

NO.	DATE	REVISIONS	BY	APP'D
03	08-03-20	Added Note	M.R.D.	M.L.
02	12-01-17	Revised Standard	M.R.D.	S.H.S.
01	06-01-17	Revised Standard	M.R.D.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

LA852A

FHWA APPROVAL		01-26-18	APP'D.	Scott H. Shields	
DESIGNED	M.R.D.	DETAILED	M.R.D.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 03-21-2025 Sh. No. 136

KDOT Graphics Certified

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File : ka651701la852a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	137	366

EROSION CONTROL- CLASS 1, TYPE C

STATION TO STATION	SIDE	LENGTH	WIDTH	SQ YARD
1152+88.14 - 1153+11.53	Lt.	23.39	13.11	34
1152+89.52 - 1153+10.49	Rt.	20.97	12.02	28
1156+00.00 - 1156+76.04	Lt.	76.04	30.26	256
TOTAL EROSION CONTROL (CLASS 1, TYPE C) =				318

EROSION CONTROL- CLASS 2, TYPE E

STATION TO STATION	SIDE	LENGTH	WIDTH	SQ YARD
1150+00.00 - 1156+00.00	Lt.	600.00	21.00	1400
1151+50.00 - 1156+00.00	Rt.	450.00	18.62	931
1156+00.00 - 1156+94.88	Rt.	94.88	12.90	136
1156+00.00 - 1156+74.71	Lt.	74.71	17.22	143
TOTAL EROSION CONTROL (CLASS 2, TYPE E) =				2610

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File : ka651701la852a-ec.dgn

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

EROSION CONTROL
SEEDING-SODDING

LA852A-EC

FHWA APPROVAL				APP'D.	Scott H. Shields		
DESIGNED	M.R.M.	DETAILED	M.R.M.	QUANTITIES		TRACED	M.R.M.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	S.H.S.

KDOT Graphics Certified 03-21-2025 Sh. No. 137

KDOT Graphics Certified

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	138	366

DATE	BY
REFERENCES NOTED	
REFERENCES CHECKED	

Scale 1"=50'

Sec. 22, T27S, R1E

Sec. 27, T27S, R1E

℄ Prop. Imp. Sta. 1148+31.95 =
℄ 135N-54W Sta. 227+52.75 =
Survey ℄ Sta. 1148+31.95

℄ Prop. Imp. Sta. 1150+83.06 =
℄ US-54/400 Sta. 493+20.94

℄ Prop. Imp. Sta. 1161+88.59 =
℄ I-135 Sta. 109+87.35

135N-54W

S23°01'17"W

WESTBOUND US-54/400

EASTBOUND US-54/400

℄ US-54/400

℄ I-135

Wichita Drainage Canal
(Chisholm Creek)

SOUTHBOUND I-135

NORTHBOUND I-135

Sec. Line

Const. Limits

Survey ℄

℄ Prop. Imp.

Q10=4.58 CFS

Q10=1.31 CFS

Q10=17.76 CFS

Q10=7.40 CFS

Q10=3.01CFS

Q10=2.02 CFS

CENTURY LINK FIBER OPTIC

CENTURY LINK FI

LEGEND

Class I Erosion Control

Class II Erosion Control

KANSAS DEPARTMENT OF TRANSPORTATION

PROPOSED FINAL
EROSION CONTROL PLAN PHASE 1
STA. 1149+25 TO STA. 1163+00

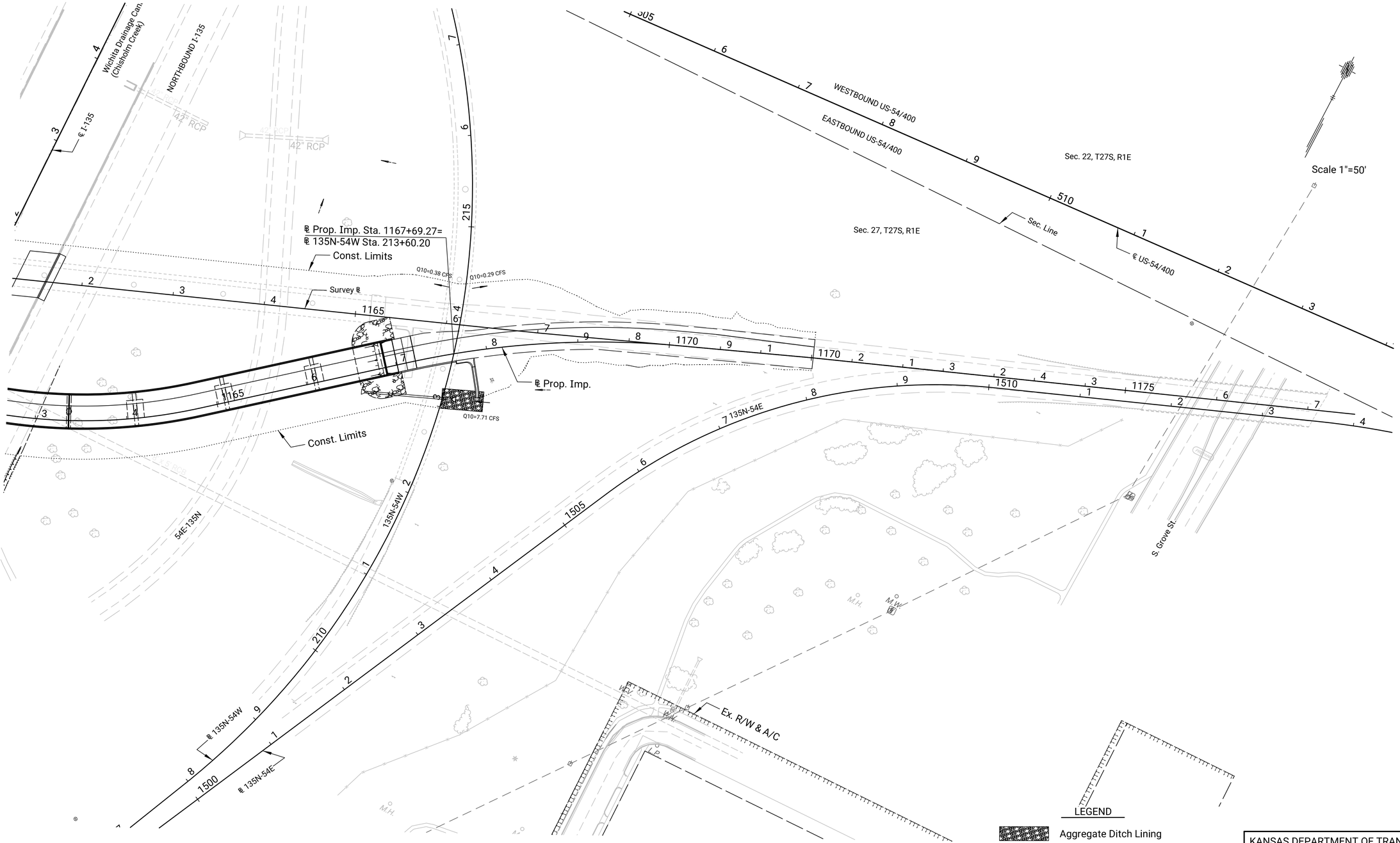
KDOT Graphics Certified 06-03-2025 Sh. No. 138

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:03
File : ka651701ewp01.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	139	366

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED



KANSAS DEPARTMENT OF TRANSPORTATION

PROPOSED FINAL
EROSION CONTROL PLAN PHASE 1
STA. 1163+00 TO STA. 1171+57.46

KDOT Graphics Certified 07-30-2025 Sh. No. 139

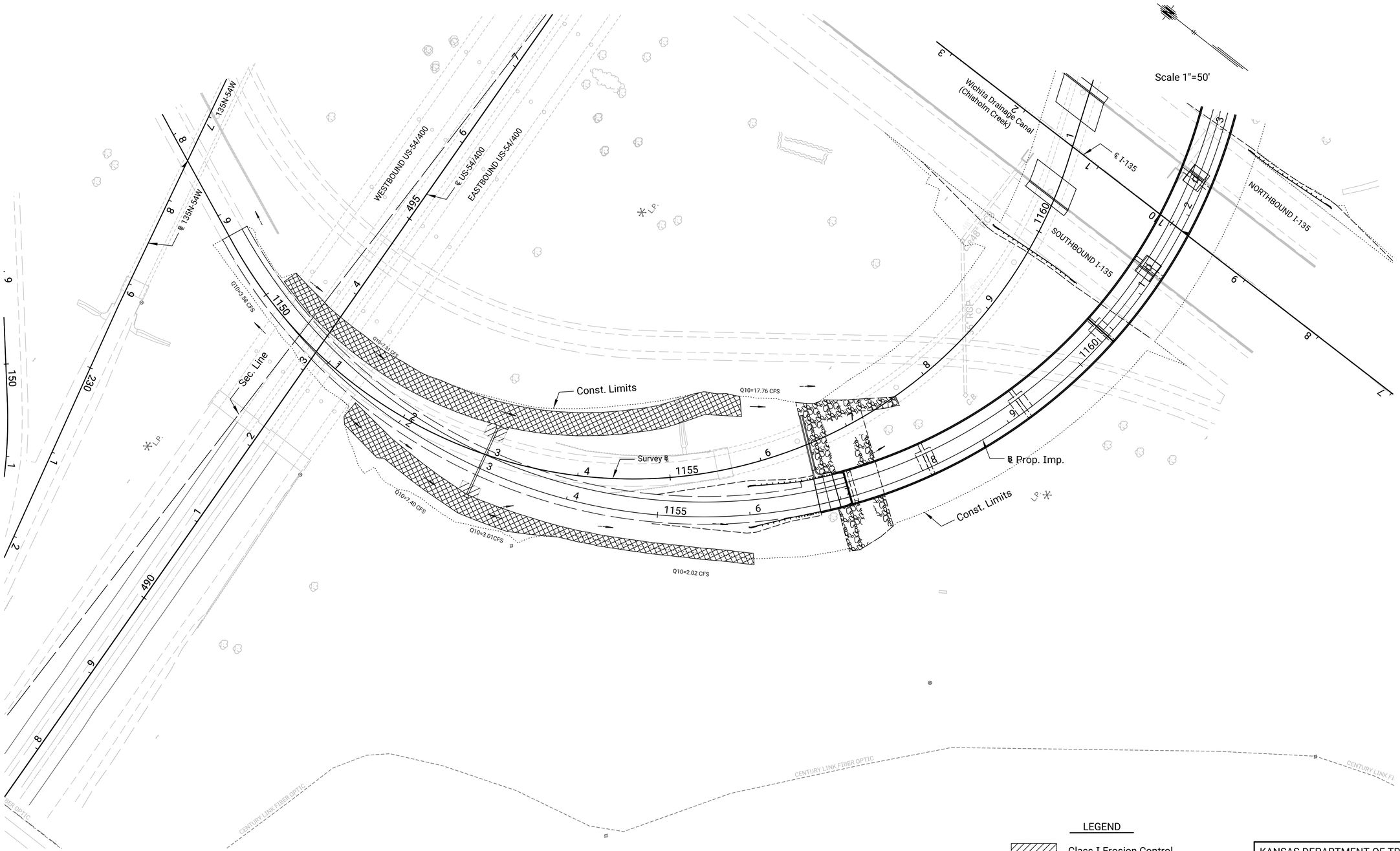
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:03
File : ka651701ewp02.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	140	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Scale 1"=50'



LEGEND

Class I Erosion Control

Class II Erosion Control

KANSAS DEPARTMENT OF TRANSPORTATION

PROPOSED FINAL

EROSION CONTROL PLAN PHASE 2

STA. 1149+25 TO STA. 1163+00

KDOT Graphics Certified 07-30-2025 Sh. No. 140

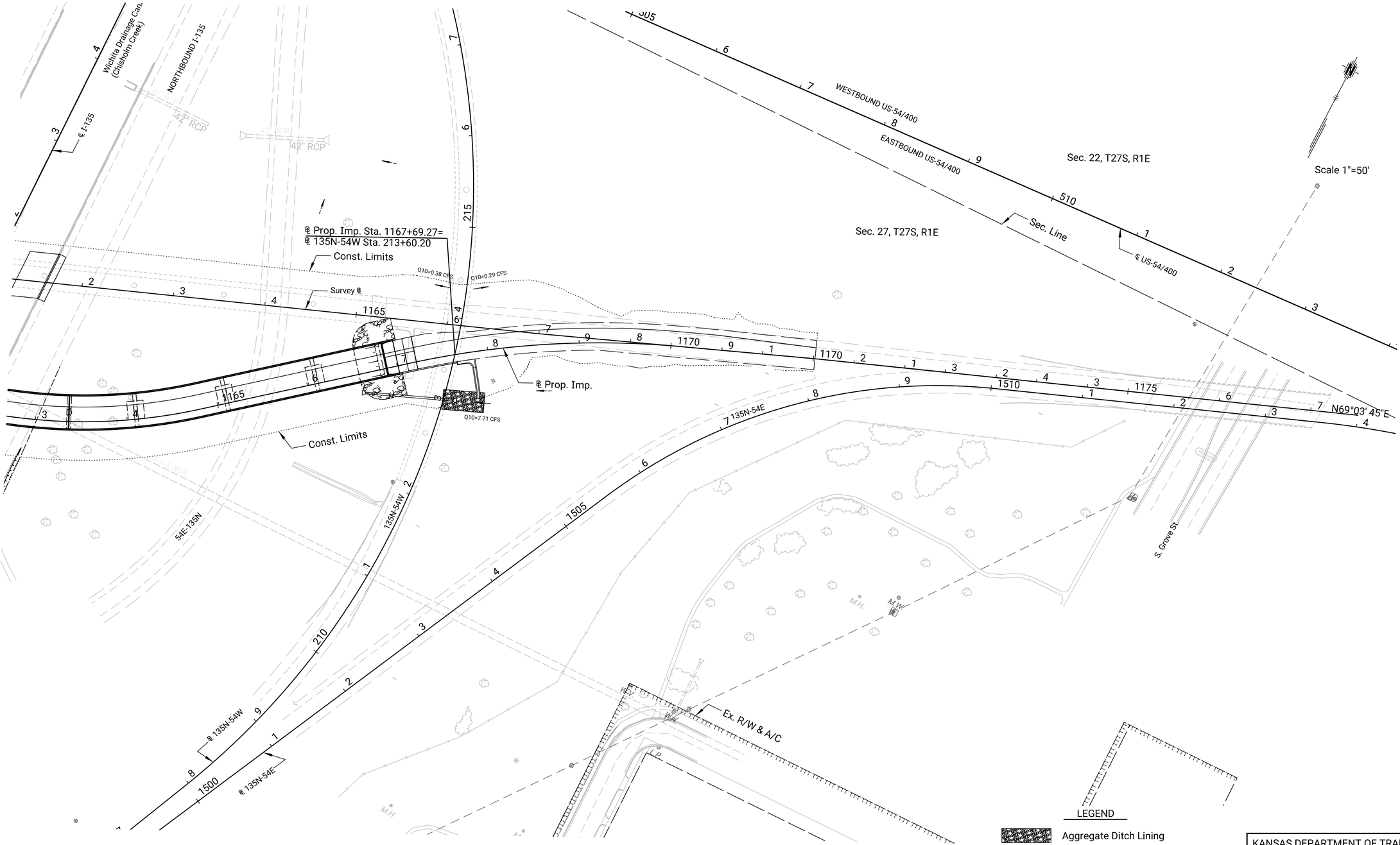
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:03

File : ka651701ewp03.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	141	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



KANSAS DEPARTMENT OF TRANSPORTATION

PROPOSED FINAL
EROSION CONTROL PLAN PHASE 2
STA. 1163+00 TO STA. 1171+57.46

KDOT Graphics Certified 07-30-2025 Sh. No. 141

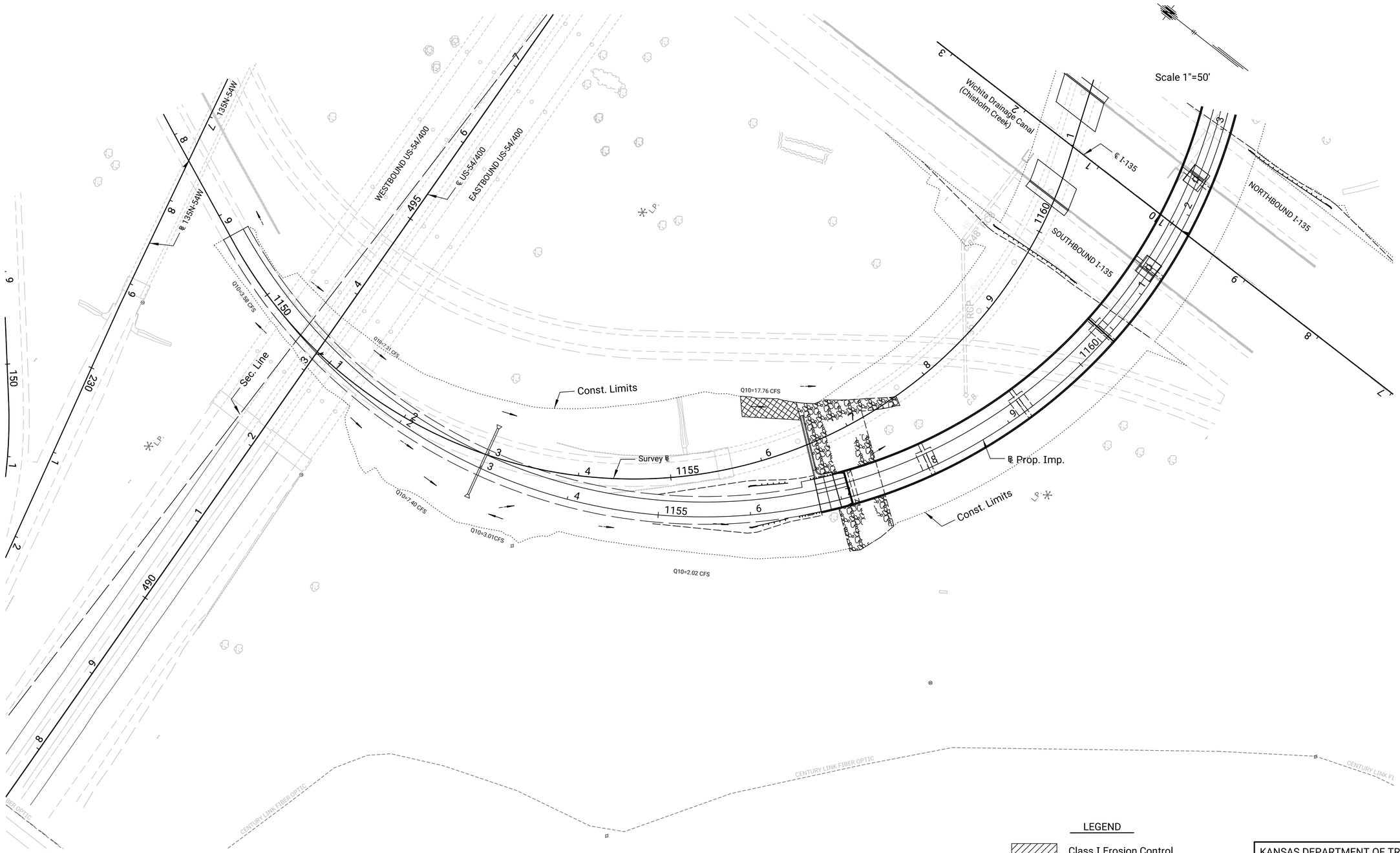
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:04
File : ka651701ewp04.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	142	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

Scale 1"=50'



LEGEND

- Class I Erosion Control
- Class II Erosion Control

KANSAS DEPARTMENT OF TRANSPORTATION

PROPOSED FINAL
EROSION CONTROL PLAN PHASE 3
STA. 1149+25 TO STA. 1163+00

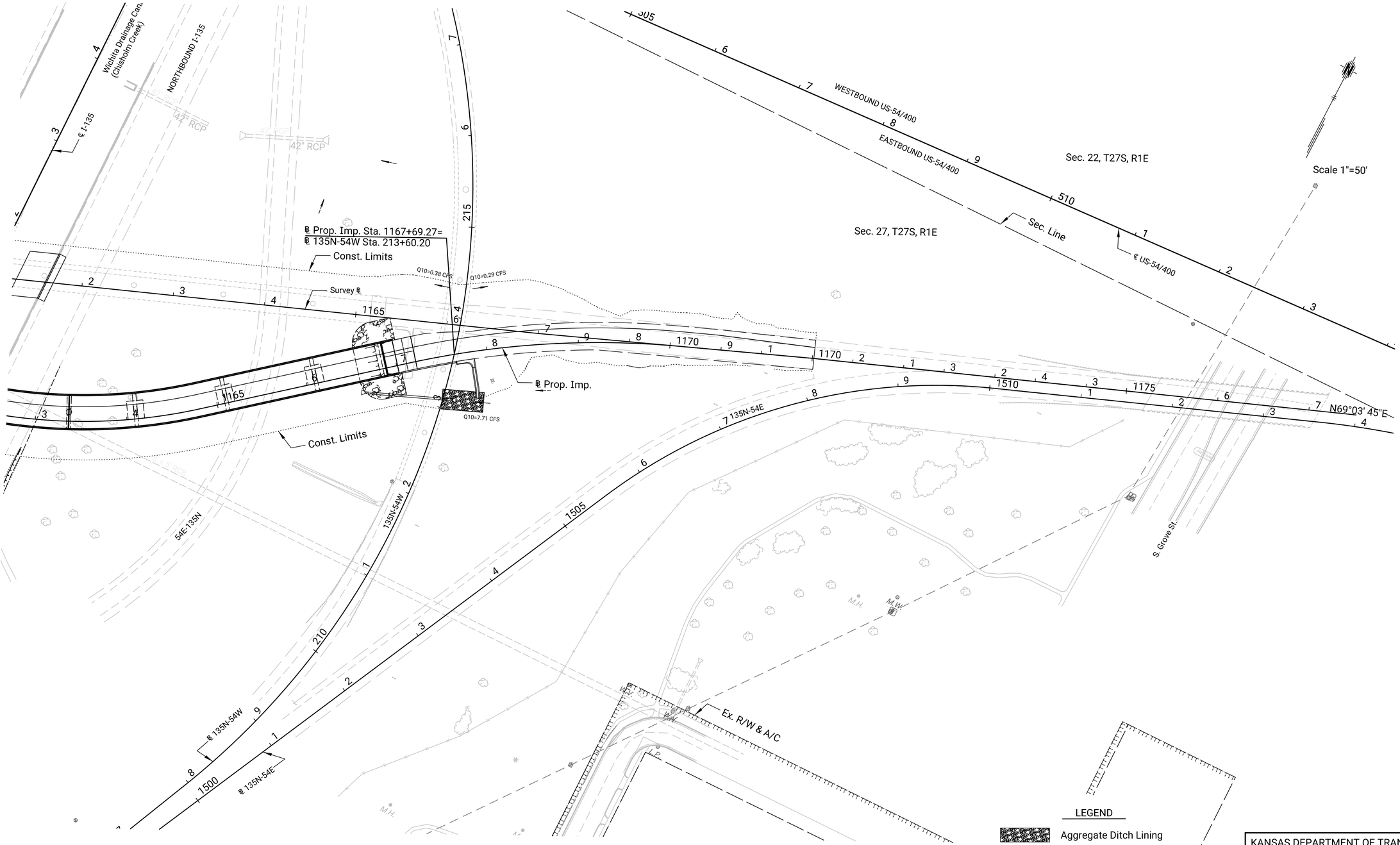
KDOT Graphics Certified 07-30-2025 Sh. No. 142

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:04
File : ka651701ewp05.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	143	366

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



KANSAS DEPARTMENT OF TRANSPORTATION

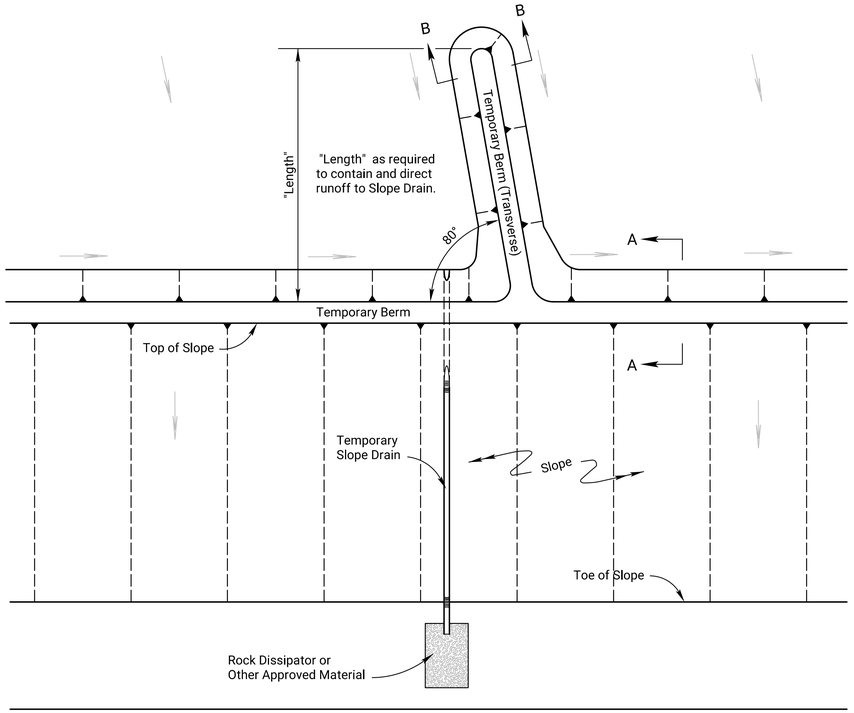
PROPOSED FINAL
EROSION CONTROL PLAN PHASE 3
STA. 1163+00 TO STA. 1171+57.46

KDOT Graphics Certified 07-30-2025 Sh. No. 143

KDOT Graphics Certified

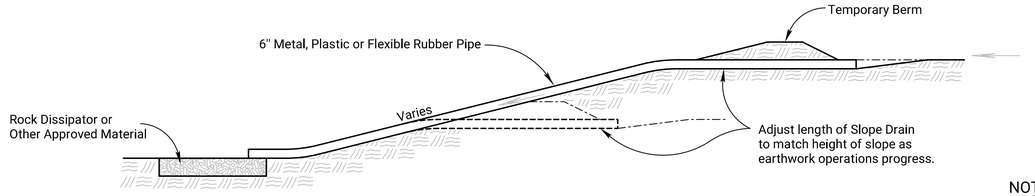
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File : ka651701ewp06.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	144	366



TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN

NO SCALE



TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

NO SCALE

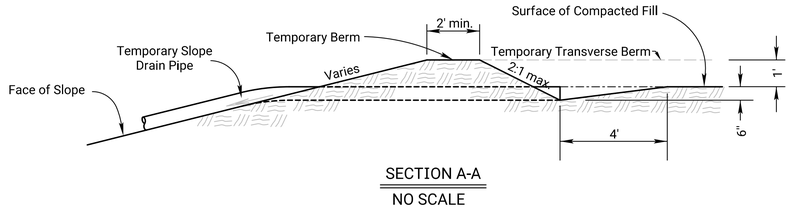
NOTES:

1) Temporary Slope Drain and Temporary Berm may be used on either project foreslopes or project backslopes.

2) Discharge of Slope Drains shall be into stabilized ditch or area, or into Sediment Basin.

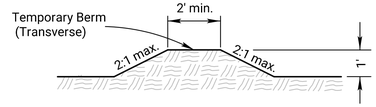
3) Pipe shall be secured in place as approved by Engineer.

4) Temporary Berms under 2,000 feet shall be bid by Set Price.



SECTION A-A

NO SCALE

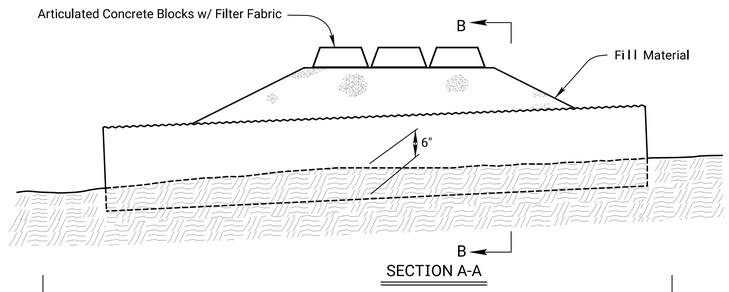


SECTION B-B

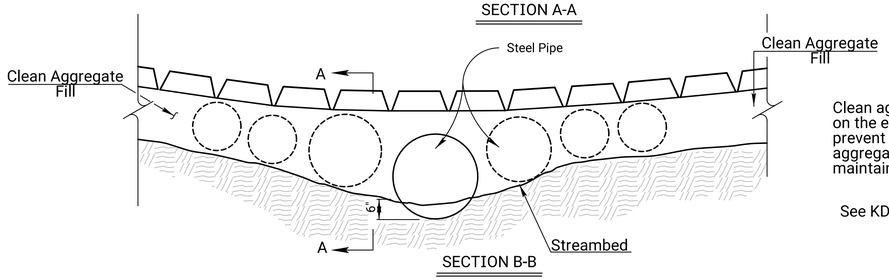
NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM

NO SCALE



SECTION A-A



SECTION B-B

TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)

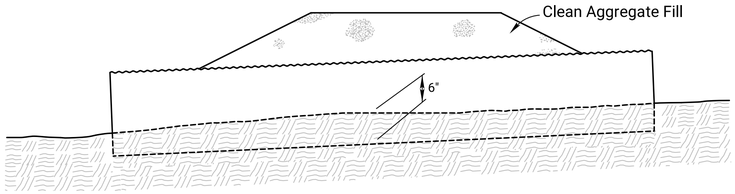
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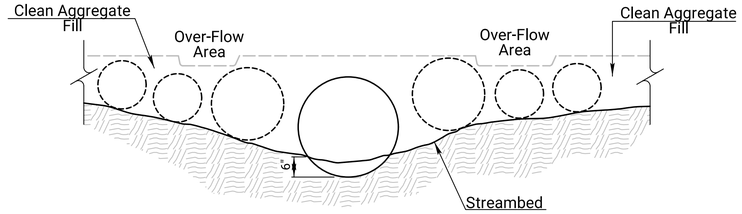
Pipe size may vary.

Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.





SECTION B-B

TEMPORARY STREAM CROSSING (AGGREGATE)

NO SCALE

Pipe size may vary.

Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.

NO.	DATE	REVISIONS	BY	APP'D
03	01-21-22	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.R.D.	M.L.
02	08-24-21	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.R.D.	M.L.
01	06-11-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL TEMPORARY SLOPE DRAIN, TEMPORARY STREAM CROSSING (AGGREGATE)

LA852B

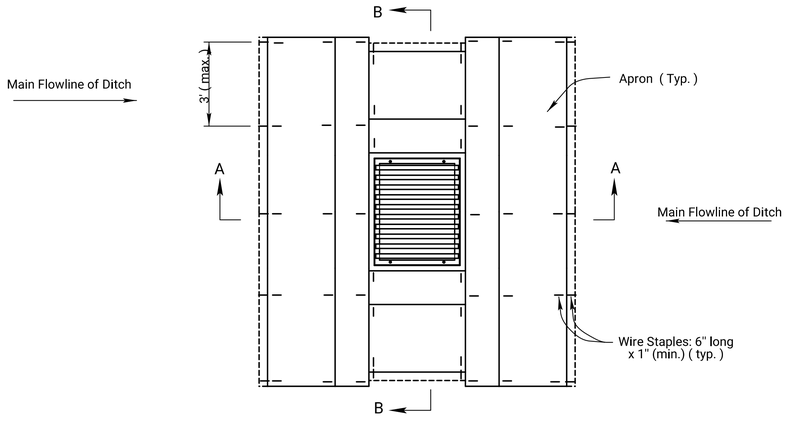
FHWA APPROVAL		01-21-22	APP'D.	Mervin Lare
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-17-2022 Sh. No. 144

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:06
File : ka651701la852b.dgn

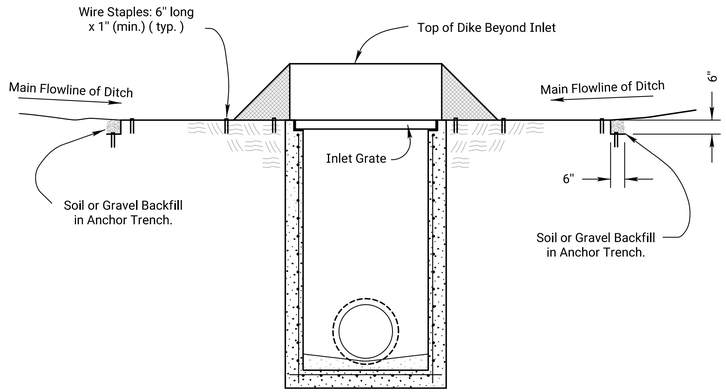
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	145	366



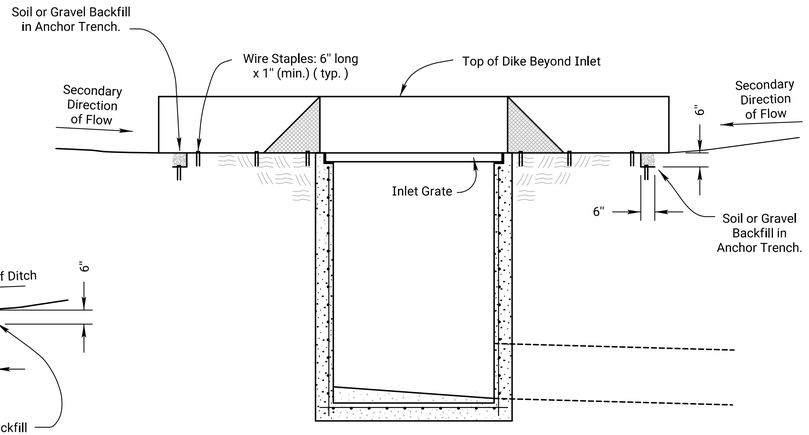
PLAN

TEMPORARY I NLET SEDI MENT BARRI ER
(TRI ANGULAR SI LT DI KE METHOD)

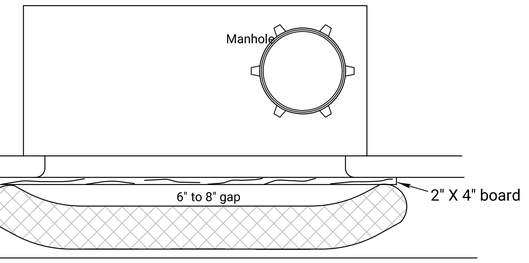
NO SCALE



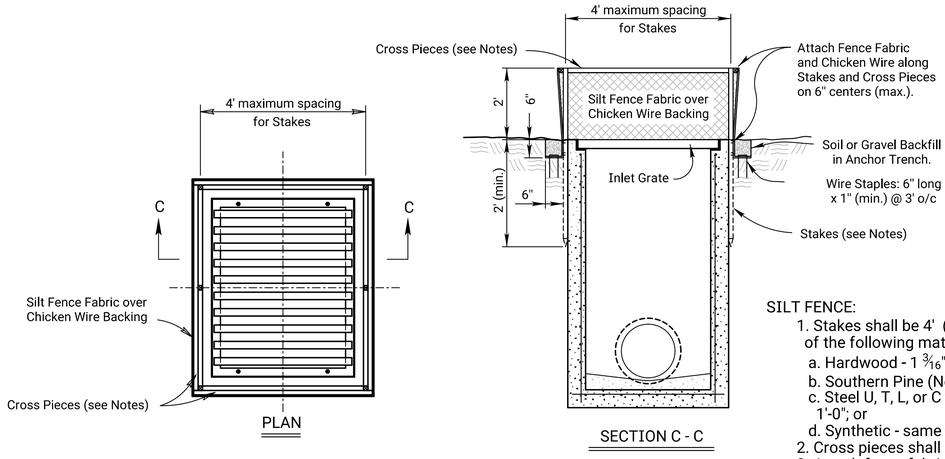
SECTION A - A



SECTION B - B



CURB INLET PROTECTION



PLAN

SECTION C - C

TEMPORARY I NLET SEDI MENT BARRI ER
(SI LT FENCE METHOD)

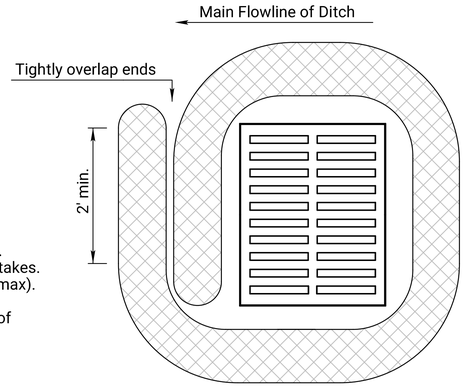
NO SCALE

SILT FENCE:

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/16" x 1 3/16";
   b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
   d. Synthetic - same strength as wood stakes.
2. Cross pieces shall be of same material as stakes.
3. Attach fence fabric securely on 6" centers (max).
4. Use of high flow material is acceptable.
5. Refer to plan sheets to estimate the length of silt fence required.

Bags = synthetic net (3mm mesh) or burlap bags

Rock = approximately 1" to 2" diameter



Drop inlet use
1'-6" TO 1'-8" diameter log

BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION

Note: 25% of log shall be keyed into ground during installation.

Stake every 4'

1. If multiple gravel bags are required, place them in such a way that no gaps are evident.
2. Height of bags (8" minimum diameter) must not be above top of curb.
3. Alternative products may be used other than gravel bags such as the "Gutter Buddy". Products must be approved by the Engineer.
4. Curb inlet protection will be measured and paid for as Filter Sock.

Material Requirements
Use 100% shredded mulch or other non-compost biodegradable material as fill for logs.
No compost or fines.
No hay or straw.
Do not use material which prohibits water infiltration.
Log Mesh: Use mesh with ¼" openings or larger. Mesh must allow water infiltration but also hold fill material in place.

NO.	DATE	REVISIONS	BY	APP'D
03	09-26-19	Changed Direction of Main Flowline of Ditch Arrow	M.R.D.	S.H.S.
02	03-10-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL, TEMPORARY INLET SEDIMENT BARRIER (SILT FENCE) TEMP. INLET SEDIMENT BARRIER (T.S.D.) LA852C

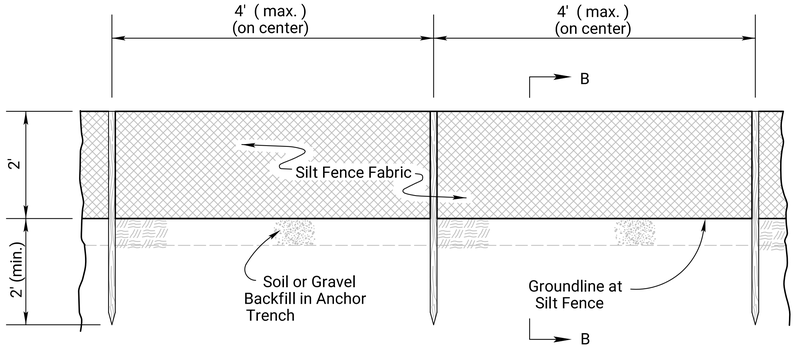
FHWA APPROVAL			03-10-15	APP'D.	Scott H. Shields
DESIGNED	R.A.	DETAILED	R.A.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-18-2022 Sh. No. 145

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:06
File : ka651701la852c.dgn

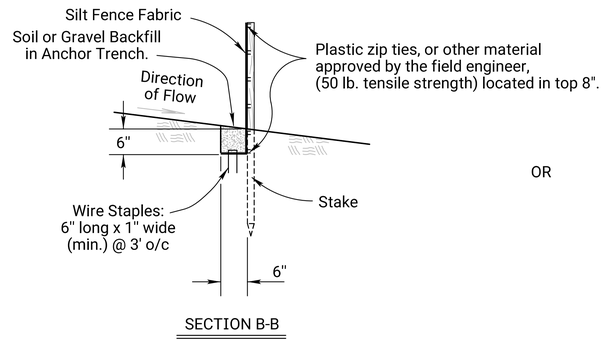
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	146	366



TYPICAL ELEVATION

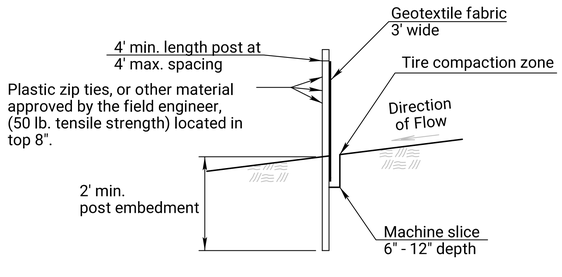
SILT FENCE BARRIER

NO SCALE



SECTION B-B

OR



SECTION B-B

INSTALLATION NOTES

SILT FENCE:

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/16" x 1 3/16";
   b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
   d. Synthetic - same strength as wood stakes.
2. Attach fence fabric with 3 zip ties within the top 8" of the fence
   Alternate attachment methods may be approved by the Engineer on aperformance basis.
3. Use of high flow material is acceptable.
4. Refer to plan sheets to estimate the length of silt fence required.

BIODEGRADABLE LOG OR FILTER SOCK

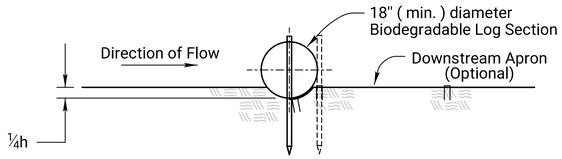
1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".
2. Wood stakes shall be 2" x 2" (nom.).
3. Refer to plan sheets to estimate length of biodegradable log and filter sock required.
4. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
5. Length of stakes should be 2 times the height of the log at a minimum with minimum ground embedment equal to the height of the log / sock.

Biodegradable Log or Filter Sock Slope Interruptions

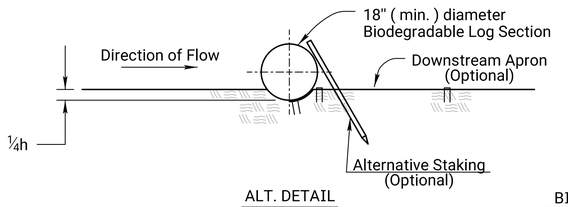
Slope Gradient	PRODUCT	9" Sediment Log or 8" Filter Sock (ft)	12" Sediment Log or 12" Filter Sock (ft)	20" Sediment Log or 18" Filter Sock (ft)
	≤4H:1V	40	60	80
	3H:1V	30	45	60

Deviations should be approved by the Field Engineer.

BIODEGRADABLE LOG MATERIAL		
	LOW FLOW	HIGH FLOW
9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber

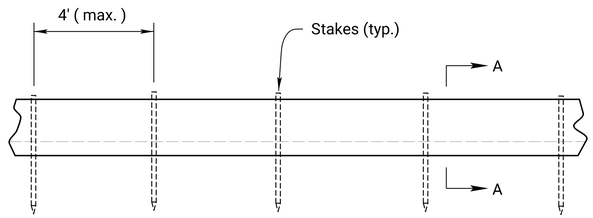


SECTION A - A



ALT. DETAIL

OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS

OR Filter Sock

GENERAL NOTES

1) Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.
2) The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.
3) Interruptions damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.
4) Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

NO.	DATE	REVISIONS	BY	APP'D
03	06-28-16	Revised Standard	R.A.	S.H.S.
02	03-01-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL SLOPE INTERRUPTIONS BIODEGRADABLE LOG / SILT FENCE

LA852D

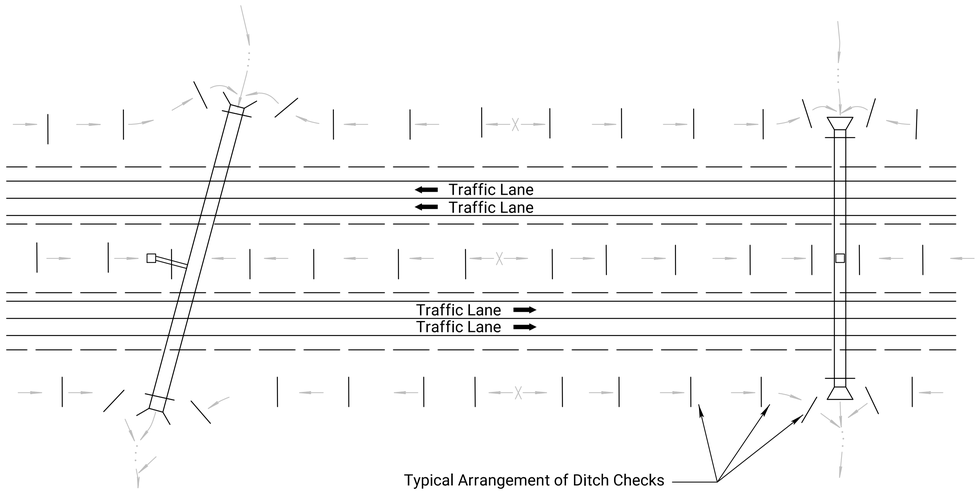
FHWA APPROVAL		09-14-16	APP'D.	Scott H. Shields	
DESIGNED	S.H.S.	DETAILED	R.A.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.		QUAN.CK.	TRACE CK.

KDOT Graphics Certified 06-18-2022 Sh. No. 146

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:06
File : ka651701la852d.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	147	366



TYPICAL DITCH CHECK LAYOUT PLAN

NO SCALE

20" BIOLOG CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	125
2.0	60
3.0	40
4.0	30
5.0	25
NOTE: Use this spacing for all except Rock Ditch Checks.	

18" FILTER SOCK CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	110
2.0	55
3.0	35
4.0	25
5.0	20
NOTE: Use this spacing for all except Rock Ditch Checks.	

GENERAL NOTES

1) The choice of ditch check methods is at the option of the Contractor.

2) Use only rock checks in situations where the ditch slope is 6 percent or greater.

2) Ditch checks damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.

NO.	DATE	REVISIONS	BY	APP'D
03	08-10-16	Revised Standard	R.A.A.	S.H.S.
02	06-28-16	Revised Standard	R.A.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL DITCH CHECKS

LA852E

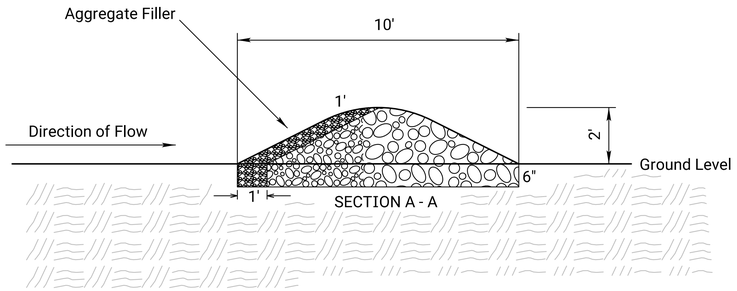
FHWA APPROVAL			09-14-16	APP'D.		Scott H. Shields	
DESIGNED	S.H.S.	DETAILED	R.A.A.	QUANTITIES		TRACED	R.A.A.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	S.H.S.

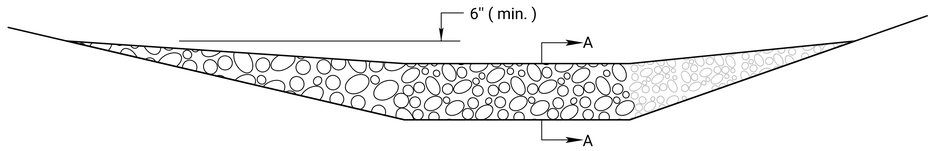
KDOT Graphics Certified 06-18-2022 Sh. No. 147

KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:06
File : ka651701la852e.dgn.DGN

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	148	366





TYPICAL ELEVATION

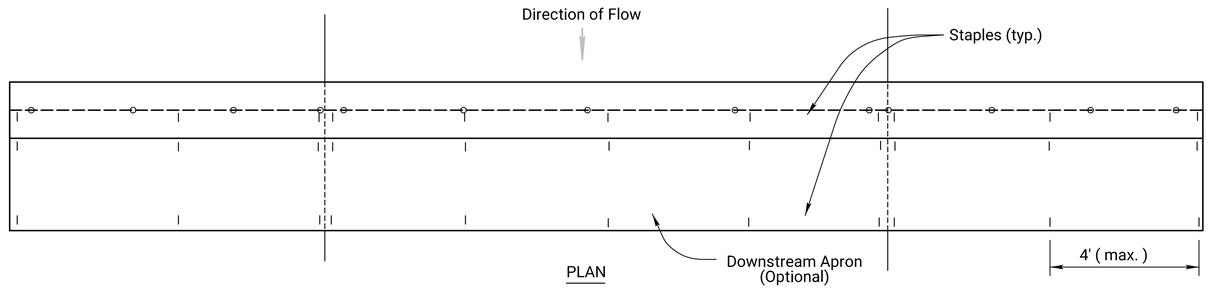
ROCK DITCH CHECK

NO SCALE

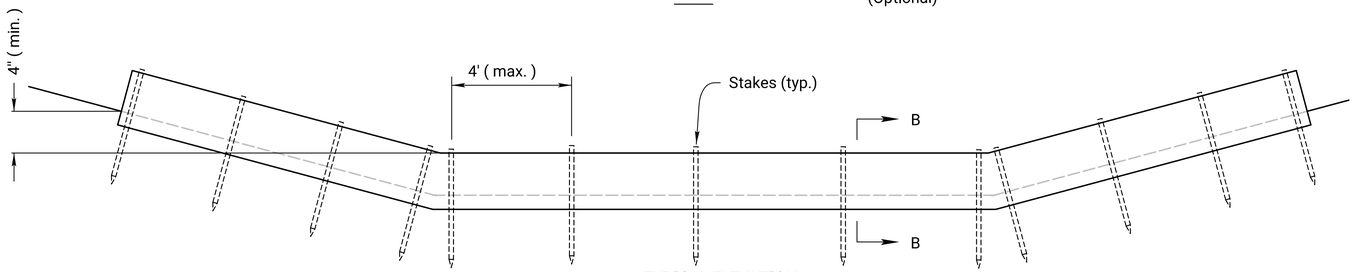
TEMPORARY ROCK DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
NOTE: Use this spacing for Rock Ditch Checks only.	

ROCK DITCH CHECK NOTES

1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch shall be excavated to the dimensions of the Rock Ditch Check and to a minimum depth of 6" (150mm). After placement of the rock, backfill and compact any over-excavated soil to ditch grade. This work shall be subsidiary to the bid item Temporary Ditch Check (Rock).
5. Aggregate excavated on site may be used as an alternate to the 6" rock, if approved by the Engineer.
6. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.
7. When the use of larger rock is approved, D50-6" rock will be placed between the larger aggregate and the aggregate filler.
8. Aggregate filler will be placed on the upstream face of the ditch check. Aggregate filler will comply with Filter Course Type I, Division 1114.



PLAN

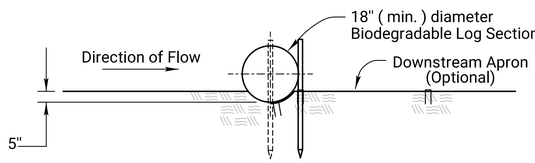


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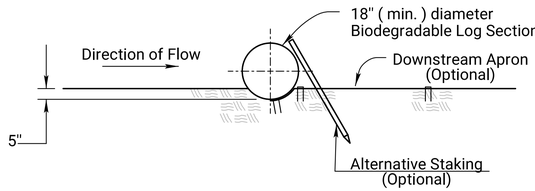
BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE



SECTION B - B



ALT. DETAIL
OPTIONAL

BIODEGRADABLE LOG DITCH CHECK NOTES

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18".
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 2 x the diameter of the log.
4. Use Erosion Control (Class 1) (Type C) as the downstream apron when required.
5. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price.
6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

NO.	DATE	REVISIONS	BY	APP'D
03	11-19-20	Revised Standard	M.R.D.	M.L.
02	08-10-16	Revised Standard	R.A.A.	S.H.S.
01	10-21-15	Revised Standard	R.A.A.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL ROCK DITCH CHECKS BIODEGRADABLE LOG DITCH CHECKS

LA852G

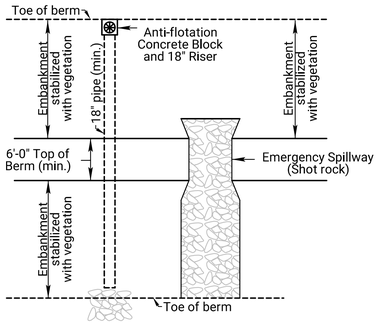
FHWA APPROVAL			11-19-20	APP'D.		Mervin Lare	
DESIGNED	M.L.	DETAILED	D.K.	QUANTITIES		TRACED	R.A.A.
DESIGN CK.	M.L.	DETAIL CK.	M.L.	QUAN.CK.		TRACE CK.	R.A.A.

KDOT Graphics Certified 03-21-2025 Sh. No. 148

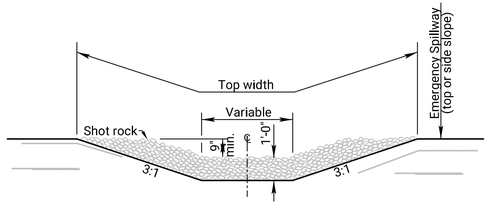
KDOT Graphics Certified

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File : ka651701la852g.dgn

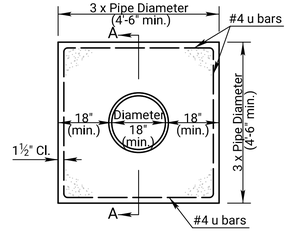
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	149	366



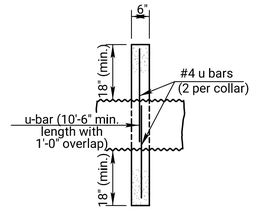
SEDIMENT STORAGE BASIN (PLAN)



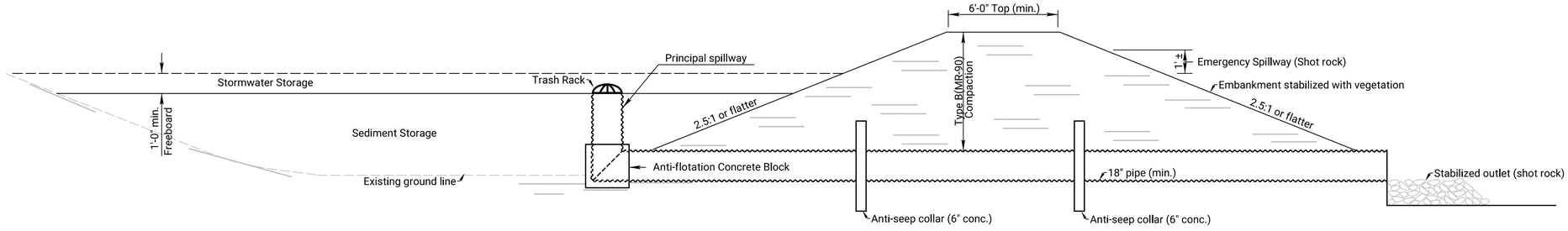
CROSS SECTION (EMERGENCY SPILLWAY)



CONCRETE ANTI-SEEP COLLAR



SECTION A-A



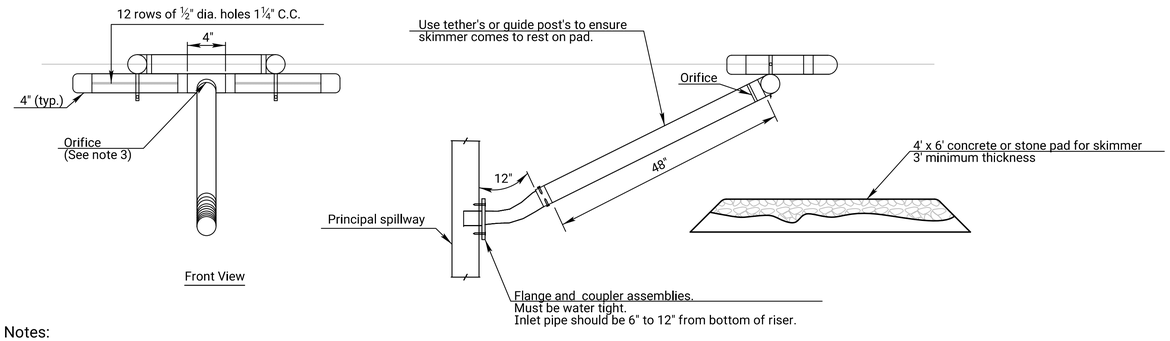
SEDIMENT STORAGE BASIN (ELEVATION)

NOTES:

1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the SWPPP Schedule. All work and materials necessary, including but not limited to, the fill material, compaction, drainage pipes, aggregates and all other incidentals necessary to construct the basin, shall be paid as "Temporary Sediment Basin".

2) Lengths and top dimensions shall be determined in the field by the Engineer.

3) Skimmer dewatering device required and must be used reguardless the size of the drainage area.



Notes:

1. All P.V.C. pipes are to be schedule 40.
2. HDPE flexible drain pipes is to be attached to the pond outlet structure with water-tight connections.
3. The orifice shall be sized of to provide drawdown time to 2 to 5 days and approved by the engineer.
4. Other skimmer designs maybe used that dewaters from the surface at a controlled rate. The design must be approved by the engineer.

SKIMMER DEWATERING DEVICE

SEDIMENT STORAGE BASIN LOCATIONS

STATION TO STATION	SIDE	REQUIRED STORAGE CAPACITY

NO.	DATE	REVISIONS	BY	APP'D
02	09-03-13	Added Skimmer Dewatering Device	M.R.M.	S.H.S.
01	07-17-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL SEDIMENT STORAGE BASIN

LA852H

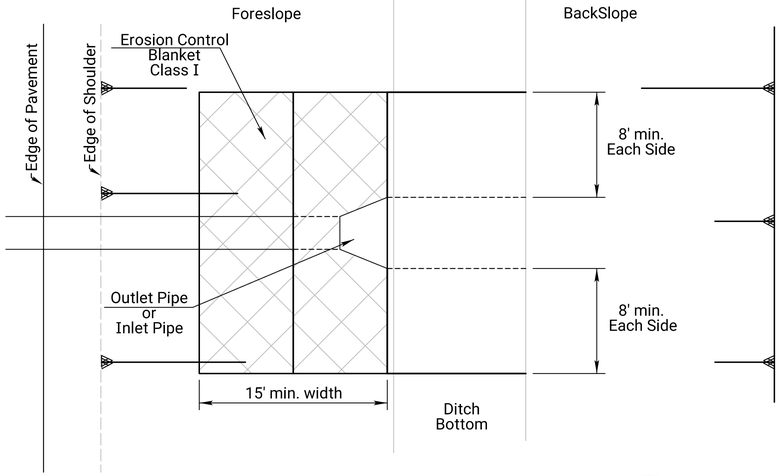
FHWA APPROVAL			09-24-13	APP'D.			
DESIGNED	B.B.	DETAILED	B.B.	QUANTITIES		TRACED	B.B.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	S.H.S.

KDOT Graphics Certified 06-20-2022 Sh. No. 149

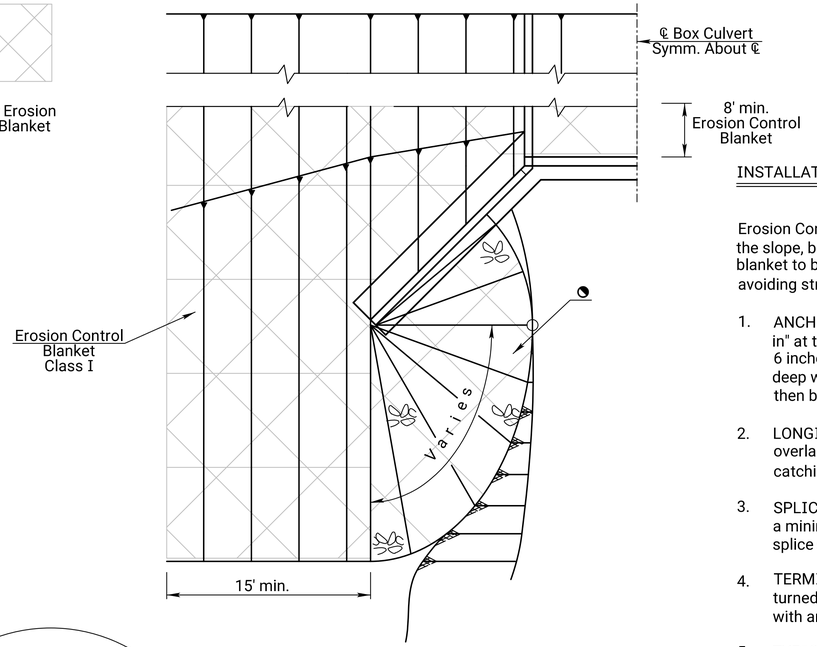
KDOT Graphics Certified

Plotted by : usmh708425 15-AUG-2025 13:07
File : ka651701la852h.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	150	366



Limits of Erosion Control Blanket



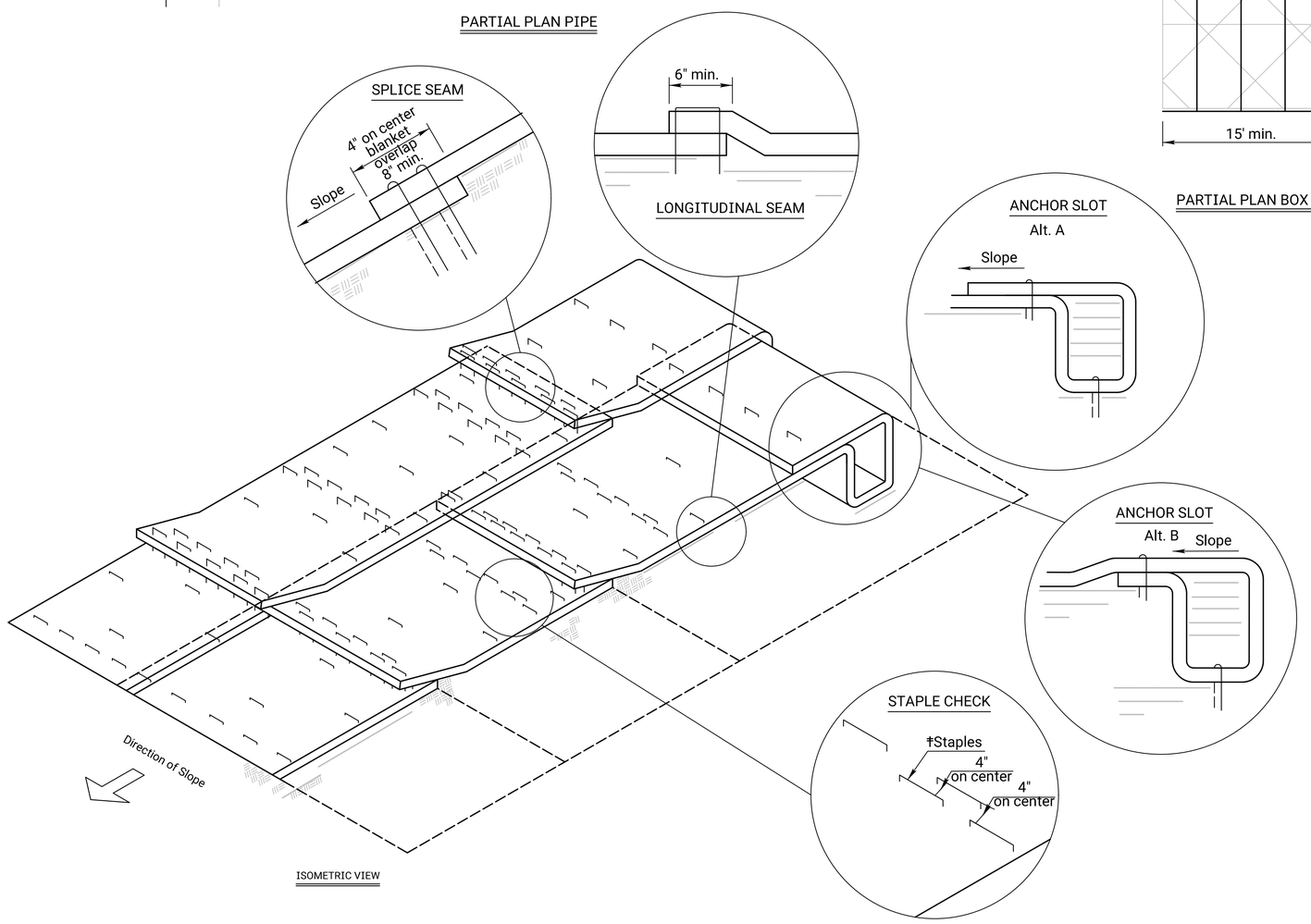
PARTIAL PLAN BOX CULVERT

INSTALLATION DETAILS FOR EROSION CONTROL CLASS 1

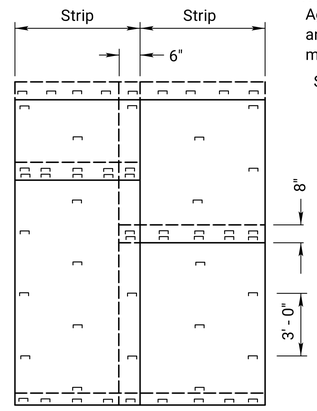
Erosion Control Blankets shall be laid loosely in the direction of the slope, beginning at the bottom of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.

1. ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
2. LONGITUDINAL SEAMS: The edges of the blanket should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.
4. TERMINAL FOLD: The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.
5. TYPICAL ANCHORS: Anchor design shall be as recommended by the manufacturer.
6. STAPLE CHECK: ǂEstablish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.

◔ Erosion Control Class I may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans).



ISOMETRIC VIEW



PLAN VIEW - ANCHORING DIAGRAM

NOTE:
Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Single post ring and shank staple is acceptable.

NO.	DATE	REVISIONS	BY	APP'D
04	03-01-15	Revised Standard	R.A.A.	S.H.S.
03	02-23-15	Revised Standard	R.A.A.	S.H.S.
02	09-15-14	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

INSTALLATION DETAIL EROSION CONTROL CLASS 1 SLOPE PROTECTION

LA855

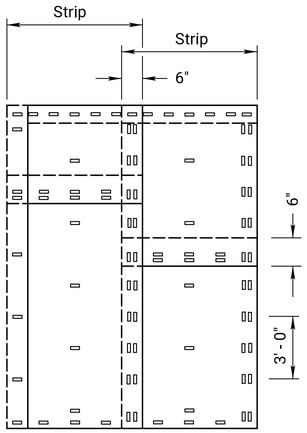
FHWA APPROVAL			03-10-15	APP'D.	Scott H. Shields		
DESIGNED	R.A.A.	DETAILED	R.A.A.	QUANTITIES		TRACED	R.A.A.
DESIGN CK.		DETAIL CK.		QUAN.CK.		TRACE CK.	R.A.A.

KDOT Graphics Certified 06-20-2022 Sh. No. 150

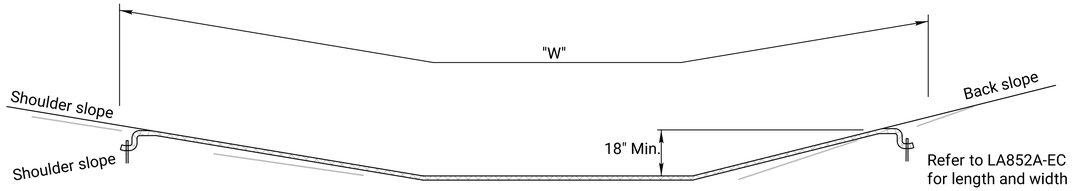
KDOT Graphics Certified

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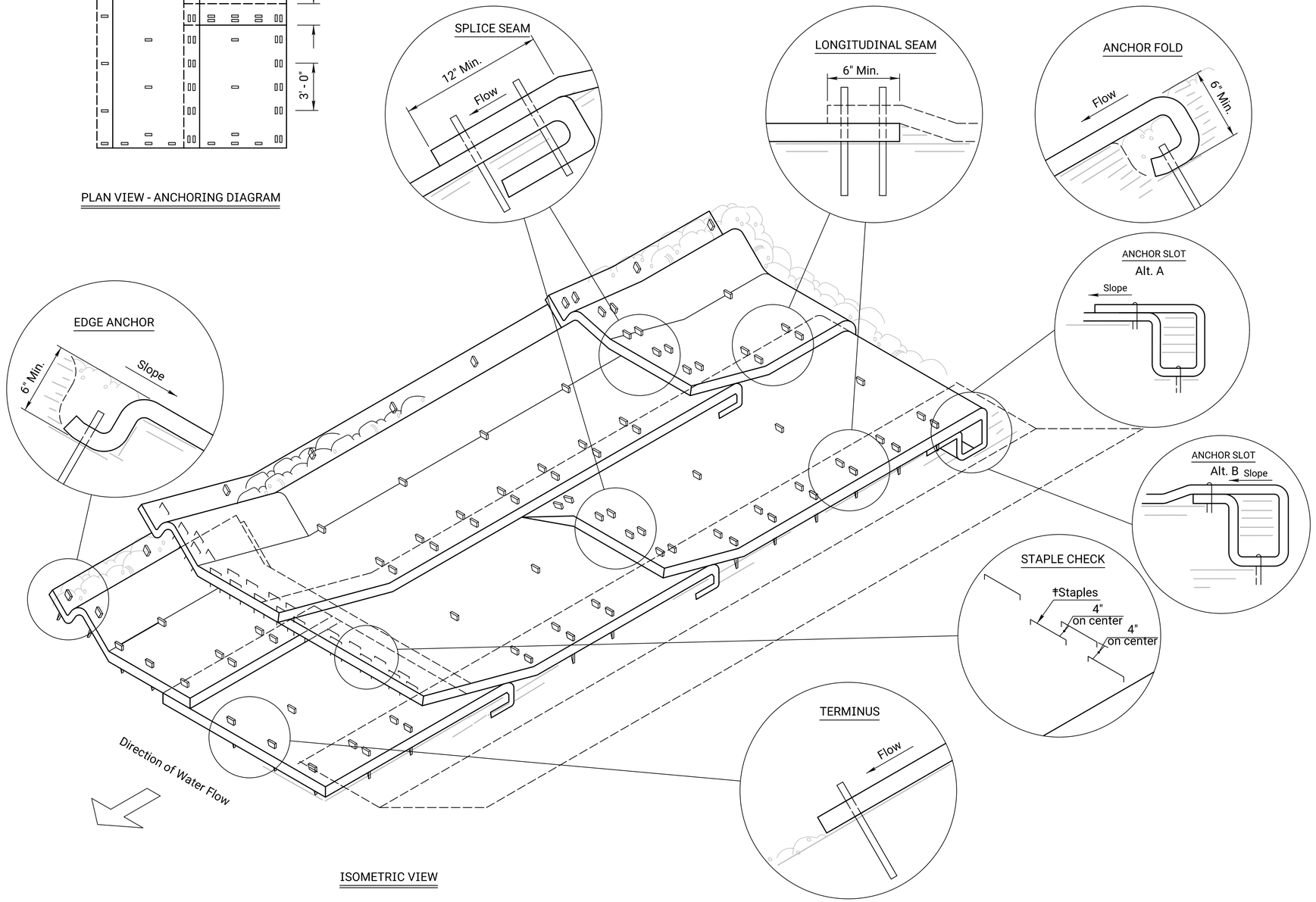
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	151	366



PLAN VIEW - ANCHORING DIAGRAM



CROSS SECTION (Ditch Lining)



ISOMETRIC VIEW

INSTALLATION DETAILS FOR EROSION CONTROL CLASS 2

Erosion Control Mats shall be laid loosely in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.

1. ANCHOR FOLD: The top of the mat should be folded under, buried and secured with approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot, 6 inches wide x 6 inches deep; anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.

2. LONGITUDINAL SEAMS: The adjacent edges of the mat should overlap a minimum of 6 inches, with anchors catching the edges of both mats.

3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 12 inches in direction of water flow. Stagger splice seams.

4. STAPLE CHECK: †Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.

5. EDGE ANCHOR: Lay outside edge of mat into trench at top of side slope. Anchor at 3 foot intervals along trench.

6. TERMINUS: The bottom edge of the mat shall be anchored in place with anchors spaced at 9 inch intervals along the terminating edge.

7. TYPICAL ANCHORS: Anchor design shall be as recommended by the manufacturer.

NO.	DATE	REVISIONS	BY	APP'D
04	09-25-15	Modified Staple Check	R.A.A.	S.H.S.
03	09-15-14	Revised Standard	R.A.A.	S.H.S.
02	03-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

INSTALLATION DETAIL
EROSION CONTROL CLASS 2
FLEXIBLE CHANNEL LINER

LA856

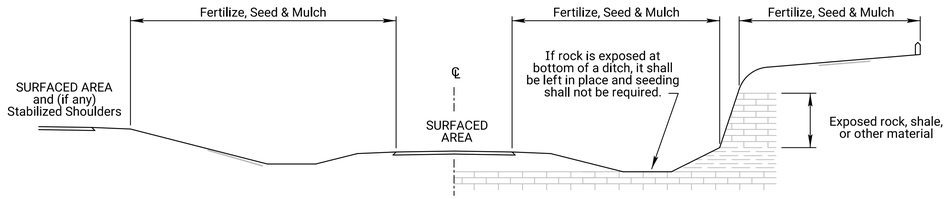
FHWA APPROVAL			11-02-15	APP'D.	Scott H. Shields		
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DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	

KDOT Graphics Certified 06-20-2022 Sh. No. 151

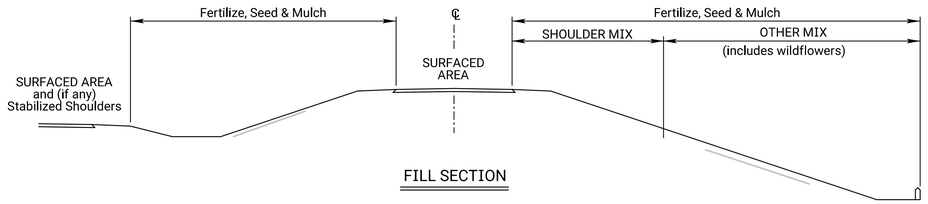
KDOT Graphics Certified

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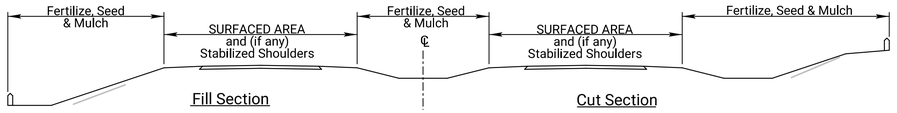
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	135-87 KA-6517-01	2025	152	366



CUT SECTION



FILL SECTION



TYPICAL SECTION - DUAL PAVEMENT

GRASS & WILDFLOWER SEEDING SEASONS

COOL SEASON GRASSES	WARM SEASON GRASSES & WILDFLOWERS
February 15 thru April 20 August 15 thru September 30	November 15 thru June 1
SPECIES	SPECIES
Bluegrasses	Bermuda Grass
Brome Grasses	Big Bluestem
Canada Wildrye	Blue Grama
Fescues	Buffalo Grass
Prairie Junegrass	Indiangrass
Ryegrasses	Little Bluestem
Sterile Wheatgrass	Sand Bluestem
Tall Dropseed	Sand Dropseed
Western Wheatgrass	Sand Lovegrass
	Side Oats Grama
	Switchgrass
	Wildflower Mixes

When the area to be seeded is 1 acre or more, if Cool Season grasses are mixed with Warm Season grasses, seed the area during the Warm Season.

When the area to be seeded is less than 1 acre, seed the area any time of the year.

SODDING SEASONS

COOL SEASON GRASSES	WARM SEASON GRASSES
March 1 thru April 15 September 1 thru November 15	May 15 thru September 1
SPECIES	SPECIES
Bluegrass Sod	Buffalo Grass Sod
Fescue Sod	

If the soil is workable, the Engineer may allow placement of sod between November 15 and March 1. If sod is placed during this time, maintain the sod until 20 days after the beginning of the spring sodding season.

GENERAL NOTES

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded and mulched. Soil preparation shall conform to the Standard Specifications except as noted below.

All borrow areas shown on the plans are to be fertilized, seeded, and mulched. However, operation in borrow areas where crops are growing may be omitted when requested by the owner.

If temporary cover has provided stable slopes with no erosion, seed the permanent grasses into the existing cover. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area, resulting in bare ground.

FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P_2O_5 , K_2O listed in Summary of Seeding Quantities will be acceptable.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching material is generally as follows:

$1\frac{3}{4}$ - $2\frac{1}{4}$ Tons per Acre = $1\frac{1}{2}$" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

NATIVE WILDFLOWER MIX 1

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Common Milkweed	
0.3	Black Eyed Susan	
0.5	Blanket Flower	
0.5	False Sunflower	
0.5	Lance-Leaf Coreopsis	
0.2	Maximilian Sunflower	
0.1	New England Aster	
0.2	Pinnate Prairie Coneflower	
0.2	Plains Coreopsis	
0.3	Purple Coneflower	
0.3	Upright Prairie Coneflower	
0.3	Dames Rocket	
0.3	Lemon Mint	
0.2	Pitcher Sage	
0.2	Wild Bergamot	
1.0	Illinois Bundleflower	
0.2	Common Evening Primrose	
0.1	Hoary Verbena	
0.8	Purple Prairie Clover	
0.3	Roundhead Lespedeza	
3.0	Showy Partridge Pea	
0.2	White Prairie Clover	
10.3	Total (lb)	

NATIVE WILDFLOWER MIX 2

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Black Eyed Susan	
0.5	Black Sampson Coneflower	
1.0	Blanket Flower	
0.2	Maximilian Sunflower	
0.2	Plains Coreopsis	
0.2	Upright Prairie Coneflower	
0.2	Western Yarrow	
0.3	Lemon Mint	
0.4	Pitcher Sage	
1.5	Illinois Bundleflower	
0.2	Common Evening Primrose	
1.0	Blue Wild Indigo	
0.4	Leadplant	
0.4	Purple Prairie Clover	
0.3	White Prairie Clover	
7.4	Total (lb)	

Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed ⅛" -¼". Place the wildflower seed in a separate seed box and drill (cover) seed $\frac{1}{16}$" maximum. Place the Tall Drop Seed in a separate (third) seed box and place the seed (using the seed drill) on the soil surface.

OPTION: Broadcast Tall Drop Seed on the soil surface.

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ACRE				ACRES				BID ITEM	QUANTITY	UNIT
SHLDR	OTHER			SHLDR	OTHER					
200				1.7				Fertilizer (13 - 13 - 13)	340	Lbs.
0.5				1.7				Seed (Blue Grama Grass) (Lovington)	0.9	Lbs.
4.5				1.7				Seed (Buffalograss) (Treated)	7.7	Lbs.
45				1.7				Seed (Perennial Ryegrass)	76.5	Lbs.
2.6				1.7				Seed (Prairie Junegrass)	4.4	Lbs.
6.3				1.7				Seed (Side Oats Grama Grass) (El Reno)	10.7	Lbs.
45				1.7				Seed (Tall Fescue) (Endophyte Free)	76.5	Lbs.
6				1.7				Seed (Western Wheatgrass) (Barton)	10.2	Lbs.
								Mulching *		

SHLDR = Seeded with the Shoulder Mix. Typically 15 feet for 2-lane roads and 30 feet for 4-lane roads. Includes outside roadsides, turfed portions of shoulders, and turfed portion of the median.

OTHER = Seeded with the "Other" Mix. Designated as all other turf areas, except the Shoulder. Usually includes a Native Wildflower Mix.

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.

Refer to the Standard Specifications, Division 900, Section 904 'Seeding', and Section 907 'Sodding', for the seeding and sodding seasons.

* See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the Standard Specifications.

NO.	DATE	REVISIONS	BY	APP'D
02	11-25-20	Updated Seeding / Sodding Periods Charts	M.R.D.	M.L.
01	08-03-20	Revised Standard	M.R.D.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

PERMANENT SEEDING
SUMMARY OF SEEDING QUANTITIES

LA850

FHWA APPROVAL	05-06-19	APP'D.	Mervin Lare
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

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