December 16, 2024

MEMORANDUM TO: Jason Van Nice, P.E., Chief
Bureau of Construction & Materials

We are handing you Final Plans for the project noted below for the January 2024 letting.

Greg Gonzales/Karen Peterson
Design Squad

58-16 KA-5701-01 ACSTP-A570(101)	Coffey	0.114 miles
Project Number	County	Length

REMARKS:

Grading, Surfacing, Bridge, Seeding, Signing, and Pavement Marking

Replacement of Bridge #043 on K-58 over Crooked Creek located 6.68 miles east of the south US-75/K-58 junction.

APPROVED:

12/16/24
For: CHIEF, BUREAU OF ROAD DESIGN

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	1	93

INDEX OF SHEETS

	BY	DATE
SURVEY	J. BOWEN	2021
CADD TECHNICIAN	J. MARTIN (ROAD)	2022
DESIGNERS	J. MARTIN (ROAD) / A. HAASE (BRIDGE)	2022
SQUAD	G. GONZALES (ROAD) / K. PETERSON (BRIDGE)	2022

STATE OF KANSAS

DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED

STATE HIGHWAY

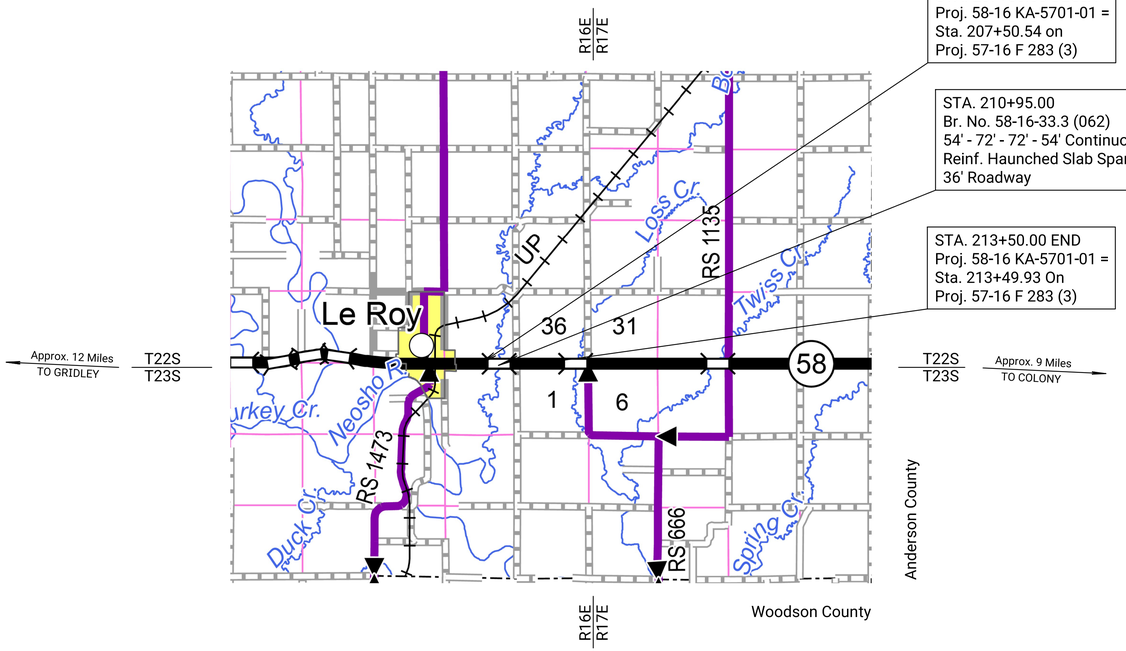
FEDERAL AID PROJECT

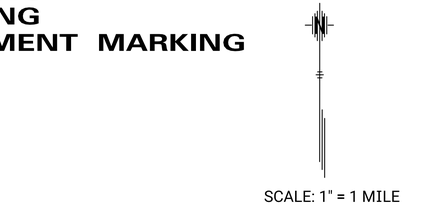
COFFEY COUNTY

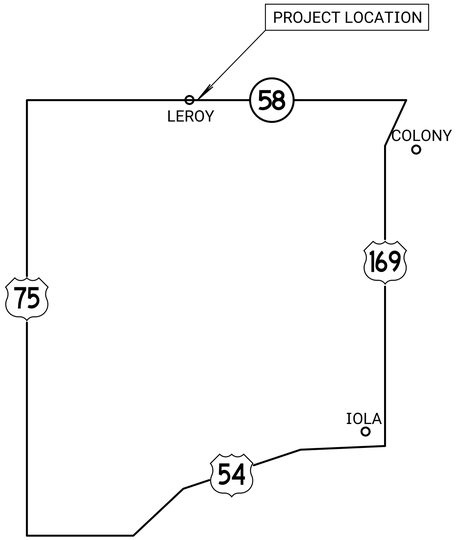
K-58

PROJ. NO 58–16 KA–5701–01
FED. AID PROJ. NO. ACSTP–A570(101)

GRADING AND SURFACING
BRIDGE
SEEDING
SIGNING
PAVEMENT MARKING







NOTE: Traffic to be carried around construction on a state route detour as shown on the detour sketch. The detour shall be on K-58, US-75, US-54, and US-169.

DESIGN DESIGNATION

AADT	(2024)	= 1,000
AADT	(2044)	= 1,200
DHV		= 11%
D		= 60%
T		= 12%
V		= 65 mph
C of A		= none
Clear Zone		= 26 ft

CONVENTIONAL SIGNS

COUNTY LINE
CITY LIMITS
STATE OR NATIONAL LINE
TOWNSHIP, SECTION or GRANT LINE
PROPERTY LINE
HIGHWAY FENCE
EXISTING FENCE
GUARDRAIL
CONSTRUCTION LIMITS
RIGHT OF WAY LINE
TRAVELED WAY
RAILROADS

CENTER LINE OF PROJECT
TERRACE
CULVERTS
DROP INLET & STORM SEWER
ACCESS CONTROL
POWER POLE
TELEPHONE POLE
MARSH
HEDGE
TREES
PROFILE ELEVATION
STREAM or CREEK

GROSS LENGTH OF PROJECT	600.00	FT. (Includes Equations)	
EXCEPTIONS	NONE		
NET LENGTH OF PROJECT	600.00	FT.	0.114 MILES
NET LENGTH OF BRIDGES	254.50	FT.	0.048 MILES
NET LENGTH OF ROAD	345.50	FT.	0.065 MILES

Approved: Dec 16, 2024
Date

State Transportation Engineer

By:

Chief, Bureau of Road Design

KANSAS DEPARTMENT OF TRANSPORTATION

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	2	93

KAREN M.S. PETERSON LICENSED 17957 KANSAS PROFESSIONAL ENGINEER Dec 16, 2024 Name: Karen Peterson, PE Co. Name: KDOT-BSGS Plan Section: Bridge	NATHAN T. JEFFRIES LICENSED 25390 KANSAS PROFESSIONAL ENGINEER Dec 12, 2024 Name: Nathan Jeffries, PE Co. Name: KDOT - Bureau of Traffic Engineering Plan Section: Permanent Signing	DONNA JO LEE LICENSED 12434 KANSAS PROFESSIONAL ENGINEER Dec 12, 2024 Name: Donna Lee, P.E. Co. Name: KDOT- Bureau of Traffic Engineering Plan Section: Pavement Marking	NICHOLAS ROGERS LICENSED 19805 KANSAS PROFESSIONAL ENGINEER Dec 13, 2024 Name: Nicholas Rogers, PE Co. Name: KDOT-Bureau of Traffic Engineering Plan Section: Traffic Control	GREG L. GONZALES JR. LICENSED 18811 KANSAS PROFESSIONAL ENGINEER Dec 16, 2024 Name: Greg L. Gonzales, Jr. Co. Name: KDOT - Bureau of Road Design Plan Section: Road			

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.

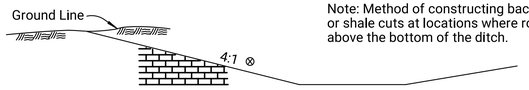
KDOT Graphics Certified 04-18-2022 Sh. No. 2

KDOT Graphics Certified

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:15
File : ka570101rss048-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	3	93

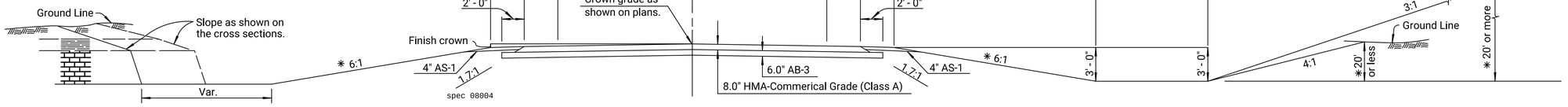
Guide to designer: Use this sheet when subgrading in rock or shale is not required.
See Soils and Geology Reports for additional plan notes.



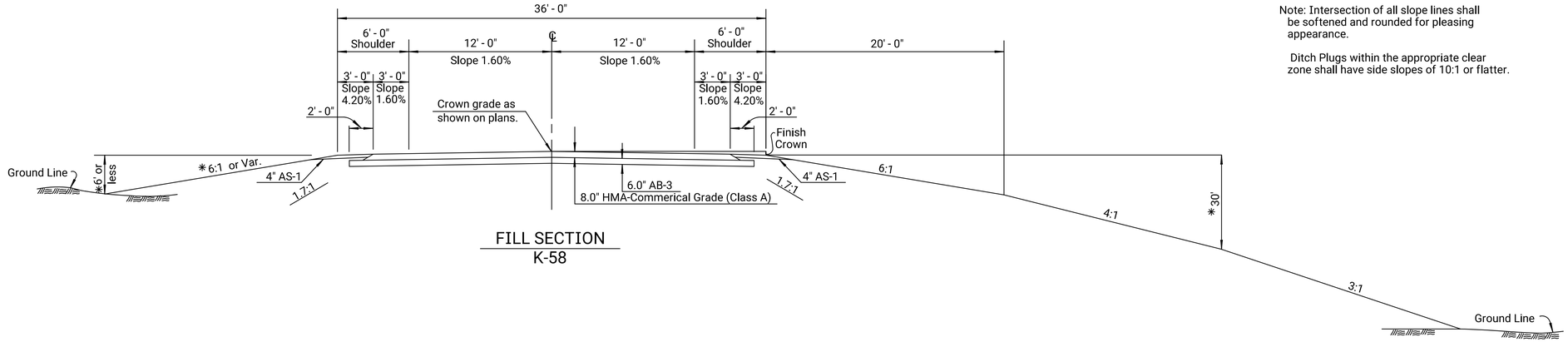
Note: Method of constructing backslope through shallow rock or shale cuts at locations where rock protrudes a short height above the bottom of the ditch.

CUT SECTION

⊗ Slope to be 3: 1 when depth of cut is 20' or more.



CUT SECTION
K-58

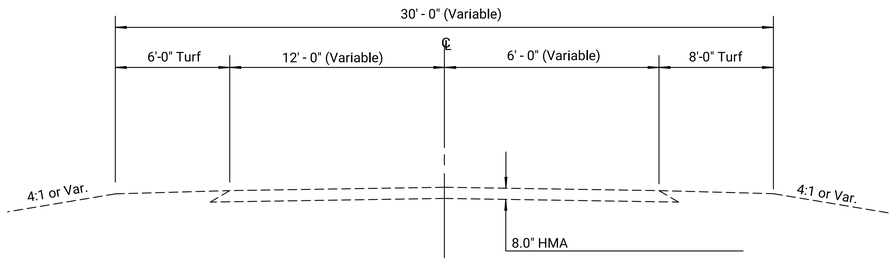


FILL SECTION
K-58

✳ 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.

Ditch Plugs within the appropriate clear zone shall have side slopes of 10:1 or flatter.



EXISTING TYPICAL SECTION
FOR INFORMATION ONLY

NO.	DATE	REVISIONS	BY	APP'D
21	1-25-13	Removed Slope, Pvmt. Edge	S.W.K.	J.O.B.
20	5-20-09	8:1/6:1 over 10' fill mound ent./sd.rd.	S.W.K.	J.O.B.
19	11-10-04	Changed slope labels to percent	S.W.K.	J.O.B.
18	5-10-00	Rev. Ditch Plug Slope 10:1	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION
GRADING & SURFACING

~~RD600~~

FHWA APPROVAL	5-21-2013	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. W.L.H.

KDOT Graphics Certified 12-02-2024

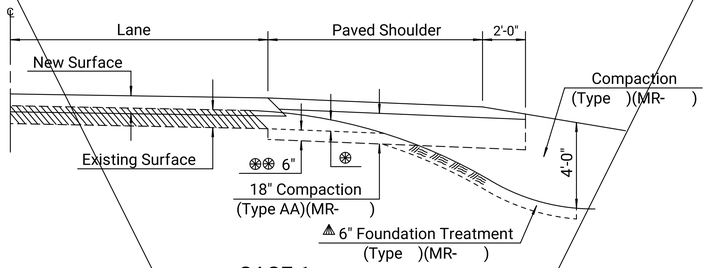
Sh. No. 3

KDOT Graphics Certified

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:10
File : KA570101rts-01.dgn

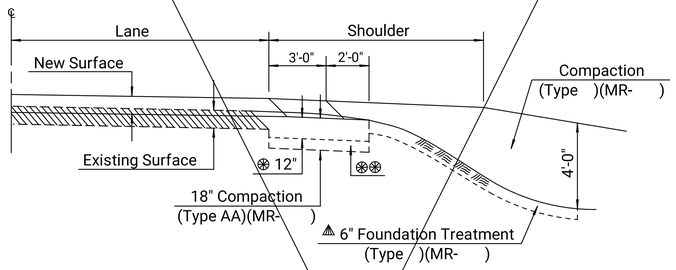
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	4	93

REHABILITATION



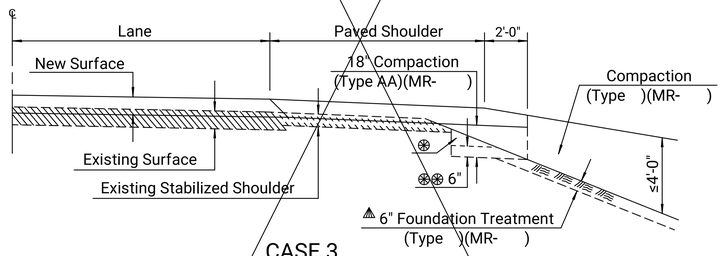
CASE 1

Overlay with Paved Shoulder



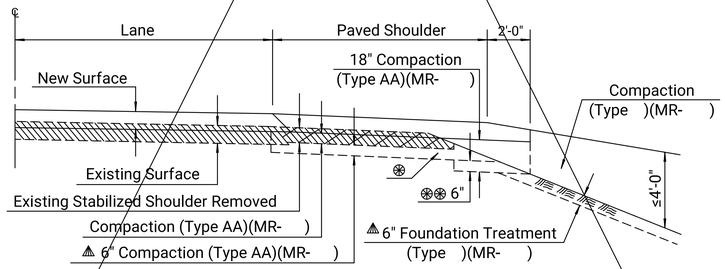
CASE 2

Overlay with Composite Shoulder



CASE 3

Overlay with Existing Paved Shoulder



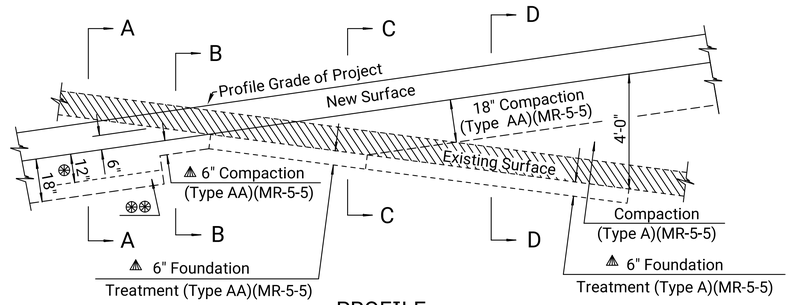
CASE 4

Overlay with Shoulder Replacement

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

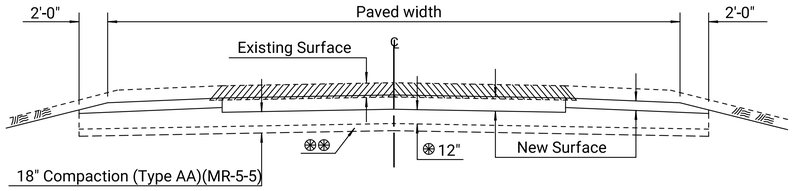
Note: These are 4 general cases. Specific compaction requirements are determined on a project-by-project basis.

RECONSTRUCTION



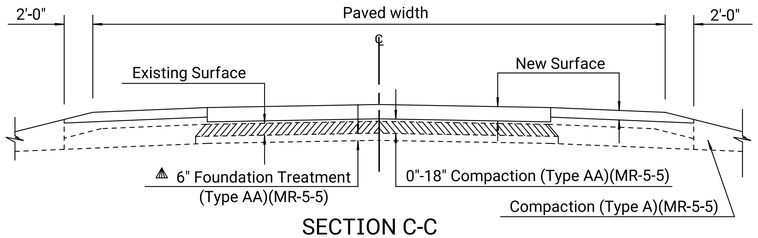
PROFILE

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

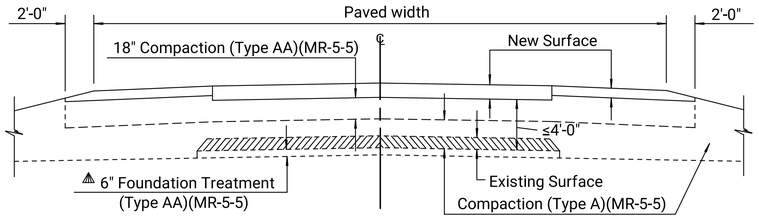


SECTION A-A

SECTION B-B

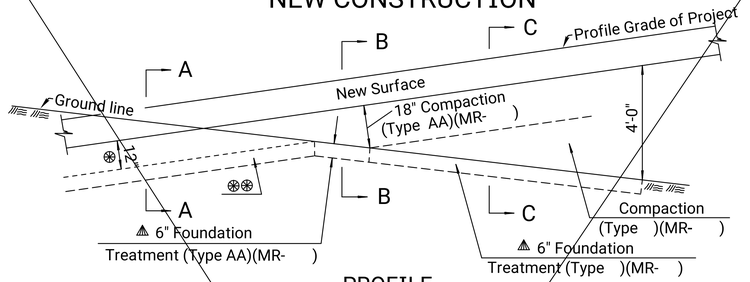


SECTION C-C



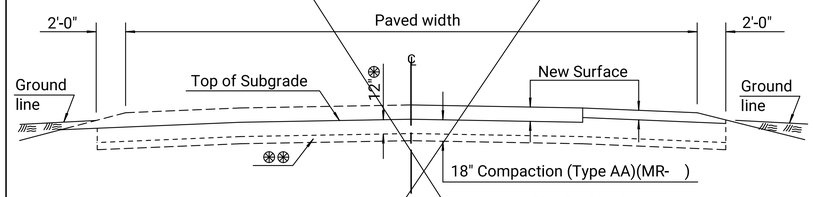
SECTION D-D

NEW CONSTRUCTION



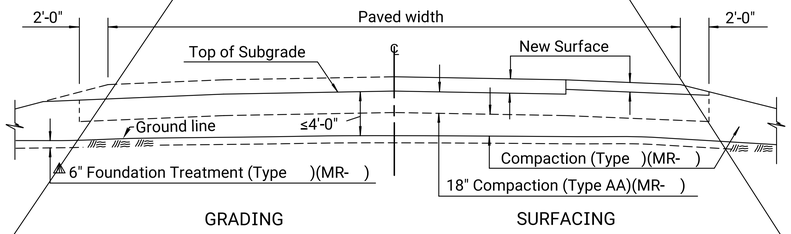
PROFILE

⊛ 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
5	10-17-1 1	Revised General Note	S.W.K.	J.O.B.
4	1-05-1 0	Added additional subsidiary comp.	S.W.K.	J.O.B.
3	2-16-05	Redrawn, Rev. Recon. Sec. C-C & D-D	S.W.K.	J.O.B.
2	5-29-98	Revised Reconstruction Section B-B	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

FOUNDATION TREATMENT & COMPACTION OF EARTHWORK

RD605

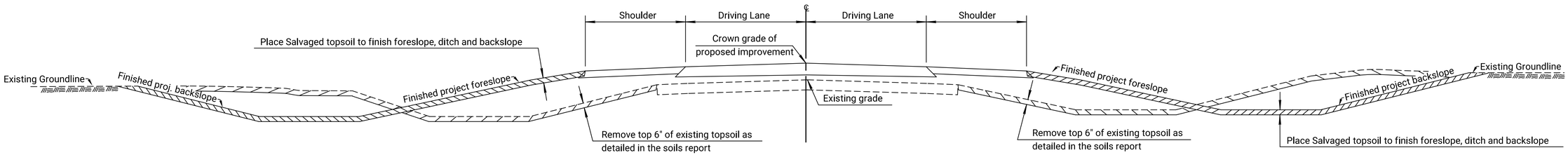
FHWA APPROVAL 12-5-1 1		APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Sh. No. 4

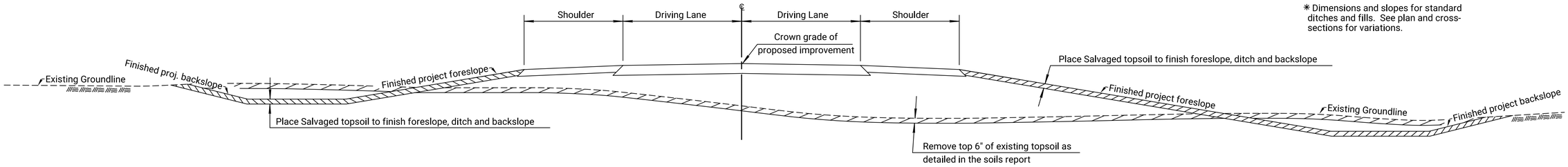
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	5	93

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)

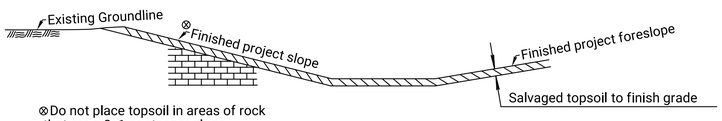


✳ Dimensions and slopes for standard ditches and fills. See plan and cross-sections for variations.

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. 5

KDOT Graphics Certified

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File : ka570101rss599a-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	6	93

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.

AT 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.

CHANNELS SHALL BE CUT AT BOX CULVERTS (UNLESS OTHERWISE NOTED) TO FLOW LINE ELEVATIONS AND TO A WIDTH OF ONE FOOT OUTSIDE OF EACH OUTSIDE WALL AND WITH SLOPES 2 TO 1 PRIOR TO CONSTRUCTION OF THE CULVERT.

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.

EXCAVATION REQUIRED FOR PLACING SELECT SOIL IS INCLUDED IN THE COMMON EXCAVATION QUANTITIES.

WHERE EASEMENTS ARE SHOWN ON RAILROAD RIGHT OF WAY, THE CONTRACTOR SHALL BE REQUIRED TO WORK AROUND AND NOT DISTURB THE RAILROAD COMMUNICATION OR SIGNAL POLES OR LINES.

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, SHELTERBELTS, 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.

SOIL FOR EMBANKMENT CONSTRUCTION: ALL SOIL USED IN THE TOP 18" OF THE EMBANKMENT SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: $10 \leq PI \leq 30$ AND $20 \leq LL \leq 50$. SOILS WHICH CONTAIN SUBSTANTIAL ORGANIC MATERIAL, 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 0.74 WAS USED TO COMPUTE EARTHWORK QUANTITIES FOR THIS PROJECT. THIS FACTOR INCLUDES QUANTITIES FOR INITIAL CONSOLIDATION AND SETTLEMENT.

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

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.

CONTRACTOR TO MAINTAIN ACCESS TO PROPERTY OWNERS AT ALL TIMES AS DIRECTED BY THE ENGINEER.

DATE	BY	
8/2021	J. MARTIN	REFERENCES NOTED
8/2021	C. DINKEL	REFERENCES CHECKED

SCALE
PLAN: Lat. & Long. 100' 0 100' 200'
PROFILE: Horiz. same as above
Vert. 10' 0

PROJECT SURVEY CONTROL

HORIZONTAL PROJECT DATUM:
KS. Regional Coordinate System (KRCS) Zone 19, Coffeyville, NAD83(2011)

VERTICAL PROJECT DATUM:
North American Vertical Datum (NGVD) NAVD88 (GEOID 12A)

DATUM BENCH MARK

N. 485299.179
E. 19603095.379
Elev. = 1004.188

Utility Owners

Century Link	Evergy
Fiber Optic and Cable Line	Power Line
Locator: Kenneth Miner	Scott Schlageck
(913) 305-6679	(785) 575-6014

POT Sta. 195+00.00
N 485273.683 E 19599854.417
1. Set $\frac{3}{4}$" x 12" rebar 0.3' deep
2. TW of private ent 10 North 61.0' E
3. RR spike in pp BM 103.2' SE
4. In TW of K-58 Hwy

POT Sta. 208+00.00
N 485273.009 E 19601154.420
1. Set $\frac{3}{4}$" x 12" rebar
2. Conc. nail & KDOT wshr N face of power pole 78.4' SW
3. TW of ent to South 174.8' W
4. In TW of K-58 Hwy

POT Sta 214+00.00
N 485272.698 E 19601754.420
1. Set $\frac{3}{4}$" x 12" rebar 0.3' deep
2. Conc. nail & KDOT wshr E face of power pole 100.5' NNW
3. TW of private ent to N 12.0' W
4. In TW of K-58 Hwy

POT Sta. 223+20.08
N 485272.221 E 19602674.497
1. Nothing found, nothing set

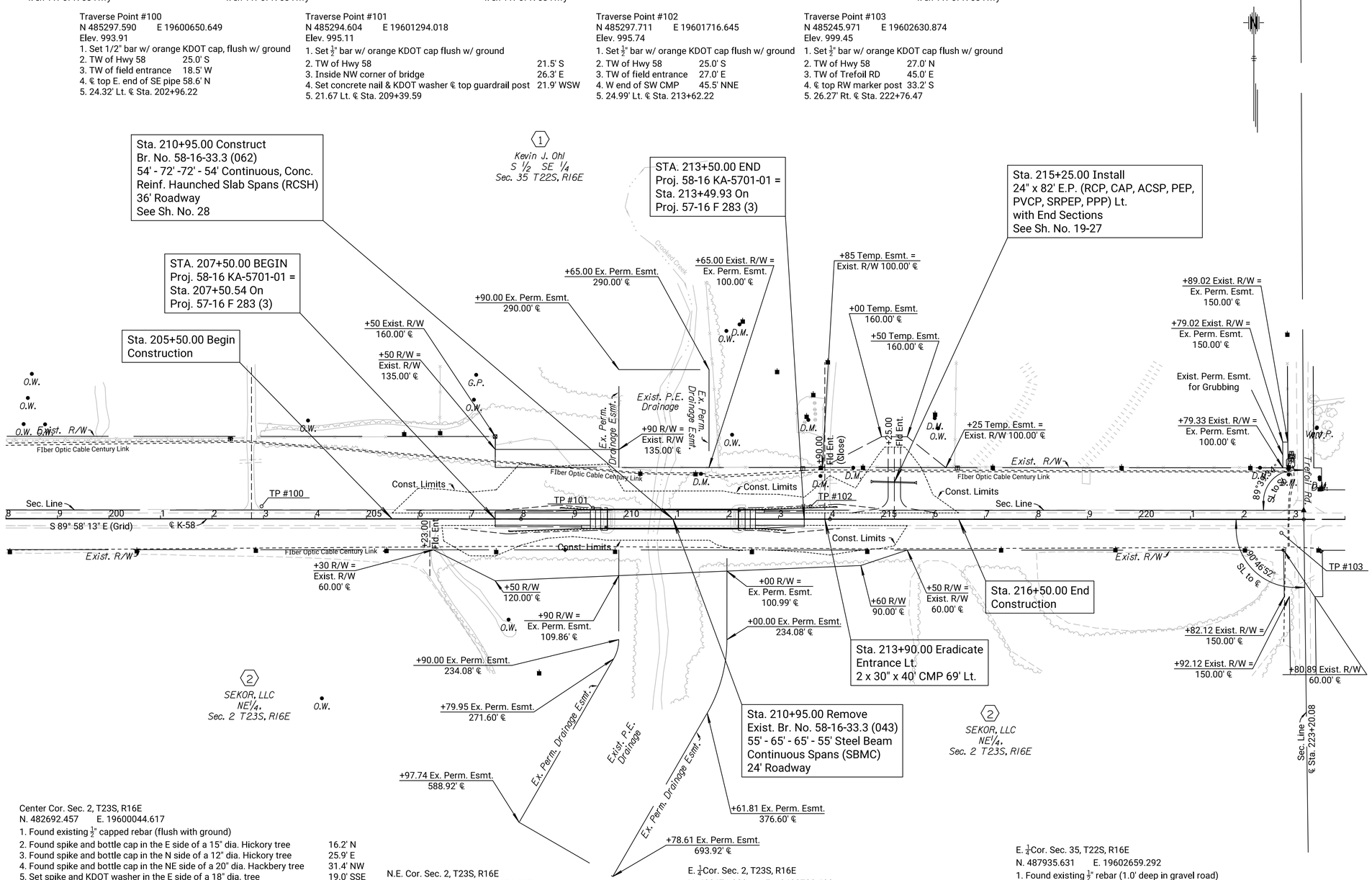
POT Sta. 226+00.00
N 485272.075 E 19602954.420
1. Set $\frac{3}{4}$" x 12" rebar 0.3' deep
2. TW of private ent/ 10 North 100.5' E
3. Conc. nail & KDOT wshr W. face of 727.7' SSE
4. In TW of K-58 Hwy

Traverse Point #100
N 485297.590 E 19600650.649
Elev. 993.91
1. Set 1/2" bar w/ orange KDOT cap, flush w/ ground
2. TW of Hwy 58 25.0' S
3. TW of field entrance 18.5' W
4. ℄ top E. end of SE pipe 58.6' N
5. 24.32' Lt. ℄ Sta. 202+96.22

Traverse Point #101
N 485294.604 E 19601294.018
Elev. 995.11
1. Set $\frac{3}{4}$" bar w/ orange KDOT cap flush w/ ground
2. TW of Hwy 58 21.5' S
3. Inside NW corner of bridge 26.3' E
4. Set concrete nail & KDOT washer ℄ top guardrail post 21.9' WSW
5. 21.67 Lt. ℄ Sta. 209+39.59

Traverse Point #102
N 485297.711 E 19601716.645
Elev. 995.74
1. Set $\frac{3}{4}$" bar w/ orange KDOT cap flush w/ ground
2. TW of Hwy 58 25.0' S
3. TW of field entrance 27.0' E
4. W end of SW CMP 45.5' NNE
5. 24.99' Lt. ℄ Sta. 213+62.22

Traverse Point #103
N 485245.971 E 19602630.874
Elev. 999.45
1. Set $\frac{3}{4}$" bar w/ orange KDOT cap flush w/ ground
2. TW of Hwy 58 27.0' N
3. TW of Trefoil RD 45.0' E
4. ℄ top RW marker post 33.2' S
5. 26.27' Rt. ℄ Sta. 222+76.47



Center Cor. Sec. 2, T23S, R16E
N. 482692.457 E. 19600044.617
1. Found existing $\frac{3}{4}$" capped rebar (flush with ground)
2. Found spike and bottle cap in the E side of a 15" dia. Hickory tree 16.2' N
3. Found spike and bottle cap in the N side of a 12" dia. Hickory tree 25.9' E
4. Found spike and bottle cap in the NE side of a 20" dia. Hackbery tree 31.4' NW
5. Set spike and KDOT washer in the E side of a 18" dia. tree 19.0' SSE
6. To the N bank of creek 19.0' S

N. ¼ Cor. Sec. 2, T23S, R16E
N. 485290.479 E. 19600014.019
1. Found existing $\frac{3}{4}$" rebar (0.3' deep)
2. Found spike and washer in top of fence post 144.3' NNE
3. Found MAG nail in top of fence corner post 139.0' NNW
4. Found PK nail and washer in the E end of a culvert 113.6' NW
5. To the TW of field entrance to N 100.0' W
6. To the TW of K-58 highway 18.0' S

N.E. Cor. Sec. 2, T23S, R16E
N. 485289.719 E. 19602674.267
1. Found existing $\frac{3}{4}$" rebar (0.3' deep in asphalt)
2. To the W end of a round concrete pipe 25.0' NW
3. To the center of the top of a concrete right of way post 53.6' NE
4. To the center of the top of a concrete right of way post 87.0' SSW
5. To the TW of K-58 highway 18.0' S
6. In the TW of asphalt road N

E. ¼Cor. Sec. 2, T23S, R16E
N. 482671.939 E. 19602708.602
1. Found existing $\frac{3}{4}$" rebar (1.0' deep in gravel road)
2. Found MAG nail and whisker in the W side of a power pole 27.5' E
3. Found spike and washer in the SW side of a 15" dia. Pecan tree 49.6' ESE
4. Found spike and washer in the SW side of a 8" dia. Pecan tree 69.7' SE
5. To the TW of driveway to S 48.0' S
6. In the TW of N-S gravel road

E. ¼Cor. Sec. 35, T22S, R16E
N. 487935.631 E. 19602659.292
1. Found existing $\frac{3}{4}$" rebar (1.0' deep in gravel road)
2. Found MAG nail and washer in the E side of a fence corner post 45.4' NW
3. Found MAG nail and washer in top of culvert pipe 26.4' SW
4. Found MAG nail and washer in top of culvert pipe 21.5' ESE
5. To TW of entrance to W 13.0' N
6. In TW of N-S road

B.M. # 11- Set chiseled ☐ cut SW
Cor. S. hubguard of bridge
Sta. 209+65.15 Rt. 16.29' Elev. = 997.62
N 485256.629 E 19601319.556

B.M. # 12- Set chiseled ☐ cut NE
Cor. N. hubguard of bridge
Sta. 212+24.06 Lt. 17.14' Elev. = 997.52
N 485289.927 E 19601578.487

B.M. # 13- ℄ Top of conc. R/W marker post
Sta. 222+79.92 Rt. 59.61' Elev. = 1001.99
N 485212.634 E 19602634.303

KANSAS DEPARTMENT OF TRANSPORTATION
PLAN
STA. 198+00 TO STA. 224+00

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File : KA570101rpl-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	7	93

1,563 Cu. Yds. Common Excavation (VMF Assumed = 0.74)

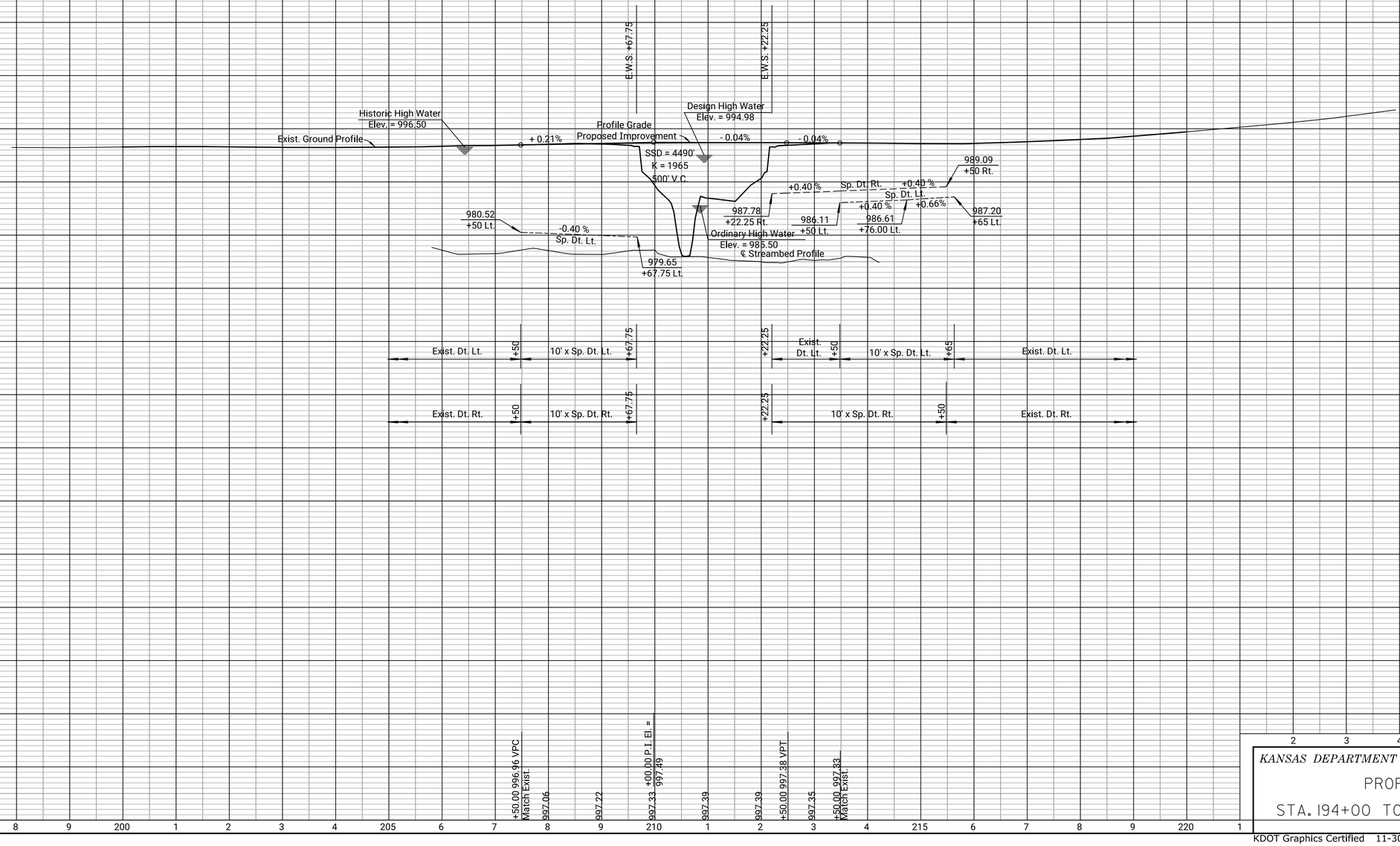
6,255 Cu. Yds. Common Excavation (Contractor Furnished) (VMF Assumed = 0.74)

*221 Cu. Yd.s Rock Excavation (VMF = 1.00)

5,785 Cu Yds. Embankment

+50.00 +50.00

*Existing Pavement to be wasted



KANSAS DEPARTMENT OF TRANSPORTATION

PROFILE

STA. 194+00 TO STA. 226+00

KDOT Graphics Certified 11-30-2024

Sh. No. 7

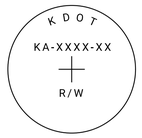
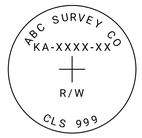
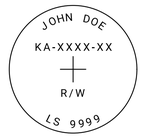
KDOT Graphics Certified

Plotted by : Juliana.Martin@ks.gov 02-DEC-2024 12:47
File : KA57010 1rpr-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	8	93

EXHIBIT

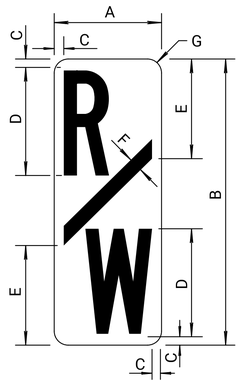
2" DIA. PRE-STAMPED ALUMINUM CAPS

		
KDOT - DISTRICT 1	KDOT - DISTRICT 2	KDOT - DISTRICT 3
		
KDOT - DISTRICT 4	KDOT - DISTRICT 5	KDOT - DISTRICT 6
		
KDOT STATE SURVEY CREW BUREAU OF RIGHT-OF-WAY	SURVEY COMPANY WITH A VALID CORPORATION LICENSE	INDEPENDENT SURVEYOR OR SOLE PROPRIETOR COMPANY

NOTES:

KA-XXXX-XX is the KDOT Project number
All stampings, forgings, and impressions shall be in accordance with the standard specifications and as shown on this drawing.

KI-107

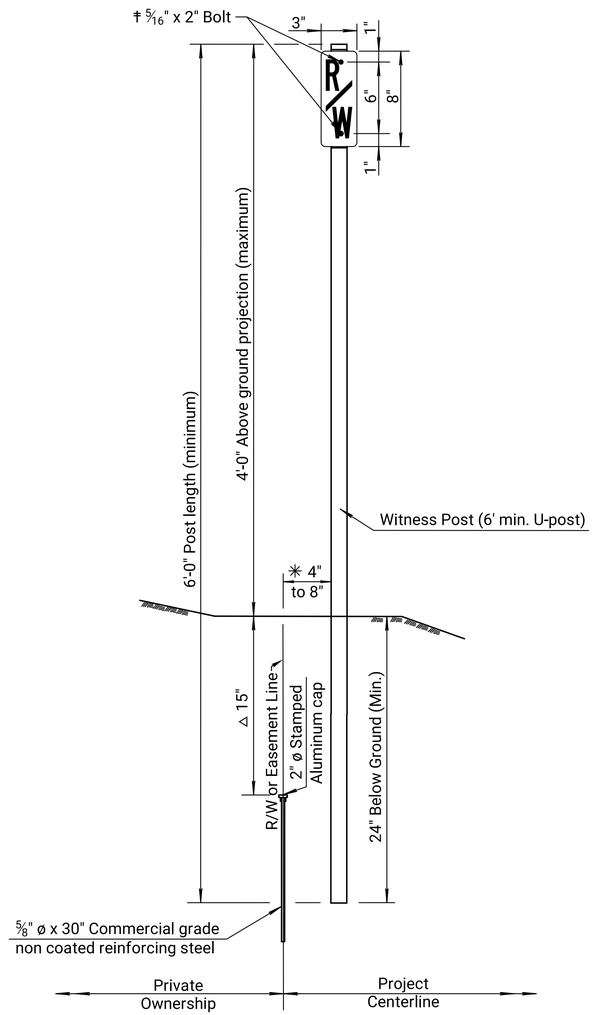


COLORS:

BACKGROUND - WHITE (REFLECTIVE)
LEGEND - BLACK (NON-REFLECTIVE)
LEGEND SERIES - 'B'

A	B	C	D	E	F	G
3"	8"	1/4"	3"	2 3/4"	3/8"	3/8"

R/W SIGN DETAIL



PLAN VIEW

NOTES

✳ 4" (Min.) to 8" (Max.) from rebar to witness post. (USE CAUTION, DO NOT DISTURB THE REBAR WHEN SETTING A POST). The witness post shall be set radial or perpendicular to the project centerline from the rebar. The "open face" of the U-post shall face the project centerline with the sign attached to the "open face". This exhibit is a side view, except for the sign, which is shown as turned for the purpose of illustrating content only. (See Sign Detail).

‡ Drill or punch holes. Attach 2 flat washers, 1 lock washer, and 1 nut per bolt.

△ Or as directed by the Engineer.

GENERAL NOTE

The post shall be U-shaped (6' minimum length) and factory painted the color of persian red (KDOT Orange) by an electronically powder-coated oven-baked process.

All installations shall have proper identification cap for the party installing it (See Exhibit). Monument(s) shall be set in accordance with the standard specifications and as shown on this drawing.

Removal and disposal of existing concrete R/W markers shall not be paid for directly but shall be Subsidiary to other items of the contract.

In an urban area, the witness post may be omitted as directed by the Engineer.

The R/W survey monuments shall be paid for under the bid item "Right-of-Way Survey Monuments (Each)" and be included in the plan quantities. ✡The table shown on this sheet is intended for additional monuments set in the field and will be filled out by the contracted survey company.

Mount R/W survey monument signs facing the road.

✡ Additional R/W Survey Monuments set by Contractor			
Station	Offset (Lt./Rt.)	Northing	Easting

✡ Additional R/W Survey Monuments set by Contractor			
Station	Offset (Lt./Rt.)	Northing	Easting

NO.	DATE	REVISIONS	BY	APP'D
04	01-06-16	Revised Notes	T.T.R.	S.W.K.
03	05-24-13	Revised General Note	S.W.K.	J.O.B.
02	02-07-07	Removed dual cap note	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

R/W SURVEY MONUMENT INSTALLATION DETAIL SHEET

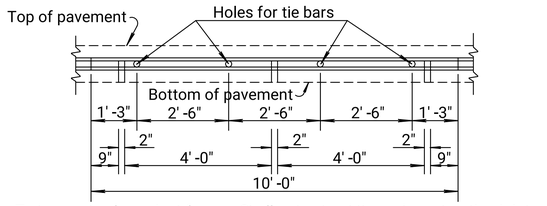
RD995

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 07-27-2022 Sh. No. 8

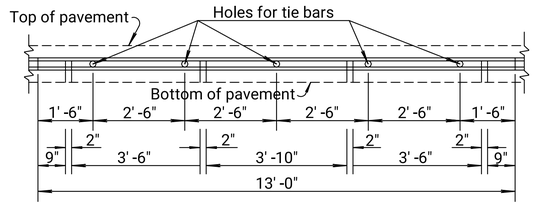
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	9	93



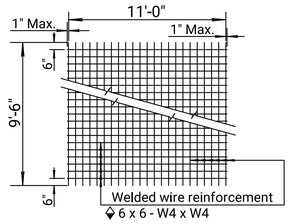
To be used only against forms. Shall not extend through contraction joints.

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



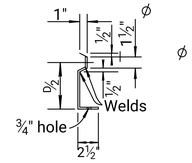
To be used only against forms. Shall not extend through contraction joints.

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.



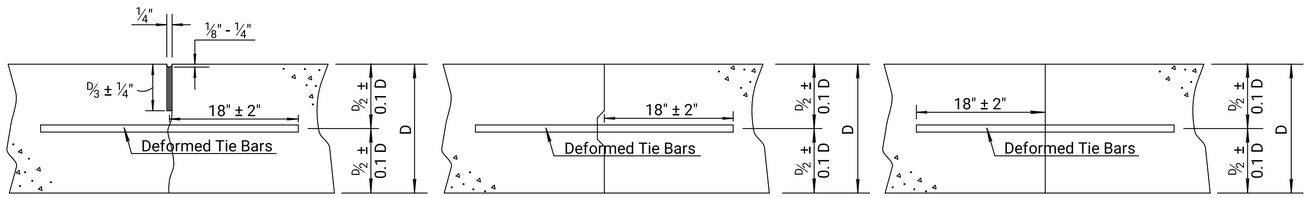
SECTION OF RECESSED
FORM LEG

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

DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT

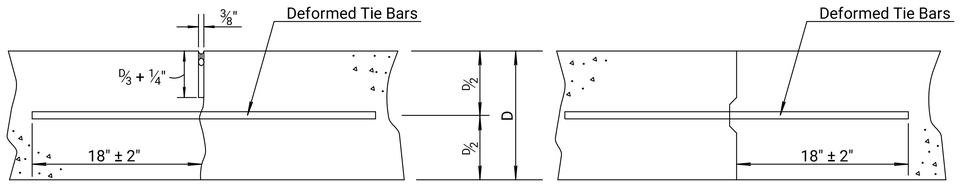
The lap shall extend beyond the first transverse or bag wire of each sheet.

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.

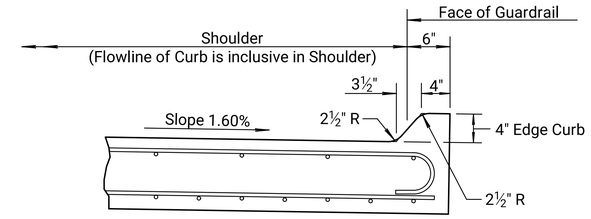
At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.

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

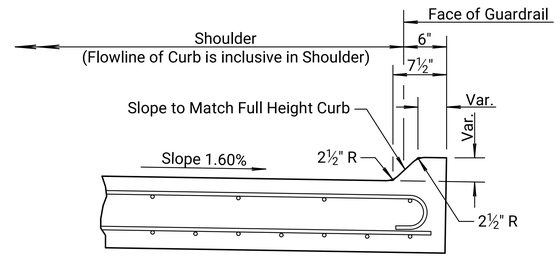
The 4 inch edge curb shall be constructed integral with the approach slab shoulder.

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.

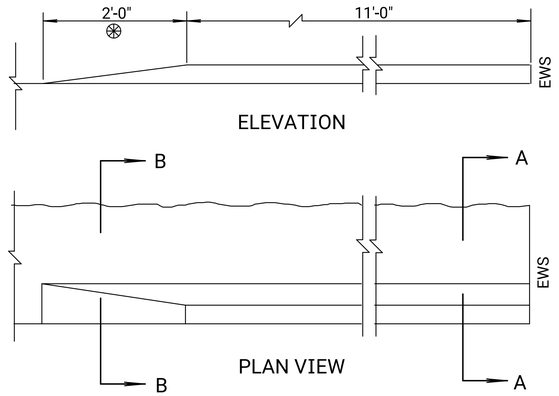


SECTION A-A



SECTION B-B

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



ELEVATION

PLAN VIEW

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.

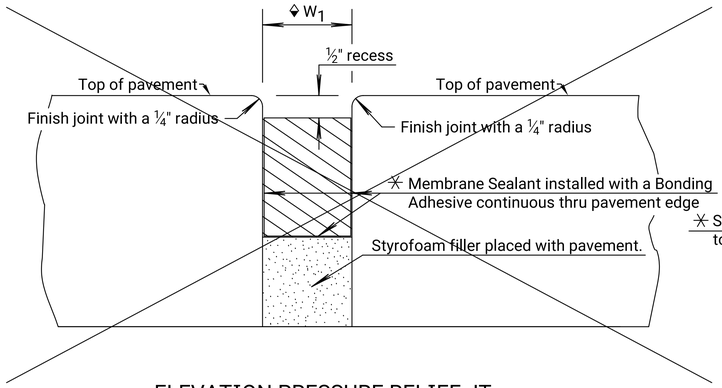
KDOT Graphics Certified 07-18-2022 Sh. No. 9

KDOT Graphics Certified

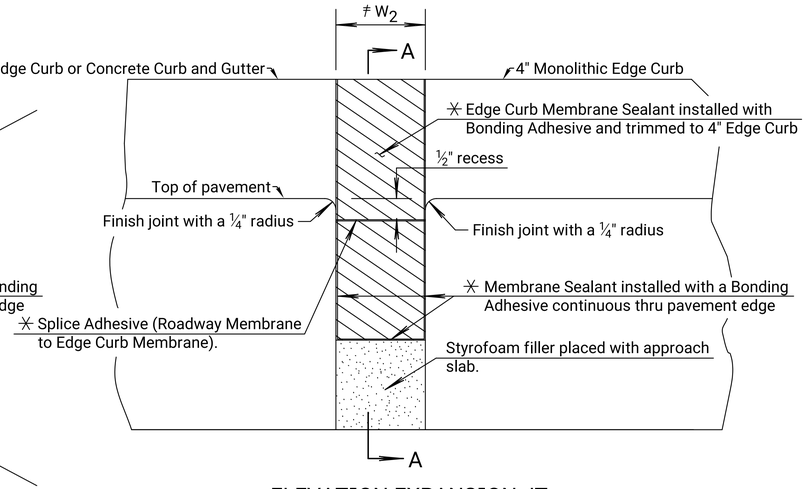
Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:16
File : ka570101rss711-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	10	93

Note to Designer: For Membrane Sealant Expansion Joint on Non-skewed Bridges the maximum length of expansion is: 380' for Steel Bridges, 410' for Concrete Bridges.



ELEVATION PRESSURE RELIEF JT.



ELEVATION EXPANSION JT.

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).

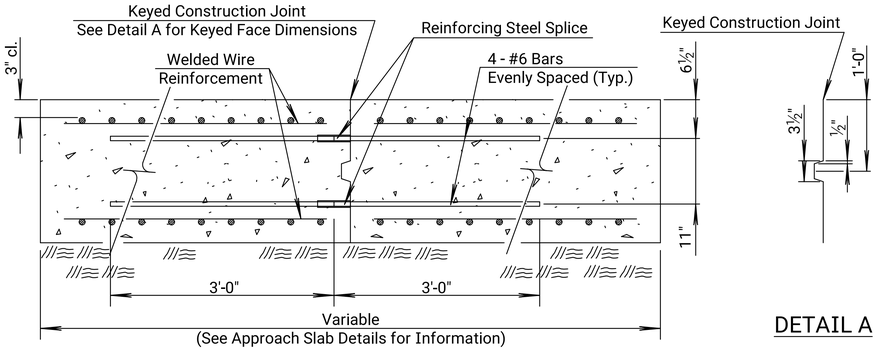
Do not allow traffic on the joint for a minimum of 3 hours unless otherwise directed by the Engineer.

Use splice materials and methods recommended by the Manufacturer.

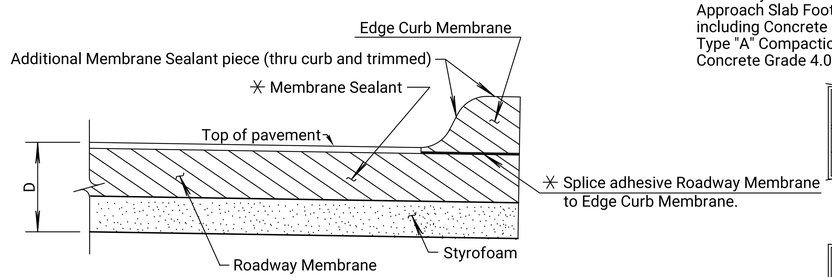
All work and materials for the preparation, construction, and installation of the joint will be subsidiary to the concrete approach pavement.

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.



DETAIL A



SECTION A-A

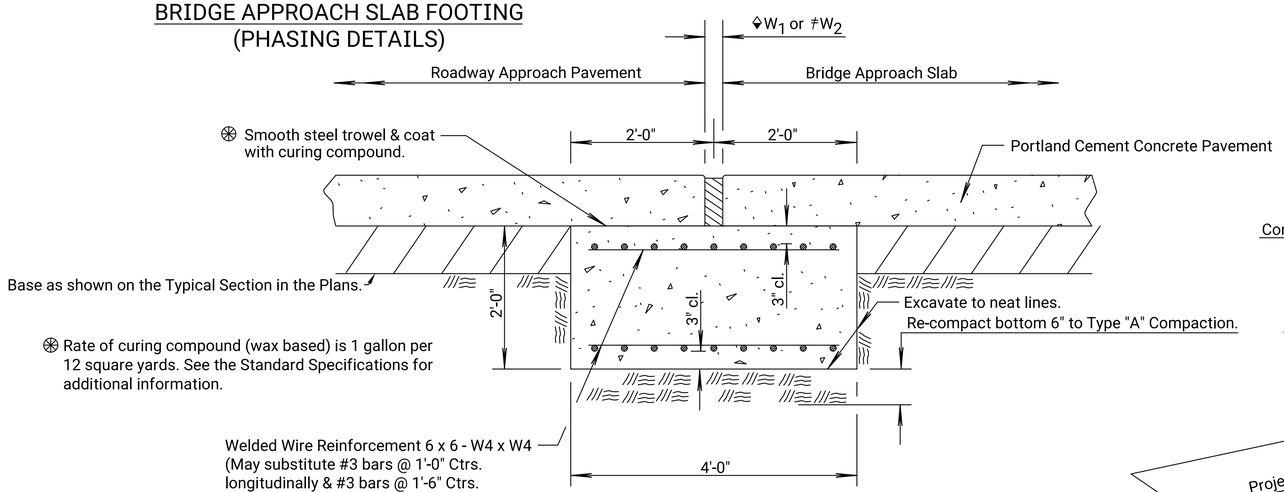
(See Std. Drawing RD711 for details of 4" Edge Curb.)

◆ 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"

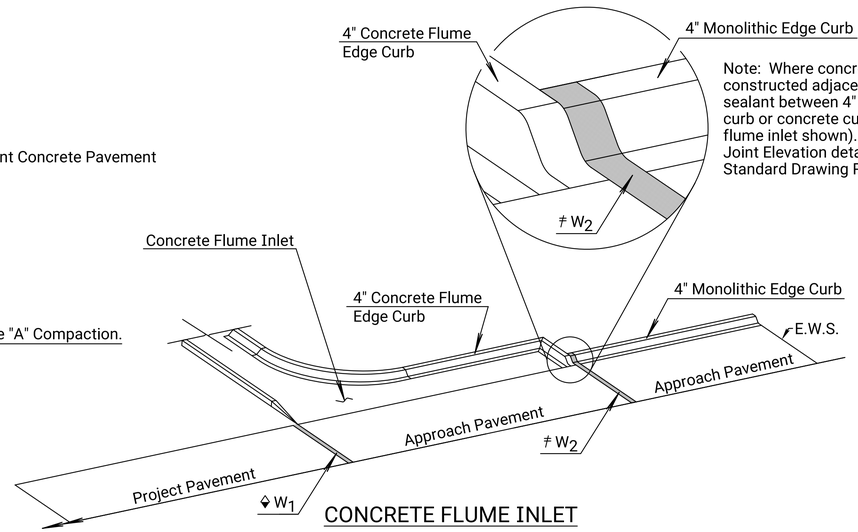
℉ Average Ambient Temperature over previous 24 hours.

≠ 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~~

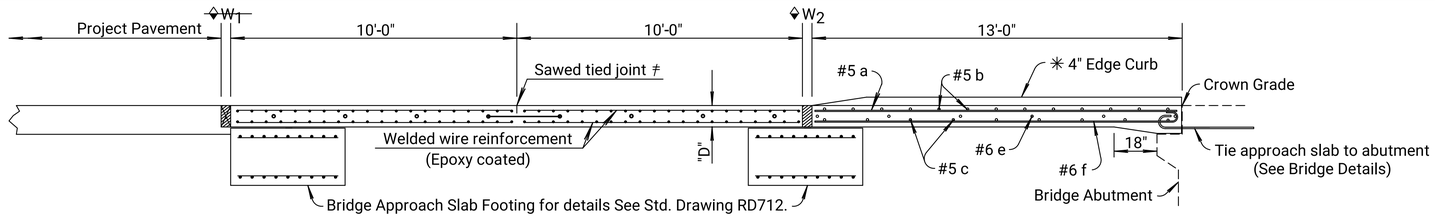
FHWA APPROVAL	02-01-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 11-30-2024 Sh. No. 10

KDOT Graphics Certified

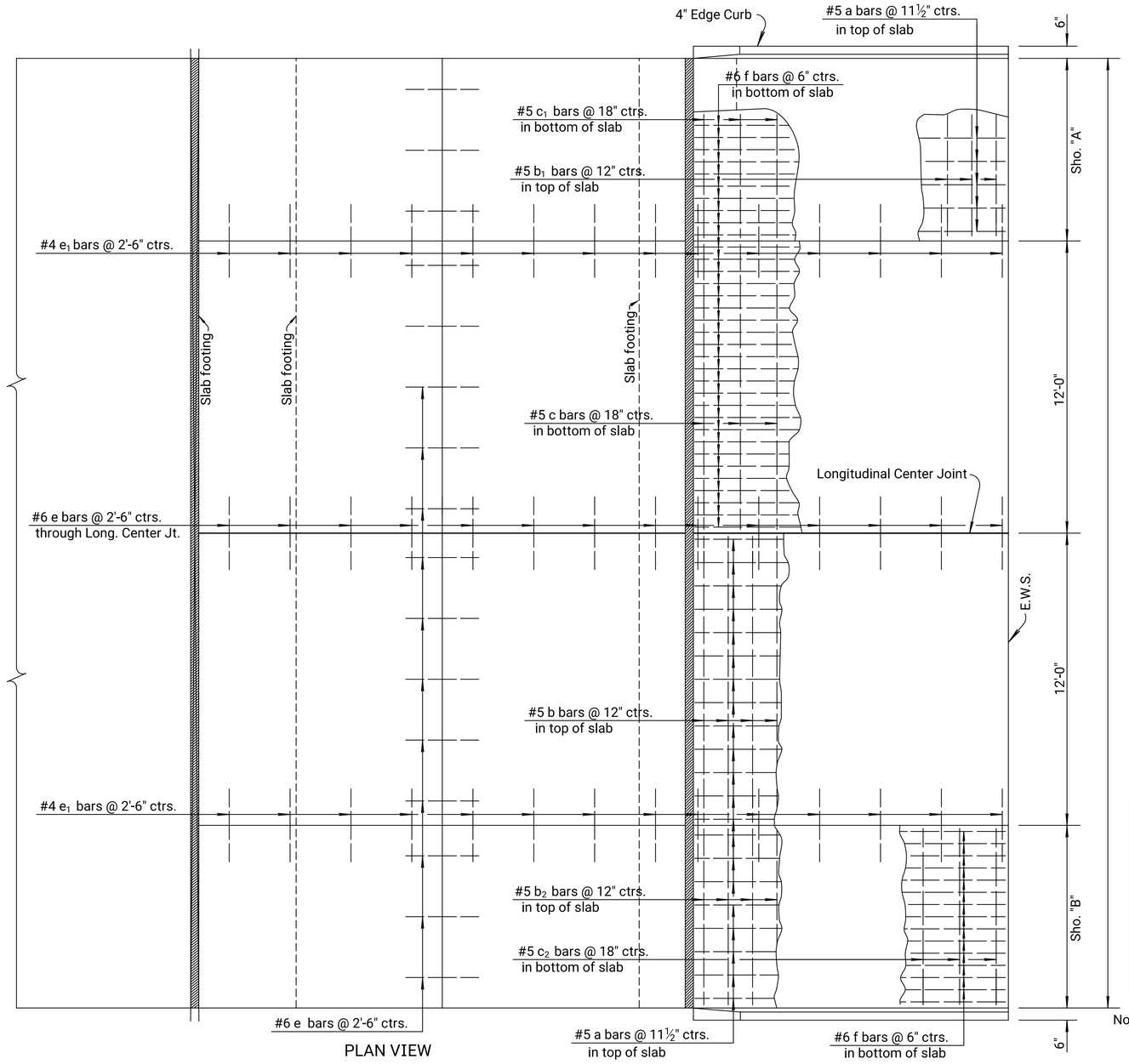
Plotted by : Juliana.Martin@ks.gov 2-DEC-2024 12:53
File : ka570101rss712-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	11	93



"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).

LONGITUDINAL SECTION



PLAN VIEW

✳ For details of 4" Edge Curb, See Standard 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 NOTE

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10 "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" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

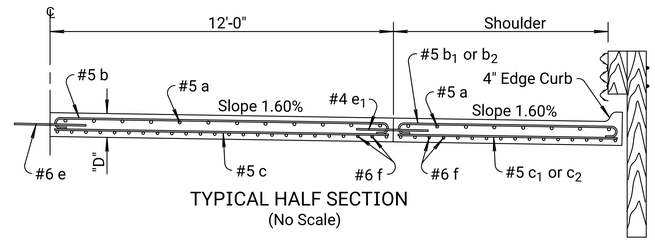
All reinforcing steel shall be epoxy coated.

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

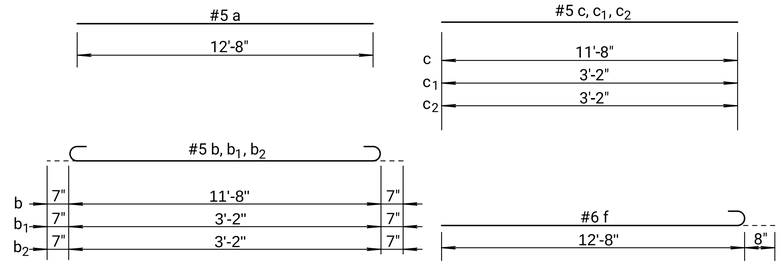
Clearance from the face of concrete for all reinforcing steel shall be 2 inches.

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

The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.



TYPICAL HALF SECTION
(No Scale)



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

BENDING DIAGRAMS

BILL OF MATERIALS

Bar Schedule

Bar	a	b	b_1	b_2	c	c_1	c_2	e	e_1	f	
No.	34	26	13	13	18	9	9	26	28	62	
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6	
Length	12'-8"	12'-10"	4'-4"	4'-4"	11'-8"	3'-2"	3'-2"	3'-0"	3'-0"	13'-4"	

Reinforcing Steel (Grade 60) (Epoxy Coated)	2608 lbs.
Concrete Pavement (10" Unif.)(AE)	111.44 Sq. Yds.
Expansion Jt. Membrane Sealant	30.00 Ln. Ft.
Pressure Relief Jt. Membrane Sealant	30.00 Ln. Ft.

Note: Quantities listed for one approach slab only. Two required per bridge. Reinforcing steel and joint lengths shown for information only.

NO.	DATE	REVISIONS	BY	APP'D
12	04-04-13	Rev. Exp./Pr. Relief Joint Dim.	S.W.K.	J.O.B.
11	09-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
10	05-14-09	Revised pressure relief jt. material	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE APPROACH PAVEMENT NORMAL APPROACH

~~RD713~~

FHWA APPROVAL	05-21-13	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 12-02-2024 Sh. No. 11

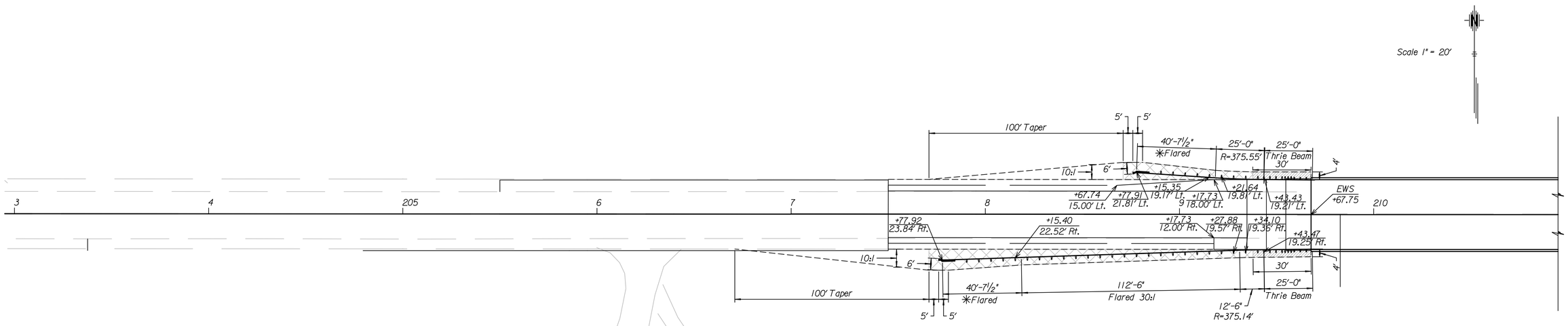
KDOT Graphics Certified File

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessary to complete this sheet.

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:19
File : ka570101rss713-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	12	93

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

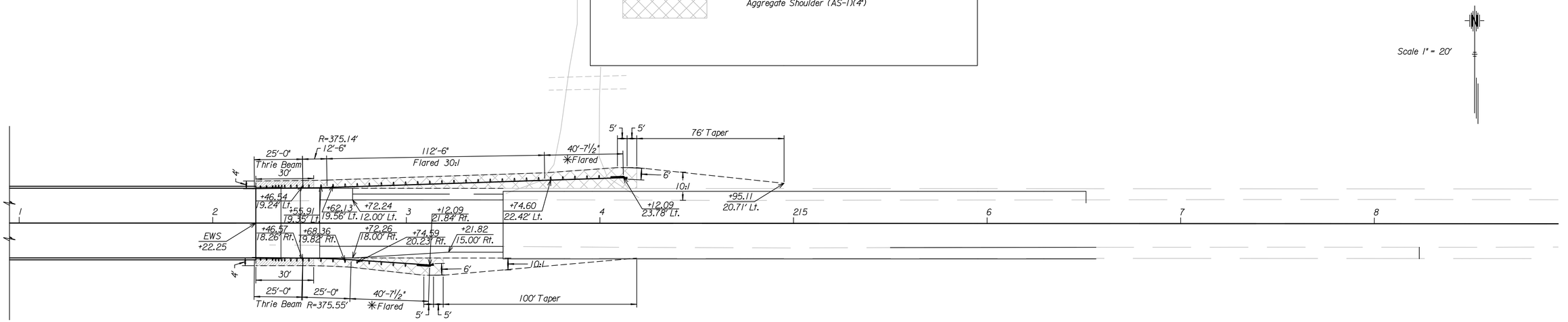


✳MGS-SRT OR MGS-FLEAT FLARED END TERMINALS

LEGEND

4" Asphalt Widening HMA Comm. Grade (Class A)

Aggregate Shoulder (AS-1)(4")



✳MGS-SRT OR MGS-FLEAT FLARED END TERMINALS

KANSAS DEPARTMENT OF TRANSPORTATION

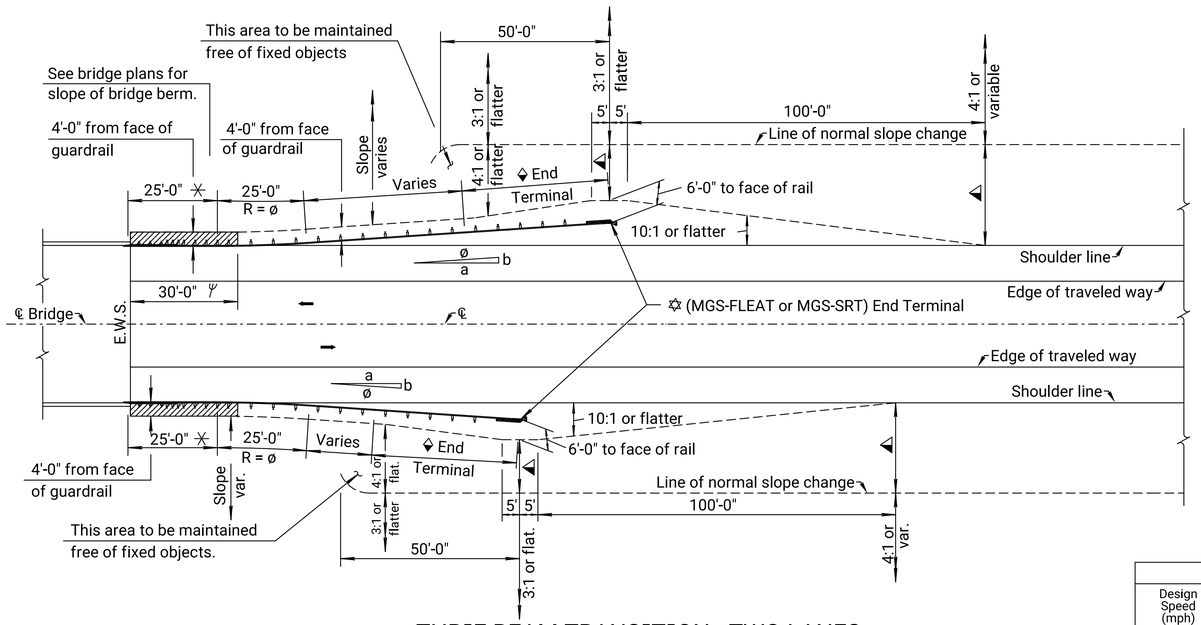
GUARDRAIL LAYOUT

STA. 210+95.00

Sh. No. 12

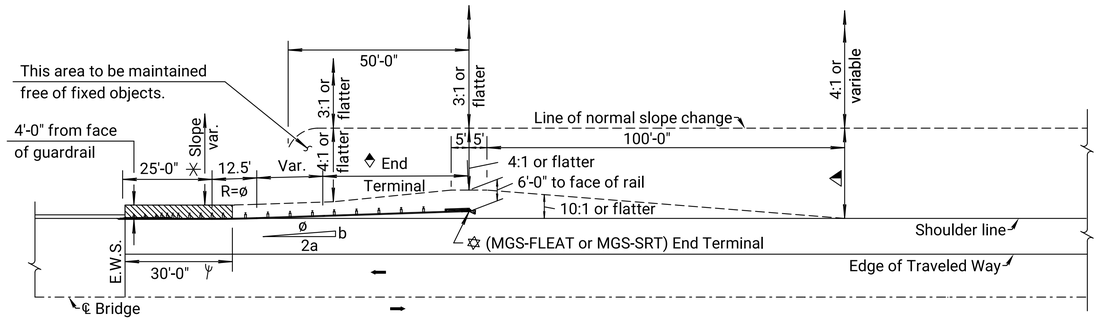
Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:10
File : KA570101rgr-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	13	93



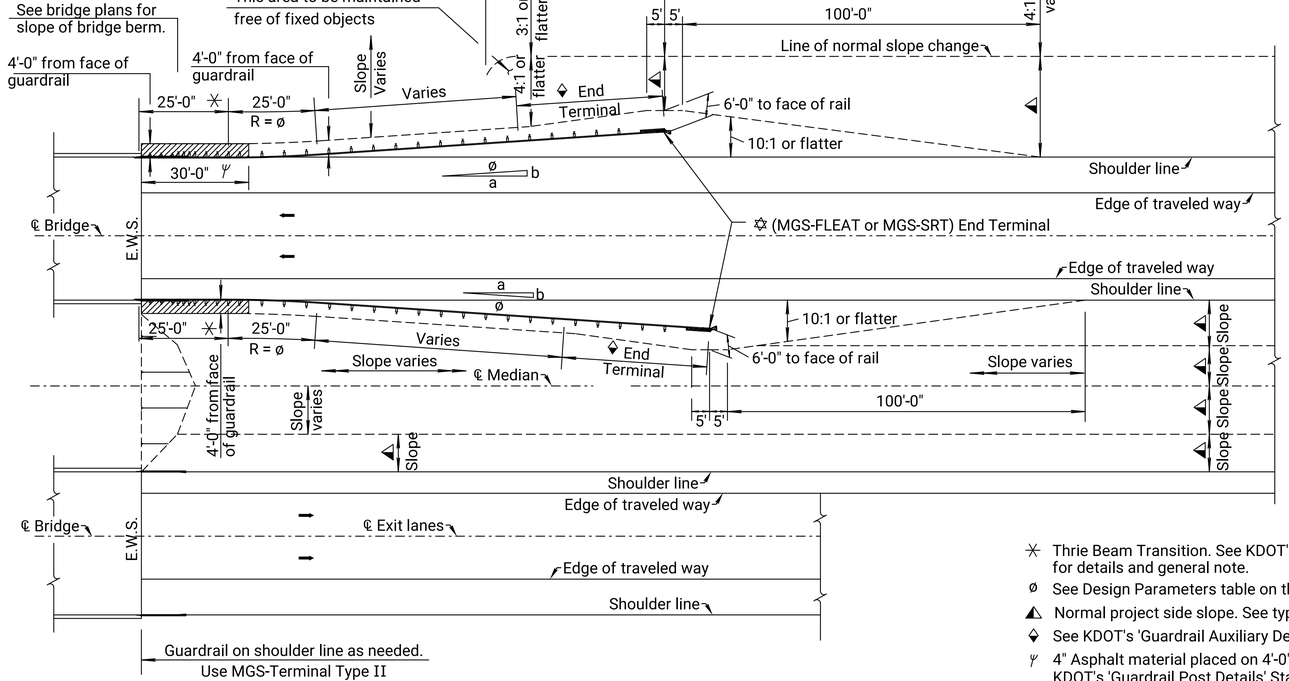
THRIE BEAM TRANSITION - TWO LANES

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.
- ℽ 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".

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.

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:19
File : ka570101rss612c-01.dgn

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)

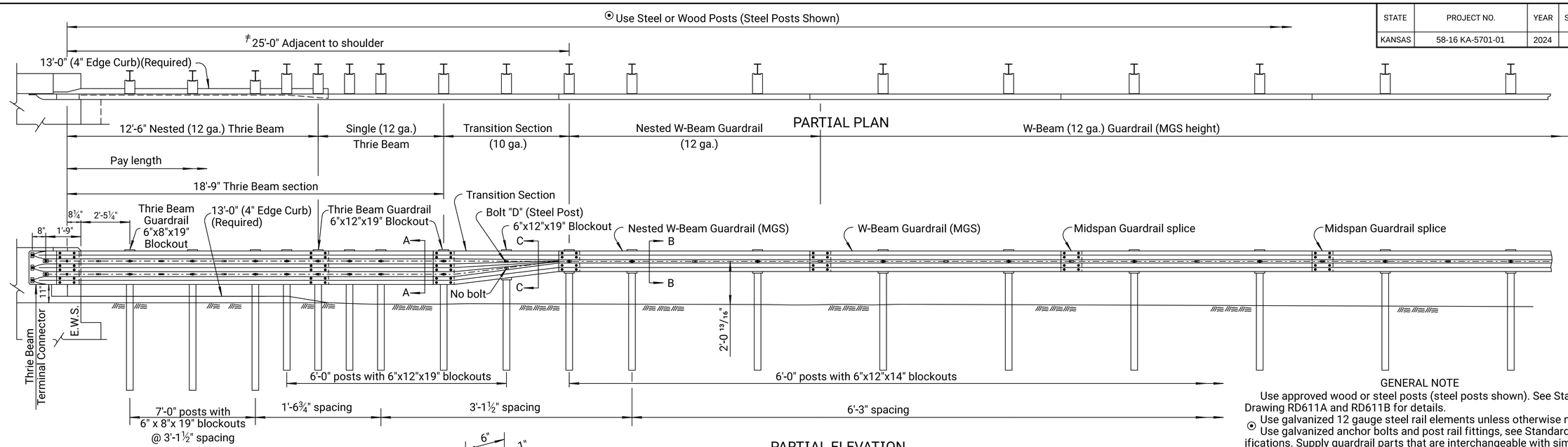
RD612C

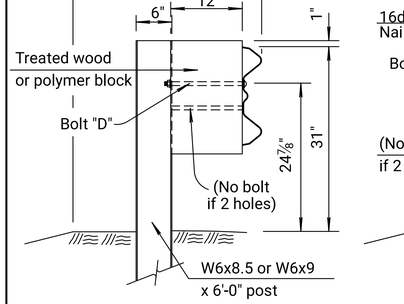
FHWA APPROVAL	06-19-18	APP'D.	Scott. W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 08-21-2022 Sh. No. 13

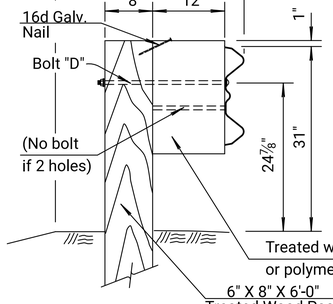
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	14	93

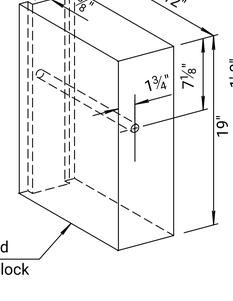




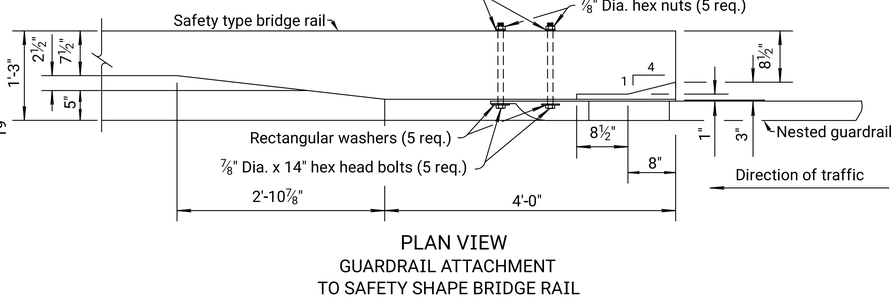
⊙ SECTION C-C (STEEL POST)



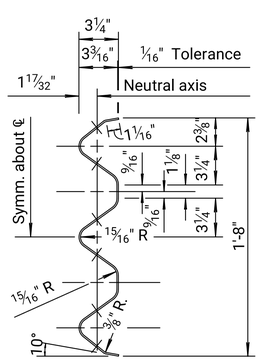
⊙ SECTION C-C (WOOD POST)



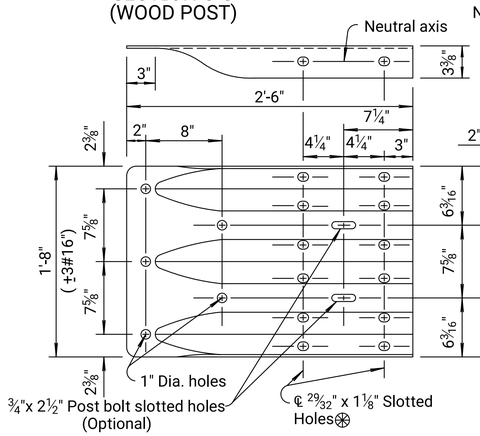
SECTION C-C (BLOCKOUTS)
Note: All holes ¾" dia.



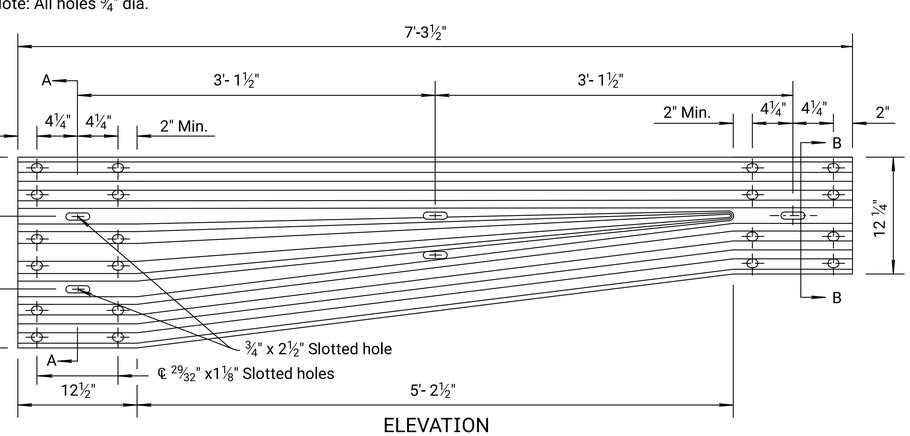
PLAN VIEW
GUARDRAIL ATTACHMENT
TO SAFETY SHAPE BRIDGE RAIL



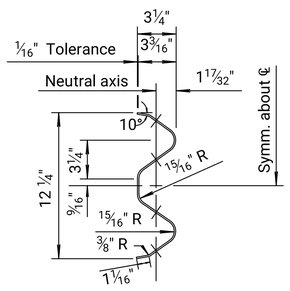
SECTION A-A
THRU RAIL ELEMENT
TYPICAL THRIE BEAM



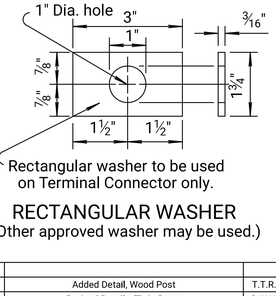
TERMINAL CONNECTOR
⊛ Optional 29/32" x 1¾" Slotted holes Rotated 50° (Typical) (12 req'd.)



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.)

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)".

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.

KDOT Graphics Certified 12-06-2024 Sh. No. 14

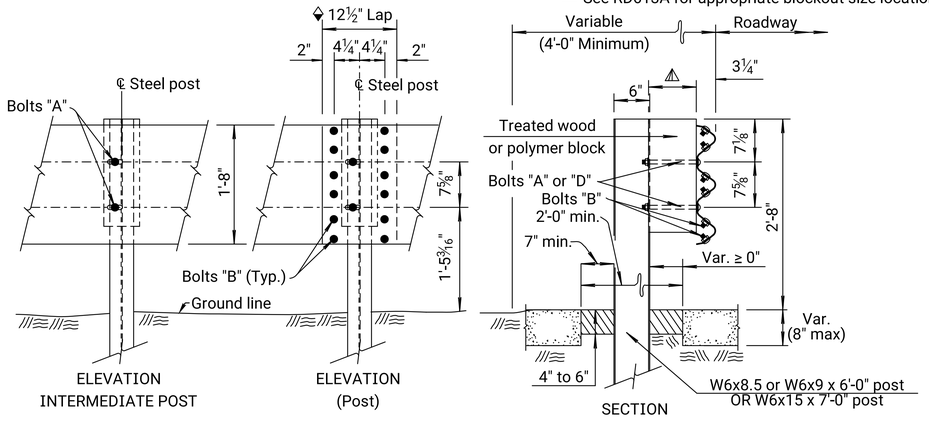
KDOT Graphics Certified

Plotted by : Amy.Rockers@ks.gov 6-DEC-2024 21:15
File : rd613a.dgn

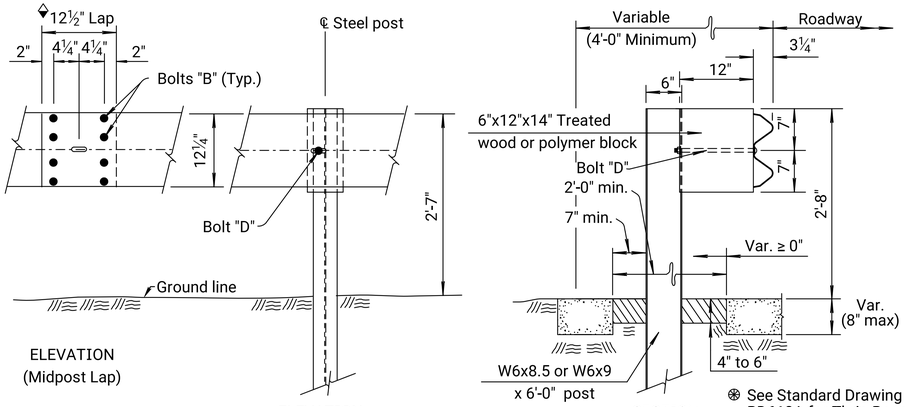
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	15	93

♦ 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

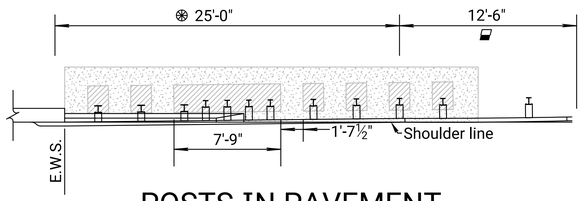


W-BEAM (MGS) POST DETAILS/POSTS IN PAVEMENT

⊛ 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.



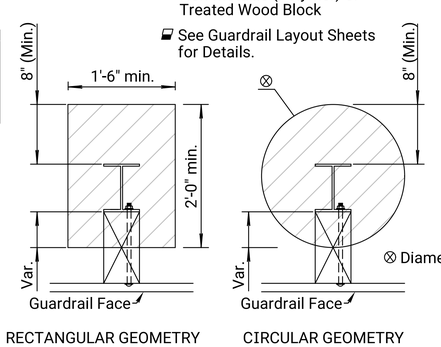
POSTS IN PAVEMENT

(Not to Scale)

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

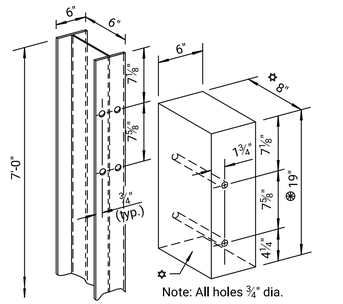
□ Pavement (Concrete or Asphalt)

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.

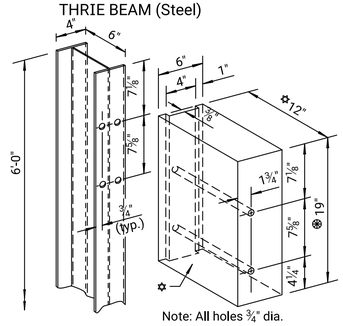


PLAN
(ALTERNATE GEOMETRIES)

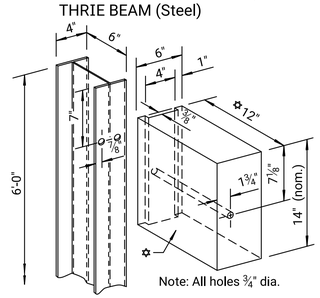
⊗ Diameter may vary from 1'-6" (min.) to 2'-0".



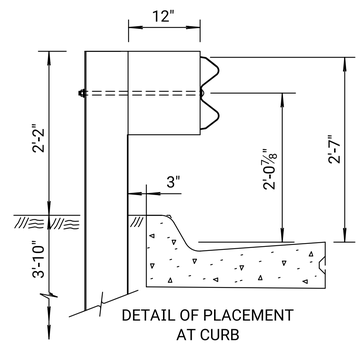
THRIE BEAM (Steel)



THRIE BEAM (Steel)



"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.

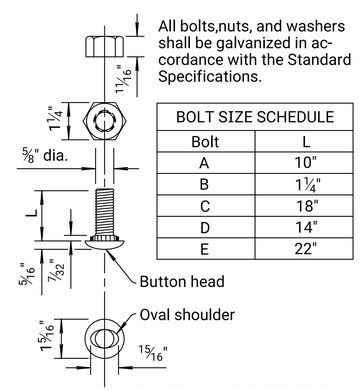
Wood blockouts may be used through the 25'-0" thrie-beam section with wood or polymer blockouts used throughout the remainder of the w-beam installation. The blockout size and material used in the guardrail end terminal may be independent from the remainder of the installation. For wood/polymer blockout 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 05-11-2022 Sh. No. 15

KDOT Graphics Certified

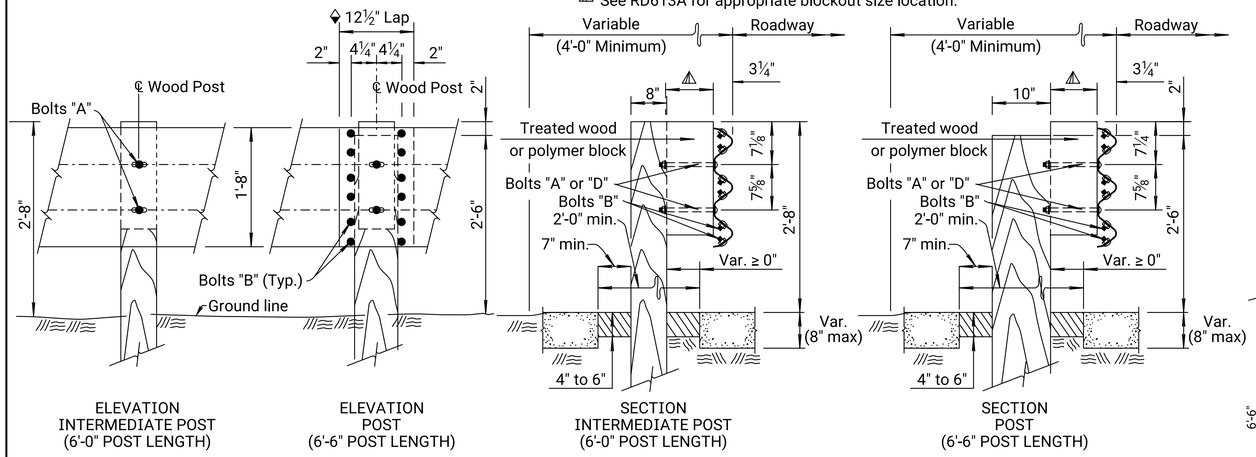
Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:17
File : ka570101rss611a-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	16	93

◈ 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)

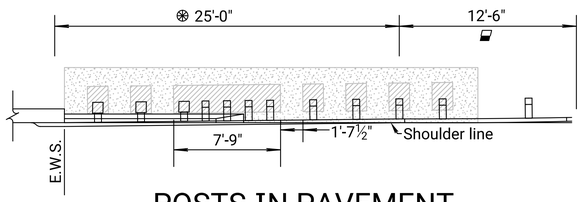
SECTION

⊛ 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



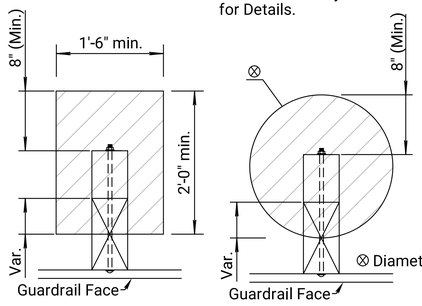
POSTS IN PAVEMENT

(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.

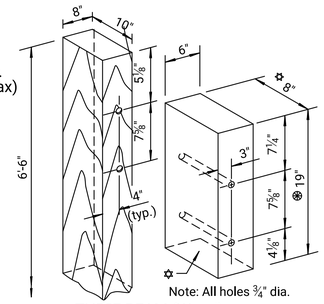


RECTANGULAR GEOMETRY

CIRCULAR GEOMETRY

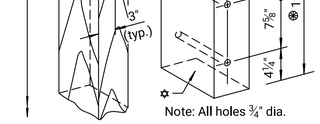
⊗ Diameter may vary from 1'-6" (min.) to 2'-0".

PLAN
(ALTERNATE GEOMETRIES)



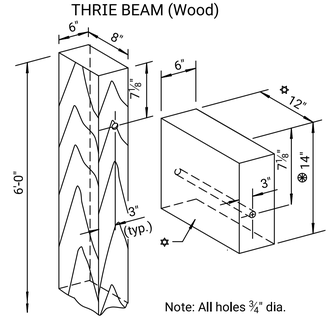
Note: All holes ¾" dia.

THRIE BEAM (Wood)



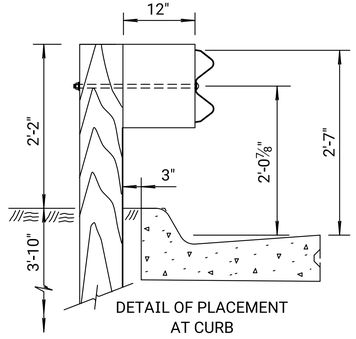
Note: All holes ¾" dia.

THRIE BEAM (Wood)



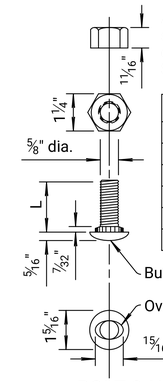
Note: All holes ¾" dia.

"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.

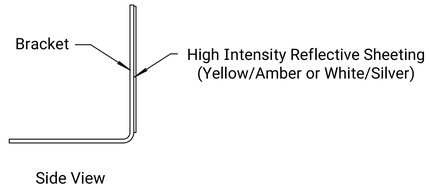
KDOT Graphics Certified 05-11-2022 Sh. No. 16

KDOT Graphics Certified

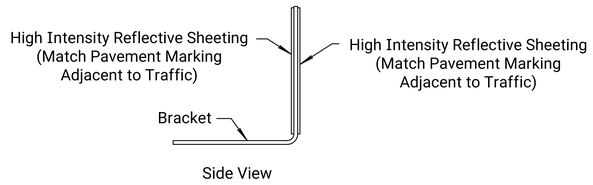
Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:16
File : ka570101rss611b-01.dgn

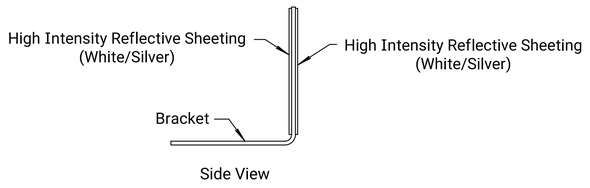
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	17	93



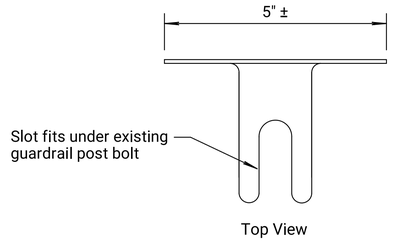
Flexible Marker
One-Way Traffic

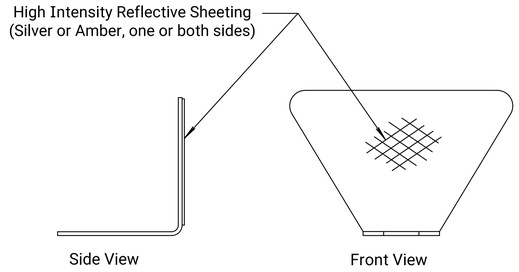


Flexible Marker
Median Locations



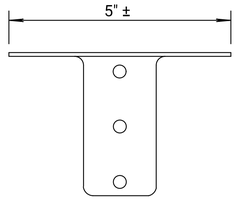
Flexible Marker
Two-Way Traffic



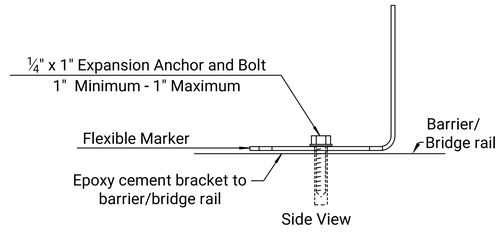


Flexible Guardrail Marker

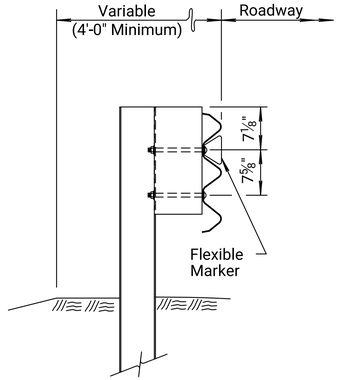
(High Impact Polycarbonate approx. .085" thick, 5¼" x 3")



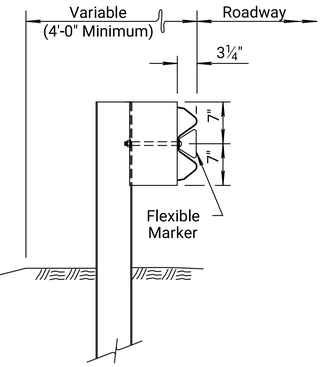
Barrier/Bridge Rail



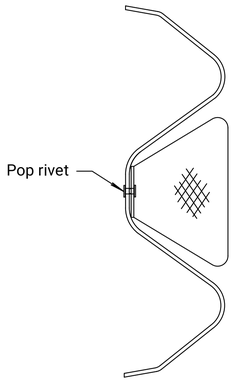
Method of Attaching Flexible
Marker to Barrier/Bridge Rail



THRIE-BEAM GUARDRAIL

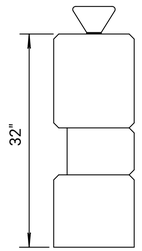


W-BEAM GUARDRAIL

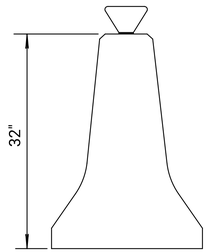


Typical Mounting on W-Beam

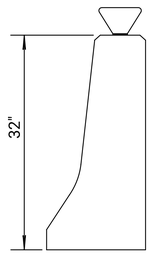
Pop rivet attachment to Guardrail when necessary.



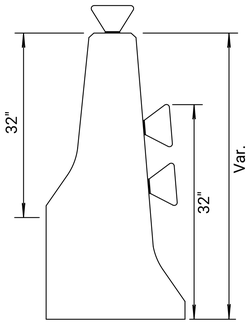
CORRAL RAIL



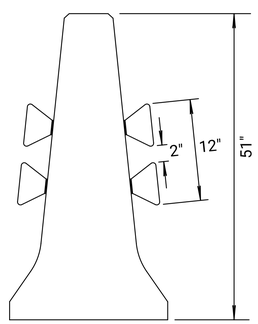
TYPE I CSB



TYPE II CSB or
F-SHAPED BRIDGE RAIL



TYPE III CSB



TYPE IV CSB

TYPICAL BARRIER/BRIDGE RAIL MOUNTING DETAILS

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.

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 05-11-2022 Sh. No. 17

KDOT Graphics Certified

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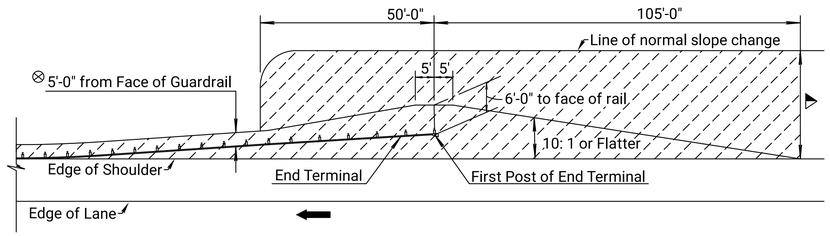
File : ka570101rss610-01.dgn

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.



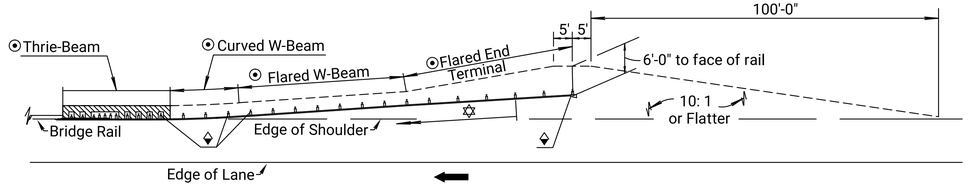
Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet 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

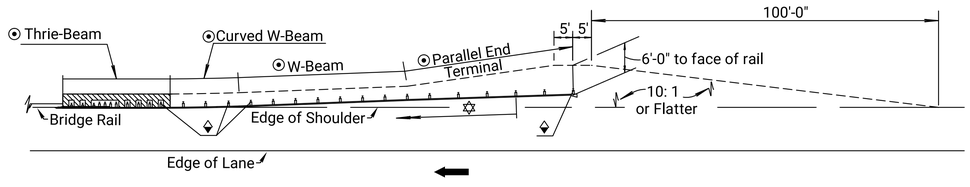
FLARED GUARDRAIL DETAIL

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	58-16 KA-5701-01	2024	18	93

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.

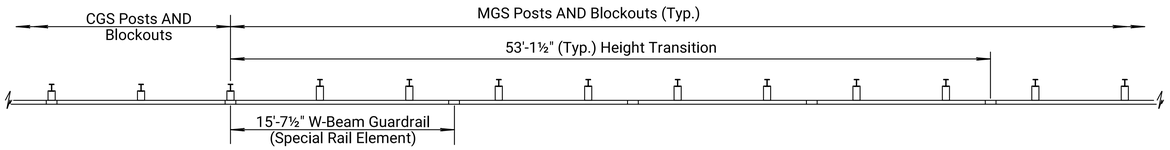
Lap w-beam and thrie-beam guardrail splices, in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Lap end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even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

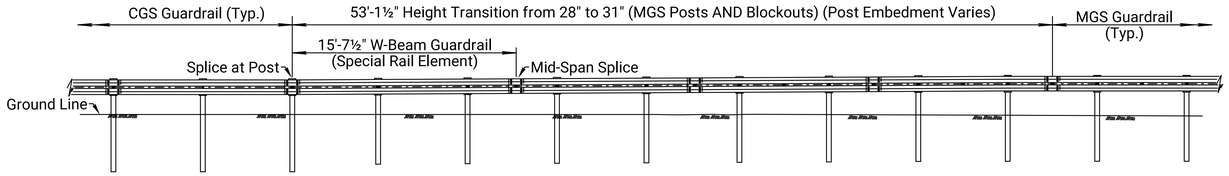
Where pavement with a thickness less than or equal to 8" is encountered during installation, use the details shown on KDOT's 'Guardrail Post Details' Standard Drawings to provide openings in the pavement for the guardrail posts. Where pavement with a thickness greater than 8" or geologic rock is encountered 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.

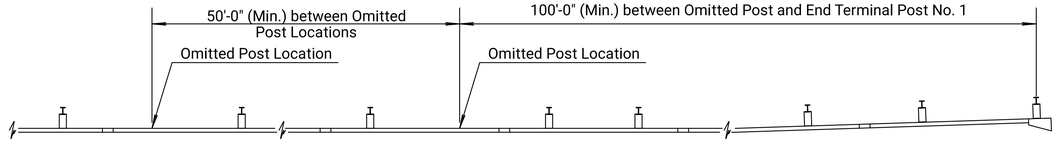
All work and materials required for guardrail end terminal installations are paid for under the bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.



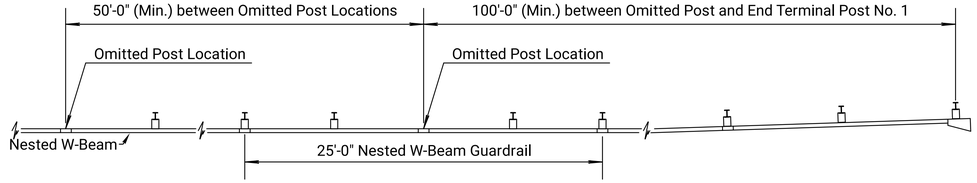
CGS TO MGS TRANSITION DETAILS (PLAN)



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	Valtir	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	Valtir	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	Valtir	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 11-30-2024 Sh. No. 18

KDOT Graphics Certified

Plotted by : Juliana.Martin@ks.gov 2-DEC-2024 13:02
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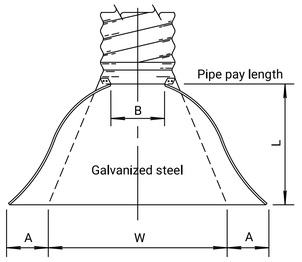
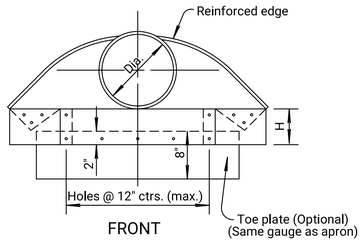
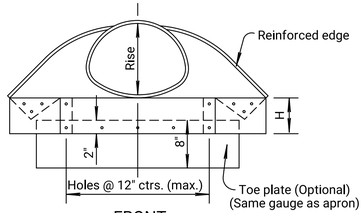
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	19	93



PLAN
(Illustrated with Type #3 Connection)



FRONT



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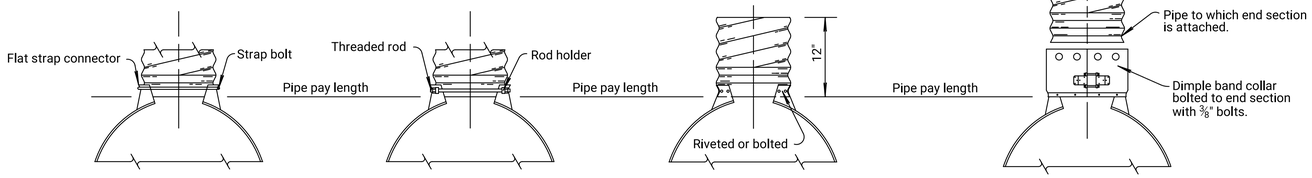


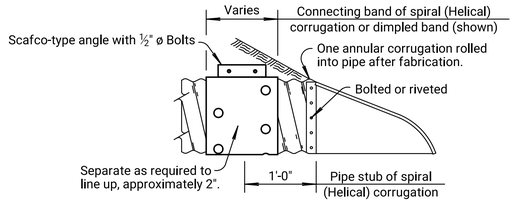
TYPE 1
Available in sizes 12" through 24" only.

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.

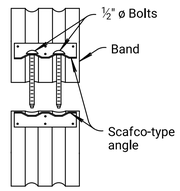
Toe plate extension, when specified, is an accessory and shall be the same gauge and metal as end section. Toe plate shall be punched to match holes in apron lip and attached with furnished 3#8" diameter nuts & bolts.

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.

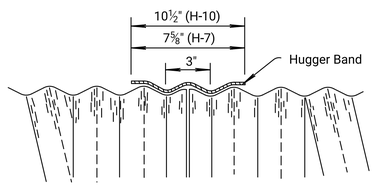
Multiple panel end sections may contain dual gauges of like metal and shall have lap seams which are tightly joined with rivets or bolts. For 60" and larger diameter round pipe end sections and 77"x52" arch pipe end sections, the reinforced edges are supplemented with stiffener angles. The angles are 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.

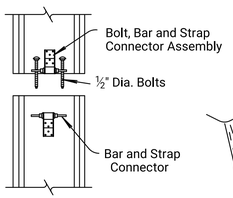


CONNECTION DETAIL
H-7 or H-10 BAND

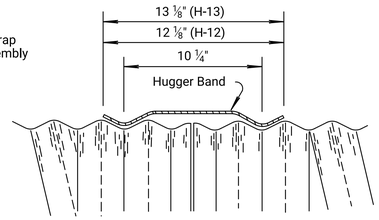


UNIVERSAL REFORMED END with
H-7 or H-10 HUGGER BAND

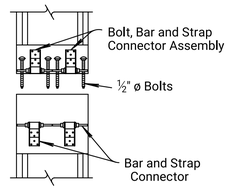
DETAILS FOR H-7 HUGGER BAND (12" thru 36")
or H-10 HUGGER BAND (12" thru 120")



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.

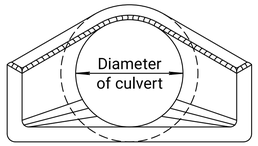
KDOT Graphics Certified 05-16-2022 Sh. No. 19

KDOT Graphics Certified

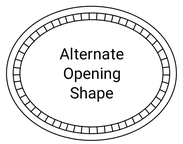
Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume 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.

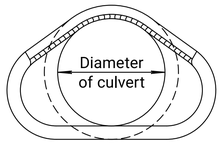
Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:20
File : ka570101rss660-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	20	93



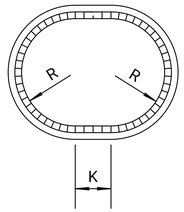
END ELEVATION (TYPE I)



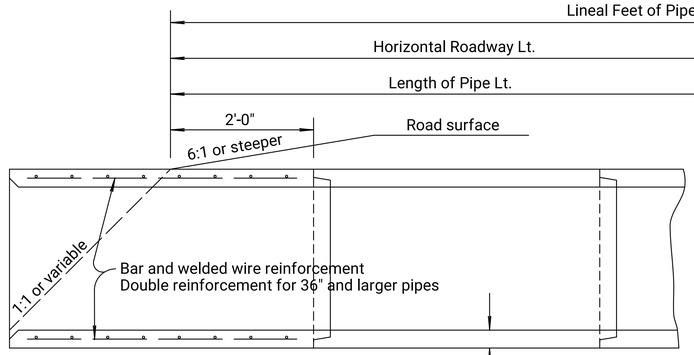


SECTION A-A

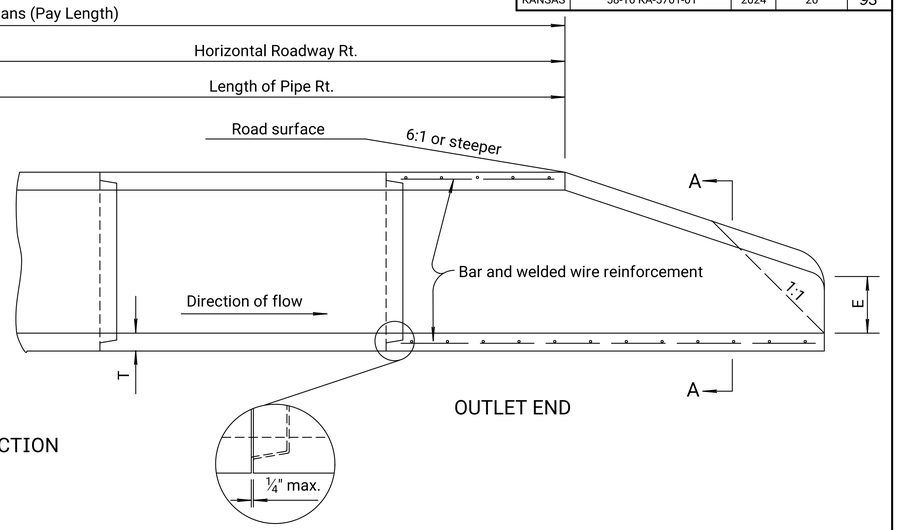
Showing rounding of inside edge of end section.



END ELEVATION
(TYPE III)



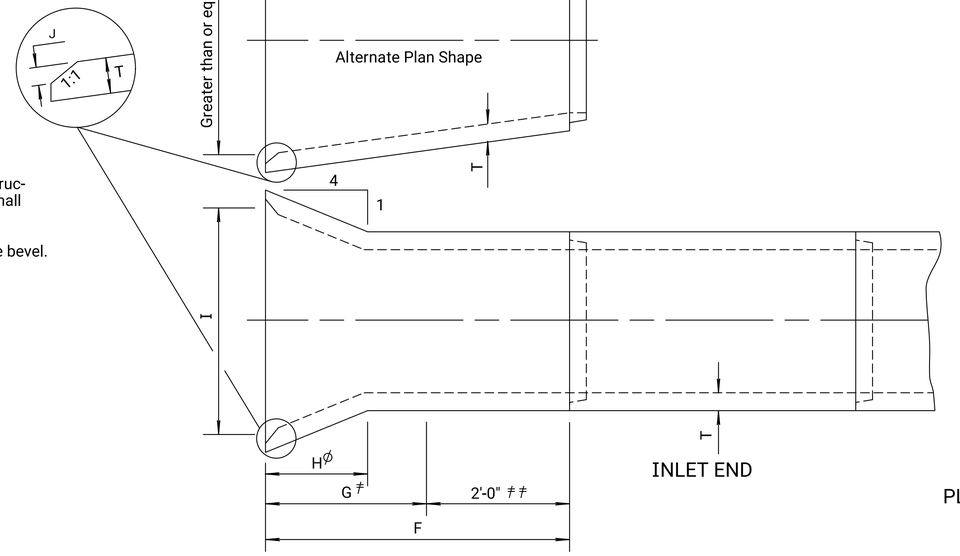
INLET END



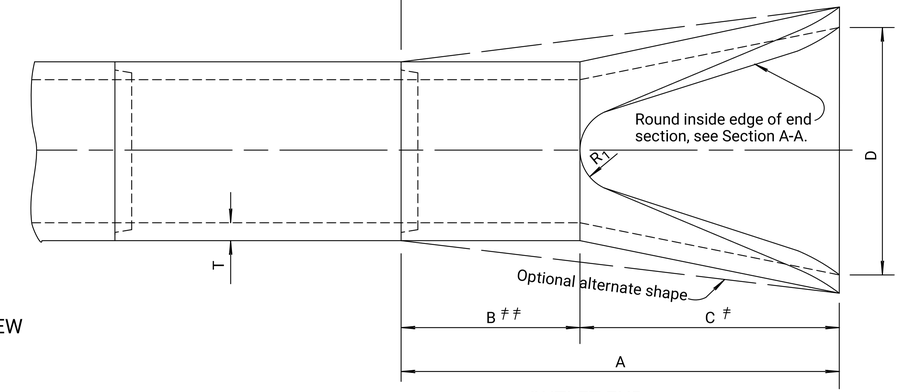
OUTLET END

ELEVATION SECTION

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



INLET END



PLAN VIEW

OUTLET END

∅ 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)

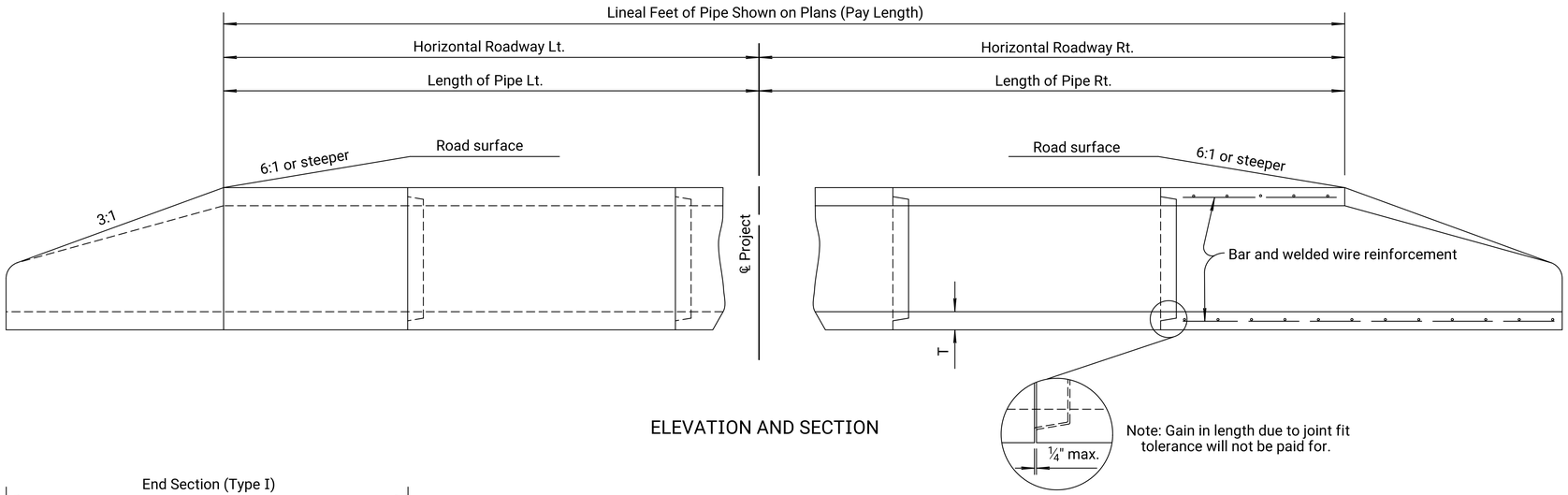
RD662

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. 20

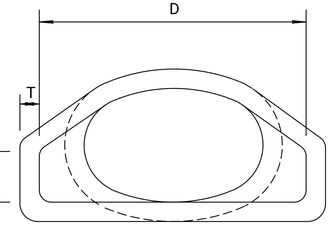
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	21	93

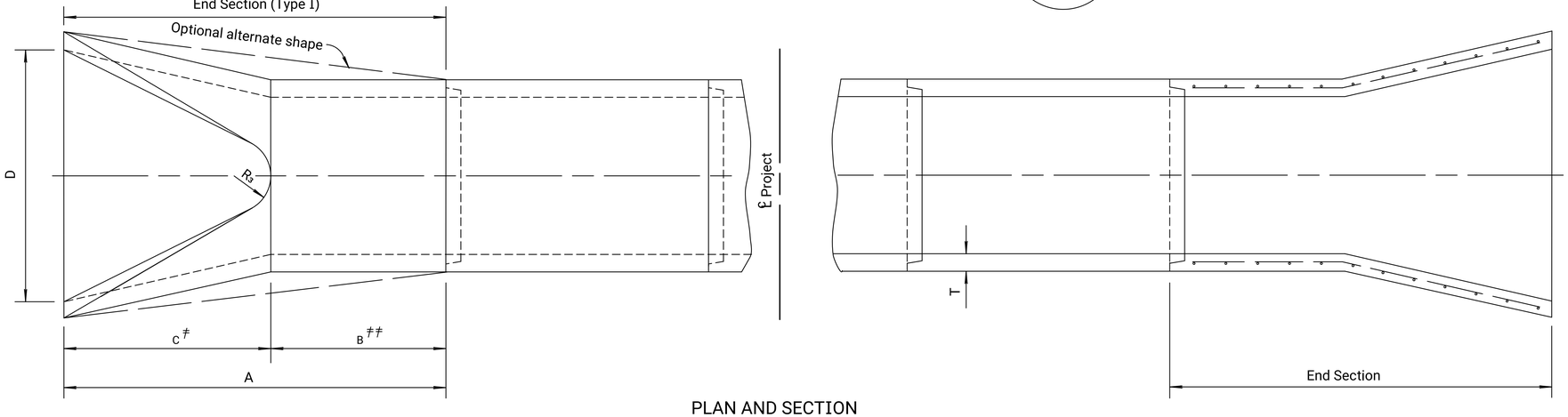


ELEVATION AND SECTION

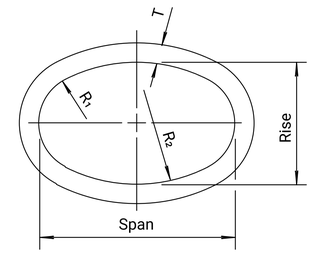
Note: Gain in length due to joint fit tolerance will not be paid for.



FLARED END SECTION ELEVATION



PLAN AND SECTION



END ELEVATION

END SECTION (TYPE I) NOMINAL DIMENSIONS													
Bid Designation Sq. Ft.	Equiv. Dia. (in.)	Min. W.W. Area Sq. Ft.	Span	Rise	Overall Length A	Barrel Length B ≠≠	C ≠	D	E	R_1	R_2	R_3	T
1.0 or 1.5	18"	1.8	23"	14"	6'-0"	3'-9"	2'-3"	3'-0"	8"	6"	20"	6"	2¾"
2.0, 2.5 or 3.0	24"	3.3	30"	19"	6'-0"	2'-9"	3'-3"	4'-0"	8½"	8¼"	26¼"	7"	3¼"
4.0	27"	4.1	34"	22"	6'-0"	2'-2"	3'-10"	4'-6"	9"	9¼"	29 17/32"	8"	3½"
5.0	30"	5.1	38"	24"	6'-0"	1'-6"	4'-6"	5'-0"	9½"	10¼"	32¾"	9"	3¾"
6.0	33"	6.3	42"	27"	6'-0"	1'-3"	4'-9"	5'-6"	10⅜"	11 7/16"	36 3/16"	10½"	3¾"
7.0	36"	7.4	45"	29"	8'-0"	3'-0"	5'-0"	6'-0"	11¼"	12¼"	39¼"	12"	4½"
8.5	39"	8.8	49"	32"	8'-0"	3'-0"	5'-0"	6'-3"	12"	13 9/16"	42 21/32"	12½"	4¾"
10.0	42"	10.2	53"	34"	8'-0"	3'-0"	5'-0"	6'-6"	15¾"	14¾"	46"	13"	5"
11.0 or 12.5	48"	12.9	60"	38"	8'-0"	3'-0"	5'-0"	7'-0"	21"	16½"	51¾"	14"	5½"
14.0 or 16.5	54"	16.6	68"	43"	8'-0"	3'-0"	5'-0"	7'-6"	25½"	18 21/32"	58 13/32"	16"	6"

≠ Paid for as separate item of "End Sections".

≠≠ Included in pay length of pipe.

Design of end section shall conform to standard reinforced concrete horizontal elliptical pipe. Slight variations in the dimensions specified will be allowed.

Note: Reinforced concrete pipe extensions are based on the surveyed end of pipe. Replacement of any additional pipe length required due to the removal of the existing end section will not be paid for directly, but will be subsidiary to the bid item "Removal of Existing Structures".

NO.	DATE	REVISIONS	BY	APP'D
04	05-17-13	Added Note, Pipe Extenstions Subsidiary	S.W.K.	J.O.B.
03	04-18-08	Added ref. to KDOT Pipe Policy	S.W.K.	J.O.B.
02	04-06-05	Revised reinforcement callout	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE END SECTION FOR REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE TYPE I

RD663

FHWA APPROVAL	09-04-14	APP'D.	Jame O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-16-2022 Sh. No. 21

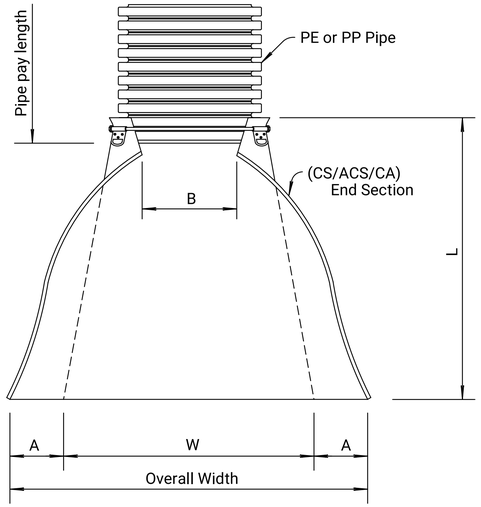
KDOT Graphics Certified

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.

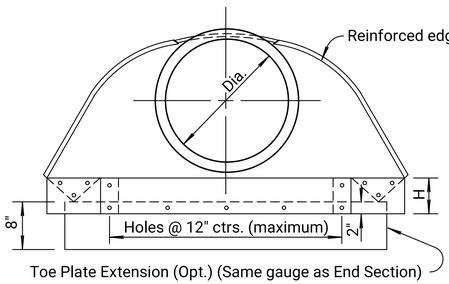
Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:16
File : ka570101rss663-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	22	93

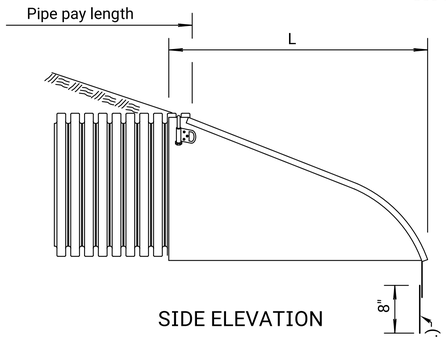
Note to Designer:
KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, PPP, SRPEP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design 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.



PLAN
(Illustrated with Type 2 Connector)

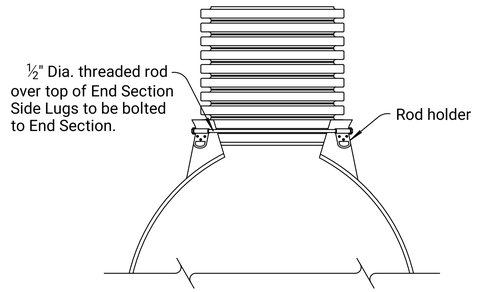


FRONT ELEVATION

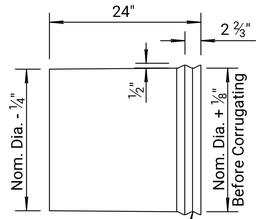


SIDE ELEVATION

✻ 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.

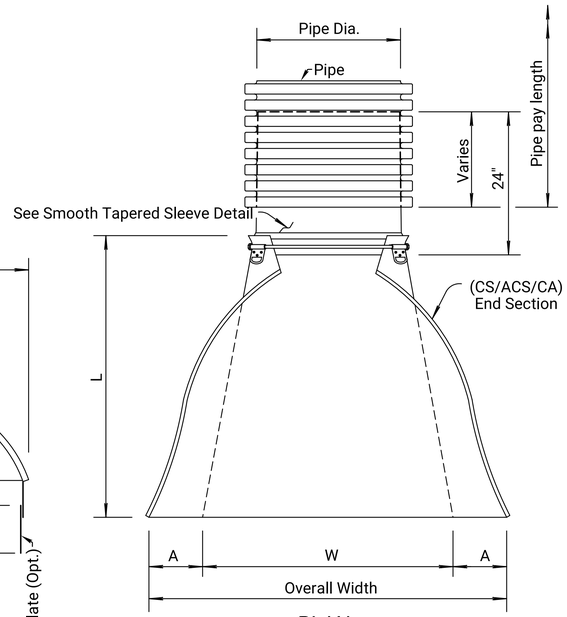


TYPE 2 CONNECTOR
(12" & Larger)

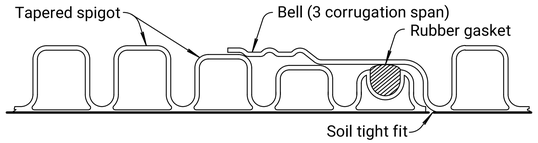


Form ½" x 2 ⅔" Corrugations in 12 ga. smooth CS (Galvanized) or ACS (Aluminized) metal, maintain inside diameter of sleeve.

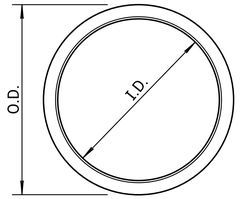
SMOOTH TAPERED SLEEVE DETAIL
(Required)



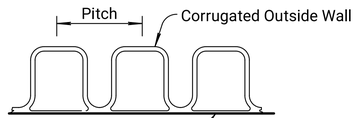
PLAN
TAPERED SLEEVE FOR ATTACHING
METAL END SECTION TO PE OR PP PIPE
(Illustrated with Type 2 Connector)



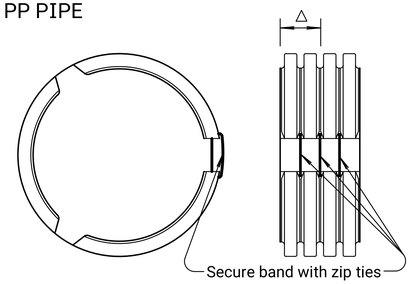
PE or PP PIPE BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT



DETAILS OF CORRUGATED
PE or PP PIPE

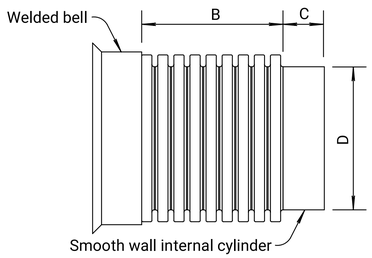


TYPICAL SECTION
CORRUGATED PE or PP PIPE



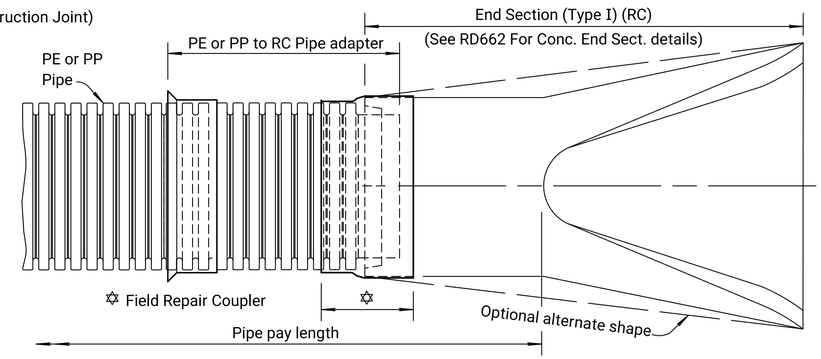
△ Two Full Corrugations (Minimum Overlap)

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			
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"



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

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".

(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

NO.	DATE	REVISIONS	BY	APP'D
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.

KANSAS DEPARTMENT OF TRANSPORTATION

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

RD667

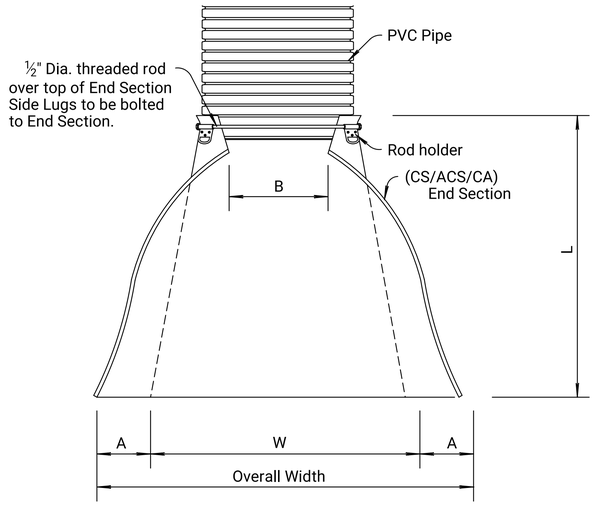
FHWA APPROVAL	06-08-22	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

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

KDOT Graphics Certified

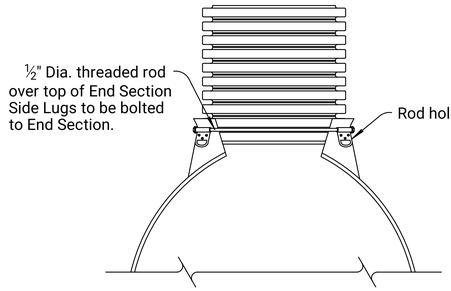
Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:16
File : ka570101rss667-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	23	93



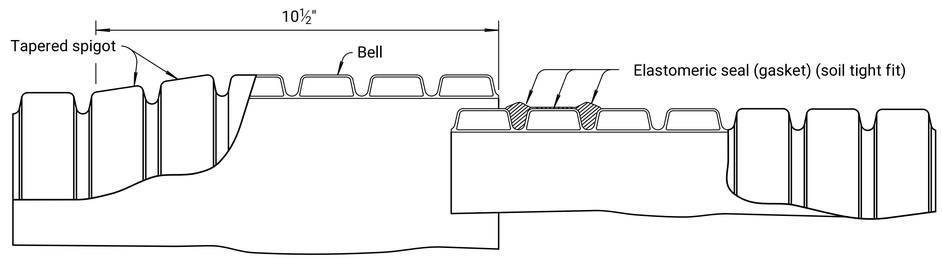
PLAN

(Illustrated with Type 2 Connector on 12" or larger)

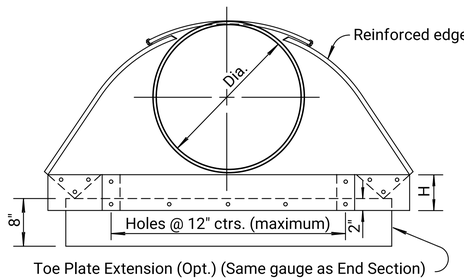


TYPE 2 CONNECTOR

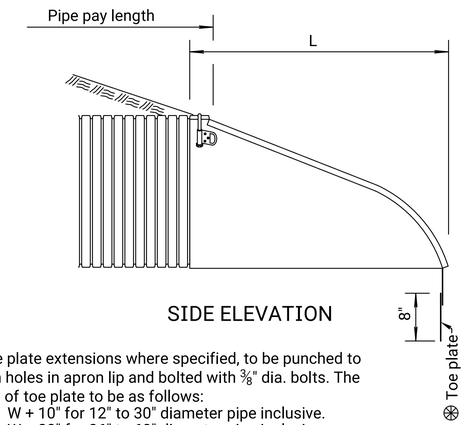
(12" & Larger)



PVC BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT

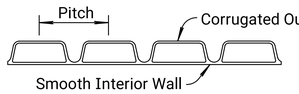


FRONT ELEVATION

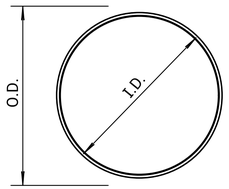


SIDE ELEVATION

⊛ 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.



TYPICAL SECTION
CORRUGATED PVC PIPE



DETAILS OF
CORRUGATED PVC PIPE

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 PVC pipe.

PVC pipe shall be joined with an integral bell gasket joint and Flexible Elastomeric Seals. PVC Pipe is available in lengths of 2.5' to 20'. PVC pipe can be field cut to length, cut through a corrugation valley using a hand or power saw. Gaskets are shipped loose and fitted on spigot/cut pipe end following Manufacturer's installation instructions.

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

All corrugated PVC pipe, end sections and fittings shall conform with the Standard Specifications.

See Standard Specifications for PVC 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.

The End Section attachment to PVC pipe shall be made with a Type 2 Connector for 12" or greater pipe size.

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

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

Pipe Dia. (In.)	Min. Gauge Ends	Dimensions in Inches					Slope
		A 1" Tol.	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

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 : Juliana.Martin@ks.gov 21-AUG-2024 14:19
File : ka570101rss667b-01.dgn

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

KANSAS DEPARTMENT OF TRANSPORTATION

METAL END SECTION
(TYPE I)
for PVC PIPE

RD667B

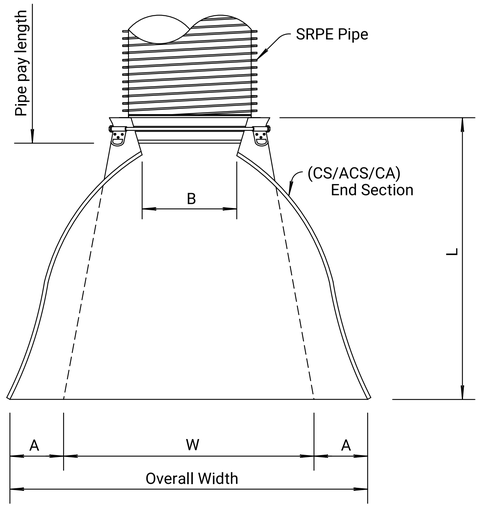
FHWA APPROVAL	06-27-08	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-16-2022 Sh. No. 23

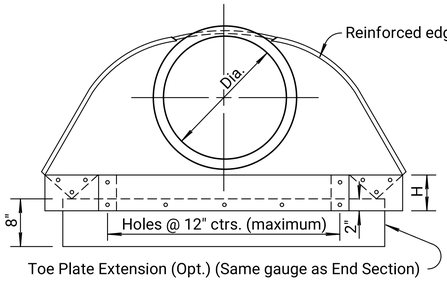
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	24	93

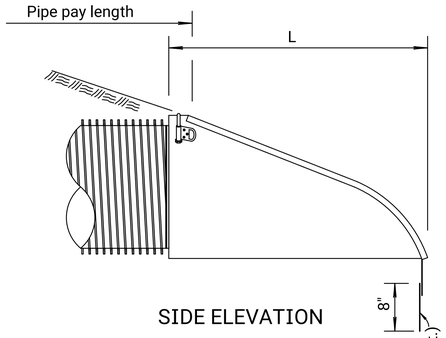
Note to Designer:
KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, PPP, SRPEP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design 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.



PLAN
(Illustrated with Type 2 Connector)

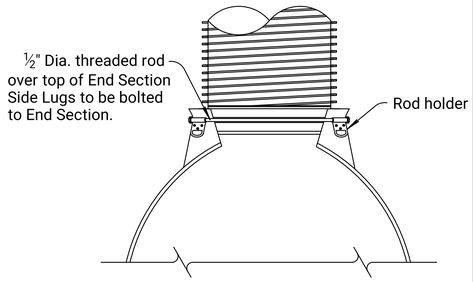


FRONT ELEVATION

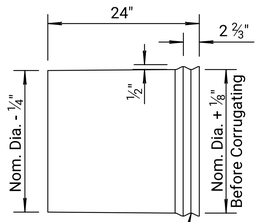


SIDE ELEVATION

⊛ 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.

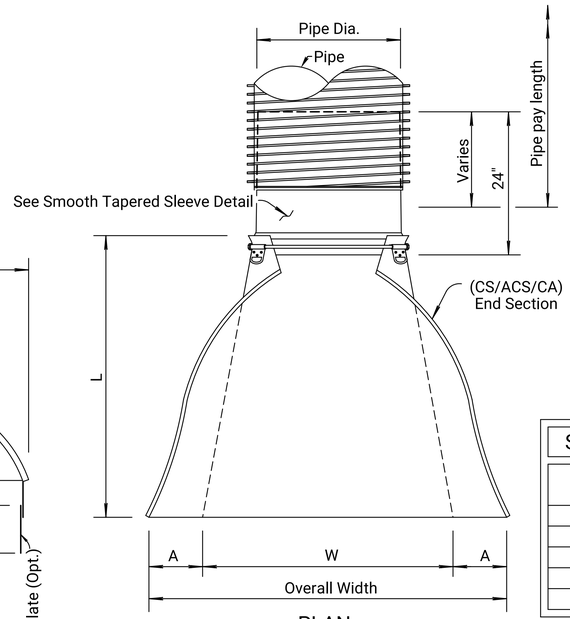


TYPE 2 CONNECTOR
(30" & Larger)

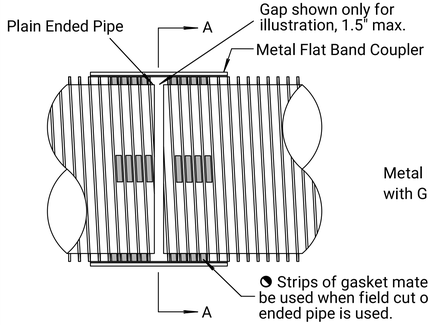


Form ½" x 2 ⅔" Corrugations in 12 ga. smooth CS (Galvanized) or ACS (Aluminized) metal, maintain inside diameter of sleeve.

SMOOTH TAPERED SLEEVE DETAIL
(Required)

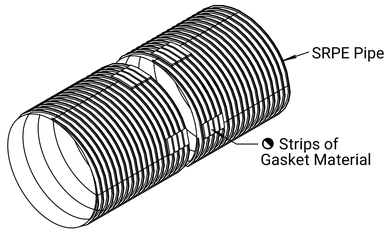


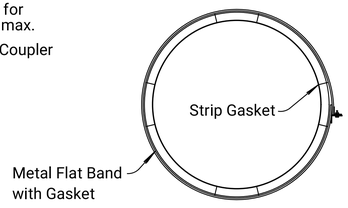
PLAN
TAPERED SLEEVE FOR ATTACHING
METAL END SECTION TO SRPE PIPE
(Illustrated with Type 2 Connector)



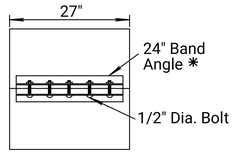
SIDE ELEVATION

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

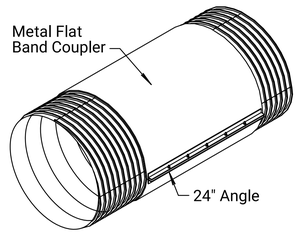




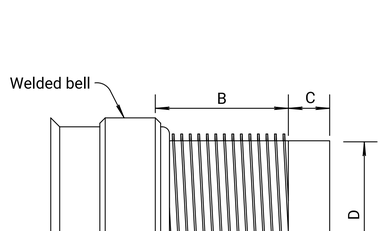
SECTION A-A



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



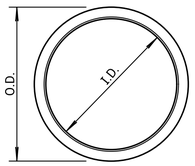
SRPE FLAT BAND COUPLER - SOIL TIGHT JOINT (Used for Field Splice Construction Joints)



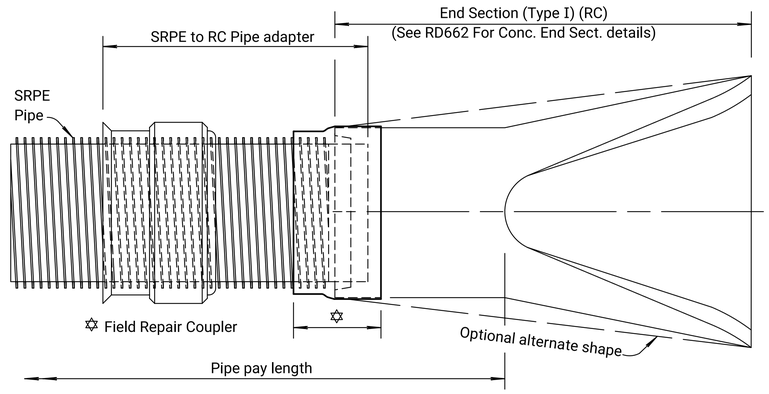
SRPE to RC PIPE ADAPTER

SRPE TO RC PIPE ADAPTER			
Pipe Dia. (In.)	B	C	D
30"	32 13/16"	6"	29.5"
36"	36 3/4"	6"	35.4"
42"	36"	6"	41.3"
48"	36 3/4"	6"	47.2"
60"	36"	6"	59.1"

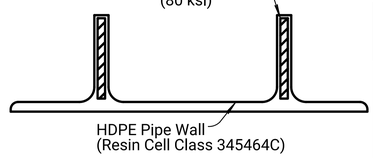
Pipe adapters are available up to 96" pipe diameter.



DETAILS OF
SRPE PIPE



(This installation is for Acidic Soil Conditions)



TYPICAL SECTION SRPE PIPE

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".

(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.

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 I) 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 07-17-2022 Sh. No. 24

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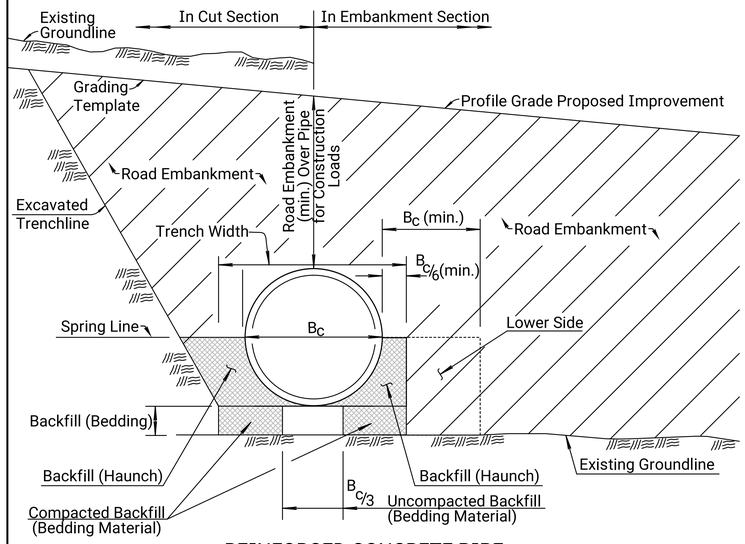
File : ka57010 1rss667D-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	25	93

Trench Constuction



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 $B_C + 24"$

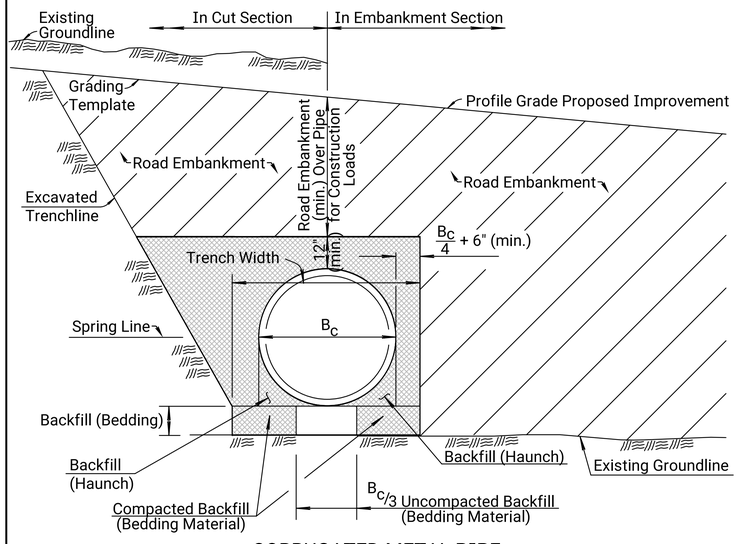
B_C: Outside Pipe Diameter

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.

Trench Constuction



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

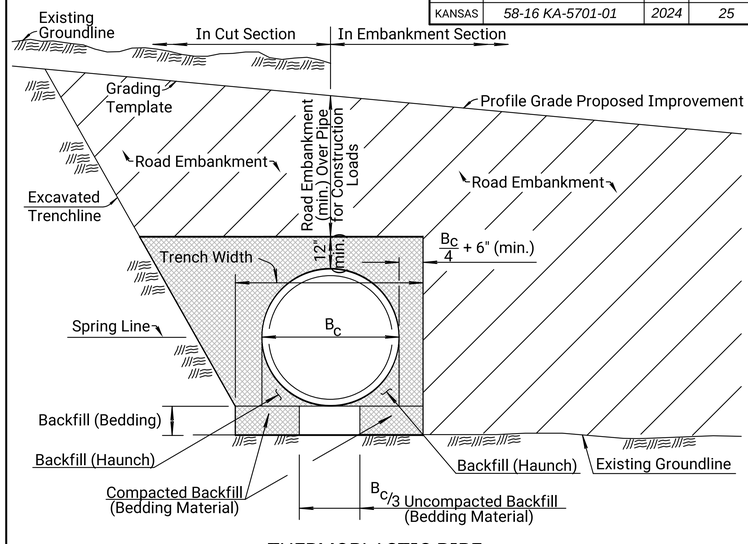
Trench Width: The minimum required trench width is the greater of:
$1.50 \times B_C + 12"$ or $B_C + 16"$

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.

Trench Constuction



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. 25

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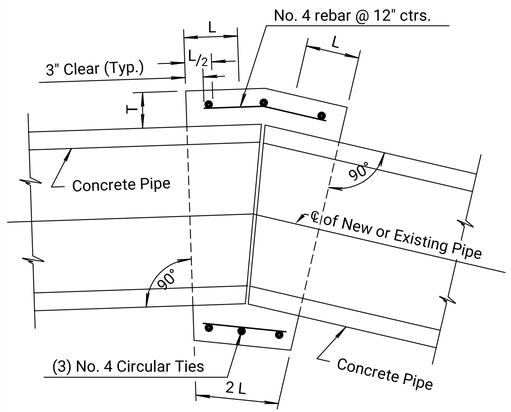
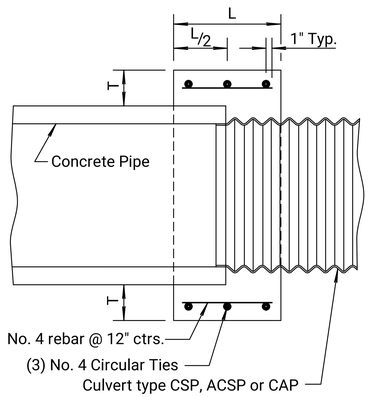


PIPE COLLAR AT CHANGE IN ALIGNMENT

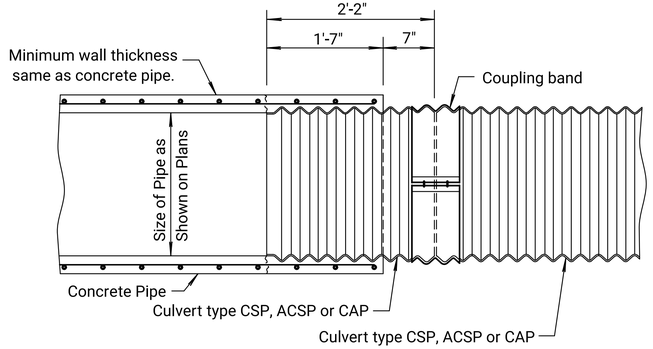
TYPE A COLLAR



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"

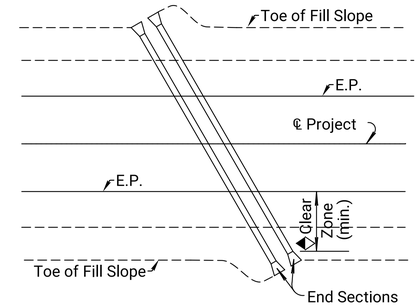


(CONCRETE PIPE CONNECTED TO CORRUGATED METAL PIPE)

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
KANSAS	58-16 KA-5701-01	2024	26	93



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".

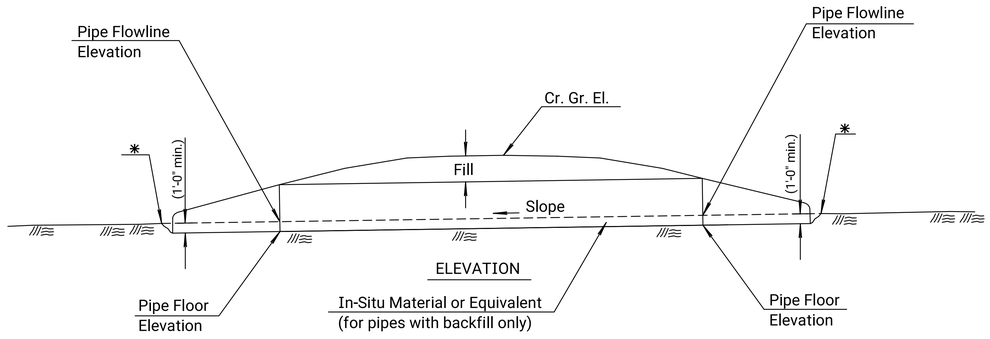
PIPE COLLARS

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.

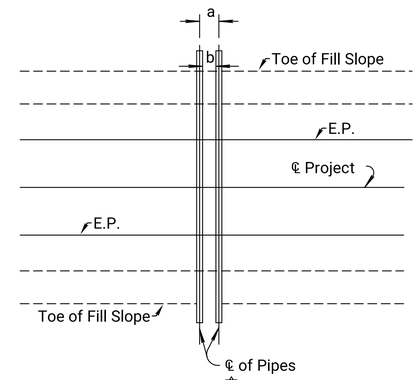
For pipes where the height or rise is less than or equal to 4'-0" install the pipe such that embedment will occur through natural sedimentation. See Pipe Embedment detail shown on this sheet.

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.



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

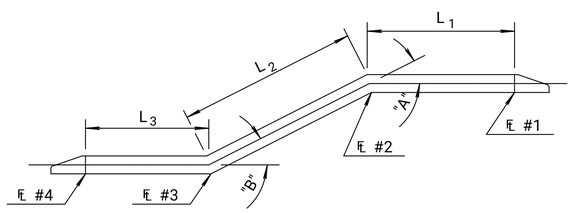
Type IV = W+ 2A

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



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	

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. 26

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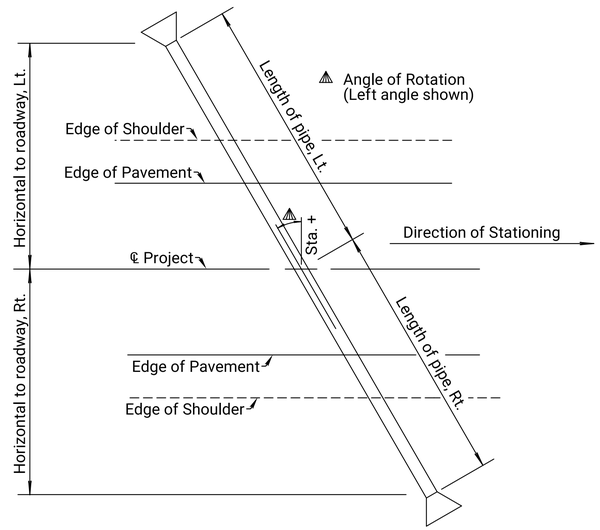
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	27	93

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
(K-58) 215+25.00 (Lt.)	E.P. (RCP, CAP, ACSP, PEP, PVCP, SRPEP, PPP)	24"	995.45'	986.66'	987.20'			12'	12'		42'	40'	82'	6'	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			X		
RCP			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.

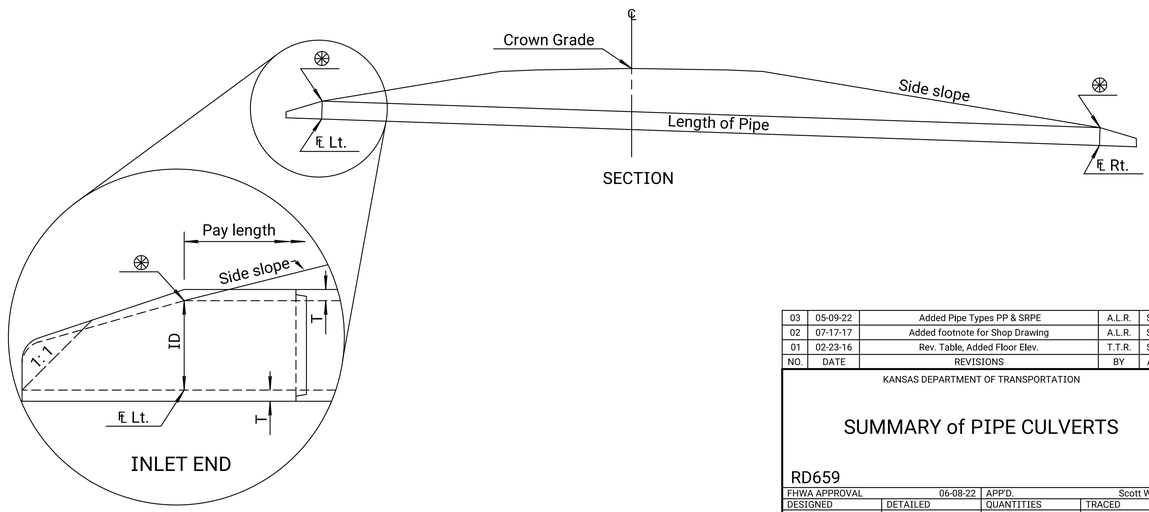
≈ For inside diameter: ≥ 30"

Type	ALLOWABLE END SECTIONS ◆ CS	◆ ACS	CA	RC
PVCP		X	X	⚲
PEP		X	X	X
PPP		X	X	X
SRPE		X	X	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.

⚲ Submit Shop Drawing of connection for review

⊛ Design side slope to intersect inside diameter of pipe outside of Clear Zone.



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 08-16-2024 Sh. No. 27

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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.

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	28	93

SUMMARY OF QUANTITIES

Item / Location	Excavation Class I Cu. Yds.	Concrete (Grade 4.0) (AE) (SW) Cu. Yds.	Concrete (Grade 4.0) (AE) Cu. Yds.	Reinforcing Steel (Grade 60) (Epoxy Coated) Lbs.	Reinforcing Steel (Grade 60) Lbs.	Piles (Steel) (HP12x53) * Lin. Ft.	Pre-Drilled Pile Holes Lin. Ft.	Drilled Shaft (54") (Cased) Lin. Ft.	Core Hole (Investigative) Lin. Ft.	Sonic Test (Drilled Shaft) (Set Price) Each	Bridge Backwall Prot. System Sq. Yds.	Abutment Strip Drain Sq. Yds.	◔Slope Protection (Riprap Stone) Cu. Yds.	Bridge Deck Grooving Sq. Yds.
Abutment No. 1	61.7	**		**		195	175				21.0	18.0	518	
Pier No. 1			2.9		1,370			123	46					
Pier No. 2			2.9		1,370			108						
Pier No. 3			2.9		1,370			108	41					
Abutment No. 2	61.8	**		**		230	210				21.0	18.0	564	
Substr. Total	124		8.7		4,110	425	385	339	87	1	42	36	1,082	
Superstr. Total		846.0		220,940										905
Total	124	846.0	8.7	220,940	4,110	425 †	385	339	87	1	42	36	1,082	905

** Quantities are included in the Superstr. Total Quantity.

† Summary of Piling
Abutment No. 1 5 @ 39'
Abutment No. 2 5 @ 46'

* NOTE: Only Gr. 50 steel pile HP12X53 shall be used on this project.

◔Gradation shall meet the requirements of Heavy Series ¼ton class.

TRAFFIC DATA - (062)	
AADT (2024)	1,000
AADT (2044)	1,200
DHV	11%
D	60/40
T	12%

LFD & LRFR RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HS-20 (36T)	1.86	3.11
Type HET (110T)	X	1.67
2002 LFD Rating. 17th Edition AASHTO		
HL-93 Loading	1.56	2.02
2018 Manual for Bridge Evaluation		

INDEX TO BRIDGE DRAWINGS	
Sheet No.	Drawing
28	General Notes and Quantities
29	Contour Map
30	Construction Layout
31	Engineering Geology
32	Abutment Details
33	Abutment Strip Drain
34	Drilled Shaft Details
35	Pier Details
36	Superstructure Details
37	Slab Details
38	Slab Elevations
39	Corral Rail Details
40	Bill of Reinforcing Steel and Bending Diagrams
	Standards
41	Bridge Excavation
42	Standard Pile Details
43	Supports and Spacers for Reinforcing Steel

CONTRACTOR CONSTRUCTION STAKING: Contractor Construction Staking for clear span bridges requires two independent surveys. See KDOT Specifications.

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.

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: Elevation 980.00 shall designate the Excavation Boundary Plane of Class I and Class II Excavation; Class I above the plane, Class II below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

BACKFILL COMPACTION: Compact backfill at the abutments.

PILING: Drive all piling to penetrate or bear upon the Weston Shale Member 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	101.3 Tons
Abutment No. 2	101.3 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.

PRE-DRILLING: All steel piles in Abutment No. 1 shall be pre-drilled to elevation 957.00. All steel piles in Abutment No. 2 shall be pre-drilled to elevation 950.40. Piles shall be set and driven into the Weston shale member to computed bearing value shown. After driving the holes shall be backfilled with 3.0 feet of commercial grade concrete followed by loose sand.

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for, Abutments No.1 & 2 will follow the "Standard Pile Details" Sheet (BR110). Casing will not be needed for pre-drilled holes.

ABUTMENT STRIP DRAIN: See the General Notes on the "Abutment Strip Drain" sheet.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Strip Drain" sheet.

BROKEN CONCRETE: Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer.

REMOVAL OF EXISTING STRUCTURE: Removal of existing structure is included in the bid item, "Removal of Existing Structures", Lump Sum. All materials removed from the existing structure shall become the property of the Contractor. Remove this material from the site.

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thicknesses shown on the plans or as directed by the Engineer. Stone for riprap will be Heavy Series ¼ton per Spec 1114.

DRIP LINE PROTECTION: Place a 10 foot wide mat of geotextile under the rock/rubble embankment on the berm and berm slopes and centered on the drip lines of the slab.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SW). Substructure concrete is bid as Concrete (Grade 4.0)(AE). The Contractor may use Concrete (Grade 4.0) in the footings. 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 A82, and are included in the bid item "Reinforcing Steel (Gr. 60)".

CAMBER: Provide camber as shown on the Camber Diagram unless the Contractor uses either long span steel beam falsework (concrete dead load deflection greater than ¼") or timber falsework with greater than 12'-0" clear span. If either case exists, submit falsework plans that show the additional required camber.

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 2" by KDOT specifications. If falsework deficiencies or variations from the approved and sealed plans are found, the falsework design Engineer of Record will provide written approval of the changes. If for the convenience of the Contractor the falsework becomes "Category 1" by the use of non-typical supports; then the inspection and review requirement of "Category 1" will be fully enforced, but at no cost to the State. "Category 2" falsework inspection is not paid for directly, but is subsidiary to other bid items.

DEMOLITION PLANS: This is a Category A Demolition. Submit detailed Demolition Plans to the Field Engineer per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

FALSEWORK: Leave the falsework in place for the entire unit until 15 days after the last concrete pour for the unit or longer as directed by the Engineer.

CORRAL RAIL: Build the corral rail after the falsework is struck.

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)(SW)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

CONSTRUCTION LOADS: Only foot traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the seven day curing period, keep any exposed deck wet during the 7-day curing period. See KDOT Specifications Section 710 Table 710-2.

SLAB ELEVATIONS: The Contractor shall record elevation readings on the "Slab Elevations" sheet in the table at locations designated by a "(2)" and submit the sheet to the Engineer.

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.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

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.

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.

PAINT SYSTEM ON EXISTING STRUCTURE: The structural steel has a paint history of:
1) Original paint system: Unknown, Date: Unknown
2) Repaint system Inorganic Zinc Vinyl, Date: 1992
3) TCLP value is 2.025mg/L, Report Date: Oct 20, 2021
4) The weight of existing bridge steel is 61.9 pounds.
5) Paint Area: Unknown

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: 0%

Date of Report: Oct 11, 2021

For any result above greater than 1%, abatement shall be performed according to KDOT Specifications. Results less than 1% require no abatement.

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 (54")". 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.

PERMANENT CASING: See KDOT Specifications.

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.

DRILLED SHAFT BACKFILL: Backfill the annular space between the temporary casing and the permanent casing with granular material as defined in the KDOT Specifications.

DESIGN DATA

DESIGN SPECIFICATIONS:
AASHTO Specifications, 2007 Edition and latest 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)(SW)	f'c	=	4 ksi
Reinforcing Steel (Grade 60)	fy	=	60 ksi
Steel Piles	fy	=	50 ksi

LRFD DESIGN PILE LOAD:

Design Loading (Tons/Pile)		Strength I	Service I	Phi
Abutment	No. 1 & 2	101.3	65.1	0.55

LRFD DESIGN DRILLED SHAFT LOAD:

Design Loading (Tons/Shaft)	Strength I	Service I	Phi
Pier No. 1, 2, & 3	547.7	400.7	End Bearing 0.45 Side Friction 0.50

NO.	DATE	REVISIONS	BY	APP'D
7	2/3/22	Made NOT3130 & NOT3140 default	MLL	MAH
6	10/19/15	Added Asbestos NOT8221 Option	JPJ	CER
5	2/4/15	Modified Per 2015 Specification	JPJ	CER
4	4/7/14	Current Release	JPJ	CER
3	2/12/14	Added Benchmark	JPJ	CER
2	08/2/12	ADDED NOT3135 & NOT3145	JPJ	TLF

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

GENERAL NOTES AND QUANTITIES

Proj. No. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH	CADD	AJH
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

KDOT Graphics Certified 12-04-2024

Sheet No. 28

Std. Base File:
Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ka5701-01bbr001.dgn
Plot Date: 05-DEC-2024 20:20

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	29	93

POT Sta. 195+00.00
N 485273.683E 19599854.420
1. Set ½" x 12" rebar 0.3' deep
2. TW of private ent to North 61.0' E
3. RR spike in pp BM 103.2' SE
4. In TW of K-58 Hwy

POT Sta. 208+00.00
N 485273.009E 19601154.420
1. Set ½" x 12" rebar
2. Conc. nail & KDOT wshr N face of power pole 78.4' SW
3. TW of ent to South 174.8' W
4. In TW of K-58 Hwy

POT Sta 214+00.00
N 485272.698E 19601754.420
1. Set ½" x 12" rebar 0.3' deep
2. Conc. nail & KDOT wshr E face of power pole 100.5' NNW
3. TW of private ent to N12.0' W
4. In TW of K-58 Hwy

POT Sta. 223+20.08
N 485272.221E 19602674.497
1. Nothing found, nothing set

POT Sta. 226+00.00
N 485272.075 E 19602954.420
1. Set ½" x 12" rebar 0.3' deep
2. TW of private ent to North 100.5' E
3. Conc. nail & KDOT wshr W. face of post 72.7' SSE
4. In TW of K-58 Hwy

Scale: 1" = 50'-0"

Sta. 210+95.00 CONSTRUCT
Br. No. 58-16-33.3 (062)
54'-72'-72'-54' Reinforced Concrete
Slab Continuous, Haunched (RCSH)
36' Roadway

Kevin J. Ohl
S½ SE¼,
Sec. 35 T22S, R16E

+90.00 Ex. Perm. Esmt.
290.00' ℄

+65.00 Ex. Perm. Esmt.
290.00' ℄

+50 Ex. R/W
160.00' ℄

+50 R/W =
Exist. R/W
135.00' ℄

+90.05 Exist. R/W =
Ex. Perm. Esmt.
100.10' ℄

+90 R/W =
Exist. R/W
135.00' ℄

+65.00 Exist. R/W =
Ex. Perm. Esmt.
100.00' ℄

+85 Temp. Esmt. =
Exist. R/W 100.00' ℄

+00 Temp. Esmt.
160.00' ℄

Temp. Esmt.

+50 Temp. Esmt.
160.00' ℄

+25 Temp. Esmt. =
Exist. R/W 100.00' ℄

+49.96 Ex. R/W
100.02' ℄

Exist. R/W

R/W

Ex. Perm. Drainage Esmt.

Exist. P.E. Drainage

Crooked Creek

Fiber Optic Cable Century Link

K-58 Const. Limits

Sec. Line

℄ Prop. K-58 = ℄ Project = ℄ Bridge = Cr. Grade

+30 R/W =
Exist. R/W
60.00' ℄

+50 R/W
120.00' ℄

+90 Exist. R/W =
Ex. Perm. Esmt.
60.00' ℄

+00 Exist. R/W =
Ex. Perm. Esmt.
60.00' ℄

+60 R/W
90.00' ℄

+50 R/W =
Exist. R/W
60.00' ℄

Old Channel

SEKOR, LLC
NE¼,
Sec. 2 T23S, R16E

SEKOR, LLC
NE¼,
Sec. 2 T23S, R16E

O.W. G.P. D.M.

Sta. 210+95.00 REMOVE
Exist Br. No. 58-16-33.3 (043)
55'-65'-65'-55' Steel Beam
Continuous Spans (SBMC)
24' Roadway

Ex. Perm. Drainage Esmt.

Exist. P.E. Drainage

Ex. Perm. Drainage Esmt.

Historic Highwater Information

Mr. Derrick Shannon, KDOT Iola Area Superintendant with 19 years of knowledge of the site, stated that water has never gone over the highway but noted that it reached pavement. It was also noted that NW ditch holds water when storms go through, and the SW field has flooded when Crooked Creek has flooded. Estimated Historic Highwater Elev. noted at 996.50 on KDOT Survey Notes.

Elevations shown are to the NAVD 1988 vertical datum.

Utility Owners

Century Link
Fiber Optic and Cable Line
Locator: Kenneth Miner
(913) 305-6679

Colt Energy

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 58-16-33.3 (062) Sta. 210+95.00

CONTOUR MAP
K-58 over Crooked Creek

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES		CADD	ECM
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

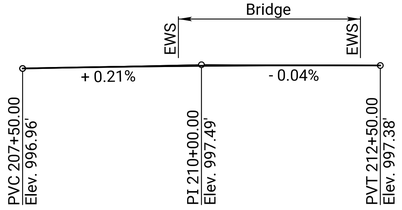
KDOT Graphics Certified 12-04-2024

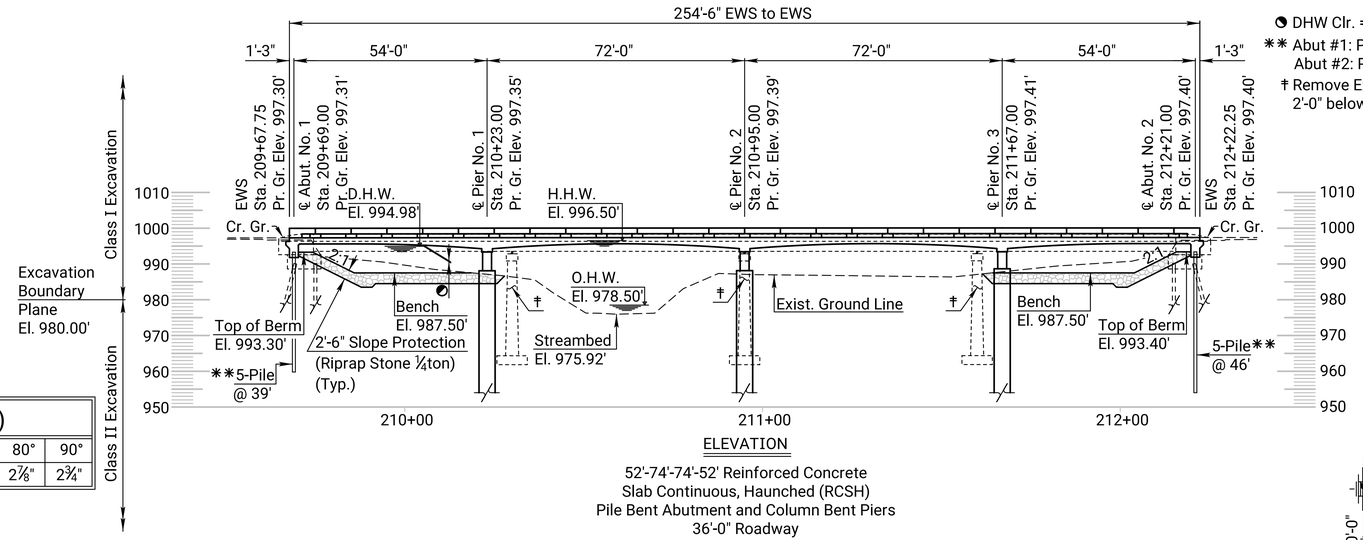
Sheet No. 29

KDOT Graphics Certified

Plotted: Andrew.Haase@ks.gov
File: ka5701101bbr003.dgn
Plot Date: 05-DEC-2024 20:20
Plot Location: Bridge

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	30	93





ELEVATION

52'-74'-74'-52' Reinforced Concrete
Slab Continuous, Haunched (RCSH)
Pile Bent Abutment and Column Bent Piers
36'-0" Roadway

◔ DHW Clr. = 4"
** Abut #1: Pre-drill to El. 957.00'
Abut #2: Pre-drill to El. 950.40'
† Remove Existing Structure 2'-0" below ground line

DRAINAGE DATA

Drainage Area	40.1 sq. mi.
Design Frequency	50 yrs
Design Discharge (Q50)	14,600 cfs
Design High Water Elevation	994.98 ft.
Change In Design Backwater	- 0.48 ft.
Design Backwater Elevation	995.75 ft.
Overtopping Elevation (Sta. 203+91.00)	996.48 ft.
Overtopping Discharge	17,400 cfs
Overtopping Frequency	100 yrs
Discharge at Q100	17,400 cfs
Change in Backwater at Q100	- 0.65 ft.
Backwater Elevation at Q100	996.83 ft.
Historic High Water Elevation	996.50 ft.
Ordinary High Water Elevation	978.50 ft.
Total Waterway Provided	2,126 sq. ft.
Design Waterway Provided	1,965 sq. ft.
Estimated Ordinary High Water Discharge	400 cfs
Change in Waterway Opening	+ 450 sq. ft.

EXPANSION JOINT WIDTH DETAILS (W2)

℉ Temperature (F°)	40°	50°	60°	70°	80°	90°
Formed Concrete Opening Size	3¼"	3⅜"	3"	2⅞"	2⅞"	2¾"

℉ Average Ambient Temperature over previous 24 hours.

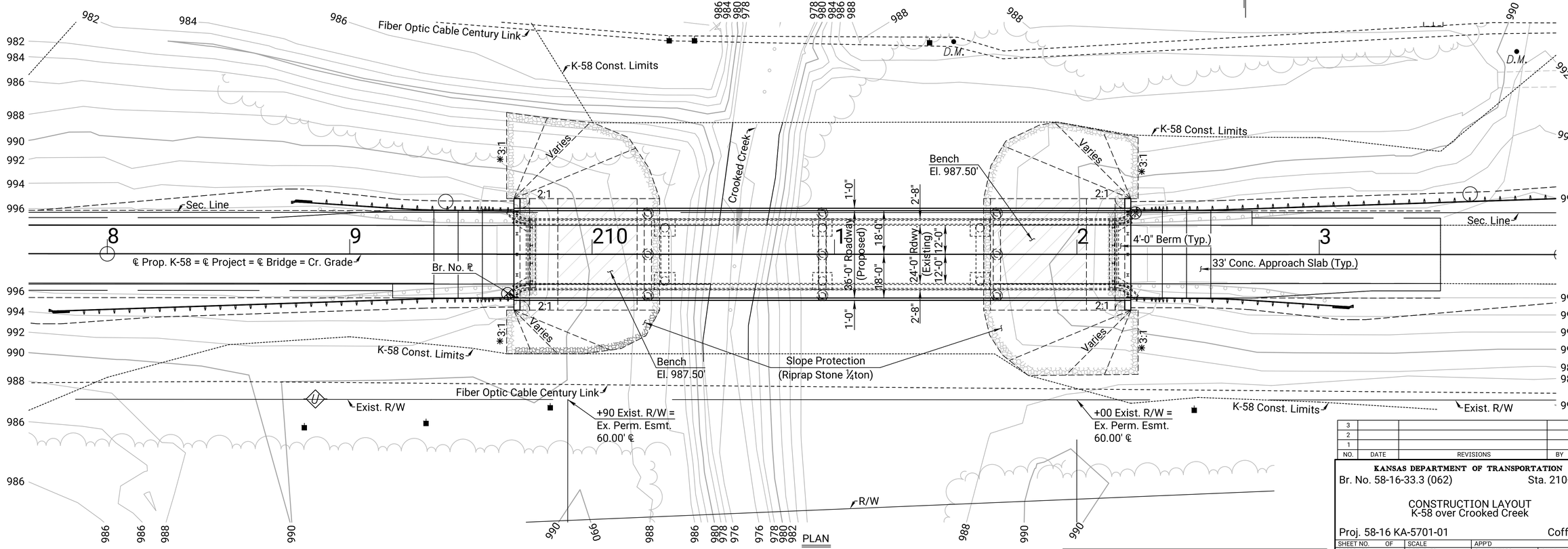
B.M. # 11- Set chiseled '◒' cut SW Cor. S. hubguard of bridge Rt. 16.29' Sta. 209+65.15 Elev. = 997.62

B.M. # 12- Set chiseled '◒' cut NE Cor. N. hubguard of bridge Lt. 17.14' Sta. 212+24.06 Elev. = 997.52

B.M. # 13- ℄ Top of conc. R/W marker post Rt. 59.61' Sta. 222+79.92 Elev. = 1001.99

Scale: 1" = 20'-0"

*See cross-sections for transition to normal section.



Elevations shown are to the NAVD 1988 vertical datum.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

CONSTRUCTION LAYOUT
K-58 over Crooked Creek

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH	CADD	ECM
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

KDOT Graphics Certified 12-05-2024

Sheet No. 30

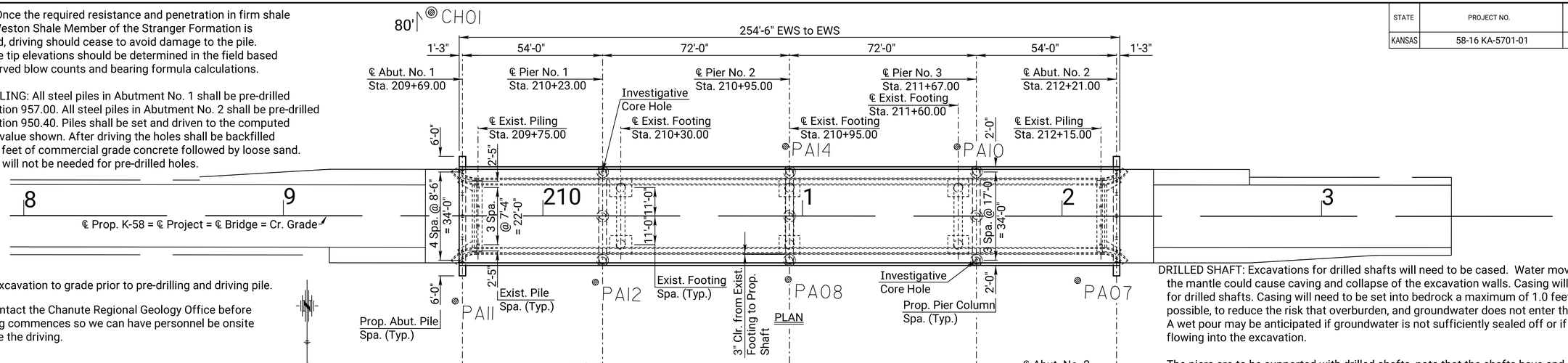
KDOT Graphics Certified

Plotted: Andrew.Haase@ks.gov
File: ka5701101bbr0004.dgn
Plot Date: 05-DEC-2024 20:20
Plot Location: Bridge

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	31	93

PILING: Once the required resistance and penetration in firm shale of the Weston Shale Member of the Stranger Formation is achieved, driving should cease to avoid damage to the pile. Final pile tip elevations should be determined in the field based on observed blow counts and bearing formula calculations.

PRE-DRILLING: All steel piles in Abutment No. 1 shall be pre-drilled to elevation 957.00. All steel piles in Abutment No. 2 shall be pre-drilled to elevation 950.40. Piles shall be set and driven to the computed bearing value shown. After driving the holes shall be backfilled with 3.0 feet of commercial grade concrete followed by loose sand. Casings will not be needed for pre-drilled holes.



Prepare excavation to grade prior to pre-drilling and driving pile.

Please contact the Chanute Regional Geology Office before pile driving commences so we can have personnel be onsite to observe the driving.

NOTE: Only Gr. 50 steel pile HP12X53 shall be used on this project.

Scale 1" = 10'

DRILLED SHAFT: Excavations for drilled shafts will need to be cased. Water movement within the mantle could cause caving and collapse of the excavation walls. Casing will be required for drilled shafts. Casing will need to be set into bedrock a maximum of 1.0 feet, less, if possible, to reduce the risk that overburden, and groundwater does not enter the rock socket. A wet pour may be anticipated if groundwater is not sufficiently sealed off or if there is water flowing into the excavation.

The piers are to be supported with drilled shafts, 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.

Shale of the Weston Shale Member could degrade rapidly in the presence of air and water. Place the reinforcing steel and concrete no more than eight (8) hours from completion of the excavation of the shaft to minimize the exposure time of the shale to air and groundwater.

STANDARD GEOLOGIC SYMBOLS

- Clay or Underclay
- Silty Clay
- Silt
- Sand
- Gravel
- Boulders
- Caliche
- Silty or Clayey Shale
- Limy Shale
- Black or Fissile Shale
- Sandy Shale
- Gypsiferous Shale
- Weathered Shale
- Sandstone
- Shaly Sandstone
- Gypsum bed
- Dolomite
- Cross-bedded Sandstone
- Limestone
- Cherty Limestone
- Shaly Limestone
- Sandy Limestone
- Bentonite
- Loess
- Mortarbed
- Coal
- Siltstone
- Chalk
- Wavy limestone
- Chalky limestone

SOUNDINGS

- Core drill
- Power auger
- Hand tools
- Cone (CPT) penetrometer
- Shelby tube
- Water level 02/2023

GEOLOGIC PROFILE

- 000.0 Elevation interpolated or from adjacent soundings
- 000.0 Actual sounding elevation

UNCONFINED COMPRESSION TEST: Elevation; Tons/sq. ft. (000.0 00, 000.0 00)

STANDARD PENETRATION TEST: Elevation; Blows/ft. (000.0 00, 000.0 00)

CONE (CPT) PENETROMETER TEST Scale: N60: Graphic representation of Cone Penetration Test in N60 (0, 100, 200, 300, 400)

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.

NO.	DATE	REVISIONS	BY	APP'D
4				
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

ENGINEERING GEOLOGY
K-58 over Crooked Creek

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D	
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH CADD
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW CADD CK.

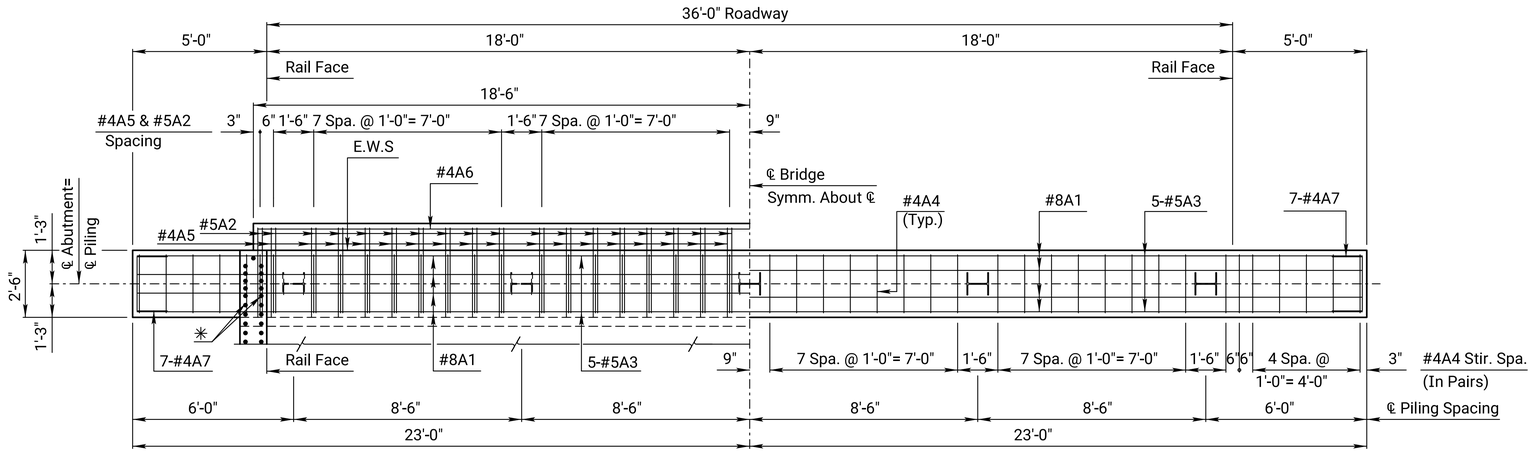
KDOT Graphics Certified 12-02-2024

Sheet No. 31

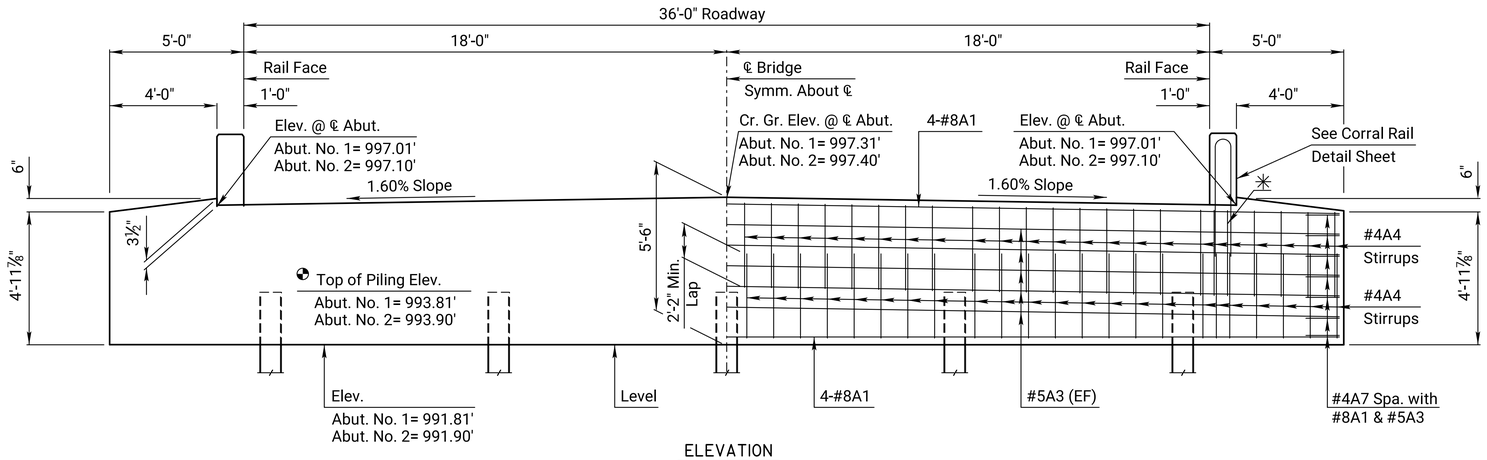
KDOT Graphics Certified

Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ks5701101bbr005.dgn
Plot Date: 05-DEC-2024 20:20

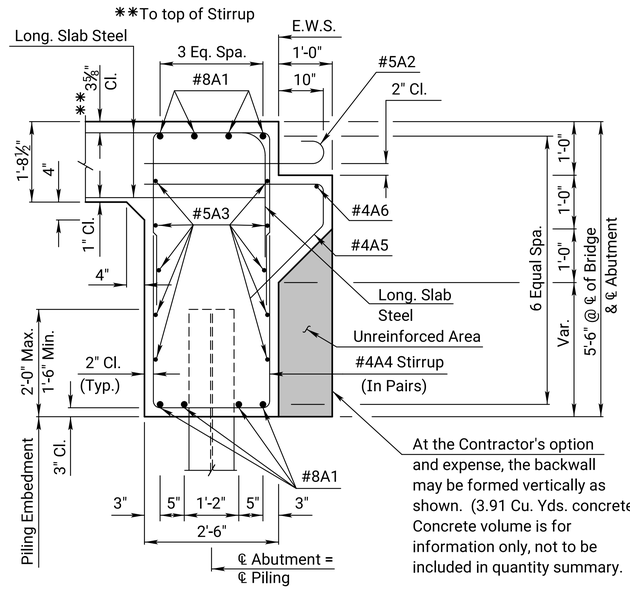
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	32	93



PLAN

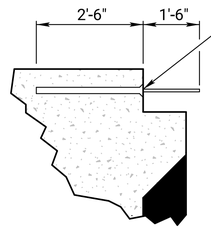


ELEVATION
(Along ℄ Abutment)



At the Contractor's option and expense, the backwall may be formed vertically as shown. (3.91 Cu. Yds. concrete) Concrete volume is for information only, not to be included in quantity summary.

TYPICAL SECTION



Reinforcing Steel Mechanical Splice. See KDOT Specifications.

APPROACH SLAB TIE BAR OPTION

The Contractor has the option (at no additional cost to the State) of substituting a mechanically spliced reinforcing bar of the same size for any or all of the cast-in-place approach slab tie bars.

*Adjust stirrup to avoid conflict with rail bars.

Legend

EF= Each Face

Note: Top of piling elevations are based on 2'-0" maximum embedment.

NO.	DATE	REVISIONS	BY	APP'D
4	7/29/09	Remove Factored Resistance	DRT	KFH
3	03/24/09	Add Factored Resist.to Pile Loading	DRT	KFH
2	3/6/07	correct Abut. Dim.'A' for 54-72-54	DRT	KFH
1	4/6/06	Adj. Abut. Vol. & DL	DRT	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

ABUTMENT DETAILS

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	DRT	DETAILED	DRT	QUANTITIES	DRT	CADD	RCJ
DESIGN CK.	DNJS	DETAIL CK.	TJS	QUAN. CK.	TJS	CADD CK.	CJW

KDOT Graphics Certified 12-02-2024

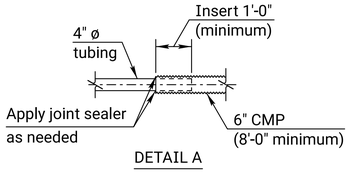
Sheet No. 32

KDOT Graphics Certified

Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ka57010\bbr006.dgn
Plot Date: 05-DEC-2024 20:20

hstab-lrfd\br502.dgn	
LRFD	
Roadway Width	= 36'-0"
Skew and Direction	= 0
Number of Piles	= 5

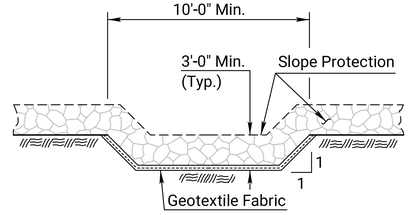
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	33	93



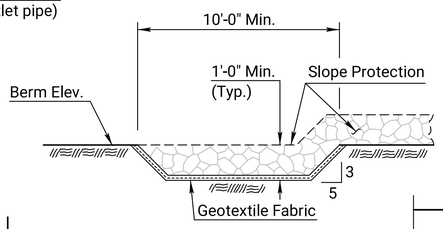
DETAIL A

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.

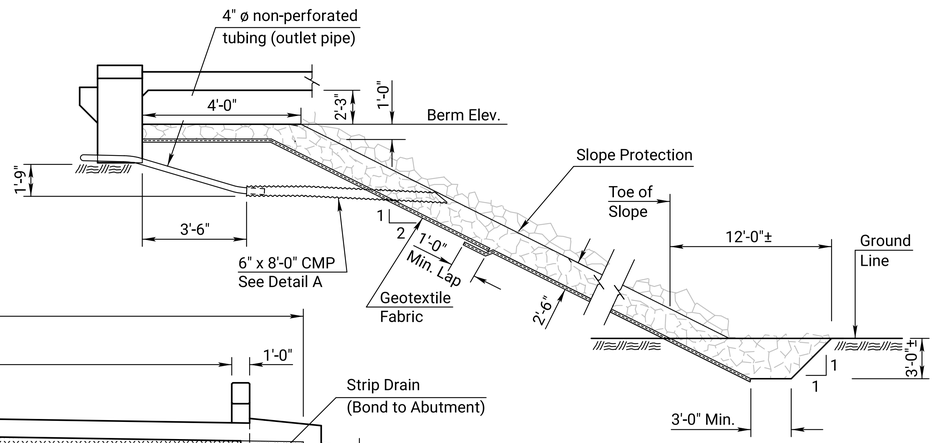
PLAN



SECTION D-D

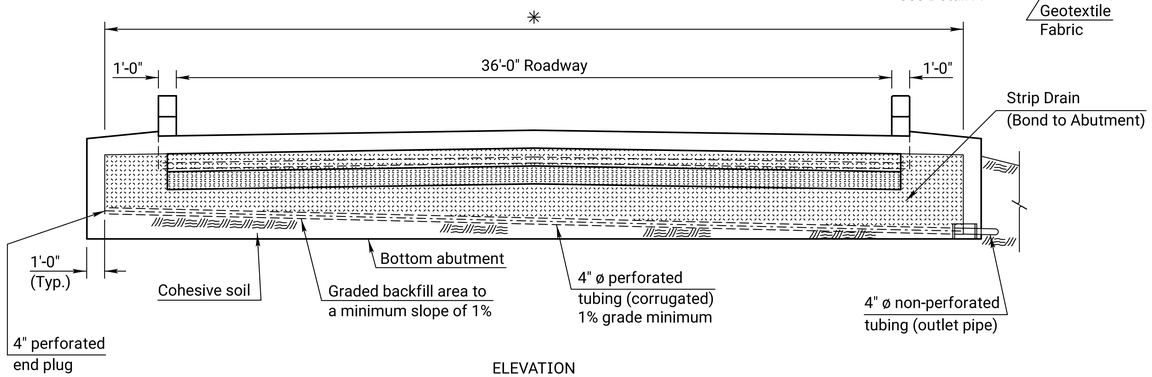


SECTION B-B

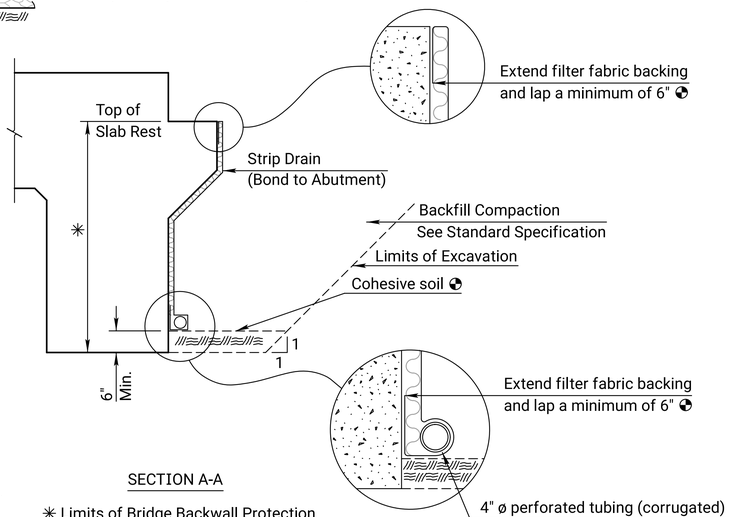


SECTION C-C

Note: The toe shall extend the entire width of the Slope Protection.



ELEVATION



SECTION A-A

✳ Limits of Bridge Backwall Protection System (by Bridge Contractor)

◔ Subsidiary to the Abutment Strip Drain

GENERAL NOTES

ABUTMENT STRIP DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation sheet, grade the bottom of the backfill area, place the strip drain, and place the perforated pipe, the outlet pipe, the CMP, and the backfill.

BRIDGE BACKWALL PROTECTION SYSTEM: Apply a 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. Prior to backfilling, repair any damage done to the system at no charge to the state.

Place perforated pipe next to the strip drain. Use non-perforated pipe outside the limits of the strip drain. Enclose the perforated pipe with the extension of the filter fabric.

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 a 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 the outlet pipe on the downstream side of structures over streams and as shown or noted on other crossings (See the "Construction Layout" sheet).

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.

SUMMARY OF QUANTITIES (2 Abutments)	
Abutment Strip Drain	36 Sq. Yds.
Bridge Backwall Protection System	42 Sq. Yds.
Items subsidiary to Strip Drain	
4" ø Perforated Pipe	44 Lin. Ft.
4" ø Outlet Pipe	20 Lin. Ft.
6" ø CMP	16 Lin. Ft.
Items subsidiary to Slope Protection	
Geotextile Fabric	53 Sq. Yds.

NO.	DATE	REVISIONS	BY	APP'D
06	09-01-22	Added Cohesive Soils note	M.L.L.	M.A.H.
05	04-07-14	Current Release	J.P.J.	C.E.R.
04	02-12-14	Added Benchmark	J.P.J.	C.E.R.

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

ABUTMENT STRIP DRAIN
(Stream, Drip-Line)

Proj. 58-16 KA-5701-01 Coffey Co.

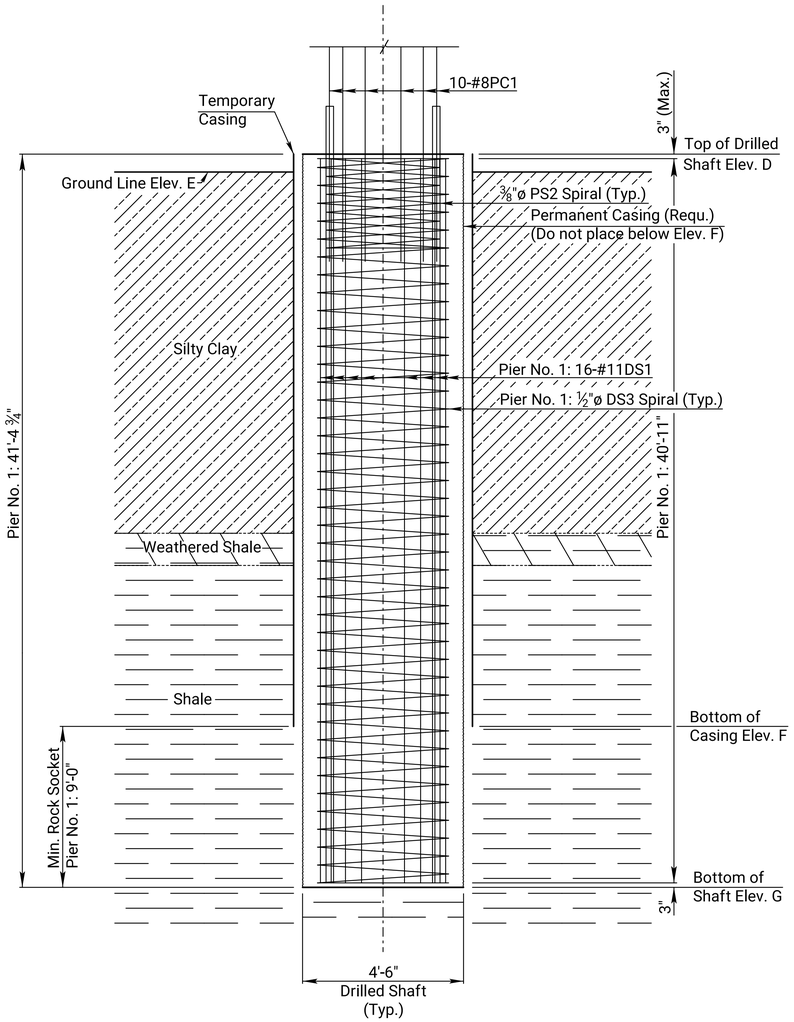
DESIGNED	DETAILED	L.R.R.	QUANTITIES	CADD	B.A.F.
DESIGN CK.	DETAIL CK.		QUAN.CK.	CADD CK.	

KDOT Graphics Certified 04-15-2024 Sh. No. 33

KDOT Graphics Certified

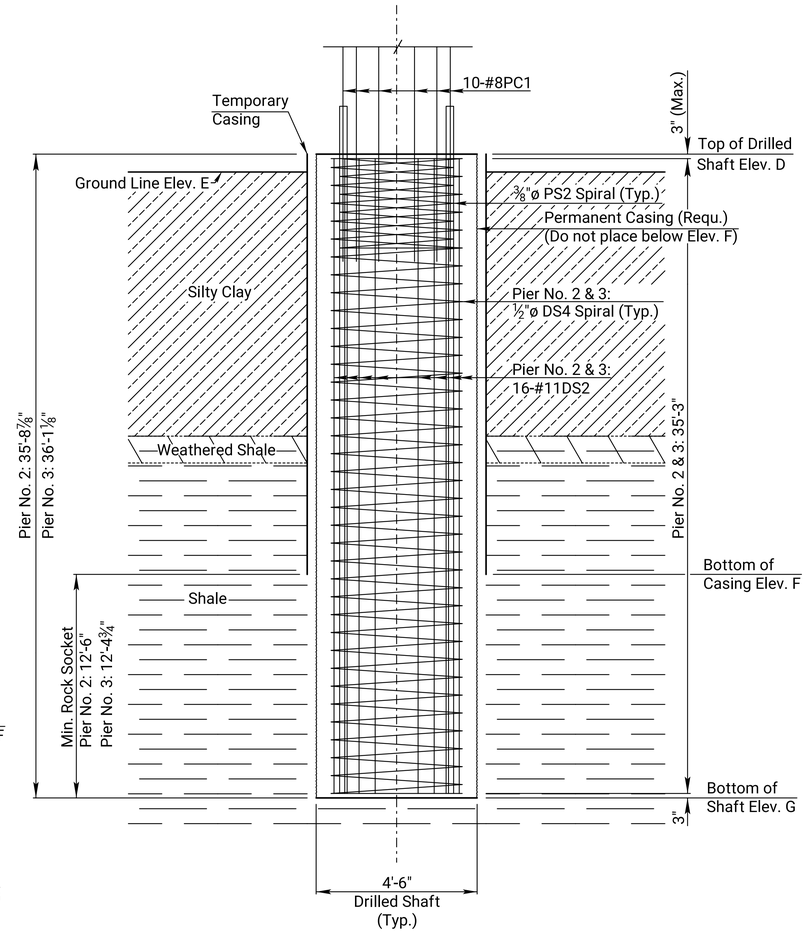
Plotted by : Andrew.Haase@ks.gov 5-DEC-2024 20:23
File : ka570101bbr007.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
	58-16 KA-5701-01	2024	34	93



TYPICAL ELEVATION VIEW OF DRILLED SHAFT

PIER NO. 1



TYPICAL ELEVATION VIEW OF DRILLED SHAFT

PIER NO. 2 & 3

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 54" (Cased)". Use Grade 4.0 Concrete in the drilled shaft. In no instance shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed by the KDOT Geologist.

Excavations for drilled shafts will need to be cased. Water movement within the mantle could cause caving and collapse of the excavation walls. Casing will be required for drilled shafts. Casing will need to be set into bedrock a maximum of 1.0 feet, less, if possible, to reduce the risk that overburden, and groundwater does not enter the rock socket. A wet pour may be anticipated if groundwater is not sufficiently sealed off or if there is water flowing into the excavation.

If the piers are to be supported with drilled shafts, 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.

Shale of the Weston Shale Member could degrade rapidly in the presence of air and water. Place the reinforcing steel and concrete no more than eight (8) hours from completion of the excavation of the shaft to minimize the exposure time of the shale to air and groundwater.

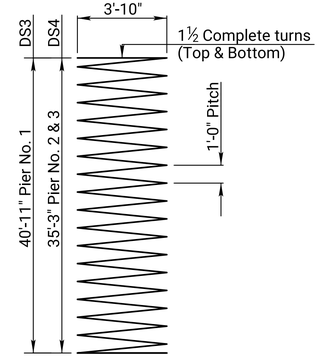
INVESTIGATIVE CORE HOLES: Please contact the Chanute Regional Geology Office when the schedule for the investigative core holes have been established so that a member of the staff may be on site when the work is being performed.

DRILLED SHAFT BACKFILL: Backfill the annular space between the temporary casing and the permanent casing with granular material as defined in the KDOT Specifications.

BILL OF REINFORCING STEEL
Grade 60 Non-Epoxy
Total for Pier No. 1, 2, & 3
Subsidiary to Drilled Shafts
Shown for Information Only

Mark	Size	Number	Length
DS1	#11	48	40'-11"
DS2	#11	96	35'-3"
DS3	½"ø	3	††
DS4	½"ø	6	††

†† See Bending Diagram



DS3 & DS4

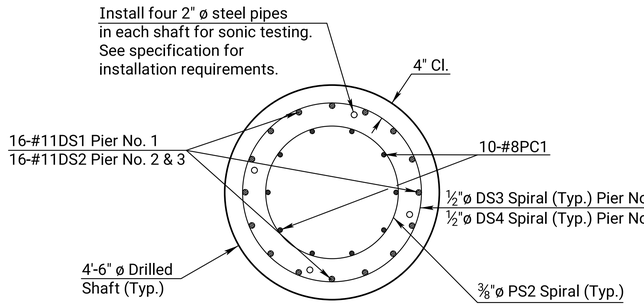
(½"ø smooth or deformed bar)

Spiral reinforcing shall meet the requirements of ASTM A615 Grade (60 or 40) or ASTM A82.

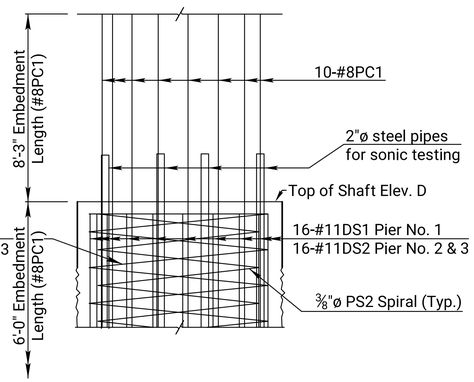
Spiral Spacer Bars:

1) Minimum section modulus = 0.030 in.³
2) 4 required per spiral

ELEVATION TABLE			
Location	Pier No. 1	Pier No. 2	Pier No. 3
Top of Shaft Elev. D	988.10'	988.14'	988.15'
Ground Line Elev. E	987.10'	987.07'	987.50'
Bottom of Casing Elev. F	955.70'	964.90'	964.80'
Bottom of Shaft Elev. G	946.70'	952.40'	952.40'



TYPICAL SECTION OF DRILLED SHAFT



DETAIL OF DRILLED SHAFT DOWEL BARS

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 58-16-33.3 (062) Sta. 210+95.00

DRILLED SHAFT DETAILS

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH	CADD	AJH
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

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Sheet No. 34

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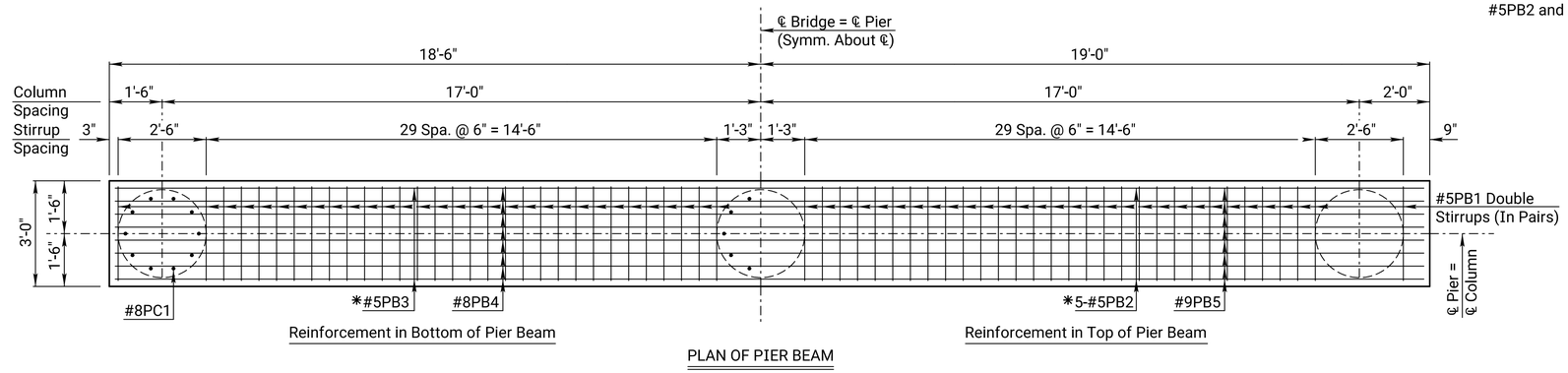
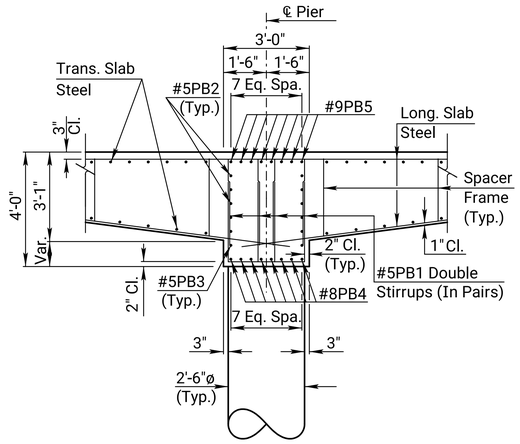
Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ka570101bbr009.dgn
Plot Date: 05-DEC-2024 20:20

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	35	93

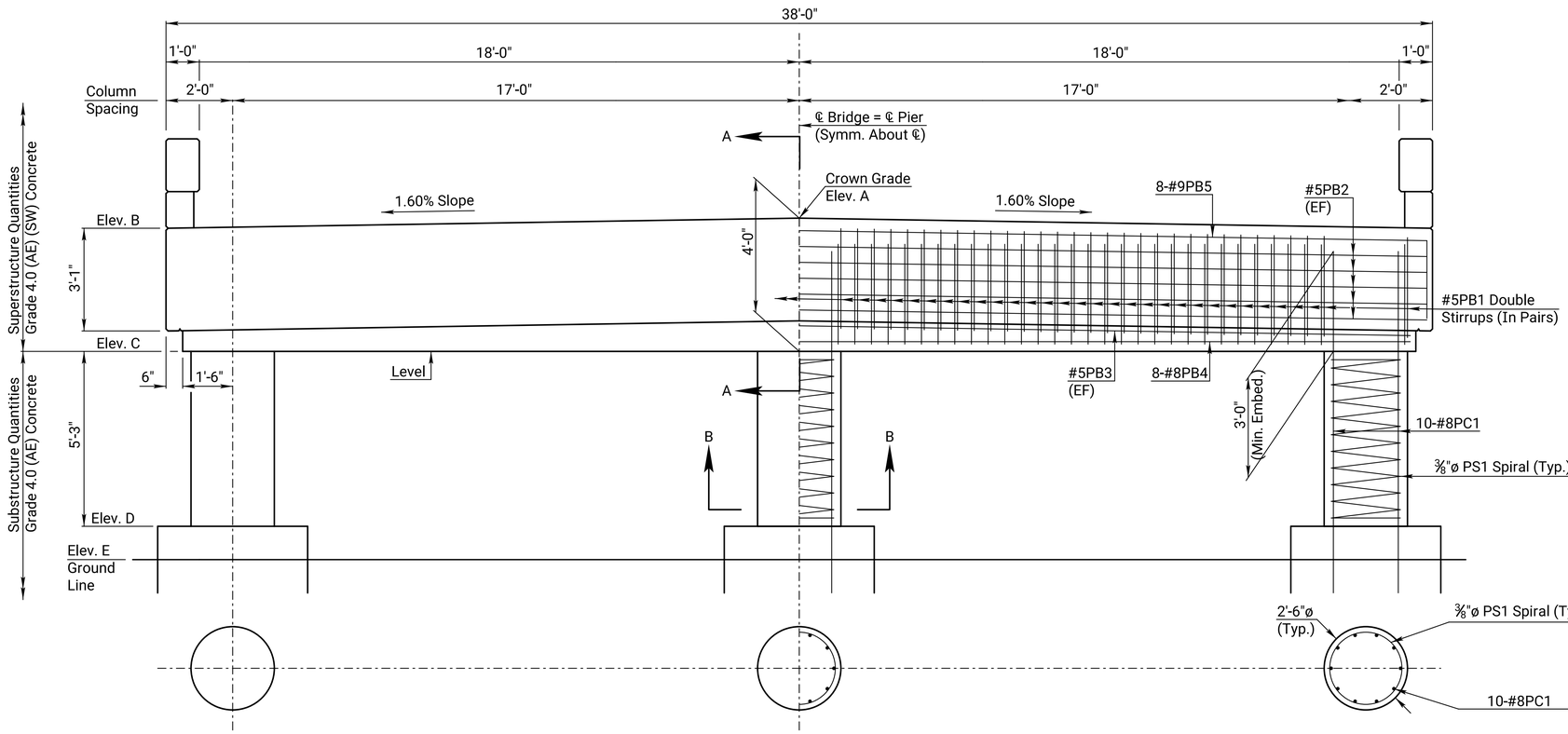
✱See Section A-A for layout of #5PB2 and #5PB3 bars



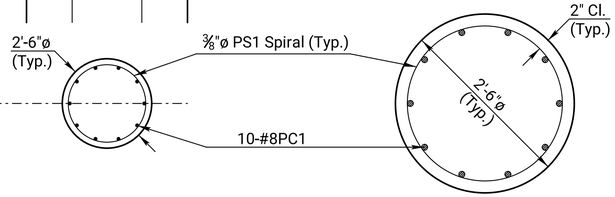
PLAN OF PIER BEAM



SECTION THRU PIER BEAM
(At Bridge Crown)
(Section A-A)



ELEVATION OF PIER



Section B-B

ELEVATION TABLE			
Location	Pier No. 1	Pier No. 2	Pier No. 3
Elevation A	997.35'	997.39'	997.41'
Elevation B	997.05'	997.09'	997.11'
Elevation C	993.35'	993.39'	993.41'
Elevation D	988.10'	988.14'	988.15'
Elevation E	987.10'	987.07'	987.50'

LEGEND
EF = Each Face

NO.	DATE	REVISIONS	BY	APP'D
4				
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

PIER DETAILS

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH	CADD	AJH
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

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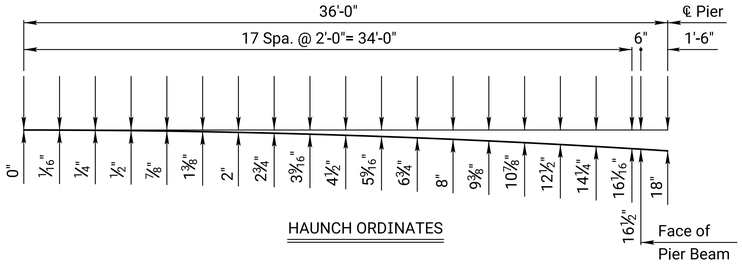
Sheet No. 35

KDOT Graphics Certified

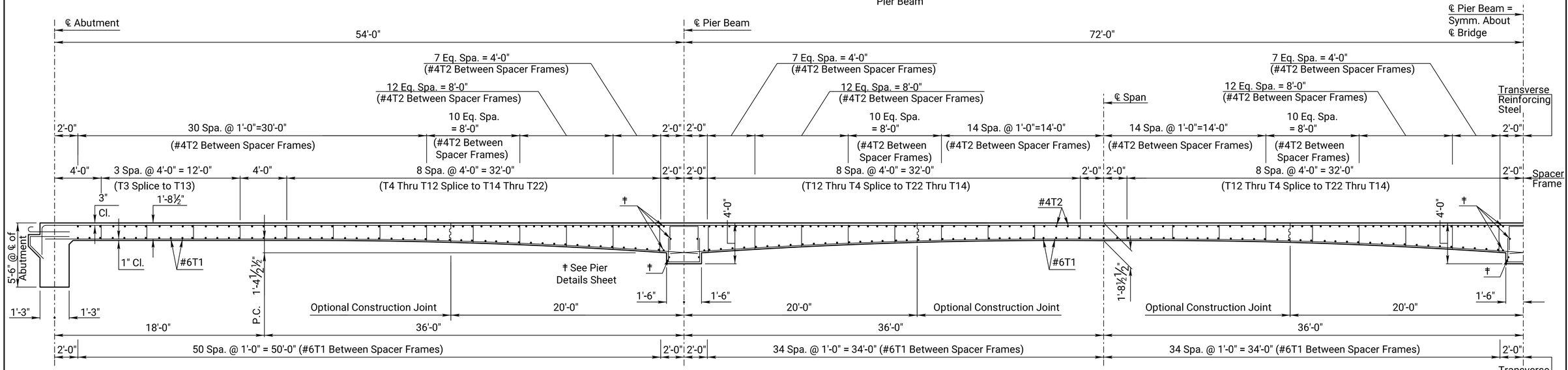
Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ka5701101bbr010.dgn
Plot Date: 05-DEC-2024 20:20

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	36	93

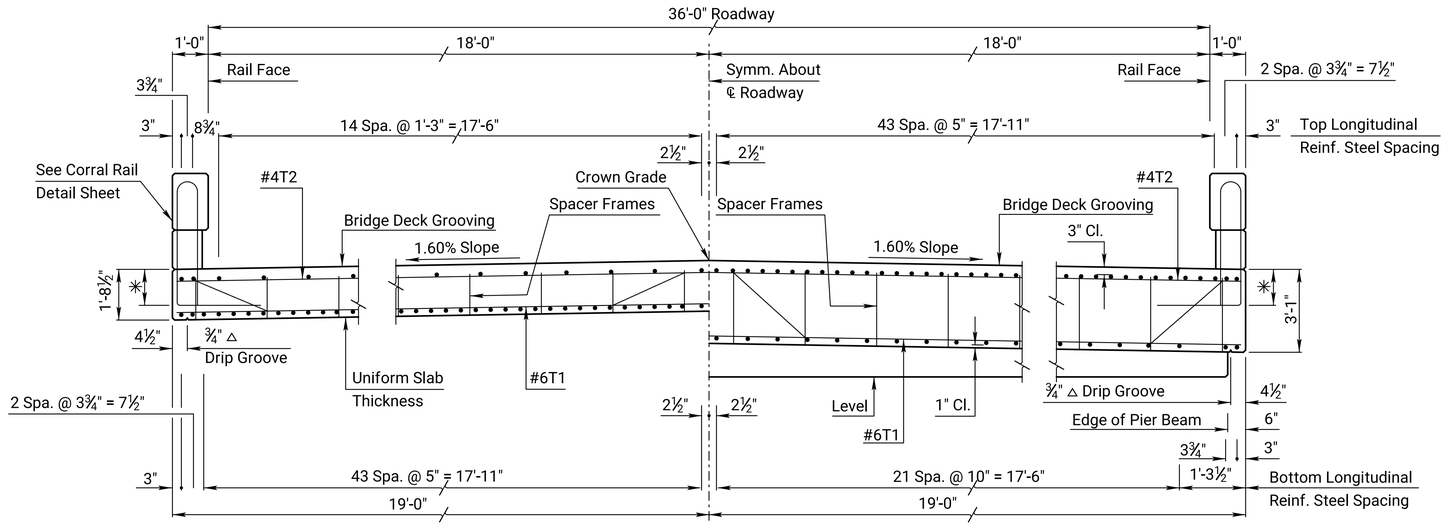
Irfd\br533.dgn	
Roadway Width = 36'	Longest Span Length = 72'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Railing Type = Corral



HAUNCH ORDINATES



HALF LONGITUDINAL SECTION ALONG ℄ BRIDGE



Half Section Near Mid-Span

TYPICAL SECTION OF SLAB

Half Section at Face of Pier Beam

✳ See Corral Rail Detail Sheet.

4	10/26/09	update LFD RF & Camber	DRT	KFH
3	02/05/09	update LFD RF & Camber	DRT	KFH
2	02/11/08	Corrected DL Camber & Btm.BarPtrn.	DRT	KFH
1	02/08/04	Chg'd S11 fr. #10 to #11	DRT	KFH
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

SUPERSTRUCTURE DETAILS
K-58 over Crooked Creek

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH	CADD	AJH
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

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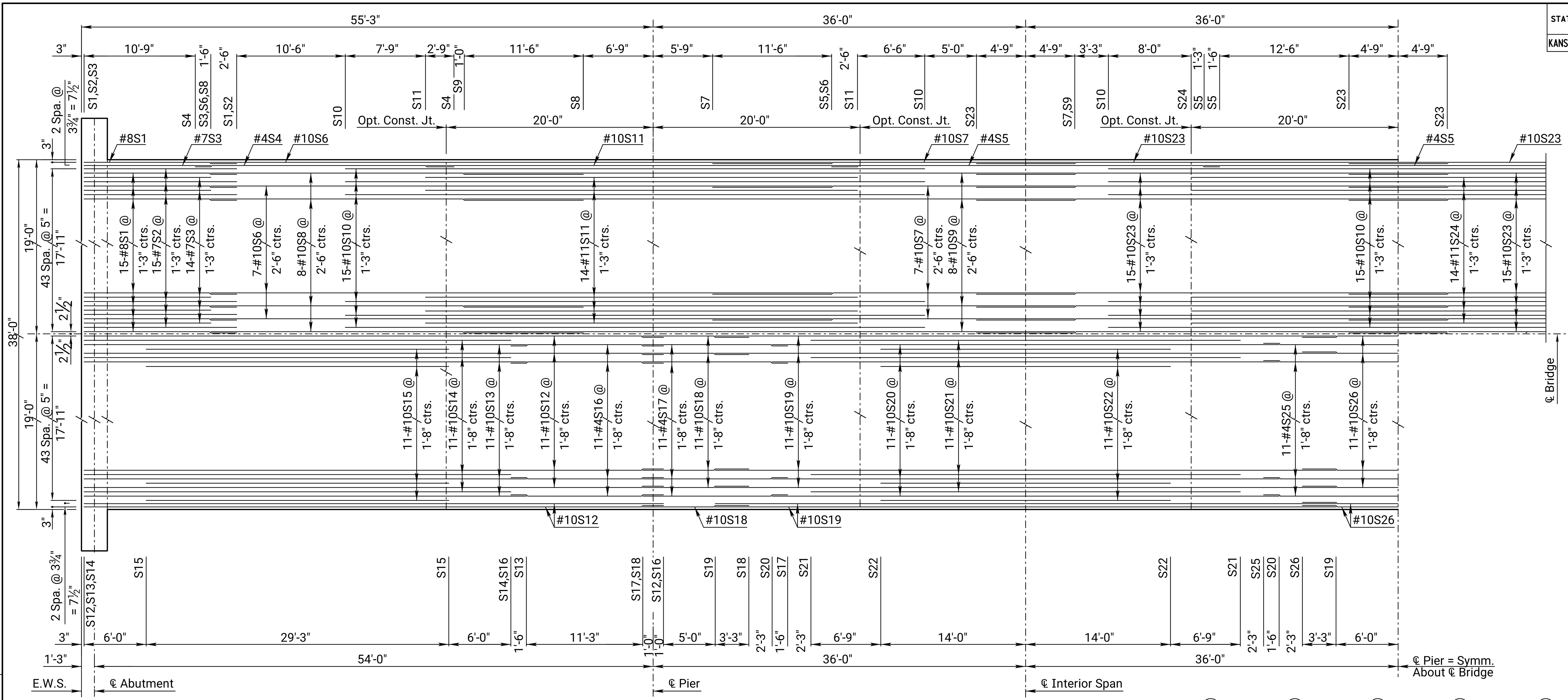
Sheet No. 36

KDOT Graphics Certified

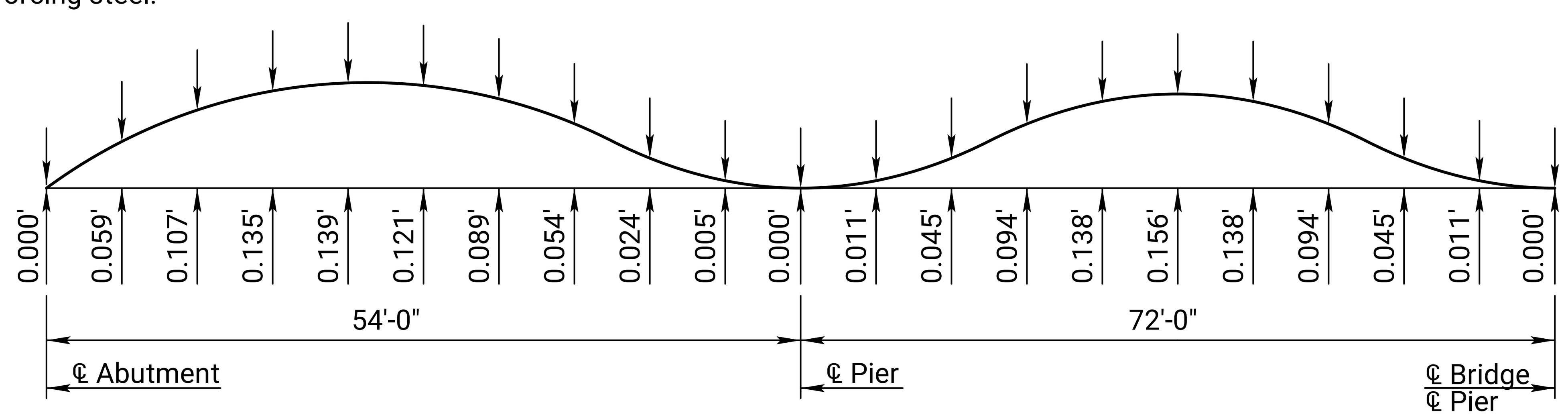
Plotted: Andrew.Haase@ks.gov	Plot Location: Bridge
File: ka5701101bbr012.dgn	
Plot Date: 05-DEC-2024 20:20	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	37	93



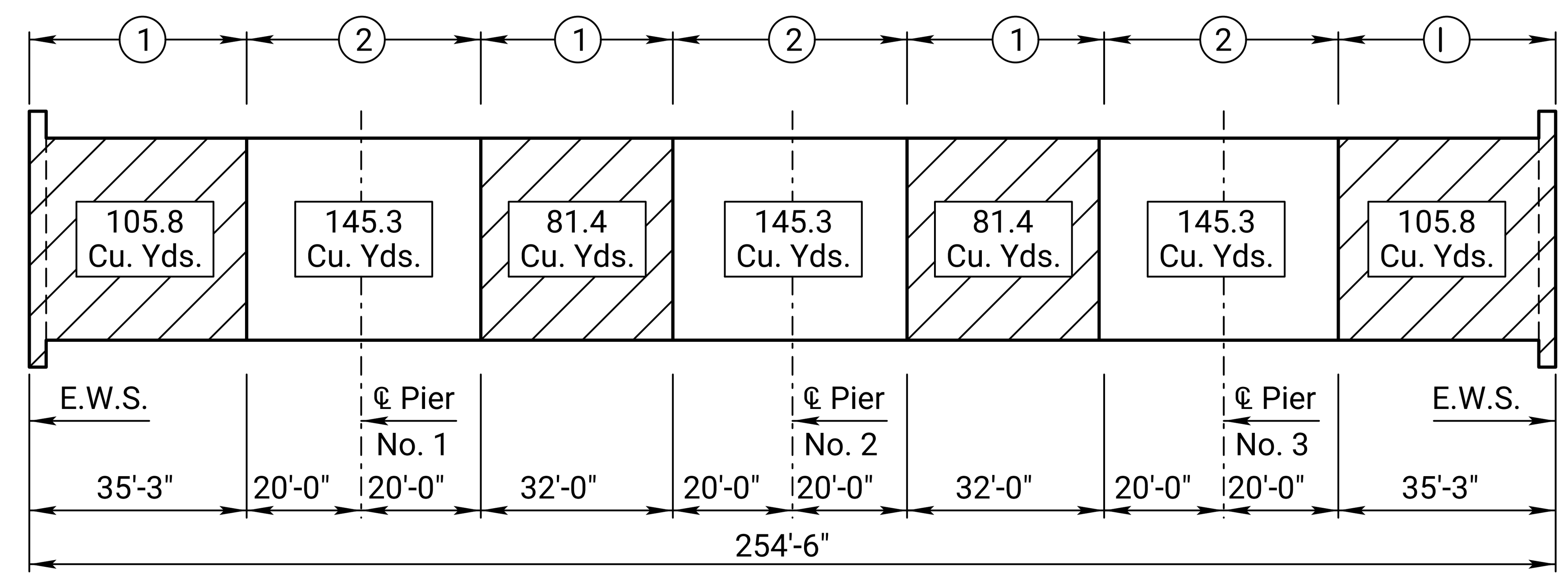
Note:
See longitudinal section for transverse reinforcing steel.

HALF PLAN



DEAD LOAD CAMBER DIAGRAM AT TENTH POINTS

Long Term Deflections = Initial Deflections x 4.0
(Initial Deflections Based on E_c= 3.644 x 10^6p.s.i.)
(camber values in feet)



CONCRETE PLACING SEQUENCE DIAGRAM

Note: 1.0 & 5.0 pts. are taken at ℄ of abutments
2.0, 3.0, & 4.0 pts. are taken at ℄ of piers

Top of Form Elevation at 10th Points, (ft.)															
1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
N/A	995.70	995.75	995.78	995.77	995.69	995.51	995.26	994.96	994.59	N/A	994.73	995.19	995.55	995.77	995.86
2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1
995.78	995.57	995.22	994.76	N/A	994.77	995.23	995.58	995.80	995.89	995.81	995.59	995.24	994.78	N/A	994.65
4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0							
995.02	995.33	995.58	995.76	995.85	995.87	995.84	995.79	N/A							

Note: Elevations are taken at Crown Grade.

Note: The change in elevation from Crown Grade to the Edge of Slab is -0.304'

CONCRETE PLACING SEQUENCE

When long span steel beams having a concrete dead load deflection greater than ¼" are used or when timber falsework with greater than 12'-0" clear span is used, follow the placing sequence shown. Segmental, combined or continuous pours are allowed, but stop a discontinuous pour at a construction joint short of a pier.

When timber falsework with 12'-0" or less clear span is used, the Contractor, subject to the approval of the Engineer, may use a continuous pour or may discontinue the pour at any construction joint shown.

The Contractor may place the corral rail continuously from one end of the bridge to the other.

NO.	DATE	REVISIONS	BY	APP'D
6	03/12/12	ADDED TOF Elevation Table	JPJ	TLF
5	02/08/11	ADDED QUANTITIES	JPJ	TLF
4	10/26/09	update LFD RF & Camber	DRT	KFH
3	02/05/09	update LFD RF & Camber	DRT	KFH
2	02/11/08	Corrected DL Camber & Btm.BarPtrn.	DRT	KFH
1	02/08/04	Chg'd S11 fr. #10 to #11	DRT	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

SLAB DETAILS

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	AJH	DETAILED	AJH	QUANTITIES	AJH	CADD	AJH
DESIGN CK.	SJW	DETAIL CK.	SJW	QUAN. CK.	SJW	CADD CK.	SJW

KDOT Graphics Certified 12-04-2024

KDOT Graphics Certified

Irf\br53.3.dgn	
Roadway Width = 36'	Longest Span Length = 72'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Railing Type = Corral

LFD & LRFR RATING FACTOR

	Truck	Cir. 2½' Inv.	2½' Oper.	3' Inv.	3' Oper.
LFD	HS-20	1.76	2.95	1.82	3.04
LFD	HET		1.77		1.82
LRFR	HL-93	1.39	1.81	1.43	1.86

Plotted: Andrew.Haase@ks.gov
Plot Location: Bridge
File: ka5701 01bbr013.dgn
Plot Date: 05-DEC-2024 20:20

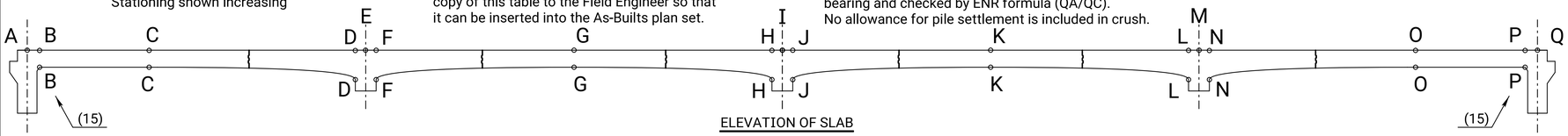
SLAB ELEVATIONS

				Formwork				Screed			Thickness			Deck Profile	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Survey	Station (1)(16)	† Location (13)	Transverse Location (13)	Estimated Falsework Crush (inch) (1)(4)	Target Elevation TOF (1)(6)	Actual Elevation TOF (2)	TOF Variance (QA/QC) (± inch) (2)(5)	Target Screed El. = TOC El. (1)(6)	Actual Bottom of Screed Elevation Prior to Pour(2)	Screed Variance (QA/QC) (± inch) (2)(7)	Plan Deck Thickness (inch) (1)	Measured Deck Thickness (inch) (2)(8)	Deck Thickness Variance (QA/QC) (± inch) (2)(9)	Plan TOC El. (1)	Actual TOC El. Optional DateSurvey (3)
A	209+69.00	℄ Brg. of Abut. #1	Left Fascia					997.01						997.01	
			Crown Gr.					997.31						997.31	
			Right Fascia					997.01						997.01	
B	209+70.25	Interior Face of Abut. #1	Left Fascia		995.30						20½			997.01	
			Crown Gr.		995.60						20½			997.31	
			Right Fascia		995.30						20½			997.01	
C	209+90.60	4/10 Point from Abut. #1	Left Fascia	⅜	995.47			997.20			20¾			997.03	
			Crown Gr.	⅜	995.77			997.50			20¾			997.33	
			Right Fascia	⅜	995.47			997.20			20¾			997.03	
D	210+21.50	Span #1 Face of Pier Beam	Left Fascia	⅜	994.00						37			997.05	
			Crown Gr.	⅜	994.30						37			997.36	
			Right Fascia	⅜	994.00						37			997.05	
E	210+23.00	℄ Brg. of Pier #1	Left Fascia					997.05						997.05	
			Crown Gr.					997.36						997.36	
			Right Fascia					997.05						997.05	
F	210+24.50	Span #2 Face of Pier Beam	Left Fascia	⅜	994.00						37			997.05	
			Crown Gr.	⅜	994.31						37			997.36	
			Right Fascia	⅜	994.00						37			997.05	
G	210+59.00	Midpoint of Span #2	Left Fascia	⅜	995.56			997.26			20½			997.08	
			Crown Gr.	⅜	995.86			997.57			20½			997.38	
			Right Fascia	⅜	995.56			997.26			20½			997.08	
H	210+93.50	Span #2 Face of Pier Beam	Left Fascia	⅜	994.04						37			997.09	
			Crown Gr.	⅜	994.34						37			997.40	
			Right Fascia	⅜	994.04						37			997.09	
I	210+95.00	℄ Brg. of Pier #2	Left Fascia					997.09						997.09	
			Crown Gr.					997.40						997.40	
			Right Fascia					997.09						997.09	
J	210+96.50	Span #3 Face of Pier Beam	Left Fascia	⅜	994.04						37			997.09	
			Crown Gr.	⅜	994.35						37			997.40	
			Right Fascia	⅜	994.04						37			997.09	
K	211+31.00	Midpoint of Span #3	Left Fascia	⅜	995.58			997.29			20½			997.10	
			Crown Gr.	⅜	995.89			997.59			20½			997.41	
			Right Fascia	⅜	995.58			997.29			20½			997.10	
L	211+65.50	Span #3 Face of Pier Beam	Left Fascia	⅜	994.05						37			997.11	
			Crown Gr.	⅜	994.36						37			997.41	
			Right Fascia	⅜	994.05						37			997.11	
M	211+67.00	℄ Brg. of Pier #3	Left Fascia					997.11						997.11	
			Crown Gr.					997.41						997.41	
			Right Fascia					997.11						997.11	
N	211+68.50	Span #4 Face of Pier Beam	Left Fascia	⅜	994.05						37			997.11	
			Crown Gr.	⅜	994.36						37			997.41	
			Right Fascia	⅜	994.05						37			997.11	
O	211+99.40	4/10 Point from Abut. #2	Left Fascia	⅜	995.55			997.28			20¾			997.10	
			Crown Gr.	⅜	995.85			997.58			20¾			997.41	
			Right Fascia	⅜	995.55			997.28			20¾			997.10	
P	212+19.75	Interior Face of Abut. #2	Left Fascia		995.39						20½			997.10	
			Crown Gr.		995.70						20½			997.40	
			Right Fascia		995.39						20½			997.10	
Q	212+21.00	℄ Brg. of Abut. #2	Left Fascia					997.10						997.10	
			Crown Gr.					997.40						997.40	
			Right Fascia					997.10						997.10	

† Stationing shown increasing

NOTE: The Contractor will turn in a completed copy of this table to the Field Engineer so that it can be inserted into the As-Builts plan set.

✳ It is assumed that piling have been driven to design bearing and checked by ENR formula (QA/QC). No allowance for pile settlement is included in crush.



ELEVATION OF SLAB

Legend
TOF = Top of Formwork
TOC = Top of Concete
QA = Quality Assurance
QC = Quality Control

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	38	93

Pour Dates (2)	
	Deck
	Left Rail (13)
	Right Rail (13)

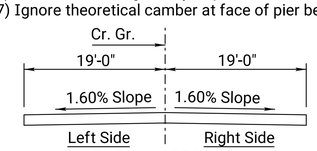
Survey Data (1)(11)		Crown Grade Profile (1)(12)	
Bench Mark No.	Elevation	210+00.00	VPI Station
B.M. #11	997.62	997.49	VPI Elevation
B.M. #12	997.52	+0.21	G1 %
B.M. #13	1001.99	-0.04	G2 %
		5	L in Stations

Slab Thickness (1)		Span Data (1)	
20½	Uniform Depth (inch)	HL-93	Design Loading
16½	Haunch Depth @ Face of PB (inch)	54	Span #1 (ft)
		72	Span #2 (ft)
⅛	Haunch Depth @ 0.4 Point (inch)	3	Clear Cover (inch)

Roadway Data (1)(10)(13)	
38.0	Deck Width (ft) (14)
-1.6	% Slope Left (±)
-1.6	% Slope Right (±)
00:00:00	Skew (dd:mm:ss)

Camber (1)(17)	
0.139	Span #1 0.4 Point (ft)
0.156	Span #2 Midspan (ft)

(1) By the Design Engineer
(2) By the Contractor
(3) By Request
✳(4) Based on hardwood shims, assume 6 joints with " crush (Take Up) per joint. Revise estimate if/when more accurate information becomes available. Ref; "Formwork for Concrete" Fifth Edition, by M.K. Hurd, Chapter 6
(5) (col 7 - col 6)x12
(6) Crush (Take Up) and camber must be included
(7) (col 10 - col 9)x12
(8) (col 10 - col 7)x12
(9) (col 13 - col 12)
(10) If transition falls on the bridge, then enter "Varies" for the % Slope
(11) From "Construction Layout" sheet
(12) If bridge is not on the vertical curve, enter Abutment #1 ℄ bearing elevation from the "Construction Layout" sheet. Represent a change in grade with G1 only.
(13) Looking Up-Station
(14) Out-to-Out
(15) Ignore Fillet
(16) Non-skewed bridges only require ℄ stations.
(17) Ignore theoretical camber at face of pier beams.



TYPICAL SECTION
(Looking Up-Station)

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	12-9-20	No longer need to send to SBO	MLL	MAH

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 58-16-33.3 (062) Sta. 210+95.00

SLAB ELEVATION

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED AJH	QUANTITIES	CADD
DESIGN CK. SJW	DETAIL CK. SJW	QUAN. CK. SJW	CADD CK. SJW

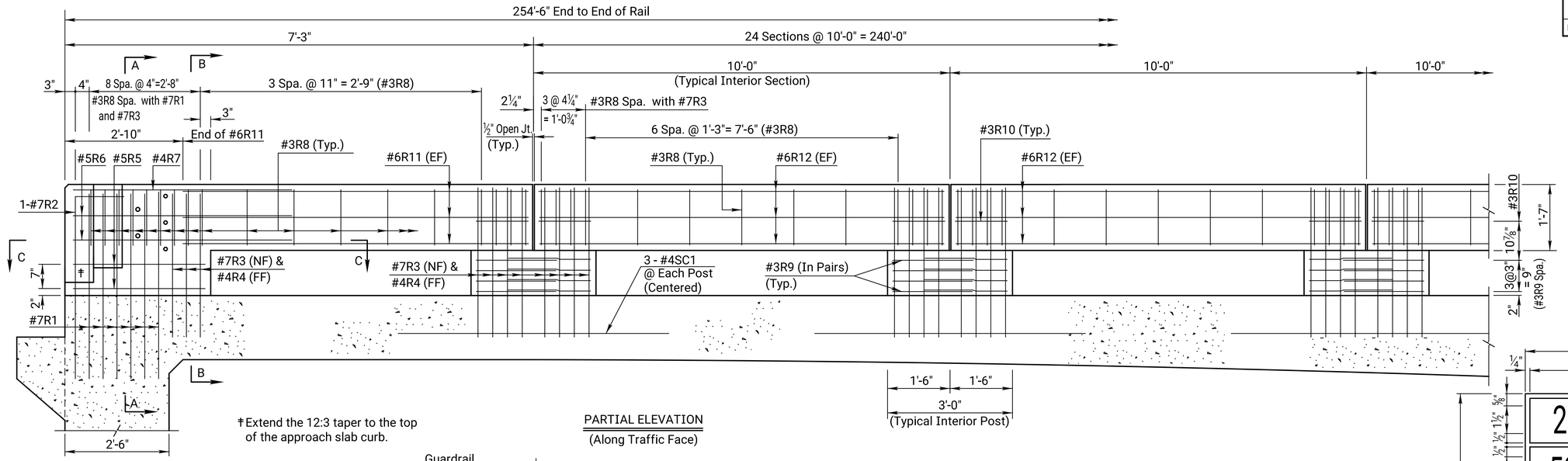
KDOT Graphics Certified 12-03-2024

Sheet No. 38

KDOT Graphics Certified

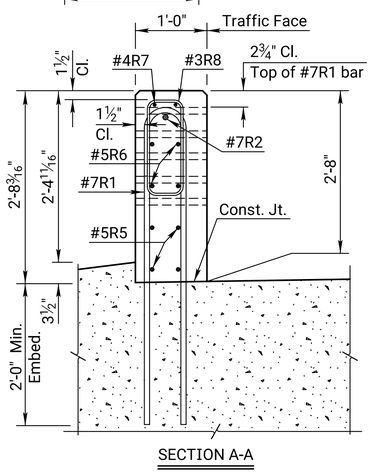
Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ks5701101bbr014.dgn
Plot Date: 05-DEC-2024 20:20

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	39	93

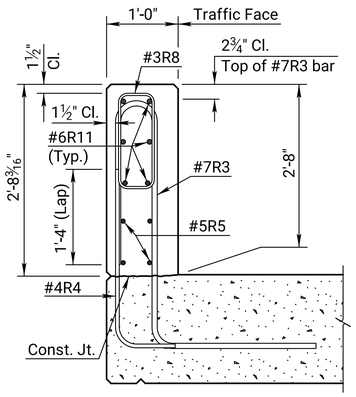


†Extend the 12:3 taper to the top of the approach slab curb.

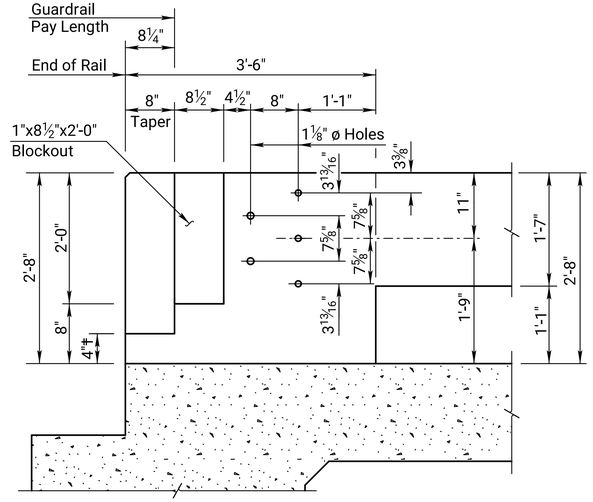
PARTIAL ELEVATION
(Along Traffic Face)



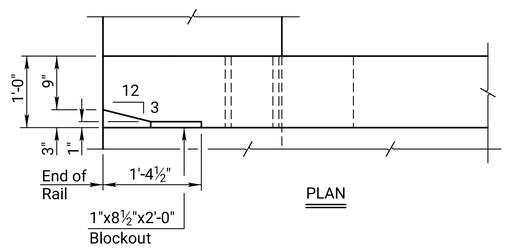
SECTION A-A



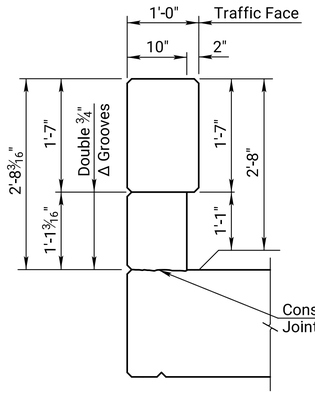
SECTION B-B



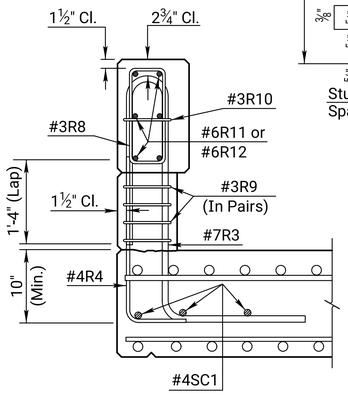
ELEVATION
(Dimensions at traffic face of rail.)



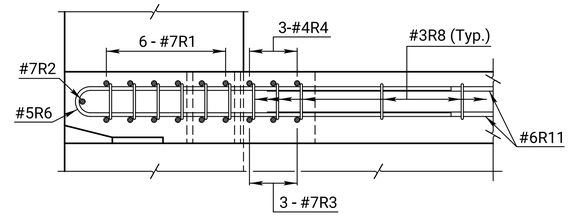
PLAN



TYPICAL INTERIOR POST

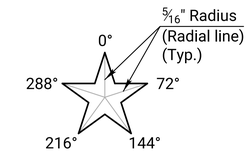


SECTION THRU POST

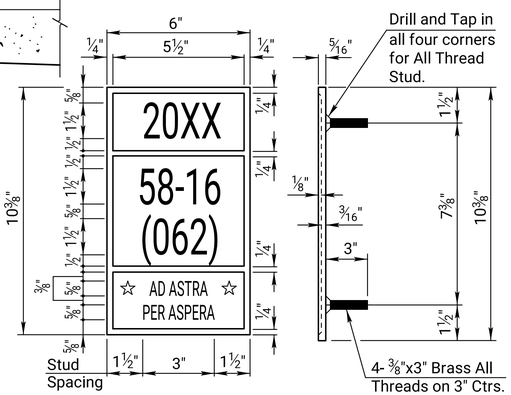


SECTION C-C

LEGEND
NF = Near Face
FF = Far Face
EF = Each Face

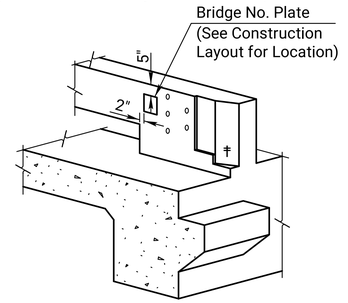


STAR GEOMETRY



XX Year Bridge is Completed.

BRIDGE NUMBER PLATE
(1 Required)
(See Construction Layout for Location)



BRIDGE NUMBER PLATE PLACEMENT DETAIL

NO.	DATE	REVISIONS	BY	APP'D
03				
02	12-03-21	Changed Bridge Number Plate detail	M.L.L.	M.A.H.
01	06-30-05	Current Release		

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

32" KANSAS CORRAL RAIL

Proj. 58-16 KA-5701-01 Coffey Co.

DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.

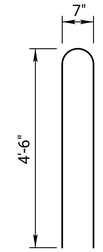
KDOT Graphics Certified 12-04-2024 Sh. No. 39

Plotted by : Andrew.Haase@ks.gov 5-DEC-2024 20:22
File : ka570101bbr016.dgn

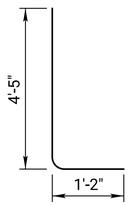
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	40	93

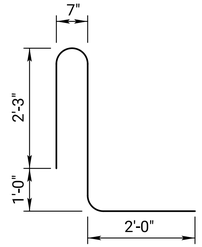
Irfdbr533.dgn	
Roadway Width = 36'	Longest Span Length = 72'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Rolling Type = Corral



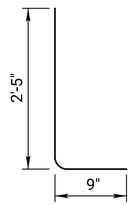
R1



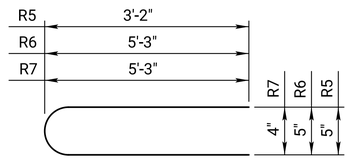
R2



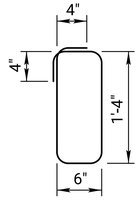
R3



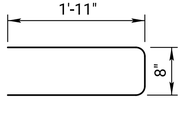
R4



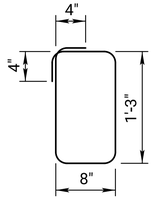
R5, R6 & R7



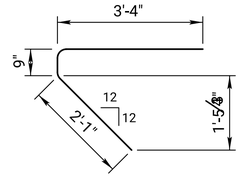
R8



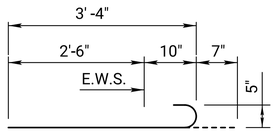
R9



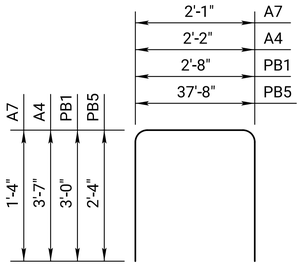
R10



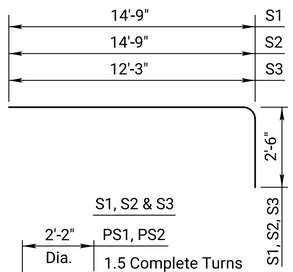
A5

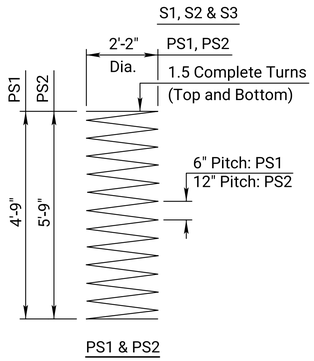


A2



A4, A7, PB1, PB5





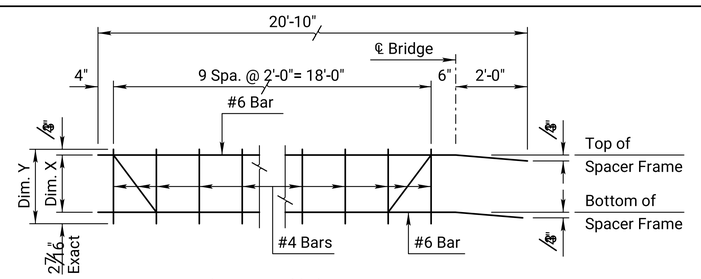
PS1 & PS2

(⅜"ø smooth or deformed bar)

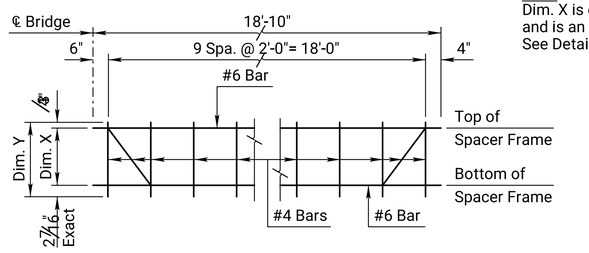
Spiral reinforcing shall meet the requirements of ASTM A615 Grade (60 or 40) or ASTM A82.

Spiral Spacer Bars:

1) Are included in the weight of reinforcing steel.
2) Minimum section modulus = 0.008 in³
3) 4 required per spiral.



T13 Thru T22 Welded Spacer Frames

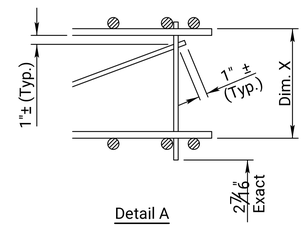


T3 Thru T12 Welded Spacer Frames

Note:
Dim. X is out to out and is an exact dim. See Detail A.

⊗ SPACER FRAMES (Epoxy Coated)			
Mark	No. Ea.	Dim. X	Dim. Y
T3, T13	8	1'-1 7/16"	1'-4 5/8"
T4, T14	6	1'-1 1/2"	1'-4 11/16"
T5, T15	6	1'-1 5/16"	1'-5 1/8"
T6, T16	6	1'-2 13/16"	1'-6"
T7, T17	6	1'-4 3/16"	1'-7 3/8"
T8, T18	6	1'-5 5/16"	1'-9 1/8"
T9, T19	6	1'-8 3/16"	1'-11 3/8"
T10, T20	6	1'-10 13/16"	2'-2"
T11, T21	6	2'-1 5/16"	2'-5 1/8"
T12,T22	6	2'-5 1/2"	2'-8 11/16"

Weight of spacer frames included in the weight of reinforcing steel.



Detail A

BENDING DIAGRAMS

(All dimensions are out to out of bars.)

BILL OF REINFORCING STEEL
Non-Epoxy Coated - Grade 60

	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Substructure	PC1	#8	90	14'-3"	PS1	⅜"	9	⊗
					PS2	⅜"	9	⊗

BILL OF REINFORCING STEEL
Epoxy Coated - Grade 60

		Straight Bars				Bent Bars			
		Mark	Size	Number	Length	Mark	Size	Number	Length
Superstructure	Abutment - Deck - Rail	S11	#11	60	41'-9"	S1	#8	64	17'-3"
		S24	#11	28	40'-0"				
						R1	#7	24	9'-3"
		S6	#10	32	60'-0"	R2	#7	4	5'-7"
		S7	#10	32	35'-0"	R3	#7	412	7'-9"
		S8	#10	32	36'-0"	S2	#7	60	17'-3"
		S9	#10	32	59'-0"	S3	#7	60	14'-9"
		S10	#10	90	56'-0"				
		S12	#10	52	56'-0"	A2	#5	72	3'-11"
		S13	#10	44	42'-9"	R5	#5	8	6'-6"
		S14	#10	44	41'-3"	R6	#5	8	10'-8"
		S15	#10	44	29'-3"				
		S18	#10	48	10'-3"	A4	#4	184	9'-4"
		S19	#10	52	60'-0"	A5	#4	72	6'-2"
		S20	#10	44	49'-0"	A7	#4	28	4'-9"
		S21	#10	44	41'-6"	R4	#4	412	3'-2"
		S22	#10	44	28'-0"	R7	#4	4	10'-8"
		S23	#10	64	45'-6"				
		S26	#10	26	18'-6"	R8	#3	684	4'-4"
						R9	#3	400	4'-6"
		A1	#8	16	45'-8"	R10	#3	100	4'-6"
		R11	#6	24	4'-3"	T3-T22			⊗
		R12	#6	288	9'-8"				
		T1	#6	178	37'-8"				
		A3	#5	20	45'-8"				
		A6	#4	2	36'-8"				
		S4	#4	4	25'-0"				
		S5	#4	6	37'-6"				
		S16	#4	44	14'-9"				
		S17	#4	44	14'-0"				
		S25	#4	22	26'-0"				
		SC1	#4	150	6'-6"				
		T2	#4	232	37'-8"				
	Pier Beam	PB4	#8	24	36'-8"	PB5	#9	24	42'-4"
		PB2	#5	30	37'-8"	PB1	#5	744	8'-8"
		PB3	#5	6	36'-8"				

⊗ See Bending Diagram

NO.	DATE	REVISIONS	BY	APP'D
4	10/26/09	update LFD RF & Camber	DRT	KFH
3	02/05/09	update LFD RF & Camber	DRT	KFH
2	02/11/08	Corrected DL Camber & Btm.BarPtrn.	DRT	KFH
1	02/08/04	Chg'd Sill fr. #10 to #11	DRT	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 58-16-33.3 (062) Sta. 210+95.00

BILL OF REINFORCING STEEL AND BENDING DIAGRAMS

Proj. 58-16 KA-5701-01 Coffey Co.

SHEET NO.	OF	SCALE		APP'D				
DESIGNED	DRT	DETAILED	DRT	QUANTITIES	BRW	CADD		RCJ
DESIGN CK.	MLI	DETAIL CK.	SBG	QUAN. CK.	SBG	CADD CK.		

KDOT Graphics Certified 12-03-2024

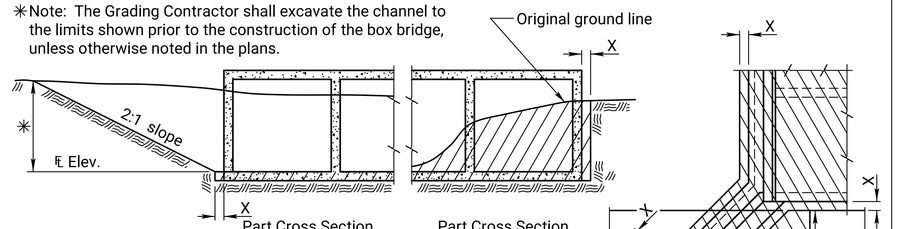
Sheet No. 40

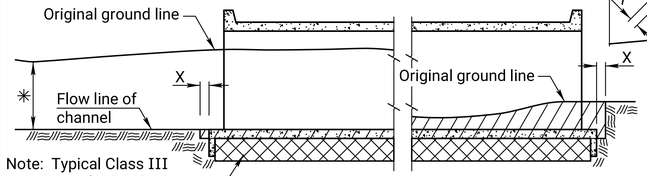
KDOT Graphics Certified

Plotted: Andrew.Haase@ks.gov | Plot Location: Bridge
File: ks570101bbr017.dgn
Plot Date: 05-DEC-2024 20:20

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	41	93

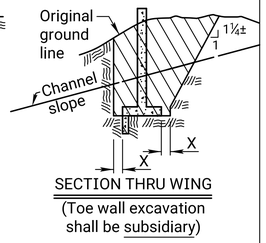
✳Note: The Grading Contractor shall excavate the channel to the limits shown prior to the construction of the box bridge, unless otherwise noted in the plans.





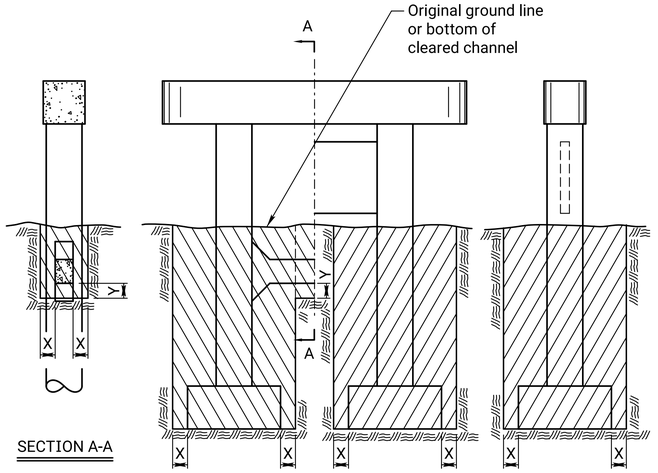
Note: Typical Class III Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

Excavation below the elevation of the bottom of the box floor and/or wingwalls is subsidiary to "Foundation Stabilization".



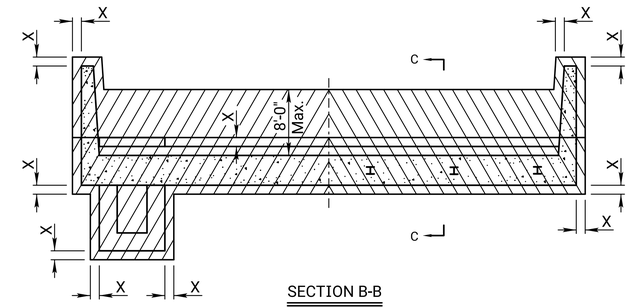
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

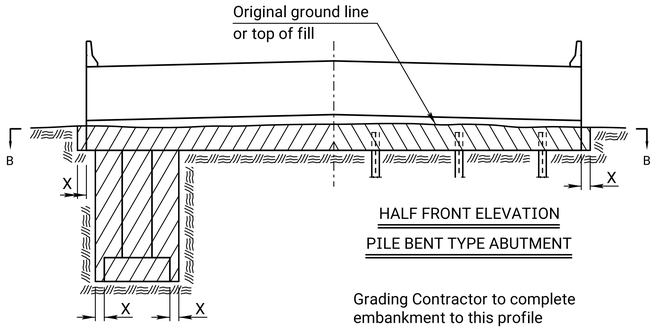
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.

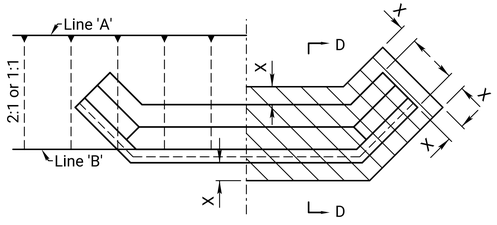


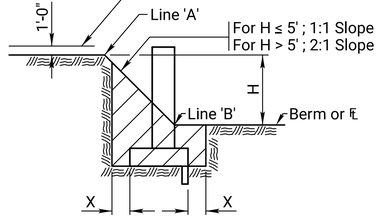
EXCAVATION DETAILS FOR TYPICAL PIERS

See detail when rock or shale (rock) is encountered. ❀

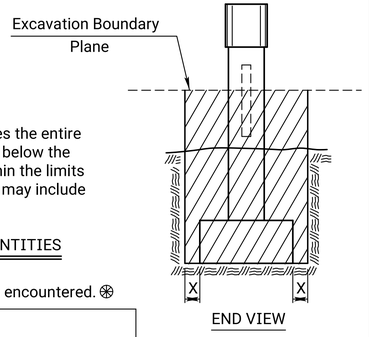








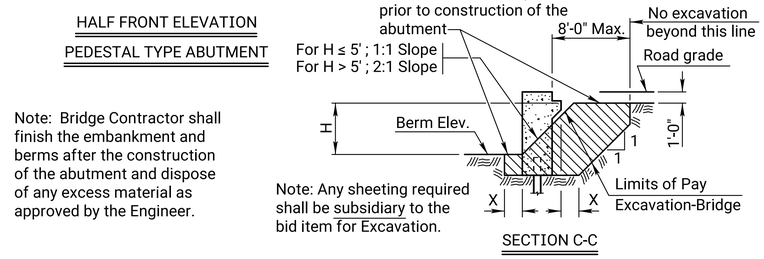
EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



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. ❀



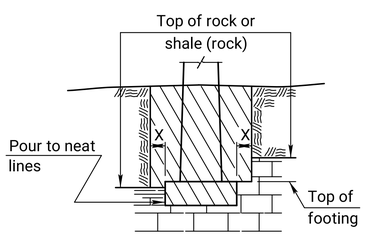
Note: Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.

Note: Any sheeting required shall be subsidiary to the bid item for Excavation.

HALF FRONT ELEVATION
PEDESTAL TYPE ABUTMENT

EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

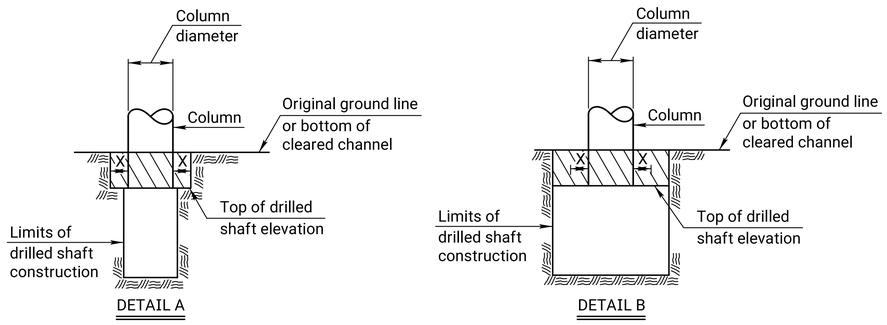
See detail when rock or shale (rock) is encountered. ❀



❀ 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	Revised Wing Excavation	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.	

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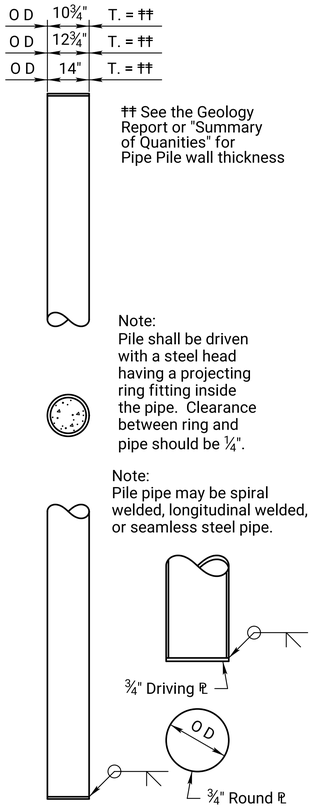
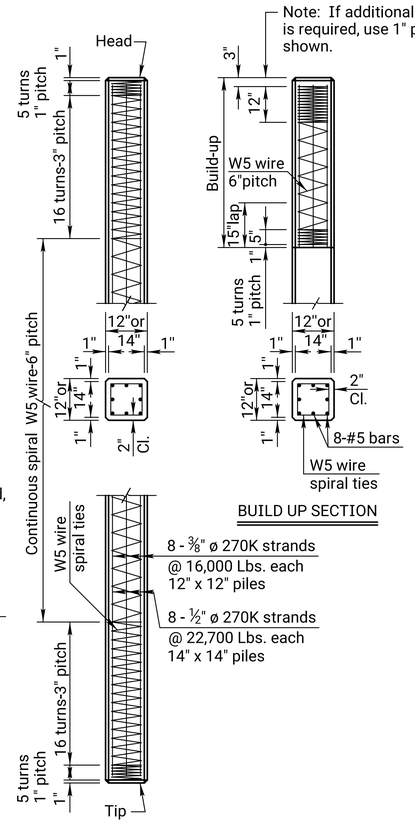
Plotted by : Andrew.Haase@ks.gov 05-DEC-2024 20:20
File : ka570101bss100b.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	42	93

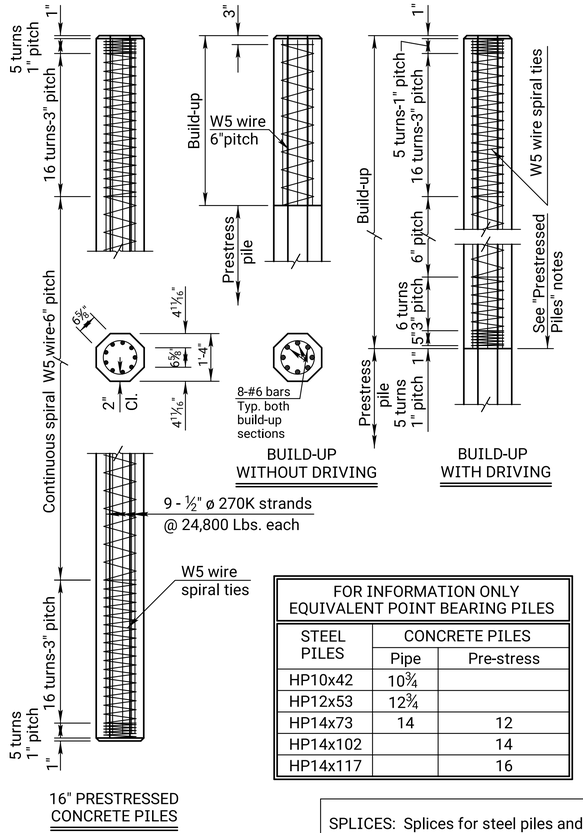


PLAIN ROUND
CAST-IN-PLACE CONCRETE PILES



12" OR 14"
PRESTRESSED
CONCRETE PILES

BUILD UP SECTION

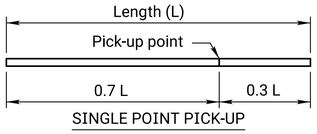


BUILD-UP
WITHOUT DRIVING

BUILD-UP
WITH DRIVING

16" PRESTRESSED
CONCRETE PILES

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.

SHELL 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.

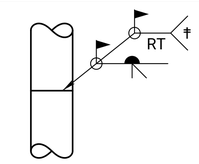
MILL TEST REPORTS: Steel piles test reports and steel shell test reports shall comply with the Standard Specifications.

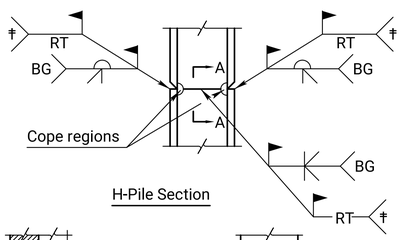
SPLICES: Splices for steel piles and shell piling shall be in accordance with details shown on this sheet and the Standard Specifications.

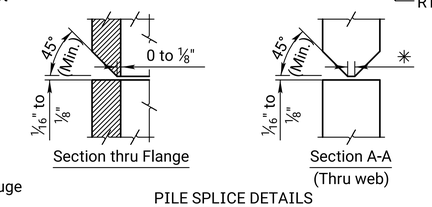
For integral pile bent abutments and piers, if a pile splice is required, do not locate the pile splice within a region extending 2'-0" above and 10'-0" below the bottom of the concrete web wall. For abutments, locate the pile splice at least 10'-0" below top of fill.

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".







✳ 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.

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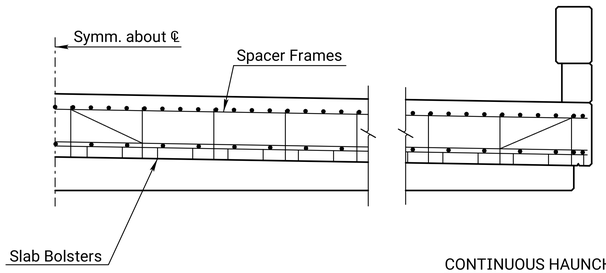
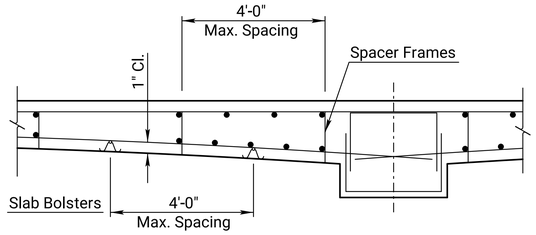
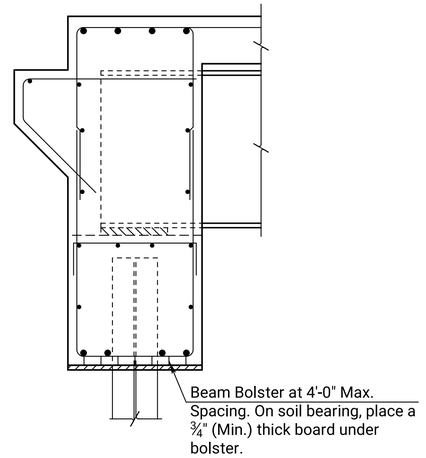
File : ka5701101bss110.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	43	93

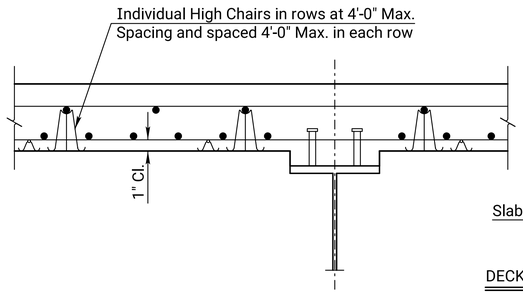


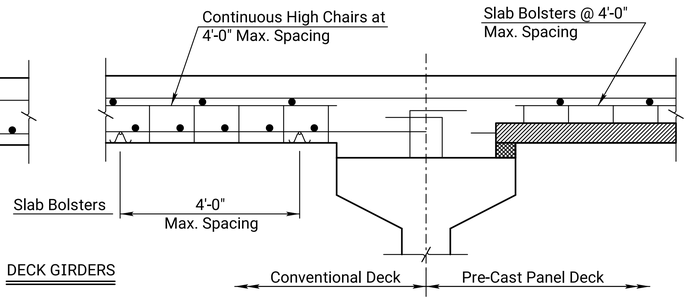


CONTINUOUS HAUNCHED SLAB

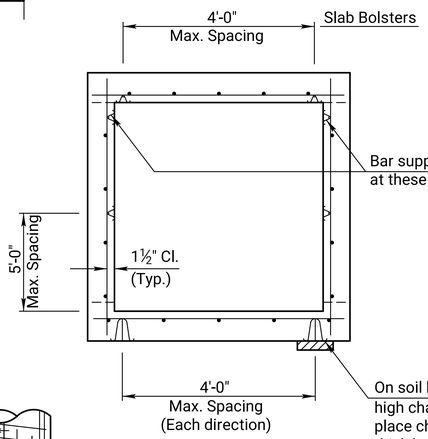


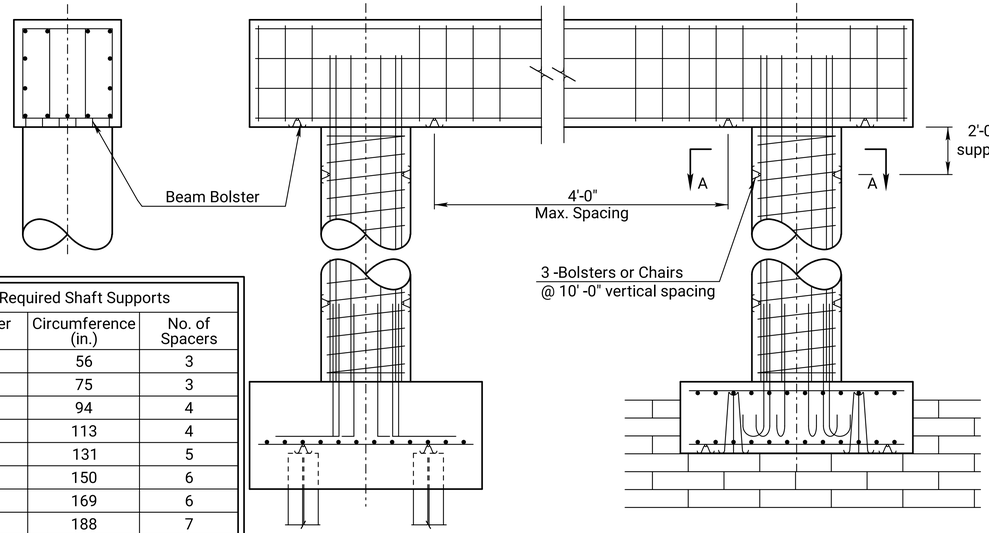
ABUTMENT





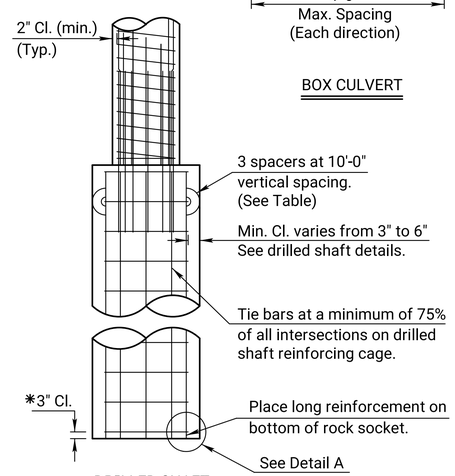
DECK GIRDERS



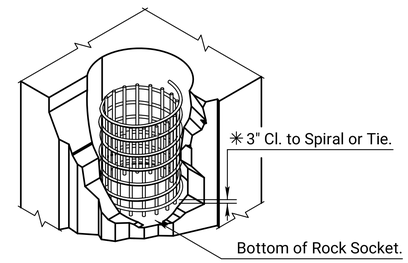


PIER

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

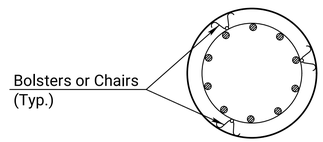


DRILLED SHAFT



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.

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	44	93

CONCRETE PAVEMENT (10" UNIFORM)(AE) (BR. APP.) AND BRIDGE APPROACH SLAB FOOTINGS

STATION TO STATION		SIDE	Conc. Pvmt. (10" Uniform)(AE)(Br. App.) (Sq. yd.)	SLAB FOOTINGS (Cu. yd)	REMARKS
Br. No. 58-16-33.3 (043)					
209+34.75	209+67.75	℄	111.4	17.8	
212+22.25	212+55.25	℄	111.4	17.8	
TOTALS			222.8	35.6	

SALVAGED TOPSOIL

STATION TO STATION	SIDE	SQ. YDS.
206+50 to 210+50.63	Rt	2,301.2
205+50 to 210+50.63	Lt	3,363.0
210+69.85 to 215+50	Rt	1,601.1
210+69.85 to 216+50	Lt	3,493.1
TOTAL		10,758.4

RECAPITULATION OF BRIDGE QUANTITIES

BRIDGE NUMBER	STATION	SEE SHEET NO.
3-6-38.34 (101)	26+24.50	28

REMOVAL OF EXISTING STRUCTURES

(For Information Only)

STATION/STATION	SIDE	DESCRIPTION
208+87.32 to 209+75.80	Lt.	88.48 LN. FT. OF GUARDRAIL
208+87.16 to 209+75.78	Rt.	88.62 LN. FT. OF GUARDRAIL
212+15.01 to 213+02.47	Lt.	87.46 LN. FT. OF GUARDRAIL
212+16.45 to 213+02.69	Rt.	86.24 LN. FT. OF GUARDRAIL
213+90.00	Lt.	REMOVE 2 x 30" x 40' EP (CMP)
210+95.00	℄	REMOVE BR. NO. 58-16-33.3 (043)

NOTE: The list shown may not be complete. Payment for structures or obstructions not listed but whose removal is required by the construction as determined by the Engineer, shall not be paid for directly, but shall be included in the bid item "Removal of Existing

STEEL PLATE GUARDRAIL (MGS)

STATION TO STATION	SIDE	FLARE RATE	GUARDRAIL STEEL PLATE (MGS) FT.	END TERMINAL (EACH) MGS-SRT FLARED Alt. #1 each	END TERMINAL (EACH) MGS-FLEAT FLARED Alt. #2 each	REMARKS
209+18.44 to 209+67.75	Lt.	15:1	50.00	1	1	
208+18.52 to 209+67.75	Rt.	30:1	150.00	1	1	
212+22.25 to 213+71.48	Lt.	30:1	150.00	1	1	
212+22.25 to 212+71.55	Rt.	15:1	50.00	1	1	
TOTAL			400.00	4	4	

RECAPITULATION OF ROAD QUANTITIES

ITEM	QUANTITY	UNIT
Contractor Construction Staking	Lump Sum	Lump Sum
Field Office and Laboratory (Type C)	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	Cu. Yd.
Concrete for Seal Course (Set Price)	1	Lump Sum
Clearing and Grubbing	Lump Sum	Cu. Yd.
Common Excavation (Rural Small)	1,822	Cu. Yd.
Common Excavation (Contractor Furnished)	6,255	Cu. Yd.
Rock Excavation	221	Cu. Yd.
Compaction of Earthwork (Type A)(MR-5-5)	5,693	Cu. Yd.
Compaction of Earthwork (Type AA)(MR-5-5)	351	MGAL
Water (Grading)(Set Price)	1	Ln. Ft.
Guardrail, Steel Plate (MGS)	400	Each
Guardrail, End Terminal (MGS-SRT) Alt. #1	4	Each
Guardrail, End Terminal (MGS-FLEAT) Alt. #2	4	PMPS
Mowing	0.2	Ln. Ft.
Entrance Pipe (24")	82	Each
End Section (24")	2	Sq. Yd.
Concrete Pavement (10" Uniform)(AE)(Br. App.)	223	Cu. Yd.
Bridge Approach Slab Footing	35.6	Lump Sum
Curing Environment	Lump Sum	Sq. Yd.
Salvaged Topsoil	10,758	Cu. Yd.
Temporary Surfacing Material (Aggregate)(Set Price)	1	

DRAINAGE STRUCTURES

STATION	SIDE	SIZE	TYPE	Gr. 4.0 CONC. (CU.YDS.)	Gr. 4.0 (AE) CONC. (CU.YDS.)	REINF. STEEL EPOXY COATED (LBS.) (GR. 60)	CROSS ROAD PIPES (LIN. FT)	ENTRANCE PIPES (LIN. FT.) 24"	RCHE	RCHE(Reset)	END SECTIONS (TYPE I) (EACH) ◔	RCHE	24"	HEIGHT FILL (FT.)	CONCRETE AASHTO CLASS NO.	PIPE GAUGE STEEL	REMARKS
(℄ K-58) 215+25.00	Lt.	24"	E.P. (RCP, CAP, ACSP, PEP, PVCP, SRPEP, PPP)					82					2	6	II		
TOTALS								82					2				

Note: ◔ - *See Pipe Culvert Summary Sheet (Sh. No. 27) for allowable End Section types.*

EARTHWORK

STATION to STATION	EXCAVATION COMMON CU.YDS.	COMMON VMF	ROCK✳✳ CU.YDS.	ROCK VMF	CONTR. FURN. CU.YDS.	COMPACTION TYPE AA MR-5-5 CU.YDS.	TYPE A MR-5-5 CU.YDS.	NOT SUBGRADED THROUGH CUTS COMM. CU.YDS.	TYPE AA CU.YDS.	✳EMBANKMENT (CU.YDS.) INITIAL CONSOL.	SETTLE-MENT	⚠PLACE SELECT SOIL CU.YDS.
205+50 to 216+50	1,563	0.74	221	1.00	6,255	92	5,693	259	259			
TOTALS	1,563		221		6,255	92	5,693	259	259			

✳✳ Existing Pavement to be Wasted

For Surfacing Quantities, See Sh. No. 45
For Temporary Project Water Pollution Control (Soil Erosion) Quantities, See Sh. No. 48
For Seeding Quantites, See. Sh. No. 54
For Permanent Signing, See. Sh. No. 63, 64, 65
For Traffic Control Quantities, See Sh. No. 86
For Pavement Marking Quantities, See Sh. No. 74

≠ Non-Participating

✳ Subsidiary (see General Note). ⚠ See General note.

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.

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Sh. No. 44

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	45	93

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-5-5)".

~~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 A)(MR-5-5) 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.

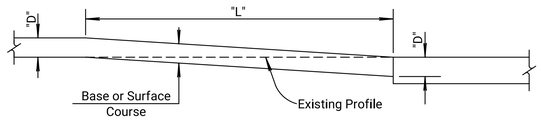
The base course shall be constructed to the plan thickness as shown.

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.



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.

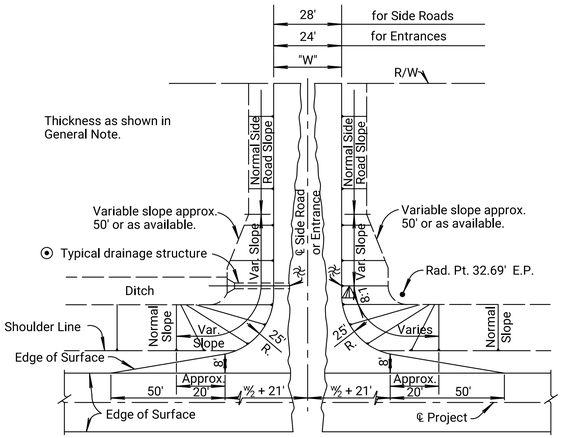
The work of cutting the subgrade and disposing of excess excavated material shall be subsidiary to other items in the contract.

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'

SUMMARY OF QUANTITIES					
ITEM	MAINLINE	GUARDRAIL		TOTAL	UNITS
✳HMA-Commercial Grade (Class A)	942	12		954	Ton
Aggregate Base (AB-3)(6")	1,065.2			1,065.2	Sq. Yd.
Aggregate Shoulders (AS-1)(4")	171.0	583.1		754.1	Sq. Yd.

✳Computed at the rate of 145 lbs. per cu. ft. (mixed weight aggregate and asphalt)

RECAPITULATION OF QUANTITIES					
ITEM				TOTAL	UNIT
Field Office and Laboratory (Type A)				1	Each
HMA-Commercial Grade (Class A)				954	Ton
Aggregate Base (AB-3)(6")				1,065	Sq. Yd.
Aggregate Shoulders (AS-1)(4")				754	Sq. Yd.
Water (Aggregate Base) (Set Price)				1	MGAL
Water (Aggregate Shoulders) (Set Price)				1	MGAL



WITH DRAINAGE STRUCTURE MOUND ENTRANCE OR SIDE ROAD

DETAIL FOR SURFACING OF SIDE ROADS & HOUSE ENTRANCES

⚠ 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 high-way 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.

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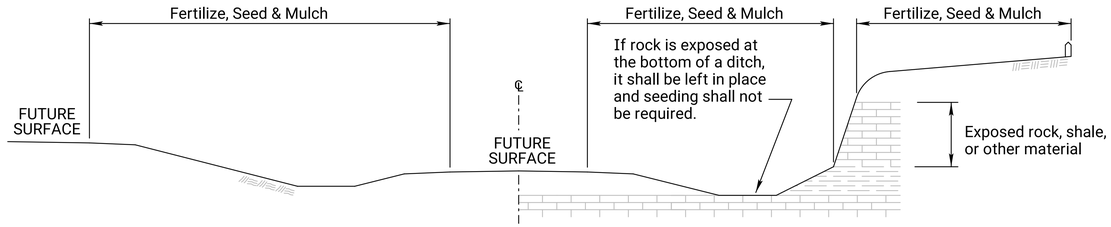
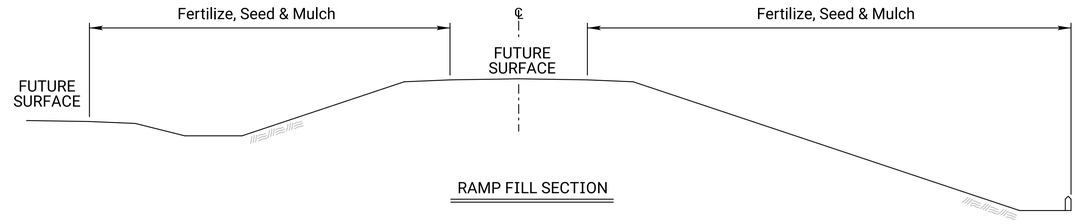
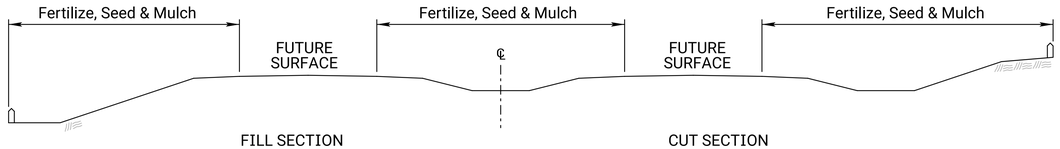
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	46	93



RAMP CUT SECTION



RAMP FILL SECTION



FILL SECTION CUT SECTION

TYPICAL SECTION - DUAL PAVEMENT

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		1.80	Temporary Fertilizer (15 - 30 - 15)	270	LB
				Temporary Seed (Canada Wildrye)		LB
				Temporary Seed (Grain Oats)		LB
				Temporary Seed (Sterile Wheatgrass)		LB
	109.9		1.80	Soil Erosion Mix	197.8	LB
				Erosion Control (Class 1, Type C)	8,845	SQ YD
				Erosion Control (Class X, Type Y)		SQ YD
				Sediment Removal (Set Price)	1	CU YD
				Synthetic Sediment Barrier		LF
				Temporary Berm (Set Price)	1	LF
				Temporary Ditch Check (Rock)	120	CU YD
				Temporary Inlet Sediment Barrier		EACH
				Temporary Sediment Basin		CU YD
				Temporary Slope Drain		LF
				Temporary Stream Crossing		EACH
				Biodegradable Log (9")		LF
				Biodegradable Log (12")		LF
				Biodegradable Log (20")	258	LF
				Filter Sock (18")	209	LF
				Geotextile (Erosion Control)	500	SQ YD
				Silt Fence	149	LF
				SWPPP Design †	1	LS
				SWPPP Inspection †	*38*	EACH
				Water Pollution Control Manager †	*38*	EACH
900				Mulch Tacking Slurry		LB
2 tons / acre				Mulching		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: lbs/ac	Acres	Bid Item	QTY	Unit
SHLD	SHLD			
0.5	1.80	Seed (Blue Grama Grass Seed) (Lovington)	0.90	Lbs
4.5	1.80	Seed (Buffalograss Seed) (Treated)	8.10	Lbs
45	1.80	Seed (Perennial Rygrass)	81.00	Lbs
2.6	1.80	Seed (Prairie Junegrass)	4.68	Lbs
6.3	1.80	Seed (Side Oats Grama Grass Seed) (El Reno)	11.34	Lbs
45	1.80	Seed (Tall Fescue) (Endophyte Free)	81.00	Lbs
6	1.80	Seed (Western Wheatgrass Seed) (Barton)	10.80	Lbs
109.9 lbs/ac		Total	197.82	Lbs

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.

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	47	93

EROSION CONTROL- CLASS 1, TYPE C

STATION TO STATION	SIDE	LENGTH	WIDTH	SQ YARD
205+50.00 TO 208+00.00	LT	250	48	1,333.0
208+00.00 TO 210+50.00	LT	250	65	1,806.0
211+00.00 TO 213+50.00	LT	250	26	722.0
213+50.00 TO 215+00.00	LT	150	60	1,000.0
215+36.00 TO 216+50.00	LT	114	76	963.0
206+50.00 TO 207+50.00	RT	100	40	444.0
207+50.00 TO 210+50.00	RT	300	25	833.0
211+00.00 TO 213+50.00	RT	250	34	944.0
213+50.00 TO 215+50.00	RT	200	36	800.0
TOTAL EROSION CONTROL (CLASS 1, TYPE C) =				8,845.0

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.

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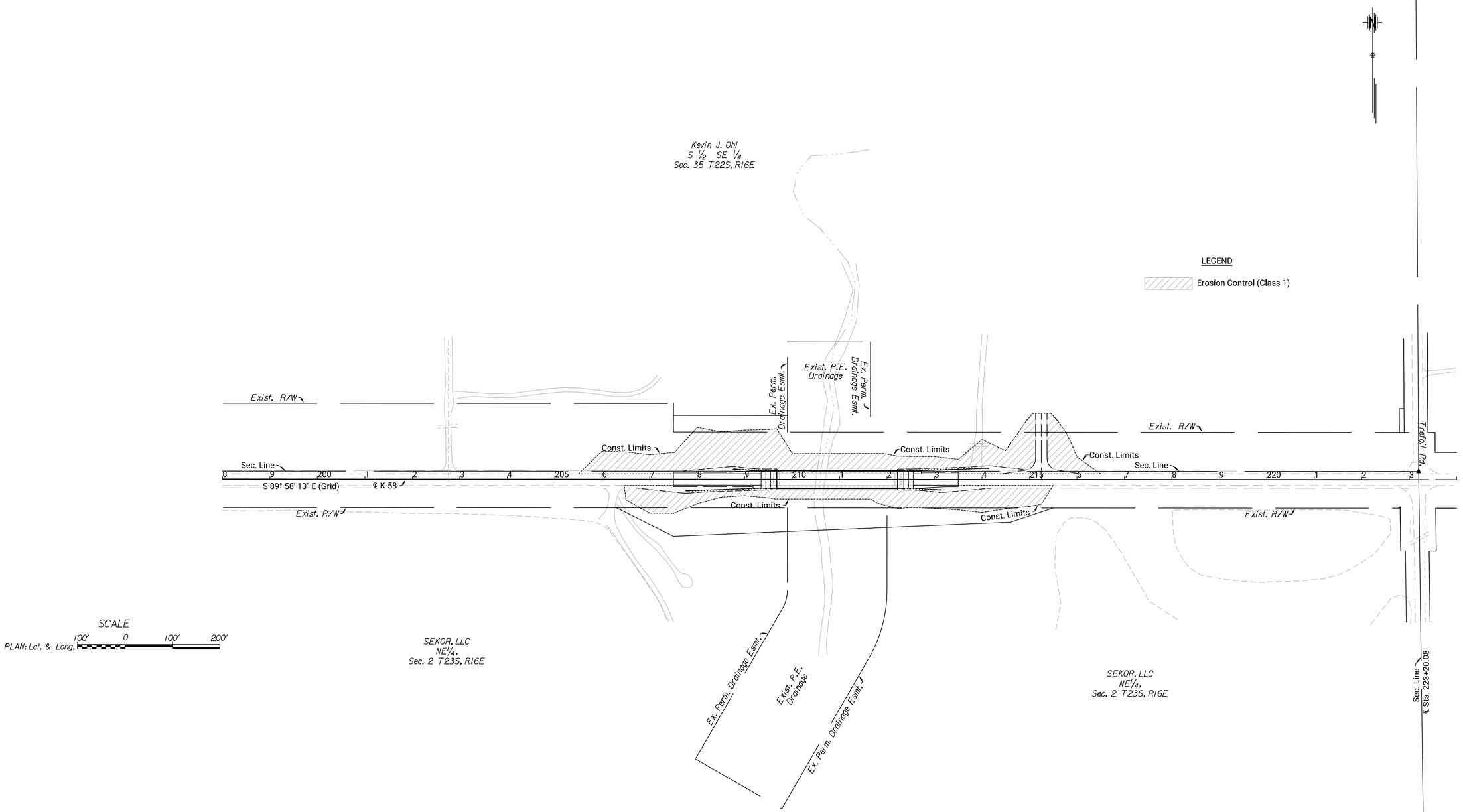
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	48	93

BY	DATE
REFERENCES NOTED	8/2021
REFERENCES CHECKED	8/2021



KANSAS DEPARTMENT OF TRANSPORTATION

PROPOSED FINAL

EROSION CONTROL PLANS

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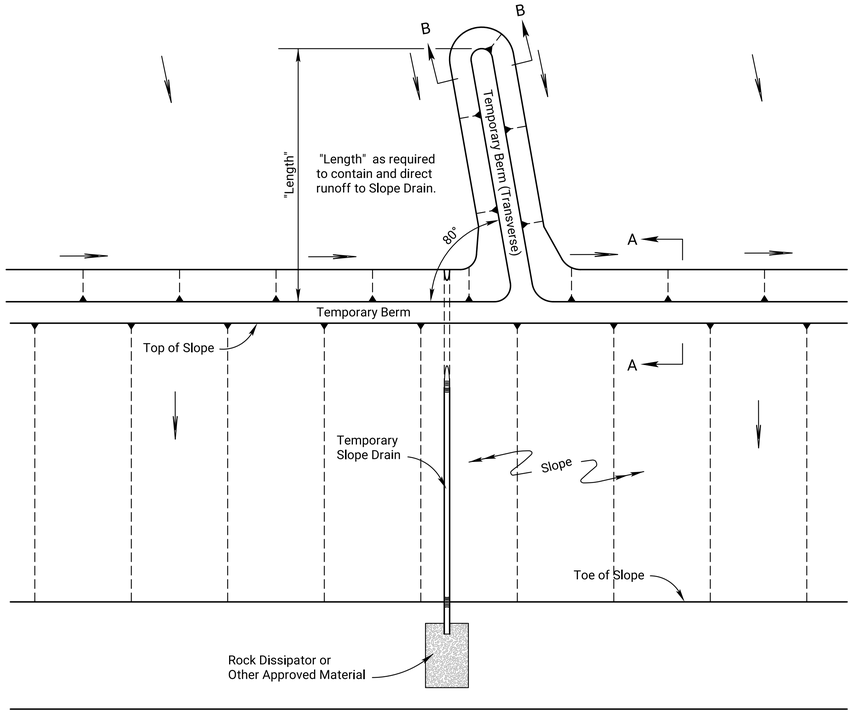
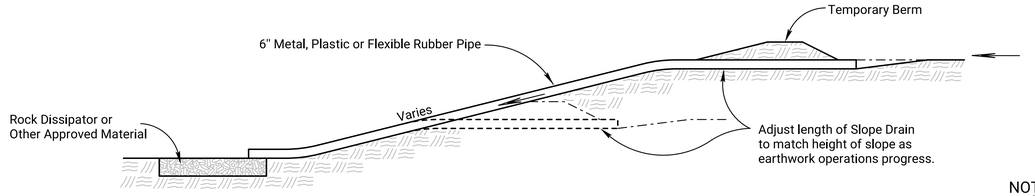
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	49	93



TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN

NO SCALE



TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

NO SCALE

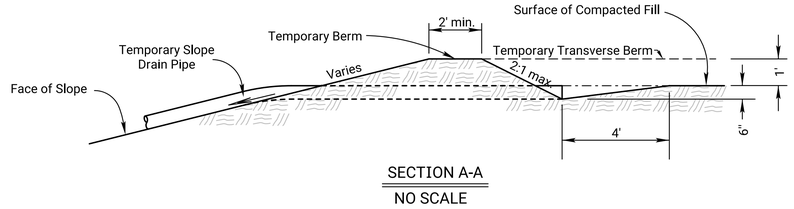
NOTES:

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.

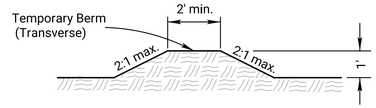
3) Pipe shall be secured in place as approved by Engineer.

4) Temporary Berms under 2,000 feet shall be bid by Set Price.



SECTION A-A

NO SCALE

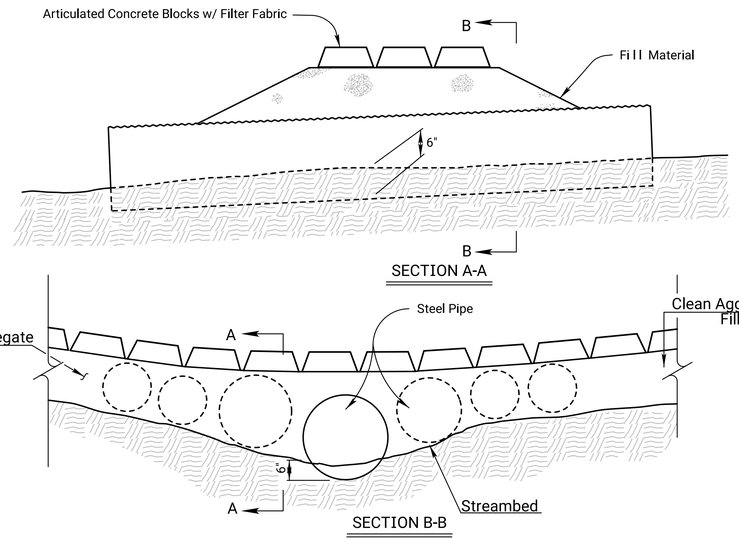


SECTION B-B

NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM

NO SCALE



Pipe size may vary.

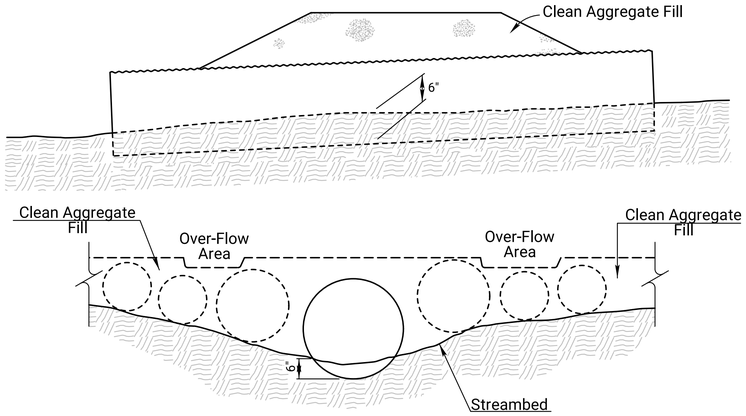
Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the 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.

TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)

NO SCALE



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.

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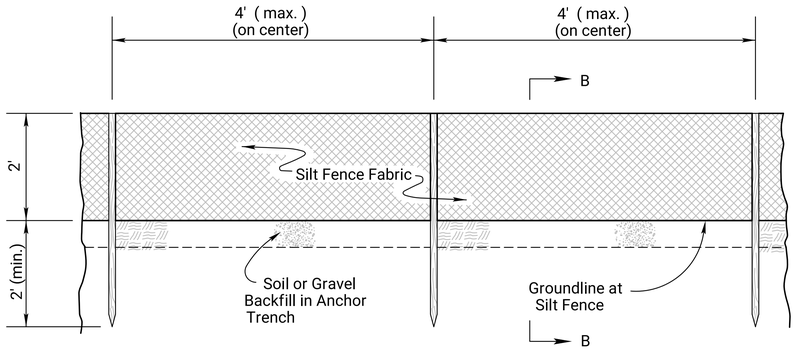
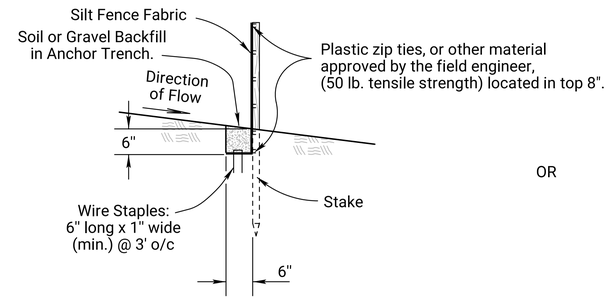
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	50	93



TYPICAL ELEVATION

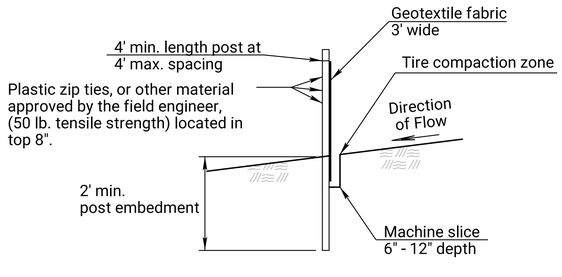
SILT FENCE BARRIER

NO SCALE

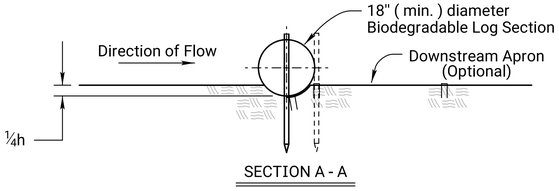


SECTION B-B

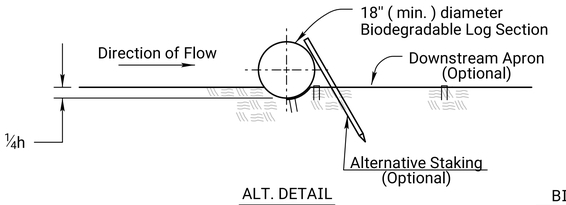
OR



SECTION B-B

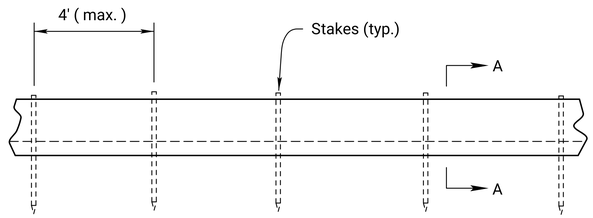


SECTION A - A



ALT. DETAIL

OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS

OR Filter Sock

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

		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)
Slope Gradient	≤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

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.

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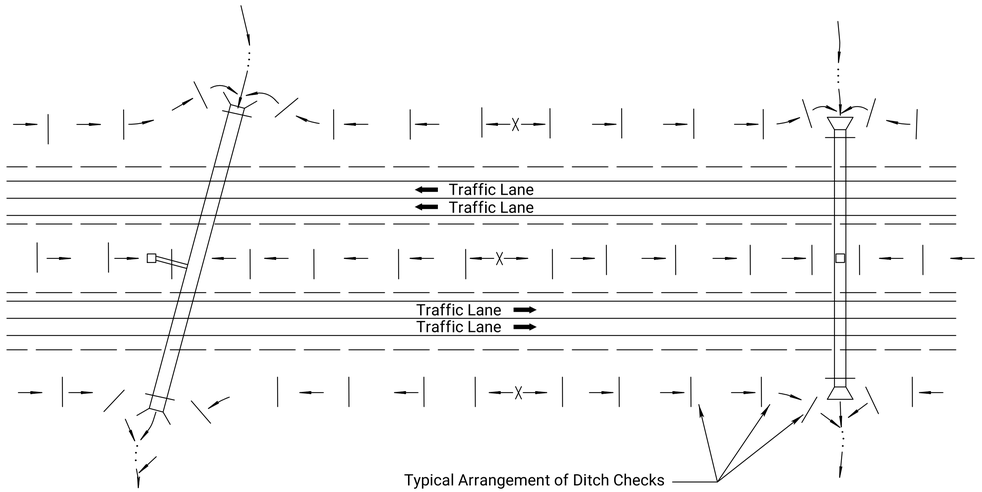
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	51	93



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.

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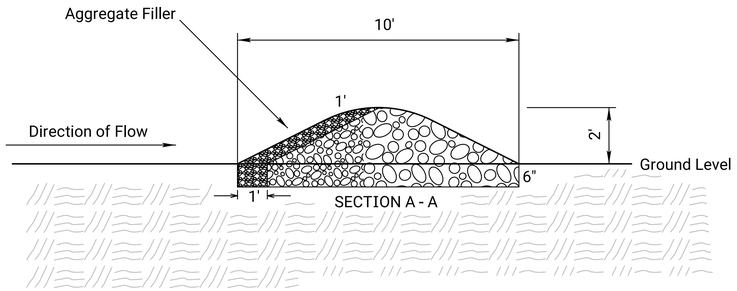
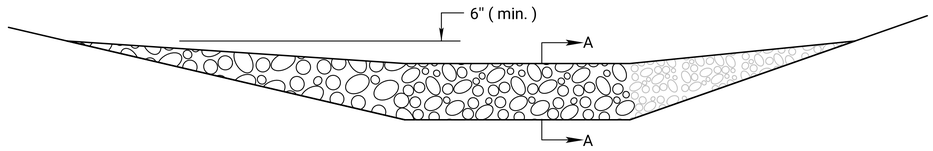
File : ka570101eec852e-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	52	93





TYPICAL ELEVATION

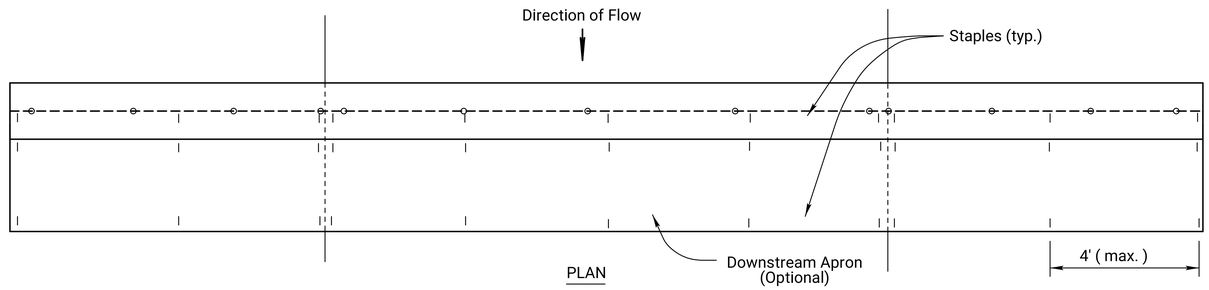
ROCK DITCH CHECK

NO SCALE

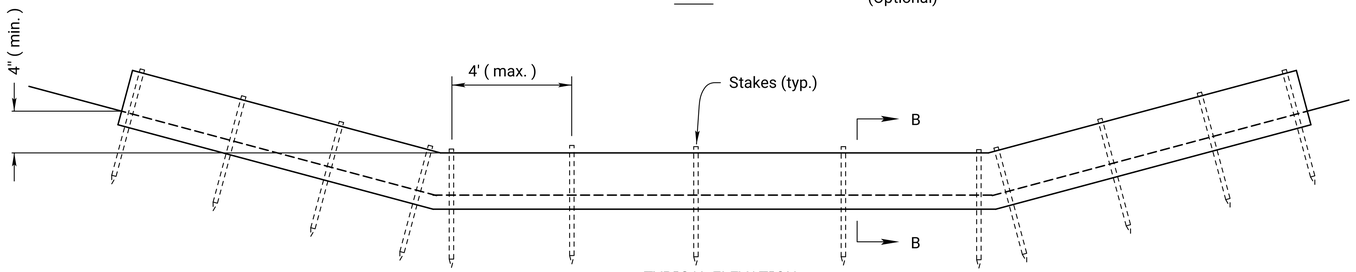
TEMPORARY ROCK DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
NOTE: Use this spacing for Rock Ditch Checks only.	

ROCK DITCH CHECK NOTES

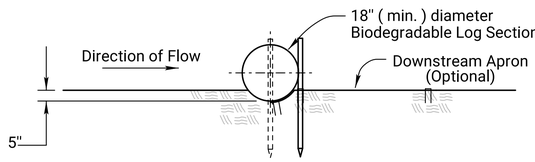
1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch 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.



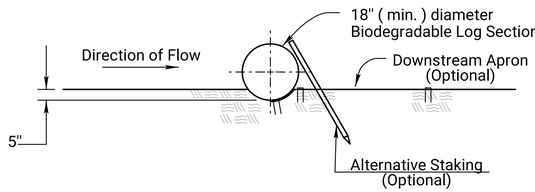
PLAN



TYPICAL ELEVATION



SECTION B - B



ALT. DETAIL
OPTIONAL

BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE

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.

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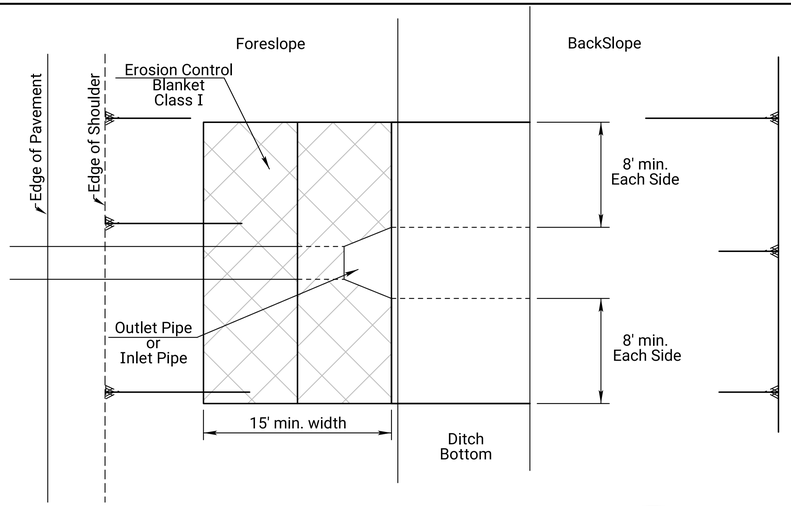
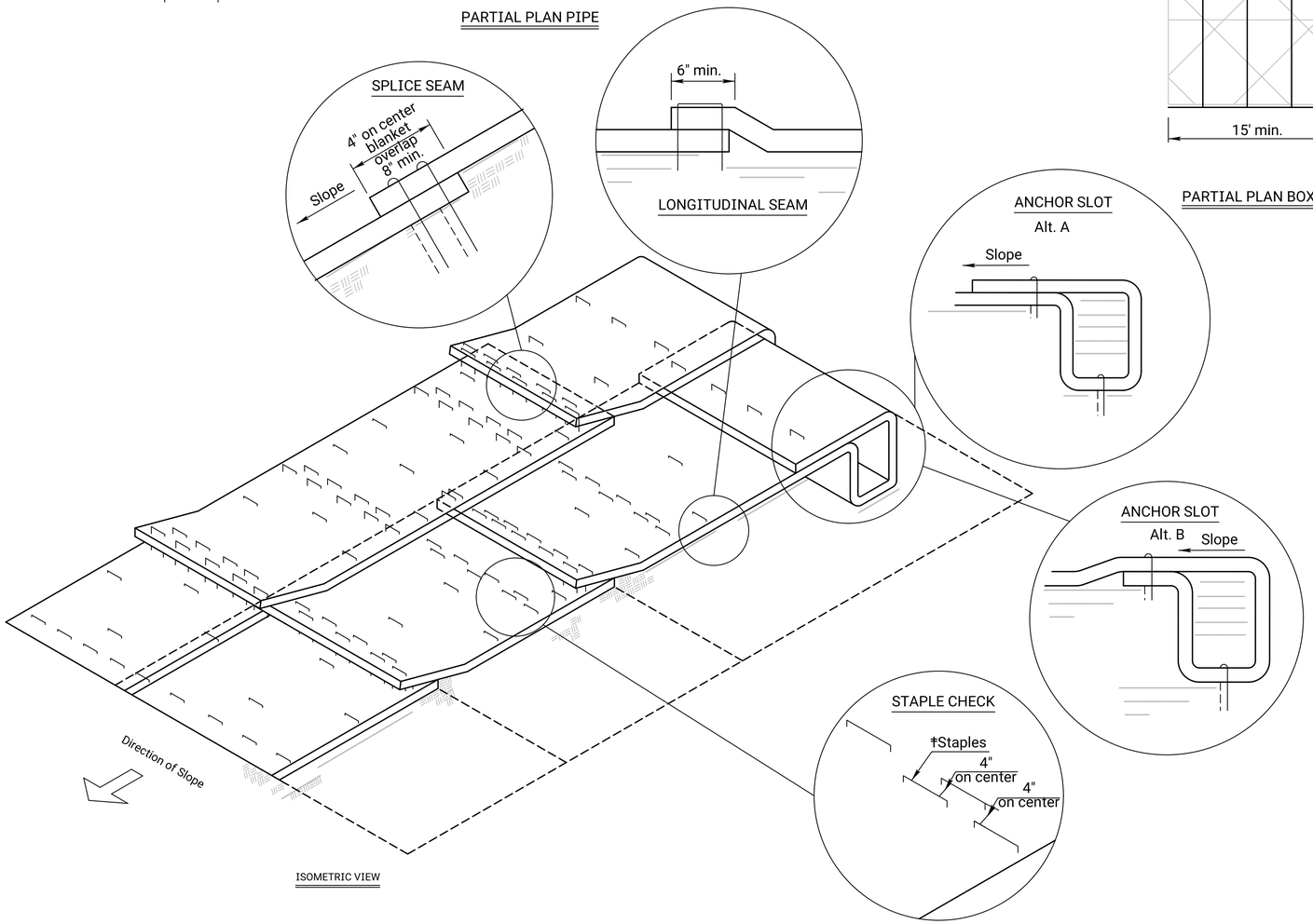
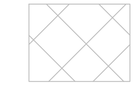
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	53	93



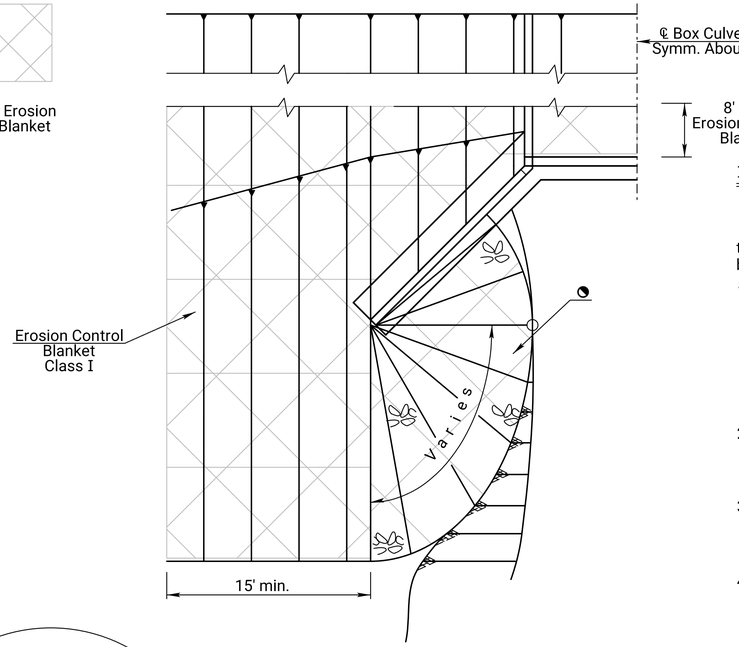
PARTIAL PLAN PIPE



ISOMETRIC VIEW



Limits of Erosion Control Blanket



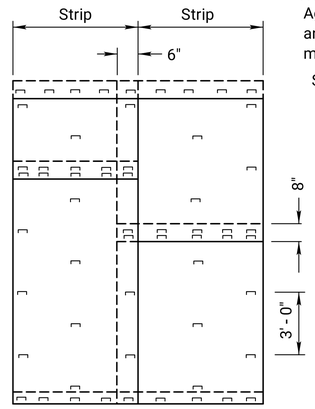
PARTIAL PLAN BOX CULVERT

◔ Erosion Control Class I may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans).

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: ‡Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.



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.

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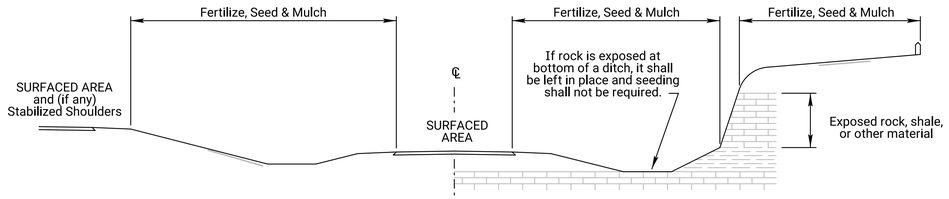
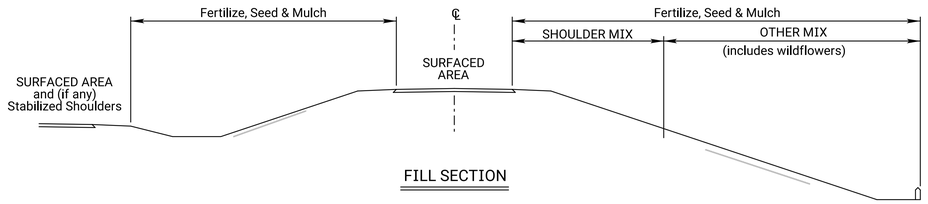
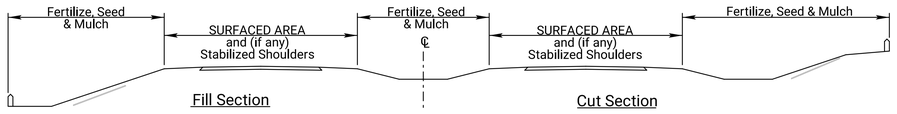
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	54	93



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:

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.

When seeding is less than 1 acre, temporary and permanent seeding shall be combined and seeded at the same time.

There is no seasonal restriction when seeding projects less than one acre.

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 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 SHLDR	P.L.S. RATE/ACRE OTHER	ACRES SHLDR	ACRES OTHER	BID ITEM	QUANTITY	UNIT
				THIS PROJECT IS ENTIRELY BLANKETED AND SEEDED WITH THE SOIL EROSION MIX, ELIMINATING THE NEED FOR PERMANENT SEEDING OPERATIONS.		
				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.

KDOT Graphics Certified 12-02-2024 Sh. No. 54

KDOT Graphics Certified

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:18
File : ka570101eps850-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	55	93

SYMBOL KEY

- REMOVE SIGN
- REMOVE POST
- REMOVE FOOTING
- REMOVE SIGN & POST
- REMOVE POST & FOOTING
- REMOVE SIGN, POST, & FOOTING
- MOUNT ON WOOD POST IN CONCRETE FOOTING
- MOUNT ON WOOD POST IN SOIL
- MOUNT ON STEEL BEAM BREAKAWAY POST
- MOUNT ON STEEL U-POST
- MOUNT ON PSST POST
- MOUNT ON EXISTING POST
- MOUNT ON VERTICAL SUPPORT
- SHOULDER MOUNTED INSTALLATION
- OFFSET MOUNTED INSTALLATION
- EXISTING SIGN
- EXISTING SIGN TO BE OVERLAID
- SIGN IS NOT PART OF PROJECT
- TYPE 'A' DELINEATOR (RIGID)
- TYPE 'A' DELINEATOR (RIGID) (BK-BK)
- TYPE 'B' DELINEATOR (RIGID)
- TYPE 'A' DELINEATOR (FLEXIBLE)
- TYPE 'A' DELINEATOR (FLEXIBLE) (BK-BK)
- TYPE 'B' DELINEATOR (FLEXIBLE)
- TYPE 2 OBJECT MARKER
- TYPE 3 OBJECT MARKER
- TYPE 3 OBJECT MARKER (BK-BK)

GENERAL NOTES

In order to expedite the completion of the project for traffic service, the signing and delineator work shall be sequenced with any other contract work such that the phases of construction may proceed and be completed at the same time.

New signs erected on the project which are in conflict with existing signing are to be completely covered until the existing signs are removed or the new signing is applicable. The existing signs that are being replaced, removed, or do not follow the current MUTCD signing standards are to be removed when the project is completed or as determined by the Engineer.

The Contractor shall exercise caution at all times when installing sign supports in and around areas where utilities exist, either underground or overhead, and will be held responsible for any damage incurred to the system. The installation of sign supports shall include the excavation, drilling, or driving the support footing and the erection of the sign support. The contractor shall exercise caution when working around any existing signs that are to remain and will be held responsible for any damage to the signs, supports, or footings. The Contractor shall exercise care when working around shrubbery while removing or installing signs or sign supports.

An existing sign post installation shall be plumb and the compaction of the backfill soil shall comply with the specifications after the removal and resetting of a sign, the removal and replacement of a sign, or the installation of a new sign.

The Contractor shall provide mounting bolts that are of a length that does not extend more than a nominal 1 inch beyond the sign post. The Contractor shall not make any field modifications to the mounting bolt prior to or after the sign is installed.

Specific service (LOGO) signs that are to be removed shall have the business logo plaques removed and transported to location determined by KDOT, at which time the plaques become the property of KDOT. The Contractor will be assessed a replacement cost for any damage to a business logo plaque prior to the plaque becoming the property of KDOT.

The materials and fabrication for signing and delineation work shall conform to the Standard Specifications for State Road and Bridge Construction (2015 edition) and Special Provisions.

INDEX OF SHEETS

NO.	DATE	REVISIONS	BY	APP'D
02	10-01-19	Changed symbol, notes, & index	D.D.G.	E.W.N.
01	07-23-10	Changed General Notes and Spec Book Date	D.D.G.	D.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SIGNING SYMBOL KEY
GENERAL NOTES
AND INDEX

TE402 07-01-03

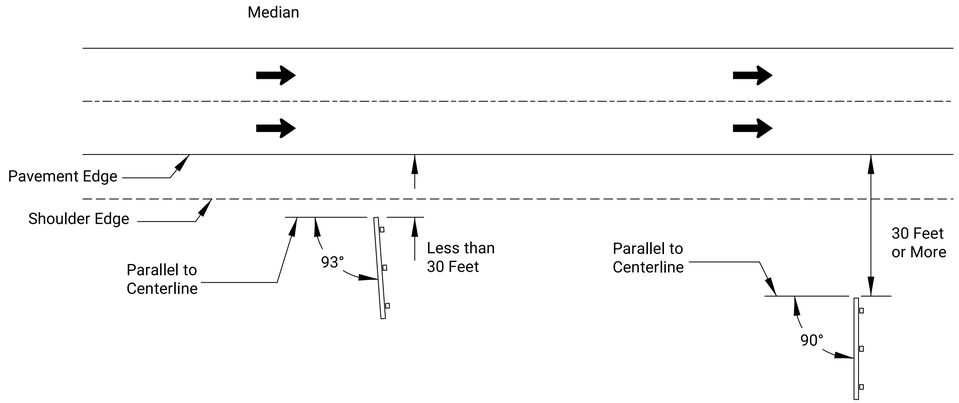
FHWA APPROVAL			10-01-19	APP'D.		Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	W.S.B.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.		TRACE CK.	

KDOT Graphics Certified 12-13-2024 Sh. No. 55

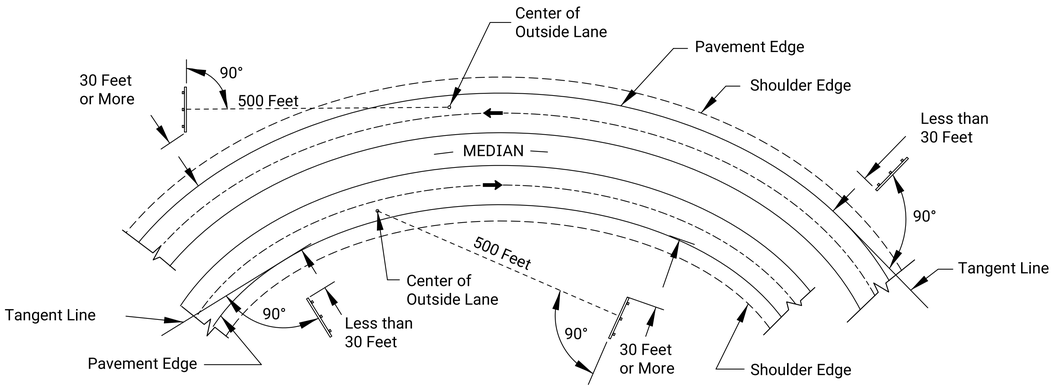
KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:33
File : KA570101 pss-402-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	56	93

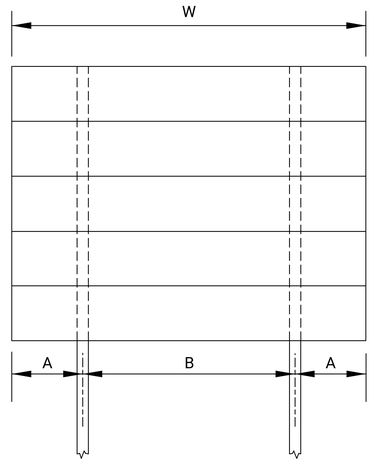


ANGLE OF SIGNS ERECTED ON STRAIGHT ROADWAY



ANGLE OF SIGNS ERECTED ON CURVED ROADWAY

GENERAL NOTE:
Gore and median signs shall normally be erected such that the sign face is truly vertical and rotated 93 degrees away from the center of the lane which the sign serves. All angles are measured to the face of the sign.



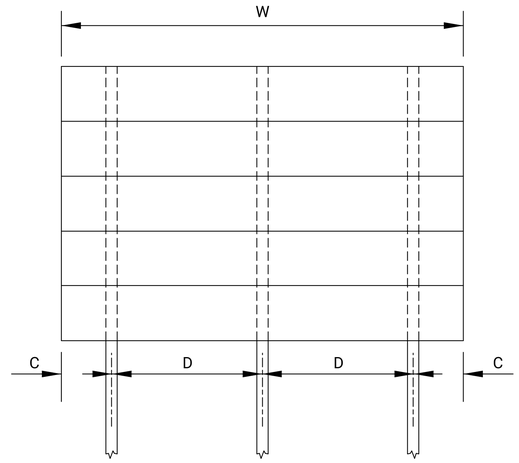
TWO POST SPACING

Wood Post		
A	B	W
6" (Min.)	3/5 W (Min.)	NA

Steel Beam Post (Width less than or equal to 13'-0")		
A	B	W
12" (Min.)	8'	10'-0" (Min.)

Steel Beam Post (Width greater than 13'-0")		
A	B	W
32" (Min.)	8' (Min.)	13'-6" (Min.)

Spacing Pattern: A+B+A
W= Sign Width
A= 1/5 W
B= 3/5 W



THREE POST SPACING

Wood Post		
C	D	W
6" (Min.)	4' (Min.)	9'-0" (Min.)

Steel Beam Post (Width less than or equal to 21'-0")		
C	D	W
12" (Min.)	8'	18'-0" (Min.)

Steel Beam Post (Width greater than 21'-0")		
C	D	W
32" (Min.)	8' (Min.)	21'-6" (Min.)

Spacing Pattern: C+D+D+C
W= Sign Width
C= 1/8 W
D= 3/8 W

NOTE: All spacing dimensions are measured to the centerline of the posts.

POST SPACING FOR REINFORCED PANEL SIGNS

NO.	DATE	REVISIONS	BY	APP'D
01	10-01-19	Changed the post spacing tables and notes	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

POST SPACING FOR REINFORCED PANEL SIGNS AND ANGLE OF SIGNS

TE404 07-01-03

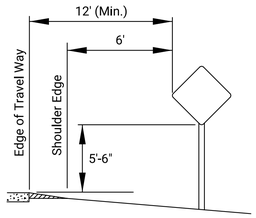
FHWA APPROVAL		10-01-19	APP'D.	Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	W.S.B.	QUANTITIES	TRACED
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-20-2022 Sh. No. 56

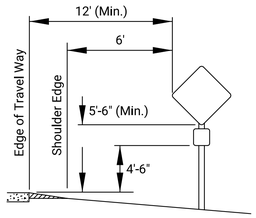
KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:33
File : KA570101 pss-404-01.dgn

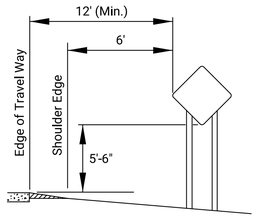
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	57	93



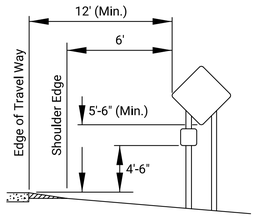
ONE POST



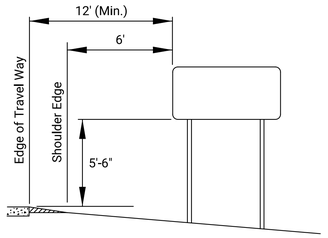
ONE POST WITH SUPPLEMENTAL SIGN



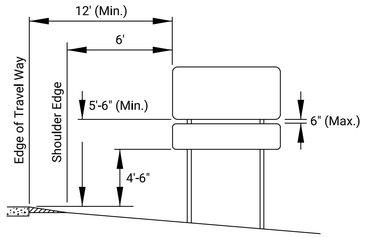
TWO POSTS



TWO POSTS WITH SUPPLEMENTAL SIGN

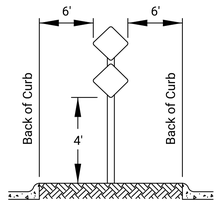


MULTIPLE POSTS

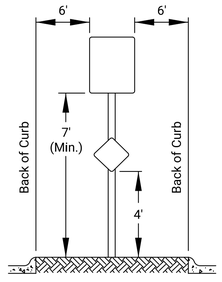


MULTIPLE POSTS WITH SUPPLEMENTAL SIGN

CONVENTIONAL HIGHWAY AND SIDE ROADS

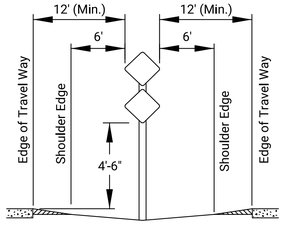


ONE OR TWO OM1-3

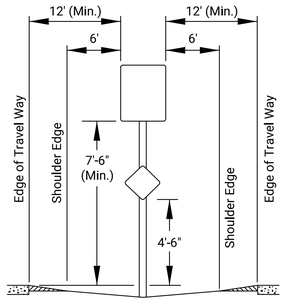


PRIMARY SIGN WITH OM1-3

RAISED



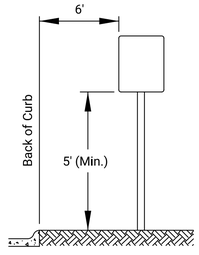
ONE OR TWO OM1-3



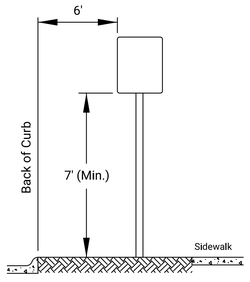
PRIMARY SIGN WITH OM1-3

DEPRESSED

MEDIANS AND ISLANDS

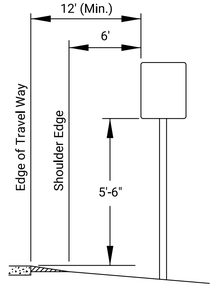


NO PARKING OR SIDEWALK



PARKING OR SIDEWALK

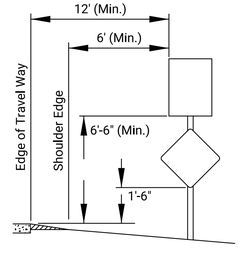
CURB



TYPICAL

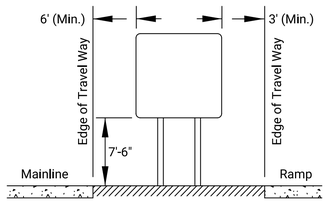
NO CURB

URBAN ROADWAYS

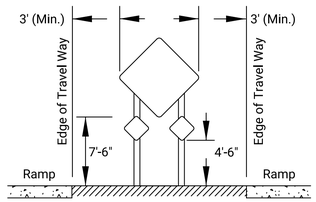


TYPICAL

ADOPT A HIGHWAY

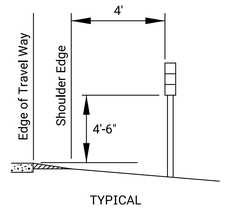


MAINLINE/RAMP



RAMP/RAMP

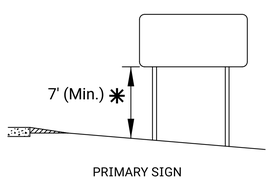
HIGHWAY GORES



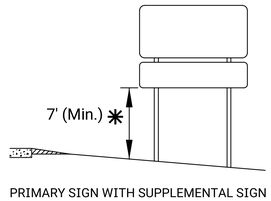
TYPICAL

Reference Marker Post: 2 Lb/Ft "U" Post

REFERENCE MARKERS



PRIMARY SIGN



PRIMARY SIGN WITH SUPPLEMENTAL SIGN

✱NOTE: Measured from the nearest point between the sign and the groundline.

GROUND CLEARANCE FOR STEEL BEAM POSTS

NOTES

The "Edge of Travel Way" is the edge line or the edge of the driving lane.

The outer edge of the sign shall not extend beyond the right of way line.

A minimum lateral clearance of 6' from pavement edge may be used where lateral offsets are limited.

In business, commercial, or residential districts where with limited lateral offsets, a minimum lateral clearance of 2' with a 7'-6" minimum mounting height may be used.

When signs are behind guardrail, the near edge of the sign shall not extend beyond the back side of the guardrail and the nearest sign post shall be a minimum of 5' from the face of the guardrail. Shoulder mounted signs shall not be located between 100' in advance of and 50' beyond the nose of the guardrail.

When the median or island is too narrow for the typical lateral placement, the sign may be placed a minimum of 2' from the back of the curb. In no case shall the sign edge extend beyond the back edge of the curb.

The gore sign shall be installed in the paved gore area. The edges of the gore sign shall not extend beyond the shoulder edge. The minimum distance from the centerline of the posts to the back of the paved gore area is 2'.

Signs may be moved laterally or longitudinally if it will improve visibility of the sign or other signs or if it will protect the sign more. The maximum allowable longitudinal adjustment is 100', with the exception of the reference marker which is 50'.

The minimum spacing between signs, excluding reference markers is 100'.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

MOUNTING HEIGHT & LATERAL OFFSET FOR CONVENTIONAL HIGHWAYS, SIDE ROADS, MEDIANS, ISLANDS, GORES, AND URBAN ROADWAYS

TE407 10-01-19

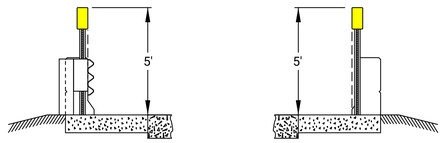
FHWA APPROVAL		10-01-19	APP'D.	Eric W. Nichol	
DESIGNED	D.D.G.	DETAILED D.D.G.	QUANTITIES	TRACED	
DESIGN CK.	E.W.N.	DETAIL CK. E.W.N.	QUAN.CK.	TRACE CK.	

KDOT Graphics Certified 07-11-2022 Sh. No. 57

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:33
File : KA570101 pss-407-01.dgn

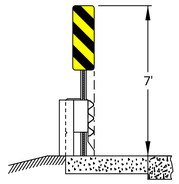
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	58	93



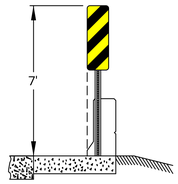
WITH GUARDRAIL

WITHOUT GUARDRAIL

SHOULDER WIDTH 6 FEET OR GREATER (TYPE 2 OBJECT MARKER)



WITH GUARDRAIL



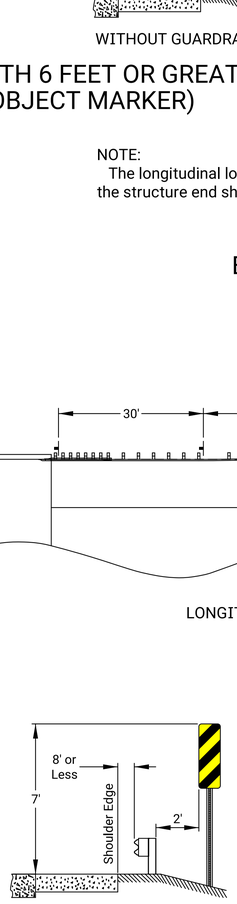
WITHOUT GUARDRAIL

SHOULDER WIDTH LESS THAN 6 FEET (TYPE 3 OBJECT MARKER)

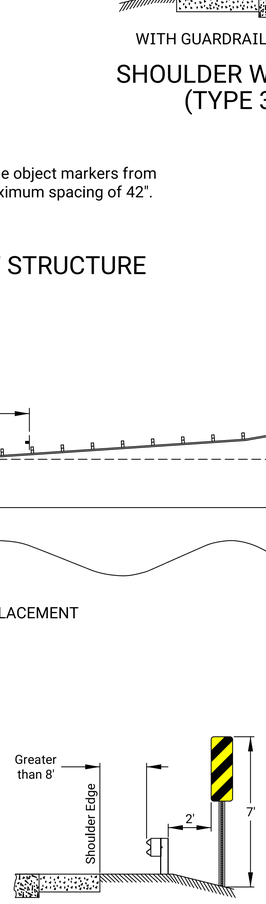
NOTE:
The longitudinal location of the object markers from the structure end shall be a maximum spacing of 42".

END OF STRUCTURE

LONGITUDINAL PLACEMENT

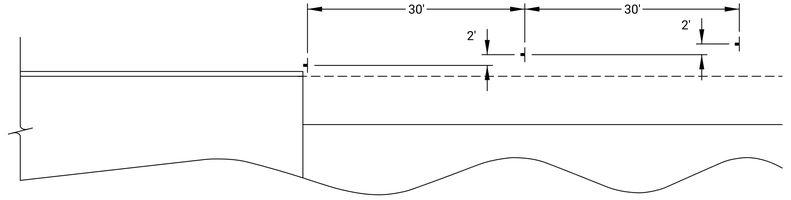


GUARDRAIL 8' OR LESS
FROM SHOULDER EDGE



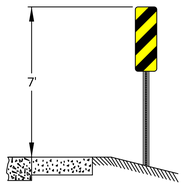
GUARDRAIL GREATER THAN 8'
FROM SHOULDER EDGE

STRUCTURE APPROACH GUARDRAIL WITHOUT MARKERS



LONGITUDINAL PLACEMENT

NOTE:
The lateral offset is measured from the centerline of the object markers.



STRUCTURE APPROACH WITHOUT GUARDRAIL

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

DESIGN DETAILS FOR OBJECT MARKERS (TYPE 2 & 3) FOR STRUCTURES WITH PARAPETS

TE415 10-01-19

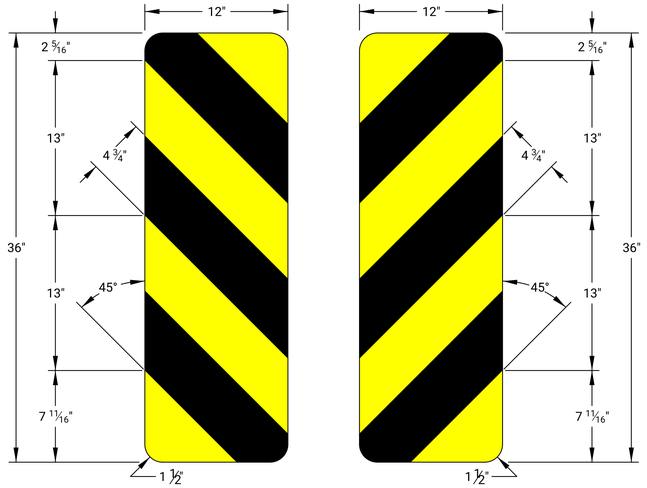
FHWA APPROVAL		10-01-19	APP'D.	Eric W. Nichol			
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES	TRACED		
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN.CK.	TRACE CK.		

KDOT Graphics Certified 05-25-2022 Sh. No. 58

KDOT Graphics Certified

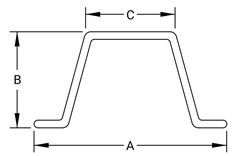
Plotted by : rick.dixon 13-DEC-2024 14:33
File : KA570101 pss-415-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	59	93



OM3-L

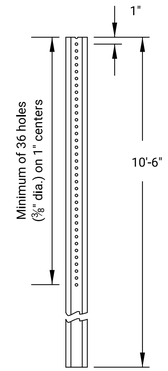
OM3-R



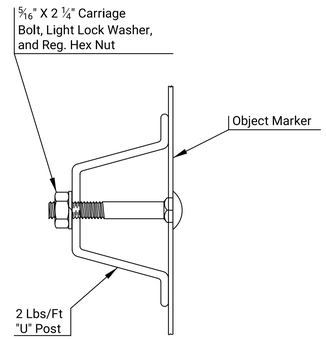
DIMENSIONS	
A	3 1/8
B	1 17/32
C	1 1/4

(Dimensions are nominal)

2 lb/ft "U" POST



PUNCHING DETAILS



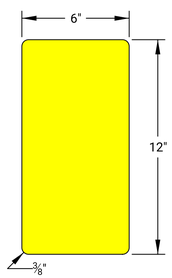
MOUNTING DETAILS

COLORS:
Yellow Background (Reflective)
Black Stripes (Non-reflective)

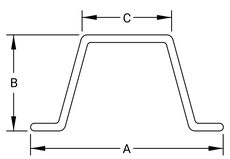
TYPE 3 OBJECT MARKER

GENERAL NOTE:
See flat sheet sign blank standard sheets for the 6" x 12" and 12" x 36" sign blank details.

The object markers shall be covered with Type XI High Intensity yellow retroreflective sheeting.



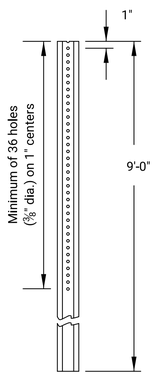
OM2



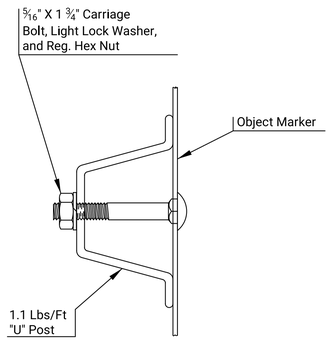
DIMENSIONS	
A	2 1/16
B	7/8
C	13/16

(Dimensions are nominal)

DELINEATOR POST
(1.1 lb/ft "U" Post)



PUNCHING DETAILS



MOUNTING DETAILS

COLOR:
Yellow Background (Reflective)

TYPE 2 OBJECT MARKER

All dimensions are in inches unless otherwise noted.
See standard plan sheet TE590 for detailed specifications.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

DESIGN DETAILS FOR OBJECT MARKERS TYPE 2 AND TYPE 3

TE416 10-01-19

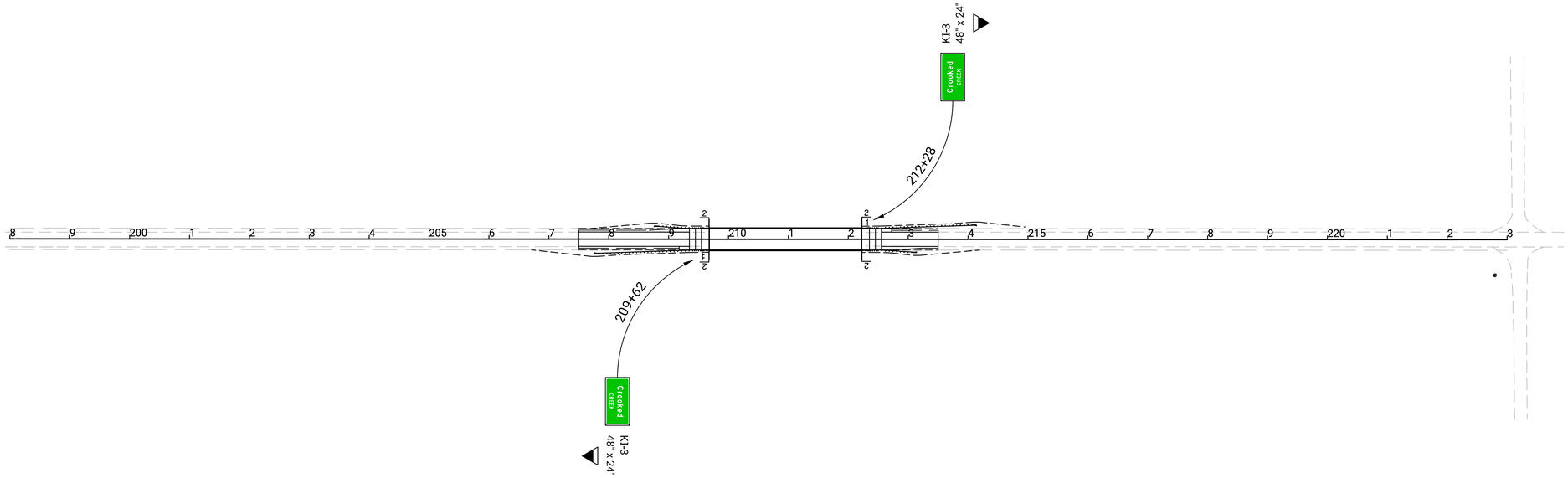
FHWA APPROVAL			10-01-19	APP'D.	Eric W. Nichol		
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES		TRACED	
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN.CK.		TRACE CK.	

KDOT Graphics Certified 07-07-2022 Sh. No. 59

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:33
File : KA570101 pss-416-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	60	93



NOTE: SIGNS AND LEGEND NOT TO SCALE

KANSAS DEPARTMENT OF TRANSPORTATION

US-58 MAINLINE
STA. 200+00 TO 220+00

APP'D			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

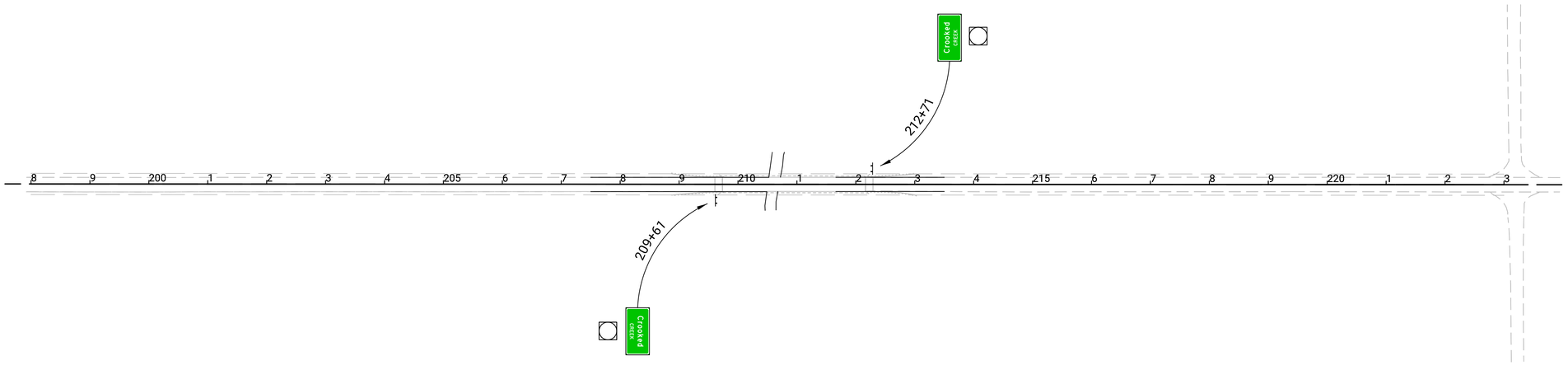
KDOT Graphics Certified 12-02-2024

Sh. No. 60

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:33
File : KA570101ppl-01.dgn Traffic

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	61	93



NOTE: SIGNS AND LEGEND NOT TO SCALE

KANSAS DEPARTMENT OF TRANSPORTATION

US-58 MAINLINE
STA. 200+00 TO 220+00
REMOVALS

APP'D.			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

KDOT Graphics Certified 12-02-2024

Sh. No. 61

Plotted by : rick.dixon 13-DEC-2024 14:34 Traffic
File : KA5701101prm-01.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	62	93

QUANTITIES SHEET

SIGNS, POSTS, & FOOTINGS TO BE INSTALLED ON PROJECT

PLAN SHEET NUMBER	PLAN STATION NUMBER	CENTERLINE LOCATION / INSTALL POSITION	SIGN DESIGNATION	SIGN SIZE	SIGN LAYOUT SHEET NUMBER	TYPE OF SIGN FABRICATION			4" X 6" POSTS			3|2.25 ALUMINUM BEAM	U-POSTS		GALVANIZED STEEL BEAM POSTS						PERFORATED SQUARE STEEL TUBE (PSST) POSTS										CONCRETE FOOTINGS					SIGN STRUCTURE TYPE							VERTICAL SUPPORT MOUNT	MOUNT ABOVE GUIDE SIGN DESIGNATION
									WOOD		STEEL				W6x9		W10x12		W10x22		1 3/4"			2"			2 1/4"		2 1/2"		WOOD POST	STEEL BEAM POST				OVERHEAD	CANTILEVER	BUTTERFLY	BRIDGE MOUNT ATTACHMENT	MAST ARM	SINGLE TAPERED TUBE		
						FLAT SHEET	REINFORCED PANEL	OVERLAY	FLAT SHEET SIGN	REINFORCED PANEL SIGN	STRUCTURAL TUBING		2 LB PER FT	3 LB PER FT	A36	A572 (ALT)	A36	A572 (ALT)	A36	A572 (ALT)	POST	FOOTING	BRACKET	POST	FOOTING	BRACKET	POST	FOOTING	POST	FOOTING		A36		A572 (ALT)									
																															18" DIA.	24" DIA.	30" DIA.	24" DIA.	30" DIA.								
			K-58 Mainline																																								
60	209+62	R/S	KI-3	48" x 24"	70	X			2																																		
60	212+28	L/S	KI-3	48" x 24"	70	X			2																																		

CENTERLINE LOCATION
L or LL - Left of Centerline
R or RR - Right of Centerline
C - On the Centerline

INSTALL POSITION
S - Shoulder Mount
O - Offset Mount
G - Gore Mount
M - Median Mount
OH - Overhead Mount

NOTE: See standard plan sheet TE590 for detailed specifications.

NO.	DATE	REVISIONS	BY	APP'D
02	10-01-19	Added Tapered Tube. Removed Couplers.	D.D.G.	E.W.N.
01	07-23-10	Added Coupler and Coupler/Footing Quantity	D.D.G.	D.B.

FHWA APPROVAL		10-01-19	APP'D.	Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	K.S.	QUANTITIES	TRACED D.B.
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

TE430

07-01-03

KDOT Graphics Certified 12-13-2024

Sh. No. 62

Plotted by: rick.dixon 13-DEC-2024 14:35
File : KA570101 pss-430-01.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	63	93

QUANTITIES SHEET

DELINEATORS AND OBJECT MARKERS

			RIGID DELINEATORS												FLEXIBLE DELINEATORS												OBJECT MARKERS				
			TYPE 'A'								TYPE 'B'				TYPE 'A'								TYPE 'B'				TYPE 2	TYPE 3			
			WHITE		WHITE (BACK TO BACK)		YELLOW		YELLOW (BACK TO BACK)		WHITE		YELLOW		WHITE		WHITE (BACK TO BACK)		YELLOW		YELLOW (BACK TO BACK)		WHITE		YELLOW						
BEGINNING STATION	ENDING STATION	LOCATION DESCRIPTION	'U' POST	BRACKET MOUNT	'U' POST	BRACKET MOUNT	'U' POST	BRACKET MOUNT	'U' POST	BRACKET MOUNT	'U' POST	BRACKET MOUNT	'U' POST	BRACKET MOUNT	TYPE I ANCHOR	TYPE III ANCHOR	TYPE I ANCHOR	TYPE III ANCHOR	TYPE I ANCHOR	TYPE III ANCHOR	TYPE I ANCHOR	TYPE III ANCHOR	TYPE I ANCHOR	TYPE III ANCHOR	TYPE I ANCHOR	TYPE III ANCHOR	'U' POST	'U' POST	'U' POST	'U' POST	'U' POST
209+00	213+00	K-58 Mainline																									4				

NO.	DATE	REVISIONS	BY	APP'D
01	10-09-21	Added delineator & object marker types	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

QUANTITIES SHEET
DELINEATORS & OBJECT MARKERS

TE436 07-01-03

FHWA APPROVAL		10-01-19	APP'D.	Steven A. Buckley	
DESIGNED D.D.G.	DETAILED K.D.S.	QUANTITIES	TRACED		
DESIGN CK. S.A.B.	DETAIL CK. D.D.G.	QUAN.CK.	TRACE CK.		

KDOT Graphics Certified 12-12-2024 Sh. No. 63

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:35
File : KA570101 pss-436-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	64	93

SUMMARY OF QUANTITIES

SIGNS

TYPE	NUMBER	SQUARE FEET
FLAT SHEET	2	16.000
REINFORCED PANEL		
OVERLAY		

DELINEATORS

TYPE	FLEXIBLE DELINEATOR		RIGID DELINEATOR	
	TYPE I ANCHOR	TYPE III ANCHOR	"U" POST	BRACKET MOUNT
TYPE 'A' WHITE				
TYPE 'A' YELLOW				
TYPE 'B' WHITE				
TYPE 'B' YELLOW				
TYPE 'A' WHITE (BACK TO BACK)				
TYPE 'A' YELLOW (BACK TO BACK)				

OBJECT MARKERS

TYPE		NUMBER
TYPE 2 ("U" POST)		4
TYPE 3 ("U" POST)		
INFORMATION ONLY	OM3-L	
	OM3-R	
	OM3-C	
TYPE 3 ("U" POST) (BACK TO BACK)		

POSTS AND ALUMINUM BEAMS

	4" x 6" POST			3I2.25 ALUMINUM BEAM	"U" POST		GALVANIZED STEEL BEAM POST						PERFORATED SQUARE STEEL TUBE (PSST)			
	WOOD		STEEL				W6x9		W10x12		W10x22					
	FLAT SHEET SIGN	REINFORCED PANEL SIGN	STRUCTURAL TUBING		2 LBS/FT	3 LBS/FT	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	1-3/4"	2"	2-1/4"	2-1/2"
NUMBER	4															
FEET	58.0															

POST FOOTINGS AND BRACKETS

	CONCRETE FOOTING (DIA.)					PERFORATED SQUARE STEEL					
	WOOD	A36 STEEL		A572 STEEL (ALT)		TUBE FOOTING				BRACKET	
	18"	24"	30"	24"	30"	1-3/4"	2"	2-1/4"	2-1/2"	1-3/4"	2"
NUMBER											
FEET											

BASE PLATES AND STUB POSTS

	W6x9		W10x12		W10x22	
BREAKAWAY BASES	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)
BASE PLATE (TOP)						
STUB POST WITH BASE PLATE						
NON-BREAKAWAY BASES						
BASE PLATE						

REMOVALS

TYPE	NUMBER
SIGNS	2
POSTS	4
FOOTINGS	
SIGN STRUCTURES	

NUMBER & LENGTHS OF POSTS & ALUMINUM BEAMS (INFORMATION ONLY)

LENGTH OF POST OR BEAM	4" x 6" POST			3I2.25 ALUMINUM BEAM	"U" POST		GALVANIZED STEEL BEAM POST						PERFORATED SQUARE STEEL TUBE (PSST)			
	WOOD		STEEL				W6x9		W10x12		W10x22					
	FLAT SHEET SIGN	REINFORCED PANEL SIGN	STRUCTURAL TUBING		2 LBS/FT	3 LBS/FT	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	A36 STEEL	A572 STEEL (ALT)	1-3/4"	2"	2-1/4"	2-1/2"
2.1' - 4'																
4.1' - 6'																
6.1' - 8'																
8.1' - 10'																
10.1' - 12'																
12.1' - 14'																
14.1' - 16'	4															
16.1' - 18'																
18.1' - 20'																
20.1' - 22'																
22.1' - 24'																
24.1' - 26'																
26.1' - 28'																
28.1' - 30'																
30.1' - 32'																

SIGN STRUCTURES

TYPE	NEW	MODIFIED	REMOVE AND RESET	RESET
OVERHEAD STRUCTURE				
CANTILEVER STRUCTURE				
BUTTERFLY STRUCTURE				
BRIDGE MOUNT ATTACHMENT				
MAST ARM SIGN SUPPORT				
SINGLE TAPERED TUBE SIGN SUPPORT				

NO.	DATE	REVISIONS	BY	APP'D
02	10-01-19	Revised Tables	D.D.G.	E.W.N.
01	07-23-10	Revised Tables	D.D.G.	D.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES FOR INSTALLATIONS AND REMOVALS

TE439 07-01-03

FHWA APPROVAL		10-01-19	APP'D.	Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	K.D.S.	QUANTITIES	TRACED
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 12-12-2024 Sh. No. 64

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:35
File : KA570101 pss-439-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	65	93

RECAPITULATION OF SIGNING & DELINEATION BID ITEMS

BID ITEMS	APPROXIMATE QUANTITIES		UNITS
SIGN (FLAT SHEET) (HIGH PERFORMANCE)	16.00		SQUARE FOOT
SIGN (REINFORCED PANEL) (HIGH PERFORMANCE)			SQUARE FOOT
SIGN (OVERLAY) (HIGH PERFORMANCE)			SQUARE FOOT
SIGN POST (4" x 6" WOOD) (FLAT SHEET SIGN)	58		LINEAR FOOT
SIGN POST (4" x 6" WOOD) (REINFORCED PANEL SIGN)			LINEAR FOOT
SIGN POST (2 LB/FT "U" STEEL)			LINEAR FOOT
SIGN POST (3 LB/FT "U" STEEL)			LINEAR FOOT
SIGN POST (1-3/4" PERFORATED SQUARE STEEL TUBE)			LINEAR FOOT
SIGN POST (2" PERFORATED SQUARE STEEL TUBE)			LINEAR FOOT
SIGN POST (2-1/4" PERFORATED SQUARE STEEL TUBE)			LINEAR FOOT
SIGN POST (2-1/2" PERFORATED SQUARE STEEL TUBE)			LINEAR FOOT
SIGN POST (4" X 6" STRUCTURAL STEEL)			LINEAR FOOT
SIGN POST (3 I 2.25 ALUMINUM)			LINEAR FOOT
	A36	A572(ALT)	
SIGN POST (W6X9 STEEL BEAM)			LINEAR FOOT
SIGN POST (W10X12 STEEL BEAM)			LINEAR FOOT
SIGN POST (W10X22 STEEL BEAM)			LINEAR FOOT
SIGN POST STUB WITH BREAKAWAY BASE PLATE (W6X9)			EACH
SIGN POST STUB WITH BREAKAWAY BASE PLATE (W10X12)			EACH
SIGN POST STUB WITH BREAKAWAY BASE PLATE (W10X22)			EACH
SIGN POST BREAKAWAY BASE PLATE (W6X9)			EACH
SIGN POST BREAKAWAY BASE PLATE (W10X12)			EACH
SIGN POST BREAKAWAY BASE PLATE (W10X22)			EACH
SIGN POST FOOTING (24" Dia. CONCRETE)(STEEL BEAM POST)			LINEAR FOOT
SIGN POST FOOTING (30" Dia. CONCRETE)(STEEL BEAM POST)			LINEAR FOOT
SIGN POST FOOTING (18" Dia. CONCRETE)(WOOD POST)			LINEAR FOOT
SIGN POST FOOTING (1-3/4" PERFORATED SQUARE STEEL TUBE)			EACH
SIGN POST FOOTING (2" PERFORATED SQUARE STEEL TUBE)			EACH
SIGN POST FOOTING (2-1/4" PERFORATED SQUARE STEEL TUBE)			EACH
SIGN POST FOOTING (2-1/2" PERFORATED SQUARE STEEL TUBE)			EACH
SIGNING OBJECT MARKER (TYPE 2)	4		EACH
SIGNING OBJECT MARKER (TYPE 3)			EACH
SIGNING DELINEATOR (TYPE A)(WHITE RIGID, "U" POST)			EACH
SIGNING DELINEATOR (TYPE A)(YELLOW RIGID, "U" POST)			EACH
SIGNING DELINEATOR (TYPE B)(WHITE RIGID, "U" POST)			EACH
SIGNING DELINEATOR (TYPE B)(YELLOW RIGID, "U" POST)			EACH
SIGNING DELINEATOR (TYPE A)(WHITE FLEXIBLE)(TYPE I ANCHOR)			EACH
SIGNING DELINEATOR (TYPE A)(YELLOW FLEXIBLE)(TYPE I ANCHOR)			EACH
SIGNING DELINEATOR (TYPE B)(WHITE FLEXIBLE)(TYPE I ANCHOR)			EACH
SIGNING DELINEATOR (TYPE B)(YELLOW FLEXIBLE)(TYPE I ANCHOR)			EACH
SIGNING DELINEATOR (TYPE A)(WHITE FLEXIBLE)(TYPE 3 ANCHOR)			EACH
SIGNING DELINEATOR (TYPE A)(YELLOW FLEXIBLE)(TYPE 3 ANCHOR)			EACH
SIGNING DELINEATOR (TYPE B)(WHITE FLEXIBLE)(TYPE 3 ANCHOR)			EACH
SIGNING DELINEATOR (TYPE B)(YELLOW FLEXIBLE)(TYPE 3 ANCHOR)			EACH

BID ITEMS	APPROXIMATE QUANTITIES	UNITS

Note:
The contract bid for steel beam posts, stub posts, base plates, and footings will be based on A36 Grade steel quantities. When furnishing the A572 Grade alternate steel, the payment will be based on the equivalent A36 steel unit prices in the contract.

NO.	DATE	REVISIONS	BY	APP'D
02	10-01-19	Removed PSST coupler and changed the tables	D.D.G.	E.W.N.
01	07-23-10	Changed Bid Items as per Spec Book (2007)	D.D.G.	D.B.

KANSAS DEPARTMENT OF TRANSPORTATION

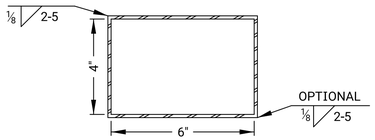
RECAPITULATION OF SIGNING & DELINEATION BID ITEMS

TE450 07-01-03

FHWA APPROVAL 10-01-19 APP'D. Steven A. Buckley
DESIGNED D.D.G. DETAILED K.D.S. QUANTITIES TRACED
DESIGN CK. S.A.B. DETAIL CK. D.D.G. QUAN.CK. TRACE CK.

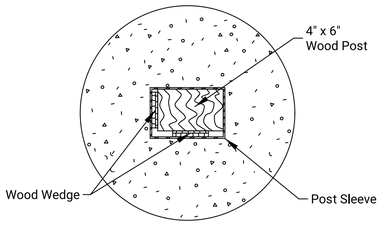
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	66	93

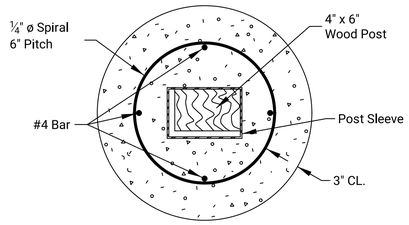


NOTE: Dimensions are to inside of post sleeve.

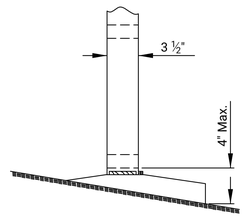
POST SLEEVE



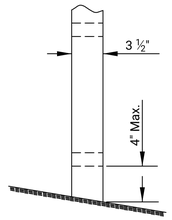
SECTION A-A



SECTION B-B



FRONT ELEVATION
CONCRETE FOOTING



FRONT ELEVATION
SOIL

NOTE TO THE ENGINEER:
The intent of the "AASHTO Roadside Design Guide" and these plans is to have a 4" or less projection above the finished ground line after impact.

BREAKAWAY CLEARANCE

GENERAL NOTES

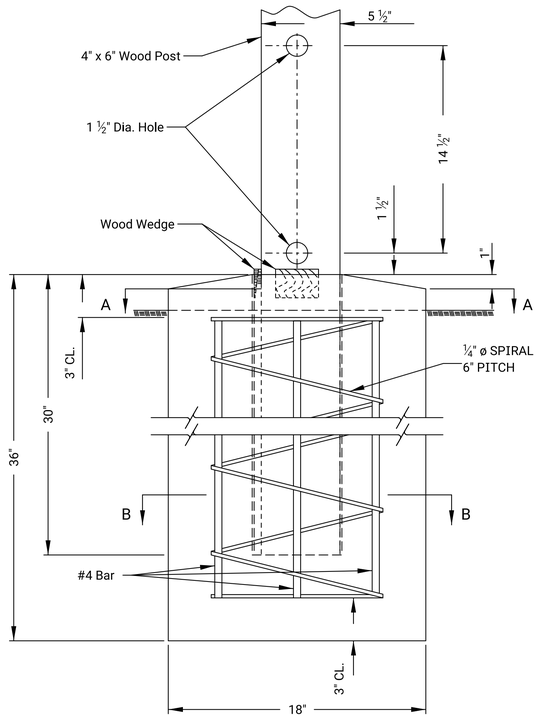
The post sleeve shall be formed from 10 gauge sheet steel to meet the requirements of ASTM A653 and zinc coated to meet the requirements of coating designation A123. If galvanized sheet steel is used, no other galvanization is required. It is permissible to close the bottom of the sleeve with a metal plate. Basis of acceptance shall be visual inspection of the finished sleeve and determination of zinc thickness by magnetic gage.

All sign mounting holes in the wood posts shall be drilled prior to treating.

Breakaway holes, field drilled sign mounting holes, and field cuts shall be treated in accordance with the preservative treatment specifications.

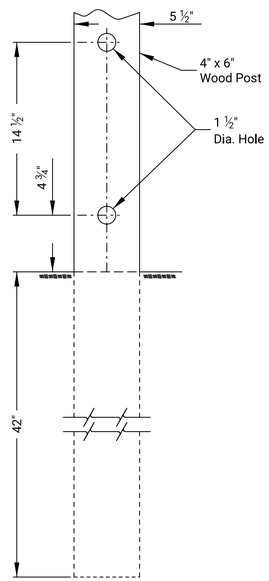
Prior to sealing the opening between the wood post and the top of the concrete footing, secure the post by placing 3" wide by 2" long wood wedges into the opening on two adjacent sides of the post. The wedges are be flush with up to a maximum of ⅜" sticking up above the top of the footing.

Commercial grade concrete may be substituted for sign support footings.



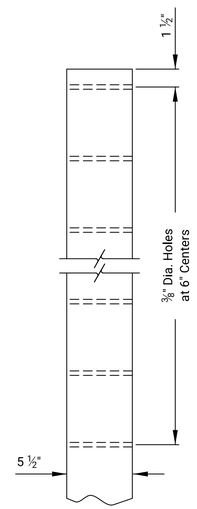
SIDE ELEVATION

WOOD POST IN CONCRETE FOOTING



SIDE ELEVATION

WOOD POST IN SOIL



SIGN POST

SIGN MOUNTING HOLES

All dimensions in inches unless otherwise noted.

NO.	DATE	REVISIONS	BY	APP'D
01	10-01-19	Change details and note	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR WOOD POSTS

TE460 07-01-03

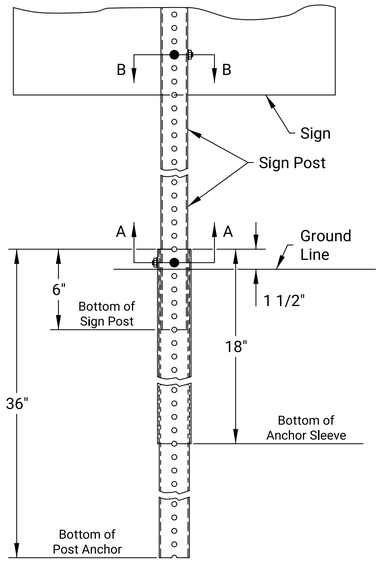
FHWA APPROVAL			10-01-19	APP'D.		Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.		TRACE CK.	

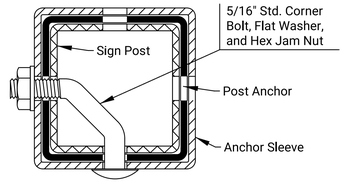
KDOT Graphics Certified 05-26-2022 Sh. No. 66

Plotted by : rick.dixon 13-DEC-2024 14:35
File : KA5701O1 pss-460-01.dgn

KDOT Graphics Certified

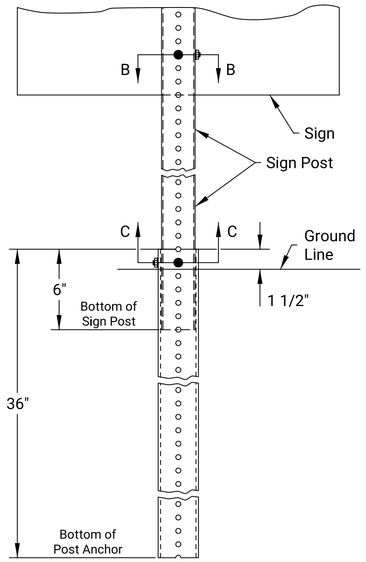
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	67	93

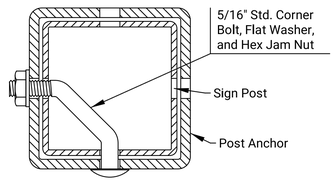




SECTION A-A

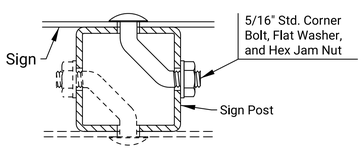
1 ¾", 2", OR 2 ¼" PSST SIGN POST





SECTION C-C

2 ½" PSST SIGN POST



SECTION B-B

MATERIALS TABLE FOR SIGN POST AND FOOTING		
SIGN POST 12 GA. OR 14 GA.	FOOTING	
	POST ANCHOR	ANCHOR SLEEVE
1 ¾" X 1 ¾"	2" X 2" X 12 GA.	2 ¼" X 2 ¼" X 12 GA.
2" X 2"	2 ¼" X 2 ¼" X 12 GA.	2 ½" X 2 ½" X 12 GA.
2 ¼" X 2 ¼"	2 ½" X 2 ½" X 12 GA.	3" X 3" X 7 GA.
2 ½" X 2 ½"	3" X 3" X 7 GA.	Not Required

NOTE: 14 ga. posts must meet a certified minimum yield strength of 60,000 p.s.i.

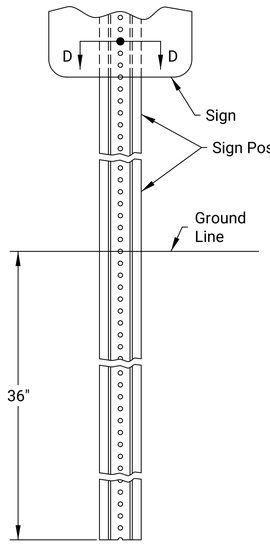
INSTALLATION PROCEDURES

1. Plumb and drive post anchor into the ground 18", if anchor sleeve is required, or to the specified height above the ground line.

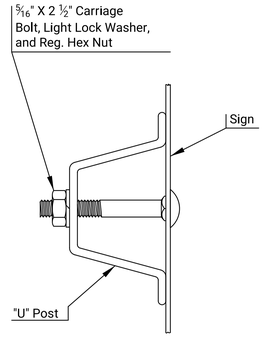
2. Install anchor sleeve (if required) on the post anchor and align the first holes above the ground line. Plumb and drive post anchor with anchor sleeve into the ground to the specified height above the ground line.

3. Install sign post into the post anchor.

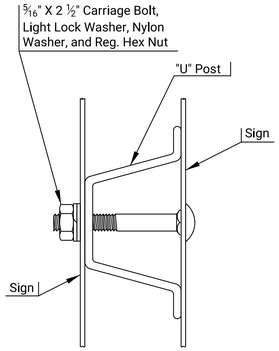
PERFORATED SQUARE STEEL TUBE POST (PSST)



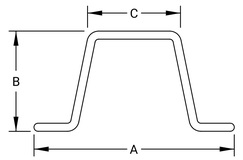
TYPICAL



SECTION D-D
(TYPICAL)



SECTION D-D
(BACK TO BACK)



DIM.	2 LBS/FT	3 LBS/FT
A	3 1/8 "	3 1/2 "
B	1 17/32 "	1 3/4 "
C	1 1/4 "	1 5/8 "

(Dimensions are nominal)

"U" POST

STEEL "U" POST

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR PERFORATED SQUARE STEEL TUBE POSTS (PSST) AND STEEL "U" POSTS

TE466 10-01-19

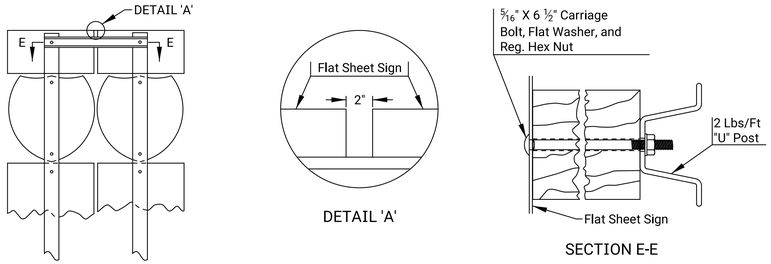
FHWA APPROVAL			10-01-19	APP'D.		Eric W.Nichol	
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES		TRACED	
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN.CK.		TRACE CK.	

KDOT Graphics Certified 05-26-2022 Sh. No. 67

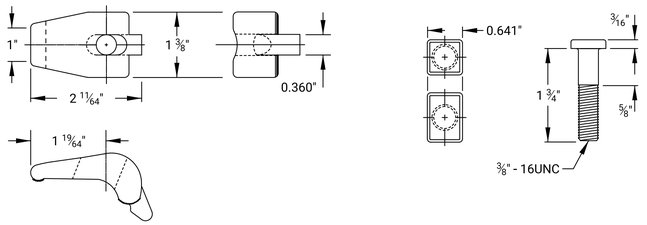
KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:35
File : KA570101 pss-466-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	68	93



ROUTE MARKER ASSEMBLIES ATTACHMENT



ALUMINUM POST CLIP AND POST CLIP BOLT

NOTES:
The top of the post shall not extend above the top of the sign.

When signs are mounted back to back, the signs shall be mounted at their prescribed height. In general installations, the bottom holes of the signs should be aligned. In order to prevent having to drill holes in the signs or posts, the sign on the back should be raised and positioned such that the holes are aligned. When a sign is mounted on the back of the R1-1 (Stop) sign, that sign is to be centered vertically on the R1-1 sign. When a sign is mounted on the back of the R1-2 (Yield) sign, the top holes of the signs should be aligned.

The primary sign and supplemental sign are to be mounted at their prescribed height, but under no circumstances shall the signs overlap each other. If the primary sign cannot be mounted without overlapping, then it shall be raised above the supplemental sign.

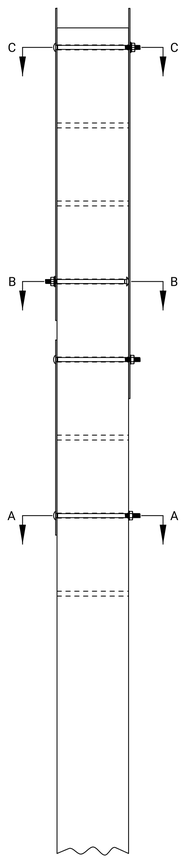
Any additional mounting holes, either through the sign or post, shall be drilled by the contractor. All holes drilled in the post shall be treated with a perservative. All holes drilled in the sign shall be free of any defects and the sheeting around the hole shall not be damaged.

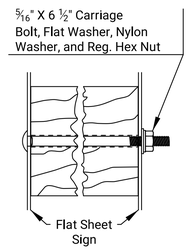
A nylon washer shall be placed against the sheeting when a nut is to be tightened against the sign face.

The 3 lb/ft steel "U" post used for reinforced panel sign installations is to be included in the bid item 'SIGN POST (4" x 6" WOOD) (REINFORCED PANEL SIGN)'.

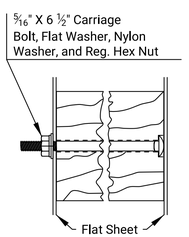
When the 2 lb/ft steel "U" post is used for the route marker assemblies attachment, it shall be subsidiary to the bid item 'SIGN POST (4" x 6" WOOD) (FLAT SHEET SIGN)'.

The aluminum post clip bolt may have a rectangular head if the smaller dimension is equal to the square head dimension.

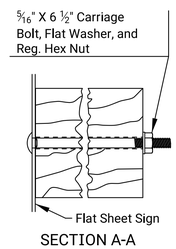




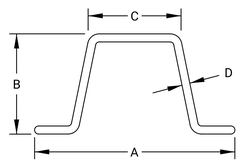
SECTION C-C



SECTION B-B



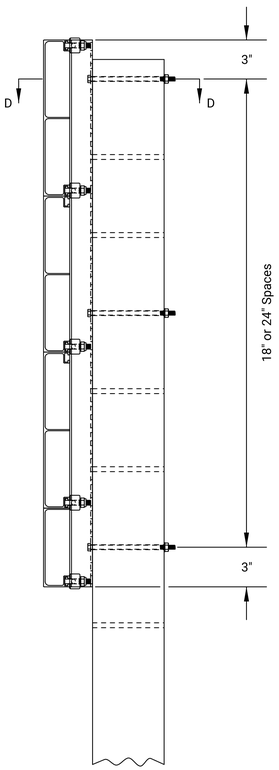
SECTION A-A

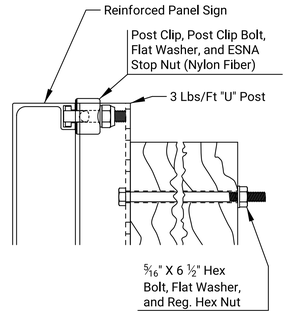


DIM.	2 LBS/FT	3 LBS/FT
A	3 1/8 "	3 1/2 "
B	1 17/32 "	1 3/4 "
C	1 1/4 "	1 5/8 "
D	1/8 "	9/64 "

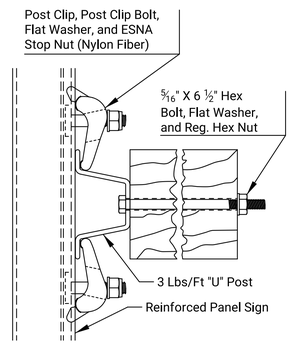
(DIMENSIONS ARE NOMINAL)

"U" POST





SECTION D-D



TOP VIEW

TYPICAL MOUNTING OF FLAT SHEET SIGNS

TYPICAL MOUNTING OF REINFORCED PANEL SIGNS

All dimensions are in inches

NO.	DATE	REVISIONS	BY	APP'D
01	10-01-19	Revised drawings and notes	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR MOUNTING SIGNS ON WOOD POST FLAT SHEET AND REINFORCED PANEL

TE481 07-01-03

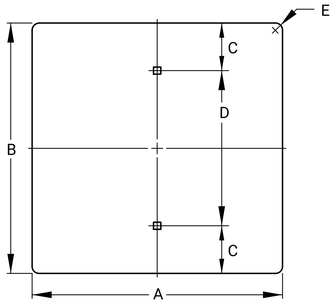
FHWA APPROVAL				10-01-19	APP'D.	Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES	TRACED		
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.		

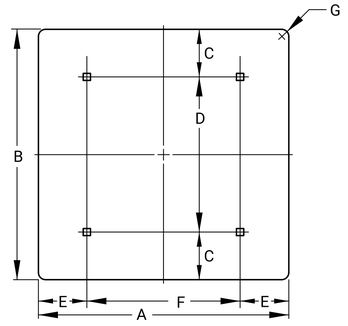
KDOT Graphics Certified 05-26-2022 Sh. No. 68

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:35
File : KA570101 pss-481-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	69	93





	SIGN SIZE	A	B	C	D	E	T	AREA
(1)	3 X 8	3	8	1	6	3/8	0.040	0.17
(1)	6 X 12	6	12	3	6	3/8	0.063	0.50
	12 X 6	12	6	1 1/2	3	3/4	0.063	0.50
	12 X 9	12	9	1 1/2	6	1 1/2	0.063	0.75
	12 X 18	12	18	3	12	1 1/2	0.063	1.50
	12 X 24	12	24	3	18	1 1/2	0.080	2.00
	12 X 36	12	36	6	24	1 1/2	0.080	3.00
	12 X 48	12	48	6	36	1 1/2	0.080	4.00
	18 X 6	18	6	1 1/2	3	1 1/2	0.063	0.75
	18 X 18	18	18	3	12	1 1/2	0.063	2.25
	18 X 30	18	24	3	24	1 1/2	0.080	3.75
	18 X 36	18	24	6	24	1 1/2	0.080	4.50
	18 X 42	18	24	6	30	1 1/2	0.080	5.25
	18 X 48	18	24	6	36	1 1/2	0.080	6.00
	21 X 15	21	15	1 1/2	12	1 1/2	0.080	2.19
	24 X 6	24	6	1 1/2	3	1 1/2	0.080	1.00
	24 X 12	24	12	3	6	1 1/2	0.080	2.00
	24 X 18	24	18	3	12	1 1/2	0.080	3.00
	24 X 24	24	24	3	18	1 1/2	0.080	4.00
	24 X 30	24	30	3	24	1 1/2	0.080	5.00
	24 X 36	24	36	6	24	1 1/2	0.080	6.00
	30 X 12	30	12	3	6	1 7/8	0.080	2.50
	30 X 15	30	15	1 1/2	12	1 7/8	0.080	3.13
	30 X 18	30	18	3	12	1 7/8	0.080	3.75
	30 X 21	30	21	1 1/2	18	1 1/2	0.080	4.38
	30 X 24	30	24	3	18	1 7/8	0.080	5.00
	30 X 30	30	30	3	24	1 7/8	0.080	6.25
	30 X 36	30	36	6	24	1 7/8	0.080	7.50
	36 X 12	36	12	3	6	1 1/2	0.080	3.00
	36 X 18	36	18	3	12	1 1/2	0.080	4.50
	36 X 24	36	24	3	18	1 1/2	0.080	6.00
	36 X 30	36	30	3	24	2 1/4	0.080	7.50
	36 X 36	36	36	6	24	2 1/4	0.080	9.00
(3)	45 X 36	45	36	3	30	2 1/4	0.100	11.25

	SIGN SIZE	A	B	C	D	E	F	G	T	AREA
	36 X 12	36	12	3	6	3	30	1 1/2	0.080	3.00
	36 X 30	36	30	3	24	3	30	2 1/4	0.080	7.50
	36 X 48	36	48	9	30	6	24	0	0.100	12.00
	36 X 60	36	60	12	36	6	24	0	0.100	15.00
(2)	36 X 72	36	72	6	60	6	24	0	0.100	18.00
	42 X 12	48	12	3	6	6	30	1 1/2	0.080	3.50
	42 X 18	48	18	3	12	6	30	1 1/2	0.080	5.25
	42 X 24	48	24	6	12	6	30	1 7/8	0.080	7.00
	42 X 36	48	36	6	24	6	30	0	0.100	10.50
	48 X 12	48	12	3	6	9	30	1 1/2	0.080	4.00
	48 X 18	48	18	3	12	9	30	1 1/2	0.080	6.00
	48 X 24	48	24	6	12	9	30	1 7/8	0.080	8.00
	48 X 30	48	30	6	18	9	30	0	0.100	10.00
	48 X 36	48	36	6	24	9	30	0	0.100	12.00
	48 X 42	48	42	6	30	9	30	0	0.100	14.00
	48 X 48	48	48	9	30	9	30	0	0.100	16.00
	48 X 60	48	60	12	36	9	30	0	0.100	20.00
(2)	48 X 72	48	72	6	60	9	30	0	0.100	24.00
(2)	48 X 96	48	96	12	72	9	30	0	0.100	32.00
	60 X 12	60	12	3	6	12	36	0	0.100	5.00

SIGN SIZE	A	B	C	D	E	F	G	T	AREA
60 X 18	60	18	3	12	12	36	0	0.100	7.50
60 X 24	60	24	6	12	12	36	0	0.100	10.00
60 X 30	60	30	6	18	12	36	0	0.100	12.50
60 X 36	60	36	6	24	12	36	0	0.100	15.00
60 X 42	60	42	6	30	12	36	0	0.100	17.50
60 X 48	60	48	9	30	12	36	0	0.100	20.00
72 X 12	72	12	3	6	15	42	0	0.100	6.00
72 X 18	72	18	3	12	15	42	0	0.100	9.00
72 X 24	72	24	6	12	15	42	0	0.100	12.00
72 X 30	72	30	6	18	15	36	0	0.100	15.00
72 X 36	72	36	6	24	15	42	0	0.100	18.00
72 X 42	72	42	6	30	15	42	0	0.100	21.00
72 X 48	72	48	9	30	15	42	0	0.100	24.00
84 X 12	84	18	3	6	18	48	0	0.100	7.00
84 X 18	84	18	3	12	18	48	0	0.100	10.50
84 X 24	84	24	6	12	18	48	0	0.100	14.00
84 X 30	84	30	6	18	18	48	0	0.100	17.50
84 X 36	84	36	6	24	18	48	0	0.100	21.00
84 X 42	84	42	6	30	18	48	0	0.100	24.50
84 X 48	84	48	9	30	18	48	0	0.100	28.00

NOTE:
All holes are 3/8" square, unless otherwise noted.

The dimension "T" is the thickness of the aluminum blank.

(1) Holes shall be 5/16" diameter.

(2) Dimension "D" requires a center hole.

(3) Additional hole 12" below top hole.

All dimensions are in inches.

NO.	DATE	REVISIONS	BY	APP'D
01	10-01-19	Updated sign blank details and dimensions	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

SIGN BLANK DETAILS FOR FLAT SHEET SIGNS

TE506 07-01-03

FHWA APPROVAL			10-01-19	APP'D.	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES	TRACED		
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN.CK.	TRACE CK.		

KDOT Graphics Certified 05-26-2022 Sh. No. 69

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:36
File : KA570101 pss-506-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	70	93

KI-3;

3.0" Radius, 1.0" Border, White on Green;

"Crooked", D; "CREEK", D;

Table of letter and object lefts

C	r	o	o	k	e	d
8.5	14.2	17.5	22.1	27.1	31.6	36.1

C	R	E	E	K
15.9	19.3	23.0	26.2	29.3

Plotted by : rick.dixon 13-DEC-2024 14:36 Traffic
File : KA570101psl-01.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

SIGN LAYOUT

APP'D			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

KDOT Graphics Certified 12-02-2024

Sh. No. 70

KDOT Graphics Certifed

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	71	93

DETAILED SPECIFICATIONS FOR FLAT SHEET SIGNS AND OVERLAY PANELS

All new flat sheet sign blanks shall be of the fabrication and thickness shown on the flat sheet blank detail sheets, unless other details are shown in the plans.

Flat sheet blanks shall be used for signs that are less than or equal to 7'-0" in length and/or less than or equal to 4'-0" in height, unless other details are shown in the plans. Flat sheet blanks shall also be used for signs that are 4'-0" in length and less than or equal to 8'-0" in height, unless other details are shown in the plans.

The design details for signs (color, letter height, and letter series) shall be as shown in the FHWA Standard Highway Signs and Markings book (2004 edition and supplements), unless other details are shown in the plans.

All sign faces shall be covered with Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The sheeting used for the direct applied legend and borders shall be Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The school warning signs, the "SCHOOL" portion of the S5-1 sign, S4-3p plaque, and any supplemental plaques used with these warning signs shall have a fluorescent yellow-green background, unless otherwise noted in the plans.

The type of adhesive used for retroreflective sheeting or lettering film shall be heat activated or pressure sensitive.

DETAILED SPECIFICATIONS FOR REINFORCED PANEL SIGNS

All new reinforced sign panels shall be of the fabrication and thickness shown on the reinforced panel detail sheets. If extrusheet fabricated sign panels are used, they shall be of the length, width and in the position shown. If extrusheet fabricated panel dimensions are not shown, a line of legend should be placed entirely on one panel. If extruded fabricated sign panels are used, either 1'-0" or 6" panels shall be used. The 6" panels shall be used only at the top or bottom of signs.

Reinforced panels shall be used for signs that are greater than 7'-0" in length or greater than 4'-0" in height, unless other details are shown in the plans.

All sign faces shall be covered with Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The sheeting used for the direct applied legend and borders shall be Type IV high intensity retroreflective sheeting, unless otherwise noted in the plans.

The type of adhesive used for retroreflective sheeting or lettering film shall be heat activated or pressure sensitive.

Letters and numbers on reinforced panel signs are modified Series "E" unless otherwise shown.

Spacing table dimensions are in inches.

NO.	DATE	REVISIONS	BY	APP'D
02	10-01-19	Changed notes	D.D.G.	E.W.N.
01	07-23-10	Changed Notes and Sheeting Type	D.D.G.	D.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS SPECIFICATIONS FOR REINFORCED SIGN PANELS AND FLAT SHEET SIGNS

TE590 07-01-03

FHWA APPROVAL		10-01-19	APP'D.	Steven A. Buckley	
DESIGNED	D.D.G.	DETAILED K.D.S.	QUANTITIES	TRACED	
DESIGN CK.	S.A.B.	DETAIL CK. D.D.G.	QUAN.CK.	TRACE CK.	

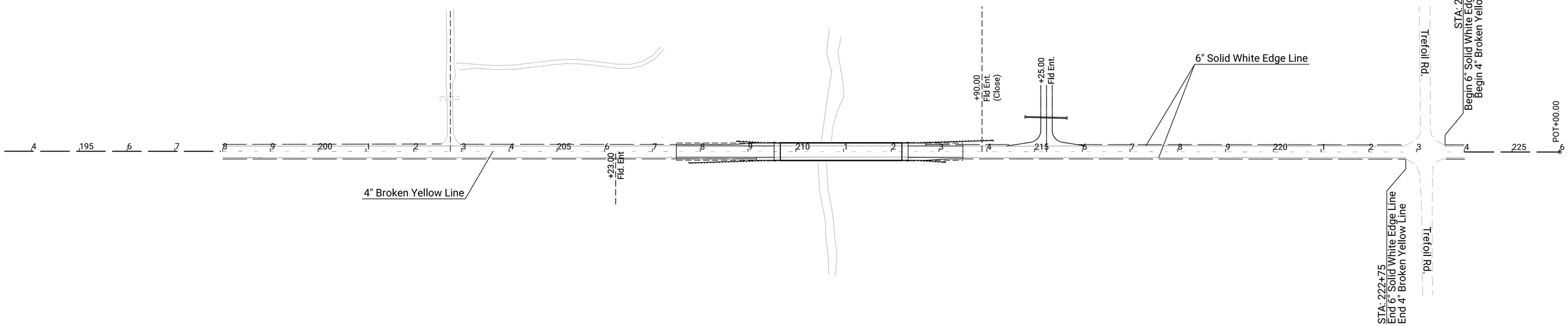
KDOT Graphics Certified 05-24-2022 Sh. No. 71

KDOT Graphics Certified

Plotted by : rick.dixon 13-DEC-2024 14:36
File : KA570101 pss-590-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	72	93

Extend Edge line and center line markings from STA: 198+00,
west at a distance of 2,460'. Match existing pavement marknigs.



Extend Edge line and center line markings from STA: 224+00,
west at a distance of 2,394'. Match existing pavement marknigs.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING
MAINLINE K-58

STA: 198+00 - STA: 224+00

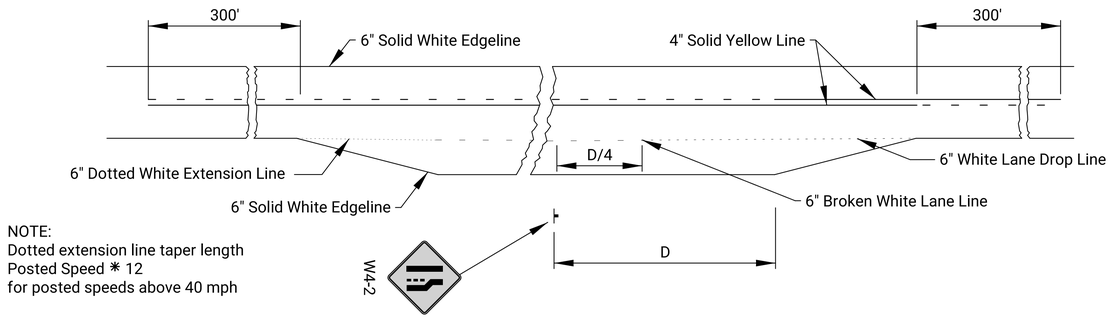
FHWA APPROVAL		APP'D.	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 01-24-2024 Sh. No. 72

KDOT Graphics Certified

Plotted by: Jonny.Madrid@ks.gov 29-JAN-2024 23:11
File : KDOT-Microstation_Seed_2D.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	73	93

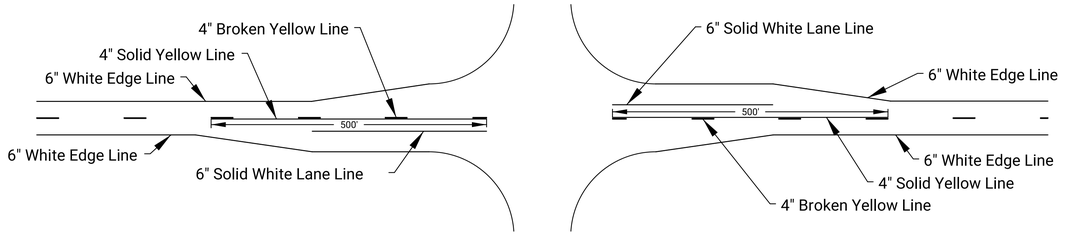


NOTE:
Dotted extension line taper length
Posted Speed ✳ 12
for posted speeds above 40 mph

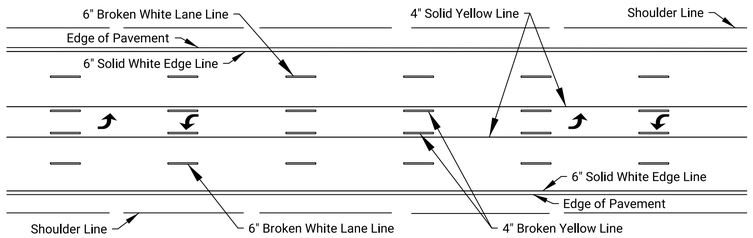
TYPICAL MARKING FOR AUXILIARY PASSING LANE

NOTE:
All pavement markings shall be broken at cross roads.

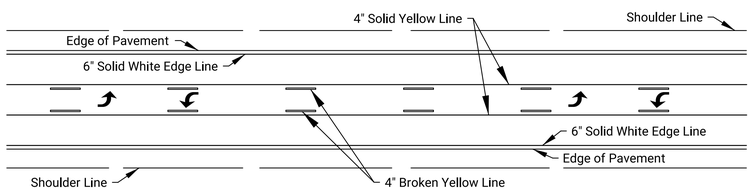
For highway junctions the no passing zone will extend 1000' from intersection.



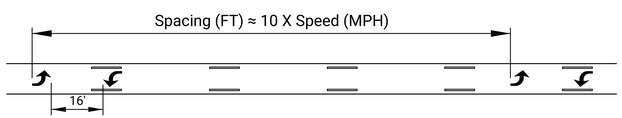
TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY

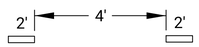


TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY

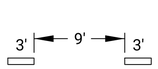


TWO-WAY LEFT TURN ARROW SPACING DETAIL

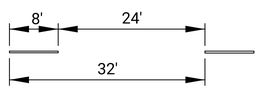
NOTE:
If arrows are used space the arrows as shown in the spacing detail.



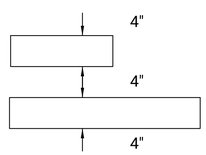
TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



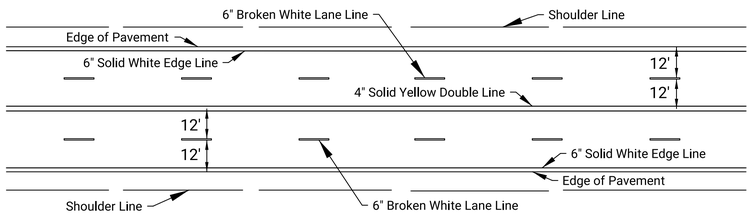
TYPICAL SPACING FOR LANE DROP, UNLESS OTHERWISE NOTED ON PLANS.



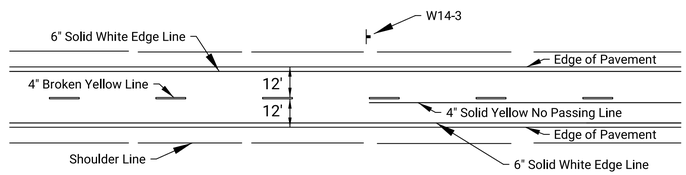
TYPICAL SPACING FOR BROKEN LINES, UNLESS OTHERWISE NOTED ON PLANS



TYPICAL SPACING FOR NO PASSING LINES, UNLESS OTHERWISE NOTED ON PLANS



TYPICAL MARKINGS FOR FOUR LANE ROADWAY



TYPICAL TWO LANE MARKINGS

NOTE:
Longitudinal pavement marking lines shall be offset a minimum of 2" from longitudinal pavement joints.

On non I, US, and K routes, 4" edge lines may be installed.
6" edge lines are not required on non I, US, and K routes.

NO.	DATE	REVISIONS	BY	APP'D
03	05-25-12	Added Dotted Extension and Lane Drop Lines	B.A.H.	B.D.G.
02	09-20-05	Removed Aux. Passing Lane Dotted Ext. Line	J.F.F.	B.D.G.
01	07-26-05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL PAVEMENT MARKING DETAILS FOR UNDIVIDED ROADWAYS

TE308

FHWA APPROVAL		05-25-12	APP'D.	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 07-19-2022 Sh. No. 73

Plotted by : mushock 13-DEC-2024 15:58
File : ka570101mss308.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	74	93

SUMMARY OF PAVEMENT MARKINGS

LOCATION	4" Solid WHITE Edge Line	6" Solid WHITE Edge Line	6" Broken WHITE Lane Line	6" Broken WHITE Lane Line (PCP)	6" Dotted WHITE Extension Line	6" Broken WHITE Lane Drop Line	6" Solid WHITE Lane Line	8" Broken WHITE Lane Drop Line	8" Solid WHITE Gore Line	8" Dotted WHITE Extension Line	12" Solid WHITE Diagonal Line	12" Solid WHITE Chevron Line	12" Solid WHITE Type I Crosswalk Line	24" Solid WHITE Type II Crosswalk Line	24" Solid WHITE Stop Line	4" Solid YELLOW Edge Line	4" Solid YELLOW Double Line	4" Solid YELLOW Line	4" Broken YELLOW Line	6" Solid YELLOW Edge Line	12" Solid YELLOW Diagonal Line
MAINLINE K-58																					
STA: 173+40 - STA: 247+94		14,691															380	1,091	6,753		
TOTALS		14,691															760	1,091	1,689		

SUMMARY OF WORD & SYMBOL MARKINGS

LOCATION							STOP	ONLY	X-ING	SCHOOL	70	435	24	400	18							
TOTALS																						

RECAPITULATION OF QUANTITIES

ITEMS	TOTAL	UNITS
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6")	14,691	FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4")	3,540	FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(12")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(4")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(6")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(8")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(12')		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(4")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(6')		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(12')		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(24")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12")		FT
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(US-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(K-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(I-SHIELD)( )		EACH
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING REMOVAL	14,572	FT

NOTE:
For specific pavement marking details and dimensions see plan sheets.

All totals reflect actual quantity of pavement marking materials required.

Prior to commencement of pavement marking work the Engineer will establish the limits for "no passing" zones. These limits shall be used for the location of "no passing" lines and for the computation of actual marking quantities for this line type.

Words & symbols shall conform to the latest edition of "Standard Alphabets for Highway Signs and Pavement Markings" printed by the U.S. Department of Transportation, Federal Highway Administration.

NO.	DATE	REVISIONS	BY	APP'D
02	05-25-12	Added Line Types, Symbols, and Shields	B.A.H.	B.D.G.
01	07-26-05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY AND RECAPITULATION OF PAVEMENT MARKING QUANTITIES

TE311

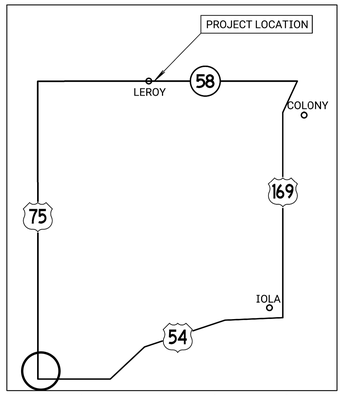
FHWA APPROVAL		05-25-12	APP'D.	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 01-24-2024 Sh. No. 74

KDOT Graphics Certified

Plotted by : mushock 13-DEC-2024 15:58
File : ka570101mss311.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	75	93



NOTE: Circle on map denotes location of detour.

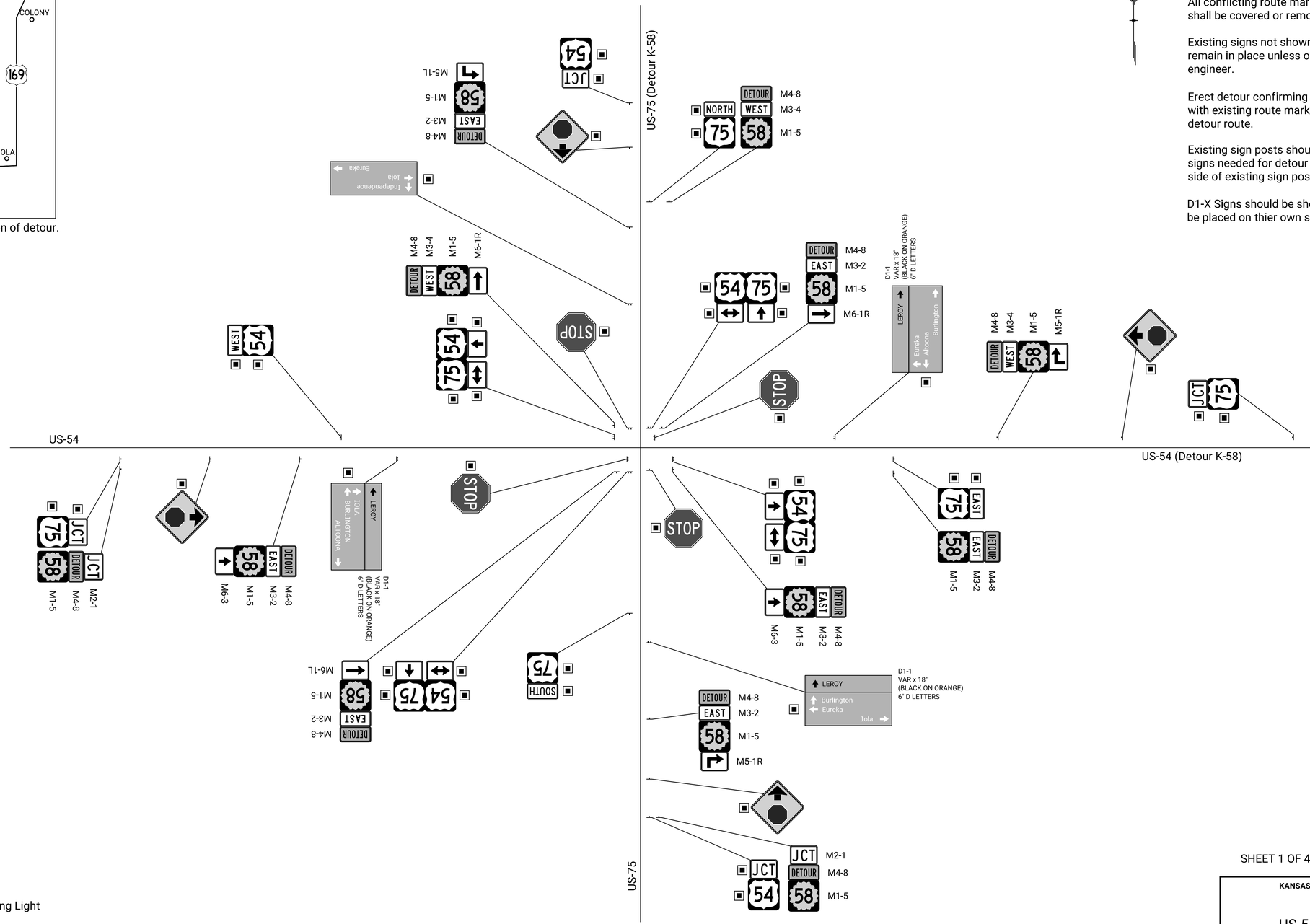
All conflicting route markers along the detour route shall be covered or removed.

Existing signs not shown at these junctions shall remain in place unless otherwise directed by the engineer.

Erect detour confirming assemblies in conjuction with existing route marker assemblies along detour route.

Existing sign posts should not be disturbed. Any signs needed for detour should be placed along side of existing sign posts, with it's own post.

D1-X Signs should be shown on top of existing signs but, be placed on thier own sign stand directly above and behind.



NOT TO SCALE

- ○ Type "A" Low Intensity Warning Light
- ⊔⊔ Type III Barricades
- ▣ Existing

SHEET 1 OF 4

KANSAS DEPARTMENT OF TRANSPORTATION

US-54 / US-75 Intersection (Detour K-58)

APP'D			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

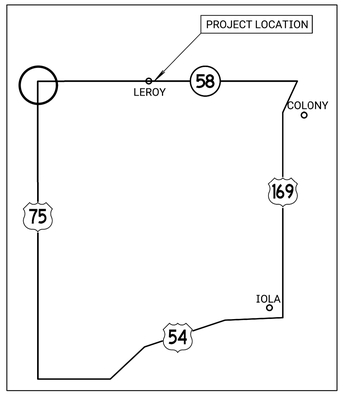
KDOT Graphics Certified 08-14-2024

Sh. No. 75

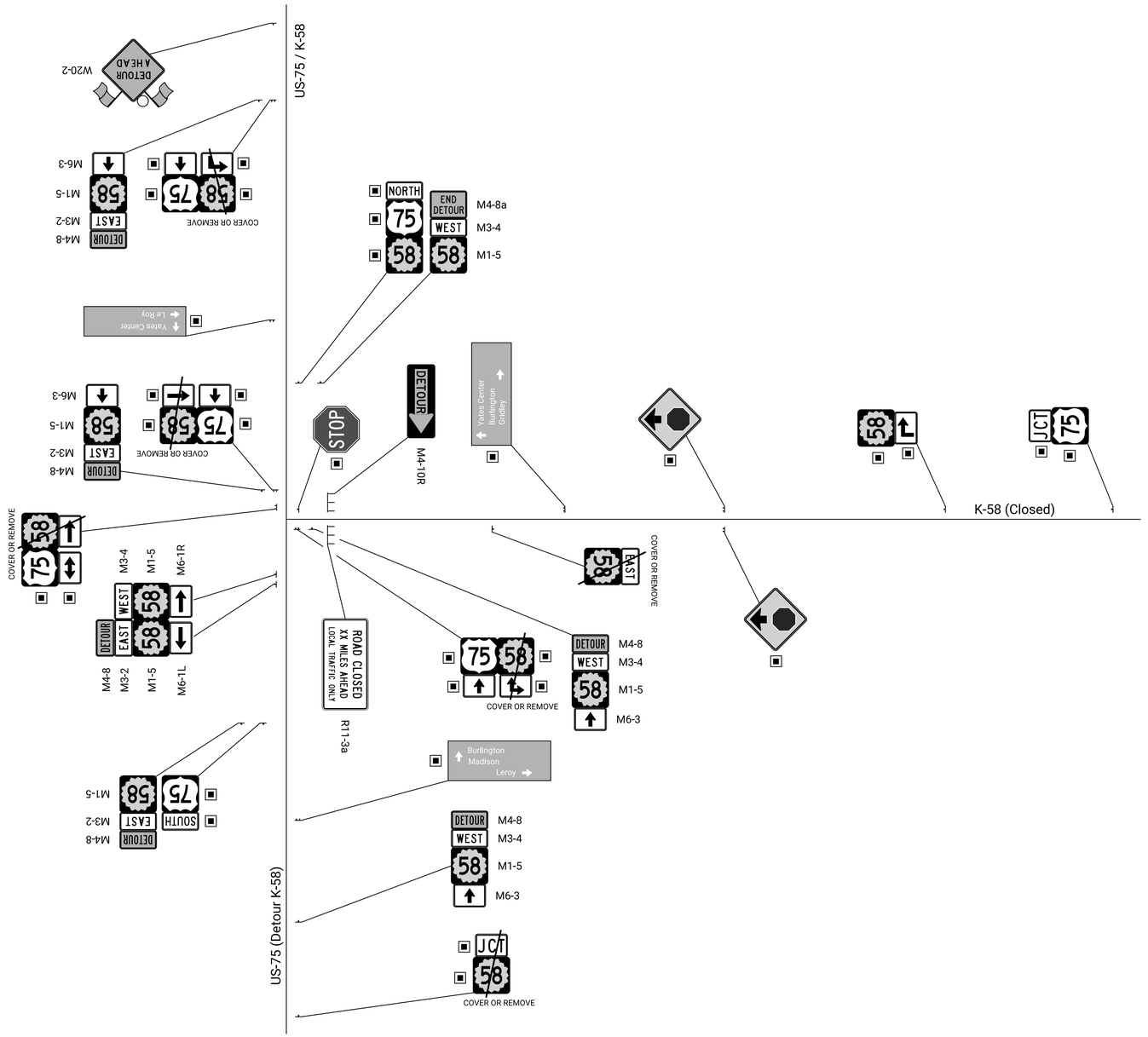
Plotted by : Keegan.Matheis 13-DEC-2024 14:44
File : ka5701cdt-01.dgn Traffic

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	76	93



NOTE: Circle on map denotes location of detour.



All conflicting route markers along the detour route shall be covered or removed.

Existing signs not shown at these junctions shall remain in place unless otherwise directed by the engineer.

Erect detour confirming assemblies in conjuction with existing route marker assemblies along detour route.

Existing sign posts should not be disturbed. Any signs needed for detour should be placed along side of existing sign posts, with it's own post.

D1-X Signs should be shown on top of existing signs but, be placed on thier own sign stand directly above and behind.

NOT TO SCALE

- ○ Type "A" Low Intensity Warning Light
- ⊏⊐ Type III Barricades
- ▣ Existing

SHEET 2 OF 4

KANSAS DEPARTMENT OF TRANSPORTATION

K-58 / US-75 Intersection
(Detour K-58)

APP'D.			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

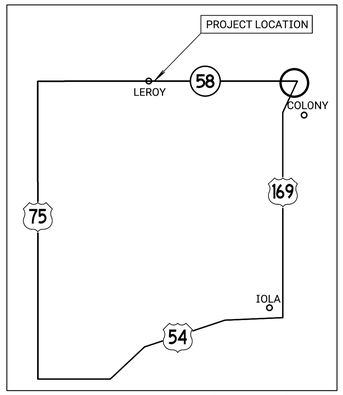
KDOT Graphics Certified 08-13-2024

Sh. No. 76

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:45
File : ka5701cdt-02.dgn Traffic

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	77	93



NOTE: Circle on map denotes location of detour.

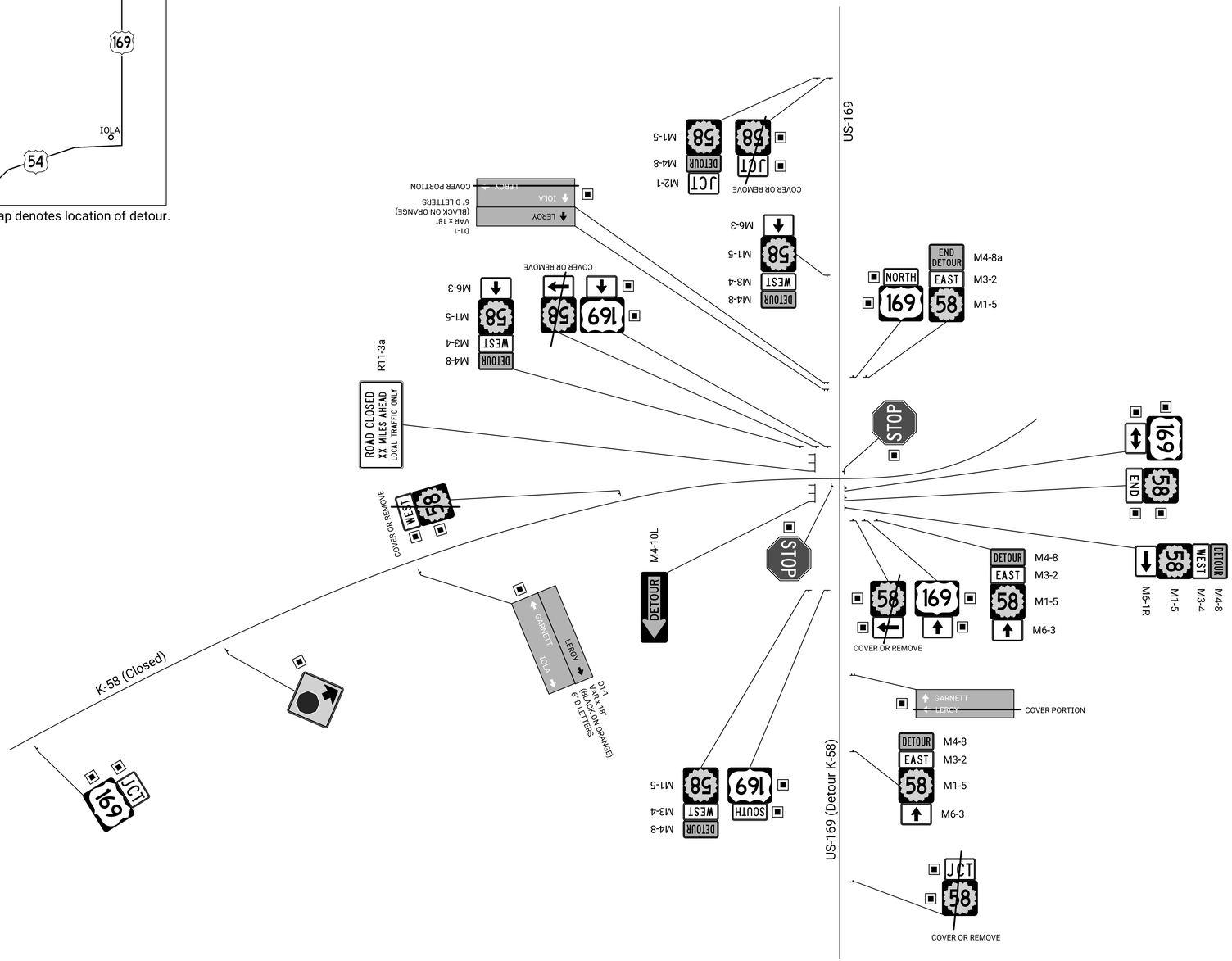
All conflicting route markers along the detour route shall be covered or removed.

Existing signs not shown at these junctions shall remain in place unless otherwise directed by the engineer.

Erect detour confirming assemblies in conjuction with existing route marker assemblies along detour route.

Existing sign posts should not be disturbed. Any signs needed for detour should be placed along side of existing sign posts, with it's own post.

D1-X Signs should be shown on top of existing signs but, be placed on thier own sign stand directly above and behind.



NOT TO SCALE

- ○ Type "A" Low Intensity Warning Light
- ⊔⊔ Type III Barricades
- ▣ Existing

SHEET 3 OF 4

KANSAS DEPARTMENT OF TRANSPORTATION

K-58 / US-169 Intersection
(Detour K-58)

APP'D			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

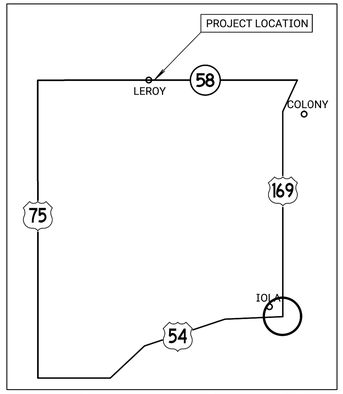
KDOT Graphics Certified 08-12-2024

Sh. No. 77

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:45
File : ka5701cdt-03.dgn Traffic

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	78	93



NOTE: Circle on map denotes location of detour.

All conflicting route markers along the detour route shall be covered or removed.

Existing signs not shown at these junctions shall remain in place unless otherwise directed by the engineer.

Erect detour confirming assemblies in conjuction with existing route marker assemblies along detour route.

Existing sign posts should not be disturbed. Any signs needed for detour should be placed along side of existing sign posts, with it's own post.

D1-X Signs should be shown on top of existing signs but, be placed on thier own sign stand directly above and behind.

US-169 (Detour K-58)

US-54

US-54(Detour K-58)

US-169

NOT TO SCALE

- ○ Type "A" Low Intensity Warning Light
- ⊔⊔ Type III Barricades
- ▣ Existing

SHEET 4 OF 4

KANSAS DEPARTMENT OF TRANSPORTATION

US-54 / US-169 Interchange
(Detour K-58)

APP'D			
DESIGNED	DETAILED	DESIGN CK.	DETAIL CK.

KDOT Graphics Certified 08-14-2024

Sh. No. 78

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:45
File : ka5701cdt-04.dgn Traffic

1) Design Speed: Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

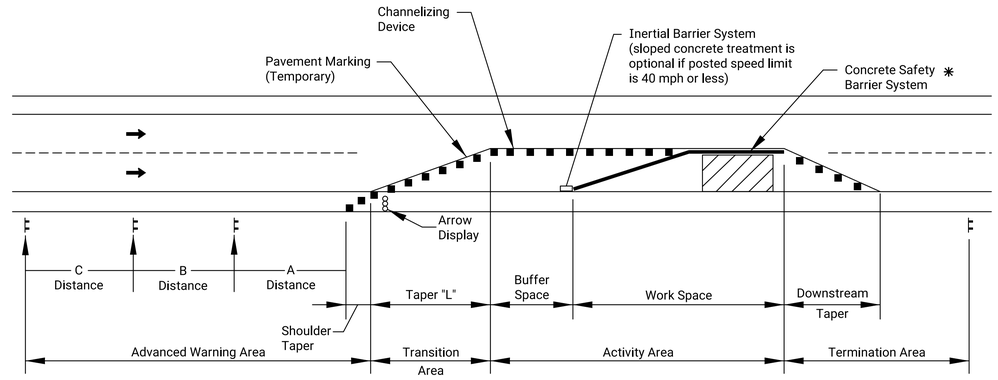
3) Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.

4) When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.

5) When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a W8-15 (Grooved Pavement) or W8-7 (Loose Gravel) sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p motorcycle plaque shall be used to supplement the W8-15 or W8-7 signs. All signs shall be displayed as long as the condition is present.

6) Alternative temporary rumble strip options may be available. Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	79	93



TYPICAL WORK ZONE COMPONENTS

✳ When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

Minimum advance warning sign spacing (in feet):

SPEED (MPH) ✳	*A*	*B*	*C*
URBAN (40 MPH OR LOWER)	*100*	*100*	*100*
URBAN (45 MPH OR HIGHER)	*350*	*350*	*350*
RURAL (55 MPH OR LOWER)	*500*	*500*	*500*
RURAL (60 MPH OR HIGHER)	*750*	*750*	*750*
EXPRESSWAY/FREEWAY	*1000*	*1500*	*2640*

✳ Posted speed prior to work starting

The minimum spacing between signs shall be no less than 100', unless directed by the engineer.

The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

Taper Formulas:

L = WS for speeds of 45 MPH or more

$L = WS^2/60$ for speeds of 40 MPH or less

Where: L = Minimum length of taper in feet
S = Numericial value of posted speed prior to work starting in MPH
W = Width in offset feet

Shifting Taper=1/2 L
Shoulder Taper=1/3 L

Channelizer Placement:

(1) The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 the posted speed limit in mph prior to work starting.

(2) The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.

(3) Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.

(4) Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.

(5) Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

Buffer Space

SPEED (MPH) ✳	*20*	*25*	*30*	*35*	*40*	*45*	*50*	*55*	*60*	*65*	*70*	*75*
LENGTH (ft)	*115*	*155*	*200*	*250*	*305*	*360*	*425*	*495*	*570*	*645*	*730*	*820*

✳ Posted speed prior to work starting

Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.

If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

NO.	DATE	REVISIONS	BY	APP'D
02	03-13-18	W8-15p usage changed to Shall	R.W.B.	E.K.G.
01	08-18-15	Channelizer spacing info	R.W.B.	K.E.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL GENERAL NOTES

TE700

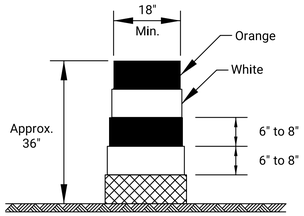
FHWA APPROVAL	03-13-18	APP'D.	Eric Kocher
DESIGNED B.A.H.	DETAILED R.W.B.	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 07-18-2022 Sh. No. 79

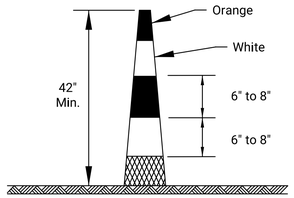
Plotted by : Keegan.Matheis 13-DEC-2024 14:46
File : TE700.dgn

KDOT Graphics Certified

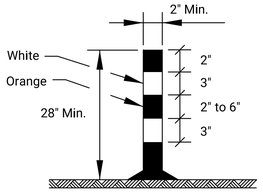
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	80	93



DRUM

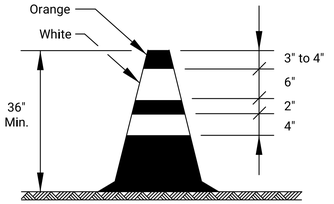


CONICAL
DELINEATOR

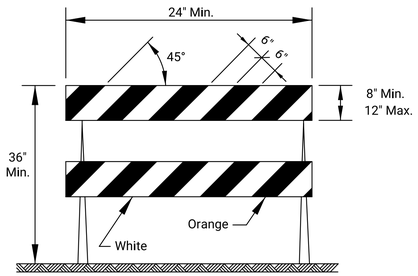


TUBULAR MARKER

Striping as shown for up to 42".

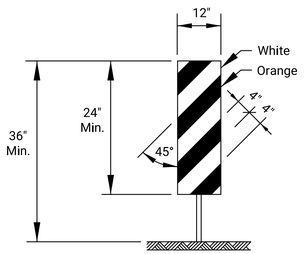


TRAFFIC CONE



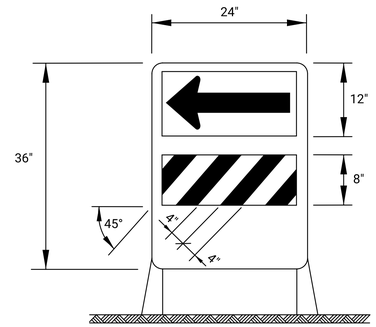
TYPE 2 BARRICADE

For rails less than 36" long, 4" wide stripes may be used. All stripes shall slope downward to the traffic side for channelization.



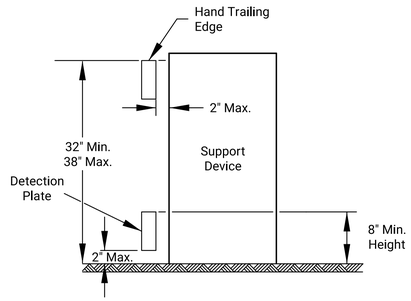
VERTICAL PANEL

The stripes shall slope downward to the traffic side for channelization.



DIRECTION INDICATOR BARRICADE

The stripes shall slope downward in the direction traffic is to pass. The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.



PEDESTRIAN CHANNELIZER

1. Support device shall not project beyond the detection plate into the pathway.
2. Hand trailing edges and detection plates are optional for continuous walls.
3. Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
4. Alternate pathways shall be firm, stable, and slip resistant.
5. Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
6. Use alternating orange/white on interconnected devices.

Item	Location	Cross-overs	Shoofly Diversions	Tangents	Tapers	Ramps	Head to Head	Object Identifier	Lead-in Devices	Gores
Portable										
	Drums	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Conical Delineators	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Vertical Panels	(2)	(2)	(2)	(2)	(2)	(1,2)	Yes	(2)	(2)
	Direction Indicator Barricade	No	No	No	Yes	No	No	No	No	No
	Type 2 Barricade	(2)	(2)	(2)	(2)	No	No	Yes	No	No
	Traffic Cones	No	No	(4)	(4)	(4)	No	(4)	(4)	(4)
Fixed										
	Tubular Markers	(3)	(3)	(3)	No	(3)	Yes	No	Yes	Yes
	Vertical Panels	(3)	(3)	(3)	(3)	(3)	(3)	Yes	(2,3)	(2)

(1) Not allowed on centerline delineation along freeways or expressways.
(2) The stripes shall slope downward to the traffic side for channelization.
(3) May be used upon the approval of the engineer.
(4) Daytime operations only.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CHANNELIZING DEVICES

TE702

FHWA APPROVAL		06-01-15	APP'D.	Kristina Ericksen	
DESIGNED	L.E.R.	DETAILED R.W.B.	QUANTITIES	TRACED	
DESIGN CK.		DETAIL CK.	QUAN.CK.	TRACE CK.	

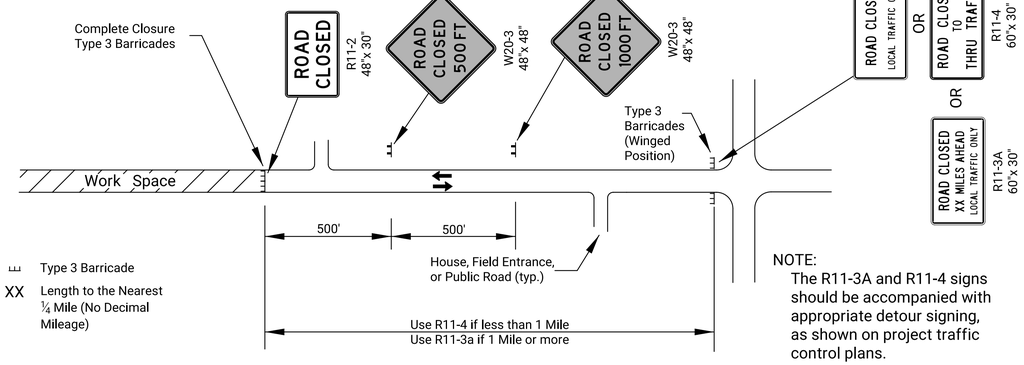
KDOT Graphics Certified 07-18-2022 Sh. No. 80

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:46
File : TE702.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	81	93

Note: Signs shown for one approach to work zone.



NOTE:
The R11-3A and R11-4 signs should be accompanied with appropriate detour signing, as shown on project traffic control plans.

FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE (MAINLINE OR SIDE ROAD)

Note: Sign shown for one approach to intersection (work zone).

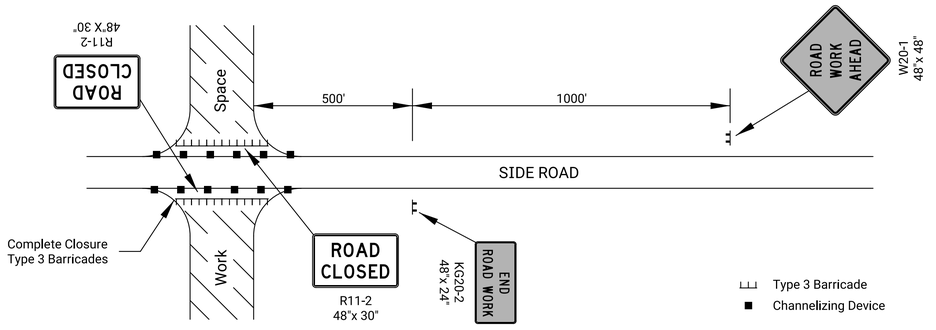


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

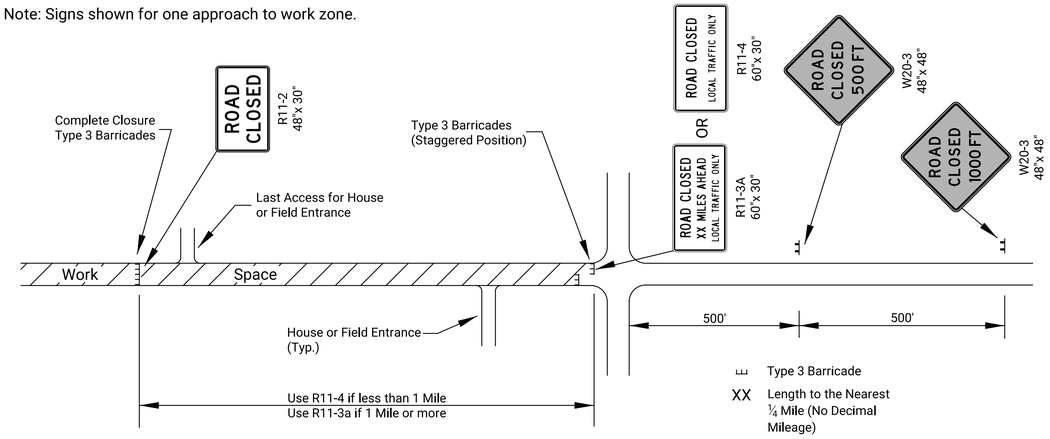


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

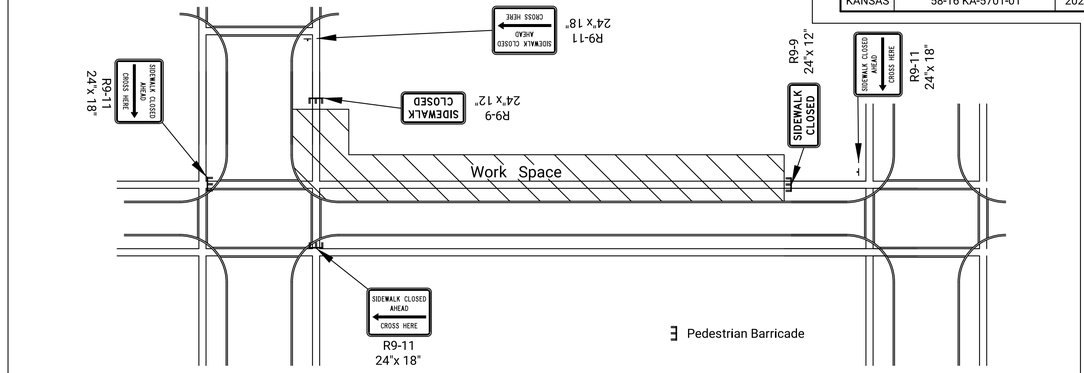
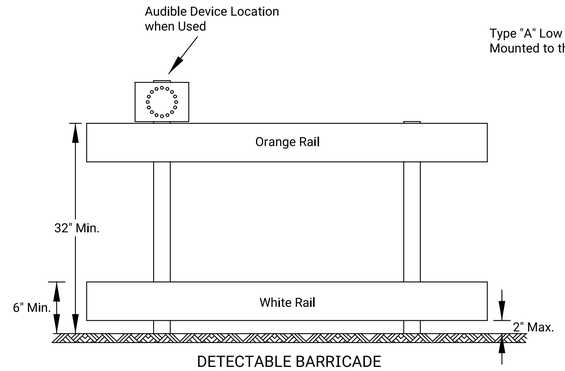
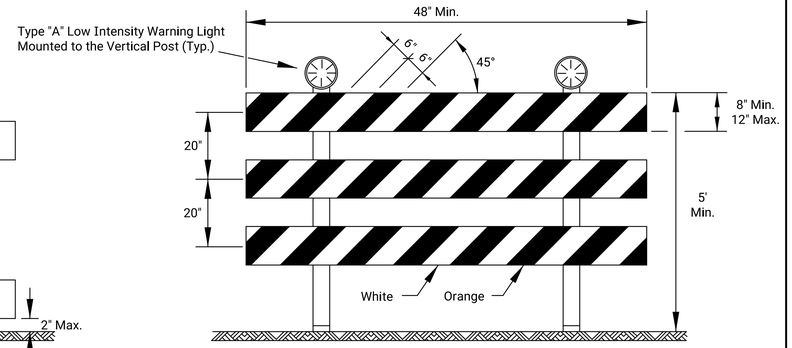


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



DETECTABLE BARRICADE

1. Support device shall not project beyond the detection plate into the pathway.
2. Barricades shall be used to close the entire width of the pathway.
3. Do not use warning lights on pedestrian barricades.
4. Do not use warning lights on audible devices.



TYPE 3 BARRICADE WITH LIGHTS

Approved signs mounted on Type 3 barricades should not cover more than 50% of the top two rails or 33% of the total area of the three rails.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post near each outside corner of the end barricades.

ROAD CLOSED GENERAL NOTES

As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed to the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used with Type 3 barricades (winged position), placed on the shoulders of roadway.

As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be longitudinally staggered to maintain the appearance of a closed roadway. A second line of end-to-end Type 3 barricades shall be placed just beyond the last access point in the work zone, to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile.

The R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is 1 mile or greater.

The words "BRIDGE OUT" (or BRIDGE CLOSED) may be substituted for the words "ROAD CLOSED" on the R11-3a or R11-4 sign where applicable.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

FHWA APPROVAL			06-01-15	APP'D.		Kristina Ericksen	
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES		TRACED	
DESIGN CK.		DETAIL CK.		QUAN.CK.		TRACE CK.	

KDOT Graphics Certified 07-18-2022 Sh. No. 81

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:46
File : TE704.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	82	93

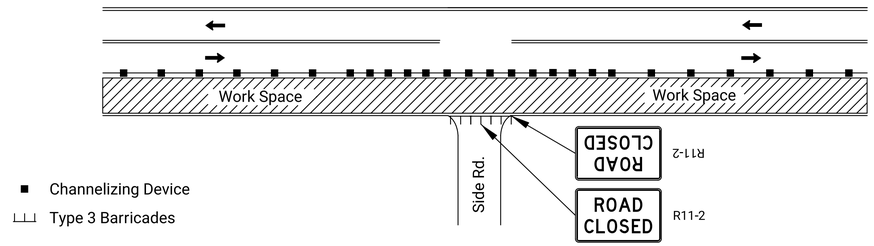


FIGURE 1: SIDE ROAD OR ENTRANCE CLOSED THROUGH WORK AREA

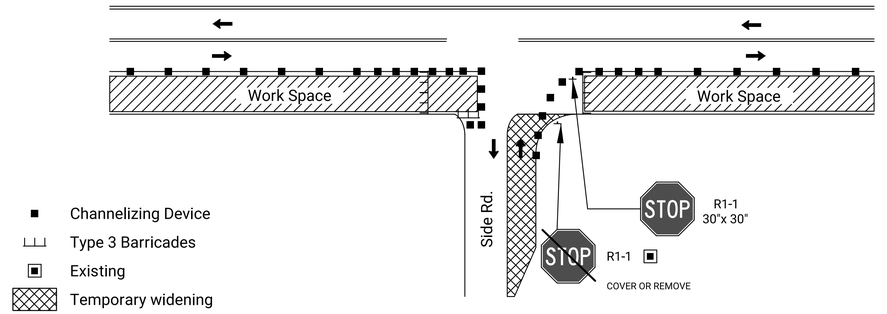


FIGURE 4: SIDE ROAD OR ENTRANCE CONSTRUCTED HALF AT A TIME: TWO WAY TRAFFIC REQUIRED

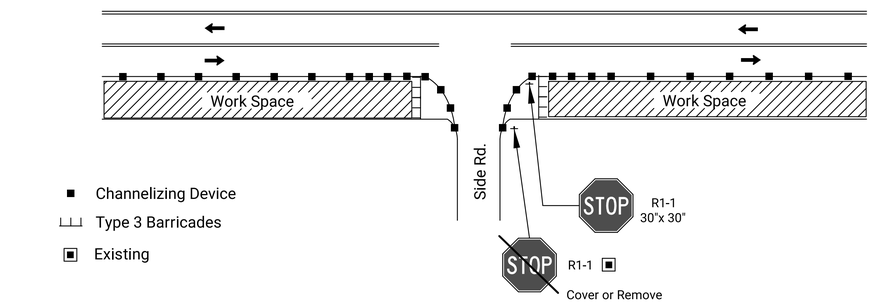


FIGURE 2: SIDE ROAD OR ENTRANCE OPEN THROUGH WORK AREA

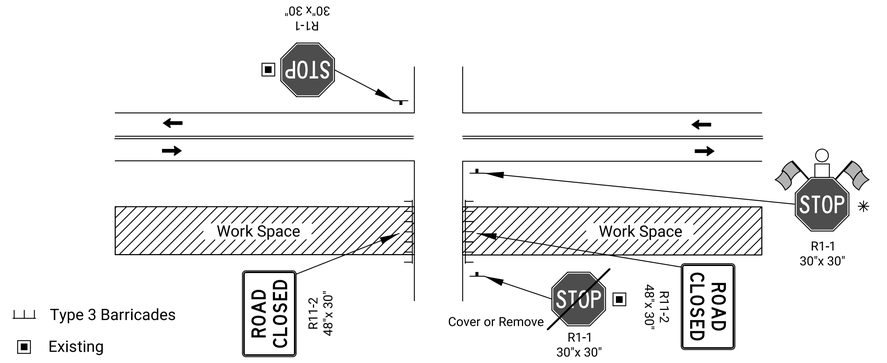


FIGURE 5: SIDE ROAD OPEN THROUGH WORK AREA ON DIVIDED ROADWAY

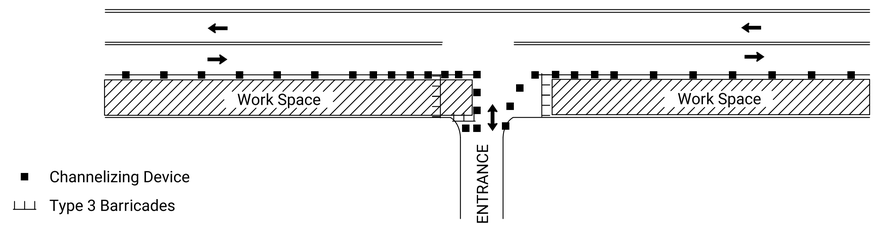


FIGURE 3: LOW VOLUME ENTRANCE CONTRUCTED HALF AT A TIME

Note: Consider large vehicles making right turns into and out of entrance and use figure 4 as needed

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL ACCESS THROUGH THE WORK AREA

TE705

FHWA APPROVAL		06-01-15	APP'D.	Kristina Ericksen	
DESIGNED	R.W.B.	DETAILED R.W.B.	QUANTITIES	TRACED	
DESIGN CK.		DETAIL CK.	QUAN.CK.	TRACE CK.	

KDOT Graphics Certified 07-18-2022 Sh. No. 82

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:46
File : TE705.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	83	93

SIGN LAYOUT INFORMATION

KG20-2

Std. Size Expwy/Freeway
6" C
48"x 24"

KG20-5

Std. Size Expwy/Freeway
6" C
48"x 24"

KM4-20

Std. Size
3" C
24"x 6"

Expwy/Freeway
6" C
48"x 12"

W7-3a

Mileage to be Determined by the Engineer.

W8-17

Std. Size Expwy/Freeway
48"x 48"

W8-15

Std. Size Expwy/Freeway
8" D
48"x 48"

W8-7

Std. Size Expwy/Freeway
8" D
48"x 48"

W8-15p

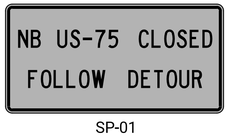
Std. Size Expwy/Freeway
30"x 24"

W8-11

Std. Size Expwy/Freeway
8" D
48"x 48"

W8-17P
(Optional)

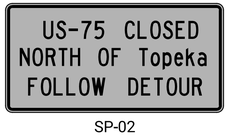
Std. Size Expwy/Freeway
30"x 24"



SP-01
(Special Sign)

Std. Size
6" C

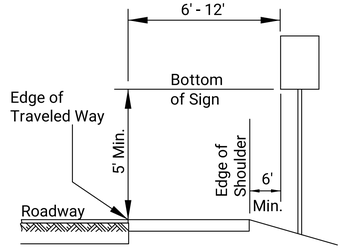
Expwy/Freeway
10" D



SP-02
(Special Sign)

Std. Size		Expwy/Freeway	
Uppercase:	6" C	Uppercase:	10" D
Lowercase:	4.5" C	Lowercase:	8" D

All city names and street names on special signs and destination signs must have upper and lower case letters.

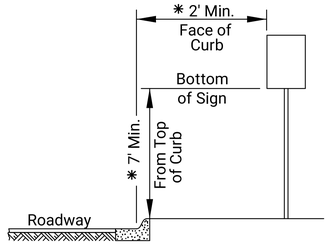


RURAL

1) Ground-mounted signs shall be mounted at a minimum height of 5' measured from the bottom of sign to the near edge of the pavement.

2) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

3) The height of the secondary sign mounted below another sign may be 4' measured from the bottom of the sign to the near edge of the pavement. Signs shall not overlap each other.



URBAN

1) Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.

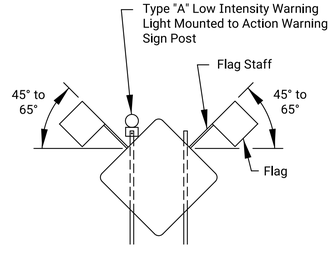
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

3) Signs mounted lower than 7' should not project more than 4" into pedestrian facilities.

4) The height from of the secondary sign mounted below another sign may be 6' measured from the bottom of sign to the near edge of the pavement. Signs shall not overlap each other.

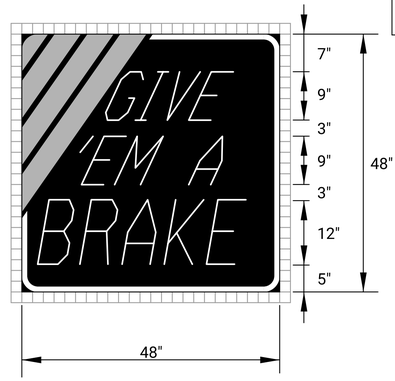
5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

✱ 6) Pedestrian detour signing shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not protrude into the walkway nor shall it project beyond the back of curb.



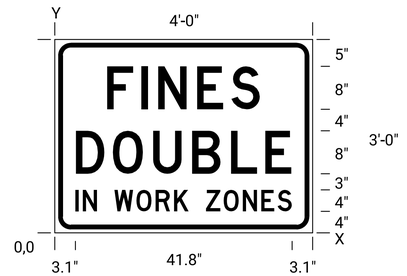
When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

In the case of hitting rock when driving posts
1. Shift the sign location. Do not violate minimum sign spacing.
2. With the engineer's approval, use acceptable alternative sign stands.



KI-104a

Sign Number	GIVE EM A BRAKE
Width x Height	4'-0" x 4'-0"
Border Width	1.0"
Corner Radius	4.0"
Stripe Width	3.0"
Mounting	Ground
Background	Type: Non-Reflective
	Color: Black
Legend/Border	Type: Reflective
	Color: White
Legend Font	Dutch 801 Roman SWC 25 Degree Slant
Stripes	Type: Reflective
	Color: Orange



KI-105a

Sign Number	FINES DOUBLE
Width x Height	4'-0" x 3'-0"
Border Width	0.9"
Corner Radius	3.0"
Mounting	Ground
Background	Type: Reflective
	Color: White
Legend/Border	Type: Non-Reflective
	Color: Black

Dimensions in inches — Spacings are to start of next letter

Y FONT	LETTER SPACINGS															HT LEN
23.0 D	X	F	I	N	E	S	X									8.0
	9.7	6.4	3.2	7.3	6.4	5.4	9.7									28.6
11.0 D	X	D	O	U	B	L	E	X								8.0
	3.9	6.9	7.5	7.3	7.3	6.4	4.9	3.9								40.3
4.0 D	X	I	N	X	W	O	R	K	X	Z	O	N	E	S	X	4.0
	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1	41.8

Notes:

Typically, there are two sets of informational signs installed per project: one for each direction of traffic.

Install signs a minimum of 500' in advance of the road work ahead sign. The engineer may designate a more appropriate location if conditions dictate.

The informational signs are not to interfere with the traffic control signs for the project.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN INFORMATION

TE710

FHWA APPROVAL		06-01-15	APP'D.	Kristina Ericksen	
DESIGNED	R.W.B.	DETAILED R.W.B.	QUANTITIES	TRACED	
DESIGN CK.		DETAIL CK.	QUAN.CK.	TRACE CK.	

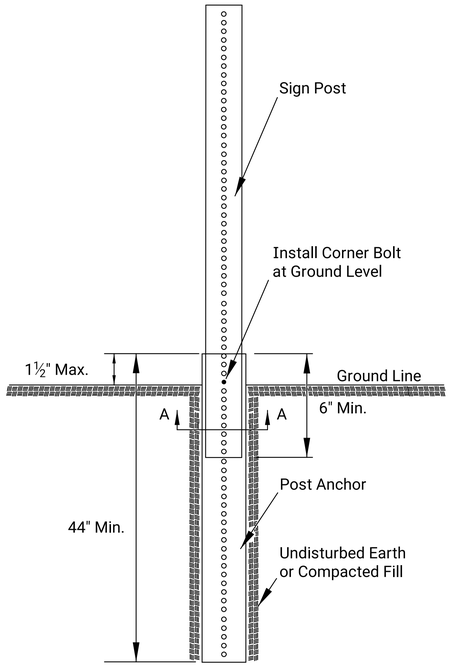
KDOT Graphics Certified 12-16-2022 Sh. No. 83

KDOT Graphics Certified

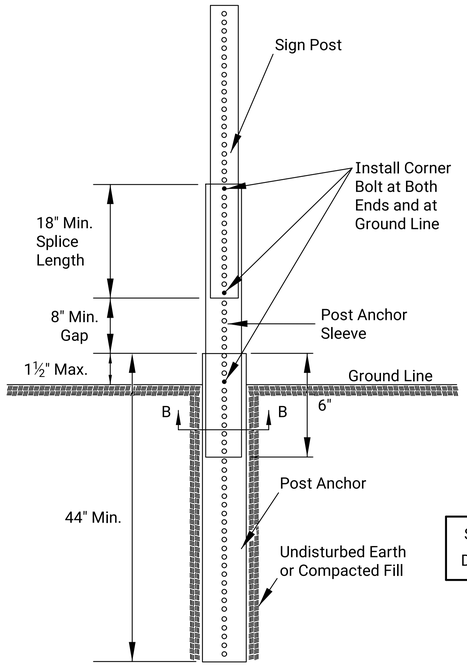
Plotted by : Keegan.Matheis 13-DEC-2024 14:46
File : TE710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	84	93

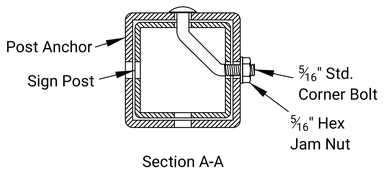
PERFORMATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



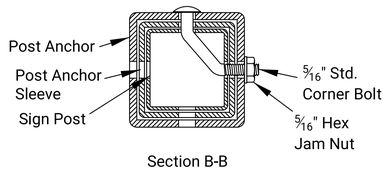
P.S.S.T. Detail



Telescoping P.S.S.T. Detail



Section A-A

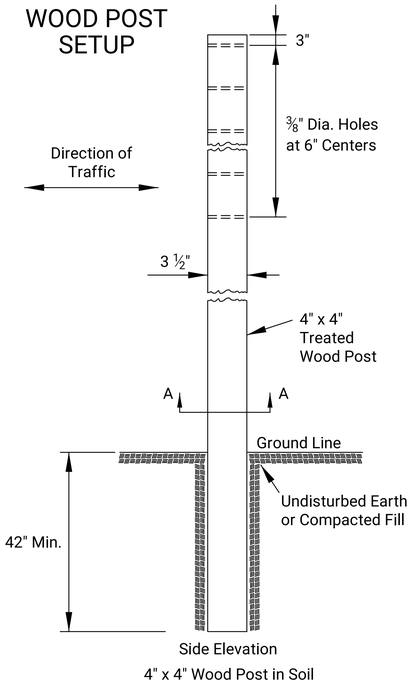


Section B-B

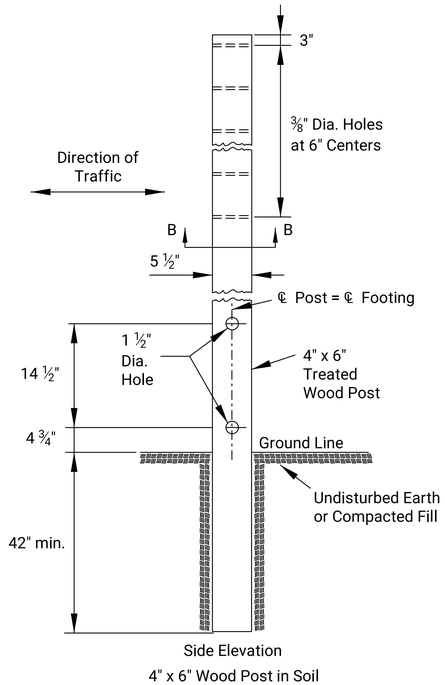
Details for 2", 2 ¼", or 2 ½" sign posts

Place bolts in the same corner along each sign post.

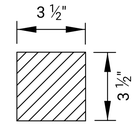
WOOD POST SETUP



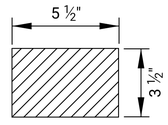
Side Elevation
4" x 4" Wood Post in Soil



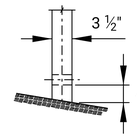
Side Elevation
4" x 6" Wood Post in Soil



Section A-A



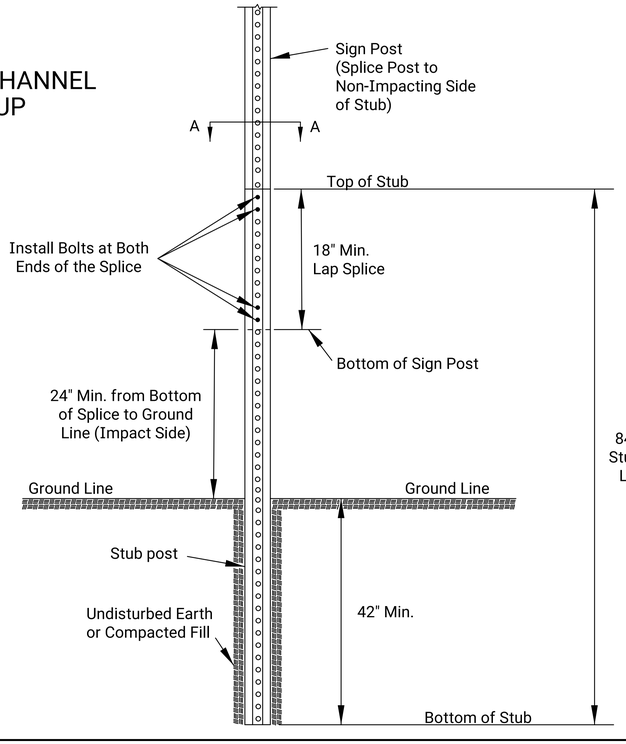
Section B-B



Front Elevation

See TE710 for Additional Details and Requirements

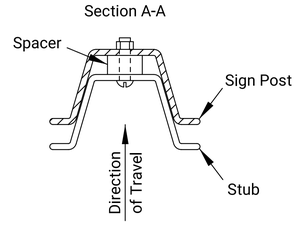
3 LB/F U-CHANNEL SETUP



Notes:

Place two bolts at both ends of the splice through the holes nearest the ends of the splice.

Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.



NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

TE712

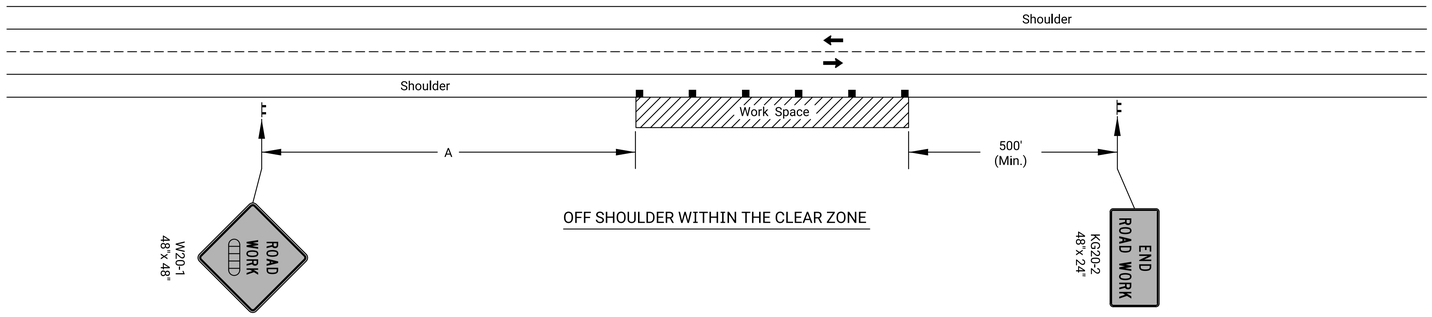
FHWA APPROVAL			06-01-15	APP'D.	Kristina Ericksen		
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED		
DESIGN CK.		DETAIL CK.		QUAN.CK.	TRACE CK.		

KDOT Graphics Certified 07-18-2022 Sh. No. 84

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:46
File : TE712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	85	93

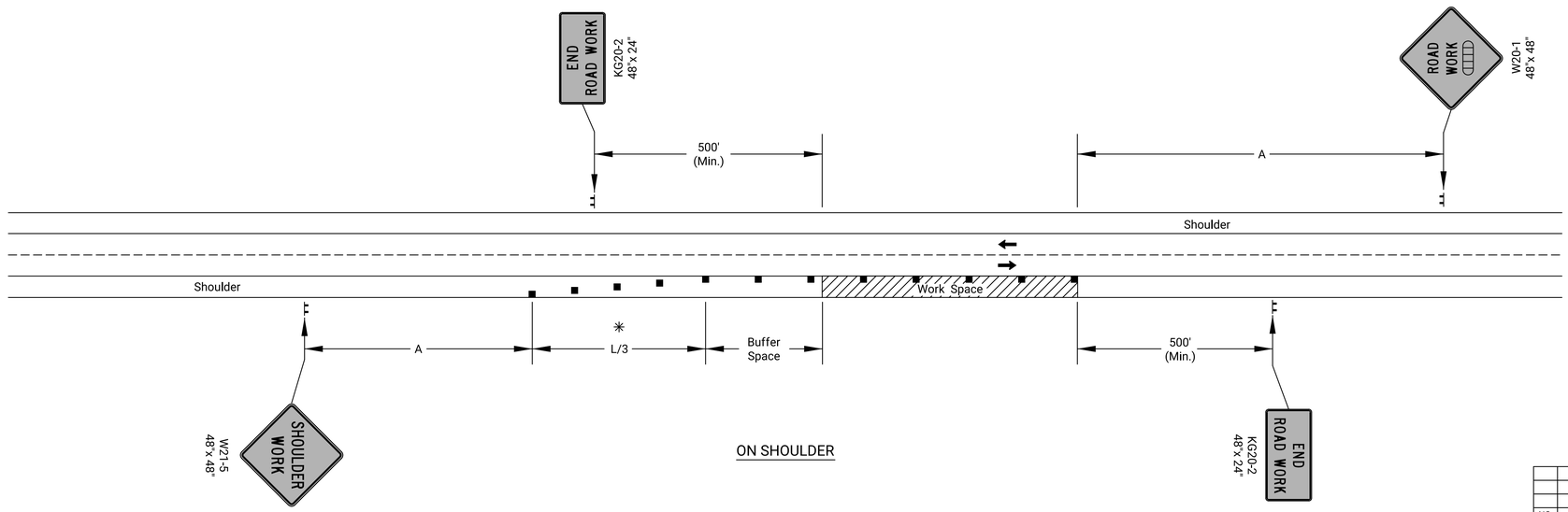


OFF SHOULDER WITHIN THE CLEAR ZONE

Notes:

No traffic control is required if the Work Space is located outside of the clear zone.

For operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with high-intensity rotating, flashing, oscillating, or strobe lights is used.



ON SHOULDER

✳ Omit taper if paved shoulder is less than 8' wide.

■ Channelizing Device

Ahead, 1500 ft, or 1 Mile

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SHOULDER WORK UNDIVIDED ROADWAY

TE720

FHWA APPROVAL			06-01-15	APP'D.		Kristina Ericksen	
DESIGNED	L.E.R.	DETAILED	R.W.B.	QUANTITIES		TRACED	
DESIGN CK.		DETAIL CK.		QUAN.CK.		TRACE CK.	

KDOT Graphics Certified 07-18-2022 Sh. No. 85

KDOT Graphics Certified

Plotted by : Keegan.Matheis 13-DEC-2024 14:47
File : TE720.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	86	93

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

Work Zone Sign (Special)		
Sign No.	16.25 Sq.Ft. & Less	16.26 Sq.Ft. & Over

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH PER DAY)

✳ Quantity most used on the project at any one time

Work Zone Signs ✳			
Sign No.	Size - Sq.Ft.		
	0-9.25	9.26-16.25	16.26 & Over
W20-7		2	
W20-1		2	
W20-2		1	
W21-5		1	
R11-3a		2	
R11-4		1	
KG20-2	2		
M4-8	69		
M1-5	72		
M2-1	4		
M3-2	33		
M3-4	35		
M5-1	3		
M6-1	8		
M6-2	2		
M6-3	14		
D1-1	7		
M4-8a	2		
M4-10	2		
R11-2		2	
M5-2	2		
W20-3		4	

Barricades ✳		Channelizing Devices ✳		
Type 3 (4' to 12')	Pedestrian	Fixed	Portable	Pedestrian
14			20	

Lighted Devices ✳	
Work Zone Warning Light (Type "A" Low Intensity)	14
Work Zone Warning Light (Red Type "B" High Intensity)	
Arrow Display	
Portable Changeable Message Sign	

Recapitulation of Quantities		
Item	Quantity	Unit
Work Zone Signs (0 to 9.25 Sq.Ft.)	61200	Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)	3600	Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)		Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')	3360	Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)	4800	Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)	3360	Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display		Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)		Sta./Line
4" Solid (Type II)		Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)		Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)		Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)		Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal		Lin. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)	Lump Sum	Lump Sum
Traffic Control		Lump Sum
Flagger (Set Price)	1	Hour

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SUMMARY OF DEVICES RECAPITULATION OF QUANTITIES

TE795

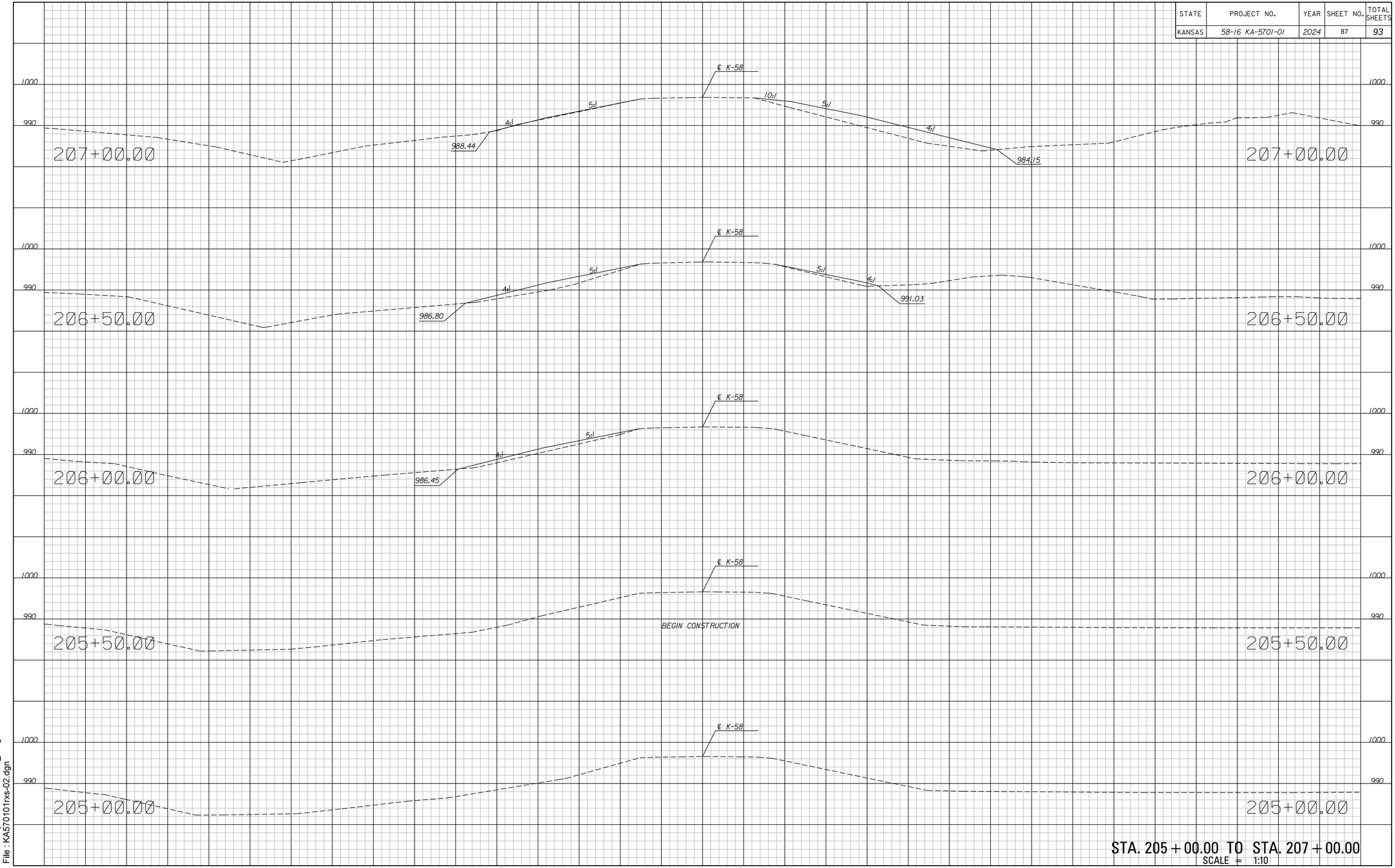
FHWA APPROVAL	06-01-15	APP'D.	Kristina Ericksen
DESIGNED B.A.H.	DETAILED R.W.B.	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 12-12-2024 Sh. No. 86

Plotted by : Keegan.Matheis 13-DEC-2024 14:47
File : TE795.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	87	93

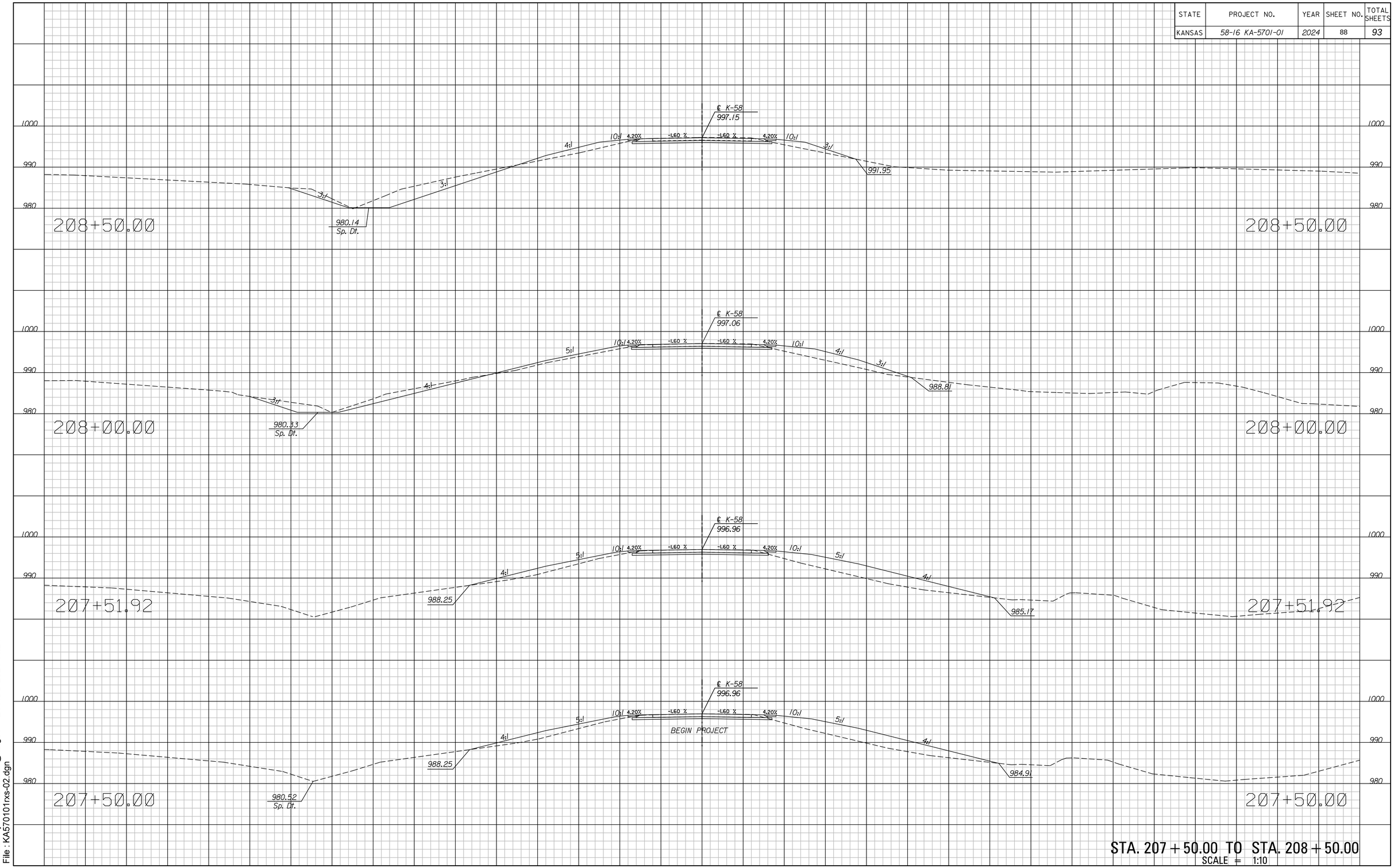


STA. 205 + 00.00 TO STA. 207 + 00.00

SCALE = 1:10

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
File : KA5701101rxs-02.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	88	93

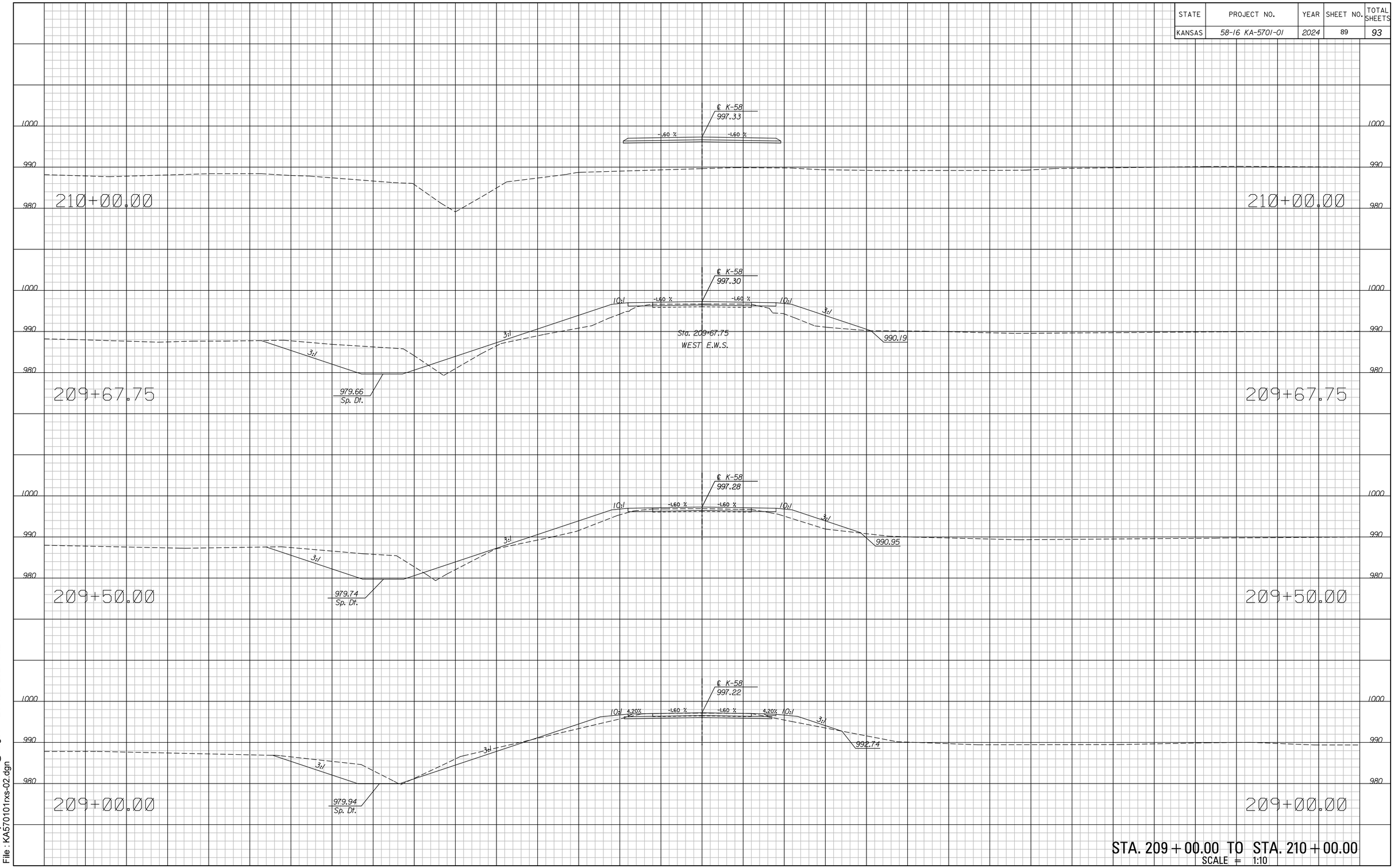


STA. 207 + 50.00 TO STA. 208 + 50.00

SCALE = 1:10

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
File : KA570101rxs-02.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	89	93



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SCALE = 1:10

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
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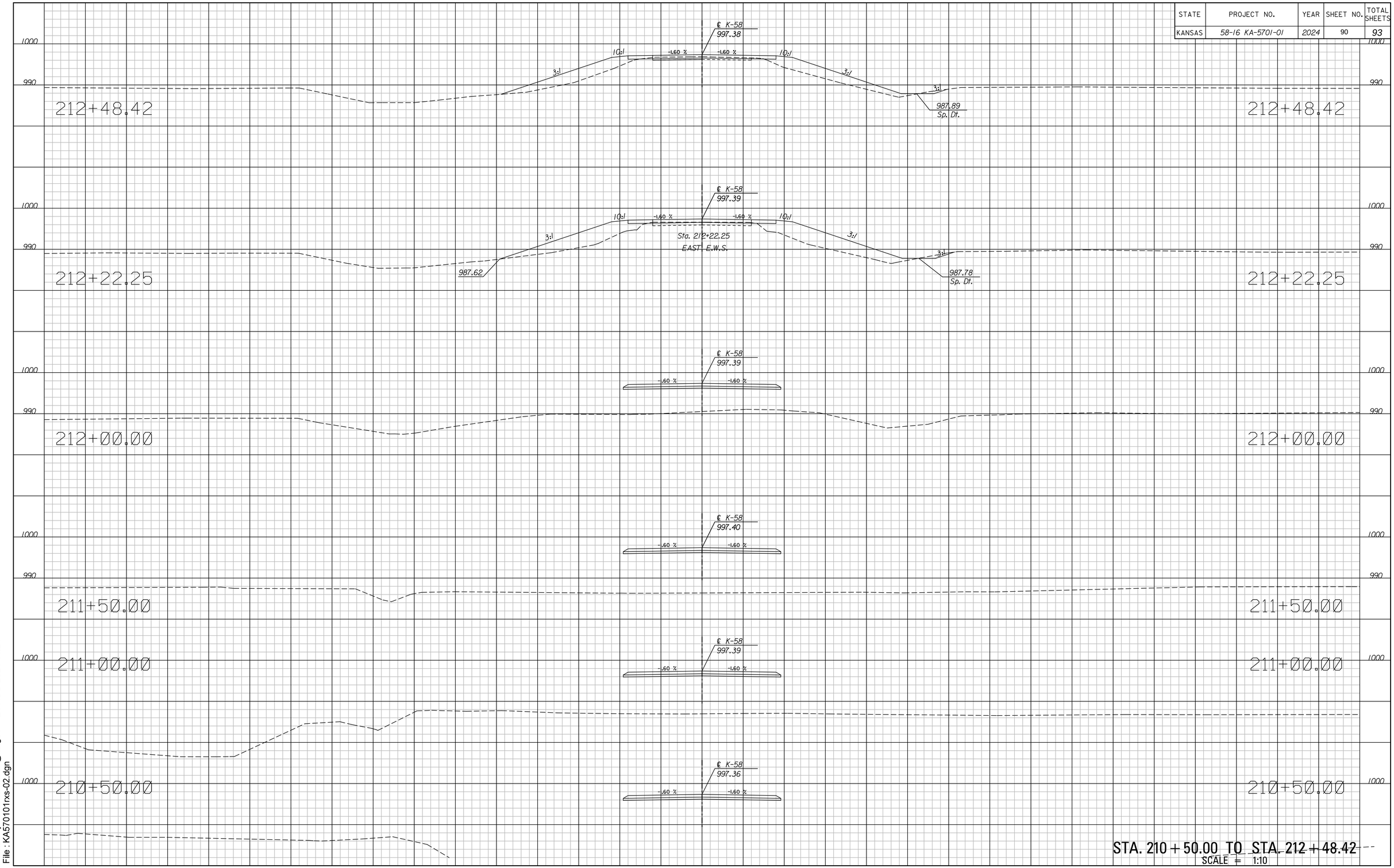
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	90	93



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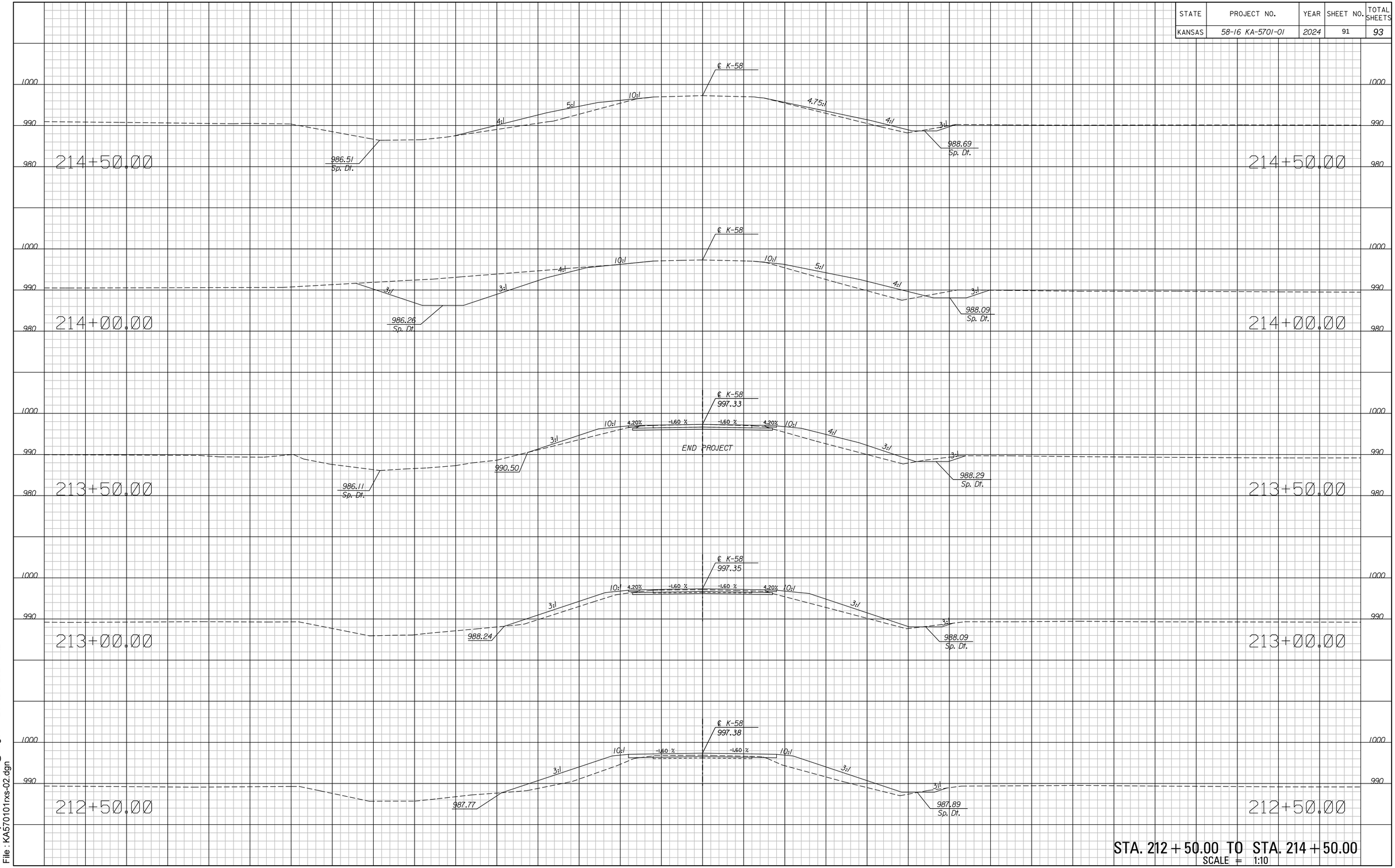
SCALE = 1:10

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
File : KA5701101rxs-02.dgn

Sht. 90

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	91	93



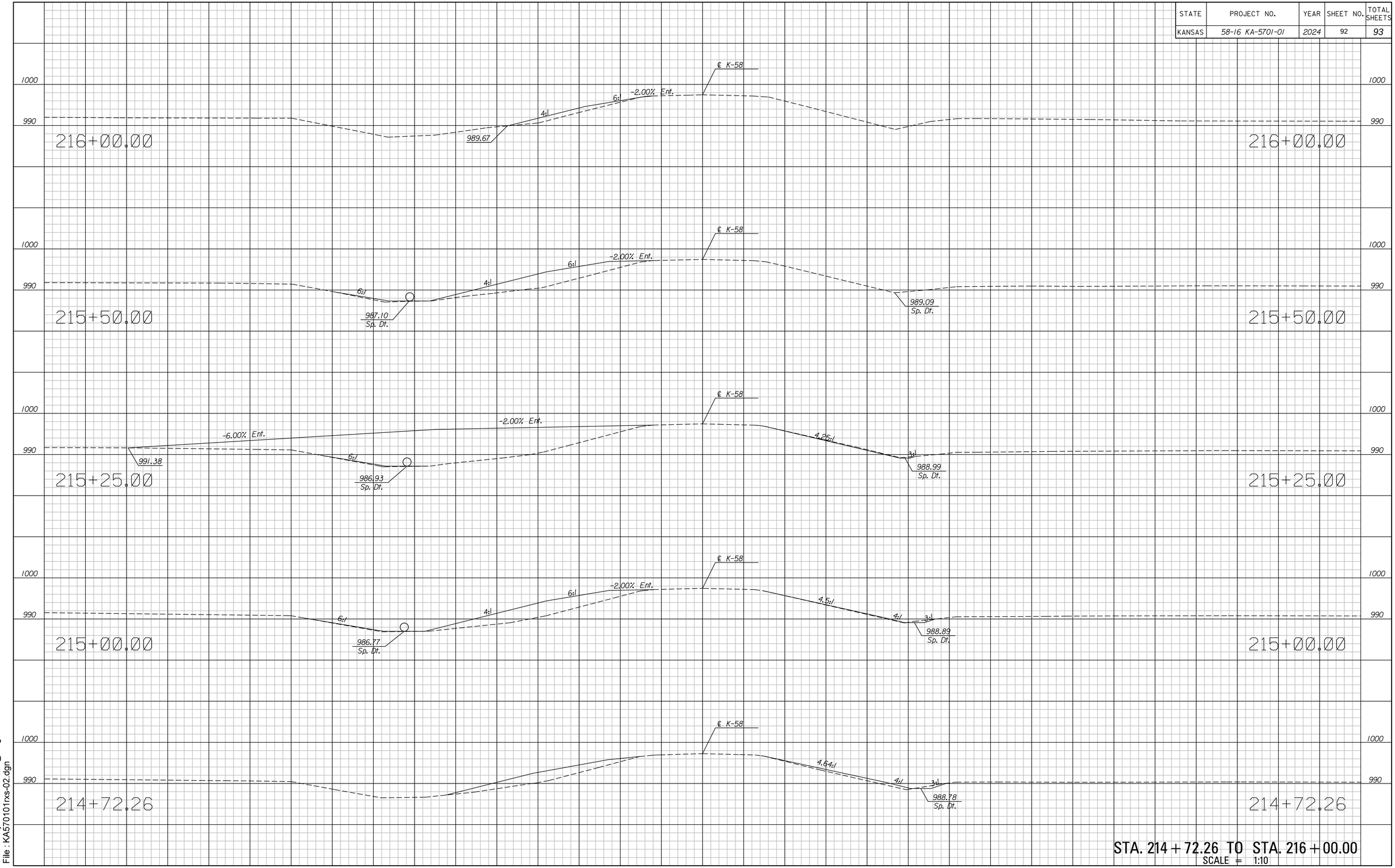
STA. 212+50.00 TO STA. 214+50.00

SCALE = 1:10

Sht. 91

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
File : KA570101rxs-02.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	92	93

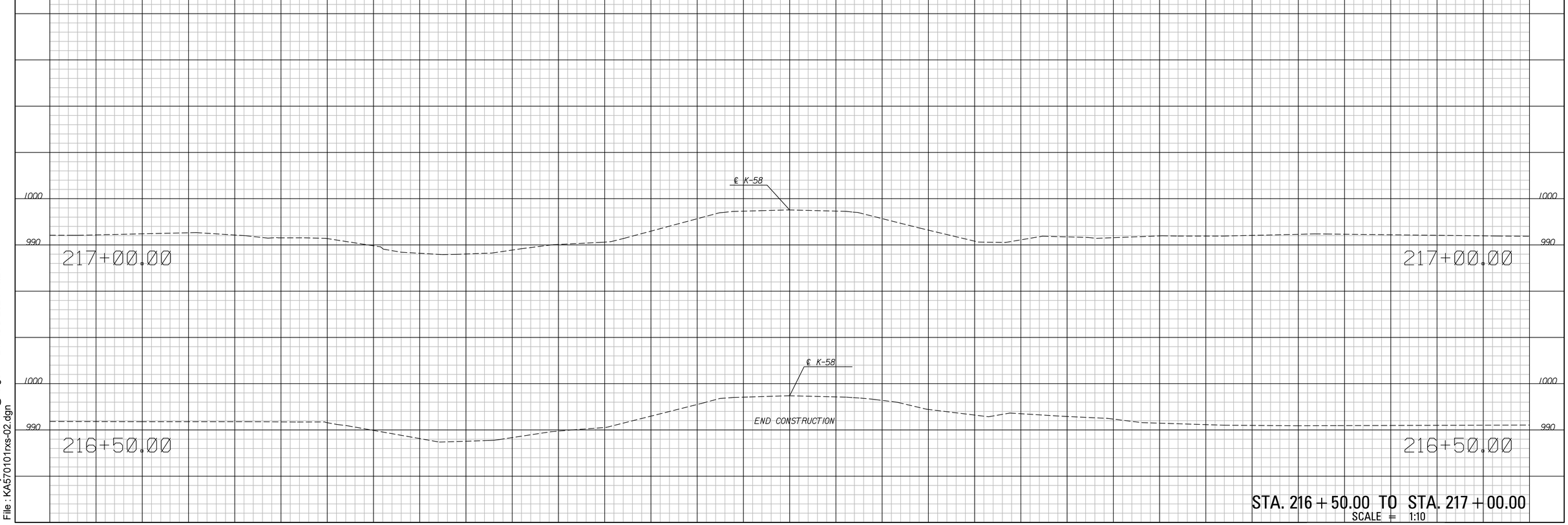


STA. 214+72.26 TO STA. 216+00.00

SCALE = 1:10

Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
File : KA570101rxs-02.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	58-16 KA-5701-01	2024	93	93



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Plotted by : Juliana.Martin@ks.gov 21-AUG-2024 14:24
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