

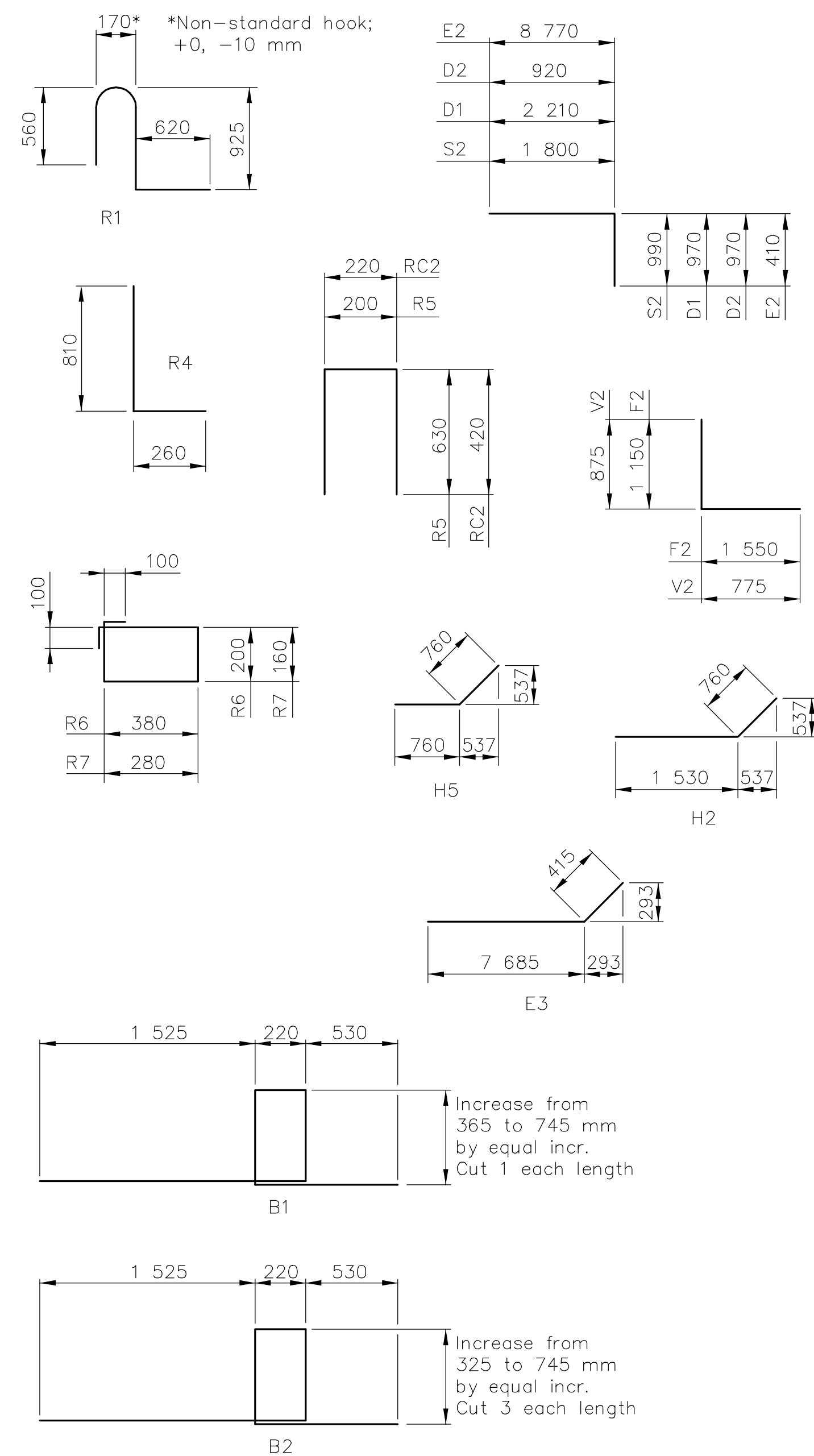
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	87 N-0240-01	2004	9	42

BILL OF REINFORCING STEEL

	STRAIGHT BARS				BENT BARS			
	Mark	Size	No.	Length	Mark	Size	No.	Length
R.F.B. (Epoxy Coated)	S1	25	103	9 760	R1	22	96	2 200
	G1	22	4	15 380	S2	22	206	2 790
	R2	19	36	2 900	R4	13	96	1 070
	R3	19	24	3 130	RC2	13	66	1 060
	S3	19	156	15 380	R5	10	24	1 460
	RC1	13	10	15 380	R6	10	16	1 360
	S4L	13	84	11 710	R7	10	142	1 080
	S4R	13	84	8 270				
	F1	25	103	9 760	F2	22	206	2 700
	H1	22	7	2 290	H2	22	21	2 290
R.F.B. (Uncoated)	V1	19	157	3 210	D1	19	87	3 180
	W1	19	308	3 180	V2	19	157	1 650
					H5	16	42	1 520
	F3	16	156	15 380				
	H3	16	16	9 500	D2	13	74	1 890
	H4	16	48	7 460	E2	13	3	9 180
	H6	16	42	1 060	E3	13	9	8 100
	V3	16	71	3 210				
	V4	16	71	760				
	W2	16	154	3 180				
W3	16	206	2 100					
Barriers (Epoxy Coated)	C1	13	2	15 380				
	C2	13	5	9 100				
	C3	13	15	9 210				
	E1	13	6	13 990				
	F4L	13	63	11 650				
	F4R	13	63	8 270				
	W4L	13	44	11 650				
	W4R	13	44	8 270				
		16 mm ø	8	600	B1	16	18	Varies
					B2	16	81	Varies
B3	13	42	9 820					
B4	13	6	8 350					
B5	13	6	7 870					
B6	13	6	4 360					
B7	13	14	7 120					
B8	13	2	6 060					
B9	13	2	5 170					
B10	13	2	3 160					
B11	13	24	2 260					
B12	13	123	1 720					

BENDING DIAGRAMS

All dimensions are out to out of bars.



GENERAL NOTES

LOADING: MS18-44 AASHTO SPECIFICATIONS, 1983 EDITION.

UNIT STRESSES: GRADE 28 CONCRETE $f'_c = 28 \text{ MPa}$
 REINFORCING STEEL (GRADE 420) $f_y = 420 \text{ MPa}$

CONCRETE: GRADE 28 CONCRETE (AE) SHALL BE USED THROUGHOUT. BEVEL ALL EXPOSED EDGES WITH A 20 mm TRIANGULAR MOULDING.

REINFORCING: ALL REINFORCING SHALL CONFORM TO ASTM A615M, GRADE 420. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL SHALL BE TO CENTERLINE OF BAR UNLESS OTHERWISE NOTED.

FOUNDATION AND BACKFILL MATERIAL: SOILS JUDGED AS HIGH PLASTICITY CLAYS, FAT CLAYS, EXPANSIVE CLAYS OR ORGANIC CLAYS ARE UNSUITABLE FOR FOUNDATION AND/OR BACKFILL MATERIAL FOR WINGWALLS AND SHALL NOT BE USED.

GRANULAR BACKFILL (WINGWALLS): THE ENGINEER MAY REQUIRE SPECIAL BACK-FILL PROCEDURES. SEE THE "RCB AUXILIARY DETAILS" SHEET.

WEEPHOLES: SEE "RCB AUXILIARY DETAILS" FOR WINGWALL DRAINAGE DETAILS. FREE DRAINING GRANULAR MATERIAL SHALL BE PLACED BEHIND ALL WEEPHOLES.

TEMPORARY SHORING: SHEET PILING SHALL BE DRIVEN AT EACH EXISTING ABUTMENT IN ORDER TO MAINTAIN THE INTEGRITY OF EXISTING ROADBED CARRYING TRAFFIC AND TO ENABLE EXCAVATION FOR AND CONSTRUCTION OF THE NEW R.C.B. SEVEN SETS OF DETAILS SHOWING PROPOSED LOCATION, LENGTH AND CROSS-SECTION OF PILING, AND GRADE OF MATERIAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE DETAILS SHALL BEAR THE SEAL OF A LICENSED PROFESSIONAL ENGINEER. THE SHEET PILING SHALL BE CUT OFF 300 mm BELOW THE ASPHALT SURFACING AND LEFT IN PLACE.

SUMMARY OF QUANTITIES

	PHASE I CONST.	PHASE II CONST.	TOTAL
Concrete Grade 28 (AE)	172.3 cu m	153.6 cu m	325.9 cu m
Reinforcing Steel (Grade 420)	11 010 kg	8 730 kg	19 740 kg
Reinforcing Steel (Grade 420)(Epoxy Coated)	8 200 kg	6 250 kg	14 450 kg
Bridge Handrail (Aluminum)	30.5 m	28.3 m	58.8 m
Class III Excavation	115 cu m	145 cu m	260 cu m
Temporary Shoring	L.S. Lump Sum	-	L.S. Lump Sum

Note: The quantities shown in Phase II include the apron. The quantities shown in Phase I & Phase II include the concrete sidewalk on the structure.

Note: The quantities shown below are for information only.

CONCRETE SAFETY BARRIER QUANTITIES

Concrete Grade 28 (AE)	28.1 cu m
Reinforcing Steel (Grade 420)(Epoxy Coated)	1 510 kg

LIST EQUIVALENT BAR SIZES

Imperial System	International System (SI)	Area mm ²	Mass kg/m
#3	10	71	0.560
#4	13	129	0.994
#5	16	199	1.552
#6	19	284	2.235
#7	22	387	3.042
#8	25	510	3.973
#9	29	645	5.060
#10	32	819	6.404
#11	36	1 006	7.907
#14	43	1 452	11.380
#18	57	2 581	20.240

Note: Imperial bar sizes shall be used when the SI bar sizes are not available.

PROJECT NO. 87 N-0240-01

GENERAL NOTES AND QUANTITIES

21ST ST. OVER CHISHOLM CREEK

STA. 1+978 CITY OF WICHITA

DESIGNED	KMB	SCALE
DETAILED	DEG	DATE
QUANTITIES		SHEET OF