STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	1	99

STATE OF KANSAS

DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

U.S. 36 (EAST HOLME STREET)

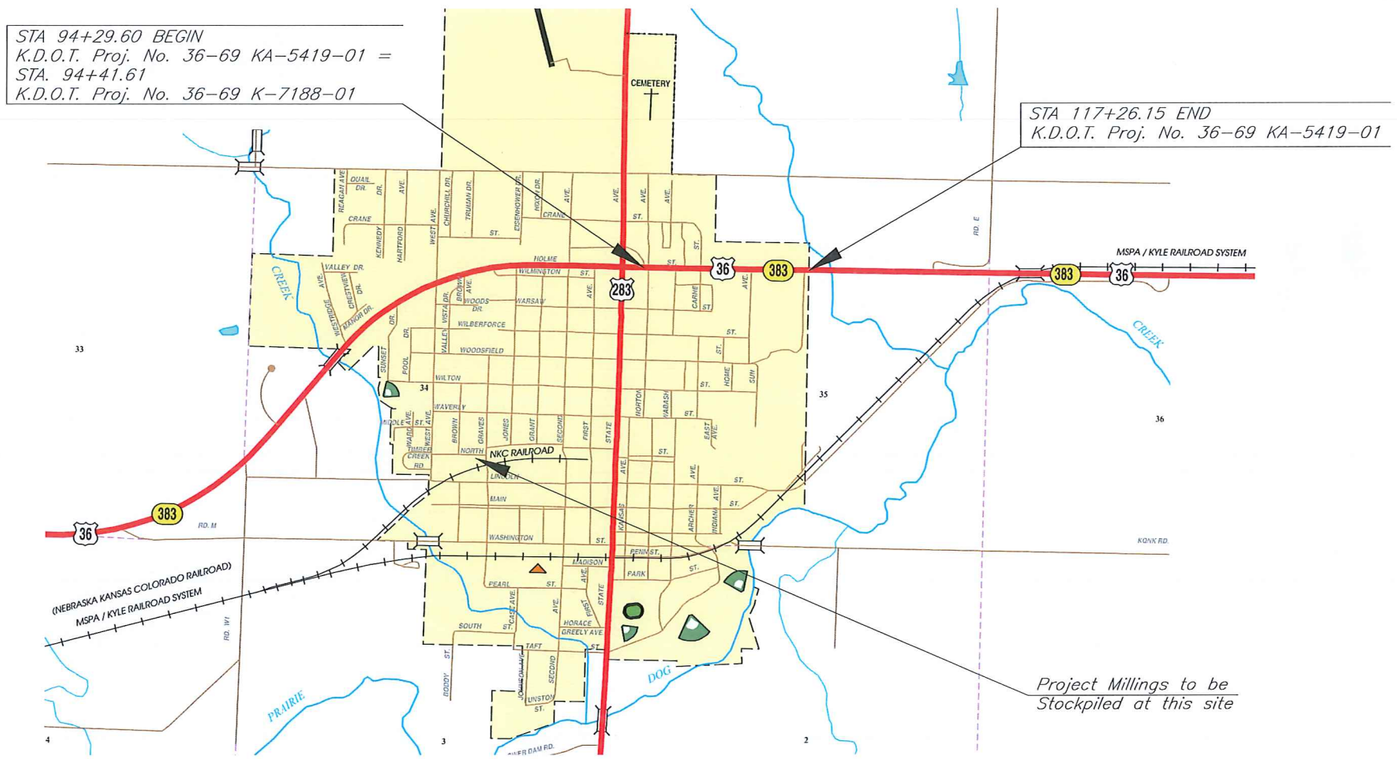
CITY OF Norton

36-69 KA-5419-01

GRADING
CONCRETE PAVEMENT
SEEDING
PAVEMENT MARKING

INDEX OF SHEETS

Sheet No.	
1	Title Sheet
2	Typical Sections
3	General Notes
4	Foundation Treatment & Compaction of Earthwork
5-15	Plan Profile
16-24	Intersection & Entrance Details
25-26	Pavement Joint Details
27-29	Pavement Details
30-31	Alley & Entrance Details
32	Curb & Gutter Details
33-34	Sidewalk Details
35	Storm Sewer Profiles
36-40	Inlet & Manhole Details
41	Schedule of Inlets & Manholes
42	Reinforcement for Inlets & Manholes
43	Concrete End Sections
44	Miscellaneous Pipe Culvert Details
45	Section Corner Monumentation Details
46-47	Summary of Quantities
48-54	Temporary Erosion Control & Pollution Control
55	Seeding
56-57	Pavement Markings Plan
58-60	Pavement Marking Details
61	Summary of Quantities for Removal and Resetting Signs
62-80	Traffic Control
81-99	Cross Sections



NOTE:
U.S. 36 WEST BOUND TRAFFIC WILL BE CARRIED THROUGH CONSTRUCTION.
U.S. 36 EAST BOUND TRAFFIC WILL BE DETOURED AROUND THE PROJECT.
SEE SHEET NO. 62.

0 1000 2000 3000 FEET

DESIGN DESIGNATION

AADT(2021)	5000
AADT(2041)	6150
DHV	10%
D	60/40
T	1.5/12.0
V	35 mph
C of A	None
Clear Zone	10 feet

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	2296.55 FT.	
EXCEPTIONS	0.00 FT.	
ADDITIONS	0.00 FT.	
NET LENGTH OF PROJECT	2296.55 FT.	0.435 MILES
NET LENGTH OF BRIDGES	0.00 FT.	0.000 MILES
NET LENGTH OF ROAD	2296.55 FT.	0.435 MILES

JEROL J. DeBOER LICENSED 12752 3-3-22 KANSAS PROFESSIONAL ENGINEER

PLANS PREPARED BY:
PENCO ENGINEERING, P.A.
PLAINVILLE, KANSAS

RECOM. FOR APPROVAL-DATE 3-3-2022

JAMES MOREAU
CITY ADMINISTRATOR

Approved Mar 04,2022

State Transportation Engineer

By: Dawn M Hueske
Assistant Chief, Bureau of Local Projects

KANSAS DEPARTMENT OF TRANSPORTATION

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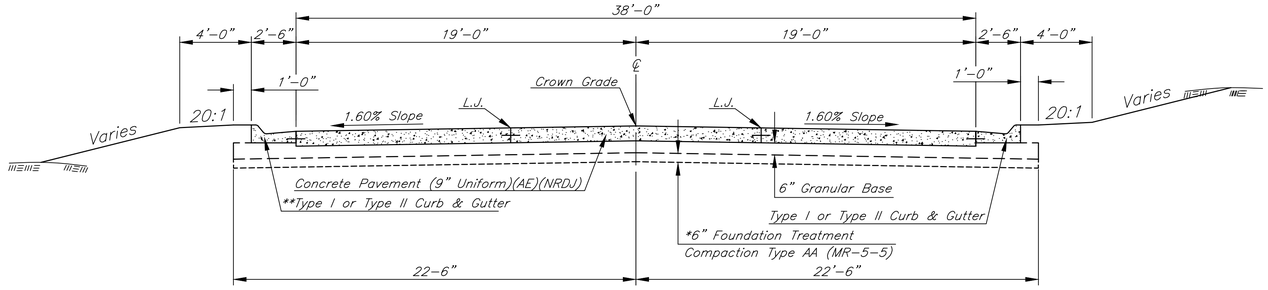
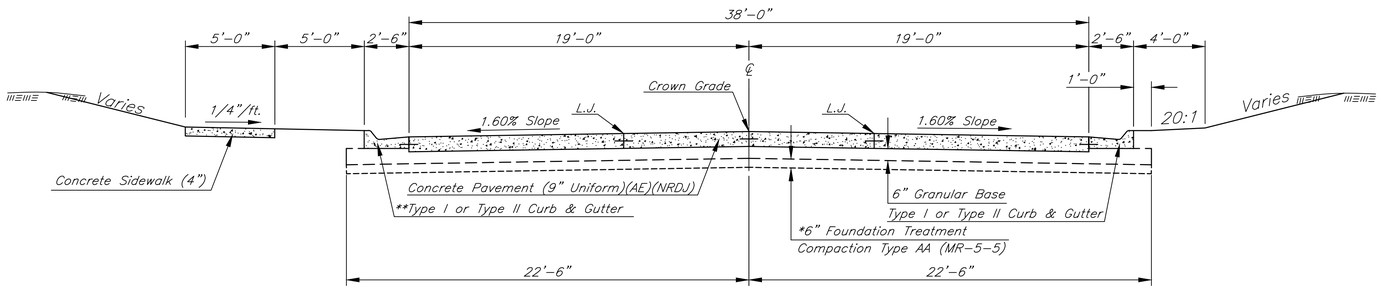
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	2	99



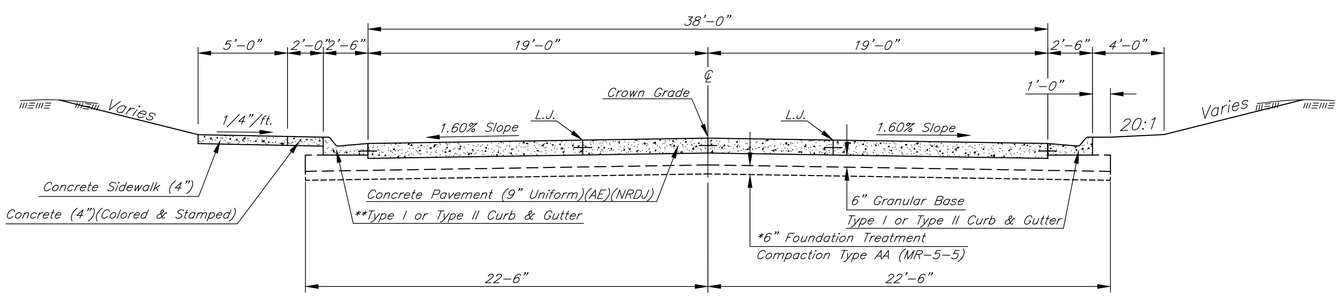
FILL SECTION TYPICAL SECTION CUT SECTION

Sta. 109+11.70 to Sta. 117+21.80



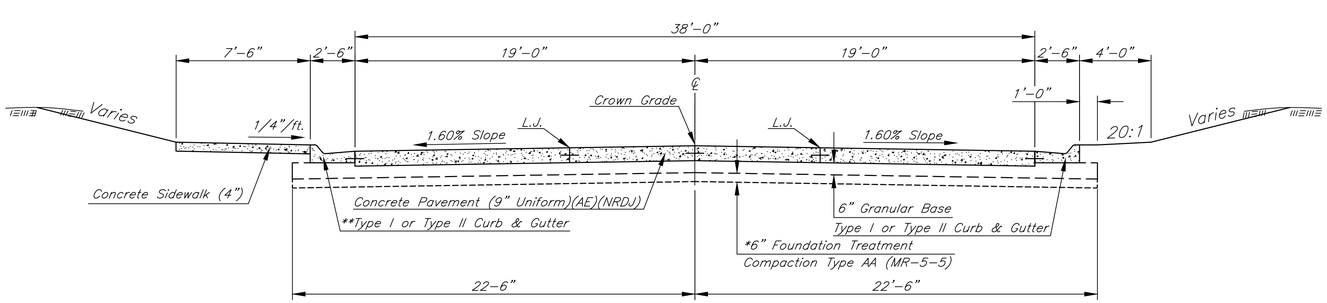
TYPICAL SECTION

Sta. 105+63.70 to Sta. 109+11.70



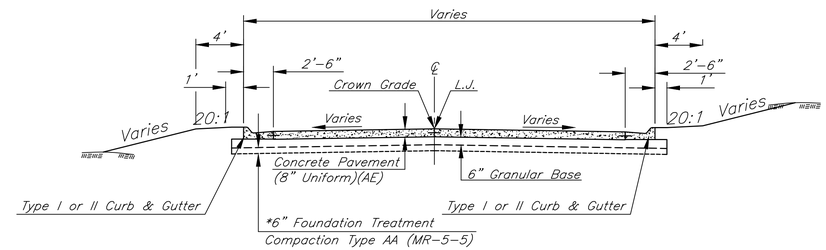
TYPICAL SECTION

Sta. 97+79.70 to Sta. 105+63.70

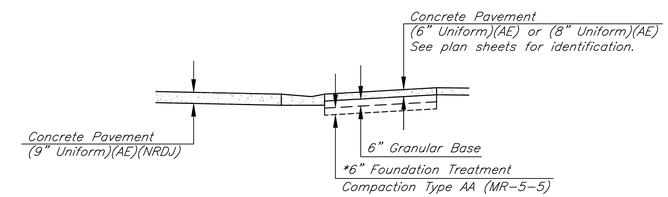


TYPICAL SECTION

Sta. 94+40.60 to Sta. 97+79.70



FILL SECTION SIDE STREET CUT SECTION



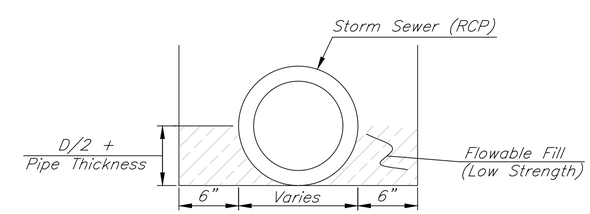
TYPICAL DRIVEWAY OR ENTRANCE

Notes:

6" Granular Base shall extend a minimum of 1' beyond the limits of driveway or entrance paving.

*Compaction of this material shall be subsidiary to other items of the contract.

**Contractor has the option of constructing Type I or Type II Curb & Gutter to full depth of Concrete Pavement (9" Uniform)(AE)(NRDJ). This work and material shall be subsidiary to other items of the contract.



Trench Detail
Storm Sewer

* Subsidiary to other bid items

CITY OF NORTON

TYPICAL SECTIONS

PENCO ENGINEERING, P.A.
PLAINVILLE, KS

DESIGNED BY: JJD	SCALE: No Scale
DRAWN BY: MRH	JOB NO.: 36-69 KA-5419-01
CHECKED BY: BRD	DATE: 2022

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	3	99

PROPERTY OWNERS

1	Casey's Retail Company Tract in NW ¼, Section 35, T2S, R23W
2	Norton Motel, LLC Tract in NW ¼, Section 35, T2S, R23W
3	Randall C. & Tammy Ball Tract in NW ¼, Section 35, T2S, R23W
4	Sargent Rentals, LLC Tract in NW ¼, Section 35, T2S, R23W
5	Realty Income Properties 30, LLC Tract in NW ¼, Section 35, T2S, R23W
6	Joyce Cropp Tract in NW ¼, Section 35, T2S, R23W
7	Linc & Tracy Ostmeyer Tract in NW ¼, Section 35, T2S, R23W
8	Ronald & Gloria Zwickle Tract in NW ¼, Section 35, T2S, R23W
9	Randall S. & Cynthia J. Linner Tract in NW ¼, Section 35, T2S, R23W
10	Wilson Carter Printers, Inc. Tract in NW ¼, Section 35, T2S, R23W
11	John H. & Brenda L. Sanders Tract in NW ¼, Section 35, T2S, R23W
12	V. Genevieve Poage Living Trust Tract in NW ¼, Section 35, T2S, R23W
13	Ruth R. Hartman Trust #1 Tract in NW ¼, Section 35, T2S, R23W
14	Jim & Heidi Linner Tract in NE ¼, Section 35, T2S, R23W
15	Darin G. & Julie Ann Campbell Tract in NE ¼, Section 35, T2S, R23W
16	Norton City County Economic Development of Norton Tract in NW ¼, Section 35, T2S, R23W
17	Kiel L. & Kristen K. Fahrenbruch Lot 1, Block 1, of Blickenstaff Addtion to the City of Norton
18	Mapes Family LP Lots 2-4, Block 3 & Vacated Alley Adjacent to the West, of Leon Broquet's Addition to the City of Norton
19	Von & Kristine K. Fahrenbruch Lots 5-7, Block 3 & Vacated Street Adjacent to the West, of Leon Broquet's Addition to the City of Norton
20	Esslinger Storage, LLC Lots 2-7, Block 4 & Vacated Alley Adjacent to the West, of Leon Broquet's Addition
21	Esslinger Storage, LLC All of Block 1 & W ½ Vacated Alley Adjacent to the East, of Golf Addition
22	United Northwest Federal Credit Union E 81' of Lots 1-4, Block 2, of Golf Addition
23	Equity Bank W 59' Lots 1-4, All of Lots 5-8, & Vacated Alley lying within Block 2, of Golf Addtions
24	High Plains Mental Health Center Endowment Association, Inc. E ½ of Lots 1-2 & N 28' of E ½ Lot 3, Block 3, of Golf Addtion
25	County of Norton W ½ Lots 1-4, All of Lots 6-8, & Vacated Alley between said Lots, Block 3, of Golf Addition
26	County of Norton All of Block 4, including Vacated Alley lying within said Block, Lots 1, 2, 7-12, Block 5, Vacated Alley lying between said Lots, & Vacated Street lying between said Blocks, of Golf Addtion

LEGEND

Curb & Gutter, Combined(AE) –

Concrete Pavement (9" Uniform)(AE)(NRDJ) –

Concrete Pavement (8" Uniform)(AE) –

Concrete Pavement (6" Uniform)(AE) –

Sidewalk Construction (4")(AE) –

Concrete (4")(Colored & Stamped) –

UTILITIES

Telephone–
AT&T
1-785-462-2074
AT&T

Sewer, Water, & Electric –
City of Norton
1-785-877-5000
UP
HP
W

Fiber Optic Tel.–
CenturyLink Communications
1-720-260-2514 or
1-785-821-1195
FIBER

Nex-tech/Rural Telephone Company
1-877-567-7872
NEX-TECH

Gas–
Midwest Energy
1-785-543-3001
GAS

GENERAL NOTES

The utilities shown on the plans are from field surveys using the best available information at the time. The Contractor, however, shall remain responsible for notifying all utility owners prior to the start of construction on the project so that utility owners can verify the exact location and depth of buried utilities.

Excavation shown to be wasted shall be wasted on sites provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance, and site location. Locations that, in the opinion of the owner, will leave an unsightly appearance will not be approved.

All disposal sites must be approved by Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to the U.S. Corps of Engineers permitting regulations. Any material buried beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

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

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

The Contractor shall remove and stockpile, or cover any existing signs in conflict with the detour or traffic control as directed by the Engineer.

The Contractor shall remove the existing RCP & CMP Storm Sewer. Removed Storm Sewer shall become property of the Contractor and shall be removed from the site.

All tie in points shall be saw cut along the adjoining edges. All saw cuts shall be Subsidiary to other bid items.

Concrete Pavement shall have a burlap drag finish. Tining will not be required.

Contractor shall phase construction to maintain access to businesses along U.S. Highway 36 (Holme Street).

All millings shall be hauled to a stockpile area located at Graves Ave. & North Street. The excess milled material shall become property of The City of Norton. The Contractor shall be responsible for stockpiling the millings at the stockpile area.

PROJECT DATUM:

Horizontal & Vertical Coordinates are tied to KDOT Horizontal Control Point "NT 060". In Norton, approximately 1850' East of the Intersection of US Highway 36 and US Highway 283, and 53' North of the centerline of US Highway 36, a 2" Aluminum Cap in concrete stamped "KDOT HCP NT 060 SURVEYS".

Geodetic Coordinates are based on NAD83(2011)(EPOCH:2010.0000)
Orthometric Heights are based in the NAVD 88 Vertical Datum (GEOID18)
State Plane Coordinates are based on the Kansas State Plane North Zone (1501)
Units are in US Survey Feet.

State Plane Coordinates
Kansas State Plane North Zone (1501)
N=553781.97 ft
E=783825.09 ft
Convergence=-1.19085000°

Project (Ground) Coordinates are modified State Plane utilizing a Combined Ground Scale Factor = 0.99990260

Project Coordinates were modified to ground at KDOT Horizontal Control Point:
Latitude: 39°50'19.29437"
Longitude -99°52'55.66062"

Orthometric Height: 2315.77 (NAVD88)

No False Northing or Easting

LEGEND & NOTES

PENCO ENGINEERING, P.A.
PLAINVILLE, KS

DESIGNED BY: JGD	SCALE: No Scale
DRAWN BY: MRH	JOB NO.: 36-69 KA-5419-01
CHECKED BY: JJO	DATE: 2022

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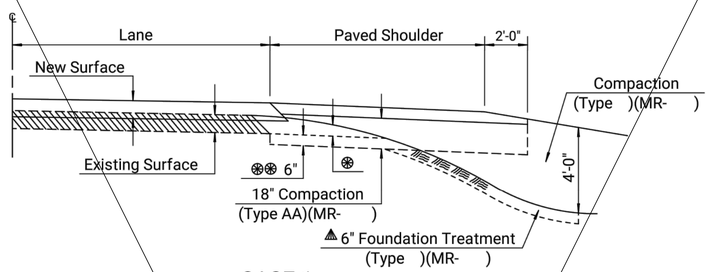
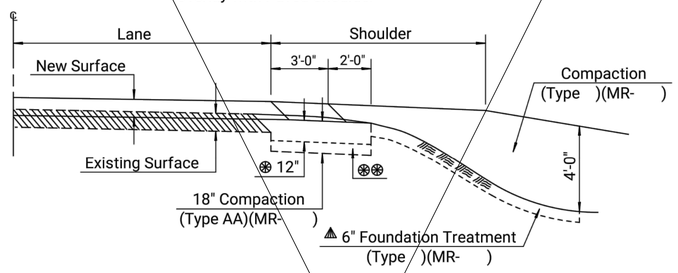
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	4	99

REHABILITATION



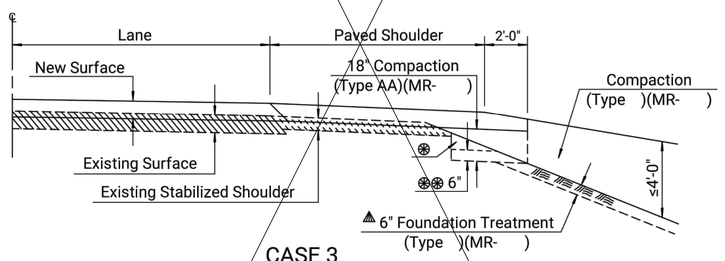
CASE 1

Overlay with Paved Shoulder



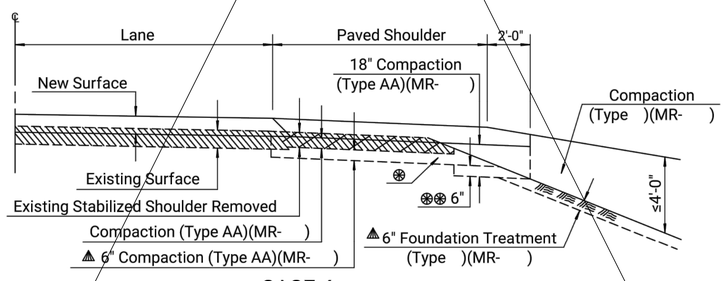
CASE 2

Overlay with Composite Shoulder



CASE 3

Overlay with Existing Paved Shoulder



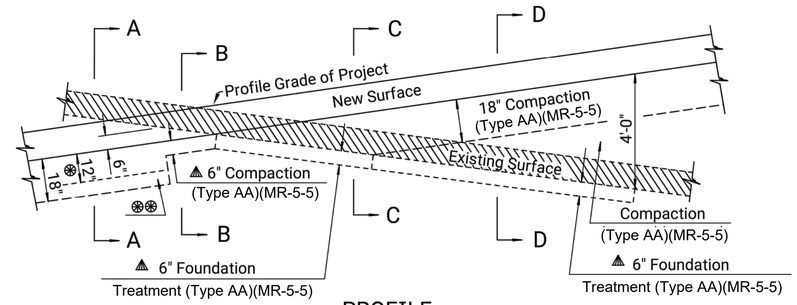
CASE 4

Overlay with Shoulder Replacement

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

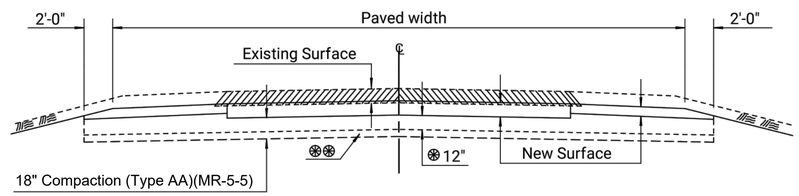
Note: These are 4 general cases. Specific compaction requirements are determined on a project-by-project basis.

RECONSTRUCTION

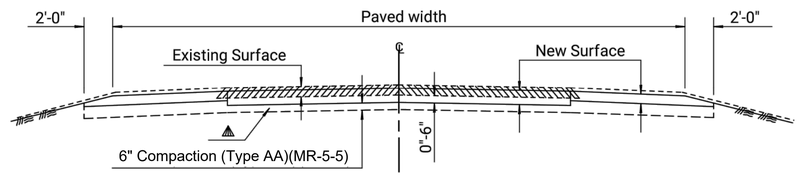


PROFILE

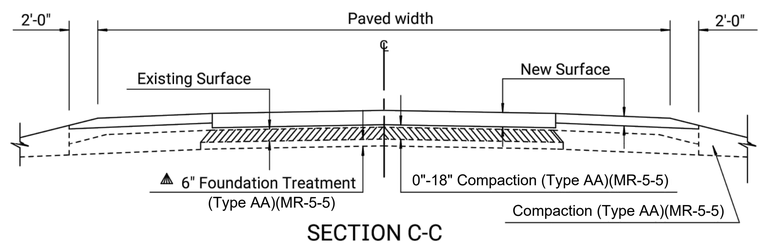
- ⊛ Excavation thru Cuts not Subgraded
- ⊛⊛ The lower 6" of Compaction is subsidiary.
- ▲ Compaction of this material shall be subsidiary.



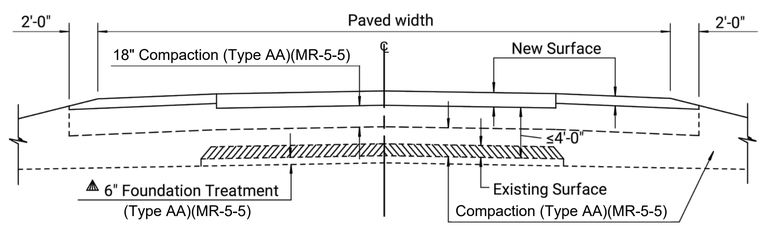
SECTION A-A



SECTION B-B

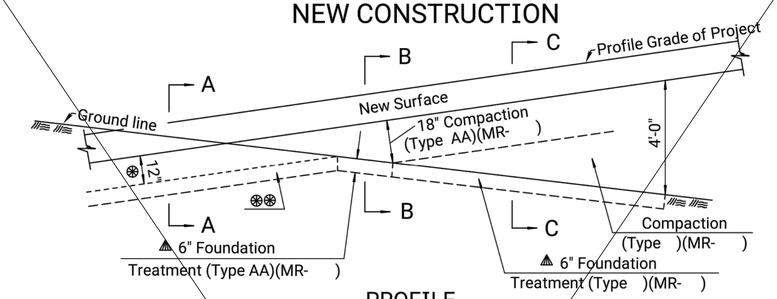


SECTION C-C



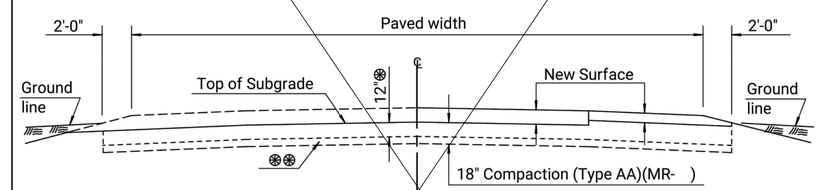
SECTION D-D

NEW CONSTRUCTION

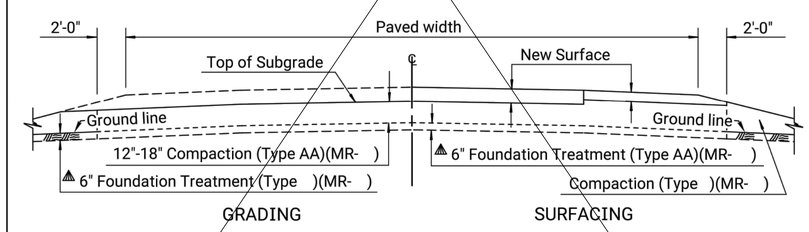


PROFILE

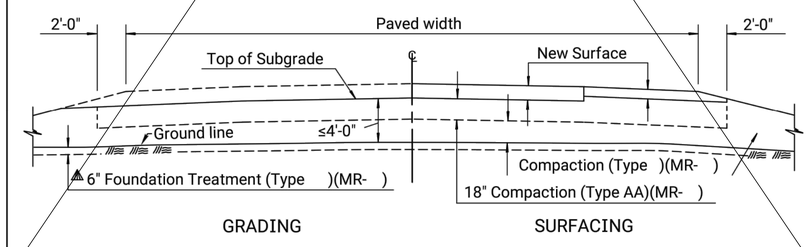
- ⊛ Excavation thru Cuts not Subgraded
- ⊛⊛ The lower 6" of Compaction is subsidiary.
- ▲ Compaction of this material shall be subsidiary.



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	10-17-1 1	Revised General Note	S.W.K.	J.O.B.
4	1-05-1 0	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 12-5-1 1		APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

KDOT Graphics Certified 03-28-2018

KDOT Graphics Certified

Plotted :28-MAR-2018 13:46

Drawn By : jacob.lawhorn
File : working_rd605.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	5	99

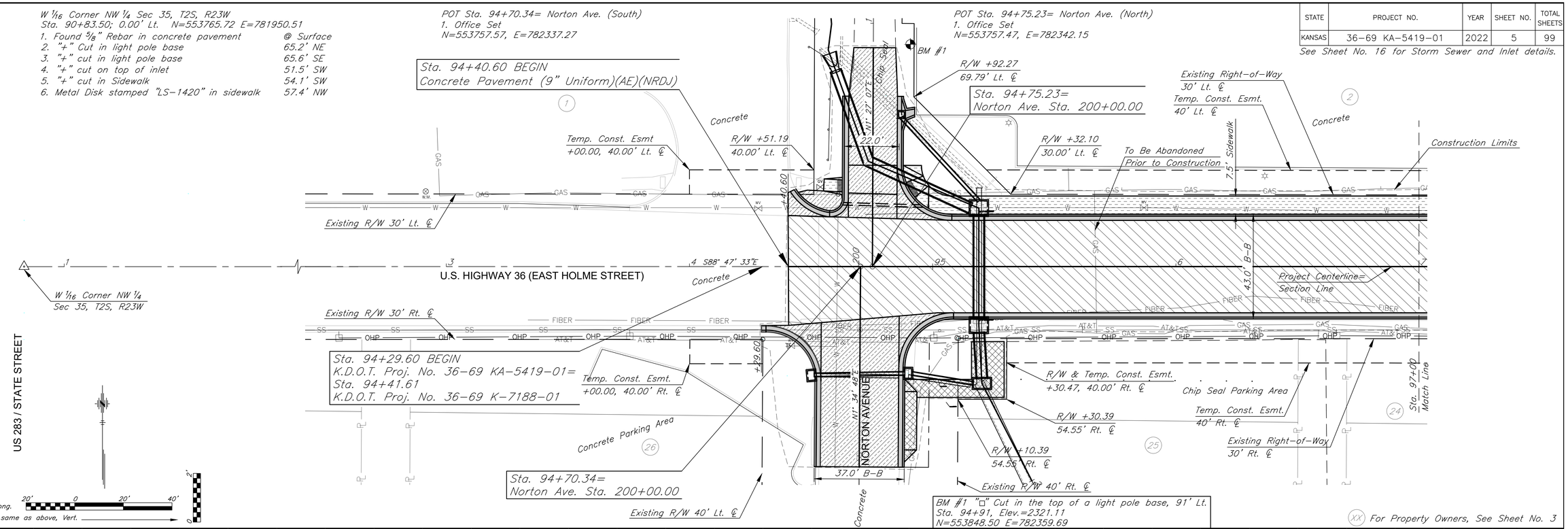
See Sheet No. 16 for Storm Sewer and Inlet details.

W 1/16 Corner NW 1/4 Sec 35, T2S, R23W
Sta. 90+83.50; 0.00' Lt. N=553765.72 E=781950.51

1. Found 5/8" Rebar in concrete pavement @ Surface
2. "+" Cut in light pole base 65.2' NE
3. "+" cut in light pole base 65.6' SE
4. "+" cut on top of inlet 51.5' SW
5. "+" cut in Sidewalk 54.1' SW
6. Metal Disk stamped "LS–1420" in sidewalk 57.4' NW

POT Sta. 94+70.34= Norton Ave. (South)
1. Office Set
N=553757.57, E=782337.27

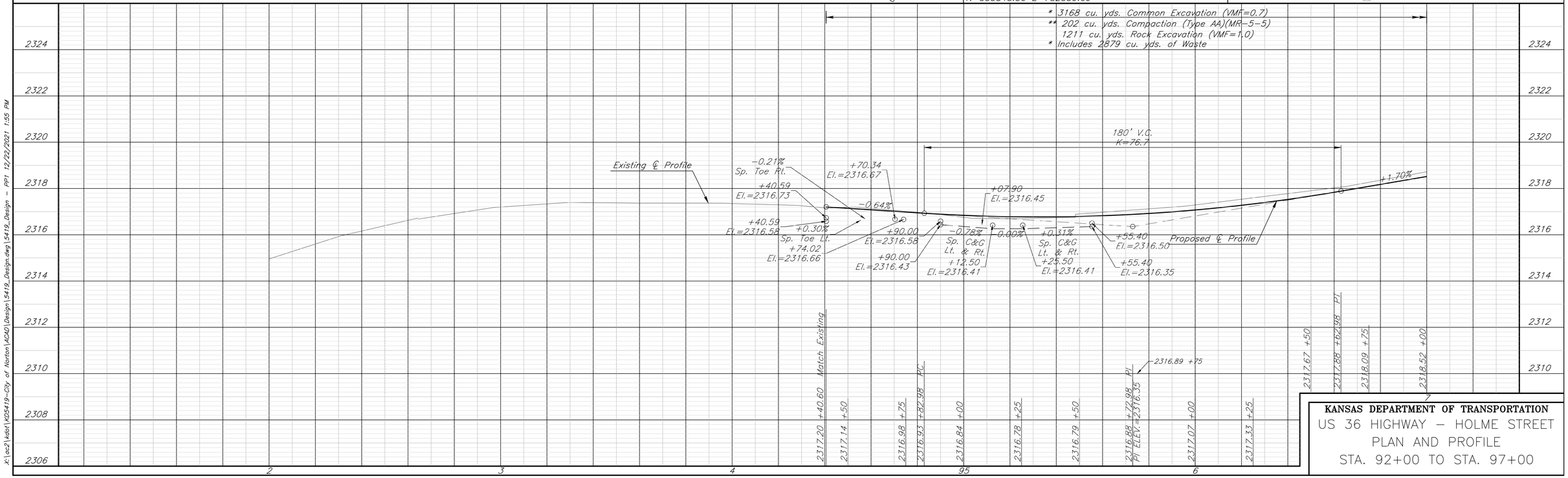
POT Sta. 94+75.23= Norton Ave. (North)
1. Office Set
N=553757.47, E=782342.15



BM #1 "□" Cut in the top of a light pole base, 91' Lt.
Sta. 94+91, Elev.=2321.11
N=553848.50 E=782359.69

(XX) For Property Owners, See Sheet No. 3

* 3168 cu. yds. Common Excavation (VMF=0.7)
** 202 cu. yds. Compaction (Type AA)(MR–5–5)
1211 cu. yds. Rock Excavation (VMF=1.0)
* Includes 2879 cu. yds. of Waste



KANSAS DEPARTMENT OF TRANSPORTATION
US 36 HIGHWAY – HOLME STREET
PLAN AND PROFILE
STA. 92+00 TO STA. 97+00

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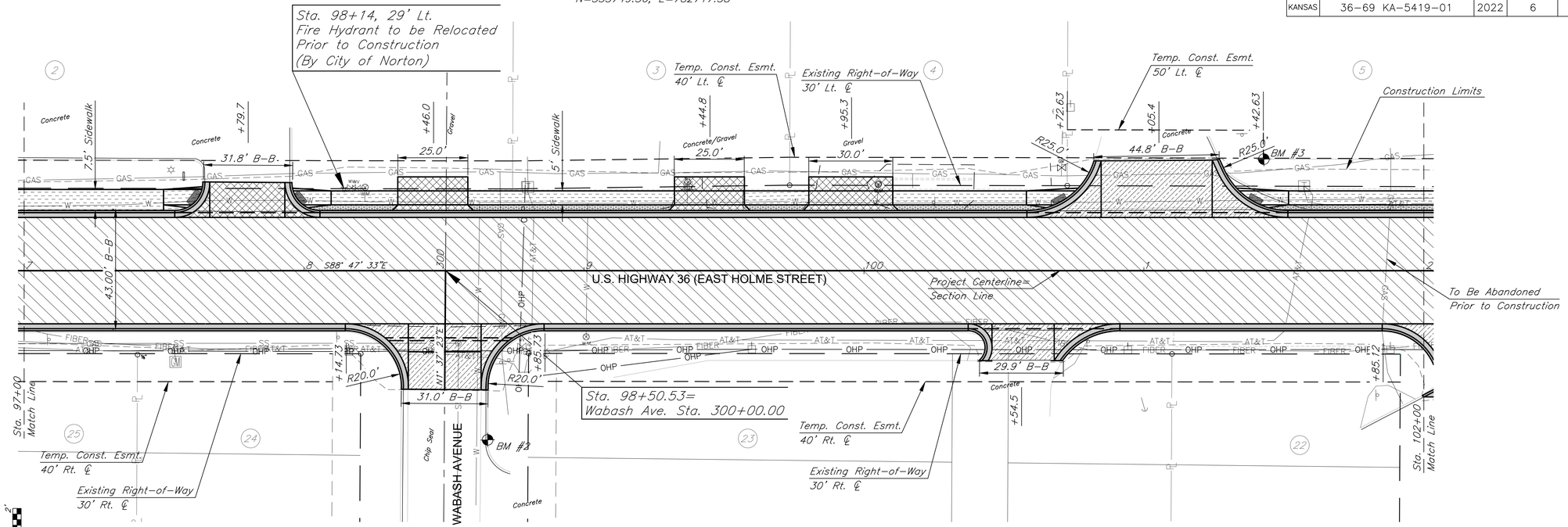
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	6	99

POT Sta. 98+50.53= Wabash Ave.
1. Office Set
N=553749.56, E=782717.38



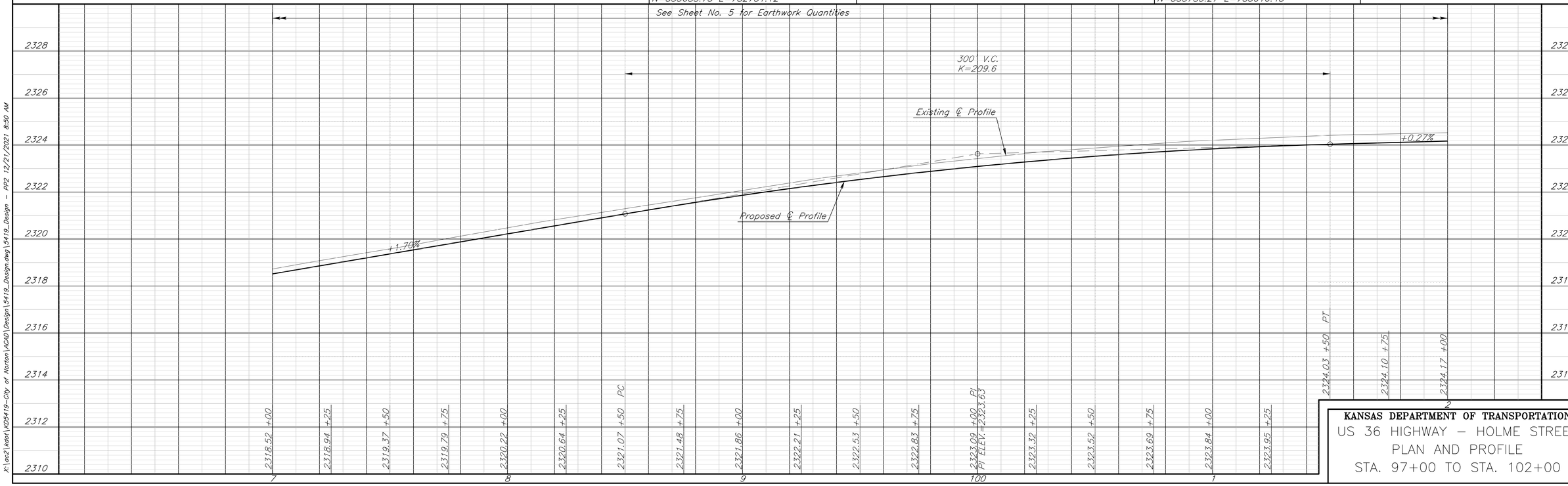
PLAN: Lat. & Long.
PROFILE: Horiz. same as above, Vert.

BM #2 "□" Cut in the top of curb, 61' Rt.
Sta. 98+66, Elev.=2321.39
N=553688.75 E=782731.12

BM #3 "□" Cut in the top of curb, 40' Lt.
Sta. 101+43, Elev.=2325.39
N=553783.27 E=783010.48

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION
US 36 HIGHWAY – HOLME STREET
PLAN AND PROFILE
STA. 97+00 TO STA. 102+00

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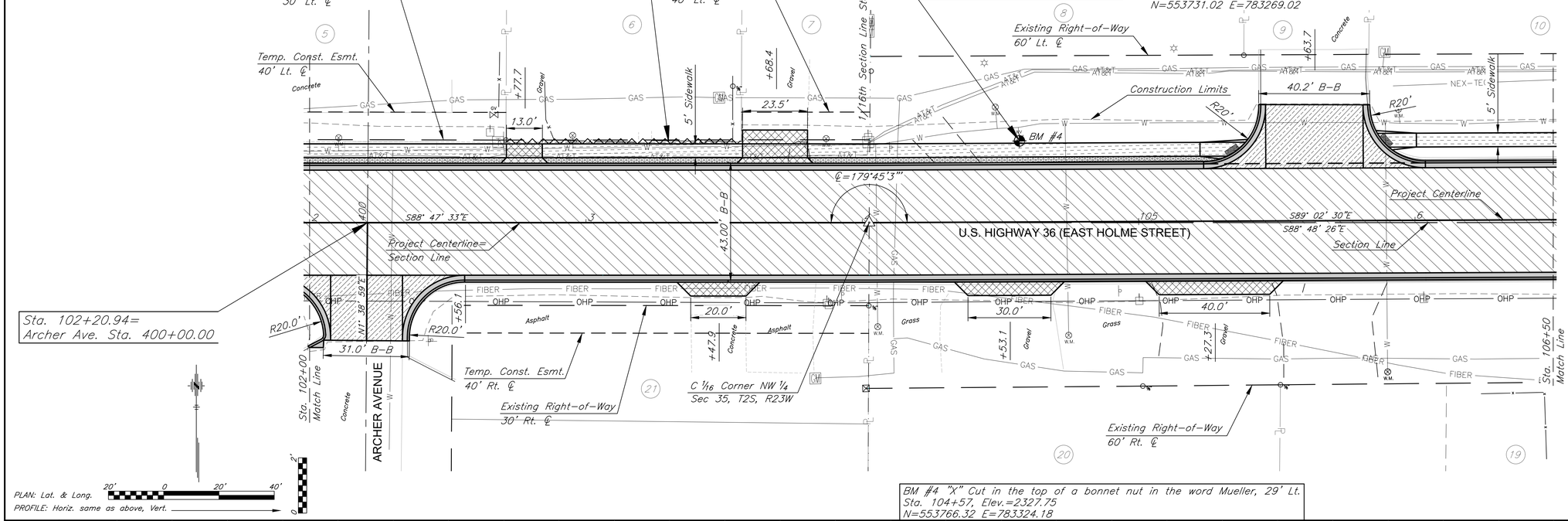
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	7	99

POT Sta. 102+20.94 = Archer Ave.
1. Office Set
N=553741.75, E=783087.70

Sta. 102+71.2 to Sta. 103+56.2 Install
85 LNFT Fence (Construction)(Temporary)

Sta. 104+57, 29' Lt.
Fire Hydrant to be Relocated
Prior to Construction
(By City of Norton)

PI Sta. 104+02.48 Δ=0°14'57" Lt.=
C 1/16 Corner NW 1/4 Sec 35, T2S, R23W
1. Found nail flush with asphalt highway surface
2. Southeast Corner of Stucco Building 65.6' NNW
3. Northeast Corner of Metal Building 60.0' SSW
4. "911" Sign post base 164.3' WSW
N=553731.02 E=783269.02

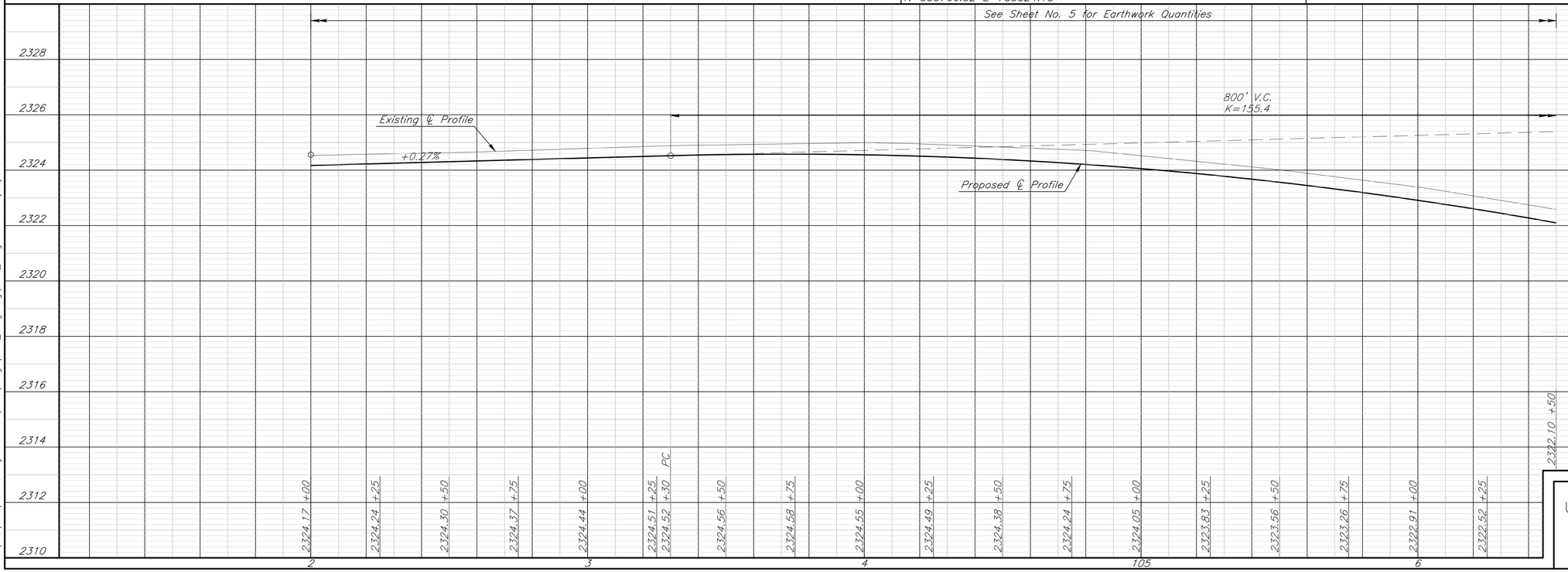


PLAN: Lat. & Long. 20' 0 20' 40'
PROFILE: Horiz. same as above, Vert. 0 2'

BM #4 "X" Cut in the top of a bonnet nut in the word Mueller, 29' Lt.
Sta. 104+57, Elev.=2327.75
N=553766.32 E=783324.18

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION
US 36 HIGHWAY – HOLME STREET
PLAN AND PROFILE
STA. 102+00 TO STA. 106+50

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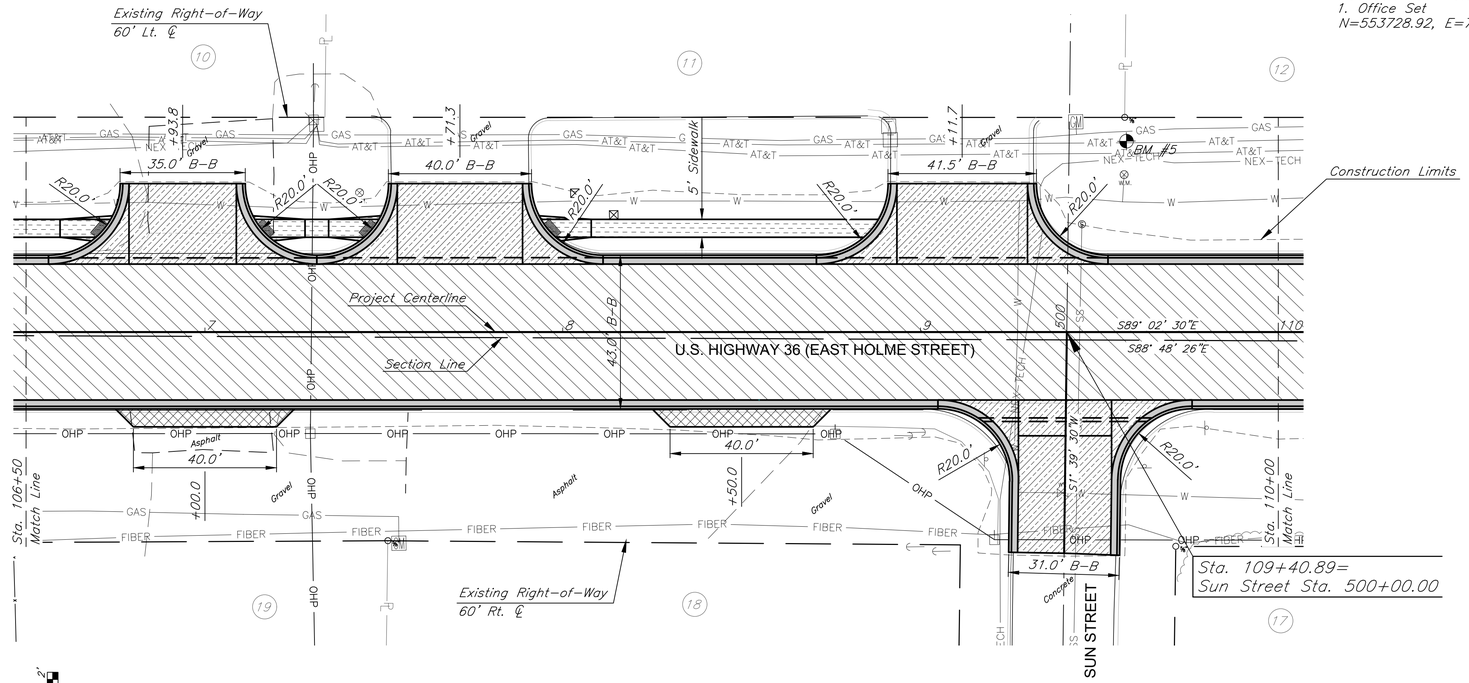
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	8	99

POT Sta. 109+40.89 = Sun Street
1. Office Set
N=553728.92, E=783807.54

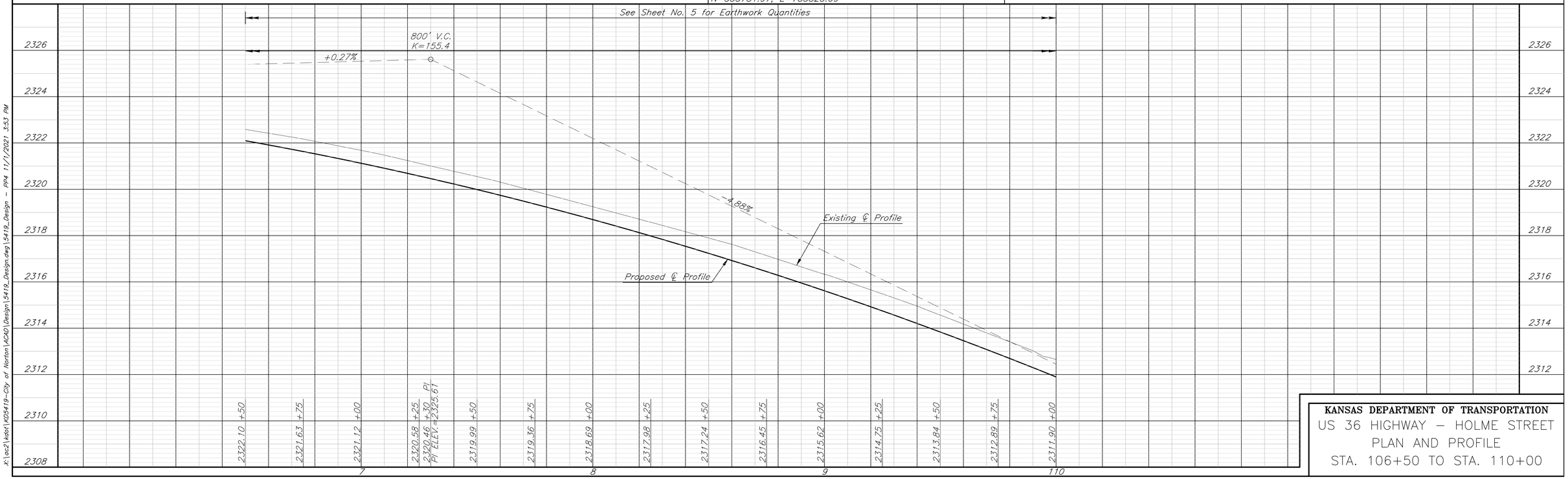


PLAN: Lat. & Long. 20' 0 20' 40'
PROFILE: Horiz. same as above, Vert. 0 2'

BM #5 2" Aluminum Cap stamped "KDOT HCP NT 060" 53' Lt.
Sta. 109+58, Elev.=2315.76
N=553781.97, E=783825.09

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION
US 36 HIGHWAY – HOLME STREET
PLAN AND PROFILE
STA. 106+50 TO STA. 110+00

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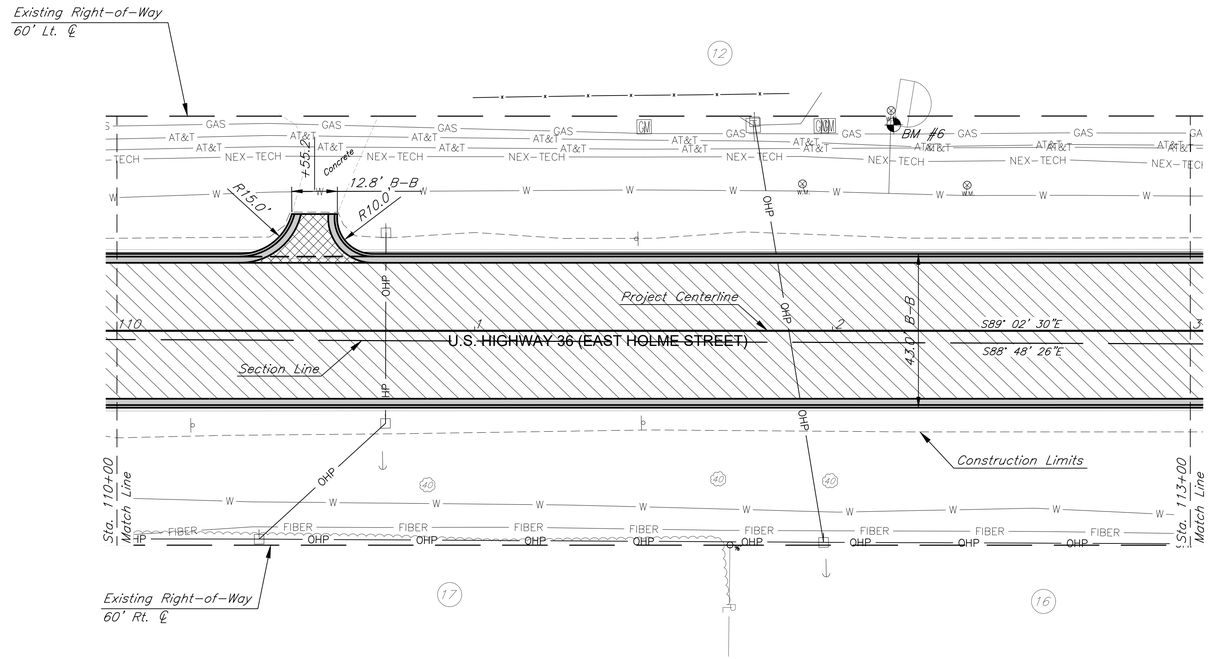
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	9	99

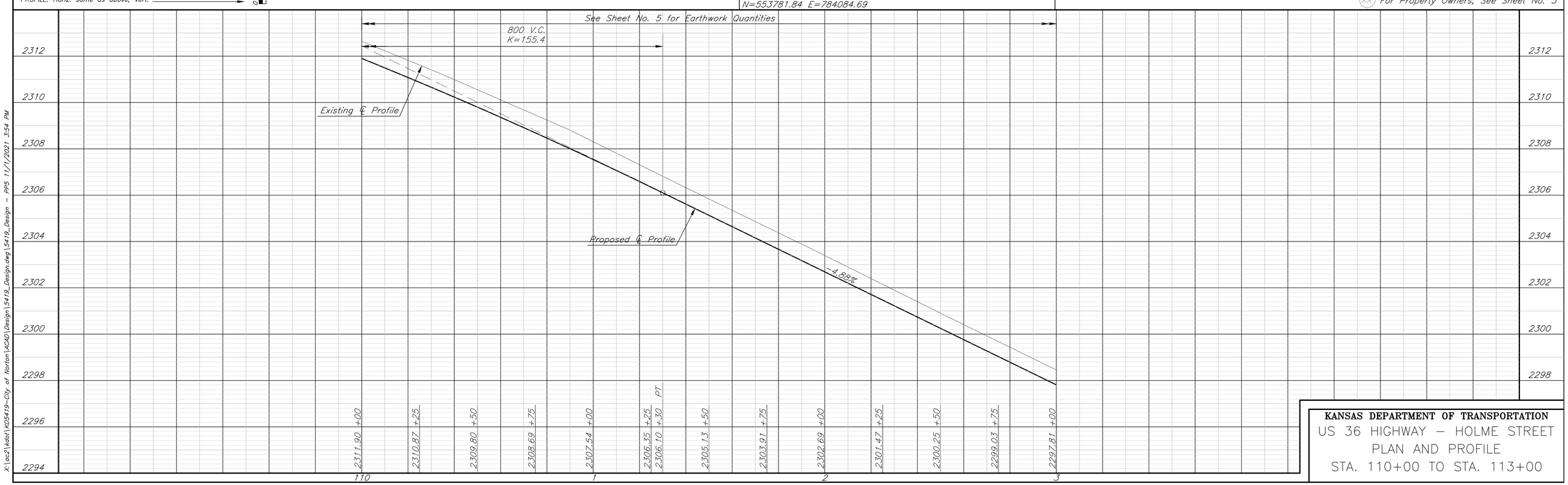


PLAN: Lat. & Long. 20' 0 20' 40'

PROFILE: Horiz. same as above, Vert. 0 2'

BM #6 "□" Cut in the southwest corner of sign base base, 58' Lt.
Sta. 112+17, Elev.=2303.04
N=553781.84 E=784084.69

(XX) For Property Owners, See Sheet No. 3



KANSAS DEPARTMENT OF TRANSPORTATION

US 36 HIGHWAY – HOLME STREET

PLAN AND PROFILE

STA. 110+00 TO STA. 113+00

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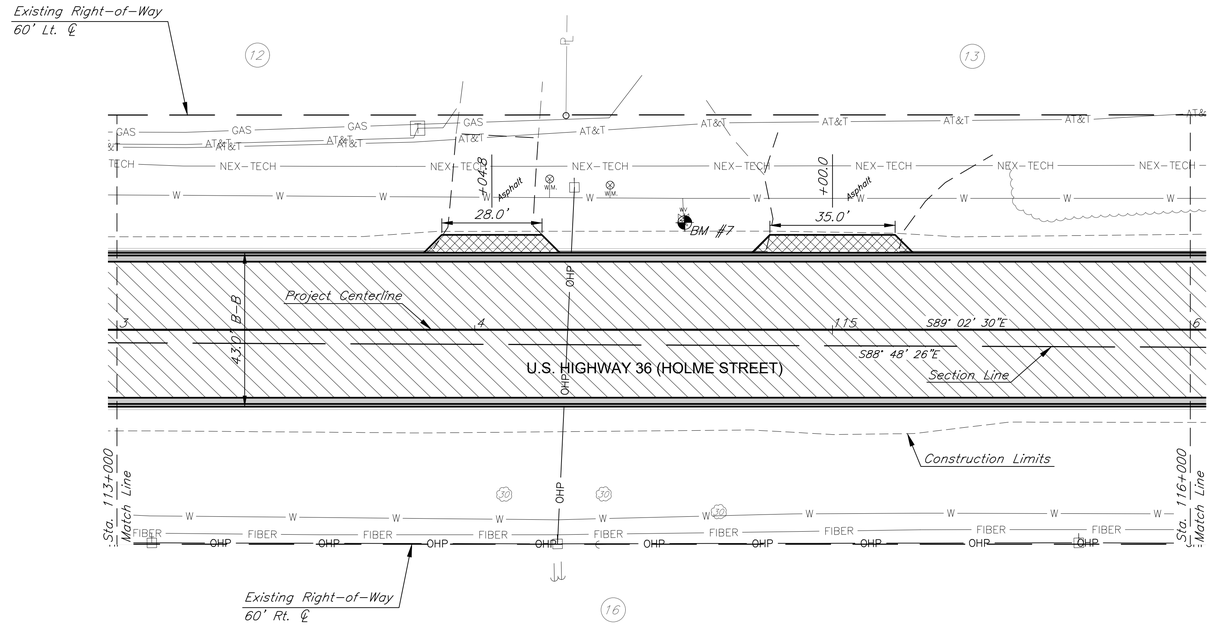
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	10	99



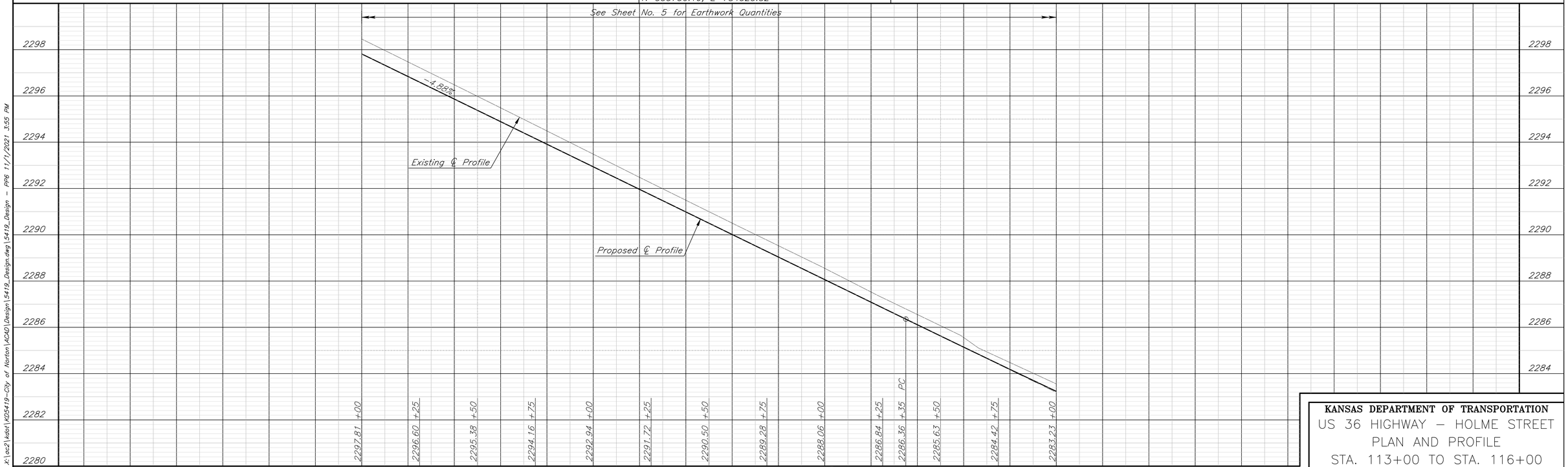
PLAN: Lat. & Long. 20' 0 20' 40'

PROFILE: Horiz. same as above, Vert. 0 2'

BM #7 Cut "X" in top of Mueller fire hydrant, 30' Lt.
Sta. 114+59, Elev.=2292.02
N=553750.19, E=784325.82

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION

US 36 HIGHWAY – HOLME STREET

PLAN AND PROFILE

STA. 113+00 TO STA. 116+00

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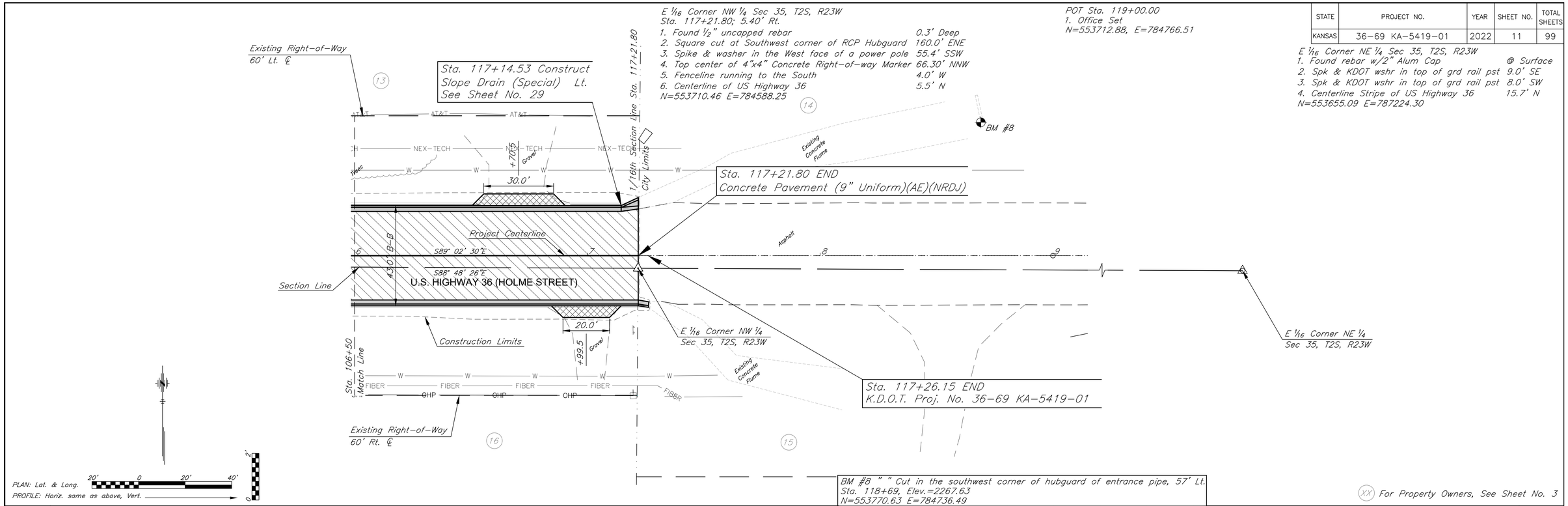
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	11	99

E 1/16 Corner NW 1/4 Sec 35, T2S, R23W
Sta. 117+21.80; 5.40' Rt.
1. Found 1/2" uncapped rebar — 0.3' Deep
2. Square cut at Southwest corner of RCP Hubguard — 160.0' ENE
3. Spike & washer in the West face of a power pole — 55.4' SSW
4. Top center of 4"x4" Concrete Right-of-way Marker — 66.30' NNW
5. Fenceline running to the South — 4.0' W
6. Centerline of US Highway 36 — 5.5' N
N=553710.46 E=784588.25

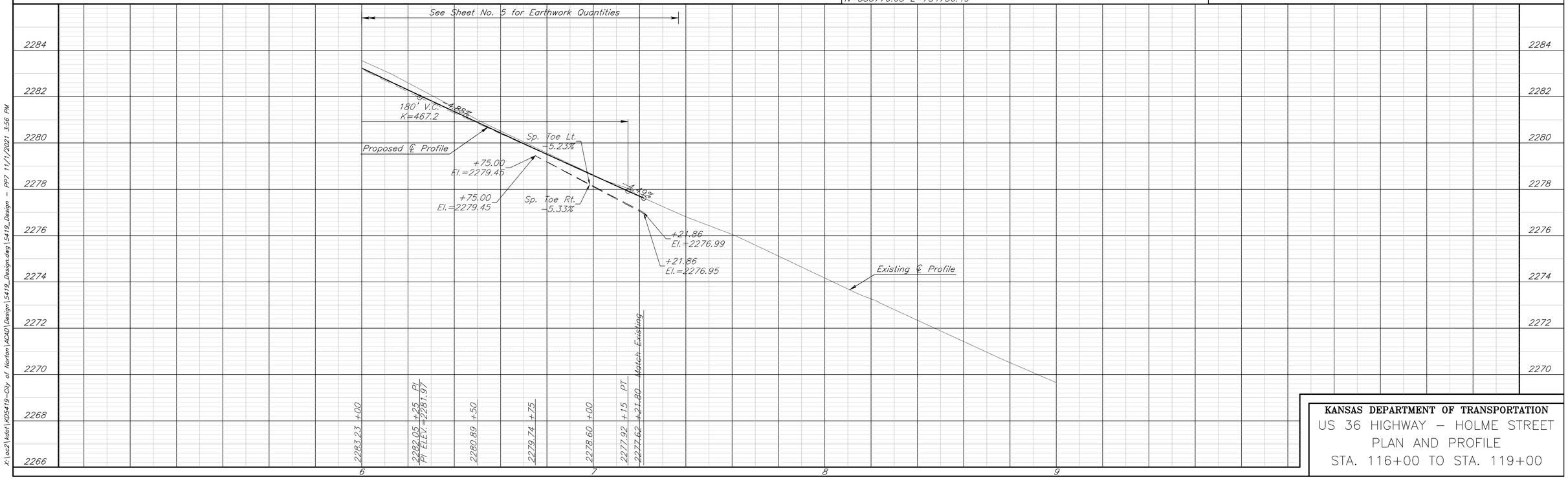
POT Sta. 119+00.00
1. Office Set
N=553712.88, E=784766.51

E 1/16 Corner NE 1/4 Sec 35, T2S, R23W
1. Found rebar w/2" Alum Cap — @ Surface
2. Spk & KDOT wshr in top of grd rail pst — 9.0' SE
3. Spk & KDOT wshr in top of grd rail pst — 8.0' SW
4. Centerline Stripe of US Highway 36 — 15.7' N
N=553655.09 E=787224.30



BM #8 " " Cut in the southwest corner of hubguard of entrance pipe, 57' Lt.
Sta. 118+69, Elev.=2267.63
N=553770.63 E=784736.49

(XX) For Property Owners, See Sheet No. 3



KANSAS DEPARTMENT OF TRANSPORTATION
US 36 HIGHWAY – HOLME STREET
PLAN AND PROFILE
STA. 116+00 TO STA. 119+00

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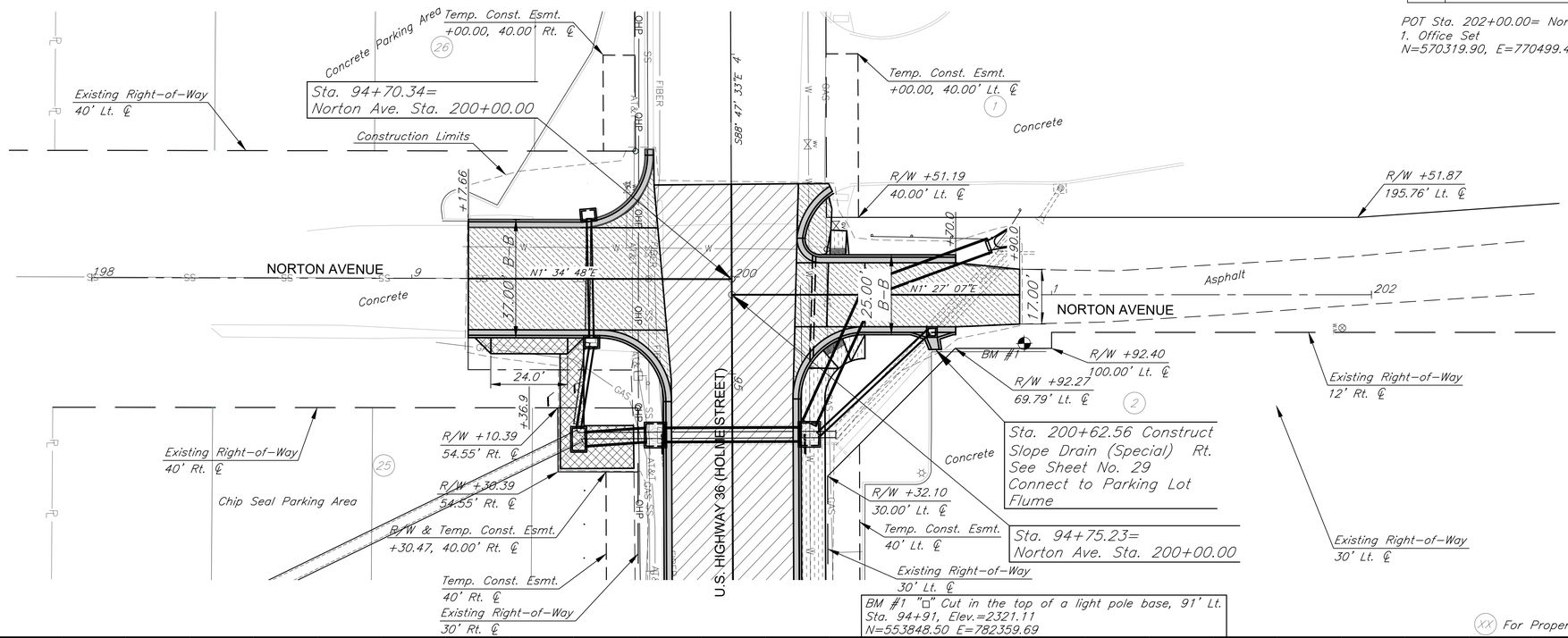
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	12	99

POT Sta. 198+00.00= Norton Ave. (South)
1. Office Set
N=569919.90, E=770493.58

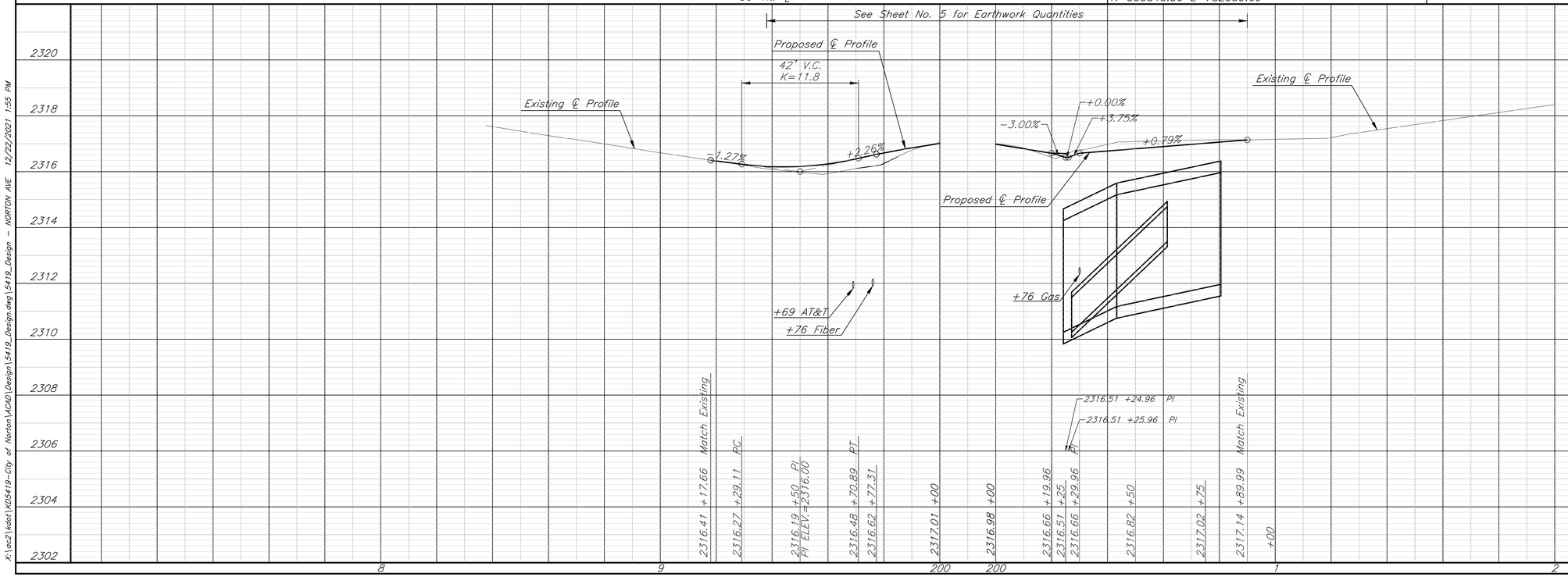
POT Sta. 94+70.34= Norton Ave. (South)
1. Office Set
N=553757.57, E=782337.27

POT Sta. 94+75.23= Norton Ave. (North)
1. Office Set
N=553757.47, E=782342.15

POT Sta. 202+00.00= Norton Ave. (North)
1. Office Set
N=570319.90, E=770499.41



(XX) For Property Owners, See Sheet No. 3



KANSAS DEPARTMENT OF TRANSPORTATION
NORTON AVENUE
PLAN AND PROFILE
STA. 198+00 TO STA. 202+00

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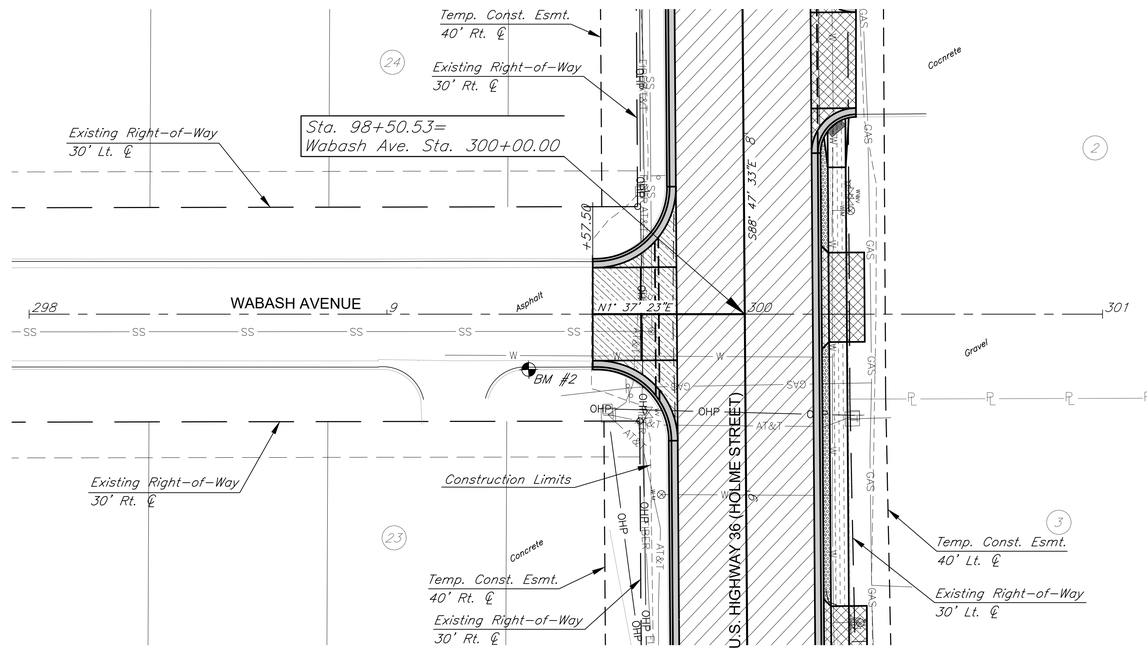
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	13	99

POT Sta. 298+00.00= Wabash Ave.
1. Office Set
N=553549.64, E=782711.71

POT Sta. 300+00.00= Wabash Ave.
1. Office Set
N=553749.56, E=782717.38

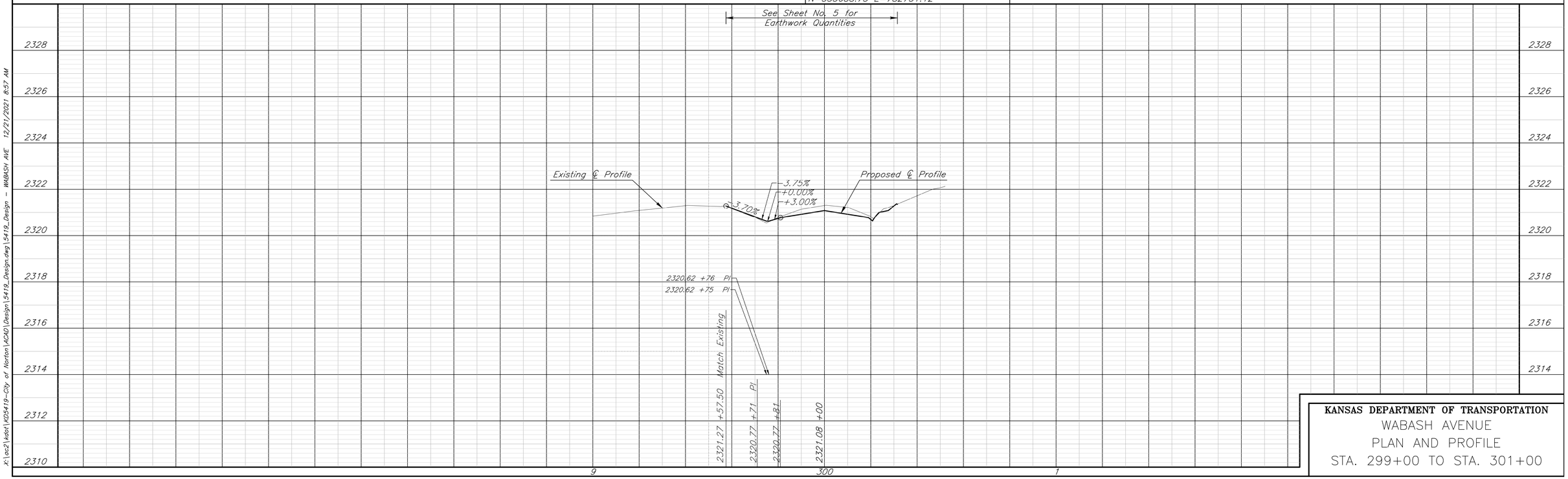


PLAN: Lat. & Long. 20' 0 20' 40'
PROFILE: Horiz. same as above, Vert. 0 2'

BM #2 "□" Cut in the top of curb, 61' Rt.
Sta. 98+66, Elev.=2321.39
N=553688.75 E=782731.12

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for
Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION
WABASH AVENUE
PLAN AND PROFILE
STA. 299+00 TO STA. 301+00

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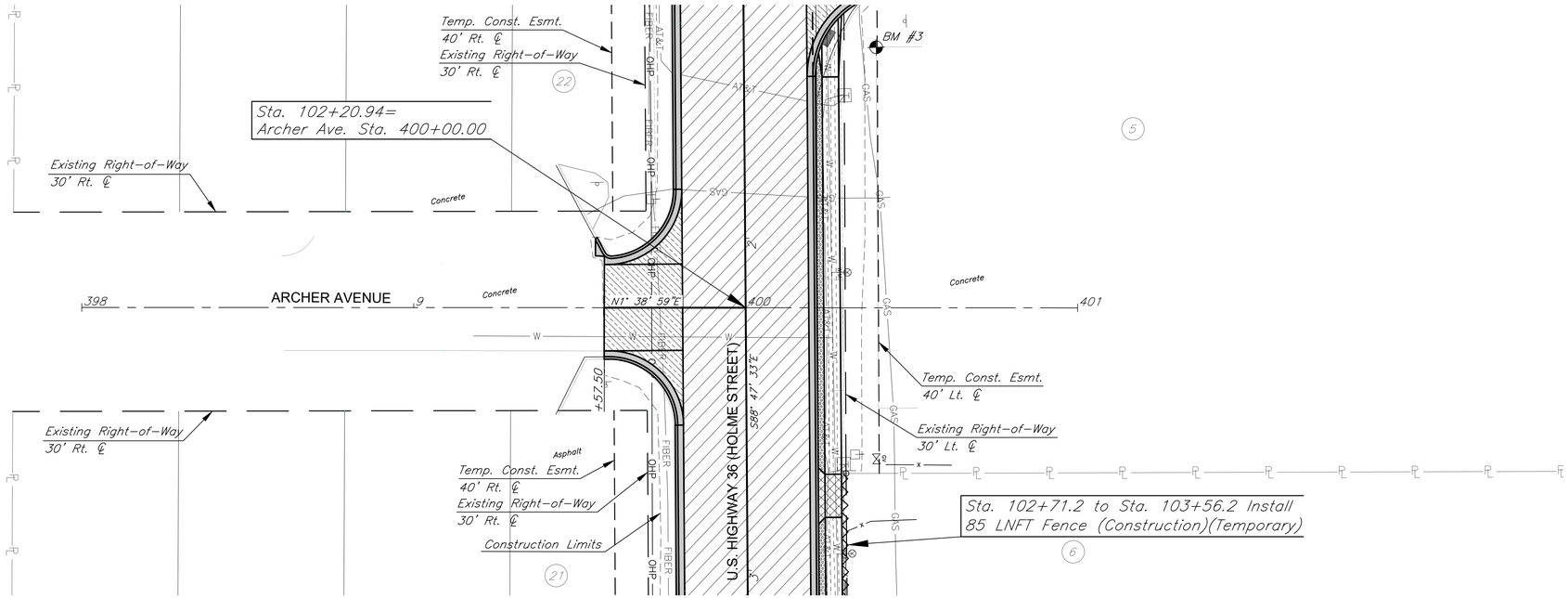
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	14	99

POT Sta. 398+00.00 = Archer Ave.
1. Office Set
N=553541.84, E=783081.95

POT Sta. 400+00.00 = Archer Ave.
1. Office Set
N=553741.75, E=783087.70

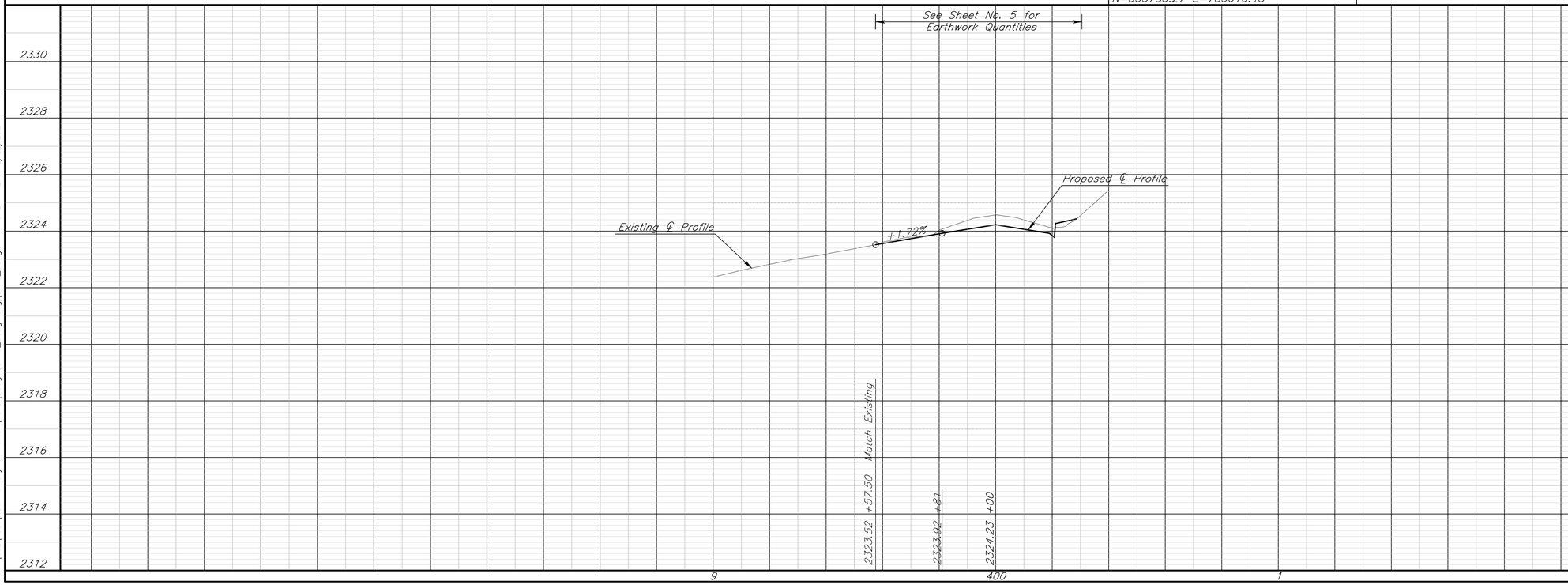


PLAN: Lat. & Long. 20' 0 20' 40'
PROFILE: Horiz. same as above, Vert. 0 2'

BM #3 "□" Cut in the top of curb, 40' Lt.
Sta. 101+43, Elev.=2325.39
N=553783.27 E=783010.48

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for
Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION
ARCHER AVENUE
PLAN AND PROFILE
STA. 399+00 TO STA. 401+00

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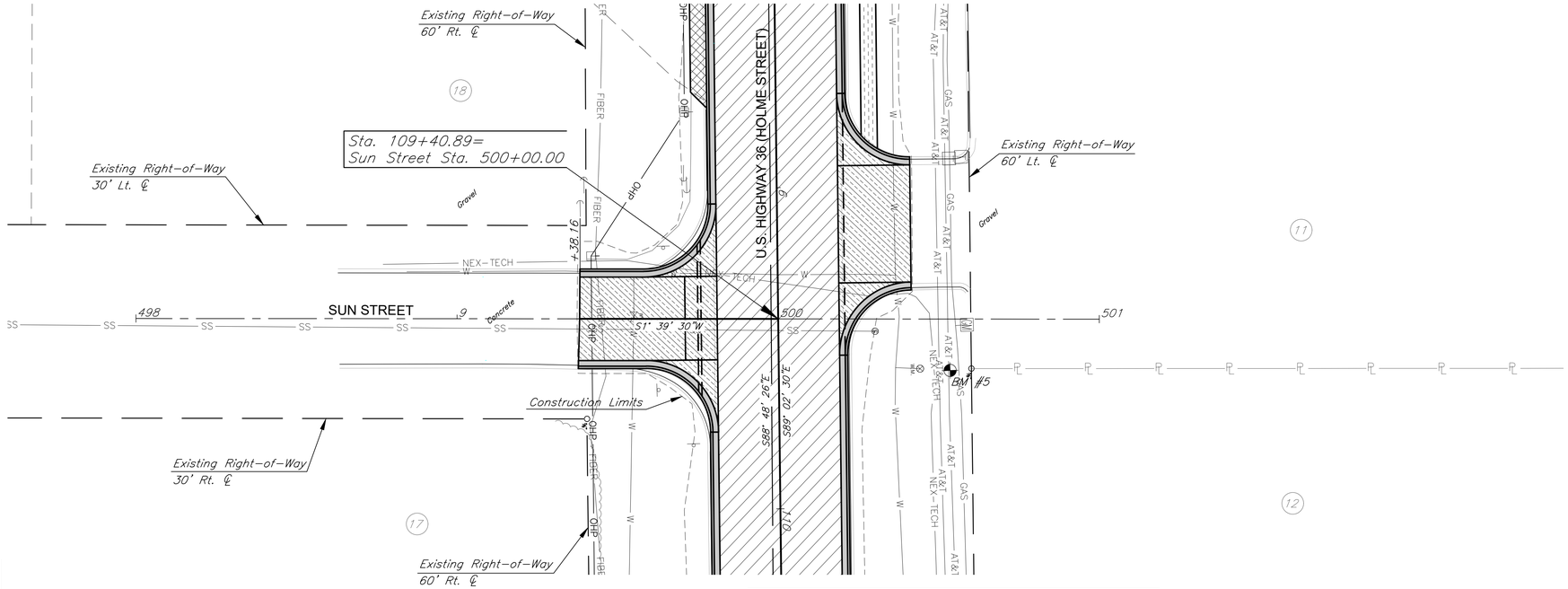
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	15	99

POT Sta. 498+00.00 = Sun Ave.
1. Office Set
N=553529.01, E=783801.75

POT Sta. 500+00.00 = Sun Street
1. Office Set
N=553728.92, E=783807.54

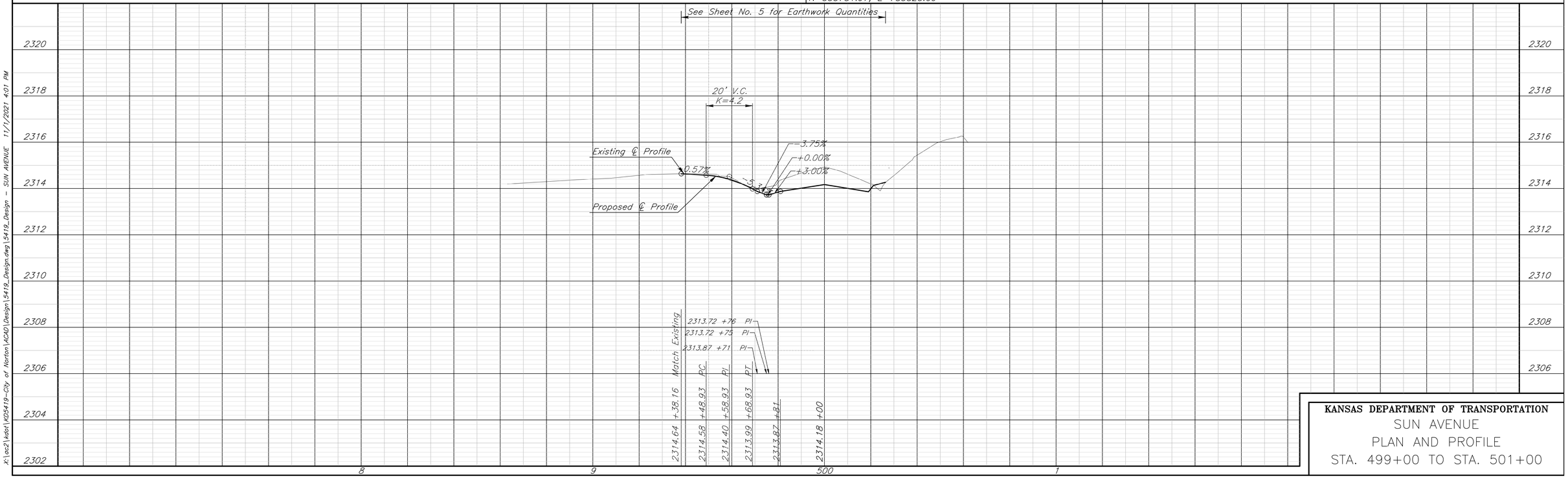


PLAN: Lat. & Long.
PROFILE: Horiz. same as above, Vert.

BM #5 2" Aluminum Cap stamped "KDOT HCP NT 060" 53' Lt.
Sta. 109+58, Elev.=2315.76
N=553781.97, E=783825.09

(XX) For Property Owners, See Sheet No. 3

See Sheet No. 5 for Earthwork Quantities



KANSAS DEPARTMENT OF TRANSPORTATION
SUN AVENUE
PLAN AND PROFILE
STA. 499+00 TO STA. 501+00

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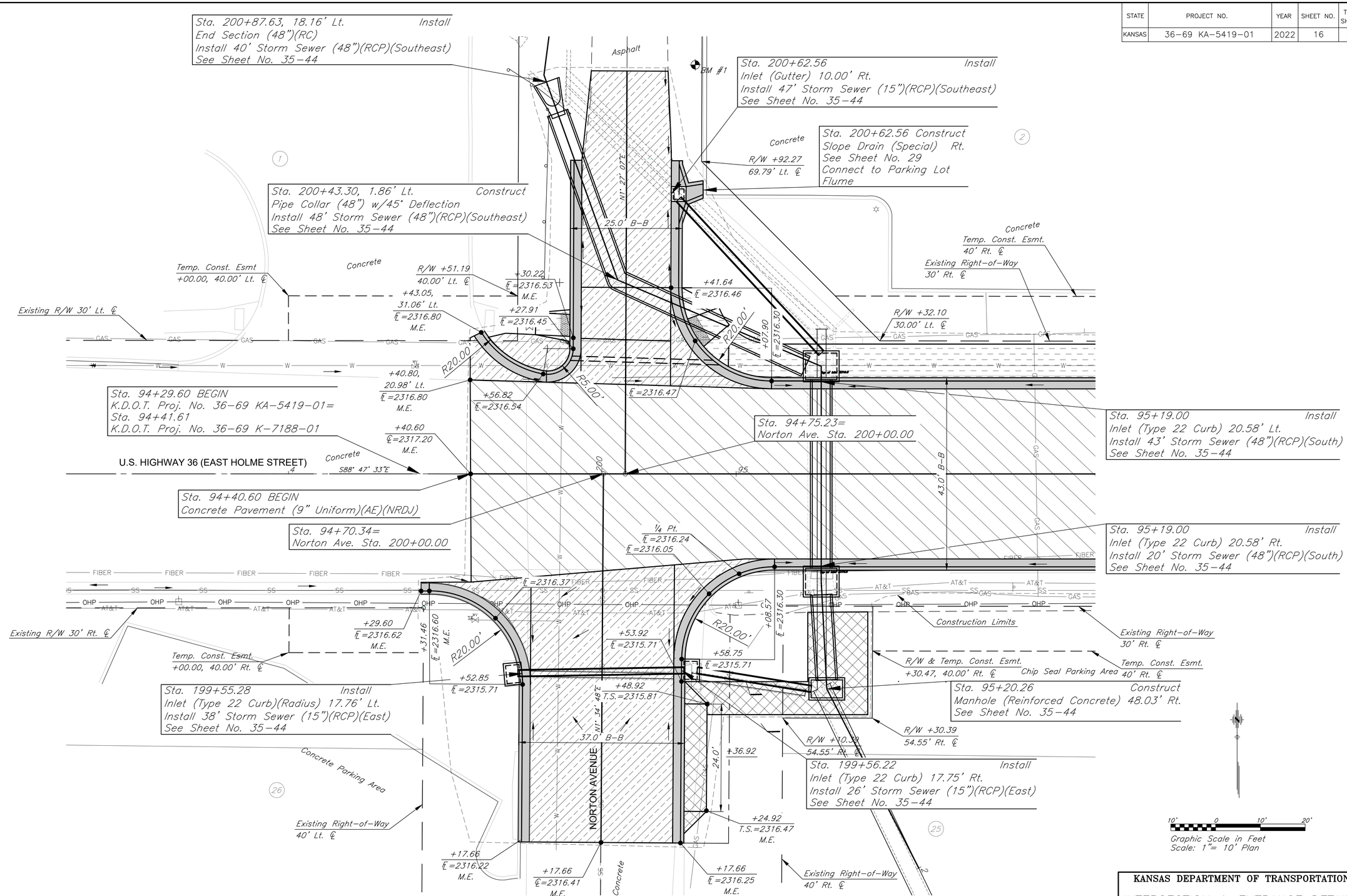
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	16	99



BM #1 "□" Cut in the top of a light pole base, 91' Lt.
Sta. 94+91, Elev.=2321.11
N=553848.50 E=782359.69

LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street) & Norton Avenue
Sta. 94+70.34 & Sta. 94+75.23

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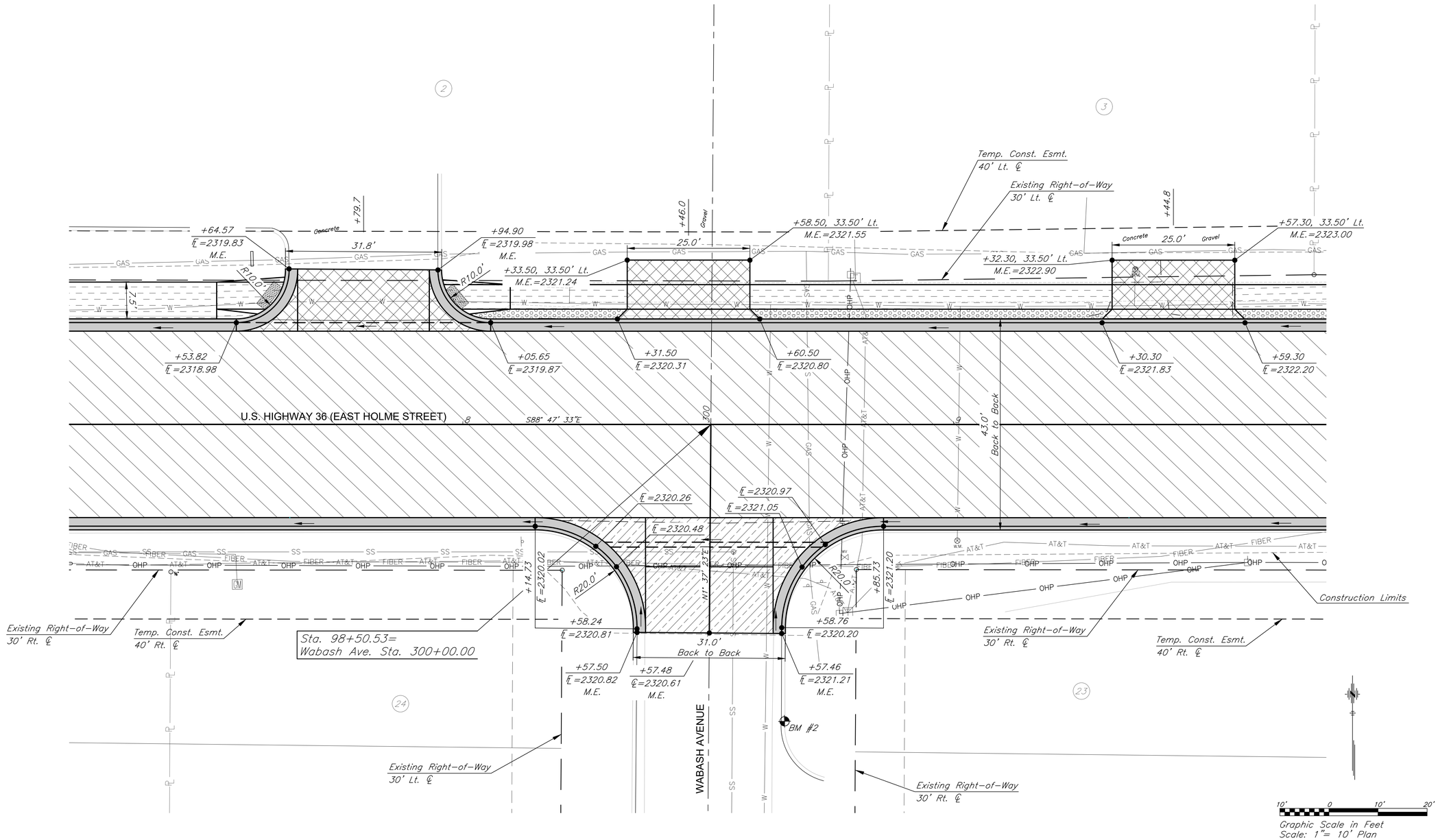
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	17	99



BM #2 "□" Cut in the top of curb, 61' Rt.
Sta. 98+66, Elev.=2321.39
N=553688.75 E=782731.12

LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street) & Wabash Avenue
Sta. 98+50.53

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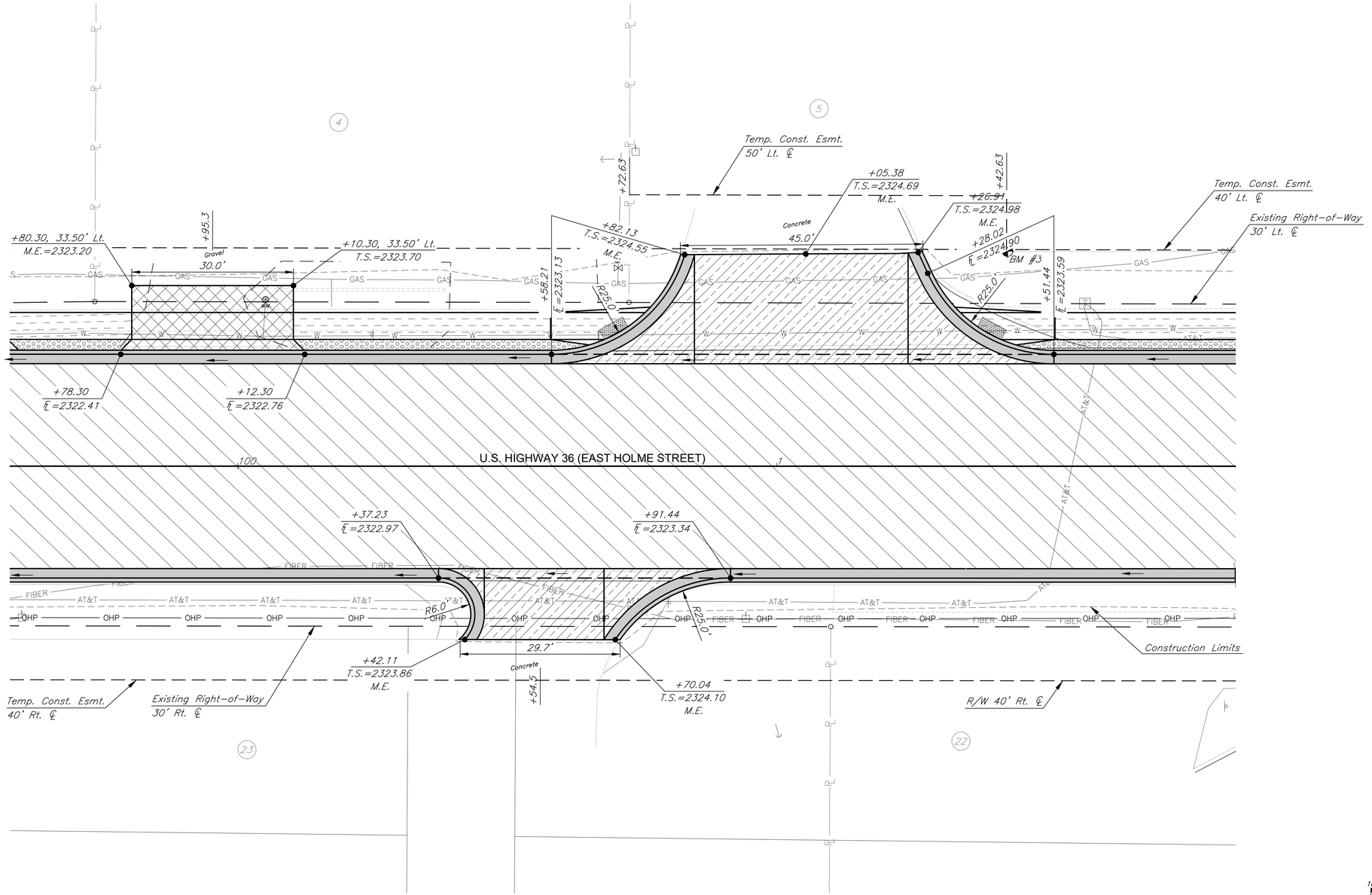
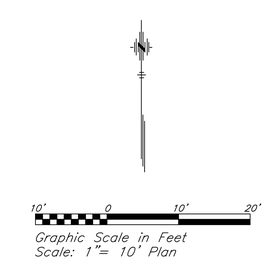
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	18	99





BM #3 "□" Cut in the top of curb, 40' Lt.
Sta. 101+43, Elev.=2325.39
N=553783.27 E=783010.48

LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street)

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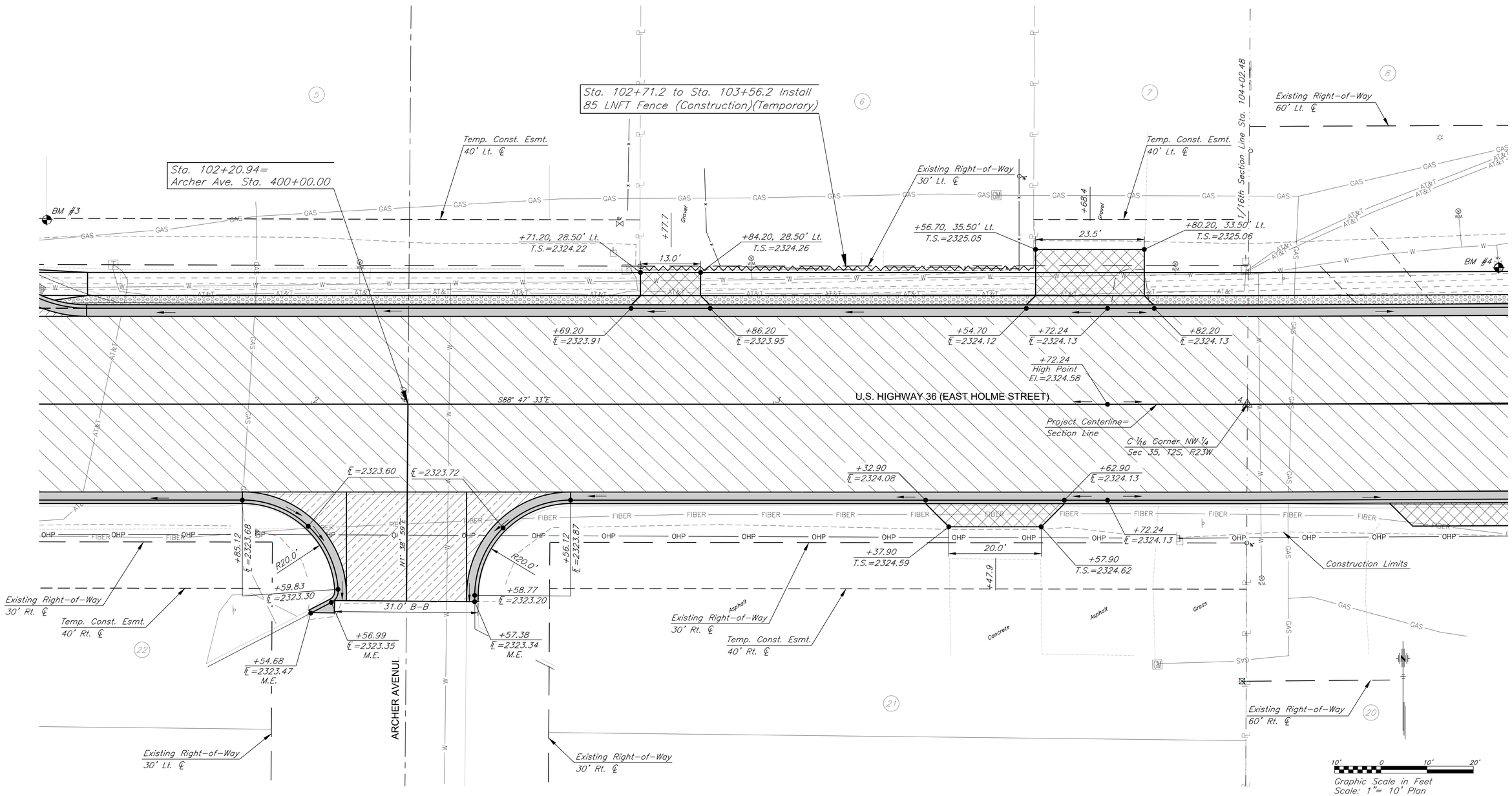
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	19	99

PI Sta. 104+02.48 Δ=0°14'57" Lt.=
C 1/16 Corner NW 1/4 Sec 35, T2S, R23W
1. Found nail flush with asphalt highway surface
2. Southeast Corner of Stucco Building 65.6' NNW
3. Northeast Corner of Metal Building 60.0' SSW
4. "911" Sign post base 164.3' WSW
N=553731.02 E=783269.02



BM #3 "□" Cut in the top of curb, 40' Lt.
Sta. 101+43, Elev.=2325.39
N=553783.27 E=783010.48

BM #4 "X" Cut in the top of a bonnet nut in the word Mueller, 29' Lt.
Sta. 104+57, Elev.=2327.75
N=553766.32 E=783324.18

LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street) & Archer Avenue
Sta. 102+20.94

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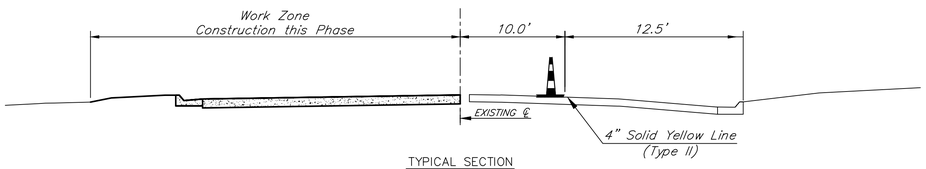
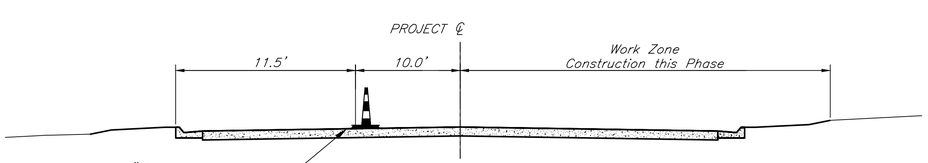
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	20	99

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

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



TYPICAL SECTION
Phase I Construction
Sta. 94+29.60 to Sta. 117+26.15, West Bound Lane
U.S. HIGHWAY 36 (HOLMES STREET)



TYPICAL SECTION
Phase II Construction
Sta. 94+29.60 to Sta. 117+26.15, East Bound Lane
U.S. HIGHWAY 36 (HOLMES STREET)

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
M1-4	11		
M1-5	5		
M2-1	1		
M3-1	4		
M3-2	5		
M3-3	2		
M3-4	3		
M4-5	1		
M4-8	13		
M4-8a	2		
M6-1L	4		
M6-1R	6		
M6-3	4		
M6-4	1		
M6-6R	2		
D1-1	3		
KG20-2	7		
KM4-20	2		
R2-1	2		
R3-1	16		
R3-2	13		
R5-1	8		
R6-1L	10		
R6-1R	17		
R11-2		14	
R11-4		3	
W1-4L		1	
W3-5		2	
W13-1	1		
W14-3	1		
W20-1		8	
W20-2		1	
W20-3		3	
W20-7		2	

Barricades ✳		Channelizing Devices ✳		
Type 3 (4' to 12')	Pedestrian	Fixed	Portable	Pedestrian
70			185	

Lighted Devices ✳	
Work Zone Warning Light (Type "A" Low Intensity)	66
Work Zone Warning Light (Red Type "B" High Intensity)	
Arrow Display	
Portable Changeable Message Sign	

Recapitulation of Quantities		
Item	Quantity	Unit
Work Zone Signs (0 to 9.25 Sq.Ft.)	20,880	Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)	4,930	Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)		Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')	10,150	Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)	26,830	Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)	9,570	Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display		Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)	35	Sta./Line
4" Solid (Type II)	35	Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)		Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)	10	Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)		Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal		Lin. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)	1	Lump Sum
Traffic Control		Lump Sum
Flagger (Set Price)	1	Hour

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SUMMARY OF DEVICES
RECAPITULATION OF QUANTITIES

TE795

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

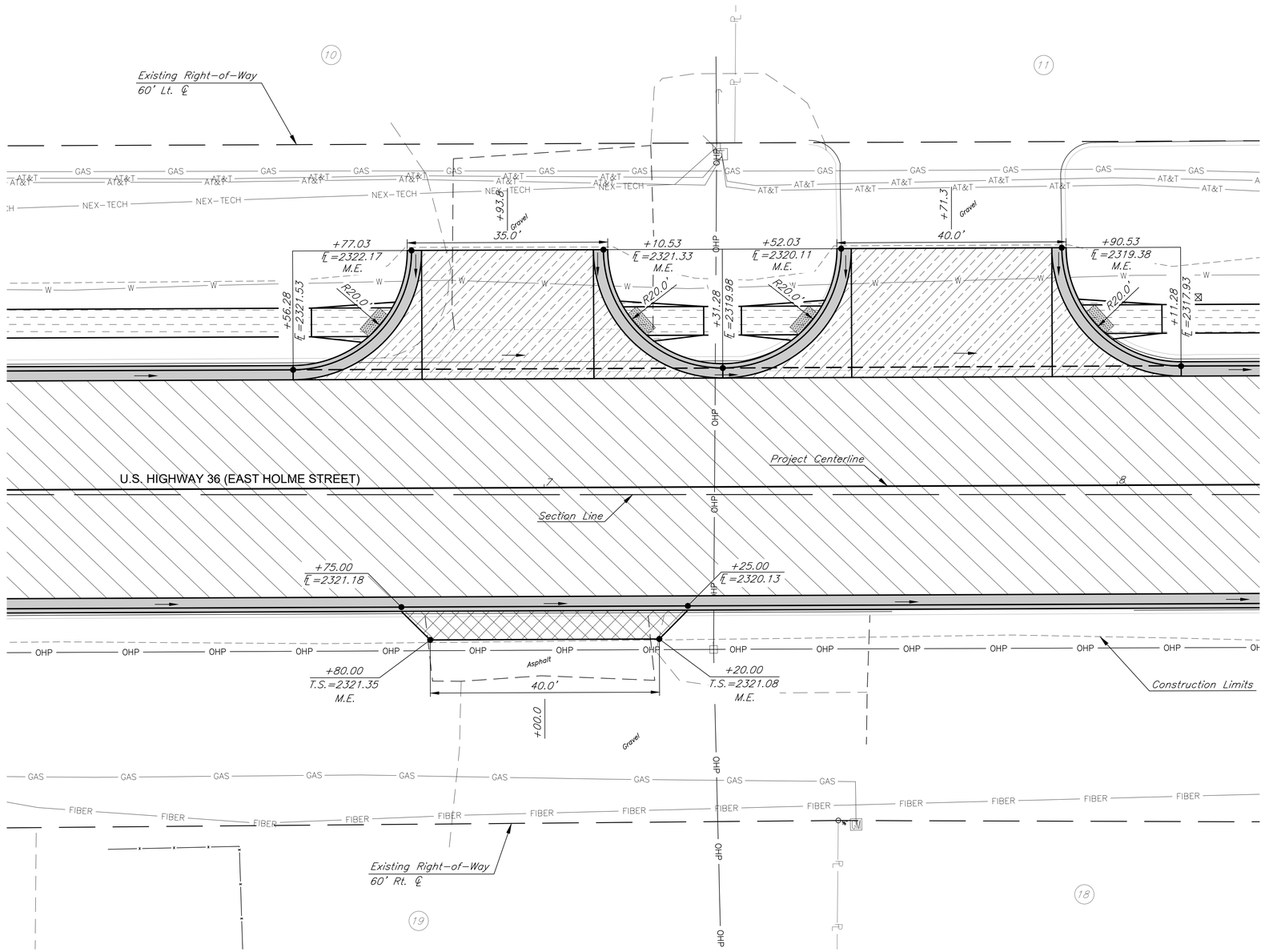
KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te795.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	21	99



10' 0 10' 20'

Graphic Scale in Feet
Scale: 1"= 10' Plan

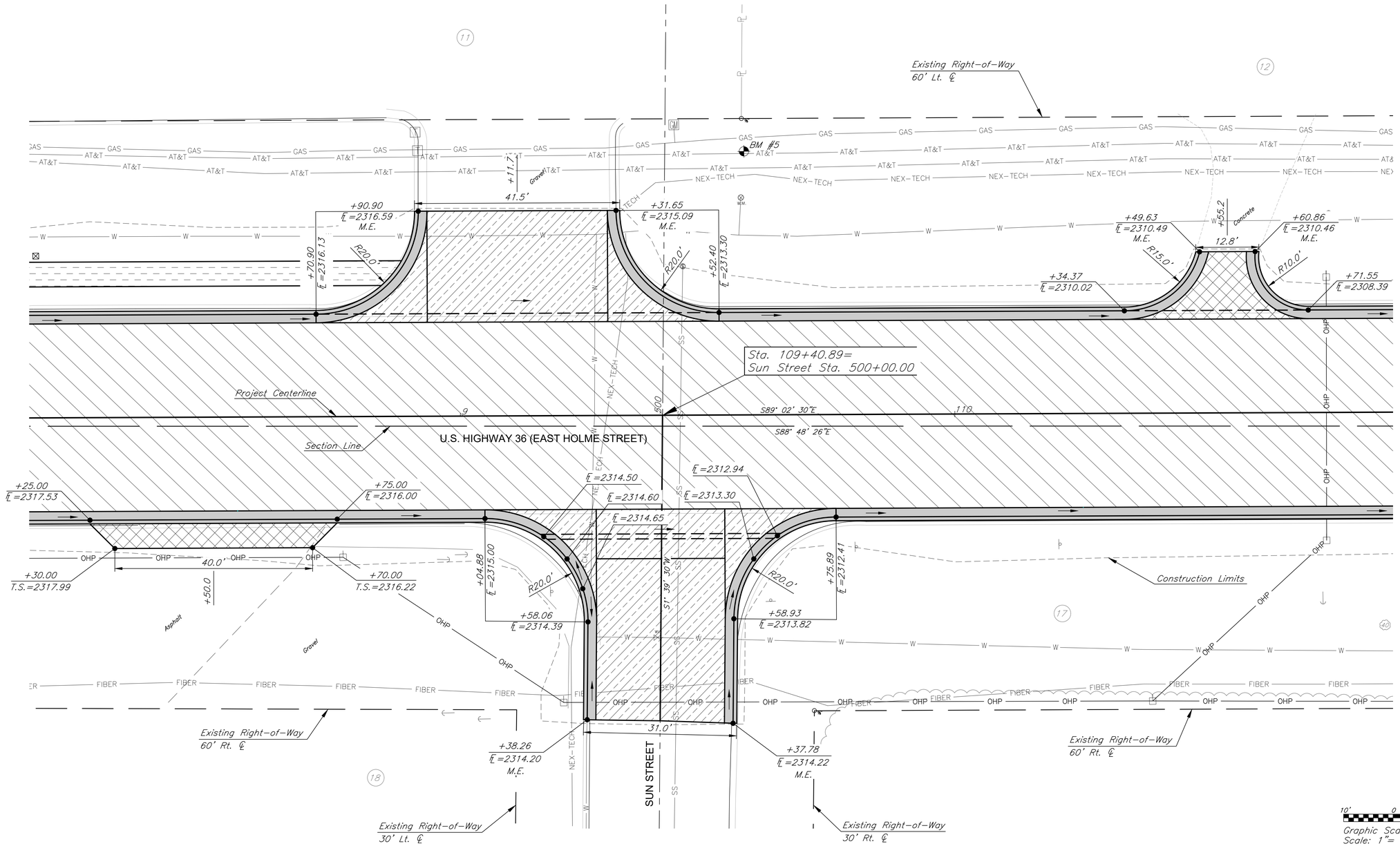
LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street)

X:\oc2\koa\KO5419-City of Norton\ACAD\Design\5419_Design.dwg\5419_Design - IDS 11/1/2021 4:06 PM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	22	99



BM #5 2" Aluminum Cap stamped "KDOT HCP NT 060" 53' Lt.
Sta. 109+57.52, Elev.=2315.76
N=553781.96, E=783825.06

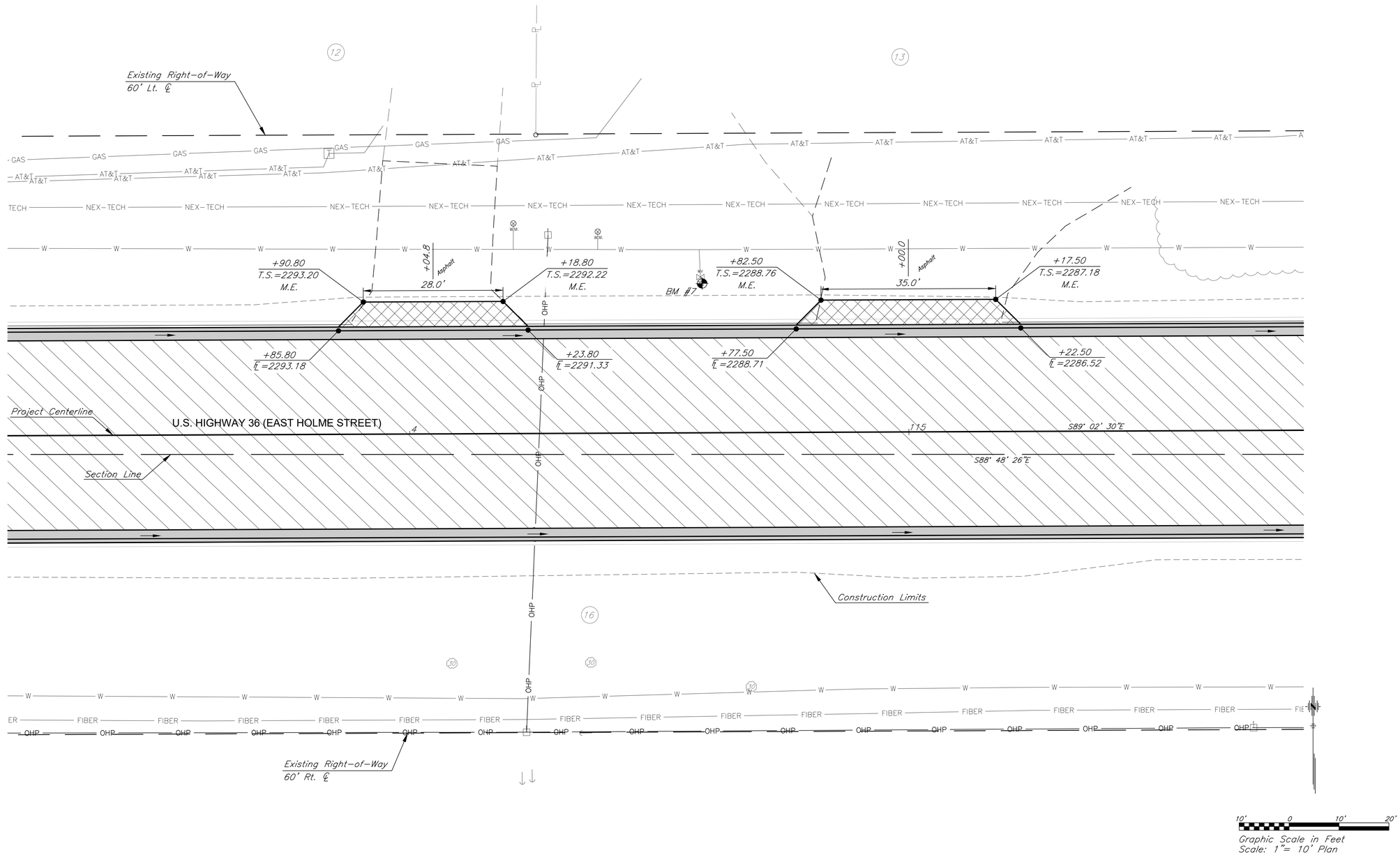
LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street) & Sun Street
Sta. 109+40.89

X:\oc2\kdot\KD5419-City of Norton\ACAD\Design\5419_Design.dwg\5419_Design - 107 11/1/2021 4:07 PM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	23	99



BM #7 Cut "X" in top of Mueller fire hydrant, 30' Lt.
Sta. 114+58.74, Elev.=2292.01
N=553750.19, E=784325.82

LEGEND
M.E. = Match Existing
T.S. = Top of Slab

KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street)

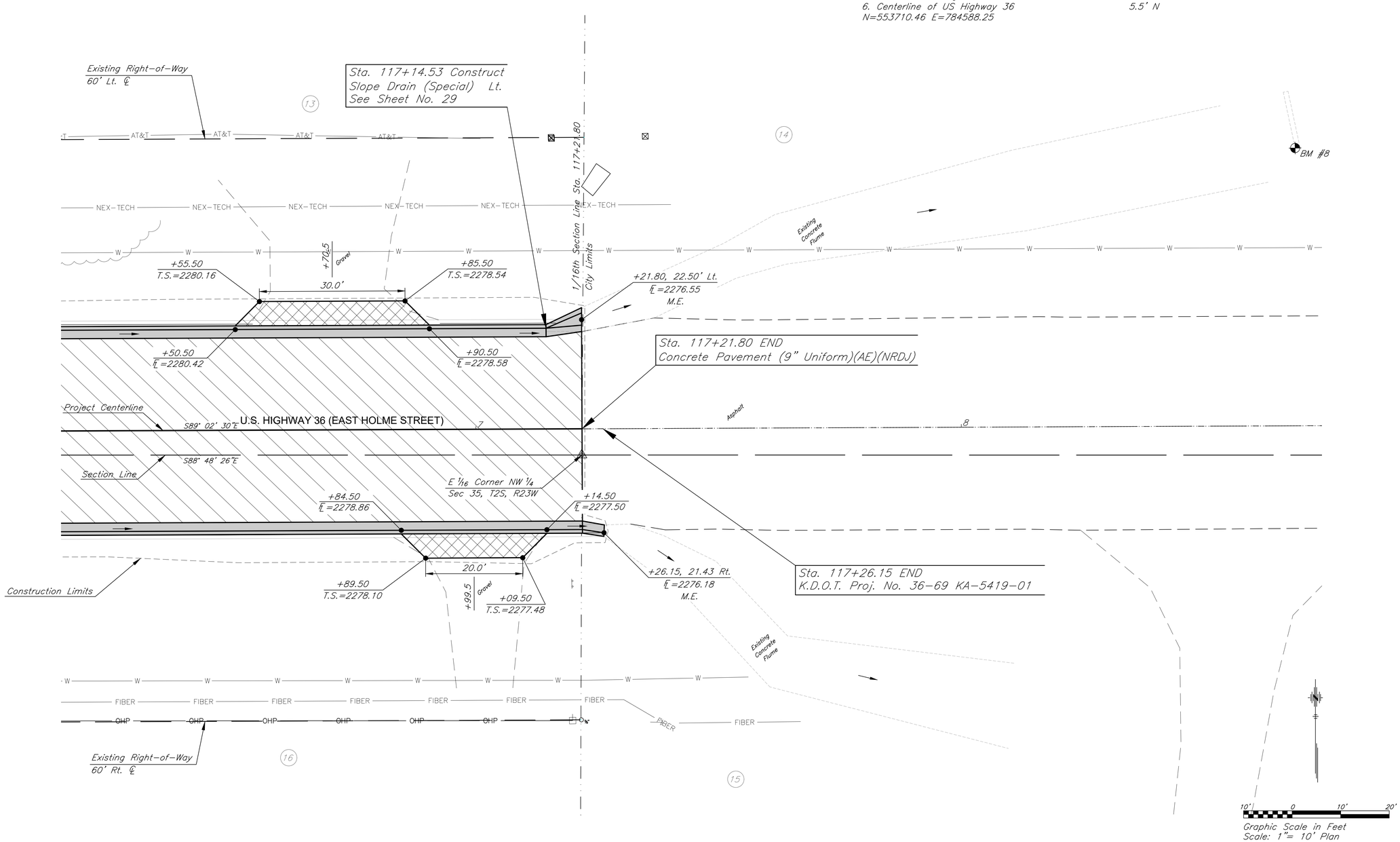
X:\oc2\kdot\K05419-City of Norton\ACAD\Design\5419_Design.dwg\5419_Design - IDB 11/1/2021 4:07 PM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	24	99

E 1/16 Corner NW 1/4 Sec 35, T2S, R23W
Sta. 117+21.80; 5.40' Rt.

1. Found 1/2" uncapped rebar	0.3' Deep
2. Square cut at Southwest corner of RCP Hubguard	160.0' ENE
3. Spike & washer in the West face of a power pole	55.4' SSW
4. Top center of 4"x4" Concrete Right-of-way Marker	66.30' NNW
5. Fenceline running to the South	4.0' W
6. Centerline of US Highway 36	5.5' N

N=553710.46 E=784588.25



BM #8 "□" Cut in the southwest corner of hubguard of entrance pipe, 57' Lt.
Sta. 118+69.02, Elev.=2267.62
N=553770.63 E=784736.49

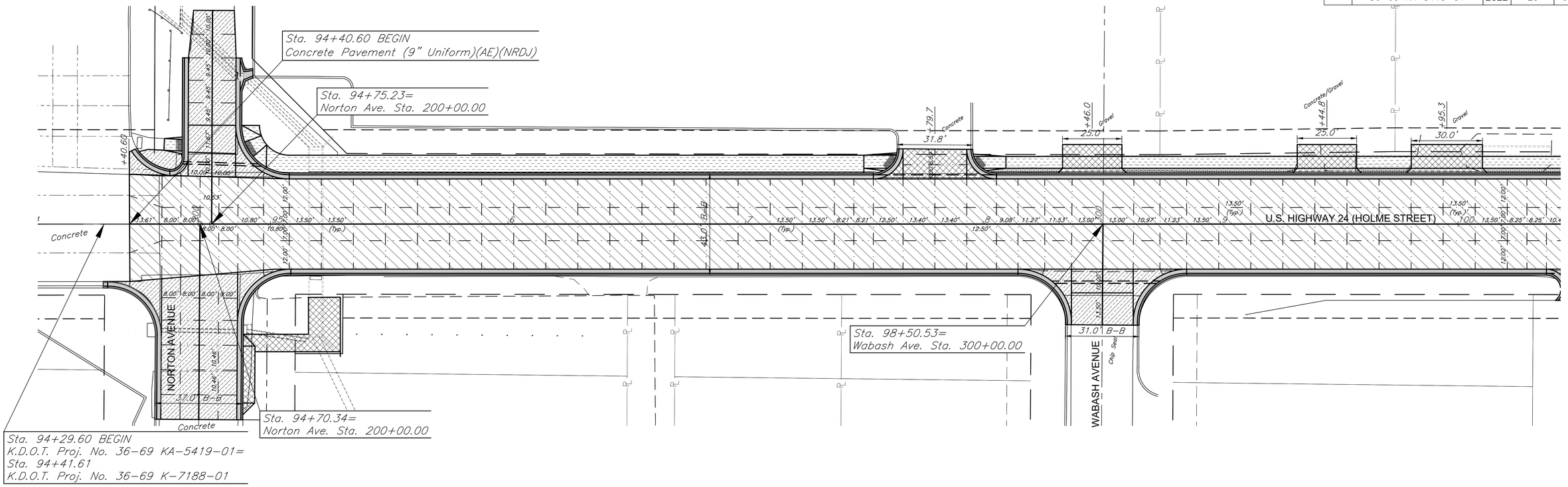
LEGEND
M.E. = Match Existing
T.S. = Top of Slab

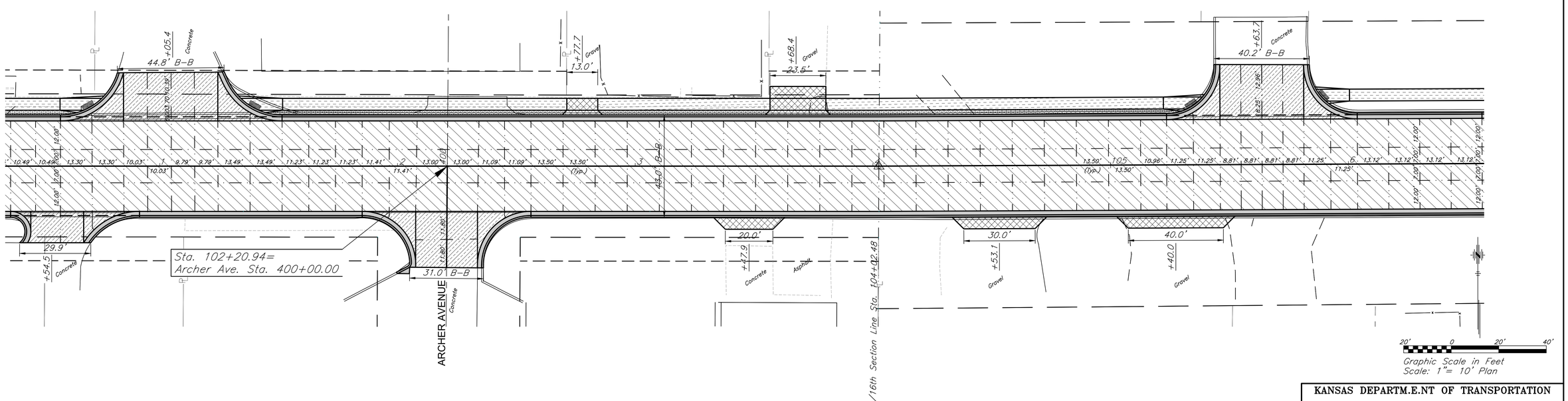
KANSAS DEPARTMENT OF TRANSPORTATION

INTERSECTION & ENTRANCE DETAILS
U.S. 36 (Holme Street)

X:\oc2\kdot\K05419-City of Norton\ACAD\Design\5419_Design.dwg\5419_Design - ID9 11/1/2021 4:08 PM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	25	99





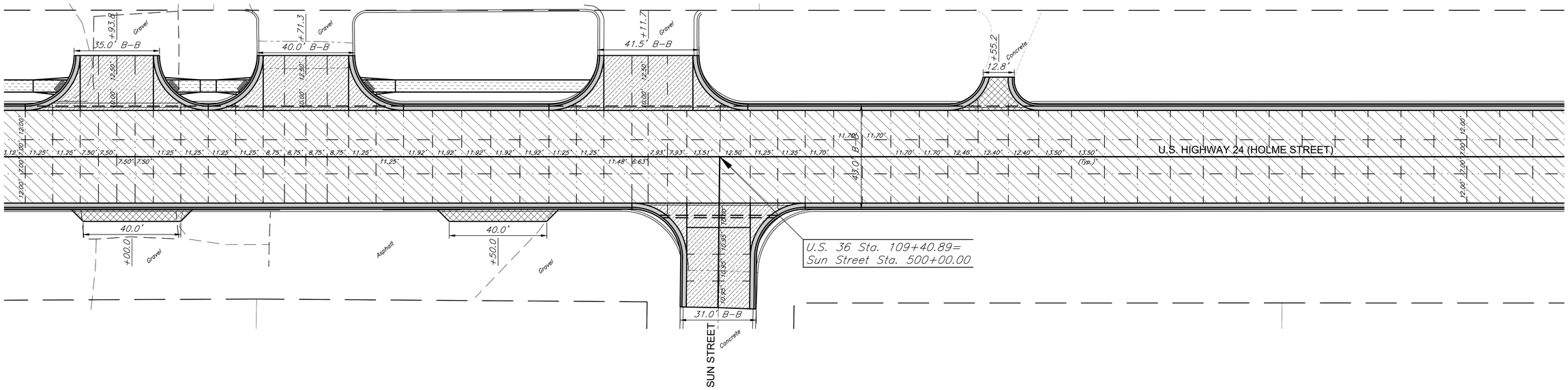
LEGEND
M.E. = Match Existng
TS = Top of Slab

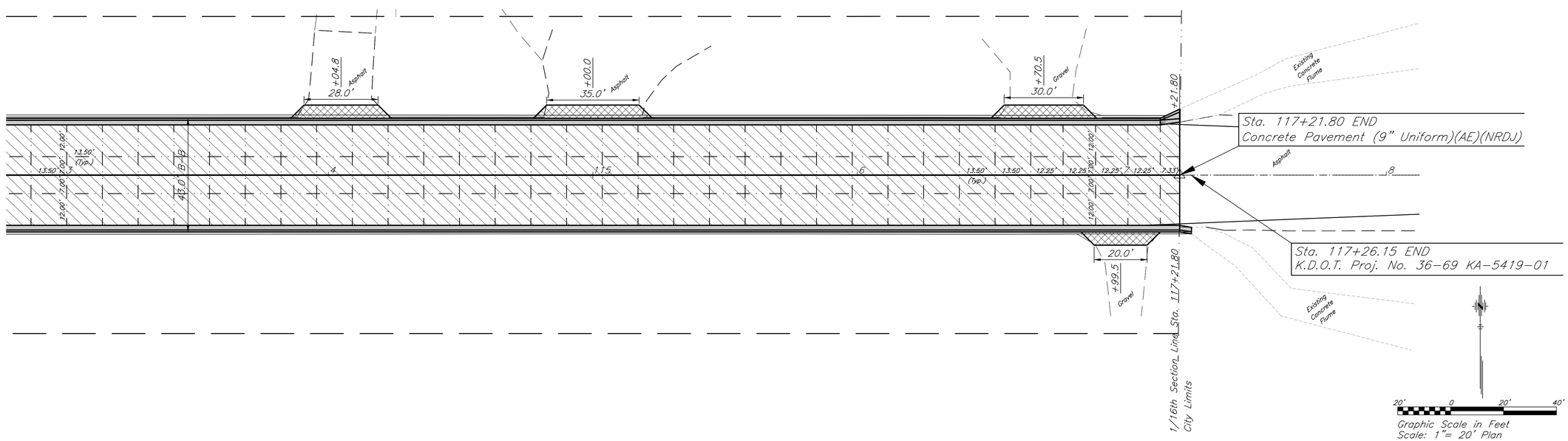
KANSAS DEPARTM.E.NT OF TRANSPORTATION

U.S. HIGHWAY 36 (HOLME STREET)
JOINT DETAILS
STA. 94+40.60 to STA. 106+50.00

X:\oc2\kdot\KD5419-City of Norton\ACAD\Plan\Joint Details.dwg\Joint Details = JT12/22/2021 10:24 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	26	99



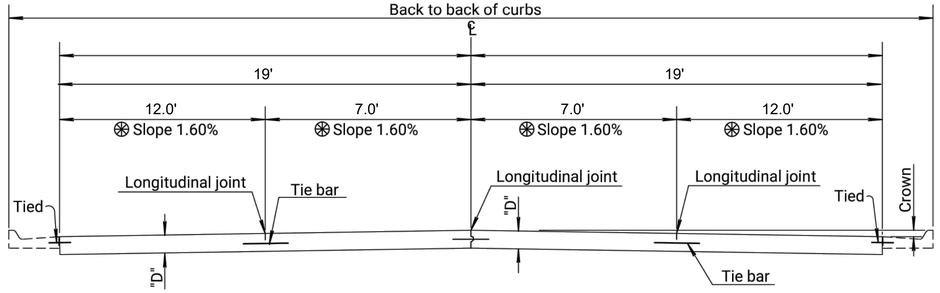


KANSAS DEPARTM.E.NT OF TRANSPORTATION

U.S. HIGHWAY 36 (HOLME STREET)
JOINT DETAILS
STA. 106+50.00 to STA. 117+21.80

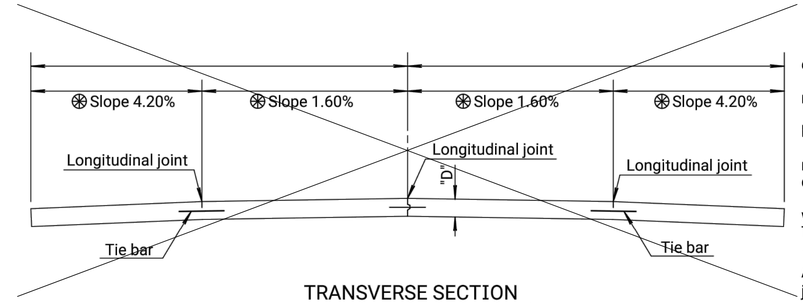
K:\oc2\kdot\KD5419-City of Norton\ACAD\Plan\Joint Details.dwg\Joint Details - J7212/21/2021 9:20 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	27	99



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.

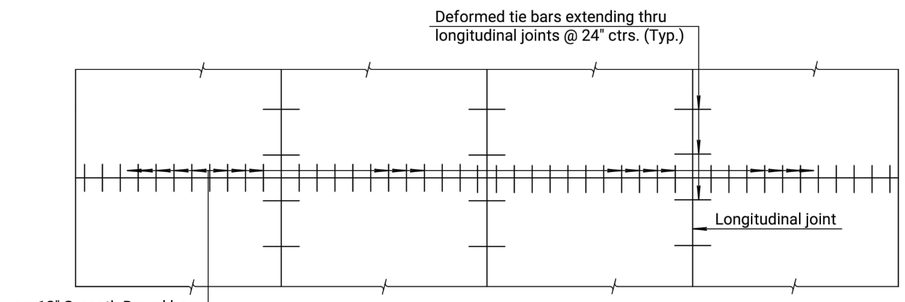
Use load transfer devices as shown in details at all construction joints on mainline pavement unless otherwise noted. Shoulder contraction joints have no dowels unless specifically shown on the plans.

◇ 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.

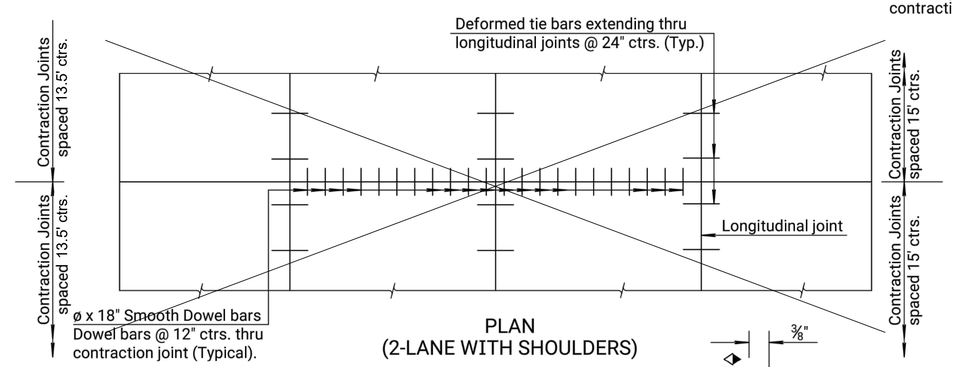
✳ Use single saw cut, ⅛" wide, joint in pavement constructed over Cement or Asphalt Treated Base (Non-Sealed Joint Sawcut). Use single saw cut, ⅛" wide, joint for shoulder pavement adjacent to mainline pavement constructed over Asphalt or Cement Treated Base (Non-Sealed Joint Sawcut). See detail this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

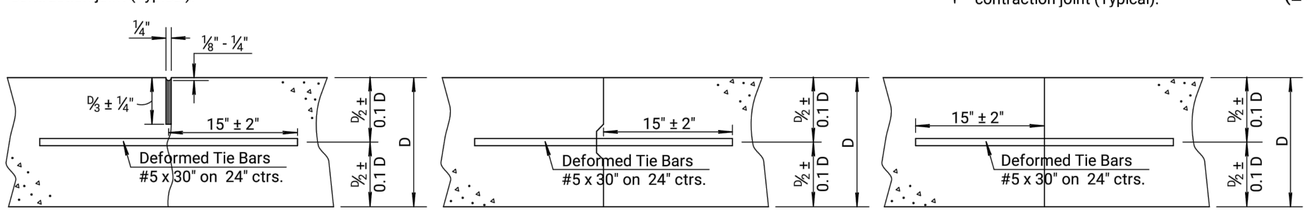


PLAN
(2-LANE WITH SHOULDERS)

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

PAVEMENT DEPTH

D= 9"



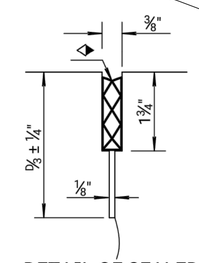
Tied Non-Keyed

Tied Keyed Construction

Tied Butt Construction

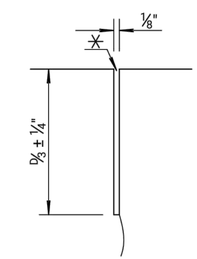
Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.

LONGITUDINAL JOINTS



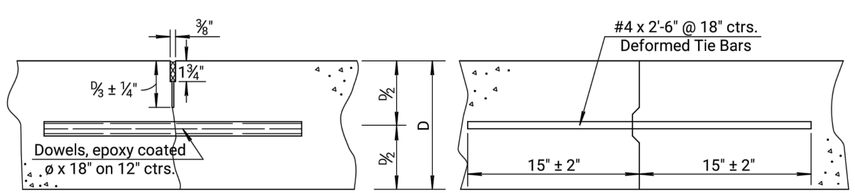
DETAIL OF SEALED
JOINT SAWCUT

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.



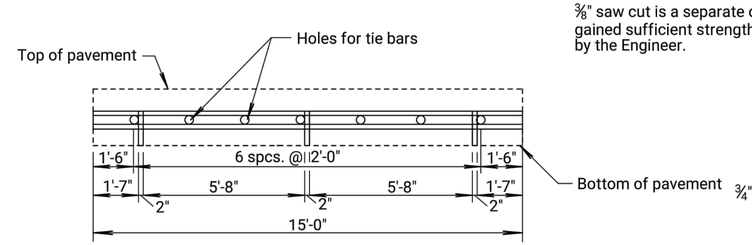
Contraction

Construction

TRANSVERSE JOINTS

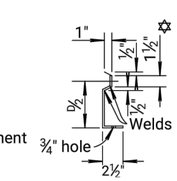
Note: Construct contraction joints at plan locations or at the Engineer's direction.

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

KDOT Graphics Certified 11-02-2018

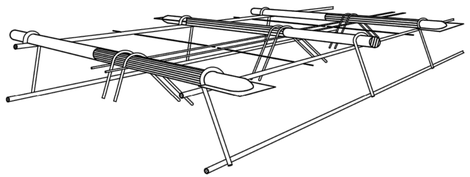
Note: Designer to add applicable dowel sizes.

Plotted :02-NOV-2018 09:41

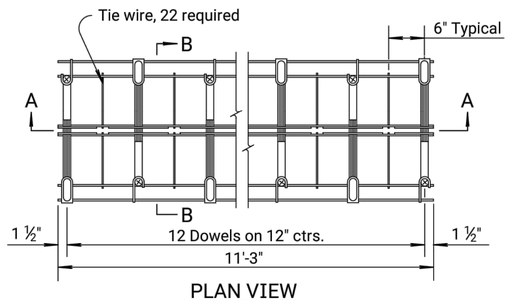
Drawn By : arockers
File : rd708.dgn

KDOT Graphics Certified

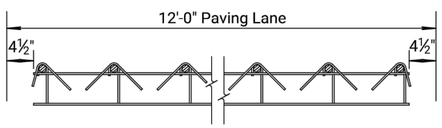
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	28	99



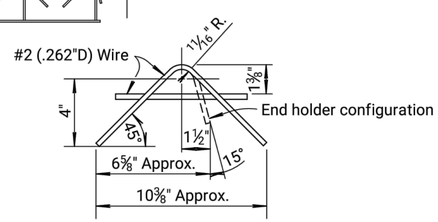
PERSPECTIVE VIEW

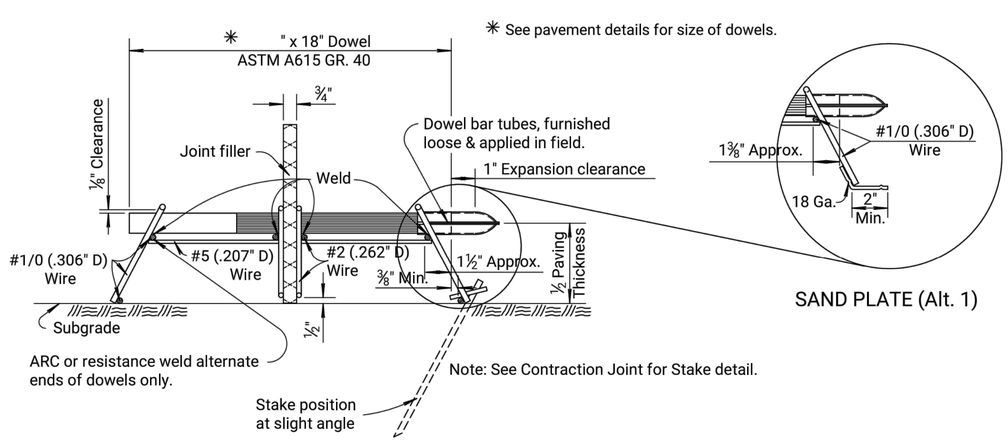


PLAN VIEW



SEC. A-A





SEC. B-B

EXPANSION JOINT

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.

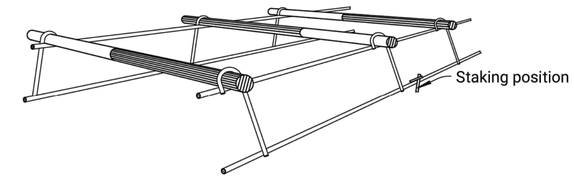
Check each completed contraction joint assembly to be certain the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless otherwise shown on the plans. Check the dowels to be certain they are level and will remain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

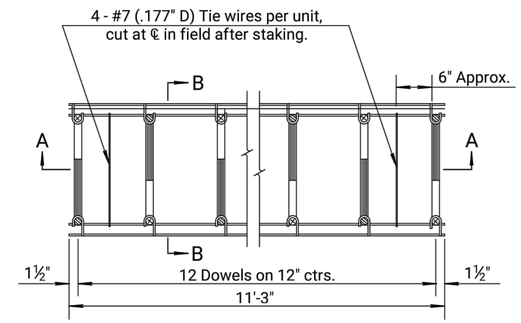
After completion of machine finishing, floating, and straight edging the surface, carefully remove the concrete over the filler and edge the joint with an edger of the proper size.

Install expansion joint material in the field.

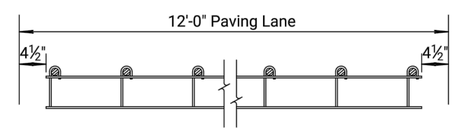
Alternative designs may be used in lieu of the type shown as approved by the Engineer.



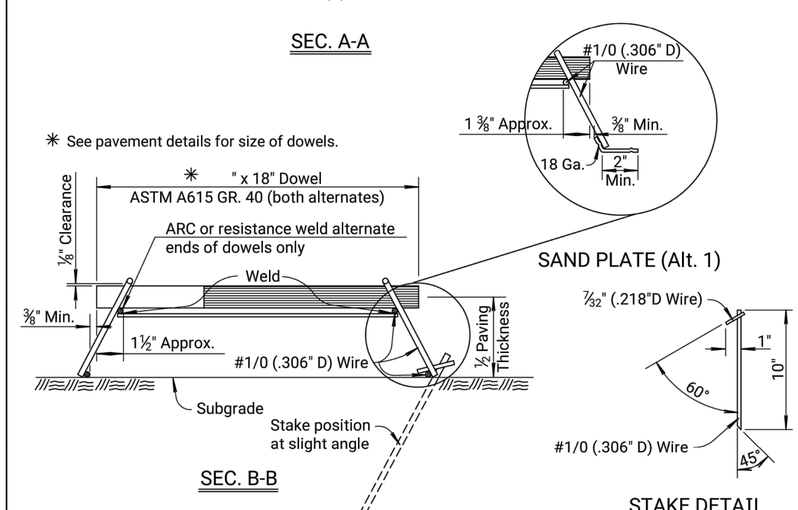
PERSPECTIVE VIEW



PLAN VIEW



SEC. A-A



SEC. B-B

CONTRACTION JOINT

STAKE DETAIL

(6 Pieces minimum required)

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.

Stretch a string line between the pavement forms along the center line of the joint. Carefully mark the position of the joint so the saw cut will coincide with 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.

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

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

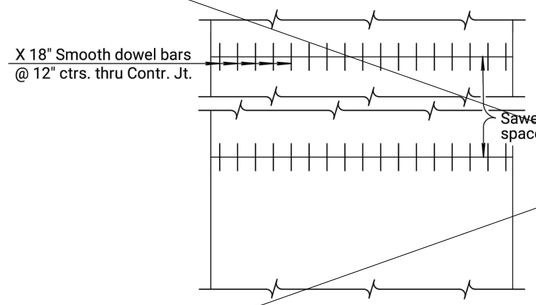
KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

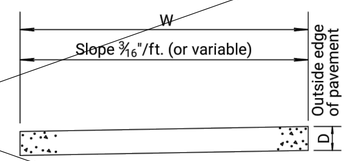
Plotted 29-MAR-2018 16:29

Drawn By : arockers
File : working_rd735.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	29	99



PLAN



TRANSVERSE SECTION

D= _____

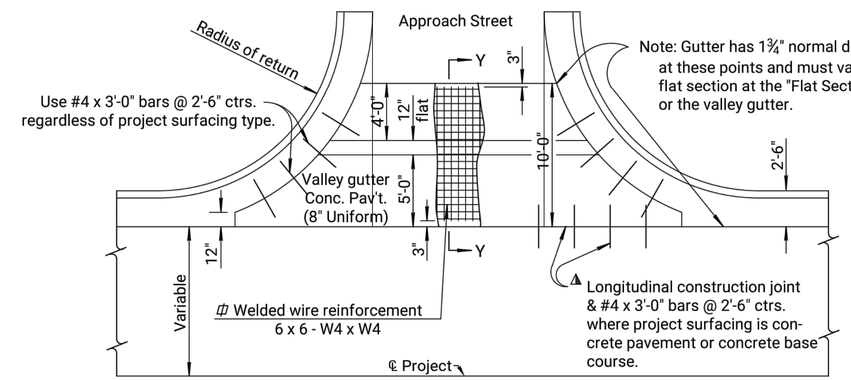
W= _____

Note: For contraction joint detail and other notes and details, see Standard Drawing RD708.

RAMP CONCRETE PAVEMENT

NOTE: Use 8" uniform thickness valley gutter concrete pavement with welded wire reinforcement. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft.

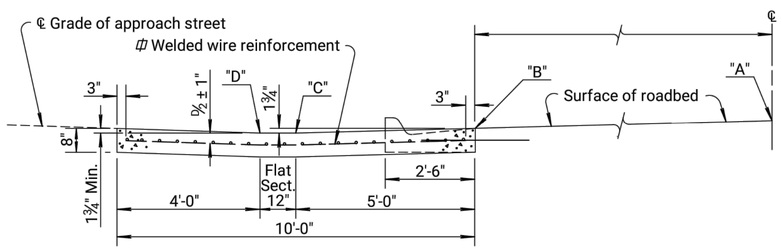
Where valley gutter, alley, and/or entrance pavement is the only pavement on the project, Concrete Grade 3.0 (AE) may be used.



PLAN

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

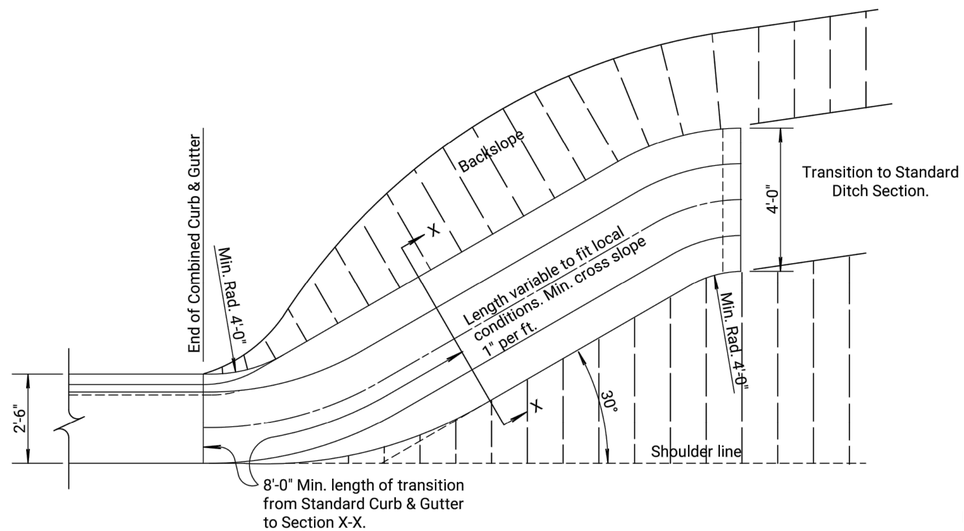
Welded wire can be substituted with a macro fiber. See standard specifications for macro fiber and dosage requirements.



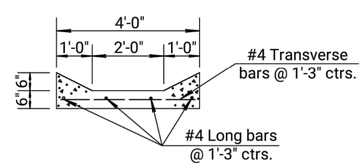
SECTION Y-Y

VALLEY GUTTER SUMMARY								
Street	Station	Side	Elev. Pt. "A"	Elev. on ℄ of Approach Str. Pt."B"	"C" & "D"	Appr. Str. Grade	Sq. Yds. Conc. pavt. (8" Uniform)	
Norton Ave.	94+75.23	Lt.	2316.98	2316.66	2316.51		33.5	
Wabash Ave.	98+50.53	Rt.	2321.08	2320.78	2320.63		49.2	
Sun Ave.	109+40.89	Rt.	2314.18	2313.88	2313.03		49.2	

VALLEY GUTTER



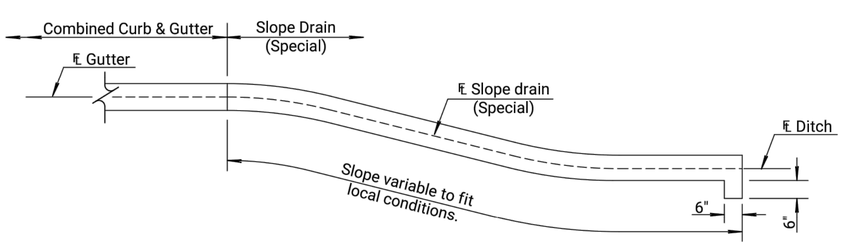
TYPICAL PLAN



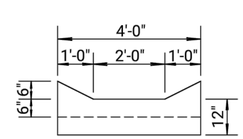
SECTION X-X

Note: Use Concrete Grade 3.0 (AE) throughout. The entire area of the Slope Drain (Special) below the curbs, to be poured and struck off with a uniform thickness of 6". The curbs are to be applied in the same manner and using the same methods as for edge curb.

Reinforcing steel to be deformed #4 bars.



TYPICAL ELEVATION



END ELEVATION
(Downstream end)

SLOPE DRAIN (SPECIAL)

NO.	DATE	REVISIONS	BY	APP'D
13	10-20-10	Added macro fiber option	S.W.K	J.O.B.
12	1-28-05	Changed Class to Grade conc. rei	S.W.K	J.O.B.
11	10-31-01	Removed sho. corrugation details	S.W.K	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT
AUXILIARY DETAILS-II

~~RD722~~

FHWA APPROVAL 6-01-11		APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

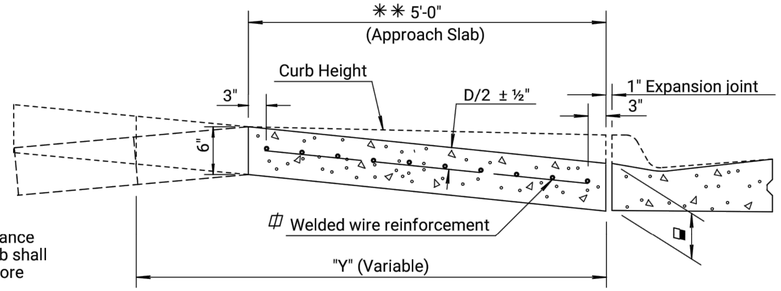
KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Plotted 29-MAR-2018 16:04

Drawn By : arockers
File : working_rd722.dgn

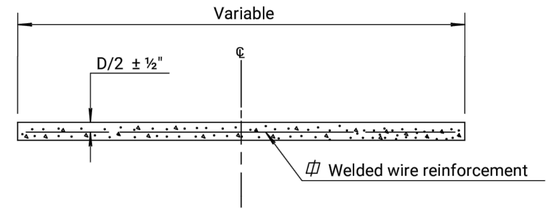
STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	30	99



NOTE : On down entrance grades, approach slab shall attain curb height before sloping downward.

SECTION A-A

Match thickness at back of Type II Curb & Gutter.



SECTION B-B

GENERAL NOTES

The angles may be varied to fit special conditions.

Construct entrance approach slab unless otherwise shown.

✳✳ Where entrance pavement is required to extend beyond the 5' approach slab, follow the extension lines shown to the limit of dimension "Y". Beyond this limit match normal alley or entrance driveway pavement width. The 5' concrete approach slab is shaped as shown regardless of sidewalk location.

Use 1" preformed Expansion Joint Filler (Type B or C) for concrete 1" expansion joint.

Where valley gutter,alley,and/or entrance pavement is the only pavement on the project, Concrete Grade 3.0 (AE) may be used, subgrade paper and joint parting strips are not required.

Construct a longitudinal tied joint at W/2 on slabs greater than 15' in width. Place joints on wider slabs to help guide vehicles entering and leaving the entrance, minimum joint spacing is 6 feet.

Use #4 x 2'-0" deformed tie bars @ 12" spacing as an alternate to welded wire fabric through approach slab joints.

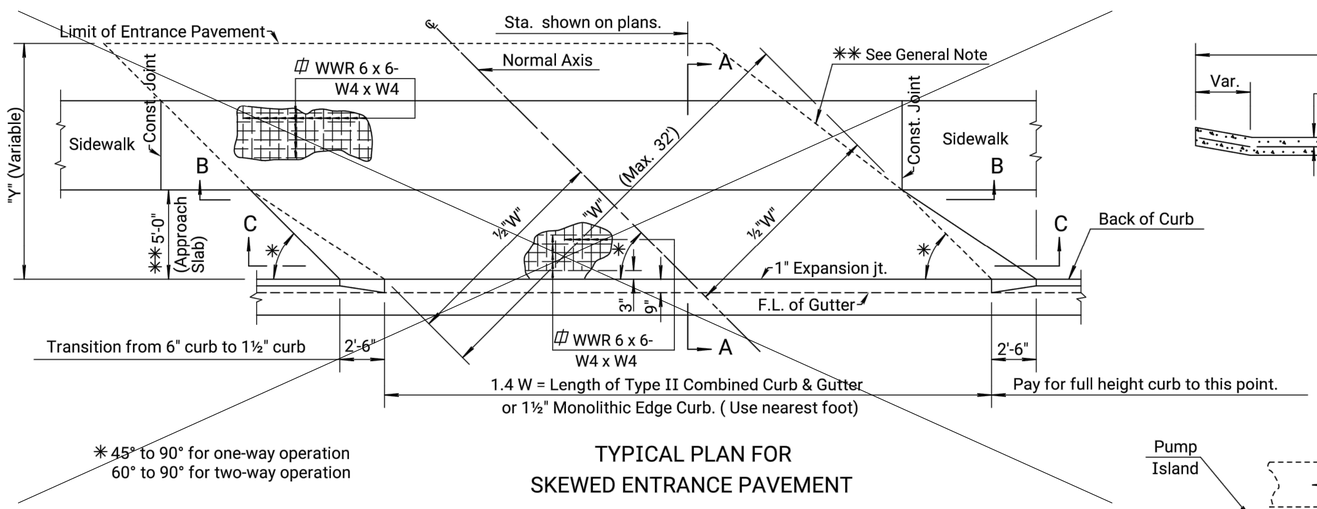
Use chairs for correct vertical placement of welded wire reinforcement and/or tie bars.

No tie bars or wire reinforcement should extend through the joint of the approach slab into the sidewalk or alley.

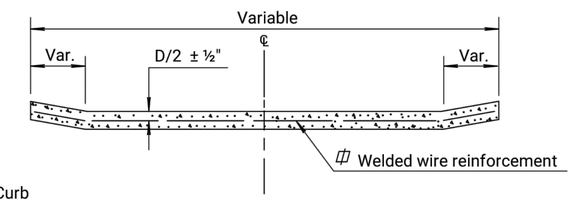
Approx. weight of welded wire reinforcement = 58 lbs. per 100 sq. ft..

Welded wire can be substituted with a macro fiber. See KDOT Standard Specifications for macro fiber and dosage requirements.

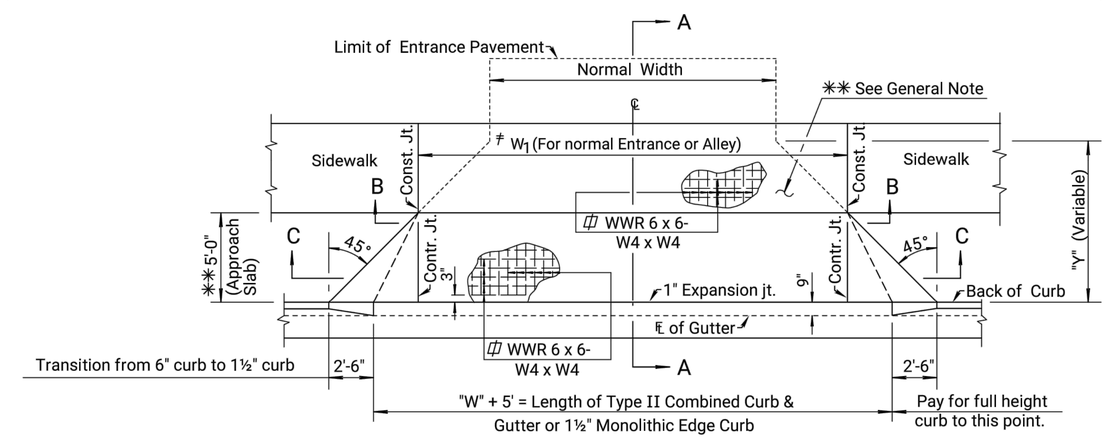
Where sidewalk is constructed through an entrance slope sidewalk toward the street at 2% or flatter.



TYPICAL PLAN FOR
SKEWED ENTRANCE PAVEMENT

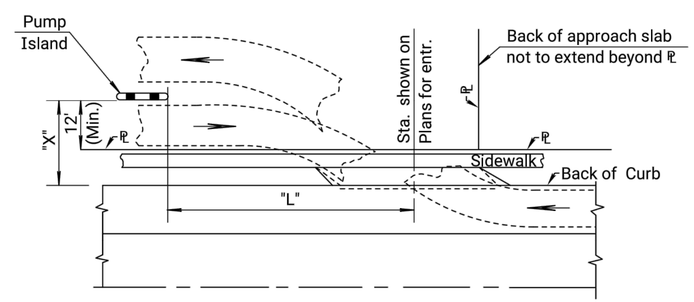


SECTION C-C



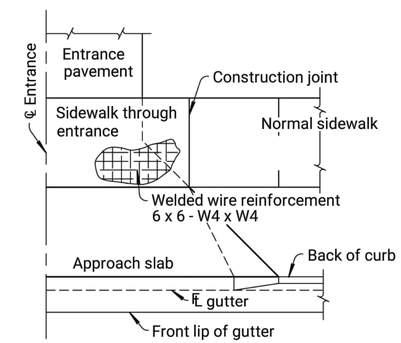
≠ Note: Value of "W" for Normal entrance.
13' min. for Private entrance.
16' min. for Alley.
40' max.

TYPICAL PLAN FOR
NORMAL ENTRANCE PAVEMENT



TYPICAL LOCATION SKETCH
FOR SKEWED ENTRANCES

Where "X" = 20', then "L"= 55'
Where "X" = 25', then "L"= 60'
Where "X" = 30', then "L"= 65'
Where "X" = 35', then "L"= 68'
Where "X" = 40', then "L"= 70'



REINFORCEMENT DIAGRAM
SIDEWALK THROUGH ENTRANCE

See Std. Drawing RD725 & RD725A for additional sidewalk details.

NO.	DATE	REVISIONS	BY	APP'D
9	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
8	2-23-17	Rev. Gen. Note	T.T.R.	S.W.K.
7	10-20-10	Add. macro fiber opt., General note	S.W.K.	J.O.B.
6	3-30-05	Changed Class to Grade conc., mesh	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

ALLEY & ENTRANCE PAVEMENT

~~RD726~~

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

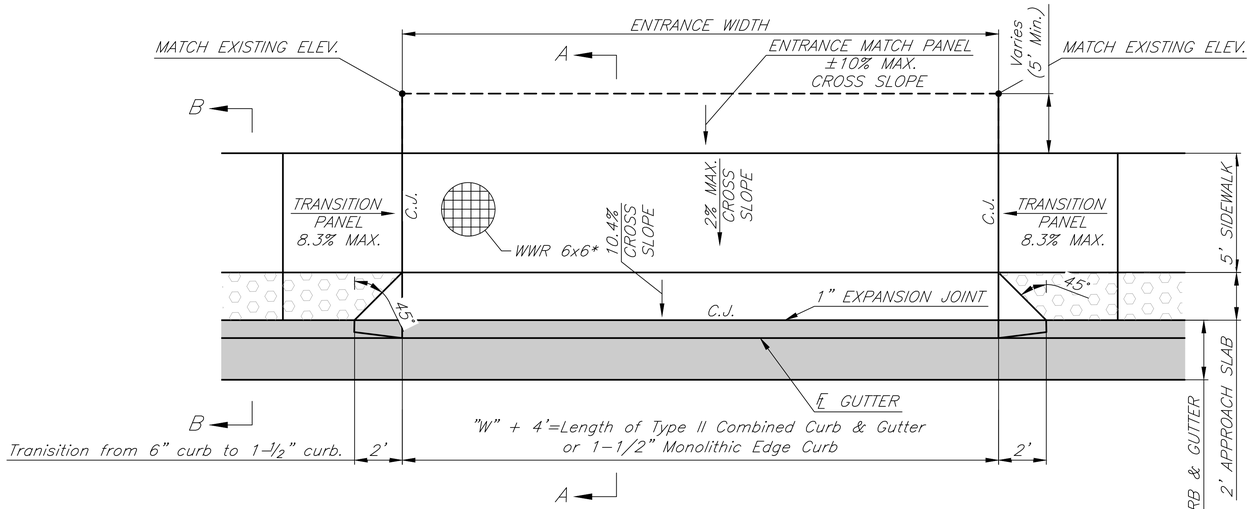
KDOT Graphics Certified 03-26-2018

KDOT Graphics Certified

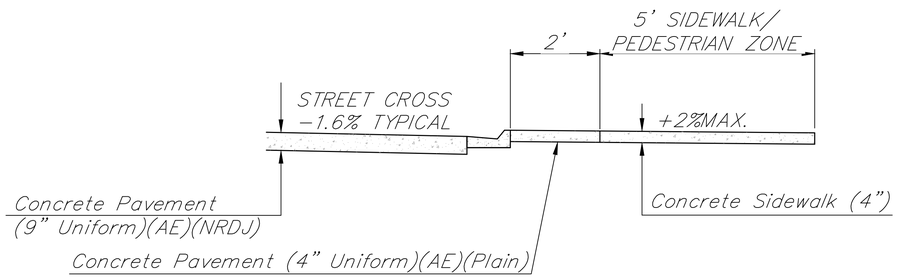
Plotted 26-MAR-2018 15:47

Drawn By : arockers
File : rd726.dgn

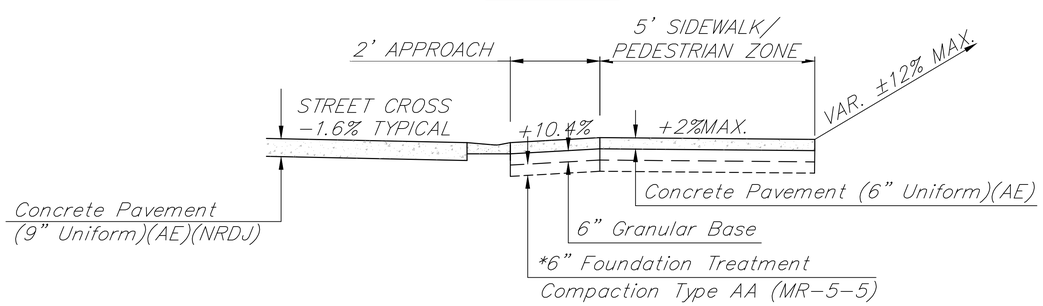
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	31	99



SPECIAL ALLEY & ENTRANCE DETAIL
STA. 98+05.70 TO 105+22.40, LT.



SEC. B-B



SEC. A-A

NOTES:

1. MINIMUM 5' UNOBSTRUCTED CLEAR SIDEWALK/PEDESTRIAN ZONE WITH MAXIMUM SLOPE OF 2% IS REQUIRED THROUGH DRIVEWAYS.

2. WHERE DRIVEWAY CONNECTION TO PROPERTY IS A NEGATIVE GRADE, THE GUTTER FLOW DEPTH MEASURED FROM GUTTER LINE TO BACK OF SIDEWALK ELEVATION SHALL HAVE A MINIMUM OF 3" VERTICAL RISE TO ASSURE THAT STORMWATER WILL NOT OVERTOP THE BACK OF SIDEWALK. IF THIS CONDITION CANNOT BE MET, PLACE AN INLET AT UPSTREAM SIDE OF DRIVEWAY OR OTHER APPROVED DESIGN MITIGATION.

3. STANDARD SIDEWALK SCORING SHALL CONTINUE THROUGH DRIVEWAY TO DELINEATE SIDEWALK/PEDESTRIAN ZONE.

4. A MINIMUM OF 3' DRIVEWAY CONNECTION SHALL BE PAVED BEHIND THE SIDEWALK TO PREVENT TRACKING OF GRAVEL OR DIRT ONTO THE SIDEWALK.

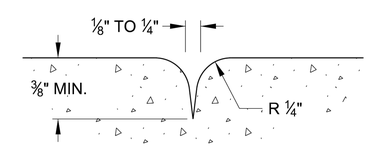
5. PAY LIMIT FOR DRIVEWAYS IS THE OUTER LIMIT OF THICKER STRUCTURAL SECTION THAT IS SUBJECT TO VEHICLE LOADS.

6. DRIVEWAY APRON SLOPE SHALL BE MAXIMIZED WHILE STILL ALLOWING THE DRIVEWAY TO FUNCTION PROPERLY BEFORE DEPRESSING THE SIDEWALK/PEDESTRIAN ZONE.

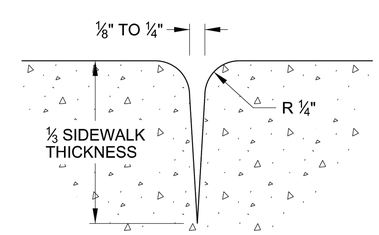
7. THE WIDTH OF THE DRIVEWAY WINGS MAY BE INCREASED INDEPENDENT OF THE WIDTHS SPECIFIED PER DRIVEWAY CLASSIFICATION TO MEET THE TRANSITION PANEL SLOPE REQUIREMENTS AS NECESSARY (15' MAXIMUM).

8. NO VERTICAL IMPEDIMENT (POLES, SIGNS, TREES, ETC.) WITHIN 3' OF THROAT.

9. CONCRETE PAVEMENT (4" UNIFORM)(AE)(PLAIN) SHALL BE COLORED BRICK RED (OR SIMILAR) AND STAMPED IN A 4" X 8" BRICK PATTERN AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. FINAL COLOR AND STAMP PATTERN SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE PROJECT.



SCORE / DUMMY JOINT DETAIL
NOT TO SCALE



CONTRACTION JOINT DETAIL
NOT TO SCALE

*Subsidiary to other bid items.

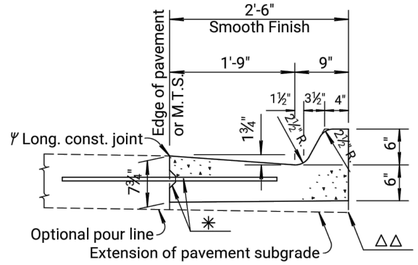
CITY OF NORTON

CURB & DRIVEWAY DETAILS

PENCO ENGINEERING, P.A.
PLAINVILLE, KS

DESIGNED BY: JGD	SCALE: No Scale
DRAWN BY: MRH	JOB NO.: 36-69 KA-5419-01
CHECKED BY: JJD	DATE: 2022

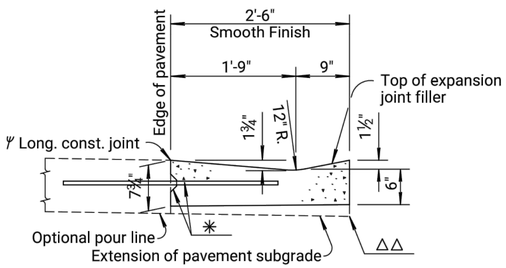
X:\ac2\kdot\KD5419-City of Norton\ACAD\Plan\Curb & Driveway Details.dwg\Curb & Driveway Details - Layout1 11/2/2021 11:34 AM



TYPICAL SECTION

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

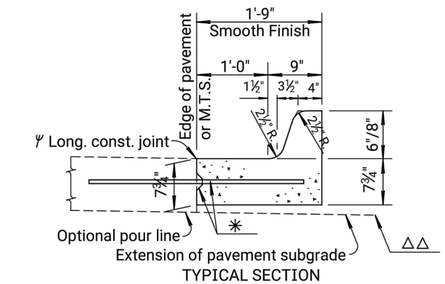
COMBINED CURB & GUTTER - TYPE I (2'-6" WIDTH)



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

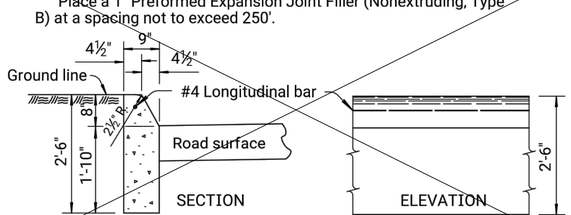
Note: Conc. C.&G. III contains 0.054 (8") & 0.051 (6") cu. yds. Conc. Grade 3.0 (AE) per lin. ft.

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

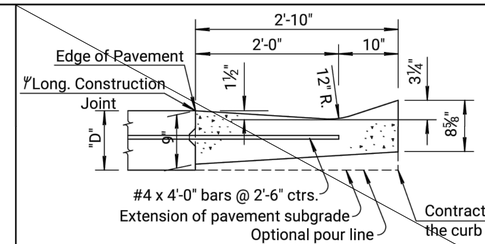
✳ Longitudinal construction joint and #4 x 3'-0" bars @ 2'-6" ctrs., where concrete pavement is constructed.

△△ 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'.

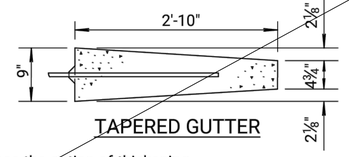


PROTECTION CURB 8"

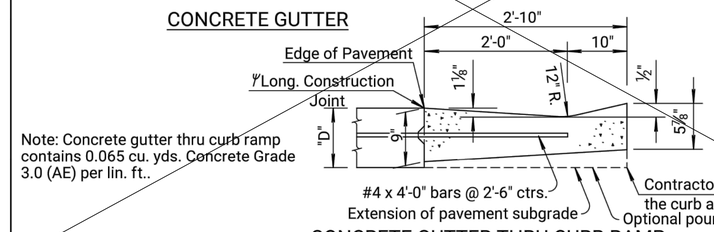


CONCRETE GUTTER

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

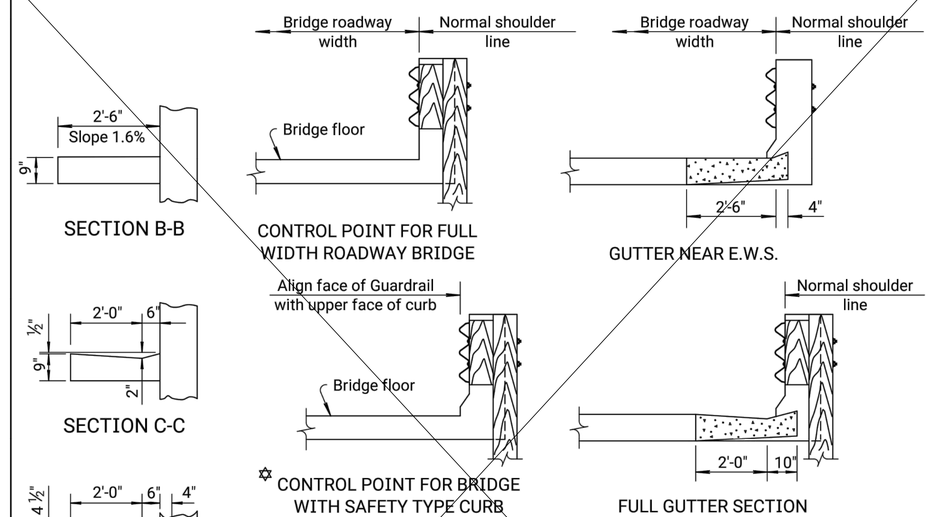


TAPERED GUTTER

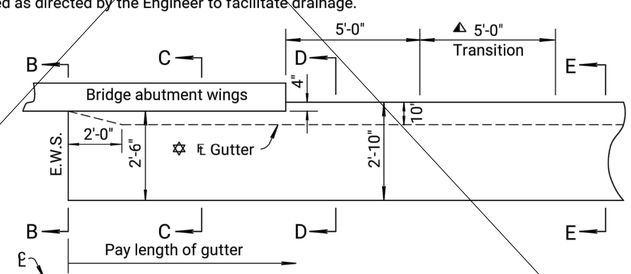


Note: Concrete gutter thru curb ramp contains 0.065 cu. yds. Concrete Grade 3.0 (AE) per lin. ft..

CONCRETE GUTTER THRU CURB RAMP



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.



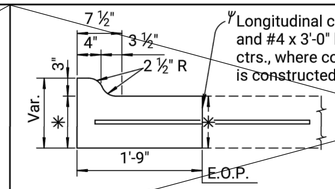
TYPICAL GUTTER @ BRIDGE ENDS

(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



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

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	32	99

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.

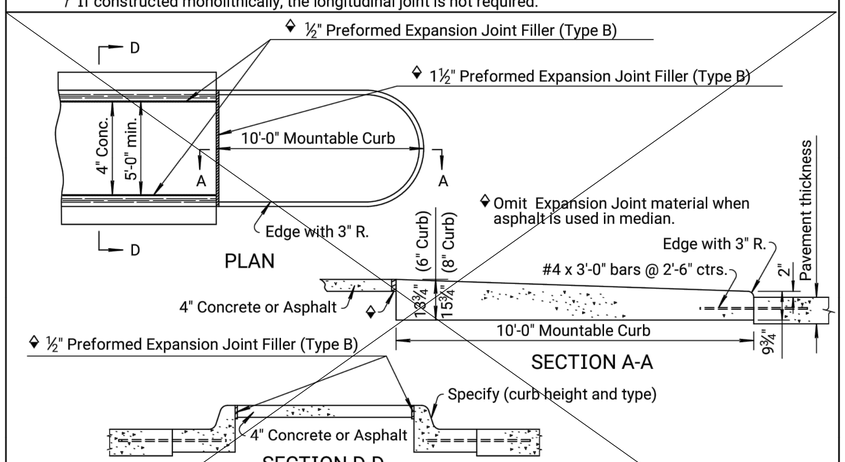
A 4' length of transition from normal gutter section to the tapered gutter section shall be used at the ends of each run of gutter except where the gutter abuts a curb, such as at the end of a bridge. Inlets shall be located so as not to fall within this transition section.

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.

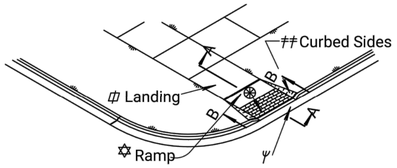
KDOT Graphics Certified 09-27-2018

KDOT Graphics Certified

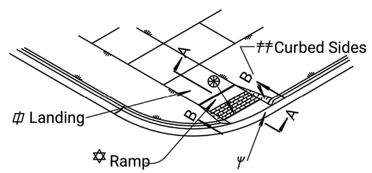
Plotted :27-SEP-2018 09:30

Drawn By : arockers
File : rd635.dgn

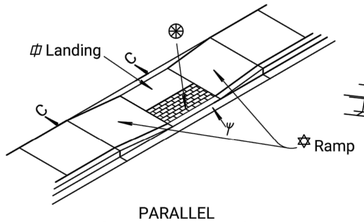
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	33	99



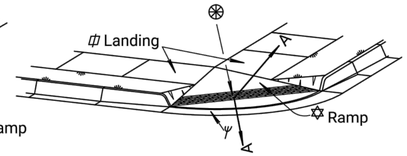
PERPENDICULAR
CURB RAMP (TYPE I)



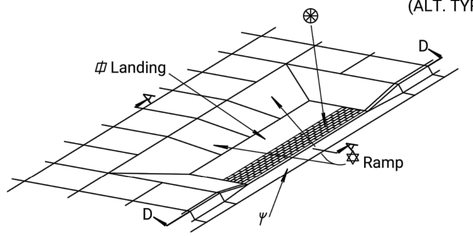
PERPENDICULAR
CURB RAMP THRU CURB RADIUS
(ALT. TYPE I)



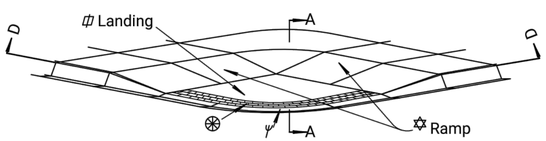
PARALLEL
CURB RAMP (TYPE 2)



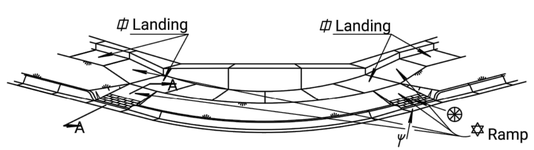
PARALLEL
CURB RAMP THRU CURB RADIUS
(ALT. TYPE 2)



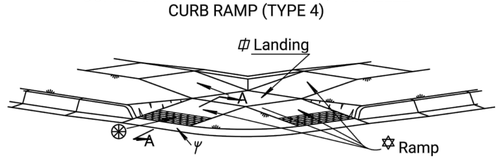
BLENDED TRANSITION
(TYPE 3)



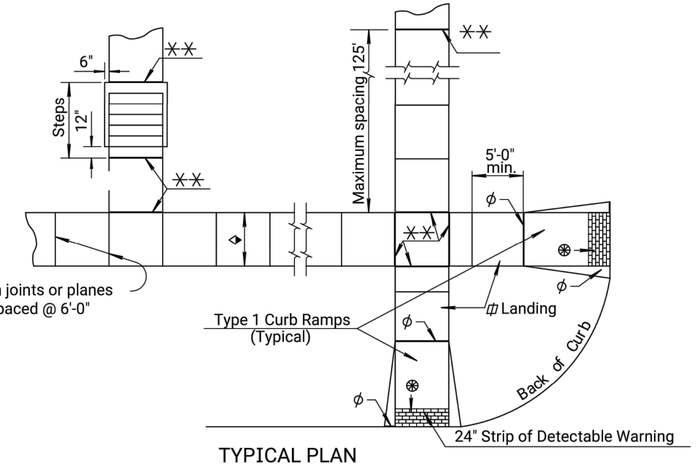
BLENDED TRANSITION
THRU CURB RADIUS (ALT. TYPE 3)



COMBINATION PERPENDICULAR/PARALLEL
CURB RAMP (TYPE 4)



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



TYPICAL PLAN

ϕ 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.

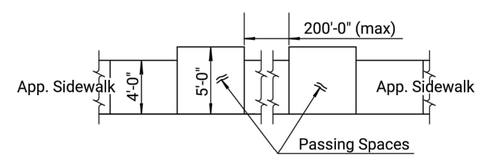
New construction ramp running slopes are 5% (min) to 8.3% (max). Ramp slopes for blended transitions are 5% or flatter. The maximum allowable ramp cross slope is 2% or flatter. Match the ramp width to the width of the approach sidewalk. Curb ramp lengths will vary with curb height. Curb ramp lengths 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.

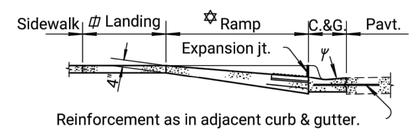
Use a counter slope of 5% or flatter at the base of curb ramps. Refer to Standard Drawing RD725A for additional curb and gutter details.

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.

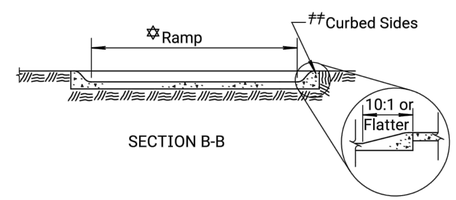


PASSING SPACE
DETAIL



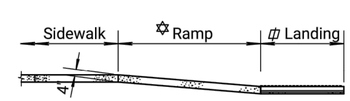
Reinforcement as in adjacent curb & gutter.

SECTION A-A

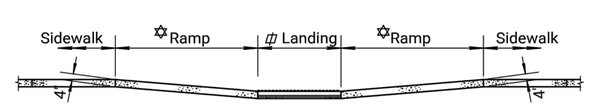


SECTION B-B

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".

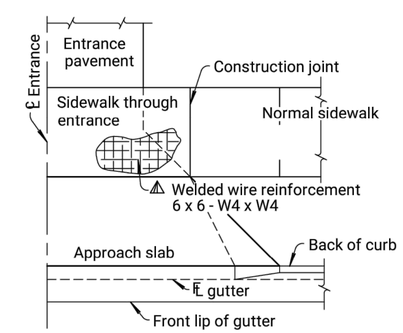
See Standard Drawing RD725A for additional information.

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.

KDOT Graphics Certified 03-26-2018

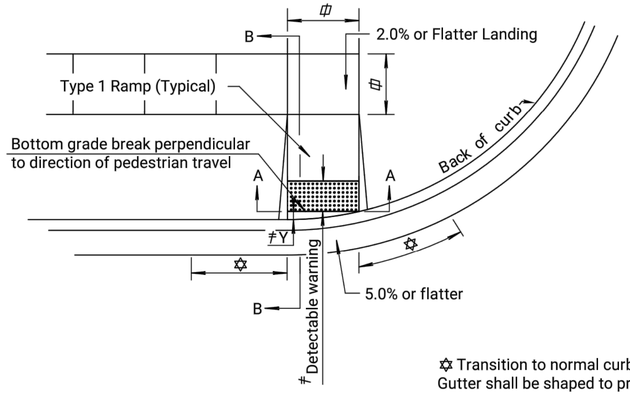
KDOT Graphics Certified

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.

Plotted 26-MAR-2018 15:45

Drawn By : arockers
File : rd725.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	34	99

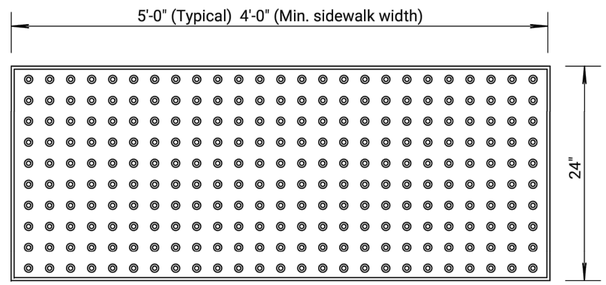


TYPICAL PLAN

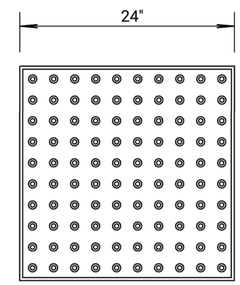
✡ Transition to normal curb and gutter section. Gutter shall be shaped to provide positive drainage.

⧈ 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).

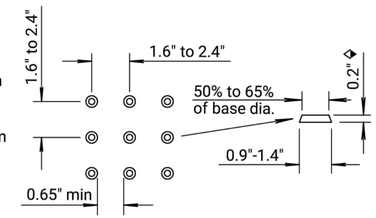
Details depicted here may not be appropriate for all locations. Design to meet this criteria on all roadway alteration projects as defined by the Department of Justice/ Department of Transportation Joint Technical Assistance on ADA Title II Requirements. For an existing sidewalk facility where the sidewalk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

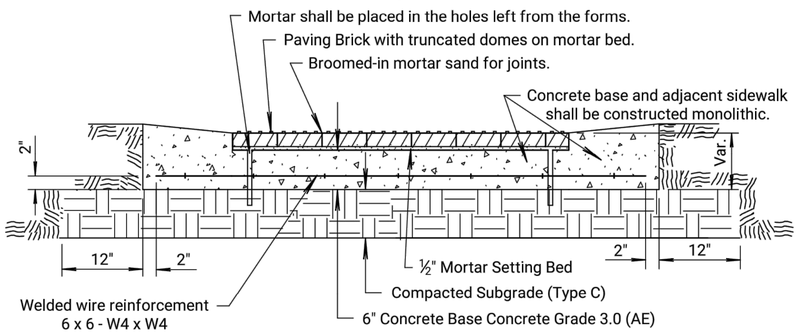
Cover the ramp width and 24" length with truncated dome surface, see examples Standard Drawing RD725 & RD725A. Saw cut (only) bricks or panels with not less than 25% of a full brick or panel installed. Place Truncated Dome Bricks or Panels to align parallel in the direction of pedestrian travel unless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

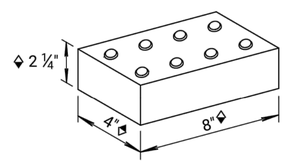


TRUNCATED DOME DIMENSIONS for SQUARE PATTERN (Parallel Alignment)

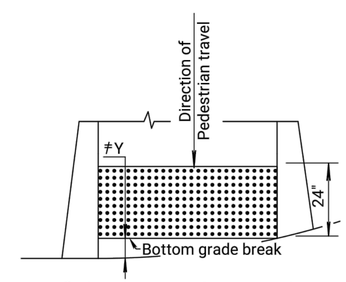


TYPICAL SECTION OF PAVER BRICK
SECTION A-A

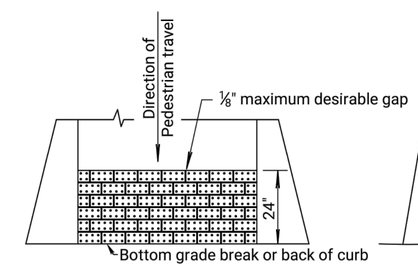
◆ These dimensions are nominal.



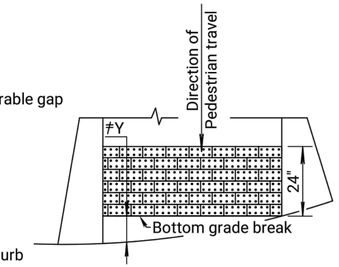
ϒ PAVER BRICK WITH TRUNCATED DOME SURFACE



⊗ CURB RADIUS DETAILS
Cut Prestressed Ramp Panels to fit.



STRAIGHT CURB DETAILS

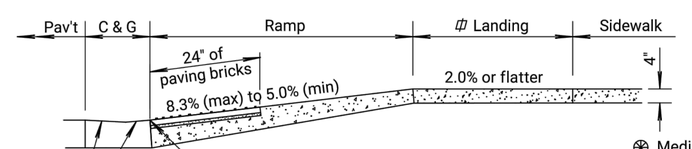


CURB RADIUS DETAILS

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.

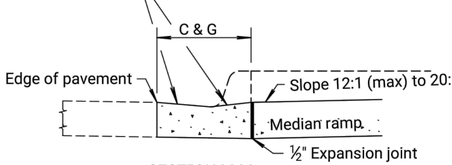
ϒ Acceptable with no mixing of types within an installation.



SECTION B-B

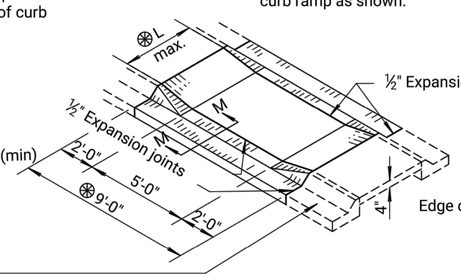
⊛ Median ramp crossing limits will be paid for as "Sidewalk Ramp."

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



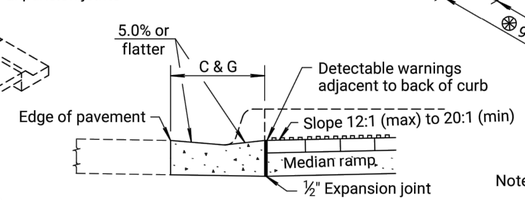
SECTION M-M

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

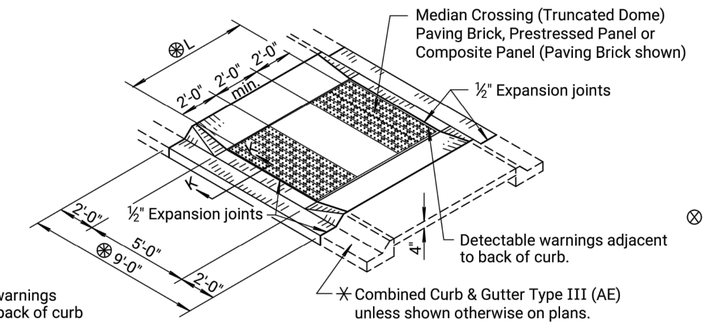


NARROW MEDIAN RAMP CROSSING
(L < 6'-0")

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

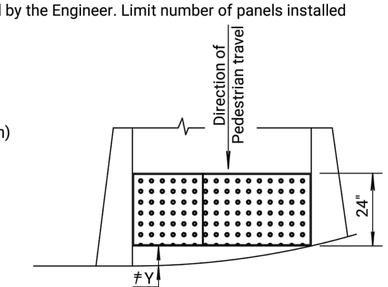


SECTION K-K



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

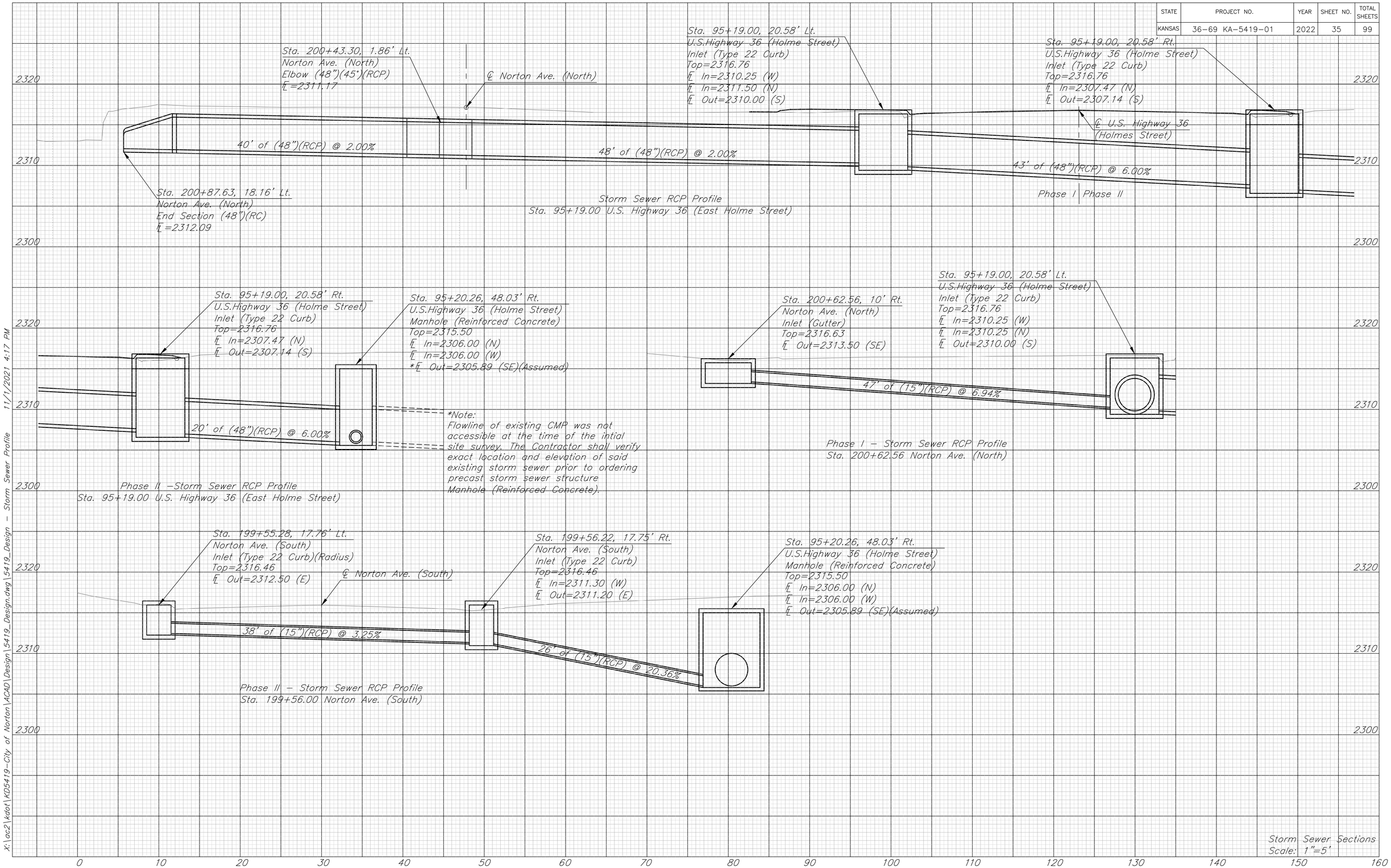
FHWA APPROVAL	3-7-17	APP'D.	SCOTT W. KING
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified 05-31-2019

KDOT Graphics Certified

Drawn By : Gage.Pemberton Plotted 31-MAY-2019 08:11
File : rd725a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	35	99



X:\ac2\kdot\KD5419-City of Norton\ACAD\Design\5419_Design.dwg\5419_Design - Storm Sewer Profile 11/1/2021 4:17 PM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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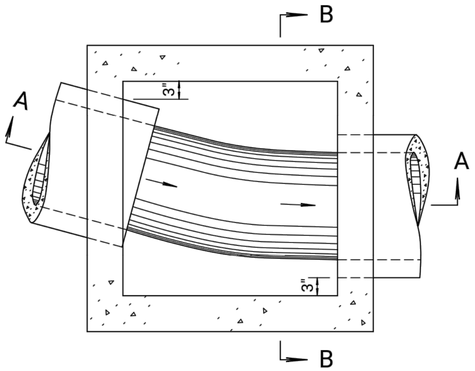
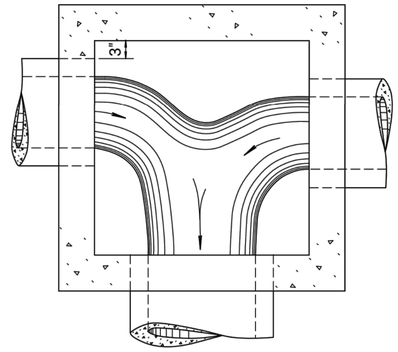
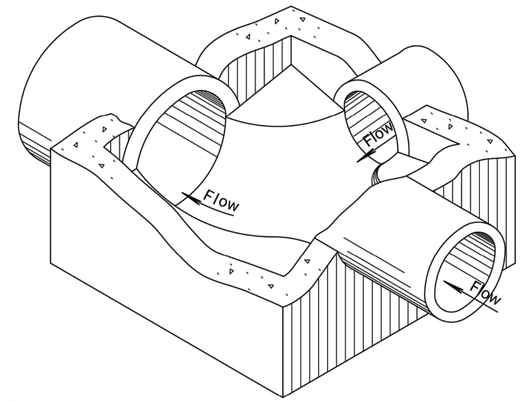


PLAN - FLOOR (Example I)



PLAN - FLOOR (Example III)



Floor of manhole shall be shaped as shown in the examples to increase hydraulic efficiency.

ISOMETRIC VIEW (Example IV)

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

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

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

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

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

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

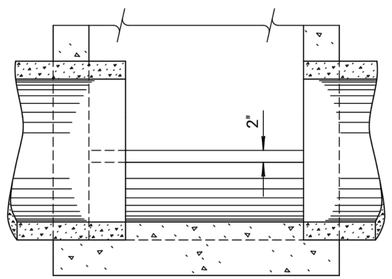
No deductions in concrete quantities shall be made for pipe openings or additions to concrete quantities shall be made for shaping floor of manholes.

The top of the manhole shall be sloped slightly to approximately fit the ground line or other condition as directed by the Engineer.

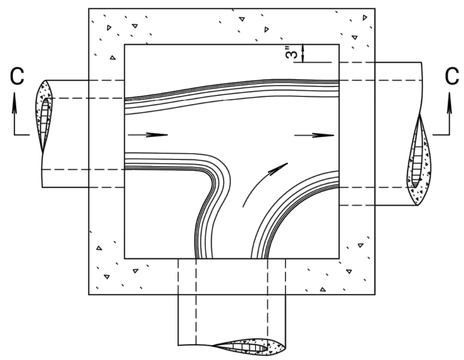
Dimensions and weights of cast iron as shown on this sheet are minimum. Larger dimensions and/or heavier weights of cast iron may be used.

The Contractor has the option of using precast manholes, as approved by the Engineer.

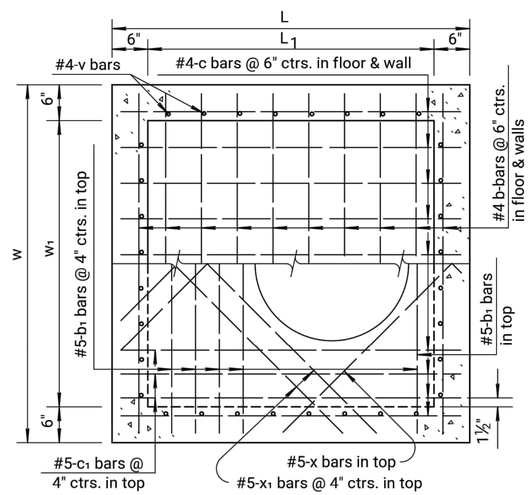
Steps shall be installed in all manholes when specified in the plans or when "H" is equal to or greater than six feet. Steps shall comply with the requirements of the KDOT Standard Specification.



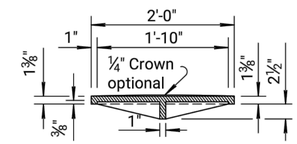
SECTION A-A (Example I)

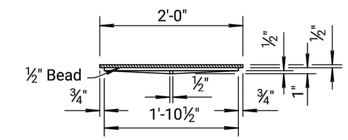


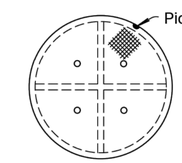
PLAN - FLOOR (Example IV)



PLAN (Showing top & floor reinf.)

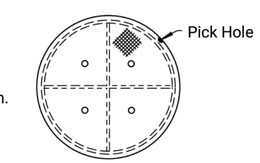




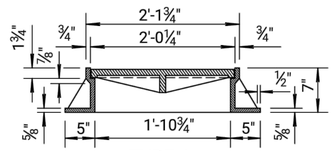


NOTE: All manhole castings are cast iron. Weight of castings includes no allowance for fillets and overruns.

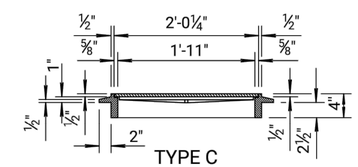
MANHOLE COVER TYPE A & B
(Weight=134 lbs.; without ¼" Crown= 125 lbs.)



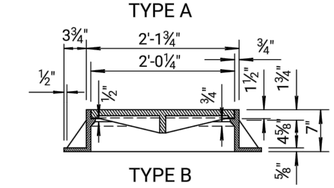
MANHOLE COVER TYPE C
(Weight= 64 lbs.)



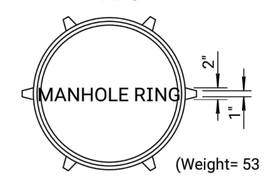
TYPE A



TYPE C



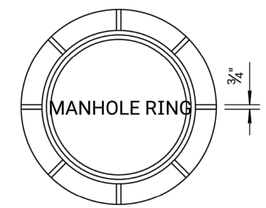
TYPE B



(Weight= 53 lbs.)

* LIGHT TYPE
MANHOLE COVER & RING

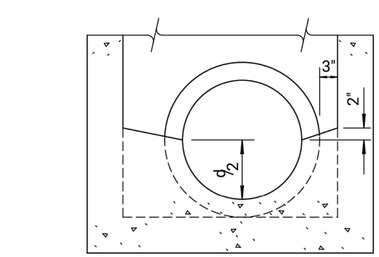
*Rings with four equally spaced lugs will be permitted.



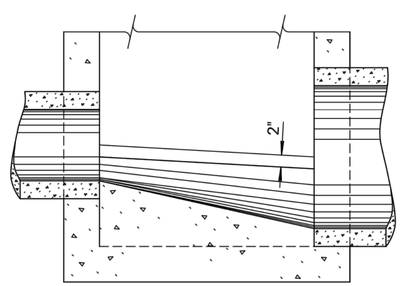
(Type A Ring= 192 lbs., Type B Ring= 198 lbs.)

HEAVY TYPE
MANHOLE COVER AND RING

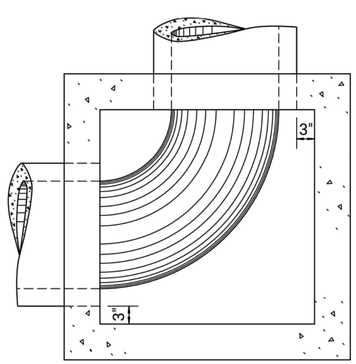
Note: Either Type A or Type B may be used.



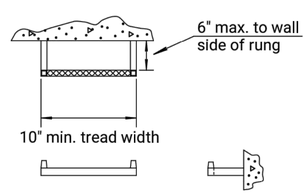
SECTION B-B (Example I)



SECTION C-C (Example IV)

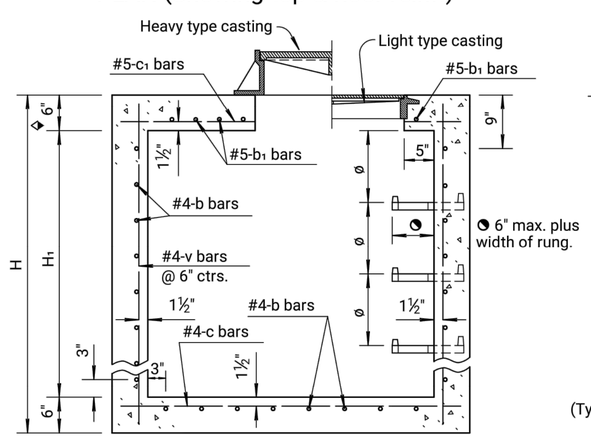


PLAN - FLOOR (Example II)



STEP DETAILS

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



◆ Where dimension "L" or "W" is greater than 6'-0" use 8" slab thickness.

SECTION (Exclusive of floor shaping)

NO.	DATE	REVISIONS	BY	APP'D
32	7-17-17	Changed step dimensions	A.L.R.	S.W.K.
31	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
30	12-1 2-97	Revised step spacing	R.J.S.	J.O.B.
29	12-27-93	Delete paint note	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

REINFORCED CONCRETE MANHOLE

RD633

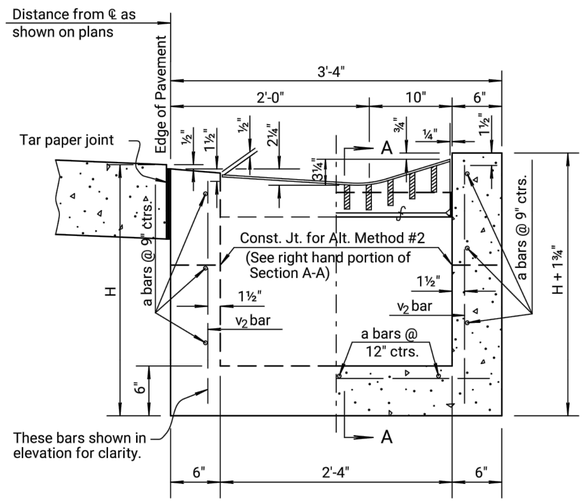
FHWA APPROVAL	8-9-17	APP'D. Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK. 633	TRACE CK.

KDOT Graphics Certified 03-28-2018

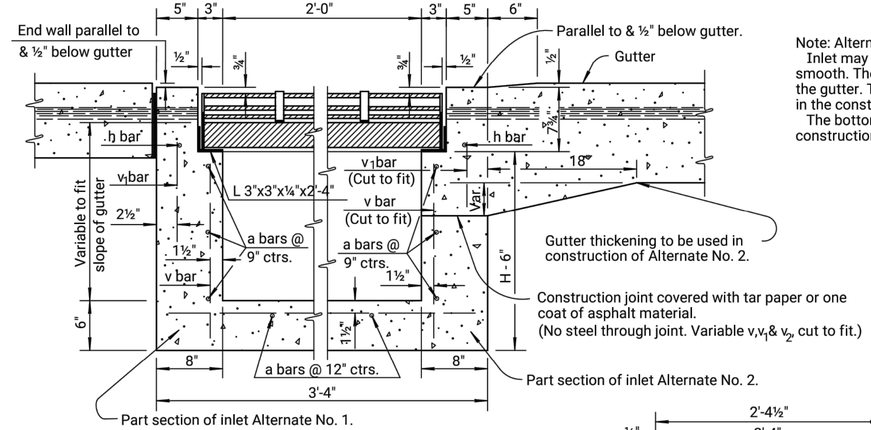
KDOT Graphics Certified

Drawn By : jacob.lawhorn
File : working_rd633.dgn
Plotted 28-MAR-2018 15:54

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	37	99

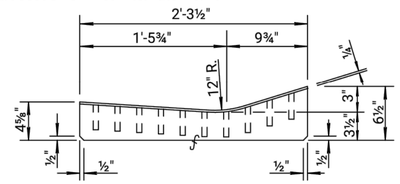


ELEVATION AND SECTION
(For Alternate Method Number One)

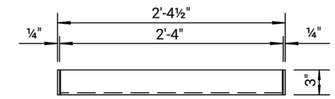


Note: Alternate Method No. 2 Construction.
Inlet may be constructed level with the subgrade and struck off smooth. The top of the inlet shall be constructed monolithic with the gutter. Tar paper or one coat of asphalt material shall be placed in the construction joint.
The bottom of gutter shall be transitioned to the top of the inlet construction joint. (See right-hand portion of Section A-A).

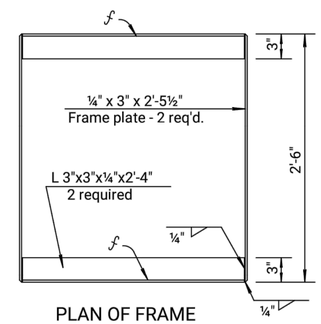
GENERAL NOTE
Use Concrete Grade 3.0 throughout. All exposed edges shall be finished with an edging tool.
At the contractors option, Concrete Grade 3.0 (AE) or mix used in concrete pavement may be used throughout.
In general, pipes will enter and leave the manhole at various positions. Where possible bend bars around pipes.
No deductions in concrete quantities shall be made for pipe openings.
All bars are #4 @ 6" spacing and shall have a minimum clearance of 1½" unless otherwise noted on the plans.
All exposed structural steel shall be painted with a coat of inorganic zinc primer and then with a topcoat or a field coat of organic zinc, each coat to be 3 to 4 mils. As an alternate, the grate and frame may be hot dip galvanized after fabrication in accordance with the Standard Specifications.
Concrete and steel quantities listed are for alternate method number one.
If alternate number two is used, payment of quantities shall be for alternate number one.
For details of longitudinal construction joint, see Standard Drawing RD708.
For details of gutter, see Standard Drawing RD635.
No deductions will be made in pay length of curb, gutter, or curb & gutter through the inlet area.



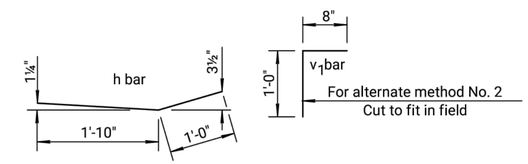
END ELEVATION OF GRATE



END ELEVATION OF FRAME

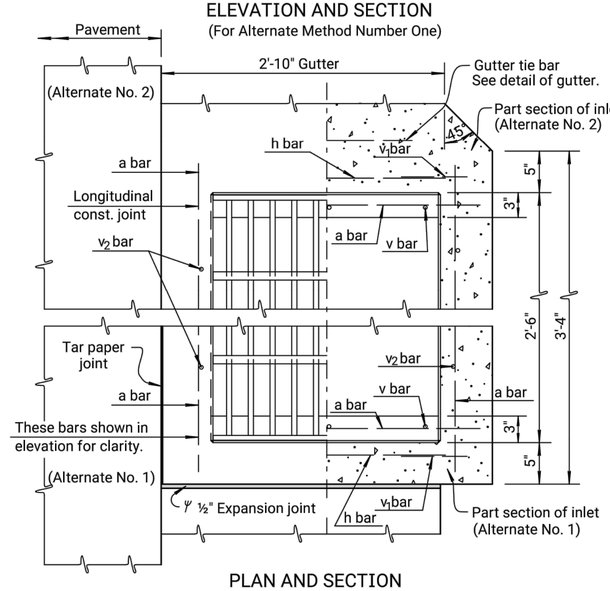


PLAN OF FRAME



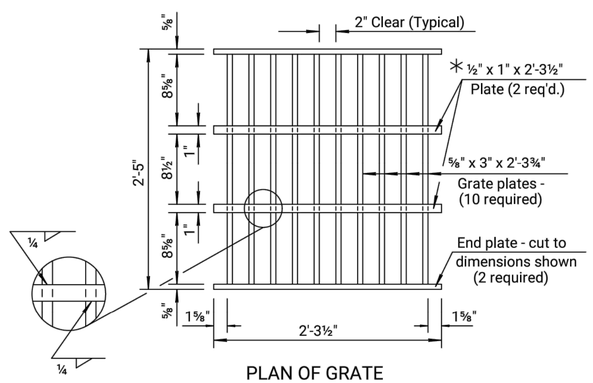
BENDING DIAGRAMS

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

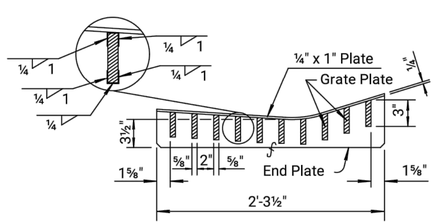


PLAN AND SECTION

Hot or cold poured joint sealing compound, or premolded expansion joint filler (Type B or C). See note and sketch above for alternate methods of construction.

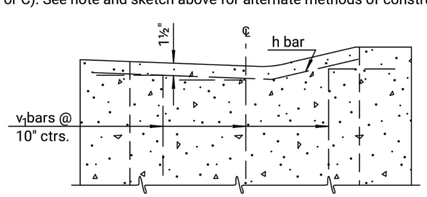


PLAN OF GRATE



SECTION OF GRATE

DETAILS OF GRATE AND FRAME ASSEMBLE
∗∗ WELDED STRUCTURAL STEEL
(Weight= 230 lbs. each)



PART ELEVATION

BILL OF MATERIALS - GUTTER INLET

H =				H =				H = 3'-10"			
Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length
a		#4		a		#4		a	23	#4	3'- 1"
h		#4		h		#4		h	2	#4	2'-10"
v		#4		v		#4		v	6	#4	3'-1"
v_1		#4		v_1		#4		v_1	6	#4	1'- 8"
v_2		#4		v_2		#4		v_2	4	#4	3'-7"
Conc. Grade 3.0			Cu.Yd.	Conc. Grade 3.0			Cu.Yd.	Conc. Grade 3.0		0.90	Cu.Yd.
Reinf. steel			Lbs.	Reinf. steel			.bs.	Reinf. steel		80	Lbs.
Struct. steel			Lbs.	Struct. steel			Lbs.	Struct. steel		∗ 230	Lbs.
Class III Excav.			Cu.Yd.	Class III Excav.			Cu.Yd.	Class III Excav.		5	Cu.Yd.

∗ On all interstate and rural area projects the two ¼" x 1" x 2'-3½" plates are to be omitted. The weight of the grate and frame without these plates is 226 lbs. of structural steel.

∗∗ Steel for grate and frame shall comply with ASTM A-36, A-242 or A-441.

NO.	DATE	REVISIONS	BY	APP'D
13	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
12	8-14-12	Revised Quantities, Class III Exc.	S.W.K.	J.O.B.
11	1-10-07	Changed bituminious to asphalt	S.W.K.	J.O.B.
10	1-28-05	Changed Class to Grade concrete	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE GUTTER INLET

RD634

FHWA APPROVAL	3-5-18	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Seitz

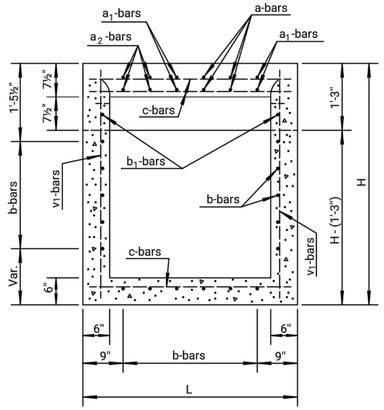
KDOT Graphics Certified 03-19-2018

KDOT Graphics Certified

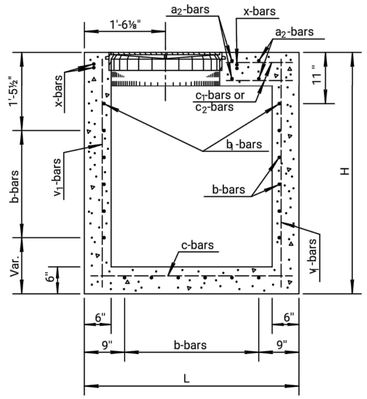
Plotted :19-MAR-2018 08:52
Drawn By : arockers
File : rd634.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	38	99

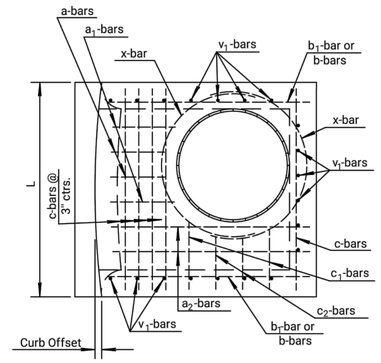
ø Steps shall be uniformly spaced. Spacing shall be 12" minimum and 16½" maximum.



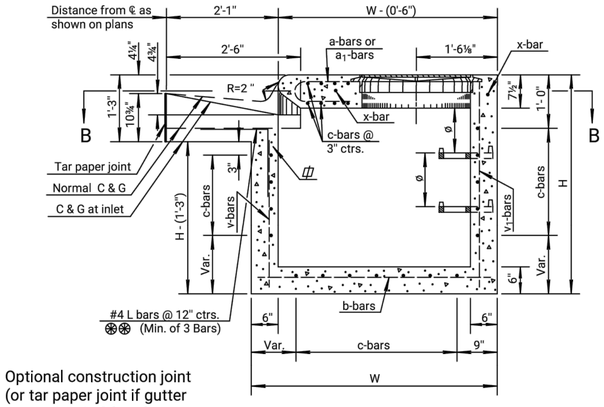
SECTION D-D



SECTION C-C



SECTION B-B



SECTION A-A

⏍ Optional construction joint (or tar paper joint if gutter is constructed free from inlet).

Notes:

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

All exposed edges shall be finished with an edging tool.

Reinforcing bars shall be bent around pipe.

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

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

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

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

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

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

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

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

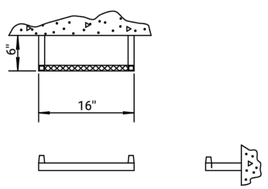
The weight of castings includes no allowance for fillets and overruns.

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

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

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

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



STEP DETAILS

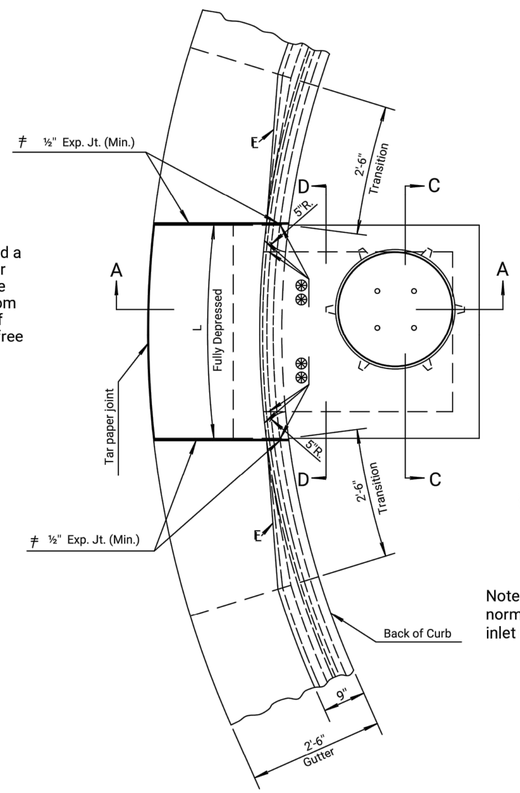
LENGTH OF INLET \ RADIUS OF RETURN	20'	25'	30'	35'	40'	45'	50'
4'	1⅛"	1"	¾"	⅝"	⅝"	½"	½"
5'	1⅞"	1½"	1¼"	1"	⅞"	⅞"	¾"
6'	2⅝"	2⅛"	1¾"	1½"	1⅜"	1¼"	1"
7'		2⅞"	2⅜"	2⅛"	1⅞"	1⅜"	1½"
8'			3⅛"	2¾"	2⅜"	2⅛"	1⅞"
9'					3"	2⅝"	2⅜"
10'							3"

CURB OFFSETS

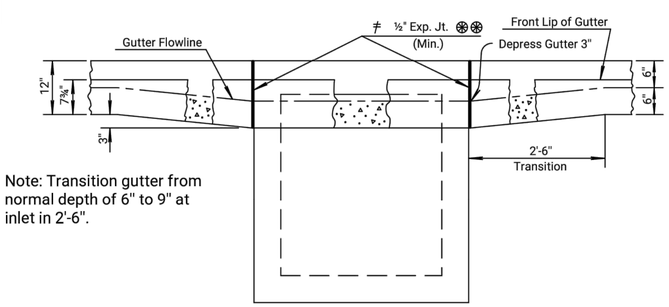
Note: All reinforcing shall be #4 at 6" centers except where noted. Minimum clear distance to reinforcement shall be 1½".

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

≠ Hot or cold poured joint sealing compound or premolded Exp. Jt. Filler (Type B or C).

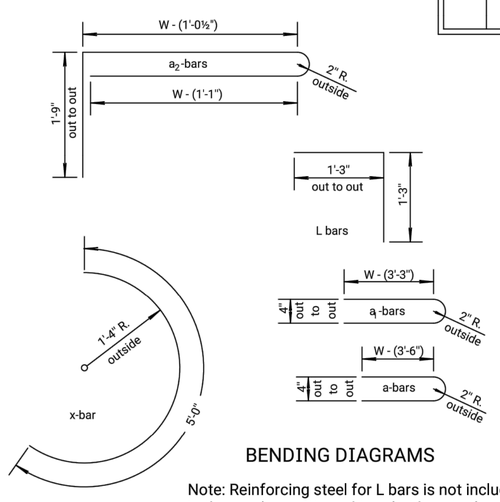


PLAN



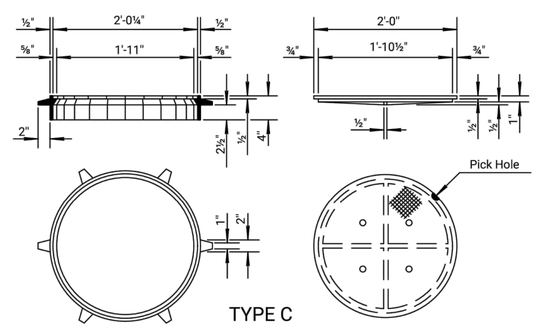
Note: Transition gutter from normal depth of 6" to 9" at inlet in 2'-6".

ELEVATION



BENDING DIAGRAMS

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



TYPE C

✳ CAST IRON MANHOLE RING

Weight = 53 lbs.

CAST IRON MANHOLE COVER

Weight = 64 lbs.

✳ Rings with four equally spaced lugs will be permitted.

NO.	DATE	REVISIONS	BY	APP'D
11	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
10	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
9	12-1 1-97	Revised step spacing	R.J.S.	J.O.B.
8	10-31-95	Rem. curve in top c-bars	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22 RADIUS CURB INLET

RD645

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

KDOT Graphics Certified 03-20-2018

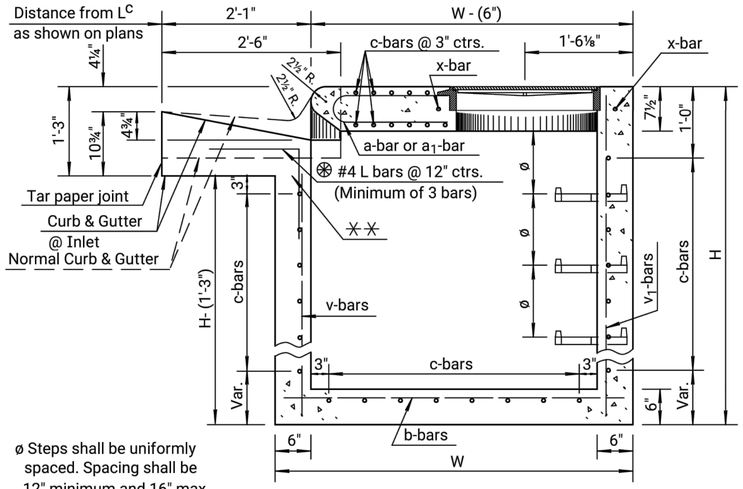
KDOT Graphics Certified

Plotted 20-MAR-2018 15:37

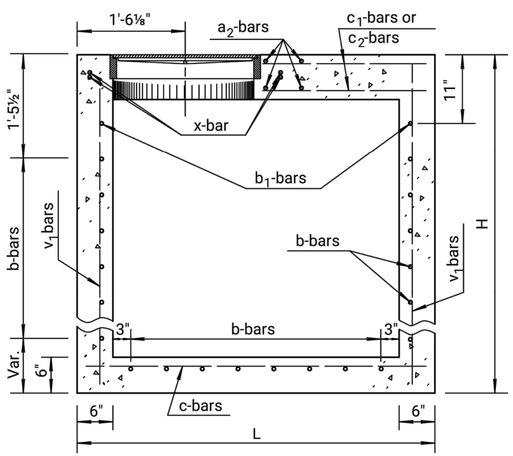
Drawn By : arockers

File : working_rd645.dgn

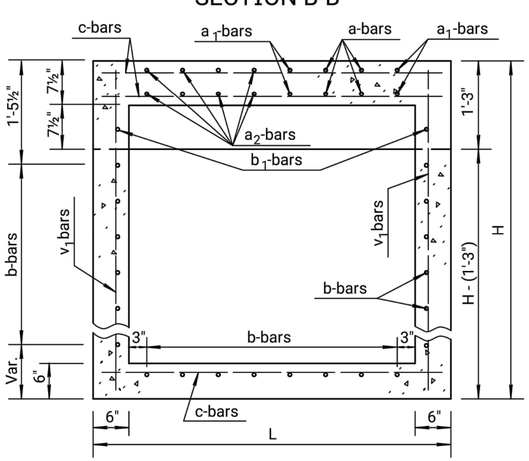
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	39	99



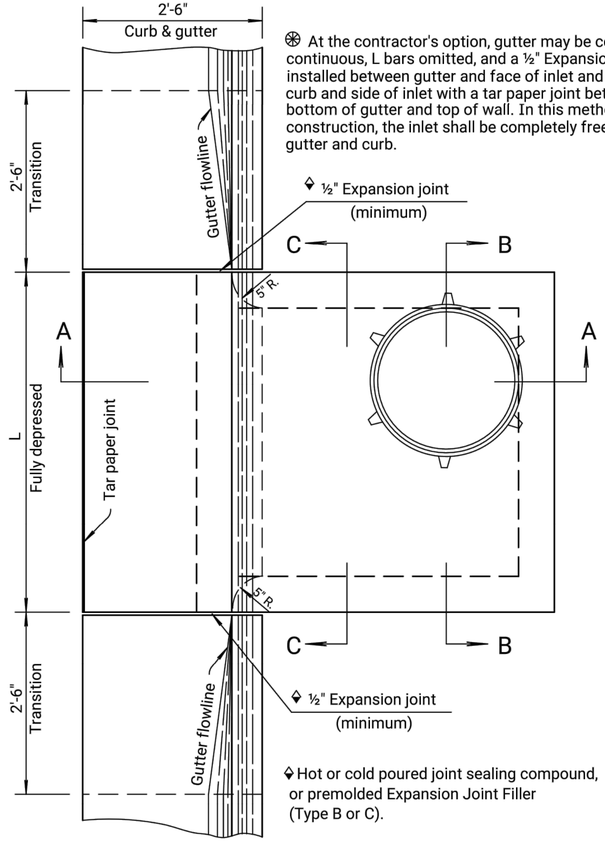
SECTION A-A



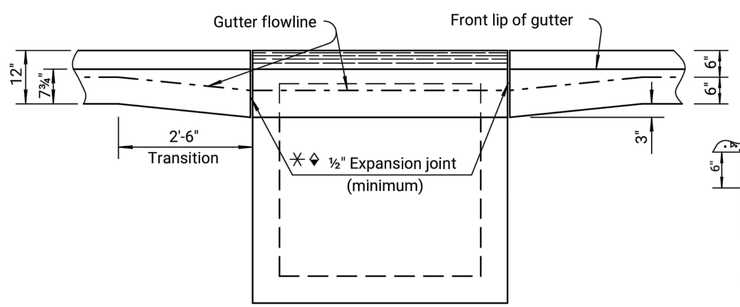
SECTION B-B



SECTION C-C

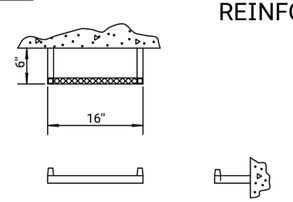


PLAN

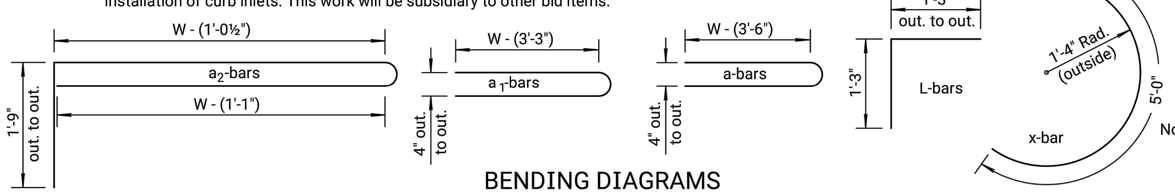


ELEVATION

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



STEP DETAILS

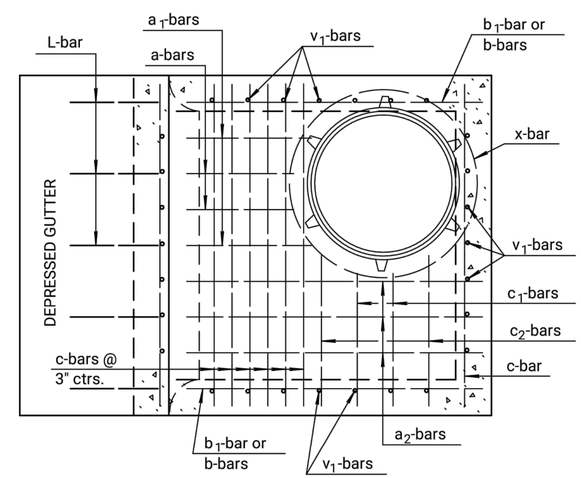


BENDING DIAGRAMS

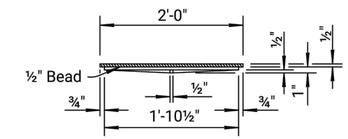
Note: Reinforcing steel for L bars is not included in the steel quantity and is subsidiary to the other inlet items.

GENERAL NOTES

Use Concrete Grade 3.0 throughout. All exposed edges shall be finished with an edging tool.
At the contractors option Concrete Grade 3.0 (AE) or mix used in concrete pavement may be used throughout.
In general, pipes will enter and leave manhole at various positions. Where possible bend bars around pipes.
Floor of manhole to be shaped as shown in various "EXAMPLES" with unreinforced Concrete Grade 3.0.
Manhole opening and steps, where used, shall be placed to afford easy access to top of shaped invert. Top reinforcing bars to be adjusted accordingly.
All castings shall be gray iron and shall comply with the KDOT Standard Specifications.
When so ordered by the Engineer, the top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions.
Dimensions and weights of cast iron as shown on this sheet are minimum. Larger dimensions and/or heavier weights of cast iron may be used.
Steps shall be installed in all storm sewer inlets when specified in the plans or when "H" is equal to or greater than six feet. Steps shall comply with the KDOT Standard Specification.
No reduction in concrete quantities shall be made for pipe openings.
When directed by the Engineer, a small opening in the back of the inlet shall be provided in order to drain a low area. Reinforcing bars shall extend through the opening. No reduction in concrete quantities will be made for this opening.
No addition in concrete quantities shall be made for shaping floor of inlet.
No reduction in pay length of curb, gutter, or curb & gutter will be made through the inlet area.
The weight of castings includes no allowance for fillets and overruns.
Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work shall be subsidiary to other bid items.
See sheet entitled "Reinforcing Steel for Inlets and Manholes" for details and quantities.
For additional notes and details on Light Type Cast Iron Manhole Cover and Ring Type C and Cast Iron Steps, see Standard Drawing RD633 "Reinforced Concrete Manhole".
All reinforcing steel shall be #4 at 6" centers except where noted. Minimum clear distance to reinforcement shall be 1½".

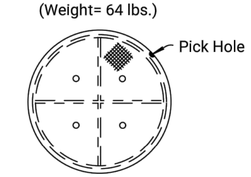


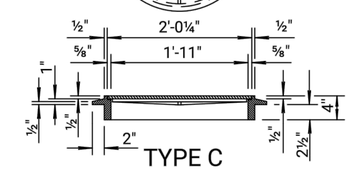
REINFORCING STEEL TOP VIEW



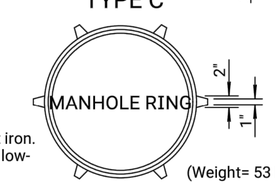
MANHOLE COVER TYPE C

(Weight= 64 lbs.)





TYPE C



NOTE: All manhole castings are cast iron. Weight of castings includes no allowance for fillets and overruns.

(Weight= 53 lbs.)

* LIGHT TYPE MANHOLE COVER & RING

* Rings with four equally spaced lugs will be permitted.

NO.	DATE	REVISIONS	BY	APP'D
7	10-31-17	Joint Filler Type C Added	A.L.R.	S.W.K.
6	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
5	12-1 1-97	Revised step spacing	R.J.S.	J.O.B.
4	3-20-96		R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22 CURB INLET

RD646

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

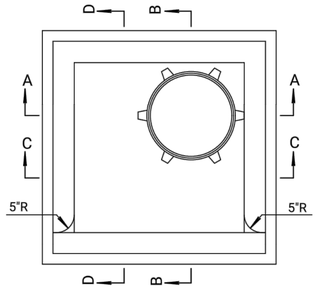
KDOT Graphics Certified 03-20-2018

KDOT Graphics Certified

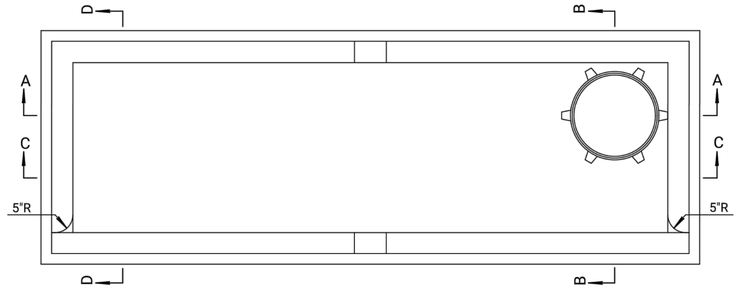
Plotted :20-MAR-2018 16:13

Drawn By : arockers
File : working_rd646.dgn

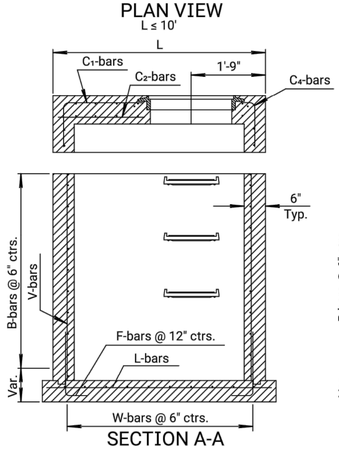
STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	40	99



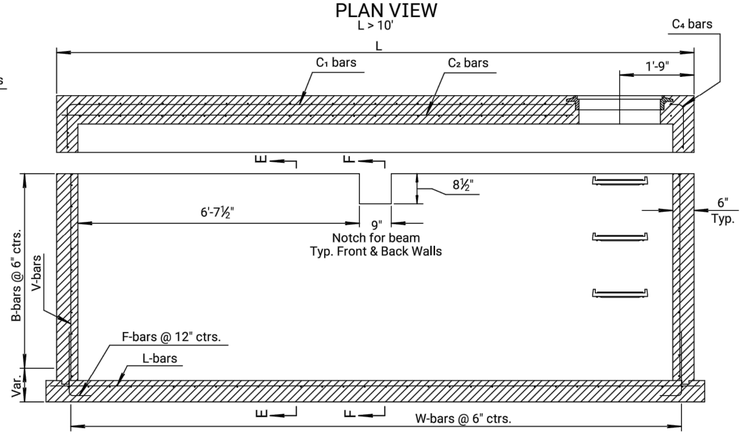
PLAN VIEW
L ≤ 10'



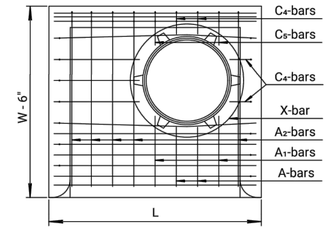
PLAN VIEW
L > 10'



SECTION A-A
L ≤ 10'

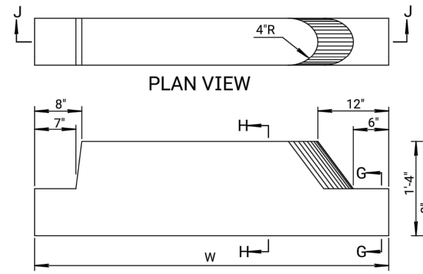


SECTION A-A
L > 10'



INLET TOP REINFORCING

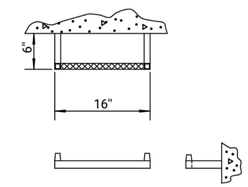
INLET TOP FRONT ELEVATION



PLAN VIEW

ELEVATION

END VIEW



STEP DETAILS

GENERAL NOTES

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

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

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

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

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

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

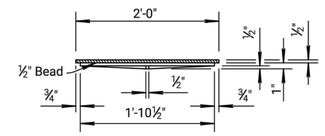
No reduction in pay length of curb, gutter, or curb & gutter will be made through the inlet area. Curb and Gutter sections shall be shaped as shown where required by the installation of curb inlets. This work shall be subsidiary to other bid items.

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

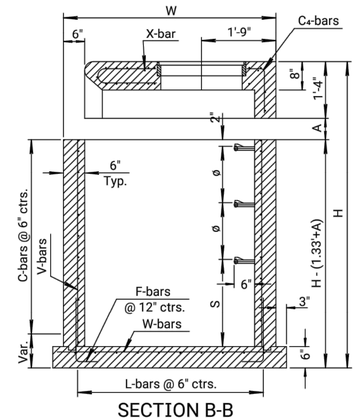
All reinforcing steel shall be #4 at 6" centers except where noted. Minimum clear distance to reinforcement shall be 1½".

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

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



MANHOLE COVER TYPE C
(Weight= 64 lbs.)



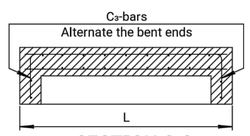
SECTION B-B

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

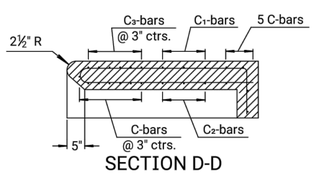
NOTES

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

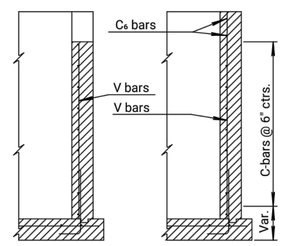
"S" maximum = 2'-3" + ½ x ID of outlet pipe.



SECTION C-C

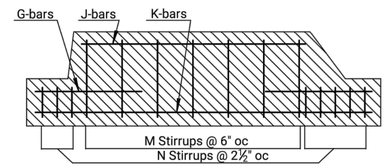


SECTION D-D



SECTION F-F

SECTION E-E

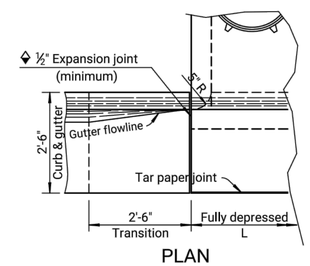


SECTION J-J

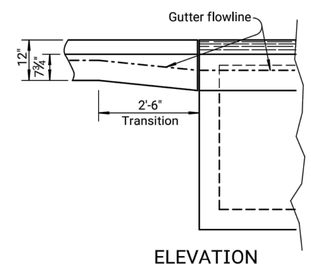
SECTION H-H

SECTION G-G

CENTER BEAM DETAILS

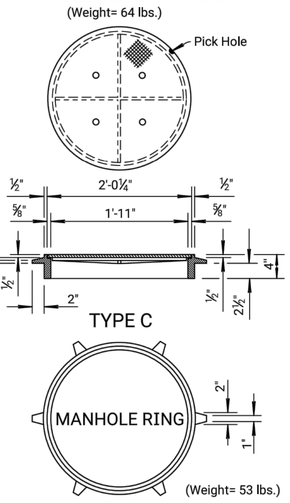


PLAN



ELEVATION

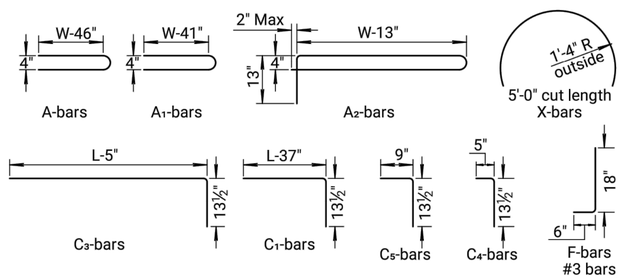
DETAILS OF GUTTER TRANSITION



TYPE C

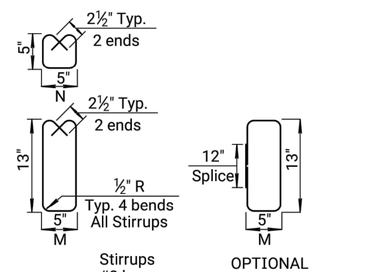
* LIGHT TYPE
MANHOLE COVER & RING

* Rings with four equally spaced lugs will be permitted.



A-bars
A1-bars
A2-bars
5'-0" cut length
X-bars
C3-bars
C1-bars
C5-bars
C4-bars
F-bars
#3 bars
grade 40

BENDING DIAGRAMS



Stirrups
#3 bars
grade 40

OPTIONAL

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

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE 22 PRECAST INLETS

RD649

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

KDOT Graphics Certified 03-28-2018

KDOT Graphics Certified

Plotted :28-MAR-2018 16:06

Drawn By : jacob.lawhorn
File : working_rd649.dgn

STATE	PROJECT N0.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	41	99

SCHEDULE OF INLETS AND MANHOLES

STATION	SIDE	TYPE: MAN-HOLES	TYPE: CURB INLETS	TYPE: GUTTER INLETS	TYPE: DITCH INLETS	TYPE: CURB INLET RADIUS	SEWER DATA: INFLOW PIPES SIZE	INFLOW PIPES ℄ ELEV.	INFLOW PIPES SIZE	INFLOW PIPES ℄ ELEV.	INFLOW PIPES SIZE	INFLOW PIPES ℄ ELEV.	OUTFLOW PIPES SIZE	OUTFLOW PIPES ℄ ELEV.	OUTFLOW PIPES GRADE	ELEVATIONS TOP ⊛	ELEVATIONS FLOOR	DIMENSIONS L (FT.)	DIMENSIONS W (FT.)	DIMENSIONS H (FT.)	STORM SEWER LIN. FT. 15"	STORM SEWER LIN. FT. 48"	END SECTIONS 48"	SEWER EXC. (CU.YD.) COMM.	SEWER EXC. (CU.YD.) ROCK	HT. FILL FT.	CONC. AASHTO CL. NO.	PIPE GAUGE STEEL	FOR INFORMATION ONLY: CLASS III EXC.	CAST IRON (LBS.)	STRUC. STEEL (LBS.)	REINF. STEEL (LBS.)	CONC. GD. 3.0 (CU.YD.)	STEPS	REMARKS
95+19.00	Lt.		1				48"	2310.25 (W)	15"	2311.50 (N)			48"	2310.00 (S)	6.00%	2316.76	2309.58	8.00	7.00	7.67		131		1					15.91	117		92	5.97		
95+19.00	Rt.		1				48"	2307.47 (N)					48"	2307.14 (S)	6.00%	2316.76	2306.72	8.00	7.00	10.51		20							21.86	117		1148	7.46		
95+20.26	Rt.	1					48"	2306.00 (N)	15"	2310.29 (W)			48"	2305.89 (S)	Unknown	2315.50	2305.47	8.00	5.00	10.53									15.60	192		981	5.96		
199+55.28	Lt.					1							15"	2312.50 (E)	3.25%	2316.46	2312.30	5.00	4.00	4.67	38								3.46	117		25	2.04		
199+56.22	Rt.		1						15"	2311.30 (W)			15"	2311.20 (E)	20.36%	2316.46	2311.00	5.00	4.00	6.00	26								4.44	117		320	2.43		
200+62.56	Rt.			1									15"	2313.50 (S)	6.94%	2316.63	2313.30	3.33	3.33	3.83	47								5.00		230	80	0.90		
TOTAL																					111	151							66.27	660	230	3718	23.86		

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

NO.	DATE	REVISIONS	BY	APP'D
3	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.
2	5-21-99	Added top elevation location note	R.J.S.	J.O.B.
1	10-8-90	Detailed on CADD	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

SCHEDULE
INLETS AND MANHOLES

RD653H

FHWA APPROVAL 06-10-05 | APP'D. James O. Brewer
DESIGNED | DETAILED | QUANTITIES | TRACED B.N.B.
DESIGN CK. | DETAIL CK. | QUAN.CK. | TRACE CK. R.J.S.

KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Plotted :29-MAR-2018 09:19
Drawn By : arockers
File : working_rd653h.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	42	99

CURB INLET
TYPE 22
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	8.00	L_1	
W	7.00	W_1	
H	7.67	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	7'-6"
A_1	#4	2	8'-0"
A_2	#4	10	14'-2"
A_3	#4		
A_4	#4		
B	#4	40	6'-9"
B_1	#4		
C	#4	67	7'-9"
C_1	#4	2	5'-3"
C_2	#4	2	5'-7"
V	#4	16	6'-2"
V_1	#4	40	7'-5"
V_2	#4		
V_3	#4		
L	#4	8	2'-6"
X	#4	1	5'-0"

INLET LOCATIONS

95+19.00 Lt.

CURB INLET
TYPE 22
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	8.00	L_1	
W	7.00	W_1	
H	10.51	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	7'-6"
A_1	#4	2	8'-0"
A_2	#4	10	14'-2"
A_3	#4		
A_4	#4		
B	#4	52	6'-9"
B_1	#4		
C	#4	79	7'-9"
C_1	#4	2	5'-3"
C_2	#4	2	5'-7"
V	#4	16	9'-0"
V_1	#4	40	10'-3"
V_2	#4		
V_3	#4		
L	#4	8	2'-6"
X	#4	1	5'-0"

INLET LOCATIONS

95+19.00 Rt.

CURB INLET
TYPE 22
CURB RADIUS 20 FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	5.00	L_1	
W	4.00	W_1	
H	4.67	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	1'-6"
A_1	#4	2	2'-0"
A_2	#4	4	8'-2"
A_3	#4		
A_4	#4		
B	#4	22	3'-9"
B_1	#4		
C	#4	25	4'-9"
C_1	#4	2	2'-3"
C_2	#4	2	2'-7"
V	#4	10	3'-2"
V_1	#4	22	4'-5"
V_2	#4		
V_3	#4		
L	#4	5	2'-6"
X	#4	1	5'-0"

INLET LOCATIONS

199+55.28 Lt.

CURB INLET
TYPE 22
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L	5.00	L_1	
W	4.00	W_1	
H	6.00	H_1	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
A	#4	2	1'-6"
A_1	#4	2	2'-0"
A_2	#4	4	8'-2"
A_3	#4		
A_4	#4		
B	#4	28	3'-9"
B_1	#4		
C	#4	31	4'-9"
C_1	#4	2	2'-3"
C_2	#4	2	2'-7"
V	#4	10	4'-6"
V_1	#4	22	5'-9"
V_2	#4		
V_3	#4		
L	#4	8	2'-6"
X	#4	1	5'-0"

INLET LOCATIONS

199+56.22 Rt.

MANHOLE

LEGEND	DIMENSIONS
L	8.00
W	5.00
H	10.53

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
B	4	58	4'-9"
B_1	5	17	4'-9"
C	4	52	7'-9"
C_1	5	8	7'-9"
V	4	52	10'-3"
X	5	2	2'-10"
X_1	5	4	4'-0"

MANHOLE LOCATIONS

NUMBER	STATION	LOCATION	SIDE
1	95+20.26		Rt.

CURB INLET
TYPE ____
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

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

INLET LOCATIONS

CURB INLET
TYPE ____
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

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

INLET LOCATIONS

CURB INLET
TYPE ____
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

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

INLET LOCATIONS

CURB INLET
TYPE ____
CURB RADIUS ____ FEET

LEGEND	DIMENSIONS	LEGEND	DIMENSIONS
L		L_1	
W		W_1	
H		H_1	

BILL OF MATERIALS

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

INLET LOCATIONS

MANHOLE

LEGEND	DIMENSIONS
L	
W	
H	

BILL OF MATERIALS

BAR SYMBOLS	BAR SIZES	BAR TOTALS	BAR LENGTHS
B			
B_1			
C			
C_1			
V			
X			
X_1			

MANHOLE LOCATIONS

NUMBER	STATION	LOCATION	SIDE

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

KANSAS DEPARTMENT OF TRANSPORTATION

REINFORCING STEEL FOR INLETS AND MANHOLES

RD652

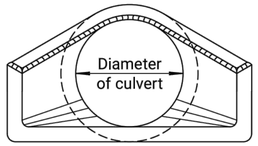
FHWA APPROVAL 04-18-92 APP'D. James O. Brewer
DESIGNED DETAILED QUANTITIES TRACED B.N.B.
DESIGN CK. DETAIL CK. QUAN.CK. TRACE CK. R.J.S.

KDOT Graphics Certified 03-28-2018

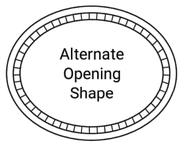
KDOT Graphics Certified

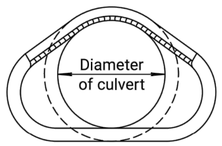
Plotted 28-MAR-2018 16:22
Drawn By : jacob.lawhorn
File : working_rd652.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	43	99



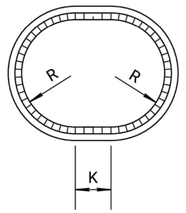
END ELEVATION (TYPE I)



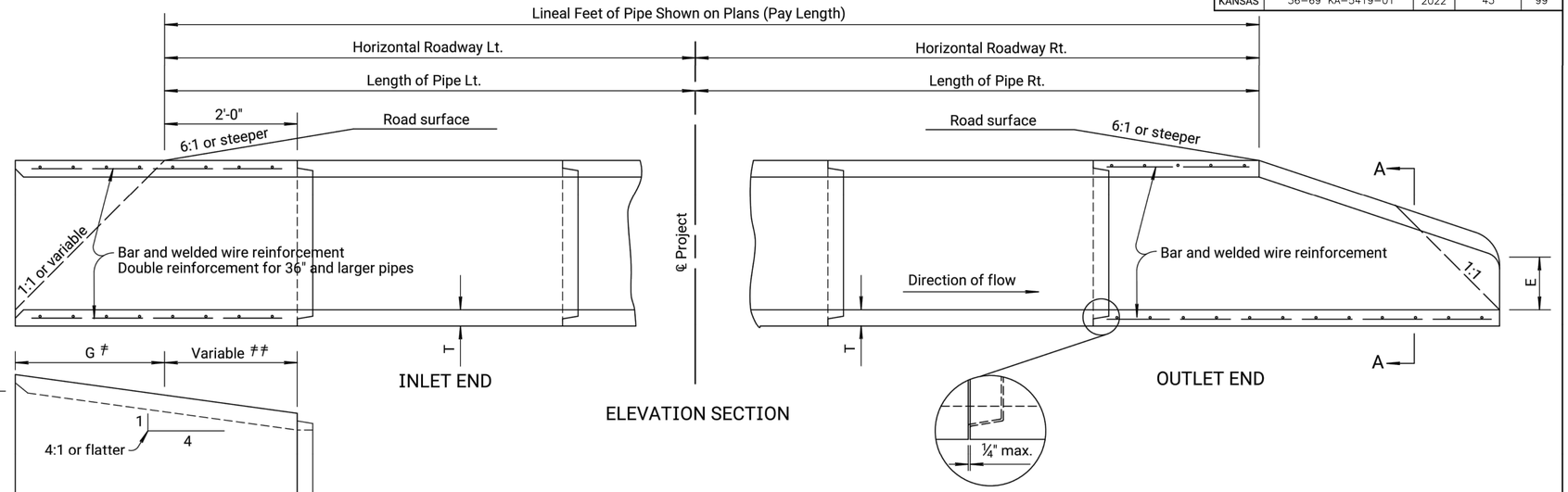


SECTION A-A

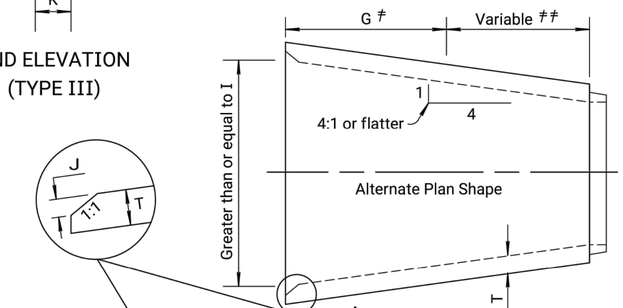
Showing rounding of inside edge of end section.

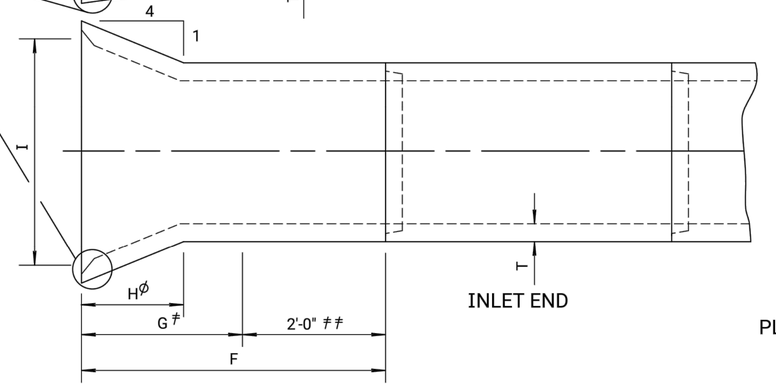


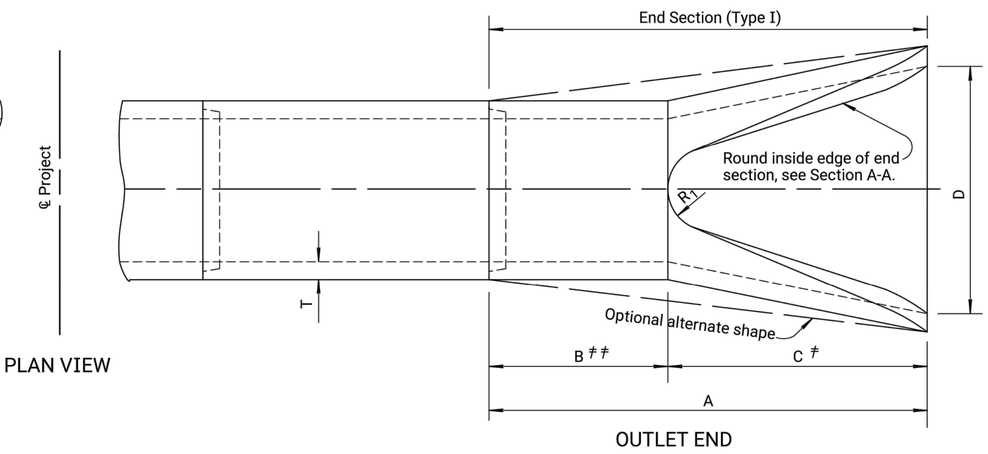
END ELEVATION (TYPE III)



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







∅ Transition to round pipe.
♯ Paid for as separate item of End Section, except when structures shall bid as alternates. In that case End Sections shall be subsidiary to bid item. "Drainage Structure No. ".
♯♯ Included in pay length of pipe.
✳ Minimum waterway area is calculated at the inside of the bevel.

END SECTION (TYPE I) NOMINAL DIMENSIONS

Diam.	A	B♯♯	C♯	D	E	R_I	Slope	T
12"	6'-0 ⅞"	4'-0 ⅞"	2'-0"	2'-0"	4"	9	3:1	2"
15"	6'-1"	3'-10"	2'-3"	2'-6"	6"	11	3:1	2 ¼"
18"	6'-1"	3'-10"	2'-3"	3'-0"	9"	12	3:1	2 ½"
24"	6'-1 ½"	2'-6"	3'-7 ½"	4'-0"	9 ½"	14	3:1	3"
30"	6'-1 ¾"	1'-7 ¾"	4'-6"	5'-0"	1'-0"	15	3:1	3 ½"
36"	8'-1 ¾"	2'-10¾"	5'-3"	6'-0"	1'-3"	20	3:1	4"
42"	8'-2"	2'-11"	5'-3"	6'-6"	1'-9"	22	3:1	4 ½"
48"	8'-2"	2'-2"	6'-0"	7'-0"	2'-0"	22	3:1	5"
54"	8'-2 ¼"	2'-9 ¼"	5'-5"	7'-6"	2'-3"	24	2.4:1	5 ½"
60"	8'-3"	3'-3"	5'-0"	8'-0"	2'-11"	24	21	6"
72"	8'-3"	1'-9"	6'-6"	9'-0"	3'-0"	24	1.86:1	7"
84"	9'-3 ½"	1'-9"	7'-6 ½"	10-0"	3'-0"	24	1.6:1	8"

SIDE TAPERED INLET SECTION (TYPE III)-NOMINAL DIMENSIONS

Diam.	Min. W.W.✳ Area Sq. Ft.	F	G	H	I	J	K	R	T
24"	4.5	4'-3"	2'-3"	1'-5 ⅛"	2'-8"	1 ½"	8"	1'-0"	3"
30"	7.0	4'-9 ½"	2'-9 ½"	1'-9 ½"	3'-4"	2"	10"	1'-3"	3 ½"
36"	10.1	5'-4"	3'-4"	2'-1 ½"	4'-0"	2"	1'-0"	1'-6"	4"
42"	13.7	5'-10 ½"	3'-10 ½"	2'-5 ⅞"	4'-8"	2 ½"	1'-2"	1'-9"	4 ½"
48"	17.9	6'-5"	4'-5"	2'-10 ⅛"	5'-4"	3"	1'-4"	2'-0"	5"
54"	22.7	6'-11 ½"	4'-11 ½"	3'-2 ½"	6'-0"	3 ½"	1'-6"	2'-3"	5 ½"
60"	28.0	7'-6"	5'-6"	3'-6 ⅞"	6'-8"	4"	1'-8"	2'-6"	6"
72"	40.3	8'-7"	6'-7"	4'-3 ⅝"	8'-0"	5"	2'-0"	3'-0"	7"
84"	54.8	9'-8"	7'-8"	5'-0 ⅜"	9'-4"	6"	2'-4"	3'-6"	8"

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

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

KANSAS DEPARTMENT OF TRANSPORTATION

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

RD662

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

KDOT Graphics Certified 03-29-2018

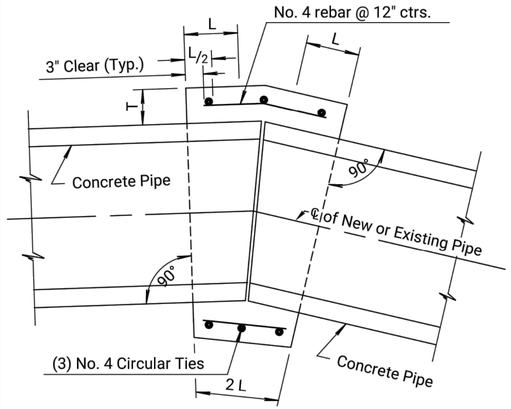
KDOT Graphics Certified

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

Plotted :29-MAR-2018 10:47

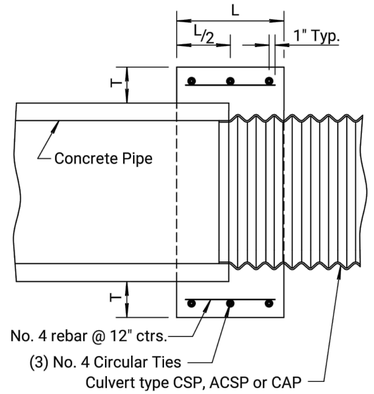
Drawn By : arockers
File : working_rd662.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	44	99



PIPE COLLAR AT CHANGE IN ALIGNMENT

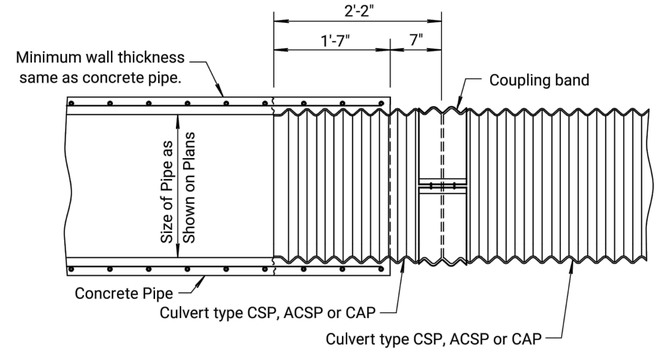
TYPE A COLLAR



PIPE COLLAR AT CHANGE IN PIPE MATERIAL

TYPE B COLLAR

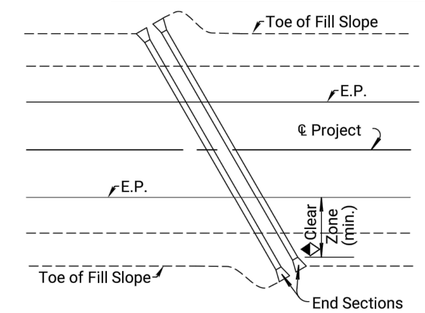
CONCRETE PIPE COLLAR		
Pipe Dia.	L	T
18"	1'-0"	6"
24"	1'-0"	6"
36"	1'-6"	8"
48"	1'-6"	10"
60"	1'-9"	11"



(CONCRETE PIPE CONNECTED TO CORRUGATED METAL PIPE)

TYPE C COLLAR ⚠

⚠ A section of concrete pipe (6'-0" min.) is cast 1'-7" short with the re-steel protruding. Tack weld the re-steel to the 2'-2" section of CMP and finish casting the remaining 1'-7" of RCP around the CMP. This is an approved connection provided it is fabricated as an integral part of a section of concrete pipe.



PLACEMENT OF ROTATED PIPES

RELATIVE TO FILL SLOPE

AND CLEAR ZONE

◆ Pipe culverts 2'-0" or less in height may terminate within the clear zone with Type I or Type III End Section. Any size pipe may terminate within the clear zone with a Type IV End Section.

General Notes:

Pipe collar shall be used to join pipes of different diameters or materials or where change in alignment or grade exceeds that allowed for ordinary joints.

All concrete shall be Concrete Grade 3.0. All reinforcing steel shall be Grade 60 and shall have a minimum of 2" of cover.

The diameter of the circular ties shall be the outside diameter of the larger pipe plus "T".

The maximum allowable distance between the ends of the pipes at any point is 2".

All labor, materials and incidentals required to construct the pipe collar Type A, B or C shall not be paid for directly but shall be subsidiary to the individual pipe bid items.

Aluminum or aluminized pipes or end sections shall be coated with an asphaltic paint when in contact with fresh concrete in accordance with the Standard Specifications.

Pipe ends shall be trimmed such that the maximum distance between pipes at any point is 2".

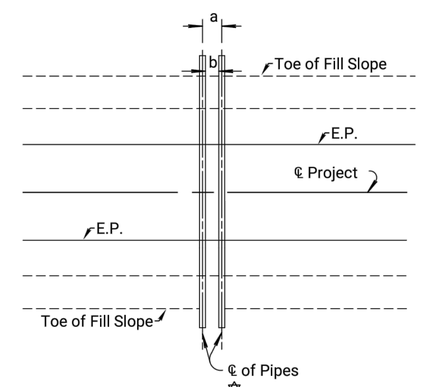
PIPE COLLARS

GENERAL NOTE

For pipes where the height or rise is greater than 4'-0" place uncompacted backfill through the pipe, including the end sections, 1'-0" (Min.). Backfill material will be reasonably free of organic material. In-situ material may be used for backfill as approved by the Engineer.

For pipes where the height or rise is less than or equal to 4'-0" install the pipe such that embedment will occur through natural sedimentation. See Pipe Embedment detail shown on this sheet.

Work and material for embedding pipes will not be paid for directly, but will be Subsidiary to the other pipe bid items in the contract.



a = Face width of end section✡ + 1'.

✡ Face width is equal to the following dimension shown on the end section std. drawing.

Type I Concrete = D

Type III Concrete = I

Type I CM = W+ 2A

Type III CM = G

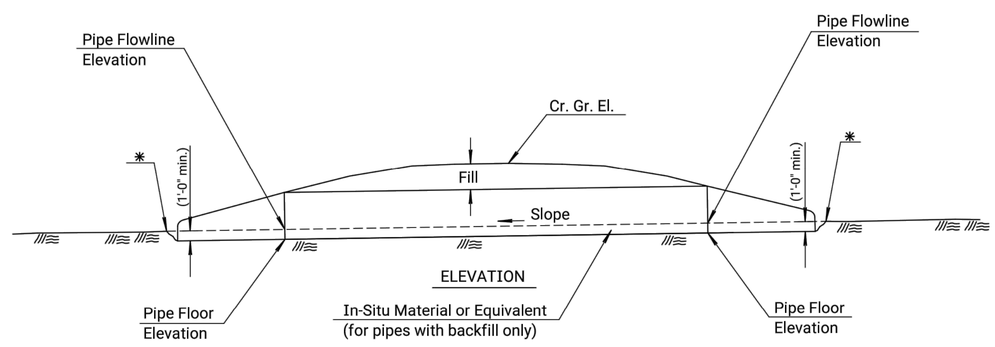
Type IV = W+ 2A

b = Pipe diameter or span (3' min.)

Spacing shall be equal to the larger of dimensions a or b.

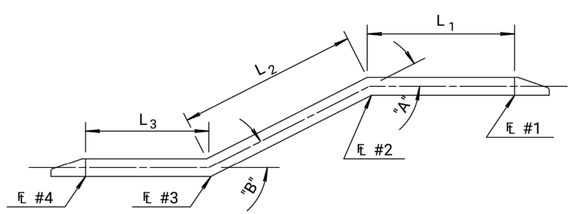
Spacing for three or more pipes shall be determined using a similar method.

MULTIPLE PIPE SPACING



PIPE EMBEDMENT

✱Natural channel or ditch flowline elevation. See profile sheets and cross sections for details.



Sketch Along ℄ CRP (CMP)

Broken-Back

SUMMARY OF BROKEN BACK PIPES											
STATION	SIZE	FLOW LINES				LENGTH			ANGLES		REMARKS
		#1	#2	#3	#4	L_1	L_2	L_3	A	B	

NO.	DATE	REVISIONS	BY	APP'D
6	1-21-16	Added Details, Pipe Embedment	T.T.R.	S.W.K.
5	5-17-13	Rev. Dimension, Type B Collar	S.W.K.	J.O.B.
4	4-18-08	Added asphaltic paint note	S.W.K.	J.O.B.
3	1-28-05	Changed Class to Grade concrete	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS

PIPE CULVERT DETAILS

RD668

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

KDOT Graphics Certified 03-12-2018

KDOT Graphics Certified

Plotted 29-MAR-2018 13:00

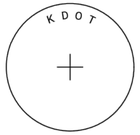
Drawn By : arockers

File : working_rd668.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	45	99

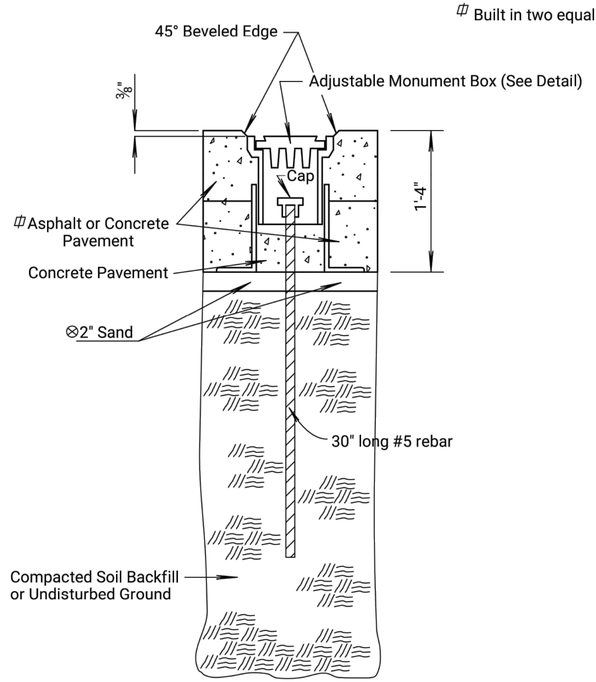
EXHIBIT

2" DIA. PRE-STAMPED ALUMINUM CAPS

KDOT - DISTRICT 1	KDOT - DISTRICT 2	KDOT - DISTRICT 3
KDOT - DISTRICT 4	KDOT - DISTRICT 5	KDOT - DISTRICT 6
		
KDOT STATE SURVEY CREW BUREAU OF RIGHT OF WAY	SURVEY COMPANY WITH A VALID CORPORATION LICENSE	INDEPENDENT SURVEYOR OR SOLE PROPRIETOR COMPANY

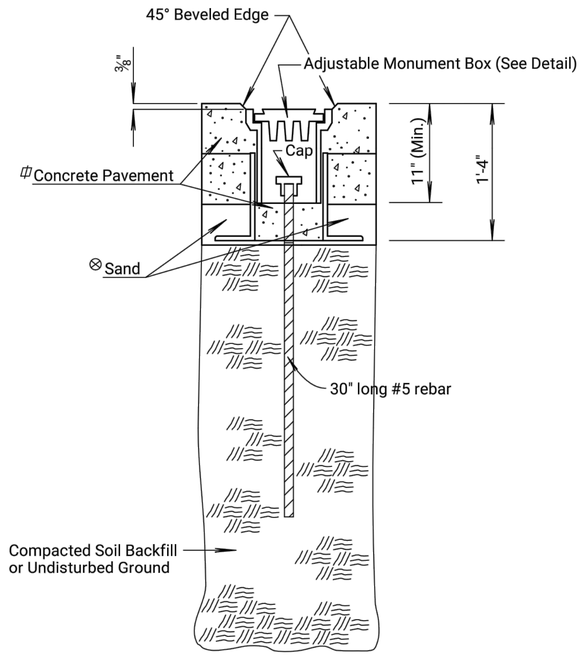
⊗ Hand tamp sand to achieve Type B compaction.

◫ Built in two equal lifts



TYPE A-1

(Standard Land Corner Monument Box)



TYPE A-2

(Standard Land Corner Monument Box)

GENERAL NOTES

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

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

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

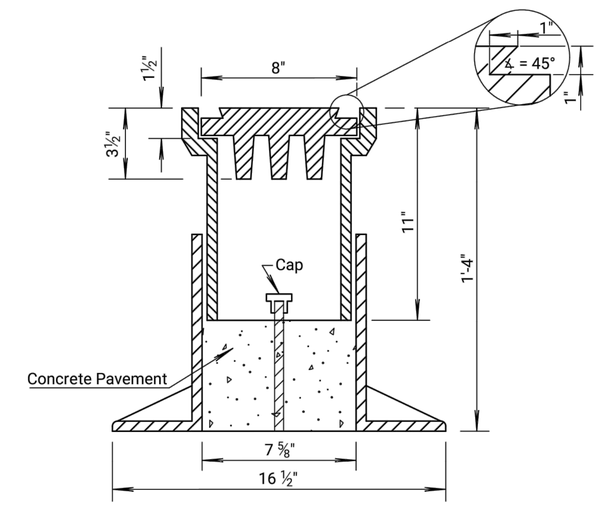
Reset all PLSS corners in accordance with KDOT's Standard Specifications.

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

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

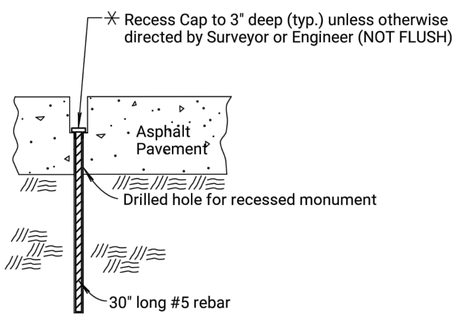
Type A monumentation may be used on a project as specified in the plans or as directed by the Engineer. Typically, Type A monuments are used on high traffic volume roadways, in urban areas, or as required by local governmental codes. Otherwise, use Types B-D monumentation. Avoid installing monument boxes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

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



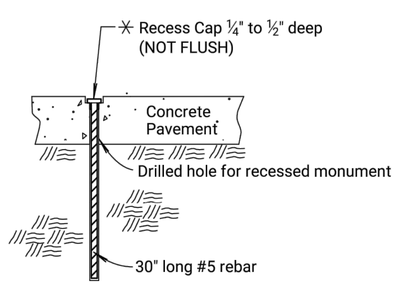
ADJUSTABLE MONUMENT BOX DETAIL

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



Type B

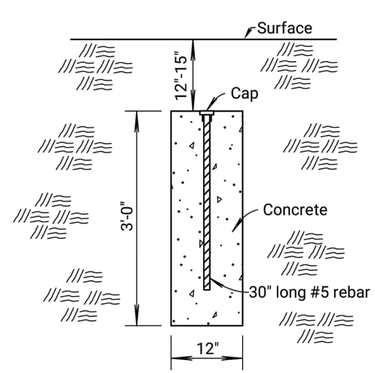
(Recessed Bar)



Type C

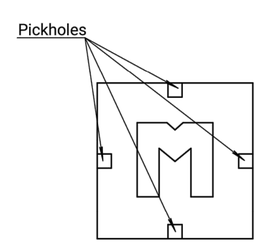
(Drilled Hole)

✳ No Surface Monuments Allowed in Pavement



Type D

(Shoulder/Ditch Subsurface Monument)



MONUMENT BOX LID (PLAN VIEW)

Not to Scale

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

KANSAS DEPARTMENT OF TRANSPORTATION

SECTION CORNER MONUMENTATION DETAIL SHEET

RD990

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

KDOT Graphics Certified 08-21-2019

KDOT Graphics Certified

Plotted by : KDOT#CADD.Support@ks.gov 21-AUG-2019 20:36
File : rd990.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	46	99

CURB & GUTTER, COMBINED(AE)

Station to Station		Side	LNFT Type I	LNFT Type II	Remarks
94+29.60	94+31.46	Rt.	1.86		
94+31.46		Rt.	32.81		Norton Ave. Return (SW)
94+43.05		Lt.		17.14	Entrance
94+56.82		Lt.		12.35	Norton Ave. Return (NW)
95+07.90		Lt.	32.68		Norton Ave. Return (NE)
95+07.90	97+53.82	Lt.	245.92		
95+08.57		Rt.	32.46		Norton Ave. Return (SE)
95+08.57	98+14.73	Rt.	306.16		
97+53.82		Lt.	17.10		Entrance Return
98+05.65		Lt.	16.87		Entrance Return
98+05.65	98+33.50	Lt.	27.85		
98+14.73		Rt.	32.75		Wabash Ave. Return (SW)
98+33.50	98+58.50	Lt.		25.00	Entrance
98+58.50	99+32.30	Lt.	69.80		
98+85.73		Rt.	32.44		Wabash Ave. Return (SE)
98+85.73	100+37.23	Rt.	151.50		
99+32.30	99+57.30	Lt.		25.00	Entrance
99+57.30	99+80.30	Lt.	25.00		
99+80.30	100+10.30	Lt.		30.00	Entrance
100+10.30	100+58.21	Lt.	47.91		
100+37.23		Rt.	15.75		Entrance Return
100+58.21		Lt.	33.09		Entrance Return
100+91.44		Rt.	25.27		Entrance Return
100+91.44	101+85.12	Rt.	93.68		
101+51.44		Lt.	33.66		Entrance Return
101+51.44	102+71.20	Lt.	119.76		
101+85.12		Rt.	31.38		Archer Ave. Return (SW)
102+56.12		Rt.	32.43		Archer Ave. Return (SE)
102+56.12	103+35.40	Rt.	79.28		
102+71.20	102+84.20	Lt.		13.00	Entrance
102+84.20	103+56.70	Lt.	72.50		
103+35.40	103+60.40	Rt.		25.00	Entrance
103+56.70	103+80.20	Lt.		23.50	Entrance
103+60.40	104+35.60	Rt.	75.20		
103+80.20	105+23.58	Lt.	143.38		
104+35.60	104+70.60	Rt.		35.00	Entrance
104+70.60	105+04.80	Rt.	34.20		
105+04.80	105+49.80	Rt.		45.00	Entrance
105+23.58		Lt.	33.17		Entrance Return
105+49.80	106+77.50	Rt.	127.70		
106+03.82		Lt.	32.95		Entrance Return
106+03.82	106+56.28	Lt.	52.46		
106+56.28		Lt.		32.59	Entrance Return
106+77.50	107+22.50	Rt.		45.00	Entrance
107+22.50	108+27.50	Rt.	105.00		
107+31.28		Lt.	65.18		2-Entrance Return
108+11.28		Lt.	32.59		Entrance Return
108+11.28	108+70.90	Lt.	59.62		
108+27.50	108+72.50	Rt.		45.00	Entrance
108+70.90		Lt.	32.59		Entrance Return
108+72.50	109+04.88	Rt.	32.38		
109+04.88		Rt.	32.85		Sun Ave. Return (SW)
109+52.40		Lt.	32.59		Entrance Return
109+52.40	110+34.37	Lt.	81.97		
109+75.89		Rt.	32.34		Sun Ave. Return (SE)
109+75.89	116+87.00	Rt.	711.11		
110+34.37		Lt.	20.83		Entrance Return
110+71.55		Lt.	18.02		Entrance Return
110+71.55	113+88.30	Lt.	316.75		
113+88.30	114+21.30	Lt.		33.00	Entrance
114+21.30	114+80.00	Lt.	58.70		
114+80.00	115+20.00	Lt.		40.00	Entrance
115+20.00	116+53.00	Lt.	133.00		
116+53.00	116+88.00	Lt.		35.00	Entrance
116+87.00	117+12.00	Rt.		25.00	Entrance
116+88.00	117+14.53	Lt.	26.53		
117+12.00	117+26.26	Rt.	14.26		
	Subtotal		3915.28	506.58	

DRAINAGE STRUCTURES

Station	Side	Size	Type	Conc. Cl "A" yd³	Reinf. Steel lb	Storm Sewer (feet) 15"	Storm Sewer (feet) 48"					End Section (RC) 48"						Elbow (45°) 48"						Flowable Fill (Low Strength)(cuyd)	Remarks
95+19.00	Lt.	48"	RCP				43																	5.9	STORM SEWER
95+19.00	Rt.	48"	RCP				20																	2.7	STORM SEWER
199+55.28	Lt.	15"	RCP			38																		1.1	STORM SEWER
199+56.22	Rt.	15"	RCP			26																		0.7	STORM SEWER
200+43.30	Lt.	48"	RCP				48											1						6.4	STORM SEWER
200+87.63	Lt.	48"	RCP				40					1												5.6	STORM SEWER
200+62.56	Rt.	15"	RCP			47																		1.4	STORM SEWER
Total						111	151					1						1						23.8	

CURB & GUTTER, COMBINED(AE)

Station to Station		Side	LNFT Type I	LNFT Type II	Remarks
199+17.66	199+22.25	Rt.	4.59		Norton Ave. (South)
199+22.25	199+51.25	Rt.		29.00	Entrance
199+51.25	199+58.75	Rt.	7.50		Norton Ave. (South)
199+17.66	199+52.85	Lt.	35.19		Norton Ave. (South)
200+27.91	200+36.61	Lt.	8.70		Norton Ave. (North)
200+36.61	200+70.00	Lt.	33.39		Norton Ave. (North)
200+41.64	200+70.00	Rt.	28.36		Norton Ave. (North)
299+57.50	299+58.76	Rt.	1.26		Wabash Ave.
299+57.50	299+58.24	Lt.	0.74		Wabash Ave.
399+54.68	399+56.99	Lt.	4.80		Archer Ave. (Angled)
399+56.99	399+59.83	Lt.	3.16		Archer Ave. (Return)
399+57.50	399+58.77	Rt.	1.39		Archer Ave.
499+37.78	499+58.93	Rt.	21.15		Sun St.
499+38.26	499+58.27	Lt.	20.01		Sun St.
Subtotal			170.14	29.00	
Total			4085.42	535.58	

EARTHWORK

Sta. to Sta.		Excavation yd³ Rock	Excavation yd³ Contractor Furnished	Excavation yd³ Common	Compaction yd³	Compaction yd³ Type AA MR-5-5
94+40.60	117+21.80	1211		3168		202
Total		1211		3168		202

SLOPE DRAIN (Special)

Station	Side	Lin. Ft.	Remarks
117+14.53	Lt.	7.3	U.S. Highway 36 (Holme Street)
200+62.56	Rt.	4.2	Norton Ave.
Total		11.5	

CONCRETE PAVEMENT (9" Uniform)(AE)(NRDJ)

Station to Station		Side	SQYD	Remarks
94+40.60	117+21.80	℄	9656.2	U.S. Highway 36 (Holme Street)
Total			9656.2	

CONCRETE PAVEMENT (6" Uniform)(AE)

Station	Side	W	L	SQYD	Remarks
95+20.26	Rt.	Var.	Var.	61.9	Parking Lot
97+79.7	Lt.	Var.	Var.	45.0	Entrance
98+46.0	Lt.	5.0	30.0	33.8	Entrance
99+44.8	Lt.	5.0	30.0	33.8	Entrance
99+95.3	Lt.	5.0	35.0	40.4	Entrance
102+77.7	Lt.	5.0	13.0	10.6	Entrance
103+47.9	Rt.	Var.	Var.	13.9	Entrance
103+68.4	Lt.	5.0	28.5	31.8	Entrance
104+53.1	Rt.	Var.	Var.	19.4	Entrance
105+27.3	Rt.	Var.	Var.	25.0	Entrance
107+00.0	Rt.	Var.	Var.	25.0	Entrance
108+50.0	Rt.	Var.	Var.	25.0	Entrance
110+55.2	Lt.	Var.	Var.	21.9	Entrance
114+04.8	Lt.	Var.	Var.	18.3	Entrance
115+00.0	Lt.	Var.	Var.	22.2	Entrance
116+70.5	Lt.	Var.	Var.	19.4	Entrance
116+99.5	Rt.	Var.	Var.	13.9	Entrance
199+36.9	Rt.	Var.	Var.	16.1	Norton Ave.
	Total			477.4	

CONCRETE PAVEMENT (8" Uniform)(AE)

Station	Side	W	L	SQYD	Remarks
94+40.7	Lt.	Var.	Var.	6.7	Entrance
94+56.9	Lt.	Var.	Var.	11.4	Norton Ave. (Island)
94+70.34	Rt.	Var.	Var.	240.0	Norton Ave.
97+75.23	Lt.	Var.	Var.	165.3	Norton Ave.
98+50.5	Rt.	Var.	Var.	92.0	Wabash Ave.
100+54.5	Rt.	Var.	Var.	44.6	Entrance
101+05.4	Lt.	Var.	Var.	122.1	Entrance
102+20.9	Rt.	Var.	Var.	92.3	Archer Ave.
105+63.7	Lt.	Var.	Var.	114.1	Entrance
106+93.8	Lt.	Var.	Var.	99.1	Entrance
107+71.3	Lt.	Var.	Var.	111.6	Entrance
109+11.7	Lt.	Var.	Var.	115.4	Entrance
109+40.89	Rt.	Var.	Var.	148.1	Sun St.
Total				1362.7	

GRANULAR BASE (6")

Station	Side	SQYD	Remarks
94+40.60 to 117+21.80	℄	11431.2	U.S. Highway 36 (Holme Street)
94+40.7	Lt.	4.4	U.S. Highway 36 (Holme Street)
94+56.9	Lt.	11.4	Norton Ave. (Island)
94+70.34	Rt.	269.0	Norton Ave.
95+20.26	Rt.	74.9	Parking Lot
97+75.23	Lt.	196.7	Norton Ave.
97+79.7	Lt.	41.8	Entrance
98+46.0	Lt.	36.2	Entrance
98+50.5	Rt.	94.2	Wabash Ave.
99+44.8	Lt.	36.2	Entrance
99+95.3	Lt.	43.9	Entrance
100+54.5	Rt.	43.2	Entrance
101+05.4	Lt.	117.0	Entrance
102+20.9	Rt.	97.4	Archer Ave.
102+77.7	Lt.	10.3	Entrance
103+47.9	Rt.	14.3	Entrance
103+68.4	Lt.	31.8	Entrance
104+53.1	Rt.	19.9	Entrance
105+27.3	Rt.	25.5	Entrance
105+63.7	Lt.	113.1	Entrance
106+93.8	Lt.	99.3	Entrance
107+00.0	Rt.	25.5	Entrance
107+71.3	Lt.	110.6	Entrance
108+50.0	Rt.	25.5	Entrance
109+11.7	Lt.	113.8	Entrance
109+40.89	Rt.	165.4	Sun St.
110+55.2	Lt.	24.2	Entrance
114+04.8	Lt.	18.8	Entrance
115+00.0	Lt.	22.7	Entrance
116+70.5	Lt.	19.9	Entrance
116+99.5	Rt.	14.4	Entrance
199+36.9	Rt.	15.3	Norton Ave.
	Total	13367.8	

MILLING & TRANSPORTING SALVAGEABLE MATERIAL

Station to Station		Side	W	L	TONS	Remarks
94+53.30	104+02.50	℄	40.0	949.2	640.7	U.S. Highway 36 (Holme Street)
104+02.50	117+21.80	℄	40.0	1319.3	2968.0	U.S. Highway 36 (Holme Street)
Total					3608.7	

Computed Weight 135 Lbs. Per Cubic Foot of Millings.
Assumed Thickness:
Sta. 94+53.3 to Sta. 104+02.5=7" Concrete Pavement w/3" Bituminous Pavement
Sta. 104+02.5 to Sta. 117+36.82 = 10" Bituminous Pavement

PENCO ENGINEERING, P.A.

SUMMARY OF QUANTITIES

DESIGNED BY:	JJD	SCALE:	NONE
DRAWN BY:	MRH	JOB NO:	36-69 KA-5419-01
CHECKED BY:	BRD	DATE:	2022

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SIDEWALK CONSTRUCTION (4")(AE)

Station	to Station	Side	SQYD	Remarks
94+98.3	97+49.8	Lt.	209.6	U.S. Highway 36 (Holme Street)
98+09.7	98+33.5	Lt.	13.2	U.S. Highway 36 (Holme Street)
98+58.5	99+32.3	Lt.	41.0	U.S. Highway 36 (Holme Street)
99+57.3	99+80.3	Lt.	12.8	U.S. Highway 36 (Holme Street)
100+10.3	100+58.0	Lt.	26.5	U.S. Highway 36 (Holme Street)
101+51.6	102+71.2	Lt.	66.4	U.S. Highway 36 (Holme Street)
102+84.2	103+56.7	Lt.	40.3	U.S. Highway 36 (Holme Street)
103+80.2	105+22.3	Lt.	78.9	U.S. Highway 36 (Holme Street)
106+00.6	106+59.5	Lt.	32.7	U.S. Highway 36 (Holme Street)
107+28.0	107+35.6	Lt.	3.7	U.S. Highway 36 (Holme Street)
108+08.0	108+74.2	Lt.	36.8	U.S. Highway 36 (Holme Street)
Total			561.9	

SIDEWALK RAMP

Station	Side	Length	Width	SQYD
93+62.8	Lt.	Var.	Var.	4.9
94+90.7	Lt.	Var.	Var.	12.8
97+61.0	Lt.	Var.	Var.	10.1
97+96.1	Lt.	Var.	Var.	8.1
100+76.5	Lt.	Var.	Var.	9.5
101+33.1	Lt.	Var.	Var.	9.5
105+39.6	Lt.	Var.	Var.	9.1
105+86.0	Lt.	Var.	Var.	8.2
106+74.2	Lt.	Var.	Var.	8.2
107+13.3	Lt.	Var.	Var.	8.1
107+49.2	Lt.	Var.	Var.	8.1
107+93.4	Lt.	Var.	Var.	8.1
Total				104.7

≠CONCRETE PAVEMENT (4" UNIFORM)(AE)(PLAIN)

Station	to Station	Side	SQYD	Remarks
98+01.3	98+33.5	Lt.	6.3	U.S. Highway 36 (Holme Street)
98+58.5	99+32.3	Lt.	16.0	U.S. Highway 36 (Holme Street)
99+57.3	99+80.3	Lt.	4.7	U.S. Highway 36 (Holme Street)
100+10.3	100+65.2	Lt.	11.3	U.S. Highway 36 (Holme Street)
101+44.4	102+71.2	Lt.	27.2	U.S. Highway 36 (Holme Street)
102+84.2	103+56.7	Lt.	15.7	U.S. Highway 36 (Holme Street)
103+80.2	105+29.3	Lt.	33.0	U.S. Highway 36 (Holme Street)
Total			114.2	

FENCE (CONSTRUCTION)(TEMPORARY)

Station	to Station	Side	LNFT	Remarks
102+71.2	103+56.2	Lt.	85.0	U.S. Highway 36 (Holme Street)
Total			85.0	

REMOVAL OF EXISTING STRUCTURES

(For Information Only)

Station	Side	Type
95+19.00	Rt.	5' x 2' Grate Inlet
95+19.00	Lt.	6' x 4' Curb Inlet & 40' of 30" Storm Sewer
95+19.00	Rt. & Lt.	5' x 4' x 80 RCB
199+55.28	Lt.	6' x 5' Curb Inlet & 65' of 15" Storm Sewer
199+56.22	Rt.	6' x 5' Grate Inlet & 24' of 15" Storm Sewer
95+19.00	Rt.	5' x 5' Grate Inlet & 68' of 30" Storm Sewer

SECTION CORNER MONUMENTATION

Station	Location	Side	Each
104+02.48	C 1/16 Corner NW 1/4 Sec 35, T2S, R23W	℄	1
117+21.80	E 1/16 Corner NW 1/4 Sec 35, T2S, R23W	Rt.	1
Total			2

ADJUSTMENT OF VALVE BOX (WATER)

Sta.	Offset	Side	Each
95+87	24'	Lt.	1
109+40	45'	Rt.	1
Total			2

ADJUSTMENT OF MANHOLE

Sta.	Offset	Side	Each
94+70	26'	Rt.	1
98+55	26'	Rt.	1
Total			2

RECAPITULATION OF ROAD QUANTITIES

Item	Quantity	Units
Clearing and Grubbing	Lump Sum	LSUM
Removal of Exisiting Structures	Lump Sum	LSUM
Milling	3609	TONS
Rock Excavation	1211	CUYD
Common Excavation	3168	CUYD
Compaction of Earthwork (Type AA)(MR-5-5)	202	CUYD
Water (Grading)(Set Price)	1	MGAL
Concrete Pavement (9" Uniform)(AE)(NRDJ)	9656	SQYD
Concrete Pavement (8" Uniform)(AE)	1363	SQYD
Concrete Pavement (6" Uniform)(AE)	477	SQYD
Granular Base (6")	13368	SQYD
Sidewalk Construction (4")(AE)	562	SQYD
Sidewalk Ramp	105	SQYD
≠Concrete Pavement (4" Uniform)(AE)(Plain)	114	SQYD
Fence (Construction)(Temporary)	85	LNFT
Curb & Gutter, Combined(AE)	4621	LNFT
Inlet (Type 22 Curb)	3	EACH
Inlet (Type 22 Curb)(Radius)	1	EACH
Inlet (Gutter)	1	EACH
Manhole (Reinforced Concrete)	1	EACH
Storm Sewer (48")(RCP)	151	LNFT
Storm Sewer (15")(RCP)	111	LNFT
End Section (48")(RC)	1	EACH
Sign (Remove and Reset)	Lump Sum	LSUM
Flowable Fill (Low Strength)	19	CUYD
Field Office and Laboratory (Type A)	1	EACH
Mobilization	Lump Sum	LSUM
Slope Drain (Special)	12	LNFT
Foundation Stabilization (Set Price)	1	CUYD
Contractor Construction Staking	Lump Sum	LSUM
Temporary Surfacing Material (Aggregate)(Set Price)	1	CUYD
Water (Granular Base)(Set Price)	1	MGAL
Monument Box	2	EACH
Adjustment of Valve Box (Water)	2	EACH
Adjustment of Manhole	2	EACH
Transporting Salvageable Material	3609	TONS
Concrete Cores (Set Price)	1	EACH

≠This bid item shall be colored and stamped. See Sheet No. 31 for details.

NOTE:

For Schedule of Inlets and Manholes, See Sheet No. 41
For Milling & Transporting Salvageable Material Quantities, See Sheet No. 46.
For Temporary Temporary Erosion and Pollution Control Quantities, See Sheet No. 48.
For Seeding Quantities, See Sheet No. 55.
For Pavement Marking Quantities, See Sheet No. 60.
For Removal and Resetting of Signs, See Sheet No. 61
For Traffic Control Quantities, See Sheet No. 80.

PENCO ENGINEERING, P.A.

SUMMARY OF QUANTITIES

DESIGNED BY:	JJD	SCALE:	NONE
DRAWN BY:	MRH	JOB NO:	36-69 KA-5419-01
CHECKED BY:	BRD	DATE:	2022

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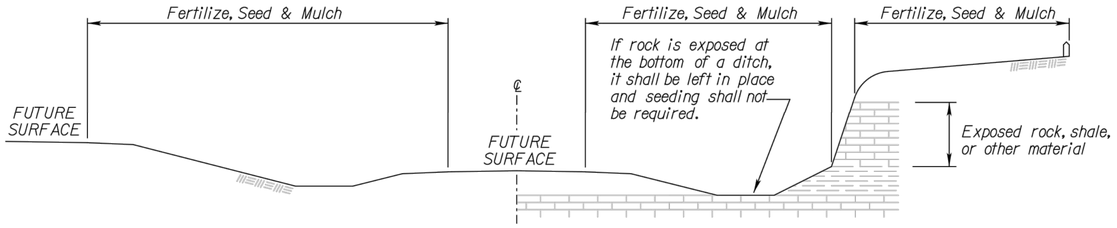
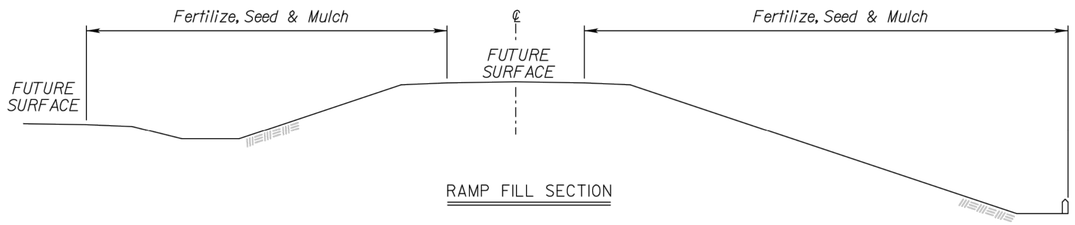
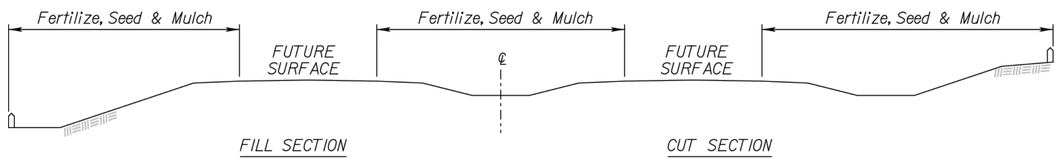
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	48	99



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			
150		0.50		Temporary Fertilizer (16-20-0)		LB
50		0.50		Temporary Seed (Annual Ryegrass)		LB
						LB
						LB
				Soil Erosion Mix		LB
				Erosion Control (Class 1, Type C)		SQ YD
				Erosion Control (Class 2, Type E)		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")	500	LF
				Biodegradable Log (20")		LF
				Filter Sock (8")	50	LF
				Geotextile (Erosion Control)		SQ YD
				Silt Fence		LF
				SWPPP Design †		LS
				SWPPP Inspection †		EACH
				Water Pollution Control Manager †		EACH
900 lbs / acre				Mulch Tacking Slurry		LB
2 tons / acre				Mulching		TON
				Water (Erosion Control) (Set Price)	1	MGAL
		0.50		HECP (Type A)		LB

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)

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

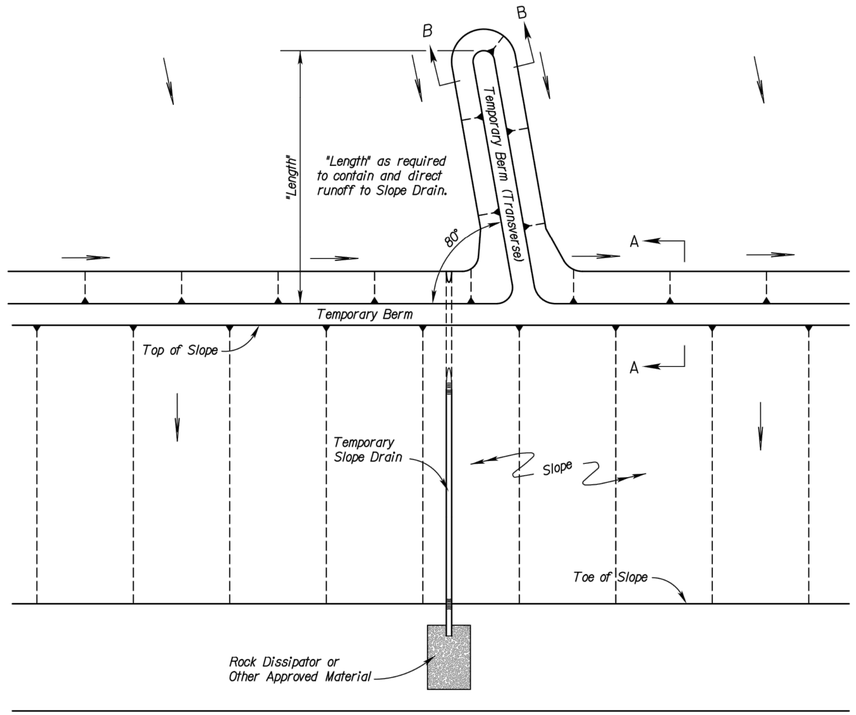
TEMPORARY EROSION AND POLLUTION CONTROL

~~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.

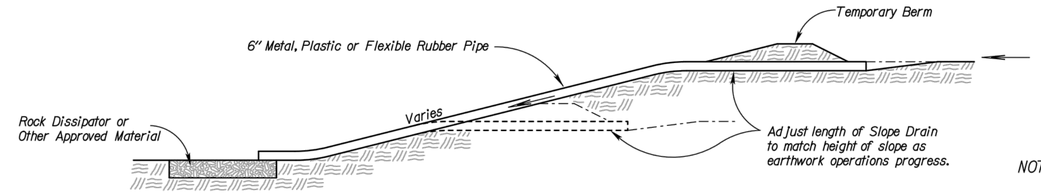
Std. Base File:
Plotted: MelissaDavidson@ks.gov Plot Location:
File: la852a.dgn
Plot Date: 3-AUG-2020 20:01

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	49	99



TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN

NO SCALE



TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

NO SCALE

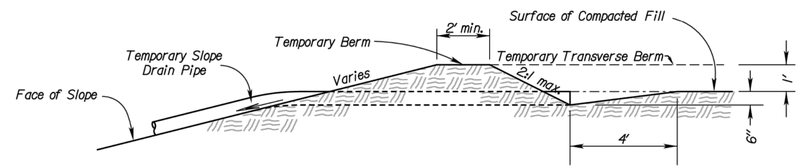
NOTES:

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

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

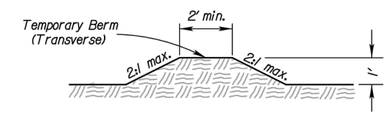
3) Pipe shall be secured in place as approved by Engineer.

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



SECTION A-A

NO SCALE

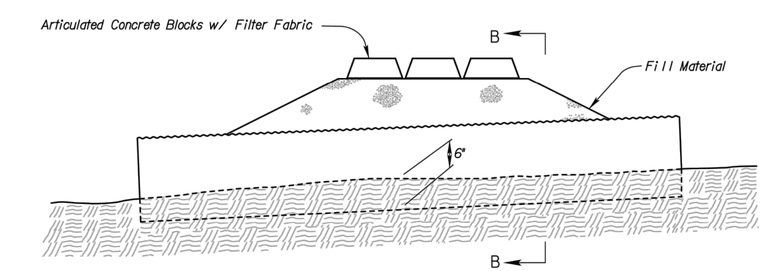


SECTION B-B

NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM

NO SCALE

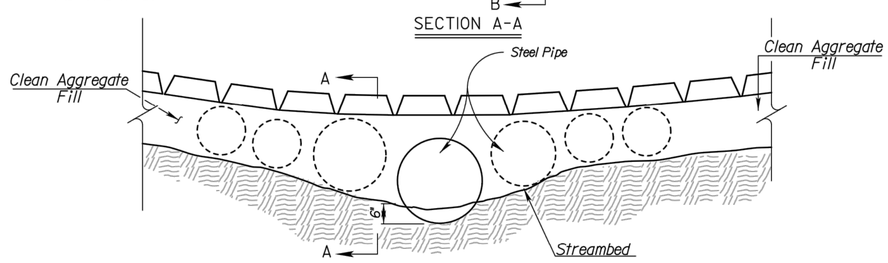


SECTION A-A

Pipe size may vary

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

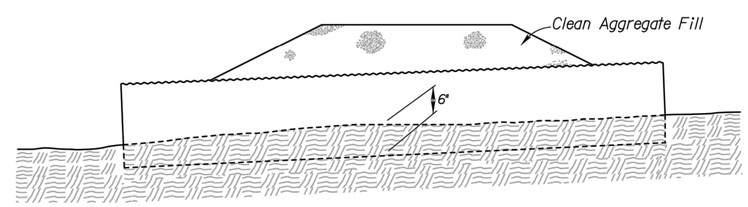
See KDOT Specifications for more information



SECTION B-B

TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)

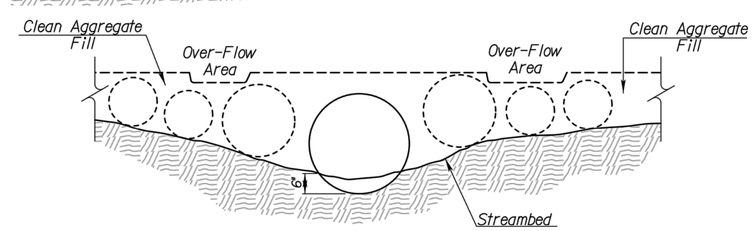
NO SCALE



Pipe size may vary

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

See KDOT Specifications for more information



SECTION B-B

TEMPORARY STREAM CROSSING (AGGREGATE)

NO SCALE

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)

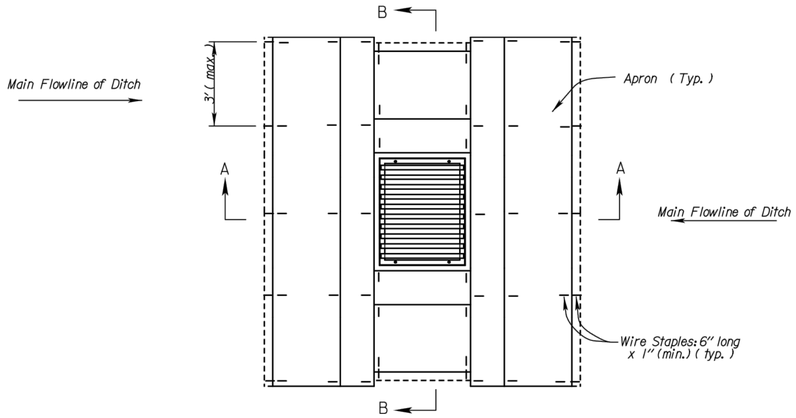
TEMP. STREAM CROSS. (ARTC. CONC. BLOCKS)

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: rlong
Plot Location: Bridge Design
File: la852b.dgn
Plot Date: 10-OCT-2016 11:44

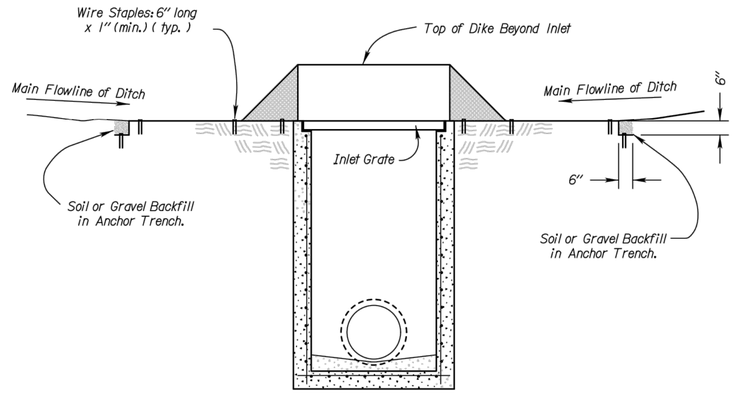
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	50	99



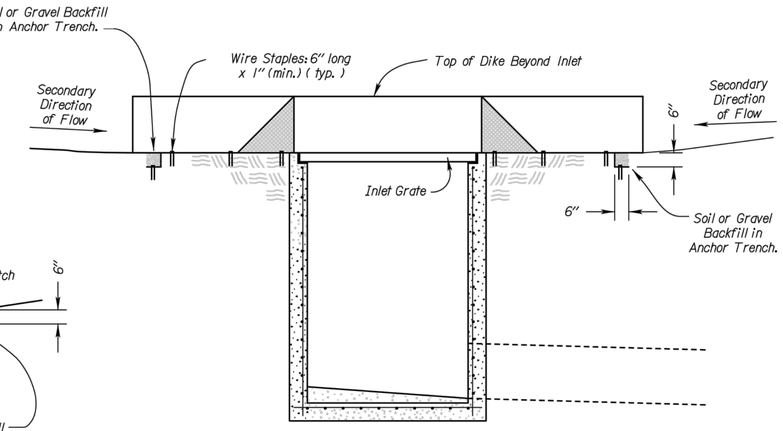
PLAN

TEMPORARY INLET SEDIMENT BARRIER
(TRIANGULAR SILT DIKE METHOD)

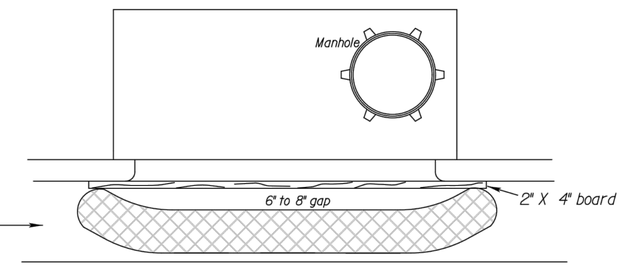
NO SCALE



SECTION A - A



SECTION B - B

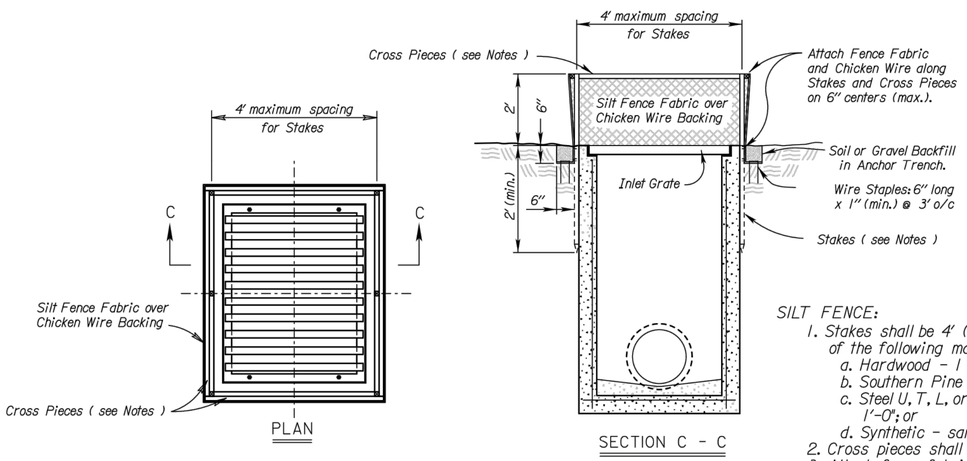


Bags = synthetic net (3mm mesh) or burlap bags

Rock = approximately 1" to 2" diameter

CURB INLET PROTECTION

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



PLAN

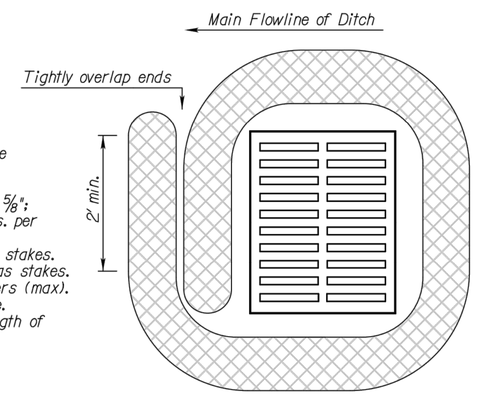
SECTION C - C

TEMPORARY INLET SEDIMENT BARRIER
(SILT FENCE METHOD)

NO SCALE

SILT FENCE:

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



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

Stake every 4'

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

BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION

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

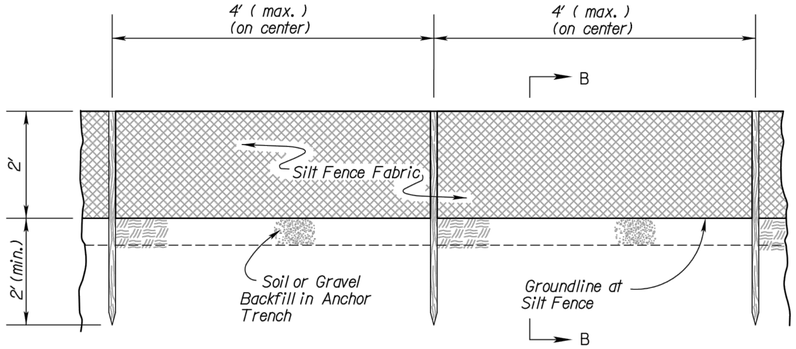
TEMP. INLET SEDIMENT BARRIER (SILT FENCE)
TEMP. INLET SEDIMENT BARRIER (T.S.D.)
CURB INLET PROTECTION
DROP INLET PROTECTION

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: Melissa.Davidson@ks.gov Plot Location:
File: la852c.dgn
Plot Date: 3-AUG-2020 20:01

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	51	99



TYPICAL ELEVATION

SILT FENCE BARRIER

NO SCALE

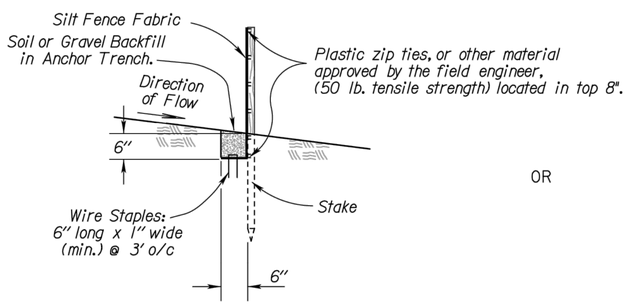
INSTALLATION NOTES

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.

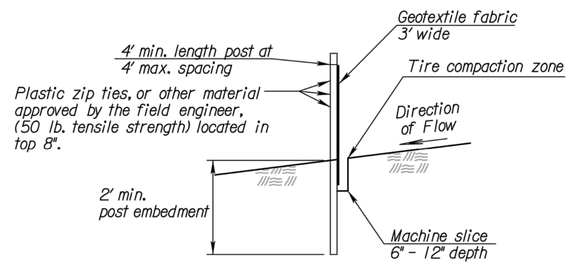
BIODEGRADABLE LOG OR FILTER SOCK

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



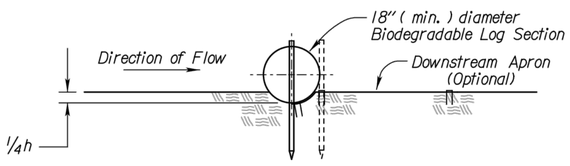
SECTION B-B

Biodegradable Log or Filter Sock Slope Interruptions

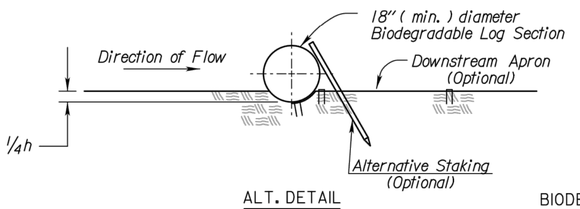
		PRODUCT		
		9" Sediment Log or 8" Filter Sock (ft)	12" Sediment Log or 12" Filter Sock (ft)	20" Sediment Log or 18" Filter Sock (ft)
Slope Gradient	≤4H:1V	40	60	80
	3H:1V	30	45	60

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

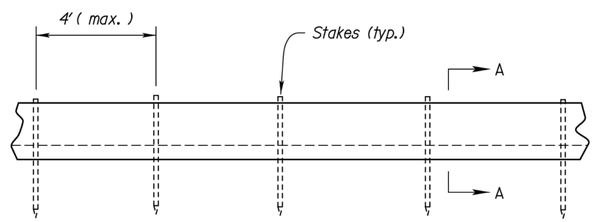


SECTION A - A



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

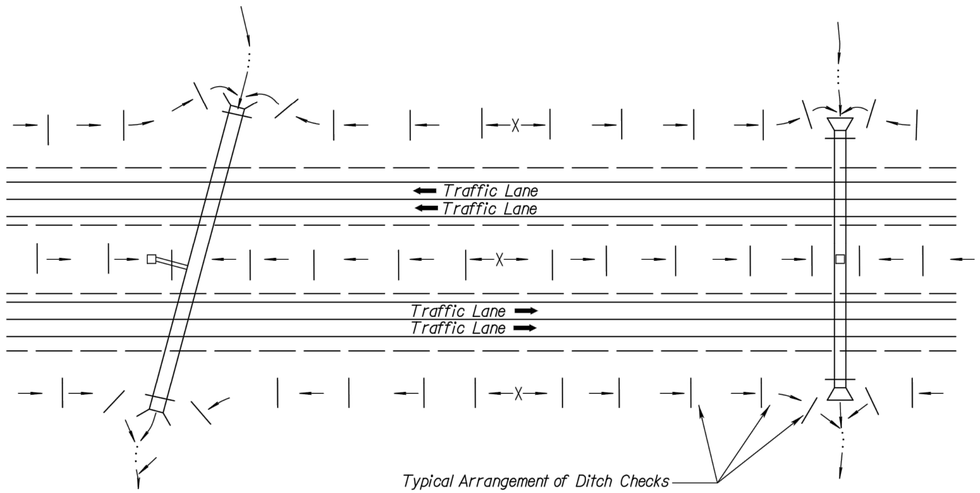
LA852D

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: melissa
Plot Location: Landscape
File: la852d.dgn
Plot Date: 14-SEP-2016 13:07

CADconform Certify This File
CADconform Certify This File

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	52	99



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: *melissa*	Plot Location: *Landscape*
File: *la852e.dgn*	
Plot Date: *14-SEP-2016 13:10*	

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

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION AND POLLUTION CONTROL

DITCH CHECKS

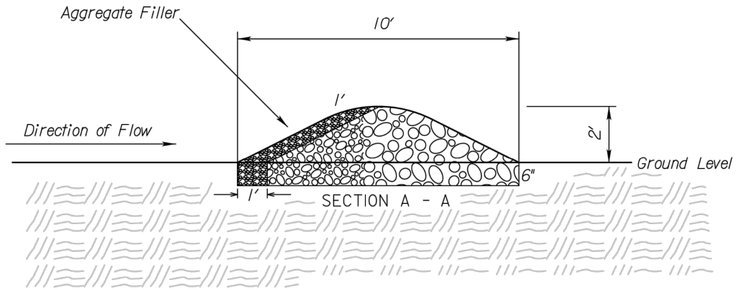
LA852E

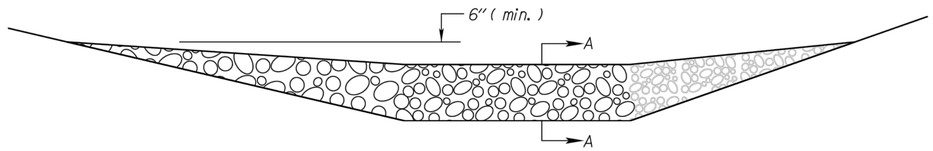
FHWA APPROVAL		9/14/2016		APP'D		Scott H. Shields	
DESIGNED	SHS	DETAILED	RAA	QUANTITIES		CADD	RAA
DESIGN CK.	SHS	DETAIL CK.	SHS	QUAN.CK.		CADD CK.	SHS

CADconform Certify This File

CADconform Certify This File

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	53	99





TYPICAL ELEVATION

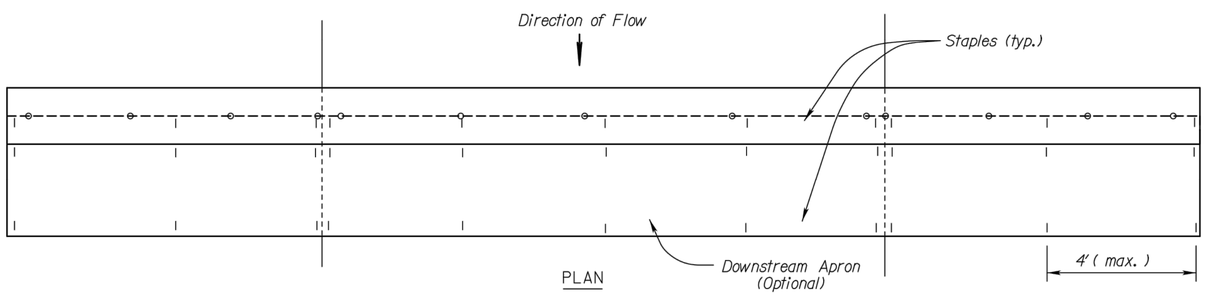
ROCK DITCH CHECK

NO SCALE

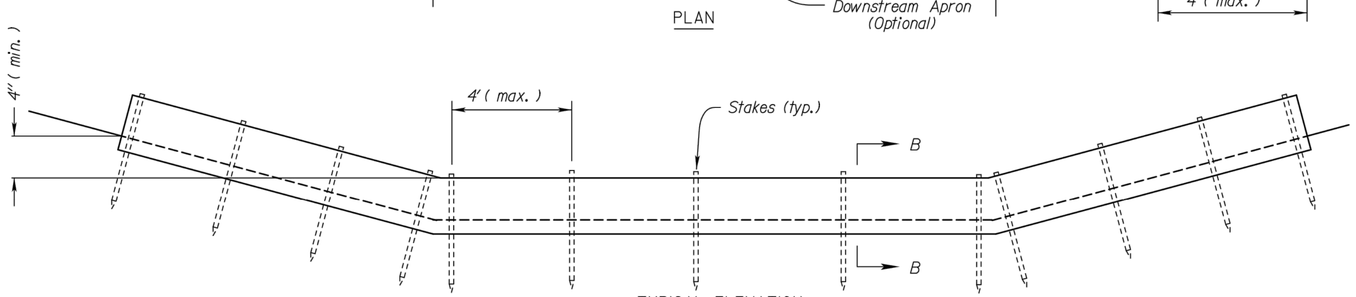
TEMPORARY ROCK DITCH CHECK SPACING	
DITCH ℄ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
NOTE: Use this spacing for Rock Ditch Checks only.	

ROCK DITCH CHECK NOTES

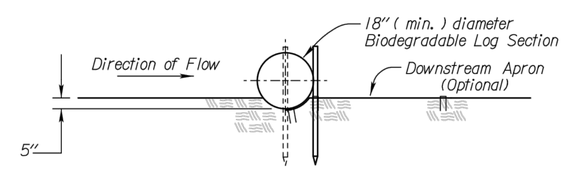
1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch 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.



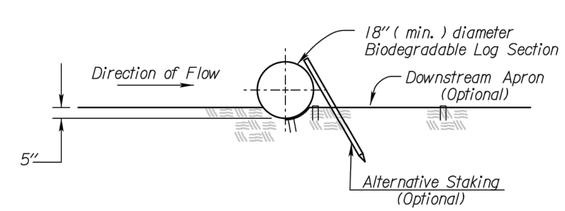
PLAN



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 I) (Type C) as the downstream apron when required.
5. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price.
6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

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

KANSAS DEPARTMENT OF TRANSPORTATION

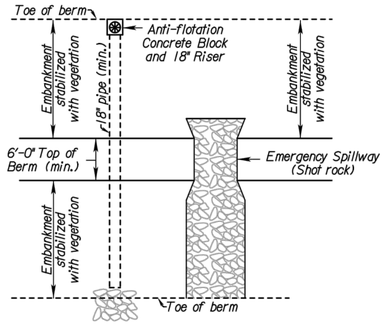
TEMPORARY EROSION AND POLLUTION CONTROL
ROCK DITCH CHECKS
BIODEGRADABLE LOG DITCH CHECKS

LA852G

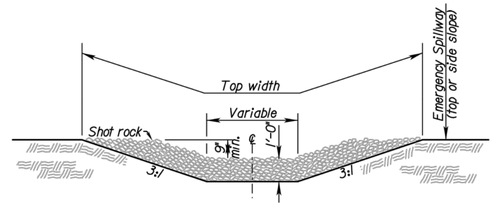
FHWA APPROVAL		11/19/2020	APP'D	Mervin Lare	
DESIGNED	ML	DETAILED	DK	QUANTITIES	CADD RAA
DESIGN CK.	ML	DETAIL CK.	ML	QUAN.CK.	CADD CK. RAA

Std. Base File: la852g.dgn
Plotted: KDOT*CADD.Support*eks.pltr Plot Location:
File: la852g.dgn
Plot Date: 24-NOV-2020 0:01

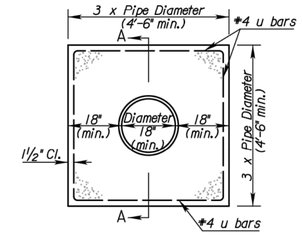
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	54	99



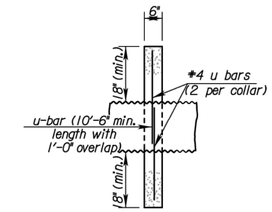
SEDIMENT STORAGE BASIN (PLAN)



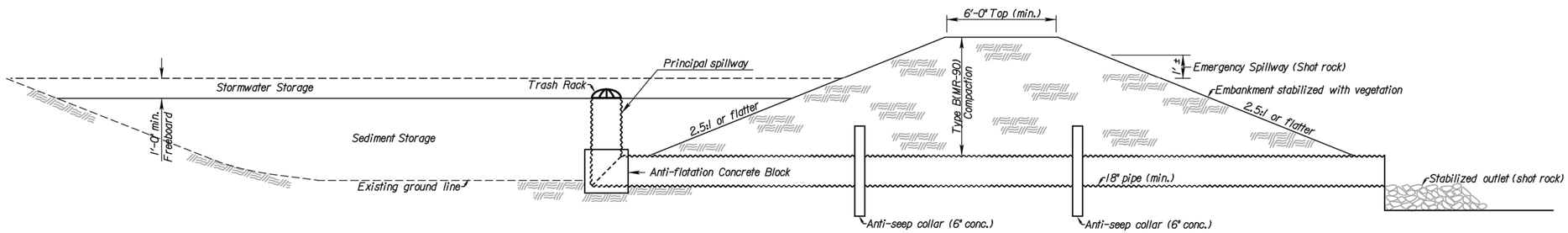
CROSS SECTION (EMERGENCY SPILLWAY)



CONCRETE ANTI-SEEP COLLAR



SECTION A-A



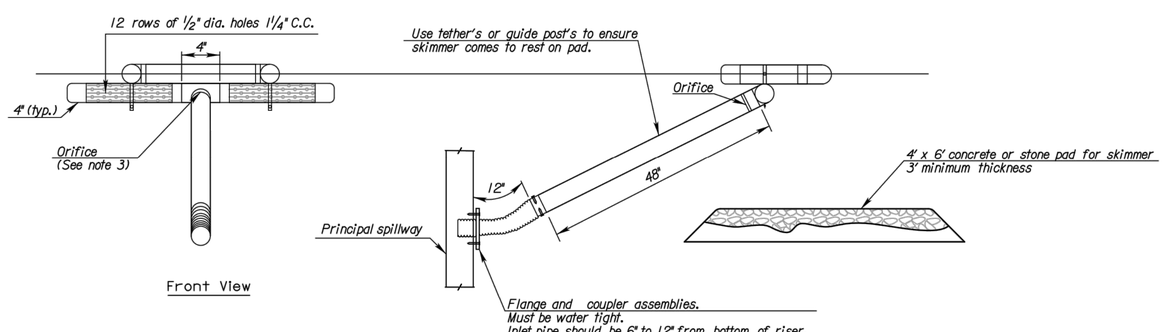
SEDIMENT STORAGE BASIN (ELEVATION)

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

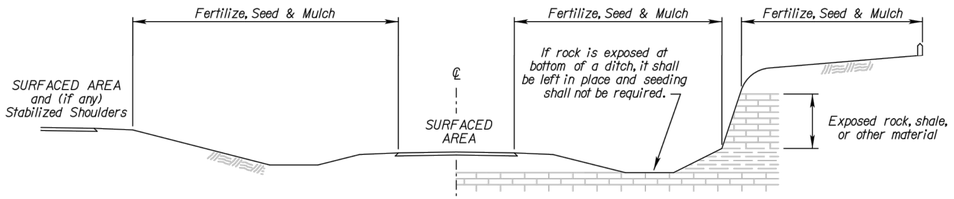
LA852H

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

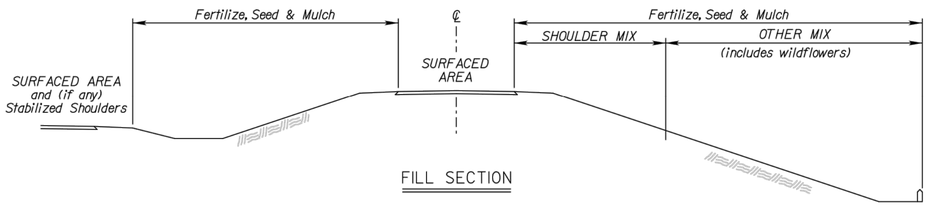
Std. Base File:
Plotted By: rlang
Plot Location: Bridge Design
File: la852h.dgn
Plot Date: 10-OCT-2016 11:45

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	55	99

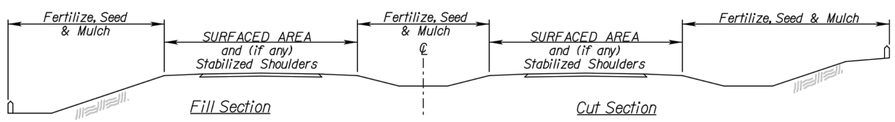
FOR INFORMATION ONLY



CUT SECTION



FILL SECTION



TYPICAL SECTION - DUAL PAVEMENT

GRASS & WILDFLOWER SEEDING SEASONS

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

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

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

SODDING SEASONS

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

NATIVE WILDFLOWER MIX 1

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

NATIVE WILDFLOWER MIX 2

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

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

OPTION: Broadcast Tall Drop Seed on the soil surface.

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ACRE SHLDR	OTHER			ACRES SHLDR	OTHER			BID ITEM	QUANTITY	UNIT
100				0.4				Fertilizer (16-20-0)		LB
2.5				0.4				Seed (Blue Grama Grass Seed (Lovington))		LB
40				0.4				Seed (Buffalograss Seed (Treated))		LB
200				0.1				Fertilizer (13-13-13)		LB
280				0.1				Seed (Turf-type Tall Fescue Seed Blend)		LB
20				0.1				Seed (Kentucky Bluegrass Seed (Baron))		LB
								Seeding	1	LSUM
								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

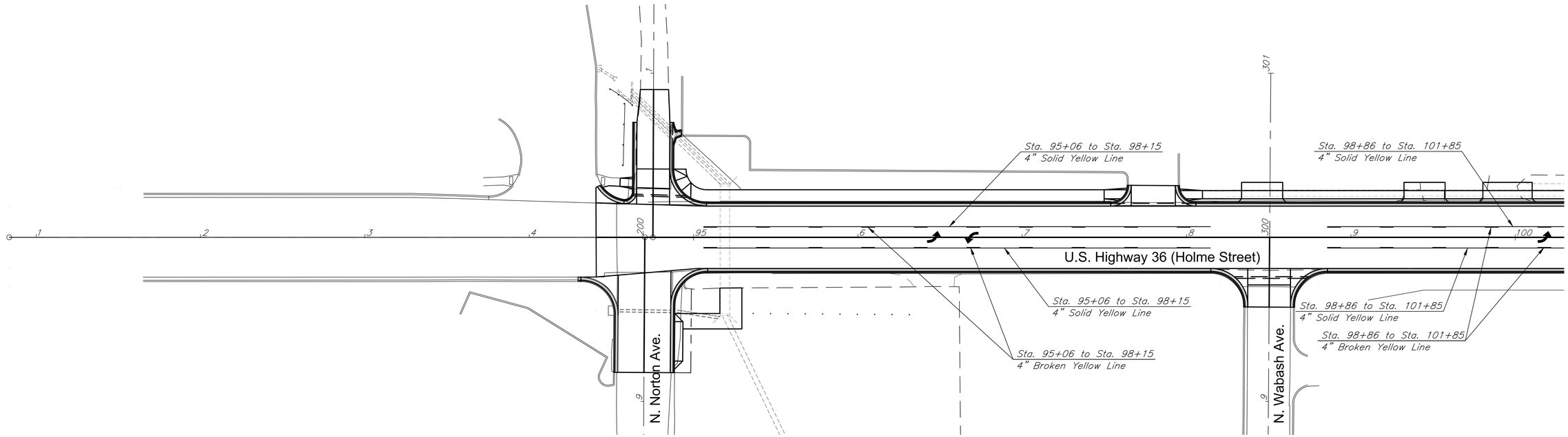
~~LA850~~

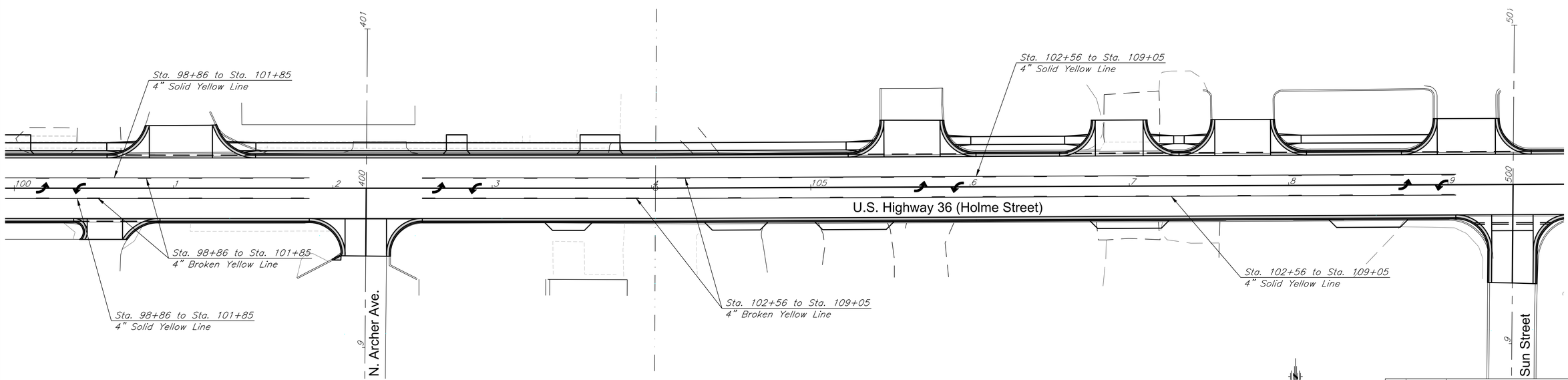
FHWA APPROVAL	05/06/2019	APP'D	Mervin Lare
DESIGNED MRD	DETAILED MRD	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN.CK.	CADD CK.

Std. Base File:
Plotted: KDOT*CADD.Support*eks.pltcfg
Plot Location:
File: la850.dgn
Plot Date: 18-DEC-2020 01:03

NOTE: REFER TO SHEET NO. 58–60 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	56	99





30' 0 30' 30'
Graphic Scale in Feet

No.	Date	Revisions	By

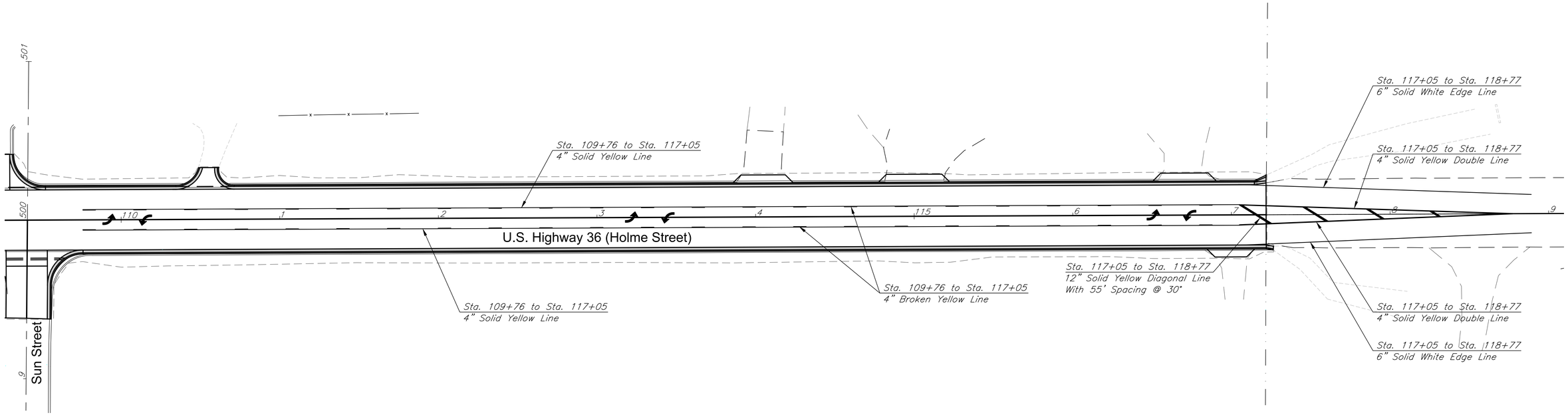
PAVEMENT MARKINGS

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

X:\oc2\kdot\KD5419-City of Norton\ACAD\Plan\Pavement Markings\Pavement Markings.dwg\Pavement Markings – PM1 11/2/2021 8:18 AM

NOTE: REFER TO SHEET NO. 58–60 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	57	99



30' 0 30' 30'

Graphic Scale in Feet

No.	Date	Revisions	By

PAVEMENT MARKINGS

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

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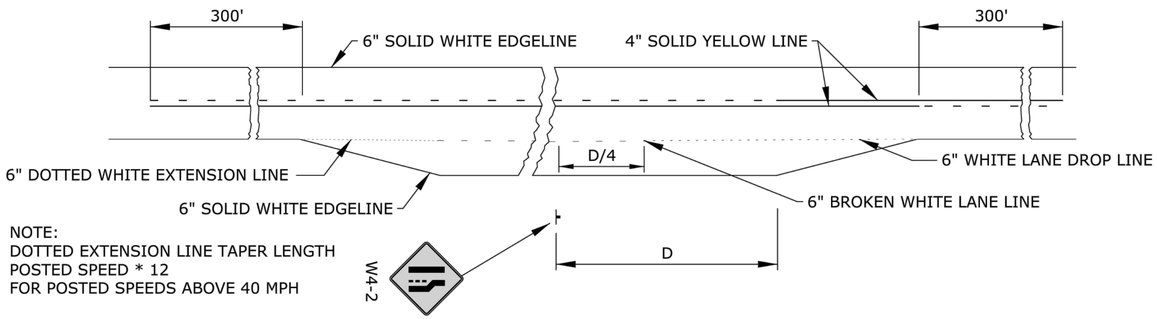
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	58	99

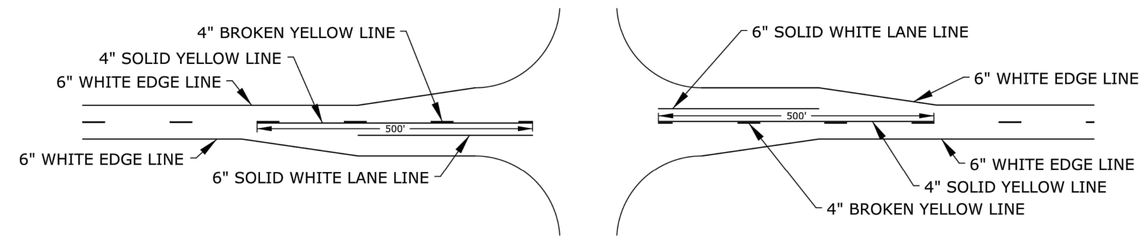


NOTE:
DOTTED EXTENSION LINE TAPER LENGTH
POSTED SPEED * 12
FOR POSTED SPEEDS ABOVE 40 MPH

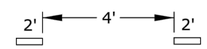
TYPICAL MARKING FOR AUXILIARY PASSING LANE

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

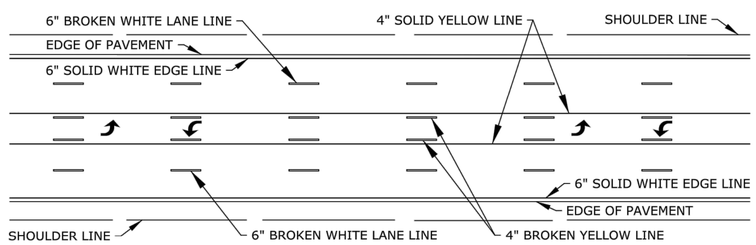
FOR HIGHWAY JUNCTIONS THE NO PASSING ZONE WILL EXTEND 1000' FROM INTERSECTION.



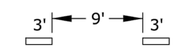
TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



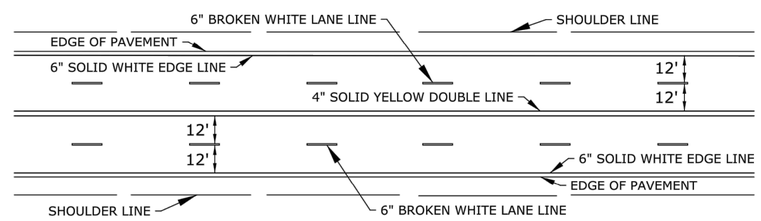
TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



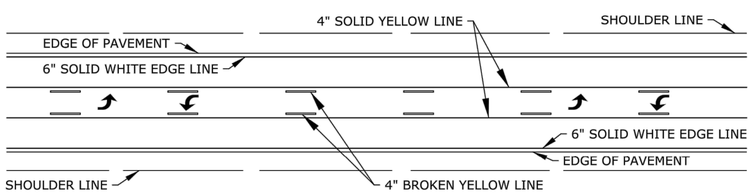
TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY



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

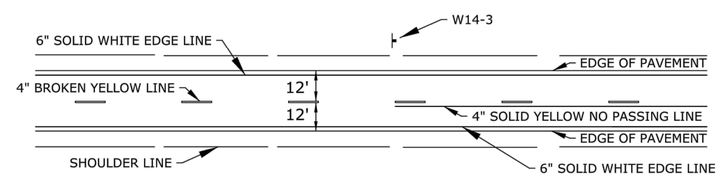


TYPICAL MARKINGS FOR FOUR LANE ROADWAY

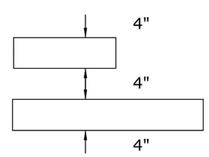


TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY

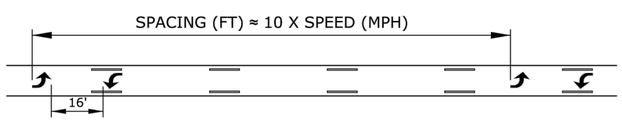
TYPICAL SPACING FOR BROKEN LINES UNLESS OTHERWISE NOTED ON PLANS



TYPICAL TWO LANE MARKINGS



TYPICAL SPACING FOR NO PASSING LINES UNLESS OTHERWISE NOTED ON PLANS



TWO-WAY LEFT TURN ARROW SPACING DETAIL

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

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.

KDOT Graphics Certified 07-17-2018

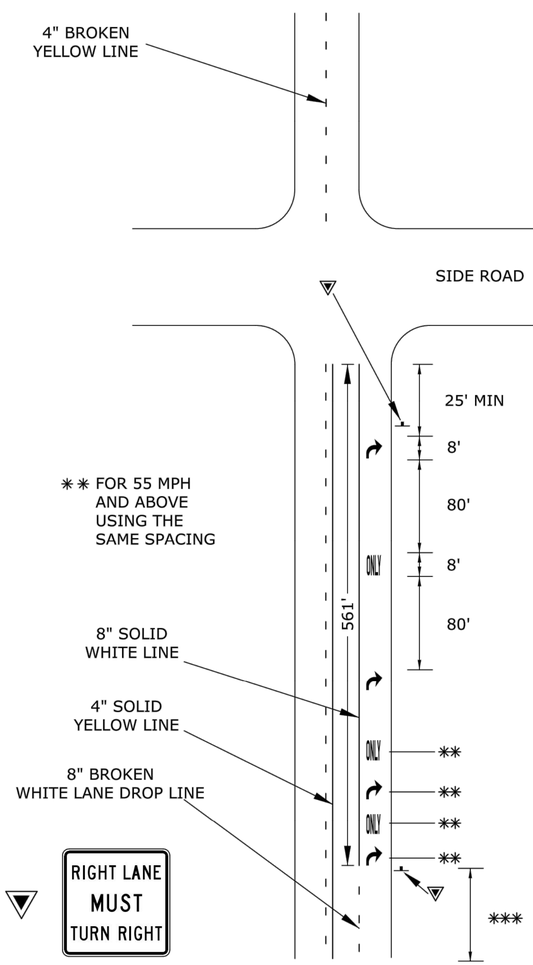
KDOT Graphics Certified

Plotted : 17-JUL-2018 11:35
Traffic

Drawn By : mushock
File : te308.dgn

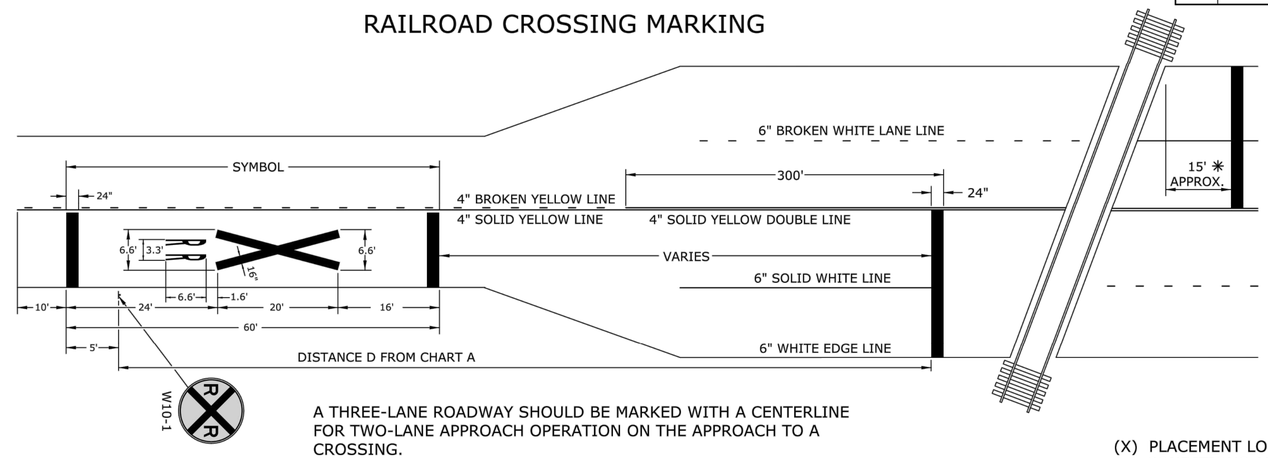
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	59	99

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.

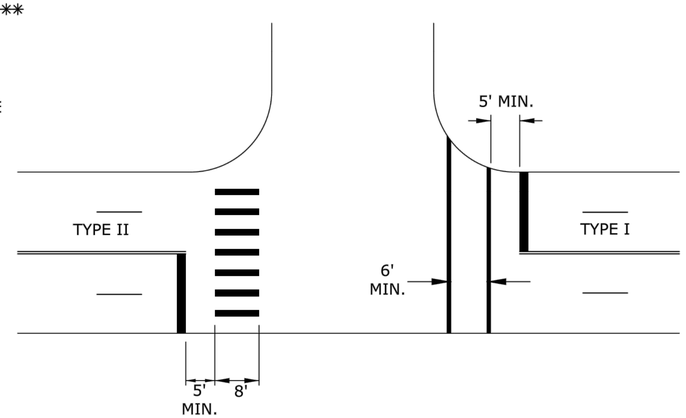
(X) PLACEMENT LOCATION IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING TO PROVIDE ADEQUATE ADVANCE WARNING TO THE DRIVER

TYPICAL CROSSWALKS

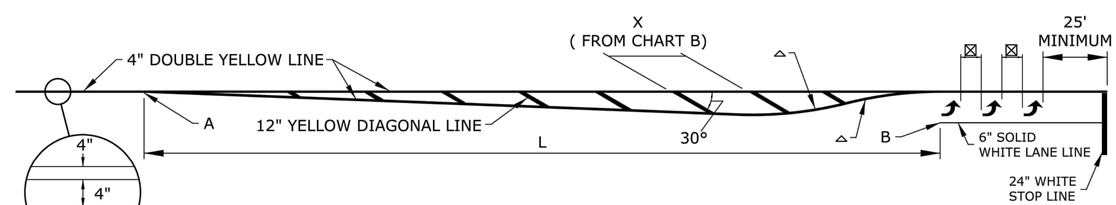
TYPE I: CROSSWALK LINES SHALL BE 12" SOLID WHITE LINES. THEY SHALL BE SPACED A MINIMUM OF 6' APART FROM INSIDE EDGE TO INSIDE EDGE.

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.

KDOT Graphics Certified 07-17-2018

KDOT Graphics Certified

Plotted : 17-JUL-2018 11:35
Traffic

Drawn By : mushock
File : te309.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	60	99

SUMMARY OF PAVEMENT MARKINGS

LOCATION	4" Solid WHITE Edge Line	6" Solid WHITE Edge Line	6" Broken WHITE Lane Line	6" Broken WHITE Lane Line (PCP)	6" Dotted WHITE Extension Line	6" Broken WHITE Lane Drop Line	6" Solid WHITE Lane Line	8" Broken WHITE Lane Drop Line	8" Solid WHITE Gore Line	8" Dotted WHITE Extension Line	12" Solid WHITE Diagonal Line	12" Solid WHITE Chevron Line	12" Solid WHITE Type I Crosswalk Line	24" Solid WHITE Type II Crosswalk Line	24" Solid WHITE Stop Line	4" Solid YELLOW Edge Line	4" Solid YELLOW Double Line	4" Solid YELLOW Line	4" Broken YELLOW Line	6" Solid YELLOW Edge Line	12" Solid YELLOW Diagonal Line
Sta. 95+06 to Sta. 98+15																		618	160		
Sta. 98+86 to Sta. 101+85																		598	144		
Sta. 102+56 to Sta. 109+05																		1298	336		
Sta. 109+76 to Sta. 117+05																		1458	368		
Sta. 117+05 to Sta. 118+77		344															688				57
TOTALS		344															688	3972	1008		57

RECAPITULATION OF QUANTITIES

ITEMS	TOTAL	UNITS
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6")	344	FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4")	5668	FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(12")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(4")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(6")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(8")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(12")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(4")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(6")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(24")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12")	57	FT
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)(LEFT TURN ARROW)	16	EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(US-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(K-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(I-SHIELD)( )		EACH
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING REMOVAL		FT

SUMMARY OF WORD & SYMBOL MARKINGS

LOCATION						STOP	ONLY	X-ING	SCHOOL	70	435	24	400	18						
Sta. 96+42 to Sta. 96+74					2															
Sta. 100+14 to Sta. 100+46					2															
Sta. 102+62 to Sta. 102+94					2															
Sta. 105+65 to Sta. 105+97					2															
Sta. 108+68 to Sta. 109+00					2															
Sta. 109+88 to Sta. 110+20					2															
Sta. 113+15 to Sta. 113+47					2															
Sta. 116+47 to Sta. 116+79					2															
TOTALS					16															

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.

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.

KDOT Graphics Certified 07-17-2018

KDOT Graphics Certified

Plotted : 17-JUL-2018 11:35
Traffic

Drawn By : mushock
File : te311.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	61	99

SUMMARY OF QUANTITIES

REMOVAL AND RESETTING OF SIGNS ON PROJECT

EXISTING PLAN STATION NUMBER	NEW PLAN STATION NUMBER	SIGN TYPE	SIGN SIZE	DESCRIPTION
94+52		Info.	Misc.	Hospital/Museum
94+59		R1-1	30x30	Stop
95+00		Info.	Misc.	911
95+02		R1-1	30x30	Stop
97+07		R2-1	24x30	Speed Limit
98+11				No Parking
98+70		R1-1	30x30	Stop
98+72		Info.	Misc.	911
101+25				Hwy. 36/K-383
102+02		R1-1	30x30	Stop
102+04		Info.	Misc.	911
103+92		R2-1	24x30	Speed Limit
104+13				No Parking
109+18		Info.	Misc.	911
109+61		R1-1	30x30	Stop
109+78				Hwy. 36/K-383
110+20		W4-2	36x36	Lane Ends
111+46		R2-1	24x30	Speed Limit
111+46		R2-1	24x30	Speed Limit
117+19		R2-1	24x30	Speed Limit

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

Drawn By$$USERNAME$$ Plotted$SYTIME$$
File $$DGNSPEC$$ $$KDOTGRP$$

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
FOR REMOVAL AND RESETTING
OF SIGNS

~~TE445~~ 7/1/03

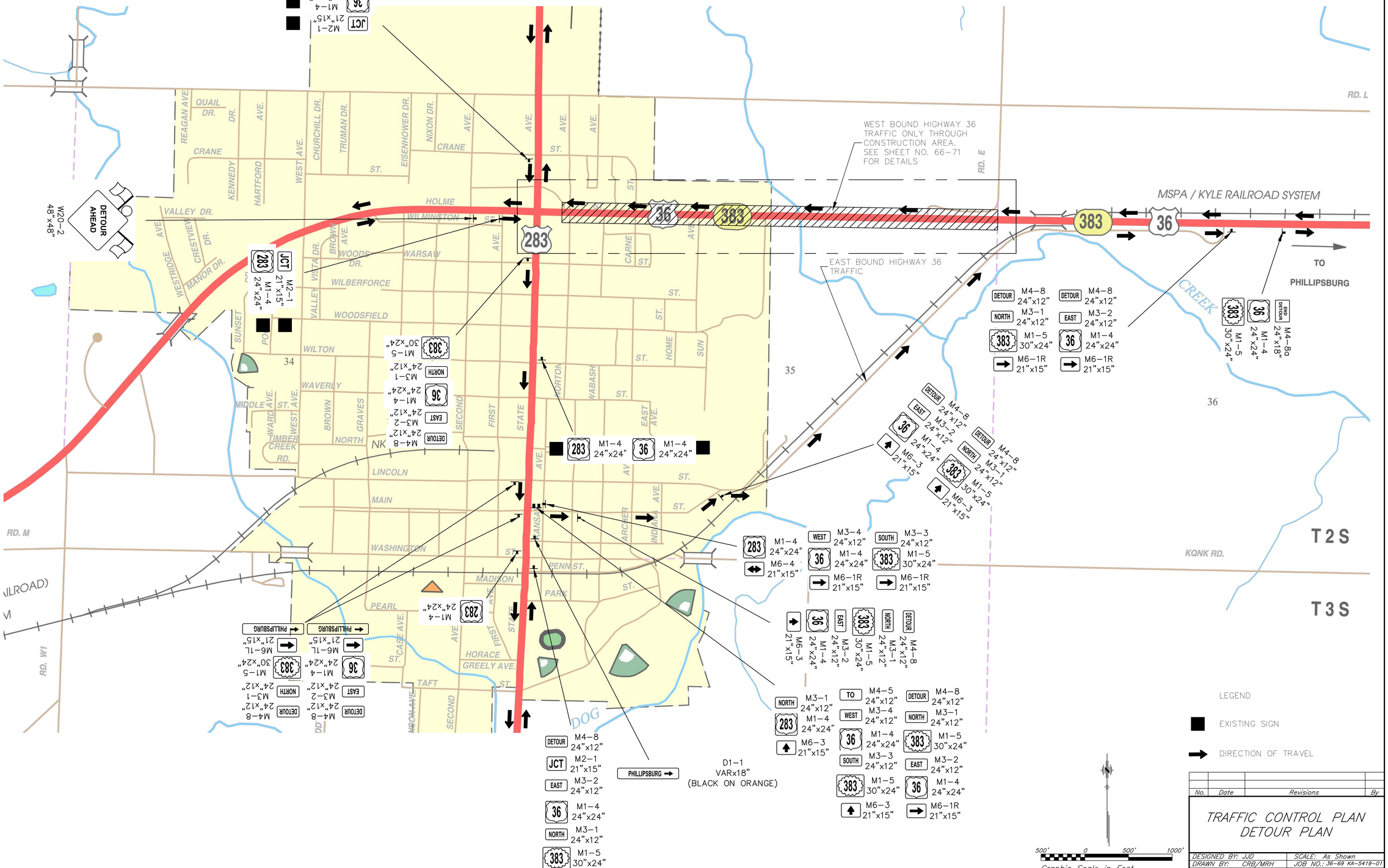
FHWA APPROVAL			7/22/2003	APP'D	Steven A. Buckley		
DESIGNED	D.D.G.	DETAILED	K.D.S.	QUANTITIES		TRACED	
DESIGN CK.	S.A.B.	DETAIL CK.	D.D.G.	QUAN. CK.		TRACE CK.	

KDOT Graphics Certified 01-18-2011

KDOT Graphics Certified

NOTE: REFER TO SHEET NO. 63–80 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	62	99



LEGEND

EXISTING SIGN

DIRECTION OF TRAVEL

500' 0 500' 1000'
Graphic Scale in Feet

No.	Date	Revisions	By

TRAFFIC CONTROL PLAN
DETOUR PLAN

DESIGNED BY: JJD
DRAWN BY: CRB/MRH
CHECKED BY: BRD
SCALE: As Shown
JOB NO.: 36–69 KA–5419–01
DATE: 2022

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	63	99

NOTE: REFER TO SHEET NO. 71–80 FOR ADDITIONAL INFORMATION AND DETAILS.

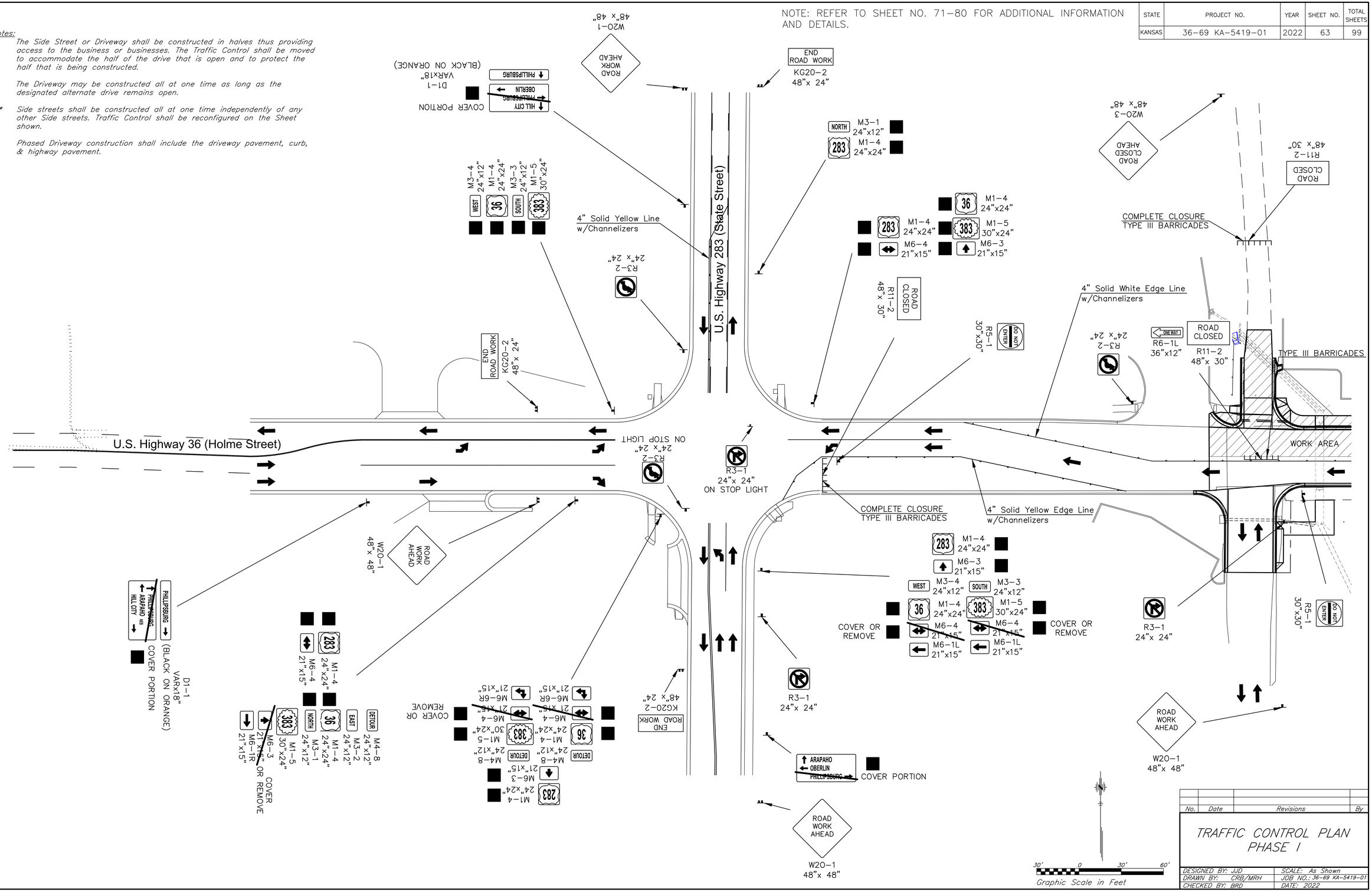
Notes:

* *The Side Street or Driveway shall be constructed in halves thus providing access to the business or businesses. The Traffic Control shall be moved to accommodate the half of the drive that is open and to protect the half that is being constructed.*

** *The Driveway may be constructed all at one time as long as the designated alternate drive remains open.*

*** *Side streets shall be constructed all at one time independently of any other Side streets. Traffic Control shall be reconfigured on the Sheet shown.*

Phased Driveway construction shall include the driveway pavement, curb, & highway pavement.



No.	Date	Revisions	By

TRAFFIC CONTROL PLAN PHASE I

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

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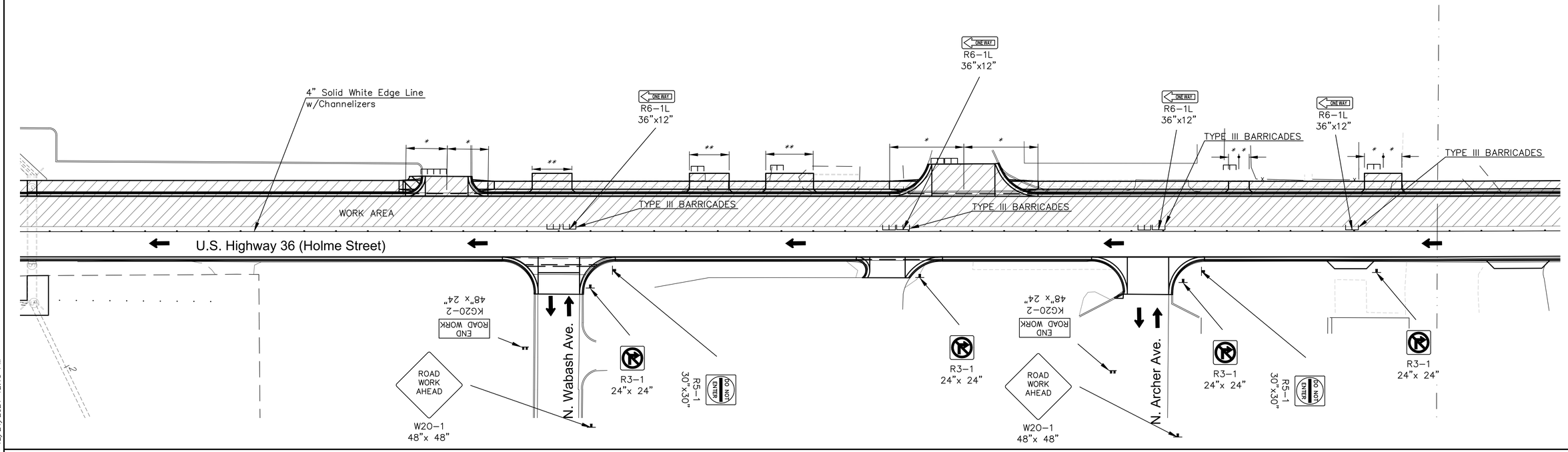
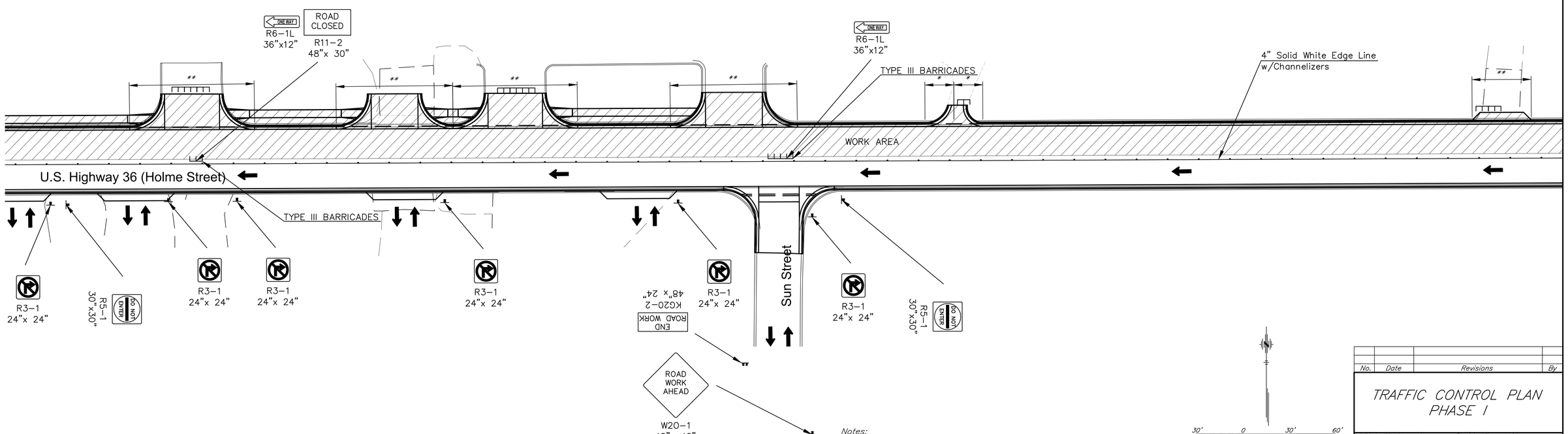
NOTE: REFER TO SHEET NO. 71–80 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	64	99





Notes:
See General Note on Sheet No. 63 for Side Street and Driveway Phasing.

30' 0 30' 60'
Graphic Scale in Feet

No.	Date	Revisions	By

TRAFFIC CONTROL PLAN
PHASE I

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

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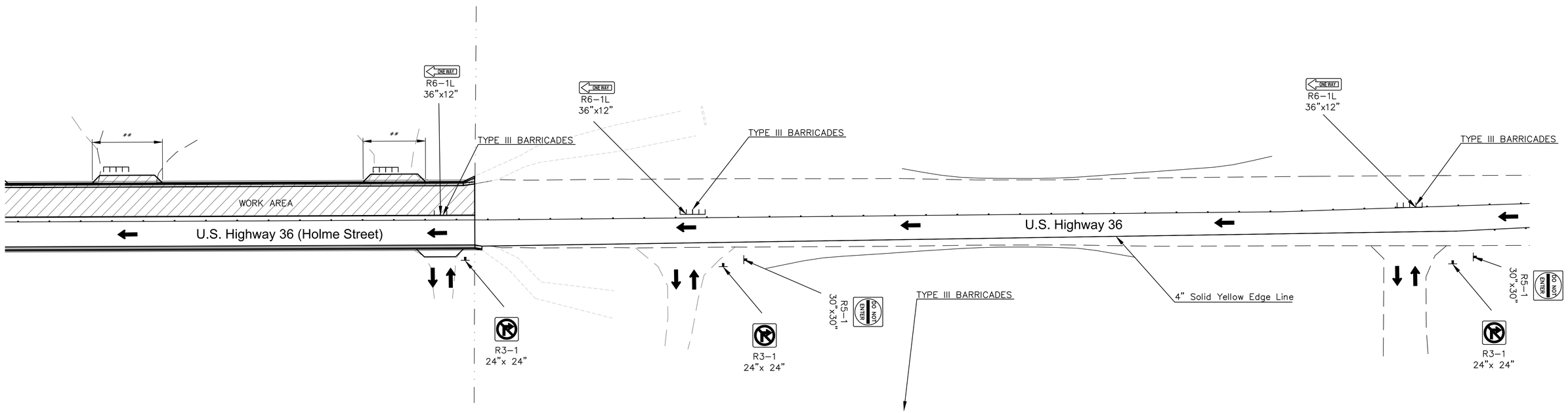
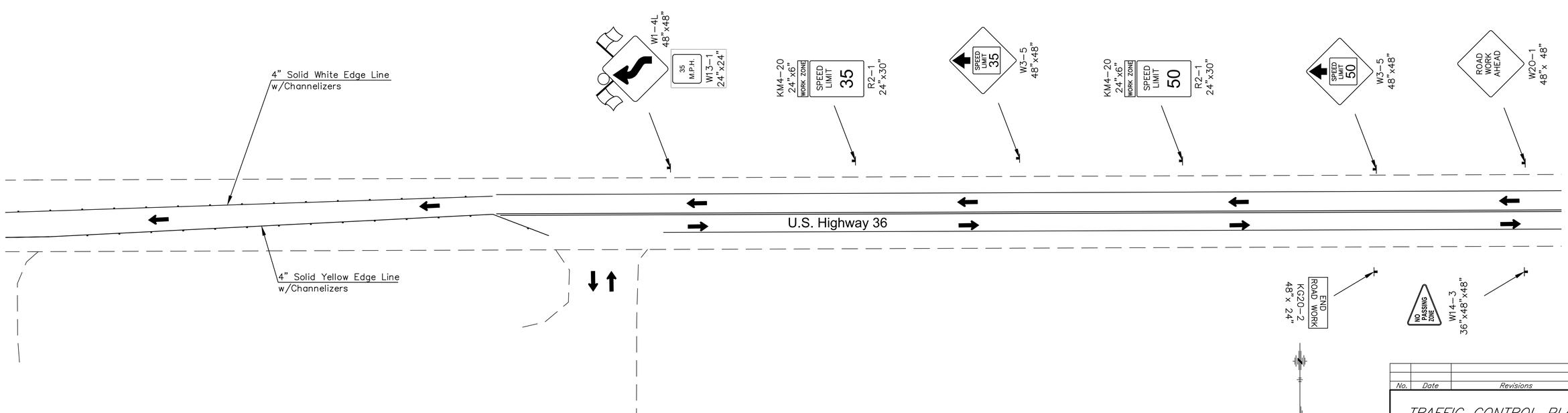
NOTE: REFER TO SHEET NO. 71–80 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	65	99





Notes:
See General Note on Sheet No. 63 for Side Street and Driveway Phasing.

30' 0 30' 60'
Graphic Scale in Feet

No.	Date	Revisions	By

TRAFFIC CONTROL PLAN
PHASE I

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

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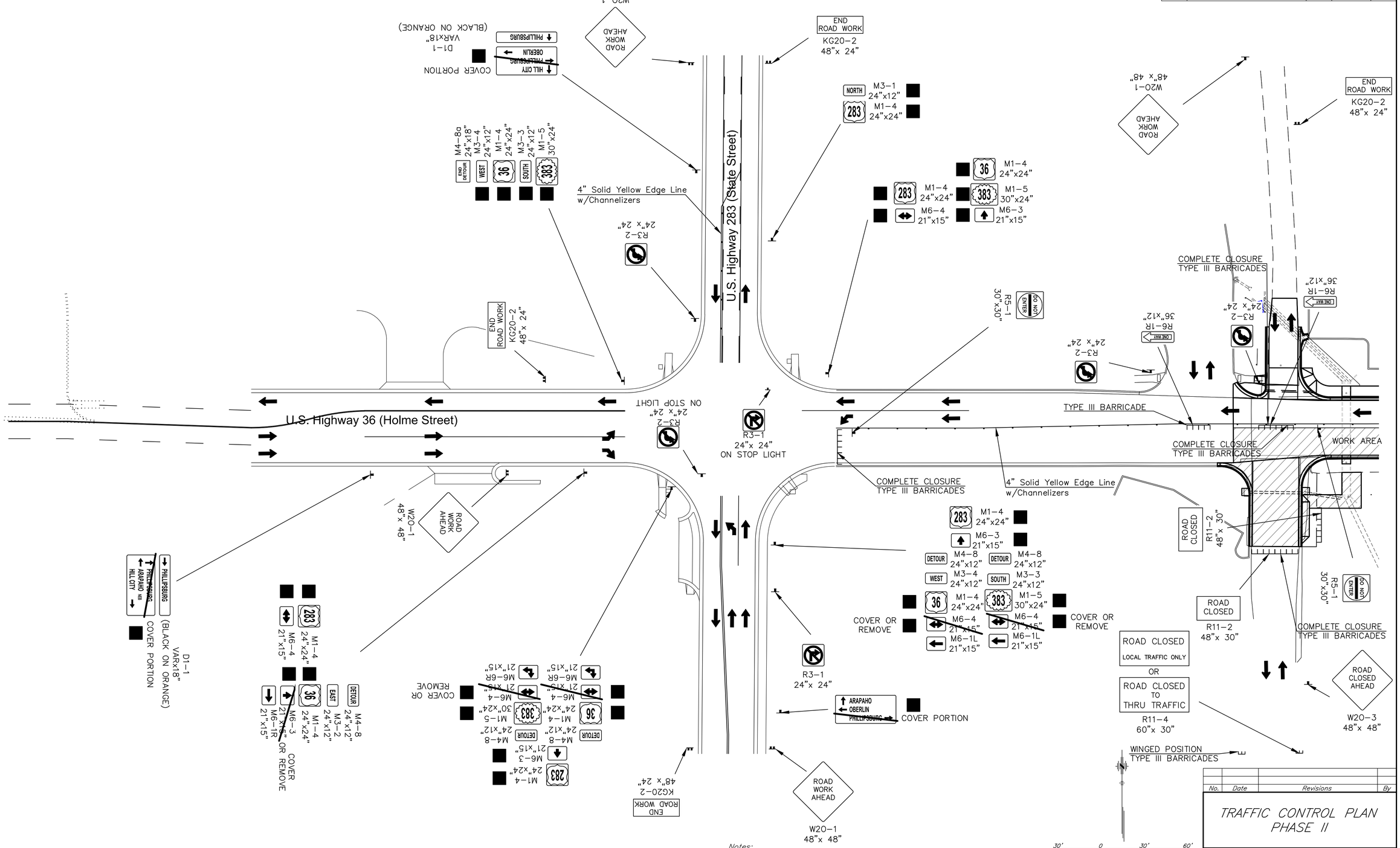
NOTE: REFER TO SHEET NO. 71–80 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	66	99



Notes:
See General Note on Sheet No. 63 for Side Street and Driveway Phasing.

No.	Date	Revisions	By

TRAFFIC CONTROL PLAN
PHASE II

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36-69 KA-5419-01
CHECKED BY: BRD	DATE: 2022

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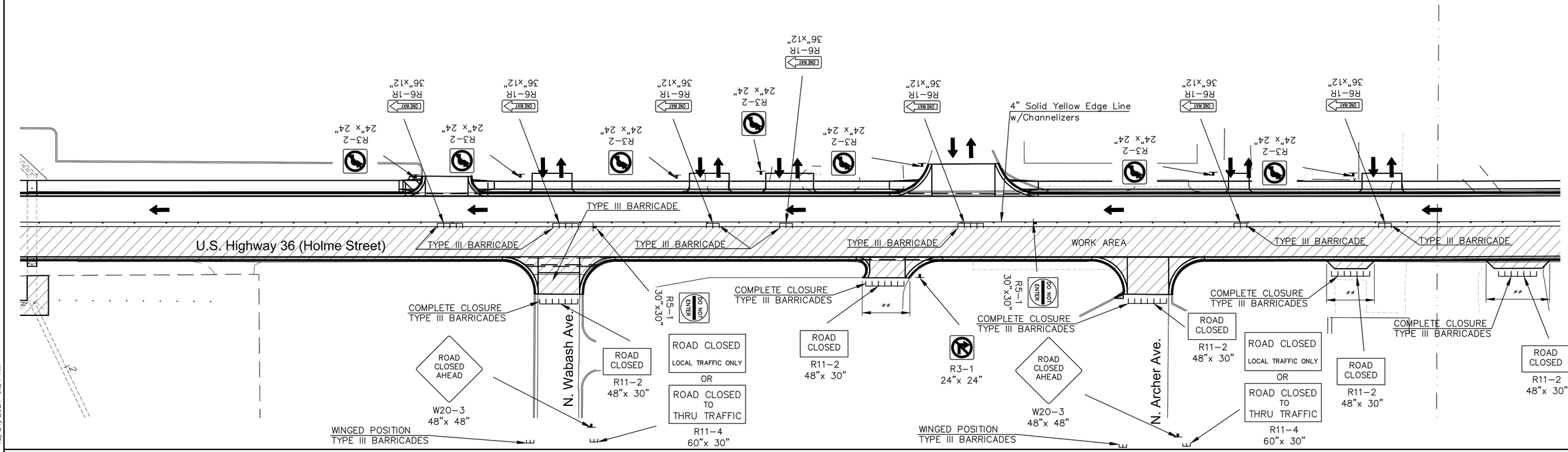
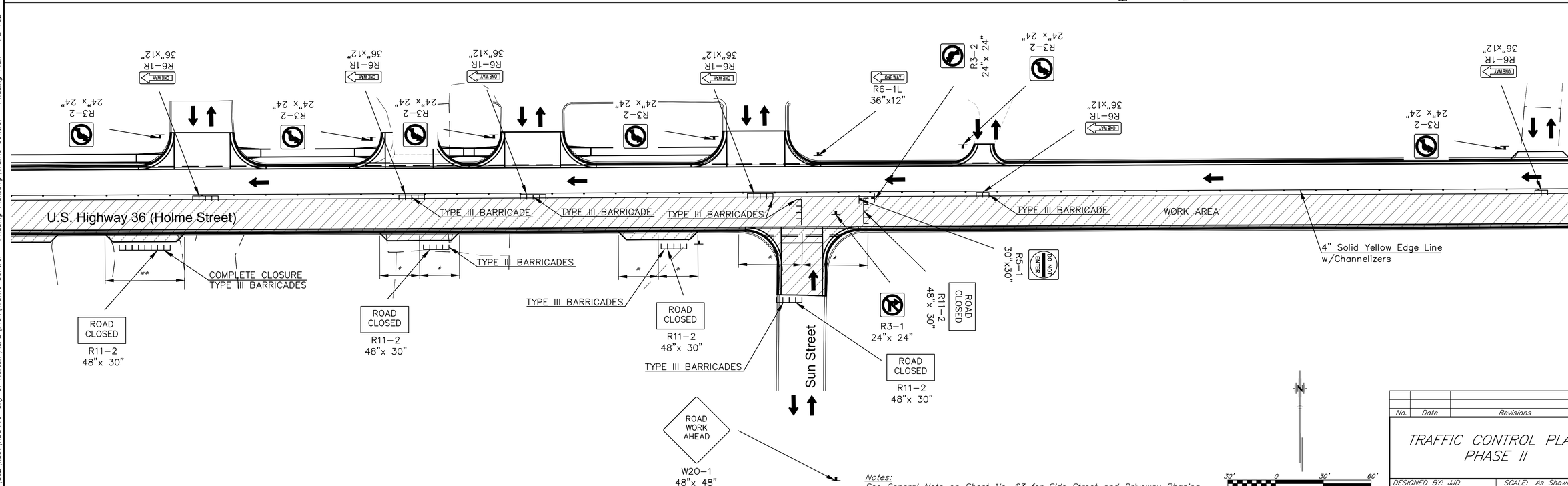
NOTE: REFER TO SHEET NO. 71–80 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	67	99





Notes:
See General Note on Sheet No. 63 for Side Street and Driveway Phasing.

30' 0 30' 60'
Graphic Scale in Feet

No.	Date	Revisions	By

TRAFFIC CONTROL PLAN
PHASE II

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

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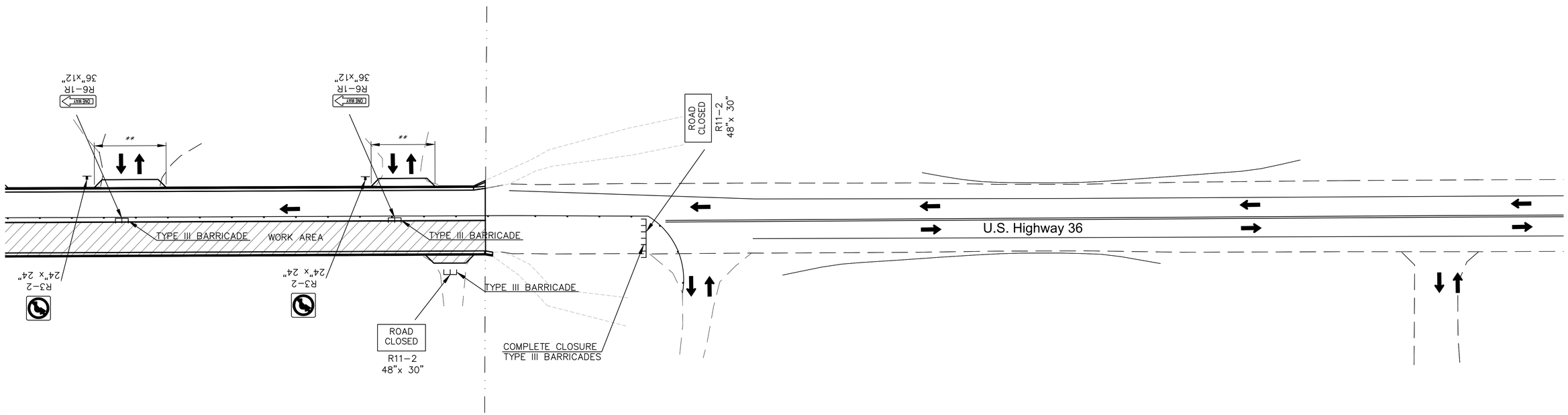
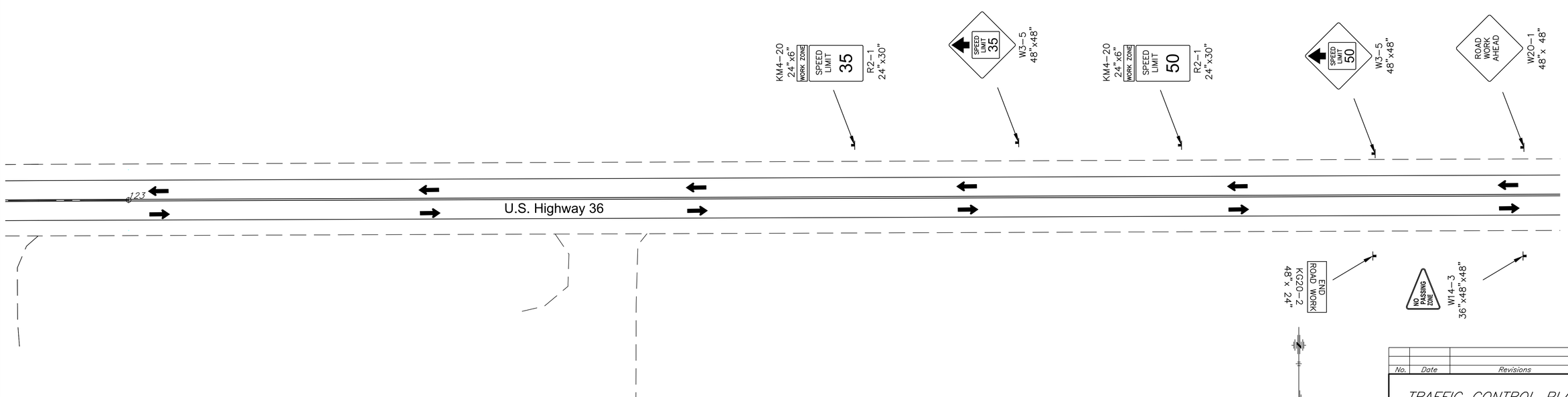
NOTE: REFER TO SHEET NO. 71–80 FOR ADDITIONAL INFORMATION AND DETAILS.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	68	99





Notes:
See General Note on Sheet No. 63 for Side Street and Driveway Phasing.

30' 0 30' 60'
Graphic Scale in Feet

No.	Date	Revisions	By

TRAFFIC CONTROL PLAN
PHASE II

DESIGNED BY: JJD	SCALE: As Shown
DRAWN BY: CRB/MRH	JOB NO.: 36–69 KA–5419–01
CHECKED BY: BRD	DATE: 2022

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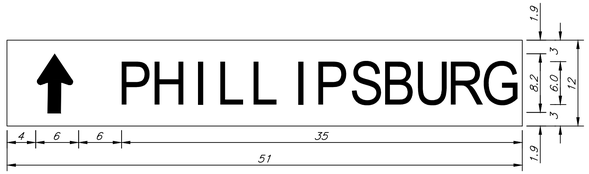
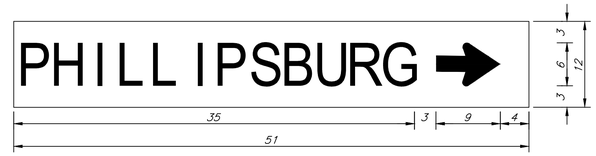
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	69	99



Identifier : D1-1
No Border, Black on Orange
Standard Arrow Custom 8.2" X 6.0" 90° Black;
[PHILLIPSBURG] Black C;
Table of distances between letter and objects lefts.

	↑	P	H	I	L	L	I	P	S	B	U	R	G	
4.0	12.0	3.4	3.4	0.8	3.1	3.1	0.8	3.4	3.4	3.4	3.4	3.4	3.4	



Identifier : D1-1
No Border, Black on Orange
Standard Arrow Custom 9.0" X 6.0" 0° Black;
[PHILLIPSBURG] Black C;
Table of distances between letter and objects lefts.

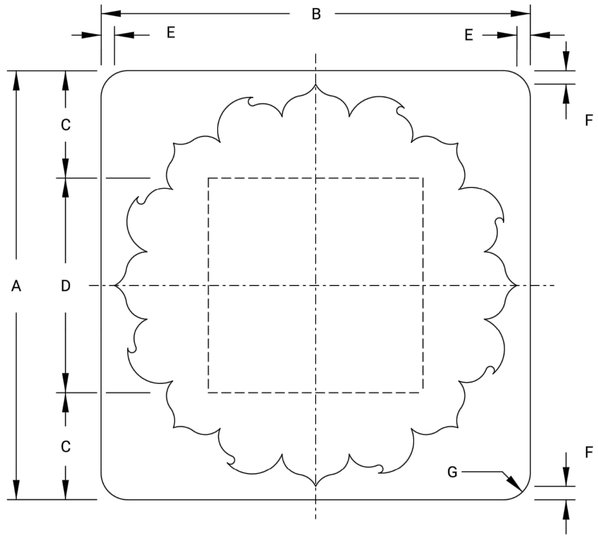
P	H	I	L	L	I	P	S	B	U	R	G	→	
3.4	3.4	0.8	3.1	3.1	0.8	3.4	3.4	3.4	3.4	3.4	3.4	12.0	4.0

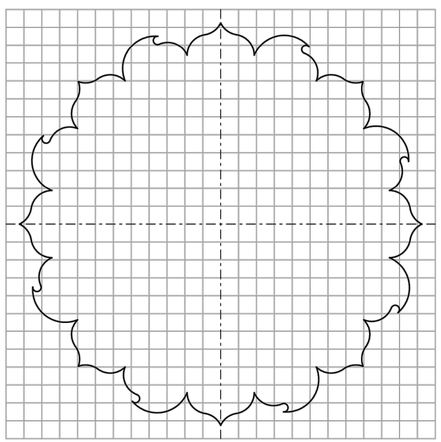
KANSAS DEPARTMENT OF TRANSPORTATION

DETOUR SIGNING PLAN

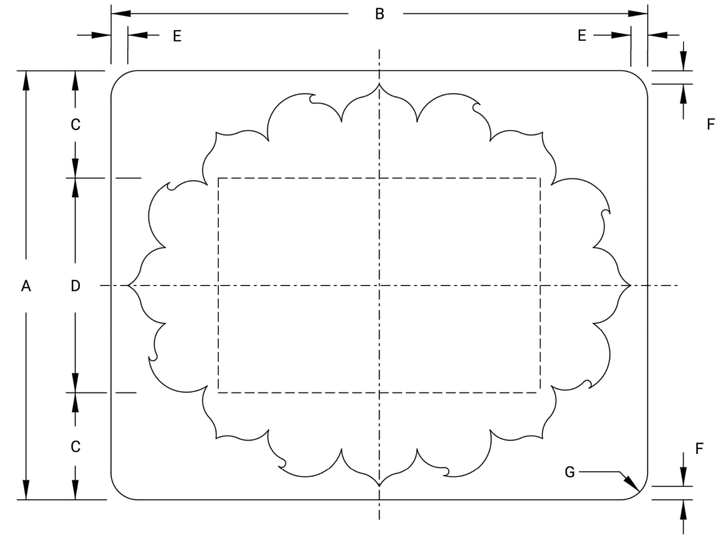
X:\acz2\kdot\KD5419-City of Norton\ACAD\Plan\Detour Signing Plan.dwg\Detour Signing Plan - Layout1 11/2/2021 8:31 AM

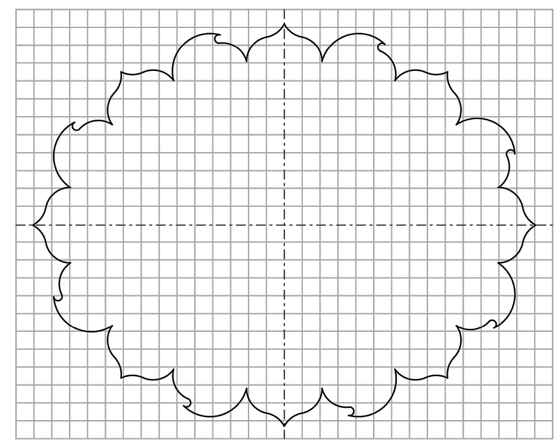
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	70	99





1 OR 2 DIGITS





3 DIGITS

COLORS:
Background around sunflower - Black
Sunflower - Yellow
Numerals - Black

NOTE:
See plan, quantity, or sign design layout sheets for numerals to be used. The numerals shall be Series "D" legend. The numerals are to be optically spaced about the vertical centerline.

See standard plan sheet TE590 for detailed specifications.

SIZE	A	B	C	D	E	F	G
24 X 24	24	24	6	12	¾	¾	1 ½
30 X 24	24	30	6	12	1	¾	1 ½
36 X 36	36	36	9	18	1 ⅛	1 ⅛	2 ¼
45 X 36	36	45	9	18	1 ½	1 ⅛	2 ¼

All dimensions in inches.

NO.	DATE	REVISIONS	BY	APP'D
	10/01/19	Added 36" route shields.	D.D.G.	E.W.N.

KANSAS DEPARTMENT OF TRANSPORTATION

PROCESSED SIGN DETAILS
KANSAS ROUTE MARKERS

TE515 7/1/03

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

KDOT Graphics Certified 12-17-2019

KDOT Graphics Certified

Plotted by : KDOT#CADD.Support@ks.gov 18-DEC-2019 01:50
File : te515.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	71	99

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.

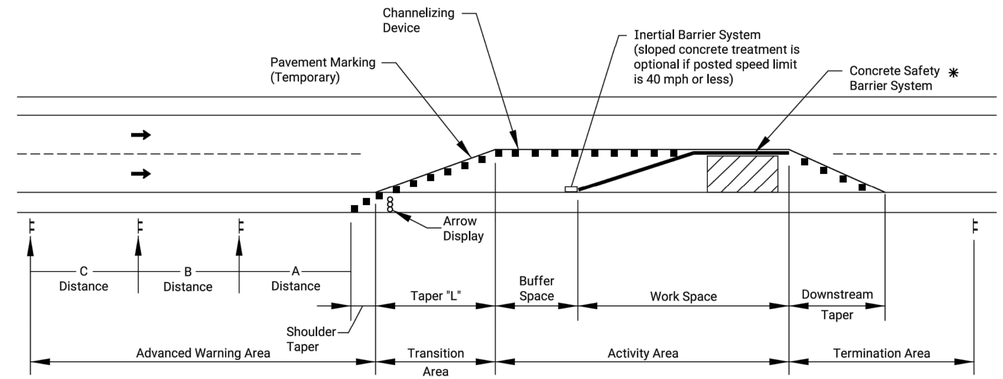
2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

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.	

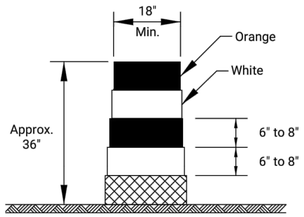
KDOT Graphics Certified 03-13-2018

KDOT Graphics Certified

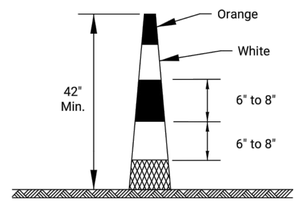
Plotted :29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te700.dgn

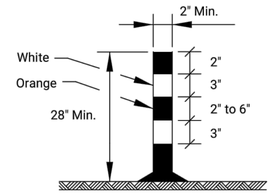
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	72	99



DRUM

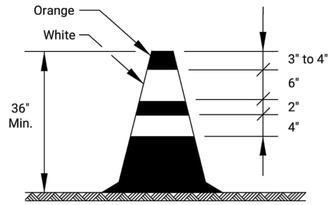


CONICAL DELINEATOR

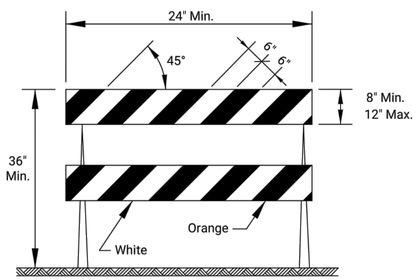


TUBULAR MARKER

Striping as shown for up to 42".

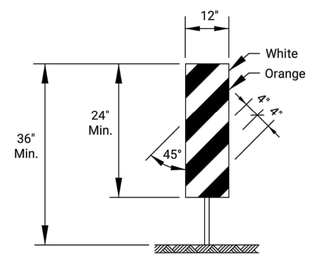


TRAFFIC CONE



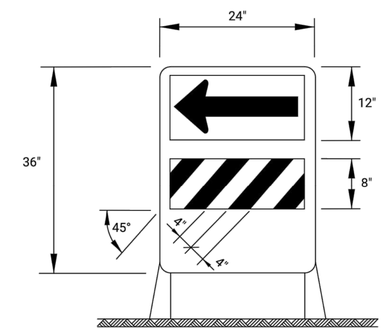
TYPE 2 BARRICADE

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



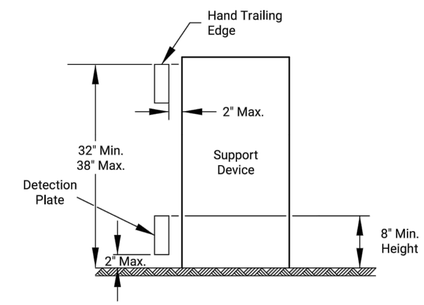
VERTICAL PANEL

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

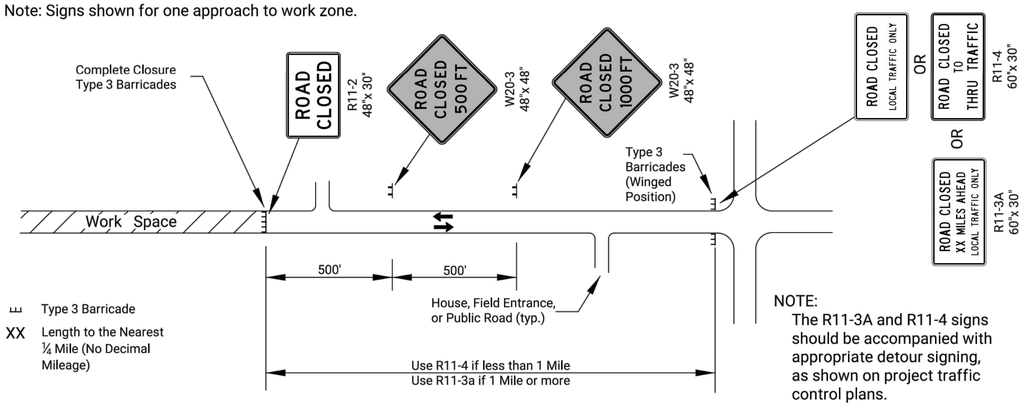
KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te702.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	73	99

Note: Signs shown for one approach to work zone.



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

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

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

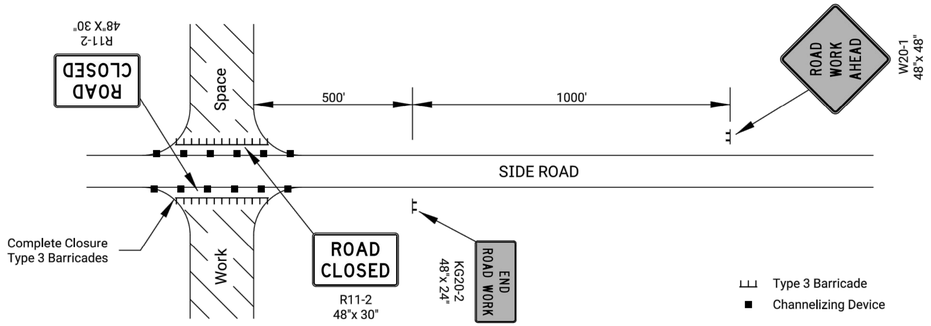


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

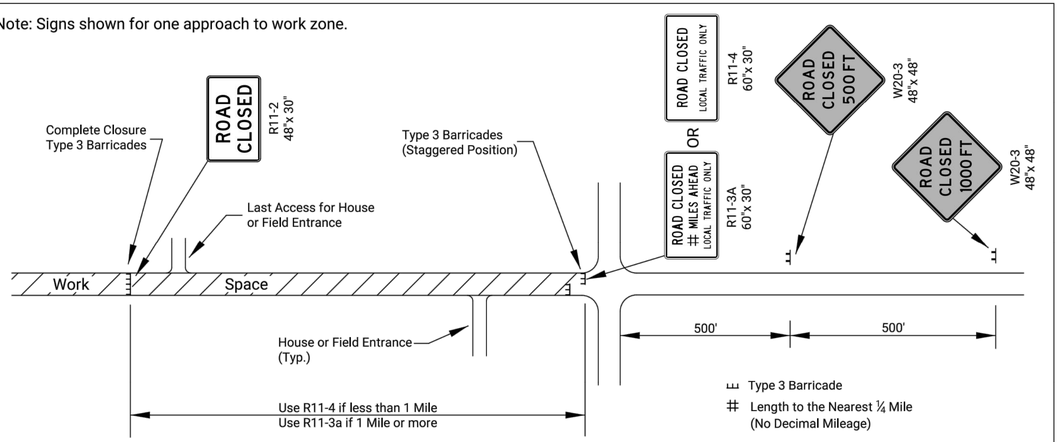


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

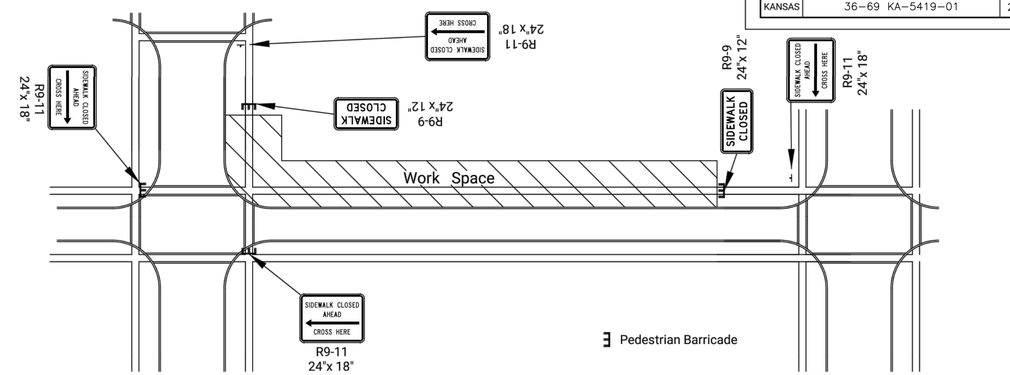
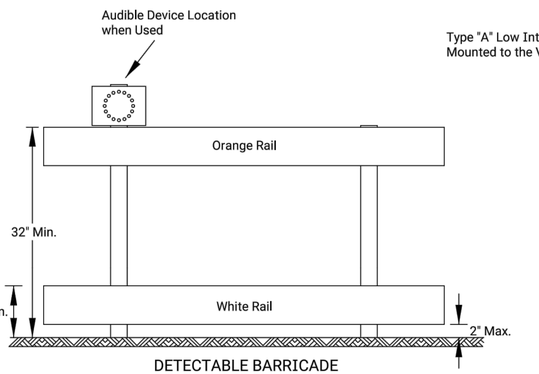
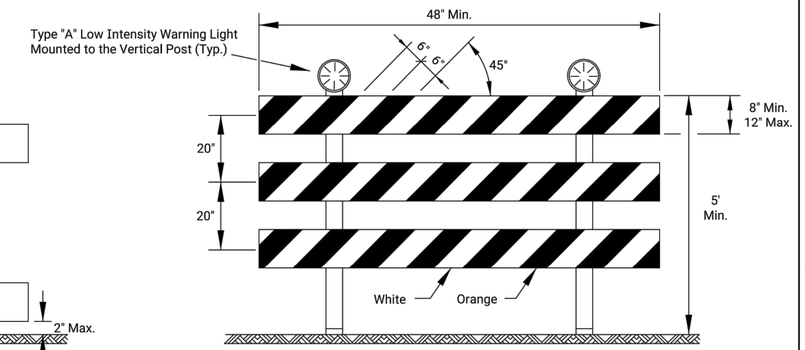


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



DETECTABLE BARRICADE

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



TYPE 3 BARRICADE WITH LIGHTS

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

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

ROAD CLOSED GENERAL NOTES

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

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

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

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

KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te704.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	74	99

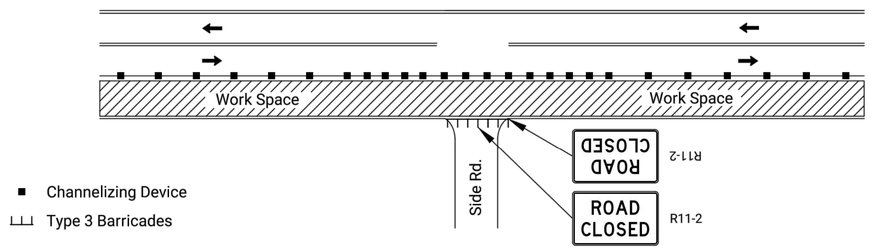


FIGURE 1: SIDE ROAD OR ENTRANCE CLOSED THROUGH WORK AREA

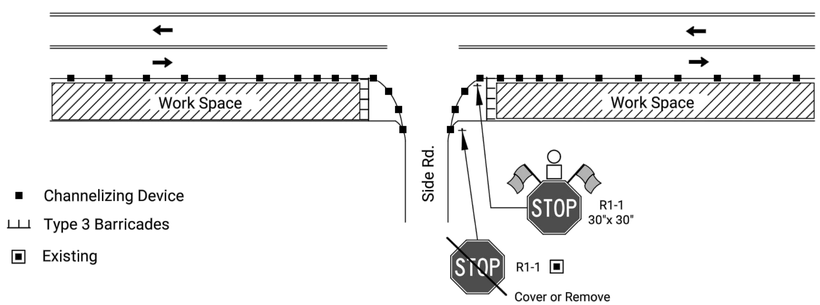


FIGURE 2: SIDE ROAD OR ENTRANCE OPEN THROUGH WORK AREA

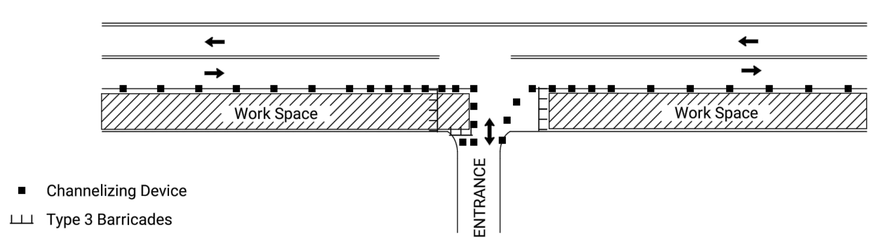


FIGURE 3: LOW VOLUME ENTRANCE CONTRUCTED HALF AT A TIME

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

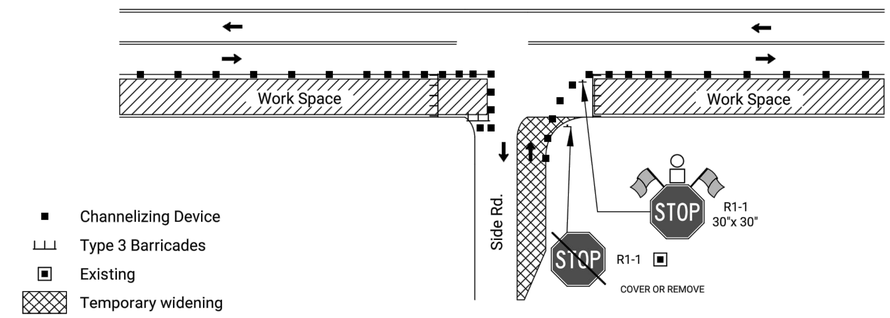


FIGURE 4: SIDE ROAD OR ENTRANCE CONSTRUCTED HALF AT A TIME:
TWO WAY TRAFFIC REQUIRED

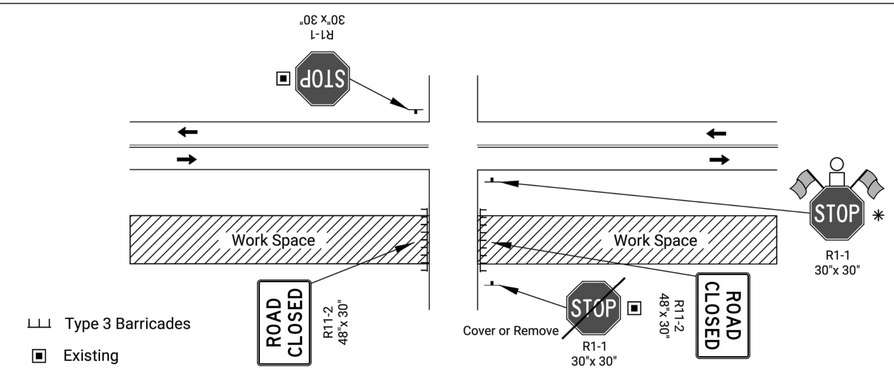


FIGURE 5: SIDE ROAD OPEN THROUGH WORK AREA ON DIVIDED ROADWAY

NO.	DATE	REVISIONS	BY	APP'D

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

Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te705.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	75	99

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

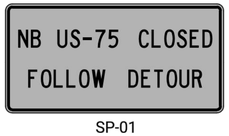
Std. Size Expwy/Freeway
48"x 48"

W8-11

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

W8-17P
(Optional)

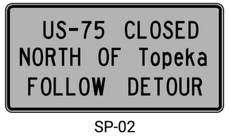
Std. Size
Expwy/Freeway
30"x 24"



SP-01
(Special Sign)

Std. Size
6" C

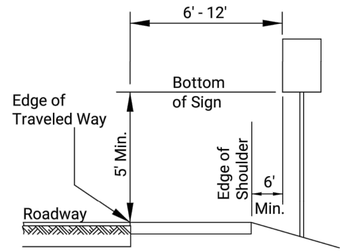
Expwy/Freeway
10" D



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.

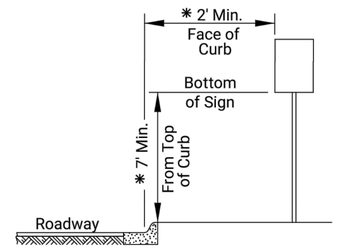


RURAL

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.

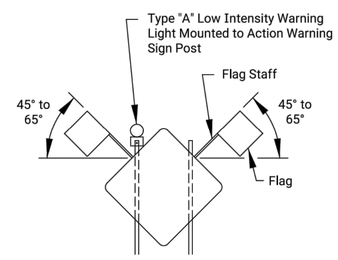
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

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.

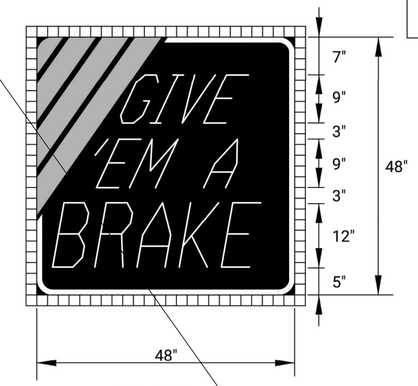
5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

✱ 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.



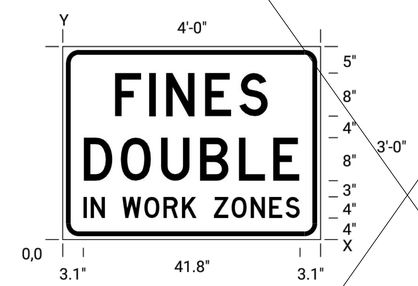
When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

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

Notes:

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

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

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

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SIGN INFORMATION

~~TE710~~

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

KDOT Graphics Certified 03-29-2018

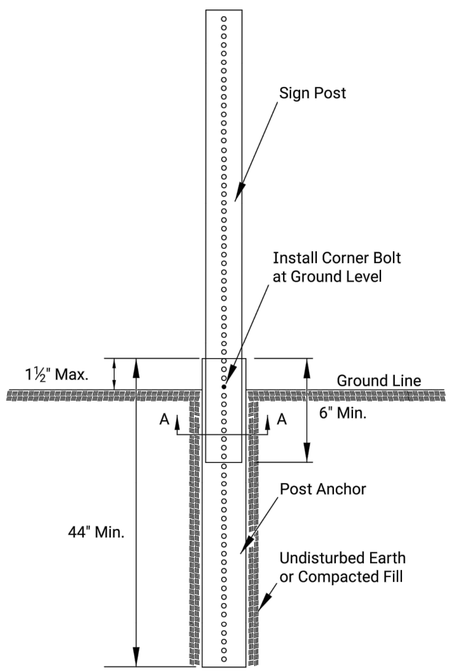
KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

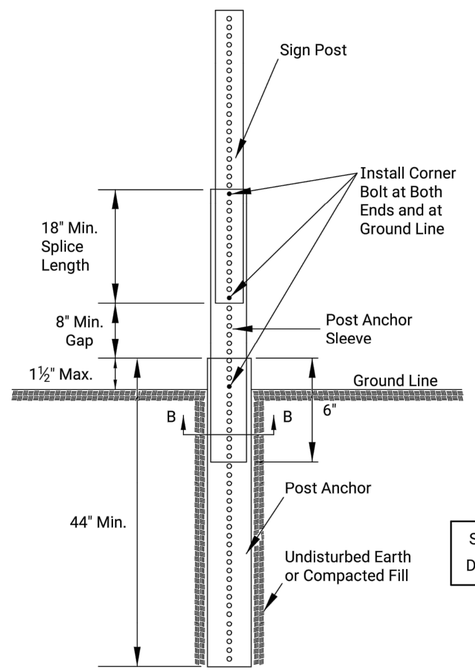
Drawn By : mushock
File : te710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	76	99

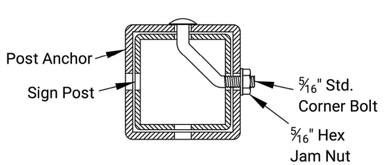
PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



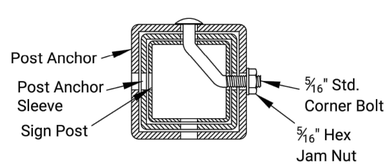
P.S.S.T. Detail



Telescoping P.S.S.T. Detail



Section A-A

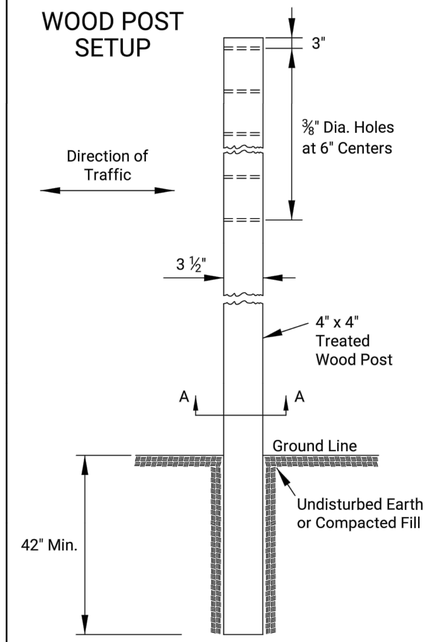


Section B-B

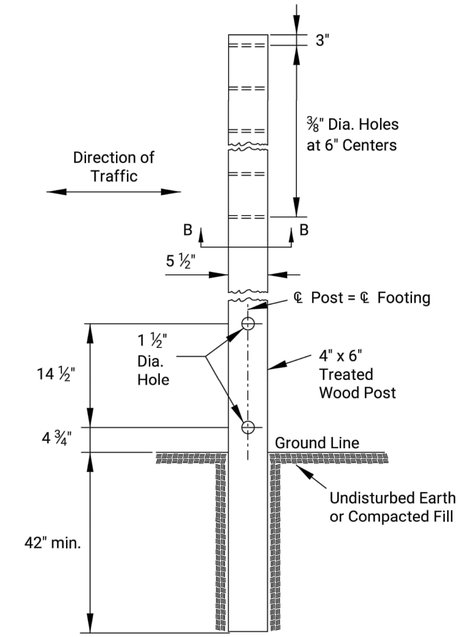
Details for 2", 2 ¼", or 2 ½" sign posts

Place bolts in the same corner along each sign post.

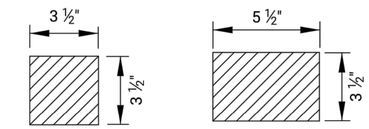
WOOD POST SETUP



Side Elevation
4" x 4" Wood Post in Soil

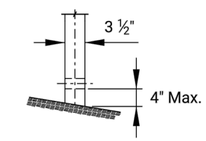


Side Elevation
4" x 6" Wood Post in Soil



Section A-A

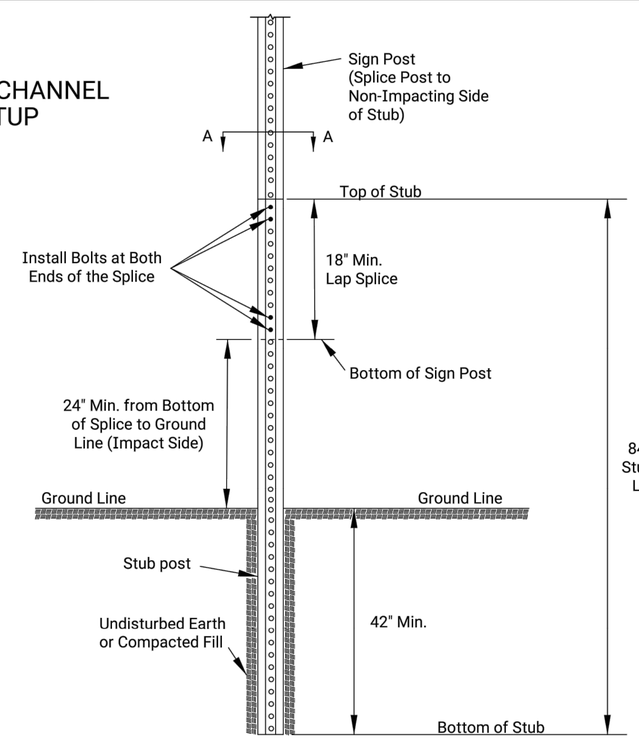
Section B-B



Front Elevation

See TE710 for Additional Details and Requirements

3 LB/F U-CHANNEL SETUP

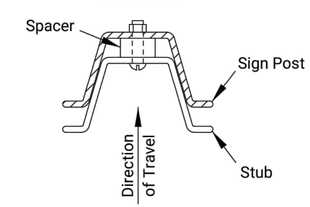


Notes:

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
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

TE712

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

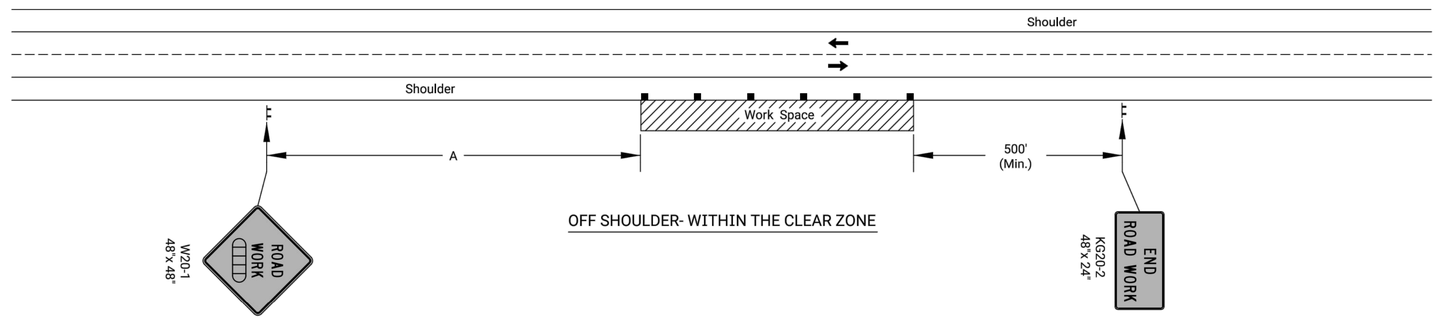
KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	77	99

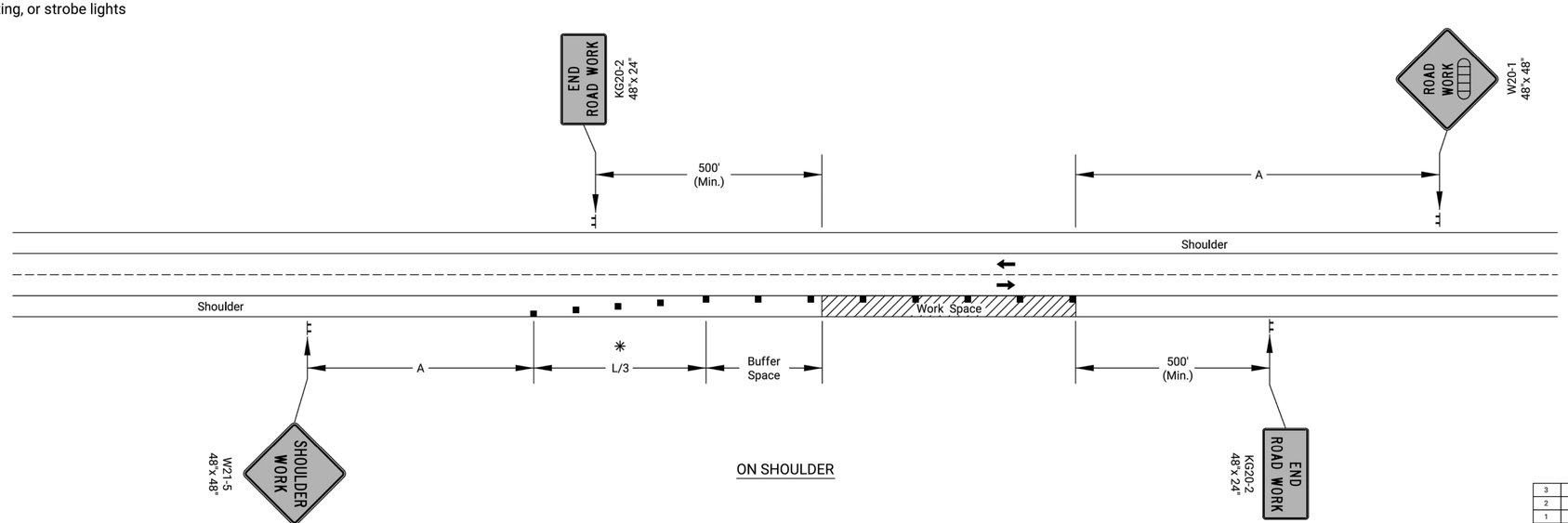


OFF SHOULDER- WITHIN THE CLEAR ZONE

Notes:

No traffic control is required if the Work Space is located outside of the clear zone.

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



ON SHOULDER

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

■ Channelizing Device

Ahead, 1500 ft, or 1 Mile

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SHOULDER WORK
UNDIVIDED ROADWAY

TE720

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

KDOT Graphics Certified 03-29-2018

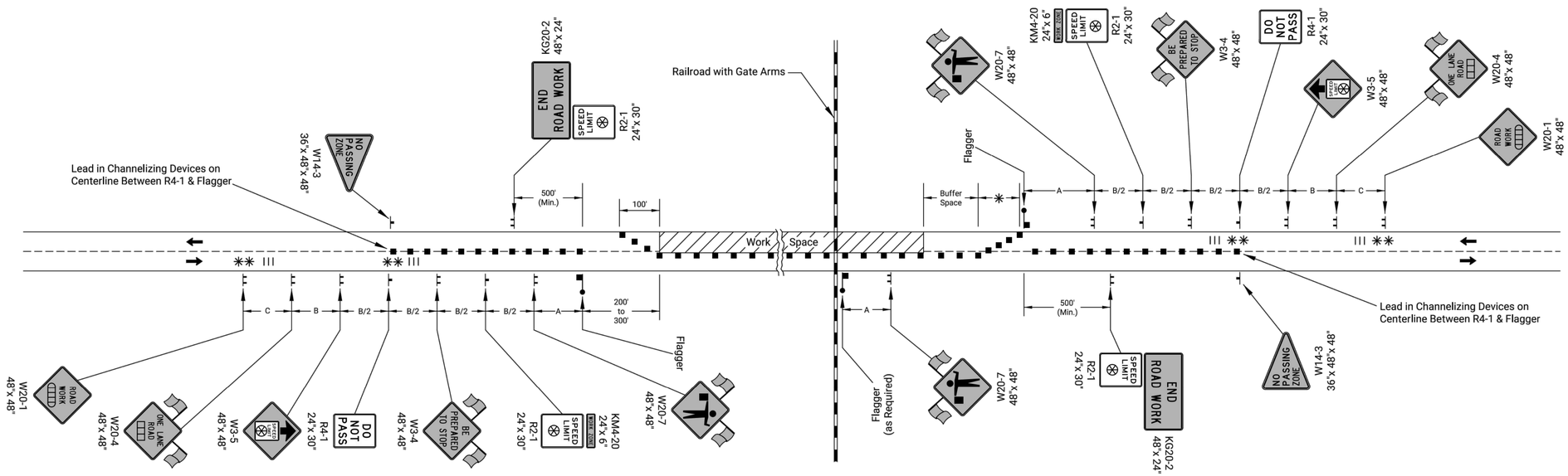
KDOT Graphics Certified

Plotted :29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te720.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36–69 KA–5419–01	2022	78	99

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.

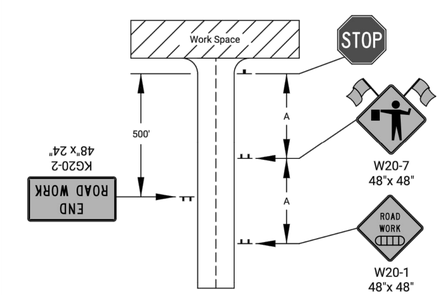
✱✱ Optional rumble strips may be placed: One set between the W20-1 and W20-4, and one set between the R4-1 and W3-4, on each approach.

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

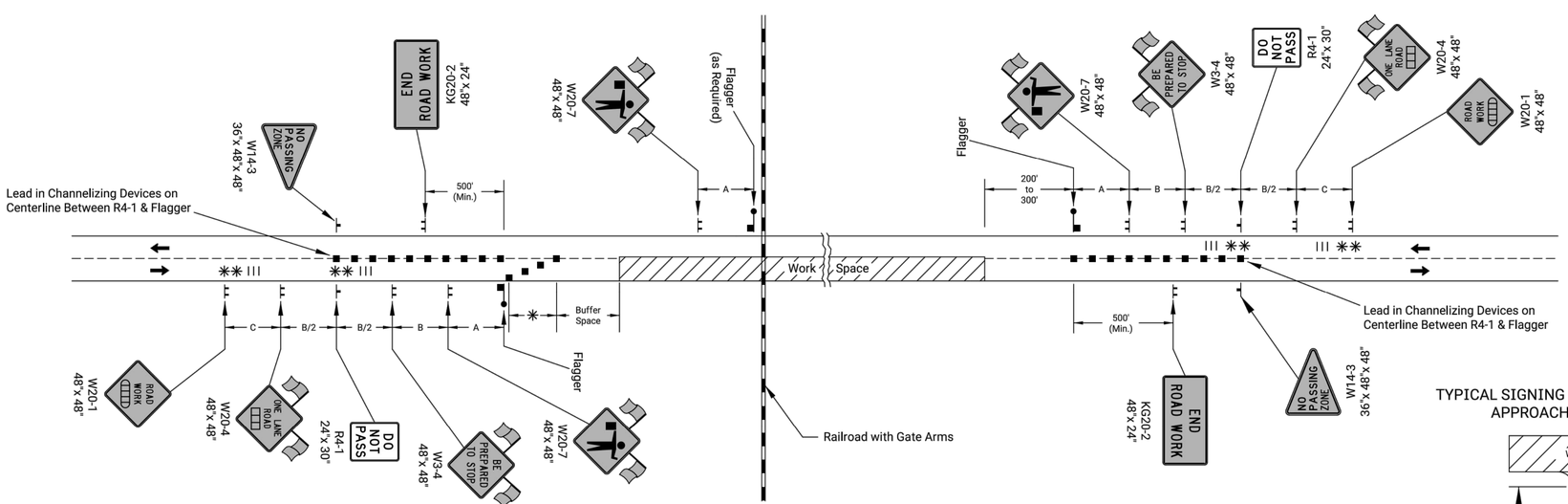
△△ The KG20-5 (WAIT FOR PILOT CAR) sign shall be mounted on an approved portable support and not attached to the existing stop sign post.

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.

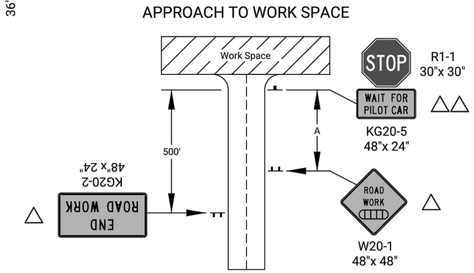
TYPICAL SIGNING FOR HIGHWAY OR MAJOR COLLECTOR APPROACH TO WORK SPACE



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
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
FLAGGER OR PILOT CAR

TE730

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

KDOT Graphics Certified 03-29-2018

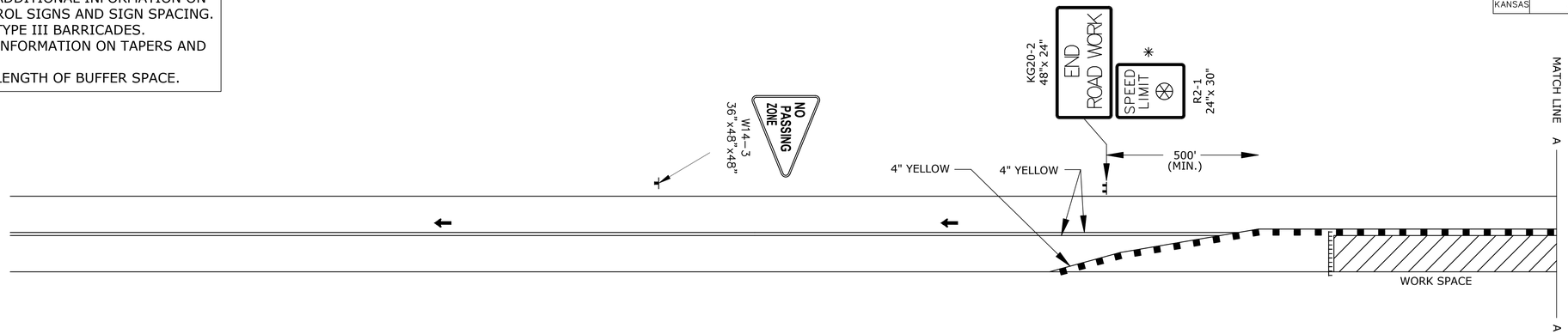
KDOT Graphics Certified

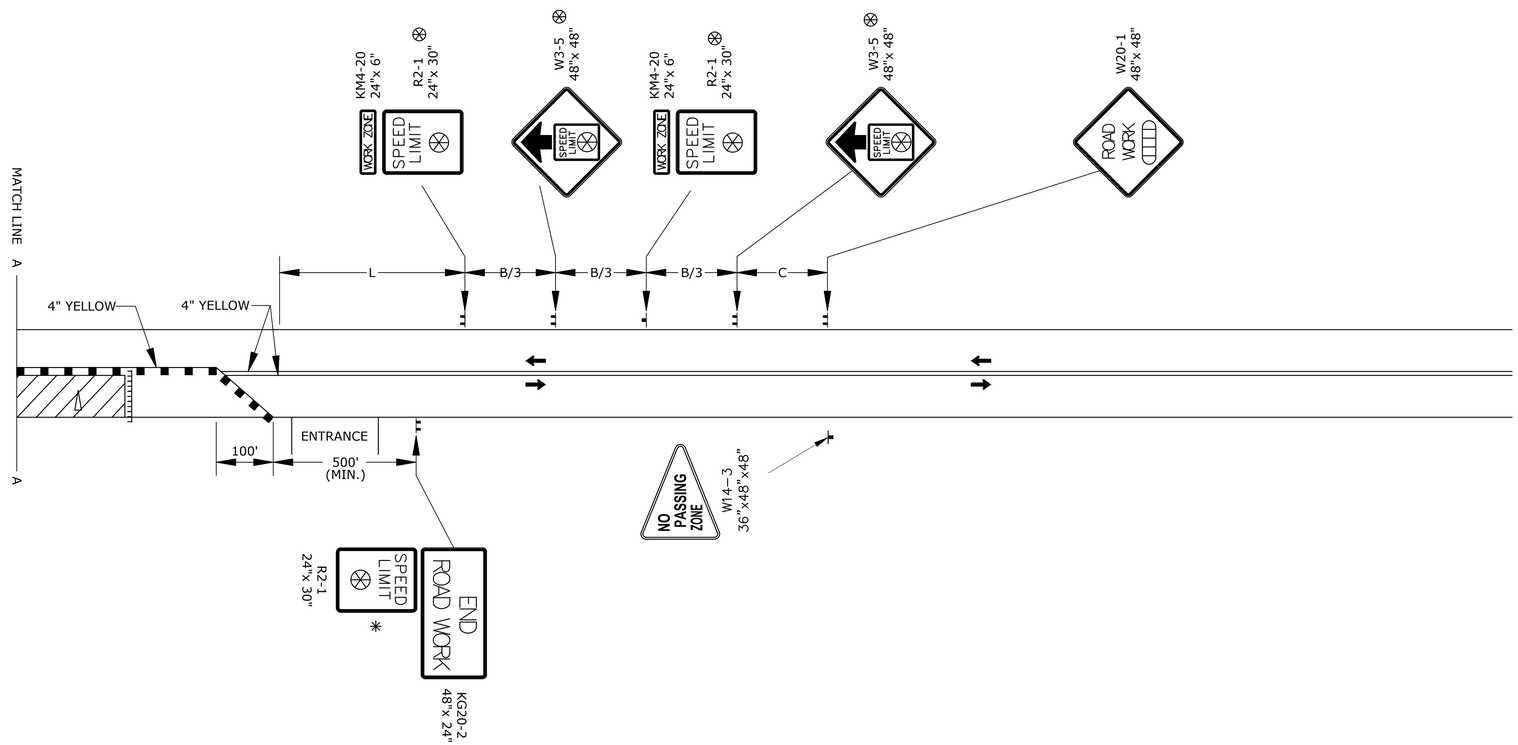
Plotted : 29-MAR-2018 12:40
Traffic

Drawn By : mushock
File : te730.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	79	99

REFER TO STD. TE710 FOR ADDITIONAL INFORMATION ON TEMPORARY TRAFFIC CONTROL SIGNS AND SIGN SPACING.
REFER TO STD. TE704 FOR TYPE III BARRICADES.
REFER TO STD. TE702 FOR INFORMATION ON TAPERS AND CHANNELIZING DEVICES.
REFER TO STD. TE700 FOR LENGTH OF BUFFER SPACE.





TYPE III BARRICADES
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

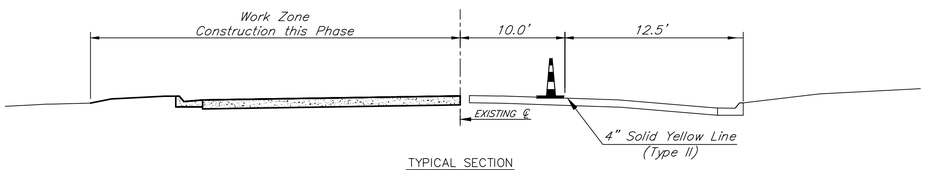
TYPICAL TRAFFIC CONTROL
UNDIVIDED HIGHWAY
ONE-WAY
ONE-HALF ROADWAY CLOSED

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

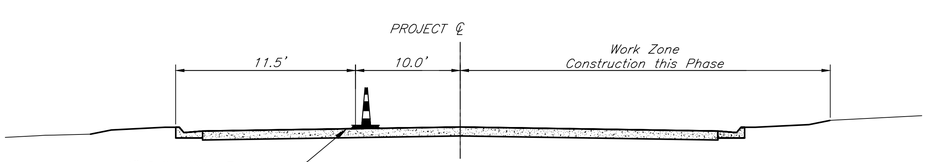
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	80	99

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

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



TYPICAL SECTION
Phase I Construction
Sta. 94+29.60 to Sta. 117+26.15, West Bound Lane
U.S. HIGHWAY 36 (HOLMES STREET)



TYPICAL SECTION
Phase II Construction
Sta. 94+29.60 to Sta. 117+26.15, East Bound Lane
U.S. HIGHWAY 36 (HOLMES STREET)

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
M1-4	11		
M1-5	5		
M2-1	1		
M3-1	4		
M3-2	5		
M3-3	2		
M3-4	3		
M4-5	1		
M4-8	13		
M4-8a	2		
M6-1L	4		
M6-1R	6		
M6-3	4		
M6-4	1		
M6-6R	2		
D1-1	3		
KG20-2	7		
KM4-20	2		
R2-1	2		
R3-1	16		
R3-2	13		
R5-1	8		
R6-1L	10		
R6-1R	17		
R11-2		14	
R11-4		3	
W1-4L		1	
W3-5		2	
W13-1	1		
W14-3	1		
W20-1		8	
W20-2		1	
W20-3		3	
W20-7		2	

Barricades ✳		Channelizing Devices ✳		
Type 3 (4' to 12')	Pedestrian	Fixed	Portable	Pedestrian
70			185	

Lighted Devices ✳	
Work Zone Warning Light (Type "A" Low Intensity)	66
Work Zone Warning Light (Red Type "B" High Intensity)	
Arrow Display	
Portable Changeable Message Sign	

Recapitulation of Quantities		
Item	Quantity	Unit
Work Zone Signs (0 to 9.25 Sq.Ft.)		Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)		Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)		Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')		Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)		Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)		Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display		Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)	35	Sta./Line
4" Solid (Type II)	35	Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)		Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)	10	Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)		Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal		Lin. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)	1	Lump Sum
Traffic Control		Lump Sum
Flagger (Set Price)	1	Hour

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SUMMARY OF DEVICES
RECAPITULATION OF QUANTITIES

TE795

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

KDOT Graphics Certified 03-29-2018

KDOT Graphics Certified

Plotted : 29-MAR-2018 12:40
Traffic

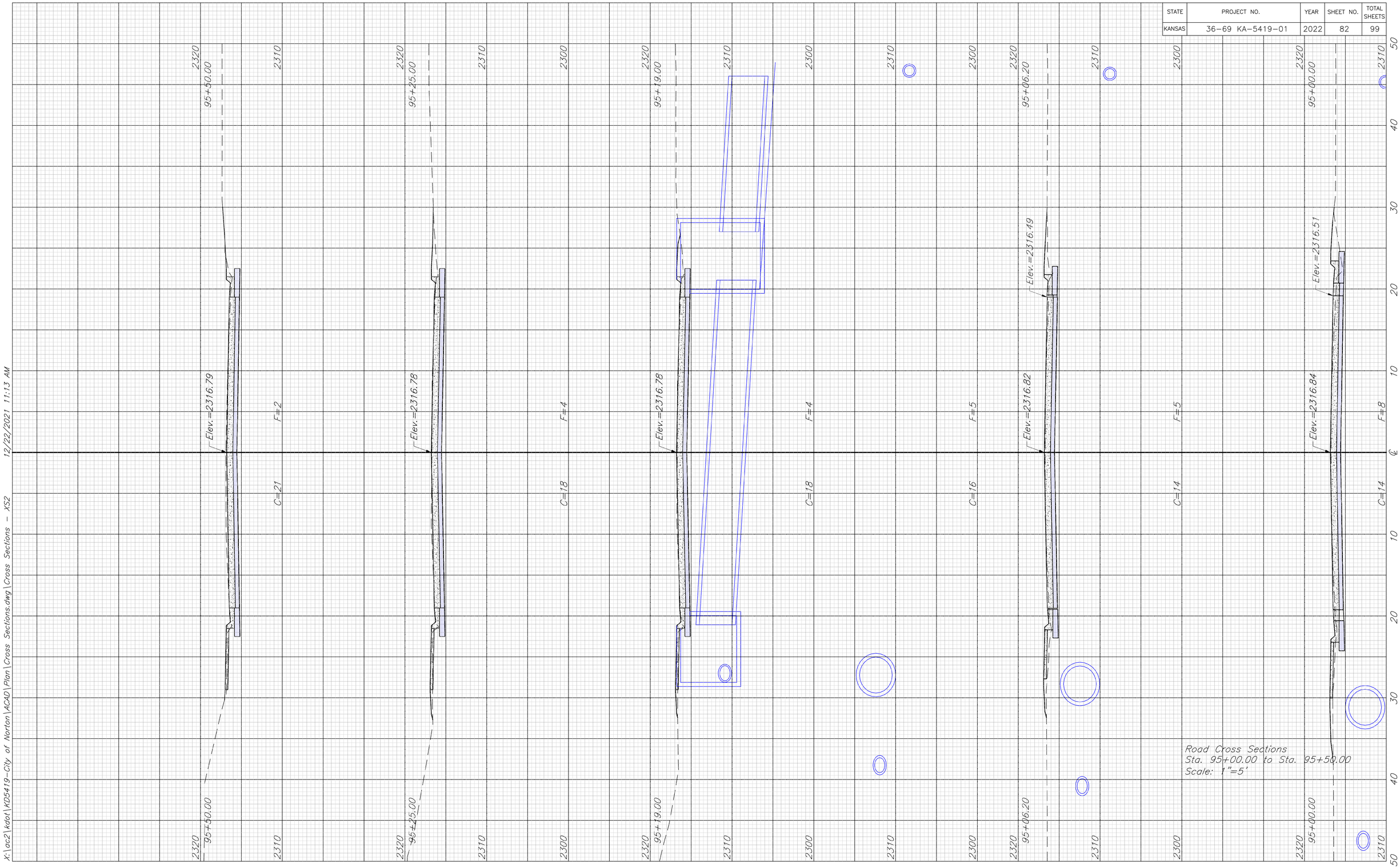
Drawn By : mushock
File : te795.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	81	99

Road Cross Sections
Sta. 94+40.60 to Sta. 94+75.22
Scale: 1"=5'

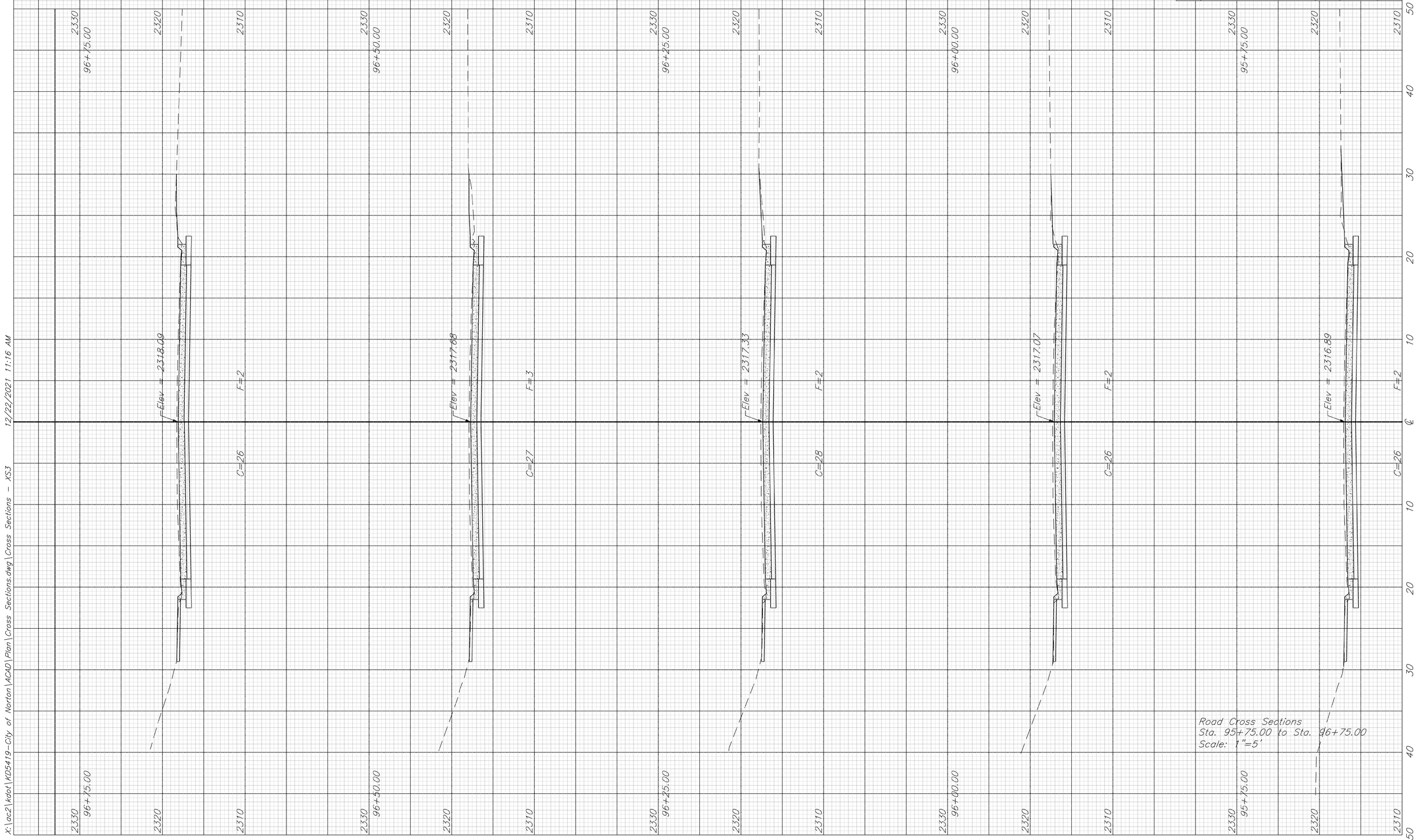
X:\ac2\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections\Cross Sections.dwg\Cross Sections - XS1 12/22/2021 2:01 PM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	82	99



X:\acz\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections\Cross Sections.dwg\Cross Sections - XS2 12/22/2021 11:13 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	83	99



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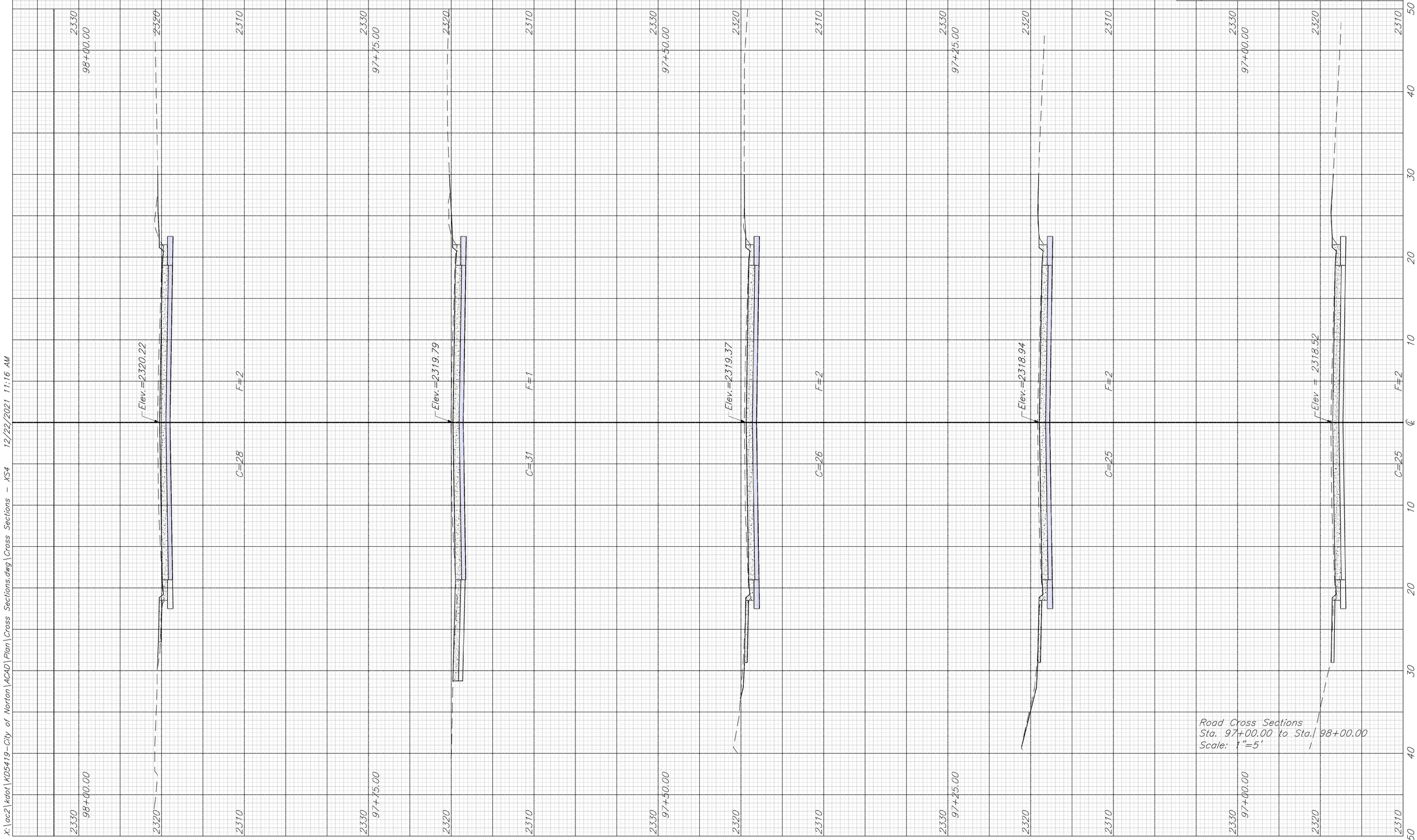
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	84	99



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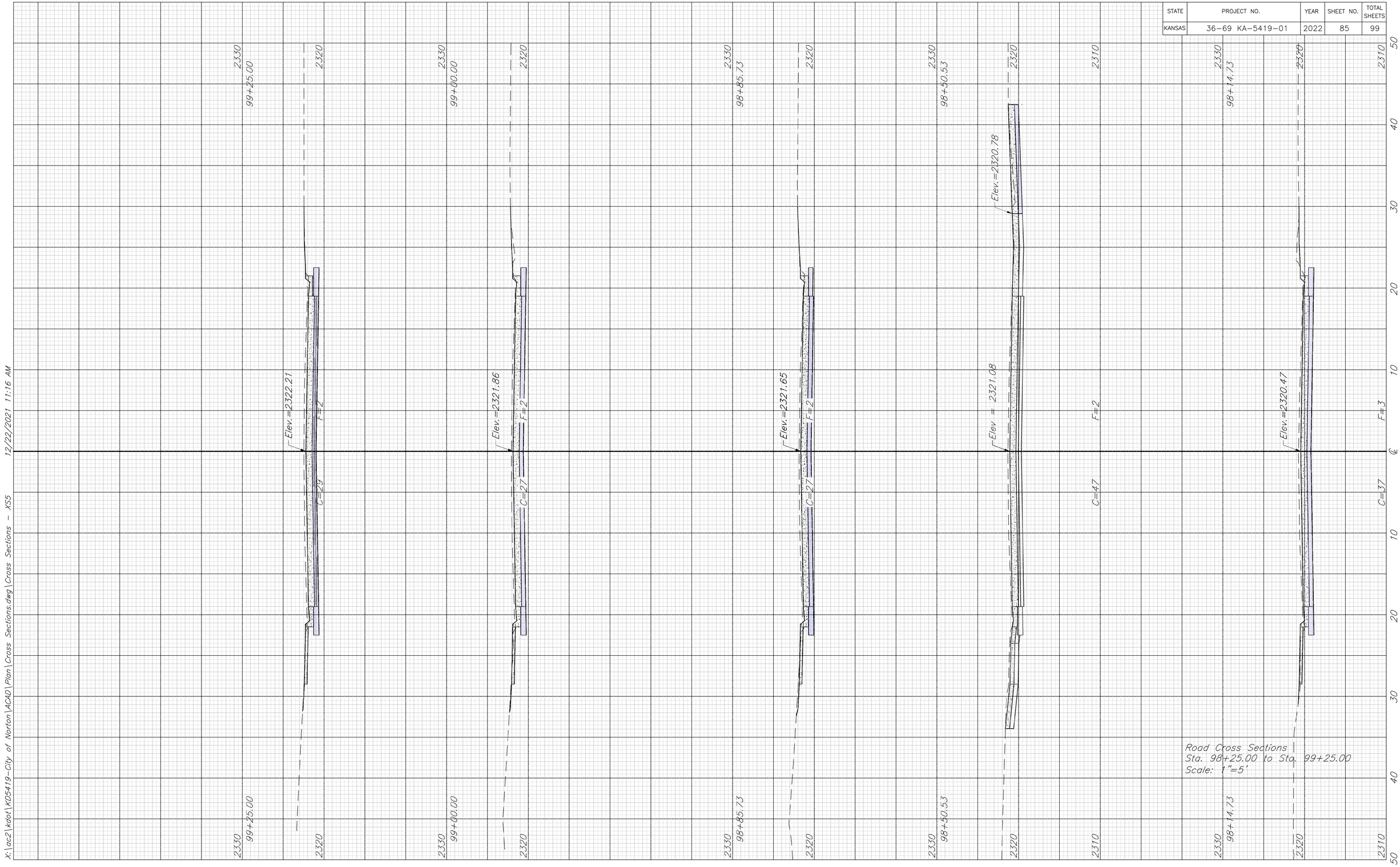
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	85	99



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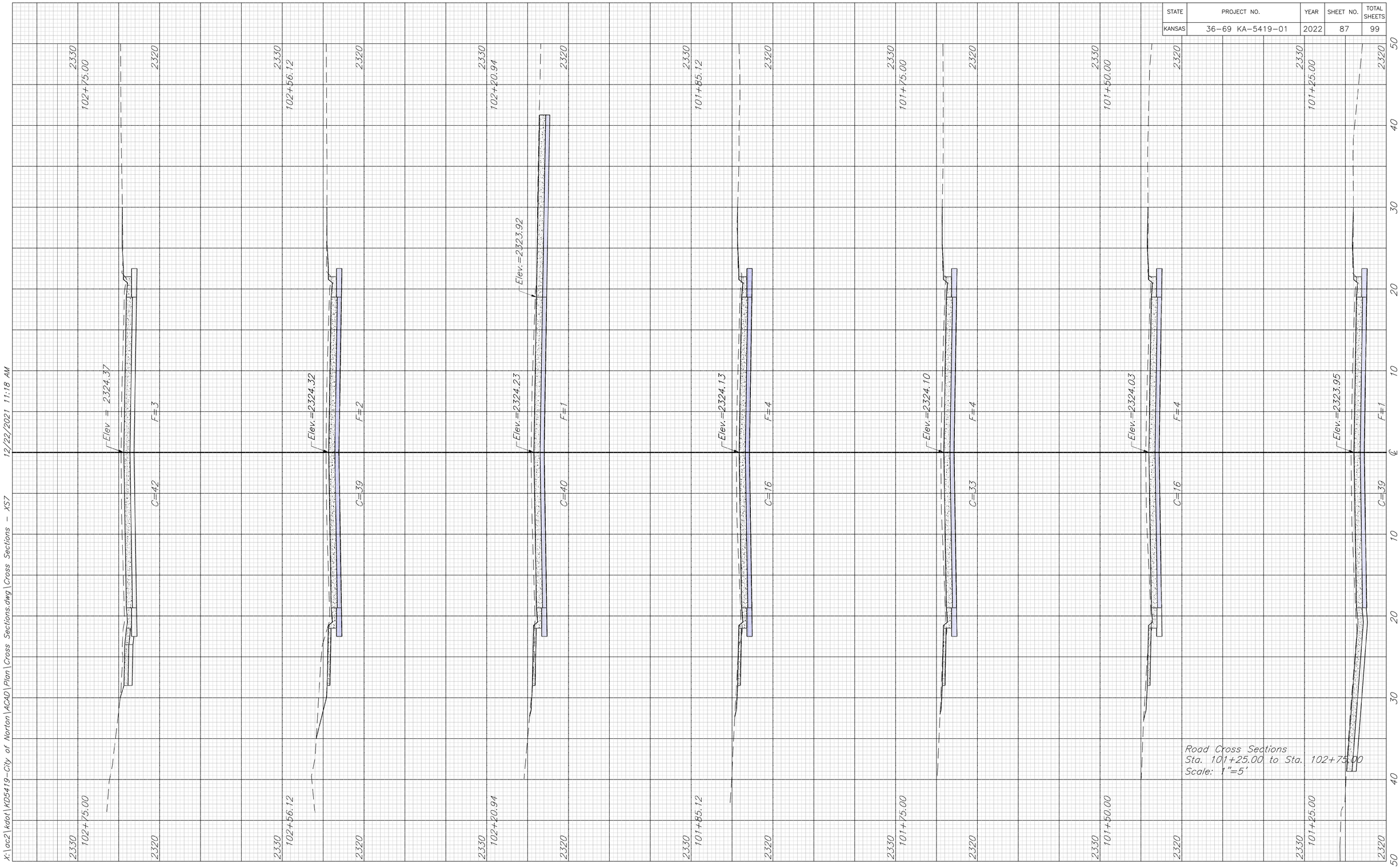
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	86	99

Road Cross Sections
Sta. 99+50.00 to Sta. 101+00.00
Scale: 1"=5'

X:\acz\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections\Cross Sections.dwg\Cross Sections - XS6

12/22/2021 11:18 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	87	99



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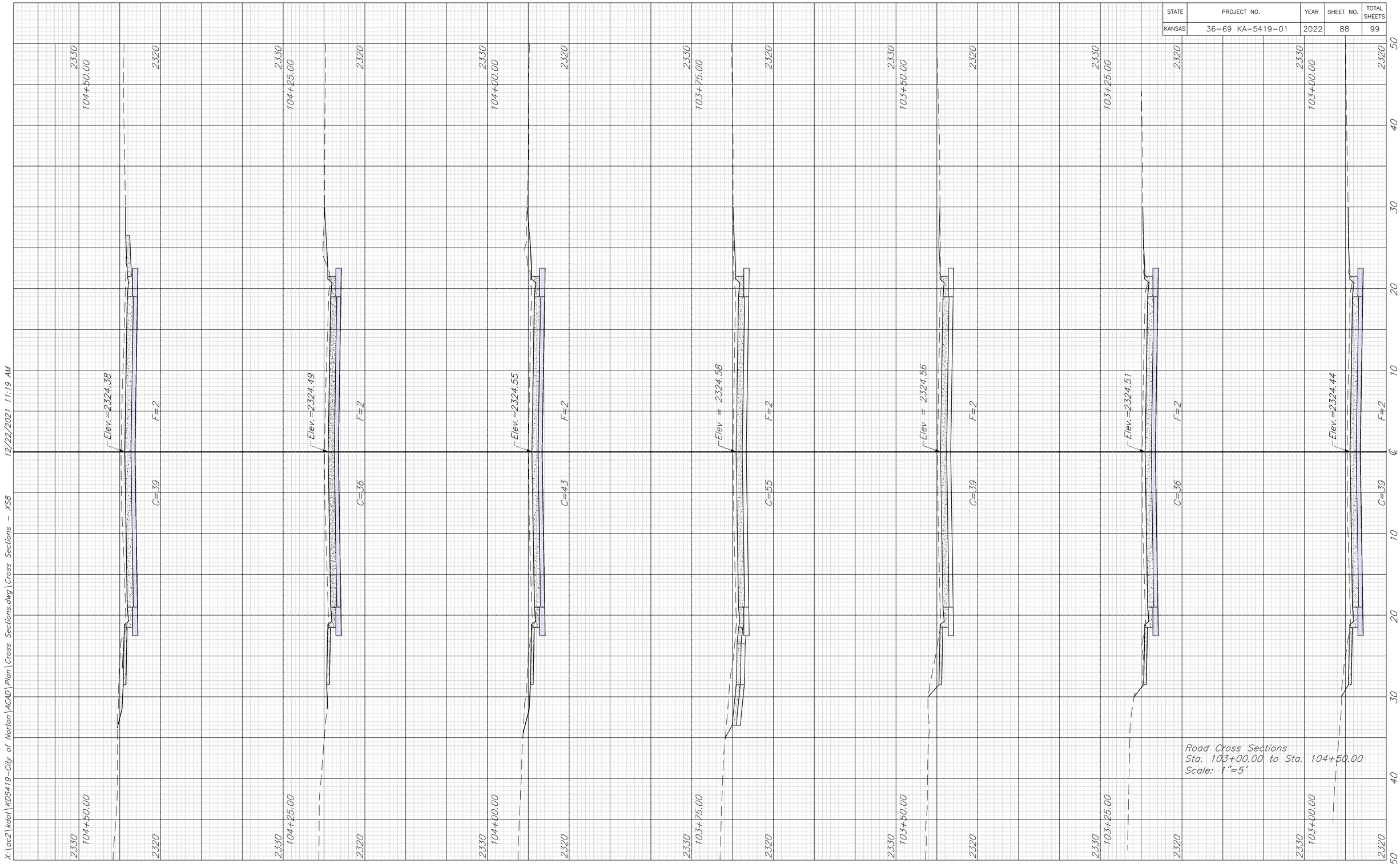
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	88	99



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12/22/2021 11:19 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	89	99

Road Cross Sections
Sta. 104+75.00 to Sta. 106+25.00
Scale: 1"=5'

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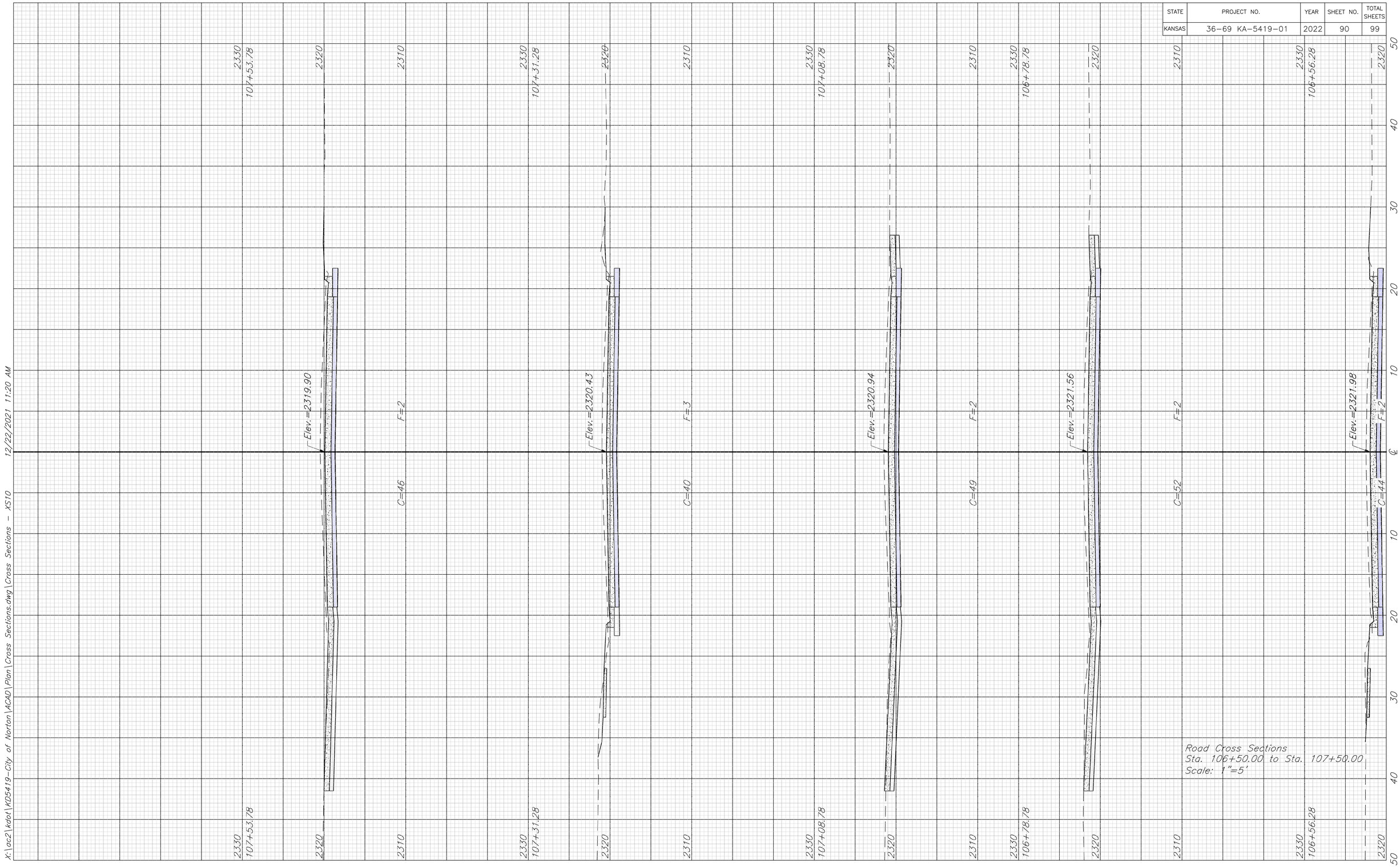
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	90	99



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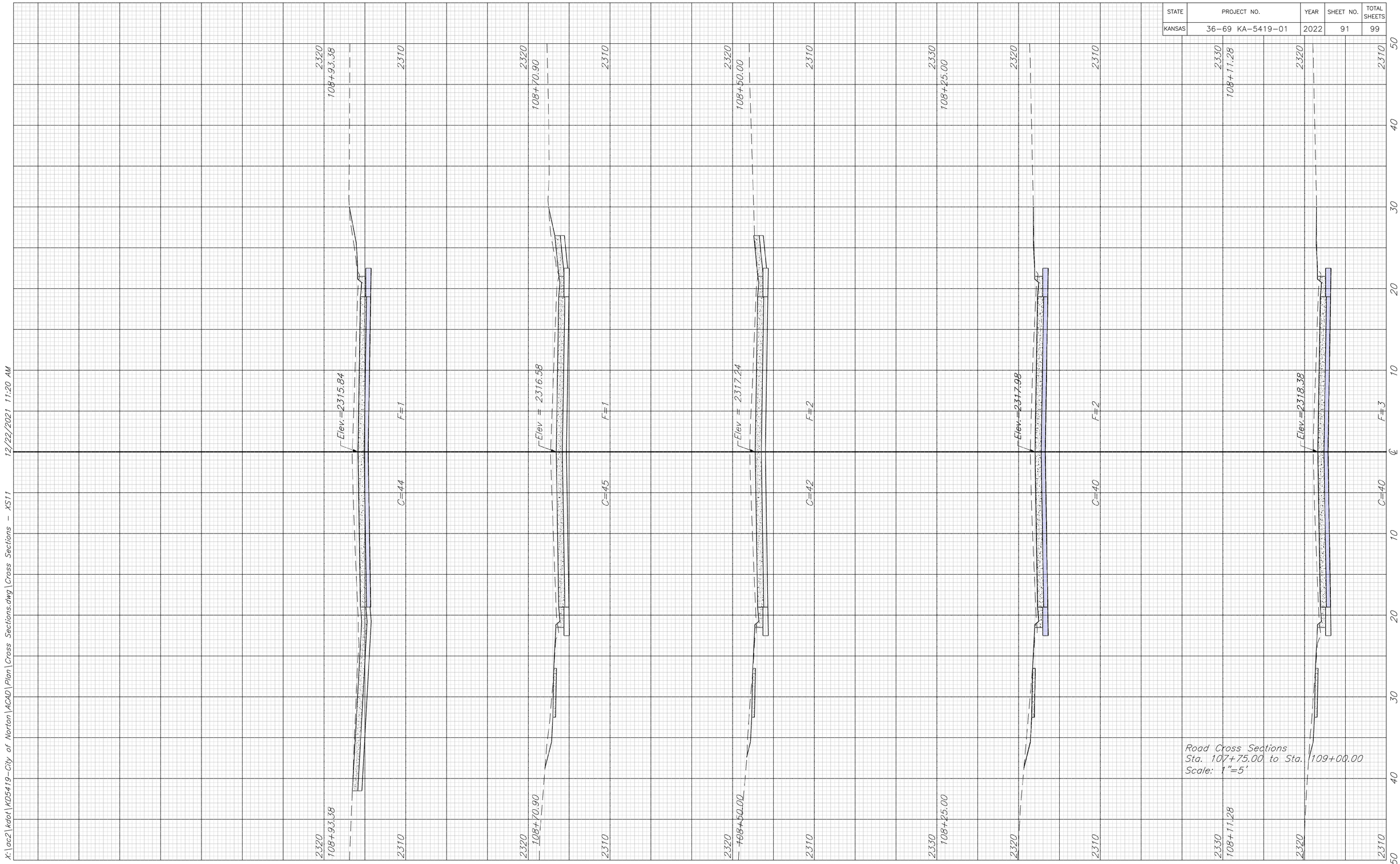
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	91	99



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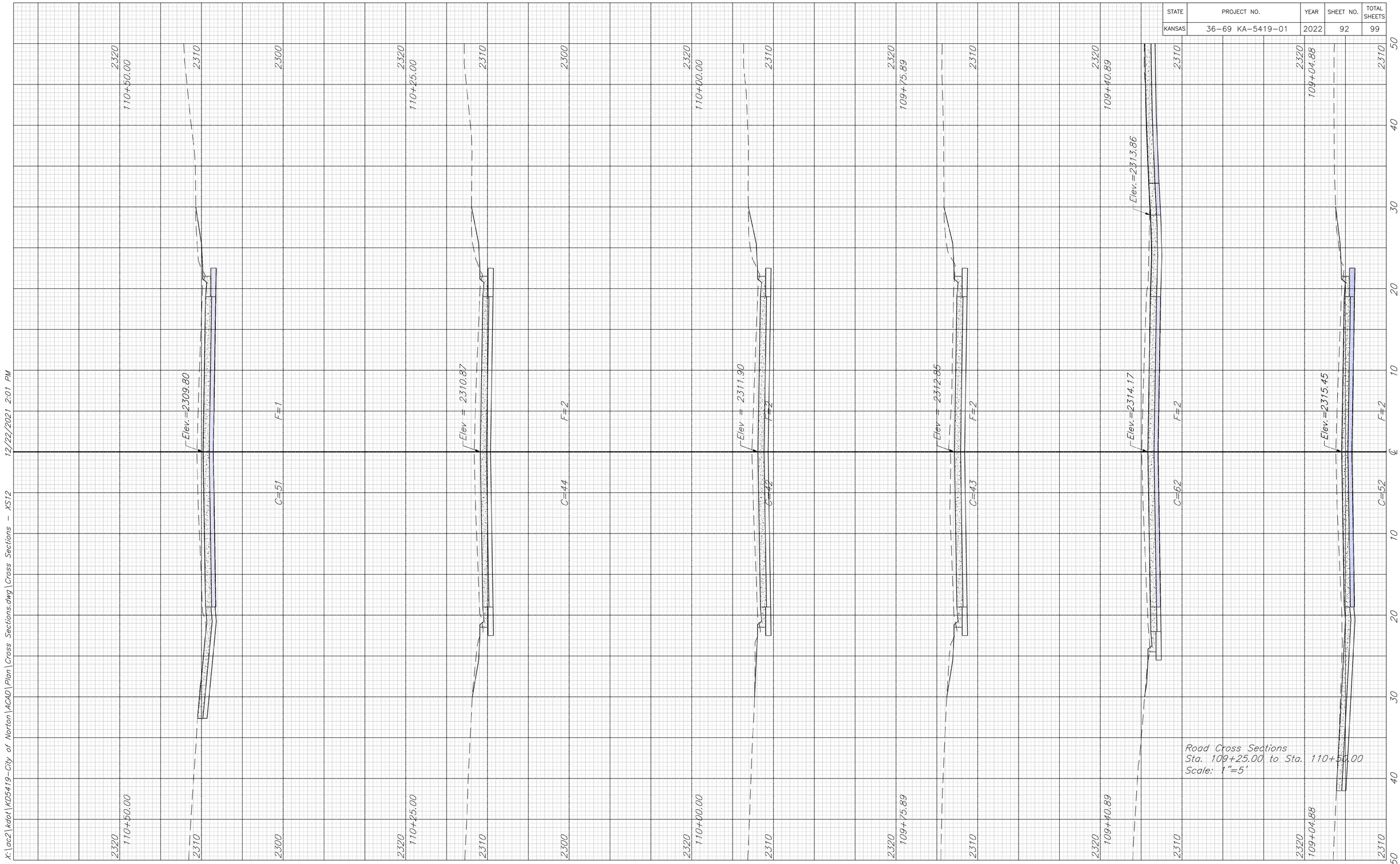
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	92	99



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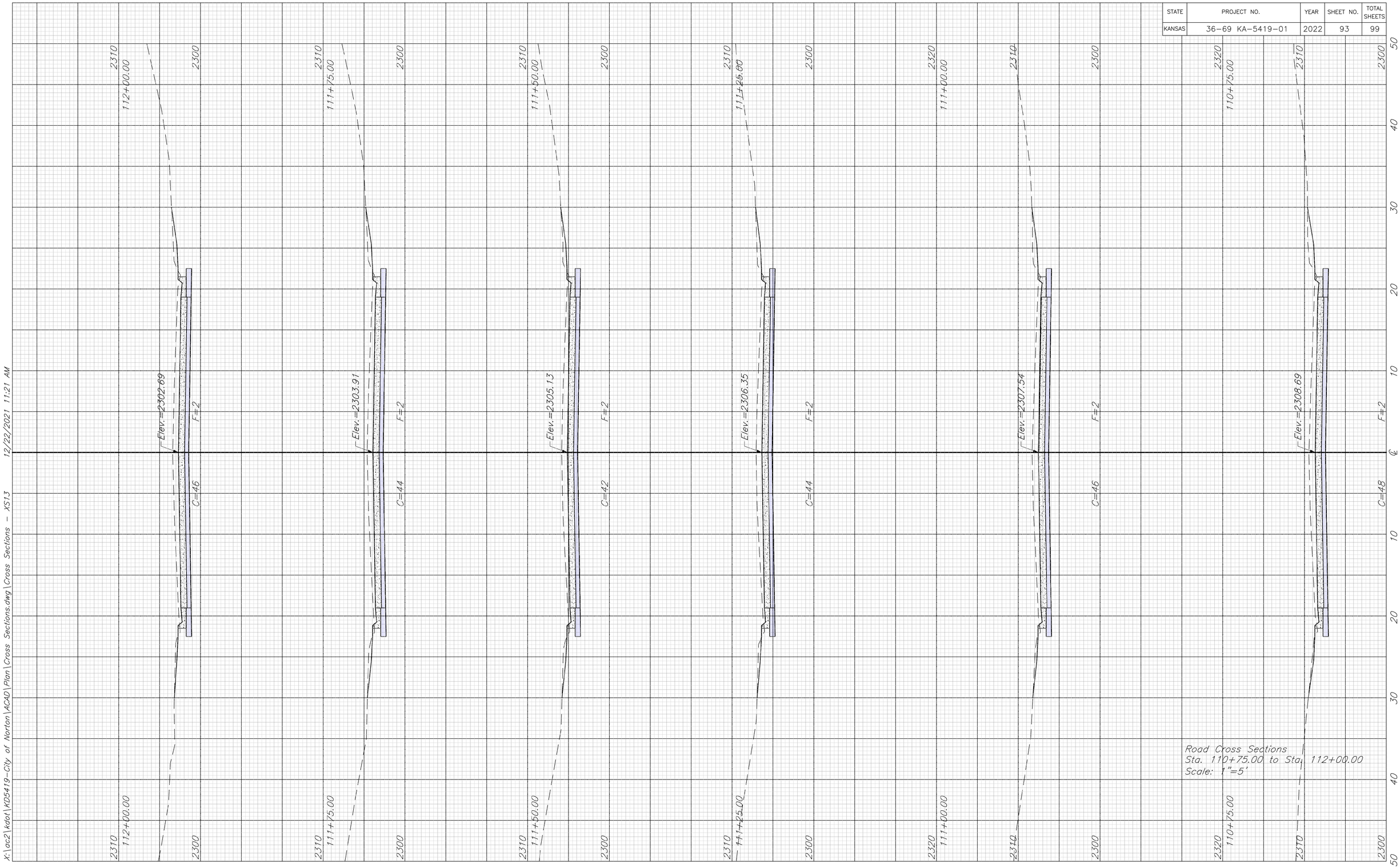
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	93	99



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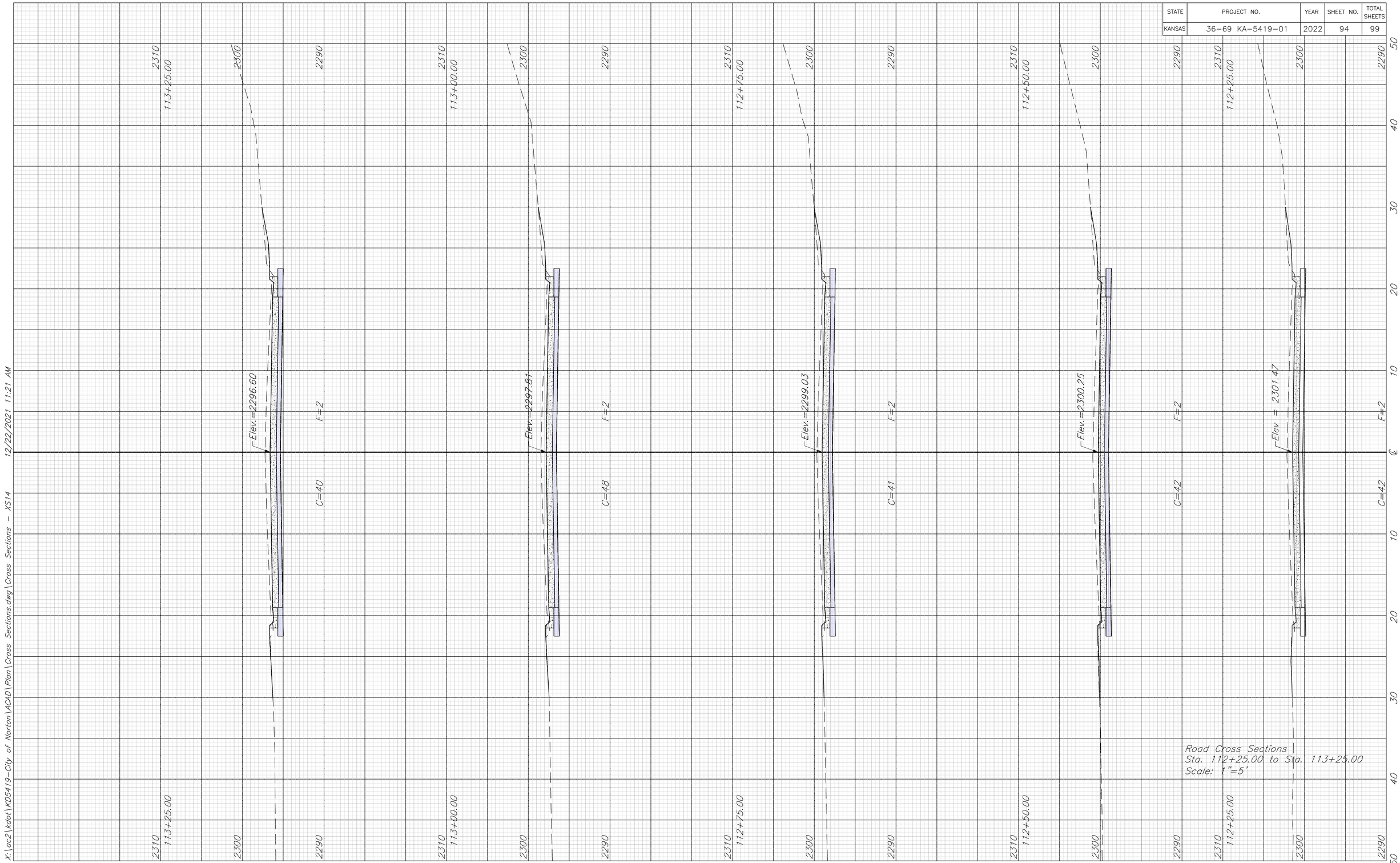
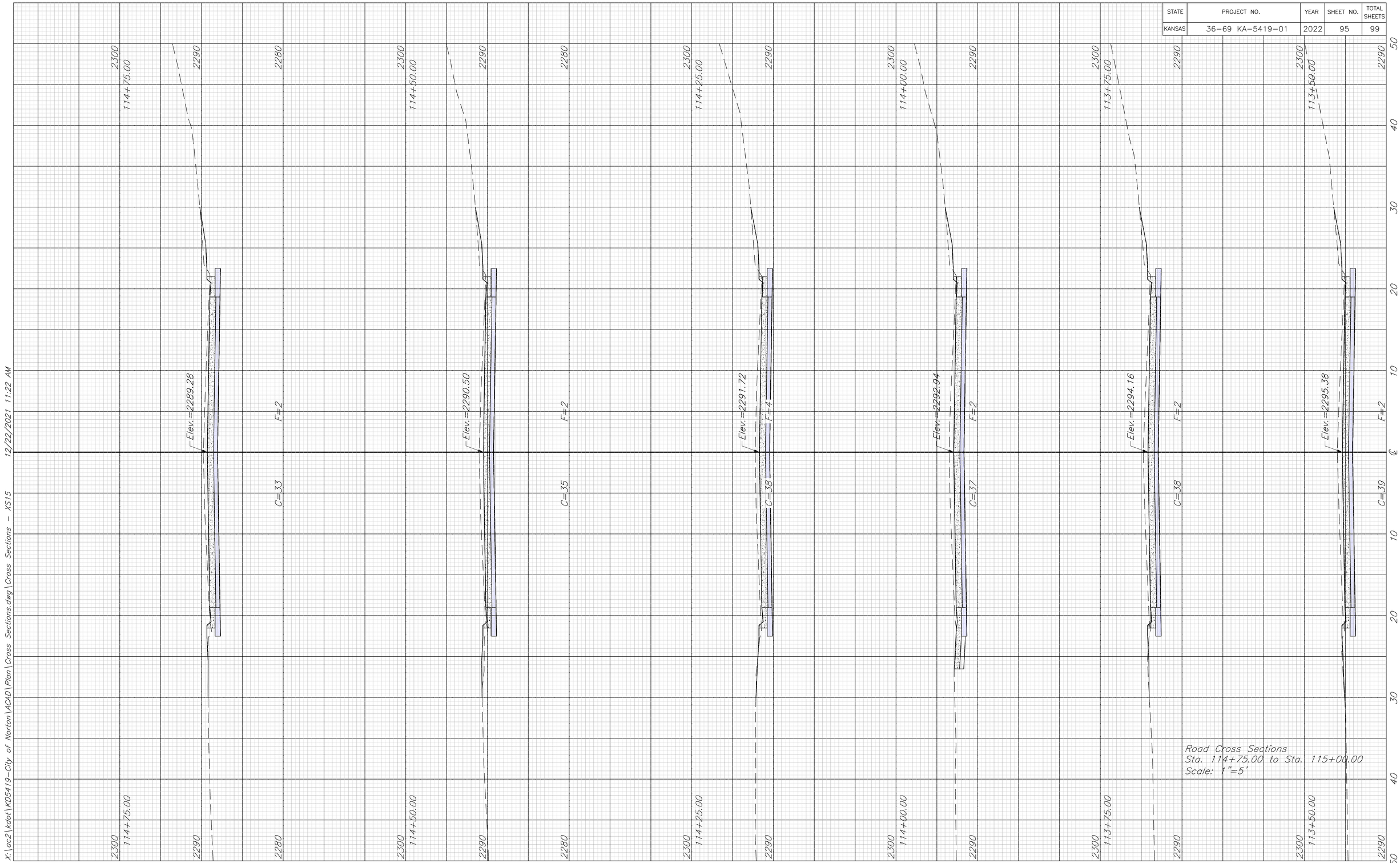
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	94	99



X:\acz2\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections\Cross Sections.dwg\Cross Sections - XS14 12/22/2021 11:21 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	95	99



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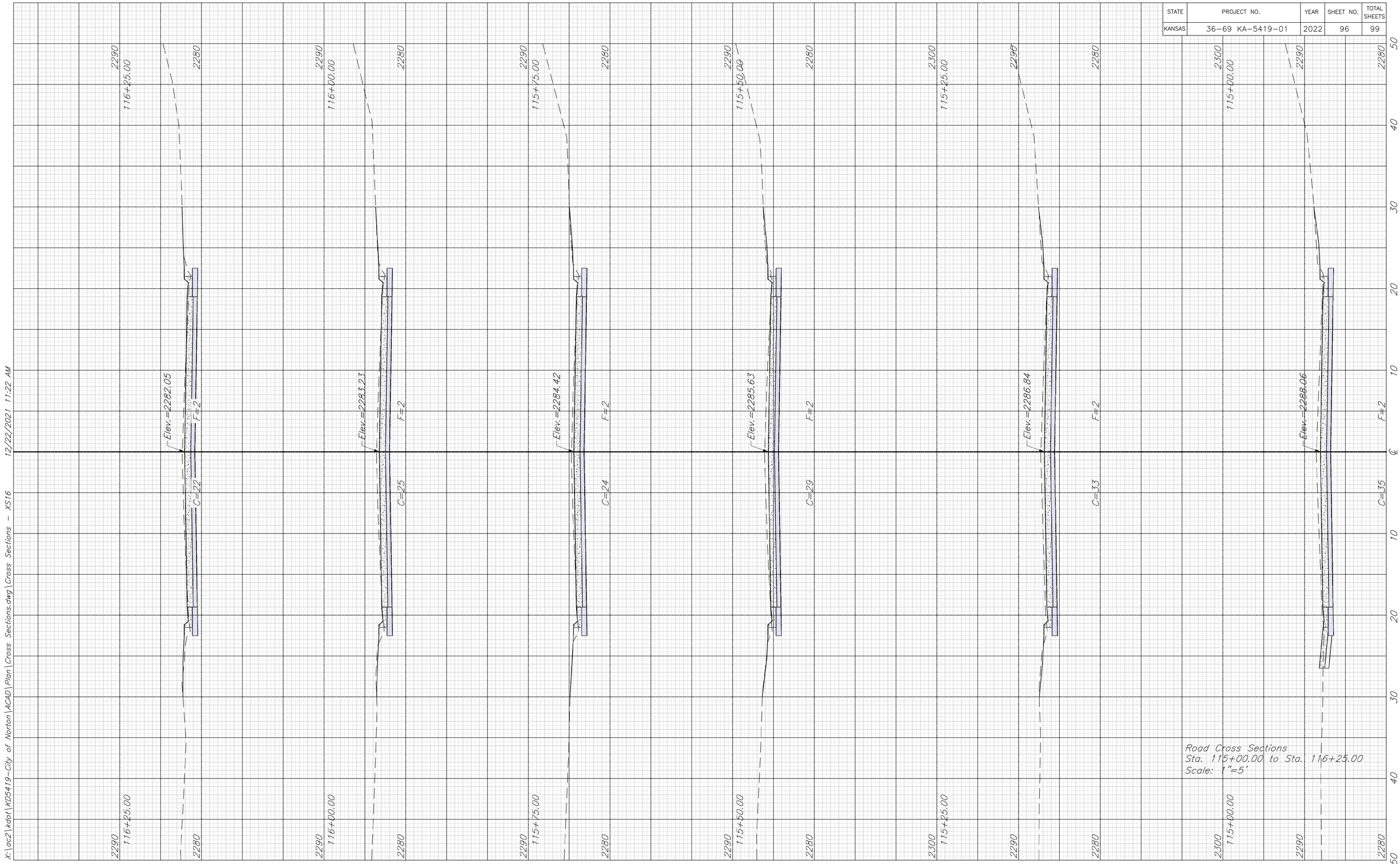
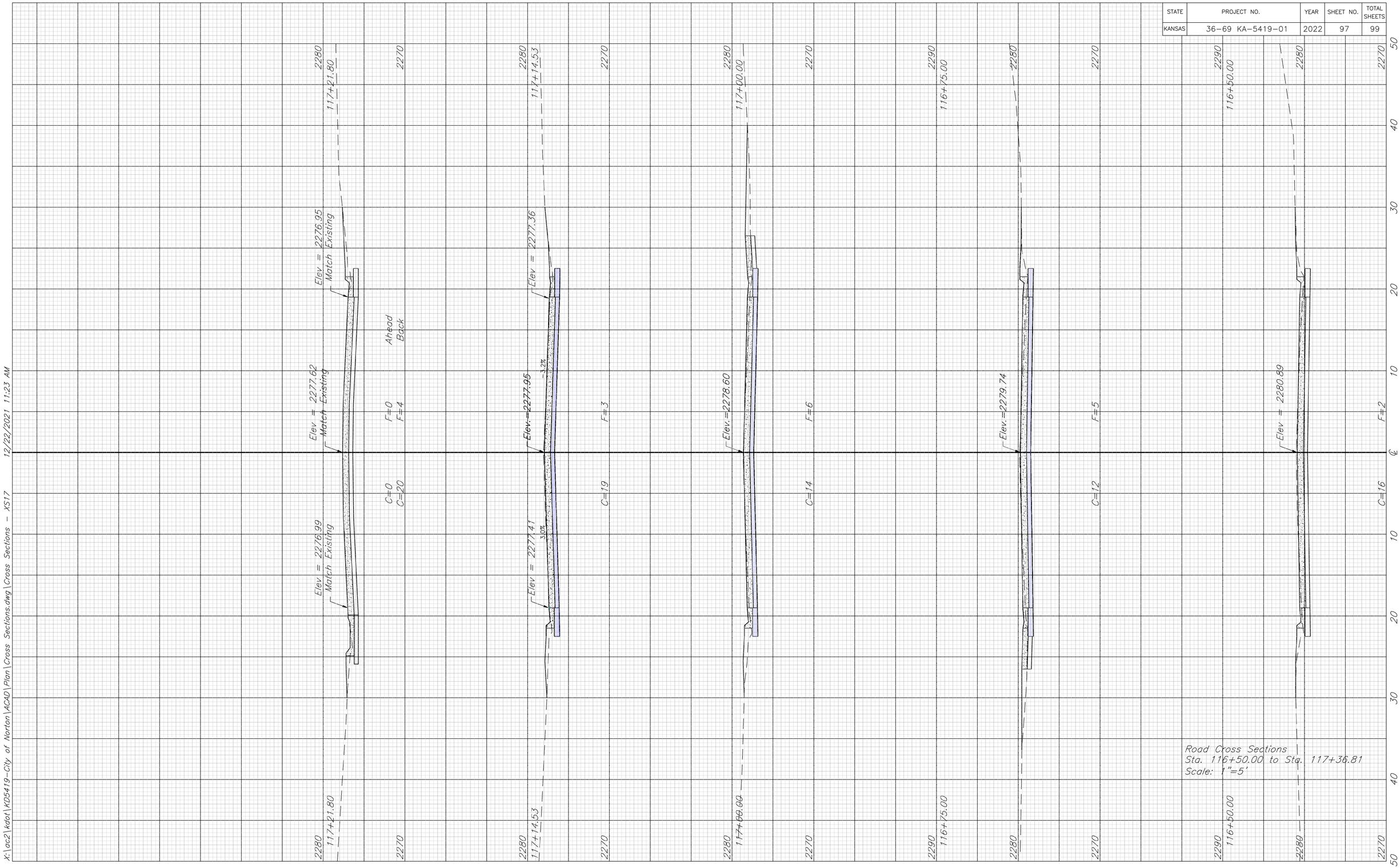
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	96	99



Road Cross Sections
Sta. 115+00.00 to Sta. 116+25.00
Scale: 1"=5'

X:\acz\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections\Cross Sections.dwg\Cross Sections - XS16 12/22/2021 11:22 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	97	99



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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	98	99

Norton Ave. (South) Road Cross Sections
Sta. 199+17.66 to Sta. 199+56.00
Scale: 1"=5'

X:\acz\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections.dwg\Cross Sections - XS1-Norton Ave South 11/2/2021 8:51 AM

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	36-69 KA-5419-01	2022	99	99

X:\acz2\kdot\KD5419-City of Norton\ACAD\Plan\Cross Sections.dwg\Cross Sections - XS2-Norton Ave North 11/2/2021 10:12 AM