

332

PRICHARD COMPANY INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI
DESIGNED JUNE 1966 BY G.F.P.
DETAILED JUNE 1965 BY H.M.B.
CHECKED AUG. 1965 BY J.E.R.

Note: This drawing is not to scale. Follow dimensions.

Note: For General notes see Sheet 2.
For Boring Data see Sheet 2.
⊙ Indicates location of boring.

SUBMITTED BY E. LYN CROWLEY
SIGNATURE *E. Lyn Crowley*
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER T-5993



Sheet No. 1 of 12.

BRIDGE OVER GREGORY BLVD.
STATE ROAD - INTERSTATE ROUTE 435
ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
PROJECT NO. I-435-(138)(RTE. I-435) STA. 621+12.16 LT. LANE
620+98.39 RT. LANE
JACKSON COUNTY

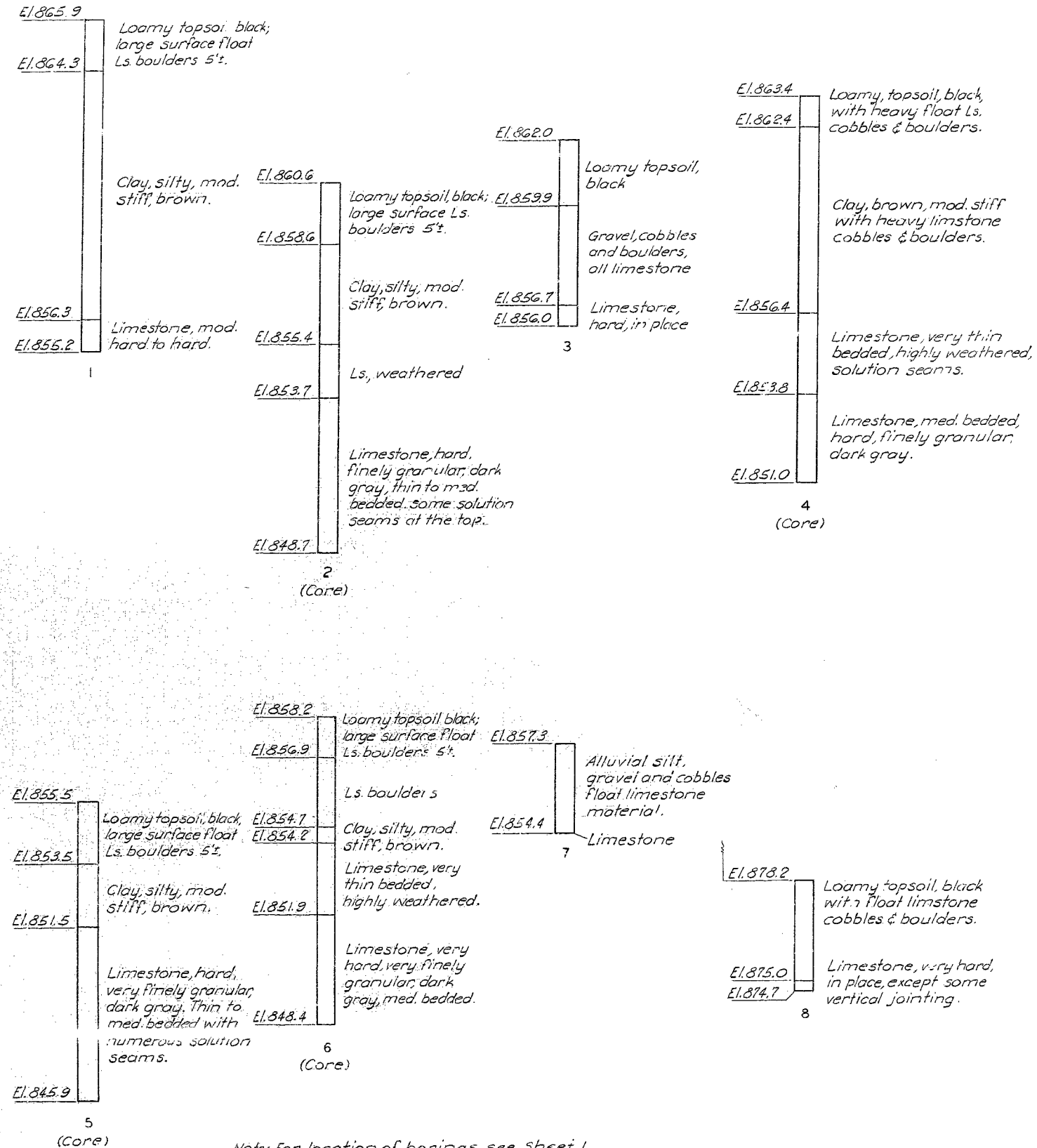
SUBMITTED BY *[Signature]* DATE *7/16/66*
APPROVED BY *[Signature]* DATE *7/12/66*

STD. 54.00
A-1485

SEE FINAL PLANS BROWN LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	



Note: For location of borings see Sheet 1.

BORING DATA

Note: This drawing is not to scale. Follow dimensions.

GENERAL NOTES:

Design Specifications:
 A.A.S.H.O. - 1961
 Design Loading:
 HS 20-44 (Modified 24,000# Tandem Axle)
 157 sq. ft. Future Wearing Surface
 Earth 120# Equivalent Fluid Pressure 30#
 Design Unit Stresses:
 Class B Concrete (Substructure) $f_c = 1200$ psi
 Class B Concrete (Superstructure) $f_c = 1600$ psi
 Reinforcing Steel $f_s = 20,000$ psi
 Structural Steel (ASTM A36-G2T) $f_s = 20,000$ psi
 Steel Pile (ASTM A36-G2T) $f_b = 9,000$ psi
 Superstructure deck to be surface sealed.
 Structural steel access doors shall be cleaned and painted in the field or may be cleaned and painted one coat of red lead in the shop with the two remaining coats applied in the field, except that the final coat on access doors and frames shall be gray. In lieu of painting, the contractor may, if he prefers, galvanize this material. All galvanizing shall be done after fabrication. Cost of painting or galvanizing to be included in price bid for other items.
 Falsework over existing lane shall be constructed with a minimum vertical clearance of 12'-6" from crown of existing lane and a minimum lateral clearance of 22'-0" centered on existing lane, or two lanes 11'-0" horizontal x 12'-6" vertical.

BRIDGE OVER GREGORY BLVD.

STATE ROAD - INTERSTATE ROUTE 435
 ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
 PROJECT NO. I-435-1(38)(RTE. I-435) STA. 621+12.15 LT. LANE
 620+98.39 RT. LANE
 JACKSON COUNTY

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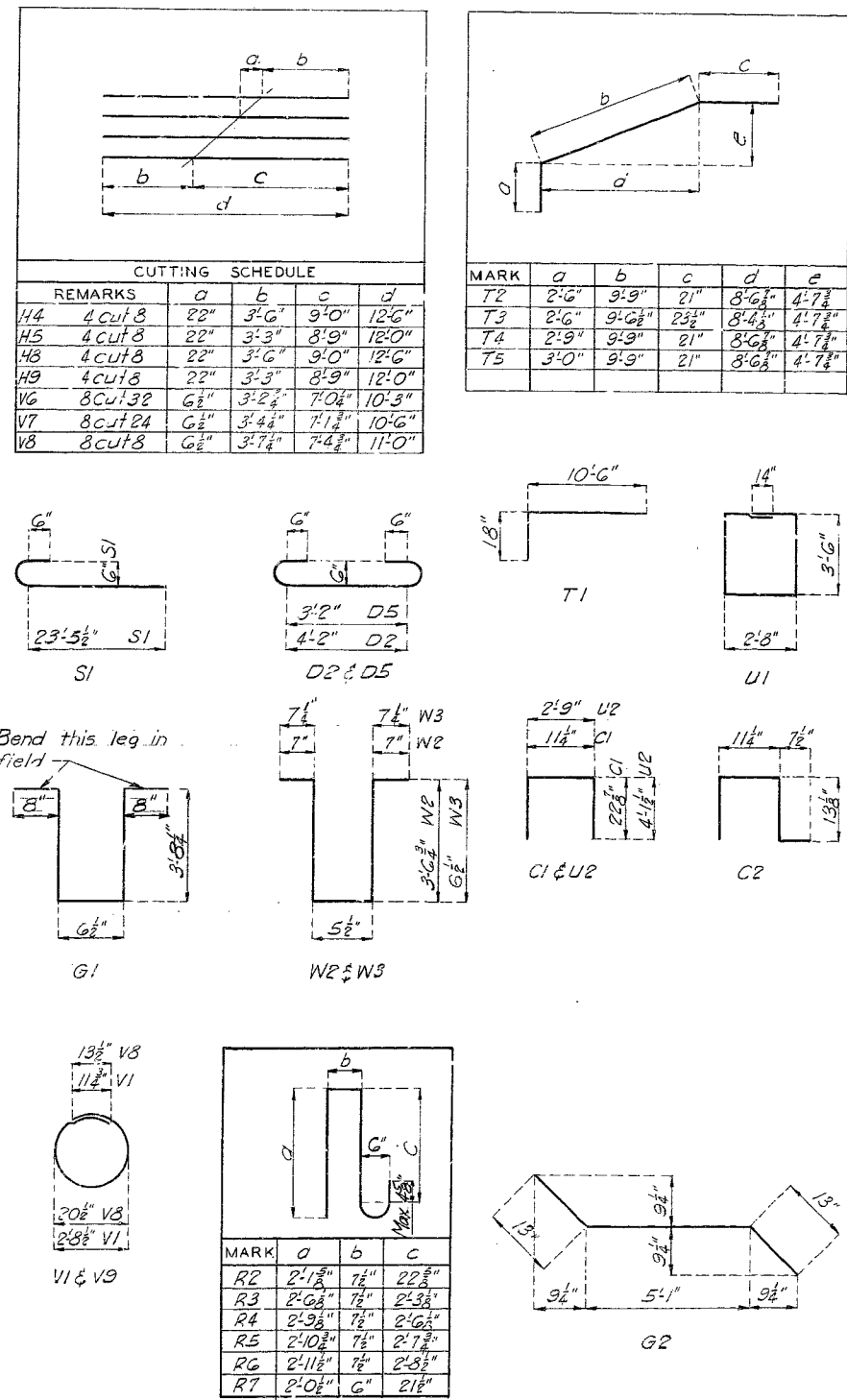
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	30	

COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION	NO.	SIZE	LENGTH	MARK	LOCATION	NO.	SIZE	LENGTH	MARK	LOCATION
SUPERSTRUCTURE														
72	#5	4'-9"	C1	Curb	9	#11	45'-3"	B1	Beam	12	#6	27'-3"	H1	Beam
704	#5	3'-9"	C2	"	2	#6	45'-3"	B2	"	4	#6	10'-6"	H2	Wing
16	#5	29'-9"	C3	"	8	#10	45'-3"	B3	"	4	#5	10'-3"	H3	"
24	#5	26'-3"	C4	"						12	#6	4'-0"	H6	"
16	#5	30'-0"	C5	"	130	#5	13'-6"	U1	Beam	4	#8	52'-6"	H7	Beam
2388	#5	9'-3"	G1	Girder Web	15	#3	9'-6"	V1	Col. Ties	4	#5	12'-0"	H9	"
96	#5	7'-3"	G2	"	24	#10	28'-0"	V2	Column	18	#8	27'-3"	H10	Beam
48	#5	32'-3"	G3	"						3	#3	14'-0"	H11	"
96	#5	28'-9"	G4	"						4	#6	12'-0"	T1	Wing
48	#8	32'-9"	G5	"	SUPERSTRUCTURE INT. BENT 3 LT. LANE					2	#6	14'-0"	T3	"
72	#8	38'-6"	G6	"	9	#11	45'-3"	B1	Beam	2	#6	14'-3"	T4	"
48	#5	4'-9"	R1	Parapet	2	#6	45'-3"	B2	"	106	#5	11'-0"	U2	Beam
8	#5	5'-9"	R2	"	8	#10	45'-3"	B3	"					
8	#5	6'-6"	R3	"	130	#5	13'-6"	U1	Beam	16	#5	10'-6"	V7	Wing
8	#5	7'-0"	R4	"						21	#3	6'-6"	V9	Col. Ties
8	#5	7'-3"	R5	"	69	#3	9'-6"	V1	Col. Ties	18	#8	6'-9"	V10	Col.
16	#5	7'-3"	R6	"	24	#10	25'-9"	V3	Column	18	#8	4'-0"	V11	Col. & Beam
872	#5	5'-6"	R7	"										
64	#5	9'-6"	R8	"	SUBSTRUCTURE INT. BENTS 2 & 3									
32	#5	22'-0"	R9	"	SUPERSTRUCTURE INT. BENT 2 RT. LANE					36	#10	5'-0"	D1	Foot.
32	#5	28'-6"	R10	"	9	#11	45'-3"	B1	Beam	156	#5	6'-9"	D2	"
32	#5	22'-3"	R11	"	2	#6	45'-3"	B2	"					
					8	#10	45'-3"	B3	"					
256	#5	24'-9"	S1	Bottom Slab	130	#5	13'-6"	U1	Beam	SUBSTRUCTURE END BENT 4 RT. LANE				
244	#7	36'-6"	S2	"						18	#8	4'-0"	D4	Foot.
120	#7	27'-0"	S3	"						30	#6	5'-9"	D5	"
124	#7	24'-0"	S4	"	81	#3	9'-6"	V1	Col. Ties					
62	#8	60'-0"	S5	"	24	#10	29'-3"	V4	Column					
60	#9	53'-0"	S6	"										
60	#10	43'-0"	S7	"										
48	#5	6'-6"	S8	"	SUPERSTRUCTURE INT. BENT 3 RT. LANE									
2552	#6	27'-0"	S9	Top Slab	9	#11	45'-3"	B1	Beam					
732	#5	30'-3"	S10	"	2	#6	45'-3"	B2	"					
212	#5	22'-9"	S11	"	8	#10	45'-3"	B3	"					
164	#9	38'-0"	S12	"										
136	#9	28'-0"	S13	"	130	#5	13'-6"	U1	Beam					
116	#10	16'-6"	S14	"										
212	#5	28'-9"	S15	"	99	#3	9'-6"	V1	Col. Ties					
24	#6	23'-9"	W1	Diaphragm	24	#10	28'-6"	V5	Column					
120	#4	8'-9"	W2	"						SUPERSTRUCTURE END BENT 4 LT. LANE				
90	#4	2'-9"	W3	"	32	#6	27'-3"	H1	Beam					
24	#4	3'-0"	W4	"	4	#6	10'-6"	H2	Wing					
48	#4	5'-9"	W5	"	4	#5	10'-3"	H3	"					
					12	#6	4'-0"	H6	"					
SUPERSTRUCTURE END BENT 1														
64	#6	27'-3"	H1	Beam	4	#6	12'-6"	H8	Wing					
8	#6	10'-6"	H2	Wing	4	#5	12'-0"	H9	"					
8	#5	10'-3"	H3	"										
8	#6	12'-6"	H4	"	4	#6	12'-0"	T1	Wing					
8	#5	12'-0"	H5	"	2	#6	14'-0"	T3	"					
24	#6	4'-0"	H6	"	2	#6	14'-6"	T5	"					
					100	#5	11'-0"	U2	Beam					
8	#6	12'-0"	T1	Wing										
4	#6	14'-0"	T2	"	8	#5	10'-6"	V7	Wing					
4	#6	14'-0"	T3	"	8	#5	11'-0"	V8	"					
200	#5	11'-0"	U2	Beam										
32	#5	10'-3"	V6	Wing										

BENDING SKETCHES & CUTTING DIAGRAMS



Note: All dimensions shown in bending sketches are cfr. to str. dimensions. No. in schedule is total for both lanes (evenly divided) unless shown for one lane only.

BRIDGE OVER GREGORY BLVD.
 STATE ROAD - INTERSTATE ROUTE 435
 ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
 PROJECT NO. I-435-1(38)RTE1-435 STA. 621+12.16 LT. LANE
 620+98.59 RT. LANE
 JACKSON COUNTY

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No. 90.5 Revised Aug. 1963

DETAILED JUNE 1965 BY H.H.B.
 CHECKED J.G. 1965 BY J.E.R.

Note: Bend G1 bars in field, see bending sketch.

Note: This drawing is not to scale. Follow dimensions.

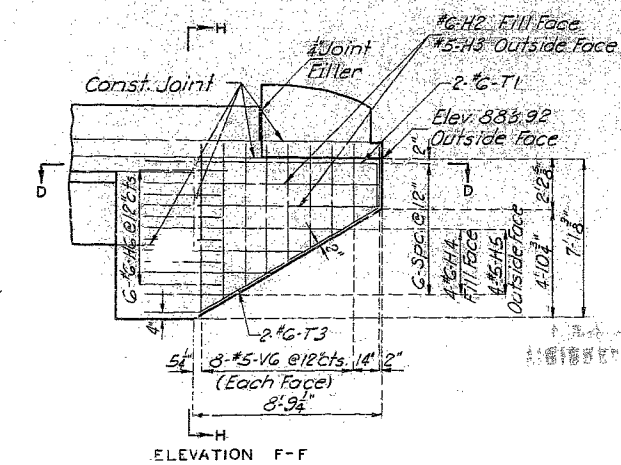
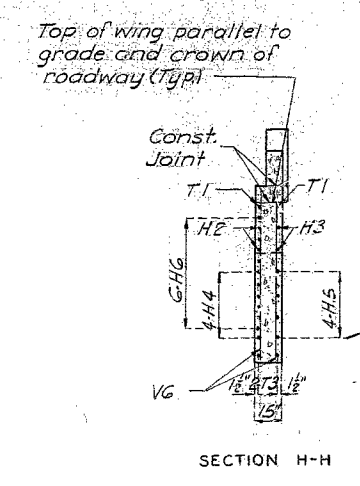
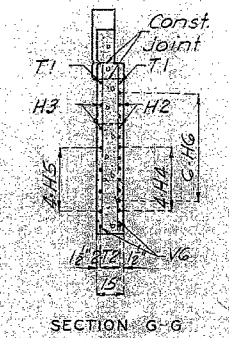
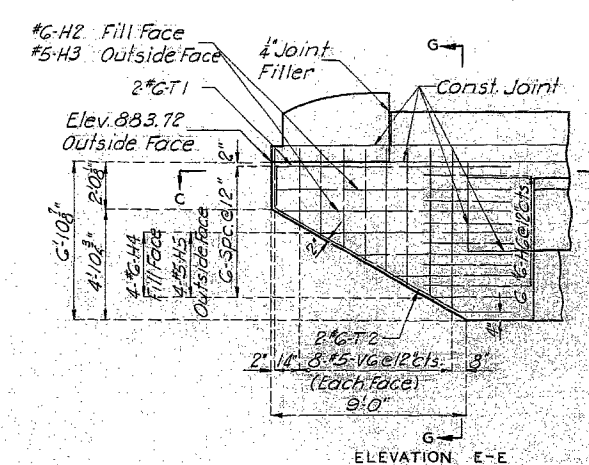
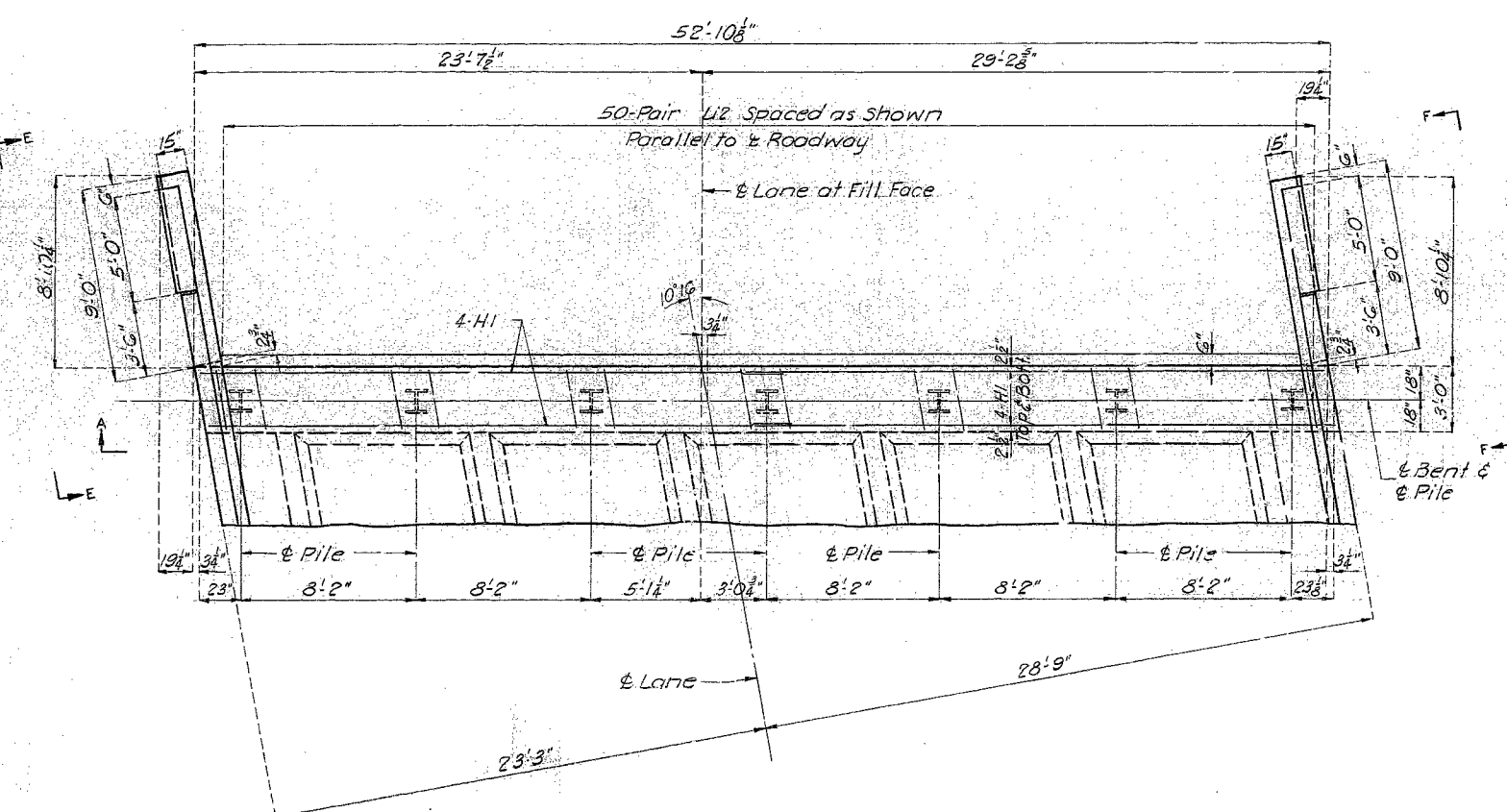
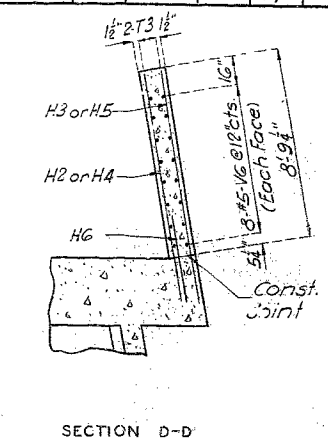
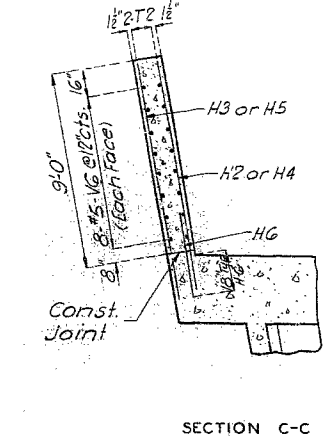
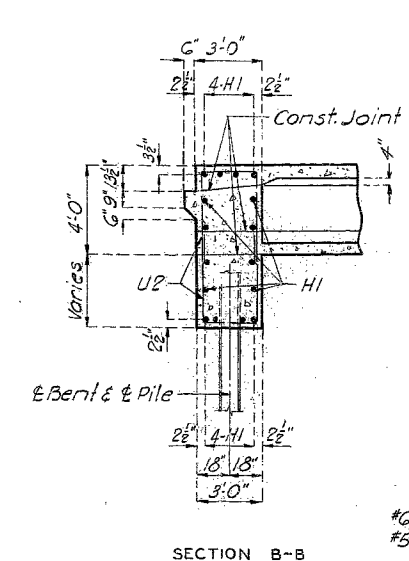
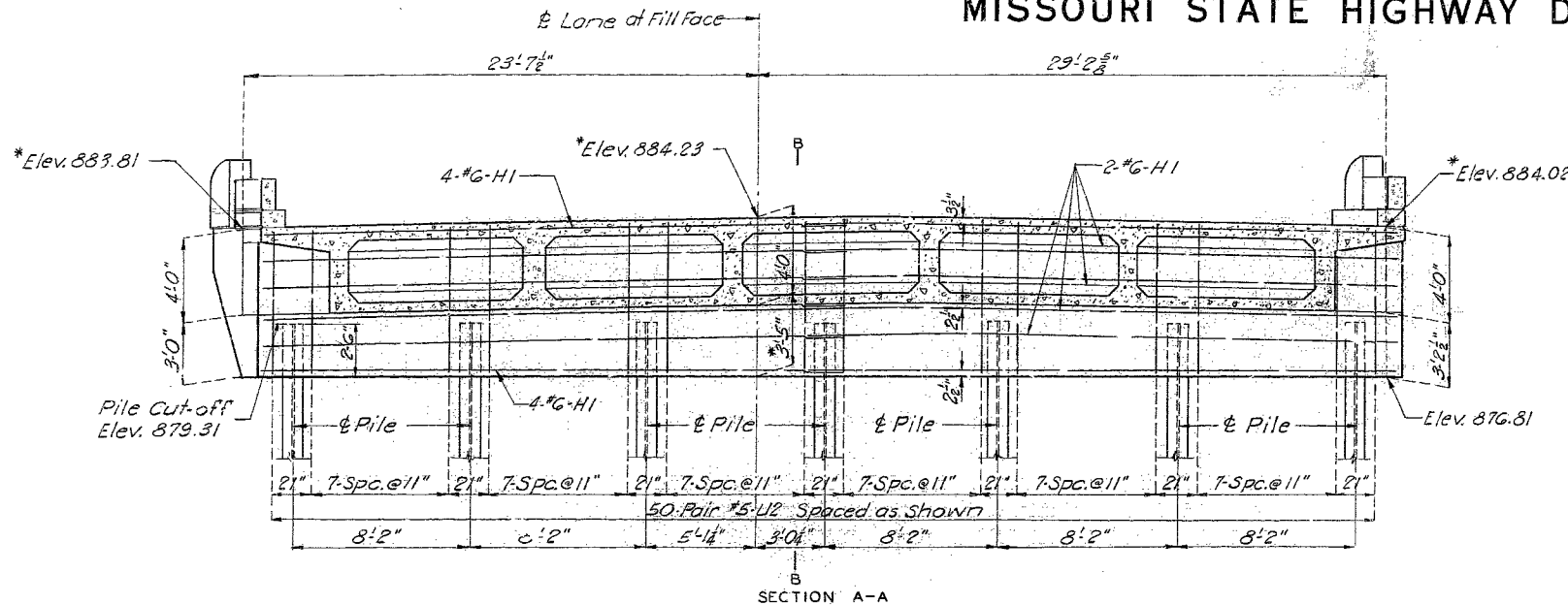
Sheet No. 3 of 12

A-1485

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	9/	



PLAN
DETAILS OF END BENT 1 - LEFT LANE

Note: Dimensions and elevations marked * are at the Fill Face.
 The construction joint between the cap beam and the bottom of slab is parallel to the top surface of the roadway slab.
 Fill at end bents shall not be carried above bottom of beam and wings until superstructure is in place.
 See Pile splice Detail on Sheet 5.
 See Timber Header Detail on Sheet 9.
 Construction joints shown may be eliminated with the engineer's approval, to suit the contractor's method of pouring.

BRIDGE OVER GREGORY BLVD.
 STATE ROAD - INTERSTATE ROUTE 435
 ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
 PROJECT NO. I-435-1(38) RTE. I-435 STA. 621+12.16 LT. LANE
 620+98.39 RT. LANE
 JACKSON COUNTY

DETAILED JUNE 1965 BY H.H.B.
 CHECKED AUG. 1965 BY J.E.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 12.

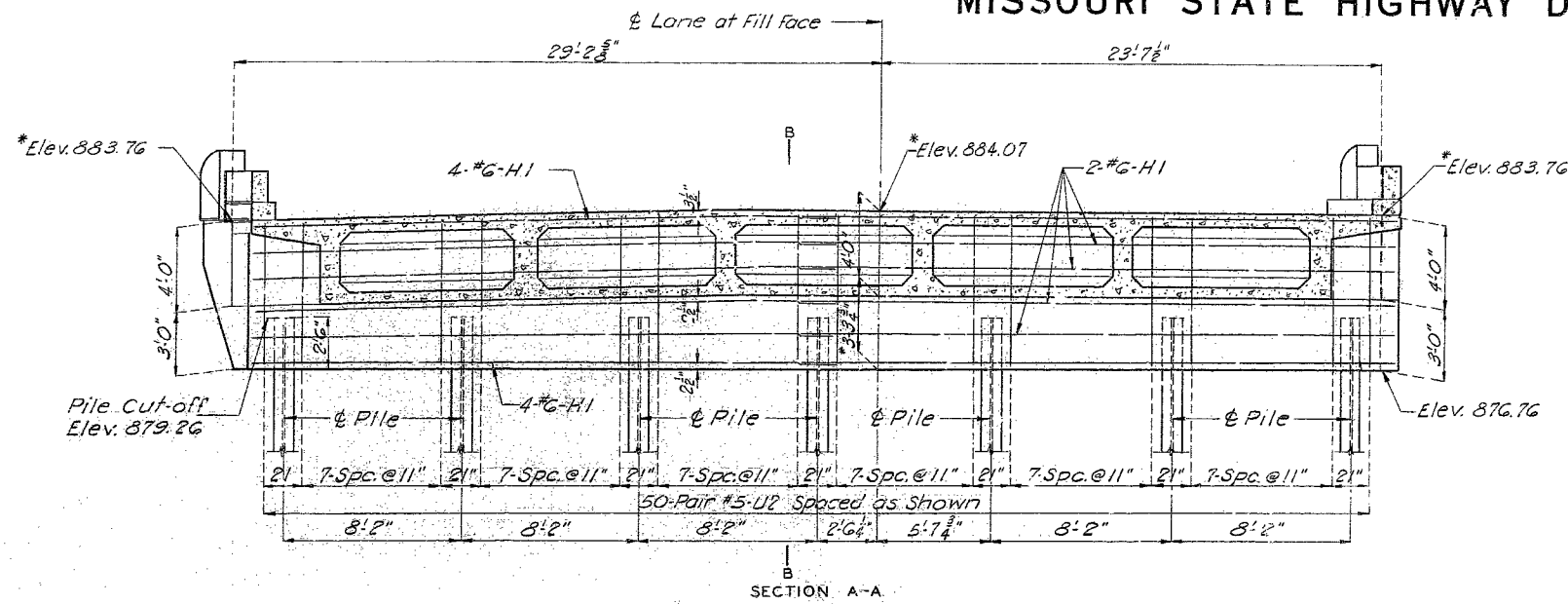
A-1485

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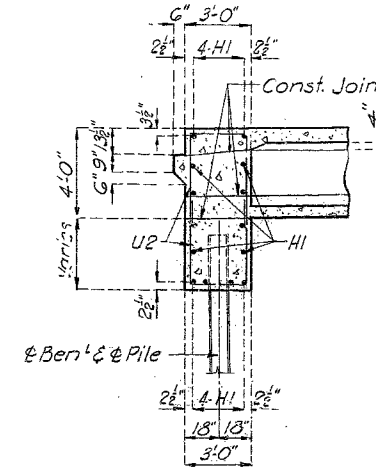
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

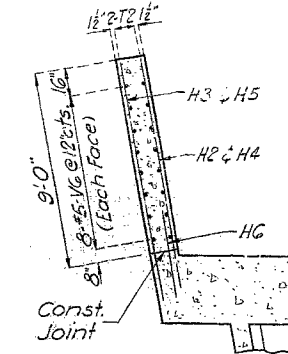
FED. ROAD DIST. NO.	STA. ±	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	32	



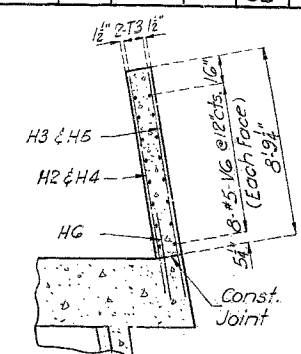
SECTION A-A



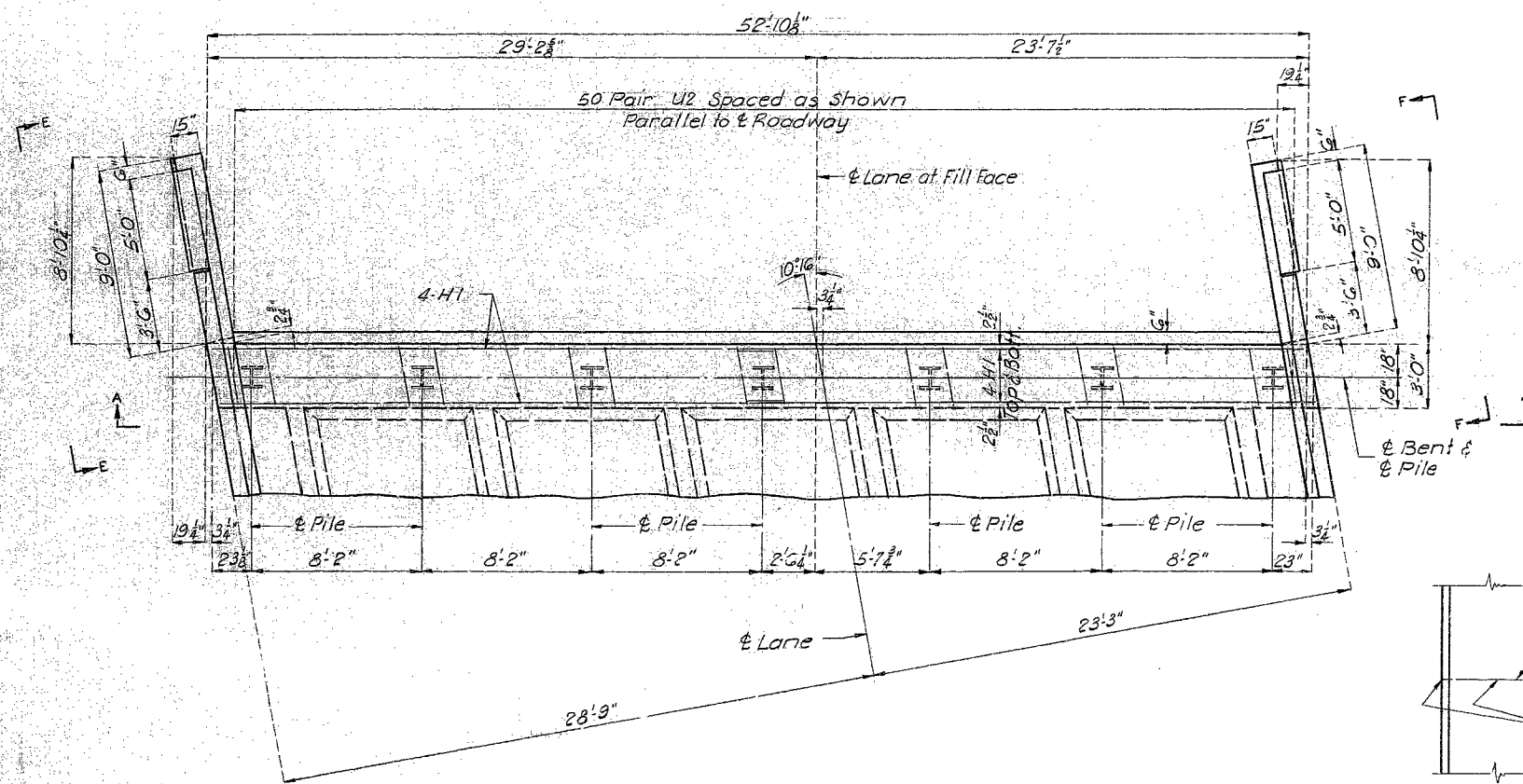
SECTION B-B



SECTION C-C

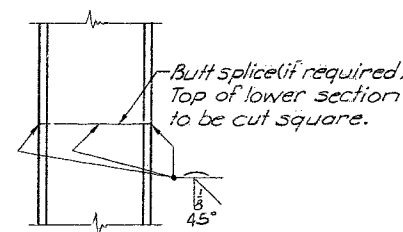


SECTION D-D



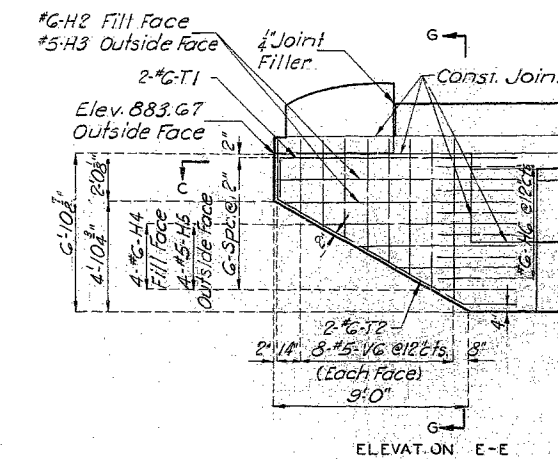
PLAN

DETAILS OF END BENT I - RIGHT LANE

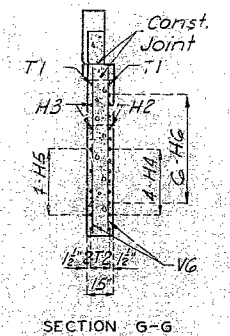


DETAIL OF STEEL PILE SPLICE

Note: Dimensions and elevations marked * are at the Fill Face.
For additional notes see Sheet 4.

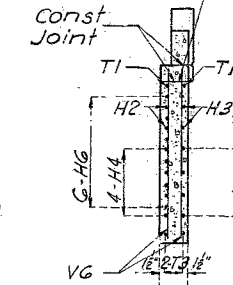


ELEVATION E-E

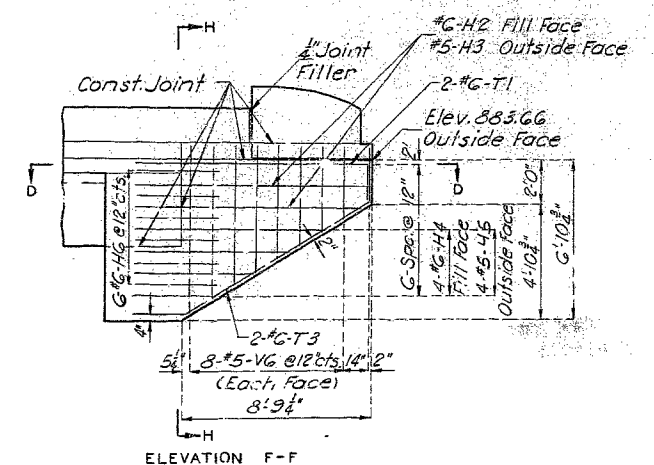


SECTION G-G

Top of wing parallel to grade and crown of roadway (Typ.)



SECTION H-H



ELEVATION F-F

BRIDGE OVER GREGORY BLVD.

STATE ROAD - INTERSTATE ROUTE 435

ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN

PROJECT NO. I-435-138(RTE. I-435) STA. 621+12.16 LT. LANE
620+98.39 RT. LANE

JACKSON

COUNTY

DETAILED JUNE 1965 BY H.H.B.
CHECKED AUG. 1965 BY J.E.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 12.

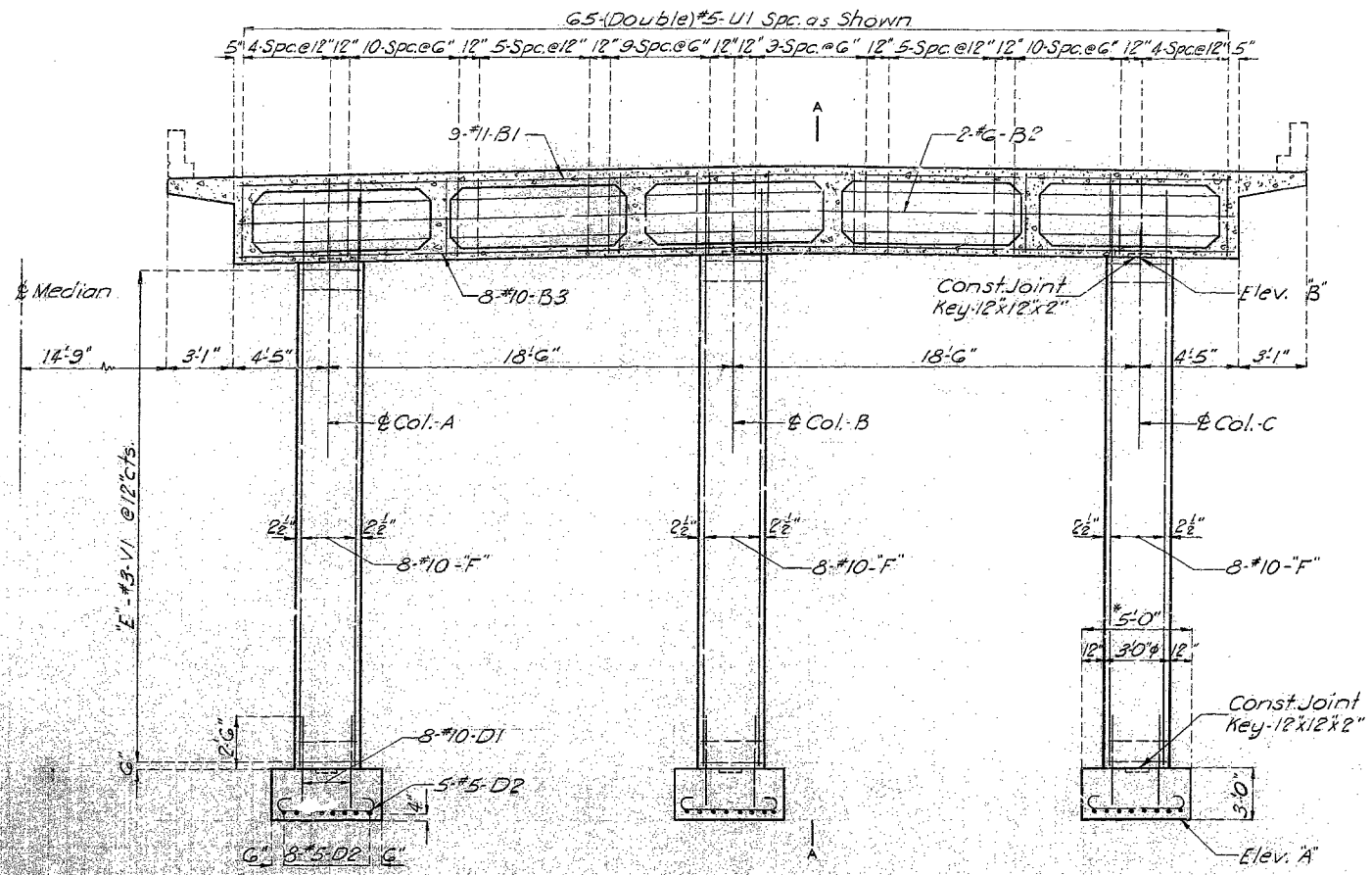
NO CONSTRUCTION CHANGES

A-1485

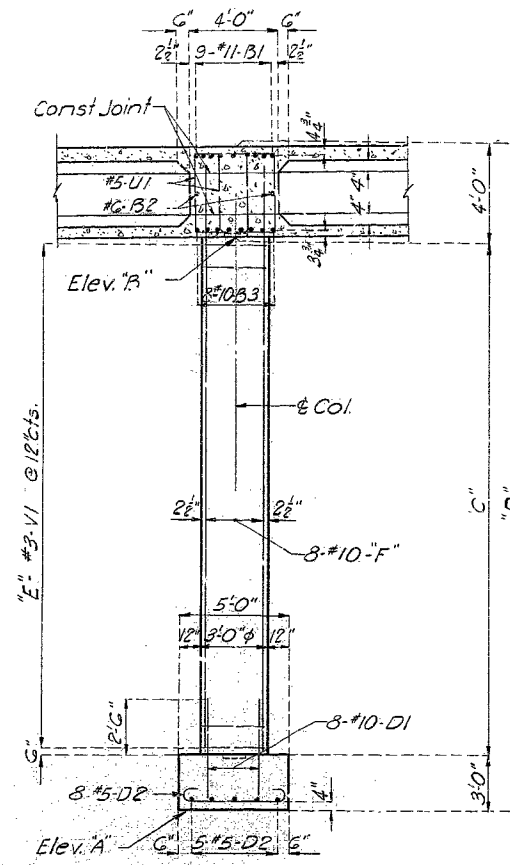
336

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	93	



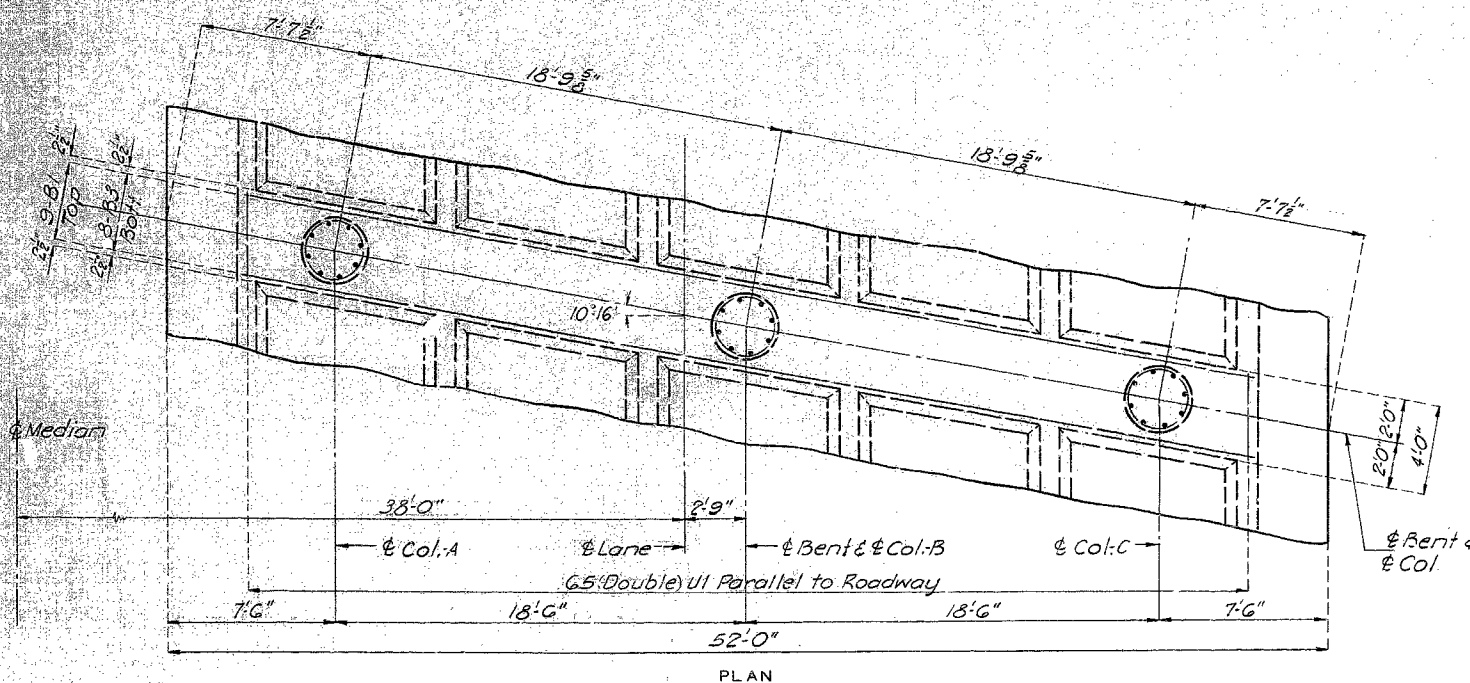
ELEVATION
(Normal to ϵ of Roadway)



SECTION A-A

Note: *Dimension Parallel to ϵ Bent.

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PLAN
DETAILS OF INTERMEDIATE BENTS 2&3

Note: This drawing is not to scale. Follow dimensions.

TABLE OF VARIABLES							
LEFT LANE							
BENT	COL.	ELEV. 'A'	ELEV. 'B'	'C'	'D'	'E'	'F'
2	A		880.58	24'-7"	31'-7"	25	
	B	853.0	880.92	24'-11"	31'-11"	25	V2
	C		880.78	24'-9"	31'-9"	25	
3	A		881.06	22'-10"	29'-10"	23	
	B	856.0	882.22	23'-2"	30'-2"	23	V3
	C		882.09	23'-1"	30'-1"	23	
RIGHT LANE							
2	A		880.47	26'-5"	33'-5"	27	
	B	851.0	880.71	26'-8"	33'-8"	27	V4
	C		880.48	26'-5"	33'-5"	27	
3	A		881.71	25'-8"	32'-8"	26	
	B	853.0	881.94	25'-11"	32'-11"	26	V5
	C		881.69	25'-8"	32'-8"	26	

BRIDGE OVER GREGORY BLVD.

STATE ROAD - INTERSTATE ROUTE 435

ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN

PROJECT NO. I-435-1(38)(RTE. I-435) STA. 621+12.16 LT. LANE
620+98.39 RT. LANE

JACKSON

COUNTY

Sheet No. 6 of 12.

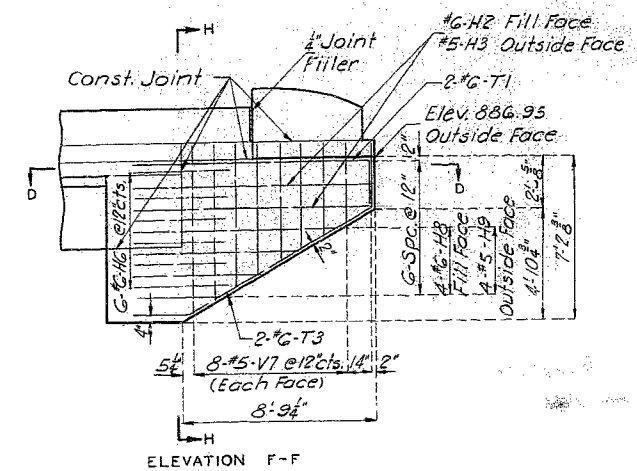
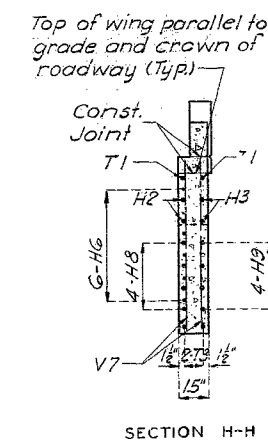
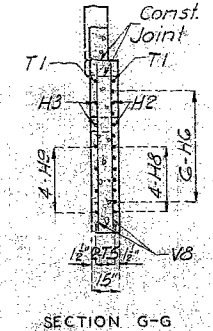
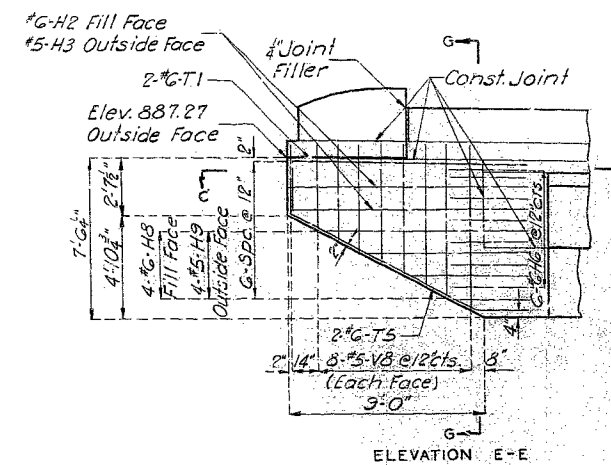
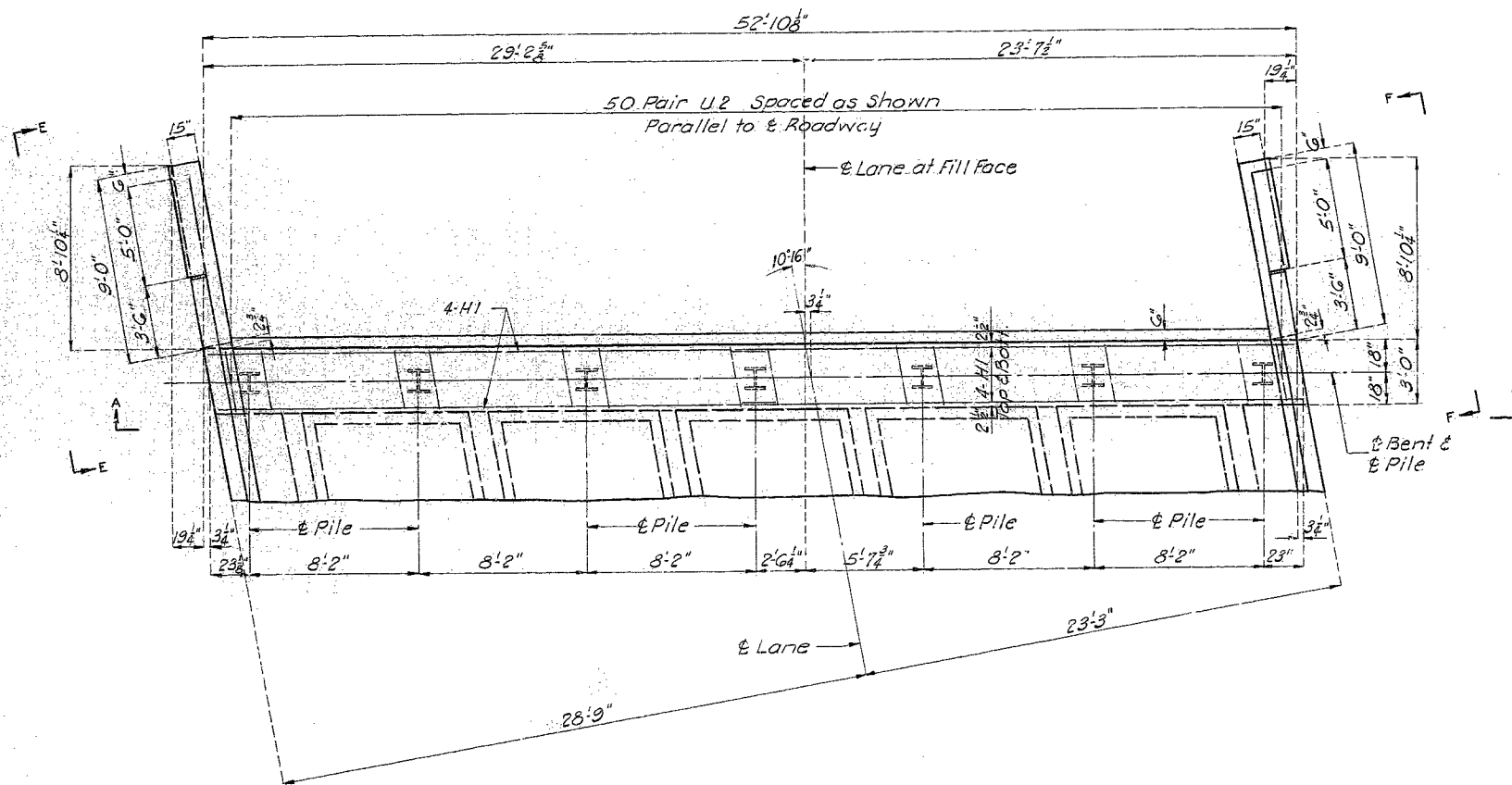
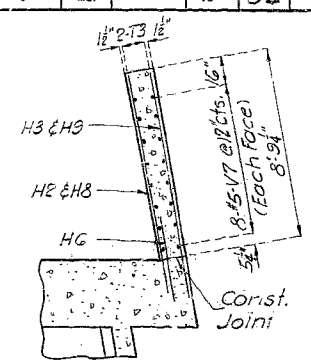
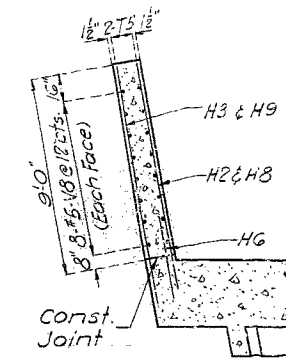
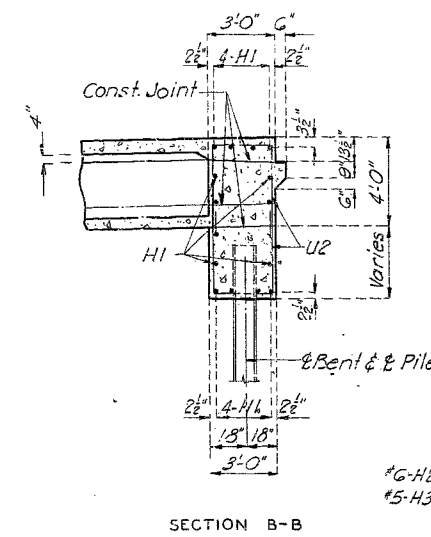
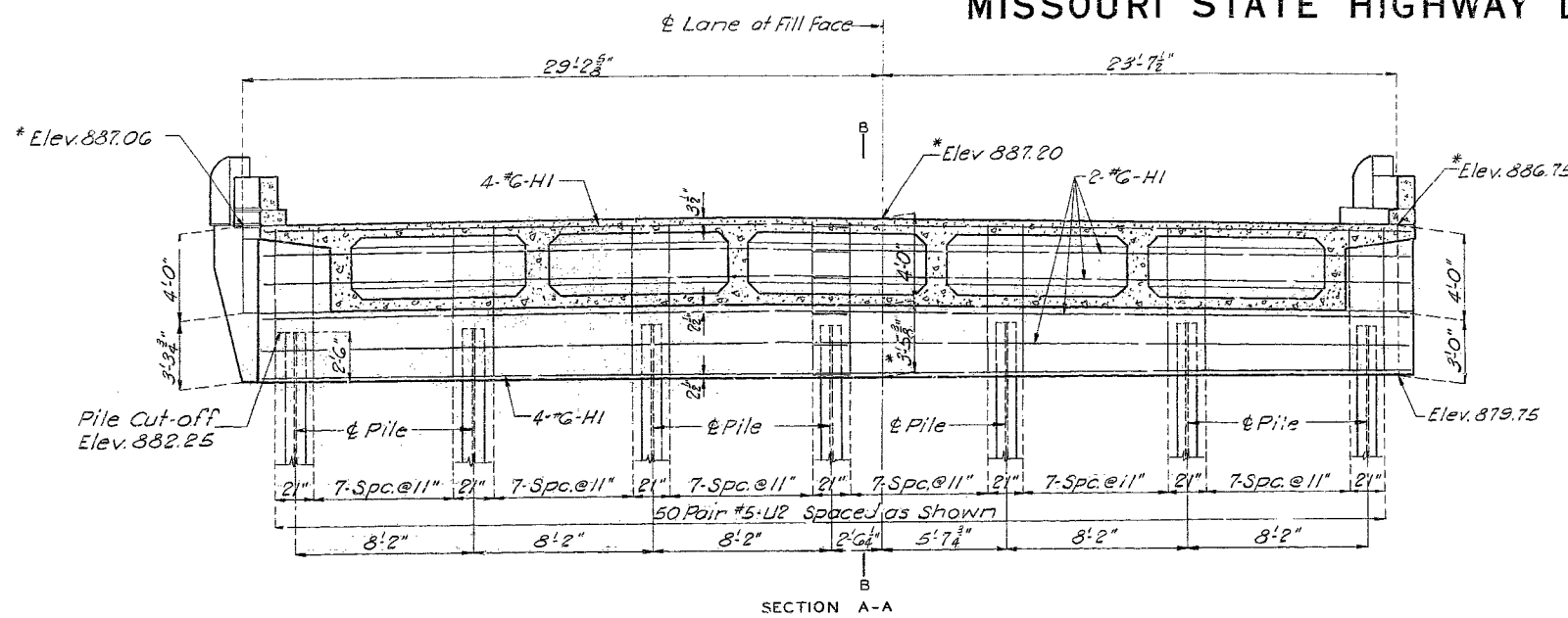
A-1485

SEE FINAL PLANS BROWN LINES

DETAILED MAY, 1965 BY H.H.B.
CHECKED AUG. 1965 BY J.E.R.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	94	



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PLAN
DETAILS OF END BENT 4 - LEFT LANE

Note: Dimensions and elevations marked * are at the Fill Face.
For additional notes see Sheet 4.

BRIDGE OVER GREGORY BLVD.
STATE ROAD - INTERSTATE ROUTE 435
ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
PROJECT NO. I-435-1(38)RT. I-435 STA. 621+12.16 LT. LANE
620+98.39 RT. LANE
JACKSON COUNTY

DETAILED JUNE 1975 BY H.H.B.
CHECKED AUG. 1965 BY J.E.R.

Note: This drawing is not to scale. Follow dimensions.

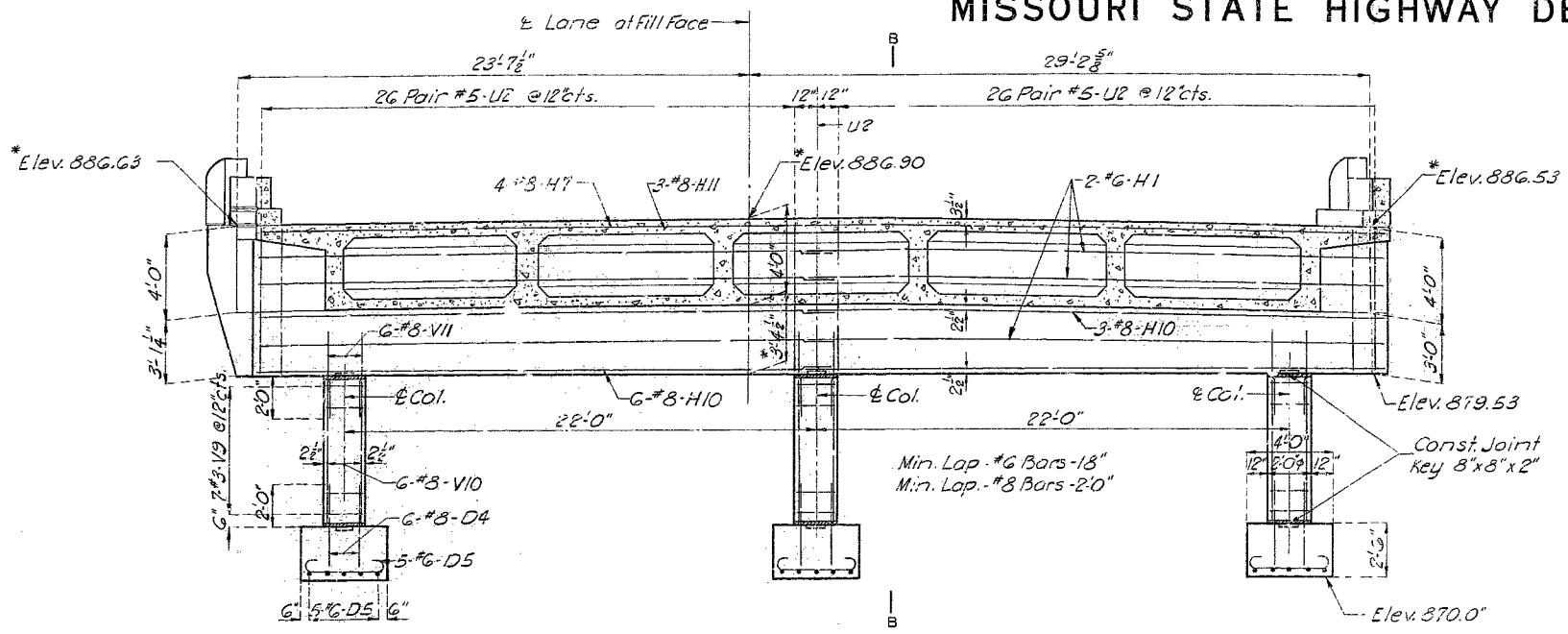
Sheet No. 7 of 12.

A-1485

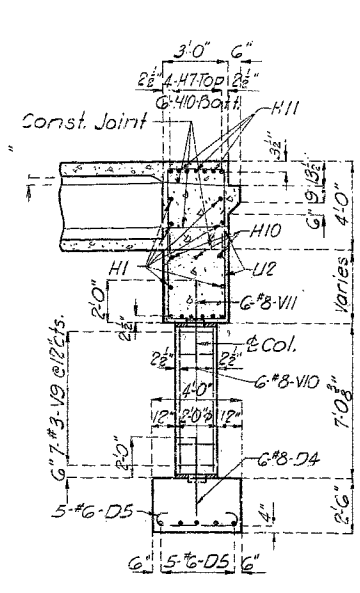
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

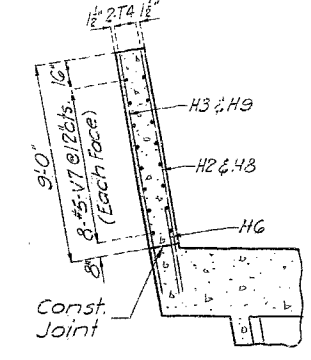
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5	MO.		19	95	



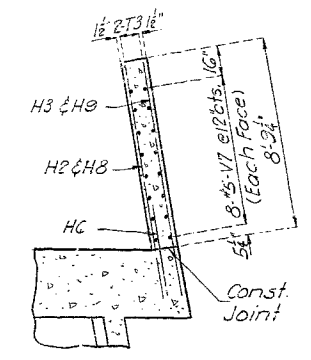
SECTION A-A



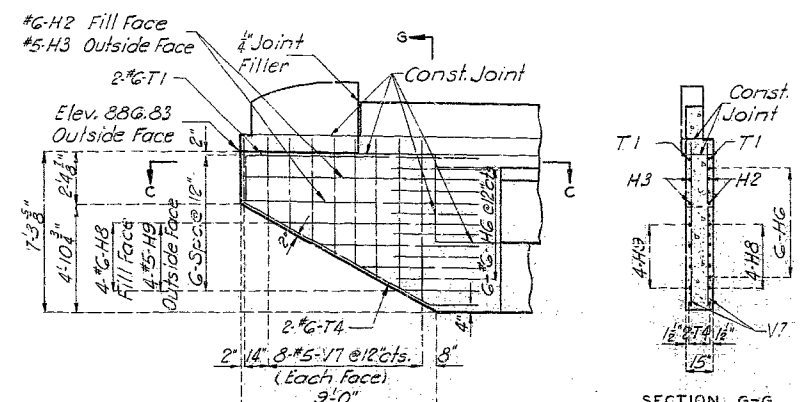
SECTION B-B



SECTION C-C

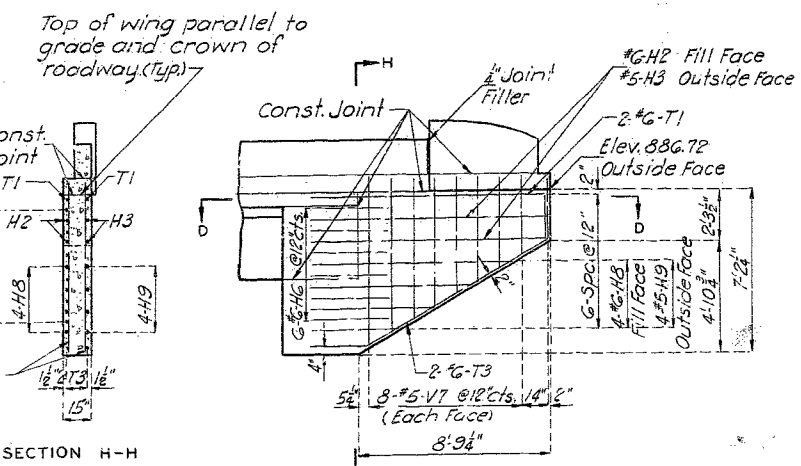


SECTION D-D



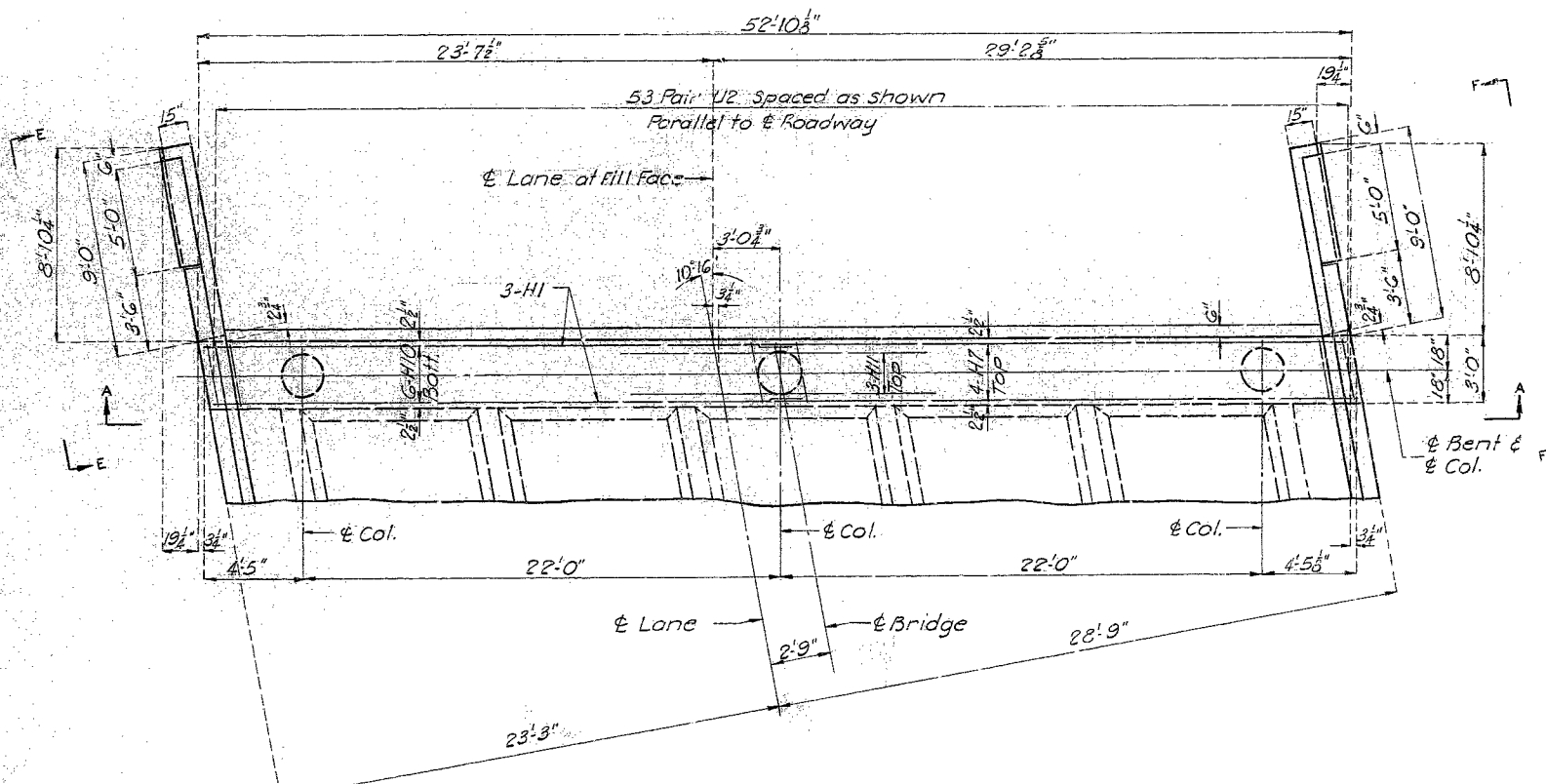
SECTION G-G

ELEVATION E-E



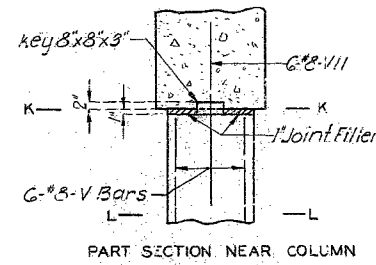
SECTION H-H

ELEVATION F-F

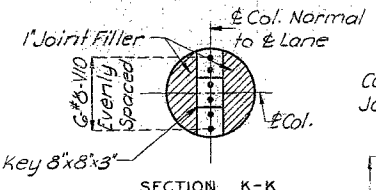


PLAN

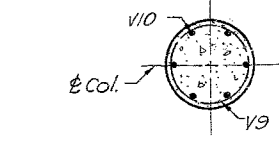
DETAILS OF END BENT 4 - RIGHT LANE



PART SECTION NEAR COLUMN



SECTION K-K



SECTION L-L

Note: Dimensions and elevations marked * are at the Fill face.
For additional notes see Sheet 4.

BRIDGE OVER GREGORY BLVD.
STATE ROAD - INTERSTATE ROUTE 435
ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
PROJECT NO. I-435-1(38)(RTE. I-435) STA. 621+12.16 LT. LANE
620+98.39 RT. LANE
JACKSON COUNTY

DETAILED JUNE 1965 BY H.M.B.
CHECKED AUG. 1965 BY J.E.R.

Note: This drawing is not to scale. Follow dimensions.

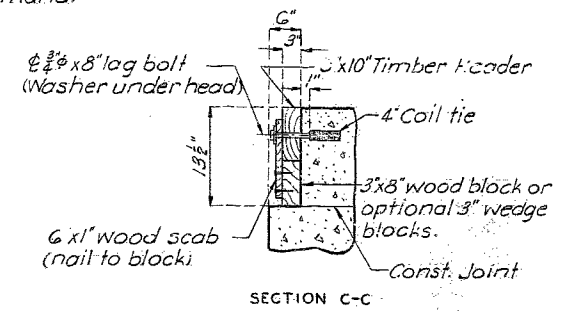
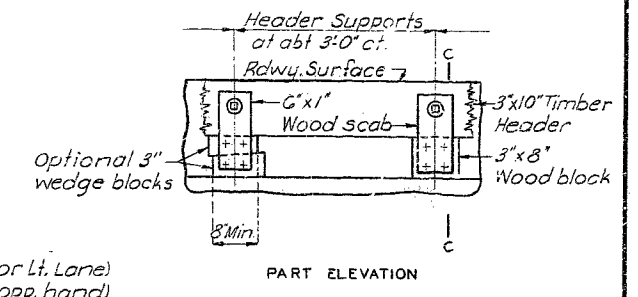
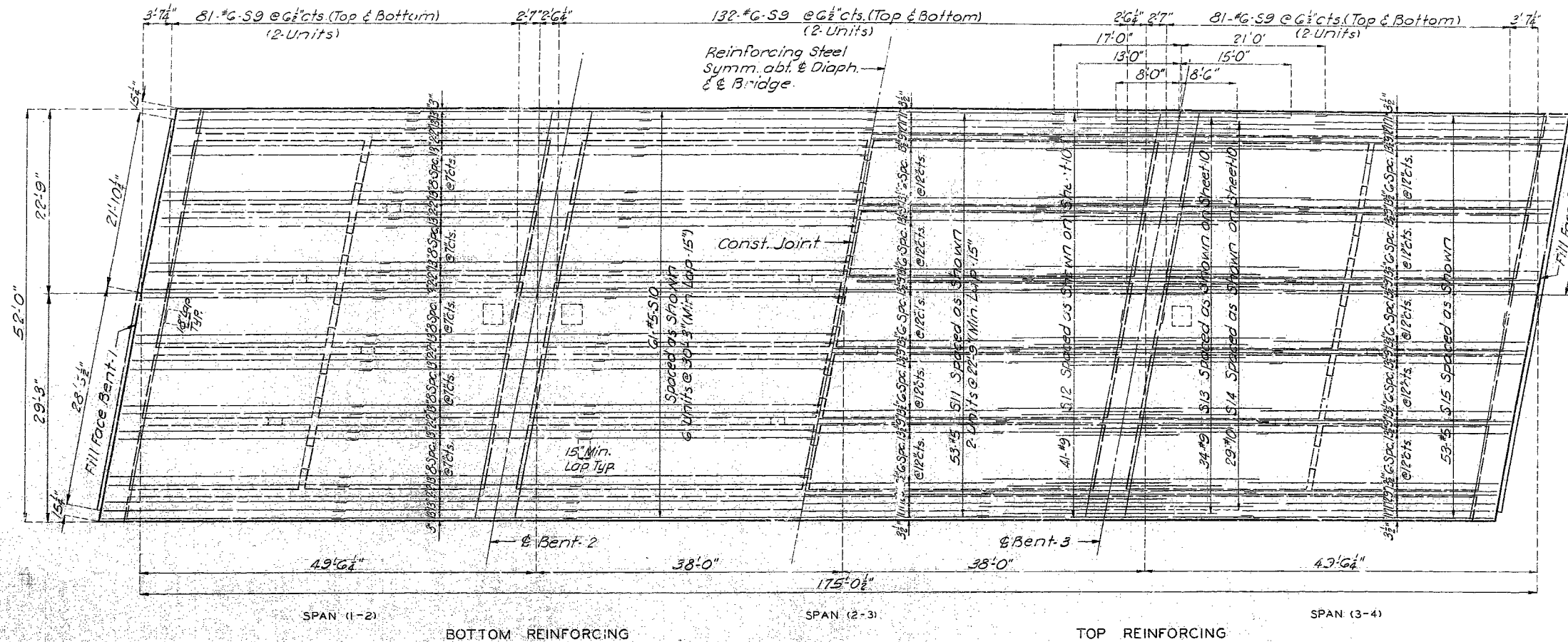
Sheet No. 8 of 12.
SEE FINAL PLANS BROWN LINES

A-1485

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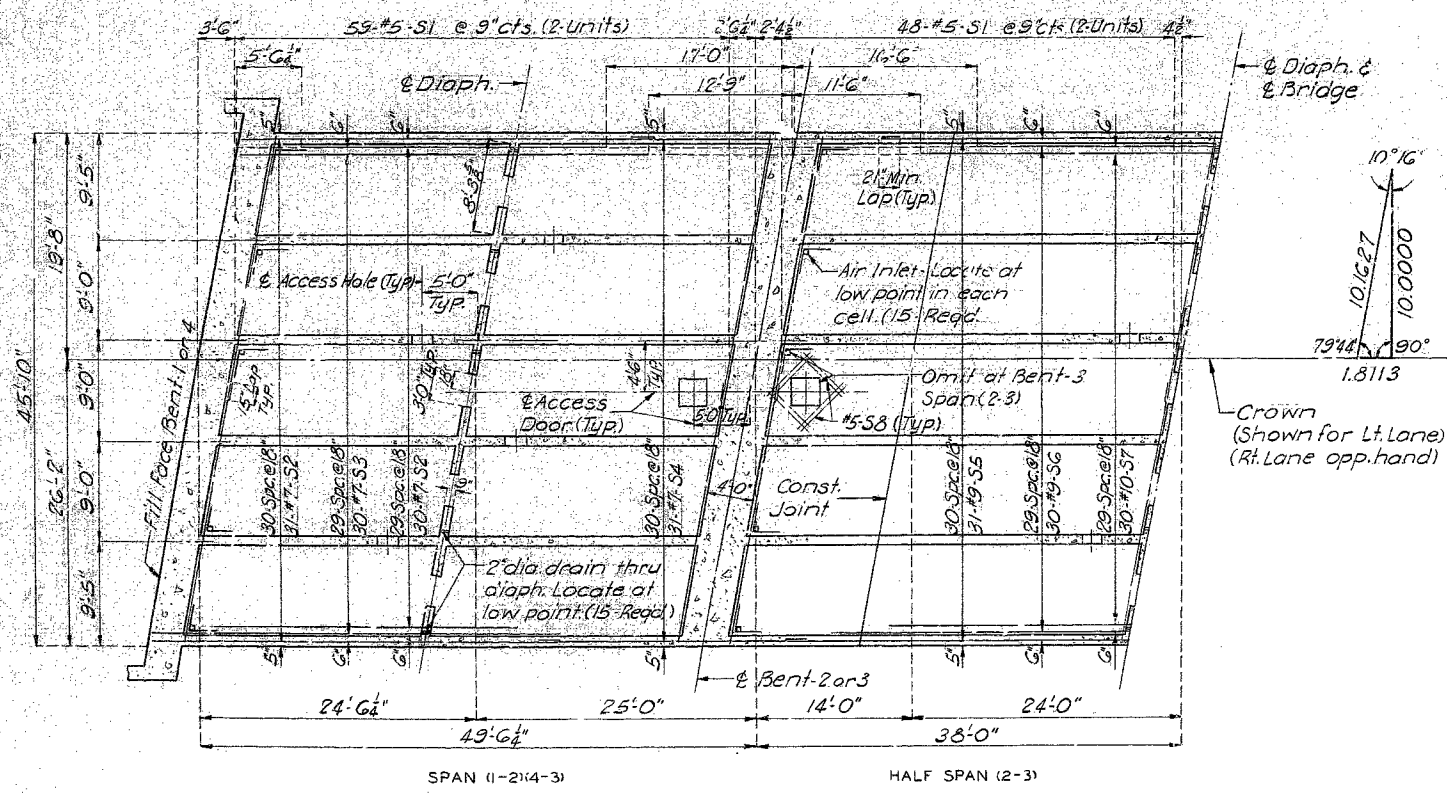
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	96	



Note: Cost of timber headers complete in place to be included in price bid for concrete.

DETAILS OF TIMBER HEADER



Note: All dimensions shown are horizontal. Cut or bend reinforcement in field to clear access doors. Reinforcing steel symmetrical about & bridge. For details of Air Inlets and Access Doors see Sheet 11.

BRIDGE OVER GREGORY BLVD.
 STATE ROAD-INTERSTATE ROUTE 435
 ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
 PROJECT NO. I-435-1(38)(RTE. I-435) STA. 621+12.16 LT. LANE
 620+98.33 RT. LANE
 JACKSON COUNTY

DETAILED MAY 1965 BY H.H.B.
 CHECKED AUG. 1965 BY J.E.R.

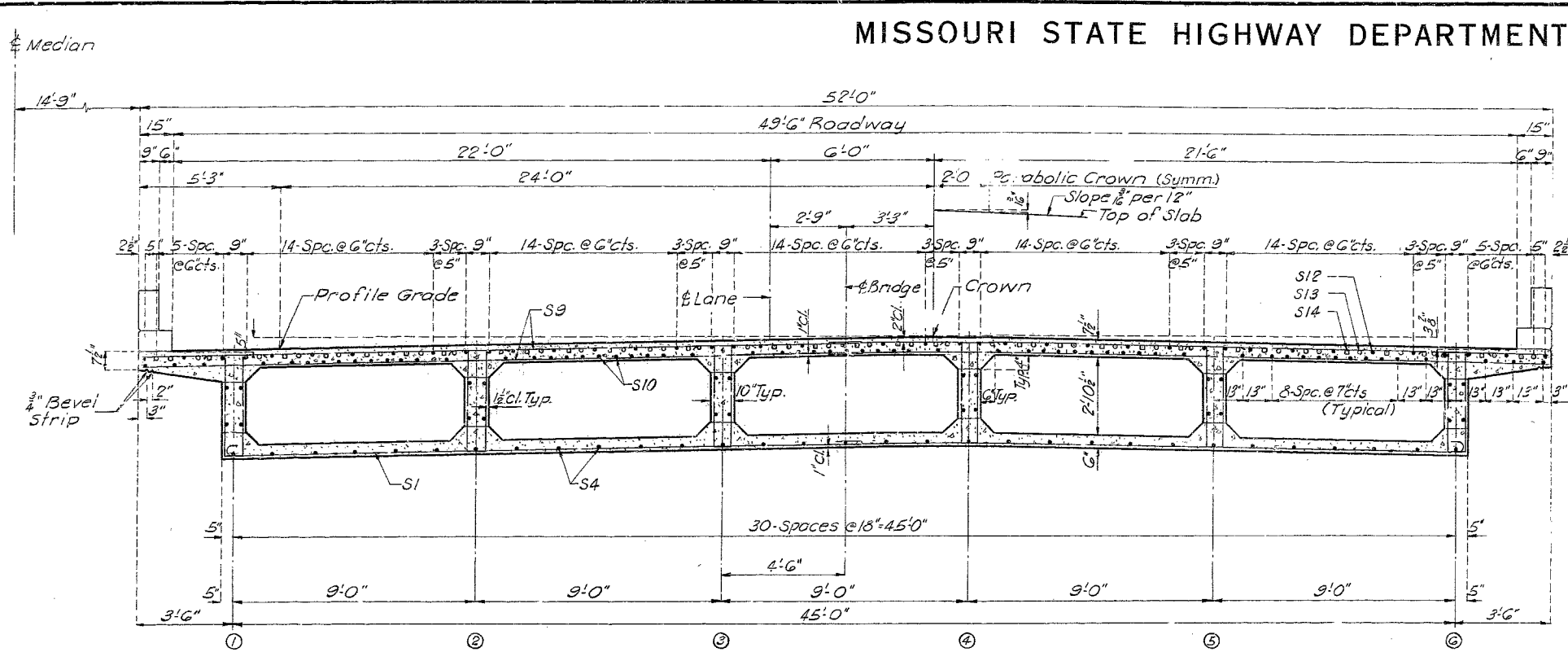
HALF HORIZONTAL SECTION SHOWING BOTTOM SLAB REINFORCEMENT

Note: This drawing is not to scale. Follow dimensions.

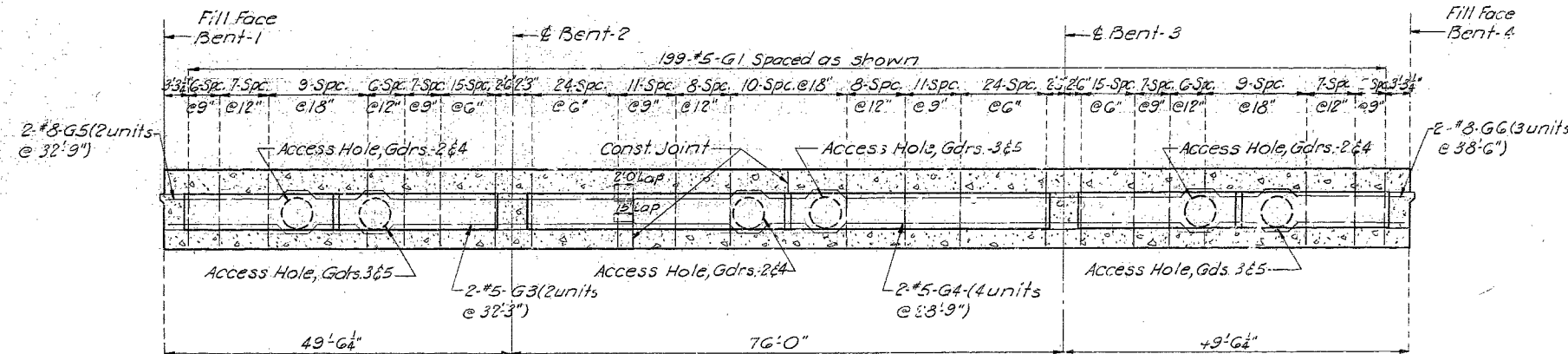
340

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	37	

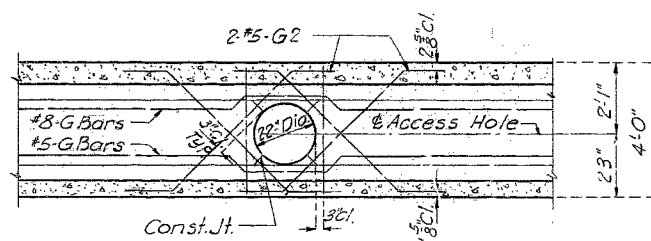


SECTION NEAR BENTS 2 & 3
(Section through Right Lane shown, Left Lane opposite hand)

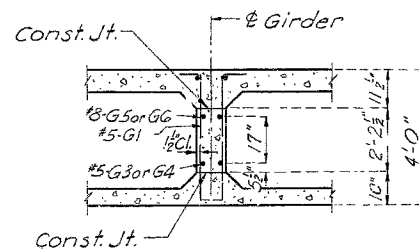


GIRDER REINFORCING

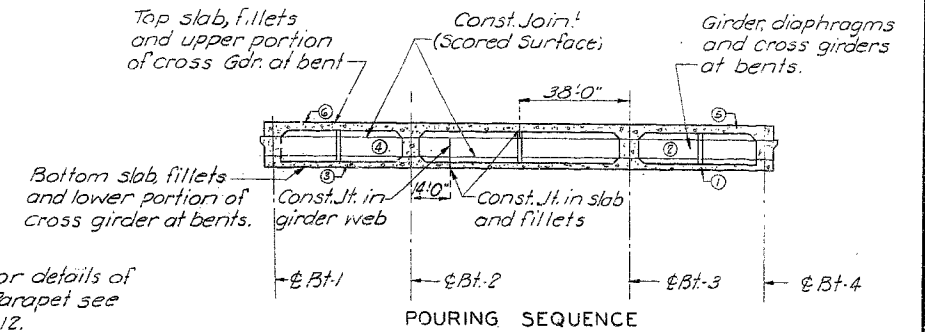
Note: Bend #8 bars in field to clear access holes. Cut or bend #5 bars in field to clear access holes. Shift stirrups to clear access holes.



ACCESS HOLE



SECTION THRU GIRDERS 2,3,4,&5
(Girders 1 and 6 Similar)



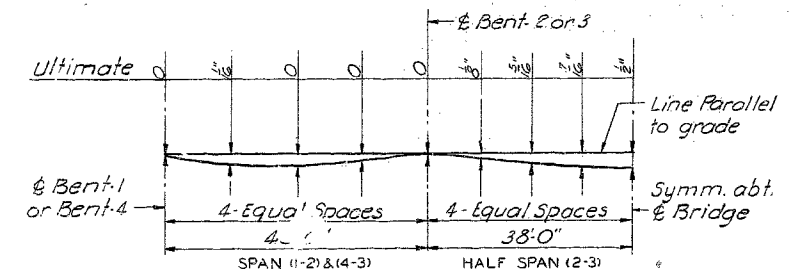
Note: For details of curb & parapet see Sheet-12.

Note: Numbers in circles indicate the basic pouring sequence. Longitudinal joints in roadway slabs, unless specifically on plans, will not be permitted.

The contractor shall use an approved oscillating screed type self-propelled mechanical finishing machine and shall pour roadway slabs at a rate of not less than 30 cubic yards per hour. He shall observe the basic pouring sequence unless he can demonstrate to the engineer that he can pour and satisfactorily finish the superstructure concrete at a rate which will permit the combining of such of the basic pours as may be specifically designated by the engineer as being compatible with design. Finishing machine loads will not be permitted on concrete less than 48 hours old.

With use of forms and basic falsework meeting the approval of the engineer, the girder webs and diaphragms may be poured with the bottom slab sections on which they bear.

All forms shall be removed from the interior of box girders except top slab forms which may be left in place.



THEORETICAL CAMBER DIAGRAM

Note: The contractor shall camber forms to allow for ultimate dead load deflection.

BRIDGE OVER GREGORY BLVD.

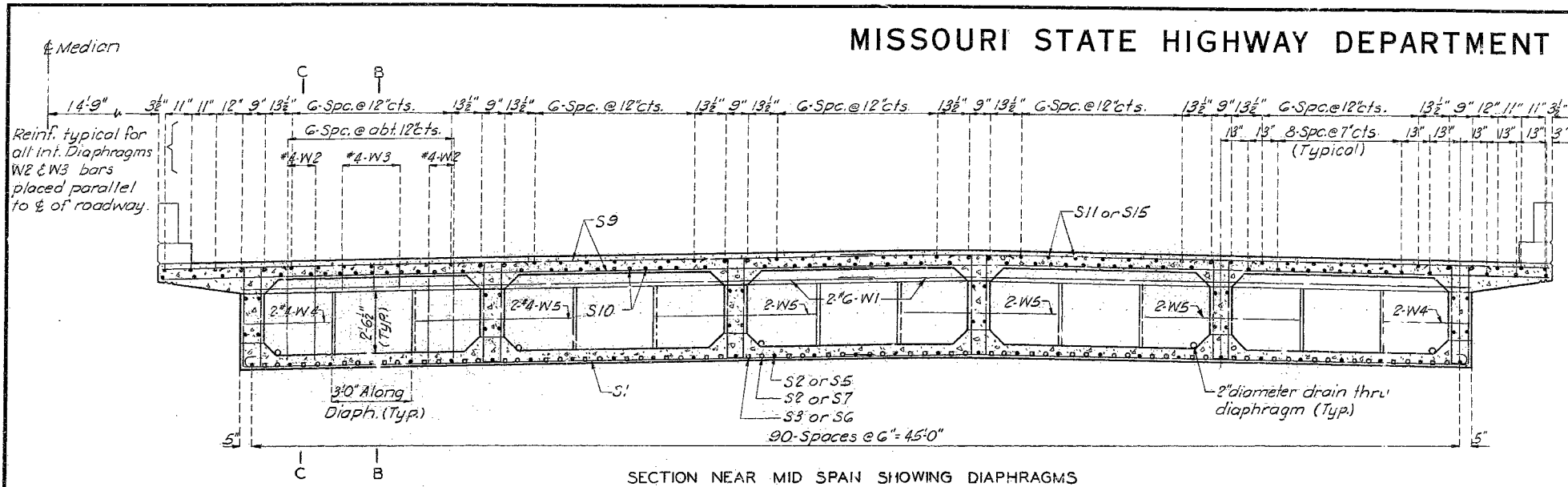
STATE ROAD - INTERSTATE ROUTE 435
ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
PROJECT NO. I-435-1(38)RTE. 1-435 STA. 621+12.16 LT. LANE
620+98.39 RT. LANE

JACKSON COUNTY

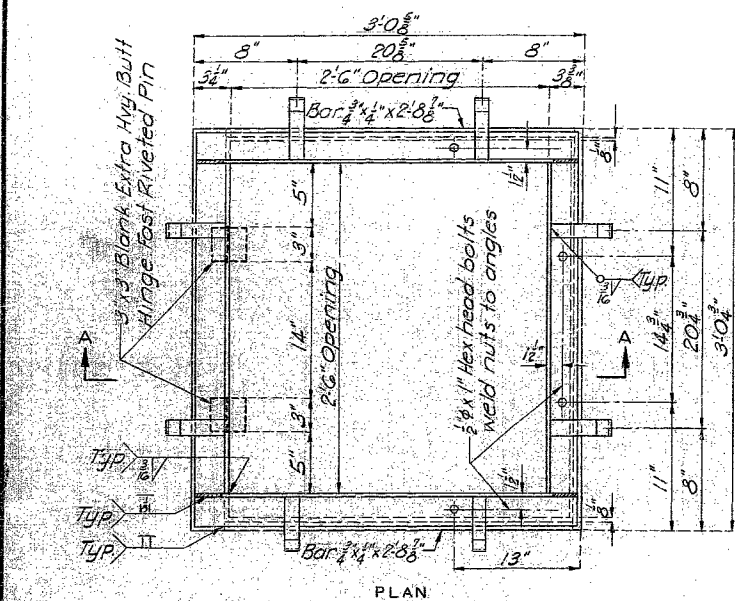
341

MISSOURI STATE HIGHWAY DEPARTMENT

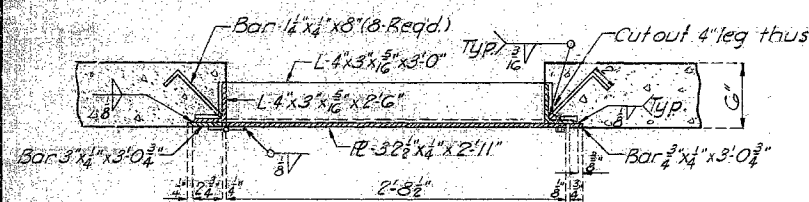
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	33	



SECTION NEAR MID SPAN SHOWING DIAPHRAGMS



PLAN

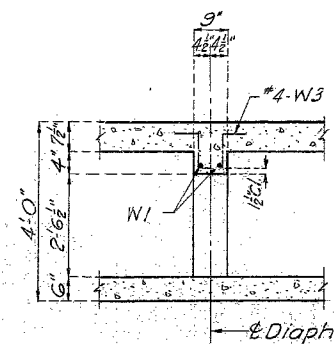


SECTION A-A

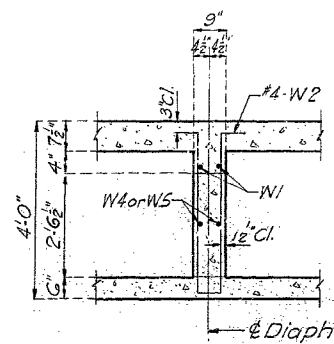
ACCESS DOOR
(3 - Required)

Note: Weight of one door and frame is approximately 179#. Access door to be assembled and in place while slab is being poured. Bottom surface of door is to be flush with bottom slab.

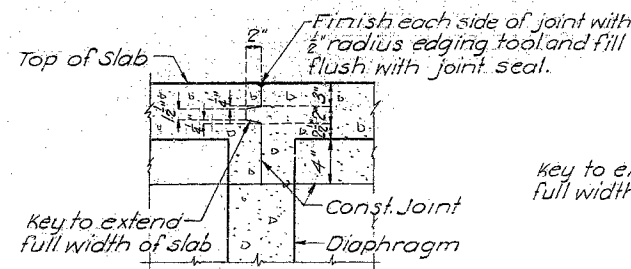
Payment for furnishing and installing access doors and frames shall be made and considered fully covered under price bid for other items.



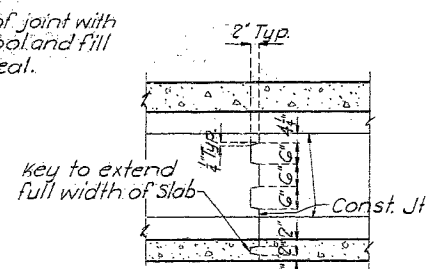
SECTION B-B



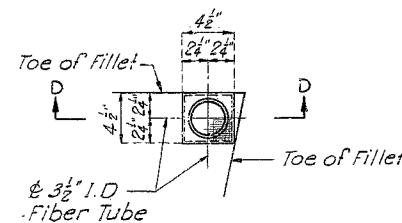
SECTION C-C



CONSTRUCTION JOINT IN TOP SLAB

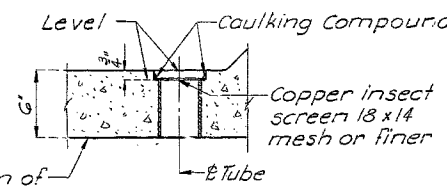


CONSTRUCTION JOINT IN BOTTOM SLAB AND GIRDER WEB



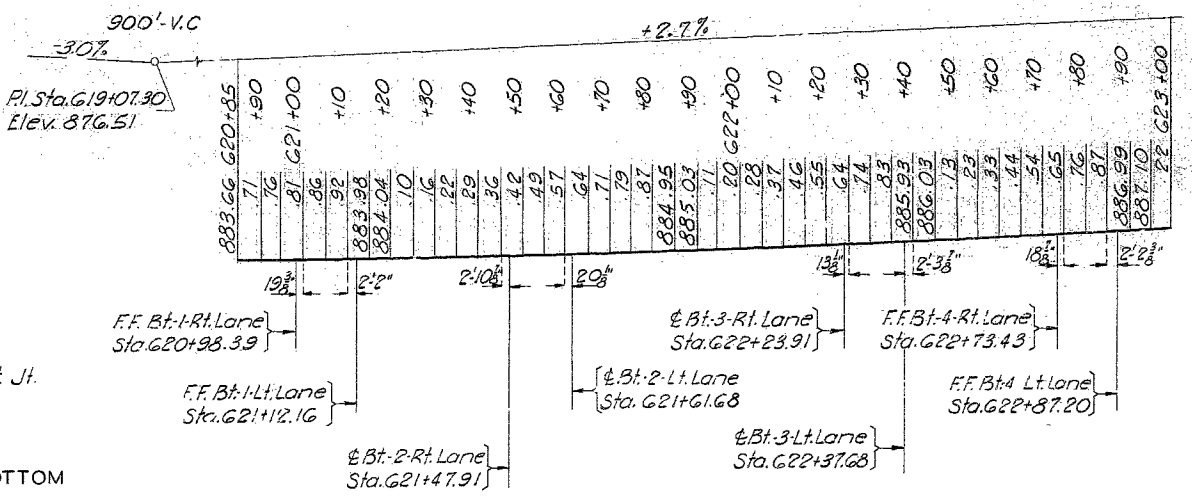
PLAN

AIR INLET



SECTION D-D

Note: Payment for furnishing and placing fiber tube, copper screen, and caulking compound shall be included in price bid for other items of work.



PROFILE GRADE ELEVATIONS

BRIDGE OVER GREGORY BLVD.

STATE ROAD - INTERSTATE ROUTE 435

ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN

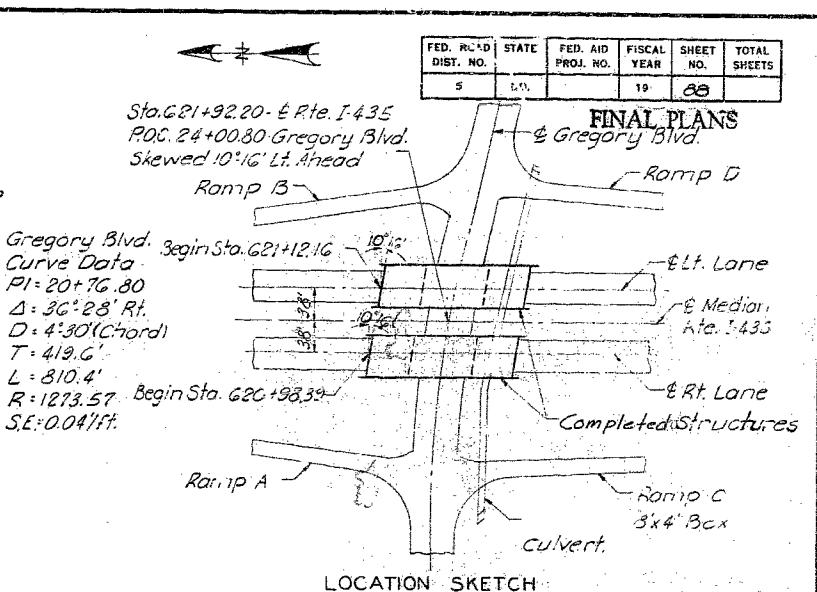
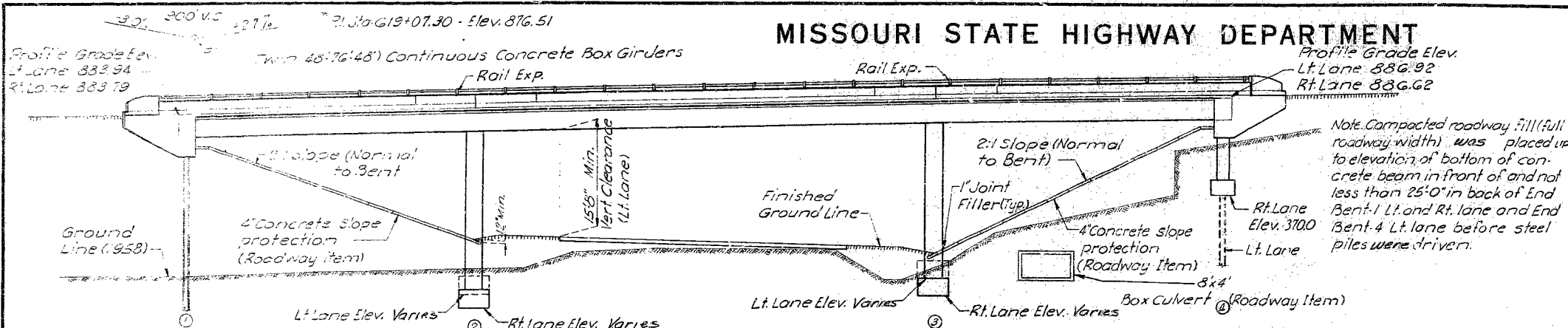
PROJECT NO. I-435-1(38)RTE. I-435 STA. 621+12.16 LT. LANE 620+98.39 RT. LANE

JACKSON

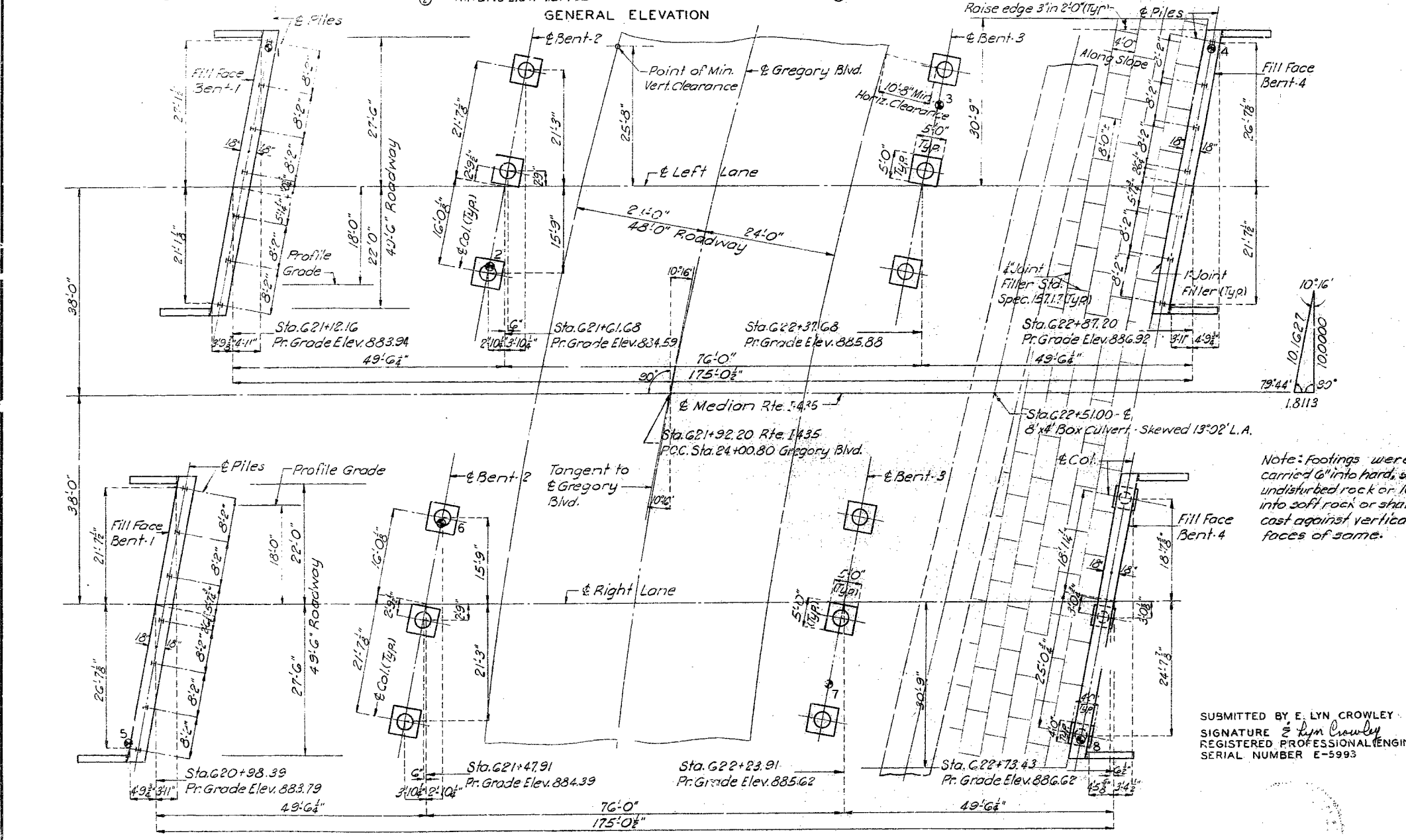
COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT



FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	68	



SPREAD FOOTINGS	BENT NO.	1		2		3		4	
		LT.	RT.	LT.	RT.	LT.	RT.	LT.	RT.
Foundation Material		---		Rock		Rock		---	
Design Bearing Tons/Sq. Ft.		---		9.0		9.0		9.4	
Pile Type & Size		10BPA2		10BPA2		---		10BPA2	
Number		7		7		---		7	
Approximate Length Ft.		25		30		---		25	
Plan Bearing Tons		56		56		---		56	
Min. Required Bearing Tons		50		50		---		50	
Hammer		PROVY		PROVY		---		PROVY	

Note: All pile was driven to absolute refusal on or into solid rock.

Piling was driven with an approved power hammer developing an energy of not less than 19000 ft. lbs and having a ram weighing not less than 4,500 lbs.

ITEM	SUBSTR.	SUPERSTR.	TOTAL
Class I Excavation for Structures	Cu.Yd	172	172
Steel Piles in Place (10')	Lin.Ft	534	534
Steel Pile Cut-offs (10')	Lin.Ft	82	82
Class B Concrete	Cu.Yd	37.6	37.6
Class B1 Concrete	Cu.Yd	---	1329.9
Reinforcing Steel	Lbs	3610	368450
Bridge Rail (Single Tube Type)	Lin.Ft	---	786
Contingent Items, Class H 25% Exc. Cu.Yd		0.5	0.5
TEST ITEMS		0.6	0.6

Note: All concrete and reinforcement above footings is included in superstructure quantities.

No payment for excavation was allowed at End Bent-1, left and right lane and End Bent-4, left lane.

Payment for furnishing and installing access doors and frames was made and considered fully covered under price bid for other items.

BRIDGE OVER GREGORY BLVD.
 STATE ROAD - INTERSTATE ROUTE 435
 ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN
 PROJECT NO. I-435-1(38)(RTE. I-435) STA. 621+12.16 LT. LANE 620+98.39 RT. LANE
 JACKSON COUNTY

PRICHARD COMPANY INC.
 CONSULTING ENGINEERS
 INDEPENDENCE, MISSOURI
 DESIGNED JUNE 1965 BY G.F.P.
 DETAILED JUNE 1965 BY H.B.S.
 CHECKED AUG. 1965 BY J.E.R.

Note: This drawing is not to scale. Follow dimensions.

Note: For General notes see Sheet 2.
 For Boring Data see Sheet 2.
 * Indicates location of boring.

Sheet No. 1A of 3

FINAL PLANS

SUBMITTED BY E. LYN CROWLEY
 SIGNATURE *E. Lyn Crowley*
 REGISTERED PROFESSIONAL ENGINEER
 SERIAL NUMBER E-5993

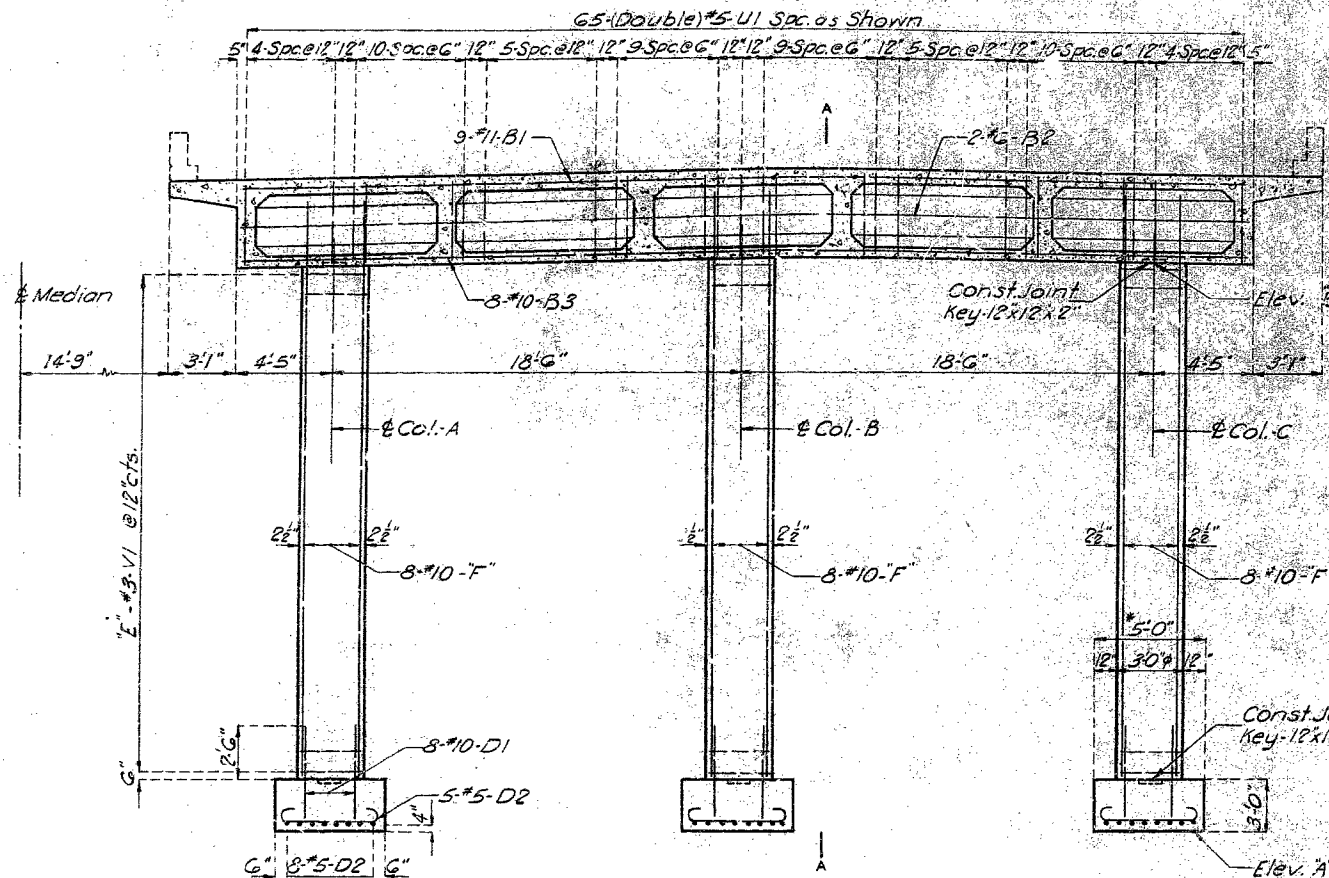
STD. 54.00
 A-1485

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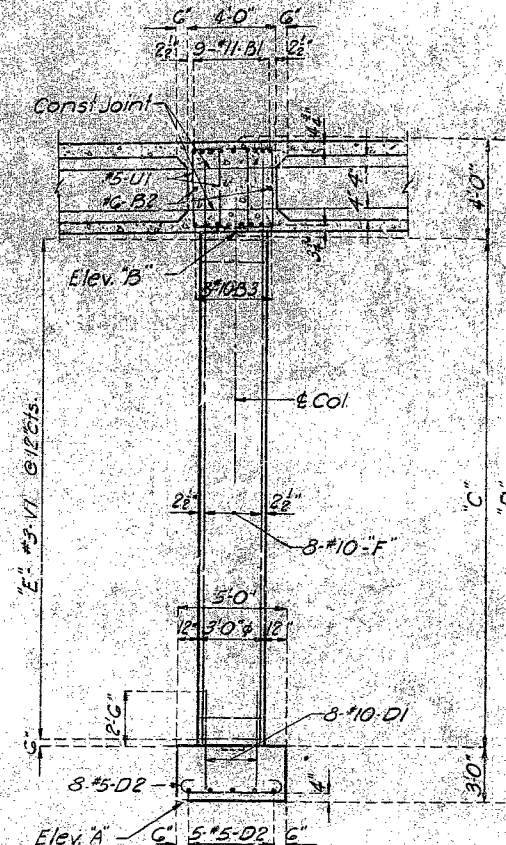
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	

FINAL PLANS



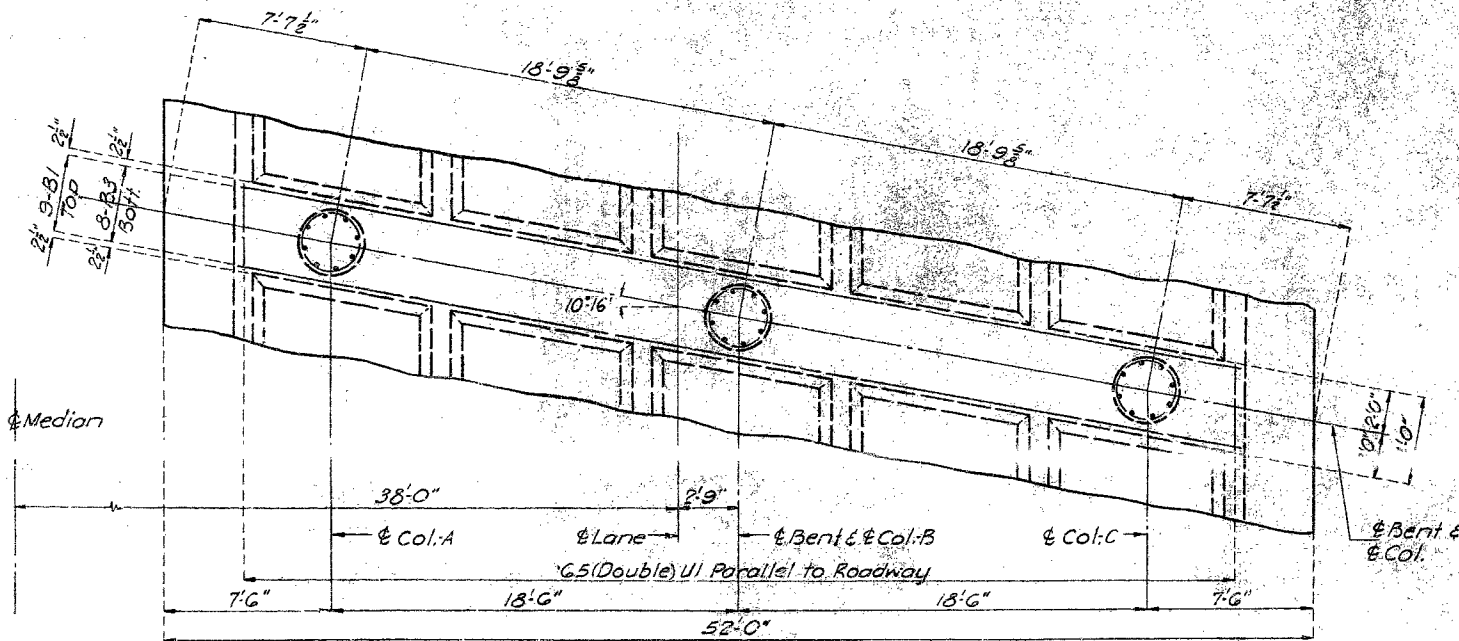
ELEVATION
(Normal to ϵ of Roadway)



SECTION A-A

Note: *Dimension Parallel to ϵ Bent.

345



PLAN
DETAILS OF INTERMEDIATE BENTS 2 & 3

Note: This drawing is not to scale. Follow dimensions.

TABLE OF VARIABLES							
LEFT LANE							
BENT	COL.	ELEV. 'A'	ELEV. 'B'	'C'	'D'	'E'	'F'
2	A	853.58	880.58	24'-0"	31'-0"	25	V2
	B	854.12	880.92	23'-9 $\frac{1}{2}$ "	30'-9 $\frac{1}{2}$ "	25	
	C	854.73	880.78	23'-0 $\frac{1}{2}$ "	30'-0 $\frac{1}{2}$ "	25	
3	A	855.63	881.36	23'-2 $\frac{1}{2}$ "	30'-2 $\frac{1}{2}$ "	23	V3
	B	857.01	882.22	22'-2 $\frac{1}{2}$ "	29'-2 $\frac{1}{2}$ "	23	
	C	857.04	882.09	22'-0 $\frac{1}{2}$ "	29'-0 $\frac{1}{2}$ "	23	
RIGHT LANE							
2	A	852.47	880.27	25'-0"	32'-0"	27	V4
	B	851.91	880.71	25'-9 $\frac{1}{2}$ "	32'-9 $\frac{1}{2}$ "	27	
	C	852.11	880.43	25'-4 $\frac{1}{2}$ "	32'-4 $\frac{1}{2}$ "	27	
3	A	853.20	881.71	24'-8 $\frac{1}{2}$ "	31'-8 $\frac{1}{2}$ "	26	V5
	B	853.20	881.94	25'-8 $\frac{1}{2}$ "	32'-8 $\frac{1}{2}$ "	26	
	C	852.12	881.69	26'-0 $\frac{1}{2}$ "	33'-0 $\frac{1}{2}$ "	26	

BRIDGE OVER GREGORY BLVD.

STATE ROAD-INTERSTATE ROUTE 435
ABOUT 1.5 MILES SOUTHWEST OF RAYTOWN

PROJECT NO. I-435-1(38)(RTE. I-435) STA. 621+12.16 LT. LANE
620+98.39 RT. LANE

JACKSON COUNTY

Sheet No. CA of 3.

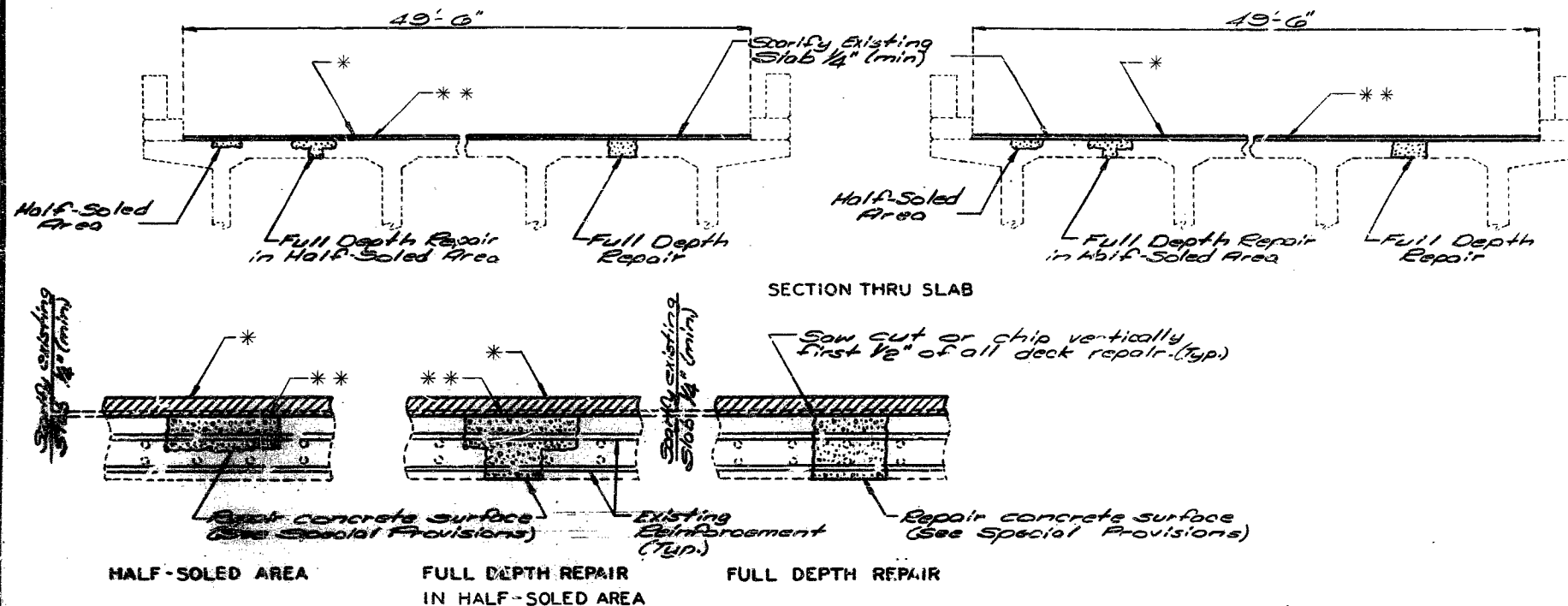
FINAL PLANS

A-1485

DETAILED MAY 1965 BY H.H.B.
CHECKED AUG 1965 BY J.E.R.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO
MO		22
SEC / SUR 12	TWP 48N RGE 33W	



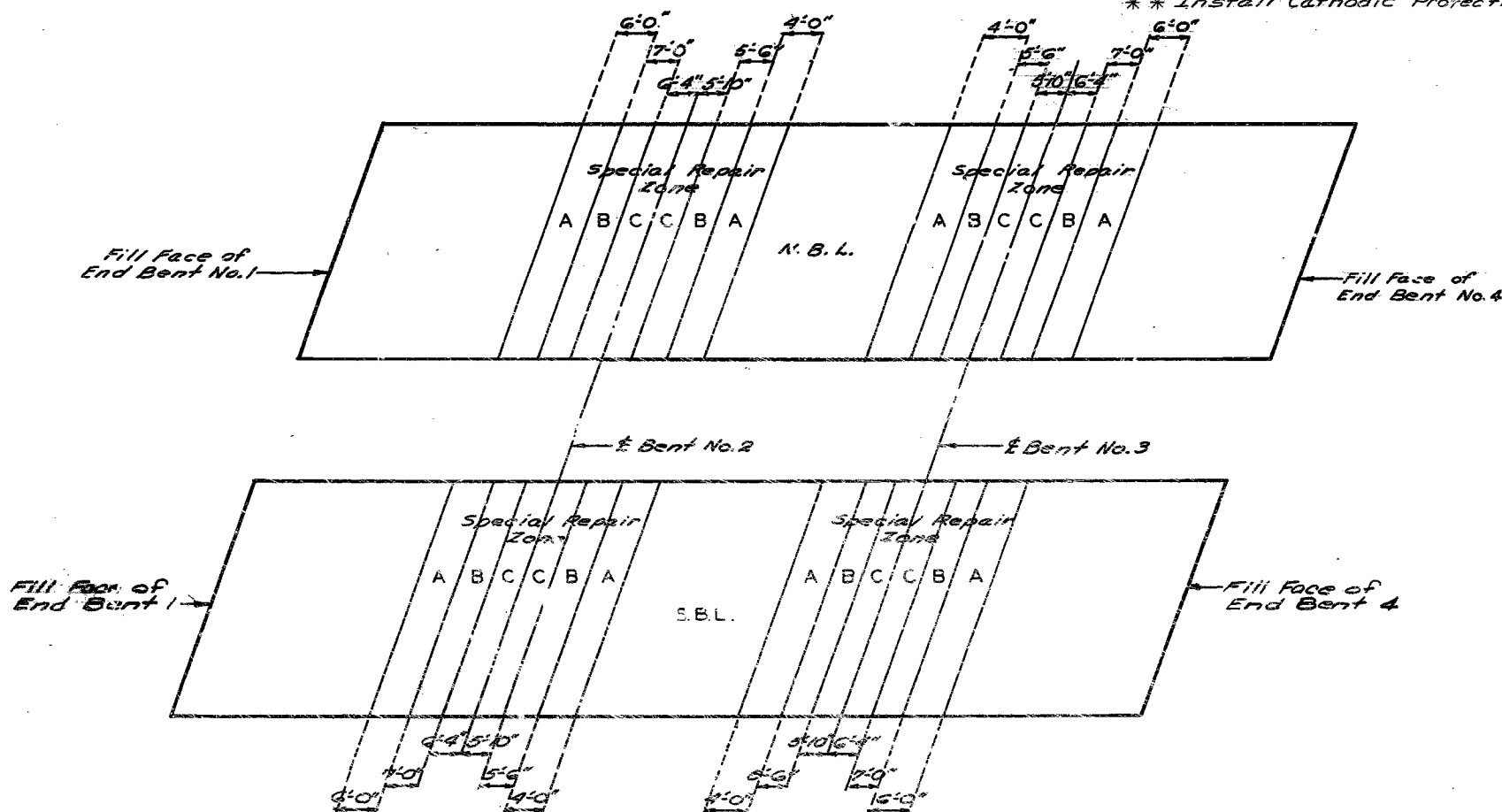
GENERAL NOTES:

Design Specifications: A.R.S.H.T.O. - 1983 and Interims thru 1986
 Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
 Roadway surfacing adjacent to bridge ends to match Bridge Overlay. (Roadway Item)
 Traffic over structure to be maintained during construction. See Sht. No. 2 for stage construction.

HALF-SOLED AREA FULL DEPTH REPAIR IN HALF-SOLED AREA FULL DEPTH REPAIR

Note: * Apply 1 3/4" Latex Modified or 2 1/4" Low Slump Concrete overlay.
 ** Install Cathodic Protection System.

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PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES

Note: This drawing is not to scale. Follow dimensions.

ESTIMATED QUANTITIES		
ITEM	QUANTITY	TOTAL
Concrete Wearing Surface	520	4925
Repairing Concrete Deck (Half-Soled)	520	520
Full Depth Repair	1179	1179
Cathodic Protection System	1	1

Note: Zone A is to be completed before Zone B and Zone B before Zone C.
 Any repair in the remainder of the bridge that is within 20' of zone A shall be completed prior to work in Zone A.
 Zones with the same letter designation may be repaired at the same time.

REPAIRS TO BRIDGE OVER GREGORY BLVD.

STATE ROAD FROM GREGORY BLVD. TO RTE 350 ABOUT

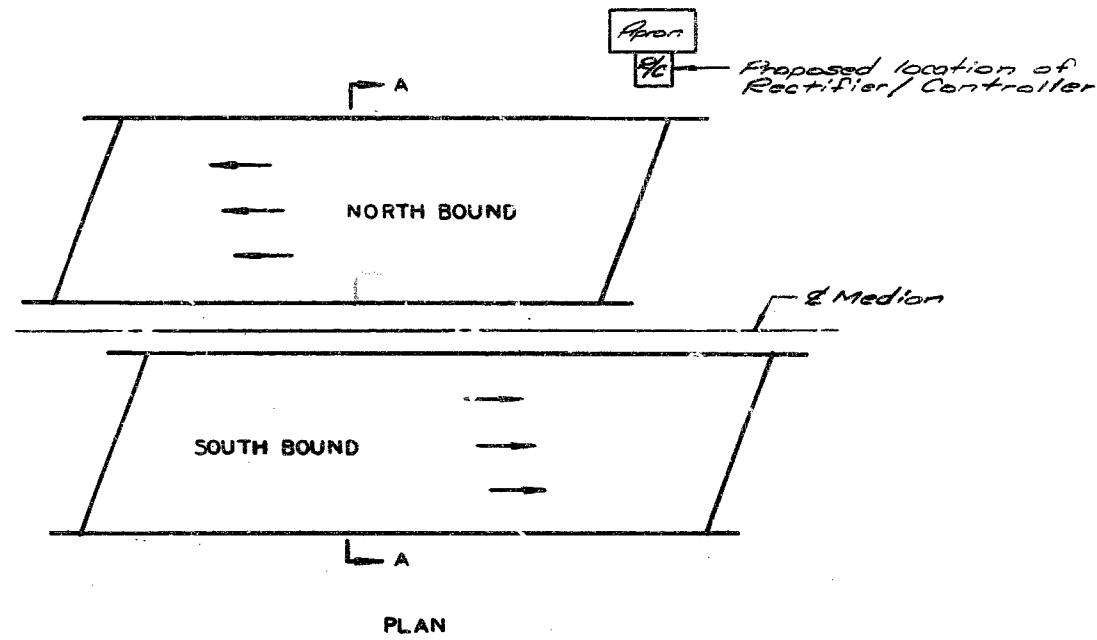
PROJECT NO. IR-435-(223)
 JOB NO. 4 I435 557C
 JACKSON

STA 621+12.16±NBL.
 620+98.39±SBL
 RTE. I-435
 COUNTY

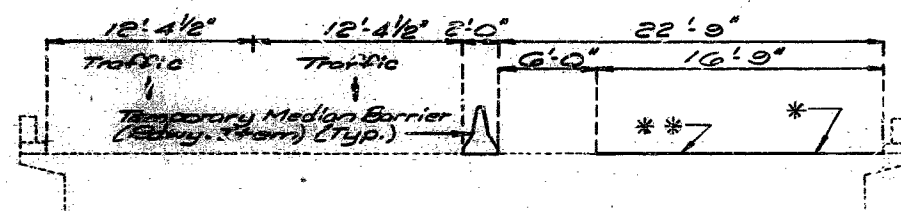
STD.
STD.
A-1485R1

DESIGNED Dec. 19 87
 DETAILED Dec. 19 87
 CHECKED Jan. 19 88

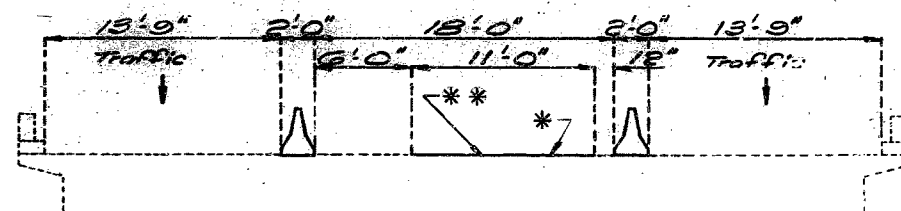
STATE	PROJ NO	SHEET NO
MO		23



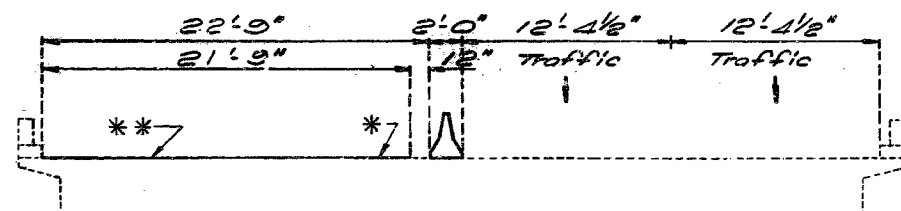
Note: * Apply 1 1/2" Latex Modified or 2 1/4" Low slump Concrete overlay.
** Install Cathodic Protection system.



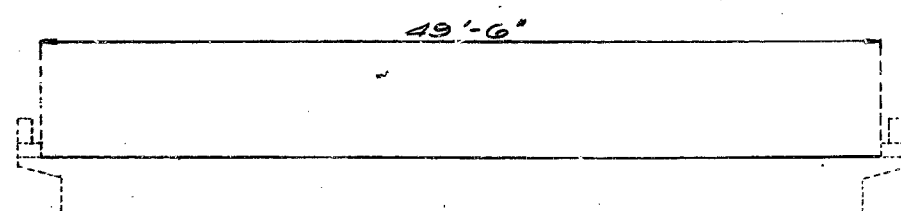
SECTION A-A



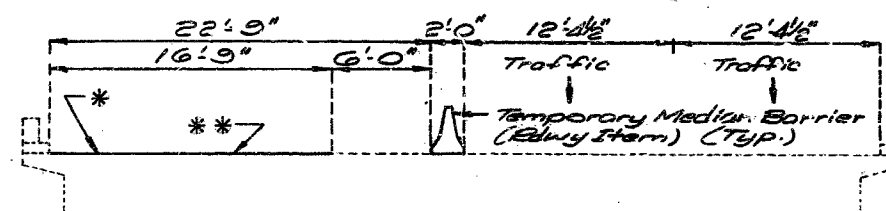
SECTION A-A



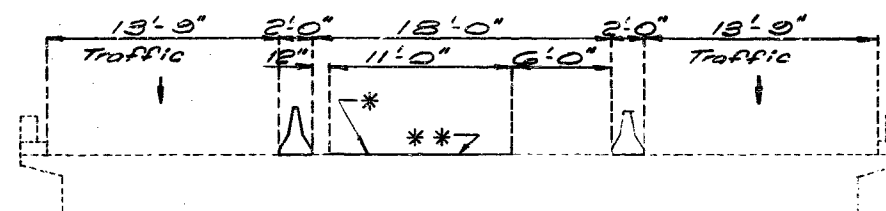
SECTION A-A



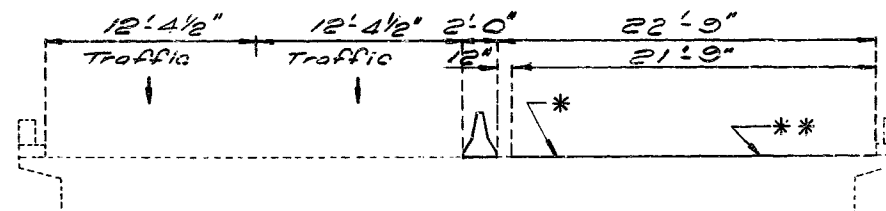
SECTION A-A FINAL STAGE



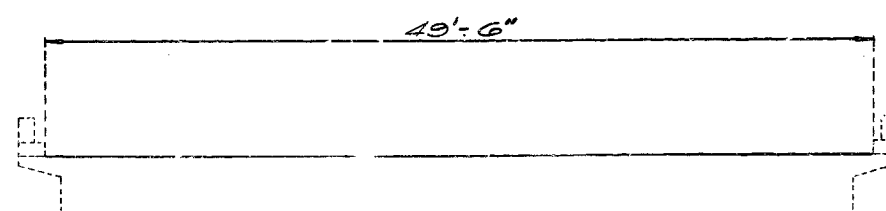
STAGE 1



STAGE 2



STAGE 3



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DETAILED Dec. 1987
CHECKED Jan. 1988

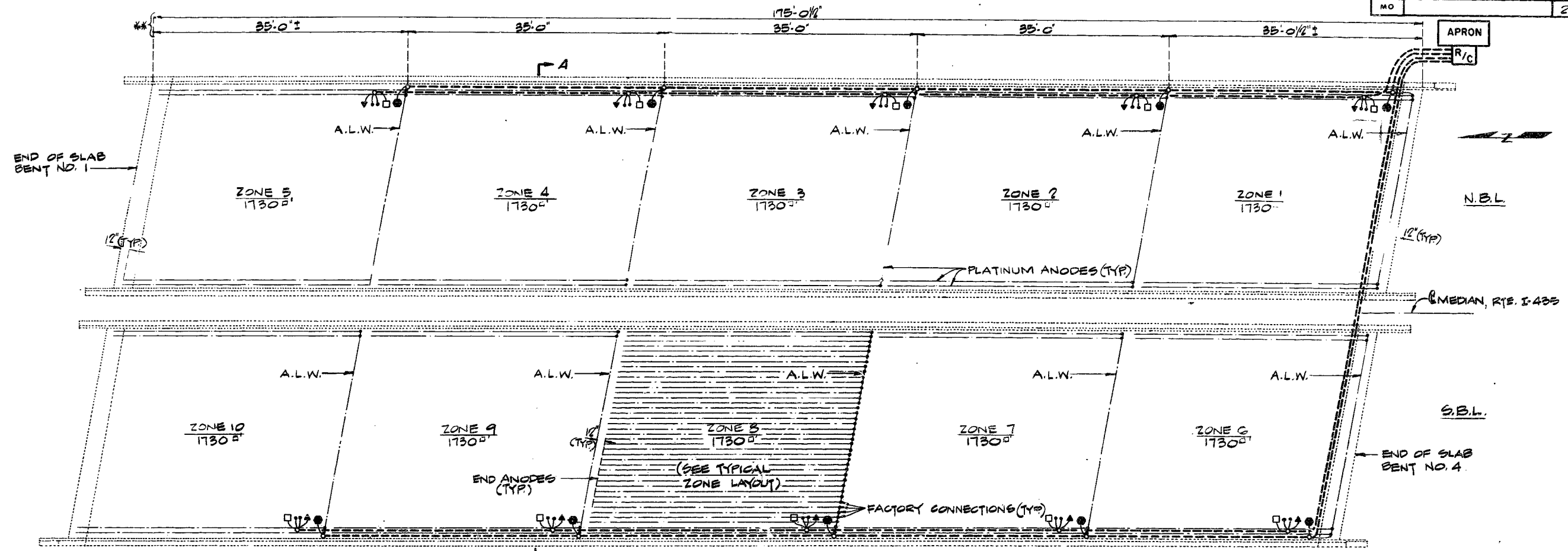
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 7

JACKSON COUNTY

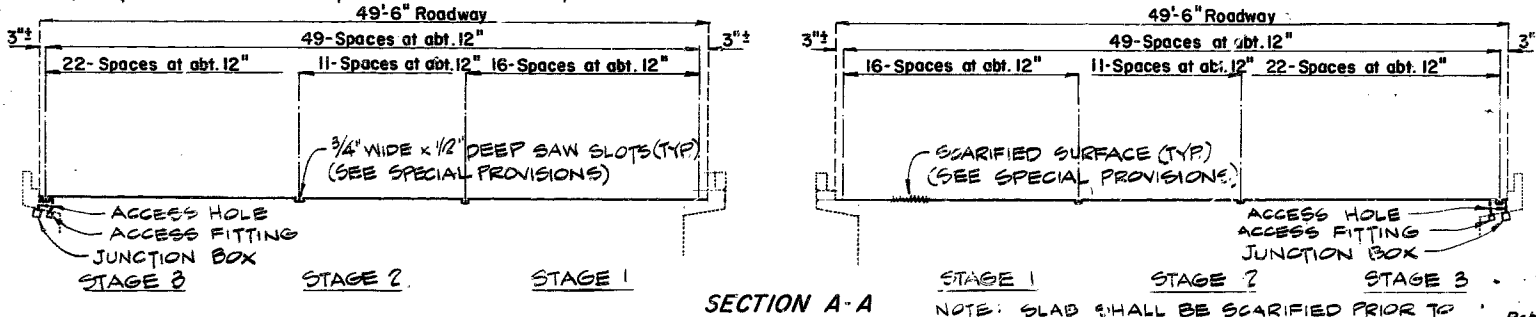
A-1485R1

STATE	PROJ NO	SHEET NO
MO		24

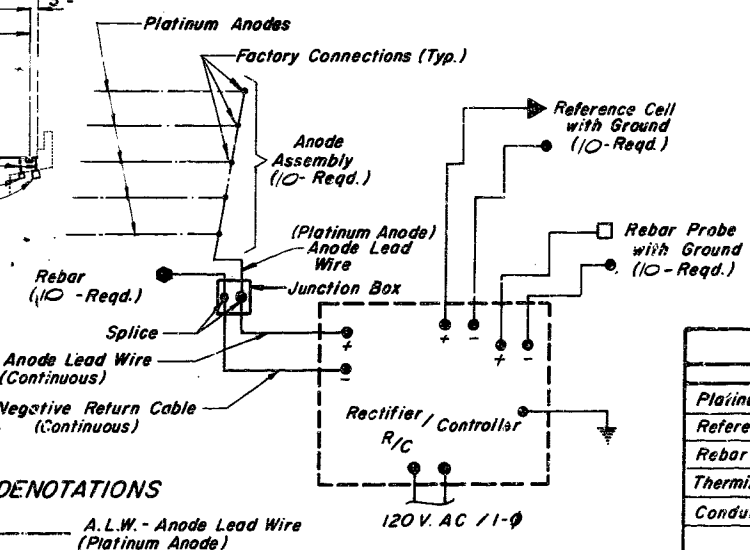


** NOTE: DIMENSIONS ARE ALONG CENTERLINE OF STRUCTURE (END TO END OF SLAB). ACTUAL ANODE LENGTHS FOR EACH ZONE ARE THE RESPONSIBILITY OF THE CONTRACTOR.

NOTE: FACTORY SUPPLIED FIELD SPLICES WILL BE PERMITTED BETWEEN STAGES ON THE ANODE LEAD WIRE (A.L.W.) AS DIRECTED BY THE ENGINEER.



NOTE: SLAB SHALL BE SCARIFIED PRIOR TO SAWING SLOTS. (SEE SPECIAL PROVISIONS)



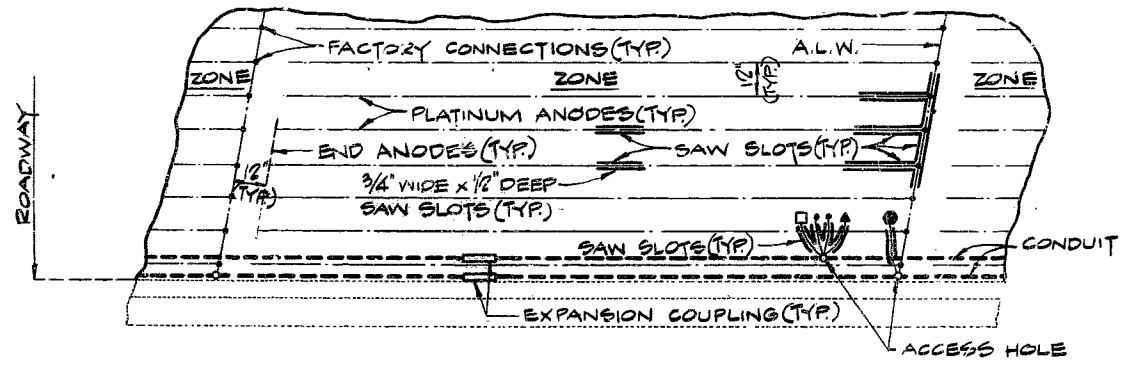
DENOTATIONS

- A.L.W. - Anode Lead Wire (Platinum Anode)
- Platinum Anode
- System Negatives Connection
- ▲ Reference Cell
- Rebar Probe (Corrosameter)
- Grounds
- Conduit

NOTE: The anode leads and system negative return leads shall be routed in the same conduit. The reference cell, reference cell ground leads, rebar probe and probe ground leads shall be routed in the same conduit. Reference cells are to be placed between anodes. Reference cell ground shall be welded to top rebar within one foot of reference cell. All zones are similar with varying widths (see Section A-A). Anode assembly number must match zone number.

ESTIMATED QUANTITIES *		
ITEM	UNIT	QUANTITY
Platinum Anodes	Lin. Ft.	17,400
Reference Cells	Each	16
Rebar Probes	Each	17
Thermite Welds	Each	30
Conduit 2"Ø PVC	Lin. Ft.	1,000

* For information only. Note: Platinum anodes and conduit lengths are approximate. Actual lengths are the responsibility of the contractor.



TYPICAL ZONE LAYOUT EXCEPT AS NOTED

Note: Anodes shall be placed as shown with a minimum tolerance of plus or minus three inches. Note: This drawing is not to scale. Follow dimensions.

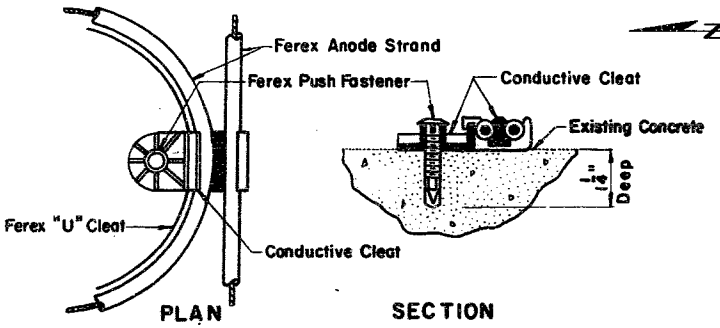
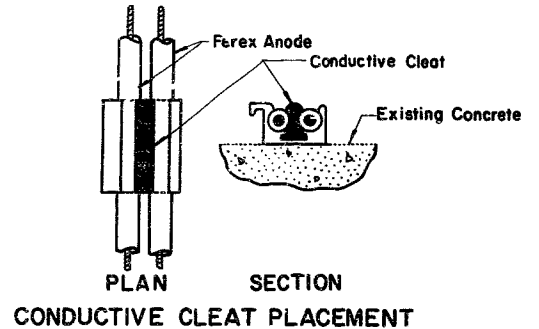
220

DETAILED FEB. 1987
CHECKED MAR. 1987

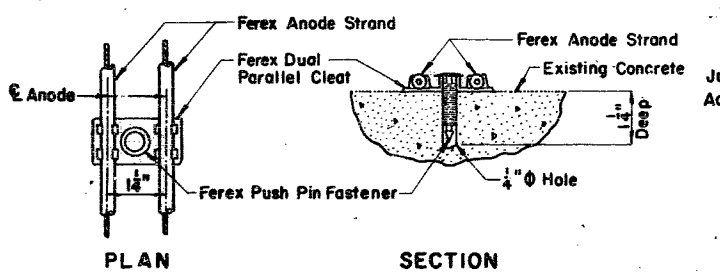
PLATINUM CATHODIC SYSTEM (ALTERNATE "A")

SHEET NO.	PROJ NO.	SHEET NO.
MO.		25

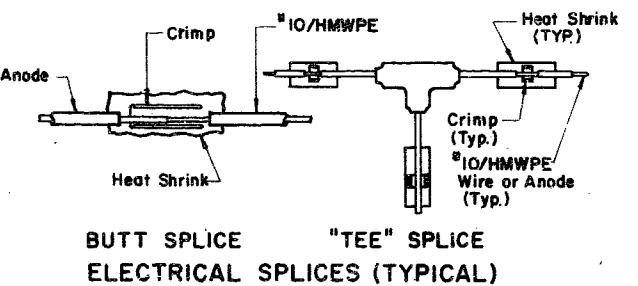
** Note: Dimensions are along centerline of structure (end to end of slab). Actual anode lengths for each zone are the responsibility of the contractor.



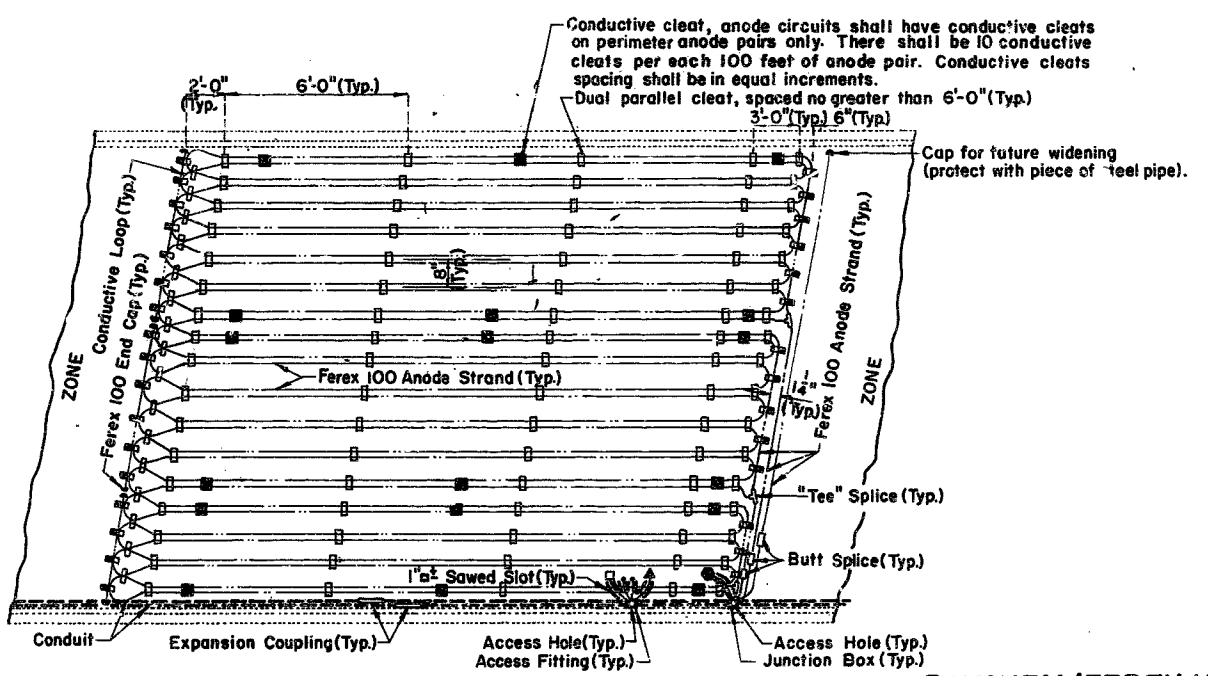
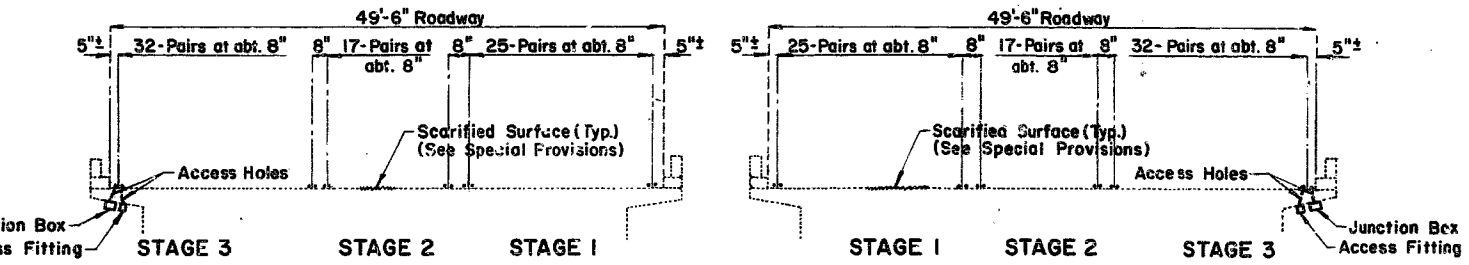
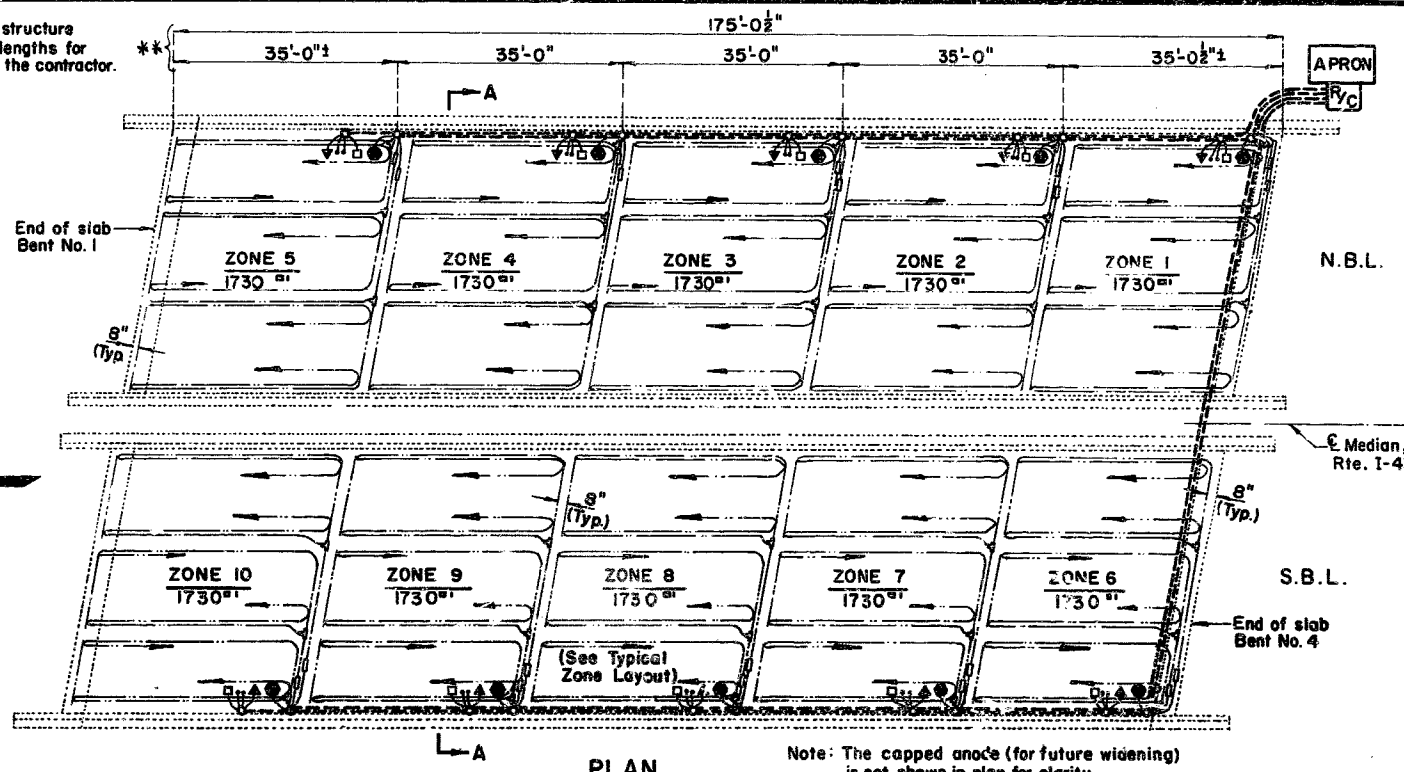
ANODE STRAND ATTACHMENT AT ENDS OF ANODE RUNS



PANEL ATTACHMENT AT INTERIOR POINTS AND PANEL ENDS

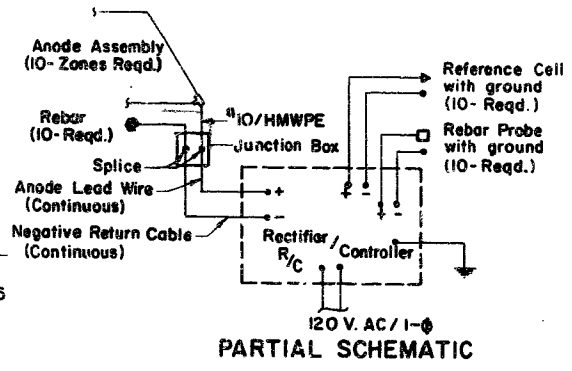


DETAILED August 1987
CHECKED August 1987



TYPICAL ZONE LAYOUT EXCEPT AS NOTED

Note: Anodes shall be placed as shown with a minimum tolerance of plus or minus three inches.



Note: The anode leads and system negative return leads shall be routed in the same conduit. The reference cell, reference cell ground leads, rebar probe and probe ground leads shall be routed in the same conduit. Reference cell ground shall be welded to top rebar within one foot of reference cell. All zones are similar with varying widths (See Section A-A). Anode assembly number must match zone number.

- DENOTATIONS**
- Ferex 100 Anode
 - System Negatives Connection
 - ▲ Reference Cell
 - Rebar Probe (Corrosometer)
 - Grounds
 - Conduit
 - ⊥ Ferex 100 factory preassembled "T" splice
 - ⊞ Ferex 100 Butt Splice
 - ⊞ Ferex 100 dual parallel cleat with pushpin
 - ⊞ Ferex 100 conductive cleat
 - ⊞ Ferex 100 end cap
 - ⊞ Ferex 100 conductive loop

ESTIMATED QUANTITIES *		
ITEM	UNIT	QUANTITY
(Ferex 100) Anode Strands	Lin. Ft.	53,230
Reference Cells	Each	10
Rebar Probes	Each	10
Thermite Welds	Each	30
Conduit 2"Ø PVC	Lin. Ft.	1,000

* For information only. Note: Anode and conduit lengths are approximate. Actual lengths are the responsibility of the contractor.

RAYCHEM (FEREX 100) CATHODIC SYSTEM (ALTERNATE "B")

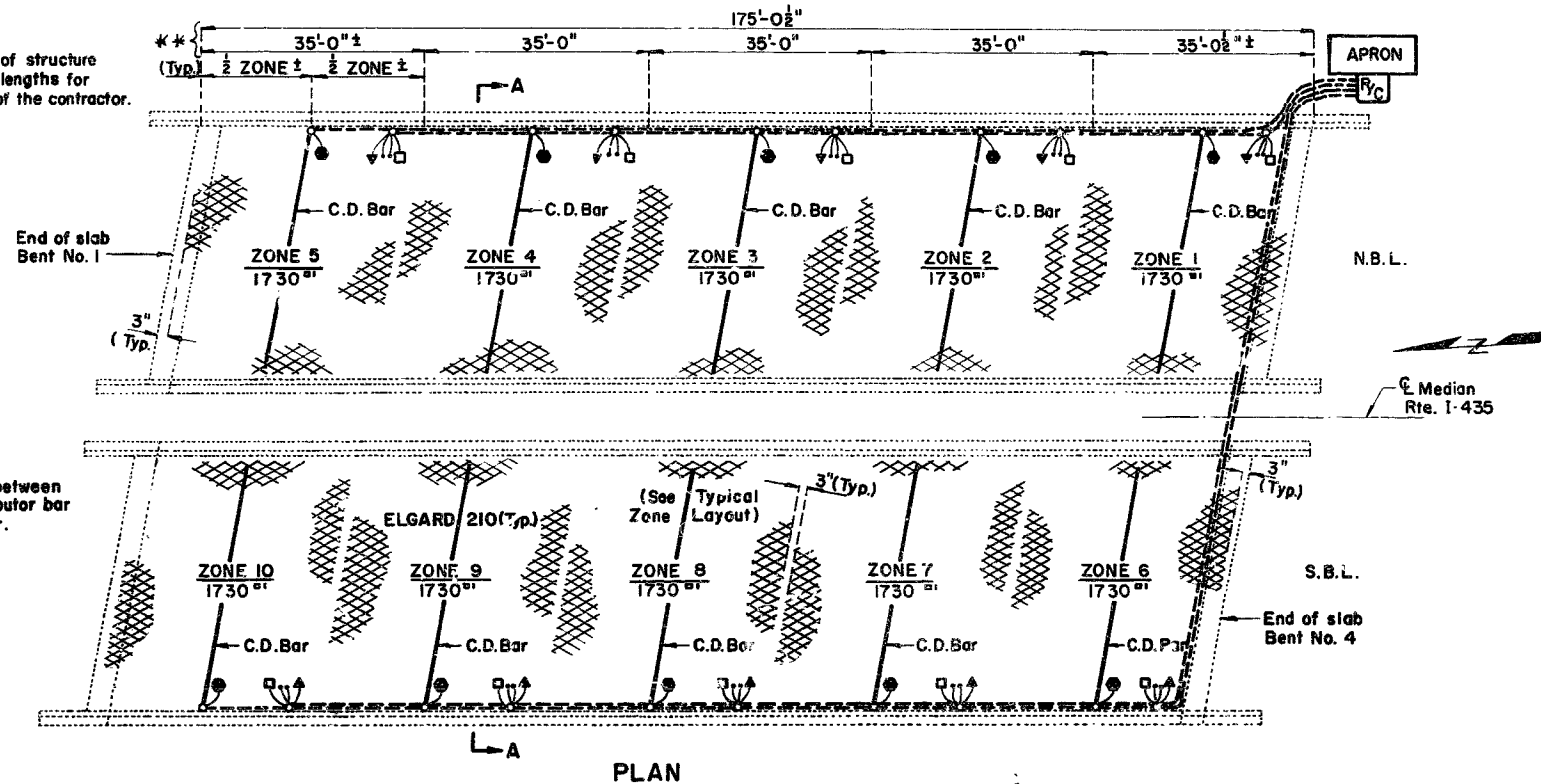
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 7

JACKSON COUNTY

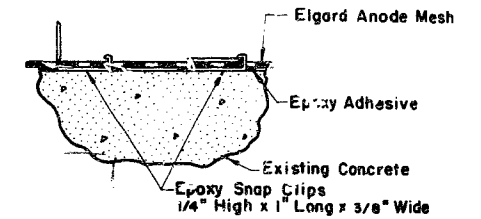
A-1485R1

** Note: Dimensions are along centerline of structure (end to end of slab). Actual anode lengths for each zone are the responsibility of the contractor.

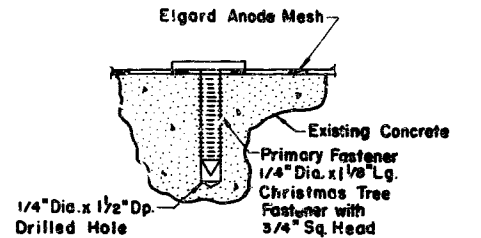


Note: Splicing will be permitted between stages on the current distributor bar as directed by the engineer.

STATE	PROJ NO	SHEET NO
MO		20



DETAIL "A" EPOXY SNAP CLIP



DETAIL "B" CHRISTMAS TREE CLIP

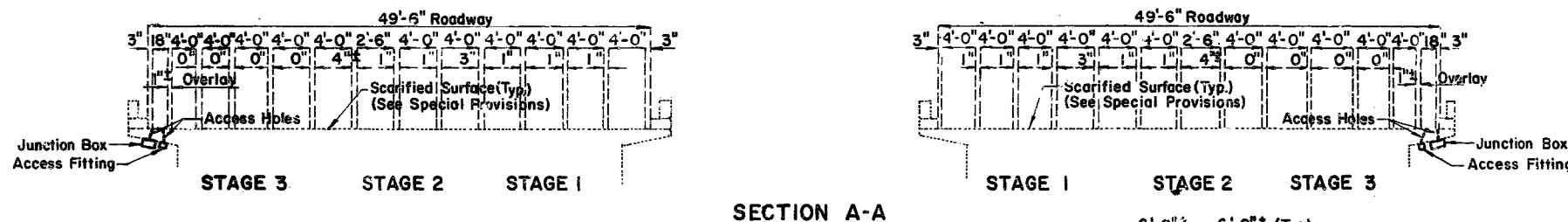
NOTATIONS

- Elgard Anode Mesh
- System Negative Connection
- Reference Cell
- Rebar Probe (Corrosometer)
- Grounds
- Conduit

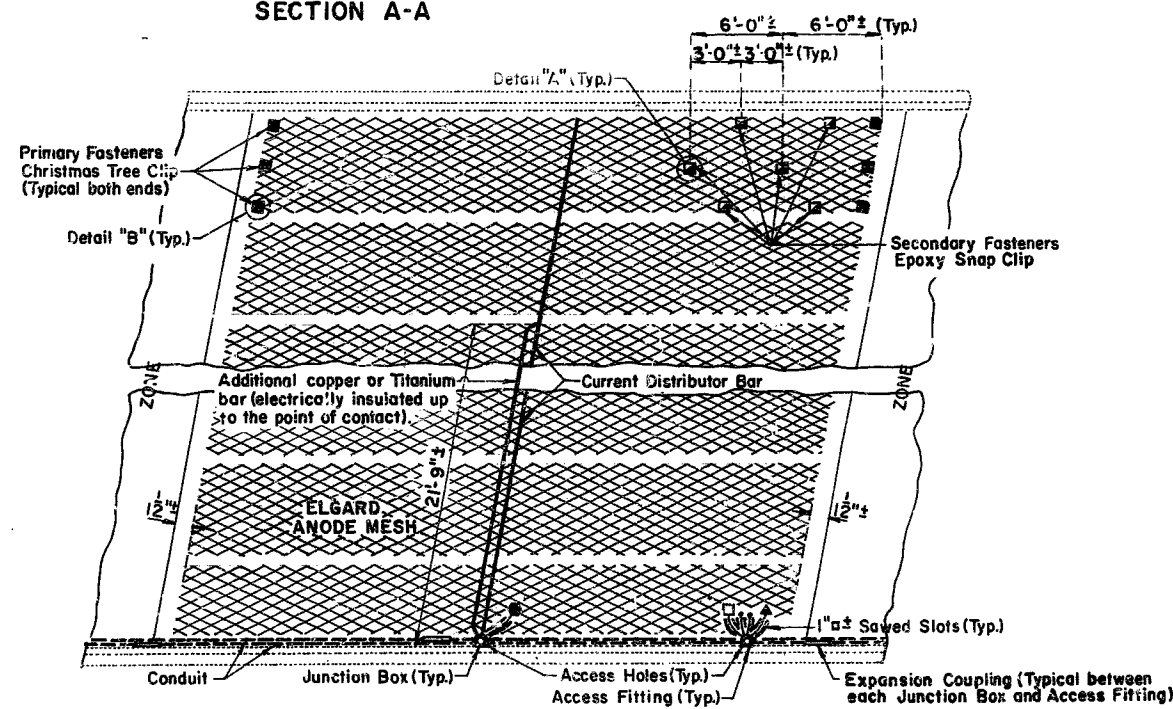
Note: The anode leads and system negative return leads shall be routed in the same conduit. The reference cell, reference cell ground leads, rebar probe and probe ground leads shall be routed in the same conduit. Reference cell ground shall be welded to top rebar within one foot of reference cell. All zones are similar with varying widths (See Section A-A). Anode assembly number must match zone number.

ESTIMATED QUANTITIES *		
ITEM	UNIT	QUANTITY
Elgard Anode Mesh (210)	Sq. Ft.	16,660
Reference Cells	Each	10
Rebar Probes	Each	10
Thermite Welds	Each	30
Conduit 2" PVC	Lin. Ft.	1040

* For information only. Note: Anode and conduit lengths are approximate. Actual lengths are the responsibility of the contractor.

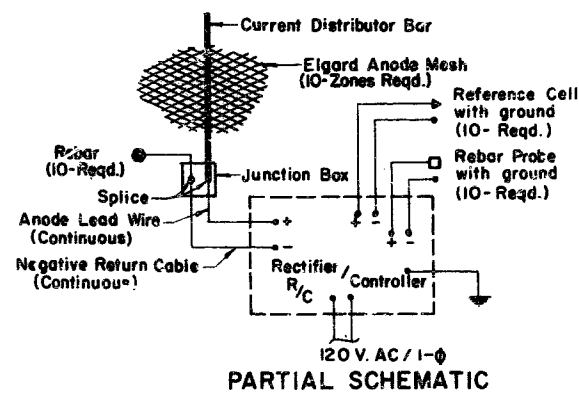


SECTION A-A



TYPICAL ZONE LAYOUT EXCEPT AS NOTED

(ELGARD ANODE MESH) CATHODIC SYSTEM (ALTERNATE "C")

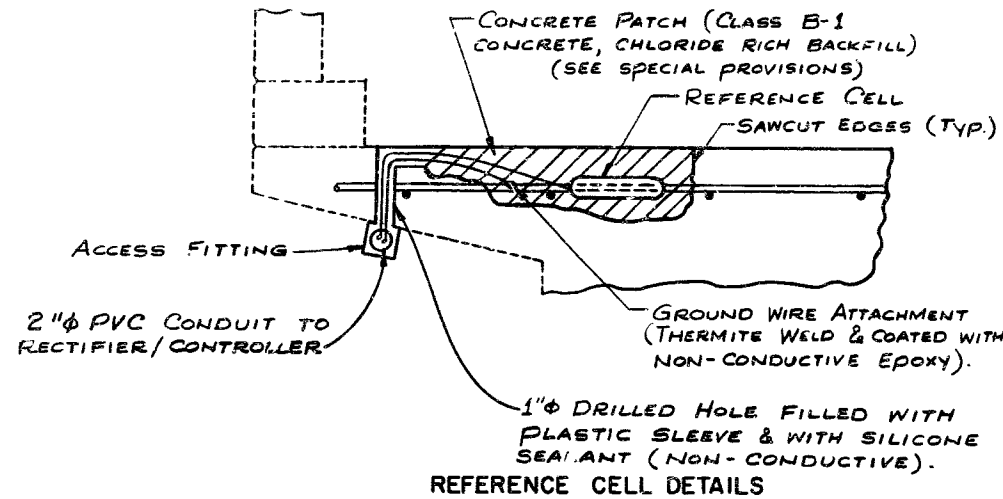


PARTIAL SCHEMATIC

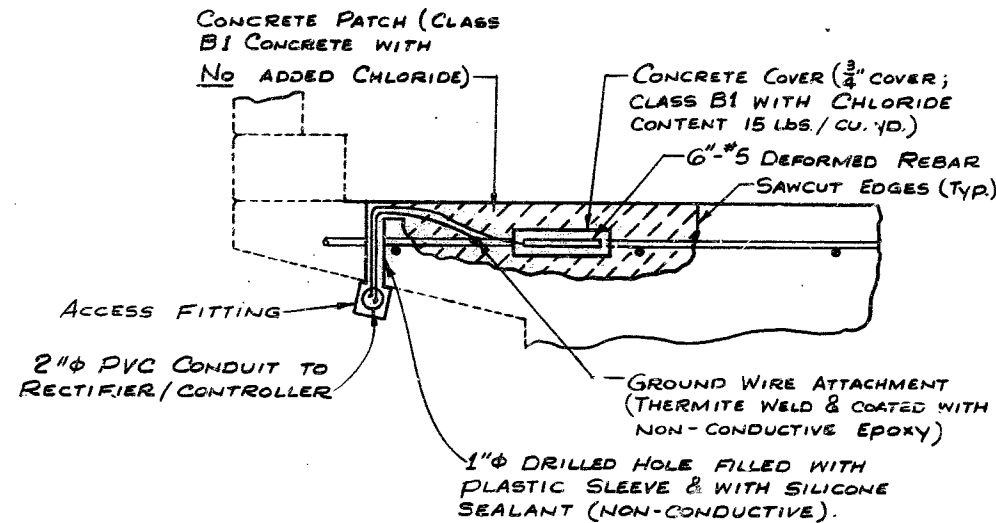
222

STATE	PROJ NO	SHEET NO
MO		27

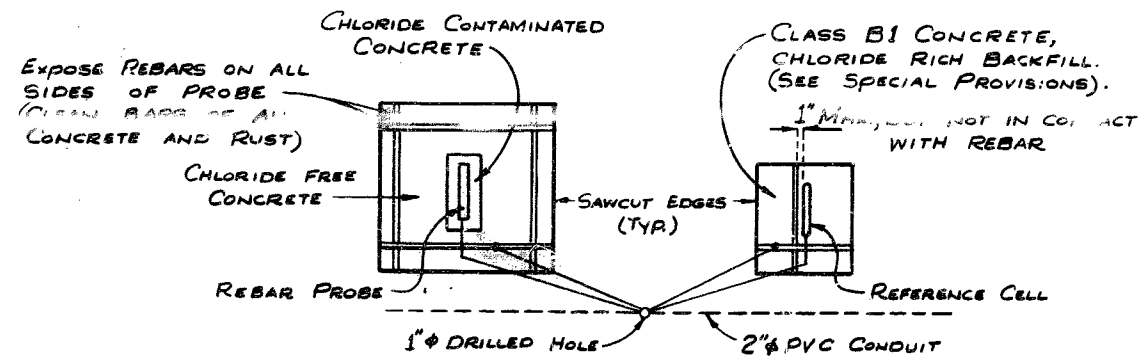
NOTE: THE REFERENCE CELL SHALL BE PLACED IN THE EXCAVATED AREA WITHIN 1" BUT NOT IN DIRECT CONTACT OF TOP-MAT REINFORCING STEEL.



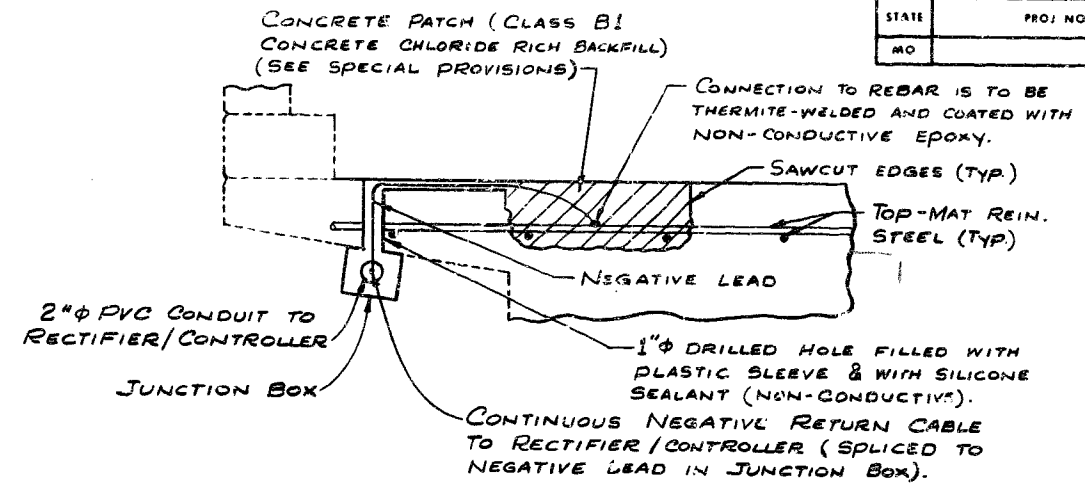
REFERENCE CELL DETAILS



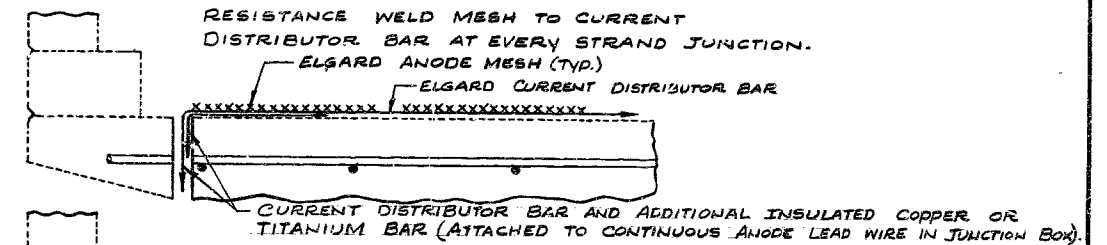
REBAR PROBE DETAILS



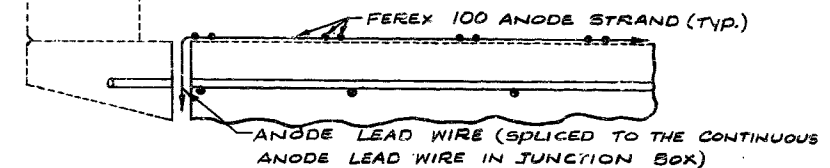
PLAN OF REBAR PROBE AND REFERENCE CELL



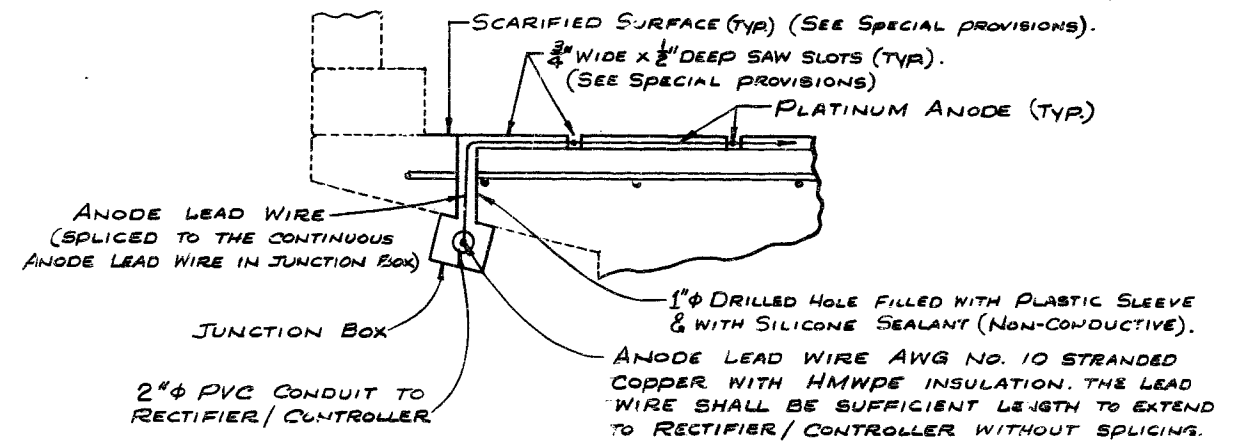
SYSTEM NEGATIVES CONNECTION DETAIL



ALTERNATE "C"



ALTERNATE "B"



ALTERNATE "A"

ANODE TO ANODE LEAD WIRE DETAILS

Notes: Conduit shall be schedule 40 Heavy Wall PVC (Polyvinyl Chloride Plastic). Each section of conduit shall bear the Underwriters Laboratories, Inc. (UL) label. Conduit shall be secured to concrete with clamps of abt. 5'-0" cts. (60lb./AASHTO Mill) Weepholes shall be provided at appropriate locations to drain any moisture in the conduit lines. Expansion couplings shall be installed on conduit lines between all junction boxes and access fittings as approved by the engineer. The location and direction of conduit may be shifted to meet field conditions as directed by the engineer. The junction boxes shall be PVC molded, surface mounted, size 6" x 6" x 4". They shall be equal to "Carlson Electrical Construction Products or "Triangle Conduit & Cable Co. Inc. The conduit terminations and cover shall be of water tight construction.

Note: All concrete removal shall be initiated by saw cutting the first 1/2"

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 7.

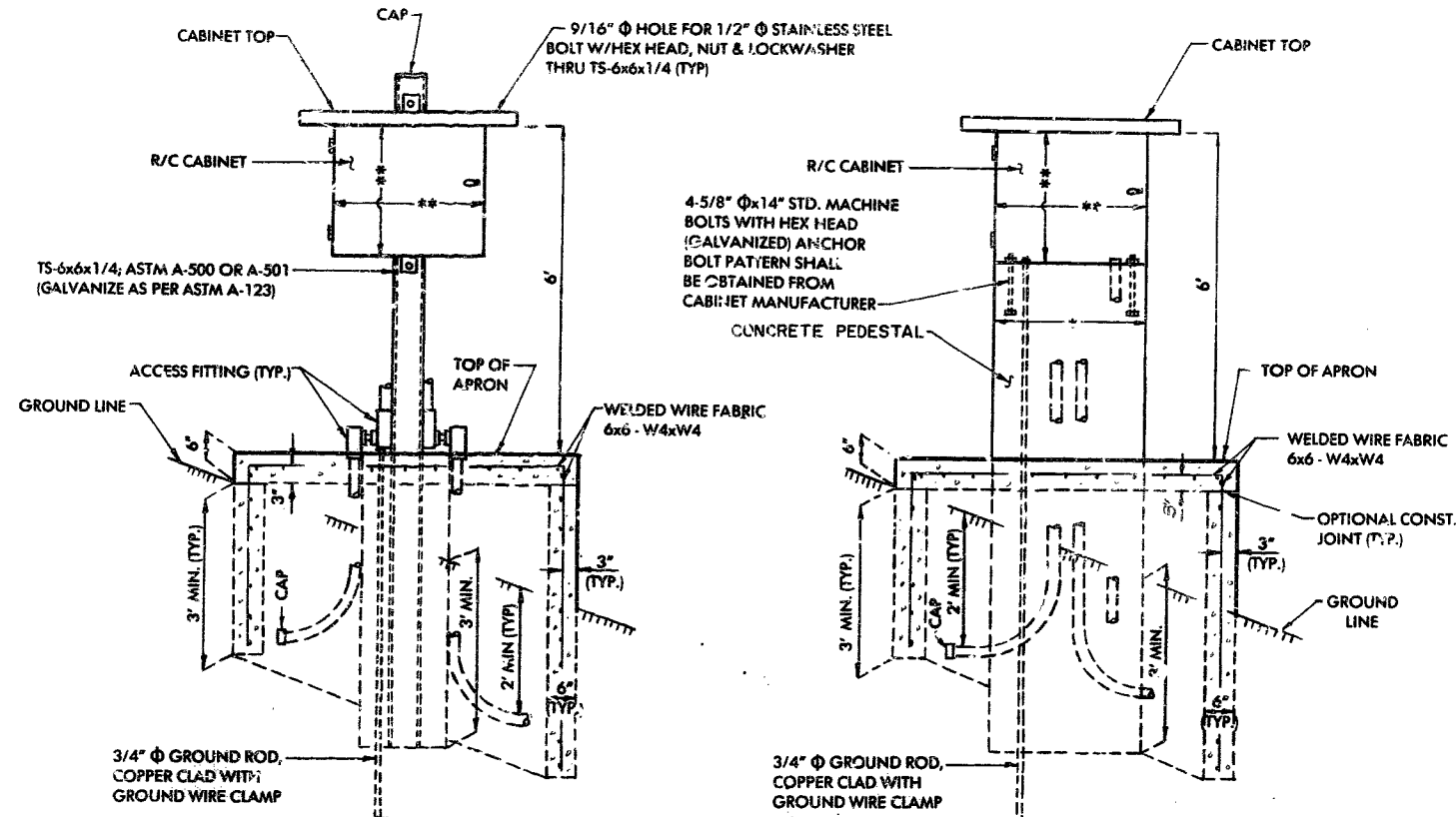
JACKSON COUNTY

A-1485R1

DETAILED OCT. 1987
CHECKED OCT. 1987

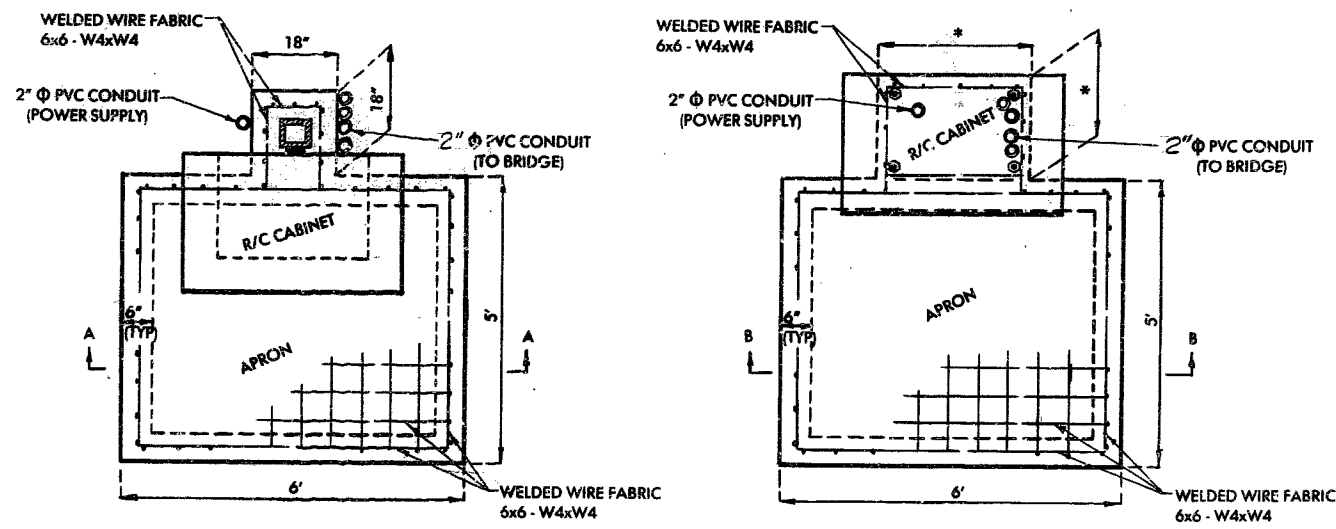
223

STATE	PROJ NO	SHEET NO
MO		23



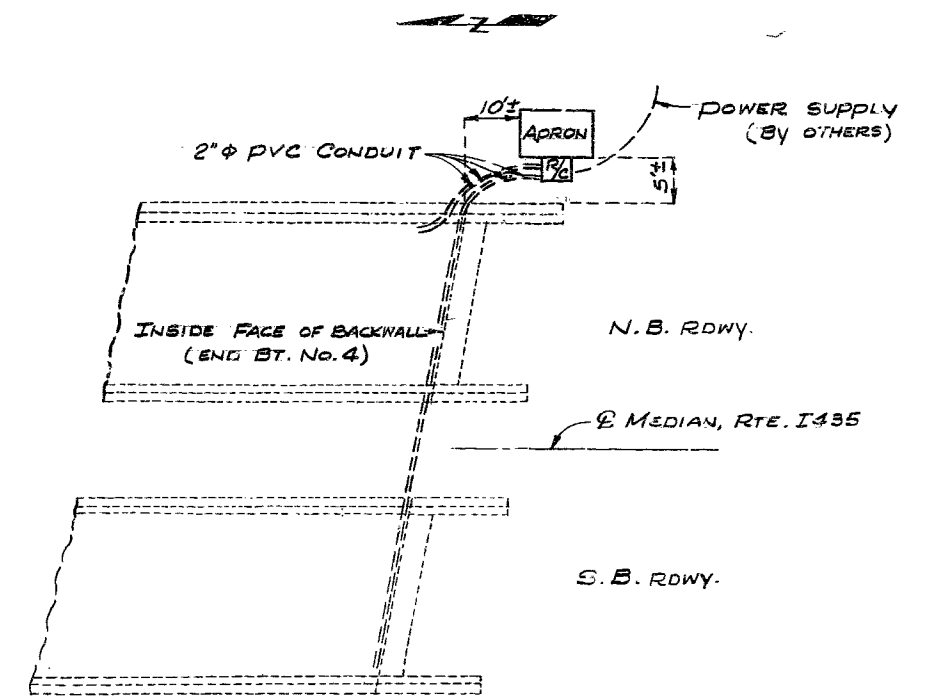
SECTION A-A

SECTION B-B



PLAN OPTION "A"

PLAN OPTION "B"



PLAN LOCATION OF RECTIFIER/CONTROLLER

**DIMENSIONS ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 *DIMENSIONS ACCORDING TO MANUFACTURED CABINET.

Note: The 3/4" ϕ ground rods shall be sufficient length to extend a minimum of 10'-0" below bottom of concrete pedestal.
 Ground wire shall be No. 6 AWG minimum.
 Knockouts or drilled holes shall be provided in cabinets for all conduit. Locations of such are the responsibility of the contractor and cabinet manufacturer.

224

DETAILED DEC. 1987
 CHECKED DEC. 1987

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 7

JACKSON

COUNTY

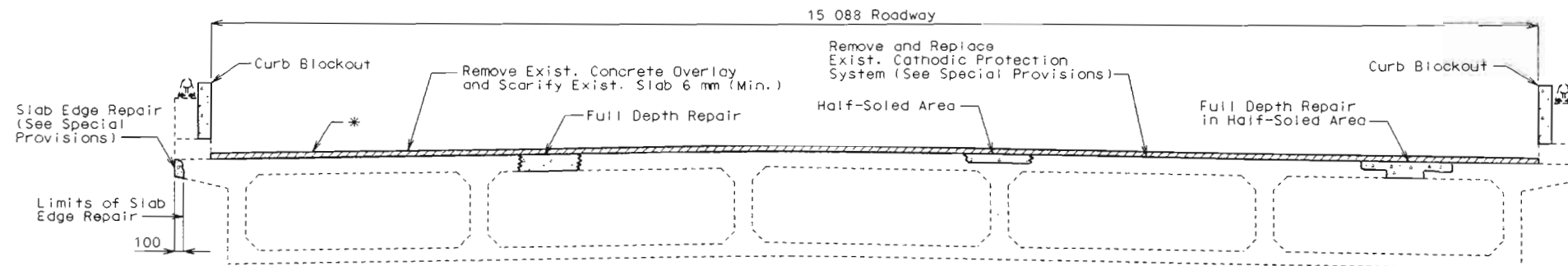
A-1485R1

State	Proj. No.	Sheet No.
MO		1355
Sec./Sur. 12	Twp. 48N Rge. 33W	

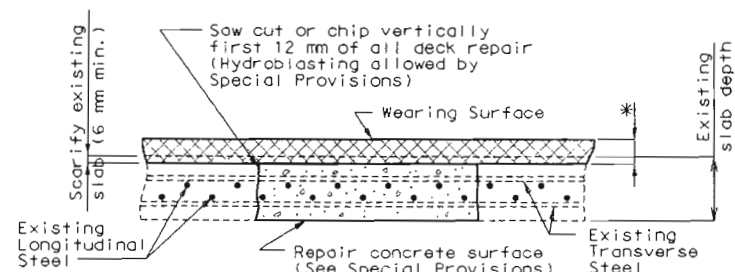
General Notes:

- Design Specifications:
AASHTO 1996 and Interim 1997.
- Design Unit Stresses:
Class B1 Concrete (Curb Blockout) $f'c = 28$ MPa.
Reinforcing Steel (Grade 420) $f_y = 420$ MPa.
- Joint Filler:
All joint filler shall meet the requirements of Section 1057.2.4 of the Missouri Standard Specifications (Metric), except as noted.
- Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 40 mm, unless otherwise shown.
- Dimensions:
All dimensions are shown in millimeters (mm) unless otherwise specified. Drawings are not to scale. Follow dimensions.
- Miscellaneous:
Traffic over structure to be maintained during construction. See sheet No. 2 for details of stage construction. (See roadway plans for traffic control).
Outline of old work is indicated by dashed lines. Heavy lines indicate new work.
Contractor shall verify all dimensions in field before ordering new steel.
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.
In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay.
Roadway surfacing adjacent to bridge ends to match bridge overlay (Roadway Item).

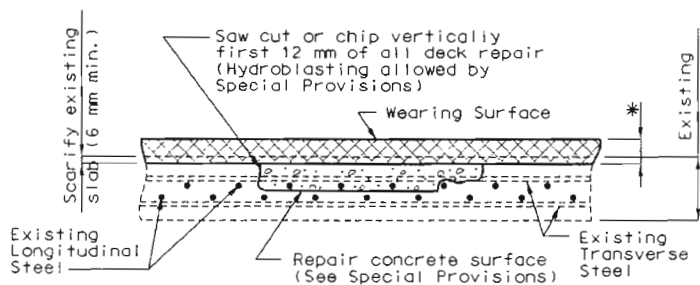
ESTIMATED QUANTITIES		
ITEM		TOTAL
Curb Removal (Bridges) - Metric	meter	7.0
Removal of Low Slump Concrete Wearing Surface - Metric	sq. meter	805.0
Partial Removal of Cathodic Protection System	lump sum	1
Substructure Repair (Unformed) - Metric	sq. meter	2.0
Curb Blockout - Metric	meter	117.5
Repairing Concrete Deck (Half-Soling) - Metric	sq. meter	35
Full Depth Repair - Metric	sq. meter	5
Slab Edge Repair (Bridges) - Metric	meter	1.0
Low Slump Concrete Wearing Surface - Metric	sq. meter	805
Cathodic Protection System	lump sum	1



SECTION THRU SLAB

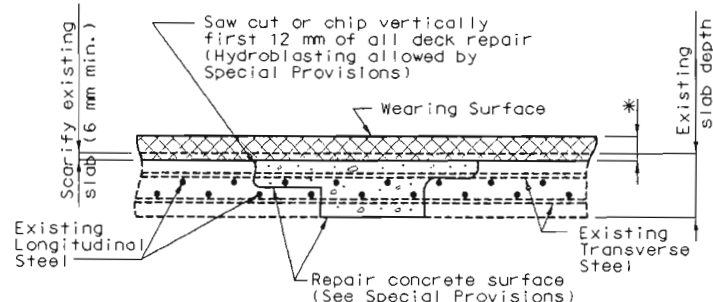


FULL DEPTH REPAIR



HALF-SOLED AREA

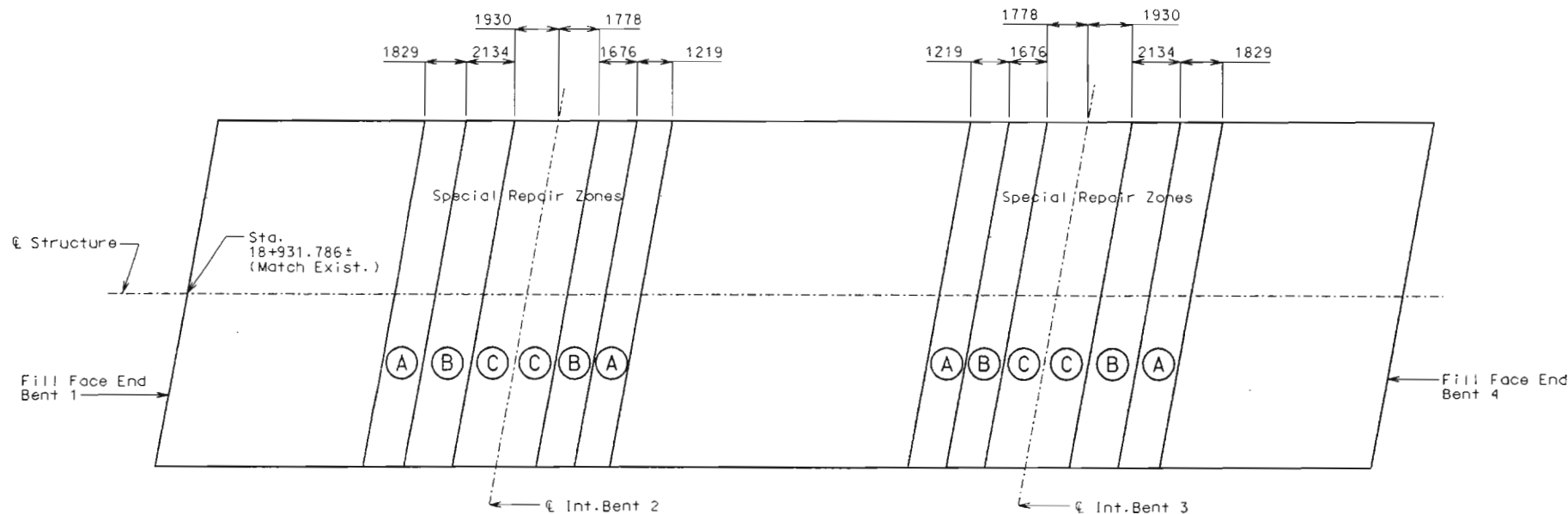
* 63 mm (Min.) Low Slump Concrete Wearing Surface



FULL DEPTH REPAIR IN HALF-SOLED AREA

NOTE:

Zone A is to be completed before Zone B and Zone B is to be completed before Zone C.
Any repair in the remainder of the bridge that is within 600 mm of Zone A shall be completed before removing old concrete in Zone A.
Zones with the same letter designation may be repaired at the same time.



PLAN OF SLAB (NORTH BOUND LANE) SHOWING SPECIAL REPAIR ZONES

Designed Oct. 1998
Detailed Oct. 1998
Checked Oct. 1998



DATE 11-19-98

REPAIRS TO BRIDGE OVER GREGORY BLVD.
STATE ROAD FROM GREGORY BLVD. TO BANNISTER RD.
AT GREGORY BLVD.

PROJECT NO. JOB. NO. J411299

STA. 18+931.786± (Match Exist.)
RTE. I-435 (N.B.L.)

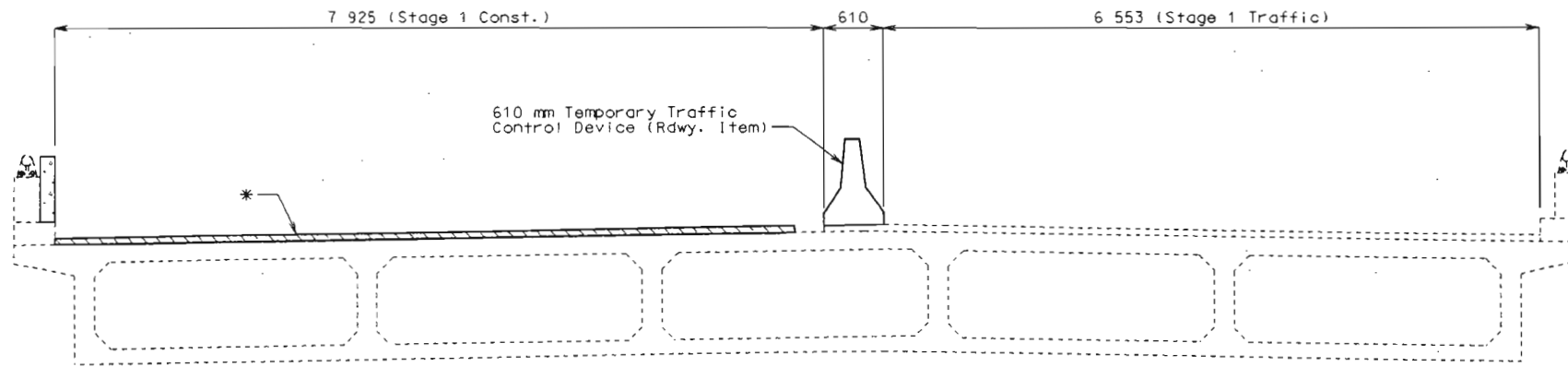
JACKSON

COUNTY

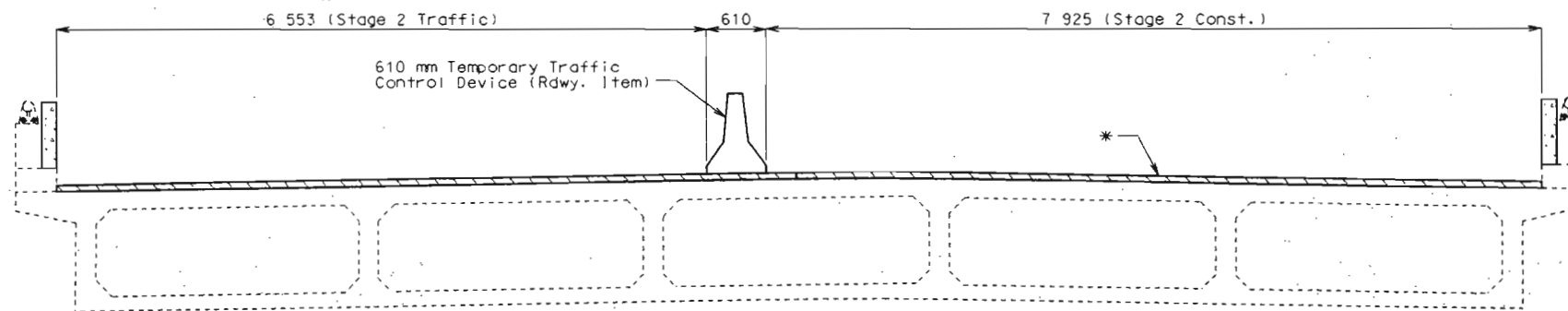
Date: 11/19/98

STD.
STD.
STD.
STD. M706.35
A14853

State	Proj. No.	Sheet No.
MO		1356



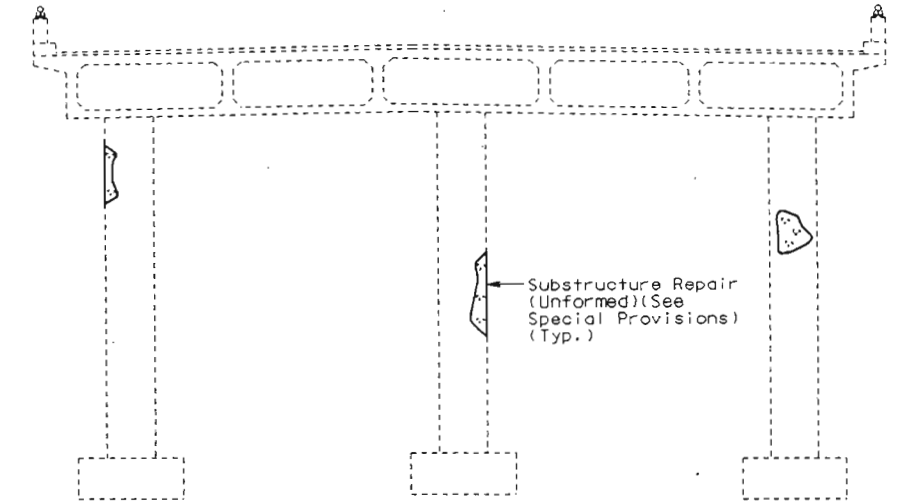
STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

DETAILS OF STAGE CONSTRUCTION

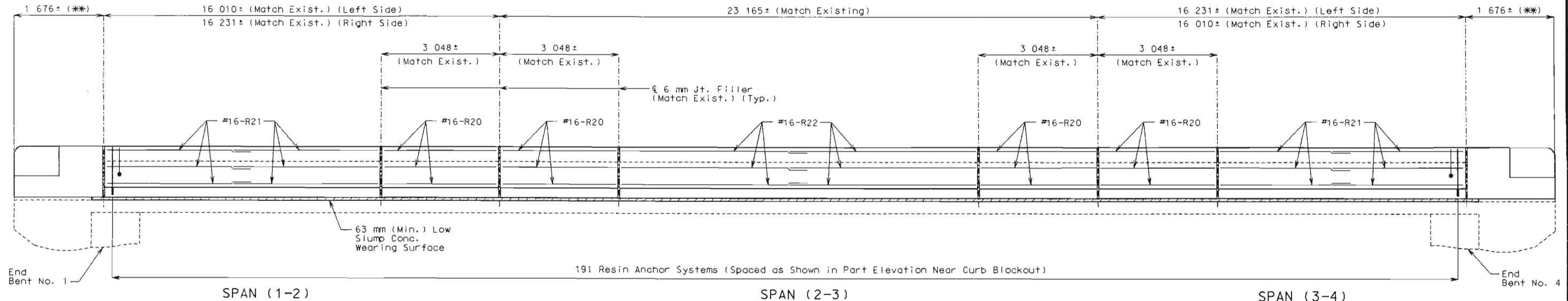
* Remove existing Concrete overlay and Cathodic Protection System. Scarify concrete deck 6 mm and install a new Cathodic Protection System covered with a 63 mm (Min.) Low Slump Concrete wearing surface.



TYPICAL DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS



State	Proj. No.	Sheet No.
MO		1357



SECTION NEAR LEFT CURB BLOCKOUT (RIGHT SIDE SIMILAR, EXCEPT AS SHOWN)

NOTE: (***) For End Post details, see sheet No. 4.

NOTES FOR CURB BLOCKOUT:

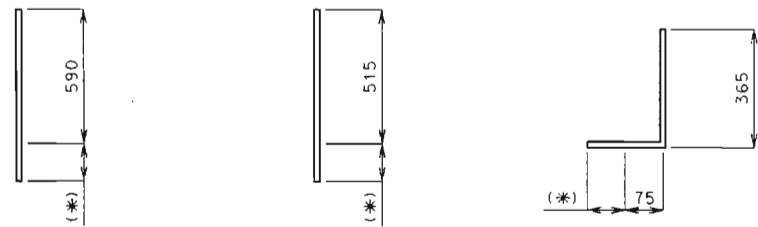
Concrete in curb blockout shall be Class B1 with $f'c = 28$ MPa. Measurement of curb blockout is to the nearest half meter measured at the gutter line from end of wing to end of wing.

All exposed edges of curb blockout shall have either a 15 mm radius or a 10 mm bevel, unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchor systems and any other work incidental to the curb blockouts complete in place shall be included in the contract unit price for the "Curb Blockout" per meter.

Use a minimum lap of 925 mm for #16 horizontal Curb Blockout bars.

Cost of any concrete curb and parapet repair shall be considered completely covered in the unit price bid for Curb Blockout.



(Total Req'd = 198) (Install in Curb)

(Total Req'd = 64) (Install in area of End Post Removal and Replacement)

(Total Req'd = 184) (Install in Parapet)

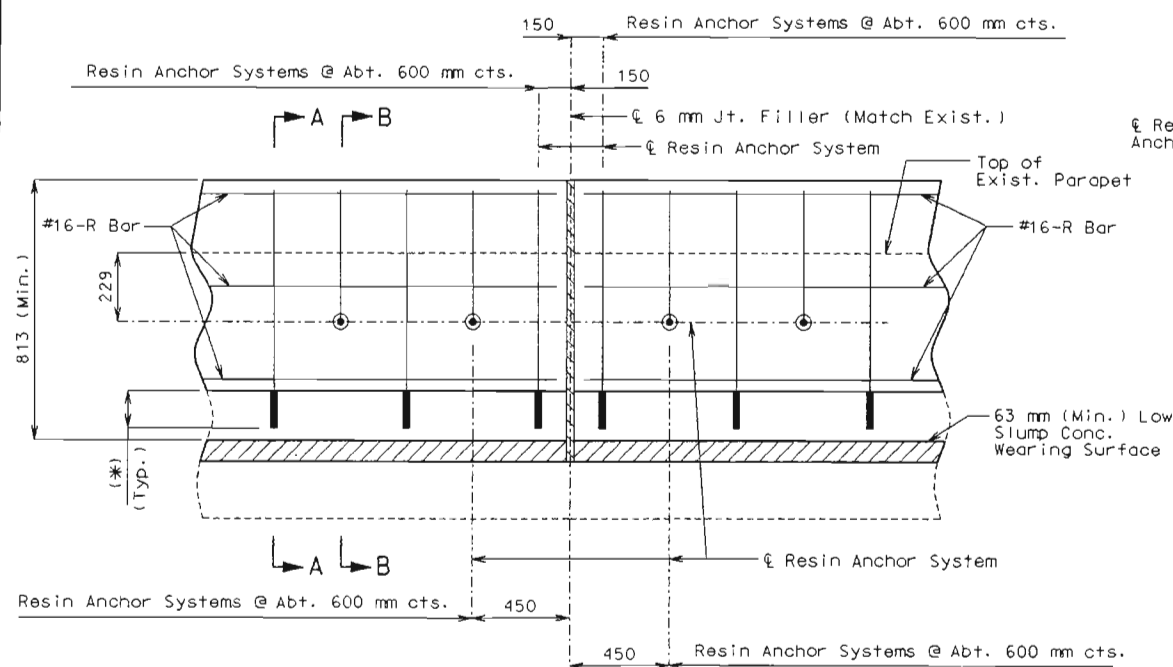
DETAILS OF RESIN ANCHORS

NOTE: (*) Manufacturer's embedment length. (***) Shift resin anchor systems to clear Exist. steel anchor bolts for tube rail.

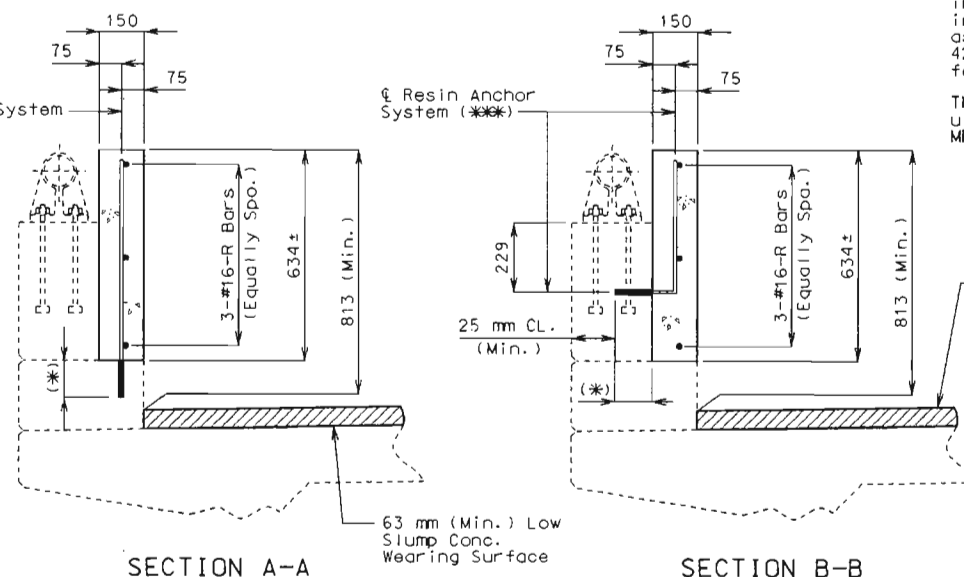
NOTES FOR RESIN ANCHOR SYSTEM:

The contractor shall use one of the resin anchor systems listed in the job special provisions. These resin anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that a #16 Grade 420 (Epoxy Coated) reinforcing bar as shown shall be substituted for the 15.9 mm diameter threaded rod stud.

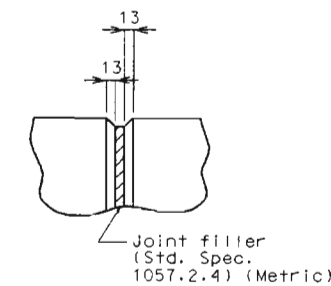
The 15.9 mm diameter resin anchor systems shall have a minimum ultimate pullout strength of 68.9 kN in concrete with $f'c = 28$ MPa, see special provisions.



PART ELEVATION NEAR CURB BLOCKOUT



DETAILS OF CURB BLOCKOUT



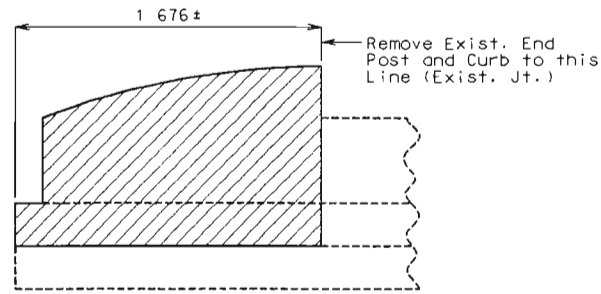
FILLED JOINT DETAIL



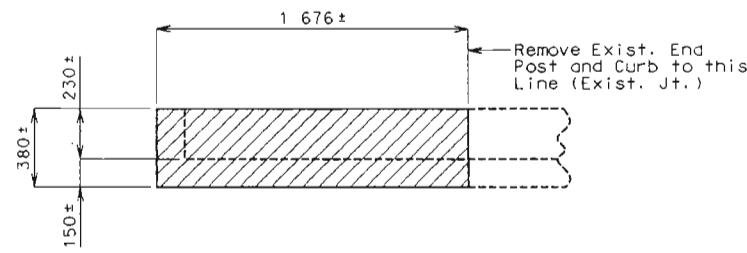
DATE 11-19-98

Detailed Oct. 1998
Checked Oct. 1998

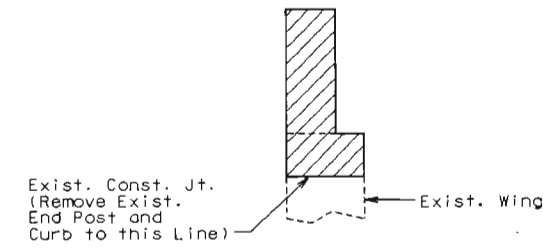
State	Proj. No.	Sheet No.
MO		358



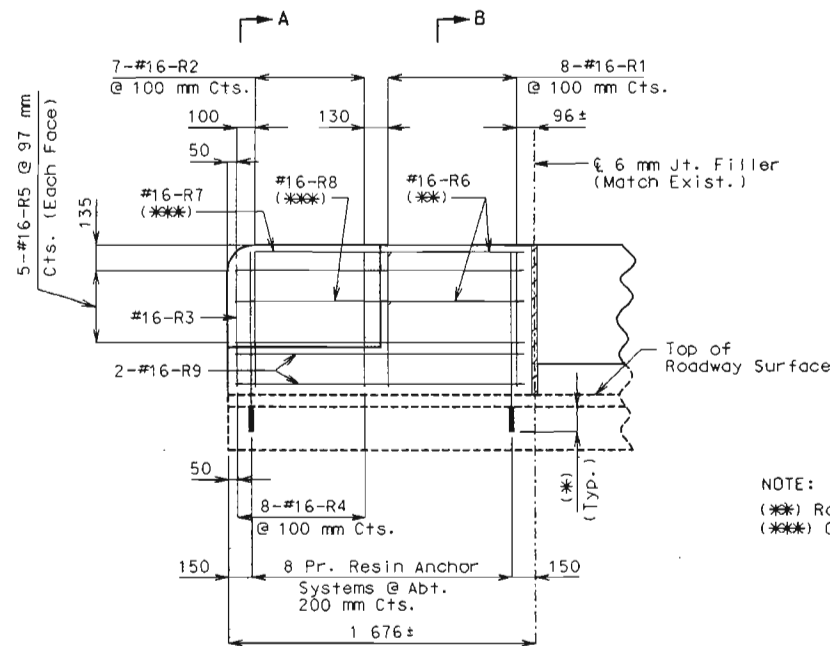
ELEVATION SHOWING END POST REMOVAL



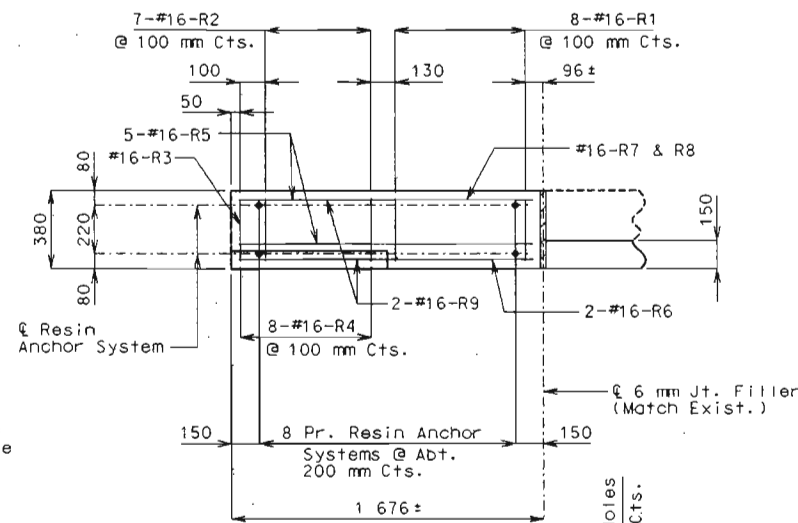
PLAN SHOWING END POST REMOVAL



SECTION SHOWING END POST REMOVAL



ELEVATION

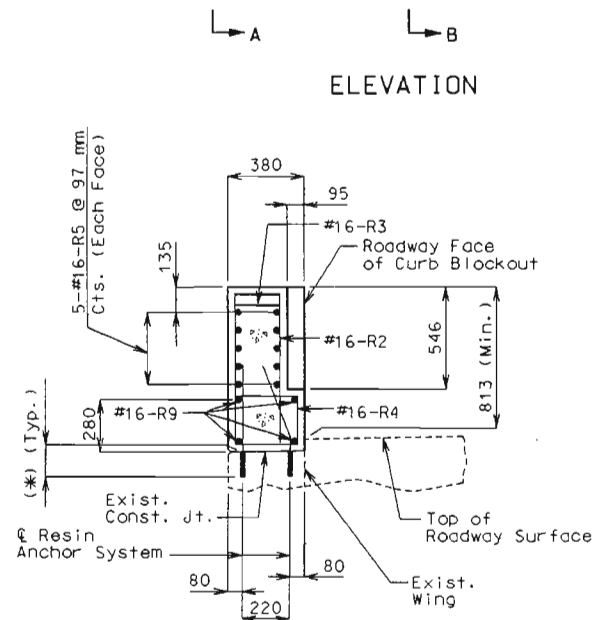


PLAN

NOTE:
 (**) Roadway Face
 (***) Outside Face

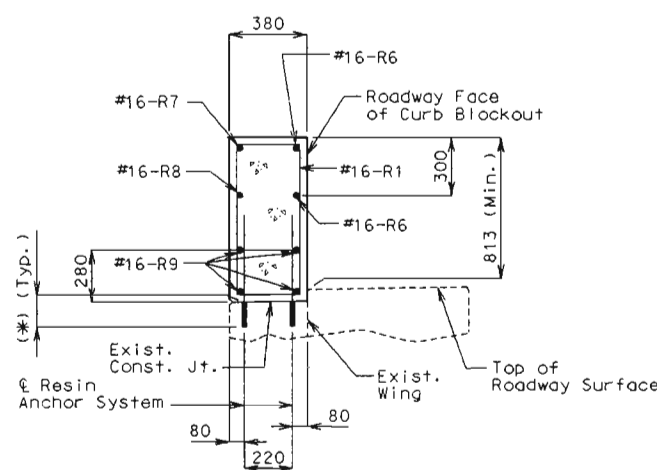
NOTE:

For notes on Curb Blockout and Resin Anchor Systems, see sheet No. 3.
 (*) Manufacturer's embedment length.
 Payment for removal of existing end post and curb concrete is included in the contract unit price for "Curb Removal (Bridges) - Metric" per meter.



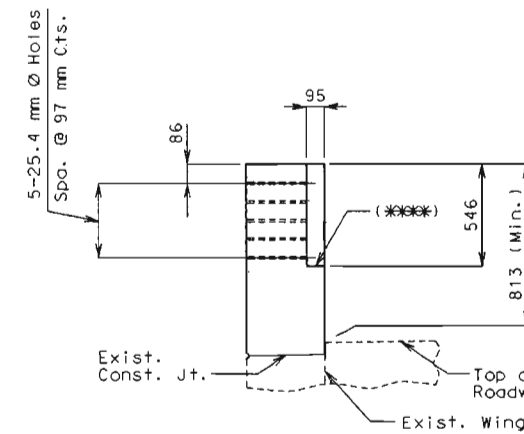
SECTION A-A

NOTE: #16-R6, R7 & R8 Bars not shown for clarity.



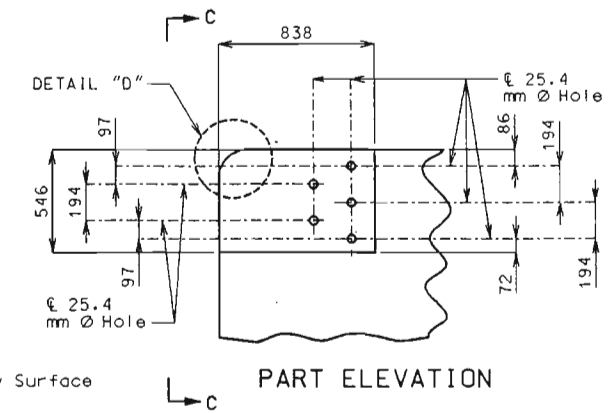
SECTION B-B

NOTE: #16-R5 Bars not shown for clarity.

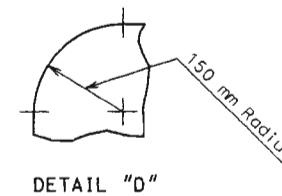


PART ELEVATION C-C

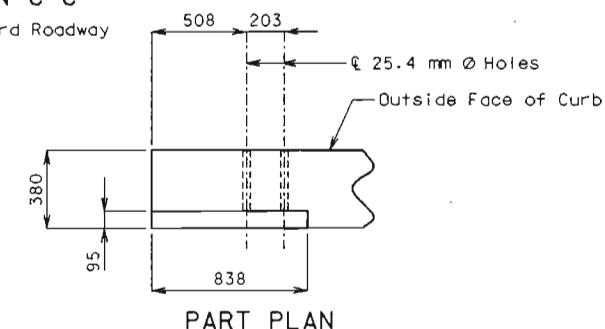
(***) Slope 6 mm toward Roadway



PART ELEVATION



DETAIL "D"



PART PLAN

DETAILS OF GUARD RAIL ATTACHMENT

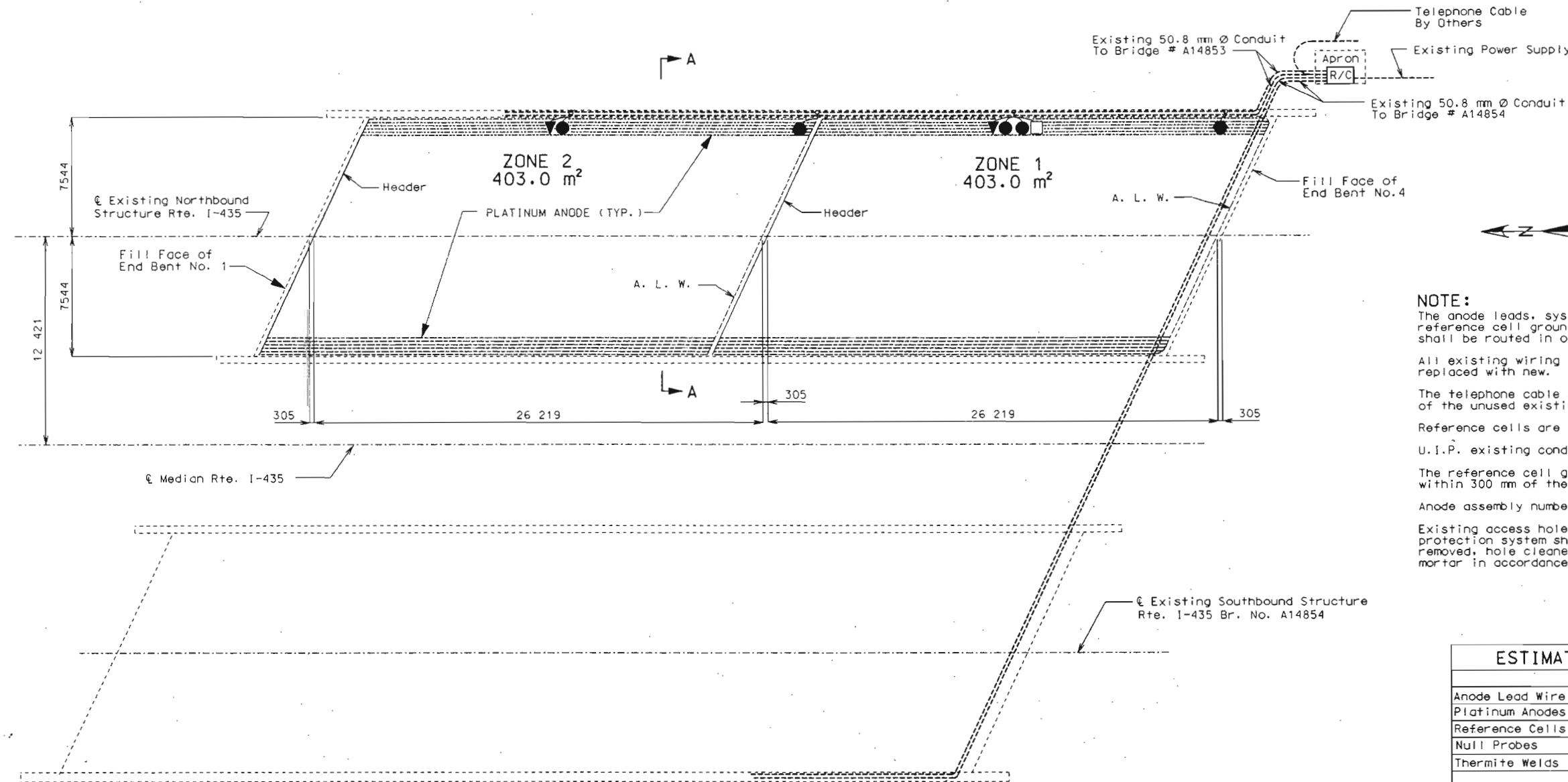
TYPICAL DETAILS OF CURB BLOCKOUT AT END POST



State	Proj. No.	Sheet No.
MO		859

DENOTATIONS

- A.L.W. (ANODE LEAD WIRE)
- HEADER
- PLATINUM ANODE
- SYSTEM NEGATIVE CONNECTION
- ▲----- REFERENCE CELL
- GROUNDS
- NULL PROBE (CORROSIOMETER)
- EXISTING CONDUIT



NOTE:

The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

Reference cells are to be placed between anodes.

U.I.P. existing conduit, access fittings and junction boxes.

The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

ESTIMATED QUANTITIES		For information only	
ITEM	UNIT	QUANTITY	
Anode Lead Wire & Header	Meter	86	
Platinum Anodes	Meter	3933	
Reference Cells	Each	2	
Null Probes	Each	1	
Thermite Welds	Each	5	

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor. No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.

PART PLAN OF SLAB SHOWING PLATINUM CATHODIC PROTECTION SYSTEM (ALTERNATE "A")

Note:

For Section A-A, typical zone layout and partial electrical schematic, see sheet no. 7.

Dimensions are along ϵ of structure (end of slab to end of slab).

The anode lead wire and header shall be 6.0 mm² stranded copper wire with HMWPE insulation.

Factory supplied field splices will be permitted between stages on the anode lead wire (A.L.W.) and header as directed by the engineer.







Existing overlay and cathodic protection system shall be removed and the deck scarified prior to sawing slots. (see special provisions)

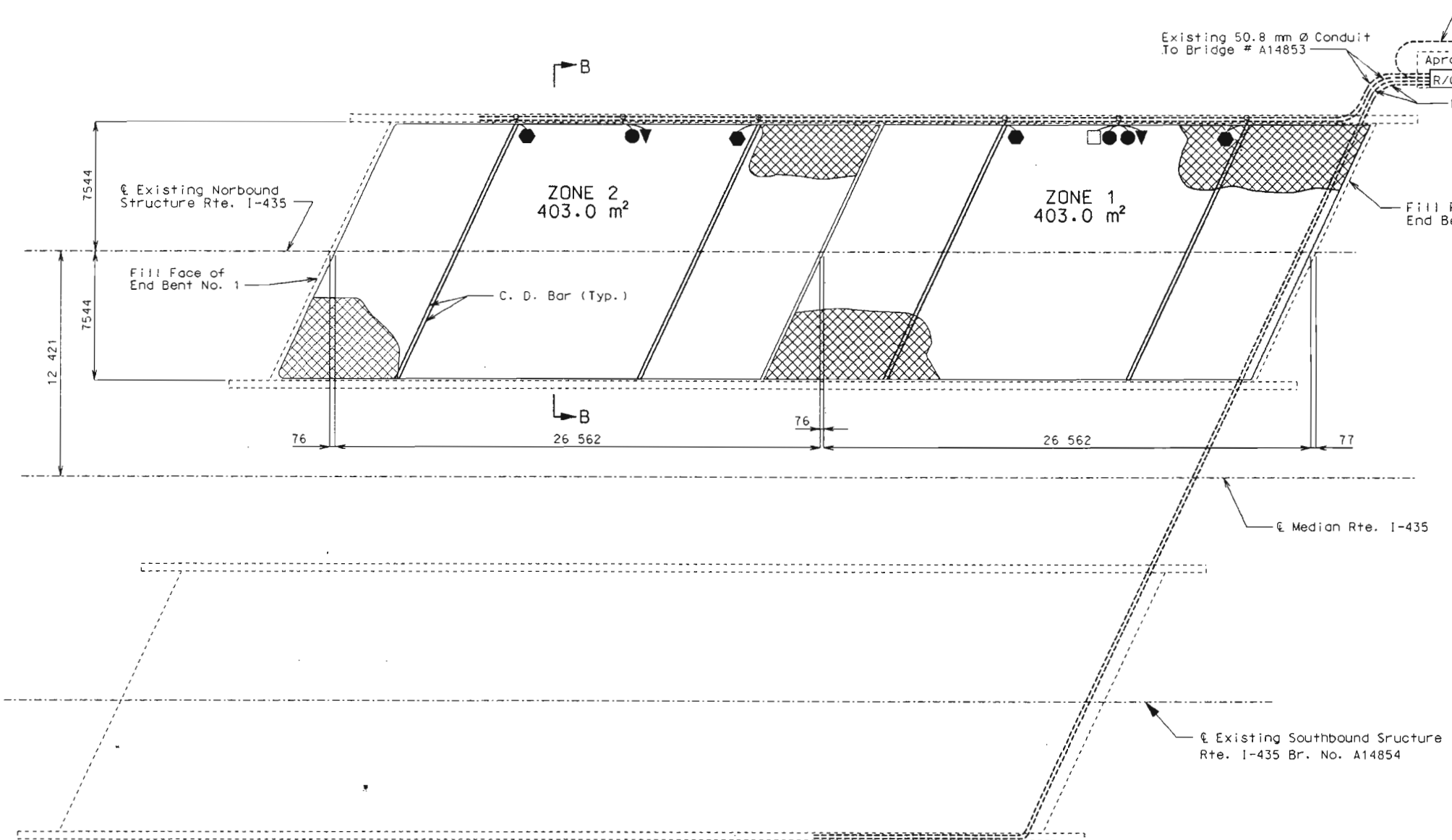


DATE 11-19-98

State	Proj. No.	Sheet No.
MO		1360

DENOTATIONS

-  ELGARD ANODE MESH
-  SYSTEM NEGATIVE CONNECTION
-  REFERENCE CELL
-  GROUNDS
-  NULL PROBE (CORROSIOMETER)
-  EXISTING CONDUIT



NOTE:

The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

U. I. P. existing conduit, access fittings and junction boxes.

The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

ESTIMATED QUANTITIES		For information only	
ITEM	UNIT	QUANTITY	
Elgard Anode Mesh (210)	Sq. Meters	802	
Reference Cells	Each	2	
Null Probes	Each	1	
Thermite Welds	Each	7	

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor. No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.

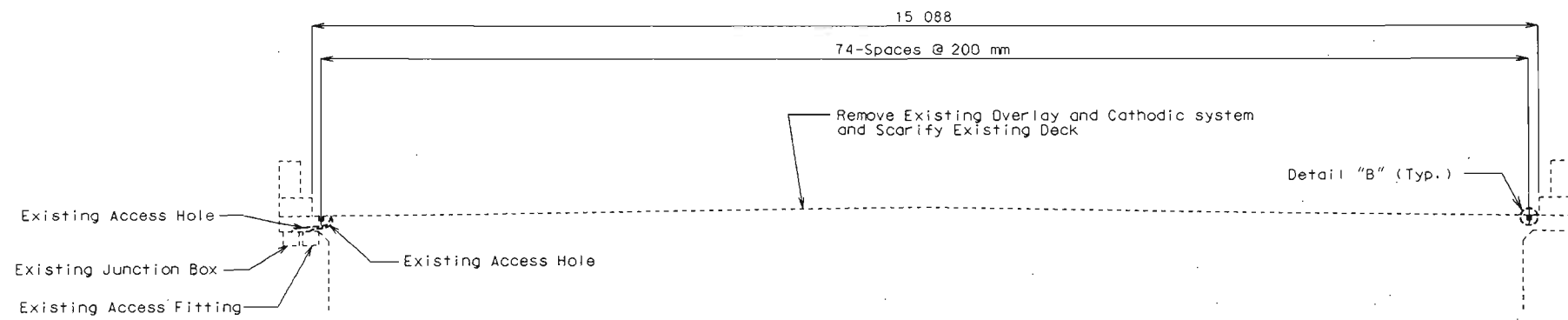
PART PLAN OF SLAB SHOWING ELGARD MESH CATHODIC PROTECTION SYSTEM (ALTERNATE "B")

Note:
 For Section B-B, typical zone layout and partial electrical schematic, see sheet no. 8.
 Dimensions are along ϵ of structure (end of slab to end of slab).
 Existing overlay and cathodic protection system shall be removed and the deck scarified prior to sawing slots. (see special provisions)



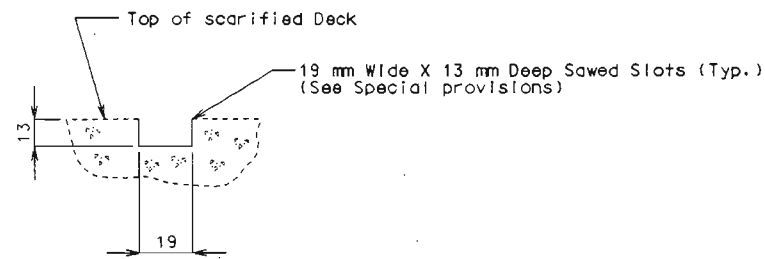
DATE 11-19-98

State	Proj. No.	Sheet No.
MO		361

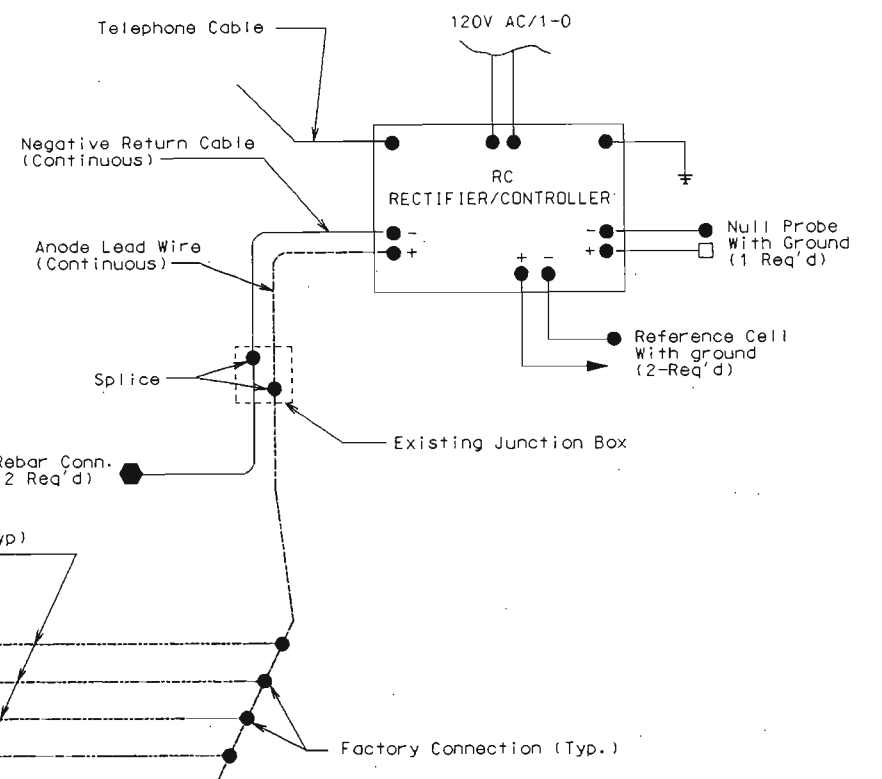


SECTION A-A
(At Alternate "A")

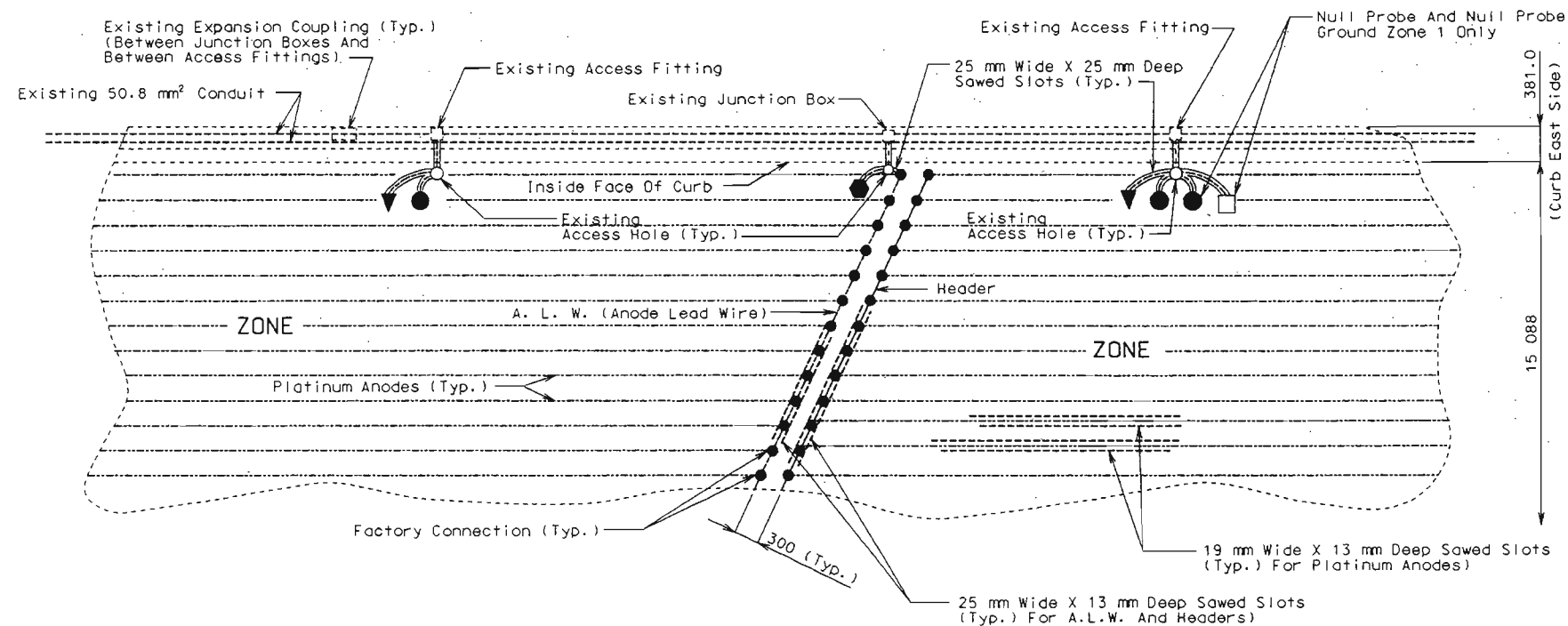
Note: For location of section A-A see sheet no 5.



DETAIL "B"

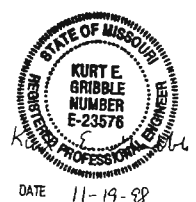


PARTIAL SCHEMATIC
(ALTERNATE "A")

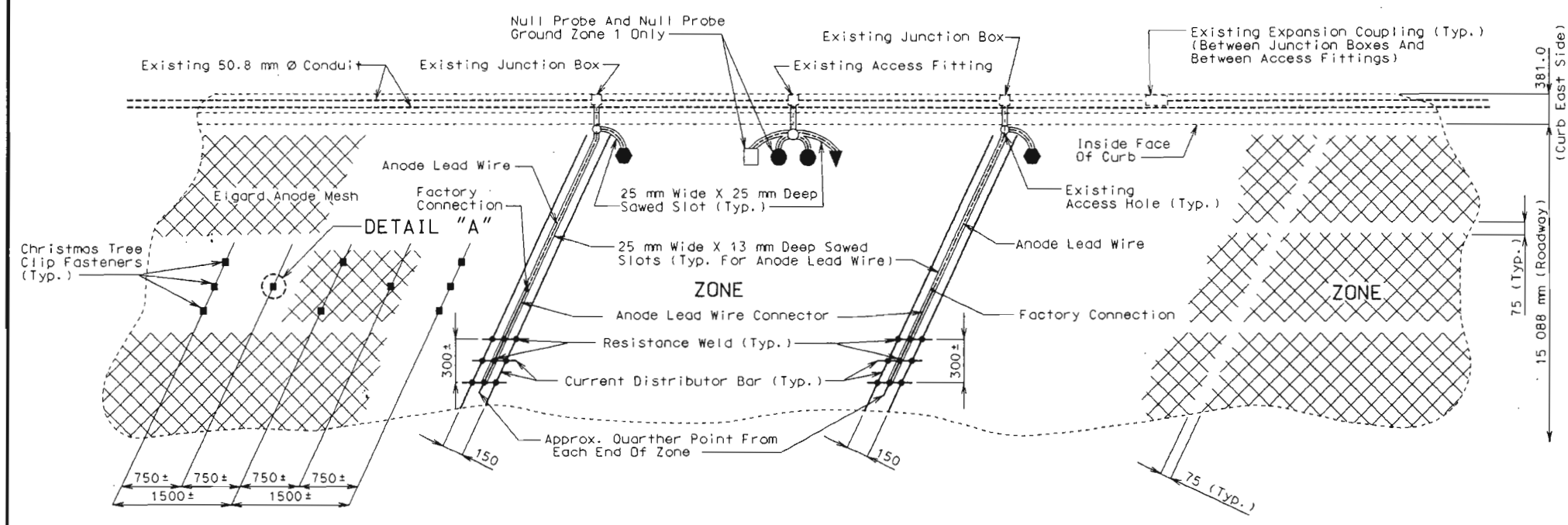
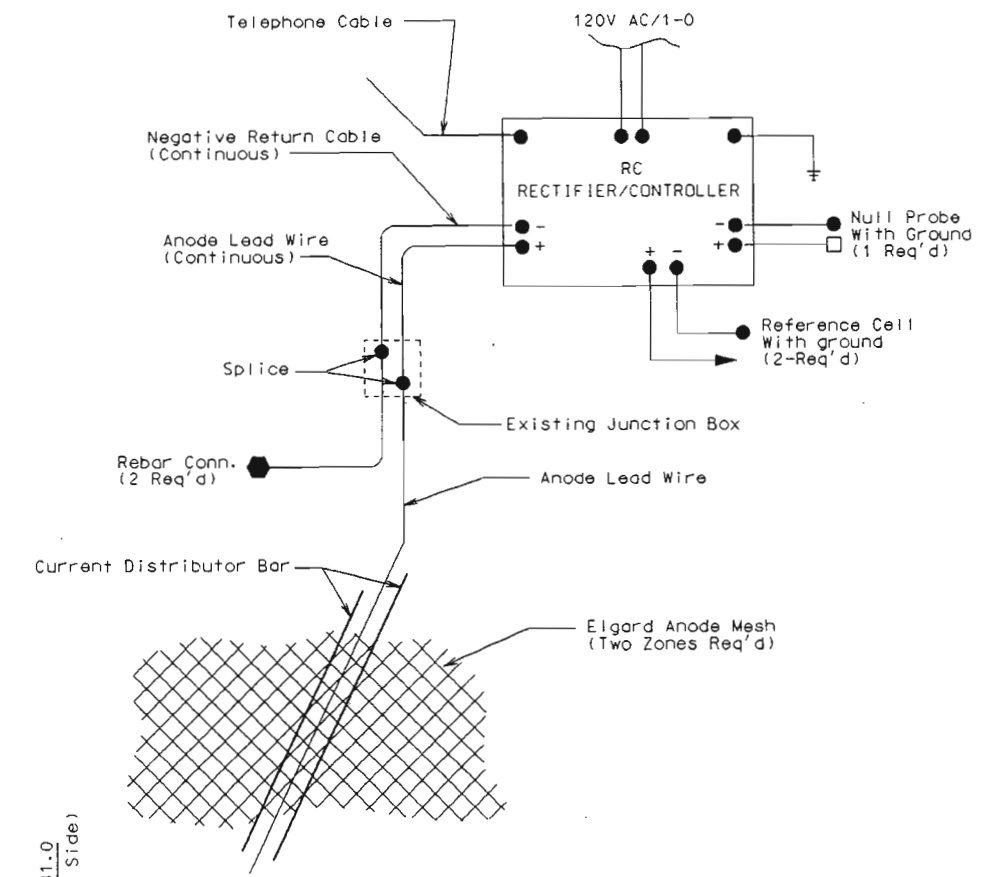
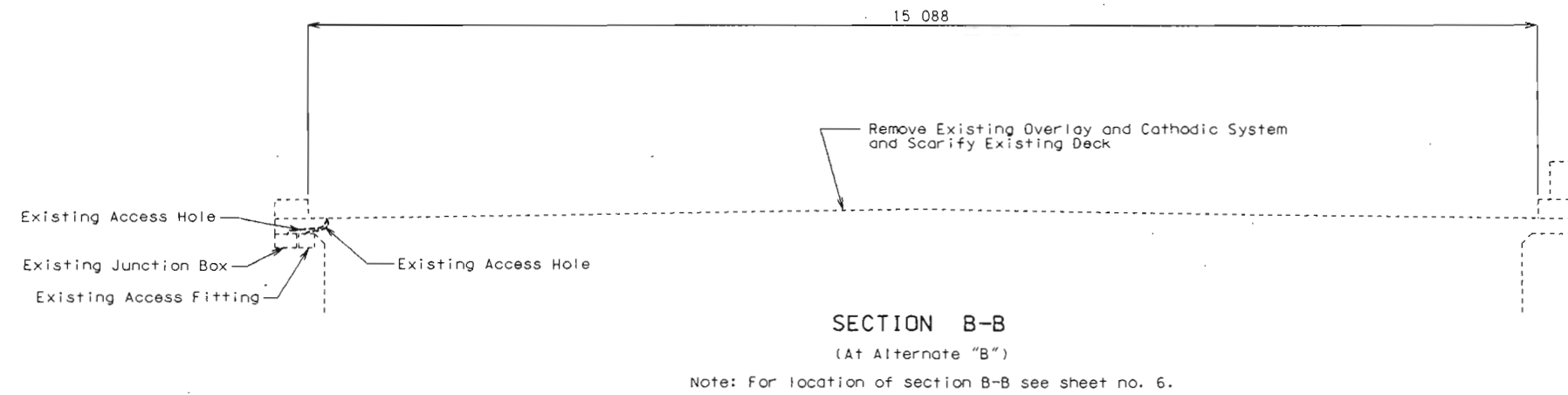


TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "A") SYSTEM

Note: Anodes shall be placed as shown with a minimum tolerance of plus or minus 75 mm. Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.

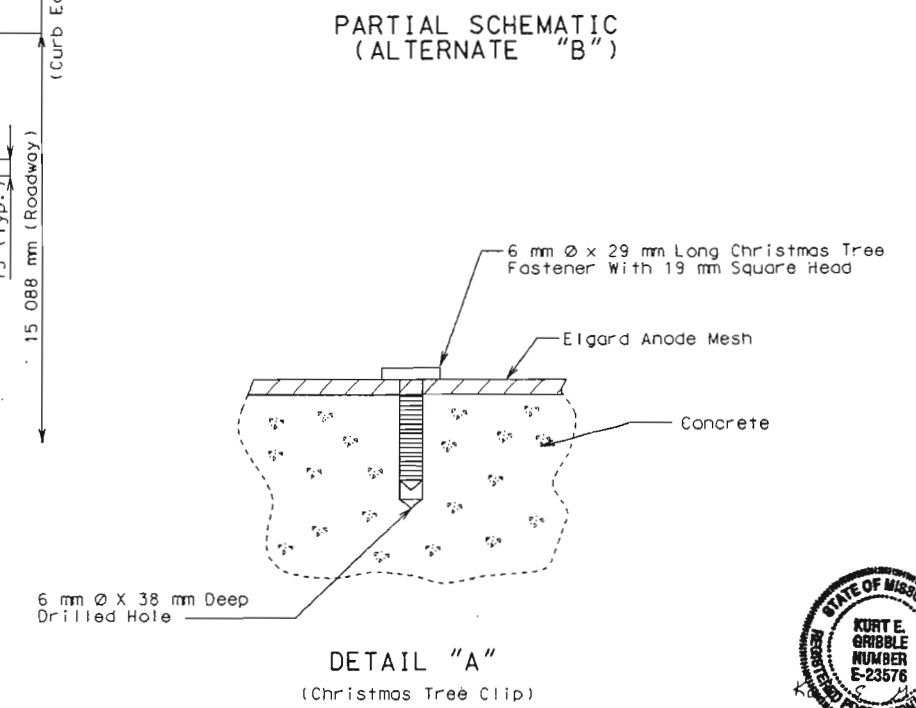


State	Proj. No.	Sheet No.
MO		302



TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "B") SYSTEM

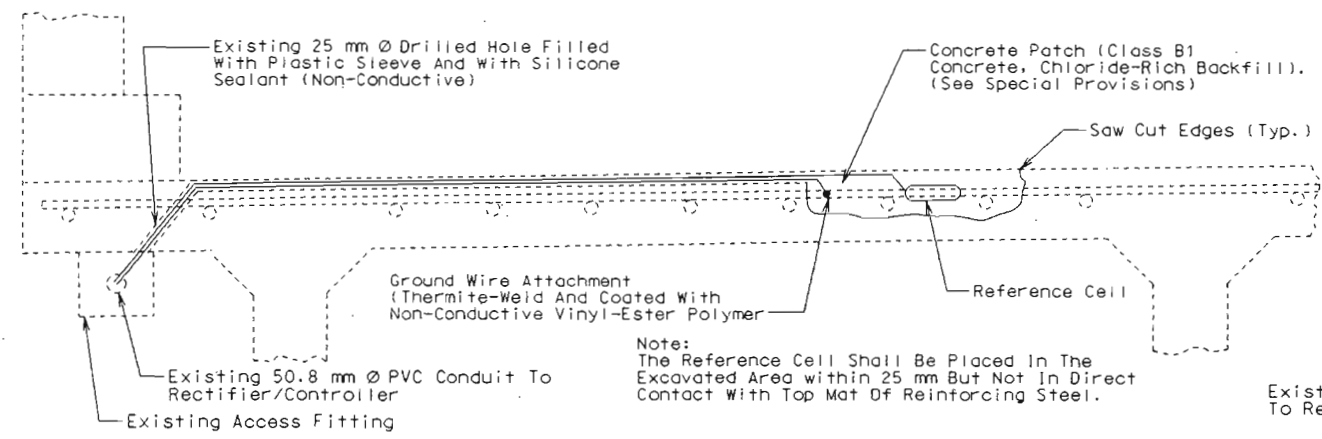
Note: Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.



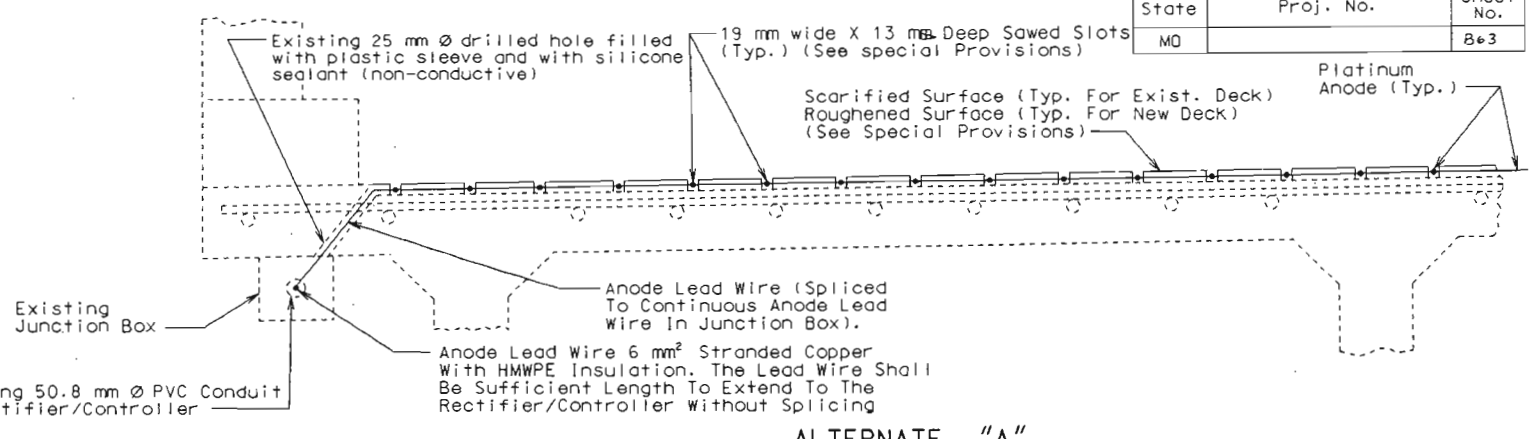
DATE 11-19-98

Detailed Oct. 1998
Checked Oct. 1998

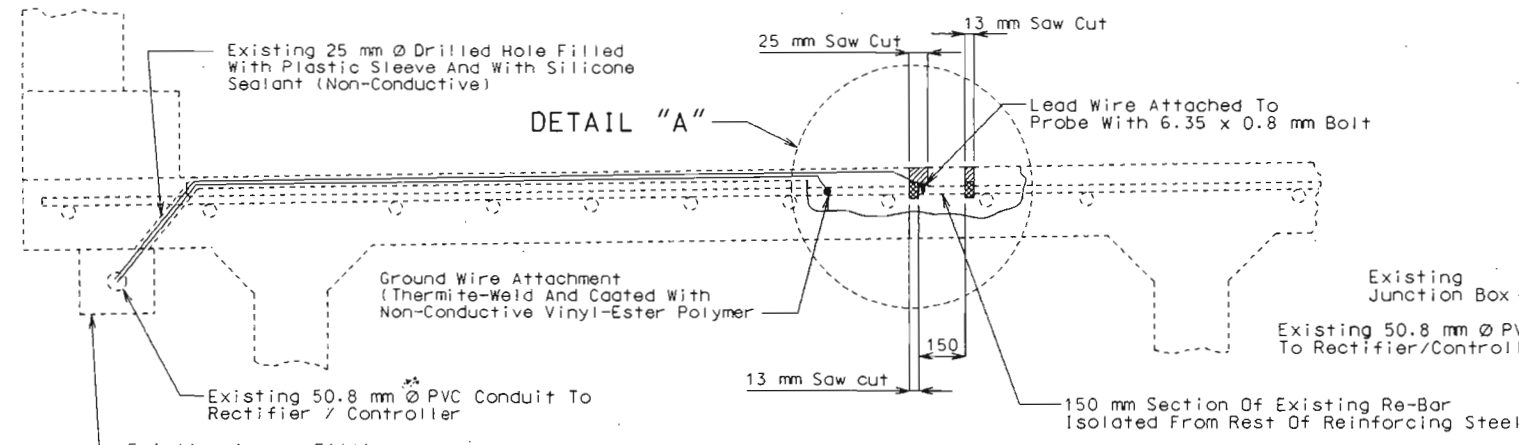
State	Proj. No.	Sheet No.
MO		B-3



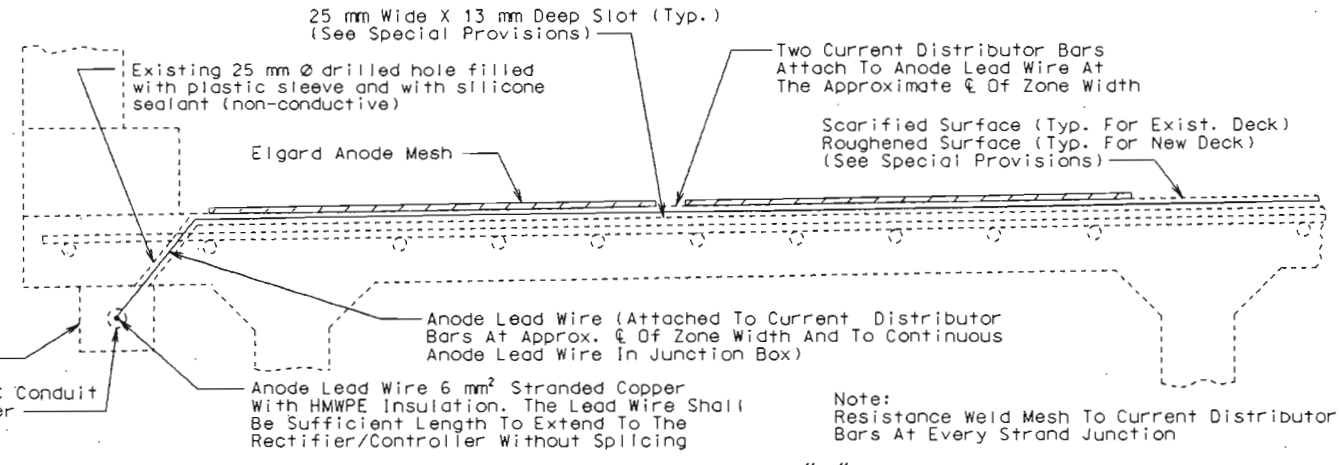
REFERENCE CELL DETAILS



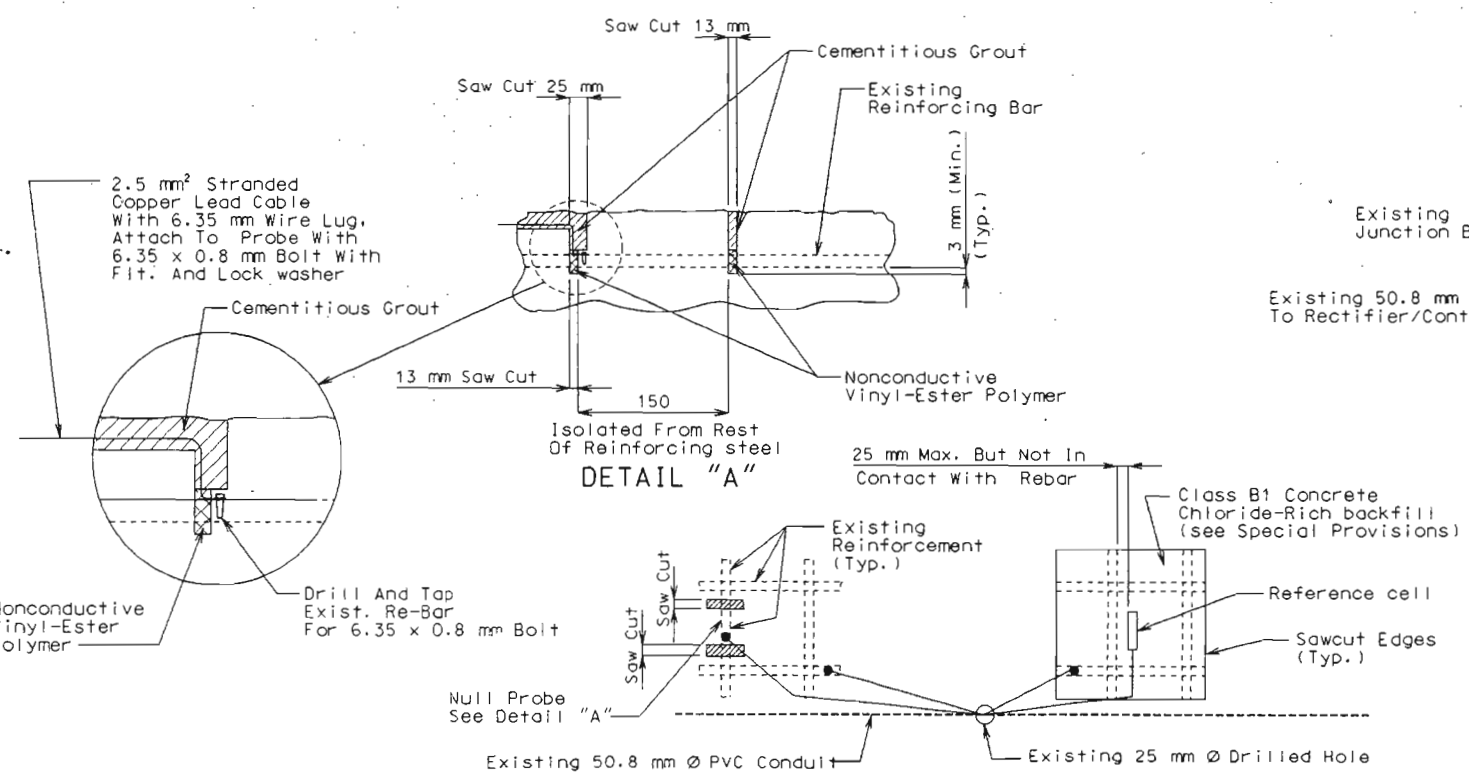
ALTERNATE "A"



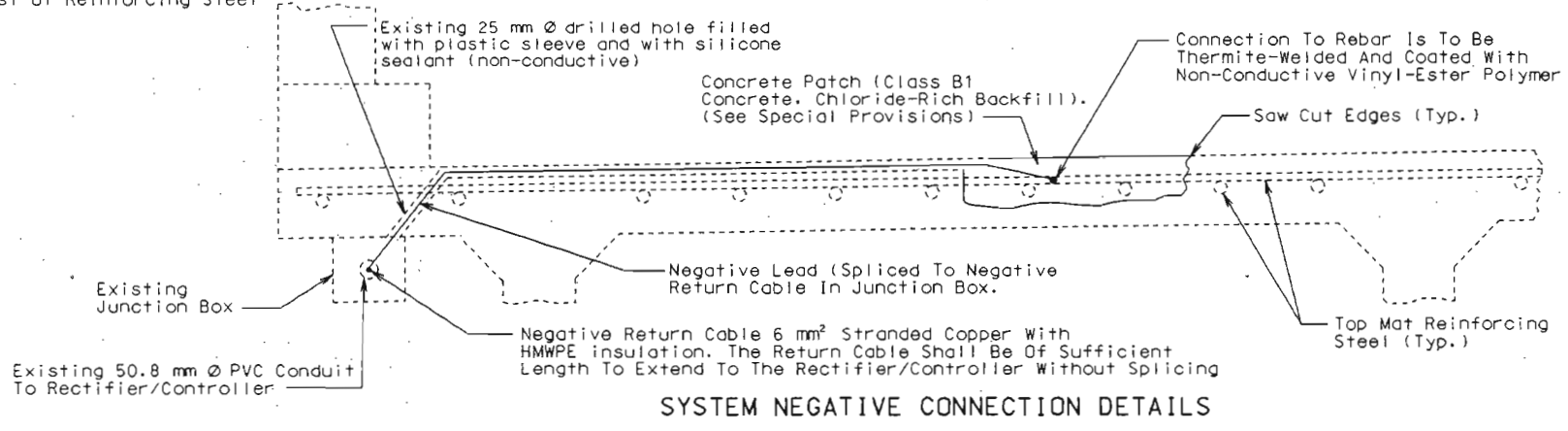
NULL PROBE DETAILS



ALTERNATE "B"



PLAN OF NULL PROBE AND REFERENCE CELL



SYSTEM NEGATIVE CONNECTION DETAILS

Notes for New Conduit and Appurtenances (if required):
 Conduit shall be schedule 40 heavy wall PVC (Polyvinyl Chloride Plastic). Each section of conduit shall bear the underwriters laboratories, inc. (UL) label.

Conduit shall be secured to concrete with clamps (galvanized/AASHTO M111) at abt. 1500 mm cts. Concrete anchors for clamps shall meet federal specification FF-S-325, group II, type 4, class I and shall be galvanized in accordance with ASTM A-153, B695-91 class 50 or stainless steel. Minimum embedment in concrete shall be 45 mm. The supplier shall furnish a manufacturers certification that the concrete anchors meet the required material and galvanizing specifications.

Weepholes shall be provided at appropriate locations to drain any moisture in the conduit lines.

Expansion couplings shall be installed on conduit lines between all junction boxes and between all access fittings as approved by the engineer.

The location and direction of conduit may be shifted to meet field conditions as directed by the engineer.

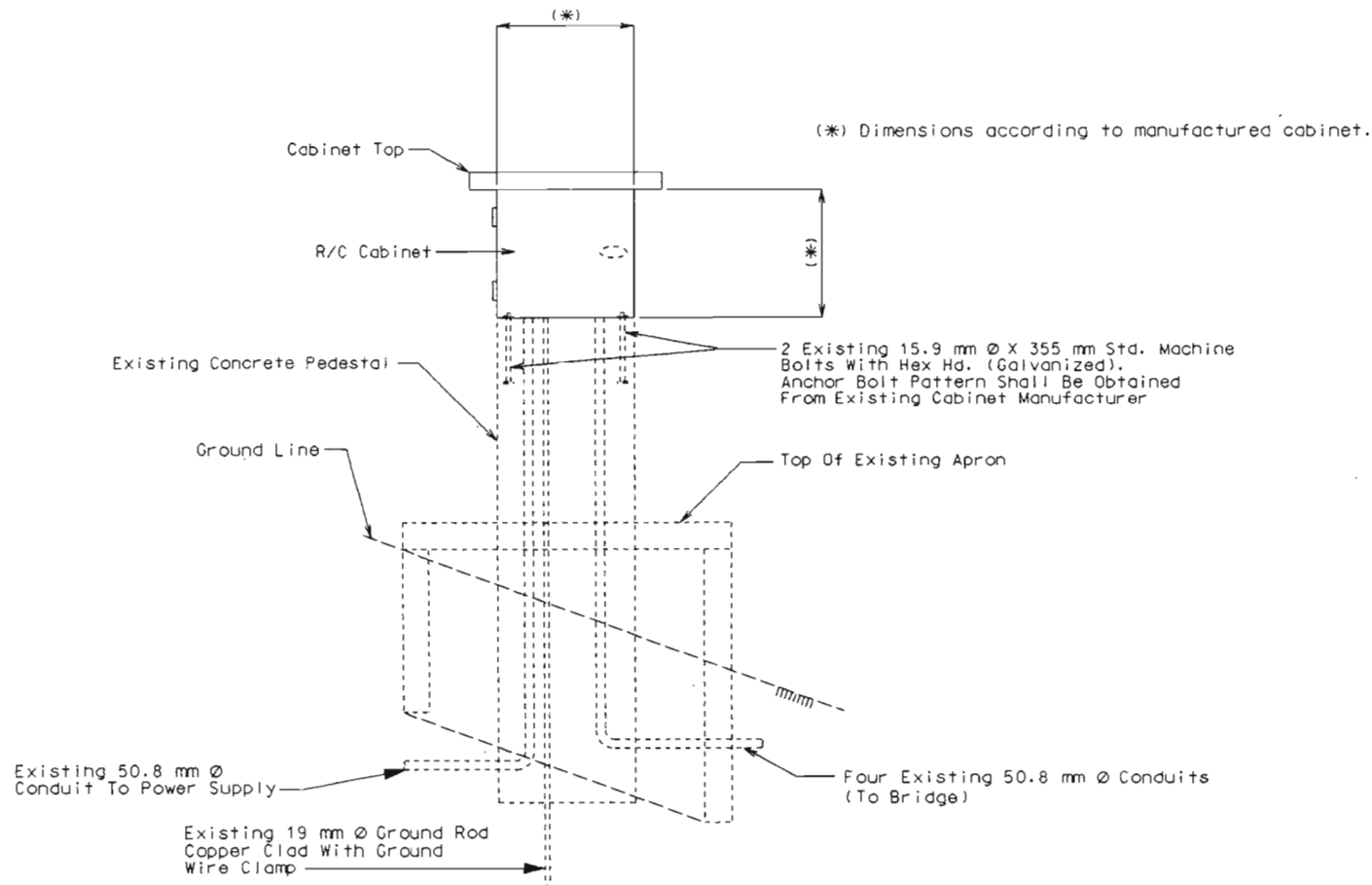
All junction boxes shall be PVC molded, surface mounted, size 200 mm x 200 mm x 175 mm and equal to Carlon Electrical Construction products or Triangle Conduit and Cable company Inc. The terminations shall be permanent or seperable.

The terminations and covers shall be of watertight construction.

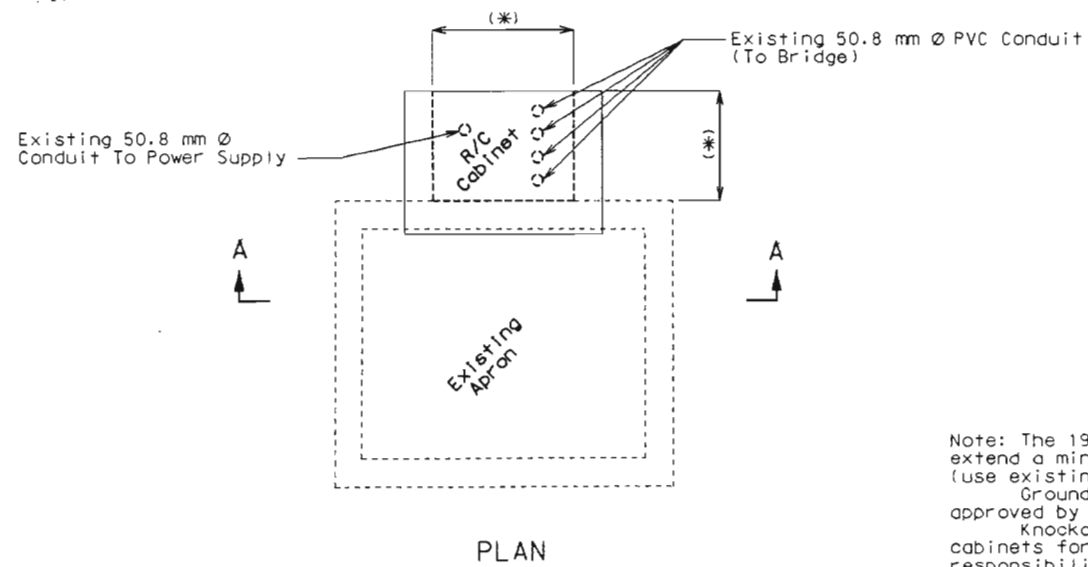


DATE 11-19-98

State	Proj. No.	Sheet No.
MO		36+

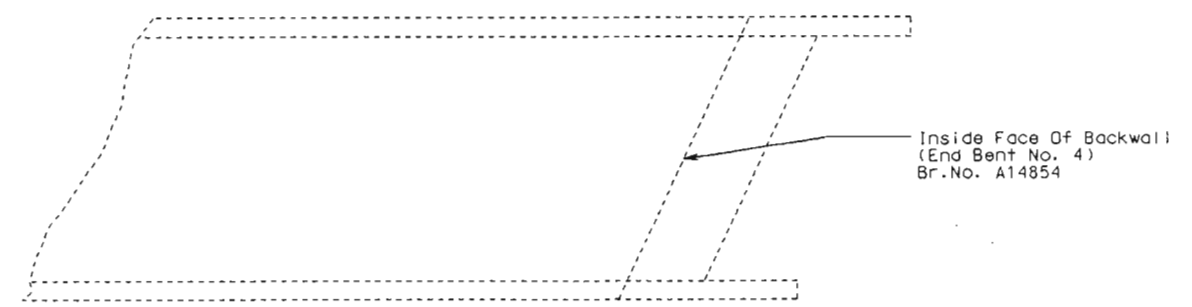
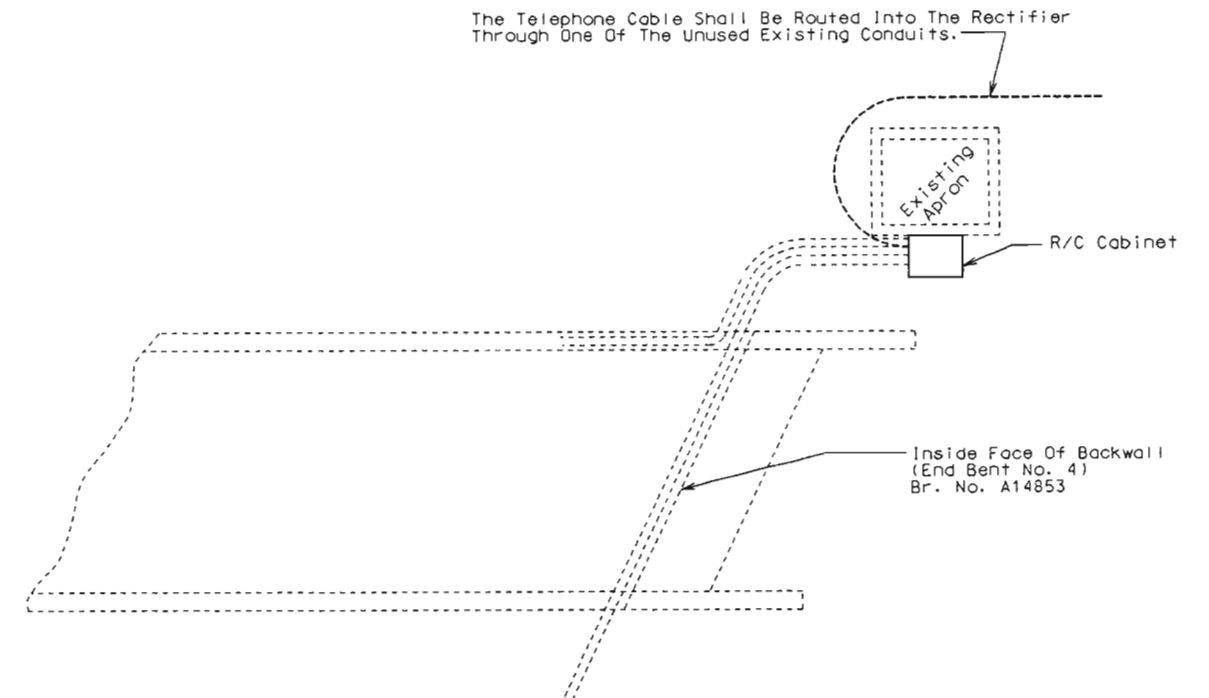


SECTION A-A



PLAN

Note: The 19 mm Ø ground rod shall be of sufficient length to extend a minimum of 3050 mm below bottom of concrete pedestal. (Use existing if approved by the engineer).
 Ground wire shall be 16 mm² minimum (Use existing if approved by the engineer).
 Knockouts or drilled holes shall be provided in cabinets for all conduit. Locations of these holes are the responsibility of the contractor and cabinet manufacturer.

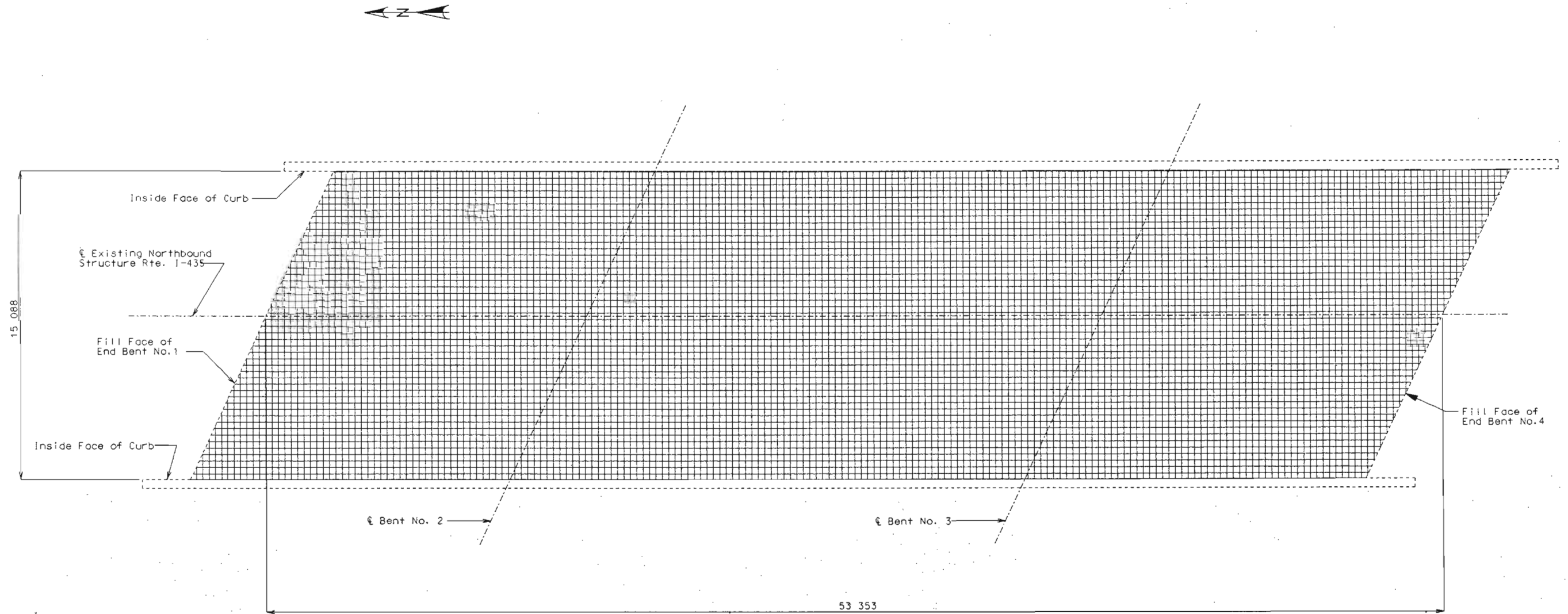


PLAN LOCATION OF RECTIFIER/CONTROLLER



DATE 11-19-98

State	Proj. No.	Sheet No.
MO		365



PLAN OF CONCRETE DECK SHOWING GRID
 (For location of deck repair, reference cells and null probes)
 Note: This sheet is to be completed by MoDOT construction personnel.

Note: Grid = Approx. 310 mm Squares
 Drawing Scale = 1:100 mm/mm

REPAIRS TO BRIDGE A-1485 (N. B. L.)
 OVER GREGORY BLVD



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	13 of 55
Sec./Sur. 12 Twp. 48N Rge. 33W		

General Notes:

Design Specifications:
AASHTO 1996 and Interim 1997.

Design Unit Stresses:

Class B1 Concrete (Curb Blockout) $f'c = 28$ MPa.
Reinforcing Steel (Grade 420) $f_y = 420$ MPa.

Joint Filler:

All joint filler shall meet the requirements of Section 1057.2.4 of the Missouri Standard Specifications (Metric), except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 40 mm, unless otherwise shown.

Dimensions:

All dimensions are shown in millimeters (mm) unless otherwise specified. Drawings are not to scale. Follow dimensions.

Miscellaneous:

Traffic over structure to be maintained during construction. See sheet No. 2 for details of stage construction. (See roadway plans for traffic control).

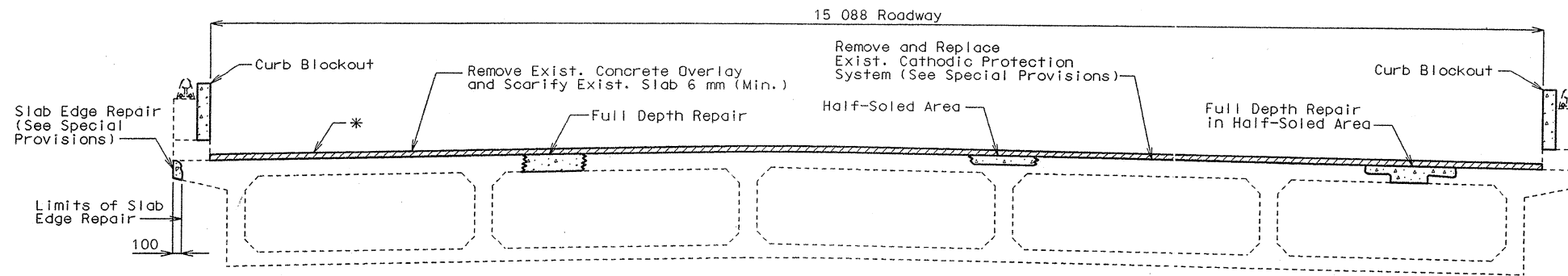
Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new steel.

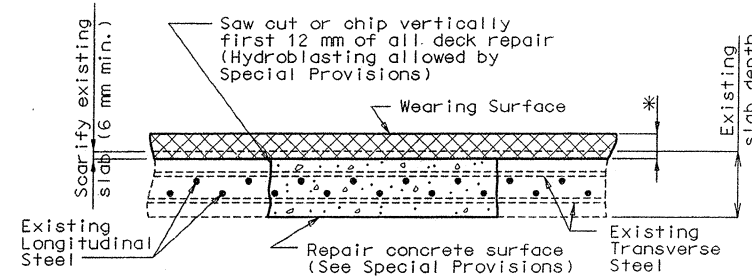
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay.

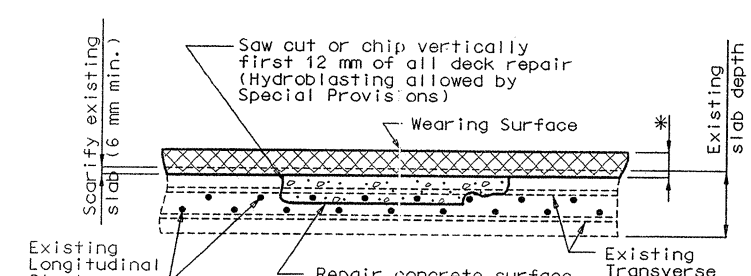
Roadway surfacing adjacent to bridge ends to match bridge overlay (Roadway Item).



SECTION THRU SLAB

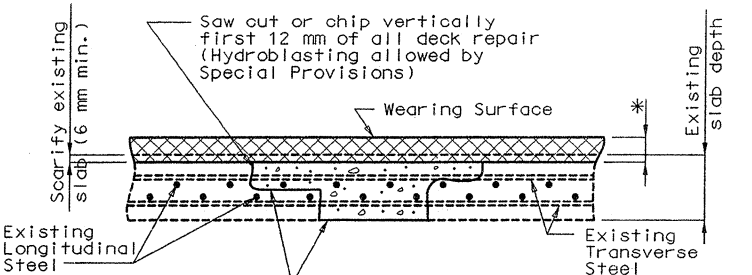


FULL DEPTH REPAIR



HALF-SOLED AREA

* 63 mm (Min.) Low Slump Concrete Wearing Surface

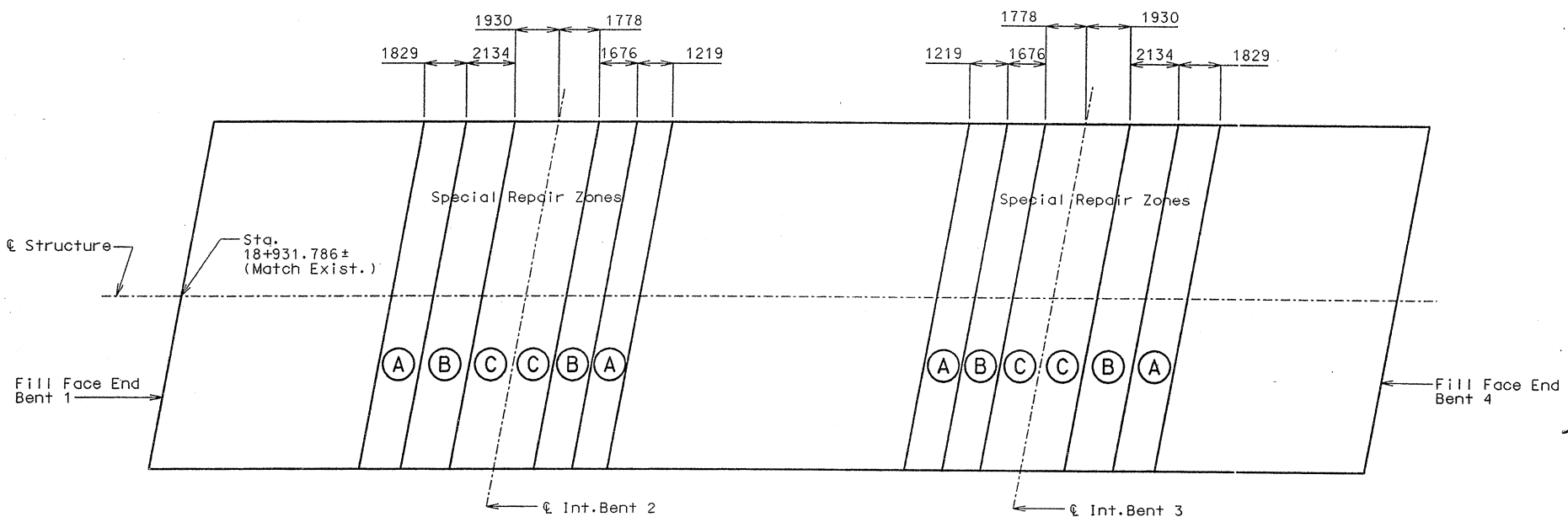


FULL DEPTH REPAIR IN HALF-SOLED AREA

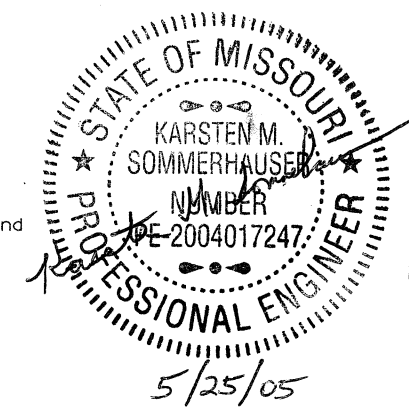
NOTE:

Zone A is to be completed before Zone B and Zone B is to be completed before Zone C.
Any repair in the remainder of the bridge that is within 600 mm of Zone A shall be completed before removing old concrete in Zone A.
Zones with the same letter designation may be repaired at the same time.

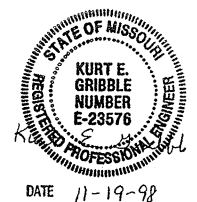
FINAL ESTIMATED QUANTITIES		TOTAL
ITEM		
Curb Removal (Bridges) - Metric	meter	7.0
Removal of Low Slump Concrete Wearing Surface - Metric	sq. meter	805.0
Partial Removal of Cathodic Protection System	lump sum	1
Substructure Repair (Unformed) - Metric	sq. meter	2.0
Curb Blockout - Metric	meter	117.5
Repairing Concrete Deck (Half-Soling) - Metric	sq. meter	95.0
Full Depth Repair - Metric	sq. meter	5
Slab Edge Repair (Bridges) - Metric	meter	1.0
Low Slump Concrete Wearing Surface - Metric	sq. meter	805
Cathodic Protection System	lump sum	1



PLAN OF SLAB (NORTH BOUND LANE) SHOWING SPECIAL REPAIR ZONES



Final Plans
I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction; and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.
Signature: Karsten M. Sommerhauser
Date: 5/25/05



REPAIRS TO BRIDGE OVER GREGORY BLVD.
STATE ROAD FROM GREGORY BLVD. TO BANNISTER RD.
AT GREGORY BLVD.

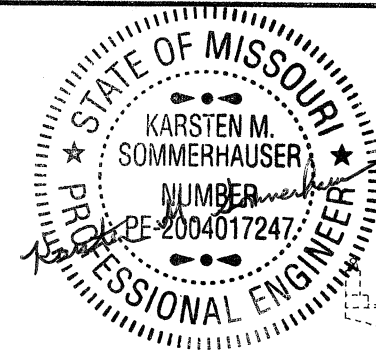
PROJECT NO. J411299
JOB. NO. J411299
STA. 18+931.786± (Match Exist.)
RTE. I-435 (N.B.L.)

JACKSON COUNTY

Date: 11/19/98

STD.
STD.
STD.
STD. M706.35
A14853

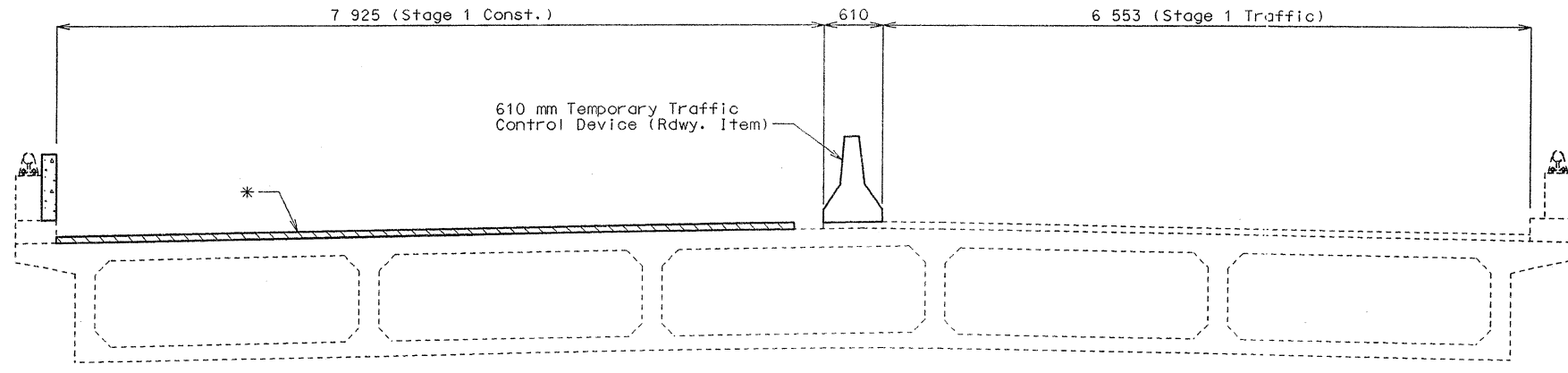
Designed Oct. 1998
Detailed Oct. 1998
Checked Oct. 1998



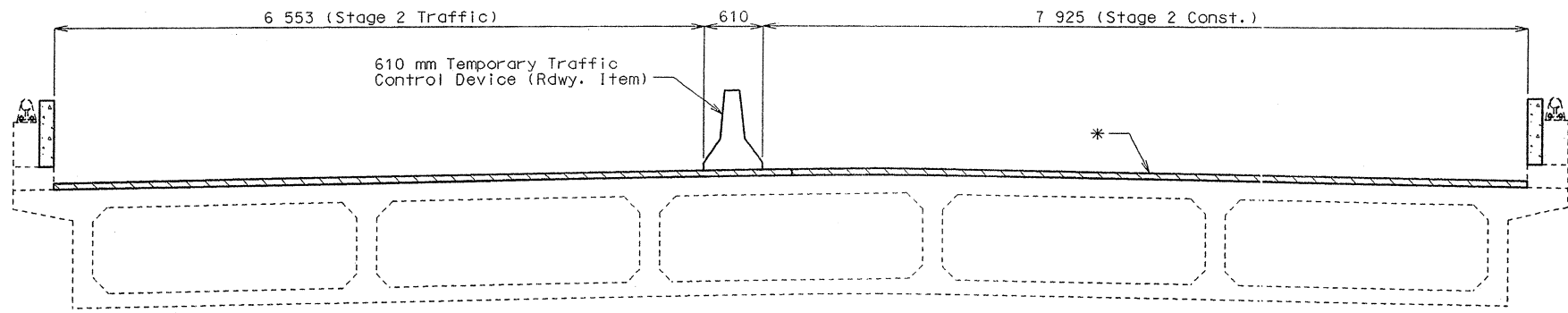
Final Plans
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Karsten M. Sommerhauser 5/25/05
 Signature Date

State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	B 56
JOB NO. J411299		
CONTRACT NO. 991022-403		
Dist. 4		



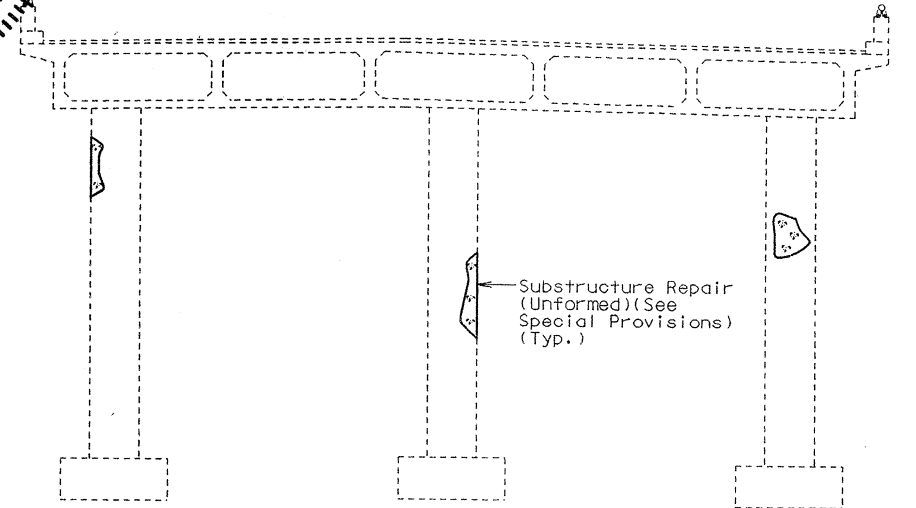
STAGE 1 CONSTRUCTION



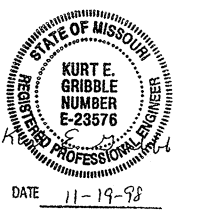
STAGE 2 CONSTRUCTION

DETAILS OF STAGE CONSTRUCTION

* Remove existing Concrete overlay and Cathodic Protection System. Scarify concrete deck 6 mm and install a new Cathodic Protection System covered with a 63 mm (Min.) Low Slump Concrete wearing surface.



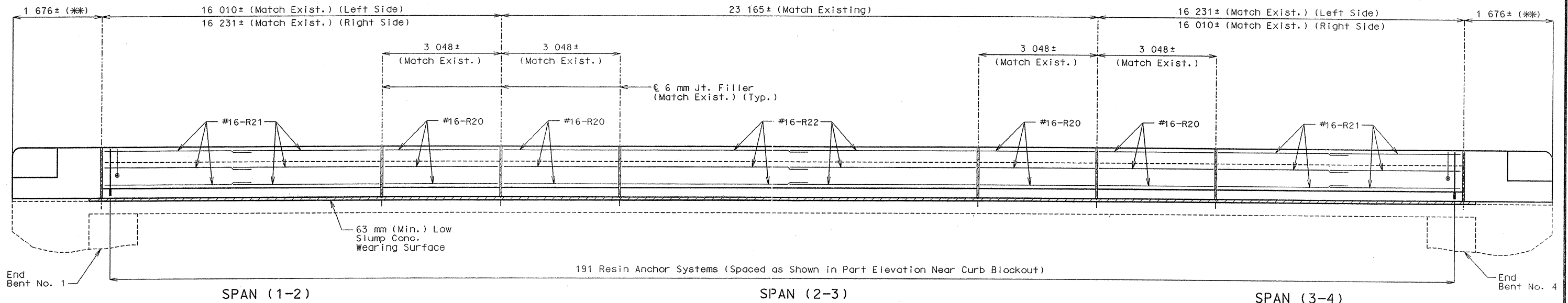
TYPICAL DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS



DATE 11-19-98

PROJECT NO. FAI-435-1(263)
 CONTRACT NO. 991022-403
 DIST. 4

State	JOB Proj. No.	Sheet No.
MO	J411299	1357



SECTION NEAR LEFT CURB BLOCKOUT
 (RIGHT SIDE SIMILAR, EXCEPT AS SHOWN)

NOTE: (**) For End Post details, see sheet No. 4.

NOTES FOR CURB BLOCKOUT:

Concrete in curb blockout shall be Class B1 with $f'c = 28$ MPa. Measurement of curb blockout is to the nearest half meter measured at the gutter line from end of wing to end of wing.

All exposed edges of curb blockout shall have either a 15 mm radius or a 10 mm bevel, unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchor systems and any other work incidental to the curb blockouts complete in place shall be included in the contract unit price for the "Curb Blockout" per meter.

Use a minimum lap of 925 mm for #16 horizontal Curb Blockout bars.

Cost of any concrete curb and parapet repair shall be considered completely covered in the unit price bid for Curb Blockout.

NOTES FOR RESIN ANCHOR SYSTEM:

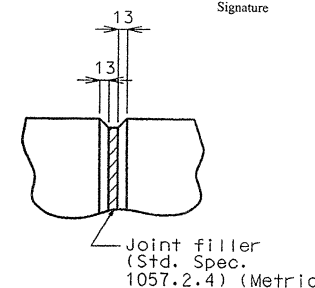
The contractor shall use one of the resin anchor systems listed in the job special provisions. These resin anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that a #16 Grade 420 (Epoxy Coated) reinforcing bar as shown shall be substituted for the 15.9 mm diameter threaded rod stud.

The 15.9 mm diameter resin anchor systems shall have a minimum ultimate pullout strength of 68.9 kN in concrete with $f'c = 28$ MPa, see special provisions.

Final Plans

I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction; and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.

Karsten M. Sommerhauser 5/25/05
 Signature Date



FILLED JOINT DETAIL

DETAILS OF RESIN ANCHORS

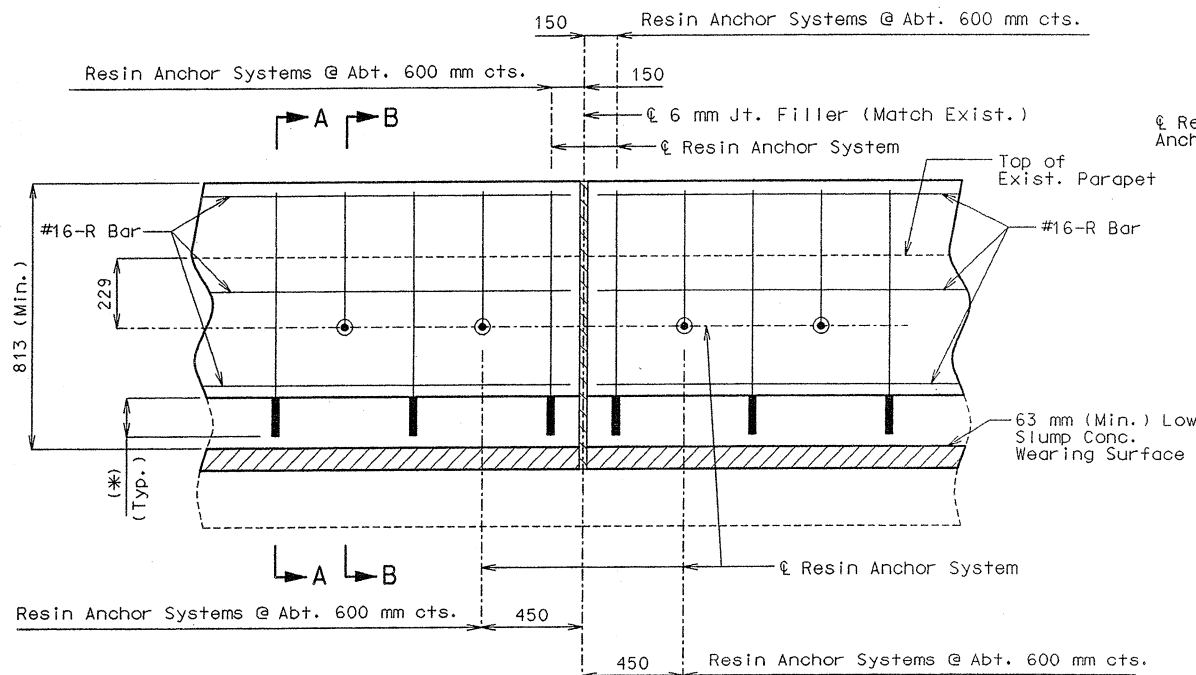
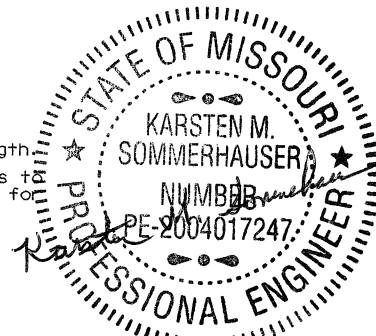
(Total Req'd = 198)
 (Install in Curb)

(Total Req'd = 64)
 (Install in area of End Post
 Removal and Replacement)

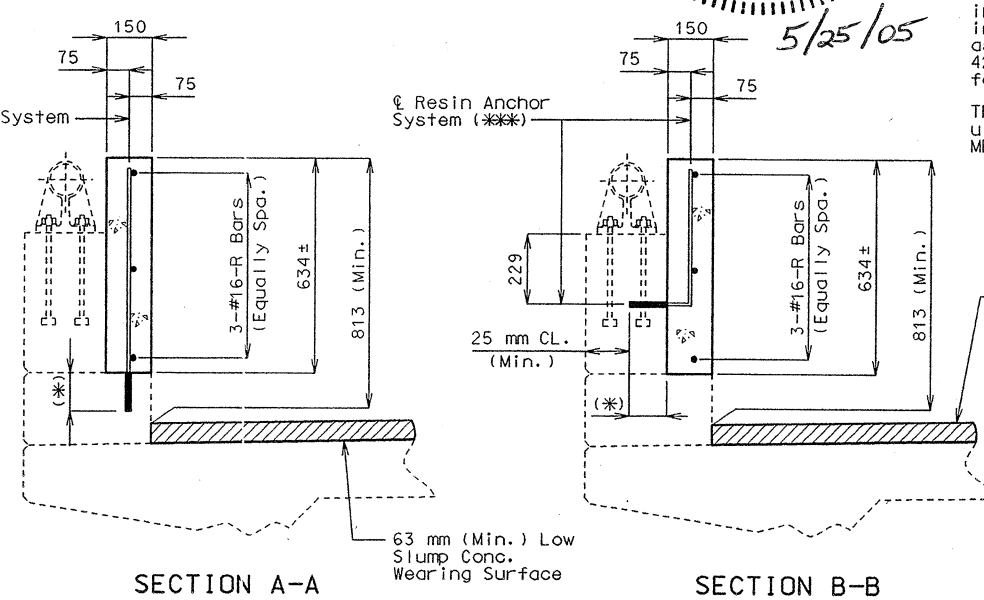
(Total Req'd = 184)
 (Install in Parapet)

NOTE: (*) Manufacturer's embedment length

(**) Shift resin anchor systems to clear exist. steel anchor bolts for tube rail.



PART ELEVATION NEAR CURB BLOCKOUT



DETAILS OF CURB BLOCKOUT

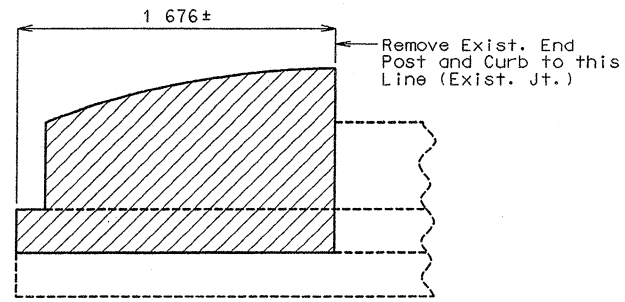


JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

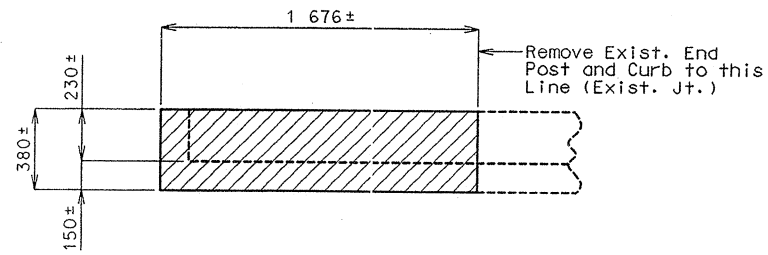
State	Proj. No.	Sheet No.
MO	FAI-435-1 (203)	358

Final Plans
 I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction, and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.

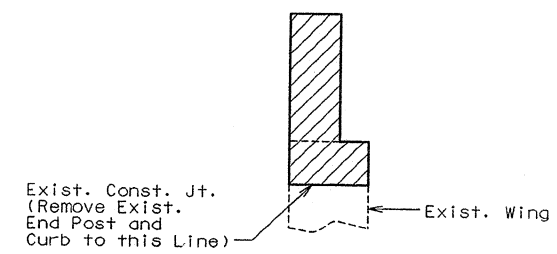
Karsten M. Sommerhauser 5/25/05
 Signature Date



ELEVATION SHOWING END POST REMOVAL



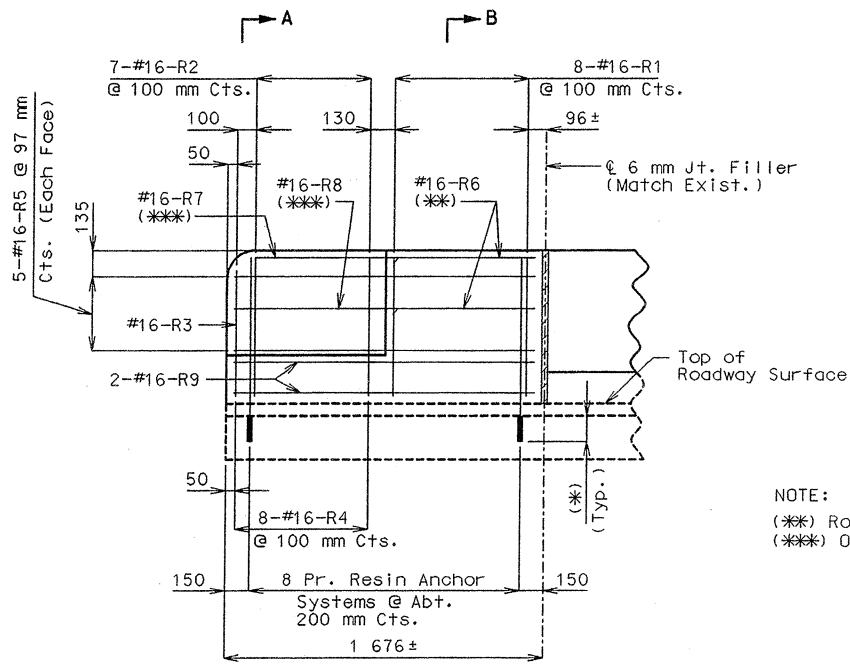
PLAN SHOWING END POST REMOVAL



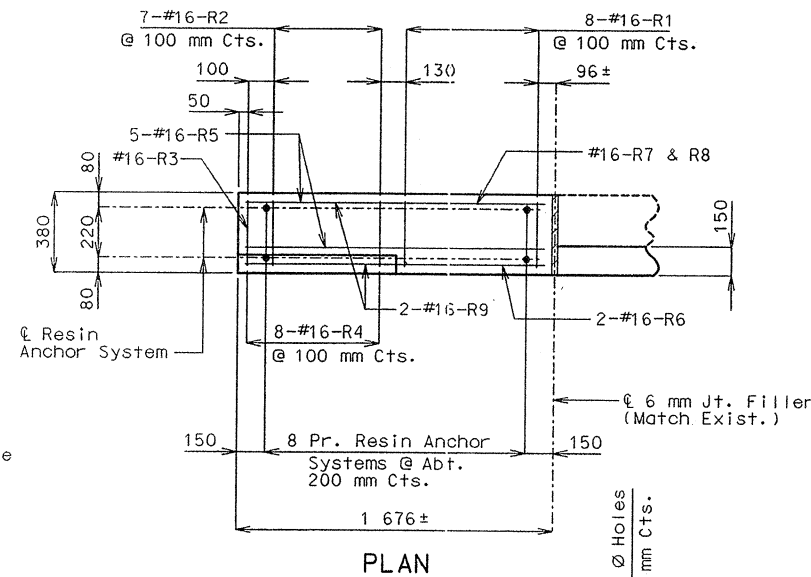
SECTION SHOWING END POST REMOVAL

NOTE:

For notes on Curb Blockout and Resin Anchor Systems, see sheet No. 3.
 (*) Manufacturer's embedment length.
 Payment for removal of existing end post and curb concrete is included in the contract unit price for "Curb Removal (Bridges) - Metric" per meter.

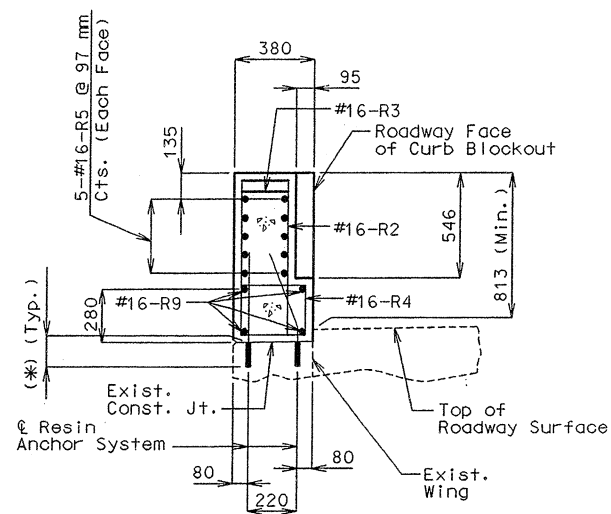


ELEVATION



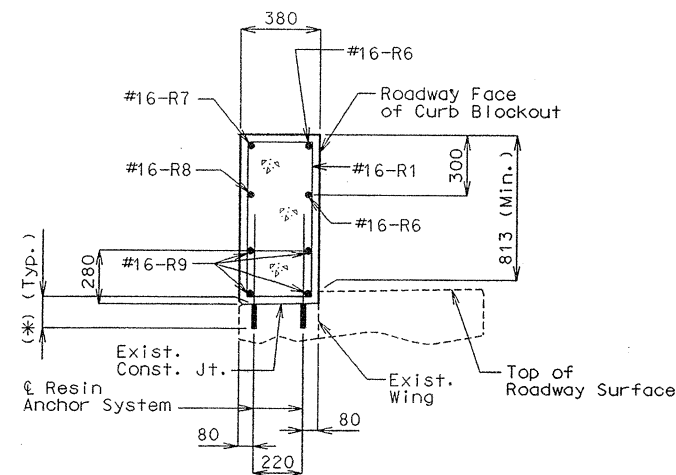
PLAN

NOTE:
 (***) Roadway Face
 (****) Outside Face



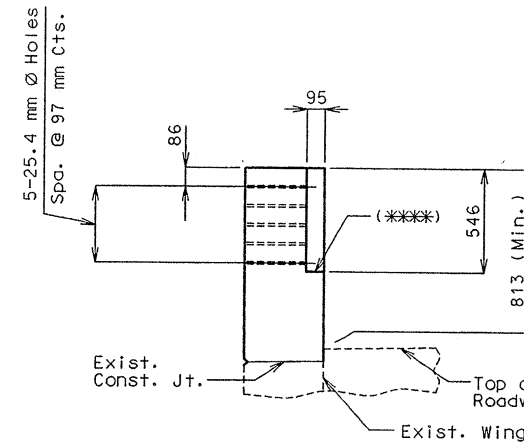
SECTION A-A

NOTE: #16-R6, R7 & R8 Bars not shown for clarity.



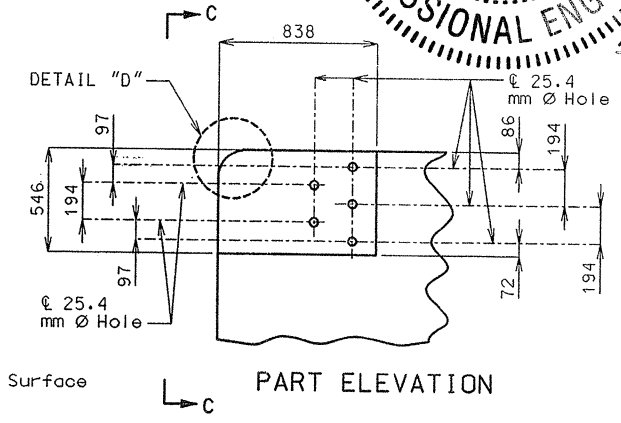
SECTION B-B

NOTE: #16-R5 Bars not shown for clarity.

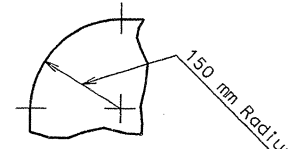


PART ELEVATION C-C

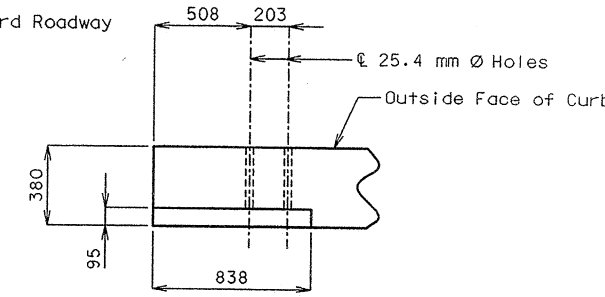
(****) Slope 6 mm toward Roadway



PART ELEVATION



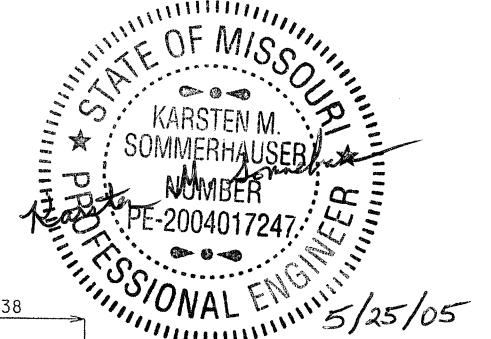
DETAIL "D"



PART PLAN

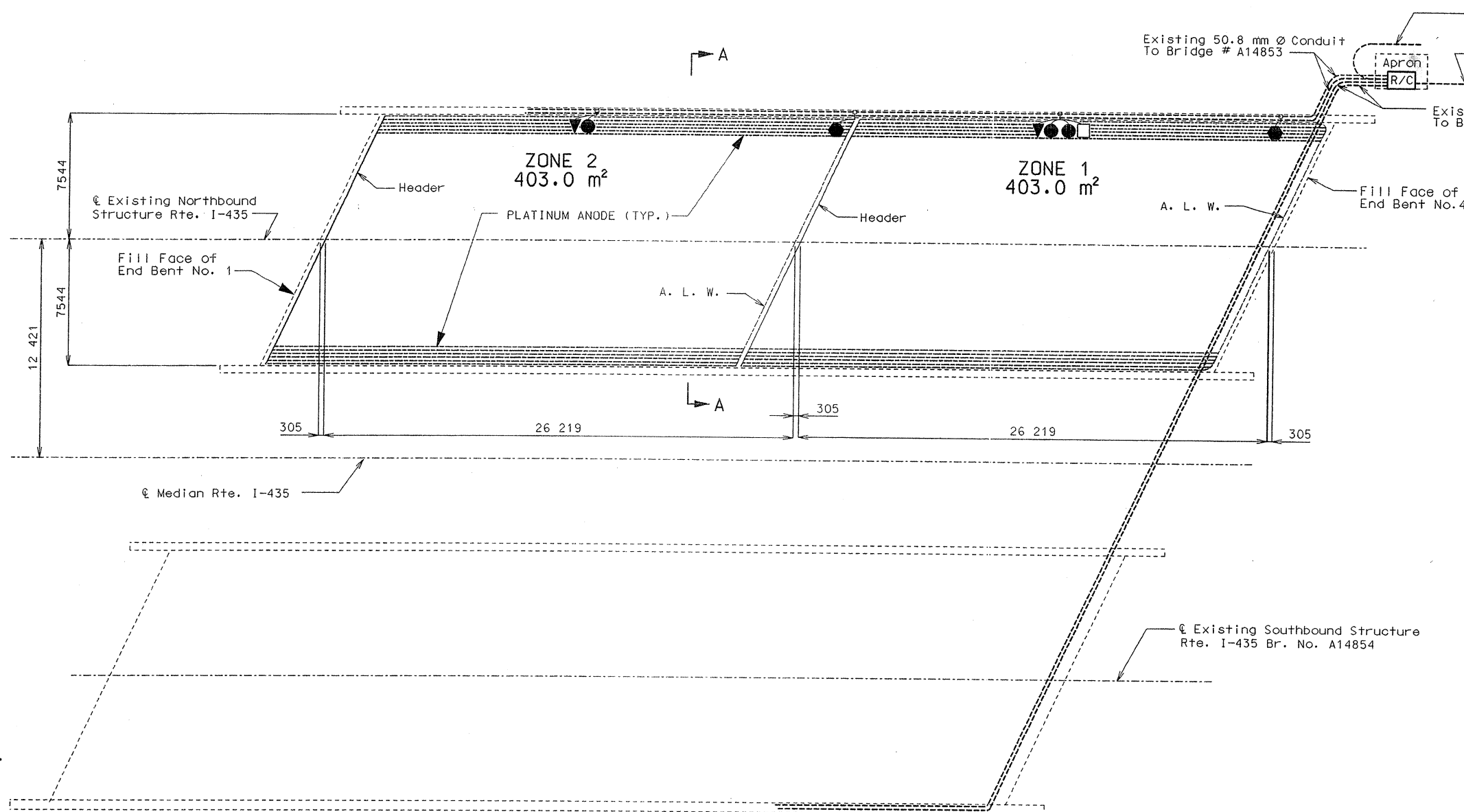
DETAILS OF GUARD RAIL ATTACHMENT

TYPICAL DETAILS OF CURB BLOCKOUT AT END POST



JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

State	Proj. No.	Sheet No.
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- DENOTATIONS**
- A.L.W. (ANODE LEAD WIRE)
 - HEADER
 - PLATINUM ANODE
 - SYSTEM NEGATIVE CONNECTION
 - ▲----- REFERENCE CELL
 - GROUNDS
 - NULL PROBE (CORROSIOMETER)
 - EXISTING CONDUIT

NOTE:
 The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

Reference cells are to be placed between anodes.

U.I.P. existing conduit, access fittings and junction boxes.

The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

FINAL ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Anode Lead Wire & Header	Meter	86
Platinum Anodes	Meter	3933
Reference Cells	Each	2
Null Probes	Each	1
Thermite Welds	Each	5

For information only

PART PLAN OF SLAB SHOWING PLATINUM CATHODIC PROTECTION SYSTEM (ALTERNATE "A")

Note:

For Section A-A, typical zone layout and partial electrical schematic, see sheet no. 7.

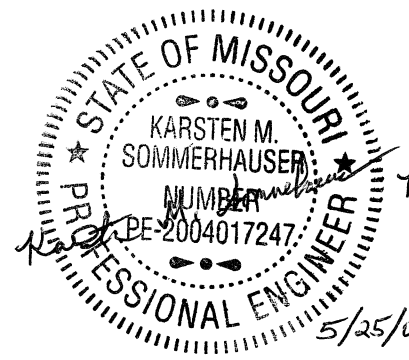
Dimensions are along ϕ of structure (end of slab to end of slab).

The anode lead wire and header shall be 6.0 mm² stranded copper wire with HMWPE insulation.

Factory supplied field splices will be permitted between stages on the anode lead wire (A.L.W.) and header as directed by the engineer.

Existing overlay and cathodic protection system shall be removed and the deck scarified prior to sawing slots. (see special provisions)

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor.
 No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.



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Signature: *Karsten M. Sommerhauser* Date: 5/25/05



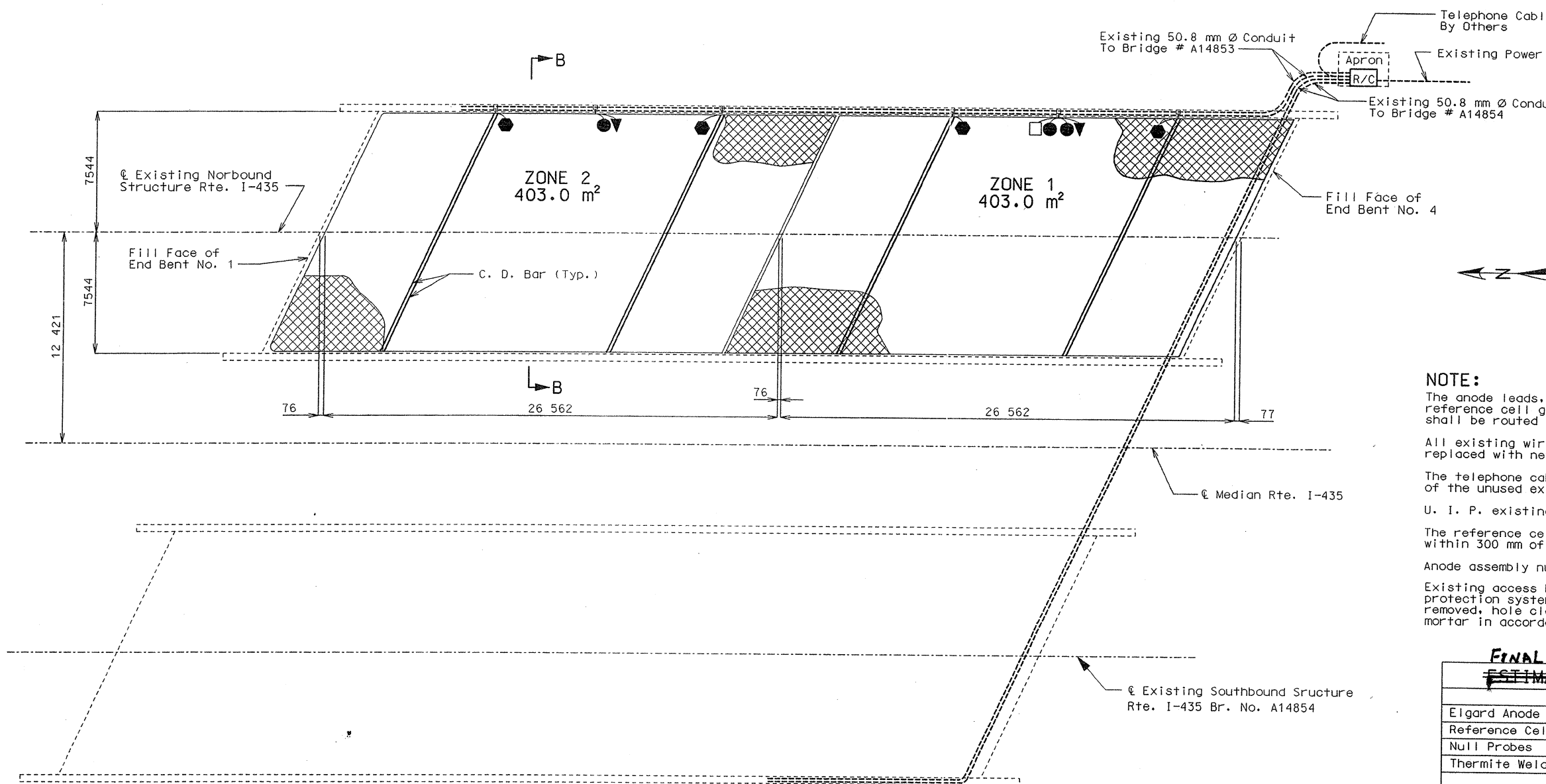
DATE 11-19-98

JOB NO. J41299
 CONTRACT NO. 991022-403
 DIST. 4

State	Proj. No.	Sheet No.
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DENOTATIONS

- ELGARD ANODE MESH
- SYSTEM NEGATIVE CONNECTION
- REFERENCE CELL
- GROUNDS
- NULL PROBE (CORROSMETER)
- EXISTING CONDUIT



NOTE:

The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

U. I. P. existing conduit, access fittings and junction boxes.

The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

FINAL ESTIMATED QUANTITIES For information only

ITEM	UNIT	QUANTITY
Elgard Anode Mesh (210)	Sq. Meters	802
Reference Cells	Each	2
Null Probes	Each	1
Thermite Welds	Each	7

PART PLAN OF SLAB SHOWING ELGARD MESH CATHODIC PROTECTION SYSTEM (ALTERNATE "B")

Note:
 For Section B-B, typical zone layout and partial electrical schematic, see sheet no. 8.
 Dimensions are along ϕ of structure (end of slab to end of slab).
 Existing overlay and cathodic protection system shall be removed and the deck scarified prior to sawing slots. (see special provisions)

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor.
 No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.



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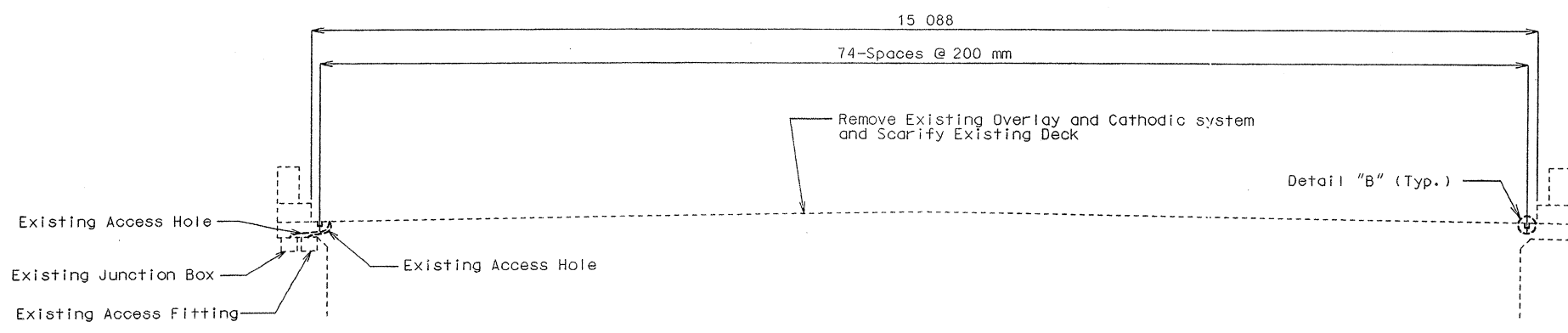
Karsten M. Sommerhauser 5/25/05
 Signature Date



DATE 11-19-98

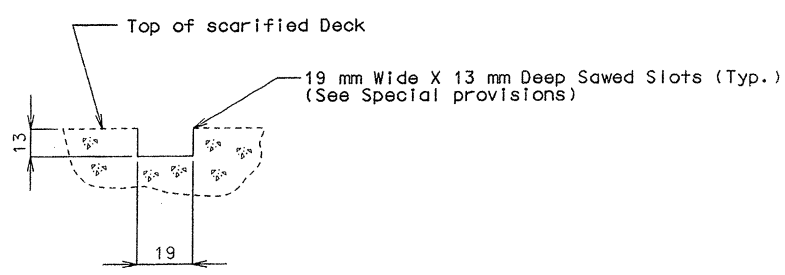
JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

State	Proj. No.	Sheet No.
MO	FAT-435-1 (263)	361

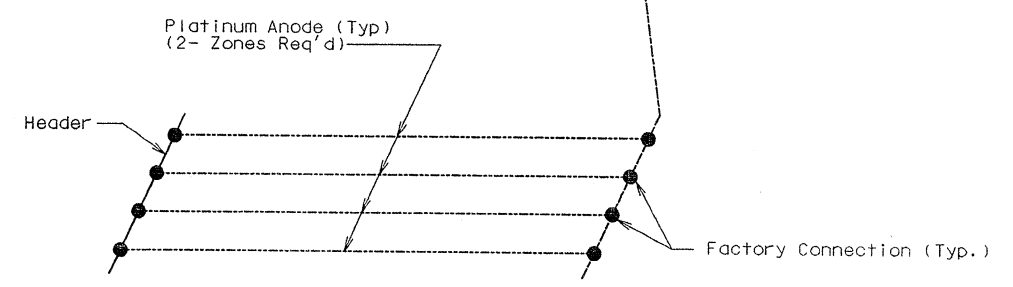
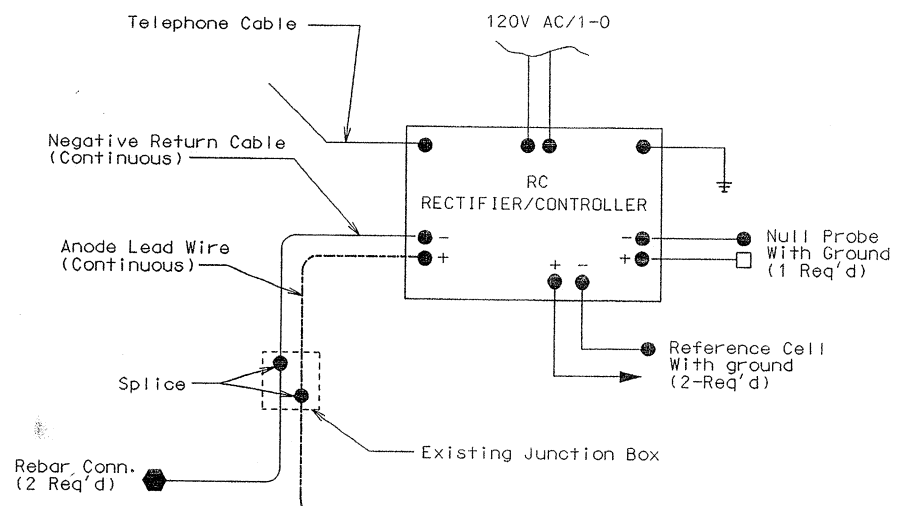


SECTION A-A
 (At Alternate "A")

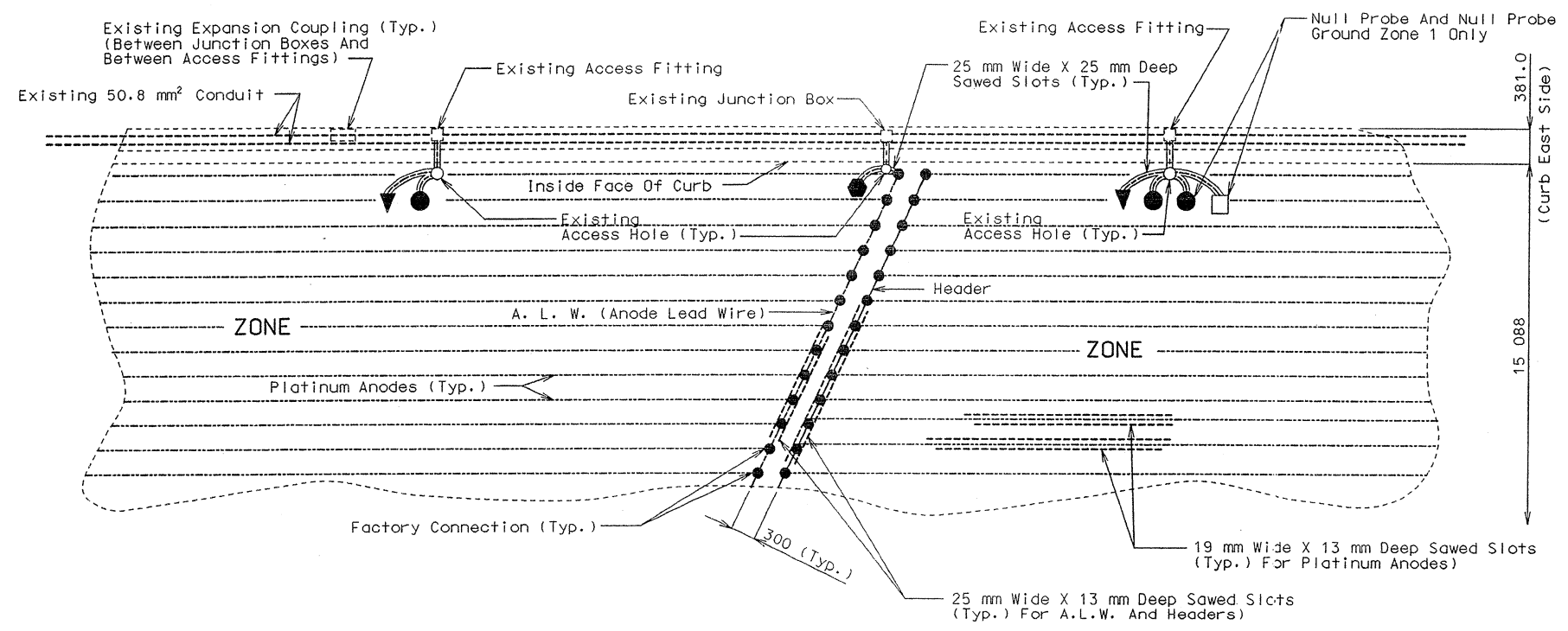
Note: For location of section A-A see sheet no 5.



DETAIL "B"

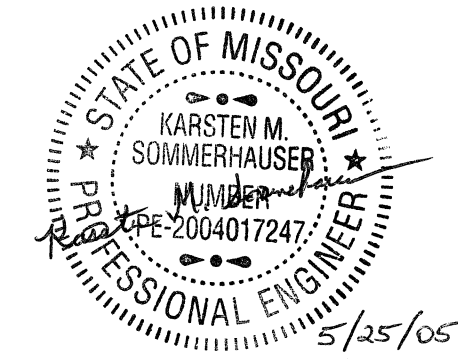


PARTIAL SCHEMATIC
 (ALTERNATE "A")

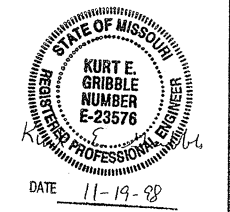


TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "A") SYSTEM

Note: Anodes shall be placed as shown with a minimum tolerance of plus or minus 75 mm. Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.



Final Plans
 I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction; and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.
 Signature: *Karsten M. Sommerhauser* Date: 5/25/05

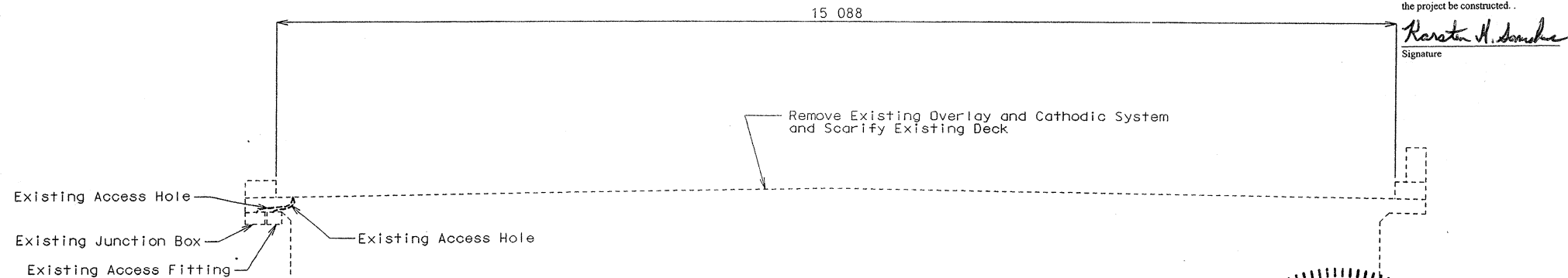


Final Plans
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JDS NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

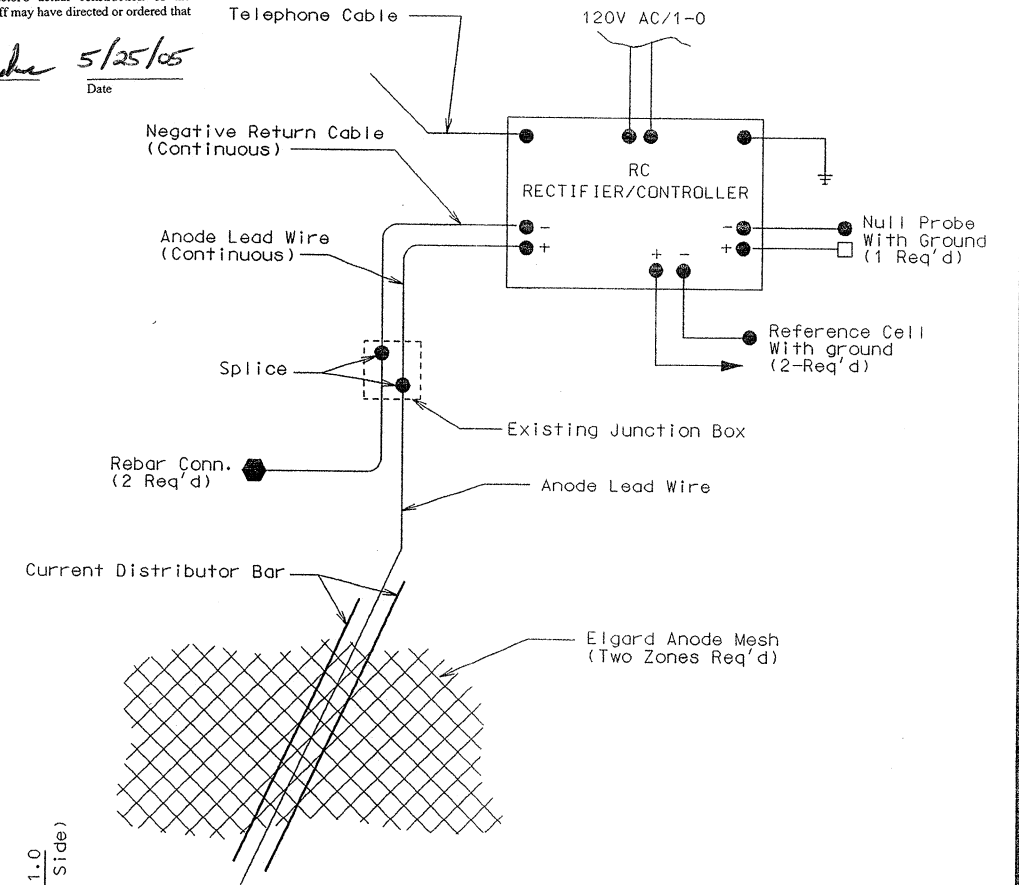
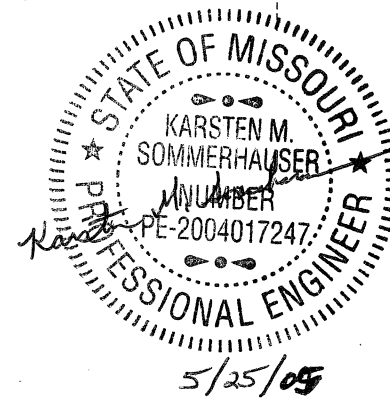
State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	862

Karsten M. Sommerhauser 5/25/05
 Signature Date

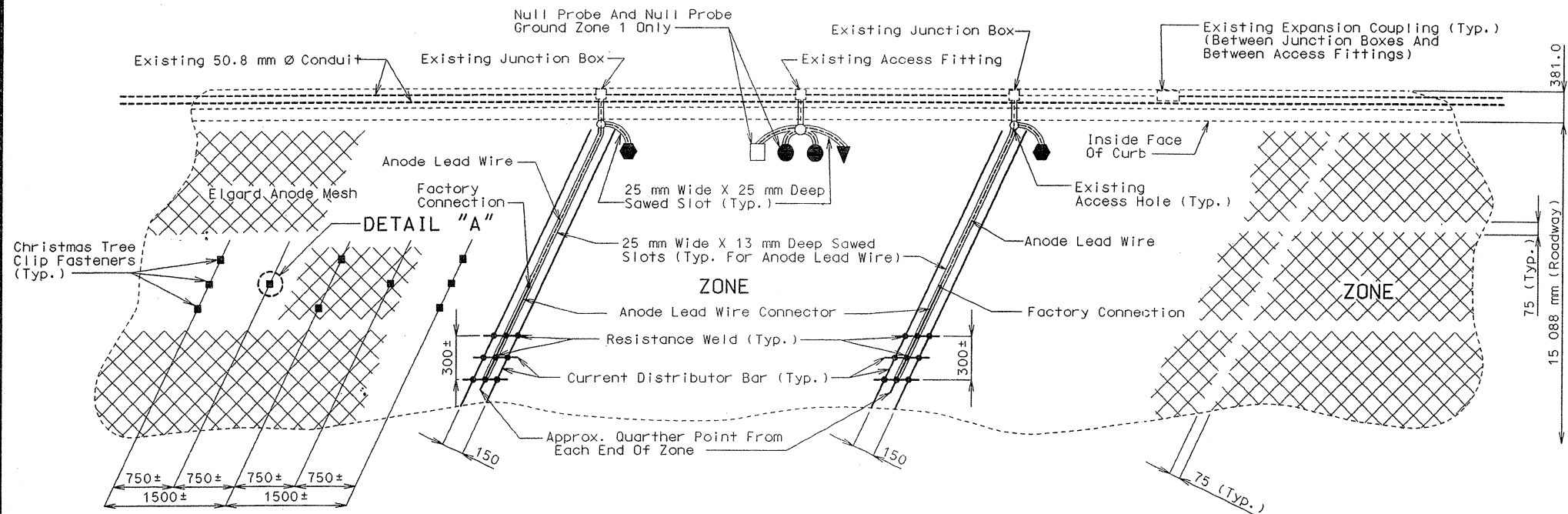


SECTION B-B
 (At Alternate "B")

Note: For location of section B-B see sheet no. 6.

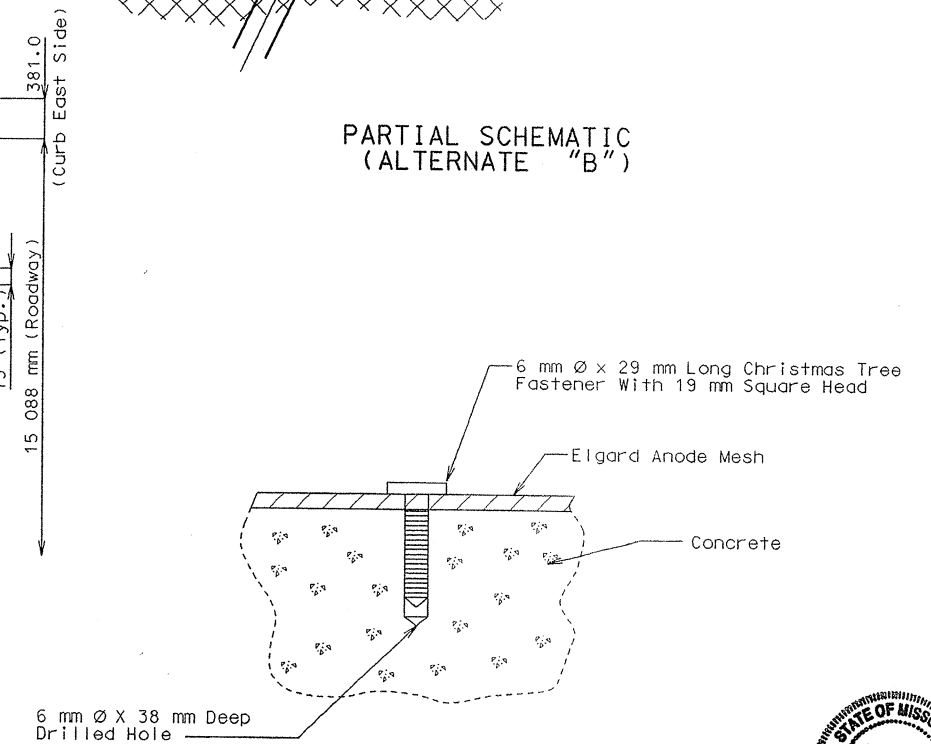


PARTIAL SCHEMATIC
 (ALTERNATE "B")

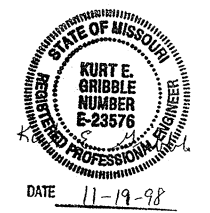


TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "B") SYSTEM

Note: Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.

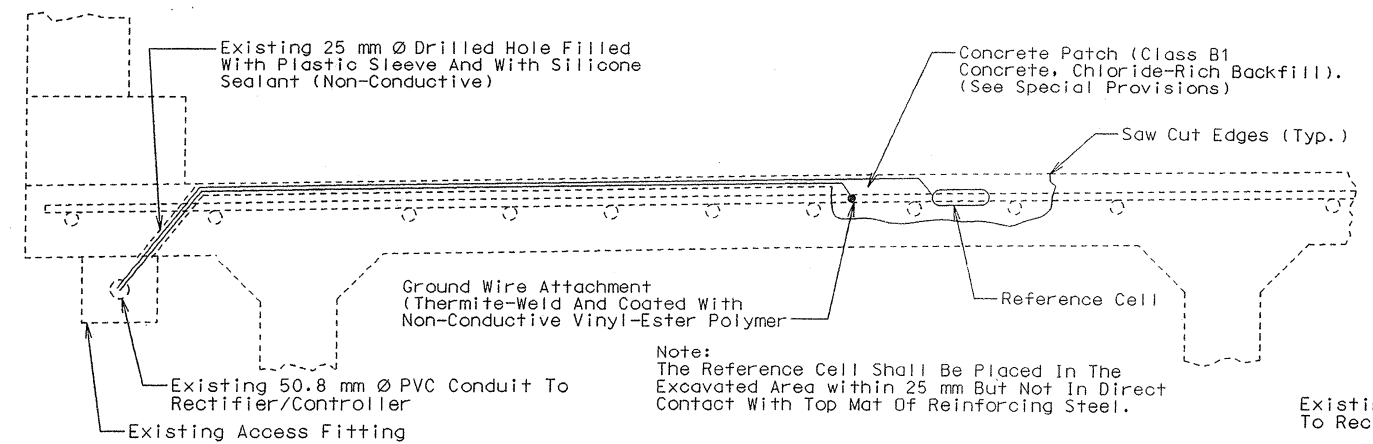


DETAIL "A"
 (Christmas Tree Clip)



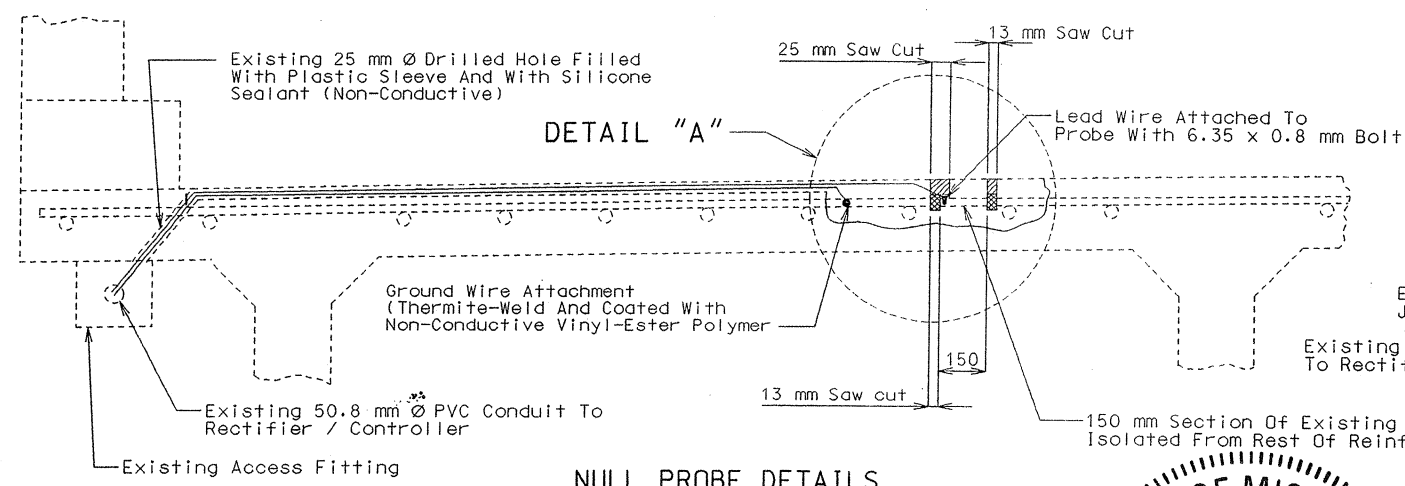
JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

State	Proj. No.	Sheet No.
MO	FAI-435-1(203)	863

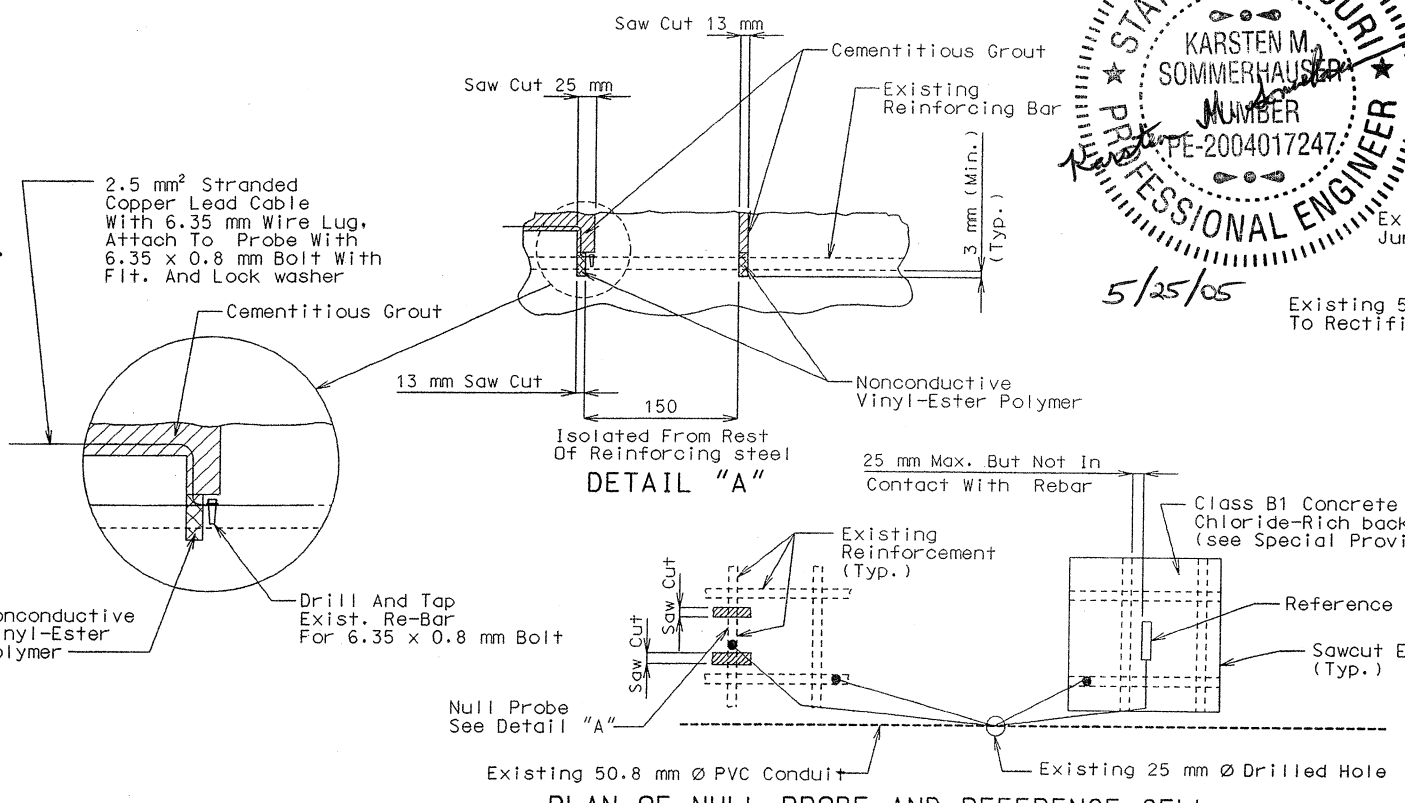


REFERENCE CELL DETAILS

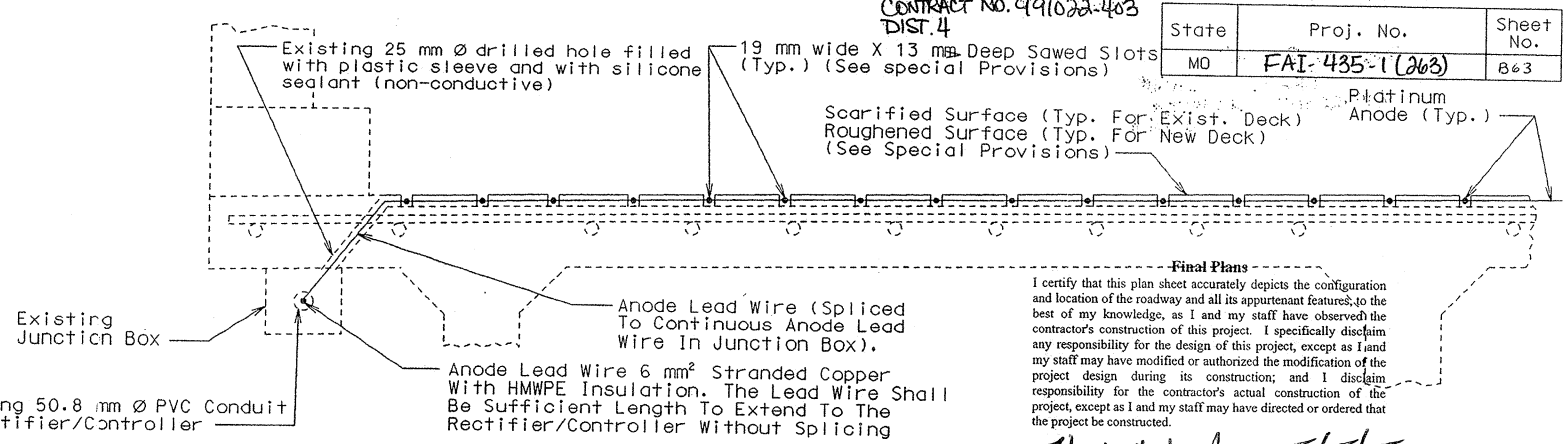
Note:
 All concrete removal shall be initiated by saw cutting the first 13 mm.



NULL PROBE DETAILS



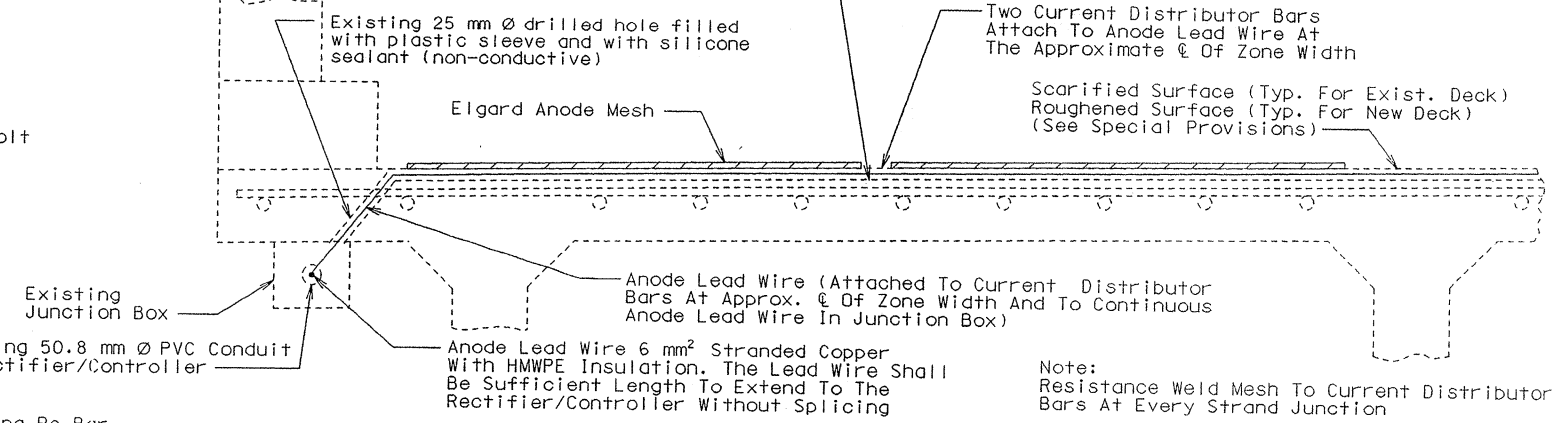
PLAN OF NULL PROBE AND REFERENCE CELL



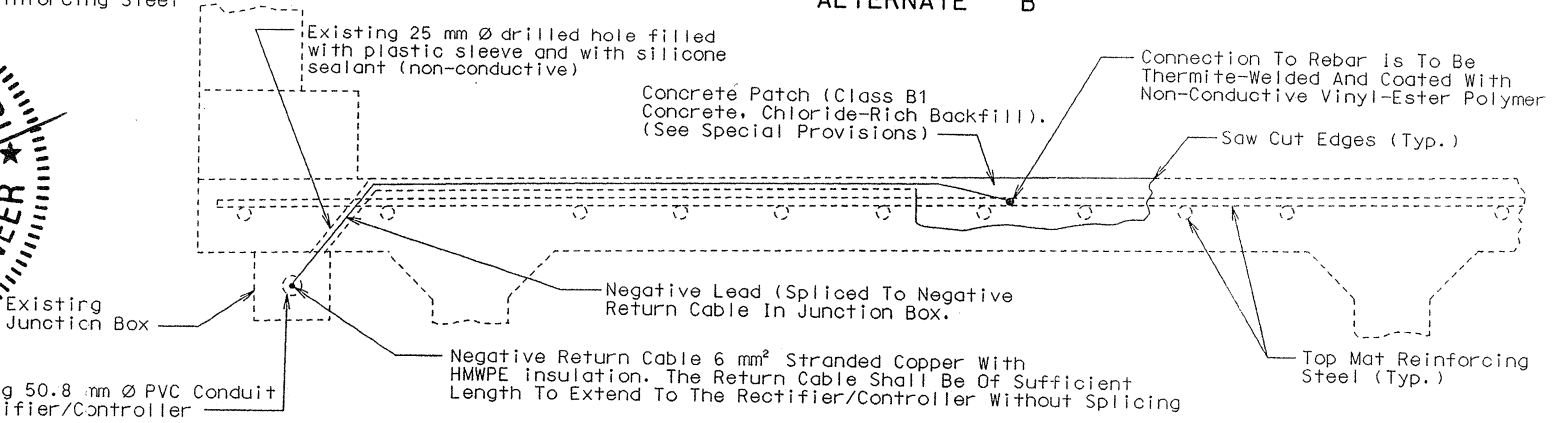
ALTERNATE "A"

Signature: *Randy M. Sommerhaus* Date: 5/25/05

Final Plans
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ALTERNATE "B"



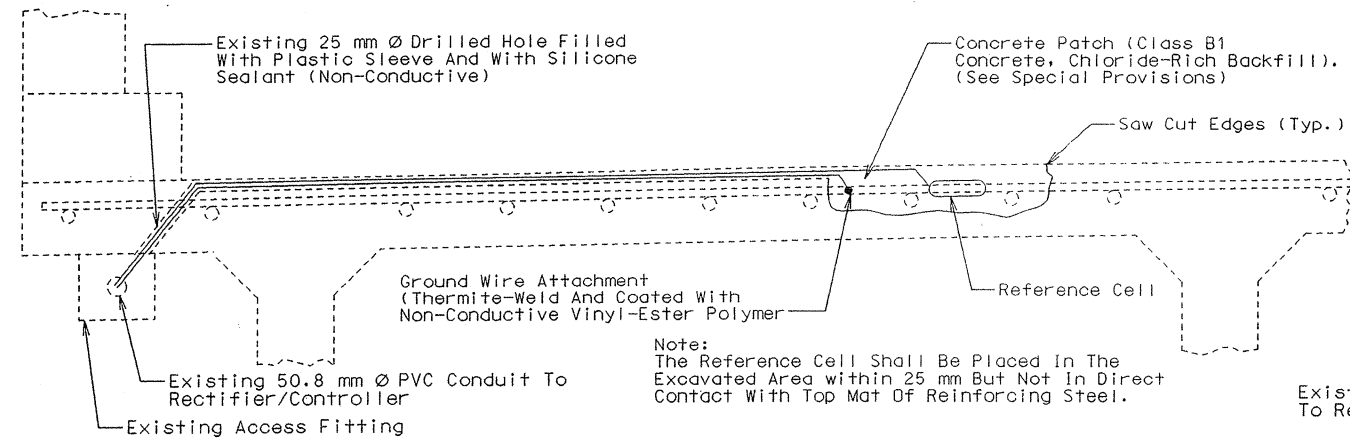
SYSTEM NEGATIVE CONNECTION DETAILS

Notes for New Conduit and Appurtenances (if required):
 Conduit shall be schedule 40 heavy wall PVC (Polyvinyl Chloride Plastic). Each section of conduit shall bear the underwriters laboratories, inc. (UL) label.
 Conduit shall be secured to concrete with clamps (galvanized/AASHTO M111) at abt. 1500 mm cts. Concrete anchors for clamps shall meet federal specification FF-S-325, group II, type 4 class 1 and shall be galvanized in accordance with ASTM A-153, B695-91 class 50 or stainless steel. Minimum embedment in concrete shall be 45 mm. The supplier shall furnish a manufacturers certification that the concrete anchors meet the required material and galvanizing specifications.
 Weepholes shall be provided at appropriate locations to drain any moisture in the conduit lines.
 Expansion couplings shall be installed on conduit lines between all junction boxes and between all access fittings as approved by the engineer.
 The location and direction of conduit may be shifted to meet field conditions as directed by the engineer.
 All junction boxes shall be PVC molded, surface mounted, size 200 mm x 200 mm x 175 mm and equal to Carlon Electrical Construction products or Triangle Conduit and Cable company Inc. The terminations shall be permanent or seperable.
 The terminations and covers shall be of watertight construction.



JOB NO. J41299
 CONTRACT NO. 991022-403
 DIST. 4

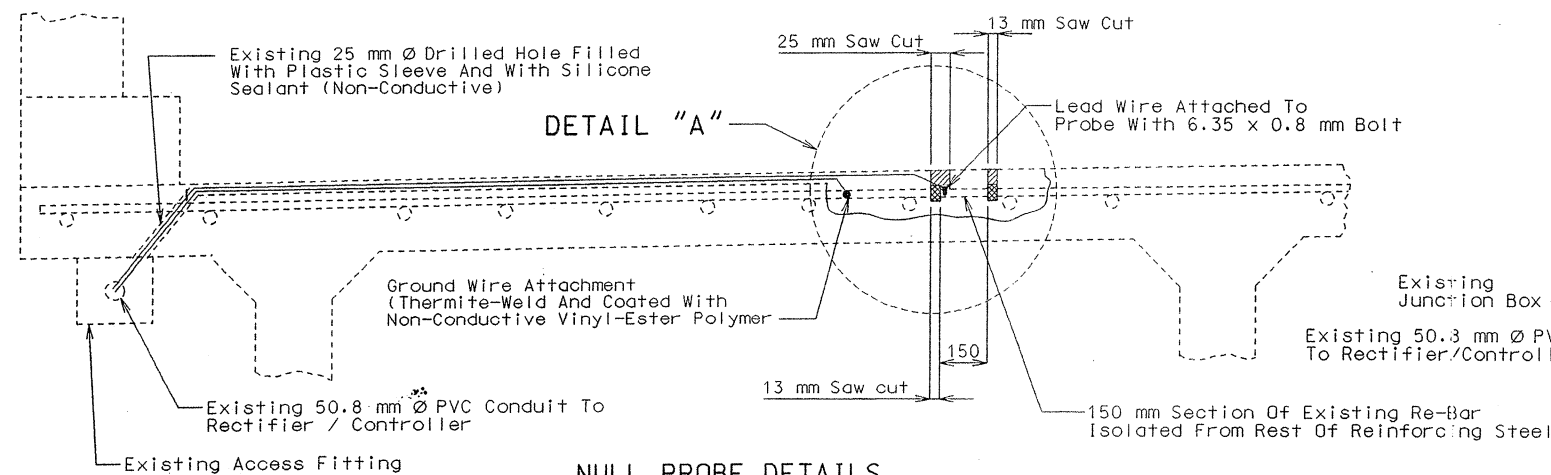
State	Proj. No.	Sheet No.
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REFERENCE CELL DETAILS

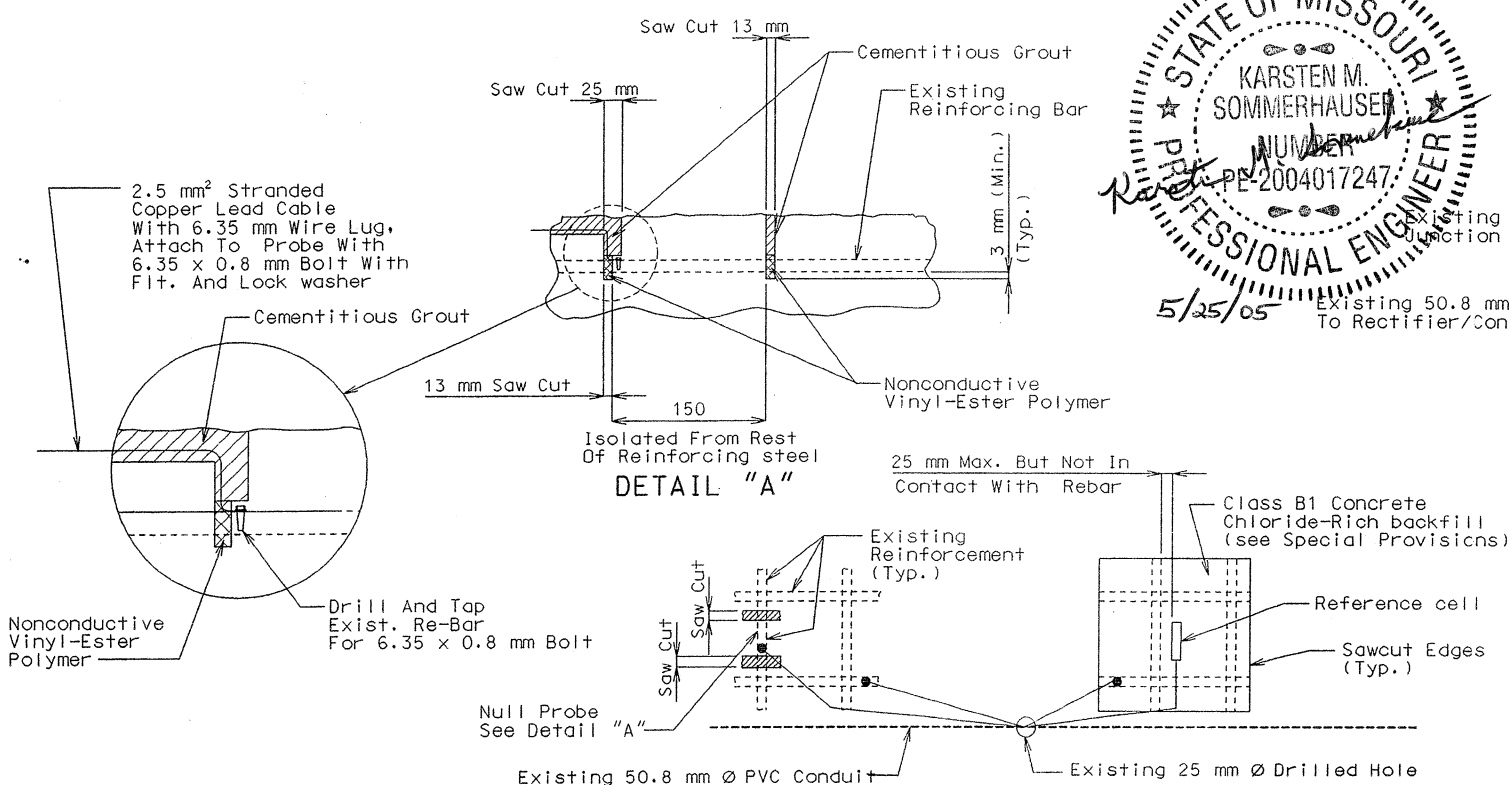
Note:
 The Reference Cell Shall Be Placed In The Excavated Area within 25 mm But Not In Direct Contact With Top Mat Of Reinforcing Steel.

Note:
 All concrete removal shall be initiated by saw cutting the first 13 mm.

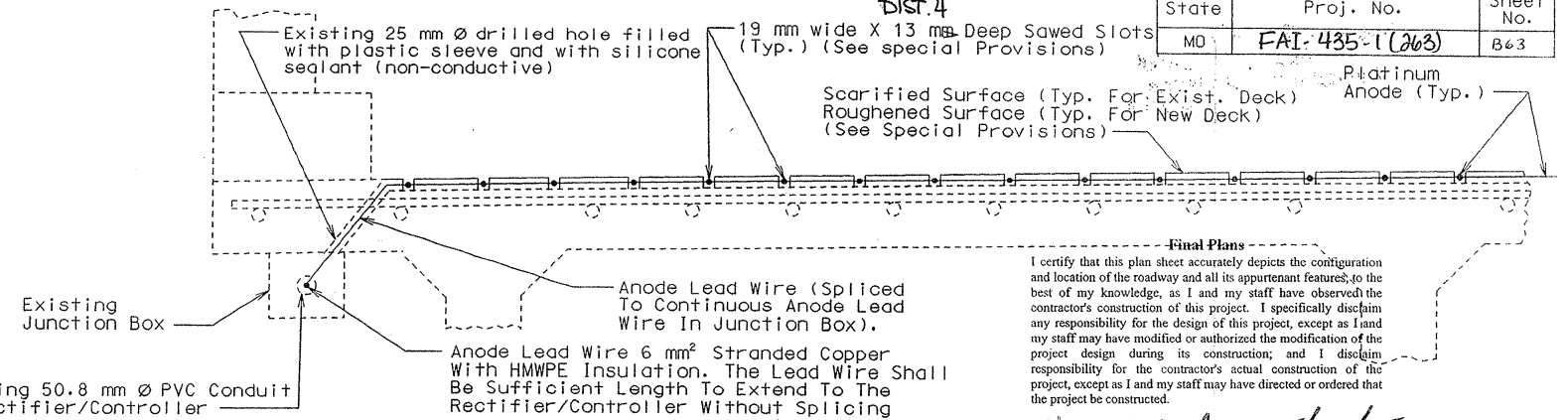


NULL PROBE DETAILS

DETAIL "A"



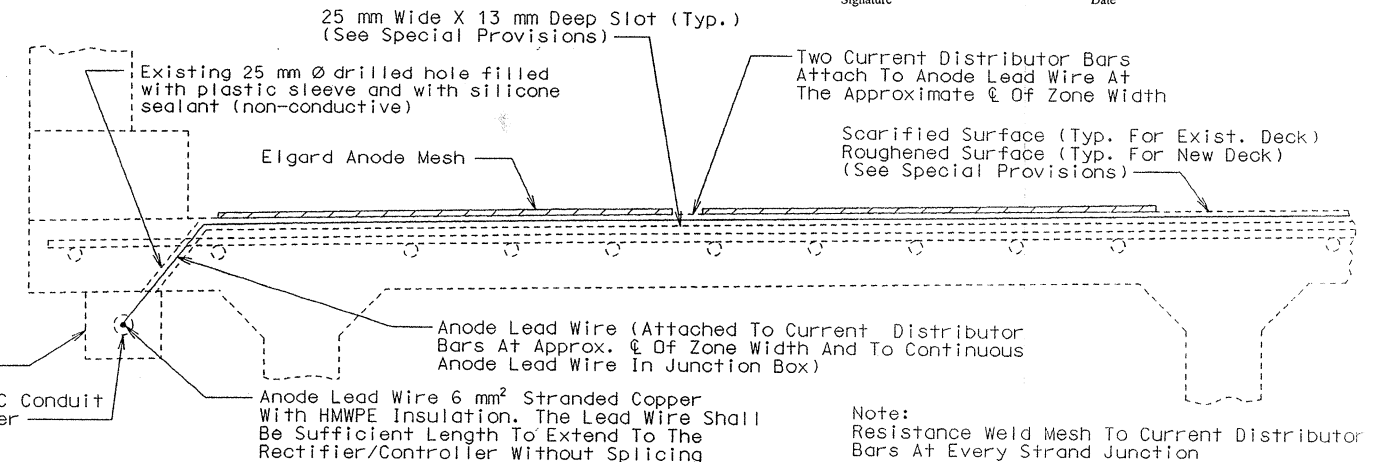
PLAN OF NULL PROBE AND REFERENCE CELL



ALTERNATE "A"

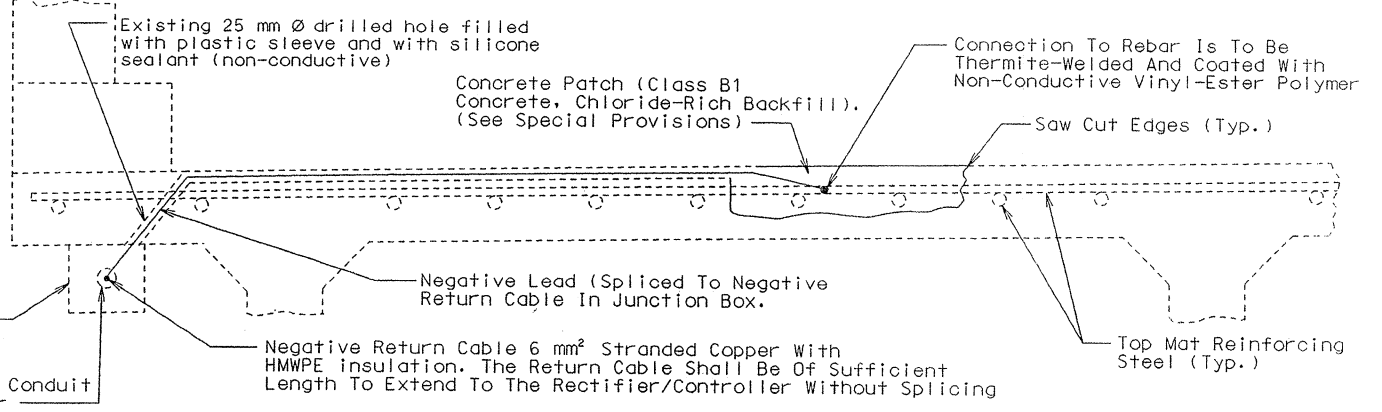
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Signature: *Karsten M. Sommerhaus* Date: 5/25/05



ALTERNATE "B"

Note:
 Resistance Weld Mesh To Current Distributor Bars At Every Strand Junction



SYSTEM NEGATIVE CONNECTION DETAILS

Notes for New Conduit and Appurtenances (if required):
 Conduit shall be schedule 40 heavy wall PVC (Polyvinyl Chloride Plastic). Each section of conduit shall bear the underwriters laboratories, inc. (UL) label.

Conduit shall be secured to concrete with clamps (galvanized/AASHTO M111) at abt. 1500 mm cts. Concrete anchors for clamps shall meet federal specification FF-S-325, group II, type 4, class I and shall be galvanized in accordance with ASTM A-153, B695-91 class 50 or stainless steel. Minimum embedment in concrete shall be 45 mm. The supplier shall furnish a manufacturers certification that the concrete anchors meet the required material and galvanizing specifications.

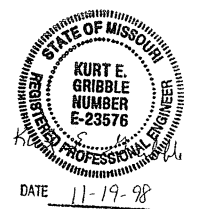
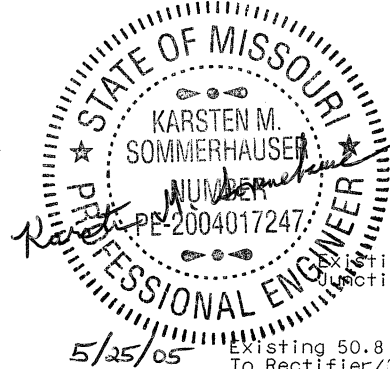
Weepholes shall be provided at appropriate locations to drain any moisture in the conduit lines.

Expansion couplings shall be installed on conduit lines between all junction boxes and between all access fittings as approved by the engineer.

The location and direction of conduit may be shifted to meet field conditions as directed by the engineer.

All junction boxes shall be PVC molded, surface mounted, size 200 mm x 200 mm x 175 mm and equal to Carlon Electrical Construction products or Triangle Conduit and Cable company Inc. The terminations shall be permanent or seperable.

The terminations and covers shall be of watertight construction.



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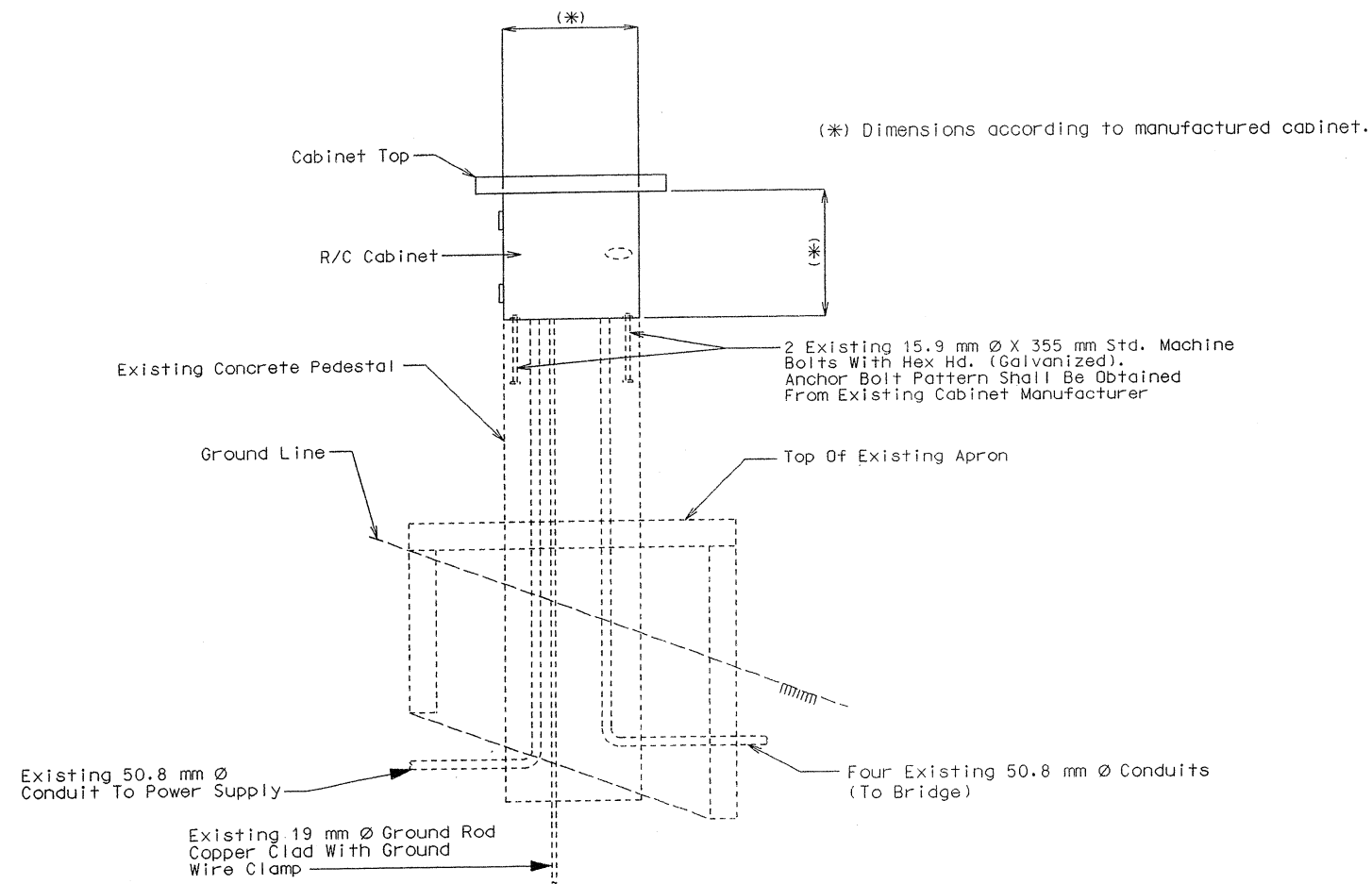
State	Proj. No.	Sheet No.
MO	FAI-435-1(263)	1364

JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

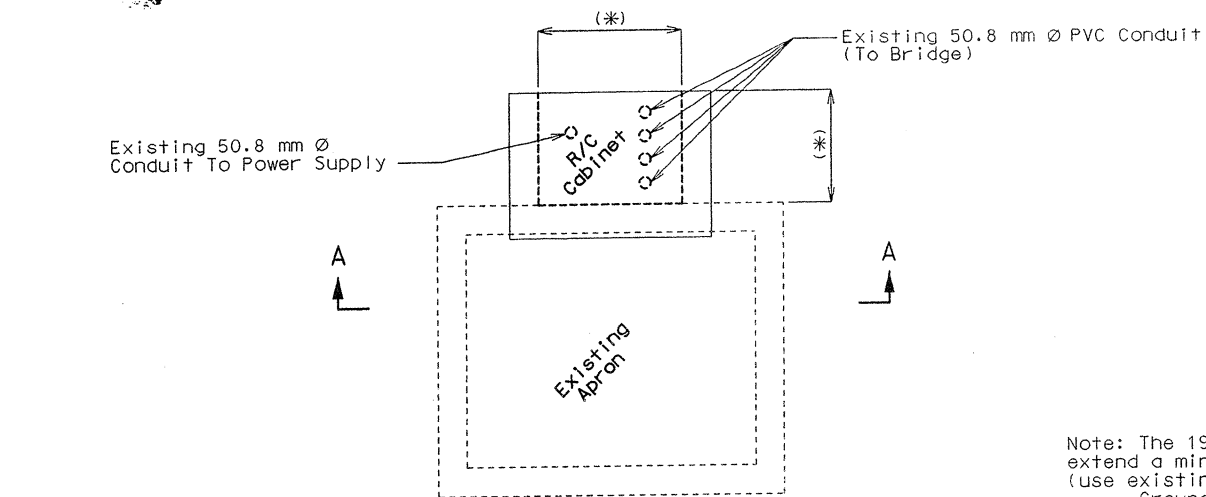
Karsten M. Sommerhauser 5/25/05
 Signature Date



The Telephone Cable Shall Be Routed Into The Rectifier Through One Of The Unused Existing Conduits.

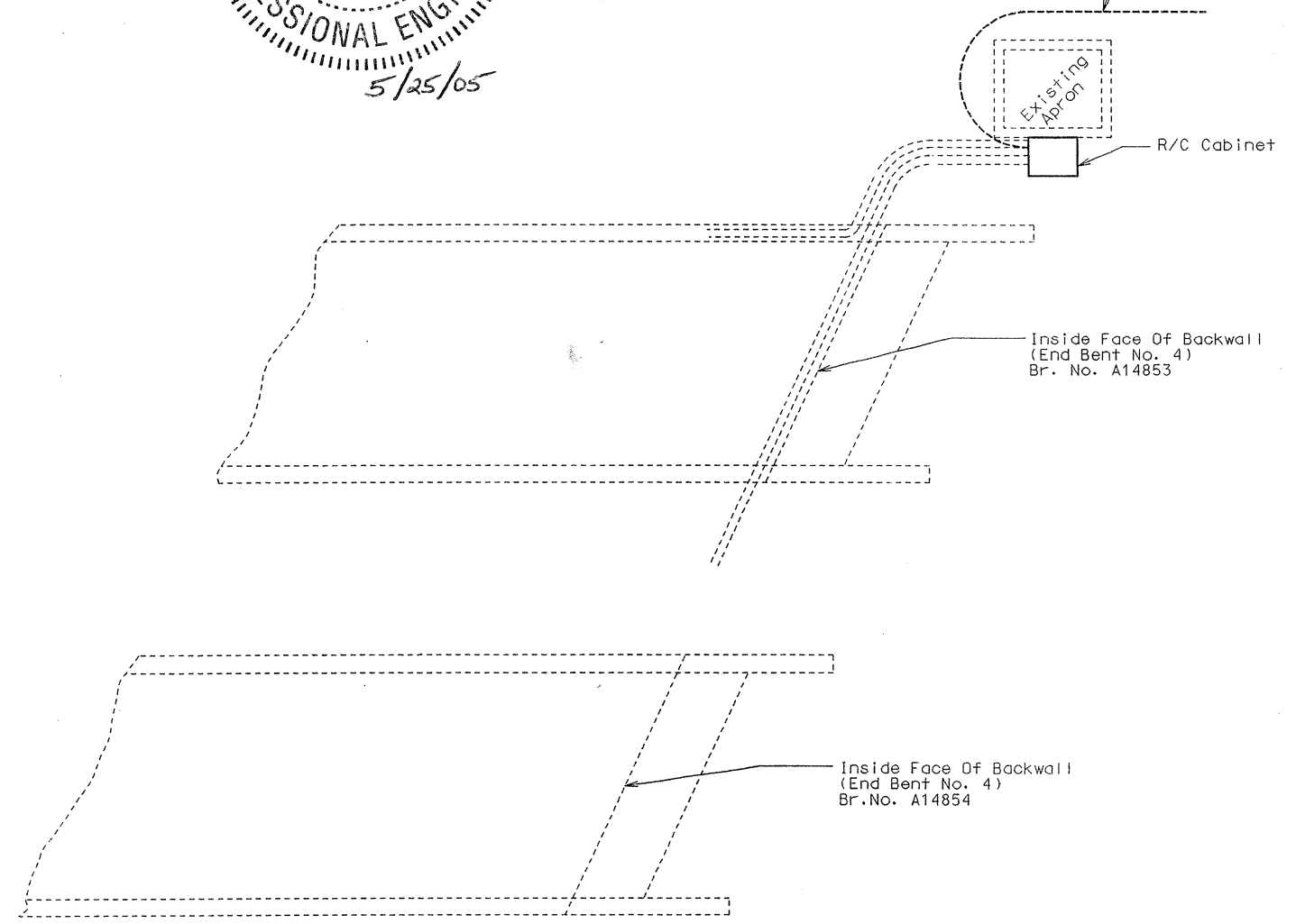


SECTION A-A



PLAN

Note: The 19 mm Ø ground rod shall be of sufficient length to extend a minimum of 3050 mm below bottom of concrete pedestal. (use existing if approved by the engineer).
 Ground wire shall be 16 mm² minimum (Use existing if approved by the engineer).
 Knockouts or drilled holes shall be provided in cabinets for all conduit. Locations of these holes are the responsibility of the contractor and cabinet manufacturer.

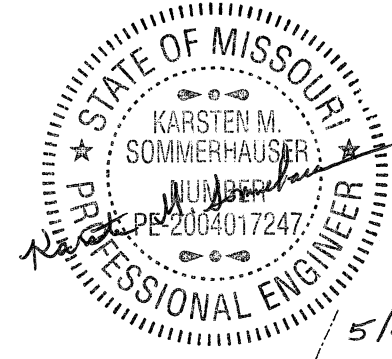


PLAN LOCATION OF RECTIFIER/CONTROLLER



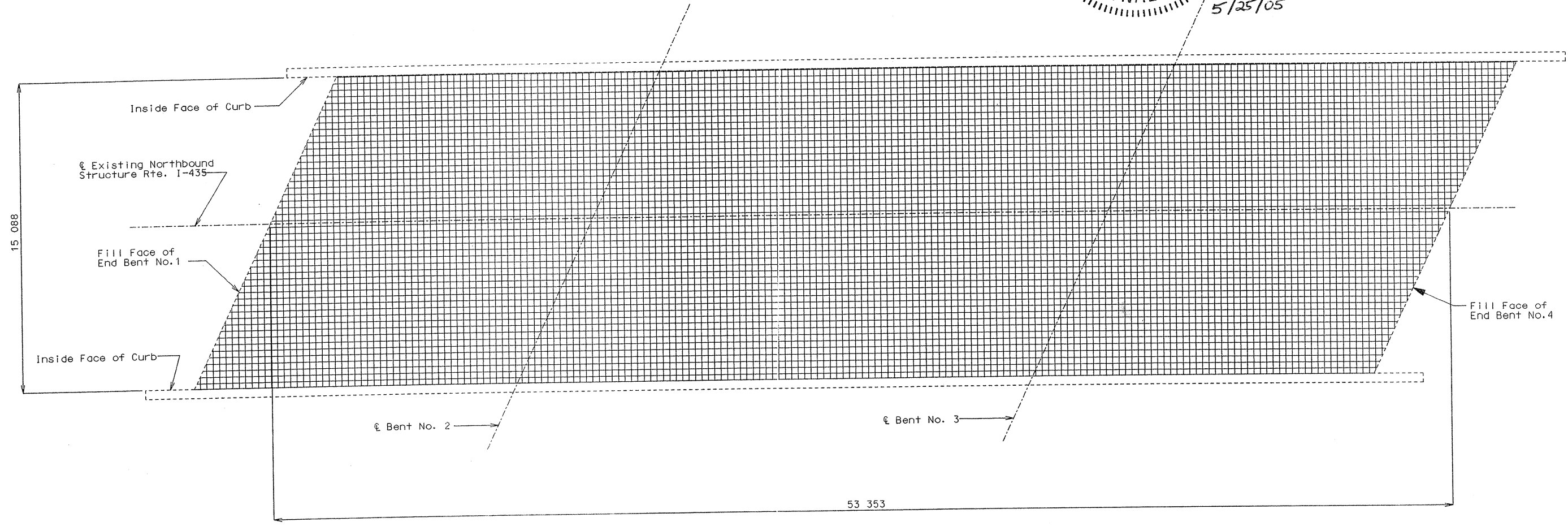
DATE 11-19-98

State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	365



Final Plans
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Karsten M. Sommerhauser 5/25/05
 Signature Date

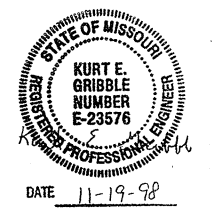


PLAN OF CONCRETE DECK SHOWING GRID

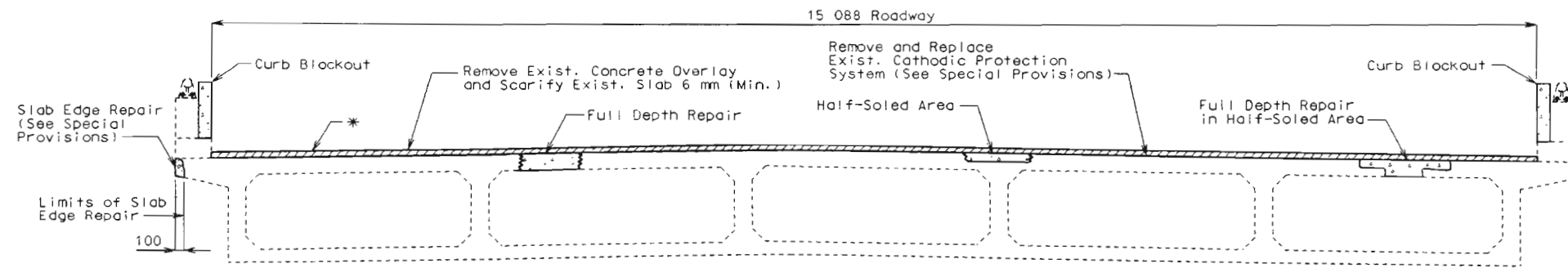
(For location of deck repair, reference cells and null probes)
 Note: This sheet is to be completed by MoDOT construction personnel.

Note: Grid = Approx. 310 mm Squares
 Drawing Scale = 1:100 mm/mm

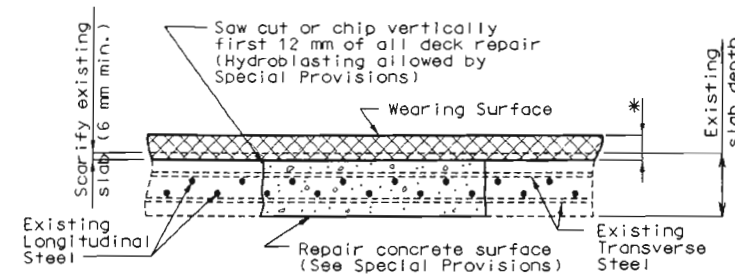
**REPAIRS TO BRIDGE A-1485 (N. B. L.)
 OVER GREGORY BLVD**



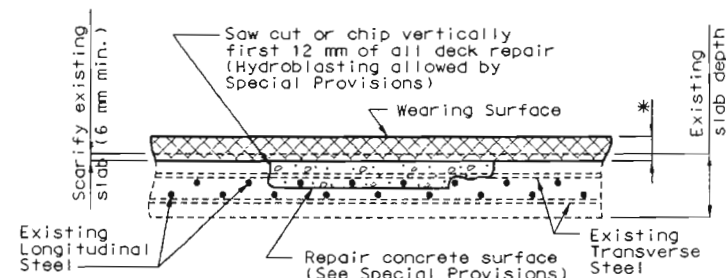
State	Proj. No.	Sheet No.
MO		1326
Sec./Sur. 12	Twp. 48N Rge. 33W	



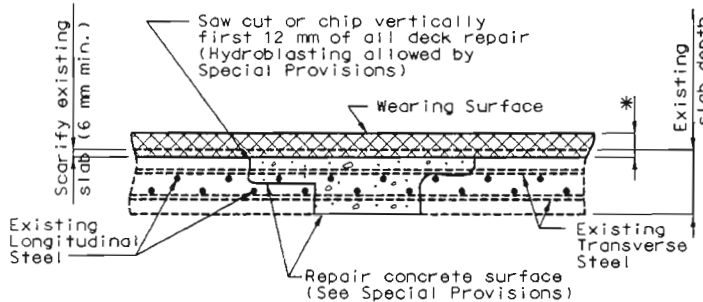
SECTION THRU SLAB



FULL DEPTH REPAIR



HALF-SOLED AREA



FULL DEPTH REPAIR IN HALF-SOLED AREA

* 63 mm (Min.) Low Slump Concrete Wearing Surface

NOTE:

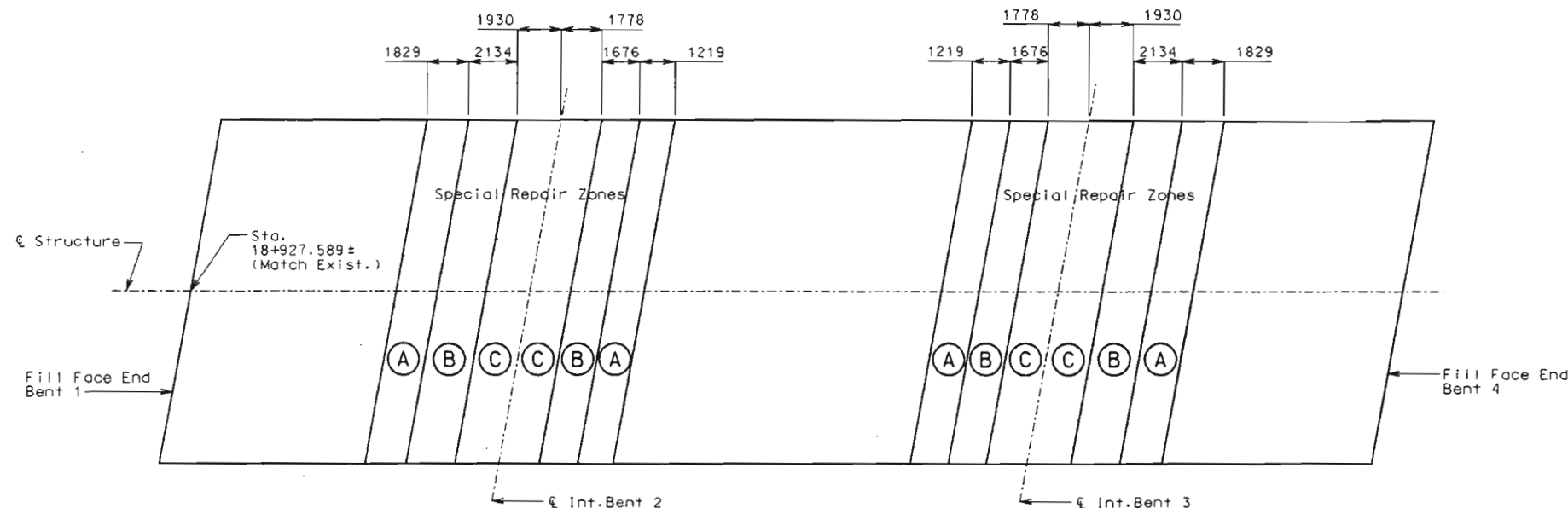
Zone A is to be completed before Zone B and Zone B is to be completed before Zone C.
Any repair in the remainder of the bridge that is within 600 mm of Zone A shall be completed before removing old concrete in Zone A.
Zones with the same letter designation may be repaired at the same time.

General Notes:

- Design Specifications: AASHTO 1996 and Interim 1997.
- Design Unit Stresses: Class B1 Concrete (Curb Blockout) $f'c = 28$ MPa. Reinforcing Steel (Grade 420) $f_y = 420$ MPa.
- Joint Filler: All joint filler shall meet the requirements of Section 1057.2.4 of the Missouri Standard Specifications (Metric), except as noted.
- Reinforcing Steel: Minimum clearance to reinforcing steel shall be 40 mm, unless otherwise shown.
- Dimensions: All dimensions are shown in millimeters (mm) unless otherwise specified. Drawings are not to scale. Follow dimensions.
- Miscellaneous: Traffic over structure to be maintained during construction. See sheet No. 2 for details of stage construction. (See roadway plans for traffic control). Outline of old work is indicated by dashed lines. Heavy lines indicate new work. Contractor shall verify all dimensions in field before ordering new steel. Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted. In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay. Roadway surfacing adjacent to bridge ends to match bridge overlay (Roadway Item).

ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
Curb Removal (Bridges) - Metric	meter	7.0
Removal of Low Slump Concrete Wearing Surface - Metric	sq. meter	805.0
Partial Removal of Cathodic Protection System	lump sum	1
Substructure Repair (Unformed) - Metric	sq. meter	2.0
Curb Blockout - Metric	meter	117.5
Repairing Concrete Deck (Half-Soling) - Metric	sq. meter	35
Full Depth Repair - Metric	sq. meter	5
Slab Edge Repair (Bridges) - Metric	meter	1.0
Low Slump Concrete Wearing Surface - Metric	sq. meter	805
Cathodic Protection System	lump sum	1



PLAN OF SLAB (SOUTH BOUND LANE) SHOWING SPECIAL REPAIR ZONES

Designed Oct. 1998
Detailed Oct. 1998
Checked Oct. 1998

Sheet No. 1 of 12



REPAIRS TO BRIDGE OVER GREGORY BLVD.

STATE ROAD FROM GREGORY BLVD. TO BANNISTER RD.
AT GREGORY BLVD.

PROJECT NO. J411299
JOB. NO. J411299

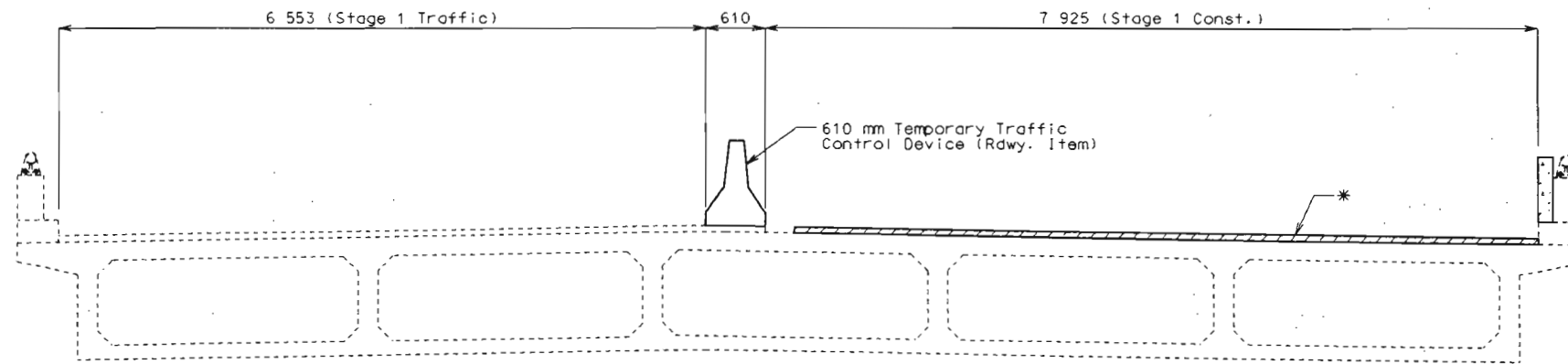
STA. 18+927.589± (Match Exist.)
RTE. I-435 (S.B.L.)

JACKSON COUNTY

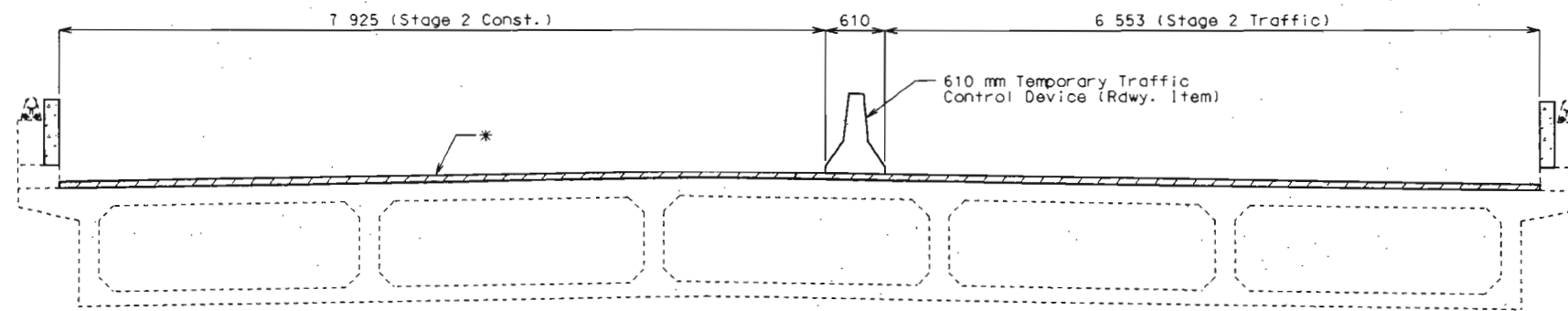
Date: 11/19/98

STD.
STD.
STD.
STD. M706.35
A14854

State	Proj. No.	Sheet No.
MO		B27



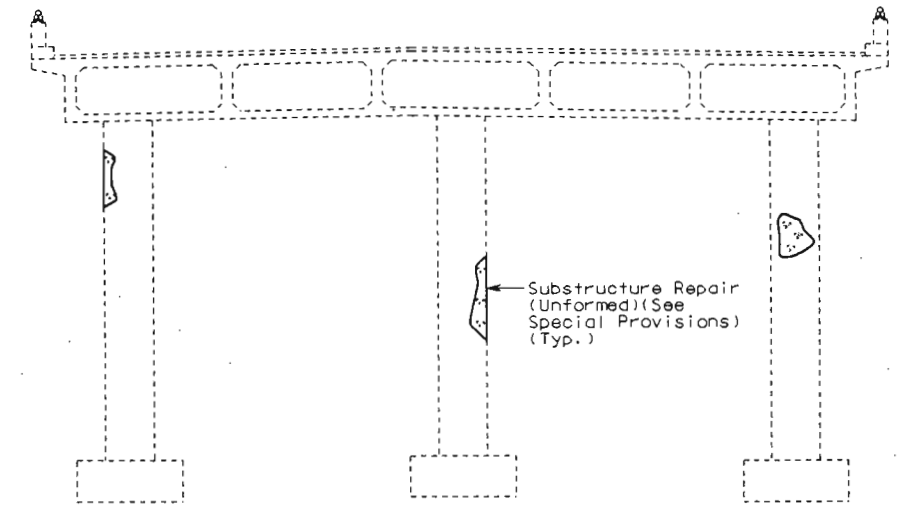
STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

DETAILS OF STAGE CONSTRUCTION

* Remove existing Concrete overlay and Cathodic Protection System. Scarify concrete deck 6 mm and install a new Cathodic Protection System covered with a 63 mm (Min.) Low Slump Concrete wearing surface.



TYPICAL DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS

Detailed Oct. 1998
Checked Oct. 1998

Sheet No. 2 of 12

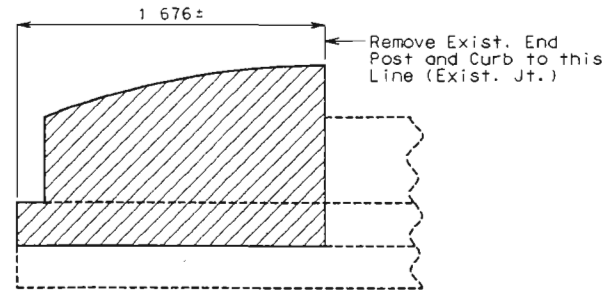
JACKSON COUNTY

A14854

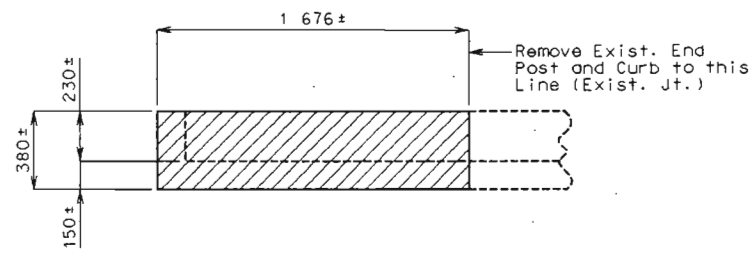


DATE 11-19-98

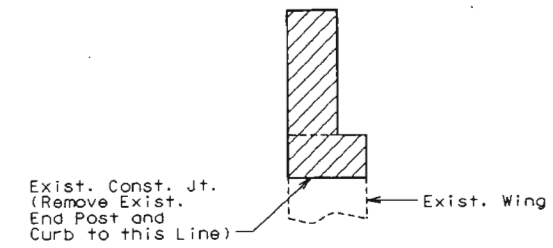
State	Proj. No.	Sheet No.
MO		029



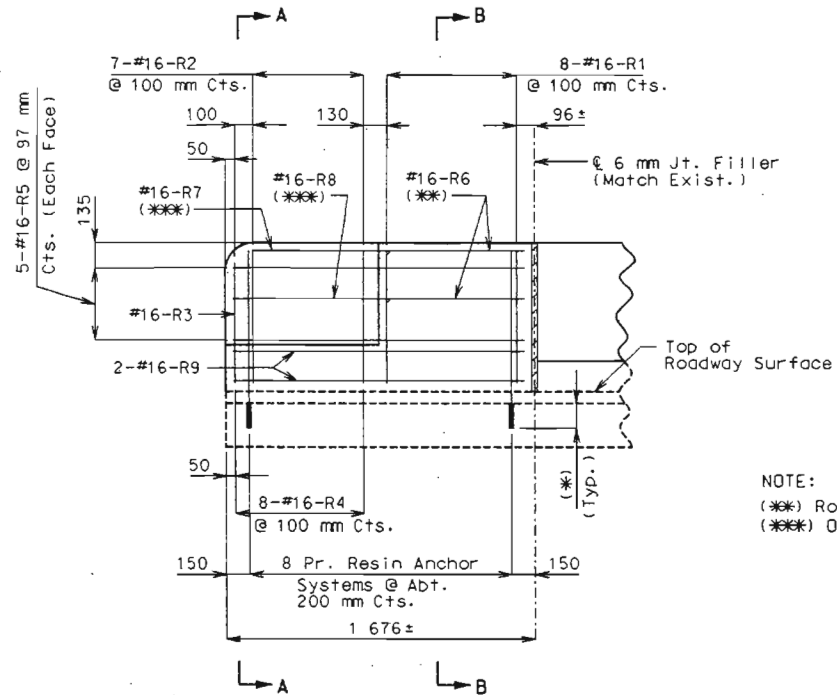
ELEVATION SHOWING END POST REMOVAL



PLAN SHOWING END POST REMOVAL

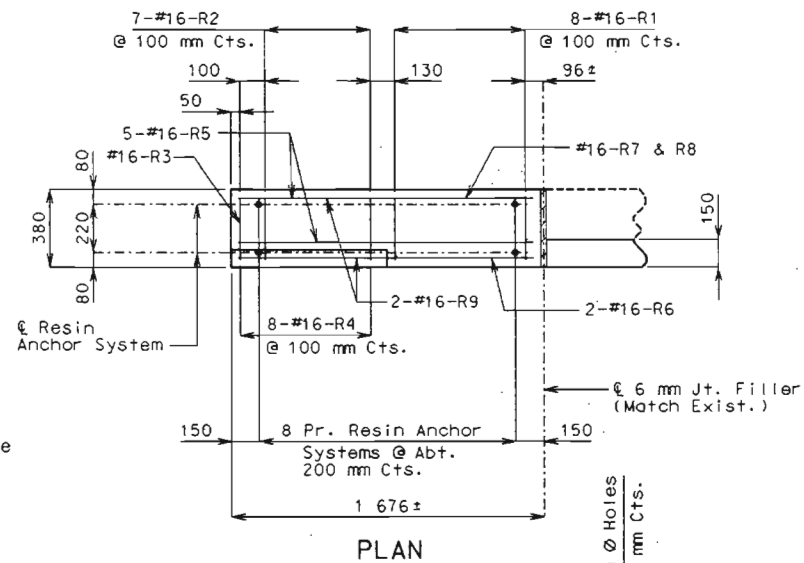


SECTION SHOWING END POST REMOVAL



ELEVATION

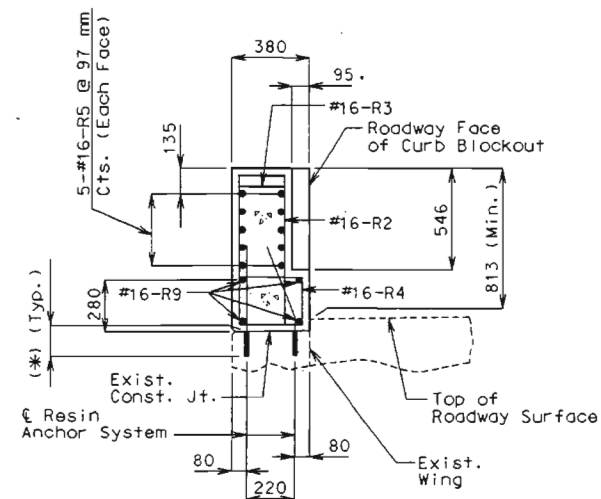
NOTE:
 (***) Roadway Face
 (****) Outside Face



PLAN

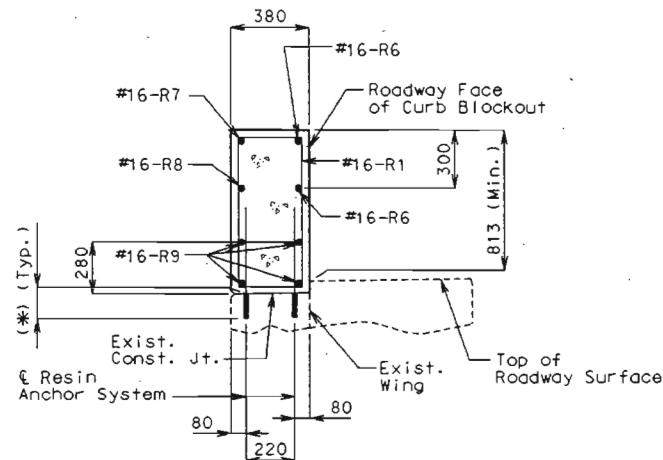
NOTE:

For notes on Curb Blockout and Resin Anchor Systems, see sheet No. 3.
 (*) Manufacturer's embedment length.
 Payment for removal of existing end post and curb concrete is included in the contract unit price for "Curb Removal (Bridges) - Metric" per meter.



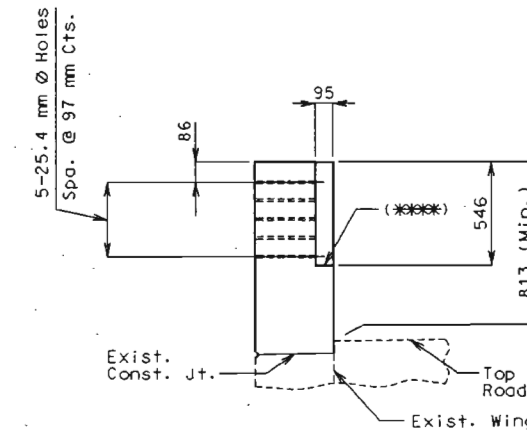
SECTION A-A

NOTE: #16-R6, R7 & R8 Bars not shown for clarity.



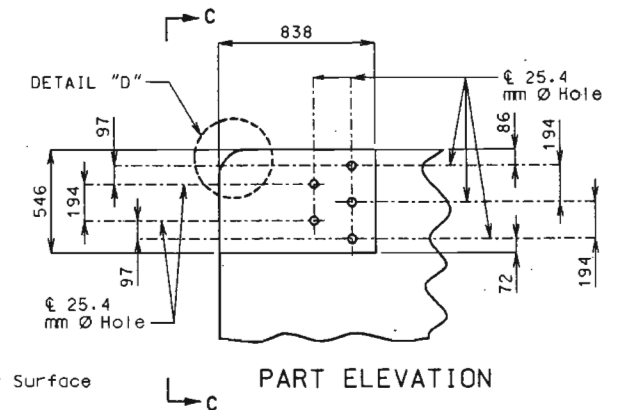
SECTION B-B

NOTE: #16-R5 Bars not shown for clarity.

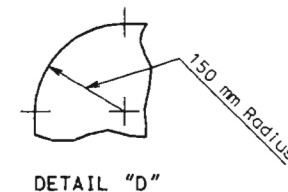


PART ELEVATION C-C

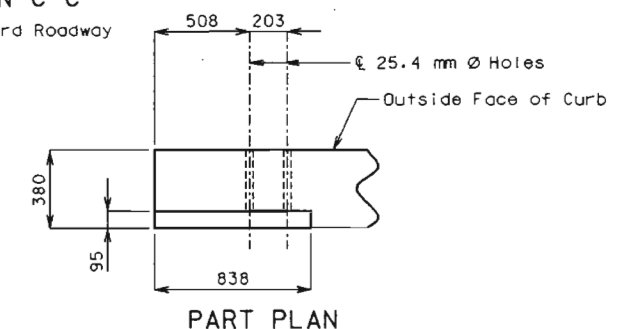
(****) Slope 6 mm toward Roadway



PART ELEVATION



DETAIL "D"



PART PLAN

DETAILS OF GUARD RAIL ATTACHMENT

TYPICAL DETAILS OF CURB BLOCKOUT AT END POST

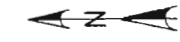


DATE 11-19-98

State	Proj. No.	Sheet No.
MO		330

DENOTATIONS

- A.L.W. (ANODE LEAD WIRE)
- HEADER
- PLATINUM ANODE
- SYSTEM NEGATIVE CONNECTION
- ▲----- REFERENCE CELL
- GROUNDS
- NULL PROBE (CORROSIOMETER)
- EXISTING CONDUIT



NOTE:

The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

Reference cells are to be placed between anodes.

U.I.P. existing conduit, access fittings and junction boxes.

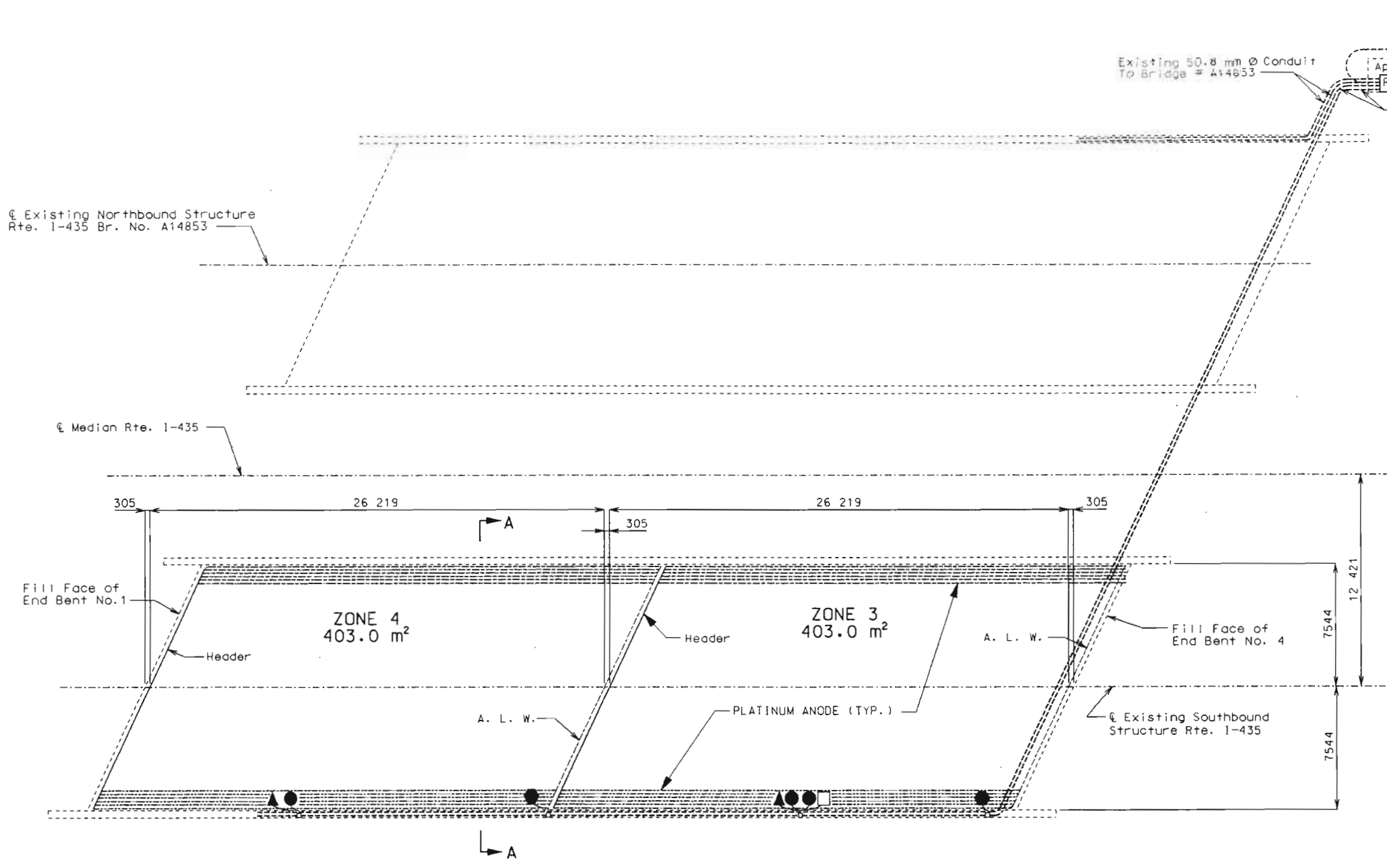
The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

ESTIMATED QUANTITIES		For information only	
ITEM	UNIT	QUANTITY	
Anode Lead Wire & Header	Meter	86	
Platinum Anodes	Meter	3933	
Reference Cells	Each	2	
Null Probes	Each	1	
Thermite Welds	Each	5	

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor. No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.



PART PLAN OF SLAB SHOWING PLATINUM CATHODIC PROTECTION SYSTEM (ALTERNATE "A")

Note:

For Section A-A, typical zone layout and partial electrical schematic, see sheet no. 7.

Dimensions are along \bar{c} of structure (end of slab to end of slab).

The anode lead wire and header shall be 6.0 mm² stranded copper wire with HMWPE insulation.

Factory supplied field splices will be permitted between stages on the anode lead wire (A.L.W.) and header as directed by the engineer.

Existing overlay and cathodic protection system shall be removed and the deck scarified prior to sawing slots. (see special provisions)









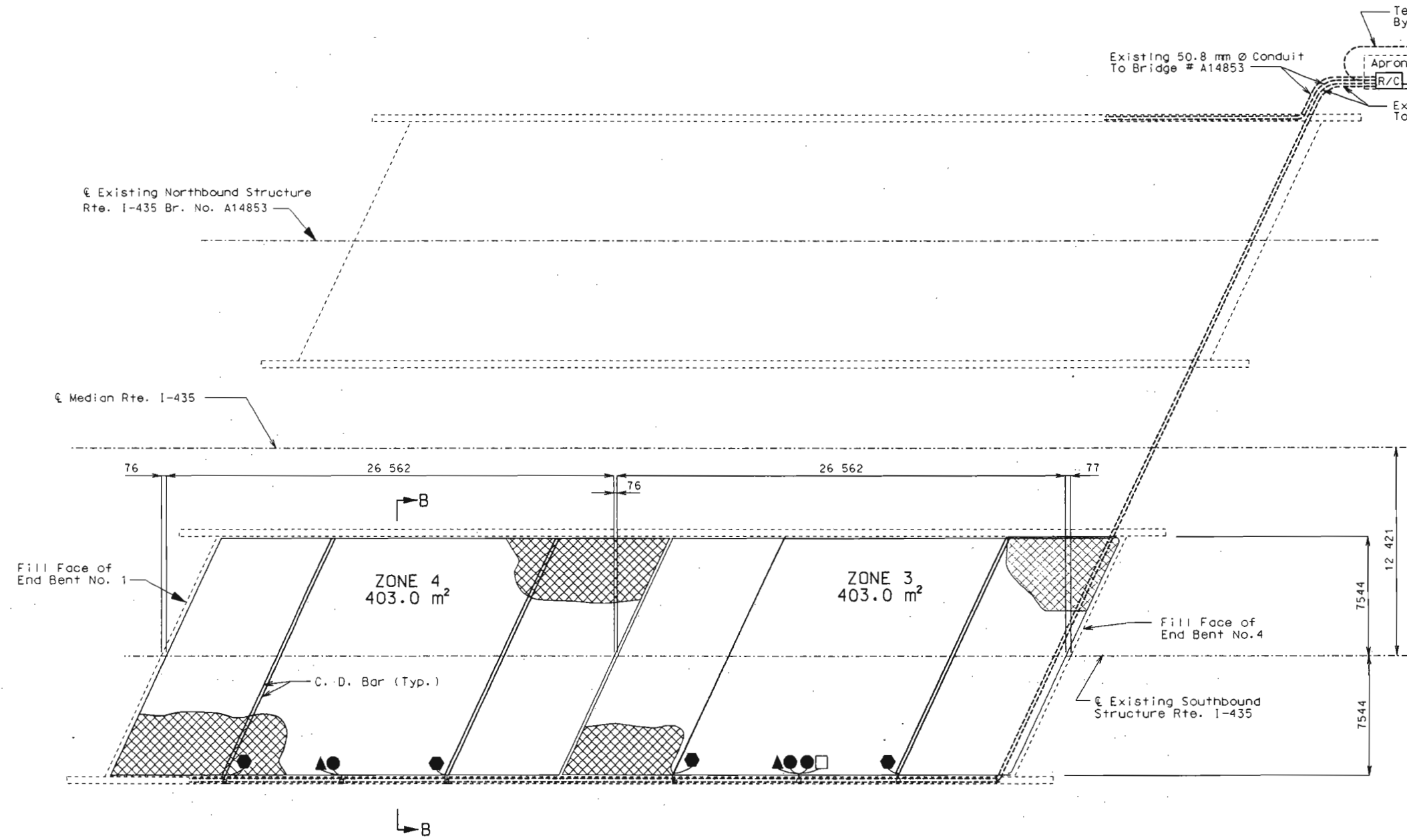
DATE 11-19-98

Detailed Oct. 1998
Checked Oct. 1998

State	Proj. No.	Sheet No.
MO		B31

DENOTATIONS

-  ELGARD ANODE MESH
-  SYSTEM NEGATIVE CONNECTION
-  REFERENCE CELL
-  GROUNDS
-  NULL PROBE (CORROSIOMETER)
-  EXISTING CONDUIT



NOTE:

The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

Reference cells are to be placed between anodes.

U.I.P. existing conduit, access fittings and junction boxes.

The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

ESTIMATED QUANTITIES		For information only.	
ITEM	UNIT	QUANTITY	
Elgard Anode Mesh (210)	Sq. Meters	802	
Reference Cells	Each	2	
Null Probes	Each	1	
Thermite Welds	Each	7	

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor. No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.

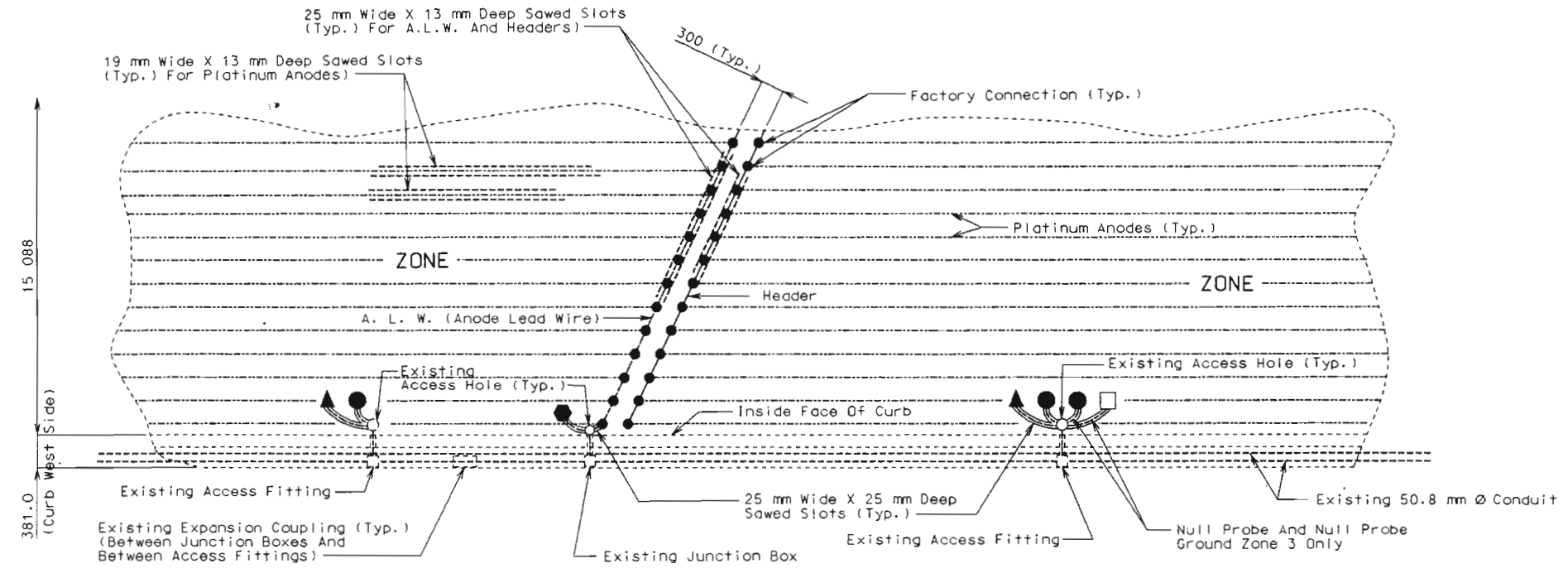
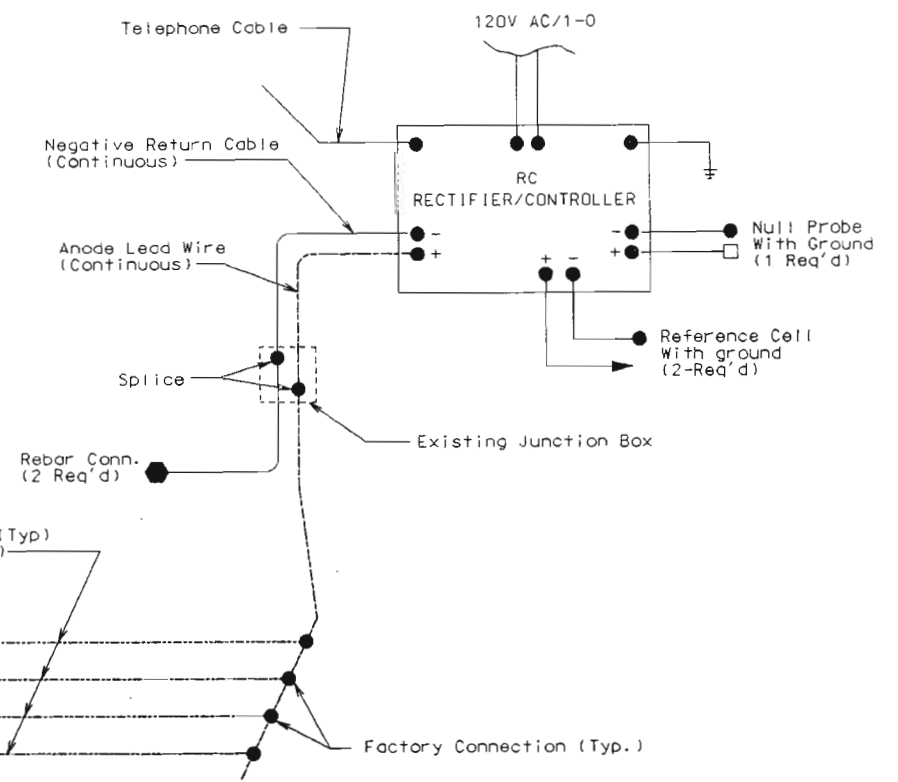
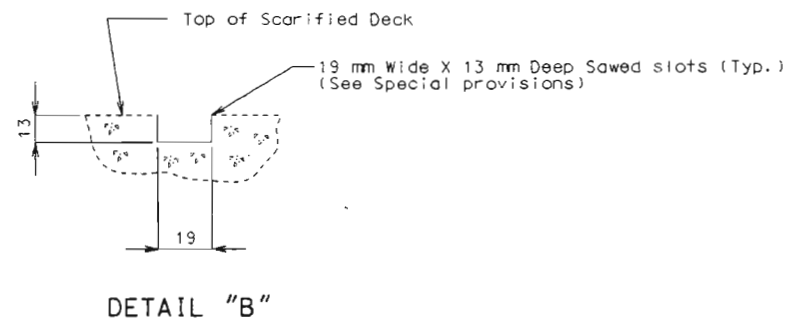
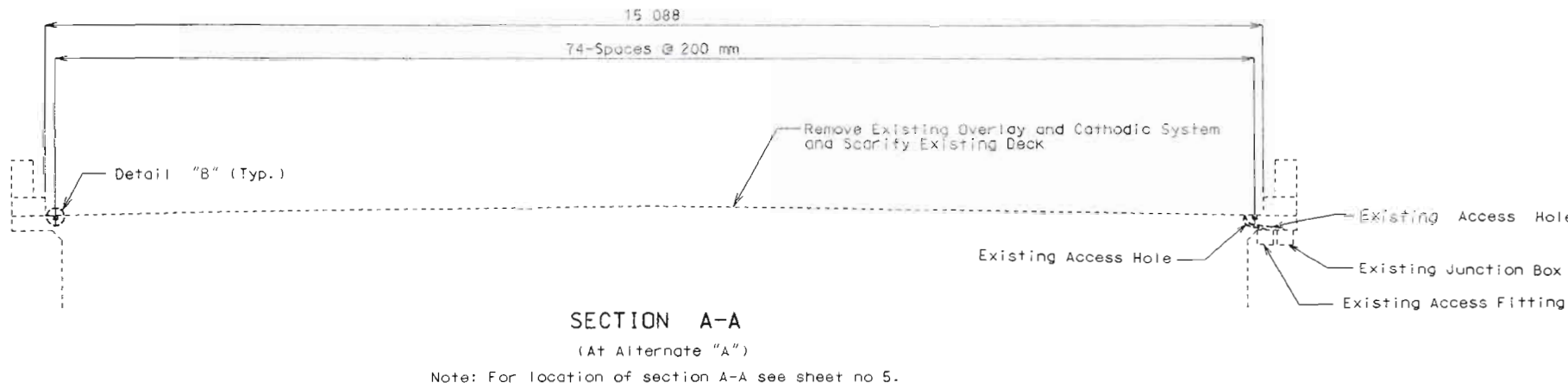
PART PLAN OF SLAB SHOWING ELGARD MESH CATHODIC PROTECTION SYSTEM (ALTERNATE "B")

Note:
 For Section B-B, typical zone layout and partial electrical schematic, see sheet no. 8.
 Dimensions are along ℓ of structure (end of slab to end of slab).
 Existing overlay and cathodic system shall be removed and the deck scarified prior to sawing slots. (see special provisions)



Detailed Sept. 1998
 Checked Oct. 1998

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MO		B 32



TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "A") SYSTEM

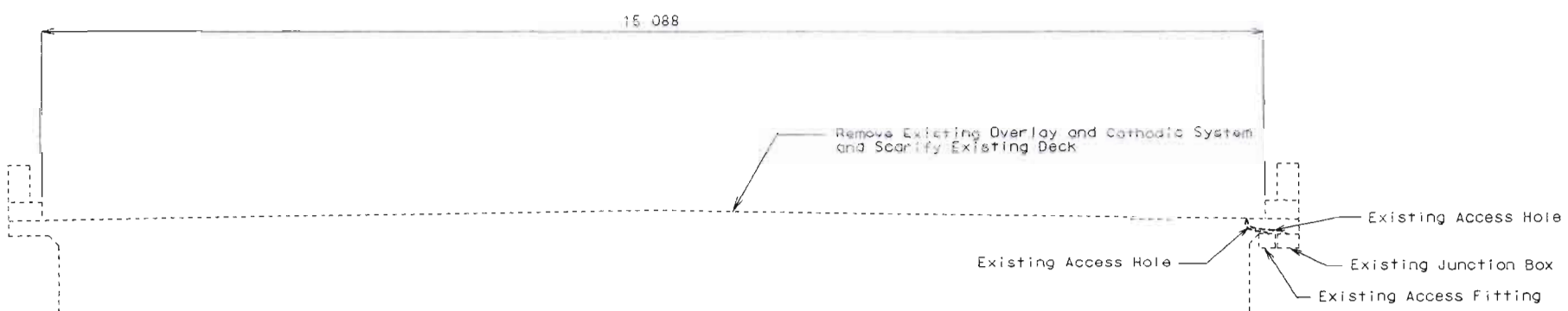
Note: Anodes shall be placed as shown with a minimum tolerance of plus or minus 75 mm. Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.



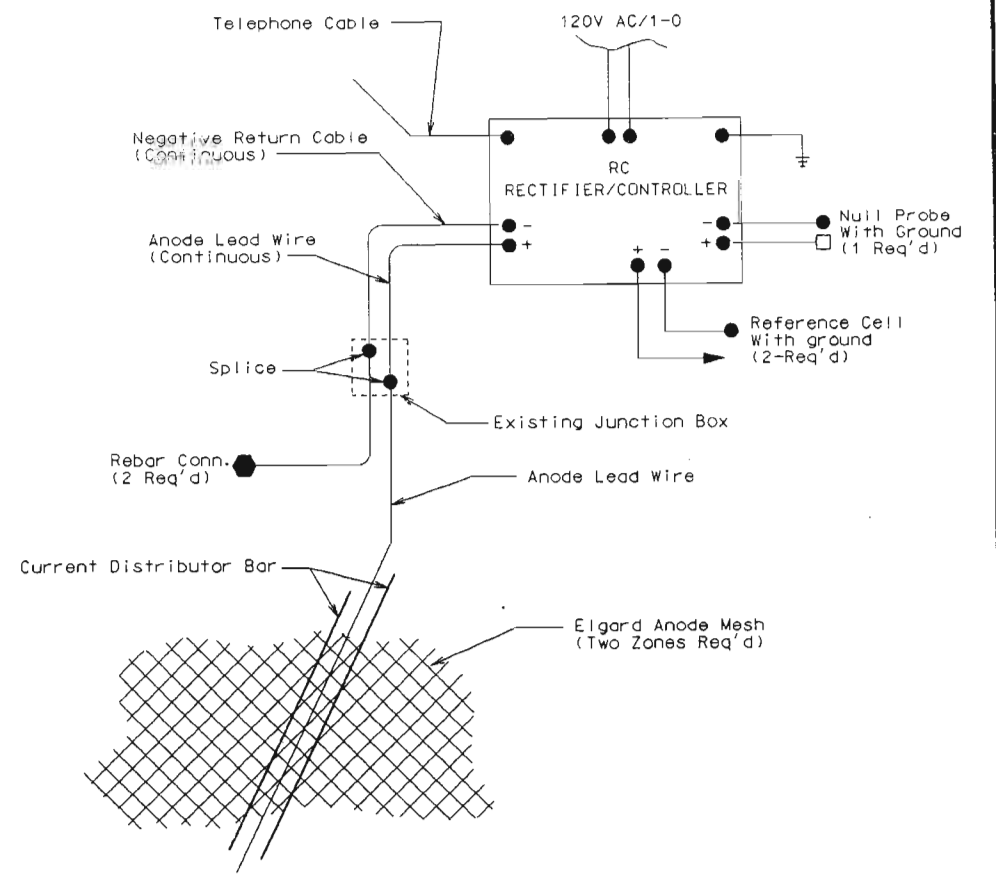
DATE 11-19-98

Detailed Oct. 1998
Checked Oct. 1998

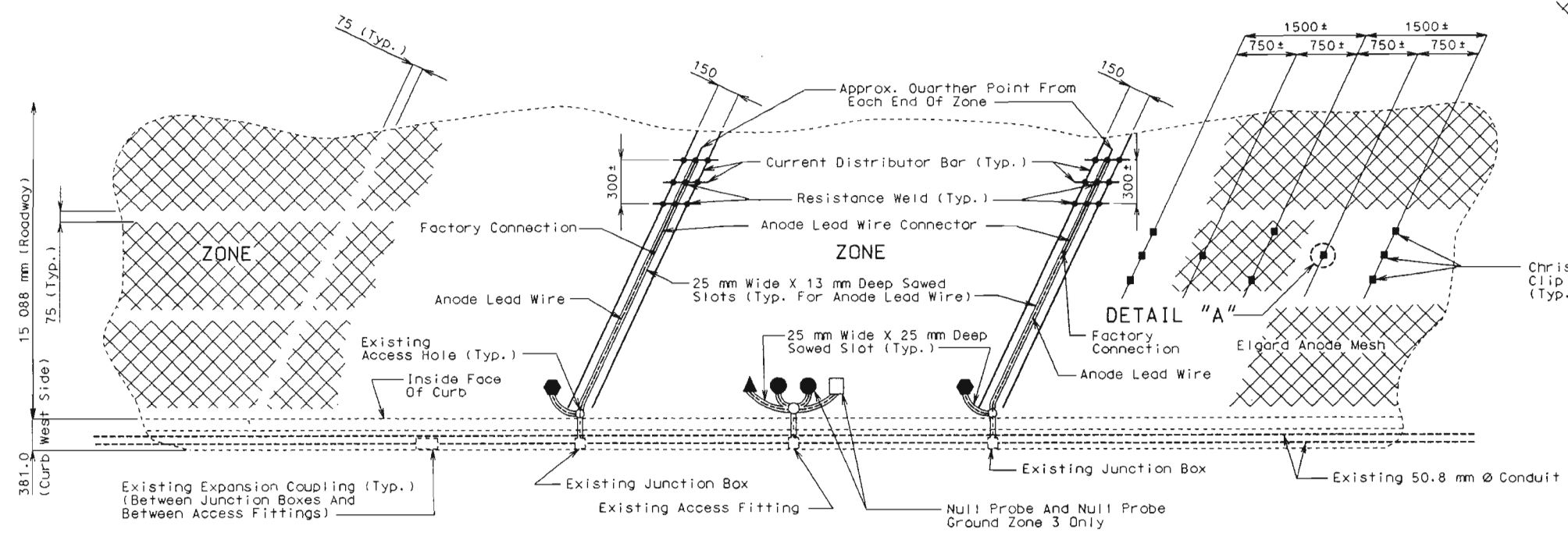
State	Proj. No.	Sheet No.
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SECTION B-B
(At Alternate "B")
Note: For location of section B-B see sheet no. 6.

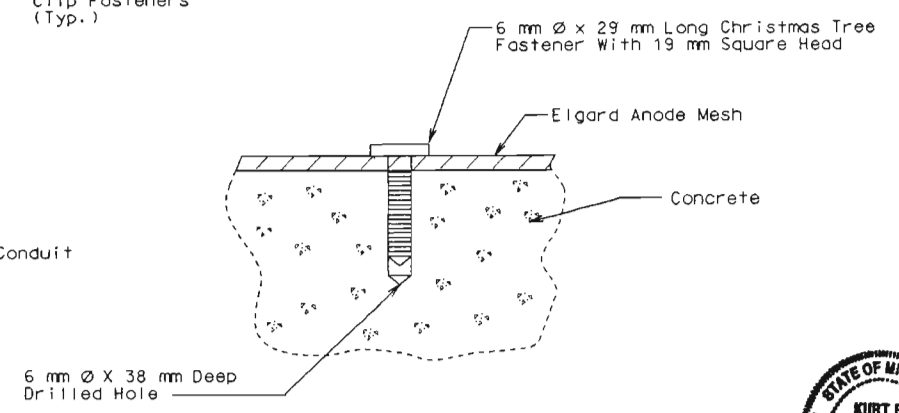


PARTIAL SCHEMATIC
(ALTERNATE "B")



TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "B") SYSTEM

Note: Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.

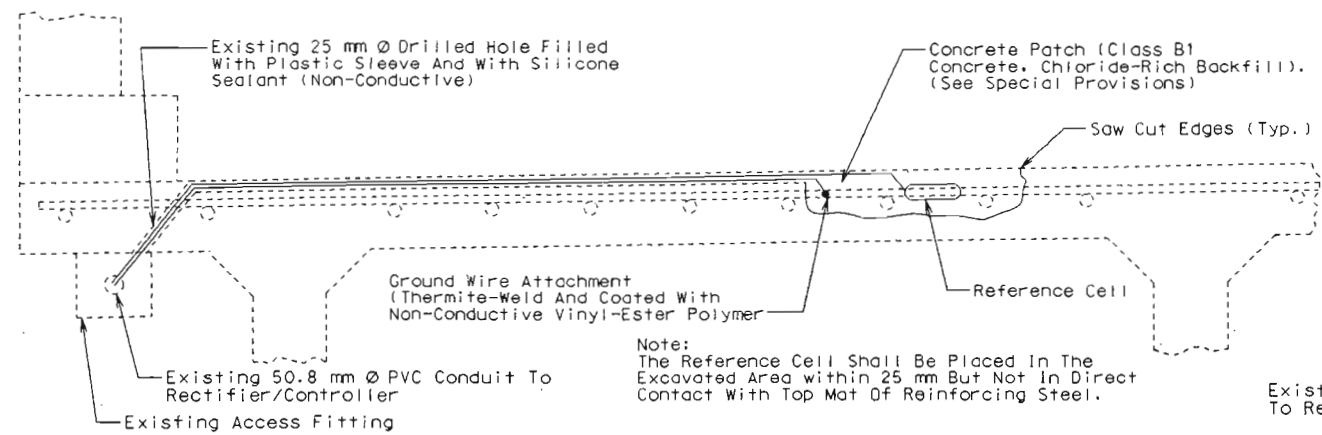


DETAIL "A"
(Christmas Tree Clip)



DATE 11-19-88

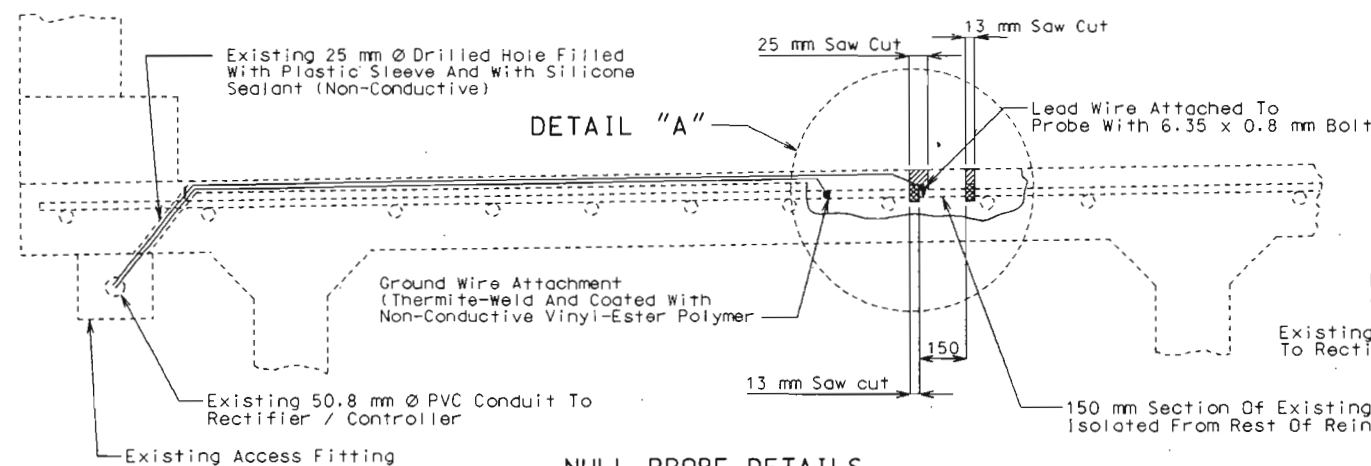
State	Proj. No.	Sheet No.
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REFERENCE CELL DETAILS

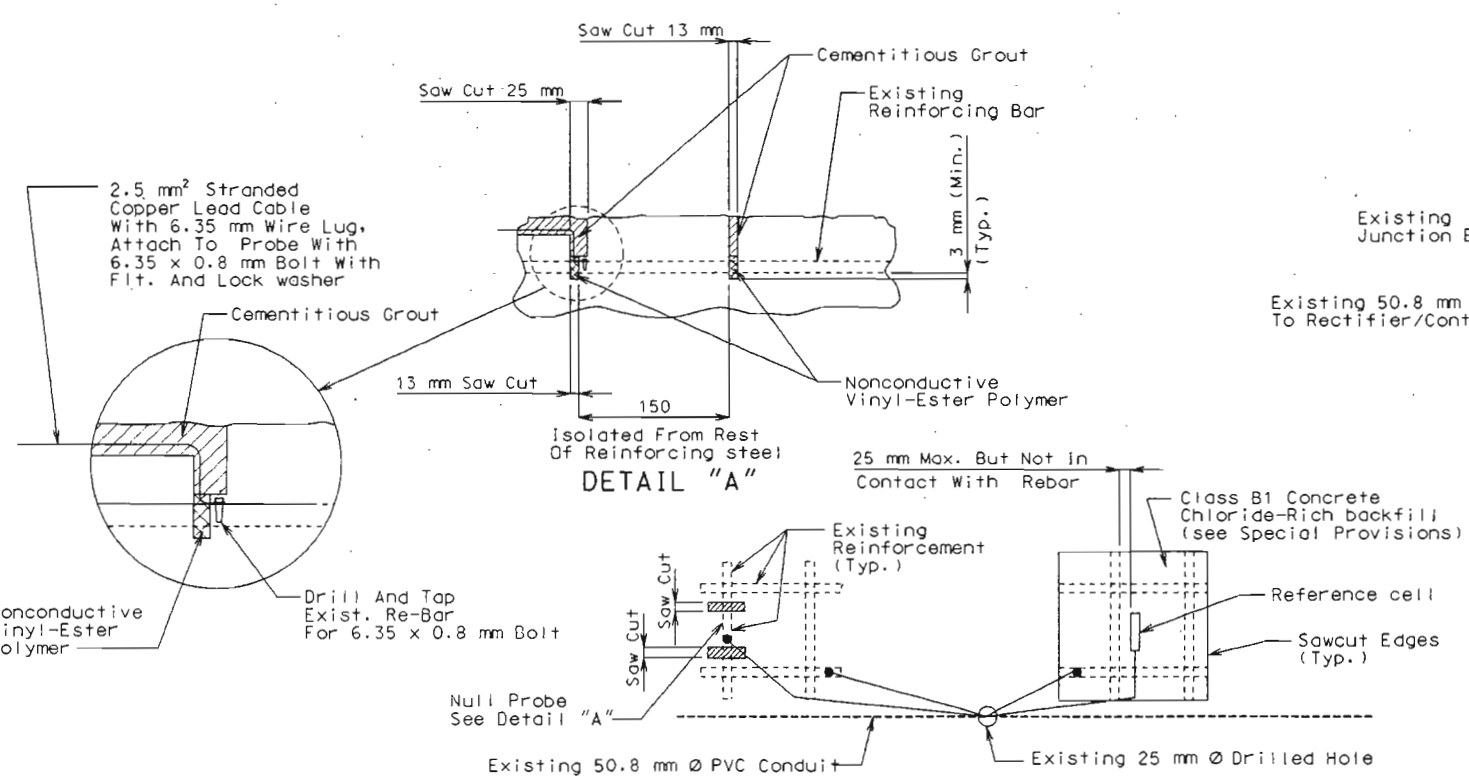
Note:
The Reference Cell Shall Be Placed In The Excavated Area within 25 mm But Not In Direct Contact With Top Mat Of Reinforcing Steel.

Note:
All concrete removal shall be initiated by saw cutting the first 13 mm.

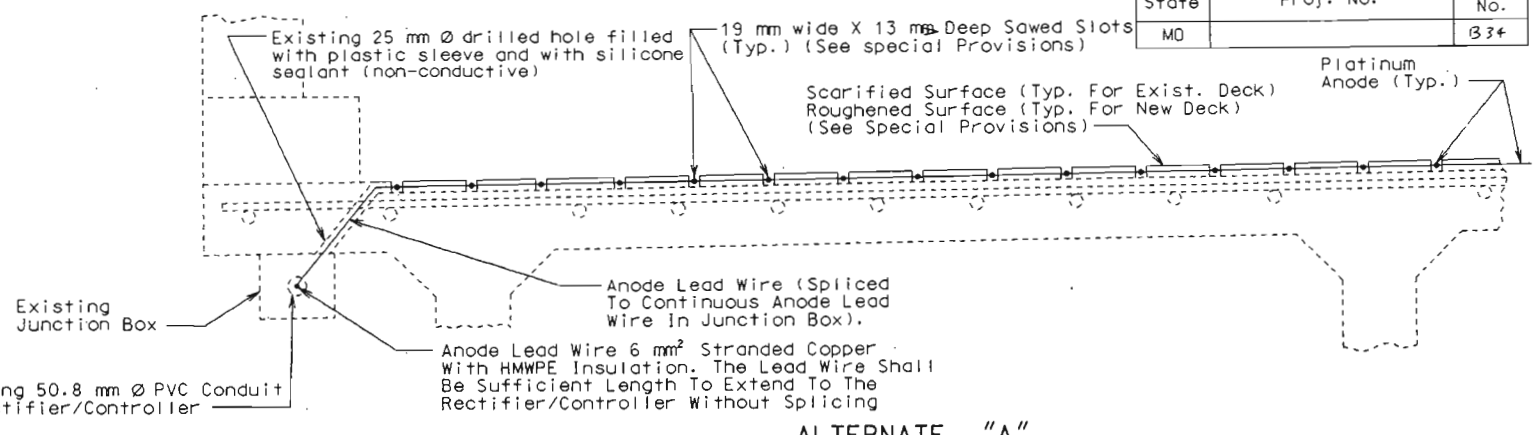


DETAIL "A"

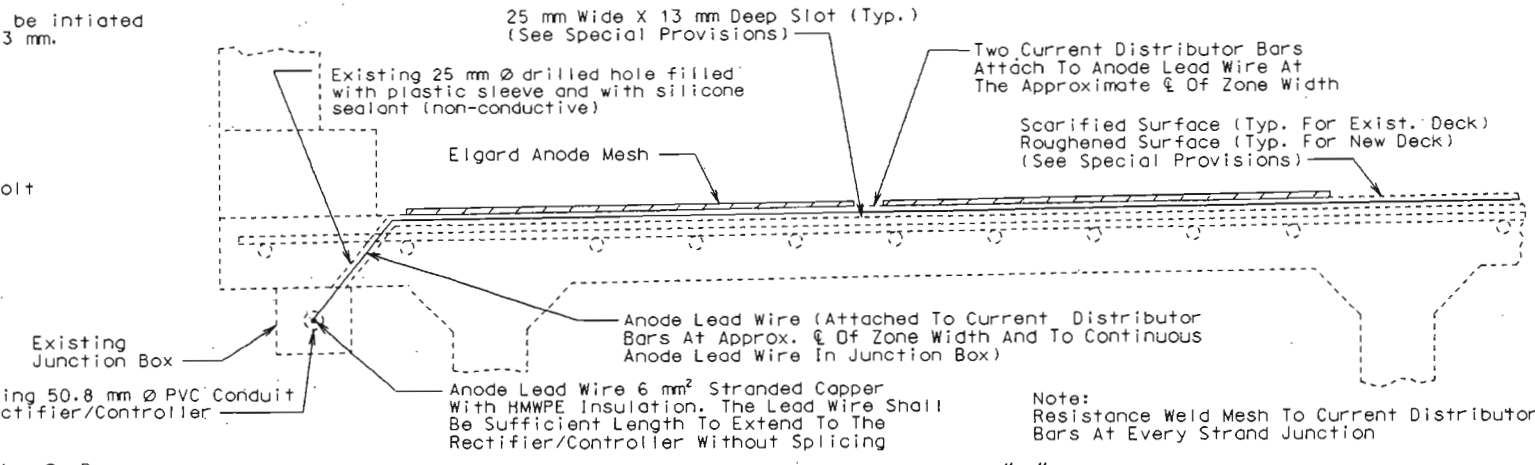
NULL PROBE DETAILS



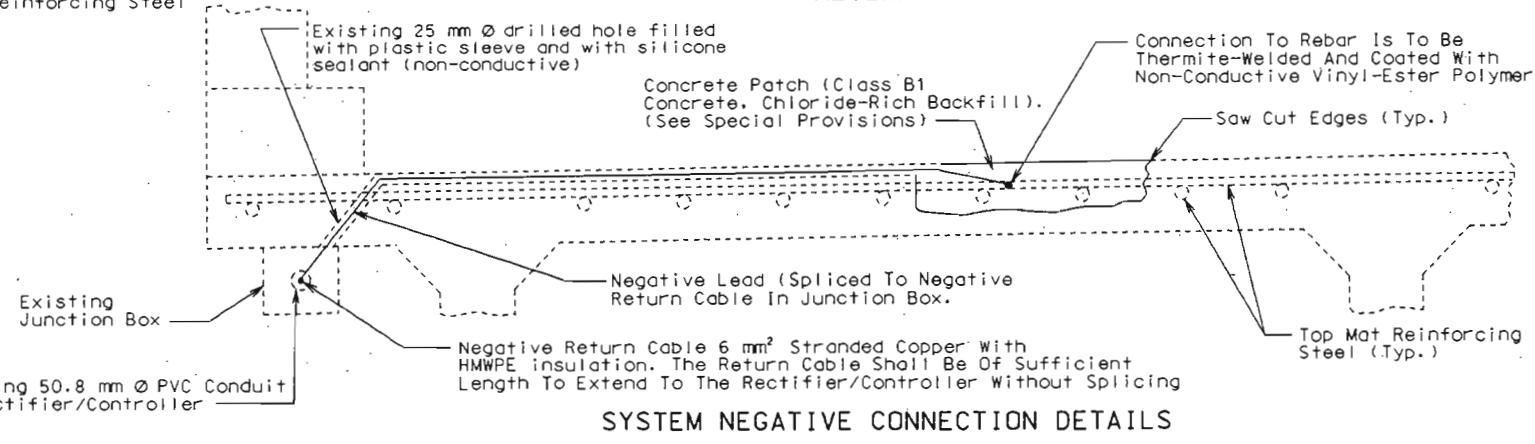
PLAN OF NULL PROBE AND REFERENCE CELL



ALTERNATE "A"



ALTERNATE "B"



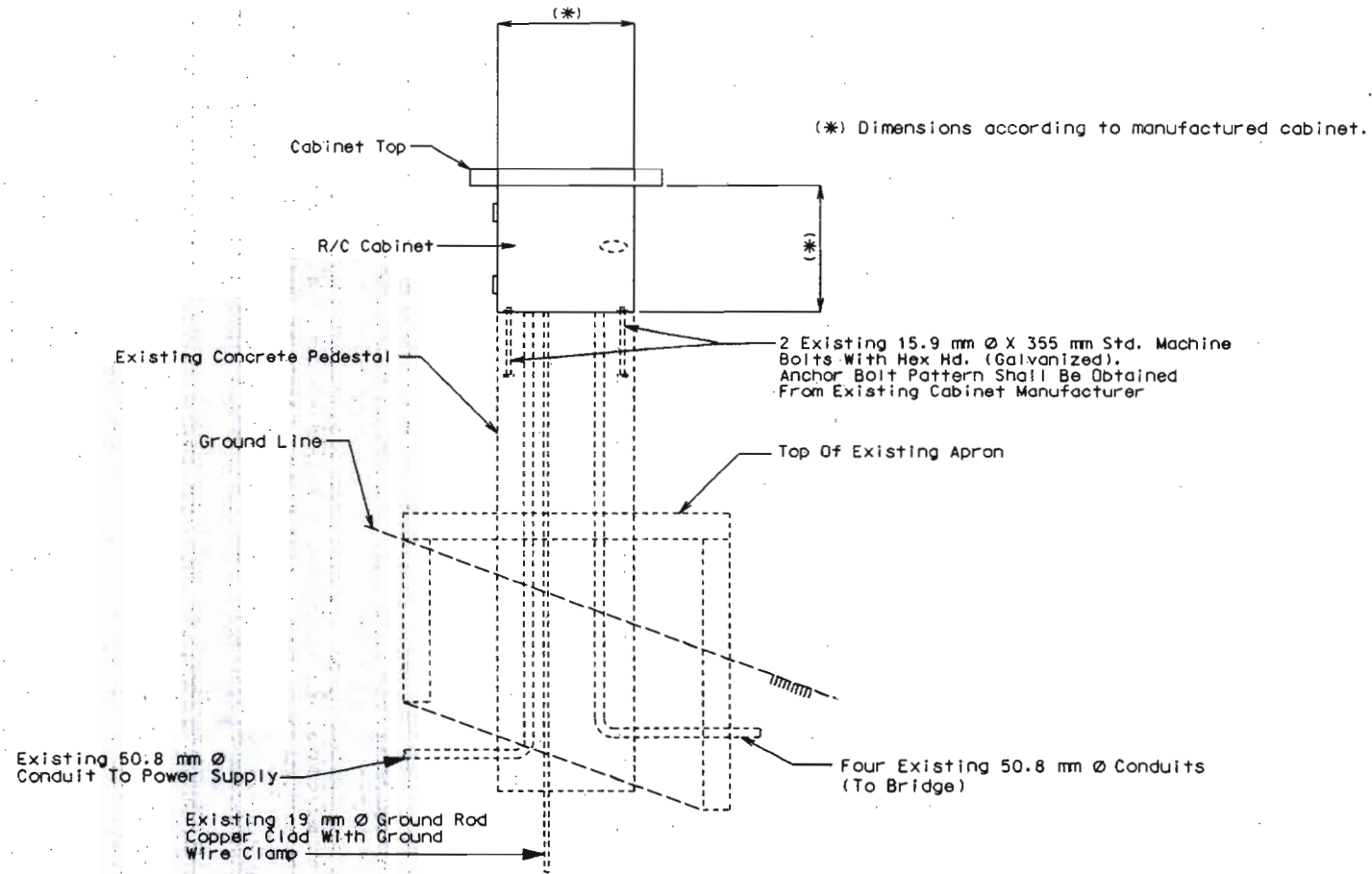
SYSTEM NEGATIVE CONNECTION DETAILS

Notes for New Conduit and Appurtenances (if required):
Conduit shall be schedule 40 heavy wall PVC (Polyvinyl Chloride Plastic). Each section of conduit shall bear the underwriters laboratories, inc. (UL) label.
Conduit shall be secured to concrete with clamps (galvanized/AASHTO M111) at abt. 1500 mm cts. Concrete anchors for clamps shall meet federal specification FF-S-325, group II, type 4, class I and shall be galvanized in accordance with ASTM A-153, B695-91 class 50 or stainless steel. Minimum embedment in concrete shall be 45 mm. The supplier shall furnish a manufacturers certification that the concrete anchors meet the required material and galvanizing specifications.
Weepholes shall be provided at appropriate locations to drain any moisture in the conduit lines.
Expansion couplings shall be installed on conduit lines between all junction boxes and between all access fittings as approved by the engineer.
The location and direction of conduit may be shifted to meet field conditions as directed by the engineer.
All junction boxes shall be PVC molded, surface mounted, size 200 mm x 200 mm x 175 mm and equal to Carlon Electrical Construction products or Triangle Conduit and Cable company Inc.. The terminations shall be permanent or seperable.
The terminations and covers shall be of watertight construction.

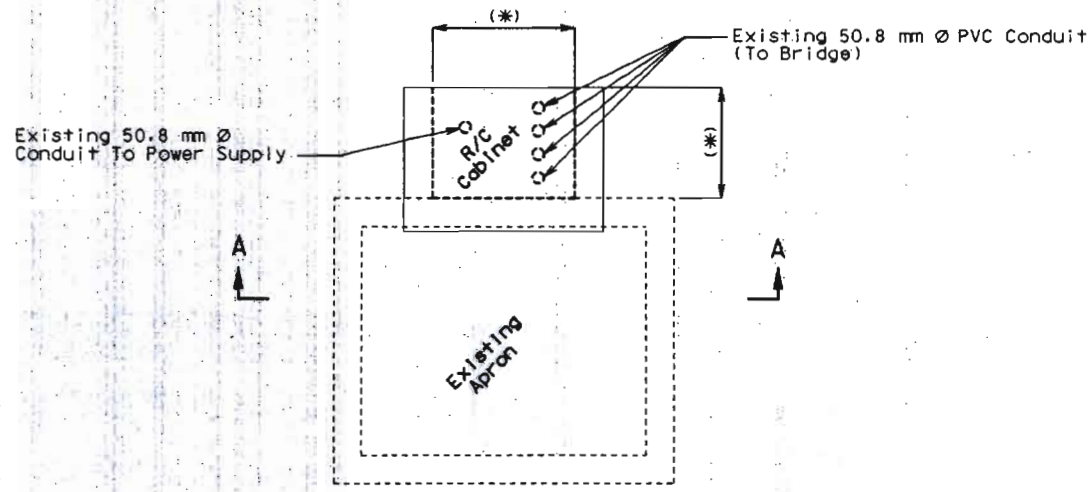


DATE 11-19-98

MO	B35
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SECTION A-A

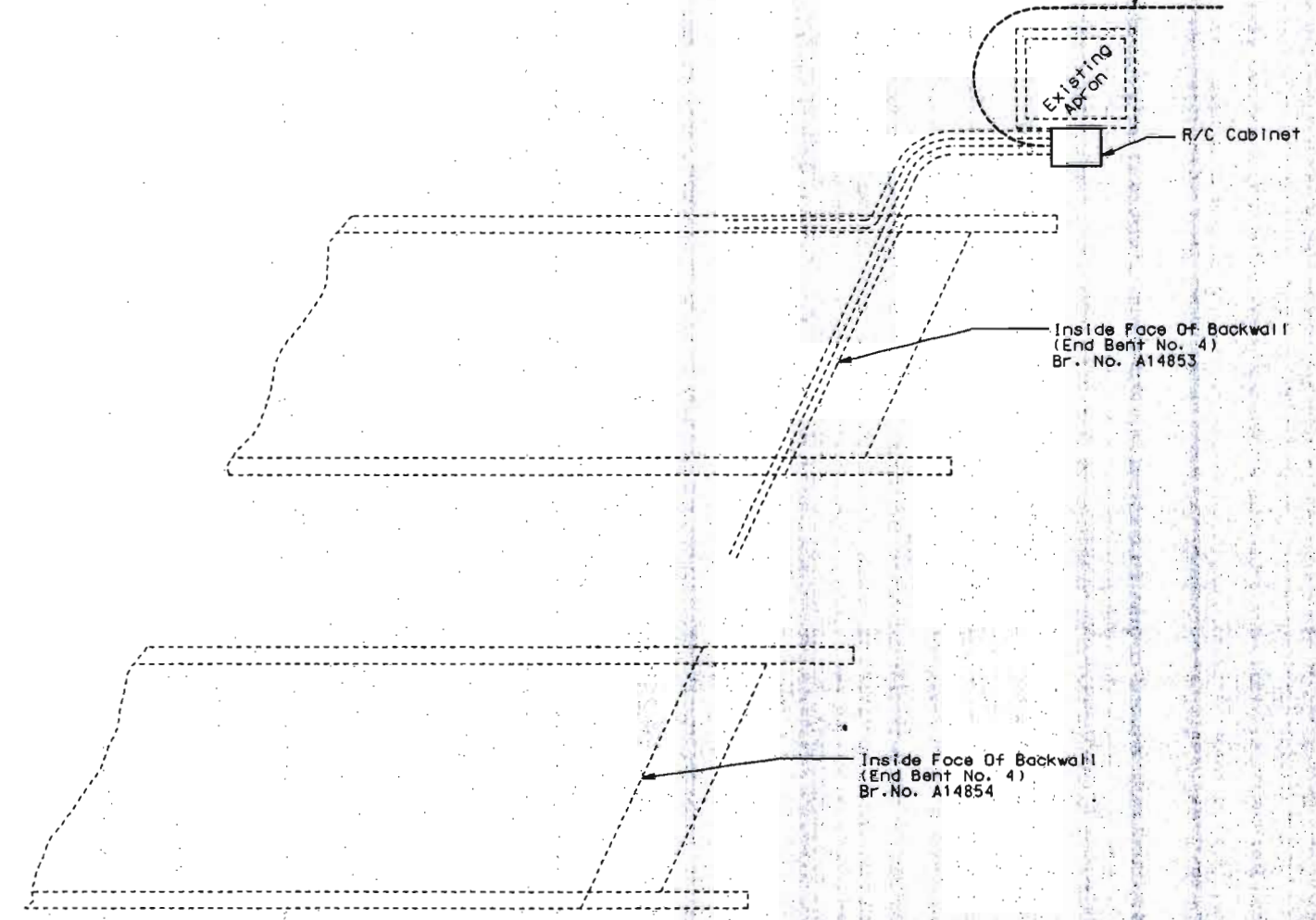


PLAN

(* Dimensions according to manufactured cabinet.

2 Existing 15.9 mm Ø X 355 mm Std. Machine Bolts With Hex Hd. (Galvanized). Anchor Bolt Pattern Shall Be Obtained From Existing Cabinet Manufacturer

The Telephone Cable Shall Be Routed Into The Rectifier Through One Of The Unused Existing Conduits.



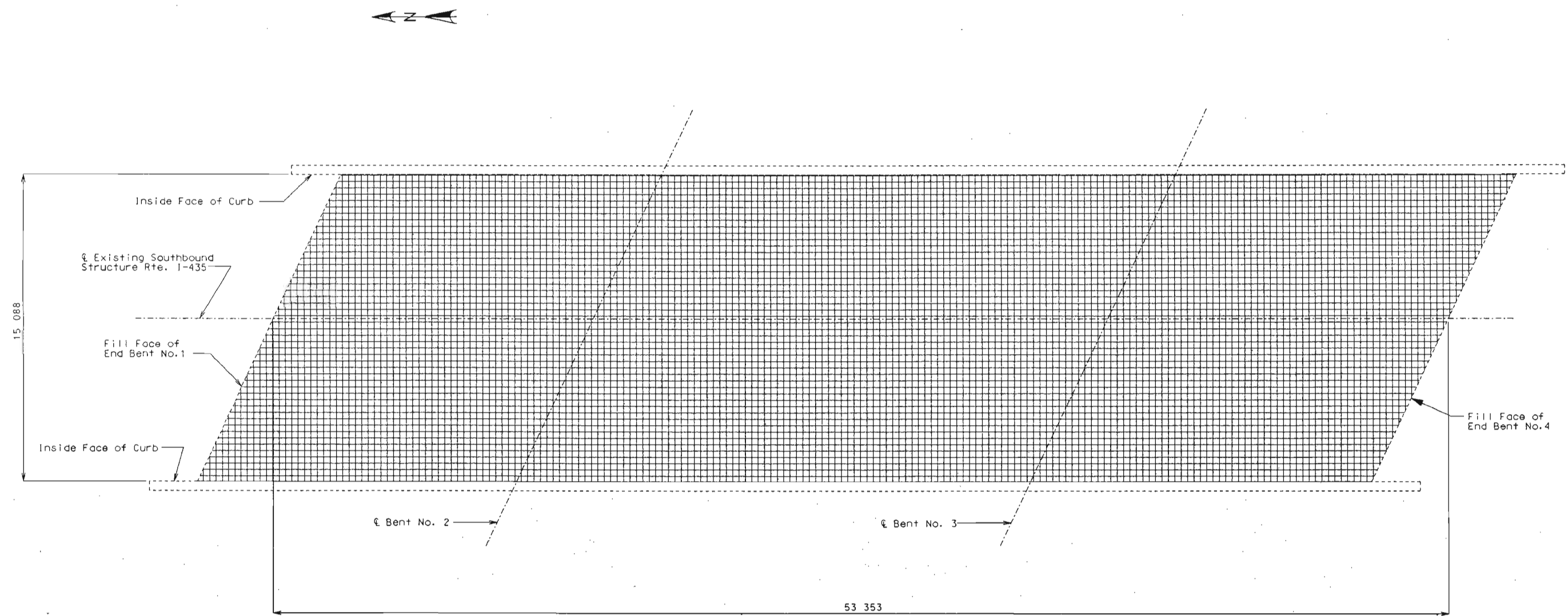
PLAN LOCATION OF RECTIFIER/CONTROLLER

Note: The 19 mm Ø ground rod shall be of sufficient length to extend a minimum of 3050 mm below bottom of concrete pedestal. (Use existing if approved by the engineer). Ground wire shall be 16 mm² minimum (Use existing if approved by the engineer). Knockouts or drilled holes shall be provided in cabinets for all conduit. Locations of these holes are the responsibility of the contractor and cabinet manufacturer.



DATE 11-19-98

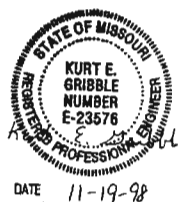
State	Proj. No.	Sheet No.
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PLAN OF CONCRETE DECK SHOWING GRID
 (For location of deck repair, reference cells and null probes)
 Note: This sheet is to be completed by MoDOT construction personnel.

Note: Grid = Approx. 310 mm Squares
 Drawing Scale = 1:100 mm/mm

REPAIRS TO BRIDGE A-1485 (S. B. L.)
 OVER GREGORY BLVD



DATE 11-19-98

Detailed Sept. 1998
 Checked Oct. 1998

Sheet No. 11 of 12

JACKSON COUNTY

A14854

FOR INFORMATION ONLY

BILL OF REINFORCING STEEL

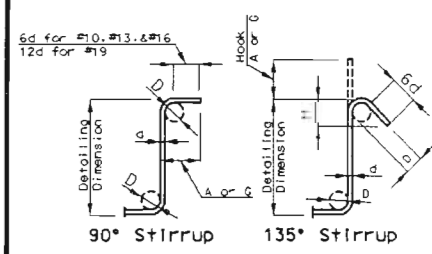
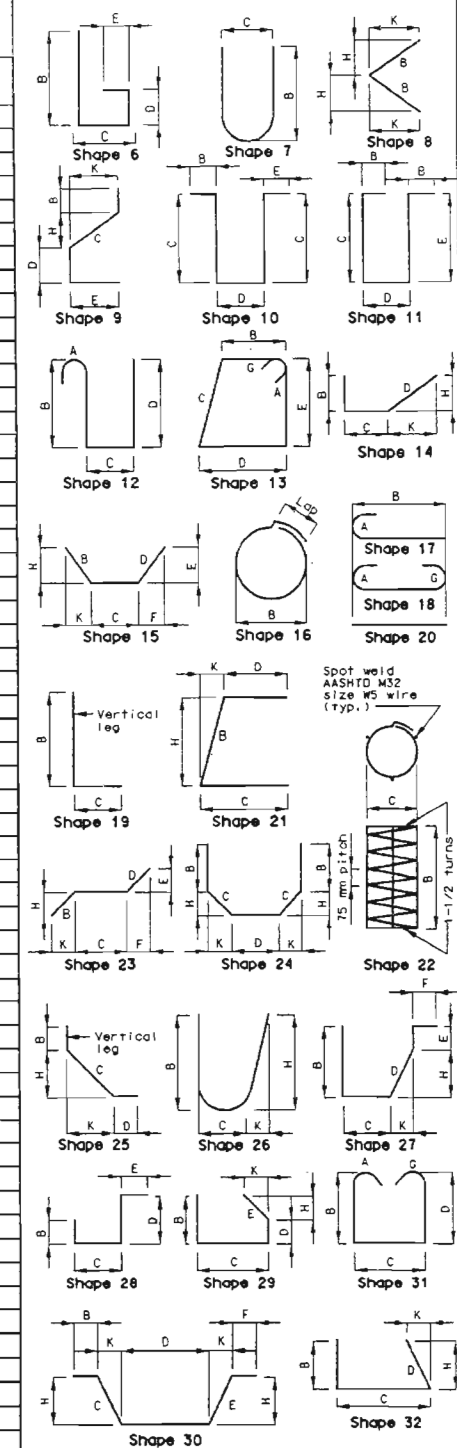
No. Req'd.	Mark No.	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	No. Each	Dimensions								Nominal Length	Actual Length	Mass																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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BILL OF REINFORCING STEEL

No. Req'd.	Mark No.	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	No. Each	Dimensions								Nominal Length	Actual Length	Mass
									B	C	D	E	F	H	K	mm			

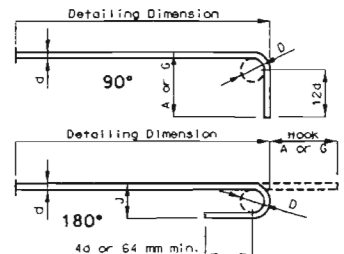
A14855 & A14856, Sht. 60

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MD		337



Bar Size	D	Grade 300 & 420 MPa		
		90° Hook	Hook A or G	135° Hook
#13	50	115	115	80
#16	65	155	140	95
#19	115	305	205	115

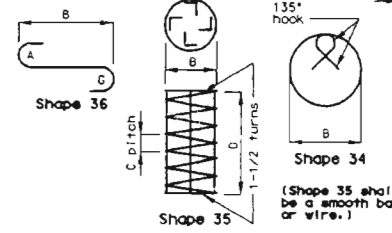
Note: Unless otherwise noted, diameter 'D' is the same for all bends and hooks on a bar.



Bar Size	D	All Grades	
		180° Hook	90° Hook
#10	60	125	80
#13	80	150	105
#16	95	175	130
#19	115	200	155
#22	135	250	180
#25	155	275	205
#29	240	375	300
#32	275	425	335
#36	305	475	375
#43	465	675	550

Two additional #16-R21 Bars are included in the bar bill for testing.

Note:
 All standard hooks and bends other than 180 degree to be bent with the same procedure as for 90 degree standard hooks.
 Hooks and bends shall be in accordance with the procedures as shown on this sheet.
 E = epoxy coated reinforcement
 S = stirrup
 X = bar is included in substructure quantities
 V = bar dimensions vary in equal increments between dimensions shown on this line and the following line.
 No. Ea. = number of bars of each length
 Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed for fabricator's use (nearest 5 mm).
 Actual lengths are measured along centerline bar to the nearest 5 mm.
 Payweights are based on actual lengths.
 Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and mass of column spirals do not include splices or spacers.
 Reinforcing steel (Grade 420) = Fy 420 MPa



DATE 11-19-98

BENDING DIAGRAMS

JACKSON COUNTY

A14854

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

State	Proj. No.	Sheet No.
MO	EAT-435-1(263)	13 26
Sec./Sur.	12 Twp. 48N Rge. 33W	

General Notes:

Design Specifications:
AASHTO 1996 and Interim 1997.

Design Unit Stresses:
Class B1 Concrete (Curb Blockout) f'c = 28 MPa.
Reinforcing Steel (Grade 420) fy = 420 MPa.

Joint Filler:

All joint filler shall meet the requirements of Section 1057.2.4 of the Missouri Standard Specifications (Metric), except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 40 mm, unless otherwise shown.

Dimensions:

All dimensions are shown in millimeters (mm) unless otherwise specified. Drawings are not to scale. Follow dimensions.

Miscellaneous:

Traffic over structure to be maintained during construction. See sheet No. 2 for details of stage construction. (See roadway plans for traffic control).

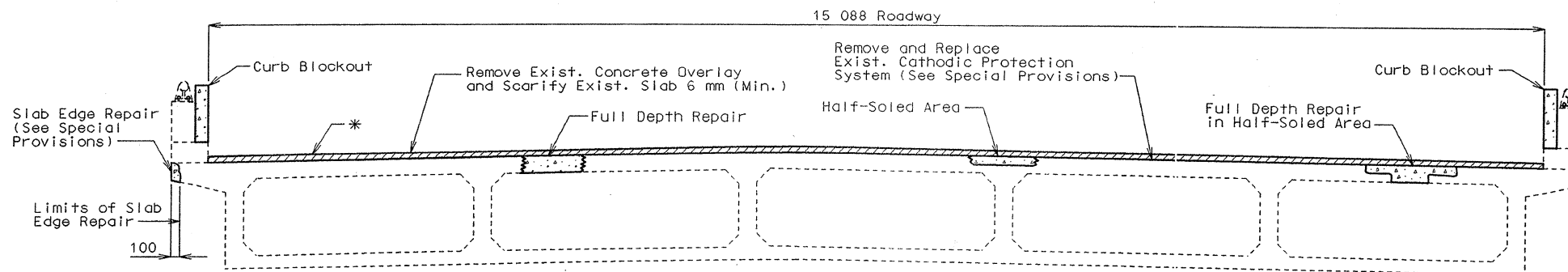
Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new steel.

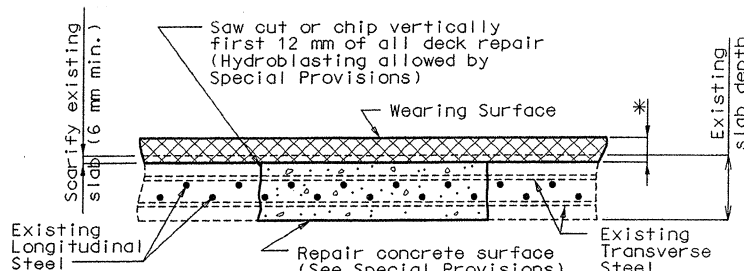
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay.

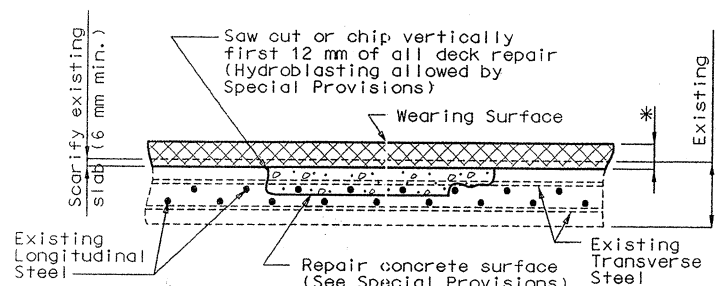
Roadway surfacing adjacent to bridge ends to match bridge overlay (Roadway Item).



SECTION THRU SLAB

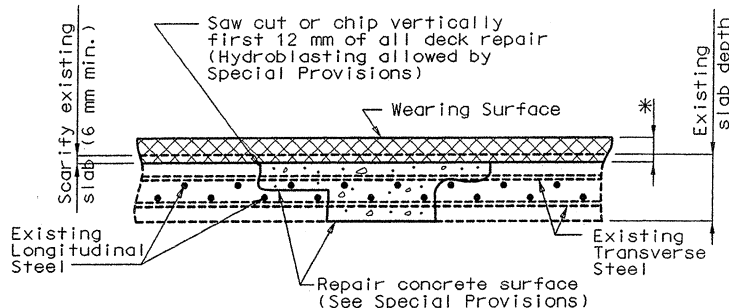


FULL DEPTH REPAIR



HALF-SOLED AREA

* 63 mm (Min.) Low Slump Concrete Wearing Surface



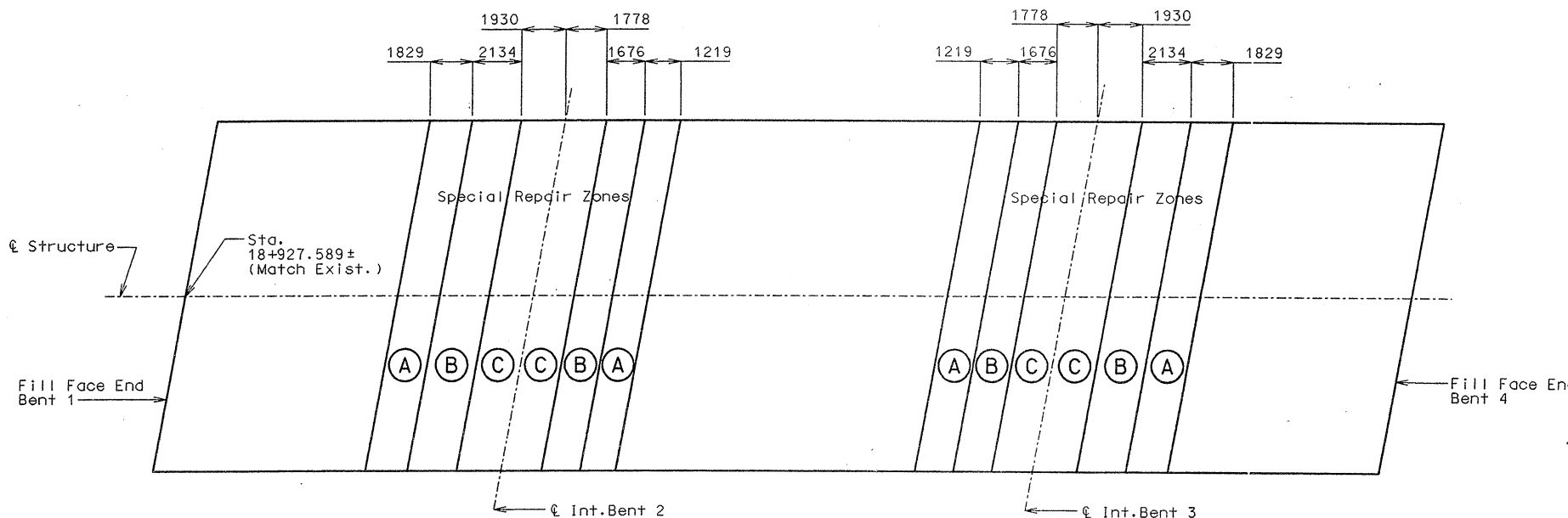
FULL DEPTH REPAIR IN HALF-SOLED AREA

NOTE:

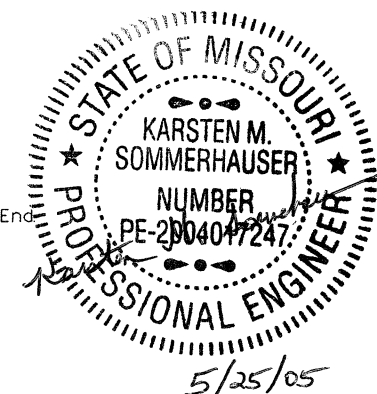
Zone A is to be completed before Zone B and Zone B is to be completed before Zone C.
Any repair in the remainder of the bridge that is within 600 mm of Zone A shall be completed before removing old concrete in Zone A.
Zones with the same letter designation may be repaired at the same time.

FINAL ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
Curb Removal (Bridges) - Metric	meter	7.0
Removal of Low Slump Concrete Wearing Surface - Metric	sq. meter	805.0
Partial Removal of Cathodic Protection System	lump sum	1
Substructure Repair (Unformed) - Metric	sq. meter	2.0
Curb Blockout - Metric	meter	117.5
Repairing Concrete Deck (Half-Soling) - Metric	sq. meter	100.0
Full Depth Repair - Metric	sq. meter	5
Slab Edge Repair (Bridges) - Metric	meter	1.0
Low Slump Concrete Wearing Surface - Metric	sq. meter	805
Cathodic Protection System	lump sum	1



PLAN OF SLAB (SOUTH BOUND LANE) SHOWING SPECIAL REPAIR ZONES



Final Plans
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Karsten M. Sommerhauser 5/25/05
Signature Date



REPAIRS TO BRIDGE OVER GREGORY BLVD.

STATE ROAD FROM GREGORY BLVD. TO BANNISTER RD.
AT GREGORY BLVD.

PROJECT NO. J41299
JOB. NO. J41299
STA. 18+927.589± (Match Exist.)
RTE. I-435 (S.B.L.)

JACKSON

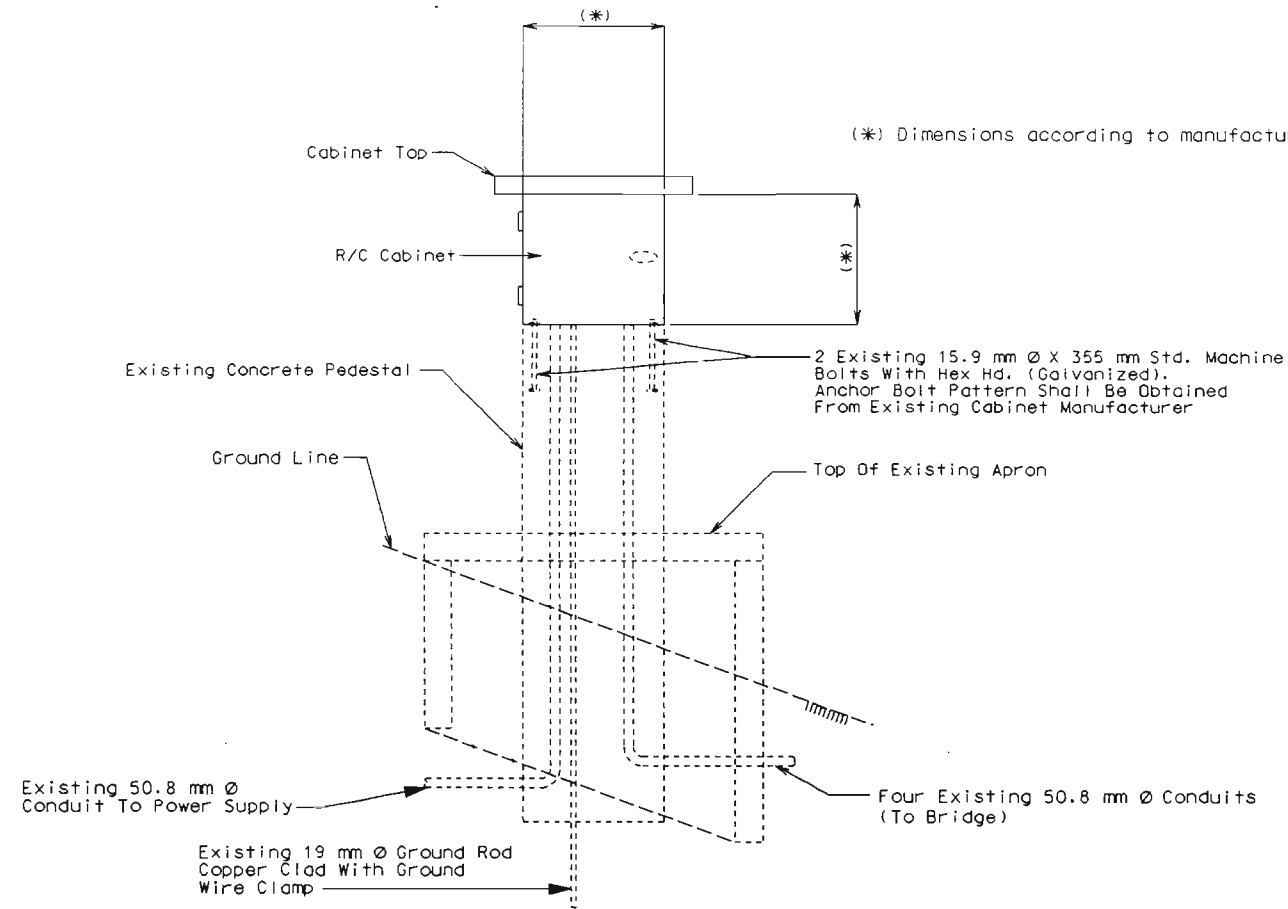
COUNTY

Date: 11/19/98

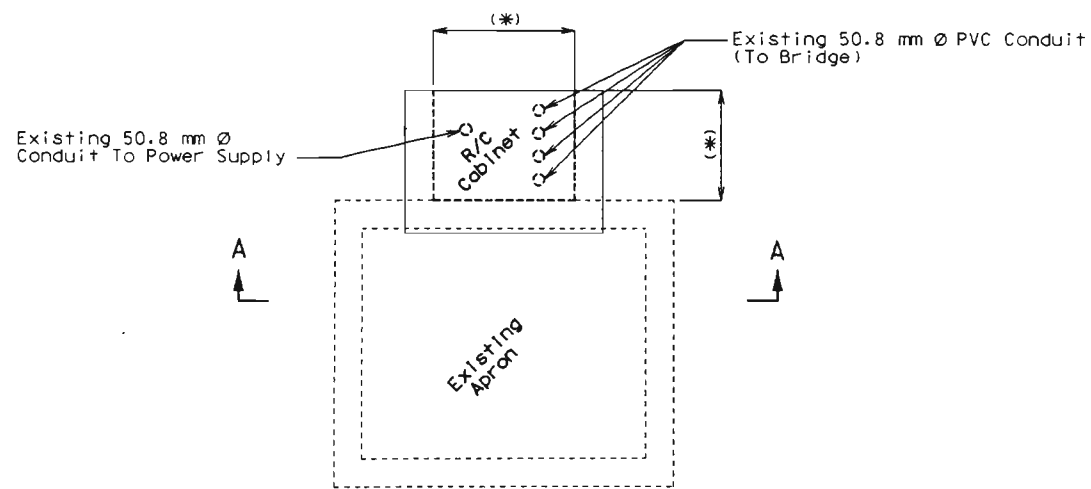
STD.
STD.
STD.
STD. M706.35
A14854

Designed Oct. 1998
Detailed Oct. 1998
Checked Oct. 1998

State	Proj. No.	Sheet No.
MO		1335



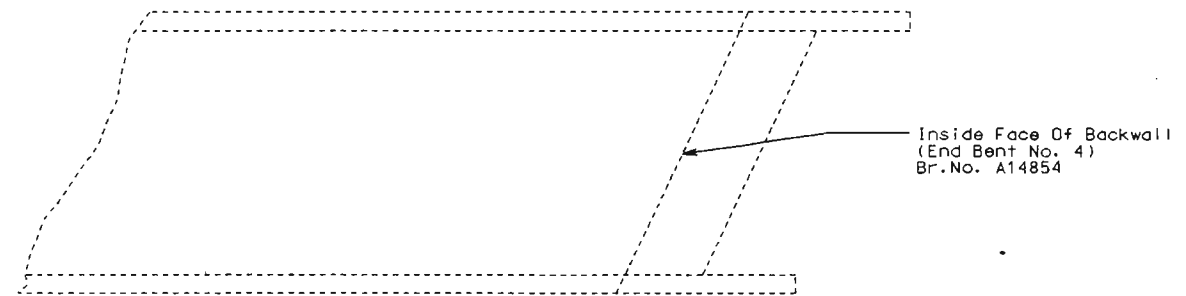
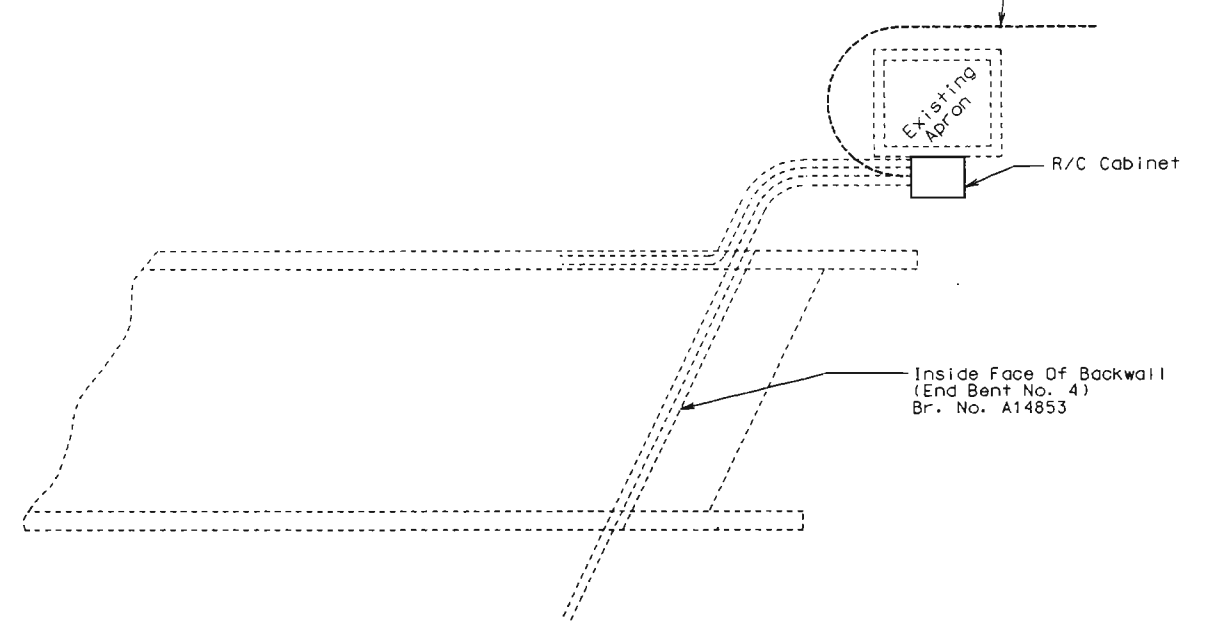
SECTION A-A



PLAN

Note: The 19 mm Ø ground rod shall be of sufficient length to extend a minimum of 3050 mm below bottom of concrete pedestal. (Use existing if approved by the engineer).
 Ground wire shall be 16 mm² minimum (Use existing if approved by the engineer).
 Knockouts or drilled holes shall be provided in cabinets for all conduit. Locations of these holes are the responsibility of the contractor and cabinet manufacturer.

The Telephone Cable Shall Be Routed Into The Rectifier Through One Of The Unused Existing Conduits.



PLAN LOCATION OF RECTIFIER/CONTROLLER



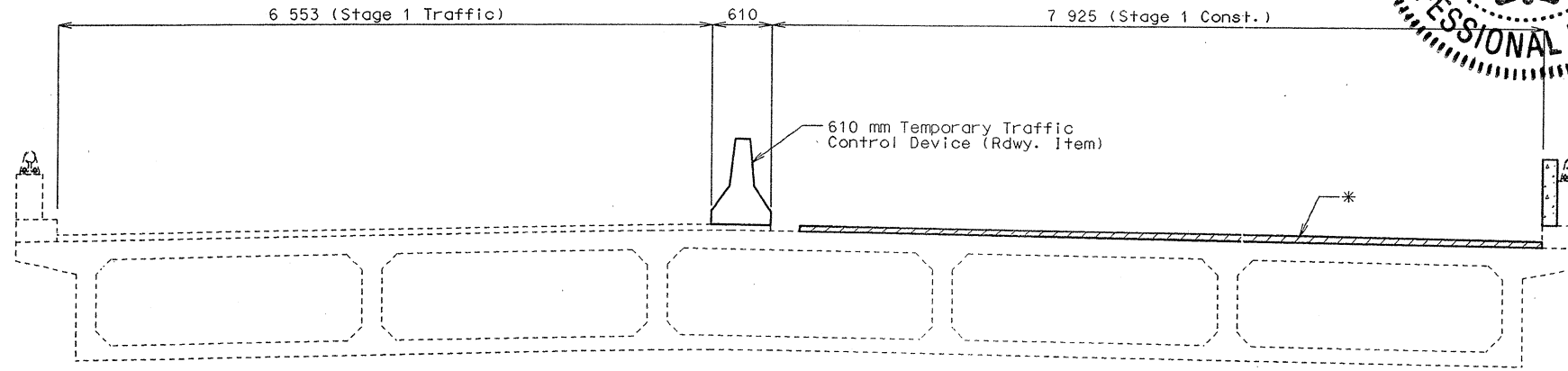
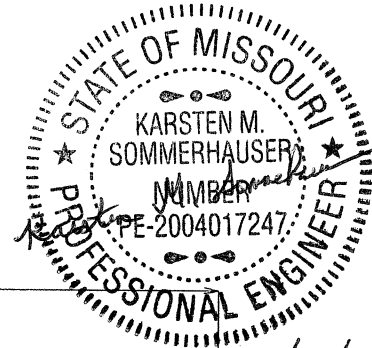
DATE 11-19-98

Final Plans
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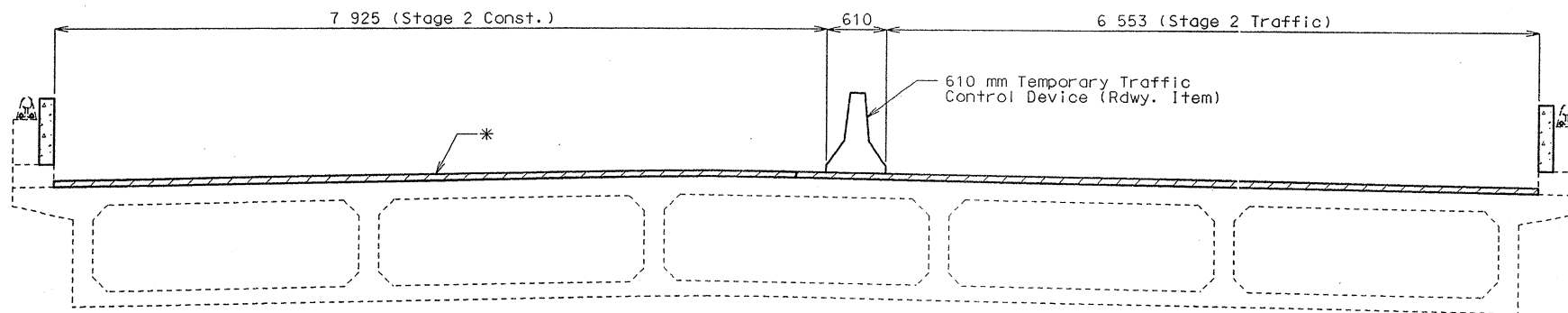
State	Proj. No.	Sheet No.
MO	FAI-435-1(263)	B27

JOB NO. J41299 DIST 4
 CONTRACT NO. 991022-403

Karsten M. Sommerhauser 5/25/05
 Signature Date



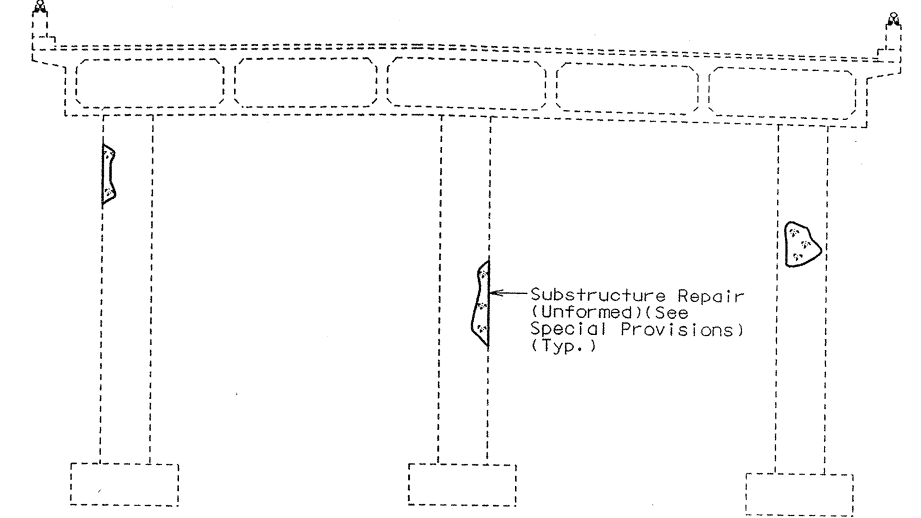
STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

DETAILS OF STAGE CONSTRUCTION

* Remove existing Concrete overlay and Cathodic Protection System. Scarify concrete deck 6 mm and install a new Cathodic Protection System covered with a 63 mm (Min.) Low Slump Concrete wearing surface.



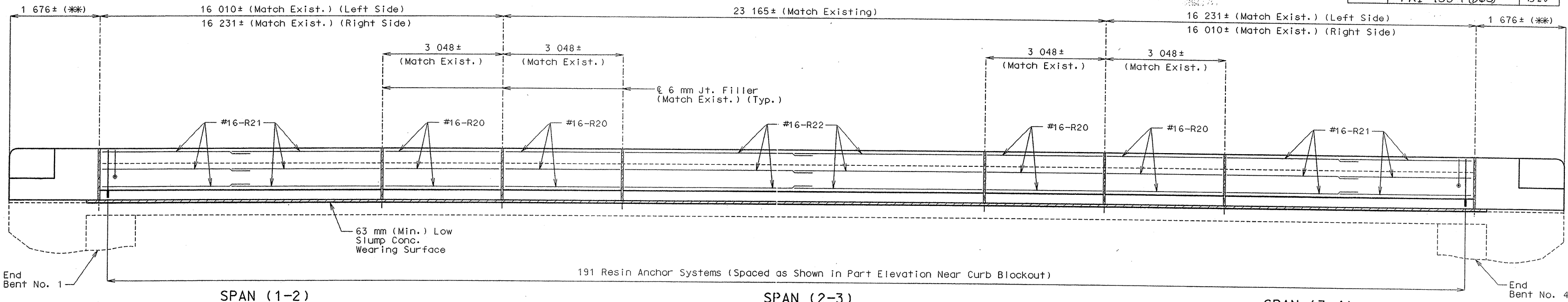
TYPICAL DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS



DATE 11-19-98

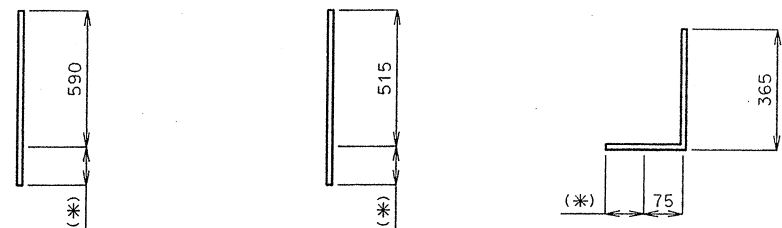
JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	1328



SECTION NEAR LEFT CURB BLOCKOUT (RIGHT SIDE SIMILAR, EXCEPT AS SHOWN)

NOTE: (**) For End Post details, see sheet No. 4.



(Total Req'd = 198) (Install in Curb)
 (Total Req'd = 64) (Install in area of End Post Removal and Replacement)
 (Total Req'd = 184) (Install in Parapet)

DETAILS OF RESIN ANCHORS

NOTE: (**) Manufacturer's embedment length
 (***) Shift resin anchor systems to clear Exist. steel anchor bolts for tube rail.



NOTES FOR CURB BLOCKOUT:

Concrete in curb blockout shall be Class B1 with $f'c = 28$ MPa. Measurement of curb blockout is to the nearest half meter measured at the gutter line from end of wing to end of wing.

All exposed edges of curb blockout shall have either a 15 mm radius or a 10 mm bevel, unless otherwise shown.

Payment for concrete, reinforcing steel, resin anchor systems and any other work incidental to the curb blockouts complete in place shall be included in the contract unit price for the "Curb Blockout" per meter.

Use a minimum lap of 925 mm for #16 horizontal Curb Blockout bars.

Cost of any concrete curb and parapet repair shall be considered completely covered in the unit price bid for Curb Blockout.

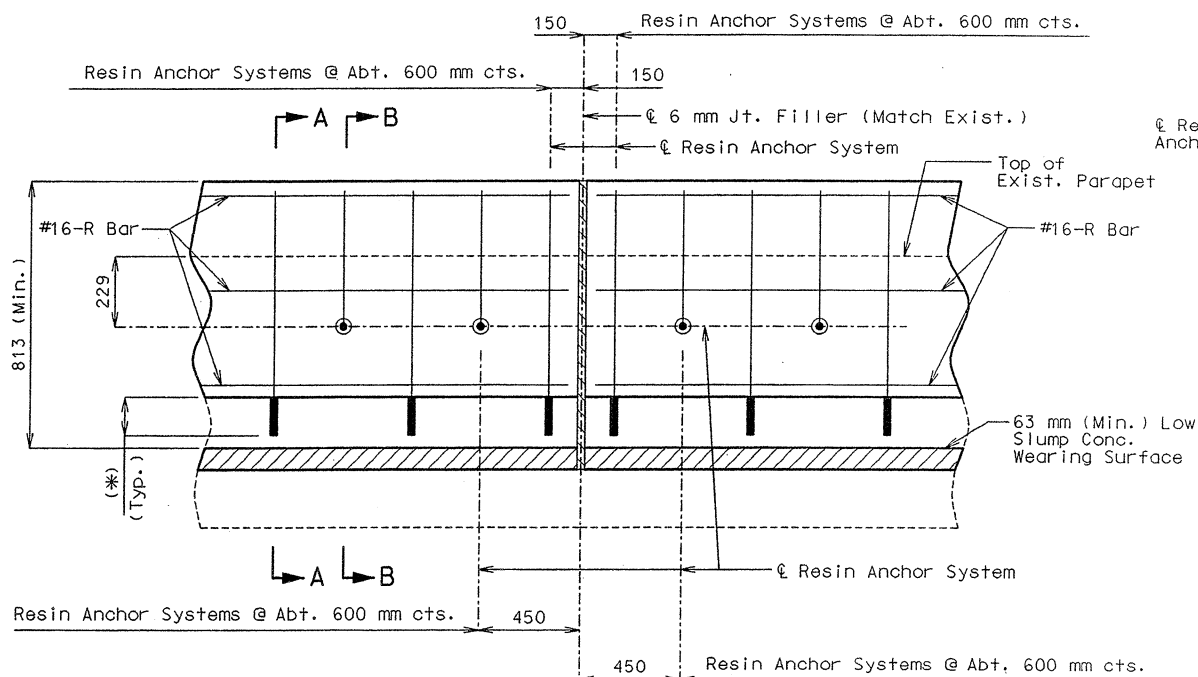
NOTES FOR RESIN ANCHOR SYSTEM:

The contractor shall use one of the resin anchor systems listed in the job special provisions. These resin anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that a #16 Grade 420 (Epoxy Coated) reinforcing bar as shown shall be substituted for the 15.9 mm diameter threaded rod stud.

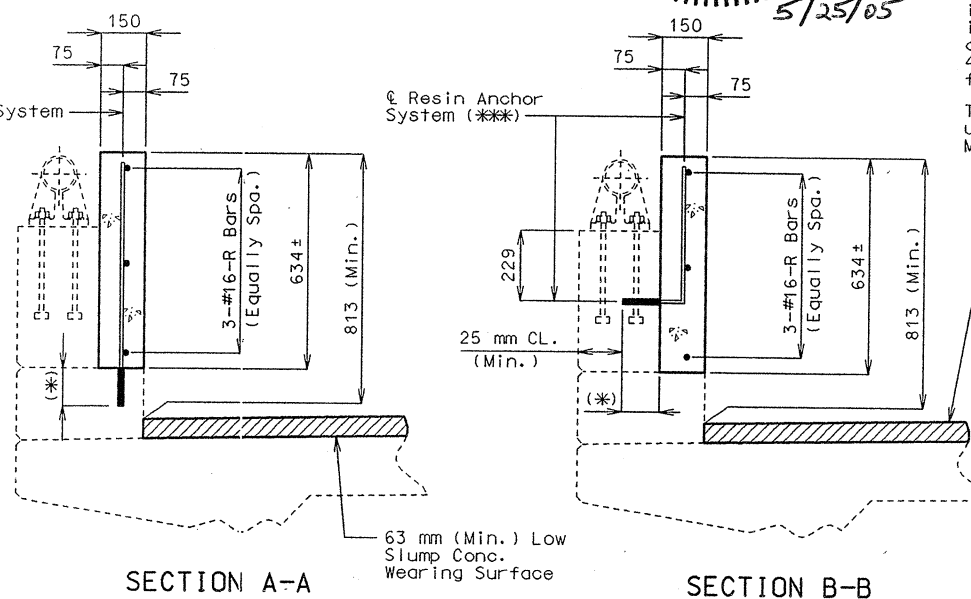
The 15.9 mm diameter resin anchor systems shall have a minimum ultimate pullout strength of 68.9 kN in concrete with $f'c = 28$ MPa, see special provisions.

Final Plans
 I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction; and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.

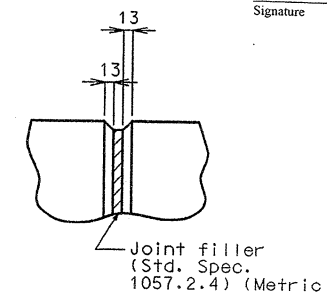
Karsten M. Sommerhauser
 Signature
 5/25/05
 Date



PART ELEVATION NEAR CURB BLOCKOUT



DETAILS OF CURB BLOCKOUT



FILLED JOINT DETAIL

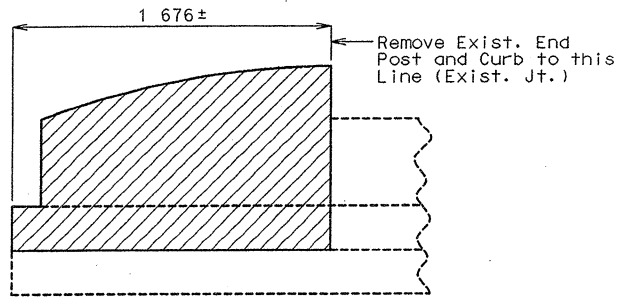


JOB NO. J4I1299
 CONTRACT No. 991022-403
 DIST. 4

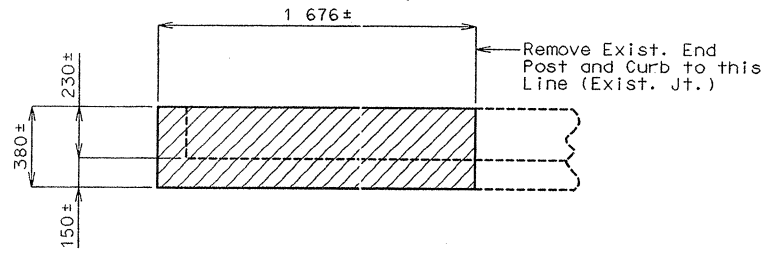
State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	629

Final Plans
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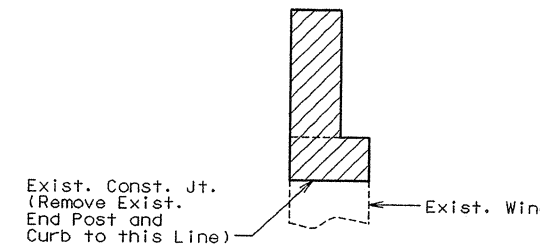
Karsten M. Sommerhauser
 Signature
 5/25/05
 Date



ELEVATION SHOWING END POST REMOVAL



PLAN SHOWING END POST REMOVAL

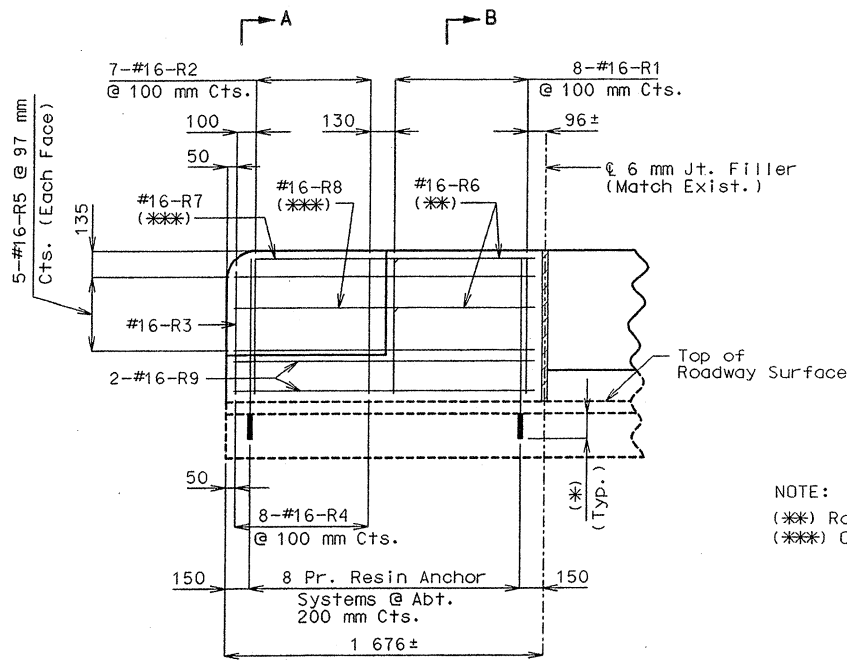
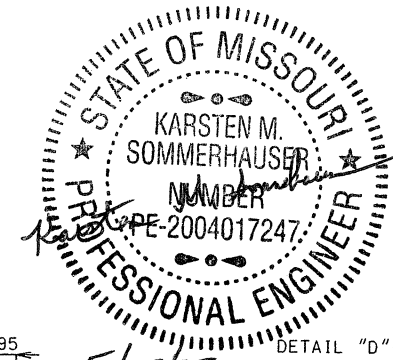


SECTION SHOWING END POST REMOVAL

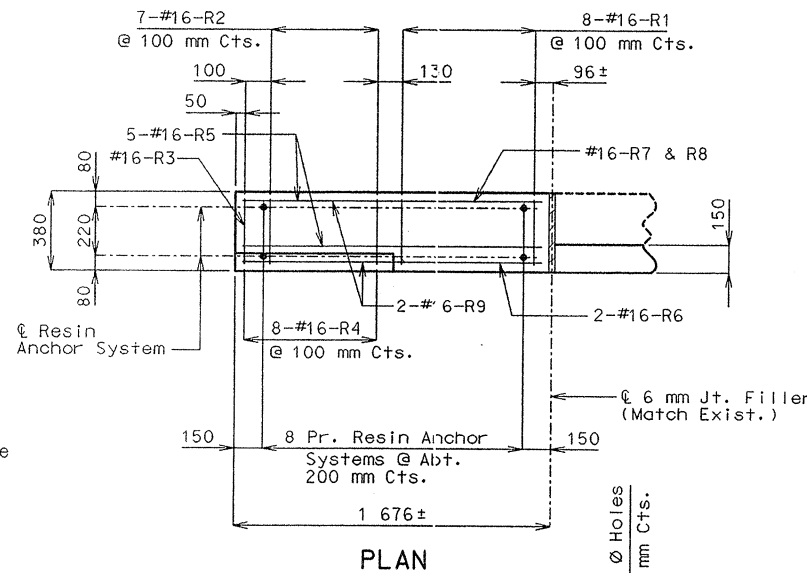
NOTE:

For notes on Curb Blockout and Resin Anchor Systems, see sheet No. 3.
 (*) Manufacturer's embedment length.

Payment for removal of existing end post and curb concrete is included in the contract unit price for "Curb Removal (Bridges) - Metric" per meter.

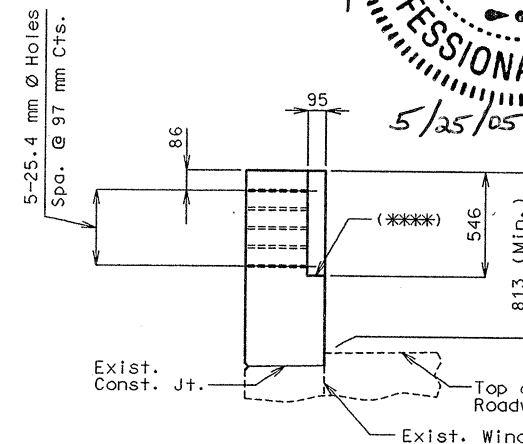


ELEVATION



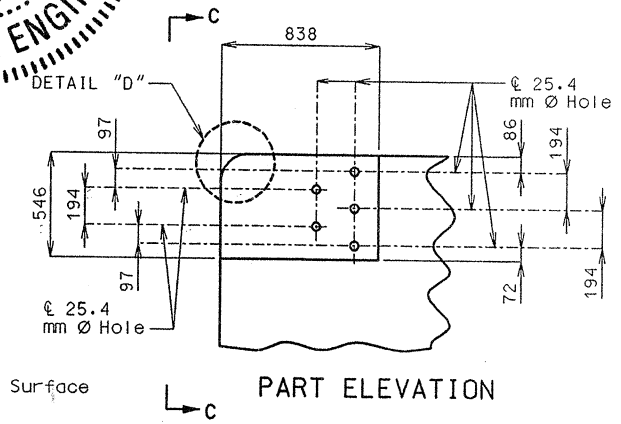
PLAN

NOTE:
 (***) Roadway Face
 (***) Outside Face

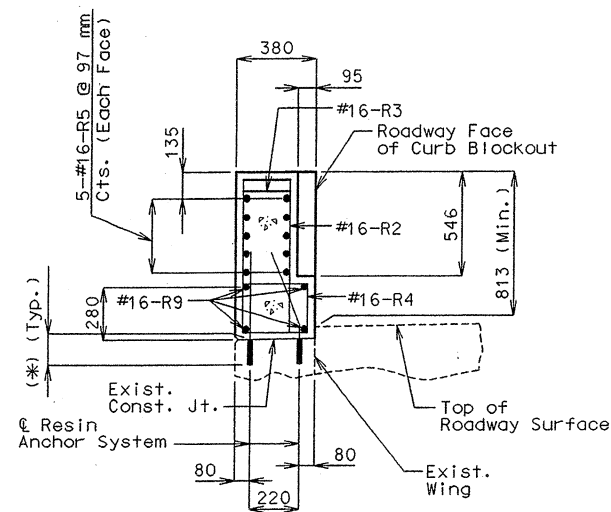


PART ELEVATION C-C

(***) Slope 6 mm toward Roadway

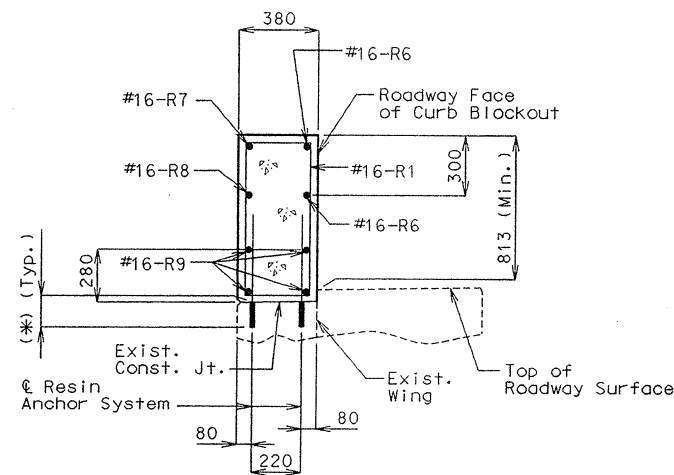


PART ELEVATION



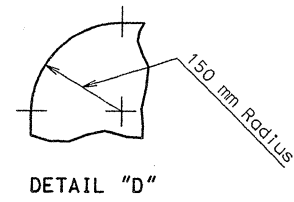
SECTION A-A

NOTE: #16-R6, R7 & R8 Bars not shown for clarity.

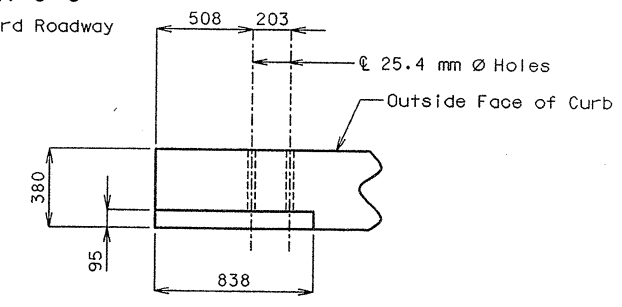


SECTION B-B

NOTE: #16-R5 Bars not shown for clarity.



DETAIL "D"



PART PLAN

DETAILS OF GUARD RAIL ATTACHMENT







TYPICAL DETAILS OF CURB BLOCKOUT AT END POST

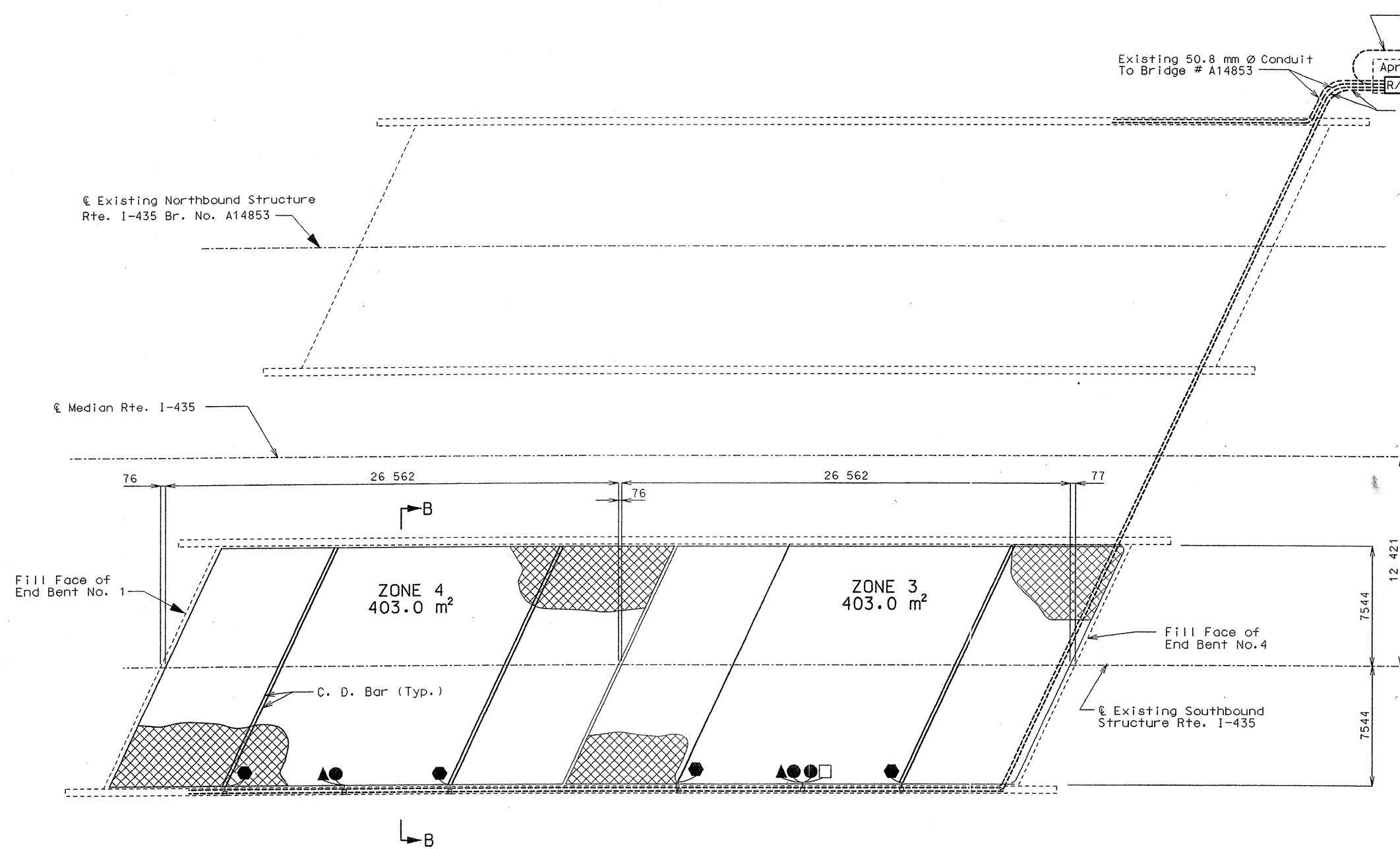


DATE 11-19-98

JOB NO. J411299 DIST. 4		
State	Proj. No.	Sheet No.
MO	FAT-435-1 (263)	B 31
CONTRACT NO. 991022-403		

DENOTATIONS

-  ELGARD ANODE MESH
-  SYSTEM NEGATIVE CONNECTION
-  REFERENCE CELL
-  GROUNDS
-  NULL PROBE (CORROSIOMETER)
-  EXISTING CONDUIT



NOTE:

The anode leads, system negative return leads, reference cell, reference cell ground lead, null probe and null probe ground lead shall be routed in one of the existing conduits.

All existing wiring in the deck and conduits shall be removed and replaced with new.

The telephone cable shall be routed into the rectifier through one of the unused existing conduits.

Reference cells are to be placed between anodes.

U.I.P. existing conduit, access fittings and junction boxes.

The reference cell ground lead shall be welded to the top rebar within 300 mm of the reference cell.

Anode assembly number must match zone number.

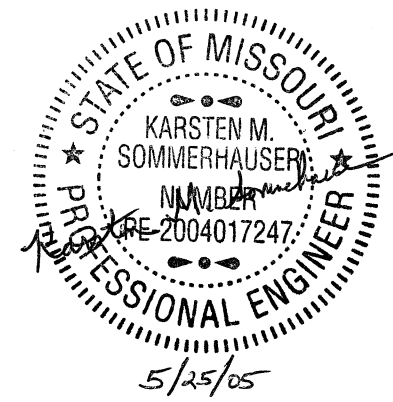
Existing access holes through deck not used with the new cathodic protection system shall have its plastic sleeve and silicon sealant removed, hole cleaned and plugged with a nonmetallic expansive mortar in accordance with Std. Spec. 1066.

FINAL ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Elgard Anode Mesh (210)	Sq. Meters	802
Reference Cells	Each	2
Null Probes	Each	1
Thermite Welds	Each	7

Note: Anode lengths are approximate, actual lengths are the responsibility of the contractor. No direct payment shall be made for any additional conduit, junction boxes, access fittings, additional material, labor and modification to existing conduit.

PART PLAN OF SLAB SHOWING ELGARD MESH CATHODIC PROTECTION SYSTEM (ALTERNATE "B")

Note:
 For Section B-B, typical zone layout and partial electrical schematic, see sheet no. 8.
 Dimensions are along ϕ of structure (end of slab to end of slab).
 Existing overlay and cathodic system shall be removed and the deck scarified prior to sawing slots. (see special provisions)

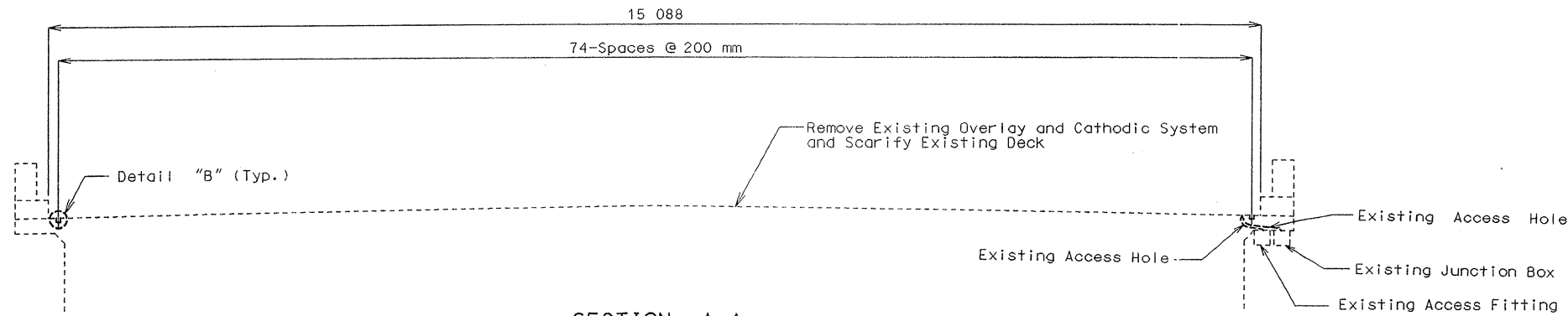


Final Plans
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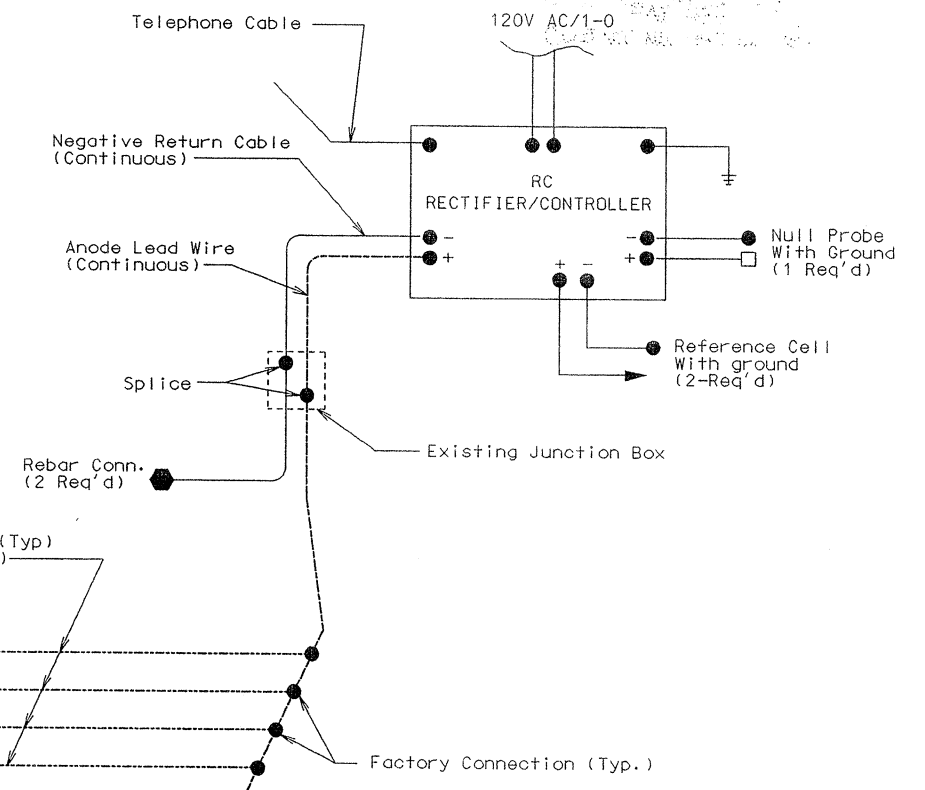
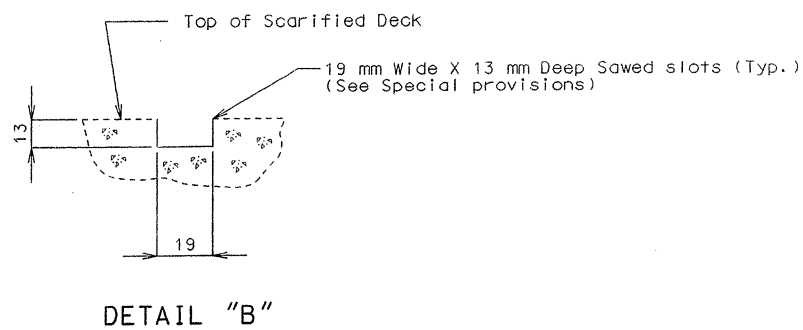
Karsten M. Sommerhauser 5/25/05
 Signature Date



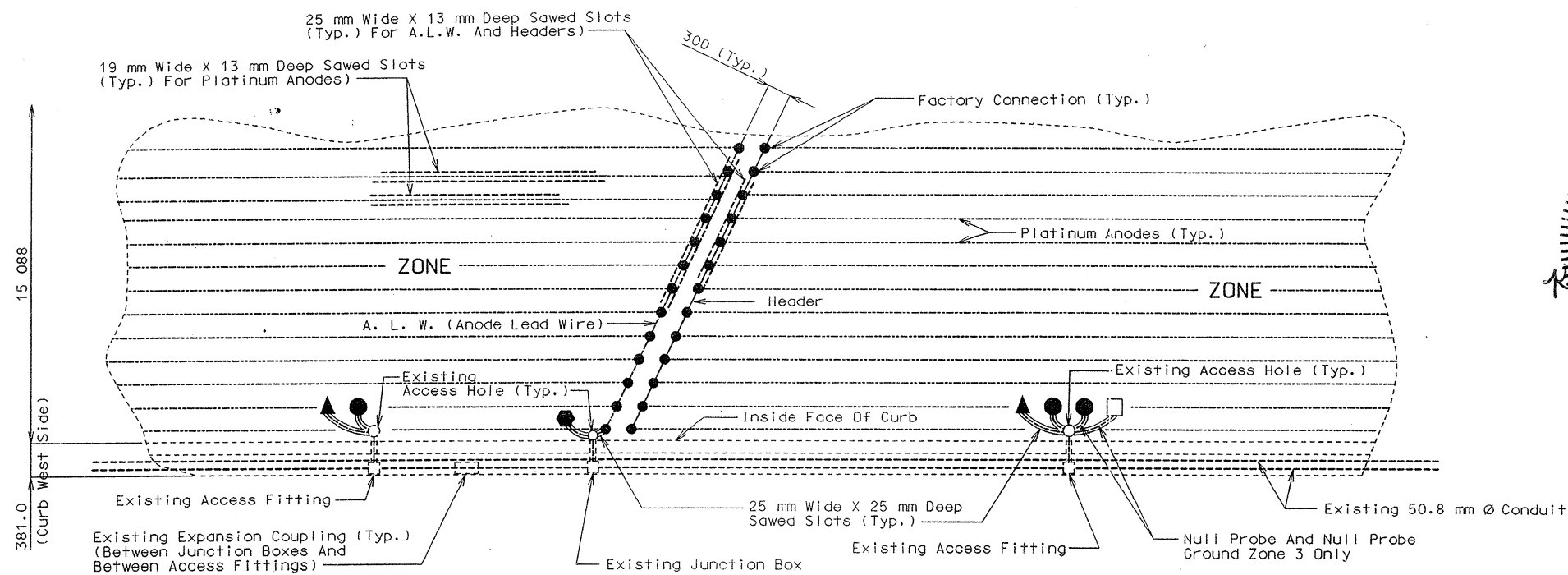
JOB NO. J411299 DIST. 4		
State	Proj. No.	Sheet No.
MO	FAI-435-1(263)	B 32
CONTRACT NO. 991022-403		



SECTION A-A
(At Alternate "A")
Note: For location of section A-A see sheet no. 5.

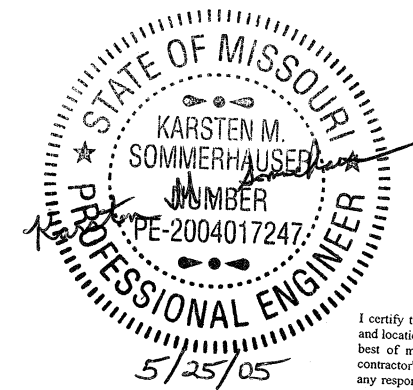


PARTIAL SCHEMATIC
(ALTERNATE "A")



TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "A") SYSTEM

Note: Anodes shall be placed as shown with a minimum tolerance of plus or minus 75 mm. Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.



Final Plans
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Karsten M. Sommerhauser 5/25/05
Signature Date

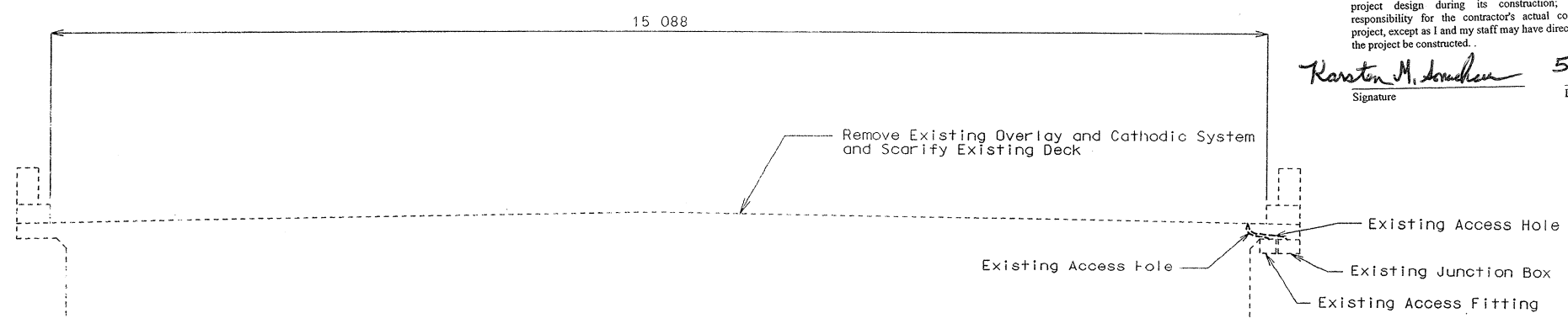


JOB NO. J411299 DIST. 4

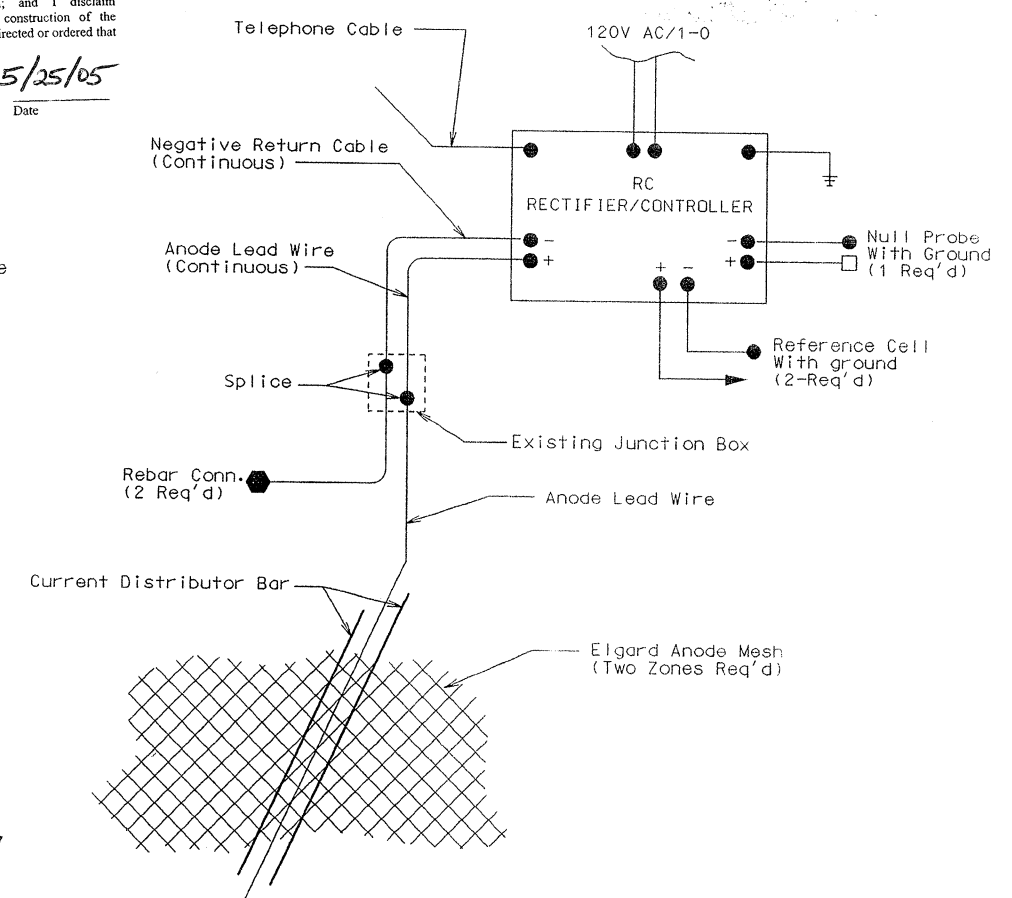
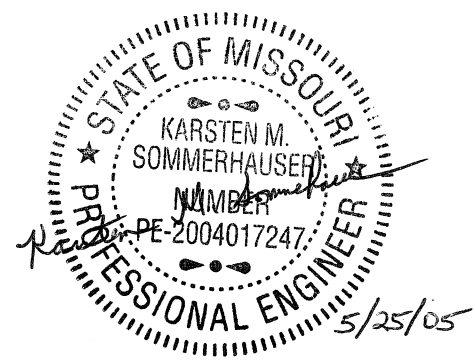
State	Proj. No.	Sheet No.
MO	FAT-435-1 (263)	1333
CONTRACT NO. 991022-403		

Final Plans
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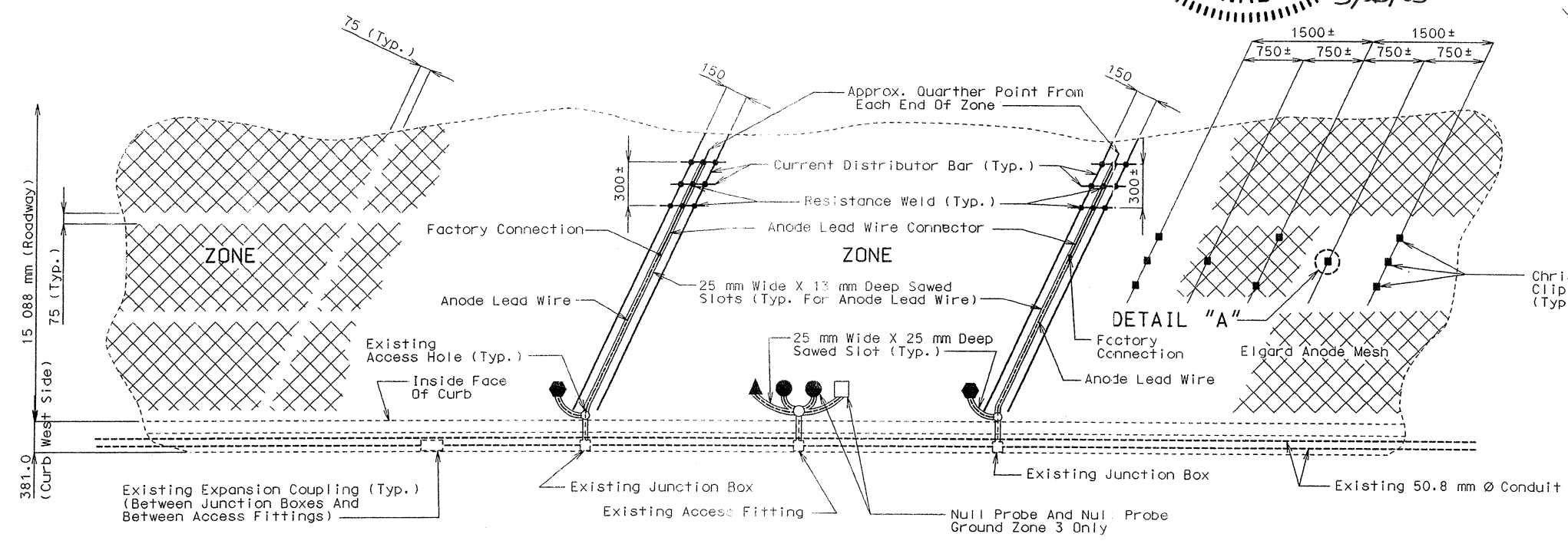
Karsten M. Sommerhauser 5/25/05
 Signature Date



SECTION B-B
 (At Alternate "B")
 Note: For location of section B-B see sheet no. 6.

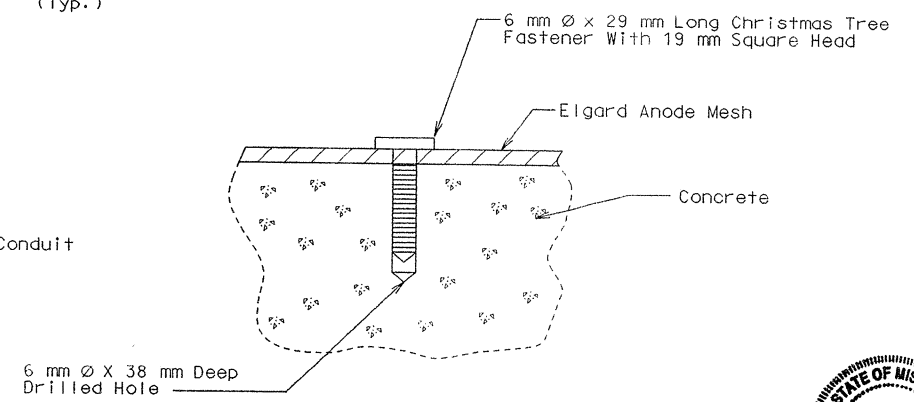


PARTIAL SCHEMATIC
 (ALTERNATE "B")



TYPICAL ZONE LAYOUT, EXCEPT AS NOTED, FOR (ALTERNATE "B") SYSTEM

Note: Use existing access holes, access fittings and junction boxes where acceptable as determined by the engineer.



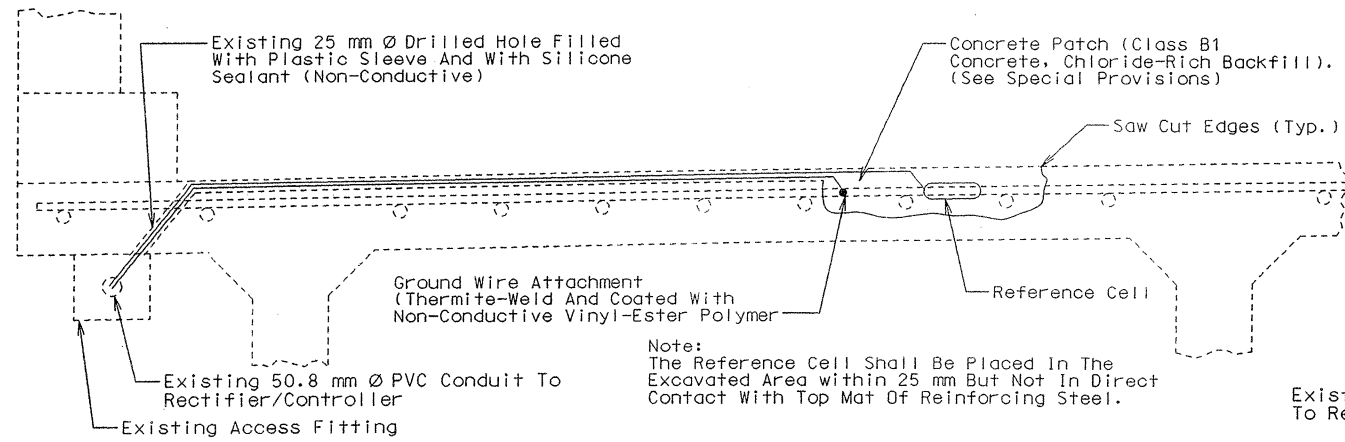
DETAIL "A"
 (Christmas Tree Clip)



CONTRACT NO. 991022-403

JOB NO. J411299 DIST. 4

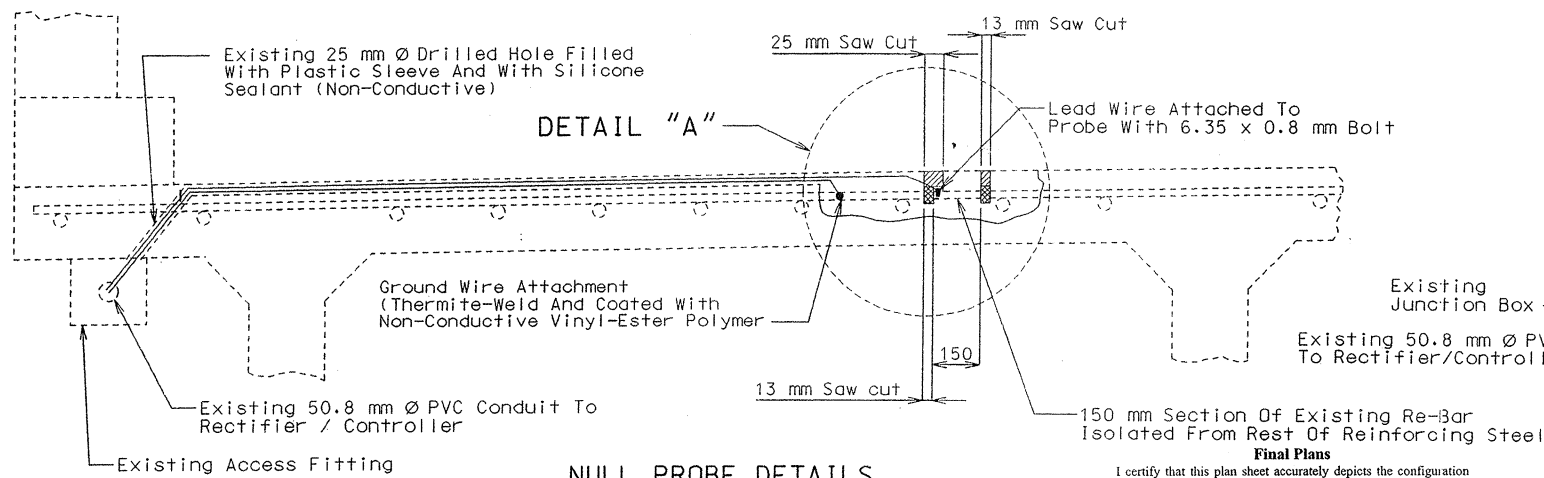
State	Proj. No.	Sheet No.
MO	FAI-435-1 (263)	334



REFERENCE CELL DETAILS

Note:
The Reference Cell Shall Be Placed In The Excavated Area within 25 mm But Not In Direct Contact With Top Mat Of Reinforcing Steel.

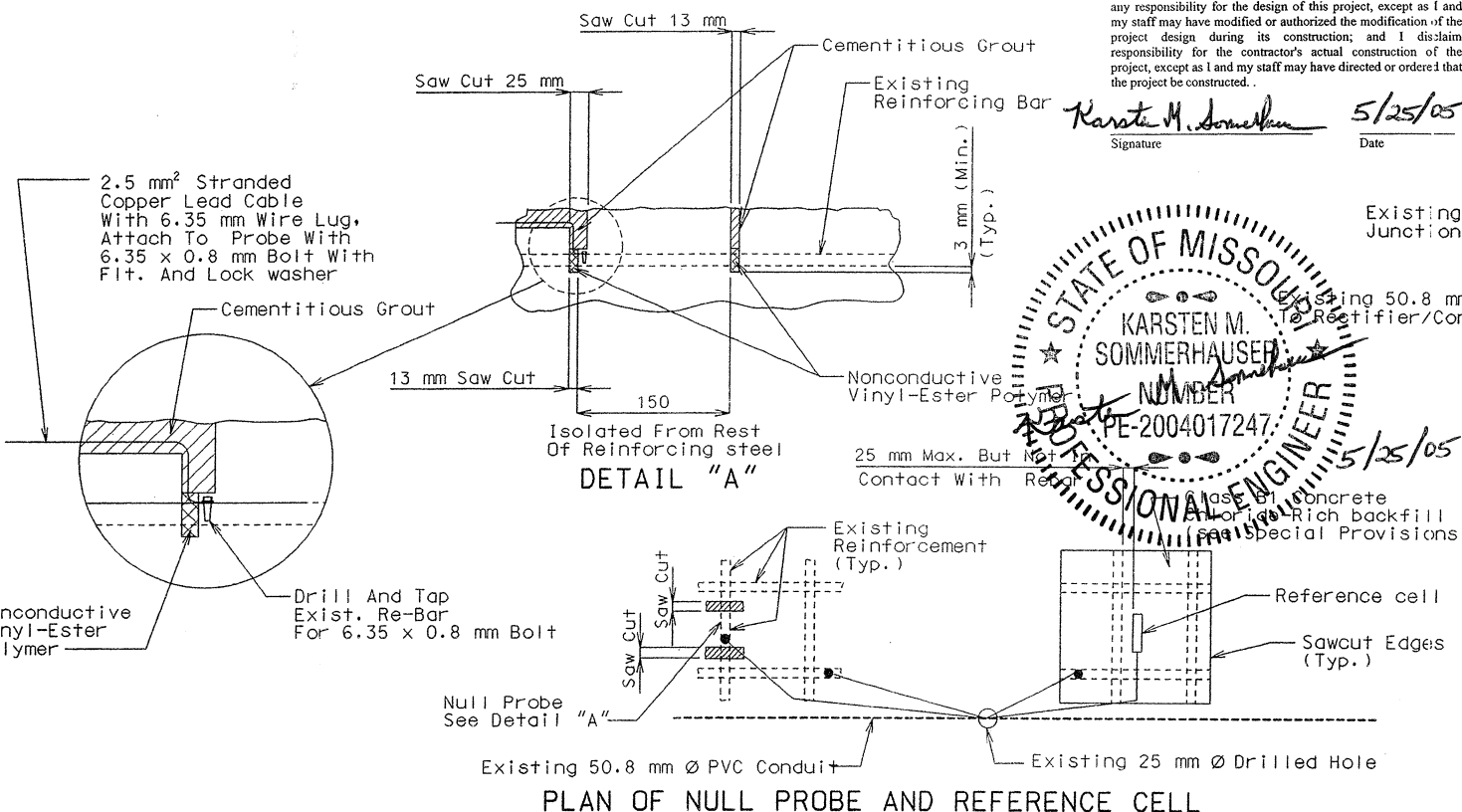
Note:
All concrete removal shall be initiated by saw cutting the first 13 mm.



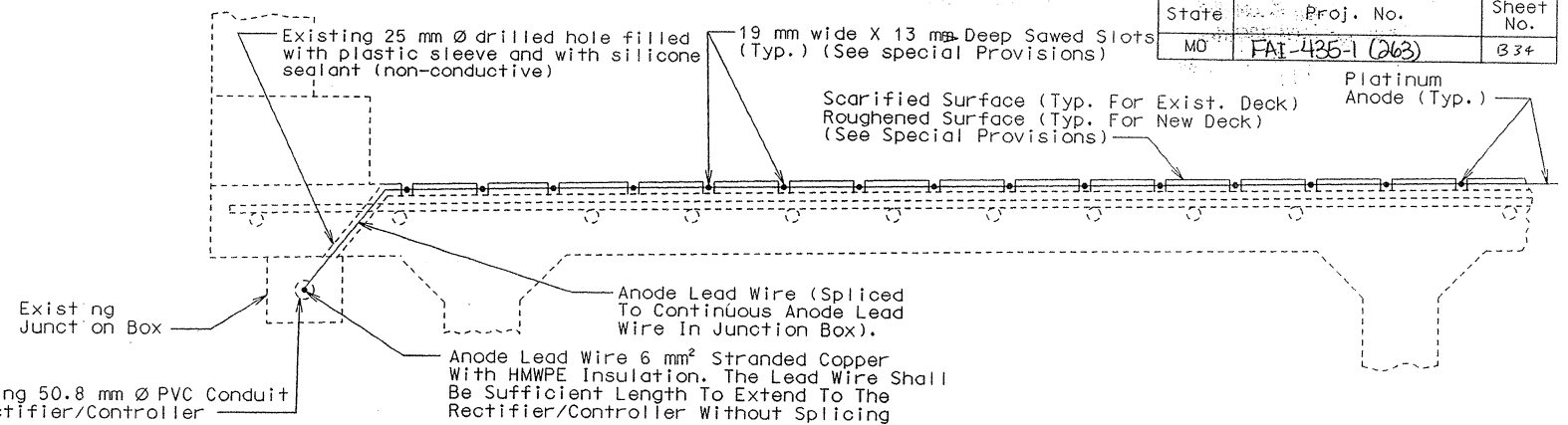
NULL PROBE DETAILS

Final Plans
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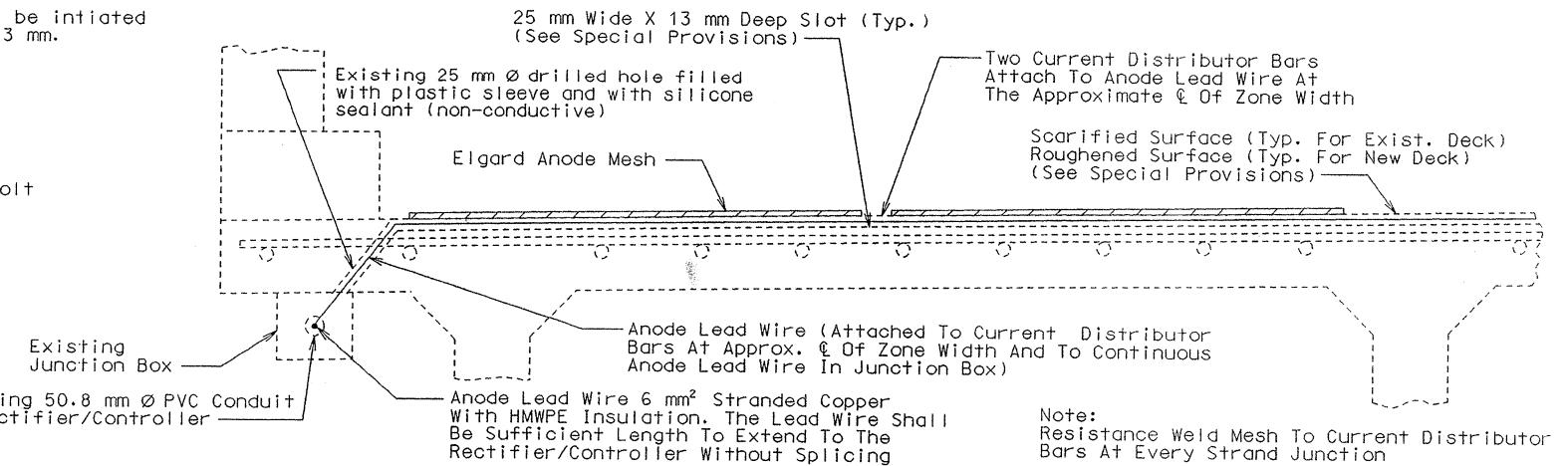
Karsten M. Sommerhausen 5/25/05
Signature Date



PLAN OF NULL PROBE AND REFERENCE CELL

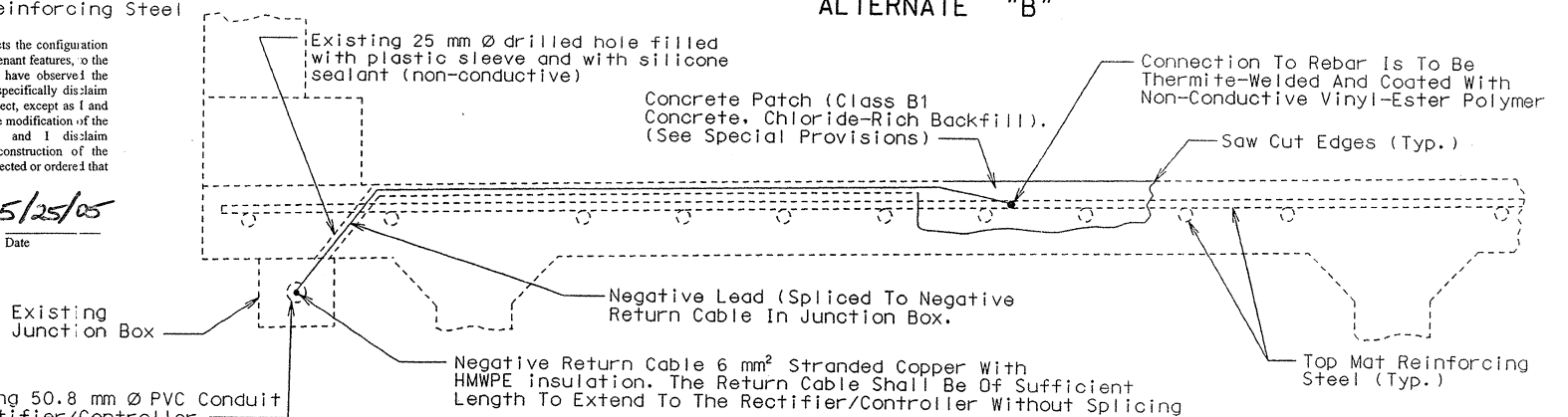


ALTERNATE "A"



ALTERNATE "B"

Note:
Resistance Weld Mesh To Current Distributor Bars At Every Strand Junction



SYSTEM NEGATIVE CONNECTION DETAILS

Notes for New Conduit and Appurtenances (if required):
Conduit shall be schedule 40 heavy wall PVC (Polyvinyl Chloride Plastic). Each section of conduit shall bear the underwriters laboratories, Inc. (UL) label.

Conduit shall be secured to concrete with clamps (galvanized/AASHTO M111) at abt. 1500 mm cts. Concrete anchors for clamps shall meet federal specification FF-S-325, group II, type 4, class I and shall be galvanized in accordance with ASTM A-153, B695-91 class 50 or stainless steel. Minimum embedment in concrete shall be 45 mm. The supplier shall furnish a manufacturer's certification that the concrete anchors meet the required material and galvanizing specifications.

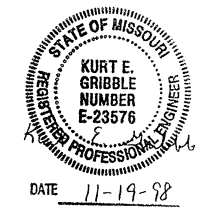
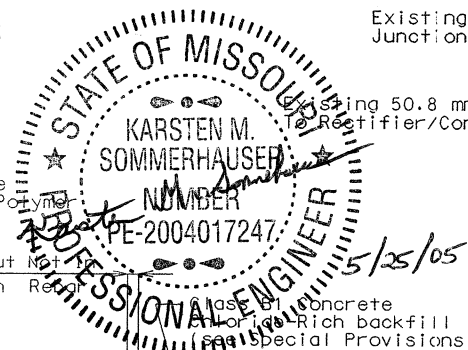
Weepholes shall be provided at appropriate locations to drain any moisture in the conduit lines.

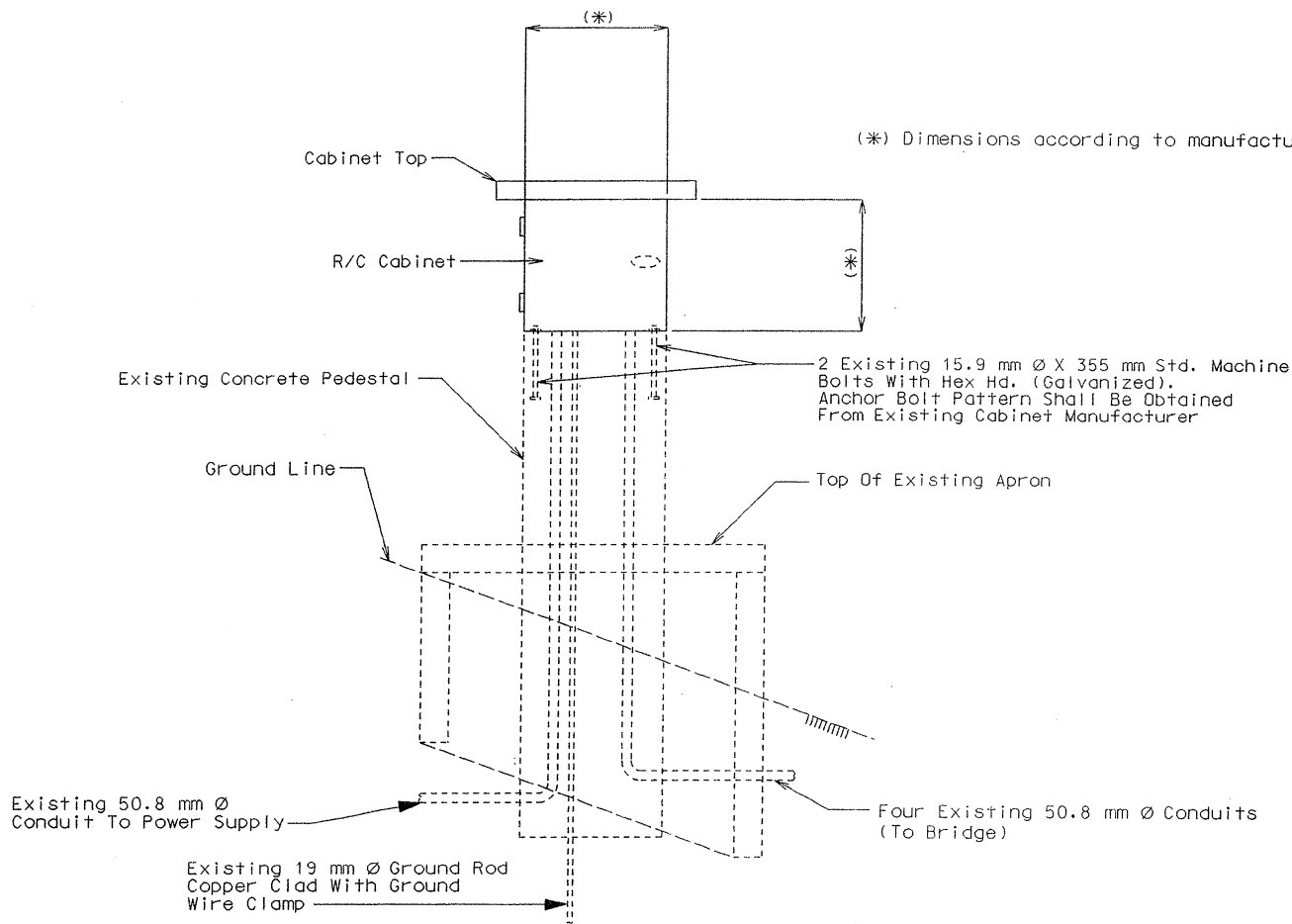
Expansion couplings shall be installed on conduit lines between all junction boxes and between all access fittings as approved by the engineer.

The location and direction of conduit may be shifted to meet field conditions as directed by the engineer.

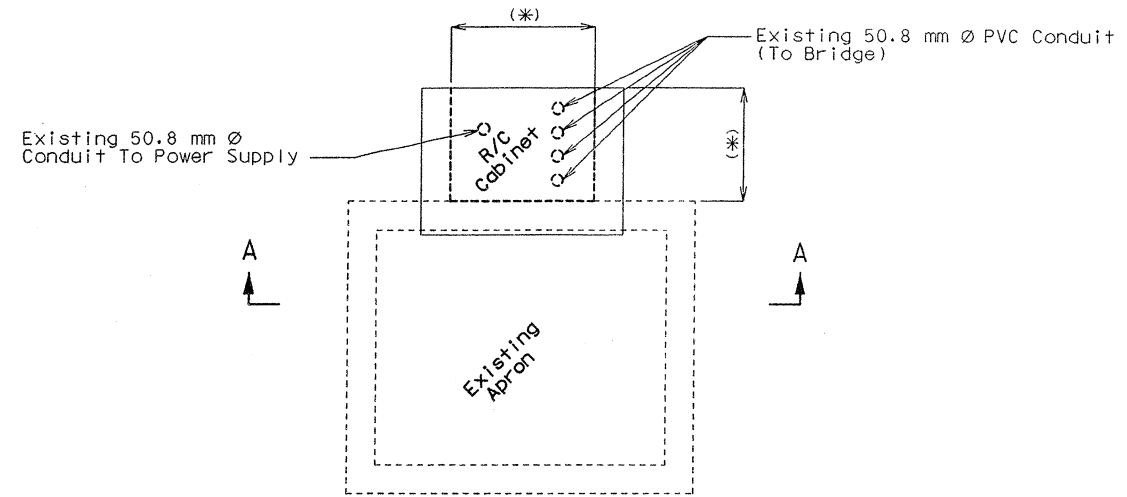
All junction boxes shall be PVC molded, surface mounted, size 200 mm x 200 mm x 175 mm and equal to Carlson Electrical Construction products or Triangle Conduit and Cable company Inc.. The terminations shall be permanent or seperable.

The terminations and covers shall be of watertight construction.



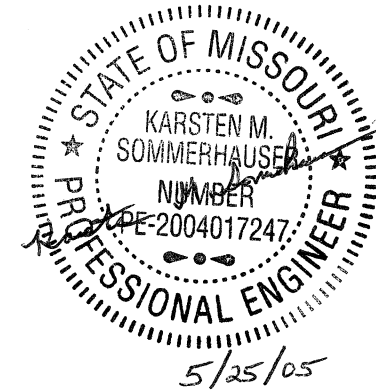


SECTION A-A



PLAN

(*) Dimensions according to manufactured cabinet.



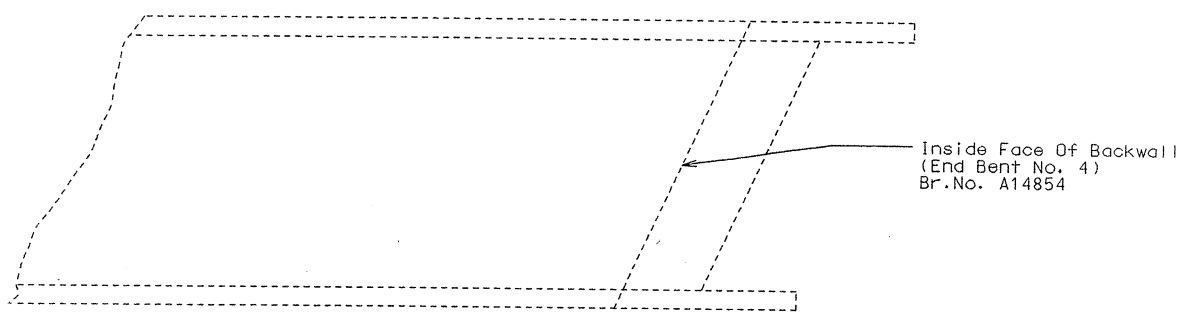
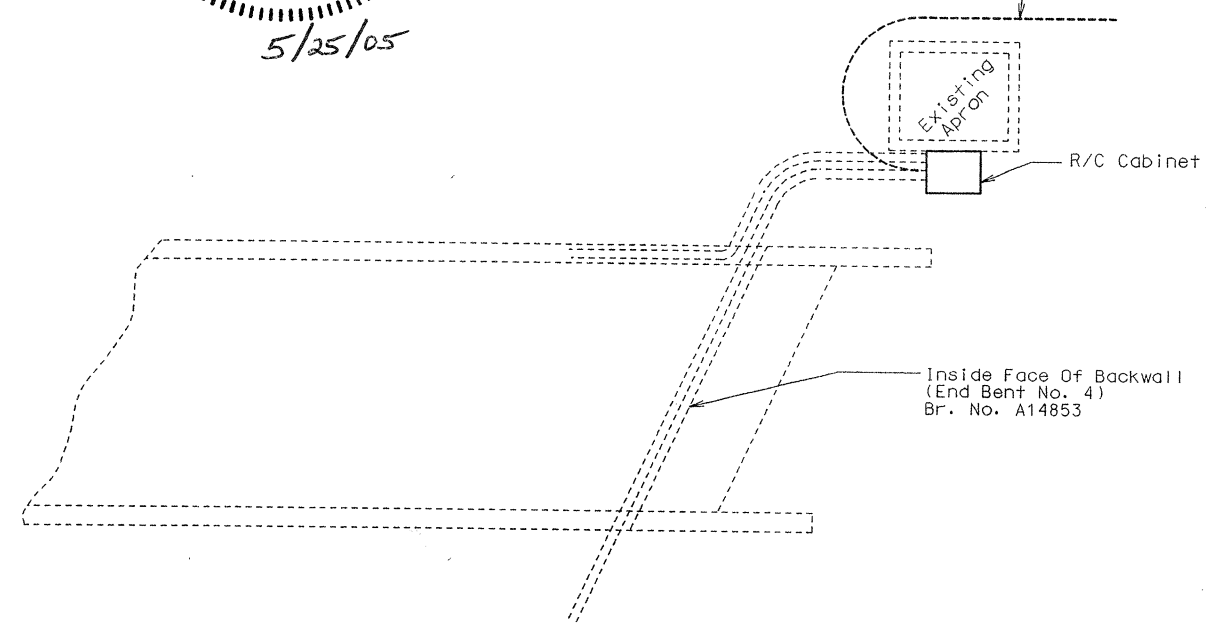
Final Plans
 I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction, and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.

Karsten M. Sommerhausen 5/25/05
 Signature Date

State	Proj. No.	Sheet No.
MO	FAI-435-1(263)	1335

JOB NO. J411299
 CONTRACT NO. 991022-403
 DIST. 4

The Telephone Cable Shall Be Routed Into The Rectifier Through One Of The Unused Existing Conduits.



PLAN LOCATION OF RECTIFIER/CONTROLLER

Note: The 19 mm Ø ground rod shall be of sufficient length to extend a minimum of 3050 mm below bottom of concrete pedestal. (Use existing if approved by the engineer).
 Ground wire shall be 16 mm² minimum (Use existing if approved by the engineer).
 Knockouts or drilled holes shall be provided in cabinets for all conduit. Locations of these holes are the responsibility of the contractor and cabinet manufacturer.



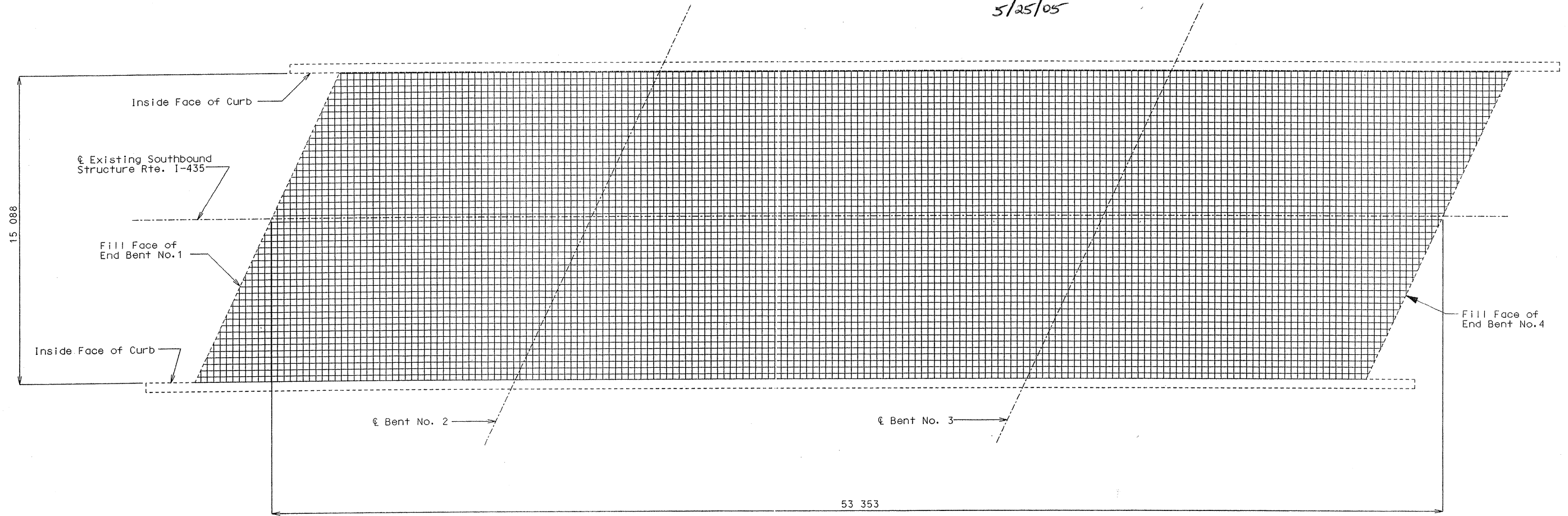
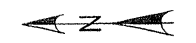
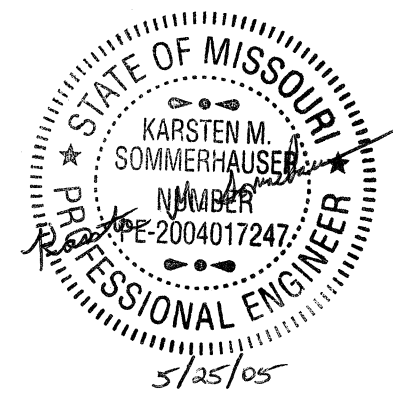
DATE 11-19-98

Final Plans
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State	Proj. No.	Sheet No.
MO	FAT-435-1(263)	B 36

JOB NO. J741 1299
 CONTRACT NO. 991022-403
 DIST. 4

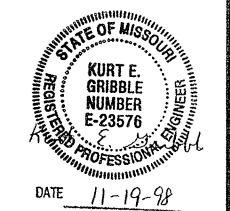
Karsten M. Sommerhauser 5/25/05
 Signature Date



PLAN OF CONCRETE DECK SHOWING GRID
 (For location of deck repair, reference cells and null probes)
 Note: This sheet is to be completed by MoDOT construction personnel.

Note: Grid = Approx. 310 mm Squares
 Drawing Scale = 1:100 mm/mm

REPAIRS TO BRIDGE A-1485 (S. B. L.)
 OVER GREGORY BLVD



JOB NO. J411299 CONTRACT NO. 991022-403

BILL OF REINFORCING STEEL

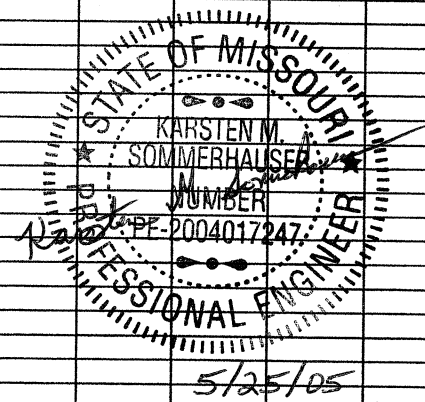
No. Req'd.	Mark No.	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	Dimensions							Nominal Length	Actual Length	Mass
								B	C	D	E	F	H	K			
								mm	mm	mm	mm	mm	mm	mm			
		CURB															
		BLOCKOUT															
32	16 R1	BLOCKOUT	E	13	S			300	795	300	795		2470	2370	118		
28	16 R2	BLOCKOUT	E	13	S			205	795	205	795		2280	2180	95		
4	16 R3	BLOCKOUT	E	13	S			205	730	205	730		2150	2050	13		
32	16 R4	BLOCKOUT	E	13	S			300	250	300	250		1380	1280	64		
40	16 R5	BLOCKOUT	E	20				1595					1595	1595	99		
8	16 R6	BLOCKOUT	E	20				755					755	755	9		
4	16 R7	BLOCKOUT	E	20				1485					1485	1485	9		
4	16 R8	BLOCKOUT	E	20				1595					1595	1595	10		
16	16 R9	BLOCKOUT	E	20				1595					1595	1595	40		
24	16 R20	BLOCKOUT	E	20				2965					2965	2965	110		
26	16 R21	BLOCKOUT	E	20				7015					7015	7015	283		
12	16 R22	BLOCKOUT	E	20				11245					11245	11245	209		

BILL OF REINFORCING STEEL

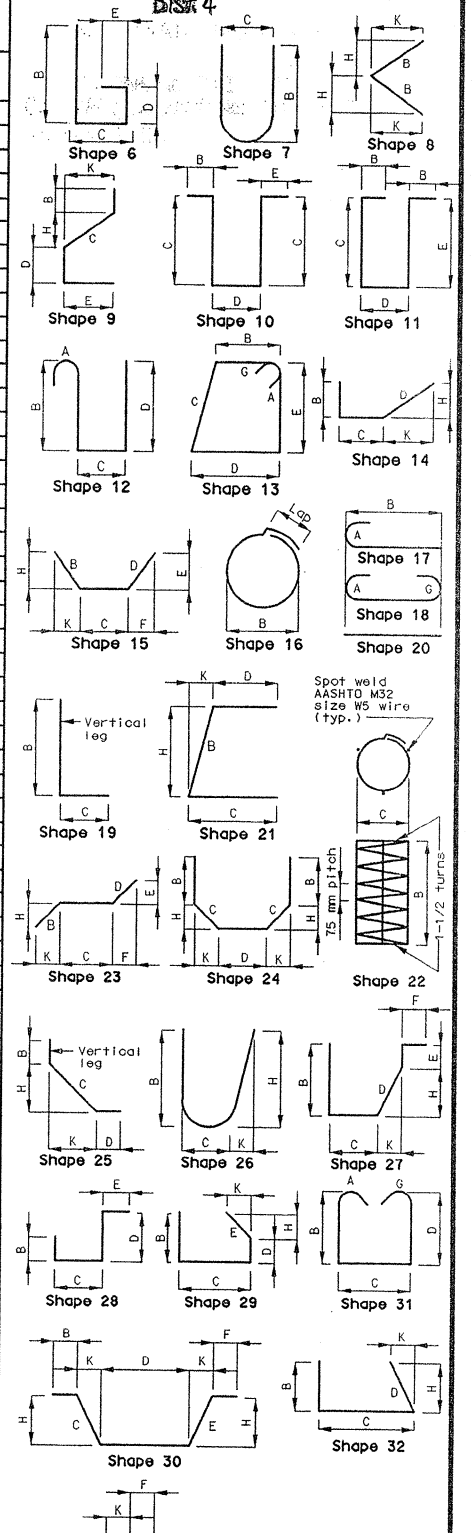
No. Req'd.	Mark No.	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	Dimensions							Nominal Length	Actual Length	Mass
								B	C	D	E	F	H	K			
								mm	mm	mm	mm	mm	mm	mm			

Final Plans
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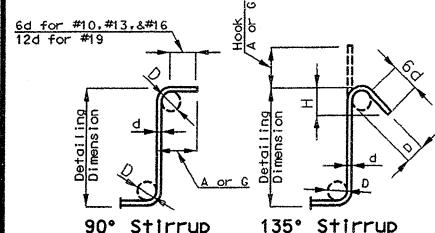
Karsten M. Sommerhauser 5/25/05
Signature Date



State	MO	Sheet No.	B37
Contract I.P.	FAT-435-1 (263)	Proj. No.	

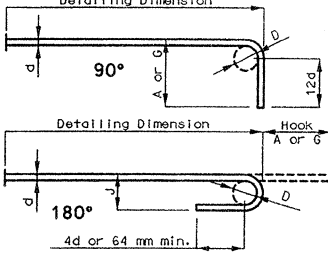


Two additional #16-R21 Bars are included in the bar bill for testing.



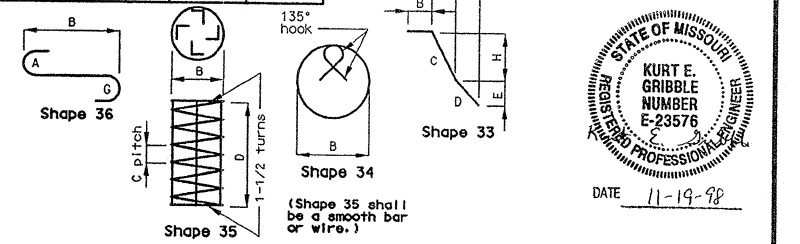
Bar Size	D	90° Hook		135° Hook	
		Hook A or G	Hook A or G	Hook A or G	Approx. H
#13	50	115	115	80	
#16	65	155	140	95	
#19	115	305	205	115	

Note: Unless otherwise noted, diameter D is the same for all bends and hooks on a bar.



Bar Size	D	All Grades		
		180° Hook A or G	J	90° Hook A or G
#10	60	125	80	150
#13	80	150	105	200
#16	95	175	130	250
#19	115	200	155	300
#22	135	250	180	375
#25	155	275	205	425
#29	240	375	300	475
#32	275	425	335	550
#36	305	475	375	600
#43	465	675	550	775

Notes:
All standard hooks and bends other than 180 degree to be bent with the same procedure as for 90 degree standard hooks.
Hooks and bends shall be in accordance with the procedures as shown on this sheet.
E = epoxy coated reinforcement
S = stirrup
X = bar is included in substructure quantities
V = bar dimensions vary in equal increments between dimensions shown on this line and the following line.
No. Eg. = number of bars of each length
Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed for fabricator's use (nearest 5 mm).
Actual lengths are measured along centerline bar to the nearest 5 mm.
Payweights are based on actual lengths.
Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and mass of column spirals do not include splices or spacers.
Reinforcing steel (Grade 420) = FY 420 MPa



BENDING DIAGRAMS

