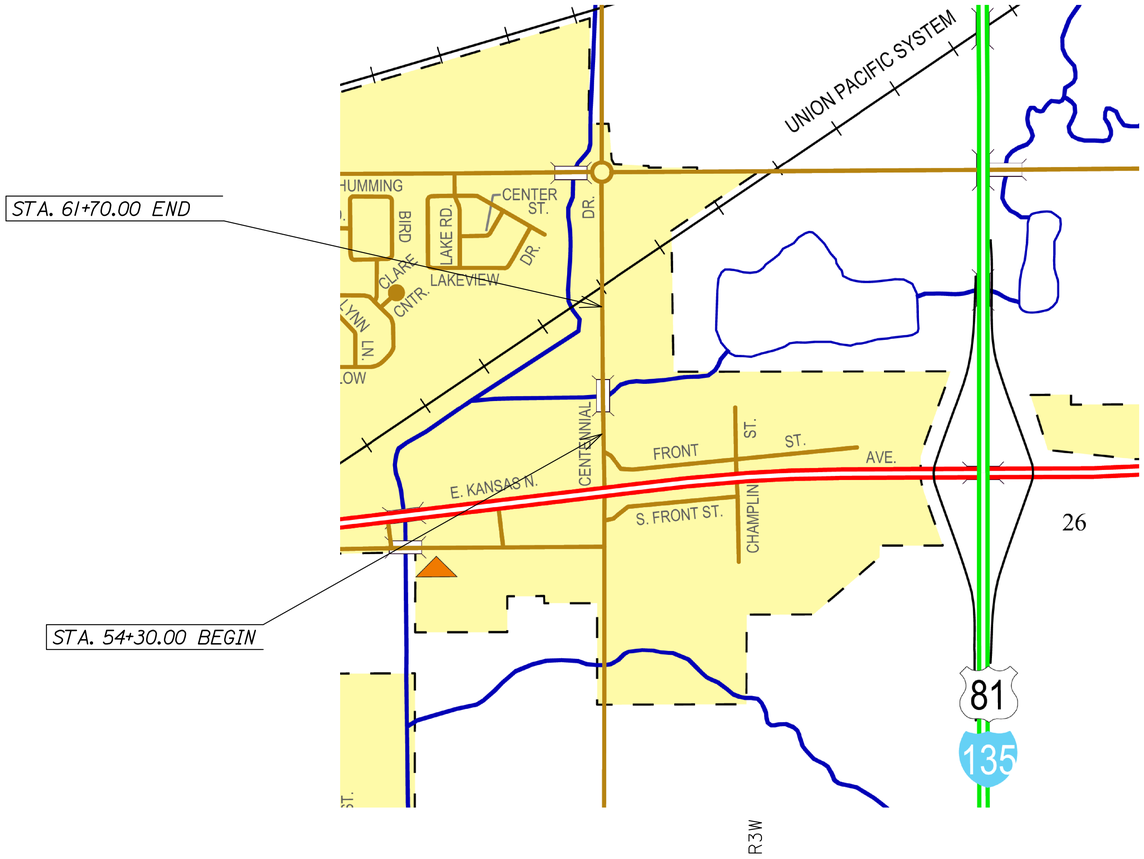
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	1	62

CITY OF MCPHERSON
CENTENNIAL DRIVE

INDEX OF SHEETS



SCALE: 1"=1000'

UTILITIES

Electric & Water	BPU of the City of McPherson Mark Wurm 400 E. Kansas McPherson, KS 67460 (620) 755-5665
Sanitary & Storm Sewer	City of McPherson Jeff Woodward 400 E. Kansas McPherson, KS 67460 (620) 245-2545
Gas	Kansas Gas Service Dennis Alexander 1644 W. Kansas Avenue McPherson, KS 67460 (620) 241-0837, Ex. 224
Telephone	AT&T Scott Dunlap 137 S. 7th Salina, KS 67401 (620) 665-1939
Cable	Cox Communications Jess Parker 901 S. George Washington Blvd. Wichita, KS 67211 (316) 260-7740
Fiber Optic	Zayo Group Sam Green PO Box 407 Buhler, KS 67522 (620) 960-3459
Fiber Optic (Proposed)	Mutual Telephone Company D.B.A. Mutual TeleCommunications John Tiefiens Little River, KS 67457 (620) 897-6200

DESIGN DESIGNATION

AADT (2015)	=	6,812
AADT (2030)	=	
DHV	=	
D	=	
T	=	
V	=	40 mph
C of A	=	None
Clear Zone	=	Curb & Gutter

CONVENTIONAL SIGNS

COUNTY LINE
CITY LIMITS
STATE OR NATIONAL LINE
TOWNSHIP, SECTION or GRANT LINE
PROPERTY LINE
HIGHWAY FENCE
EXISTING FENCE
GUARDRAIL
CONSTRUCTION LIMITS
RIGHT OF WAY LINE
TRAVELED WAY
RAILROADS
CENTER LINE OF PROJECT (50 / 1)
TERRACE
CULVERTS
DROP INLET & STORM SEWER
ACCESS CONTROL
POWER POLE
TELEPHONE POLE
MARSH
HEDGE
TREES
PROFILE ELEVATION (1172.18)
STREAM or CREEK

Approved _____
Date

McPherson City Engineer

By:

CITY OF McPHERSON

benesch

DATE | BY | SURVEY | CADD TECHNICIAN | DESIGNERS

Plotted : 09-NOV-2015 16:33
Drawn By : bmcdiffett
File : Title.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	2	62

GENERAL NOTE

1. ALL SAW CUTS SHALL BE FULL DEPTH AND SUBSIDIARY TO OTHER BID ITEMS. FULL DEPTH SAW CUTS SHALL BE USED TO REMOVE ANY PORTION OF PAVEMENT AND/OR CURB AND GUTTER.

2. THE CONTRACTOR SHALL SUBMIT A STORMWATER POLLUTION PREVENTION PLAN FOR KDHE PERMIT PRIOR TO MOVING ANY SOIL. THE CITY WILL SUBMIT FOR THE NOI.

3. MATERIAL FOR THE EMBANKMENT IS INCLUDED IN THE EXCAVATION QUANTITIES.

4. ALL PROPERTY PINS DISTURBED BY CONSTRUCTION SHALL BE REPLACED BY A LICENSED LAND SURVEYOR. THIS WORK SHALL BE SUBSIDIARY TO OTHER ITEMS OF THE CONTRACT.

5. ALL CONSTRUCTION METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF KDOT'S STANDARD SPECIFICATION FOR STATE ROAD AND BRIDGE CONSTRUCTION, CITY OF MCPHERSON STANDARD TECHNICAL SPECIFICATIONS AND CURRENT SPECIAL PROVISIONS AS APPLICABLE TO THE PROJECT OR AS OTHERWISE EXCLUDED IN THESE PLANS OR SUPPLEMENTARY CONDITIONS.

6. EXCESS MILLINGS AND CLEAN CONCRETE RUBLE (NO SOIL OR REBAR) SHALL BE HAULED TO THE CITY DEBRI SITE, 1320 TREATMENT PLANT ROAD, BY THE CONTRACTOR. ALL OTHER EXCESS MATERIALS (ROCK, ETC.) SHALL BE WASTED AT LOCATIONS FURNISHED BY THE CONTRACTOR OFF THE PROJECT SITE. WASTE LOCATIONS ARE SUBJECT TO APPROVAL BY THE ENGINEER. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. ARMY CORPS OF ENGINEERS PERMITTING REGULATIONS.

7. ALL EXISTING SIGNS ARE TO BE REMOVED AND REINSTALLED BY THE CITY. CONTRACTOR SHALL NOTIFY THE CITY 72 HOURS PRIOR TO NEEDING SIGN REMOVAL OR INSTALLATION. ANY SIGN DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

8. CONTRACTOR SHALL MAINTAIN CONSTRUCTION LIMITS WITHIN THE EXISTING AND/OR PROPOSED RIGHT-OF-WAY AND EASEMENTS.

9. CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION AND IMPLEMENTATION.

10. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR APPROVAL, A DETAILED WORK SCHEDULE OUTLINING ESTIMATED TIME PERIODS FOR CONSTRUCTION OF SEGMENTS. THE WORK SCHEDULE SHALL BE UPDATED AS WORK PROGRESSES, AND AT LEAST UPDATED EVERY 2 WEEKS.

11. THE CONTRACTOR SHALL PROVIDE CONSTRUCITON STAKING FOR THE PROJECT.

12. TRAFFIC CONTROL SHOWN IN PLANS AND TRAFFIC CONTROL DEVICES TABULATION ARE SHOWN FOR INFORMATION ONLY. FLAGGER OPERATIONS SHALL BE REQUIRED ANY TIME THAT TRAFFIC IS LIMITED TO A SINGLE LANE. FLAGGER OPERATIONS AND/OR SINGLE LANE TWO WAY TRAFFIC IS PROHIBITED DURING NIGHT-TIME HOURS.

13. UTILITY POLES WILL REMAIN IN PLACE EXCEPT WHERE RELOCATED BY THE OWNER. THE CONTRACTOR SHALL BE REQUIRED TO WORK AROUND THESE POLES TO COMPLETE THE WORK.

14. ALL TREES SHALL BE SAVED WITHIN THE RIGHT-OF-WAY, UNLESS NOTED TO BE REMOVED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SOME HAND WORK MAY BE REQUIRED.

15. ALL CONNECTIONS TO THE EXISTING STORM SEWERS, INLETS, MANHOLES AND THE REINFORCED CONCRETE BOX SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF THE CONTRACT. PLUGGING OF HOLES IN EXISTING STRUCTURES AFTER REMOVAL OF PIPES AND PIPE ENDS EXPOSED BY CONSTRUCTION SHALL NOT BE PAID DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF THE CONTRACT.

16. THE LOCATION OF ALL UNDERGROUND UTILITIES MAY VARY FROM WHAT IS INDICATED IN THESE PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH ALL UTILITY OWNER TO LOCATE AND FLAG ALL UNDERGROUND UTILITIES WHETHER INDICATED OR NOT. NO EXCAVATION SHALL BE PERMITTED IN THE AREA OF UNDERGROUND UTILITIES UNTIL ALL SUCH UTILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. ANY DAMAGE TO THE UTILITY SHALL BE REPAIRED OR REPLACED BY THE UTILITY COMPANY AT THE EXPENSE TO THE CONTRACTOR.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH ALL UTILITY OWNERS FOR THE UTILITY RELOCATION AND ADJUSTMENT DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONSTRUCTION STAKING OF THE IMPROVEMENTS SO THAT UTILITIES OWNERS CAN RELOCATE THE NEW UTILITIES OUTSIDE OF THE PROPOSED IMPROVEMENTS. NO ADDITIONAL PAYMENT WILL BE GIVEN TO THE CONTRACTOR FOR TIME DELAYS OR EXTRA EXPENSE FROM THE COORDINATION AND RELOCATION OF UTILITIES.

PROJECT SURVEY CONTOLS

HORIZONTAL DATUM:

U.S. Survey Feet
NAD83-1502 Kansas South Zone

HORIZONTAL BASIS:
OPUS- Processed GPS Observation:
GSS Project Number: G2010-024
N=1933726.0724
E=1562749.3600
Monument Description: "X" cut on NW corner of storm inlet at SW corner of Arby's parking lot

Project Coordinates have been modified to ground:
C.S.F.=0.999899629995
Scaling point:
N=1933726.0740
E=1562749.3600

VERTICAL DATUM:

NAVD88

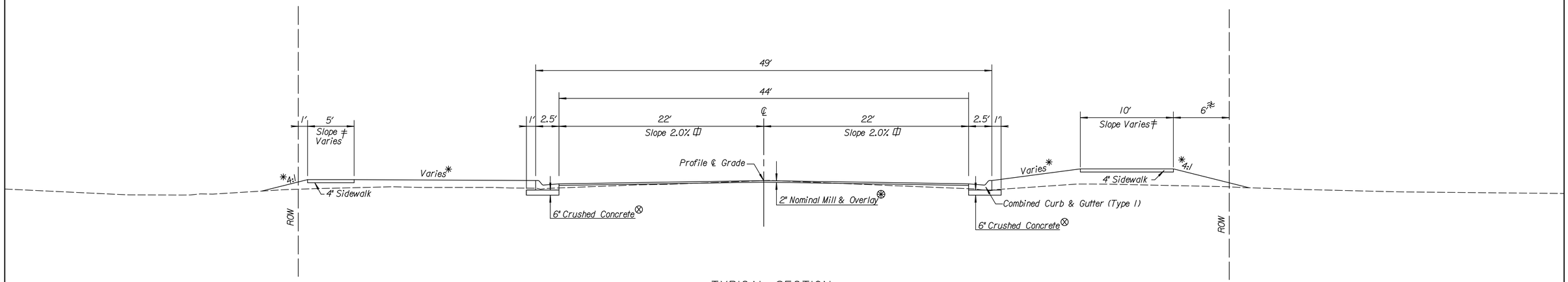
VERTICAL BASIS:
OPUS- Processed GPS Observation:
GSS Project Number: G2010-024
Elevation: 1501.28 NAVD88
Monument Description: "X" cut on NW corner of storm inlet at SW corner of Arby's parking lot

CITY OF McPHERSON

GENERAL NOTES &
PROJECT SURVEY CONTROL

Plotted : 19-JAN-2016 11:28
Drawn By : bmcdiffett
File : General Notes 1.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	3	62



TYPICAL SECTION
RECONSTRUCTION
STA. 54+30.00 TO STA. 56+28.18

⧻ Transition from existing cross slope (Approx. 4.4%) to 2.0% from Sta. 54+30.00 to Sta. 54+90.00

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

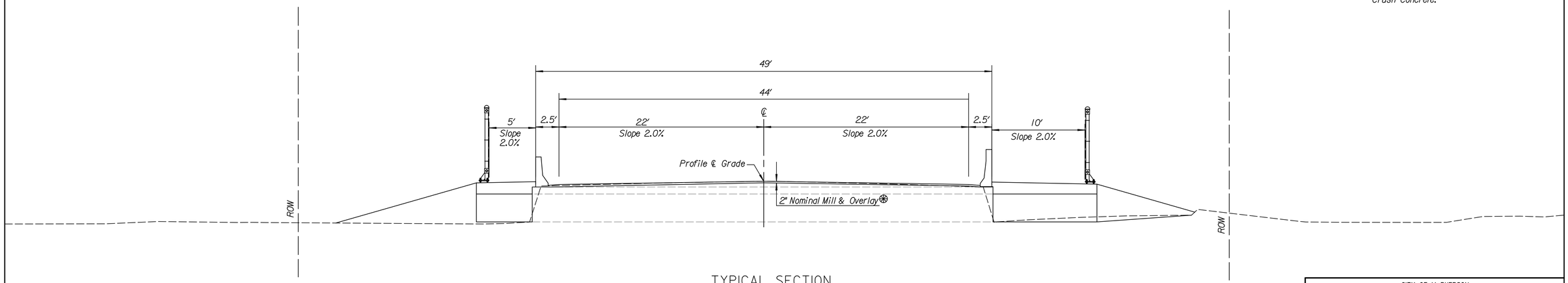
✳✳ Clearing & Grubbing shall take place to a depth of 6" below exiting ground in all disturbed areas.

≈ See plan and cross-sections for variations.

⊛ 2" Nominal - Pave to final grade. 2" mill below profile grade. Mill to 2.0% cross-slope.

≠ See cross-sections for sidewalk slope.

⊗ Can be AB-3 or other equivalent material approved by the City. Shall be Type C compaction. Compaction shall be Subsidiary to Crush Concrete.



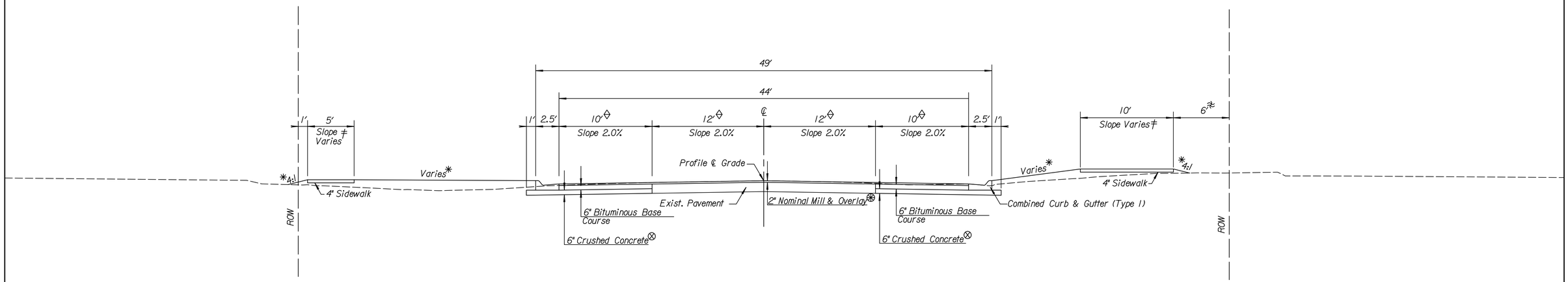
TYPICAL SECTION
RCB
STA. 56+28.18 TO STA. 56+71.14

CITY OF McPHERSON

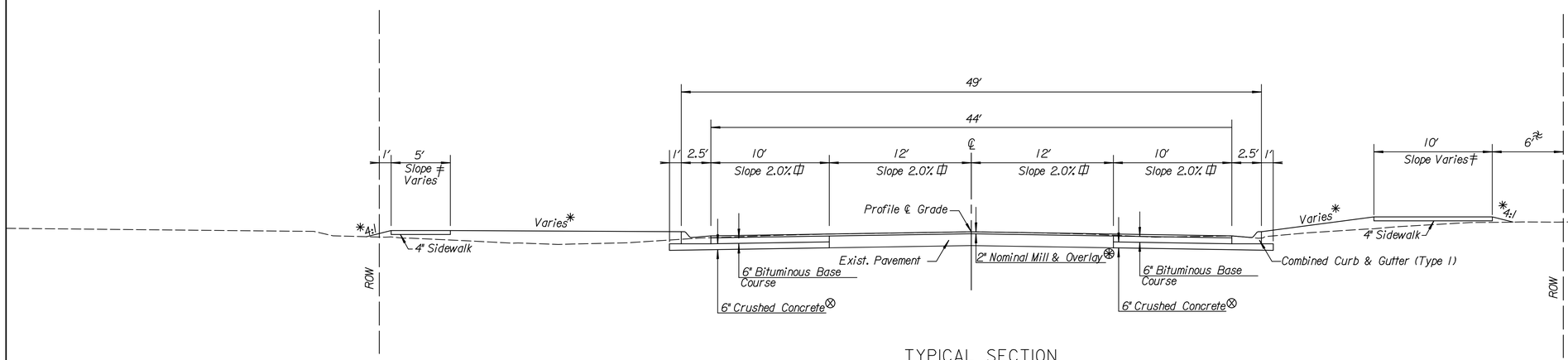
TYPICAL SECTION
GRADING & SURFACING

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : Typical 2.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	4	62



TYPICAL SECTION
RECONSTRUCTION
STA. 56+71.14 TO STA. 57+45.00



TYPICAL SECTION
RECONSTRUCTION
STA. 57+45.00 TO STA. 61+70.00

◫ Transition from typical 2.0% cross slope to existing (Approx. 1.10% left, 3.0% right) from Sta. 61+40.00 to Sta. 61+70.00

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

**Clearing & Grubbing shall take place to a depth of 6" below exiting ground in all disturbed areas.

≠ See cross-sections for sidewalk slope.

≈ See plan and cross-sections for variations.

◊ Existing pavement widths varies. See plan cross-sections for widths.

⊛ 2" Nominal - Pave to final grade. 2" mill below profile grade. Mill to 2.0% cross-slope.

⊗ Can be AB-3 or other equivalent material approved by the City. Shall be Type C compaction. Compaction shall be Subsidiary to Crush Concrete.

CITY OF McPHERSON

TYPICAL SECTION
GRADING & SURFACING

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : Typical.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	5	62

POT ℄ Sta. 50+00.00
Nothing Set
N: 1,933,944.960 E: 1,561,782.038

SCALE
PLAN: Lat. & Long. 20' 0 20' 40'

JKC, LLC
PIN: 0591382701006003000

60' Alley, Drainage & Utility Easement

+01.06 Temp. Esmt. = Ex. Perm. Esmt. 60' ℄

Sta.56+01.41, 24.0' Lt. Install 5'x6' Type-22 Inlet w/ 36.6' of 15" RCP w/ End Section
See Detail Sheets 13-16, 18

W. Pharmacy I DST
PIN: 0591382701006003020

Sta. 53+70.81, 51.3' Lt.
Match into Exist. Sidewalk

+65 Temp. Esmt. = Ex. R/W 50' ℄

Sta. 54+30.00 Begin
Street Reconstruction

+65 Temp. Esmt. 60' ℄

Sta. 53+70.81, 51.3' Lt. to Sta. 61+69.70, 46.5' Lt. Const.
450.3 SY of 5' Wide (4") Sidewalk
See Detail Sheets 9 & 11
See Cross Sections

Install 184.9' of Curb & Gutter

Temp. Esmt.

Const. Limit

Exist. R/W 50' ℄

Light Pole (By Other)

Sta. 53+71.56 to Sta. 54+30.00
Remove & Replace Entrance Pavement Concrete
See Detail Steet 17

Sta. 54+30.00
Match into Exist. Pavement & Curb & Gutter

℄ Centennial Drive

100' Kansas Power and Light RW

Install 3.5' of Curb & Gutter

Saw Cut

Install 184.9' of Curb & Gutter

Const. Limit

Exist. R/W 50' ℄

Temp. Esmt.

10' Drainage & Utility Easement

Sta. 53+76.33, 39.0' Rt. Const.
8.6 SY of Type I ADA Ramp
See Detail Sheet 12

Sta. 55+27.21, 39.0' Rt. Const.
10.6 SY Type I ADA Ramp
See Detail Sheet 12

McDonald's Corporation
PIN: 0591372602004002000

100' Kansas Power and Light RW

+40.19 Temp. Esmt. = Ex. Perm. Esmt. 60' ℄

Sta. 55+51.31, 50.0' Rt.
Install 101.3 SY of Entrance Pavement Concrete (8")
Match Existing

Sta.56+01.41 24.0' Rt. Install 5'x6' Type-22 Inlet w/ 25.3' of 15" RCP to the north
See Detail Sheets 13-16

Sta. 55+76.13, 39.0' Rt. Const.
10.8 SY of Type I ADA Ramp
See Detail Sheet 12

McPherson Lodging, Inc.
PIN: 0591372602004001030

Sta. 54+24.50, 39.0' Rt. Const.
10.9 SY Type I ADA Ramp
See Detail Sheet 12

Sta. 54+37.00, 24.0' Rt. Install 3'x6.5' Type B Combined Inlet Manhole w/ 60' of 15" CSP Variable Height Slotted Drain to the south w/ end cap
161.4' of 15" RCP to the north
See Detail Sheet 13-16

Sta. 52+95.33, 42.3' Rt. Const.
13.1 SY of Type I ADA Ramp
See Detail Sheet 12

Sta.52+95.33, 42.3' Rt. to Sta.53+76.33, 39.0' Rt. Const.
90.0 SY of 10' Wide (4") Sidewalk
See Detail Sheets 9 & 11
See Cross Sections

Sta.54+24.50, 39.0' Rt. to Sta.55+27.21, 39.0' Rt. Const.
114.1 SY of 10' Wide (4") Sidewalk
See Detail Sheets 9 & 11
See Cross Sections

Sta.51+19.77, 67.8' Rt. to Sta.52+26.58, 25.5' Rt.
Const. Slope Drain, Remove Existing Slope Drain
See Detail Sheet 9
See Cross Sections

Sta.51+32.50, 91.8' Rt. to Sta.52+17.06, 52.96' Rt. Const.
104.2 SY of 10' Wide (4") Sidewalk
See Detail Sheets 9 & 11
See Cross Sections

Sta. 52+17.06, 52.96' Rt. Const.
17.2 SY of Type Ib ADA Ramp
See Detail Sheet 12

SE Cor. NE¼ Sec. 27-T19S-R3W
N: 1,933,564.015 E: 1,561,789.971
Fnd 5/8" Rebar

CP#9007: 1/2" Rebar w/ GSS control cap
N: 1,934,056.98 E: 1,561,879.82 Elev. 1492.39

B.M.: PT#12 Northeast quadrant of 56 Hwy. & Centennial Drive, to a limestone monument, on the concrete base, thereof, the benchmark is the NW corner. (No mark was set)
N: 1,934,067.389 E: 1,561,923.201 Elev. 1492.85

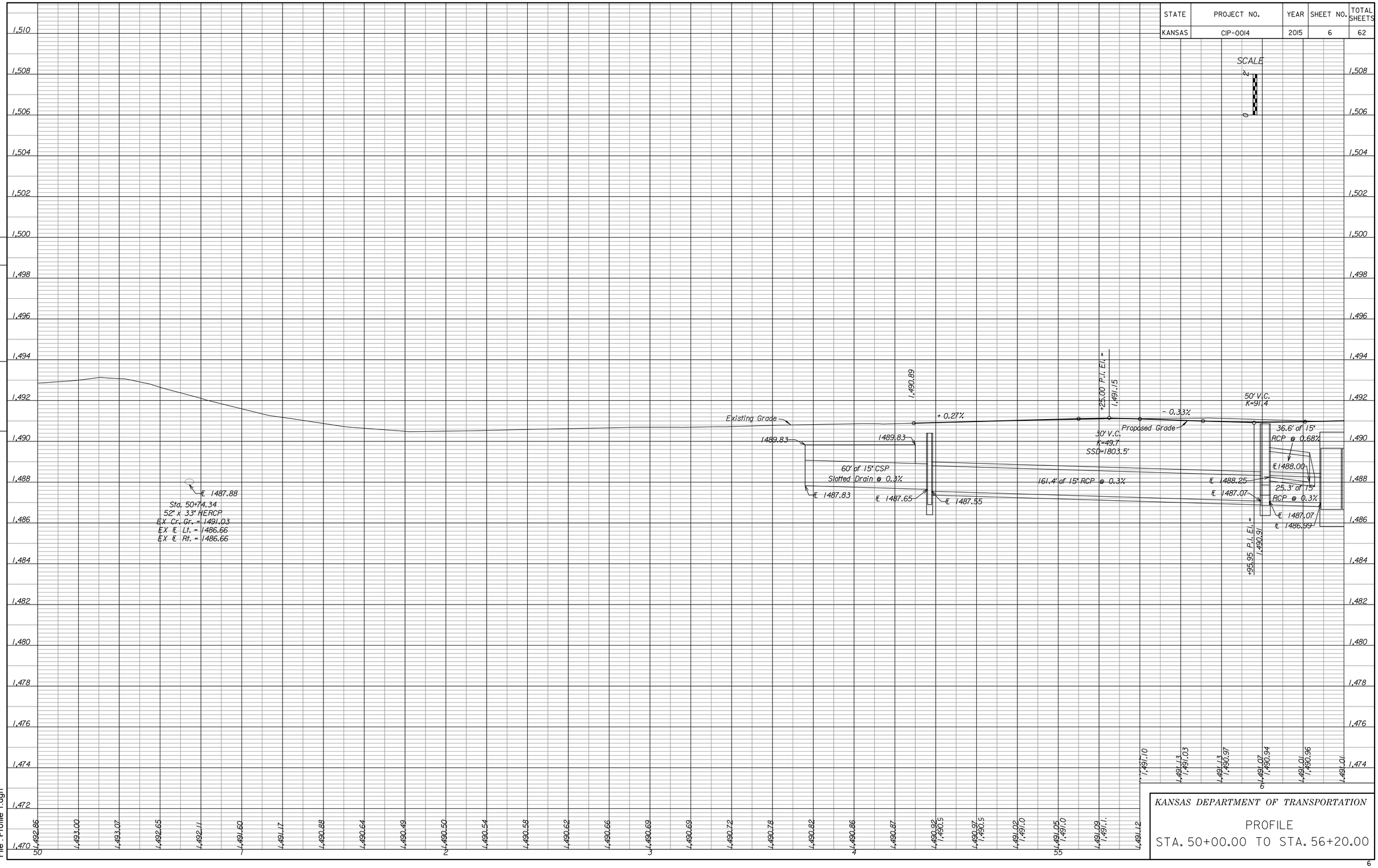
CITY OF McPHERSON

PLAN
STA. 50+00.00 TO STA. 56+20.00

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : Plan 1.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	6	62

SCALE
2'
0



KANSAS DEPARTMENT OF TRANSPORTATION

PROFILE

STA. 50+00.00 TO STA. 56+20.00

6

DATE
BY
REFERENCES NOTED
REFERENCES CHECKED

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : Profile 1.dgn

POT ℄ Sta. 72+42.61
Nothing Set
N: 1,936,187.095 E: 1,561,735.839

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	7	62

SCALE
20' 0 20' 40'
PLAN: Lat. & Long.

Future Sanitary Sewer
60' Alley, Drainage & Utility Easement
30' City of McPherson Utility Easement
+90.91 Temp. Esmt. = Ex. Perm. Esmt. 70' ℄
Sta. 56+14.62, 23.83' Lt. to Sta. 56+84.67, 23.83 Lt. Install 32" Jersey Barrier See Detail Sheet 22
Sta. 56+49.66 Extend Double 2-10'x3'x49.5' RCB 6' Lt. & 11.2' Rt. See Detail Sheets 19-29
Install 485.3' of Curb & Gutter
Temp. Esmt.
Const. Limit
Exist. R/W 50' ℄
JKC, LLC
PIN: 059138270100600l000
Exist. Railroad R/W 200' ℄ Track
+60.25 Temp. Esmt. = Ex. RR R/W 70' ℄ Centennial Dr.
Sta. 61+70.00 End Street Reconstruction
Light Pole (By Other)
Ex. Edge of Pavement
℄ Centennial Drive
Sec. Line
Sta. 61+70.00 Match into Exist. Pavement
100' Kansas Power and Light R/W
Ex. Edge of Pavement
Exist. Railroad R/W
Sta. 57+01.16, 24.0' Rt. Install 5'x6' Type-22 Inlet w/ 28.5' of 15" RCP See Detail Sheets 13-16
Install 485.3' of Curb & Gutter
McPherson Lodging, Inc.
PIN: 059137260200400l030
Sta. 56+14.66, 23.9' to Sta. 56+84.69, 23.9' Install 42" Jersey Barrier See Detail Sheet 23
Sta. 55+76.13, 39.0' Rt. to Sta. 58+26.52, 39.0' Rt. Const. 283.4 SY of 10' Wide (4") Sidewalk See Detail Sheets 9 & 11 See Cross Sections
Future Sanitary Sewer
Undg. TV Cable (Cox)
Telephone Line (ATT)
Sta. 58+75.12, 50.0' Rt. Install 229 SY of Entrance Pavement Concrete (8") Match Existing
Sta. 59+20.12, 39.0' Rt. Const. 10.0 SY of Type I ADA Ramp See Detail Sheet 12
Sta. 58+26.52, 39.0' Rt. Const. 7.7 SY of Type I ADA Ramp See Detail Sheet 12
E. Tom Pyle Jr. Family Trust
PIN: 059137260200400l000
Sta. 59+20.12, 39.0' Rt. to Sta. 61+05.70, 34.5' Rt. Const. 207.2 SY of 10' Wide (4') Sidewalk See Detail Sheets 9 & 11 See Cross Sections
Sta. 61+35.41, 50.0' Rt. Install 170.3 SY of Entrance Pavement Concrete (8") Match Existing
+70.00 Temp. Esmt. 60' ℄
+70.00 Temp. Esmt. = Ex. R/W 50' ℄
Kansas Gas Service
Ex. Railroad R/W
CP-9003
CP-9004

CP#9003: 5/8" Rebar w/GSS control cap
N: 1,935,125.45 E: 1,561,798.17 Elev. 1497.34

CP#9004: 5/8" Rebar w/GSS control cap
N: 1,934,633.81 E: 1,561,707.59 Elev. 1492.70

B.M.: PT#8 Railroad Spike W. face of first light pole South of Railroad tracks West side of Centennial Drive.
N: 1,935,322.670 E: 1,561,731.096 Elev. 1500.80

B.M.: PT#9 Square cut at S.W. corner of West headwall of first RCB N. of 56 Hwy. & Centennial Drive
N: 1,934,573.219 E: 1,561,744.477 Elev. 1491.42

SE Cor. NE¼ NE¼ Sec. 27-T19S-R3W
N: 1,934,875.502 E: 1,561,762.940
Fd. Mag Nail

NE¼ NE¼ Sec. 27-T19S-R3W
N: 1,936,187.529 E: 1,561,735.909
Calculated from Ref. Ties

CITY OF McPHERSON

PLAN

STA. 56+20.00 TO STA. 62+80.00

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : Plan 2.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	8	62

DATE	BY	REFERENCES NOTED	REFERENCES CHECKED

Sta. 56+49.66
Double 2-10'x3'x49.5' RCB
EX Cr. Gr. = 1491.03
PR Cr. Gr. = 1491.03
EX ℄ Lt. = 1486.66
EX ℄ Rt. = 1486.66
Prop. ℄ Lt. = 1486.66
Prop. ℄ Rt. = 1486.66

KANSAS DEPARTMENT OF TRANSPORTATION

PROFILE
STA. 56+20.00 TO STA. 62+80.00

Plotted :19-JAN-2016 10:41

Drawn By : bmcdiffett
File : Profile 2.dgn

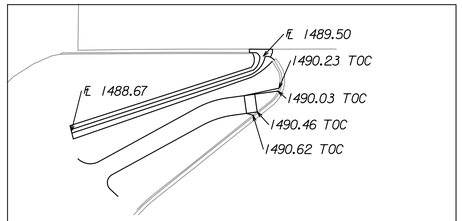
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	9	62

CL- LEFT SIDEWALK (ALIGNMENT CONTROL)					
NUMBER	BEGIN STATION	END STATION	BEGIN COORDINATES	END COORDINATES	CURVE INFO
C9	10+00.00	10+01.85	N:1934314.633 E:1561723.189	N:1934316.368 E:1561723.806	L: 1.85' T: 0.94' R: 5.0' Δ: 21° 13' 57.33" C: 1.84'
L10	10+01.85	10+04.05	N:1934316.368 E:1561723.806	N:1934318.267 E:1561724.911	
C10	10+04.05	10+15.00	N:1934318.267 E:1561724.911	N:1934328.739 E:1561727.621	L: 10.95' T: 5.62' R: 20.0' Δ: 31° 22' 46.17" C: 10.82'
L11	10+15.00	12+04.67	N:1934328.739 E:1561727.621	N:1934518.366 E:1561723.714	
C11	12+04.67	12+30.85	N:1934518.366 E:1561723.714	N:1934543.498 E:1561729.896	L: 26.18' T: 13.40' R: 50.0' Δ: 30° 00' 00.84" C: 25.88'
L12	12+30.85	12+55.11	N:1934543.498 E:1561729.896	N:1934564.755 E:1561741.592	

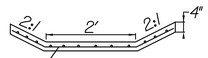
CL- LEFT SIDEWALK (ALIGNMENT CONTROL)					
NUMBER	BEGIN STATION	END STATION	BEGIN COORDINATES	END COORDINATES	CURVE INFO
C12	12+55.11	12+57.73	N:1934564.755 E:1561741.592	N:1934597.269 E:1561742.210	L: 2.62' T: 1.34' R: 5.0' Δ: 30° 00' 00.68" C: 2.59'
L13	12+57.73	13+10.19	N:1934597.269 E:1561742.210	N:1934619.718 E:1561741.129	
C13	13+10.19	13+12.81	N:1934619.718 E:1561741.129	N:1934622.203 E:1561740.408	L: 2.62' T: 1.34' R: 5.0' Δ: 29° 59' 59.32" C: 2.59'
L14	13+12.81	13+37.07	N:1934622.203 E:1561740.408	N:1934642.961 E:1561727.847	
C14	13+37.07	13+63.25	N:1934642.961 E:1561727.847	N:1934667.818 E:1561720.634	L: 26.18 T: 13.40' R: 50.0' Δ: 29° 59' 59.16" C: 1.70'
L15	13+63.25	18+09.23	N:1934667.818 E:1561720.634	N:1935113.707 E:1561711.447	

EQUATION: 10+00.00, 0.00'LT (LT Sidewalk CL) = 53+70.81, 51.22' LT (Centennial CL)

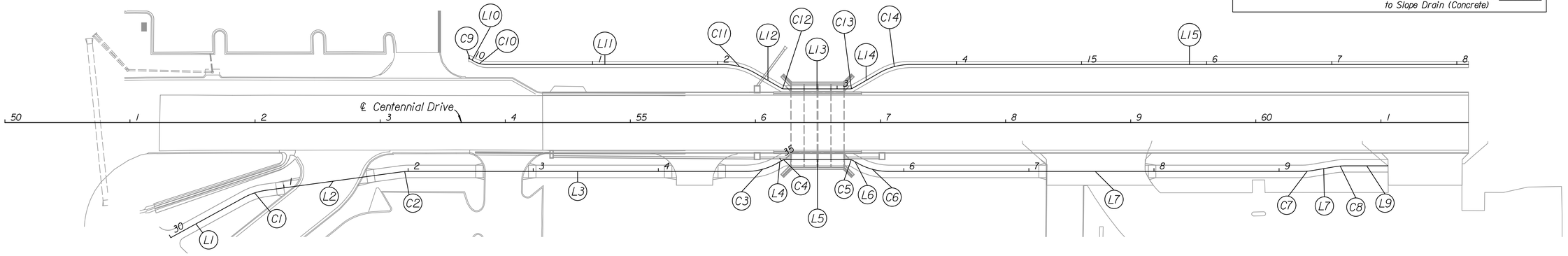
SLOPE DRAIN ALIGNMENT CONTROL



FLUME TYPICAL



Welded Wire Reinforcement Subsidiary to Slope Drain (Concrete)



CL- RIGHT SIDEWALK (ALIGNMENT CONTROL)					
NUMBER	BEGIN STATION	END STATION	BEGIN COORDINATES	END COORDINATES	CURVE INFO
L1	30+00.00	30+66.88	N:1934079.441 E:1561871.251	N:1934137.418 E:1561837.900	
C1	30+66.88	30+85.19	N:1934137.418 E:1561837.900	N:1934154.586 E:1561831.848	L: 18.31' T: 9.26' R: 50.0' Δ: 20° 58' 38.83" C: 18.20'
L2	30+85.19	31+93.88	N:1934154.586 E:1561831.848	N:1934261.961 E:1561814.972	
C2	31+93.88	32+00.65	N:1934261.961 E:1561814.972	N:1934268.694 E:1561814.377	L: 6.76' T: 3.39' R: 50.0' Δ: 7° 45' 04.48" C: 6.76'
L3	32+00.65	34+70.32	N:1934268.694 E:1561814.377	N:1934538.310 E:1561808.821	
C3	34+70.32	34+96.50	N:1934538.310 E:1561808.821	N: 1934563.167 E: 1561801.601	L: 26.18' T: 13.40' R: 50.0' Δ: 29° 59' 59.12" C: 25.88'

CL- RIGHT SIDEWALK (ALIGNMENT CONTROL)					
NUMBER	BEGIN STATION	END STATION	BEGIN COORDINATES	END COORDINATES	CURVE INFO
L4	34+96.50	35+00.77	N: 1934563.167 E: 1561801.601	N:1934566.815 E:1561799.401	
C4	35+00.77	35+03.38	N:1934566.815 E:1561799.401	N:1934569.300 E:1561798.680	L: 2.62' T: 1.34' R: 5.0' Δ: 30° 00' 00.06" C: 2.59'
L5	35+03.38	35+54.79	N:1934569.300 E:1561798.680	N:1934620.693 E:1561797.621	
C5	35+54.79	35+57.41	N:1934620.693 E:1561797.621	N:1934623.207 E:1561798.240	L: 2.62' T: 1.34' R: 5.0' Δ: 29° 59' 59.94" C: 2.59'
L6	35+57.41	35+61.67	N:1934623.207 E:1561798.240	N:1934626.942 E:1561800.294	
C6	35+61.67	35+87.85	N:1934626.942 E:1561800.294	N:1934652.074 E:1561806.477	L: 26.18' T: 13.40' R: 50.0' Δ: 30° 00' 00.75" C: 25.88'

CL- RIGHT SIDEWALK (ALIGNMENT CONTROL)					
NUMBER	BEGIN STATION	END STATION	BEGIN COORDINATES	END COORDINATES	CURVE INFO
L7	35+87.85	39+18.26	N:1934652.074 E:1561806.477	N:1934982.420 E:1561799.670	
C7	39+18.29	39+26.73	N:1934982.420 E:1561799.670	N:1934990.827 E:1561798.782	L: 8.46' T: 4.24' R: 50.0' Δ: 9° 41' 56.14" C: 8.45'
L8	39+26.73	39+44.96	N:1934990.827 E:1561798.782	N:1935008.727 E:1561795.342	
C8	39+44.96	39+53.42	N:1935008.727 E:1561795.342	N:1935017.134 E:1561794.454	L: 8.46' T: 4.24' R: 50.0' Δ: 9° 41' 56.03" C: 8.45'
L9	39+53.42	39+87.43	N:1935017.134 E:1561794.454	N:1935051.134 E:1561793.753	

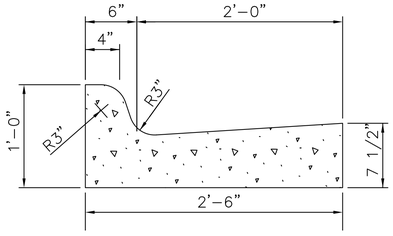
EQUATION: 30+00.00, 0.00'RT (RT Sidewalk CL) = 51+32.61, 91.96' RT (Centennial CL)

CITY OF McPHERSON

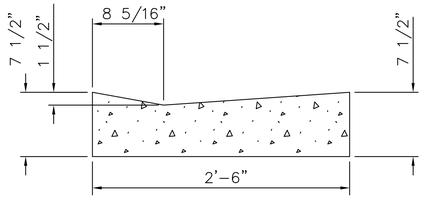
SIDEWALK & FLUME
PROJECT CONTROL

Drawn By : bmcdiffett
File : General Notes.dgn
Plotted : 19-JAN-2016 10:41

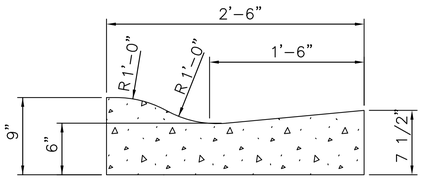
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	10	62



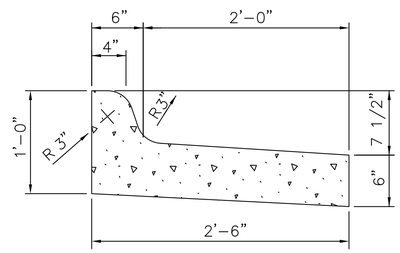
Standard Curb & Gutter



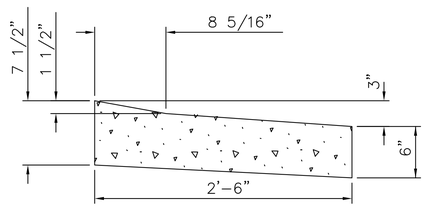
Entrance/ADA Curb



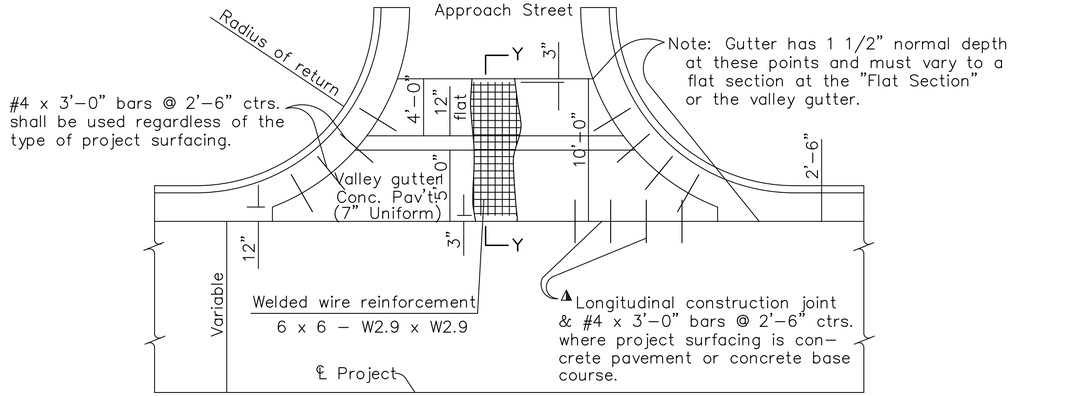
Laydown Curb Detail
(Rolled Curb)



Standard Curb & Gutter



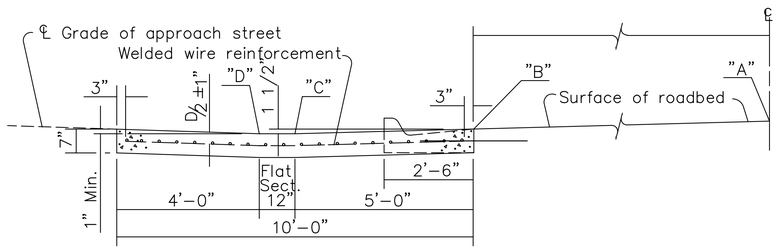
Entrance Spill Curb



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

PLAN

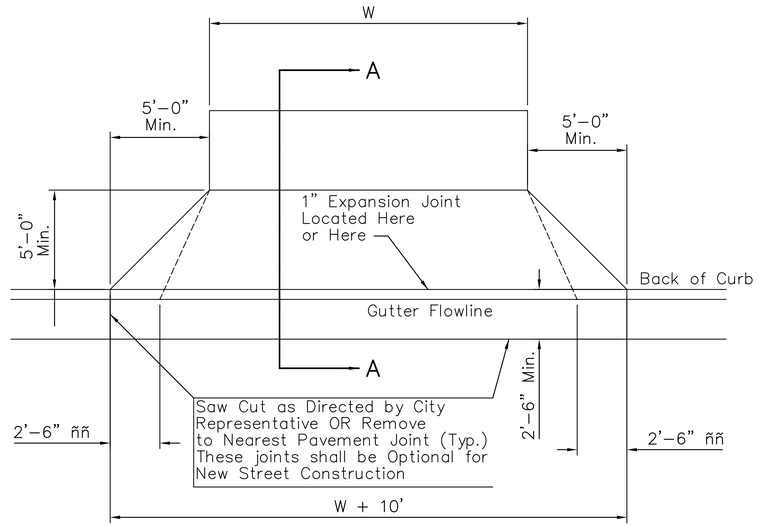
NOTE: Valley gutter concrete pavement shall be of 7" uniform thickness, with welded wire reinforcement. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft. .
Where valley gutter, alley, and/or entrance pavement is the only pavement on the project, Concrete Grade 3.0 (AE) may be used.



SECTION Y–Y

VALLEY GUTTER SUMMARY							
Street	Station	Side	Elev. Pt. "A"	Elev. on ℄ of Approach Str. Pt."B"	Elev. on ℄ of Approach Str. "C"&"D"	Appr. Str. Grade	Sq. Yds. Conc. Pvmt. (7" Uniform)

VALLEY GUTTER

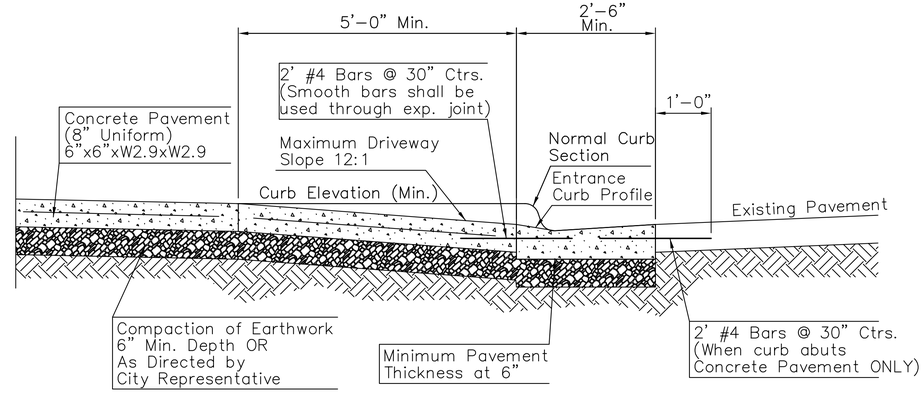


ññ Denotes Curb Transition from Normal Cross Section to Entrance Curb & Gutter Section

NOTE: Where entrance construction abuts concrete pavement, #4 dowel bars shall be installed at a minimum spacing of 30". Where entrance abuts asphalt pavement existing surface shall be saw cut to a neat line as close to the toe of curb line as possible. Street pavement disturbed during construction shall be replaced at the OWNER's expense.

Concrete shall be "6–sack City Mix" or as approved by the Director of Public Works.

TYPICAL DRIVEWAY



SECTION A–A

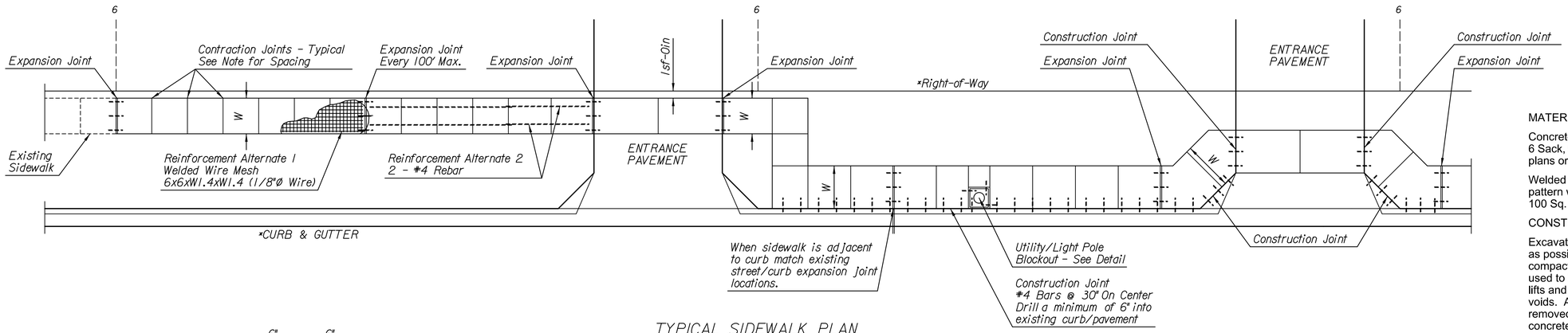
NOTE: Where combined curb and gutter or gutter does not abut concrete pavement or concrete base course, omit tie bars and place a 1" Preformed Expansion Joint Filler (Type B) cut to the dimensions of the combined curb and gutter or gutter, at a spacing not to exceed 250' and at the ends of curb returns. Planes of weakness shall be constructed at 10'–0" intervals.

CITY OF McPHERSON

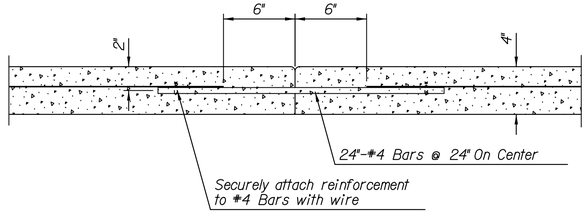
CONCRETE PAVING DETAILS

Drawn By : bmcdiffett Plotted : 19-JAN-2016 10:41
File : Concrete Paving Detail.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	11	62

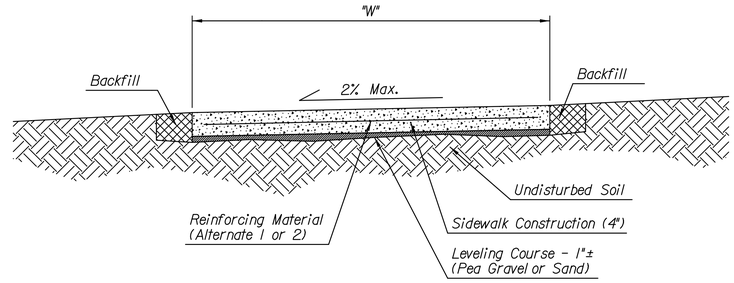


TYPICAL SIDEWALK PLAN



CONSTRUCTION JOINT

Construction Joints shall be constructed at locations shown on the plan or as directed by the Engineer. Construction joints transfer movement between adjacent sections of concrete and prevent the concrete surfaces from shifting.



TYPICAL SECTION

Sidewalk width "W" shall match the existing sidewalk width for all maintenance work. For New Construction, minimum sidewalk width "W" shall be 5'-0" for sidewalk adjacent to the right-of-way and 6'-0" for sidewalk adjacent to the curb or street.

Sidewalks constructed shall conform to the latest edition of the Americans with Disabilities Act Accessibility Guidelines, ADAAG, as required by the Department of Justice.

Any features adjacent to the planned construction that are not compliant with the ADAAG guidelines MUST be brought into compliance unless the cost of the additional construction is more than 20% of the TOTAL cost of the project.

GENERAL NOTES

MATERIALS

Concrete used for sidewalk construction shall be "City Paving Mix", 6 Sack, 900#-1" Rock (FA)(AE) unless otherwise specified on the plans or by the Engineer.

Welded wire reinforcement, if used, shall have a six inch (6") square pattern with 1/8" diameter wire or greater (6"x6"xW.4xW1.4, 14# per 100 Sq. Ft.).

CONSTRUCTION

Excavation should be made as close to the desired lines and grades as possible so that concrete may be placed on undisturbed and compacted soil. Filler materials such as pea gravel or sand may be used to fill voids or low areas. Filler materials should be placed in lifts and compacted using vibratory equipment to remove any voids. All deleterious materials (roots, trash, etc.) should be removed from the base prior to placement of filler material or concrete.

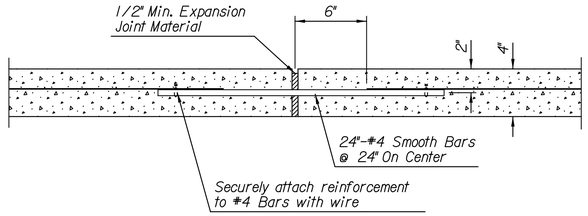
Cold Weather - When the minimum temperature is less than 40°F, the subgrade should be covered with blankets to prevent it from freezing prior to concrete placement. Concrete shall be covered with blankets as soon as possible after finishing for a minimum of 72 hours (3 days).

Forms shall be of a depth approximately equal to the thickness of the sidewalk and shall be staked and braced as required to prevent movement during or after concrete placement.

Concrete shall be placed in a single course. The composition and consistency shall be uniform and well mixed. The slump shall not exceed four inches (4"). Concrete shall be consolidated by mechanical means to remove voids from the pavement. The surface shall be finished with a float and then broomed perependicular to the sidewalk to produce a granular non-slip surface. The edges and expansion joints shall be edged with an edging tool.

Sidewalks shall be cured immediately after finishing by liquid membrane, concrete blankets or plastic sheeting, or burlap to prevent shrinkage cracks that occur as a result of heat and wind. Liquid membrane shall be of a type suitable for curing of concrete and shall be applied at the rate of 1 gallon per 100 square feet. Concrete Blankets or plastic sheeting should be placed over the concrete immediately after finishing for a minimum of 24 hours to protect the surface from wind, sun or rain. Burlap should be placed over the concrete when surface has hardened sufficiently that the weight of the burlap will not scar the concrete surface. Wet burlap sufficiently to prevent moisture loss from the concrete during curing.

Any disturbed area adjacent to the newly constructed sidewalk shall be backfilled with earthen material suitable for establishing vegetation, and free of any trash, debris or rubble from demolition. Seeding, unless specifically called for in the plans or by the Engineer, shall be the responsibility of the adjacent land owner.

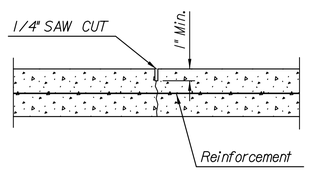


EXPANSION JOINT

Expansion Joints shall be constructed at locations shown on the plan or as directed by the Engineer. Expansion joints isolate movement between adjacent sections of concrete as the concrete expands with increases in temparature.

Expansion joint material may be foam, cedar or redwood board, cut to match the thickness of the finished concrete.

Reinforcing steel, or wire mesh should be cut 6" from the expansion joint to completely isolate the joint. Caps and grease are not required for sidewalk expansion joints.



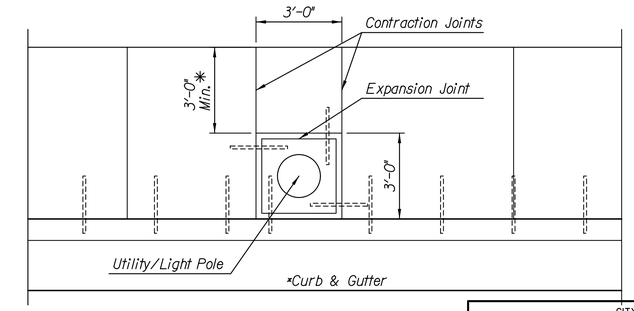
CONTRACTION JOINT

Contraction joints shall be placed in the sidewalk at intervals equal to the width of the sidewalk up to a maximum spacing of seven feet (7'). For example, with a four foot wide sidewalk, joints should be spaced on average every 4 feet.

Contraction joints may be formed in the concrete with a center edger of sufficient depth. Saw cutting may still be required if tooled joints "close up" as the concrete hardens.

Saw cut joints should be made as soon as the concrete is hard enough to prevent spalling and before shrinkage occurs. Typically saw cut joints should be made the same day as the concrete is placed unless otherwise directed by the Engineer.

All reinforcing materials should extend through the contraction joint.



3'-0" Min.* is required for ADA access.

UTILITY/LIGHT POLE BLOCKOUT DETAIL

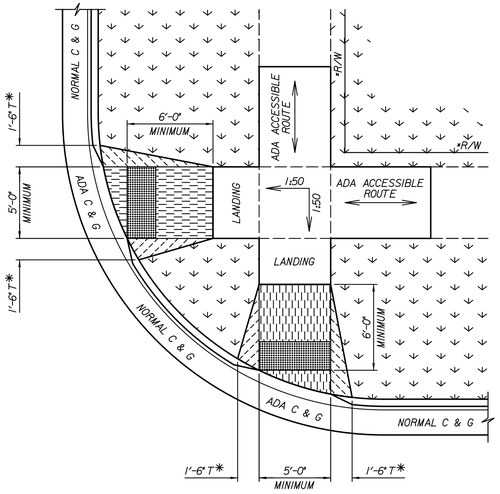
CITY OF McPHERSON

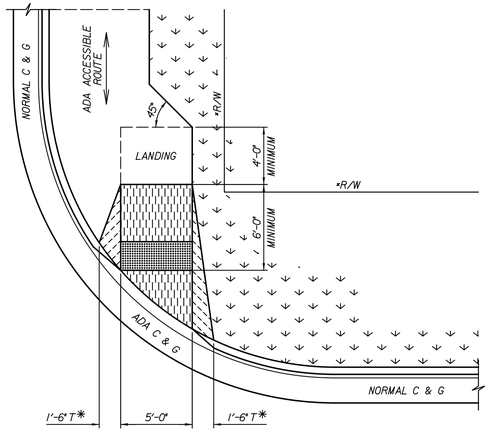
SIDEWALK DETAILS

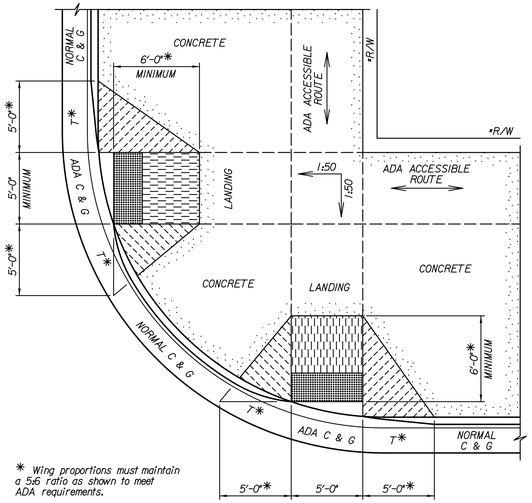
Drawn By : bmcdiffett
File : Sidewalk Details.dgn
Plotted : 19-JAN-2016 10:41

Sh. No. 11

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	12	62

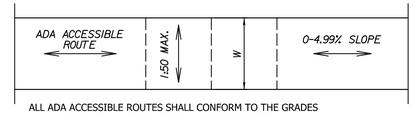






* Wing proportions must maintain a 5:6 ratio as shown to meet ADA requirements.

ADA ACCESSIBLE ROUTES



ALL ADA ACCESSIBLE ROUTES SHALL CONFORM TO THE GRADES SHOWN ON THIS SHEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

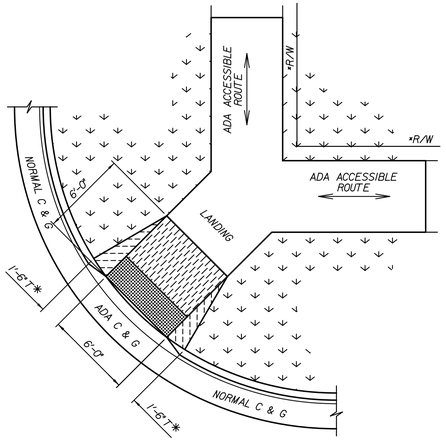
FOR SIDEWALK REPAIR AND MAINTENANCE, MATCH THE EXISTING SIDEWALK WIDTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

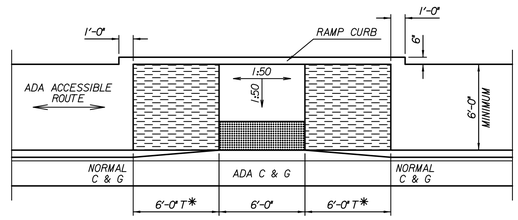
FOR NEW CONSTRUCTION, THE MINIMUM WIDTH "W" FOR AN ADA ACCESSIBLE ROUTE SHALL BE 6'-0" WHEN ADJACENT TO THE CURB AND 5'-0" IN ALL OTHER LOCATIONS.

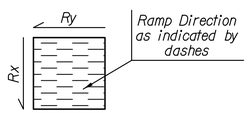
THE WIDTH OF RAMPS AND TRUNCATED DOME STRIPS SHALL MATCH THE WIDTH OF THE ADA ACCESSIBLE ROUTE IT SERVES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

CURB & GUTTER

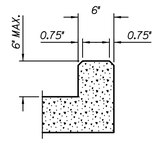
NORMAL C & G	SHALL BE THE TYPICAL CURB & GUTTER SPECIFIED ON THE PLANS AND TYPICAL SECTIONS FOR THIS PROJECT.
*T**	DENOTES THE TRANSITION FROM THE NORMAL CURB & GUTTER SECTION TO THE ADA CURB & GUTTER SECTION.
ADA C & G	SHALL BE SIMILIAR TO THE ENTRANCE CURB & GUTTER PROFILE. SPECIAL CARE SHALL BE TAKEN TO ENSURE THAT THE SURFACE DOES NOT HOLD WATER OR HAVE ANY VERTICAL SURFACES WHICH MIGHT IMPEDE TRAVEL OF A WHEELCHAIR OR CREATE A TRIPPING HAZARD.



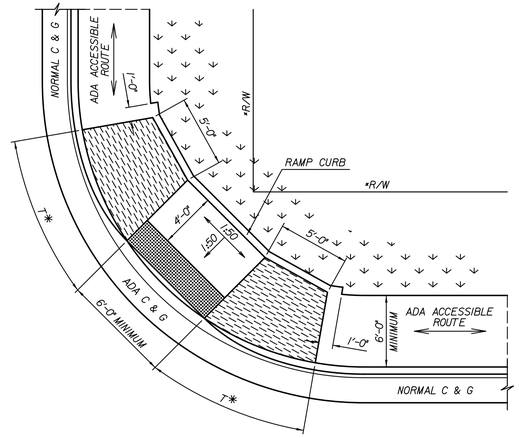




Rx Slope across ramp width
Min: 1:100 (1%)
Max: 1:50 (2%)
Ry Slope down Ramp
Max: 1:12 (8.33%)



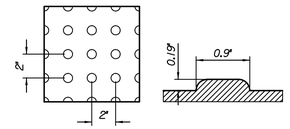
TYPE III RAMP - CURB DETAIL



DETECTABLE WARNINGS - TRUNCATED DOMES

THE METHOD OF CONSTRUCTION OF THE DETECTABLE WARNING SECTION SHALL BE SUBMITTED TO THE ENGINEER IN WRITING AND APPROVED PRIOR TO CONSTRUCTION.

THE DETECTABLE WARNING SECTION SHALL BE 2 FEET LONG AND THE FULL WIDTH OF THE RAMP AS SHOWN.



THE DETECTABLE WARNING SECTION SHALL BE CONSTRUCTED AT 90° TO THE DIRECTION OF TRAVEL FOR THE ADA ACCESSIBLE ROUTE FOR ALL TYPE I ADA RAMPS.

GENERAL NOTES

Concrete used shall be "City Mix 6 Sack"throughout. Welded wire reInforcement (W1.4xW1.4x6x6) shall be required in all sidewalks. Wire shall be installed using wire supports, chairs or during concrete placement to ensure placement at the approximate center of the sidewalk thickness.

The lowest type of ramp should be used for construction. Type II or III ramps should only be used when specifically called for on the plans or directed by the ENGINEER.

Handicap ramps shall be constructed to a minimum thickness of six inches (6"). Handicap ramps shall be measured and paid under the bid Item "Sidewalk Construction" as provided in the contract documents. If the handicap ramp is placed continuously with sidewalk of a different thickness, the quantity of "Sidewalk Construction"shall be measured to the dimensions shown on this sheet for the type of ramp constructed.

The quantity of "Sidewalk Construction"shall be measured by the square yard of completed work of the specified thickness.

Smooth bars shall be used through all expansion joints. Handicap ramps should be tied to the curb and gutter with #4 bars on 24"centers drilled a minimum of 6"into the curb and gutter.

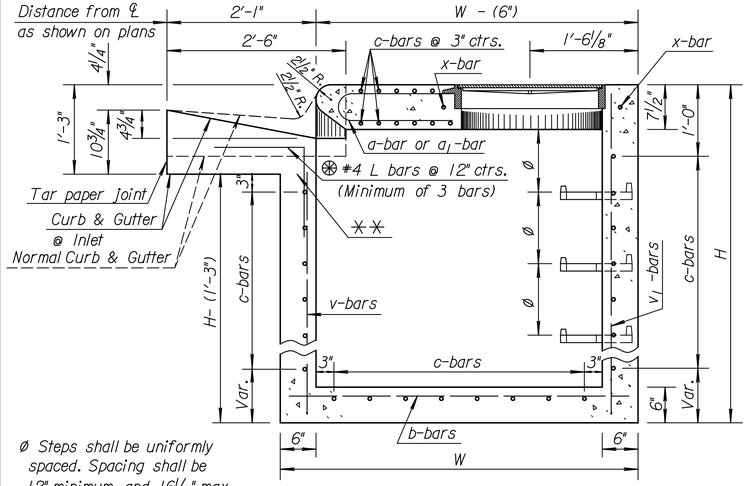
All dimensions shown are minimum unless otherwise noted. Final dimensions for construction may be expanded by the CONTRACTOR or as directed by the ENGINEER to meet ADAAG requirements.

CITY OF McPHERSON

ADA RAMP DETAILS

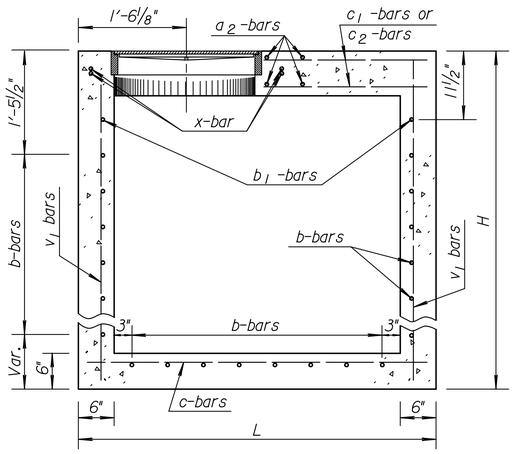
Drawn By : bmcdiffett
File : Ramp Details.dgn
Plotted : 19-JAN-2016 10:41

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	13	62

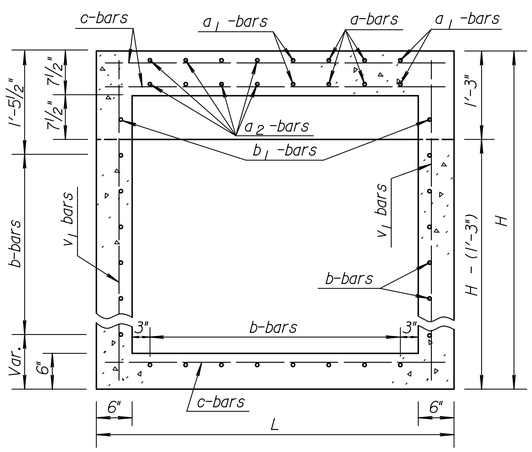


Ø Steps shall be uniformly spaced. Spacing shall be 12" minimum and 16 1/2" max.

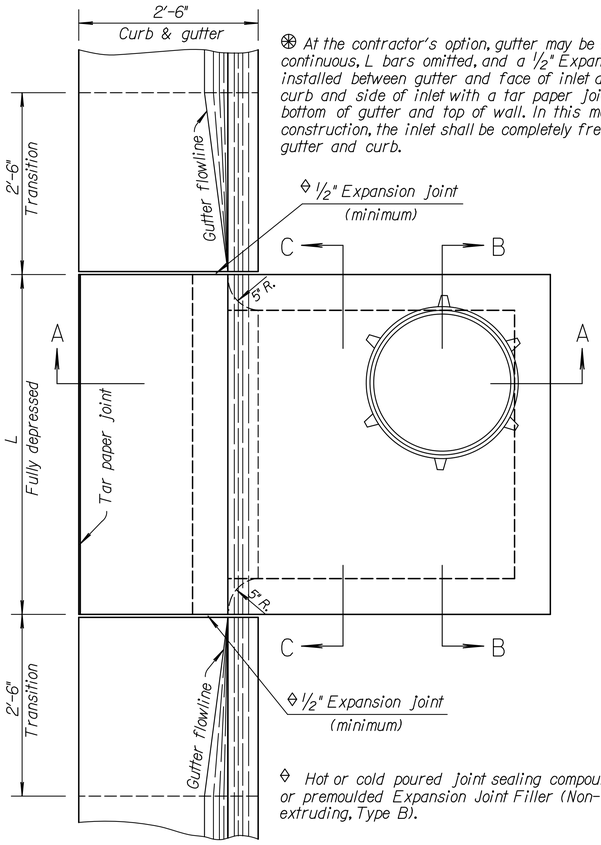
SECTION A-A



SECTION B-B

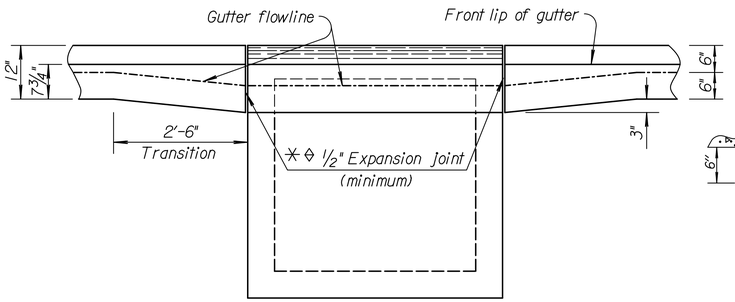


SECTION C-C

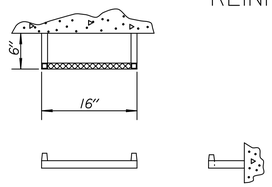


⊛ At the contractor's option, gutter may be constructed continuous, L bars omitted, and a ½" Expansion Joint installed between gutter and face of inlet and between curb and side of inlet with a tar paper joint between bottom of gutter and top of wall. In this method of construction, the inlet shall be completely free of the gutter and curb.

PLAN

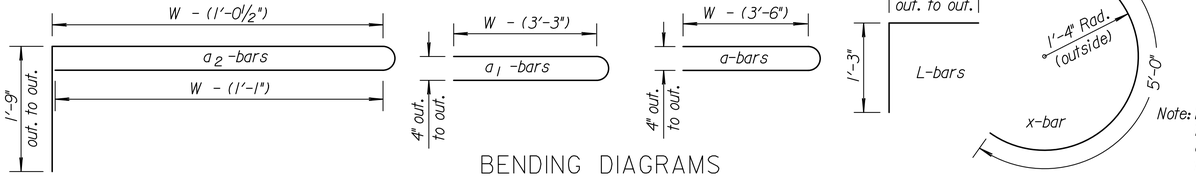


ELEVATION



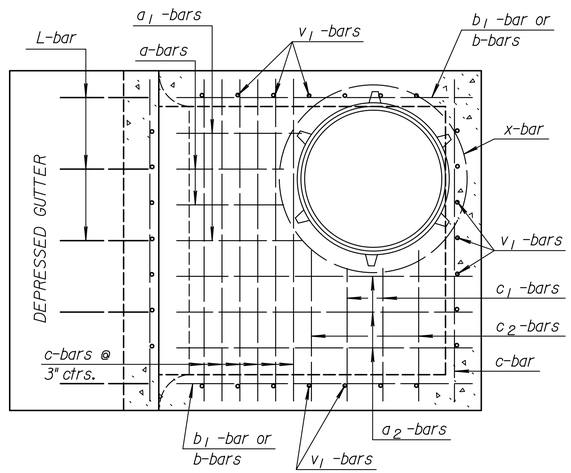
STEP DETAILS

Note: Transition gutter from normal depth of 6" to 9" at inlet in 2'-6". Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work will be subsidiary to other bid items.



BENDING DIAGRAMS

Note: Reinforcing steel for L bars is not included in the steel quantity and is subsidiary to the other inlet items.



REINFORCING STEEL TOP VIEW

GENERAL NOTES

Use Concrete Grade 3.0 throughout. All exposed edges shall be finished with an edging tool.

At the contractors option Concrete Grade 3.0 (AE) or mix used in concrete pavement may be used throughout.

In general, pipes will enter and leave manhole at various positions. Where possible bend bars around pipes.

Floor of manhole to be shaped as shown in various "EXAMPLES" with unreinforced Concrete Grade 3.0.

Manhole opening and steps, where used, shall be placed to afford easy access to top of shaped invert. Top reinforcing bars to be adjusted accordingly.

All castings shall be gray iron and shall comply with the KDOT Standard Specifications.

When so ordered by the Engineer, the top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions.

Dimensions and weights of cast iron as shown on this sheet are minimum. Larger dimensions and/or heavier weights of cast iron may be used.

Steps shall be installed in all storm sewer inlets when specified in the plans or when "H" is equal to or greater than six feet. Steps shall comply with the KDOT Standard Specification.

No reduction in concrete quantities shall be made for pipe openings.

When directed by the Engineer, a small opening in the back of the inlet shall be provided in order to drain a low area. Reinforcing bars shall extend through the opening. No reduction in concrete quantities will be made for this opening.

No addition in concrete quantities shall be made for shaping floor of inlet.

No reduction in pay length of curb, gutter, or curb & gutter will be made through the inlet area.

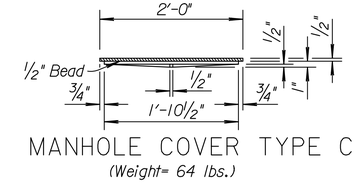
The weight of castings includes no allowance for fillets and overruns.

Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work shall be subsidiary to other bid items.

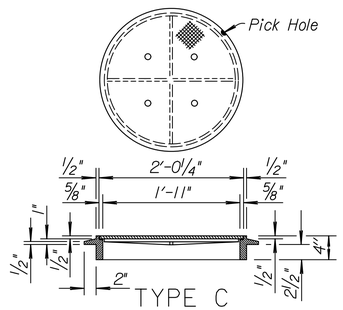
See sheet entitled "Reinforcing Steel for Inlets and Manholes" for details and quantities.

For additional notes and details on Light Type Cast Iron Manhole Cover and Ring Type C and Cast Iron Steps, see Standard Drawing RD633 "Reinforced Concrete Manhole".

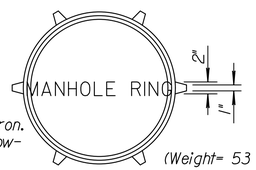
All reinforcing steel shall be #4 at 6" centers except where noted. Minimum clear distance to reinforcement shall be 1 1/2".



MANHOLE COVER TYPE C
(Weight= 64 lbs.)



TYPE C



NOTE: All manhole castings are cast iron. Weight of castings includes no allowance for fillets and overruns. (Weight= 53 lbs.)

*LIGHT TYPE MANHOLE COVER & RING

*Rings with four equally spaced lugs will be permitted.

NO.	DATE	REVISIONS	BY	APP'D
6	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
5	12-11-97	Revised step spacing	R.J.S.	J.O.B.
4	3-20-96	Added reinforcement note	R.J.S.	J.O.B.
3	12-8-94	Added misc. notes	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22 CURB INLET

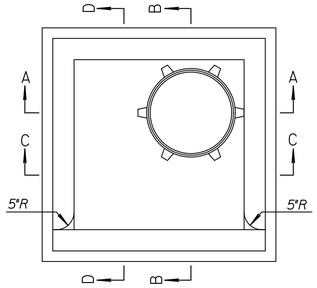
RD646

FHWA APPROVAL	06-10-05	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Seitz

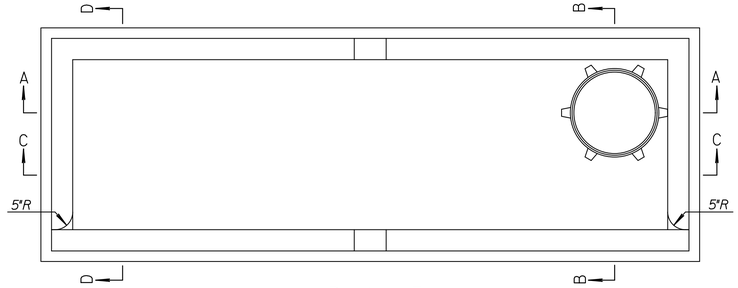
Sh. No. 13

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : rd646.dgn

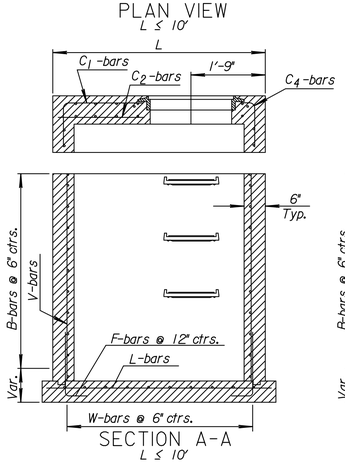
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	14	62



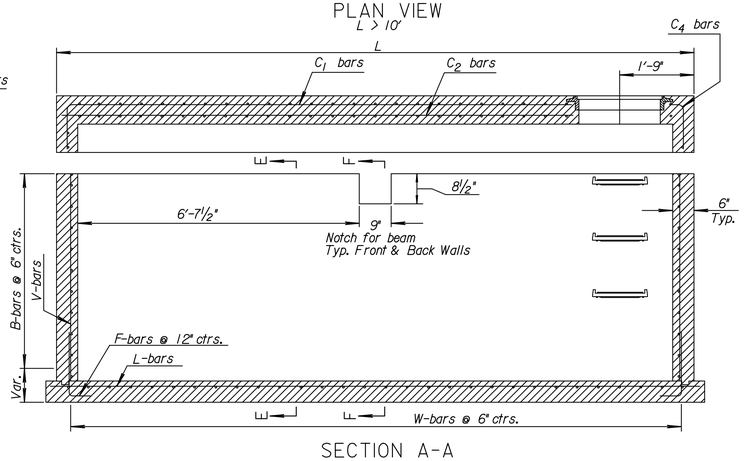
PLAN VIEW
$L \leq 10'$



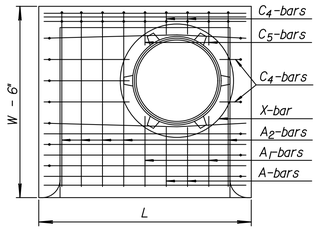
PLAN VIEW
$L > 10'$



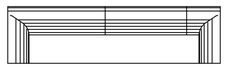
SECTION A-A
$L \leq 10'$

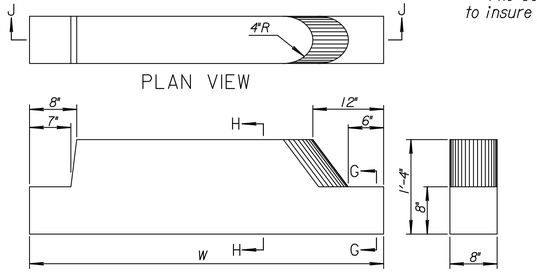


SECTION A-A
$L > 10'$



INLET TOP REINFORCING

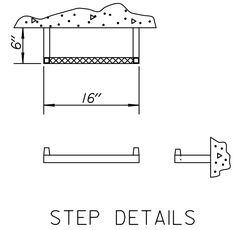

INLET TOP FRONT ELEVATION



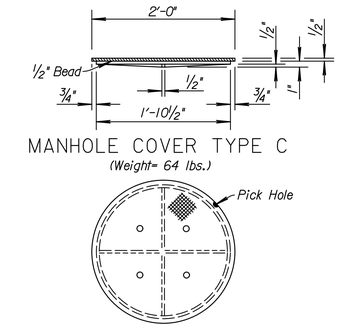
PLAN VIEW

ELEVATION

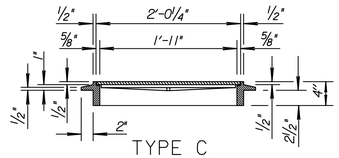
END VIEW



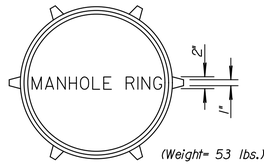
STEP DETAILS



MANHOLE COVER TYPE C
(Weight= 64 lbs.)



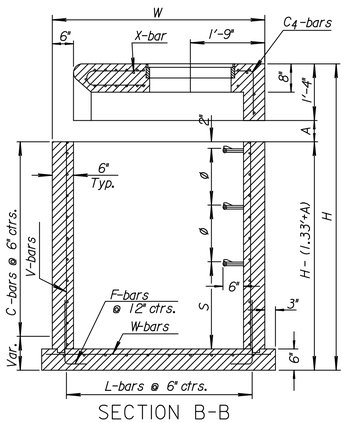
TYPE C



(Weight= 53 lbs.)

∗ LIGHT TYPE
MANHOLE COVER & RING

∗ *Rings with four equally spaced lugs will be permitted.*



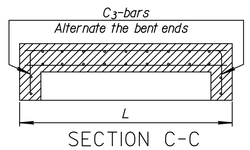
SECTION B-B

Ø *Steps shall be uniformly spaced. Spacing shall be 12" minimum and 16½" maximum.*

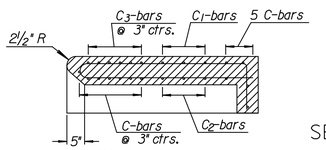
NOTES

"A" Adjustment space, 6" maximum. (Contractor's option, 1" to 6") Allows top to be adjusted to finished curb height, or slope top as may be required.

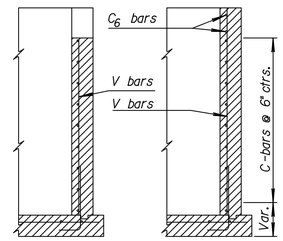
"S" maximum = 2'-3" + ½ x ID of outlet pipe.



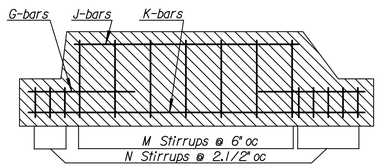
SECTION C-C



SECTION D-D



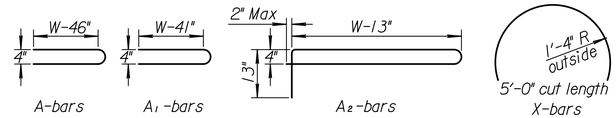
SECTION F-F SECTION E-E

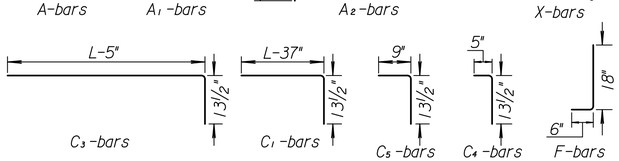


SECTION J-J

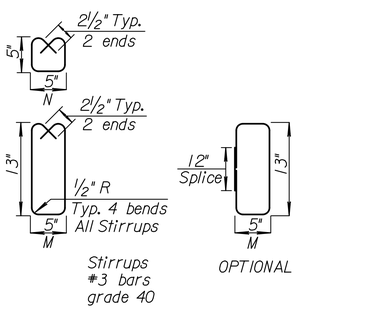

SECTION H-H SECTION G-G

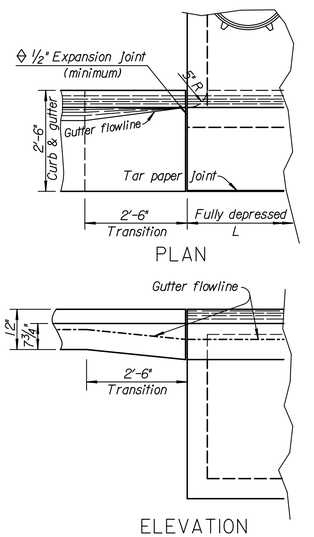
CENTER BEAM DETAILS





BENDING DIAGRAMS





PLAN

ELEVATION

DETAILS OF GUTTER TRANSITION

NO.	DATE	REVISIONS	BY	APP'D
3	1-28-05	Changed Class to Grade concrete	R.J.S.	J.O.B.
2	11-12-98	Added concrete strength	R.J.S.	J.O.B.
1	12-16-97	Revised step spacing	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22 PRECAST INLETS

RD649

FHWA APPROVAL	06-10-05	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Remboldt
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Seitz

GENERAL NOTES

Use Concrete Grade 3.0 ($f'c \geq 3000$ psi) throughout. All exposed edges shall be finished with an edging tool.

Manhole opening and steps, where used shall be placed to afford easy access to top of shaped invert.

All castings shall be grey iron and shall comply with the KDOT Standard Specifications.

When so ordered by the Engineer, the top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions.

Dimensions and weights of cast iron as shown on this sheet are minimum. Larger dimensions and/or heavier weights of cast iron may be used. The weight of castings includes no allowance for fillets and overruns.

Steps shall be installed in all storm sewer inlets when specified in the plans when "H" is equal to or greater than six feet. Steps shall comply with the KDOT Standard Specification.

No reduction in pay length of curb, gutter, or curb & gutter will be made through the inlet area. Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work shall be subsidiary to other bid items.

For additional notes and details on Light Type Cast Iron Manhole Cover and Ring Type C and Cast Iron Steps, see Standard Drawing RD633 "Reinforced Concrete Manhole".

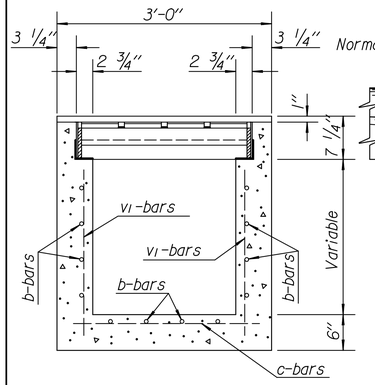
All reinforcing steel shall be #4 at 6" centers except where noted. Minimum clear distance to reinforcement shall be 1½".

Floor of inlet shall be shaped as shown in various "Examples" on Reinforced Concrete Manhole Standard Drawing RD633. Concrete used for shaping shall be unreinforced Concrete Grade 3.0 or concrete pavement mix.

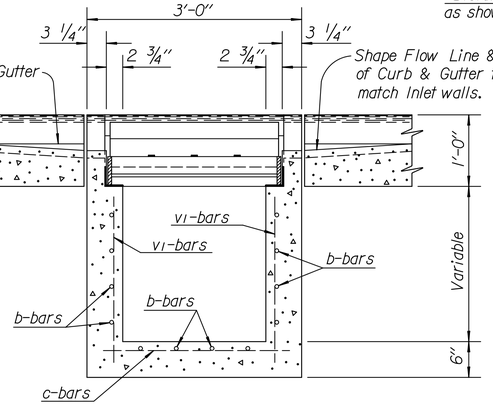
The Contractor shall determine pipe locations in the field prior to ordering Type 22 Precast Inlets, to insure proper positioning of pipe openings.

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : rd649.dgn

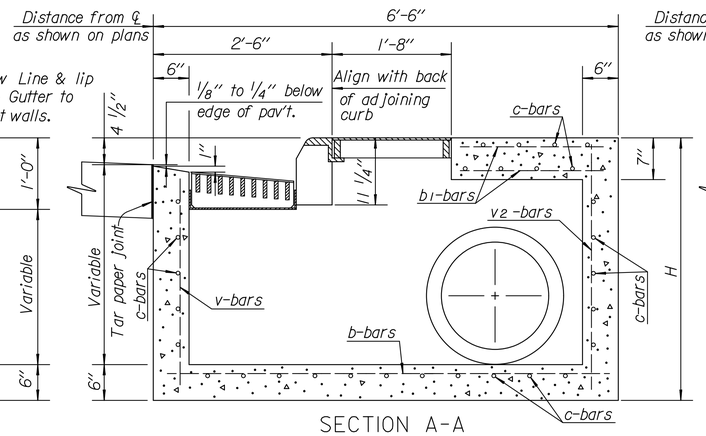
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	15	62



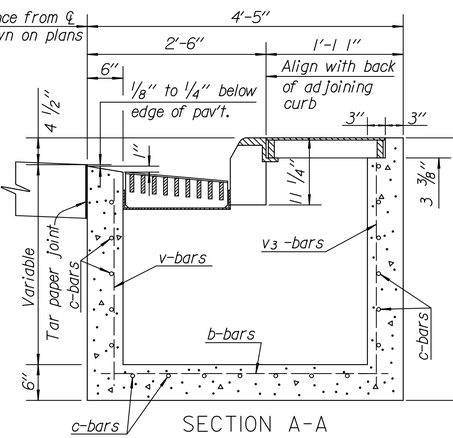
SECTION D-D



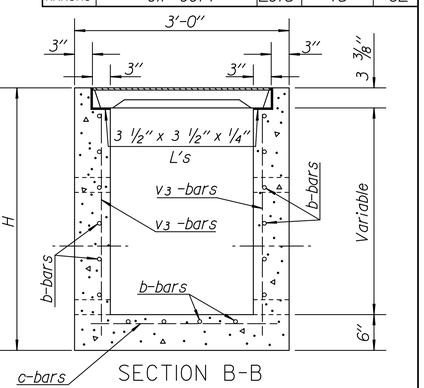
SECTION C-C



SECTION A-A
TYPE B COMBINED INLET MANHOLE



SECTION A-A
TYPE B INLET

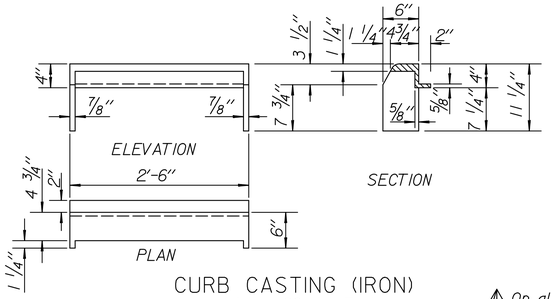


SECTION B-B

‡ Hot or cold poured joint sealing compound, or premolded expansion joint filler (nonextruding, Type B).

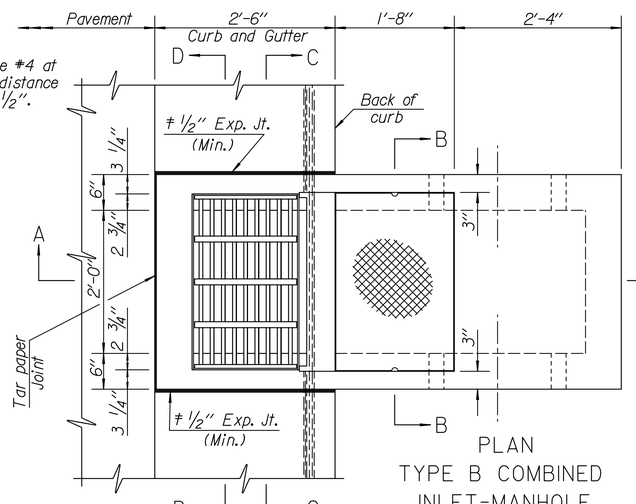
✱✱ At the contractors option, the supports on the cover plate may be made with the feet portions welded to the 1 5/8" steel bars. The weld shall be 1/8" fillet full length, each side and ground smooth on the outside.

Note: To prevent grate from rocking on bearing angles, machine finish surfaces indicated thus: "f".

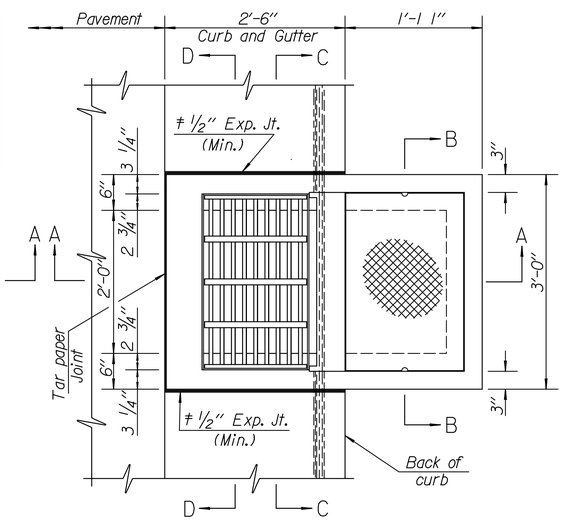


CURB CASTING (IRON)
Weight = 90 lbs. Each

Note: All reinforcing shall be #4 at 6" centers. Minimum clear distance to reinforcement shall be 1 1/2".

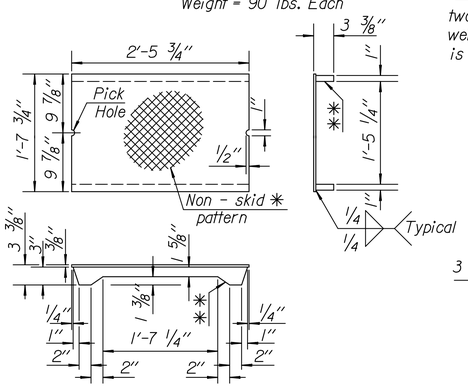


PLAN
TYPE B COMBINED INLET-MANHOLE

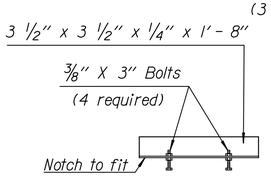


PLAN
TYPE B INLET

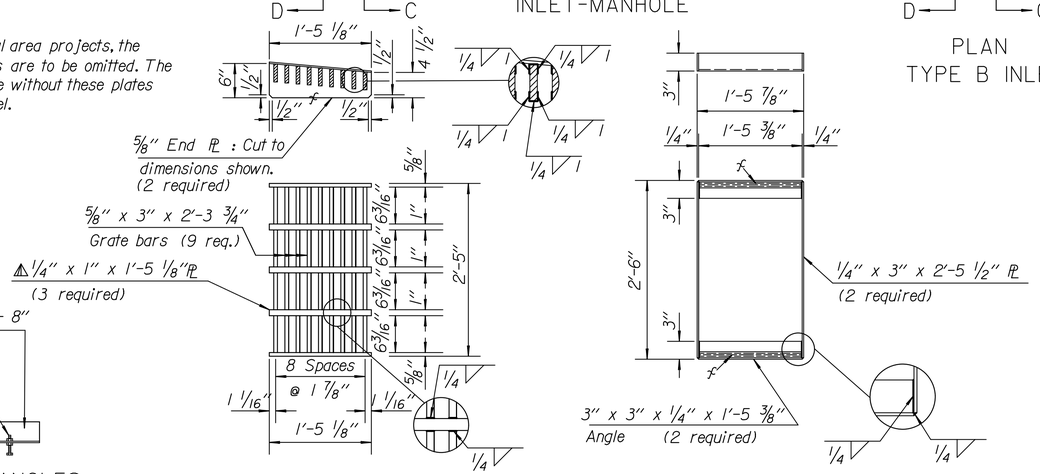
⚠ On all Interstate and rural area projects, the two 1/4" x 1" x 1'- 5 1/8" plates are to be omitted. The weight of the grate and frame without these plates is 192 lbs. of Structural Steel.



✱ STRUCTURAL STEEL COVER PLATE
Weight = 98 lbs. Each
✱ Non skid steel floor plate (commercial grade)



BEARING ANGLES
2 required (wt. = 20 lbs.)



STRUCTURAL STEEL GRATE AND FRAME
⚠ Weight = 195 lbs. Each (With Plates)

Notes:

Concrete Grade 3.0, Concrete Grade 3.0 (AE), or the mix used in Concrete Pavement, at the Contractor's option, shall be used throughout.

All exposed edges shall be finished with an edging tool.

Reinforcing bars shall be bent around pipe.

No reduction in concrete quantities shall be made for pipe openings.

When directed by the Engineer, a small opening in the back of the inlet shall be provided in order to drain a low area. Reinforcing bars shall extend through the opening. No reduction in concrete quantities will be made for this opening.

When directed by the Engineer, the top of the inlet shall be sloped slightly to approximately fit the ground line or other conditions.

The floor of the inlet shall be shaped as shown in various "EXAMPLES" on Reinforced Concrete Manhole Standard Drawing RD633.

No addition in concrete quantities shall be made for shaping floor of inlet.

No reduction in pay length of curb, gutter, or curb & gutter will be made through the inlet area.

All exposed structural steel shall be painted with a coat of inorganic zinc primer and then with a topcoat or a field coat of organic zinc, each coat to be 3 to 4 mils. As an alternate, all structural steel parts may be hot dip galvanized after fabrication in accordance with the Standard Specifications.

All structural steel shall comply with ASTM A-36, A-242, or A-441.

All castings shall be gray iron and shall comply with the KDOT Standard Specifications.

The weight of castings includes no allowance for fillets and overruns.

Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work shall be subsidiary to other bid items.

See sheet entitled "Reinforcing Steel for Inlets and Manholes" for details and quantities.

Minor variations in the shape of legs will be permitted but payment will be made on calculated weight.

Cast iron cover plate, constructed to the dimensions shown for structural steel cover plate, minimum weight 98 lbs. (approx.), will be allowed as an approved alternate.

All bolts and nuts shall be coated and meet requirements of the Standard Specifications. No allowance has been made for weights of anchor bolts.

NO.	DATE	REVISIONS	BY	APP'D
7	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
6	3- 3-99	Added hot dip galvanized option.	R.J.S.	J.O.B.
5	5-18-95	Delete ASTM on casting	R.J.S.	J.O.B.
4	12-27-93	Delete paint on cast iron	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE "B" CURB INLET and TYPE "B" COMB. INLET-MANHOLE

RD637

FHWA APPROVAL	06-10-05	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. W.L.H.

Plotted : 19-JAN-2016 10:41
Drawn By : bmcdiffett
File : rd637.dgn

CURB INLET
TYPE B Comb. Inlet Manhole
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	3.00	L_1	
W	6.50	W_1	
H	4.00	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	0	0.0000
A_1	#4	0	0.0000
A_2	#4	0	0.0000
A_3	#4	0	0.0000
A_4	#4	0	0.0000
B	#4	16	6.2500
B_1	#4	8	2.0833
C	#4	31	2.7500
C_1	#4	0	0.0000
C_2	#4	0	0.0000
V	#4	4	3.2917
V_1	#4	24	3.1458
V_2	#4	10	3.7500
V_3	#4	8	3.4688
U	#4	0	0.0000
X	#4	0	0.0000

INLET LOCATIONS

Station 54+37.00, 24.0' RT

CURB INLET
TYPE 22
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	5.00	L_1	
W	6.00	W_1	
H	3.50	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	5.4583
A_1	#4	2	5.9583
A_2	#4	4	12.0625
A_3	#4	0	0.0000
A_4	#4	0	0.0000
B	#4	14	5.7500
B_1	#4	2	5.2500
C	#4	38	4.7500
C_1	#4	4	2.5000
C_2	#4	4	2.2500
V	#4	8	2.0000
V_1	#4	28	3.2500
V_2	#4	0	0.0000
V_3	#4	0	0.0000
U	#4	0	0.0000
X	#4	2	5.0000

INLET LOCATIONS

Station 56+01.41, 24.0' LT

CURB INLET
TYPE 22
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	5.00	L_1	
W	6.00	W_1	
H	4.50	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	5.4583
A_1	#4	2	5.9583
A_2	#4	4	12.0625
A_3	#4	0	0.0000
A_4	#4	0	0.0000
B	#4	18	5.7500
B_1	#4	2	5.2500
C	#4	42	4.7500
C_1	#4	4	2.5000
C_2	#4	4	2.2500
V	#4	8	3.0000
V_1	#4	28	4.2500
V_2	#4	0	0.0000
V_3	#4	0	0.0000
U	#4	0	0.0000
X	#4	2	5.0000

INLET LOCATIONS

Station 56+01.41, 24.0' RT

CURB INLET
TYPE 22
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	5.00	L_1	
W	6.00	W_1	
H	3.50	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	5.4583
A_1	#4	2	5.9583
A_2	#4	4	12.0625
A_3	#4	0	0.0000
A_4	#4	0	0.0000
B	#4	14	5.7500
B_1	#4	2	5.2500
C	#4	38	4.7500
C_1	#4	4	2.5000
C_2	#4	4	2.2500
V	#4	8	2.0000
V_1	#4	28	3.2500
V_2	#4	0	0.0000
V_3	#4	0	0.0000
U	#4	0	0.0000
X	#4	2	5.0000

INLET LOCATIONS

Station 57+01.16, 24.0' RT

CURB INLET
TYPE ______
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4		
A_1	#4		
A_2	#4		
A_3	#4		
A_4	#4		
B	#4		
B_1	#4		
C	#4		
C_1	#4		
C_2	#4		
V	#4		
V_1	#4		
V_2	#4		
V_3	#4		
U	#4		
X	#4		

INLET LOCATIONS

CURB INLET
TYPE ______
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4		
A_1	#4		
A_2	#4		
A_3	#4		
A_4	#4		
B	#4		
B_1	#4		
C	#4		
C_1	#4		
C_2	#4		
V	#4		
V_1	#4		
V_2	#4		
V_3	#4		
U	#4		
X	#4		

INLET LOCATIONS

CURB INLET
TYPE ______
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4		
A_1	#4		
A_2	#4		
A_3	#4		
A_4	#4		
B	#4		
B_1	#4		
C	#4		
C_1	#4		
C_2	#4		
V	#4		
V_1	#4		
V_2	#4		
V_3	#4		
U	#4		
X	#4		

INLET LOCATIONS

CURB INLET
TYPE ______
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4		
A_1	#4		
A_2	#4		
A_3	#4		
A_4	#4		
B	#4		
B_1	#4		
C	#4		
C_1	#4		
C_2	#4		
V	#4		
V_1	#4		
V_2	#4		
V_3	#4		
U	#4		
X	#4		

INLET LOCATIONS

NO.	DATE	REVISIONS	BY	APP'D
4	4-2-92	Detailed on CADD, no change	R.J.S.	J.O.B.
3	5-29-80	Assigned standard number	W.L.H.	J.O.B.

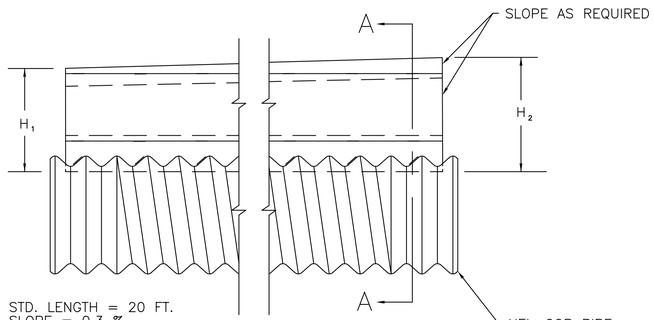
KANSAS DEPARTMENT OF TRANSPORTATION

REINFORCING STEEL FOR INLETS AND MANHOLES

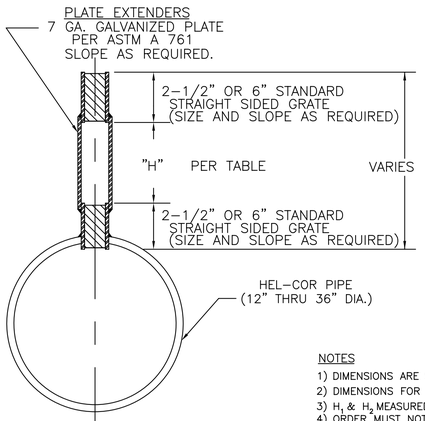
~~RD652~~

FHWA APPROVAL 04-18-92 | APP'D. James O. Brewer
DESIGNED | DETAILED | QUANTITIES | TRACED B.N.B.
DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. R.J.S.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	17	62



SIDE VIEW



SECTION A-A

PATENT # 5,380,121
PATENT # 5,564,857

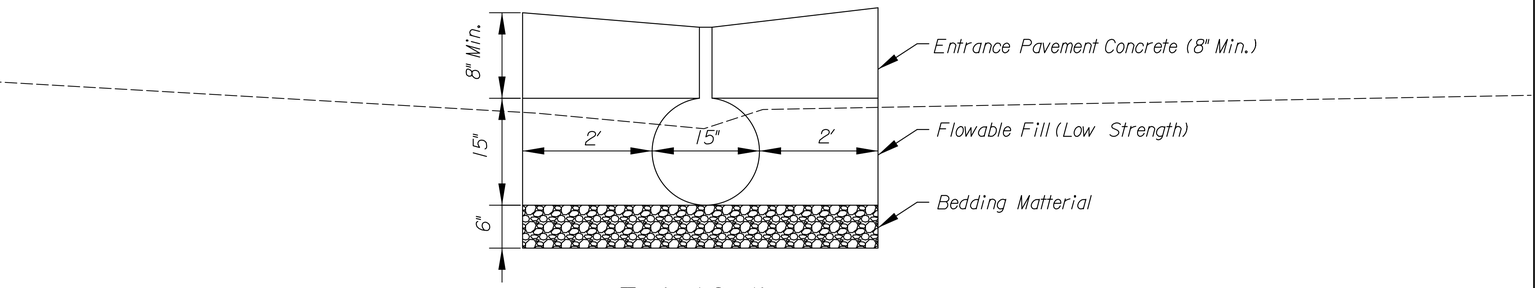
LOADING CONDITION	MAX. EXTENDER HEIGHT - "H"
≤ H10 * GRANULAR BACKFILL	8"
H20/H25 * 750 PSI CONCRETE	19"
AIRPORT ** 1000 PSI CONCRETE	12"

* 125 PSI TIRE PRESSURE
** 195 PSI TIRE PRESSURE

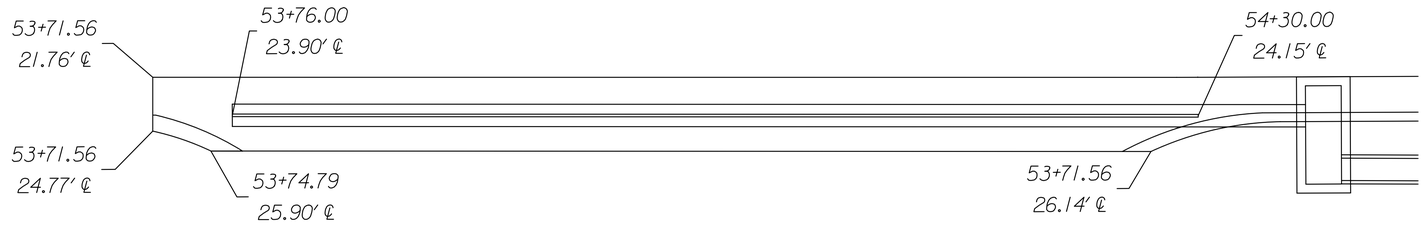
NOTES

1) DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
2) DIMENSIONS FOR H_1 AND H_2 AS REQUIRED.
3) H_1 & H_2 MEASURED FROM TOP OF GRATE TO BOTTOM OF GRATE.
4) ORDER MUST NOTE IF FOR AIRPORT LOADING FOR SPECIAL WELDING & REINFORCEMENT.
5) BANDING BETWEEN SECTIONS PER MANUFACTURER.

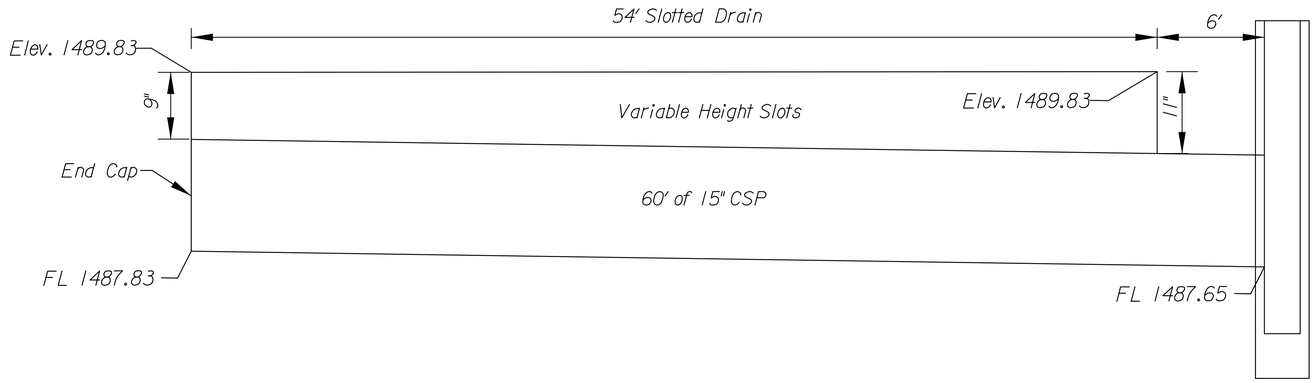
Slotted Drain Detail



Typical Section



Plan View



Profile View

Notes:

1. See Profile and Cross Sections for more detail
2. Aggregate for Bedding shall be KDOT UD-1 (Section 1107) or approved equivalent by the City. Bedding Material is Subsidiary to Slot Drain.

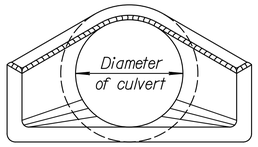
CITY OF McPHERSON

SLOTTED DRAIN
VARIABLE HEIGHT GRATE

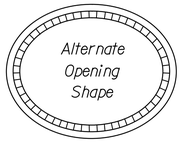
Sh.No. 17

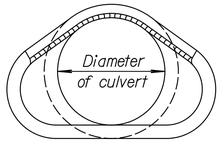
Drawn By : bmcdiffett Plotted : 19-JAN-2016 11:33
File : Slotted Drain Detail.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	18	62



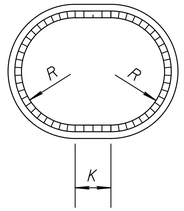
END ELEVATION (TYPE I)



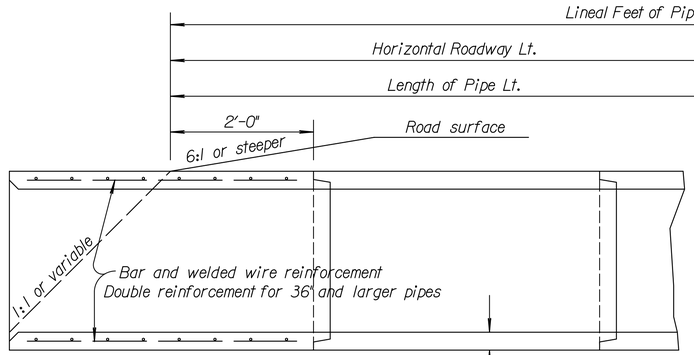


SECTION A-A

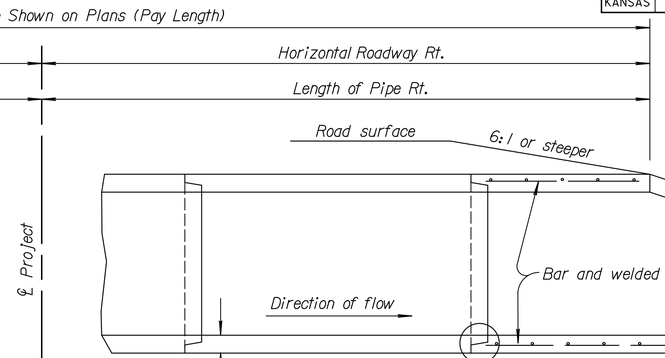
Showing rounding of inside edge of end section.



END ELEVATION (TYPE III)



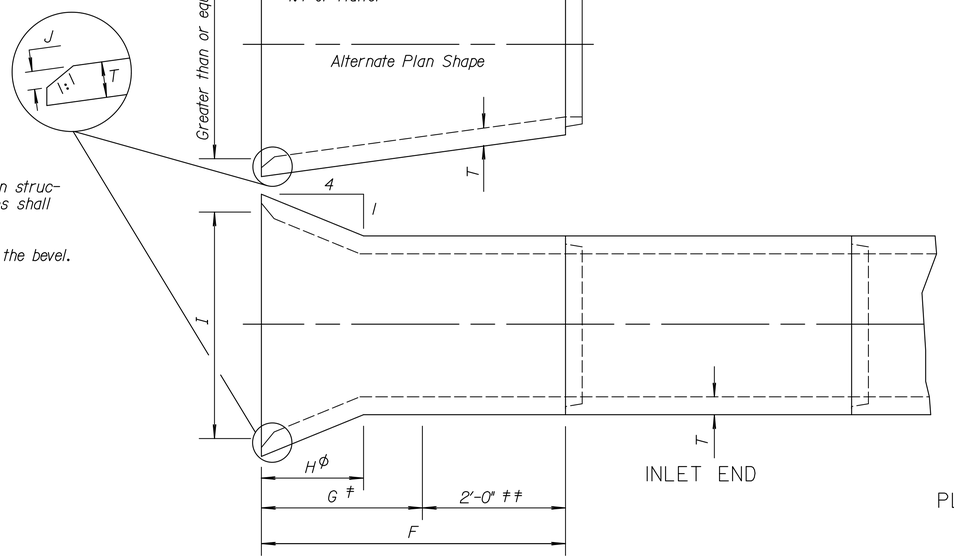
INLET END



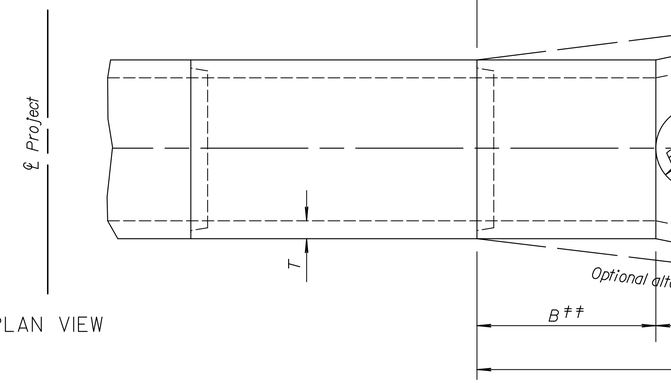
OUTLET END

ELEVATION SECTION

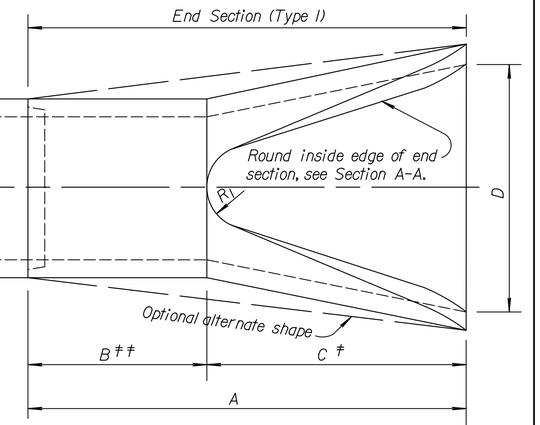
Note: There shall be no payment for gain in length due to joint fit tolerance.



INLET END



PLAN VIEW



OUTLET END

ϕ *Transition to round pipe.*

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

ǂǂ *Included in pay length of pipe.*

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

END SECTION (TYPE I) NOMINAL DIMENSIONS

Diam.	A	B ǂǂ	C ǂ	D	E	R_1	Slope	T
12"	6'-0 7/8"	4'-0 7/8"	2'-0"	2'-0"	4"	9	3:1	2"
15"	6'-1"	3'-10"	2'-3"	2'-6"	6"	11	3:1	2 1/4"
18"	6'-1"	3'-10"	2'-3"	3'-0"	9"	12	3:1	2 1/2"
24"	6'-1 1/2"	2'-6"	3'-7 1/2"	4'-0"	9 1/2"	14	3:1	3"
30"	6'-1 3/4"	1'-7 3/4"	4'-6"	5'-0"	1'-0"	15	3:1	3 1/2"
36"	8'-1 3/4"	2'-10 3/4"	5'-3"	6'-0"	1'-3"	20	3:1	4"
42"	8'-2"	2'-11"	5'-3"	6'-6"	1'-9"	22	3:1	4 1/2"
48"	8'-2"	2'-2"	6'-0"	7'-0"	2'-0"	22	3:1	5"
54"	8'-2 1/4"	2'-9 1/4"	5'-5"	7'-6"	2'-3"	24	2.4 :1	5 1/2"
60"	8'-3"	3'-3"	5'-0"	8'-0"	2'-11"	24	2:1	6"
72"	8'-3"	1'-9"	6'-6"	9'-0"	3'-0"	24	1.86 :1	7"
84"	9'-3 1/2"	1'-9"	7'-6 1/2"	10'-0"	3'-0"	24	1.6 :1	8"

SIDE TAPERED INLET SECTION (TYPE III)-NOMINAL DIMENSIONS

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

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

NO.	DATE	REVISIONS	BY	APP'D
2	4-18-08	Added ref. to KDOT Pipe Policy	S.W.K	J.O.B
1	4-05-05	Revised reinforcement callout	S.W.K	J.O.B

KANSAS DEPARTMENT OF TRANSPORTATION

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

RD662

FHWA APPROVAL	6-27-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

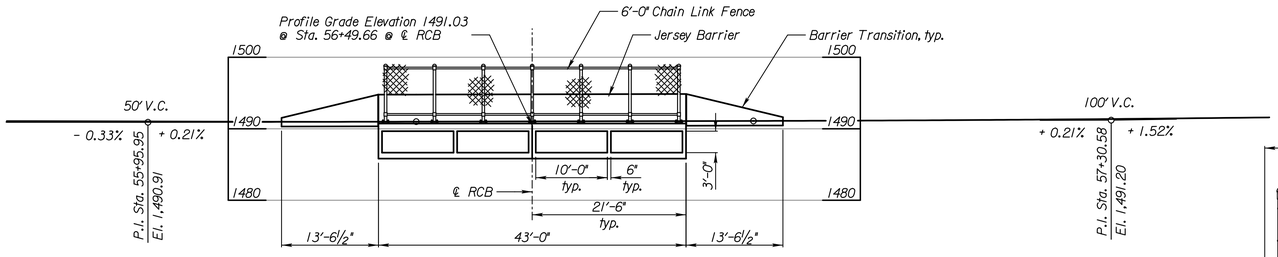
Sh. No. 18

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

Drawn By : bmcdiffett
File : rd662.dgn

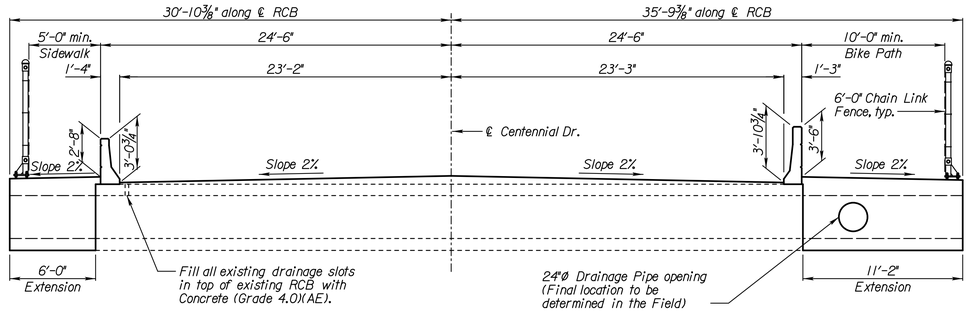
Plotted : 19-JAN-2016 10:41

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	19	62

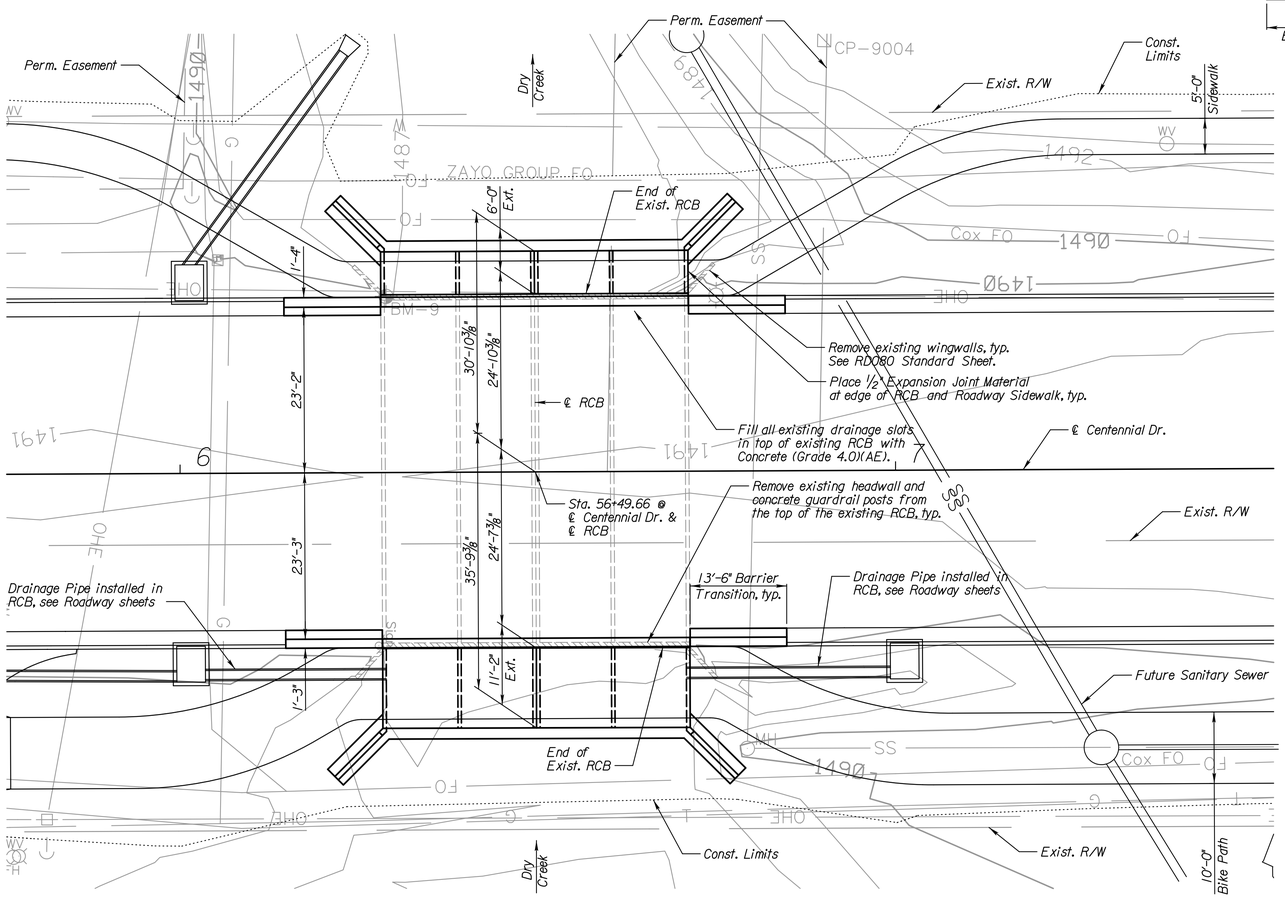


ELEVATION

Elevation is shown at the upstream end (East) opening of the Reinforced Concrete Box (4-10'x3'x24'-10⅜" Lt., Extend 6'-0" Lt.) (4-10'x3'x24'-7⅞" Rt., Extend 11'-2" Rt.)



SECTION ALONG ℄ RCB



PLAN

Scale: 1"=10'

B.M.: PT#8 Railroad Spike W. face of first light pole South of Railroad tracks West side of Centennial Drive. N: 1,935,322.670 E: 1,561,731.096	Elev. 1500.80
B.M.: PT#9 Square cut at S.W. corner of West headwall of first RCB N. of 56 Hwy. & Centennial Drive N: 1,934,573.219 E: 1,561,744.477	Elev. 1491.42

Note: Contractor shall coordinate this project with contractor of future sanitary sewer project.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

BR. NO. 41745059401789 STA. 56+49.66

CONSTRUCTION LAYOUT

CENTENNIAL DR.

CITY OF MCPHERSON

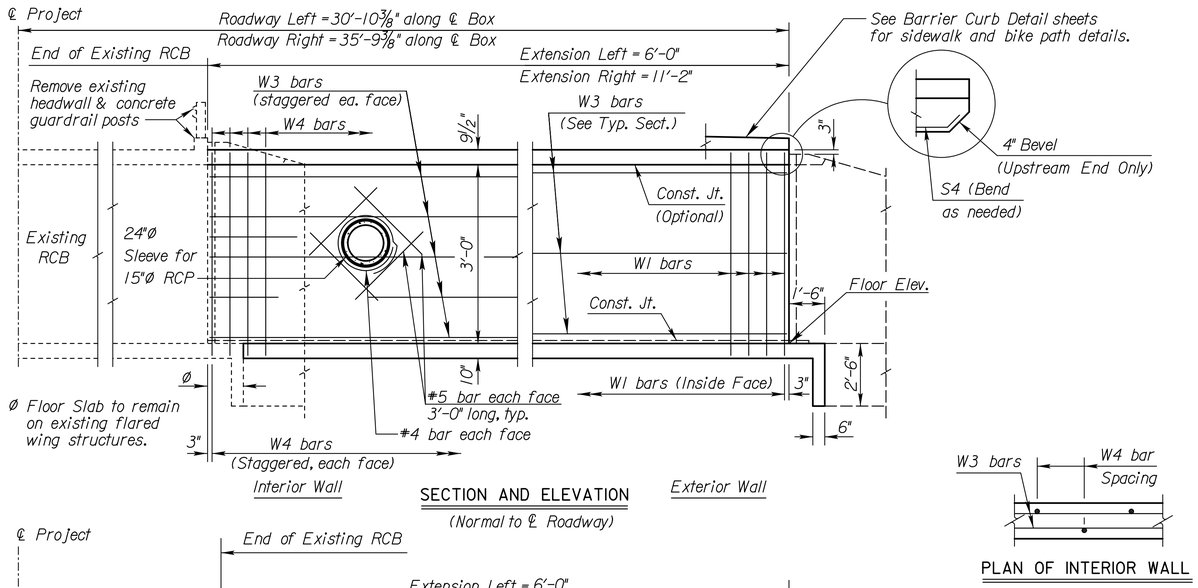
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Date : 19-JAN-2016 10:41
File : 8-Construction Layout.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	20	62

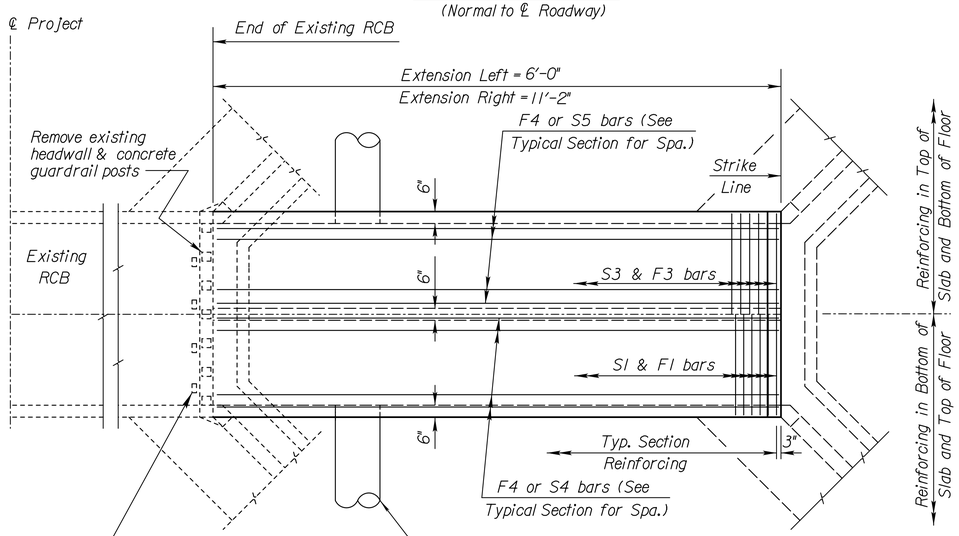
06	SYSTEM PART	VERSION/ID
	CADD V8A	12/6/2000
	DATABASE	10/16/2003
	RCB PROGRAM	7.LI1
	KBOX MODEL ID	1034
	CELL LIBRARY	10/6/2003

Plotted By: bmdiffett | Plot Location:
File: 9-2-10x4_w-wings(Box).dgn
Plot Date: 19-JAN-2016 10:41



SECTION AND ELEVATION
(Normal to ℄ Roadway)

PLAN OF INTERIOR WALL



PLAN

◔ Box Extension Right = 97 lbs.
Box Extension Left = 51 lbs.
Each Wingwall = 25 lbs.

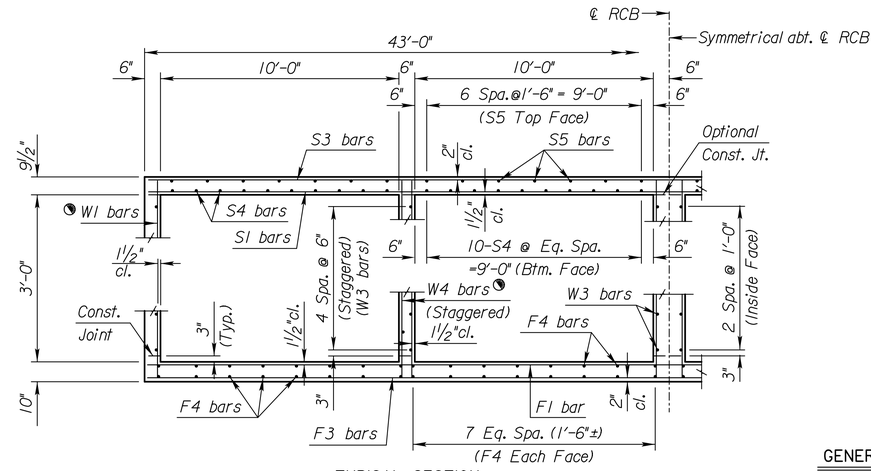
⧖ For design purposes ONLY. Do NOT use for Construction — CULVERT SUMMARY — ◔ includes any welded wire fabric

	Floor Elev.	Crown Gr. Elev.	⧖ Design Fill Ht.	Skew	Wings	Scour Apron	Soil Saver	Concrete Barrel (Cu.Yds.)	Concrete Wings (Cu.Yds.)	Concrete Total (Cu.Yds.)	Reinf. Steel (Gr. 60) ◔ Barrel (Lbs.)	Reinf. Steel (Gr. 60) ◔ Wings (Lbs.)	Reinf. Steel (Gr. 60) Total (Lbs.)	LRFR RATING FACTORS HL-93 Loading Inventory	HL-93 Loading Operating
Ext.Lt.	1486.66	1491.03	2	0	Flared	No	No	25.3	3.6	28.9	4005	1180	5185	1.29	1.66
Ext.Rt.	1486.66				Flared			43.1	3.6	46.7	7450	1180	8630		

BAR SCHEDULE

	△F1 Size	Spa.	No.	Length	△F3 Size	Spa.	No.	Length	△F4 Size	No.	Length	△S1 Size	Spa.	No.	Length	△S2✱ Size	Spa.	No.	Length	△S3 Size	Spa.	No.	Length	△S4 Size	No.	Length	△S5 Size	No.	Length	△S6✱ Size	Spa.	No.	Length
Ext.Lt.	6	6"	12	42'-8"	6	6"	9	42'-8"	4	64	4'-2"	6	6"	15	42'-8"	N/A	N/A	N/A	N/A	6	6"	12	42'-8"	5	40	5'-8"	4	28	5'-8"	4	21"	116	Varies
Ext.Rt.	6	6"	22	42'-8"	6	6"	19	42'-8"	4	64	9'-4"	6	6"	25	42'-8"	4	21"	201	Varies	6	6"	22	42'-8"	5	40	10'-10"	4	28	10'-10"	N/A	N/A	N/A	N/A

	△K1 Size	Spa.	No.	Length	△K2 Size	Spa.	No.	Length	△W1 Size	Spa.	No.	Length	△W2 Size	Spa.	No.	Length	△W3 Size	No.	Length	△W4 Size	Spa.	No.	Length	△G1 Size	No.	Length	△G2 Size	No.	Length	Size	Spa.	No.	Length
Ext.Lt.	N/A	N/A	N/A		N/A	N/A	N/A		4	9"	32	4'-3"	N/A	N/A	N/A	N/A	4	22	5'-8"	4	9"	16	5'-3"	N/A	N/A	N/A	N/A	N/A	N/A				
Ext.Rt.	N/A	N/A	N/A		N/A	N/A	N/A		4	9"	60	4'-3"	N/A	N/A	N/A	N/A	4	22	10'-10"	4	9"	30	5'-3"	N/A	N/A	N/A	N/A	N/A	N/A				



TYPICAL SECTION

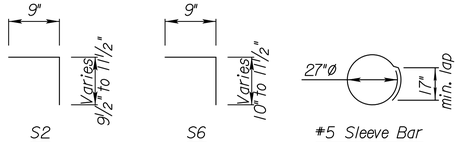
◔ See RCB Auxiliary Details for Optional Splice.
See Standard No. RD 080 for additional details.

Notes:
Use only cast-in-place construction at this location.
Construct 2 Double-10'x3' RCB's side by side.

Remove the existing concrete headwalls and concrete guardrail posts. Grind the existing reinforcing steel to the top of the concrete. This work shall be considered subsisiary to Concrete (Grade 4.0).

The work necessary and materials to plug the existing drainage holes in top of the existing RCB shall be subsidiary to Concrete (Grade 4.0)(AE)

The necessary work and reinforcement for the 24"Ø sleeve to accomodate the 15"Ø RCP shall be considered subsidiary to the Concrete (Grade 4.0). The vertical and longitudinal reinforcement in the wall shall be field cut to provide 2" min. clear around the sleeve.



S2 (Cut 7 each length)
S6 (Cut 4 each length)
#5 Sleeve Bar

BENDING DIAGRAM

All Dimensions are out to out of bars.

△ Epoxy Coated Bars
✱ See Bending Diagram & Barrier Curb Sheets

Minimum Splice Lengths	
#4	1'-5"
#5	1'-9"

SUMMARY OF QUANTITIES

Concrete (Grade 4.0)	42.2 C.Y.
Concrete (Grade 4.0)(AE)	33.4 C.Y.
Bridge Backwall Protection System	82 S.Y.
Concrete Safety Barrier Curb (Type III)(Special)	140 L.F.
Reinforcing Steel (Gr. 60)	2,505 Lbs.
Reinforcing Steel (Gr. 60)(Epoxy Coated)	11,310 Lbs.
Fence (Chain Link)(6')	258 L.F.
Class III Excavation	10 C.Y.
Foundation Stabilization	15 C.Y.
Concrete for Seal Course (Set)	1 C.Y.
Granular Backfill (Wingwalls)	24 C.Y.

GENERAL NOTES

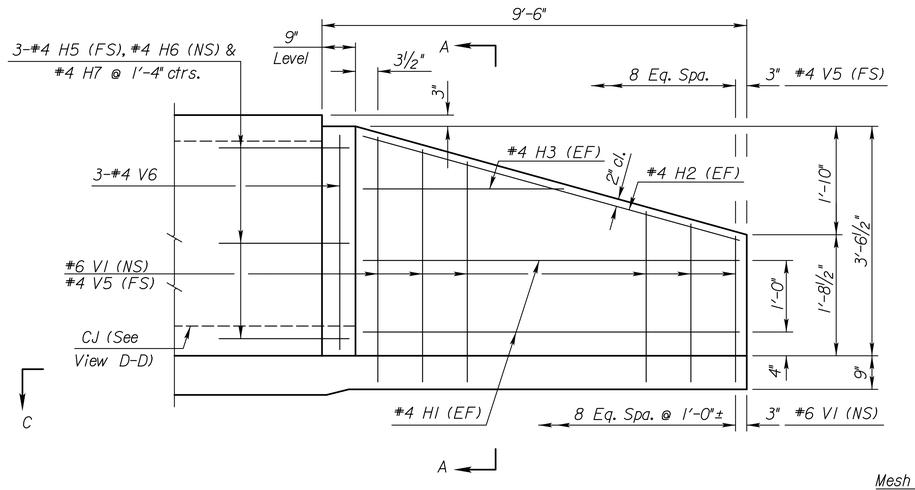
DESIGN SPECIFICATION: AASHTO LRFD Spec., 2007 Ed., 2009 Int.
DESIGN LOADING: HL93
UNIT STRESSES: Grade 4.0 Concrete f'c = 4,000 p.s.i.
Reinforcing Steel fy = 60,000 p.s.i.
FILL HEIGHT: Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and includes the surfacing.
CONCRETE: Use concrete conforming to Grade 4.0 Concrete. Bevel all exposed edges with a ¾" triangular molding. Where Grade 4.0(AE) is specified, place this concrete in the top slab above the Construction Joint.
REINFORCING: Use reinforcing steel conforming to ASTM A615, Grade 60. All dimensions relative to reinforcing steel are to the centerline of the bar unless otherwise noted.
EXCAVATION: Excavation for culverts less than bridge length shall not be paid for directly but shall be subsidiary to Grade 4.0 Concrete. Excavation for RCB bridges shall be paid for as Class III Excavation.
SEAL COURSE: The Engineer may require a seal course. The seal course shall be unreinforced Concrete(Commercial Grade) with a minimum depth of 3 inches or as determined by the Engineer. Concrete for the seal course shall be paid for at the unit price set for Concrete for Seal Course.
FOUNDATION STABILIZATION: The Foundation Stabilization quantity has been calculated to the limits shown on the "RCB Auxiliary Details" sheet. The depth may be increased by the Engineer. The Contractor may underrun Foundation Stabilization under the barrel if founded on firm material and with the Engineer's approval. Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.
QUANTITIES: The quantities shown in the Culvert Summary include apron and/or soil saver quantities when they are required by the plans. Payment for additional quantities that result from including a seal course and/or a floating apron, as a change in the original plans, shall be made at the unit price bid for the various items involved.
GRANULAR BACKFILL (WINGWALLS): See the "Auxiliary Details" sheet.
STRIKE LINE: Construct the wingwalls and that portion of the RCB outside the Strike Line level. Construct the wingwall footings with the culvert floor. See the wingwall detail sheets.
BRIDGE BACKWALL PROTECTION SYSTEM: For structures with this bid item in the Summary of Quantities. See the "Auxiliary Details" sheet.

NO.	DATE	REVISIONS	BY	APP'D
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 417450594017789 Sta. 56+49.66
2-DOUBLE 10 ft x 4 ft RCB
11.2 ft EXT. RT.
6.0 ft EXT. LT.
City of McPherson

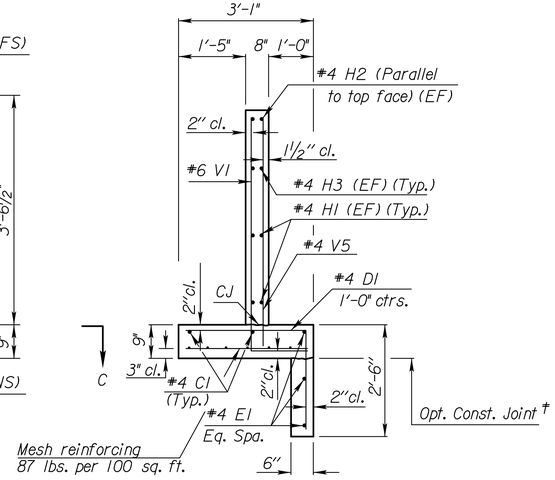
FHWA APPROVAL		10-20-10	APP'D	Terry L. Fleck
DESIGNED	DETAILED		QUANTITIES	CADD
DESIGN CK.	DETAIL CK.		QUAN. CK.	CADD CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	21	62



ELEVATION OF WINGWALL

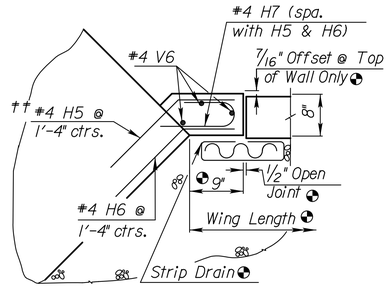
(Backface Shown)



SECTION A-A

See "RCB Aux. Details" sheet for additional requirements.

Typical both wings



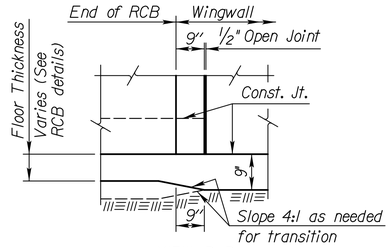
WINGWALL JOINT DETAIL

(Plan View)

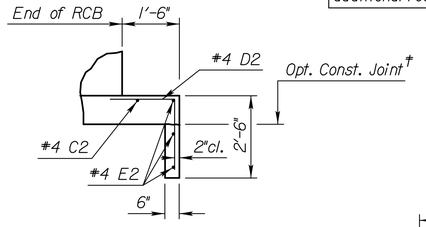
† NOTE: Const. Jt. may be used at Contractor's option when approved by the Engineer. D1 bars or mesh may be spliced thus: ⌐ Minimum overlap shall be 1'-3". No increase in quantities or cost shall be allowed when Contractor elects this option.

GENERAL NOTES

DESIGN SPECIFICATION: AASHTO LRFD Spec., 2007 Ed., 2009 Int.
DESIGN LOADING: HL93
UNIT STRESSES: Grade 4.0 Concrete; f'c = 4,000 p.s.i.
Reinforcing Steel; fy = 60,000 p.s.i.
CONCRETE: Grade 4.0 Concrete shall be used throughout. Bevel all exposed edges with a ¾" triangular moulding.
REINFORCING: All reinforcing shall conform to ASTM A615, Grade 60. Welded Wire Fabric shall conform to ASTM A185. All dimensions relative to reinforcing steel shall be to center-line of bar unless otherwise noted. Wire Reinforcing mesh shall be electrically welded and shall be composed of 6 x 6- W6 x W6 welded wire fabric and shall be classified as pounds of reinforcing and included in the total quantity for the bid item Reinforcing Steel (Gr. 60)
QUANTITIES: Wingwall Quantities include all quantities outside the neat lines of the box, excluding the hubguard.
APRON: A 5" concrete slab shall be constructed between the down-stream wings in locations subject to scour only when specified on the plans or by the Engineer.
BACKFILL MATERIAL: Use Granular Backfill material meeting the requirements of SB-1, SB-2, SCA-2, SCA-3 or SCA-5. Backfill all wings to limits shown on the "RCB Auxiliary Sheet".
FILTER FABRIC: Separate in-situ material from granular backfill with approved filter fabric complying with Section 1710. Filter Fabric is subsidiary to "Granular Backfill".
FOUNDATION STABILIZATION: Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.

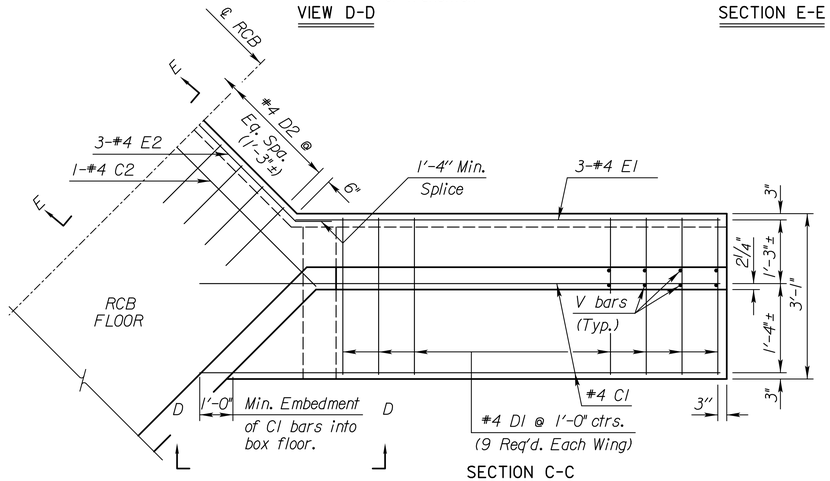


VIEW D-D

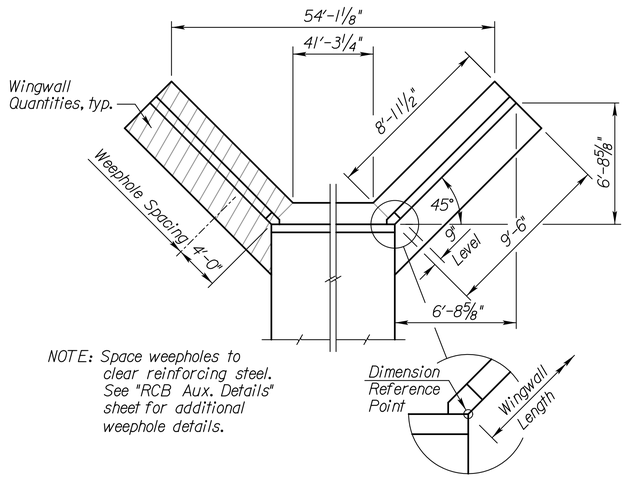


SECTION E-E

NOTE:
EF = Each Face
NS = Near Side
FS = Far Side
CJ = Const. Joint



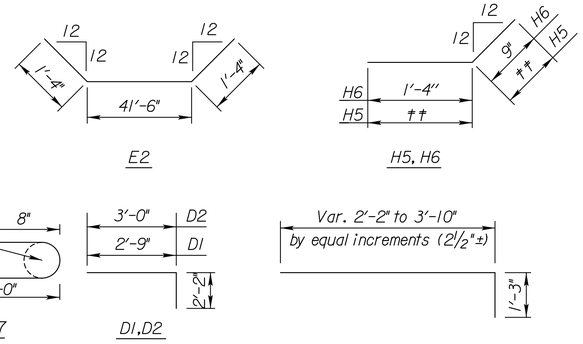
SECTION C-C



NOTE: Space weepholes to clear reinforcing steel. See "RCB Aux. Details" sheet for additional weephole details.

WING DIMENSIONS FOR NORMAL BOX

(3½:1 Embankment Slope)



BENDING DIAGRAM

(All dimensions are out to out of bars.)

†† Bend in Field

Quantities listed below are included in the Summary of Quantities shown on the RCB details.

WINGWALL QUANTITIES (One End Only)				
	Foundation Stabilization		Concrete (Gr. 4.0)	
Wingwalls	1.80	(C.Y.)	3.6	(C.Y.)
Apron	0.00	(C.Y.)	0.00	(C.Y.)
Soil Saver	0.00	(C.Y.)	0.00	(C.Y.)
Reinforcing Steel (Gr. 60)			1130	Lbs.
Welded Wire Fabric (Wings)			50	Lbs.
Welded Wire Fabric (Apron)			0	Lbs.
Granular Backfill (Wingwalls)			12.00	C.Y.
Filter Fabric (subsidiary)			18.00	S.Y.

NOTE: Reinforcing Bar List is for both wings at one end of box only.

✳ See Bending Diagram

0° Skew		#4C1	#4D1	#4E1	#4C2	#4D2	#4E2	#6V1	#4H1	#4H2	#4H3	#4H5	#4H6	#4H7	#4V5	#4V6
	No.	4	18✳	6	1	33✳	3✳	18	8	4	4	6✳	6✳	6✳	18	6
	Length	11'-7"	4'-1"	8'-9"	42'-6"	5'-2"	44'-2"	✳	8'-4"	8'-8"	5'-0"	1'-10"	2'-1"	1'-9"	✳	3'-3"

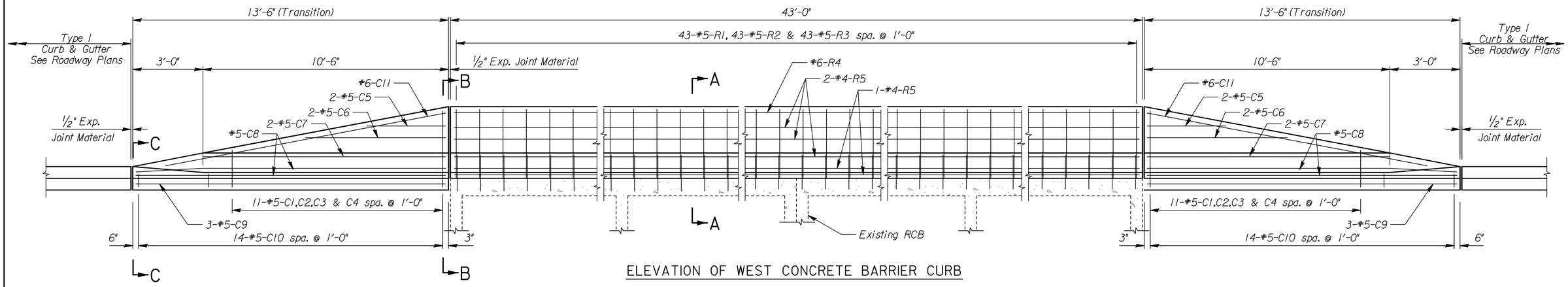
NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 417450594017789 Sta. 56+49.66
FLARED WINGWALLS
4 ft Rise (0°SKEW)
City of McPherson

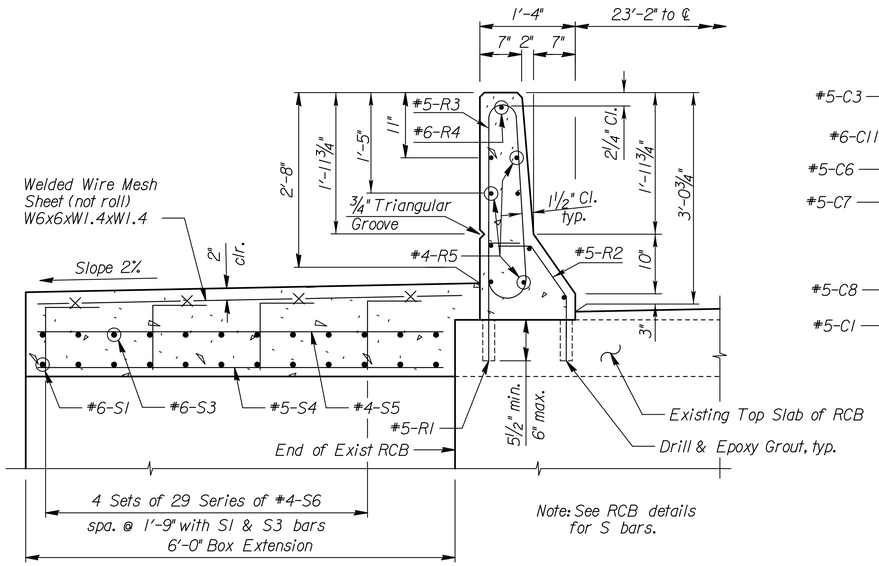
FHWA APPROVAL		10-20-10	APP'D	Terry L. Fleck
DESIGNED	DETAILED		QUANTITIES	CADD
DESIGN CK.	DETAIL CK.		QUAN. CK.	CADD CK.

Plotted By: bmcdiffett
Plot Location:
File: 10-2-10\4_w-wings\Wing1.dgn
Plot Date: 19-JAN-2016 10:41

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	22	62

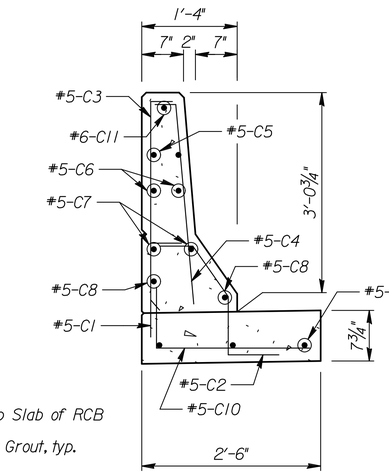


ELEVATION OF WEST CONCRETE BARRIER CURB

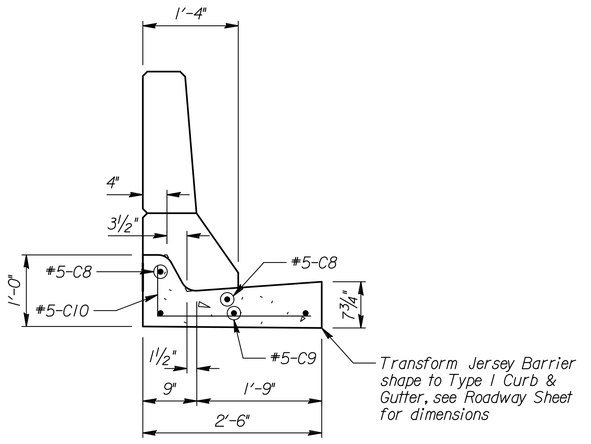


Note: See RCB details for S bars.

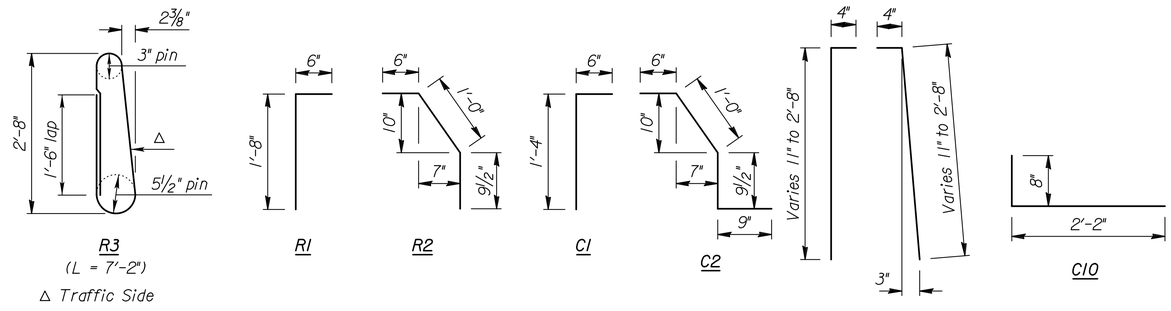
SECTION A-A



SECTION B-B

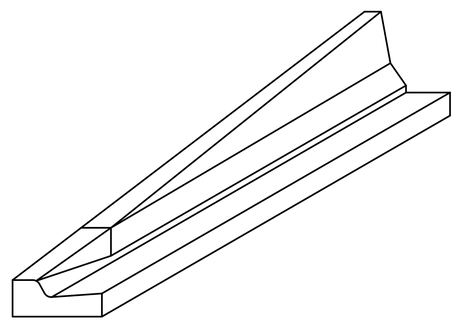


SECTION C-C



BENDING DIAGRAMS

(All dimensions are out to out of bars.)



AUXILIARY VIEW OF SAFETY TRANSITION BARRIER CURB

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	07-14-04	Current release		

KANSAS DEPARTMENT OF TRANSPORTATION

BR. NO. 417450594017789 STA. 56+49.66

SIDEWALK BARRIER CURB

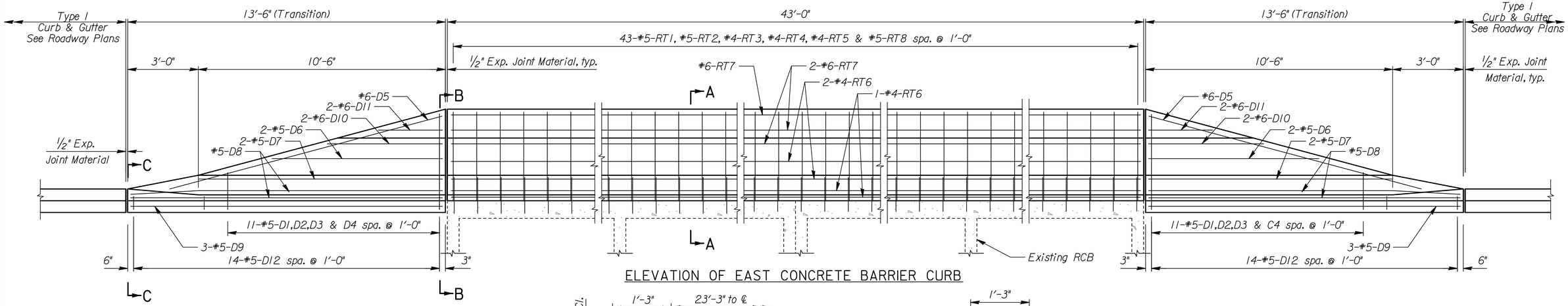
CENTENNIAL DR.

CITY OF MCPHERSON

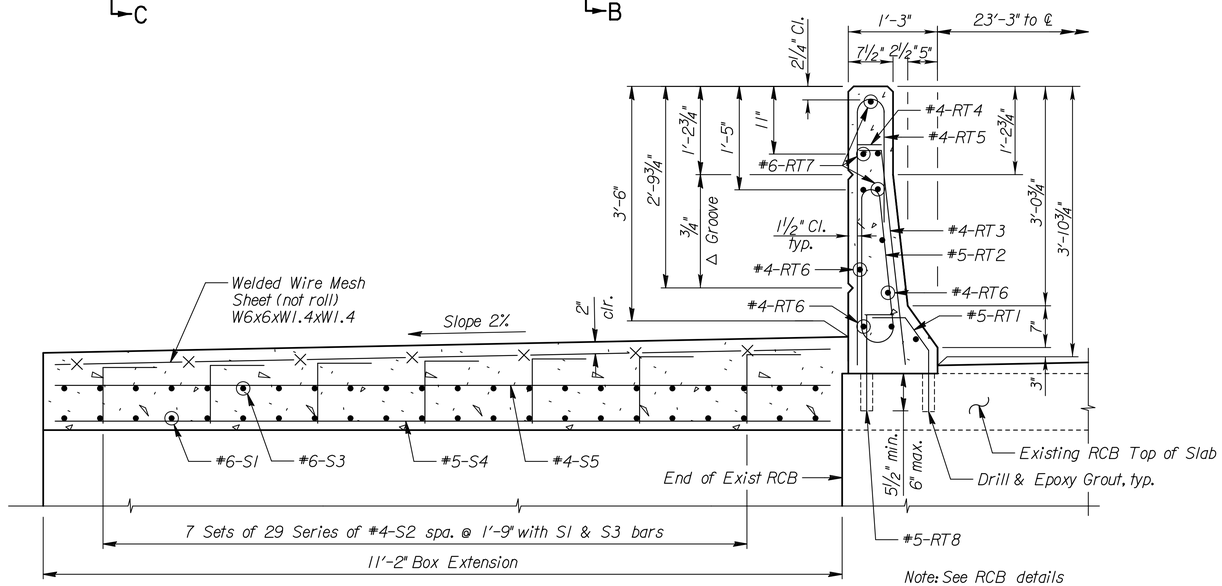
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Std. Base File: br180a
Plotted By: bmadiffett
Plot Location:
File: I1-Barrier Side Walk 180a.dgn
Plot Date: 19-JAN-2016 1041

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	23	62

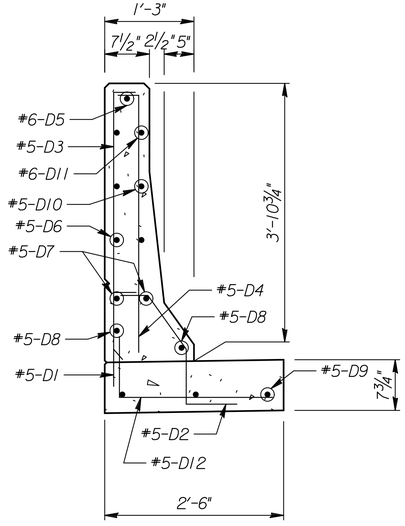


ELEVATION OF EAST CONCRETE BARRIER CURB

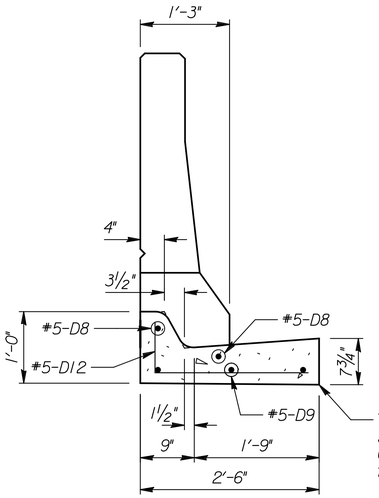


SECTION A-A

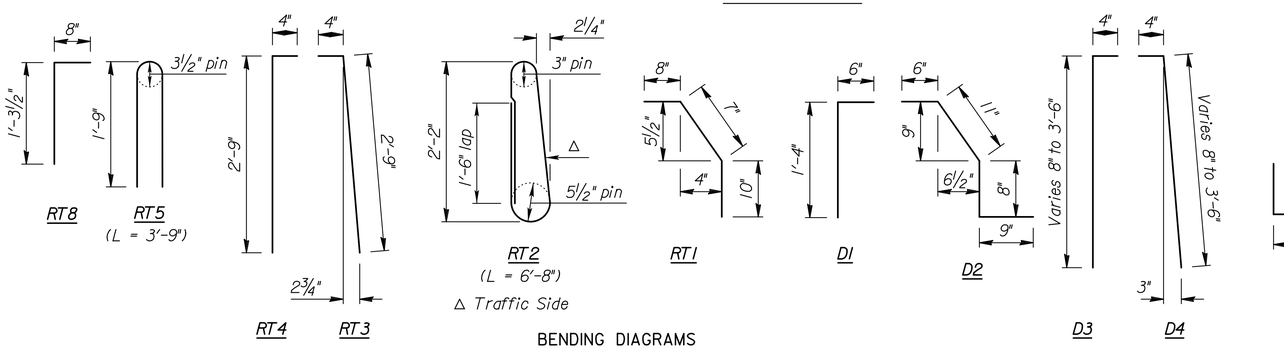
Note: See RCB details for S-bars.



SECTION B-B

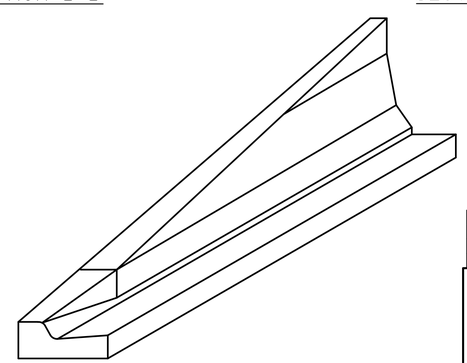


SECTION C-C



BENDING DIAGRAMS

(All dimensions are out to out of bars.)



AUXILIARY VIEW OF SAFETY TRANSITION BARRIER CURB

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	07-14-04	Current release		

KANSAS DEPARTMENT OF TRANSPORTATION

BR. NO. 417450594017789 STA. 56+49.66

BIKE PATH BARRIER CURB

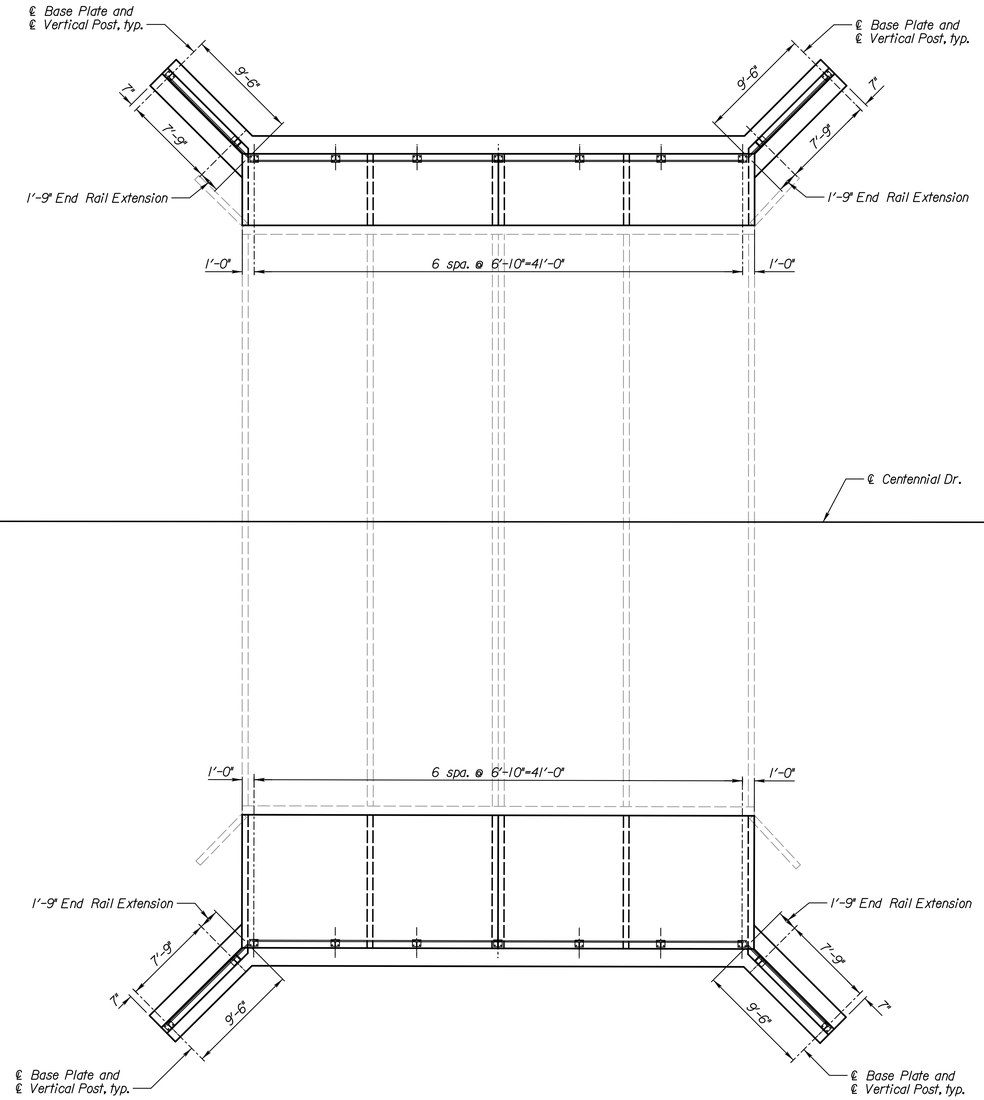
CENTENNIAL DR.

CITY OF MCPHERSON

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

Std. Base File: br180a.dgn
Plotted By: bmdiffett
Plot Location:
File: 12-Barrier Bike Path 180a.dgn
Plot Date: 19-JAN-2016 10:41

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	24	62



PLAN

See Fence Details for Construction notes.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

BR. NO. 417450594017789 STA. 56+49.66

FENCE LAYOUT AT RCB

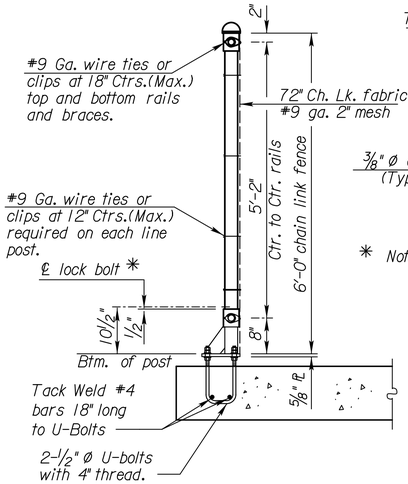
CENTENNIAL DR.

CITY OF MCPHERSON

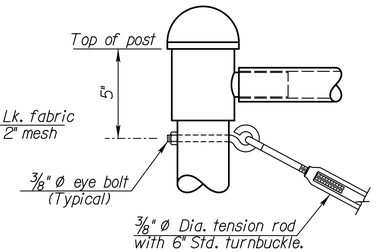
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Date : 19-JAN-2016 10:41
File : 13-fence-layout.dgn

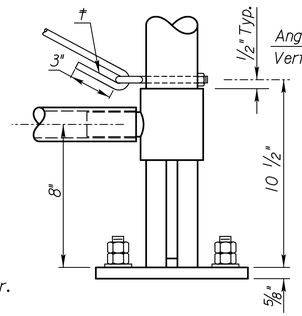
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	25	62



TYPICAL FENCE ATTACHMENT

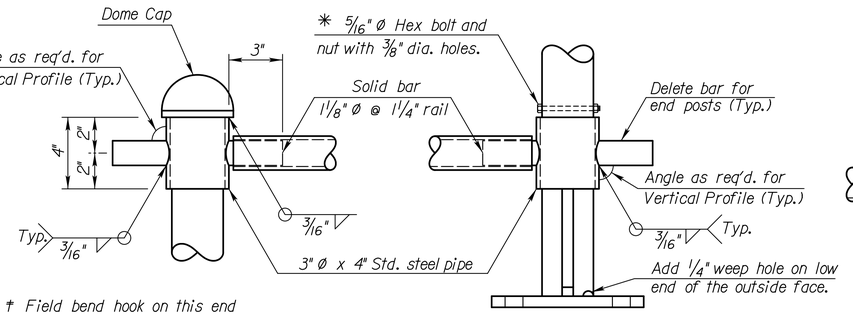


✳ Note: Lock bolt shall be 5/16" Ø hex head bolt and nut. Bolt holes shall be ⅜" diameter. (Omit @ pull post & end post.)

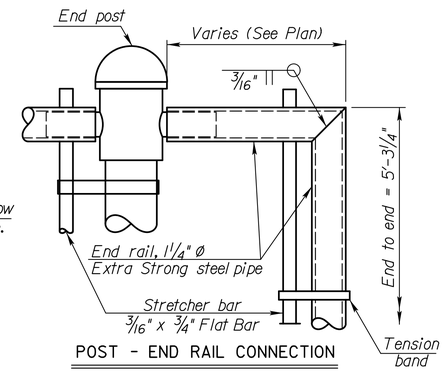


TENSION ROD DETAIL

† Field bend hook on this end to fit. Shorten as required to achieve 3" tangent.

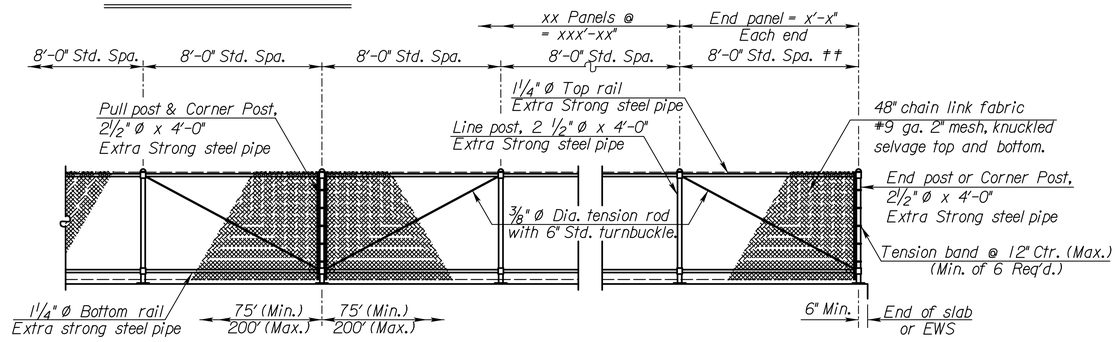


POST - RAIL CONNECTION



POST - END RAIL CONNECTION

†† With the approval of the Engineer, End Panel spacing may be 6'-0"min. - 9'-0"max.



PULL POST & CORNER POST SPACING

GENERAL NOTES

FENCE (CHAIN LINK) (6'): The chain link fence on the sidewalk shall be bid per lineal foot as per bid item, "Fence (Chain Link) (6')". This item shall include the furnishing of all material, fabrication of all parts, and all of the equipment and labor required to erect the fence in accordance with these plans and specifications. All parts shall be galvanized after fabrication and all welds shall be free of slag holes prior to galvanization. Galvanization shall conform to KDOT's Standard Specifications.

POST AND RAIL: The Contractor shall use extra strong pipe for the posts and for the top and bottom rail. The pipe shall conform to Section 1600 of the Standard Specifications for Road and Bridge Construction. Diameters shown for tubular steel posts and rails are nominal. Weight tolerances shall be as shown in the Specifications.

CHAIN LINK FABRIC: All chain link fabric shall be zinc coated (galvanized). The chain link fabric shall be double knuckled. Intermediate pull posts are required when pedestrian fence exceeds 200 ft. Spacing of pull posts shall be 75 ft. (min.) to 200 ft. (max.) from another pull post or end post.

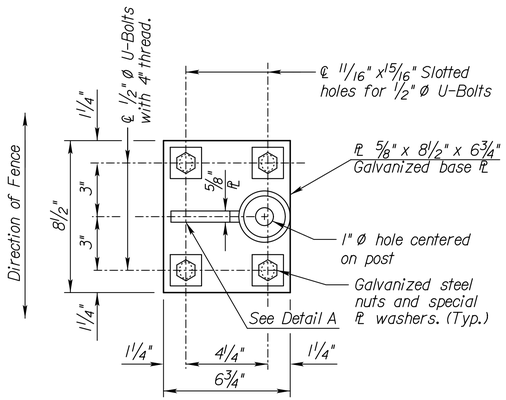
BOLTS: Bolts, including Anchor bolt, lockbolts, eyebolts and turnbuckle, shall be coated in accordance with the weight of coating requirements of ASTM. A 153 and shall conform to ASTM A307 or A36.

STRUCTURAL STEEL: Miscellaneous plates, bars, shapes including tension rod shall conform to ASTM A36.

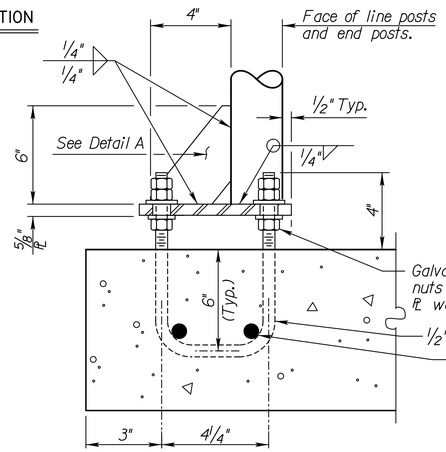
ERECTION PROCEDURE: The details of the connections require that the post and rail installation be accomplished in a sequential manner. Following the erection of a post, the rails must be installed before an adjacent post can be erected. The installation may begin with an end post or with an interior post and extend both ways.

SHOP DRAWINGS: Approval of shop details and materials is required before installation begins.

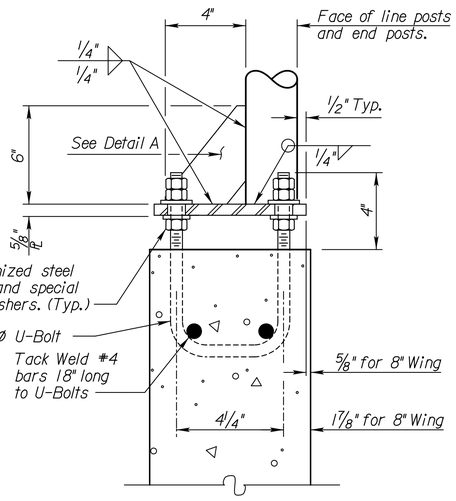
SUMMARY OF QUANTITIES	
Fence (Chain Link)(6')	258 Lin. Ft.



Plan

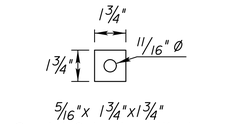


Section at Hubguard

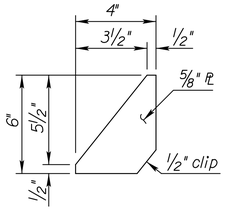


Section at Wingwall

BASE PLATE DETAILS FOR END POST AND LINE POSTS



5/16" x 1¾" x 1¾" Special Galvanized Washer



Detail A

Dead Load = 19 Lbs./Ft.
Loads applied in accordance with 2007 AASHTO Specs.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

BR. NO. 417450594017789 STA. 56+49.66

FENCE DETAILS

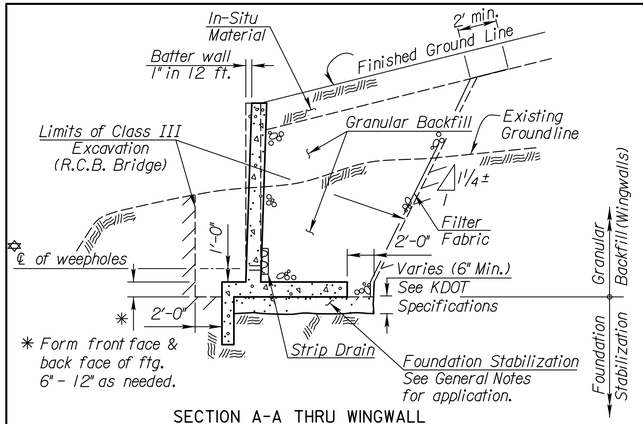
CENTENNIAL DR.

CITY OF MCPHERSON

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

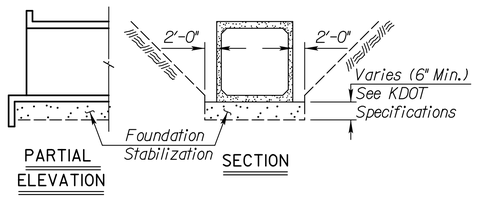
Plotted By: bmcdiffett | Plot Location:
File: 14-Fence-Details- br170.dgn
Plot Date: 19-JAN-2016 10:41

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	26	62

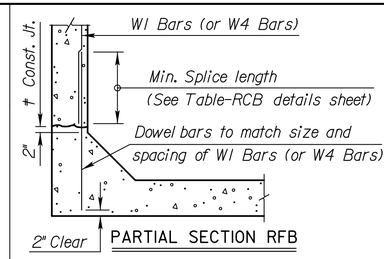


SECTION A-A THRU WINGWALL

Granular Backfill And Foundation Stabilization



PARTIAL ELEVATION SECTION



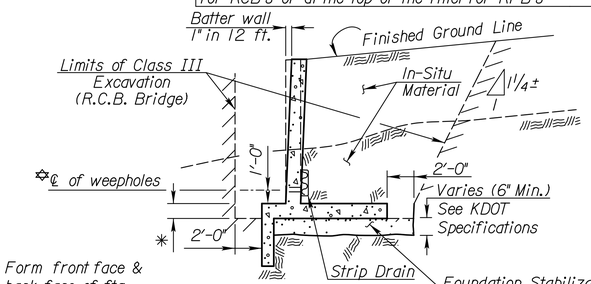
PARTIAL SECTION RFB

OPTIONAL BAR DETAIL

The Contractor shall have the option of using Dowel Bars to match vertical wall bars as shown, however no allowance will be made for additional steel required for bar laps.

† OPTIONAL COLD JOINT

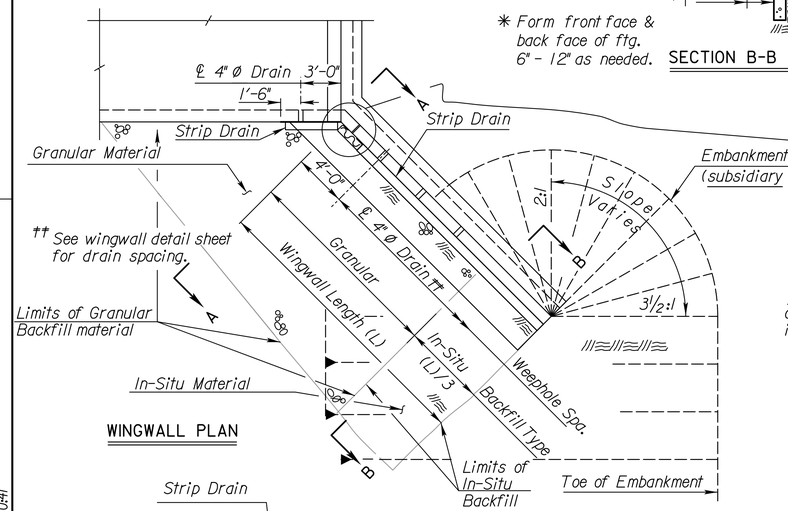
The Contractor has the option of placing the Lower Horizontal Construction Joint at the top of the slab for RCB's or at the top of the fillet for RFB's



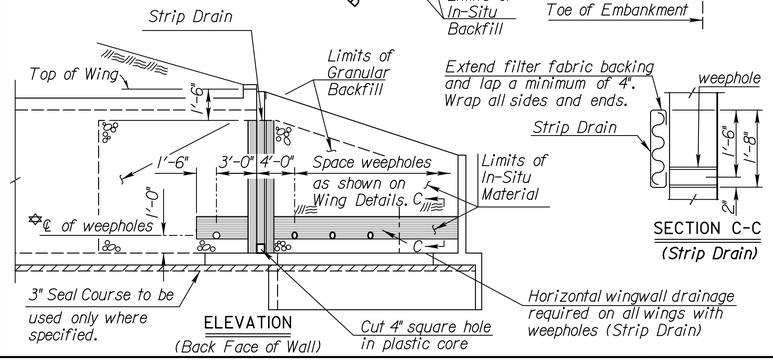
✳ Form front face & back face of ftg. 6" - 12" as needed.

SECTION B-B THRU WINGWALL

✡ Weep holes will be adjusted up by the amount of embeddment shown on BR025 if the structure is embedded.

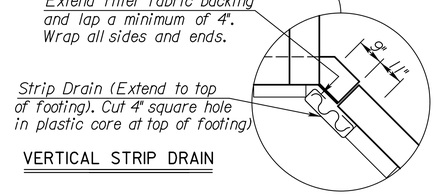


WINGWALL PLAN



ELEVATION (Back Face of Wall)

SECTION C-C (Strip Drain)



VERTICAL STRIP DRAIN

GENERAL NOTES

Wingwall Drainage:

1. *All wingwalls with weepholes shall have horizontal and vertical wingwall drainage as shown. Strip drains will be used. See KDOT Specifications for "Abutment Strip Drains" for strip drain requirements.*
2. *Construction and materials for wingwall drainage, including weepholes, and strip drain shall be subsidiary to the bid item, "Grade 4.0 Concrete". Weepholes may be a formed opening or corrugated polyethylene tubing.*

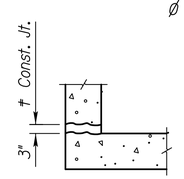
Wingwall Foundation Stabilization:

The Foundation Stabilization quantity has been calculated to the limits shown in the Section Thru Wingwall. The depth may be increased by the Engineer. Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.

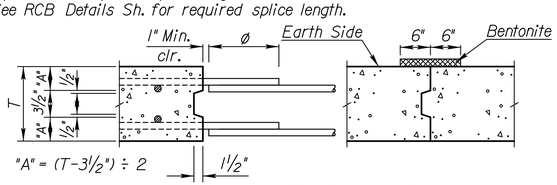
Seal Course:

1. *Seal Course consisting of 3" min. of Commercial Grade Concrete shall be constructed to the limits directed by the Engineer. No reinforcing in the floor of the slab or wall footing shall be placed until the Seal Course has gained sufficient strength to permit working upon it without injury.*

Ø *Longitudinal bars shall extend through the joint to provide a minimum lap equal to the required splice length. See RCB Details Sh. for required splice length.*



PARTIAL SECTION RCB

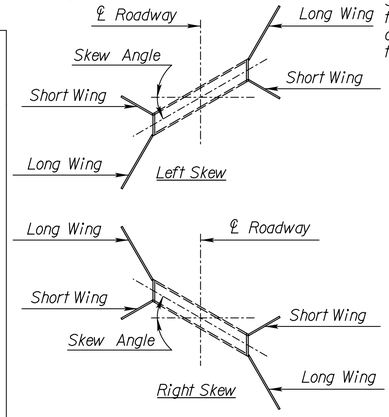


VERTICAL CONSTRUCTION JOINTS

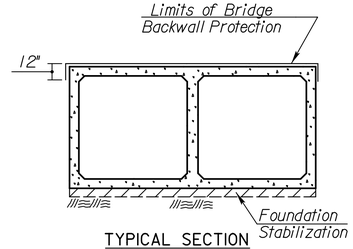
NOTE: Vertical construction joints shall be perpendicular to the longitudinal axis of the RCB and shall be placed at any location as needed for construction and as approved by the Engineer.

NOTE: Horizontal construction joints shall be a roughened finish.

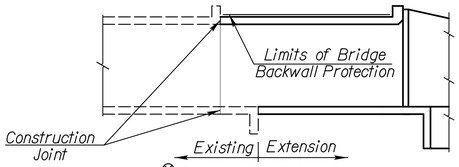
NOTE: Barrel Construction Joints located in a median with less than 5 ft. of fill or at locations specified by the Engineer, shall be protected by a bentonite based system as shown. Place the bentonite on the exterior walls and top slab. See requirements for bentonite in the KDOT Specifications for "Bridge Backwall Protection System". Material and installation of the bentonite system shall be subsidiary to the bid item "Grade 4.0 Concrete".



PLAN VIEW SKEWED R.C.B.

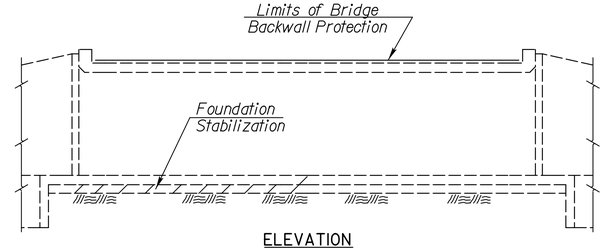


TYPICAL SECTION



⊗ BOX EXTENSION

⊗ *See "Typical Culvert Extension" RD080 for additional information.*



ELEVATION

(New Construction)

GENERAL NOTES

Foundation Stabilization:

The depth of Foundation Stabilization may be increased by the Engineer. The Contractor may underrun Foundation Stabilization under the barrel if founded on firm material and with the Engineer's approval. Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.

Granular Backfill (Wingwalls):

1. *Granular Backfill shall be used to backfill behind wingwalls to the limits shown in the WINGWALL PLAN detail. Granular Backfill construction may be used separately or combined with Foundation Stabilization as directed by the Engineer.*
2. *Measurement for the bid item, "Granular Backfill (Wingwalls)", shall be measured in Cubic Yards to the theoretical limits as shown.*
3. *Material for Granular Backfill (Wingwalls) shall conform to the requirements of SB-1, SB-2, SCA-2, SCA-3 or SCA-5.*
4. *Consolidate Granular Backfill using hand equipment only. Avoid over consolidation.*
5. *Use filter fabric complying with Section 1710. Filter Fabric is subsidiary to "Granular Backfill". Use only within the limits of Granular Backfill.*

In-Situ Backfill (Wingwalls):

1. *Use any material found within the project limits except Highly Plastic Clay(s) or organic material. The material is subsidiary to "Granular Backfill".*
2. *Use Type "B" Compaction.*
3. *Use only hand or walk behind equipment for Compaction.*

GENERAL NOTES

Bridge Backwall Protection System:

1. *For all structures with less than or equal to 2'-0" of fill, apply a "Bridge Backwall Protection System" from Section 1700 to the limits shown. Do not place hot mix asphalt directly on this material.*
2. *Use a "non-coal tar" material from KDOT's approved list.*
3. *Protect this material from damage during backfilling. Repair at no additional cost.*
4. *When the Plans show hot mix asphalt placed directly on the slab, substitute "Pavement Water Proofing" material from Section 800, this material shall be subsidiary. Wait 28 days after top slab is completed before applying this material.*
5. *Bridge Backwall Protection System is subsidiary to "Grade 4.0 Concrete".*

NO.	DATE	REVISIONS	BY	APP'D
6	10/11/12	Added Weep Hole Note	JPJ	TLF
5	8/2/12	Modified Backwall Notes	JPJ	TLF
4	3/7/12	Added Filter Fabric to Detail	JPJ	TLF
3	12/15/11	Added Bridge Backwall Protection	JPJ	TLF
2	3/3/10	Modified Backfill Details	JPJ	TLF
1	7/14/08	Change Type 'C' Compaction to 'B'	JPJ	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

RCB AUXILIARY DETAILS (LRFD)

BR020B

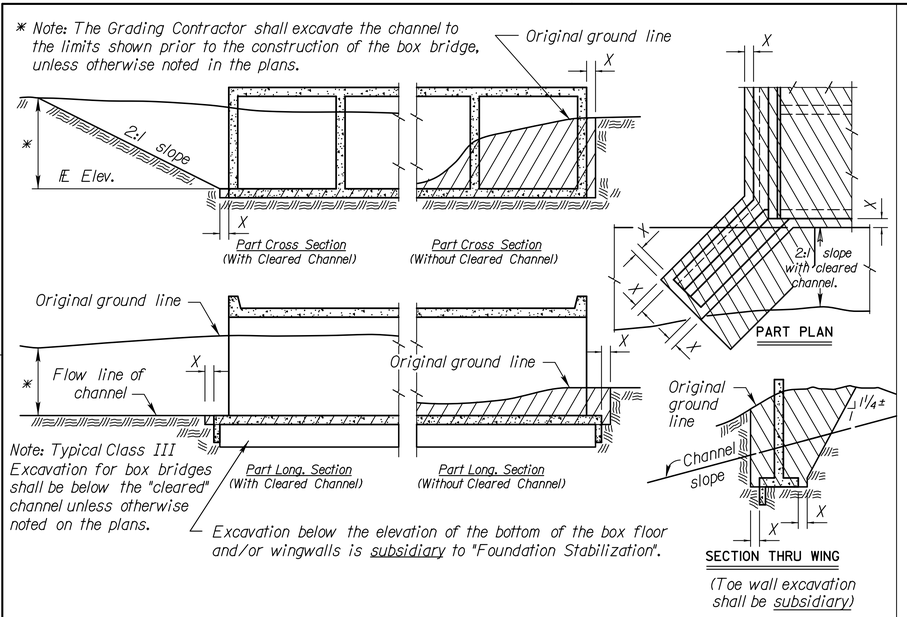
FHWA APPROVAL		4/17/10	APP'D	TERRY L. FLECK	
DESIGNED	JPJ	DETAILED	RAA	QUANTITIES	CADD RAA
DESIGN CK.	JSR	DETAIL CK.	JPJ	QUAN.CK.	CADD CK. JPJ

Std. Base File: br020.dgn
Plotted By: bmadiffeh
File: 15-RCB Aux Dets-br020b.dgn
Plot Date: 19-JAN-2016 10:41
Plot Location:

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	27	62

Std. Base File: br100.dgn
Plotted By: bmadiffett
File: I6-excar-br100b.dgn
Plot Date: 19-JAN-2016 10:41
Plot Location:

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

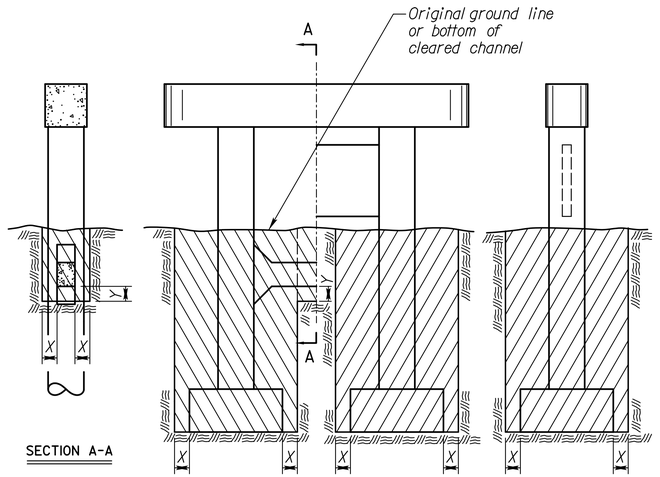


Note: Typical Class III Excavation for box bridges shall be below the "cleared" channel unless otherwise noted on the plans.

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

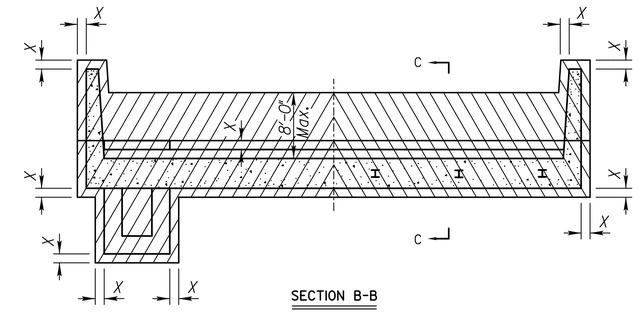
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

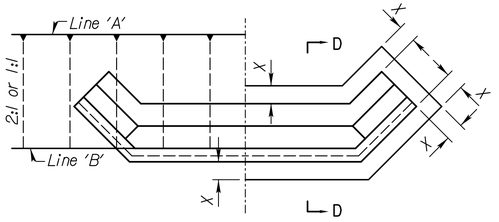
Note: Excavation for culverts less than bridge length and the additional excavation for "Embedded Structures" shall not be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.

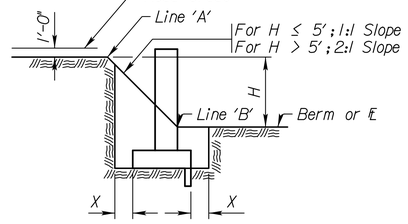


EXCAVATION DETAILS FOR TYPICAL PIERS

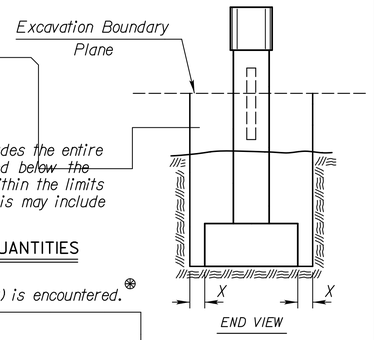
See detail when rock or shale (rock) is encountered. ⊛







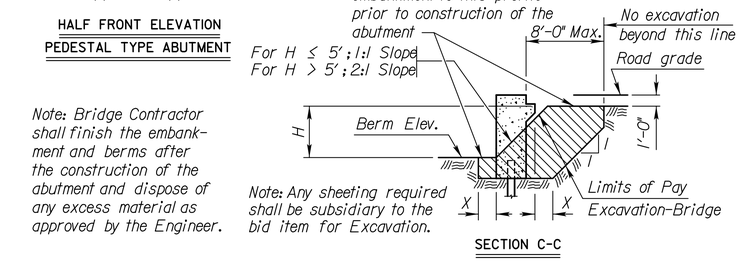
EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



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

CLASS II EXCAVATION QUANTITIES

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

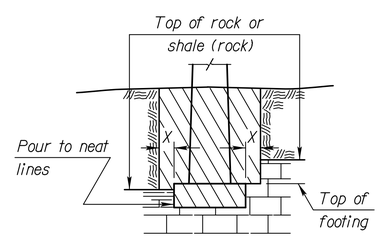


Note: Bridge Contractor shall finish the embankment and berms after the construction of the abutment and dispose of any excess material as approved by the Engineer.

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

EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

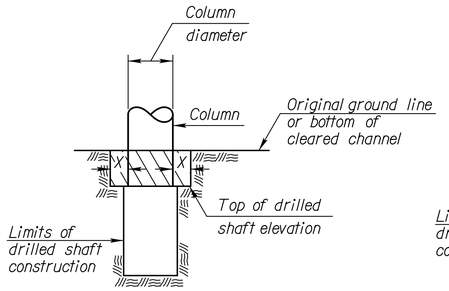
See detail when rock or shale (rock) is encountered. ⊛

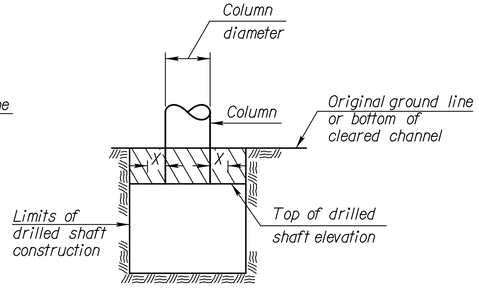


⊛ EXCAVATION DETAIL FOR FOOTINGS IN ROCK OR SHALE (ROCK)

(Piers and Abutments)

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





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)

DRILLED SHAFT DETAILS

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

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

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

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

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

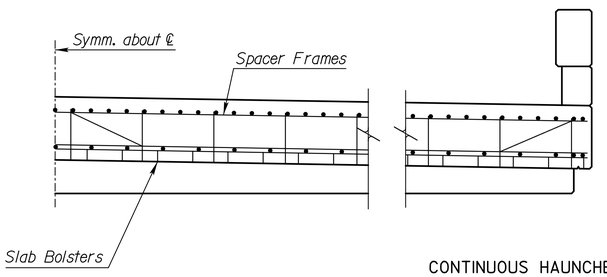
KANSAS DEPARTMENT OF TRANSPORTATION

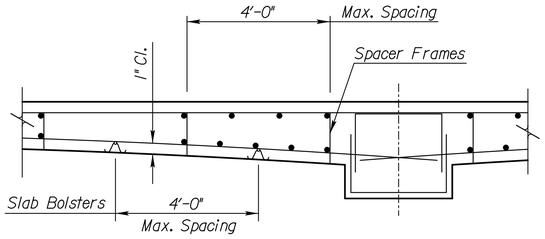
BRIDGE EXCAVATION (LRFD)

BRIOOB

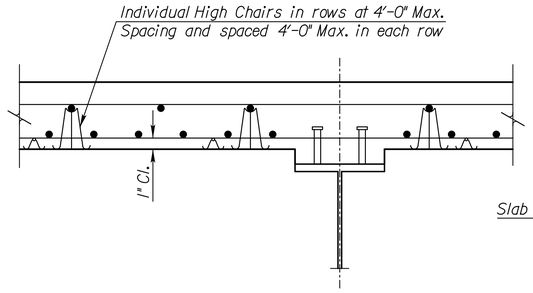
FHWA APPROVAL		4/17/10 APP'D		TERRY L. FLECK
DESIGNED	DETAILED	RDR QUANTITIES		CADD
DESIGN CK.	DETAIL CK.	LRR QUAN. CK.		CADD CK.

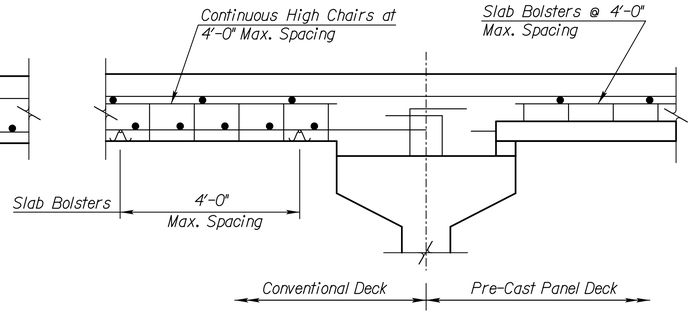
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	28	62



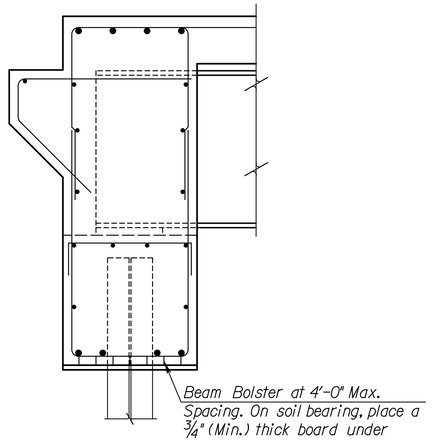


CONTINUOUS HAUNCHED SLAB

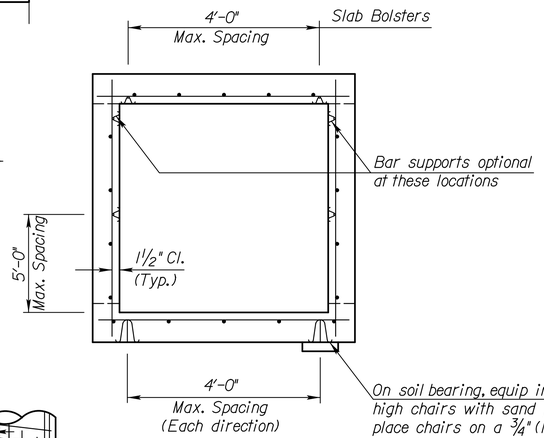




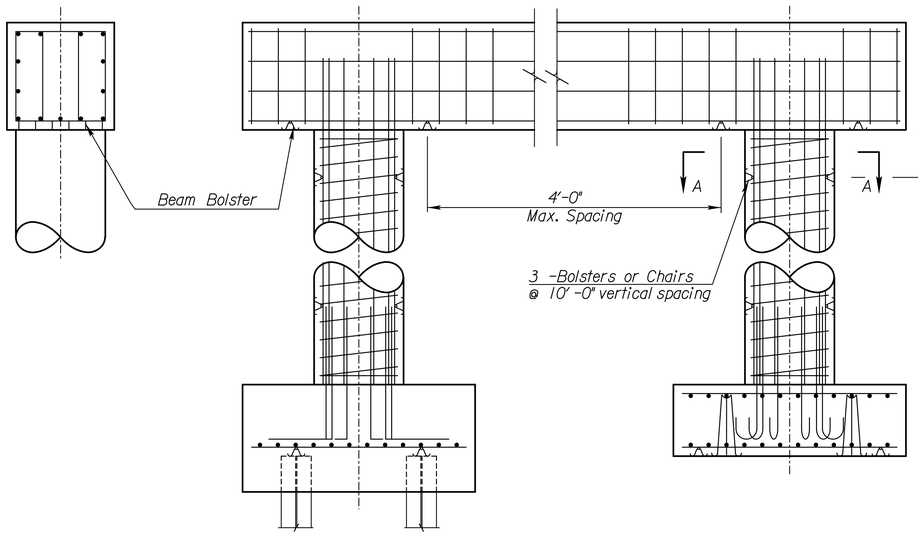
DECK GIRDERS



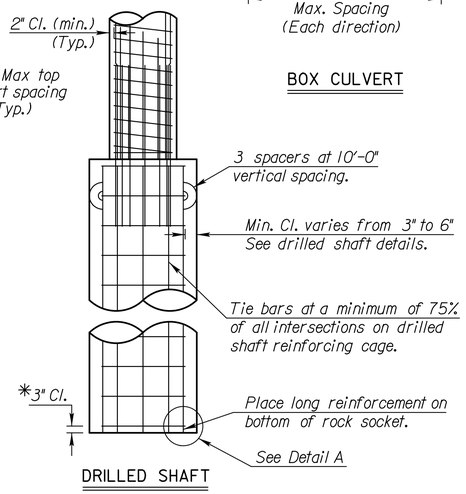
ABUTMENT



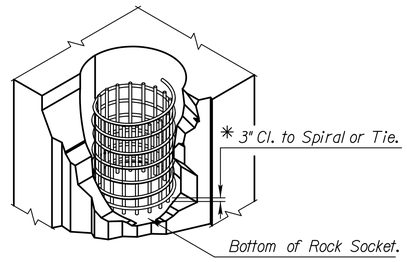
BOX CULVERT



PIER



DRILLED SHAFT



DETAIL A

* Note: Longitudinal reinforcing steel is placed on the bottom of the rock socket. Maintain 3" clearance from the bottom of rock socket to the first spiral or tie bar.

TYPICAL SECTION

Reference is made to the latest edition of the CRSI "Manual of Standard Practice" for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

1) Wire Bar Supports:

a) Epoxy coated reinforcing: Class 1 Protection
b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection

2) Plastic Bar Supports

3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Shop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

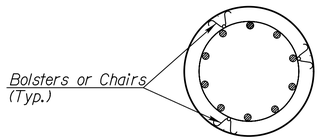
Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

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

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

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



SECTION A-A

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

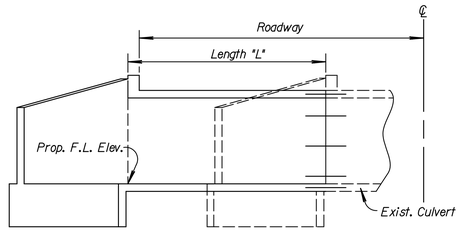
KANSAS DEPARTMENT OF TRANSPORTATION

SUPPORTS AND SPACERS FOR REINFORCING STEEL

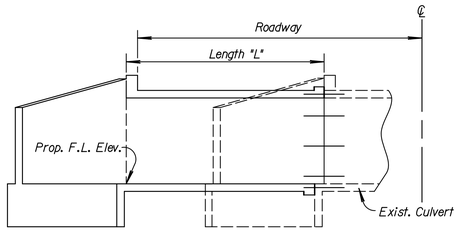
BRI20

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

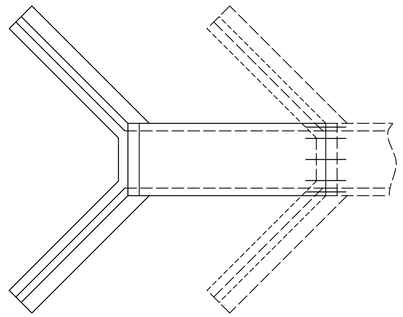
Date : 19-JAN-2016 10:42
File : I7-supports-bri20.dgn



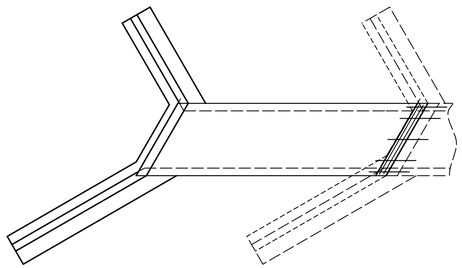
TYPICAL SECTION
(Flared Wings)



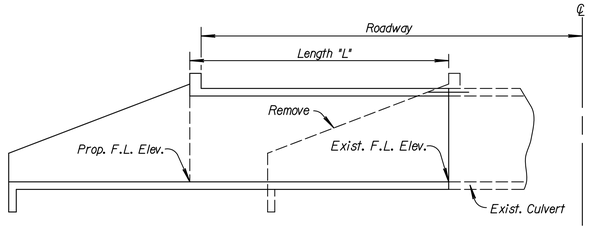
TYPICAL SECTION
(Skewed Structure)



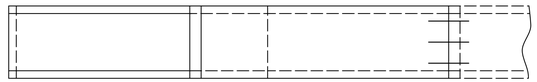
TYPICAL PLAN
(Flared Wings)



TYPICAL PLAN
(Skewed Structure)



TYPICAL SECTION
(Straight Wings)



TYPICAL PLAN
(Straight Wings)

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	29	62

GENERAL NOTE

Dimensions of existing structures shall be checked in the field prior to starting the new construction. Interior walls of multiple box extensions need not be the same thickness as the existing walls.

All existing concrete surfaces adjacent to new concrete shall be thoroughly cleaned by brushing, and soaked with water immediately prior to placing the new concrete.

All work and material necessary for installing the dowel bars shall be subsidiary to the bid item "Reinforcing Steel".

Grouting of bars shall meet the Standard Specifications of the Kansas Department of Transportation. Locate dowel bars near the center of walls and slabs.

For non-skewed boxes "s_1" and "f_1" bars shall be placed at ½ normal spacing for the first 18".

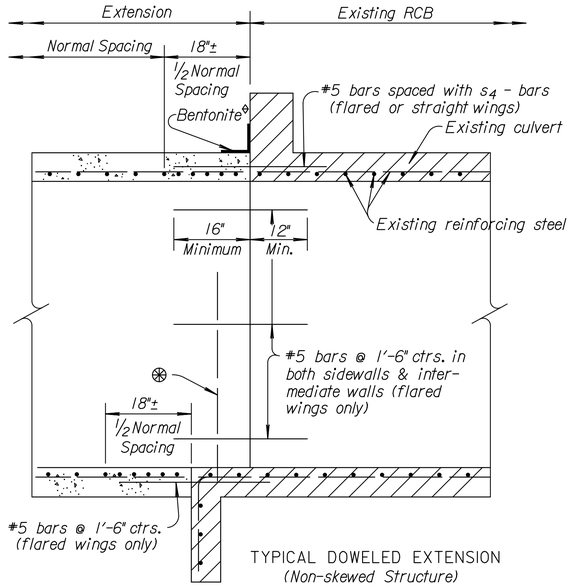
Straight Wing Extensions

Remove existing wings and wing aprons. Remove top of hubguard if necessary to clear new construction. A minimum of 24" length of the existing wing and floor steel shall be left intact and shall be cleaned and straightened to bond into the new concrete. Dowels (#5 deformed bars) shall be inserted across the top of box as shown in sketch. Butt extensions against existing culvert. This work shall be subsidiary to the bid item "Grade 4.0 Concrete".

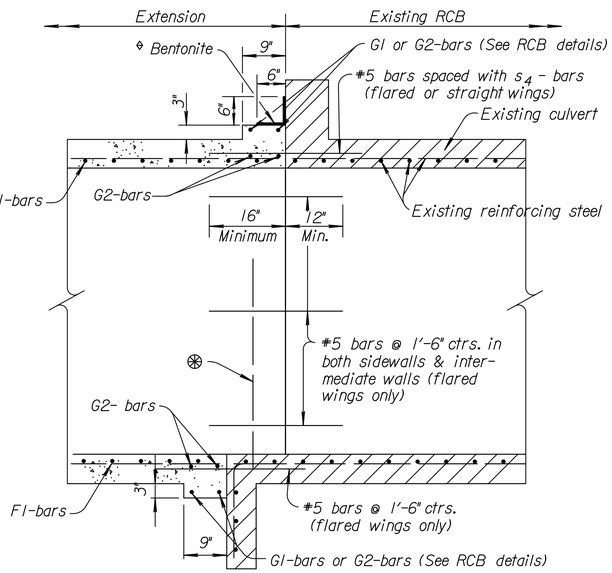
Flared Wing Extensions

Remove top of hubguard, if necessary, to clear new construction. Dowels (#5 deformed bars) shall be inserted in top, bottom, sides and intermediate walls, as shown in sketch. Butt extensions against existing culvert.

If the existing wingwall has an open vertical joint that interferes with the installation of the dowels, remove part of the wingwall to clear construction. This work shall be subsidiary to the bid item "Grade 4.0 Concrete".



TYPICAL DOWELED EXTENSION
(Non-skewed Structure)



TYPICAL DOWELED EXTENSION
(Skewed Structure)

◊ *NOTE: The joint between the RCB extension and the existing structure shall be protected by a bentonite based system as shown when the following conditions exist:*

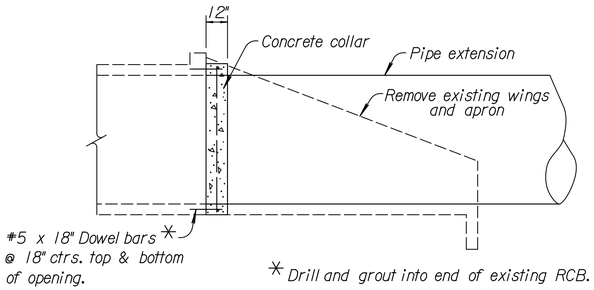
1. *Fill depth over the joint is 2 feet or less.*
2. *Lateral location of the joint is 20 feet or less from edge of pavement.*
3. *RCB span is equal to or greater than 8 feet.*

The bentonite shall be placed on the exterior walls and top slab and shall conform with the requirements of the Special Provision for "Bridge Backwall Protection System". All materials and labor required for this work shall be Subsidiary to the bid item "Grade 4.0 Concrete".

⊛ *If the existing footings are left in place, dowel any vertical reinforcing steel located in the new walls into the existing footing. For rigid frame boxes, this may require additional #5 dowel bars to splice to the exterior vertical bars in the wall.*

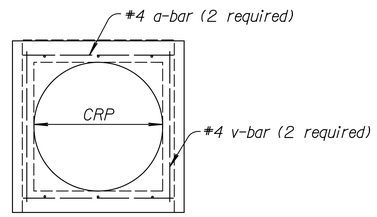
Quantities on this sheet are included in Summary of Quantities, Sh. No.

Station	Size Exist. R.C.B.	Roadway Lt.	Roadway Rt.	Length 'L' Lt.	Length 'L' Rt.	Grade 4.0 Conc. Cu. Yds.	Reinf. Steel Lbs.	Remarks
56+49.66	Double 2-10'x3'x49.5'	30.86'	35.78'	6.0'	11.17'	42.2	7920	

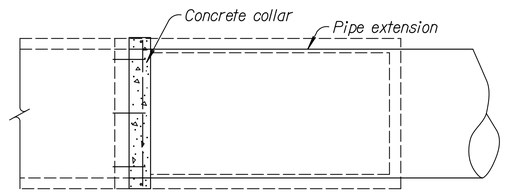


✳ *Drill and grout into end of existing RCB.*

SIDE VIEW



END VIEW



TOP VIEW

CONSTRUCTION OF COLLAR

NOTE: All Labor, Equipment, Materials, and Incidentals necessary to complete the concrete collar shall not be paid for directly but shall be considered Subsidiary to the individual pipe bid item.

Station	Size Exist. R.C.B.	Size C.R.P. Extension	Ext. Length Lt.	Ext. Length Rt.	End Section Lt.	End Section Rt.

NO.	DATE	REVISIONS	BY	APP'D
8	5-04-05	Class to Grade Conc., notes& details	S.W.K.	J.O.B.
7	4-18-01	Revised General Note	R.J.S.	J.O.B.
6	12- 5-00	Rev. General Note flared wing ext.	R.J.S.	J.O.B.
5	12-30-97	Added bentonite system	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL CULVERT EXTENSIONS

RD080

FHWA APPROVAL	6-10-05	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Seitz

Drawn By : bmcdiffett
File : rd080.dgn
Plotted : 19-JAN-2016 10:42

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	30	62

EARTHWORK

STATION to STATION	EXCAVATION									COMPACTION			✳ EMBANKMENT (CU.YDS.)	
	COMMON		ROCK		CONTR. FURN. BORROW					95% PROCTOR				
	CU.YDS.	VMF	CU.YDS.	VMF	CU.YDS.	VMF				SQ.YDS.				
51+19.77 to 61+70.00	697	0.74	350	1.00	629	0.74				1,305			981	
TOTALS	697		350		629					1,305				

✳ *Subsidiary, for Information Only*

Slotted Drain

Station to Station	Size	Inflow Elev.	Outflow Elev.	Slotted Drain (CSP) Lin. Ft.
Sta. 53+76.00 to Sta. 54+36.00	15"	1487.83	1487.65	60
TOTALS				60

RECAPITULATION OF ROAD QUANTITIES

	ITEM	QUANTITY	UNIT
	Contractor Construction Staking	1	L.S.
	Mobilization	1	L.S.
	Clearing and Grubbing	1	L.S.
	Common Excavation	697	C.Y.
	Rock Excavation	350	C.Y.
	Contractor Furnished Borrow	629	C.Y.
	Compaction of Subgrade (95% Proctor)	1,305	S.Y.
	Geogrid Reinforced Aggregate Base (Crushed Concrete)	1,305	S.Y.
	Milling (2" Nominal)	2,926	S.Y.
	Bituminous Pavement Overlay (2" Nominal)	394	Tons
	Bituminous Pavement (Base)	251	Tons
	Entrance Pavement Concrete (8")	526	S.Y.
	Curb & Gutter	1344	Lin. Ft.
	Sidewalk Construction (4")	1,250	S.Y.
	Sidewalk Ramp	89	S.Y.
	Storm Sewer (15") (RCP)	252	Lin. Ft.
	Storm Sewer (15") (RC) End Section	1	EACH
	Inlet (Type 22)	3	EACH
	Inlet (Type B Combined Inlet Manhole)	1	EACH
	Slotted Drain	60	Lin. Ft.
	Flowable Fill (Low Strength)	12	C.Y.
	Slope Drain (Concrete)	127	Lin. Ft.
BRIDGE			
BRIDGE	Concrete (Grade 4.0)	42.2	C.Y.
BRIDGE	Concrete (Grade 4.0) (AE)	33.4	C.Y.
BRIDGE	Bridge Backwall Protection System	82	S.Y.
BRIDGE	Concrete Safety Barrier Curb (Type II) (Special)	140	Lin. Ft.
BRIDGE	Reinforcing Steel (Gr. 60)	2,505	Lbs.
BRIDGE	Reinforcing Steel (Gr. 60) (Epoxy Coated)	11,310	Lbs.
BRIDGE	Fence (Chain Link) (6')	258	Lin. Ft.
BRIDGE	Class III Excavation	10	C.Y.
BRIDGE	Foundation Stabilization	15	C.Y.
BRIDGE	Concrete for Seal Course (Set)	1	C.Y.
BRIDGE	Granular Backfill (Wingwalls)	24	C.Y.
EROSION CONTROL & SEEDING			
EROSION CONTROL & SEEDING	Silt Fence	1,545	Lin. Ft.
EROSION CONTROL & SEEDING	Filter Sock (8")	33	Lin. Ft.
EROSION CONTROL & SEEDING	Sediment Removal (Set Price)	1	C.Y.
EROSION CONTROL & SEEDING	Seeding and Mulching (Temporary)	1.9	ACRES
EROSION CONTROL & SEEDING	Seeding and Mulching (Permanent)	1.9	ACRES
PAVEMENT MARKINGS			
PAVEMENT MARKINGS	Pavement Marking (Multi-Component) (White) (6")	432	FT
PAVEMENT MARKINGS	Pavement Marking (Multi-Component) (Yellow) (4")	2,533	FT
PAVEMENT MARKINGS	Pavement Marking (Multi-Component) (Yellow) (12")	52	FT
PAVEMENT MARKINGS	Pavement Marking Symbol (Intersection Grade) (White) (Left Arrow)	4	EACH
PAVEMENT MARKINGS	Pavement Marking Symbol (Intersection Grade) (White) (Railroad Xing)	1	EACH
PAVEMENT MARKINGS	Pavement Marking (Temporary) 4" Broken (3.0') (Type I)	14.8	Sta./Line
PAVEMENT MARKINGS	Pavement Marking (Temporary) 4" Broken (3.0') (Type II)	14.8	Sta./Line
	Traffic Control	1	L.S.

SCHEDULE OF INLETS AND MANHOLES

STATION	SIDE	TYPE: MAN-HOLES	CURB INLETS: TYPE 22	CURB INLETS: B Comb.	TYPE II SPECIAL	GUTTER INLETS	AREA INLETS	RADIUS	SEWER DATA: INFLOW PIPES SIZE	℄ ELEV.	SIZE	℄ ELEV.	SIZE	℄ ELEV.	OUTFLOW PIPES SIZE	℄ ELEV.	GRADE	ELEVATIONS: TOP ⊛	FLOOR	DIMENSIONS: L (FT.)	W (FT.)	H (FT.)	STORM SEWER (RCP) LIN. FT. 15"					END SECTIONS (RC) 15"						REMARKS
54+37.00	RT			1					15"	1487.65					15"	1487.55	0.30%	1490.40	1486.90	3	6.5	4	161.4											Slotted Drain Inflow Pipe
56+01.41	LT		1												15"	1488.25	0.68%	1490.86	1487.86	5	6	3.5	36.6					1						
56+01.41	RT		1						15"	1487.07					15"	1488.18	0.30%	1490.86	1486.86	5	6	4.5	25.3											Outlet into RCB
57+01.16	RT		1												15"	1488.39	2.39%	1491.08	1488.08	5	6	3.5	28.5											Outlet into RCB
TOTAL			3	1																			251.8					1						

⊛ *Note: Top Elevation is located as follows:*
1. *Manhole - Top of Manhole Ring*
2. *Curb Inlet - Top of curb.*
3. *Gutter Inlet - Top back of gutter.*
4. *Inlet - Manhole, Special - Top of Grate.*
5. *Ditch Inlet - Top of Concrete at Cover Plate.*

NO.	DATE	REVISIONS	BY	APP'D
2	1-14-08	Rem. Drainage Structure summary	S.W.K.	J.O.B.
1	1-9-91	Detailed on CADD	R.J.S	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

RD050

FHWA APPROVAL	5-28-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. S.W.K.

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : rd050.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	31	62

SCALE

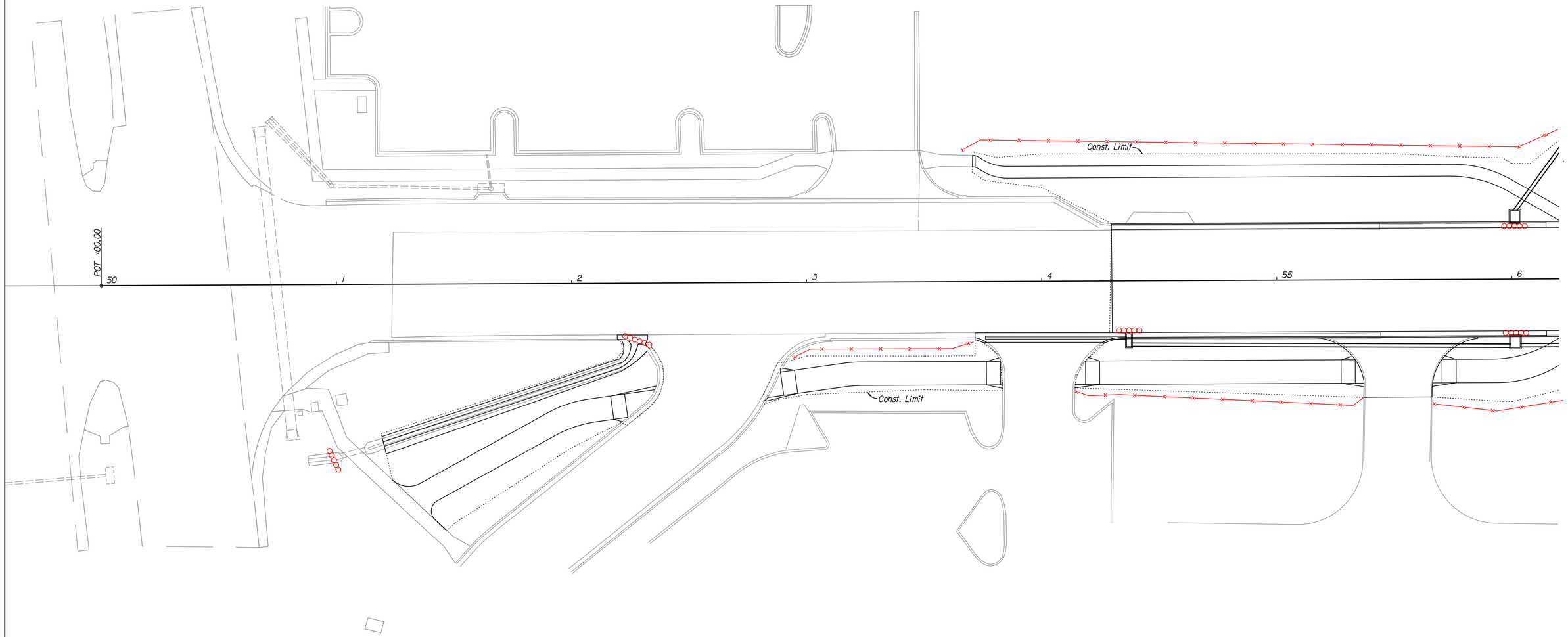
20' 0 20' 40'

PLAN: Lat. & Long.

LEGEND

Filter Socks

Silt Fence



CITY OF McPHERSON

EROSION CONTROL

STA. 50+00.00 TO STA. 56+20.00

Drawn By : bmcdiffett
File : Erosion Control 1.dgn

Plotted : 19-JAN-2016 10:42

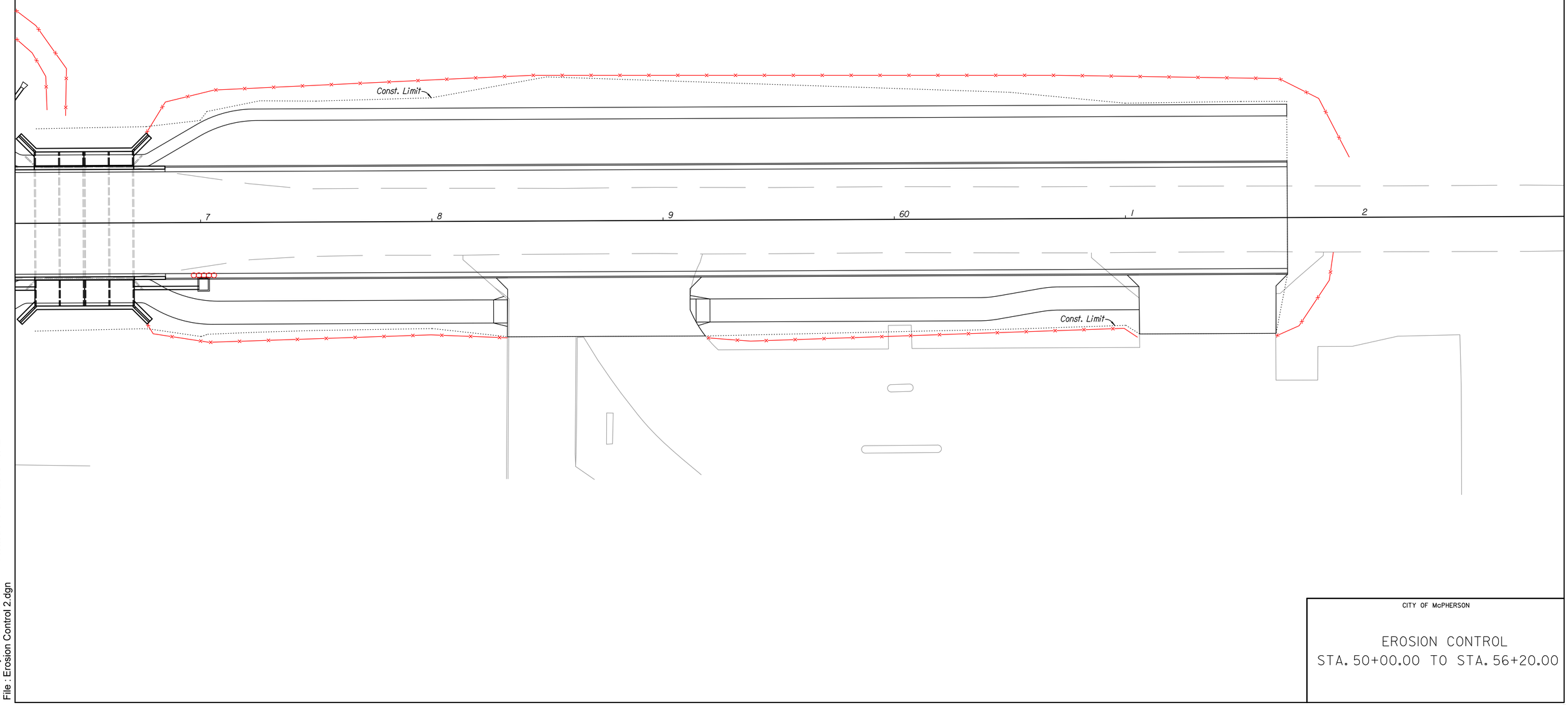
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	32	62

SCALE

PLAN: Lat. & Long. 20' 0 20' 40'

LEGEND

Filter Socks
Silt Fence

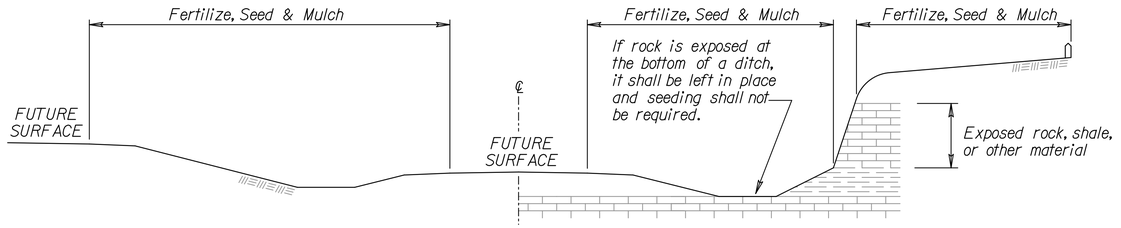


CITY OF McPHERSON

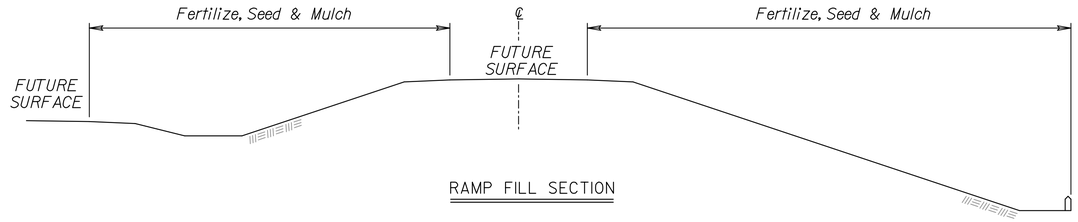
EROSION CONTROL
STA. 50+00.00 TO STA. 56+20.00

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : Erosion Control 2.dgn

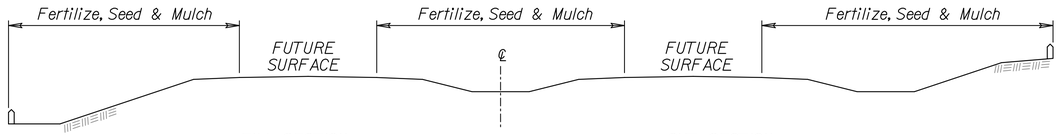
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	33	62



RAMP CUT SECTION



RAMP FILL SECTION



TYPICAL SECTION - DUAL PAVEMENT

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
# 150		1.9		Temporary Fertilizer (16 - 20 - 0)		LB
# 20		1.9		Temporary Seed (Canada Wildrye)		LB
# 45		1.9		Temporary Seed (Grain Oats)		LB
# 45		1.9		Temporary Seed (Sterile Wheatgrass)		LB
				Silt Fence	1,545	LF
				Filter Sock (8")	33	LF
				Sediment Removal(Set Price)	1	CU YD
				Seeding and Mulching (Temporary)	1.9	ACRE

#: For Information Only

NOTE: Project shall be bid as "Seeding and Mulching (Temporary)" by the acre. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.

Regreen and Quick Guard are the approved sterile wheatgrass products.

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 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.

The amount of mulch in the bid quantities is estimated. The total mulch required shall be determined in the field. The bid item for mulching slurry shall be paid for according to the Standard Specifications.

NO.	DATE	REVISIONS	BY	APP'D
3	4/06/15	Revised Standard	MRM	SHS
2	6/11/13	Revised Standard	MRM	SHS
1	6/01/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

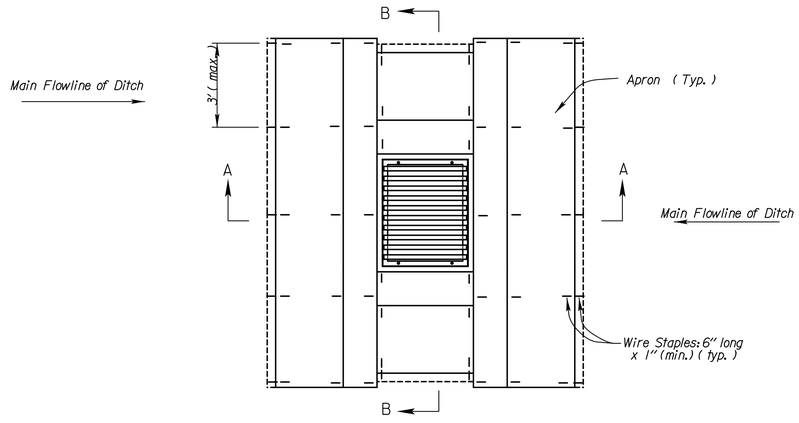
TEMPORARY EROSION AND POLLUTION CONTROL

~~LA852A~~

FHWA APPROVAL		5/14/2013	APP'D		Scott H. Shields
DESIGNED	MRM	DETAILED	MRM	QUANTITIES	CADD
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.	CADD CK.

Std. Base File:
Plotted By: bmadiffat | Plot Location:
File: la852a.dgn
Plot Date: 19-JAN-2016 1042

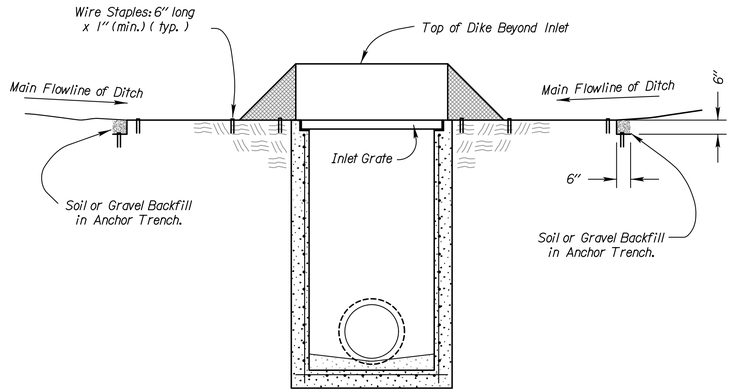
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	34	62



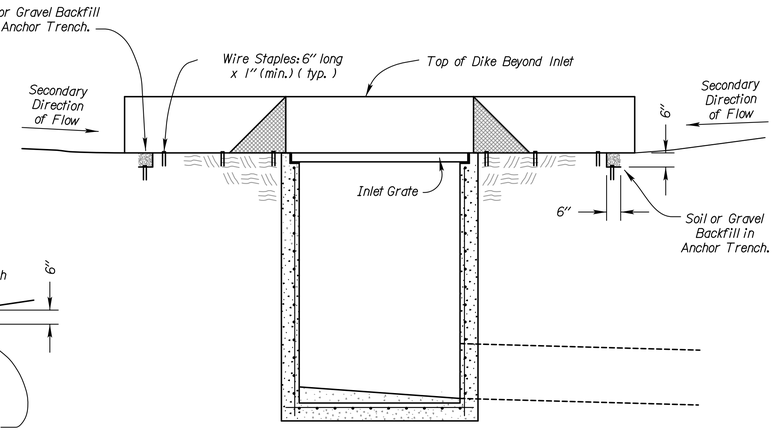
PLAN

TEMPORARY INLET SEDIMENT BARRIER
(TRIANGULAR SILT DIKE METHOD)

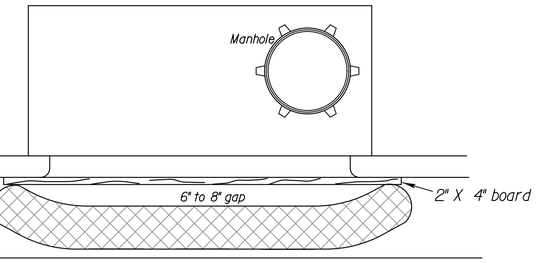
NO SCALE



SECTION A - A



SECTION B - B

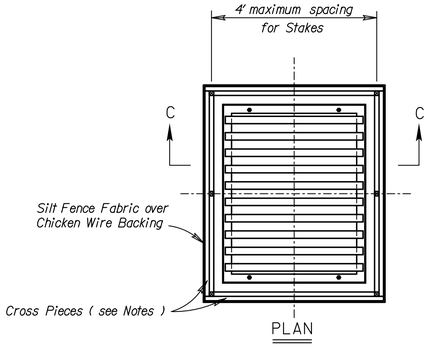


Bags = synthetic net (3mm mesh) or burlap bags

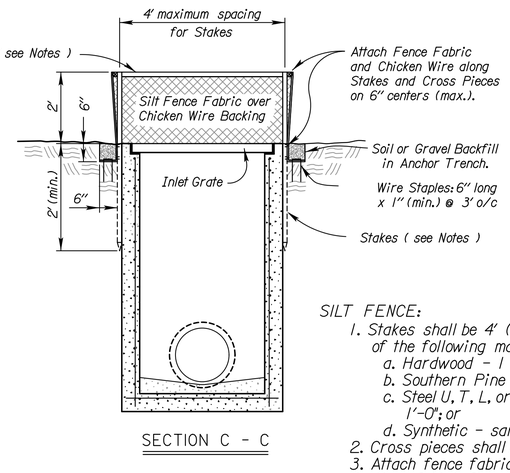
Rock = approximately 1" to 2" diameter

CURB INLET PROTECTION

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



PLAN



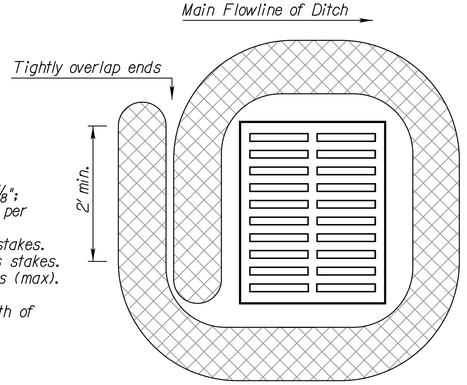
SECTION C - C

TEMPORARY INLET SEDIMENT BARRIER
(SILT FENCE METHOD)

NO SCALE

SILT FENCE:

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



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

BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION

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

Stake every 4'

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

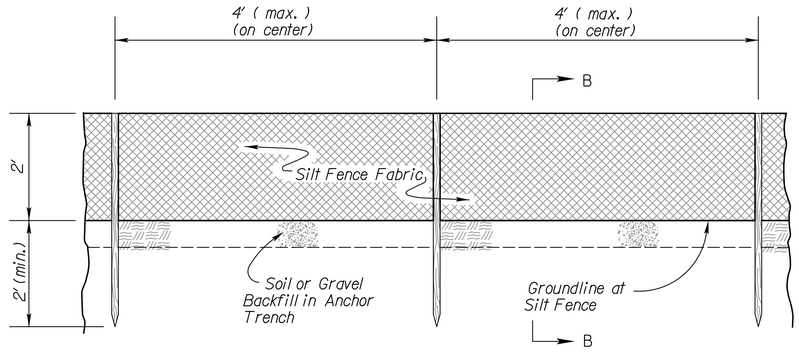
TEMP. INLET SEDIMENT BARRIER (SILT FENCE)
TEMP. INLET SEDIMENT BARRIER (T.S.D.)
CURB INLET PROTECTION
DROP INLET PROTECTION

LA852C

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

Std. Base File: ----------
Plotted By: bmodiffett | Plot Location:
File: la852c.dgn
Plot Date: 19-JAN-2016 10:42

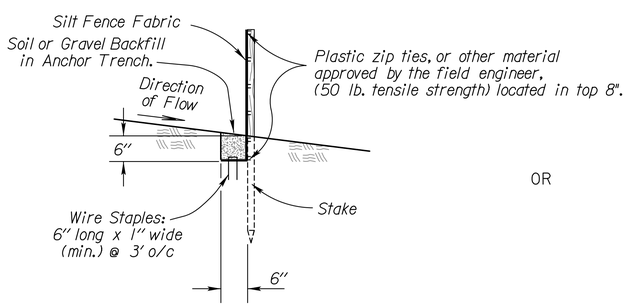
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	35	62



TYPICAL ELEVATION

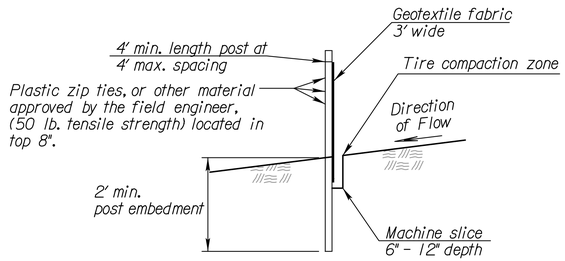
SILT FENCE SLOPE BARRIER

NO SCALE

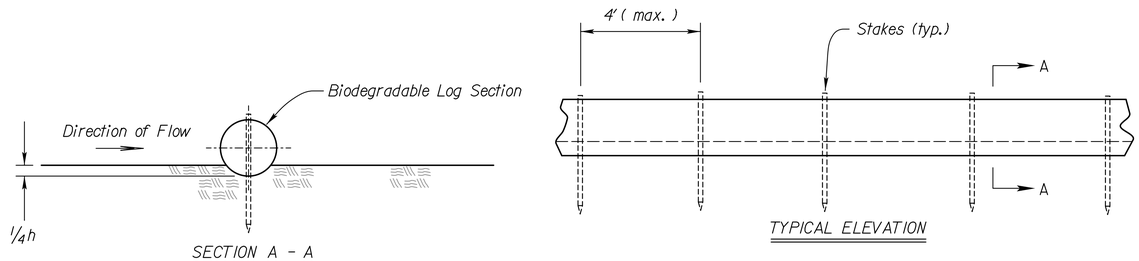


SECTION B-B

OR



SECTION B-B



SECTION A - A

TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE BARRIER

NO SCALE

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. 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.

BIODEGRADABLE LOG BARRIERS

1. Place biodegradable logs tightly together.
2. Wood stakes shall be 2" x 2" (nom.).
3. Wire staples shall be 6" long x 1" wide (min.) and placed on 4' (max.) centers.
4. Refer to plan sheets to estimate length of biodegradable log barriers required.
5. Logs should be keyed into the ground at a minimum of 25% of its height.
6. Length of stakes should be 2 times the height of the log at a minimum.

Biodegradable Logs, Straw Wattles & Sediment Logs

Slope Gradient	PRODUCT: 9" Sediment Log & 9" Straw Wattle (ft)	12" Sediment Log & 12" Straw Wattle (ft)	20" Sediment Log & 20" Straw Wattle (ft)
≤4H:1V	40	60	80
3H:1V	30	45	60
2H:1V	20	30	40
1H:1V	10	15	20

9" and 12" material should only be used in areas which have been seeded and mulched. 20" material should be used in all other areas. 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) The slope barriers shall be placed along contour lines, with a short section turned upgrade at each end of the barrier. The maximum length of the slope barrier shall not exceed 250 feet, and the barrier ends need to be staggered.
2) At culverts, the Silt Fence shall be placed over the culvert, not through the streambed flowline.
3) Barriers damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.
4) Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

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

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

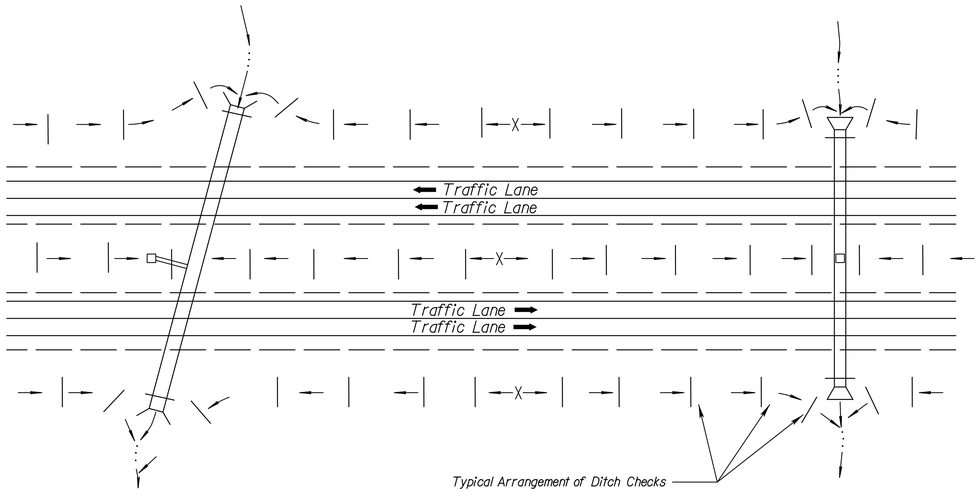
SILT FENCE SLOPE BARRIERS
BIODEGRADABLE LOG SLOPE BARRIERS

LA852D

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

Std. Base File:	
Plotted By: bmoditfeft	Plot Location:
File: la852d.dgn	
Plot Date: 19-JAN-2016 10:42	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	36	62



TYPICAL DITCH CHECK LAYOUT PLAN

NO SCALE

TEMPORARY DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	*200*
2.0	*100*
3.0	*65*
4.0	*50*
5.0	*40*
6.0	*33*
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 exceeds 6 percent.*
3) *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.*

Std. Base File:	
Plotted By: *bmadiffett*	Plot Location:
File: *la852e.dgn*	
Plot Date: *19-JAN-2016 10:42*	

NO.	DATE	REVISIONS	BY	APP'D
3	6/01/13	Revised Standard	MRM	SHS
2	9/10/07	Revised Standard	MRM	SHS
1	6/16/05	Revised Standard	WCL	RDR

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

DITCH CHECKS

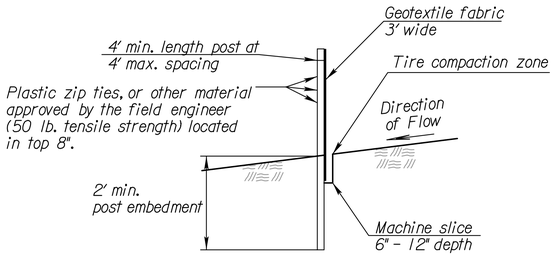
LA852E

FHWA APPROVAL	5/14/2013	APP'D	Scott H. Shields		
DESIGNED	MRM	DETAILED	MRM	QUANTITIES	CADD MRM
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.	CADD CK. SHS

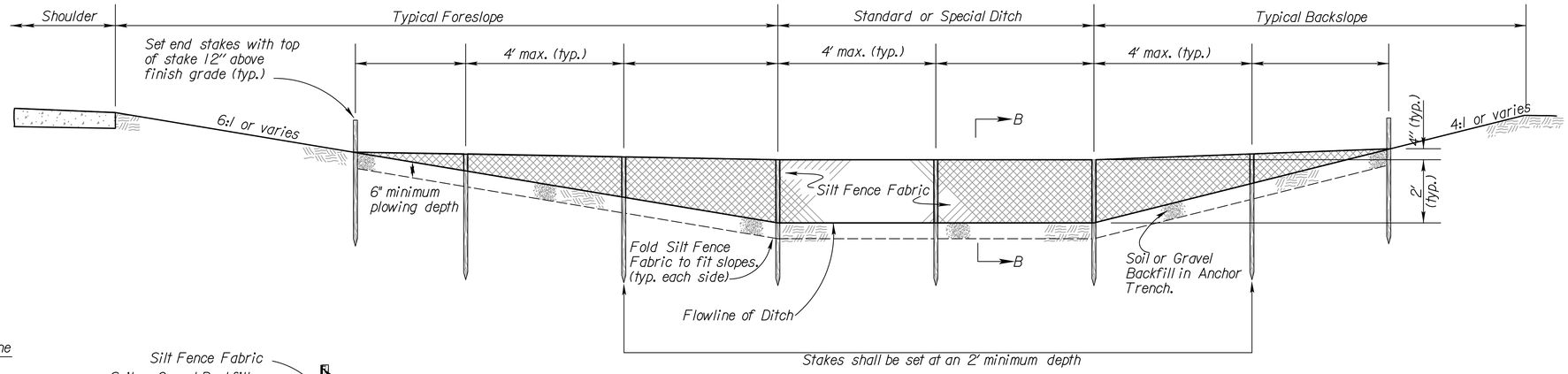
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	37	62

SILT FENCE:

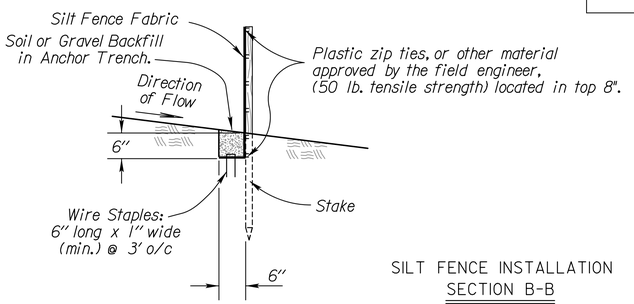
1. Stakes shall be 4' (min.) long and one of the following materials:
   a. Hardwood - 1 3/16" x 1 3/16";
   b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0";
   d. Synthetic - same strength as wood stakes.
2. Cross pieces shall be of same material as 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.
6. Use support fencing when tributary area is greater than 2.4 acres or when ditch gradient is greater than 2 percent.
7. Silt fence plowing is acceptable at a 6" minimum depth. Trenching is acceptable in certain cases.



SILT FENCE INSTALLATION
SECTION B-B



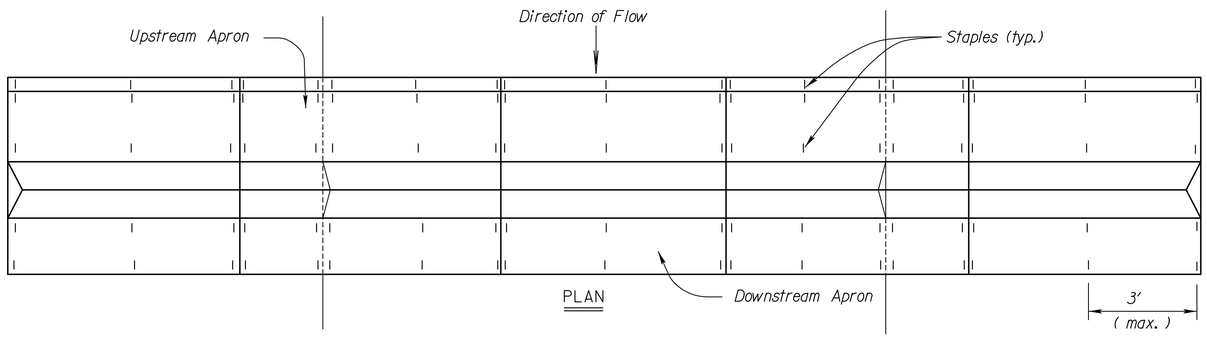
TYPICAL ELEVATION



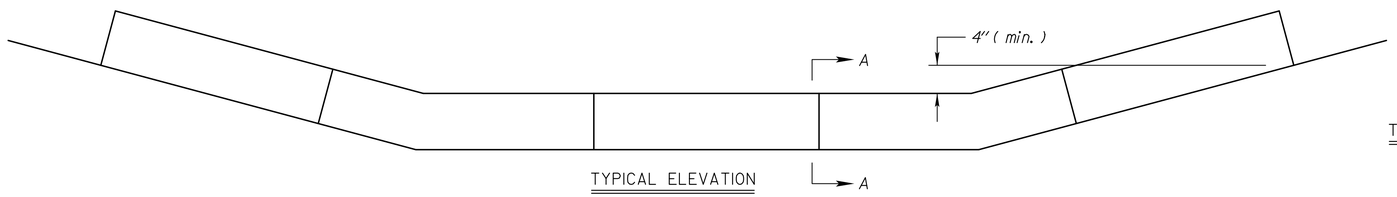
SILT FENCE INSTALLATION
SECTION B-B

SILT FENCE DITCH CHECK

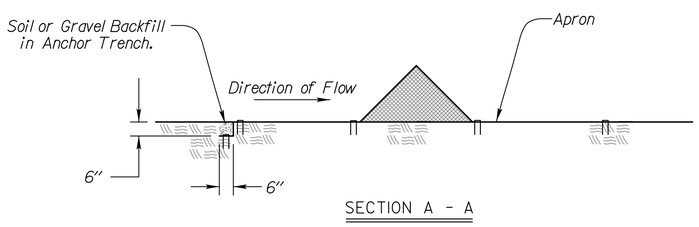
NO SCALE



PLAN



TYPICAL ELEVATION



SECTION A - A

TRIANGULAR SILT DIKE:
1. Place triangular silt dike sections tightly together with apron material overlapping end-to-end by 6".
2. Wire staples shall be 6" long by 1" wide (min).
3. Use as many triangular silt dike sections as necessary to ensure water does not flow around end of ditch check.

TRIANGULAR SILT DIKE DITCH CHECK

NO SCALE

NO.	DATE	REVISIONS	BY	APP'D
3	3/01/15	Revised Standard	RA	SHS
2	7/24/13	Revised Standard	MRM	SHS
1	6/01/13	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

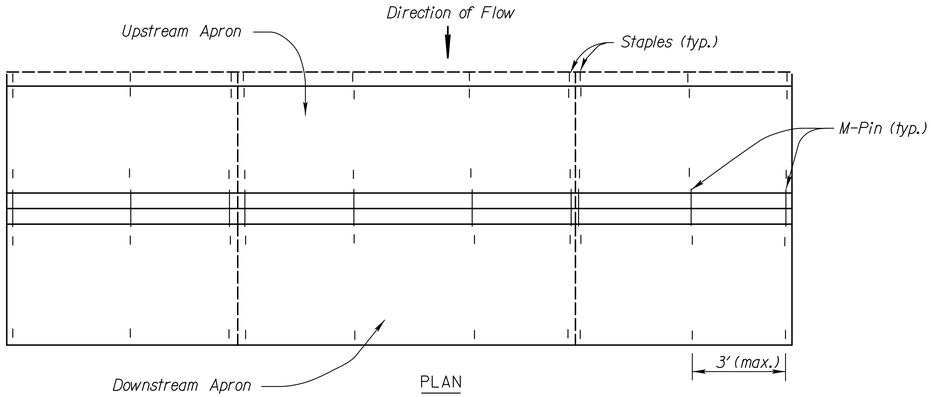
TEMPORARY EROSION AND POLLUTION CONTROL
SILT FENCE DITCH CHECKS
TRIANGULAR SILT DIKE DITCH CHECKS

LA852F

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

Std. Base File:
Plotted By: bmoditfeff | Plot Location:
File: la852f.dgn
Plot Date: 19-JAN-2016 10:42

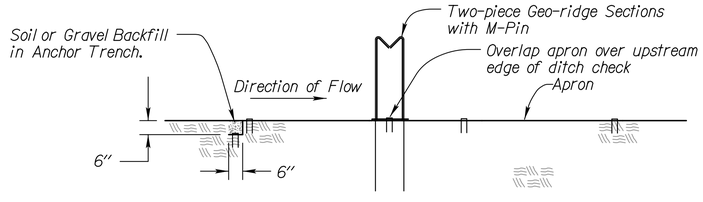
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	38	62



PLAN

GEO-RIDGE PERMEABLE BERM NOTES

1. Overlap Geo-ridge Berm sections and apron material by 6".
2. Use M-Pins supplied by manufacturer to secure geo-ridge Berm sections.
3. Use as many Geo-ridge Berm sections as necessary to insure water does not flow around end of ditch check.
4. Use silt fence material as the apron to prevent scour above and below the ditch check.
5. Wire Staples shall be 6" long by 1" wide, minimum.

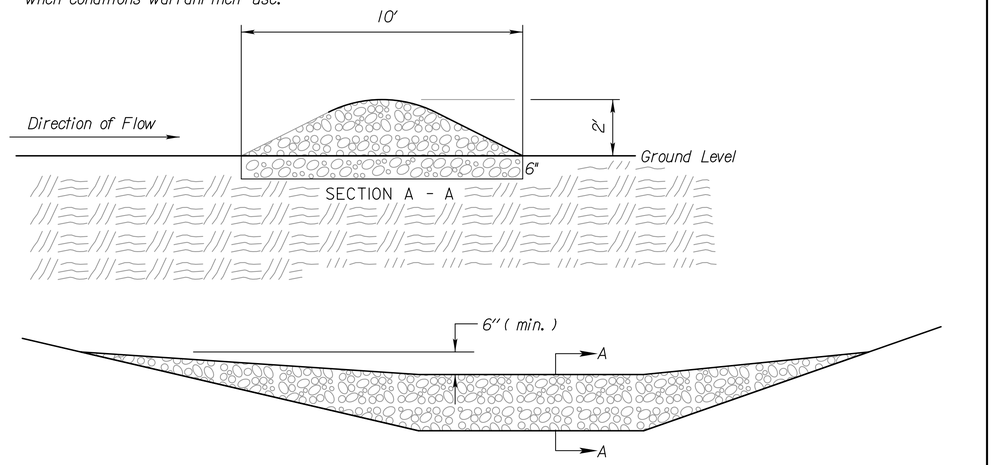


SECTION C - C

ROCK DITCH CHECK NOTES

1. Rock shall be clean aggregate, D50 = 6".
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) (Set Price).
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 when conditions warrant their use.

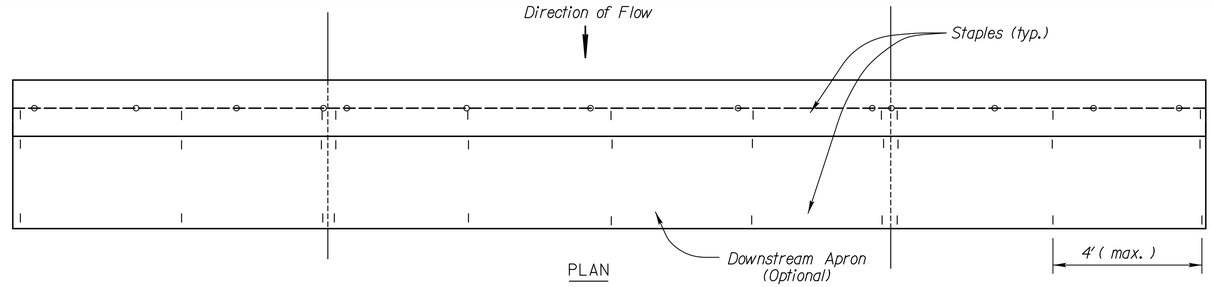
TEMPORARY ROCK DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
NOTE: Use this spacing only for Rock Ditch Checks.	



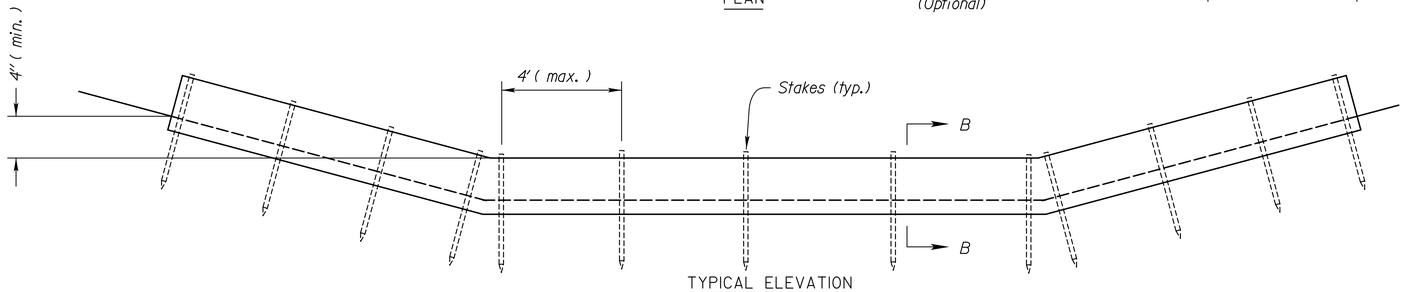
TYPICAL ELEVATION

ROCK DITCH CHECK

NO SCALE



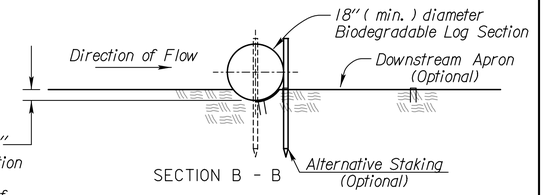
PLAN



TYPICAL ELEVATION

BIODEGRADABLE LOG DIKE 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. Use 9" diameter logs when used with Erosion Control (class 2) (any type) channel lining.
6. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price



SECTION B - B

BIODEGRADABLE LOG DITCH CHECK
OR Filter Sock Ditch Check

NO SCALE

NO.	DATE	REVISIONS	BY	APP'D
3	9/15/14	Revised Standard	RAA	SHS
2	9/01/10	Revised Standard	MRM	SHS
1	12/31/09	Revised Standard	MRM	SHS

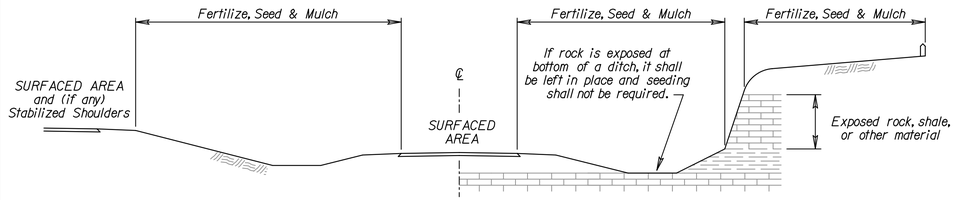
KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL
ROCK DITCH CHECKS
BIODEGRADABLE LOG DITCH CHECKS
GEO-RIDGE PERMEABLE BERM DITCH CHECKS
LA852G

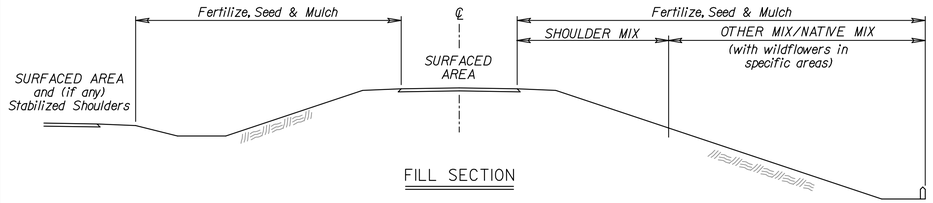
FHWA APPROVAL			9/15/2014	APP'D		Scott H. Shields	
DESIGNED	MRM	DETAILED	RAA	QUANTITIES		CADD	RAA
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.		CADD CK.	

Std. Base File: la852g.dgn
Plotted By: bmoditfeft | Plot Location:
File: la852g.dgn
Plot Date: 19-JAN-2016 10:42

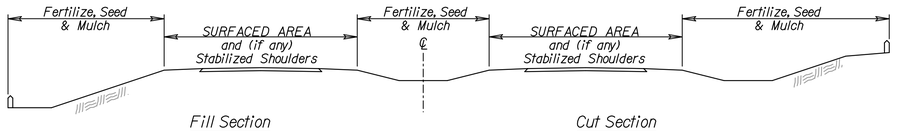
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	39	62



CUT SECTION



FILL SECTION



TYPICAL SECTION - DUAL PAVEMENT

SEEDING PERIODS

COOL SEASON February 15 to April 20 and August 15 to Sept. 30	WARM SEASON November 15 to June 1
SPECIES	SPECIES
Bluegrasses	Big Bluestem
Bromegrasses	Blue Grama
Canada Wildrye	Buffalograss
Fescues	Eastern Gamagrass
Prairie Junegrass	Indiangrass
Reed Canarygrass	Little Bluestem
Ryegrasses	Sand Bluestem
Sterile Wheatgrass	Sand Dropseed
Tall Dropseed	Sand Lovegrass
Western Wheatgrass	Side Oats Grama
	Switchgrass
	Wildflower Mixes

When "Cool Season" species are mixed with "Warm Season" species, in areas of 1 acre or more, the mixture shall be seeded during the "Warm Season". In areas of less than 1 acre, the mixture of "Cool Season" and "Warm Season" species may be seeded during the "Warm or Cool Seasons".

SODDING PERIODS
March 1 to April 15 and September 1 to November 15

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.

It shall not be required to till the area to bare ground prior to permanent seeding. 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 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.

The amount of mulch in the quantities is estimated. The total mulch required shall be determined in the field.

NATIVE WILDFLOWER MIX 1

PLS RATE	NAME	QTY (lb)
0.1	Black Eyed Susan	
1.8	Illinois Bundleflower	
0.15	Maximilian Sunflower	
0.4	Purple Prairie Clover	
2.9	Showy Partridge Pea	
0.1	Upright Prairie Coneflower	
0.3	Butterfly Milkweed	
0.1	Stiff Goldenrod	
0.05	Pinnate Prairie Coneflower	
0.1	Lance-leaf Coreopsis	
0.05	New England Aster	
0.2	Pale Purple Coneflower	
0.05	Plains Coreopsis	
0.05	Hoary Verbena	
0.3	Roundhead Lespedeza	
0.4	Thickspike Gayfeather	
0.05	Wild Bergamot	
0.2	Smooth Oxeye	
0.05	Lemon Mint	
7.35	Total (lb)	

NATIVE WILDFLOWER MIX 2

PLS RATE	NAME	QTY (lb)
0.1	Black Eyed Susan	
1.8	Illinois Bundleflower	
0.15	Maximilian Sunflower	
0.4	Purple Prairie Clover	
2.9	Showy Partridge Pea	
0.1	Upright Prairie Coneflower	
0.3	Butterfly Milkweed	
0.4	Dotted Blazing Star	
0.4	Annual Gaillardia	
0.05	Stiff Goldenrod	
0.05	New England Aster	
0.3	Missouri Evening Primrose	
0.05	Plains Coreopsis	
0.15	White Prairie Clover	
0.3	Roundhead Lespedeza	
0.05	Lemon Mint	
0.15	Pitcher Sage	
7.65	Total (lb)	

NATIVE WILDFLOWER MIX 3

PLS RATE	NAME	QTY (lb)
0.15	Black Eyed Susan	
1.9	Illinois Bundleflower	
0.15	Maximilian Sunflower	
0.05	Western Yarrow	
0.5	Black Sampson Echinacea	
0.05	Upright Prairie Coneflower	
0.3	Butterfly Milkweed	
0.4	Dotted Blazing Star	
0.75	Annual Gaillardia	
0.05	Stiff Goldenrod	
0.05	New England Aster	
0.4	Pitcher Sage	
0.01	Plains Coreopsis	
0.15	White Prairie Clover	
0.2	Purple Prairie Clover	
0.4	Leadplant	
0.02	White Heath Aster	
1	Blue Wild Indigo	
0.05	Lemon Mint	
6.58	Total (lb)	

NATIVE WILDFLOWER MIX 4

PLS RATE	NAME	QTY (lb)
1.9	Illinois Bundleflower	
0.4	Maximilian Sunflower	
0.05	Western Yarrow	
1	Black Sampson Echinacea	
0.1	Upright Prairie Coneflower	
0.1	Scarlet Globemallow	
0.4	Dotted Blazing Star	
1.1	Annual Gaillardia (Firewheel)	
0.1	Hoary Vervain	
0.3	White Prairie Clover	
0.4	Purple Prairie Clover	
0.4	Perennial Gaillardia (Blanket Flower)	
0.02	White Heath Aster	
0.05	Lemon Mint	
6.32	Total (lb)	

Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed 1/8" - 1/4". Place the wildflower seed in a separate seed box and drill (cover) seed 1/16" maximum. Place the Tall Drop Seed in a separate (third) seed box and place the seed (using the seed drill) on the soil surface. OPTION: Broadcast Tall Drop Seed on the soil surface.

SUMMARY OF SEEDING QUANTITIES (PERMANENT)

P.L.S. RATE/ACRE				ACRES				BID ITEM	QUANTITY	UNIT
SHLDR	OTHER			SHLDR	OTHER					
	150				1.9			Fertilizer (16 - 20 - 0)		LB
	180				1.9			Seed (Fescue)(Tall Turf Type Blend)		LB
								Seeding and Mulching (Permanent)	1.9	ACRE

#: For Information Only

SHLDR = Shoulder Turf Mix: Includes a 30 foot wide strip along the stabilized shoulder on each side of each traveled way, plus all median areas less than 60 feet wide.

OTHER = All other turf areas except Shoulder, Guardrail, and Native areas usually include the Native Wildflower Mix.

NOTE: Project shall be bid as "Seeding and Mulching (Permanent)" by the acre. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.

NO.	DATE	REVISIONS	BY	APP'D
4	6/01/13	Revised Standard	MRM	SHS
3	3/01/13	Revised Standard	MRM	SHS
2	2/24/12	Revised Standard	MRM	SHS
1	6/01/10	Revised Standard	MRM	SHS

KANSAS DEPARTMENT OF TRANSPORTATION

PERMANENT SEEDING
SUMMARY OF SEEDING QUANTITIES

~~LA850~~

FHWA APPROVAL		5/14/2013	APP'D		Scott H. Shields
DESIGNED	MRM	DETAILED	MRM	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.		QUAN.CK.	CADD CK.

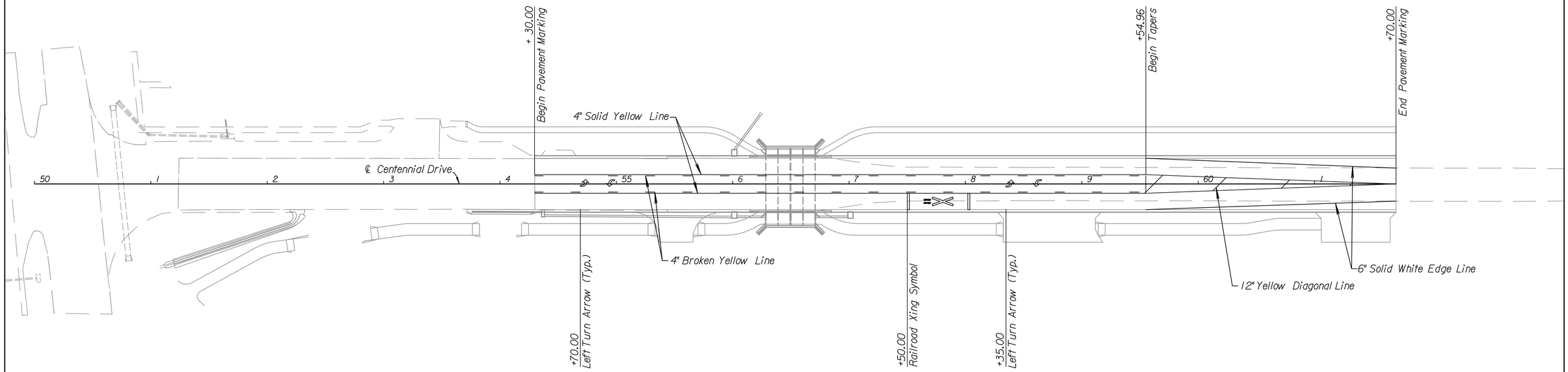
Std. Base File:
Plotted By: bmadiffatt Plot Location:
File: la850.dgn
Plot Date: 19-JAN-2016 10:42

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	40	62

SCALE

40' 0 40' 80'

PLAN: Lat. & Long.



Note: See Pavement Marking Detail Sheets TE 308, TE 309 and TE311

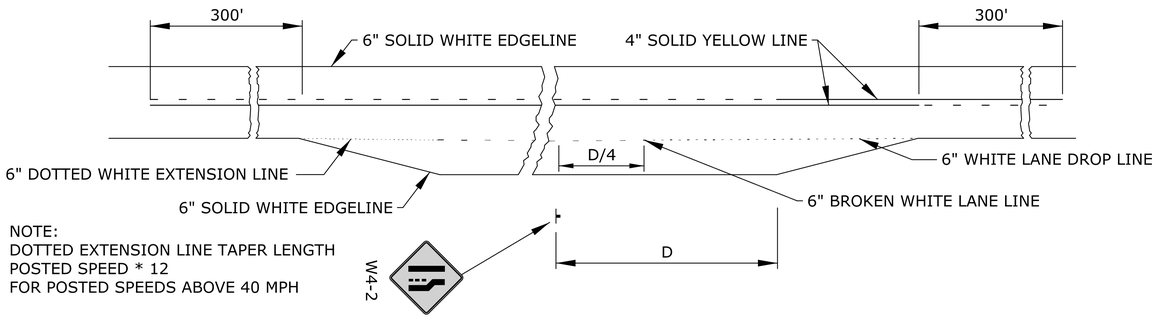
CITY OF McPHERSON

Pavement Markings

Drawn By : bmcdiffett
File : Pavement Marking.dgn

Plotted : 19-JAN-2016 10:42

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	41	62

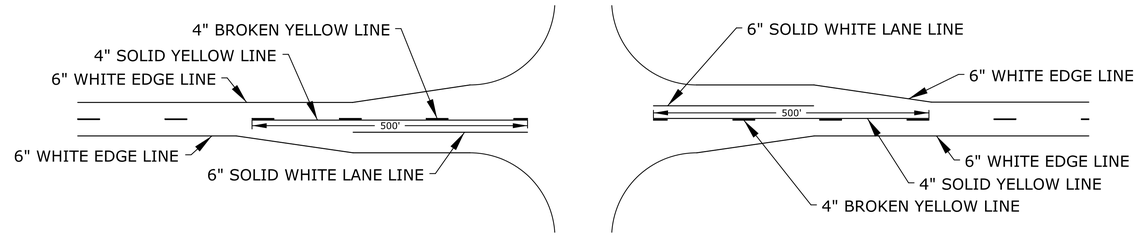


NOTE:
DOTTED EXTENSION LINE TAPER LENGTH
POSTED SPEED * 12
FOR POSTED SPEEDS ABOVE 40 MPH

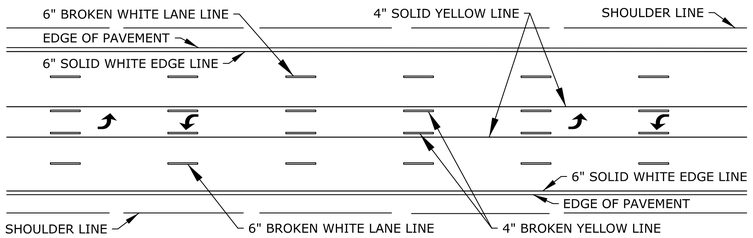
TYPICAL MARKING FOR AUXILIARY PASSING LANE

NOTE:
ALL PAVEMENT MARKINGS SHALL BE BROKEN AT CROSS ROADS.

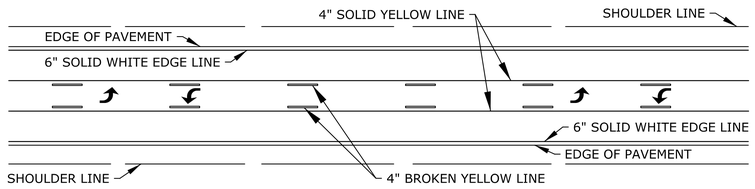
FOR HIGHWAY JUNCTIONS THE NO PASSING ZONE WILL EXTEND 1000' FROM INTERSECTION.



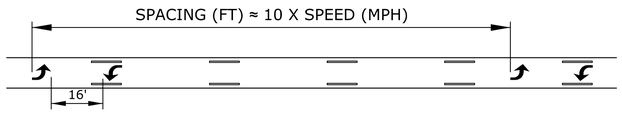
TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY

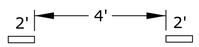


TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY

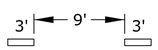


TWO-WAY LEFT TURN ARROW SPACING DETAIL

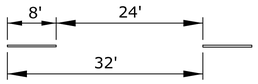
NOTE:
IF ARROWS ARE USED SPACE THE ARROWS AS SHOWN IN THE SPACING DETAIL.



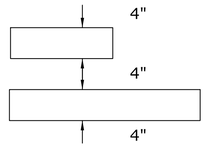
TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



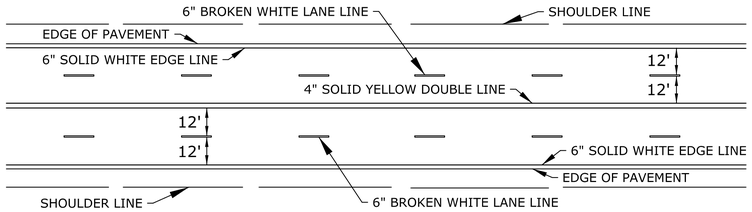
TYPICAL SPACING FOR LANE DROP. UNLESS OTHERWISE NOTED ON PLANS.



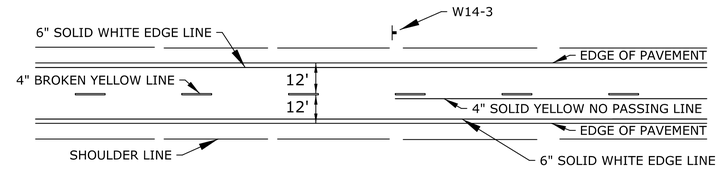
TYPICAL SPACING FOR BROKEN LINES UNLESS OTHERWISE NOTED ON PLANS



TYPICAL SPACING FOR NO PASSING LINES UNLESS OTHERWISE NOTED ON PLANS



TYPICAL MARKINGS FOR FOUR LANE ROADWAY



TYPICAL TWO LANE MARKINGS

NOTE:
LONGITUDINAL PAVEMENT MARKING LINES SHALL BE OFFSET A MINIMUM OF 2" FROM LONGITUDINAL PAVEMENT JOINTS.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

NO.	DATE	REVISIONS	BY	APP'D
3	5/25/12	Added Dotted Extension and Lane Drop Lines	B.A.H.	B.D.G.
2	9/20/05	Removed Aux. Passing Lane Dotted Ext. Line	J.F.F.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL PAVEMENT MARKING DETAILS FOR UNDIVIDED ROADWAYS

TE308

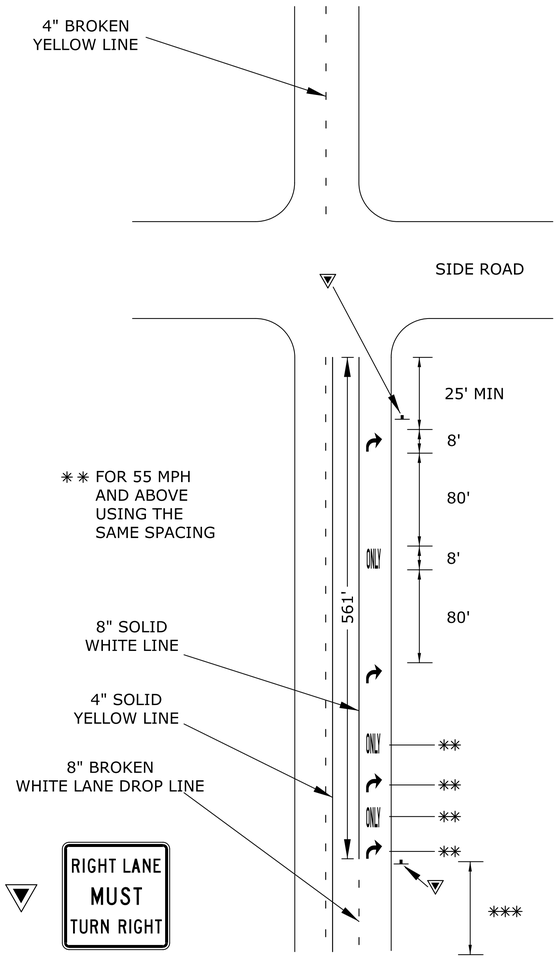
FHWA APPROVAL		5/25/2012	APP'D	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

Sh. No. 41

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : te308.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	42	62

TYPICAL SIGNING AND MARKING FOR RIGHT LANE MUST TURN RIGHT



✳✳ FOR 55 MPH AND ABOVE USING THE SAME SPACING

✳✳✳ THE LANE DROP MARKINGS LENGTH IS A MINIMUM OF 100' AND A MAXIMUM OF 250' PRIOR TO THE 8"SOLID WHITE LINE

RAILROAD CROSSING MARKING

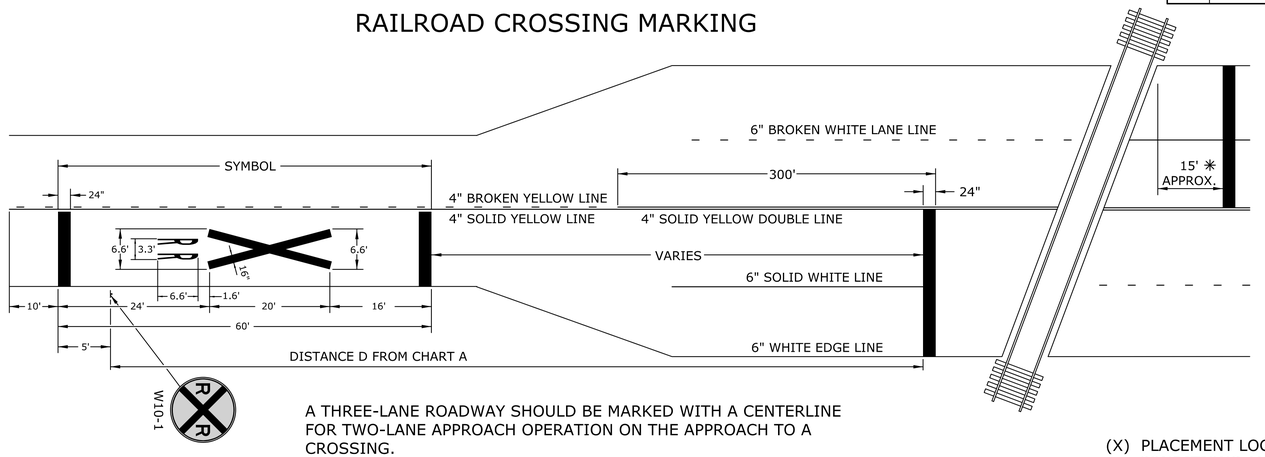


CHART "A"

SPEED MPH	DISTANCE D (feet)
75	850
70	750
65	650
60	550
55	450
50	375
45	300
40	225
35	150
30	(X)
25	(X)
20	(X)

ALL DISTANCES ARE MINIMUM.

A THREE-LANE ROADWAY SHOULD BE MARKED WITH A CENTERLINE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.
ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS FOR R X R SYMBOLS DETAILS.

*STOP LINE 8' FROM NEAR EDGE OF GATE OR CANTILEVER, IF PRESENT.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

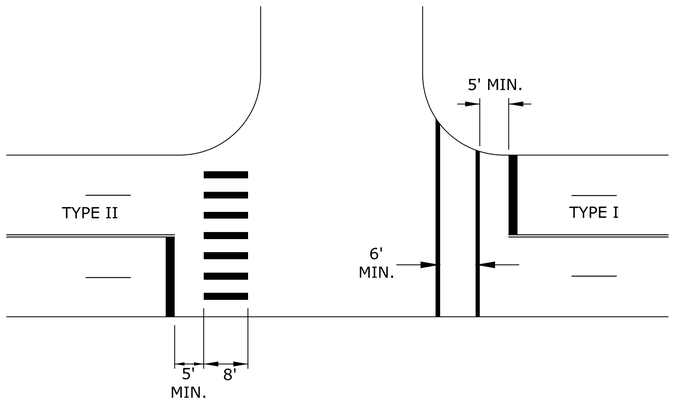
(X) PLACEMENT LOCATION IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING TO PROVIDE ADEQUATE ADVANCE WARNING TO THE DRIVER

TYPICAL CROSSWALKS

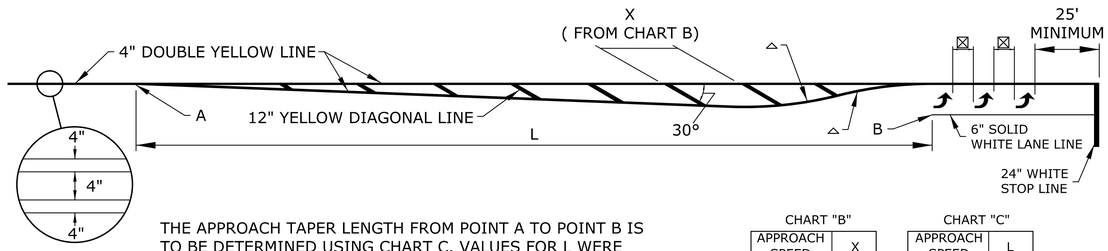
TYPE I: CROSSWALK LINES SHALL BE 12" SOLID WHITE LINES. THEY SHALL BE SPACED A MINIMUM OF 6' APART FROM INSIDE EDGE TO INSIDE EDGE.

TYPE II: THESE LINES SHOULD BE SOLID WHITE 24" WIDE PLACED PARALLEL TO THE DIRECTION OF TRAFFIC FLOW. THE LINE PLACEMENT IS DETERMINED BY LANE LINE,CENTER LINE, AND WHEEL PATH IN SUCH A MANNER AS TO MINIMIZE TRAFFIC WEAR. THE CROSSWALK WIDTH SHOULD BE NOT LESS THAN 8'. THE TRANSVERSE CROSSWALK LINES MAY BE ADDED.

WHEN REQUIRED, STOP LINES SHALL BE INSTALLED A MINIMUM OF 5' FROM CROSSWALKS.



TYPICAL APPROACH TAPER DETAIL



THE APPROACH TAPER LENGTH FROM POINT A TO POINT B IS TO BE DETERMINED USING CHART C. VALUES FOR L WERE CALCULATED USING THE EQUATIONS BELOW AND INCREASED TO THE NEXT HIGHER 5 MPH INCREMENT.

- SPEEDS < 45 MPH $L = \frac{W*S^2}{60}$
- SPEEDS = 45 MPH $L = W*S$

IF ARROWS ARE USED AND UNLESS OTHERWISE SPECIFIED THE SPACE BETWEEN LINES SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTERS FOR LOW SPEED ROADS BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS, UNDER ANY CONDITIONS.

FOR SPEEDS LESS THAN OR EQUAL TO 40 MPH, R=150'.
FOR SPEEDS GREATER THAN OR EQUAL TO 45 MPH, R=300'.

CHART "B"

APPROACH SPEED	X
20 MPH	20'
25 MPH	25'
30 MPH	30'
35 MPH	35'
40 MPH	40'
45 MPH	45'
50 MPH	50'
55 MPH	55'
60 MPH	60'
65 MPH	65'
70 MPH	70'

CHART "C"

APPROACH SPEED	L
20 MPH	80'
25 MPH	125'
30 MPH	180'
35 MPH	245'
40 MPH	320'
45 MPH	540'
50 MPH	600'
55 MPH	660'
60 MPH	720'
65 MPH	780'
70 MPH	840'

NO.	DATE	REVISIONS	BY	APP'D
3	5/25/12	Updated Chart B and Lane Drop Lines	B.A.H.	B.D.G.
2	10/20/06	RR Xing Symbol Changed from 18' to 16'	T.L.H.	B.D.G.
1	9/20/05	Added 4" Solid Yellow Double Line to RRxing	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL MISCELLANEOUS PAVEMENT MARKING DETAIL SHEET

TE309

FHWA APPROVAL		7/26/2005	APP'D	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : te309.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	43	62

SUMMARY OF PAVEMENT MARKINGS

LOCATION	4" Solid WHITE Edge Line	6" Solid WHITE Edge Line	6" Broken WHITE Lane Line	6" Broken WHITE Lane Line (PCP)	6" Dotted WHITE Extension Line	6" Broken WHITE Lane Drop Line	6" Solid WHITE Lane Line	8" Broken WHITE Lane Drop Line	8" Solid WHITE Gore Line	8" Dotted WHITE Extension Line	12" Solid WHITE Diagonal Line	12" Solid WHITE Chevron Line	12" Solid WHITE Type I Crosswalk Line	24" Solid WHITE Type II Crosswalk Line	24" Solid WHITE Stop Line	4" Solid YELLOW Edge Line	4" Solid YELLOW Double Line	4" Solid YELLOW Line	4" Broken YELLOW Line	6" Solid YELLOW Edge Line	12" Solid YELLOW Diagonal Line
Sta. 54+30.00 to Sta. 59+54.96																		1051.4	1051.4		
Sta. 59+54.96 to Sta. 61+70.00																		430.2			52
TOTALS																		1481.6	1051.4		52

SUMMARY OF WORD & SYMBOL MARKINGS

LOCATION							STOP	ONLY	X-ING	SCHOOL												
Sta. 54+79.00					1																	
Sta. 54+95.00					1																	
Sta. 58+41.00					1																	
Sta. 58+60.00					1																	
Sta. 60+00.00 RT																						1
TOTALS					4																	1

NOTE: FOR SPECIFIC PAVEMENT MARKING DETAILS AND DIMENSIONS SEE PLAN SHEETS

NOTE: ALL TOTALS REFLECT ACTUAL QUANTITY OF PAVEMENT MARKING MATERIALS REQUIRED.

RECAPITULATION OF QUANTITIES

ITEMS	TOTAL	UNITS
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6")	432	FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4")	2,533	FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12")	52	FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(12")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(4")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(6")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(8")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(12")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(4")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(6")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(24")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12")		FT
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(LEFT ARROW)	4	EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(RAILROAD XING)	1	EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(US-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(K-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(I-SHIELD)( )		EACH
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING REMOVAL		FT

NOTE:
WORDS & SYMBOLS SHALL CONFORM TO THE LATEST EDITION OF "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

PRIOR TO COMMENCEMENT OF PAVEMENT MARKING WORK THE ENGINEER WILL ESTABLISH THE LIMITS FOR "NO PASSING" ZONES. THESE LIMITS SHALL BE USED FOR THE LOCATION OF "NO PASSING" LINES AND FOR THE COMPUTATION OF ACTUAL MARKING QUANTITIES FOR THIS LINE TYPE.

NO.	DATE	REVISIONS	BY	APP'D
2	5/25/12	Added Line Types, Symbols, and Shields	B.A.H.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY AND RECAPITULATION OF PAVEMENT MARKING QUANTITIES

TE311

FHWA APPROVAL		5/25/2012	APP'D	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

Plotted : 19-JAN-2016 10:42

Drawn By : bmcdiffett
File : te311.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	44	62

Phase 1

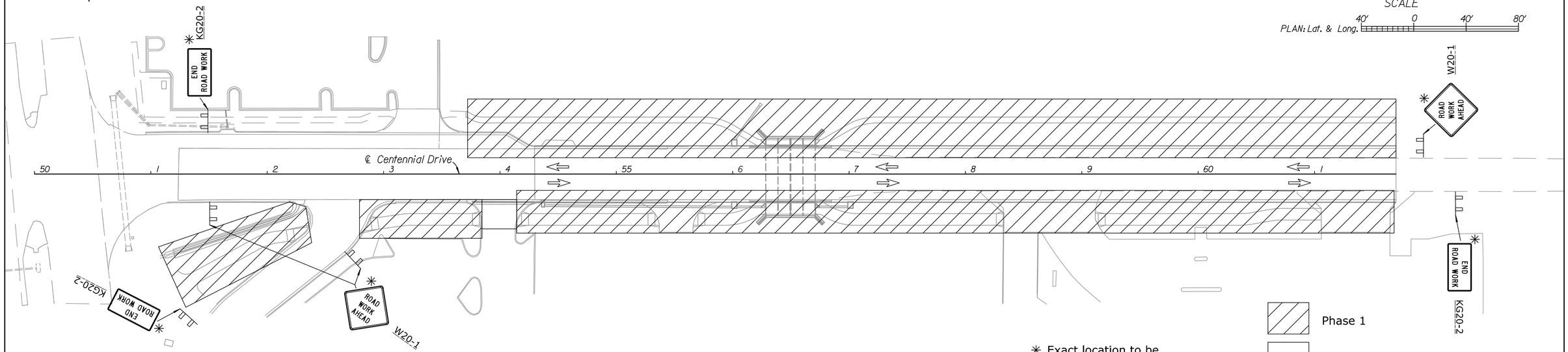
Keep traffic in center 2 lanes while constructing outside lanes, curb & gutter, sidewalk, culvert extentions, storm sewer and slope drain. Maintain access to businesses at all times.

Close McDonalds' entrance along Centennial Drive to construct slotted drain. Closure shall be kept to a minimum and access maintained off Front Street.

SCALE

40' 0 40' 80'

PLAN: Lat. & Long.



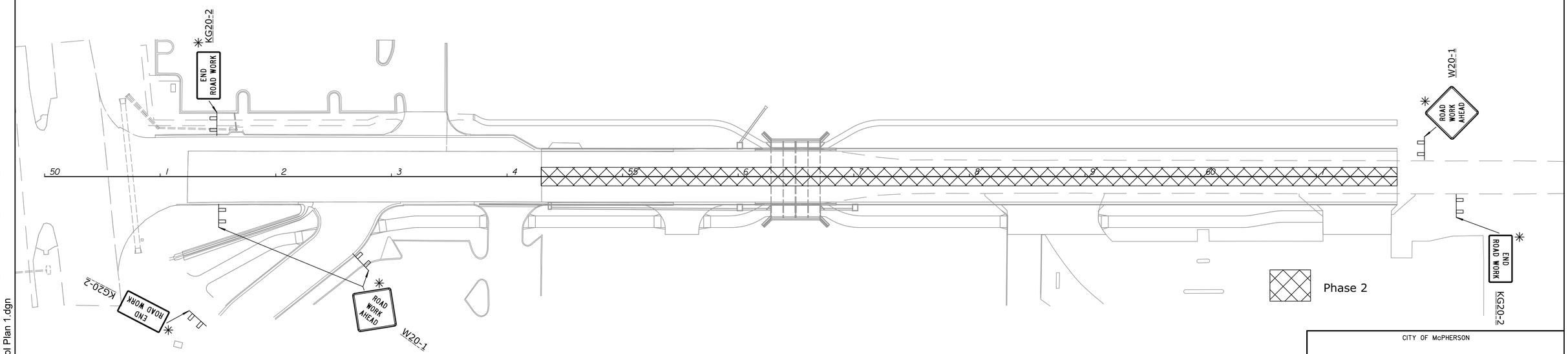
✳ Exact location to be determined by the engineer.

Phase 1

Phase 1 Slotted Drain Construction

Phase 2

Construct nominal mill and bituminous overlay to final profile grade and pavement markings.



✳ Exact location to be determined by the engineer.

Phase 2

Notes

During daytime operations, contractor may close down to one lane with the use of flaggers. Traffic control and placement of channelizers and signs shall be per KDOT Standard TE 730. Two way traffic to be maintained overnight.

CITY OF McPHERSON

Construction Sequence

Drawn By : bmcdiffett
File : Traffic Control Plan 1.dgn
Plotted : 19-JAN-2016 10:42

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	45	62

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.

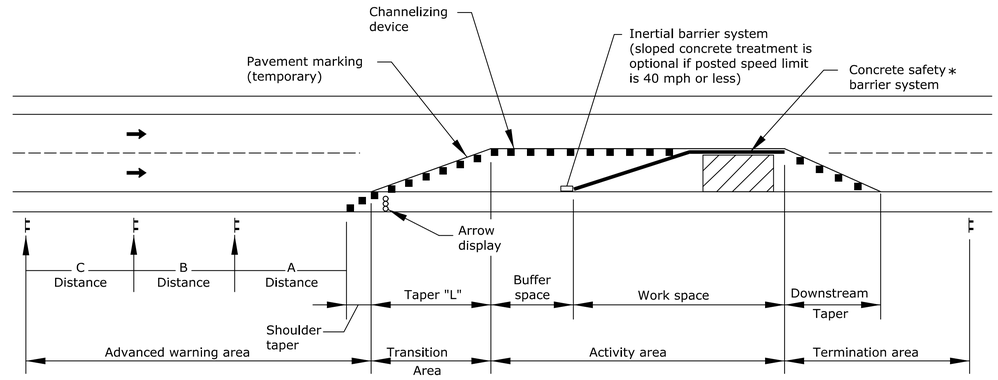
2) Minimum lane width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3) Consideration should be made to seperate 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 accessiblity features consistent with the features present in the existing pedestrian facility.

5) When the driving surface open to traffic is milled, is a temporary surface made of loose material, or when directed by the engineer use the W8-15 (Grooved Pavement) or W8-7(Loose Gravel) a "C" distance after the W20-1 (Road Work Ahead) on mainline approaches. Signs may be used with the W8-15p motorcycle plaque as directed by the engineer. Display signs in advance of the condition 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 785-296-0355 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

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 seperate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

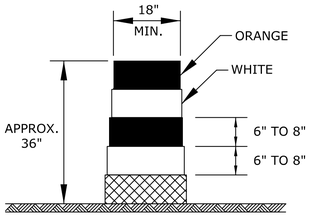
TRAFFIC CONTROL
GENERAL NOTES

TE700

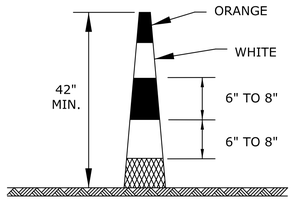
FHWA APPROVAL	06/01/15	APP'D	Kristina Ericksen
DESIGNED B.A.H.	DETAILED R.W.B	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : te700.dgn

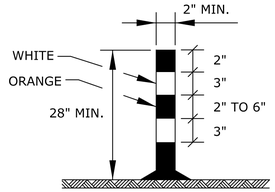
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	46	62



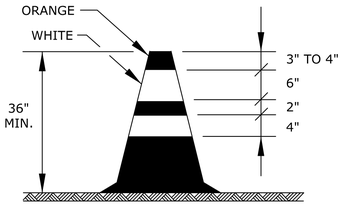
DRUM



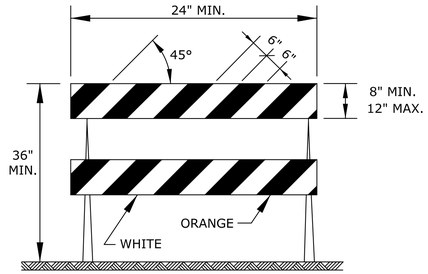
CONICAL
DELINEATOR



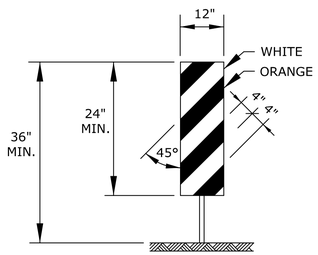
TUBULAR MARKER
Striping as shown for up to 42".



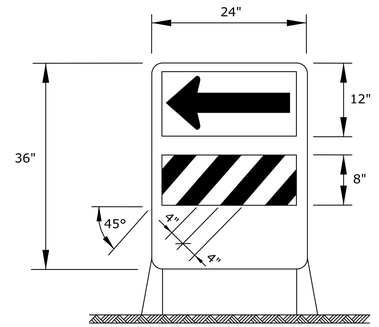
TRAFFIC CONE



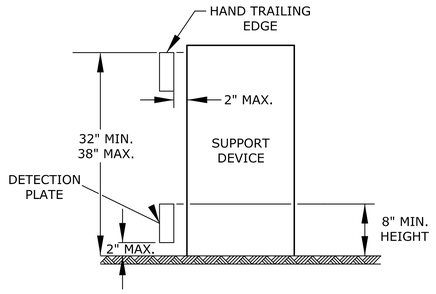
TYPE 2 BARRICADE
For rails less than 36" long, 4" wide stripes may be used.
All stripes shall slope downward to the traffic side for channelization.



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



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



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

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
CHANNELIZING DEVICES

TE702

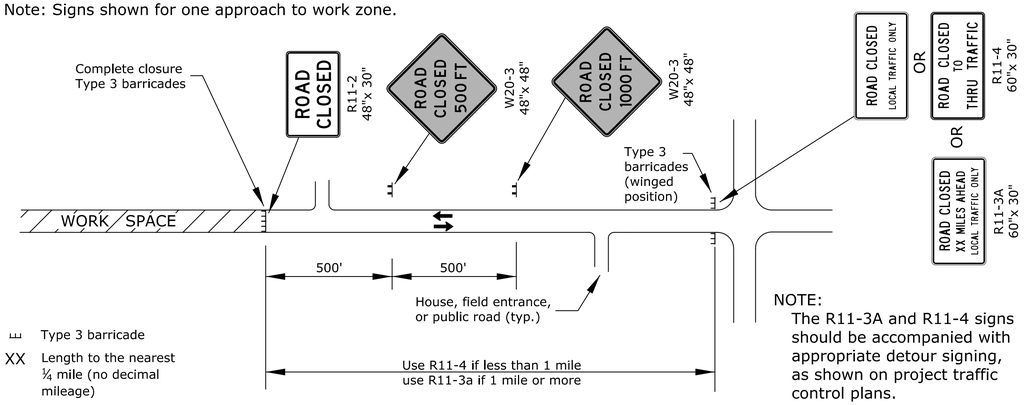
FHWA APPROVAL		06/01/15	APP'D	Kristina Ericksen	
DESIGNED	L.E.R.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

Sh. No. 46

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : te702.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	47	62

Note: Signs shown for one approach to work zone.



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

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

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

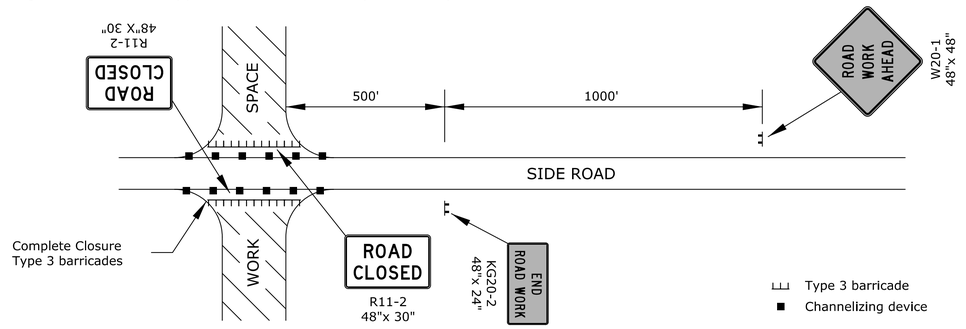


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

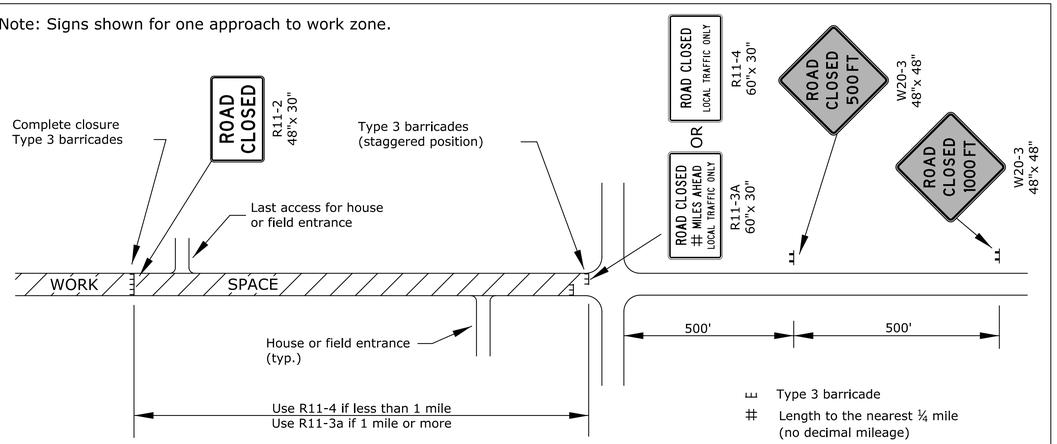


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

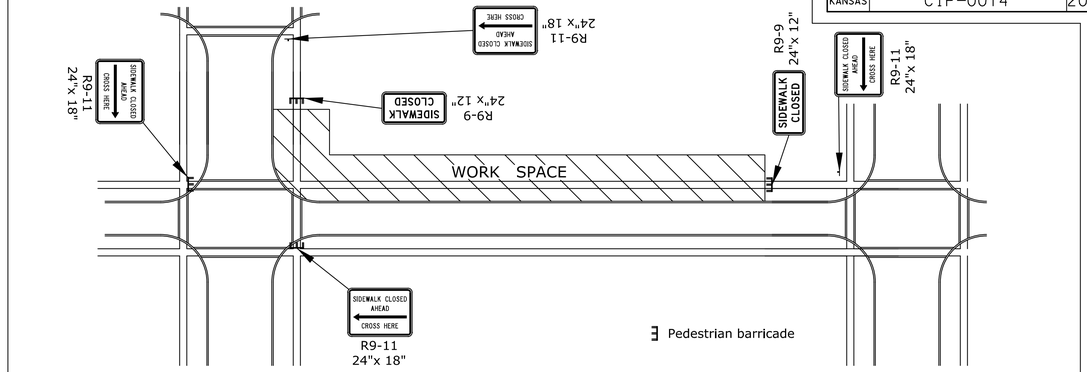
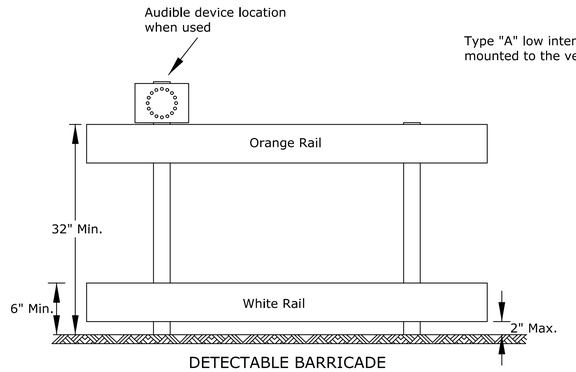
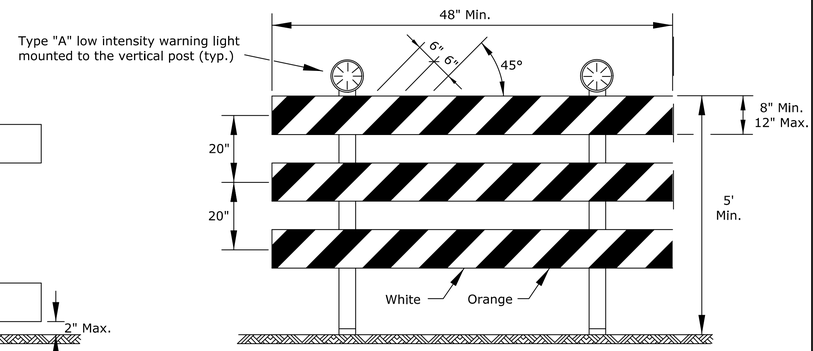


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



DETECTABLE BARRICADE

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



TYPE 3 BARRICADE WITH LIGHTS

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

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

ROAD CLOSED GENERAL NOTES

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

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

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : te704.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	48	62

SIGN LAYOUT INFORMATION

KG20-2 — STD. SIZE EXPWY/FREEWAY: 6" C, 48"x 24"

KG20-5 — STD. SIZE EXPWY/FREEWAY: 6" C, 48"x 24"

KM4-2O — STD. SIZE: 3" C, 24"x 6" — EXPWY/FREEWAY: 6" C, 48"x 12"

W7-3a — Mileage to be determined by the engineer.

W8-17 — STD. SIZE EXPWY/FREEWAY: 48"x 48"

W8-15 — STD. SIZE EXPWY/FREEWAY: 8" D, 48"x 48"

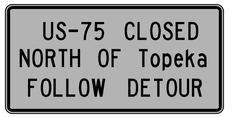
W8-7 — STD. SIZE EXPWY/FREEWAY: 8" D, 48"x 48"

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"

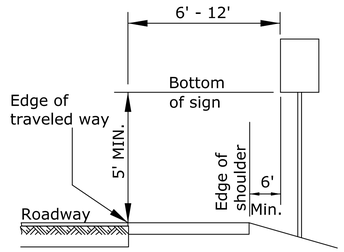
SP-01 (SPECIAL SIGN) — STD. SIZE: 6" C — EXPWY/FREEWAY: 10" D



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.

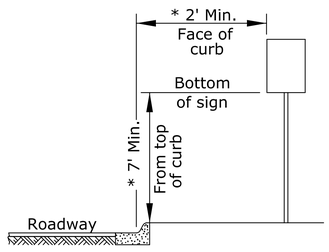


Rural

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

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

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



Urban

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

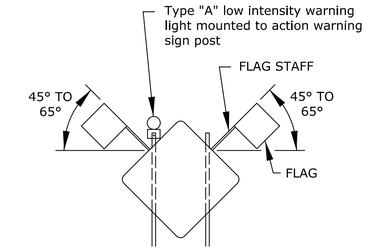
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

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

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

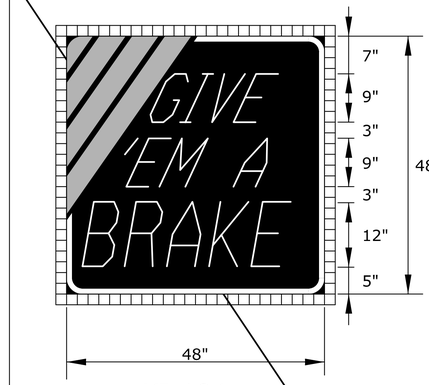
5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

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



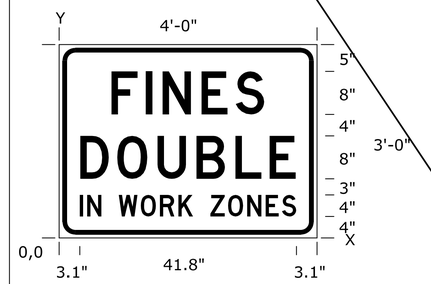
When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

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



KI-104a

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



KI-105a

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

DIMENSIONS IN INCHES — SPACINGS ARE TO START OF NEXT LETTER

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

Notes:

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SIGN INFORMATION

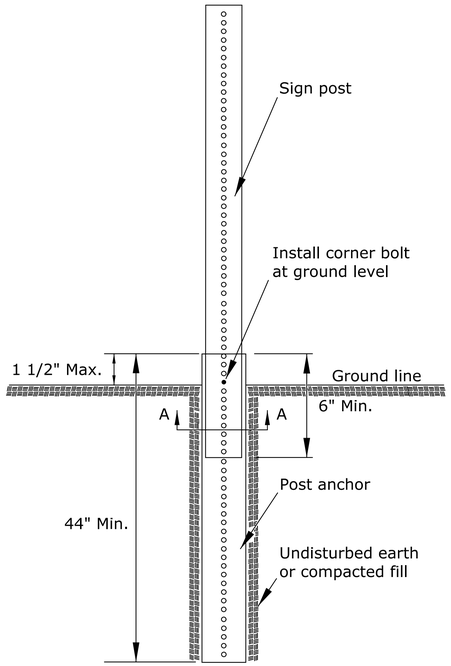
TE710

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

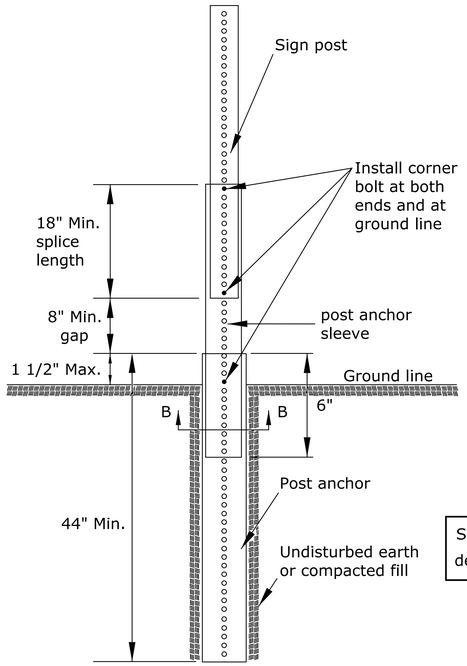
Plotted : 20-JAN-2016 15:15
Drawn By : bmcdiffett
File : te710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	49	62

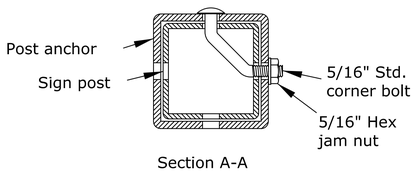
Perforated square steel tube (P.S.S.T.) post setup



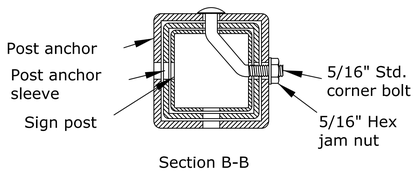
P.S.S.T. detail



Telescoping P.S.S.T. detail



Section A-A

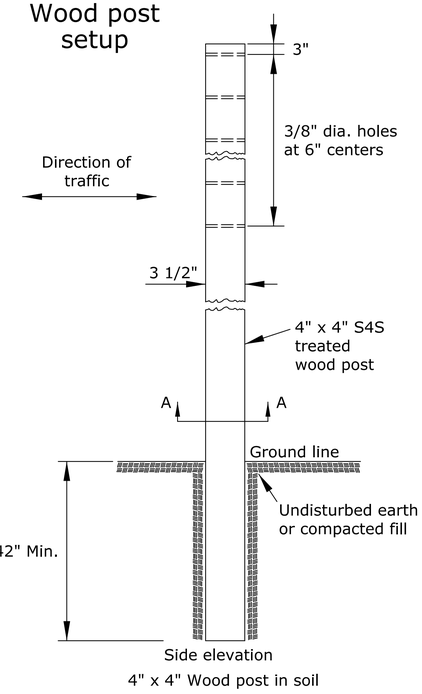


Section B-B

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

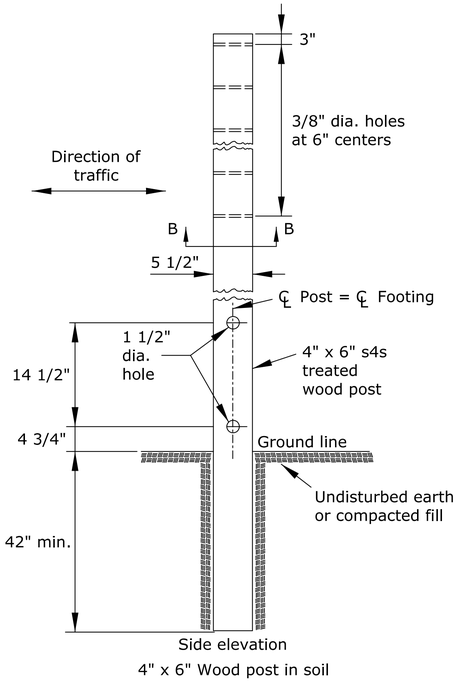
Place bolts in the same corner along each sign post.

Wood post setup



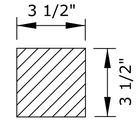
Side elevation

4" x 4" Wood post in soil

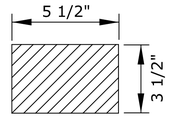


Side elevation

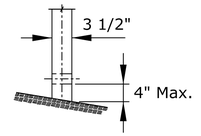
4" x 6" Wood post in soil



Section A-A



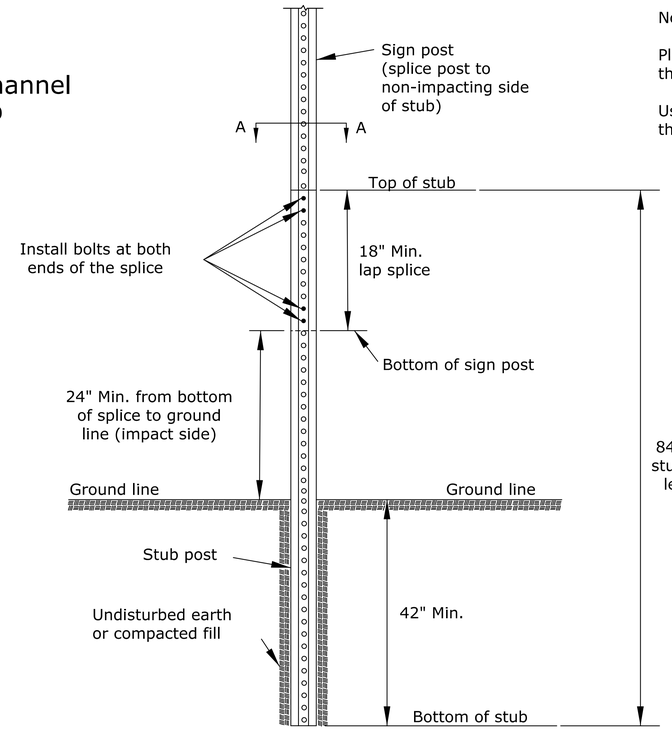
Section B-B



Front elevation

See TE710 for additional details and requirements

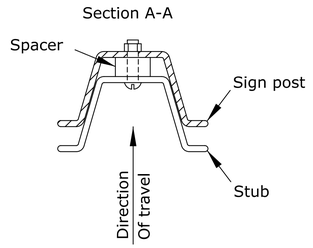
3 lb/f U-Channel setup



Notes:

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

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



NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

TE712

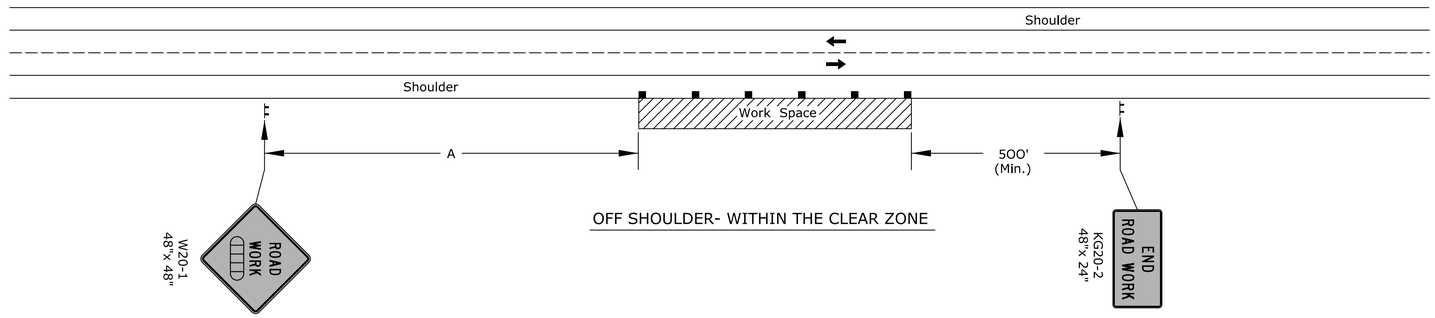
FHWA APPROVAL			06/01/15	APP'D	Kristina Pyle		
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES		TRACED	
DESIGN CK.		DETAIL CK.		QUAN. CK.		TRACE CK.	

Plotted : 19-JAN-2016 10:42

Drawn By : bmcdiffett

File : te712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	50	62

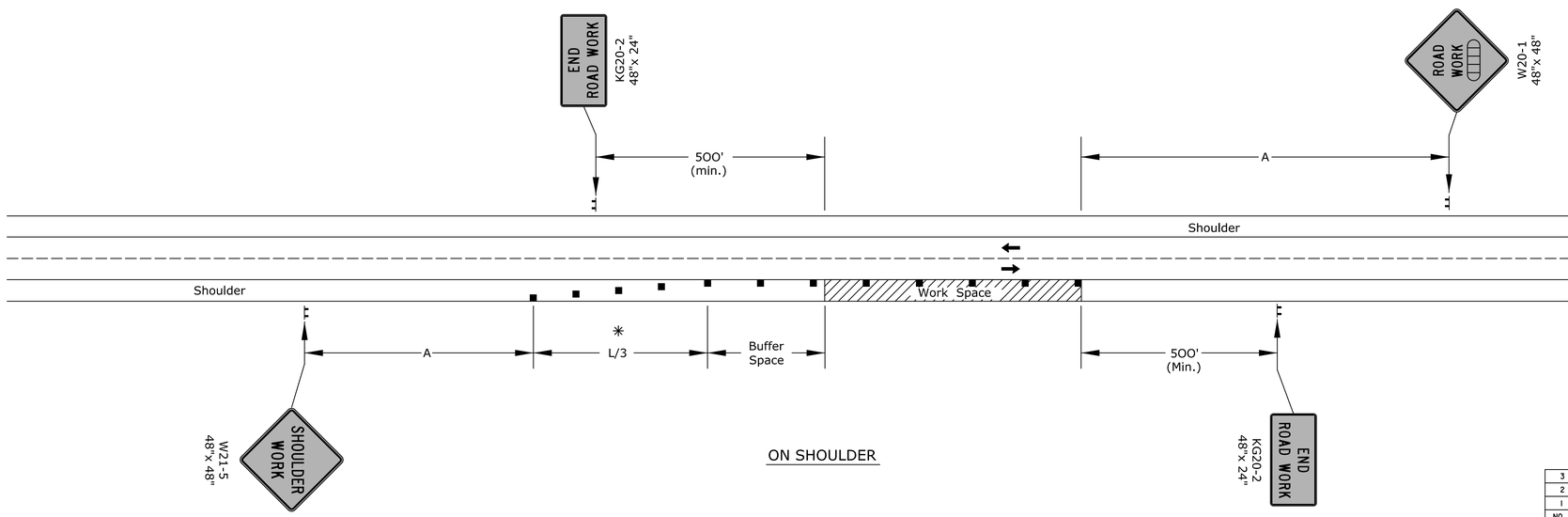


OFF SHOULDER- WITHIN THE CLEAR ZONE

Notes:

No traffic control is required if the work space is located outside of the clear zone.

For operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with high-intensity rotating, flashing, oscillating, or strobe lights is used.



ON SHOULDER

* Omit taper if paved shoulder is less than 8' wide.

■ Channelizing device

Ahead, 1500 ft, or 1 mile

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SHOULDER WORK UNDIVIDED ROADWAY

TE720

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

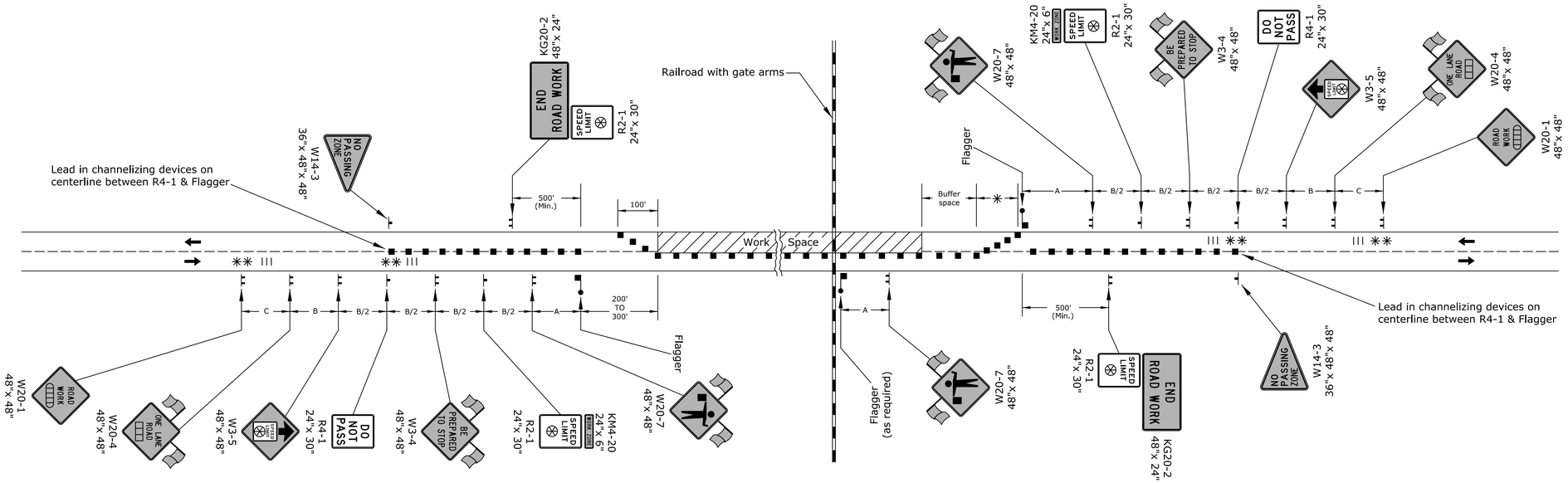
Plotted : 19-JAN-2016 10:42

Drawn By : bmcdiffett

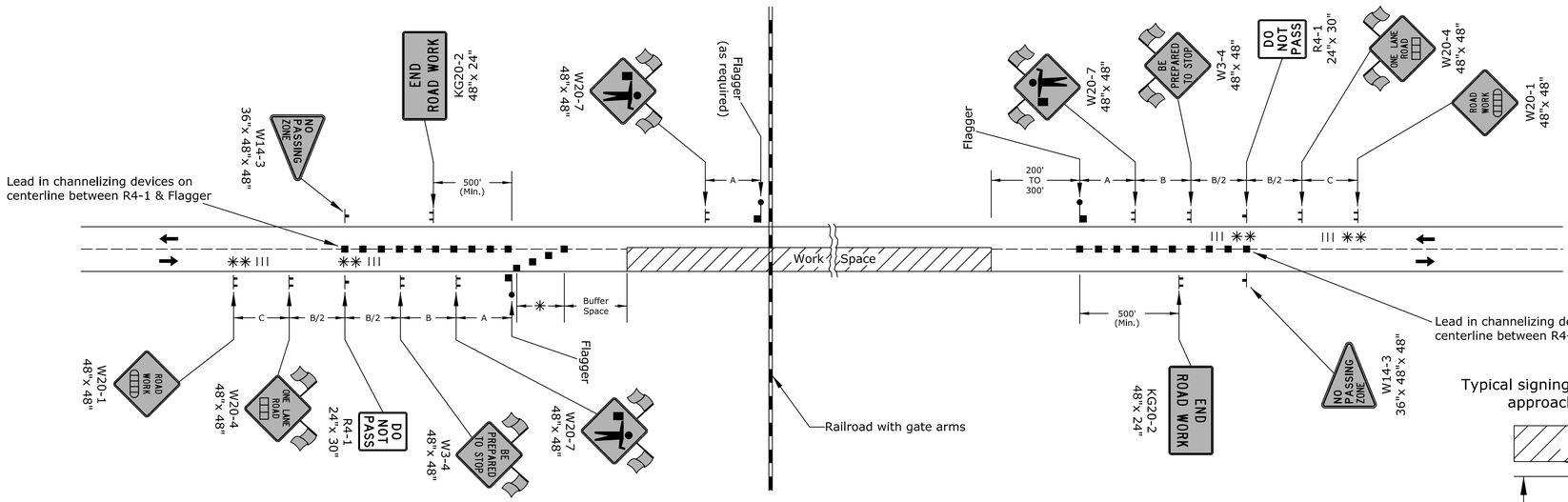
File : te720.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	51	62

FLAGGER



FLAGGER AND PILOT CAR



- ■ Channelizing device
- Ahead, 1500 ft, or 1 mile
- Ahead, 1000 ft, 1500 ft, or ½ mile
- Speed to be determined by the Engineer
- ○ Type "A" low intensity warning light
- III Temporary portable rumble strips

USE TE731 FOR FLAGGER OR PILOT CAR ON ROADWAYS WITH CONCRETE SHOULDERS GREATER THAN 8 FT.

Notes:

Trucks hauling material to the project should STOP at the Flagger. After stopping, upon approval of the Engineer, trucks may be allowed to move around the Flagger.

Place a Flagger at all highway and major collector intersections and at-grade railroad intersections with lights and gates in the work space to control traffic crossing the tracks to the left of the gate arm. The need for a Flagger at minor side road intersections shall be determined by the Engineer. Place a W20-7 (Flagger symbol) sign on each side road that is controlled by a Flagger.

Existing signs shall not be covered or removed between Flagger stations.

Temporary rumble strips may be used in lieu of lead in channelizing devices when the roadway is less than or equal to 30' including paved shoulders. When extenuating circumstances exist, the Area Engineer may elect to eliminate both the lead in channelizers and the rumble strips.

✳ Minimum six (6) channelizers spaced at 20' intervals.

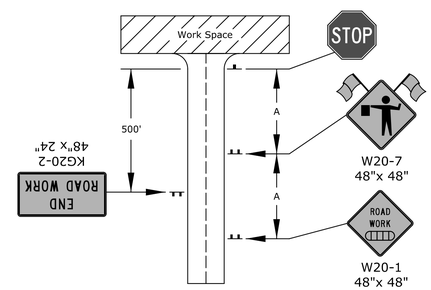
✳✳ Optional rumble strips may be placed: One set between the W20-1 and W20-4, and one set between the R4-1 and W3-4, on each approach.

△ Not required on substantial maintenance projects (1R).

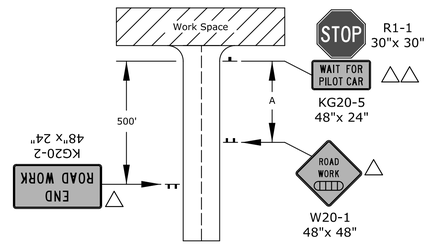
△△ The KG20-5 (WAIT FOR PILOT CAR) sign shall be mounted on an approved portable support and not attached to the existing stop sign post.

The KG20-5 sign shall be placed immediately in front of the existing stop sign, a minimum of 6" below the bottom of the stop sign. The sign should be removed or covered when there is no pilot car.

Typical signing for highway or major collector approach to work space



Typical signing for a minor side road approach to work space



NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
FLAGGER OR PILOT CAR

TE730

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 : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : te730.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	52	62

Summary Of Traffic Control Devices (Each)

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

Summary Of Traffic Control Devices (Each Per Day)

✳ Quantity Most Used On The Project At Any One Time

Work Zone Signs ✳			
Sign No.	Size - Sq.Ft.		
	0-9.25	9.26-16.25	16.26 & Over
W20-7		2	
W20-1		3	
KG20-2	3		
W21-5		2	
W14-3	2		
R2-1	4		
W20-7		3	
KM4-20	2		
W3-4		2	
R4-1	2		
W3-5		2	
W20-4		2	

Barricades ✳	
Type 3 (4' To 12')	Pedestrian

Channelizing Devices ✳		
Fixed	Portable	Pedestrian
	74	

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

Recapitulation Of Quantities		
Item	Quantity	Unit
Work Zone Signs (O To 9.25 Sq.Ft.)		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)	14.8	Sta./Line
4" Broken (3.0') (Type II)	14.8	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
Temporary Raised Pavement Marker (Type I)		Each
Temporary Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)		Lump Sum
Traffic Control	1	Lump Sum
Flagger (Set Price)		Hour

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

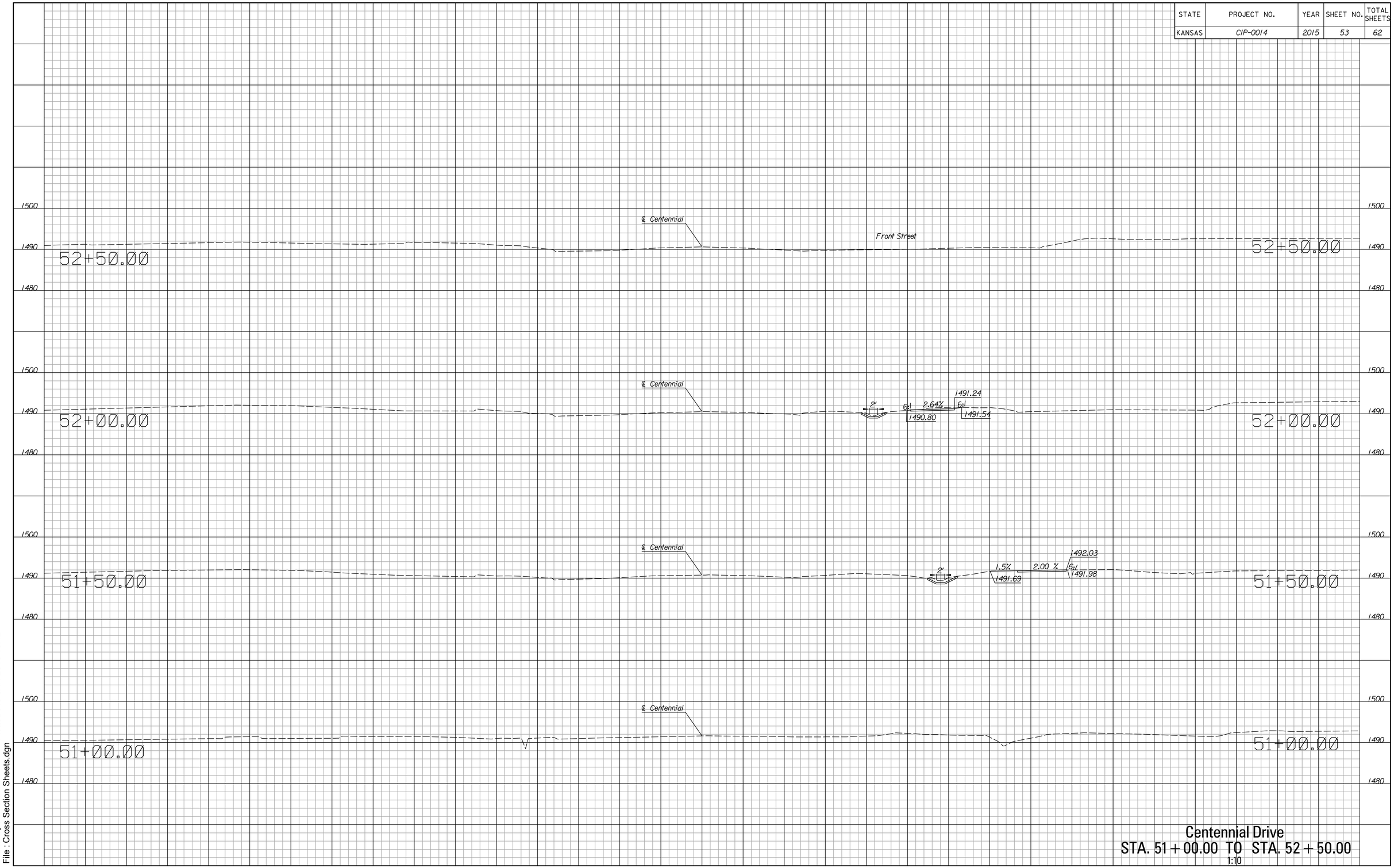
TRAFFIC CONTROL
SUMMARY OF DEVICES
RECAPITULATION OF QUANTITIES
TE795

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

Plotted : 19-JAN-2016 10:42

Drawn By : bmcdiffett
File : te795.dgn

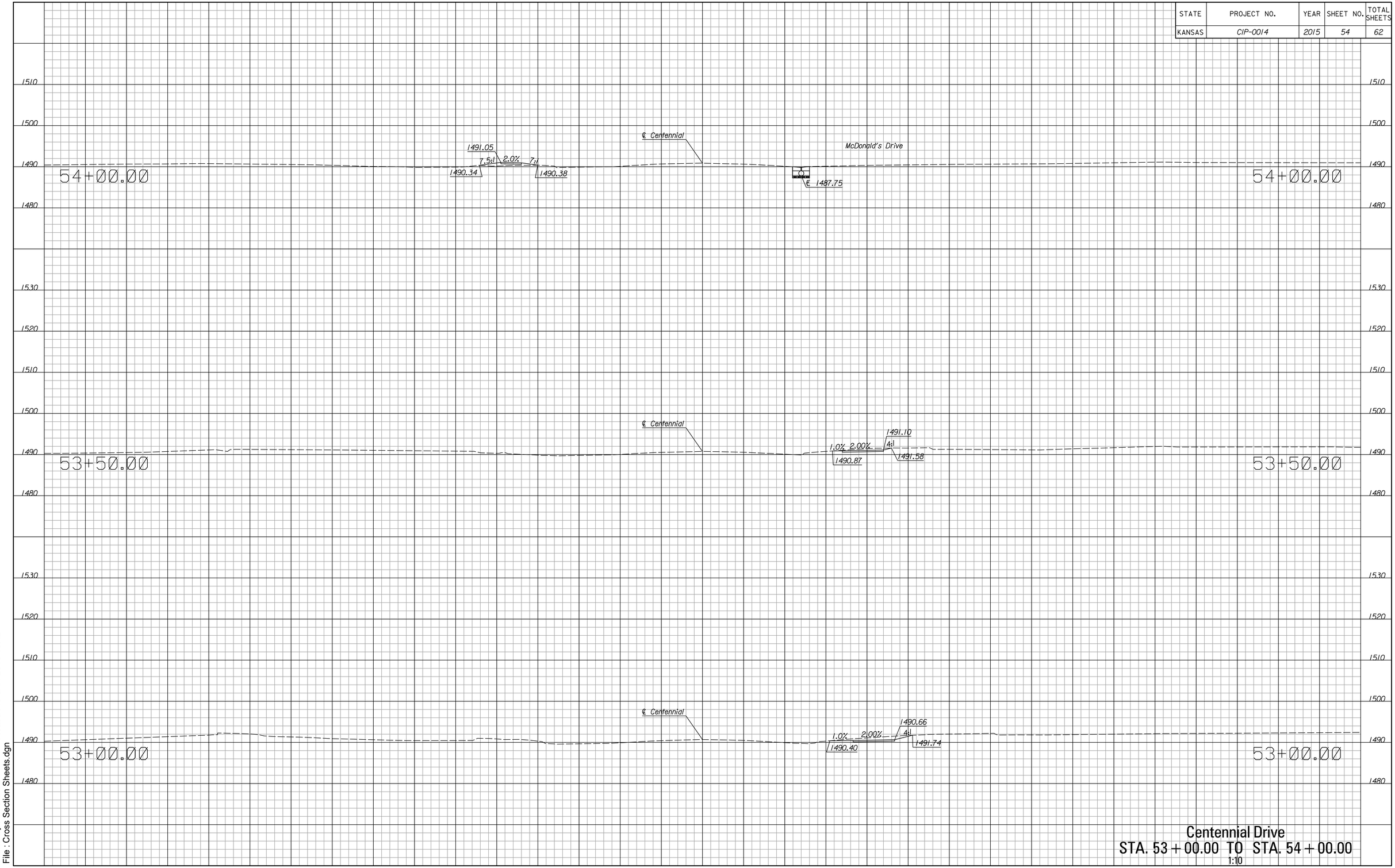
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	53	62



Centennial Drive
STA. 51+00.00 TO STA. 52+50.00
1:10

Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

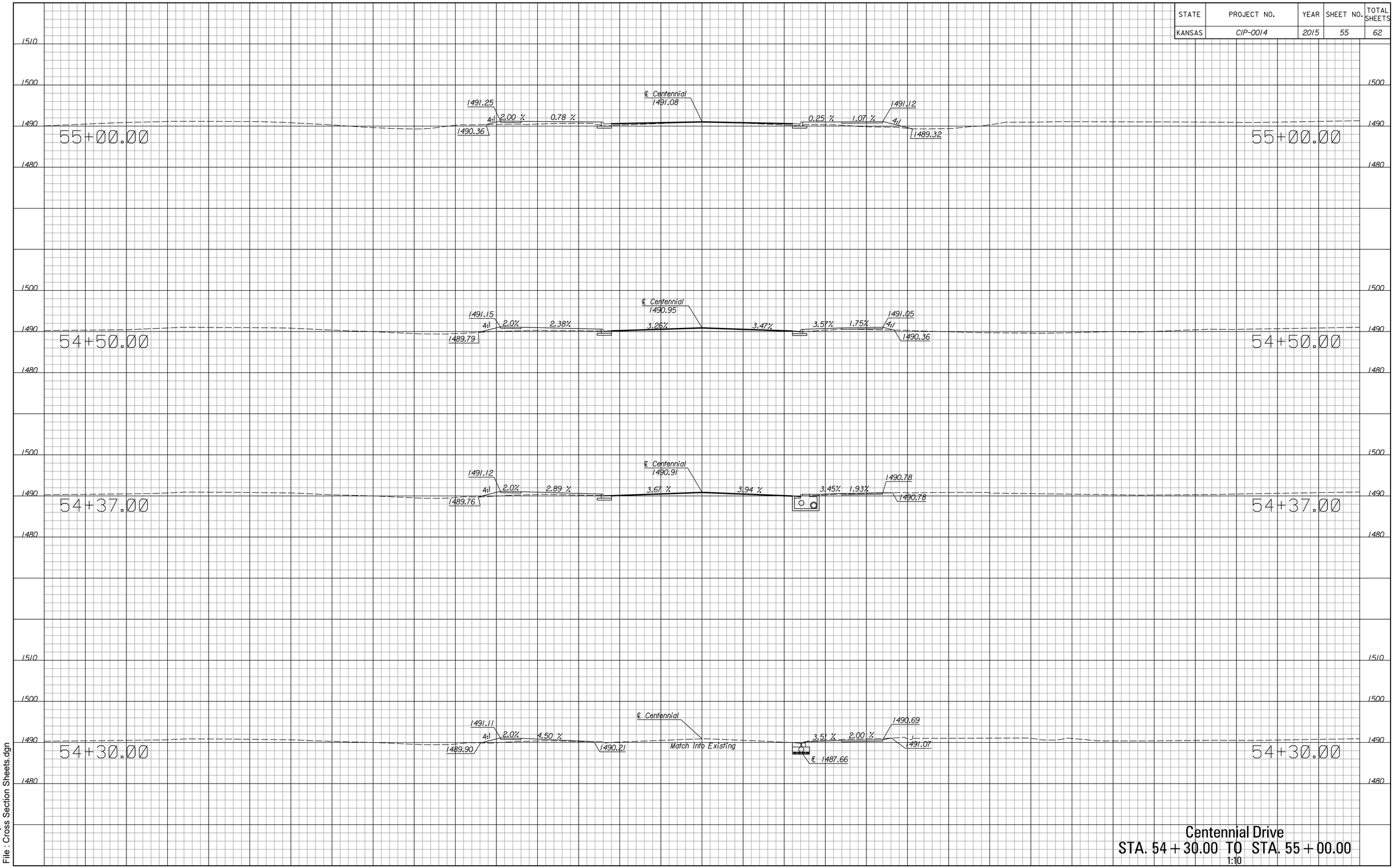
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	54	62



Centennial Drive
STA. 53 + 00.00 TO STA. 54 + 00.00
1:10

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : Cross Section Sheets.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	55	62

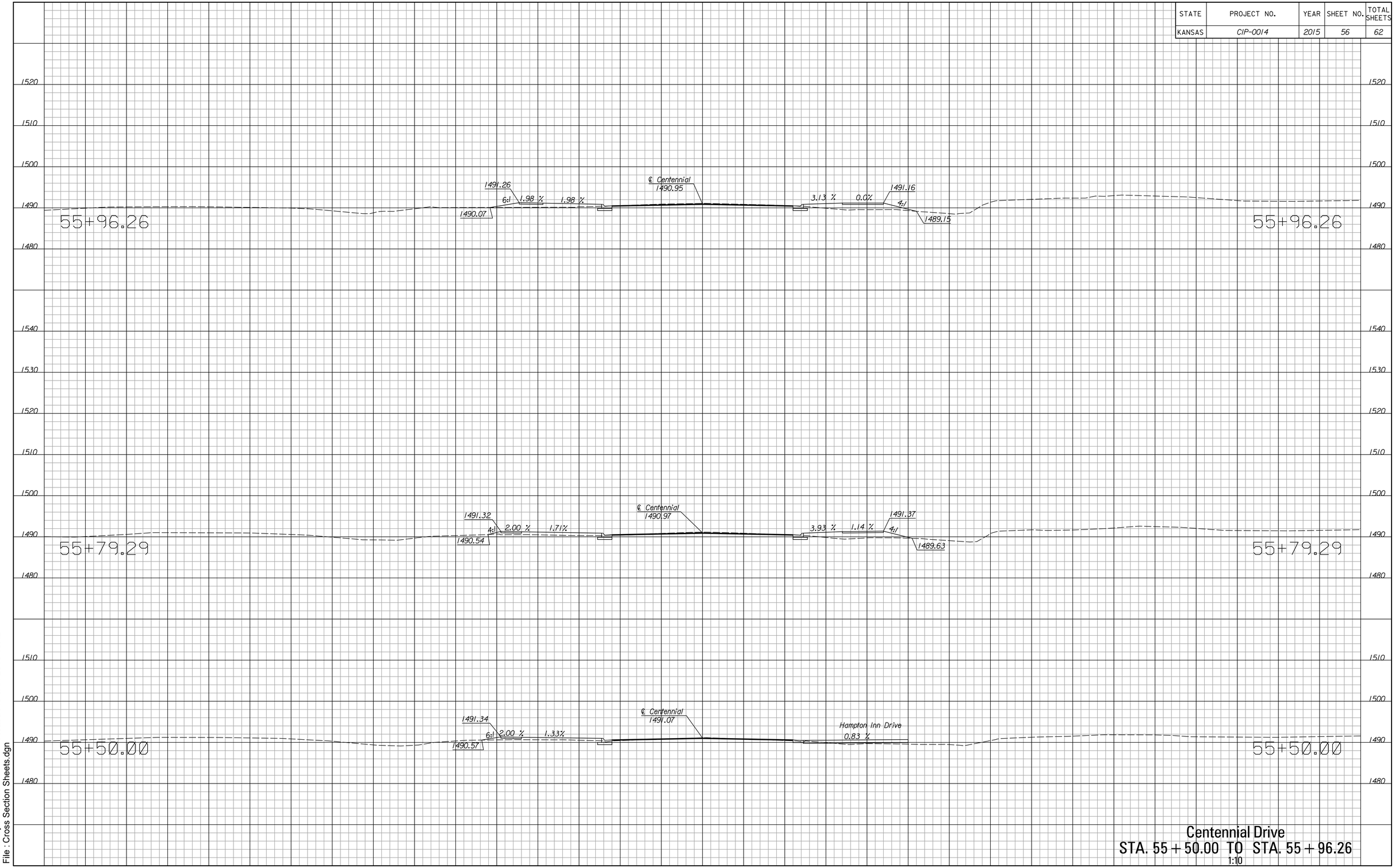


Centennial Drive
STA. 54 + 30.00 TO STA. 55 + 00.00
1:10

Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

Sht.55

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	56	62

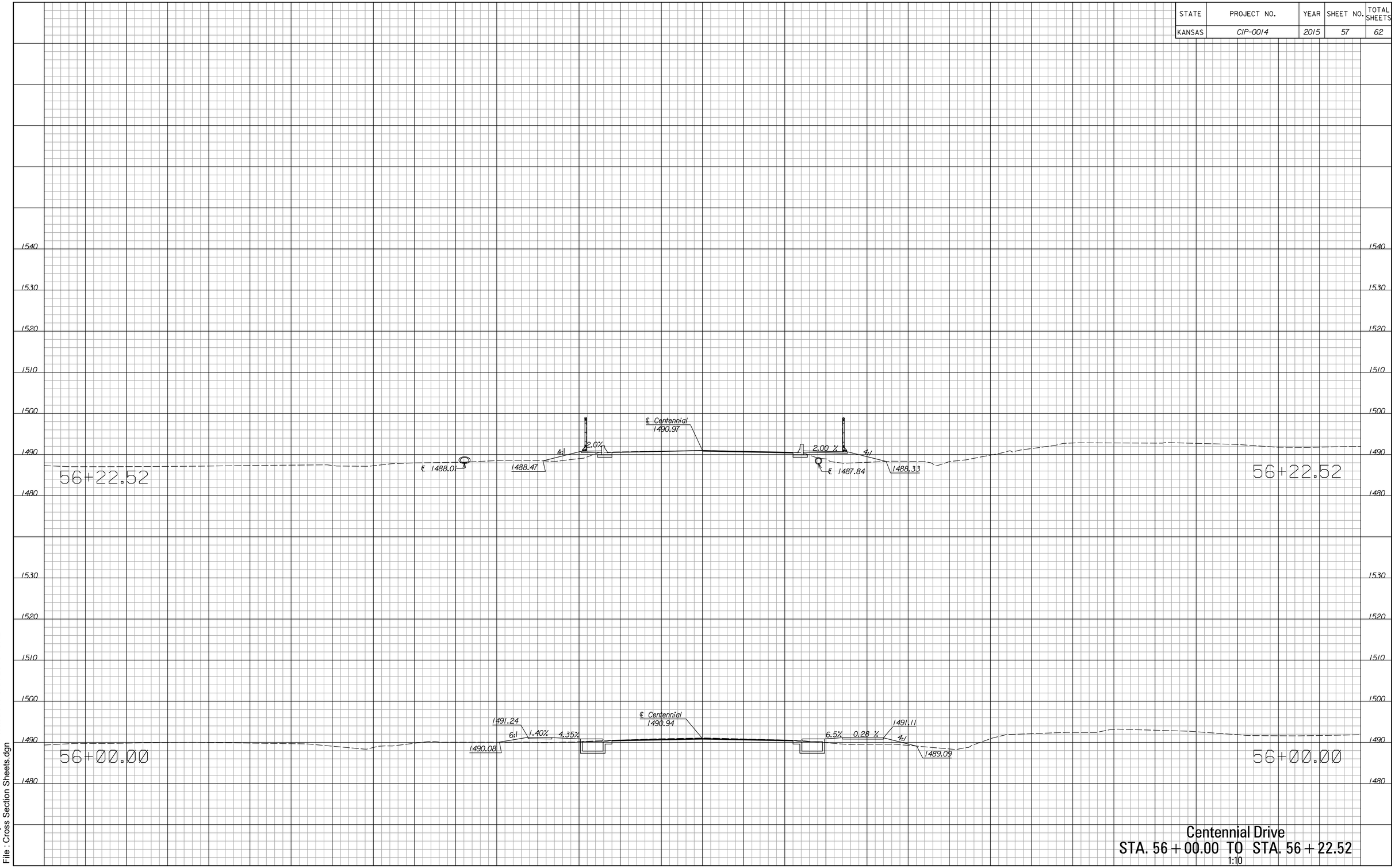


Centennial Drive
STA. 55+50.00 TO STA. 55+96.26
1:10

Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

Sht.56

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	57	62

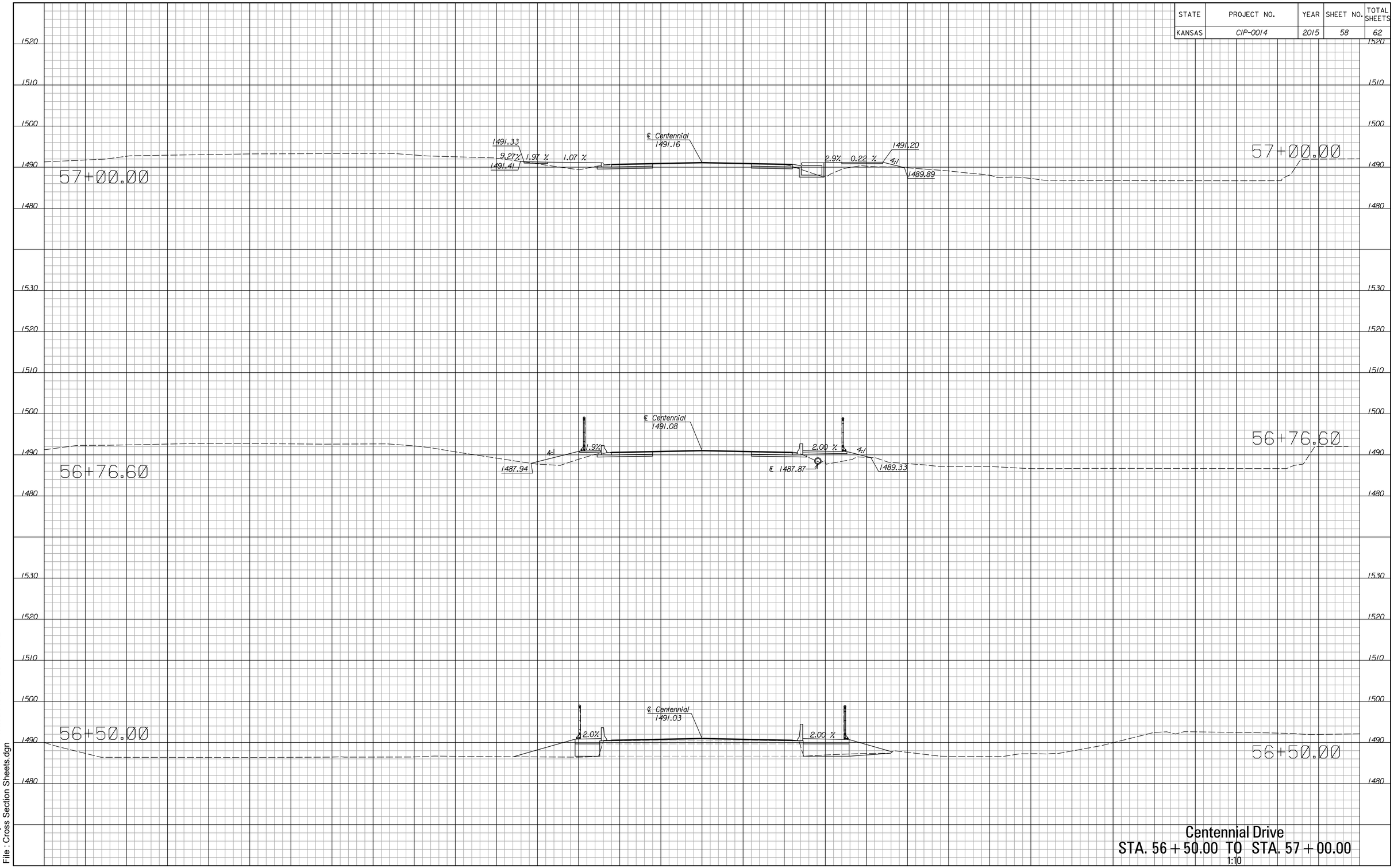


Centennial Drive
STA. 56+00.00 TO STA. 56+22.52
1:10

Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : Cross Section Sheets.dgn

Sht.57

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	58	62



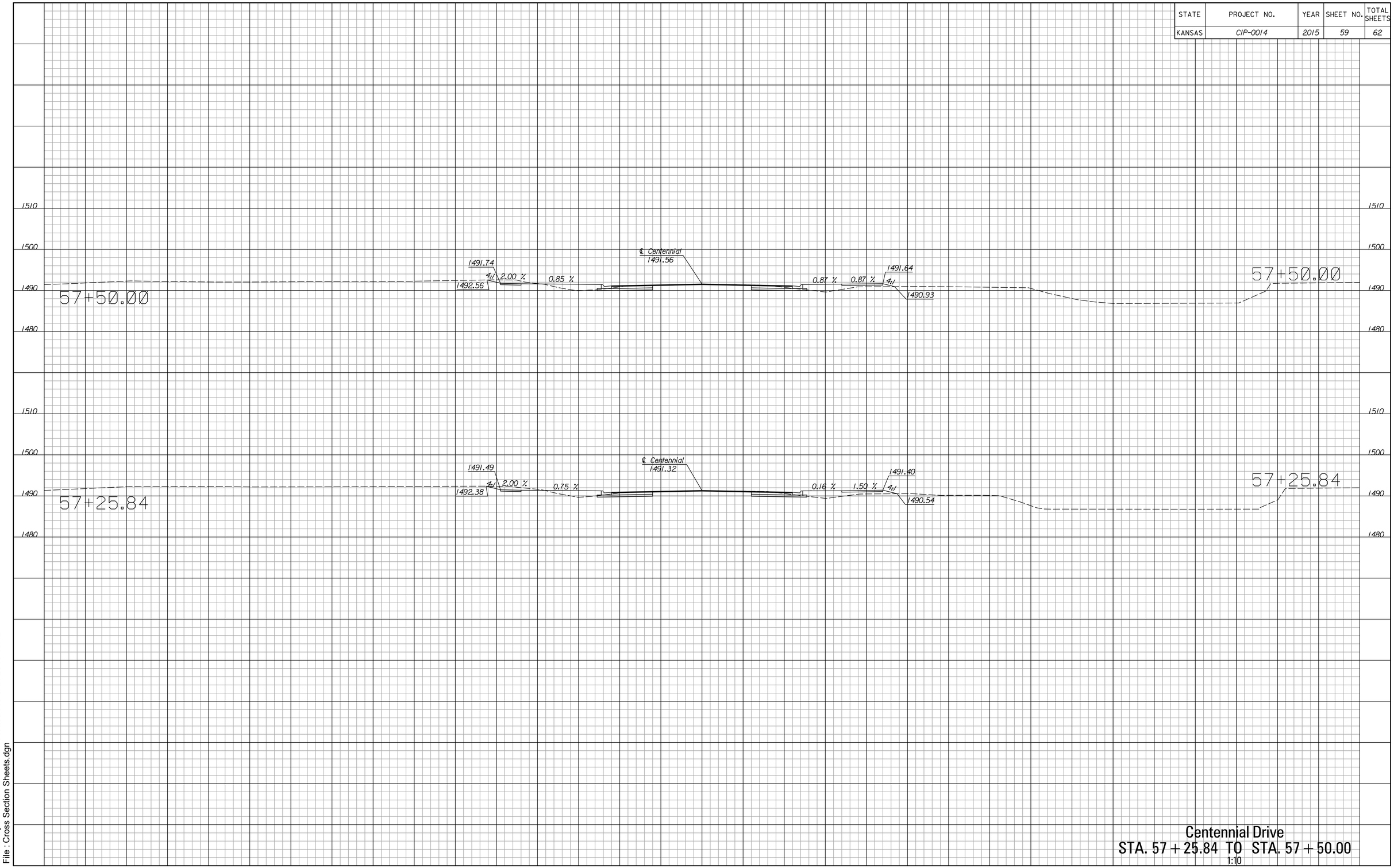
Plotted : 19-JAN-2016 10:42
Drawn By : bmcdiffett
File : Cross Section Sheets.dgn

Centennial Drive
STA. 56 + 50.00 TO STA. 57 + 00.00

1:10

Sht.58

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	59	62

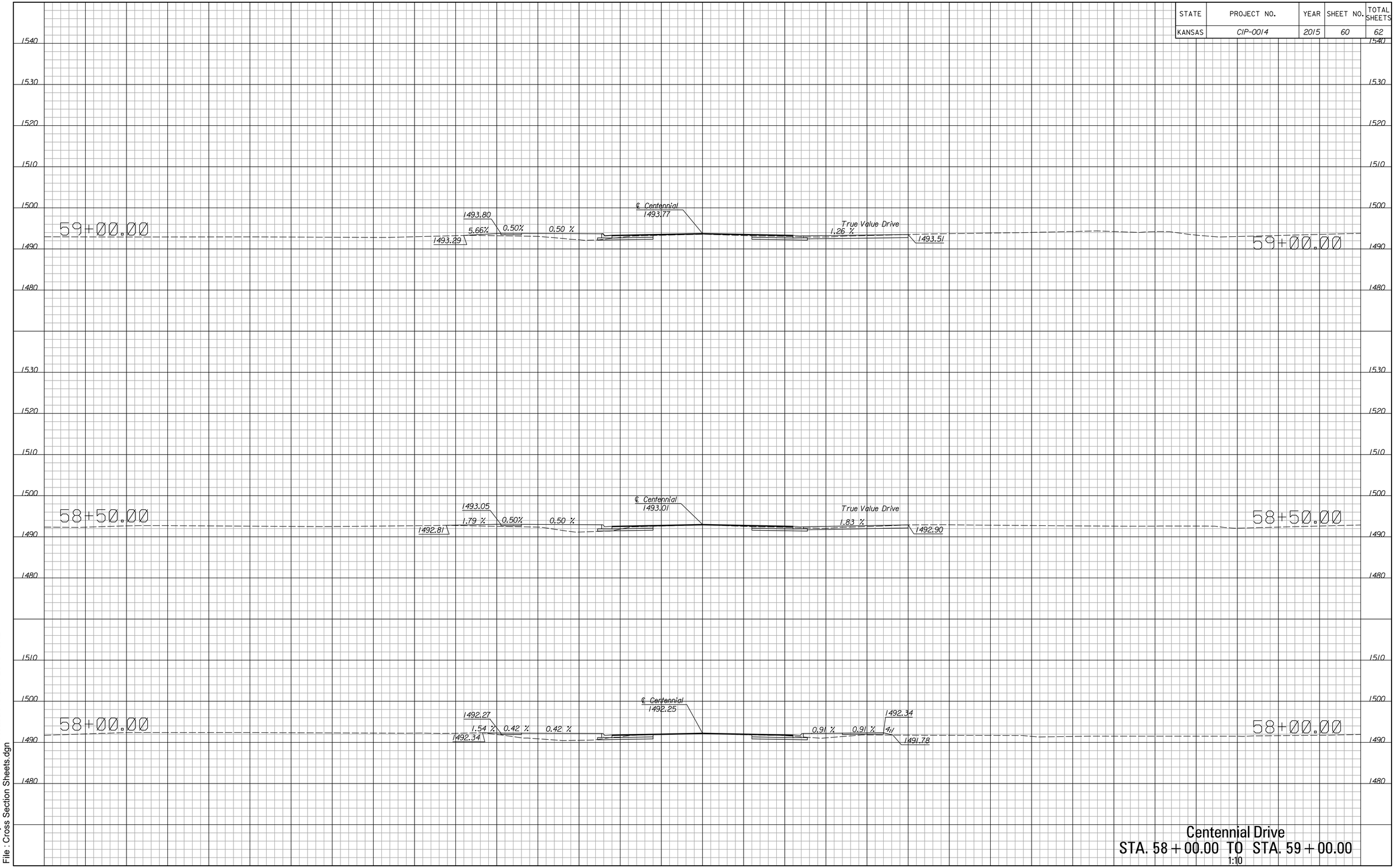


Centennial Drive
STA. 57 + 25.84 TO STA. 57 + 50.00
1:10

Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

Sht.59

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	60	62

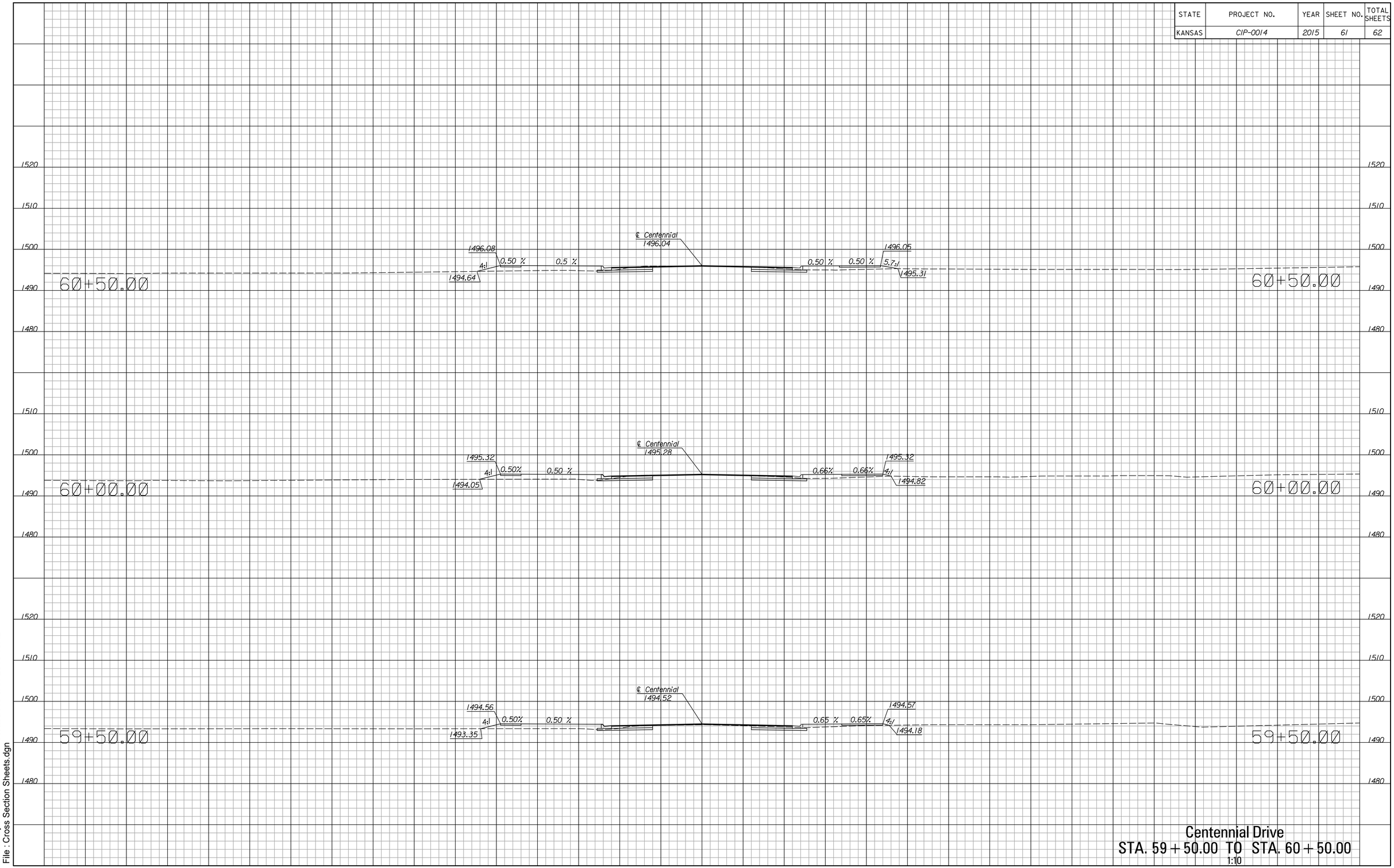


Centennial Drive
STA. 58 + 00.00 TO STA. 59 + 00.00
1:10

Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

Sht.60

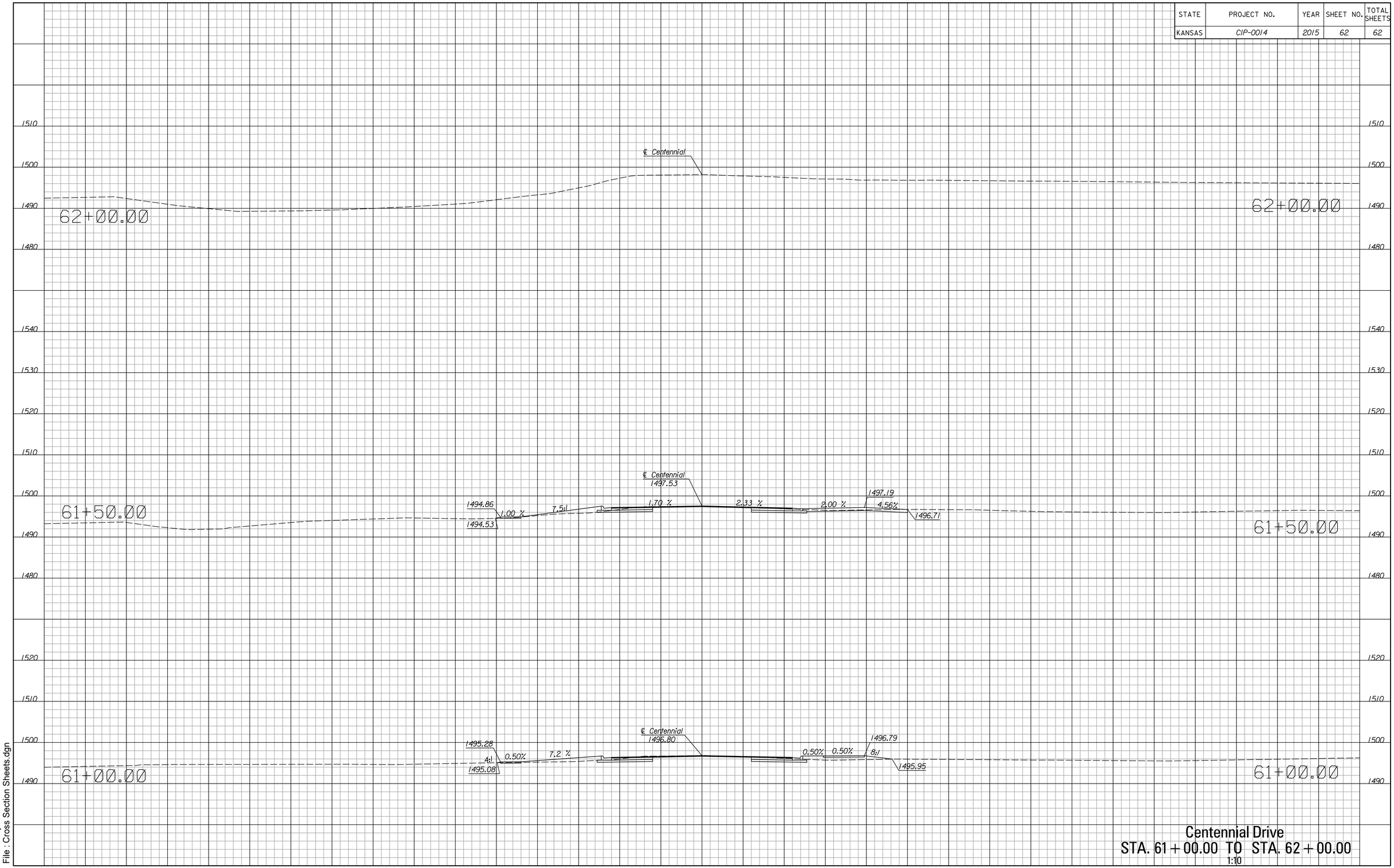
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	61	62



Centennial Drive
STA. 59+50.00 TO STA. 60+50.00
1:10

Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	CIP-0014	2015	62	62



Drawn By: : bmcdiffett
File : Cross Section Sheets.dgn
Plotted : 19-JAN-2016 10:42

Centennial Drive
STA. 61+00.00 TO STA. 62+00.00

1:10

Sht.62