STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	1	68

HP–19 BRIDGE REPLACEMENT

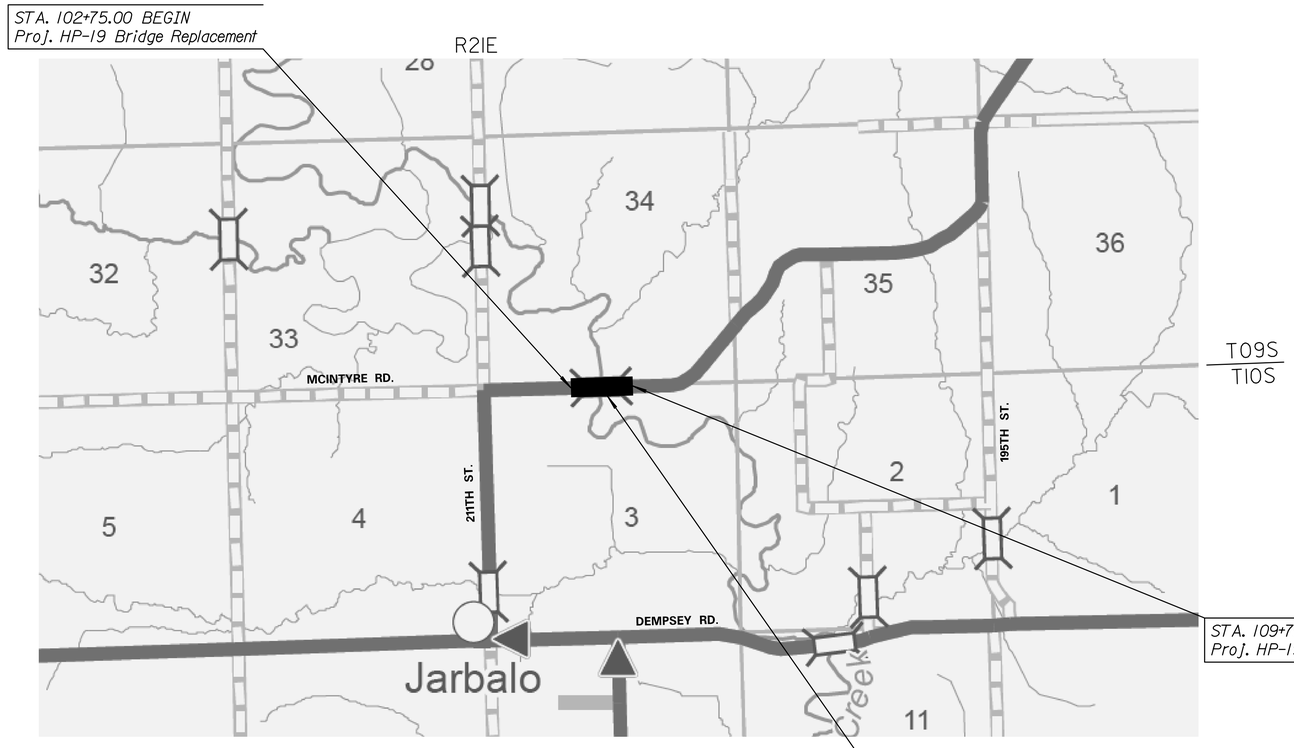
LEAVENWORTH COUNTY, KANSAS

HP-19 BRIDGE (MCINTYRE RD.) REPLACEMENT OVER STRANGER CREEK

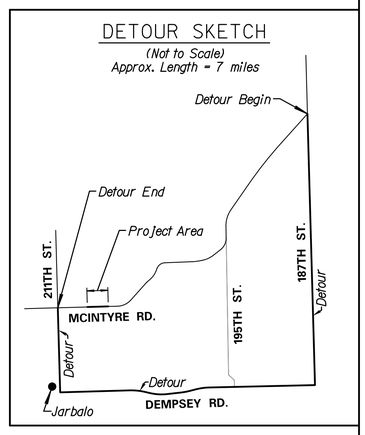
INDEX OF SHEETS

GRADING
SURFACING (ASPHALT)
BRIDGE
SEEDING

SCALE 1" = 1500'



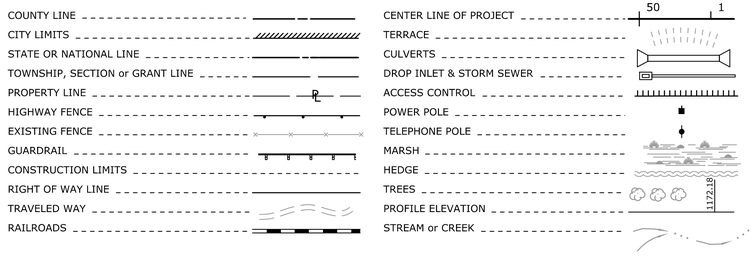
DETOUR SKETCH
(Not to Scale)
Approx. Length = 7 miles



DESIGN DESIGNATION

AADT (2018)	=	405
AADT (2030)	=	426
DHV	=	10%
D	=	60%/40%
T	=	11%
V	=	55 MPH
C of A	=	NONE
Clear Zone	=	18'

CONVENTIONAL SIGNS



GROSS LENGTH OF PROJECT	700.0 FT.		
EXCEPTIONS	NONE		
NET LENGTH OF PROJECT	700.0 FT.	0.132	MILES
NET LENGTH OF BRIDGES	302.5 FT.	0.057	MILES
NET LENGTH OF ROAD	397.5 FT.	0.075	MILES

WILSON & COMPANY

NOTE: Road closed thru construction.

RECOM. FOR APPROVAL-DATE

LOCAL PUBLIC OFFICIAL

DATE	BY

SURVEYED
PLOTTED
INKED
DESIGNED
SQUAD

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	2	68

Original  Aug 10, 2021 Name: Wesley A. O'Neal Co. Name: Wilson & Company Plan Section: 1-14, 36-68	Original  Aug 10, 2021 Name: Jason M. Kemnitz Co. Name: Wilson & Company Plan Section: 15-35						

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED

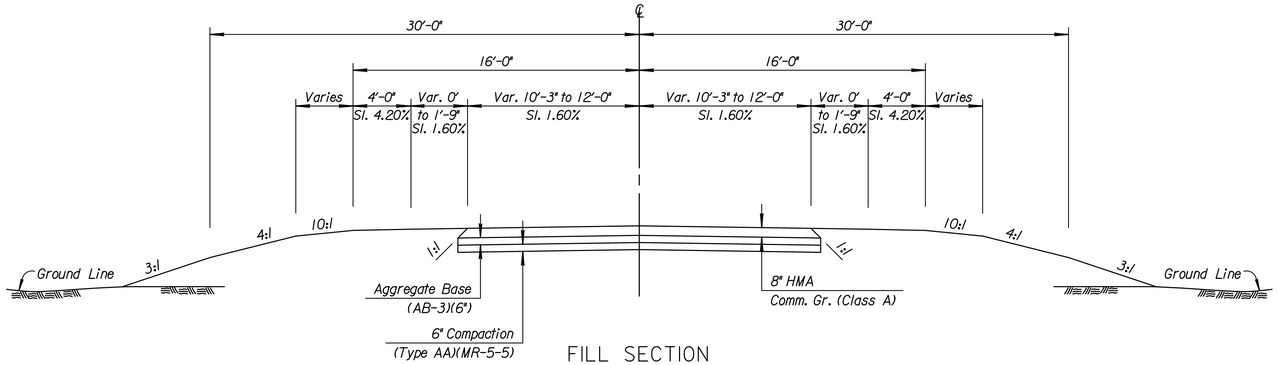
Drawn By : CSNachbar
Plotted : 8/10/2021
File : M:\TRN\17-100-054-001\2_Disciplines_SHEETS\3_Sheets - roadway\LV171000540Orss048-01.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

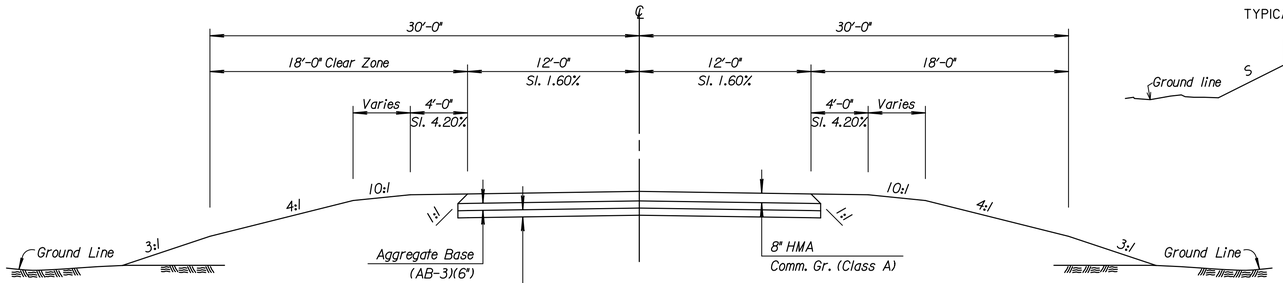
Signature Seal Sheet

RD048

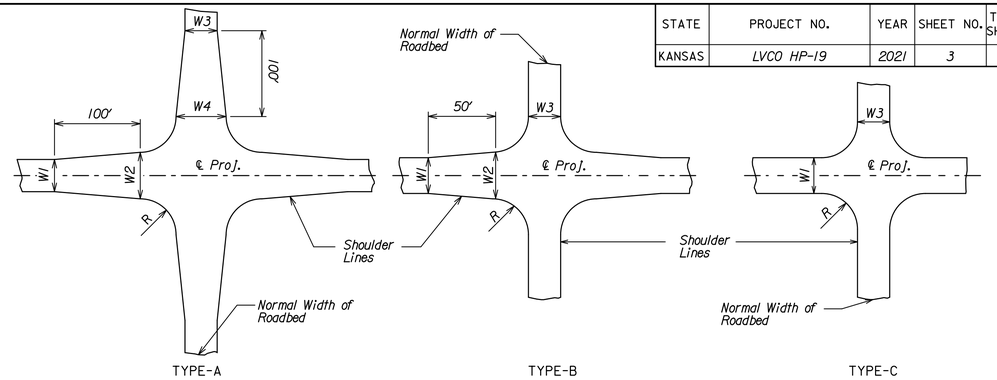
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	3	68



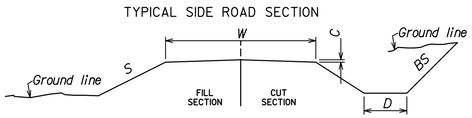
FILL SECTION
102+75.00 - 104+00.00
108+55.00 - 109+75.00



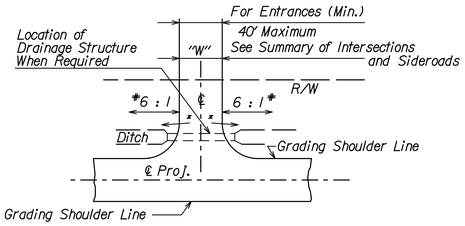
FILL SECTION
104+00.00 - 104+85.75
108+14.25 - 108+55.00



TYPICAL INTERSECTION DETAILS



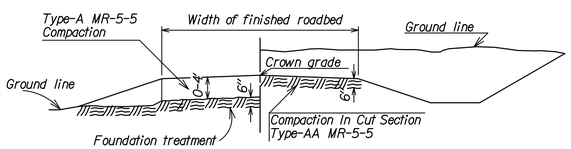
SUMMARY OF INTERSECTIONS AND SIDEROADS												
STATION	SIDE OR QUADRANT	TYPE	W	WI	W2	W3	W4	R	C	S	D	BS
103+25	Right	C	18'	32'		18'		35'	3½"	6:1		
109+25	Right	C	14'	32'		14'		35'	3½"	6:1		



TYPICAL SIDE ROAD OR ENTRANCE DETAIL

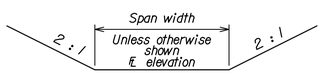
* On side roads and entrances which slope toward the roadway, construct a low point approx. 6" deep to divert surface drainage into the roadway ditch.

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



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

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).

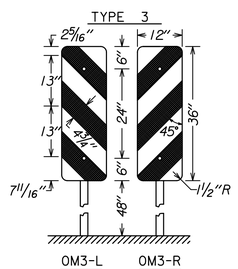
LPA to furnish all easements and additional right of way (unless otherwise noted).

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.

SUMMARY OF OBJECT MARKERS AND SIGNS						
STATION TO STATION	SIDE	TYPE OF STRUCT.	TYPE OF SIGN	OBJECT MARKER TYPE	OBJECT MARKER NO.	REMARKS
Br. Sta. 106+50.00	Lt.	Span Br.		OM-3L	2	Ø @ Lt. Br. Quad.
Br. Sta. 106+50.00	Lt.	Span Br.		OM-3R	2	Ø @ Rt. Br. Quad.
Ø As you face bridge end from approach						
•Back-to-Back [Sign(s) on Both Sides of Post]						

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.

NO.	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.

Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002lss907-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	4	68

GENERAL NOTE

THE GEOLOGICAL INFORMATION SHOWN ON THESE PLANS IS FROM STUDIES MADE IN THE FIELD AND REPRESENTS THE BEST INFORMATION AVAILABLE TO LEAVENWORTH COUNTY.

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

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

EMBANKMENT QUANTITIES FOR INITIAL CONSOLIDATION AND SETTLEMENT SHOWN IN THE EARTHWORK QUANTITIES ARE SUBSIDIARY TO OTHER EARTHWORK ITEMS. MATERIAL FOR THE EMBANKMENT IS INCLUDED IN THE EXCAVATION QUANTITIES.

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

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

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

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

Project Survey Control

Horiz. Datum: Kansas State Plane (NAD83) - North Zone (At grid coordinates) Geoid 12A

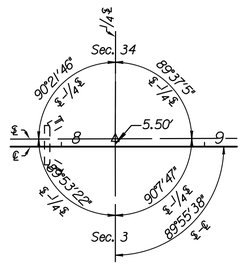
Vert. Datum: NAVD 1988

Control derived from static GPS observations and processed through NGS OPUS (Online Positioning Users Service) through the following CORS Stations:

ZKCI, MORM & MOSB on 05/22/2017.

UTILITY OWNERS

Electric: Westar Energy
2720 2nd Ave.
Leavenworth, KS 66040
Jon Ham
(913) 758-2724



SCALE

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

PROFILE: Horiz. same as above
Vert. 5' 0

P.O.T. ℄ Sta. 100+00.00
N 334,886.218 E 2,144,603.968
1. Not Set

P.O.T. ℄ Sta. 113+00.00
N 334,923.606 E 2,145,903.430
1. Not Set

Sta. 103+25.00, 22' Lt.
Remove and Replace
D3-1 Signs
See Sh. No. 51

Sta. 102+75.00 BEGIN
Proj. No. LVCO HP-19

Sta. 102+25.00 BEGIN
Construction

Jeanine E. Murphy & Genevieve M. Schwinn
SE Cor. of SW 1/4
Sec. 34, T9S, R21E

Sta. 106+50.00 Const.
Br. No. 000000000052B110
90'-120'-90' PBMC
32' Roadway
See Sh. No. 15

Sta. 108+37.64 Install
Monument Box
See Sh. No. 5

STRANGER CREEK

Sta. 109+75.00 END
Proj. No. LVCO HP-19

Sta. 110+75.00 END
Construction

Samuel A. & Rebecca Murphy Jr.
SW Cor. of SE 1/4
Sec. 34, T9S, R21E

Exist. R/W = 62.5' ℄
Exist. R/W = 75' ℄
Const. Limits
℄ Proposed Improvement
2 Wires
Remove & Replace Mailbox
BM #10
BM #11
BM #12
POT +00.00
100 Sec. Line 2 3 4 105 6 7 8 9 110 1 2 3
N 88°21'07" E (Grid)
Saw Cut
R=40'
+75 68' Rt.
5.5'
89°55'38" ℄ to 1/4 ℄
+50 Exist. R/W = Temp. Esmt. 56.96' Rt. ℄
+50 Exist. R/W = Temp. Esmt. 56.60' Rt. ℄
+50 Temp. Esmt. 95.00' Rt. ℄
Temp. Esmt.
Herbert T. Schwinn Sr. & Herbert T. Schwinn Jr.
NE Cor. of NW 1/4
Sec. 3, T10S, R21E
Exist. R/W
+25 ℄ 208th St. W = 18'
Sta. 103+38.00, 30' Rt.
Remove and Replace
R1-1 Sign
See Sh. No. 52
Herbert T. Schwinn Sr. & Herbert T. Schwinn Jr.
NE Cor. of NW 1/4
Sec. 3, T10S, R21E
Sta. 106+50.00 Remove
Br. No. 000000000520110
88'-102.5'-88' SBMC
20' Roadway
Sec. Line 1/4 ℄ Sta. 108+37.64
Charles D. & Mary J. Luse
NW Cor. of NE 1/4
Sec. 3, T10S, R21E
+25 ℄ Field Entrance W = 14'

SW Cor. Sec. 34, T9S, R21E
N 334,831.397 E 2,142,801.221
1. Found exist. mag nail over 1" bar
2. Cor. is S 88°10'7"W 2641.23' from S 1/4 Cor. Sec. 34, T9S, R21E
3. PK nail in top of fence cor. post 39.60' NW
4. 60d nail in top of fence cor. post 44.90' SW
5. 60d nail in E. face of PP 75.20' WNW

BM #10 - WCI BM T Post
16.08' Lt. of ℄ Sta. 103+26.68 Elev. = 862.84

S 1/4 Cor. Sec. 34, T9S, R21E
N 334,915.806 E 2,145,441.102
1. Found exist. bar & plastic cap
2. 5.5' Lt. (North) of ℄ Sta. 108+37.64 SE1/4 = 1°43'15"
3. NE cor. of wall 40.30' NW
4. "+" cut top of wall 40.30' NW
5. "+" cut top of wall 43.80' SW

BM #11 - WCI BM square cut in conc.
17.29' Rt. of ℄ Sta. 105+00.20 Elev. = 865.40

S 1/4 Cor. Sec. 3, T10S, R21E
N 329,673.440 E 2,145,598.598
1. Found exist. bar 1/2" rebar
2. 5,239.23' Rt. (South) of ℄ Sta. 108+37.65 SE1/4 = 1°43'15"
3. Set 60d & washer in top of brace post 61.60' NW
4. Spike & washer in top of fence post 83.30' SW
5. Spike & washer in N face of PP 66.00' SE

BM #12 - WCI BM square cut in conc.
19.35' Lt. of ℄ Sta. 108+00.11 Elev. = 865.39

Project Earthwork
97 Cu. Yds Common Excavation (VMF = 0.85)
2,895 Cu. Yds Common Excavation (Contractor Furnished) (VMF = 0.85)
211 Cu. Yds Pavement Rock Excavation (VMF = 1.00) (To Be Wasted)
2,543 Cu. Yds Embankment

Exist. Ground Line
W. 208th St. Sta. 103+25.00
K = 146
200' V.C.
Profile Grade Proposed Improvement
- 0.25%
+ 1.12%
- 1.18%
+ 0.04%
K = 152
SSD = 644.1'
350' V.C.
K = 123
150' V.C.
Design H.W.100 Elev. = 860.30
Design H.W.25 Elev. = 855.60
O.H.W. Elev. = 850.74
880 870 865 860 855 850 845 840
+75 No Dt. Lt. No Dt. Rt. +98.75
+01.25 No Dt. Lt. No Dt. Rt. +75
863.65 P.C. +75 Match Existing 863.61
863.74 P.I. +75 Elev. 863.40 863.87
864.52 P.R.C. +75 864.78
865.41
865.47 P.I. +50 Elev. 866.48 865.38
864.69
864.42 P.R.C. +25
863.76 P.I. +00 Elev. 863.53
863.56 P.T. +75 Match Existing
100 1 2 3 4 105 6 7 8 9 110 1 2 3

KANSAS DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE

STA. 100+00 TO STA. 113+00

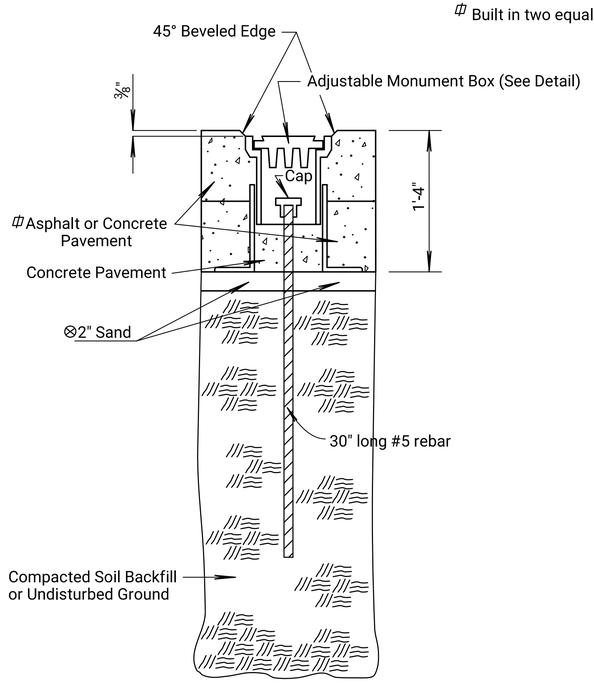
Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV171000S400rpp-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	5	68

EXHIBIT

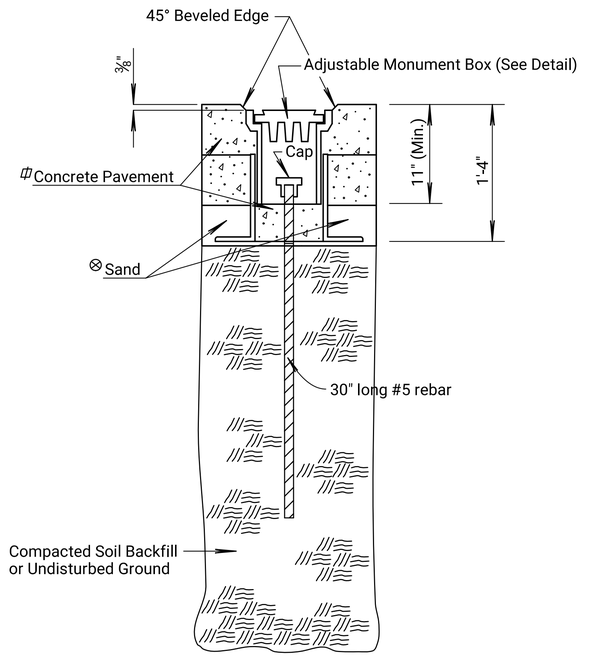
2" DIA. PRE-STAMPED ALUMINUM CAPS

KS DEPT OF TRANS / DISTRICT ONE	KS DEPT OF TRANS / DISTRICT TWO	KS DEPT OF TRANS / DISTRICT THREE
KDOT - DISTRICT 1	KDOT - DISTRICT 2	KDOT - DISTRICT 3
KS DEPT OF TRANS / DISTRICT FOUR	KS DEPT OF TRANS / DISTRICT FIVE	KS DEPT OF TRANS / DISTRICT SIX
KDOT - DISTRICT 4	KDOT - DISTRICT 5	KDOT - DISTRICT 6
K D O T	ABC SURVEY CO / CPS 999	JOHN DOE / PS 9999
KDOT STATE SURVEY CREW BUREAU OF RIGHT OF WAY	SURVEY COMPANY WITH A VALID CORPORATION LICENSE	INDEPENDENT SURVEYOR OR SOLE PROPRIETOR COMPANY



TYPE A-1

(Standard Land Corner Monument Box)



TYPE A-2

(Standard Land Corner Monument Box)

GENERAL NOTES

Use the proper identification cap for the party installing the monument, as shown on the exhibit.

Make all stampings, forgings, and impressions legible. The stampings, forgings, and impressions will properly identify the location of the monument within the Public Land Survey System (PLSS).

A "System of Marking" is available in the current "Manual of SURVEYING INSTRUCTION", which is published by the United States Department of the Interior, Bureau of Land Management.

Reset all PLSS corners in accordance with KDOT's Standard Specifications.

In addition to monumentation of the PLSS corner, the Engineer may direct or select specific locations for offset monumentation, as shown.

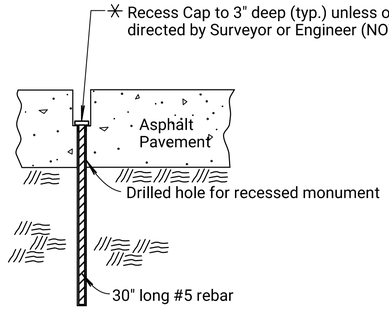
Use Type A-1 or Type A-2 monuments as directed by the Surveyor or the Engineer.

Type A monumentation may be used on a project as specified in the plans or as directed by the Engineer. Typically, Type A monuments are used on high traffic volume roadways, in urban areas, or as required by local governmental codes. Otherwise, use Types B-D monumentation. Avoid installing monument boxes in vehicle wheelpaths where practicable.

All work and materials required to install the Type A-1 and Type A-2 monument boxes will be paid under the bid item "Monument Box (Each)" and will be included in the plan quantities. All work and materials required to install Types B-D monumentation will be subsidiary to the bid item "Contractor Construction Staking (Lump Sum)". See KDOT's Standard Specifications for details.

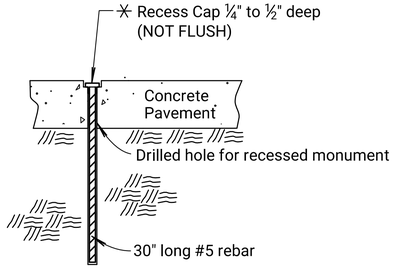
ADJUSTABLE MONUMENT BOX DETAIL

(Neenah R-1968 Type 36-B or approved equivalent)



Type B

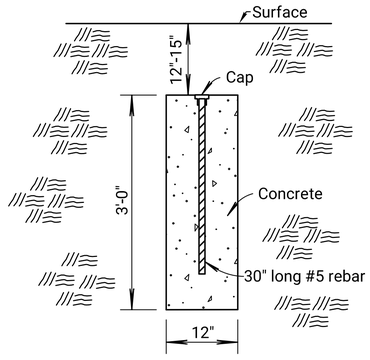
(Recessed Bar)



Type C

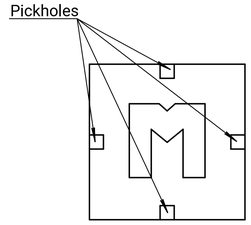
(Drilled Hole)

No Surface Monuments Allowed in Pavement



Type D

(Shoulder/Ditch Subsurface Monument)



MONUMENT BOX LID (PLAN VIEW)

Not to Scale

NO.	DATE	REVISIONS	BY	APP'D
4	8-24-18	Rev. Det. Mon. Box AND Rev. Gen. Note	A.L.R.	T.T.R.
3	1-15-16	Add. Det., Retrofit & Rev. Gen. Note	T.T.R.	S.W.K.
2	10-17-13	Revised Detail, Recessed Bar	S.W.K.	J.O.B.
1	11-10-03	Revised Monument Types	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SECTION CORNER MONUMENTATION DETAIL SHEET

RD990

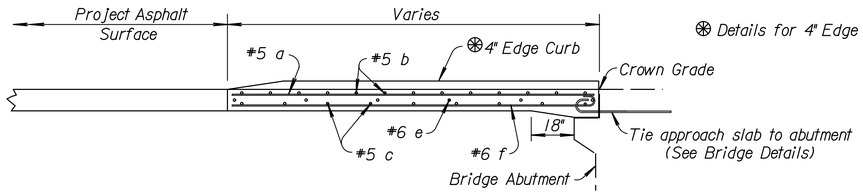
FHWA APPROVAL 8-7-2019		APP'D. SCOTT W. KING	
DESIGNED	DETAILED KAHLE	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK. RHOADS	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 08-21-2019

KDOT Graphics Certified

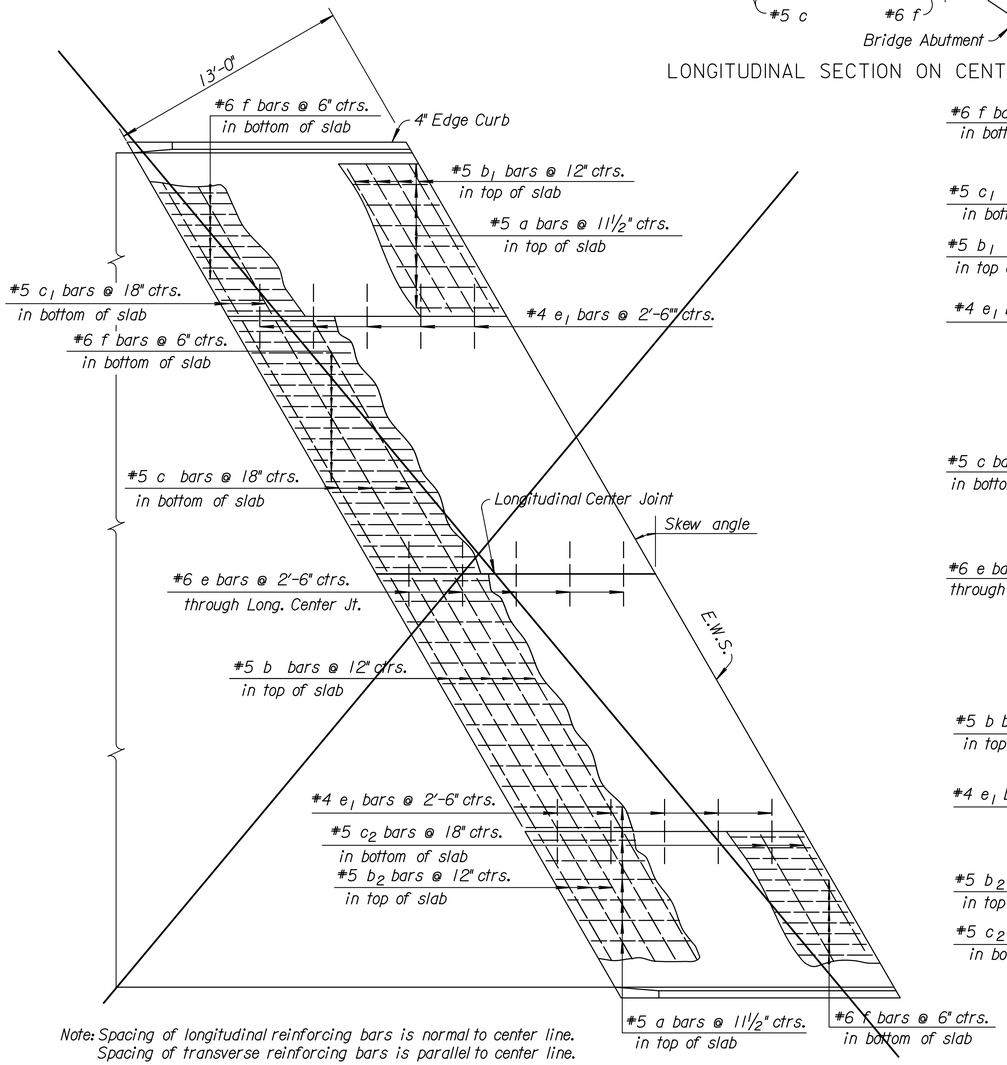
Drawn By : ARLawrence Plotted: 8/10/2021
File : M:\TRN\17-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540rss990-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	6	68



⊛ Details for 4" Edge Curb, See Standard Drawing RD711.

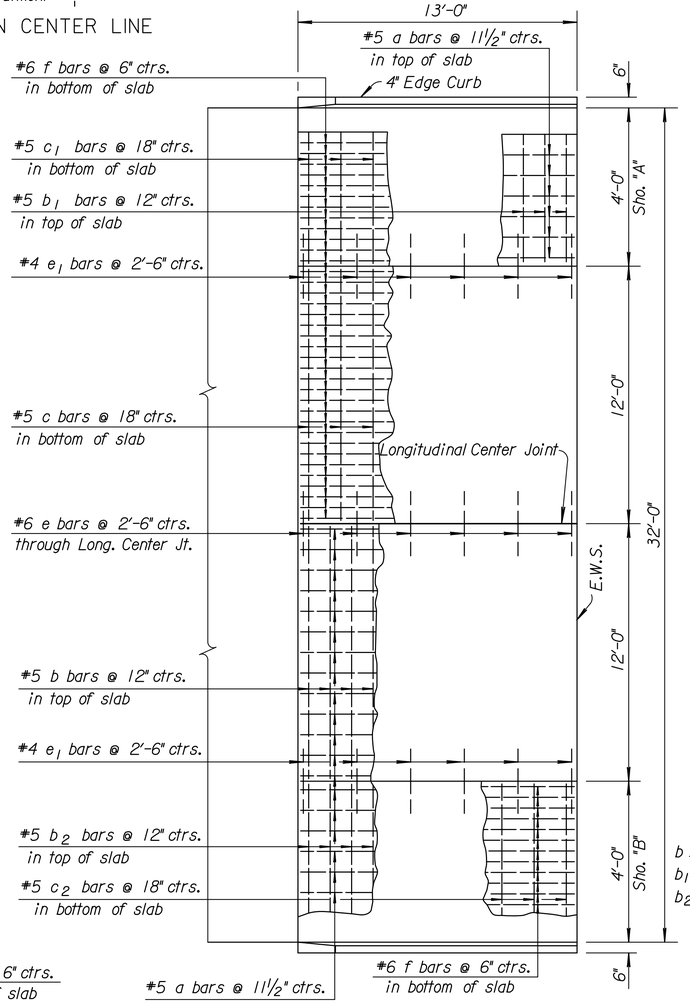
LONGITUDINAL SECTION ON CENTER LINE



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 (___" 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.

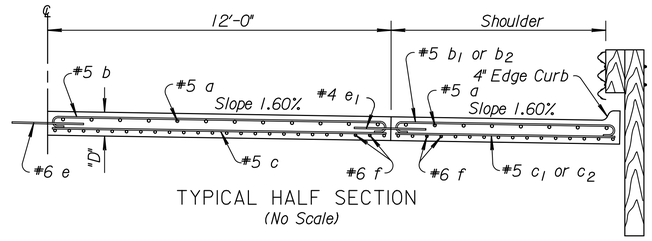
At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

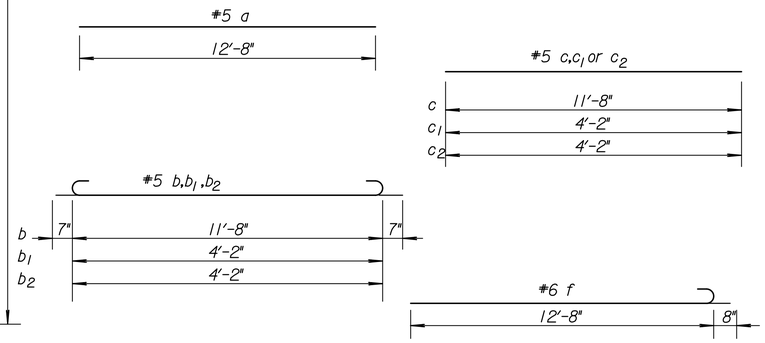
See Standard Drawing RD711 for details of Joints and edge curb.

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.	38	26	13	13	18	9	9	6	12	66
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-8"	12'-10"	5'-4"	5'-4"	11'-8"	4'-2"	4'-2"	3'-0"	3'-0"	13'-4"

Reinforcing Steel (Grade 60) (Epoxy Coated) 2,670 lbs.

Concrete Pavement (10" Unif.)(AE) 47.7 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
9	9-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
8	5-14-09	Revised General Note	S.W.K.	J.O.B.
7	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.
6	11-07-07	Revised pavement slope to percent	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE APPROACH PAVEMENT ADJACENT TO ASPHALT SURFACE

RD715

FHWA APPROVAL	6-9-09	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

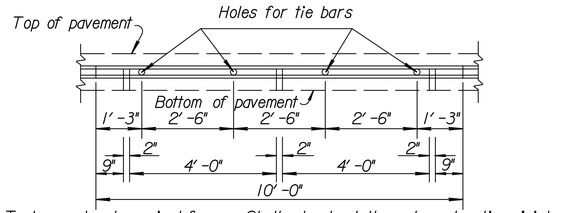
KDOT Graphics Certified

KDOT Graphics Certified 11-26-2014

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

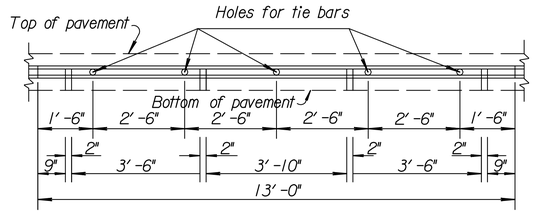
Drawn By: ARLawrence Plotted: 8/10/2021
M:\TRN\17-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540Orss715-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	7	68



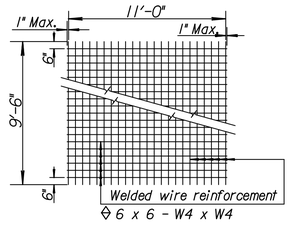
To be used only against forms. Shall not extend through contraction joints.

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



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

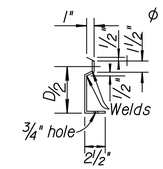
METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (13'-0")



◊ 6 x 6 - W4 x W4

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.



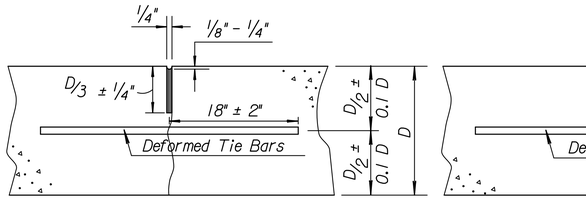
SECTION OF RECESSED
FORM LEG

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

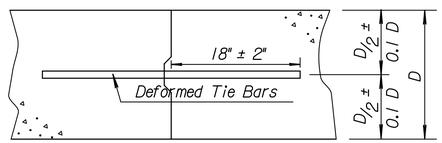
DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT

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

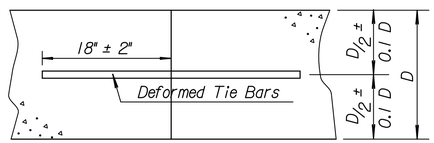
The sheet shall be wired securely at the edges and at intervals not to exceed 2'-6" for the full width of the sheet. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft. Other methods for fastening the sheets of welded wire reinforcement at the laps may be used with the approval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



Tied Non-Keyed



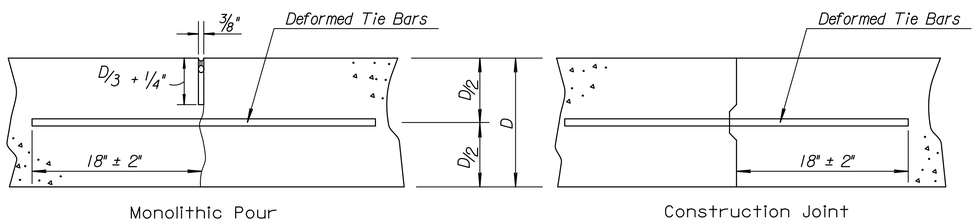
Tied Keyed Construction



Tied Butt Construction

LONGITUDINAL JOINTS

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



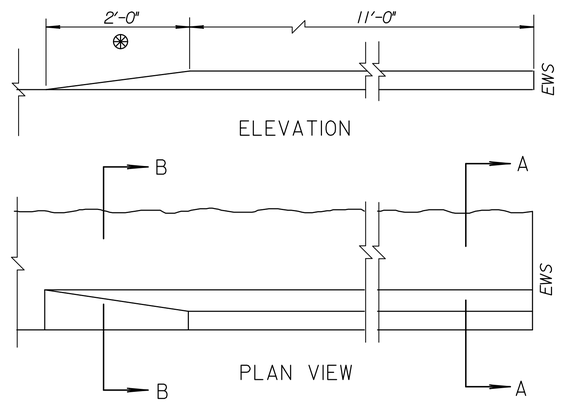
Monolithic Pour

Construction Joint

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.

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



4" EDGE CURB DETAIL

GENERAL NOTES

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

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

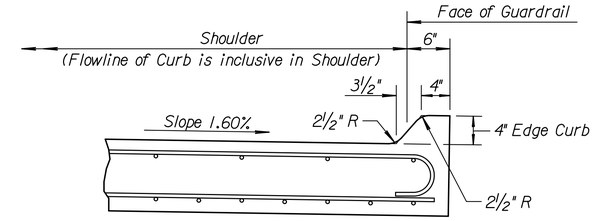
At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.

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

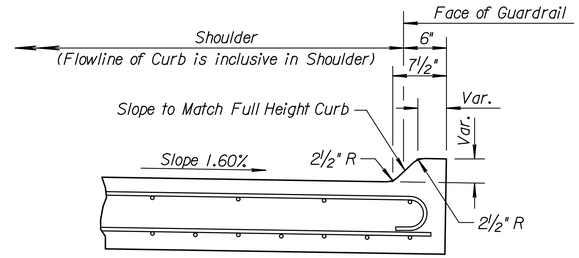
The 4 inch edge curb shall be constructed integral with the approach slab shoulder.

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

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



SECTION A-A



SECTION B-B

NO.	DATE	REVISIONS	BY	APP'D
13	5-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
12	5-14-09	Pres. Relief Jt. to RD712/tie bar lab.	S.W.K.	J.O.B.
11	10-23-08	Revised Sec. A-A and Sec. B-B	S.W.K.	J.O.B.
10	10-3-07	Add. manufacturer jt. size recom'd.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS FOR CONCRETE BRIDGE APPROACH PAVEMENT

RD711

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

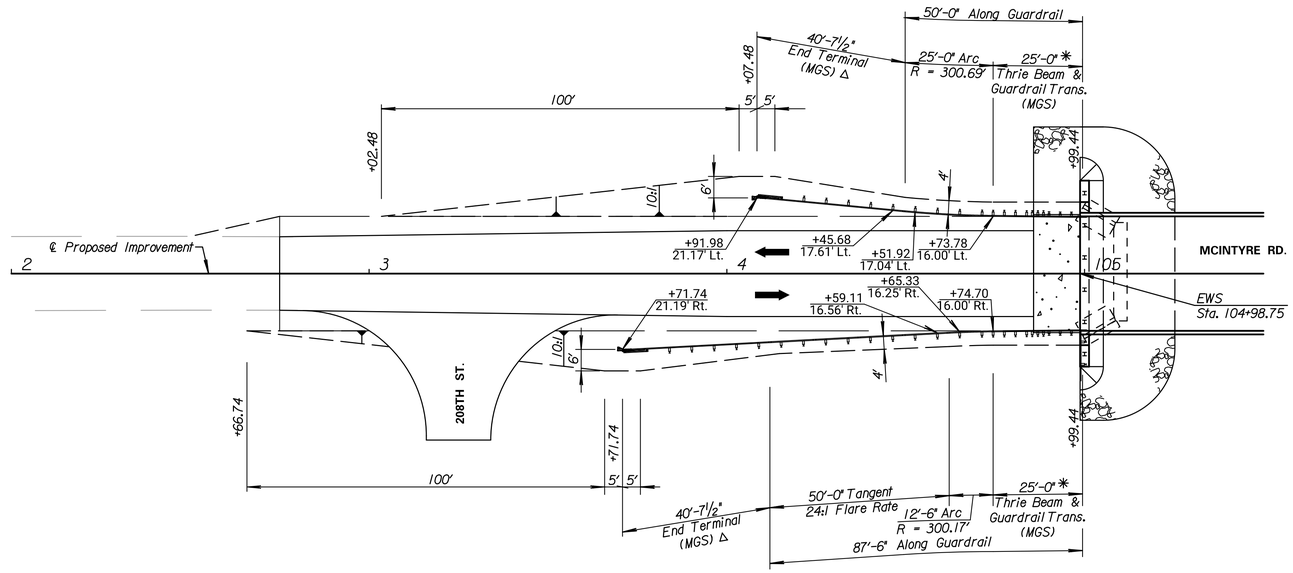
KDOT Graphics Certified 10-28-2013

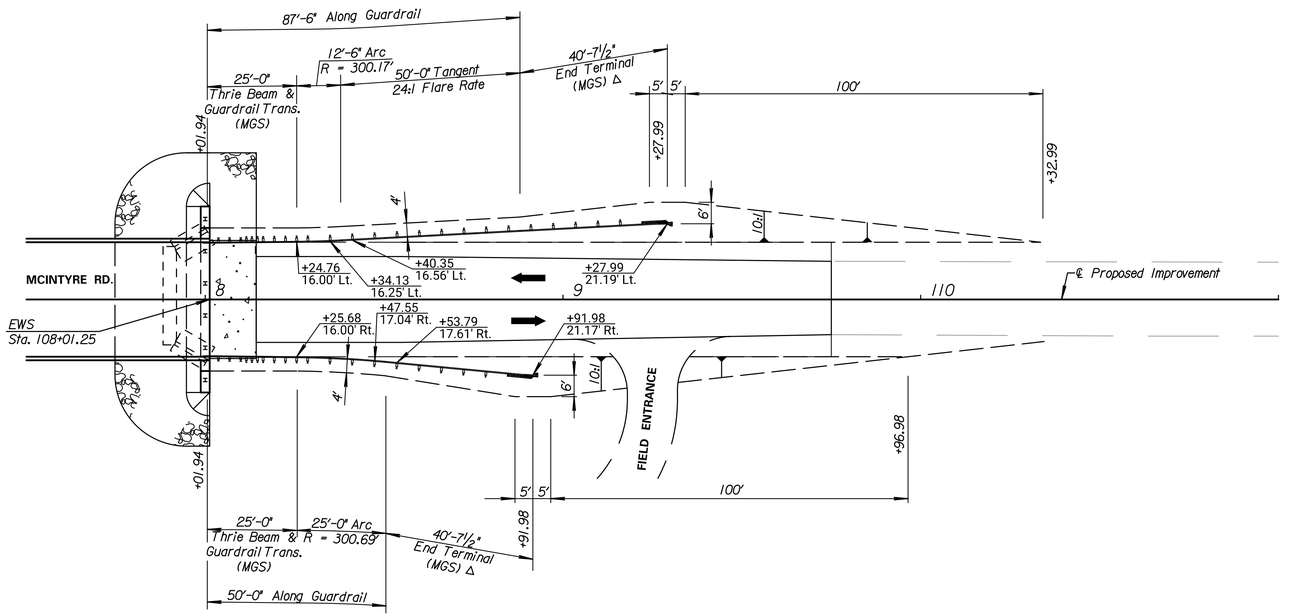
KDOT Graphics Certified

Drawn By: ARLawrence Plotted: 8/10/2021
File: M:\TRN\17-100-0540012_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540rss711-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	8	68

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED





Scale: 1" = 20'

Note: Offsets are from edge of shoulder to face of guardrail unless otherwise shown.

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

* For post spacing and nesting details. See Sh. No. 14

Δ MGS-FLEAT or MGS-SRT

LEGEND

- Permanent Guardrail
- Concrete Bridge Approach Pavement
- Traffic Direction

BR. NO. 00000000052BII0
Sta. 106+50.00
McIntyre Rd. over Stranger Creek

KANSAS DEPARTMENT OF TRANSPORTATION

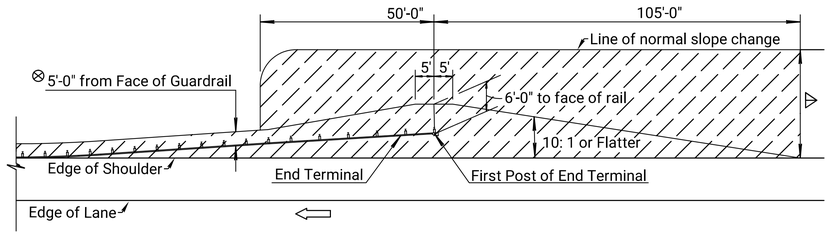
GUARDRAIL LAYOUT

Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002\2_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002gr-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	9	68

GUARDRAIL CLEAR AREA

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



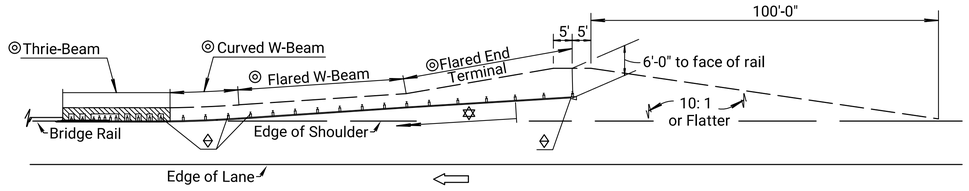
Keep Area Free of Stockpiled Material, Equipment, or Other Obstacles, Such as Temporary Signs, Regardless of Crash Worthiness. This Clear Area Extends 105 Feet in Advance of and 50 Feet behind the First Post of the Guardrail End Terminal and Then, in Order to Maintain Full Post Spacing, Continues 5 Feet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

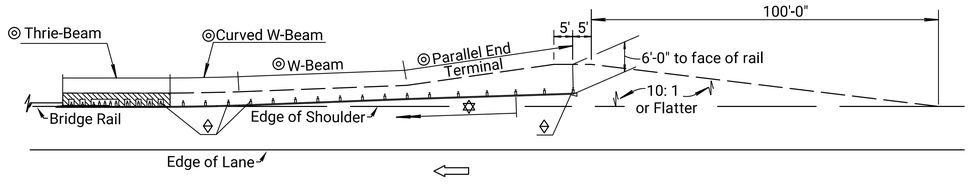
FLARED GUARDRAIL DETAIL

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)

GENERAL NOTES

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

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

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

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

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

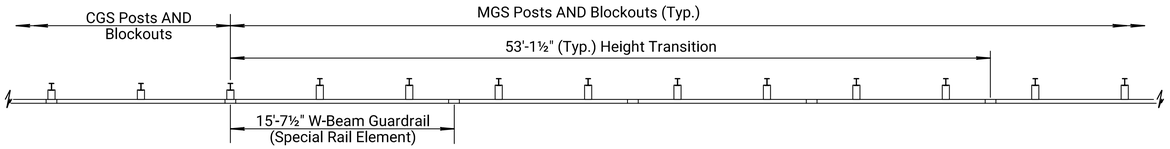
Lap w-beam and thrie-beam guardrail splices, in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Lap end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even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

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

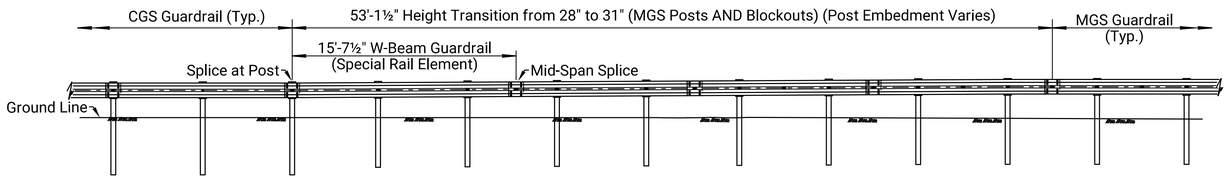
Where pavement with a thickness less than or equal to 8" is encountered during installation, use the details shown on KDOT's 'Guardrail Post Details' Standard Drawings to provide openings in the pavement for the guardrail posts. Where pavement with a thickness greater than 8" or geologic rock is encountered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

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

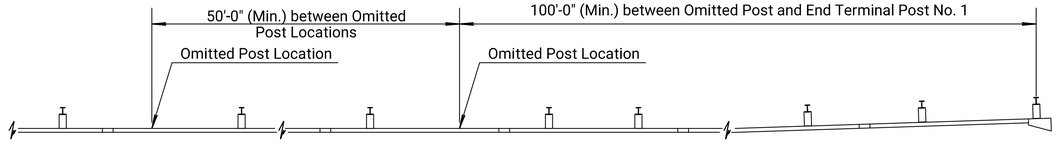
All work and materials required for guardrail end terminal installations are paid for under the bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.



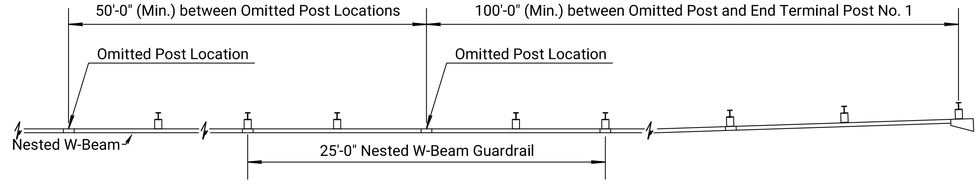
CGS TO MGS TRANSITION DETAILS (PLAN)



CGS TO MGS TRANSITION DETAILS (ELEVATION)



MGS OMITTED POST DETAIL



CGS OMITTED POST DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINALS

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

CONVENTIONAL GUARDRAIL SYSTEM (CGS) END TERMINALS

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

NO.	DATE	REVISIONS	BY	APP'D
2	9-5-18	ADD. OMITTED POST AND TRANS. DETAILS	A.L.R.	T.T.R.
1	6-5-18	INITIAL RELEASE	A.L.R.	T.T.R.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL AUXILIARY DETAILS

RD606

FHWA APPROVAL	9-25-18	APP'D.	SCOTT W. KING
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

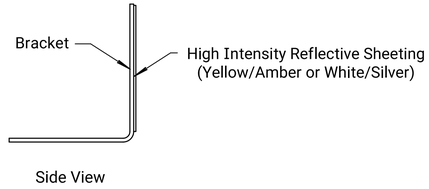
KDOT Graphics Certified 09-26-2018

KDOT Graphics Certified

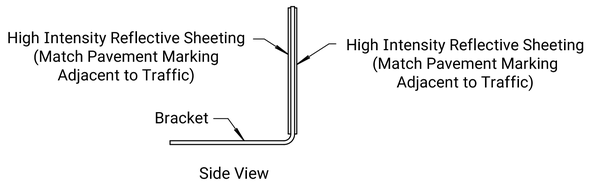
Note to Designer - Design guardrail installations using guidance shown on KDOT's 'Guardrail Typical Alignments' Standard Drawings. 'Flared' guardrail installations are preferred over 'Parallel' or 'Zero Flare' installations. Where 'Flared' or 'Parallel' installations are used, the flare rate of the guardrail 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.

Drawn By: ARLawrence Plotted 8/10/2021
File: M:\TRN\17-100-054-001\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\RD606-01.dgn

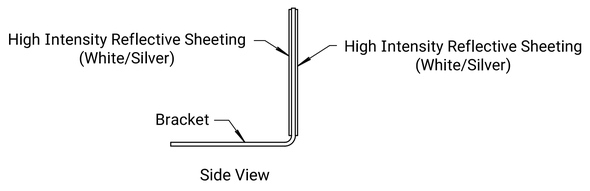
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	10	68



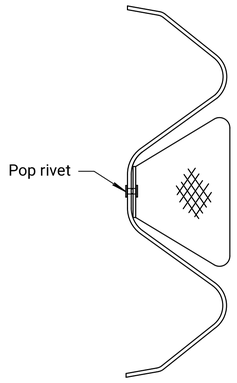
Flexible Marker
One-Way Traffic



Flexible Marker
Median Locations

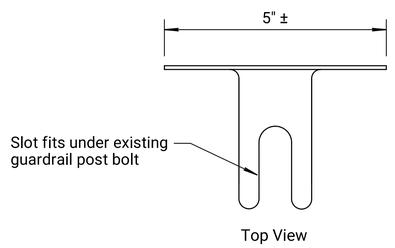


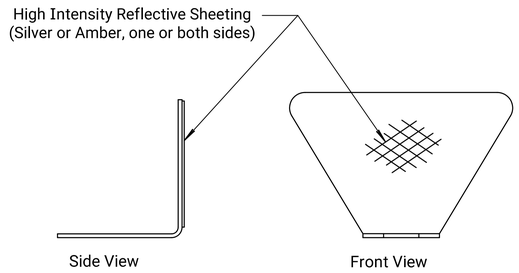
Flexible Marker
Two-Way Traffic



Typical Mounting on W-Beam

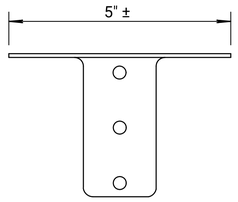
Pop rivet attachment to Guardrail when necessary.



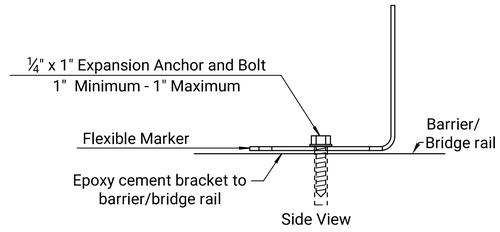


Flexible Guardrail Marker

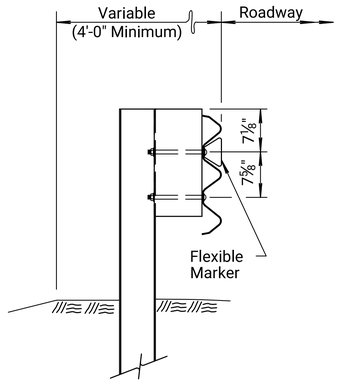
(High Impact Polycarbonate approx. .085" thick, 5¼" x 3")



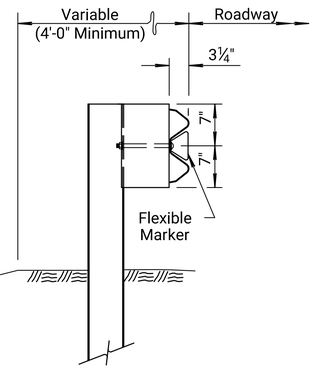
Barrier/Bridge Rail



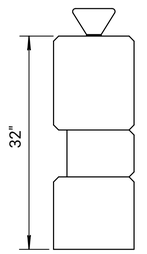
Method of Attaching Flexible
Marker to Barrier/Bridge Rail



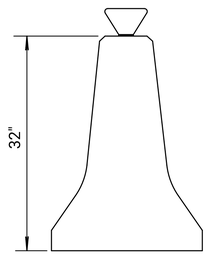
THRIE-BEAM GUARDRAIL



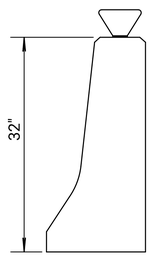
W-BEAM GUARDRAIL



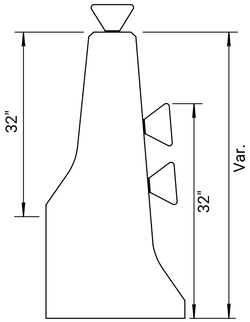
CORRAL RAIL



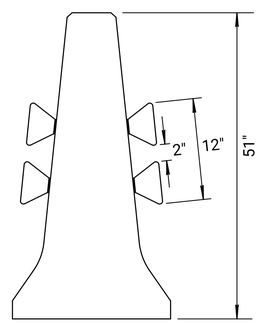
TYPE I CSB



TYPE II CSB or
F-SHAPED BRIDGE RAIL



TYPE III CSB



TYPE IV CSB

TYPICAL BARRIER/BRIDGE RAIL MOUNTING DETAILS

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
9	9-11-17	Rev. Det. Markers, Rev. Gen. Note	A.L.R.	S.W.K.
8	11-15-10	Revised notes	S.W.K.	J.O.B.
7	12-21-08	AKT marker or approved equal	S.W.K.	J.O.B.
6	3-10-09	Add. Flexible rem. Button deline	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MARKER DETAILS FOR GUARDRAIL,
BARRIER, AND BRIDGE RAILS

RD610

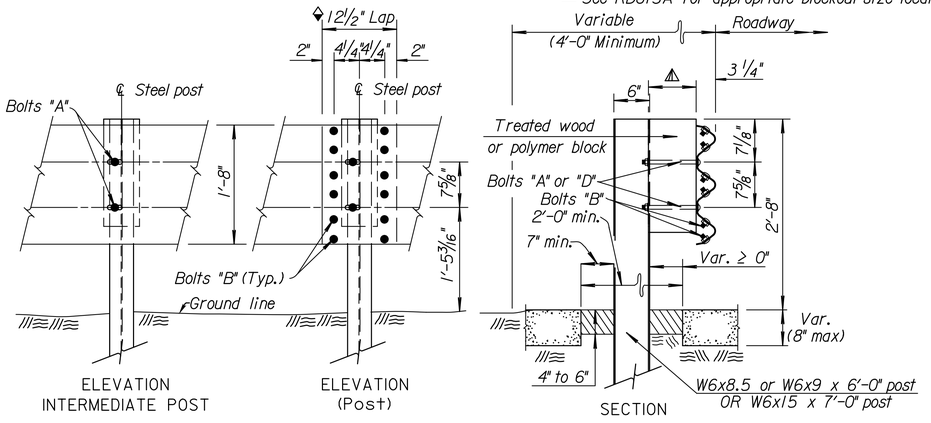
FHWA APPROVAL	3-15-18	APP'D. Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

Drawn By: : ARLawrence Plotted :8/10/2021
File : M:\TRN\17-100-054-001\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV1710005400rss610-01.dgn

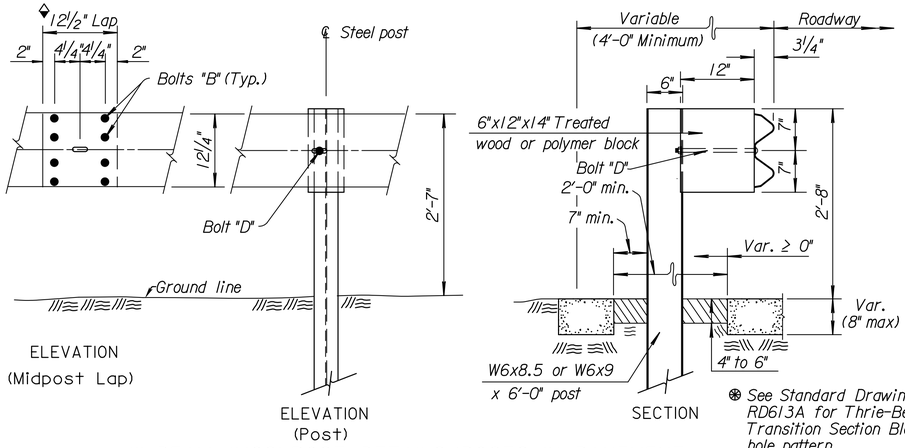
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	11	68

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

⚠ See RD613A for appropriate blockout size location.



THRIE BEAM POST DETAILS/POSTS IN PAVEMENT

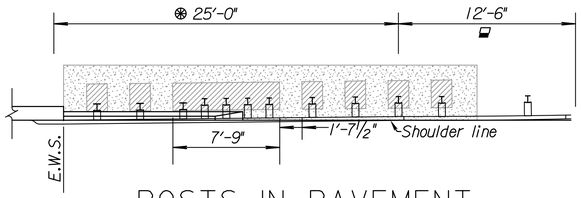


⊛ See Standard Drawing RD613A for Thrie-Beam Transition Section Blockout hole pattern.

✡ Non-Metallic (Polymer) or Treated Wood Block

🖳 See Guardrail Layout Sheets for Details.

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

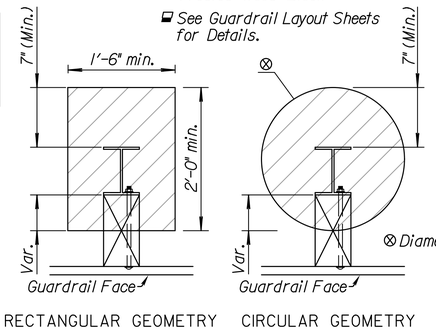


POSTS IN PAVEMENT

(Not to Scale)

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

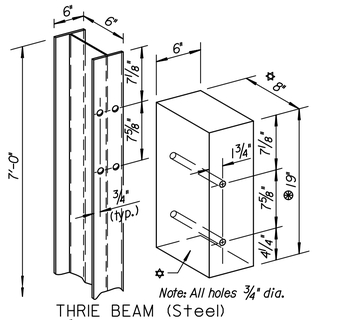
▨ Pavement (Concrete or Asphalt)



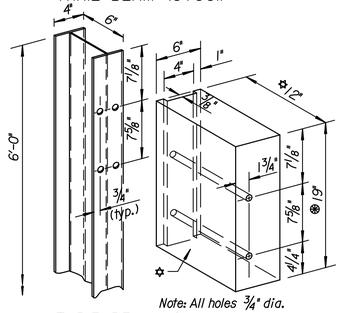
⊗ Diameter may vary from 1'-6" (min.) to 2'-0".

PLAN
(ALTERNATE GEOMETRIES)

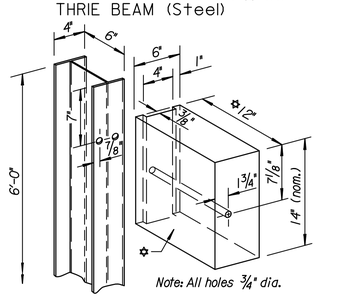
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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



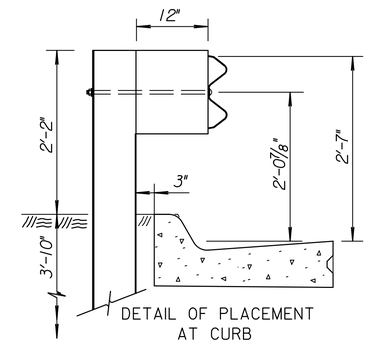
THRIE BEAM (Steel)



THRIE BEAM (Steel)

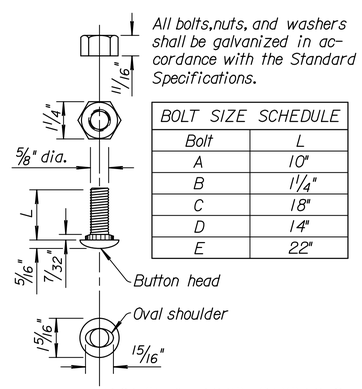


"W" BEAM (Steel)



DETAIL OF PLACEMENT AT CURB

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



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

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

BOLT & NUT DETAILS

GENERAL NOTES (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.

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

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

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

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

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

NO.	DATE	REVISIONS	BY	J.O.B.
5	9-24-15	Separated Steel/Wood Post Details	T.T.R.	S.W.K.
4	11-8-12	Revised Detail, Posts In Pavement	S.W.K.	J.O.B.
3	8-1-12	Revised Note to Designer	S.W.K.	J.O.B.
2	5-24-12	Revised Detail, Posts In Pavement	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST (STEEL) (MGS) DETAILS

RD611A

FHWA APPROVAL	1-29-16	APP'D. Scott. W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

KDOT Graphics Certified 12-12-2017

11

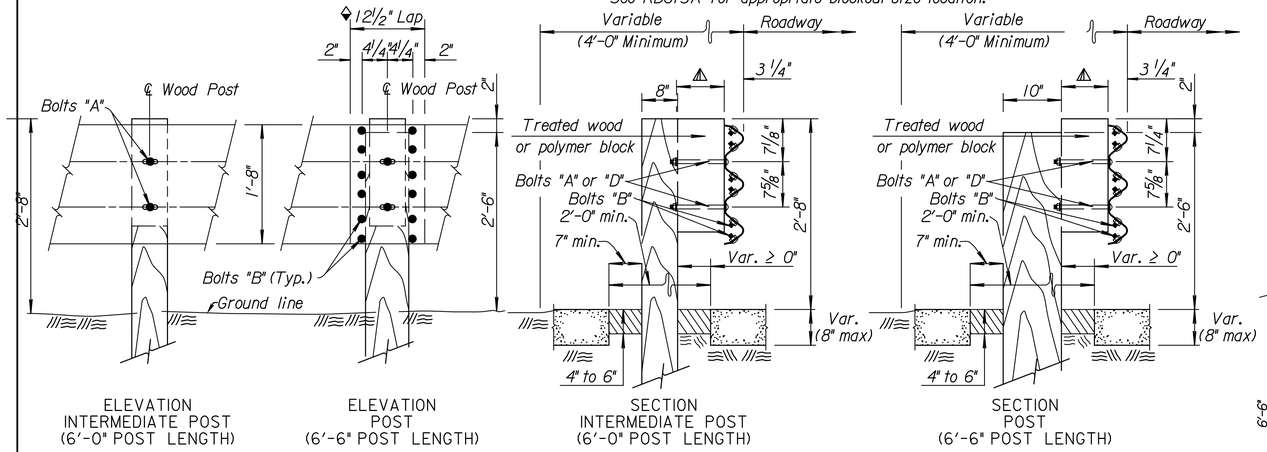
KDOT Graphics Certified

Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540rss611a-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	12	68

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

⚠ See RD613A for appropriate blockout size location.



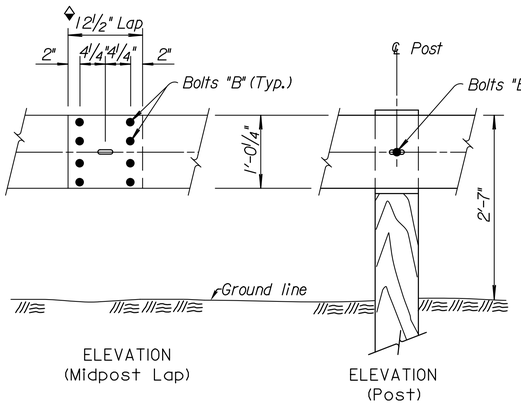
ELEVATION INTERMEDIATE POST (6'-0" POST LENGTH)

ELEVATION POST (6'-6" POST LENGTH)

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

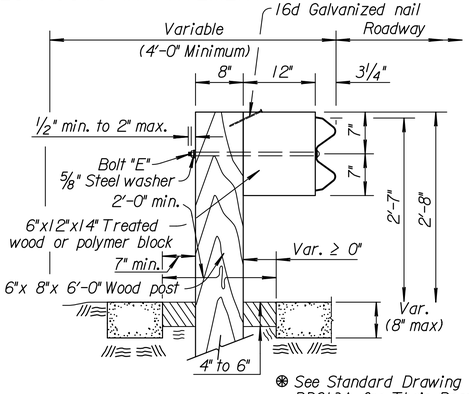
SECTION POST (6'-6" POST LENGTH)

THRIE BEAM POST DETAILS/POSTS IN PAVEMENT



ELEVATION (Midpost Lap)

ELEVATION (Post)



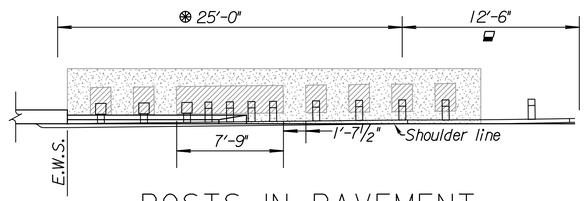
SECTION

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

✡ Non-Metallic (Polymer) or Treated Wood Block

▣ See Guardrail Layout Sheets for Details.

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



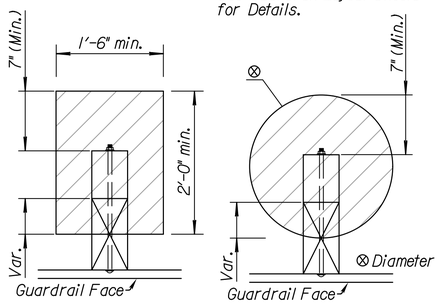
POSTS IN PAVEMENT

(Not to Scale)

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

□ Pavement (Concrete or Asphalt)

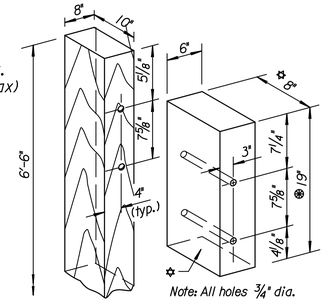
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor's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



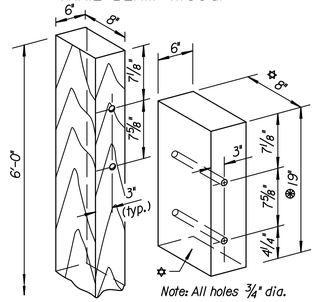
RECTANGULAR GEOMETRY

CIRCULAR GEOMETRY

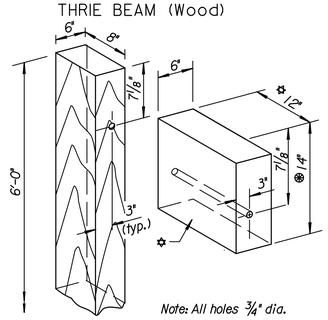
PLAN (ALTERNATE GEOMETRIES)



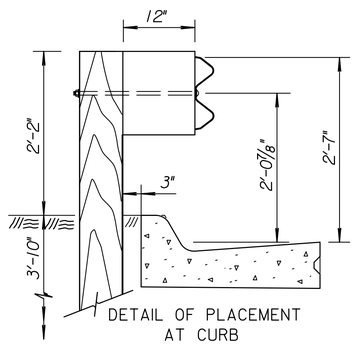
THRIE BEAM (Wood)



THRIE BEAM (Wood)

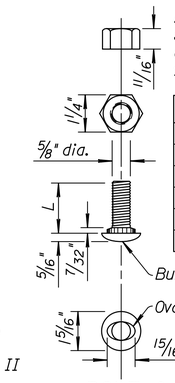


"W" BEAM (Wood)



DETAIL OF PLACEMENT AT CURB

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



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

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

BOLT & NUT DETAILS

GENERAL NOTES (Wood Posts)

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

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

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

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

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

All dimensions are nominal and are subject to manufacturing tolerances.

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

NO.	DATE	REVISIONS	BY	APP'D
4	9-24-15	Initial Release	T.T.R.	S.W.K.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST (WOOD) (MGS) DETAILS

RD611B

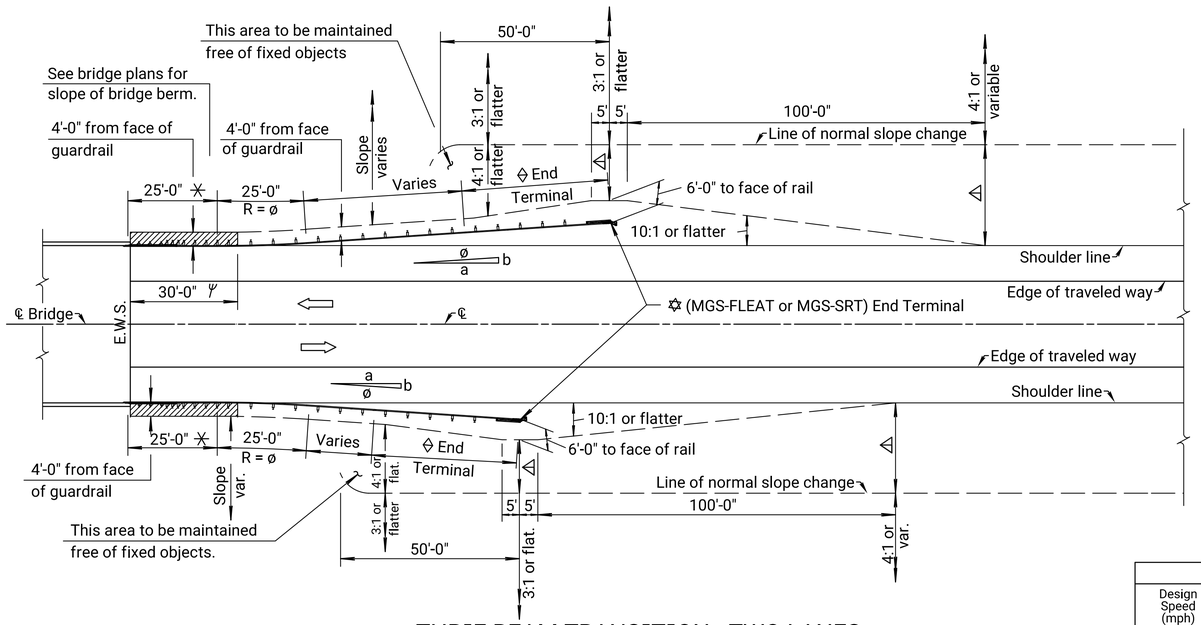
FHWA APPROVAL	1-29-16	APP'D. Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

KDOT Graphics Certified 12-12-2017

KDOT Graphics Certified

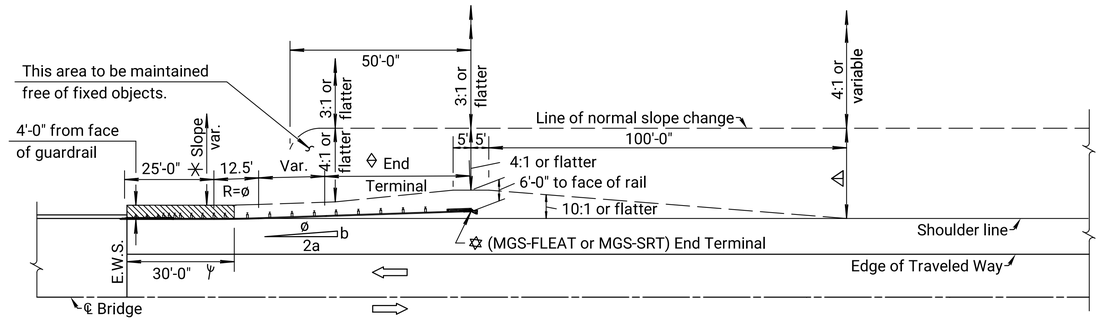
Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-0012_Disciplines_SHEETS\S3_Sheets - roadway\KDOT Standards\LV171000540Orss611b-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	13	68



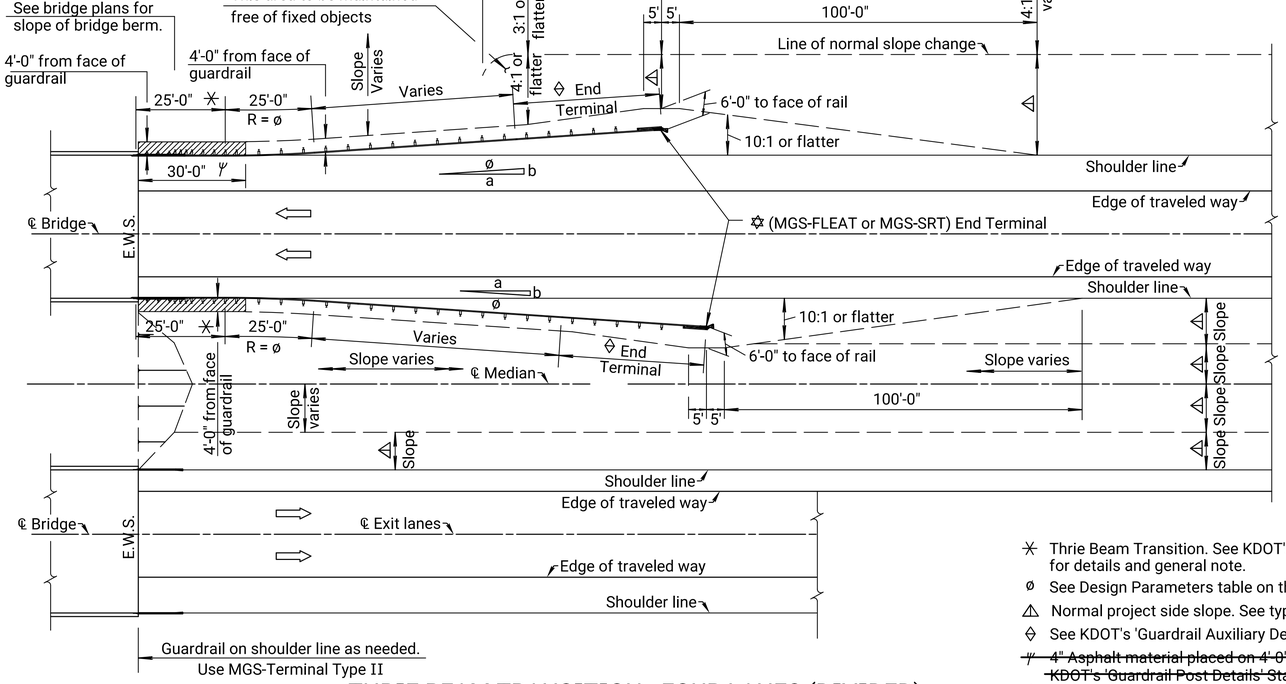
THRIE BEAM TRANSITION - TWO LANES

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



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

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



THRIE BEAM TRANSITION - FOUR LANES (DIVIDED)

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

NO.	DATE	REVISIONS	BY	APP'D
4	6-5-18	Removed Flare-beyond-the-Flare	A.L.R.	T.T.R.
3	5-15-17	Removed X-LITE	A.L.R.	S.W.K.
2	6-7-12	Revised Note to Designer	S.W.K.	J.O.B.
1	1-25-12	Revised Layout, End Term.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

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

~~RD612C~~

FHWA APPROVAL	6-19-18	APP'D.	SCOTT W. KING
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 07-18-2018

13

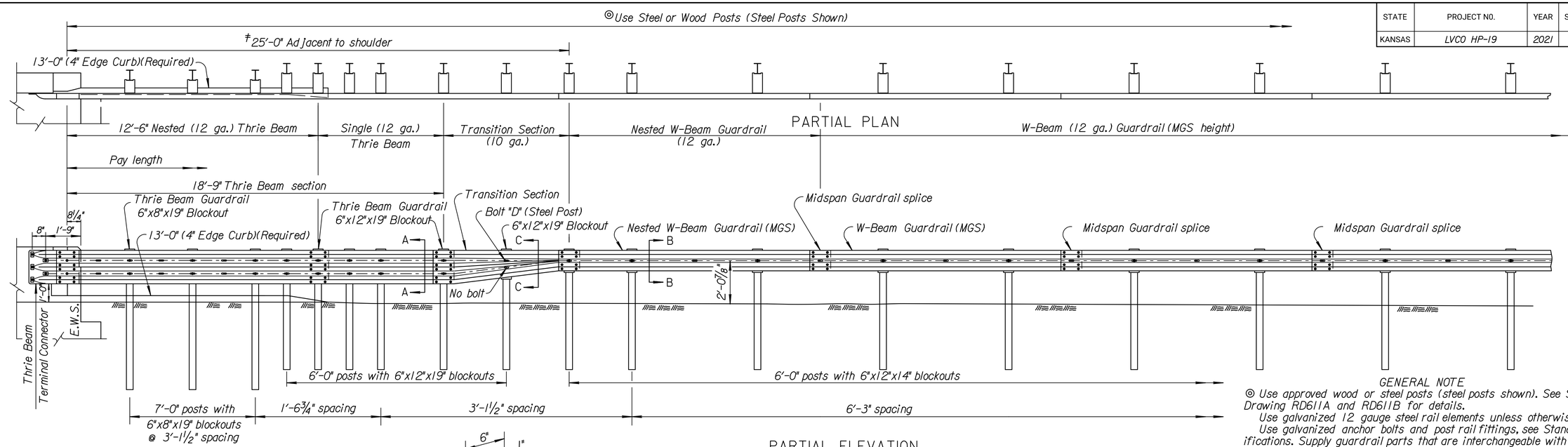
KDOT Graphics Certified

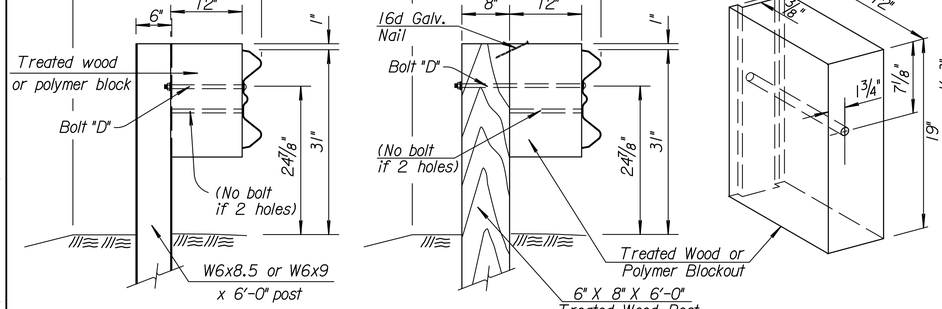
Notes to Designer: Determine guardrail length of need using either KDOT's Length of Need Equation or a graphic design approach with an L_1 distance measured from the edge of the area of concern to the P.I. of the curved guardrail section. Combine materials for asphalt widening in the plan quantities.

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

Drawn By: ARLawrence Plotted 8/10/2021
File : M:\TRN\17-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV17100054 00rss612c-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	14	68

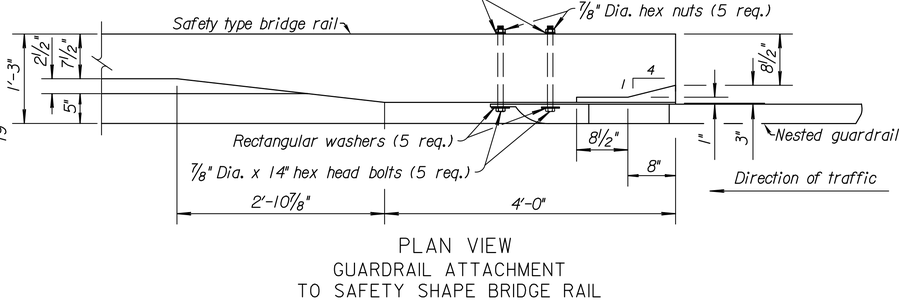




◎SECTION C-C (STEEL POST)

◎SECTION C-C (WOOD POST)

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



PLAN VIEW
GUARDRAIL ATTACHMENT
TO SAFETY SHAPE BRIDGE RAIL

GENERAL NOTE

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

Use galvanized 12 gauge steel rail elements unless otherwise noted.

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

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

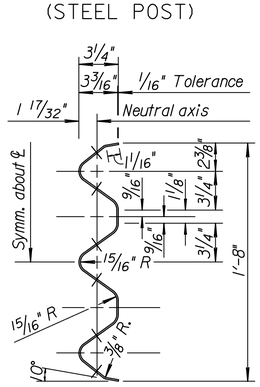
Fabricate Terminal Connector from 10 gauge steel, see Standard Specification. The connector has the same section as thrie beam guardrail. Terminal connector is Subsidiary to the bid item "Guardrail, Steel Plate (MGS)".

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

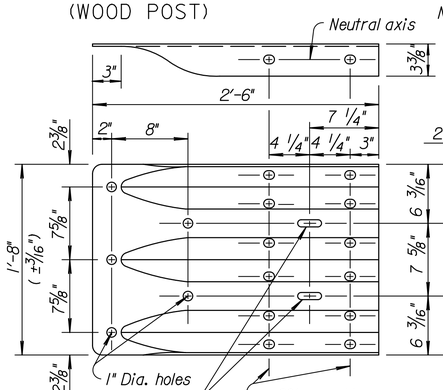
Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

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

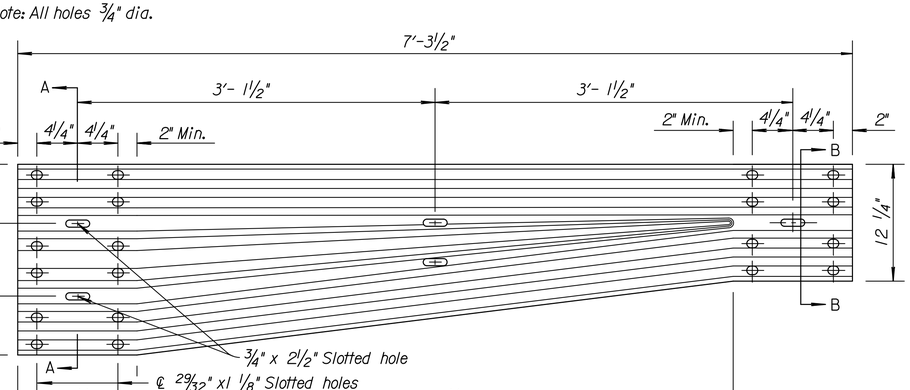
All material and work required for this construction is Subsidiary to the bid item "Guardrail, Steel Plate (MGS)".



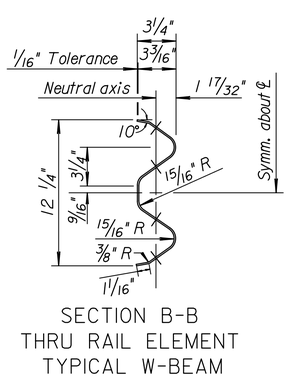
SECTION A-A
THRU RAIL ELEMENT
TYPICAL THRIE BEAM



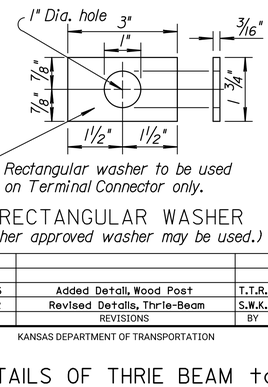
TERMINAL CONNECTOR
⊛ Optional 29/32" x 1¾" Slotted holes Rotated 50° (Typical) (12 req'd.)



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



SECTION B-B
THRU RAIL ELEMENT
TYPICAL W-BEAM



Rectangular washer to be used on Terminal Connector only.

RECTANGULAR WASHER
(Other approved washer may be used.)

NO.	DATE	REVISIONS	BY	APP'D
2	2-10-16	Added Detail, Wood Post	T.T.R.	S.W.K.
1	1-25-12	Revised Details, Thrie-Beam	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS OF THRIE BEAM to (MGS) GUARDRAIL TRANSITION

RD613A

FHWA APPROVAL	4-21-16	APP'D. SCOTT W. KING	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 11-28-2017

KDOT Graphics Certified

Drawn By : ARLawrence Plotted :8/10/2021
File : M:\TRN\17-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV1710005400rss613a-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	15	68

SUMMARY OF QUANTITIES

Item / Location	Excavation Class I Cu. Yds.	Excavation Class II Cu. Yds.	Concrete (Grade 4.0)(AE)(SA) Cu. Yds.	Concrete (Grade 4.0)(AE) Cu. Yds.	Reinforcing Steel (Grade 60)(Epoxy Coated) Lbs.	Reinforcing Steel (Grade 60) Lbs.	Prestressed Concrete Beam (NU53+2) Lin. Ft.	Structural Steel (A709)(Grade 36) Lbs.	*Piles (Steel) HP 12x53 Lin Ft.	*Piles (Steel) HP 12x74 Lin Ft.	Cast Steel Pile Points Each	Bridge Backwall Prot. System Sq. Yds.	Abutment Aggregate Drain Cu. Yds.	Bridge Deck Grooving Sq. Yds.	Slope Protection (Shot Rock) Cu. Yds.
Abutment No. 1	133		**	17.1	**				312		6	47	65		162
Pier No. 1		82		65.6	450	5,090				510	10				
Pier No. 2		82		65.6	450	5,090				510	10				
Abutment No. 2	133		**	17.1	**				312		6	47	65		162
Substr. Total	266	164		165.4	900	10,180			624	1020	32	94	130		324
Superstr. Total			421.5		110,760		1,196	8,412						941	
Total	266	164	421.5	165.4	111,660	10,180	1,196	8,412	† 624	† 1,020	32	94	130	941	324

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

† Summary of Piling
Abutment No. 1 — 6 @ 52 ft.
Pier No. 1 — 10 @ 51 ft.
Pier No. 2 — 10 @ 51 ft.
Abutment No. 2 — 6 @ 52 ft.

INDEX OF BRIDGE DRAWINGS

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling.

BRIDGE EXCAVATION: Elevation 852.24 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: Backfill compaction shall be required at abutments and piers.

PILING: Drive all piling to penetrate or bear upon the shale bedrock. 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	97 Tons
Pier No. 1	142 Tons
Pier No. 2	142 Tons
Abutment No. 2	97 Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load. At any location where problems are experienced, pile damage is suspected, or the Pile Driving Formula Load occurs significantly above the design pile tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for, Abutments 1 & 2 and Piers 1 & 2 will follow the "Standard Pile Details" Sheet (BRI10).

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0)(AE)(SA). Substructure concrete is bid as Concrete (Grade 4.0)(AE). If desired, the Contractor may use Concrete (Grade 4.0) in the footings and in the abutments below the construction joint. Bevel all exposed edges of all concrete with a "triangular molding, except where noted on the plans. Construction joints are optional, but if used, place only at locations shown, or at locations approved by the Engineer.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or AASHTO M32, and are included in the bid item "Reinforcing Steel (Gr. 60)".

REINFORCING STEEL: Where noncoated bars come in contact with epoxy coated bars, they need not be coated.

PRESTRESSED BEAM CONCRETE: Use air entrained concrete with select course aggregate as specified in the KDOT Specifications. The release strength and 28 day strength requirements shall be as noted on the plans. Submit mix designs to the Engineer for approval.

ERECTION ELEVATION CHECKS: After the abutment and pier concrete has cured and before setting any prestressed beams, present verification to the Engineer that the elevations at the bearings match plan elevation (± 1/4").

GENERAL NOTES

CAMBER: Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected measure the camber in the field by taking a profile of each beam. Correct any variation between the actual camber and concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the beam so that the finished floor is constructed to the theoretical grade. The minimum depth of the slab over the beam shall be 9½" inches.

The theoretical amount of concrete required for the fillets is 20.5 Cu. Yds. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

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

ABUTMENT AGGREGATE DRAIN: See the General Notes on the "Abutment Aggregate Drain" sheet.

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

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

REMOVAL OF EXISTING STRUCTURE: The Contractor shall remove the existing 281'-4" (88'-4" - 102'-8" - 88'-4") steel beam bridge with a concrete deck (23'-10" Roadway) Br. No. 0000000005201l0. The existing structure may contain lead paint. All materials of the existing structure shall become property of the contractor and be removed from the site.

SLOPE PROTECTION (Shot Rock): Place Slope Protection (Shot Rock) to the limits and thicknesses shown on the plans or as directed by the Engineer.

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

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

ERECTION PLANS: This is a Category A Structure. Submit detailed Erection Plans to the Field Engineer per KDOT Specifications. A Licensed Professional Engineer is not required.

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.

* NOTE: Only steel pile HP12X53 & HP12X74 shall be used on this project.

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

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 Cu. Yds./h, the plant capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures, shall be at the Contractor's expense and shall be considered subsidiary to the bid item, "Concrete (Grade 4.0)(AE)(SA)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck.

Place and hand vibrate all concrete for the pier diaphragms and the abutments above the construction joints to the bottom of the deck just prior to the normal paving train operations. Do this work in a manner to avoid a cold joint in either the abutments or in the diaphragms.

PLACING SEQUENCE: The Contractor will adhere to the placing direction/sequence shown on the plans. Changes will be accepted only if the Contractor's Engineer adjusts the deflection diagram so that the Contractor can adjust the fillet depth [and Headed Stud Anchor heights] accordingly. This revised diagram will be approved by the design Engineer prior to deck forming.

CONSTRUCTION LOADS: Limited traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

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.

DESIGN DATA

DESIGN SPECIFICATIONS:
AASHTO Specifications, 2016 Edition and latest Interim Specifications. Load and Resistance Factor Design.

DESIGN LOADING:
HL-93

Design Dead Load includes an allowance of 15 psf for a future wearing surface.

UNIT STRESSES:

Concrete (Grade 4.0)	f'c =	4 ksi
Concrete (Grade 4.0)(AE)	f'c =	4 ksi
Concrete (Grade 4.0)(AE)(SA)	f'c =	4 ksi
Prestressed Beam Concrete	f'c =	9 ksi
Reinforcing Steel (Grade 60)	fy =	60 ksi
Structural Steel (A709 Grade 36)	fy =	36 ksi
Steel Pile	fy =	50 ksi
Prestressed Strand		0.6" ø Grade 270 uncoated 7-wire, low relaxation strand.

LRFD DESIGN PILE LOAD:

Design Loading	(Tons/Pile)	Strength	Service	Phi
Abutment	No. 1 & 2	97	70	0.5
Piers	No. 1 & 2	142	103	0.5

CAUSEWAY: If the Contractor chooses to build a causeway for bridge construction purposes, the Contractor shall obtain any required U.S. Army Corps of Engineer Section 404 Permit, Kansas State Board of Agriculture Permit, Kansas Department of Health and Environment Section 401 Permit, Kansas Department of Wildlife Parks and Tourism Permit, or any other permit required by law for causeway construction. Obtain the permits in a timely manner as not to delay the completion of the project.

LFD & LRFR RATING FACTORS			
Truck \ Rating Level		Inventory	Operating
HS-20	(36T)	1.33	2.68
Type HET	(110T)		1.24
2002 LFD Rating, 17th Edition AASHTO			
HL-93 Loading		1.12	1.55
2018 Manual for Bridge Evaluation			

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 0000000052Bll0 Sta. 106+50.00
GENERAL NOTES, QUANTITIES, & INDEX
MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

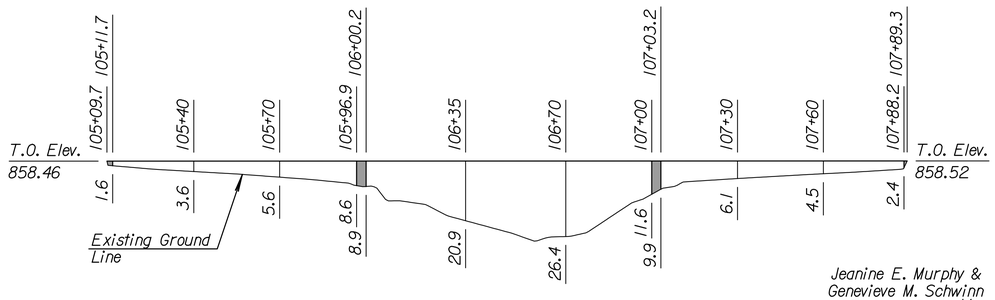
SHEET NO.	OF	SCALE		APP'D			
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.	CADD	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.	CADD CK.	J.M.K.

Plotted By: ARLawrence | Plot Location:
File: M:\TRNV17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002bbr-01.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	16	68

P.O.T. ℄ Sta. 100+00.00
N 334,886.218 E 2,144,603.968
1. Not Set

P.O.T. ℄ Sta. 113+00.00
N 334,923.606 E 2,145,903.430
1. Not Set



EXISTING WATERWAY OPENING

Existing Br. No. 0000000005201 10
Total Waterway Area = 2851 Sq. Ft.
(Looking Upstream)

Scale: 1"=50'

Jeanine E. Murphy &
Genevieve M. Schwinn
SE Cor. of SW 1/4
Sec. 34, T9S, R21E

Samuel A. & Rebecca Murphy Jr.
SW Cor. of SE 1/4
Sec. 34, T9S, R21E

Sec. Line

STRANGER CREEK

Sta. 106+50.00 Const.
Br. No. 00000000052B110
90'-120'-90' PBMC
32' Roadway

Exist. R/W
2 Wires
℄ Proposed Improvement
Const. Limits
BM #10
BM #12
BM #11
MCINTYRE RD.
POT +00.00
100
105
110
860
850
840

+25 ℄ 208th St.

+25 ℄ Field Entrance
W = 14'

Sta. 106+50.00 Remove
Br. No. 00000000520110
88'-102.5'-88' SBMC
20' Roadway

UTILITY OWNERS

Electric: Westar Energy
2720 2nd Ave.
Leavenworth, KS 66040
Jon Ham
(913) 758-2724

Herbert T. Schwinn Sr. &
Herbert T. Schwinn Jr.
NE Cor. of NW 1/4
Sec. 3, T10S, R21E

Herbert T. Schwinn Sr. &
Herbert T. Schwinn Jr.
NE Cor. of NW 1/4
Sec. 3, T10S, R21E

Charles D. & Mary J. Luse
NW Cor. of NE 1/4
Sec. 3, T10S, R21E

SW Cor. Sec. 34, T9S, R21E
N 334,831.397 E 2,142,801.221
1. Found exist. mag nail over 1" bar
2. Cor. is S 88°10'7" W 2641.23' from S 1/4 Cor. Sec. 34, T9S, R21E
3. PK nail in top of fence cor. post 39.60' NW
4. 60d nail in top of fence cor. post 44.90' SW
5. 60d nail in E. face of PP 75.20' WNW

BM #10 - WCI BM T Post
16.08' Lt. of ℄ Sta. 103+26.68 Elev. = 862.84

S 1/4 Cor. Sec. 34, T9S, R21E
N 334,915.806 E 2,145,441.102
1. Found exist. bar & plastic cap
2. 5.5' Lt. (North) of ℄ Sta. 108+37.64 SE∡ = 1°43'15"
3. NE cor. of wall 40.30' NW
4. "+" cut top of wall 40.30' NW
5. "+" cut top of wall 43.80' SW

BM #11 - WCI BM square cut in conc.
17.29' Rt. of ℄ Sta. 105+00.20 Elev. = 865.40

S 1/4 Cor. Sec. 3, T10S, R21E
N 329,673.440 E 2,145,598.598
1. Found exist. bar 1/2" rebar
2. 5,239.23' Rt. (South) of ℄ Sta. 108+37.65 SE∡ = 1°43'15"
3. Set 60d & washer in top of brace post 61.60' NW
4. Spike & washer in top of fence post 83.30' SW
5. Spike & washer in N face of PP 66.00' SE

BM #12 - WCI BM square cut in conc.
19.35' Lt. of ℄ Sta. 108+00.11 Elev. = 865.39

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 00000000052B110 Sta. 106+50.00

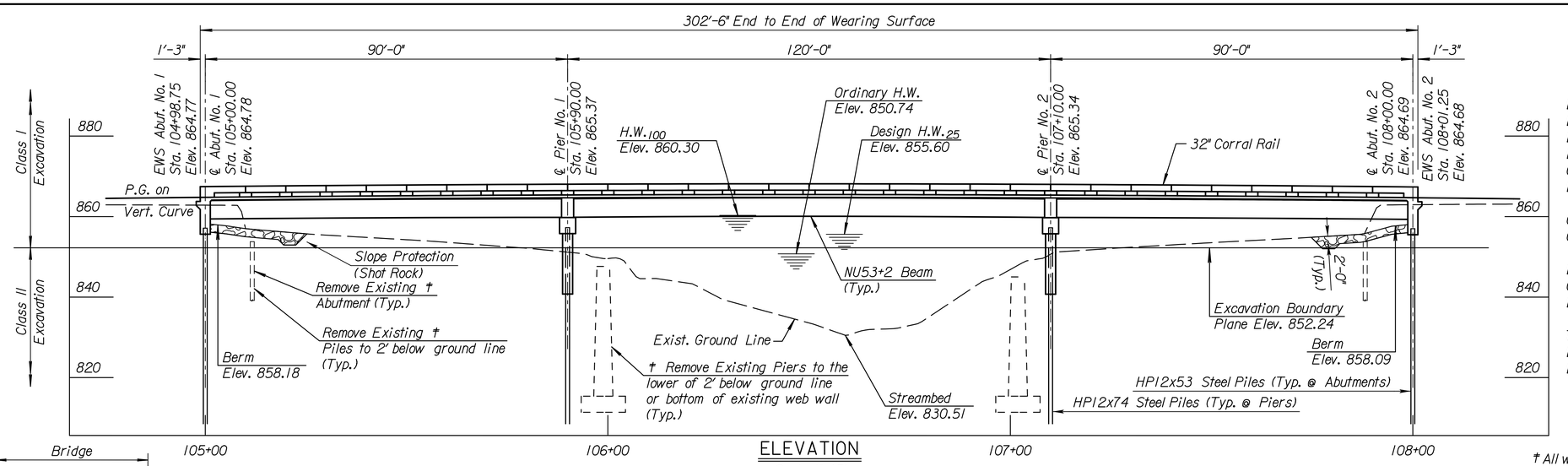
CONTOUR MAP

MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

SHEET NO. OF	SCALE	APP'D
DESIGNED W.A.O.	DETAILED W.A.O.	QUANTITIES W.A.O.	CADD W.A.O.
DESIGN CK. J.M.K.	DETAIL CK. J.M.K.	QUAN. CK. J.M.K.	CADD CK. J.M.K.

Plotted By: ARLawrence | Plot Location:
File: M:\TRN\7-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\LV1710005400br-02.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	17	68



ELEVATION

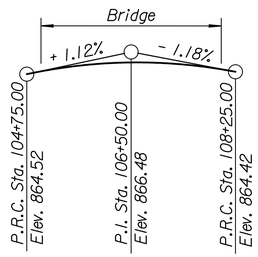
Scale: 1"=15'

90'-120'-90' Continuous Prestressed Concrete Beam Spans (PBMC)
Pile Bent Abutments and Piers
32'-0" Roadway

DRAINAGE DATA

Drainage Area	Approx. 354	Sq. Mi.
Design Frequency	25	Yr.
Design Discharge (Q_{25})	20,735	cfs
Design High Water Elevation	855.60	
Change in Design Backwater	-1.18	ft.
Design Backwater Elevation	859.10	
Overtopping Elevation (Sta. 47+08.99)	859.00	
Overtopping Frequency	50+	Yr.
Discharge At Q_{100}	37,446	cfs
Change in Backwater At Q_{100}	-1.40	ft.
Backwater Elevation at Q_{100}	861.72	
Total Waterway Provided	3,064.40	Sq. Ft.
Design Waterway Provided	2,076.18	Sq. Ft.
Estimated Ordinary High Water Discharge	6,170	cfs

† All work to remove the foundations shall be subsidiary to "Removal of Existing Structure".



VERTICAL CURVE DATA

350' Vertical Curve

BM #11 - WCI BM square cut in conc.
17.29' Rt. of ℄ Sta. 105+00.20 Elev. = 865.40

BM #12 - WCI BM square cut in conc.
19.35' Lt. of ℄ Sta. 108+00.11 Elev. = 865.39

PLAN

Scale: 1"=15'

* See Road Cross-Sections for transition to normal road cross section.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000052B110 Sta. 106+50.00

CONSTRUCTION LAYOUT

MCINTYRE ROAD OVER STRANGER CREEK

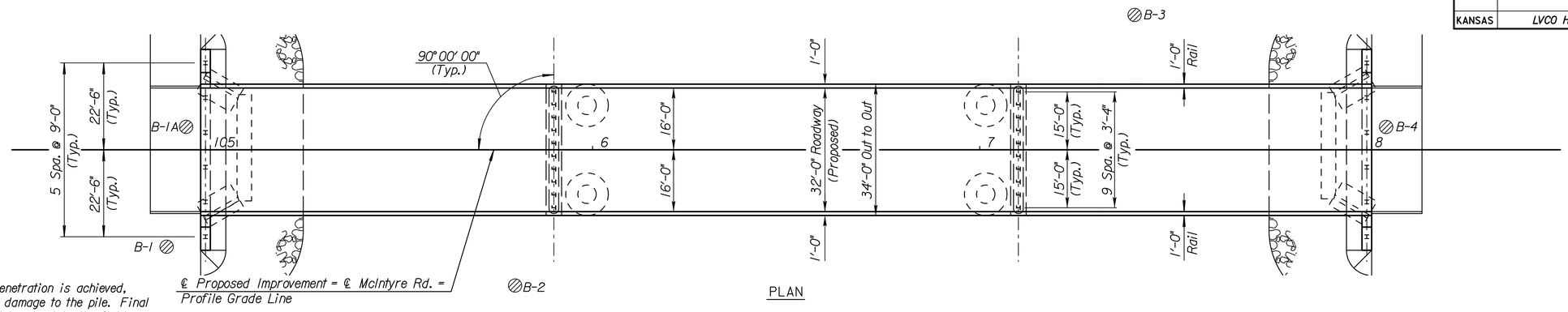
Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.	CADD	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.	CADD CK.	J.M.K.

Sh. No. 17

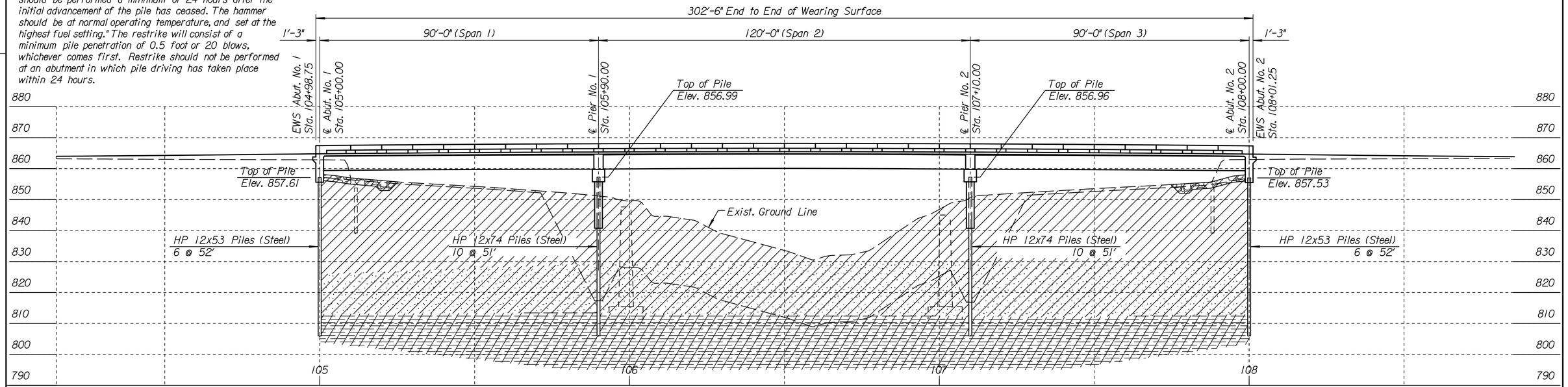
Plotted By: ARLawrence | Plot Location:
File: M:\TRNT\7-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV\7100054002br-03.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	18	68



PLAN

Pile Notes:
Once sufficient bearing and penetration is achieved, driving should cease to avoid damage to the pile. Final pile tip elevations should be determined in the field based on force calculations. If a pile does not reach bearing at the recommended elevation as determined by the Pile Driving Analyzer, the driving should cease and a restrike be preformed per Standard Specification subsection 704.3e using the following note: "All restrikes should be performed a minimum of 24 hours after the initial advancement of the pile has ceased. The hammer should be at normal operating temperature, and set at the highest fuel setting." The restrike will consist of a minimum pile penetration of 0.5 foot or 20 blows, whichever comes first. Restrike should not be performed at an abutment in which pile driving has taken place within 24 hours.



STANDARD GEOLOGIC SYMBOLS

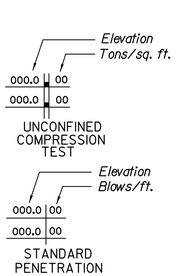
- Clay or Underclay
- Caliche
- Weathered Shale
- Limestone
- Mortar bed
- Silty Clay
- Silty Clayey Shale
- Sandstone
- Cherty Limestone
- Coal
- Silt
- Limy Shale
- Shaly Sandstone
- Shaly Limestone
- Siltstone
- Sand
- Black or Fissile Shale
- Gypsum bed
- Sandy Limestone
- Chalk
- Gravel
- Sandy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

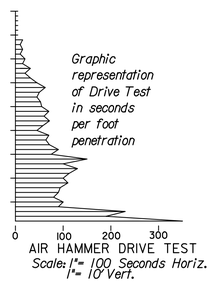
SOUNDINGS

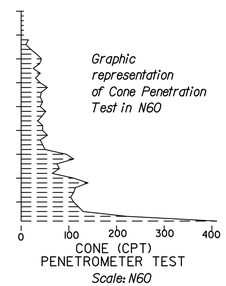
- Core drill
- Power auger
- Hand tools
- Air hammer
- Cone (CPT) penetrometer
- Shelby tube
- Water level

GEOLOGIC PROFILE

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







NOTE: Soundings shown on these plans are taken from notes obtained in the field and represent the best information available. Logs of these soundings are provided with the bid documents, or are available from the Kansas Department of Transportation in Topeka for inspection by interested and qualified bidders.

SCALE: 1"= 15' Horiz. 1"= 15' Vert.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 00000000052B110 Stkg. 106+50.00

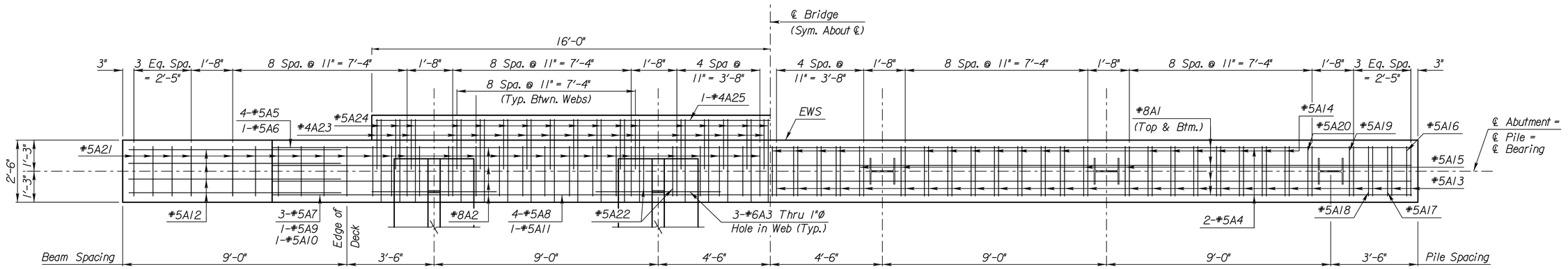
ENGINEERING GEOLOGY

MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

SHEET NO. OF	SCALE	APP'D
DESIGNED W.A.O.	DETAILED W.A.O.	QUANTITIES W.A.O. CADD W.A.O.
DESIGN CK. J.M.K.	DETAIL CK. J.M.K.	QUAN. CK. J.M.K. CADD CK. J.M.K.

Plotted By: ARLawrence Plot Location:
File: M:\TRNT-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\LVI7100054400bbr-04.dgn
Plot Date: 8/10/2021

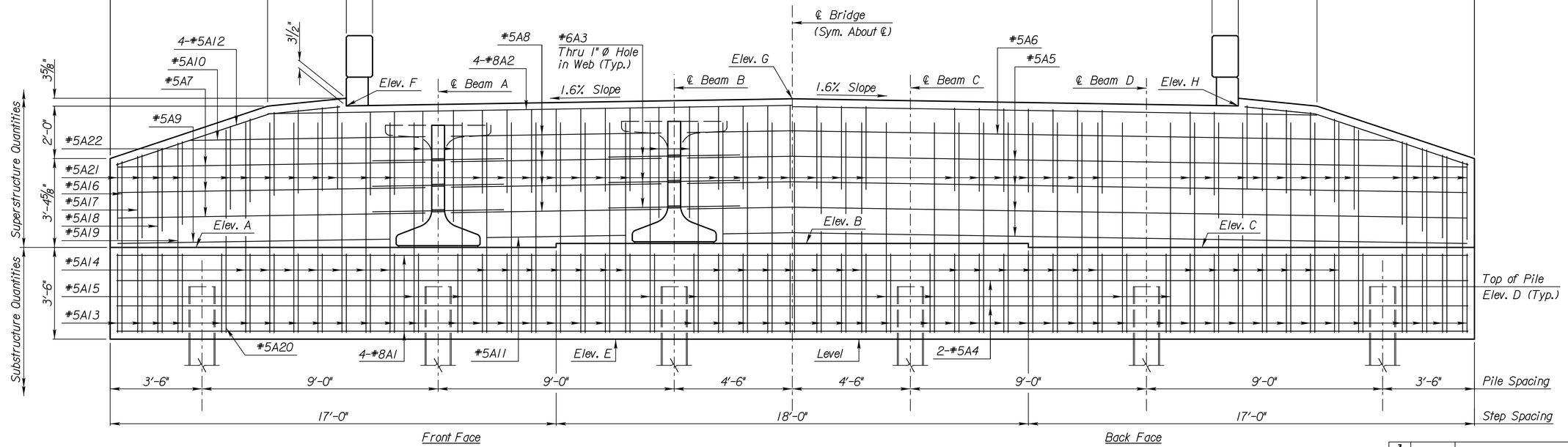
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	19	68



Reinforcing Steel in Top of Abutment

Reinforcing Steel in Bottom of Abutment

PLAN



Front Face

Back Face

ELEVATION
(Looking Forward with Stationing)

TABLE OF ABUTMENT ELEVATIONS								
LOCATION	A	B	C	D	E	F	G	H
Abut. No. 1	859.11	859.26	859.11	857.61	855.61	864.51	864.78	864.51
Abut. No. 2	859.03	859.17	859.03	857.53	855.53	864.42	864.69	864.42

Notes:
Elevations are given at ℄ Brg. Abut.
Top of Pile Elevations is based on 2'-0" Embeddement
EWS denotes End of Wearing Surface

ABUTMENT PILE LOADING (LRFD)

Maximum Factored Design Pile Load (Strength I) = 97 tons/pile
Factored Resistance of Pile = 190 tons/pile
Phi = 0.50
Use HP 12x53 Gr. 50 Steel Piles

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 00000000052B110 Sta. 106+50.00

ABUTMENT DETAILS

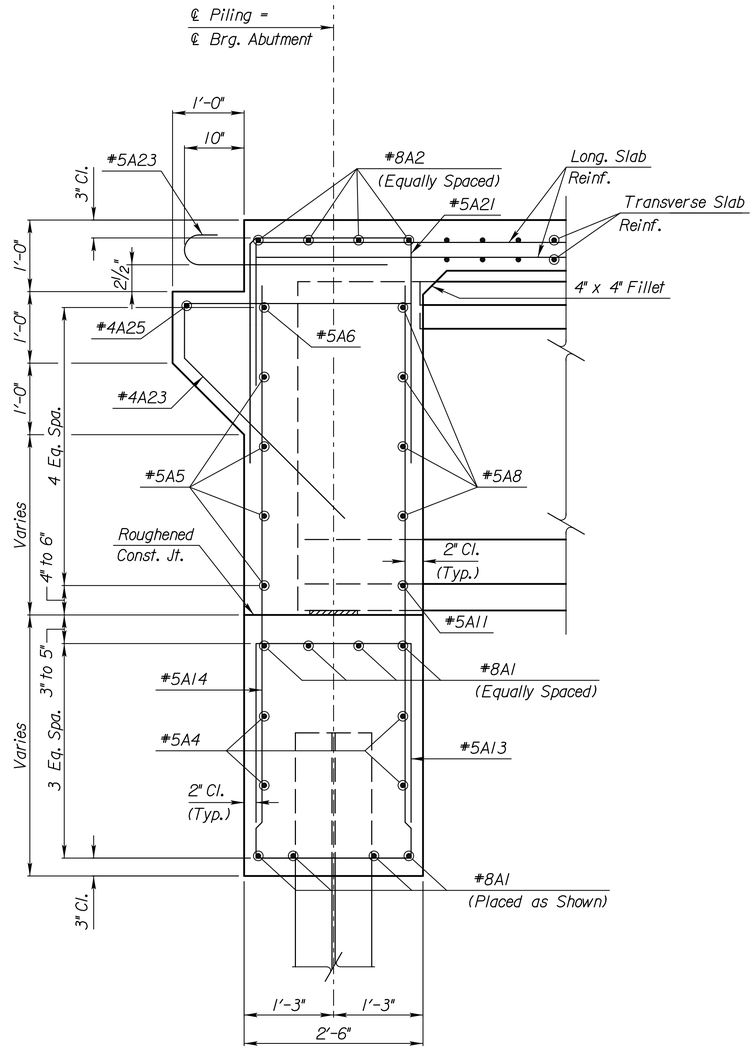
MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D	
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.
CADD	W.A.O.	CADD CK.	J.M.K.		

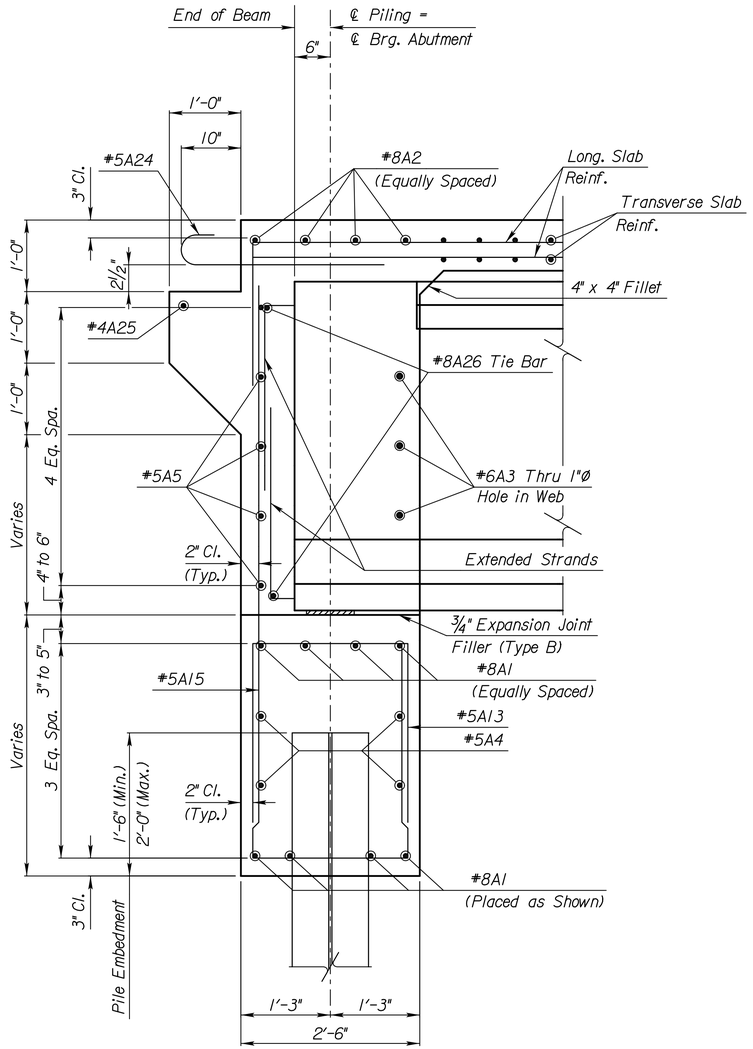
Sh. No. 19

Plotted By: ARLawrence | Plot Location:
File: M:\TRN\7-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV\7100054002bbr-05.dgn
Plot Date: 8/10/2021

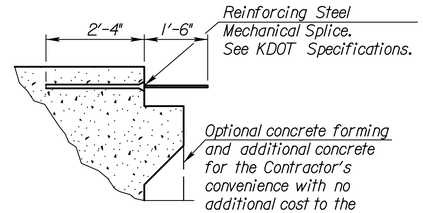
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	20	68



TYPICAL SECTION BETWEEN BEAMS



TYPICAL SECTION AT BEAMS



APPROACH SLAB TIE BAR OPTION

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000052B110 Sta. 106+50.00

AUXILLIARY ABUTMENT DETAILS

MCINTYRE ROAD OVER STRANGER CREEK

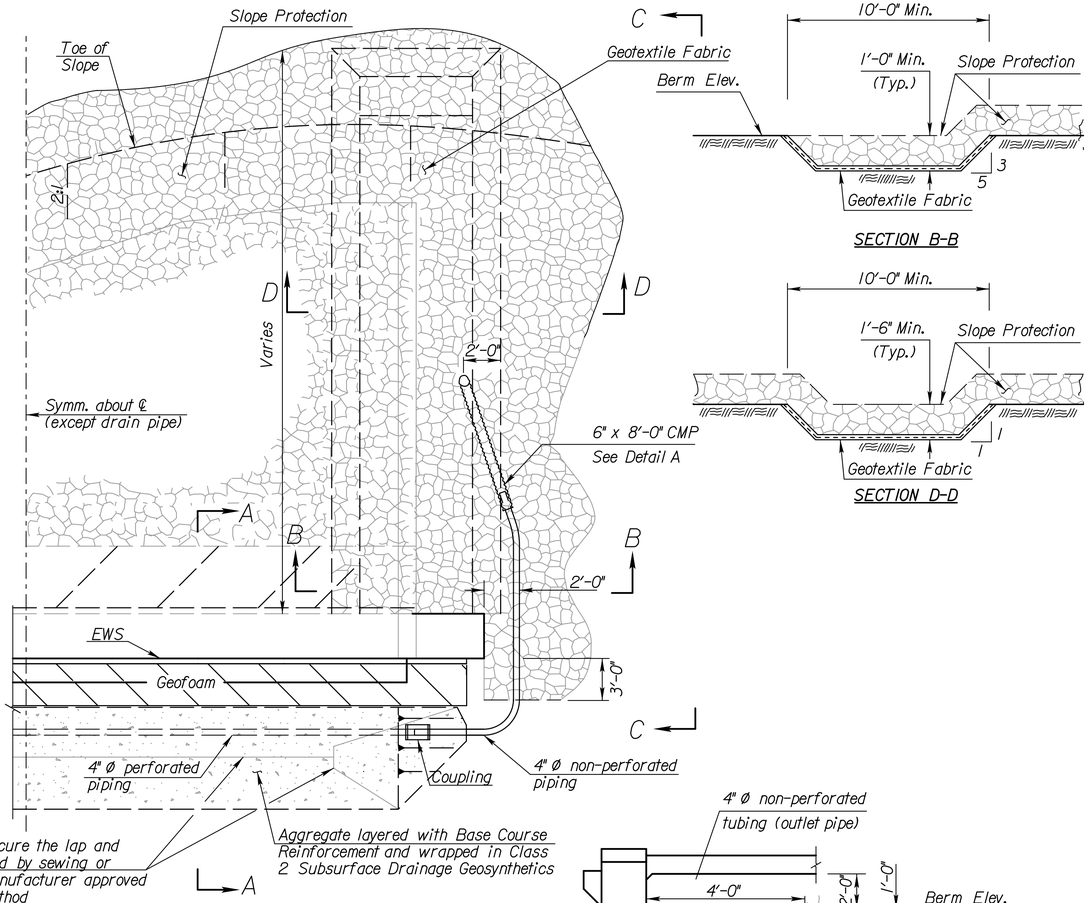
Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D					
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.	CADD		W.A.O.	
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.	CADD CK.		J.M.K.	

Sh. No. 20

Plotted By: ARLawrence | Plot Location:
File: MATRAN17-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\LV17I0005400bbr-06.dgn
Plot Date: 8/10/2021

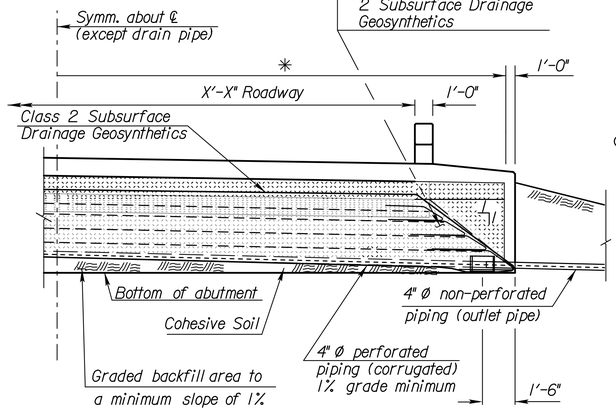
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	21	68



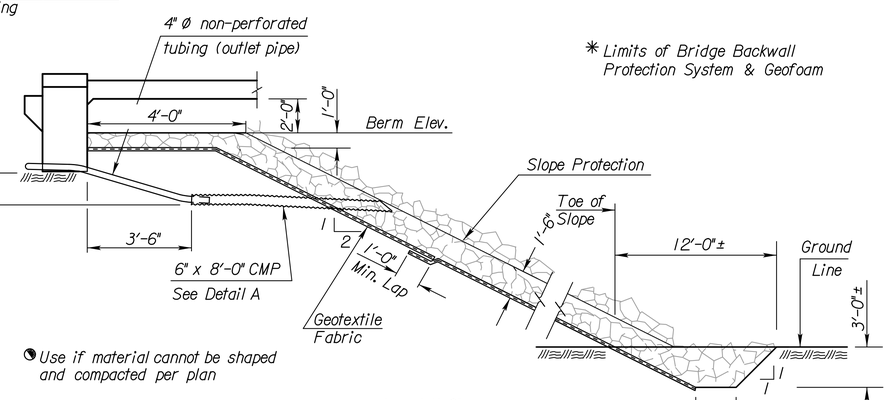
PLAN

SECTION B-B

SECTION D-D



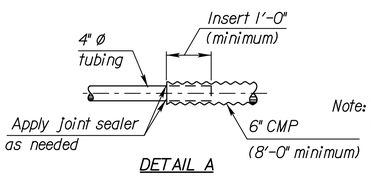
ELEVATION



* Limits of Bridge Backwall Protection System & Geofoam

SECTION C-C

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



DETAIL A

Note: Place the CMP flowline 1'-0" above ditch flowline, toe of sideslope, or as shown on the Construction Layout. For stream crossings place outlet on downstream side of bridge.

Use if material cannot be shaped and compacted per plan

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the top can be overlapped and the end folded to completely enclose the aggregate drain. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to back fill to the elevation and shape shown. Lap the top of the fabric a minimum of 3'-0", fold and wrap the ends to enclose the drainage materials. Secure the folds and wraps by sewing or approved methods.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the back wall protection using materials recommended by the manufacturer.

GEOTEXTILE FABRIC: Use "Geotextile Fabric" that conforms with KDOT Specification 1710 and found on the Prequalified Materials List.

SOIL CAP: The soil will have a Unified Soil Classification of CL or ML according to ASTM D2487. Compact to Type A, MR-90.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation Sheet. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Guide post and coarse aggregate are subsidiary to this bid item. Guide post and coarse aggregate are not required if the CMP empties onto Slope Protection. Enclose the entire Abutment Aggregate Drain with the geotextile

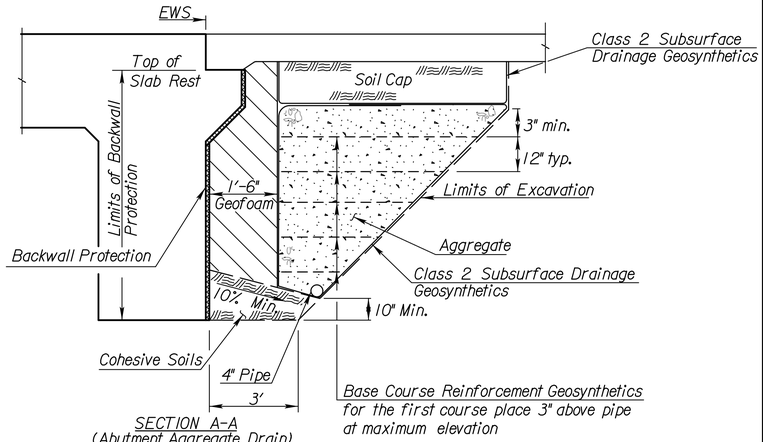
BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protective System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the County.

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 1/4" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place Coarse aggregate at the outlet end as shown.

COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487. Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met add and mix Bentonite, to the soil prior to placement and compaction so that the PI≥ 13.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ℄

SUMMARY OF QUANTITIES (2 Abutments)		
Abutment Aggregate Drain	130	Cu. Yds.
Bridge Backwall Protection System	94	Sq. Yds.
Items subsidiary to Abutment Aggregate Drain		
4" ø Perforated Pipe	100	Lin. Ft.
4" ø Outlet Pipe	28	Lin. Ft.
6" ø CMP	16	Lin. Ft.
Guide Post	2	Each
Soil Cap	36.6	Cu. Yds.
Geosynthetics (Class 2 Subsurface Drainage)	162	Sq. Yds.
Geosynthetics (Base Course Reinforcement)	234	Sq. Yds.
Geofoam	28	Cu. Yds.
Items subsidiary to Slope Protection		
Geotextile Fabric		Sq. Yds.

NO.	DATE	REVISIONS	BY	APP'D
7	12/11/18	Corrected std. base file name	MLL	JPJ
6	2/4/15	Modified Per 2015 Specification	JPJ	CER
5	11/18/14	Removed SB-3	JPJ	CER
4	4/7/14	Current Release	JPJ	CER
3	2/12/14	Geofoam Type Change Added Benchmark	JPJ	CER
2	8/20/13	Geofoam Dimension Change	JPJ	TLF
1	7/23/12	Added Soil Cap to Summary	JPJ	TLF

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000052B110 Sta. 106+50.00

ABUTMENT AGGREGATE DRAIN

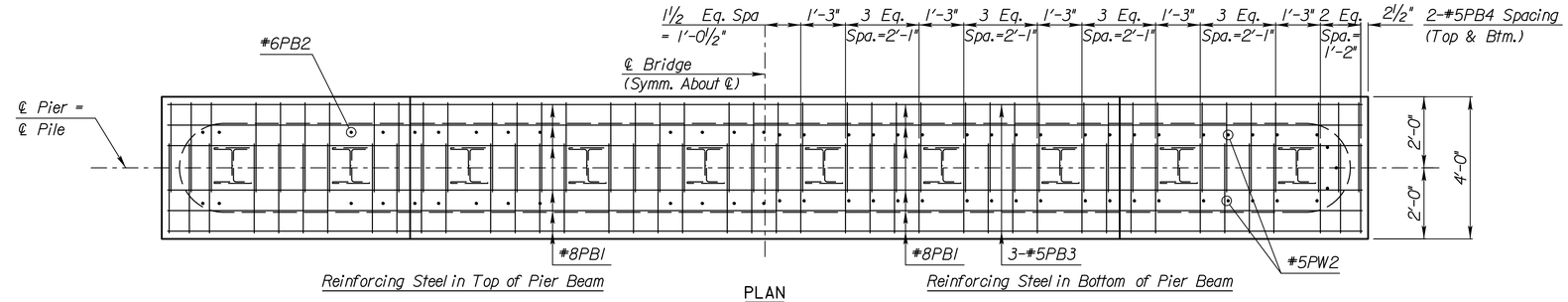
MCINTYRE ROAD OVER STRANGER CREEK

Leavenworth Co.

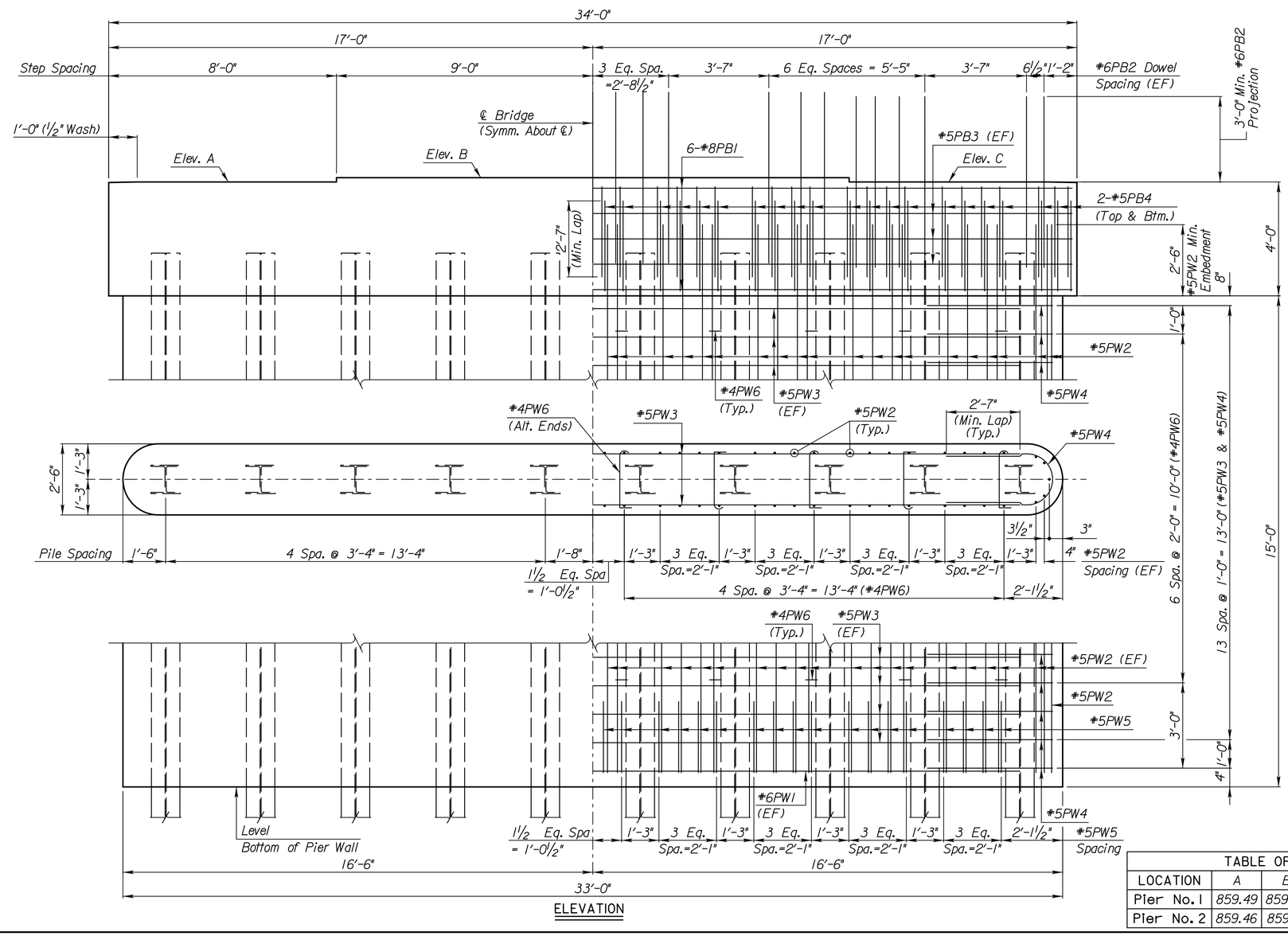
SHEET NO. OF	SCALE	APP'D	
DESIGNED JPJ	DETAILED JPJ	QUANTITIES	CADD RAA
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: ARLawrence Plot Location:
File: M:\TRNV\7-100-054-002\2_Disciplines_SHEETS\3_Sheets - roadway\LV1710005400bbr-07.dgn
Plot Date: 8/10/2021

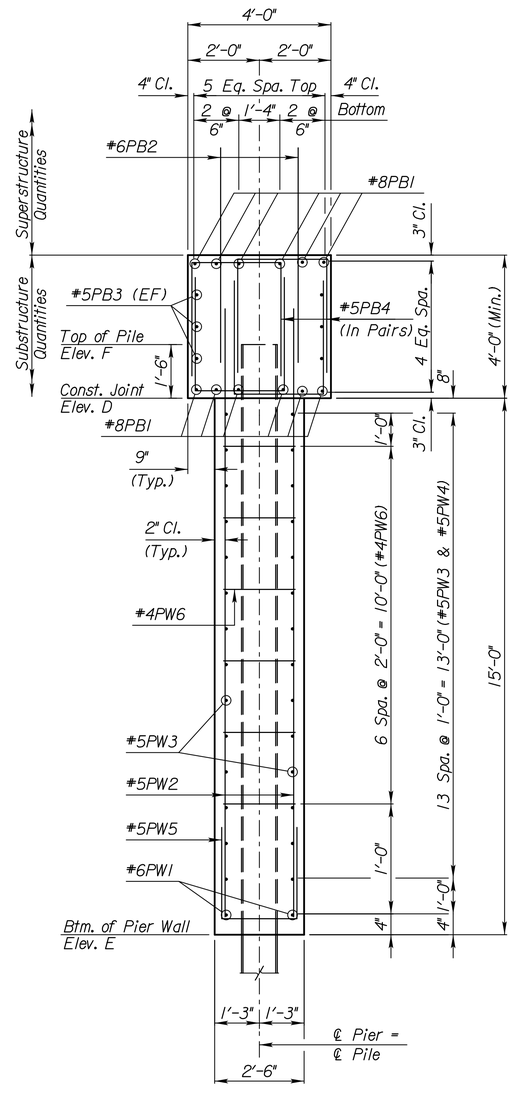
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	22	68



PLAN



ELEVATION



SECTION

Maximum Factored Design Pile Load (Strength I) = 142 tons/pile
Factored Resistance of Pile = 272 tons/pile
Phi = 0.5
Use HP 12x74 Gr. 50 Steel Piles

TABLE OF PIER ELEVATIONS						
LOCATION	A	B	C	D	E	F
Pier No. 1	859.49	859.64	859.49	855.49	840.49	856.99
Pier No. 2	859.46	859.61	859.46	855.46	840.46	856.96

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 00000000052B110 Sta. 106+50.00

PIER DETAILS

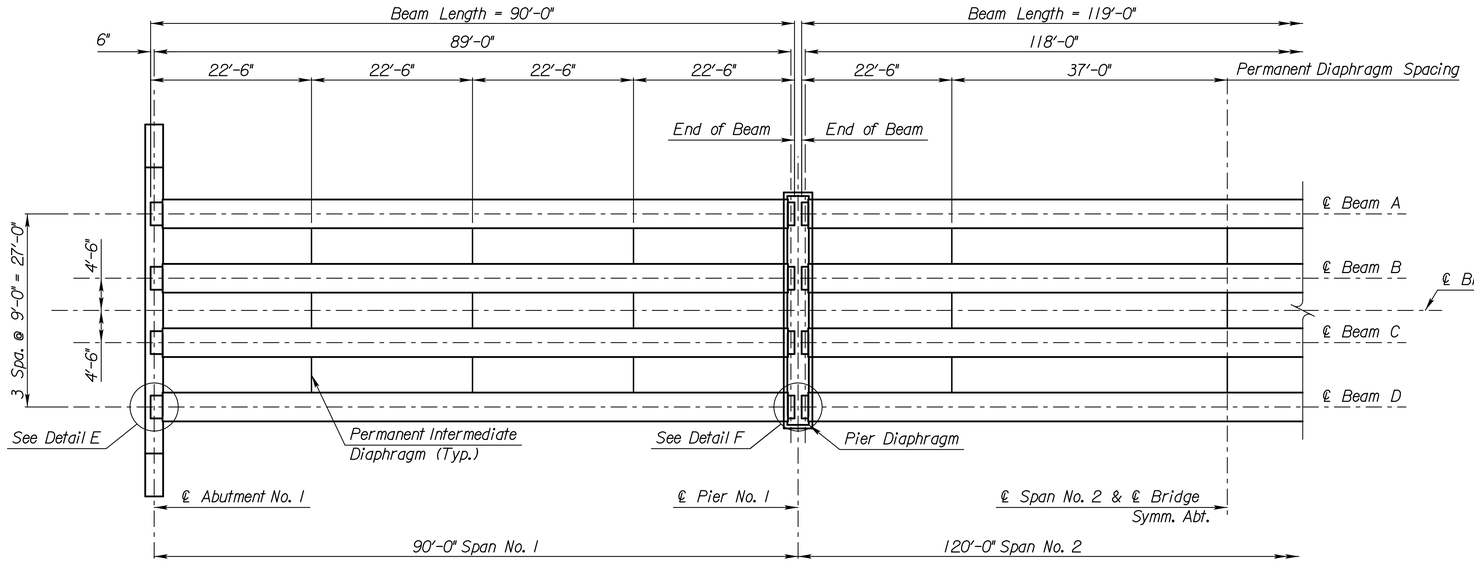
MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D	
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.
CADD	W.A.O.	CADD CK.	J.M.K.		

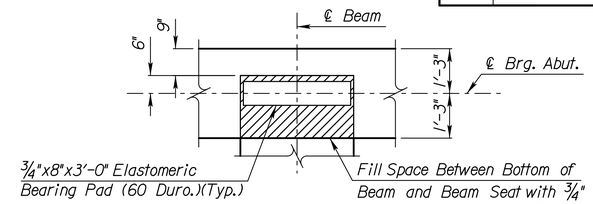
Sh. No. 22

Plotted By: ARLawrence | Plot Location:
File: M:\TRNV7-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\LV17100054001br-08.dgn
Plot Date: 8/10/2021

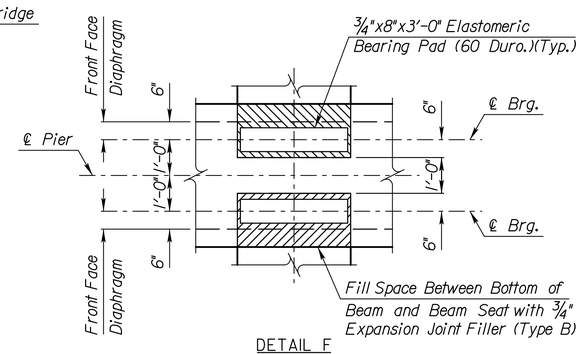
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	23	68



FRAMING PLAN

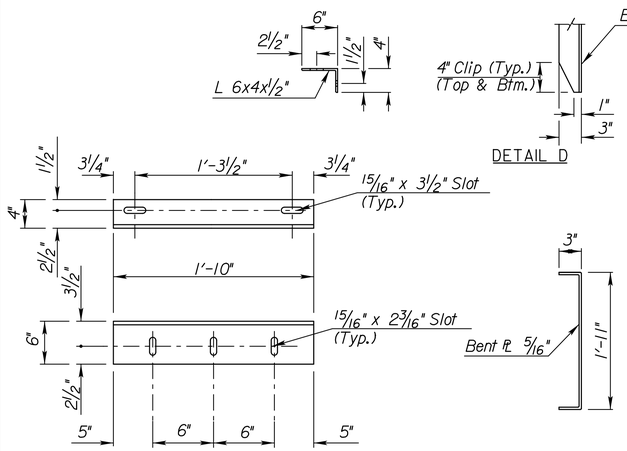


DETAIL E



DETAIL F

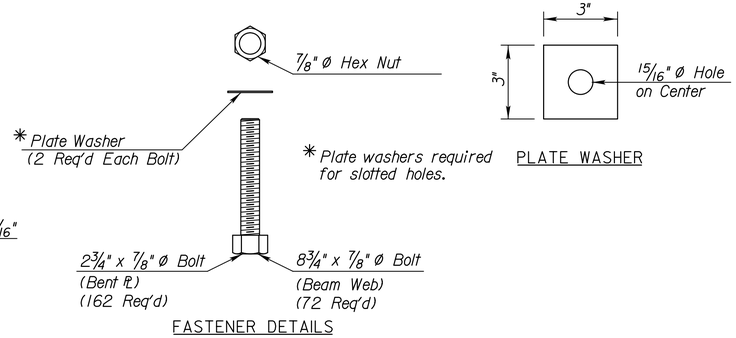
STRUCTURAL STEEL SUMMARY	
ITEM	ASTM A709 Grade 36 (Lbs.)
Permanent Diaphragms	6,643
Connection ∠'s	1,604
TOTAL STRUCTURAL STEEL	8,247



CONNECTION ANGLE DETAILS

(54 Req'd.)
(Weight = 29.7 Lb. Each)

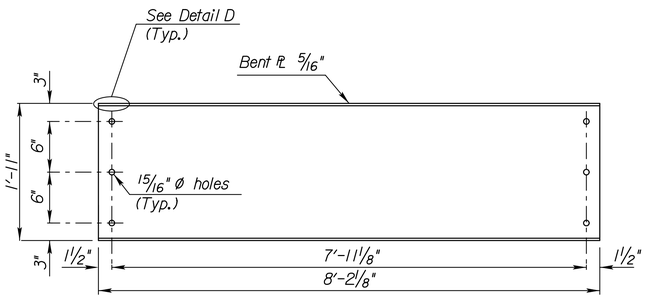
DETAIL D



FASTENER DETAILS

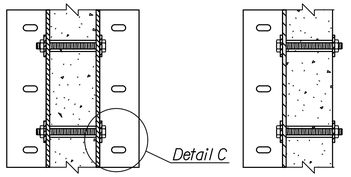
PLATE WASHER

* Plate washers required for slotted holes.



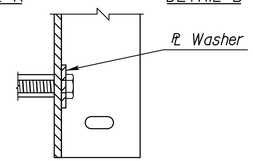
PERMANENT INTERMEDIATE DIAPHRAGM DETAILS

(27 Req'd.)
(Weight = 252.2 Lb. Each)

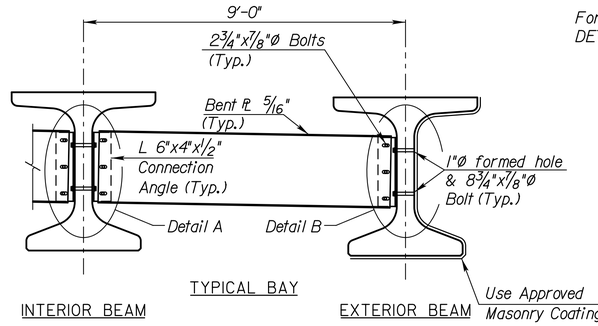


DETAIL A

DETAIL B



DETAIL C



INTERIOR BEAM — TYPICAL BAY — EXTERIOR BEAM

ELEVATION OF TEMPORARY DIAPHRAGMS

PERMANENT DIAPHRAGM NOTES

Use galvanized ASTM A709 (Gr. 36) steel for all angles and bent plates for permanent diaphragms. All bolts, nuts, and washers for fasteners shall conform to the heavy hex structural requirements of ASTM A325, Type 1. Use hardened steel washers over any oversized holes. Use 5/16" plate washers over any slotted holes along with hardened washers under the turned elements. Use the turn-of-the-nut tightening method. DTI's are not required. Install the permanent diaphragms, as shown in the details, prior to placing any superstructure concrete. Submit shop drawings of the permanent diaphragms to the Engineer for review and approval. The material, equipment, and labor necessary for the installation of the permanent diaphragms shall be paid for under the bid item "Structural Steel A709 (Gr. 36)".

For details of Concrete Diaphragm, see "DIAPHRAGM DETAILS" Sheet.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000052B110 Sta. 106+50.00

FRAMING PLAN

MCINTYRE ROAD OVER STRANGER CREEK

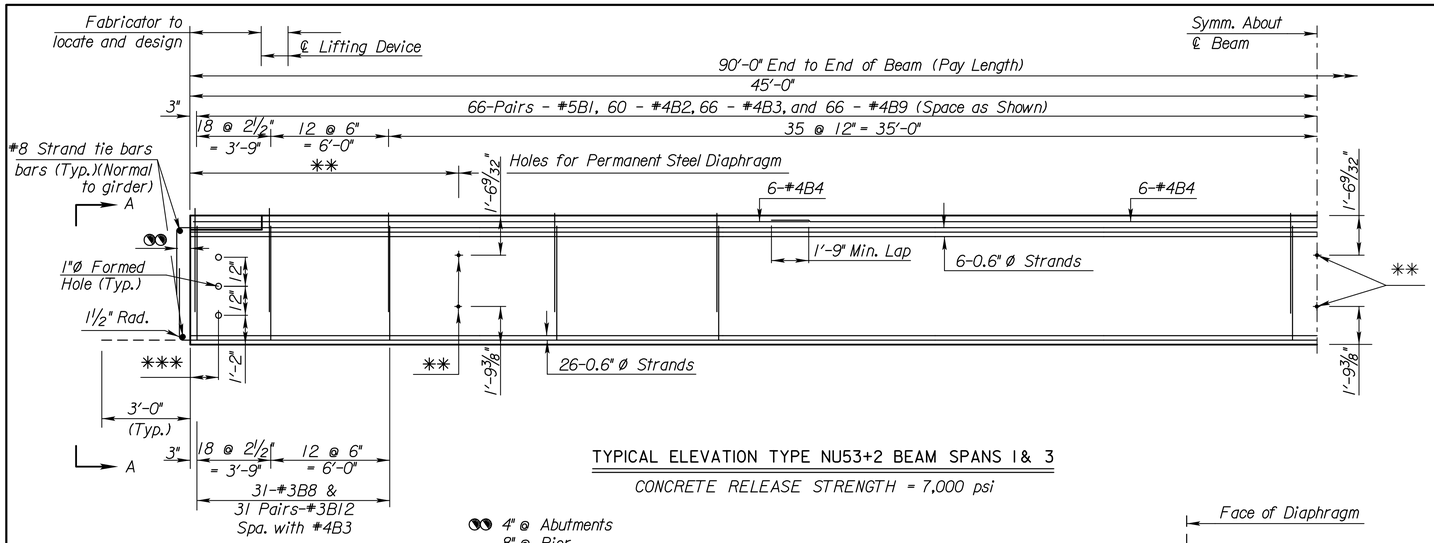
Leavenworth Co.

SHEET NO. OF	SCALE	APP'D
DESIGNED W.A.O.	DETAILED W.A.O.	QUANTITIES W.A.O.	CADD W.A.O.
DESIGN CK. J.M.K.	DETAIL CK. J.M.K.	QUAN. CK. J.M.K.	CADD CK. J.M.K.

Sh. No. 23

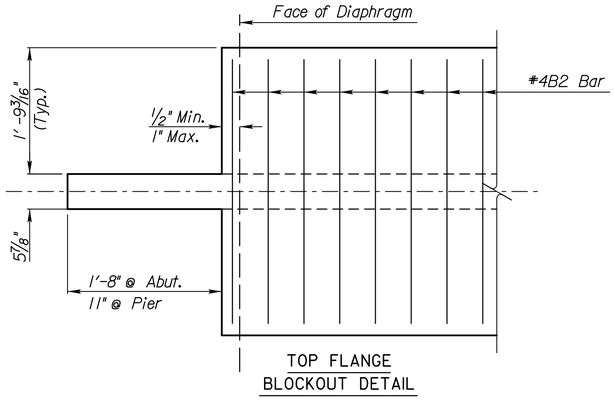
Plotted By: ARLawrence | Plot Location:
File: M:\TRAN\7-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\LVI710005400bbr-09.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	24	68

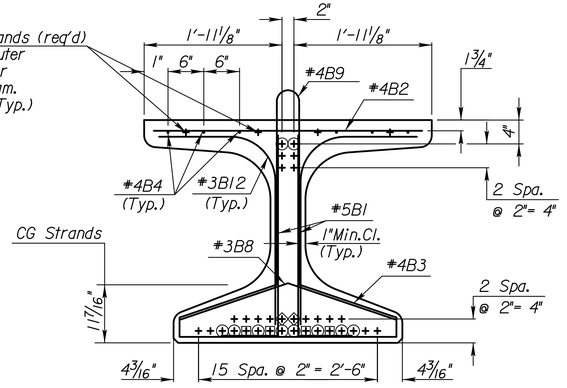


TYPICAL ELEVATION TYPE NU53+2 BEAM SPANS 1 & 3

CONCRETE RELEASE STRENGTH = 7,000 psi



TOP FLANGE BLOCKOUT DETAIL



SECTION A-A

(+) Indicates prestressing strands

(⊞) Indicates Strands to be debonded 4'-0" from each end.

(⊕) Indicates Strands to be debonded 6'-0" from each end.

(⊕) Prestressing strand to be cut with 3'-0" projection

CG = Center of Gravity

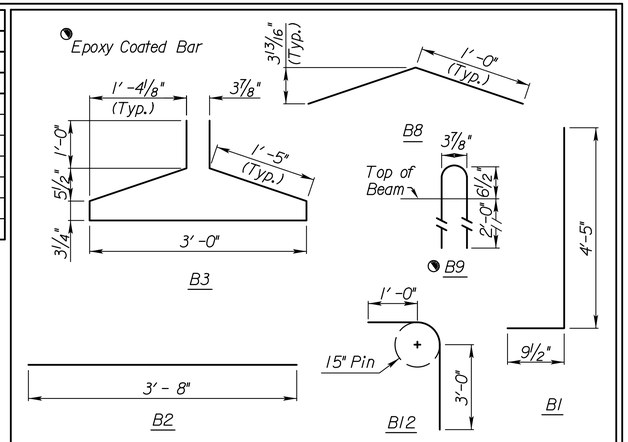
Welded Wire Fabric Equivalent Steel A_s †						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Fabric (WWF) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWF shall be equal or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWF shall be equal to or greater than typical beam section above.

NOTE: During transportation and construction only, support beams on bearing points a maximum of 9'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

NOTE: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Section A-A".
NOTE: Use all lifting devices any time the beams are lifted.

BILL OF REINFORCING STEEL							
90'-0" Beam (1 Listed-8 Reqd.) (Spans 1 & 3)							
Straight Bars				Bent Bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B4	18	#4	31'-2"	B1	262	#5	5'-3"
				B3	131	#4	8'-5"
				B8	62	#3	2'-0"
B2	120	#4	3'-8"	◔ B9	131	#4	5'-3"
				B12	124	#3	5'-0"



BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU53+2) Spans 1 & 3 (90'-0")	Lin.Ft.	720
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam Concrete (f'c= 9,000 psi) Per 90'-0" Beam	Cu.Yds.	19.7
Approx. Wt. Per 90'-0" Beam	Tons	39.8
0.6" Ø Prestressing Strand (270 ksi Low Relaxation fy= 243 ksi)	Lin.Ft.	23,520
Epoxy Reinforcing Steel (fy=60,000 psi)	Lbs.	3,675
Reinforcing Steel (fy=60,000 psi)	Lbs.	24,957
Elastomeric Bearing Pads (¾" x 8" x3'-0")	Each	16
1"Ø Formed Hole	Each	96
Lifting Devices	Each	32
Bearing Plates (½" x 18" x 3'-0⅜")	Each	16
⅜" Ø Prestressing Strand	Lin.Ft.	2,880
⅞" Ø Open Coil Insert	Each	0

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000052B110 Sta. 106+50.00

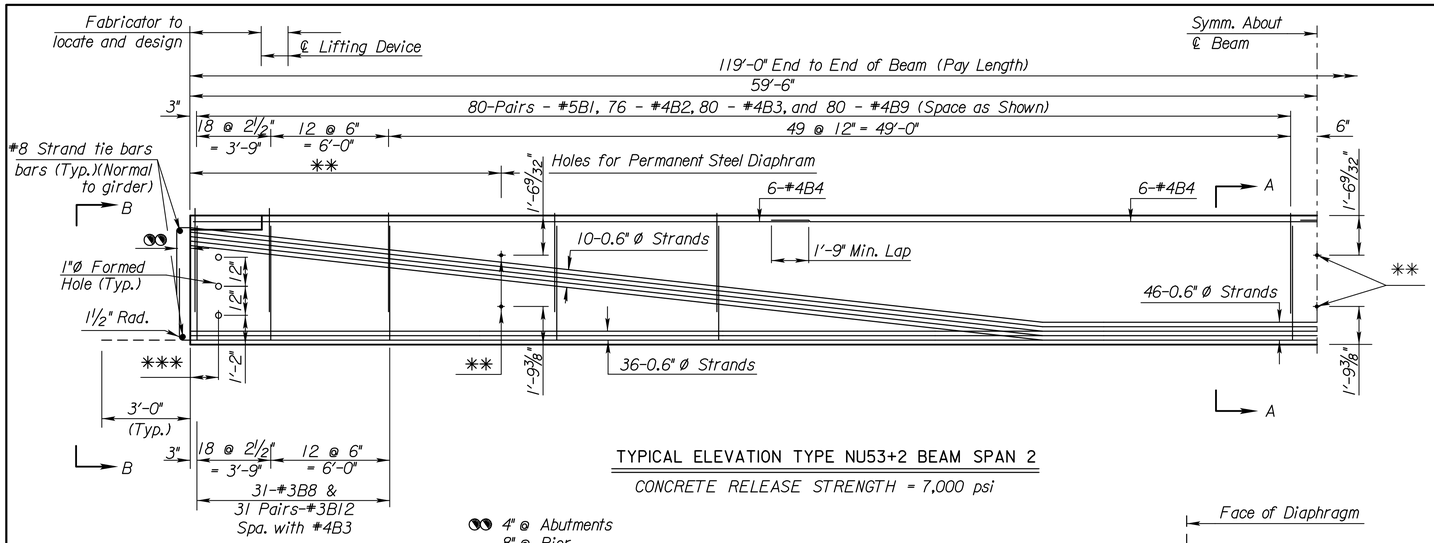
NU53+2 BEAM DETAILS

MCINTYRE ROAD OVER STRANGER CREEK

Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.	CADD	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.	CADD CK.	J.M.K.

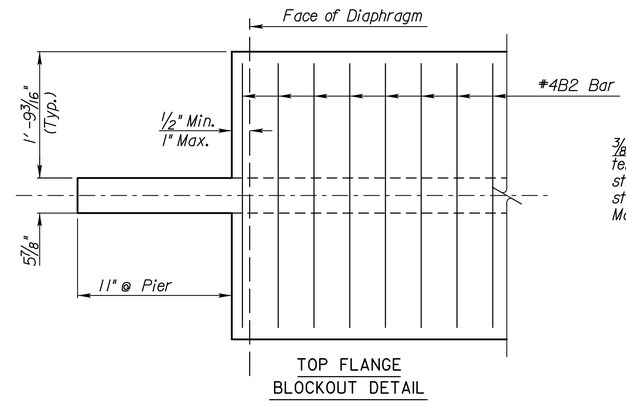
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	25	68



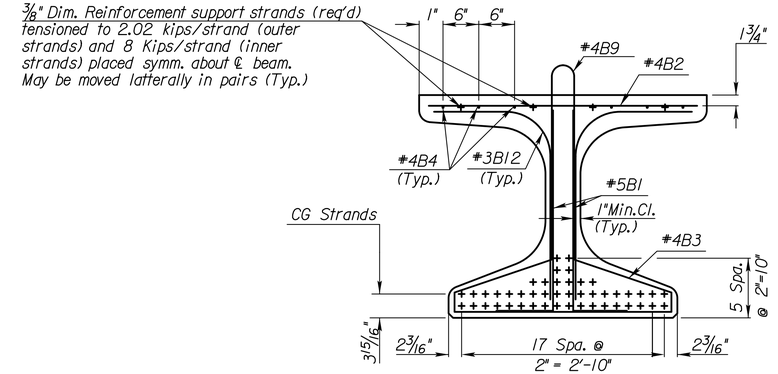
TYPICAL ELEVATION TYPE NU53+2 BEAM SPAN 2

CONCRETE RELEASE STRENGTH = 7,000 psi

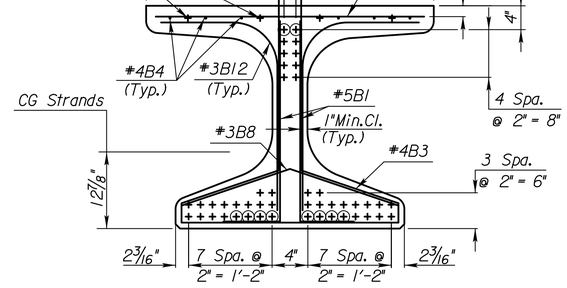
** See "FRAMING PLAN" Sheet for Location of the Perm. Intermediate Diaphragms.
*** See "ABUTMENT NO. DETAILS" and "PIER DETAILS" for location of holes.



TOP FLANGE BLOCKOUT DETAIL



SECTION A-A



SECTION B-B

Welded Wire Fabric Equivalent Steel A_s†						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Fabric (WWF) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWF shall be equal or less than the vertical bars shown in the typical beam section above. The equivalent A_s for the WWF shall be equal to or greater than typical beam section above.

NOTE: During transportation and construction only, support beams on bearing points a maximum of 12'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

NOTE: The hold down force at the harp points for 10 strands at 3.16 kips per strand = 31.6 kips total.

NOTE: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Section A-A".

NOTE: Use all lifting devices any time the beams are lifted.

(+) Indicates prestressing strands

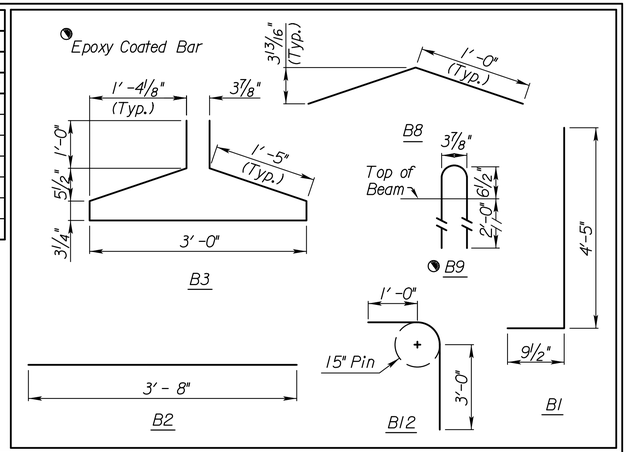
(⊕) Prestressing strand to be cut with 3'-0" projection

CG = Center of Gravity

BILL OF REINFORCING STEEL

119'-0" Beam (1 Listed-4 Reqd.) (Span 2)

Straight Bars				Bent Bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B4	24	#4	31'-1"	B1	320	#5	5'-3"
				B3	160	#4	8'-5"
				B8	62	#3	2'-0"
B2	152	#4	3'-8"	◔ B9	160	#4	5'-3"
				B12	124	#3	5'-0"



BILL OF MATERIAL

Item	Unit	Quantity
Prestressed Concrete Beams (NU53+2) Span 2 (119'-0")	Lin.Ft.	476
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam Concrete (f'c= 9,000 psi) Per 119'-0" Beam	Cu.Yds.	26.0
Approx. Wt. Per 119'-0" Beam	Tons	52.6
0.6" Ø Prestressing Strand (270 ksi Low Relaxation fy= 243 ksi)	Lin.Ft.	22,146
Epoxy Reinforcing Steel (fy=60,000 psi)	Lbs.	2,244
Reinforcing Steel (fy=60,000 psi)	Lbs.	15,209
Elastomeric Bearing Pads (¾" x 8" x3'-0")	Each	8
1"Ø Formed Hole	Each	48
Lifting Devices	Each	16
Bearing Plates (½" x 18" x 3'-0⅜")	Each	8
⅜" Ø Prestressing Strand	Lin.Ft.	1,904
⅞" Ø Open Coil Insert	Each	0

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 00000000052B110 Sta. 106+50.00

NU53+2 BEAM DETAILS

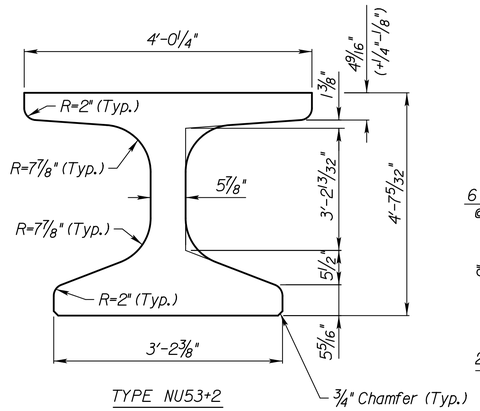
MCINTYRE ROAD OVER STRANGER CREEK

Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D	
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.
CADD	W.A.O.	CADD CK.	J.M.K.		

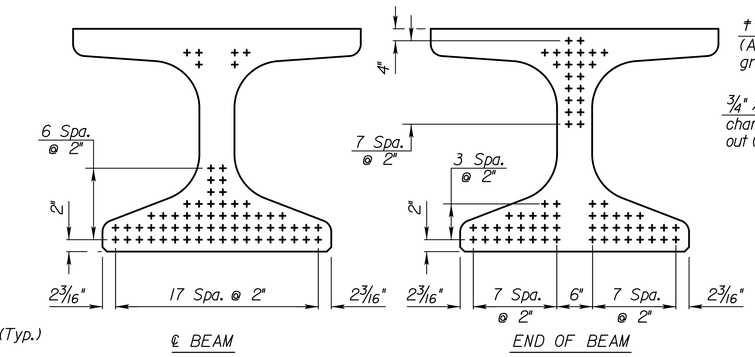
Plotted By: ARLawrence Plot Location:
File: M:\TRNV\7-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002br-11.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	26	68



TYPE NU53+2

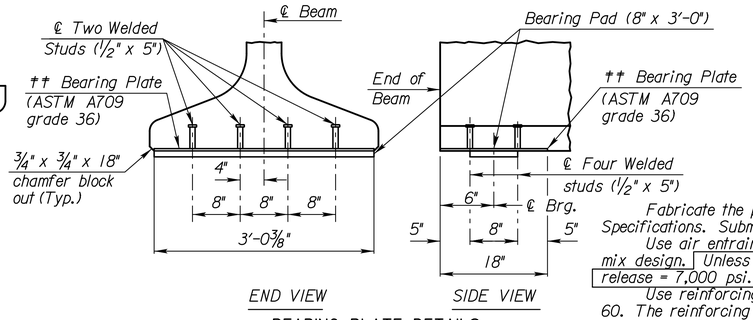
Area	849.4 In.^{2}
IcG	380,526 In.^{4}
Y Bot	27.37 In.
Vol./Surf. Area	3.421 In.
Wt./Ft.	884.8 Lbs.



℄ BEAM — END OF BEAM

STRAND ARRANGEMENTS

Showing All Possible Stand Locations



END VIEW — SIDE VIEW

BEARING PLATE DETAILS

†† Use 3/4" ℄ when field welding will occur, otherwise use 1/2" ℄.

Note: Stud welding will be in accordance with the latest edition of AWS D1.1.

Use plate conforming to the requirements of ASTM A709 Grade 36. The stud anchors will be made of material as specified for Shear Connector Studs in the KDOT Specifications.

The exposed surface of the bearing plates shall be galvanized.

GENERAL NOTES

Fabricate the precast prestressed beams in accordance with the KDOT Specifications. Submit shop drawings in accordance with the KDOT Specifications.

Use air entrained concrete. The Engineer shall approve the mix design. Unless otherwise shown on the plans, f'c = 9,000 psi and f'ci at release = 7,000 psi.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60. The reinforcing steel shown shall be uncoated unless otherwise indicated.

Use 0.6" nominal diameter (unless otherwise indicated), uncoated, seven-wire, low relaxation prestressing tendons conforming to the requirements of ASTM A416, Grade 270.

Use bolts having an ultimate strength 50% in excess of the manufacturer's safe load. All items (except the tendons) cast-in or inserted in prestressed beams shall be epoxy coated or galvanized. Show Formed Holes on shop drawings. All bolts, nuts and washers shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Show on the shop drawings any hardware, holes or other appurtenances that are required to be incorporated into the girder to construct the girder or for any temporary works needed to construct the bridge (e.g. safety railing pockets).

After beams are in the final position, remove lifting devices. See "Lifting Device" detail below. Removal of the lifting devices, coating and grouting shall be subsidiary to the bid item: "Prestressed Concrete Beams".

Use elastomeric bearing pads conforming to the KDOT Specifications. Bearing pads and Type B expansion joint material shall be subsidiary to the bid item, "Prestressed Concrete Beams".

The beam lengths shown on the design plans are net lengths measured horizontally along the beam centerline. The beam manufacturer shall make necessary allowances for grade, and for shortening due to elastic shortening, creep and shrinkage.

The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest publication of AASHTO, "Tentative Standards for Prestressed Piles, Slab, I-Beams and Box Bridges and an Interim Manual for Inspection of Such Construction", except as modified by this sheet or the KDOT Specifications.

Bevel all exposed edges of beams except the tops and ends with a 3/4" triangular molding or round the edges to a 3/4" radius. Round the angle of intersection between the web and the flanges.

Apply an initial force of 1,000 to 3,000 pounds to each strand to take up any slack in the cables. Unless otherwise noted on the plans, apply a force of 43,950 pounds to each strand. Stress harped strands to a magnitude such that they are tensioned to 43,950 pounds after they are in position.

Strike off level and apply a wire brush or stiff broom finish to the tops of the beams. Apply the finish transverse to the length of the beam. (Note: When using precast panels for deck construction, the outside 5" on each side of the top flange shall be finished smooth with a steel trowel.) At approximately the time of initial set, brush the top of the beam transversely with a coarse wire brush to remove all laitance.

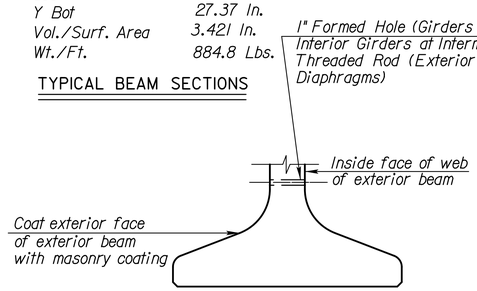
Fill trapped air holes and surface voids on the exterior face of the exterior beams with an approved concrete masonry coating. This work shall conform to KDOT Specifications. This work shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Detension strands in a sequence which minimizes lateral eccentricity. Show the method and sequence of strand release on the shop drawings. Use extreme care when lifting, handling, storing and transporting beams. Use the lifting system shown or an alternate system approved by the Engineer. Keep the beam in an upright position at all times. Support the beam on bearing points positioned directly below the designated lifting points or designated bearing points.

Do not place the bridge slab before the beams are 28 days old. Pour diaphragms as detailed in the bridge plans.

Stencil with paint the following information on the webs approximately 5'-0" from one end of the beam: date of concrete placement, date of strand release, and beam mark.

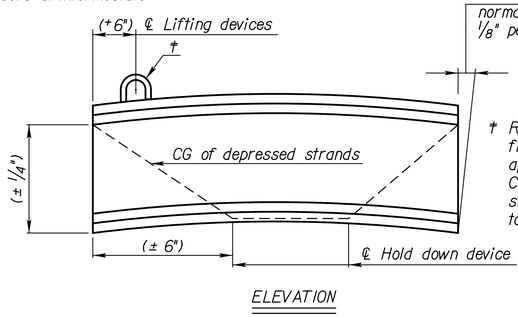
TYPICAL BEAM SECTIONS



DETAIL OF FORMED HOLE(S)

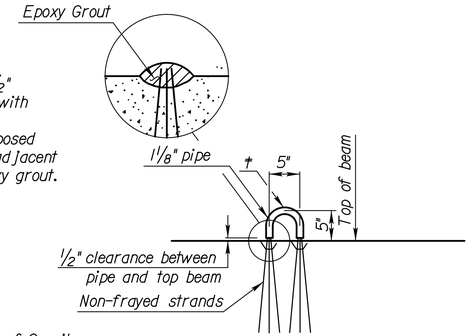
(See Beam Detail sheet for locations)

*Prior to shipping, the camber shall be no greater than the design camber + 1/2". The design camber is equal to the 50 day camber shown in the plans.



ELEVATION

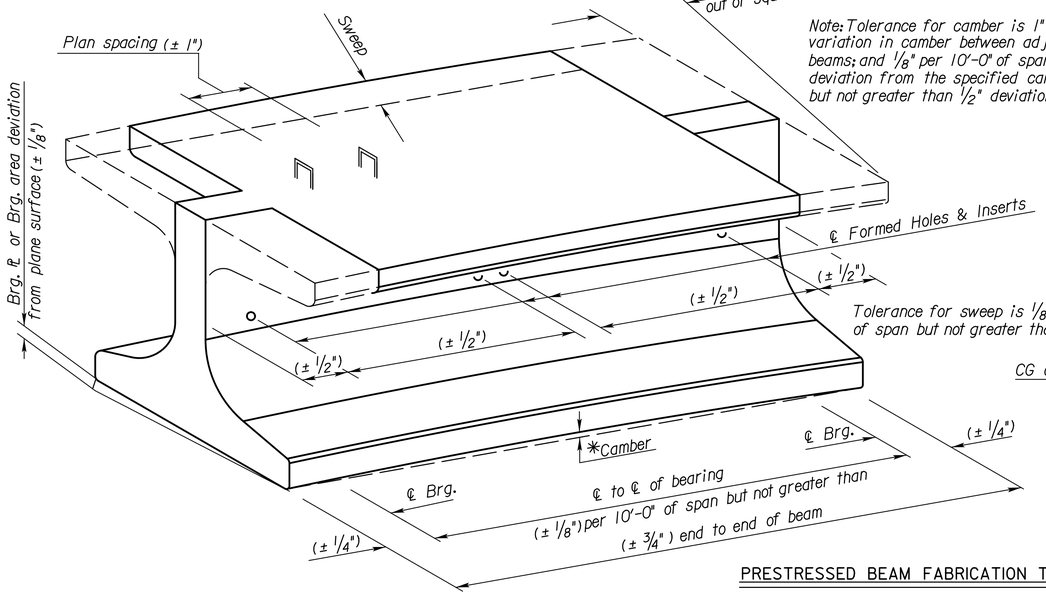
† Remove lifting device within 1/2" from top of beam. Coat area with approved epoxy bonding agent. Completely cover remaining exposed strands and fill depressions adjacent to strands with approved epoxy grout.



CG= Center of Gravity

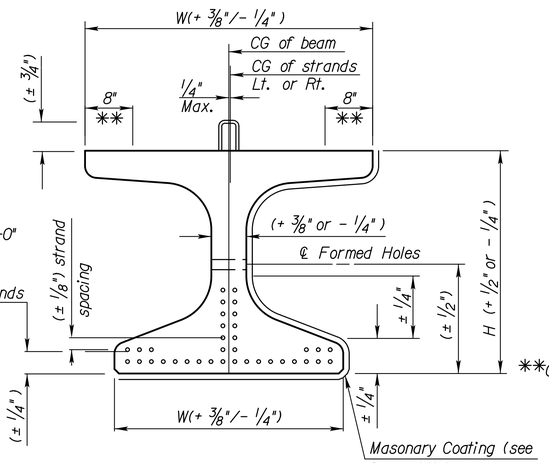
LIFTING DEVICE

Fabricator to locate and design lifting device. See notes.



Note: Tolerance for camber is 1" maximum variation in camber between adjacent beams; and 1/8" per 10'-0" of span deviation from the specified camber but not greater than 1/2" deviation.

PRESTRESSED BEAM FABRICATION TOLERANCES



TYPICAL SECTION

**Girder top flange shall be steel troweled to a smooth finish for 8" at the edges, as shown. Apply two layers of 30-lb roofing felt as a bond breaker to this region only excluding where joint filler is applied. The center portion shall be rough finished by scarifying the surface transversely with a wire brush, and no laitance shall remain on the surface.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000052B110 Sta. 106+50.00

PRESTRESSED CONCRETE BEAM DETAILS

MCINTYRE ROAD OVER STRANGER CREEK

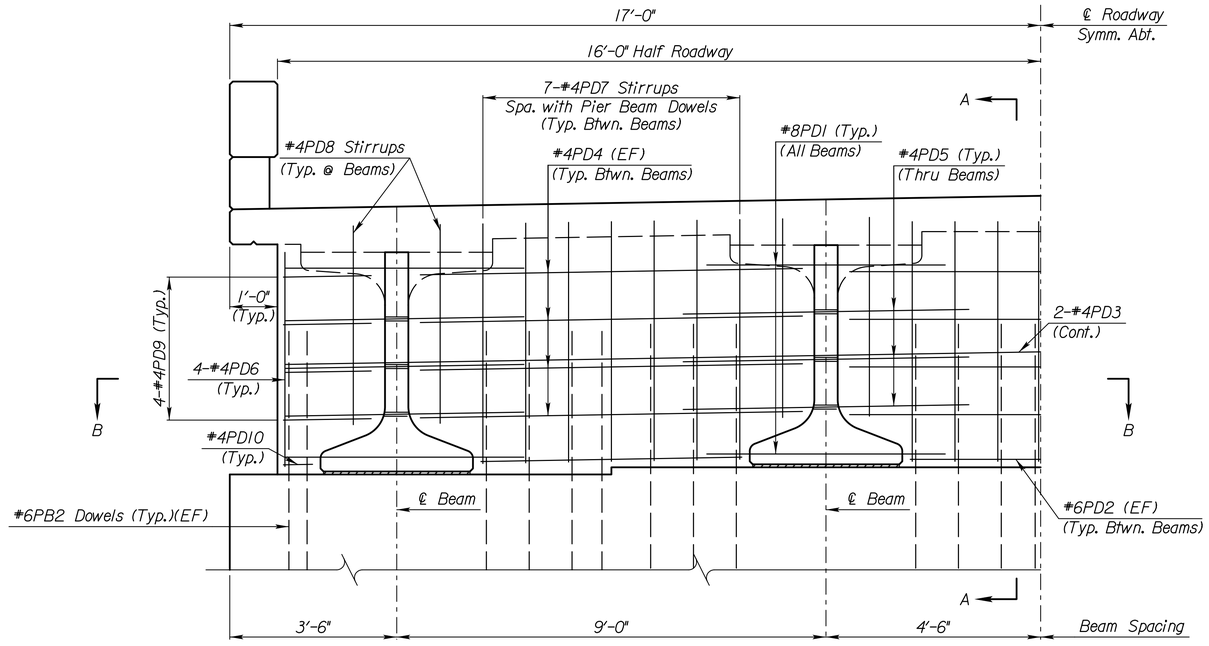
Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D	
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.
CADD	W.A.O.				
CADD CK.	J.M.K.				

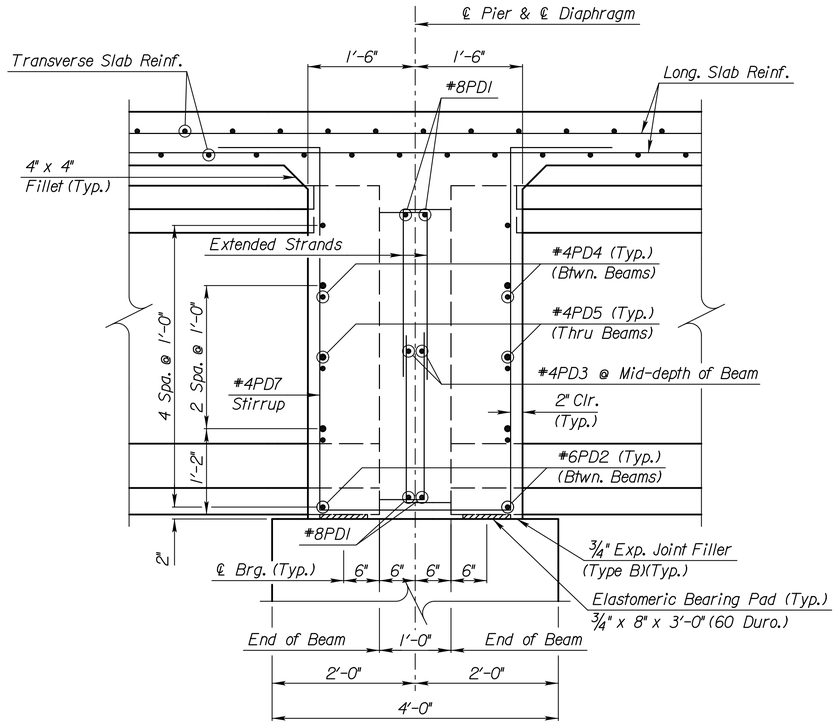
Sh. No. 26

Plotted By: ARLawrence | Plot Location:
File: M:\TRNT-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\LVI7100054400bbr-12.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	27	68

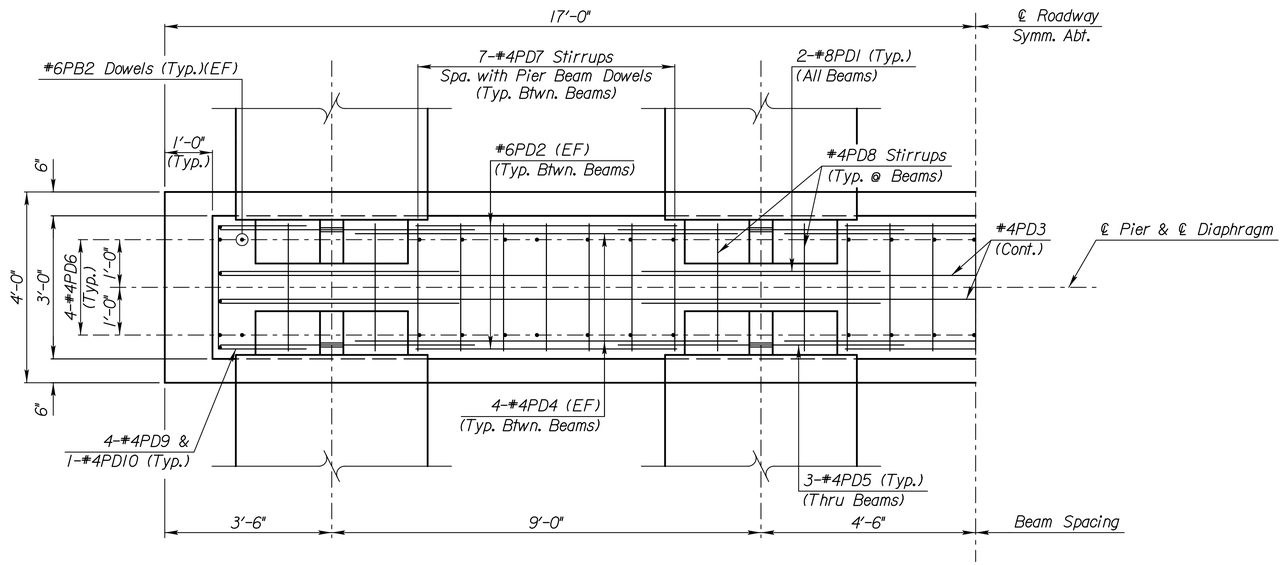


PART ELEVATION OF PIER DIAPHRAGM



SECTION A-A

#6PB2 is included in the substructure quantities.



SECTION B-B

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000052B110 Sta. 106+50.00

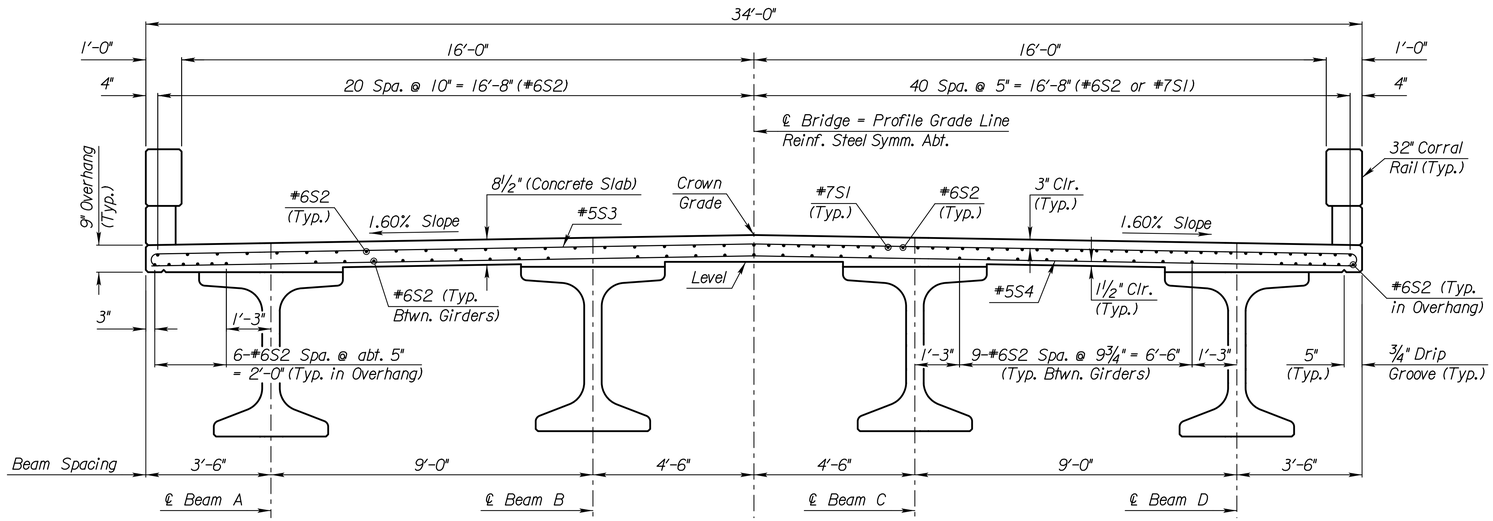
PIER DIAPHRAGM DETAILS

MCINTYRE ROAD OVER STRANGER CREEK

Leavenworth Co.

SHEET NO. OF	SCALE	APP'D					
DESIGNED W.A.O.	DETAILED W.A.O.	QUANTITIES W.A.O.	CADD W.A.O.
DESIGN CK. J.M.K.	DETAIL CK. J.M.K.	QUAN. CK. J.M.K.	CADD CK. J.M.K.

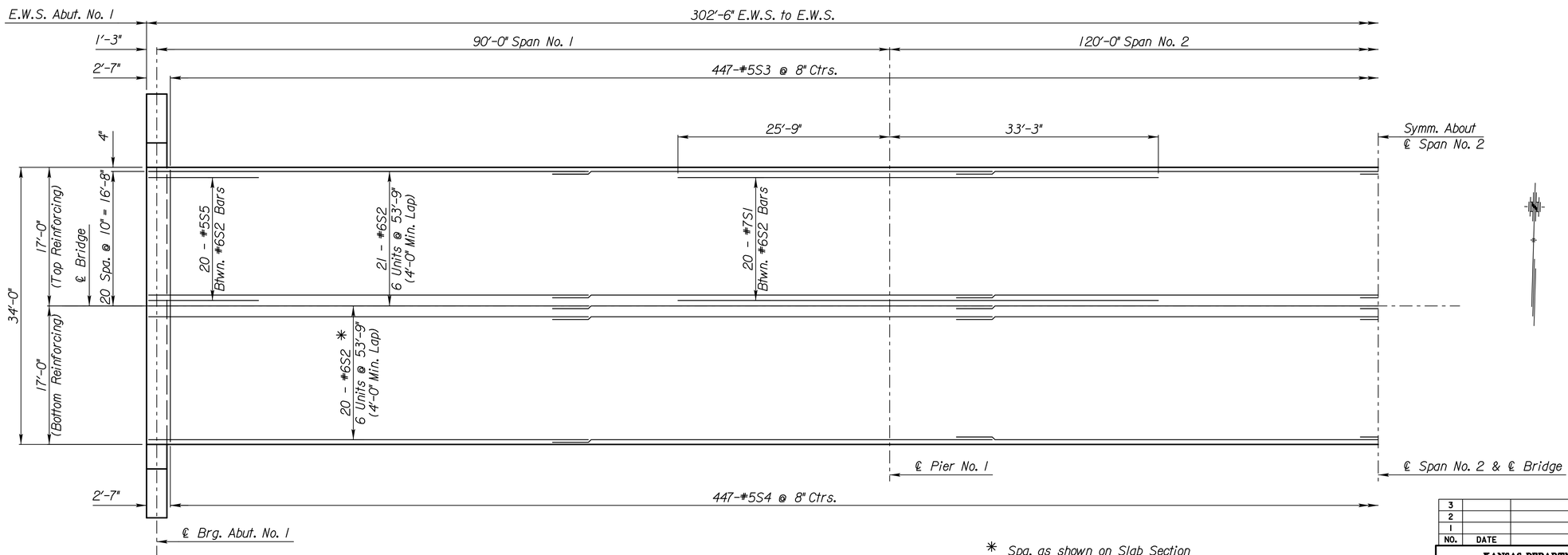
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	28	68



HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR PIER

TYPICAL SECTION



* Spa. as shown on Slab Section

HALF PLAN OF SLAB

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000052B110 Sta. 106+50.00

SLAB PLAN & SECTION

MCINTYRE ROAD OVER STRANGER CREEK

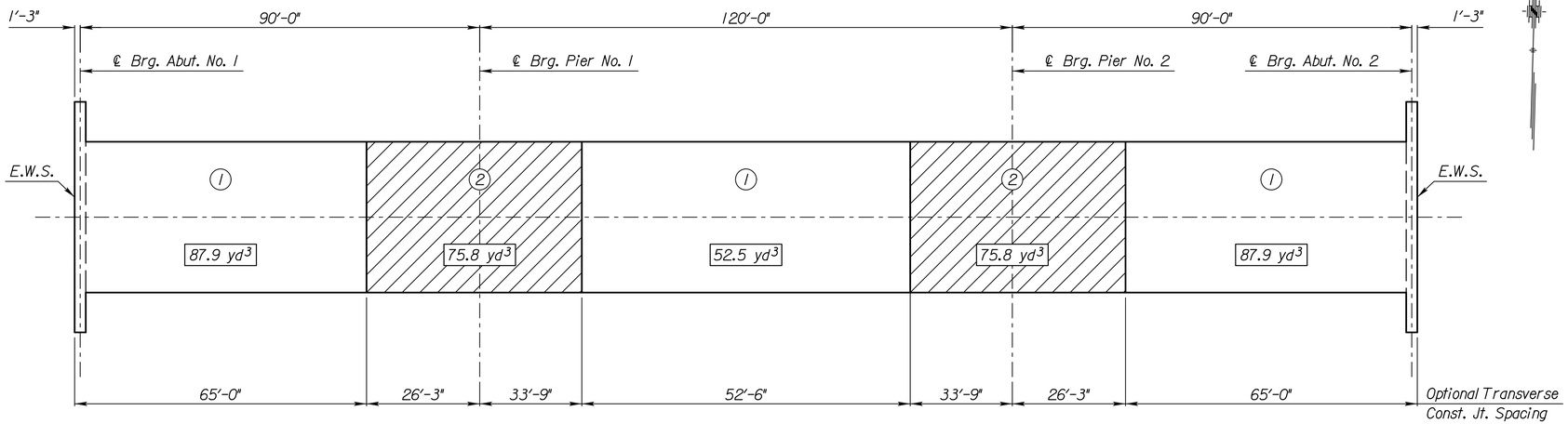
Leavenworth Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED W.A.O.	DETAILED W.A.O.	QUANTITIES W.A.O.	CADD W.A.O.
DESIGN CK. J.M.K.	DETAIL CK. J.M.K.	QUAN. CK. J.M.K.	CADD CK. J.M.K.

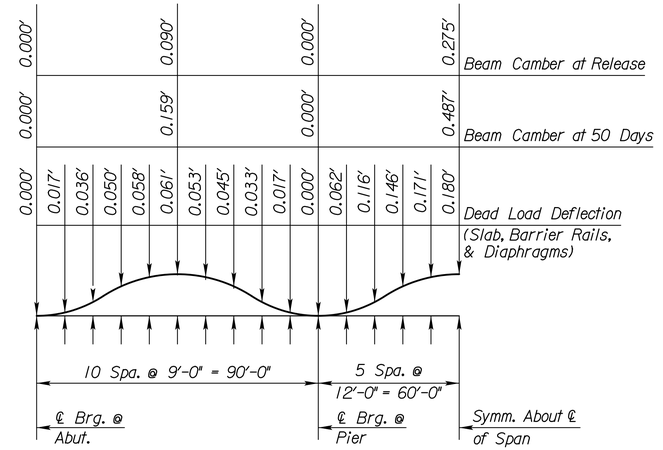
Sh. No. 28

Plotted By: ARLawrence | Plot Location:
File: MATRAN17-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\LVI710005400bbr-14.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	29	68



CONCRETE PLACING SEQUENCE

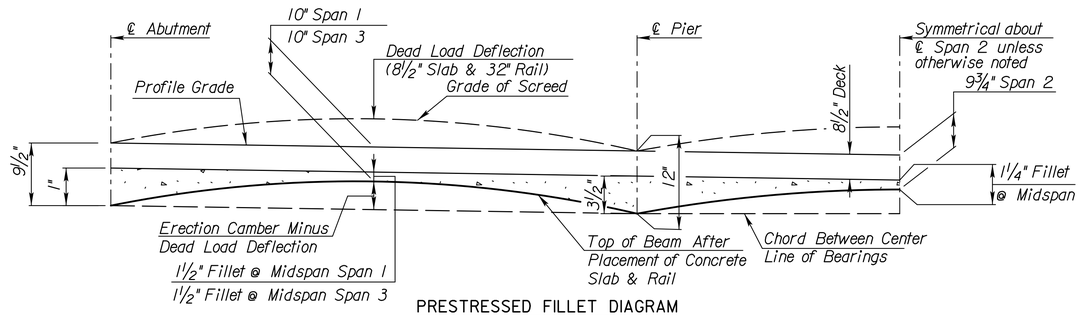


PRESTRESSED FILLET DIAGRAM

(Along ℄ of Beam)

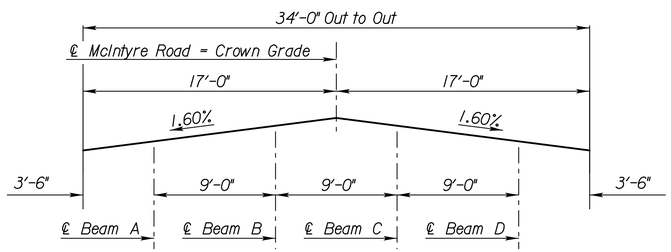
BRIDGE DECK ELEVATIONS

Location	Point	℄ Beam A		℄ Beam B		℄ Beam C		℄ Beam D	
		Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
℄ ABUT. NO. 1	0	105+00.00	864.56	105+00.00	864.71	105+00.00	864.71	105+00.00	864.56
	1	105+09.00	864.64	105+09.00	864.79	105+09.00	864.79	105+09.00	864.64
	2	105+18.00	864.72	105+18.00	864.87	105+18.00	864.87	105+18.00	864.72
	3	105+27.00	864.79	105+27.00	864.94	105+27.00	864.94	105+27.00	864.79
	4	105+36.00	864.86	105+36.00	865.01	105+36.00	865.01	105+36.00	864.86
	5	105+45.00	864.92	105+45.00	865.07	105+45.00	865.07	105+45.00	864.92
	6	105+54.00	864.98	105+54.00	865.13	105+54.00	865.13	105+54.00	864.98
	7	105+63.00	865.03	105+63.00	865.18	105+63.00	865.18	105+63.00	865.03
	8	105+72.00	865.08	105+72.00	865.23	105+72.00	865.23	105+72.00	865.08
	9	105+81.00	865.12	105+81.00	865.27	105+81.00	865.27	105+81.00	865.12
℄ PIER NO. 1	10	105+90.00	865.15	105+90.00	865.30	105+90.00	865.30	105+90.00	865.15
℄ PIER NO. 1	0	105+90.00	865.15	105+90.00	865.30	105+90.00	865.30	105+90.00	865.15
	1	106+02.00	865.19	106+02.00	865.34	106+02.00	865.34	106+02.00	865.19
	2	106+14.00	865.22	106+14.00	865.37	106+14.00	865.37	106+14.00	865.22
	3	106+26.00	865.24	106+26.00	865.39	106+26.00	865.39	106+26.00	865.24
	4	106+38.00	865.25	106+38.00	865.40	106+38.00	865.40	106+38.00	865.25
	5	106+50.00	865.25	106+50.00	865.40	106+50.00	865.40	106+50.00	865.25
	6	106+62.00	865.25	106+62.00	865.40	106+62.00	865.40	106+62.00	865.25
	7	106+74.00	865.23	106+74.00	865.38	106+74.00	865.38	106+74.00	865.23
	8	106+86.00	865.20	106+86.00	865.35	106+86.00	865.35	106+86.00	865.20
	9	106+98.00	865.16	106+98.00	865.31	106+98.00	865.31	106+98.00	865.16
℄ PIER NO. 2	10	107+10.00	865.12	107+10.00	865.27	107+10.00	865.27	107+10.00	865.12
℄ PIER NO. 2	0	107+10.00	865.12	107+10.00	865.27	107+10.00	865.27	107+10.00	865.12
	1	107+19.00	865.08	107+19.00	865.23	107+19.00	865.23	107+19.00	865.08
	2	107+28.00	865.03	107+28.00	865.18	107+28.00	865.18	107+28.00	865.03
	3	107+37.00	864.98	107+37.00	865.13	107+37.00	865.13	107+37.00	864.98
	4	107+46.00	864.92	107+46.00	865.07	107+46.00	865.07	107+46.00	864.92
	5	107+55.00	864.86	107+55.00	865.01	107+55.00	865.01	107+55.00	864.86
	6	107+64.00	864.79	107+64.00	864.94	107+64.00	864.94	107+64.00	864.79
	7	107+73.00	864.72	107+73.00	864.87	107+73.00	864.87	107+73.00	864.72
	8	107+82.00	864.64	107+82.00	864.79	107+82.00	864.79	107+82.00	864.64
	9	107+91.00	864.56	107+91.00	864.71	107+91.00	864.71	107+91.00	864.56
℄ ABUT. NO. 2	10	108+00.00	864.47	108+00.00	864.62	108+00.00	864.62	108+00.00	864.47



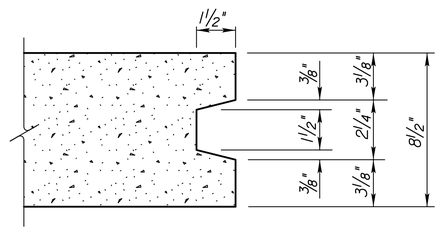
PRESTRESSED FILLET DIAGRAM

(Along ℄ of Beam)



BRIDGE DECK CROSS SLOPE DATA

(No Scale)



TRANSVERSE CONSTRUCTION JOINT

Note:
Longitudinal reinforcement continuous through joint.

Notes:

Deck elevations are the final grade at the top of the finished deck over the center of beam at span tenth points.

For McIntyre Road Profile Grade data, see "CONSTRUCTION LAYOUT" Sheet.

Ordinates are in feet.

Dead Load deflections are downward.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 000000000052B110 Sta. 106+50.00

SLAB DETAILS

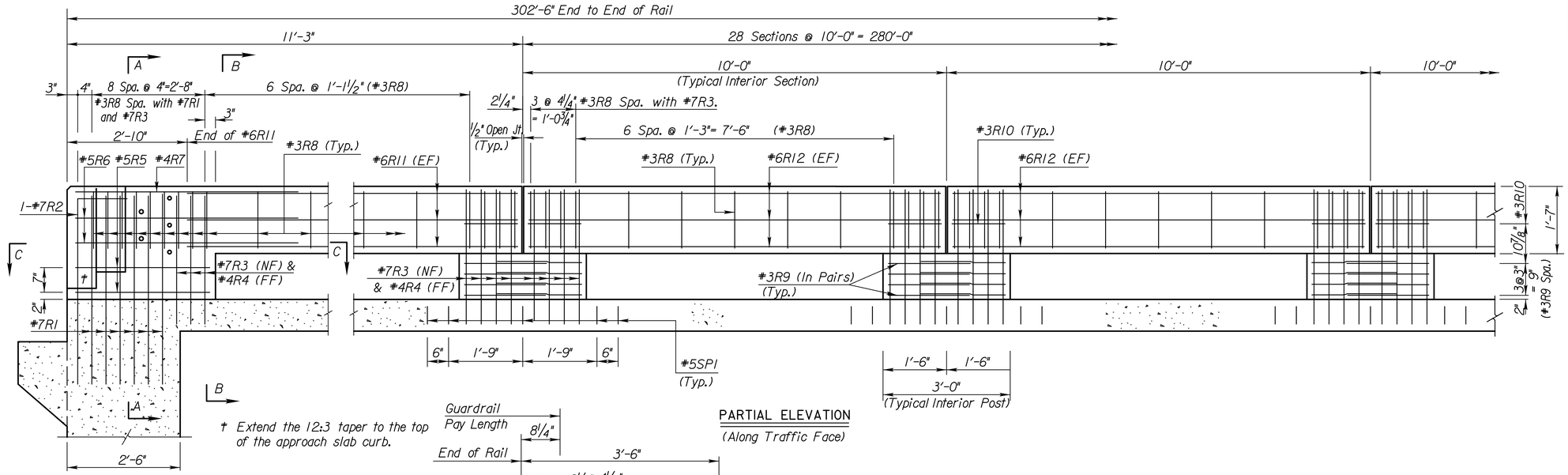
MCINTYRE ROAD OVER STRANGER CREEK

Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D	
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.
CADD	W.A.O.				
CADD CK.	J.M.K.				

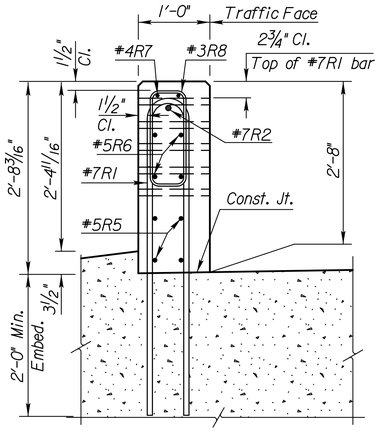
Plotted By: ARLawrence Plot Location:
File: MATRIX17-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\LVI7100054000br-15.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	30	68

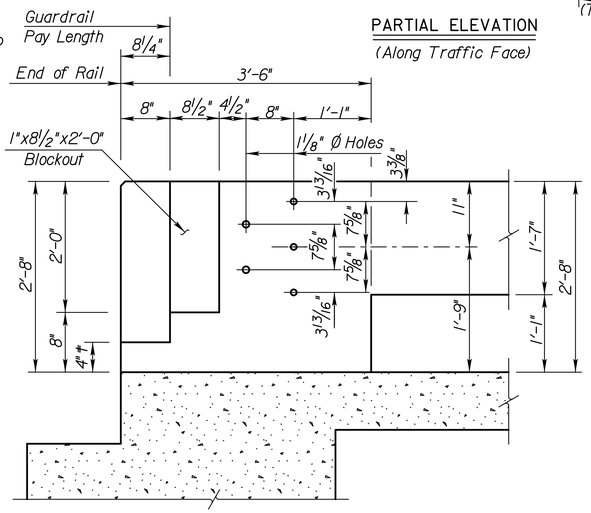


† Extend the 12:3 taper to the top of the approach slab curb.

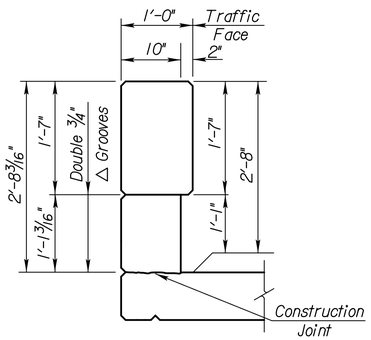
PARTIAL ELEVATION
(Along Traffic Face)



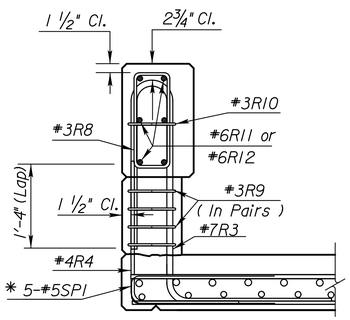
SECTION A-A



ELEVATION
(Dimensions at traffic face of rail.)

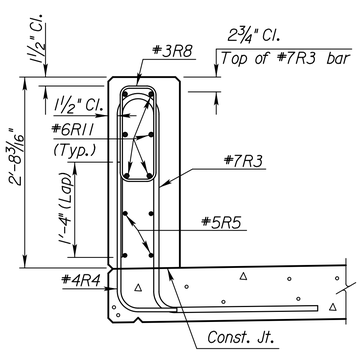


TYPICAL INTERIOR POST

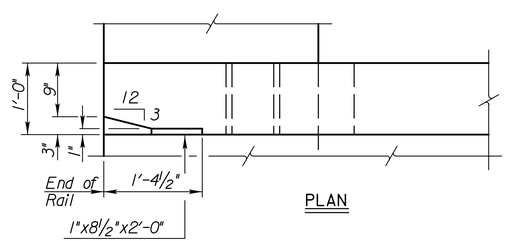


SECTION THRU POST

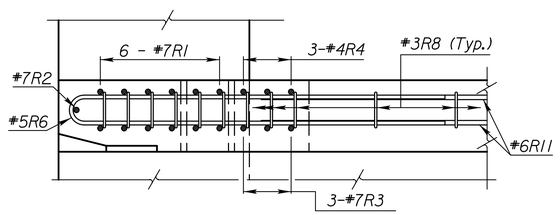
* Note:
The hook may be canted to provide clearance and/or fit between reinforcing.



SECTION B-B



PLAN



SECTION C-C

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 000000000052BII0 Sta. 106+50.00

CORRAL RAIL DETAILS

MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

SHEET NO.	OF	SCALE		APP'D			
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.	CADD	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.	CADD CK.	J.M.K.

Plotted By: ARLawrence Plot Location:
File: MATRAN17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LVI7100054002br-16.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	31	68

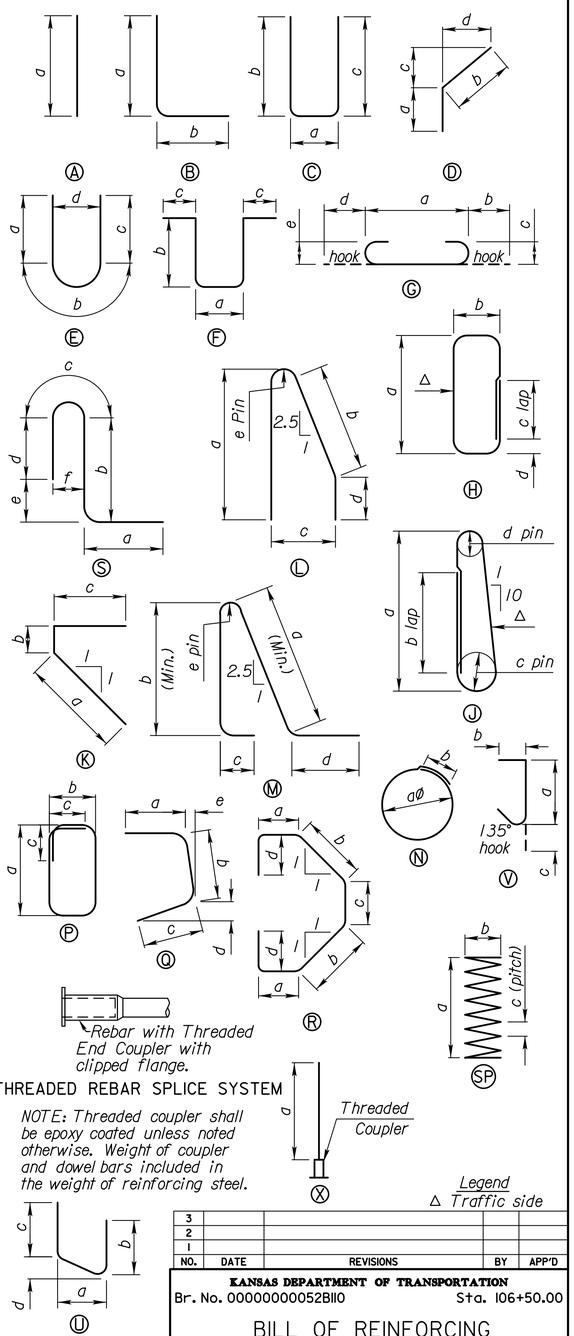
BILL OF REINFORCING STEEL

	DESIGN MARK	BENDING MARK	SIZE	NO.	LENGTH	DIMENSIONS a	b	c	d	e	f
ABUTMENT NO. 1 (Epoxy Coated)	A1	A	8	8	51'-8"	51'-8"					
	A2	A	8	4	40'-0"	40'-0"					
	A26	A	8	8	4'-8"	4'-8"					
	A3	A	6	12	4'-8"	4'-8"					
	A4	A	5	4	51'-8"	51'-8"					
	A5	A	5	4	51'-8"	51'-8"					
	A6	A	5	1	46'-0"	46'-0"					
	A7	A	5	6	11'-11"	11'-11"					
	A8	A	5	12	8'-2"	8'-2"					
	A9	A	5	2	10'-9"	10'-9"					
	A10	A	5	2	9'-0"	9'-0"					
	A11	A	5	3	5'-5"	5'-5"					
	A12	D	5	8	8'-10"	6'-2"	2'-10"	2'-10"	3"		
	A13	C	5	53	8'-2"	2'-2"	3'-0"	3'-0"			
	A14	C	5	35	18'-2"	2'-2"	8'-0"	8'-0"			
	A15	C	5	8	13'-2"	2'-2"	8'-0"	3'-0"			
	A16	C	5	2	15'-2"	2'-2"	6'-6"	6'-6"			
	A17	C	5	2	15'-8"	2'-2"	6'-9"	6'-9"			
	A18	C	5	2	16'-2"	2'-2"	7'-0"	7'-0"			
	A19	C	5	2	16'-8"	2'-2"	7'-3"	7'-3"			
	A20	C	5	2	18'-0"	2'-2"	7'-11"	7'-11"			
	A21	C	5	45	8'-6"	2'-2"	3'-2"	3'-2"			
	A22	C	5	8	10'-6"	2'-2"	4'-2"	4'-2"			
	A24	G	5	33	3'-9"	3'-2"	7"	5"			
	A23	K	4	33	6'-5"	2'-6"	9"	3'-2"			
	A25	A	4	1	31'-8"	31'-8"					
ABUTMENT NO. 2 (Epoxy Coated)	A1	A	8	8	51'-8"	51'-8"					
	A2	A	8	4	40'-0"	40'-0"					
	A26	A	8	8	4'-8"	4'-8"					
	A3	A	6	12	4'-8"	4'-8"					
	A4	A	5	4	51'-8"	51'-8"					
	A5	A	5	4	51'-8"	51'-8"					
	A6	A	5	1	46'-0"	46'-0"					
	A7	A	5	6	11'-11"	11'-11"					
	A8	A	5	12	8'-2"	8'-2"					
	A9	A	5	2	10'-9"	10'-9"					
	A10	A	5	2	9'-0"	9'-0"					
	A11	A	5	3	5'-5"	5'-5"					
	A12	D	5	8	8'-10"	6'-2"	2'-10"	2'-10"	3"		
	A13	C	5	53	8'-2"	2'-2"	3'-0"	3'-0"			
	A14	C	5	35	18'-2"	2'-2"	8'-0"	8'-0"			
	A15	C	5	8	13'-2"	2'-2"	8'-0"	3'-0"			
	A16	C	5	2	15'-2"	2'-2"	6'-6"	6'-6"			
	A17	C	5	2	15'-8"	2'-2"	6'-9"	6'-9"			
	A18	C	5	2	16'-2"	2'-2"	7'-0"	7'-0"			
	A19	C	5	2	16'-8"	2'-2"	7'-3"	7'-3"			
	A20	C	5	2	18'-0"	2'-2"	7'-11"	7'-11"			
	A21	C	5	45	8'-6"	2'-2"	3'-2"	3'-2"			
	A22	C	5	8	10'-6"	2'-2"	4'-2"	4'-2"			
	A24	G	5	33	3'-9"	3'-2"	7"	5"			
	A23	K	4	33	6'-5"	2'-6"	9"	3'-2"			
	A25	A	4	1	31'-8"	31'-8"					

BILL OF REINFORCING STEEL

	DESIGN MARK	BENDING MARK	SIZE	NO.	LENGTH	DIMENSIONS a	b	c	d	e	f
PIER NO. 1 & 2 (Uncoated)	PW1	A	6	4	30'-6"	30'-6"					
	PW2	A	5	164	17'-3"	17'-3"					
	PW3	A	5	56	30'-6"	30'-6"					
	PW4	E	5	60	8'-4"	2'-7"	3'-2"	2'-7"	2'-1"		
	PW5	C	5	72	7'-4"	2'-2"	2'-7"	2'-7"			
	PW6	V	4	140	3'-1"	2'-3"	5"	5"			
	PB1	A	8	24	33'-8"	33'-8"					
	PB3	A	5	12	33'-8"	33'-8"					
	PB4	C	5	168	7'-7"	2'-5"	2'-7"	2'-7"			
PIER NO. 1 & 2 (Epoxy Coated)	PB2	A	6	100	6'-0"	6'-0"					
	PD1	A	8	32	4'-8"	4'-8"					
	PD2	A	6	12	5'-5"	5'-5"					
	PD3	A	4	4	31'-8"	31'-8"					
	PD4	A	4	48	8'-2"	8'-2"					
	PD5	A	4	48	4'-8"	4'-8"					
	PD6	A	4	16	4'-9"	4'-9"					
	PD7	F	4	42	13'-10"	2'-8"	5'-1"	6"			
	PD8	F	4	16	11'-10"	2'-8"	4'-1"	6"			
	PD9	C	4	16	6'-5"	2'-7"	1'-11"	1'-11"			
	PD10	C	4	4	3'-7"	2'-7"	6"	6"			
DECK (Epoxy Coated)	S1	A	7	80	59'-0"	59'-0"					
	S2	A	6	480	53'-9"	53'-9"					
	S3	G	5	447	34'-10"	33'-8"	7"	5"	7"	5"	
	S4	A	5	447	33'-8"	33'-8"					
	S5	B	5	80	16'-0"	13'-6"	2'-6"				
RAIL (Epoxy Coated)	R1	E	7	24	9'-3"	4'-2½"	10"	4'-2½"	7"		
	R2	B	7	4	5'-7"	4'-5"	1'-2"				
	R3	S	7	476	7'-7"	2'-0"	2'-9"	10"	2'-0"	9"	7"
	R11	A	6	24	8'-3"	8'-3"					
	R12	A	6	336	9'-8"	9'-8"					
	R5	E	5	8	6'-6"	2'-11½"	7"	2'-11½"	5"		
	R6	E	5	8	10'-8"	5'-0½"	7"	5'-0½"	5"		
	R4	B	4	476	4'-0"	2'-2"	1'-10"				
	R7	E	4	4	10'-8"	5'-1"	6"	5'-1"	4"		
	R8	H	3	800	4'-4"	1'-4"	6"	8"			
	R9	C	3	464	4'-6"	8"	1'-11"	1'-11"			
	R10	H	3	116	4'-6"	1'-3"	8"	8"			
	SP1	C	5	290	4'-4"	2'-0"	4"	2'-0"			

Notes:
Ⓐ denotes bending mark. Dimensions are out to out, unless noted otherwise.
No allowance for bend curvature is to be made except for standard hook and radii in excess of same.
All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60 unless noted otherwise.



NOTE: Threaded coupler shall be epoxy coated unless noted otherwise. Weight of coupler and dowel bars included in the weight of reinforcing steel.

Legend
△ Traffic side

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 000000000052B110 Sta. 106+50.00

BILL OF REINFORCING

MCINTYRE ROAD OVER STRANGER CREEK
Leavenworth Co.

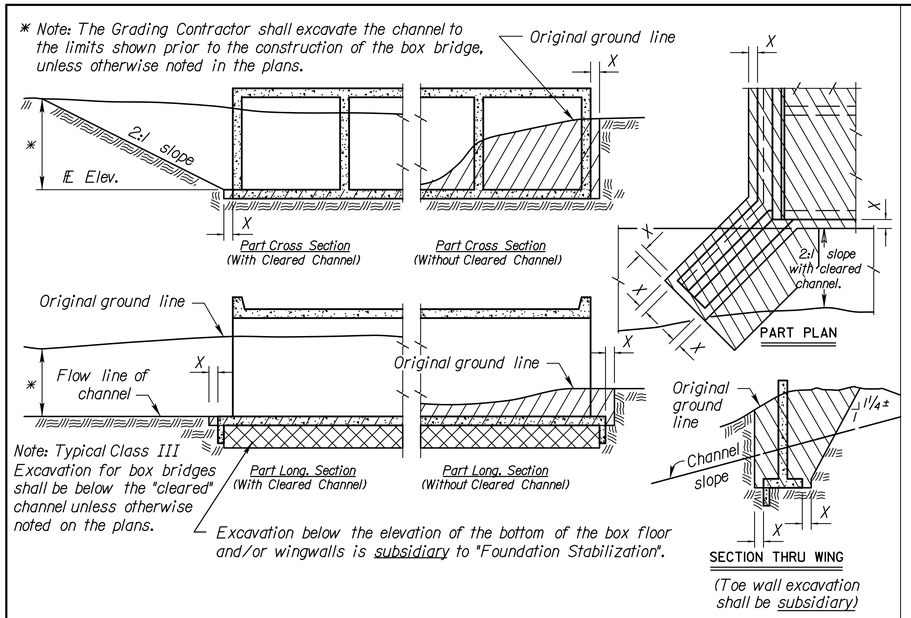
SHEET NO.	OF	SCALE		APP'D			
DESIGNED	W.A.O.	DETAILED	W.A.O.	QUANTITIES	W.A.O.	CADD	W.A.O.
DESIGN CK.	J.M.K.	DETAIL CK.	J.M.K.	QUAN. CK.	J.M.K.	CADD CK.	J.M.K.

Sh. No. 31

Plotted By: ARLawrence | Plot Location:
File: MATRAN17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002bbr-17.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	32	68

* 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.

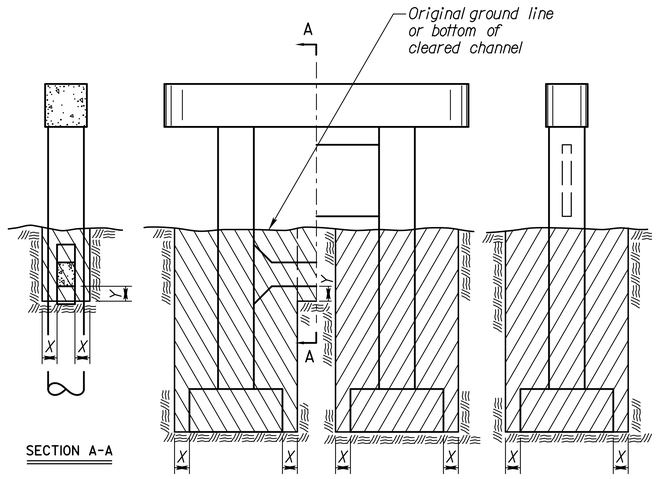


Note: Typical Class III Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

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

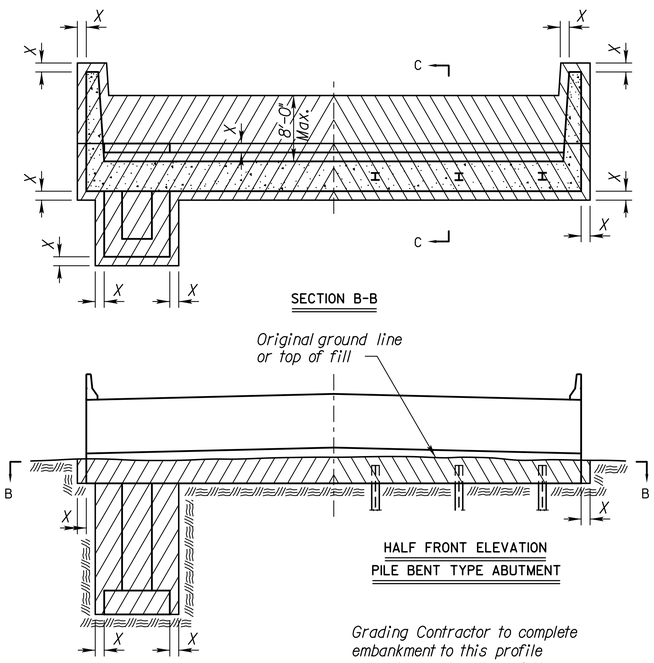
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

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.



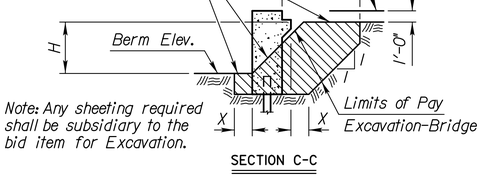
EXCAVATION DETAILS FOR TYPICAL PIERS

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.

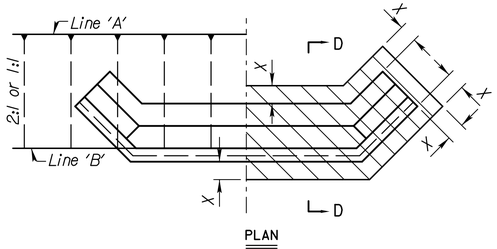
Grading Contractor to complete embankment to this profile prior to construction of the abutment

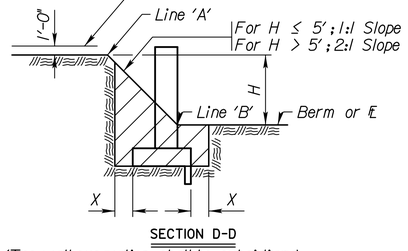


Note: Any sheeting required shall be subsidiary to the bid item for Excavation.

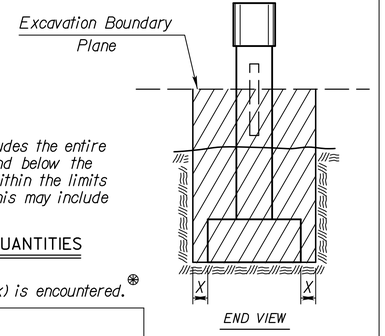
EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

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





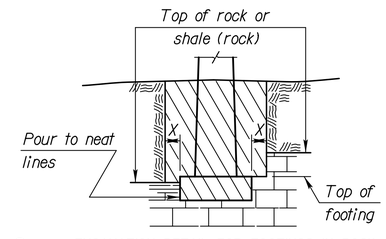
EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



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

CLASS II EXCAVATION QUANTITIES

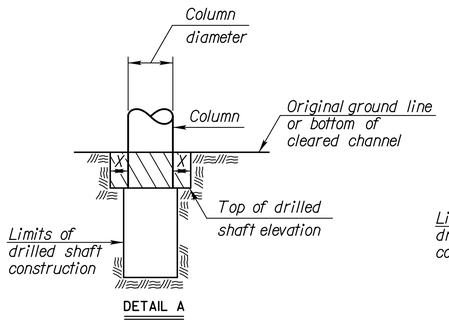
See detail when rock or shale (rock) is encountered. ⊛

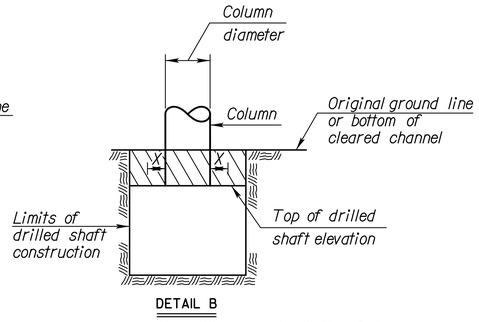


⊛ EXCAVATION DETAIL FOR FOOTINGS IN ROCK OR SHALE (ROCK)

(Piers and Abutments)

Note: Excavation below top of rock, hard shale or below top of footing, whichever is lower, shall be to neat lines of the concrete construction.





DRILLED SHAFT DETAILS

Note: Whenever the limits of the drilled shaft construction are greater than the Column Diameter + 2X, the limits of Class I, II or III Excavation shall be the limits of the drilled shaft construction. (See Detail B)

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

Sides of trenches in hard or compacted soil including embankments shall be shored, sheeted, braced or otherwise supported when the trench is more than 5 feet in depth and 8 feet or more in length. In lieu of the shoring, the sides of the trench above the 5 foot level may be sloped to preclude collapse. The slope for average soils shall be 1:1. If the angle of repose of the soil is less, flatter slopes shall be required.

Dimension "X" shall be 2'-0" unless indicated otherwise on the general plans.

Dimension "Y" shall be 1'-6" unless indicated otherwise on the general plans.

NO.	DATE	REVISIONS	BY	APP'D
7				
6	8-15-12	Embeddement Excavation Subsidiary	JPJ	TLF
5	5-15-12	Revised Wing Excavation	JPJ	TLF
4	3-3-10	Revised Wing Excavation	JPJ	TLF
3	10-16-06	Revised 'Foundation Stab.' Note	JPJ	KFH
2	10-19-04	Concrete - Class to Grade	RAM	KFH
1	4-10-02	Added 'Foundation Stab.' Note	RAM	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE EXCAVATION (LRFD)

BRIOOB

FHWA APPROVAL			4/17/10	APP'D	TERRY L. FLECK
DESIGNED	DETAILED	RDR	QUANTITIES	CADD	
DESIGN CK.	DETAIL CK.	LRR	QUAN.CK.	CADD CK.	

Std. Base File: br100.dgn
Plotted By: ARLawrence
Plot Location:
File: M:\TRNV7-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV\7100054000bss100b-01.dgn
Plot Date: 8/10/2021

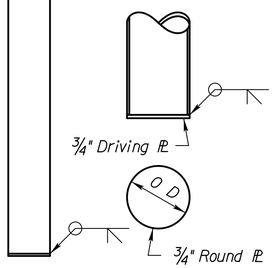
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	33	68

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

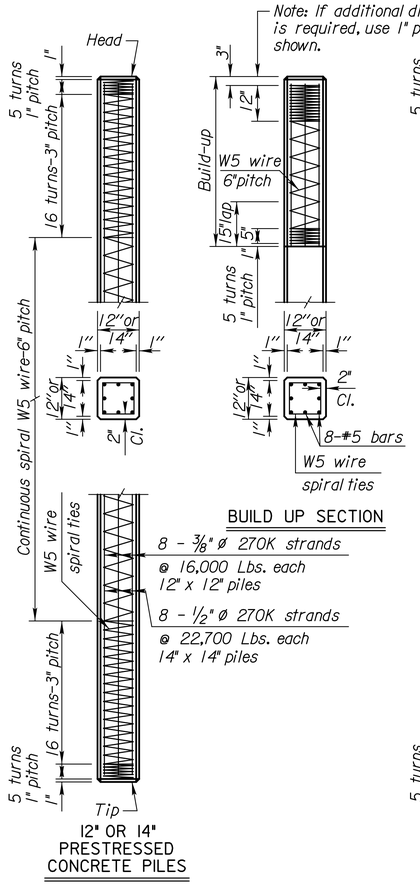
†† See the Geology Report or "Summary of Quanities" for Pipe Pile wall thickness

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".

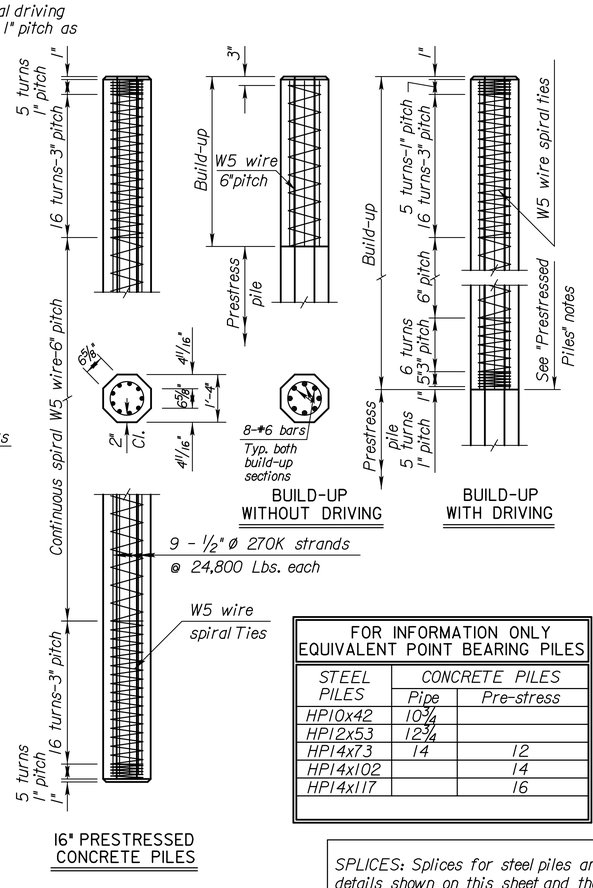
Note: Pile pipe may be spiral welded, longitudinal welded, or seamless steel pipe.



PLAIN ROUND CAST-IN-PLACE CONCRETE PILES



12" OR 14" PRESTRESSED CONCRETE PILES



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.

The following items are covered in Division 1000 of 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 stress relieved or low relaxation prestressing strand conforming to ASTM A416, Gr. 270.

SPECIFICATIONS: Standard Specifications for State Road and Bridge Construction as currently used by the Kansas Department of Transportation. The following items are covered in Division 700 of the Standard Specifications:

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. See General Notes or proper storage of welding rod. welding filler rod (electrode) for field welding of splices.

New electrode are to be purchased for each KDOT project. The electrode 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 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.

STEEL PILE: Steel pile shall conform to the requirements of the Standard Specifications.

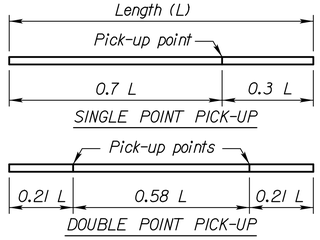
PILE POINTS: Pile points shall conform to the dimensions shown and to requirements of the Standard Specifications.

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.

CAST STEEL PILE POINT

The pile point shall be a one-piece unit of cast steel. Weld pile points in accordance with manufacturers recommendations to each steel pile before driving.



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.

PIPE PILE POINT

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.

Use E7018, 7016, or 7015 series welding rod (electrode) for all welding applications during pile splicing. See General Notes for proper storage of welding rod.

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.

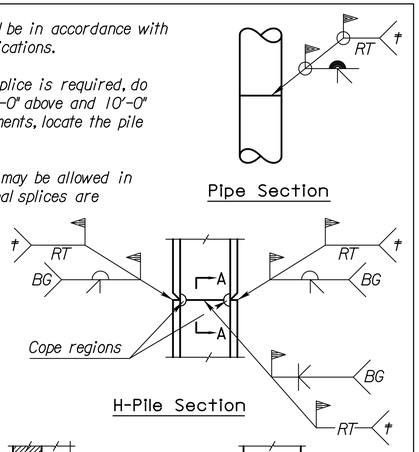
Verify that enough filler metal has been correctly placed in all weld locations to obtain a flush or convex surface with no concavity produced upon completion of the final welds.

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
4	08-16-18	Add splice web section, clarify note	MLL	JPJ
3	09-15-15	Clarify Notes	JPJ	CER
2	06-18-12	Clarify fb, rod type, use and weld	JPJ	TLF
1	1-5-09	Pile Splice Location and Weld Test	JPJ	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

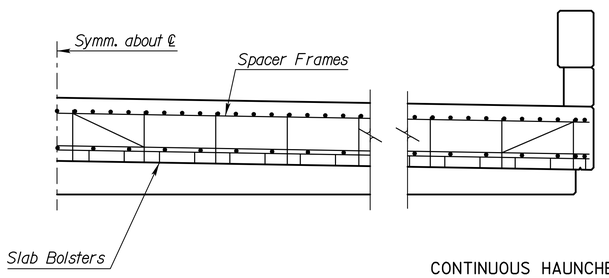
STANDARD PILE DETAILS

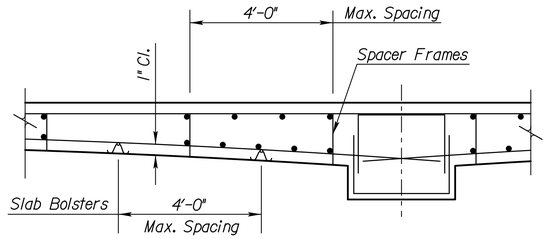
BRIIO

FHWA APPROVAL		10-04-12	APP'D	Terry L. Fleck
DESIGNED JPJ	DETAILED		QUANTITIES	CADD RAA
DESIGN CK.	DETAIL CK.		QUAN.CK.	CADD CK.

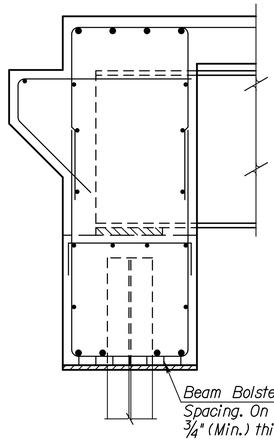
Std. Base File: br110.dgn | Plotted By: ARLawrence | Plot Location: | File: MATRAN17-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV17100054400bss110-01.dgn | Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	34	68

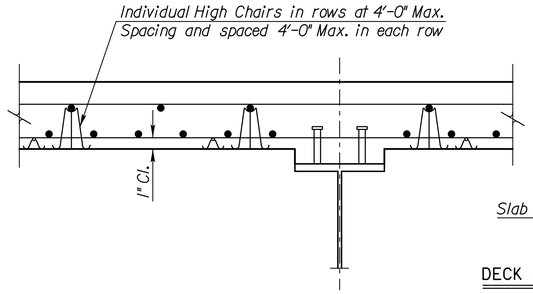


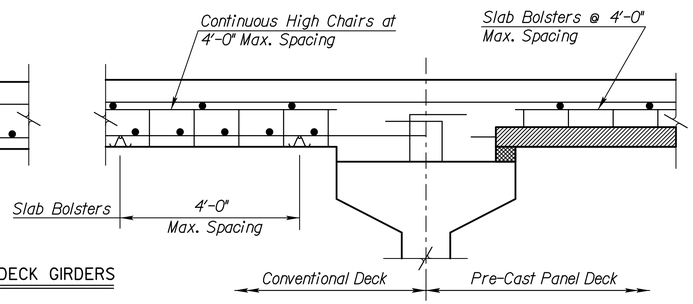


CONTINUOUS HAUNCHED SLAB



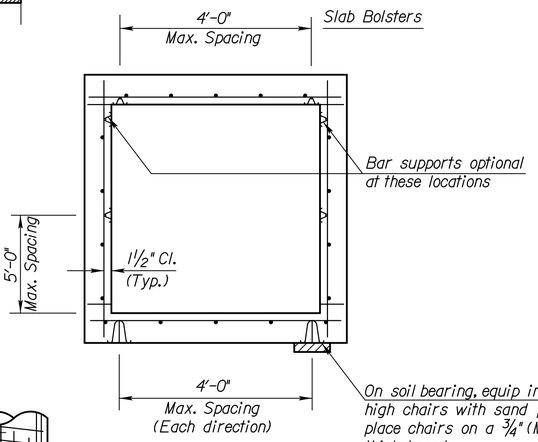
Beam Bolster at 4'-0" Max. Spacing. On soil bearing, place a 3/4" (Min.) thick board under bolster.

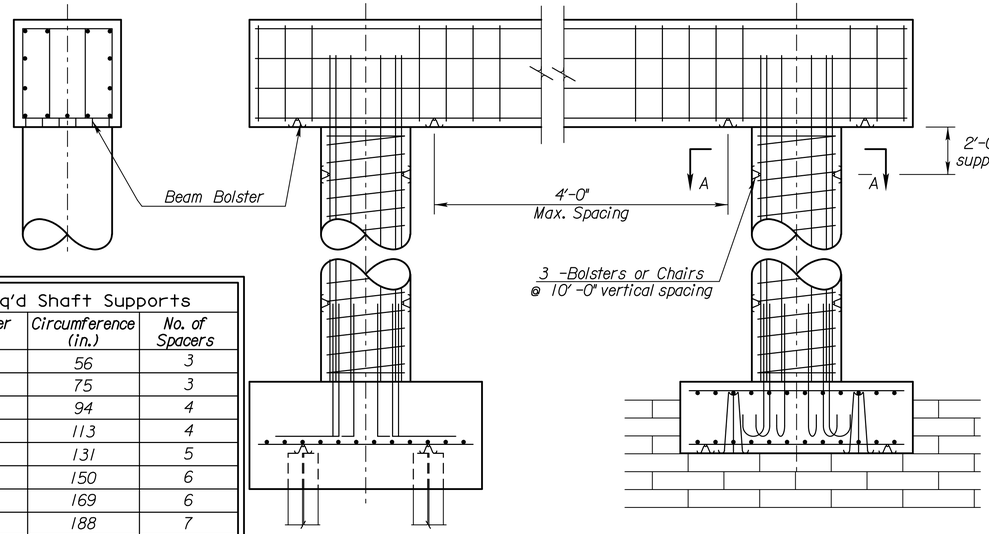




DECK GIRDERS

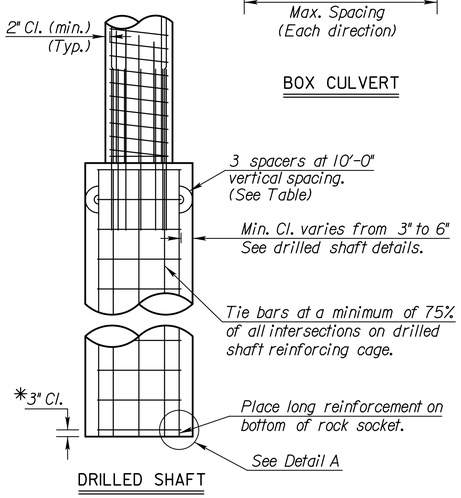
ABUTMENT





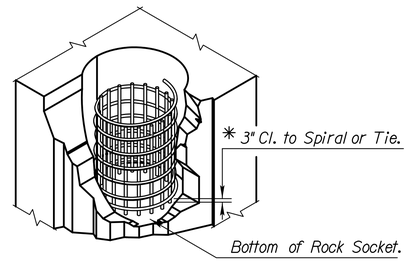
PIER

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



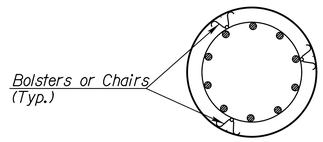
DRILLED SHAFT

BOX CULVERT



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 1/4" of that indicated on the plans.

Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.

NO.	DATE	REVISIONS	BY	APP'D
5	11-10-10	Column Bar Supports Req'd	JPJ	TLF
4	12-01-05	Drilled Shaft Spiral Steel Placement	JPJ	KFH
3	8-21-00	Added Pre-Cast Panel Detail	RAM	KFH
2	12-20-99	Added Haunched Slab Bolsters	RAM	KFH
1	12-09-99	Revised Drilled Shaft Clearance	RAM	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

SUPPORTS AND SPACERS FOR REINFORCING STEEL

BRI20

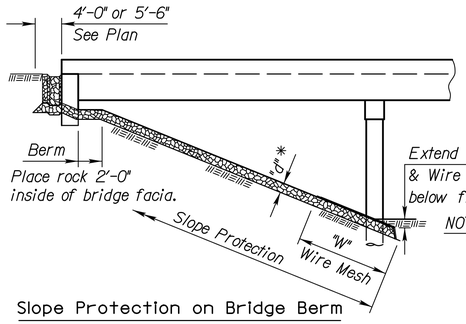
FHWA APPROVAL		11-17-10	APP'D	Terry L. Fleck	
DESIGNED	RAM	DETAILED	RAA	QUANTITIES	CADD RAA
DESIGN CK.	LRR	DETAIL CK.	RAM	QUAN.CK.	CADD CK. RAM

Std. Base File: bri20.dgn | Plot Location:
Plotted By: ARLawrence
File: MATRAN\7-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV\7100054002bss120-01.dgn
Plot Date: 8/10/2021

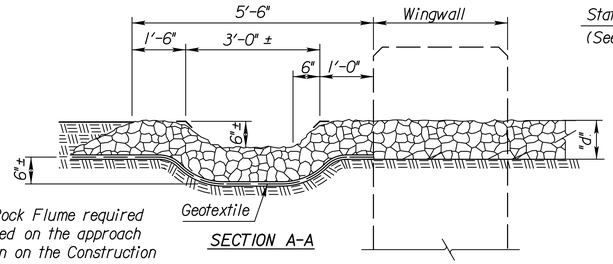
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	35	68

GENERAL NOTES

1. Limits of slope protection are shown on the Construction Layout sheet. Limits may be adjusted as needed at the direction of the Engineer to match ground elevations found at the site.
2. Gradation and aggregate for the Slope Protection (Aggregate) shall meet the requirements of stone for Aggregate Ditch Lining and have a D_{50} of 4 inches unless otherwise noted on the Plans.
3. Wire mesh shall be PVC coated and have a nominal mesh opening of $2\frac{1}{2}$"x$3\frac{1}{4}$". Wire mesh shall be furnished full width up to widths of 12.0 feet ("W"= 12.0 ft.). When widths greater than 12.0 feet are specified on the plans, the furnished width shall be as recommended by the manufacturer but not less than 6.0 feet. All splices shall be made with PVC coated lacing wire, PVC coated wire ties, or stainless steel fastener clips. The longitudinal edges of the wire mesh shall be securely selvedged to prevent ravelling of the mesh. Wire mesh and tie wires shall meet the material requirements for Gabions in the KDOT Specifications. Wire mesh shall not be used unless noted in the Plans and shown in the Table of Quantities. When wire mesh is specified, the bid item shall be "Slope Protection (Special)" and wire mesh shall be subsidiary.
4. Excavation and grading for placement of slope protection and all work and material to install geotextile fabric shall be subsidiary to slope protection.
5. Slope protection shall be underlain with geotextile fabric within limits shown. Fabric damaged or displaced during construction shall be replaced at no cost to KDOT. Fabric shall be installed and secured as recommended by the fabric manufacturer. One (1) copy of the fabric manufacturer's installation procedure shall be submitted to the Engineer. The installation procedure shall show details of the splices, overlaps, and pin layout. Minimum overlap of geotextile shall be 1 ft. Fabric shall be anchored along edges and splices at a maximum of 3 foot centers with staples or pins (w/washers). Interior area of fabric shall be pinned or stapled as recommended by the manufacturer but not more than 5 foot centers. Pins or staples shall be a minimum of 12 inches in length. Geotextile fabric shall meet the requirements of KDOT Specifications.
6. Unless noted otherwise on the Construction Layout, "d" shall be a minimum of 6 in., "W" shall be 12.0 ft.
7. The Contractor shall place the rock from the bottom to the top of the slope. Place the rock in a manner which produces a reasonably well graded mass of rock without segregation of the material sizes. Placement, measurement, and payment shall conform to KDOT Specifications for Slope Protection.

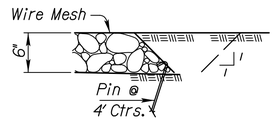


Slope Protection on Bridge Berm

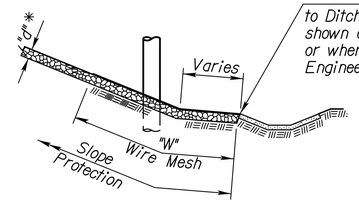


NOTE: Section A-A, Rock Flume required when curb is omitted on the approach slab or when shown on the Construction Layout sheet.

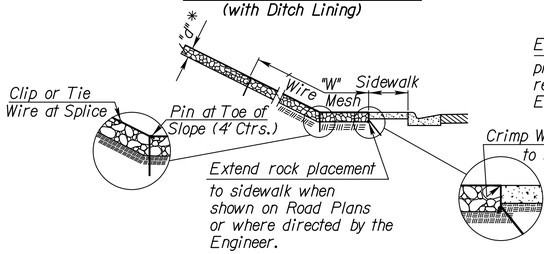
SECTION A-A



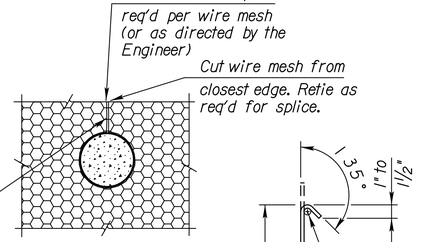
DETAIL AT EDGE OR TOE



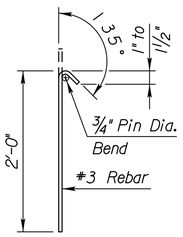
Slope Protection at Toe
(with Ditch Lining)



Slope Protection at Toe
(with Sidewalk)



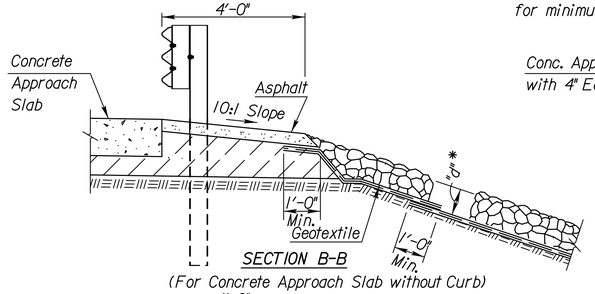
DETAIL AT COLUMNS
(Or Other Obstruction)



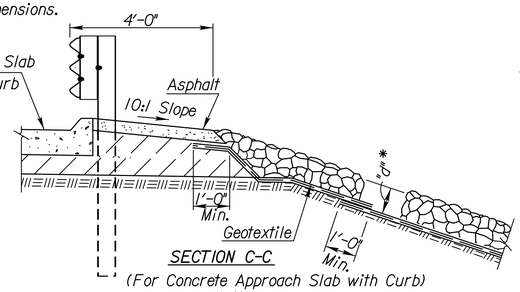
TYPICAL PIN DETAIL

Note:
Pins shall be sharpened or geotextile shall be cut to allow penetration of stake without tearing or ripping the geotextile fabric.

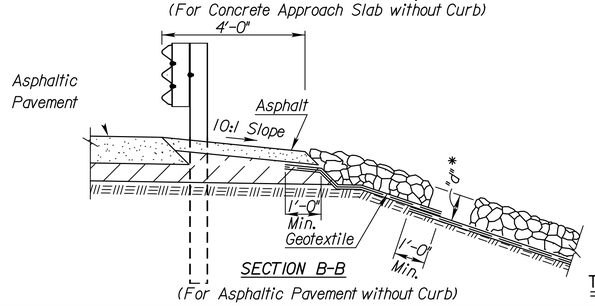
* See General Notes for minimum dimensions.



SECTION B-B
(For Concrete Approach Slab without Curb)

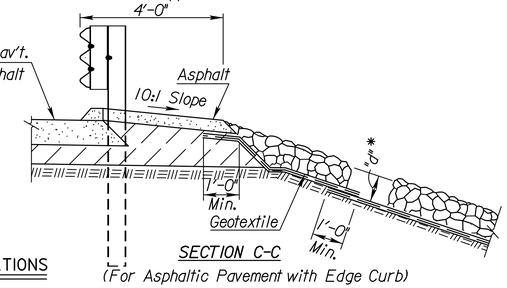


SECTION C-C
(For Concrete Approach Slab with Curb)

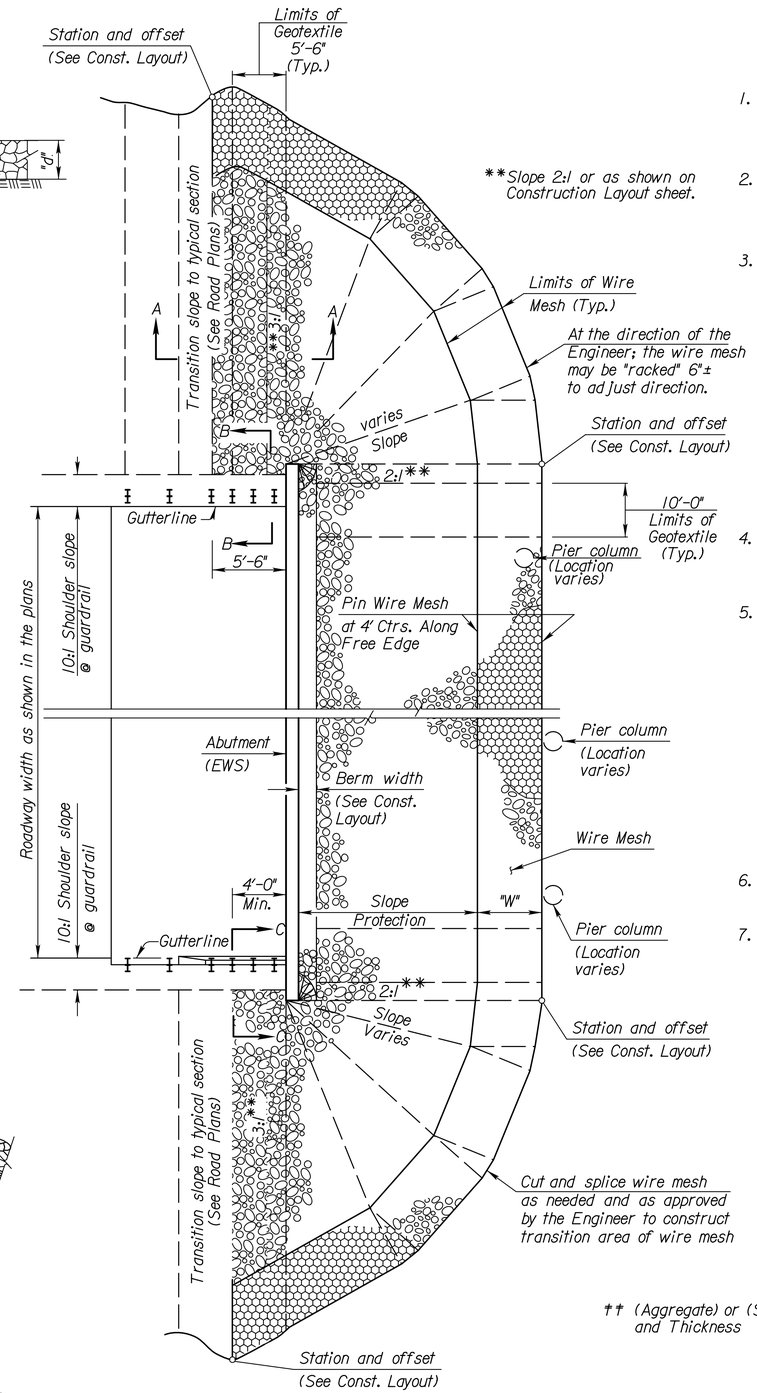


SECTION B-B
(For Asphaltic Pavement without Curb)

TYPICAL ELEVATIONS



SECTION C-C
(For Asphaltic Pavement with Edge Curb)



PLAN - BERM
AND SLOPE PROTECTION
STRAIGHT WINGWALL ABUTMENT

QUANTITIES
† For Information Only

Bridge Number	Slope Protection (††) Cu. Yds.	†Geotextile Sq. Yds.	†Wire Mesh Sq. Yds.
HP-19	324	107	

†† (Aggregate) or (Special) and Thickness

NO.	DATE	REVISIONS	BY	APP'D
3	12/10/10	Clarified Geotextile	JPJ	TLF
2	7/14/04	Changed to guard "rail"	RAM	KFH
1	5/15/02	Clarified Bid Items	RAM	KFH

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 000000000052B110 Sta. 106+50.00

BRIDGE BERM AND
SLOPE PROTECTION
STRAIGHT WINGWALL ABUTMENT

BRI32A Leavenworth Co.

FHWA APPROVAL			6/4/02	APP'D	KENNETH F. HURST
DESIGNED	RRR	DETAILED	PGF	QUANTITIES	CADD 5/95 PGF
DESIGN CK.		DETAIL CK.	RRR	QUAN.CK.	CADD CK.

Std. Base File: br132a.dgn
Plotted By: ARLawrence
Plot Location:
File: M:\TRNV\7-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\KDOT Stndards\LV171000540bss132a-01.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	36	68

EARTHWORK

Station to Station		Excavation: Common Cu. Yds.	Excavation: Common VMF	Excavation: Common (Contr. Furn.) Cu. Yds.	Excavation: Common (Contr. Furn.) VMF	Excavation: ⓓ Rock (Waste) Cu. Yds.	Excavation: ⓓ Rock (Waste) VMF	Compaction Cu. Yds.: Type A MR-90	Compaction Cu. Yds.: Type AA MR-5-5	Thru Cuts Not Subgraded Cu. Yds.: Common Excav.	Thru Cuts Not Subgraded Cu. Yds.: Type AA MR-5-5	Waste Cu. Yds.: Common	Waste Cu. Yds.: Rock	Remarks
McIntyre Rd.														
102+25.00	104+98.75	61	0.85	765	0.85	118	1.00	557	145			-	118	
108+01.25	110+75.00	36	0.85	2,130	0.85	93	1.00	1,747	94			-	93	
	Total	97		2,895		211		2,304	239			0	211	

ⓓ All Rock Excavation is from pavement removal and is to be wasted.

✳REMOVAL OF EXISTING STRUCTURES (For Information Only)

Station	Location	Structure
106+50.00	McIntyre Rd.	89'-4" - 102'-8" - 89'-4" SBMC Bridge
	TOTAL	

✳ Note: The listing shown may not be complete. Payment for structures or obstructions not listed, but whose removal is required by the construction, as determined by the Engineer, shall not be paid for directly, but shall be included in the Bid Item, "Removal of Existing Structures."

RECAPITULATION OF ROAD QUANTITIES

Item	Total	Unit
Contractor Construction Staking	Lump Sum	Lump Sum
Field Office and Laboratory (Type A)	1	Each
Foundation Stabilization (Set Price)	Lump Sum	Lump Sum
Mobilization	Lump Sum	Lump Sum
Maintenance and Restoration of Haul Roads (Set Price)	Lump Sum	Lump Sum
Removal of Existing Structures	Lump Sum	Lump Sum
Concrete for Seal Course (Set Price)	1	Cu. Yd.
Curing Environment	Lump Sum	Lump Sum
Clearing and Grubbing	Lump Sum	Lump Sum
Common Excavation	97	Cu. Yd.
Common Excavation (Contractor Furnished)	2,895	Cu. Yd.
Rock Excavation	211	Cu. Yd.
Compaction of Earthwork (Type A)(MR-90)	2,304	Cu. Yd.
Compaction of Earthwork (Type AA)(MR-5-5)	239	Cu. Yd.
Water (Grading) (Set Price)	1	Mgal
Guardrail, Steel Plate	250	Ln. Ft.
Guardrail, End Terminal (MGS-FLEAT) Alt. 1	4	Each
Guardrail, End Terminal (MGS-SRT) Alt. 2	4	Each
Monument Box	1	Each
Concrete Pavement (10" Uniform)(AE)(Br App)	95	Sq. Yd.
Mailbox Installation (Set Price)	1	Each
Signing Object Marker (Type 3)	4	Each
Sign (Flat Sheet)(High Performance)	13.46	Sq. Ft.
Sign Post	32	Lin. Ft.

For Bridge Quantities See Sh. No. 15
For Surfacing Quantities See Sh. No. 37
For Temporary Erosion & Pollution Control Quantities See Sh. No. 38
For Permanent Seeding Quantities See Sh. No. 46
For Traffic Control Quantities See Sh. No. 60

SIGNING

Station	Side	Sign Designation	Size	Sign (Flat Sheet) (Sq. Ft.)	Sign Post (1¾" Perforated Square Steel Tube)(Lin. Ft.)	Remarks
103+25.00	Lt.	D3-1	33	2.50	16	"208th St" Sign
103+25.00	Lt.	D3-1	33	3.50	◔	"McIntyre Rd" Sign
103+40.00	Rt.	R1-1	33	7.46	16	Replace 208th St. Stop Sign
			TOTAL	13.46	32	

◔ D3-1 signs to be mounted on same post.

CONCRETE PAVEMENT (10" UNIF.)(AE)

Station to Station	Skew	Length (Ft.)	Width (Ft.)	Quantity (Sq. Yds.)	Remarks
104+85.75 - 104+98.75	0°	13	33	47.7	Bridge Approach Slab
108+01.25 - 108+14.25	0°	13	33	47.7	Bridge Approach Slab
			TOTAL	95.3	

GUARDRAIL, STEEL PLATE (MGS)

Station to Station	Location	Side	Quantity (Lin. Ft.)	End Terminal (MGS-FLEAT)(Flared) (Alt. #1) (Each)	End Terminal (MGS-SRT)(Flared) (Alt. #2) (Each)
103+72.08 - 104+98.75	W. 347th St.	Rt.	87.5	1	1
104+09.41 - 104+98.75	W. 347th St.	Lt.	37.5	1	1
108+01.25 - 109+15.47	W. 347th St.	Lt.	37.5	1	1
108+01.25 - 108+90.59	W. 347th St.	Rt.	87.5	1	1
		TOTAL	250	4	4

MAILBOX INSTALLATION

Station	Side	Quantity	Remarks
103+22.00	Lt.	1	Coordinate with the Engineer the placement of the mailbox.
	TOTAL	1	

MONUMENT BOX

Station	Location	Side	Offset (Feet)	Quantity	Remarks
108+37.64	McIntytre Rd.	Lt.	5.50	1	Coordinate with Leavenworth County Surveyor prior to placement.
			TOTAL	1	

BY	DATE
REFERENCES NOTED	
REFERENCES CHECKED	

Drawn By : ARLawrence
Plotted : 8/10/2021
File : M:\TRN\17-100-054-001\2_Disciplines_SHEETS\3_Sheets - roadway\LV17100054001rpa-01.dgn

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	37	68

GENERAL NOTE:

On surfacing projects, the 6" of Compaction Type AA, shown for the center portion on the roadbed, is for the purpose of restoring the original Compaction Type AA which may have been lost since grading operations. The exact locations of this Compaction Type AA, which will be required, is to be determined by the Engineer at the time of construction. This work shall be paid under the bid item "Compaction of Earthwork (Type AA) (MR-5-5)".

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

~~The_____material used to backfill over the structure shall be paid for at the prices shown in the contract.~~

The earth shoulders shall be compacted full depth (Type AA-MR5-5) except, when ordered by the Engineer, the top 3" shall be left uncompacted for seeding.

All side roads and house entrances shall be surfaced with_____ to the R/W line as indicated on the detail. All side roads and house entrances with existing asphalt surface shall be surfaced with HMA (Commercial Grade) 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 HMA (Commercial Grade) 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.

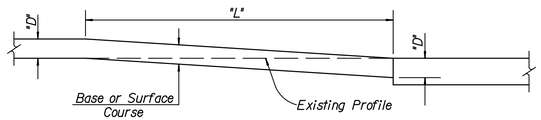
The base course shall be constructed to the plan thickness as shown.

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.

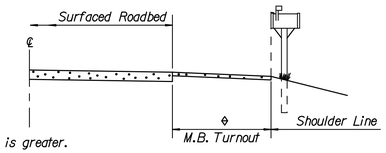
TABLE OF DIMENSIONS

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	MAINLINE	ENTRANCES				TOTAL	UNITS
HMA-Commercial Grade (Class A)	415	57				472	Tons
Aggregate Base (AB-3)(6")	1,009	135				1,144	Sq. Yd.

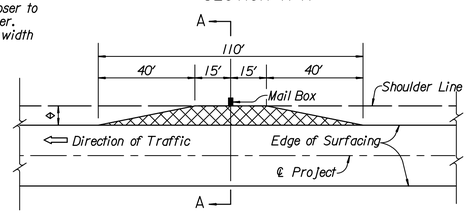
† Computed at the rate of 145 lbs. per cu. ft.



◆ 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

RATES OF APPLICATION

RATE	UNIT	ITEM		

† Computed at the rate of

†† Computed at the rate of

RECAPITULATION OF QUANTITIES

ITEM				TOTAL	UNIT
HMA-Commercial Grade (Class A)				472	Tons
Aggregate Base (AB-3)(6")				1,144	Sq. Yds.

⚠ 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	1-10-07	Changed bituminous to asphalt	S.W.K.	J.O.B.
11	8-30-06	Changed tack type/rate	S.W.K.	J.O.B.
10	3-24-05	Revised compaction, tack type/rate	S.W.K.	J.O.B.
9	6-12-02	Added low point off shoulder.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES (Surfacing)

RD051

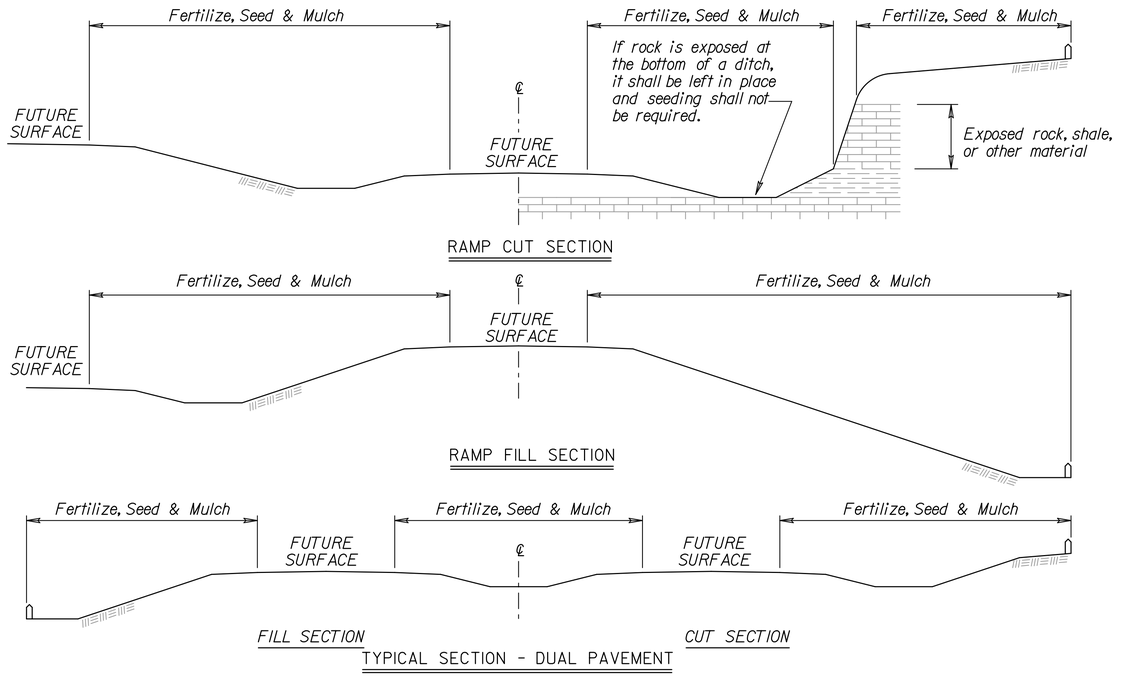
FHWA APPROVAL	9-06-06	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Hecht

KDOT Graphics Certified 10-21-2015

KDOT Graphics Certified

Drawn By: ARLawrence Plotted: 8/10/2021
File: M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000S400rss051-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	38	68



FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P_2O_5, K_2O listed in Summary of Quantities will be acceptable.

- ** - N = Nitrogen Rate of Application*
- *** - P_2O_5 = Phosphorous Rate of Application*
- **** - K_2O = Potassium Rate of Application*

The Contractor will be required to finish areas of excavation, borrow and embankment in accordance with the specifications. Areas that require installation or construction of temporary water pollution control items will be finished in reasonable close conformity to the alignment, grade and cross section shown on the plans or as established by the Engineer.

CLT = Construction Limit Tract. This area is defined by the entire disturbed area of the project that requires seeding and erosion control measures to be placed. Any impervious areas (i.e. pavement, gravel, riprap, etc.) shall not be included in this measurement.

Slope = Defined by the area of the project that requires Class 1 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

Channel = Defined by the area of the project that requires Class 2 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

GENERAL NOTES

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded, and mulched. Soil preparation shall conform to the Standard Specifications.

Temporary seeding shall be done during any time of the year that the soil can be cultivated. After the temporary seeding has been completed on the entire project, permanent seeding shall be done during the normal seeding season.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching materials is generally as follows:

1¾ - 2¼ Tons per Acre = 1½" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.
Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
150		0.95		Temporary Fertilizer (15 - 30 - 15)	142	LB
20		0.95		Temporary Seed (Canada Wildrye)	19	LB
45		0.95		Temporary Seed (Grain Oats)	43	LB
45		0.95		Temporary Seed (Sterile Wheatgrass)	43	LB
				Soil Erosion Mix	-	LB
				Erosion Control (Class 1, Type Y)	-	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")	680	LF
				Filter Sock (18")	510	LF
				Geotextile (Erosion Control)	-	SQ YD
				Silt Fence	510	LF
				~~SWPPP Design †~~	~~1~~	~~LS~~
				~~SWPPP Inspection †~~	~~30~~	~~EACH~~
				~~Water Pollution Control Manager †~~	~~50~~	~~EACH~~
900 lbs / acre		0.95		Mulch Tacking Slurry	852	LB
2 tons / acre		0.95		Mulching	2	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
3	08/03/20	Added Note	MRD	ML
2	12/01/17	Revised Standard	MRD	SHS
1	06/01/17	Revised Standard	MRD	SHS

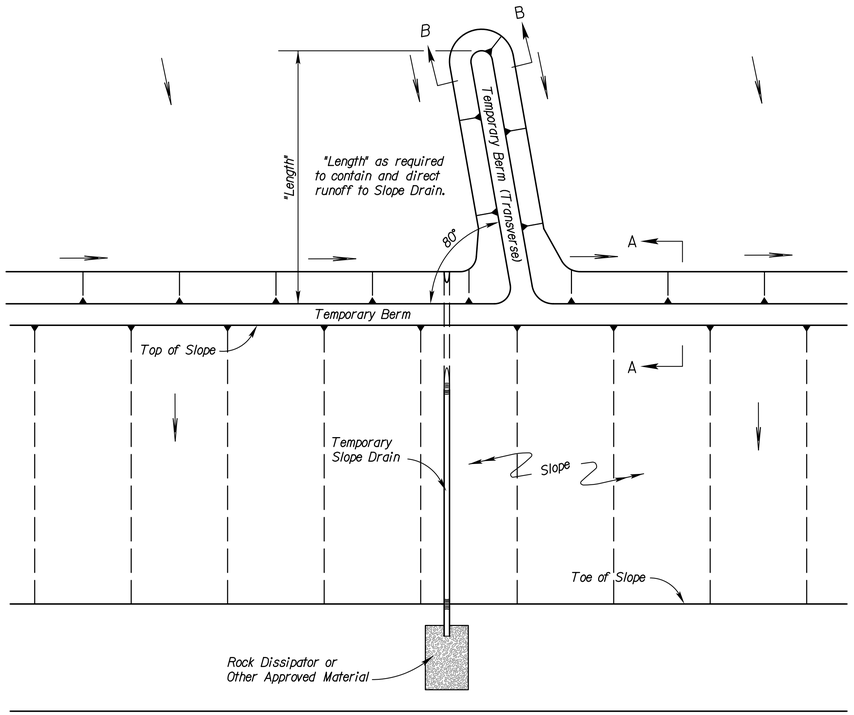
KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

LA852A

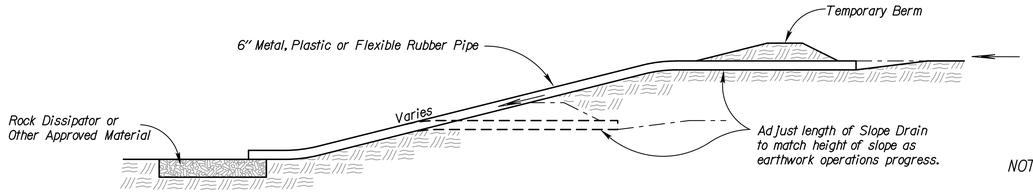
FHWA APPROVAL		1/26/2018	APP'D	Scott H. Shields	
DESIGNED	MRD	DETAILED	MRD	QUANTITIES	CADD
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.	CADD CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	39	68



TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN

NO SCALE



TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

NO SCALE

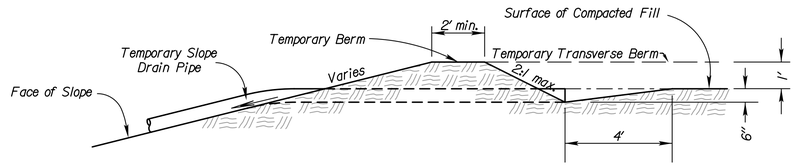
NOTES:

1) Temporary Slope Drain and Temporary Berm may be used on either project foreslopes or project backslopes.

2) Discharge of Slope Drains shall be into stabilized ditch or area, or into Sediment Basin.

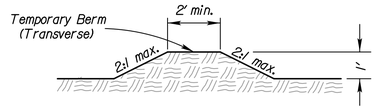
3) Pipe shall be secured in place as approved by Engineer.

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



SECTION A-A

NO SCALE

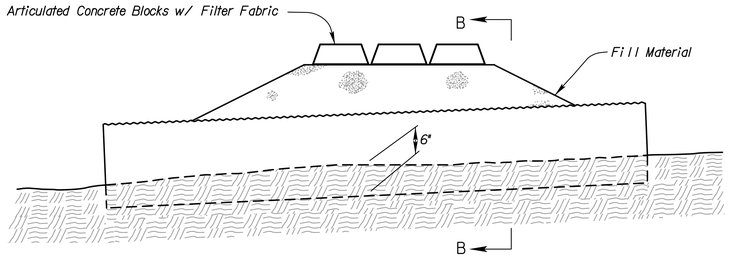


SECTION B-B

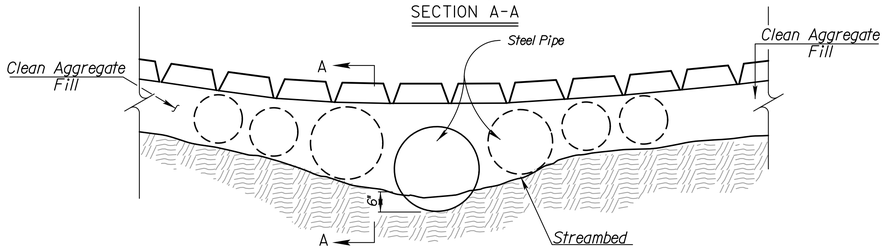
NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM

NO SCALE



SECTION A-A



SECTION B-B

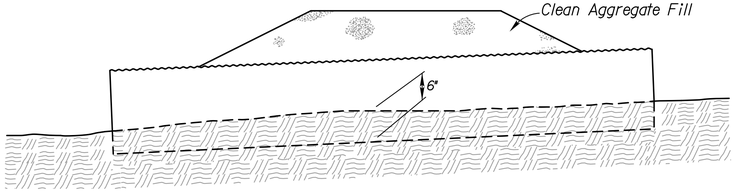
TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)

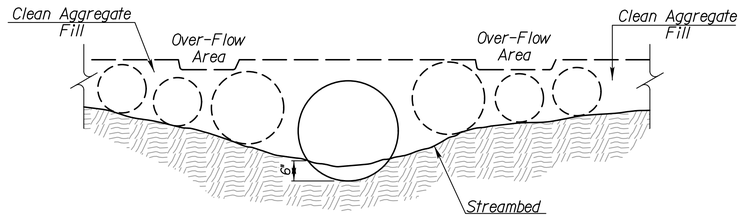
NO SCALE

Pipe size may vary

Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

See KDOT Specifications for more information





SECTION B-B

TEMPORARY STREAM CROSSING (AGGREGATE)

NO SCALE

Pipe size may vary

Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

See KDOT Specifications for more information

NO.	DATE	REVISIONS	BY	APP'D
3	6/11/13	Revised Standard	MRM	SHS
2	11/01/10	Revised Standard	MRM	SHS
1	10/15/10	Revised Standard	WCL	RDR

KANSAS DEPARTMENT OF TRANSPORTATION

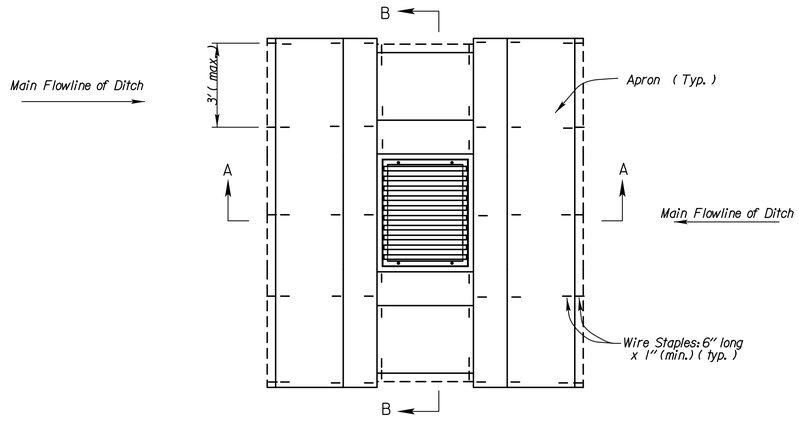
TEMPORARY EROSION AND POLLUTION CONTROL
TEMPORARY SLOPE DRAIN
TEMPORARY STREAM CROSSING (AGGREGATE)
TEMP. STREAM CROSS. (ARTC. CONC. BLOCKS)

LA852B

FHWA APPROVAL		11/08/2010	APP'D	Scott H. Shields	
DESIGNED	MRM	DETAILED	QUANTITIES	CADD	
DESIGN CK.	SHS	DETAIL CK.	QUAN.CK.	CADD CK.	

Std. Base File:
Plotted By: ARLawrence | Plot Location:
File: M:\TRAN\7-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LVI7100054...
Plot Date: 8/10/2021

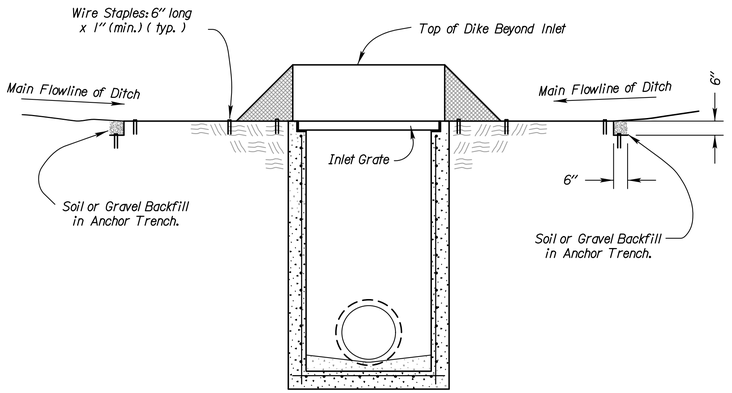
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	40	68



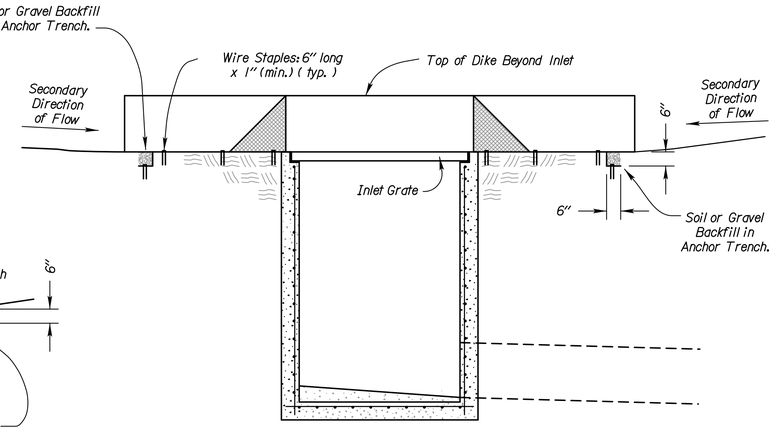
PLAN

TEMPORARY INLET SEDIMENT BARRIER
(TRIANGULAR SILT DIKE METHOD)

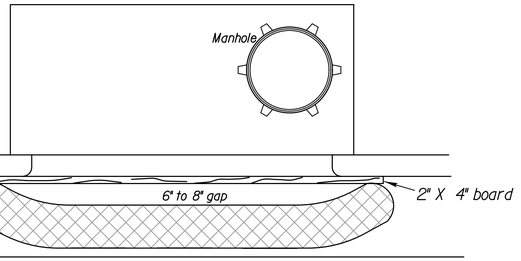
NO SCALE



SECTION A - A



SECTION B - B

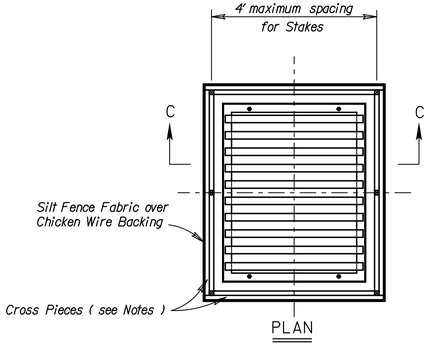


Bags = synthetic net (3mm mesh) or burlap bags

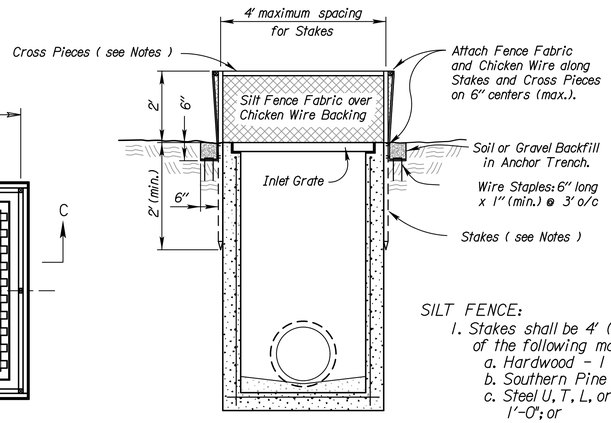
Rock = approximately 1" to 2" diameter

CURB INLET PROTECTION

1. If multiple gravel bags are required, place them in such a way that no gaps are evident.
2. Height of bags (8" minimum diameter) must not be above top of curb.
3. Alternative products may be used other than gravel bags such as the "Gutter Buddy". Products must be approved by the Engineer.
4. Curb inlet protection will be measured and paid for as Filter Sock.



PLAN



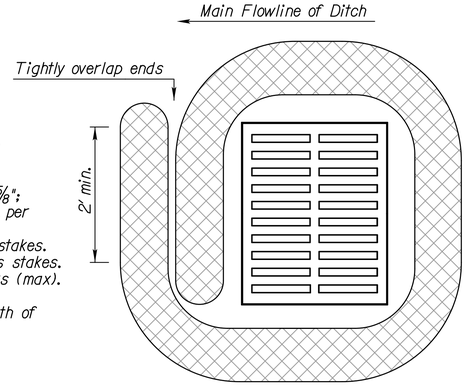
SECTION C - C

TEMPORARY INLET SEDIMENT BARRIER
(SILT FENCE METHOD)

NO SCALE

SILT FENCE:

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/16" x 1 3/16";
   b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
   d. Synthetic - same strength as wood stakes.
2. Cross pieces shall be of same material as stakes.
3. Attach fence fabric securely on 6" centers (max).
4. Use of high flow material is acceptable.
5. Refer to plan sheets to estimate the length of silt fence required.



Drop inlet use
1'-6" TO 1'-8" diameter log

BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION

Note: 25% of log shall be keyed into ground during installation.

Stake every 4'

Material Requirements
Use 100% shredded mulch or other non-compost biodegradable material as fill for logs.
No compost or fines.
No hay or straw.
Do not use material which prohibits water infiltration.
Log Mesh: Use mesh with 1/4" openings or larger. Mesh must allow water infiltration but also hold fill material in place.

NO.	DATE	REVISIONS	BY	APP'D
3	9/26/19	Changed Direction of Main Flowline of Ditch Arrow	MRD	SHS
2	3/10/15	Revised Standard	RA	SHS
1	6/01/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

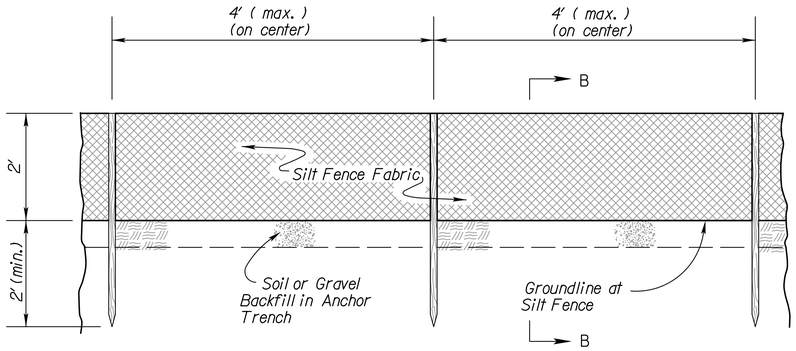
TEMP. INLET SEDIMENT BARRIER (SILT FENCE)
TEMP. INLET SEDIMENT BARRIER (T.S.D.)
CURB INLET PROTECTION
DROP INLET PROTECTION

LA852C

FHWA APPROVAL		3/10/2015	APP'D	Scott H. Shields
DESIGNED	RA	DETAILED RA	QUANTITIES	CADD
DESIGN CK.	SHS	DETAIL CK. SHS	QUAN.CK.	CADD CK.

Std. Base File:
Plotted By: ARLawrence
Plot Location:
File: M:\TRNT-100-054-002\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Stnadards\LV171000540eec852c-01.dgn
Plot Date: 8/10/2021

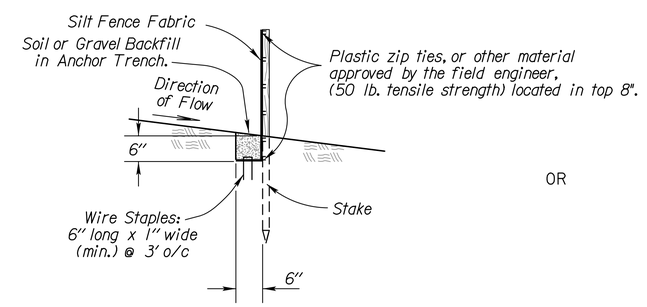
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	41	68



TYPICAL ELEVATION

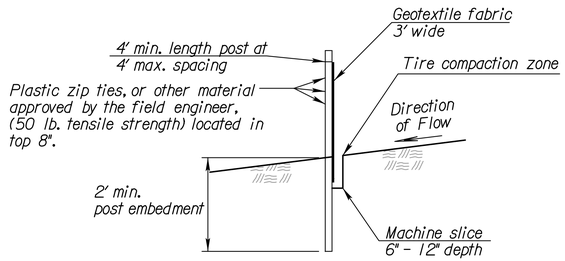
SILT FENCE BARRIER

NO SCALE

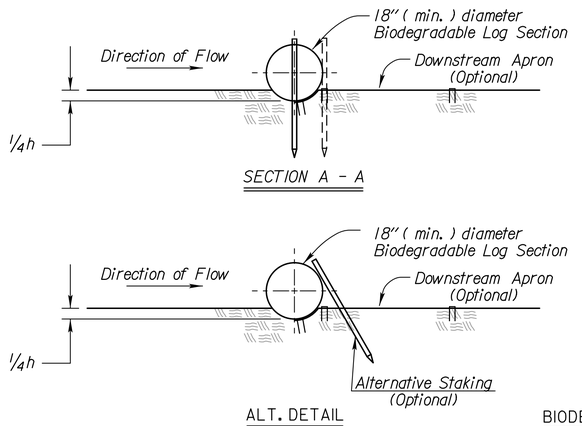


SECTION B-B

OR

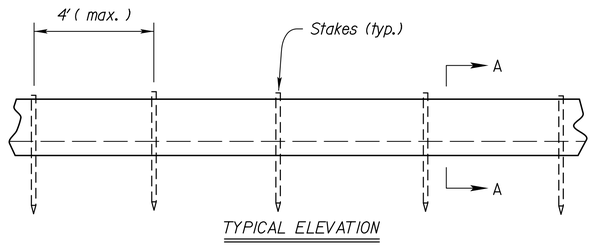


SECTION B-B



ALT. DETAIL

OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS

OR Filter Sock

INSTALLATION NOTES

SILT FENCE:

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/16" x 1 3/16";
   b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
   d. Synthetic - same strength as wood stakes.
2. Attach fence fabric with 3 zip ties within the top 8" of the fence
   Alternate attachment methods may be approved by the Engineer on a performance basis.
3. Use of high flow material is acceptable.
4. Refer to plan sheets to estimate the length of silt fence required.

BIODEGRADABLE LOG OR FILTER SOCK

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".
2. Wood stakes shall be 2" x 2" (nom.).
3. Refer to plan sheets to estimate length of biodegradable log and filter sock required.
4. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
5. Length of stakes should be 2 times the height of the log at a minimum with minimum ground embedment equal to the height of the log / sock.

Biodegradable Log or Filter Sock Slope Interruptions

Slope Gradient	PRODUCT: 9" Sediment Log or 8" Filter Sock (ft)	12" Sediment Log or 12" Filter Sock (ft)	20" Sediment Log or 18" Filter Sock (ft)
≤4H:1V	40	60	80
3H:1V	30	45	60

Deviations should be approved by the Field Engineer.

	BIODEGRADABLE LOG MATERIAL	
	LOW FLOW	HIGH FLOW
9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber

GENERAL NOTES

1) Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.
2) The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.
3) Interruptions damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.
4) Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

NO.	DATE	REVISIONS	BY	APP'D
3	6/28/16	Revised Standard	RA	SHS
2	3/01/15	Revised Standard	RA	SHS
1	6/01/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

SLOPE INTERRUPTIONS BIODEGRADABLE LOG / SILT FENCE

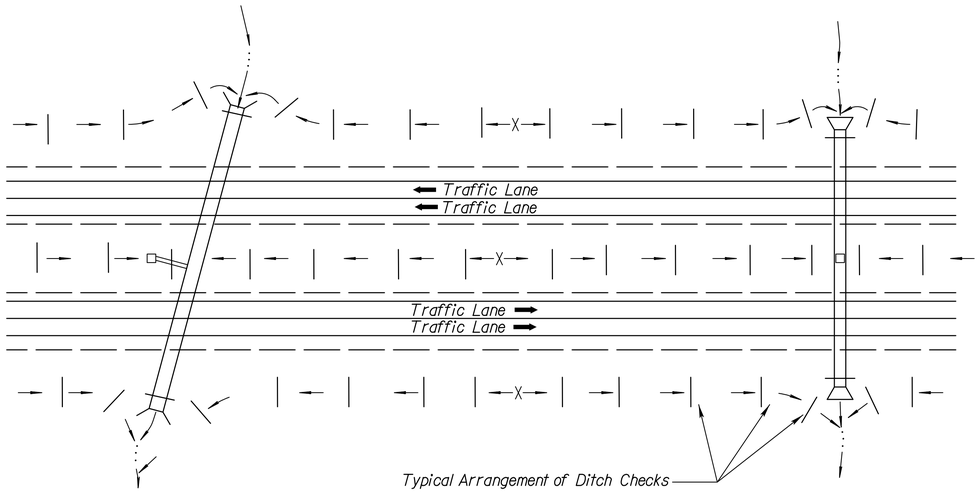
LA852D

FHWA APPROVAL		9/14/2016	APP'D	Scott H. Shields	
DESIGNED	SHS	DETAILED RA	QUANTITIES	CADD	
DESIGN CK.	SHS	DETAIL CK.	QUAN.CK.	CADD CK.	

Std. Base File:
Plotted By: ARLawrence | Plot Location:
File: M:\TRNV17-100-054-0002_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540eec852d-01.dgn
Plot Date: 8/10/2021

CADconform Certify This File

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	42	68



TYPICAL DITCH CHECK LAYOUT PLAN

NO SCALE

20" BIOLOG CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	*125*
2.0	*60*
3.0	*40*
4.0	*30*
5.0	*25*
NOTE: Use this spacing for all except Rock Ditch Checks.	

18" FILTER SOCK CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	*110*
2.0	*55*
3.0	*35*
4.0	*25*
5.0	*20*
NOTE: Use this spacing for all except Rock Ditch Checks.	

GENERAL NOTES

1) *The choice of ditch check methods is at the option of the Contractor.*

2) *Use only rock checks in situations where the ditch slope is 6 percent or greater.*

2) *Ditch checks damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.*

NO.	DATE	REVISIONS	BY	APP'D
3	8/10/16	Revised Standard	RAA	SHS
2	6/28/16	Revised Standard	RAA	SHS
1	6/01/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

DITCH CHECKS

LA852E

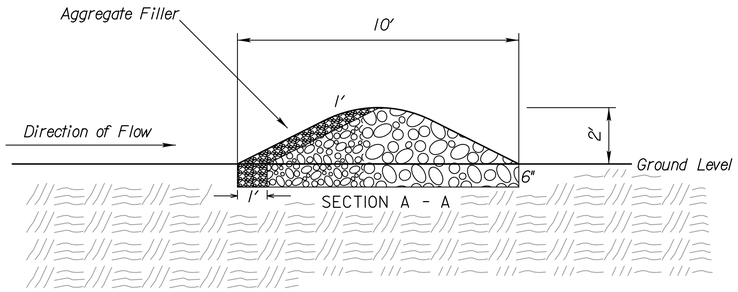
FHWA APPROVAL		9/14/2016		APP'D		Scott H. Shields	
DESIGNED	SHS	DETAILED	RAA	QUANTITIES		CADD	RAA
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.		CADD CK.	SHS

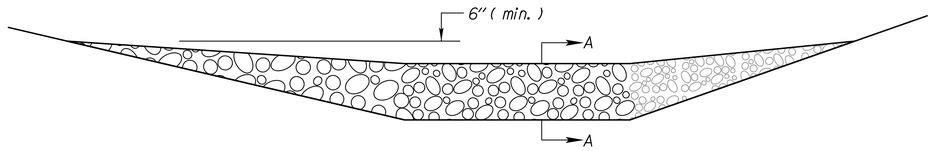
CADconform Certify This File

Std. Base File:
Plotted By: ARLawrence | Plot Location:
File: M:\TRNT-100-054-002\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540eec852e-01.dgn
Plot Date: 8/10/2021

CADconform Certify This File

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	43	68





TYPICAL ELEVATION

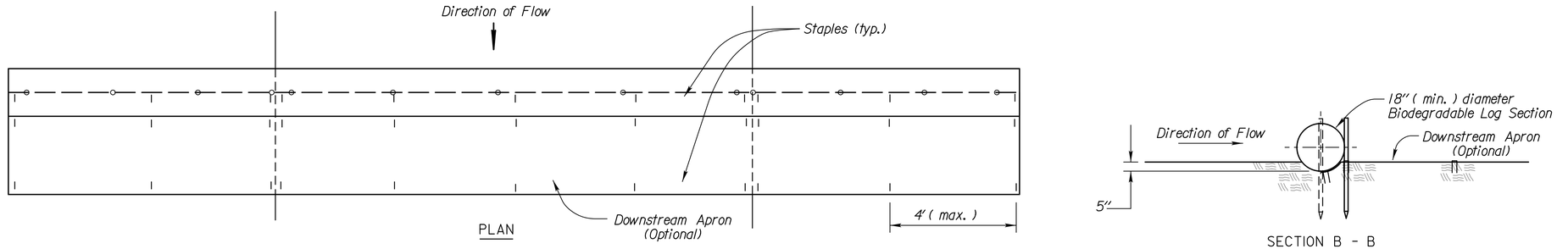
ROCK DITCH CHECK

NO SCALE

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

ROCK DITCH CHECK NOTES

1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch shall be excavated to the dimensions of the Rock Ditch Check and to a minimum depth of 6" (150mm). After placement of the rock, backfill and compact any over-excavated soil to ditch grade. This work shall be subsidiary to the bid item Temporary Ditch Check (Rock).
5. Aggregate excavated on site may be used as an alternate to the 6" rock, if approved by the Engineer.
6. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.
7. When the use of larger rock is approved, D50-6" rock will be placed between the larger aggregate and the aggregate filler.
8. Aggregate filler will be placed on the upstream face of the ditch check. Aggregate filler will comply with Filter Course Type I, Division 1114.

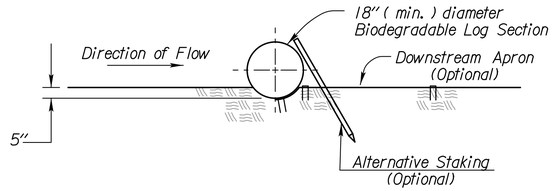


BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE

SECTION B - B



ALT. DETAIL
OPTIONAL

BIODEGRADABLE LOG DITCH CHECK NOTES

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18".
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 2 x the diameter of the log.
4. Use Erosion Control (Class 1) (Type C) as the downstream apron when required.
5. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price.
6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

NO.	DATE	REVISIONS	BY	APP'D
3	11/19/20	Revised Standard	MRD	ML
2	8/10/16	Revised Standard	RAA	SHS
1	10/21/15	Revised Standard	RAA	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

ROCK DITCH CHECKS

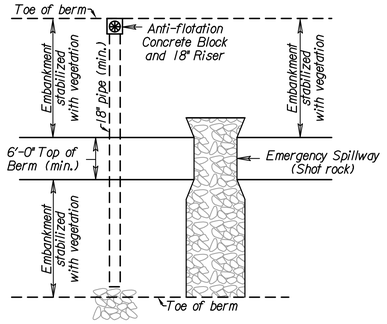
BIODEGRADABLE LOG DITCH CHECKS

LA852G

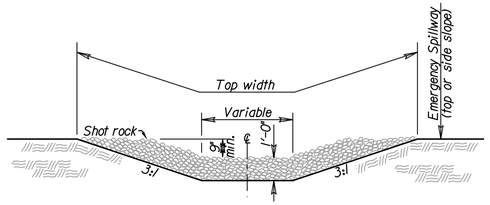
FHWA APPROVAL		11/19/2020	APP'D	Mervin Lare
DESIGNED	ML	DETAILED	DK	QUANTITIES	CADD	RAA
DESIGN CK.	ML	DETAIL CK.	ML	QUAN.CK.	CADD CK.	RAA

Std. Base File: la852g.dgn
Plotted By: ARLawrence
Plot Location:
File: M:\TRNT-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540eec852g-01.dgn
Plot Date: 8/10/2021

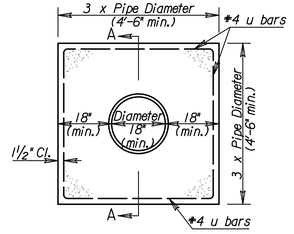
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	44	68



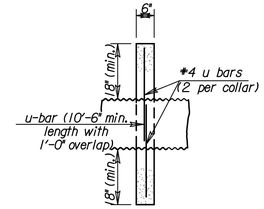
SEDIMENT STORAGE BASIN (PLAN)



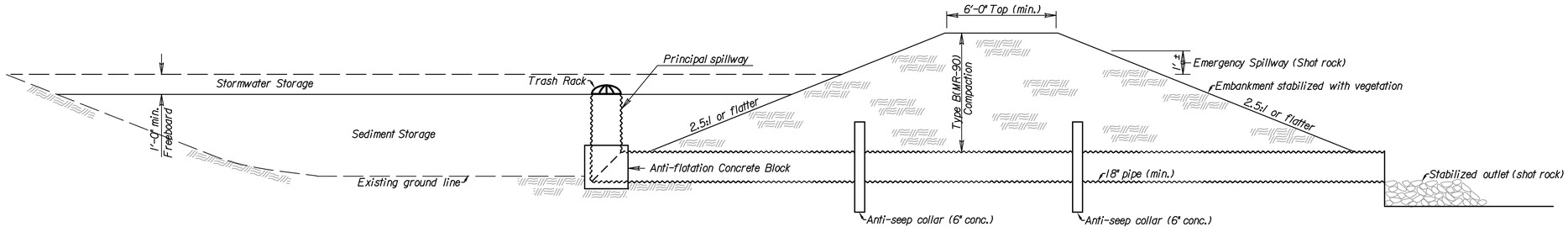
CROSS SECTION (EMERGENCY SPILLWAY)



CONCRETE ANTI-SEEP COLLAR



SECTION A-A



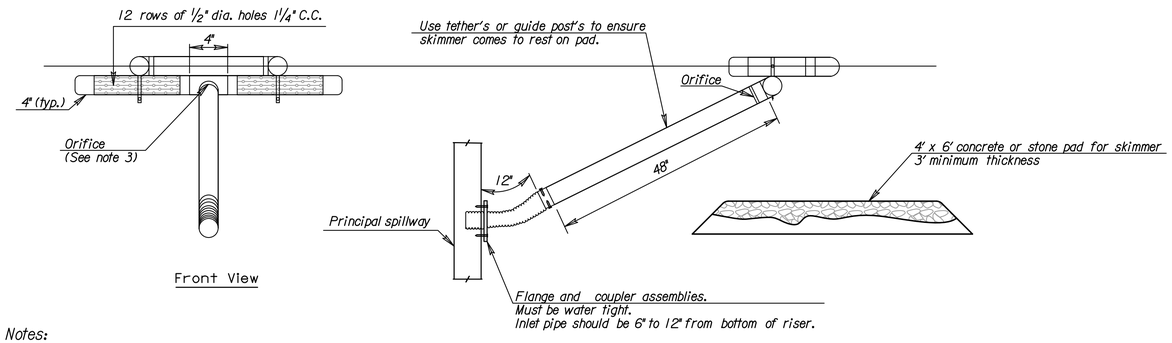
SEDIMENT STORAGE BASIN (ELEVATION)

NOTES:

1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the SWPPP Schedule. All work and materials necessary, including but not limited to, the fill material, compaction, drainage pipes, aggregates and all other incidentals necessary to construct the basin, shall be paid as "Temporary Sediment Basin".

2) Lengths and top dimensions shall be determined in the field by the Engineer.

3) Skimmer dewatering device required and must be used reguardless the size of the drainage area.



Notes:

1. *All P.V.C. pipes are to be schedule 40.*
2. *HDPE flexible drain pipes is to be attached to the pond outlet structure with water-tight connections.*
3. *The orifice shall be sized of to provide drawdown time to 2 to 5 days and approved by the engineer.*
4. *Other skimmer designs maybe used that dewaters from the surface at a controlled rate. The design must be approved by the engineer.*

SKIMMER DEWATERING DEVICE

SEDIMENT STORAGE BASIN LOCATIONS

STATION TO STATION	SIDE	REQUIRED STORAGE CAPACITY

NO.	DATE	REVISIONS	BY	APP'D
3				
2	9/3/13	Added Skimmer Dewatering Device	MRM	SHS
1	7/17/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

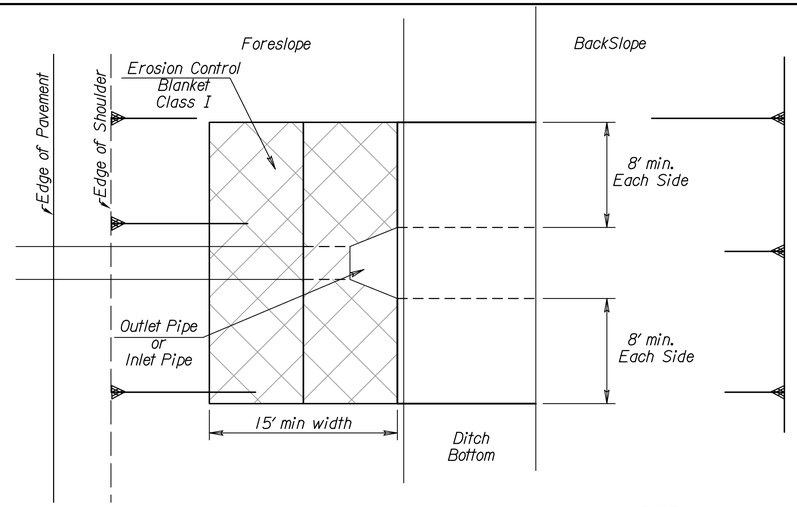
SEDIMENT STORAGE BASIN

LA852H

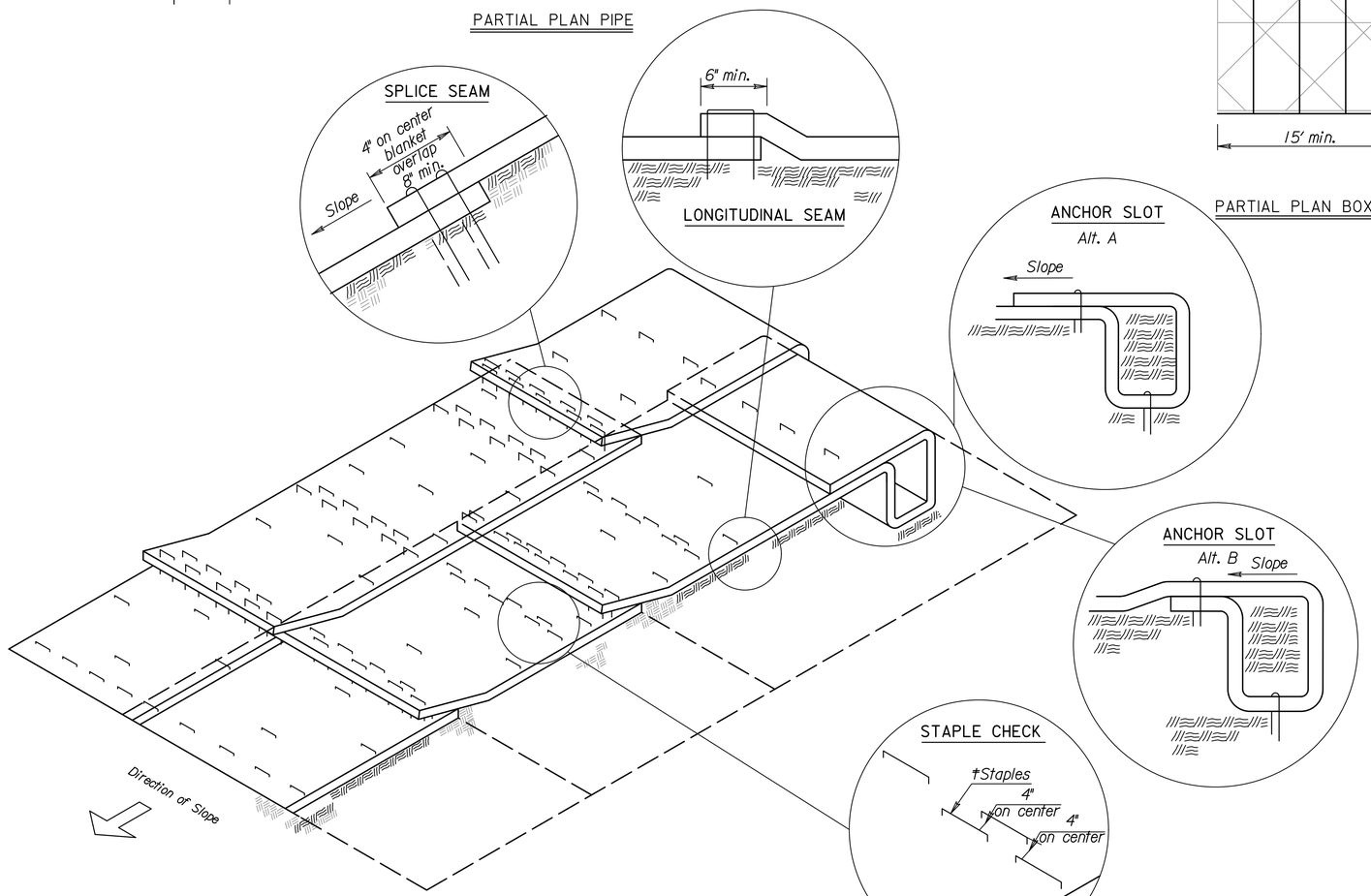
FHWA APPROVAL		09/24/2013	APP'D	Scott H. Shields	
DESIGNED	BB	DETAILED	BB	QUANTITIES	BB
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.	SHS
				CADD	BB
				CADD CK.	SHS

Std. Base File:
Plotted By: ARLawrence
Plot Location:
File: M:\TRNV17-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540eec852h-01.dgn
Plot Date: 8/10/2021

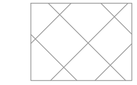
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	45	68



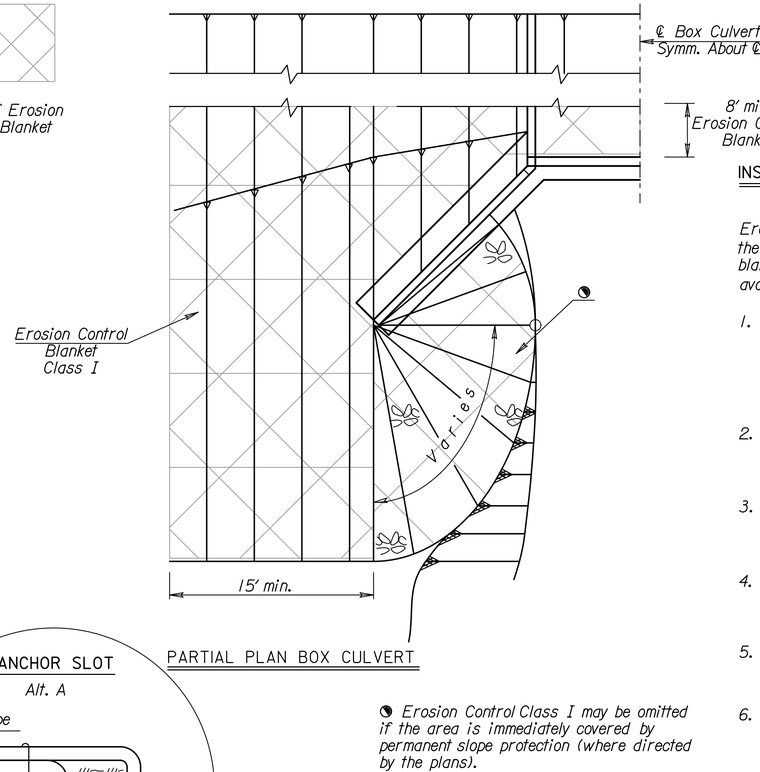
PARTIAL PLAN PIPE



ISOMETRIC VIEW



Limits of Erosion Control Blanket



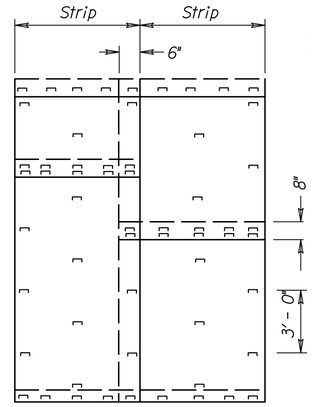
PARTIAL PLAN BOX CULVERT

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

INSTALLATION DETAILS FOR EROSION CONTROL CLASS I

Erosion Control Blankets shall be laid loosely in the direction of the slope, beginning at the bottom of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.

1. ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
2. LONGITUDINAL SEAMS: The edges of the blanket should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.
4. TERMINAL FOLD: The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.
5. TYPICAL ANCHORS: Anchor design shall be as recommended by the manufacturer.
6. STAPLE CHECK: †Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.



PLAN VIEW - ANCHORING DIAGRAM

NOTE:
Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Single post ring and shank staple is acceptable.

NO.	DATE	REVISIONS	BY	APP'D
4	3/01/15	Revised Standard	RAA	SHS
3	2/23/15	Revised Standard	RAA	SHS
2	9/15/14	Revised Standard	MRM	SHS
1	9/10/07	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

INSTALLATION DETAIL
EROSION CONTROL CLASS I
SLOPE PROTECTION

LA855

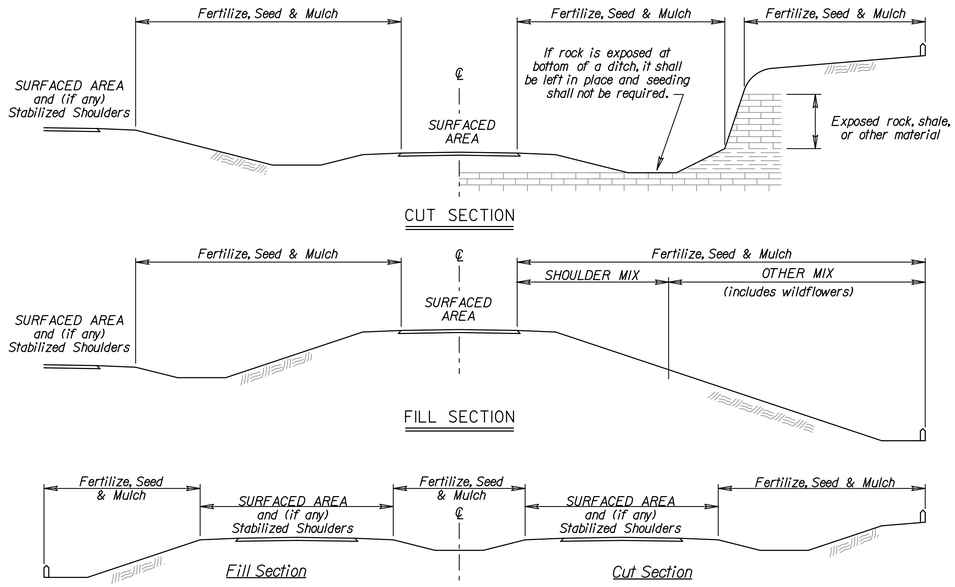
FHWA APPROVAL		3/10/2015	APP'D	Scott H. Shields	
DESIGNED	RAA	DETAILED	RAA	QUANTITIES	CADD RAA
DESIGN CK.		DETAIL CK.		QUAN.CK.	CADD CK. RAA

CADconform Certify This File

CADconform Certify This File

Std. Base File: la855.dgn
Plotted By: ARLawrence
Plot Location:
File: M:\TRNV\7-100-054-001\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT_Standards\LVI71000540eec855-01.dgn
Plot Date: 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	46	68



TYPICAL SECTION - DUAL PAVEMENT

GRASS & WILDFLOWER SEEDING SEASONS

COOL SEASON GRASSES February 15 thru April 20 August 15 thru September 30	WARM SEASON GRASSES & WILDFLOWERS 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 March 1 thru April 15 September 1 thru November 15	WARM SEASON GRASSES May 15 thru September 1
SPECIES	SPECIES
Bluegrass Sod	Buffalo Grass Sod
Fescue Sod	

If the soil is workable, the Engineer may allow placement of sod between November 15 and March 1. If sod is placed during this time, maintain the sod until 20 days after the beginning of the spring sodding season.

GENERAL NOTES

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded and mulched. Soil preparation shall conform to the Standard Specifications except as noted below.

All borrow areas shown on the plans are to be fertilized, seeded, and mulched. However, operation in borrow areas where crops are growing may be omitted when requested by the owner.

If temporary cover has provided stable slopes with no erosion, seed the permanent grasses into the existing cover. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area, resulting in bare ground.

FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P_2O_5, K_2O listed in Summary of Seeding Quantities will be acceptable.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching material is generally as follows:

1¾ - 2¼ Tons per Acre = 1½" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

NATIVE WILDFLOWER MIX 1

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

NATIVE WILDFLOWER MIX 2

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Black Eyed Susan	
0.5	Black Sampson Coneflower	
1.0	Blanket Flower	
0.2	Maximilian Sunflower	
0.2	Plains Coreopsis	
0.2	Upright Prairie Coneflower	
0.2	Western Yarrow	
0.3	Lemon Mint	
0.4	Pitcher Sage	
1.5	Illinois Bundleflower	
0.2	Common Evening Primrose	
1.0	Blue Wild Indigo	
0.4	Leadplant	
0.4	Purple Prairie Clover	
0.3	White Prairie Clover	
7.4	Total (lb)	

Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed 1/8" - 1/4". 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
				Fertilizer (12 - 12 - 12)		Lbs.
	80		0.95	Fertilizer (15 - 30 - 15)		Lbs.
	2		0.95	Seed (Turf-type Tall Fescue Seed Blend)		Lbs.
				Seed (Blue Grama Grass Seed (Lovington))		Lbs.
				Seed (Buffalo Grass Seed (Treated))		Lbs.
	10		0.95	Seed (Canada Wildrye Grass Seed)		Lbs.
	2		0.95	Seed (Indiangrass Seed (Osage))		Lbs.
	2		0.95	Seed (Little Bluestem Grass Seed (Aldous))		Lbs.
				Seed (Perennial Ryegrass)		Lbs.
				Seed (Prairie Junegrass)		Lbs.
	6.3		0.95	Seed (Side Oats Grama Grass Seed (El Reno))		Lbs.
	10		0.95	Seed (Sterile Wheat Grass)		Lbs.
	0.7		0.95	Seed (Switchgrass Seed (Blackwell))		Lbs.
	0.5		0.95	Seed (Tall Dropseed)		Lbs.
				Seed (Tall Fescue (Endophyte Free))		Lbs.
	4		0.95	Seed (Western Wheatgrass Seed (Barton))		Lbs.
	7.35		0.95	Seed (Native Wildflower Mix 1)		Lbs.
				Seeding	Lump Sum	L.S.
				Mulching *		TON

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
2	11/25/20	Updated Seeding / Sodding Periods Charts	MRD	ML
1	08/03/20	Revised Standard	MRD	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

PERMANENT SEEDING
SUMMARY OF SEEDING QUANTITIES

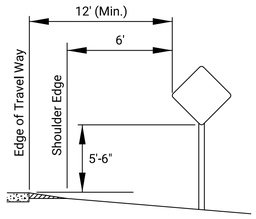
LA850

FHWA APPROVAL		05/06/2019	APP'D	Mervin Lare	
DESIGNED	MRD	DETAILED MRD	QUANTITIES	CADD	
DESIGN CK.		DETAIL CK.	QUAN.CK.	CADD CK.	

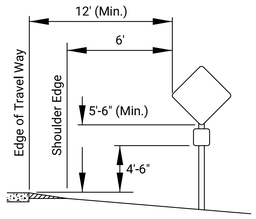
CADconform Certify This File

Std. Base File:
Plotted By: ARLawrence Plot Location:
File: M:\TRAN\17-100-054-00\2_Disciplines_SHEETS\3_Sheets - roadway\KDOT Standards\LV171000540Oeec850-01.dgn
Plot Date: 8/10/2021

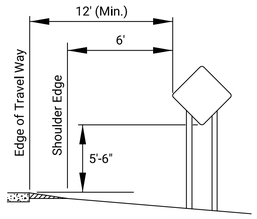
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	47	68



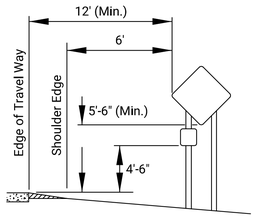
ONE POST



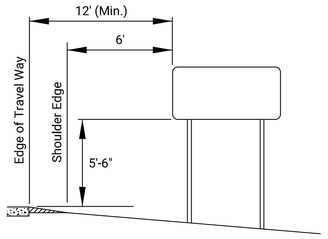
ONE POST WITH SUPPLEMENTAL SIGN



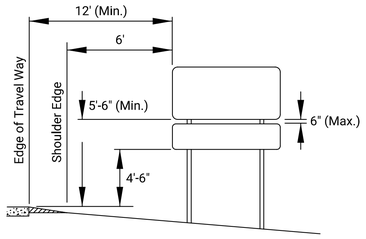
TWO POSTS



TWO POSTS WITH SUPPLEMENTAL SIGN

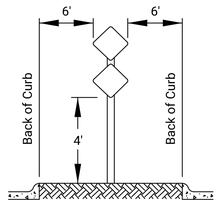


MULTIPLE POSTS

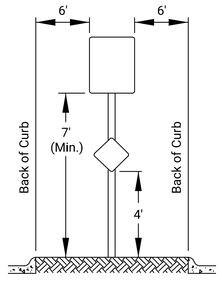


MULTIPLE POSTS WITH SUPPLEMENTAL SIGN

CONVENTIONAL HIGHWAY AND SIDE ROADS

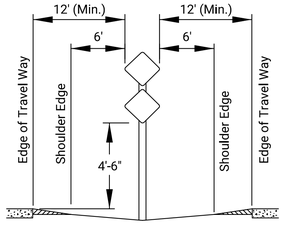


ONE OR TWO OM1-3

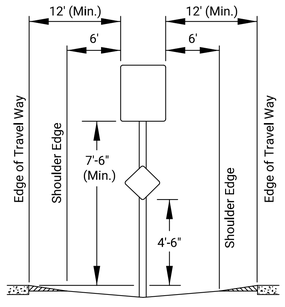


PRIMARY SIGN WITH OM1-3

RAISED



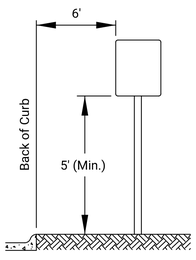
ONE OR TWO OM1-3



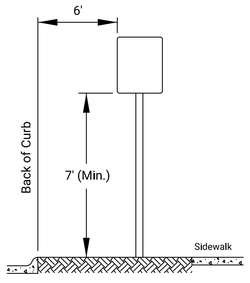
PRIMARY SIGN WITH OM1-3

DEPRESSED

MEDIANS AND ISLANDS

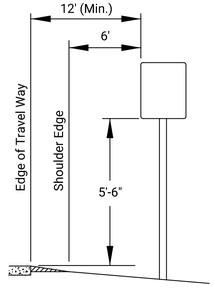


NO PARKING OR SIDEWALK



PARKING OR SIDEWALK

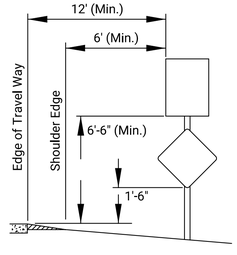
CURB



TYPICAL

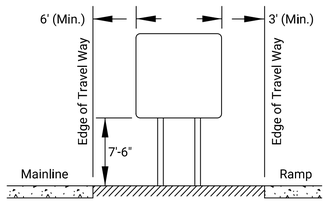
NO CURB

URBAN ROADWAYS

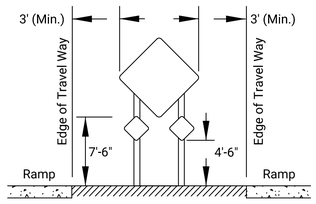


TYPICAL

ADOPT A HIGHWAY

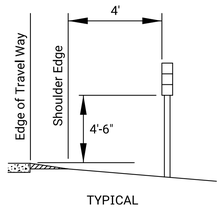


MAINLINE/RAMP



RAMP/RAMP

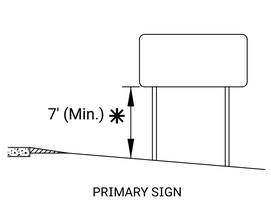
HIGHWAY GORES



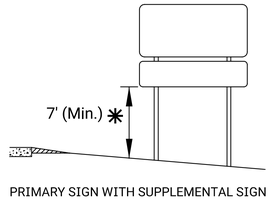
TYPICAL

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

REFERENCE MARKERS



PRIMARY SIGN



PRIMARY SIGN WITH SUPPLEMENTAL SIGN

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

GROUND CLEARANCE FOR STEEL BEAM POSTS

NOTES

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

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

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

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

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

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

TE407 10/01/19

FHWA APPROVAL			10/01/2019	APP'D	Eric W. Nichol		
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES		TRACED	
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN. CK.		TRACE CK.	

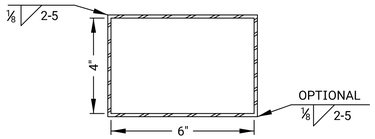
KDOT Graphics Certified 12-17-2019

Plotted : $$YTIME$$
$$KDOTGRP$$

Drawn By : ARLawrence
File : $$DGNSPEC$$

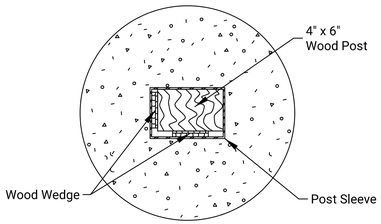
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	48	68

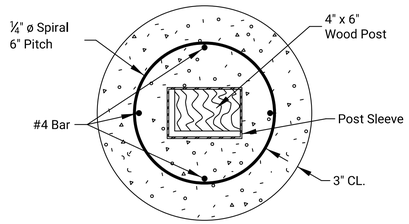


NOTE: Dimensions are to inside of post sleeve.

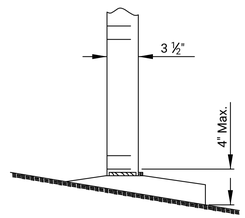
POST SLEEVE



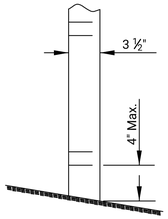
SECTION A-A



SECTION B-B



FRONT ELEVATION
CONCRETE FOOTING



FRONT ELEVATION
SOIL

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

BREAKAWAY CLEARANCE

GENERAL NOTES

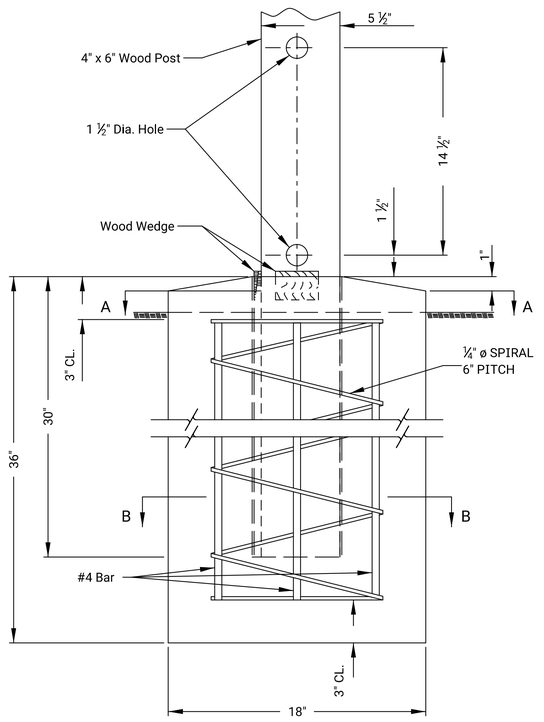
The post sleeve shall be formed from 10 gauge sheet steel to meet the requirements of ASTM A653 and zinc coated to meet the requirements of coating designation A123. If galvanized sheet steel is used, no other galvanization is required. It is permissible to close the bottom of the sleeve with a metal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

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

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

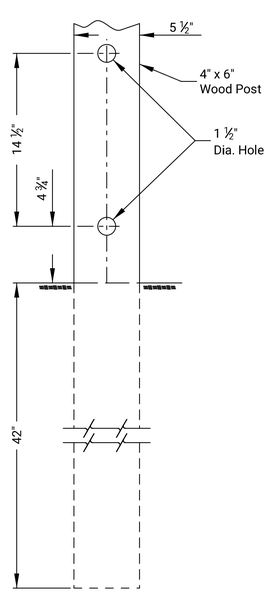
Prior to sealing the opening between the wood post and the top of the concrete footing, secure the post by placing 3" wide by 2" long wood wedges into the opening on two adjacent sides of the post. The wedges are be flush with up to a maximum of ⅜" sticking up above the top of the footing.

Commercial grade concrete may be substituted for sign support footings.



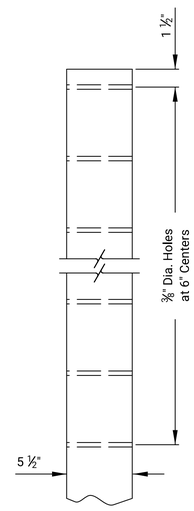
SIDE ELEVATION

WOOD POST IN CONCRETE FOOTING



SIDE ELEVATION

WOOD POST IN SOIL



SIGN POST

SIGN MOUNTING HOLES

All dimensions in inches unless otherwise noted.

NO.	DATE	REVISIONS	BY	APP'D
1	10/01/19	Change details and note	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR WOOD POSTS

TE460 7/1/03

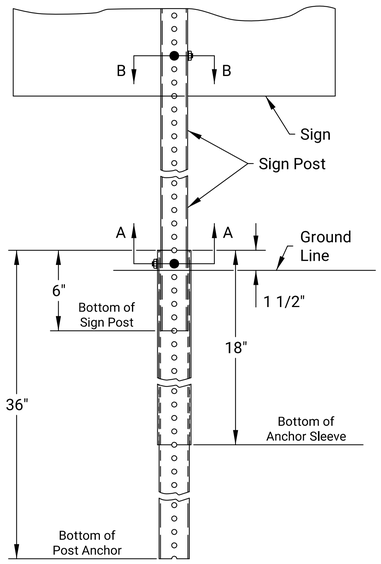
FHWA APPROVAL			10/01/2019	APP'D	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN. CK.		TRACE CK.	

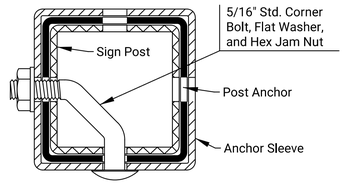
KDOT Graphics Certified 12-17-2019

KDOT Graphics Certified

Plotted : $SYTIME$$
$$KDOTGRP$$
Drawn By : ARLawrence
File : $$DGNSPEC$$

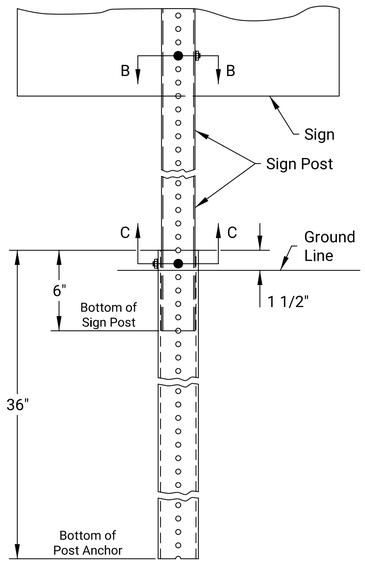
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	49	68

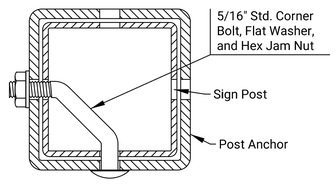




SECTION A-A

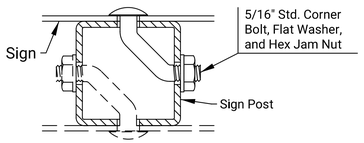
1 ¾", 2", OR 2 ¼" PSST SIGN POST





SECTION C-C

2 ½" PSST SIGN POST



SECTION B-B

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

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

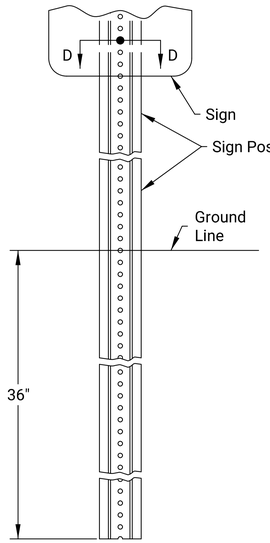
INSTALLATION PROCEDURES

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

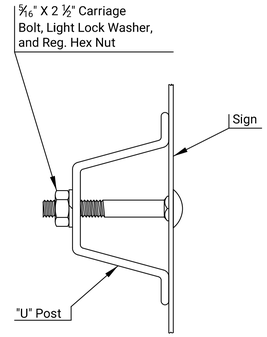
2. Install anchor sleeve (if required) on the post anchor and align the first holes above the ground line. Plumb and drive post anchor with anchor sleeve into the ground to the specified height above the ground line.

3. Install sign post into the post anchor.

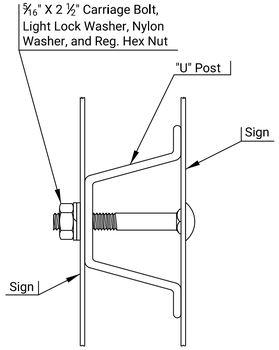
PERFORATED SQUARE STEEL TUBE POST (PSST)



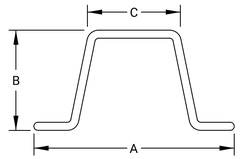
TYPICAL



SECTION D-D
(TYPICAL)



SECTION D-D
(BACK TO BACK)



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

(Dimensions are nominal)

"U" POST

STEEL "U" POST

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

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

TE466 10/01/19

FHWA APPROVAL		10/01/2019	APP'D	Eric W.Nichol	
DESIGNED	D.D.G.	DETAILED	D.D.G.	QUANTITIES	TRACED
DESIGN CK.	E.W.N.	DETAIL CK.	E.W.N.	QUAN. CK.	TRACE CK.

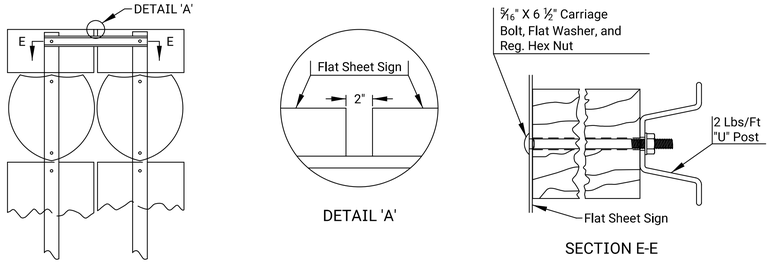
KDOT Graphics Certified 12-17-2019

Plotted : $SYTIME$$
$SKDOTGRP$$

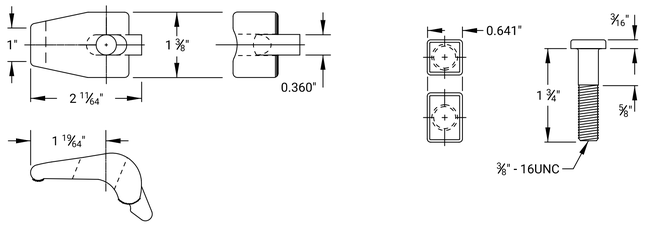
Drawn By : ARLawrence
File : $SDGNSPEC$$

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	50	68



ROUTE MARKER ASSEMBLIES ATTACHMENT



ALUMINUM POST CLIP AND POST CLIP BOLT

NOTES:

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

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

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

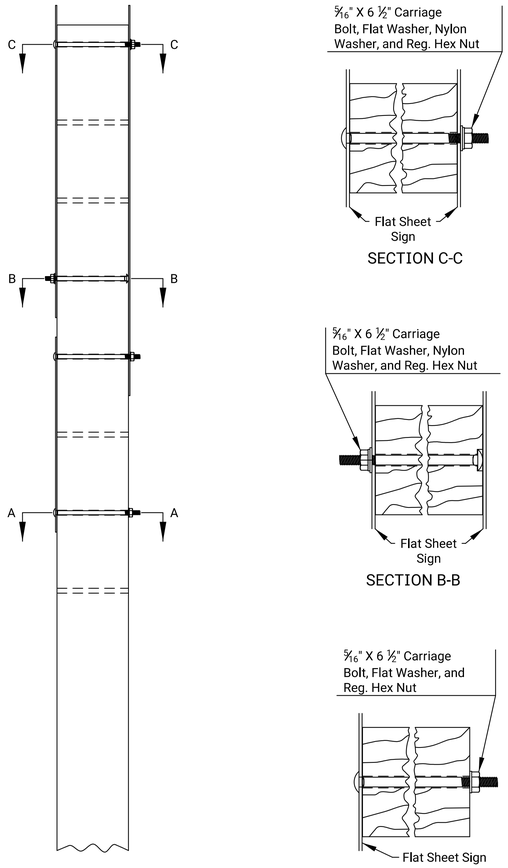
Any additional mounting holes, either through the sign or post, shall be drilled by the contractor. All holes drilled in the post shall be treated with a perservative. All holes drilled in the sign shall be free of any defects and the sheeting around the hole shall not be damaged.

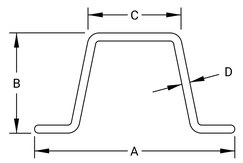
A nylon washer shall be placed against the sheeting when a nut is to be tightened against the sign face.

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

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

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



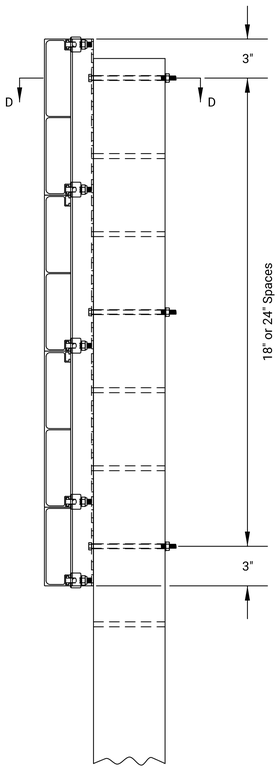


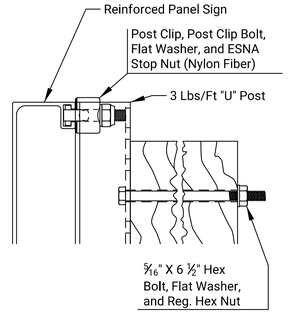
DIM.	2 LBS/FT	3 LBS/FT
A	3 1/8 "	3 1/2 "
B	1 17/32 "	1 3/4 "
C	1 1/4 "	1 5/8 "
D	1/8 "	9/64 "

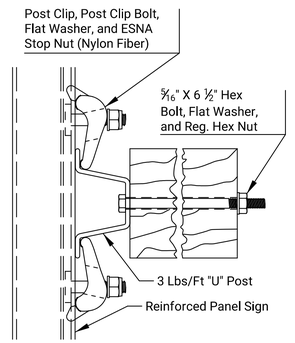
(DIMENSIONS ARE NOMINAL)

"U" POST

TYPICAL MOUNTING OF FLAT SHEET SIGNS







TYPICAL MOUNTING OF REINFORCED PANEL SIGNS

All dimensions are in inches

NO.	DATE	REVISIONS	BY	APP'D
1	10/01/19	Revised drawings and notes	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR MOUNTING SIGNS ON WOOD POSTS

FLAT SHEET AND REINFORCED PANEL

TE481 7/1/03

FHWA APPROVAL			10/01/2019	APP'D	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN. CK.		TRACE CK.	

KDOT Graphics Certified 12-17-2019

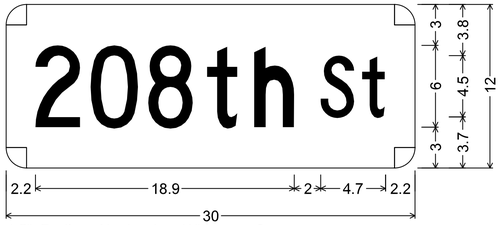
Plotted : $$YTIME$$
$$KDOTGRP$$

Drawn By : ARLawrence
File : $$DGNSPEC$$

KDOT Graphics Certified

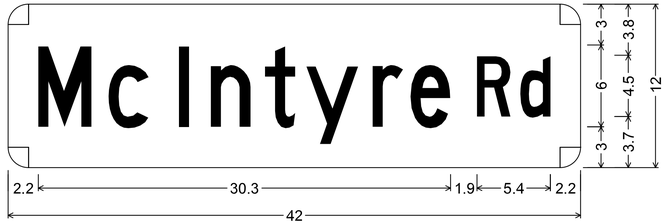
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	51	68

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED



1.5" Radius, No border, White on Green;
[208thSt] C 75% spacing;
Table of widths and spaces.

	2		0		8		t		h		S		t	
2.2	3.2	0.8	3.5	0.7	3.3	1.0	2.3	1.2	2.9	2.0	2.4	0.6	1.7	2.2



1.5" Radius, No border, White on Green;
[McIntyreRd] C 75% spacing;
Table of widths and spaces.

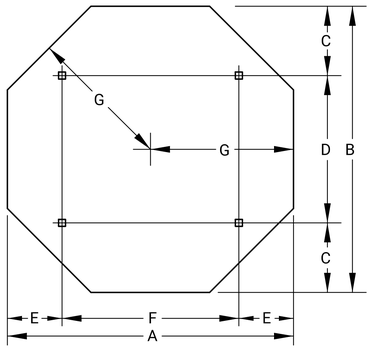
	M		c		I		n		t		y		r		e		R		d	
2.2	3.9	1.3	2.9	2.2	0.9	1.5	2.9	1.0	2.3	0.8	3.8	1.0	2.3	0.5	3.0	1.9	2.5	0.7	2.2	2.2

LEAVENWORTH COUNTY

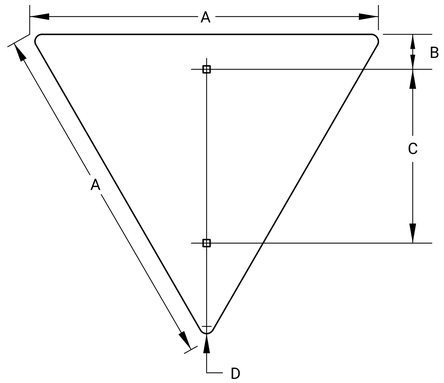
SIGN DETAILS

Drawn By : ARLawrence
Plotted : 8/10/2021
File : M:\TRN\17-100-054-001\2_Disciplines_SHEETS\3_Sheets - roadway\LV171000540 0tsd-01.dgn

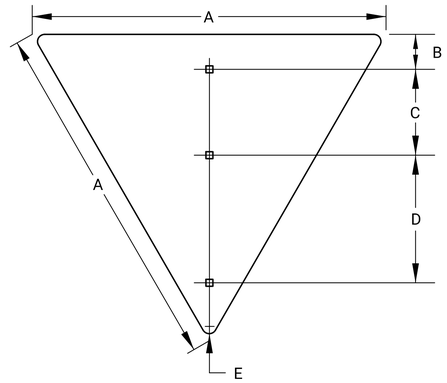
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	52	68



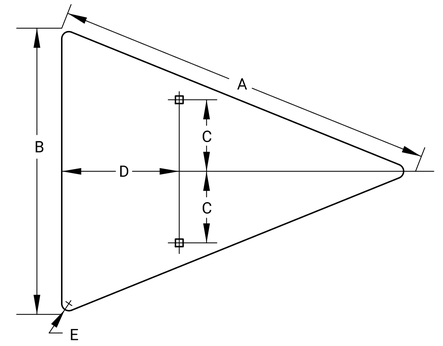
SIGN SIZE	A	B	C	D	E	F	G	T	AREA
48 X 48	48	48	12	24	9	30	24	0.100	13.25



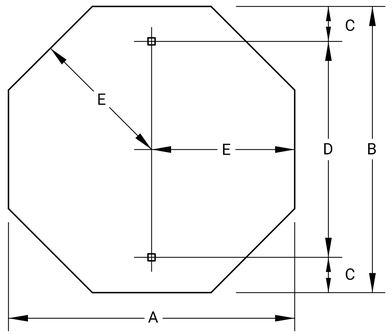
SIGN SIZE	A	B	C	D	T	AREA
36 X 36	36	3	18	2	0.080	3.90



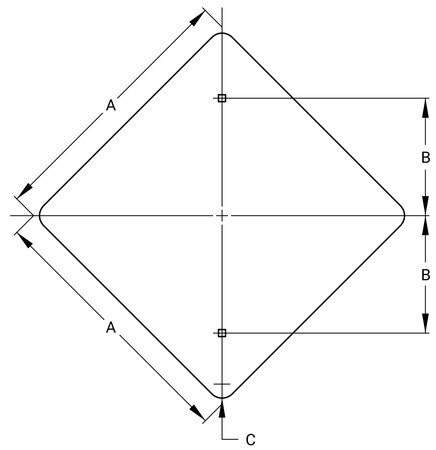
SIGN SIZE	A	B	C	D	E	T	AREA
48 X 48	48	3	12	18	3	0.080	6.93
60 X 60	60	3	18	18	4	0.100	10.83



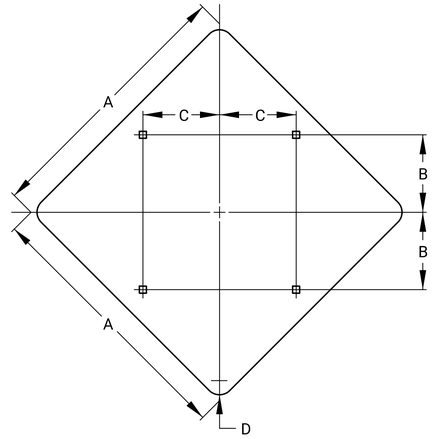
SIGN SIZE	A	B	C	D	E	T	AREA
48 X 36	48	36	9	14 ¾	2 ¼	0.125	5.56



SIGN SIZE	A	B	C	D	E	T	AREA
30 X 30	30	30	3	24	15	0.080	5.18
36 X 36	36	36	6	24	18	0.080	7.46



	SIGN SIZE	A	B	C	T	AREA
	18 X 18	18	6	1 ½	0.080	2.25
	24 X 24	24	12	1 ½	0.080	4.00
	30 X 30	30	12	1 ⅞	0.080	6.25
(1)	36 X 36	36	18	2 ¼	0.080	9.00



SIGN SIZE	A	B	C	D	T	AREA
48 X 48	48	12	15	3	0.100	16.00

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

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

(1) Center hole is required.

All dimensions are in inches.

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

KANSAS DEPARTMENT OF TRANSPORTATION

SIGN BLANK DETAILS FOR FLAT SHEET SIGNS

TE503 7/1/03

FHWA APPROVAL			10/01/2019	APP'D	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN. CK.		TRACE CK.	

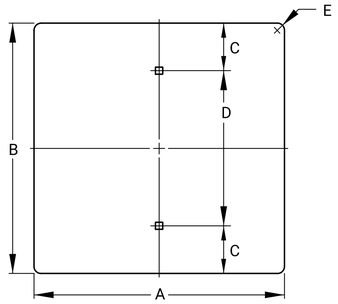
KDOT Graphics Certified 12-17-2019

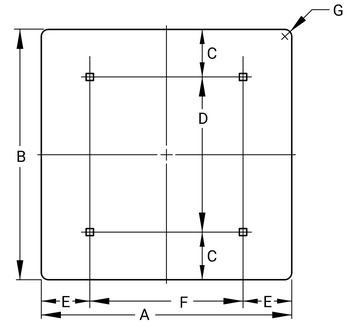
Plotted : $$YTIME$$
$$KDOTGRP$$

Drawn By : ARLawrence
File : $$DGNSPEC$$

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	53	68





	SIGN SIZE	A	B	C	D	E	T	AREA
(1)	3 X 8	3	8	1	6	⅜	0.040	0.17
(1)	6 X 12	6	12	3	6	⅜	0.063	0.50
	12 X 6	12	6	1 ½	3	¾	0.063	0.50
	12 X 9	12	9	1 ½	6	1 ½	0.063	0.75
	12 X 18	12	18	3	12	1 ½	0.063	1.50
	12 X 24	12	24	3	18	1 ½	0.080	2.00
	12 X 36	12	36	6	24	1 ½	0.080	3.00
	12 X 48	12	48	6	36	1 ½	0.080	4.00
	18 X 6	18	6	1 ½	3	1 ½	0.063	0.75
	18 X 18	18	18	3	12	1 ½	0.063	2.25
	18 X 30	18	24	3	24	1 ½	0.080	3.75
	18 X 36	18	24	6	24	1 ½	0.080	4.50
	18 X 42	18	24	6	30	1 ½	0.080	5.25
	18 X 48	18	24	6	36	1 ½	0.080	6.00
	21 X 15	21	15	1 ½	12	1 ½	0.080	2.19
	24 X 6	24	6	1 ½	3	1 ½	0.080	1.00
	24 X 12	24	12	3	6	1 ½	0.080	2.00
	24 X 18	24	18	3	12	1 ½	0.080	3.00
	24 X 24	24	24	3	18	1 ½	0.080	4.00
	24 X 30	24	30	3	24	1 ½	0.080	5.00
	24 X 36	24	36	6	24	1 ½	0.080	6.00
	30 X 12	30	12	3	6	1 ⅞	0.080	2.50
	30 X 15	30	15	1 ½	12	1 ⅞	0.080	3.13
	30 X 18	30	18	3	12	1 ⅞	0.080	3.75
	30 X 21	30	21	1 ½	18	1 ½	0.080	4.38
	30 X 24	30	24	3	18	1 ⅞	0.080	5.00
	30 X 30	30	30	3	24	1 ⅞	0.080	6.25
	30 X 36	30	36	6	24	1 ⅞	0.080	7.50
	36 X 12	36	12	3	6	1 ½	0.080	3.00
	36 X 18	36	18	3	12	1 ½	0.080	4.50
	36 X 24	36	24	3	18	1 ½	0.080	6.00
	36 X 30	36	30	3	24	2 ¼	0.080	7.50
	36 X 36	36	36	6	24	2 ¼	0.080	9.00
(3)	45 X 36	45	36	3	30	2 ¼	0.100	11.25

	SIGN SIZE	A	B	C	D	E	F	G	T	AREA
	36 X 12	36	12	3	6	3	30	1 ½	0.080	3.00
	36 X 30	36	30	3	24	3	30	2 ¼	0.080	7.50
	36 X 48	36	48	9	30	6	24	0	0.100	12.00
	36 X 60	36	60	12	36	6	24	0	0.100	15.00
(2)	36 X 72	36	72	6	60	6	24	0	0.100	18.00
	42 X 12	48	12	3	6	6	30	1 ½	0.080	3.50
	42 X 18	48	18	3	12	6	30	1 ½	0.080	5.25
	42 X 24	48	24	6	12	6	30	1 ⅞	0.080	7.00
	42 X 36	48	36	6	24	6	30	0	0.100	10.50
	48 X 12	48	12	3	6	9	30	1 ½	0.080	4.00
	48 X 18	48	18	3	12	9	30	1 ½	0.080	6.00
	48 X 24	48	24	6	12	9	30	1 ⅞	0.080	8.00
	48 X 30	48	30	6	18	9	30	0	0.100	10.00
	48 X 36	48	36	6	24	9	30	0	0.100	12.00
	48 X 42	48	42	6	30	9	30	0	0.100	14.00
	48 X 48	48	48	9	30	9	30	0	0.100	16.00
	48 X 60	48	60	12	36	9	30	0	0.100	20.00
(2)	48 X 72	48	72	6	60	9	30	0	0.100	24.00
(2)	48 X 96	48	96	12	72	9	30	0	0.100	32.00
	60 X 12	60	12	3	6	12	36	0	0.100	5.00

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

NOTE:
All holes are ⅜" square, unless otherwise noted.

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

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

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

(3) Additional hole 12" below top hole.

All dimensions are in inches.

NO.	DATE	REVISIONS	BY	APP'D
1	10/01/19	Update sign blank details and dimensions	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

SIGN BLANK DETAILS FOR FLAT SHEET SIGNS

TE506 7/1/03

FHWA APPROVAL			10/01/2019	APP'D	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	A.A.D.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN. CK.		TRACE CK.	

KDOT Graphics Certified 12-17-2019

KDOT Graphics Certified

Drawn By : ARLawrence
File : $$DGNSPEC$$

Plotted : $SYTIME$$
$$KDOTGRP$$

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	54	68

DETAILED SPECIFICATIONS FOR FLAT SHEET SIGNS AND OVERLAY PANELS

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

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

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

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

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

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

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

DETAILED SPECIFICATIONS FOR REINFORCED PANEL SIGNS

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

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

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

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

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

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

Spacing table dimensions are in inches.

NO.	DATE	REVISIONS	BY	APP'D
2	10/01/19	Changed notes	D.D.G.	E.W.N.
1	7/23/10	Changed Notes and Sheeting Type	D.D.G.	D.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS SPECIFICATIONS FOR REINFORCED SIGN PANELS AND FLAT SHEET SIGNS

TE590 7/01/03

FHWA APPROVAL			10/01/2019	APP'D	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	K.D.S.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN. CK.		TRACE CK.	

KDOT Graphics Certified

KDOT Graphics Certified 12-17-2019

Drawn By : ARLawrence
File : $$DGNSPEC$$

Plotted : $$YTIME$$
$$KDOTGRP$$

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

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

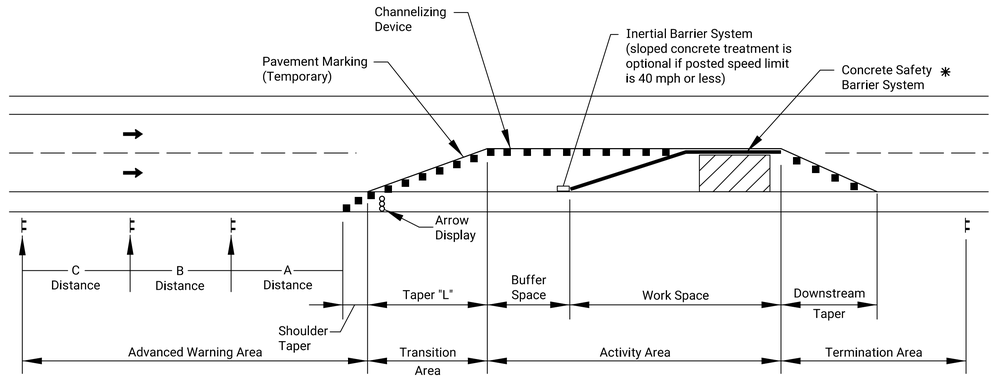
3) Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that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

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

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

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	56	68



TYPICAL WORK ZONE COMPONENTS

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

Minimum advance warning sign spacing (in feet):

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

✳ Posted speed prior to work starting

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

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

Taper Formulas:

L = WS for speeds of 45 MPH or more

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

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

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

Channelizer Placement:

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

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

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

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

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

Buffer Space

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

✳ Posted speed prior to work starting

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2	03/13/18	W8-15p usage changed to Shall	R.W.B.	E.G.K.
1	08/18/15	Channelizer spacing info	R.W.B.	K.E.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
GENERAL NOTES

TE700

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

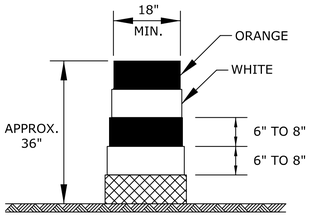
KDOT Graphics Certified 03-13-2018

KDOT Graphics Certified

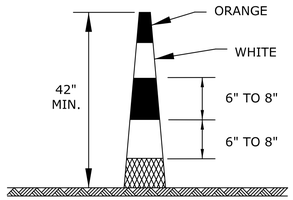
Plotted : $$YTIME$$
$$KDOTGRP$$

Drawn By : ARLawrence
File : $$DGNSPEC$$

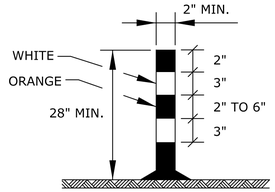
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	56	68



DRUM

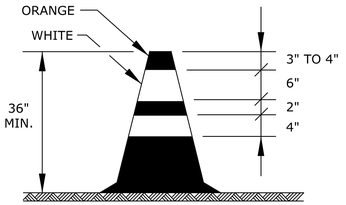


CONICAL
DELINEATOR

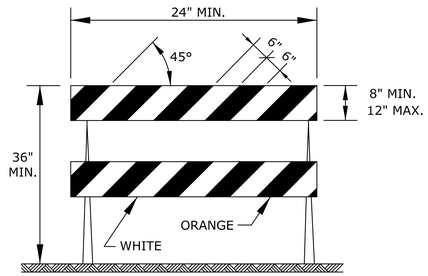


TUBULAR MARKER

Striping as shown for up to 42".

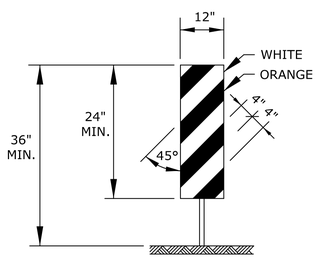


TRAFFIC CONE



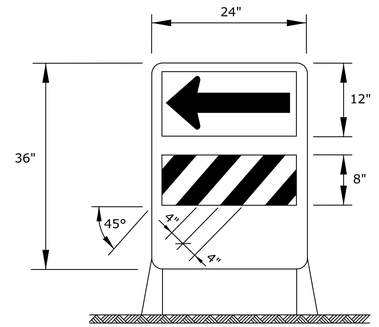
TYPE 2 BARRICADE

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



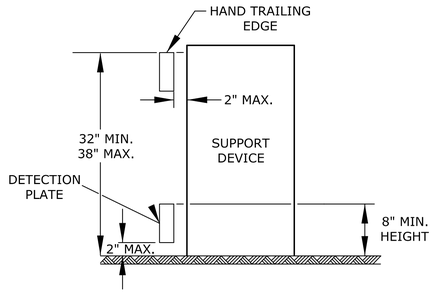
VERTICAL PANEL

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



DIRECTION INDICATOR BARRICADE

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



PEDESTRIAN CHANNELIZER

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

ITEM \ LOCATION		Cross-overs	Shoofly Diversions	Tangents	Tapers	Ramps	Head to Head	Object Identifier	Lead-in Devices	Gores
PORTABLE										
	Drums	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Conical Delineators	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Vertical Panels	(2)	(2)	(2)	(2)	(2)	(1,2)	YES	(2)	(2)
	Direction Indicator Barricade	NO	NO	NO	Yes	NO	NO	NO	NO	NO
	Type 2 Barricade	(2)	(2)	(2)	(2)	NO	NO	Yes	NO	NO
	Traffic Cones	NO	NO	(4)	(4)	(4)	NO	(4)	(4)	(4)
FIXED										
	Tubular Markers	(3)	(3)	(3)	NO	(3)	Yes	NO	Yes	Yes
	Vertical Panels	(3)	(3)	(3)	(3)	(3)	(3)	Yes	(2,3)	(2)

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
CHANNELIZING DEVICES

TE702

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

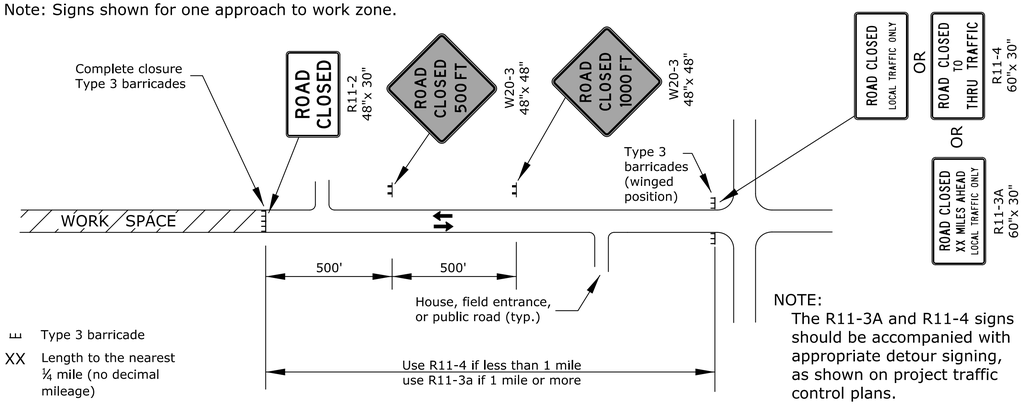
KDOT Graphics Certified 06-01-2015

Plotted : $SYTIME$$
$$KDOTGRP$$
Drawn By : ARLawrence
File : $$DGNSPEC$$

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	57	68

Note: Signs shown for one approach to work zone.



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

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

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

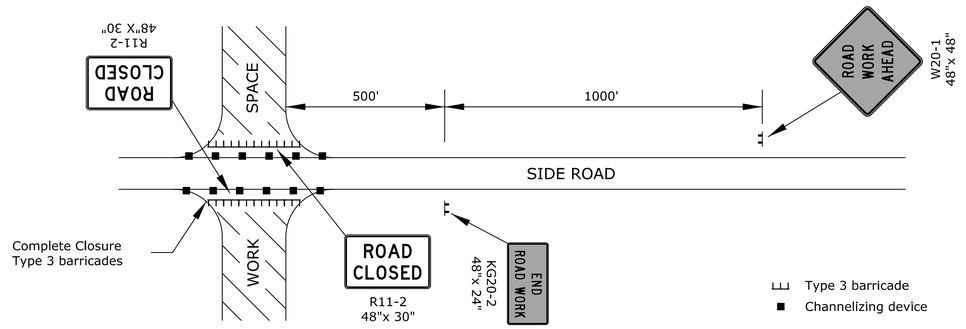


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

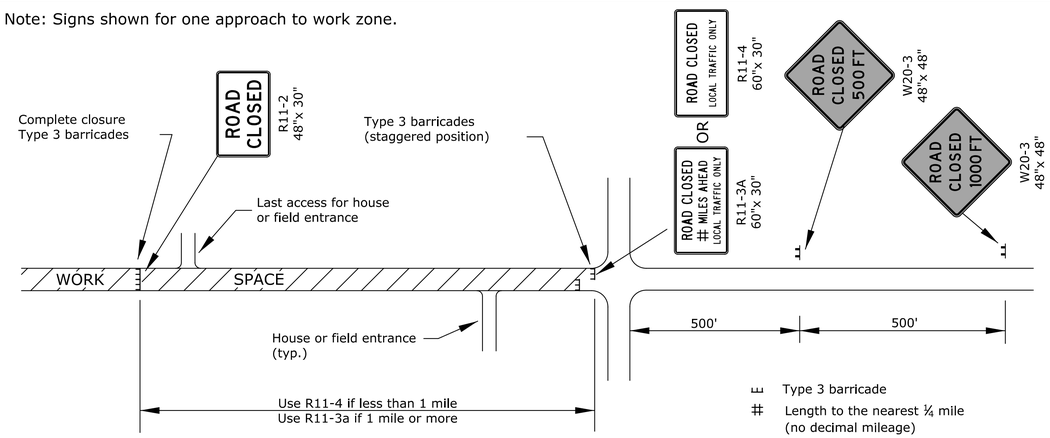


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

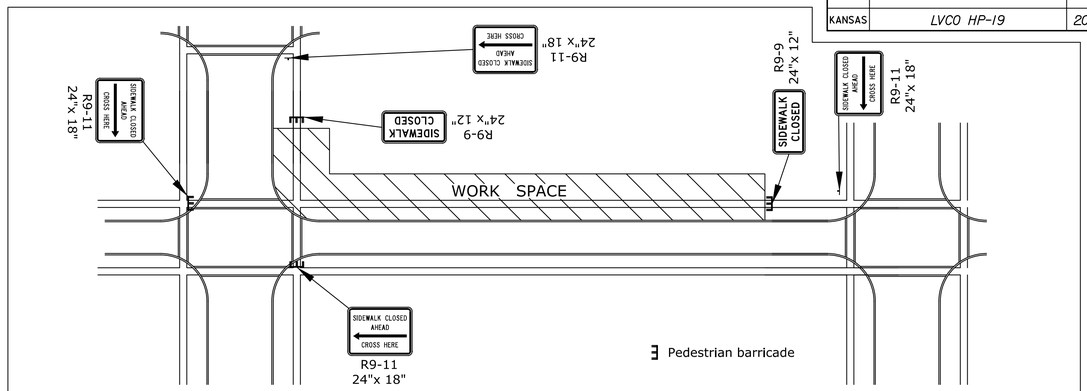
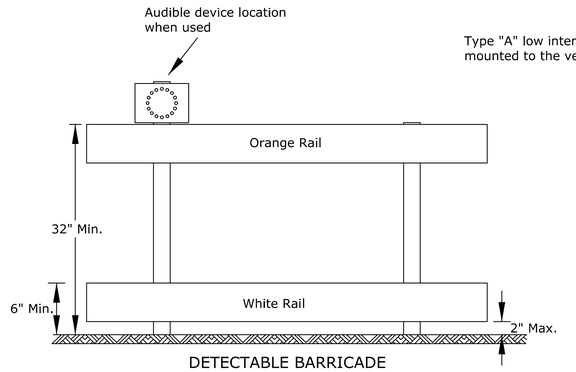
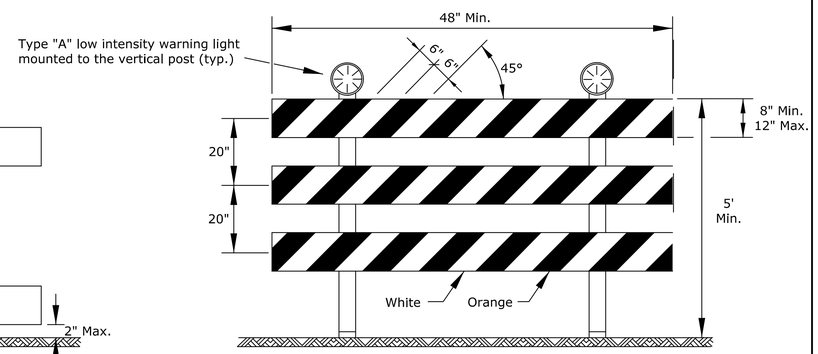


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



DETECTABLE BARRICADE

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



TYPE 3 BARRICADE WITH LIGHTS

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

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

ROAD CLOSED GENERAL NOTES

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

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

Plotted : $$YTIME$$
$$KDOTGRP$$

Drawn By : ARLawrence
File : $$DGNSPEC$$

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	58	68

SIGN LAYOUT INFORMATION

KG20-2

STD. SIZE EXPWY/FREEWAY
6" C
48"x 24"

KG20-5

STD. SIZE EXPWY/FREEWAY
6" C
48"x 24"

KM4-2O

STD. SIZE 3" C 24"x 6"
EXPWY/FREEWAY 6" C 48"x 12"

W7-3a

Mileage to be determined by the engineer.

W8-15

STD. SIZE EXPWY/FREEWAY
8" D
48"x 48"

W8-7

STD. SIZE EXPWY/FREEWAY
8" D
48"x 48"

W8-15p

STD. SIZE EXPWY/FREEWAY
30"x 24"

W8-17

STD. SIZE EXPWY/FREEWAY
48"x 48"

W8-11

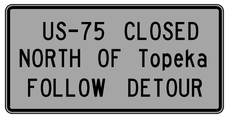
STD. SIZE EXPWY/FREEWAY
8" D
48"x 48"

W8-17P
(OPTIONAL)

STD. SIZE EXPWY/FREEWAY
30"x 24"

SP-01
(SPECIAL SIGN)

STD. SIZE 6" C
EXPWY/FREEWAY 10" D

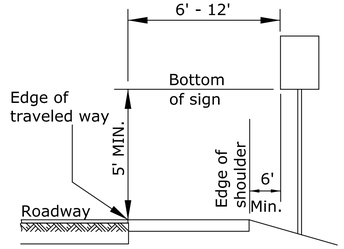


SP-02
(SPECIAL SIGN)

STD. SIZE
UPPERCASE: 6" C
LOWERCASE: 4.5" C

EXPWY/FREEWAY
UPPERCASE: 10" D
LOWERCASE: 8" D

ALL CITY NAMES AND STREET NAMES ON SPECIAL SIGNS AND DESTINATION SIGNS MUST HAVE UPPER AND LOWER CASE LETTERS.

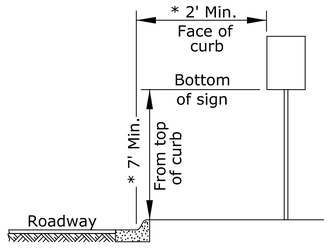


Rural

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

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

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



Urban

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

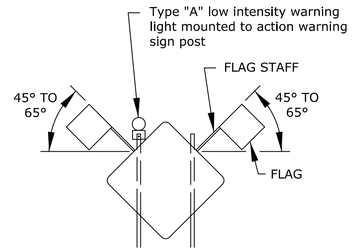
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

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

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

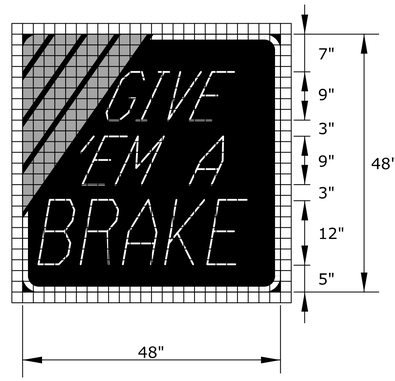
5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

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



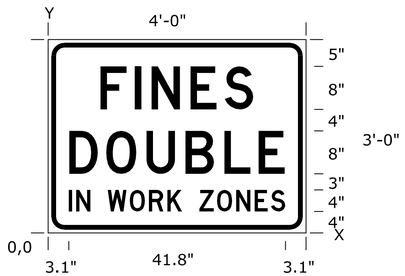
When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

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



KI-104a

SIGN NUMBER	GIVE EM A BRAKE
WIDTH x HEIGHT	4'-0" x 4'-0"
BORDER WIDTH	1.0"
CORNER RADIUS	4.0"
STRIPE WIDTH	3.0"
MOUNTING	GROUND
BACKGROUND	TYPE: NON-REFLECTIVE
	COLOR: BLACK
LEGEND/BORDER	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND FONT	DUTCH 801 ROMAN SWC 25 DEGREE SLANT
STRIPES	TYPE: REFLECTIVE
	COLOR: ORANGE



KI-105a

SIGN NUMBER	FINES DOUBLE
WIDTH x HEIGHT	4'-0" x 3'-0"
BORDER WIDTH	0.9"
CORNER RADIUS	3.0"
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK

DIMENSIONS IN INCHES — SPACINGS ARE TO START OF NEXT LETTER

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

Notes:

Typically, there are two sets of informational signs installed per project: one for each direction of traffic.

Install signs a minimum of 500' in advance of the road work ahead sign. The engineer may designate a more appropriate location if conditions dictate.

The informational signs are not to interfere with the traffic control signs for the project.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SIGN INFORMATION

TE710

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

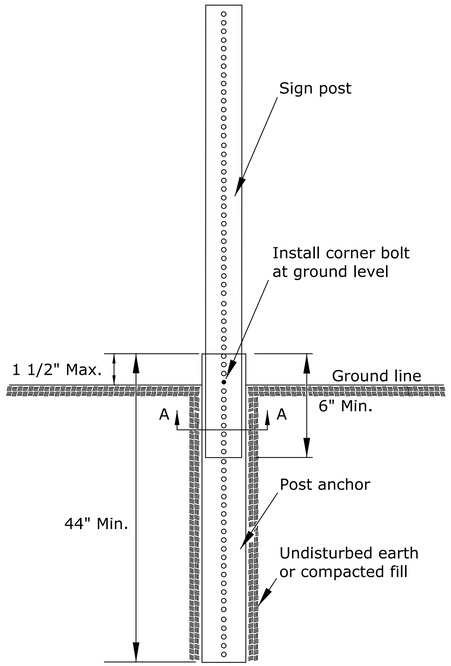
KDOT Graphics Certified 06-01-2015

Plotted : $SYTIME$$
$$KDOTGRP$$
Drawn By : ARLawrence
File : $$DGNSPEC$$

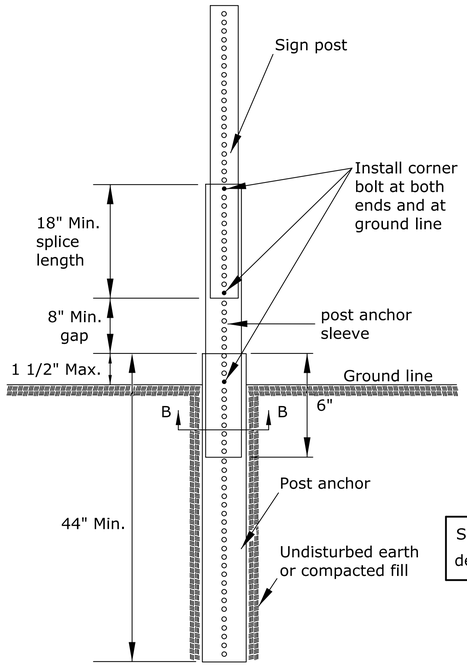
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	59	68

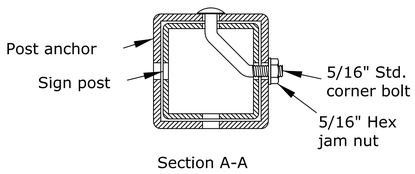
Perforated square steel tube (P.S.S.T.) post setup



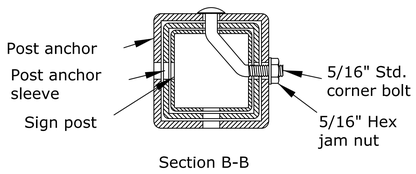
P.S.S.T. detail



Telescoping P.S.S.T. detail



Section A-A

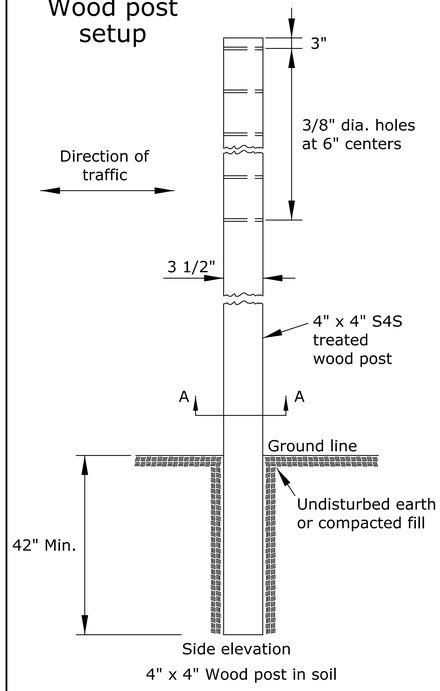


Section B-B

Details for 2", 2 1/4", or 2 1/2" sign posts

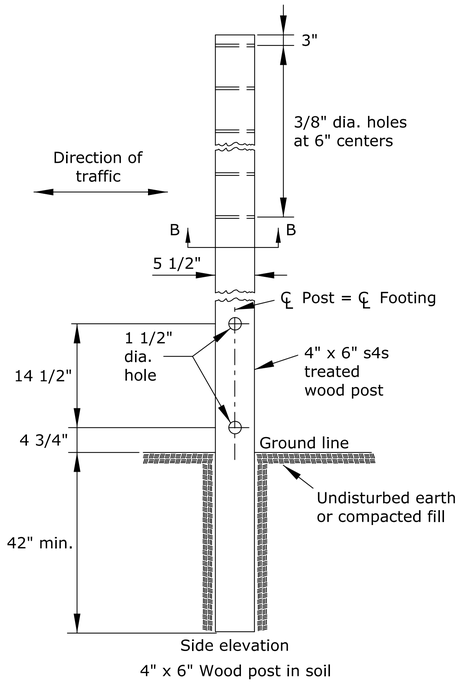
Place bolts in the same corner along each sign post.

Wood post setup



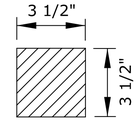
Side elevation

4" x 4" Wood post in soil

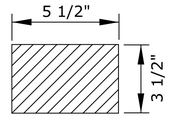


Side elevation

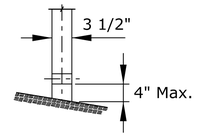
4" x 6" Wood post in soil



Section A-A



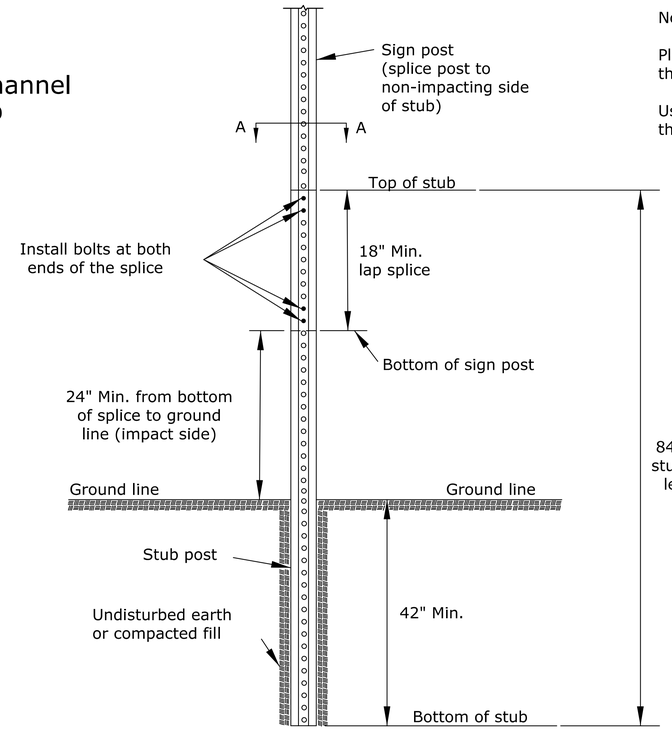
Section B-B



Front elevation

See TE710 for additional details and requirements

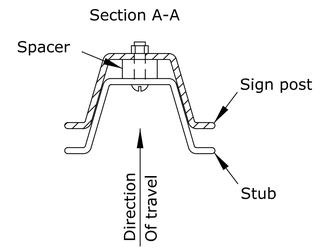
3 lb/f U-Channel setup



Notes:

Place two bolts at both ends of the splice through the holes nearest the ends of the splice.

Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.



NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

TE712

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

KDOT Graphics Certified 06-01-2015

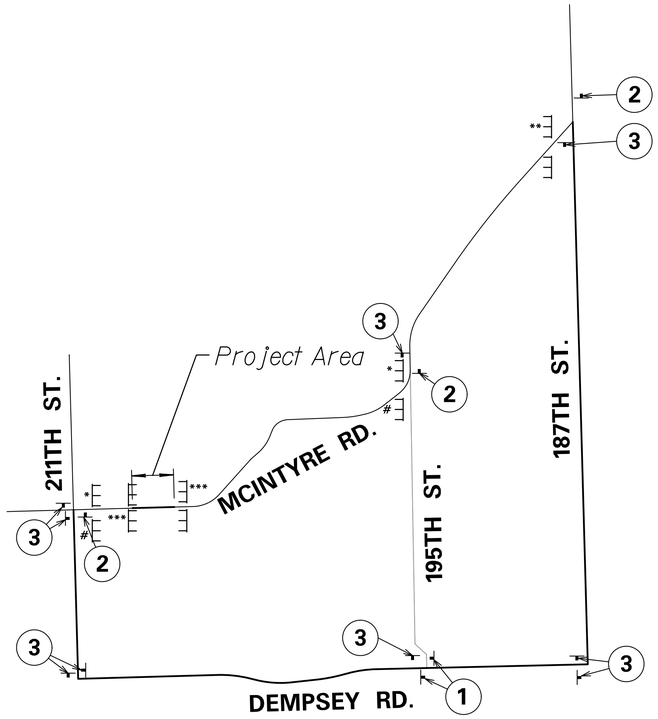
Plotted : $SYTIME$$
$$KDOTGRP$$
Drawn By : ARLawrence
File : $$DGNSPEC$$

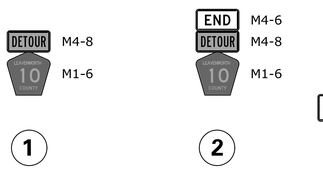
KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	60	68

Summary Of Traffic Control Devices (Each)

Work Zone Sign (Special)		
Sign No.	16.25 Sq.Ft. & Less	16.26 Sq.Ft. & Over





* TYPE III BARRICADE (8')
WITH FLASHERS
W/ ROAD CLOSED
LOCAL TRAFFIC ONLY SIGN (R11-4)

** TYPE III BARRICADE (8')
WITH FLASHERS
W/ ROAD CLOSED
MILES AHEAD
LOCAL TRAFFIC ONLY SIGN (R11-3A)

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
M4-8	14		
M1-6	14		
M4-6	3		
M6-1L	2		
M6-1R	4		
M6-3	3		

Barricades ✳		Channelizing Devices ✳		
Type 3 (4' To 12')	Pedestrian	Fixed	Portable	Pedestrian
10				

*** TYPE III BARRICADE TO SHIELD CHANNEL OR STRUCTURE

\# TYPE III BARRICADE (8')
WITH FLASHERS
W/ ROAD CLOSED
MILES AHEAD
LOCAL TRAFFIC ONLY SIGN (R11-3A)
& DETOUR SIGN (M4-10L)

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 (O To 9.25 Sq.Ft.)	40	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')	10	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)	12	Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display		Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)		Sta./Line
4" Solid (Type II)		Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)		Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)		Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)		Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal		Lin. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)	Lump Sum	Lump Sum
Traffic Control	Lump Sum	Lump Sum
Flagger (Set Price)	1	Hour

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SUMMARY OF DEVICES
RECAPITULATION OF QUANTITIES

~~TE795~~

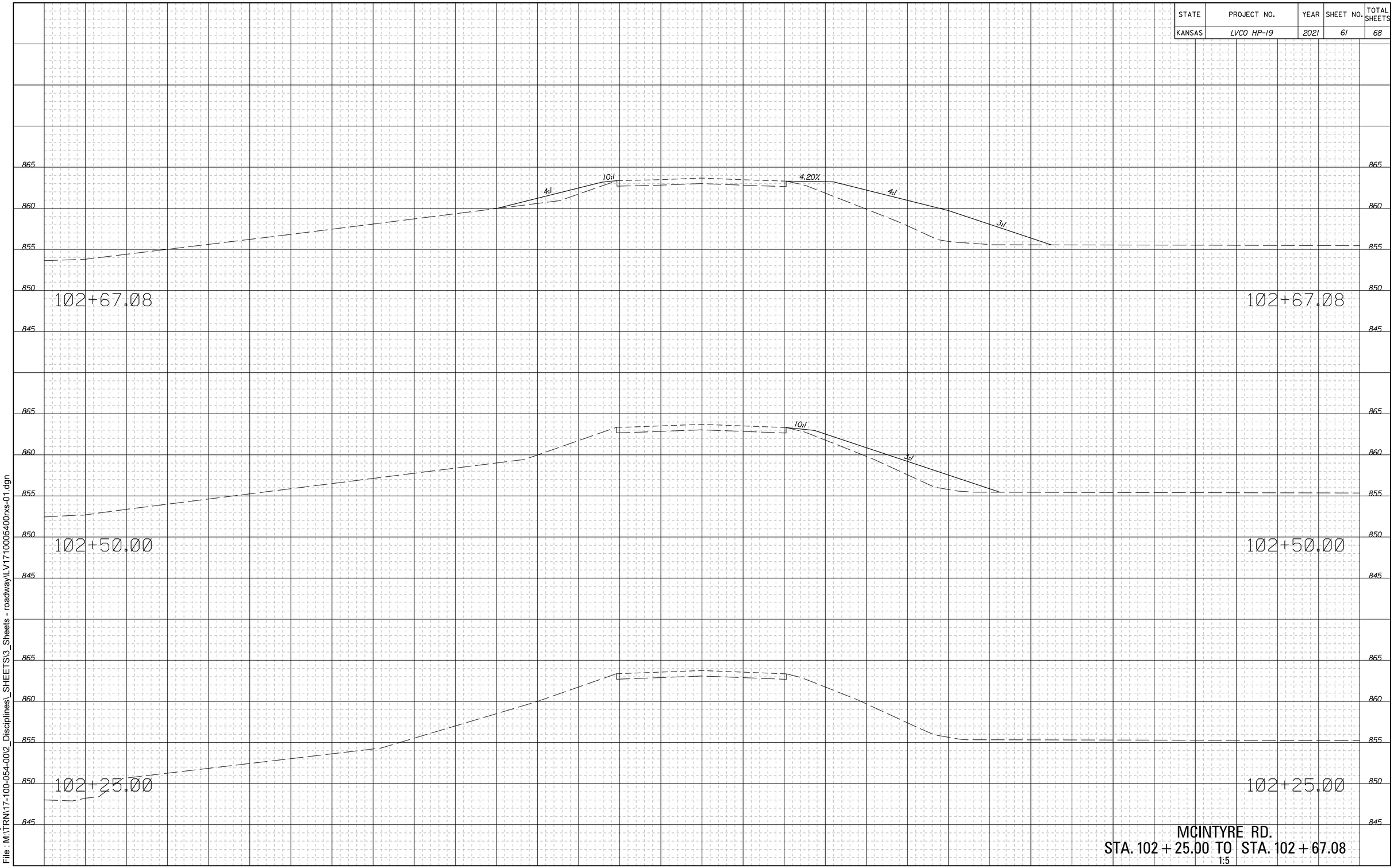
FHWA APPROVAL		06/01/15	APP'D	Kristina Ericksen
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 10-28-2015

Plotted : $SYTIME$$
$$KDOTGRP$$
Drawn By : ARLawrence
File : $$DGNSPEC$$

KDOT Graphics Certified

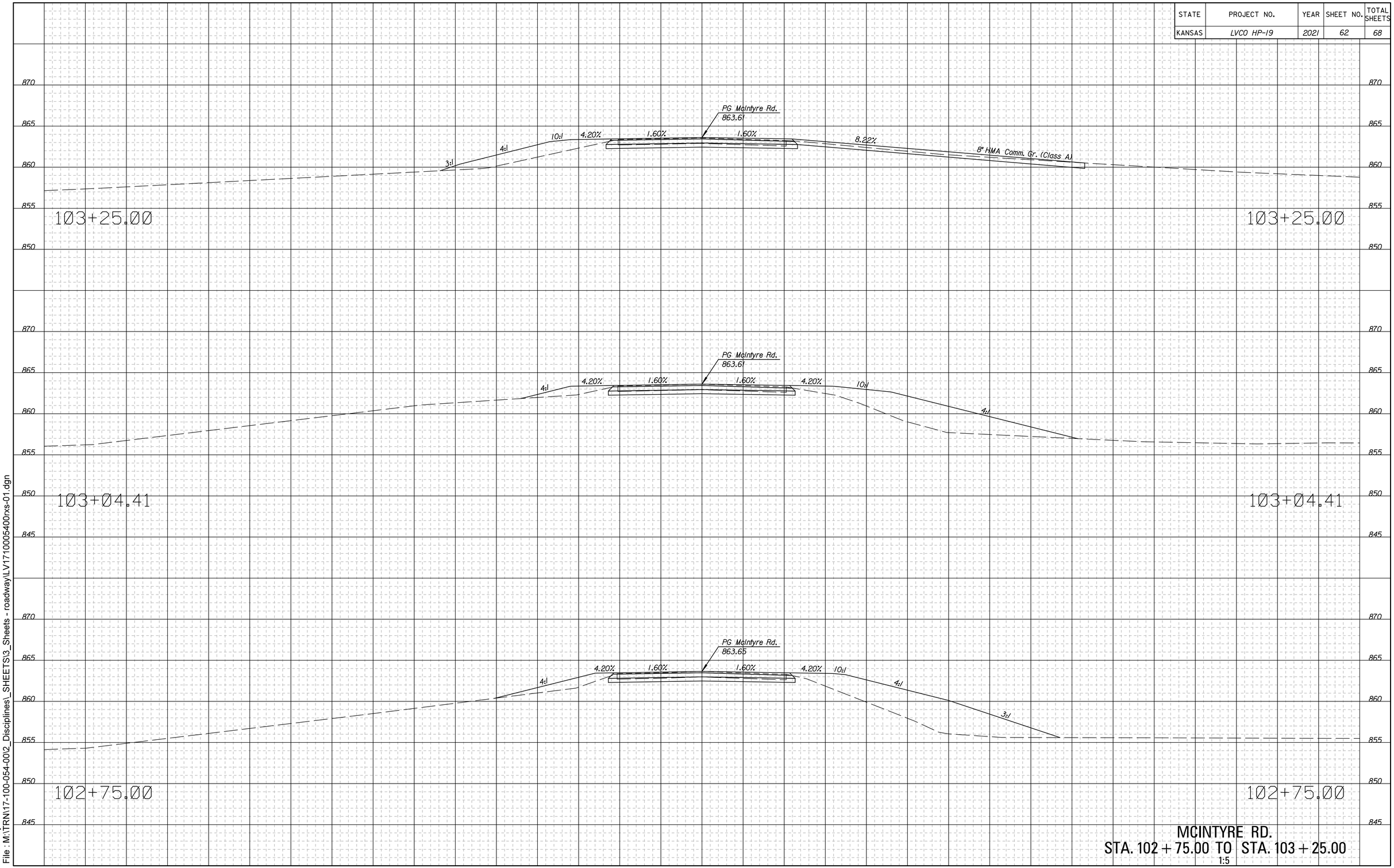
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	61	68



MCINTYRE RD.
STA. 102 + 25.00 TO STA. 102 + 67.08
1:5

Drawn By: : ARLawrence
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002rxs-01.dgn
Plotted : 8/10/2021

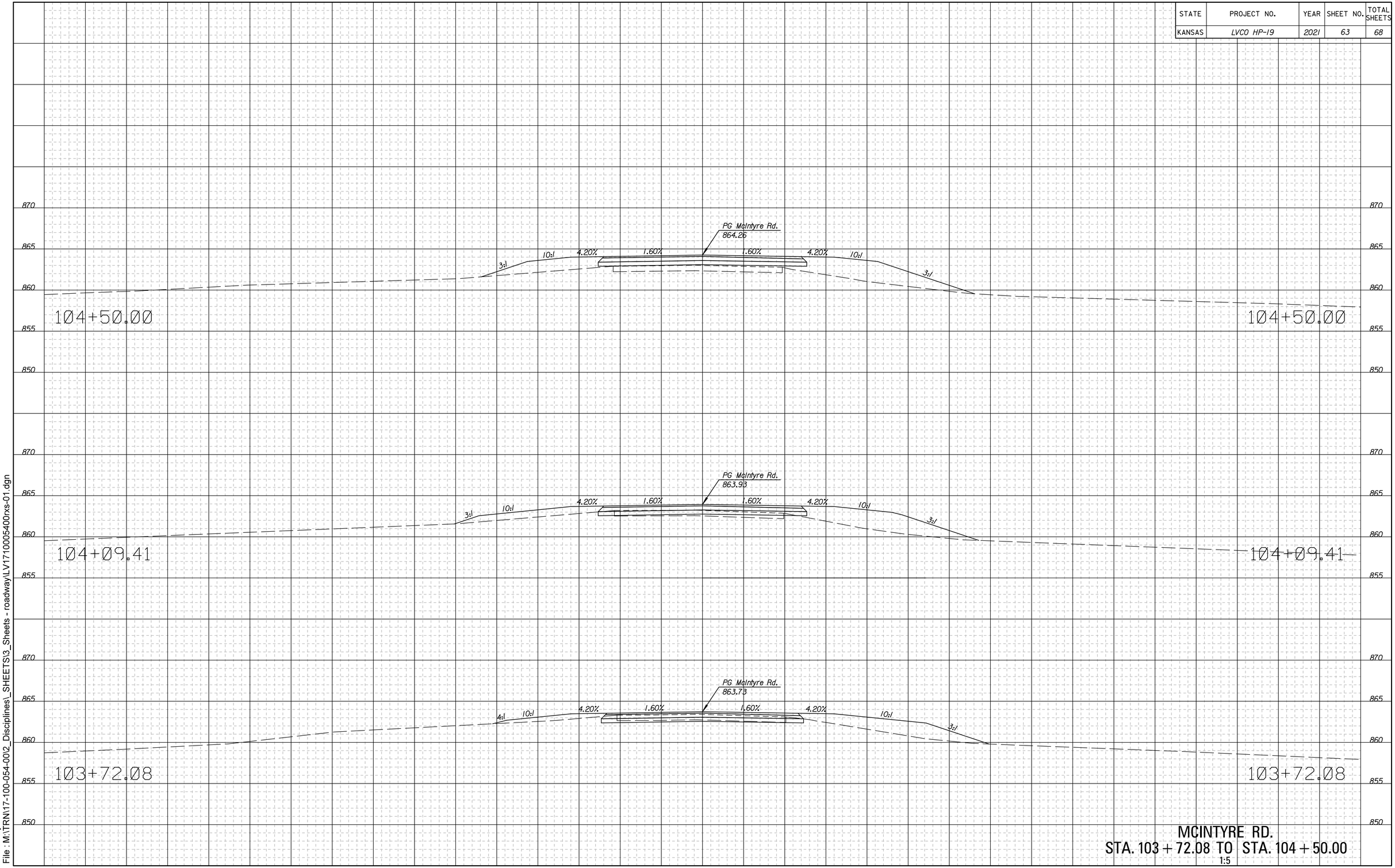
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	62	68



MCINTYRE RD.
STA. 102 + 75.00 TO STA. 103 + 25.00
1:5

Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054400rxs-01.dgn

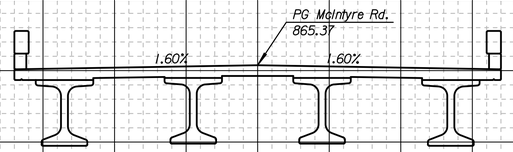
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	63	68



MCINTYRE RD.
STA. 103 + 72.08 TO STA. 104 + 50.00
1:5

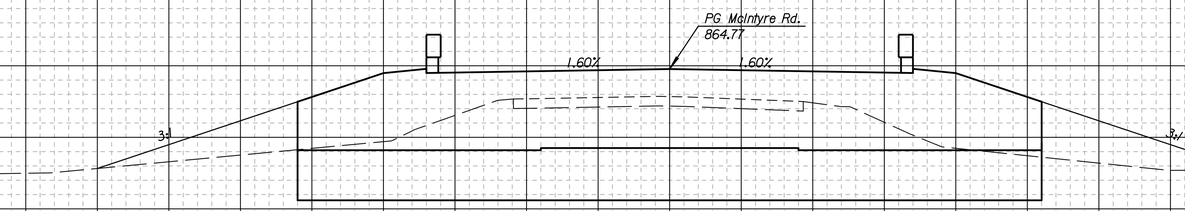
Drawn By: : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002rxs-01.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	64	68



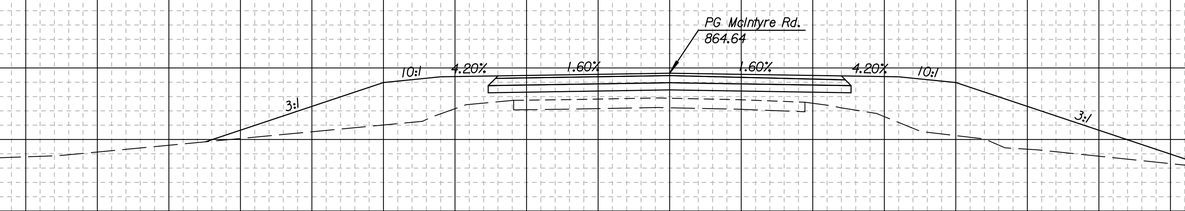
105+90.00

105+90.00



104+98.75

104+98.75



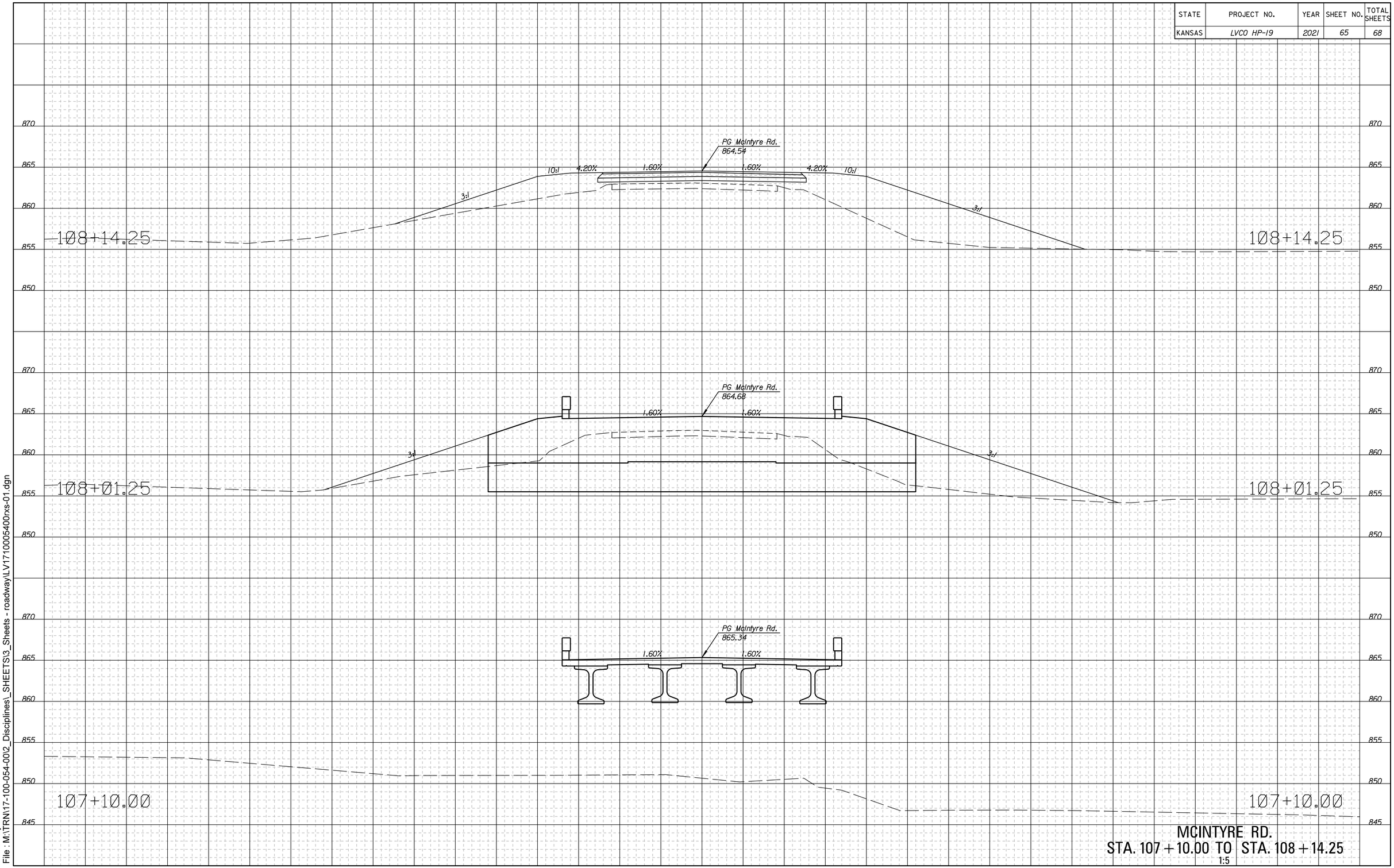
104+85.75

104+85.75

MCINTYRE RD.
STA. 104 + 85.75 TO STA. 105 + 90.00
1:5

Drawn By: : ARLawrence
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002rxs-01.dgn
Plotted : 8/10/2021

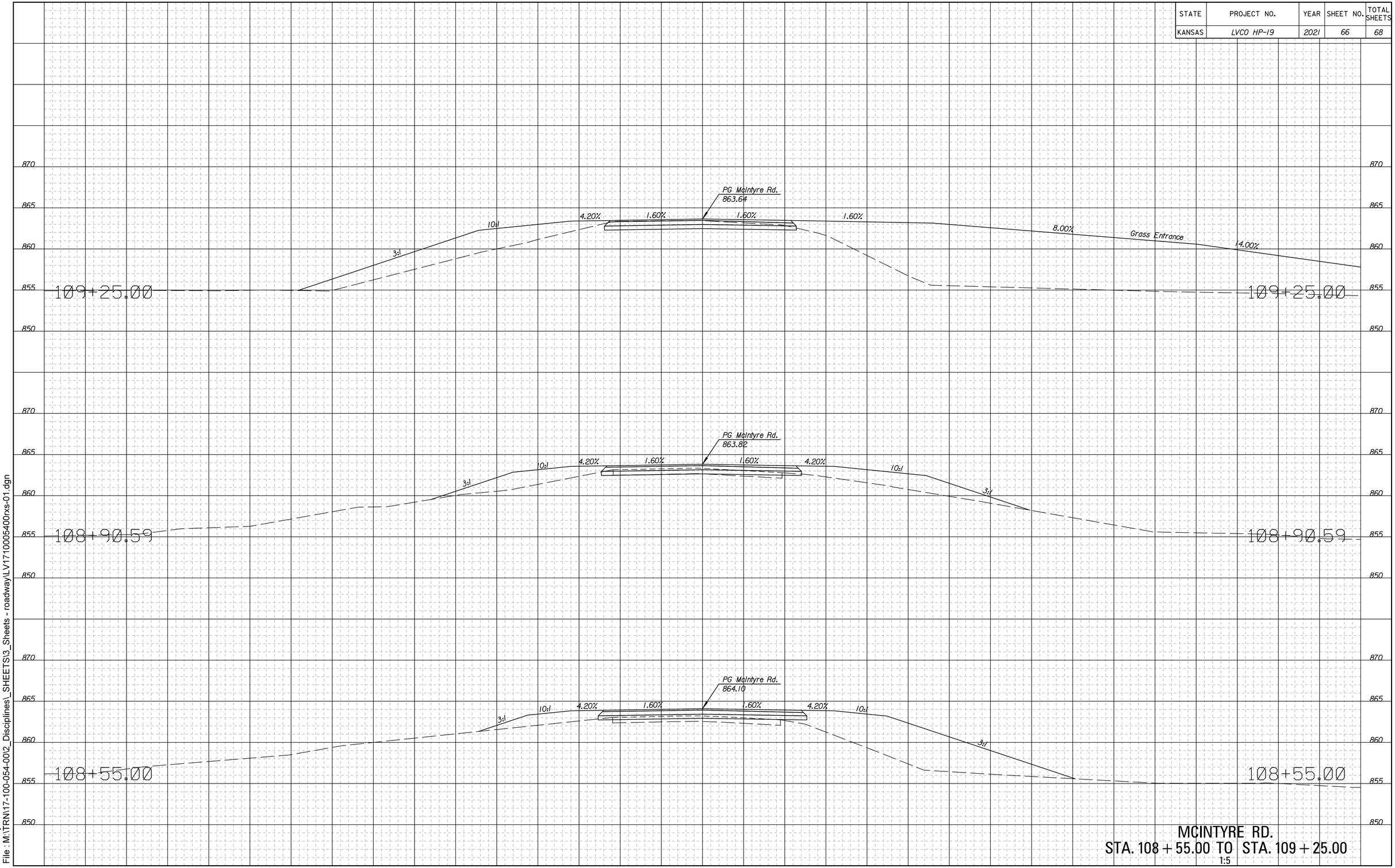
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	65	68



MCINTYRE RD.
STA. 107+10.00 TO STA. 108+14.25
1:5

Drawn By: : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002rxs-01.dgn

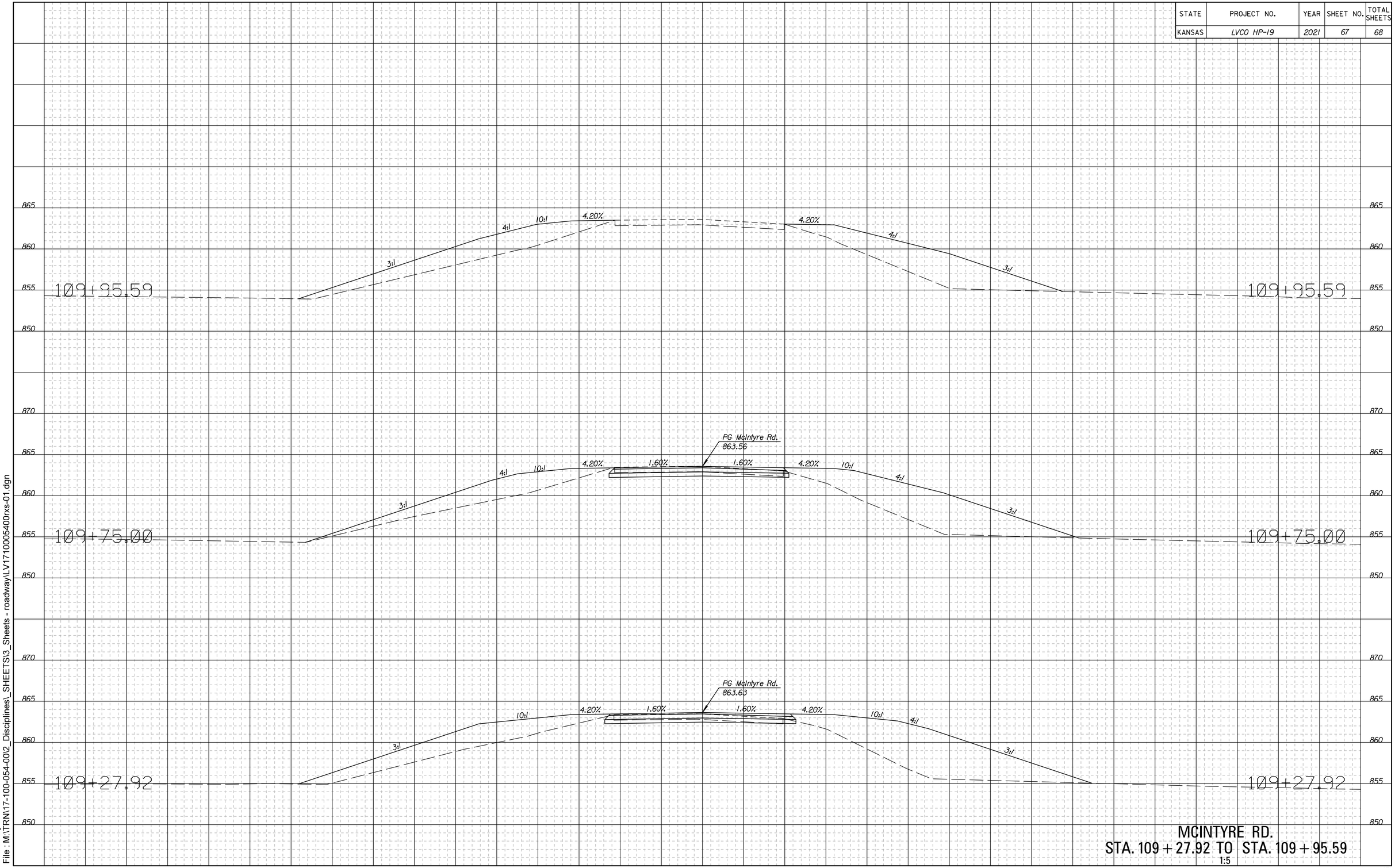
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	66	68



MCINTYRE RD.
STA. 108 + 55.00 TO STA. 109 + 25.00
1:5

Drawn By: : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002rxs-01.dgn

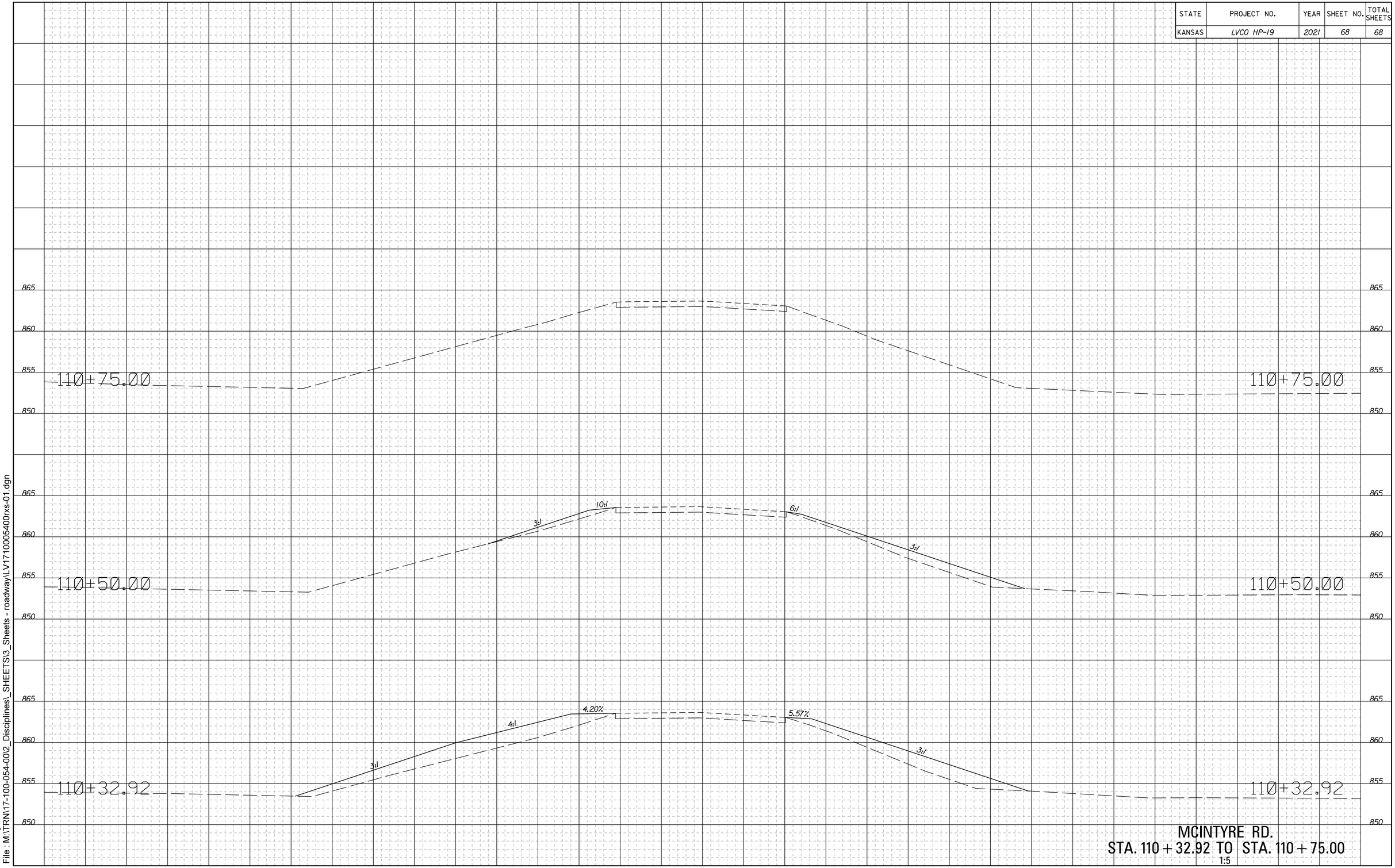
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	67	68



MCINTYRE RD.
STA. 109 + 27.92 TO STA. 109 + 95.59
1:5

Drawn By: : ARLawrence
File : M:\TRN\17-100-054-002_Disciplines_SHEETS\3_Sheets - roadway\LV17100054002rxs-01.dgn
Plotted : 8/10/2021

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	LVCO HP-19	2021	68	68



MCINTYRE RD.
STA. 110 + 32.92 TO STA. 110 + 75.00
1:5

Drawn By : ARLawrence Plotted : 8/10/2021
File : M:\TRN\17-100-054-0012_Disciplines_SHEETS\3_Sheets - roadway\LV17100054400rxs-01.dgn