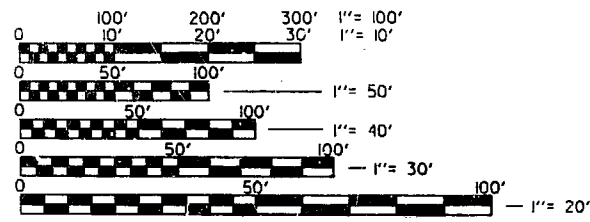


**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANS FOR PROPOSED  
FEDERAL AID HIGHWAY**

FA RTE	SECTION	COUNTIES	TOTAL SHEETS	SHEET NO
FA-426	#	KANE & COOK	209	1
P-91-356-84				
*(8R & 8R-1)RS-1; 7Y-V-I-1; 8R-HB(4,5,6,7)BY; 8RB(I & 1-BY)86				

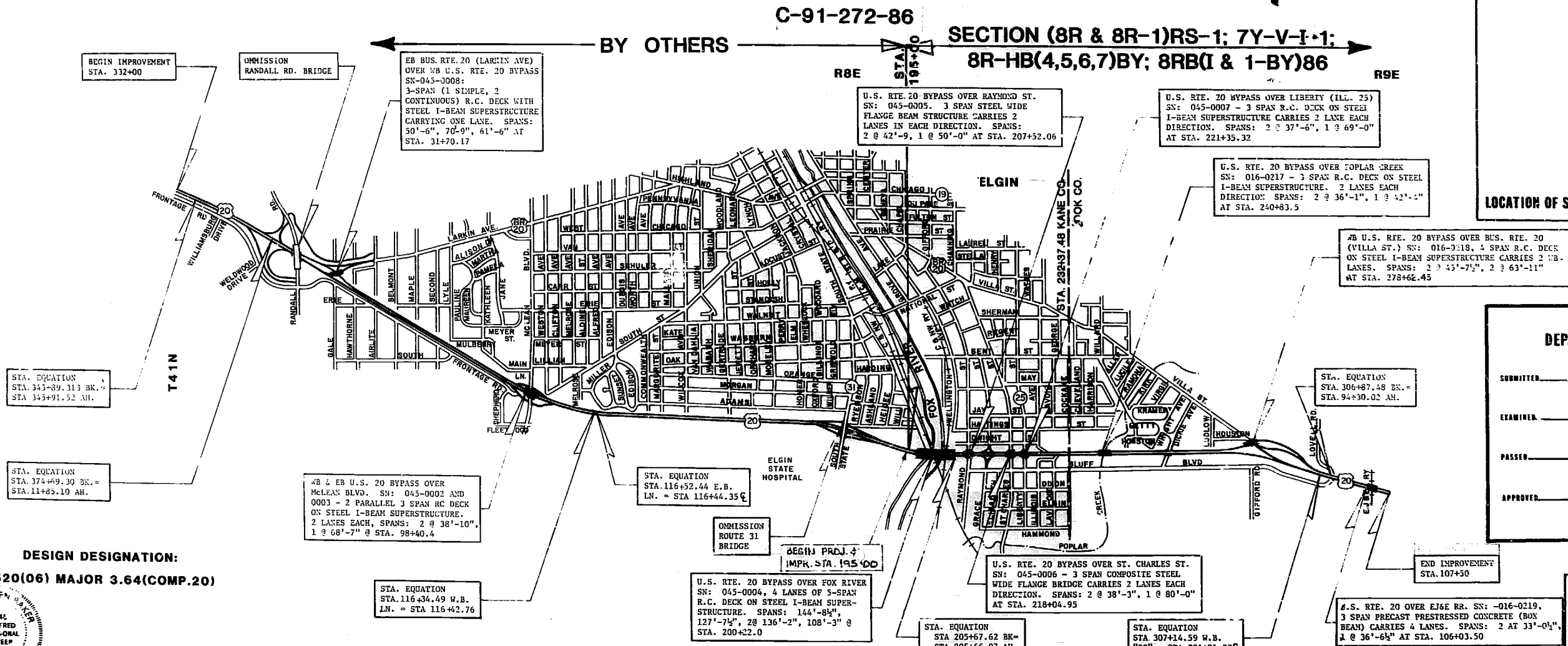
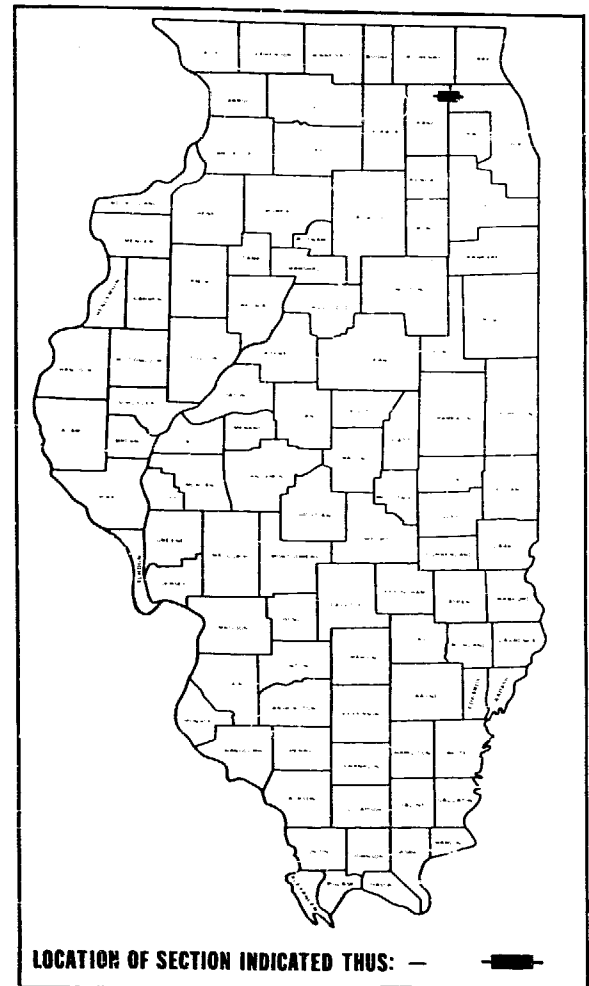
FOR INDEX OF SHEETS, SEE SHEET NO. 2



PLAN 1" = 50'  
PROFILE HORIZ. 1" = 50'  
PROFILE VERT. 1" = 5'  
CROSS SECTIONS  
HORIZ. 1" = 10'  
VERT. 1" = 5'

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

**F.A. ROUTE 426 (U.S. 20)  
SECTION (8R & 8R-1)RS-1; 7Y-V-I-1; 8R-HB(4,5,6,7)BY; 8RB(I & 1-BY)86  
PROJECT IX -426-I(19)  
KANE AND COOK COUNTIES**



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

SUBMITTED: 4-23 1986  
EXAMINED: 9-2 1986  
PASSED: 9-2 1986  
APPROVED: 9-2 1986

DISTRICT ENGINEER  
ENGINEER OF PLANS AND CONTRACTS  
ENGINEER OF DESIGN  
DIRECTOR, DIVISION OF HIGHWAYS

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE \_\_\_\_\_

CONSULTANT PROJECT ENGINEER: R. SHAH (312) 884-4232



**DESIGN DESIGNATION:  
2520(06) MAJOR 3.64(COMP.20)**

CONTRACT NO. 426-I(19)

**TOTAL PROJECT**

GROSS LENGTH OF IMPROVEMENT 12,821.37 LIN. FT. (2.429 MILES) 3738.13 LIN. FT. (0.708 MI.) 9083.24 LIN. FT. (1.720 MI.)  
NET LENGTH OF IMPROVEMENT 12,821.37 LIN. FT. (2.429 MILES) 3738.13 LIN. FT. (0.708 MI.) 9083.24 LIN. FT. (1.720 MI.)

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2409	TRAFFIC CONTROL

## STATE STANDARDS

FILE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
426	E	KANE & COOK	200	2
STA	TO STA			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

P-91-356-84  
 \* (BR & BR-1)RS-1, 7Y-V-1-1; BR-HB(4,5,6,7) BY;  
 BRB(1&1-BY)86

## GENERAL NOTES

- FLUORESCENT VESTS: ALL CONSTRUCTION PERSONNEL WILL BE REQUIRED TO WEAR FLUORESCENT ORANGE VESTS AT ALL TIMES WHILE ON THE CONSTRUCTION SITE. COMPLIANCE WITH THIS REQUIREMENT SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT.
- BARRICADES: THE CONTRACTOR WILL PROVIDE AND INSTALL TWO (2) WEIGHTED SAND BAGS ON EACH BARRICADE USED.
- THE REMOVAL OF THE TERMINAL SECTIONS (TAPERS) SHALL BE INCLUDED IN THE UNIT PRICE COST FOR STEEL PLATE BEAM GUARD RAIL REMOVAL.
- THE EXISTING CABLE CROSSINGS AS SHOWN ON THE PLANS ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL BE AWARE WHEN CONSTRUCTION BEGINS THAT ANY DAMAGE TO THESE CROSSINGS BECAUSE OF CONSTRUCTION WILL BE AT HIS EXPENSE, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- QUANTITIES: QUANTITIES SHOWN ON THE PLANS ARE BASED ON FIELD INSPECTION AT THE TIME OF PLAN PREPARATION AND ARE TO BE USED FOR PREPARATION PROPOSALS. HOWEVER, AS DETERMINED BY THE ENGINEER, QUANTITIES MAY CHANGE BASED UPON CONDITIONS UNCOVERED AT THE TIME OF CONSTRUCTION.
- ANY DAMAGE TO THE REINFORCEMENT BARS AS A RESULT OF THE CONTRACTOR'S CONCRETE SAWING AND/OR CONCRETE REMOVAL OPERATION SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.
- ALL TRAFFIC CONTROL AND PROTECTION DEVICES SHALL BE CLEANED AS NECESSARY THROUGHOUT THE DURATION OF THE CONTRACT.
- THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL OF THE ENGINEER FOR ANY METHODS OF TRAFFIC CONTROL AND PROTECTION DIFFERENT THAN THAT SHOWN ON THE PLANS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED THE CONTRACTOR.
- IT MAY BE NECESSARY TO REMOVE A SMALL PORTION OF THE EXISTING PIPE CULVERT TO ALLOW FOR PROPER FIT AND PLACEMENT OF END SECTIONS. THE AMOUNT OF PIPE TO BE REMOVED SHALL BE DESIGNATED BY THE ENGINEER AND SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THAT PARTICULAR END SECTION ITEM.
- SOD SHALL BE PLACED IN ALL AREAS DESIGNATED FOR DITCH RESTORATION AND IN AREAS DESIGNATED BY THE ENGINEER.
- TREES SHALL BE REMOVED AS SHOWN ON THE PLANS AND AS DESIGNATED BY THE ENGINEER.
- PROPOSED TREE REMOVALS UNDER 6" IN DIAMETER SHALL NOT BE MEASURED OR PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO THE TREE REMOVAL - 6" TO 15" ITEM.
- THE STANDARD DRAWINGS LISTED WITH THE INDEX ON SHEET 2 ARE INTENDED TO BE THE LATEST REVISION AND SHALL TAKE PRECEDENCE OVER EARLIER REVISIONS THAT MAY BE REFERRED TO ELSEWHERE IN THE PLANS OR IN THE SPECIAL PROVISIONS.
- DRAINAGE STRUCTURE GRADES SHALL BE VERIFIED IN THE FIELD PRIOR TO INSTALLATION OF DRAINAGE ITEMS.
- THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS ELEVATIONS AND INVERTS PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. IN SOME AREAS, THE DATA SHOWN ON THE PLANS IS TAKEN FROM PREVIOUS SURVEY & DESIGN PLANS AND IS ASSUMED TO BE CORRECT. HOWEVER, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AS SUCH AND NO ADDITIONAL COMPENSATION WILL BE AWARDED HIM TO COMPLY WITH THIS PROVISION. THEREFORE, AS DIRECTED BY THE ENGINEER, THE INVERTS OF THE PROPOSED DRAINAGE SYSTEM WILL BE REVISED TO MEET THE EXISTING FIELD CONDITIONS.
- WHERE SECTION OR SUB-SECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER AND AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- IN THE EVENT SECTION MONUMENTS AND/OR BENCH MARKS ARE ENCOUNTERED WITHIN PAVEMENT AREA TO BE RESURFACED, THE CONTRACTOR SHALL ADJUST SAME AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR IN ACCORDANCE WITH ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS.
- GUARD RAIL SHALL BE CONSTRUCTED WITH GALVANIZED STEEL POSTS.
- THE ELEVATIONS SHOWN ON THE PLANS ARE FINISHED GRADES OF SURFACE COURSE, UNLESS OTHERWISE INDICATED.
- WHEN DURING CONSTRUCTION OPERATIONS ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF DITCHES, GUTTERS OR DRAINAGE STRUCTURES SO THAT THE NATURAL FLOW OF WATER IS OBSTRUCTED, IT SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES SO AFFECTED SHALL BE CLEANED OF ALL MUD AND DEBRIS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL EXISTING UTILITIES FOR THE DURATION OF THE CONTRACT AT HIS OWN EXPENSE.
- SITES WITHIN THE R.O.W. OF THE IMPROVEMENT USED FOR STORING SALVAGED GUARDRAIL, FRAMES AND GRATES, ETC. SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS BY THE CONTRACTOR. THE WORK INVOLVED WILL NOT BE PAID FOR SEPARATELY.

ILLINOIS DEPARTMENT OF TRANSPORTATION

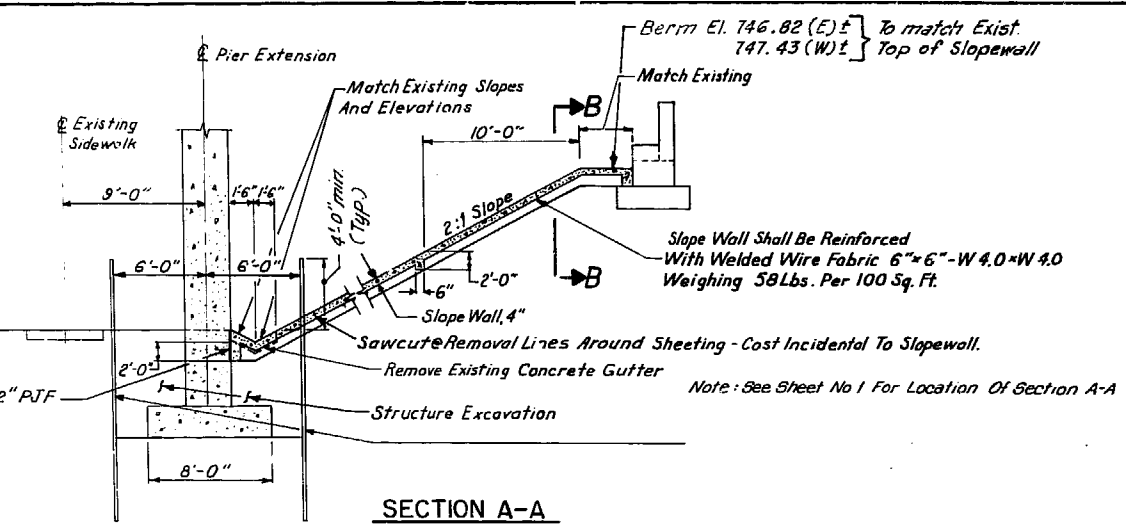
## INDEX OF SHEETS STATE STANDARDS

REVISIONS	
NAME	DATE

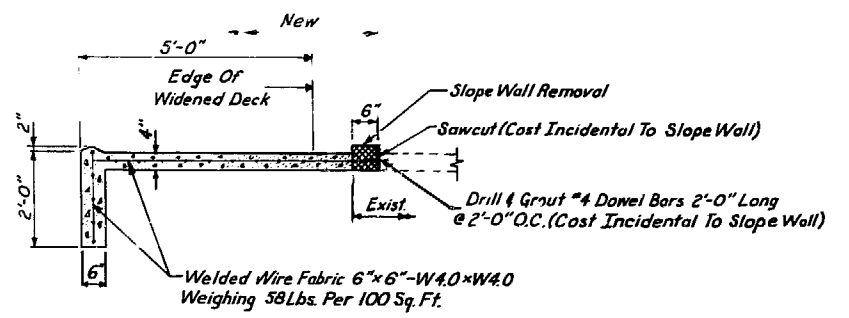
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 HORIZ. }  
 DATE 6-86  
 DRAWN BY JWB  
 CHECKED BY GSB







SECTION A-A



SECTION B-B

TOTAL BILL OF MATERIALS				
ITEM	UNIT	SUPER-STRUCTURE	SUB-STRUCTURE	TOTAL
CONCRETE REMOVAL	CU YD	89	7	96
EXPANSION BOLTS, 3/4 INCH	EACH	6	174	180
REMOVAL OF EXISTING BEARINGS	EACH	---	39	39
STRUCTURE EXCAVATION	CU YD	---	316	316
FLOOR DRAINS	EACH	8	---	8
PROTECTIVE COAT	SQ YD	1529	---	1529
PREFORMED JOINT SEAL, 2 1/2"	LIN FT	76	---	76
PREFORMED JOINT SEAL, 4"	LIN FT	79	---	79
PREFORMED JOINT SEAL, 1"	LIN FT	149	---	149
PREFORMED JOINT SEAL, 2"	LIN FT	160	---	160
ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	---	30	30
ELASTOMERIC BEARING ASSEMBLY, TYPE II	EACH	---	15	15
CLASS X CONCRETE	CU YD	161.6	143.8	305.4
STRUCTURAL STEEL	LBS	---	---	---
STUD SHEAR CONNECTORS	EACH	360	---	360
CLEANING & PTG. STEEL BR. NO. 2	L SUN	1	---	1
REINFORCEMENT BARS	POUND	---	12870	12870
REINFORCEMENT BARS, EPOXY COATED	POUND	30,730	---	30,730
FURNISHING CONCRETE PILES	LIN FT	---	230	230
DRIVING CONCRETE PILES	LIN FT	---	230	230
TEST PILE CONCRETE	EACH	---	1	1
NAME PLATE	EACH	1	---	1
TEMPORARY CONCRETE BARRIER	LINEAL FT	55	---	55
TEMPORARY CONCRETE BARRIER, TERMINAL SECTION	EACH	2	---	2
RELOCATE TEMPORARY CONCRETE BARRIER	LINEAL FT	55	---	55
GUTTER REMOVAL	LIN FT	---	32	32
SLOPE WALL REMOVAL	SQ YD	---	43	43
SLOPE WALL, 4 INCH	SQ YD	---	194	194
BRIDGE DECK SCARIFICATION 1/2"	SQ YD	844	---	844
PLASTICIZED BRIDGE DECK CONCRETE OVERLAY	SQ YD	851	---	851
DECK SLAB REPAIR (FULL DEPTH)	SQ YD	50	---	50
DECK SLAB REPAIR (PARTIAL DEPTH)	SQ YD	425	---	425
EPOXY MORTAR REPAIR	CU FT	---	7	7
EPOXY CRACK SEALING	LIN FT	---	211	211

Concrete weight correction factor = 1.02 (1.02 x 145) = 147.1

GENERAL NOTES

SEE PROPOSAL FOR BORING DATA.

FASTENERS SHALL BE HIGH STRENGTH BOLTS. BOLTS 3/4" DIA., OPEN HOLES 13/16" DIA., UNLESS OTHERWISE NOTED.

ALL STRUCTURAL STEEL SHALL RECEIVE ONE COAT OF DULL ORANGE PRIMER. NEW STRUCTURAL STEEL SHALL BE SHOP PRIMED.

ALL STRUCTURAL STEEL, NEW AND EXISTING, SHALL RECEIVE TWO FIELD COATS OF ALUMINUM PAINT WITH THE FOLLOWING EXCEPTIONS, AS APPLICABLE, WHICH SHALL RECEIVE ONE COAT OF ANTI-RUST PRIMER:

- THE EXTERIOR WEB SURFACE, THE BOTTOM AND EDGES OF THE BOTTOM FLANGE, THE BOTTOM SURFACE OF THE EXTERIOR TOP FLANGE, AND THE TOP SURFACE OF THE EXTERIOR BOTTOM FLANGE, OF NEW FACIA BEAMS.
- ALL STRUCTURAL STEEL ELEMENTS OF NEW ELASTOMERIC BEARING ASSEMBLIES AND NEW STRUCTURAL STEEL FIXED BEARINGS FOR NEW FACIA BEAMS.

FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO THE BOTTOM FLANGE OF BEAMS NOR TO THE TOP FLANGE FOR A DISTANCE EQUAL TO ONE-FOURTH THE SPAN LENGTH EACH WAY FROM THE PIER SUPPORTS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.

ANCHOR BOLTS SHALL BE SET BEFORE BOLTING NEW DIAPHRAGMS OVER SUPPORTS.

THE MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS ZONE 2. THESE COMPONENTS ARE THE WIDE FLANGE BEAMS. ALL SPLICE PLATE MATERIAL AND HINGE PLATES.

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 OR M-33, GRADE 60.

PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.

EXPANSION BOLTS SHALL CONSIST OF APPROVED EXPANSION ANCHORS, PROVIDING MINIMUM CERTIFIED PROOF LOAD = 4,000 LBS., AND 3/4" DIA. X 12" HOOKED BOLTS.

BEARING SEAT SURFACES SHALL BE CONSTRUCTED OR ADJUSTED TO THE DESIGNATED ELEVATIONS WITHIN A TOLERANCE OF 1/8 INCH. ADJUSTMENT SHALL BE MADE EITHER BY GRINDING THE SURFACE OR BY SHIMMING THE BEARING. TWO 1/8" ADJUSTING SHIMS, OF THE DIMENSIONS OF THE BOTTOM BEARING PLATE, SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OR SHIMS. FOR TYPE I ELASTOMERIC BEARINGS, SHIMS OF THE DIMENSIONS OF TOP PLATE SHALL BE PROVIDED AND PLACED AS DETAILED.

CONCRETE PILES AT ABUTMENTS SHALL BE DRIVEN THROUGH THE EMBANKMENT WITHOUT PRECORING.

THE CONTRACTOR SHALL DRIVE ONE CONCRETE TEST PILE(S) IN PERMANENT LOCATION(S) SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF PILES.

THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM EMBANKMENT THAT MUST BE CONSTRUCTED PRIOR TO WIDENING OF THE ABUTMENTS.

DESIGN DATA

DESIGN SPECIFICATIONS: AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1993 EDITION, 1984 & 1985 INTERIMS.

DESIGN STRESSES:

NEW CONCRETE: FC=3500PSI  
FC=1400PSI

NEW REINFORCING STEEL: FY=60,000PSI  
FS=24,000PSI

NEW STRUCTURAL STEEL: FS=20,000PSI (M-185); FS=27,000 PSI (M-225)

EXISTING STRUCTURAL STEEL: FS=18,000PSI

STRUCTURAL STEEL, CONCRETE DECK AND SUBSTRUCTURE CONCRETE ARE DESIGNED BY THE SERVICE LOAD METHOD.

DESIGN LOADING: HS20-44

**Baker Engineers**  
Baker Engineering, Inc.

DESIGNED	J. Owen
CHECKED	P. Wood
DRAWN	K. Dypkowski
CHECKED	P. Wood

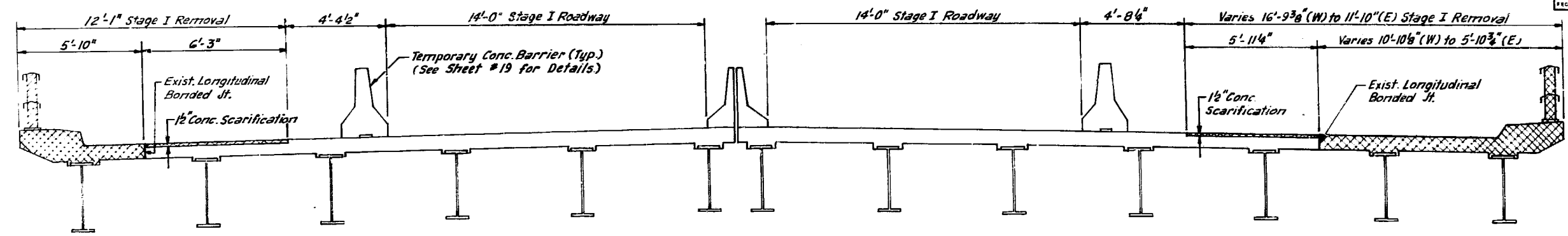
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, BILL OF MATERIAL AND DETAILS

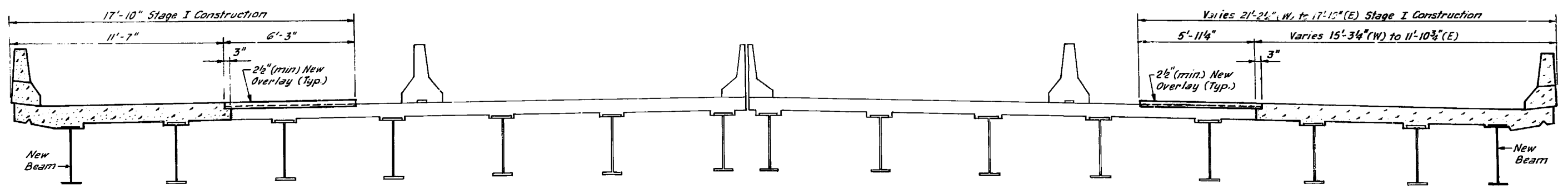
U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-5 (86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006

REVISIONS	
NAME	DATE

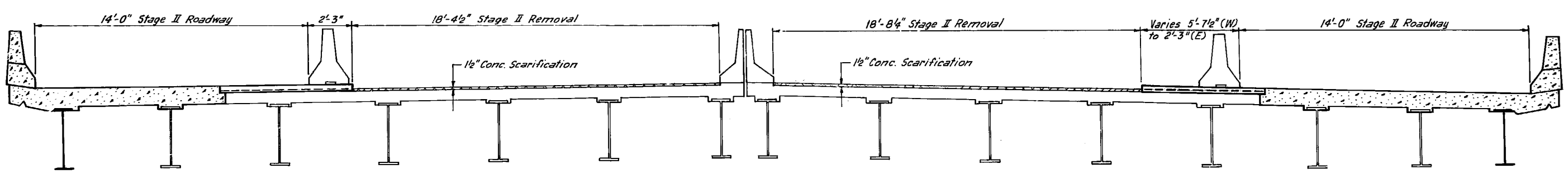
SHEET NO. <u>3</u>	F. & S. NO. <u>426</u>	SECTION <u>BR-HB-S(86)</u>	COUNTY <u>KANE</u>	TOTAL SHEETS <u>209</u>	SHEET NO. <u>117</u>
OF 22 SHEETS	STA	TO STA	FED. AID PROJECT		



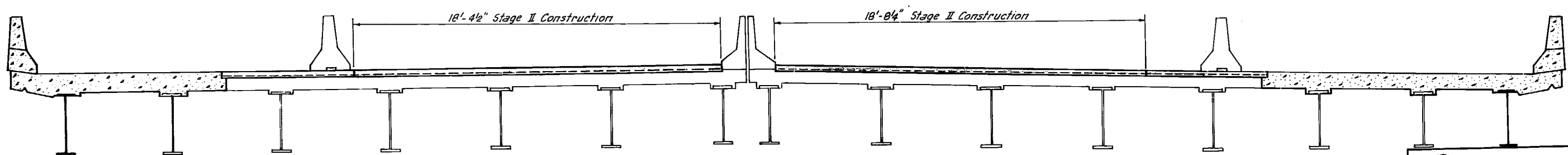
**STAGE I REMOVAL**  
LOOKING EAST



**STAGE I CONSTRUCTION**  
LOOKING EAST



**STAGE II REMOVAL**  
LOOKING EAST



**STAGE II CONSTRUCTION**  
LOOKING EAST

- NOTES:**
1. Transverse deck reinforcement extending into removed area shall be cleaned and incorporated into the new construction.
  2. Denotes conc. removal.
  3. (W) Denotes west end of slab. (E) Denotes east end of slab.

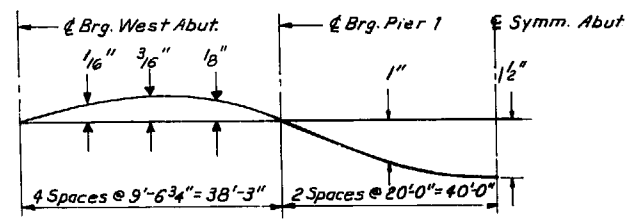
<b>Baker Engineers</b> Baker Engineering, Inc.	
DESIGNED	Z. Dabrowski
CHECKED	P. Wood
DRAWN	Z. Dabrowski
CHECKED	P. Wood

REVISIONS	
NAME	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**STAGE CONSTRUCTION**

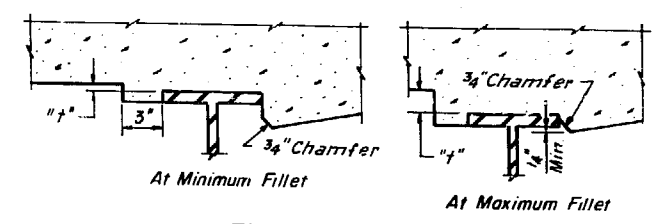
U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-S(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006



**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete only)

Note: The above deflections are not to be used in the field if the Engineer is working from the grade elevations adjusted for dead load deflection as shown below.



**FILLET HEIGHTS**

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

**BEAM 1**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	217+26.70	-19.580	752.878	752.878
A	217+36.70	-19.580	752.845	752.838
B	217+46.70	-19.580	752.812	752.796
C	217+56.70	-19.580	752.780	752.768
CBRCP1	217+64.95	-19.580	752.753	752.753
D	217+74.95	-19.580	752.719	752.761
E	217+84.95	-19.580	752.685	752.767
F	217+94.95	-19.580	752.650	752.761
G	218+04.95	-19.580	752.614	752.736
H	218+14.95	-19.580	752.574	752.685
I	218+24.95	-19.580	752.530	752.612
J	218+34.95	-19.580	752.483	752.525
CBRCP2	218+44.95	-19.580	752.432	752.432
K	218+54.95	-19.580	752.377	752.363
L	218+64.95	-19.580	752.318	752.304
M	218+74.95	-19.580	752.255	752.250
CBRCGEA	218+83.20	-19.580	752.201	752.201

**BEAM 2**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	217+26.70	-14.080	752.964	752.964
A	217+36.70	-14.080	752.931	752.927
B	217+46.70	-14.080	752.899	752.890
C	217+56.70	-14.080	752.866	752.858
CBRCP1	217+64.95	-14.080	752.839	752.839
D	217+74.95	-14.080	752.806	752.835
E	217+84.95	-14.080	752.773	752.830
F	217+94.95	-14.080	752.740	752.816
G	218+04.95	-14.080	752.706	752.790
H	218+14.95	-14.080	752.668	752.744
I	218+24.95	-14.080	752.625	752.682
J	218+34.95	-14.080	752.579	752.608
CBRCP2	218+44.95	-14.080	752.530	752.530
K	218+54.95	-14.080	752.476	752.467
L	218+64.95	-14.080	752.419	752.411
M	218+74.95	-14.080	752.358	752.355
CBRCGEA	218+83.20	-14.080	752.305	752.305

**NORTH LONG. CONST. JOINT**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	217+26.70	-11.000	753.013	753.013
A	217+36.70	-11.000	752.980	752.976
B	217+46.70	-11.000	752.947	752.938
C	217+56.70	-11.000	752.914	752.906
CBRCP1	217+64.95	-11.000	752.887	752.887
D	217+74.95	-11.000	752.854	752.883
E	217+84.95	-11.000	752.821	752.878
F	217+94.95	-11.000	752.789	752.865
G	218+04.95	-11.000	752.754	752.838
H	218+14.95	-11.000	752.715	752.791
I	218+24.95	-11.000	752.673	752.730
J	218+34.95	-11.000	752.627	752.656
CBRCP2	218+44.95	-11.000	752.577	752.577
K	218+54.95	-11.000	752.524	752.515
L	218+64.95	-11.000	752.467	752.459
M	218+74.95	-11.000	752.406	752.403
CBRCGEA	218+83.20	-11.000	752.352	752.352

**BEAM 3**

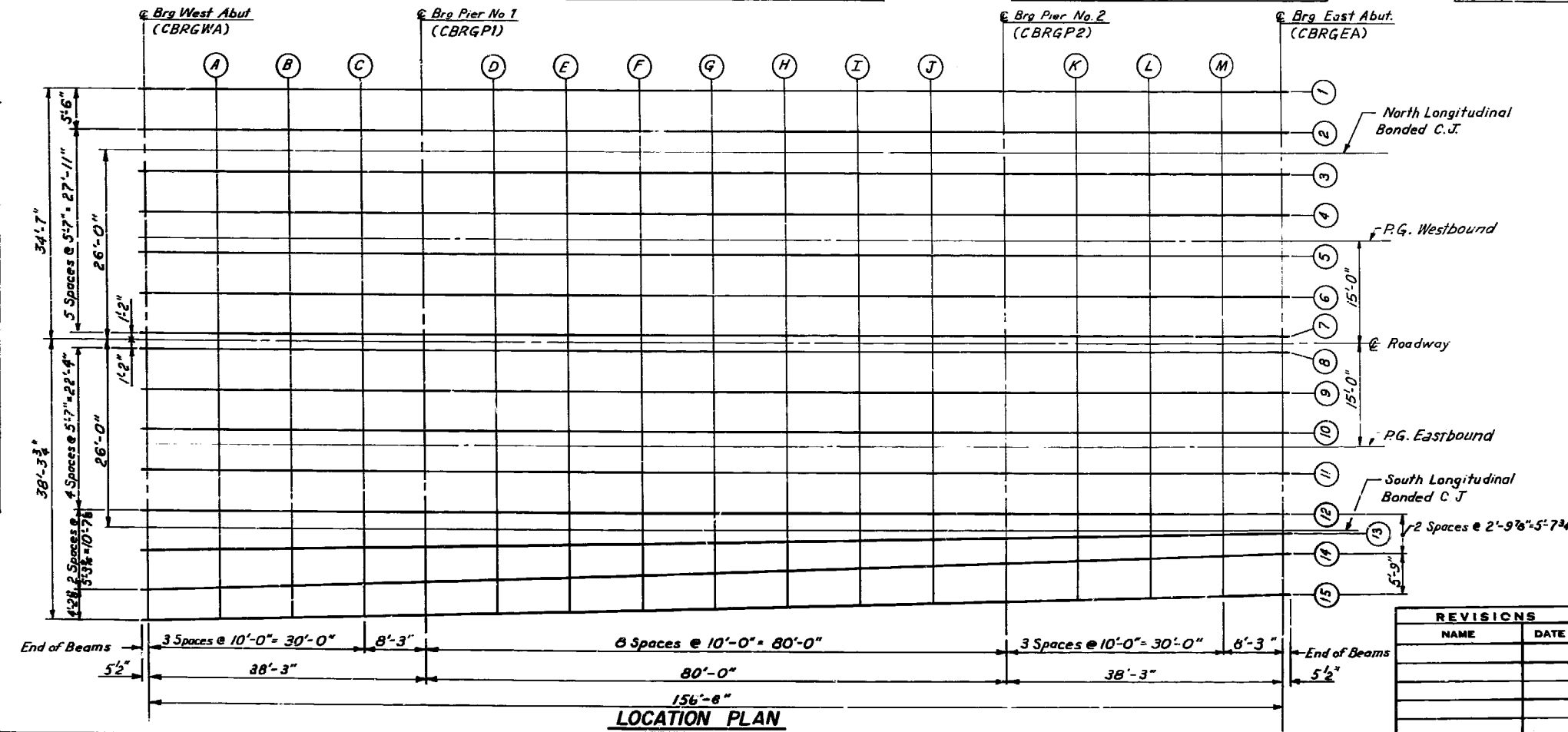
LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	217+26.70	-8.500	753.052	753.052
A	217+36.70	-8.500	753.019	753.024
B	217+46.70	-8.500	752.986	752.987
C	217+56.70	-8.500	752.953	752.952
CBRCP1	217+64.95	-8.500	752.926	752.926
D	217+74.95	-8.500	752.893	752.902
E	217+84.95	-8.500	752.860	752.878
F	217+94.95	-8.500	752.828	752.852
G	218+04.95	-8.500	752.793	752.819
H	218+14.95	-8.500	752.754	752.778
I	218+24.95	-8.500	752.712	752.730
J	218+34.95	-8.500	752.666	752.675
CBRCP2	218+44.95	-8.500	752.616	752.616
K	218+54.95	-8.500	752.563	752.562
L	218+64.95	-8.500	752.505	752.507
M	218+74.95	-8.500	752.444	752.448
CBRCGEA	218+83.20	-8.500	752.391	752.391

**BEAM 4**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	217+26.70	-2.920	753.140	753.140
A	217+36.70	-2.920	753.107	753.112
B	217+46.70	-2.920	753.074	753.075
C	217+56.70	-2.920	753.041	753.040
CBRCP1	217+64.95	-2.920	753.013	753.013
D	217+74.95	-2.920	752.981	752.990
E	217+84.95	-2.920	752.948	752.966
F	217+94.95	-2.920	752.915	752.939
G	218+04.95	-2.920	752.880	752.906
H	218+14.95	-2.920	752.841	752.865
I	218+24.95	-2.920	752.799	752.817
J	218+34.95	-2.920	752.753	752.762
CBRCP2	218+44.95	-2.920	752.703	752.703
K	218+54.95	-2.920	752.649	752.648
L	218+64.95	-2.920	752.591	752.593
M	218+74.95	-2.920	752.530	752.534
CBRCGEA	218+83.20	-2.920	752.477	752.477

**PROFILE GRADE LINE WESTBOUND & EASTBOUND**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	217+26.70	0.000	753.185	753.185
A	217+36.70	0.000	753.152	753.157
B	217+46.70	0.000	753.119	753.120
C	217+56.70	0.000	753.086	753.085
CBRCP1	217+64.95	0.000	753.059	753.059
D	217+74.95	0.000	753.026	753.035
E	217+84.95	0.000	752.993	753.011
F	217+94.95	0.000	752.960	752.984
G	218+04.95	0.000	752.925	752.951
H	218+14.95	0.000	752.887	752.911
I	218+24.95	0.000	752.844	752.867
J	218+34.95	0.000	752.798	752.807
CBRCP2	218+44.95	0.000	752.748	752.748
K	218+54.95	0.000	752.694	752.693
L	218+64.95	0.000	752.637	752.639
M	218+74.95	0.000	752.575	752.579
CBRCGEA	218+83.20	0.000	752.527	752.527



**Baker Engineers**  
 Baker Engineering, Inc.  
 DESIGNED: P. Wood  
 CHECKED: J. Oweit  
 DRAWN: K. Dypkowski  
 CHECKED: P. Wood

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

**TOP OF SLAB ELEVATIONS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
 ST. CHARLES STREET  
 SECTION BR-HB-5(86)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-0006

REVISIONS	
NAME	DATE



BEAM 5

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	2.670	753.227	753.227
A	217+36.70	2.670	753.194	753.199
B	217+46.70	2.670	753.161	753.166
C	217+56.70	2.670	753.128	753.127
CBRCP1	217+64.95	2.670	753.100	753.100
D	217+74.95	2.670	753.067	753.076
E	217+84.95	2.670	753.034	753.052
F	217+94.95	2.670	753.001	753.025
G	218+04.95	2.670	752.966	752.992
H	218+14.95	2.670	752.932	752.952
I	218+24.95	2.670	752.895	752.903
J	218+34.95	2.670	752.859	752.848
CBRCP2	218+44.95	2.670	752.789	752.789
K	218+54.95	2.670	752.735	752.734
L	218+64.95	2.670	752.678	752.680
M	218+74.95	2.670	752.616	752.620
CBRCEA	218+83.20	2.670	752.563	752.563

BEAM 6

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	8.250	753.312	753.312
A	217+36.70	8.250	753.279	753.284
B	217+46.70	8.250	753.246	753.247
C	217+56.70	8.250	753.213	753.212
CBRCP1	217+64.95	8.250	753.186	753.186
D	217+74.95	8.250	753.153	753.162
E	217+84.95	8.250	753.126	753.138
F	217+94.95	8.250	753.087	753.111
G	218+04.95	8.250	753.052	753.078
H	218+14.95	8.250	753.014	753.038
I	218+24.95	8.250	752.971	752.989
J	218+34.95	8.250	752.925	752.934
CBRCP2	218+44.95	8.250	752.875	752.875
K	218+54.95	8.250	752.821	752.820
L	218+64.95	8.250	752.764	752.766
M	218+74.95	8.250	752.702	752.706
CBRCEA	218+83.20	8.250	752.649	752.649

BEAM 7

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	13.830	753.395	753.395
A	217+36.70	13.830	753.362	753.367
B	217+46.70	13.830	753.329	753.330
C	217+56.70	13.830	753.296	753.295
CBRCP1	217+64.95	13.830	753.269	753.269
D	217+74.95	13.830	753.236	753.245
E	217+84.95	13.830	753.203	753.221
F	217+94.95	13.830	753.170	753.194
G	218+04.95	13.830	753.135	753.161
H	218+14.95	13.830	753.097	753.121
I	218+24.95	13.830	753.054	753.072
J	218+34.95	13.830	753.008	753.017
CBRCP2	218+44.95	13.830	752.958	752.958
K	218+54.95	13.830	752.904	752.903
L	218+64.95	13.830	752.847	752.849
M	218+74.95	13.830	752.785	752.789
CBRCEA	218+83.20	13.830	752.732	752.732

BEAM 8

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	-13.830	753.395	753.395
A	217+36.70	-13.830	753.362	753.367
B	217+46.70	-13.830	753.329	753.330
C	217+56.70	-13.830	753.296	753.295
CBRCP1	217+64.95	-13.830	753.269	753.269
D	217+74.95	-13.830	753.236	753.245
E	217+84.95	-13.830	753.203	753.221
F	217+94.95	-13.830	753.170	753.194
G	218+04.95	-13.830	753.135	753.161
H	218+14.95	-13.830	753.097	753.121
I	218+24.95	-13.830	753.054	753.072
J	218+34.95	-13.830	753.008	753.017
CBRCP2	218+44.95	-13.830	752.958	752.958
K	218+54.95	-13.830	752.904	752.903
L	218+64.95	-13.830	752.847	752.849
M	218+74.95	-13.830	752.785	752.789
CBRCEA	218+83.20	-13.830	752.732	752.732

BEAM 9

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	-8.250	753.313	753.313
A	217+36.70	-8.250	753.280	753.285
B	217+46.70	-8.250	753.247	753.248
C	217+56.70	-8.250	753.214	753.213
CBRCP1	217+64.95	-8.250	753.186	753.186
D	217+74.95	-8.250	753.153	753.162
E	217+84.95	-8.250	753.120	753.138
F	217+94.95	-8.250	753.087	753.111
G	218+04.95	-8.250	753.052	753.078
H	218+14.95	-8.250	753.014	753.038
I	218+24.95	-8.250	752.971	752.989
J	218+34.95	-8.250	752.925	752.934
CBRCP2	218+44.95	-8.250	752.875	752.875
K	218+54.95	-8.250	752.821	752.820
L	218+64.95	-8.250	752.764	752.766
M	218+74.95	-8.250	752.702	752.706
CBRCEA	218+83.20	-8.250	752.649	752.649

BEAM 10

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	-2.670	753.227	753.227
A	217+36.70	-2.670	753.194	753.199
B	217+46.70	-2.670	753.161	753.162
C	217+56.70	-2.670	753.128	753.127
CBRCP1	217+64.95	-2.670	753.100	753.100
D	217+74.95	-2.670	753.067	753.076
E	217+84.95	-2.670	753.034	753.052
F	217+94.95	-2.670	753.001	753.025
G	218+04.95	-2.670	752.966	752.992
H	218+14.95	-2.670	752.932	752.952
I	218+24.95	-2.670	752.895	752.903
J	218+34.95	-2.670	752.859	752.848
CBRCP2	218+44.95	-2.670	752.789	752.789
K	218+54.95	-2.670	752.735	752.734
L	218+64.95	-2.670	752.678	752.680
M	218+74.95	-2.670	752.616	752.620
CBRCEA	218+83.20	-2.670	752.563	752.563

BEAM 11

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	2.920	753.140	753.140
A	217+36.70	2.920	753.107	753.112
B	217+46.70	2.920	753.074	753.075
C	217+56.70	2.920	753.041	753.040
CBRCP1	217+64.95	2.920	753.014	753.014
D	217+74.95	2.920	752.981	752.990
E	217+84.95	2.920	752.948	752.966
F	217+94.95	2.920	752.915	752.939
G	218+04.95	2.920	752.880	752.906
H	218+14.95	2.920	752.842	752.866
I	218+24.95	2.920	752.799	752.817
J	218+34.95	2.920	752.753	752.762
CBRCP2	218+44.95	2.920	752.703	752.703
K	218+54.95	2.920	752.649	752.648
L	218+64.95	2.920	752.591	752.593
M	218+74.95	2.920	752.530	752.534
CBRCEA	218+83.20	2.920	752.477	752.477

BEAM 12

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	8.500	753.055	753.055
A	217+36.70	8.500	753.022	753.027
B	217+46.70	8.500	752.989	752.989
C	217+56.70	8.500	752.955	752.954
CBRCP1	217+64.95	8.500	752.928	752.928
D	217+74.95	8.500	752.895	752.904
E	217+84.95	8.500	752.862	752.880
F	217+94.95	8.500	752.829	752.853
G	218+04.95	8.500	752.794	752.820
H	218+14.95	8.500	752.755	752.779
I	218+24.95	8.500	752.713	752.731
J	218+34.95	8.500	752.667	752.676
CBRCP2	218+44.95	8.500	752.617	752.617
K	218+54.95	8.500	752.563	752.562
L	218+64.95	8.500	752.505	752.507
M	218+74.95	8.500	752.444	752.448
CBRCEA	218+83.20	8.500	752.390	752.390

SOUTH LONG. CONST. JOINT

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	11.000	753.016	753.016
A	217+36.70	11.000	752.983	752.989
B	217+46.70	11.000	752.950	752.950
C	217+56.70	11.000	752.917	752.914
CBRCP1	217+64.95	11.000	752.890	752.890
D	217+74.95	11.000	752.857	752.875
E	217+84.95	11.000	752.824	752.861
F	217+94.95	11.000	752.790	752.841
G	218+04.95	11.000	752.756	752.813
H	218+14.95	11.000	752.717	752.770
I	218+24.95	11.000	752.674	752.715
J	218+34.95	11.000	752.628	752.650
CBRCP2	218+44.95	11.000	752.578	752.578
K	218+54.95	11.000	752.524	752.516
L	218+64.95	11.000	752.466	752.460
M	218+74.95	11.000	752.405	752.405
CBRCEA	218+83.20	11.000	752.351	752.351

BEAM 13

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	13.800	752.973	752.973
A	217+36.70	13.800	752.940	752.948
B	217+46.70	13.800	752.907	752.912
C	217+56.70	13.800	752.874	752.878
CBRCP1	217+64.95	13.800	752.856	752.856
D	217+74.95	13.800	752.825	752.843
E	217+84.95	13.800	752.795	752.832
F	217+94.95	13.800	752.764	752.815
G	218+04.95	13.800	752.732	752.789
H	218+14.95	13.800	752.695	752.748
I	218+24.95	13.800	752.655	752.696
J	218+34.95	13.800	752.611	752.633
CBRCP2	218+44.95	13.800	752.564	752.564
K	218+54.95	13.800	752.512	752.504
L	218+64.95	13.800	752.457	752.451
M	218+74.95	13.800	752.398	752.398
CBRCEA	218+83.20	13.800	752.346	752.346

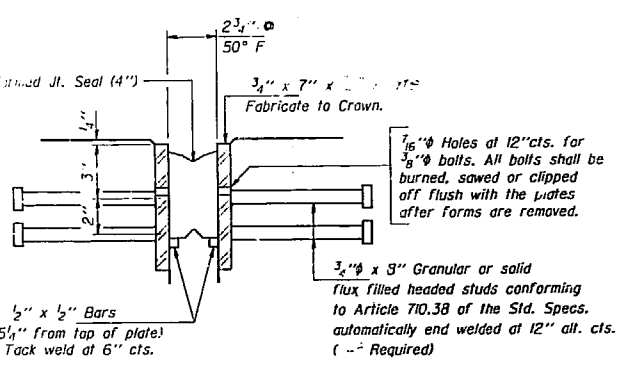
BEAM 14

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ADJUSTED FOR DEAD LOAD DEFLECTION
CBROWA	217+26.70	19.090	752.892	752.892
A	217+36.70	18.774	752.863	752.860
B	217+46.69	18.458	752.835	752.828
C	217+56.69	18.141	752.807	752.801
CBRCP1	217+64.95	17.880	752.784	752.784
D	217+74.95	17.564	752.755	752.779
E	217+84.94	17.248		

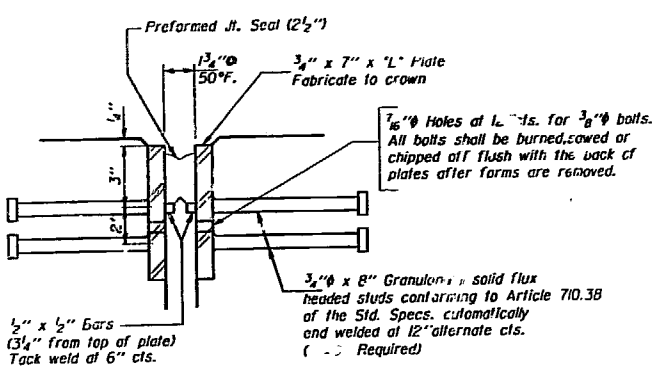




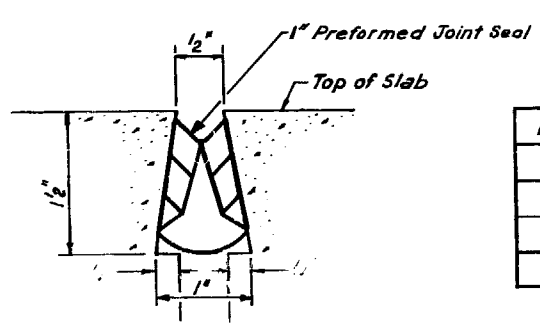




**EXPANSION JOINT**  
(WEST ABUTMENT)



**EXPANSION JOINT**  
(EAST ABUTMENT)

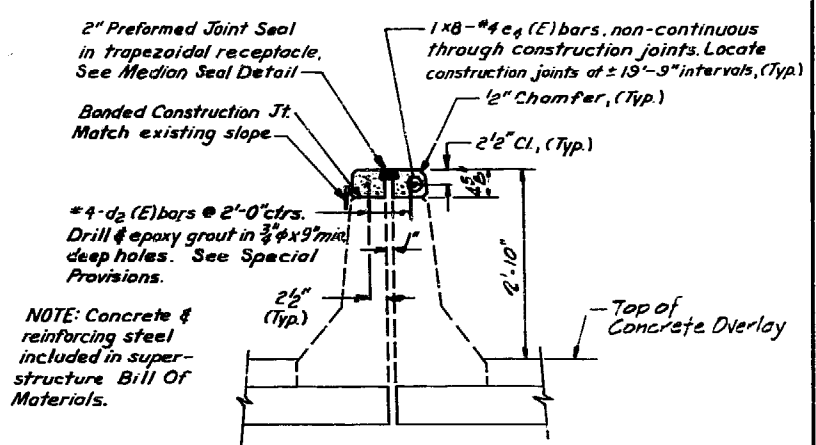


**TRANSVERSE DECK JOINT**  
AT HINGE - All horizontal plates to be light gauge galvanized

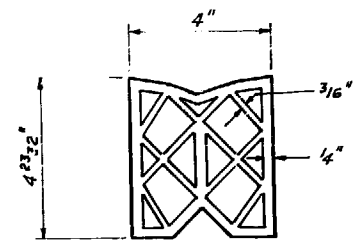
**L Lengths for Stage Construction**

	Stage I	Stage II
North	16'-2 3/4"	18'-4 1/4"
South	19'-7 1/2" W. Abut. 16'-2 3/4" E. Abut.	18'-3 1/2"

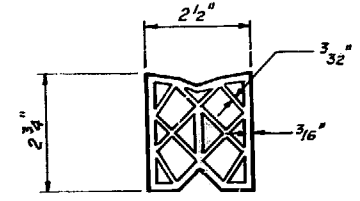
Butt Weld Plates at Stage Line



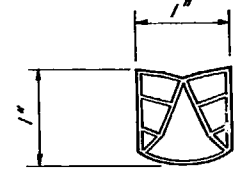
**MEDIAN DETAIL**



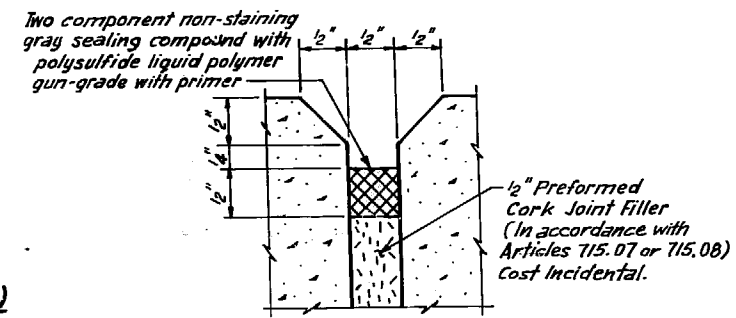
**PREFORMED JOINT SEAL (4")**



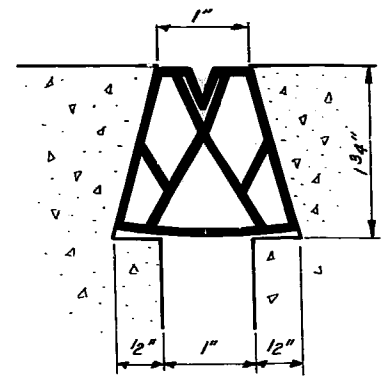
**PREFORMED JOINT SEAL (2 1/2")**



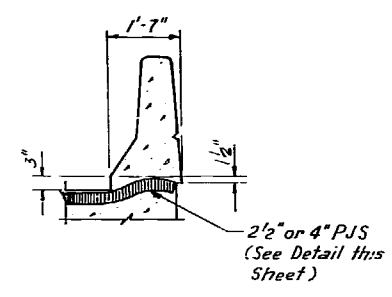
**PREFORMED JOINT SEAL (1")**  
(0.450" MOVEMENT)



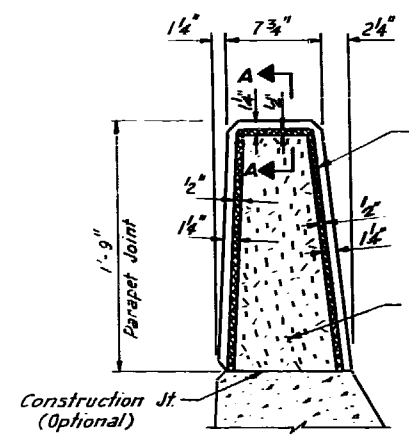
**SECTION A - A**



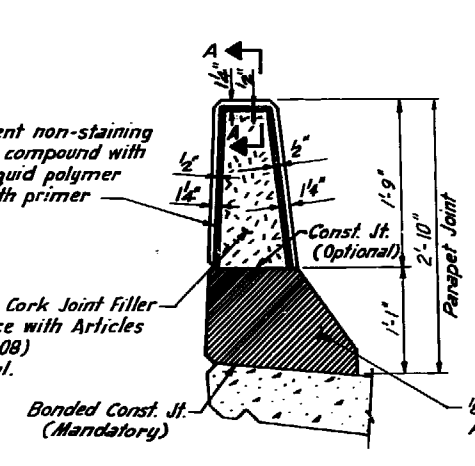
**MEDIAN SEAL DETAIL**



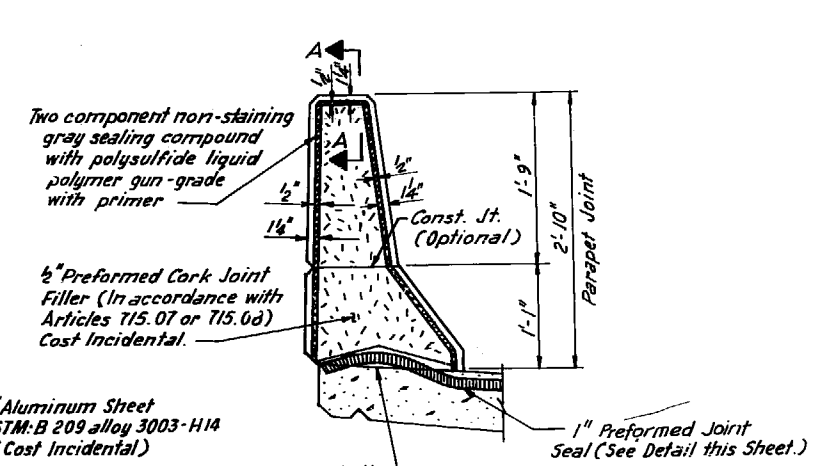
**EXPANSION JOINT**  
END OF SEAL TREATMENT



**TYPE 1**



**TYPE 2**



**TYPE 3**

**PARAPET JOINT DETAILS**

(For Location of Parapet Joints See Sheet No. 7)

**PREFORMED JOINT SEAL (2")**  
(0.975" MOVEMENT)

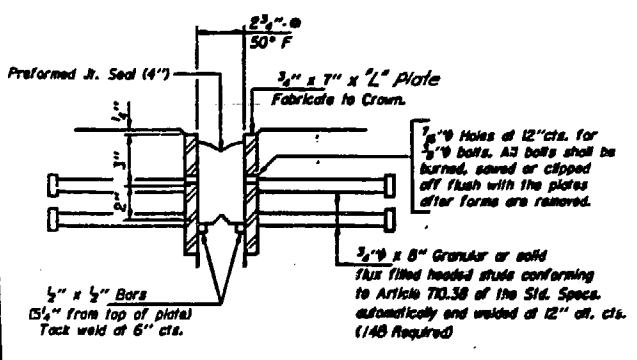
**SUPERSTRUCTURE DETAILS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION 8R-HB-5(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006

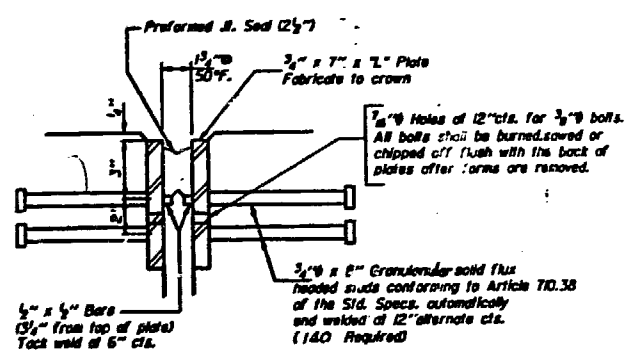
REVISIONS	
NAME	DATE

**Baker Engineers**  
Baker Engineering, Inc.

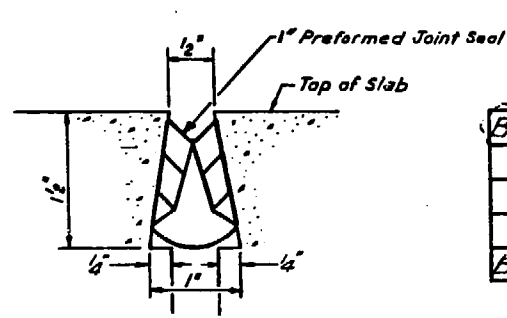
DESIGNED	P. Wood
CHECKED	J. Owen
DRAWN	Z. Dabrowski
CHECKED	P. Wood



**EXPANSION JOINT (WEST ABUTMENT)**



**EXPANSION JOINT (EAST ABUTMENT)**

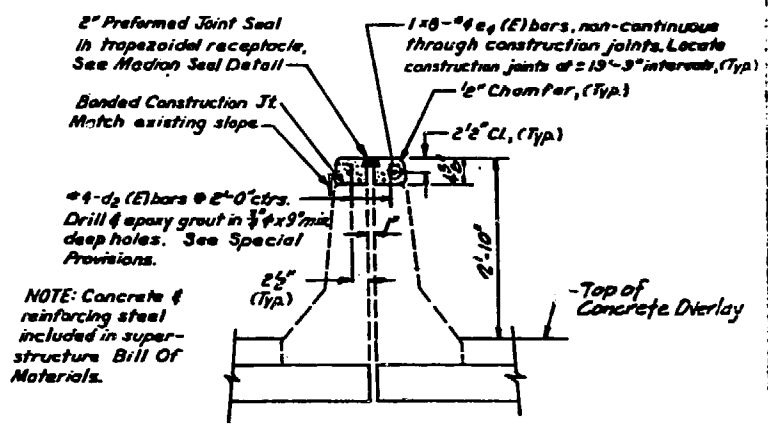


**TRANSVERSE DECK JOINT (AT HINGE - All horizontal dimensions at right angles to joint)**

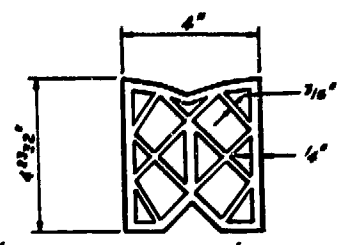
**Bar Lengths for Stage Construction**

	Stage I	Stage II
North	16'-2 3/4"	18'-4 1/2"
South	19'-7 1/2" W. ABUT. 16'-2 3/4" E. ABUT.	18'-5 1/2"

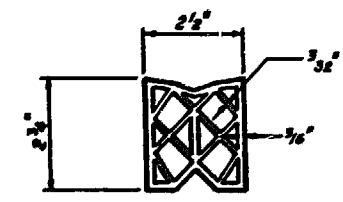
Butt Weld Plates at Stage Line



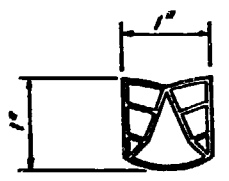
**MEDIAN DETAIL**



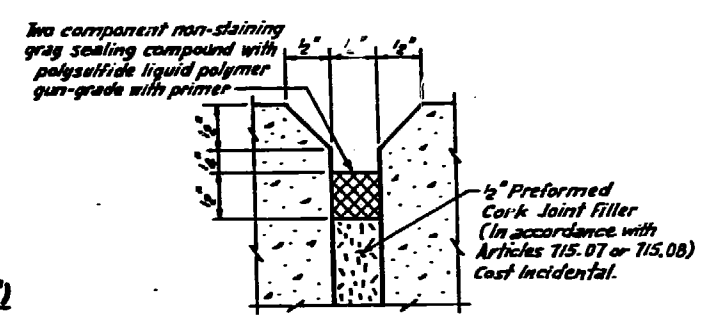
**PREFORMED JOINT SEAL (4")**



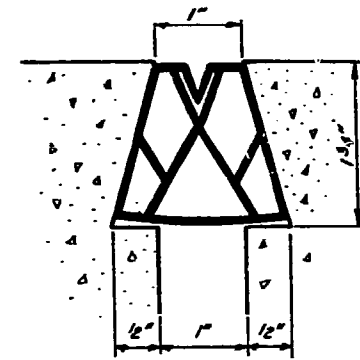
**PREFORMED JOINT SEAL (2 1/2")**



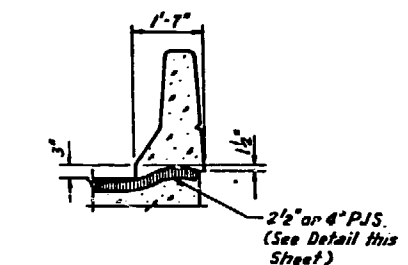
**PREFORMED JOINT SEAL (1") (0.450" MOVEMENT)**



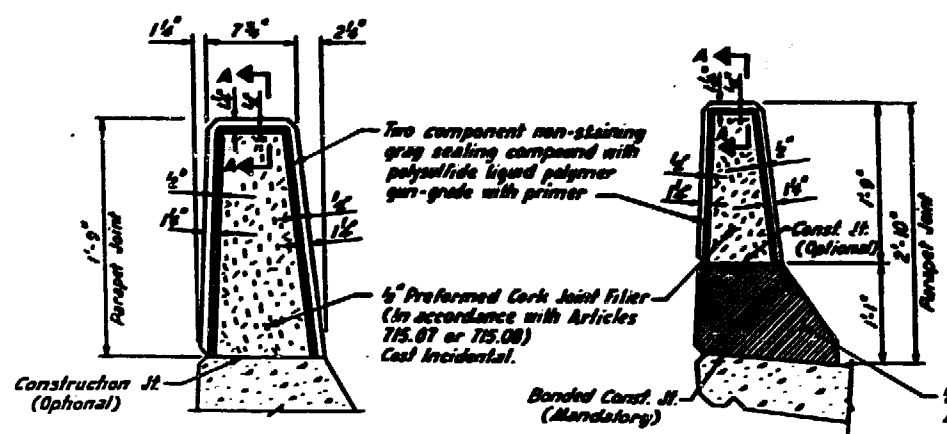
**SECTION A-A**



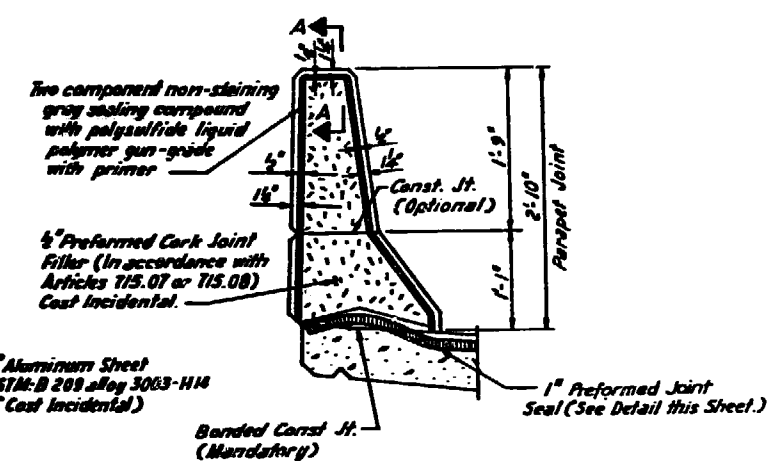
**MEDIAN SEAL DETAIL**



**EXPANSION JOINT END OF SEAL TREATMENT**

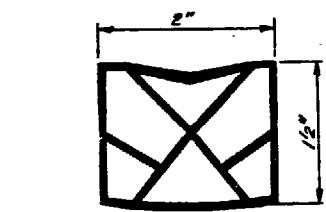


**TYPE 1**



**TYPE 3**

**PARAPET JOINT DETAILS (For Location of Parapet Joints See Sheet No. 7)**



**PREFORMED JOINT SEAL (2") (0.975" MOVEMENT)**

**Baker Engineers**  
Baker Engineering, Inc.

DESIGNED	P. Wood
CHECKED	J. Owen
DRAWN	Z. Dabrowski
CHECKED	P. Wood

**AS REVISED**

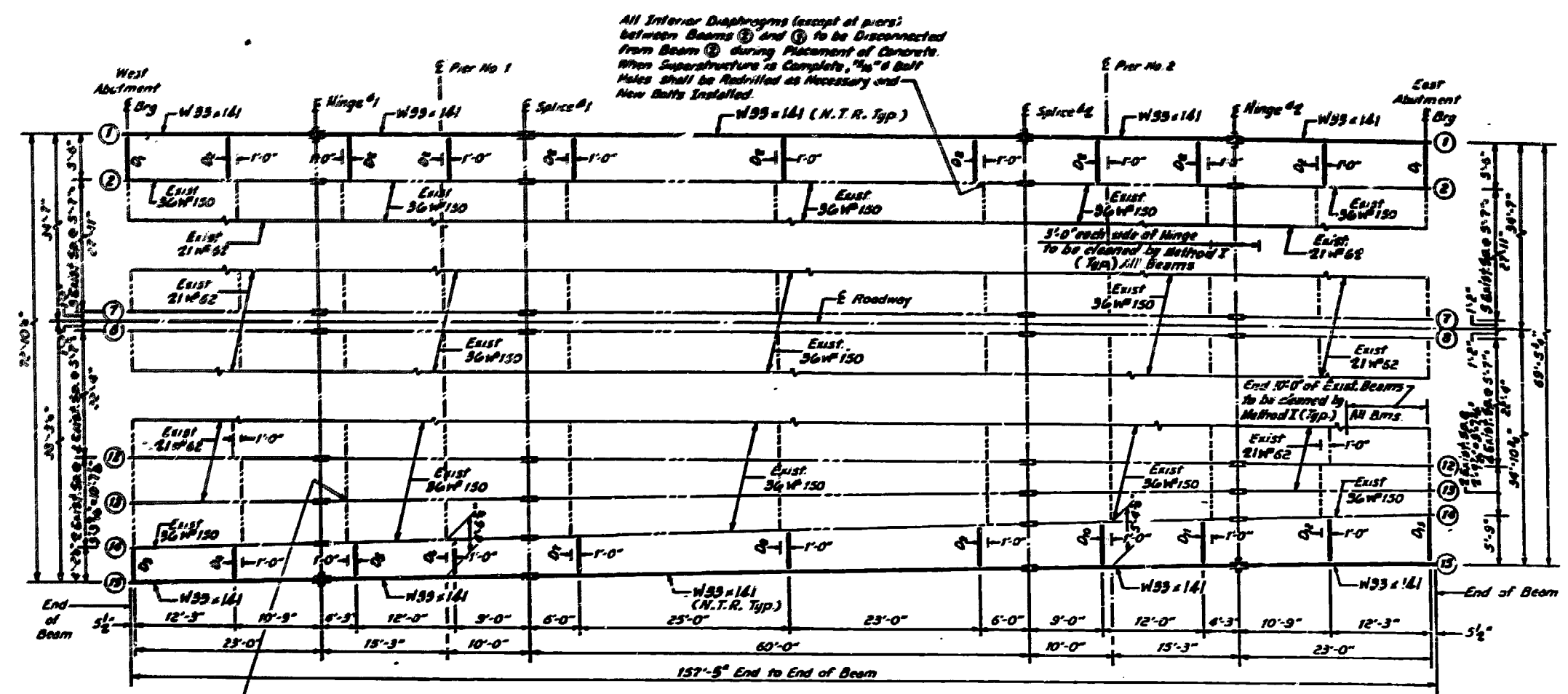
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**SUPERSTRUCTURE DETAILS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-5(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-000G

REVISIONS	
NAME	DATE





**EXISTING INTERIOR BEAM MOMENT TABLE**

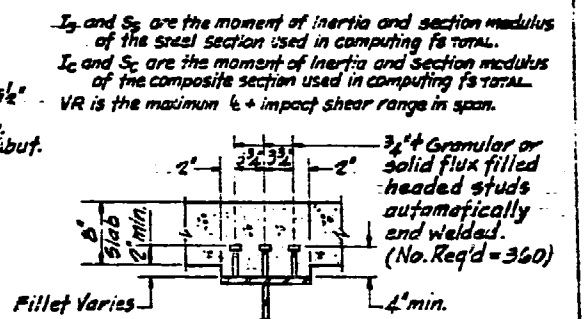
	0.5 Sp. 1 or 0.7 Sp. 2	Pier 1 or 2	0.5 Sp. 2
$I_x$ (in <sup>4</sup> )	1930	9260	10802
$I_c$ (in <sup>4</sup> )			22549
$S_x$ (in <sup>3</sup> )	127	502	667
$S_c$ (in <sup>3</sup> )			808
$E$ (ksi)	0.967	1.093	0.877
$M_R$ (ft-k)	78.2	297.74	477.66
$I_{s-compl.}$	7.01	7.09	6.59
$S_E$ (in <sup>3</sup> )			0.216
$M_{S2}$ (ft-k)			102.33
$M_{S1}$ (ft-k)	93.4	335.2	590.6
$M_{S2}$ (ft-k)	25.7	90.5	141.7
TOTAL (ft-k)	121.3	425.7	842.13
$I_{s-compl.}$			17.70
$F_{s-max}$ (ksi)	18.5	17.2	20.3
VR (ksi)			37.1

**NEW EXTERIOR BEAM MOMENT TABLE**

	0.5 Sp. 1 or 0.7 Sp. 2	Pier 1 or 2	0.5 Sp. 2
$I_x$ (in <sup>4</sup> )	7450	7450	7450
$I_c$ (in <sup>4</sup> )			18727
$S_x$ (in <sup>3</sup> )	443	443	223
$S_c$ (in <sup>3</sup> )			643
$E$ (ksi)	0.967	0.967	0.783
$M_R$ (ft-k)	64.0	282.0	343.1
$I_{s-compl.}$	1.7	7.6	19.7
$S_E$ (in <sup>3</sup> )			0.176
$M_{S2}$ (ft-k)			89.4
$M_{S1}$ (ft-k)	93.4	335.2	590.6
$M_{S2}$ (ft-k)	25.7	90.5	141.7
TOTAL (ft-k)	121.6	425.7	821.7
$I_{s-compl.}$			15.3
$F_{s-max}$ (ksi)	4.97	18.96	26.0
VR (ksi)			37.1

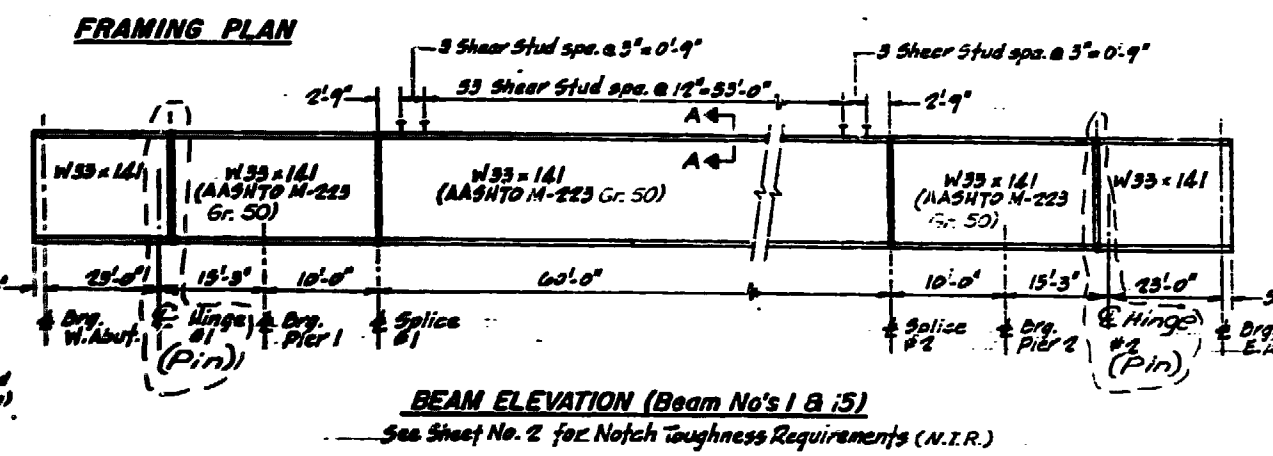
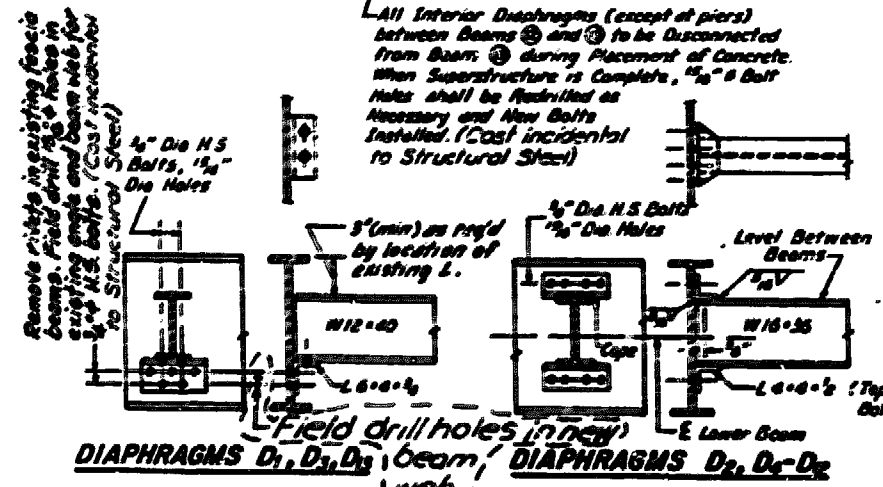
**INTERIOR BEAM REACTION TABLE**

E & W Abut. Piers 1 & 2		
$R_2$ (k)	11.37	72.31
$R_4$ (k)	21.8	36.1
Imp. (k)	6.6	10.4
Rtotal (k)	39.8	121.1



**DIAPHRAGM NO. & TO E BM**

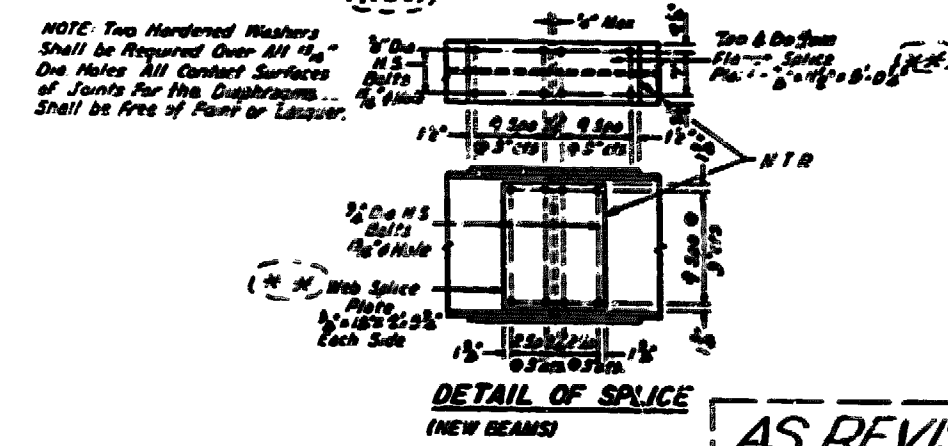
D <sub>1</sub> , D <sub>2</sub>	5'-8"
D <sub>3</sub>	4'-2 1/2"
D <sub>4</sub>	4'-3 1/2"
D <sub>5</sub>	4'-5 1/2"
D <sub>6</sub>	4'-8 1/2"
D <sub>7</sub>	4'-8 1/2"
D <sub>8</sub>	4'-11 1/2"
D <sub>9</sub>	5'-2 1/2"
D <sub>10</sub>	5'-4 1/2"
D <sub>11</sub>	5'-5 1/2"
D <sub>12</sub>	5'-7 1/2"
D <sub>13</sub>	5'-9"



**Web & Flange Splice Plate Material shall be AASHTO M-223 Gr. 50.**

**TOP OF FLANGE ELEVATIONS (BEFORE ANY DEFLECTION)\***

LOC. BEAM	E. Brg. W. Abut.	E. Hinge No. 1	E. Brg. Pier 1	E. Splice No. 1	E. Splice No. 2	E. Brg. Pier 2	E. Hinge No. 2	E. Brg. E. Abut.
1	792.17	792.07	792.00	791.95	791.71	791.67	791.61	791.49
15	792.12	792.02	791.95	791.91	791.71	791.67	791.61	791.51



**AS REVISED**

**Baker Engineers**  
 Structural Steel Division

DESIGNED: M. Ryan  
 CHECKED: J. Owen  
 DRAWN: J. Chalakis  
 CHECKED: M. Ryan

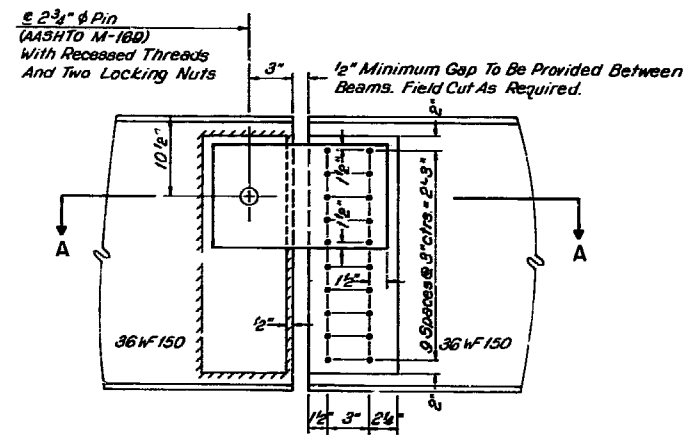
**REVISIONS**

NAME	DATE

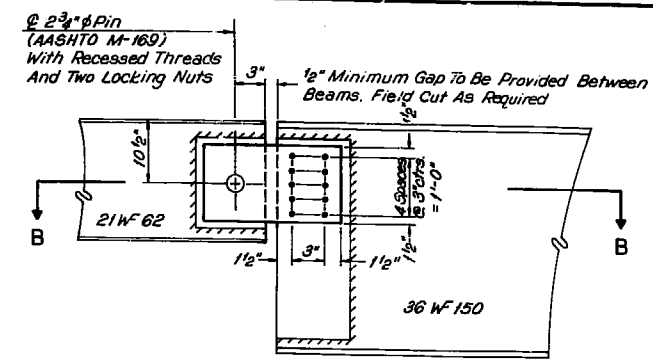
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL

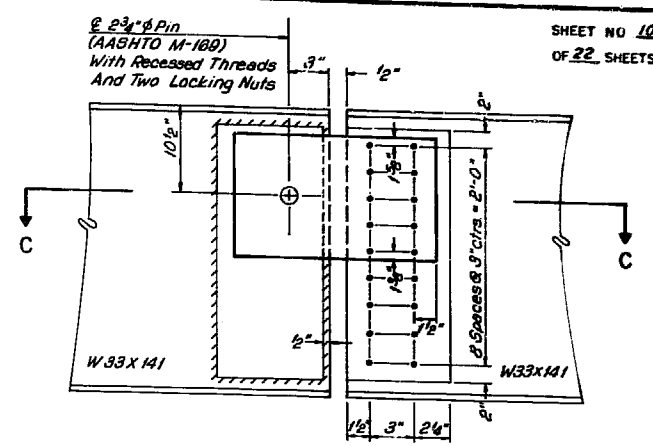
U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
 ST. CHARLES STREET  
 SECTION 8R-HB-5(86)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-000G



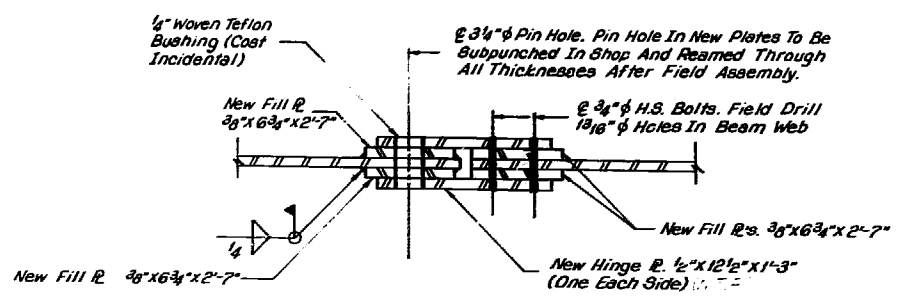
HINGE DETAIL EXISTING FASCIA BEAM



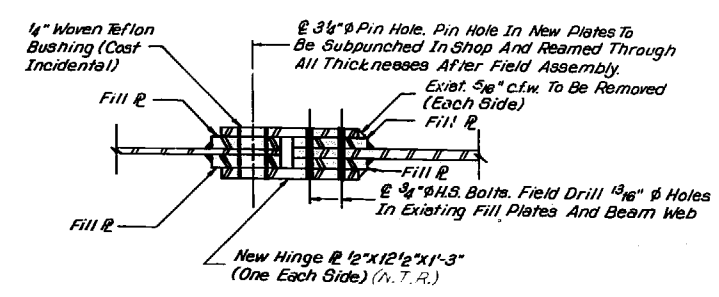
HINGE DETAIL EXISTING INTERIOR BEAM



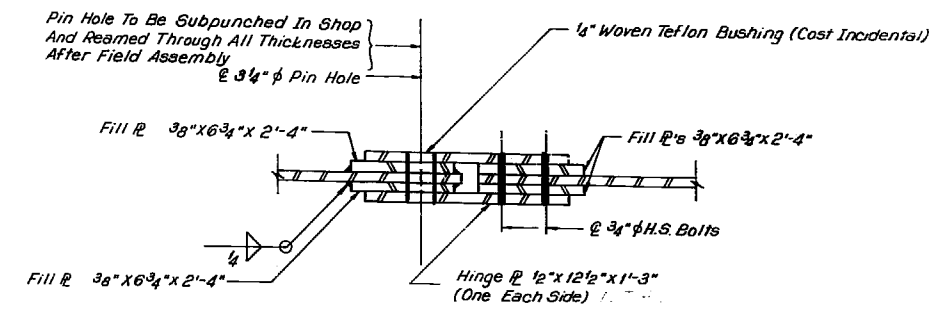
HINGE DETAIL NEW FASCIA BEAM (N.T.R.)



SECTION A-A



SECTION B-B



SECTION C-C

NOTES:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M-183 UNLESS OTHERWISE NOTED.
2. BUSHINGS TO BE SELF LUBRICATING FILAMENT WOUND EPOXY MATRIX BACKED GAR-FIL BEARING OR METAL BACKED FIBER GLIDE BEARING OR EQUIVALENT.
3. SUGGESTED SEQUENCE OF CONSTRUCTION FOR HINGE REPLACEMENT:
  - a. REMOVE PORTIONS OF CONCRETE DECK SHOWN ON SHEET 3
  - b. ERECT FALSEWORK TO SUPPORT BEAMS IN SPANS 1 AND 3. FALSEWORK SHALL CONFORM TO THE REQUIREMENTS OF ARTICLE 807.02 OF THE STANDARD SPECIFICATIONS. THE COST SHALL BE INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL. SEE SPECIAL PROVISIONS.
  - c. REMOVE EXISTING PINS AND BEAM HINGE CONNECTION PLATES. REMOVE FILL PLATES ALSO AT EXISTING FASCIA BEAMS ONLY.
  - d. CLEAN BEAMS - SEE NOTE NO. 4.
  - e. FIELD DRILL BOLT HOLES IN EXISTING BEAM WEBS AND EXISTING INTERIOR BEAM FILL PLATES. INSTALL BOLTS FINGER TIGHT, ADJUST PLATES INTO PROPER POSITION FOR PIN. FULLY TORQUE HIGH STRENGTH BOLTS, REAM PIN HOLE THROUGH BEAM WEB AND PLATES. INSTALL PIN ASSEMBLY, BURK THREADS.
  - f. REMOVE FALSEWORK.
4. CLEAN AND PAINT ALL STRUCTURAL METALS. ALL EXISTING STRUCTURAL METALS SHALL BE CLEANED USING METHOD II, WITH THE EXCEPTION OF THE FOLLOWING WHICH SHALL BE CLEANED BY METHOD I: THE END 10 FT. OF EACH BEAM AT THE ABUTMENTS, THE END DIAPHRAGMS, THE EXISTING BEAMS FOR A DISTANCE OF 3 FT. EACH SIDE OF THE HINGE CONNECTIONS AFTER THE CONNECTIONS ARE DISASSEMBLED, AND THE BEARINGS AT PIER 2. FOLLOWING REMOVAL OF THE CONCRETE DECK IN THE DESIGNATED AREAS, THE TOP FLANGES OF THE BEAMS, SPLICES, AND END DIAPHRAGMS SHALL BE CLEANED USING METHOD II. THE METAL THUS EXPOSED SHALL BE FIELD PRIMED PRIOR TO FORMING THE NEW DECK. SEE SPECIAL PROVISIONS FOR CLEANING AND PAINTING STEEL STRUCTURES.

SHEET NO. 10		TOTAL SHEETS		SHEET NO.	
OF 22 SHEETS		209		124	
SECTION		COUNTY		TOTAL SHEETS	
426 BR-HB-5(06)		KANE		209	
STA.		TO STA.		FED. AID PROJECT	
P-91-356-84					

DESIGNED	M.J.R.
CHECKED	J.H.O.
DRAWN	#312
CHECKED	J.H.O.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

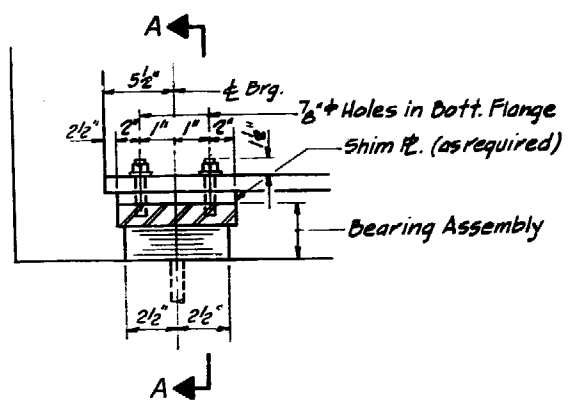
STRUCTURAL STEEL DETAILS

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-5(06)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006

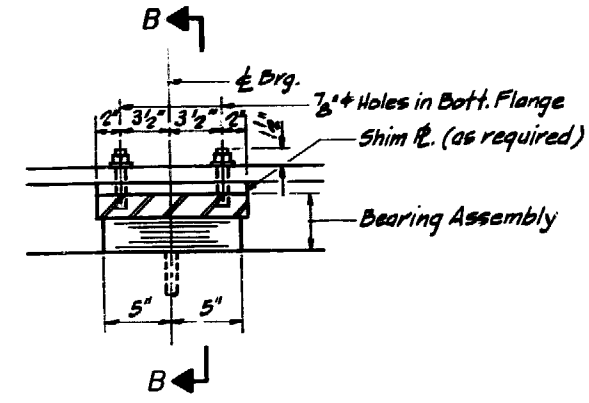
REVISIONS	
NAME	DATE



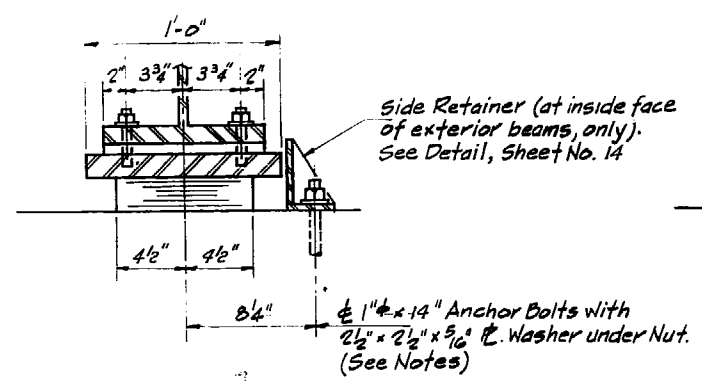




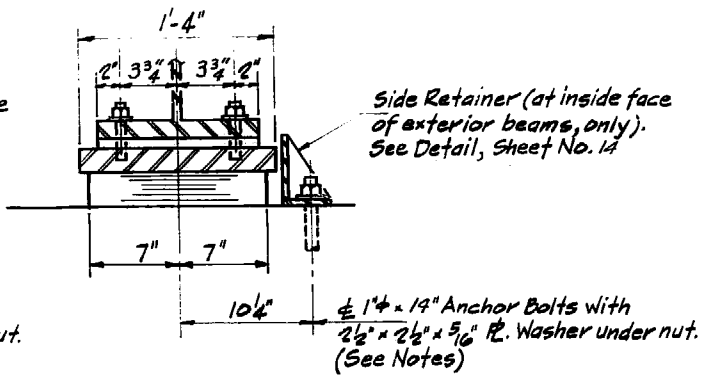
ELEVATION AT EAST ABUT.  
(Looking South)



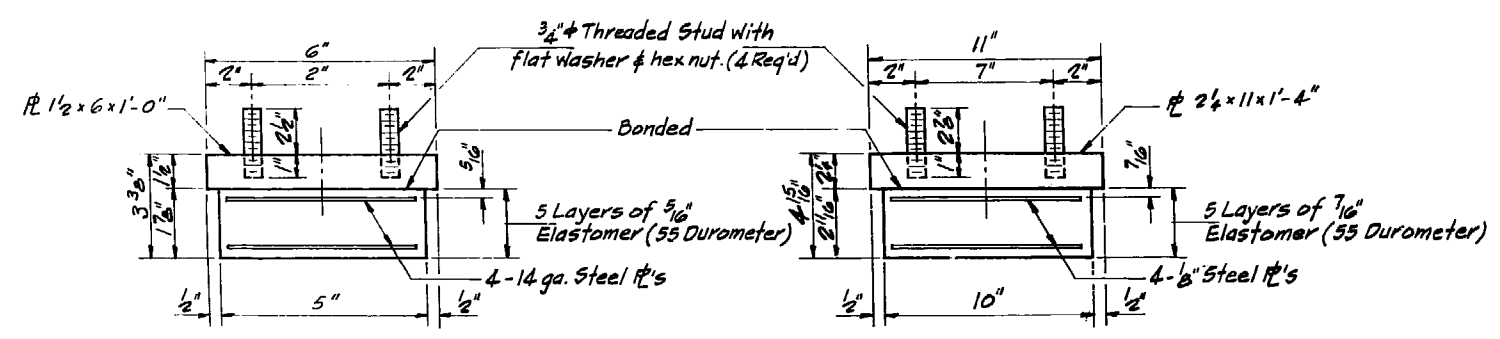
ELEVATION AT PIER 1



SECTION A-A



SECTION B-B



EAST ABUT. BEARING ASSEMBLY

PIER 1 BEARING ASSEMBLY

TYPE I ELASTOMERIC EXPANSION BRG.

- Notes:
- See Sheet #21 for Anchor Bolt Details.
  - Shim plates shall not be placed under Bearing Assembly.

**Baker Engineers**  
 DESIGNED P. Wood  
 CHECKED J. Owen  
 DRAWN J. Chaliki's  
 CHECKED P. Wood

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	4

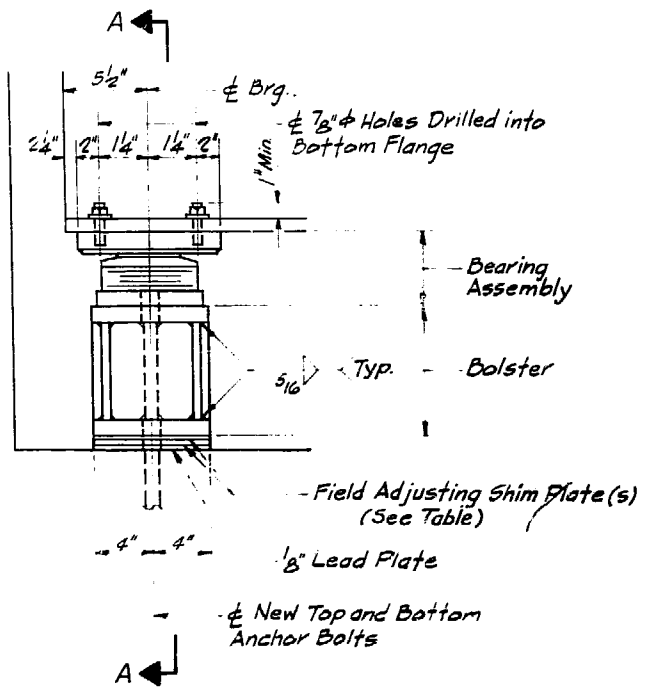
**REVISIONS**

NAME	DATE

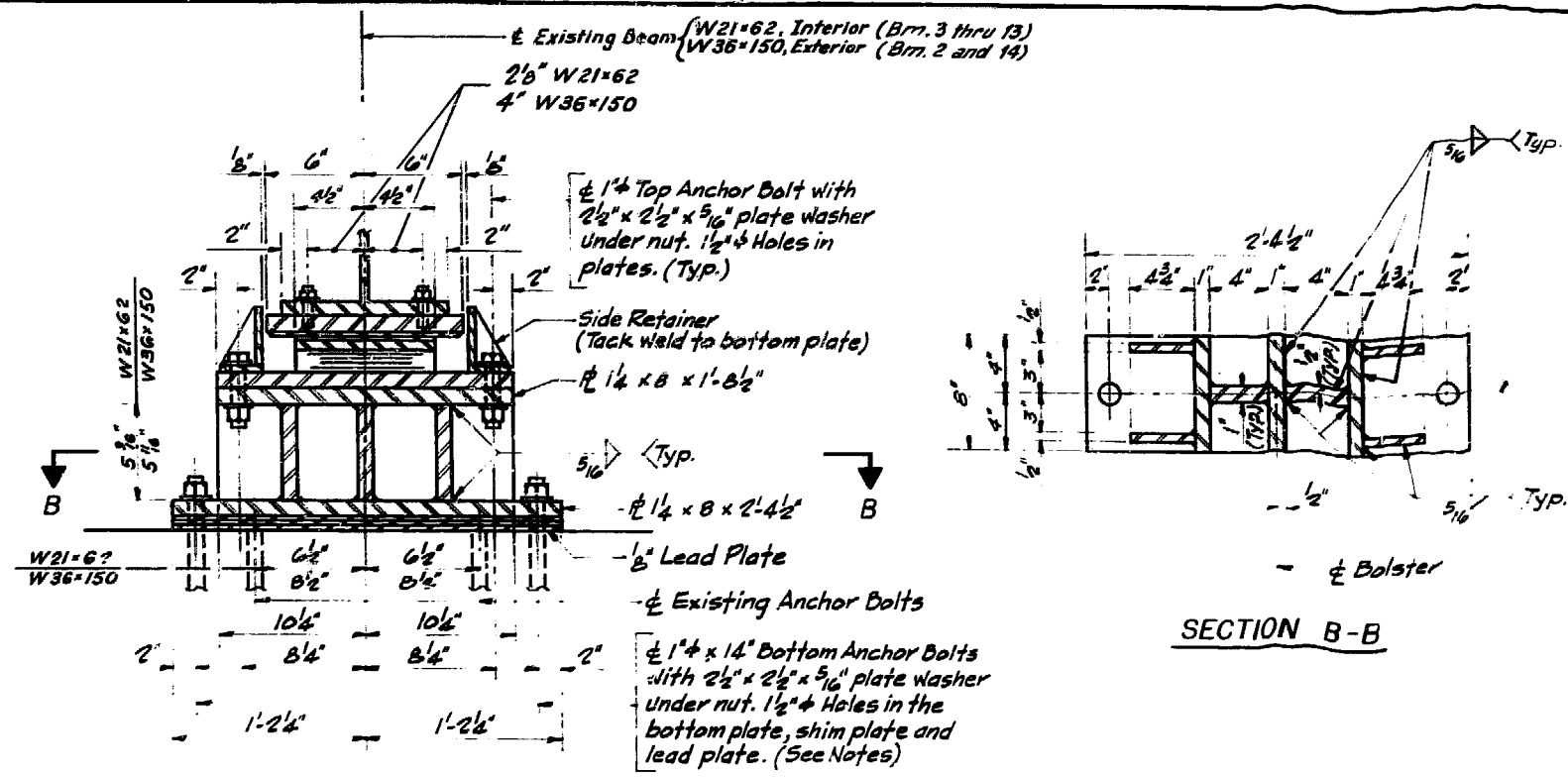
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

**NEW BEARING DETAILS  
 EAST ABUTMENT & PIER 1**

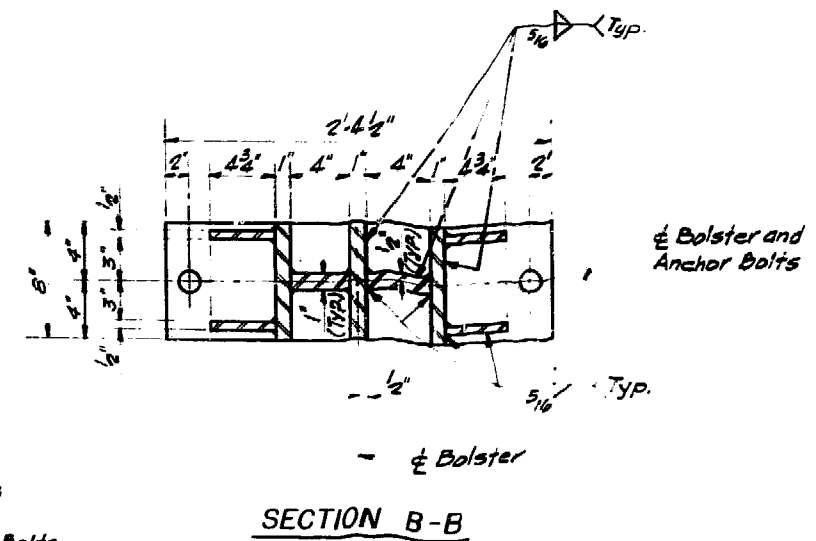
U.S. ROUTE 20 BY-PASS (F.A.R. 426) OVER  
 ST. CHARLES STREET  
 SECTION BR-HB-5(86)  
 KANE COUNTY  
 STAT: ON 218+04.95  
 STR. NO. 045-0006



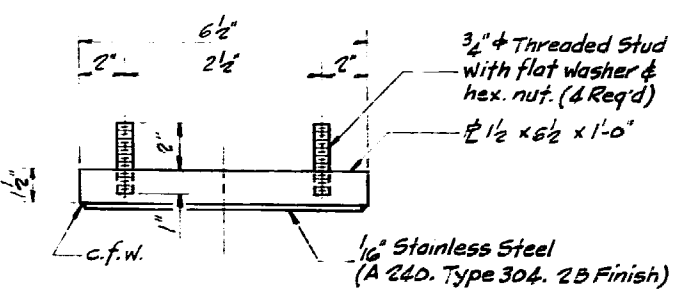
ELEVATION AT WEST ABUT.



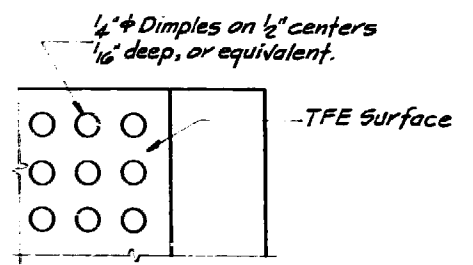
SECTION A-A



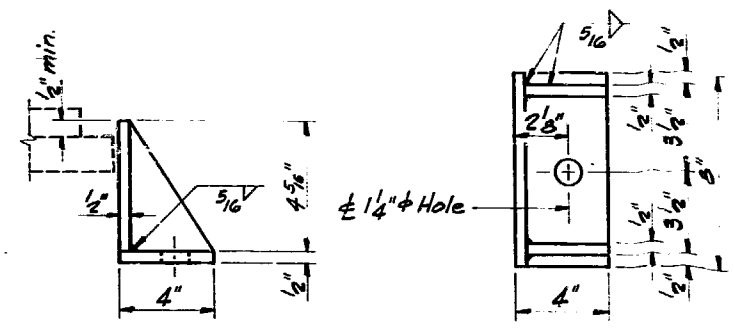
TYPE II TFE ELASTOMERIC EXP. BRG. WITH BOLSTER



TOP BEARING ASSEMBLY



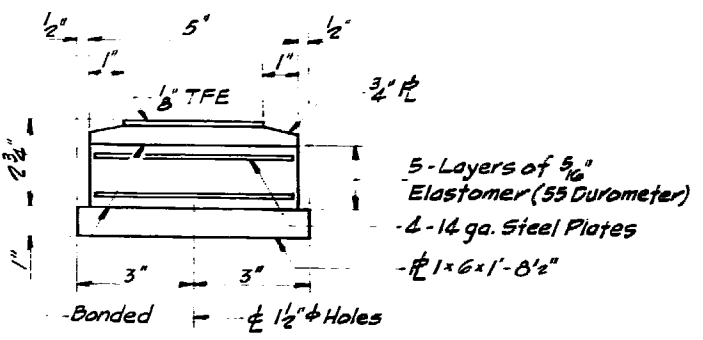
PLAN - TFE SURFACE



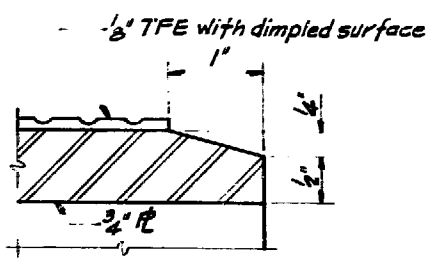
SIDE RETAINER

Beam	2	3	4	5	6	7	8	9	10	11	12	13	14
Location													
West Abutment	3/16"	1/16"	0	3/4"	0	3/4"	3/4"	0	3/4"	0	3/4"	0	0

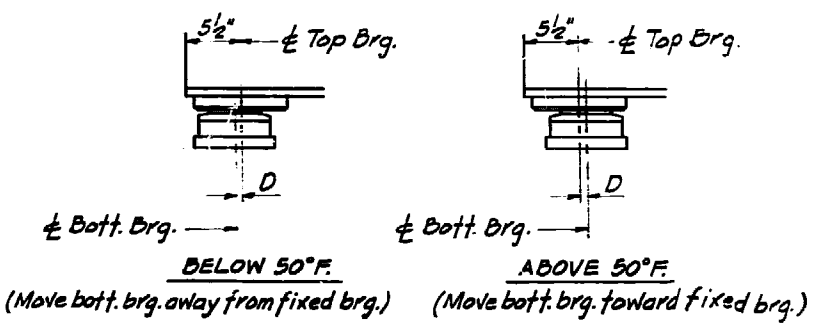
- Notes:
- See Sheet #21 for Anchor Bolt Details.
  - The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces. Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.
  - Contractor shall verify dimensions of exist. Bearings before removal and ordering of new Bearings, or fabrication of Bolsters.
  - Cost of Structural Steel for Bolsters is included for payment with "Furnishing and Erecting Structural Steel".
  - The Contractor has the option to provide an alternate bolster arrangement made up of an appropriate wide flange or HP shape with the necessary stiffeners. This alternate must be submitted via detailed shop drawings and must receive approval by the Engineer prior to fabrication.



BOTTOM BEARING ASSEMBLY



SECTION THRU TFE



SETTING ANCHOR BOLTS AT EXP. BRG.

$D = 1/8"$  per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

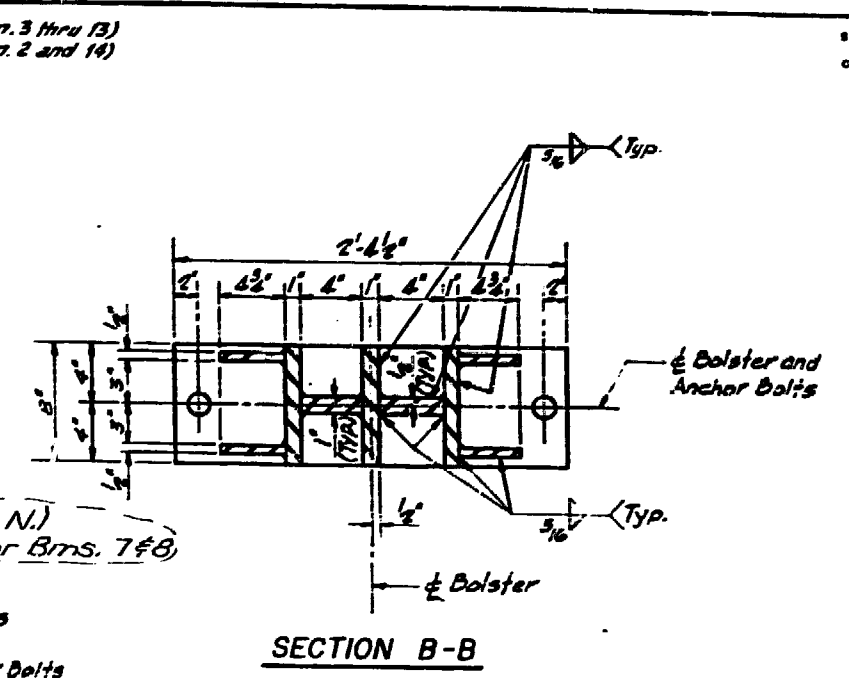
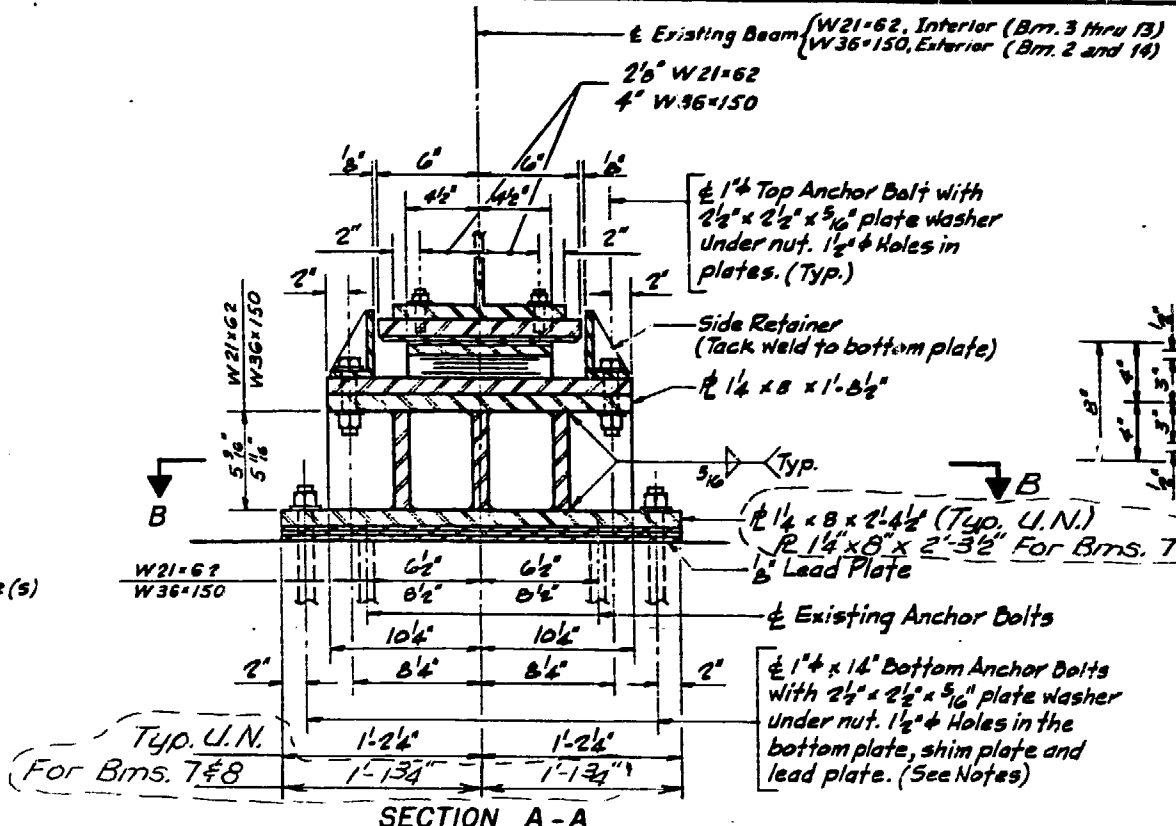
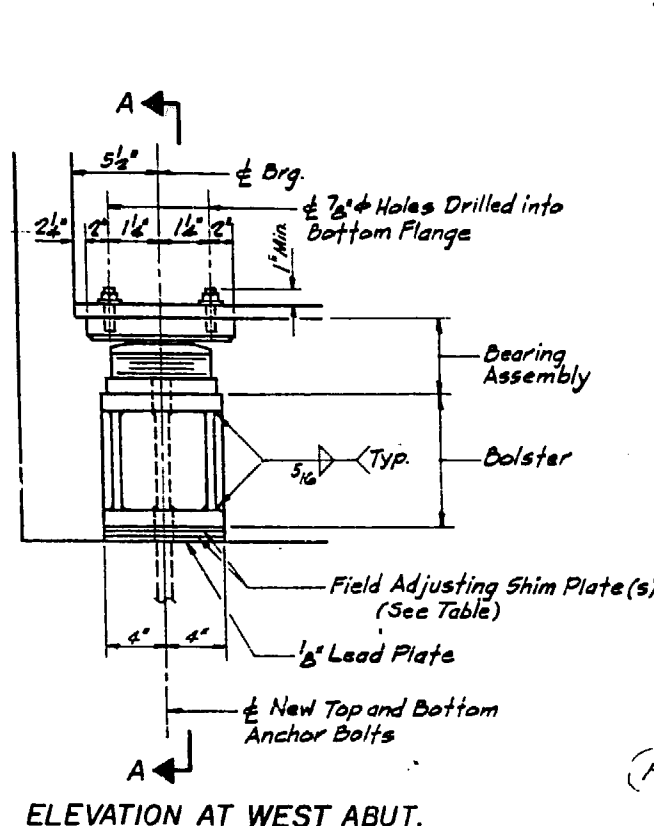
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	13

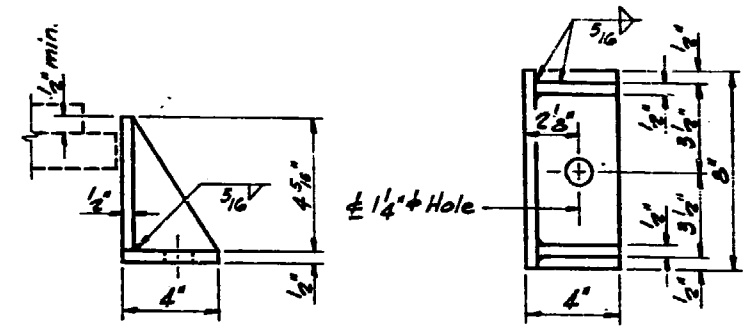
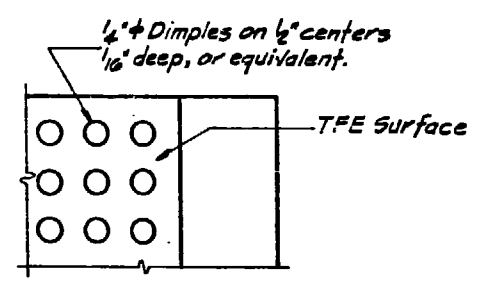
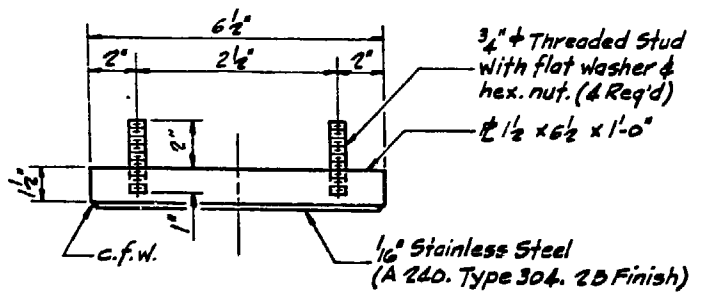
REVISIONS	
NAME	DATE

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
**REPLACEMENT BEARING DETAILS**  
**WEST ABUTMENT**  
 U.S. ROUTE 20 BY-PASS (F.A.R. 426) OVER  
 ST. CHARLES STREET  
 SECTION BR-HB-5(86)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-0006

Baker Engineers  
 Baker Engineering, Inc.  
 DESIGNED P. Wood  
 CHECKED J. Owen  
 DRAWN J. Chalirikis  
 CHECKED P. Wood

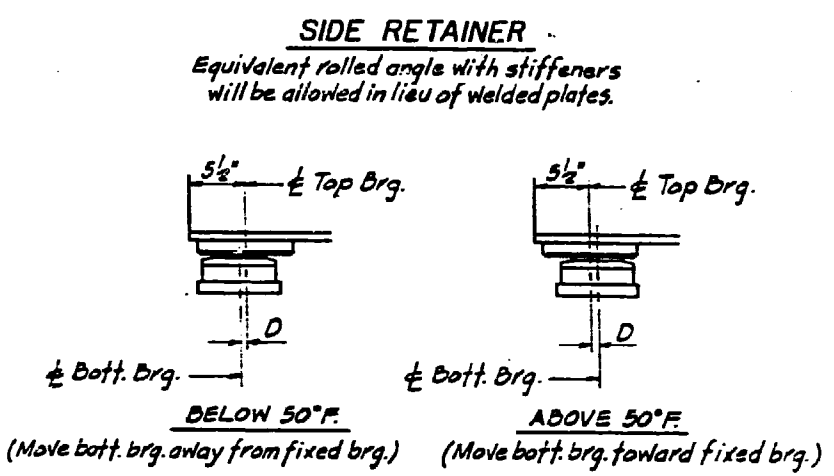
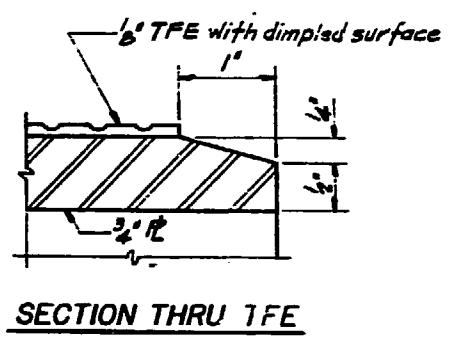
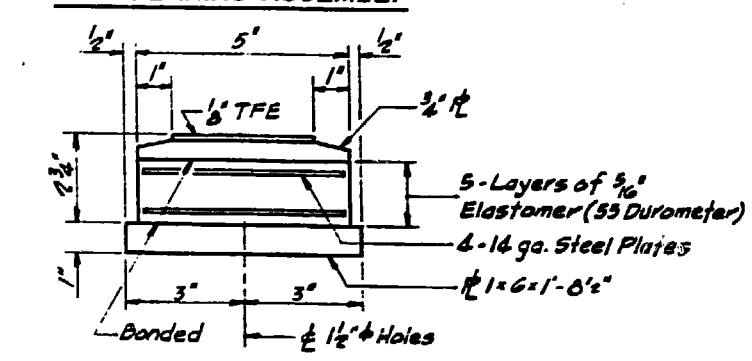


**TYPE II TFE ELASTOMERIC EXP. BRG. WITH BOLSTER**



**TABLE OF SHIM PLATES**

Beam	2	3	4	5	6	7	8	9	10	11	12	13	14
Location													
West Abutment	3/16"	3/16"	0	3/4"	0	3/4"	3/4"	0	3/4"	0	3/4"	0	0



- Notes:**
- See Sheet # 21 for Anchor Bolt Details.
  - The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces. Bonding of 1/8" TFE sheet during vulkanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.
  - Contractor shall verify dimensions of exist. Bearings before removal and ordering of new Bearings, or fabrication of Bolsters.
  - Cost of Structural Steel for Bolsters is included for payment with "Furnishing and Erecting Structural-Steel".
  - The Contractor has the option to provide an alternate bolster arrangement made up of an appropriate wide flange or HP shape with the necessary stiffeners. This alternate must be submitted via detailed shop drawings and must receive approval by the Engineer prior to fabrication.

**Baker Engineers**  
DESIGNED P. Wood  
CHECKED J. Owen  
DRAWN J. Chaliki  
CHECKED P. Wood

**AS REVISED**

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	13

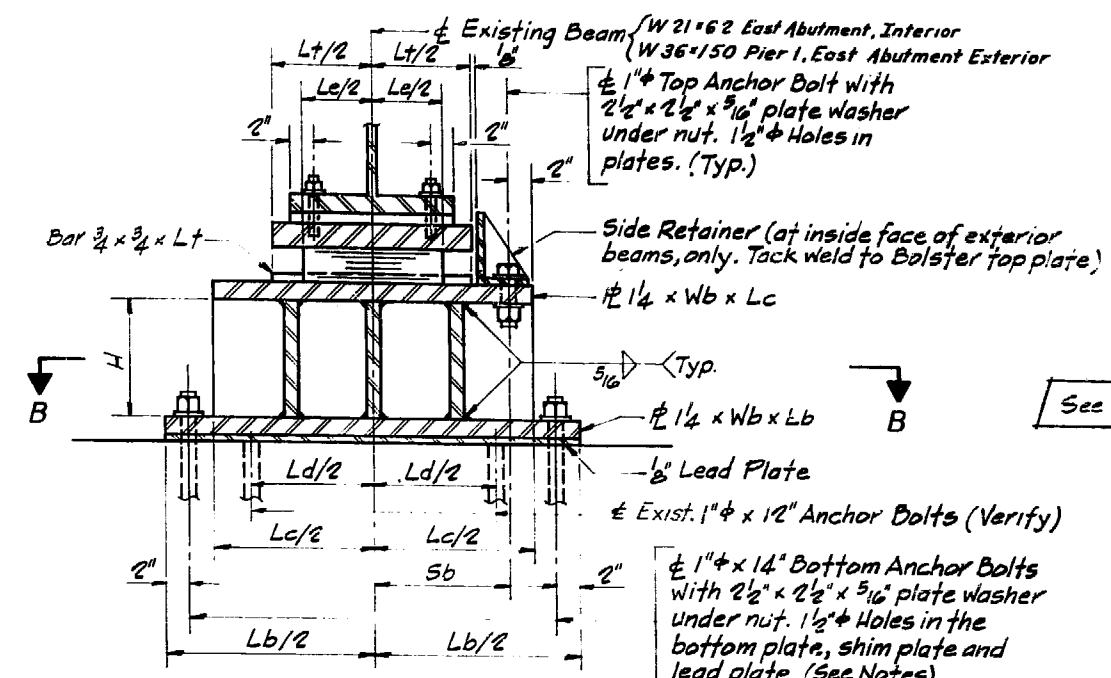
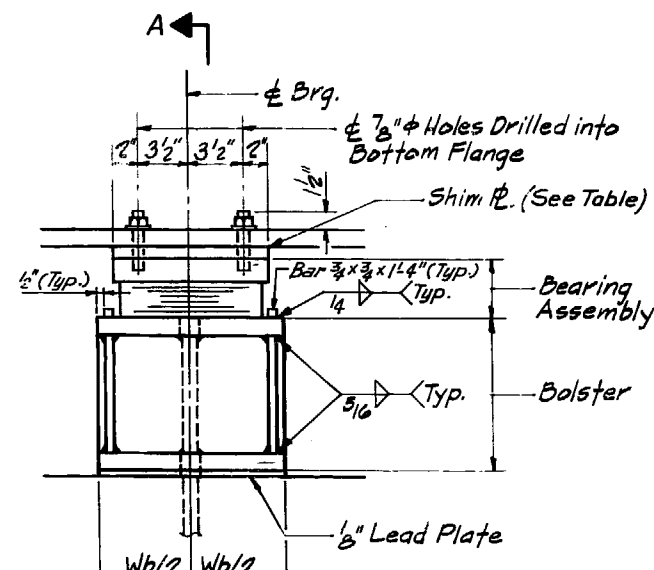
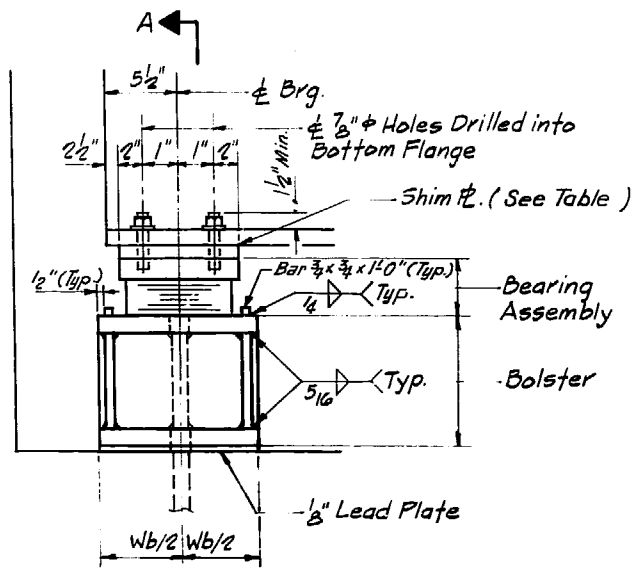
**REVISIONS**

NAME	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**REPLACEMENT BEARING DETAILS  
WEST ABUTMENT**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-5(B)  
KANE COUNTY  
STATION 21B+04.95  
STR. NO. 045-0006



ELEVATION AT EAST ABUT.

ELEVATION AT PIER I

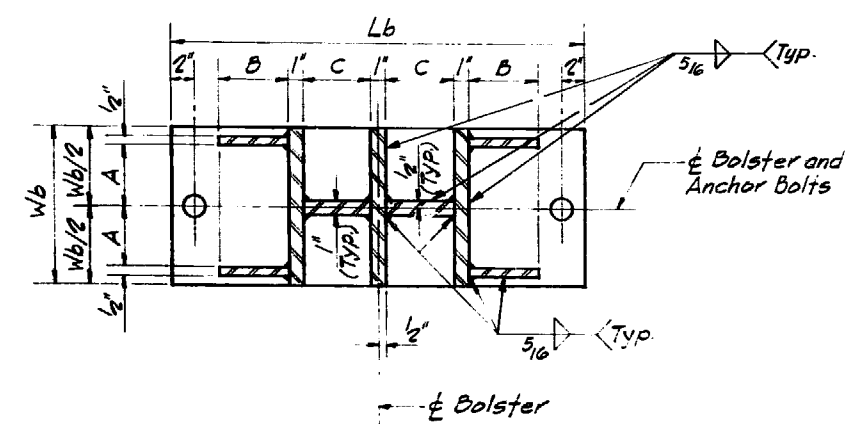
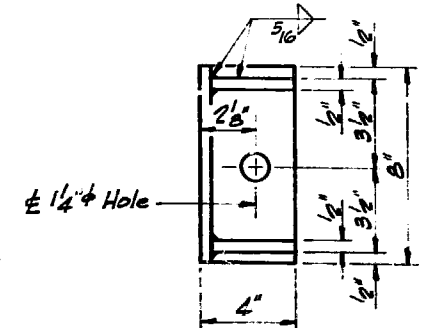
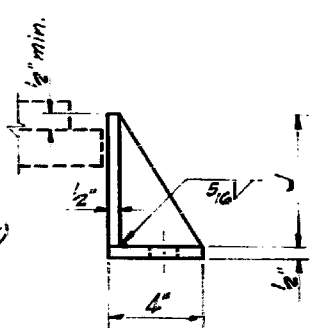
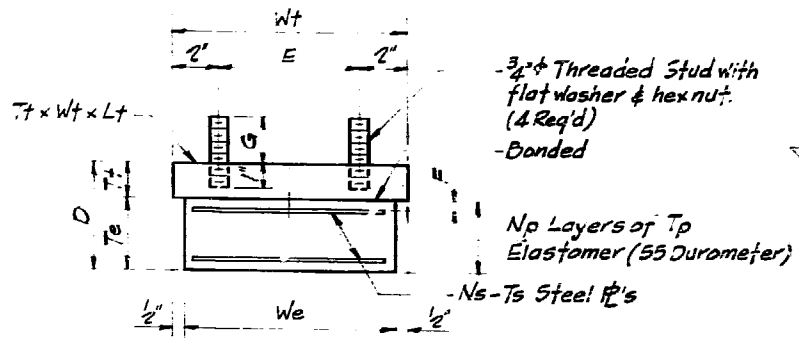
SECTION A-A

See Note 5, Sheet No. 13.

TYPE I ELASTOMERIC EXPANSION BRG. WITH BOLSTER

TABLE OF SHIM PLATES

Beam Location	2	3	4	5	6	7	8	9	10	11	12	13	14
East Abutment	0	7/16"	0	3/4"	0	5/8"	5/8"	0	3/4"	0	7/16"	0	0
Pier I	1/2"	0	1/16"	0	3/4"	0	0	3/4"	0	1/16"	0	5/8"	0



EAST ABUT. BEARING ASSEMBLY

SIDE RETAINER

SECTION B-B

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

- Notes:
- See Sheet #21 for Anchor Bolt Details.
  - Contractor shall verify dimensions of existing Bearings before removal and ordering of new Bearings, or fabrication of Bolsters.
  - Cost of Structural Steel for Bolsters is included for payment with "Furnishing and Erecting Structural Steel".

TABLE OF VARIABLES FOR TYPE I EXPANSION BEARINGS WITH BOLSTERS

LOCATION	VARIABLE																							
	Te	We	Le	Np	Tp	Ns	Ts	Tt	Wt	Lt	Wb	Lb	Lc	Sb	Ld	A	B	C	D	E	F	G	H	J
East, Abutment Int. W21x62	1 7/8"	5"	9"	5	5/16"	4	1 1/2"	1 1/2"	6"	1'-0"	9"	2'-4 1/2"	1'-0 1/2"	8 1/2"	1'-1"	3 1/2"	4 3/4"	4"	3 3/8"	2"	5/16"	2 3/8"	7 1/2"	3 3/8"
East, Abutment Ext. W36x150	1 7/8"	5"	9"	5	5/16"	4	1 1/2"	1 1/2"	6"	1'-0"	9"	2'-4 1/2"	1'-0 1/2"	8 1/2"	1'-5"	3 1/2"	4 3/4"	4"	3 3/8"	2"	5/16"	2 3/8"	7 1/2"	3 3/8"
Pier I	2 1/8"	10"	1'-2"	5	7/16"	4	1 5/8"	2 1/4"	11"	1'-4"	1'-2"	2'-0 1/2"	2'-0 1/2"	10 1/2"	1'-5 1/2"	6"	5 3/4"	5"	4 1/8"	7"	7/16"	2 3/8"	6 1/8"	4 1/8"

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	26

REVISIONS	
NAME	DATE

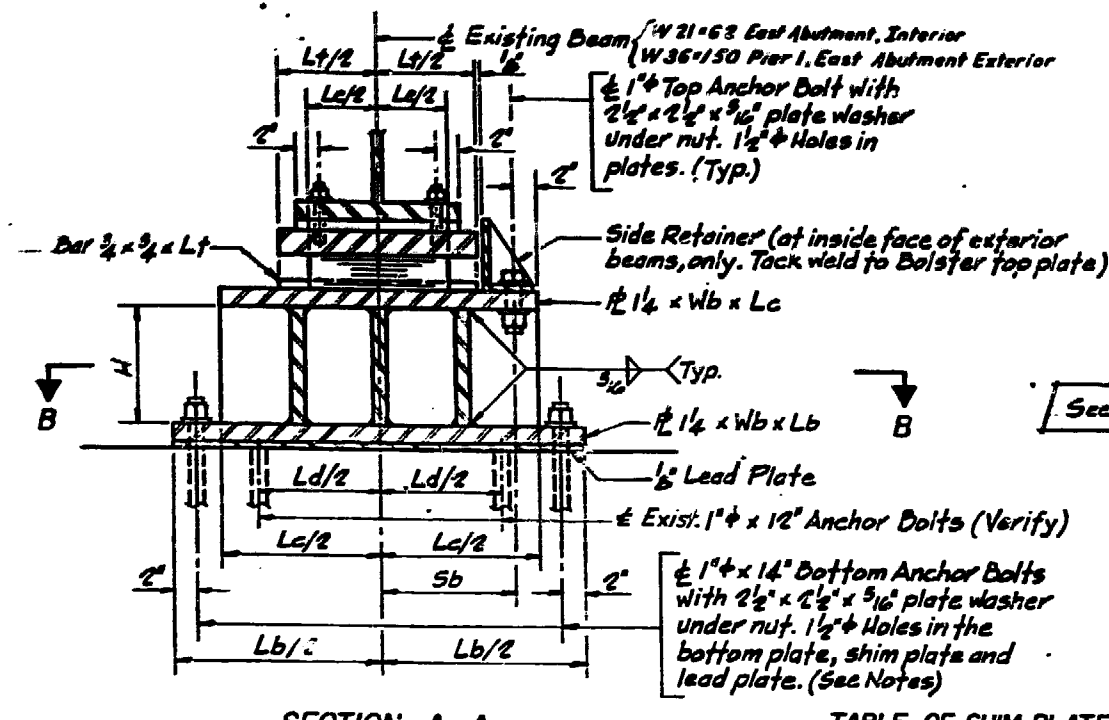
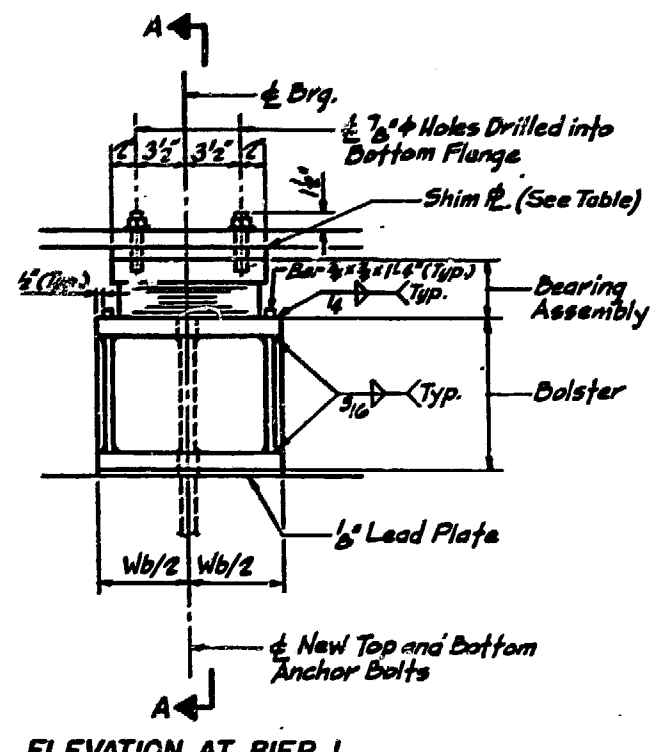
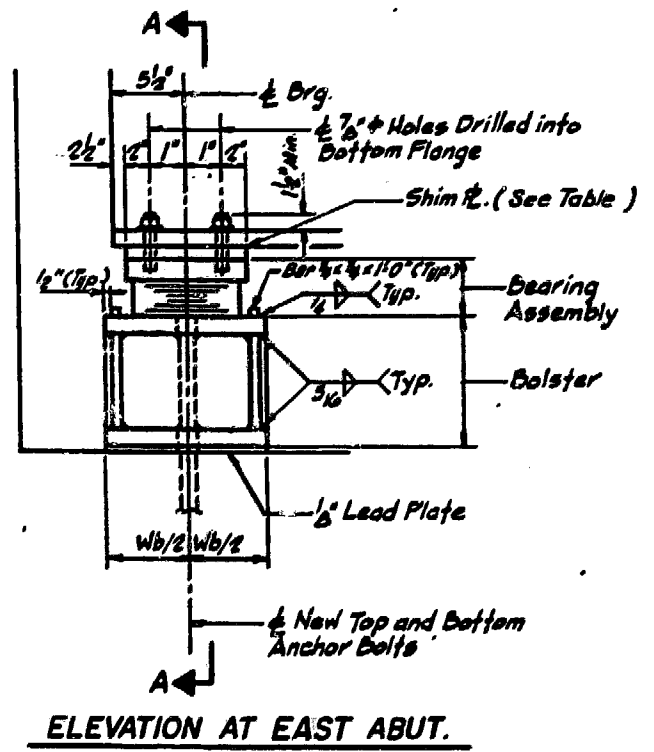
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

REPLACEMENT BEARING DETAILS  
EAST ABUTMENT & PIER I

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION 8R-HB-5(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-000G

Baker Engineers

DESIGNED P. Wood  
CHECKED J. Owen  
DRAWN J. Chalakis  
CHECKED F. Wood

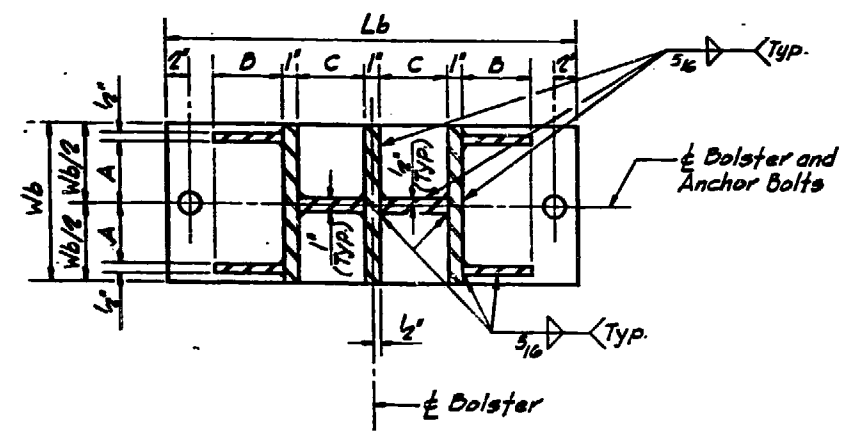
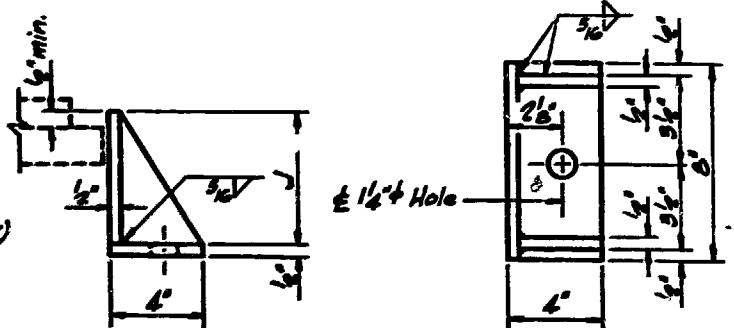
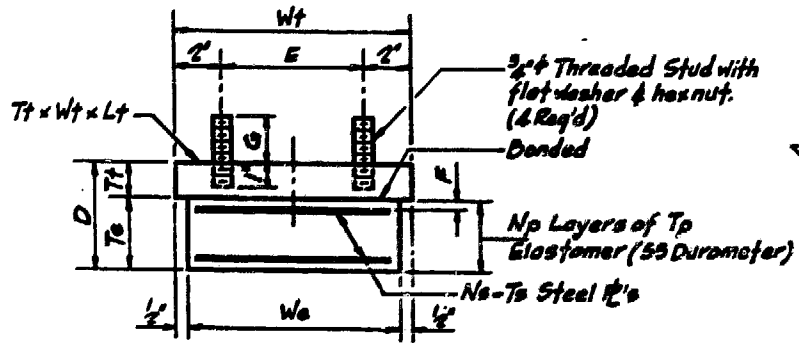


See Note 5, Sheet No. 13.

TYPE I ELASTOMERIC EXPANSION BRG. WITH BOLSTER

TABLE OF SHIM PLATES

Beam Location	2	3	4	5	6	7	8	9	10	11	12	13	14
East Abutment	0	7/16"	0	3/4"	0	5/8"	5/8"	0	3/4"	0	7/8"	0	0
Pier I	1/2"	0	1/8"	0	3/4"	0	0	3/4"	0	1/8"	0	5/8"	0



PIER I BEARING ASSEMBLY

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

- Notes:
- See Sheet #21 for Anchor Bolt Details.
  - Contractor shall verify dimensions of existing Bearings before removal and ordering of new Bearings, or fabrication of Bolsters.
  - Cost of Structural Steel for Bolsters is included for payment with "Furnishing and Erecting Structural Steel".

TABLE OF VARIABLES FOR TYPE I EXPANSION BEARINGS WITH BOLSTERS

LOCATION	VARIABLE																							
	Ta	Wa	La	Np	Tp	Ns	Ts	Tf	Wf	Lf	Wb	(Lb)	Lc	Sb	Ld	A	B	C	D	E	F	G	H	J
East. Abutment Int. W21x62	1 7/8"	5"	9"	9	3/8"	4	1 1/2"	1 1/2"	6"	1'-0"	9"	2'-4 1/2"	1'-8 1/2"	5 1/2"	1'-1"	3 1/2"	4 1/2"	4"	3 3/8"	2"	5/16"	2 3/8"	7 1/2"	3 3/8"
East. Abutment Ext. W36x150	1 7/8"	5"	9"	5	3/8"	4	1 1/2"	1 1/2"	6"	1'-0"	9"	2'-4 1/2"	1'-8 1/2"	8 1/2"	1'-5"	3 1/2"	4 1/2"	4"	3 3/8"	2"	5/16"	2 3/8"	7 1/2"	3 3/8"
Pier I	2 1/8"	10"	1'-2"	5	7/16"	6	1 1/2"	2 1/4"	11"	1'-5"	1'-2"	2'-0 1/2"	2'-0 1/2"	10 1/2"	1'-5 1/2"	6"	5 1/4"	5"	4 1/8"	7"	7/16"	2 3/8"	6 1/2"	4 1/8"

\* Lb in the table typ. U.I.N. Lb 2'-3 1/2" for Bms. 7 & 8 at East Abut. & Pier #1.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	26

Baker Engineers  
 DESIGNED: P. Wood  
 CHECKED: J. Owen  
 DRAWN: J. Chalakis  
 CHECKED: P. Wood

AS REVISED

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 REPLACEMENT BEARING DETAILS  
 EAST ABUTMENT & PIER I  
 U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
 ST. CHARLES STREET  
 SECTION BR-HB-5(86)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-0006

REVISIONS

NAME	DATE



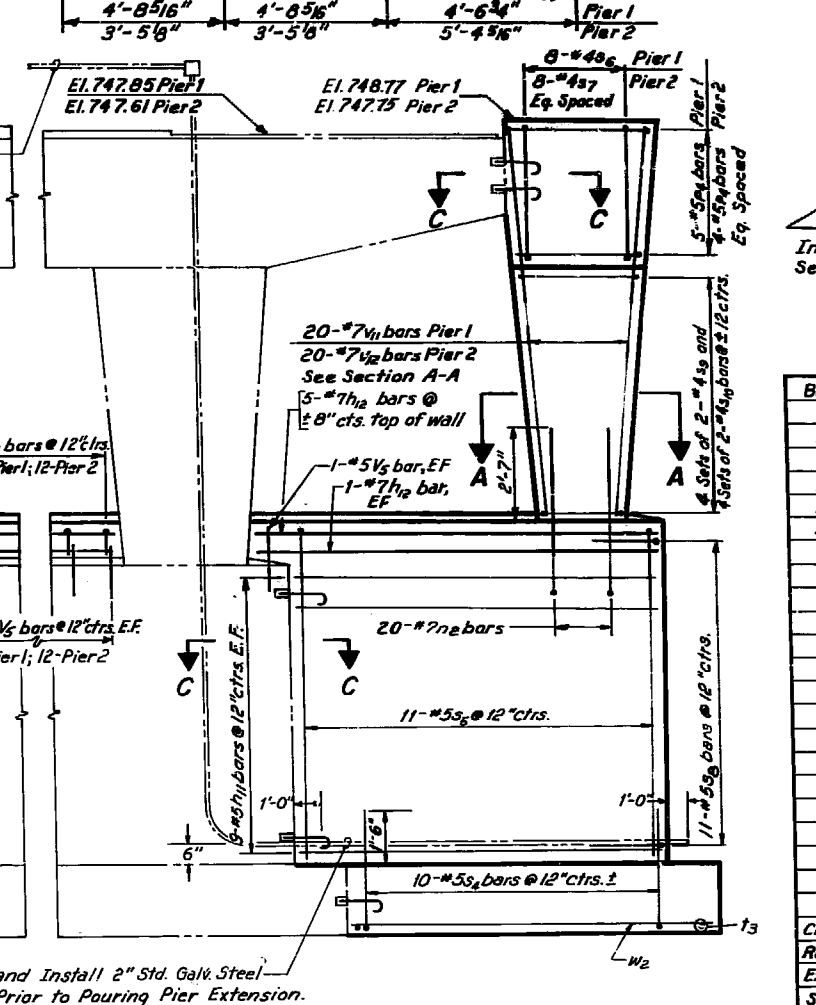
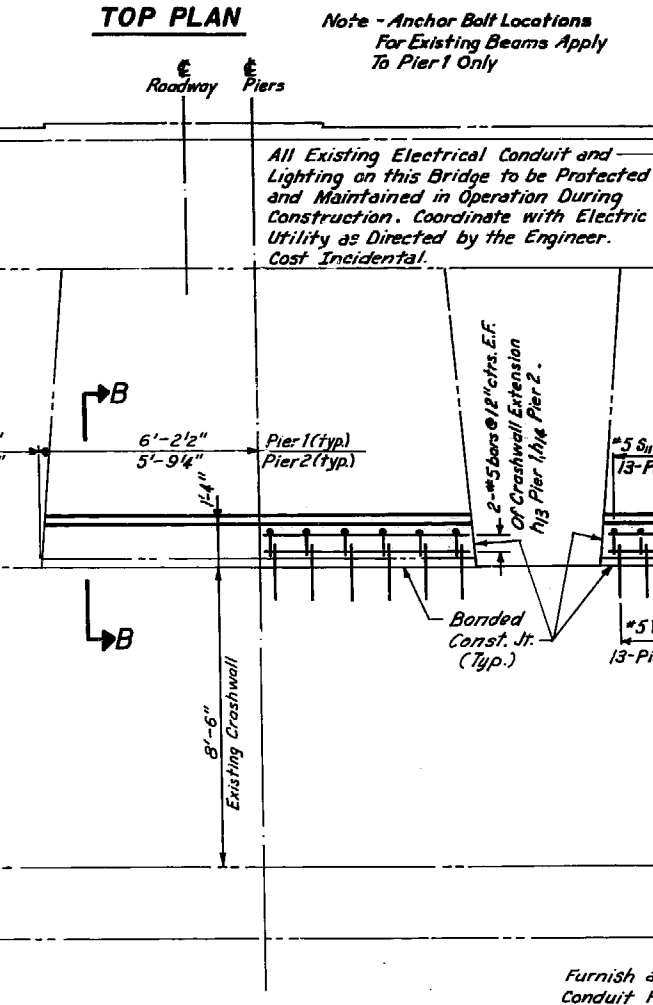
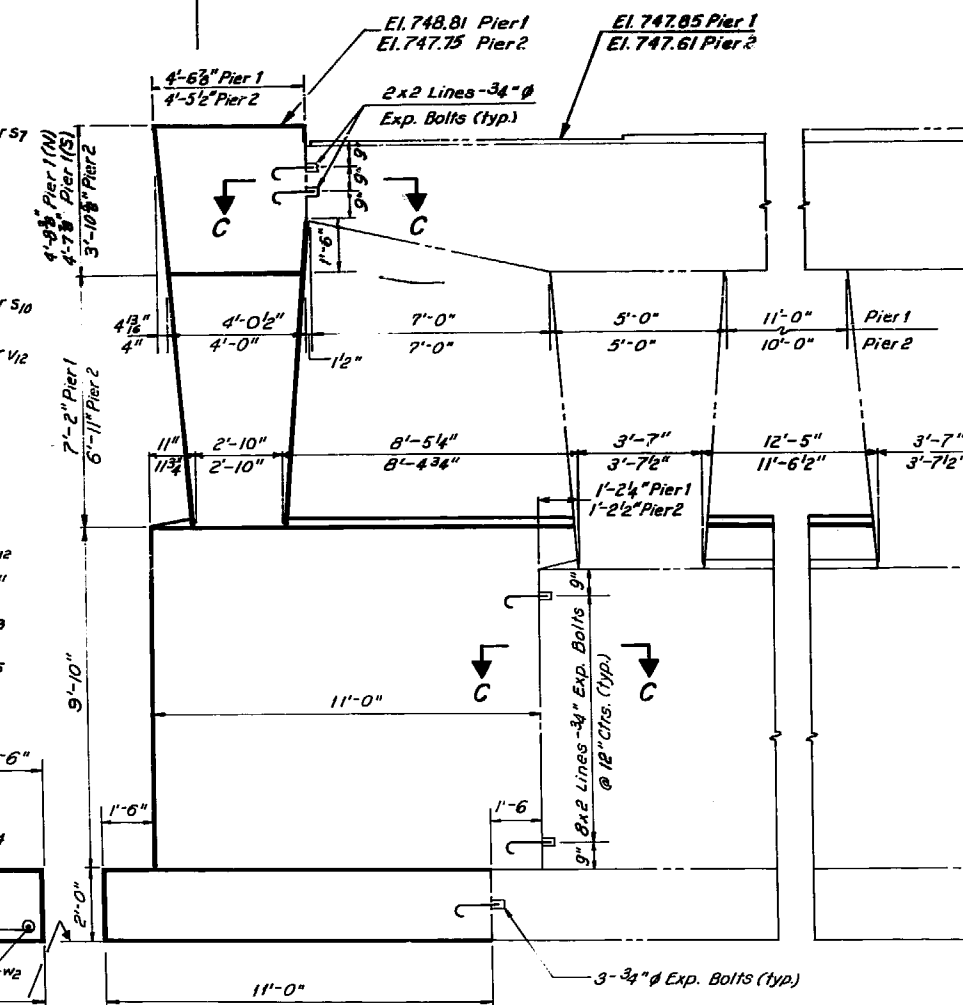
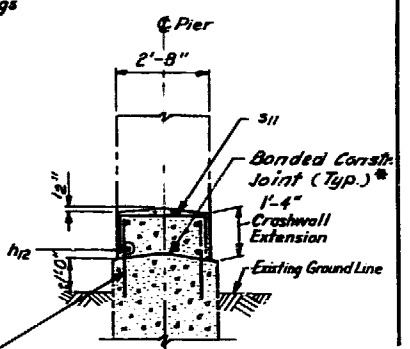
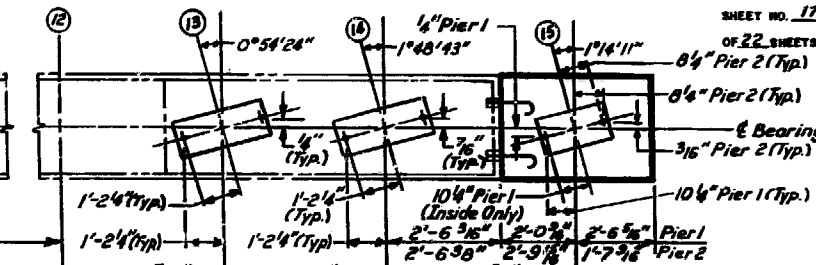
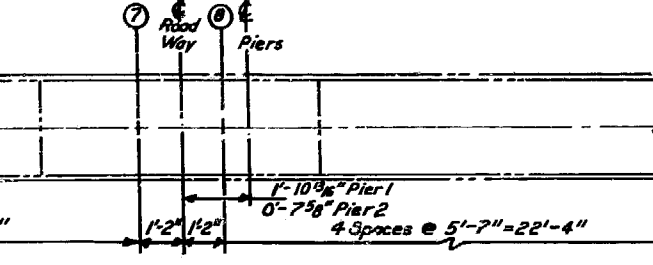
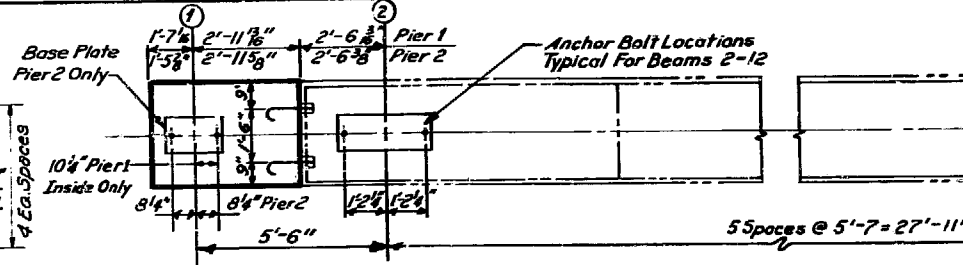
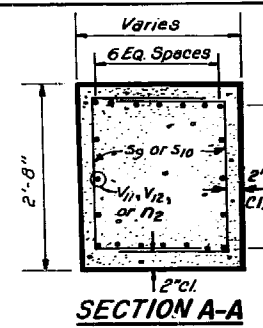












Note - Anchor Bolt Locations For Existing Beams Apply To Pier 1 Only

All Existing Electrical Conduit and Lighting on this Bridge to be Protected and Maintained in Operation During Construction. Coordinate with Electric Utility as Directed by the Engineer. Cost Incidental.

SECTION A-A

TOP PLAN

ELEVATION  
Looking East

SECTION B-B

BILL OF MATERIAL

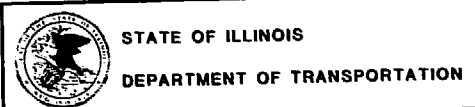
Bar	No.	Size	Length	Shape
h1	72	#5	10'-8"	—
h2	16	#7	11'-10"	—
h3	12	#5	12'-0"	—
h4	12	#5	11'-2"	—
h5	18	#5	10'-4"	—
h6	80	#5	6'-0"	—
s4	40	#5	9'-2"	—
s5	44	#5	21'-8"	—
s6	15	#4	14'-9"	—
s7	16	#4	12'-1"	—
s8	44	#5	5'-7"	—
s9	32	#4	6'-10"	—
s10	32	#4	7'-8"	—
s11	75	#5	4'-4"	—
t3	44	#5	7'-8"	—
v5	158	#5	2'-0"	—
v1	40	#7	11'-6"	—
v2	40	#7	10'-6"	—
w2	32	#5	10'-8"	—

QUANTITIES

Item	Unit	Pier 1	Pier 2
Class X Concrete	Cu. Yd.	57.9	50.1
Reinforcement Bars	Pound	3875	3263
Expansion Bolts 3/4" Ø	Each	46	46
Structure Excavation	Cu. Yd.	118	118

Bar	A	B
s4	2'-8"	3'-3"
s5	2'-8"	3'-6"
s8	2'-7"	1'-6"
s9	2'-4"	2'-3"
s10	2'-4"	2'-8"
s11	2'-4"	1'-0"

s BARS

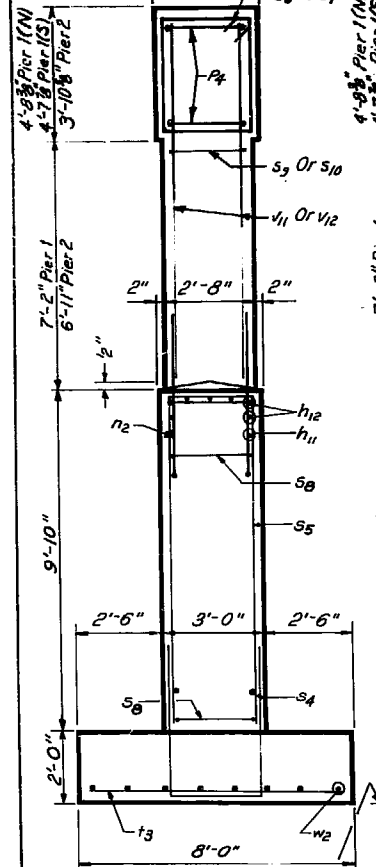


PIERS

U.S. ROUTE 20 BY-PASS (F.A.P. 426)  
 OVER ST. CHARLES STREET  
 SECTION BR-HB-5(8C)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-0000

REVISIONS

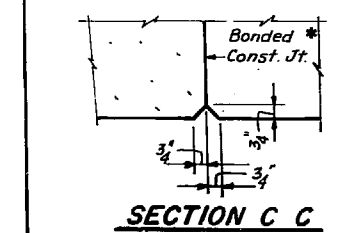
NAME	DATE



END VIEW

Dimensions

NOTE: All Edges Shall have Standard 3/4" Chamfer Except Footing



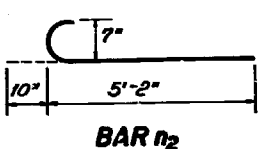
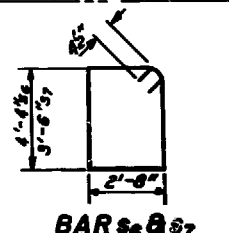
SECTION C-C

Baker Engineers  
 DESIGNED P. Wood  
 CHECKED J. Owen  
 DRAWN K. D. ...  
 CHECKED P. Wood

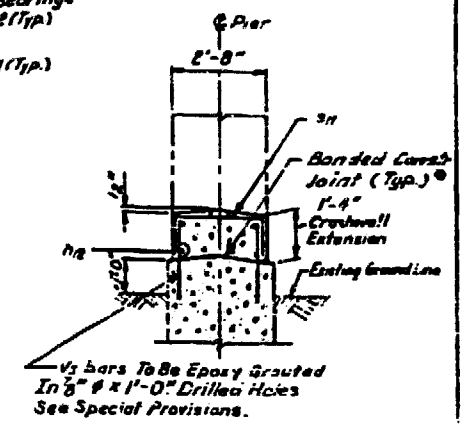
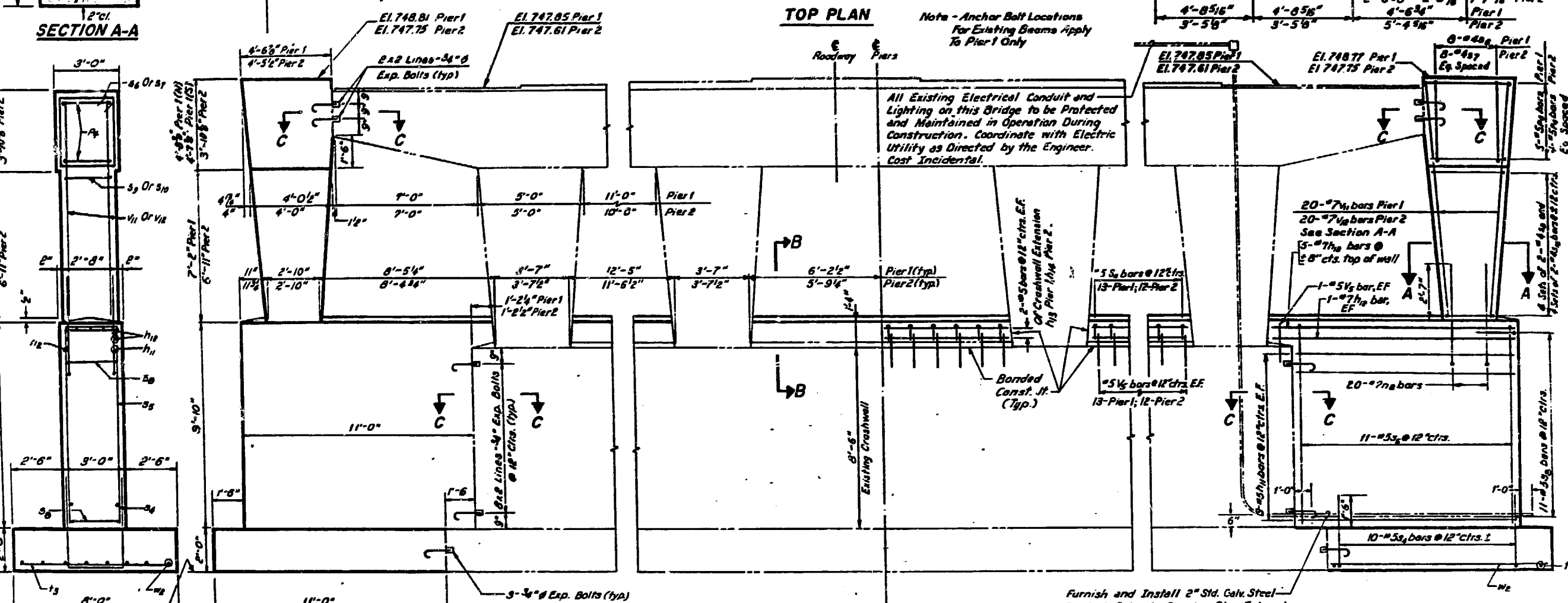
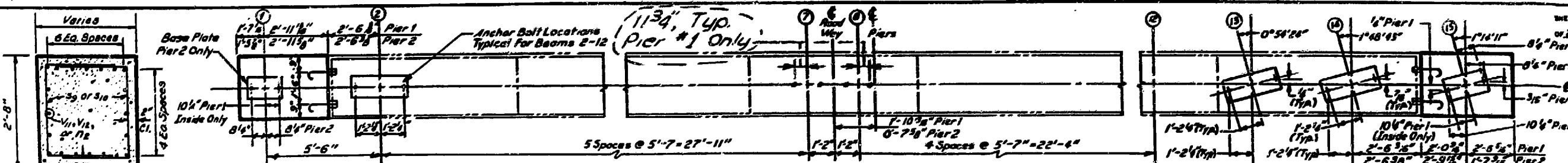
\* Any Existing Paint on Surfaces at Bonded Construction Joints shall be Removed as Directed by the Engineer.

FOOTING PLAN

Max. Soil Pressure: 2.40 tons/sq. ft.



Furnish and Install 2" Std. Galv. Steel Conduit Prior to Pouring Pier Extension. Connect to Existing Conduit Projecting from Existing Pier. Coordinate Work with Electric Utility as directed by the Engineer. Cost Incidental.



**BILL OF MATERIAL**

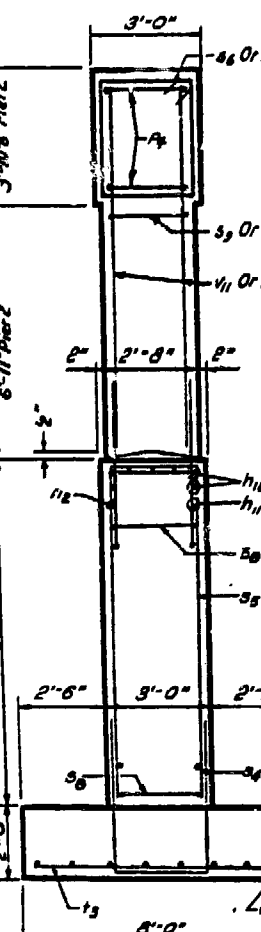
Bar No.	Size	Length	Shape
n <sub>1</sub>	72	#5	10'-8"
n <sub>2</sub>	16	#7	11'-10"
n <sub>3</sub>	12	#5	18'-0"
n <sub>4</sub>	12	#5	11'-2"
n <sub>5</sub>	8	#5	10'-4"
n <sub>6</sub>	80	#5	5'-0"
s <sub>1</sub>	40	#5	3'-2"
s <sub>2</sub>	14	#5	21'-8"
s <sub>3</sub>	16	#4	18'-9"
s <sub>4</sub>	15	#4	12'-1"
s <sub>5</sub>	14	#5	5'-7"
s <sub>6</sub>	32	#4	6'-10"
s <sub>7</sub>	32	#4	7'-8"
s <sub>8</sub>	75	#5	4'-4"
s <sub>9</sub>	44	#5	7'-8"
v <sub>1</sub>	158	#5	2'-0"
v <sub>2</sub>	40	#7	11'-8"
v <sub>3</sub>	40	#7	10'-5"
w <sub>1</sub>	32	#5	10'-8"

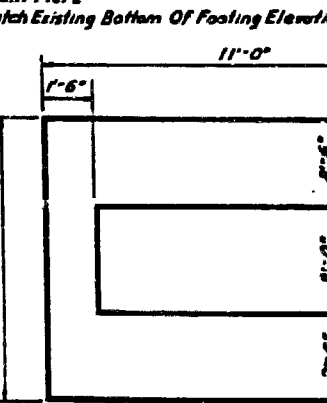
**QUANTITIES**

Item	Unit	Pier 1	Pier 2
Class X Concrete	Cu. Yd.	51.9	50.1
Reinforcement Bars	Pound	3875	3263
Expansion Bolts 3/4"	Each	46	46
Structural Excavation	Cu. Yd.	118	118

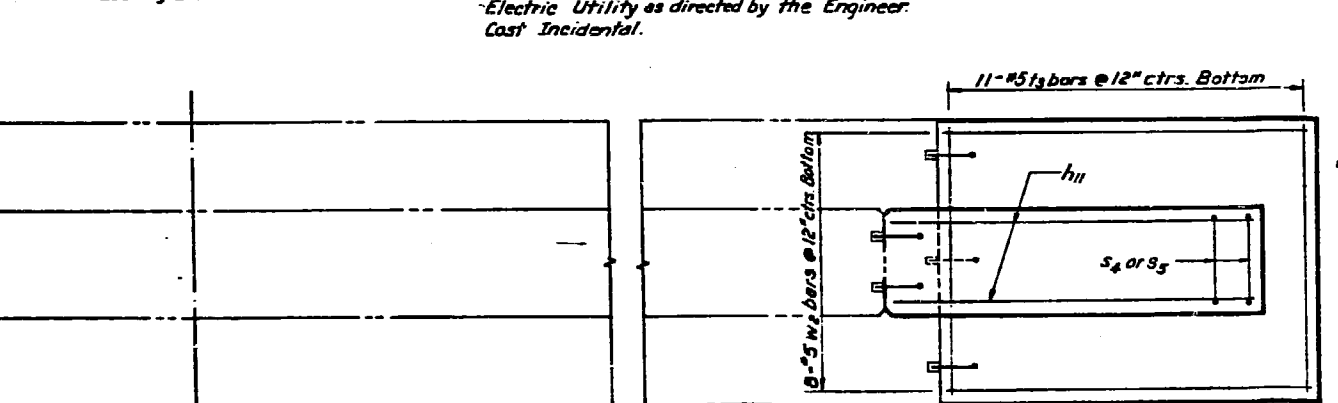
**SECTION A-A**



**Dimensions**

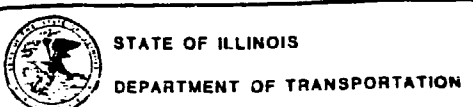


**FOOTING PLAN**



**S BARS**

Bar	A	B
s <sub>1</sub>	2'-8"	3'-3"
s <sub>2</sub>	2'-8"	9'-6"
s <sub>3</sub>	2'-7"	1'-6"
s <sub>4</sub>	2'-4"	2'-3"
s <sub>5</sub>	2'-4"	2'-8"
s <sub>6</sub>	2'-4"	1'-0"



**PIERS**

U.S. ROUTE 20 BY-PASS (F.A.R. 426)  
 OVER ST. CHARLES STREET  
 SECTION BR-HB-5(86)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-0006

**REVISIONS**

NAME	DATE

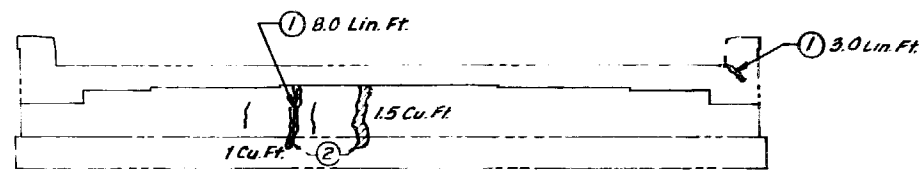
**Baker Engineers**  
 Baker Engineering, Inc.

DESIGNED: P. Wood  
 CHECKED: J. Owen  
 DRAWN: K. Dypkowski  
 CHECKED: P. Wood

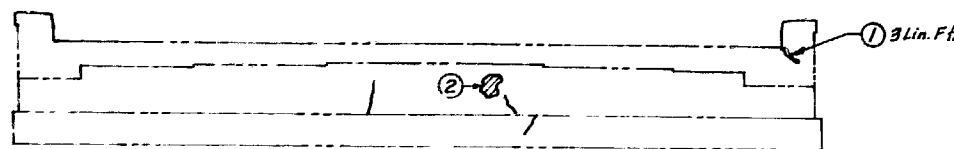
**AS REVISED**



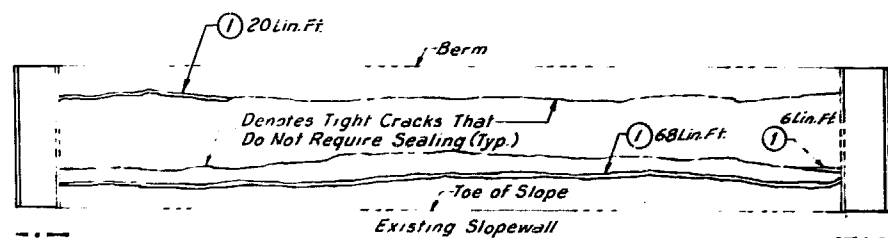
SHEET NO. 18	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
OF 22 SHEETS	426 BR-HB-5(86)	KANE	209	132
STA	TO STA			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



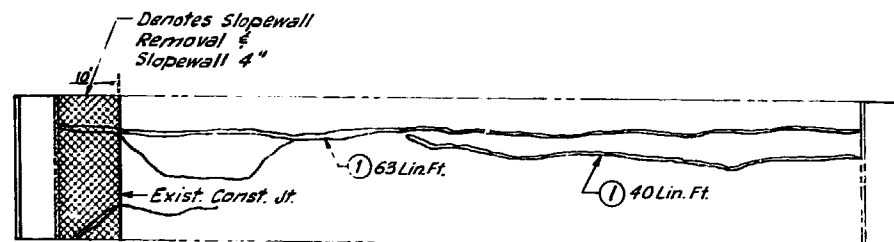
EAST ABUTMENT



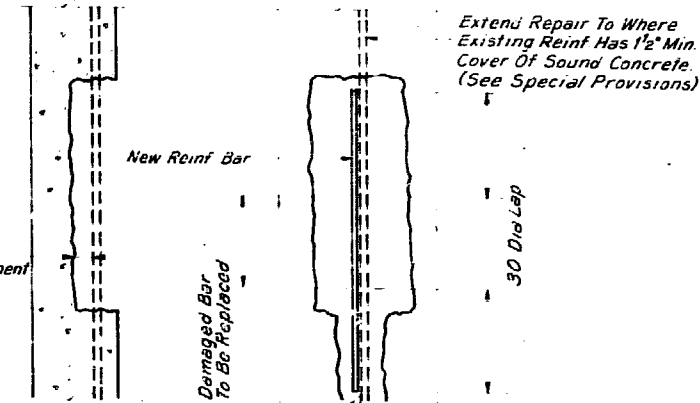
WEST ABUTMENT



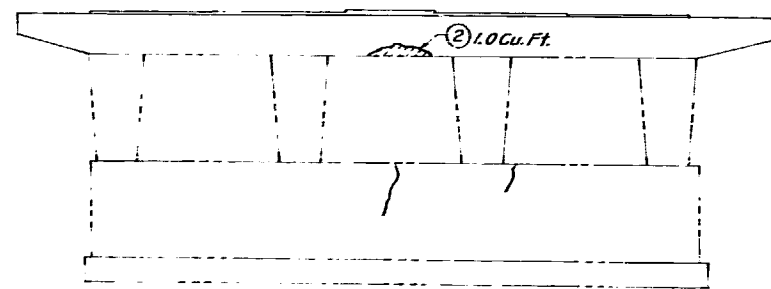
EAST ABUTMENT SLOPEWALL



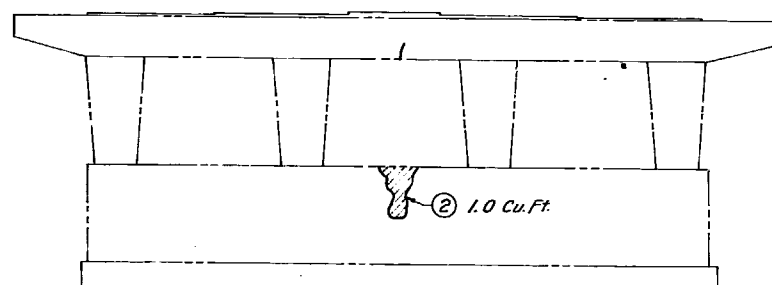
WEST ABUTMENT SLOPEWALL



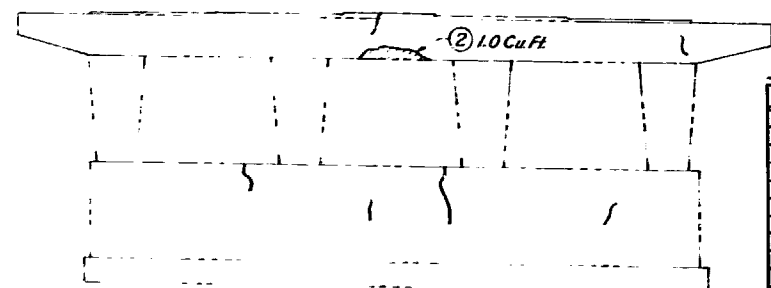
NOTE: Detail Applies Where Exist. Reinf. Is Exposed As A Result Of Removing Unsound Concrete. Existing Reinf. Having 25% Or More Of Cross Sectional Area Lost Due To Corrosion Or Damage During Concrete Removal Shall Be Replaced By New Reinf. Lapped As Shown. Payment For Added Reinforcing Steel Shall Be At The Unit Price For Reinforcement Bars.



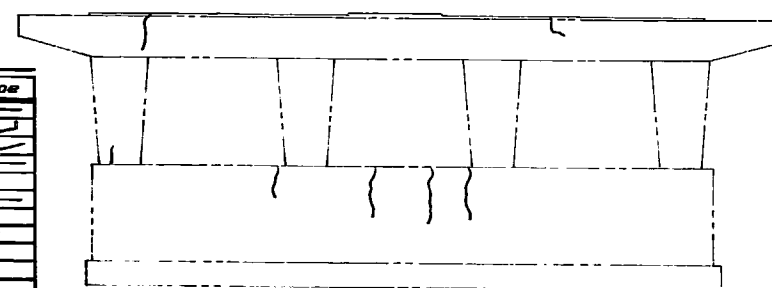
PIER 2 EAST FACE



PIER 2 WEST FACE



PIER 1 EAST FACE



PIER 1 WEST FACE

**BILL OF MATERIAL**

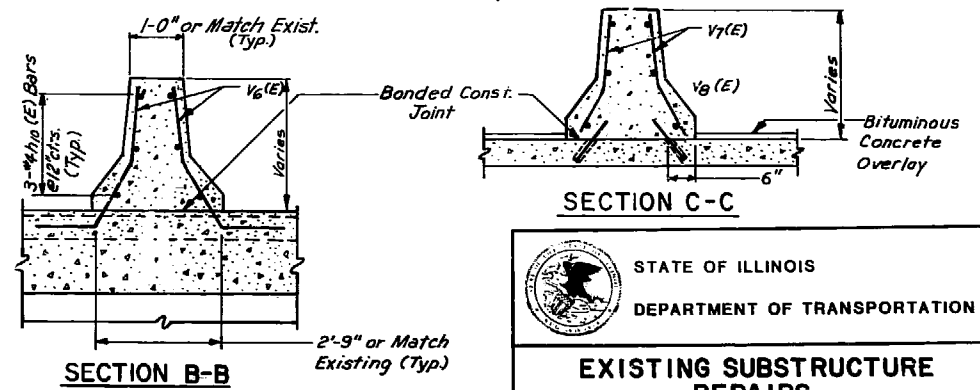
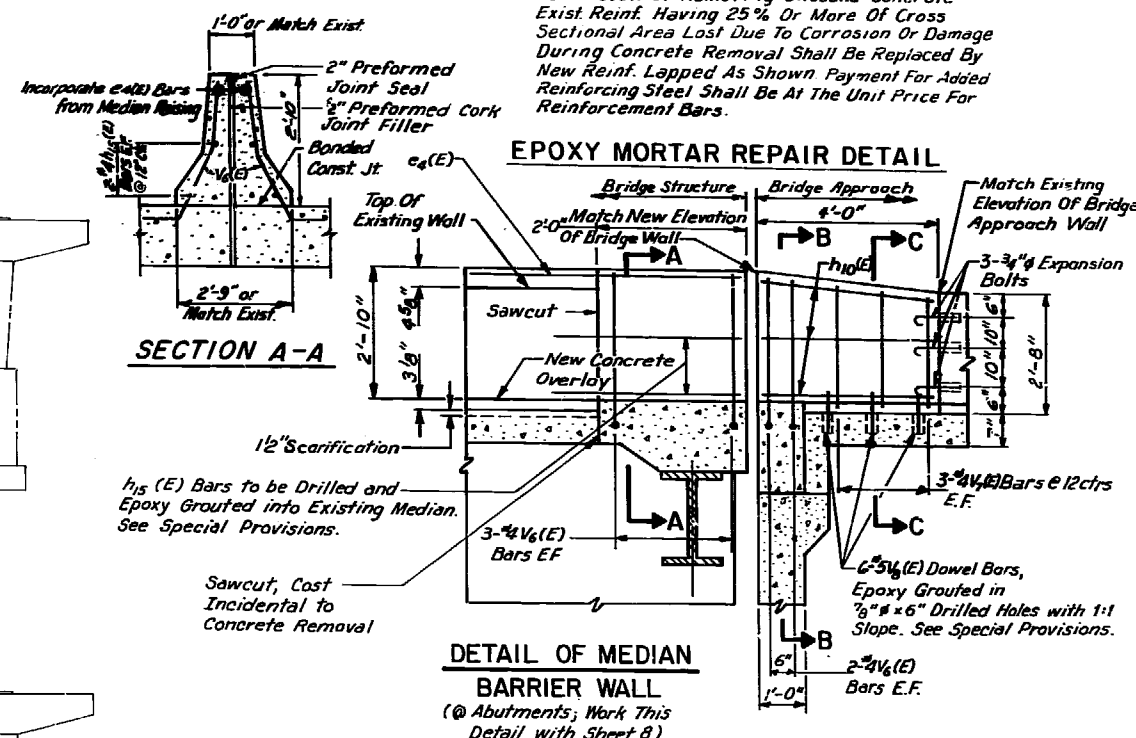
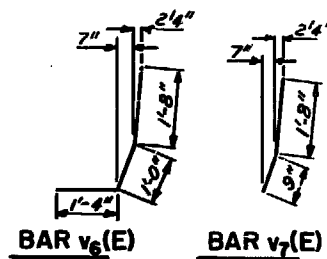
Bar	No.	Size	Length	Shape
$h_{15}$ (E)	12	#4	3'-8"	
$v_6$ (E)	20	#4	4'-0"	
$v_7$ (E)	12	#4	2'-5"	
$h_8$ (E)	8	#4	2'-8"	
$v_8$	12	#8	1'-9"	

Item	Unit	Quantity
Class X Concrete	Cu. Yds.	3
Reinforcement Bars	Lbs.	196
Epoxy Crack Sealing	Lin. Ft.	211
Epoxy Mortar Repair	Cu. Ft.	7
Concrete Removal	Cu. Yd.	3
Expansion Bolts	Each	6

Note: Quantities Of Concrete & Reinforcement Bars Are For Medians At Both Approaches And Are Included In Superstructure Quantities

**LEGEND**  
 ① Denotes Epoxy Crack Sealing  
 ② Denotes Epoxy Mortar Repair  
 ~ Denotes Tight Crack that Does Not Require Sealing  
 Note: Remove Point on Piers as Required and Indicate Direction of the Engineer at Repair Locations, Cost Incidental.



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

**EXISTING SUBSTRUCTURE REPAIRS**

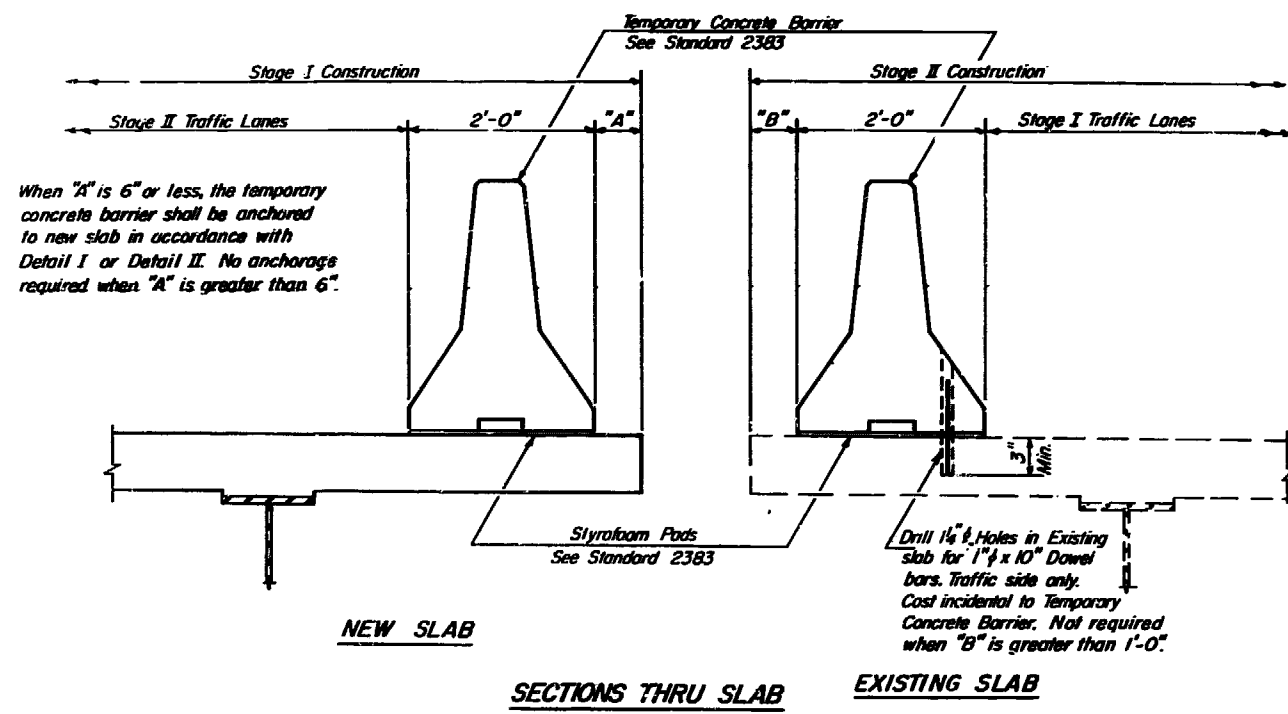
U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER ST CHARLES STREET  
 SECTION BR-HB-5(86)  
 KANE COUNTY  
 STATION 218+04.95  
 STR. NO. 045-0006

**REVISIONS**

NAME	DATE

**Baker Engineers**  
 Baker Engineering, Inc.

DESIGNED: P. Wood  
 CHECKED: J. Owen  
 DRAWN: K. Dykowski  
 CHECKED: P. Wood

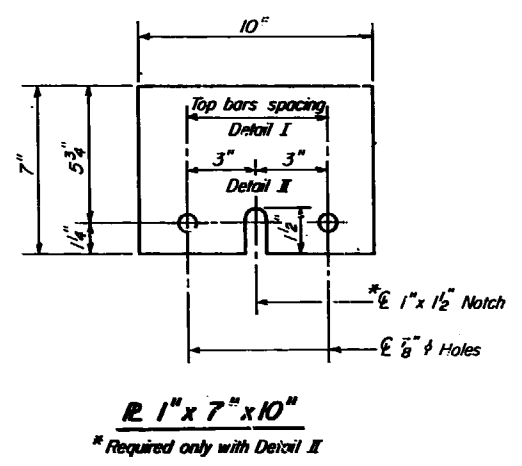
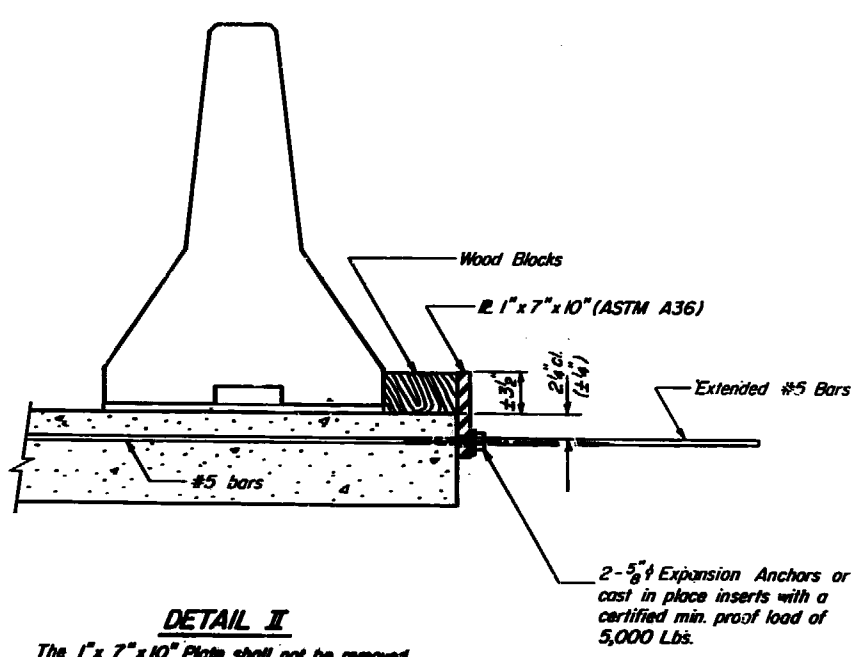
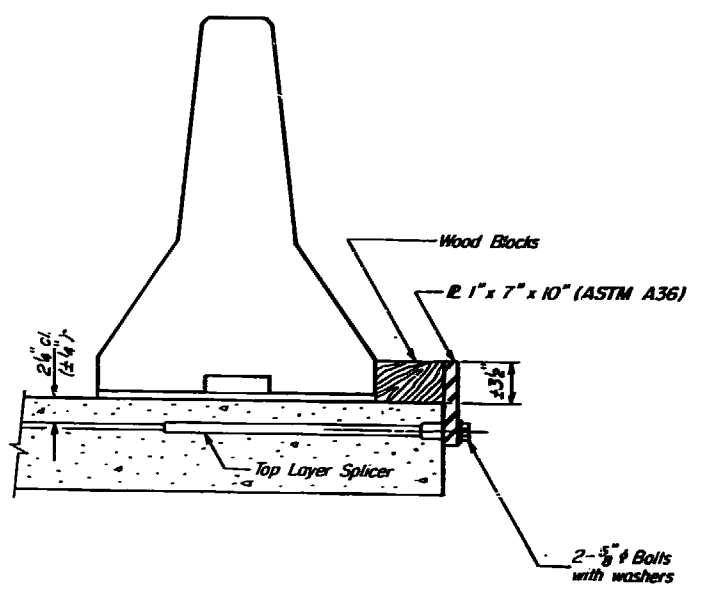


**NOTES**

**Detail I - With Bar Splicer or Couplers:**  
Connect one (1) 1" x 7" x 10" steel plate to the top layer of couplers with 2-5/8" bolts screwed to coupler at approximate center of each 10'-0" barrier panel.

**Detail II - With Extended Reinforcement Bars:**  
Connect one (1) 1" x 7" x 10" steel plate to the concrete slab with 2-5/8" Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate center of each 10'-0" barrier panel.

Cost of anchorage is incidental to Temporary Concrete Barrier.



**Baker Engineers**  
The 1" x 7" x 10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

REVISIONS	
NAME	DATE

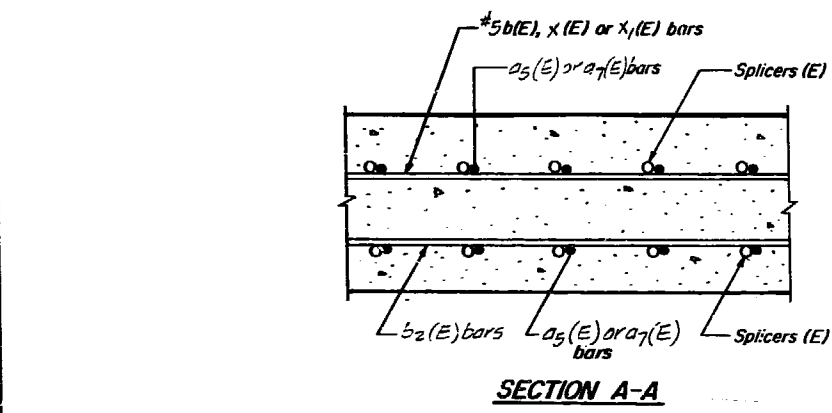
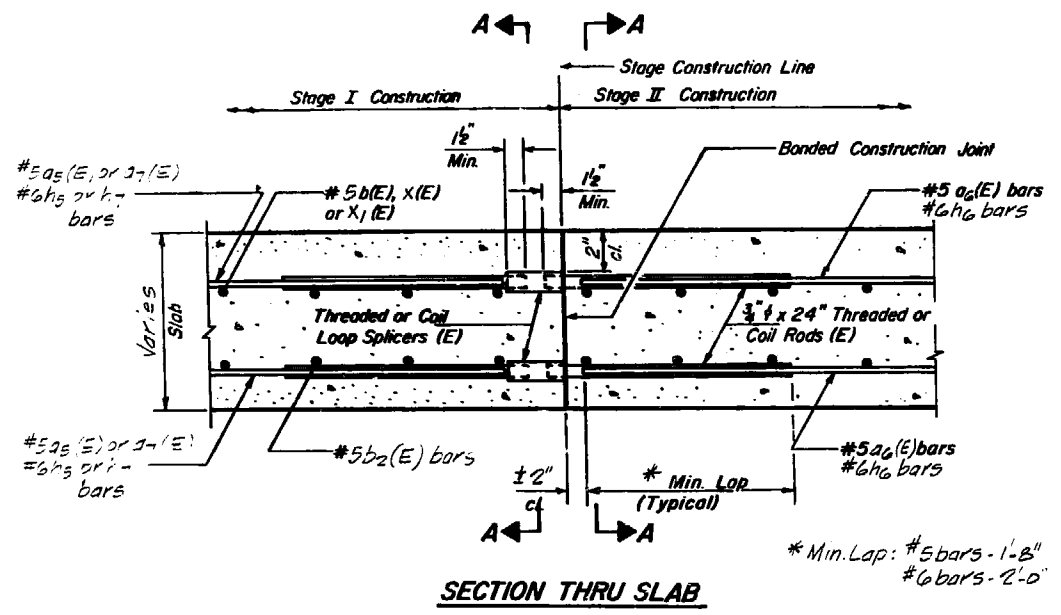
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION 6R-HB-5(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006

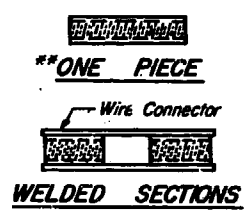
PROJECT NO.	SECTION	DATE	SCALE
A. 426	(86)	NAME	209 134
DESIGNED BY	CHECKED	DATE	SCALE

SHEET NO. 20  
OF 22 SHEETS

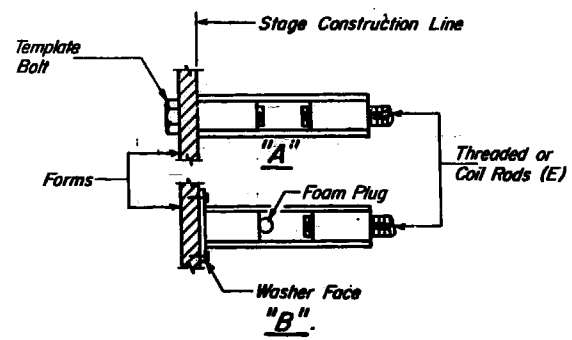


**SPLICER DETAILS**  
(No. Reqd. 40)

Cost incidental to reinforcement bars (Epoxy Coated).



**SPLICER ALTERNATIVES**  
\*\* Heavy Hex Nuts conforming to ASTM A563; Grade C, D or DH may be used.



**INSTALLATION AND SETTING METHODS**

"A": Set splicer by means of a template bolt.  
"B": Set splicer by nailing to wood forms or cementing to steel forms.  
(E): Indicates epoxy coating.

**NOTES**

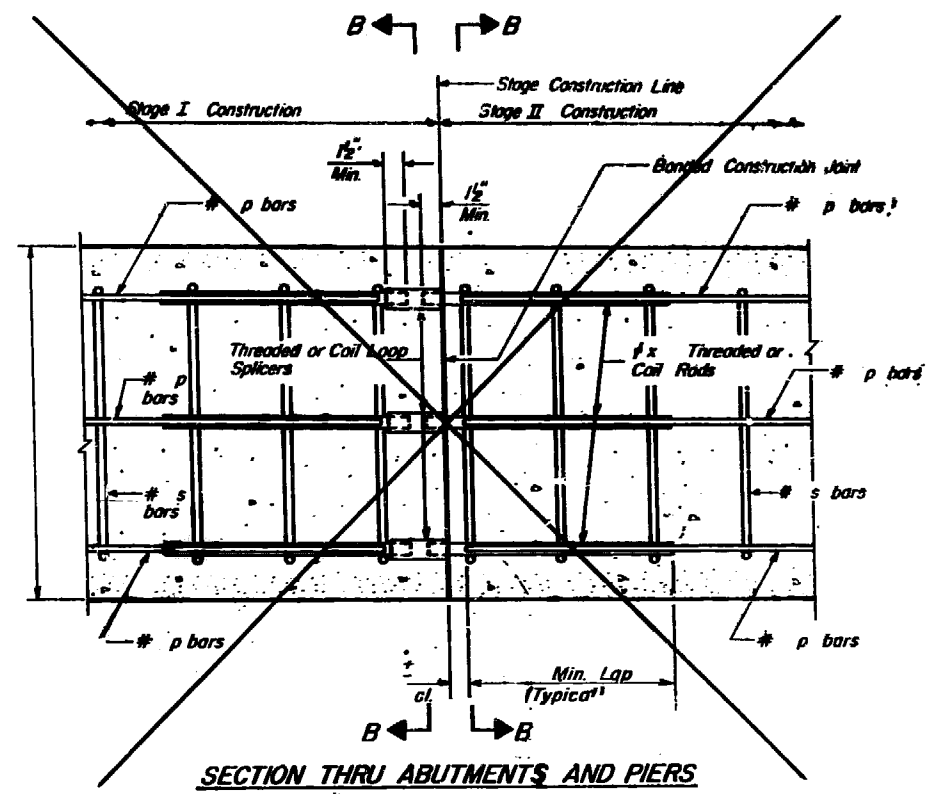
Steel Splicer (Coupler) assembly shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
Steel Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length and have effective tensile stress area equal or greater than that of the lapped reinforcement bars.  
Splicer rods shall extend minimum 1/2 inches into the couplers.  
All reinforcement bars shall be lapped and tied to the splicer rods.  
Splicer (coupler) assembly in the slab shall be epoxy coated in accordance with the requirements for reinforcement bars.  
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed splicer (coupler) assembly satisfies the following requirements:

- Minimum Capacity =  $1.25 \times f_y \times A_t$   
(Tension in kips)
- Minimum Pull-out Strength =  $1.25 \times f_{s,allow} \times A_t$   
(Tension in kips)

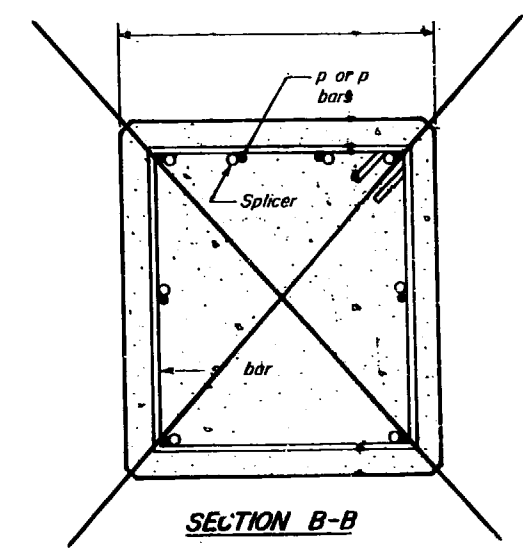
Where  $f_y$  = Yield strength of lapped reinforcement bars in k.s.i.  
 $f_{s,allow}$  = Allowable tensile stress in lapped reinforcement bars in k.s.i. (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
\* 28 day concrete

Typical Splicer (Coupler) Assembly Sizes:

In Slabs	#5 bar lap with 1/2" Splicer (Coupler) x 2'-0" Splicer Rods	Minimum Capacity = 23.0 kips-tension Minimum Pull-out Strength = 22 kips-tension
In Sub-structures	#7 bar lap with 1" Splicer (Coupler) x 3'-5" Splicer Rods	Minimum Capacity = 45.1 kips-tension Minimum Pull-out Strength = 48.0 kips-tension
	#8 bar lap with 1 1/2" Splicer (Coupler) x 4'-6" Splicer Rods	Minimum Capacity = 58.9 kips-tension Minimum Pull-out Strength = 63.6 kips-tension



**SECTION THRU ABUTMENTS AND PIERS**  
(No. Reqd. 40)



**SPLICER DETAILS**  
(No. Reqd. 40)

Cost incidental to reinforcement bars.

DESIGNED
CHECKED
DRAWN
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION**

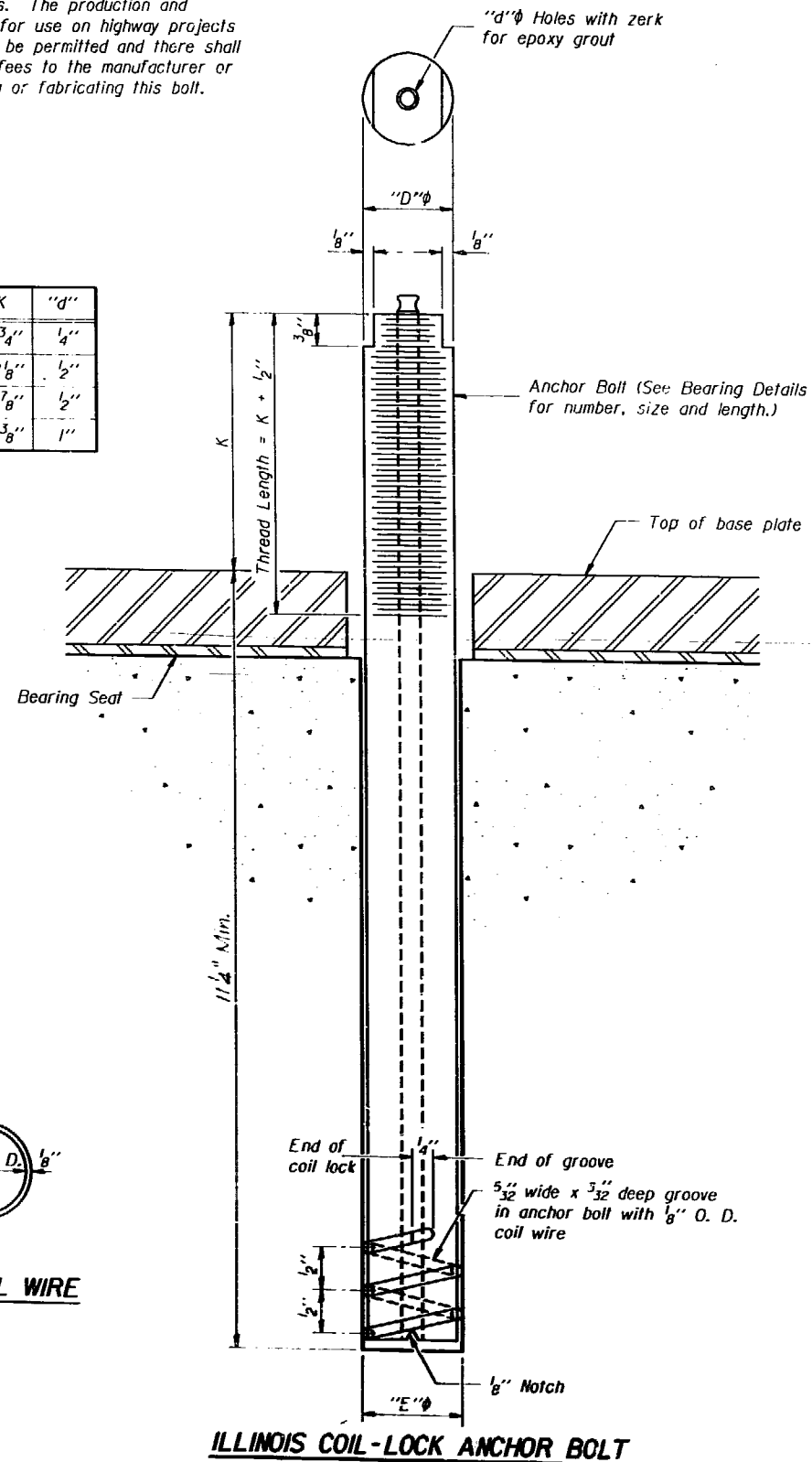
U.S. ROUTE 20 BY-PASS (E.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-5(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006

REVISIONS	
NAME	DATE

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

SHEET NO. 21	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
OF 22 SHEETS	BR-HB-5(86)	KANE	209	135
STA.	TO STA.			
PLANNED BY	DESIGNED BY	DRAWN BY	CHECKED BY	DATE

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 3/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



### MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A519, Grade 1026, and supplied with hexagonal nuts and cut washers.

The coil wire shall be made of any suitable soft steel wire. The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed. The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C881, Type I, Grade I and of a Class suitable for the temperature at installation.

### INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

### ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes in accordance with the manufacturer's recommendations and procedures.

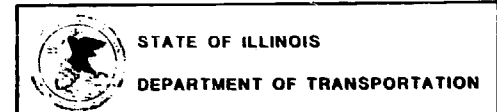
- The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:
1. A threaded rod stud with nut and washer conforming to ASTM A307.
  2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

### NOTES

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or in accordance with the manufacturer's recommendation after beams or girders have been erected and adjusted. Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming. The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for "Furnishing and Erecting Structural Steel".



DESIGNED	
CHECKED	
DRAWN	
CHECKED	



### ANCHOR BOLT DETAILS FOR BEARINGS

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
ST. CHARLES STREET  
SECTION BR-HB-5(86)  
KANE COUNTY  
STATION 218+04.95  
STR. NO. 045-0006

REVISIONS	
NAME	DATE

