STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	1	34

F.A. No. STP-C522(501)

INDEX OF SHEETS

STATE OF KANSAS

PLAN AND PROFILE OF PROPOSED

68 C-5225-01

FEDERAL AID PROJECT

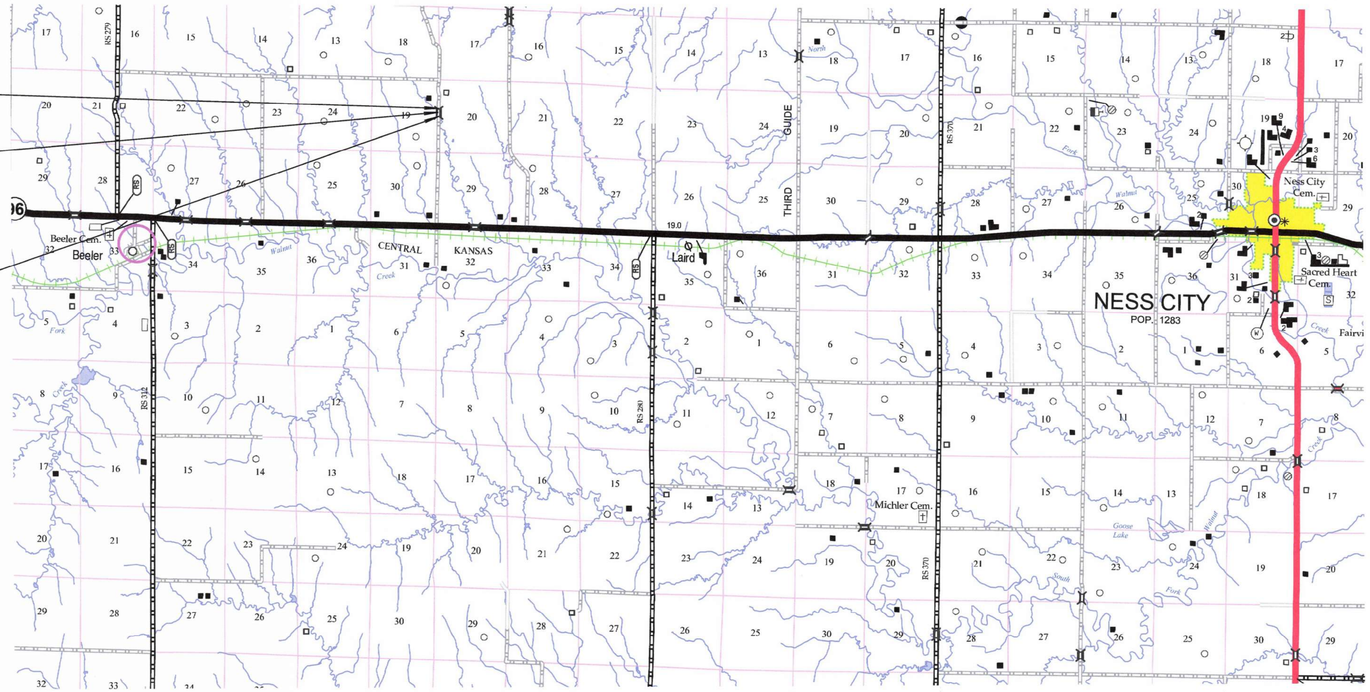
NESS COUNTY

GRADING
BRIDGE
SEEDING

Sta. 17+50.00 END
KDOT Project 68 C-5225-01

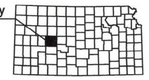
Sta. 15+95.00
Br. No. 000680519005104
40'-0" Precast Concrete Beam Bridge (YBMS). 45° Skew Rt.
28'-0" Roadway.

Sta. 15+00.00 BEGIN
KDOT Project 68 C-5225-01



No Scale

Ness County

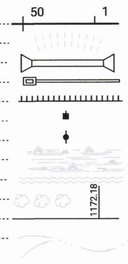


* DESIGN DESIGNATION

AADT (2021)	30
AADT (2044)	36
DHV	
D	
T	
V	55 MPH
C of A	
Clear Zone	

CONVENTIONAL SIGNS

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



GROSS LENGTH OF PROJECT	250.00 FT. (Includes Equations)	
EXCEPTIONS	NONE	
NET LENGTH OF PROJECT	250.00 FT.	0.05 MILES
NET LENGTH OF BRIDGES	40.00 FT.	0.01 MILES
NET LENGTH OF ROAD	210.00 FT.	0.04 MILES

RECOM. FOR APPROVAL-DATE

7-10-24

LOCAL PUBLIC OFFICIAL

JOSHUA A. CLARK LICENSED 25983 07-16-2024 KANSAS PROFESSIONAL ENGINEER

NOTE: This project will be closed to all traffic during construction.

KIRKHAM MICHAEL

200 E. Iron Ave., SALINA, KANSAS 67401
(785) 472-3163 FAX (785) 472-3817

Approved: Jul 17, 2024
Date

State Transportation Engineer

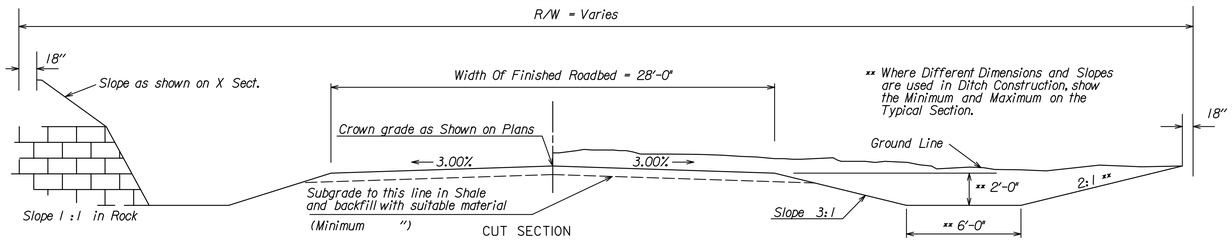
By:

Assistant Chief, Bureau of Local Projects

KANSAS DEPARTMENT OF TRANSPORTATION

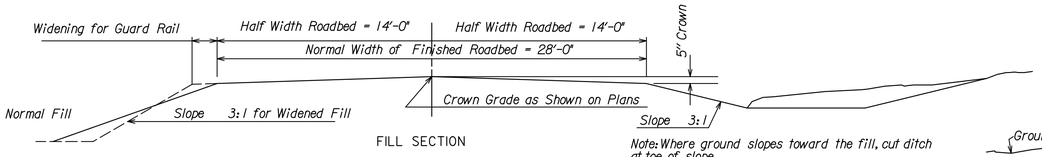
Plotted by : rsnow 10-JUL-2024 17:25
File : 2212875_Title Sheet.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	2	34



CUT SECTION

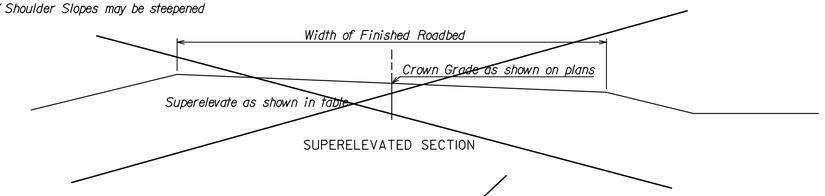
NOTE: For overbreakage in limestone, sandstone or shale see Special Provisions



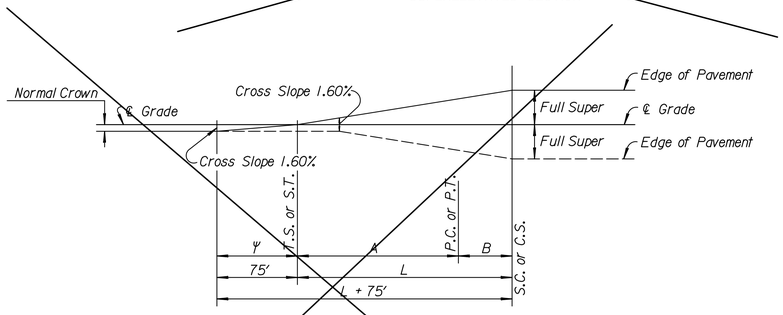
FILL SECTION

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

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

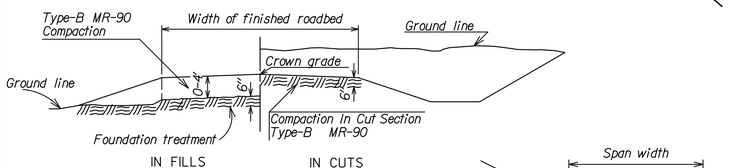


SUPERELEVATED SECTION



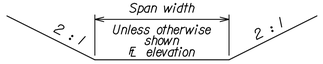
PROFILE SHOWING METHOD OF ATTAINING SUPERELEVATION

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

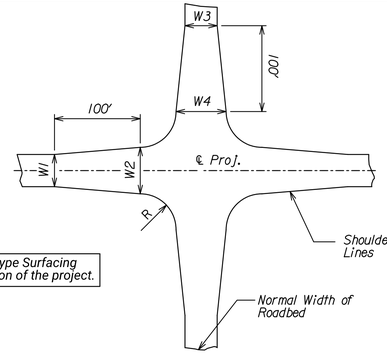


ALL EMBANKMENT SHALL BE COMPACTED EXCEPT DITCHPLUGS AND WASTE BERMS.

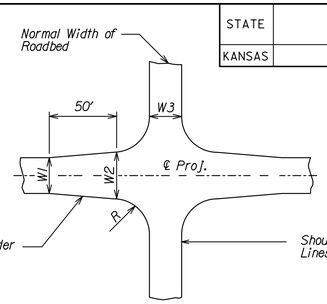
FOUNDATION TREATMENT AND COMPACTION OF EARTHWORK



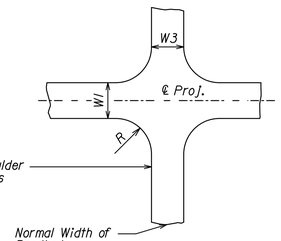
TYPICAL INLET AND OUTLET CHANNEL EXCAVATION SECTION FOR BOX STRUCTURES & PIPE CULVERTS



TYPE-A



TYPE-B

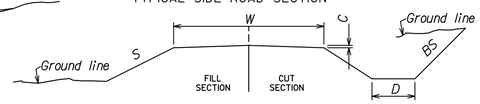


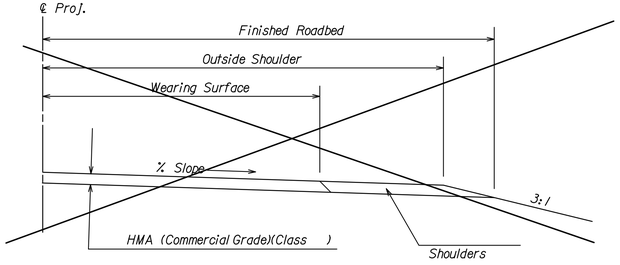
TYPE-C

TYPICAL INTERSECTION DETAILS

Ness County will place Light Type Surfacing on the roadway after completion of the project.

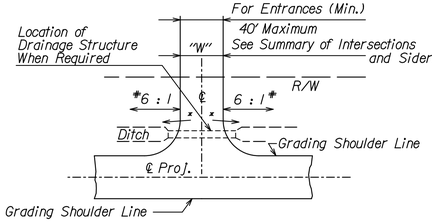
TYPICAL SIDE ROAD SECTION





TYPICAL 1/2 SECTION SURFACING

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

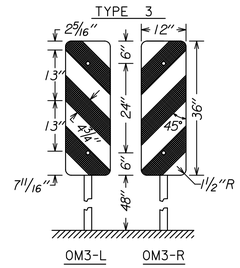


TYPICAL SIDE ROAD OR ENTRANCE DETAIL

* 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.

OBJECT MARKER



SUMMARY OF OBJECT MARKERS AND SIGNS						
STATION TO STATION	SIDE	TYPE OF STRUCT.	TYPE OF SIGN	OBJECT MARKER TYPE	OBJECT MARKER NO.	REMARKS
See RD 618 (Sheet 5) for OM3 placement on Guardrail Ends						
Ø As you face bridge end from approach						
•Back-to-Back [Sign(s) on Both Sides of Post]						

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.

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.	

Plotted by : rsnow 10-JUL-2024 17:25
File : 2212875_Typical Section.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	3	34

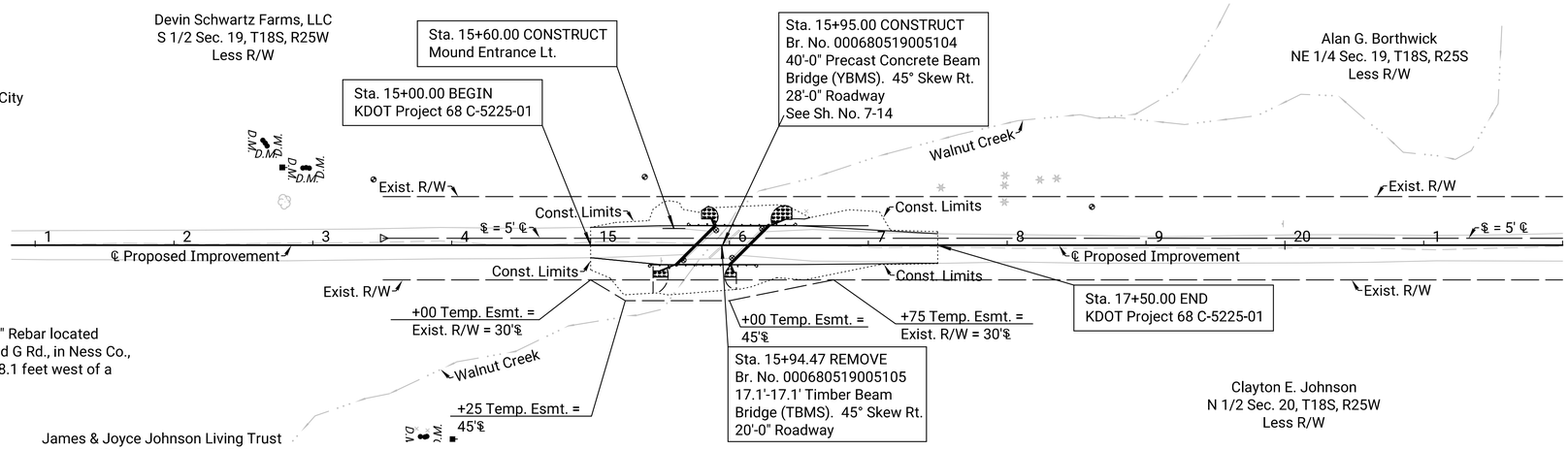
UTILITIES

Power: LANE-SCOTT ELECTRIC COOPERATIVE 1-620-397-5327

CP #1
Sta. 11+07.07, 29.8' Rt.
N = 627,320.48 E = 14,370,453.13
1. Set 1/2" Rebar Flush in E. Backslope
2. W. Face of Fc. Post w/ Spk./Wshr. 3.0' E
3. App. ℄ of N-S Rd. 29.8' W

CP #2
Sta. 18+83.15, 28.75' Rt.
N = 628,096.56 E = 14,370,451.29
1. Set 1/2" Rebar Flush in E. Backslope
2. N-S Fc. Line 2.0' E
3. App. ℄ of N-W Rd. 25.4' W
4. NE Cor. of Ex. Bridge 280.0' S

CP #3
Sta. 20+67.11, 14.70' Lt.
N = 628,280.47 E = 14,370,407.65
1. Set 1/2" Rebar Flush
2. N-S Fc. Line 10.0' W
3. Base of Steel Sign Post 69.0' S
4. App. ℄ of N-S Rd. 17.9' E



SCALE
PLAN: Lat. & Long. 50' 0 50' 100'
PROFILE: Horiz. same as above
Vert. 5' 0

NW Cor. Sec. 20, T18S, R25W
N = 630,202.54 E = 14,370,415.39
1. Fd. 5/8" Bar & Cap
2. In App. ℄ of Rd. to the W.
3. "X" Nails in W. Face Cor. Fc. Post 51.4' NE
4. "X" Nails in W. Face of Brace Post 37.1' ENE
5. Top Center S. End of CMP 84.1' NW

W1/4 Cor. Sec. 20, T18S, R25W
N = 627,563.92 E = 14,370,418.08
1. Set 5/8" Bar & Cap Over Fd. Stone
2. App. ℄ of N-S Rd. 3.0' E
3. Spk./Wshr. in Top of Fc. Post 70.5' SE
4. Spk./Wshr. in Top of Cor. Fc. Post 39.5' E
5. E. Face of Steel Cor. Fc. Post 43.1' W
6. Fc. Line Running W. 4.9' S

Horizontal Project Datum: KRCS Zone 14 Dodge City
for project coordinates.

Vertical Datum: North American Vertical Datum
NAVD 88 (Geiod 18)

DATUM BENCHMARK NAVD 88

BASE 1 is the datum benchmark. BASE 1 is a 1/2" Rebar located 5821 feet north of the intersection of HWY 96 and G Rd., in Ness Co., KS, 25.0 feet east of the centerline of G Rd., and 8.1 feet west of a north-south running fence line.
BASE 1 Elev. = 2480.26

BASE 1 WGS 84 Coords:
Lat: 38°27'58.89398" N
Long: 100°07'08.62306" W
Ellips: 2395.809 ft.

BM #1: Top of Driven "T" Post 1' E. of Steel Cor. Fc. Post
47.34' Lt., Sta. 13+43.98 Elev. = 2470.55

BM #2: Top of Driven "T" Post 1' E. of Gate Post
49.19' Lt., Sta. 15+39.02 Elev. = 2472.25

BM #3: Top of Driven "T" Post 1' E. of Cor. Fc. Post
27.63' Lt., Sta. 18+61.02 Elev. = 2474.04

The Contractor shall remove the existing 17.1'-17.1' Timber Beam Bridge (TBMS). 45° Skew Rt. 20' Roadway, Bridge No. 000680519005105. All items of the existing structure shall become property of the Contractor and shall be removed from the site.

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

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

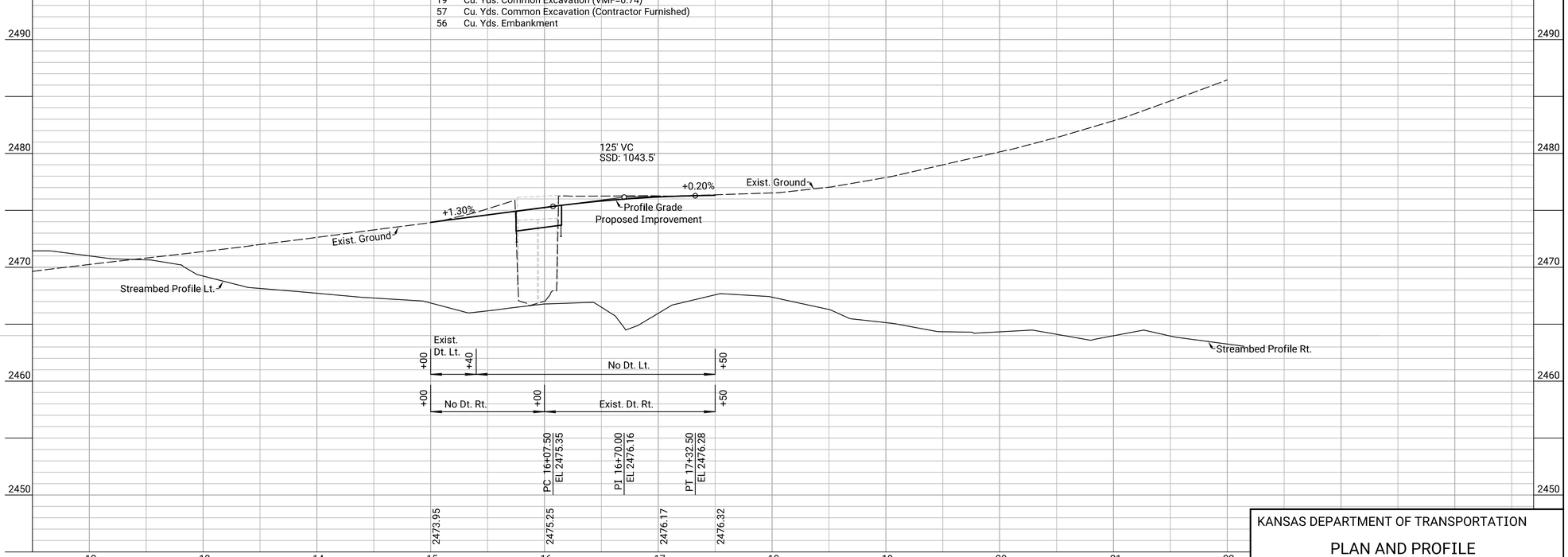
All trees, hedge rows, shelterbelts, and woody shrubs not shown to be removed and located between the construction limits and the right-of-way line or easement line shall be spared unless directed by the Engineer to be removed.

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

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

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

EARTHWORK BALANCE
19 Cu. Yds. Common Excavation (VMF=0.74)
57 Cu. Yds. Common Excavation (Contractor Furnished)
56 Cu. Yds. Embankment

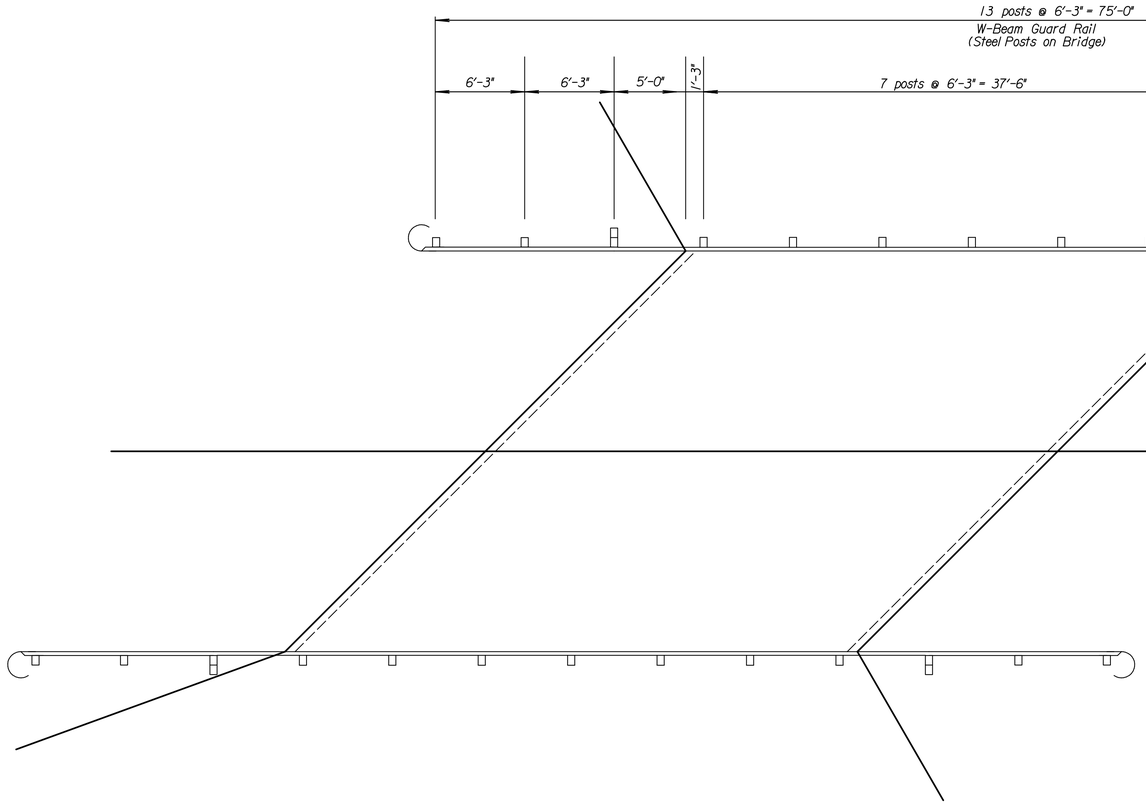


KANSAS DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE
STA. 12+00.00 TO STA. 19+00.00

DATE | BY | REFERENCES NOTED | REFERENCES CHECKED

Plotted by : rsnow 10-JUL-2024 17:26
File : 2212875_plan and profile.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	4	34



NO SCALE

GENERAL NOTE

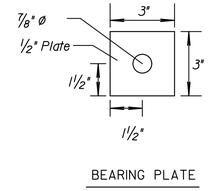
The Contractor shall provide shop drawings to install W-beam guardrail on the outside beams. Guardrail posts shall be steel and shall be welded to the metal base plate cast in the outside beams. Blocks will not be required between the steel posts and the W-beam guardrail across the bridge. All labor, materials, and incidentals necessary to install the guardrail shall be subsidiary to the bid item "Guardrail, Steel Plate".

Galvanize all steel parts after fabrication.

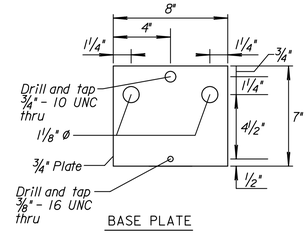
Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of the permanent traffic.

Use galvanized 12 gauge steel rail elements unless otherwise noted. Use galvanized anchor bolts and post rail fittings, see Standard Specifications. Supply guard rail parts that are interchangeable with similar parts regardless of source of manufacturer.

Note: Guardrail located off of the bridge is shown with wood posts. The contractor has the option of providing either standard wood or steel posts. See Standard Drawing RD611 for details.



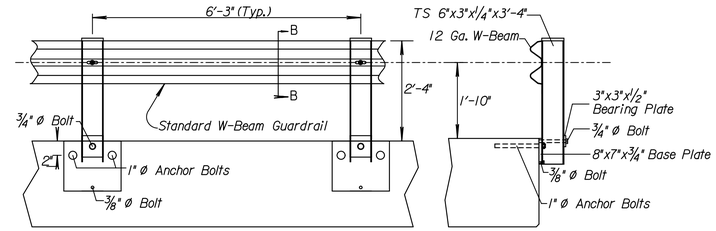
BEARING PLATE



BASE PLATE

SUMMARY OF STEEL PLATE GUARDRAIL				
Location	Side	W-Beam Guardrail Lin. Ft.	Standard Type II End Terminal Each	Total Pay Length Lin. Ft.
Bridge	Lt	75'-0"	2	75'-0"
Bridge	Rt	75'-0"	2	75'-0"
TOTAL			*4	150'-0"

*For Information Only



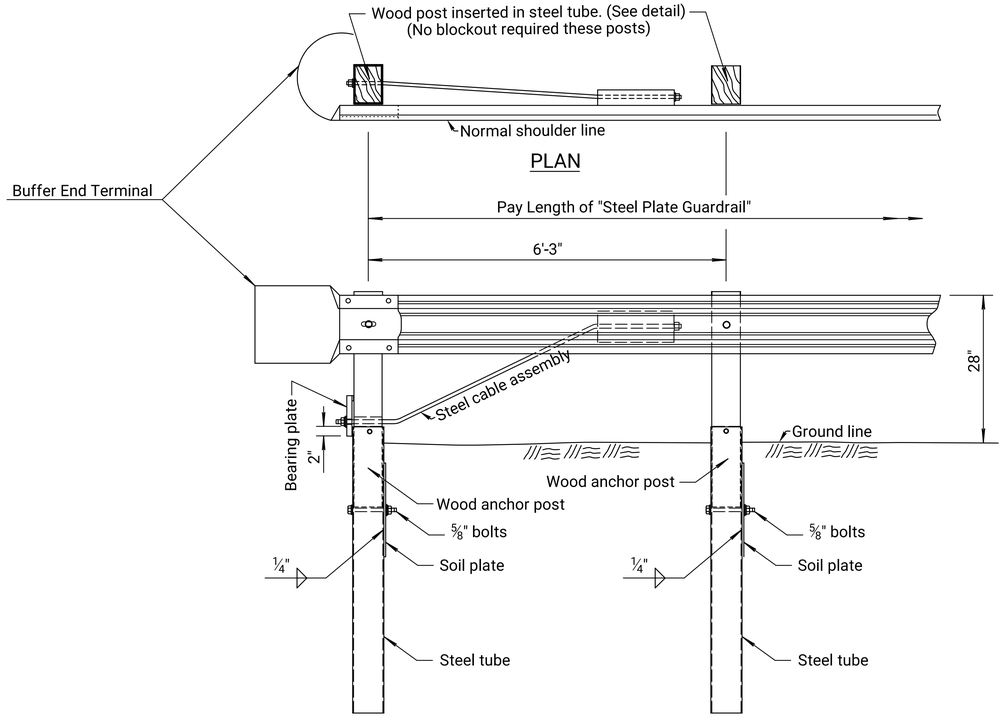
CONNECTION DETAILS

GUARDRAIL LAYOUT

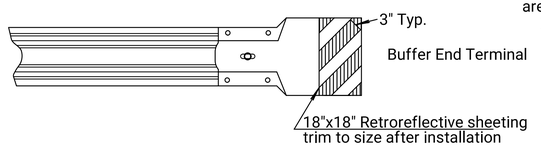
Plotted by : rsnow 10-JUL-2024 17:26
File : 2212875_Guardrail Layout.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	5	34

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



DETAIL OF ANCHOR ASSEMBLY



Note: Apply retroreflective sheeting to the buffer end of the terminal after installation. Thoroughly clean and dry steel prior to installation. Locate sheeting to provide maximum visibility to approaching traffic.

GENERAL NOTE

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

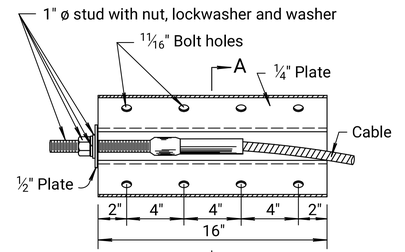
The steel soil tubes may be driven with an approved driving head. Set steel tube and soil plate before installing wood anchor post assembly. Do not drive steel soil tubes with wood post in the tube. Backfill and satisfactorily compact around steel soil tubes placed in drilled holes to prevent tube settlement.

Galvanize all steel parts after fabrication.

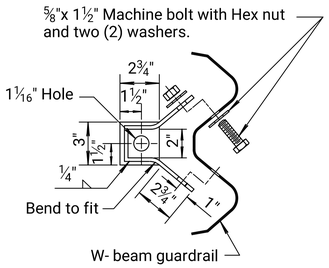
Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of the permanent traffic.

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

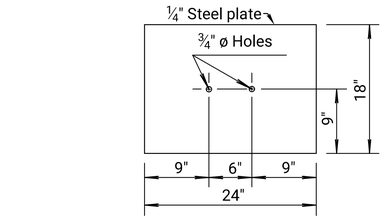
Include Type II end terminal in pay length of "Steel Plate Guardrail".



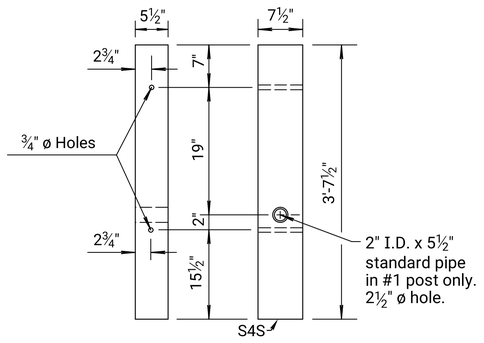
ANCHOR PLATE



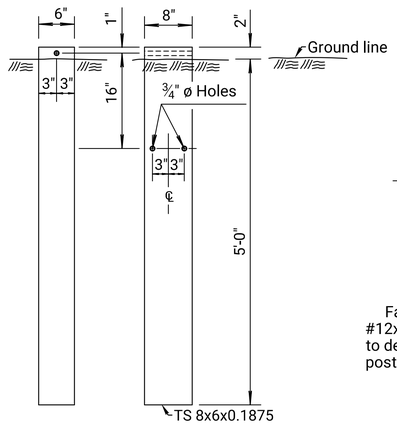
MODIFIED SECTION A-A



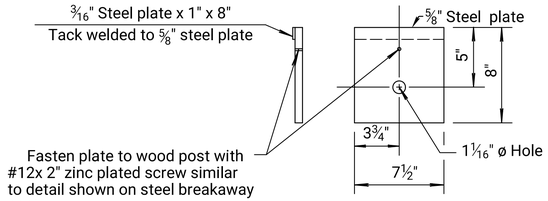
SOIL PLATE



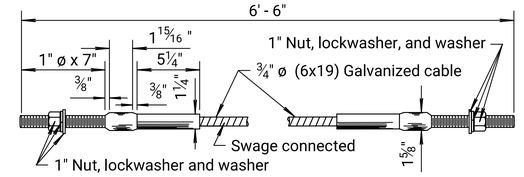
BCT WOOD POST



STEEL TUBE



BEARING PLATE



CABLE ASSEMBLY (1 each)

(40,000 lbs. min. breaking strength)
Tighten cable to taut tension.

NO.	DATE	REVISIONS	BY	APP'D
06	12-14-10	Rev. notes, details & 28" rail height	S.W.K.	J.O.B.
05	07-20-04	Changed Guard Fence to Guardrail	S.W.K.	J.O.B.
04	05-18-00	Added note for temporary traffic	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL END TERMINAL TYPE II

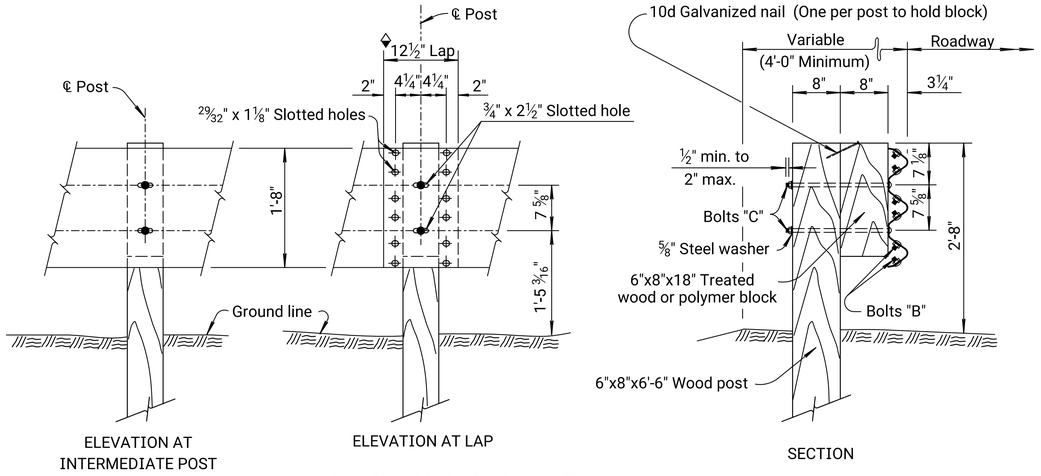
~~RD618~~

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

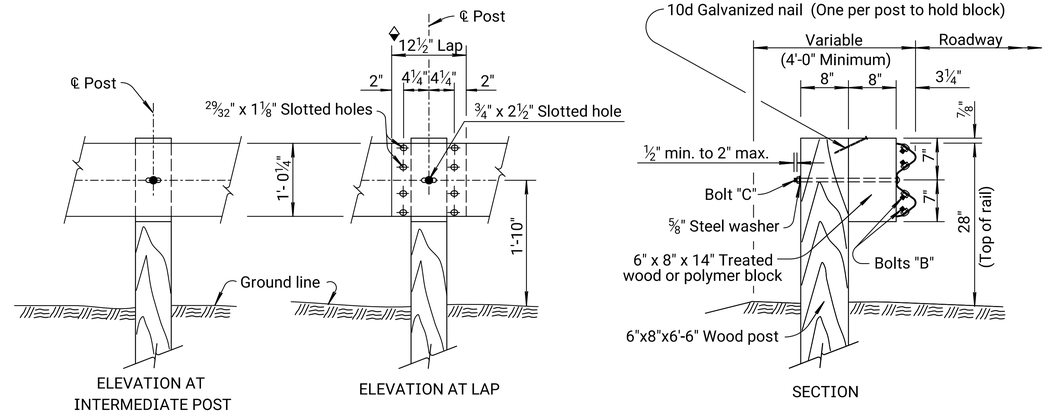
Plotted by : rsnow 10-JUL-2024 17:26
File : rd618.dgn

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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	6	34



THRIE BEAM POST DETAILS



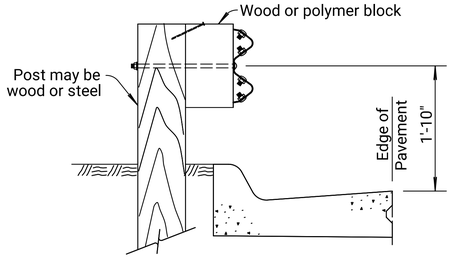
W-BEAM POST DETAILS

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

WOOD POSTS

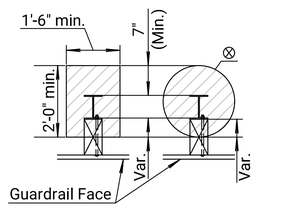
GENERAL NOTES (Wood Posts)

Give all wood posts and wood blocks a preservative treatment, see standard specifications. Thoroughly saturate all cuts, injuries and bolt holes on wood posts and blocks with preservative. Use only one type of preservative treatment on a project. Use S4S rectangular posts and wood blocks, see standard specifications. Use only one post/blockout type within guardrail run, this excludes the the guardrail end terminals. Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations. Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6". Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation. This excludes the guardrail end terminals unless certified by the manufacturer. All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.



DETAIL OF PLACEMENT AT CURB

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

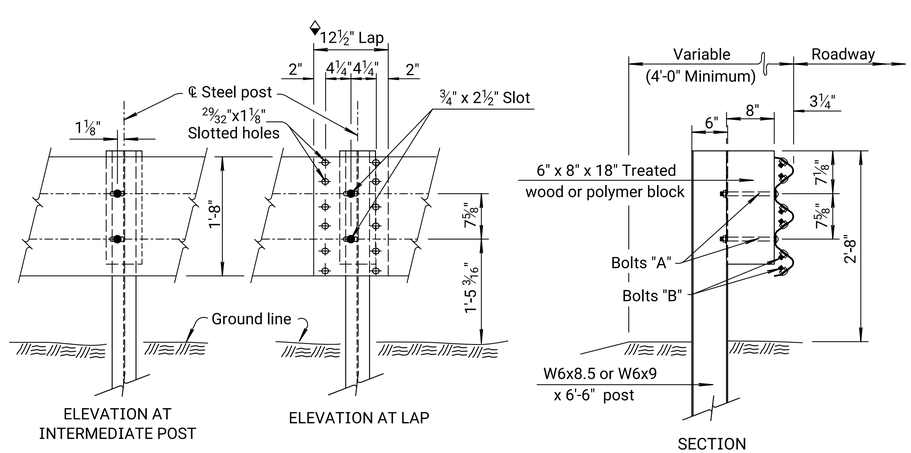


POSTS IN PAVEMENT PLAN
(ALTERNATE GEOMETRIES)
Applies to All Wood and All Steel Posts
(Steel Posts Shown)

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

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

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



THRIE BEAM POST DETAILS

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

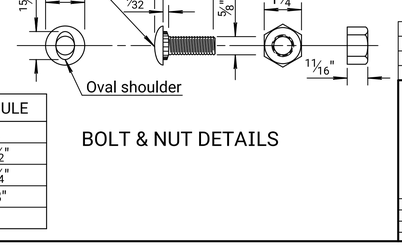
W-BEAM POST DETAILS

STEEL POSTS

GENERAL NOTES (Steel Posts)

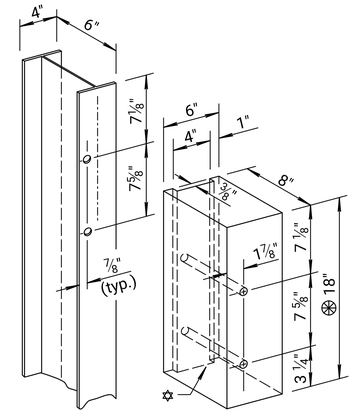
Use grade of steel for steel posts that meets the requirements of the standard specifications. Hot dip galvanize the posts after fabrication, see standard specifications. Use only one post/blockout type within guardrail run, this excludes the guardrail end terminals. For wood/polymer blockout requriements see standard specifications. Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation. This excludes the guardrail end terminals. Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations. Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6" except as allowed on Standard Drawing RD617. All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.

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



BOLT & NUT DETAILS

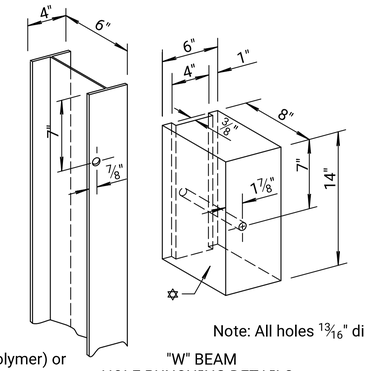
Galvanize all bolts, nuts, and washers in accordance with the KDOT's Standard Specifications.



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

Note: All holes 13/16" dia.

THRIE BEAM
HOLE PUNCHING DETAILS



Note: All holes 13/16" dia.

✡ Non-Metallic (Polymer) or Treated Wood Block

"W" BEAM
HOLE PUNCHING DETAILS

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

KANSAS DEPARTMENT OF TRANSPORTATION

GUARDRAIL POST DETAILS

RD611

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

Plotted by : rsnow 10-JUL-2024 17:26
File : rd611.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	7	34

SUMMARY OF QUANTITIES

Item / Location	Class I Excavation Cu. Yds.	Class II Excavation Cu. Yds.	◔ Precast Reinforced Concrete Bridge Slabs Sq. Ft.	Structural Steel (A709) (Grade 50) Lbs	# Piles (Corrugated Metal Sheet) Sq. Ft.	✱ Piles (Steel) (HP 12x53) Lin. Ft.	Cast Steel Pile Points Each	Contractor Furnished PDA Each	Pre-Drilled Pile Holes Lin. Ft.	Slope Protection (Riprap Stone) (Cu. Yds.)
Abutment No. 1	12	9		3945	819	260	8	1	89	11
Abutment No. 2	24	6		3945	819	240	8	1	89	14
Substr. Total										
Superstr. Total			1133							
Total	36	15	1133 ◔	7890	1638 #	500 †	16	2	178 Ø	25

◔ Precast reinforced concrete bridge slabs quantity calculated based on 28'-6" bridge out-to-out width.

Corrugated metal sheet pile quantity calculated based on 14' long piles.

Ø Pre-drilled pile quantity calculated based on non-PDA piles.

† Summary of Piling
Abutment No. 1 4 @ 38' - 1 @ 48' PDA Pile Abutment, 3 @ 20' Wings
Abutment No. 2 4 @ 34' - 1 @ 44' PDA Pile Abutment, 3 @ 20' Wings

Ø Summary of Pre-Drilled Pile Holes
Abutment No. 1 5 @ 13' Abutment, 3 @ 8' Wings
Abutment No. 2 5 @ 13' Abutment, 3 @ 8' Wings

✱ NOTE: Pre-Drilling shall only be used if minimum penetration cannot be achieved during driving of the test pile (PDA Pile).

Summary of Structural Steel (A709) (Grade 50)

	Pile Caps (HP 12x53) (Lbs.)	Stiffeners Pile Caps (Lbs.)	Whalers (C8x11.5) (Lbs.)	Backwall Plate (Lbs.)	Gusset Plates (Lbs.)	Wingwall Cap (C5x6.7) (Lbs.)
Abutment No. 1	2173	147	679	784	34	128
Abutment No. 2	2173	147	679	784	34	128
Total	4346	294	1358	1568	68	256

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

NOTE: Pile lengths may need to be adjusted depending on thickness of the precast reinforced concrete bridge slabs. Pile lengths calculated assuming bridge slab depth of 1'-9".

INDEX TO BRIDGE DRAWINGS

Sheet No.	Drawing
7	General Notes and Quantities
8	Contour Map
9	Construction Layout
10	Geology Sheet
11-12	Bridge Details
Standards	
13	Bridge Excavation
14	Standard Pile Details

GENERAL NOTES

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

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

BRIDGE EXCAVATION: Elevation 2469.62 shall designate the Excavation Boundary Plane of Class I and Class II Excavation; Class I above the plane, Class II below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

BACKFILL COMPACTION: Compact backfill at the abutments. Backfill compaction shall be subsidiary to other items of the project.

PILING: Drive all piling to penetrate or bear upon the bedrock/weathered shale formation. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutment No. 1 55 Tons

Abutment No. 2 55 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.

CONTRACTOR FURNISHED PDA: Use the Pile Driving Analyzer equipment at the locations shown on the Construction Layout. Use Pile Driving Analyzer equipment and methods compliant with KDOT Special Provisions. The piling shall remain in place as permanent piling. Drive the piling to the resistance value of 85 Tons at the abutments (Strength I divided by Phi). At any location where problems are experienced, pile damage suspected, or the Pile Driving Formula Load occurs significantly above the design tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used.

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for Abutments 1 & 2 will follow the "Standard Pile Details" Sheet (BR110).

WELDING: Material, fabrication and construction shall conform to KDOT Specifications. On the shop drawings, show a code or symbol in the tail of the weld symbol that refers to an approved, pre-qualified weld procedure. Welding shall conform to AWS D1.5. Field welding shall be completed by a certified welder.

PRE-DRILLING: All piles shall be pre-drilled to the elevation shown on the Construction Layout. Following drilling, piles shall be set be set directly on the suitable bedrock materials. After driving, at least the bottom 10' of the hole shall be backfilled with non-shrinking grout with a minimum unconfined compressive strength of 4,000 psi at 28 days. The pile shall be backfilled with bentonite or a bentonite/soil mixture above the grout-filled socket. All drilling, augering, Grade 3.0 concrete for filling pre-drilled holes, labor tools, equipment and incidentals necessary to complete the work shall be included in the bid item "Pre-Drilled Pile Holes" paid by the linear foot.

REMOVAL OF EXISTING STRUCTURE: The Contractor shall remove the existing 17.1'-17.1' Timber Beam Bridge (TBMS). 45° Skew Rt. 20' Roadway. Bridge #000680519005105. All items of the existing structure shall become property of the Contractor and be removed from the site.

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

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

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.

STRUCTURAL STEEL: All structural steel shall conform to ASTM A709 (Grade 50) unless otherwise noted.

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

TEMPERATURE: The design temperature for all dimensions is 60° F.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

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

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thicknesses shown on the plans or as directed by the Engineer. Use Light 200 Lb. as described in Division 1100 placed to the limits shown on the plans.

PRECAST REINFORCED CONCRETE BRIDGE SLABS: The Contractor shall provide shop drawings stamped by a Registered Professional Engineer licensed in the State of Kansas for the precast reinforced concrete bridge slabs and bridge slab installation details for approval by the Engineer. The bridge slabs shall be anchored to the abutment pile caps. The Contractor shall provide shop drawings detailing the connection of the bridge slabs to the pile cap for approval by the Engineer. The bridge slabs shall be connected to transfer loads between adjacent bridge slabs such that the individual slabs act as one unit. The Contractor shall provide shop drawings detailing the connection between bridge slabs. The bridge slabs shall be designed for LRFD HL-93 loading and a load rating stamped by a Registered Professional Engineer licensed in the State of Kansas shall be provided. The LRFR inventory rating factor for HL-93 loading shall be a minimum of 1.0 and the rating factor for T3, T3S2, T3-3, SU4, SU5, SU6, SU7, NRL, EV2, and EV3 shall be a minimum of 1.0. All exposed edges of the bridge slabs shall have a minimum 3/4" chamfer. The top surface of the bridge slabs shall be broom finished transverse to the bridge slab centerline. All labor, concrete, reinforcing steel, elastomeric bearing pads, joint sealant, backer rods and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be subsidiary to the bid item "Precast Reinforced Concrete Bridge Slabs".

GUARDRAIL, STEEL PLATE: The Contractor shall provide shop drawings to install W-beam guardrail on the outside bridge slabs. Guardrail posts shall be steel and shall be bolted to the outside bridge slabs. Blocks will not be required between the steel posts and the W-beam guardrail across the bridge. All labor, materials, and incidentals necessary to install the guardrail shall be subsidiary to the bid item "Guardrail, Steel Plate".

STEEL SHEET PILING: Structural steel for sheet piling shall meet ASTM A328 (Gr. 36 min.). Cold bent shapes are acceptable. Corner connections are subsidiary to the bid item "Piles (Corrugated Metal Sheet)". Welded or mechanical piling splices are allowed with the Engineer's approval. Submit a sheet pile plan and calculations to the Engineer for approval. Include plan details of materials, size and location of the sheet piling. Submit the plan at the pre-construction conference. Drive all sheet piling at or below the pile tip elevation shown on the plans. Variation in the sheet pile alignment may be allowed with the approval of the Engineer. Use only "tamping" compaction equipment within five feet of the sheet piling. Painting of the steel sheet piling is not required. See KDOT Specifications. Sheet piling shall be galvanized and a minimum 7 guage thickness.

DESIGN DATA

DESIGN SPECIFICATIONS:
AASHTO Specifications, 2017 Edition and latest Interim Specifications. Load and Resistance Factor Design.

DESIGN LOADING:
HL-93

Design Dead Load includes an allowance of 25 psf for a future wearing surface.

UNIT STRESSES:

Concrete (Grade 4.0)	f'c =	4 ksi min.
Concrete (Grade 4.0)(AE)	f'c =	4 ksi min.
Reinforcing Steel (Grade 60)	fy =	60 ksi
Steel Piles	fy =	50 ksi
Structural Steel (A709)	fy =	50 ksi

LRFD DESIGN PILE LOAD:

Design Loading (Tons/Pile)	Strength I	Service I	Phi
Abutments	55	35	0.65

LFD & LRFR RATING FACTORS		
Truck / Rating Level	Inventory	Operating
HS-20 (36T)		
Type HET (110T)	X	
2002 LFD Rating. 17th Edition AASHTO		
HL-93 Loading		
2008 Manual for Bridge Evaluation		

Rating factors to be provided by the pre-cast concrete beam fabricator. The LRFR inventory rating factor for HL-93 loading shall be a minimum of 1.0 and the rating factor for T3, T3S2, T3-3, SU4, SU5, SU6, SU7, NRL, EV2, and EV3 shall be a minimum of 1.0.

NO.	DATE	REVISIONS	BY	APP'D
6	10/19/15	Added Asbestos NOT822I Option	JPJ	CER
5	2/4/15	Modified Per 2015 Specification	JPJ	CER
4	4/7/14	Current Release	JPJ	CER
3	2/12/14	Added Benchmark	JPJ	CER
2	08/2/12	ADDED NOT3I35 & NOT3I45	JPJ	TLF
1	04/29/10	ADDED RATING TABLES	JPJ	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

GENERAL NOTES AND QUANTITIES

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

Std. Base File:
Plotted By: rsnow | Plot Location:
File: br200.dgn
Plot Date: 10-JUL-2024 17:27

UTILITIES		
Power:	LANE-SCOTT ELECTRIC COOPERATIVE	1-620-397-5327

CP #1
Sta. 11+07.07, 29.8' Rt.
N = 627,320.48 E = 14,370,453.13
1. Set 1/2" Rebar Flush in E. Backslope
2. W. Face of Fc. Post w/ Spk./Wshr. 3.0' E
3. App. ℄ of N-S Rd. 29.8' W

CP #2
Sta. 18+83.15, 28.75' Rt.
N = 628,096.56 E = 14,370,451.29
1. Set 1/2" Rebar Flush in E. Backslope
2. N-S Fc. Line 2.0' E
3. App. ℄ of N-W Rd. 25.4' W
4. NE Cor. of Ex. Bridge 280.0' S

CP #3
Sta. 20+67.11, 14.70' Lt.
N = 628,280.47 E = 14,370,407.65
1. Set 1/2" Rebar Flush
2. N-S Fc. Line 10.0' W
3. Base of Steel Sign Post 69.0' S
4. App. ℄ of N-S Rd. 17.9' E

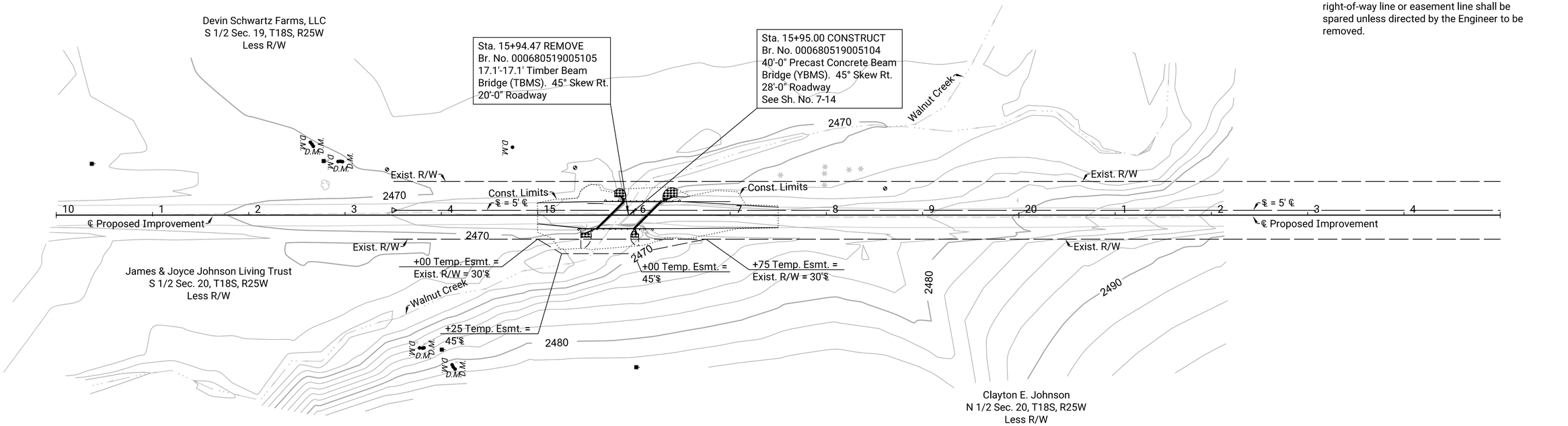
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	8	34

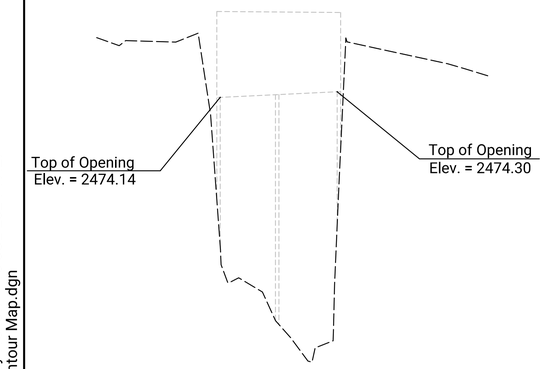
The Contractor shall remove the existing 17.1'-17.1' Timber Beam Bridge (TBMS). 45° Skew Rt. 20' Roadway.
Bridge No. 000680519005105
All items of the existing structure shall become property of the Contractor and be removed from the site.

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

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

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.





EXISTING WATERWAY OPENING SKETCH
Total Waterway Opening = 212 Sq. Ft.

SCALE
PLAN: Lat. & Long. 50' 0 50' 100'
5 0
Contour Interval = 2'

BM #1: Top of Driven "T" Post 1' E. of Steel Cor. Fc. Post
47.34' Lt., Sta. 13+43.98 Elev. = 2470.55

BM #2: Top of Driven "T" Post 1' E. of Gate Post
49.19' Lt., Sta. 15+39.02 Elev. = 2472.25

BM #3: Top of Driven "T" Post 1' E. of Cor. Fc. Post
27.63' Lt., Sta. 18+61.02 Elev. = 2474.04

NO.	DATE	REVISIONS	BY	APP'D

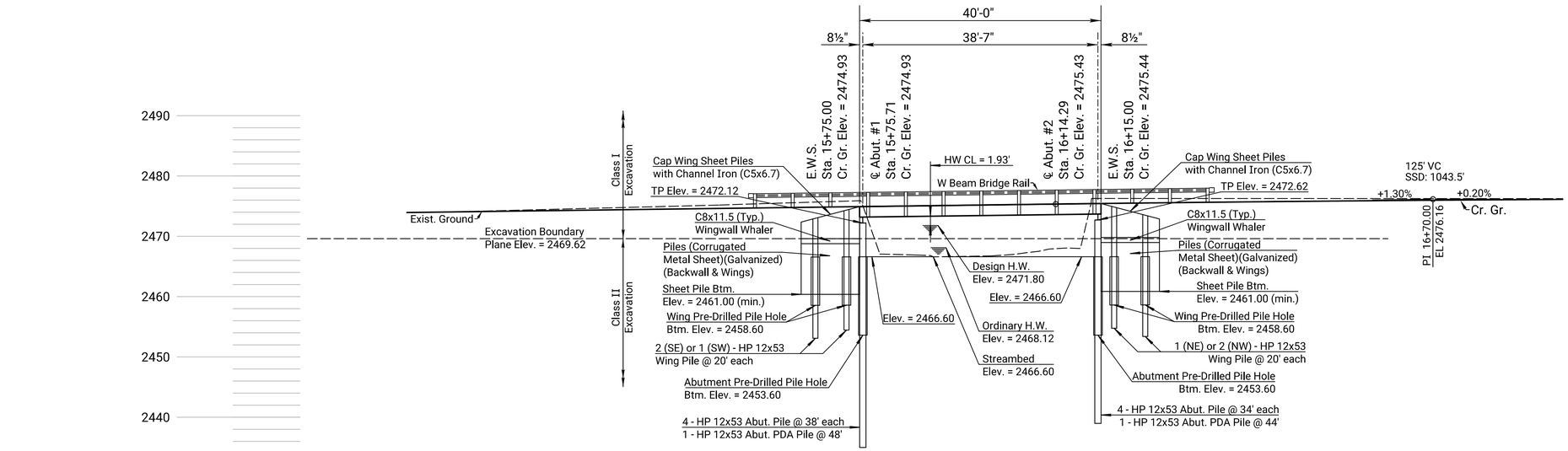
KANSAS DEPARTMENT OF TRANSPORTATION

CONTOUR MAP

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

Plotted by : rsnow 10-JUL-2024 17:27
File : Contour Map.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	9	34



NOTE: Bridge slabs are assumed to be 1'-9" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

Elevation

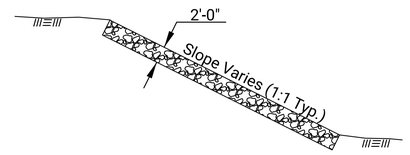
40' Precast Beam, Simple (YBMS).
45° Skew Rt. 28'-0" Roadway.

NOTE: Geological investigation indicated highly weathered shale was encountered at an elevation of 2460.5 at Abutment #1 and 2461.5 at Abutment #2.

NOTE: Elevation 2466.60 shall be used as top of pre-drilled pile hole to determine pay quantity.

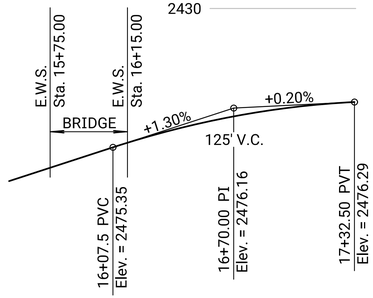
Drainage Data

Drainage Area	1.3	sq. mi.
Design Frequency	100	yrs
Design Discharge (Q100)	825	cfs
Design High Water Elevation (Q100)	2471.80	ft.
Change in Design Backwater	0.21	ft.
Overtopping Elevation (Sta. 14+00)	2472.00	ft.
Overtopping Discharge	1060	cfs
Overtopping Frequency	>200	yr
Ordinary High Water Elevation	2468.12	ft.
Total Waterway Provided	236	sq. ft.
Design Waterway Provided	173	sq. ft.
Estimated Ordinary High Water Discharge	8	cfs



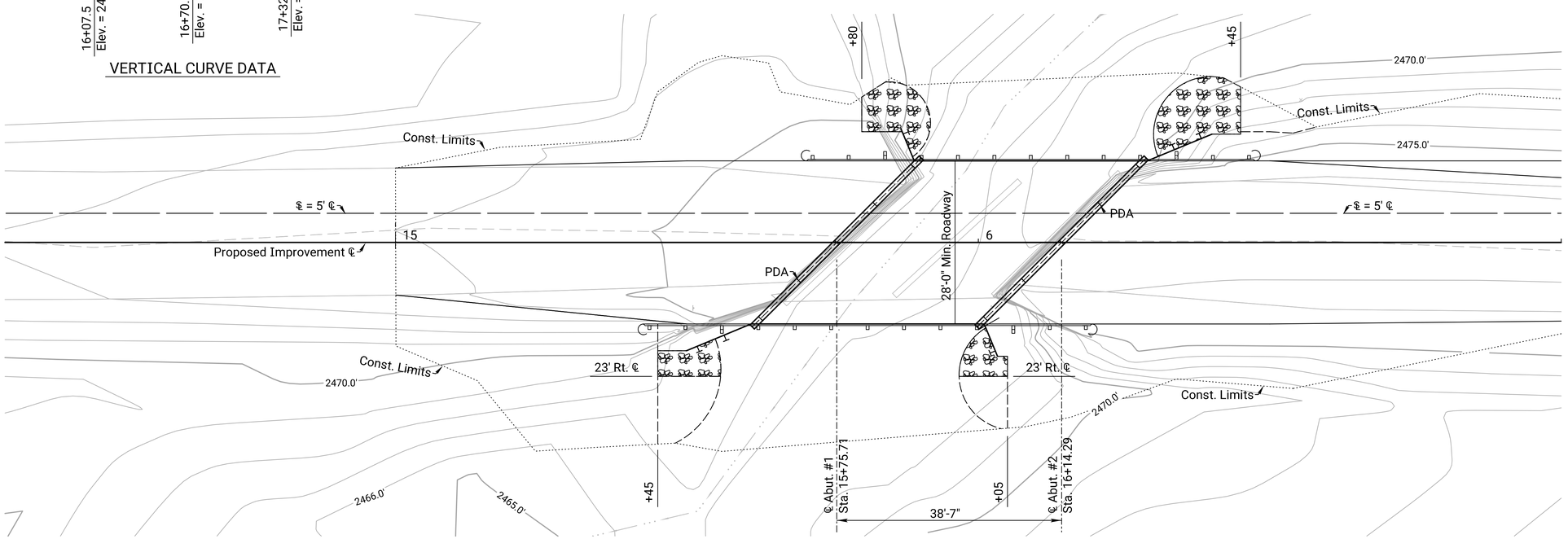
TYPICAL SLOPE PROTECTION

SLOPE PROTECTION (Riprap Stone): Place Slope Protection (Riprap Stone) to the limits and thicknesses shown on the plans or as directed by the Engineer. Use Light 200 Lb. as described in Division 1100.



VERTICAL CURVE DATA

SLOPE PROTECTION (RIPRAP STONE)			
Location	Side	Thickness	Cu. Yds.
Abut 1	Lt.	2'	7
Abut 1	Rt.	2'	4
Abut 2	Lt.	2'	11
Abut 2	Rt.	2'	3
TOTAL			25



PLAN

SCALE : 1" = 10'-0"

10' 0 10' 20'

Contour Interval = 2'

NO.	DATE	REVISIONS	BY	APP'D

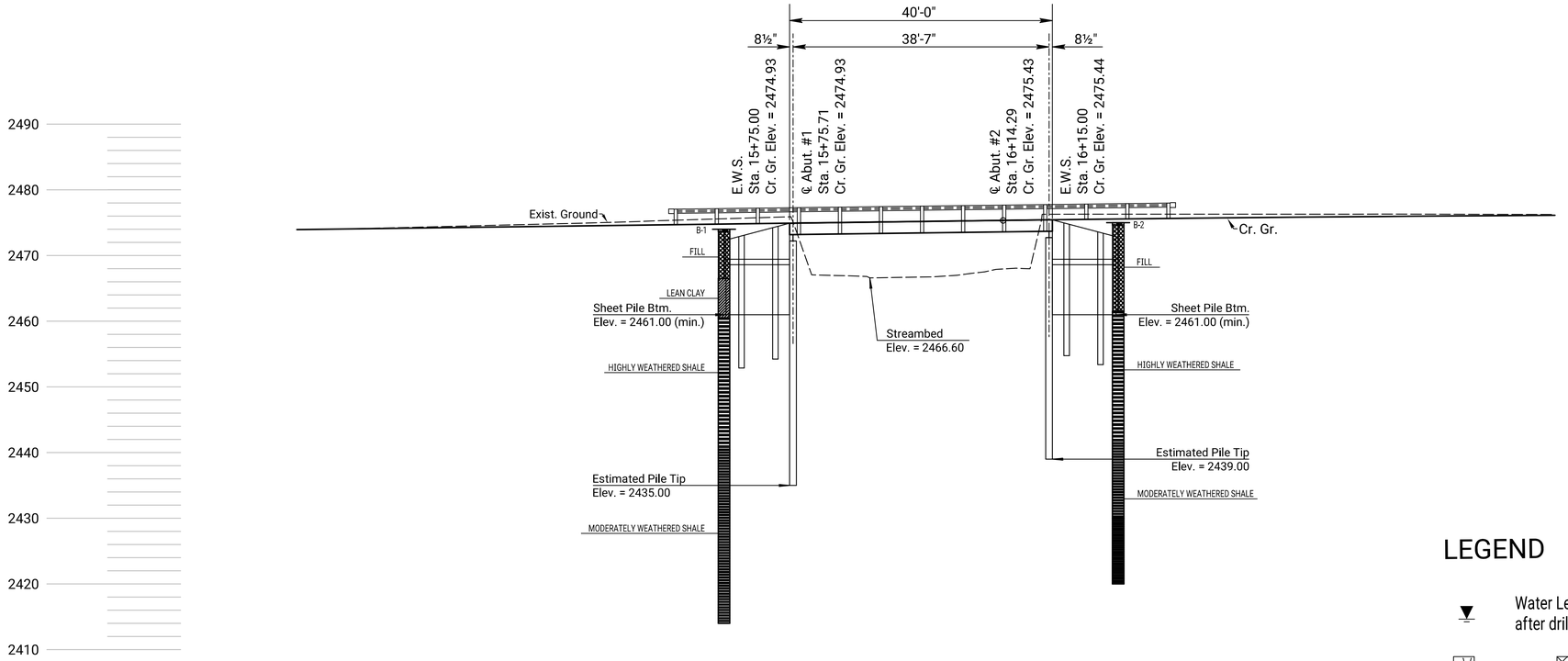
KANSAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION LAYOUT

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

Plotted by : rsnow 10-JUL-2024 17:27
File : Construction Layout.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	10	34



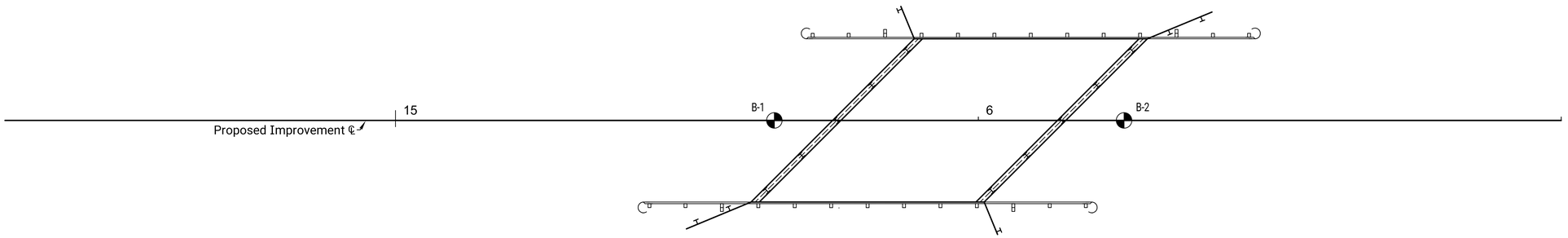
LEGEND

Water Level Reading after drilling.

Water Level Reading at time of drilling.

Topsoil | Fill | Lean Clay | Highly Weathered Shale | Moderately Weathered Shale

NOTE: The Contractor shall attempt to drive the PDA pile to the anticipated pile tip elevation as indicated by the Geotechnical Report dated January 29, 2024. If the pile cannot achieve a minimum pile embedment of 15 feet below the streambed before achieving bearing, the Contractor Shall Pre-Drill the remaining piles for the Abutment. The PDA pile may remain in-place. If the pile can be driven to the anticipated pile tip elevation or a minimum of 15 feet below the streambed, the Pre-Drill Pile Holes Shall be Underrun for the Abutment. Follow this procedure for each Abutment.



SCALE : 1" = 10'-0"

10' 0 10' 20'

Contour Interval = 2'

NO.	DATE	REVISIONS	BY	APP'D

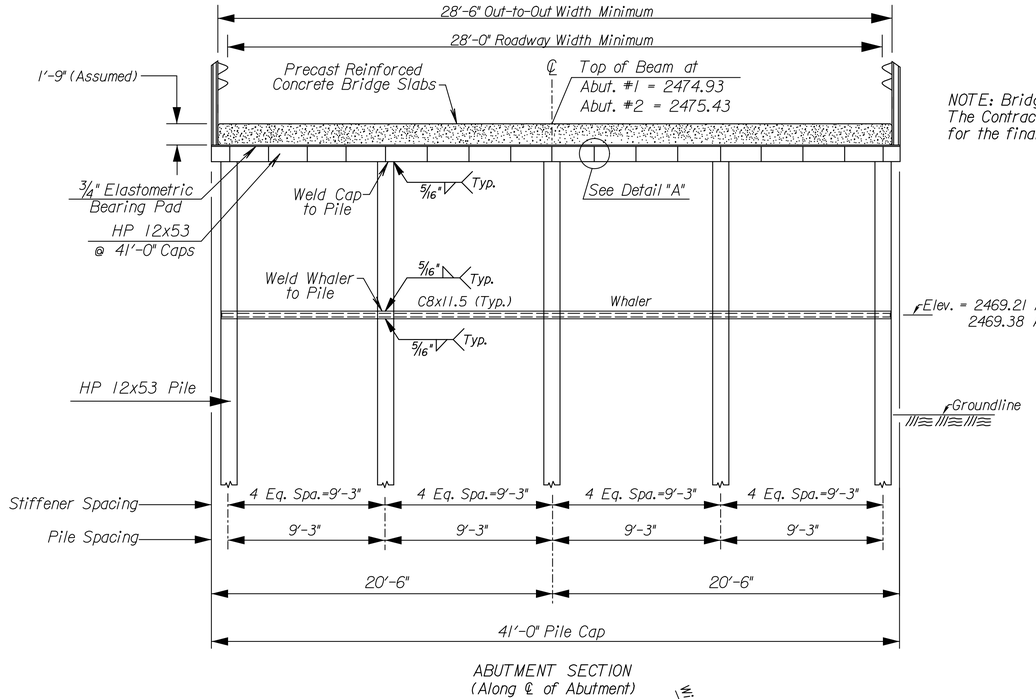
KANSAS DEPARTMENT OF TRANSPORTATION

GEOLOGY SHEET

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

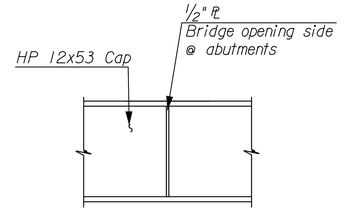
Plotted by : rsnow 10-JUL-2024 17:27
File : Geology Sheet.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	11	34

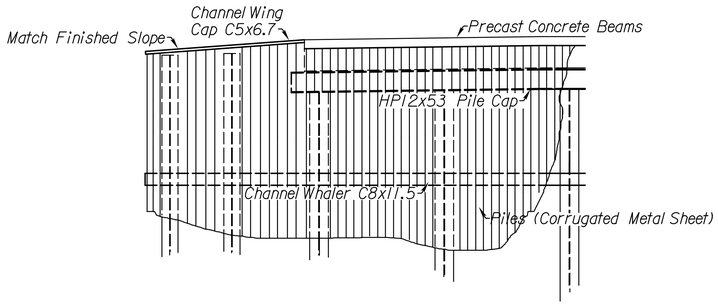


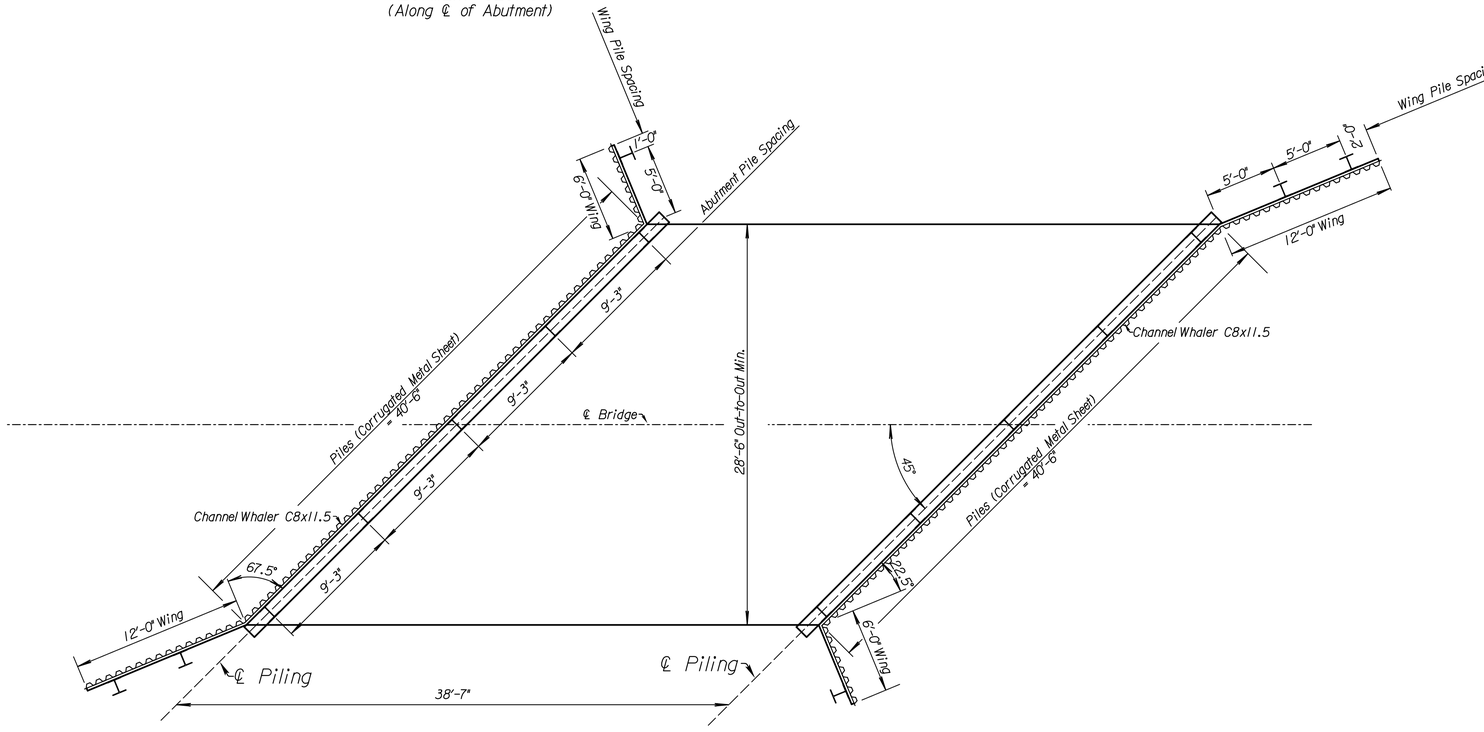
ABUTMENT SECTION
(Along ℄ of Abutment)

NOTE: Bridge slabs are assumed to be 1'-9" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.



DETAIL "A"





Each wingwall shall be constructed with HP12x53 piles (20' each).
Wingwall top shall be sloped to match finished grade.
The wingwall top shall be capped with channel iron C5x6.7.

Wingwalls and backwalls shall be interlocking galvanized 7 ga. corrugated metal sheet piling driven to a minimum elevation of 2461.00. The abutment and wingwall sheet piling shall be tight against the whaler supports. The sheet piling shall be welded to the whalers, end plates and wing caps.

KANSAS DEPARTMENT OF TRANSPORTATION

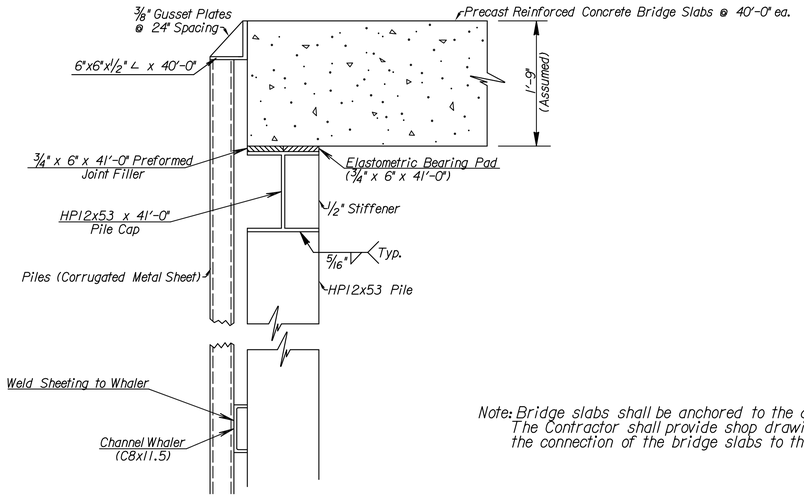
BRIDGE DETAILS

DATE | BY | REFERENCES NOTED | REFERENCES CHECKED

Plotted by : rsnow 10-JUL-2024 17:27
File : 2212875_Bridge Details.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	12	34

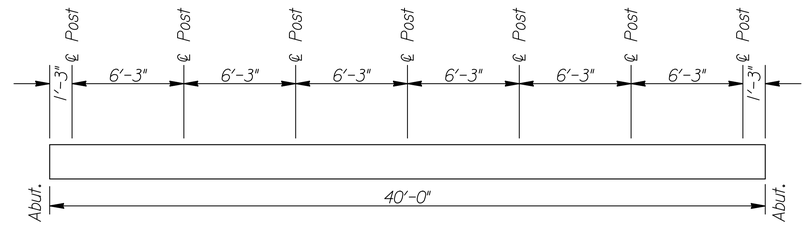
DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



ABUTMENT DETAILS

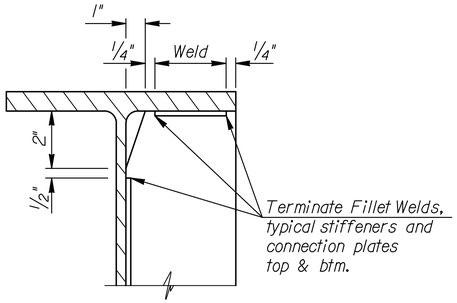
Note: Bridge slabs shall be anchored to the abutment. The Contractor shall provide shop drawings detailing the connection of the bridge slabs to the pile caps.

NOTE: Bridge slabs are assumed to be 1'-9" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

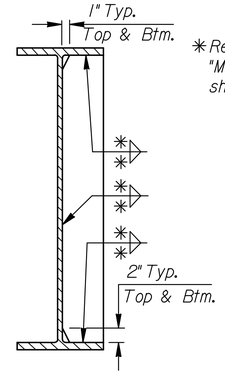


GUARDRAIL POST SPACING

Dimensions shown at outside face of bridge slab.



WELD DETAIL



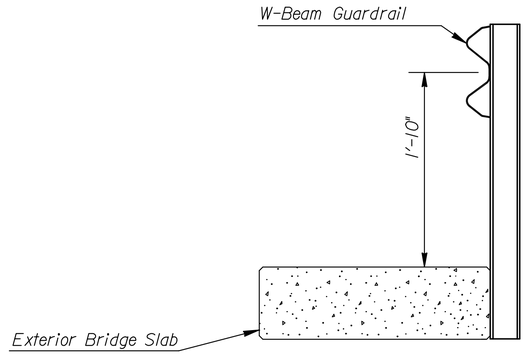
STIFFENERS

*Refer to the table of "Minimum Fillet Weld Sizes" shown on this sheet.

Stiffeners shall be placed on the bridge opening side of the abutment pile caps only. Stiffeners to be placed perpendicular to centerline of abutment.

MINIMUM FILLET WELD SIZES	
Material thickness of thicker part joined	Minimum size of fillet weld
To 7/8" inclusive	1/4"
Over 7/8"	3/8"

Note: Minimum fillet weld size need not exceed the thickness of the thinner part joined.



BRIDGERAIL LINE POST SECTION

Note: The Contractor shall provide shop drawings to install W-beam guardrail on the outside bridge slabs. Guardrail posts shall be steel and shall be bolted to the outside bridge slabs. Blocks will not be required between the steel posts and the W-beam guardrail across the bridge. All labor, materials, and incidentals necessary to install the guardrail shall be subsidiary to the bid item "Guardrail, Steel Plate". See Sheet No. 4 for connection details.

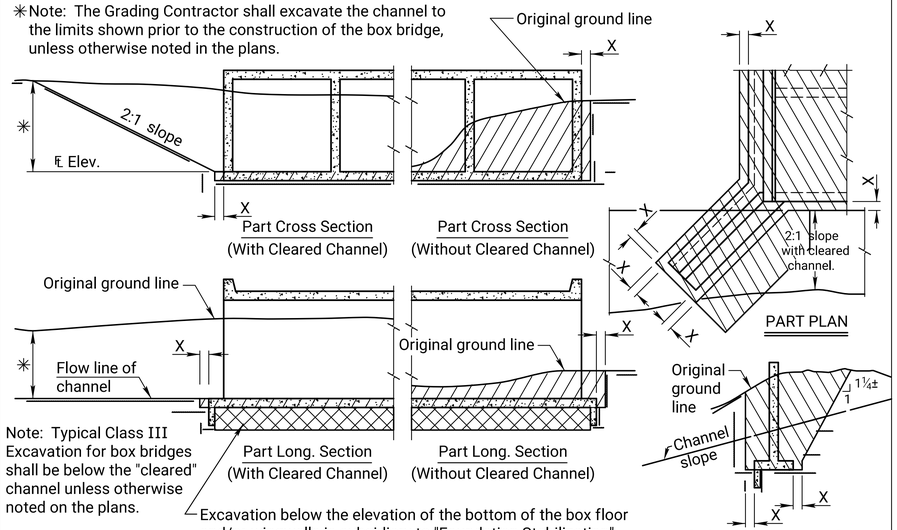
KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE DETAILS

Plotted by : rsnow 10-JUL-2024 17:28
File : 2212875_Bridge Details 2.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	13	34

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

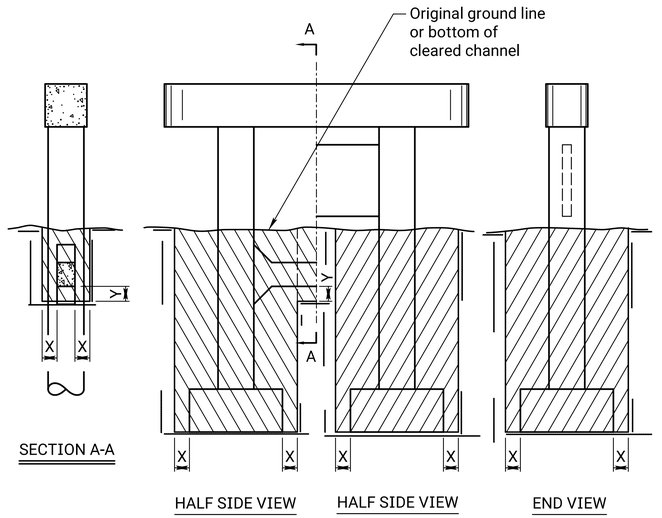


Note: Typical Class III Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

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

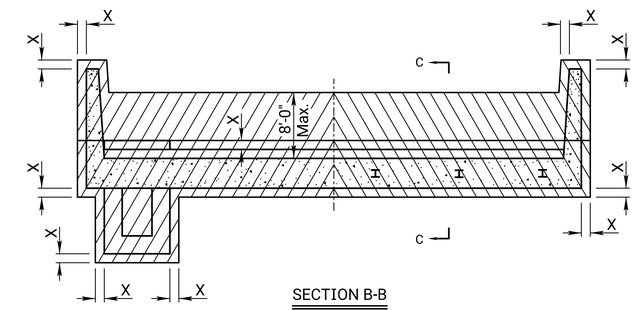
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

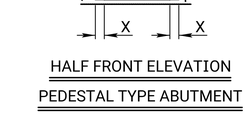
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.



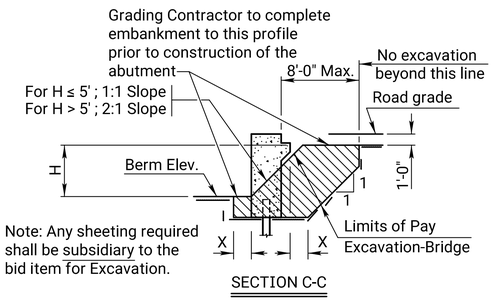
EXCAVATION DETAILS FOR TYPICAL PIERS

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





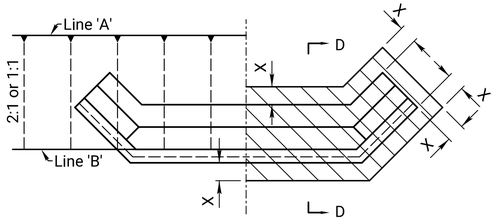
Note: Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.

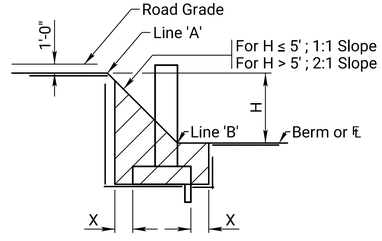


Note: Any sheeting required shall be subsidiary to the bid item for Excavation.

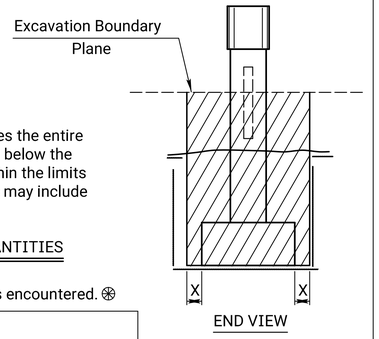
EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

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





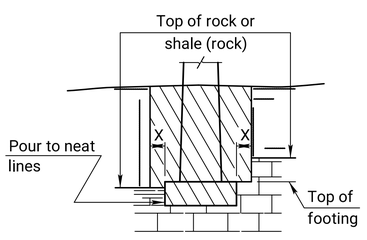
EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



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

CLASS II EXCAVATION QUANTITIES

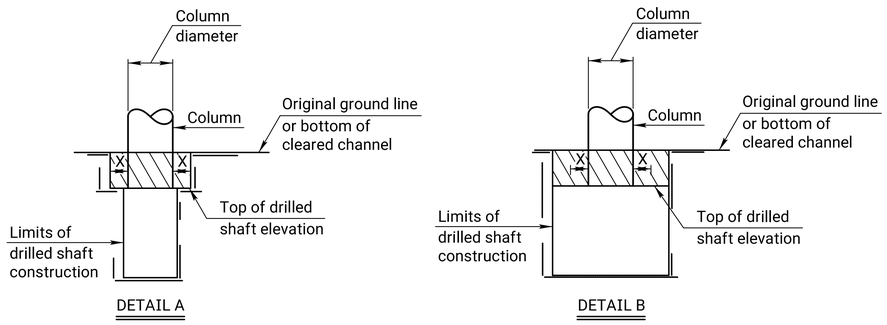
See detail when rock or shale (rock) is encountered. ❀



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

(Piers and Abutments)

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



DRILLED SHAFT DETAILS

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
06	08-15-12	Embedment Excavation Subsidiary	J.P.J.	T.L.F.
05	05-15-12	Revised Wing Excavation	J.P.J.	T.L.F.
04	03-03-10	Revised Wing Excavation	J.P.J.	T.L.F.

KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE EXCAVATION (LRFD)

BR100B

FHWA APPROVAL		04-17-10	APP'D.	Terry L. Fleck
DESIGNED	DETAILED	R.D.R.	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	L.R.R.	QUAN.CK.	TRACE CK.

Plotted by : rsnow 10-JUL-2024 17:28
File : br100b.dgn

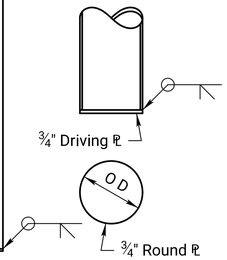
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	14	34

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

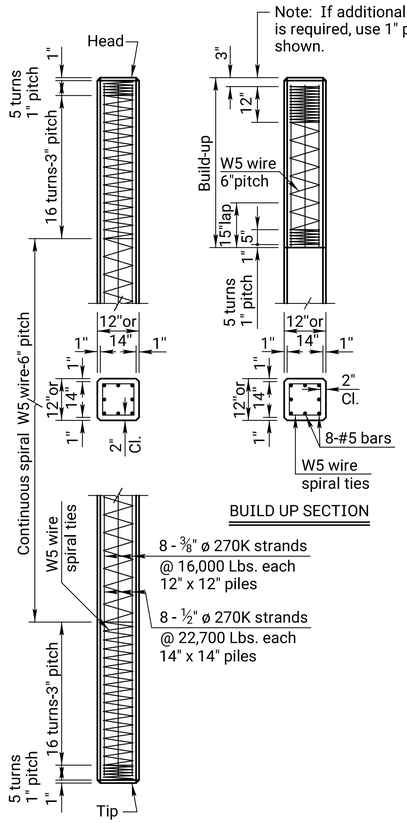
†† See the Geology Report or "Summary of Quanities" for Pipe Pile wall thickness

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.

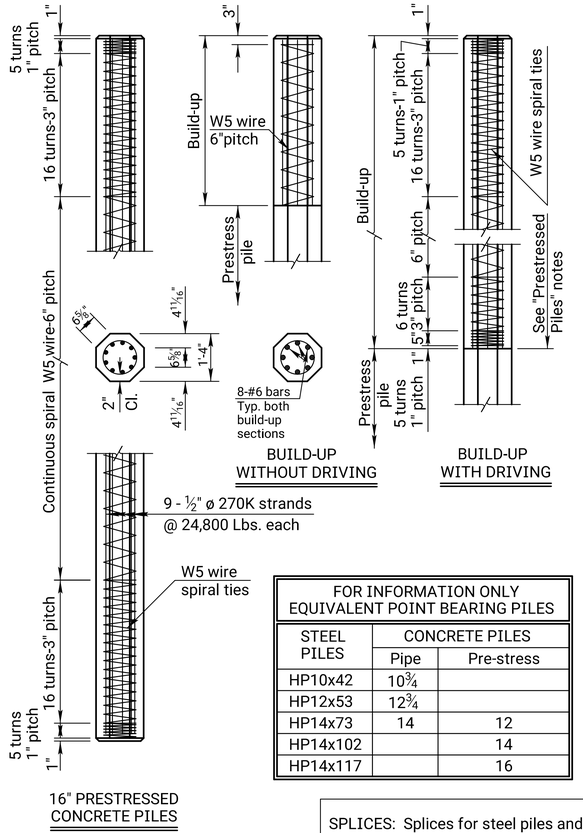


PLAIN ROUND
CAST-IN-PLACE CONCRETE PILES



12" OR 14"
PRESTRESSED
CONCRETE PILES

BUILD UP SECTION

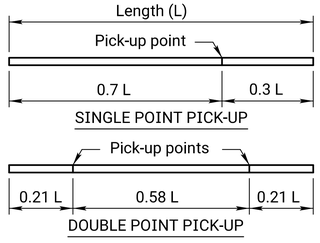


16" PRESTRESSED
CONCRETE PILES

BUILD-UP
WITHOUT DRIVING

BUILD-UP
WITH DRIVING

FOR INFORMATION ONLY EQUIVALENT POINT BEARING PILES		
STEEL PILES	CONCRETE PILES	
	Pipe	Pre-stress
HP10x42	10¾	
HP12x53	12¾	
HP14x73	14	12
HP14x102		14
HP14x117		16



PICK-UP POINTS FOR PRESTRESSED PILING

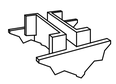
Max. length - 55' single point pick-up
Max. length - 80' double point pick-up

Note: Piles shall be marked at Pick-up points to indicate proper points for attaching handling lines.

Outside Flange

Inside Flange

SHELL PILE POINT



H-Pile Point

CAST STEEL PILE POINT

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

Weld Symbology Definition

Use grinder to bevel edges of splice as shown in weld symbology and drawing. In addition to bevels, produce clean, bare, and shiny surfaces at and around the splice welding location.

Lay full penetration root weld from beveled side of splice.

Back gouge root weld from side opposite of root welding application making sure to remove all foreign materials, porous steel, and inclusions from root weld. Finish welding the non beveled side of the splice.

Finish welding beveled side of the splice while removing slag, foreign materials, porous steel, and inclusions in between welding passes, use of a grinder may be needed.

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

GENERAL NOTES

PRESTRESSED PILES: Fabricate prestressed concrete pile splices in accordance with the Manufacturer's recommendations subject to the approval of the Engineer.

Method of attachment of pile to build-up may be by any of the methods given in the notes on "Alternate Methods." If mild reinforcing steel is used for attachment, the area shall be no less than that used in the build-up.

ALTERNATE METHODS: Method of attachment of a pile to build-up may be by any of the following methods:

1. Cut off at least 2'-0" of pile and expose a minimum of 2'-0" of strands.
2. Cast 8-#6, or 8-#5 bars (equally spaced) into pile head. All bars shall extend into pile head and project from pile head a minimum of 2'-0".
3. Drill 8 holes in pile head (equally spaced) for installation of 8 grouted dowel bars of same size and length as in 2.
4. Provide cored holes for bars as in 3.

No bars or strands are to extend from head of pile or build-up into footing or pile cap unless approved by the Engineer.

TEST PILES: Drive test piles where called for on the bridge plans. The test piles located within the limits of the substructure will become a part of the bridge pile system.

DRIVING FORMULA: Driving formula shall conform to the Standard Specifications.

MEASUREMENT AND PAYMENT: Measurement and payment for all piles shall comply with the Standard Specifications.

REINFORCEMENT: Use reinforcing steel conforming to ASTM A615, Grade 60. Hoops and spirals may be either plain or deformed bars.

PRESTRESSING STEEL: Use uncoated seven-wire low relaxation prestressing strand conforming to ASTM A416, Gr. 270.

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

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

SPECIFICATIONS: Standard Specifications for State Road and Bridge Construction as currently used by the Kansas Department of Transportation.

CONCRETE: Concrete for cast-in-place shall be f'c = 3,500 PSI. Concrete for prestressed shall be f'c = 5,000 PSI.

WELDING: All field welding shall meet the requirements of the Standard Specifications.

Use only Shielded Metal Arch Welding SMAW (stick welding) for pile splices.

Use only low hydrogen E7018, 7016, or 7015 series welding rod (electrode) for all welding applications during pile splicing.

New electrodes are to be purchased for each KDOT project. The electrodes shall arrive on the project in factory hermetically sealed containers, opened and labeled with indelible ink in front of the engineer. The label shall include the current date and the project number. If the container seal is questionable or shows signs of damage the electrode is to be dried in an oven at least one hour at a temperature of 700°F to 800°F.

Upon removal from intact hermetically sealed factory packaging or the drying oven the electrode is to be placed in a storage oven with a minimum temperature of 250°F.

When electrodes are removed from the hermetically sealed container or storage oven and exposed to the atmosphere for less than 4 hours place into the storage oven for at least 4 hours before removing for use.

If electrode is exposed to the atmosphere for 4 hours or more (or 9 hours for moisture resistant electrodes designated with an R in their labeling) then electrode can be dried in a drying oven at a temperature of 450°F to 550°F.

If the electrode is exposed to the atmosphere for 4 hours or more a second time or the rod becomes wet discard rod.

CAST-IN-PLACE SHELLS: Steel shells for cast-in-place concrete piles shall conform to the requirements of the Standard Specifications.

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

Remove, replace or correct to the satisfaction of the Engineer improperly driven, broken or otherwise defective pipe piles. Otherwise drive an additional pile at no extra cost.

The Contractor shall maintain a light suitable for visual inspection of the pile on the job at all times prior to and during the filling of the pipe.

PAINT: All paint shall comply with the Standard Specifications, or as specified on the plans.

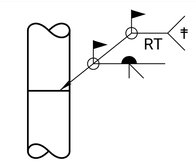
MILL TEST REPORTS: Steel piles test reports and steel shell test reports shall comply with the Standard Specifications.

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

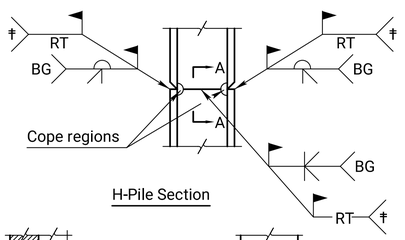
For integral pile bent abutments and piers, if a pile splice is required, do not locate the pile splice within a region extending 2'-0" above and 10'-0" below the bottom of the concrete web wall. For abutments, locate the pile splice at least 10'-0" below top of fill.

With the approval of the Engineer, one splice per bent may be allowed in the region described above without testing. If additional splices are anticipated, based on the geology, the Contractor prior to driving, will locate the splice so that the splice will not fall within the regions described above.

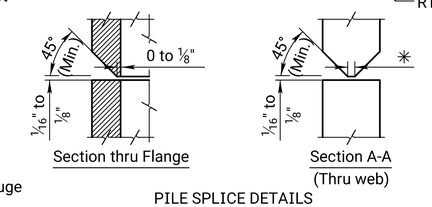
† For integral pile bent abutments and piers, if a splice is located within the regions described above, then the Contractor will test the welds by Radiograph (RT) test methods. Repair and retest any welds not passing the test(s). Each weld tested will have written confirmation of results. Report these results to the Engineer. This work is not paid for directly, but is subsidiary to "Piles".



Pipe Section



H-Pile Section



Section thru Flange

Section A-A
(Thru web)

✳ Minimum as required by welding process.

BG = Backgouge

PILE SPLICE DETAILS

NO.	DATE	REVISIONS	BY	APP'D
04	08-16-18	Add splice web section, clarify note	M.L.L.	J.P.J.
03	09-15-15	Clarify Notes	J.P.J.	C.E.R.
02	06-18-12	Clarify f'c, rod type, use and weld	J.P.J.	T.L.F.

KANSAS DEPARTMENT OF TRANSPORTATION

STANDARD PILE DETAILS

BR110

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

Plotted by : rsnow 10-JUL-2024 17:28
File : br110.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	15	34

RECAPITULATION OF BRIDGE QUANTITIES

BRIDGE NUMBER	STATION	SEE SHEET NO.
000680519005104	15+95.00	7

⁎⁎ REMOVAL OF EXISTING STRUCTURES

STATION	LOCATION	DESCRIPTION
15+94.47	℄	17.1'-17.1' Timber Beam Bridge (TBMS). 45° Skew Rt. 20'-0" Roadway

⁎⁎ FOR INFORMATION ONLY

EARTHWORK

STATION to STATION	EXCAVATION					COMPACTION			NOT SUBGRADED THROUGH CUTS			⚹ EMBANKMENT (CU.YDS.)		⚠ PLACE. SELECT SOIL CU.YDS.
	COMMON		ROCK		CONTR. FURN. CU.YDS.	TYPE AA MR-CU.YDS.	TYPE B MR-90 CU.YDS.		COMM. CU.YDS.	TYPE AA CU.YDS.		INITIAL CONSOL.	SETTLE-MENT	
	CU.YDS.	VMF	CU.YDS.	VMF										
15+00.00 to 17+50.00	19	0.74			57		56							
TOTALS	19				57		56							

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

RECAPITULATION OF ROAD QUANTITIES

ITEM	QUANTITY	UNIT
Contractor Construction Staking	Lump Sum	L.S.
Field Office & Laboratory (Type C)	1	Each
Mobilization	Lump Sum	L.S.
Mobilization (DBE)	Lump Sum	L.S.
Removal of Existing Structures	Lump Sum	L.S.
Clearing & Grubbing	Lump Sum	L.S.
Common Excavation	19	Cu. Yd.
Common Excavation (Contractor Furnished)	57	Cu. Yd.
Compaction of Earthwork (Type B)(MR-90)	56	Cu. Yd.
Water (Grading) (Set Price)	1	M. Gal.
Guardrail, SteelPlate	150	Lin. Ft.
Temporary Surfacing Material (Aggregate) (Set Price)	1	Cu. Yd.
Foundation Stabilization (Set Price)	1	Cu. Yd.
Concrete For Seal Course (Set Price)	1	Cu. Yd.

For Summary of Guardrail See Sheet No. 4
For Temporary Erosion & Pollution Control Quantities See Sheet No. 16
For Seeding Quanitities See Sheet No. 25
For Traffic Control Plan & Quantities See Sheet No. 31

NO.	DATE	REVISIONS	BY	APP'D
02	01-14-08	Rem. Drainage Structure summary	S.W.K.	J.O.B.
01	01-09-91	Detailed on CADD	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

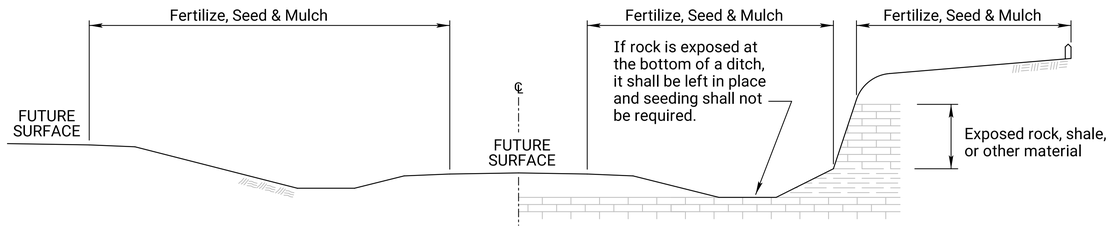
SUMMARY OF QUANTITIES

RD050

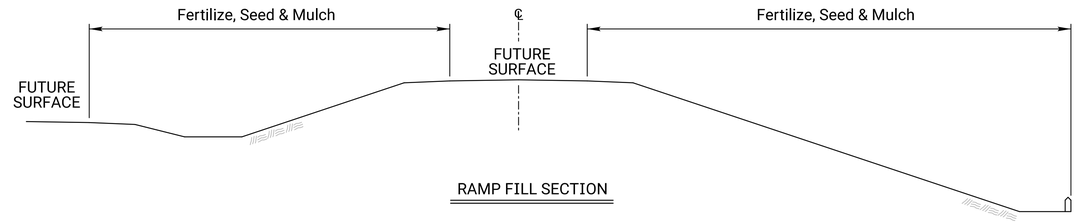
FHWA APPROVAL	05-28-08	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. S.W.K.

Plotted by : rsnow 10-JUL-2024 17:28
File : rd050.dgn

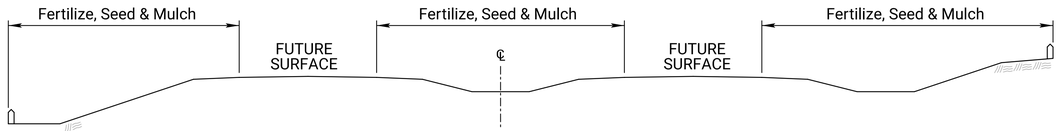
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	16	34



RAMP CUT SECTION



RAMP FILL SECTION



FILL SECTION — CUT SECTION

TYPICAL SECTION - DUAL PAVEMENT

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

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

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

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

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

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

GENERAL NOTES

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

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

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

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

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

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

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

SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
	50		0.08	Temporary Fertilizer (16 - 20 - 0)	4	LB
				Temporary Seed (Canada Wildrye)		LB
				Temporary Seed (Grain Oats)		LB
				Temporary Seed (Sterile Wheatgrass)		LB
	47.8		0.08	Soil Erosion Mix	3.8	LB
				Erosion Control (Class 1, Type C)	375	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")		LF
				Filter Sock (✱✱✱✱)		LF
				Geotextile (Erosion Control)	500	SQ YD
				Silt Fence		LF
				SWPPP Design †		LS
				SWPPP Inspection †		EACH
				Water Pollution Control Manager †		EACH
900 lbs / acre				Mulch Tacking Slurry		LB
2 tons / acre				Mulching		TON
				Water (Erosion Control) (Set Price)	1	MGAL

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quantities sheet LA850 for further details.

Geotextile (Erosion Control) shall be removed prior to placement of permanent slope protection.

Regreen and Quick Guard are the approved sterile wheatgrass products.

† If the <u>total</u> 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)
1	SEED (BLUE GRAMA GRASS) (LOVINGTON)	0.08
24.5	SEED (BUFFALO GRASS) (TREATED)	1.96
6.3	SEED (SIDE OATS GRAMA) (EL RENO)	0.50
10	SEED (STERILE WHEATGRASS) (REGREEN/QUICK GUARD)	0.80
6	SEED (WESTERN WHEATGRASS) (BARTON)	0.48
47.8	Total (lb)	3.82

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.

Note: Fertilizer for Soil Erosion Mix is included and shown on the Summary of Seeding/Erosion Control chart above.

NO.	DATE	REVISIONS	BY	APP'D
03	08-03-20	Added Note	M.R.D.	M.L.
02	12-01-17	Revised Standard	M.R.D.	S.H.S.
01	06-01-17	Revised Standard	M.R.D.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

LA852A

FHWA APPROVAL			01-26-18	APP'D.	Scott H. Shields
DESIGNED	M.R.D.	DETAILED	M.R.D.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.	TRACE CK.

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EROSION CONTROL- CLASS 1, TYPE C

STATION TO STATION	SIDE	LENGTH	WIDTH	SQ YARD
15+00.00 TO 15+89.00	LT	89.0	7.5	74.2
15+00.00 TO 15+61.00	RT	61.0	14.3	96.9
16+29.00 TO 17+50.00	LT	121.0	7.0	94.1
16+01.00 TO 17+50.00	RT	149.0	6.6	109.3
TOTAL EROSION CONTROL (CLASS 1, TYPE C) =				374.5

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File : la852a-ec.dgn

NO.	DATE	REVISIONS	BY	APP'D

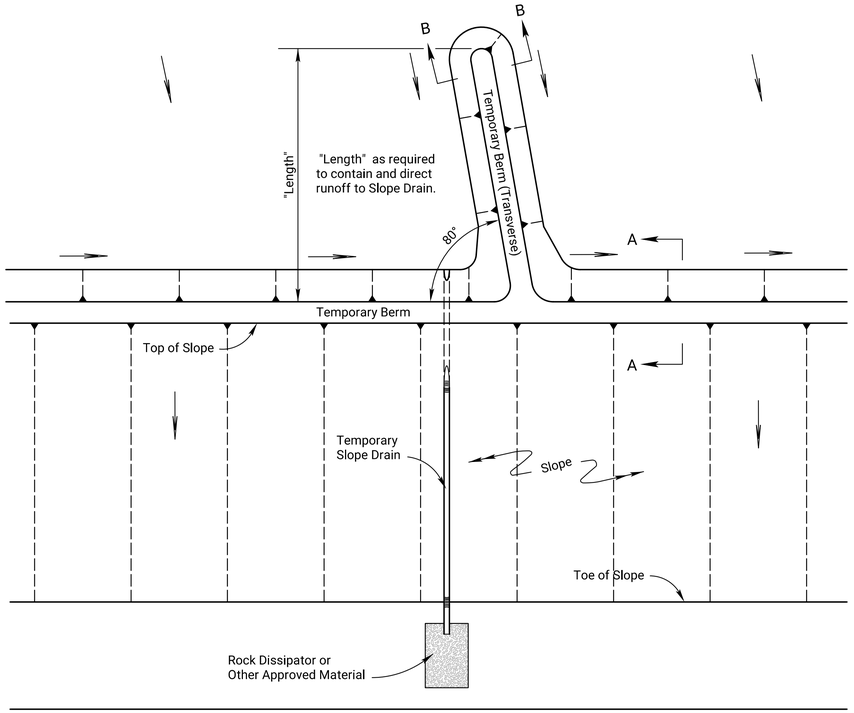
KANSAS DEPARTMENT OF TRANSPORTATION

EROSION CONTROL
SEEDING-SODDING

LA852A-EC

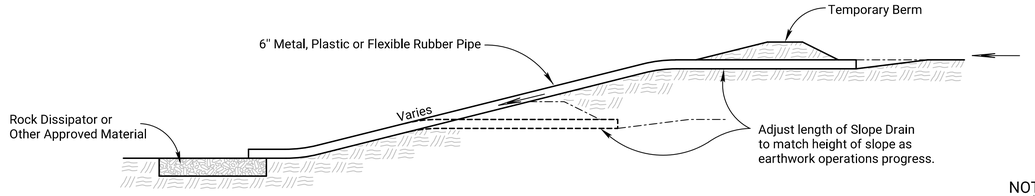
FHWA APPROVAL		APP'D.	Scott H. Shields
DESIGNED M.R.M.	DETAILED M.R.M.	QUANTITIES	TRACED M.R.M.
DESIGN CK. S.H.S.	DETAIL CK. S.H.S.	QUAN.CK.	TRACE CK. S.H.S.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	18	34



TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN

NO SCALE



TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

NO SCALE

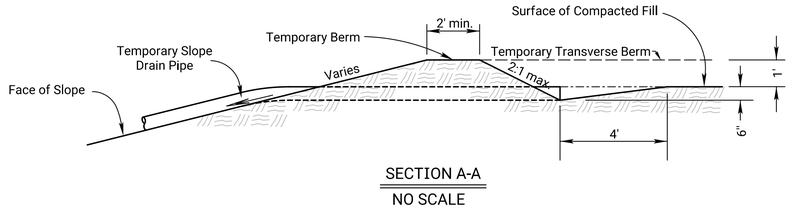
NOTES:

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.

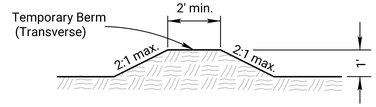
3) Pipe shall be secured in place as approved by Engineer.

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



SECTION A-A

NO SCALE

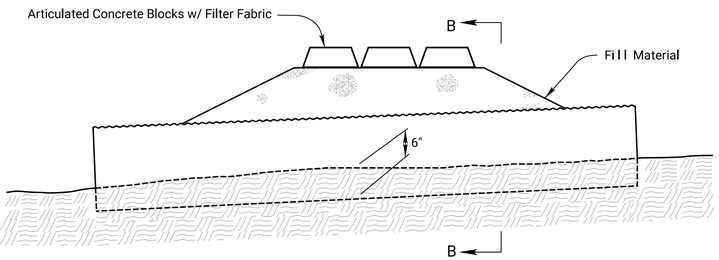


SECTION B-B

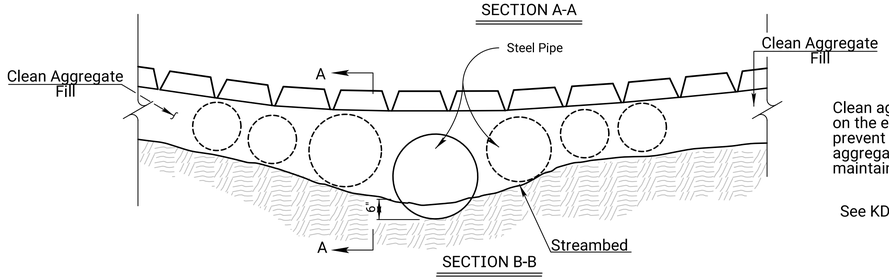
NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM

NO SCALE



SECTION A-A



SECTION B-B

TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)

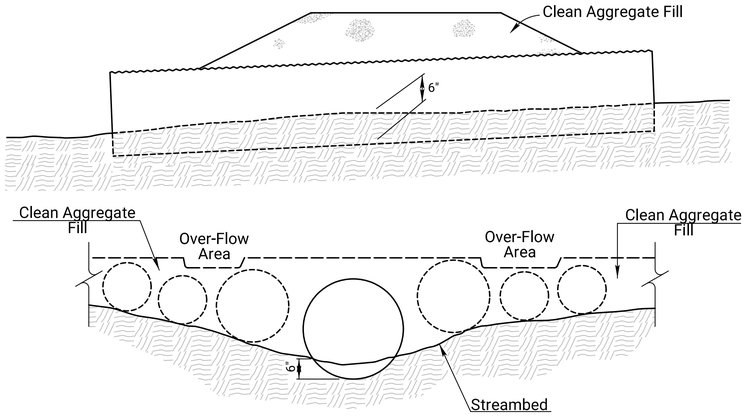
NO SCALE

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.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.



SECTION B-B

TEMPORARY STREAM CROSSING (AGGREGATE)

NO SCALE

Pipe size may vary.

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

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.

NO.	DATE	REVISIONS	BY	APP'D
03	01-21-22	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.R.D.	M.L.
02	08-24-21	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.R.D.	M.L.
01	06-11-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

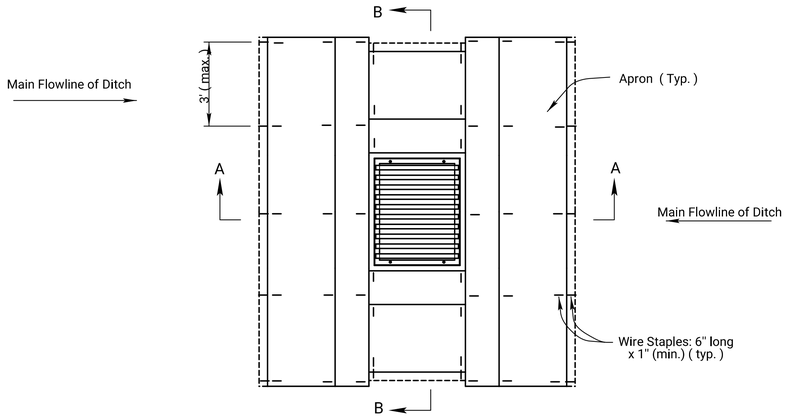
TEMPORARY EROSION AND POLLUTION CONTROL TEMPORARY SLOPE DRAIN, TEMPORARY STREAM CROSSING (AGGREGATE)

LA852B

FHWA APPROVAL	01-21-22	APP'D.	Mervin Lare
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

Plotted by : rsnow 10-JUL-2024 17:29
File : la852b.dgn

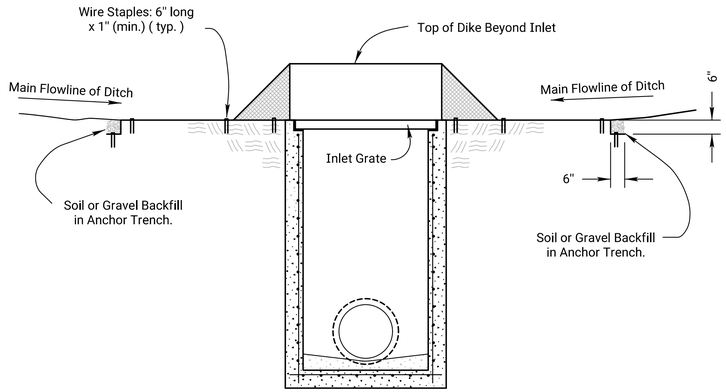
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	19	34



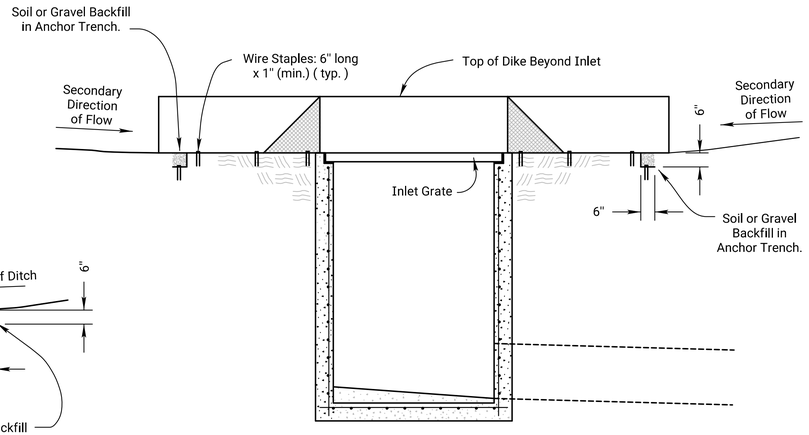
PLAN

TEMPORARY I NLET SEDI MENT BARRI ER
(TRI ANGULAR SI LT DI KE METHOD)

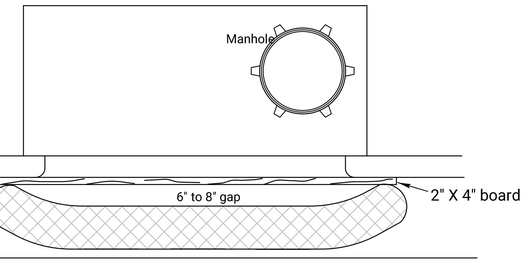
NO SCALE



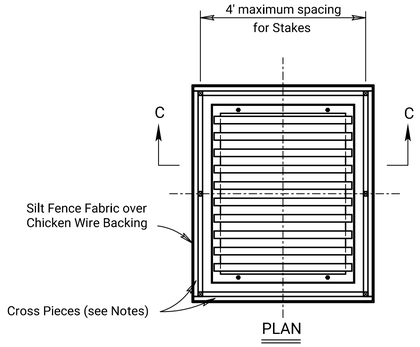
SECTION A - A



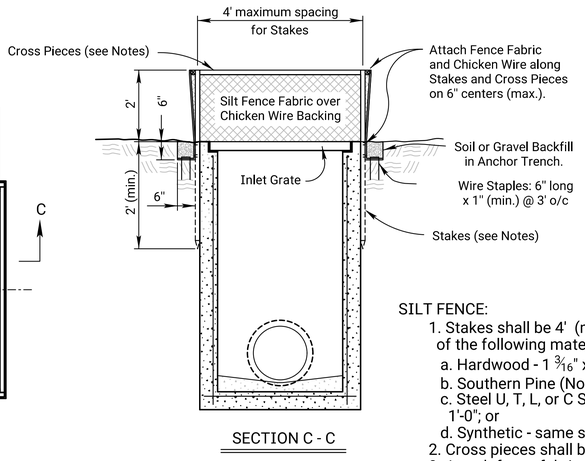
SECTION B - B



CURB INLET PROTECTION



PLAN



SECTION C - C

TEMPORARY I NLET SEDI MENT BARRI ER
(SI LT FENCE METHOD)

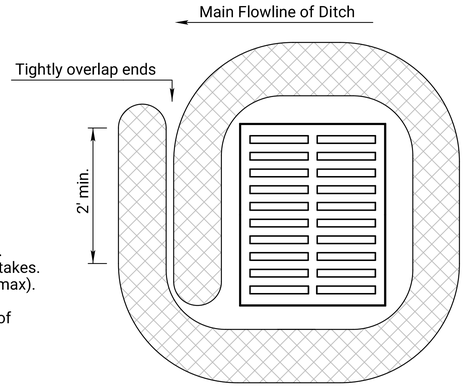
NO SCALE

SILT FENCE:

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

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

Rock = approximately 1" to 2" diameter



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

BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION

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

Stake every 4'

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

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

NO.	DATE	REVISIONS	BY	APP'D
03	09-26-19	Changed Direction of Main Flowline of Ditch Arrow	M.R.D.	S.H.S.
02	03-10-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

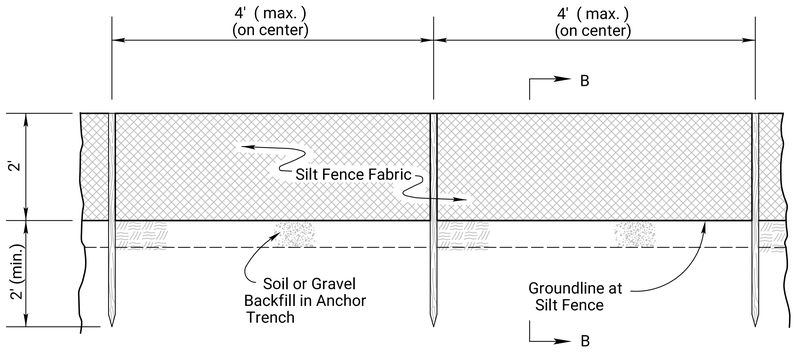
TEMPORARY EROSION AND POLLUTION CONTROL, TEMPORARY INLET SEDIMENT BARRIER (SILT FENCE) TEMP. INLET SEDIMENT BARRIER (T.S.D.)

LA852C

FHWA APPROVAL			03-10-15	APP'D.		Scott H. Shields	
DESIGNED	R.A.	DETAILED	R.A.	QUANTITIES		TRACED	
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	

Plotted by : rsnow 10-JUL-2024 17:29
File : la852c.dgn

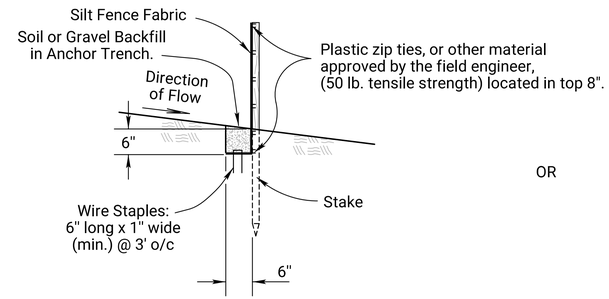
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	20	34



TYPICAL ELEVATION

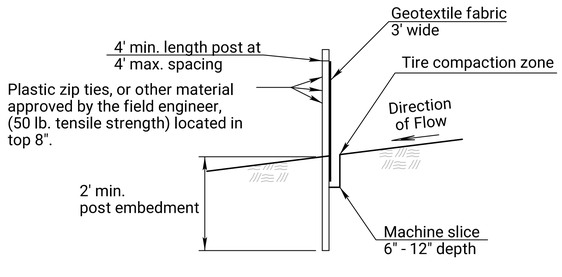
SILT FENCE BARRIER

NO SCALE

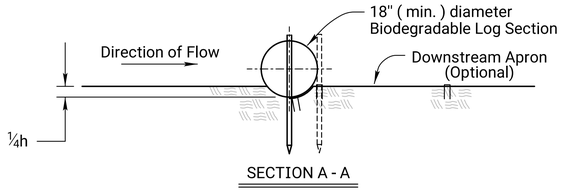


SECTION B-B

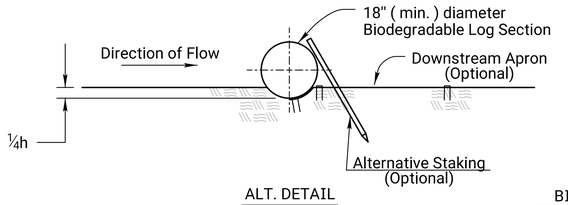
OR



SECTION B-B

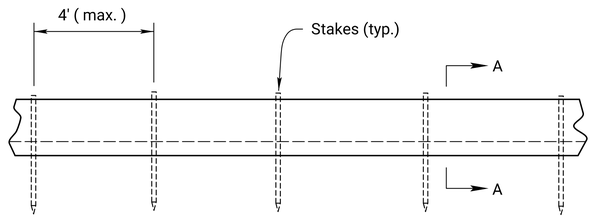


SECTION A - A



ALT. DETAIL

OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS

OR Filter Sock

INSTALLATION NOTES

SILT FENCE:

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

BIODEGRADABLE LOG OR FILTER SOCK

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

Biodegradable Log or Filter Sock Slope Interruptions

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
03	06-28-16	Revised Standard	R.A.	S.H.S.
02	03-01-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

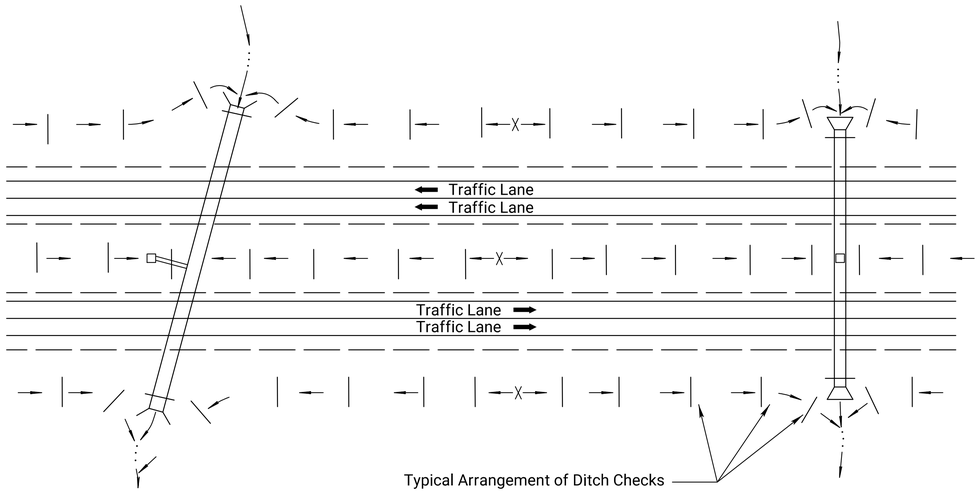
TEMPORARY EROSION AND POLLUTION CONTROL SLOPE INTERRUPTIONS BIODEGRADABLE LOG / SILT FENCE

LA852D

FHWA APPROVAL		09-14-16	APP'D.	Scott H. Shields	
DESIGNED	S.H.S.	DETAILED R.A.	QUANTITIES	TRACED	
DESIGN CK.	S.H.S.	DETAIL CK.	QUAN.CK.	TRACE CK.	

Plotted by : rsnow 10-JUL-2024 17:29
File : la852d.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	21	34



Typical Arrangement of Ditch Checks

TYPICAL DITCH CHECK LAYOUT PLAN

NO SCALE

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

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

GENERAL NOTES

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
03	08-10-16	Revised Standard	R.A.A.	S.H.S.
02	06-28-16	Revised Standard	R.A.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

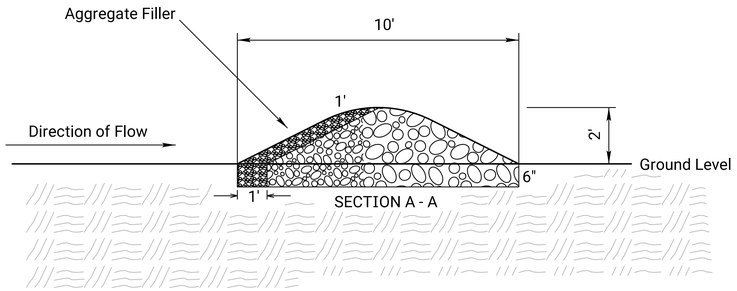
TEMPORARY EROSION AND POLLUTION CONTROL DITCH CHECKS

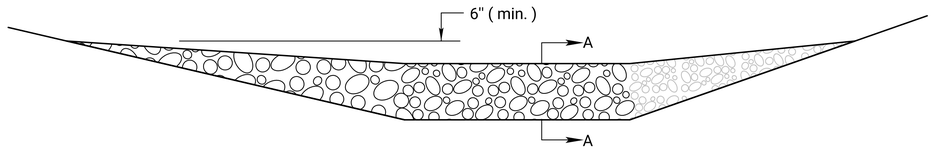
LA852E

FHWA APPROVAL			09-14-16	APP'D.	Scott H. Shields		
DESIGNED	S.H.S.	DETAILED	R.A.A.	QUANTITIES		TRACED	R.A.A.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	S.H.S.

Plotted by : rsnow 10-JUL-2024 17:29
File : la852e.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	22	34





TYPICAL ELEVATION

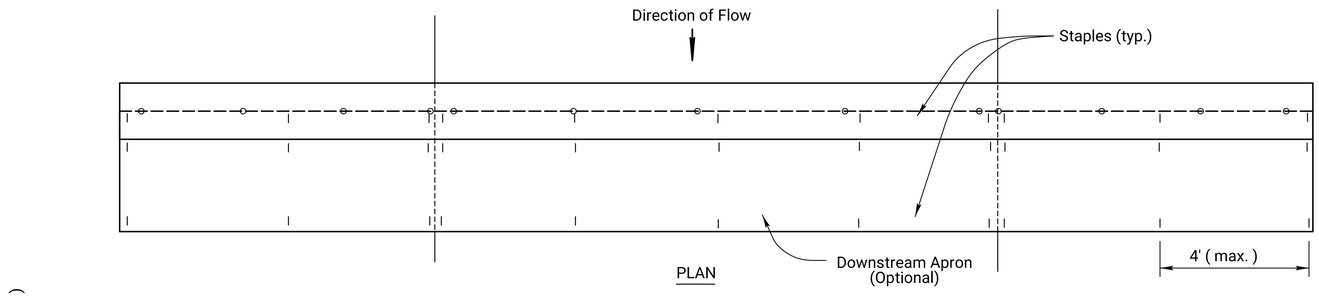
ROCK DITCH CHECK

NO SCALE

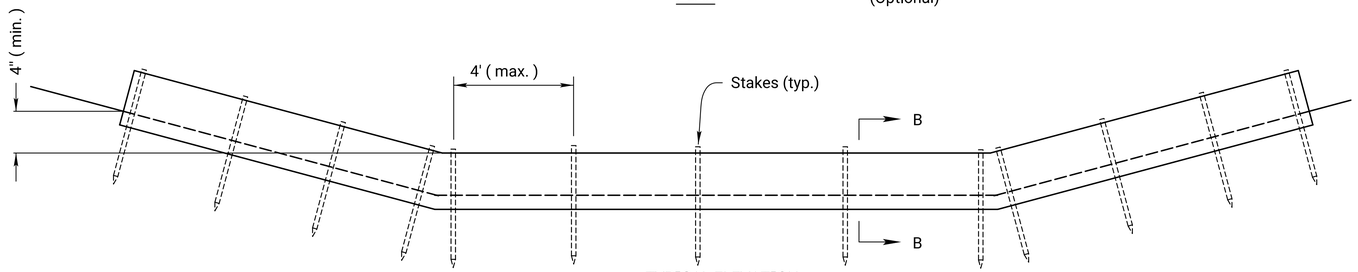
TEMPORARY ROCK DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
NOTE: Use this spacing for Rock Ditch Checks only.	

ROCK DITCH CHECK NOTES

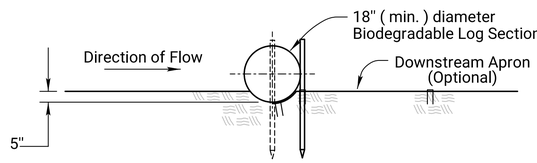
1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch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



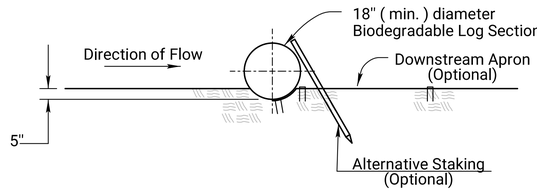
PLAN



TYPICAL ELEVATION



SECTION B - B



ALT. DETAIL
OPTIONAL

BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE

BIODEGRADABLE LOG DITCH CHECK NOTES

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

NO.	DATE	REVISIONS	BY	APP'D
03	11-19-20	Revised Standard	M.R.D.	M.L.
02	08-10-16	Revised Standard	R.A.A.	S.H.S.
01	10-21-15	Revised Standard	R.A.A.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

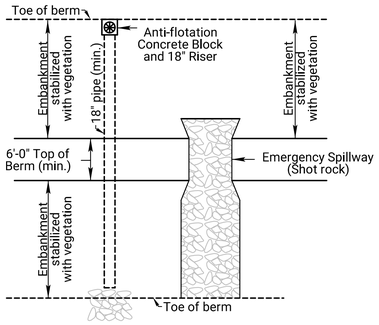
TEMPORARY EROSION AND POLLUTION CONTROL ROCK DITCH CHECKS BIODEGRADABLE LOG DITCH CHECKS

LA852G

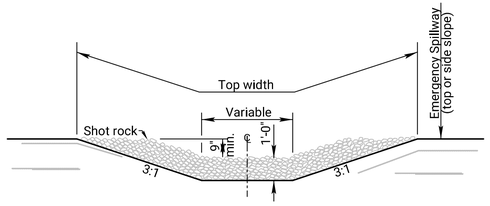
FHWA APPROVAL			11-19-20	APP'D.		Mervin Lare	
DESIGNED	M.L.	DETAILED	D.K.	QUANTITIES		TRACED	R.A.A.
DESIGN CK.	M.L.	DETAIL CK.	M.L.	QUAN.CK.		TRACE CK.	R.A.A.

Plotted by : rsnow 10-JUL-2024 17:29
File : la852g.dgn

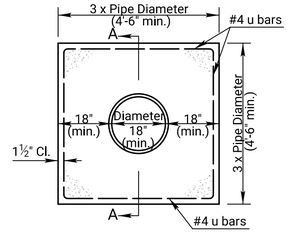
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	23	34



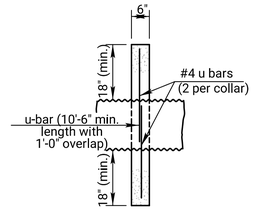
SEDIMENT STORAGE BASIN (PLAN)



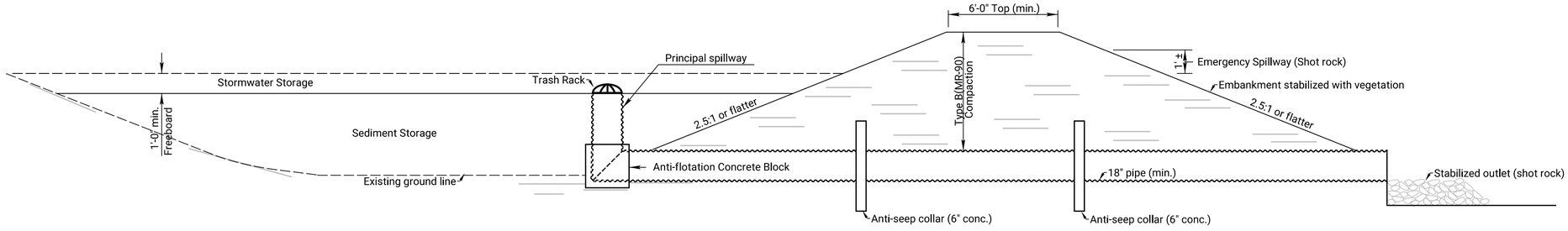
CROSS SECTION (EMERGENCY SPILLWAY)



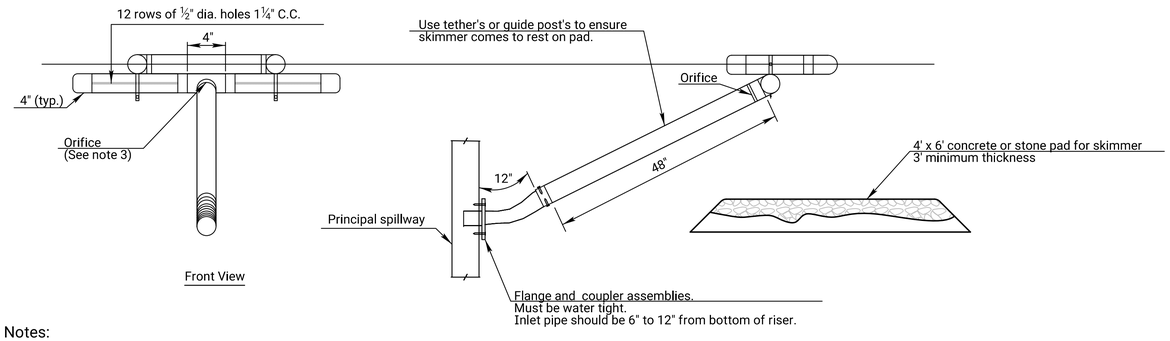
CONCRETE ANTI-SEEP COLLAR



SECTION A-A



SEDIMENT STORAGE BASIN (ELEVATION)



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

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.

SEDIMENT STORAGE BASIN LOCATIONS

STATION TO STATION	SIDE	REQUIRED STORAGE CAPACITY

NO.	DATE	REVISIONS	BY	APP'D
02	09-03-13	Added Skimmer Dewatering Device	M.R.M.	S.H.S.
01	07-17-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

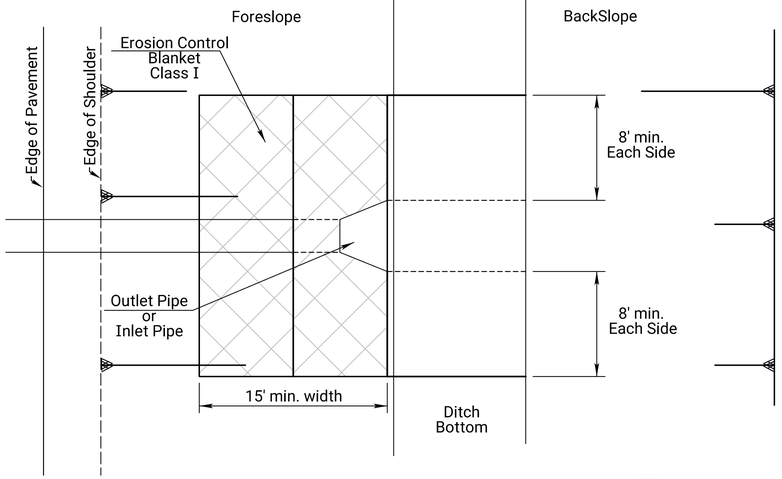
TEMPORARY EROSION AND POLLUTION CONTROL SEDIMENT STORAGE BASIN

LA852H

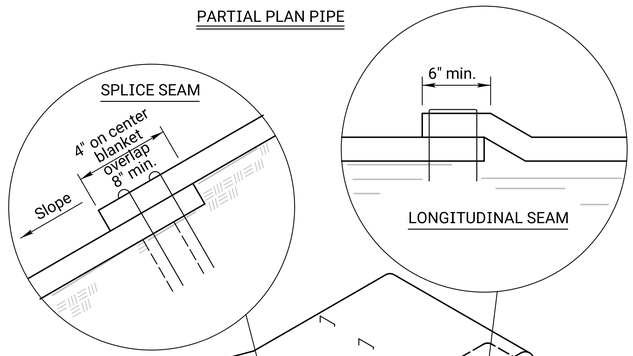
FHWA APPROVAL			09-24-13	APP'D.			
DESIGNED	B.B.	DETAILED	B.B.	QUANTITIES		TRACED	B.B.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.		TRACE CK.	S.H.S.

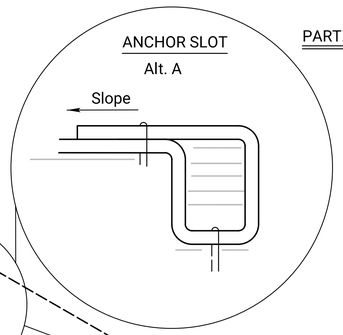
Plotted by : rsnow 10-JUL-2024 17:29
File : la852h.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	24	34



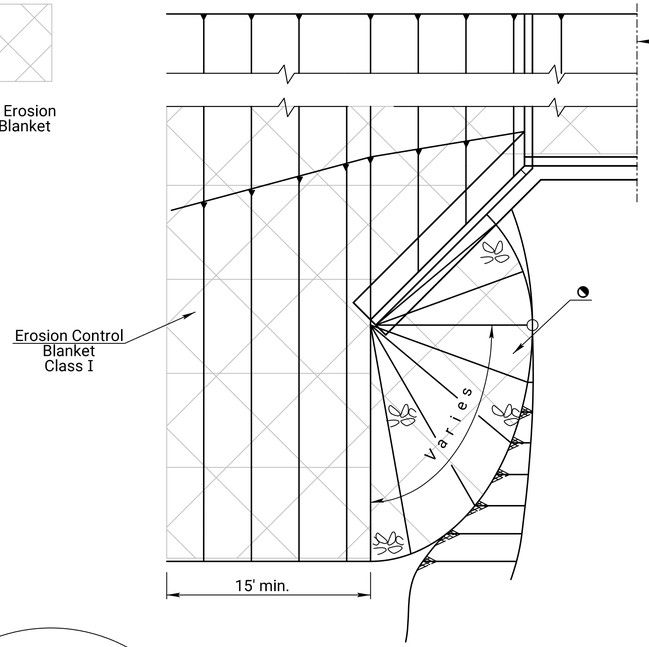
PARTIAL PLAN PIPE





ISOMETRIC VIEW

Limits of Erosion Control Blanket



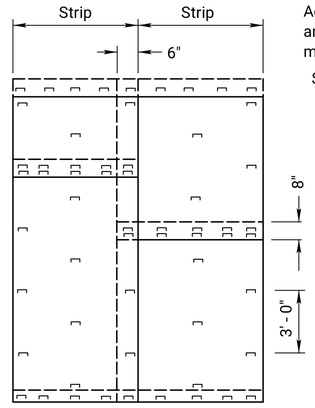
PARTIAL PLAN BOX CULVERT

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

INSTALLATION DETAILS FOR EROSION CONTROL CLASS 1

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

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



PLAN VIEW - ANCHORING DIAGRAM

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

Single post ring and shank staple is acceptable.

NO.	DATE	REVISIONS	BY	APP'D
04	03-01-15	Revised Standard	R.A.A.	S.H.S.
03	02-23-15	Revised Standard	R.A.A.	S.H.S.
02	09-15-14	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

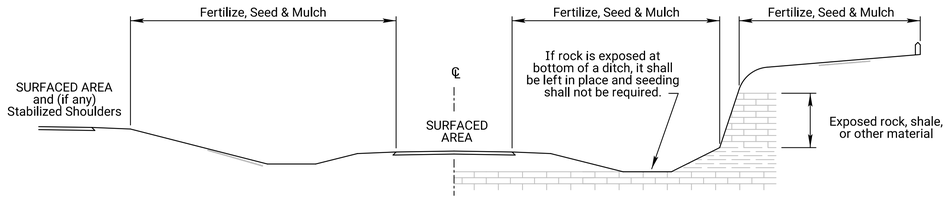
INSTALLATION DETAIL EROSION CONTROL CLASS 1 SLOPE PROTECTION

LA855

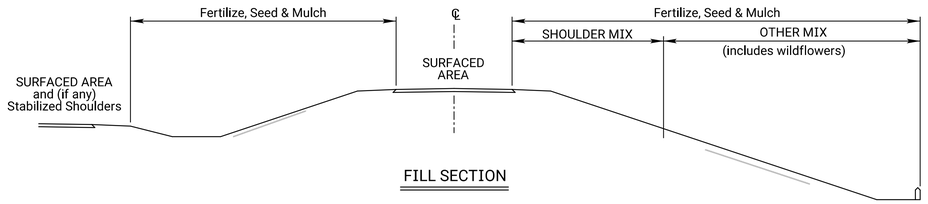
FHWA APPROVAL		03-10-15	APP'D.	Scott H. Shields	
DESIGNED	R.A.A.	DETAILED R.A.A.	QUANTITIES	TRACED	R.A.A.
DESIGN CK.		DETAIL CK.	QUAN.CK.	TRACE CK.	R.A.A.

Plotted by : rsnow 10-JUL-2024 17:30
File : la855.dgn

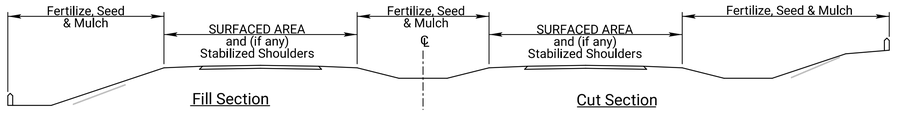
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	25	34



CUT SECTION



FILL SECTION



TYPICAL SECTION - DUAL PAVEMENT

GRASS & WILDFLOWER SEEDING SEASONS

COOL SEASON GRASSES	WARM SEASON GRASSES & WILDFLOWERS
February 15 thru April 20 August 15 thru September 30	November 15 thru June 1
SPECIES	SPECIES
Bluegrasses	Bermuda Grass
Brome Grasses	Big Bluestem
Canada Wildrye	Blue Grama
Fescues	Buffalo Grass
Prairie Junegrass	Indiangrass
Ryegrasses	Little Bluestem
Sterile Wheatgrass	Sand Bluestem
Tall Dropseed	Sand Dropseed
Western Wheatgrass	Sand Lovegrass
	Side Oats Grama
	Switchgrass
	Wildflower Mixes

When the area to be seeded is 1 acre or more, if Cool Season grasses are mixed with Warm Season grasses, seed the area during the Warm Season.

When the area to be seeded is less than 1 acre, seed the area any time of the year.

SODDING SEASONS

COOL SEASON GRASSES	WARM SEASON GRASSES
March 1 thru April 15 September 1 thru November 15	May 15 thru September 1
SPECIES	SPECIES
Bluegrass Sod	Buffalo Grass Sod
Fescue Sod	

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

NATIVE WILDFLOWER MIX 1

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

NATIVE WILDFLOWER MIX 2

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

Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed ⅛" -¼". Place the wildflower seed in a separate seed box and drill (cover) seed $\frac{1}{16}$" maximum. Place the Tall Drop Seed in a separate (third) seed box and place the seed (using the seed drill) on the soil surface.

OPTION: Broadcast Tall Drop Seed on the soil surface.

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ACRE				ACRES				BID ITEM	QUANTITY	UNIT
SHLDR	OTHER			SHLDR	OTHER					
								See LA 852A for Soil Erosion Mix to be used as Permanent Seeding		
								Mulching *		

SHLDR = Seeded with the Shoulder Mix. Typically 15 feet for 2-lane roads and 30 feet for 4-lane roads. Includes outside roadsides, turfed portions of shoulders, and turfed portion of the median.

OTHER = Seeded with the "Other" Mix. Designated as all other turf areas, except the Shoulder. Usually includes a Native Wildflower Mix.

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.

Refer to the Standard Specifications, Division 900, Section 904 'Seeding', and Section 907 'Sodding', for the seeding and sodding seasons.

* See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the Standard Specifications.

NO.	DATE	REVISIONS	BY	APP'D
02	11-25-20	Updated Seeding / Sodding Periods Charts	M.R.D.	M.L.
01	08-03-20	Revised Standard	M.R.D.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

PERMANENT SEEDING SUMMARY OF SEEDING QUANTITIES

LA850

FHWA APPROVAL	05-06-19	APP'D.	Mervin Lare
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

Plotted by : rsnow 10-JUL-2024 17:30
File : la850.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	26	34

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.

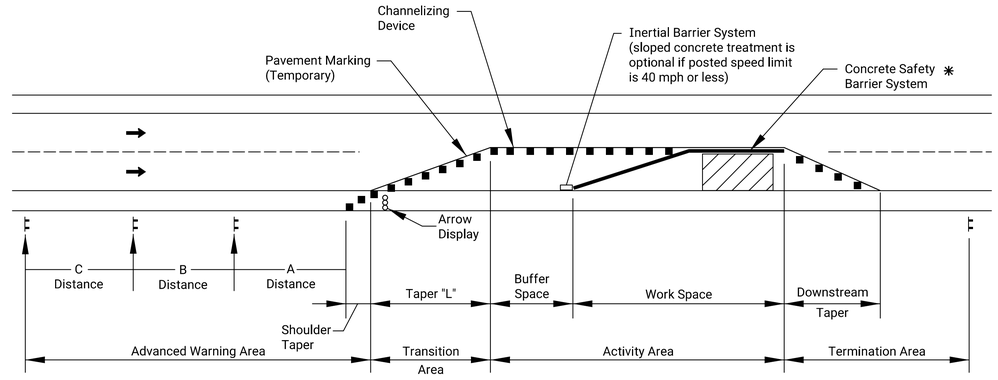
2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

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.



TYPICAL WORK ZONE COMPONENTS

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

Minimum advance warning sign spacing (in feet):

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

✳ Posted speed prior to work starting

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

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

Taper Formulas:

L = WS for speeds of 45 MPH or more

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

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

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

Channelizer Placement:

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

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

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

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

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

Buffer Space

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

✳ Posted speed prior to work starting

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

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

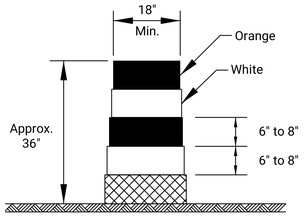
TRAFFIC CONTROL GENERAL NOTES

TE700

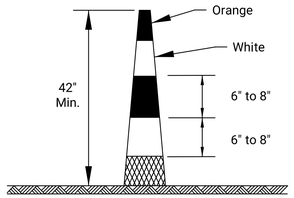
FHWA APPROVAL		03-13-18	APP'D.	Eric Kocher	
DESIGNED	B.A.H.	DETAILED R.W.B.	QUANTITIES	TRACED	
DESIGN CK.		DETAIL CK.	QUAN.CK.	TRACE CK.	

Plotted by : rsnow 10-JUL-2024 17:30
File : te700.dgn

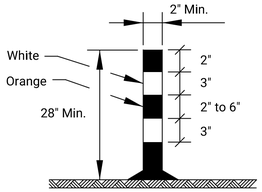
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	27	34



DRUM

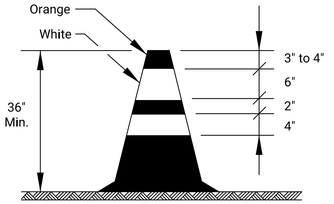


CONICAL
DELINEATOR

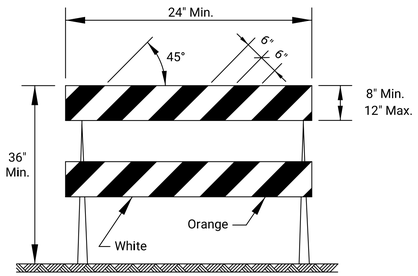


TUBULAR MARKER

Striping as shown for up to 42".

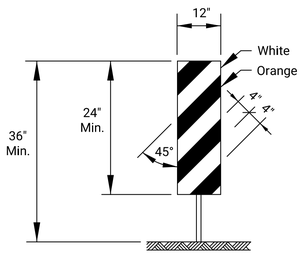


TRAFFIC CONE



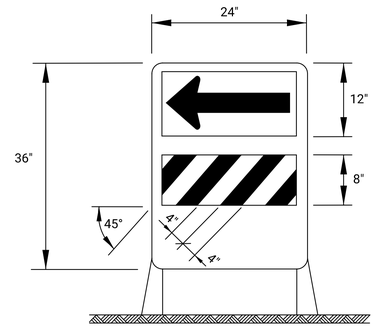
TYPE 2 BARRICADE

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



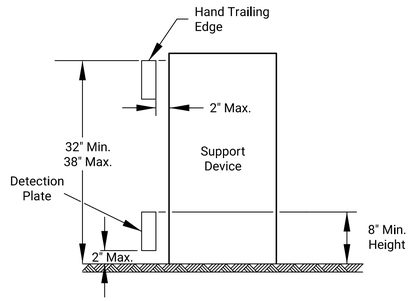
VERTICAL PANEL

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



DIRECTION INDICATOR BARRICADE

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



PEDESTRIAN CHANNELIZER

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

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

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

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CHANNELIZING DEVICES

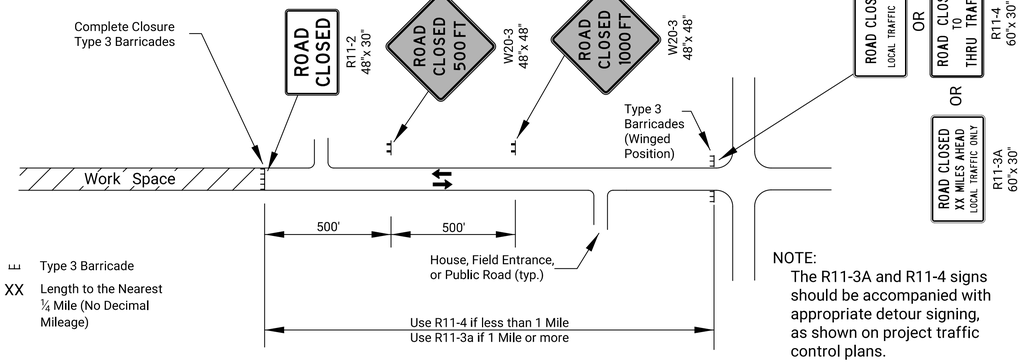
TE702

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

Plotted by : rsnow 10-JUL-2024 17:30
File : te702.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	28	34

Note: Signs shown for one approach to work zone.



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

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

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

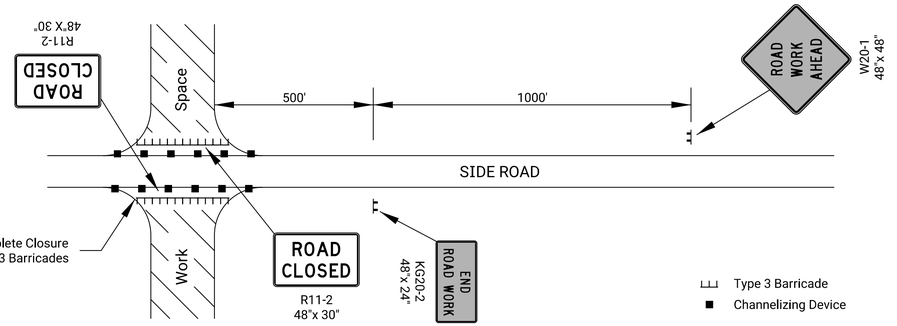


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

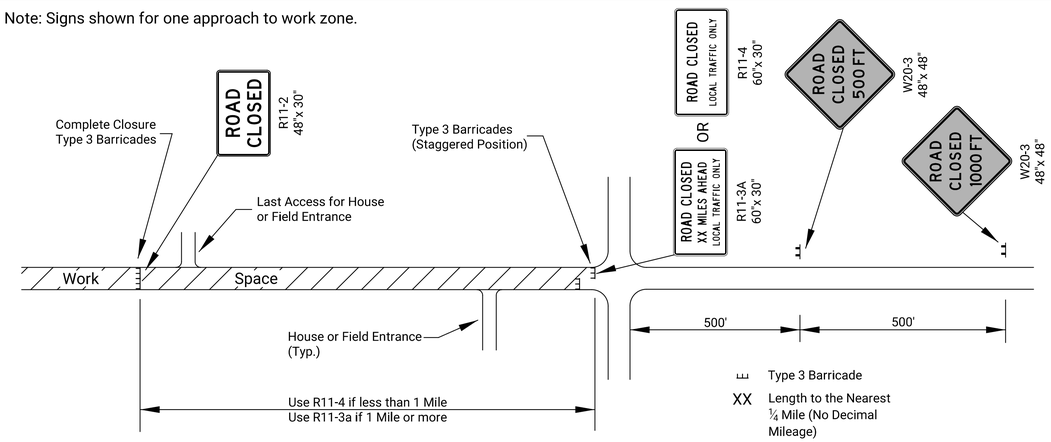


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

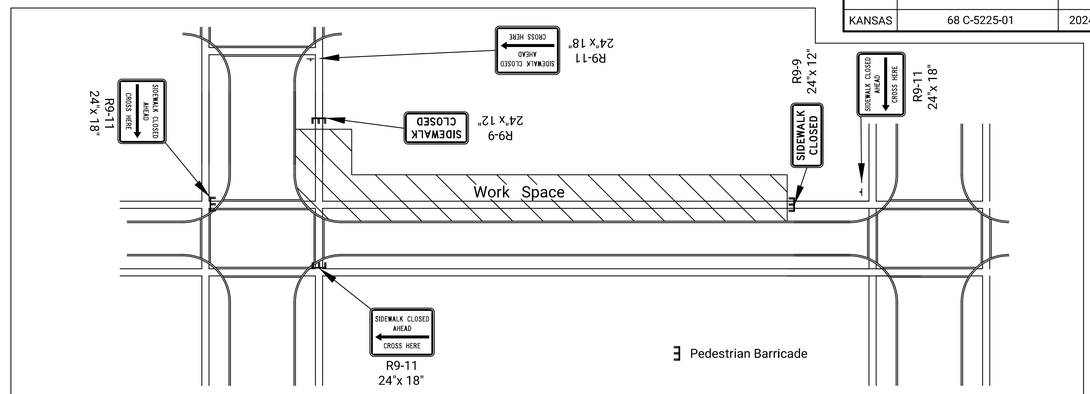
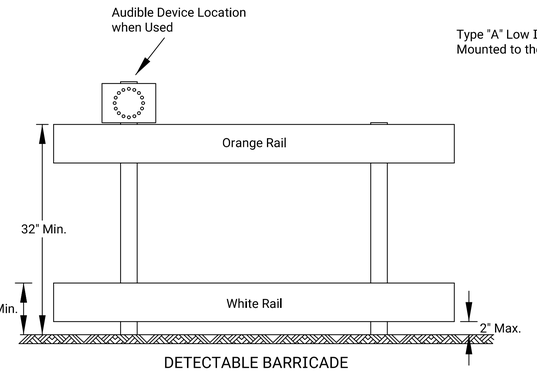
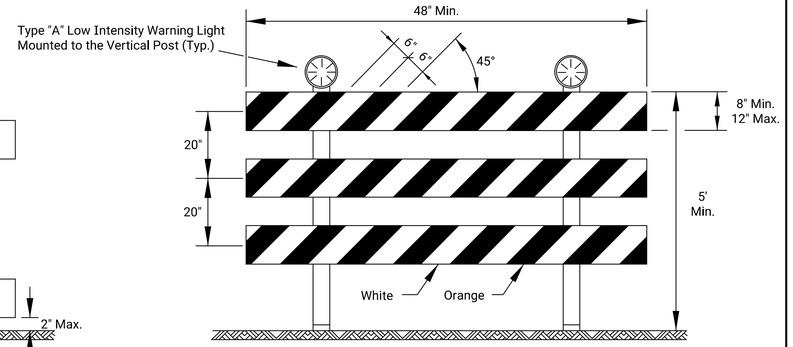


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



DETECTABLE BARRICADE

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



TYPE 3 BARRICADE WITH LIGHTS

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

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

ROAD CLOSED GENERAL NOTES

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

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

Plotted by : rsnow 10-JUL-2024 17:30
File : te704.dgn

SIGN LAYOUT INFORMATION

KG20-2

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

KG20-5

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

KM4-20

Std. Size
3" C
24"x 6"

Expwy/Freeway
6" C
48"x 12"

W7-3a

Mileage to be Determined by the Engineer.

W8-17

Std. Size Expwy/Freeway
48"x 48"

W8-15

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

W8-7

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

W8-15p

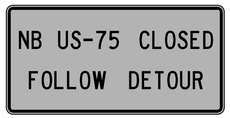
Std. Size Expwy/Freeway
30"x 24"

W8-11

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

W8-17P
(Optional)

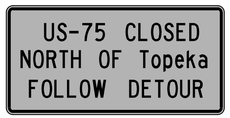
Std. Size Expwy/Freeway
30"x 24"



SP-01
(Special Sign)

Std. Size
6" C

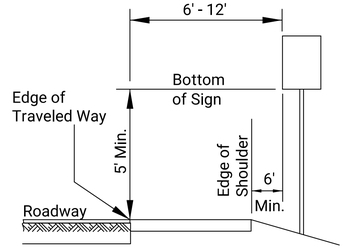
Expwy/Freeway
10" D



SP-02
(Special Sign)

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

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

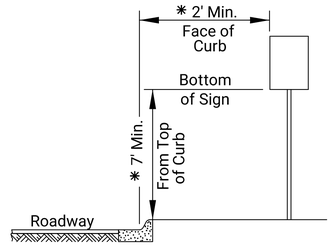


RURAL

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

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

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



URBAN

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

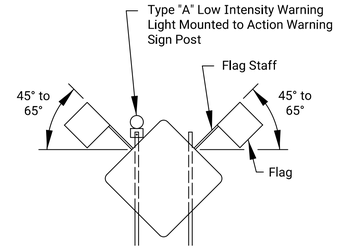
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

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

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

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

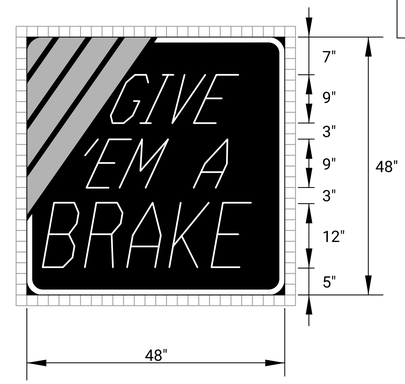
* 6) Pedestrian detour signing shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not protrude into the walkway nor shall it project beyond the back of curb.



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

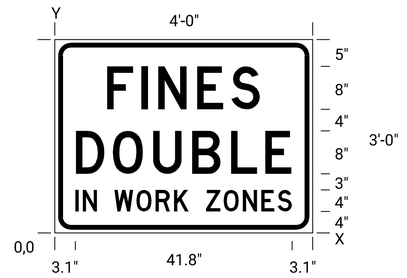
In the case of hitting rock when driving posts
1. Shift the sign location. Do not violate minimum sign spacing.
2. With the engineer's approval, use acceptable alternative sign stands.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	29	34



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

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN INFORMATION

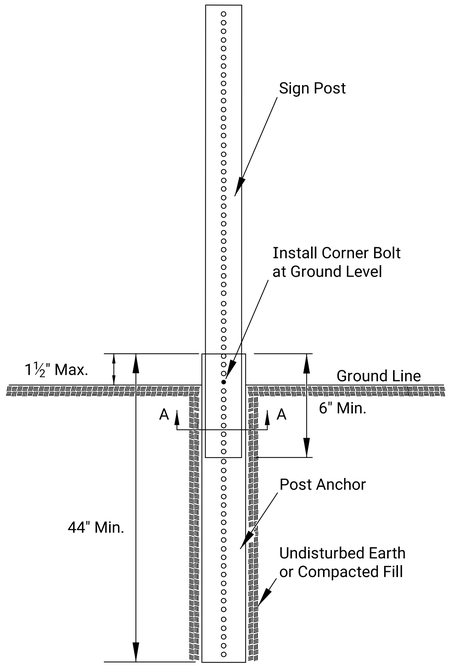
TE710

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

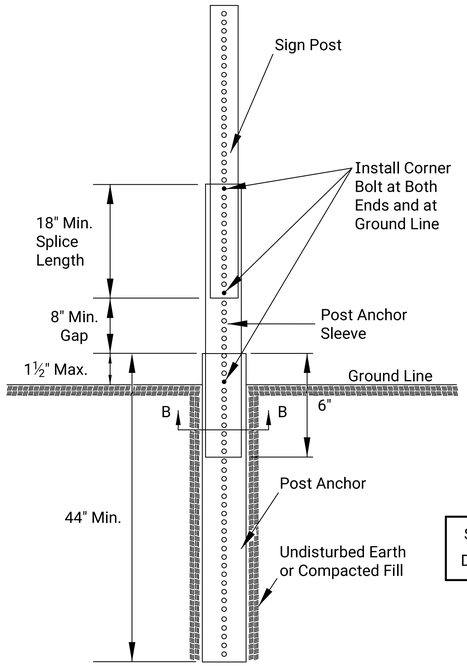
Plotted by: rsnow 10-JUL-2024 17:31
File : te710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	30	34

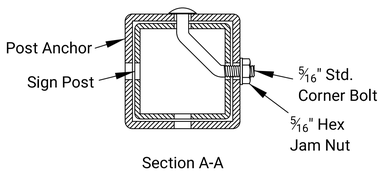
PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



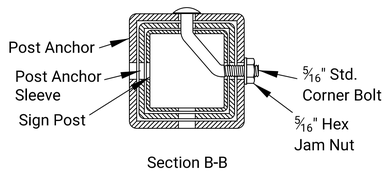
P.S.S.T. Detail



Telescoping P.S.S.T. Detail



Section A-A

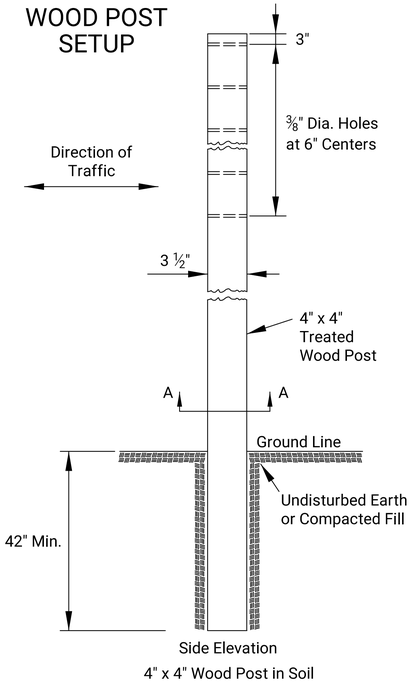


Section B-B

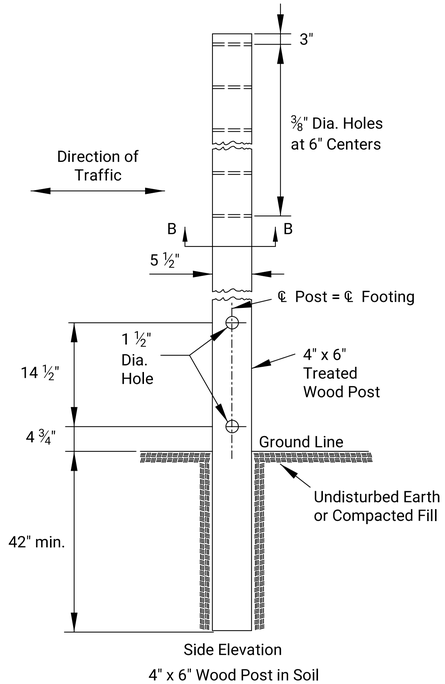
Details for 2", 2 ¼", or 2 ½" sign posts

Place bolts in the same corner along each sign post.

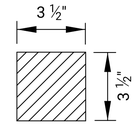
WOOD POST SETUP



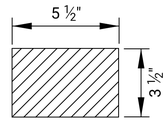
Side Elevation
4" x 4" Wood Post in Soil



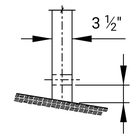
Side Elevation
4" x 6" Wood Post in Soil



Section A-A



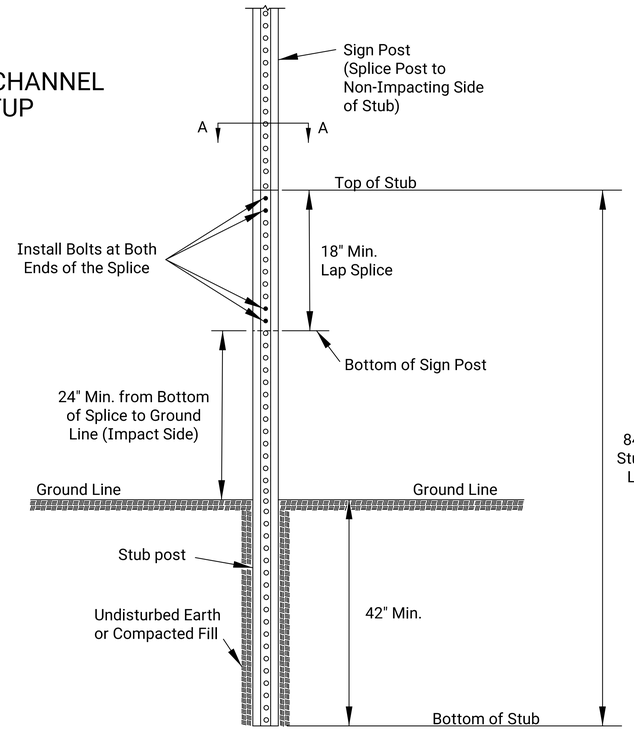
Section B-B



Front Elevation

See TE710 for Additional Details and Requirements

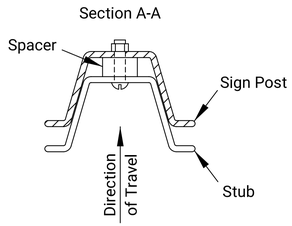
3 LB/F U-CHANNEL SETUP



Notes:

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

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



NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

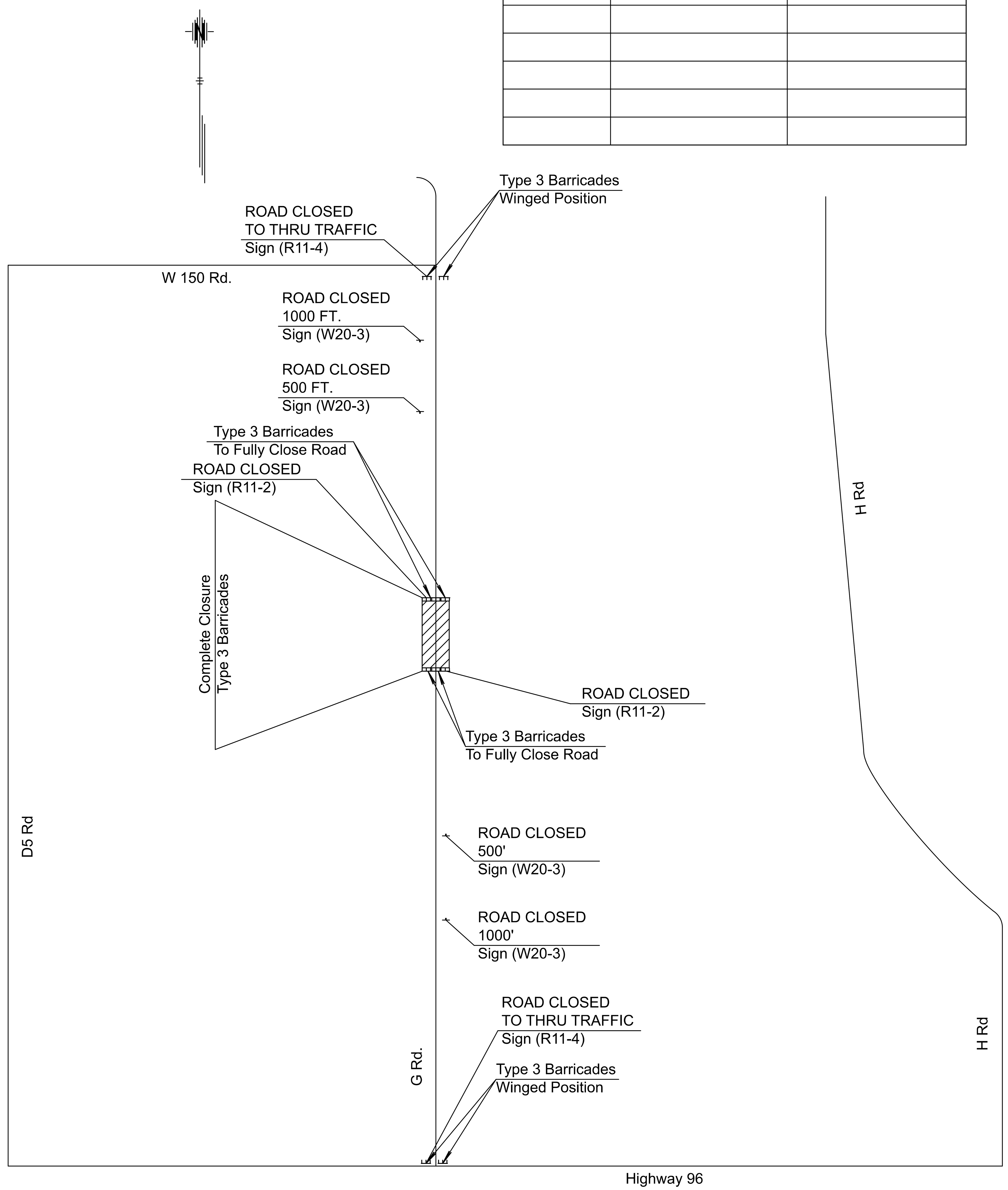
TE712

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

Plotted by: rsnow 10-JUL-2024 17:31
File : te712.dgn

SUMMARY OF TRAFFIC CONTROL DEVICES (FOR INFORMATION ONLY)

All traffic control devices shall be placed in accordance with the applicable KDOT Traffic Control Standards. The Contractor shall provide all signs and other traffic control devices for proper traffic control of all construction activities. Quantities listed are estimates only. Contractor operations may require additional signs and traffic control devices, this will be Subsidiary to the bid item "Traffic Control".



SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

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

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH PER DAY)

✳ Quantity most used on the project at any one time

Work Zone Signs ✳			
Sign No.	Size - Sq.Ft.		
	0-9.25	9.26-16.25	16.26 & Over
R11-2		2	
R11-4		2	
W20-7		2	
W20-3		4	

Barricades ✳	
Type 3 (4' to 12')	Pedestrian
10	

Channelizing Devices ✳		
Fixed	Portable	Pedestrian

Lighted Devices ✳	
Work Zone Warning Light (Type "A" Low Intensity)	8
Work Zone Warning Light (Red Type "B" High Intensity)	
Arrow Display	
Portable Changeable Message Sign	

Recapitulation of Quantities		
Item	Quantity	Unit
Work Zone Signs (0 to 9.25 Sq.Ft.)		Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)		Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)		Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')		Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)		Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)		Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display		Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)		Sta./Line
4" Solid (Type II)		Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)		Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)		Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)		Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal		Lin. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)		Lump Sum
Traffic Control	Lump Sum	Lump Sum
Flagger (Set Price)	1	Hour

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SUMMARY OF DEVICES RECAPITULATION OF QUANTITIES

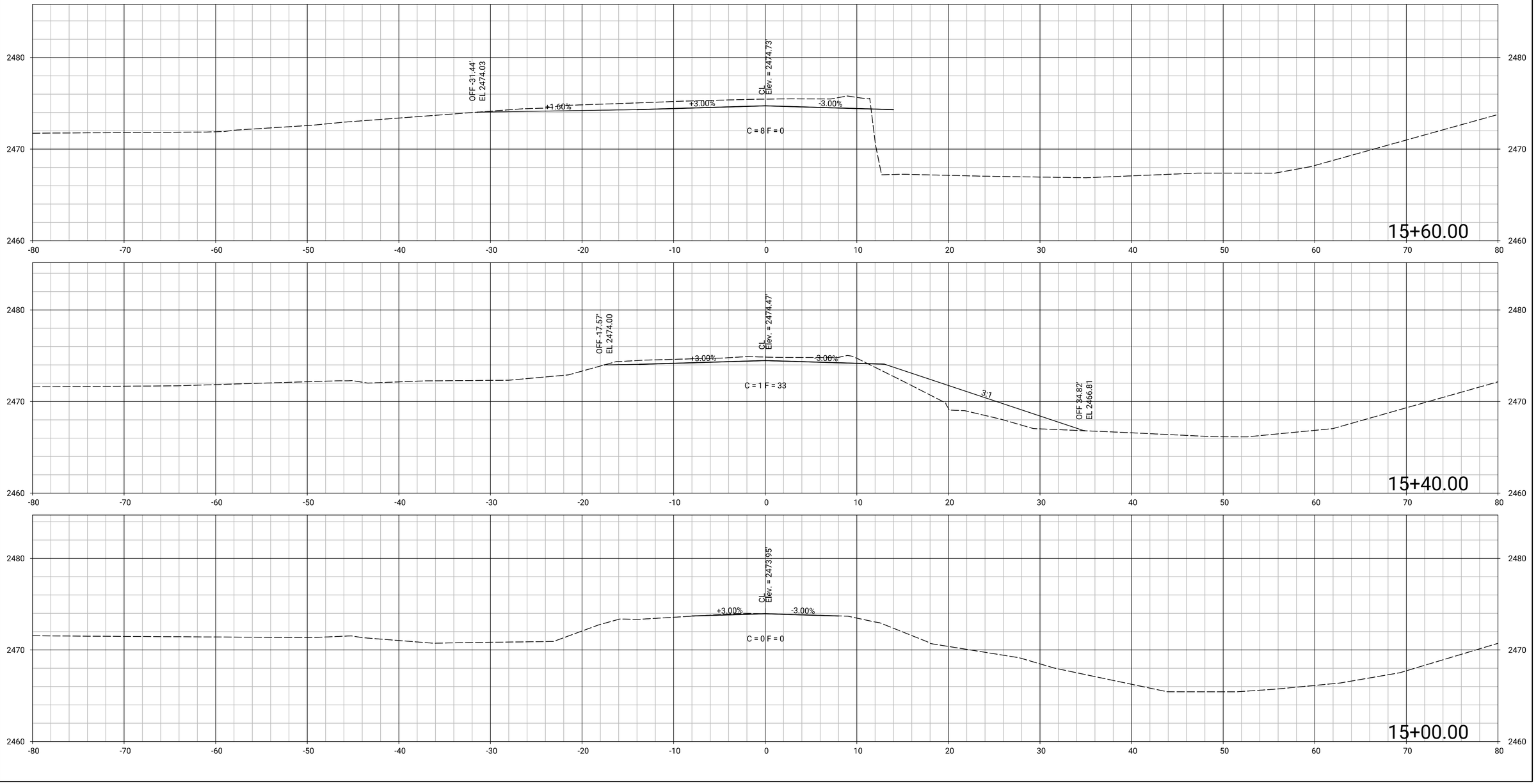
TE795

FHWA APPROVAL 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 by : rsnow 10-JUL-2024 17:31
File : te795.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	32	34

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED



Plotted by : rsnow 10-JUL-2024 17:31
File : 2212875_rxs.dgn

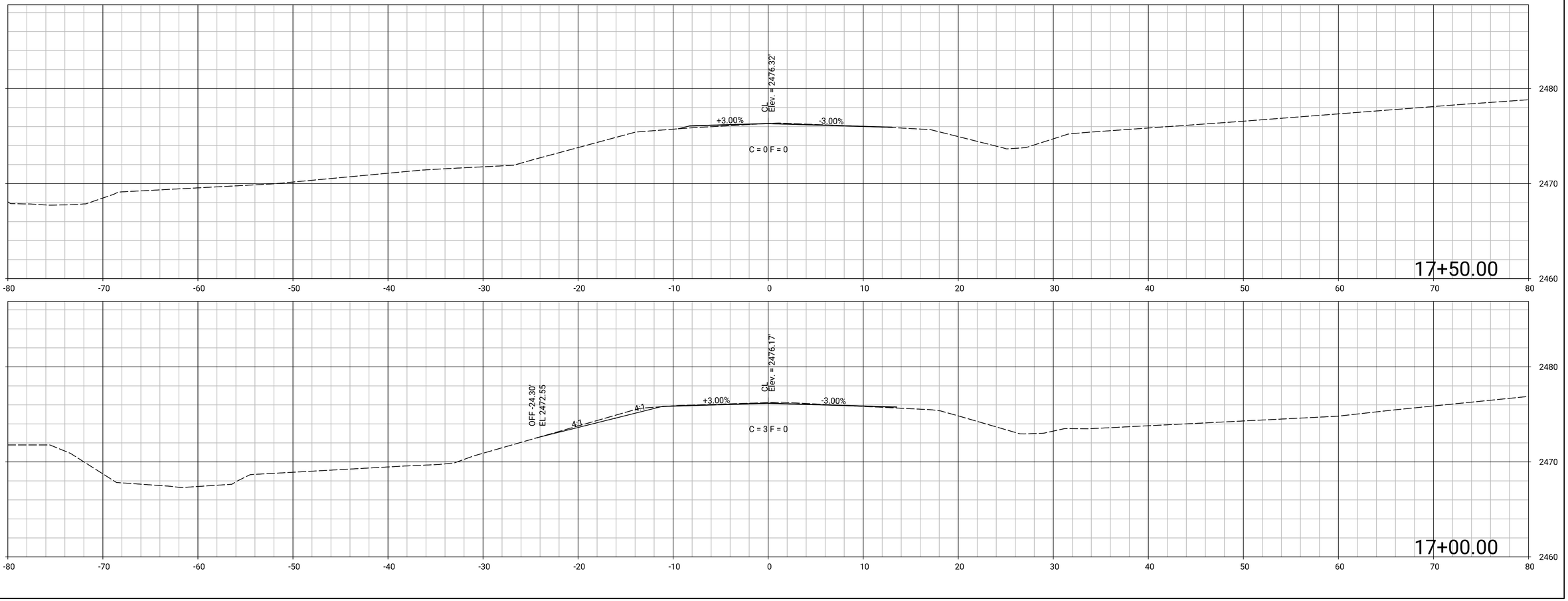
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	33	34

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

Plotted by : rsnow 10-JUL-2024 17:31
File : 2211875_rxs.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	68 C-5225-01	2024	34	34

DATE	BY	
		REFERENCES NOTED
		REFERENCES CHECKED



Plotted by : rsnow 10-JUL-2024 17:31
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