| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 1 | 90 |

STATE OF KANSAS

# DEPARTMENT OF TRANSPORTATION
# PLAN OF PROPOSED
# FEDERAL AID PROJECT
# 56–59 KA–5416–01

**PROJ. NO 56–59 KA–5416–01**
**F.A. NO. ACNHP–A541(601)**

GRADING
SURFACING (CONCRETE)
SURFACING (ASPHALT)
SEEDING
SIGNING AND PAVEMENT MARKING

**MCPHERSON COUNTY**
**CITY OF MCPHERSON, KANSAS**

INDEX OF SHEETS


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| 10 | SIDEWALK LAYOUT |
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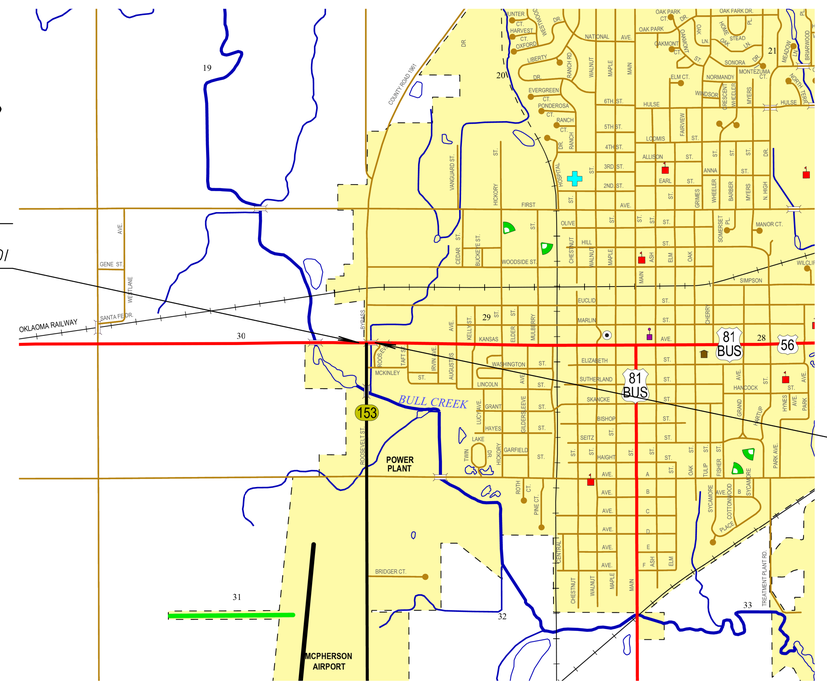



| DATE | BY | |
|---|---|---|
| 12-19 | XXXXXX - GARBER SURVEYING | SURVEYED |
| | | PLOTTED |
| 2020 | F. ALANGURLI - Benesch | INKED |
| 2020 | M. HEIGERT - Benesch | DESIGNED |
| 2020 | | SQUAD |

## DESIGN DESIGNATION

| | |
|---|---|
| AADT (2019) | 4,900 |
| AADT (2039) | 6,000 |
| DHV | 10% |
| D | 60/40 |
| T | 4.2% |
| V | 45 mph |
| C of A | N/A |
| Clear Zone | N/A |

Note: Traffic to be carried through construction.

## CONVENTIONAL SIGNS

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

| | |
|---|---|
| GROSS LENGTH OF PROJECT | 295.42 FT. (Includes Equations) |
| EXCEPTIONS | NONE |
| ADDITIONS | 0.00 FT. |

| | | |
|---|---|---|
| NET LENGTH OF PROJECT | 295.42 FT. | 0.056 MILES |
| NET LENGTH OF BRIDGES | 0.00 FT. | 0.000 MILES |
| NET LENGTH OF ROAD | 295.42 FT. | 0.056 MILES |

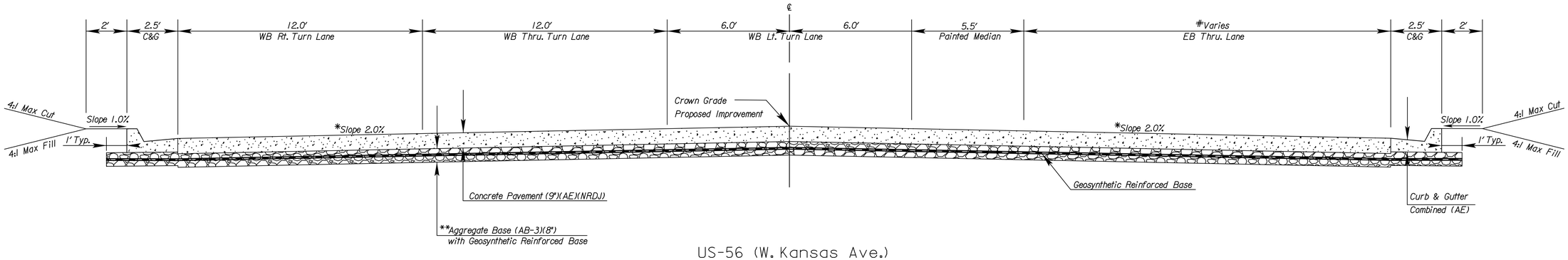
benesch

RECOM. FOR APPROVAL-DATE
Jeff Woodward, P.E.
LOCAL PUBLIC OFFICIAL

Nelda A. Buckley Dec 13,2021
KANSAS DEPARTMENT OF TRANSPORTATION

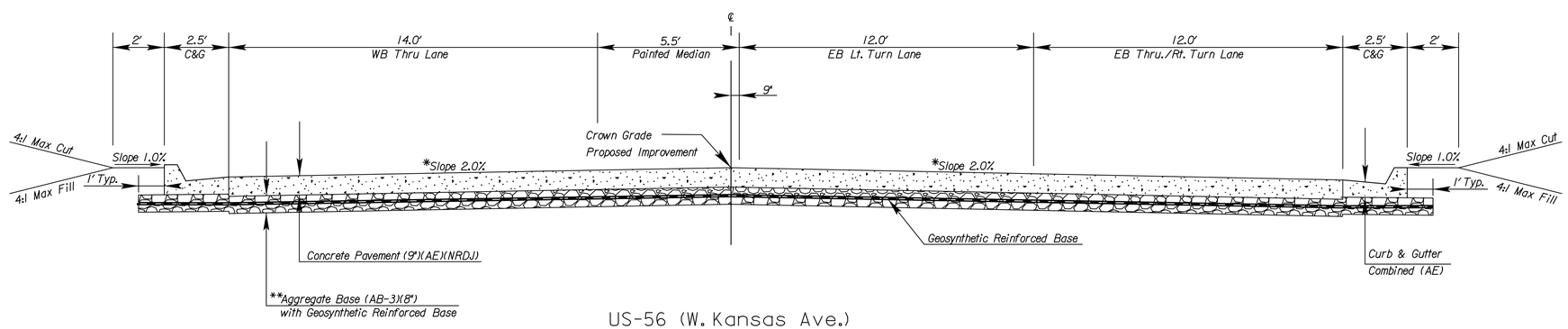
Plotted : 08-DEC-2021 10:53
Drawn By : mheigert
File : Title Sheet.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 2 | 90 |




US-56 (W. Kansas Ave.)
STA. 106+04.34 TO STA. 107+00.00
#Varies from 21.43' at STA. 106+04.34 to 19.5' at STA. 107+00.00

NOTE:
*See Intersection layout sheet for cross slope variations and curb return layouts.




US-56 (W. Kansas Ave.)
STA. 104+04.58 TO STA. 104+12.69

** Crushed Stone Subgrade (8") may be used as an alternative material. If the Contractor elects to use the crushed stone, no price adjustments will be made. It will be paid as Aggregate Base (8"), and the Crushed Stone will still require the Geosynthetic Reinforced Base.

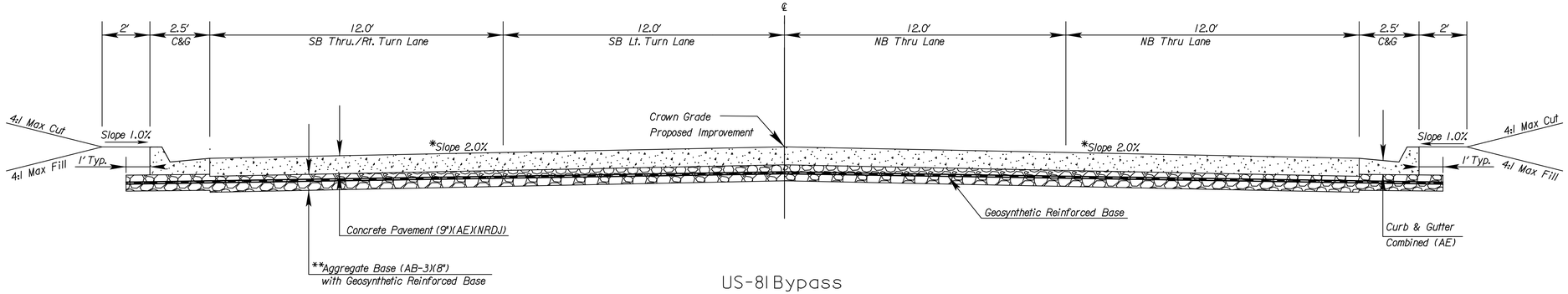
| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | 2020 |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | |

Plotted : 10-DEC-2021 12:40

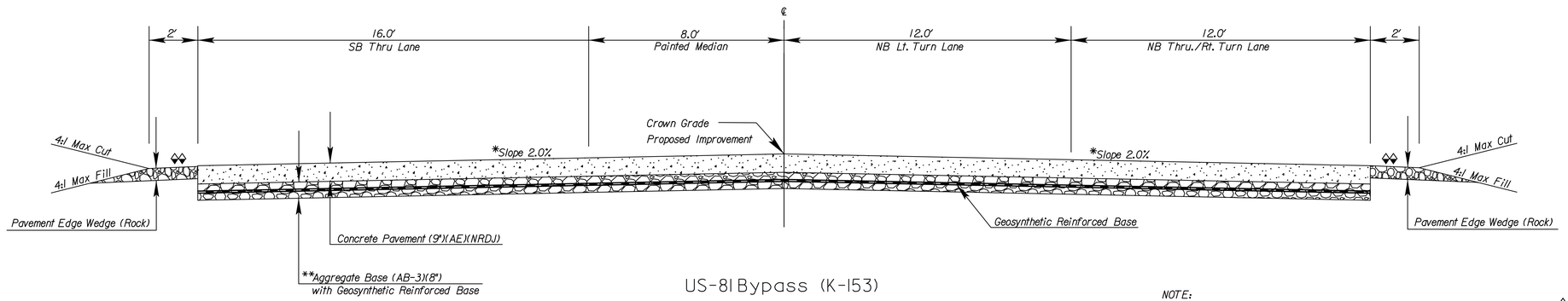
Drawn By : mheigert
File : Typical Sections.dgn

TYPICAL SECTION
US-56

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 3 | 90 |



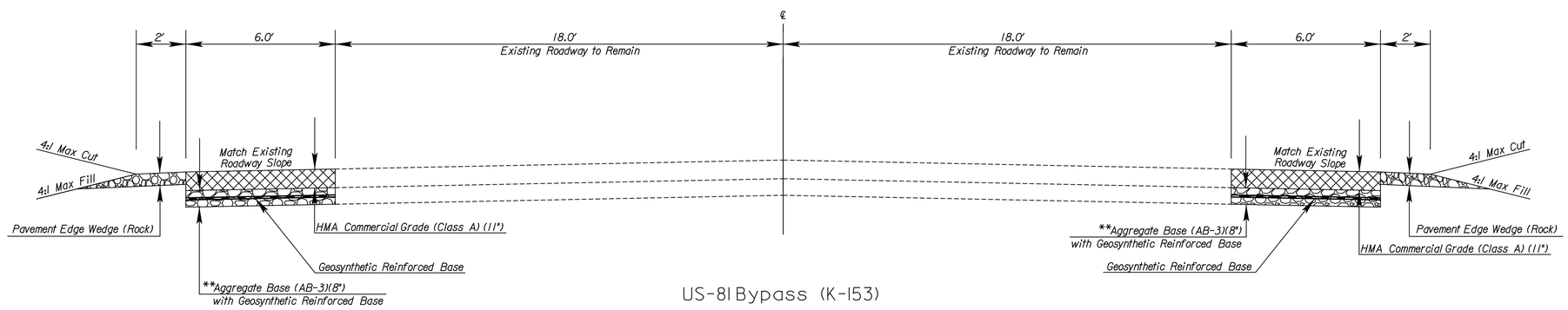

US-81 Bypass
STA. 206+03.59 TO STA. 206+42.57




US-81 Bypass (K-153)
STA. 203+96.32 TO STA. 204+52.61

NOTE:
*See Intersection layout sheet for cross slope variations and curb return layouts.

◆◆ Shoulder Transitions to 2.5' Curb & Gutter at STA. 204+52.61




US-81 Bypass (K-153)
STA. 200+87.52 TO STA. 203+96.32

** Crushed Stone Subgrade (8") may be used as an alternative material. If the Contractor elects to use the crushed stone, no price adjustments will be made. It will be paid as Aggregate Base (8"), and the Crushed Stone will still require the Geosynthetic Reinforced Base.

TYPICAL SECTION
HWY-81
BYPASS

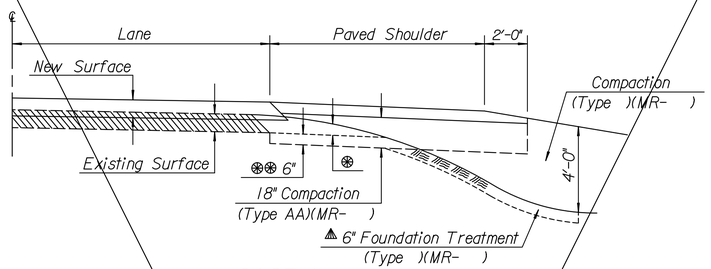
| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:40

Drawn By : mheigert
File : Typical Sections2.dgn

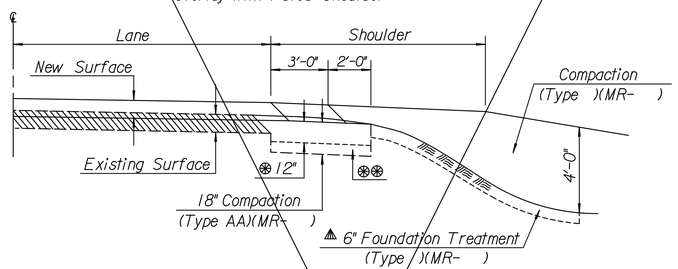
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 4 | 90 |

# REHABILITATION



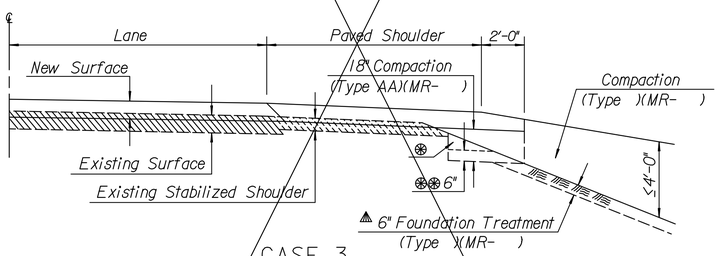

## CASE 1

Overlay with Paved Shoulder



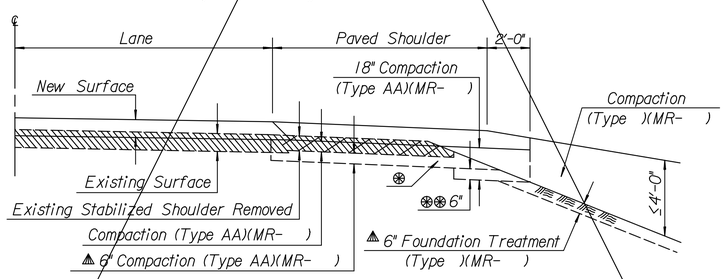

## CASE 2

Overlay with Composite Shoulder




## CASE 3

Overlay with Existing Paved Shoulder



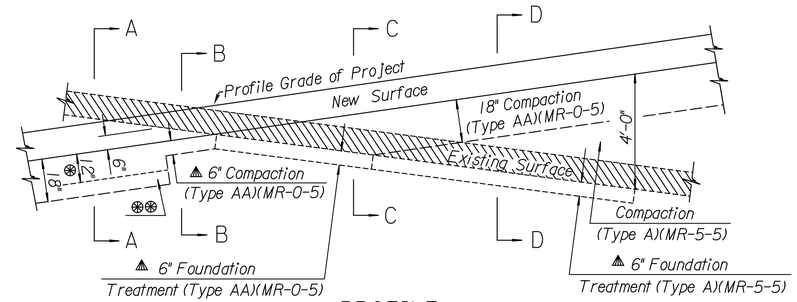

## CASE 4

Overlay with Shoulder Replacement

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

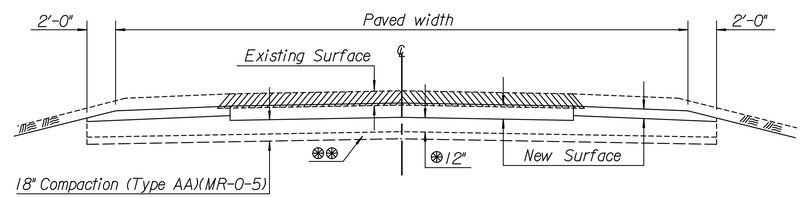
Note: These are 4 general cases. Specific compaction requirements are determined on a project-by-project basis.

# RECONSTRUCTION

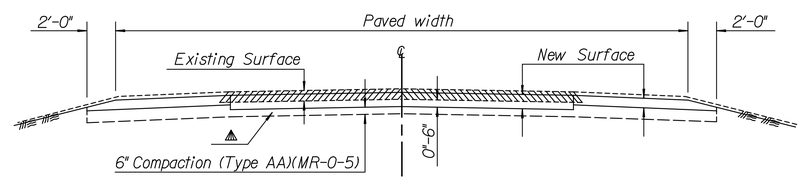



## PROFILE

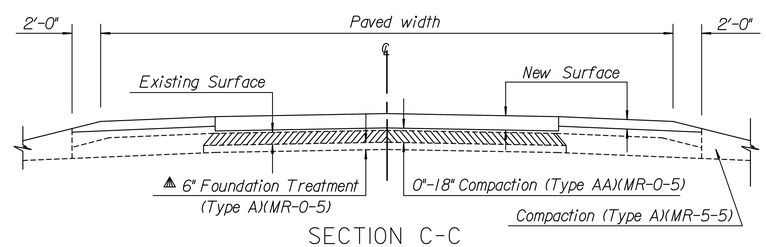
⊛ Excavation thru Cuts not Subgraded
⊛⊛ The lower 6" of Compaction is subsidiary.
▲ Compaction of this material shall be subsidiary.



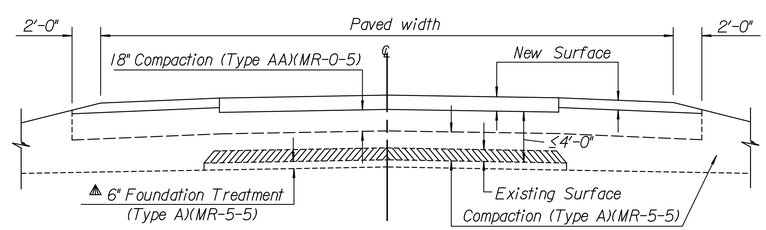

## SECTION A-A




## SECTION B-B

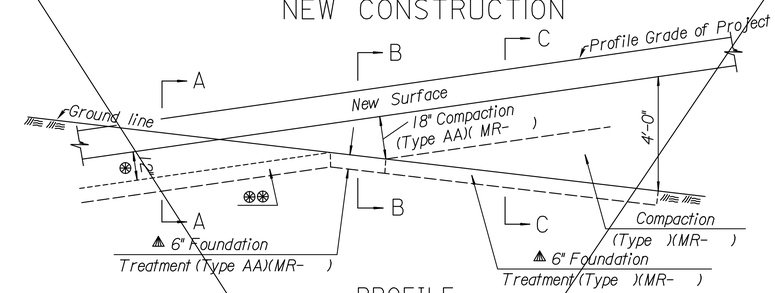



## SECTION C-C



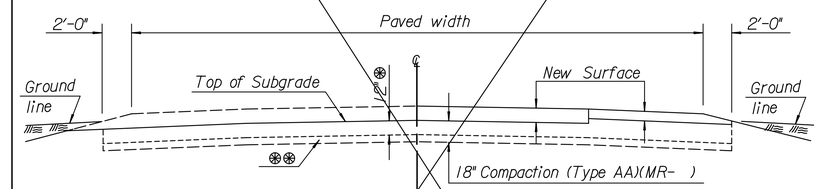

## SECTION D-D

# NEW CONSTRUCTION

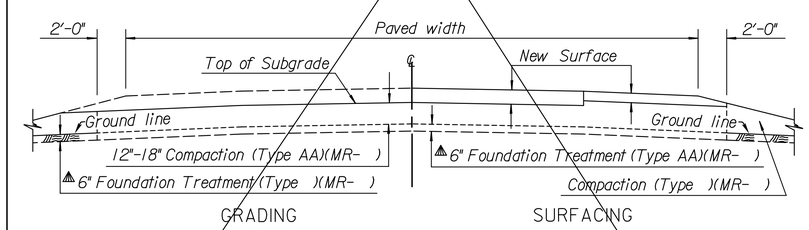



## PROFILE

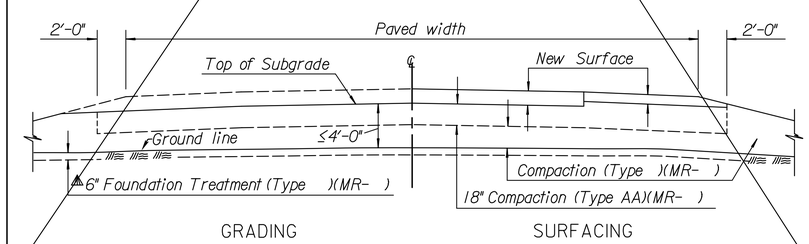
⊛ Excavation thru Cuts not Subgraded
⊛⊛ The lower 6" of Compaction is subsidiary.
▲ Compaction of this material shall be subsidiary.




## SECTION A-A




## SECTION B-B




## SECTION C-C

General Note

For materials designated to be subgraded, compaction of soils, including shales, designated for backfill refer to Standard Drawing RD605A for details.

Unless otherwise noted on the Plans, compact all embankment, including side roads and entrances.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 5 | 10-17-11 | Revised General Note | S.W.K. | J.O.B. |
| 4 | 1-05-10 | Added additional subsidiary comp. | S.W.K. | J.O.B. |
| 3 | 2-16-05 | Redrawn, Rev. Recon. Sec. C-C & D-D | S.W.K. | J.O.B. |
| 2 | 5-29-98 | Revised Reconstruction Section B-B | R.J.S. | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

# FOUNDATION TREATMENT & COMPACTION OF EARTHWORK

~~RD605~~

| | | | |
|---|---|---|---|
| FHWA APPROVAL | 12-5-11 | APP'D. James O. Brewer | |
| DESIGNED | DETAILED | QUANTITIES | TRACED Bowser |
| DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. King |

Sh. No. 4

Plotted : 10-DEC-2021 12:40
Drawn By : mheigert
File : rd605.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 5 | 90 |

GENERAL NOTE

CONTRACTOR SHALL SAW CUT THE EXISTING PAVEMENT FULL DEPTH AT LOCATIONS DETERMINED BY THE OWNER AND/OR ENGINEER IN THE AREAS FOR THE FULL DEPTH PAVEMENT REPLACEMENT. SAW CUTS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

ALL UTILITY LOCATIONS ARE APPROXIMATE. THE CONTRACTOR SHALL CALL KANSAS ONE CALL PRIOR TO ANY CONSTRUCTION. CARE SHALL BE TAKEN TO AVOID AND EXISTING UTILITIES.

SW Cor. NE 1/4 Sec. 30, T19S, R3W
N 1933410.973 E 1545338.807
1. Fnd 5/8" Rebar
2. 3.03 RT of ℄ @ 99+57.54

P.O.T. ℄ Sta. 100+00.00
N 1933412.823 E 1545381.266
1. Nothing Set

CP #100 ℄ Sta. 204+58.77, 401.43' LT.
N: 1933319.71 E 1545496.74
5/8" Rebar w/red Cap - S. of KS Ave Elev. 1,482.89

SCALE
PLAN: Lat. & Long. 20' 0 20' 40'
PROFILE: Horiz. same as above
Vert. 5' 0

PROJECT SURVEY CONTROL

NAD 83 Kansas South Zone State Plane Coordinates
Horizontal Coordinates: N: 1933354.712 E: 1543806.011
Vert. Datum: Sea Level Datum of NAVD 88
Datum Control Point: CP #102 Elev. 1487.72

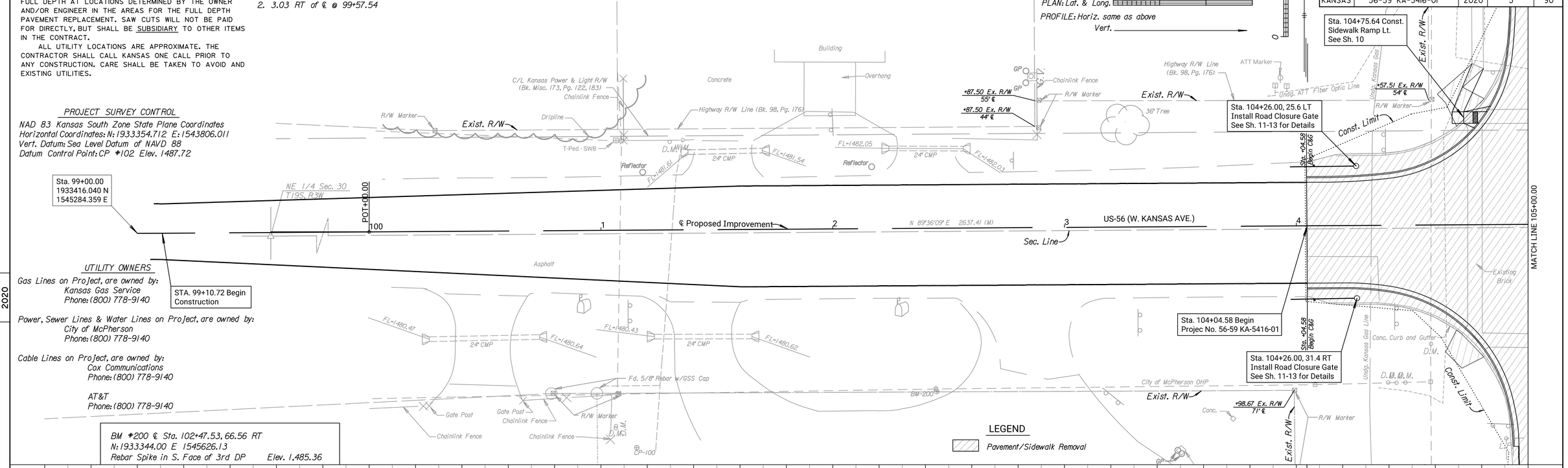
UTILITY OWNERS

Gas Lines on Project, are owned by:
Kansas Gas Service
Phone: (800) 778-9140

Power, Sewer Lines & Water Lines on Project, are owned by:
City of McPherson
Phone: (800) 778-9140

Cable Lines on Project, are owned by:
Cox Communications
Phone: (800) 778-9140

AT&T
Phone: (800) 778-9140

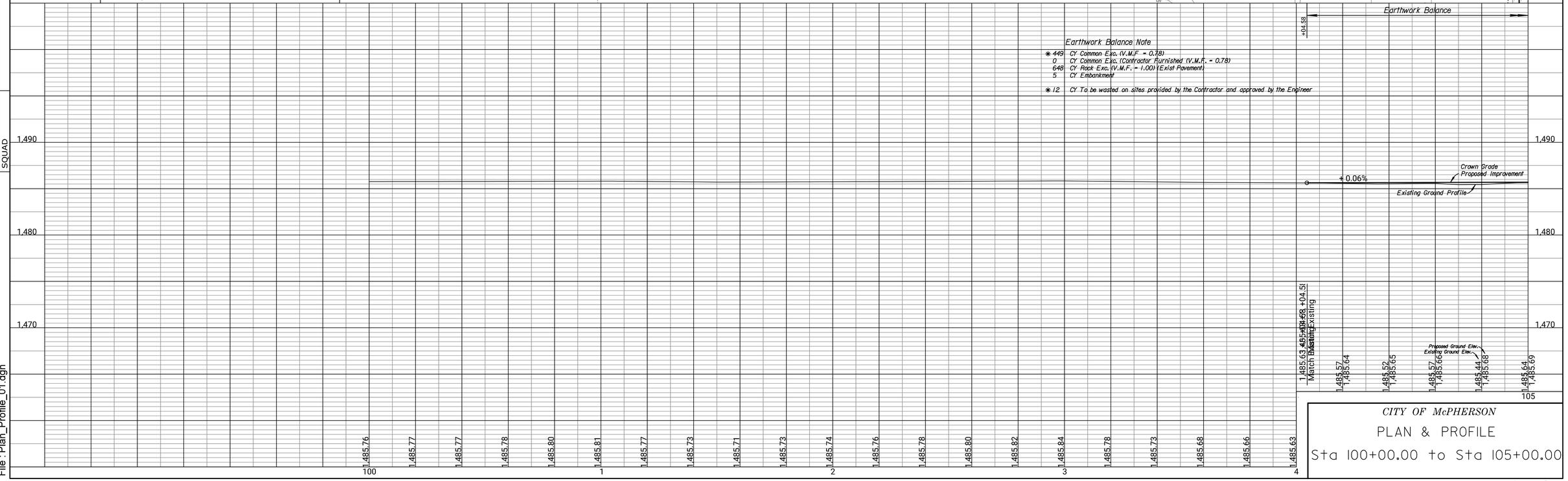



BM #200 ℄ Sta. 102+47.53, 66.56 RT
N: 1933344.00 E 1545626.13
Rebar Spike in S. Face of 3rd DP Elev. 1,485.36

LEGEND
Pavement/Sidewalk Removal

Earthwork Balance Note

| | |
|---|---|
| * 449 | CY Common Exc. (V.M.F. = 0.78) |
| 0 | CY Common Exc. (Contractor furnished (V.M.F. = 0.78) |
| 648 | CY Rock Exc. (V.M.F. = 1.00) (Exist Pavement) |
| 5 | CY Embankment |
| * 12 | CY To be wasted on sites provided by the Contractor and approved by the Engineer |



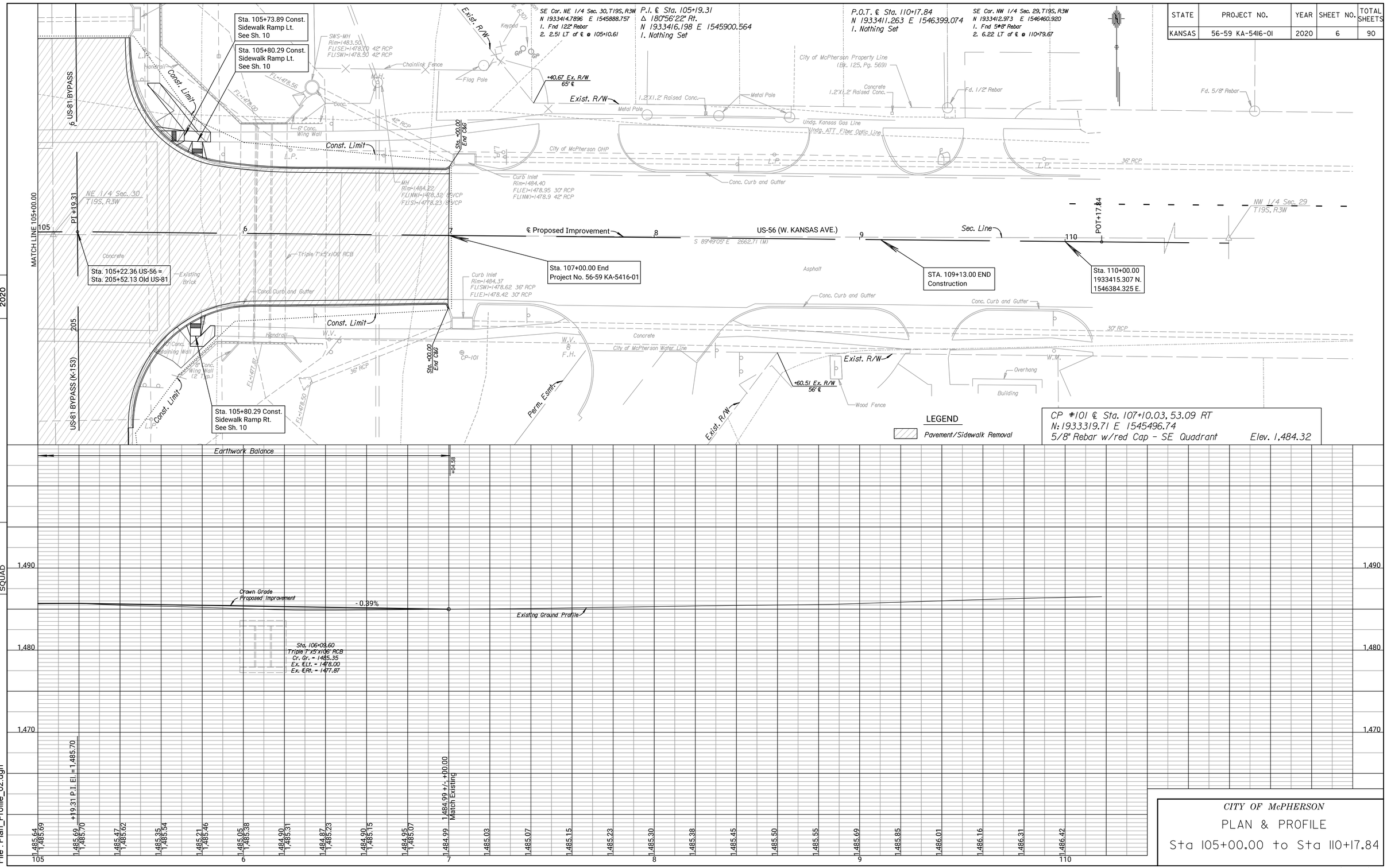

CITY OF McPHERSON
PLAN & PROFILE
Sta 100+00.00 to Sta 105+00.00

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:40
Drawn By : mheigert
File : Plan_Profile_01.dgn

Sh. No. 5

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 6 | 90 |




| | | BY | DATE |
|---|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | | 12-19 |
| PLOTTED | | | |
| INKED | F. ALANGURLI - Benesch | | 2020 |
| DESIGNED | M. HEIGERT - Benesch | | 2020 |
| SQUAD | | | 2020 |

Plotted : 10-DEC-2021 12:40

Drawn By : mheigert
File : Plan_Profile_02.dgn

CITY OF McPHERSON

PLAN & PROFILE

Sta 105+00.00 to Sta 110+17.84

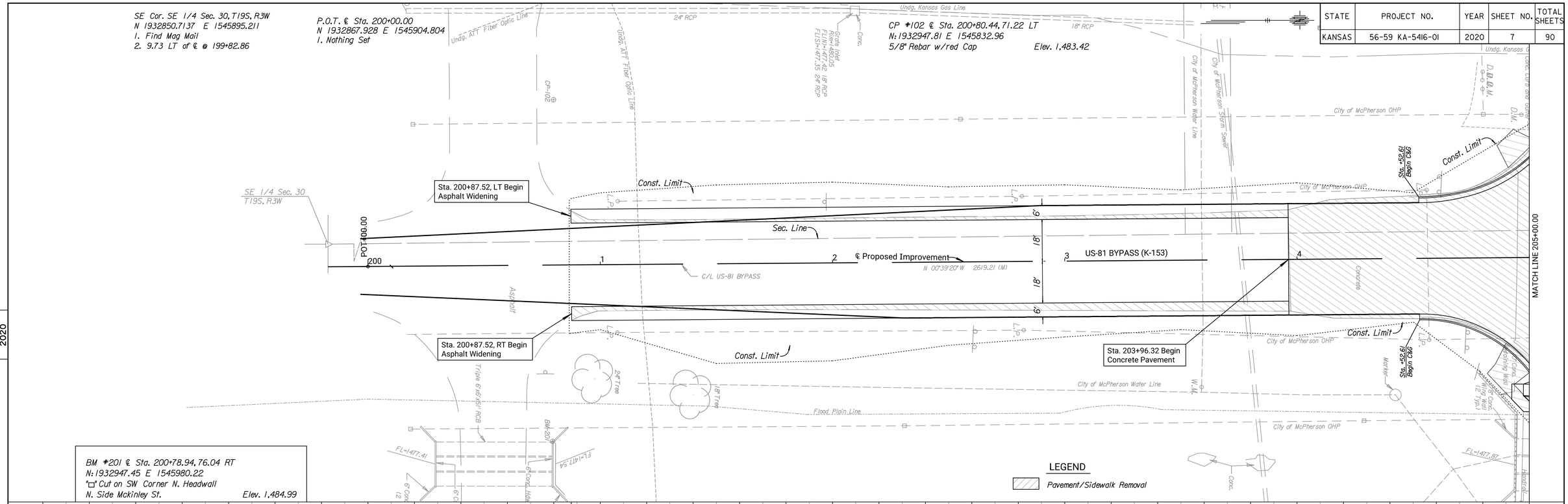
Sh. No. 6

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 7 | 90 |

SE Cor. SE 1/4 Sec. 30, T19S, R3W
N 1932850.7137 E 1545895.211
1. Find Mag Nail
2. 9.73 LT of ℄ @ 199+82.86

P.O.T. ℄ Sta. 200+00.00
N 1932867.928 E 1545904.804
1. Nothing Set

CP #102 ℄ Sta. 200+80.44, 71.22 LT
N: 1932947.81 E 1545832.96
5/8" Rebar w/red Cap Elev. 1,483.42



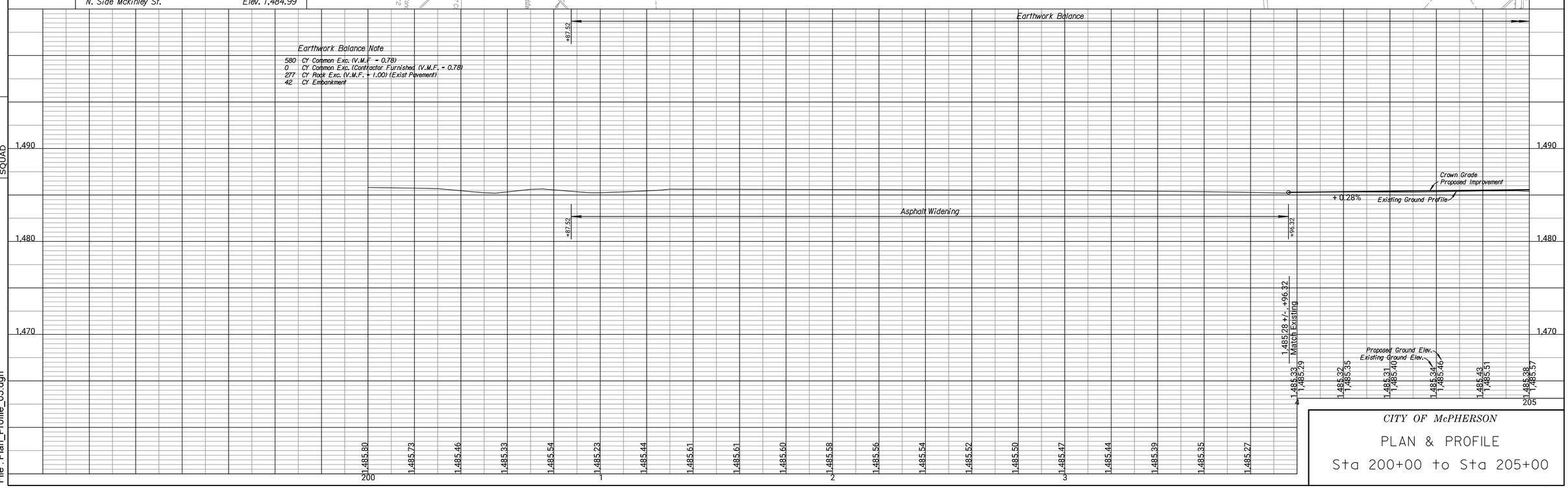

BM #201 ℄ Sta. 200+78.94, 76.04 RT
N: 1932947.45 E 1545980.22
"□" Cut on SW Corner N. Headwall
N. Side Mckinley St. Elev. 1,484.99

LEGEND

Pavement/Sidewalk Removal

Earthwork Balance Note

580 CY Common Exc. (V.M.F. = 0.78)
0 CY Common Exc. (Contractor Furnished (V.M.F. = 0.78)
277 CY Rock Exc. (V.M.F. = 1.00) (Exist Pavement)
42 CY Embankment




CITY OF McPHERSON

PLAN & PROFILE

Sta 200+00 to Sta 205+00

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | 2020 |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | |

Plotted : 10-DEC-2021 12:40

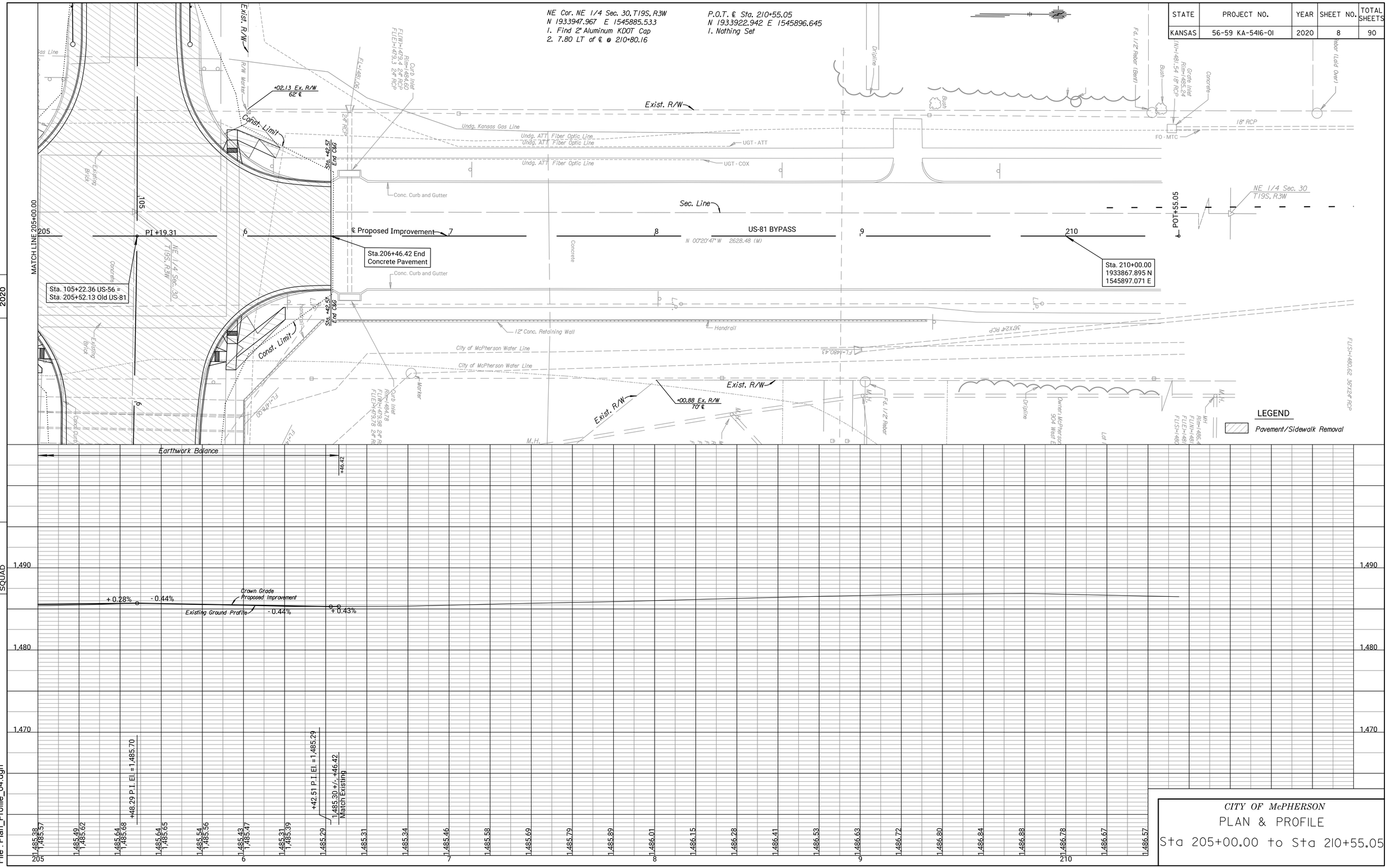
Drawn By : mheigert
File : Plan_Profile_03.dgn

Sh. No. 7

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 8 | 90 |

NE Cor. NE 1/4 Sec. 30, T19S, R3W
N 1933947.967 E 1545885.533
1. Find 2" Aluminum KDOT Cap
2. 7.80 LT of ℄ @ 210+80.16

P.O.T. ℄ Sta. 210+55.05
N 1933922.942 E 1545896.645
1. Nothing Set




| | | BY | DATE |
|---|---|---|---|
| SURVEYED | | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | | |
| INKED | | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | | M. HEIGERT - Benesch | 2020 |
| SQUAD | | | 2020 |

Plotted : 10-DEC-2021 12:40

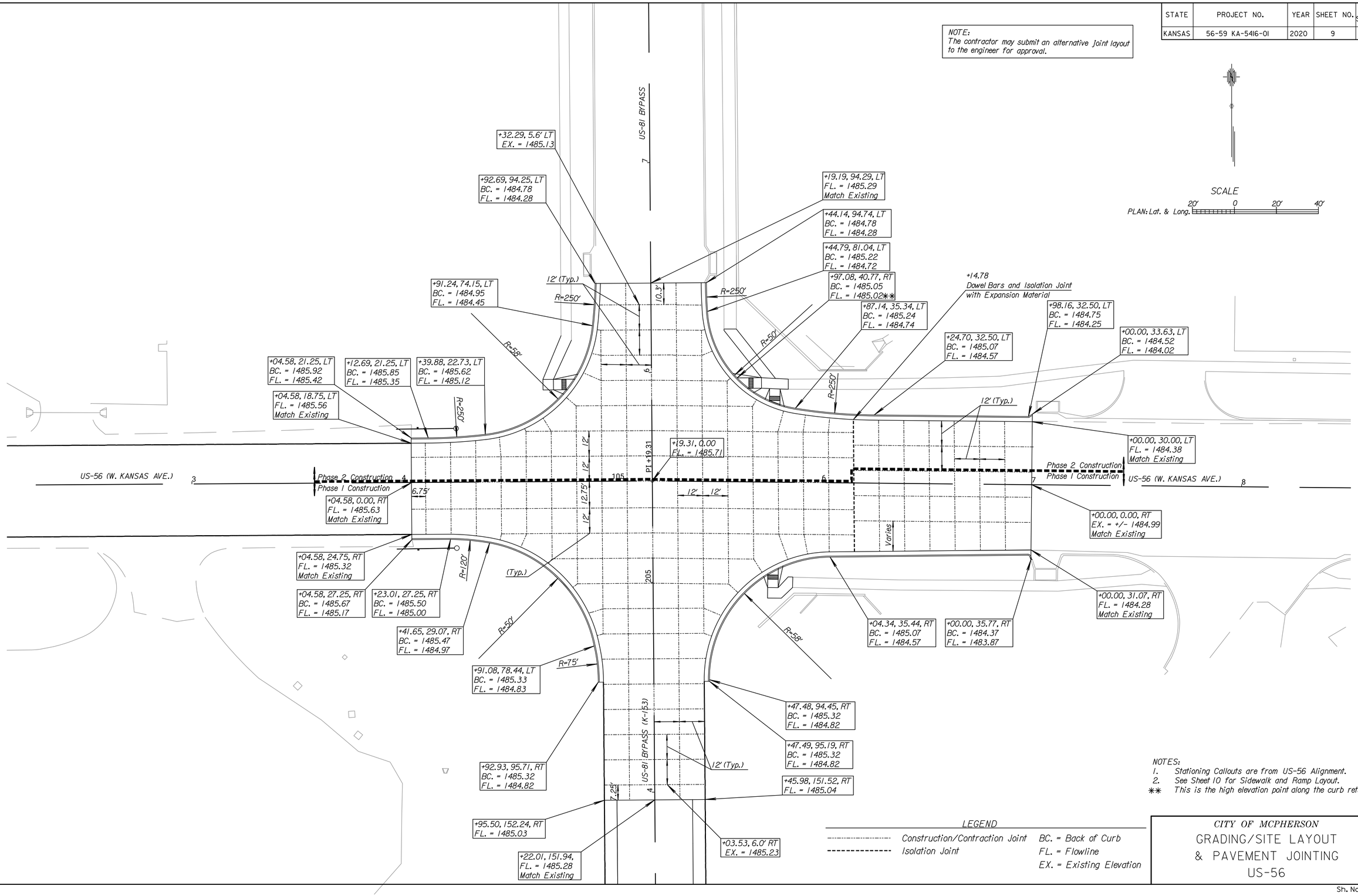
Drawn By : mheigert
File : Plan_Profile_04.dgn

CITY OF McPHERSON
PLAN & PROFILE
Sta 205+00.00 to Sta 210+55.05

Sh. No. 8

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 9 | 90 |

NOTE:
The contractor may submit an alternative joint layout to the engineer for approval.



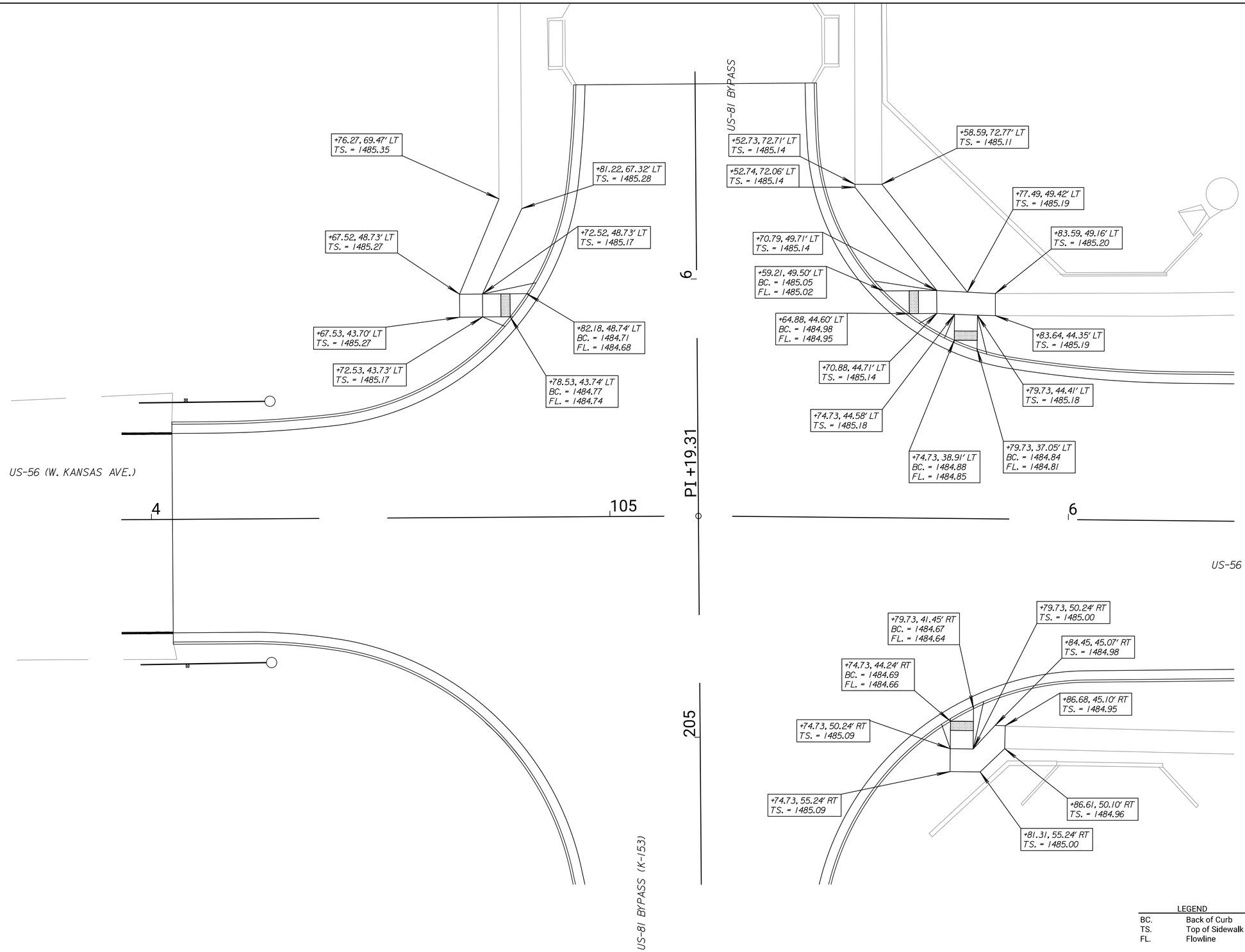

NOTES:
1. Stationing Callouts are from US-56 Alignment.
2. See Sheet 10 for Sidewalk and Ramp Layout.
** This is the high elevation point along the curb return

CITY OF MCPHERSON
GRADING/SITE LAYOUT
& PAVEMENT JOINTING
US-56

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:40
Drawn By : mheigert
File : Pavement Jointing.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 10 | 90 |




SCALE
PLAN: Lat. & Long.
10' 0 10' 20'

NOTES:
1. Stationing Callouts are from US-56 Alignment.
2. See Sheet 9 for intersection grading

LEGEND

| | |
|---|---|
| BC. | Back of Curb |
| TS. | Top of Sidewalk |
| FL. | Flowline |

CITY OF MCPHERSON

SIDEWALK LAYOUT

US-56

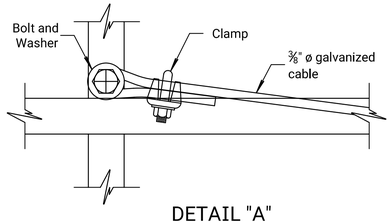
| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:40

Drawn By : mheigert
File : Sidewalk Grading.dgn

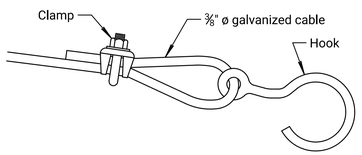
Sh. No. 10

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 11 | 90 |



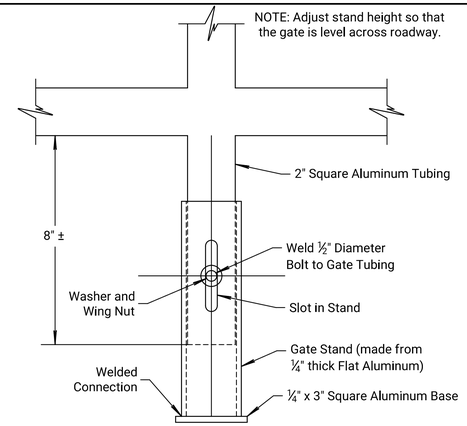

DETAIL "A"

Cable to Gate Connection

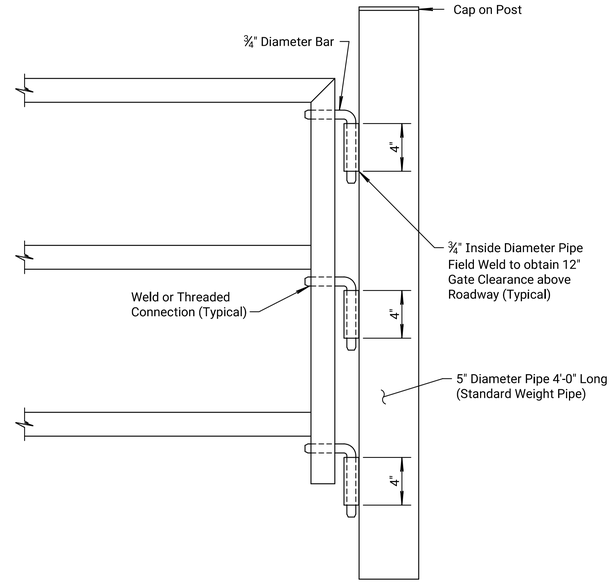



DETAIL "B"

Cable to Tie Down Connection




GATE STAND DETAIL

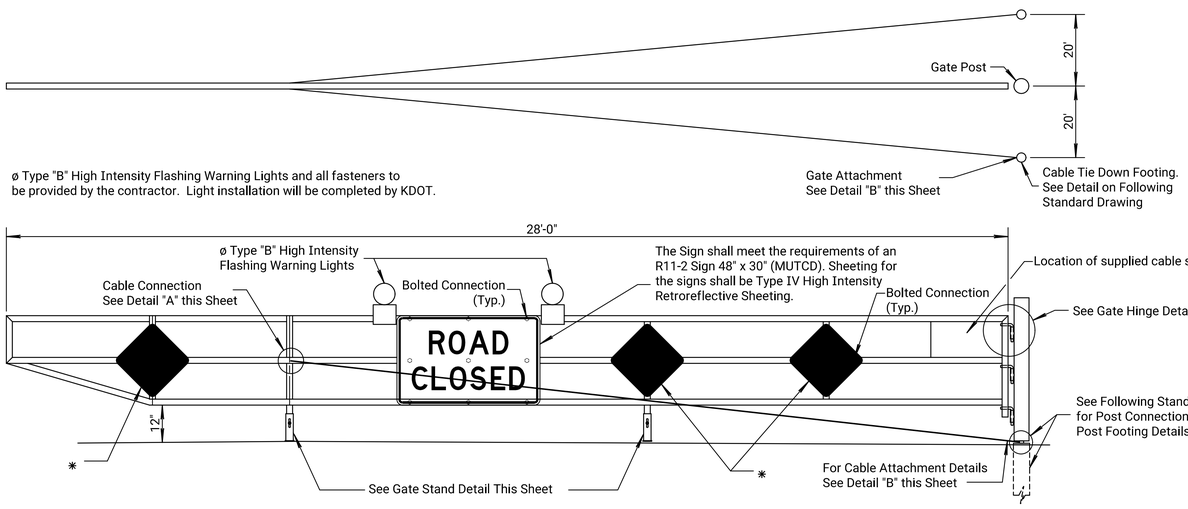



GATE HINGE DETAIL

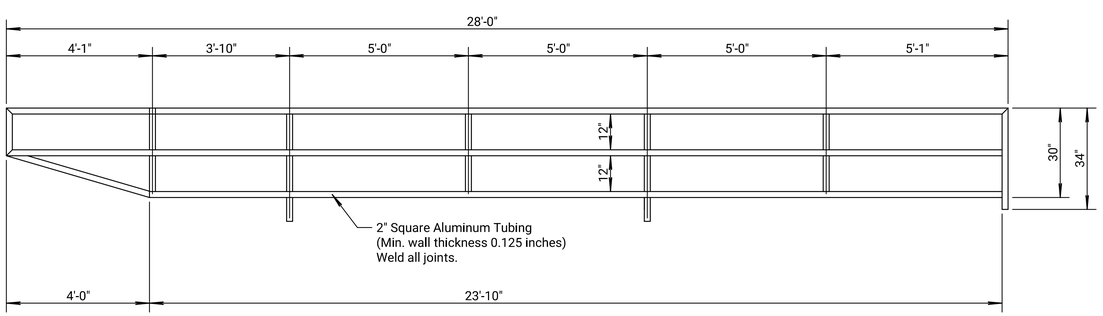
Gate Shown in Closed Position

GENERAL NOTES

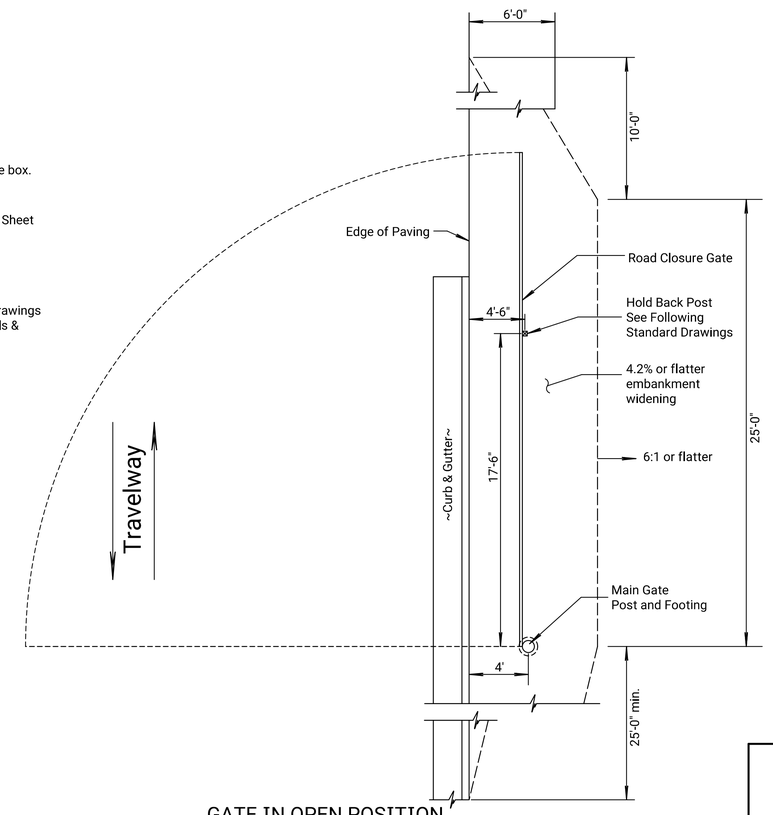
Road Closure Gates will be paid for by the bid item "Roadside Improvement" which shall be compensation for furnishing, transporting and constructing the complete unit including the foundations and signs. The Contractor shall provide a sufficient cable storage box on the gate for storage of the cables when gate is in the open position. All of the work to construct and install the gate in its entirity will be considered subsidiary to the bid item "Roadside Improvement".




* The Sign shall meet the requirements of an Red OM4-3 (18" x 18") Sign (MUTCD). Sheeting for the signs shall be Type IV High Intensity Retroreflective Sheeting. Center Sign on Vertical and Horizontal Tubing.




ROAD CLOSURE GATE DETAILS




GATE IN OPEN POSITION

US-56 Westbound Shown, Eastbound is a Mirror

*CITY OF MCPHERSON*

ROAD CLOSURE GATE DETAILS AND LAYOUT

(1 of 3)

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

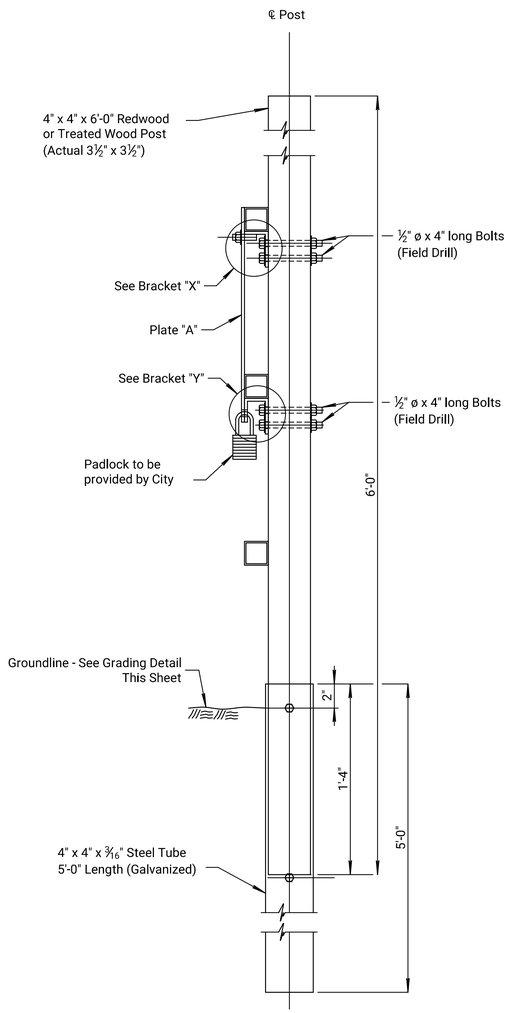
Plotted : 10-DEC-2021 12:40

Drawn By : mheigert

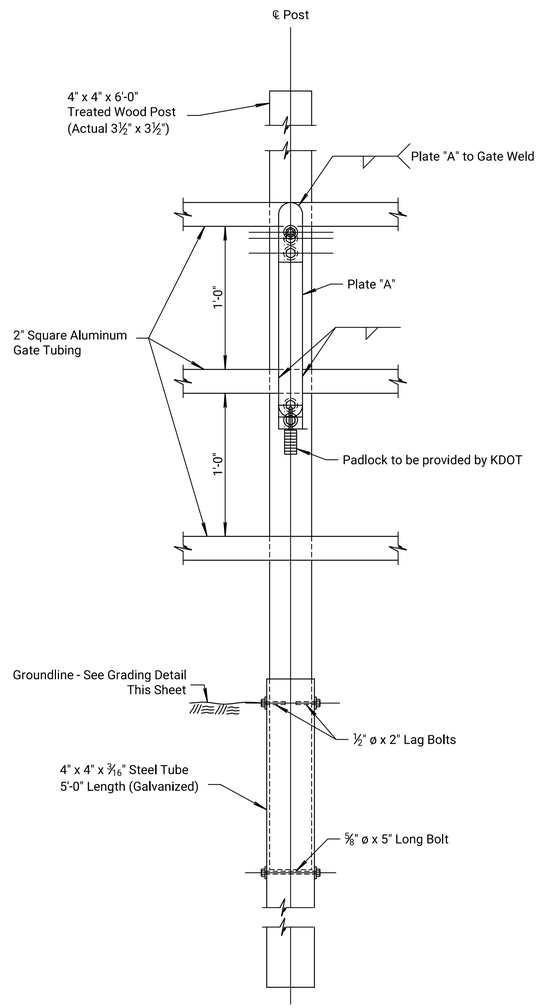
File : GateStd1.dgn

Sh. No. 11

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 12 | 90 |




SIDE VIEW




FRONT VIEW

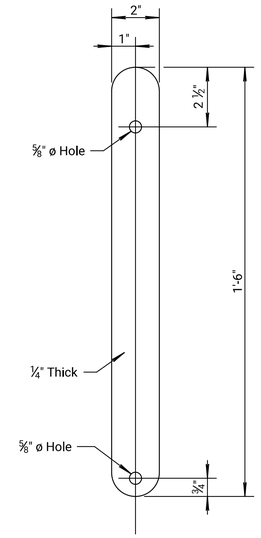
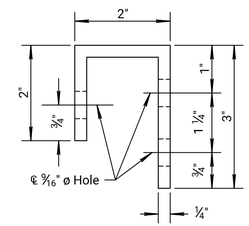


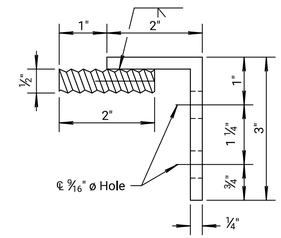

PLATE "A"

GENERAL NOTES

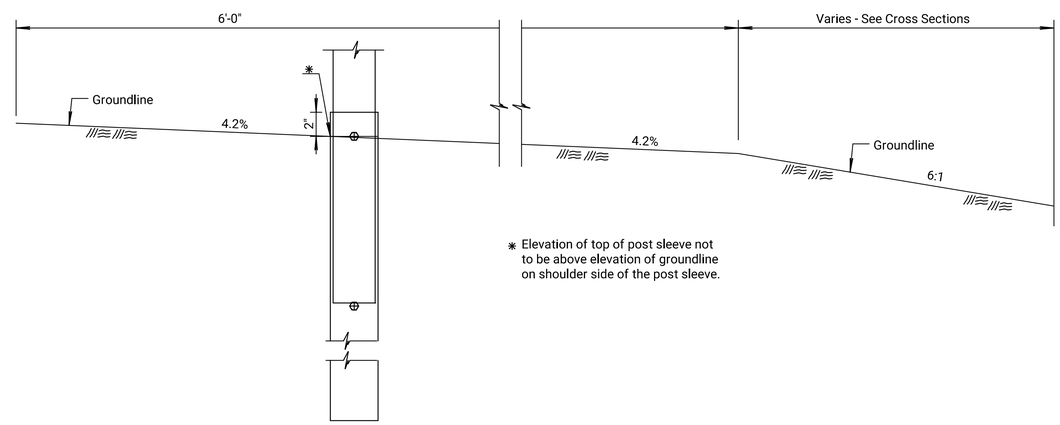
Design conforms with AASHTO "Standard Specifications for Structural Supports for Signs, Luminaries and Traffic Signals 2002." Foundation Design conforms with "Design Procedure Compared to Full-Scale Tests of Drilled Shaft Footings," Texas Transportation Institute, February 1970.
The post sleeve shall be formed from steel sheet which was produced to meet the requirements of ASTM 653M and zinc coated to meet the requirements of Coating Designation A123. Basis of acceptance shall be visual inspection of the finished sleeve as determination of zinc thickness by magnetic gauge. Holes and field cuts shall be treated in accordance with the preservative treatment specificaitons.




BRACKET "Y"




BRACKET "X"




✱ Elevation of top of post sleeve not to be above elevation of groundline on shoulder side of the post sleeve.

GRADING DETAIL

HOLD BACK POST DETAILS

Note: For location of Hold Back Post, See Road Closure Gate Detail Sh. 1 of 3

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | |
| PLOTTED | Note to Designer: Platform Grading based on AASHTO Roadside Design Guide Clearance Criteria (maximum 4" stub height over a 5' wide chord). | 12-19 |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:40

Drawn By : mheigert
File : GateStd2.dgn

*CITY OF MCPHERSON*

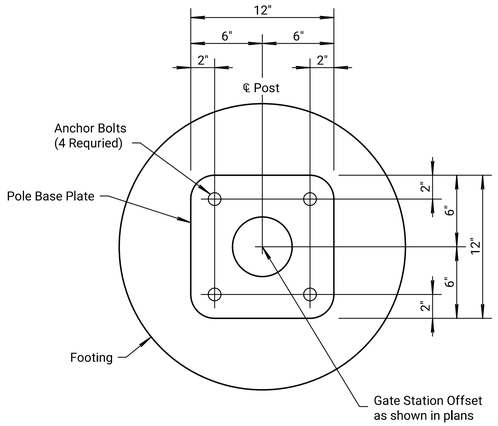
ROAD CLOSURE GATE
HOLD BACK POST DETAILS
(2 of 3)

Sh. No. 12

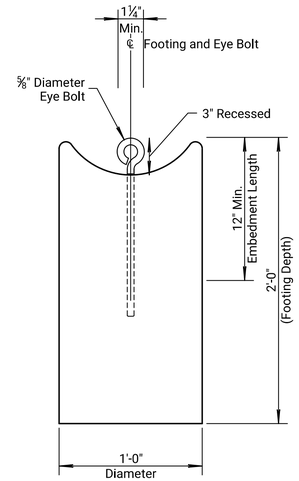
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 13 | 90 |

GENERAL NOTES

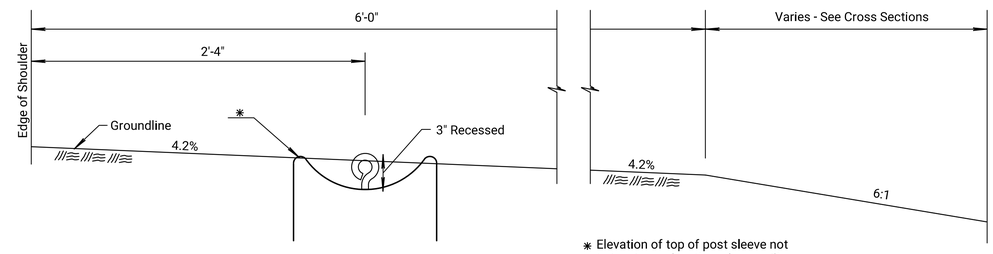
All exposed concrete edges or corners shall be chamfered ½" except where noted otherwise in the plans.
All Anchor Bolts and Eye Bolts shall conform to ASTM A307 having a minimum yield stress of 36,000 p.s.i. All Anchor Bolts shall be fully threaded. The Anchor Bolts shall be positioned in the concrete footing as shown by the plans to facilitate the attachment of the existing Road Closure Gate to the footing.




PLAN

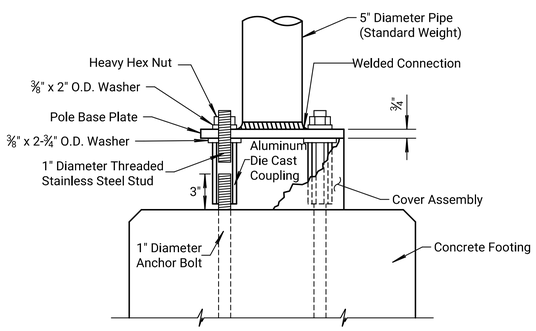



CABLE TIE DOWN FOOTING

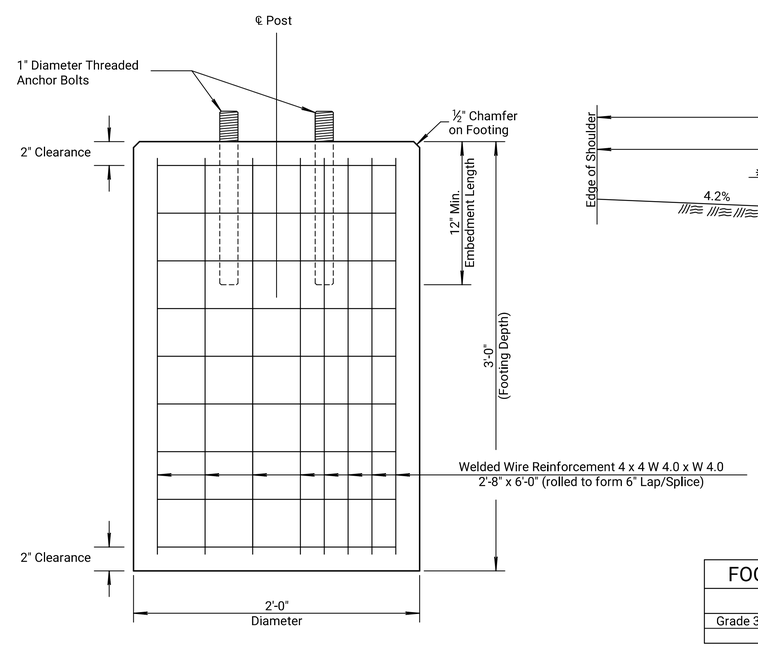



✱ Elevation of top of post sleeve not to be above elevation of groundline on shoulder side of the post sleeve.

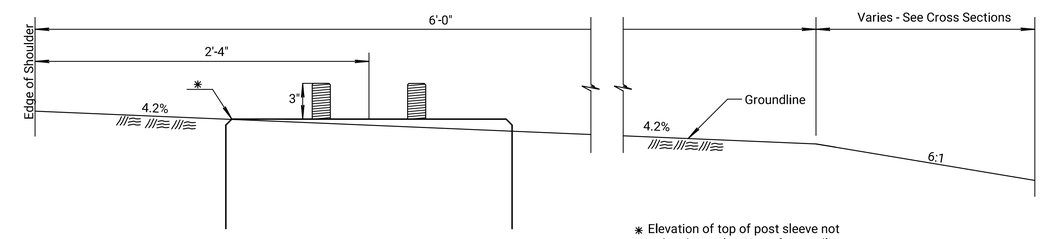
GRADING DETAIL




ELEVATION




POST FOOTING DETAIL




✱ Elevation of top of post sleeve not to be above elevation of groundline on shoulder side of the post sleeve.

GRADING DETAIL

GATE POST BREAKAWAY DETAILS

| FOOTING QUANTITIES (For Information Only) | | |
|---|---|---|
| ITEM | UNIT | QUANTITY |
| Grade 3.0 (AE) Concrete | Cu. Yds. | 0.5 |
| | | |

The quantity shown above is for one Post Footing and two Cable Tie Down Footings.
Mainline concrete pavement mix or Commercial Grade Concrete may be substituted for Grade 3.0 (AE) Concrete.

*CITY OF MCPHERSON*

ROAD CLOSURE GATE
FOOTING & BREAKAWAY DETAILS
(3 of 3)

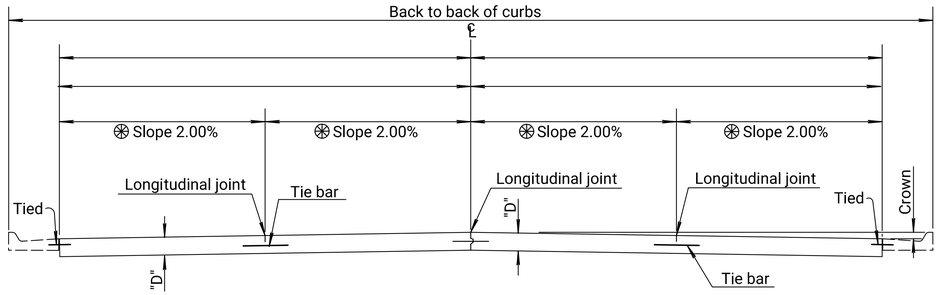
| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | |
| PLOTTED | Note to Designer: Platform Grading based on AASHTO Roadside Design Guide Clearance Criteria (maximum 4" stub height over a 5' wide chord). | 12-19 |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:40

Drawn By : mheigert
File : GateStd3.dgn

Sh. No. 13

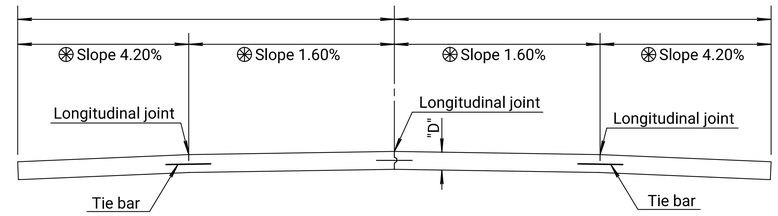
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 14 | 90 |




For Curb & Gutter details
See Standard Drawing RD635.

TRANSVERSE SECTION
(4-LANE WITH CURB & GUTTER)

Normal cross slopes. See Typical Section or Cross Sections for variations.




TRANSVERSE SECTION
(2-LANE WITH SHOULDERS)

GENERAL NOTE

Epoxy coat all deformed tie bars that are straight. Patch any damage to the epoxy coating in accordance with the Standard Specifications.

Use billet steel Grade 40 reinforcing for deformed tie bars that require bending, may be epoxy coated at the Contractor's option.

Place pressure relief joint at the end of the bridge approach pavement slab (no bars through joint). For details of pressure relief joint see Standard Drawing RD712.

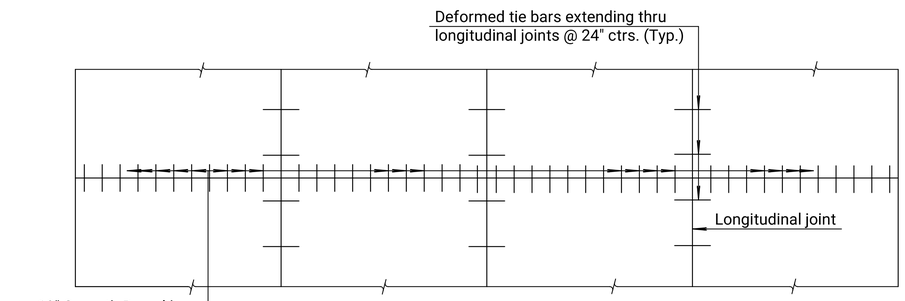
Use load transfer devices as shown in details at all construction joints on mainline pavement unless otherwise noted. Shoulder contraction joints have no dowels unless specifically shown on the plans.

Fill all sawed joints on the project in accordance with the Standard Specifications with the exception of those joints in pavement constructed over Cement or Asphalt Treated Base.

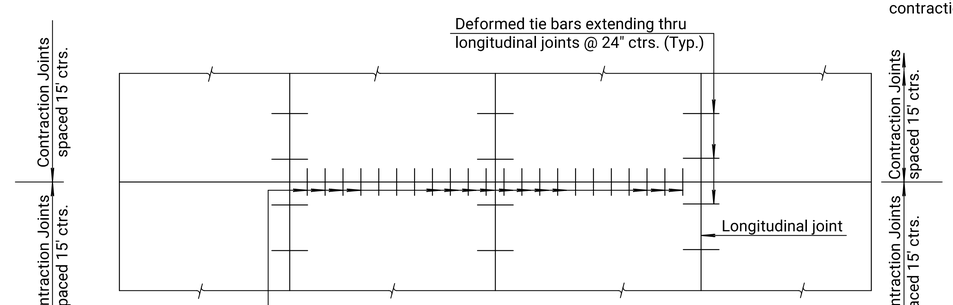
Use single saw cut, ⅛" wide, joint in pavement constructed over Cement or Asphalt Treated Base (Non-Sealed Joint Sawcut). Use single saw cut, ⅛" wide, joint for shoulder pavement adjacent to mainline pavement constructed over Asphalt or Cement Treated Base (Non-Sealed Joint Sawcut). See detail this sheet.

Shape all keyed joints similar to section of recessed form leg as shown on this sheet.

Evenly space tie bars along the length of slab with no tie bar within 12" of contraction joint. All longitudinal joints are tied.




PLAN
(4-LANE WITH CURB & GUTTER)

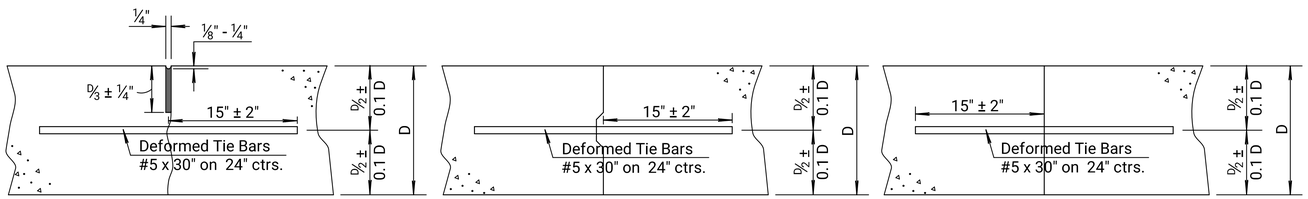



PLAN
(2-LANE WITH SHOULDERS)

| DOWEL SIZE | |
|---|---|
| D (in.) | Diameter |
| 6 < D < 9 | 1" |
| 9 ≤ D < 11 | 1¼" |
| D ≥ 11 | 1½" |

PAVEMENT DEPTH

D= 9"



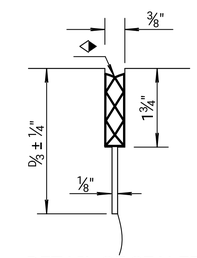

Tied Non-Keyed

Tied Keyed Construction

Tied Butt Construction

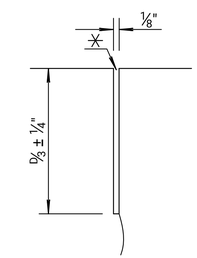
Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.

LONGITUDINAL JOINTS



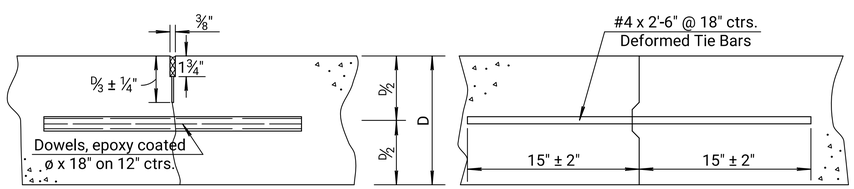

DETAIL OF SEALED
JOINT SAWCUT

Make an initial ⅛" saw cut (D/3 ± ¼" depth); the second ⅜" saw cut is a separate operation done after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.




DETAIL OF NON-SEALED
JOINT SAWCUT

Make only the initial ⅛" saw cut after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.



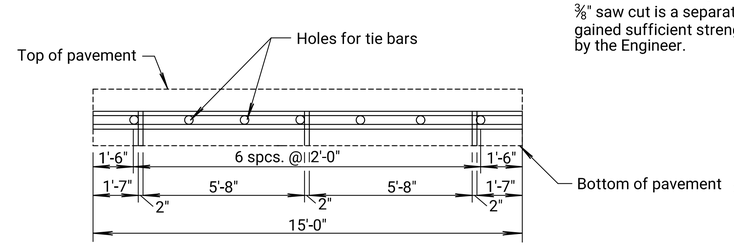

Contraction

Construction

TRANSVERSE JOINTS

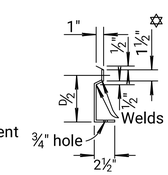
Note: Construct contraction joints at plan locations or at the Engineer's direction.

When necessary to interrupt continuous placement for a substantial length of time or at the end of a day's paving, the Contractor has the option of ending placement at a contraction joint or with a construction joint located a minimum of five (5) feet from a contraction joint. Construct either joint type by placing a header at the end of the pour or by paving past the joint location. After the concrete has hardened, saw joint and drill holes for tie bars or dowels.




METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT

To be used only against forms, do not extend through contraction joints.
For automated placement tie bars are spaced at uniform 24" centers.
Use snap-in leg or other approved design in lieu of welded leg.




SECTION OF
RECESSED
FORM LEG

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 19 | 5-17-13 | Revised Note, Longitudinal Joints | S.W.K. | J.O.B. |
| 18 | 3-21-12 | Revised Table, Dowel Size | S.W.K. | J.O.B. |
| 17 | 1-9-12 | Added Detail, Non Sealed Joint | S.W.K. | J.O.B. |
| 16 | 8-18-10 | Revised Dowel Size & Notes | S.W.K. | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT
DOWEL JOINTED
NON-REINFORCED

RD708

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

CADconform Certify This File

Sh. No. 14

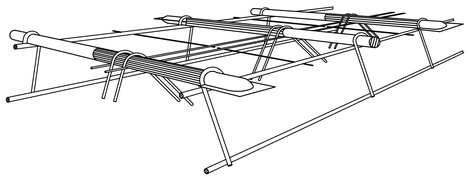
Note: Designer to add applicable dowel sizes.

Plotted :10-DEC-2021 12:40

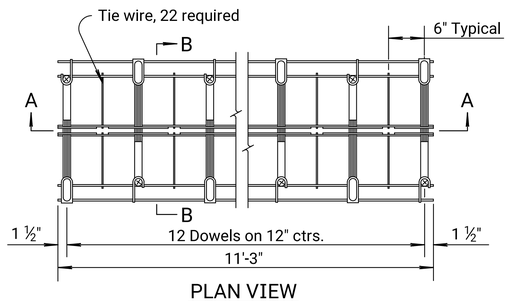
Drawn By : mheigert
File : rd708.dgn

CADconform Certify This File

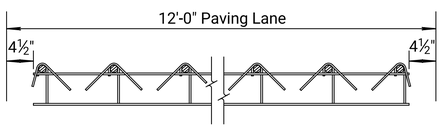
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 15 | 90 |



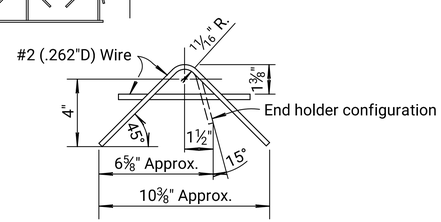
PERSPECTIVE VIEW




PLAN VIEW




SEC. A-A




GENERAL NOTE

Coat each dowel bar with an epoxy coating that meets the standard specifications. Uniformly apply the powdered epoxy coating according to accepted practices and the coating manufacturer's recommendations. The coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting bracket by welding.

Cut the dowel bars to length in such a manner to result in no appreciable deformation of the ends.

Dowel Baskets

Wire sizes shown are minimum required.

Stake baskets to subgrade as shown. Use ramset or similar type fastener with clip when subgrade condition requires it.

Sides held together with tie wire, allowing quick separation of sides and insertion of expansion material, provided in the field.

Use one length of Preformed Expansion Joint filler (Type B), or other approved material as determined by the Engineer, cut to fit crown and subgrade for each lane of pavement as expansion joint filler.

Stretch a string line between the pavement forms along the center line of the joint.

Visually inspect bond breaker was applied to the dowel bars in accordance with KDOT's Standard Specifications prior to placing concrete pavement.

Carefully level the entire joint assembly so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Replace any coating scraped off the dowels during assembly.

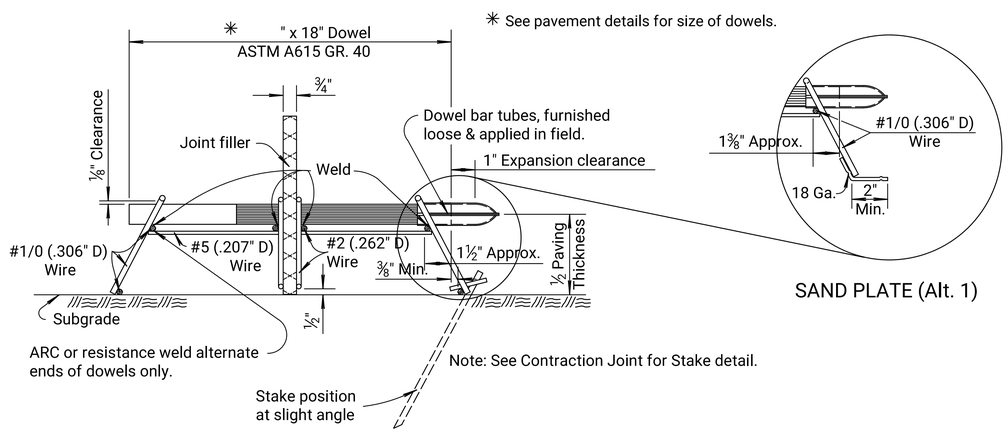
Check each completed contraction joint assembly to be certain the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless otherwise shown on the plans. Check the dowels to be certain they are level and will remain in a position parallel with the finished surface of the slab.

Place concrete over and adjacent to the joint in accordance with the requirements of the Standard Specifications.

After completion of machine finishing, floating, and straight edging the surface, carefully remove the concrete over the filler and edge the joint with an edger of the proper size.

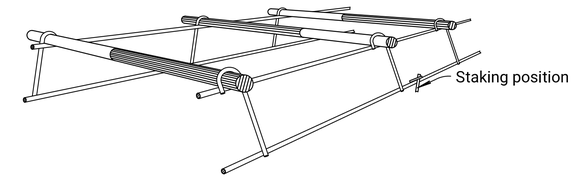
Install expansion joint material in the field.

Alternative designs may be used in lieu of the type shown as approved by the Engineer.

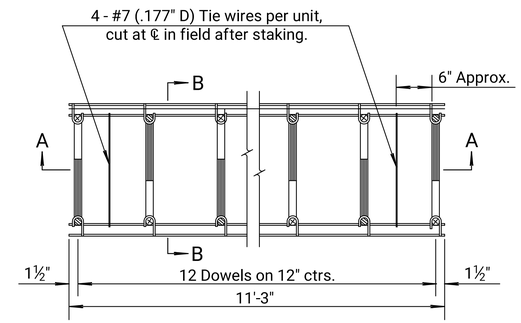



SEC. B-B

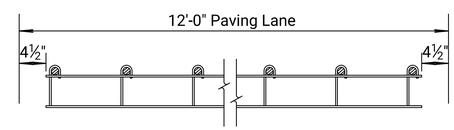
EXPANSION JOINT



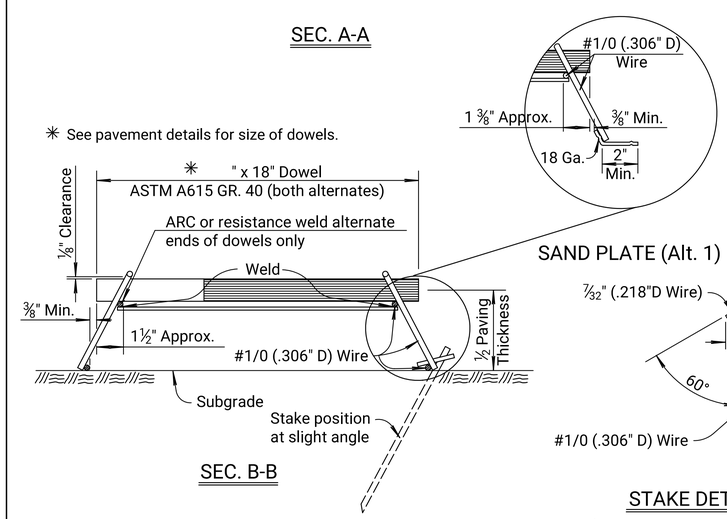

PERSPECTIVE VIEW




PLAN VIEW

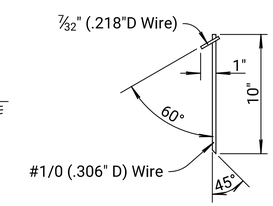



SEC. A-A




SEC. B-B

CONTRACTION JOINT




STAKE DETAIL

(6 Pieces minimum required)

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 9 | 6-3-15 | Rem. Opt., Mechanical Placement | T.T.R. | S.W.K. |
| 8 | 2-15-06 | Chg. Grade 60 to Grade 40 Steel | S.W.K. | J.O.B. |
| 7 | 5-5-04 | Revision on Epoxy coating | S.W.K. | J.O.B. |
| 6 | 4-9-03 | Rev. General Note on Epoxy coating | R.J.S. | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

CONTRACTION & EXPANSION JT. DOWEL ASSEMBLIES

RD735

| | | | |
|---|---|---|---|
| FHWA APPROVAL | 3-30-16 | APP'D. SCOTT W. KING | |
| DESIGNED | DETAILED | QUANTITIES | TRACED |
| DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. Hecht |

CADconform Certify This File

Sh. No. 15

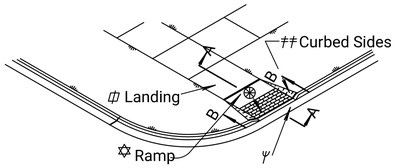
Plotted :10-DEC-2021 12:40

Drawn By : mheigert
File : rd735.dgn

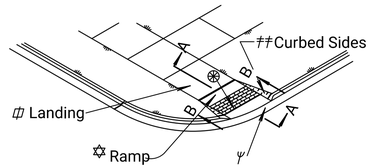
CADconform Certify This File

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 16 | 90 |

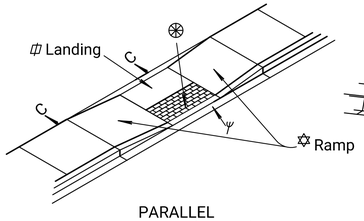
Note to Designer: Placing newly constructed curb ramps through curb radii should be avoided wherever practicable. The use of Parallel Curb Ramp Thru Curb Radius (Alt. Type 2) should be avoided wherever practicable. Review locations of fixed objects. Placing fixed objects in conflict with sidewalk and ramps should be avoided. Fixed objects may include, but are not limited to, fire hydrants, utility cabinets, drainage structures, manholes, inlets, signal poles, and utility poles.



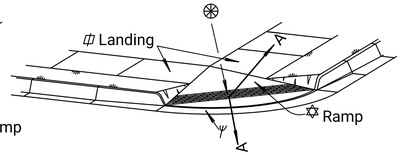

PERPENDICULAR
CURB RAMP (TYPE I)



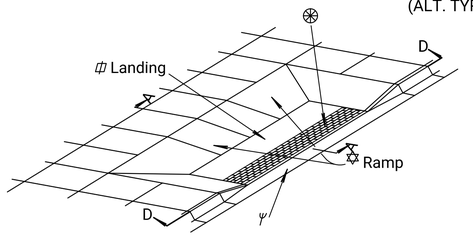

PERPENDICULAR
CURB RAMP THRU CURB RADIUS
(ALT. TYPE I )



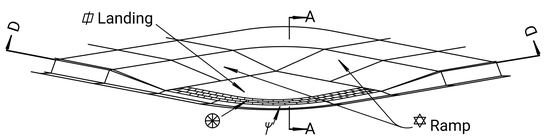

PARALLEL
CURB RAMP (TYPE 2)



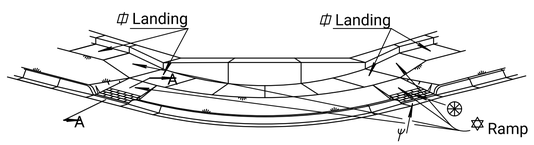

PARALLEL
CURB RAMP THRU CURB RADIUS
(ALT. TYPE 2)



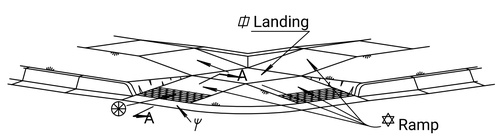

BLENDED TRANSITION
(TYPE 3)



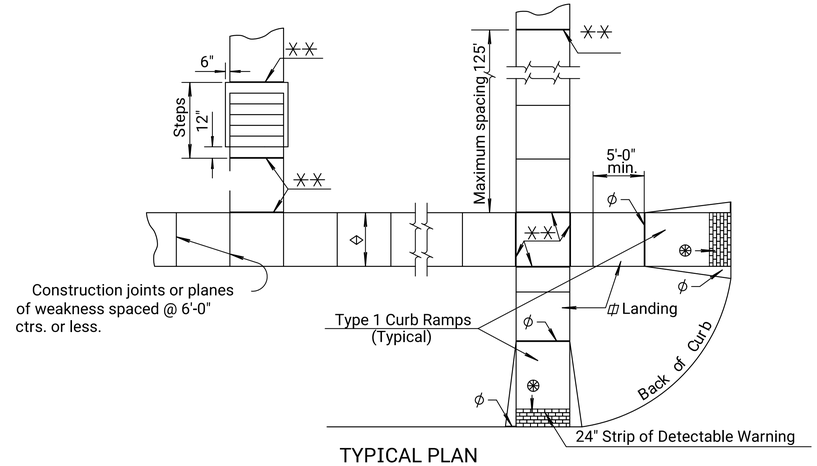

BLENDED TRANSITION
THRU CURB RADIUS (ALT. TYPE 3)




COMBINATION PERPENDICULAR/PARALLEL
CURB RAMP (TYPE 4)




COMBINATION PERPENDICULAR/PARALLEL
CURB RAMP (ALT. TYPE 4)




TYPICAL PLAN

$\phi$ Expansion Joint (¾" Redwood board) placed at either back of curb line, at sidewalk back of curb line, or at sidewalk line. Alternate expansion joint material may be used as approved by the Engineer.

✳✳ Expansion joint (¾" Redwood board) located as shown. Alternate expansion joint material may be used as approved by the Engineer.

◊ The minimum width of newly constructed sidewalk is 5'-0". Where existing conditions prohibit the use of 5'-0" wide sidewalk, 4'-0" wide sidewalk may be used. Where sidewalk width is less than 5'-0" construct 5'-0" x 5'-0" passing spaces located at 200' intervals (max) as shown in the Passing Space Detail. In general, where new sidewalk is constructed parallel or adjacent to a roadway the sidewalk running slopes will match the grade of the adjacent roadway.

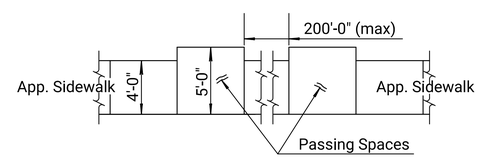
✡ New construction ramp running slopes are 5% (min) to 8.3% (max). Ramp slopes for blended transitions are 5% or flatter. The maximum allowable ramp cross slope is 2% or flatter. Match the ramp width to the width of the approach sidewalk. Curb ramp lengths will vary with curb height. Curb ramp lengths are 5'-0" (min) to 15'-0" (max). All other ramp lengths are 5'-0" (min) to 30'-0" (max). Where roadway grades are relatively flat and curb ramp lengths will exceed 15'-0", ramps may be constructed in succession to tie into existing sidewalk. Maintain ramp slopes and dimensions as previously stated and install a landing between successive ramp runs.

⏍ Use a landing slope of 2% or flatter. Landings are the same width as ramps and adjacent sidewalk with a length measured in the direction of the street crossing of 5'-0" (min). Landings are not required where the ramp running slope is 5% or flatter.

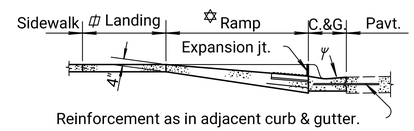
ψ Use a counter slope of 5% or flatter at the base of curb ramps. Refer to Standard Drawing RD725A for additional curb and gutter details.

⊛ Detectable warning installation is typical and required on Perpendicular Ramps (Type 1), Parallel Ramps (Type 2), Blended Transitions (Type 3), median ramp crossings with widths greater than or equal to 6'-0", and other locations as shown in the plans. Install detectable warnings parallel to pedestrian travel except where otherwise shown in the plans. See Standard Drawing RD725A for additional details.

‡‡ Use flared sides in place of curbed sides as shown in Flared Side Alt. when not located adjacent to landscaping, street furniture, chains, fencing, or railing. Curbed sides are not permitted within the pedestrian access route. See PROWAG for pedestrian access route definition.

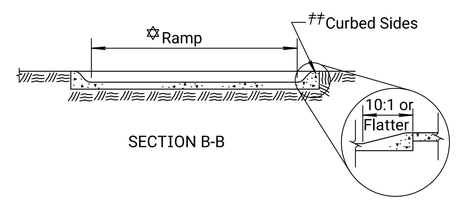



PASSING SPACE
DETAIL



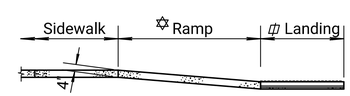

Reinforcement as in adjacent curb & gutter.

SECTION A-A

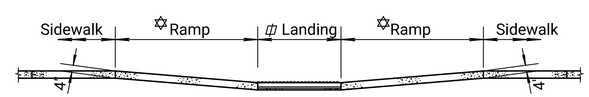



SECTION B-B

FLARED SIDE ALT.




SECTION C-C




SECTION D-D

GENERAL NOTES

Construct sidewalk and ramps in accordance with the current Public Rights of Way Accessibility Guidelines (PROWAG).

The details depicted here may not be appropriate for all locations. Construct to meet this criteria on all roadway alteration projects as defined by the Department of Justice/ Department of Transportation Joint Technical Assistance on ADA Title II Requirements. For an existing sidewalk facility where the sidewalk will be replaced, replace sidewalk in accordance with PROWAG.

Details shown on this sheet apply to newly constructed and existing sidewalk and ramps where roadway alteration projects take place. See KDOT's Standard Specifications for additional information.

Provide ramps at all corners of street intersections where there is an existing or proposed sidewalk and curb. Provide curb ramps at mid-block walk locations for hospitals, medical centers, and athletic stadiums.

Locate ramps as shown on the plans or as directed by the Engineer.

Do not place drainage structures in line with ramps except where existing drainage structures are being utilized in the new construction. Ramp locations should take precedence over the location of drainage structures. Where existing manhole access lids are located on ramps within the area of the detectable warnings and the manhole lid cannot be removed or relocated; install a lid with a detectable warning surface in accordance with PROWAG. Limit drainage across ramps where practicable.

Construct ramps with uniform grade free of sags and short grade changes.

Place ¾" Redwood expansion joints flush with the surface at a maximum spacing of 125'. Place ¾" Redwood expansion joints at sidewalk junctions, see plan details. Where sidewalk abuts a curb place ¾" Redwood board expansion joint flush with the surface.

Place ½" premolded (Type B or C) joint filler where sidewalk is parallel and adjacent to a rigid surface.

⚠ Place sidewalk shown to be constructed in back of an entrance 6" thick with welded wire mesh reinforcement. Gauge and spacing of wires are the same as entrance pavement (See Reinforcement Diagram). The bid item will be "Sidewalk Construciton" either with or without air entrainment. Macro fiber reinforcement may be substituted for welded wire. See KDOT's Standard Specifications for additional information. Slope sidewalk toward the street at 2% or flatter. Slope or depress sidewalk where necessary to fit alleys and entrances, see plans for details.

Contractor may opt to use Concrete Grade 3.0 (AE) throughout for construction of steps, but all work and materials are paid for under the bid item "Grade 3.0 Conc. (Misc.)".

All work and materials needed to construct sidewalk will be paid for under the bid item "Sidewalk Construction".

All work and materials needed to construct ramps will be paid for under the bid item "Sidewalk Ramps".

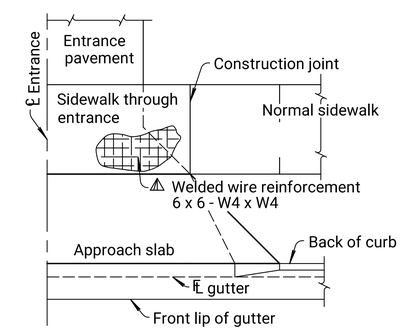
See Standard Drawing RD725A for additional information.

Ramps shall be present at each end of a crosswalk.

For handrails with steps see Standard Drawing RD725B for details.

For handrails with ramps see Standard Drawing RD725C for details.

For alley and entrance pavement see Standard Drawing RD726 for details.




REINFORCEMENT DIAGRAM
SIDEWALK THROUGH ENTRANCE

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 13 | 10-31-17 | Joint Filler Type C Added | A.L.R. | S.W.K. |
| 12 | 2-23-17 | Rev. Ramp Typ., Gen. Note, & Details | T.T.R. | S.W.K. |
| 11 | 10-17-11 | Revised General Note | S.W.K. | J.O.B. |
| 10 | 5-23-11 | Revised notes | S.W.K. | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

SIDEWALK, RAMPS,
& STEPS

RD 725

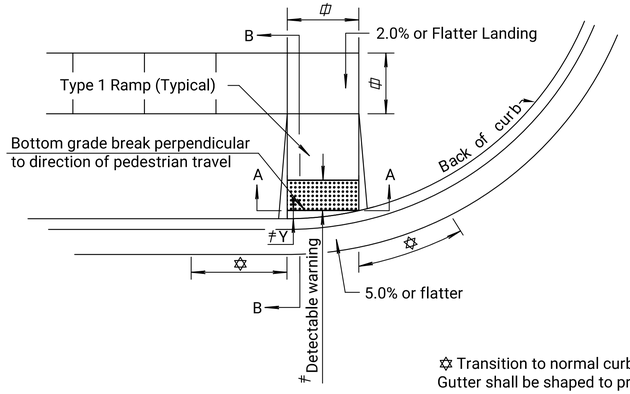
| | | | |
|---|---|---|---|
| FHWA APPROVAL | 3-5-2018 | APP'D. | SCOTT W. KING |
| DESIGNED | DETAILED | QUANTITIES | TRACED |
| DESIGN CK. | DETAIL CK. | QUAN.CK. 725 | TRACE CK. |

Sh. No. 16

Plotted :10-DEC-2021 12:40

Drawn By : mheigert
File : rd725.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 17 | 90 |

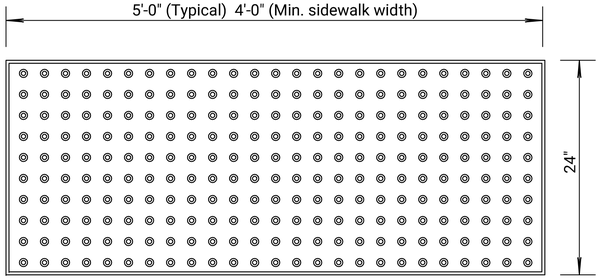



TYPICAL PLAN

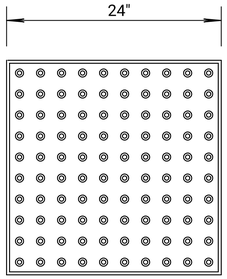
✡ Transition to normal curb and gutter section. Gutter shall be shaped to provide positive drainage.

⧈ See Standard Drawing No. RD725 for additional details.

≠ When the dimension "Y" from the back of curb to the bottom ramp grade break is greater than 5'-0" or the ramp is not located through a curb radius, place detectable warning at the back of curb. Otherwise, place detectable warning at the bottom grade break as shown.




ϒ COMPOSITE PANEL with TRUNCATED DOMES




ϒ PRESTRESSED RAMP PANEL with TRUNCATED DOME SURFACE

GENERAL NOTES

Construct sidewalk and ramps in accordance with the current Public Rights of Way Accessibility Guidelines (PROWAG).

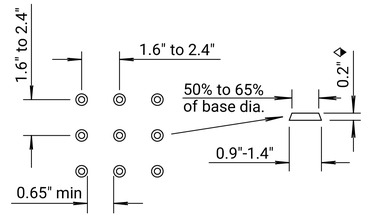
Details depicted here may not be appropriate for all locations. Design to meet this criteria on all roadway alteration projects as defined by the Department of Justice/ Department of Transportation Joint Technical Assistance on ADA Title II Requirements. For an existing sidewalk facility where the sidewalk will be replaced, replace sidewalk according to this drawing to the maximum extent feasible.

Install detectable warning surfaces at all ramp locations unless otherwise shown. Do not install detectable warning surfaces through residential driveway crossing locations. Use Paving Brick, Prestressed or Composite Panel (Truncated Dome Surface) units that meet the requirements of the Standard Specifications and comply with PROWAG. Use a contrasting color paving brick or panel to adjacent surfaces. Where existing manhole access lids are located on ramps within the area of the detectable warnings and the manhole lid cannot be removed or relocated, install a lid with a detectable warning surface in accordance with PROWAG.

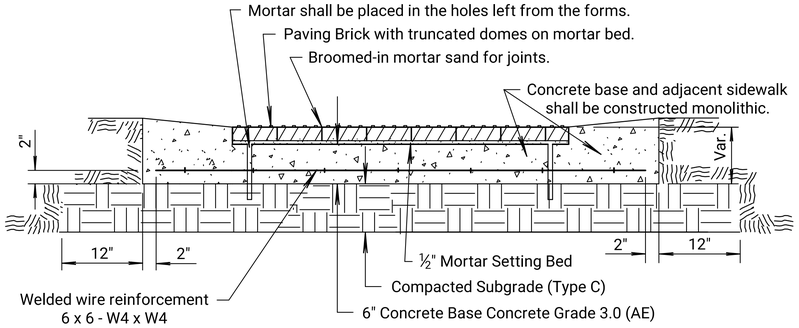
Cover the ramp width and 24" length with truncated dome surface, see examples Standard Drawing RD725 & RD725A. Saw cut (only) bricks or panels with not less than 25% of a full brick or panel installed. Place Truncated Dome Bricks or Panels to align parallel in the direction of pedestrian travel unless otherwise shown in the plans.

Prestressed or Composite Panels are installed in fresh concrete, Paver Bricks require mortar bed and mortar sand, see KDOT's Standard Specifications for information.

All work and materials needed to install detectable warnings will be paid for under the bid item "Sidewalk Ramps (Detectable Warning)".

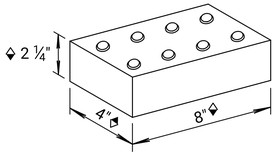



TRUNCATED DOME DIMENSIONS for SQUARE PATTERN (Parallel Alignment)

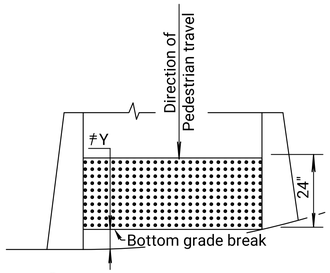



TYPICAL SECTION OF PAVER BRICK
SECTION A-A

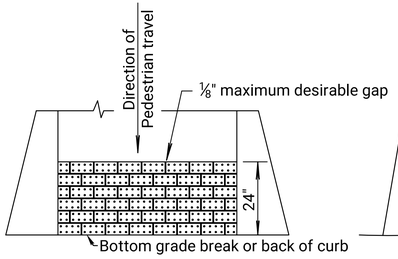
◆ These dimensions are nominal.



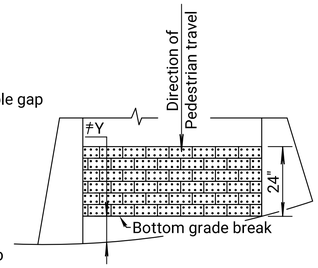

ϒ PAVER BRICK WITH TRUNCATED DOME SURFACE




⊗ CURB RADIUS DETAILS
Cut Prestressed Ramp Panels to fit.




⬓ STRAIGHT CURB DETAILS

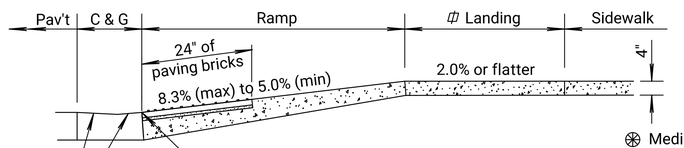



⬓ CURB RADIUS DETAILS

⬓ Installation shown for paving brick is running bond, use of other patterns is allowed with Engineer approval. Rotation 90° of Running Bond pattern is allowed to reduce space between bricks on curb radius installation, keep this space to a minimum. Place truncated domes on bricks in parallel alignment to pedestrian travel as shown.

⊗ Curb radius or greater than 5' ramp width will require more than one panel as approved by the Engineer. Limit number of panels installed at each site. Layouts shown are for example and may vary in the field.

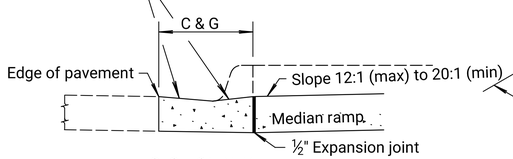
ϒ Acceptable with no mixing of types within an installation.




SECTION B-B

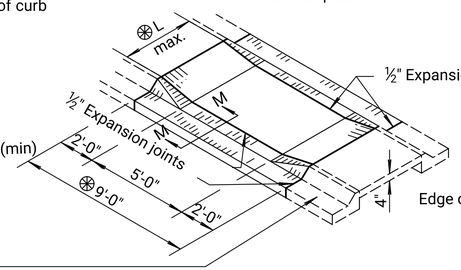
⊛ Median ramp crossing limits will be paid for as "Sidewalk Ramp."

✳ Transition Combined Curb & Gutter Type III (AE) through curb ramp as shown.



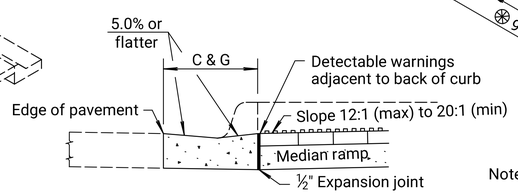

SECTION M-M

✳ Combined Curb & Gutter Type II (AE) unless shown otherwise on plans.

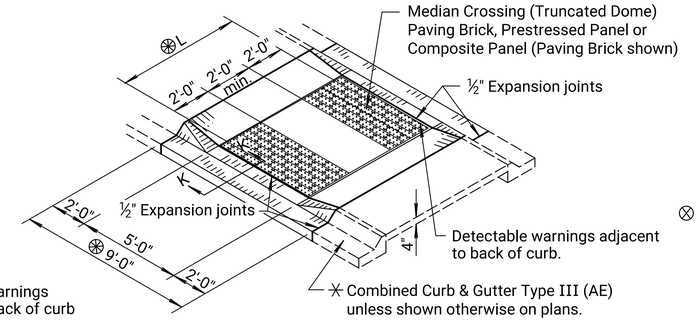



NARROW MEDIAN RAMP CROSSING
(L < 6'-0")

Note: A Median Ramp Crossing shall be constructed at Crosswalk locations. Do not install detectable warnings on narrow median ramp crossings.

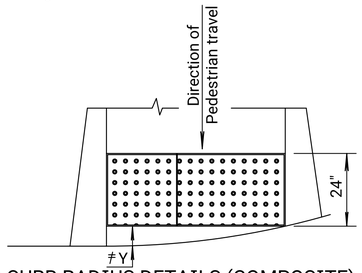



SECTION K-K




WIDE MEDIAN RAMP CROSSING
(L ≥ 6'-0")

Note: A Median Ramp Crossing shall be constructed at Crosswalk locations. Wider median islands will result in a 2' minimum gap between the detectable warning areas.




⊗ CURB RADIUS DETAILS (COMPOSITE)
Where truncated domes are placed through a curb radius, cut radius from 3'-0" long composite panel.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 5 | 2-23-17 | Rev. Gen. Note & Panel Det. | T.T.R. | S.W.K. |
| 4 | 2-10-10 | Added Composite Panel | S.W.K. | J.O.B. |
| 3 | 8-15-05 | Added Prestressed Ramp Panel alt. | S.W.K. | J.O.B. |
| 2 | 2-24-05 | Class to Grade conc., wire reinf. | S.W.K. | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

AUXILIARY DETAILS FOR SIDEWALK & STEPS

RD725A

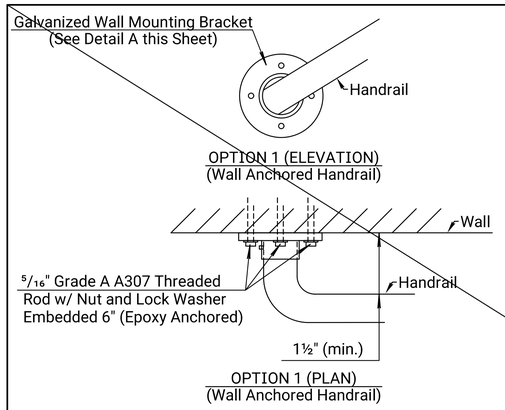
| | | | |
|---|---|---|---|
| FHWA APPROVAL | 3-7-17 | APP'D. SCOTT W. KING | |
| DESIGNED | DETAILED | QUANTITIES | TRACED |
| DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. |

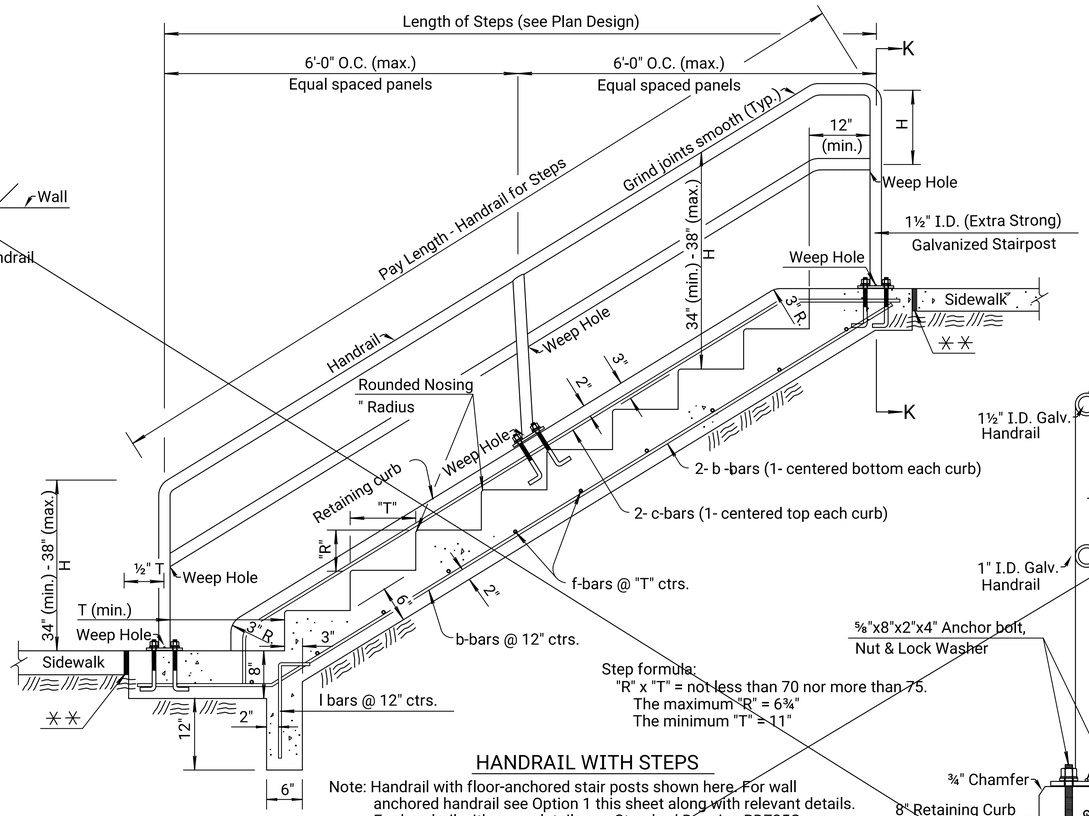
Sh. No. 17

Plotted :10-DEC-2021 12:40

Drawn By : mheigert
File : rd725a.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 18 | 90 |




HANDRAIL WITH STEPS

Note: Handrail with floor-anchored stair posts shown here. For wall anchored handrail see Option 1 this sheet along with relevant details. For handrail with ramp details see Standard Drawing RD725C.

⚠ #4 bars @ spacing shown are for 5'-0" wide steps (other widths must be figured).

Step formula:
"R" x "T" = not less than 70 nor more than 75.
The maximum "R" = 6¾"
The minimum "T" = 11"

GENERAL NOTES

Excavation for construction of Steps will not be paid for directly, but will be subsidiary to the bid item "Concrete (Grade 3.0) (AE)".

Use Grade 60 #4 bars for construction of steps with 2" clearance unless otherwise shown.

Handrail is required with steps. Handrail, where needed, is required on both sides of steps.

Fabricate handrail from 1½" I.D. Galvanized Steel Pipe for Rail and 1½" I.D. Galvanized Steel Pipe (Extra Strong) for Stairposts. Handrail consists of equal spaced panels not to exceed 6'-0" O.C. (max.). Use galvanized bolts and hardware for fabrication or installation of handrail. Ground smooth all welded connections and re-galvanize any areas where the spelter coating has been damaged. Field welding is not permitted.

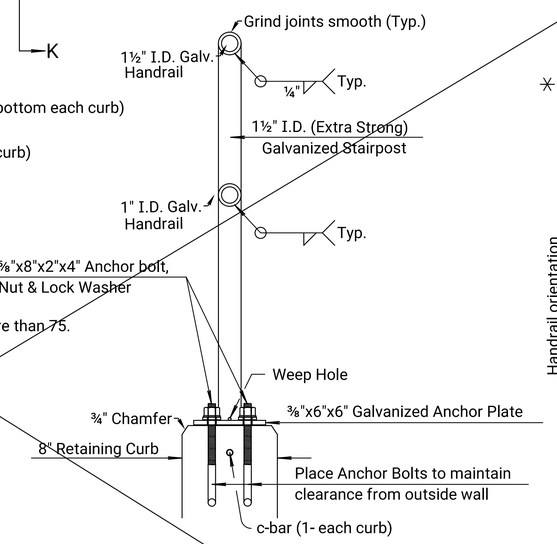
Details shown are typical. Shop drawings for Design shown and Alternate designs need to be submitted to the State Bridge Office for approval prior to handrail fabrication.

Required handrail materials, incidentals and labor are paid for under the bid item "Handrail". Payment for handrail is bid on a per linear foot basis measured from ℄ end stair post to ℄ end stair post. See Standard Specifications.

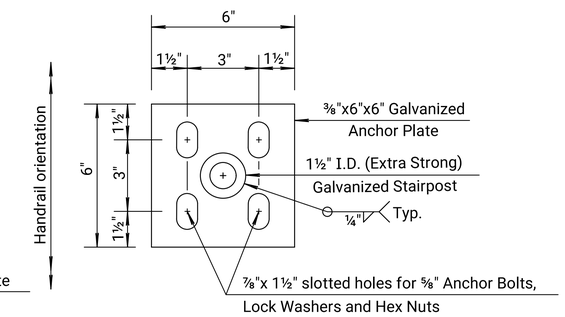
The railing shown on this sheet is not intended for use where railing for fall protection is required.

✳✳ Type B or C joint filler or approved equivalent.

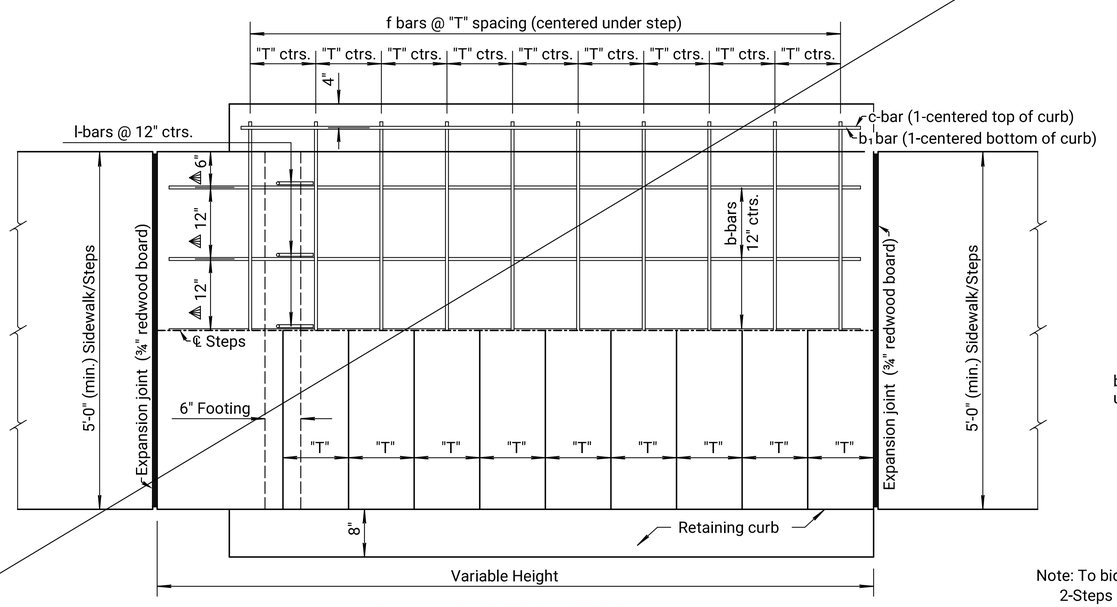
The wall mounting bracket shown on this sheet may be substituted with an approved equivalent as approved by the Engineer.



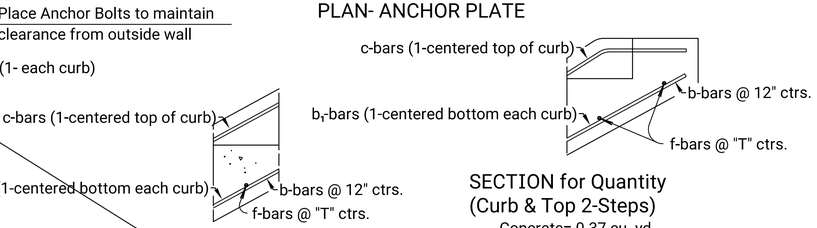

SECTION K-K




PLAN- ANCHOR PLATE



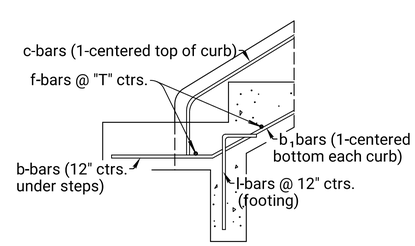

PLAN AND SECTION STEPS



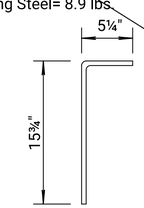

SECTION for Quantity
(Curb & Top 2-Steps)
Concrete= 0.37 cu. yd.
Reinforcing Steel= 19.2 lbs.




SECTION for Quantity
(Each additional step)
Concrete= 0.2 cu. yd.
Reinforcing Steel= 8.9 lbs.




SECTION for Quantity
(Curb & First Step)
Concrete= 0.57 cu. yd.
Reinforcing Steel= 29.2 lbs.




I - Bar
(Bending Diagram)

Note: To bid Concrete and Steel Quantities for Steps, add Curb & First Step quantitities to Curb & Top 2-Steps quantities. This will give a 3-step and curb quantity total. For each additional step add the quantity listed to the 3-step quantity. The quantities shown are for a standard 5'-0" Wide Step with "R"=6¾" & "T"=11", all other step designs must be calculated.

BILL OF MATERIAL
(5'-0" Concrete Steps)
("R"=6¾", "T"=11")

| | |
|---|---|
| Conc. Gd. 3.0 (AE) | C.Y. |
| Reinf. Steel | Lbs. |

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 4 | 10-31-17 | Joint Filler Type C Added | A.L.R. | S.W.K. |
| 3 | 2-22-17 | Revised Handrail | T.T.R. | S.W.K. |
| 2 | 1-25-13 | Changed Bid Item Conc. Gr. 3.0 | S.W.K. | J.O.B. |
| 1 | 2-10-10 | Revised General Note | S.W.K | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

STEPS & HANDRAIL

RD725B

| | | | |
|---|---|---|---|
| FHWA APPROVAL | 3-5-18 | APP'D. | SCOTT W. KING |
| DESIGNED | DETAILED | QUANTITIES | TRACED |
| DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. |

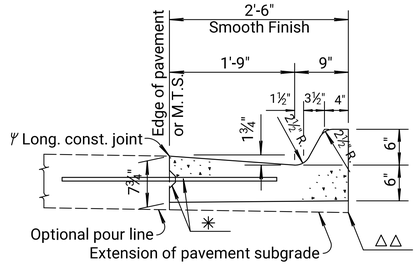
CADconform Certify This File

Sh. No. 18

Plotted :10-DEC-2021 12:40

Drawn By : mheigert
File : rd725b.dgn

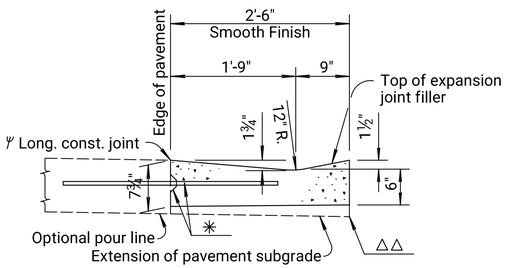
CADconform Certify This File




TYPICAL SECTION

Note: Conc. C.&G. I contains 0.060 cu. yds. Conc. Grade 3.0 (AE) per lin.ft.

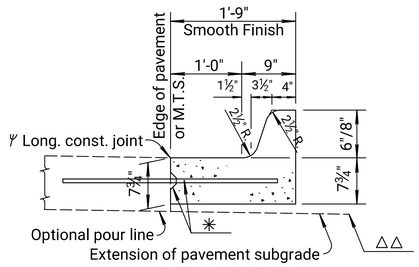
## COMBINED CURB & GUTTER - TYPE I (2'-6" WIDTH)




TYPICAL SECTION

Note: Conc. C.&G. II contains 0.053 cu. yds. Conc. Grade 3.0 (AE) per lin.ft.

## COMBINED CURB & GUTTER - TYPE II (2'-6" WIDTH)




TYPICAL SECTION

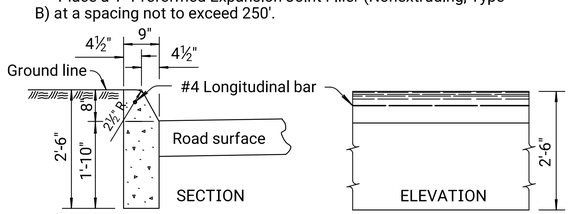
Note: Conc. C.&G. III contains 0.054 (8") & 0.051 (6") cu. yds. Conc. Grade 3.0 (AE) per lin. ft.

## COMBINED CURB & GUTTER - TYPE III (1'-9" WIDTH)

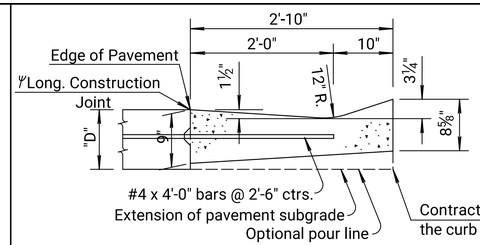
✳ Longitudinal construction joint and #4 x 3'-0" bars @ 2'-6" ctrs., where concrete pavement is constructed.

△△ Contractor has the option of thickening the curb and gutter as shown.

Note: Use Concrete Grade 3.0 (AE) throughout.
All exposed edges shall be finished with an edging tool.
Place a 1" Preformed Expansion Joint Filler (Nonextruding, Type B) at a spacing not to exceed 250'.

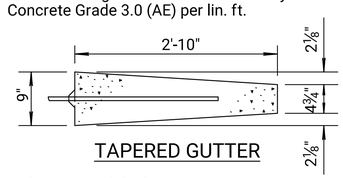



## PROTECTION CURB 8"

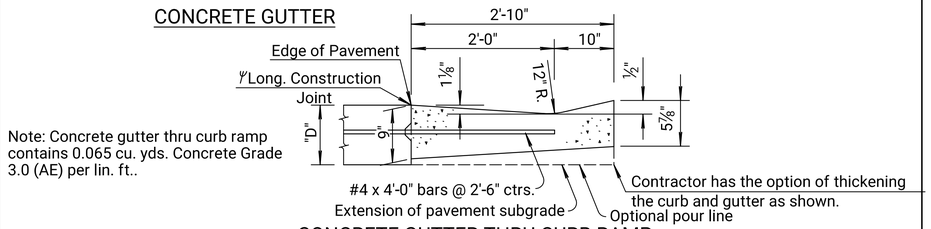



## CONCRETE GUTTER

Note: Concrete gutter contains 0.065 cu. yds. Concrete Grade 3.0 (AE) per lin. ft.

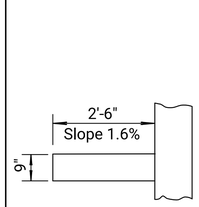



## TAPERED GUTTER

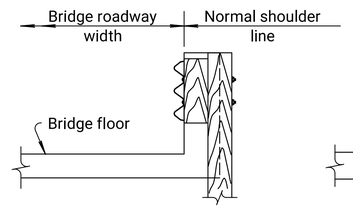



Note: Concrete gutter thru curb ramp contains 0.065 cu. yds. Concrete Grade 3.0 (AE) per lin. ft..

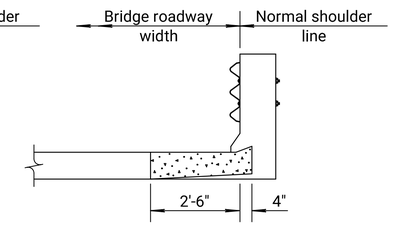
## CONCRETE GUTTER THRU CURB RAMP



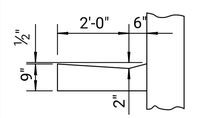

## SECTION B-B



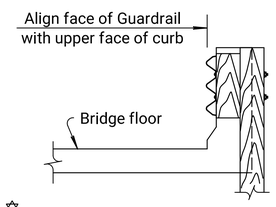

## CONTROL POINT FOR FULL WIDTH ROADWAY BRIDGE



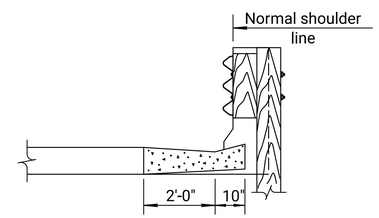

## GUTTER NEAR E.W.S.



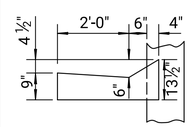

## SECTION C-C



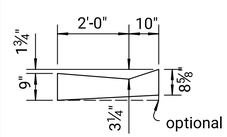

## CONTROL POINT FOR BRIDGE WITH SAFETY TYPE CURB




## FULL GUTTER SECTION

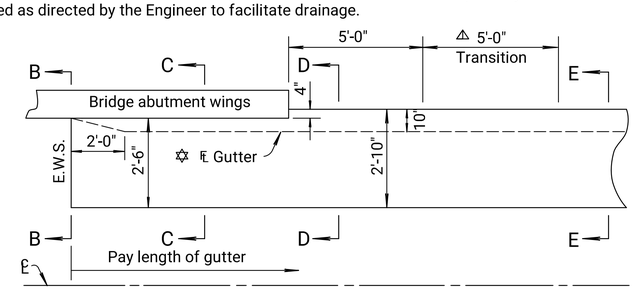



## SECTION D-D




## SECTION E-E

At locations where the centerline grade is relatively flat and the pavement grade is such that the gutter will direct drainage onto the bridge, the flowline depth may be reduced as directed by the Engineer to facilitate drainage.



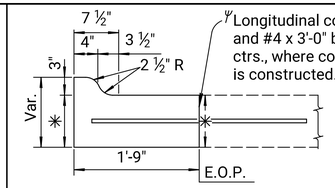

## TYPICAL GUTTER @ BRIDGE ENDS

(Drawn for down grade end and "U" Type Abutments)

Note: Shaping of gutter is to be Subsidiary to "Gutter (AE)".

⚠ Transition gutter to standard 2'-10" gutter section.

## FOR RETROFIT OF BRIDGE APPROACHES WITH GUTTER




✳ Note: Thickness to match adjacent pavement.

## COMBINED CURB AND GUTTER (SPECIAL) (1'-9" WIDTH)

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 19 | 90 |

### GENERAL NOTE

Combined curb and gutter or gutter adjoining concrete pavement may, at the contractor's option, be constructed either monolithically or separately, using either the mix used in the concrete pavement or Concrete Grade 3.0 (AE). The combined curb and gutter or gutter shall have the same section as shown on the plans. If constructed monolithically, the longitudinal joint and tie bars shall be omitted from the combined curb and gutter or gutter. Pavement Joints shall be continued through curb or gutter and no other planes of weakness will be required. Joints in the combined curb and gutter or gutter are to be filled with the same material as used for the pavement joints.

Expansion joints in the combined curb and gutter are to be placed opposite expansion joints in the pavement.

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.

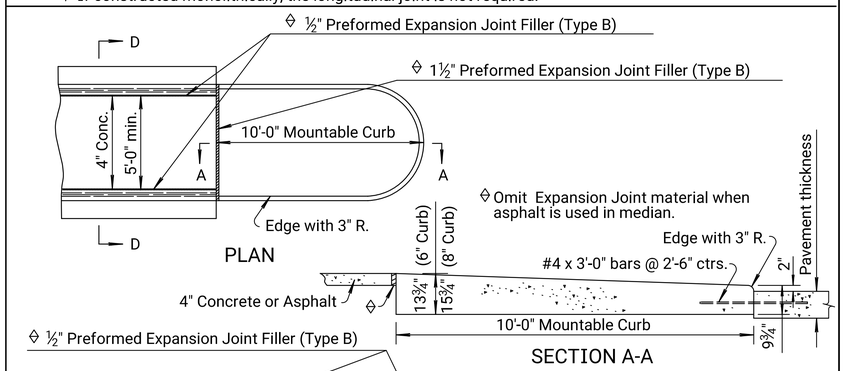
A 4' length of transition from normal gutter section to the tapered gutter section shall be used at the ends of each run of gutter except where the gutter abuts a curb, such as at the end of a bridge. Inlets shall be located so as not to fall within this transition section.

Where pressure relief joint is placed across the pavement, and gutter or curb and gutter is continued on for more than 10', use 4"x4" membrane sealant installed with bonding adhesive through gutter section, shaped to fit gutter or curb and gutter. See Std. Drawing RD712.

For expansion joint treatment where combined curb and gutter or gutter abuts a bridge wing on a U-type abutment see bridge drawings.

Longitudinal joints shall be sawed and sealed with joint sealant, see Standard Specifications.

If constructed monolithically, the longitudinal joint is not required.




Note: Expansion joints shall be placed in concrete median as follows. In long runs expansion joints Expansion joints in the median shall match expansion joints in the curb and gutter with a maximum spacing of 125'. Plane of weakness in the median shall match plane of weakness in curb and gutter.

## TYPICAL NOSE DETAILS FOR RAISED MEDIANS

Note: Additional Concrete Grade 3.0 (AE) needed to complete median nose shall be subsidiary to the bid item "Combined Curb & Gutter".

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 20 | 2-23-17 | Det., Conc. Gutter Thru Curb Ramp | T.T.R. | S.W.K. |
| 19 | 1-29-13 | Added Detail, Comb. C&G (Sp.) | S.W.K. | J.O.B. |
| 18 | 8-13-12 | Revised General Note | S.W.K. | J.O.B. |
| 17 | 7-2-09 | Rev. nose details, jt. sealant & retro. | S.W.K. | J.O.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

# CURB, GUTTER AND COMBINED CURB & GUTTER

RD635

| | | | |
|---|---|---|---|
| FHWA APPROVAL | 3-7-17 | APP'D. SCOTT W. KING | |
| DESIGNED | DETAILED | QUANTITIES | TRACED |
| DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. |

Sh. No. 19

Plotted :10-DEC-2021 12:40

Drawn By : mheigert
File : rd635.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 20 | 90 |

| Sidewalk Construction, Sidewalk Ramps, Curb & Gutter, Concrete and HMA Pavement, Geosynthetic Reinforced Base, and Rock Excavation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | Station | Station | Side | Sidewalk Ramp (Sq.Yds.) | Sidewalk Construction (4") (AE)(Sq. Yds.) | Conc. Pvmt. (9") (AE)(NRDJ)(Sq. Yds.) | HMA-Commercial Grade (Class A) (TON) | Pavement Edge Wedge (Rock) (TON) | AB-3 (8") (Sq. Yds.) | Geosynthetic Reinforced Base (SY) | Combined C&G (LF) | Rock Exc. (CY. Yds.) | Remarks |
| US-56 | 104+04.58 | 104+92.69 | LT | | | | | | 52.1 | 52.1 | 134.0 | | NW Quad |
| US-56 | 104+04.58 | 104+92.93 | RT | | | | | | 50.2 | 50.2 | 129.0 | | NE Quad |
| US-56 | 105+44.14 | 107+00.00 | LT | | | | | | 75.4 | 75.4 | 194.0 | | SW Quad |
| US-56 | 105+47.49 | 107+00.00 | RT | | | | | | 73.5 | 73.5 | 189.0 | | SE Quad |
| US-56 | 104+67.53 | 104+82.18 | LT | 6.0 | 14.6 | | | | | | | | NW Quad |
| US-56 | 105+52.73 | 105+83.62 | LT | 12.0 | 24.0 | | | | | | | | NE Quad |
| US-56 | 105+74.73 | 105+86.68 | RT | 6.0 | 7.6 | | | | | | | | SE Quad |
| US-56 | 104+04.58 | 107+00.00 | CL | | | 3230.0 | | | 3230.0 | 3230.0 | | 886.0 | |
| US-81 | 200+87.52 | 203+96.32 | CL | | | | 243.0 | 74.0 | 406.0 | 406.0 | | 39.0 | |
| TOTALS | | | | 24.0 | 46.2 | 3,230.0 | 243.0 | 74.0 | 3,887.2 | 3,887.2 | 646.0 | 925.0 | |

Quantities for Pavement edge wedge have been calculated as 150 lbs per cubic feet.
Quantities for HMA Commercial Grade Asphalt has been calculated at 145 lbs per cubic feet.

| Ø Road Closure Gate (For Info Only) | | | | |
|---|---|---|---|---|
| Location | Station | Side | Offset | (EA) |
| US-56 | 104+26.00 | LT | 25.6 | 1 |
| US-56 | 104+26.00 | RT | 31.4 | 1 |
| TOTAL | | | | 2 |

Ø Paid for as "Road Side Improvements" Lump Sum.

| Earthwork | | | | | | |
|---|---|---|---|---|---|---|
| Location | Common Excavation | | Rock Excavation | | Contr. Furn. | (Type AA) (MR-0-5) |
| | CU. YDS. | VMF | CU. YDS. | VMF | | |
| US-56 | 449.0 | 0.8 | 648.0 | 1.0 | | 5.0 |
| US-81 | 580.0 | 0.8 | 277.0 | 1.0 | | 42.0 |
| TOTALS | 1029.0 | | 925.0 | | | 47.0 |

Rock Excavation was all assumed as 9" Pavement
Common Excavation includes 12 CY of sidewalk removal to be wasted

| Cleaning of Existing Structure | | | | |
|---|---|---|---|---|
| Location | Station | Side | Offset | Remarks |
| US-56 | 106+10.00 | CL | 0 | TRIPLE 7'X5'X106' RCB |
| TOTAL | | | | LUMP SUM |

## RECAPITULATION OF ROAD QUANTITIES

| ITEM | QUANTITY | UNT |
|---|---|---|
| CONTRACTOR CONSTRUCTION STAKING | LSUM | LSUM |
| MOBILIZATION | LSUM | LSUM |
| MOBILIZATION (DBE) | LSUM | LSUM |
| CLEARING AND GRUBBING | LSUM | LSUM |
| Ø REMOVAL OF EXISTING STRUCTURES | LSUM | LSUM |
| CLEANING OF EXISTING STRUCTURE | LSUM | LSUM |
| COMMON EXCAVATION | 1,029 | CUYD |
| ROCK EXCAVATION | 925 | CUYD |
| COMPACTION OF EARTHWORK (TYPE AA)(MR-0-5) | 47 | CUYD |
| WATER (EARTHWORK COMPACTION) (SET PRICE) | 1 | MGAL |
| AGGREGATE BASE (AB-3)(8") | 3,887 | SQYD |
| WATER (GRADING) (SET PRICE) | 1 | MGAL |
| WATER (AGGREGATE BASE) (SET PRICE) | 1 | MGAL |
| SIDEWALK CONSTRUCTION (4") (AE) | 46 | SQYD |
| SIDEWALK RAMP | 24 | SQYD |
| ROADSIDE IMPROVEMENT | 1 | LSUM |
| CURB AND GUTTER, COMBINED (AE) | 646 | LIN FT |
| CONCRETE PAVEMENT (9" UNIFORM) (AE) (NRDJ) | 3,230 | SQYD |
| HMA-COMMERCIAL GRADE (CLASS A) | 243 | TON |
| PAVEMENT EDGE WEDGE (ROCK) | 74 | TON |
| GEOSYNTHETIC REINFORCED BASE | 3,887 | SQYD |
| CONCRETE CORE (SET PRICE) | 1 | EA |

For Temp. Eros. and Pollution Control Quantities, See Sh. No. 21
For Permanent Seeding Quantities, see Sh. No. 28
For Pavement Marking Quantities, see Sh. No. 33
For Flasing Beacon System Quantities, See Sh No. 41
For Signing Quantities, see Sh. No. 46
For Traffic Control Quantities, see Sh. No. 83

Ø For Removal of Existing Structure Quantities, See Sh. No. 44

| 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. |

CADconform Certify This File

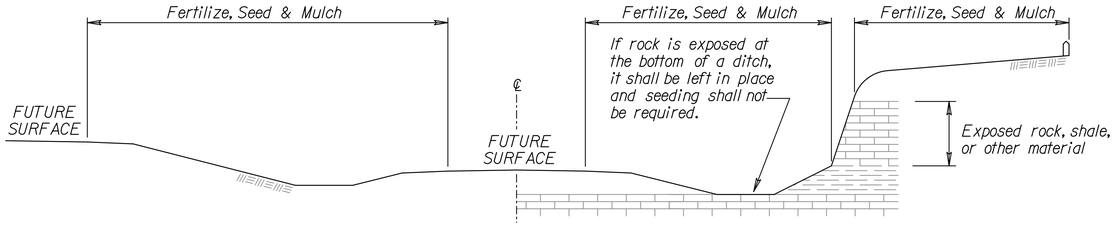
Sh. No. 20

CADconform Certify This File

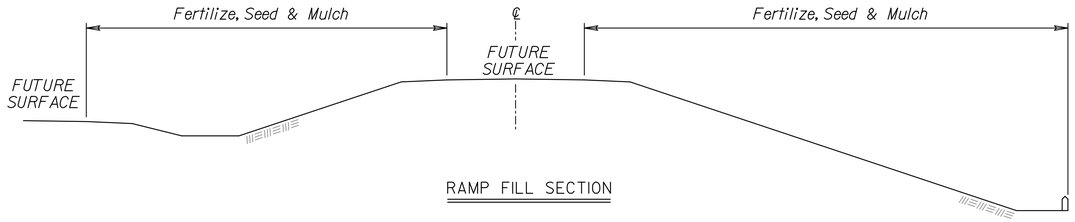
Plotted :10-DEC-2021 12:40

Drawn By : mheigert
File : rd050.dgn

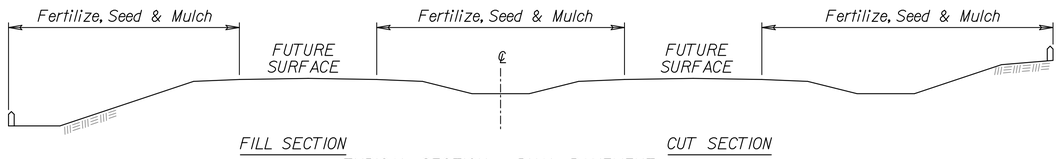
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 21 | 90 |




RAMP CUT SECTION




RAMP FILL SECTION




TYPICAL SECTION - DUAL PAVEMENT

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

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

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

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

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

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

## GENERAL NOTES

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

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

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

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

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

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

## SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

| P.L.S. RATE/ ACRE | | ACRES | | BID ITEM | QUANTITY | UNIT |
|---|---|---|---|---|---|---|
| CLT | SL/CH | CLT | SL/CH | | | |
| 100 | | 0.28 | | Temporary Fertilizer (16 - 20 - 0) | 28 | LB |
| | | | | Temporary Seed (Canada Wildrye) | | LB |
| | | | | Temporary Seed (Grain Oats) | | LB |
| | | | | Temporary Seed (Sterile Wheatgrass) | | LB |
| | 42.5 | 0.28 | | Soil Erosion Mix | 11.9 | LB |
| | | | | Erosion Control (Class 1, Type D) | 1355 | SQ YD |
| | | | | Erosion Control (Class 2, Type Y) | | SQ YD |
| | | | | Sediment Removal (Set Price) | 1 | CU YD |
| | | | | Synthetic Sediment Barrier | | LF |
| | | | | Temporary Berm (Set Price) | 1 | LF |
| | | | | Temporary Ditch Check (Rock) | | CU YD |
| | | | | Temporary Inlet Sediment Barrier | | EACH |
| | | | | Temporary Sediment Basin | | CU YD |
| | | | | Temporary Slope Drain | | LF |
| | | | | Temporary Stream Crossing | | EACH |
| | | | | Biodegradable Log (9") | | LF |
| | | | | Biodegradable Log (12") | | LF |
| | | | | Biodegradable Log (20") | | LF |
| | | | | Filter Sock (8") | 60 | LF |
| | | | | Geotextile (Erosion Control) | | SQ YD |
| | | | | Silt Fence | 650 | LF |
| | | | | SWPPP Design † | 1 | LS |
| | | | | SWPPP Inspection † | 20 | EACH |
| | | | | Water Pollution Control Manager † | 30 | EACH |
| 900 lbs / acre | | | | Mulch Tacking Slurry | | LB |
| 2 tons / acre | | | | Mulching | | TON |
| | | | | Water (Erosion Control) (Set Price) | 1 | MGAL |
| | | | | | | |

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

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

Regreen and Quick Guard are the approved sterile wheatgrass products.

† If the total disturbed area of the project, not just the seeding area, is 1 acre or more, then these bid items must be included.

**** List size of material.

The amount of mulch and mulch tacking slurry in the bid quantities is estimated. (Acres of Seeding X 1.5 X 2 Tons/Acre). The estimated quantity includes mulching associated with both temporary and permanent seeding operations. The total mulch and mulch tacking slurry required shall be determined in the field. The bid item for mulching and mulch tacking slurry shall be paid for according to the Standard Specifications.

Quantities for all erosion control items are estimated to give full flexibility for compliance with the NPDES permit. Final quantities will be determined in the field.

## SOIL EROSION MIX

| PLS RATE | NAME | QTY (lb) |
|---|---|---|
| 2.5 | Seed (Blue Grama) (Lovington) | 0.7 |
| 40 | Seed (Buffalograss) (Treated) | 11.2 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Total (lb) | 11.9 |

The Soil Erosion Mix is to be placed under the Class 1 and/or Class 2 erosion control material.

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 3 | 08/03/20 | Added Note | MRD | ML |
| 2 | 12/01/17 | Revised Standard | MRD | SHS |
| 1 | 06/01/17 | Revised Standard | MRD | SHS |

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

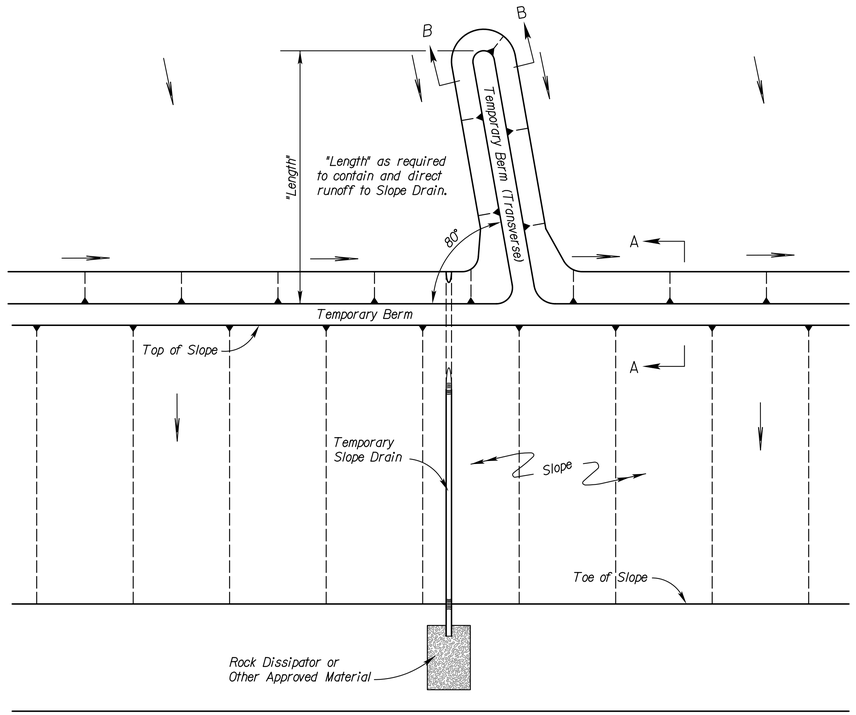
LA852A

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

Std. Base File:
Plotted By: mheigert
Plot Location:
File: la852a.dgn
Plot Date: 10-DEC-2021 12:40

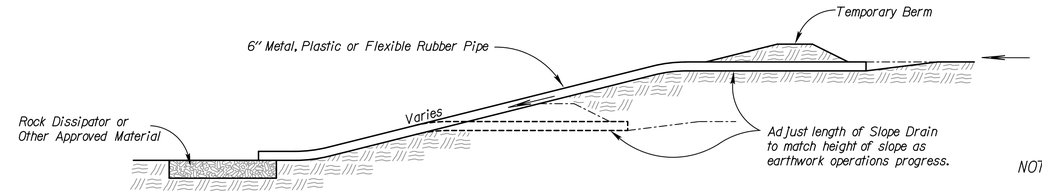
CADconform Certify This File

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 22 | 90 |




TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN

NO SCALE




TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

NO SCALE

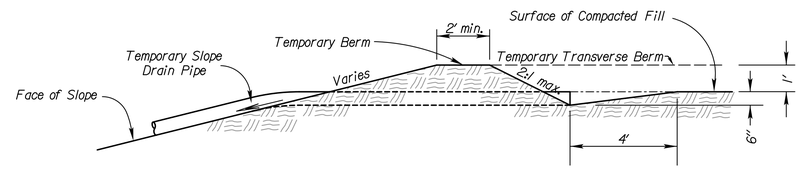
NOTES:

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

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

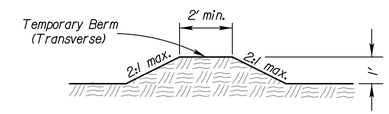
3) Pipe shall be secured in place as approved by Engineer.

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




SECTION A-A

NO SCALE

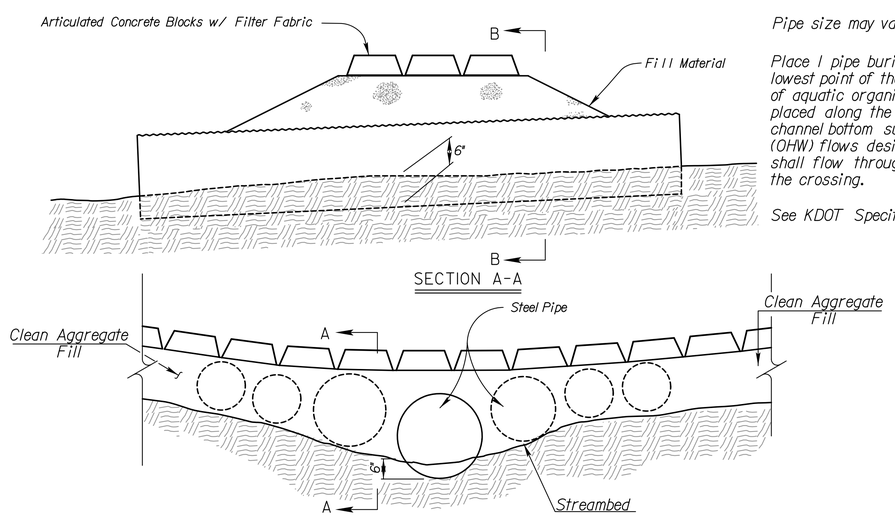



SECTION B-B

NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM

NO SCALE



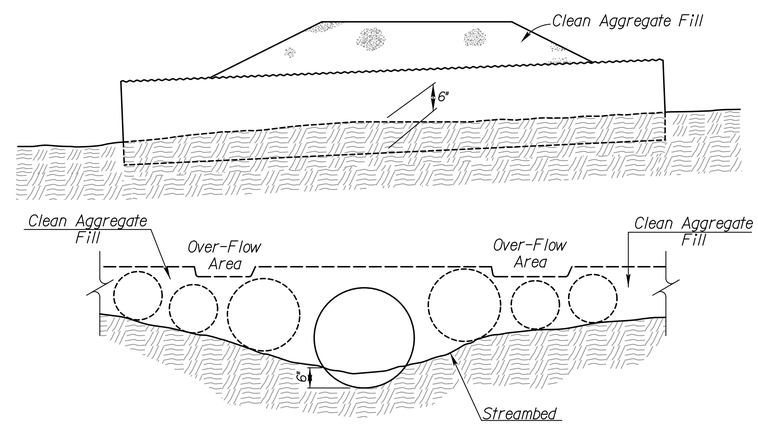

Pipe size may vary

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

See KDOT Specifications for more information

TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)

NO SCALE




SECTION B-B

Pipe size may vary

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

See KDOT Specifications for more information

TEMPORARY STREAM CROSSING (AGGREGATE)

NO SCALE

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

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

TEMPORARY SLOPE DRAIN

TEMPORARY STREAM CROSSING (AGGREGATE)

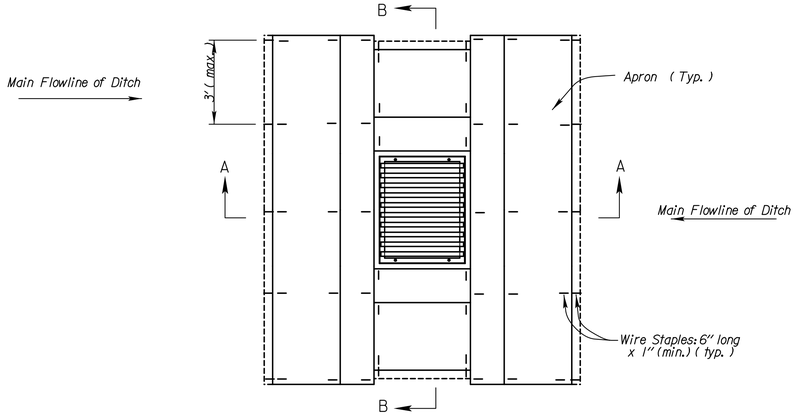
TEMP. STREAM CROSS. (ARTC. CONC. BLOCKS)

LA852B

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

Std. Base File:
Plotted By: mhelgert
Plot Location:
File: la852b.dgn
Plot Date: 10-DEC-2021 12:40

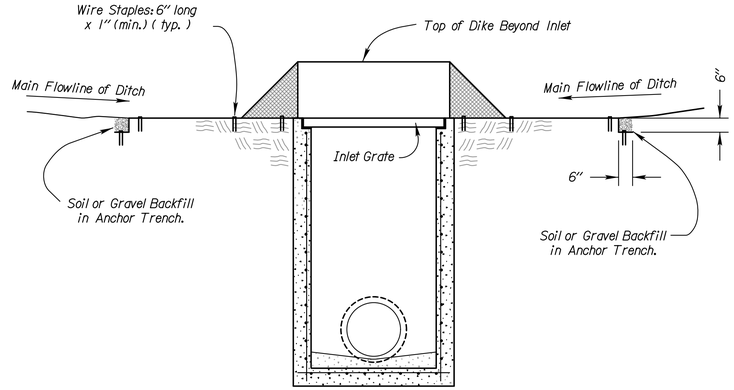
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 23 | 90 |



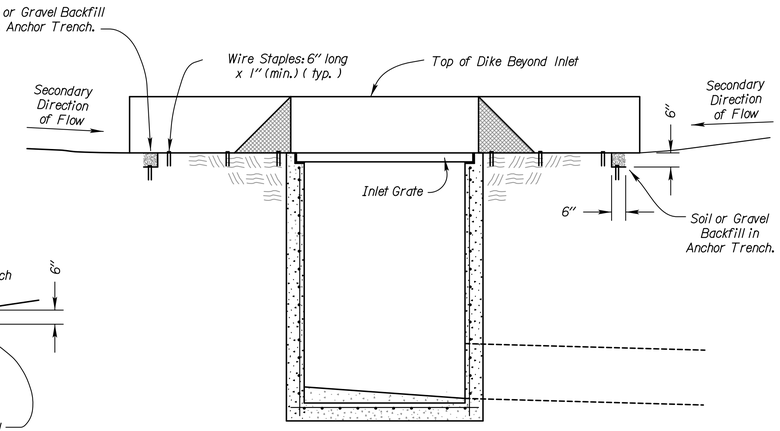

PLAN

TEMPORARY INLET SEDIMENT BARRIER
(TRIANGULAR SILT DIKE METHOD)

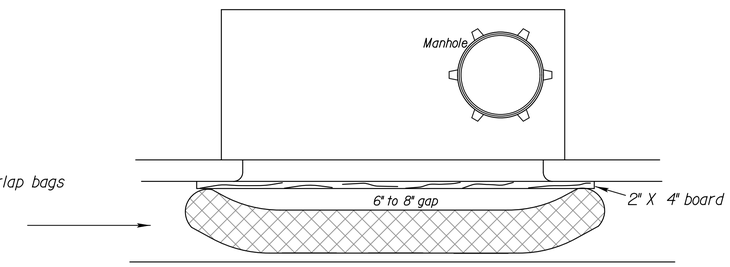
NO SCALE




SECTION A - A




SECTION B - B

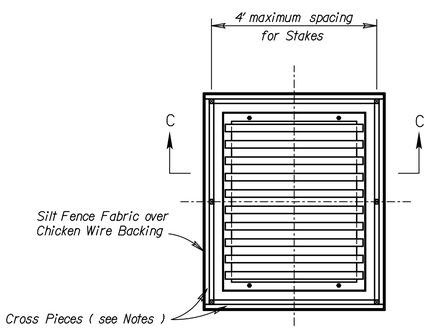



CURB INLET PROTECTION

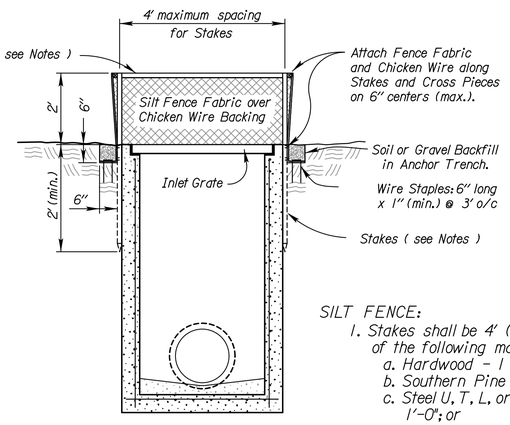
Bags = synthetic net (3mm mesh) or burlap bags

Rock = approximately 1" to 2" diameter

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




PLAN



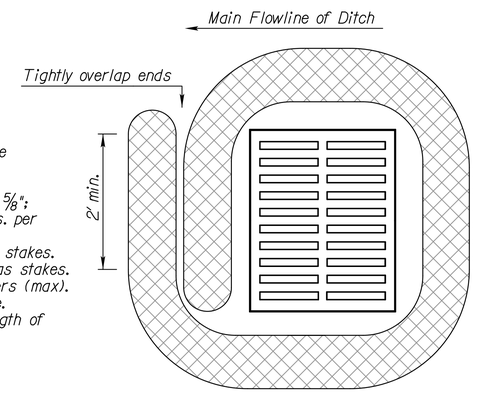

SECTION C - C

TEMPORARY INLET SEDIMENT BARRIER
( SILT FENCE METHOD )

NO SCALE

SILT FENCE:

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




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

BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION

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

Stake every 4'

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

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

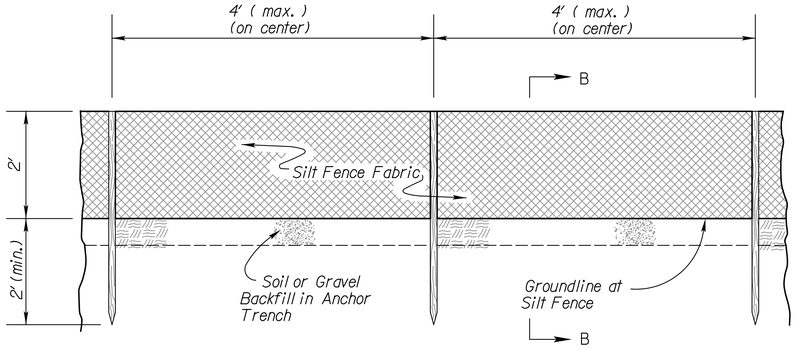
KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY EROSION AND POLLUTION CONTROL
TEMP. INLET SEDIMENT BARRIER (SILT FENCE)
TEMP. INLET SEDIMENT BARRIER (T.S.D.)
CURB INLET PROTECTION
DROP INLET PROTECTION

LA852C

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

Std. Base File:
Plotted By: mheigert
Plot Location:
File: la852c.dgn
Plot Date: 10-DEC-2021 12:41

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 24 | 90 |




TYPICAL ELEVATION

SILT FENCE BARRIER

NO SCALE

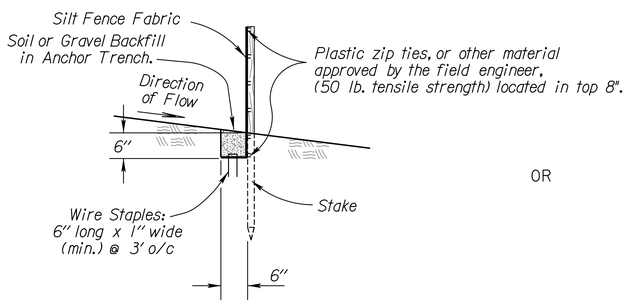
## INSTALLATION NOTES

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. Attach fence fabric with 3 zip ties within the top 8" of the fence Alternate attachment methods may be approved by the Engineer on a performance basis.
3. Use of high flow material is acceptable.
4. Refer to plan sheets to estimate the length of silt fence required.

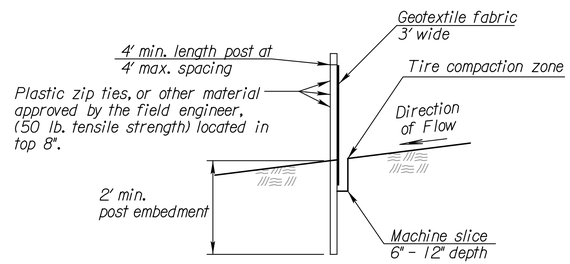
BIODEGRADABLE LOG OR FILTER SOCK

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




SECTION B-B

OR



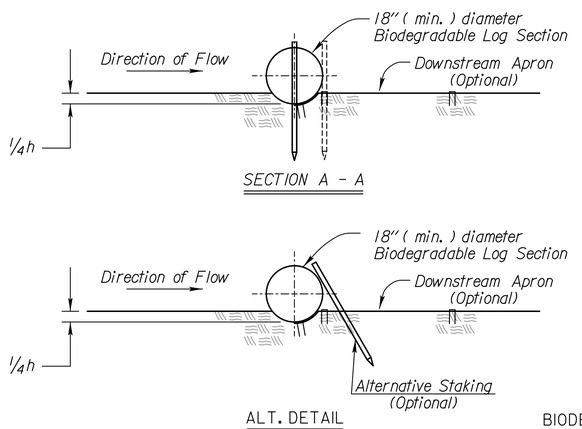

SECTION B-B

Biodegradable Log or Filter Sock Slope Interruptions

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

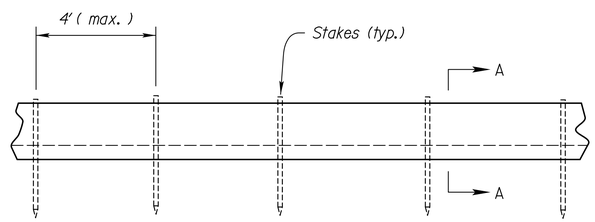
Deviations should be approved by the Field Engineer.

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




ALT. DETAIL

OPTIONAL




TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS

OR Filter Sock

## GENERAL NOTES

1) Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.

2) The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.

3) Interruptions damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

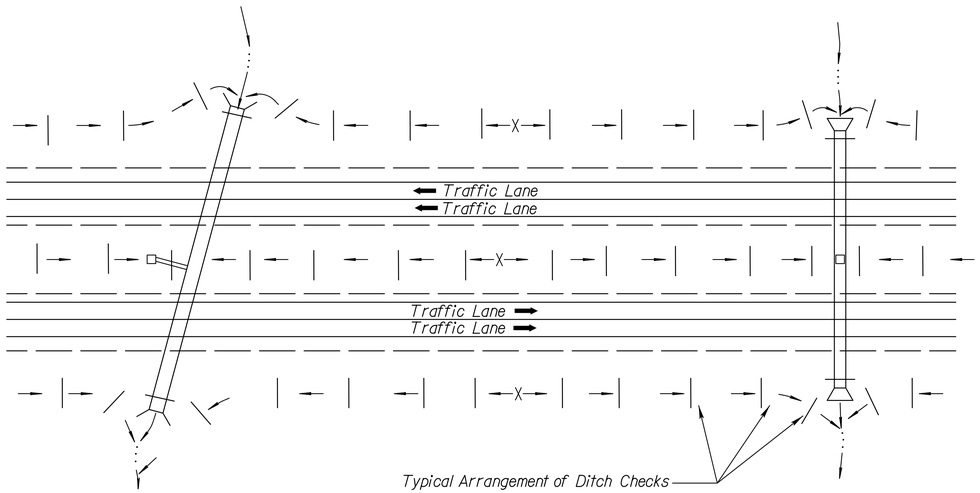
SLOPE INTERRUPTIONS
BIODEGRADABLE LOG / SILT FENCE

LA852D

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

Std. Base File:
Plotted By: mheigert
Plot Location:
File: la852d.dgn
Plot Date: 10-DEC-2021 12:41

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 25 | 90 |




TYPICAL DITCH CHECK LAYOUT PLAN

*NO SCALE*

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

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

GENERAL NOTES

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

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

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

| Std. Base File: | |
|---|---|
| Plotted By: *mhelgert* | Plot Location: |
| File: *la852e.dgn* | |
| Plot Date: *10-DEC-2021 12:41* | |

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

**KANSAS DEPARTMENT OF TRANSPORTATION**

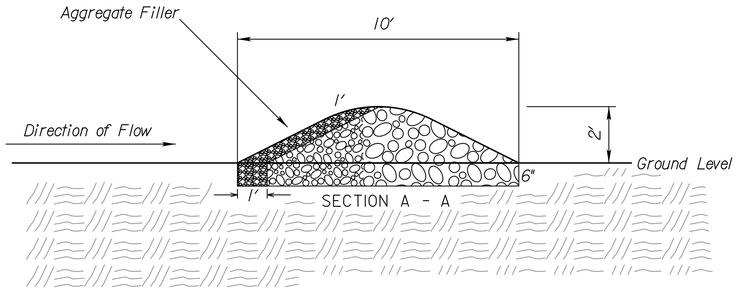
TEMPORARY EROSION AND POLLUTION CONTROL

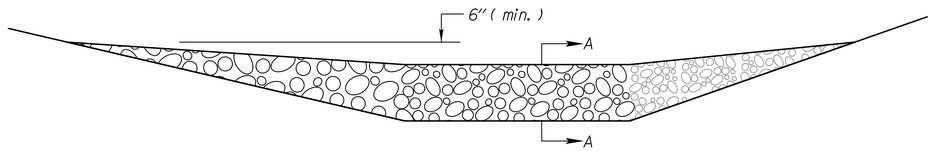
DITCH CHECKS

LA852E

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

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 26 | 90 |




TYPICAL ELEVATION

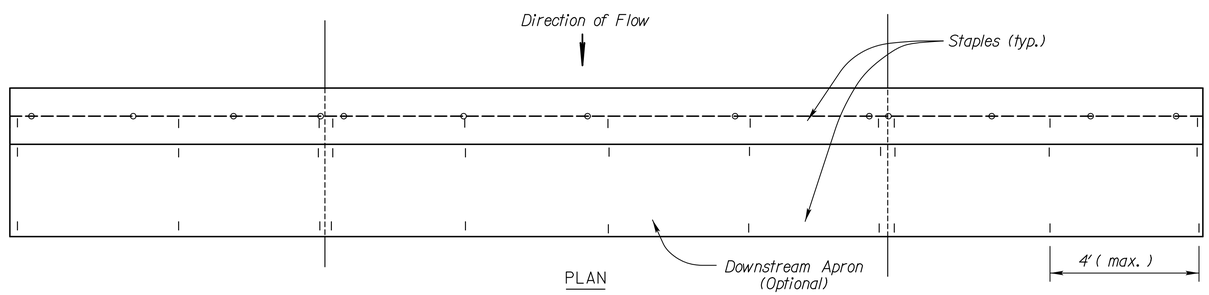
ROCK DITCH CHECK

NO SCALE

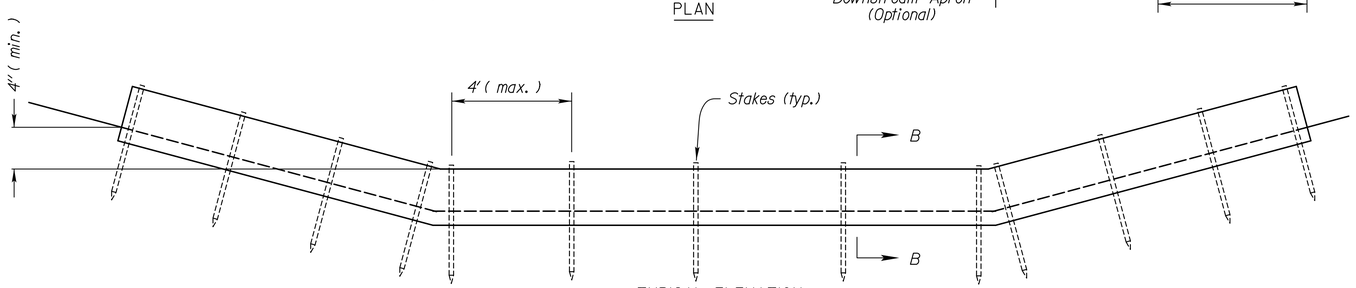
| TEMPORARY ROCK DITCH CHECK SPACING | |
|---|---|
| DITCH ℄ SLOPE (%) | SPACING INTERVAL (FEET) |
| 5.0 | 60 |
| 6.0 | 50 |
| 7.0 | 43 |
| 8.0 | 36 |
| 9.0 | 33 |
| 10.0 | 29 |
| NOTE: Use this spacing for Rock Ditch Checks only. | |

## ROCK DITCH CHECK NOTES

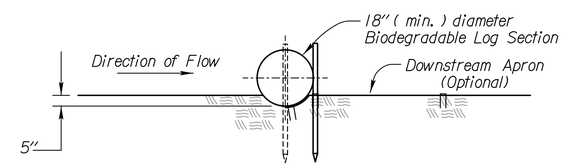
1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch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



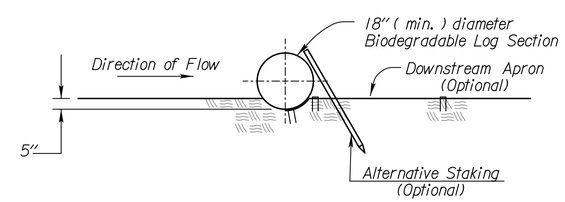

PLAN




TYPICAL ELEVATION




SECTION B - B




ALT. DETAIL
OPTIONAL

BIODEGRADABLE LOG DITCH CHECK

OR Filter Sock Ditch Check

NO SCALE

## BIODEGRADABLE LOG DITCH CHECK NOTES

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

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

LA852G

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

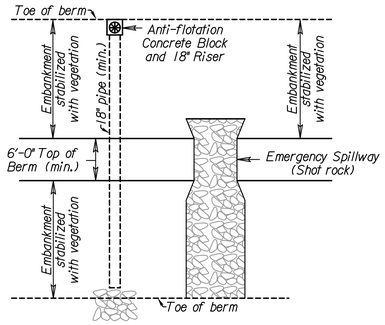
CADconform Certify This File

Sheet No.

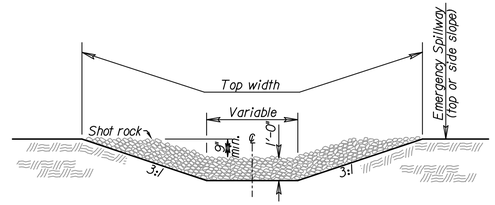
Std. Base File: la852g.dgn
Plotted By: mhelgert
File: la852g.dgn
Plot Date: 10-DEC-2021 12:41
Plot Location:

CADconform Certify This File

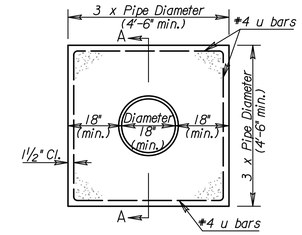
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 27 | 90 |



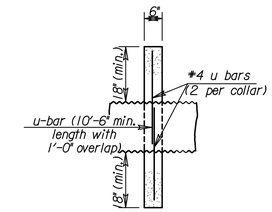

SEDIMENT STORAGE BASIN (PLAN)



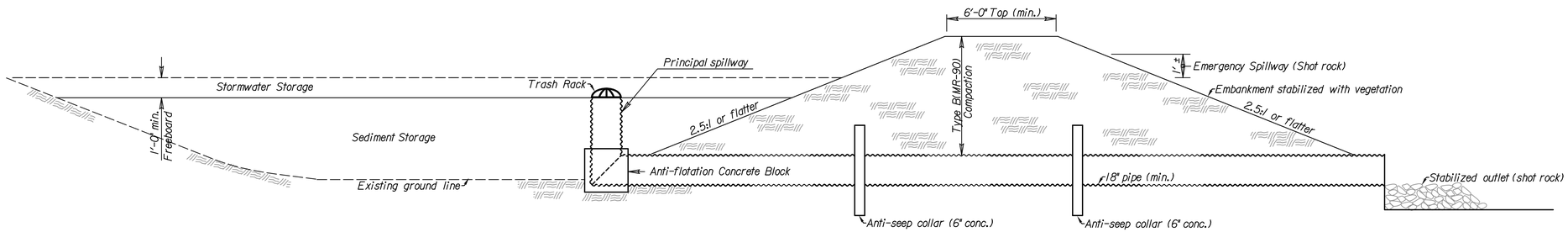

CROSS SECTION (EMERGENCY SPILLWAY)




CONCRETE ANTI-SEEP COLLAR




SECTION A-A



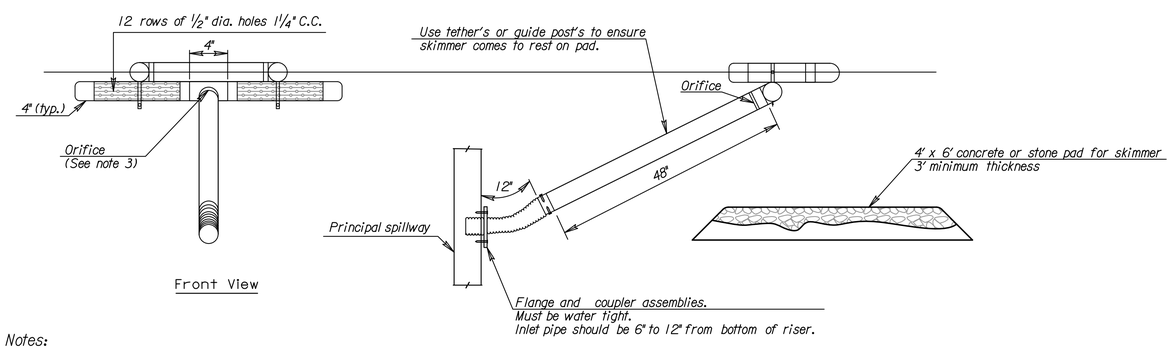

SEDIMENT STORAGE BASIN (ELEVATION)

NOTES:

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

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

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




Front View

Side View

Notes:

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

SKIMMER DEWATERING DEVICE

## SEDIMENT STORAGE BASIN LOCATIONS

| STATION TO STATION | SIDE | REQUIRED STORAGE CAPACITY |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

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

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

SEDIMENT STORAGE BASIN

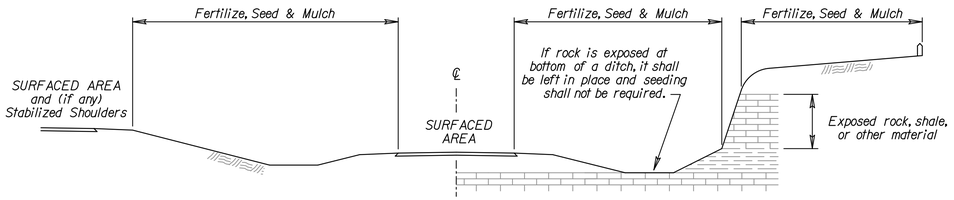
LA852H

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

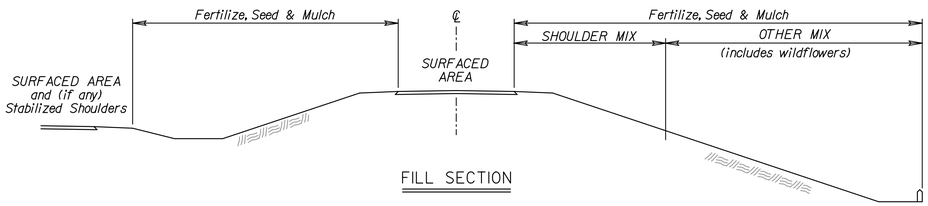
Sh. No. 27

Std. Base File:
Plotted By: mhelgert
Plot Location:
File: la852h.dgn
Plot Date: 10-DEC-2021 12:41

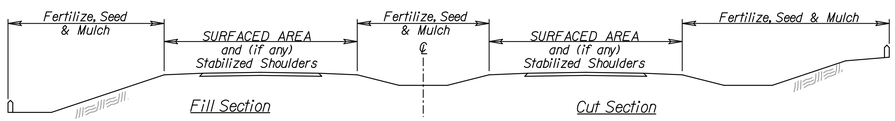
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 28 | 90 |




CUT SECTION




FILL SECTION




TYPICAL SECTION - DUAL PAVEMENT

## GRASS & WILDFLOWER SEEDING SEASONS

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

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

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

## SODDING SEASONS

| COOL SEASON GRASSES | WARM SEASON GRASSES |
|---|---|
| March 1 thru April 15<br>September 1 thru November 15 | May 15 thru September 1 |
| SPECIES | SPECIES |
| Bluegrass Sod | Buffalo Grass Sod |
| Fescue Sod | |

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

## GENERAL NOTES

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

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

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

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

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

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

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

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

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

## NATIVE WILDFLOWER MIX 1

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

## NATIVE WILDFLOWER MIX 2

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

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

*OPTION: Broadcast Tall Drop Seed on the soil surface.*

## SUMMARY OF SEEDING QUANTITIES (For Information Only)

| P.L.S. RATE/ACRE | | | | ACRES | | | | BID ITEM | QUANTITY | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| SHLDR | OTHER | | | SHLDR | OTHER | | | | | |
| | | | | | | | | See Soil Erosion Mix on LA852A for Permanent Seeding | | |
| | | | | | | | | Mulching * | | |

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

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

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

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

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

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 11/25/20 | Updated Seeding / Sodding Periods Charts | MRD | ML |
| 1 | 08/03/20 | Revised Standard | MRD | SHS |

**KANSAS DEPARTMENT OF TRANSPORTATION**

PERMANENT SEEDING
SUMMARY OF SEEDING QUANTITIES

~~LA850~~

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

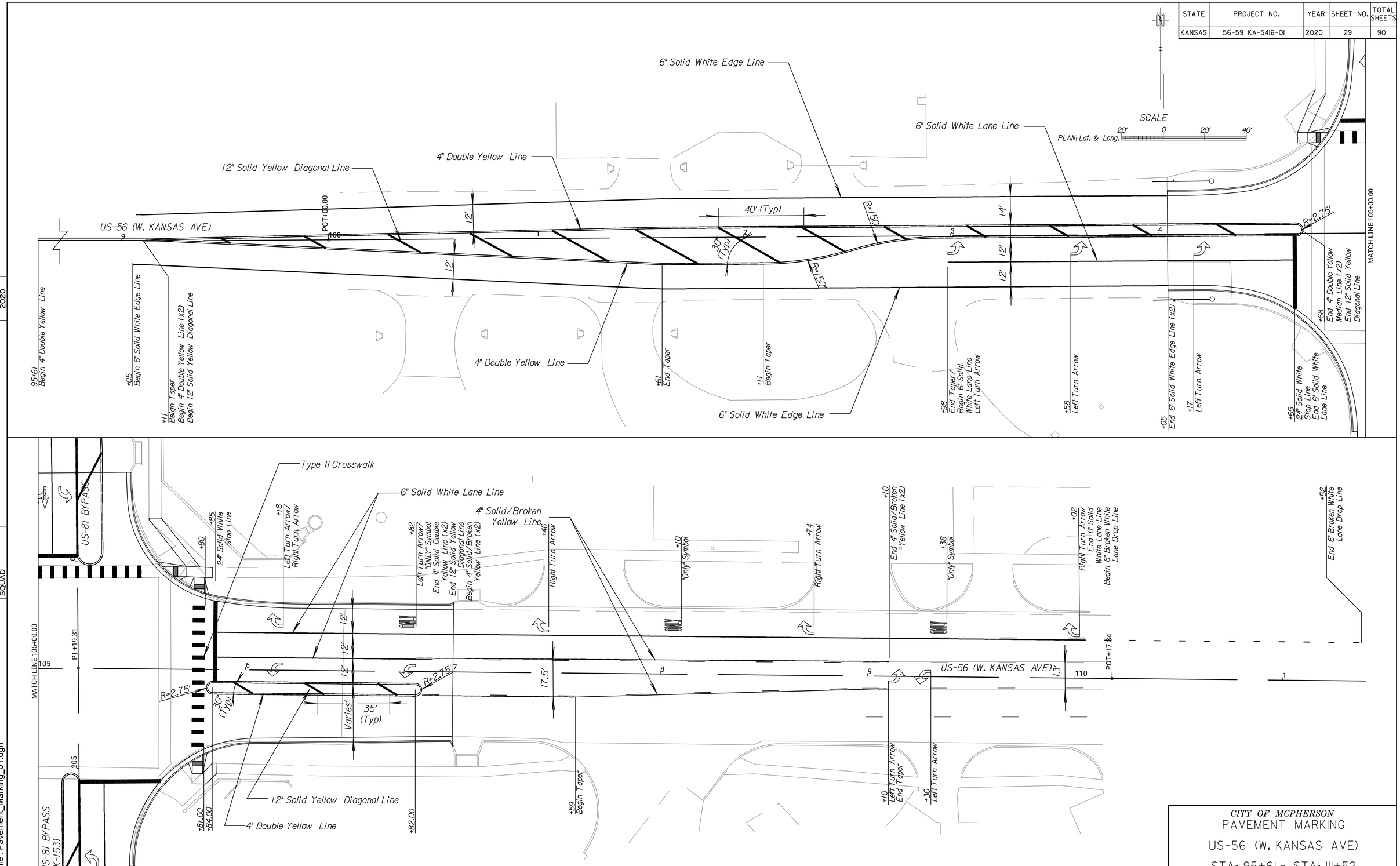
CADconform Certify This File

Sheet No.

CADconform Certify This File

Std. Base File: ----------
Plotted By: mhelgert
Plot Location:
File: la850.dgn
Plot Date: 10-DEC-2021 12:41

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 29 | 90 |



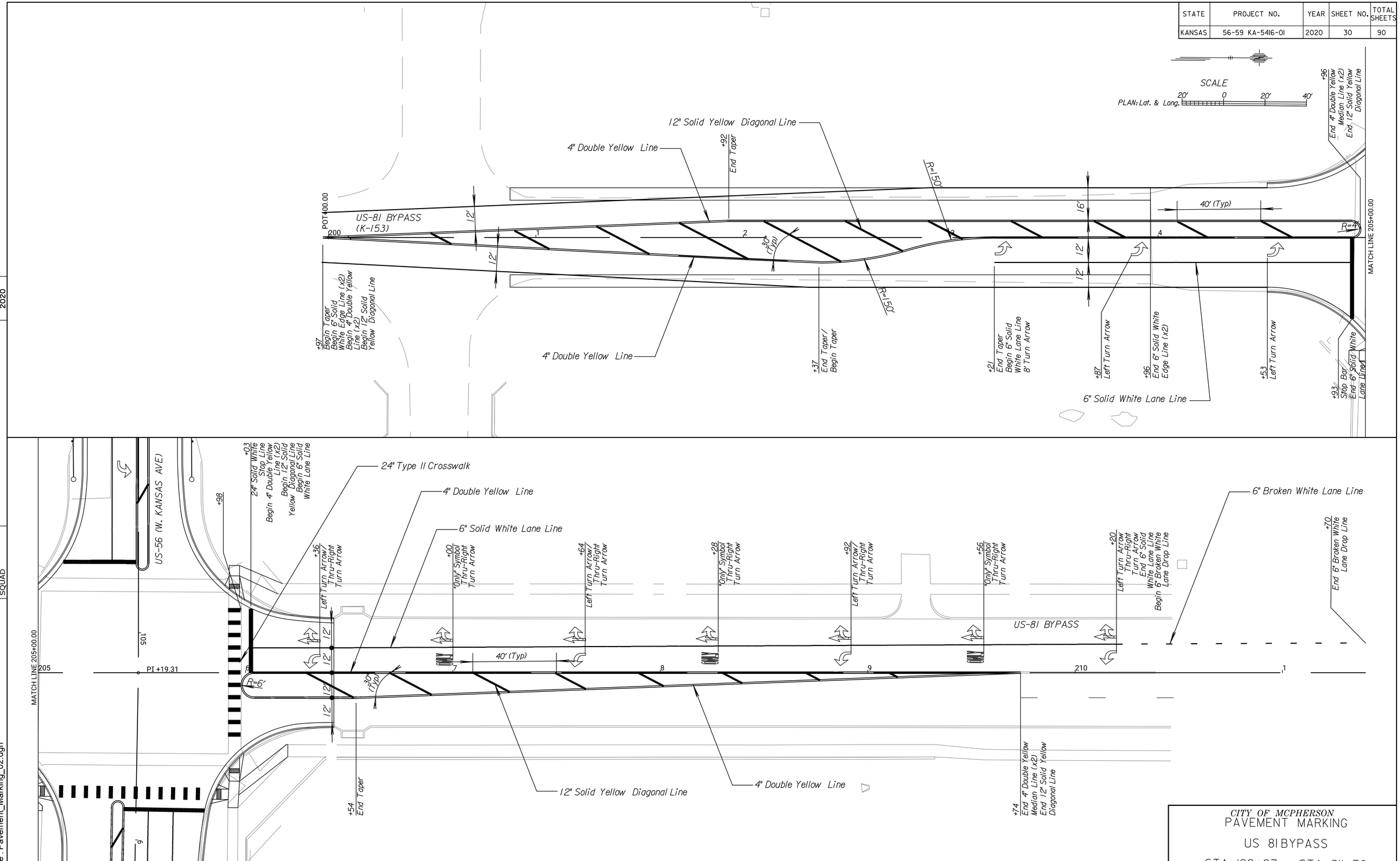

CITY OF MCPHERSON
PAVEMENT MARKING
US-56 (W. KANSAS AVE)
STA: 95+61 - STA: 111+52

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Drawn By : mheigert
File : Pavement_Marking_01.dgn
Plotted : 10-DEC-2021 12:41

Sh. No. 29

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 30 | 90 |



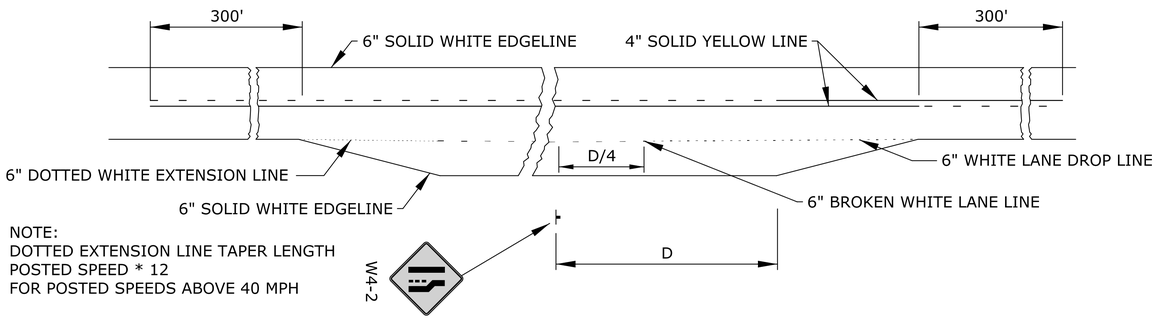

| BY | | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | 2020 |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | |

Drawn By : mheigert
File : Pavement_Marking_02.dgn
Plotted : 10-DEC-2021 12:41

CITY OF MCPHERSON
PAVEMENT MARKING
US 81 BYPASS
STA: 199+97 - STA: 211+70

Sh. No. 30

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 31 | 90 |

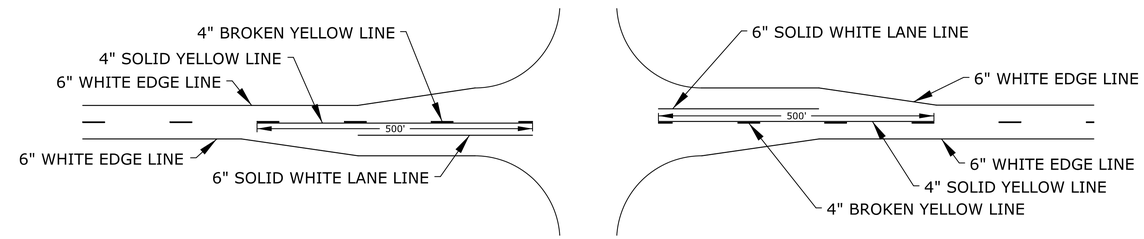



NOTE:
DOTTED EXTENSION LINE TAPER LENGTH
POSTED SPEED * 12
FOR POSTED SPEEDS ABOVE 40 MPH

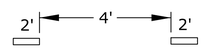
## TYPICAL MARKING FOR AUXILIARY PASSING LANE

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

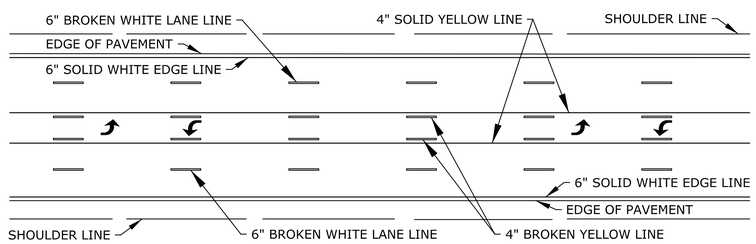
FOR HIGHWAY JUNCTIONS THE NO PASSING ZONE WILL EXTEND 1000' FROM INTERSECTION.



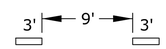

## TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



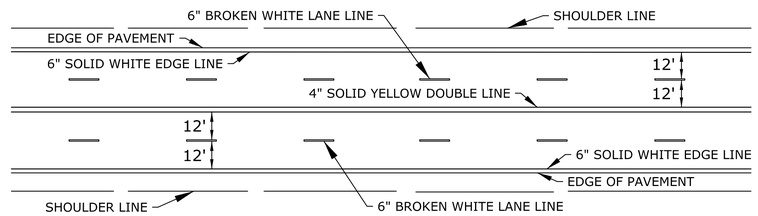

## TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



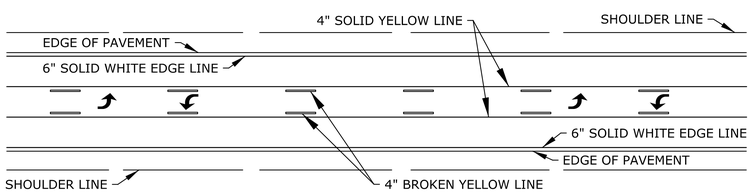

## TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY



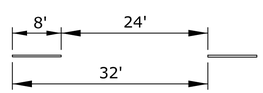

## TYPICAL SPACING FOR LANE DROP. UNLESS OTHERWISE NOTED ON PLANS.



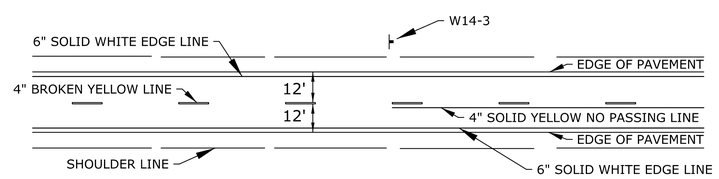

## TYPICAL MARKINGS FOR FOUR LANE ROADWAY



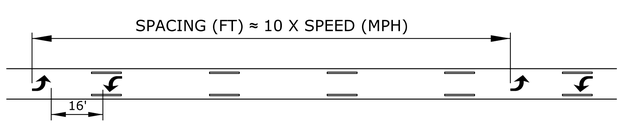

## TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY




## TYPICAL SPACING FOR BROKEN LINES UNLESS OTHERWISE NOTED ON PLANS

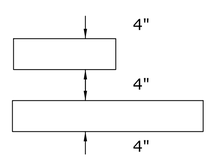



## TYPICAL TWO LANE MARKINGS




## TWO-WAY LEFT TURN ARROW SPACING DETAIL

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




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

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. |

CADconform Certify This File

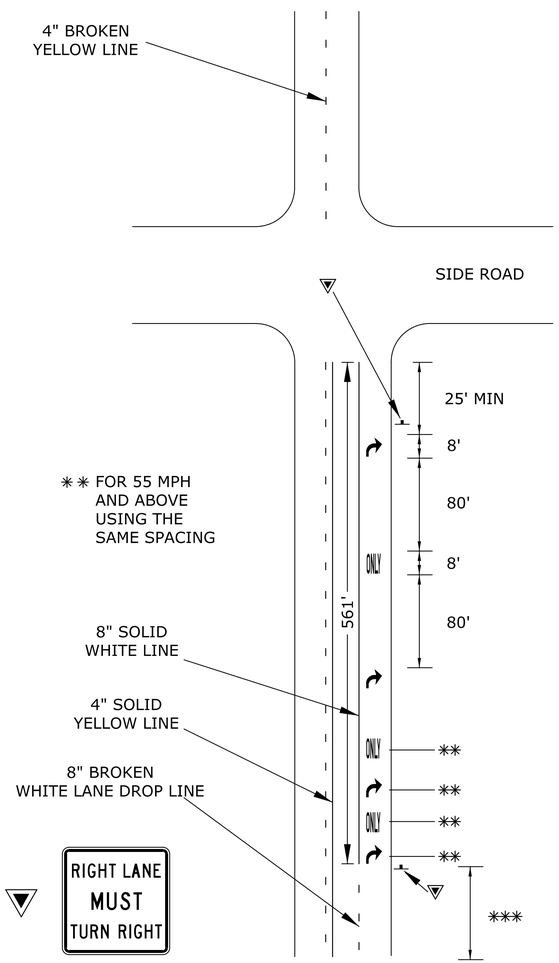
Sh. No. 31

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te308.dgn

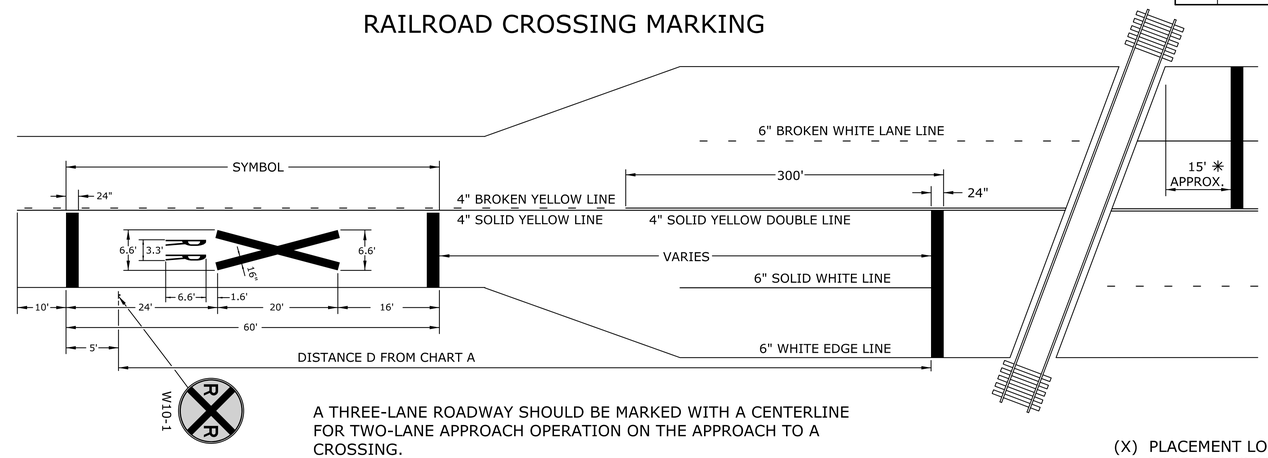
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 32 | 90 |

## TYPICAL SIGNING AND MARKING FOR RIGHT LANE MUST TURN RIGHT




✳✳✳ 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




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.

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.

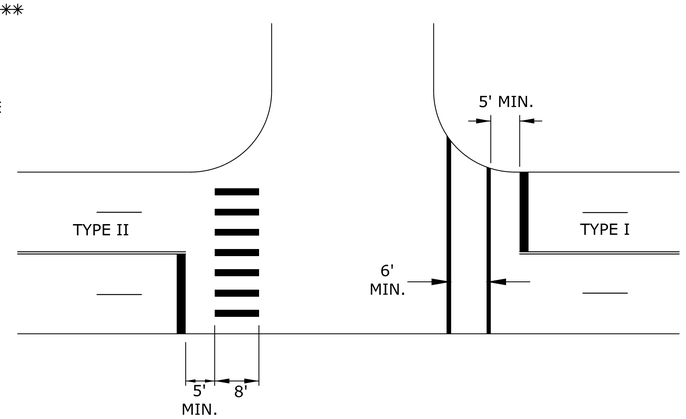
(X) PLACEMENT LOCATION IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING TO PROVIDE ADEQUATE ADVANCE WARNING TO THE DRIVER

## TYPICAL CROSSWALKS

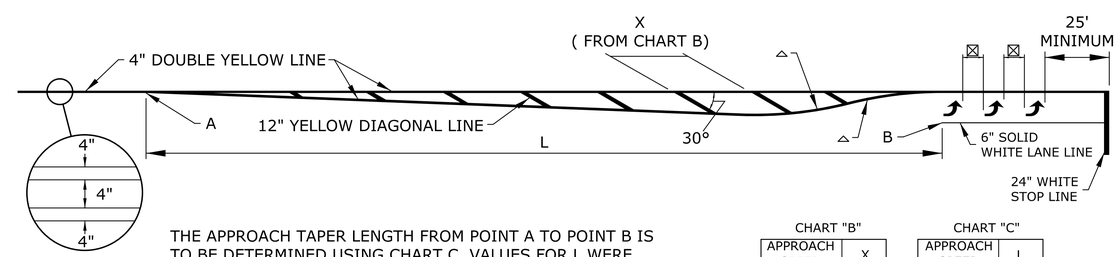
TYPE I: CROSSWALK LINES SHALL BE 12" SOLID WHITE LINES. THEY SHALL BE SPACED A MINIMUM OF 6' APART FROM INSIDE EDGE TO INSIDE EDGE.

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. |

CADconform Certify This File

Sh. No. 32

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te309.dgn

CADconform Certify This File

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 33 | 90 |

# 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US-56 | | | | | | | | | | | | | | | | | | | | | |
| US-56 Sta. 95+61 - Sta. 111+52 | | 998 | | | | 50 | 680 | | | | | | | 72 | 75 | | 1,681 | 452 | 113 | | 275 |
| US-81 Bypass | | | | | | | | | | | | | | | | | | | | | |
| US-81 Bypass Sta. 199+97 - Sta. 211+70 | | 913 | | | | 50 | 589 | | | | | | | 66 | 71 | | 1,817 | | | | 386 |
| TOTALS | | 1,911 | | | | 100 | 1,269 | | | | | | | 138 | 146 | | 3,498 | 452 | 113 | | 661 |

# RECAPITULATION OF QUANTITIES

| ITEMS | TOTAL | UNITS |
|---|---|---|
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6")(WET RECOVERABLE) | 3,280 | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12")(WET RECOVERABLE) | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4")(WET RECOVERABLE) | 7,561 | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6") | | FT |
| PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12")(WET RECOVERABLE) | 661 | 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") | 284 | FT |
| PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12") | | FT |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(LT ARROW) | 14 | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(RT ARROW) | 4 | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(ONLY) | 6 | EACH |
| PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(THRU-RIGHT ARROW) | 7 | 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 | 3,891 | FT |

# SUMMARY OF WORD & SYMBOL MARKINGS

| LOCATION | | | | | | | STOP | ONLY | X-ING | SCHOOL | 70 | 435 | 24 | 400 | 18 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US-56 | | | | | | | | | | | | | | | | | | | | | |
| US-56 Sta. 95+61 - Sta. 111+52 | | | | 4 | 7 | | | 3 | | | | | | | | | | | | | |
| US-81 Bypass | | | | | | | | | | | | | | | | | | | | | |
| US-81 Bypass Sta. 199+97 - Sta. 211+70 | 7 | | | | 7 | | | 3 | | | | | | | | | | | | | |
| TOTALS | 7 | | | 4 | 14 | | | 6 | | | | | | | | | | | | | |

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.

PROJECT 56-59 KA-5416-01 WILL UTILIZE WET RECOVERABLE PAVEMENT MARKINGS.

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

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

| 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. | |

CADconform Certify This File

Sh. No. 33

CADconform Certify This File

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te311.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 34 | 90 |

## SYMBOL KEY

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

## GENERAL NOTES

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

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

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

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

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

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

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

## INDEX OF SHEETS


SIGNING INDEX, SYMBOLS, & GENERAL NOTES
EXISTING SIGNING PLAN US-56 (W. KANSAS AVE)
EXISTING SIGNING PLAN US-56 US 81 BYPASS
PERMANENT SIGNING PLAN US-56 (W. KANSAS AVE)
PERMANENT SIGNING PLAN US-56 US 81 BYPASS
MOUNTING HEIGHT & LATERAL OFFSET
RECAPITULATION OF SIGNING & DELINEATION BID ITEMS
DETAILS FOR WOOD POSTS
DETAILS FOR MOUNTING SIGNS ON WOOD POSTS FLAT SHEET AND REINFORCED PANEL
SIGN BLANK DETAILS FOR FLAT SHEET SIGNS
DETAILS SPECIFICATIONS FOR REINFORCED SIGN PANELS AND FLAT SHEET SIGNS


| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 10/01/19 | Changed symbols, notes, & index | D.D.G. | E.W.N. |
| 1 | 7/23/10 | Changed General Notes and Spec Book Date | D.D.G. | D.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

SIGNING SYMBOL KEY
GENERAL NOTES
AND INDEX

~~TE402~~ 7/1/03

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

CADconform Certify This File

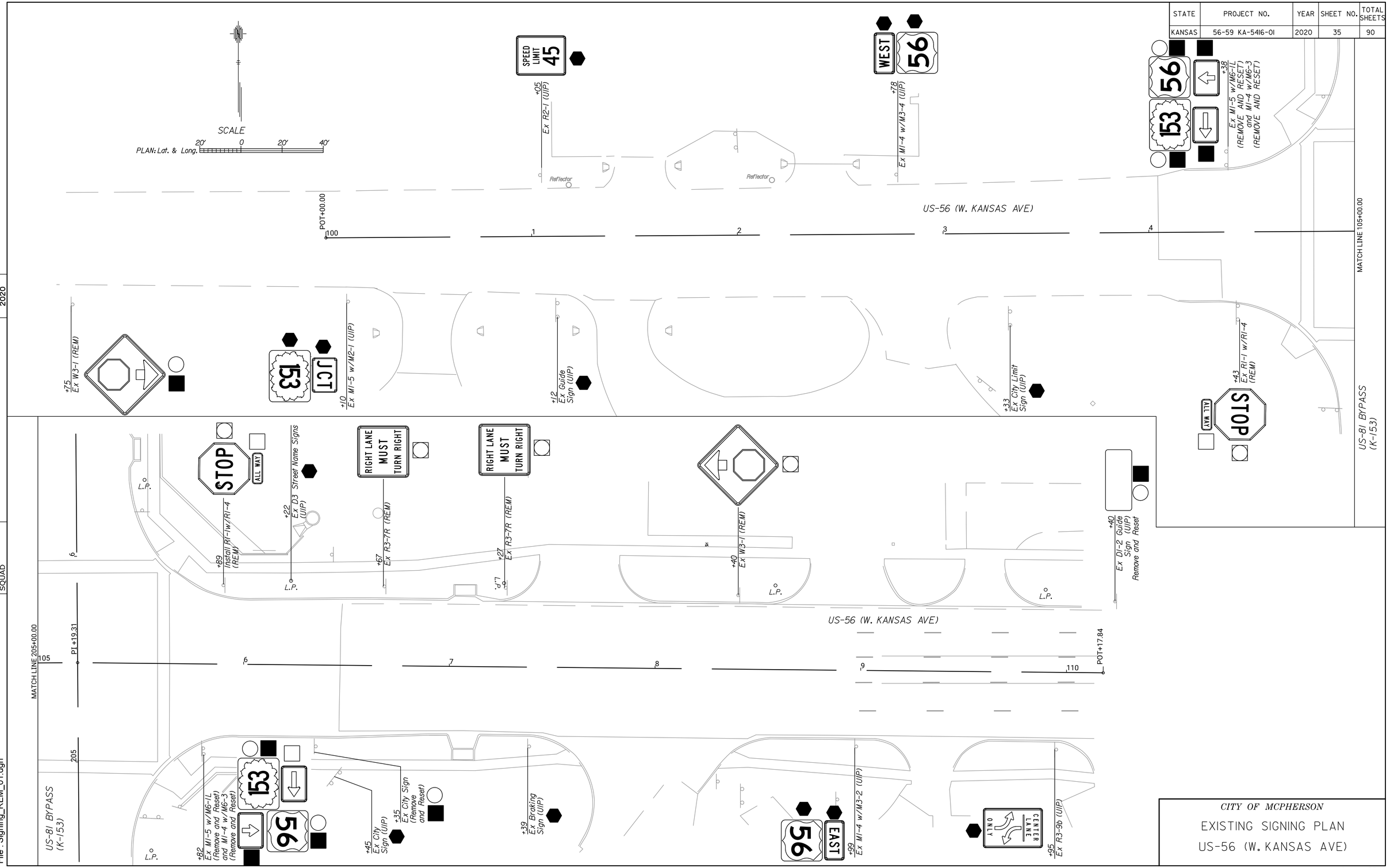
Sh. No. 34

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te402.dgn

CADconform Certify This File

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 35 | 90 |




CITY OF MCPHERSON

EXISTING SIGNING PLAN

US-56 (W. KANSAS AVE)

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

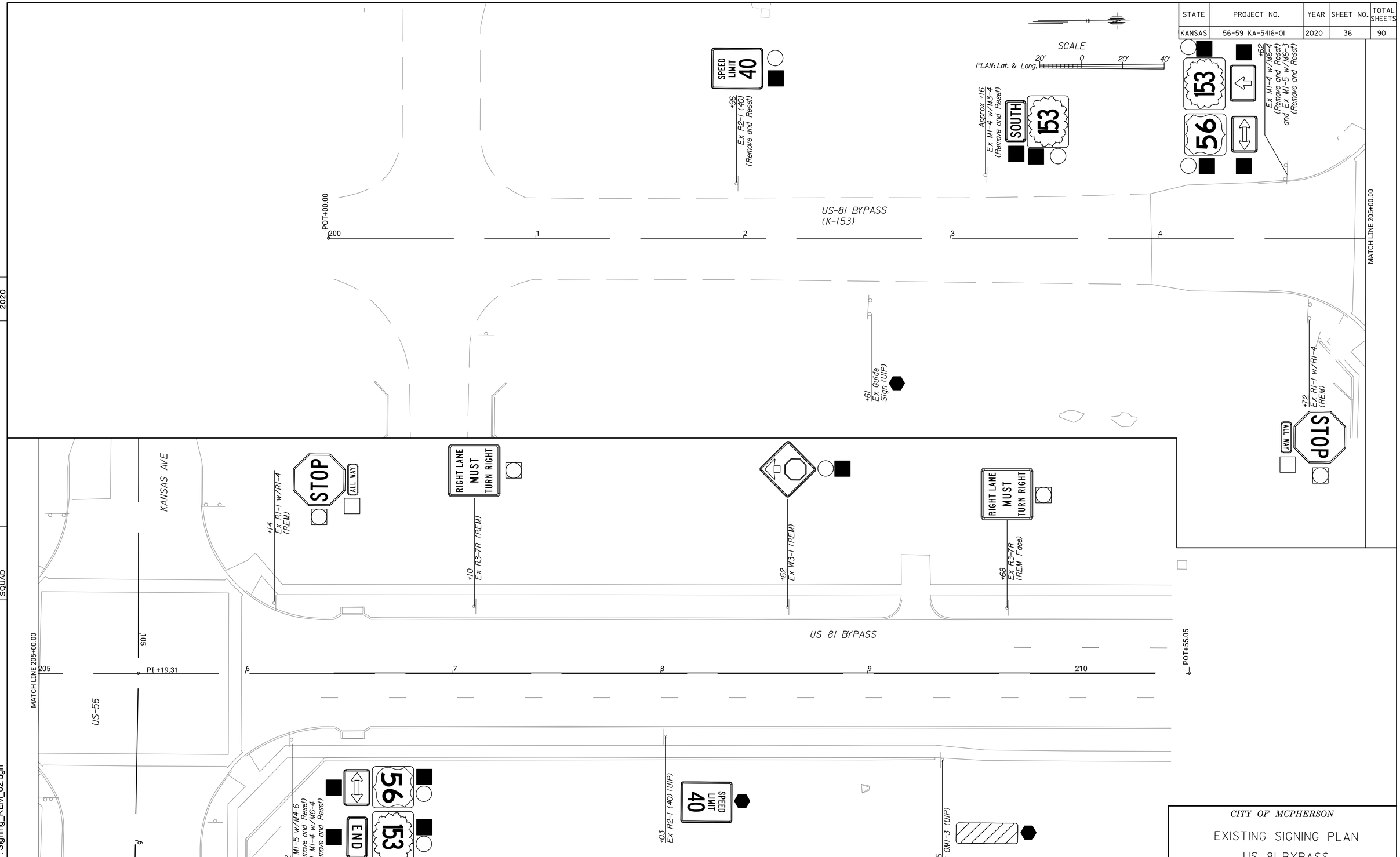
Plotted : 10-DEC-2021 12:41

Drawn By : mheigert

File : Signing_REM_01.dgn

Sh. No. 35

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 36 | 90 |




CITY OF MCPHERSON

EXISTING SIGNING PLAN

US 81 BYPASS

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert

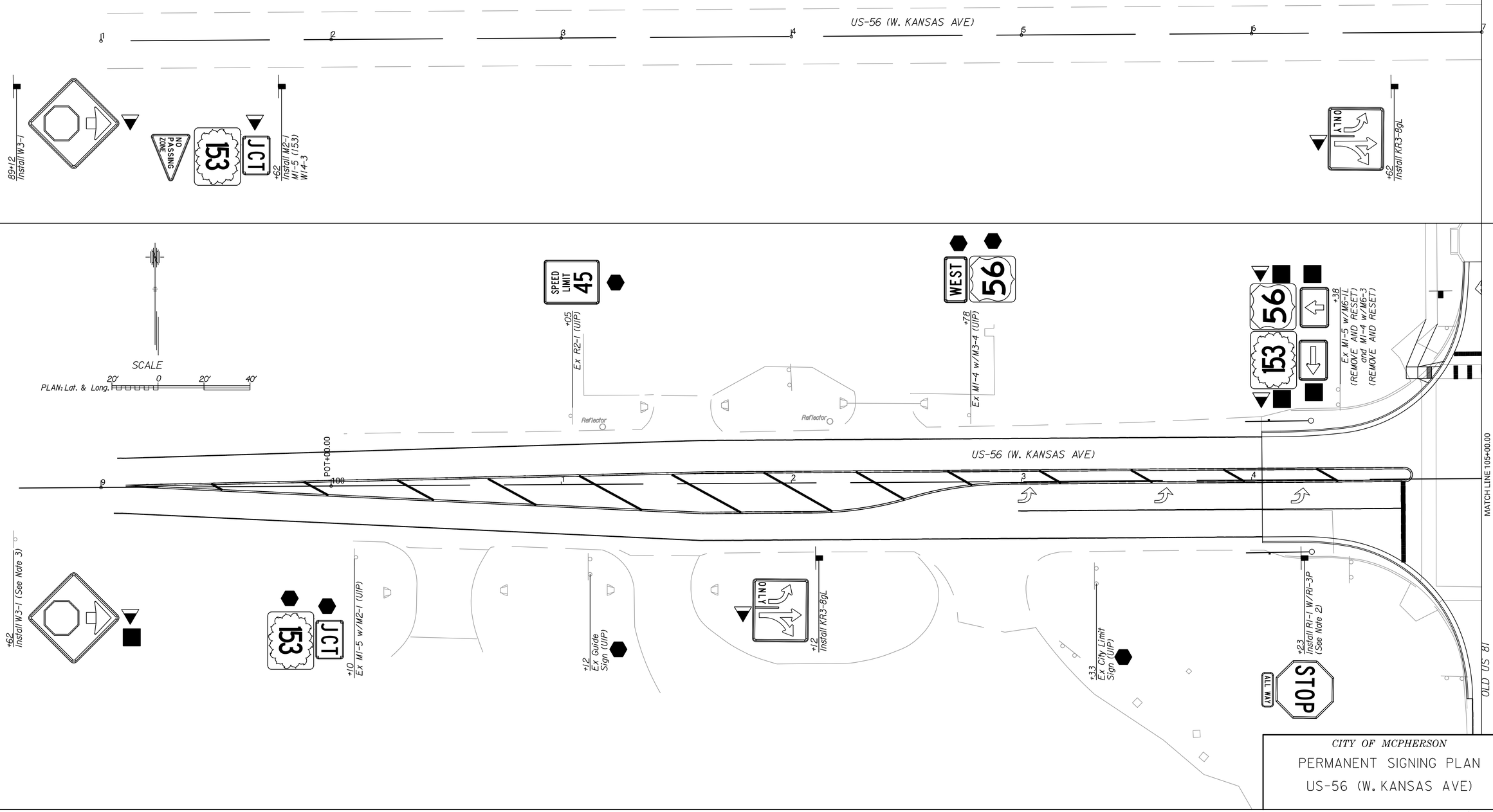
File : Signing_REM_02.dgn

Sh. No. 36

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 37 | 90 |

*Notes:*

1) *The location and descriptions of existing utilities shown on the drawings are compiled from available records and/or field surveys. The engineer or utility companies do not guarantee the accuracy or the completeness of such records. The Contractor shall field verify sizes and locations of all existing utilites prior to construction.*
2) *Stop Sign shall include solar power flashing beacon per detail in plans.*
3) *Warning sign shall include solar power flashing beacon.*
4) *Add warning flags to R3-8 signs for advance notice of lane changes.*




*CITY OF MCPHERSON*

PERMANENT SIGNING PLAN

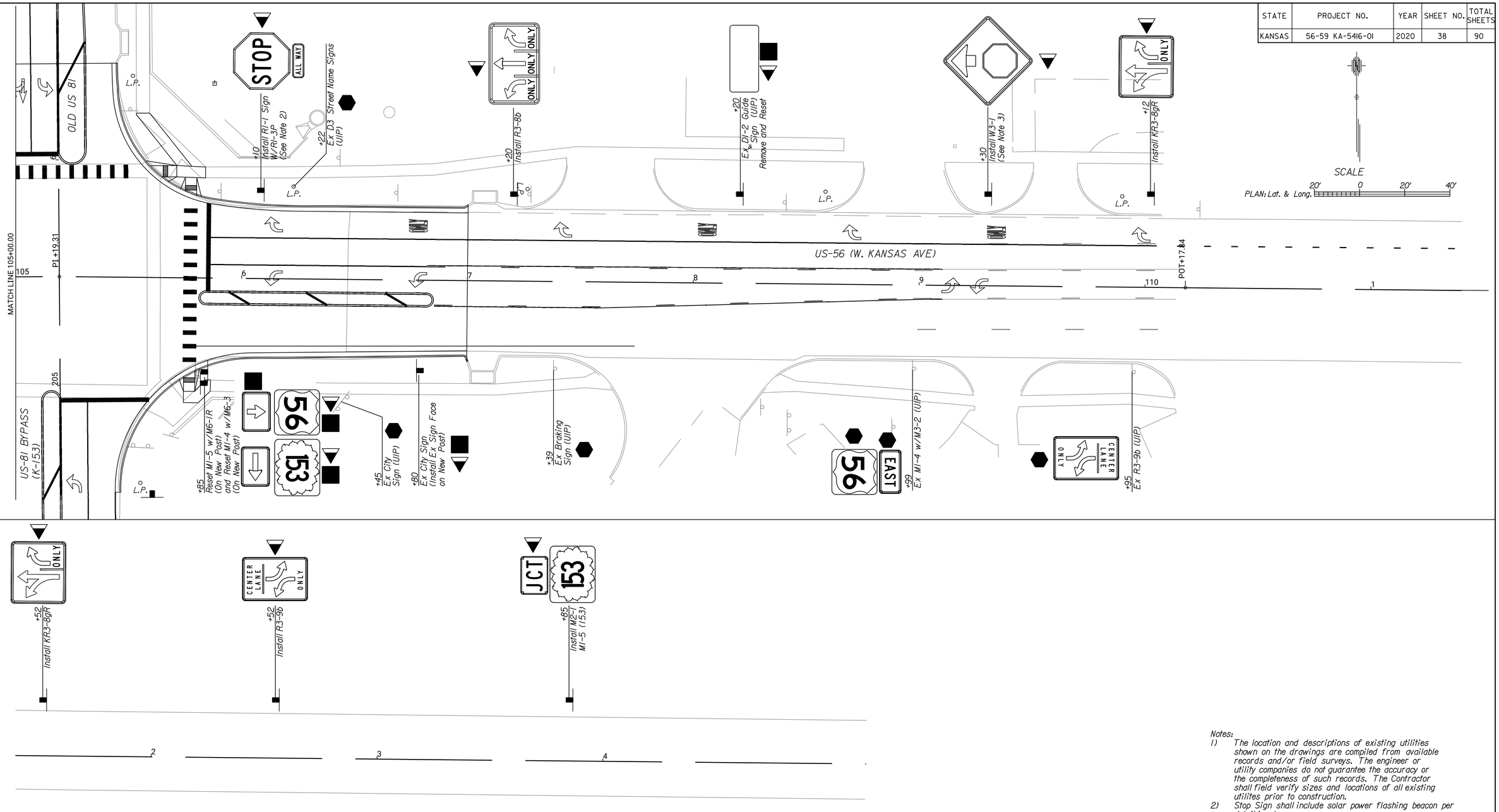
US-56 (W. KANSAS AVE)

| | | BY | DATE |
|---|---|---|---|
| SURVEYED | XXXXXX | GARBER SURVEYING | 12-19 |
| PLOTTED | | | |
| INKED | F. ALANGURLI | Benesch | 2020 |
| DESIGNED | M. HEIGERT | Benesch | 2020 |
| SQUAD | | | 2020 |

Drawn By : mheigert
File : Perm_Signing_00.dgn

Plotted : 10-DEC-2021 12:41

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 38 | 90 |




Notes:

1) The location and descriptions of existing utilities shown on the drawings are compiled from available records and/or field surveys. The engineer or utility companies do not guarantee the accuracy or the completeness of such records. The Contractor shall field verify sizes and locations of all existing utilites prior to construction.
2) Stop Sign shall include solar power flashing beacon per detail in plans.
3) Warning sign shall include solar power flashing beacon.
4) Add warning flags to R3-8 signs for advance notice of lane changes.

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : Perm_Signing_01.dgn

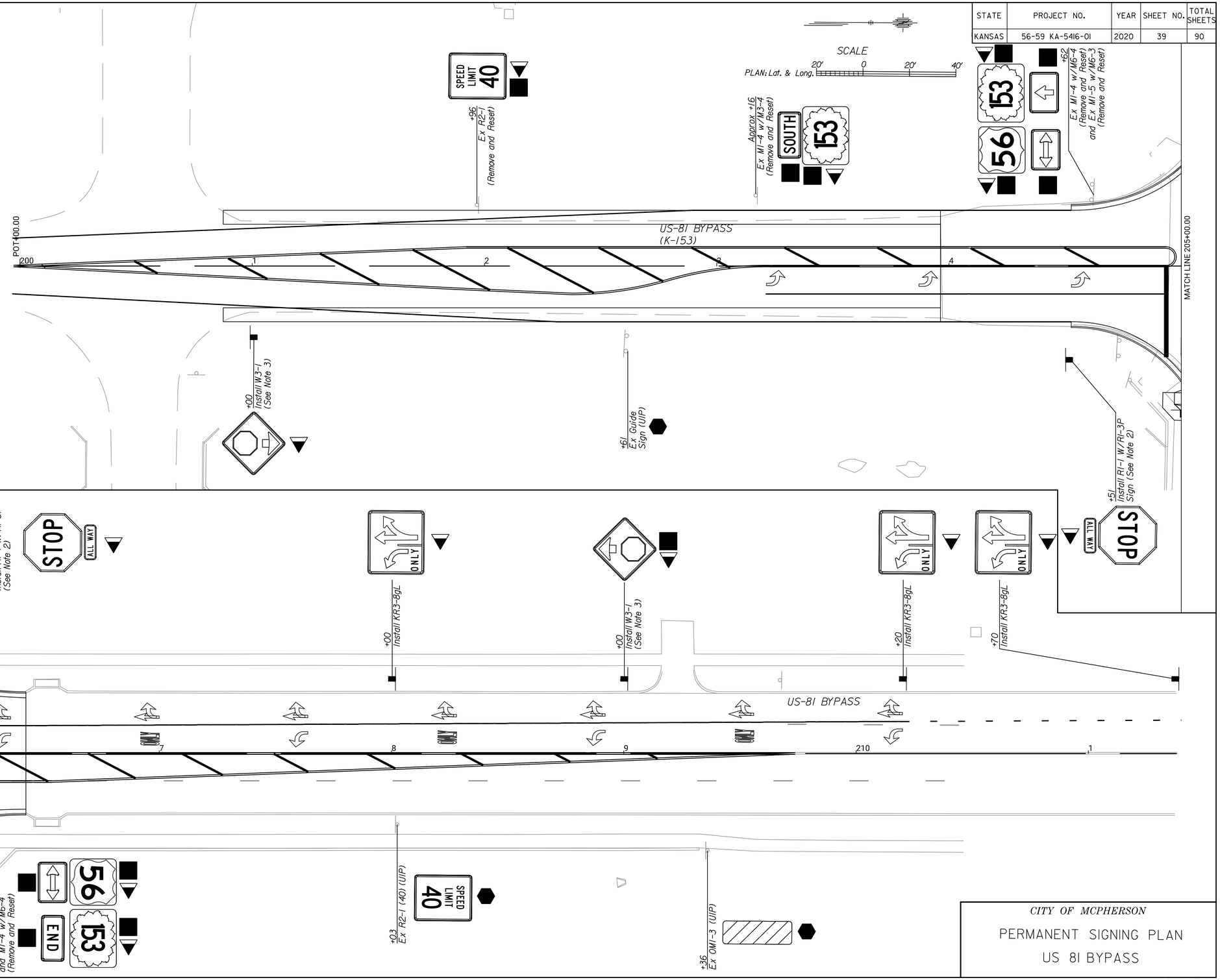
CITY OF MCPHERSON

PERMANENT SIGNING PLAN

US-56 (W. KANSAS AVE)

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 39 | 90 |

Notes:
1) The location and descriptions of existing utilities shown on the drawings are compiled from available records and/or field surveys. The engineer or utility companies do not guarantee the accuracy or the completeness of such records. The Contractor shall field verify sizes and locations of all existing utilites prior to construction.
2) Stop Sign shall include solar power flashing beacon per detail in plans.
3) Warning sign shall include solar power flashing beacon.
4) Add warning flags to R3-8 signs for advance notice of lane changes.




| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : Perm_Signing_02.dgn

CITY OF MCPHERSON

PERMANENT SIGNING PLAN

US 81 BYPASS

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 40 | 90 |

1.0 Overview

Each 24X7CFB system shall consist of a self-contained solar engine that houses the charge controller, flash controller, on-board user interface, batteries and solar panel. Each 24X7CFB system shall include either one or two circular LED beacons. The 24X7CFB system shall conform to all provisions of the MUTCD, Chapter 4L, including flash pattern. The 24X7CFB system shall be pre-wired to the maximum extent possible.

2.0 Mechanical Specifications

The solar engine shall be constructed from aluminum with an integrated solar panel. All batteries and electronics shall be mounted in the solar engine, with no external control cabinet or battery cabinet required with the exception of an optional, passive ON/OFF control remotely located. The solar engine shall not exceed 15" in height from bottom of adapter fitting to top of solar panel. The depth of the solar engine shall not exceed 4". The overall weight of the solar engine assembly (including two batteries but not including lightbars or pushbutton) shall not exceed 20 lbs. (9.1 kg). The solar engine shall be supplied with a fixed tilt angle of 45 degrees and shall be able to be oriented toward the equator with no additional mounting hardware. Access to the interior of the solar engine shall be provided by a lid that is hinged on the bottom edge and is fitted with a foam gasket. The lid shall have a lockable latch. The solar engine shall be vented to provide cooling of the battery and electronic system. The vents shall be screened to prevent ingress by insects and debris. Fasteners shall be stainless steel.

3.0 Signal Housing

The solar engine shall be capable of direct attachment to the top of a signal head. The signal housing shall meet the equipment standard of the Institute of Transportation Engineers (ITE) Vehicle Traffic Control Signal Heads (VTCSH) Chapter 2. The signal head's attachment to the support structure shall allow for easy removal in the field. The signal housing must be able to rotate independent from the solar engine or bracket for lens alignment. The signal housing shall be constructed from a choice of UV-resistant polycarbonate or aluminum. The signal housing shall be available in yellow, green or black. The beacon(s) shall also be capable of being mounted to a post or pole using a separate bracket assembly to facilitate mounting multiple beacons in either vertical, horizontal, or back-to-back (bi-directional) arrangements. The signal housing shall open for access to the wiring connections for the LED beacons. The signal housing shall be rated to NEMA 3R. Mounting hardware shall be standard traffic signal mounting hardware such as that manufactured by Pelco Products Inc.

4.0 Fixtures

The LED beacons shall conform to the requirements of the Manual of Uniform Traffic Control Devices 2009 with May 2012 Revisions 1 and 2. LED beacons shall also comply with the intensity and beam shape requirements of the ITE Vehicle Traffic Control Signal Heads, Light Emitting Diode (LED) Circular Signal Supplement. The 24X7CFB shall be capable of driving beacons at ITE-compliant intensities if solar conditions and programming configuration permit it. The beacons shall be current-driven LED strings without active electronics. The LEDs shall be driven by pulse-width modulated fixed current. The LED beacons shall be available in red and yellow, and in 12" (305mm) and 8" (203mm) diameters. The LED beacon optics shall be premium, UV-resistant polycarbonate. LED Beacon wiring harnesses shall be included.

4.2 LED Enhanced Signs

The 24X7CFB shall be able to optionally operate flashing LEDs in the border of a warning sign.

5.0 Mounting

Solar engine mounting adapter hardware for the 24X7CFB shall be available for the following configurations:

Direct to top of signal housing
2" / 2.5" Perforated Square Pole Mount
2 3/8" - 2 7/8" Diameter Round Post Mount
4" - 4.5" Diameter Round Post Mount
Side-of-Pole Mount
Wooden Pole

The signal housing shall be able to mount directly to the above supports or indirectly using C-brackets. Signal housing shall be able to mount in a single or dual (vertical, horizontal or back-to-back) configuration. LED-enhanced signs shall be able to mount in a single or back-to-back (bi-directional) configuration. Mounting configurations shall not require specialized tools.

6.0 Configuration

The 24X7CFB cabinet shall house an auto-scrolling LED on-board user interface that provides on-site configuration adjustment, system status and fault notification. The user interface shall provide a display of four (4) alphanumeric characters and three (3) control buttons to navigate and change settings and activate functions. When editing the configuration, the user interface will flash the display indicating it is ready to accept editing and will flash the display rapidly 3 times to indicate the setting change has been accepted. The system shall provide configurable nighttime intensity settings ranging from 10% to 100% of daytime intensity. The system shall be capable of enabling or disabling ambient brightness auto-adjustment. This feature allows the system to provide optimal output brightness in relation to ambient light levels. If enabled, the ambient brightness auto-adjustment shall adjust output to a range between 50% and 100% of daytime intensity. The User Interface shall provide viewing and/or programming access for the following:

6 Flash Patterns
Night Intensity Setting
Adjustment for Ambient Daytime Brightness
Intensity (20 mA to 1400 mA)
Self-Test / BIST (Built-In Self-Test) including the detection of shorts or open circuits in the fixture outputs
Battery Status General description and actual battery voltage
Day or Night Status (as determined by dedicated photosensor not solar panel output)
Solar Panel Voltage
Automatic Light Control. If this safety feature is enabled, it allows the 24X7CFB to temporarily reduce the intensity of the beacons to maintain energy equilibrium. The user interface shall report the amount of dimming being applied in the range of 10% to 100%
Firmware Version number

7.0 Solar Panel System

The solar engine shall include one 18V nominal solar panel rated between 10 and 15 watts with bypass diode. The solar panel shall be no larger than the footprint of the solar engine enclosure. Electrical connections on the back of the solar panel shall be contained within an enclosure that prevents accidental contact with either of the power leads. The solar charging system shall use maximum power point tracking (MPPT).

8.0 Battery System

The solar engine shall house two 7 amp-hour 12V nominal sealed valve-regulated AGM lead-acid maintenance-free batteries. Each battery shall be equipped with a 1.5 amp fast-blow barrel fuse on the positive lead. The battery charging system shall be 3-stage and incorporate temperature-compensation to prevent battery overcharging in hot weather. Batteries, in conjunction with recommended 24X7CFB system performance, shall be designed for a demonstrable service life of 5 years. The battery shall be rated for -40°to 140°F (-40 °to 60°C). Batteries shall have quick connections to facilitate installation and be readily available from multiple suppliers and non-proprietary. Batteries shall be supported by rubber bumpers and be secured in place with straps.

9.0 Operational Specifications

The 24X7CFB shall flash at a rate of not less than 50 nor more than 60 times per minute. The illuminated period of each flash shall not be less than one-half and not more than two-thirds of the total cycle. The beacons shall exhibit an MUTCD-compliant flash pattern and activation including alternate, unison and quick-flash. The 24X7CFB shall have the capacity to provide continuous flashing year-round using the applicable peak sun hours insolation available at the installation location. Refer to Section 8. Solar Simulations for details on insolation data sources. The controller shall be able to support up to 1.4 amps combined current through the 24X7CFB fixtures simultaneously. The system shall use a dedicated light sensor to detect night and day states and apply any optionally-enabled intensity adjustments. An external ON/OFF override switch and enclosure shall be available.

10.0 Solar Simulations

Detailed solar simulations shall be provided as evidence that the 24X7CFB is capable of year-round sustainable operation at a specific location. Solar Simulations shall be composed of three calculations: Energy Balance, Array-to-Load Ratio (ALR), and Autonomy. The manufacturer or bidder shall provide a detailed analysis of these three calculations in an "Energy Balance Report". Monthly average sunlight (insolation), night length and temperature data for a specific, declared location shall be from recognized public sources such as the NASA Atmospheric Sciences Data Center. All sources shall be cited exactly and accessible online without cost to allow verification of the data.

Energy Balance

During a normal 24-hour cycle of operation, a 24X7CFB will take energy in from the sun and consume energy through the flashing of the beacons and general quiescent power draw. Energy Balance refers to the evaluation of these energy values to determine overall system sustainability and resistance to variances in sunlight and temperature. Energy Balance compares Energy-In and Energy-Out. Calculations shall be performed for the " Worst Month" of the year where worst month is determined by the lowest value of Energy-In divided by Energy-Out.

Energy-In

Energy-In is the total amount of sunlight energy in watt-hours available to the 24X7CFB over a 24-hour period. Energy-In is available to operate the 24X7CFB, charge the battery, or both. Energy-In shall be determined as follows:

Insolation X Panel Wattage X Shading X charging efficiency X Battery charge acceptance

The energy from the solar panel shall be based on available solar radiation at the installation location for the panel's inclination angle. The solar radiation (insolation) values used shall be for the worst-case month of the calendar year.

Shading from nearby trees, buildings or other structures unique to a particular location are to be factored-in and the calculations shall clearly show and justify the de-rating of the solar panel energy input. A photograph showing the sun's path and obstructions it encounters shall be included.

Batteries shall be returned to full charge by sunset at the end of each day.

Energy-Out

Energy-Out is the total amount of energy in watt-hours consumed by the 24X7CFB in a 24-hour period of normal operation.

Energy-Out is the sum of quiescent and operating loads, measured in watt-hours, in all circuitry over 24 hours including:

Controller quiescent draw (during and between flashes)

Operating load of LED beacons at rated intensity. The number of LED beacons and their electrical load details (voltage, current and power when lit) shall be clearly indicated;

Energy adjustments due to LED drive circuit efficiency.

The simulations shall clearly detail the flash pattern being used and calculate the duty cycle of the pattern.

ALR (Array-to-Load Ratio)

System Array-to-Load (ALR) ratio shall be calculated as: Daily Available Energy-In divided by Daily Energy-Out as defined above.

24X7CFB Solar Simulations shall be calculated demonstrating a minimum Array-to-Load (ALR) ratio of 1.2:1 (1.2)

Autonomy

Autonomy is the number of days that the 24X7CFB can continue to operate normally in the absence of any solar charging. Autonomy shall be calculated as follows:

(Nominal Battery Capacity de-rated for Temperature minus battery capacity unavailable due to Low Voltage Disconnect) divided by (Total energy consumption over a 24-hour period)

24X7CFB autonomy shall be a minimum of 5 days.

11.0 Environmental Testing

The 24X7CFB cabinet and LED beacons shall be rated to a minimum of NEMA 3R.

12.0 Packaging

Packaging shall consist of only recyclable corrugated cardboard and soft plastic bags.13.0 Qualifications

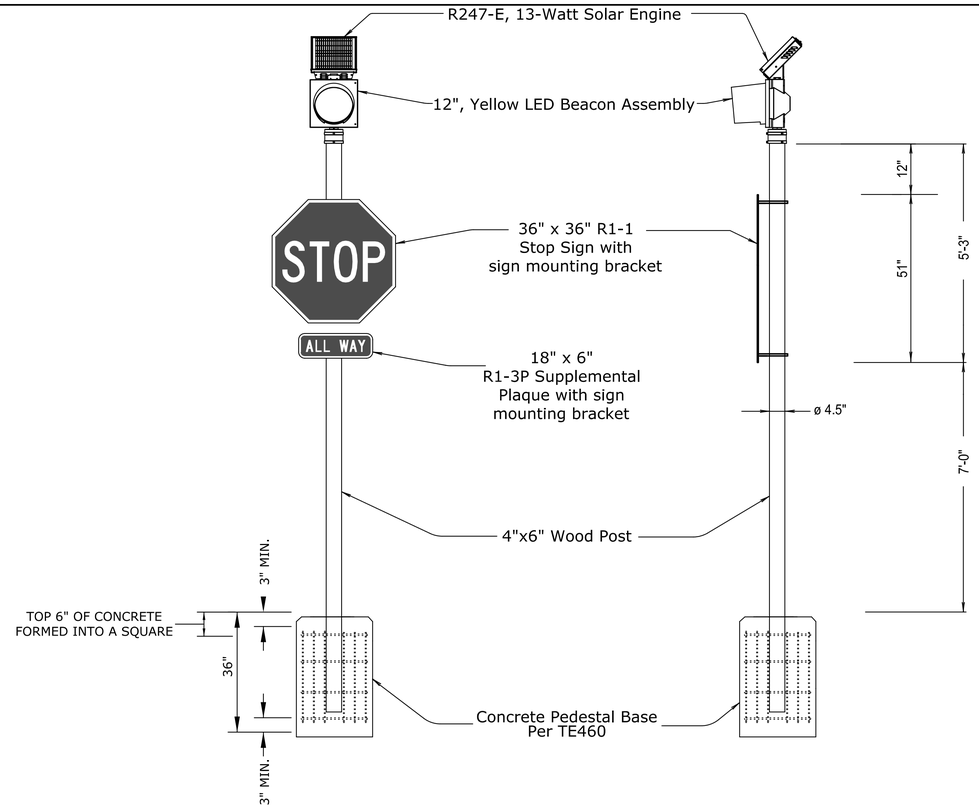
The 24X7CFB shall be FCC certified to comply with all 47 CFR FCC Part 15 Subpart B Emission requirements. The 24X7CFB shall be manufactured in the USA and shall be Buy American compliant. Manufacturer shall provide a 5-Year Limited Warranty, with the exception of the batteries which shall be covered by a 1-year warranty. The Manufacturer shall be ISO 9001 certified.

CITY OF MCPHERSON

SPECIFICATIONS
ADVANCE WARNING BEACON

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

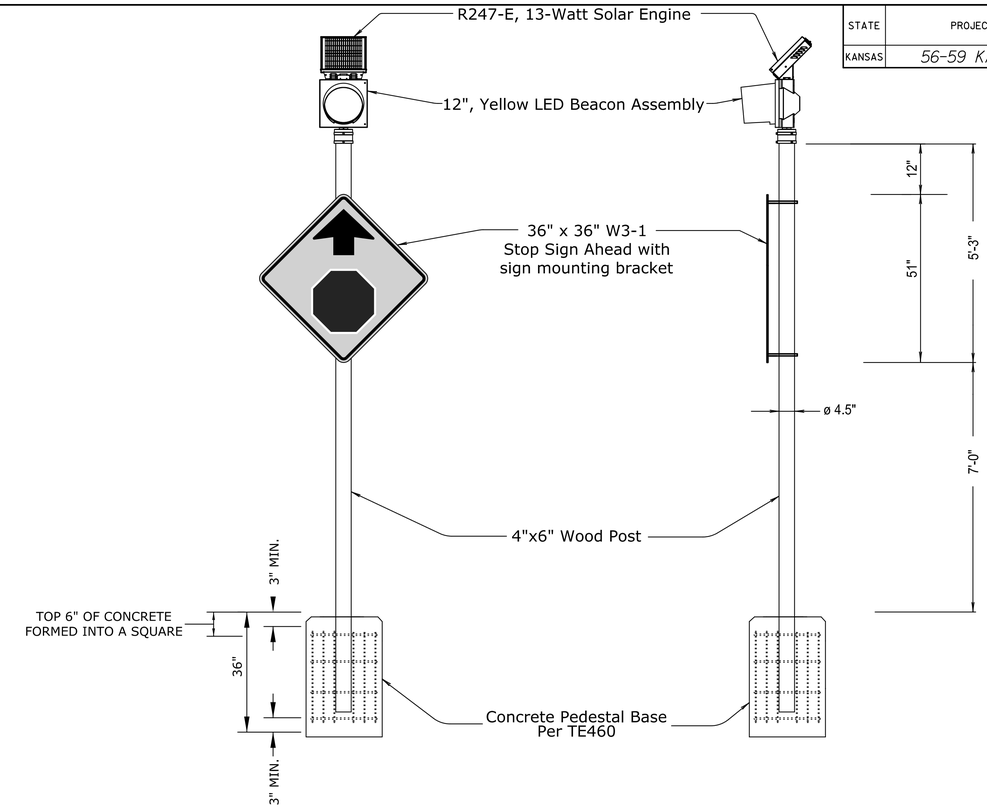
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 41 | 90 |




## STOP SIGN FLASHING BEACON SYSTEM

| BILL OF MATERIALS (1) | | |
|---|---|---|
| (FOR INFORMATION ONLY) | | |
| ITEM | QUANTITY | UNIT |
| FLASHING LED BEACON ASSEMBLY | 4 | EACH |
| R-247-E, 13 WATT SOLAR ENGINE | 4 | EACH |
| MOUNTING HARDWARE | AS REQ'D | EACH |
| CONCRETE PEDESTAL BASE | 4 | EACH |

1. ( THIS SHALL BE BID AS FLASHING BEACON SYSTEM AND SHALL BE BID AS LUMP SUM.)
2. (4'X6' WOOD POST SHALL BE SUBSIDIARY TO THE FLASHING BEACON SYSTEM.)




## STOP SIGN AHEAD FLASHING BEACON SYSTEM

| BILL OF MATERIALS (1) | | |
|---|---|---|
| (FOR INFORMATION ONLY) | | |
| ITEM | QUANTITY | UNIT |
| FLASHING LED BEACON ASSEMBLY | 4 | EACH |
| R-247-E, 13 WATT SOLAR ENGINE | 4 | EACH |
| MOUNTING HARDWARE | AS REQ'D | EACH |
| CONCRETE PEDESTAL BASE | 4 | EACH |

1. ( THIS SHALL BE BID AS FLASHING BEACON SYSTEM AND SHALL BE BID AS LUMP SUM.)
2. (4'X6' WOOD POST SHALL BE SUBSIDIARY TO THE FLASHING BEACON SYSTEM.)

| SUMMARY OF FLASHING BEACON SYSTEM | | | | |
|---|---|---|---|---|
| ITEM | LOCATION | STATION | QUANTITY | UNIT |
| STOP SIGN AHEAD FLASHING BEACON SYSTEM | US-56 | 98+62 | LUMP SUM | LUMP SUM |
| STOP SIGN FLASHING BEACON SYSTEM | US-56 | 104+23 | LUMP SUM | LUMP SUM |
| STOP SIGN FLASHING BEACON SYSTEM | US-56 | 106+10 | LUMP SUM | LUMP SUM |
| STOP SIGN AHEAD FLASHING BEACON SYSTEM | US-56 | 109+30 | LUMP SUM | LUMP SUM |
| STOP SIGN AHEAD FLASHING BEACON SYSTEM | US-81 | 201+00 | LUMP SUM | LUMP SUM |
| STOP SIGN FLASHING BEACON SYSTEM | US-81 | 204+51 | LUMP SUM | LUMP SUM |
| STOP SIGN FLASHING BEACON SYSTEM | US-81 | 206+30 | LUMP SUM | LUMP SUM |
| STOP SIGN AHEAD FLASHING BEACON SYSTEM | US-81 | 209+00 | LUMP SUM | LUMP SUM |

(FLASHING BEACON SYSTEM SHALL BE BID AS LUMP SUM.)

| RECAP OF FLASHING BEACON SYSTEM | | |
|---|---|---|
| ITEM | QUANTITY | UNIT |
| FLASHING BEACON SYSTEM | LUMP SUM | LUMP SUM |

CITY OF MCPHERSON

FLASHING BEACON
WARNING SYSTEM
*DETAILS & RECAP*

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

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 42 | 90 |

# QUANTITIES SHEET

SIGNS, POSTS, & FOOTINGS TO BE INSTALLED ON PROJECT

| PLAN SHEET NUMBER | PLAN STATION NUMBER | CENTERLINE LOCATION / INSTALL POSITION | SIGN DESIGNATION | SIGN SIZE | SIGN LAYOUT SHEET NUMBER | TYPE OF SIGN FABRICATION | | | 4" X 6" POSTS | | | 3I2.25 ALUMINUM BEAM | U-POSTS | | GALVANIZED STEEL BEAM POSTS | | | | | | PERFORATED SQUARE STEEL TUBE (PSST) POSTS | | | | | | | | | | CONCRETE FOOTINGS | | | | | SIGN STRUCTURE TYPE | | | | | | VERTICAL SUPPORT MOUNT | MOUNT ABOVE GUIDE SIGN DESIGNATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | WOOD | | STEEL | | | | W6x9 | | W10x12 | | W10x22 | | 1 3/4" | | | 2" | | | 2 1/4" | | 2 1/2" | | WOOD POST | STEEL BEAM POST | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | A36 | | A572 (ALT) | | | | | | | | | | |
| | | | | | | FLAT SHEET | REINFORCED PANEL | OVERLAY | FLAT SHEET SIGN | REINFORCED PANEL SIGN | STRUCTURAL TUBING | | 2 LB PER FT | 3 LB PER FT | A36 | A572 (ALT) | A36 | A572 (ALT) | A36 | A572 (ALT) | POST | FOOTING | BRACKET | POST | FOOTING | BRACKET | POST | FOOTING | POST | FOOTING | 18" DIA. | 24" DIA. | 30" DIA. | 24" DIA. | 30" DIA. | OVERHEAD | CANTILEVER | BUTTERFLY | BRIDGE MOUNT ATTACHMENT | MAST ARM | SINGLE TAPERED TUBE | | |
| | 89+12 | R | W3-1 | 30" X 30" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 91+62 | R | M2-1 | 21" X 15" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M1-5 | 30" X 24" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M14-3 | 48" X 36" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 96+62 | R | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 98+62 | R | W3-1 | 30" X 30" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 102+12 | R | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 104+23 | R | R1-1 | 30" X 30" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | R1-3P | 18" X 6" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 104+38 | L | M1-5 | 30" X 24" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-1L | 21" X 15" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M1-4 | 24" X 24" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-3 | 21" X 15" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 105+85 | R | M1-5 | 30" X 24" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M1-4 | 24" X 24" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-3 | 21" X 15" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-1R | 21" X 15" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 106+10 | L | R1-1 | 30" X 30" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | R1-3P | 18" X 6" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 106+80 | R | EXISTING CITY SIGN | | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 107+20 | L | R3-8b | 48" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 108+20 | L | D1-2 | 24" X 30" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 109+30 | L | W3-1 | 30" X 30" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 110+12 | L | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 111+52 | L | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 112+52 | L | R3-9b | 24" X 36" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 113+85 | L | M2-1 | 21" X 15" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | L | M1-5 | 30" X 24" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 211+00 | R | W3-1 | 30" X 30" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 211+96 | L | R2-1 | 30" X 36" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 213+16 | L | M1-4 | 24" X 24" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M3-4 | 24" X 12" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 214+51 | R | R1-1 | 30" X 30" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | R1-3P | 18" X 6" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 214+62 | L | M1-4 | 24" X 24" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-4 | 21" X 15" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M1-5 | 30" X 24" | | | Existing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-3 | 21" X 15" | | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

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

NOTE: See standard plan sheet TE590 for detailed specifications.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 10/01/19 | Added Tapered Tube. Removed Couplers. | D.D.G. | E.W.N. |
| 1 | 7/23/10 | Added Coupler and Coupler/Footing Quantity | D.D.G. | D.B. |

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

TE430

7/1/03

CADconform Certify This File

Sh. No.

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te430.dgn

CADconform Certify This File

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 43 | 90 |

# QUANTITIES SHEET

SIGNS, POSTS, & FOOTINGS TO BE INSTALLED ON PROJECT

| PLAN SHEET NUMBER | PLAN STATION NUMBER | CENTERLINE LOCATION / INSTALL POSITION | SIGN DESIGNATION | SIGN SIZE | SIGN LAYOUT SHEET NUMBER | TYPE OF SIGN FABRICATION | | | 4" X 6" POSTS | | | 3I2.25 ALUMINUM BEAM | U-POSTS | | GALVANIZED STEEL BEAM POSTS | | | | | | PERFORATED SQUARE STEEL TUBE (PSST) POSTS | | | | | | | | | | CONCRETE FOOTINGS | | | | | SIGN STRUCTURE TYPE | | | | | | VERTICAL SUPPORT MOUNT | MOUNT ABOVE GUIDE SIGN DESIGNATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | WOOD | | STEEL | | | | W6x9 | | W10x12 | | W10x22 | | 1 3/4" | | | 2" | | | 2 1/4" | | 2 1/2" | | WOOD POST | STEEL BEAM POST | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | A36 | | A572 (ALT) | | | | | | | | | | |
| | | | | | | FLAT SHEET | REINFORCED PANEL | OVERLAY | FLAT SHEET SIGN | REINFORCED PANEL SIGN | STRUCTURAL TUBING | | 2 LB PER FT | 3 LB PER FT | A36 | A572 (ALT) | A36 | A572 (ALT) | A36 | A572 (ALT) | POST | FOOTING | BRACKET | POST | FOOTING | BRACKET | POST | FOOTING | POST | FOOTING | 18" DIA. | 24" DIA. | 30" DIA. | 24" DIA. | 30" DIA. | OVERHEAD | CANTILEVER | BUTTERFLY | BRIDGE MOUNT ATTACHMENT | MAST ARM | SINGLE TAPERED TUBE | | |
| | 216+22 | R | M1-4 | 24" X 24" | | Existing | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M6-4 | 21" X 15" | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M1-5 | 30" X 24" | | Existing | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | M4-6 | 24" X 12" | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 216+30 | L | R1-1 | 30" X 30" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | R1-3P | 18" X 6" | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 218+00 | L | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 219+00 | L | W3-1 | 30" X 30" | | Existing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 210+70 | L | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 211+70 | L | KR3-8gL | 30" X 30" | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

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

NOTE: See standard plan sheet TE590 for detailed specifications.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 10/01/19 | Added Tapered Tube. Removed Couplers. | D.D.G. | E.W.N. |
| 1 | 7/23/10 | Added Coupler and Coupler/Footing Quantity | D.D.G. | D.B. |

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

TE430

7/1/03

CADconform Certify This File

Sh. No.

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te430-1.dgn

CADconform Certify This File

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 44 | 90 |

# SUMMARY OF QUANTITIES

## SIGNS

| TYPE | NUMBER | SQUARE FEET |
|---|---|---|
| FLAT SHEET | 24 | 120.9 |
| REINFORCED PANEL | | |
| OVERLAY | | |

## DELINEATORS

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

## OBJECT MARKERS

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

## POSTS AND ALUMINUM BEAMS

| | 4" x 6" POST | | | | "U" POST | | GALVANIZED STEEL BEAM POST | | | | | | PERFORATED SQUARE STEEL TUBE (PSST) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WOOD | | STEEL | | | | W6x9 | | W10x12 | | W10x22 | | | | | |
| | FLAT SHEET SIGN | REINFORCED PANEL SIGN | STRUCTURAL TUBING | 3I2.25 ALUMINUM BEAM | 2 LBS/FT | 3 LBS/FT | A36 STEEL | A572 STEEL (ALT) | A36 STEEL | A572 STEEL (ALT) | A36 STEEL | A572 STEEL (ALT) | 1-3/4" | 2" | 2-1/4" | 2-1/2" |
| NUMBER | 24 | | | | | | | | | | | | | | | |
| FEET | 288 | | | | | | | | | | | | | | | |

## POST FOOTINGS AND BRACKETS

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

## BASE PLATES AND STUB POSTS

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

## REMOVALS

| TYPE | NUMBER |
|---|---|
| SIGNS | 14 |
| POSTS | 23 |
| FOOTINGS | |
| SIGN STRUCTURES | |
| | |
| | |

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

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

## SIGN STRUCTURES

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

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 10/01/19 | Revised Tables | D.D.G. | E.W.N. |
| 1 | 7/23/10 | Revised Tables | D.D.G. | D.B. |

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
FOR
INSTALLATIONS AND REMOVALS

TE439 7/1/03

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

CADconform Certify This File

Sh. No.

CADconform Certify This File

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te439.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 45 | 90 |

# SUMMARY OF QUANTITIES

REMOVAL AND RESETTING OF SIGNS ON PROJECT

| EXISTING PLAN STATION NUMBER | NEW PLAN STATION NUMBER | SIGN TYPE | SIGN SIZE |
|---|---|---|---|
| US-56 | | | |
| 98+75 | 98+62 | W3-1 | 30" X 30" |
| 104+38 | 104+38 | M1-5 | 30" X 24" |
| | | M6-1L | 21" X 15" |
| | | M1-4 | 24" X 24" |
| | | M6-3 | 21" X 15" |
| 105+82 | 105+82 | M1-5 | 30" X 24" |
| | | M1-4 | 24" X 24" |
| | | M6-3 | 21" X 15" |
| 106+35 | 106+80 | CITY SIGN | |
| 110+40 | 108+20 | D1-2 | 24" X 30" |
| US-81 | | | |
| 211+96 | 211+96 | R2-1 | 30" X 36" |
| 213+16 | 213+16 | M1-4 | 24" X 24" |
| | | M3-4 | 24" X 12" |
| 214+62 | 214+62 | M1-4 | 24" X 24" |
| | | M6-4 | 21" X 15" |
| | | M1-5 | 30" X 24" |
| | | M6-3 | 21" X 15" |
| 216+22 | 216+22 | M1-5 | 30" X 24" |
| | | M4-6 | 24" X 12" |
| | | M1-4 | 24" X 24" |
| | | M6-4 | 21" X 15" |
| 218+62 | 219+00 | W3-1 | 30" X 30" |

| EXISTING PLAN STATION NUMBER | NEW PLAN STATION NUMBER | SIGN TYPE | SIGN SIZE |
|---|---|---|---|

| EXISTING PLAN STATION NUMBER | NEW PLAN STATION NUMBER | SIGN TYPE | SIGN SIZE |
|---|---|---|---|

| EXISTING PLAN STATION NUMBER | NEW PLAN STATION NUMBER | SIGN TYPE | SIGN SIZE |
|---|---|---|---|

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
FOR REMOVAL AND RESETTING
OF SIGNS

TE445 7/1/03

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FHWA APPROVAL | | | 7/22/2003 | APP'D | Steven A. Buckley | | |
| DESIGNED | D.D.G. | DETAILED | K.D.S. | QUANTITIES | | TRACED | |
| DESIGN CK. | S.A.B. | DETAIL CK. | D.D.G. | QUAN. CK. | | TRACE CK. | |

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Drawn By : mheigert
File : te445.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 46 | 90 |

# RECAPITULATION OF SIGNING & DELINEATION BID ITEMS

| BID ITEMS | APPROXIMATE QUANTITIES | | UNITS |
|---|---|---|---|
| SIGN (FLAT SHEET) (HIGH PERFORMANCE) | 120.9 | | SQUARE FOOT |
| SIGN (REINFORCED PANEL) (HIGH PERFORMANCE) | | | SQUARE FOOT |
| SIGN (OVERLAY) (HIGH PERFORMANCE) | | | SQUARE FOOT |
| SIGN POST (4" x 6" WOOD) (FLAT SHEET SIGN) | 288 | | LINEAR FOOT |
| SIGN POST (4" x 6" WOOD) (REINFORCED PANEL SIGN) | | | LINEAR FOOT |
| SIGN POST (2 LB/FT "U" STEEL) | | | LINEAR FOOT |
| SIGN POST (3 LB/FT "U" STEEL) | | | LINEAR FOOT |
| SIGN POST (1-3/4" PERFORATED SQUARE STEEL TUBE) | | | LINEAR FOOT |
| SIGN POST (2" PERFORATED SQUARE STEEL TUBE) | | | LINEAR FOOT |
| SIGN POST (2-1/4" PERFORATED SQUARE STEEL TUBE) | | | LINEAR FOOT |
| SIGN POST (2-1/2" PERFORATED SQUARE STEEL TUBE) | | | LINEAR FOOT |
| SIGN POST (4" X 6" STRUCTURAL STEEL) | | | LINEAR FOOT |
| SIGN POST (3 I 2.25 ALUMINUM) | | | LINEAR FOOT |
| | A36 | A572(ALT) | |
| SIGN POST (W6X9 STEEL BEAM) | | | LINEAR FOOT |
| SIGN POST (W10X12 STEEL BEAM) | | | LINEAR FOOT |
| SIGN POST (W10X22 STEEL BEAM ) | | | LINEAR FOOT |
| SIGN POST STUB WITH BREAKAWAY BASE PLATE (W6X9) | | | EACH |
| SIGN POST STUB WITH BREAKAWAY BASE PLATE (W10X12) | | | EACH |
| SIGN POST STUB WITH BREAKAWAY BASE PLATE (W10X22) | | | EACH |
| SIGN POST BREAKAWAY BASE PLATE (W6X9) | | | EACH |
| SIGN POST BREAKAWAY BASE PLATE (W10X12) | | | EACH |
| SIGN POST BREAKAWAY BASE PLATE (W10X22) | | | EACH |
| SIGN POST FOOTING (24" Dia. CONCRETE)(STEEL BEAM POST) | | | LINEAR FOOT |
| SIGN POST FOOTING (30" Dia. CONCRETE)(STEEL BEAM POST) | | | LINEAR FOOT |
| SIGN POST FOOTING (18" Dia. CONCRETE)(WOOD POST) | | | LINEAR FOOT |
| SIGN POST FOOTING (1-3/4" PERFORATED SQUARE STEEL TUBE) | | | EACH |
| SIGN POST FOOTING (2" PERFORATED SQUARE STEEL TUBE) | | | EACH |
| SIGN POST FOOTING (2-1/4" PERFORATED SQUARE STEEL TUBE) | | | EACH |
| SIGN POST FOOTING (2-1/2" PERFORATED SQUARE STEEL TUBE) | | | EACH |
| SIGNING OBJECT MARKER (TYPE 2) | | | EACH |
| SIGNING OBJECT MARKER (TYPE 3) | | | EACH |
| SIGNING DELINEATOR (TYPE A)(WHITE RIGID, "U" POST) | | | EACH |
| SIGNING DELINEATOR (TYPE A)(YELLOW RIGID, "U" POST) | | | EACH |
| SIGNING DELINEATOR (TYPE B)(WHITE RIGID, "U" POST) | | | EACH |
| SIGNING DELINEATOR (TYPE B)(YELLOW RIGID, "U" POST) | | | EACH |
| SIGNING DELINEATOR (TYPE A)(WHITE FLEXIBLE)(TYPE I ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE A)(YELLOW FLEXIBLE)(TYPE I ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE B)(WHITE FLEXIBLE)(TYPE I ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE B)(YELLOW FLEXIBLE)(TYPE I ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE A)(WHITE FLEXIBLE)(TYPE 3 ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE A)(YELLOW FLEXIBLE)(TYPE 3 ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE B)(WHITE FLEXIBLE)(TYPE 3 ANCHOR) | | | EACH |
| SIGNING DELINEATOR (TYPE B)(YELLOW FLEXIBLE)(TYPE 3 ANCHOR) | | | EACH |

| BID ITEMS | APPROXIMATE QUANTITIES | UNITS |
|---|---|---|
| SIGN (REMOVE AND RESET) | LUMP SUM | LUMP SUM |

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

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 2 | 10/01/19 | Removed PSST coupler and changed the tables | D.D.G. | E.W.N. |
| 1 | 7/23/10 | Changed Bid Items as per Spec Book (2007) | D.D.G. | D.B. |

KANSAS DEPARTMENT OF TRANSPORTATION
RECAPITULATION OF
SIGNING & DELINEATION
BID ITEMS

TE450 7/1/03

FHWA APPROVAL 10/01/2019 APP'D Steven A. Buckley

| DESIGNED | D.D.G. | DETAILED | K.D.S. | QUANTITIES | TRACED |
|---|---|---|---|---|---|
| DESIGN CK. | S.A.B. | DETAIL CK. | D.D.G. | QUAN. CK. | TRACE CK. |

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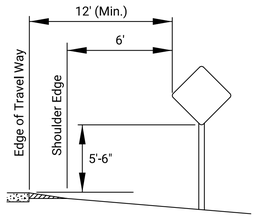
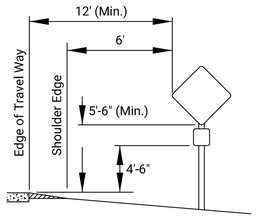
File : te450.dgn

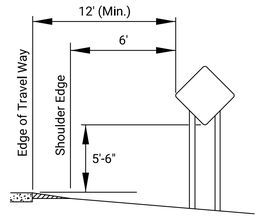
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 47 | 90 |



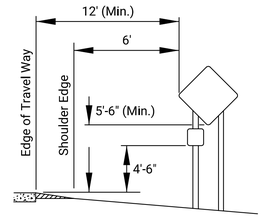

ONE POST



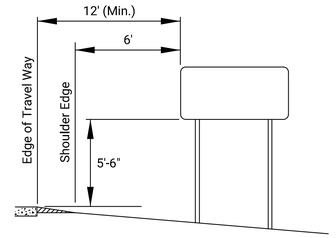

ONE POST WITH SUPPLEMENTAL SIGN



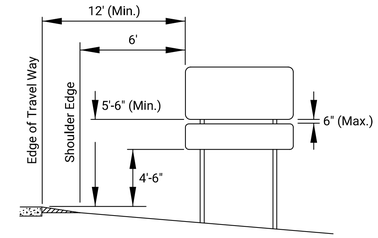

TWO POSTS




TWO POSTS WITH SUPPLEMENTAL SIGN

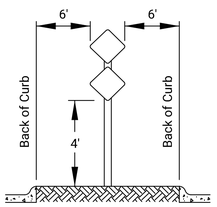



MULTIPLE POSTS

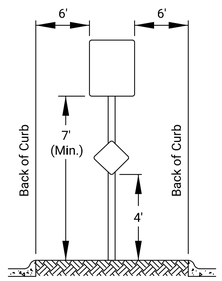



MULTIPLE POSTS WITH SUPPLEMENTAL SIGN

## CONVENTIONAL HIGHWAY AND SIDE ROADS

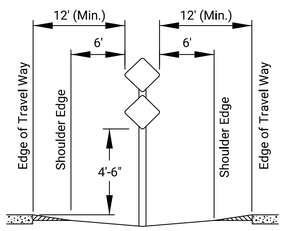



ONE OR TWO OM1-3

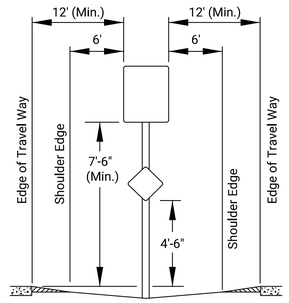



PRIMARY SIGN WITH OM1-3

RAISED



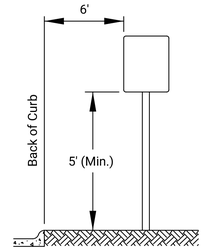

ONE OR TWO OM1-3



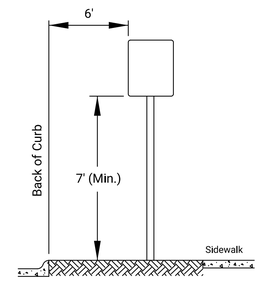

PRIMARY SIGN WITH OM1-3

DEPRESSED

## MEDIANS AND ISLANDS

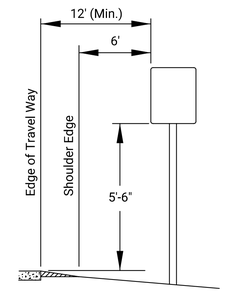



NO PARKING OR SIDEWALK




PARKING OR SIDEWALK

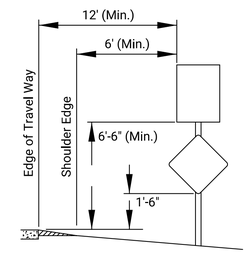
CURB




TYPICAL

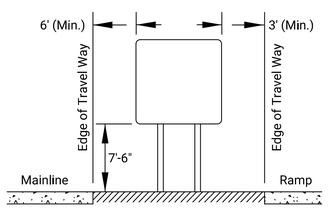
NO CURB

## URBAN ROADWAYS

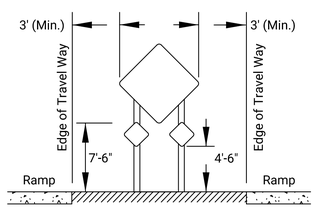



TYPICAL

## ADOPT A HIGHWAY

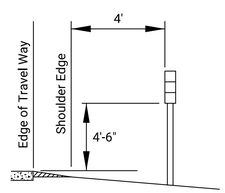



MAINLINE/RAMP




RAMP/RAMP

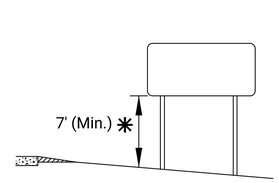
## HIGHWAY GORES



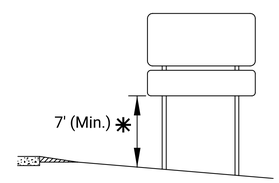

TYPICAL

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

## REFERENCE MARKERS




PRIMARY SIGN




PRIMARY SIGN WITH SUPPLEMENTAL SIGN

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

## GROUND CLEARANCE FOR STEEL BEAM POSTS

NOTES

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

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

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

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

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

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

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

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

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

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

KANSAS DEPARTMENT OF TRANSPORTATION

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

TE407 10/01/19

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

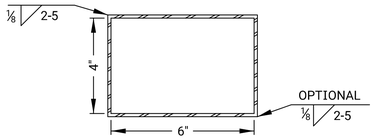
Sh. No. 47

Plotted : 10-DEC-2021 12:41

Drawn By : mheigert

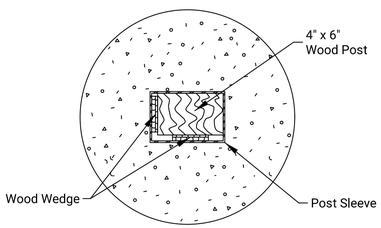
File : te407.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 48 | 90 |

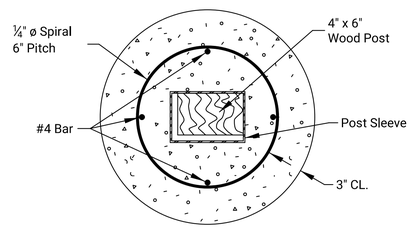



NOTE: Dimensions are to inside of post sleeve.

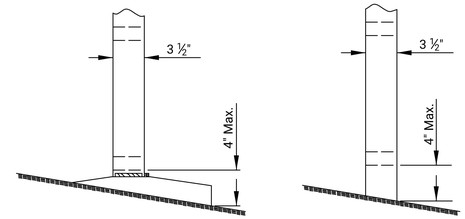
POST SLEEVE




SECTION A-A




SECTION B-B




FRONT ELEVATION
CONCRETE FOOTING

FRONT ELEVATION
SOIL

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

BREAKAWAY CLEARANCE

GENERAL NOTES

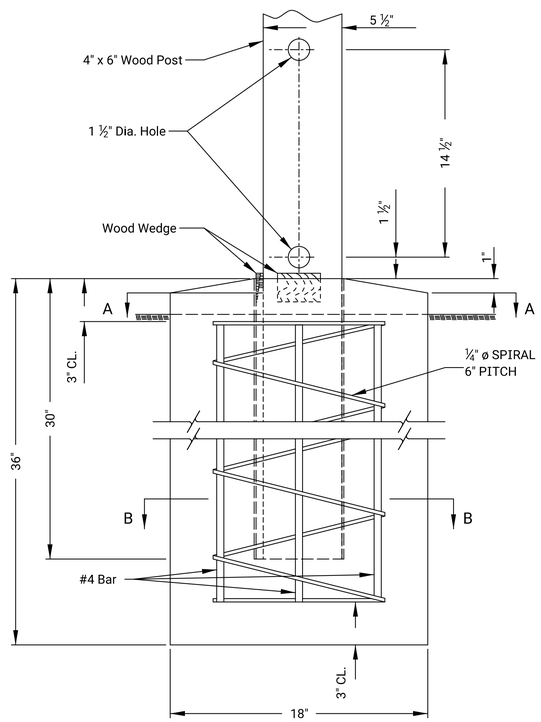
The post sleeve shall be formed from 10 gauge sheet steel to meet the requirements of ASTM A653 and zinc coated to meet the requirements of coating designation A123. If galvanized sheet steel is used, no other galvanization is required. It is permissible to close the bottom of the sleeve with a metal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

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

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

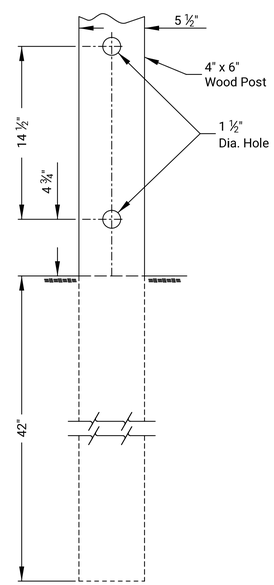
Prior to sealing the opening between the wood post and the top of the concrete footing, secure the post by placing 3" wide by 2" long wood wedges into the opening on two adjacent sides of the post. The wedges are be flush with up to a maximum of ⅜" sticking up above the top of the footing.

Commercial grade concrete may be substituted for sign support footings.



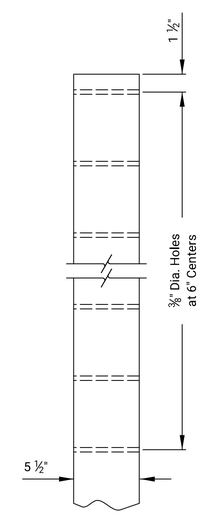

SIDE ELEVATION

WOOD POST IN CONCRETE FOOTING




SIDE ELEVATION

WOOD POST IN SOIL




SIGN POST

SIGN MOUNTING HOLES

All dimensions in inches unless otherwise noted.

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

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR WOOD POSTS

TE460 7/1/03

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

CADconform Certify This File

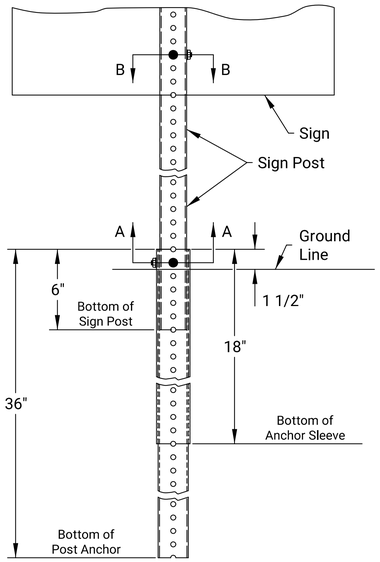
Sh. No. 48

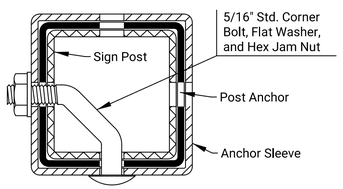
Plotted : 10-DEC-2021 12:41

Drawn By : mheigert
File : te460.dgn

CADconform Certify This File

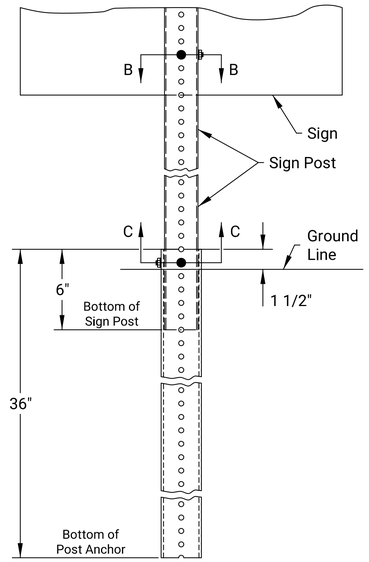
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 49 | 90 |

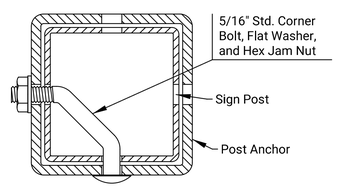



SECTION A-A

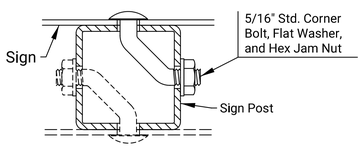
1 ¾", 2", OR 2 ¼" PSST SIGN POST




SECTION C-C

2 ½" PSST SIGN POST




SECTION B-B

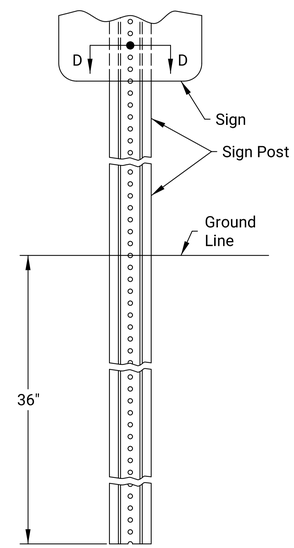
| MATERIALS TABLE FOR SIGN POST AND FOOTING | | |
|---|---|---|
| SIGN POST 12 GA. OR 14 GA. | FOOTING | |
| | POST ANCHOR | ANCHOR SLEEVE |
| 1 ¾" X 1 ¾" | 2" X 2" X 12 GA. | 2 ¼" X 2 ¼" X 12 GA. |
| 2" X 2" | 2 ¼" X 2 ¼" X 12 GA. | 2 ½" X 2 ½" X 12 GA. |
| 2 ¼" X 2 ¼" | 2 ½" X 2 ½" X 12 GA. | 3" X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

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

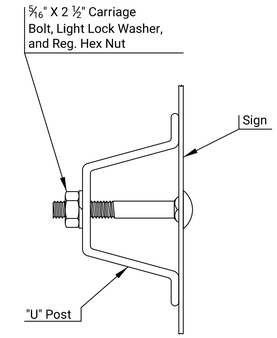
## INSTALLATION PROCEDURES

1. Plumb and drive post anchor into the ground 18", if anchor sleeve is required, or to the specified height above the ground line.
2. Install anchor sleeve (if required) on the post anchor and align the first holes above the ground line. Plumb and drive post anchor with anchor sleeve into the ground to the specified height above the ground line.
3. Install sign post into the post anchor.

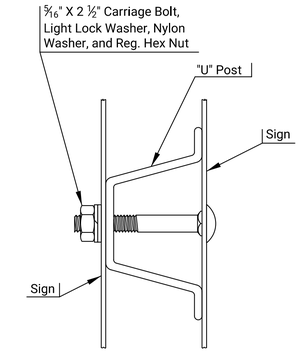
PERFORATED SQUARE STEEL TUBE POST (PSST)



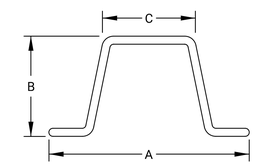

TYPICAL




SECTION D-D
(TYPICAL)




SECTION D-D
(BACK TO BACK)




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

(Dimensions are nominal)

"U" POST

STEEL "U" POST

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

KANSAS DEPARTMENT OF TRANSPORTATION

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

TE466 10/01/19

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

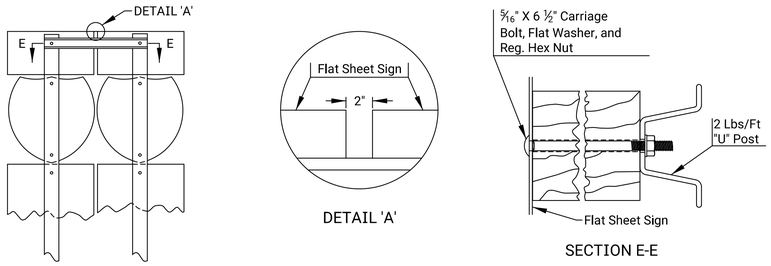
Sh. No.

Plotted : 10-DEC-2021 12:41

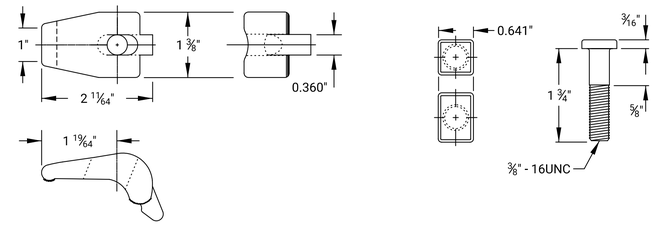
Drawn By : mheigert

File : te466.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 50 | 90 |




ROUTE MARKER ASSEMBLIES ATTACHMENT




ALUMINUM POST CLIP AND POST CLIP BOLT

NOTES:

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

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

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

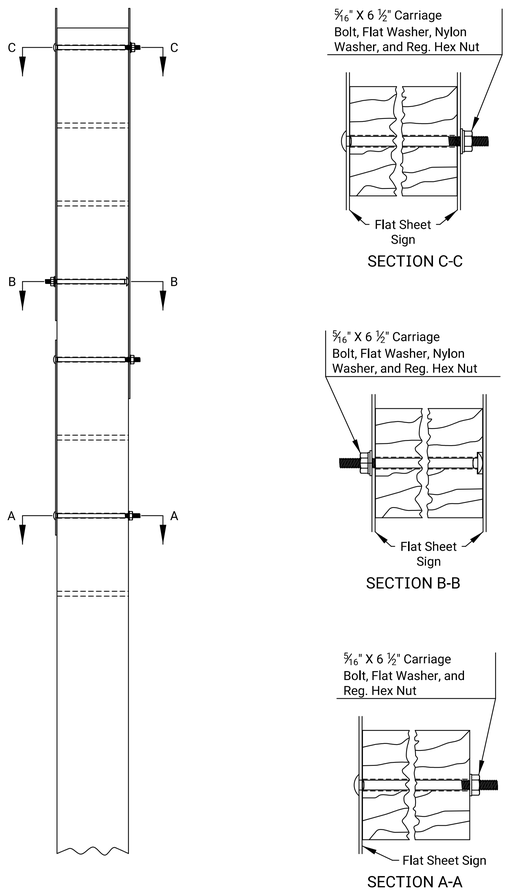
Any additional mounting holes, either through the sign or post, shall be drilled by the contractor. All holes drilled in the post shall be treated with a perservative. All holes drilled in the sign shall be free of any defects and the sheeting around the hole shall not be damaged.

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

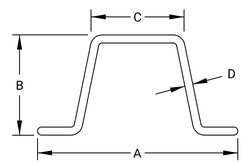
The 3 lb/ft steel "U" post used for reinforced panel sign installations is to be included in the bid item 'SIGN POST (4" x 6" WOOD) (REINFORCED PANEL SIGN)'.

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

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



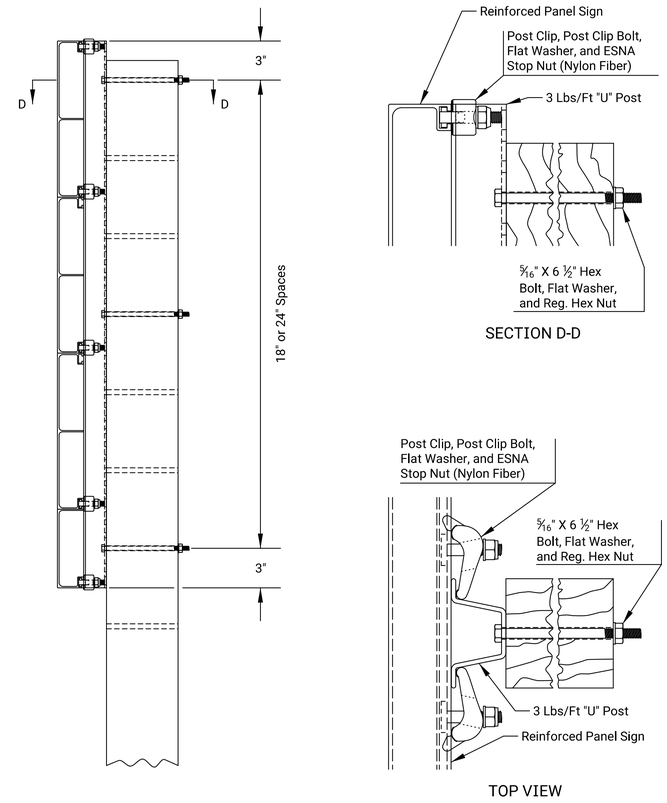

TYPICAL MOUNTING OF FLAT SHEET SIGNS




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

(DIMENSIONS ARE NOMINAL)

"U" POST




TYPICAL MOUNTING OF REINFORCED PANEL SIGNS

All dimensions are in inches

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

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR MOUNTING SIGNS ON WOOD POSTS

FLAT SHEET AND REINFORCED PANEL

TE481 7/1/03

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

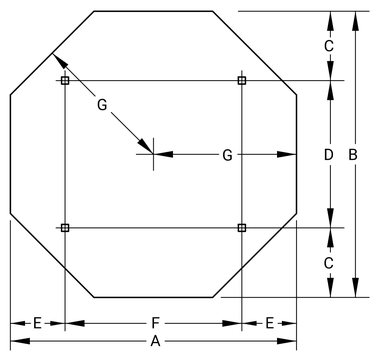
Sh. No. 50

Plotted :10-DEC-2021 12:41

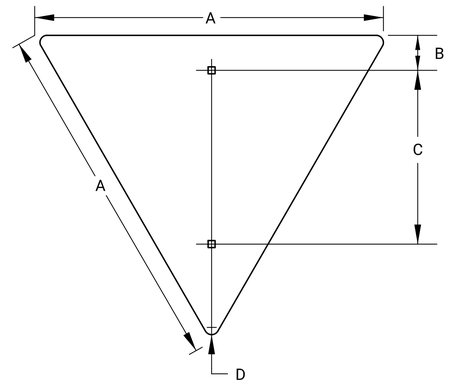
Drawn By : mheigert

File : te481.dgn

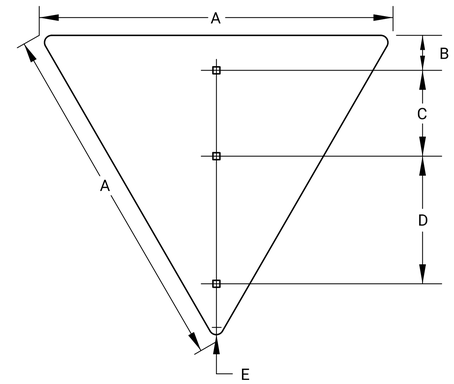
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 51 | 90 |



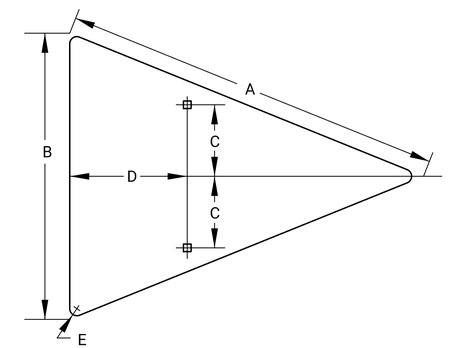

| SIGN SIZE | A | B | C | D | E | F | G | T | AREA |
|---|---|---|---|---|---|---|---|---|---|
| 48 X 48 | 48 | 48 | 12 | 24 | 9 | 30 | 24 | 0.100 | 13.25 |



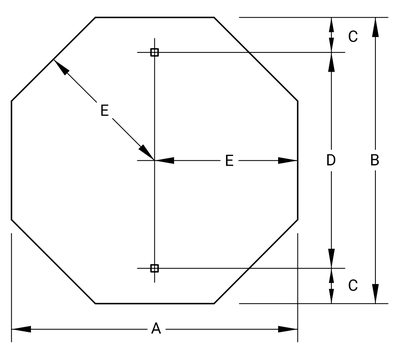

| SIGN SIZE | A | B | C | D | T | AREA |
|---|---|---|---|---|---|---|
| 36 X 36 | 36 | 3 | 18 | 2 | 0.080 | 3.90 |



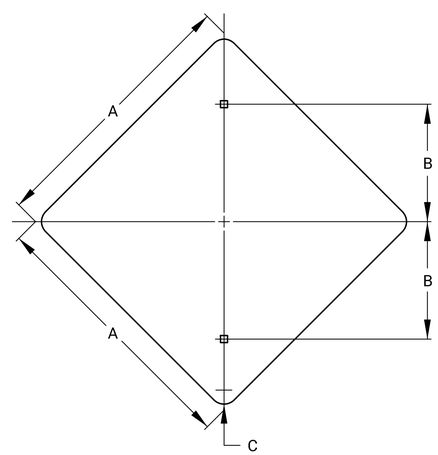

| SIGN SIZE | A | B | C | D | E | T | AREA |
|---|---|---|---|---|---|---|---|
| 48 X 48 | 48 | 3 | 12 | 18 | 3 | 0.080 | 6.93 |
| 60 X 60 | 60 | 3 | 18 | 18 | 4 | 0.100 | 10.83 |



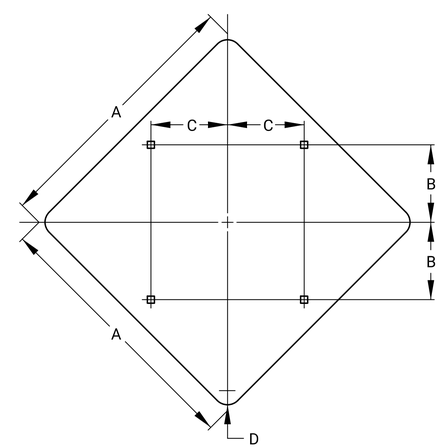

| SIGN SIZE | A | B | C | D | E | T | AREA |
|---|---|---|---|---|---|---|---|
| 48 X 36 | 48 | 36 | 9 | 14 ¾ | 2 ¼ | 0.125 | 5.56 |




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




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




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

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

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

(1) Center hole is required.

All dimensions are in inches.

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

**KANSAS DEPARTMENT OF TRANSPORTATION**

SIGN BLANK DETAILS FOR
FLAT SHEET SIGNS

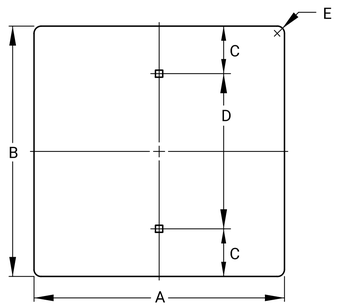
TE503 7/1/03

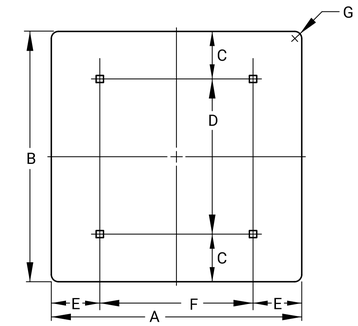
| | | | | | |
|---|---|---|---|---|---|
| FHWA APPROVAL | | 10/01/2019 | APP'D Steven A. Buckley | | |
| DESIGNED | D.D.G. | DETAILED | A.A.D. | QUANTITIES | TRACED |
| DESIGN CK. | S.A.B. | DETAIL CK. | D.D.G. | QUAN. CK. | TRACE CK. |

Sh. No. 51

Plotted : 10-DEC-2021 12:41
Drawn By : mheigert
File : te503.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 52 | 90 |




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

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

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

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

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

1. Holes shall be 5/16" diameter.
2. Dimension "D" requires a center hole.
3. Additional hole 12" below top hole.

All dimensions are in inches.

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

KANSAS DEPARTMENT OF TRANSPORTATION

SIGN BLANK DETAILS FOR FLAT SHEET SIGNS

TE506 7/1/03

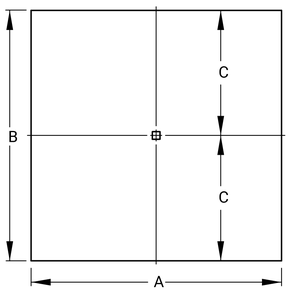
FHWA APPROVAL 10/01/2019 APP'D. Steven A. Buckley

DESIGNED D.D.G. DETAILED A.A.D. QUANTITIES TRACED
DESIGN CK. S.A.B. DETAIL CK. D.D.G. QUAN. CK. TRACE CK.

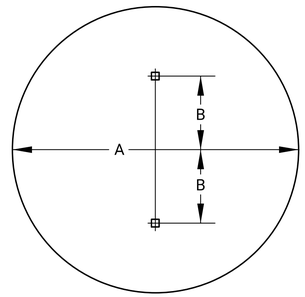
Sh. No. 52

Plotted : 10-DEC-2021 12:42
Drawn By : mheigert
File : te506.dgn

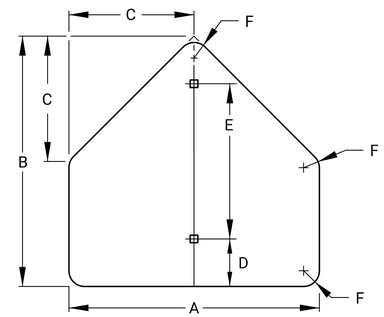
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 53 | 90 |



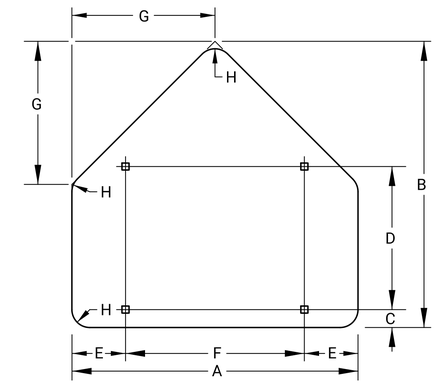

| SIGN SIZE | A | B | C | T | AREA |
|---|---|---|---|---|---|
| 6 X 6 | 6 | 6 | 3 | 0.063 | 0.25 |



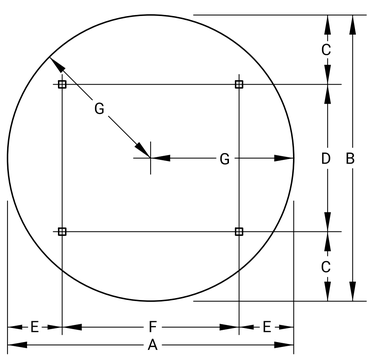

| SIGN SIZE | A | B | T | AREA |
|---|---|---|---|---|
| 36 DIA | 36 | 12 | 0.080 | 7.07 |



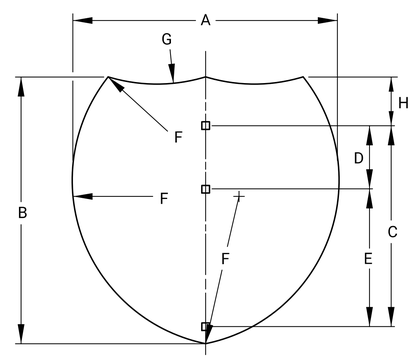

| SIGN SIZE | A | B | C | D | E | F | T | AREA |
|---|---|---|---|---|---|---|---|---|
| 30 X 30 | 30 | 30 | 15 | 3 | 24 | 1 ⅞ | 0.080 | 4.69 |
| 36 X 36 | 36 | 36 | 18 | 6 | 24 | 2 ¼ | 0.080 | 6.75 |




| SIGN SIZE | A | B | C | D | E | F | G | H | T | AREA |
|---|---|---|---|---|---|---|---|---|---|---|
| 48 X 48 | 48 | 48 | 3 | 24 | 9 | 30 | 24 | 3 | 0.100 | 12.00 |




| SIGN SIZE | A | B | C | D | E | F | G | T | AREA |
|---|---|---|---|---|---|---|---|---|---|
| 48 X 48 | 48 | 48 | 12 | 24 | 9 | 30 | 24 | 0.100 | 12.57 |




INDEPENDENT USE

| DIMENSIONS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | A | B | C | D | E | F | G | H | T | AREA |
| 24 X 24 | 24 | 24 | 18 | - | - | 15 | 15 | 3 | 0.080 | 3.20 |
| 36 X 36 | 36 | 36 | 30 | 12 | 18 | 22 ½ | 22 ½ | 3 | 0.080 | 7.20 |
| 30 X 24 | 30 | 24 | 18 | - | - | 17 | 24 | 3 | 0.080 | 3.99 |
| 45 X 36 | 45 | 36 | 30 | 12 | 18 | 25 ½ | 36 | 3 | 0.100 | 8.99 |

NOTE:
All holes are ⅜" square, unless otherwise noted.
Dimension "T" is the thickness of the aluminum blank.

All dimensions are in inches.

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

KANSAS DEPARTMENT OF TRANSPORTATION

SIGN BLANK DETAILS FOR
FLAT SHEET SIGNS

TE509 7/1/03

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

Sh. No. 53

Plotted : 10-DEC-2021 12:42
Drawn By : mheigert
File : te509.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 54 | 90 |

## DETAILED SPECIFICATIONS FOR FLAT SHEET SIGNS AND OVERLAY PANELS

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

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

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

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

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

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

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

## DETAILED SPECIFICATIONS FOR REINFORCED PANEL SIGNS

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

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

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

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

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

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

Spacing table dimensions are in inches.

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

**KANSAS DEPARTMENT OF TRANSPORTATION**

DETAILS SPECIFICATIONS
FOR REINFORCED SIGN PANELS
AND FLAT SHEET SIGNS

TE590 7/01/03

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

CADconform Certify This File

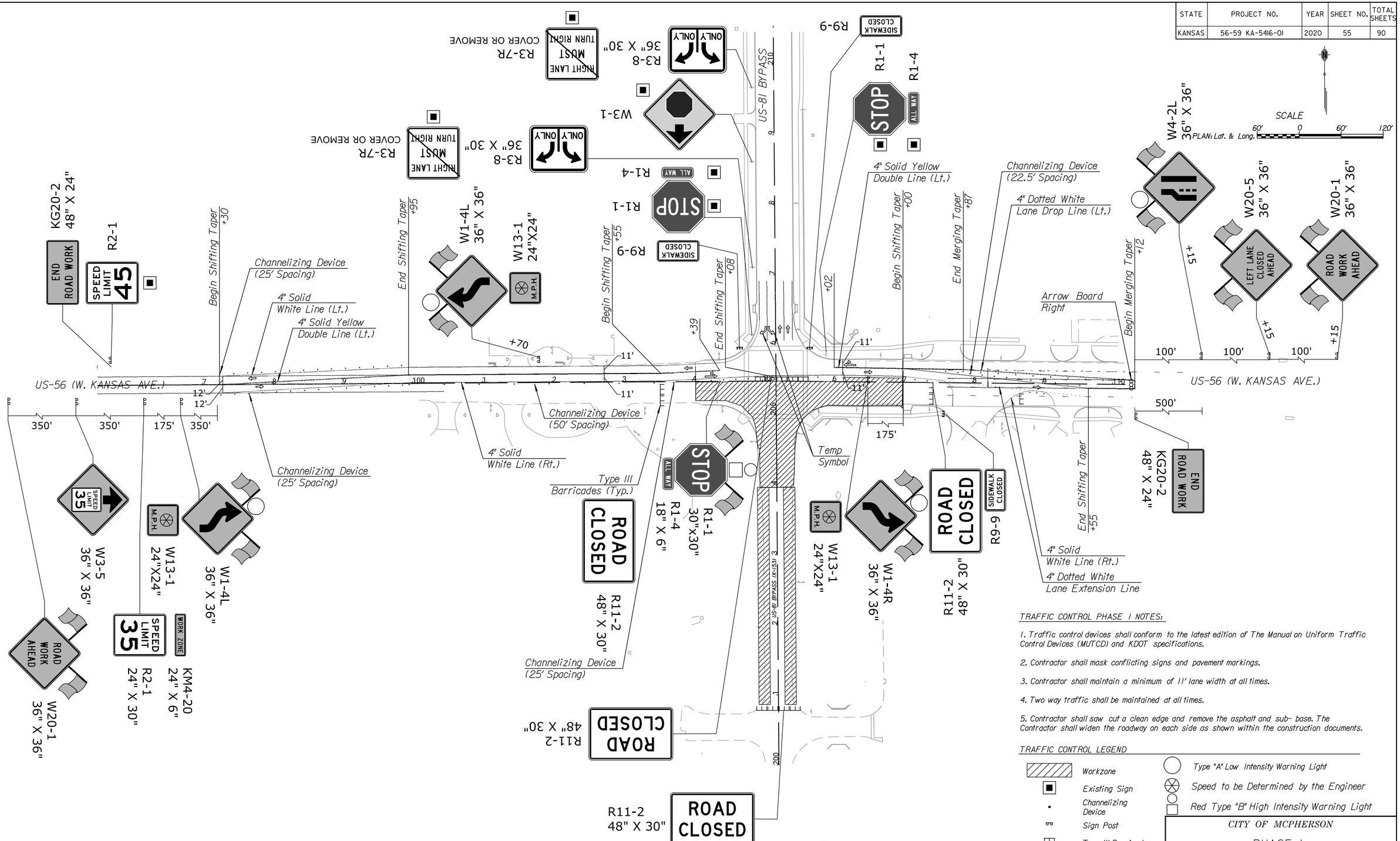
Sh. No. 54

CADconform Certify This File

Plotted : 10-DEC-2021 12:42

Drawn By : mheigert
File : te590.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 55 | 90 |




## TRAFFIC CONTROL PHASE I NOTES:

1. Traffic control devices shall conform to the latest edition of The Manual on Uniform Traffic Control Devices (MUTCD) and KDOT specifications.
2. Contractor shall mask conflicting signs and pavement markings.
3. Contractor shall maintain a minimum of 11' lane width at all times.
4. Two way traffic shall be maintained at all times.
5. Contractor shall saw cut a clean edge and remove the asphalt and sub- base. The Contractor shall widen the roadway on each side as shown within the construction documents.

## TRAFFIC CONTROL LEGEND

- Workzone
- Existing Sign
- Channelizing Device
- Sign Post
- Type III Barricade
- Arrow Board
- Pedestrian Barricade
- Type "A" Low Intensity Warning Light
- Speed to be Determined by the Engineer
- Red Type "B" High Intensity Warning Light

Phase I construction items Shall include:

1. Asphalt widening along US-81.
2. Reconstruction of the south half of the intersection.

CITY OF MCPHERSON

PHASE I

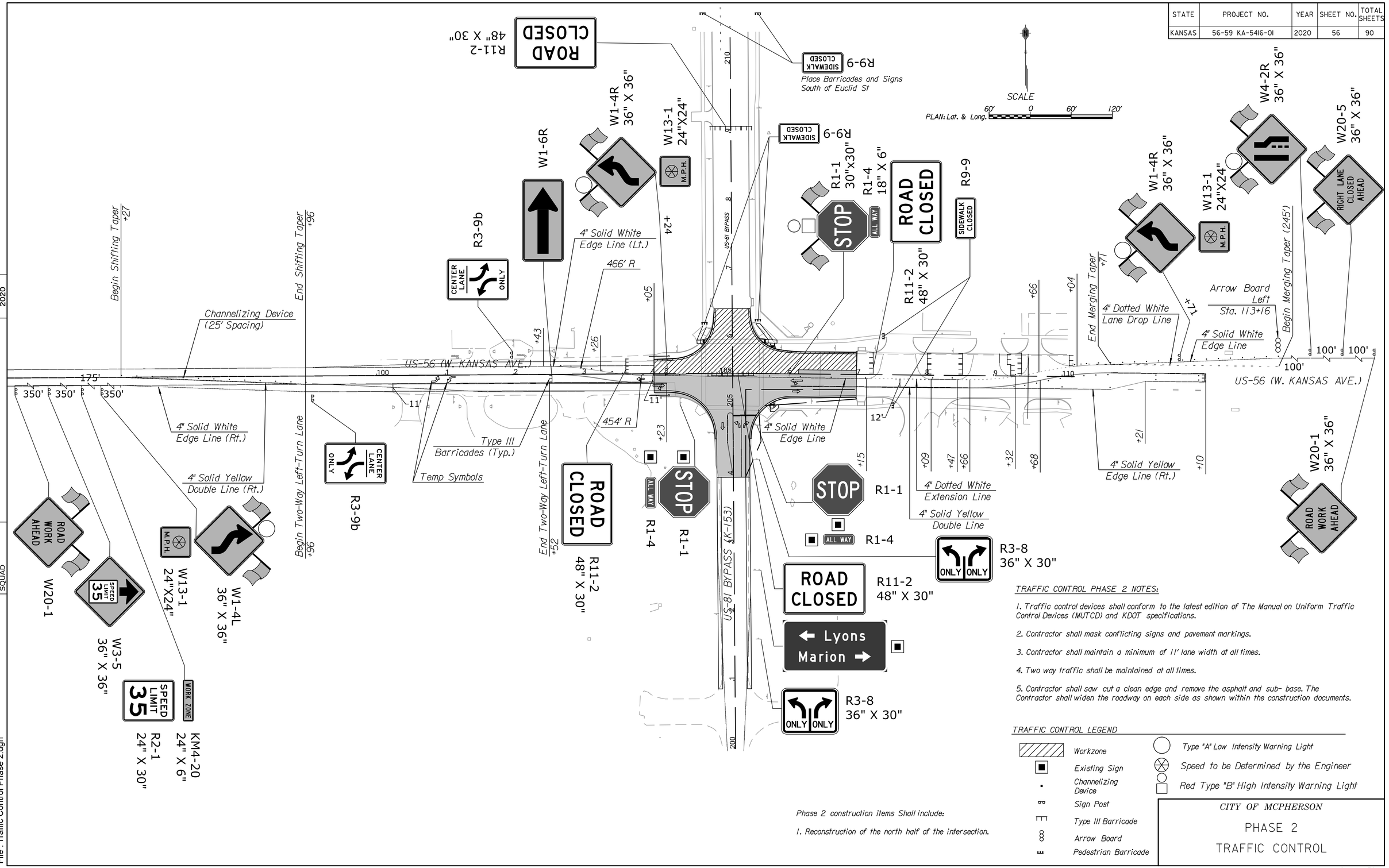
TRAFFIC CONTROL

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Drawn By : mheigert
File : Traffic Control Phase 1.dgn
Plotted : 10-DEC-2021 12:42

Sh. No. 55

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 56 | 90 |




TRAFFIC CONTROL PHASE 2 NOTES:

1. Traffic control devices shall conform to the latest edition of The Manual on Uniform Traffic Control Devices (MUTCD) and KDOT specifications.
2. Contractor shall mask conflicting signs and pavement markings.
3. Contractor shall maintain a minimum of 11' lane width at all times.
4. Two way traffic shall be maintained at all times.
5. Contractor shall saw cut a clean edge and remove the asphalt and sub- base. The Contractor shall widen the roadway on each side as shown within the construction documents.

TRAFFIC CONTROL LEGEND

- Workzone
- Existing Sign
- Channelizing Device
- Sign Post
- Type III Barricade
- Arrow Board
- Pedestrian Barricade
- Type "A" Low Intensity Warning Light
- Speed to be Determined by the Engineer
- Red Type "B" High Intensity Warning Light

Phase 2 construction items Shall include:

1. Reconstruction of the north half of the intersection.

CITY OF MCPHERSON

PHASE 2

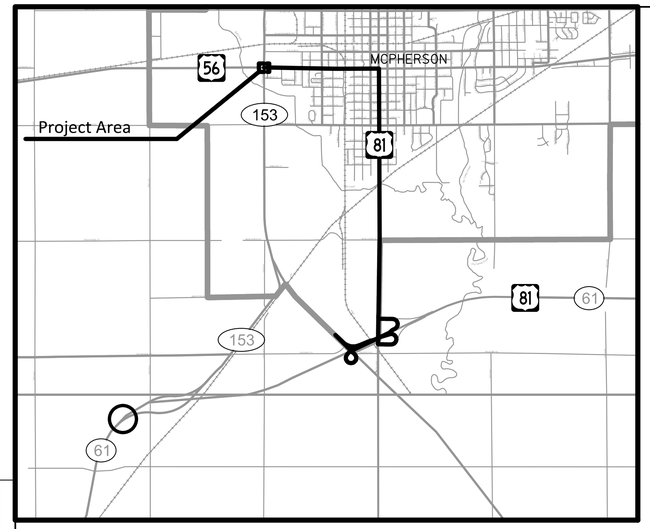
TRAFFIC CONTROL

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Drawn By : mheigert
File : Traffic Control Phase 2.dgn
Plotted : 10-DEC-2021 12:42

Sh. No. 56

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 57 | 90 |



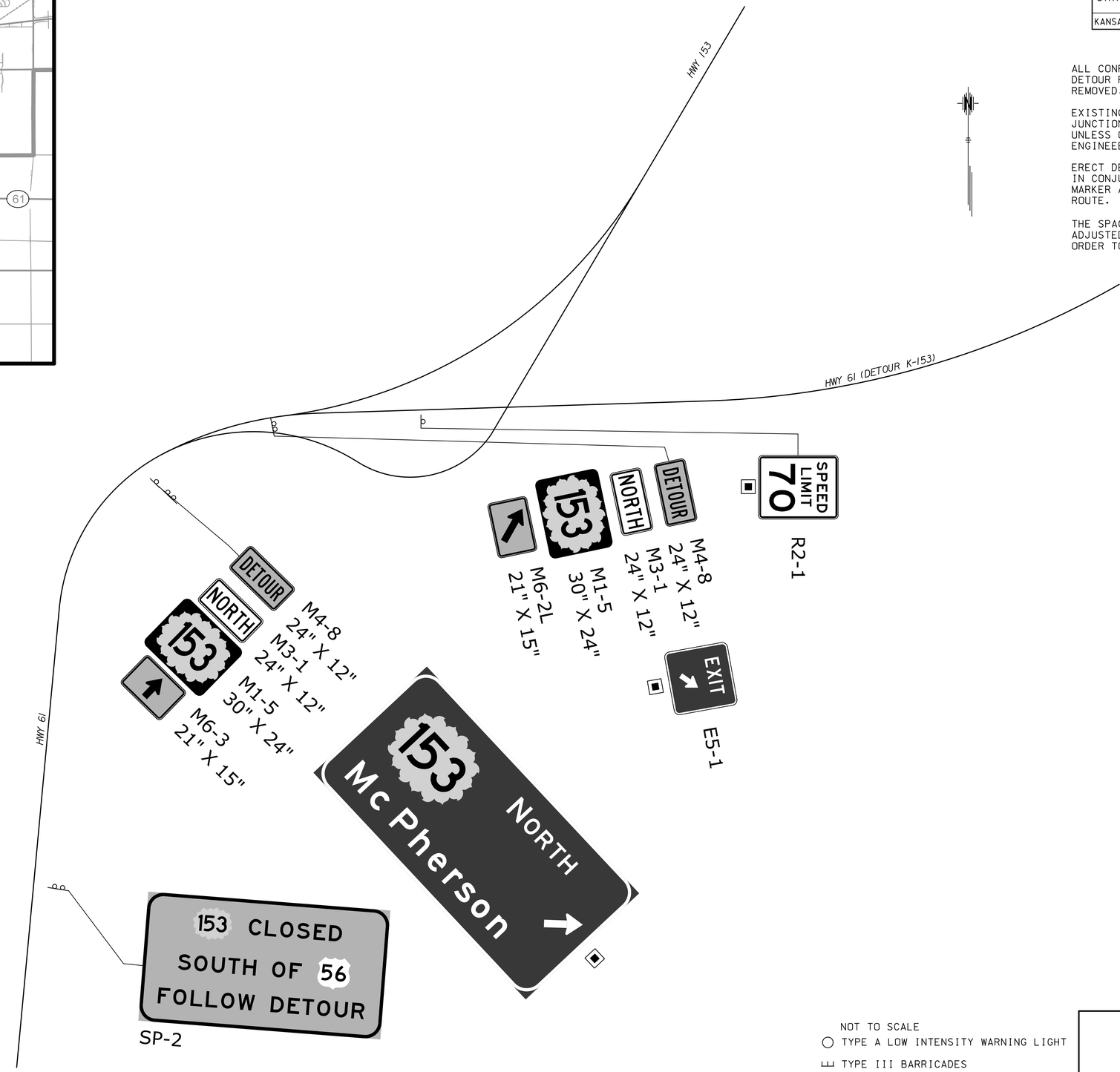

DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.



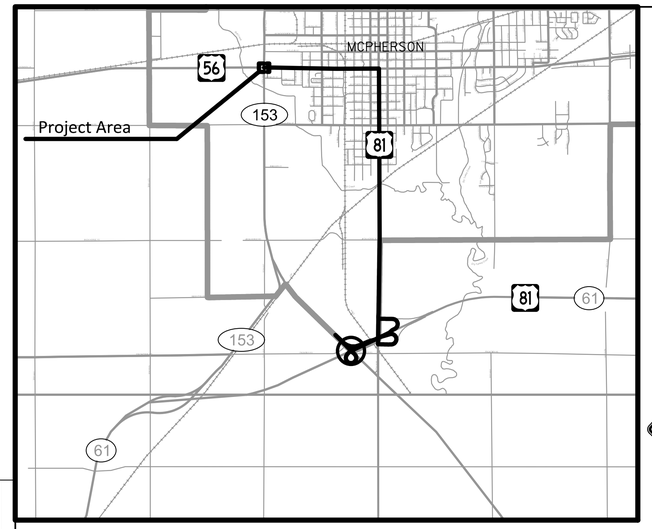

NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
K-61 & K-153
(PHASE I)

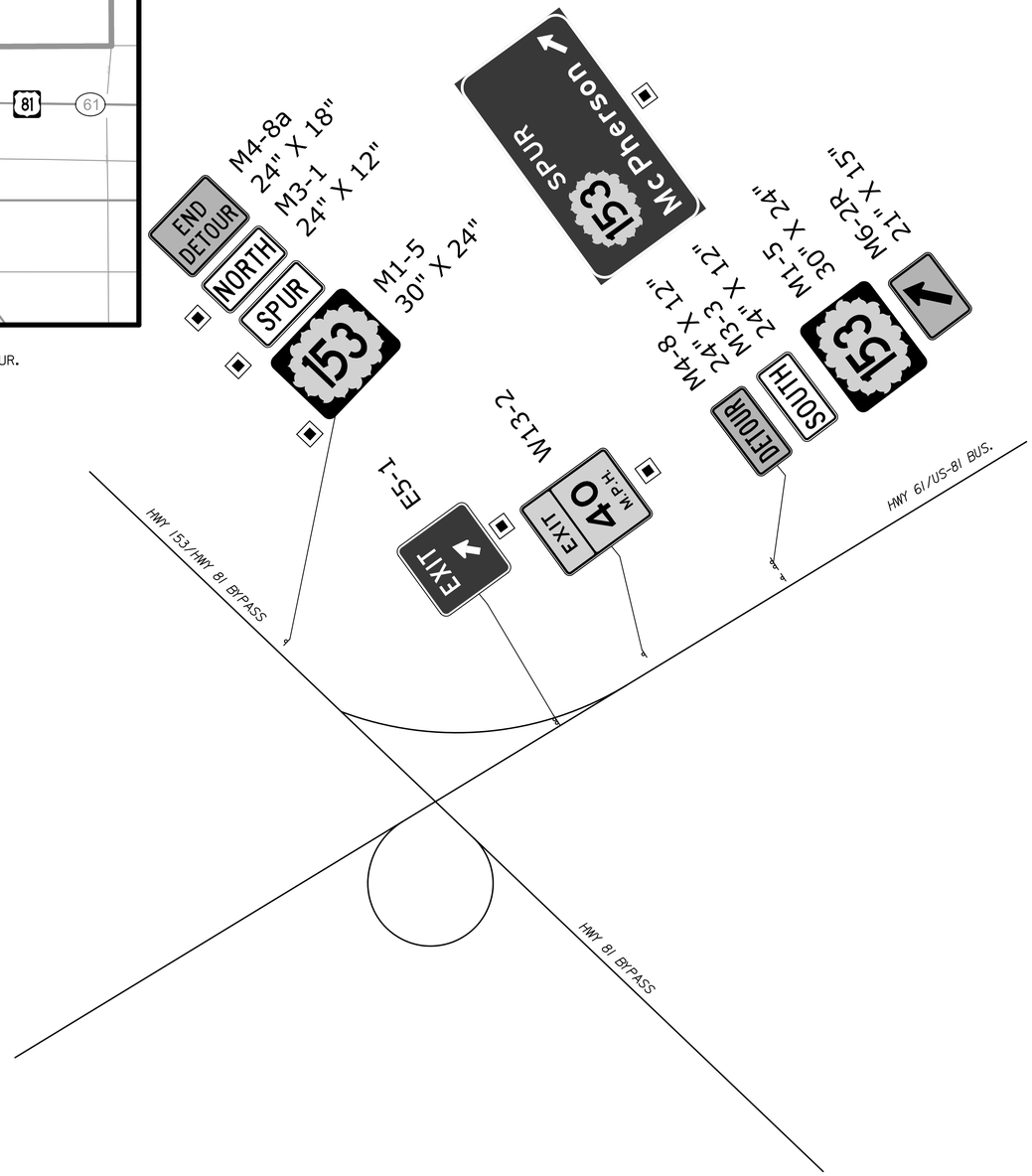
Sh. No. 57

Drawn By : mheigert
File : 01 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 58 | 90 |




DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.




ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

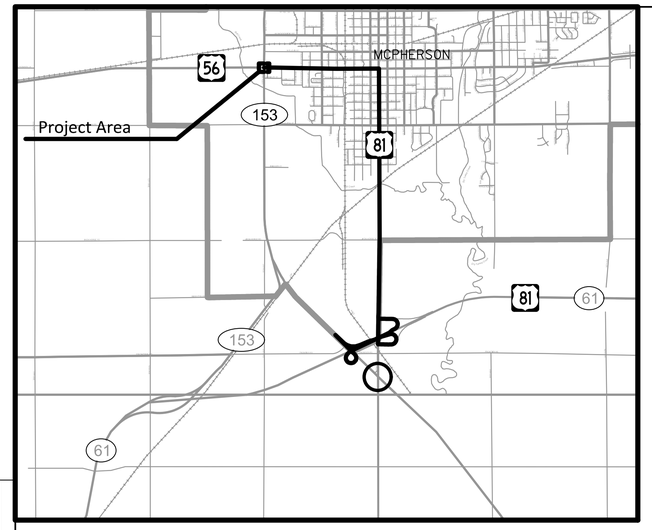
NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
HWY 61/US-81 BUS. & K-153
(PHASE I)

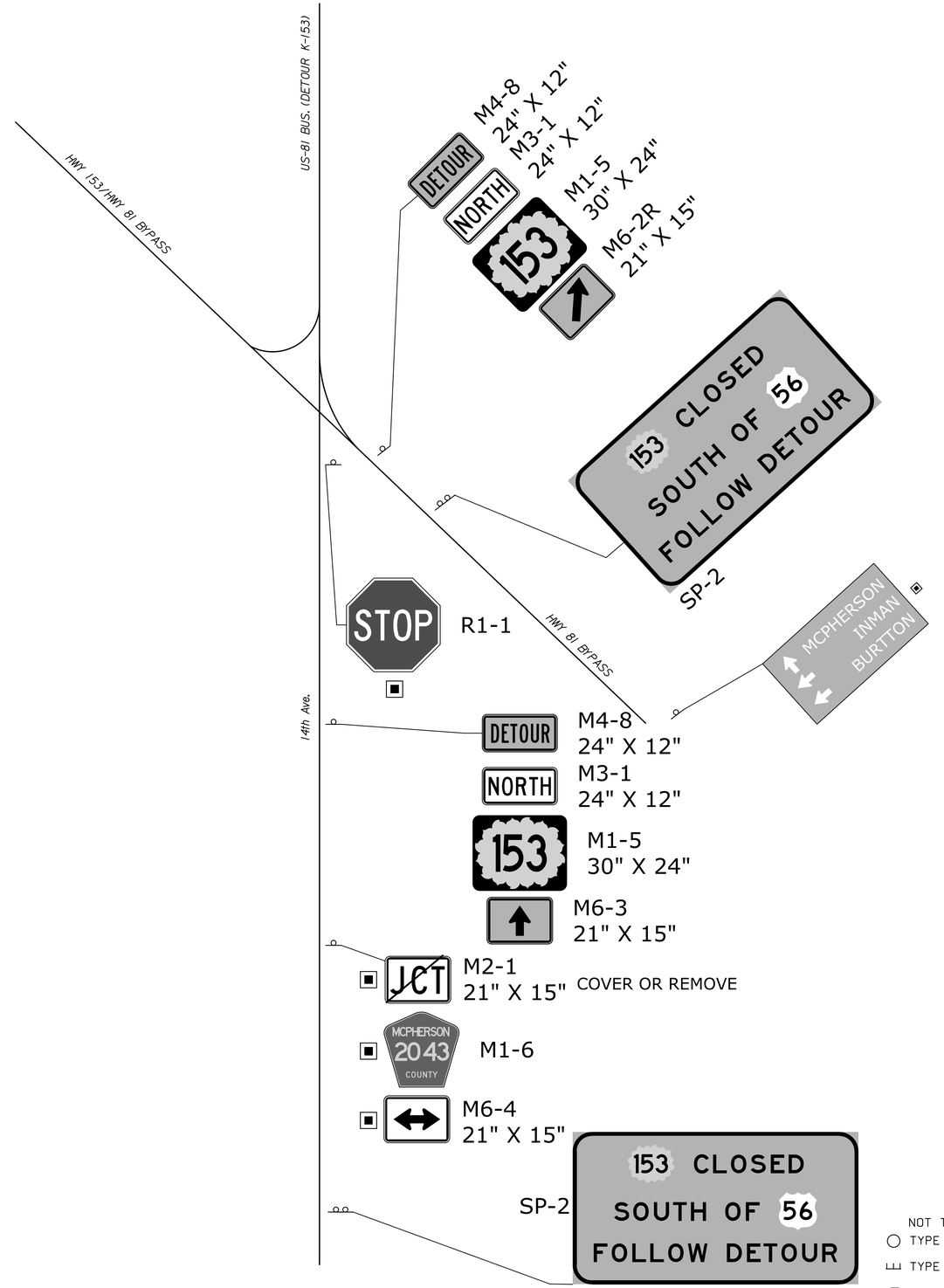
Sh. No. 58

Drawn By : mheigert
File : 02 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 59 | 90 |




DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.




ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

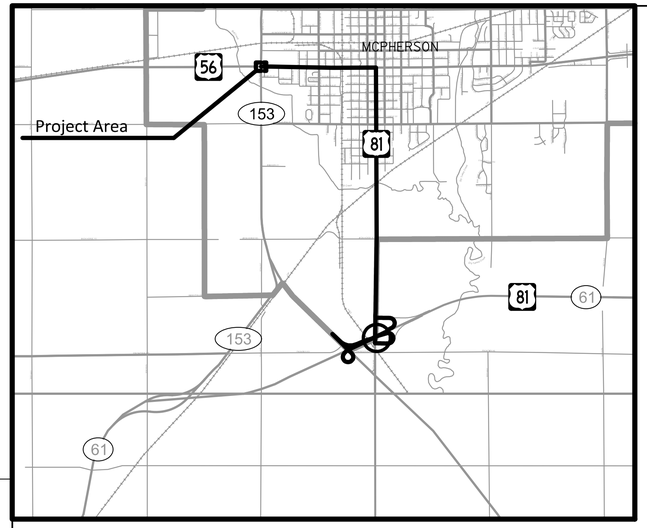
THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

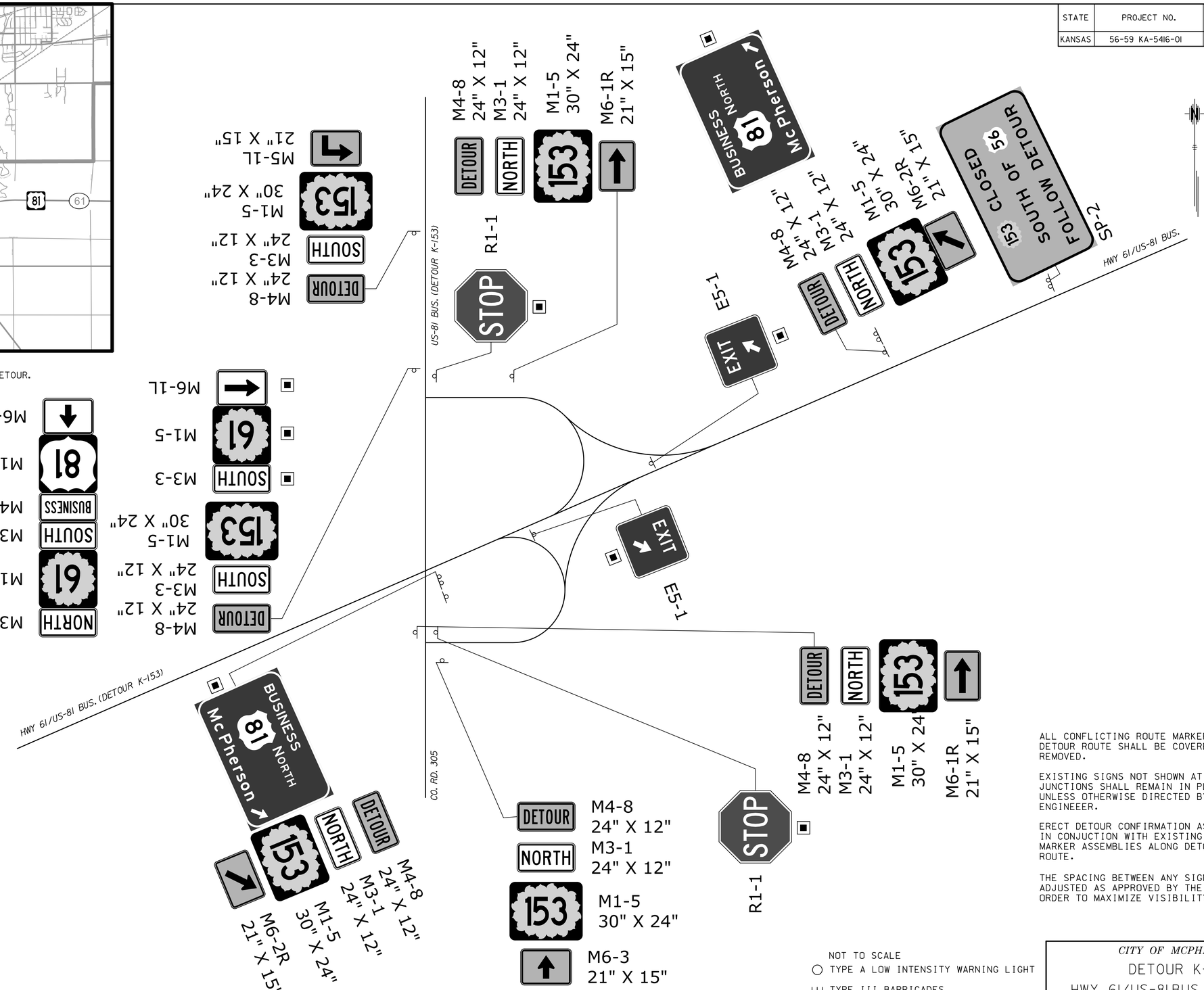
*CITY OF MCPHERSON*
DETOUR K-153
HWY 61/US-81 BUS. & HWY 153
(PHASE I)

Plotted : 10-DEC-2021 12:42
Drawn By : mheigert
File : 03 Detour Phase 1.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 60 | 90 |




DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.




ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

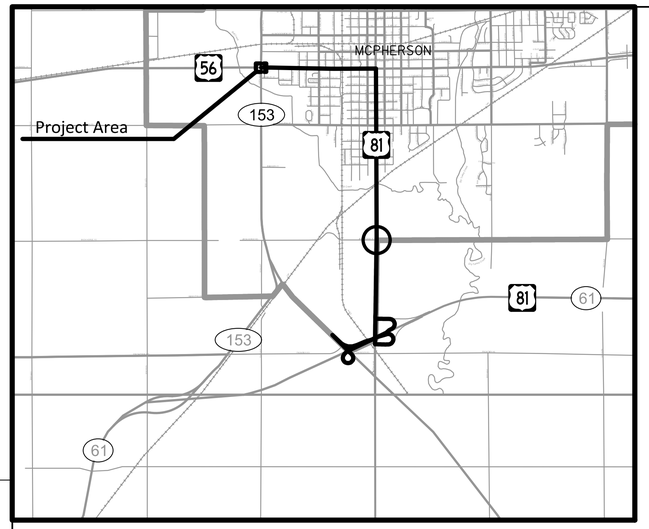
NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊥ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
HWY 61/US-81 BUS. & HWY 153
(PHASE I)

Sh. No. 60

Drawn By : mheigert
File : 04 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 61 | 90 |



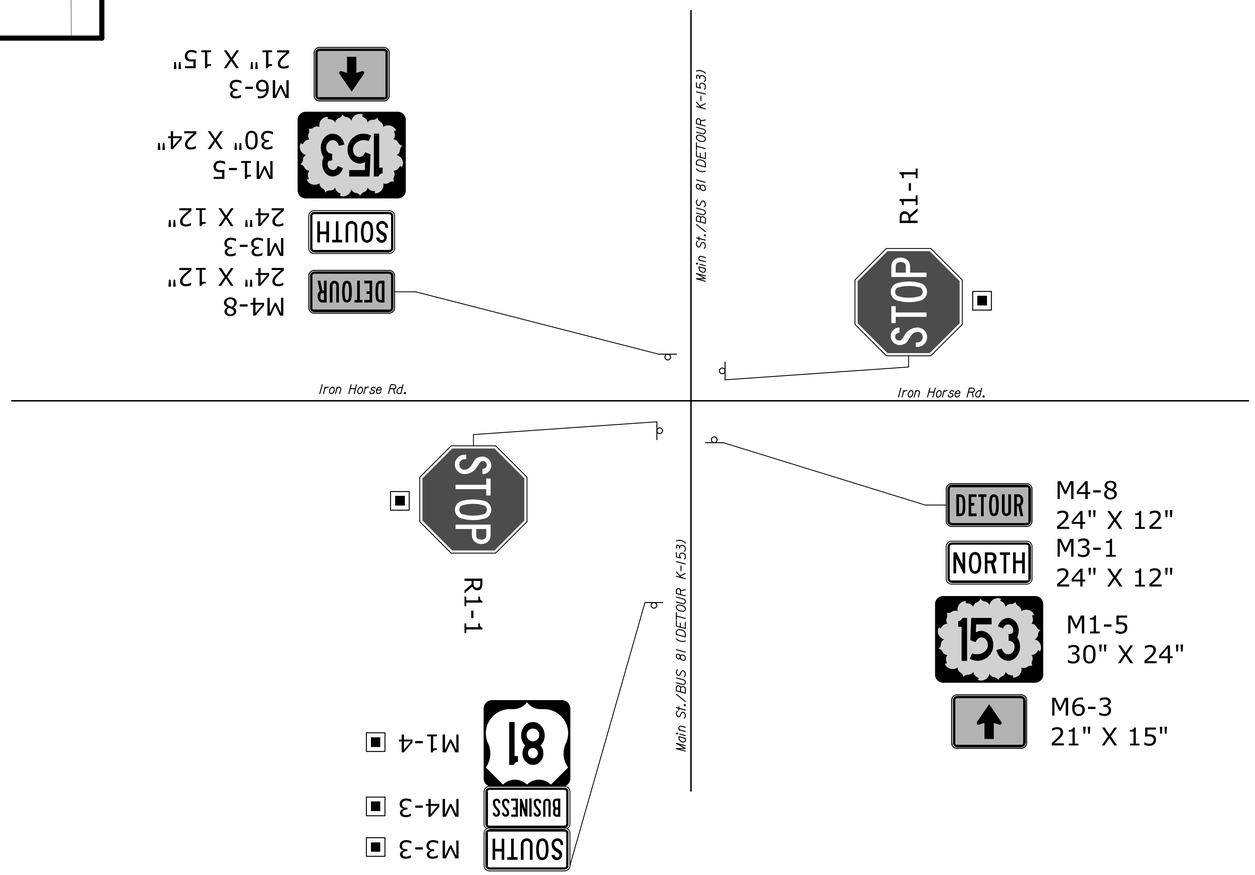

DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

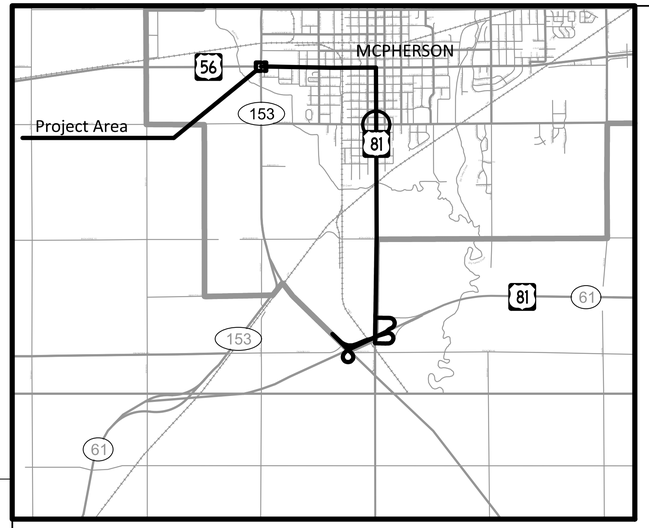



NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
IRON HORSE RD. & BUS 81
(PHASE I)

Drawn By : mheigert
File : 05 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 62 | 90 |



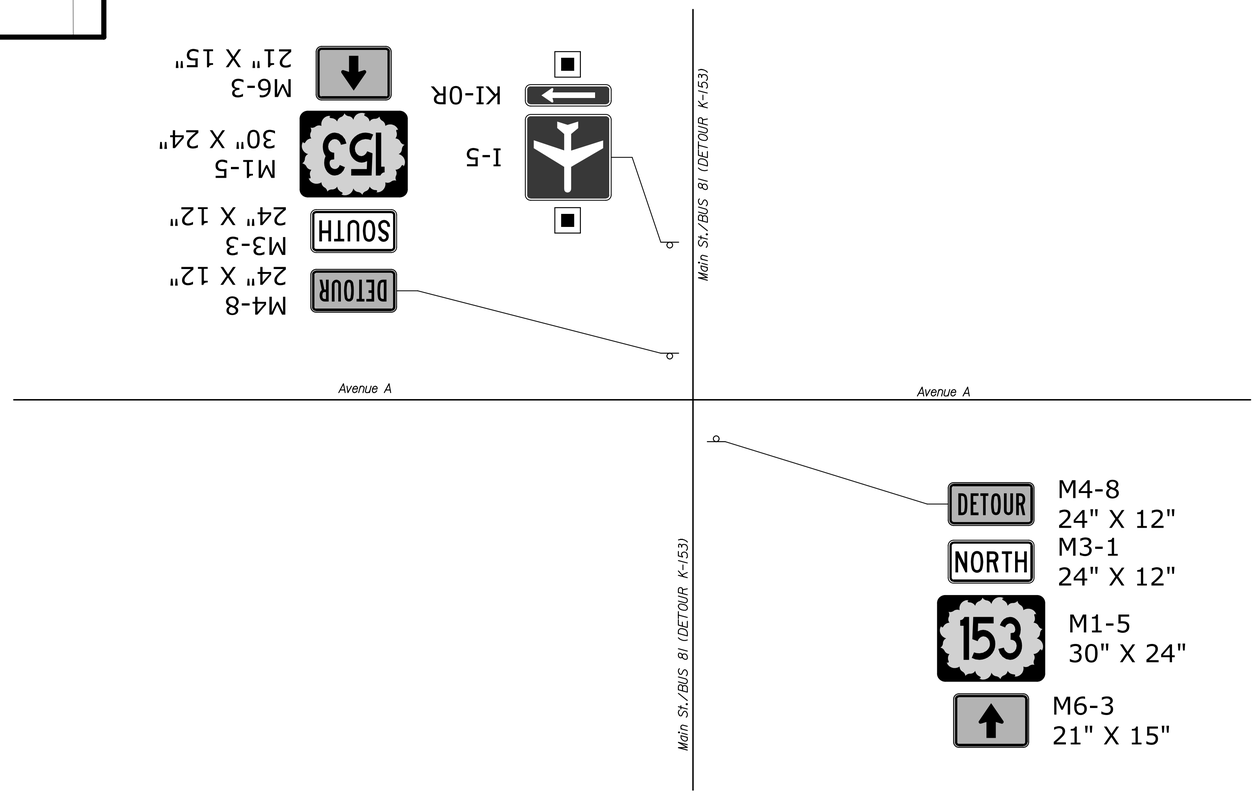

DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.



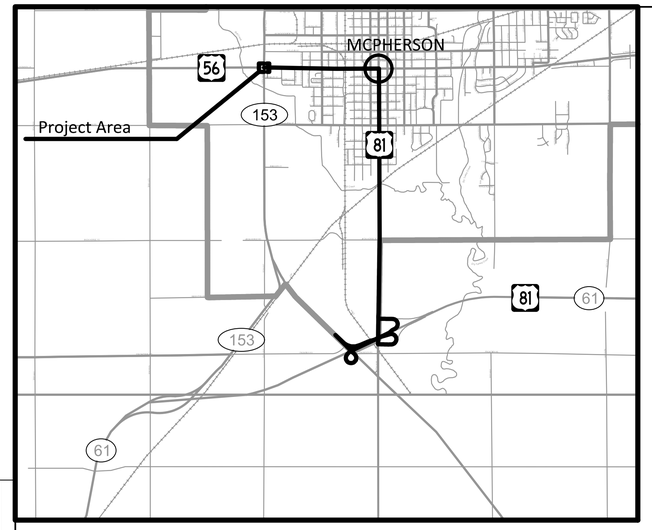

NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
W. AVENUE A & MAIN ST./BUS 81
(PHASE I)

Sh. No. 62

Drawn By : mheigert
File : 06 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 63 | 90 |



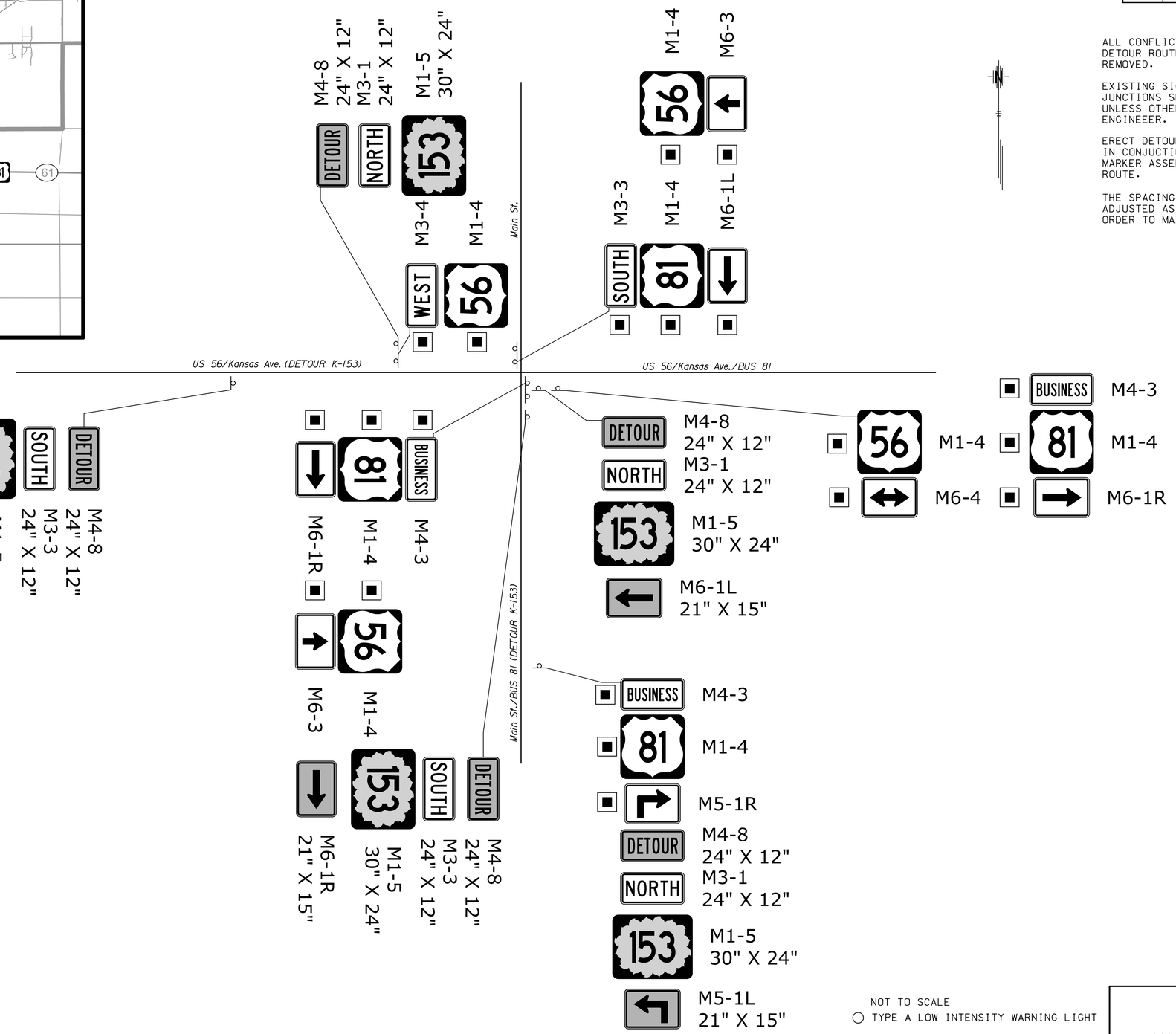

DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.



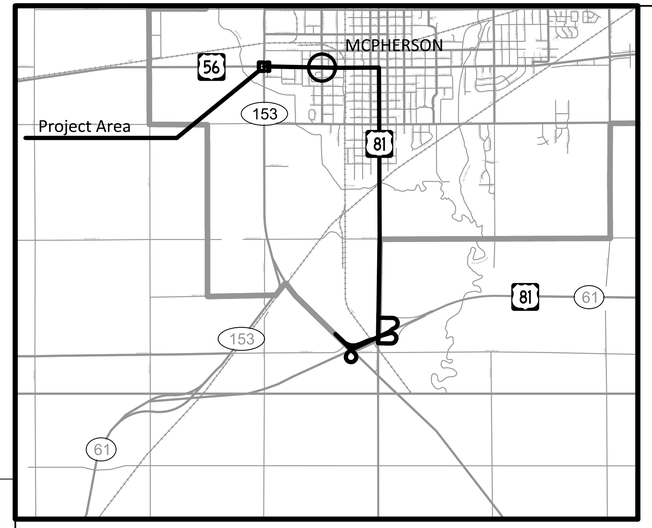

NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
MAIN ST. & KANSAS AVE.
(PHASE I)

Sh. No. 63

Drawn By : mheigert
File : 07 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 64 | 90 |



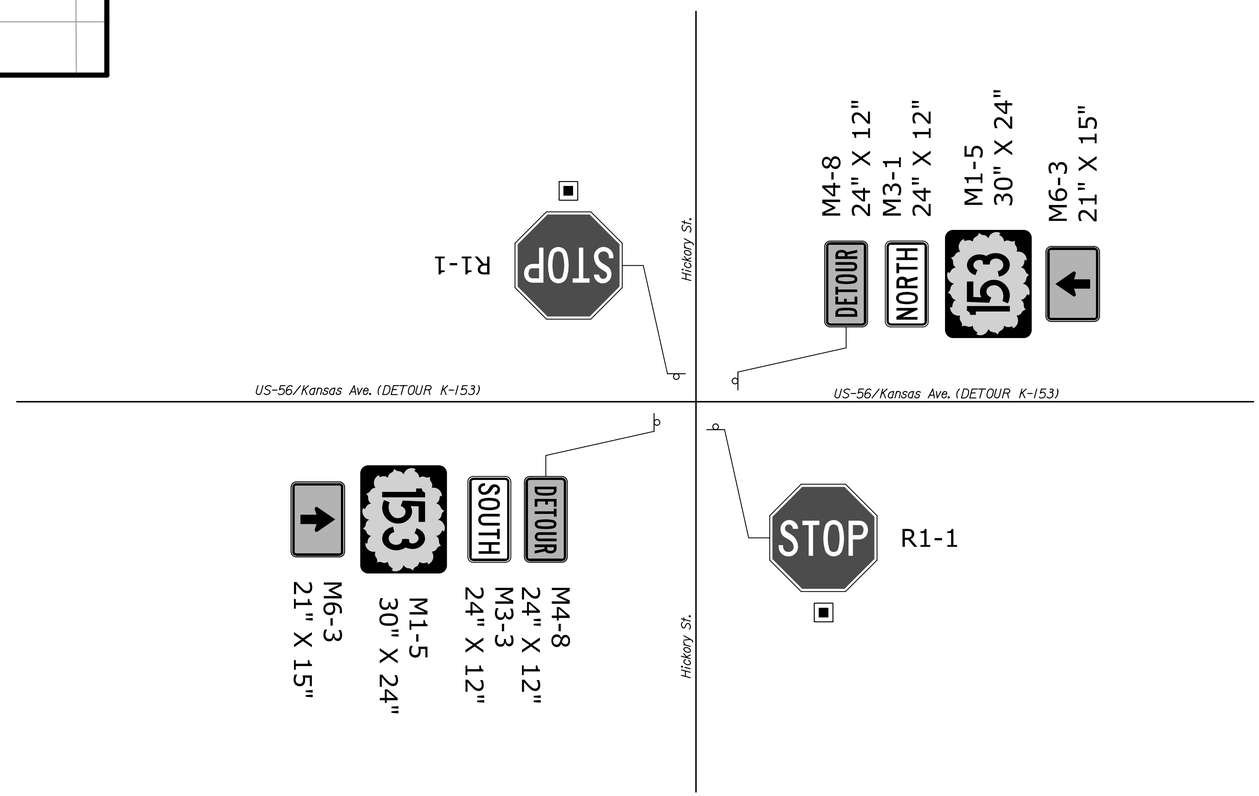

DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.



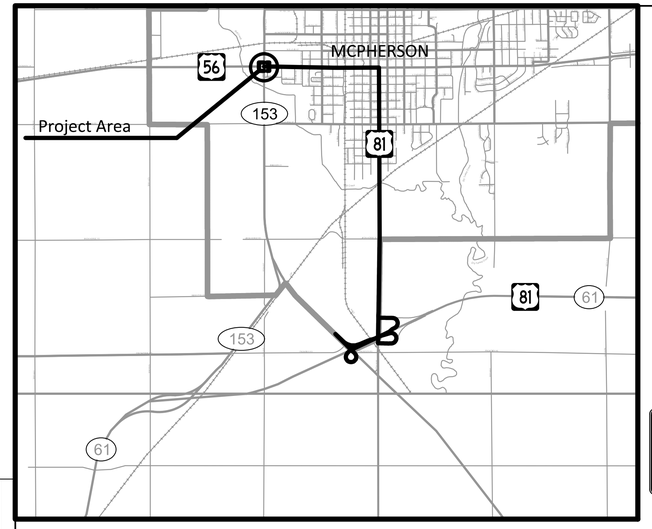

NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
KANSAS AVE. & HICKORY ST.
(PHASE I)

Sh. No. 64

Drawn By : mheigert
File : 08 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 65 | 90 |



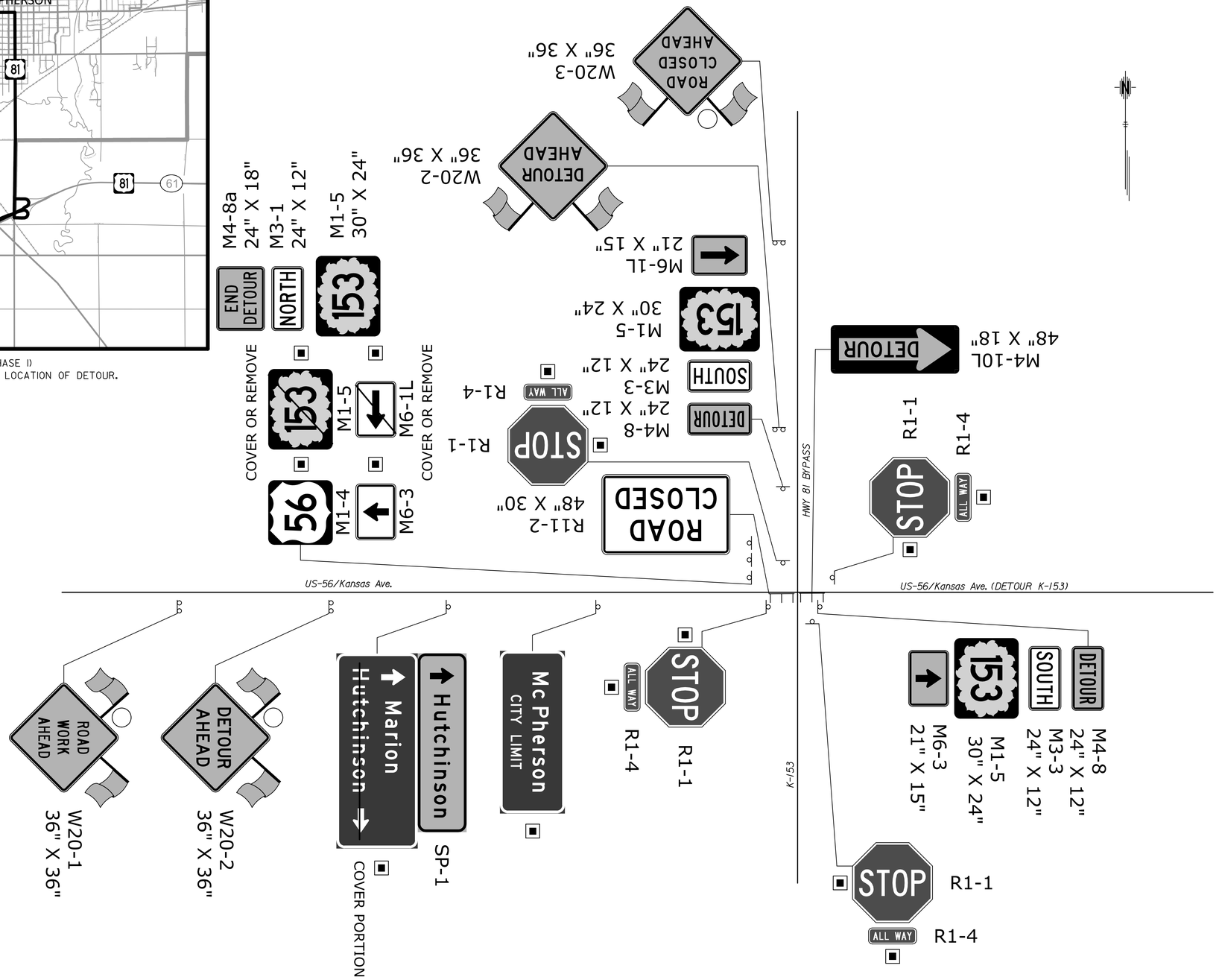

DETOUR SKETCH (PHASE I)
NOTE: CIRCLE ON MAP DENotes THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.




NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
KANSAS AVE. & HWY 81 BYPASS
(PHASE I)

Drawn By : mheigert
File : 09 Detour Phase 1.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 66 | 90 |




DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.




ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

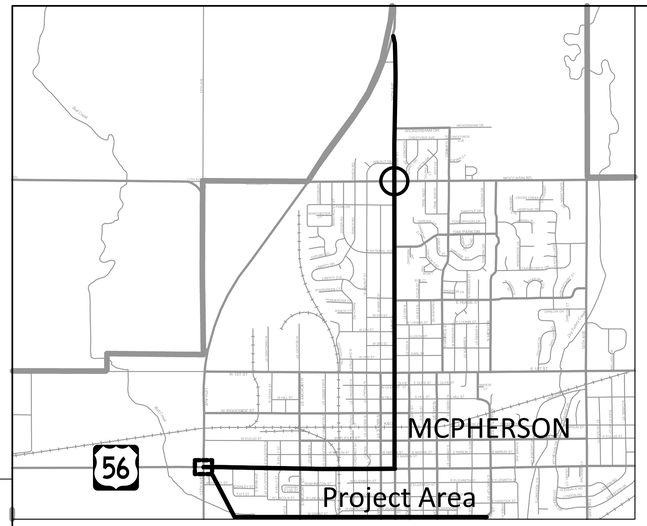
NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
MAIN ST. & MOHAWK RD.
(PHASE 2)

Sh. No. 66

Drawn By : mheigert
File : 01 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 67 | 90 |




DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

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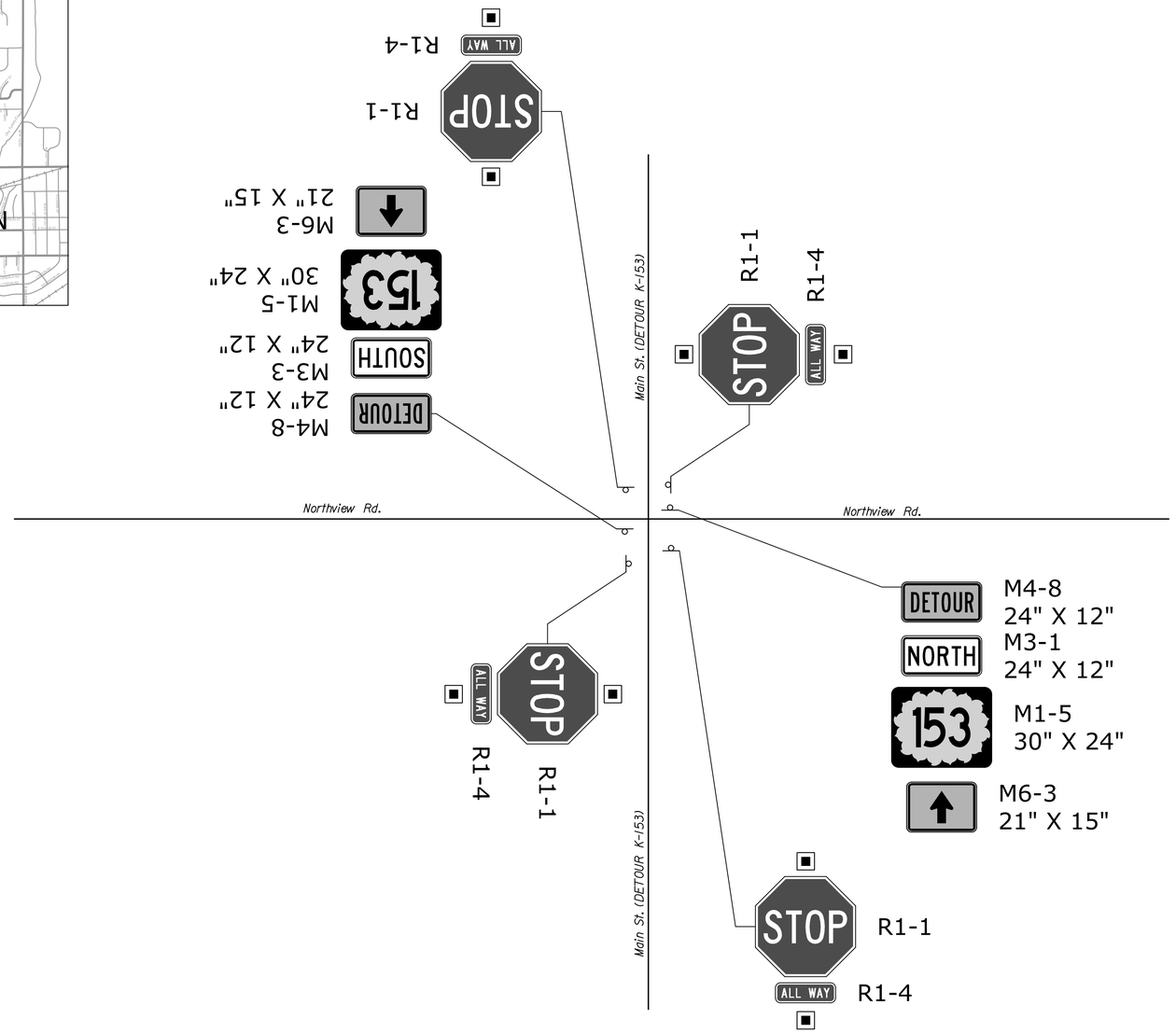
THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.



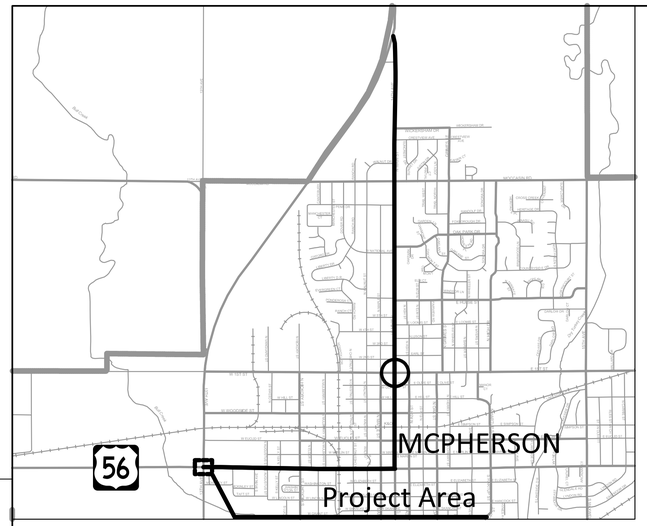

NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
MAIN ST. & NORTHVIEW RD.
(PHASE 2)

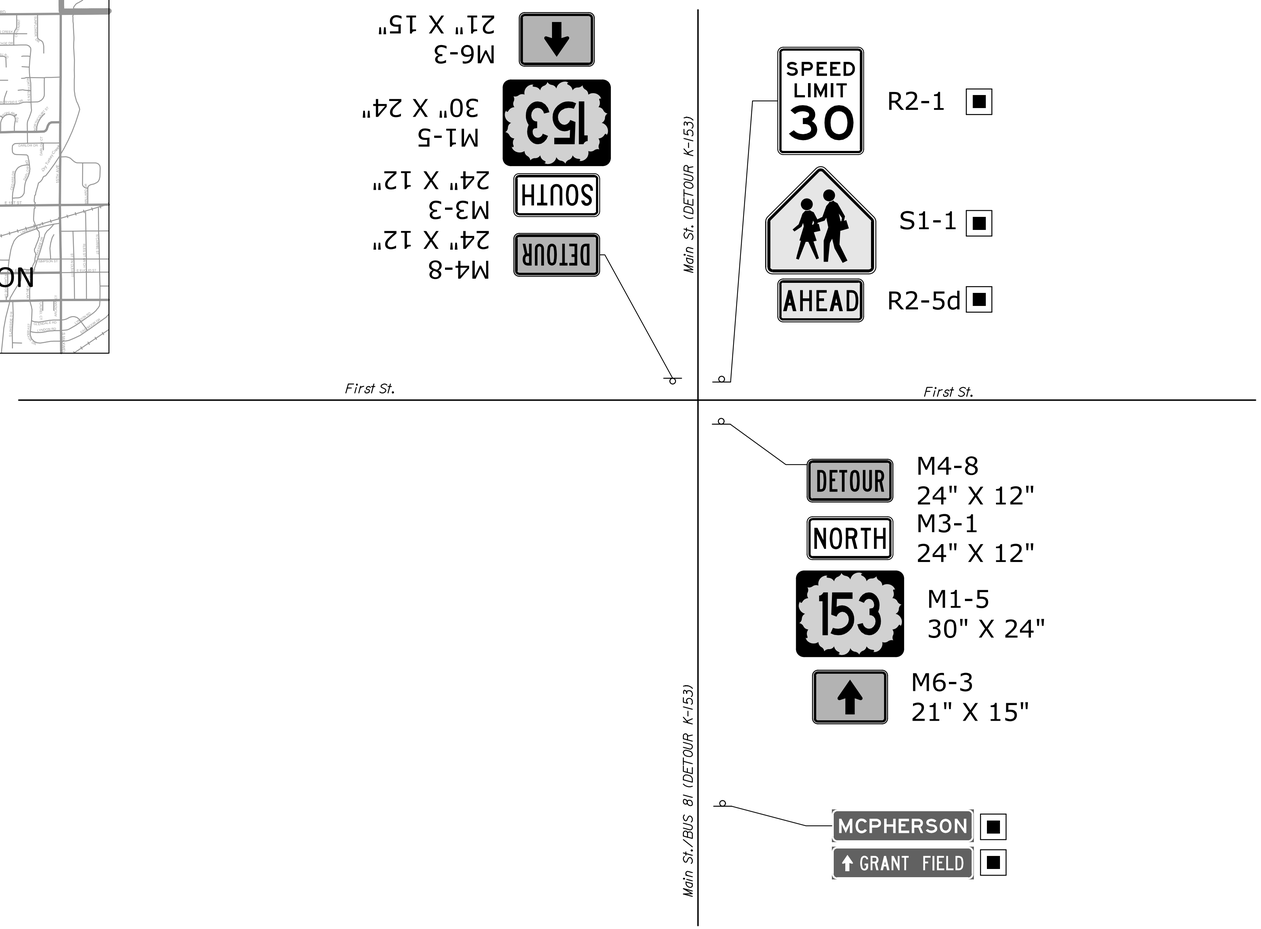
Sh. No. 67

Drawn By : mheigert
File : 02 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 68 | 90 |




DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.




ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

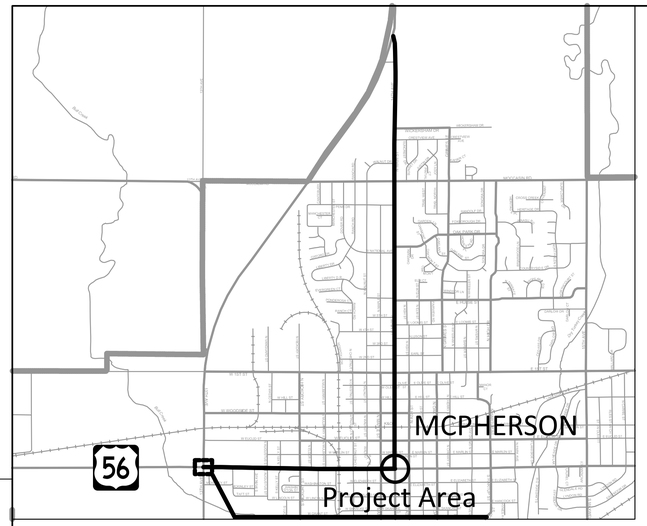
THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
MAIN ST. & FIRST ST.
(PHASE 2)

Drawn By : mheigert
File : 03 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 69 | 90 |




DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

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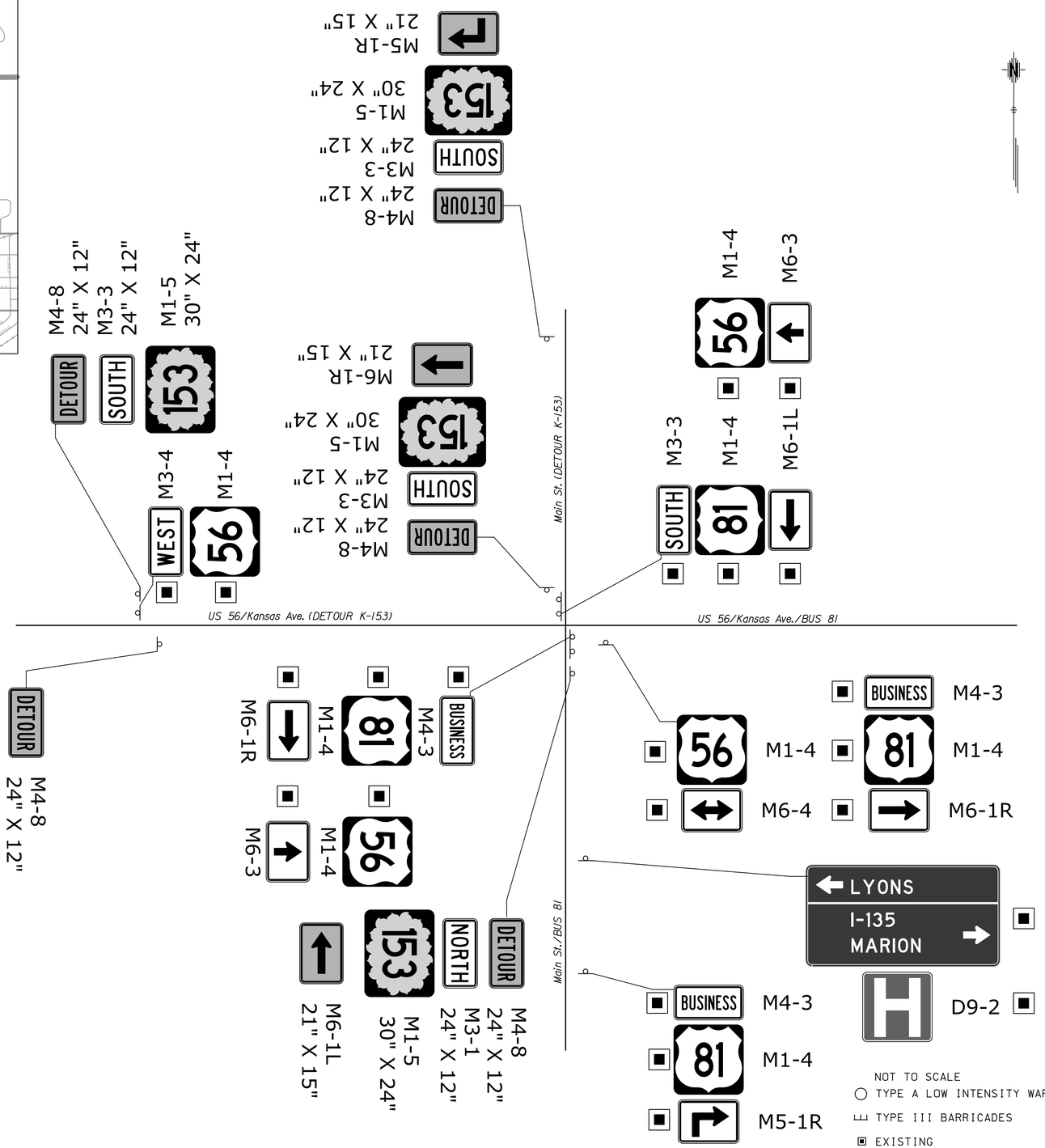
THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.



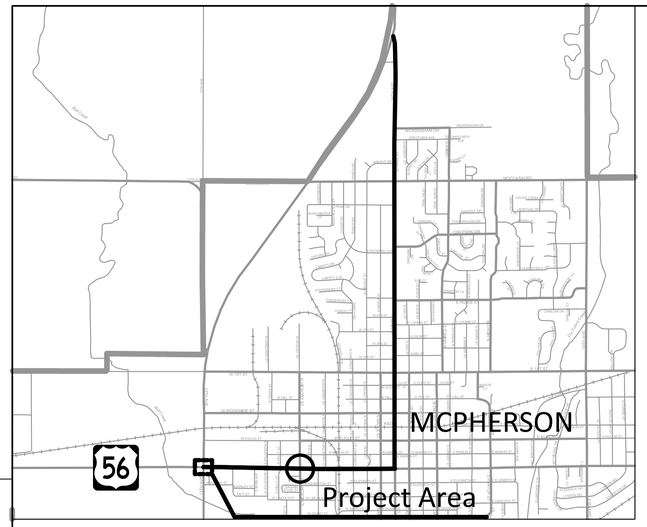

NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
MAIN ST. & KANSAS AVE.
(PHASE 2)

Sh. No. 69

Drawn By : mheigert
File : 04 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 70 | 90 |



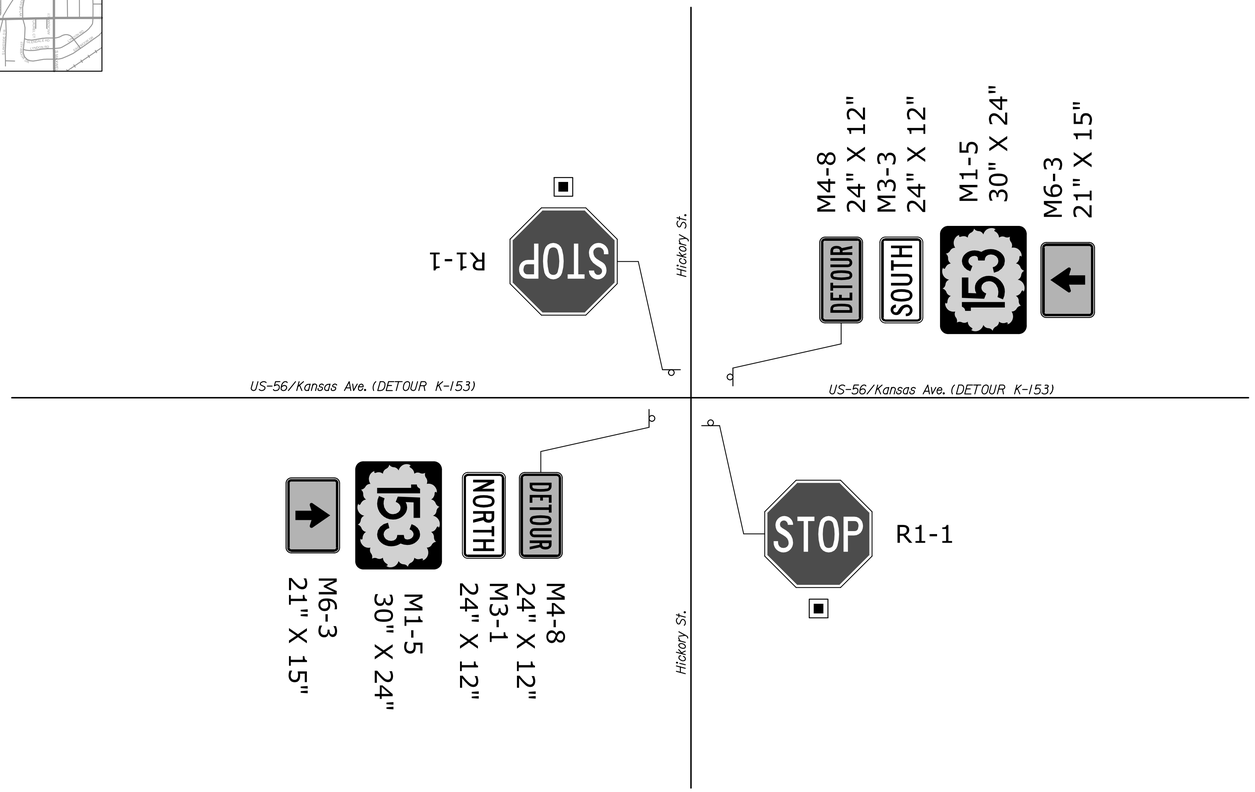

DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.




NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
KANSAS AVE. & HICKORY ST.
(PHASE 2)

Sh. No. 70

Drawn By : mheigert
File : 05 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

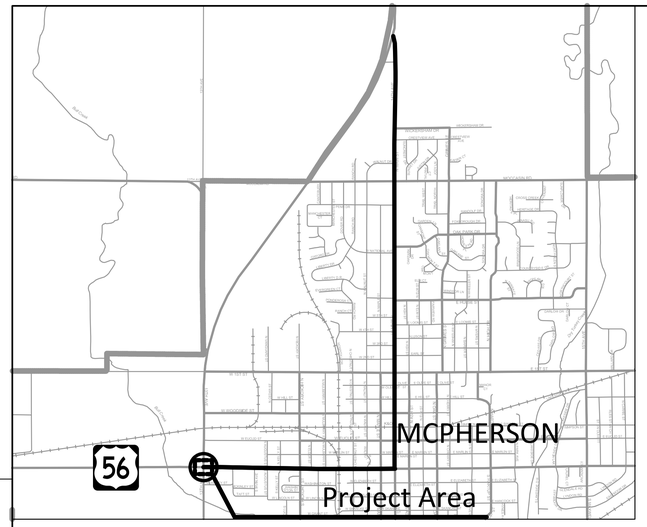
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 71 | 90 |

ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

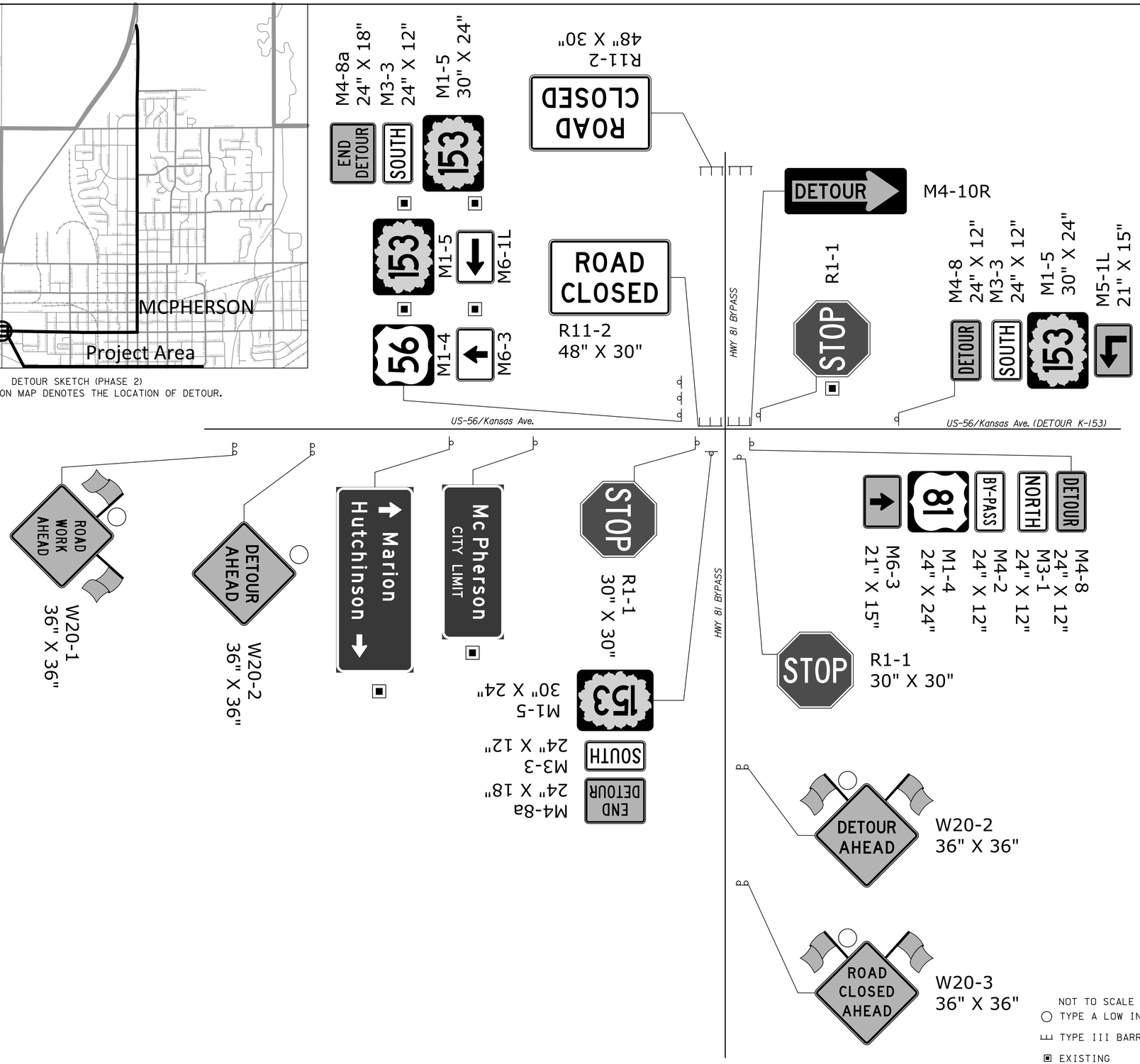
EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.




DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.



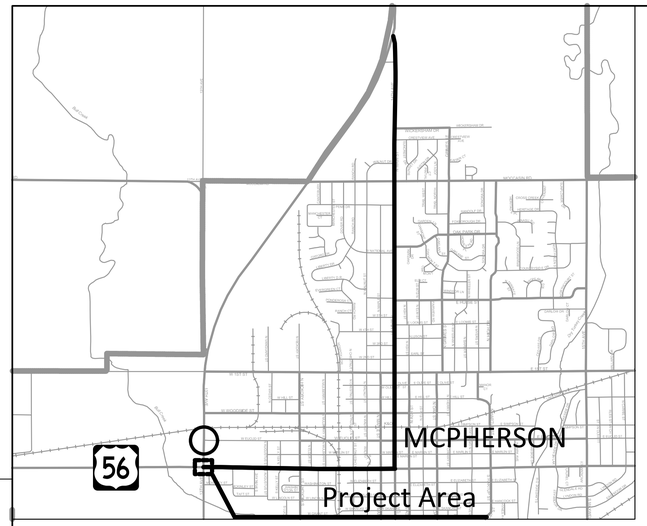

NOT TO SCALE
○ TYPE A LOW INTENSITY WARNING LIGHT
⊔ TYPE III BARRICADES
▣ EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
KANSAS AVE. & HWY 81 BYPASS
(PHASE 2)

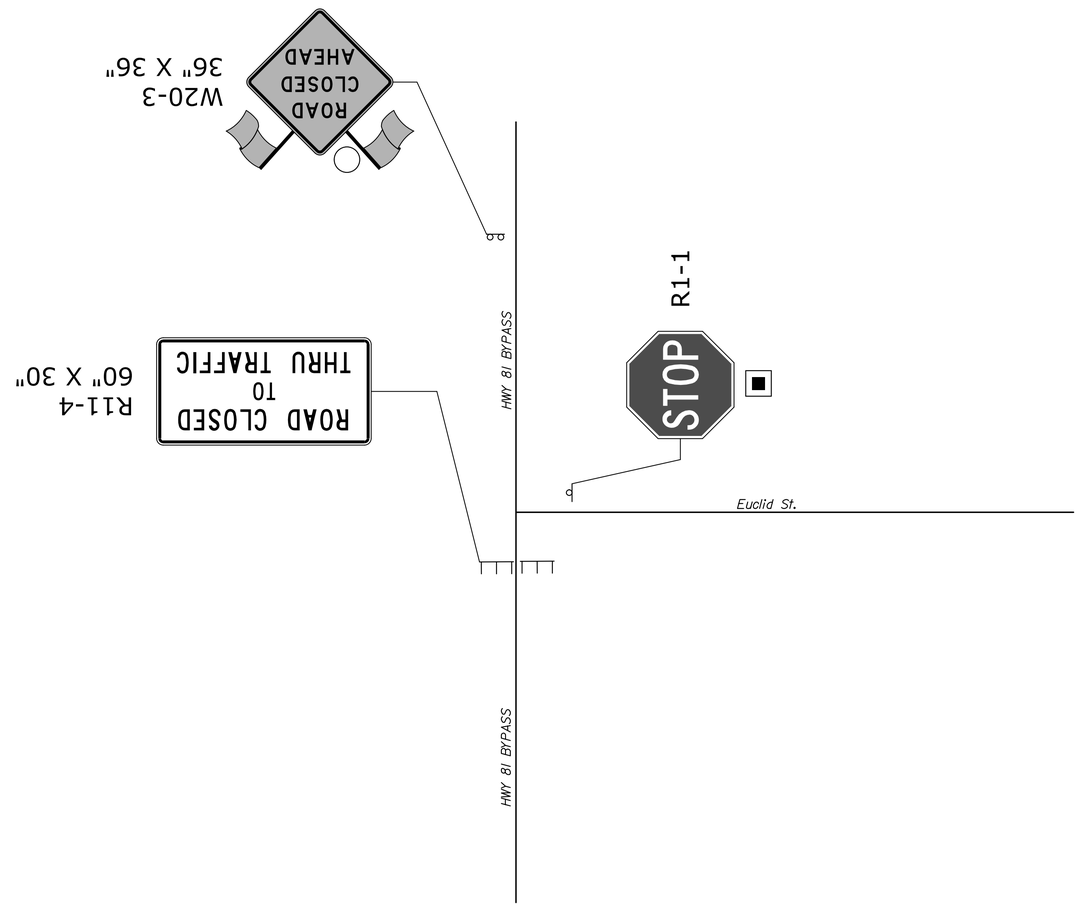
Sh. No. 71

Drawn By : mheigert
File : 06 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 72 | 90 |




DETOUR SKETCH (PHASE 2)
NOTE: CIRCLE ON MAP DENOTES THE LOCATION OF DETOUR.




ALL CONFLICTING ROUTE MARKERS ALONG DETOUR ROUTE SHALL BE COVERED OR REMOVED.

EXISTING SIGNS NOT SHOWN AT THESE JUNCTIONS SHALL REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEEER.

ERECT DETOUR CONFIRMATION ASSEMBLIES IN CONJUCTION WITH EXISTING ROUTE MARKER ASSEMBLIES ALONG DETOUR ROUTE.

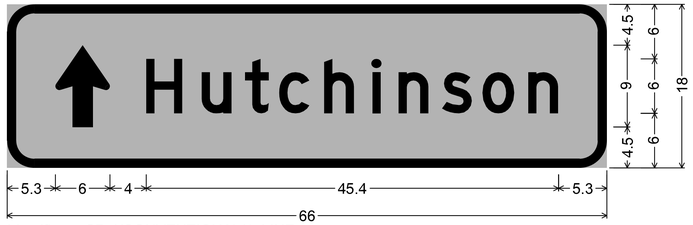
THE SPACING BETWEEN ANY SIGNS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

NOT TO SCALE
TYPE A LOW INTENSITY WARNING LIGHT
TYPE III BARRICADES
EXISTING

*CITY OF MCPHERSON*
DETOUR K-153
EUCLID ST. & HWY 81 BYPASS
(PHASE 2)

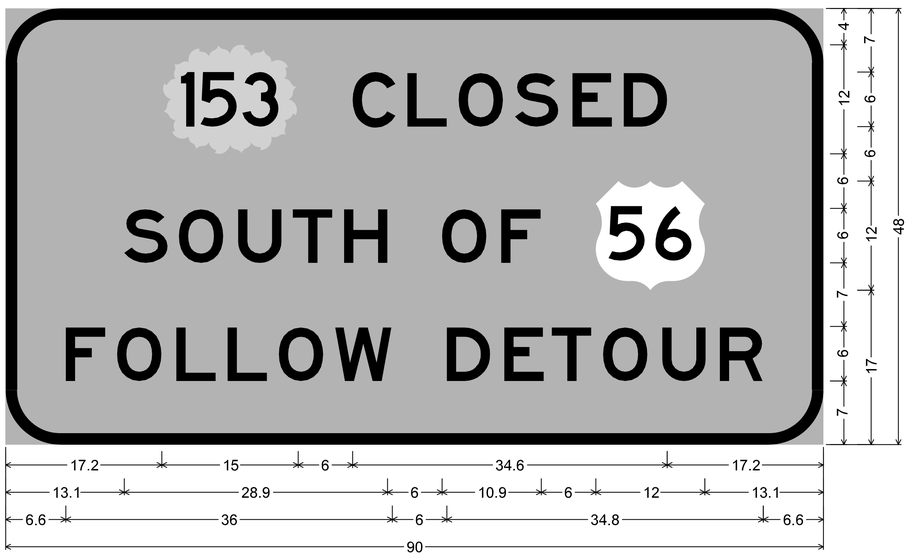
Drawn By : mheigert
File : 07 Detour Phase 2.dgn
Plotted : 10-DEC-2021 12:42

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 73 | 90 |




Identifier : SP-1/CONVENTIONAL/1 LINE;
3.0" Radius, 1.0" Border, Black on Orange;
Standard Arrow Custom 9.0" X 6.0" 90°; [Hutchinson] D;
Table of letter and object lefts.

| ↑ | H | u | t | c | h | i | n | s | o | n |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.3 | 15.3 | 21.4 | 26.2 | 29.9 | 34.9 | 40.2 | 43.1 | 47.9 | 52.3 | 57.3 |

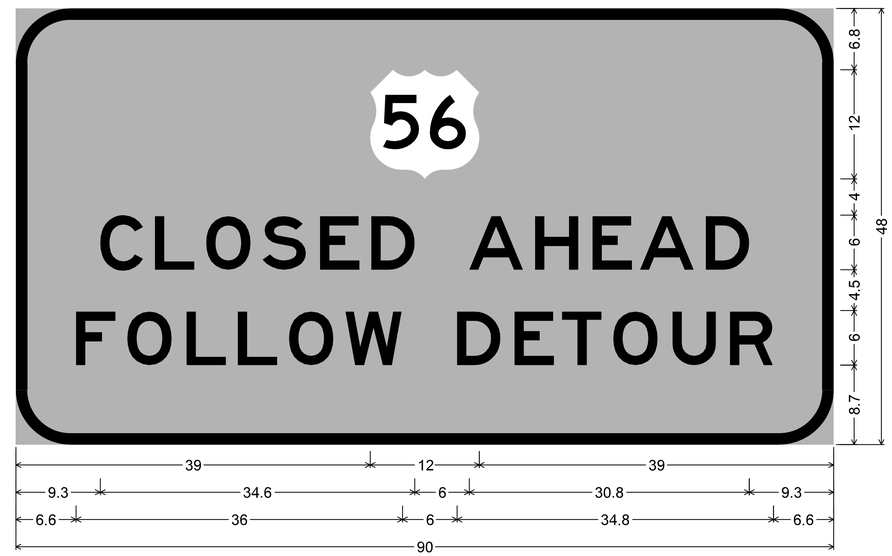



Identifier : SP-2/CONVENTIONAL/3 LINES;
6.0" Radius, 1.3" Border, Black on Orange;
[CLOSED] E; [SOUTH OF] E; [FOLLOW DETOUR] E;
Table of letter and object lefts.

| ● | C | L | O | S | E | D |
|---|---|---|---|---|---|---|
| 17.2 | 38.2 | 44.2 | 49.9 | 56.1 | 62.4 | 68.0 |

| S | O | U | T | H | O | F | ● |
|---|---|---|---|---|---|---|---|
| 13.1 | 19.1 | 25.6 | 31.6 | 37.2 | 48.0 | 54.5 | 64.9 |

| F | O | L | L | O | W | D | E | T | O | U | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.6 | 12.3 | 18.8 | 24.4 | 30.1 | 36.3 | 48.6 | 54.9 | 60.1 | 65.8 | 72.3 | 78.6 |




SP-3/CONVENTIONAL/3 LINES;
6.0" Radius, 1.3" Border, Black on, Orange;
"CLOSED AHEAD", E; "FOLLOW DETOUR", E;
Table of letter and object lefts

| ● |
|---|
| 39.0 |

| C | L | O | S | E | D | A | H | E | A | D |
|---|---|---|---|---|---|---|---|---|---|---|
| 9.3 | 15.3 | 20.9 | 27.2 | 33.5 | 39.1 | 49.9 | 57.1 | 63.5 | 68.7 | 75.9 |

| F | O | L | L | O | W | D | E | T | O | U | R |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.6 | 12.3 | 18.8 | 24.4 | 30.1 | 36.3 | 48.6 | 54.9 | 60.1 | 65.8 | 72.3 | 78.6 |

| | BY | DATE |
|---|---|---|
| SURVEYED | XXXXXX - GARBER SURVEYING | 12-19 |
| PLOTTED | | |
| INKED | F. ALANGURLI - Benesch | 2020 |
| DESIGNED | M. HEIGERT - Benesch | 2020 |
| SQUAD | | 2020 |

Plotted : 10-DEC-2021 12:42

Drawn By : mheigert
File : Sign Details.dgn

*CITY OF MCPHERSON*

SPECIAL SIGNING DETAILS

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 74 | 90 |

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

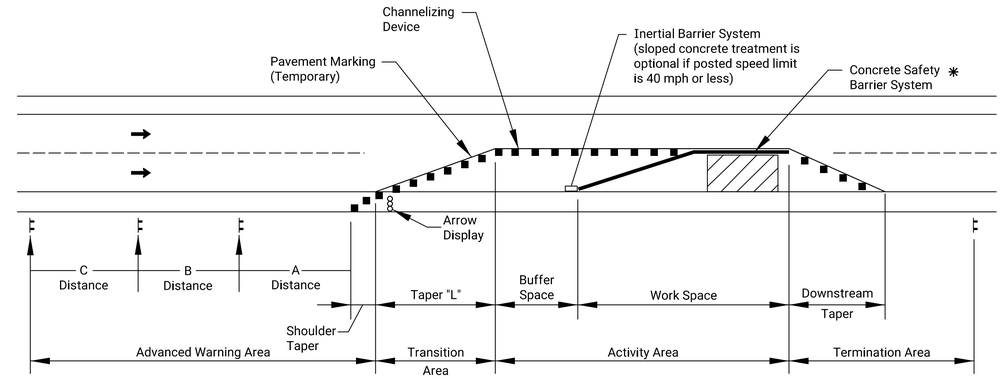
2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

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

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

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

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




## TYPICAL WORK ZONE COMPONENTS

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

*Minimum advance warning sign spacing (in feet):*

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

✳ Posted speed prior to work starting

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

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

*Taper Formulas:*

*$L = WS$ for speeds of 45 MPH or more*

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

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

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

Channelizer Placement:

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

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

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

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

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

Buffer Space

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

✳ Posted speed prior to work starting

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

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

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

**KANSAS DEPARTMENT OF TRANSPORTATION**

TRAFFIC CONTROL
GENERAL NOTES

TE700

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

KDOT Graphics Certified 03-13-2018

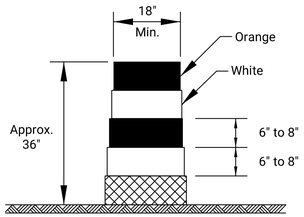
Sh. No. 74

KDOT Graphics Certified

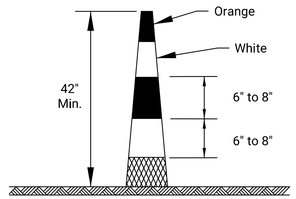
Plotted : 10-DEC-2021 12:42

Drawn By : mheigert
File : te700.dgn

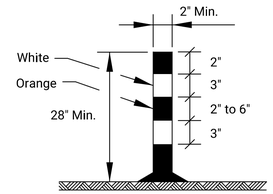
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 75 | 90 |




## DRUM

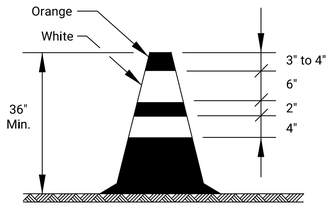



## CONICAL DELINEATOR

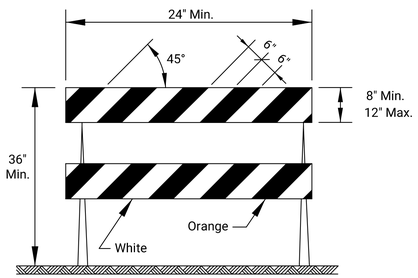



## TUBULAR MARKER

Striping as shown for up to 42".

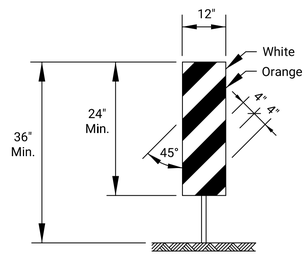



## TRAFFIC CONE



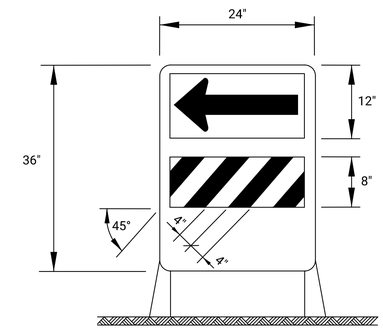

## TYPE 2 BARRICADE

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



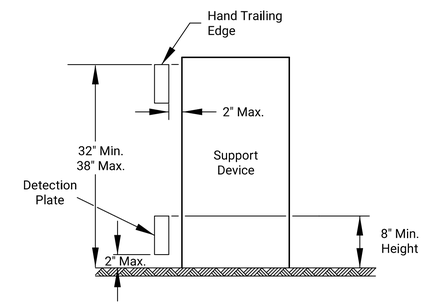

## VERTICAL PANEL

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




## DIRECTION INDICATOR BARRICADE

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




## PEDESTRIAN CHANNELIZER

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

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

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

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
CHANNELIZING DEVICES

TE702

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

KDOT Graphics Certified 03-29-2018

Sh. No. 75

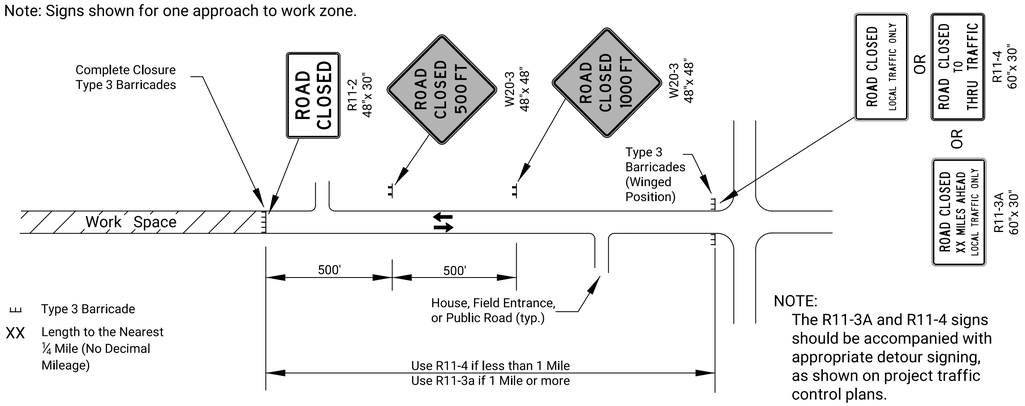
KDOT Graphics Certified

Plotted : 10-DEC-2021 12:42

Drawn By : mheigert
File : te702.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 76 | 90 |

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).

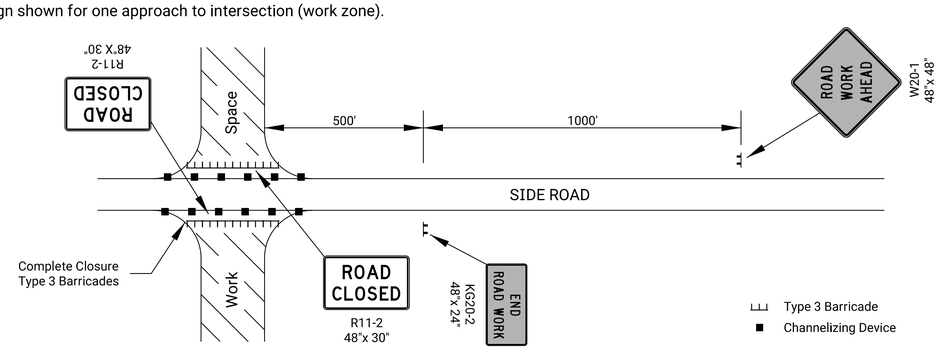



FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

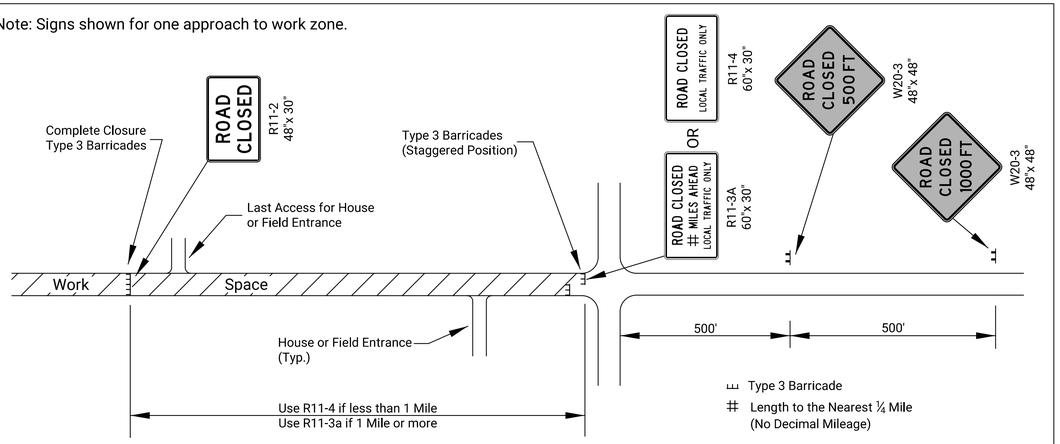



FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

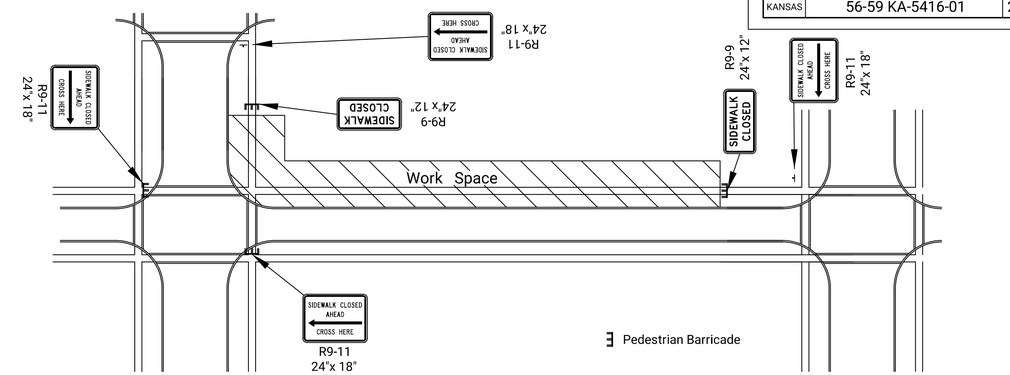
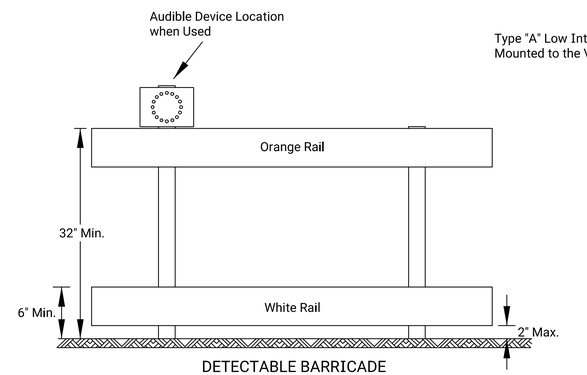
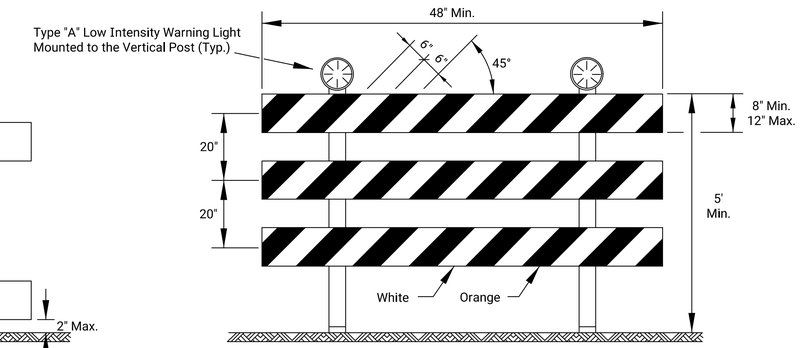



FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE




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 |
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KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

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

KDOT Graphics Certified 03-29-2018

Sh. No. 76

KDOT Graphics Certified

Plotted : 10-DEC-2021 12:42

Drawn By : mheigert
File : te704.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 77 | 90 |

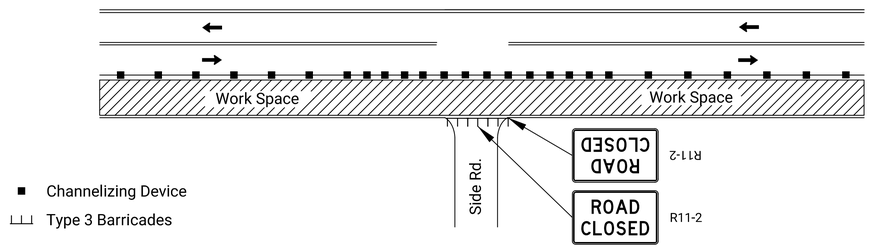


FIGURE 1: SIDE ROAD OR ENTRANCE CLOSED THROUGH WORK AREA

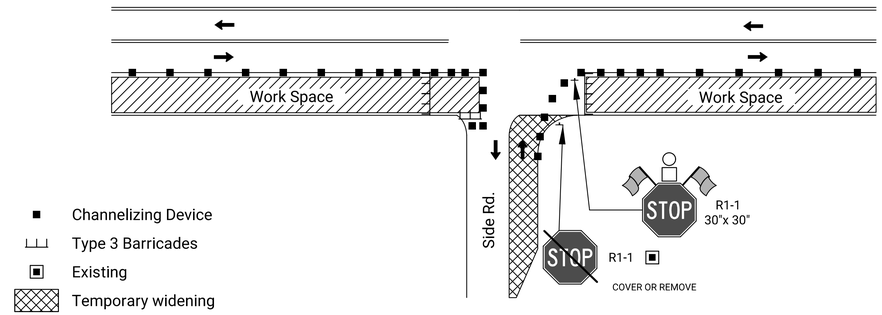


FIGURE 4: SIDE ROAD OR ENTRANCE CONSTRUCTED HALF AT A TIME: TWO WAY TRAFFIC REQUIRED

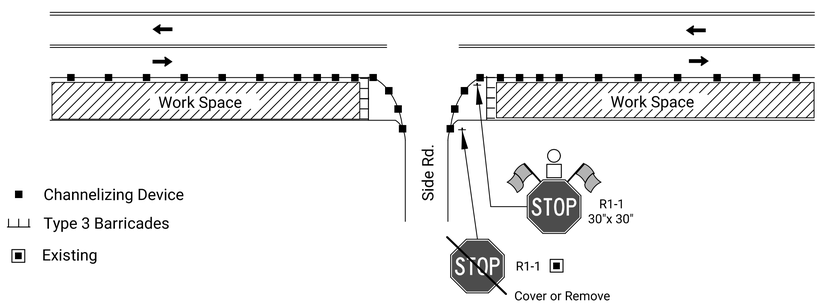


FIGURE 2: SIDE ROAD OR ENTRANCE OPEN THROUGH WORK AREA

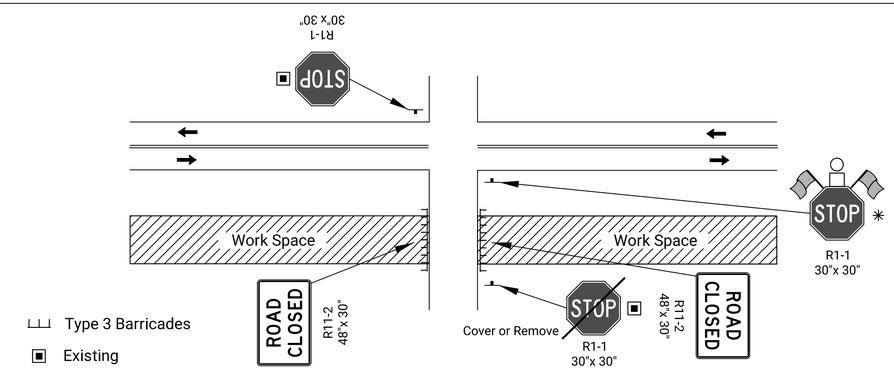


FIGURE 5: SIDE ROAD OPEN THROUGH WORK AREA ON DIVIDED ROADWAY

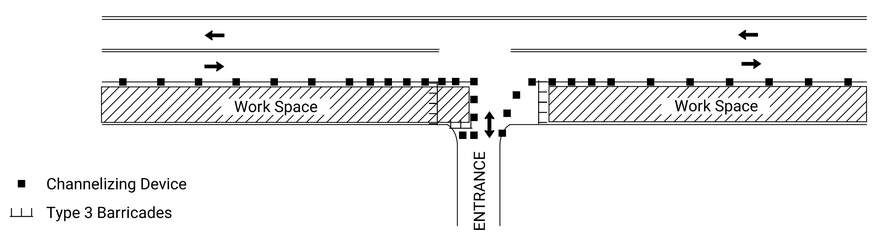


FIGURE 3: LOW VOLUME ENTRANCE CONTRUCTED HALF AT A TIME

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

| NO. | DATE | REVISIONS | BY | APP'D |
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KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
ACCESS THROUGH THE WORK AREA

TE705

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

KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

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Drawn By : mheigert
File : te705.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 78 | 90 |

# SIGN LAYOUT INFORMATION

KG20-2

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

KG20-5

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




KM4-2O

Std. Size
3" C
24"x 6"

Expwy/Freeway
6" C
48"x 12"

W7-3a

Mileage to be Determined by the Engineer.

W8-15

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

W8-7

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

W8-15p

Std. Size Expwy/Freeway
30"x 24"

W8-17

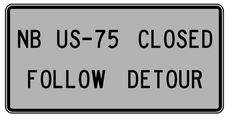
Std. Size Expwy/Freeway
48"x 48"

W8-11

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

W8-17P
(Optional)

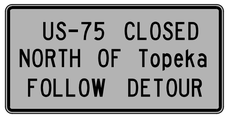
Std. Size
Expwy/Freeway
30"x 24"




SP-01
(Special Sign)

Std. Size
6" C

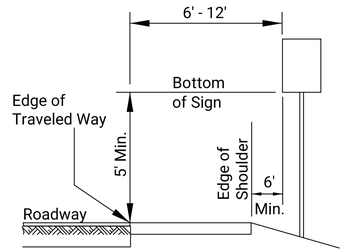
Expwy/Freeway
10" D




SP-02
(Special Sign)

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

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

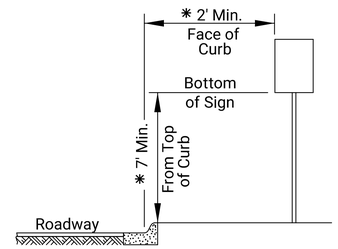



## RURAL

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

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

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




## URBAN

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

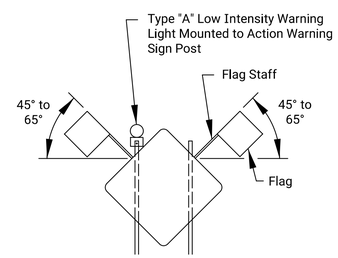
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

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

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

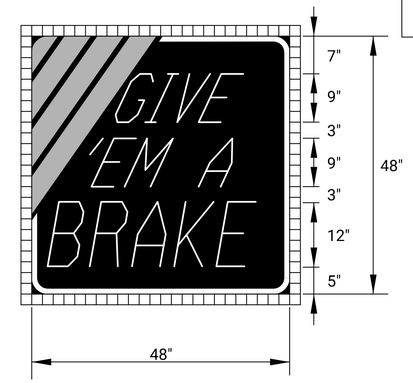
5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

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



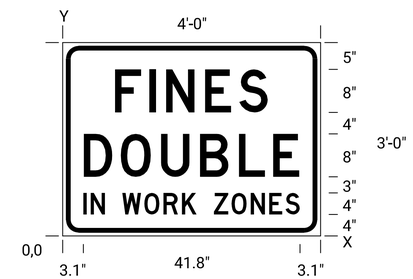

When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

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




KI-104a

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




KI-105a

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

Dimensions in inches

Spacings are to start of next letter

LETTER SPACINGS

| Y FONT | | F | I | N | E | S | | | | | | | | | | HT LEN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23.0 D | | | | | | | | | | | | | | | | 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 |
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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. | |

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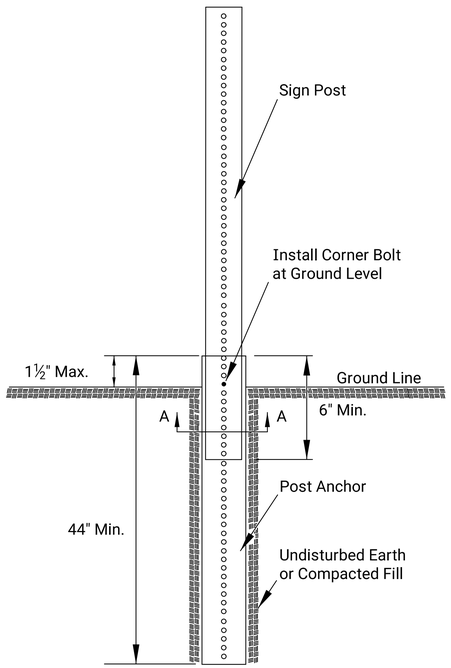
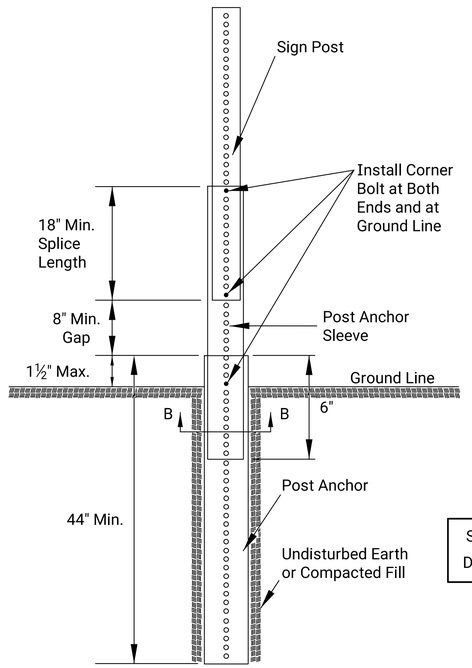
File : te710.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 79 | 90 |

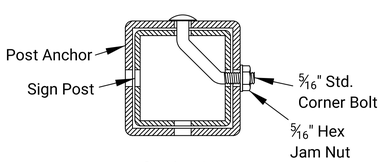
# PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



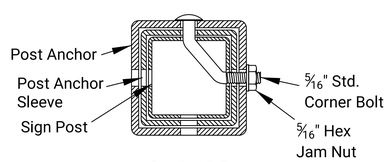

P.S.S.T. Detail




Telescoping P.S.S.T. Detail




Section A-A

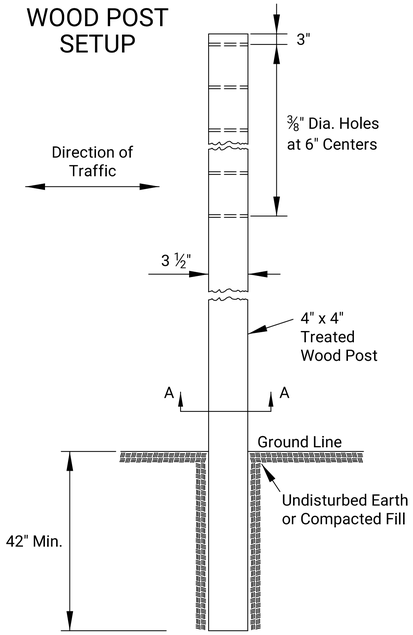



Section B-B

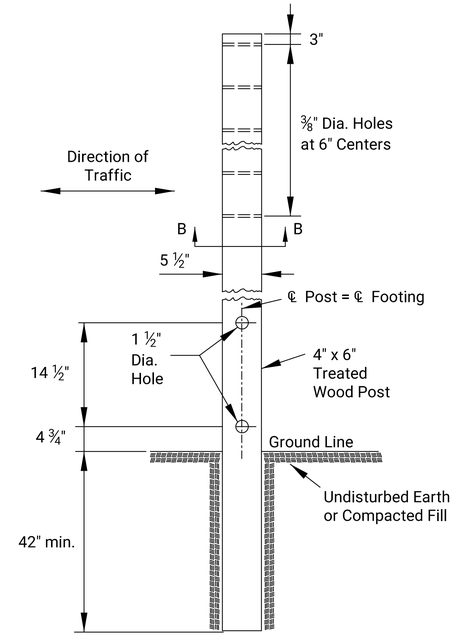
Details for 2", 2 ¼", or 2 ½" sign posts

Place bolts in the same corner along each sign post.

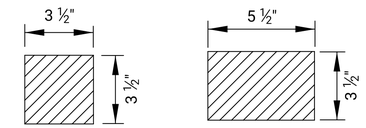
# WOOD POST SETUP




Side Elevation
4" x 4" Wood Post in Soil

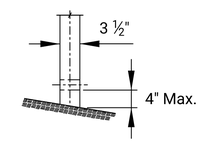



Side Elevation
4" x 6" Wood Post in Soil




Section A-A

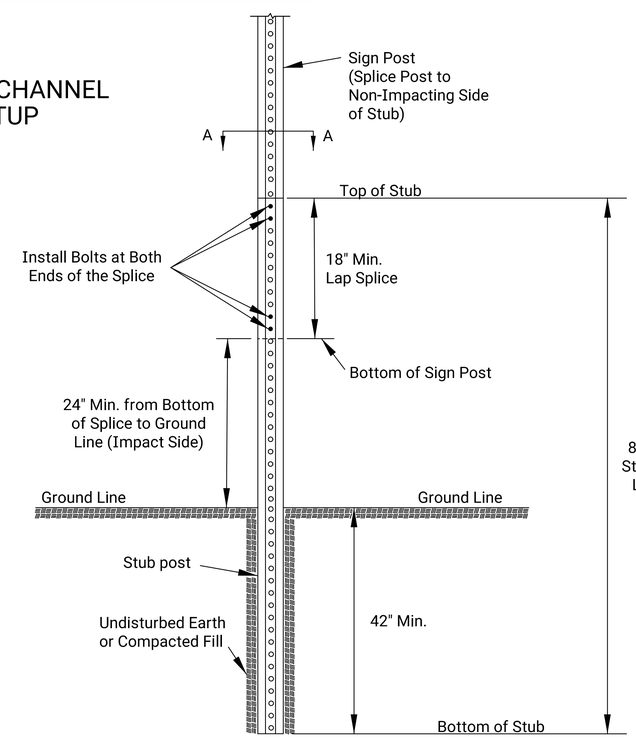
Section B-B




Front Elevation

See TE710 for Additional Details and Requirements

# 3 LB/F U-CHANNEL SETUP

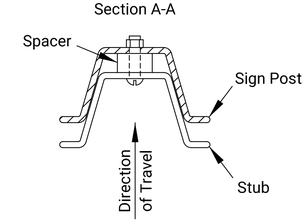



Notes:

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

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

Section A-A




| NO. | DATE | REVISIONS | BY | APP'D |
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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. | |

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Sh. No. 79

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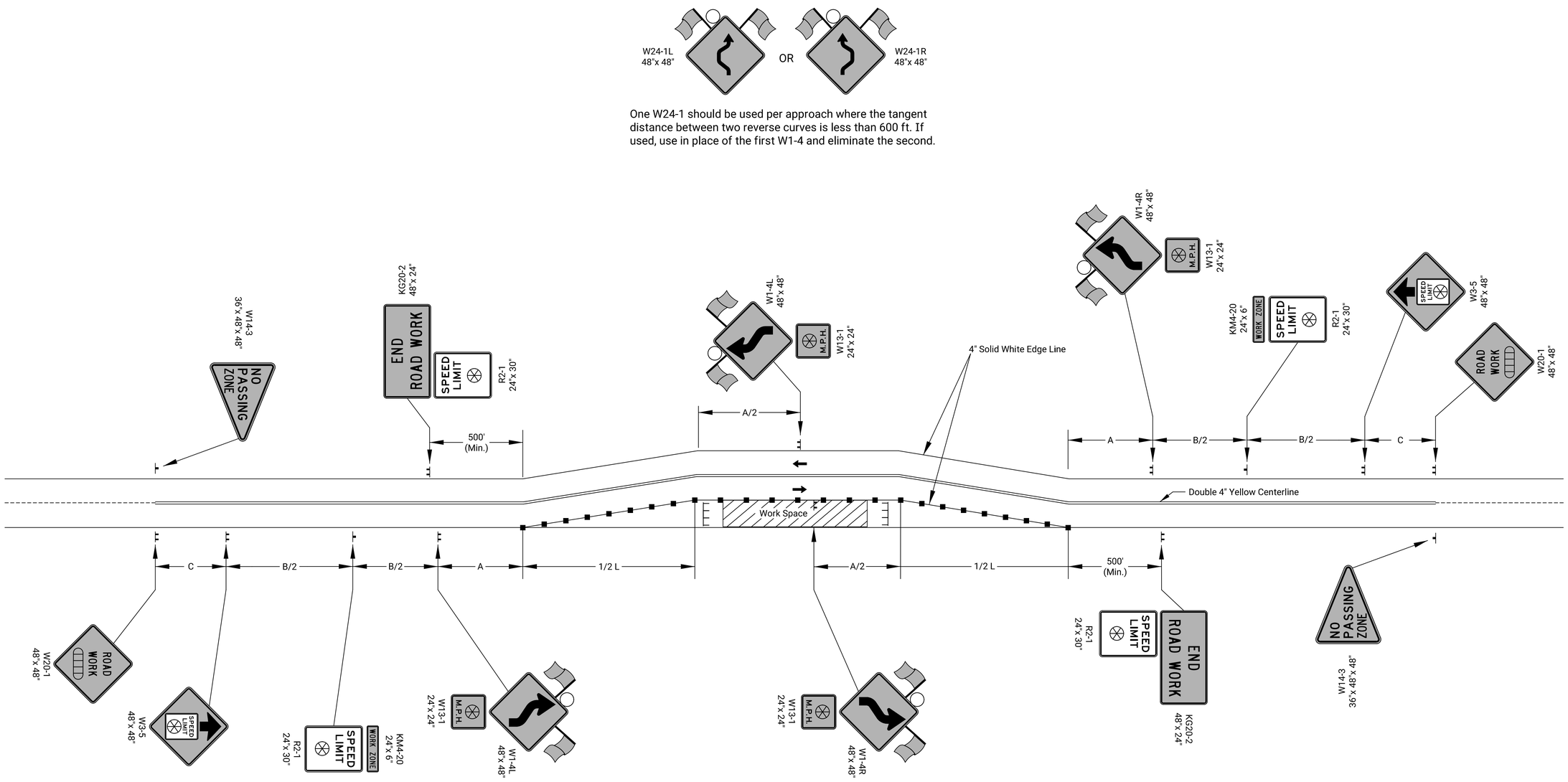
File : te712.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 80 | 90 |




- ■ Channelizing Device
- Type 3 Barricades
- Ahead, 1500 ft, or 1 Mile
- Speed to be Determined by the Engineer
- Type "A" Low Intensity Warning Light

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
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| 2 | | | | |
| 1 | 03/13/18 | W24-1 usage changed to Should | R.W.B. | E.G.K. |

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
LANE SHIFT

TE724

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

KDOT Graphics Certified 03-29-2018

Sh. No. 80

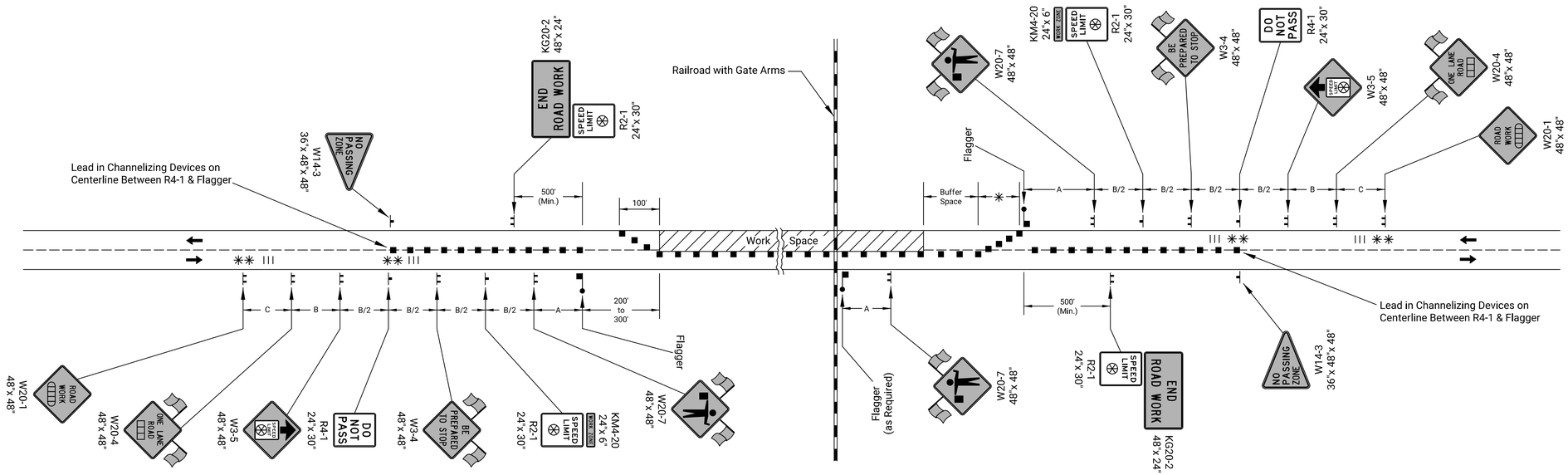
KDOT Graphics Certified

Plotted : 10-DEC-2021 12:43

Drawn By : mheigert
File : te724.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 81 | 90 |

## FLAGGER




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.

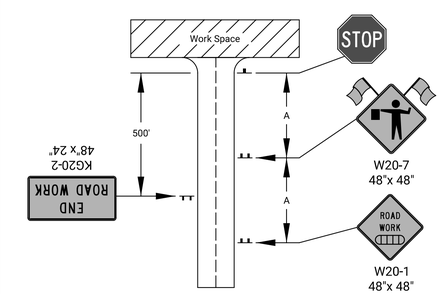
✳✳ Optional rumble strips may be placed: One set between the W20-1 and W20-4, and one set between the R4-1 and W3-4, on each approach.

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

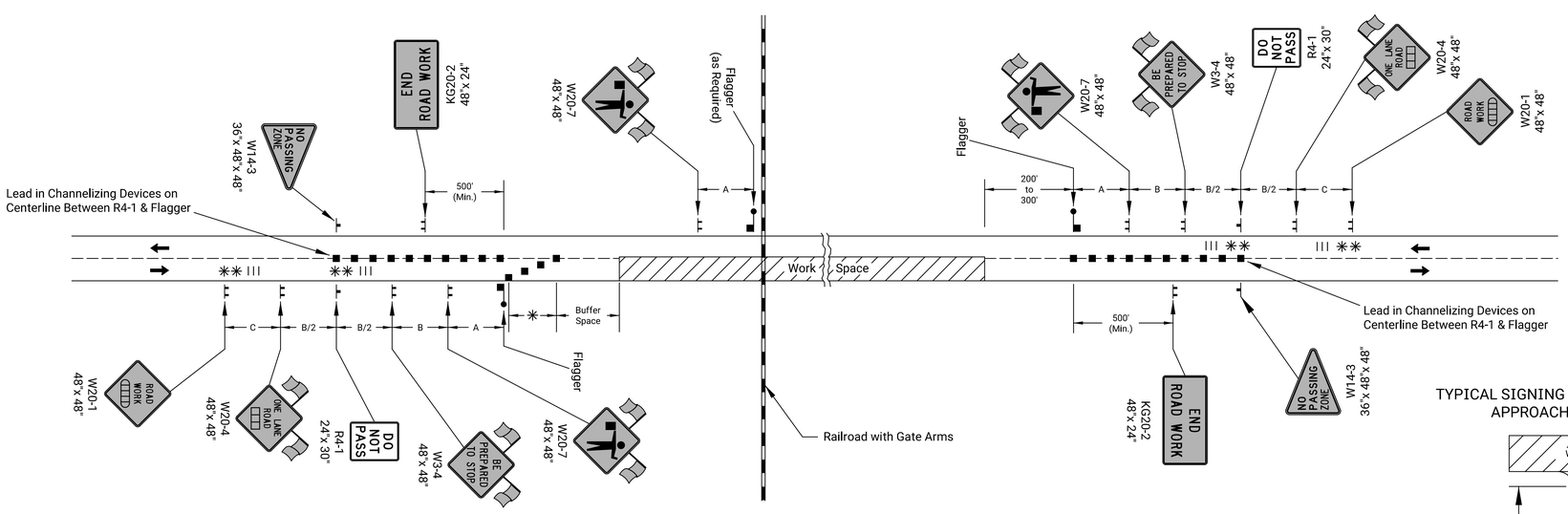
△△ The KG20-5 (WAIT FOR PILOT CAR) sign shall be mounted on an approved portable support and not attached to the existing stop sign post.

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.

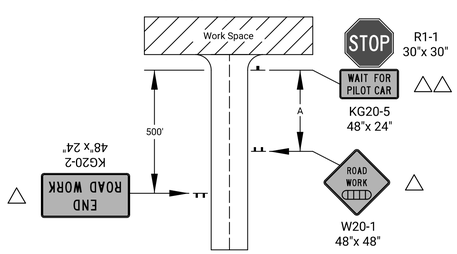
TYPICAL SIGNING FOR HIGHWAY OR MAJOR COLLECTOR APPROACH TO WORK SPACE




## FLAGGER AND PILOT CAR




TYPICAL SIGNING FOR A MINOR SIDE ROAD APPROACH TO WORK SPACE




- ■ 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
- ||| Temporary Portable Rumble Strips

| NO. | DATE | REVISIONS | BY | APP'D |
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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. |

KDOT Graphics Certified 03-29-2018

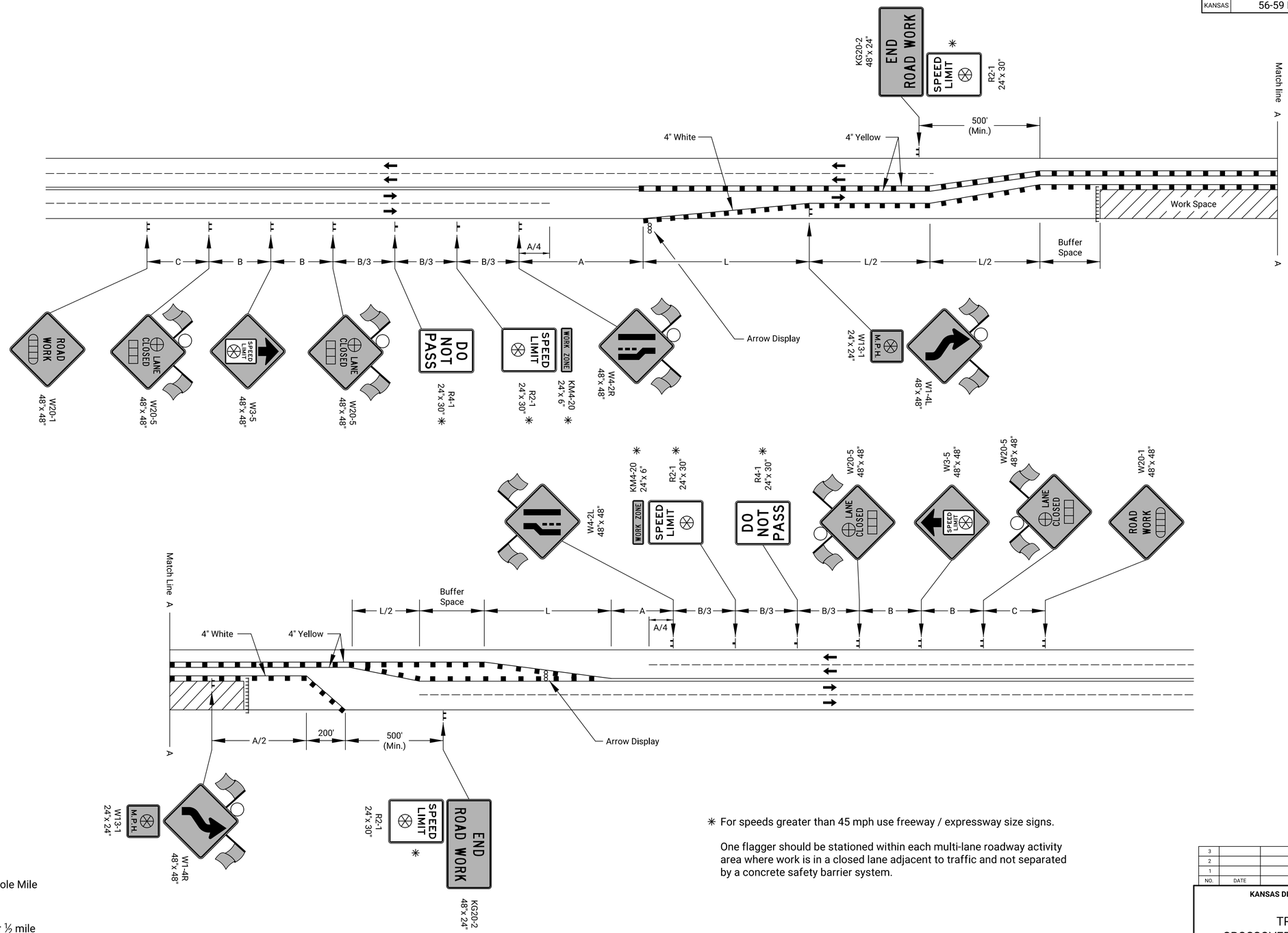
Sh. No. 81

KDOT Graphics Certified

Plotted : 10-DEC-2021 12:43

Drawn By : mheigert
File : te730.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 82 | 90 |




- Type 3 Barricades
- X Length to the Nearest Whole Mile
- ■ Channelizing Device
- Ahead, 1500 ft, or 1 mile
- Ahead, 1000 ft, 1500 ft, or ½ mile
- Right or Left
- Speed to be determined by the Engineer
- Type "A" Low Intensity Warning Light

✳ For speeds greater than 45 mph use freeway / expressway size signs.

One flagger should be stationed within each multi-lane roadway activity area where work is in a closed lane adjacent to traffic and not separated by a concrete safety barrier system.

| NO. | DATE | REVISIONS | BY | APP'D |
|---|---|---|---|---|
| 3 | | | | |
| 2 | | | | |
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**KANSAS DEPARTMENT OF TRANSPORTATION**

TRAFFIC CONTROL
CROSSOVER ON UNDIVIDED ROADWAY

TE748

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

KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Sh. No. 82

Plotted : 10-DEC-2021 12:43

Drawn By : mheigert
File : te748.dgn

| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 83 | 90 |

## SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

| Work Zone Sign (Special) | | |
|---|---|---|
| Sign No. | 16.25 Sq.Ft. & Less | 16.26 Sq.Ft. & Over |
| SP-1 | 1 | |
| SP-2 | | 4 |
| SP-3 | | 1 |
| | | |
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## 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 | |
| KG20-2 | 2 | | |
| KM4-20 | 1 | | |
| M1-5 (3) | 26 | | |
| M3-1 | 15 | | |
| M3-3 | 11 | | |
| M4-10L | 1 | | |
| M4-10R | 1 | | |
| M4-8 | 24 | | |
| M4-8A | 2 | | |
| M5-1L | 2 | | |
| M5-1R | 1 | | |
| M6-1L | 2 | | |
| M6-1R | 3 | | |
| M6-2L | 1 | | |
| M6-3 | 9 | | |
| R2-1 | 1 | | |
| R3-8 | 2 | | |
| R9-9 | 6 | | |
| R11-2 | | 5 | |
| R11-4 | | 1 | |
| W1-4L | 2 | | |
| W1-4R | 2 | | |
| W1-6R | 1 | | |
| W3-5 | 1 | | |
| W4-2L | 1 | | |
| W4-2R | 1 | | |
| W13-1 | 5 | | |
| W20-1 | 3 | | |
| W20-2 | 4 | | |
| W20-3 | 1 | | |
| W20-5L | 1 | | |
| W20-5R | 1 | | |
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| Barricades ✳ | | Channelizing Devices ✳ | | |
|---|---|---|---|---|
| Type 3 (4' to 12') | Pedestrian | Fixed | Portable | Pedestrian |
| 22 | 6 | | 82 | |

| Lighted Devices ✳ | |
|---|---|
| Work Zone Warning Light (Type "A" Low Intensity) | 16 |
| Work Zone Warning Light (Red Type "B" High Intensity) | 2 |
| Arrow Display | 1 |
| Portable Changeable Message Sign | |

| Recapitulation of Quantities | | |
|---|---|---|
| Item | Quantity | Unit |
| Work Zone Signs (0 to 9.25 Sq.Ft.) | 17,290 | Each Per Day |
| Work Zone Signs (9.26 to 16.25 Sq.Ft.) | 1040 | Each Per Day |
| Work Zone Signs (16.26 Sq.Ft. & Over) | | Each Per Day |
| Work Zone Barricades (Type 3 - 4' to 12') | 2860 | Each Per Day |
| Work Zone Barricades (Pedestrian) | 780 | Each Per Day |
| Channelizer (Fixed) | | Each Per Day |
| Channelizer (Portable) | 10,660 | Each Per Day |
| Channelizer (Pedestrian) | | Each Per Day |
| Work Zone Warning Light (Type "A" Low Intensity) | 2080 | Each Per Day |
| Work Zone Warning Light (Red Type "B" High Intensity) | 260 | Each Per Day |
| Arrow Display | 130 | Each Per Day |
| Portable Changeable Message Sign | | Each Per Day |
| Pavement Marking (Temporary) | | |
| 4" Solid (Type I) | 86.0 | Sta./Line |
| 4" Solid (Type II) | | Sta./Line |
| 4" Broken (8.0') (Type I) | | Sta./Line |
| 4" Broken (8.0') (Type II) | | Sta./Line |
| 4" Broken (3.0') (Type I) | | Sta./Line |
| 4" Broken (3.0') (Type II) | | Sta./Line |
| 4" Dotted Extension (Type I) | 9.7 | Sta./Line |
| 4" Dotted Extension (Type II) | | Sta./Line |
| Solid (Line Masking Tape) | 8.0 | Sta./Line |
| Broken (Line Masking Tape) | | Sta./Line |
| Symbol (Type I) | 4 | 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) | 1 | Each |
| Work Zone Sign (Special) (16.26 Sq. Ft. & More) | 5 | Each |
| Rigid Raised Pavement Marker (Type I) | | Each |
| Rigid Raised Pavement Marker (Type II) | | Each |
| Traffic Signal Installation (Temporary) | | Lump Sum |
| Traffic Control (Initial Set Up) | Lump Sum | Lump Sum |
| Traffic Control | | Lump Sum |
| Flagger (Set Price) | 1 | Hour |
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| NO. | DATE | REVISIONS | BY | APP'D |
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| 3 | | | | |
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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. | |

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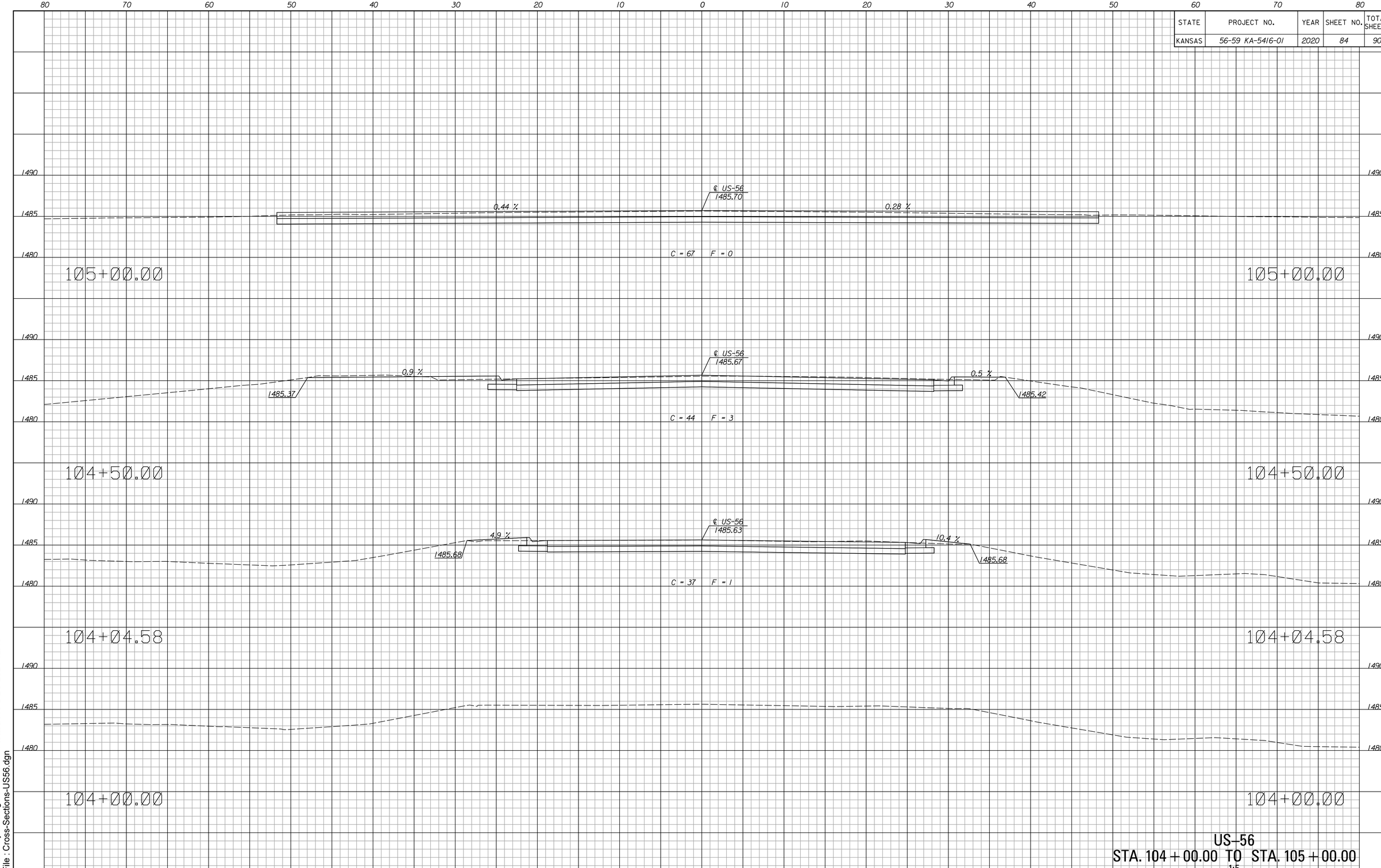
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 84 | 90 |

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File : : Cross-Sections-US56.dgn

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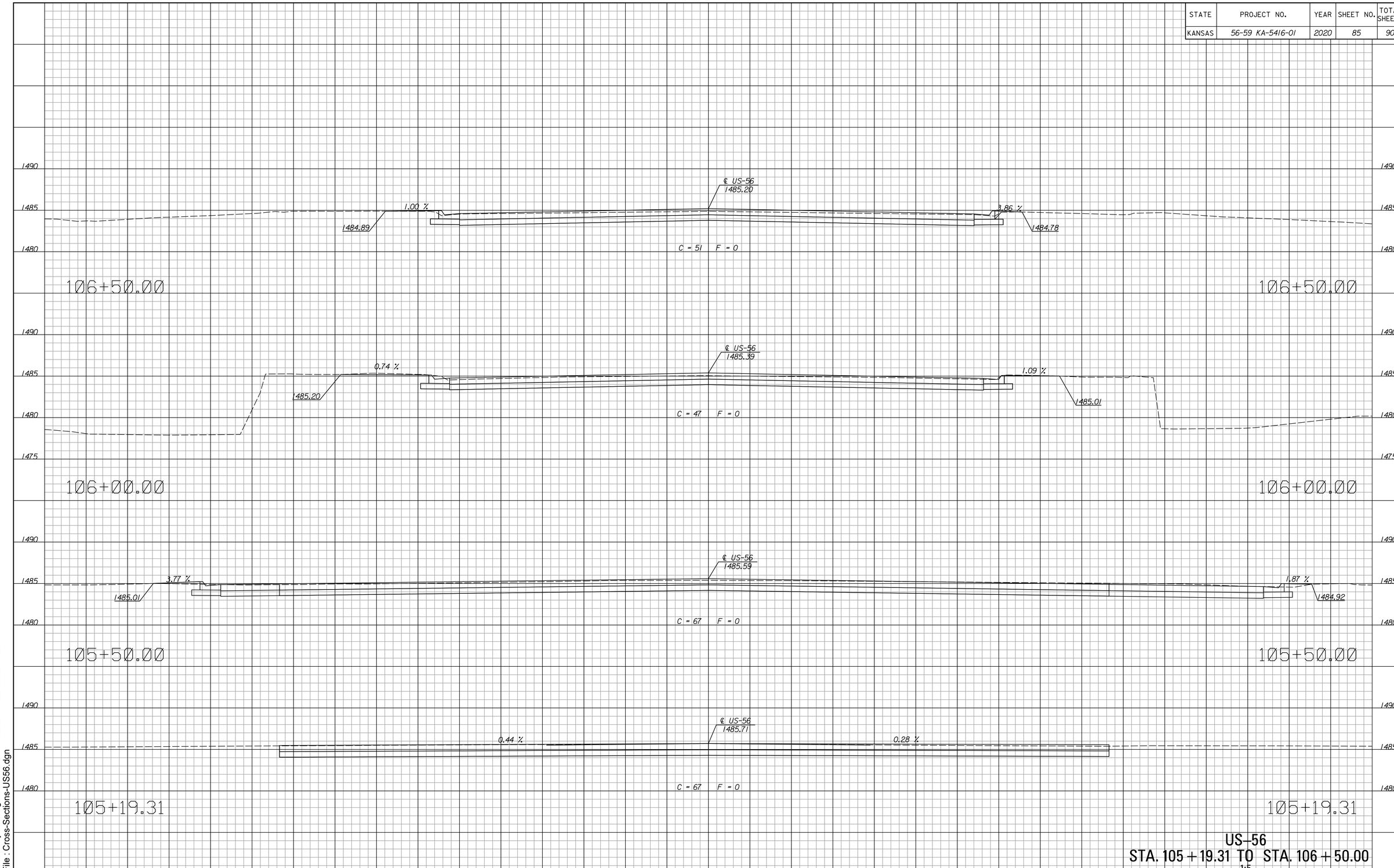
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 85 | 90 |




US-56
STA. 105+19.31 TO STA. 106+50.00
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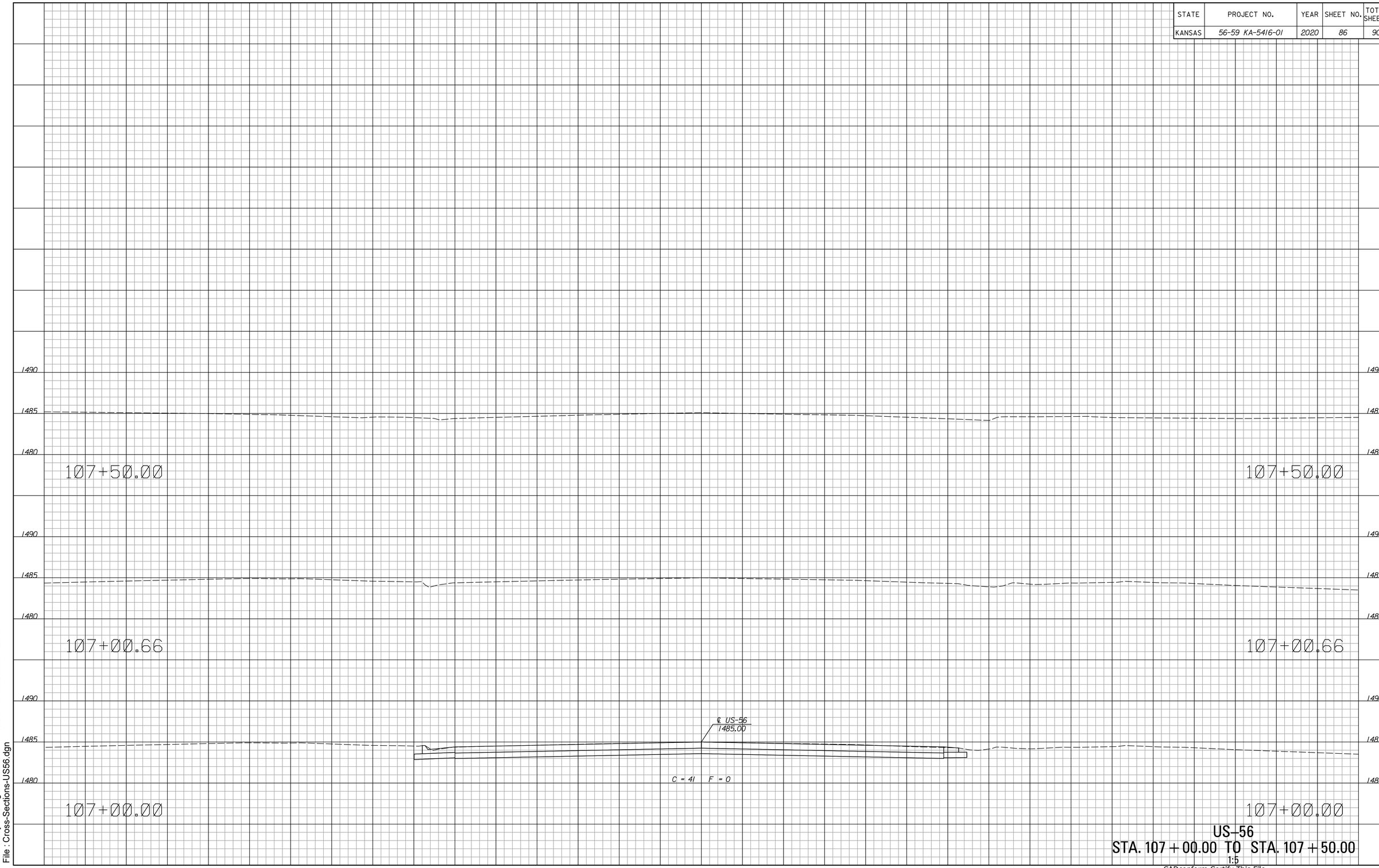
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 86 | 90 |




US-56
STA. 107+00.00 TO STA. 107+50.00
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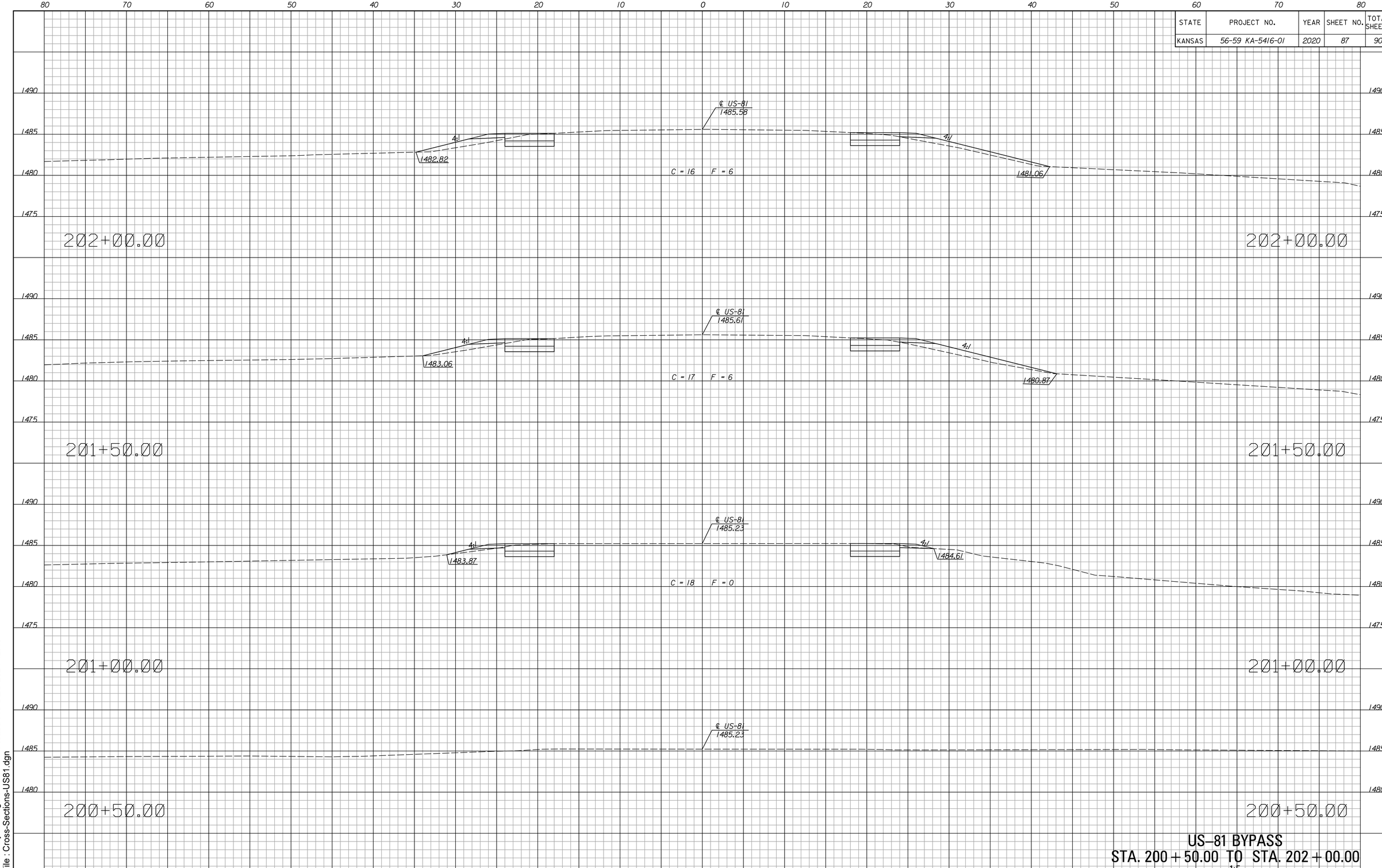
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 87 | 90 |




US-81 BYPASS
STA. 200+50.00 TO STA. 202+00.00
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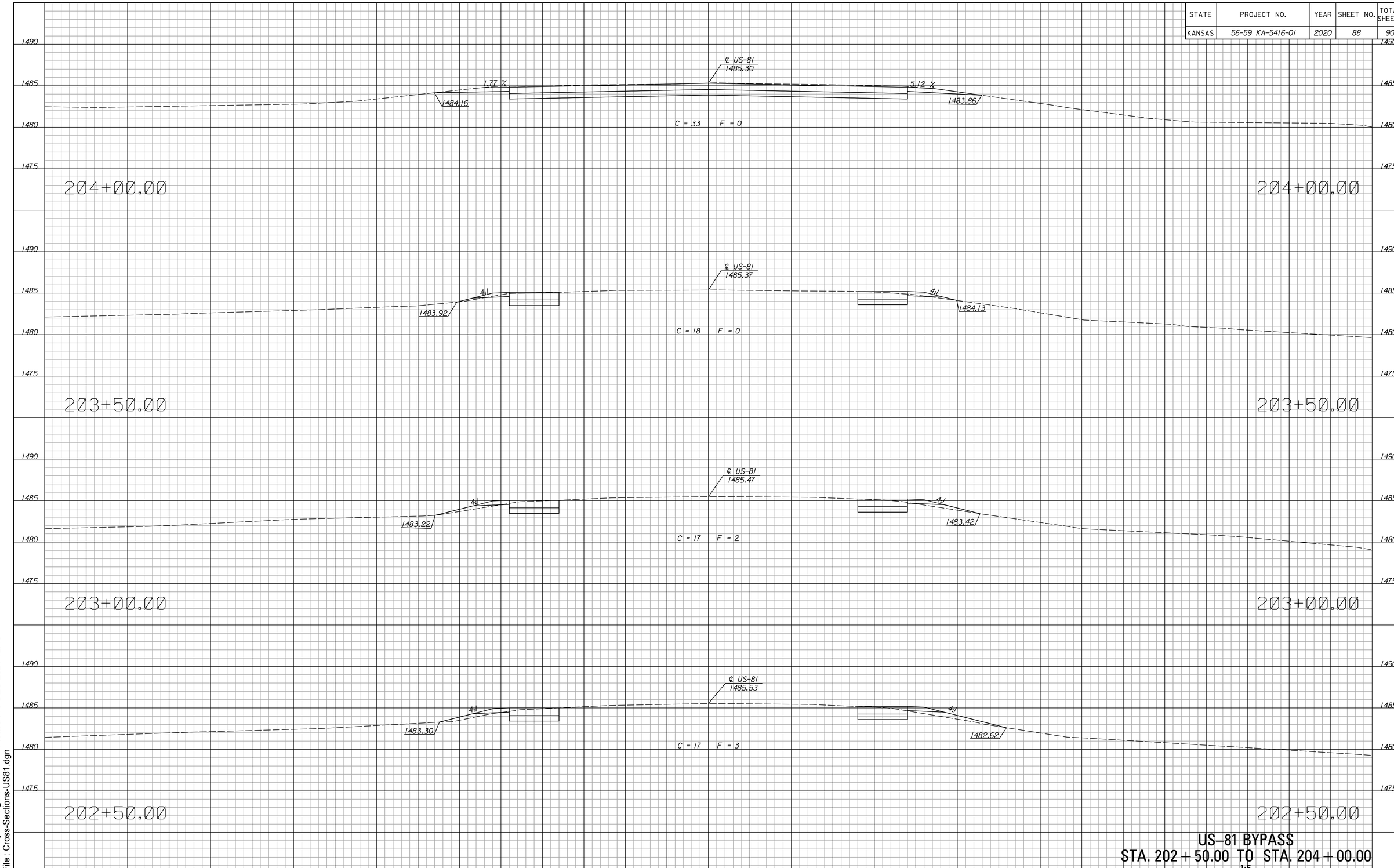
| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 88 | 90 |

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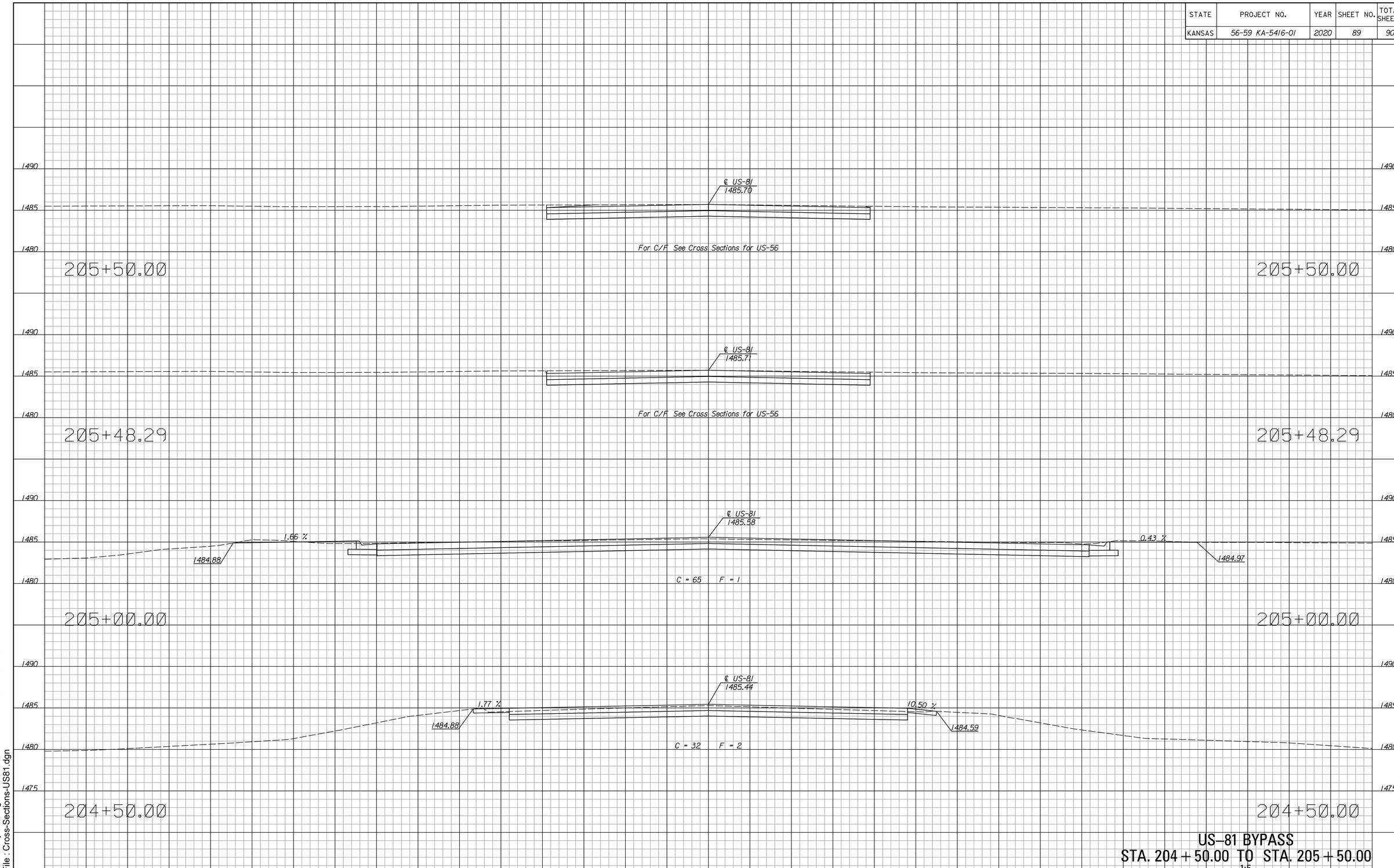
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 89 | 90 |




US-81 BYPASS
STA. 204 + 50.00 TO STA. 205 + 50.00
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| STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| KANSAS | 56-59 KA-5416-01 | 2020 | 90 | 90 |

US-81 BYPASS
STA. 206+00.00 TO STA. 207+50.00
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