STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	1	44

STATE OF KANSAS

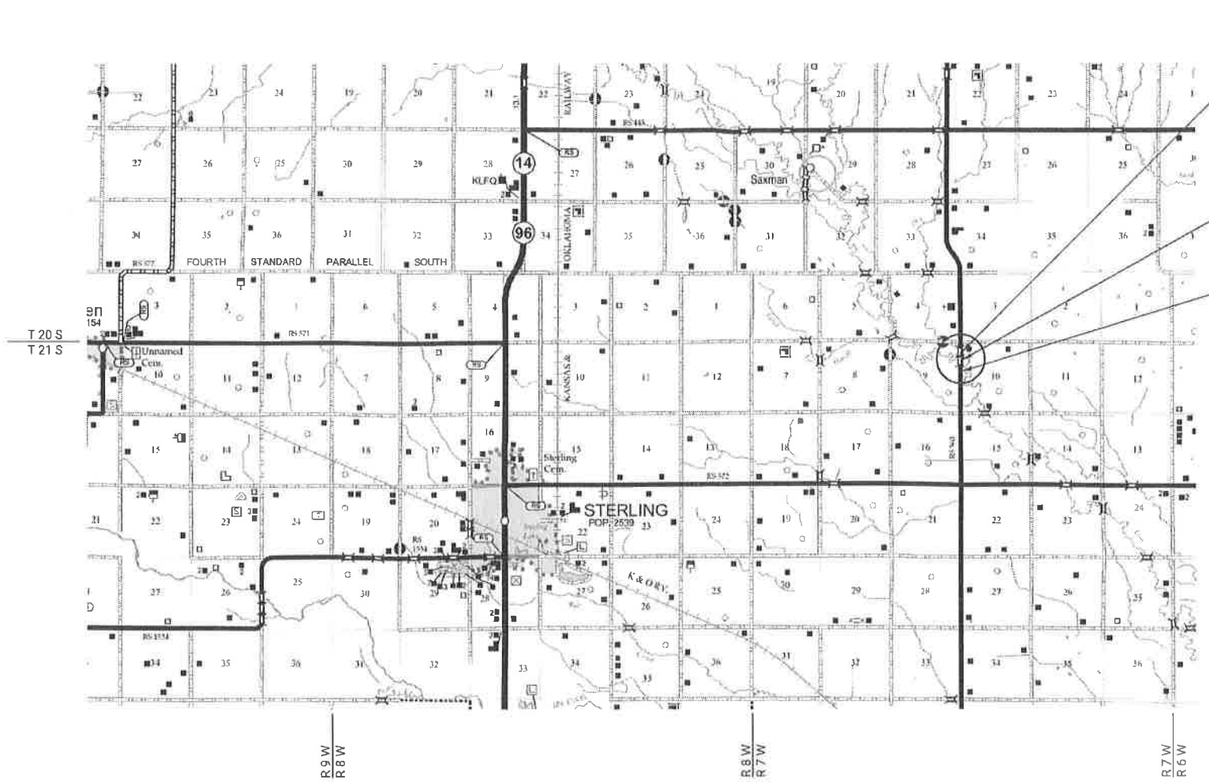
DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE OF PROPOSED
080 C-5276-01

LOCAL PROJECT

RICE COUNTY

GRADING
SURFACING (ASPHALT)
BRIDGE
SEEDING

INDEX OF SHEETS



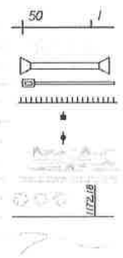
No Scale

DESIGN DESIGNATION

AADT (2024)	345
AADT (2044)	414
DHV	
D	
T	
V	55 mph
C of A	
Clear Zone	

CONVENTIONAL SIGNS

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



GROSS LENGTH OF PROJECT	500.00 FT.	
EXCEPTIONS	NONE	
ADDITIONS	NONE	
NET LENGTH OF PROJECT	500.00 FT.	0.095 MILES
NET LENGTH OF BRIDGES	162.50 FT.	0.031 MILES
NET LENGTH OF ROAD	337.50 FT.	0.064 MILES

Note: This project shall be closed to all traffic during construction.

JOSHUA A. DLABAL
LICENSED
Joshua A. Dlabal
25983
11-07-2024
KANSAS
PROFESSIONAL ENGINEER

KIRKHAM MICHAEL

217 N. Douglas, ELLSWORTH, KANSAS 67439
(785) 472-3163 FAX (785) 472-3847

RECOM. FOR APPROVAL-DATE 11-4-2024

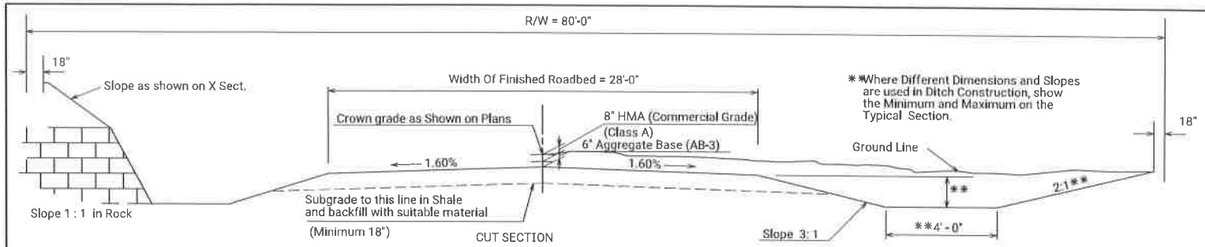
Thomas Rolf

LOCAL PUBLIC OFFICIAL

DATE
BY
SURVEY
CADD TECHNICIAN
DESIGNERS
SQUAD

Plotted by : rsnow 4-NOV-2024 15:59
File : 2312800_rti.dgn

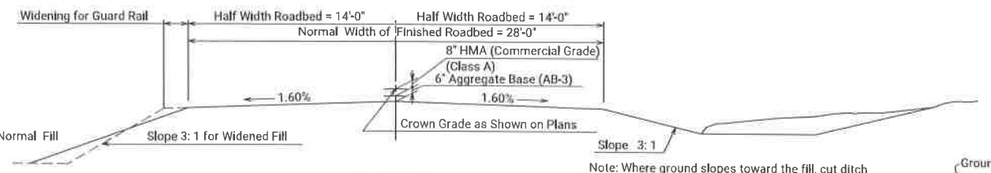
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	2	44



** Where Different Dimensions and Slopes are used in Ditch Construction, show the Minimum and Maximum on the Typical Section.

CUT SECTION

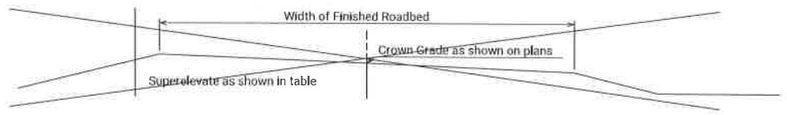
NOTE: For overbreakage in limestone, sandstone or shale see Special Provisions



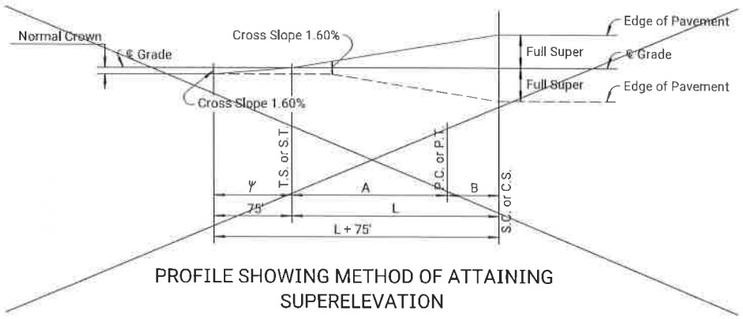
FILL SECTION

Shoulder Slopes at ends of Guard Rail should be no steeper than 3: 1.
When fill exceeds 6' Shoulder Slopes may be steepened

Note: Where ground slopes toward the fill, cut ditch at toe of slope.

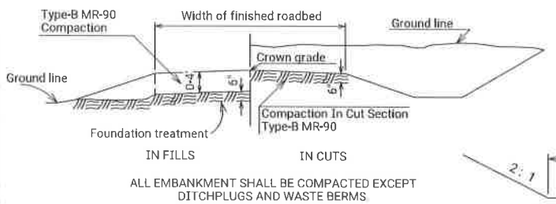


SUPERELEVATED SECTION



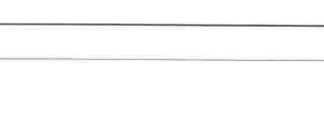
PROFILE SHOWING METHOD OF ATTAINING SUPERELEVATION

Sta. P.I. Curve	Radius	Design Speed	Super %	Transition - (Lin.Ft.) L	A	B

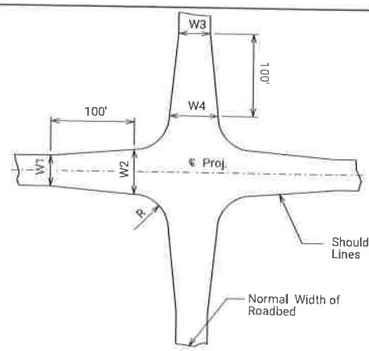


ALL EMBANKMENT SHALL BE COMPACTED EXCEPT DITCHPLUGS AND WASTE BERMS.

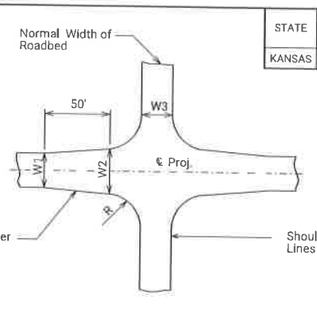
FOUNDATION TREATMENT AND COMPACTION OF EARTHWORK



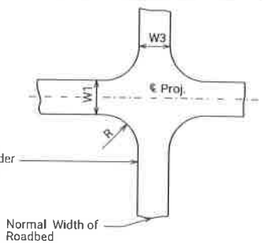
TYPICAL INLET AND OUTLET CHANNEL EXCAVATION SECTION FOR BOX STRUCTURES & PIPE CULVERTS



TYPE-A



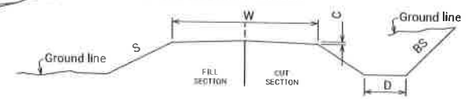
TYPE-B



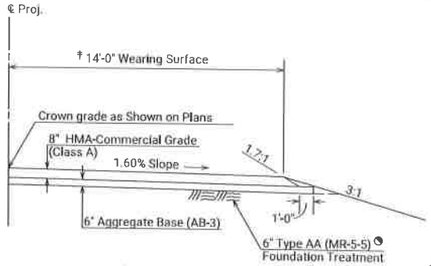
TYPE-C

TYPICAL INTERSECTION DETAILS

TYPICAL SIDE ROAD SECTION



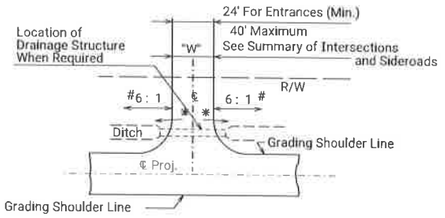
SUMMARY OF INTERSECTIONS AND SIDEROADS												
STATION	SIDE OR QUADRANT	TYPE	W	W1	W2	W3	W4	R	C	S	D	BS



TYPICAL ½ SECTION SURFACING

† Sta. 47+50.00 to Sta. 48+00.00 and Sta. 52+00.00 to 52+50.00 transition road widths and slopes to match existing.

◔ Foundation Treatment shall be considered subsidiary work.



TYPICAL SIDE ROAD OR ENTRANCE DETAIL

* On side roads and entrances which slope toward the roadway, construct a low point approx. 6" deep to divert surface drainage into the roadway ditch.

On ditch plugs and side roads or entrances without drainage structures use 8 : 1 slopes where feasible.

GENERAL NOTES

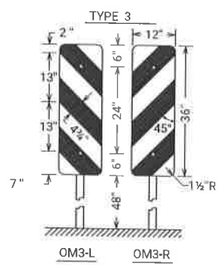
All signs shown on the plans, and other signs furnished and installed by the LPA with their own forces and funds will be installed in conformance with the Manual on Uniform Traffic Control Devices (latest edition).

LPA to furnish all easements and additional right of way (unless otherwise noted).

Public and private utility facilities will be adjusted by others as needed to fit the new construction unless noted otherwise on the plans or in the proposal.

Refer to KDOT Standard Drawing No. BR 100 for excavation limits for constructing box culverts.

OBJECT MARKER



All Sign, Fastener, and Post materials must meet the requirements of the latest edition of the KDOT Standard Specifications for State Road and Bridge Construction.

Install Object Markers Type OM3-(R)(L) at each corner of all span bridges and when indicated on the plans at box structures. Install with the inside edge of the marker in line with the inside clearance line of the structure.

SUMMARY OF OBJECT MARKERS AND SIGNS						
STATION TO STATION	SIDE	TYPE OF STRUCT.	TYPE OF SIGN	OBJECT MARKER TYPE	OBJECT MARKER NO.	REMARKS
49+20	Lt.	Brdg.		OM-3L	1	Ø
49+20	Rt.	Brdg.		OM-3R	1	Ø
50+80	Lt.	Brdg.		OM-3L	1	Ø
50+80	Rt.	Brdg.		OM-3R	1	Ø
TOTAL					4	
ØAs you face bridge end from approach						
*Back-to-Back [Sign(s) on Both Sides of Post]						

NO.	DATE	REVISIONS	BY	APP'D
7	01-08-15	Revised superelevation diagram, updated misc. notes	TLS	RJS
6	11-9-04	Changed "Culvert" to "Structure"	DMK	RJS
5	12-1-03	Rem. Delin's/Add Typ. Sect./Changed OM notes	DMK	RJS
4	5-14-03	Rev. Contractor note in Gen. Notes	DMK	RJS

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL GRADING SECTION

~~LP907~~

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

Plotted by : rsnow 7-NOV-2024 15:11
File : lp907.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	3	44

UTILITIES		
Telephone	ATTD	800-778-9140
Fiber Optic	ATTD	800-778-9140
Power Poles	Ark Valley Electric	620-899-3169

NOTE: The Contractor shall contact Ark Valley Electric at least one month prior to start of construction (620-899-3169). Ark Valley Electric proposes to cover the lines or deaden the lines during construction. If the contractor prefers another method of mitigation, they shall contact Ark Valley Electric as soon as possible to discuss.

Horizontal Project Datum: KRCS Zone 6 Beloit for project coordinates.

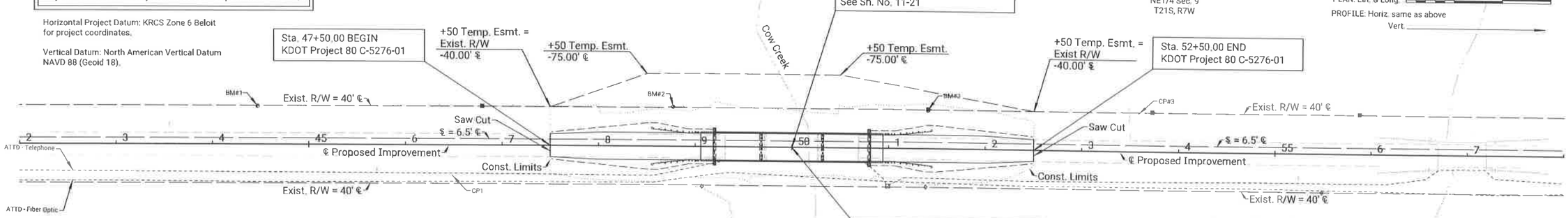
Vertical Datum: North American Vertical Datum NAVD 88 (Geoid 18).

CP1
29.53' Rt., ℄ Sta. 41+75.25
N 269,607.898 E 6,517,933.015
1. Set 5/8" Rebar/Cap at the Surface
2. App. CL of N-S Rd. 30.0' W
3. E. Face of PP 72.0' NW

CP2
31.50' Rt., ℄ Sta. 46+48.28
N 270,080.931 E 6,517,933.204
1. Set 5/8" Rebar/Cap at the Surface
2. App. ℄ of N-S Rd. 32.1' W
3. E. Face of PP 77.7' NW

CP3
40.01' Lt., ℄ Sta. 53+58.46
N 270,790.838 E 6,517,859.023
1. Set 5/8" Rebar/Cap at the Surface
2. App. ℄ of N-S Rd. 40.2' E
3. S. Face of PP 13.5' N

SCALE
PLAN: Lat. & Long. 50' 0 50' 100'
PROFILE: Horiz. same as above
Vert.



Rex and Julie Engelland
NE1/4 Sec. 9
T21S, R7W

Barbara J. Pallister Trust
W1/2 NW1/4 Less Tract
Sec. 10, T21S, R7W

Sta. 50+00.00 Remove
Br. No. 00000000080150 (old FAS 150)
42'-55'-42' R.C. Illinois Bulletin
Slab Span Bridge (RISC)
24'-0" Roadway

Carissa and Christopher Dewitt
Tract NW1/4 Sec. 10
T21S, R7W

DATUM BENCHMARK NAVD 88

The datum benchmark is BASE1. BASE1 is a 5/8" rebar/pink Kirkham Michael cap located 2637 feet south and 48 feet east of the intersection of Avenue T and 22nd Road in Rice County, KS. The results of an OPUS solution were converted for BASE1 to the project datums.

BASE1 Elev. = 1606.584 feet

BASE1 WGS 84 Coordinates:
Latitude: 38° 14' 21.43864" N
Longitude: 98° 05' 15.08093" W
Ellipsoid Height: 1515.952 feet

W1/4 Cor. Sec. 10, T21S, R7W
N 269,217.004 E 6,517,898.460
1. Fd. 5/8" Rebar
2. In App. ℄ of N-S Rd.
3. Set MAG nail/washr. in NW Face PP 165.8' NW
4. Set MAG nail/washr. in SW Face PP 100.6' SW
5. Set 5/8" Rebar and Cap 3" Deep 47.2' NE

SW Cor. Sec. 10, T21S, R7W
N 266,552.485 E 6,517,913.530
1. Fd. 5/8" Rebar
2. App. ℄ of N-S Rd. 1.0' E
3. Fd. MAG nail in S. Face PP 46.6' NW
4. Top Center of Util. Ped. 49.1' SE
5. Top Center of Cor. Fc. Post 54.2' NE

NW Cor. Sec. 10, T21S, R7W
N 271,875.402 E 6,517,888.448
1. Found 5/8" Iron Bar
2. In App. ℄ of E-W Rd.
3. App. ℄ of N-S Rd. 1.0' E
4. Fd. MAG nail in N. Face PP 51.0' SW
5. Fd. MAG nail in Marker Post 67.9' NE
6. Top Center of Util. Ped. 50.7' SE

General Note

The Contractor shall remove the existing 42'-55'-42' R.C. Illinois Bulletin Slab Span (RISC) Bridge (24'-0" Roadway). Bridge #000000000800150. All items of the existing structure shall become the property of the Contractor and shall be removed from the site.

The Contractor shall complete the Embankment as shown on the bridge excavation sheet prior to the driving of the abutment piling.

The Contractor shall excavate the channel at the bridge site to the limits shown prior to the construction of the bridge.

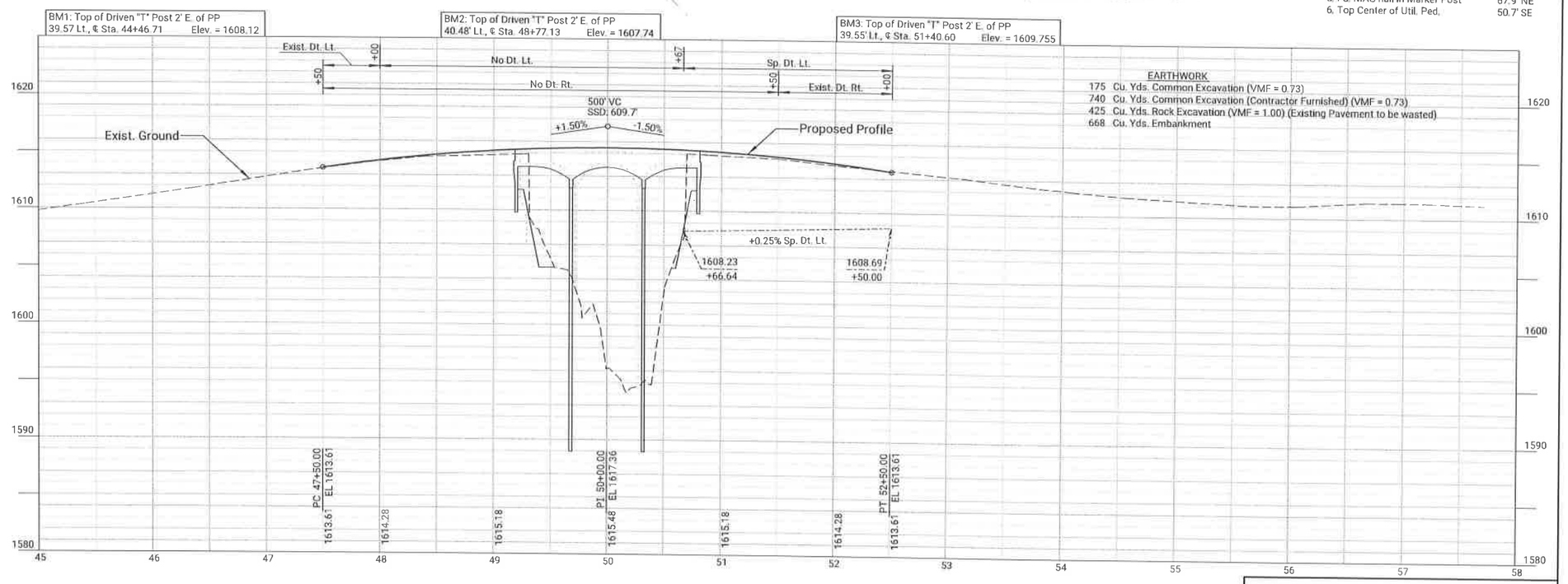
All trees, hedge rows, shelterbelts, and wood shrubs not shown to be removed and located between the construction limits and the right-of-way line or easement lines shall be spared unless directed by the Engineer to be removed.

Borrow areas provided by the Contractor shall be approved by the Engineer as to the suitability of the material and location. Special care shall be taken in this approval to minimize the increase of siltation and turbidity of streams, lakes and reservoirs and to avoid interference with the movement of migratory fish. Areas which, in the opinion of the Engineer, may leave an unsightly appearance will not be approved.

All borrow area locations shall be submitted for clearance from the Kansas Historical Society and the Kansas Department of Wildlife and Parks, prior to any excavation.

It shall be the responsibility of the Contractor to restore, seed and/or complete other operations noted in the agreement with the landowner, approved by the Engineer, on all disturbed areas used to provide borrow areas for Common Excavation (Contractor Furnished).

All Saw Cuts shall be full depth and shall not be paid for directly, but shall be subsidiary to other items in the contract.



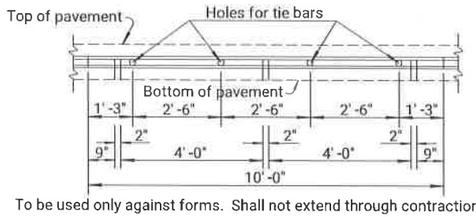
EARTHWORK
175 Cu. Yds. Common Excavation (VMF = 0.73)
740 Cu. Yds. Common Excavation (Contractor Furnished) (VMF = 0.73)
425 Cu. Yds. Rock Excavation (VMF = 1.00) (Existing Pavement to be wasted)
668 Cu. Yds. Embankment

KANSAS DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE
STA. 42+00 TO STA. 58+00

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

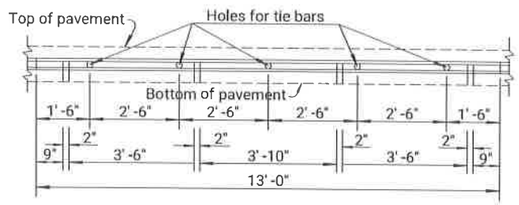
Plotted by: rsnow 7-NOV-2024 15:11
File: 2312800_rpp-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	4	44



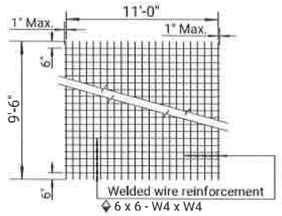
To be used only against forms. Shall not extend through contraction joints.

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



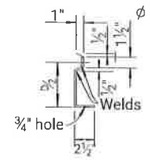
To be used only against forms. Shall not extend through contraction joints.

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.



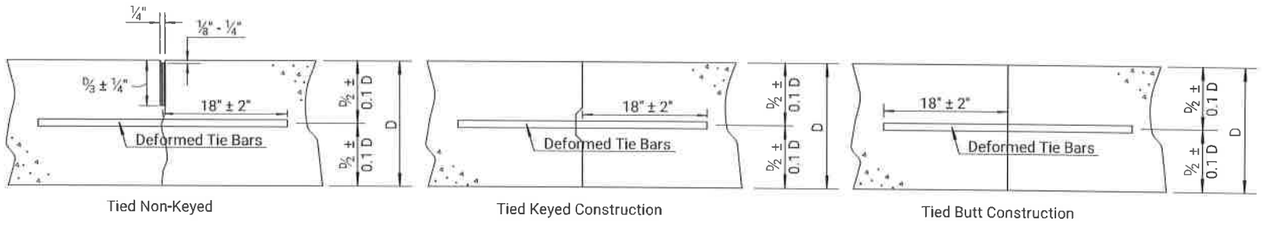
SECTION OF RECESSED
FORM LEG

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

DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT

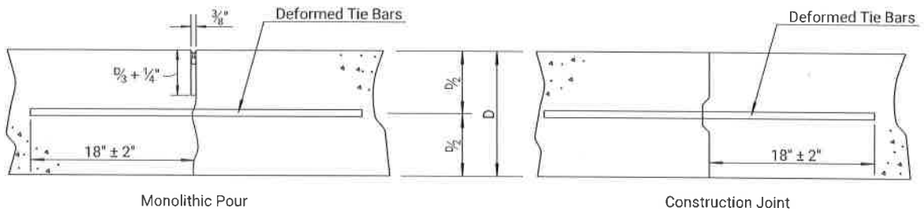
The lap shall extend beyond the first transverse or bag wire of each sheet.

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.

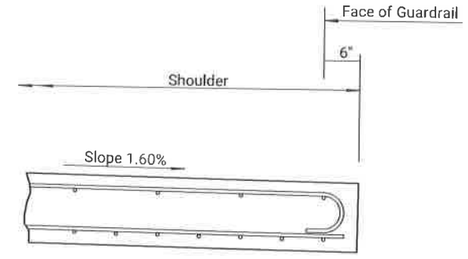
At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.

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.~~

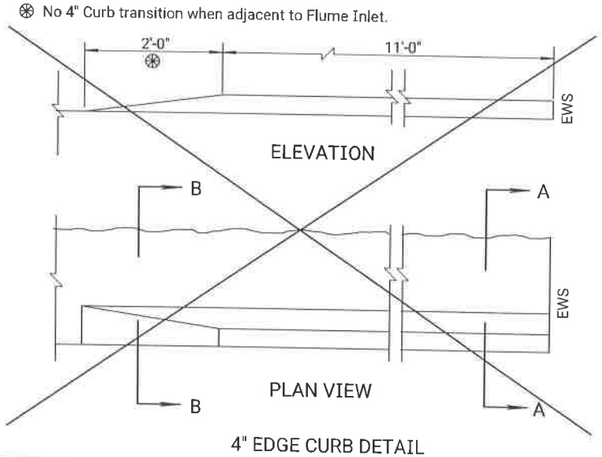
All materials and work required for this construction shall be Subsidiary to the concrete approach slab.

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

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



4" EDGE CURB DETAIL

NO.	DATE	REVISIONS	BY	APP'D
13	05-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
12	05-14-09	Pres. Relief Jt. to RD712/tie bar tab.	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

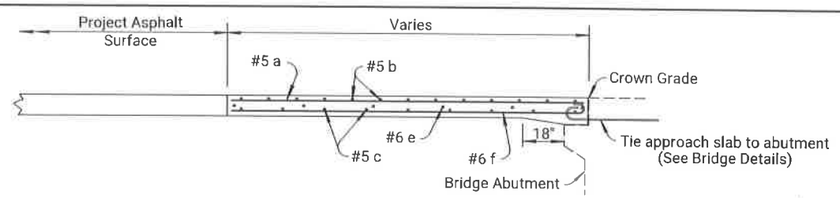
MISCELLANEOUS DETAILS
FOR CONCRETE
BRIDGE APPROACH PAVEMENT

~~RD711~~

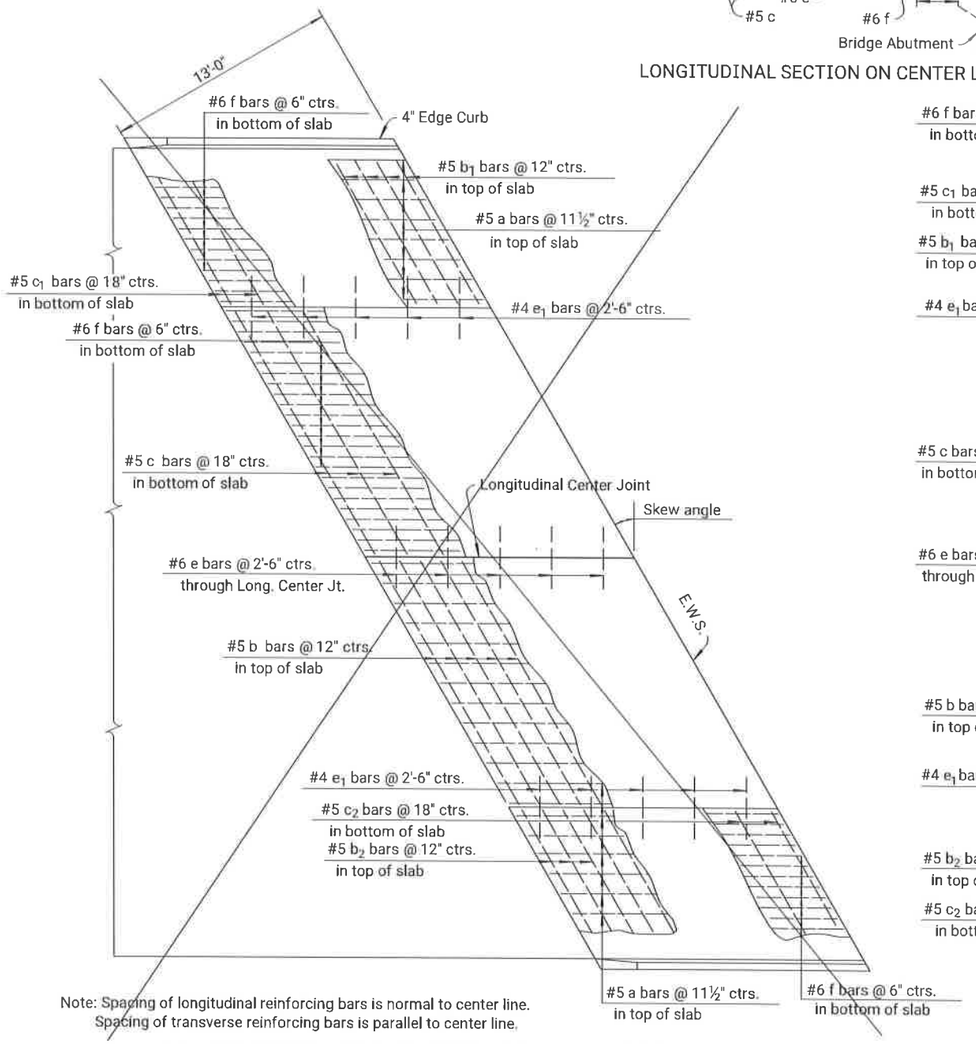
FHWA APPROVAL		10-23-13	APP'D.	James D. Brewer
DESIGNED	DETAILED		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN. CK.	TRACE CK.

Plotted by : rsnow 7-NOV-2024 15:11
File : rd711.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	5	44



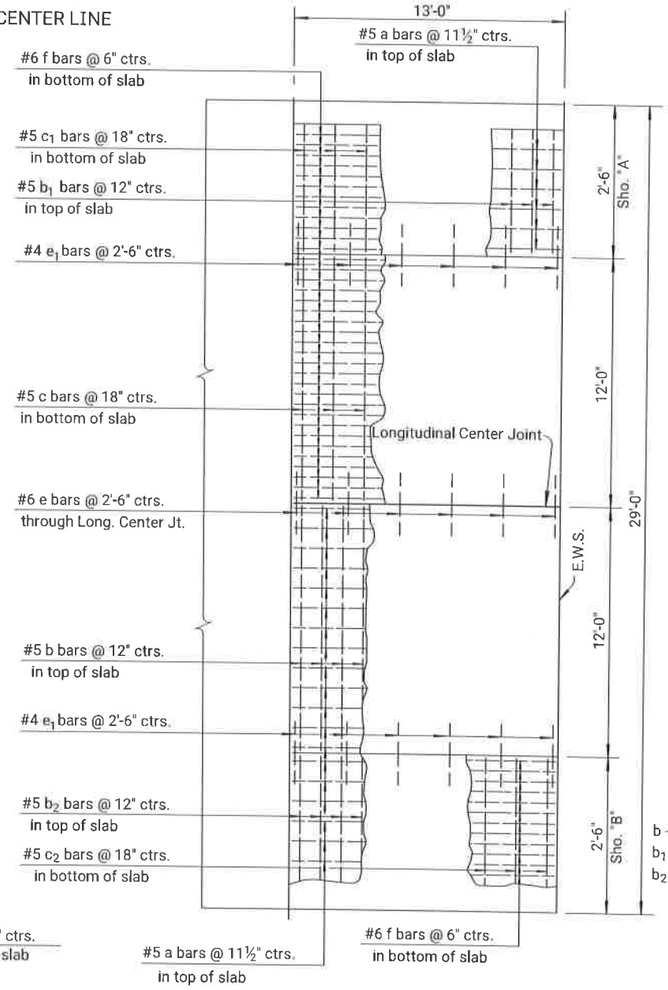
LONGITUDINAL SECTION ON CENTER LINE



Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.

PLAN FOR SKEWED APPROACH (SKEW ≥ 5 °)
(No Scale)

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



PLAN FOR NORMAL APPROACH
(No Scale)

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 joint material shall be subsidiary to this bid item.

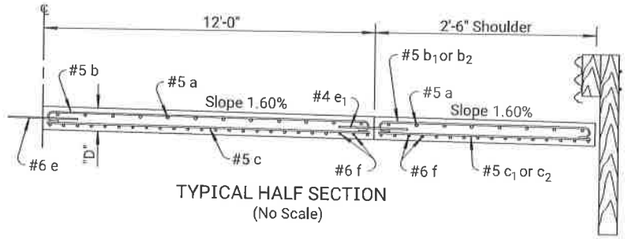
At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

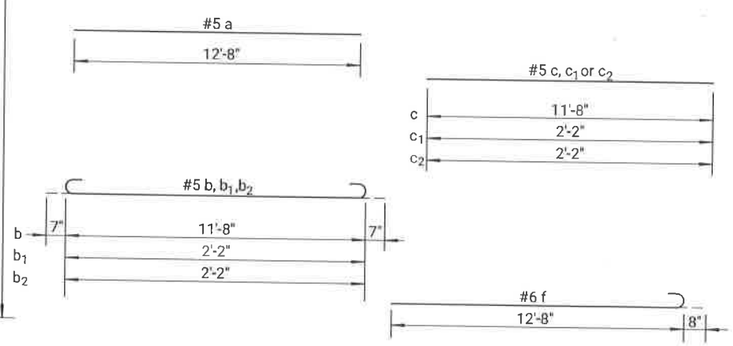
See Standard Drawing RD711 for details of joints ~~and edge curb~~.

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.



TYPICAL HALF SECTION
(No Scale)



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

BENDING DIAGRAMS

BILL OF MATERIALS

BAR SCHEDULE

NORMAL APPROACH

Bar	a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
No.	32	26	13	13	18	9	9	6	12	58
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	12'-10"	3'-4"	3'-4"	11'-8"	2'-2"	2'-2"	3'-0"	3'-0"	13'-4"

Reinforcing Steel (Grade 60) (Epoxy Coated) 2,333 lbs.

Concrete Pavement (10" Unif.)(AE) 42 Sq. Yds.

~~__° SKEW~~

a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
							3'-0"	3'-0"	

Reinforcing Steel (Grade 60) (Epoxy Coated) lbs.

Concrete Pavement (__" Unif.)(AE) Sq. Yds.

~~__° SKEW~~

a	b	b_1	b_2	c	c_1	c_2	e	e_1	f
#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
							3'-0"	3'-0"	

Reinforcing Steel (Grade 60) (Epoxy Coated) lbs.

Concrete Pavement (__" Unif.)(AE) Sq. Yds.

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
09	09-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
08	05-14-09	Revised General Note	S.W.K.	J.O.B.
07	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE APPROACH PAVEMENT ADJACENT TO ASPHALT SURFACE

~~RD715~~

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

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: rsnow 7-NOV-2024 15:12
File : rd715.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	6	44

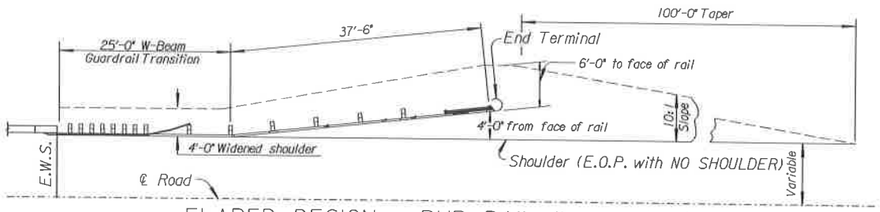
NOTE: Layouts 1, 2, 3, and 4 will be symmetric for any quadrant unless otherwise shown in the plans.

When using Rubrail, attach Std. Drawings No. RD611, RD616 and RD615 (parallel) or RD615A (flared).

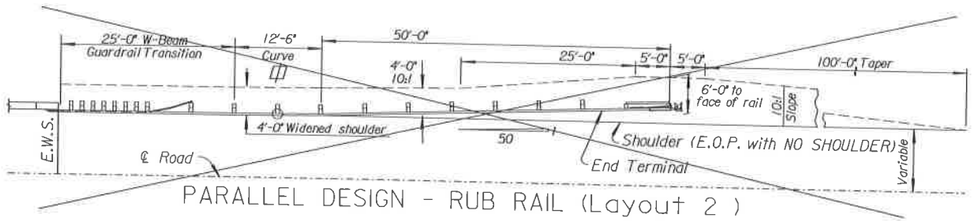
When using Thrie beam, attach Std. Drawings no. RD611 and RD608 or RD613.

Attach Std. Drawing No. RD617 (parallel) or RD 617A (flared) for post over box less than full depth.

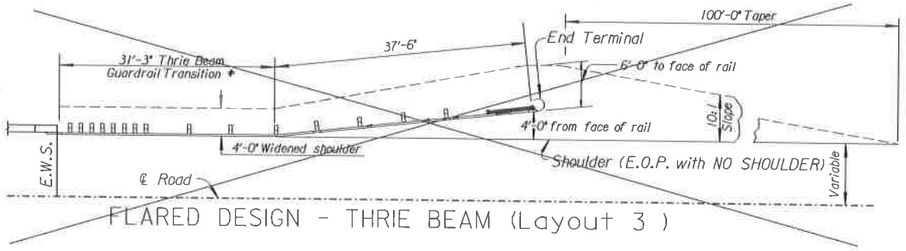
◫ Radius = 625.08'



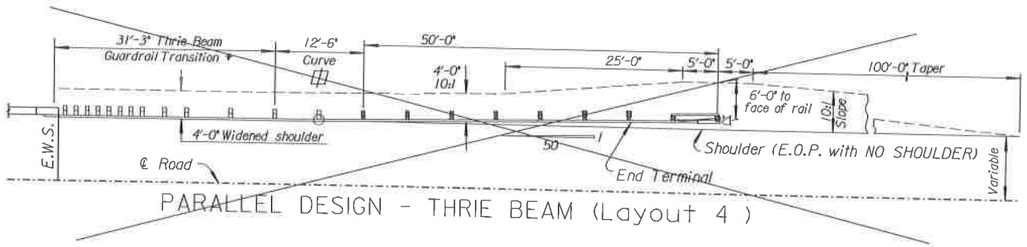
FLARED DESIGN - RUB RAIL (Layout 1)



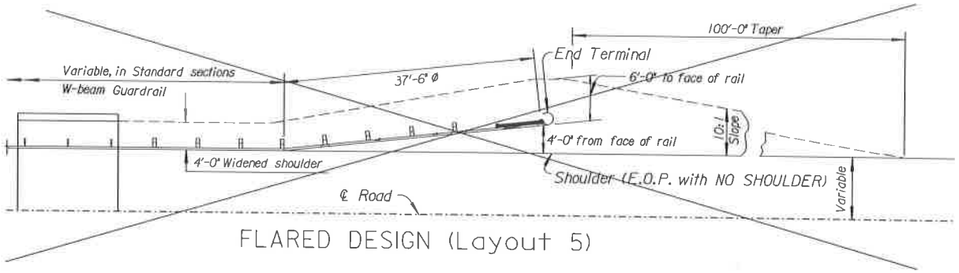
PARALLEL DESIGN - RUB RAIL (Layout 2)



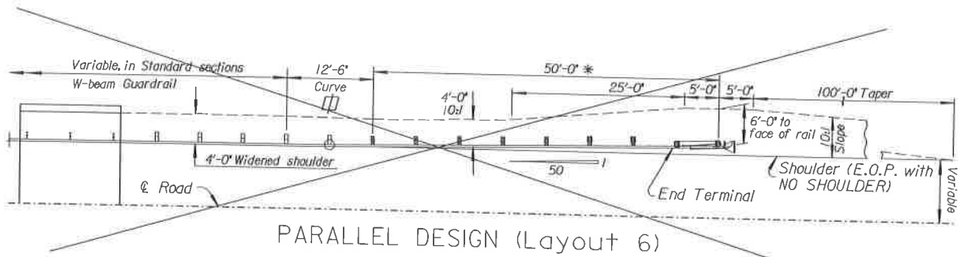
FLARED DESIGN - THRIE BEAM (Layout 3)



PARALLEL DESIGN - THRIE BEAM (Layout 4)



FLARED DESIGN (Layout 5)



PARALLEL DESIGN (Layout 6)

TYPICAL ALIGNMENT OF GUARDRAIL AT CULVERTS & BOX BRIDGES

ALLOWABLE END TERMINALS

TYPE	Layout 1	2	3	4	5	6	Required Standard Drawing
SRT	X						RD606
FLEAT	X						RD606
SKT							

SUMMARY OF STEEL PLATE GUARDRAIL

Location	Side	Layout No.	Layout Lin. Ft. *	Additional Standard Sections Lin. Ft.	Total Pay Length Lin. Ft.	Layout 1 or 3: Gd. Rail End Term. (SRT) Alt. #1 Each	Layout 1 or 3: Gd. Rail End Term. (FLEAT) Alt. #2 Each	Layout 2, 4, or 6: Gd. Rail End Term. (SKT) Each	Layout 5: Gd. Rail End Term. (SRT) Alt. #1 Each	Layout 5: Gd. Rail End Term. (FLEAT) Alt. #2 Each	
SW Quad.	Lt.	1	25		25	1	1				
SE Quad.	Rt.	1	25		25	1	1				
NE Quad.	Lt.	1	25		25	1	1				
NW Quad.	Rt.	1	25		25	1	1				
TOTAL LENGTH					100	4	4				

*See Guardrail Auxiliary Details (RD606) for Measurement Details. Does Not Include End Terminal.

NO.	DATE	REVISIONS	BY	APP'D
12	02-21-19	Updated per Road Memo 18-02	WFL	MJS
11	10-30-17	Removed X-Lite	WFL	MJS
10	01-06-15	Added X-Lite, Removed ET-PLUS	TLS	RJS
9	11-9-05	Added length for Thrie Beam transition	REA	RJS

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL ALIGNMENT OF GUARDRAIL INSTALLATIONS

~~LP620~~

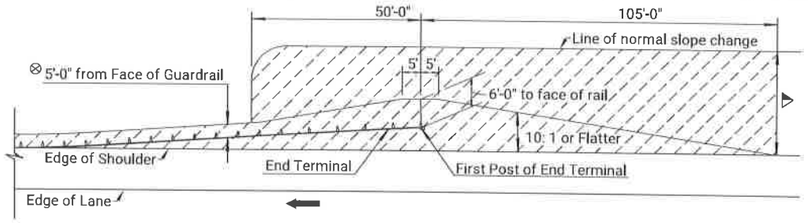
FHWA APPROVAL			APP'D.	MJS
DESIGNED	DETAILED	TLS	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	RJS	QUAN.CK.	TRACE CK.

Plotted by: rsnow 7-NOV-2024 15:12
File: lp620.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.



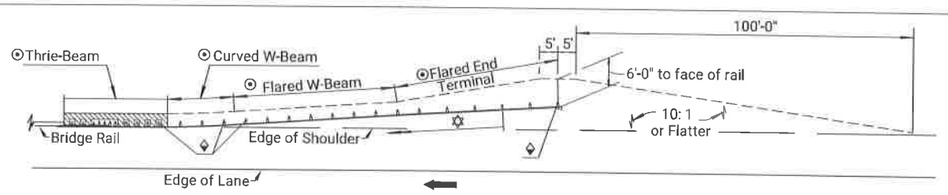
Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet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

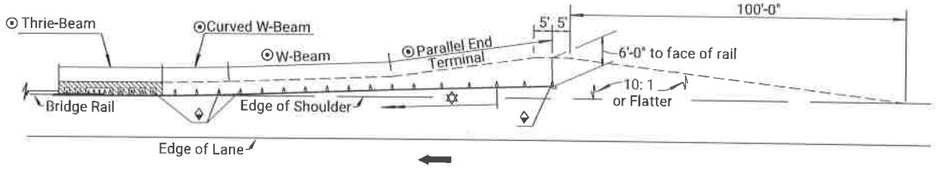
FLARED GUARDRAIL DETAIL

Applies to CGS AND MGS (MGS Shown)



PARALLEL GUARDRAIL DETAIL

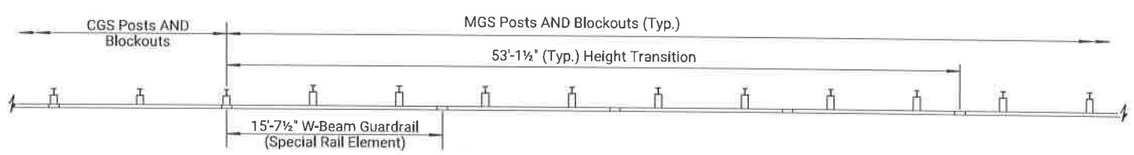
Applies to CGS AND MGS (MGS Shown)



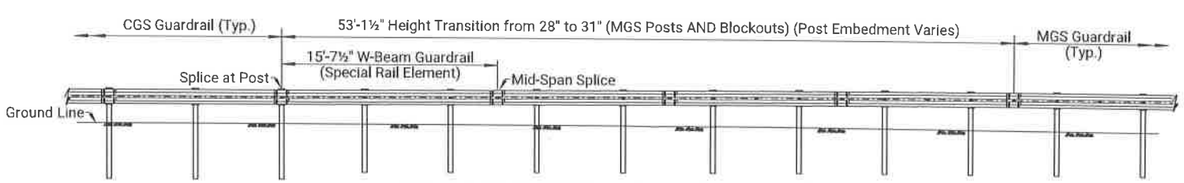
⊙ See Guardrail Layout Sheets for Details

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

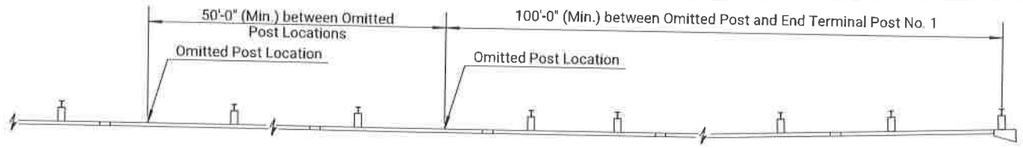
✡ Length of Need (Begins at Post 3)



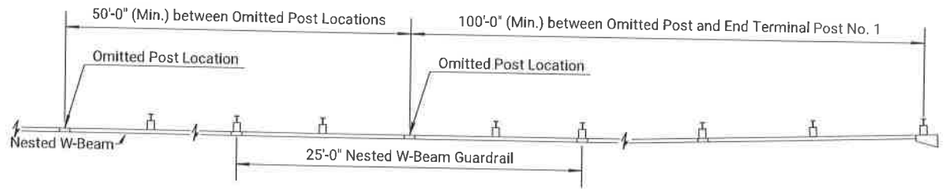
CGS TO MGS TRANSITION DETAILS (PLAN)



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"

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	7	44

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.

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

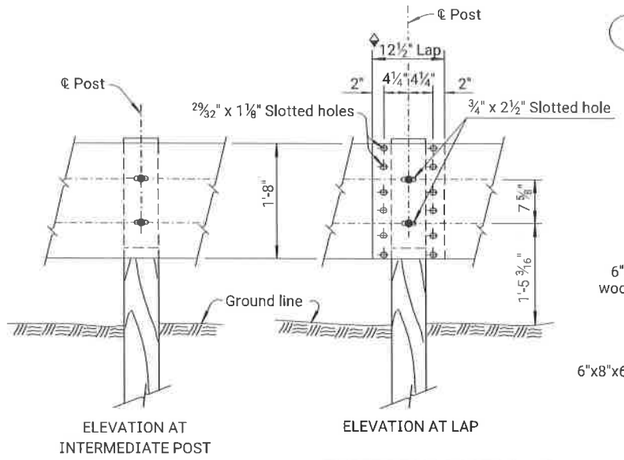
GUARDRAIL AUXILIARY DETAILS

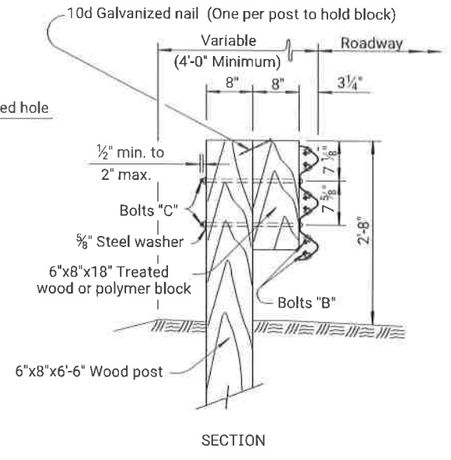
RD606

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

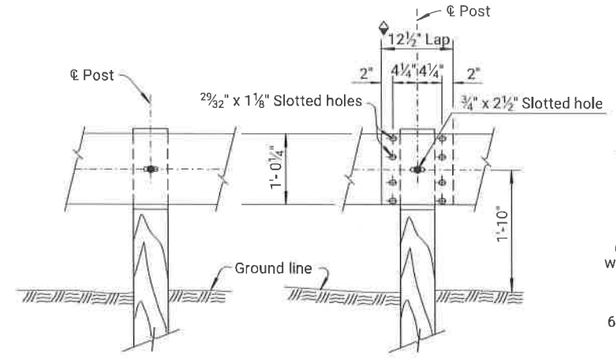
Plotted by: rsnow 7-NOV-2024 15:12
File : rd606.dgn

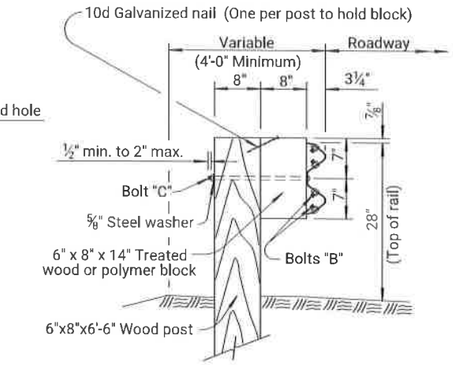
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	8	44





THRIE BEAM POST DETAILS





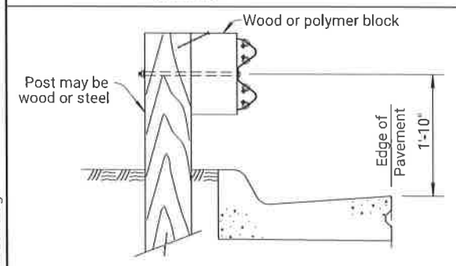
W-BEAM POST DETAILS

◈ 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.

WOOD POSTS

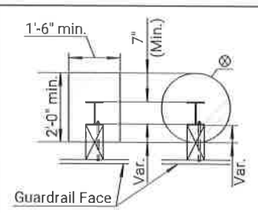
GENERAL NOTES (Wood Posts)

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. Use S4S rectangular posts and wood blocks, see standard specifications. Use only one post/blockout type within guardrail run, this excludes the the guardrail end terminals. 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 and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6". Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation. This excludes the guardrail end terminals unless certified by the manufacturer. 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. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.



DETAIL OF PLACEMENT AT CURB

Note: When face of guardrail is aligned with the face of a curb, measure the height of rail from the pavement surface at the curb/pavement joint as shown. Use a laydown type curb where the face of the guardrail is not located at the face of the curb.

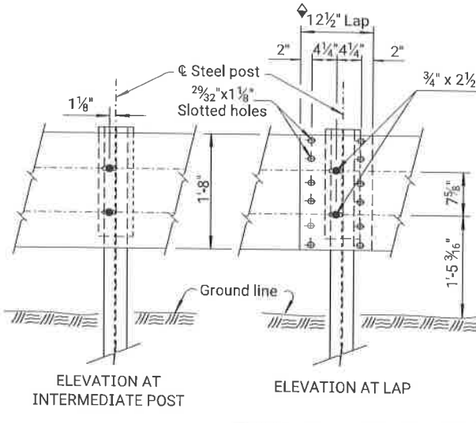


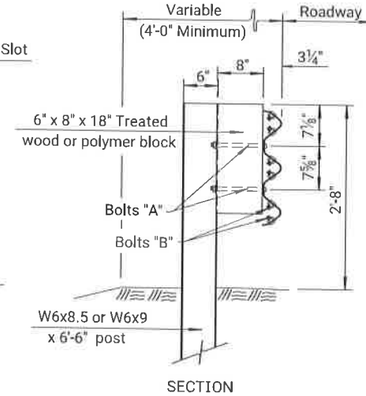
POSTS IN PAVEMENT PLAN
(ALTERNATE GEOMETRIES)
Applies to All Wood and All Steel Posts
(Steel Posts Shown)

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

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

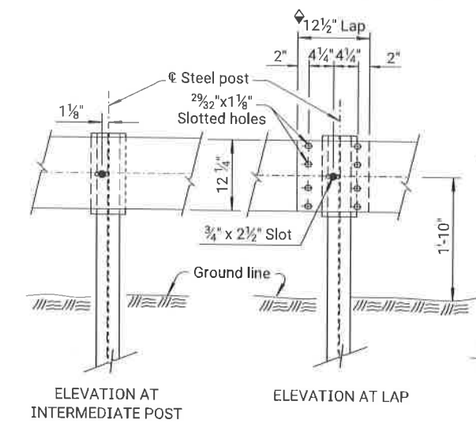
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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

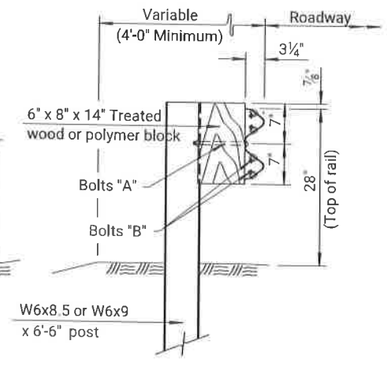




◈ Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

THRIE BEAM POST DETAILS



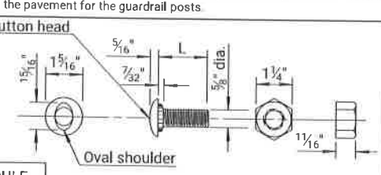


W-BEAM POST DETAILS

STEEL POSTS

GENERAL NOTES (Steel Posts)

Use grade of steel for steel posts that meets the requirements of the standard specifications. Hot dip galvanize the posts after fabrication, see standard specifications. Use only one post/blockout type within guardrail run, this excludes the guardrail end terminals. For wood/polymer blockout requirements see standard specifications. Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation. This excludes the guardrail end terminals. 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 and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6" except as allowed on Standard Drawing RD617. 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. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.



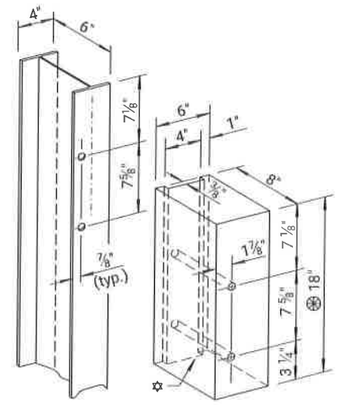
BOLT & NUT DETAILS

BOLT SIZE SCHEDULE	
Bolt	L
A	8 ½"
B	1 ¼"
C	18"

Galvanize all bolts, nuts, and washers in accordance with the KDOT's Standard Specifications.

✡ Non-Metallic (Polymer) or Treated Wood Block

⊛ See Standard Drawing RD613 for Thrie-Beam Transition Section Details.



Note: All holes 13⁄16" dia.

THRIE BEAM
HOLE PUNCHING DETAILS

Note: All holes 13⁄16" dia.

"W" BEAM
HOLE PUNCHING DETAILS

NO.	DATE	REVISIONS	BY	APP'D
13	09-05-18	Added Det., Post In Pavement	A.L.R.	T.T.R.
12	12-14-10	Revised notes, 28" w-be	S.W.K.	J.O.B.
11	06-30-04	Remove steel blockout and notes	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST DETAILS

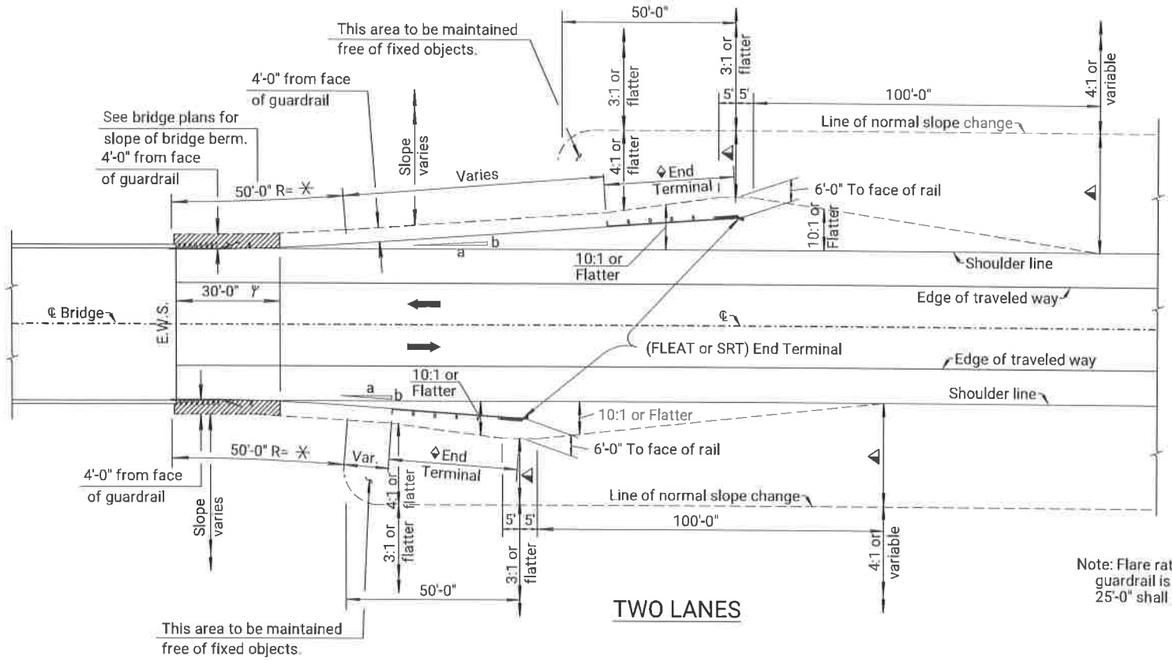
RD611

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

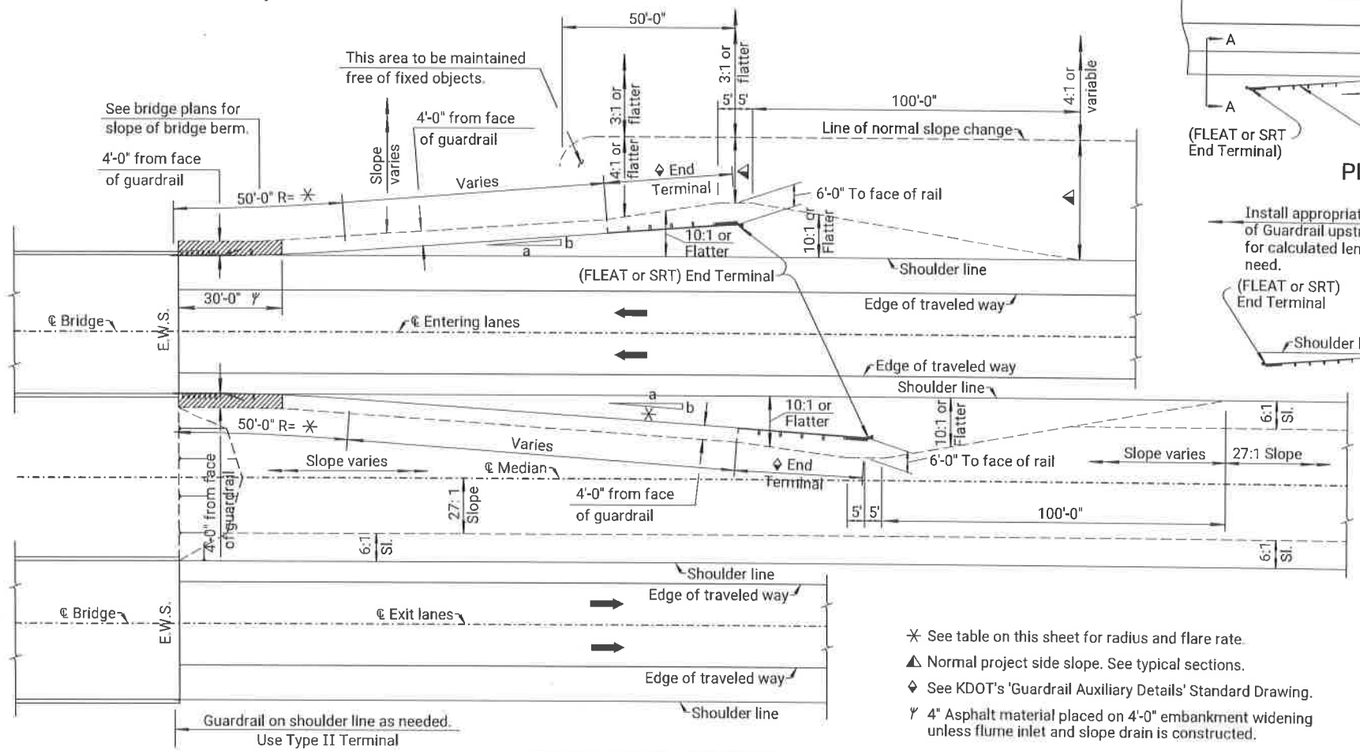
Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

Plotted by : rsnow 7-NOV-2024 15:12
File : rd611.dgn

Notes to Designer: Guardrail length of need shall be determined in accordance with the AASHTO Roadside Design Guide using
L_1= 25' for flare rate of a:b and L_1=12.5' for flare rate of 2a:b for a typical installation as shown on this sheet.
This sheet shall be used when the flared guardrail design for typical layout shown (FLEAT or SRT) is selected.
Material for asphalt widening shall be included in the plan quantities.



TWO LANES



FOUR LANES - DIVIDED

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'

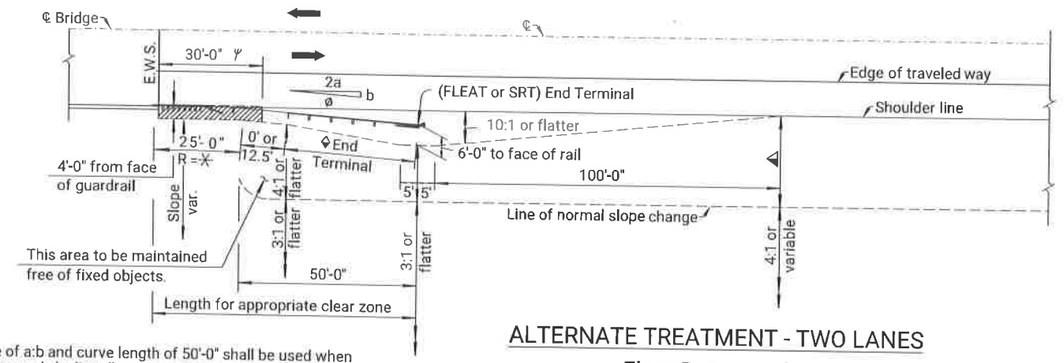
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	9	44

GENERAL NOTE

For guardrail and rubrail sections, details, and general notes see KDOT's 'W-Beam with Rubrail Bridge Approach Transition Details' Standard Drawings. For post details see KDOT's 'Guardrai Post Details' Standard Drawings

The ratio of a:b may be specified as zero for long runs of guardrail in high fill areas.

Widening, slopes & transition for Four Lane will be similar to that shown on two lane detail.

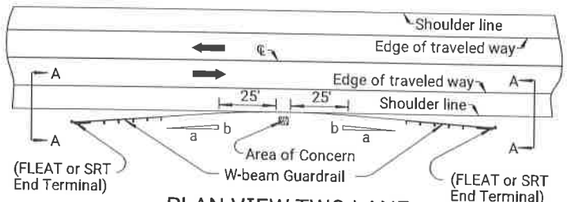


ALTERNATE TREATMENT - TWO LANES

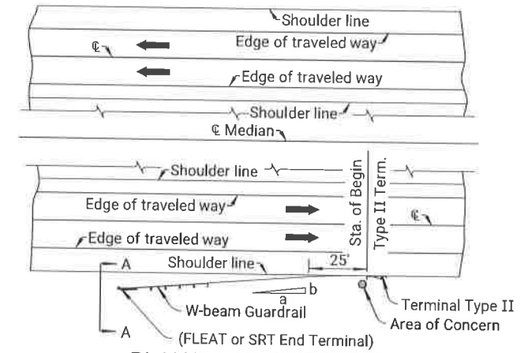
Flare Rate = 2a:b

(GUARDRAIL LENGTHS OF 62.5' AND 75')

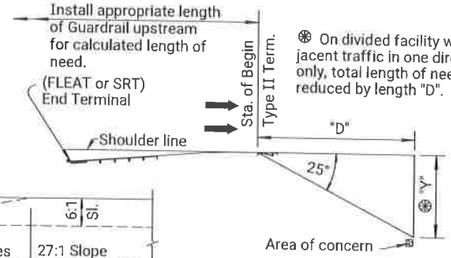
Note: Flare rate of a:b and curve length of 50'-0" shall be used when guardrail is beyond shy line, flare rate of 2a:b and curve length of 25'-0" shall be used when guardrail is located inside the shy line.



PLAN VIEW TWO LANE

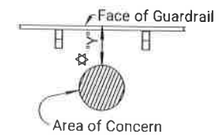


PLAN VIEW FOUR LANE



✻ On divided facility with adjacent traffic in one direction only, total length of need may reduced by length "D".

✡ Guardrail shall be nested and post spacing reduced to one half of normal spacing when "Y" is less than 5'. Ridid barrier shall be used when "Y" is less than 3'-3".



ENLARGEMENT - AREA OF CONCERN

DETAILS OF GUARDRAIL PROTECTION AT ROADSIDE OBSTACLE

✳ See table on this sheet for radius and flare rate.

◭ Normal project side slope. See typical sections.

♦ See KDOT's 'Guardrail Auxiliary Details' Standard Drawing.

ϒ 4" Asphalt material placed on 4'-0" embankment widening unless flume inlet and slope drain is constructed.

NO.	DATE	REVISIONS	BY	APP'D
08	06-05-18	Removed Flare-beyond-the-Flare	A.L.R.	T.T.R.
07	05-15-17	Removed X-LITE	A.L.R.	S.W.K.
06	07-02-09	Added roadside obstacle details	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

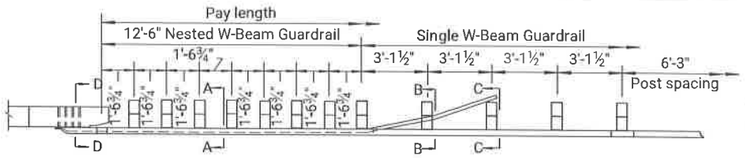
W-BEAM WITH RUBRAIL
BRIDGE APPROACH TRANSITION
TYPICAL ALIGNMENTS (FLARED)

RD615A

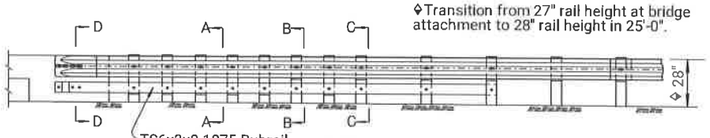
FHWA APPROVAL		05-19-18	APP'D.	Scott W. King
DESIGNED	DETAILED		QUANTITIES:	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

Plotted by : rsnow 7-NOV-2024 15:12
File : rd615a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	10	44

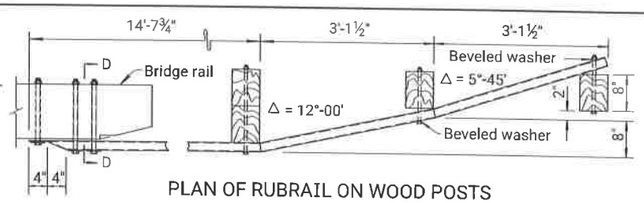


PLAN

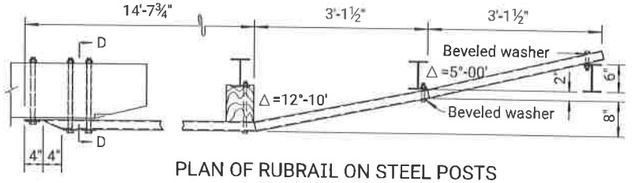


◊Transition from 27" rail height at bridge attachment to 28" rail height in 25'-0".

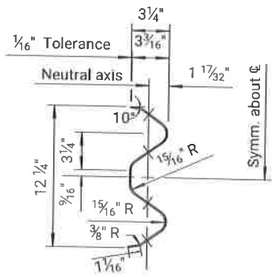
ELEVATION



PLAN OF RUBRAIL ON WOOD POSTS



PLAN OF RUBRAIL ON STEEL POSTS



SECTION THRU TYPICAL W-BEAM RAIL ELEMENT

GENERAL NOTE

Include all material and work for this installation in the pay item "Steel Plate Guardrail" paid by the lineal foot.

Use 10 or 12 gauge steel guardrail elements unless otherwise called out, see standard specifications.

Bridge Rail Transition consists of one 12'-6" W-beam section nested in back of one 25'-0" section. Furnished remaining rail elements in either 12'-6" or 25'-0" sections.

Guardrail parts furnished under this specification shall be interchangeable with similar parts regardless of the source or manufacturer.

Shop fabricate tubular steel rubrail from ASTM A36 structural steel, form angles in rubrail by shop bending or welding. Rubrail is subsidiary to the bid item "Steel Plate Guardrail".

Galvanize rail elements, post fittings, bolts, nuts, washers and anchor bolts after fabrication in accordance with the standard specifications.

Shop or field drill holes in posts and/or tubular steel rubrail for attachment. When holes are field drilled touch up any damage to the galvanized coating with zinc based paint.

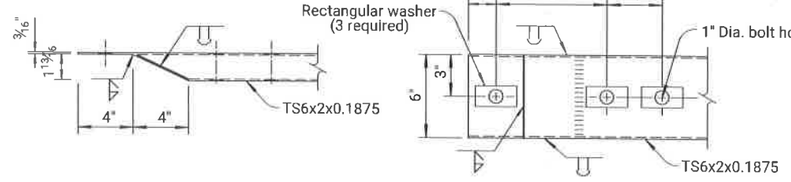
Shop bend rail when radius is less than 150'.

Fabricate Special End Shoe from 10 gauge steel in accordance with standard specifications.

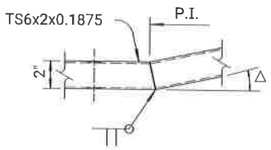
The Special End Shoe has the same section as guardrail and is subsidiary to guardrail.

Lap guardrail splices, including Special End Shoe, 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.

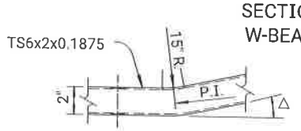
See Std. Drawing RD611 for additional details of posts not shown on this sheet.



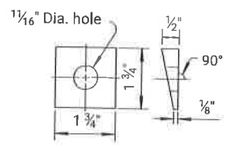
TYPICAL END RUB RAIL DETAILS



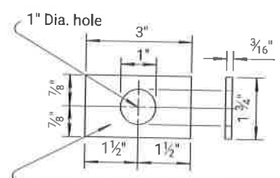
SHOP WELDED OPTION



SHOP BENT OPTION

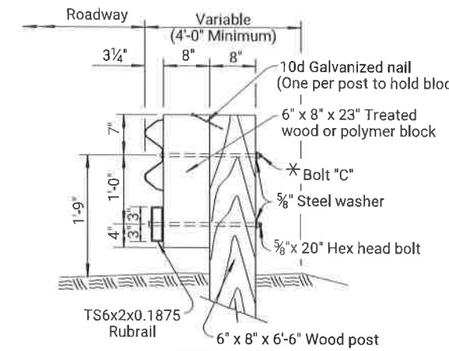


BEVELED WASHER

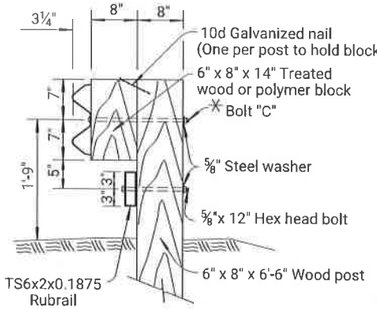


Rectangular washer to be used at bridge connections only.

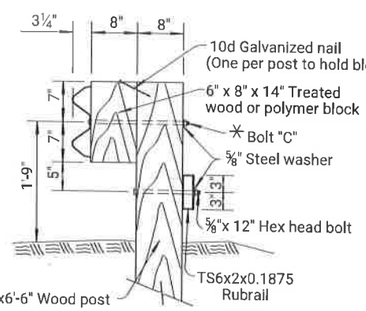
RECTANGULAR WASHER
(Other approved washer may be used.)



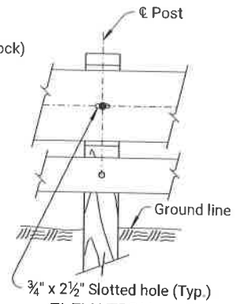
SECTION A-A



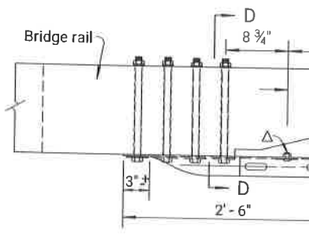
SECTION B-B



SECTION C-C



ELEVATION
WITH RUBRAIL

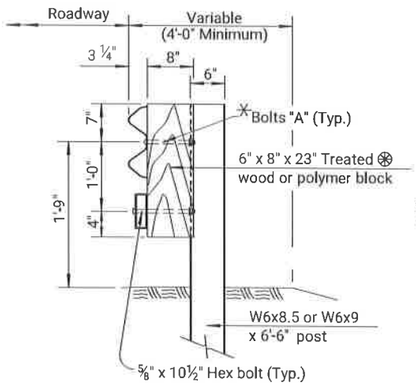


PLAN SPECIAL END SHOE

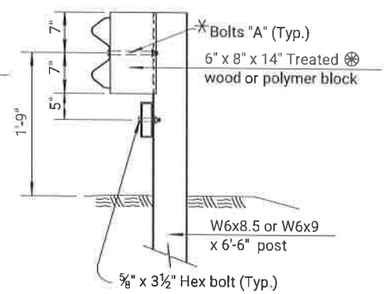
✳✳ One section of the two shall be considered as subsidiary to the bid item "Steel Plate Guardrail".

WOOD POSTS

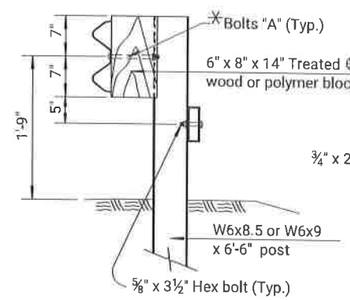
✳ See Standard Drawing RD611 for details of Bolts A, & C.



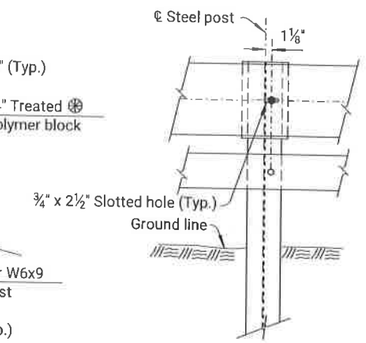
SECTION A-A



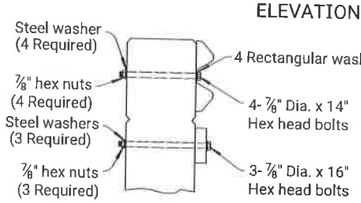
SECTION B-B



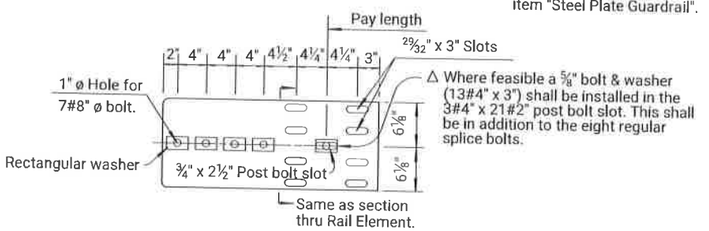
SECTION C-C



ELEVATION
WITH RUBRAIL



SECTION D-D



△ Where feasible a ⅝" bolt & washer (13#4" x 3") shall be installed in the 3#4" x 21#2" post bolt slot. This shall be in addition to the eight regular splice bolts.

ELEVATION SPECIAL END SHOE

STEEL POSTS

⊛ Blocks used with steel posts shall be grooved to fit over the flange of the post and may be Wood or Polymer.

NO.	DATE	REVISIONS	BY	APP'D
14	12-14-10	Revised notes 28" rail height	S.W.K.	J.O.B.
13	04-02-08	Removed Galvanized callout	S.W.K.	J.O.B.
12	02-06-07	Corrected spelling error	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

W-BEAM WITH RUBRAIL
BRIDGE APPROACH TRANSITION
DETAILS

RD616

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

Plotted by: rsnow 7-NOV-2024 15:13
File : rd616.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	11	44

SUMMARY OF QUANTITIES

Item / Location	Excavation Class I Cu. Yds.	Excavation Class II Cu. Yds.	Concrete (Grade 4.0) (AE) (SW) Cu. Yds.	Concrete (Grade 4.0) (AE) Cu. Yds.	Reinforcing Steel (Grade 60) Lbs.	Reinforcing Steel (Grade 60) Epoxy Coated Lbs.	* Piles (Steel) (HP 12x53) Lin. Ft.	Cast Steel Pile Points Each	Contractor Furnished PDA Each	Abutment Strip Drain Sq. Yds.	Bridge Backwall Prot. System Sq. Yds.	Bridge Deck Grooving Sq. Yds.	Slope Protection (Riprap Stone) Cu. Yds.
Abutment No. 1	56		**			**	226	4	1	16	19		133
Pier No. 1	13	100		58.5	1,925		576	8					
Pier No. 2		100		58.5	1,925		626	8	1				
Abutment No. 2	56		**			**	216	4		16	19		124
Substr. Total				117	3,850								
Superstr. Total			381.2			103,380						433.3	
Total	124	200	381.2	117	3,850	103,380	1,644 †	24	2	32	38	433	257

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

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

† Summary of Piling
Abutment No. 1 3 @ 54' & 1 @ 64' for use with the PDA
Pier No. 1 8 @ 72'
Pier No. 2 7 @ 77' & 1 @ 87' for use with the PDA
Abutment No. 2 4 @ 54'

INDEX TO BRIDGE DRAWINGS

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Kansas Department of Transportation, Standard Specifications for State Road and Bridge Construction, 2015 Version, and Special Provisions.

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 1602.50 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: Driven piles will develop their capacity from skin friction in the alluvial soils and weathered shale. 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	74 Tons
Pier No. 1	110 Tons
Pier No. 2	110 Tons
Abutment No. 2	74 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.

CONTRACTOR FURNISHED PDA: Use the Pile Driving Analyzer equipment at the locations shown on the Construction Layout. Use Pile Driving Analyzer equipment and methods compliant with KDOT Special Provisions. The piling shall remain in place as permanent piling. Drive the piling to the resistance value of (Strength I divided by Phi). At any location where problems are experienced, pile damage suspected, or the Pile Driving Formula Load occurs significantly above the design tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

REMOVAL OF EXISTING STRUCTURE: The Contractor shall remove the existing 42'-55'-42' R.C. Illinois Slab Span (RISC) (24'-0" Roadway) Bridge #000000000800150. All items of the existing structure shall become the property of the Contractor and shall be removed from the site.

DEMOLITION PLANS: This is a Category A Demolition. Submit Detailed Demolition Plans to the Owner's designated Engineer for review and distribution per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SW). Substructure concrete is bid as Concrete (Grade 4.0)(AE). 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 shall conform to the requirements of ASTM A615, Grade 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.

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.

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

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: Limited traffic is permitted on the new one-course deck during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Table 710-1 and 710-2 for additional information.

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.

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

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.

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thicknesses shown on the plans or as directed by the Engineer. Use Riprap Stone classified as Light 200 Pounds. Place a 10 foot wide mat of geotextile under the slope protection on the berm and berm slopes and centered on the drip lines of the slab. The geotextile shall be considered subsidiary to the bid item "Slope Protection (Riprap Stone)".

DESIGN DATA

DESIGN SPECIFICATIONS:
AASHTO Specifications, 9th Edition.
Load and Resistance Factor Design.

DESIGN LOADING:
HL-93

Design Dead Load includes an allowance of 25 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)	fy =	4 ksi
Reinforcing Steel (Grade 60)	fy =	60 ksi
Reinforcing Steel (Grade 60) (Epoxy Coated)	fy =	60 ksi
Steel Piles	fy =	50 ksi

LRFD DESIGN PILE LOAD:

Design Loading (Tons/Pile)	Strength 1	Service 1	Phi
Abutment	74	49	0.65
Piers	110	79	0.65

LRFR RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HL-93	1.17	1.52
NRL (40 Tons)		1.61
EV2 (28.75 Tons)		3.09
EV3 (43 Tons)		2.08
AASHTO LRFD 9th Edition		

NO.	DATE	REVISIONS	BY	APP'D
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
1	04/29/10	ADDED RATING TABLES	JPJ	KFH

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00
GENERAL NOTES AND QUANTITIES
Proj. 80 C-5276-01 Rice Co.

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

Std. Base File:
Plotted By: rsnow | Plot Location:
File: br200.dgn
Plot Date: 7-NOV-2024 15:13

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	12	44

UTILITIES

Telephone	ATTD	800-778-9140
Fiber Opitc	ATTD	800-778-9140
Power Poles	Ark Valley Electric	620-899-3169

NOTE: The Contractor shall contact Ark Valley Electric at least one month prior to start of construction (620-899-3169). Ark Valley Electric proposes to cover the lines or deaden the lines during construction. If the contractor prefers another method of mitigation, they shall contact Ark Valley Electric as soon as possible to discuss.

Horizontal Project Datum: KRCS Zone 6 Beloit for project coordinates.

Vertical Datum: North American Vertical Datum NAVD 88 (Geoid 18).

DATUM BENCHMARK NAVD 88

The datum benchmark is BASE1. BASE1 is a 5/8" rebar/pink Kirkham Michael cap located 2637 feet south and 48 feet east of the intersection of Avenue T and 22nd Road in Rice County, KS. The results of an OPUS solution were converted for BASE1 to the project datums.

BASE1 Elev. = 1606.584 feet

BASE1 WGS 84 Coordinates:
Latitude: 38° 14' 21.43864" N
Longitude: 98° 05' 15.08093" W
Ellipsoid Height: 1515.952 feet

CP1
29.53' Rt., ℄ Sta. 41+75.25
N 269,607.898 E 6,517,933.015
1. Set 5/8" Rebar/Cap at the Surface
2. App. CL of N-S Rd. 30.0' W
3. E. Face of PP 72.0' NW

CP2
31.50' Rt., ℄ Sta. 46+48.28
N 270,080.931 E 6,517,933.204
1. Set 5/8" Rebar/Cap at the Surface
2. App. ℄ of N-S Rd. 32.1' W
3. E. Face of PP 77.7' NW

CP3
40.01' Lt., ℄ Sta. 53+58.46
N 270,790.838 E 6,517,859.023
1. Set 5/8" Rebar/Cap at the Surface
2. App. ℄ of N-S Rd. 40.2' E
3. S. Face of PP 13.5' N

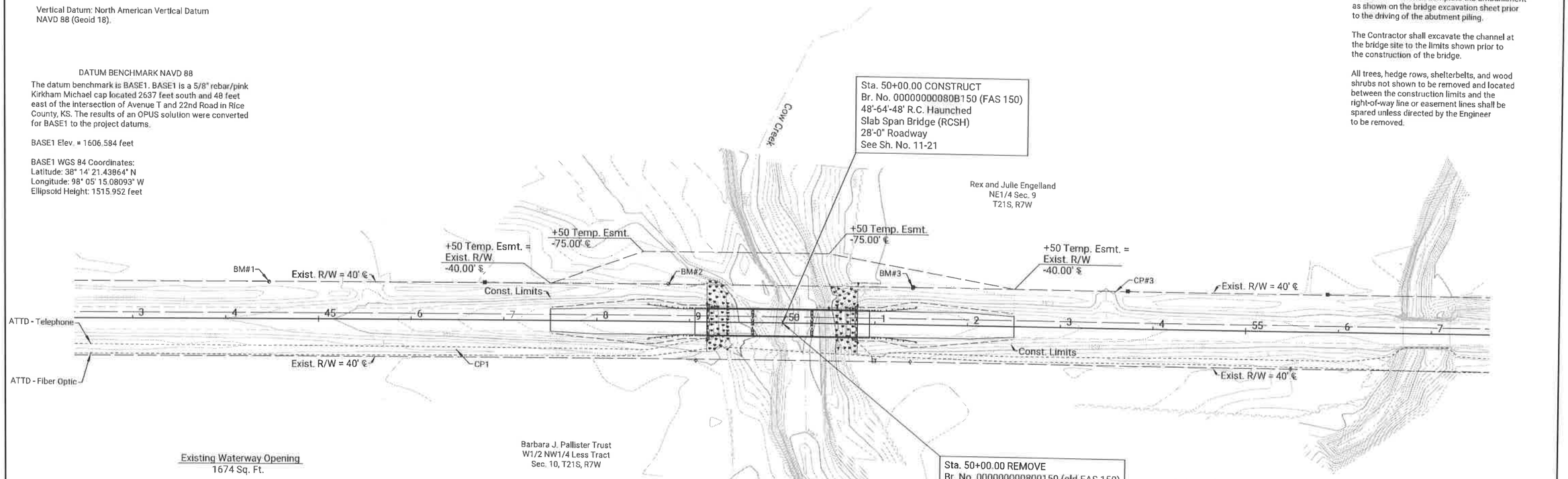
General Notes

The Contractor shall remove the existing 42'-55'-42' R.C. Illinois Bulletin Slab Span (RISC) Bridge (24'-0" Roadway). Bridge #00000000800150. All items of the existing structure shall become the property of the Contractor and shall be removed from the site.

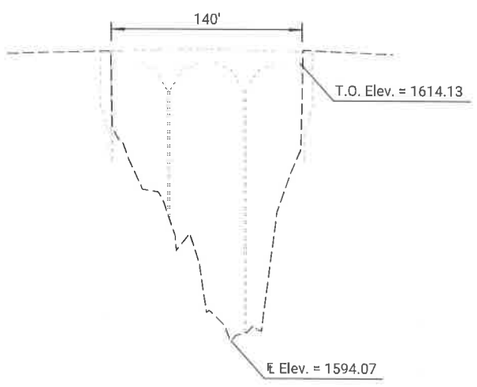
The Contractor shall complete the Embankment as shown on the bridge excavation sheet prior to the driving of the abutment piling.

The Contractor shall excavate the channel at the bridge site to the limits shown prior to the construction of the bridge.

All trees, hedge rows, shelterbelts, and wood shrubs not shown to be removed and located between the construction limits and the right-of-way line or easement lines shall be spared unless directed by the Engineer to be removed.



Existing Waterway Opening
1674 Sq. Ft.



Scale 1" = 50'
Contour Interval = 1'

BM1: Top of Driven "T" Post 2' E. of PP
39.57' Lt., ℄ Sta. 44+46.71 Elev. = 1608.12

BM2: Top of Driven "T" Post 2' E. of PP
40.48' Lt., ℄ Sta. 48+77.13 Elev. = 1607.74

BM3: Top of Driven "T" Post 2' E. of PP
39.55' Lt., ℄ Sta. 51+40.60 Elev. = 1609.755

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

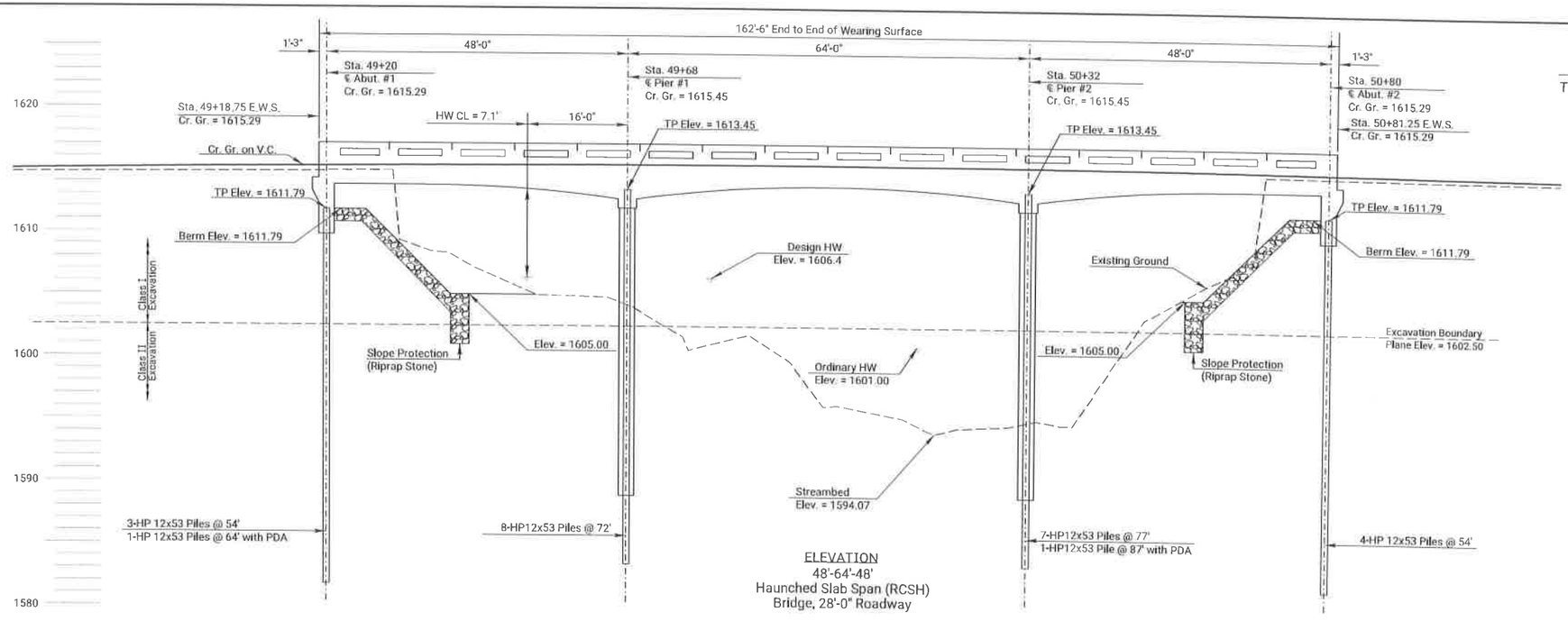
Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00

CONTOUR MAP

Proj. 80 C-5276-01 Rice Co.

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

Plotted by : rsnow 7-NOV-2024 15:14
File : 2312800_bbr-01.dgn



ELEVATION
48'-64'-48'
Haunched Slab Span (RCSH)
Bridge, 28'-0" Roadway

PLAN

BM1: Top of Driven "T" Post 2' E. of PP
Elev. = 1608.12

BM2: Top of Driven "T" Post 2' E. of PP
Elev. = 1607.74

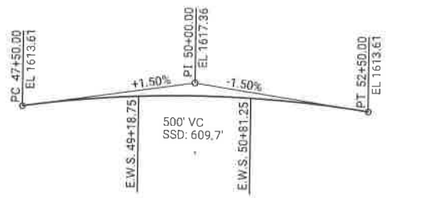
BM3: Top of Driven "T" Post 2' E. of PP
Elev. = 1609.755

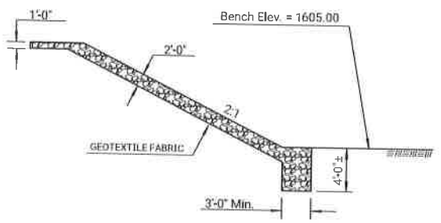
LEGEND
TP = Top of Pile

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	13	44

DRAINAGE DATA

Drainage Area	790 Sq. Mi.
Design Frequency	2 Yr.
Design Discharge @ (Q2)	2,650 cfs
Design Velocity @ (Q2)	4.5 fps
Design High Water Elevation	1606.4 Ft.
Change in Design Backwater	0.1 Ft.
Design Backwater Elevation	1606.6 Ft.
Overtopping Elevation (Sta. 16+00.00)	1606.3 Ft.
Overtopping Discharge	2,650 cfs
Overtopping Frequency	2 Yr.
Discharge @ (Q100)	24,800 cfs
Change in Backwater @ (Q100)	0.1 Ft.
Backwater Elevation @ (Q100)	1608.8 Ft.
Historic Highwater Elevation	NA Ft.
Ordinary Highwater Elevation	1,601.00 Ft.
Total Waterway Provided	1,703 Sq. Ft.
Design Waterway Provided	733 Sq. Ft.
Estimated Ordinary Highwater Discharge	500 cfs





TYPICAL SLOPE PROTECTION

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thickness shown on the plans or as directed by the Engineer. Use Riprap Stone Classified as Light 200 Pounds. Place a 10 foot wide mat of geotextile under the slope protection on the berm and berm slopes and centered on the drip lines of the slab. The geotextile shall be considered subsidiary to the bid item "Slope Protection (Riprap Stone)".

Scale 1" = 10'

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00

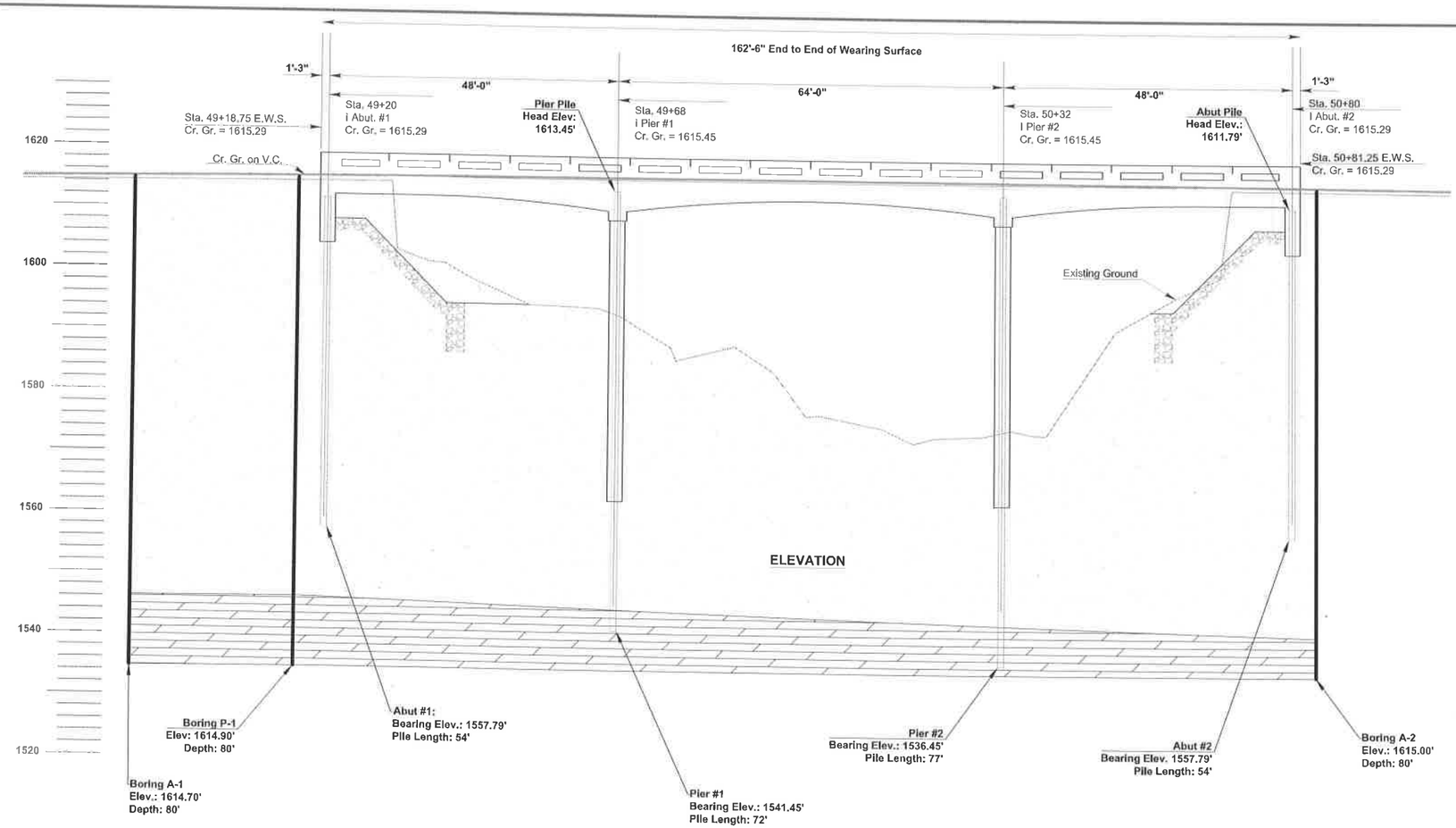
CONSTRUCTION LAYOUT

Proj. 80 C-5276-01 Rice Co.

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

Plotted by: rsnow 7-NOV-2024 15:14
File : 2312800_bbr-02.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	14	44



Alluvium: Lean Clay, Sandy Lean Clay, Clayey Sand, Poorly Graded Sand w/ Clay, Poorly Graded Sand

Shale Bedrock

Notes:

Engineered structural fill should be placed and compacted at KDOT compation Type AA
and a moisture condition of MR-0-5.

Steel H-piles at the abutments and piers should be driven into the following frictional
resistances in the sand soils:

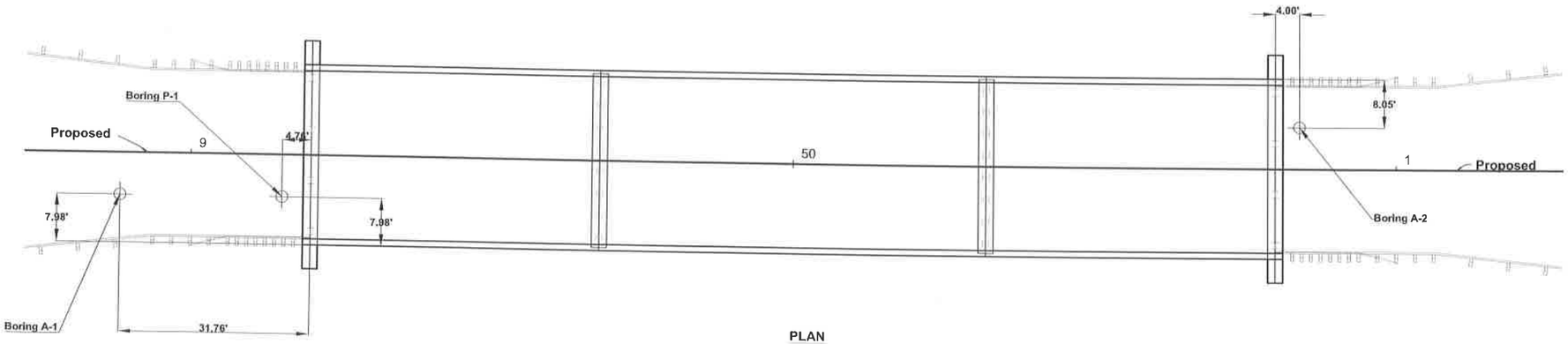
- Abutments: HP12x53 - Nominal = 114 tons; Factored = 74 tons; phi = 0.65.
- Piers: HP12x53 - Nominal = 169 tons; Factored =110 tons; phi = 0.65.

To help ensure that the pier piles penetrate any layers of hard shale and to help reduce the potential for long-term settlement, we recommend installing the pier piles with hardened steel driving shoes.

Resistances are based upon the assumption that final pile resistance and length will be
determined by high-strain dynamic load tests (Pile Driving Analyzer tests) at beginning
of restrike (BOR). A wave equation driveability analysis should be performed prior to the pile driving to ensure the selected equipment and materials are capable of developing the required resistances at the proper elevations.

Any existing pile elements within 3 times the edge-of-flange to edge-of-flange distance of a new pile must be removed. Other remaining pile elements should be cut off to reduce the potential for drift collection. Voids resulting from pile removal should be backfilled immediately using sand OR controlled low strength material (CLSM) with a minimum compressive strength of 50 psi.Either backfill material should be placed using a tremie pipe.

Any changes in the design or location of the proposed structure should be assumed to invalidate the conclusions and recommendations given in this report until UES has had the opportunity to review the changes and, if necessary, modify our conclusions and recommendations accordingly. If subsurface conditions different from those encountered in the explorations are observed during construction or appear to be present beneath excavations, UES should be advised at once so that the conditions can be reviewed and recommendations reconsidered where necessary.



PLAN

Scale 1" = 10'

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00

GEOLOGY SHEET

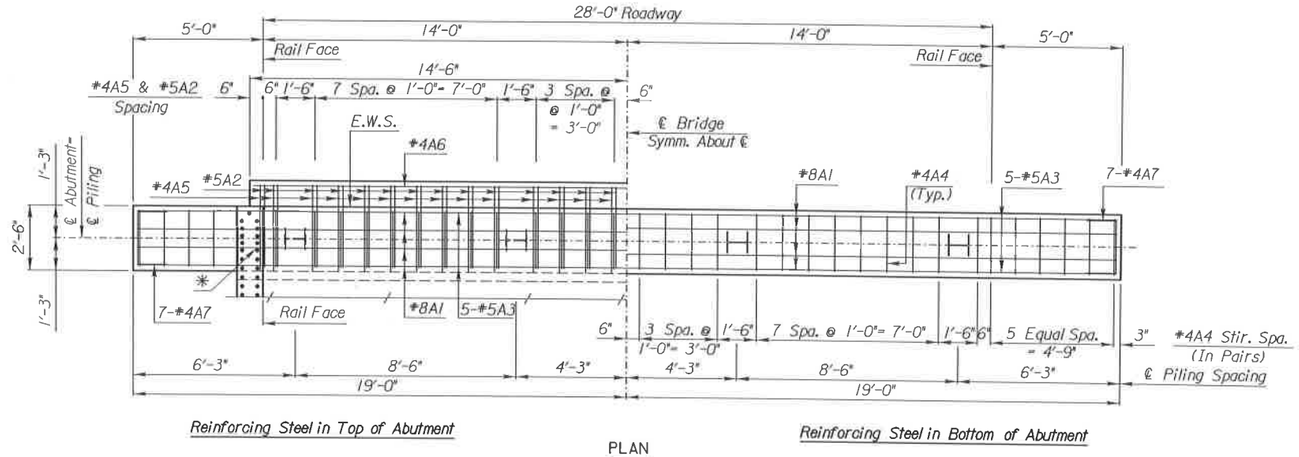
Proj. 80 C-5276-01 Rice Co.

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

Drawn By :$$USERNAME$$ Plotted :$$$$$$YTIME$$$$$$
File :$$$$$$$$$$$$$$$$DGNSPEC$$$$$$$$$$$$$$$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	15	44

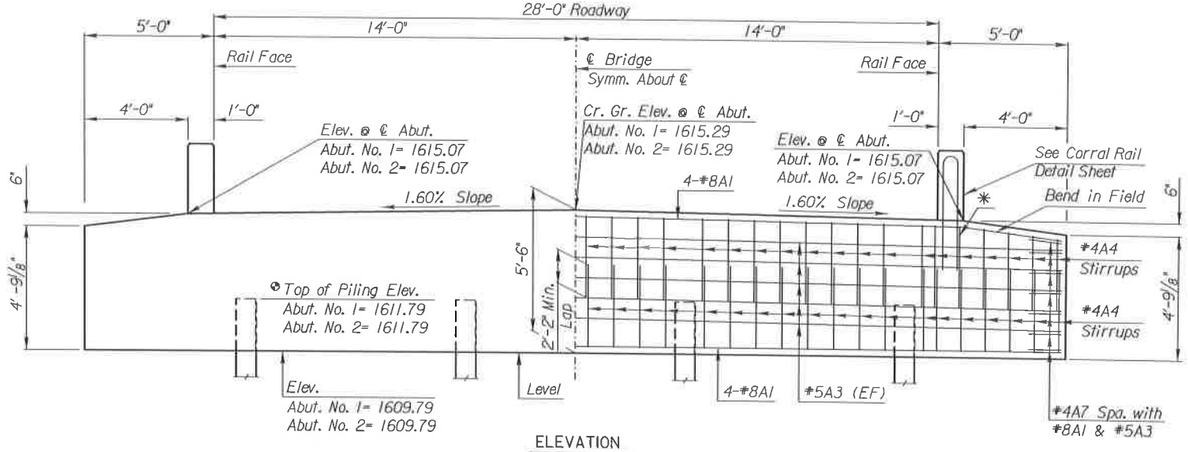
hslab-lrfd0br500.dgn	
LRFD	
Roadway Width	= 28'-0"
Skew and Direction	= 0
Number of Piles	= 4



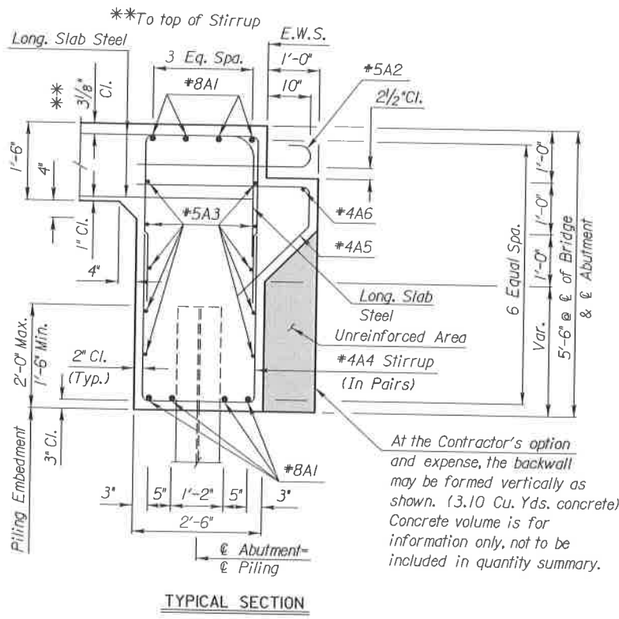
Reinforcing Steel in Top of Abutment

Reinforcing Steel in Bottom of Abutment

PLAN



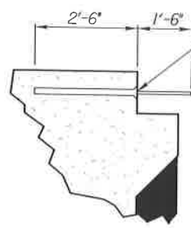
ELEVATION
(Along ℄ Abutment)



TYPICAL SECTION

At the Contractor's option and expense, the backwall may be formed vertically as shown. (3.10 Cu. Yds. concrete) Concrete volume is for information only, not to be included in quantity summary.

*Adjust stirrup to avoid conflict with rail bars.



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.

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 Realstance	DRT	KFH
3	03/24/09	Add Factored Realst.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. 00000000080B150 (FAS 150) Sta. 50+00.00

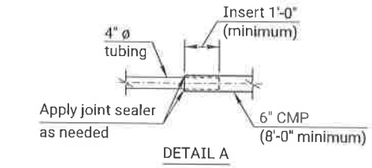
ABUTMENT DETAILS

Proj. 80 C-5276-01 Rice Co.

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

Plotted By: rsnow	Plot Location:
File: br500.dgn	
Plot Date: 7-NOV-2024 15:14	

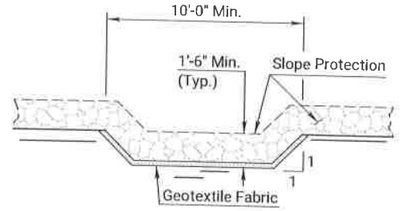
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	16	44



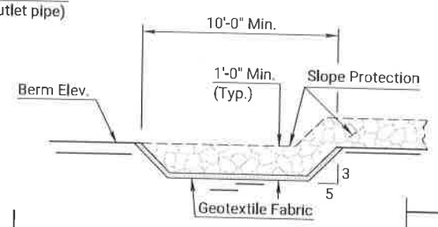
DETAIL A

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.

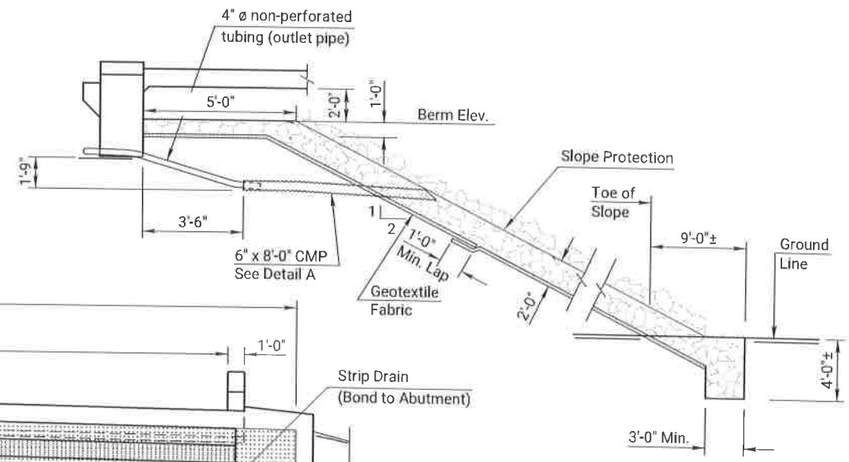
PLAN



SECTION D-D

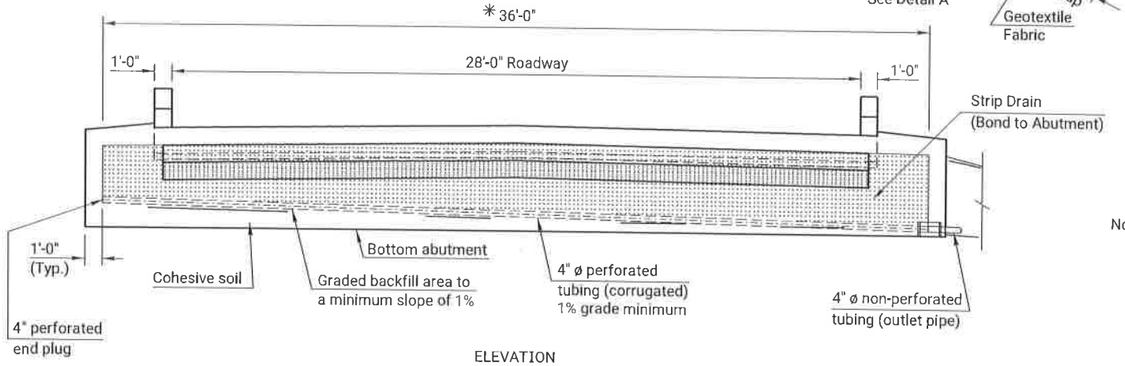


SECTION B-B

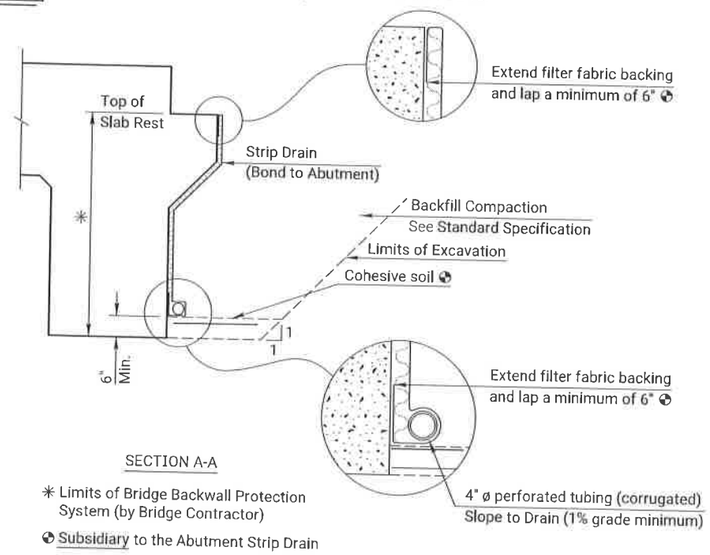


SECTION C-C

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	32 Sq. Yds.
Bridge Backwall Protection System	38 Sq. Yds.
Items subsidiary to Strip Drain	
4" ø Perforated Pipe	72 Lin. Ft.
4" ø Outlet Pipe	20 Lin. Ft.
6" ø CMP	16 Lin. Ft.
Items subsidiary to Slope Protection	
Geotextile Fabric	50 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

ABUTMENT STRIP DRAIN
(Stream, Drip-Line)

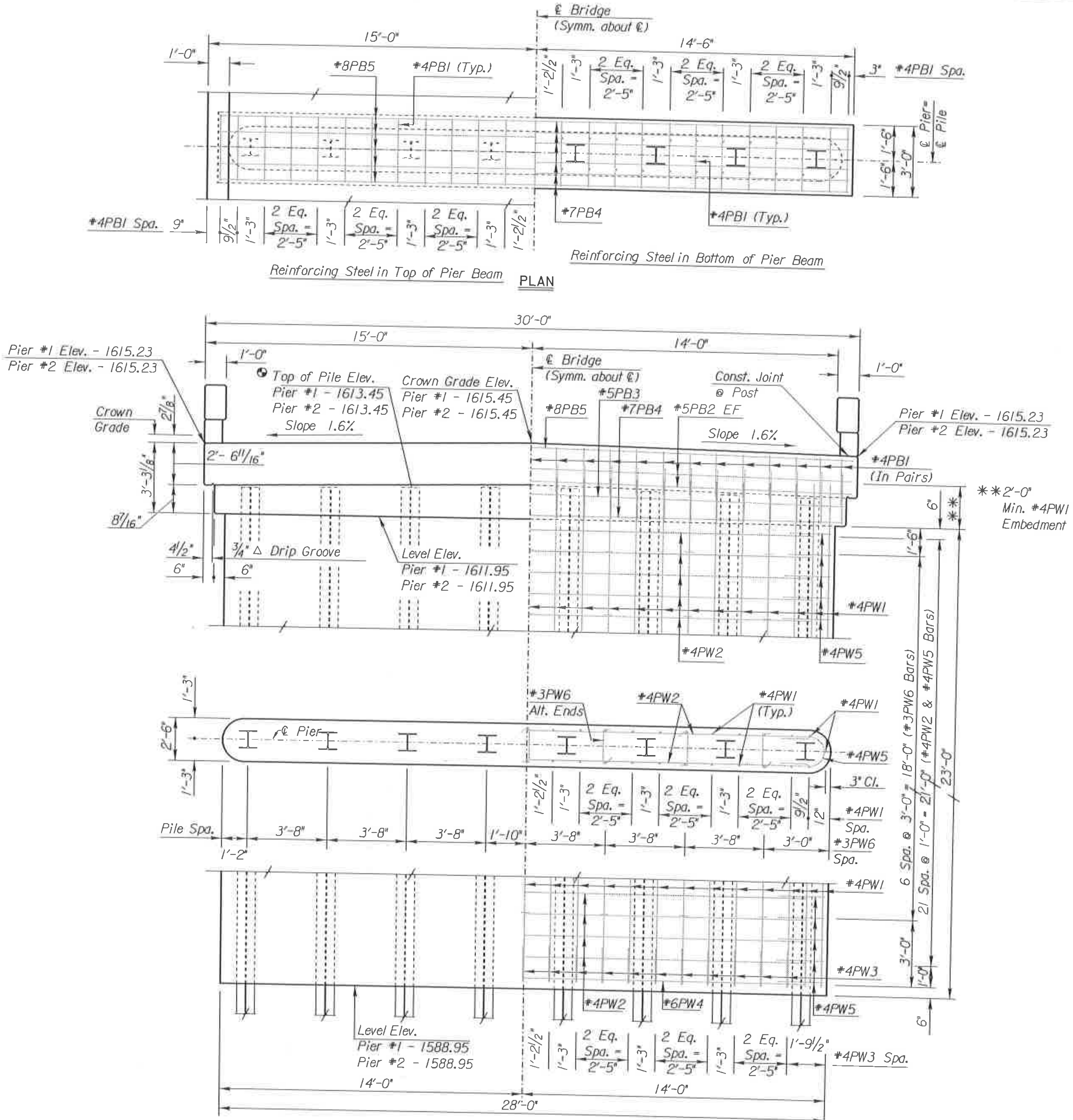
DESIGNED	DETAILED L.R.R.	QUANTITIES	CADD	B.A.F.
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.	

Plotted by: rsnow 7-NOV-2024 15:15
File: br104c.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	17	44

br50fasl.dgn	Plot 5	
Roadway Width = 8.6 M	Longest Span Length = 12 M	
Skew and Direction = 0	Total No. of Spans = 3	
Loading = MS18	Railing Type = Corral	

Plotted By: rsnow
File: Pier Details.dgn
Plot Date: 7-NOV-2024 15:15
Plot Location:

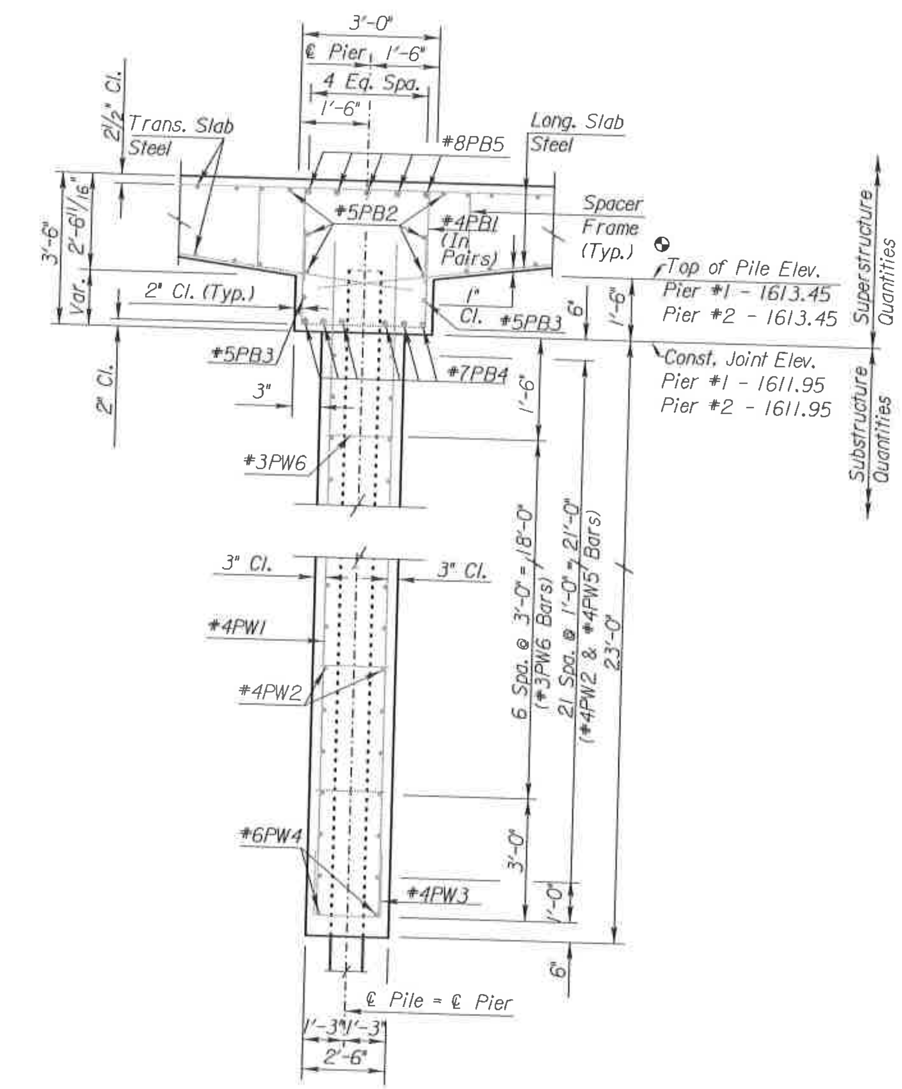


PLAN

ELEVATION

@ Face of Pier Beam
Looking Forward with Stationing

⊗ Note: Top of pile elevation is based on 1'-6" embedment into the pier beam.



SECTION THRU PIER BEAM

LEGEND

EF = Each Face

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00

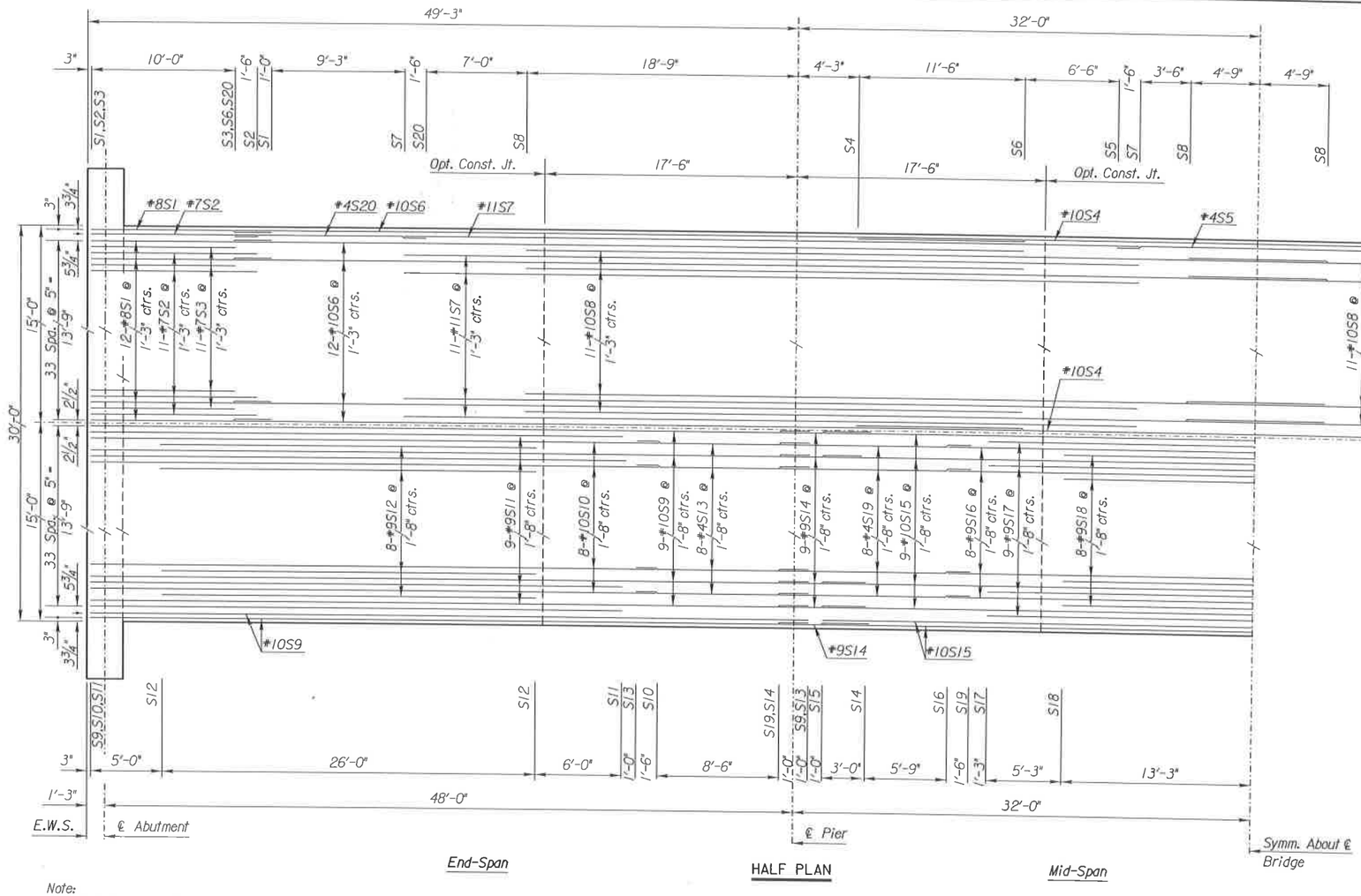
PIER DETAILS

Proj. 80 C-5276-01 Rice Co.

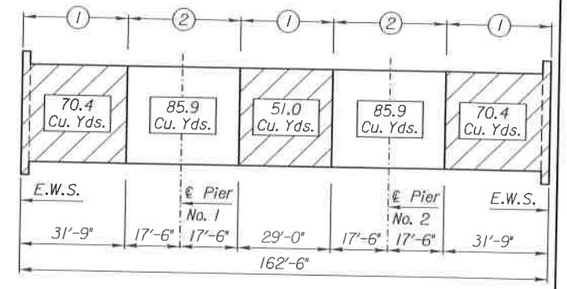
SHEET NO. OF	SCALE	APP'D	
DESIGNED DRT	DETAILED DRT	QUANTITIES DRT	CADD DRT
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Irfdvr526.dgn	Plot 2
Roadway Width = 28'	Largest Span Length = 64'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Railing Type = Corral

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	18	44



Note:
See longitudinal section for transverse reinforcing steel.



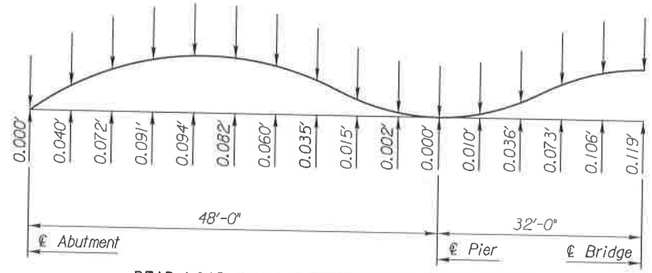
CONCRETE PLACING SEQUENCE DIAGRAM

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.



DEAD LOAD CAMBER DIAGRAM AT TENTH POINTS

Long Term Deflections = Initial Deflections x 3.5
(Initial Deflections Based on $E_c = 3.644 \times 10^6$ p.s.i.)
(camber values in feet)

NO.	DATE	REVISIONS	BY	APP'D
5	08/22/23	Summary of Quantities corrections	MLL	MAH
4	03/12/12	ADDED TOF Elevation Table	JPJ	TLF
3	02/08/11	ADDED QUANTITIES	JPJ	TLF

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00

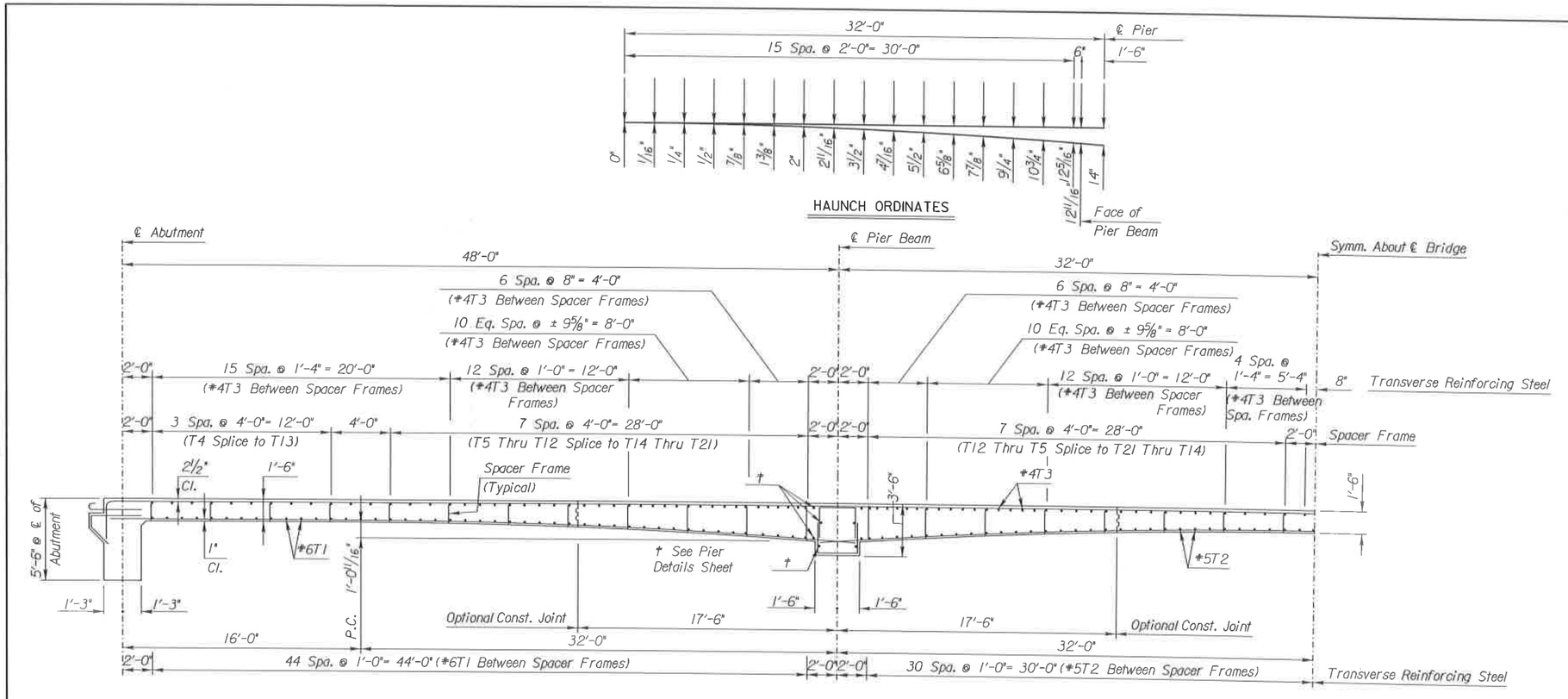
SUPERSTRUCTURE DETAILS

Proj. 80 C-5276-01 Rice Co.

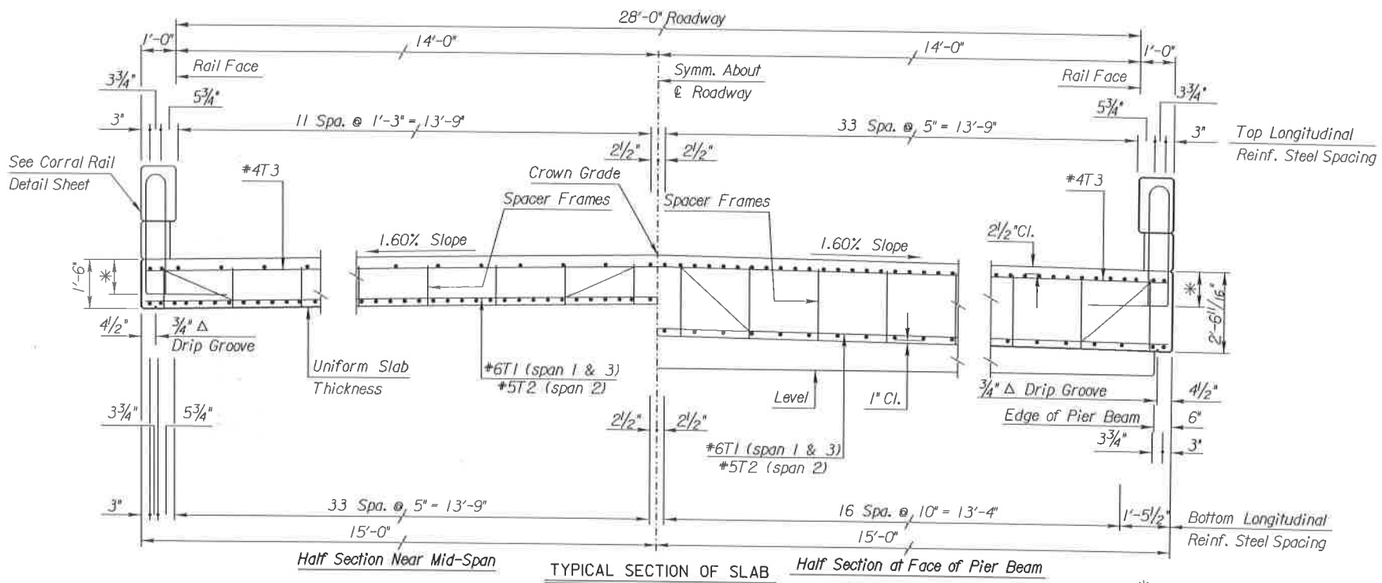
SHEET NO. OF		SCALE:		APP'D	
DESIGNED	DRT	DETAILED		QUANTITIES BRW	CADD RCJ
DESIGN CK.	PAK	DETAIL CK. MLT		QUAN. CK.	CADD CK.

Plotted By: rsnow	Plot Location:
File: br526.dgn	
Plot Date: 7-NOV-2024 15:5	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	19	44



HALF LONGITUDINAL SECTION ALONG ℄ BRIDGE



NO.	DATE	REVISIONS	BY	APP'D
4				
3				
2	04/23/09	Ch'd ST from #10 to #11	DRT	KFH
1	02/05/09	update LFD RF & Camber	DRT	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00

SUPERSTRUCTURE DETAILS

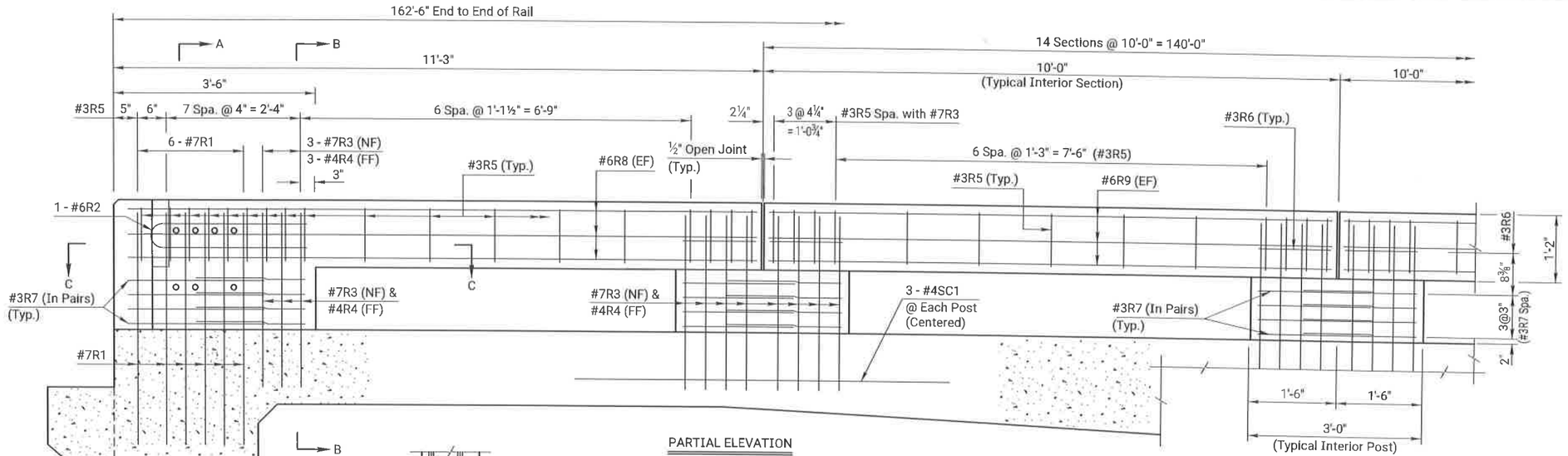
Proj. 80 C-5276-01 Rice Co.

SHEET NO. OF		SCALE		APP'D	
DESIGNED	DRT	DETAILED	DRT	QUANTITIES	CADD RCL
DESIGN CK.	PAK	DETAIL CK.		QUAN. CK.	CADD CK.

Plotted By: rsnow | Plot Location:
File: br526.dgn
Plot Date: 7-NOV-2024 15:15

Irf0or526.dgn	Plot 3
Roadway Width = 28'	Longest Span Length = 64'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Railing Type = Corral

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	20	44



LEGEND

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

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. 00000000080B150 (FAS 150) Sta. 50+00.00

27" KANSAS CORRAL RAIL
(W-BEAM WITH RUBRAIL)
R.C. HAUNCHED SLAB (Without Curb)

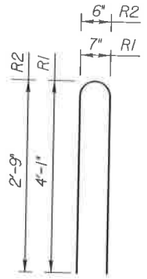
Proj. 80 C-5276-01 Rice Co.

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

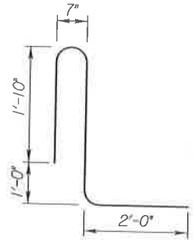
Plotted by : rsnow 7-NOV-2024 15:15
File : br183a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	21	44

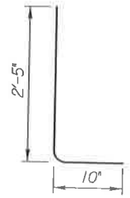
Irf0.br526.dgn	Plot 4
Roadway Width = 28'	Longest Span Length = 64'
Skew and Direction = 0	Total No. of Spans = 3
Loading = HL-93	Rolling Type = Conrail



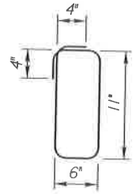
R1 & R2



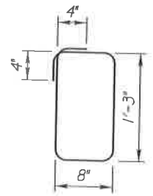
R3



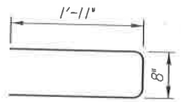
R4



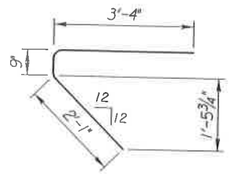
R5



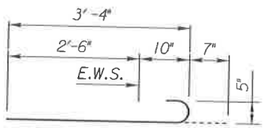
R6



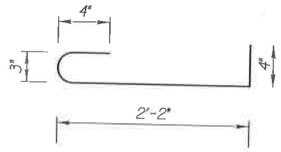
R7



A5



A2



PW6

BILL OF REINFORCING STEEL
Non-Epoxy Coated - Grade 60

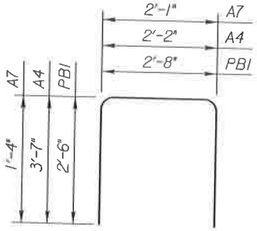
	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Substructure	PW4	#6	4	25'-6"	PW3	#4	42	5'-0"
					PW5	#4	92	6'-2"
	PW1	#4	96	24'-6"				
	PW2	#4	88	25'-6"	PW6	#3	98	3'-0"

BILL OF REINFORCING STEEL
Epoxy Coated - Grade 60

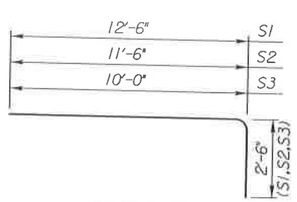
	Straight Bars				Bent Bars			
	Mark	Size	Number	Length	Mark	Size	Number	Length
Superstructure - Abutment - Deck - Rail	S7	#11	48	51'-0"	S1	#8	52	15'-0"
	S4	#10	4	55'-6"	R1	#7	24	8'-6"
	S6	#10	52	54'-9"	R3	#7	252	7'-0"
	S8	#10	44	55'-6"	S2	#7	48	14'-0"
	S9	#10	44	50'-0"	S3	#7	44	12'-6"
	S10	#10	32	39'-6"				
	S15	#10	22	60'-0"	R2	#6	4	5'-9"
	S11	#9	36	37'-0"	A2	#5	56	3'-11"
	S12	#9	32	26'-0"				
	S14	#9	40	6'-0"	A4	#4	152	9'-4"
	S16	#9	16	42'-6"	A5	#4	56	6'-2"
	S17	#9	18	37'-0"	A7	#4	28	4'-9"
	S18	#9	16	26'-6"	R4	#4	252	3'-3"
	A1	#8	16	37'-8"	R5	#3	436	3'-6"
					R6	#3	60	4'-6"
	R8	#6	24	10'-11"	R7	#3	272	4'-6"
	R9	#6	168	9'-8"				
	T1	#6	66	29'-8"				
	A3	#5	20	37'-8"				
	T2	#5	45	29'-8"	T4-T21			⊗
	A6	#4	2	28'-8"				
	S5	#4	2	19'-6"				
	S13	#4	32	12'-0"				
	S19	#4	32	13'-3"				
	S20	#4	4	13'-3"				
	SC1	#4	90	6'-6"				
	T3	#4	114	29'-8"				
Pier Beam	PB5	#8	10	29'-8"	PB1	#4	100	7'-8"
	PB4	#7	12	28'-8"				
	PB2	#5	12	29'-8"				
	PB3	#5	4	28'-8"				

⊗ See Bending Diagram

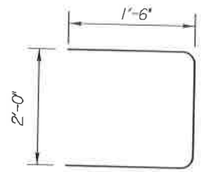
Plotted By: rsnow	Plot Location:
File: br526.dgn	
Plot Date: 7-NOV-2024 15:15	



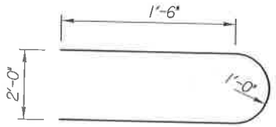
A4, A7 & PB1



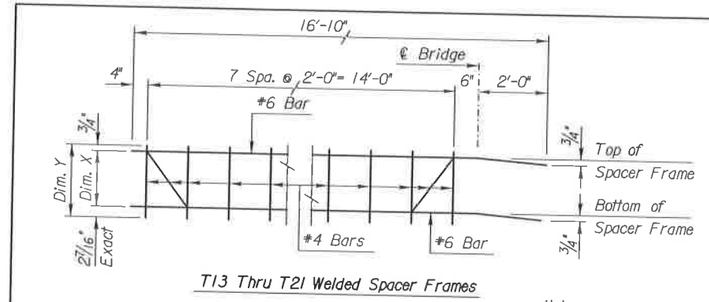
S1, S2 & S3



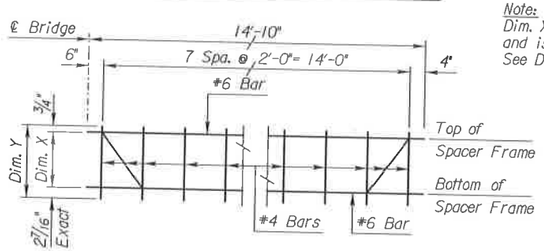
PW3



PW5



T13 Thru T21 Welded Spacer Frames



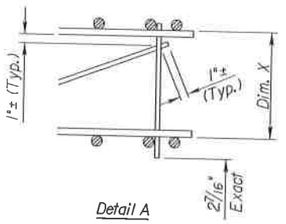
T4 Thru T12 Welded Spacer Frames

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

⊗ SPACER FRAMES

Mark	No. Ea.	Dim. X	Dim. Y
T4, T13	8	11 1/16"	1'-2 5/8"
T5, T14	4	11 1/2"	1'-2 11/16"
T6, T15	4	11 5/16"	1'-3 1/8"
T7, T16	4	1'-0 13/16"	1'-4"
T8, T17	4	1'-2 1/8"	1'-5 5/16"
T9, T18	4	1'-3 1/8"	1'-7 1/16"
T10, T19	4	1'-6 1/16"	1'-9 1/4"
T11, T20	4	1'-8 11/16"	1'-11 7/8"
T12, T21	4	1'-11 3/4"	2'-2 5/16"

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



Detail A

BENDING DIAGRAMS
(All dimensions are out to out of bars.)

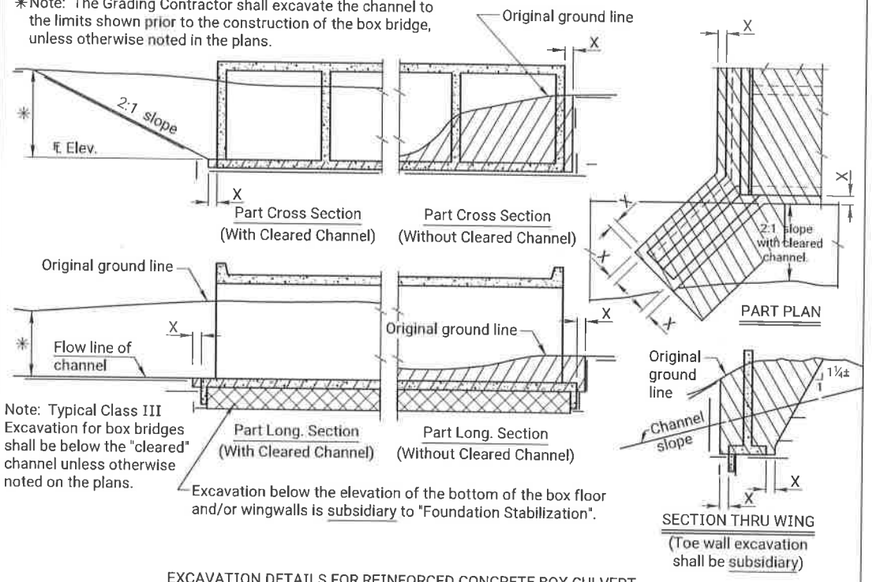
NO.	DATE	REVISIONS	BY	APP'D
3	08/22/23	C2 bar length correction	MLL	MAH
2	04/21/09	Ch'd S7 from #10 to #11	DRT	KFH
1	02/05/09	update LFD RF & Camber	DRT	KFH

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 00000000080B150 (FAS 150) Sta. 50+00.00
BILL OF REINFORCING STEEL
AND
BENDING DIAGRAMS
Proj. 80 C-5276-01 Rice Co.

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	22	44

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

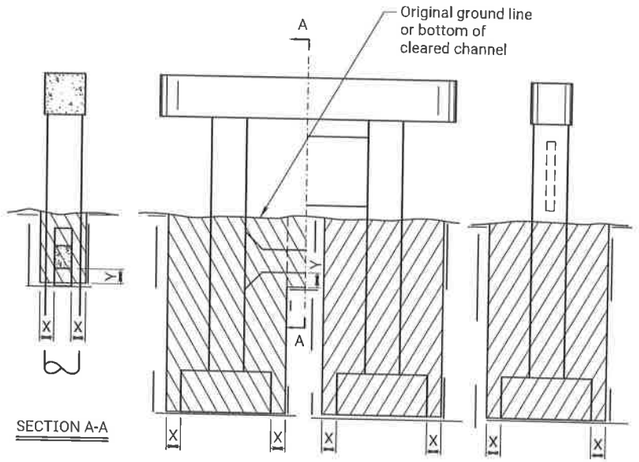


Note: Typical Class III Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

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

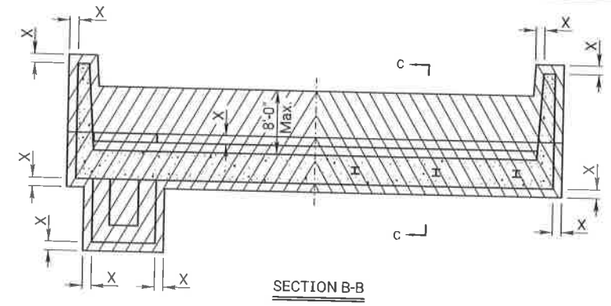
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

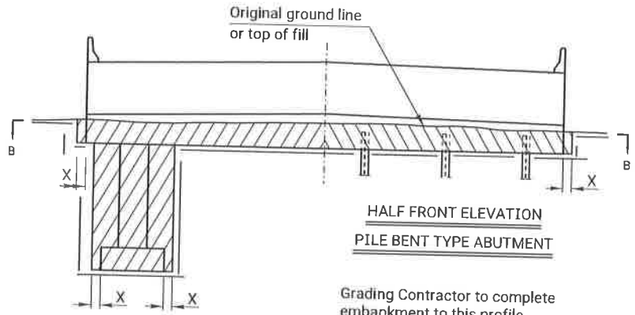
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.

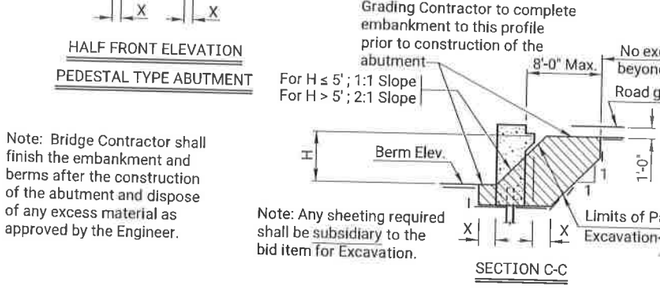


EXCAVATION DETAILS FOR TYPICAL PIERS

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





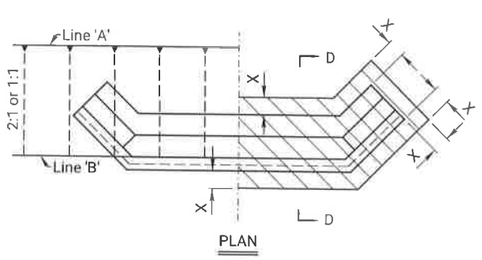


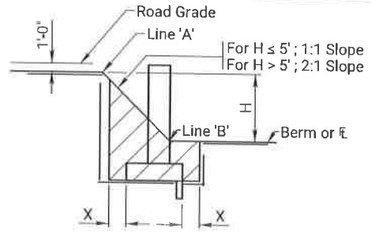
Note: Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.

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

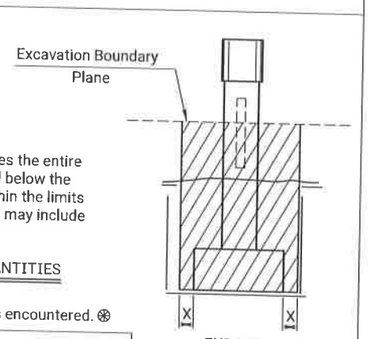
EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

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





EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



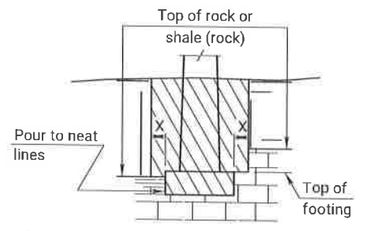
Note: Class II Excavation includes the entire volume of whatever nature found below the "Excavation Boundary Plane", within the limits specified for measurement. This may include water or air.

CLASS II EXCAVATION QUANTITIES

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

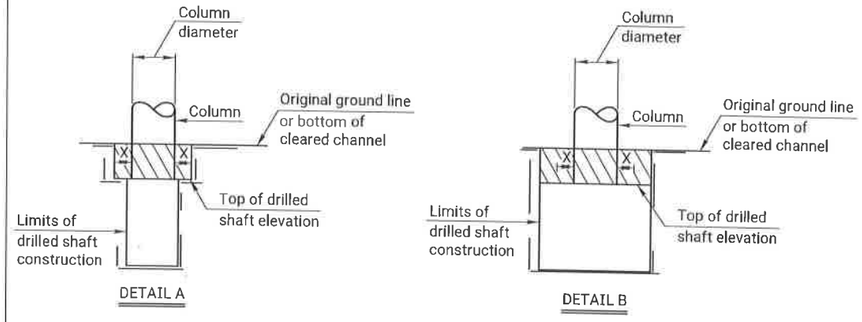
Note: All bridge excavation shall be computed on the basis of the cross-hatch areas and boundary lines indicated on this sheet and the Excavation Boundary Plane on the Construction Layout.

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.



❀ 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)

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		04-17-18	APP'D.	Terry L. Fleck	
DESIGNED	DETAILED	R.D.R.	QUANTITIES	TRACED	
DESIGN CK.	DETAIL CK.	L.R.R.	QUAN.CK.	TRACE CK.	

Plotted by : rsnow 7-NOV-2024 15:15
File : br100b.dgn

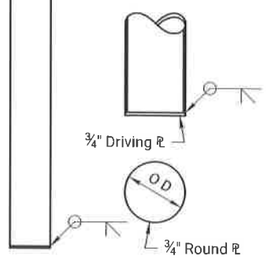
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	23	44

O D 10¾" T. = ††
O D 12¾" T. = ††
O D 14" T. = ††

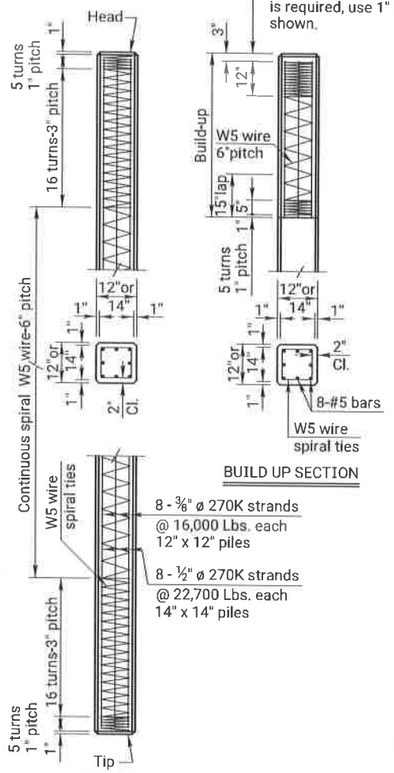
†† See the Geology Report or "Summary of Quanities" for Pipe Pile wall thickness

Note:
Pile shall be driven with a steel head having a projecting ring fitting inside the pipe. Clearance between ring and pipe should be ¼".

Note:
Pile pipe may be spiral welded, longitudinal welded, or seamless steel pipe.

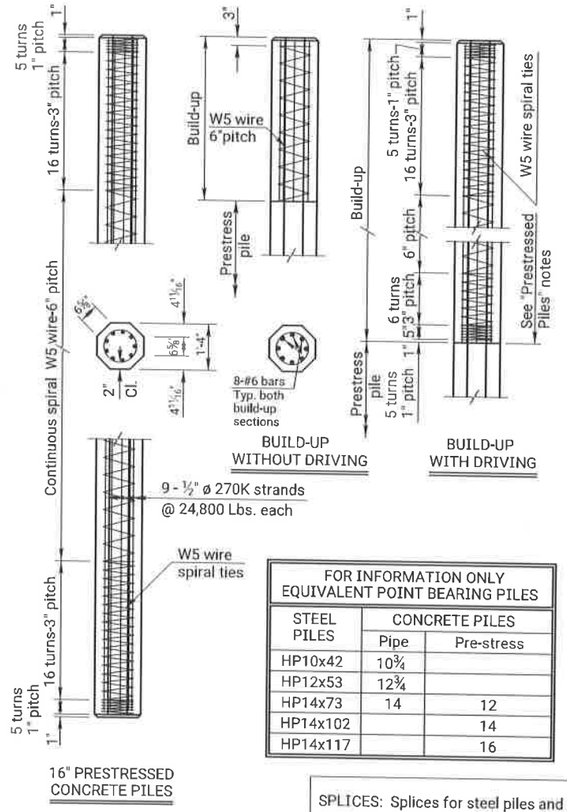


PLAIN ROUND
CAST-IN-PLACE CONCRETE PILES



BUILD UP SECTION

12" OR 14"
PRESTRESSED
CONCRETE PILES



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

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.

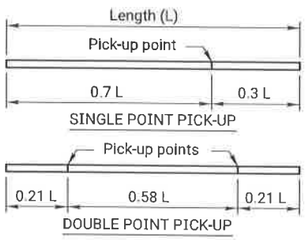
All piles driven without a mandrel shall be of the minimum thicknesses shown. Piles driven with a mandrel shall be of sufficient strength and thickness to withstand driving without injury and to resist harmful distortion and/or buckling due to soil pressure after the mandrel is removed.

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.



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.

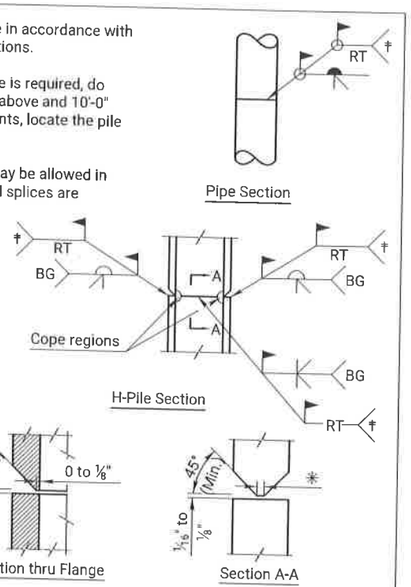
Verify that enough filler metal has been correctly placed in all weld locations to obtain a flush or convex surface with no concavity produced upon completion of the final welds.

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

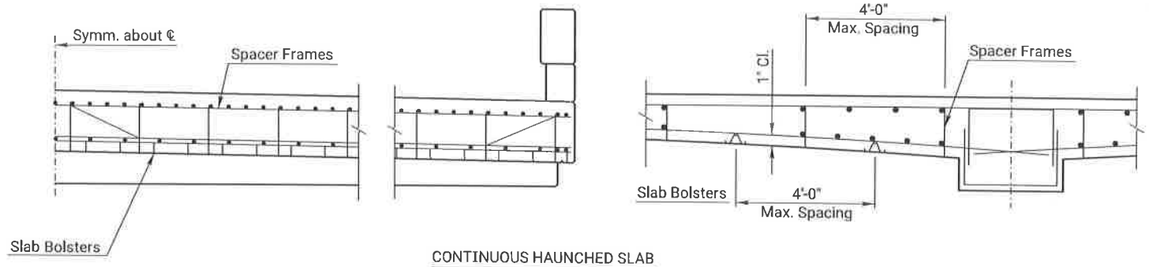
STANDARD PILE DETAILS

BR110

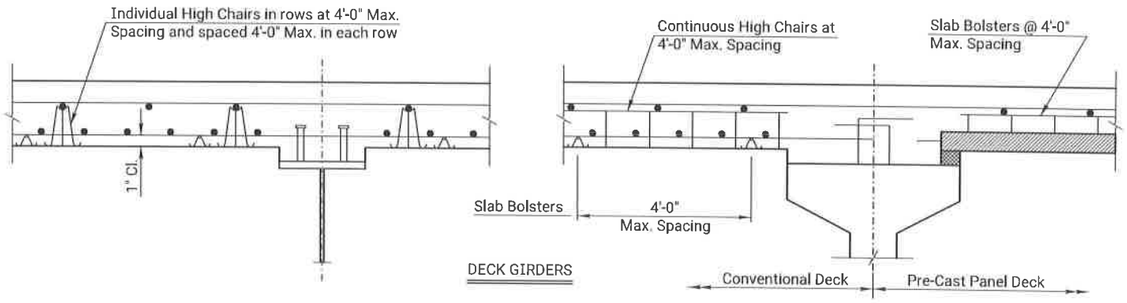
FHWA APPROVAL		10-04-12	APP'D.	Terry L. Fleck	
DESIGNED	J.P.J.	DETAILED	QUANTITIES	TRACED	R.A.A.
DESIGN CK.		DETAIL CK.	QUAN CK.	TRACE CK.	

Plotted by : rsnow 7-NOV-2024 15:16
File : br110.dgn

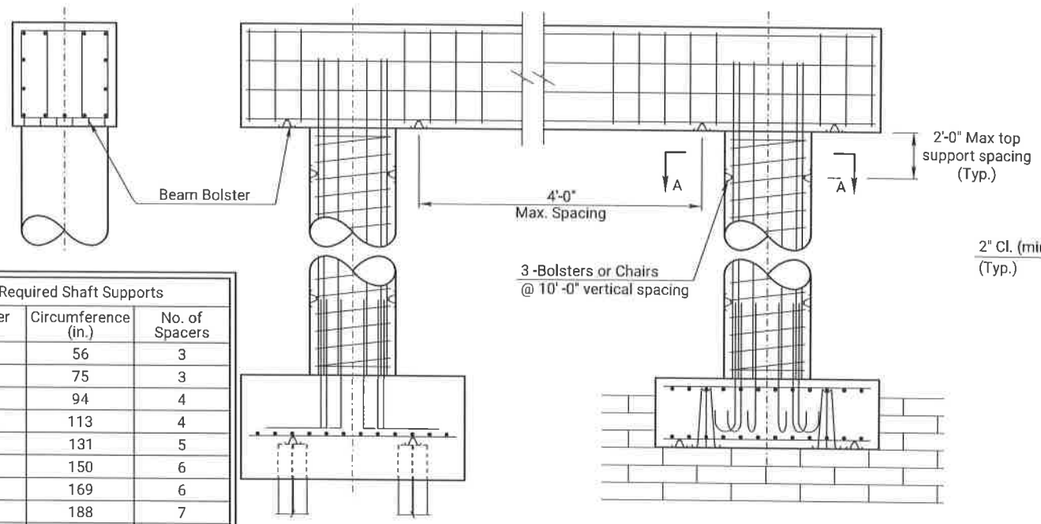
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	24	44



CONTINUOUS HAUNCHED SLAB

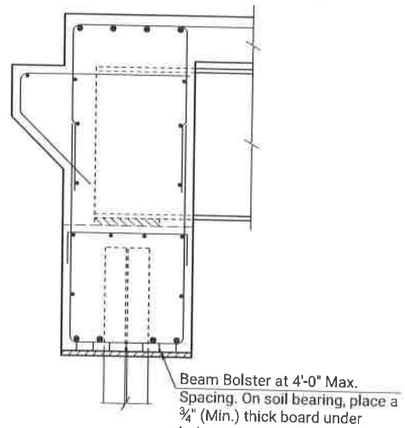


DECK GIRDERS

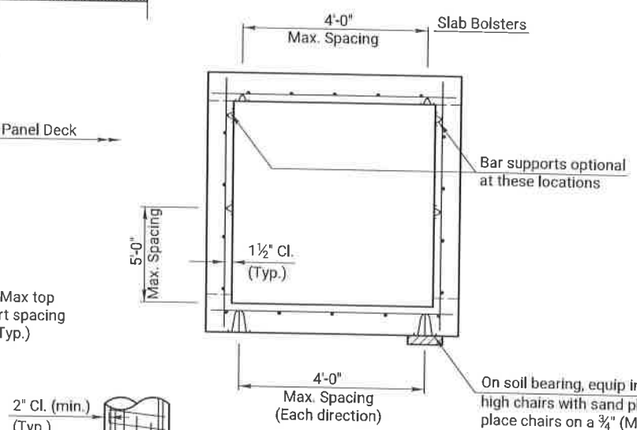


PIER

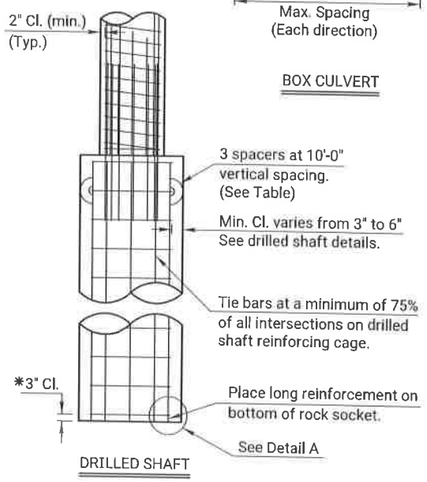
Required Shaft Supports		
Diameter (in.)	Circumference (in.)	No. of Spacers
18	56	3
24	75	3
30	94	4
36	113	4
42	131	5
48	150	6
54	169	6
60	188	7
66	207	7
72	226	8
78	244	9
84	263	9
90	282	10
96	301	11
102	320	11
108	339	12



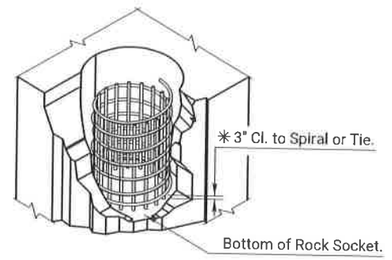
ABUTMENT



BOX CULVERT

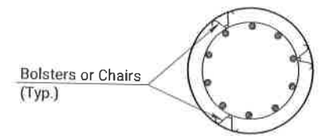


DRILLED SHAFT



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	APPD
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. Heck
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.

Plotted by : rsnow 7-NOV-2024 15:16
File : br120.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	25	44

RECAPITULATION OF BRIDGE QUANTITIES

BRIDGE NUMBER	STATION	SEE SHEET NO.
00000000080B150	50+00.00	11

** REMOVAL OF EXISTING STRUCTURES

STATION	SIDE	DESCRIPTION
50+00.00	℄	42'-55'-42' R.C. Illinois Bulletin Slab Span Bridge (RISC), 24'-0" Roadway

** FOR INFORMATION ONLY

EARTHWORK

STATION to STATION	EXCAVATION					COMPACTION		NOT SUBGRADED THROUGH CUTS			✳ EMBANKMENT (CU.YDS.)		⚠ PLACE SELECT SOIL CU.YDS.
	COMMON		ROCK		CONTR. FURN. CU.YDS.	TYPE AA MR-CU.YDS.	TYPE B MR-90 CU.YDS.	COMM. CU.YDS.	TYPE AA CU.YDS.		INITIAL CONSOL.	SETTLE-MENT	
	CU.YDS.	VMF	CU.YDS.	VMF									
47+50.00 to 52+50.00	175	0.73	◔ 425	1.00	740		668						
TOTALS	175		◔ 425		740		668						

◔ Rock Excavation Quantity based on geotechnical report borings that showed 8" thick existing asphalt near the bridge and 18" thick existing asphalt starting approx. 50' away from existing bridge abutments. Existing pavement thickness may vary in the field.

✳ Subsidiary (see General Note).

⚠ See General note.

RECAPITULATION OF ROAD QUANTITIES

ITEM	QUANTITY	UNIT
Contractor Construction Staking	Lump Sum	L.S.
Field Office & Laboratory (Type C)	1	Each
Foundation Stabilization (Set Price)	1	Cu. Yd.
Mobilization	Lump Sum	L.S.
Removal of Existing Structures	Lump Sum	L.S.
Concrete For Seal Course (Set Price)	1	Cu. Yd.
Clearing & Grubbing	Lump Sum	L.S.
Common Excavation (Rural Small)	175	Cu. Yd.
Common Excavation (Contractor Furnished)	740	Cu. Yd.
Rock Excavation	425	Cu. Yd.
Compaction of Earthwork (Type B)(MR-90)	668	Cu. Yd.
Water (Grading) (Set Price)	1	M. Gal.
Curing Environment	1	Each
Guardrail, SteelPlate	100	Lin. Ft.
Guardrail End Terminal (SRT) Alt. #1	4	Each
Guardrail End Terminal (FLEAT) Alt. #2	4	Each
Concrete Pavement (10" Uniform) (AE) (Br. App.)	84	Cu. Yd.
Signing Object Marker (Type 3)	4	Each

CONCRETE PAVEMENT (10" UNIFORM) (AE) (BR. APP.)

STATION to STATION	SIDE	SQ. YDS.	DESCRIPTION
Sta. 49+05.75 to Sta. 49+18.75	℄	42	Bridge Approach Pavement
Sta. 50+81.25 to Sta. 50+94.25	℄	42	Bridge Approach Pavement
TOTAL		84	

For Summary of Guardrail See Sheet No. 6
For Summary of Surfacing See Sheet No. 26
For Temporary Erosion & Pollution Control Quantities See Sheet No. 27
For Seeding Quantities See Sheet No. 34
For Traffic Control Plan & Quantities See Sheet No. 40

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.

Plotted by : rsnow 7-NOV-2024 15:16
File : rd050.dgn

GENERAL NOTE:

On surfacing projects, the 6" of Compaction Type AA, shown for the center portion on the roadbed, is for the purpose of restoring the original Compaction Type AA which may have been lost since grading operations. The exact locations of this Compaction Type AA, which will be required, is to be determined by the Engineer at the time of construction. This work shall be paid under the bid item "Compaction of Earthwork (Type AA)(MR-)".

Over all structures, unless otherwise directed by the Engineer, where the top of the hubguard is level with or above the finished shoulder grade, the earth cover over the structure slab shall be removed and backfilled with _____ material as directed by the Engineer. The removal of this material will be subsidiary.

The _____ material used to backfill over the structure shall be paid for at the prices shown in the contract.

The earth shoulders shall be compacted full depth (Type -MR) except, when ordered by the Engineer, the top 3" shall be left uncompacted for seeding.

All side roads and house entrances shall be surfaced with _____ to the R/W line as indicated on the detail. All side roads and house entrances with existing asphalt surface shall be surfaced with _____ at least to the R/W line or to the end of construction, as directed by the Engineer. Each mailbox turnout (ON PROJECTS WHERE STABILIZED SHOULDERS ARE NOT SPECIFIED) shall be surfaced with _____ to the limits shown on the detail.

Surfacing material (SA-_____) shall be used for surfacing house entrances and side roads (_____ C.Y./SQ. YD.) beyond the limits of the asphalt surface to the limits of construction as determined by the Engineer.

The thickness of side road and entrance surfacing may be increased to the same thickness as the stabilized shoulder within the approximate limits of the shoulder.

On projects which specify both asphalt base and surface course materials, side roads, house entrances and mailbox turnouts may be surfaced with both materials at the contractors option, with the approval of the Engineer.

Quantities for aggregate for shoulders, AS-1, are calculated on the basis of 150 lbs. per cu. ft. Quantities for stabilized base course, AB-3, are calculated on the basis of 156 lbs. per cu. ft. Weight/cu. ft. includes moisture allowed by specification.

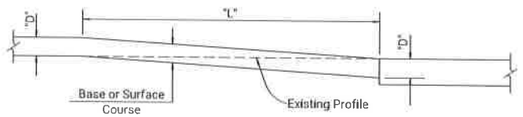
The base course shall be constructed to the plan thickness as shown.

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'

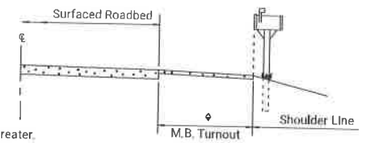
SUMMARY OF QUANTITIES						
ITEM	STA. 47+50.00 TO 49+05.75	STA. 49+05.75 TO 49+18.75	STA. 50+81.25 TO 50+94.25	STA. 50+94.25 TO 52+50.00	TOTAL	UNIT
HMA-Commerical Grade (Class A)	215.1	0	0	213.2	428.3	TONS
Aggregate Base (AB-3)(6")	551.8	44.8	44.8	543.8	1,185.2	Sq. Yds.

RATES OF APPLICATION		
RATE	UNIT	ITEM
145 †	Lbs/Cu Ft	HMA - Commercial Grade (Class A)

† Total Mix Wt. of Aggregate and Asphalt

RECAPITULATION OF QUANTITIES		
ITEM	TOTAL	UNIT
HMA Commercial Grade (Class A)	428	Tons
Aggregate Base (AB-3)(6")	1,185	Sq. Yds.

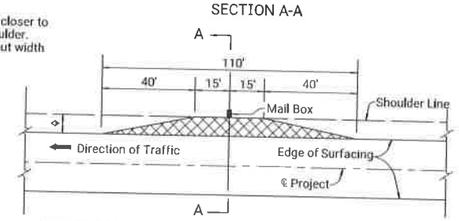
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	26	44



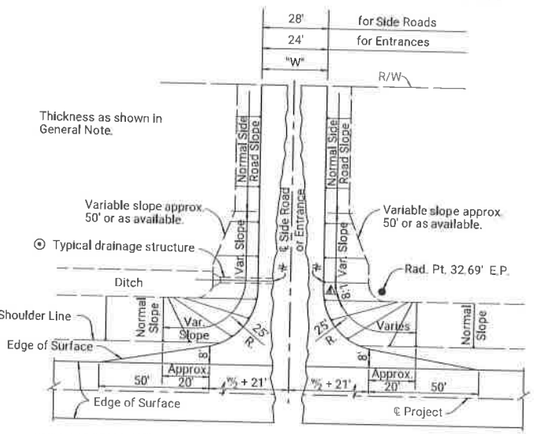
◆ Width shall be 8' or shoulder width, whichever is greater.

SECTION A-A

Note: The face of Mail Box should be no closer to the roadway than the edge of the shoulder. Align with edge of turnout when turnout width is greater than shoulder width.



DETAIL FOR SURFACING OF MAIL BOX TURNOUTS



WITH DRAINAGE STRUCTURE — MOUND ENTRANCE OR SIDE ROAD

DETAIL FOR SURFACING OF SIDE ROADS & HOUSE ENTRANCES

⚠ 8:1 Slope at the appropriate clear zone shall apply to all mound entrances and mound side roads to 10' fill height. Normal Slope (but not steeper than 6:1) for over 10' fill height.

⊙ Normal Slope (but not steeper than 6:1) at approximate ℄ Structure or appropriate clear zone width.

❋ On side roads and entrances which slope toward the highway, a low point approx. 6" deep shall be constructed to divert surface drainage into the highway ditch, unless otherwise shown on the plans.

NO.	DATE	REVISIONS	BY	APP'D
12	01-10-07	Changed bituminous to asphalt	S.W.K.	J.O.B.
11	08-30-06	Changed tack type/rate	S.W.K.	J.O.B.
10	03-24-05	Revised compaction, tack type/rate	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

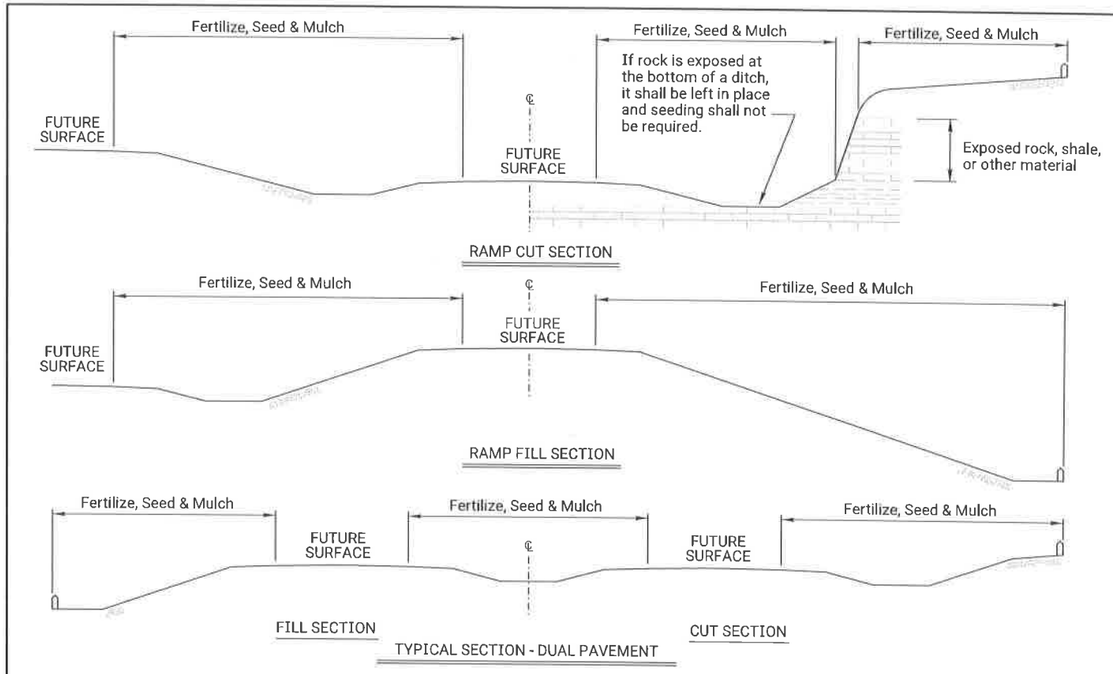
SUMMARY OF QUANTITIES (Surfacing)

RD051

FHWA APPROVAL	09-08-06	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

Plotted by : rsnow 7-NOV-2024 15:16
File : rd051_Summary of Surfacing Quantities.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	27	44



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			
				Temporary Fertilizer (16-20-0)		LB
				Temporary Seed (Canada Wildrye)		LB
				Temporary Seed (Grain Oats)		LB
				Temporary Seed (Sterile Wheatgrass)		LB
				Soil Erosion Mix		LB
				Erosion Control (Class 1, Type C)		SQ YD
				Erosion Control (Class 2, 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)		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")	222	LF
				Filter Sock (18")	176	LF
				Geotextile (Erosion Control)	239	SQ YD
				Silt Fence	136	LF
				SWPPP Design †		LS
				SWPPP Inspection †		EACH
900 lbs / acre				Water Pollution Control Manager †		EACH
2 tons / acre		0.35		Mulch Tacking Slurry		LB
				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	NAME	QTY (lb)
	Total (lb)	

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.

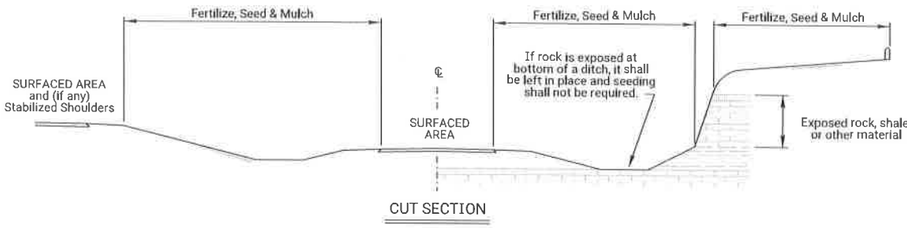
KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

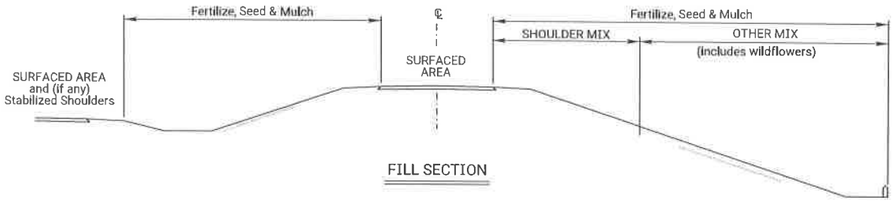
LA852A

FHWA APPROVAL		01-29-18	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.

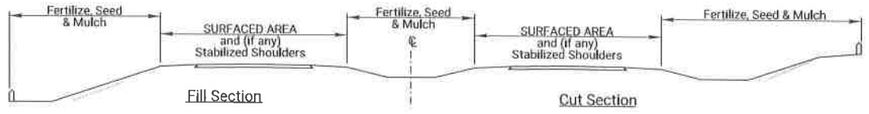
Plotted by : rsnow 7-NOV-2024 15:16
File : la852a.dgn



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.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	34	44

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	XX.XX
0.3	Common Milkweed	XX.XX
0.3	Black Eyed Susan	XX.XX
0.5	Blanket Flower	XX.XX
0.5	False Sunflower	XX.XX
0.5	Lance-Leaf Coreopsis	XX.XX
0.2	Maximilian Sunflower	XX.XX
0.1	New England Aster	XX.XX
0.2	Pinnate Prairie Coneflower	XX.XX
0.2	Plains Coreopsis	XX.XX
0.3	Purple Coneflower	XX.XX
0.3	Upright Prairie Coneflower	XX.XX
0.3	Dames Rocket	XX.XX
0.3	Lemon Mint	XX.XX
0.2	Pitcher Sage	XX.XX
0.2	Wild Bergamot	XX.XX
1.0	Illinois Bundleflower	XX.XX
0.2	Common Evening Primrose	XX.XX
0.1	Hoary Verbena	XX.XX
0.8	Purple Prairie Clover	XX.XX
0.3	Roundhead Lespedeza	XX.XX
3.0	Showy Partridge Pea	XX.XX
0.2	White Prairie Clover	XX.XX
10.3	Total (lb)	XX.XX

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
	150		0.35	Fertilizer (16-20-0)		LB
	20		0.35	Seed (Canada Wildrye Grass Seed)		LB
	45		0.35	Seed (Grain Oats)		LB
	45		0.35	Seed (Sterile Wheatgrass)		LB
	2		0.35	Seed (Big Bluestem Grass Seed) (Kaw)		LB
	2		0.35	Seed (Indiangrass Seed) (Osage)		LB
	2		0.35	Seed (Little Bluestem Grass Seed) (Aldous)		LB
	6.3		0.35	Seed (Side Oats Grama Grass Seed) (El Reno)		LB
	1		0.35	Seed (Switchgrass Seed) (Blackwell)		LB
	0.5		0.35	Seed (Tall Dropseed)		LB
	4		0.35	Seed (Western Wheatgrass Seed) (Barton)		LB
	10.3		0.35	Seed (Native Wildflower Mix 1)		LB
				Seeding	Lump Sum	LS
				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	05-05-19	APP'D	Mervin Lare
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN CK.	TRACE CK.

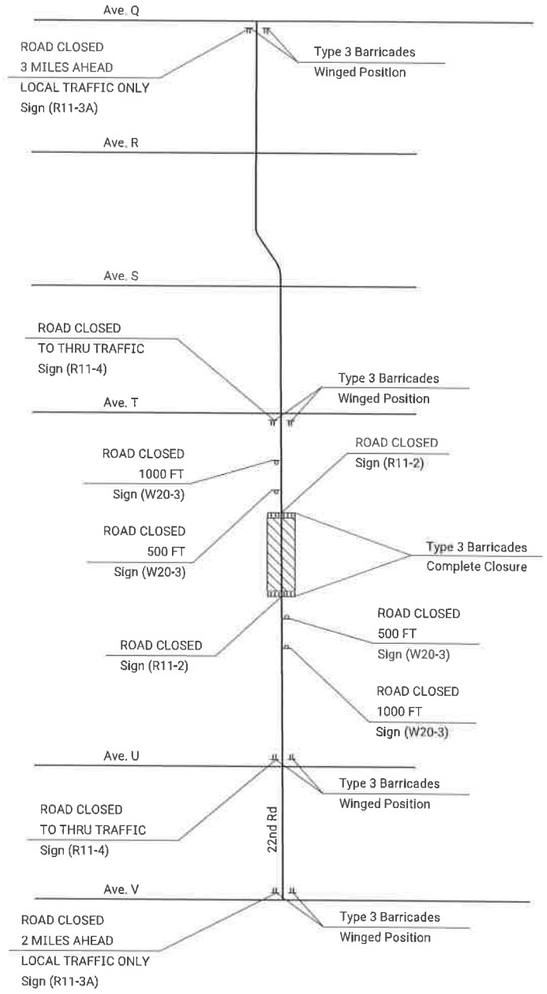
Plotted by : rsnow 7-NOV-2024 15:18
File : la850.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	80 C-5276-01	2024	40	44

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

No Scale

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	
R11-2		2	
R11-3A		2	
R11-4		2	
W20-3		4	

Barricades ✳		Channelizing Devices ✳		
Type 3 (4' to 12')	Pedestrian	Fixed	Portable	Pedestrian
14				

Lighted Devices ✳	
Work Zone Warning Light (Type "A" Low Intensity)	12
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.)		Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)		Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)		Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')		Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)		Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)		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
Traffic Control	Lump Sum	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		05-01-15	APP'D.	Kristina Ericksen
DESIGNED B.A.H.	DETAILED R.W.B.		QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.		QUAN.CK.	TRACE CK.

Plotted by: rsnow 7-NOV-2024 15:19
File : te795.dgn