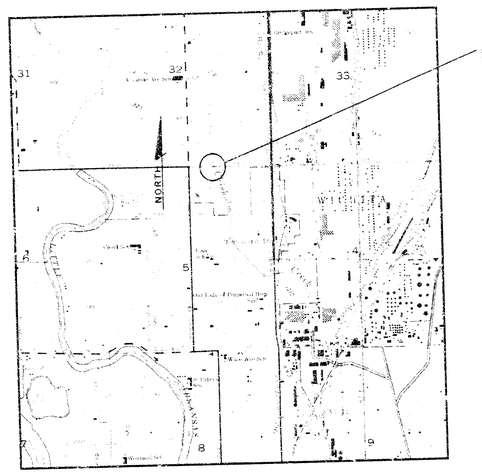
FHWA REGION NO	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	87 U 0718-01	19	1	6

BRIDGE REPAIR

BRIDGE DECK RECONSTRUCTION
29TH STREET OVER CHISHOLM CREEK

WICHITA, KANSAS
SEDGWICK COUNTY



REPAIR EXISTING BRIDGE DECK, 26'-28'-26' PRESTRESSED GIRDER SPANS

LOCATION MAP
SCALE: 1" = 2000'

NOTE: TRAFFIC TO BE CARRIED THRU CONSTRUCTION.
CONTRACTOR WILL BE RESPONSIBLE FOR TRAFFIC CONTROL.

DESIGN DESIGNATION
AADT(1978) —— 7,900
AADT(2000) —— 10,000

VAN DOREN-HAZARD-STALLINGS
ARCHITECTS-ENGINEERS-PLANNERS
WICHITA, KANSAS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	CONSTRUCTION LAYOUT
3	DETAILS
4	APPROACH PAVING
5	TRAFFIC CONTROL
6	TRAFFIC CONTROL DEVICES

CITY OF WICHITA
PROJECT NUMBER 472-76-245-80549-000-000-001

GROSS LENGTH OF PROJECT	122.5 FT.	
EXCEPTIONS	0 FT.	
ADDITIONS	0 FT.	
NET LENGTH OF PROJECT	122.5 FT.	.023 MILES
NET LENGTH OF BRIDGES	82.5 FT.	.016 MILES
NET LENGTH OF ROAD	40.0 FT.	.007 MILES

RECOM. FOR APPROVAL – DATE

ENGINEER OF URBAN HIGHWAYS
KANSAS DEPARTMENT OF TRANSPORTATION

APPROVED – DATE

STATE TRANSPORTATION ENGINEER
KANSAS DEPARTMENT OF TRANSPORTATION

RECOM. FOR APPROVAL – DATE

ENGINEER
FEDERAL HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

APPROVED – DATE

DIVISION ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

Proj. No. 87 U-0718-01

GENERAL NOTES

Concrete: Areas shown for removal are shown as a guide (see Sheet No. 3). More or less concrete may be removed at the direction of the Engineer. In all cases, concrete shall be removed until sound concrete is reached. All concrete removed from the deck shall be disposed of at a site provided by the Contractor at the direction of the Engineer. See Standard Specifications for composition and consistency of concrete to be used for the overlay.

Reinforcing Steel: Care shall be exercised to prevent cutting, stretching, or damaging any exposed reinforcing steel. Extreme care shall be taken to avoid breaking the bond between existing reinforcing and concrete where bars are partially exposed but yet remain anchored in sound concrete or where more than 1/6 of the bar remains below the concrete removal line. Where 1/6 or more of the bar diameter is exposed (Fig. 2, Sheet 3) or where loss of bond has occurred (Fig. 1, Sheet 3), the concrete adjacent to the bar shall be removed to a depth that will permit concrete to bond to the entire periphery of the bar. A minimum clearance of 3/4" shall be provided. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Replacement of any bar damaged by the Contractor shall be subsidiary to "Area Prepared for Patching". Existing reinforcing steel to be left in place shall be thoroughly cleaned. After removal of concrete, any bars in which more than 1/3 the cross sectional area of bar has been lost due to corrosion shall be replaced and paid for as Reinforcing Steel at the unit price shown on the proposal.

Area Prepared for Patching: This item shall consist of removing the loose and unsound deck concrete and bituminous patches as designated by the Engineer to whatever depth necessary to reach sound concrete. Removal shall not extend into the prestressed, double-tee girders. All patch areas which have de-bonded reinforcing steel, as shown in the details on Sheet No. 3, shall be pre-poured (see sketch on Sheet No. 3). All concrete required to fill this area shall be either Class AAA Concrete or Class AAA (AE) Concrete. Concrete for patches shall have a maximum slump of 2". This concrete shall be subsidiary to the Bid Item, "Area Prepared for Patching".

Grout: As a subsidiary item, all horizontal surfaces of pre-poured patches shall receive a grout coating just prior to placing concrete.

Sidewalks: Repair to the sidewalks and curb face shall be done in the same manner as repair to the roadway deck except that: Machine preparation (1/4") is not required, no bridge deck surfacing will be placed on the sidewalk surface, and all concrete that is replaced in areas prepared for patching will be finished flush with the existing sidewalk surface. Any form work required to repair the curb face shall be subsidiary to "Area Prepared for Patching". Sidewalk repair shall be paid for as square yards of "Area Prepared for Patching."

Epoxy: All near-vertical surfaces in patches where the top flange of the prestressed double-tee girder is exposed shall be coated with an epoxy resin bonding agent, except as noted on the Plans.

Edge Grout: Minimum of 24 hours after the curing of the overlay, the vertical joints abutting existing concrete and joints in the overlay shall be sealed by painting with thin grout. This work shall be done before placing Linseed Oil Surface Treatment and shall be subsidiary to "Bridge Deck Surfacing (2¼")."

Linseed Oil Surface Treatment (Bridges): This item shall consist of sealing or waterproofing the bridge deck, sidewalks and concrete railings (see Typical Section on Sheet No. 3). The surface treatment shall extend from E.W.S. to E.W.S.

Dimensions and Elevations: Dimensions and elevations are from the original plans and shall be verified in the field by the Contractor. The Contractor shall adjust the grade for the screed in such a manner as to create a smooth vertical curve or straight grade while maintaining the minimum thickness of bridge deck overlay.

Traffic: Traffic control shall be in accordance with Plan Sheet No. 5 or as directed by the Engineer. All signing and traffic control devices shall conform to the "Manual of Uniform Traffic Control Devices (1978 Edition)." The contractor shall provide all signing and traffic control devices.

Epoxy Resin Girder Crack Repair: Epoxy injection of girders shall not begin until all concrete patching is completed on the bridge deck. See note on Sheet Nr. 5 for traffic control during injection operations.

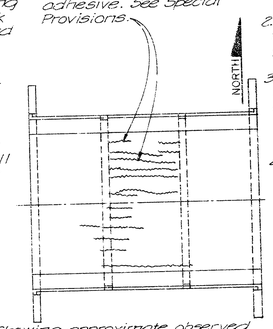
Machine Preparation (1/4"): This item consists of scarifying the entire roadway surface to a minimum depth of 1/4" from E.W.S. Abutment #1 to E.W.S. Abutment #2.

SUMMARY OF QUANTITIES

Machine Preparation (1/4")	449	Sq. Yds.
† Area Prepared for Patching	101	Sq. Yds.
Field Office & Laboratory (Type C)	1	Each
Adjustment of Manhole	1	Each
Bridge Drainage System	520	Lbs.
Epoxy Resin Girder Crack Repair	Lump	Sum
(Sidewalk: Soffit) Repair	1.7	Sq. Yds.
Concrete Pavement (8")	218	Sq. Yds.
Reinforcing Steel	1	Lb.
Curb (7") (Doweled)	80	Lin. Ft.
Mobilization	Lump	Sum
ALTERNATE NO. 1		
Bridge Deck Surfacing (2¼")	449	Sq. Yds.
Linseed Oil Surface Treatment (BR)	449	Sq. Yds.
ALTERNATE NO. 2		
Latex Surface Course (1¼")	449	Sq. Yds.

† Includes 18.6 Sq. Yds. of sidewalk repair. For Traffic Control Quantities, see Sheet No. 5.

Typical location of cracks in Girders. Repair cracks by pressure grouting with an approved epoxy adhesive. See Special Provisions.



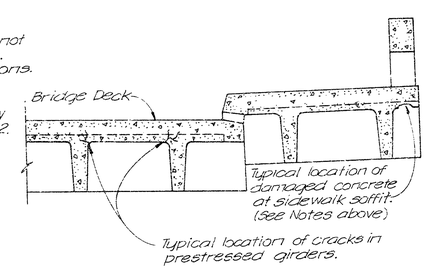
(Showing approximate observed location of cracks on the underside of the prestressed girder flanges. Approximately 900 ft of cracks)

PLAN OF DECK

No Scale

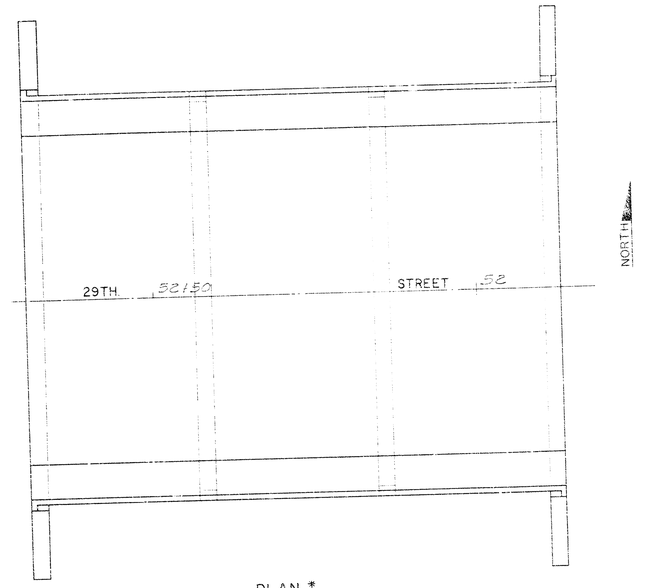
NOTES: SIDEWALK SOFFIT REPAIR

1. Remove damaged and deteriorated concrete in the areas shown as directed by the Engineer (see Sheet No. 3 for longitudinal limits of repair areas).
2. An epoxy adhesive for bonding new concrete to old shall be applied to all old surfaces prior to placing new concrete.
3. Class AAA Concrete with a gradation approved by the Engineer to facilitate overhead application shall be placed and finished to conform to the original surface of the girder soffit.
4. Repairs shall be paid for by the square yard(s) of "(Sidewalk Soffit) Repair" in accordance with the Special Provisions.



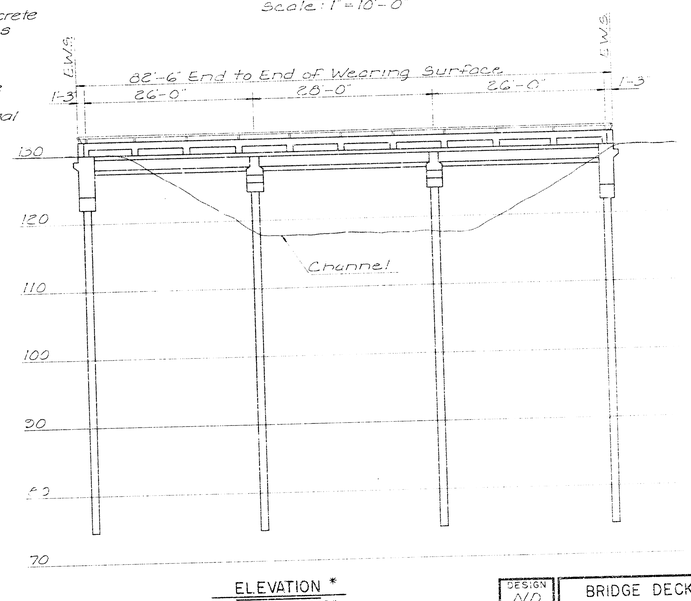
SECTION THRU DECK

No Scale



PLAN *

Scale: 1" = 10'-0"



ELEVATION *

Scale: 1" = 10'-0"

* Dimensions, stations, and elevations shown are from original plans (See proj. no. C.16-12).

DESIGN	ND
DR. BY	DLC
CK. BY	RAW
DATE	Mar 79
JOB NO.	

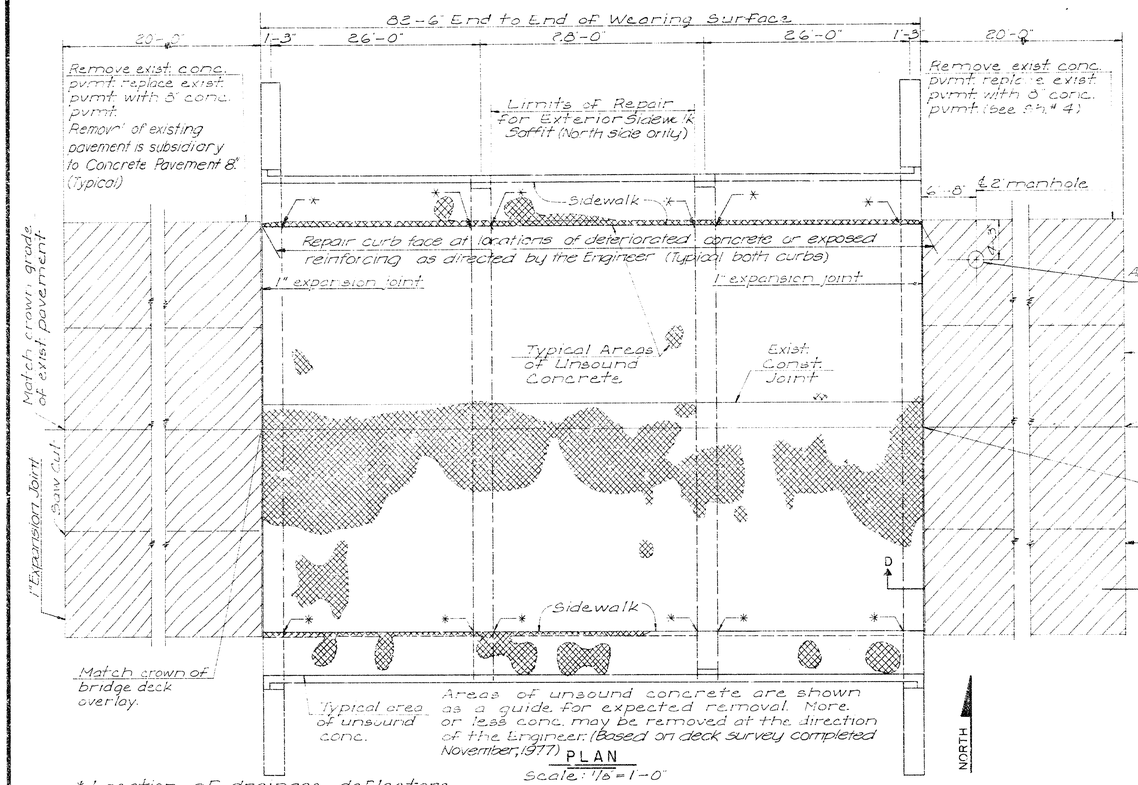
BRIDGE DECK RECONSTRUCTION
29TH ST. OVER CHISHOLM CREEK

CONSTRUCTION LAYOUT

VAN DOREN · HAZARD · STALLINGS
ARCHITECTS · ENGINEERS · PLANNERS
WICHITA, KANSAS

SHEET 2 OF 5

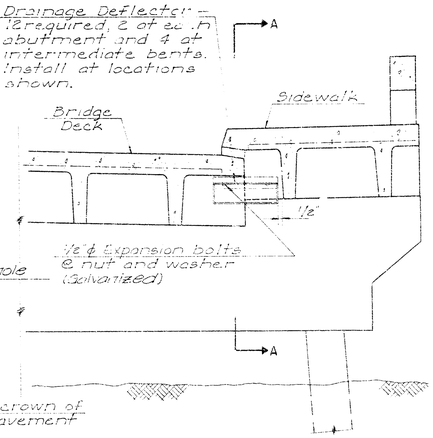
Proj. No. 87 U-0718-01



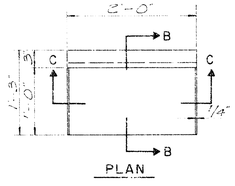
PLAN

Scale: 1/16" = 1'-0"

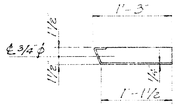
* Location of drainage deflectors. (Underside of Deck) See details this sheet.



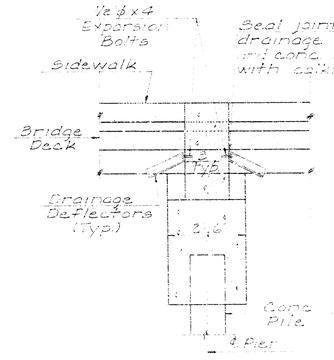
ELEVATION OF PIER



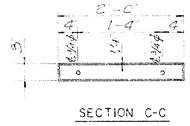
PLAN



SECTION B-B



SECTION A-A



SECTION C-C

BRIDGE DRAINAGE DEFLECTOR(S) NOTES

1. 12 Deflectors required, 43 pounds each.
2. Drainage deflectors shall meet all requirements of Steel for bridge drainage systems, Section 1608, K.D.O.T. Standard Specifications, Edition of 1980.
3. Fabricate from 1/4" steel plate. Plate shall meet the requirements of A.S.T.M. A36.
4. Drainage deflectors may be welded or a combination of cold formed and welded at the Contractor's option.
5. All inside corners shall be cold formed or welded.
6. Hot dip galvanize entire assembly.
7. Attach drainage deflectors in locations shown with expansion bolts. Expansion bolts shall be hot dipped galvanized after fabrication to meet the requirements of A.S.T.M. A153.
8. All drainage work shall be paid for by the bid item "Bridge Drainage System".

DRAINAGE DEFLECTOR DETAILS

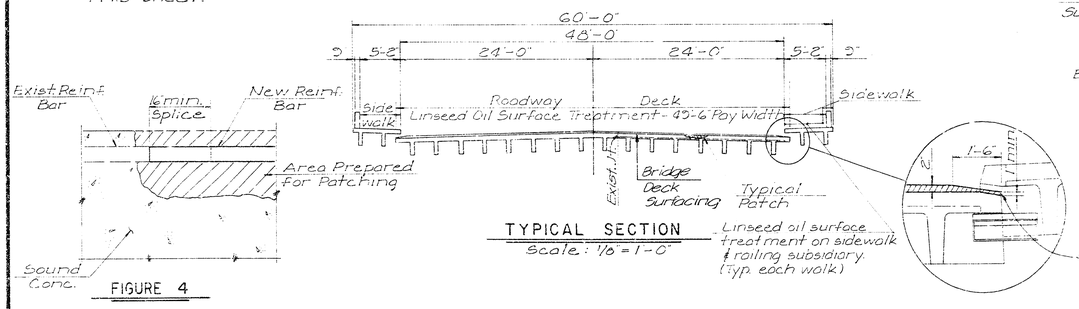
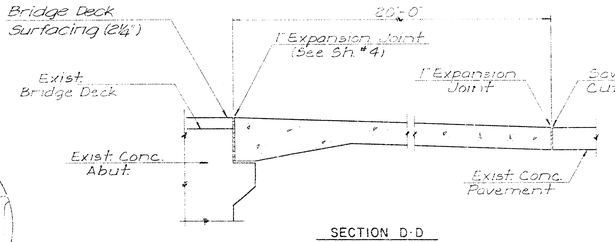


FIGURE 4

TYPICAL SECTION

Scale: 1/16" = 1'-0"

Linseed oil surface treatment on sidewalk & railing subsidiary. (Typ. each walk)



SECTION D-D

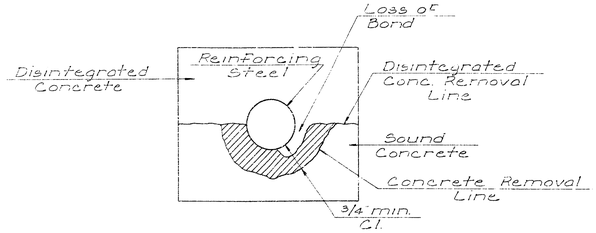


FIGURE 1

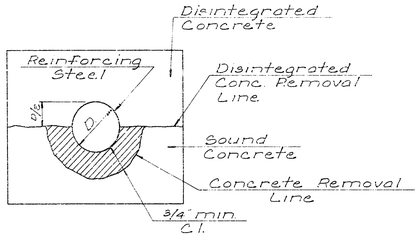


FIGURE 2

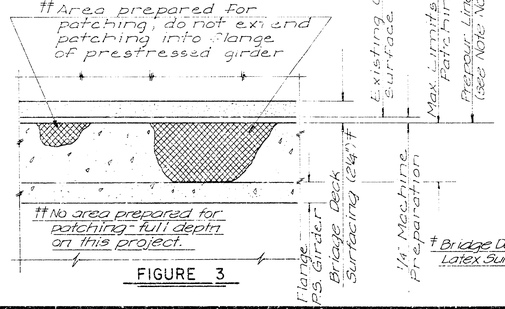


FIGURE 3

DESIGN	N.D.
DR. BY	B.E.S.
CK. BY	R.A.W.
DATE	3-78
JOB NO.	2-0718

BRIDGE DECK RECONSTRUCTION
29TH ST. OVER CHISHOLM CREEK

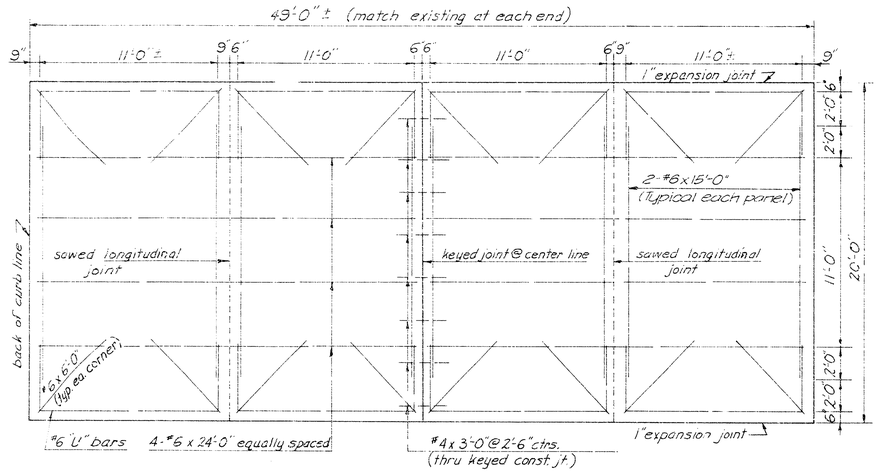
DETAILS

VAN DOREN - HAZARD - STALLINGS
ARCHITECTS - ENGINEERS - PLANNERS
WICHITA, KANSAS

SHEET 5 OF 6

22-30

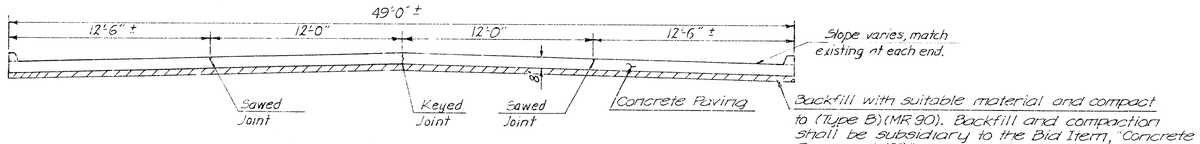
Proj. No. 87 U-0718-01



STEEL PATTERN AT APPROACH SLAB

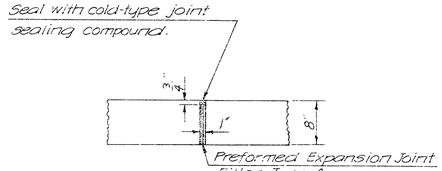
Scale 1/4" = 1'-0"

Approximately 870 Lbs. of Reinforcing Steel is required at each approach slab. Reinforcing steel, expansion joint material and joint sealing compound shall be subsidiary to the Bid Item, "Concrete Pavement (8")."



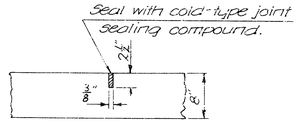
TYPICAL SECTION THRU PAVEMENT

1"=1'-0"



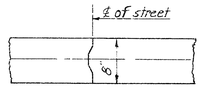
DETAIL OF EXPANSION JOINT

1"=1'-0"



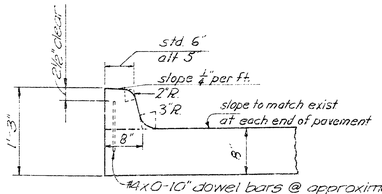
DETAIL OF SAWED LONGITUDINAL JOINT

1"=1'-0"



DETAIL OF KEYED JOINT

1"=1'-0"



DETAIL OF INTEGRAL CURB

1"=1'-0"

Integral curb shall be cut through to the pavement in uniform lengths of not more than ten foot intervals between expansion joints. Expansion joints having the same thickness as the expansion joints in the pavement shall be constructed in the integral curb at the specified locations. Number 4 dowels shall be installed in curb as shown on approximately 2'-6" centers.

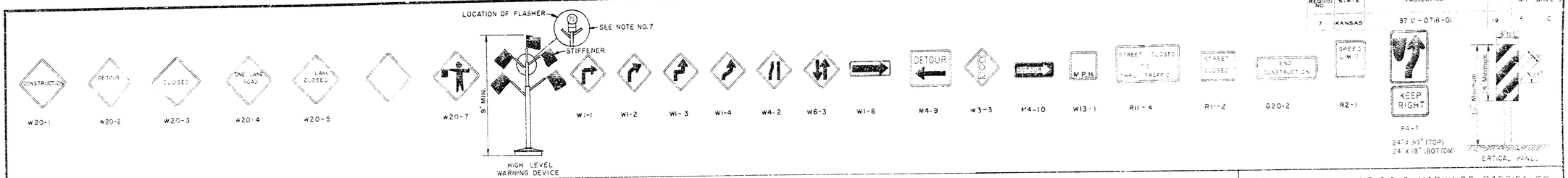
DESIGN	N.D.
DR. BY	R.L.C.
CK. BY	R.A.W.
DATE	Mar. 78
JOB NO.	77 513

BRIDGE DECK RECONSTRUCTION
29TH ST. OVER CHISHOLM CREEK

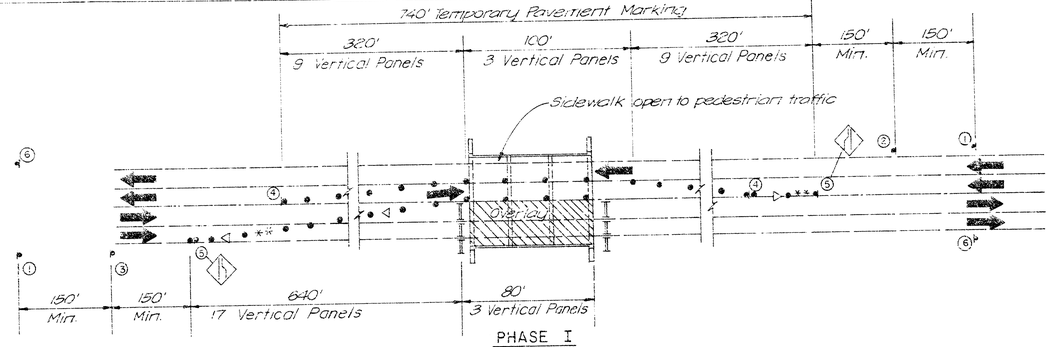
APPROACH PAVING

VAN DOREN - HAZARD - STALLINGS
ARCHITECTS - ENGINEERS - PLANNERS
WICHITA, KANSAS

SHEET 4 OF 5

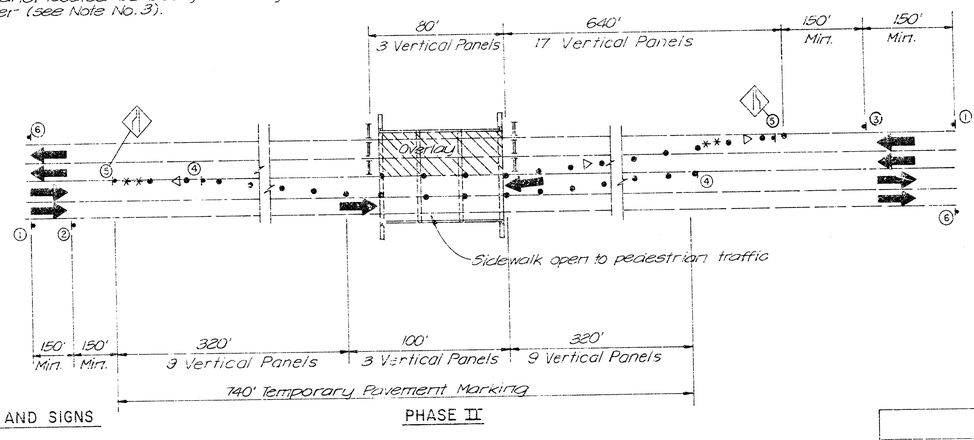


FHWA REGION NO	STATE	PROJECT NO	YEAR	SHEET NO	SHEETS
7	KANSAS	87 U - 0718 - 01	19	5	5



PHASE I

**Advanced warning flashing or sequencing arrow panel located as designated by the Engineer (see Note No.3).



PHASE II

TRAFFIC CONTROL DEVICES AND SIGNS

- ● Vertical Panel
- ═ Type III Barricades
- ▷ High Level Warning Device
- ** Advance Warning Sequencing or Flashing Arrow

① Road Construction Ahead; W20-1; 36"x36"
② Left Lane Closed Ahead; W20-5; 48"x48"
③ Right Lane Closed Ahead; W20-5; 48"x48"
④ Keep Right; R4-7; 24"x30"(Top); 24"x18"(Bottom)
⑤ Pavement Transition Sign; W4-2; 48"x48" (Right & Left required)
⑥ End Construction; G20-2; 60"x24"

TRAFFIC NOTES

1. For Standards on control devices and signs, refer to "Manual on Uniform Traffic Control Devices," 1978 Edition.
2. Due to existing conditions, advance warning flashing or sequencing arrow panel may be deemed necessary by the Engineer. When used, they shall be paid for by the bid item, "Sequential Flashing Arrow Board."
3. Channelizing devices shall be reflectorized or equipped with lighting devices for night-time use.
4. Existing inappropriate pavement markings leaving the roadway in a confusing condition to motorists, which creates the potential for misdirection, shall be removed as soon as practicable. Approved removal procedures include sandblasting using air or water, high pressure water, steam or superheated water, mechanical grinding or solvents and chemicals. Other methods of removal may be used upon approval of the Engineer.
5. Temporary pavement marking shall be two solid yellow reflectorized lines, 4" to 6" wide, spaced approximately 2" apart. The lines shall be either a pressure-sensitive marking tape or other approved application capable of removal without damage to the final surface.
6. Lights shall be Type B, high intensity with a 7" minimum diameter lens, regulated to flash 55 to 75 times per minute. The flash duration shall not be less than 8% of time.
7. The bridge shall be temporarily closed during epoxy resin girder crack repair as directed by the Engineer. During the closure period the bridge shall be barricaded with Type III Barricades. Detour routes and signing will be the responsibility of the City of Wichita.
8. Cones shall not be used for Channelization Devices shown on Phase I and Phase II.

RECAPITULATION OF SIGNS, MARKINGS, BARRICADES

SIGN NO	SIZE	SQ. FT.	UNIT	TOTAL
W20-1	36"x36"	9.00	EACH	2
W20-2			EACH	
W20-3			EACH	
W20-4			EACH	
W20-5	48"x48"	16.00	EACH	2
W20-7			EACH	
W1-1			EACH	
W1-2			EACH	
W1-3			EACH	
W1-4			EACH	
W4-2	48"x48"	16.00	EACH	2
W6-3			EACH	
W1-6			EACH	
M4-9			EACH	
W3-3			EACH	
M4-10			EACH	
W13-1			EACH	
R11-4			EACH	
R11-2			EACH	
G20-2	60"x24"	10.00	EACH	2
R2-1			EACH	
R4-7	{24"x30"(Top) / 24"x18"(Bottom)}	{5.00(Top) / 3.00(Bottom)}	EACH	2

ITEM	UNIT	TOTAL
Construction Barricades Type I or II	EACH	3
Construction Barricades Type III (9'-14')	EACH	18
Vertical Panels (Back To Back Type)	EACH	74
Sequential Flashing Arrow Board	EACH	2
High Level Warning Device	EACH	3
Temporary Striping (Miles) Dbl. Stripe	MILES	0.28

All signs used on this project shall conform to the M.U.T.C.D.

SUMMARY OF QUANTITIES

BID ITEM	QUANTITY	UNIT
Construction Signs (0 to 9.25 SQ. FT.)	300	EACH PER DAY
Construction Signs (9.26 to 16.25 SQ. FT.)	450	EACH PER DAY
Construction Signs (16.26 SQ. FT. and over)		EACH PER DAY
Construction Barricades Type I or II	150	EACH PER DAY
Construction Barricades Type III (9'-14')	60	EACH PER DAY
Vertical Panels (Back To Back Type)	3,075	EACH PER DAY
Sequential Flashing Arrow Board	150	EACH PER DAY
High Level Warning Device	225	EACH PER DAY
Temporary Striping (Miles) Dbl. Stripe (Solid)	0.28	MILES / LINE

NO	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
BRIDGE DECK RECONSTRUCTION
29TH ST OVER CHISHOLM CREEK
WICHITA, KANSAS

DETAILED TRAFFIC CONTROL

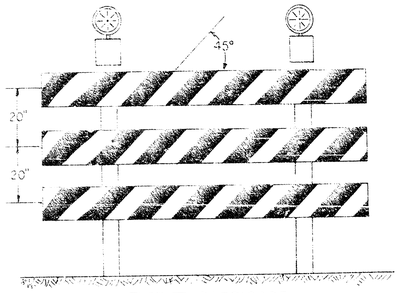
Std. 5.0
URBAN HIGHWAYS DEPT. — TRAFFIC ENGINEERING SEC.

SHEET NO	5 OF 5	SCALE	N/A	APP'D		TRACED	D.S.
DESIGNED	N.D.	DETAILED	J.P.MAC.	QUANTITIES	D.S.	TRACED	D.S.
DESIGN CK		DETAIL CK	N.D.	QUAN CK	N.D.	TRACE CK	N.D.

81-201-A0-WO 29th St. Bridge-Wichita

FHWA REGION NO.	STATE	PROJECT NO	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	87U-0718-01	19	6	15

TRAFFIC CONTROL DEVICES



TYPE III BARRICADE
WITH LIGHTS

NOTE:

A MINIMUM OF TWO TYPE A LIGHTS SHALL BE USED AT EACH LOCATION WHERE A TYPE III BARRICADE OR BARRICADES ARE USED. A LIGHT SHALL BE MOUNTED ON THE OUTSIDE CORNER AT THE END BARRICADES WHEN MORE THAN ONE IS USED. THE LENS SHALL BE A MINIMUM OF 7" IN DIAMETER.

BARRICADE CHARACTERISTICS

TYPE*	I	II	III
WIDTH OF RAIL	8" MIN-12" MAX	8" MIN-12" MAX	3" MIN-12" MAX
LENGTH OF RAIL	2 FT. MIN	2 FT. MIN	4 FT. MIN
WIDTH OF STRIPES**	6 IN.	6 IN.	6 IN.
HEIGHT	3 FT. MIN	3 FT. MIN	5 FT. MIN
NUMBER OF REFLECTORIZED RAIL FACES	2 (ONE EACH DIRECTION)	4 (TWO EACH DIRECTION)	3 IF FACING TRAFFIC IN ONE DIRECTION 6 IF FACING TRAFFIC IN TWO DIRECTIONS

* FOR WOODEN BARRICADES NOMINAL LUMBER DIMENSIONS WILL BE SATISFACTORY

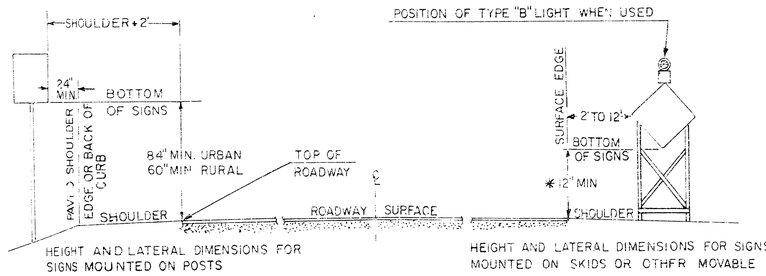
** FOR RAILS LESS THAN 3 FEET LONG, 4 INCH WIDE STRIPES SHALL BE USED

WARNING LIGHTS

	TYPE A LOW INTENSITY	TYPE B HIGH INTENSITY	TYPE C STEADY BURN
LENS DIRECTIONAL FACES	1 OR 2	1	1 OR 2
FLASHING RATE PER MINUTE	55 TO 75	55 TO 75	CONSTANT
FLASH DURATION[1]	10%	8%	CONSTANT
MINIMUM EFFECTIVE INTENSITY[2]	4 CANDELAS	35 CANDELAS	
MINIMUM BEAM CANDLE POWER			2 CANDELAS
HOURS OF OPERATION	DUSK TO DAWN	24 HRS./DAY	DUSK TO DAWN

1 LENGTH OF TIME THAT INSTANTANEOUS INTENSITY IS EQUAL TO OR GREATER THAN EFFECTIVE INTENSITY

2 THESE VALUES MUST BE MAINTAINED WITHIN A SOLID ANGLE 9° ON EACH SIDE OF THE VERTICAL AXIS, AND 5° ABOVE AND 5° BELOW THE HORIZONTAL AXIS.

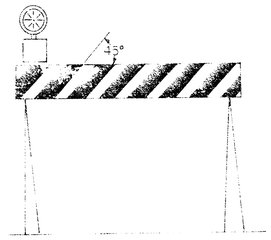


HEIGHT AND LATERAL DIMENSIONS FOR
SIGNS MOUNTED ON POSTS

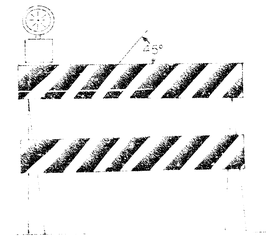
HEIGHT AND LATERAL DIMENSIONS FOR SIGNS
MOUNTED ON SKIDS OR OTHER MOVABLE MOUNTS

* A MINIMUM OF 30" IS PREFERED

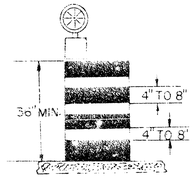
CHANNELIZING DEVICES



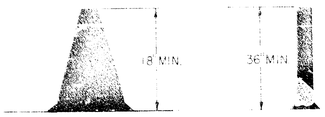
TYPE I BARRICADE
WITH LIGHT



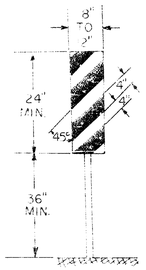
TYPE II BARRICADE
WITH LIGHT



REFLECTORIZED DRUM
WITH LIGHT



CONES
ORANGE IN COLOR

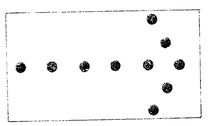


VERTICAL PANEL

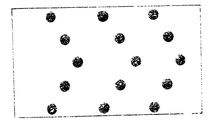
LIGHTS USED ON CHANNELIZING DEVICES

WHEN USED SINGLY — TYPE "A" FLASHING
WHEN USED IN SERIES — TYPE "C" STEADY BURN
THE LENS SHALL BE A MINIMUM OF 7" IN DIAMETER.

ARROW PANELS



FLASHING ARROW



SEQUENTIAL ARROW

NOTE:

The colors of barricade rails, drums, and vertical panels shall be orange and white. The entire area of orange and white shall be reflectorized with reflective sheeting or other reflective processes as approved by the Engineer.

Channelizing Devices placed along shoulder edges or in dropoffs shall be a minimum of 24" from the top of the channelizing device to the top of the pavement.

NO.	DATE	REVISIONS	BY	APP'D
1				
2				

DESIGN DETAILS FOR
BARRICADES, CHANNELIZING DEVICES
AND SIGN MOUNTING LOCATIONS

STD. 752.1

SHEET NO. OF SHTS. APP'D
DESIGNED PR DETAILED PR QUANTITIES DATE
DESIGN CK AFT DETAIL CK AFT CHAN. # SCALE