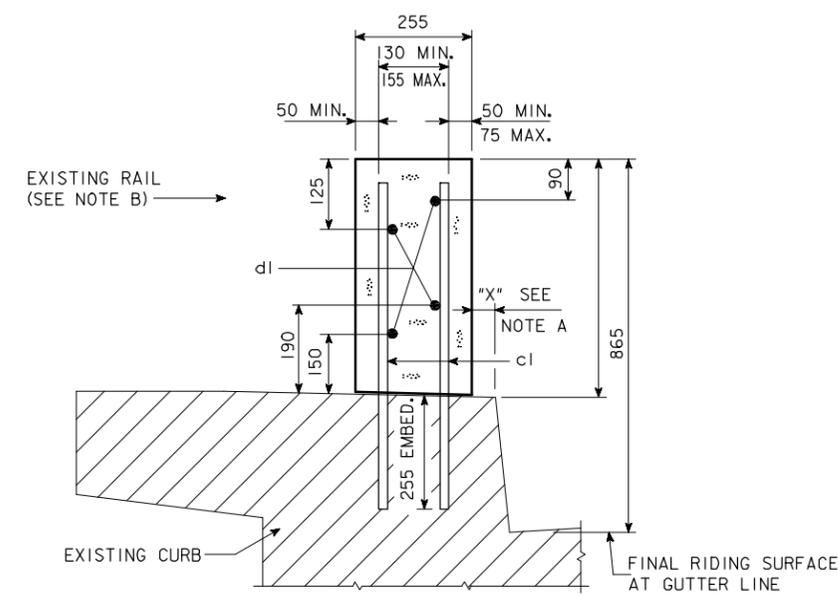


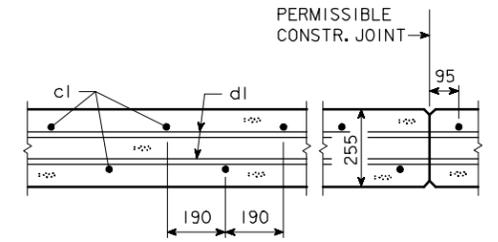
ELEVATION OF RETROFIT BARRIER RAIL



SECTION A-A

NOTE A: (SEE STANDARD SHEET M1031T IN THESE PLANS).

NOTE B:
 EXISTING RAIL IS TO BE REMOVED. ANCHOR BOLTS WHICH ARE NOT STAINLESS STEEL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW CURB SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH 2 COATS OF ZINC RICH PAINT. IF THE EXISTING ANCHOR BOLTS ARE STAINLESS STEEL THEY MAY BE LEFT IN POSITION AT THE CONTRACTOR'S OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER.



SECTION B-B

(SHOWING c1 PLACEMENT)

EPOXY REINFORCING STEEL-? RAIL						
MARK	SIZE	LOCATION	SHAPE	NO.	LENGTH	MASS
c1	20	STANDARD RAIL, VERT.	—			
d1	15	STANDARD RAIL, LONGIT.	—			
						TOTAL (kg)

IF EPOXY COATED NUMBER 20 METRIC BARS ARE NOT FEASIBLY AVAILABLE IN THE QUANTITY REQUIRED, EPOXY COATED NUMBER 6 IMPERIAL BARS MAY BE SUBSTITUTED AT NO CHANGE IN COST.

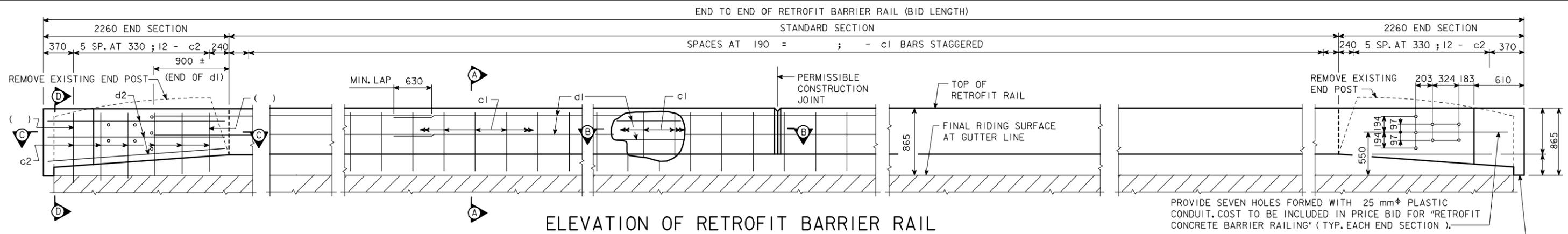
- SEE STANDARD SHEET M1031T IN THESE PLANS FOR:
- RAIL JOINT DETAILS
 - DOWEL SETTING NOTE
 - RETROFIT BARRIER RAIL NOTES
 - CONCRETE PLACEMENT SUMMARY
 - ESTIMATED QUANTITIES BOX

RETROFIT BARRIER RAIL DETAILS

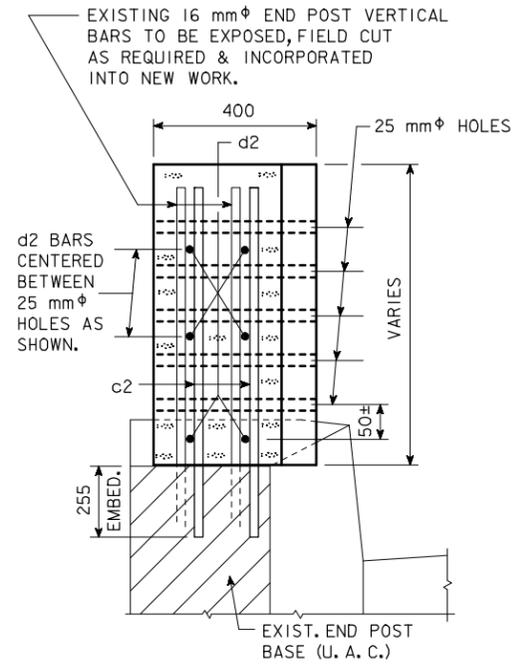
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. ____ DESIGN NO. ____

REVISED 07-04 - ADDED NOTE REFERRING TO RE69C FOR GUARDRAIL ATTACHMENT. HM1031.SOI - THIS SHEET ISSUED, 9-1-95.

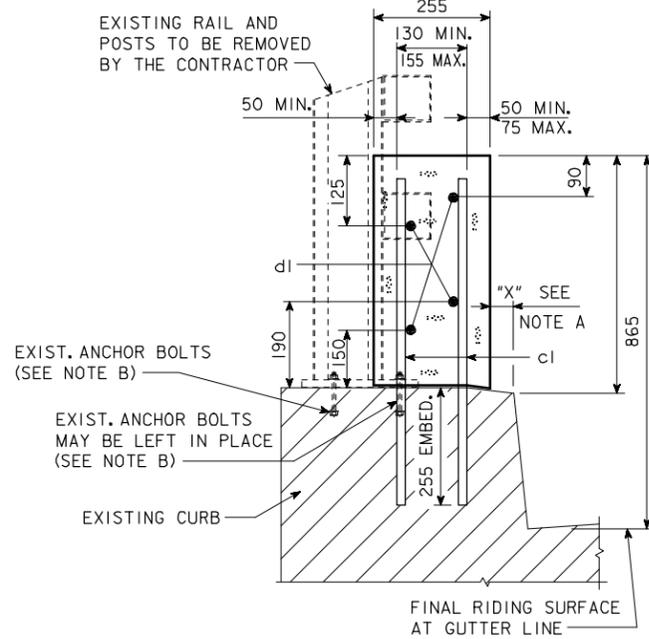


ELEVATION OF RETROFIT BARRIER RAIL



SECTION D-D

USE STANDARD ROAD PLAN RE-69C FOR GUARDRAIL ATTACHMENT



SECTION A-A

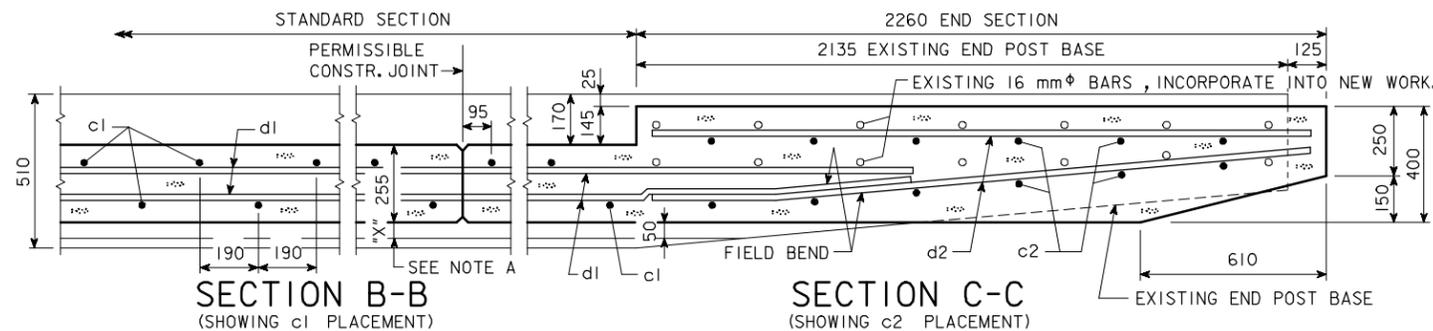
NOTE A: (SEE STANDARD SHEET M1031T IN THESE PLANS).

NOTE B:

EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 50 mm OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 50 mm MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT.

STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED.

NON STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW TOP OF CURB SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.



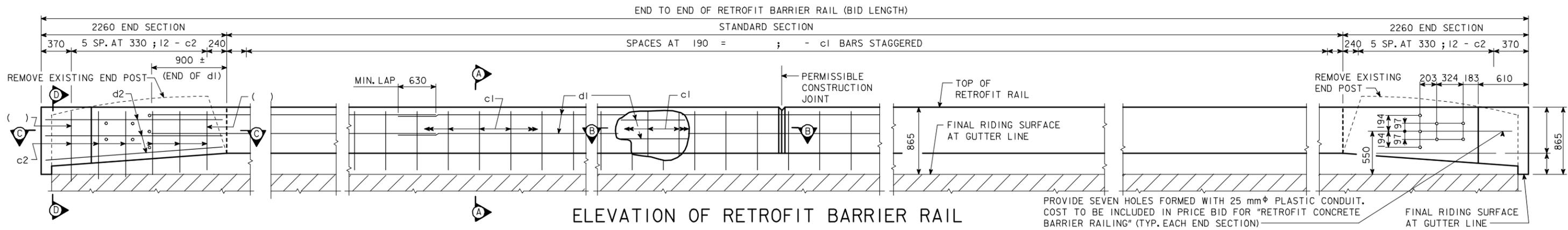
SEE STANDARD SHEET M1031T IN THESE PLANS FOR:

- RAIL JOINT DETAILS
- DOWEL SETTING NOTE
- RETROFIT BARRIER RAIL NOTES
- CONCRETE PLACEMENT SUMMARY
- ESTIMATED QUANTITIES BOX

RETROFIT BARRIER RAIL DETAILS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

REVISED 07-04 - ADDED NOTE REFERRING TO RE69C FOR GUARDRAIL ATTACHMENT. HM1031 C.S01 ; THIS SHEET ISSUED 9-1-95.



ELEVATION OF RETROFIT BARRIER RAIL

EPOXY REINFORCING STEEL-? RAIL						
MARK	SIZE	LOCATION	SHAPE	NO.	LENGTH	MASS
c1	20	STANDARD RAIL, VERT.	—			
c2	20	END SECTION, VERTICAL	—		SHOWN	
d1	15	STANDARD RAIL, LONGIT.	—			
d2	15	END SECTION, LONGIT.	—		2160	
					TOTAL (kg)	

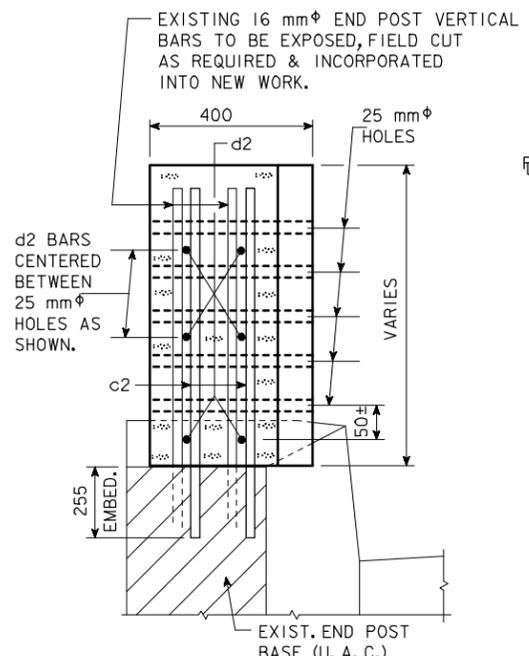
IF EPOXY COATED NUMBER 20 METRIC BARS ARE NOT FEASIBLY AVAILABLE IN THE QUANTITY REQUIRED, EPOXY COATED NUMBER 6 IMPERIAL BARS MAY BE SUBSTITUTED AT NO CHANGE IN COST.

NOTE A: (SEE STANDARD SHEET M1031T IN THESE PLANS).

NOTE B:
EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 50 mm OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 50 mm MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT. STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED. NON STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW TOP OF CURB SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.

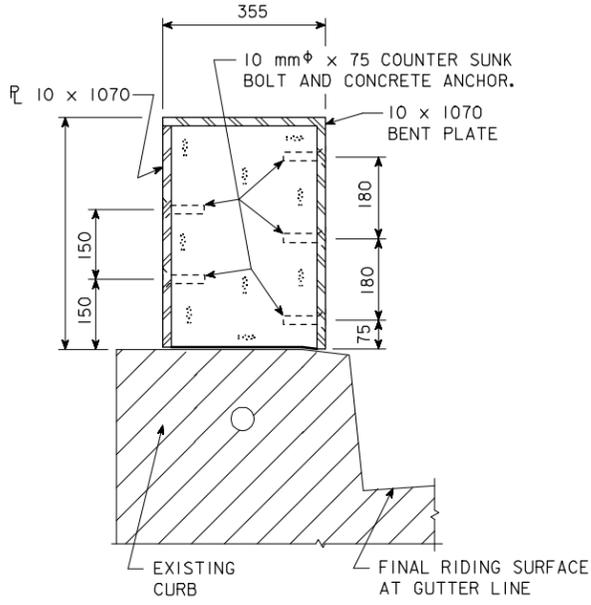
NOTE C:
THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING CONDUIT IN THE BRIDGE CURBS. IN ORDER TO ENSURE THE EXISTING CONDUITS AND/OR ELECTRICAL SERVICE (IF PRESENT) ARE NOT DAMAGED DURING PLACEMENT OF THE RETROFIT CONCRETE BARRIER RAILING, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:
1. PHYSICALLY LOCATE THE CONDUIT AT APPROXIMATELY 15 METER INTERVALS PRIOR TO DRILLING ANY HOLES FOR 19 mm DIAMETER DOWEL BARS.
2. AFTER COMPLETION OF DRILLING FOR THE 19 mm DOWEL BARS AND PRIOR TO PLACEMENT OF THE DOWELS, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.

COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE RETROFIT CONCRETE BARRIER RAILING. ANY DAMAGE TO THE CONDUIT OR WIRING BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

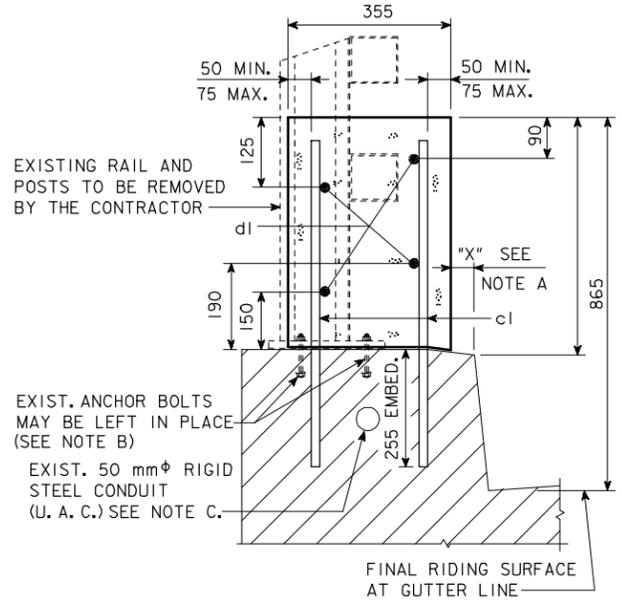


SECTION D-D

USE STANDARD ROAD PLAN RE-69C FOR GUARDRAIL ATTACHMENT

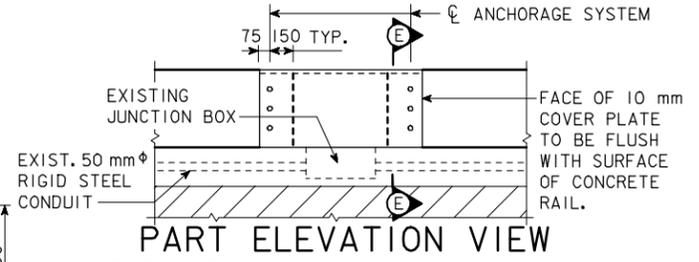
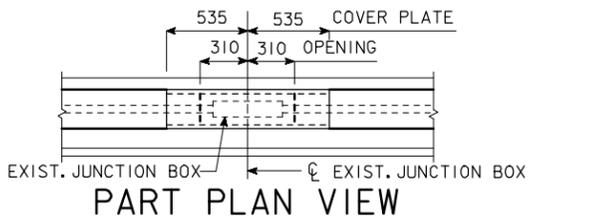


SECTION E-E

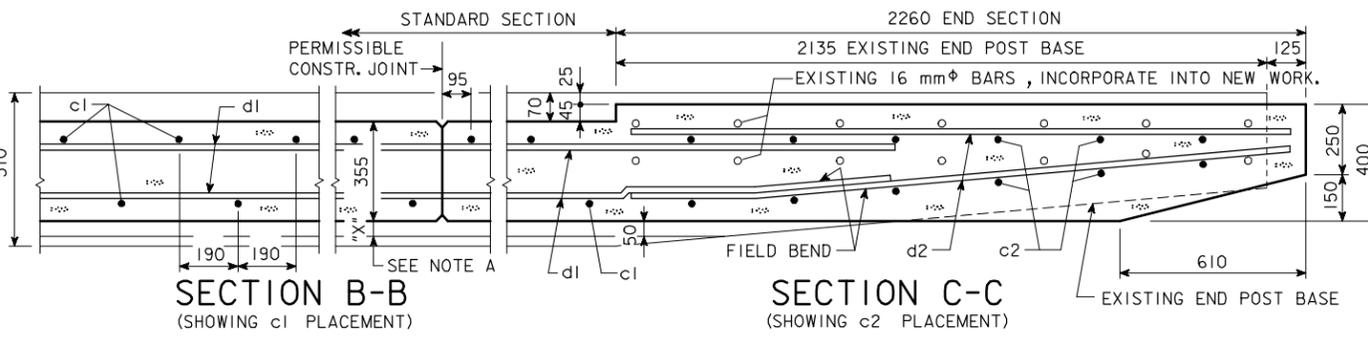


SECTION A-A

SEE STANDARD SHEET M1031T IN THESE PLANS FOR:
• RAIL JOINT DETAILS
• DOWEL SETTING NOTE
• RETROFIT BARRIER RAIL NOTES
• CONCRETE PLACEMENT SUMMARY
• ESTIMATED QUANTITIES BOX



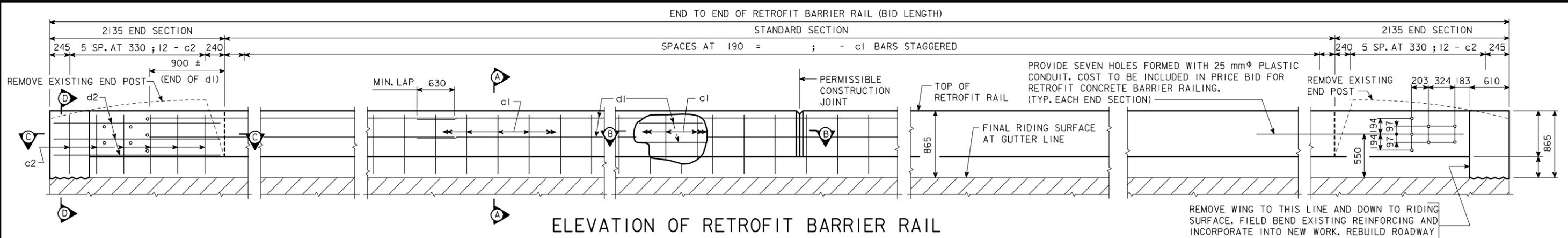
THE RETROFIT RAIL SHALL BE GAPPED AT EXISTING JUNCTION BOXES AS DETAILED. THE VERTICAL BARS SHALL BE SHIFTED AS REQUIRED AND THE LONGITUDINAL BARS SHALL BE FIELD CUT AS REQUIRED. CUT ENDS OF LONGITUDINAL BARS SHALL BE PATCHED WITH EPOXY. A 10 mm GALVANIZED PLATE SHALL FIT OVER THE GAPPED AREA IN THE RAIL AND SHALL BE HELD IN PLACE WITH COUNTERSUNK BOLTS AND CONCRETE ANCHORS. THE COST OF THE GALVANIZED PLATES AND ANCHORAGE SYSTEM SHALL BE INCIDENTAL TO THE COST OF THE RETROFIT RAIL. REQUIRED AT ?? EXISTING JUNCTION BOXES.



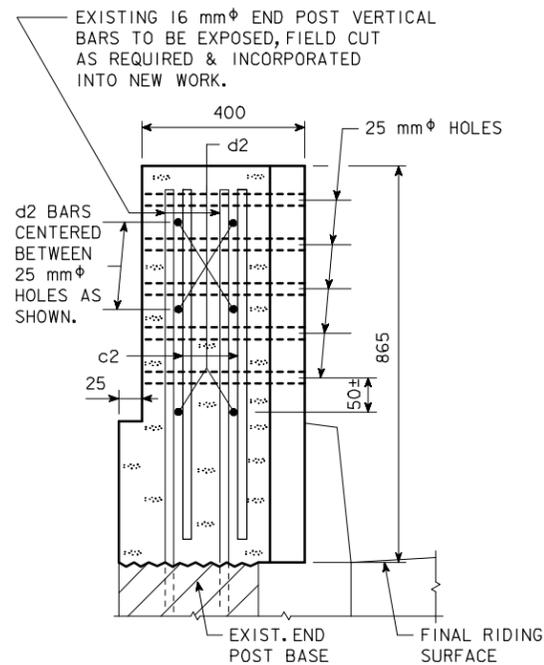
RETROFIT BARRIER RAIL DETAILS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

REVISED 07-04 - ADDED NOTE REFERRING TO RE69C FOR GUARDRAIL ATTACHMENT. HM1031 D.S01 - THIS SHEET ISSUED, 9-1-95.

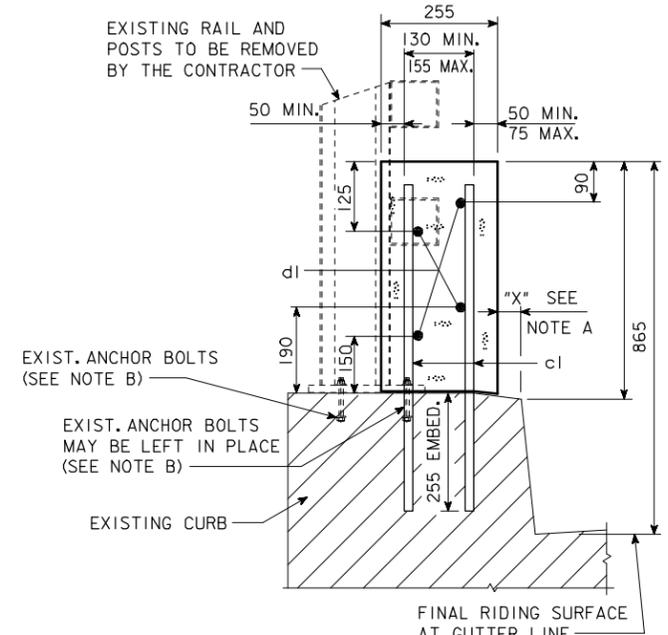


ELEVATION OF RETROFIT BARRIER RAIL



SECTION D-D

USE STANDARD ROAD PLAN RE-69C FOR GUARDRAIL ATTACHMENT



SECTION A-A

NOTE A: (SEE STANDARD SHEET M1031T IN THESE PLANS).

NOTE B:

EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 50 mm OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 50 mm MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT.

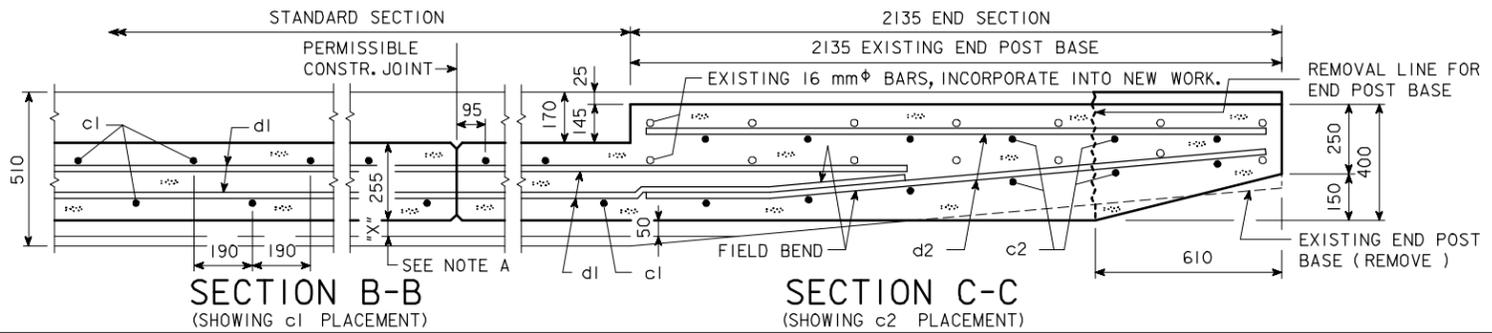
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EPOXY REINFORCING STEEL-? RAIL						
MARK	SIZE	LOCATION	SHAPE	NO.	LENGTH	MASS
c1	20	STANDARD RAIL, VERT.	—			
c2	20	END SECTION, VERTICAL	—		SHOWN	
d1	15	STANDARD RAIL, LONGIT.	—			
d2	15	END SECTION, LONGIT.	—		2035	
						TOTAL (kg)

IF EPOXY COATED NUMBER 20 METRIC BARS ARE NOT FEASIBLY AVAILABLE IN THE QUANTITY REQUIRED, EPOXY COATED NUMBER 6 IMPERIAL BARS MAY BE SUBSTITUTED AT NO CHANGE IN COST.

- SEE STANDARD SHEET M1031T IN THESE PLANS FOR:
- RAIL JOINT DETAILS
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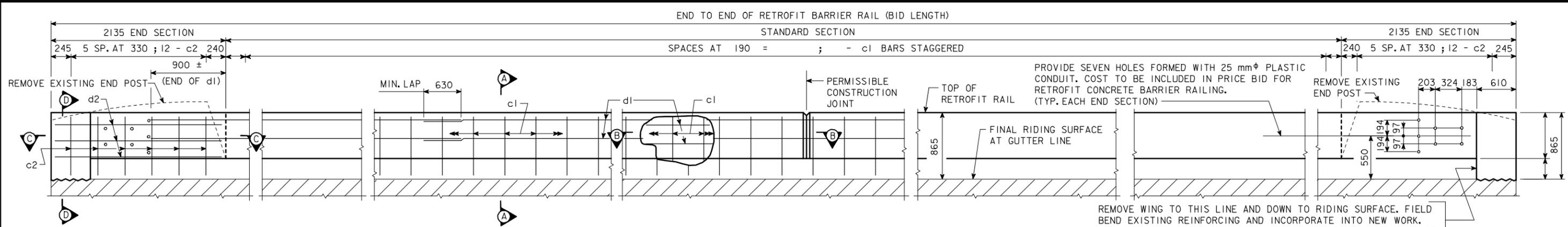


RETROFIT BARRIER RAIL DETAILS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

REVISED 07-04 - ADDED NOTE REFERRING TO RE69C FOR GUARDRAIL ATTACHMENT. M1031E.S01 - THIS SHEET ISSUED 5-25-99.



ELEVATION OF RETROFIT BARRIER RAIL

EPOXY REINFORCING STEEL-? RAIL						
MARK	SIZE	LOCATION	SHAPE	NO.	LENGTH	MASS
c1	20	STANDARD RAIL, VERT.	—			
c2	20	END SECTION, VERTICAL	—		SHOWN	
d1	15	STANDARD RAIL, LONGIT.	—			
d2	15	END SECTION, LONGIT.	—		2035	
					TOTAL (kg)	

IF EPOXY COATED NUMBER 20 METRIC BARS ARE NOT FEASIBLY AVAILABLE IN THE QUANTITY REQUIRED, EPOXY COATED NUMBER 6 IMPERIAL BARS MAY BE SUBSTITUTED AT NO CHANGE IN COST.

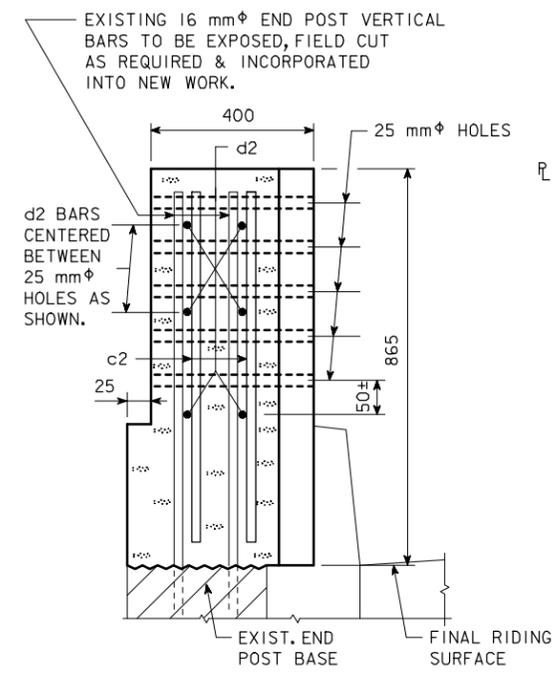
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NOTE C:
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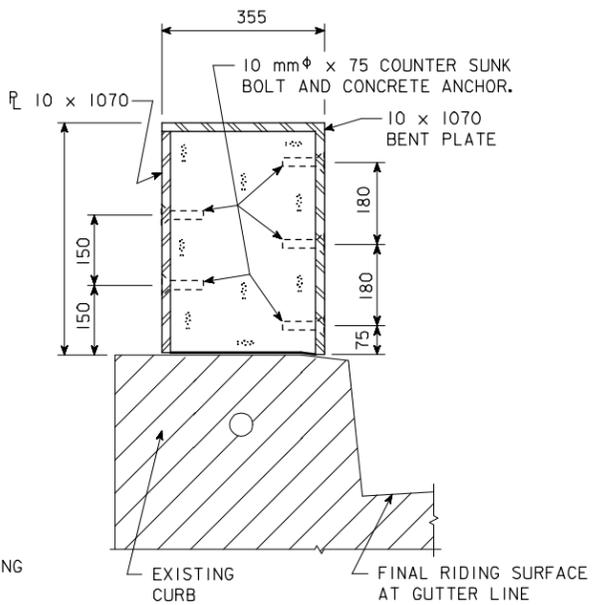
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- AFTER COMPLETION OF DRILLING FOR THE 19 mm DOWEL BARS AND PRIOR TO PLACEMENT OF THE DOWELS, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.

COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE RETROFIT CONCRETE BARRIER RAILING. ANY DAMAGE TO THE CONDUIT OR WIRING BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

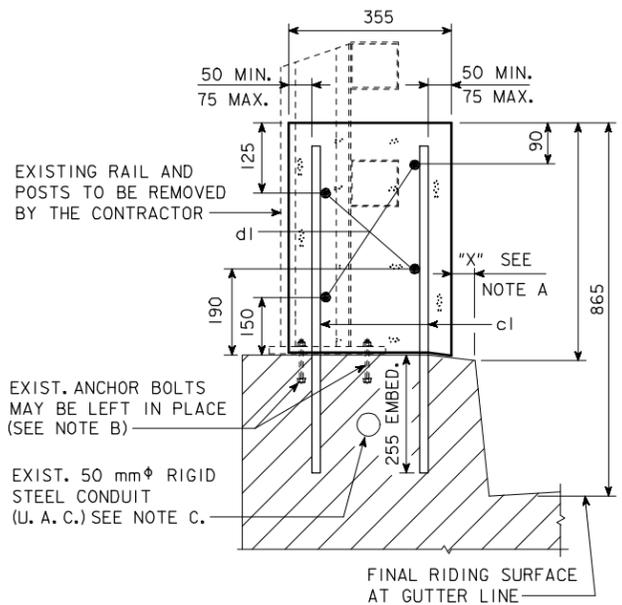


SECTION D-D

USE STANDARD ROAD PLAN RE-69C FOR GUARDRAIL ATTACHMENT



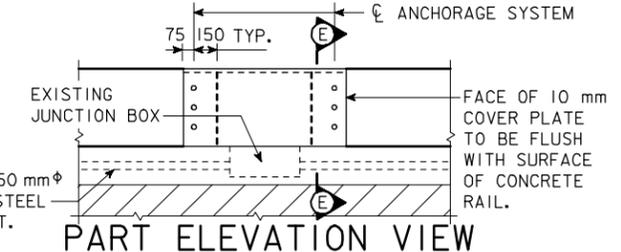
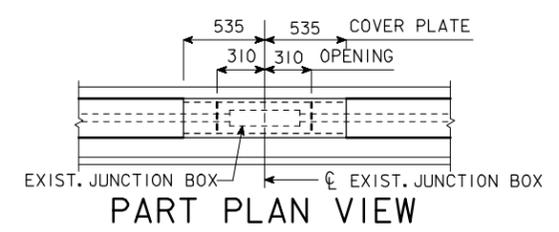
SECTION E-E



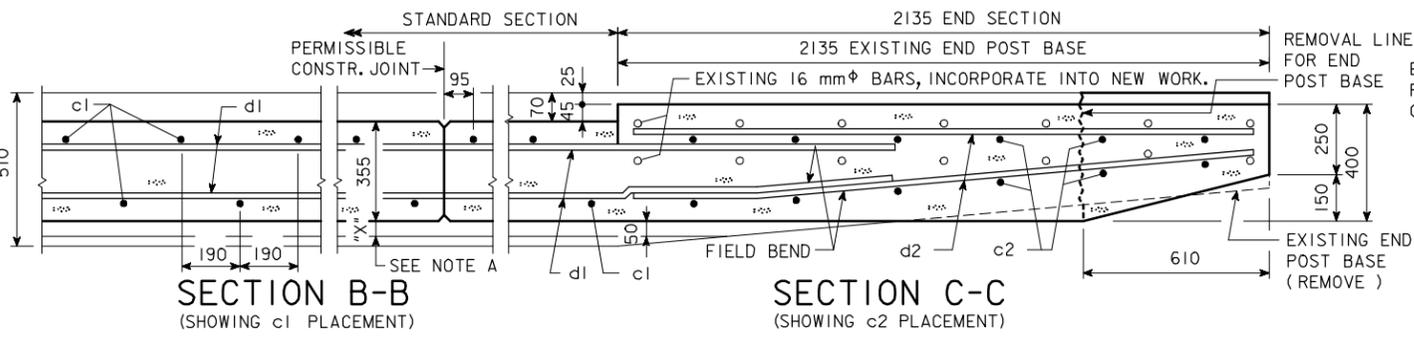
SECTION A-A

SEE STANDARD SHEET M1031T IN THESE PLANS FOR:

- RAIL JOINT DETAILS
- DOWEL SETTING NOTE
- RETROFIT BARRIER RAIL NOTES
- CONCRETE PLACEMENT SUMMARY
- ESTIMATED QUANTITIES BOX



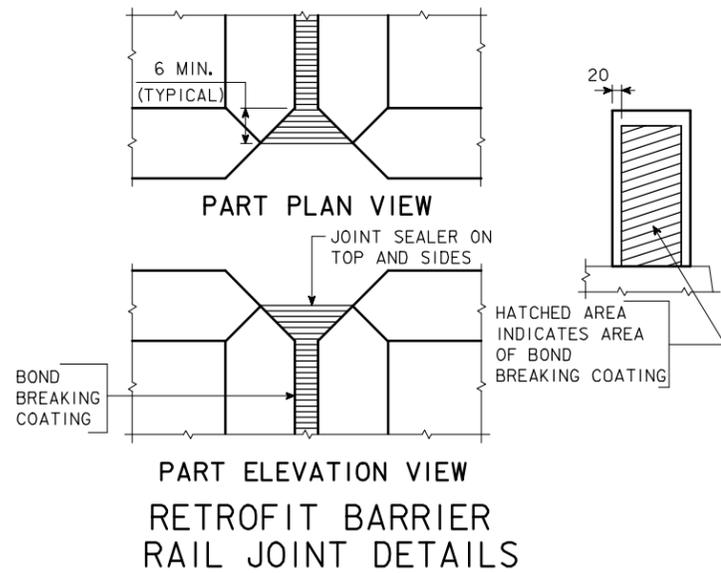
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RETROFIT BARRIER RAIL DETAILS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

REVISED 07-04 - ADDED NOTE REFERRING TO RE69C FOR GUARDRAIL ATTACHMENT. HM1031.F.S01 - THIS SHEET ISSUED 5-25-99.



DOWEL SETTING NOTE :

THE "c" BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 255 mm DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE DOWELS :

- A. EPOXY GROUT SYSTEM IN ACCORDANCE WITH METRIC STANDARD SPECIFICATIONS ARTICLE 2301.12 AND CURRENT SUPPLEMENTAL SPECIFICATIONS.
- B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2.5 TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

NOTE A: (SEE SECTION A-A ON BARRIER RAIL LAYOUT SHEET).

ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 25 mm AND A MAXIMUM OF 75 mm, BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 3050 mm AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 50 mm AT END SECTION AS SHOWN.

RETROFIT BARRIER RAILING NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED OR SHOWN.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 50 mm UNLESS OTHERWISE NOTED OR SHOWN. ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A 20 mm DRESSED AND BEVELED STRIP.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 6000 mm. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE RETROFIT BARRIER RAIL IS TO BE BID ON A METRIC BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF METERS OF RETROFIT BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER METER BASED ON PLAN QUANTITIES. PRICE BID FOR "RETROFIT CONCRETE BARRIER RAILING" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL & 25 mm DIA. PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL RETROFIT BARRIER RAIL CONCRETE IS TO BE CLASS D. ALL REINFORCING STEEL IS TO BE GRADE 400 AND EPOXY COATED. THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL AND END POSTS" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING ?? HANDRAIL (APPROX. ?? METERS AND ??? POSTS). THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY THE CONTRACTOR. THE BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING CONCRETE END POSTS AND THE CUTTING OFF AND PAINTING OF THE EXISTING RAIL POST ANCHOR BOLTS IF REQUIRED.

ANY REMOVALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE METRIC STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE STATE.

EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION ? AT ? m ³ PER m	
END SECTIONS ? AT ? m ³ PER SECTION	
TOTAL m ³	

ESTIMATED QUANTITIES

ITEM NO.	ITEM CODE	UNIT	TOTAL	AS BUILT QUANTITY
1				
2				

QUANTITIES NEEDED FOR RETROFIT CONCRETE BARRIER RAILING AND END POSTS REMOVAL OF EXISTING HANDRAIL AND END POSTS

ITEM NO.

ESTIMATE REFERENCE INFORMATION

- 1 INCLUDES ??? CU. METERS OF CLASS D STRUCTURAL CONCRETE AND ??? kg OF EPOXY COATED REINFORCING STEEL.

RETROFIT BARRIER RAIL DETAILS

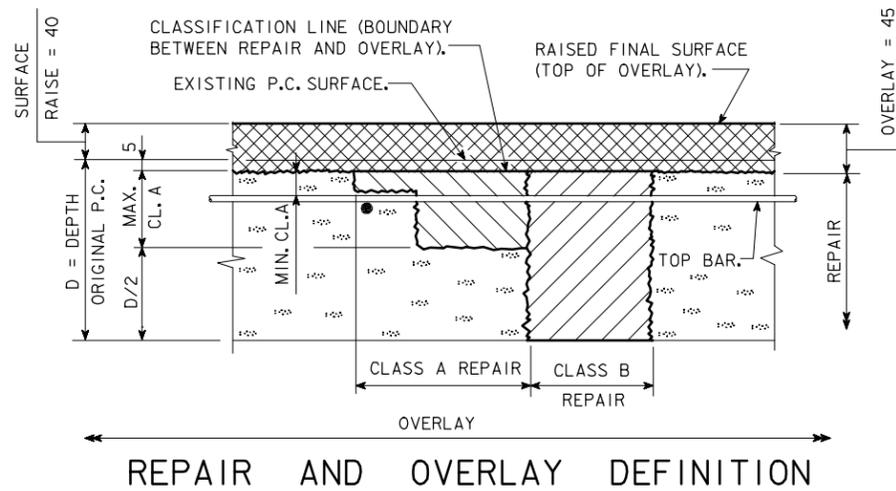
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

HM1031T.S01 - 01-01 THIS SHEET ISSUED.

TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
2401--6745635	REMOVAL OF EXISTING HANDRAIL	LS	1.000	
2413--0698071	BRIDGE FLOOR OVERLAY	m ²		
2413--0698072	BRIDGE FLOOR REPAIR, CLASS A	m ²		
2414--6424115	RAIL, CONCRETE BARRIER (CAST-IN-PLACE)	m		
2528--8400051	TEMPORARY BARRIER RAIL, FURNISH ONLY	m		
2528--8400052	TEMPORARY BARRIER RAIL, PLACE ONLY	m		
2533--4980005	MOBILIZATION	LS	1.000	

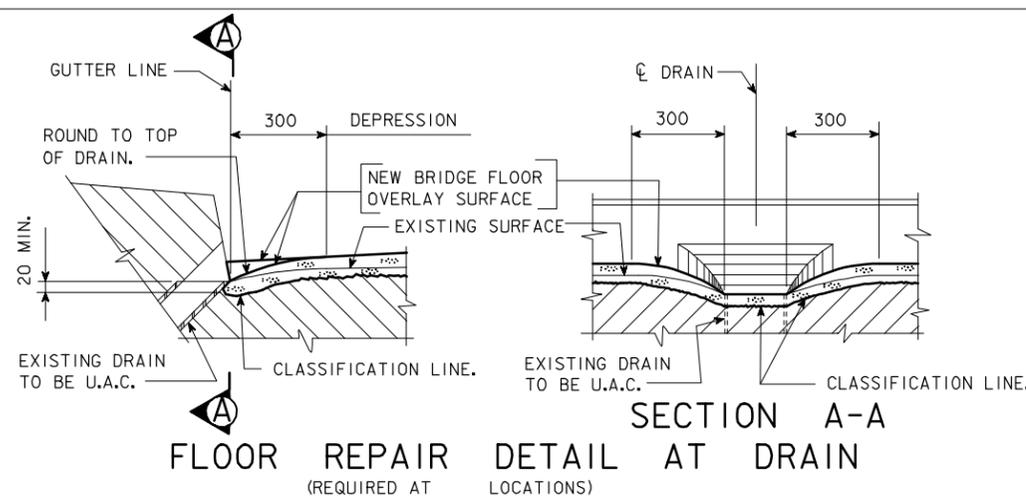
<u>ITEM CODE</u>	<u>ESTIMATE REFERENCE INFORMATION</u>
2413--0698071	INCLUDES COST OF FURNISHING AND PLACING SEALER
2414--6424115	INCLUDES COST OF FURNISHING AND PLACING EPOXY COATED REINFORCING STEEL
2528--8400051	ALL TEMPORY BARRIER RAIL SHALL BE NOMINAL 3050 mm LONG CONCRETE UNITS
2528--8400052	ALL TEMPORY BARRIER RAIL SHALL BE NOMINAL 3050 mm LONG CONCRETE UNITS



NOTE:
ROADWAY QUANTITIES SHOWN
ELSEWHERE IN THESE PLANS.

SITUATION PLAN

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK



SPECIFICATIONS:
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION METRIC STANDARD SPECIFICATIONS, CURRENT SERIES, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1992.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 400.
CONCRETE IN ACCORDANCE WITH SECTION 8, $f'_c = 24 \text{ MPa}$.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10, ASTM A-36.

LOCATION:
MAINTENANCE NO.

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. ____ DESIGN NO. ____

HM1038.S01: THIS SHEET ISSUED 9-1-95.

CORRECTION 10-01 - M430 NOTES CHANGED FROM PROJECT DEVELOPMENT DIVISION TO HIGHWAY DIVISION. HM1039.S01 - THIS SHEET REISSUED 8-23-96.

M400A	PLAN QUANTITY OF FLOOR REPAIR IS BASED ON THE "SURVEY PLOT" AS SHOWN IN THESE PLANS. HATCHED PORTIONS REPRESENT CLASS A BRIDGE FLOOR REPAIR. CROSS HATCHED PORTIONS, IF SHOWN, REPRESENT CLASS B BRIDGE FLOOR REPAIR. ACTUAL SPALLED AND HOLLOW AREAS, AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION, SHALL BE REPAIRED.
M400B	NO PRELIMINARY FLOOR SURVEY IS SHOWN. THE PLAN QUANTITY FOR "CLASS A BRIDGE FLOOR REPAIR" IS ESTIMATED AS ___ OF THE TOTAL FLOOR AREA. THE ACTUAL QUANTITY IS DETERMINED BY THE ENGINEER AFTER THE A.C. SURFACING HAS BEEN REMOVED. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER SHALL BE REPAIRED.
M400C	PLAN QUANTITY OF FLOOR REPAIR IS BASED ON TWO TIMES THE SHADED AREAS PLUS THE BOUNDED AREAS SHOWN ON THE "SURVEY PLOT" IN THESE PLANS. SHADED AREAS REPRESENT CLASS A BRIDGE FLOOR REPAIR FOUND BY DELAMTECT PLOT. BOUNDED AREAS INCLUDE A.C. PATCH OR SPALLED AREAS NOT RECORDED BY THE DELAMTECT AND/OR THE SQUARING UP OF THE REPAIR AREAS. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION SHALL BE REPAIRED.
M400D	PLAN QUANTITY OF FLOOR REPAIR IS BASED ON TWO TIMES THE SHADED AREAS SHOWN ON THE "SURVEY PLOT" IN THESE PLANS. SHADED AREAS REPRESENT CLASS A BRIDGE FLOOR REPAIR FOUND BY THE DELAMTECT PLOT. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION, SHALL BE REPAIRED.
M410A	PRESENT FLOOR THICKNESS IS ABOUT _____ mm. THE CONTRACTOR SHALL EXERCISE CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY UNBONDING OF REINFORCING STEEL.
M410B	PRESENT FLOOR THICKNESS IS ABOUT _____ mm. THE CONTRACTOR SHALL EXERCISE CARE IN ORDER TO PREVENT UNNECESSARY REMOVAL OF CONCRETE BELOW THE TOP OF THE TOP REINFORCING. THE ENERGY OF HAND TOOLS SHALL BE RESTRICTED NEAR THE BOTTOM OF THE DESIGNATED CLASS A REPAIR AREAS IN ORDER TO PREVENT UNBONDING OF REINFORCING. NO CONCRETE SHALL BE REMOVED BELOW THE TOP OF THE TOP LONGITUDINAL REINFORCING WITHOUT PRIOR PERMISSION FROM THE BRIDGE ENGINEER.
M410C	PRESENT FLOOR THICKNESS IS ABOUT _____ mm. THE FLOOR REINFORCING IS QUITE SHALLOW FOR A PORTION OF THE FLOOR AREA. IN THOSE AREAS WHERE REINFORCING IS LESS THAN 5 mm CLEAR BELOW THE ORIGINAL FINISHED SURFACE, THE BOTTOM LIMIT OF BRIDGE FLOOR OVERLAY WILL BE CONSIDERED AS THE TOP OF THE TOP REINFORCING. UNSOUND CONCRETE BELOW THE TOP OF THE TOP REINFORCING SHALL BE REPAIRED AS CLASS A BRIDGE FLOOR REPAIR. THE CONTRACTOR WILL BE REQUIRED TO CAREFULLY REGULATE SCARIFYING DEPTH AND EMPLOY HAND METHODS AS NECESSARY IN ORDER TO PREVENT DAMAGE OR UNBONDING OF REINFORCING.
M410D	PRESENT FLOOR THICKNESS IS ABOUT ___ mm, INCLUDING EXISTING OVERLAY. THE CONTRACTOR SHALL EXERCISE CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY UNBONDING OF REINFORCING STEEL.
M410E	PRESENT FLOOR THICKNESS IS ABOUT ___ mm, INCLUDING EXISTING OVERLAY. THE CONTRACTOR SHALL EXERCISE CARE IN ORDER TO PREVENT UNNECESSARY REMOVAL OF CONCRETE BELOW THE TOP OF THE TOP REINFORCING. THE ENERGY OF HAND TOOLS SHALL BE RESTRICTED NEAR THE BOTTOM OF THE DESIGNATED CLASS A REPAIR AREAS IN ORDER TO PREVENT UNBONDING OF REINFORCING. NO CONCRETE SHALL BE REMOVED BELOW THE TOP OF THE TOP LONGITUDINAL REINFORCING WITHOUT PRIOR PERMISSION FROM THE BRIDGE ENGINEER.
M411	THE MINIMUM DEPTH FOR CLASS A REPAIR IS TO BE 40 mm IN AREAS WHERE TOP REINFORCING IS NOT PRESENT.
M412	THE BRIDGE FLOOR IS COVERED WITH A ___ mm THICK PORTLAND CEMENT CONCRETE OVERLAY. THE CONTRACTOR SHALL NOTE THE REDEFINING OF THE CLASSIFICATION LINE (BOUNDARY BETWEEN REPAIR AND OVERLAY) FOR THIS PROJECT DUE TO THE EXISTING OVERLAY. THE CLASSIFICATION LINE WILL BE DEFINED AS ___ mm BELOW THE TOP OF EXISTING OVERLAY. THIS WILL NECESSITATE THE REMOVAL OF THE EXISTING BRIDGE FLOOR OVERLAY BEFORE PLACING THE PROPOSED NEW BRIDGE FLOOR OVERLAY. ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING OVERLAY SHALL BE INCLUDED IN THE BID ITEM "REMOVAL OF EXISTING P.C. OVERLAY". REMOVAL OF EXISTING OVERLAY SHALL BE COMPUTED IN SQUARE METERS FROM THE MEASUREMENT OF AREAS REMOVED. THE CONTRACTOR WILL BE PAID THE CONTRACT PRICE PER SQUARE METER FOR FURNISHING ALL EQUIPMENT AND LABOR NECESSARY TO REMOVE THE CONCRETE TO WITHIN 5 mm ABOVE THE CLASSIFICATION LINE. ALL COSTS, INCLUDING FURNISHING EQUIPMENT AND LABOR, ASSOCIATED WITH REMOVAL OF THE NEXT 5 mm OF CONCRETE (TO THE CLASSIFICATION LINE) SHALL BE INCLUDED IN THE BID ITEM "BRIDGE FLOOR OVERLAY". UPON COMPLETION OF THE REMOVAL OF CONCRETE DOWN TO THE CLASSIFICATION LINE, THE ENGINEER SHALL DETERMINE THE AREAS OF BRIDGE DECK TO BE REPAIRED AS "CLASS A BRIDGE FLOOR REPAIR". ACTUAL HOLLOW AREAS, AS DETERMINED BY THE ENGINEER, SHALL BE REPAIRED.

M420	CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST ONE LANE TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE.
M421	CONSTRUCTION STAGES I & II AS DETAILED ON THESE PLANS MAY BE REVERSED AT THE CONTRACTOR'S OPTION SUBJECT TO THE ENGINEER'S APPROVAL.
M422	BEFORE PROCEEDING WITH BRIDGE FLOOR OVERLAY AND BRIDGE FLOOR REPAIR THE CONTRACTOR MAY COMPLETE ALL STAGES OF OTHER CONSTRUCTION. ANY CONSTRUCTION SHALL HAVE STAGE LIMITS, TEMPORARY BARRIER RAIL AND TRAFFIC CONTROL AS DETAILED ON THESE PLANS. TEMPORARY BARRIER RAIL AND TRAFFIC CONTROL MAY BE ADJUSTED TO FIT THE ACTUAL WORK AND STORAGE AREA. WHEN BACKWALLS AND/OR APPROACH SECTIONS ARE TO BE REBUILT TO A RAISED SURFACE, AND WHEN FLOOR OVERLAY IS NOT A PART OF THE SAME STAGE, THE CONTRACTOR SHALL PROVIDE FOR PROFILE TRANSITION WITH A.C. SURFACING. PROFILE TRANSITION SHALL BE TAPERED AT A RATE OF 7600 mm FOR 40 mm OF RAISE. THE A.C. TRANSITION MATERIAL SHALL BE A COMMERCIAL GRADE HOT SURFACING MIX OR A MIX APPROVED BY THE ENGINEER. A.C. MAY BE PLACED BY HAND METHODS AND MAY BE COMPACTED BY ANY APPROVED METHOD. ALL COSTS FOR ADDITIONAL TRAFFIC CONTROL, REPOSITIONING OF BARRIER AND A.C SURFACING SHALL BE BORNE BY THE CONTRACTOR.
M425	ALL DIMENSIONS IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED OR SHOWN. ALL ELEVATIONS ON THESE PLANS SHOWN IN METERS (m). ALL STATIONS SHOWN IN METERS (m).
M426	IF EPOXY COATED NUMBER 20 METRIC BARS ARE NOT FEASIBLY AVAILABLE IN THE QUANTITY REQUIRED, EPOXY COATED NUMBER 6 IMPERIAL BARS MAY BE SUBSTITUTED AT NO CHANGE IN COST.
M430	THIS DESIGN IS FOR REPAIRS TO THE EXISTING ____ COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES. REPAIR SHALL CONSIST OF: 1. _____ 2. _____
M431	AREAS OF CURB INDICATED ON THE "SURVEY PLOT" OR DESIGNATED BY THE ENGINEER ARE TO BE REPAIRED USING CONCRETE REPAIR NOTES AND DETAILS INCLUDED IN THESE PLANS.
M432	SCREED EXTENSION OR OVERLAY BEYOND THE LONGITUDINAL CONSTRUCTION JOINT MAY BE LESS THAN THE 150 mm REQUIRED BY SUB-ARTICLE 2413.03C.1. THE ENGINEER MAY REQUIRE ADDITIONAL VIBRATION OR SPECIAL FINISHING PROCEDURES ADJACENT TO THE LONGITUDINAL CONSTRUCTION JOINT.
M433	SURFACE RAISE, AS SHOWN ON THE PLANS, SHALL BE CONSIDERED A MINIMUM. IN ORDER TO LIMIT THE ADDITIONAL DEAD LOAD SURFACE RAISE SHALL BE RESTRICTED TO A MAXIMUM OF 13 mm MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.
M434	ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.
M435	ALL DIMENSIONS REQUIRED TO FABRICATE NEW STRUCTURAL STEEL SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
M436	FAINT LINES ON PLANS INDICATE EXISTING PORTIONS OF THE BRIDGE.
M437	MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 50 mm UNLESS OTHERWISE NOTED OR SHOWN.
M438	IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.09, BOTH ABUTMENT BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH SUB-ARTICLE 2403.21 (D).
M439	THE BRIDGE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 -- VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.
M440	THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE _____. REMOVALS AND DISPOSALS OF ITEMS SCHEDULED FOR REMOVAL SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

M441A	THE BID ITEM "REMOVAL OF EXISTING HANDRAIL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING _____ HANDRAIL (APPROXIMATELY _____ mm AND _____ POSTS). THE HANDRAILS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR.
M441B	THE BID ITEM "HAULING AND STORING EXISTING HANDRAIL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE DISMANTLING, HAULING AND STORING OF BOTH OF THE HANDRAILS (APPROXIMATELY _____ mm OF RAIL AND _____ POSTS). THE RAILS, POSTS AND HARDWARE ARE TO BE HAULED TO THE IOWA D.O.T. MAINTENANCE YARD AT _____. ANCHOR BOLTS NEED NOT BE SALVAGED.
M442	THE PRICE BID FOR "REMOVAL OF ASPHALT CEMENT CONCRETE SURFACING" SHALL BE CONSIDERED FULL COMPENSATION FOR REMOVAL AND DISPOSAL OF THE EXISTING A.C. OVERLAY TO THE LIMITS SHOWN. THE REMOVED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
M450	THE CONTRACTOR SHALL CONSTRUCT NEW BRIDGE APPROACH PAVEMENT AS NOTED AND SHOWN. THE PRICE BID FOR "BRIDGE APPROACH SECTION, REINFORCED AS PER PLAN" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING P.C. CONCRETE APPROACH PAVEMENT, INCLUDING EXCAVATION REINFORCING STEEL AND JOINT MATERIAL REQUIRED.
M451	THE CONTRACTOR SHALL PLACE PORTLAND CEMENT CONCRETE OVERLAY ON THE BRIDGE APPROACH PAVEMENT AS NOTED AND SHOWN ON STANDARD ROAD PLAN RK-17. PAYMENT FOR THIS WORK SHALL BE NOTED ON STANDARD ROAD PLAN RK-17.
M460	THE TOP OF ABUTMENT BACKWALLS BETWEEN GUTTER LINES AS SHOWN SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS FOR CLASS A BRIDGE FLOOR REPAIR AND BRIDGE FLOOR OVERLAY WITH THE FOLLOWING EXCEPTIONS: 1. THE LOWER LIMIT FOR CLASS A BRIDGE FLOOR REPAIR SHALL BE TO SUITABLE EXISTING CONCRETE, AS DETERMINED BY THE ENGINEER, BUT TO AT LEAST 50 mm BELOW THE BOTTOM LIMIT FOR BRIDGE FLOOR OVERLAY. 2. IF MACHINE FINISHING FOR THE TOP OF BACKWALL IS NOT PRACTICABLE, A MANUAL TYPE SCREED OR METAL PLATE, WITH APPROVED VIBRATORS ATTACHED, SHALL BE USED. THE EXPOSED TOP OF BACKWALL AREAS AS SHOWN HAVE BEEN INCLUDED IN THE QUANTITIES SHOWN FOR CLASS A BRIDGE FLOOR REPAIR AND FOR BRIDGE FLOOR OVERLAY.
M461	THE TOP OF THE ABUTMENT BACKWALLS AS SHOWN SHALL BE CONSTRUCTED USING STRUCTURAL CONCRETE CLASS D. IF MACHINE FINISHING FOR THE TOP OF THE BACKWALL IS NOT PRACTICAL, A MANUAL TYPE SCREED OR METAL PLATE WITH APPROVED VIBRATORS ATTACHED SHALL BE USED.

DECK REPAIR NOTES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

REVISED 11-03 - NOTE M470, M471, M480, & M481 CHANGED. HM1039.S02 - THIS SHEET REISSUED 8-23-96.

M462

IT WILL BE NECESSARY TO SUPPORT THE EARTH AND/OR GRANULAR MATERIAL BEHIND THE ABUTMENT DURING RECONSTRUCTION OF THE ABUTMENT BACKWALLS BY SOME METHOD APPROVED BY THE ENGINEER. ALL COSTS FOR SUPPORTING THE EARTH AND/OR GRANULAR MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS 20 EXCAVATION".

M463

THE TOP AND INTERIOR FACES OF THE CONCRETE RAILING ARE TO BE CLEANED AND SEALED IN ACCORDANCE WITH STANDARD SPECIFICATION 2403.21 (D). ALL COSTS ASSOCIATED WITH CLEANING AND SEALING OF THE CONCRETE RAILS SHALL BE INCLUDED IN THE UNIT PRICE BID ITEM "??".

M490

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING CONDUIT IN THE BRIDGE CURBS. IN ORDER TO ENSURE THE EXISTING CONDUITS ARE NOT DAMAGED DURING PLACEMENT OF THE CAST-IN-PLACE BARRIER RAIL, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:

1. PHYSICALLY LOCATE THE CONDUIT AT APPROXIMATELY 15 METER INTERVALS PRIOR TO DRILLING ANY HOLES FOR 19 mm DIAMETER DOWEL BARS.
2. AFTER COMPLETION OF DRILLING FOR THE 19mm DOWEL BARS AND PRIOR TO PLACEMENT OF THE DOWELS, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.

COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE CAST-IN-PLACE BARRIER RAIL. ANY DAMAGE TO THE CONDUIT OR WIRING BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

M470

SURFACES OF EXISTING EXPANSION DEVICE ARE TO BE CLEANED OF EXISTING CORROSION AND PAINT IN PREPARATION FOR FIELD WELDING. THE 40 mm THICK RAISE PLATES FOR THE EXPANSION DEVICE ARE TO BE CLEANED AND PAINTED AFTER FIELD WELDING TO THE EXISTING EXPANSION DEVICE. THE CLEANING IS TO BE BY VACUUM BLAST OR BY A NON-BLASTING METHOD AND IS TO COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL SPECIFICATIONS SSPC-SP3. THE EXPOSED TOP SURFACES OF THE COMPLETED EXPANSION DEVICE ARE TO BE GIVEN ONE COAT OF RUST-OLEUM PRIMER AND ONE COAT OF RUST-OLEUM FINAL COAT OR AN APPROVED EQUAL PRIMER AND FINAL COAT. THE COLOR OF THE DRY PAINT SHOULD APPROXIMATE THE COLOR OF CONCRETE. ONLY THE EXPOSED SURFACES OF THE EXPANSION DEVICE AND RAISE PLATES ARE TO BE PAINTED. NO PAINTING OF OTHER STEEL IS REQUIRED. BECAUSE OF THE SMALL QUANTITY, ALL COST ASSOCIATED WITH CLEANING AND PAINTING OF THE EXPANSION DEVICE AS NOTED IS TO BE INCLUDED IN THE BID ITEM "PAINTING STRUCTURAL STEEL".

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING RAISE PLATES ON EXPANSION DEVICE AS SHOWN EXCEPT ITEMS INCLUDED IN THE BID ITEM "PAINTING STRUCTURAL STEEL" AND THE BID ITEM "CONTAINMENT".

M471

SURFACES OF EXISTING EXPANSION DEVICE AS DETAILED IN THESE PLANS ARE TO BE CLEANED OF EXISTING CORROSION AND PAINT IN PREPARATION FOR FIELD WELDING. THE NEW STEEL EXTRUSION TO BE PAINTED SHALL BE CLEANED AND PAINTED AFTER FIELD WELDING TO THE EXISTING EXPANSION DEVICE. THE CLEANING IS TO BE BY VACUUM BLAST OR BY A NON-BLASTING METHOD AND IS TO COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL SPECIFICATIONS SSPC-SP3. THE EXPOSED SURFACES OF THE COMPLETED EXPANSION DEVICE ARE TO BE GIVEN ONE COAT OF RUST-OLEUM PRIMER AND ONE COAT OF RUST-OLEUM FINAL COAT OR APPROVED EQUAL PRIMER AND FINAL COAT. THE COLOR OF THE DRY PAINT SHOULD APPROXIMATE THE COLOR OF CONCRETE. ONLY THOSE SURFACES OF THE EXPANSION DEVICE NOTED TO BE PAINTED ARE TO BE PAINTED. NO PAINTING OF OTHER STRUCTURAL STEEL IS REQUIRED. BECAUSE OF THE SMALL QUANTITY, ALL COST ASSOCIATED WITH CLEANING AND PAINTING OF THE EXPANSION DEVICE AS NOTED IS TO BE INCLUDED IN THE BID ITEM "PAINTING STRUCTURAL STEEL".

THE BID ITEM "STEEL EXTRUSION JOINT WITH NEOPRENE" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE EXPANSION DEVICE AS SHOWN, EXCEPT ITEMS INCLUDED IN THE BID ITEM "PAINTING STRUCTURAL STEEL" AND THE BID ITEM "CONTAINMENT".

M480

A SCRAPE SAMPLE WAS TAKEN FROM AN AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS ?? PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS ?? PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

M481

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING DEMOLITION IS CONTAINED, COLLECTED, AND DISPOSED OF IN ACCORDANCE WITH STANDARD SPECIFICATION 2508 AND ALL FEDERAL AND STATE REGULATIONS. BEFORE DELIVERY OF ANY SCRAP STEEL THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE RECEIVING FACILITY. THIS NOTICE SHALL AT A MINIMUM INCLUDE:

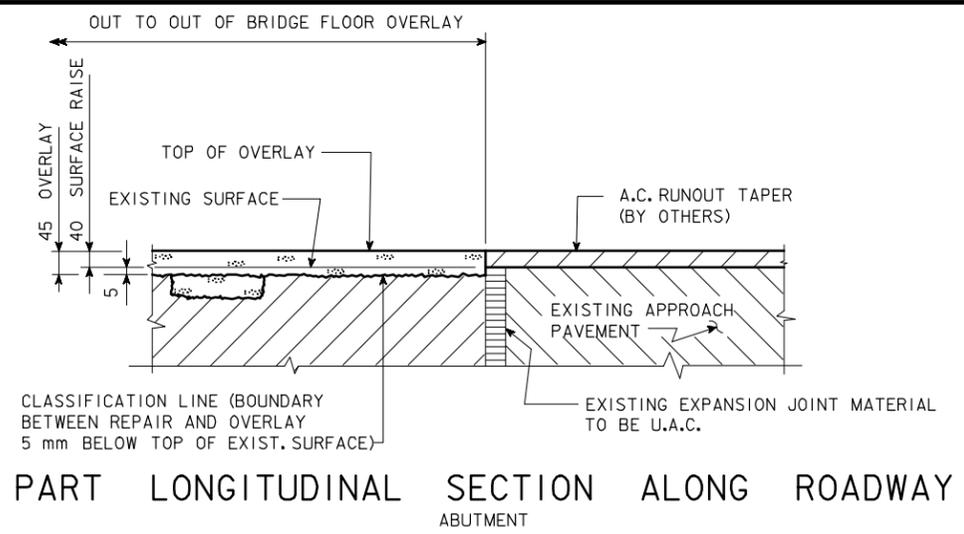
1. A NOTICE THAT THE SCRAP STEEL IS COATED WITH PAINT THAT HAS REGULATED MATERIALS AT LEVELS WHICH COULD BE HAZARDOUS TO EMPLOYEES OR THE ENVIRONMENT.
2. A COPY OF THE SCRAPE SAMPLE PROVIDED IN THE CONTRACT DOCUMENTS.
3. A SIGNATURE BLOCK FOR THE RECEIVING FACILITY TO CONFIRM THEIR RECEIPT OF THIS INFORMATION.

A COPY OF THIS NOTICE, SIGNED BY THE RECEIVING FACILITY, SHALL BE RETURNED TO THE ENGINEER BEFORE ANY SCRAP STEEL IS REMOVED FROM THE PROJECT.

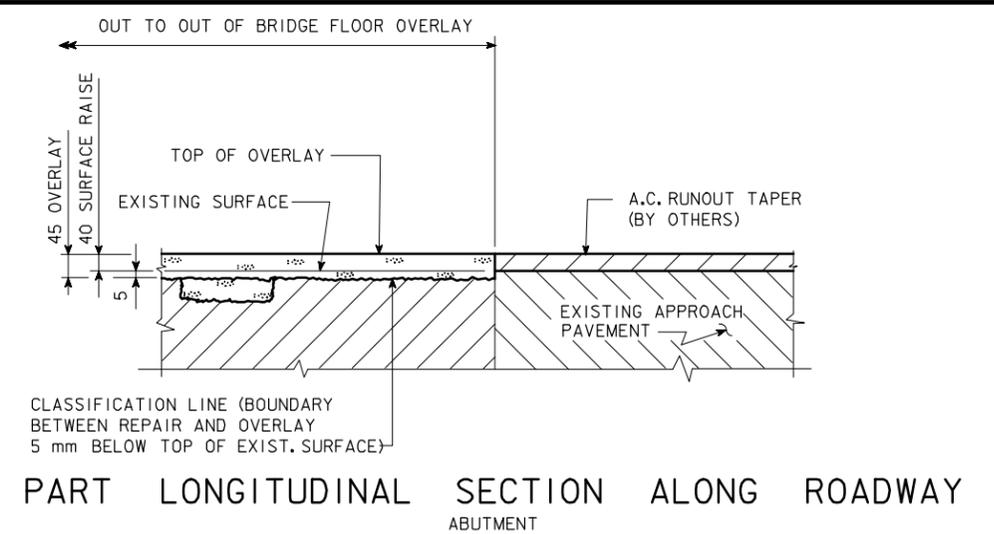
DECK REPAIR NOTES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

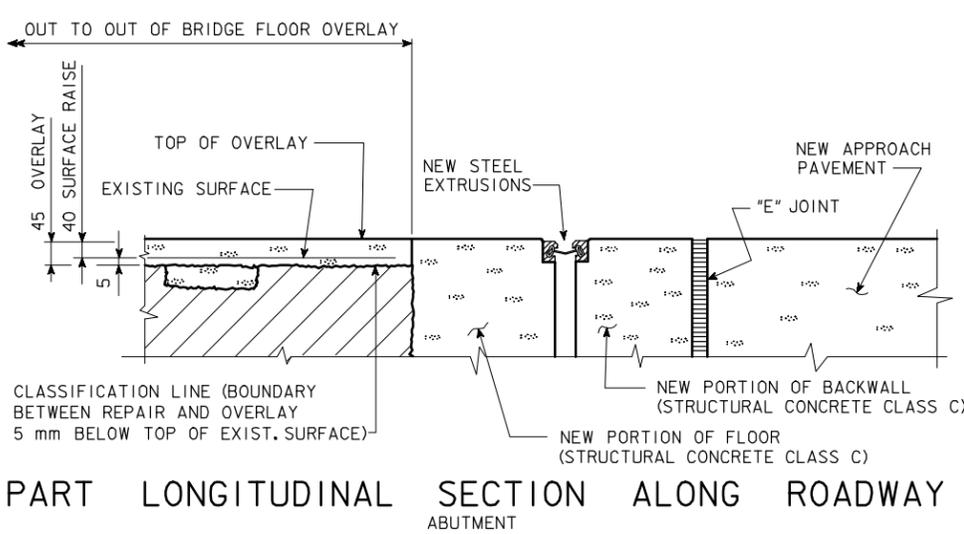
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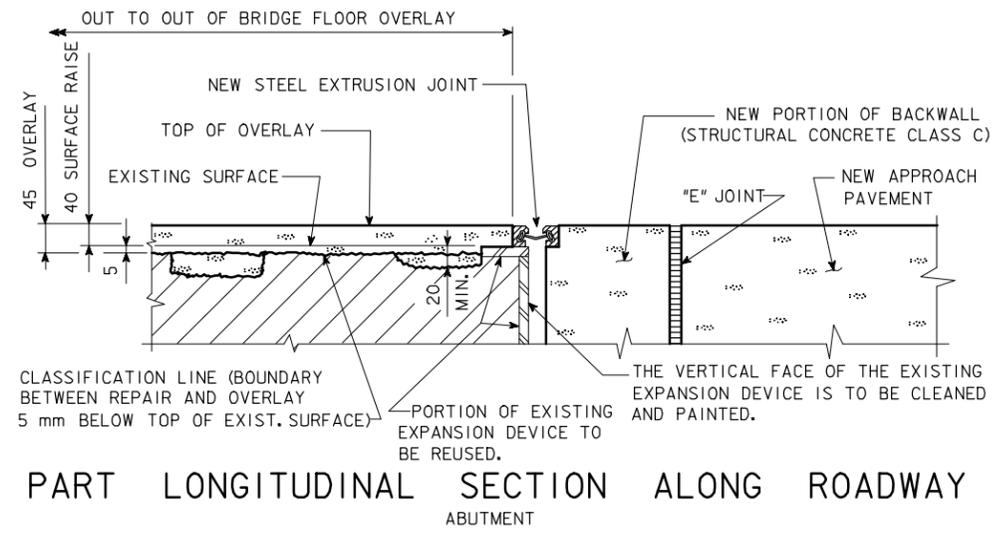
PART LONGITUDINAL SECTION ALONG ROADWAY ABUTMENT



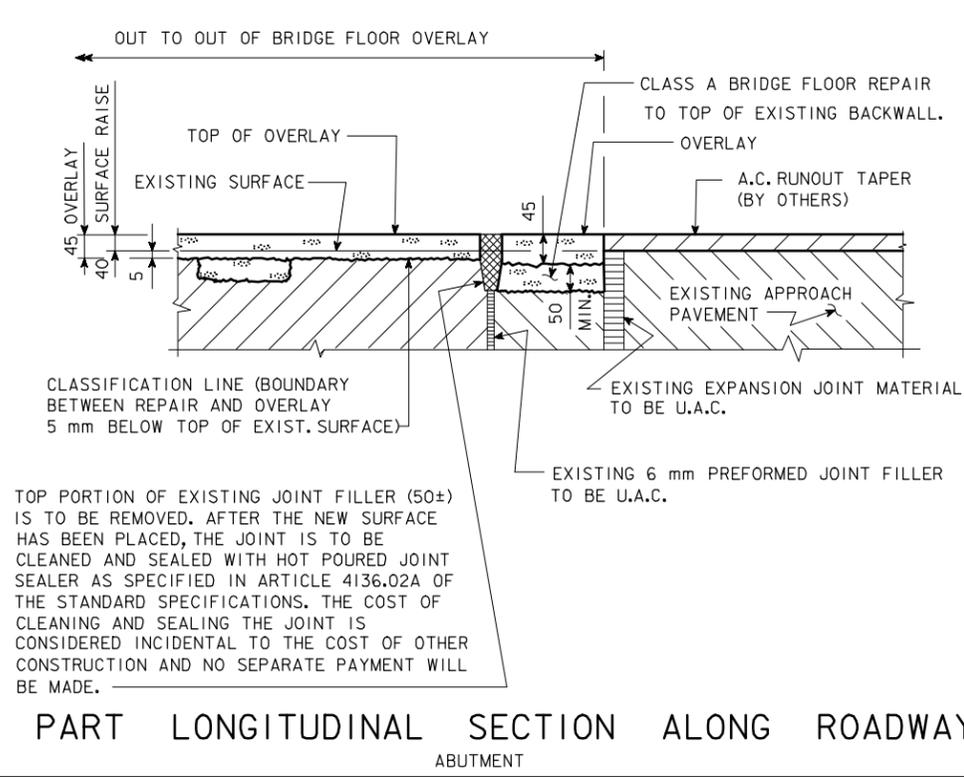
PART LONGITUDINAL SECTION ALONG ROADWAY ABUTMENT



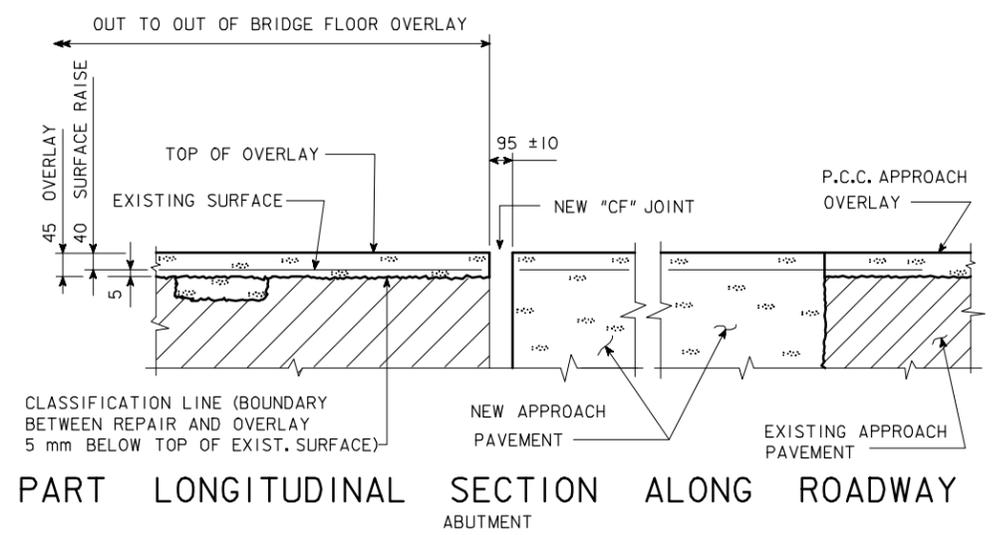
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PART LONGITUDINAL SECTION ALONG ROADWAY ABUTMENT



PART LONGITUDINAL SECTION ALONG ROADWAY ABUTMENT

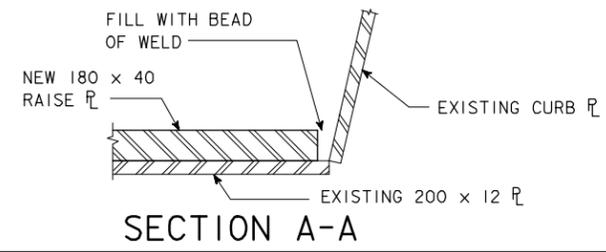
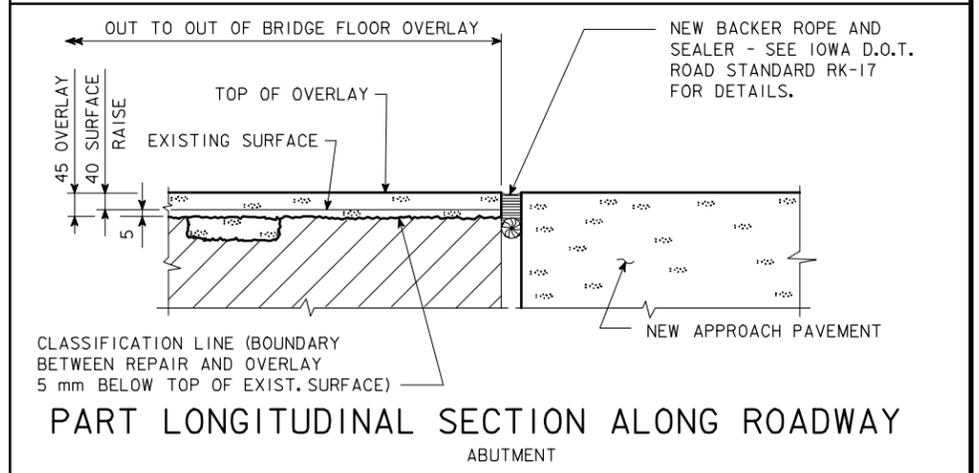
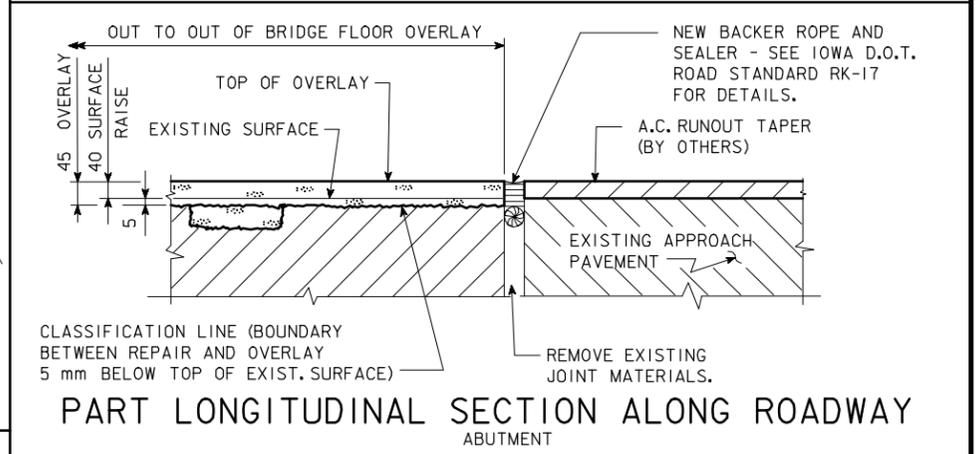
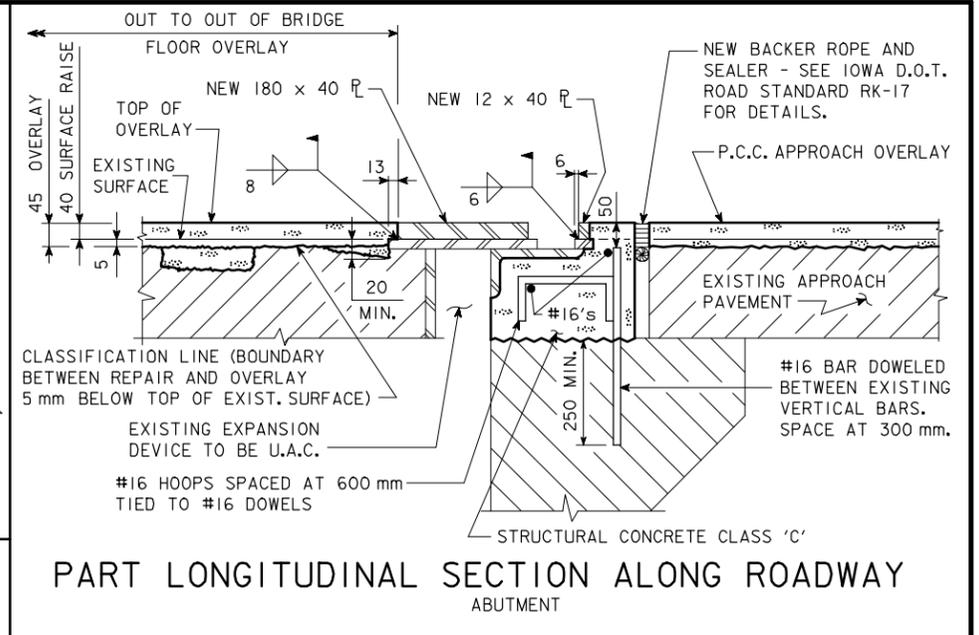
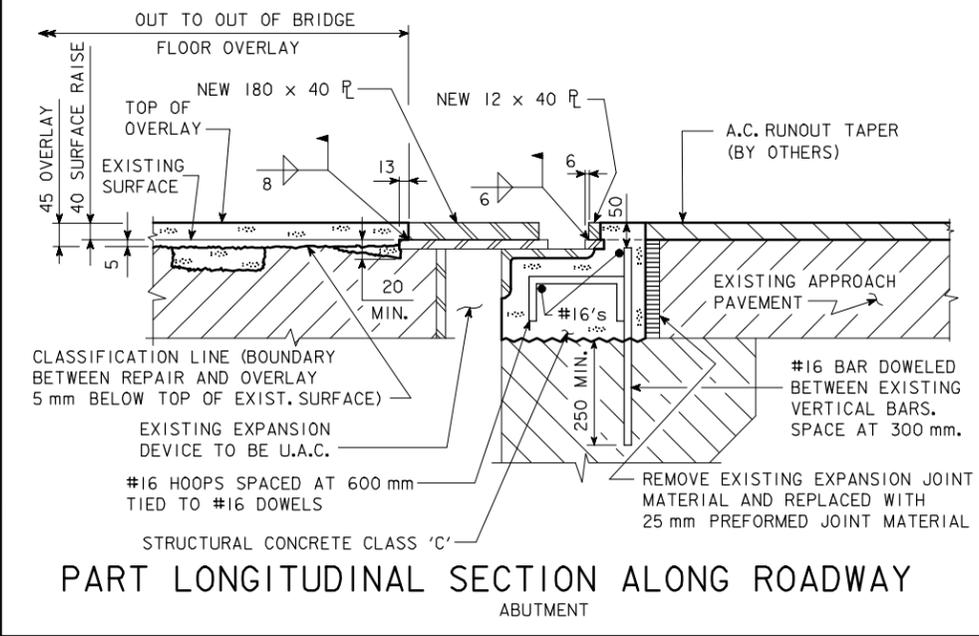
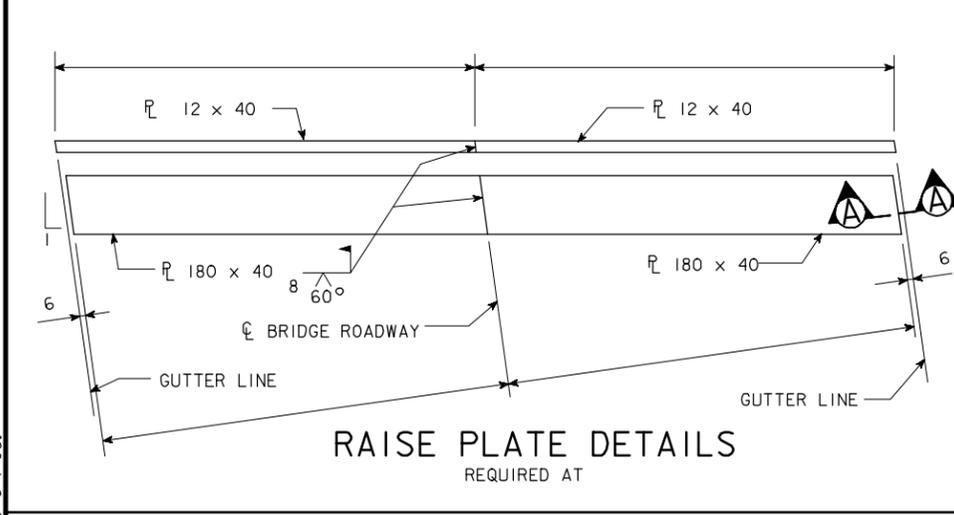
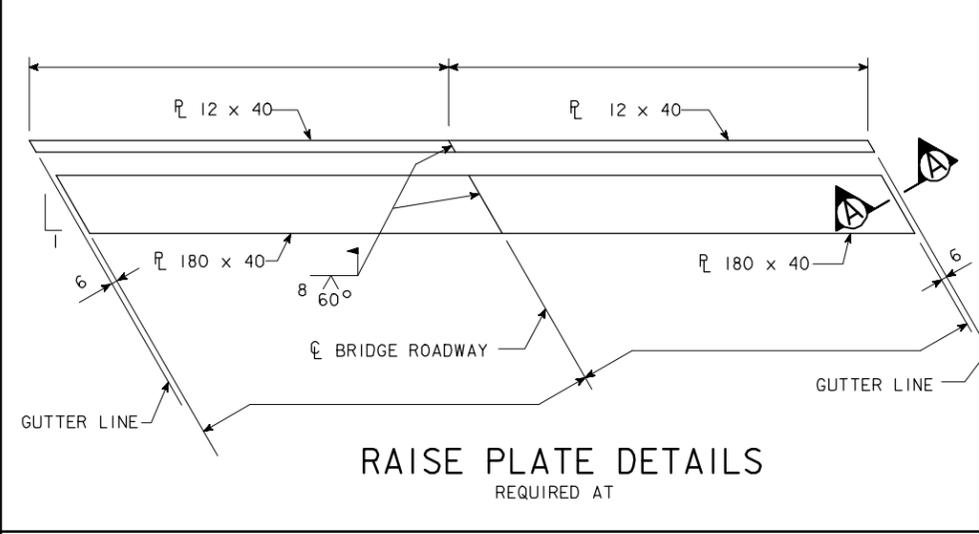
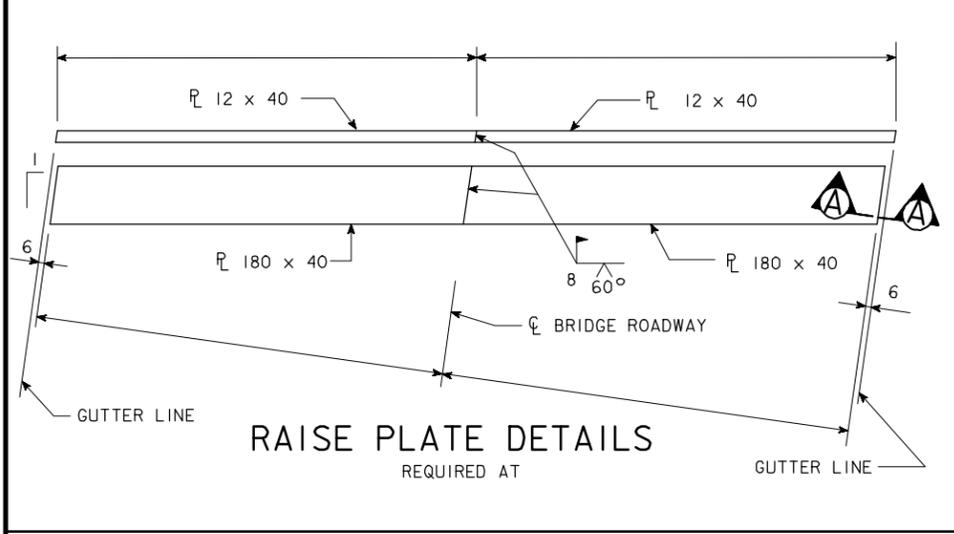
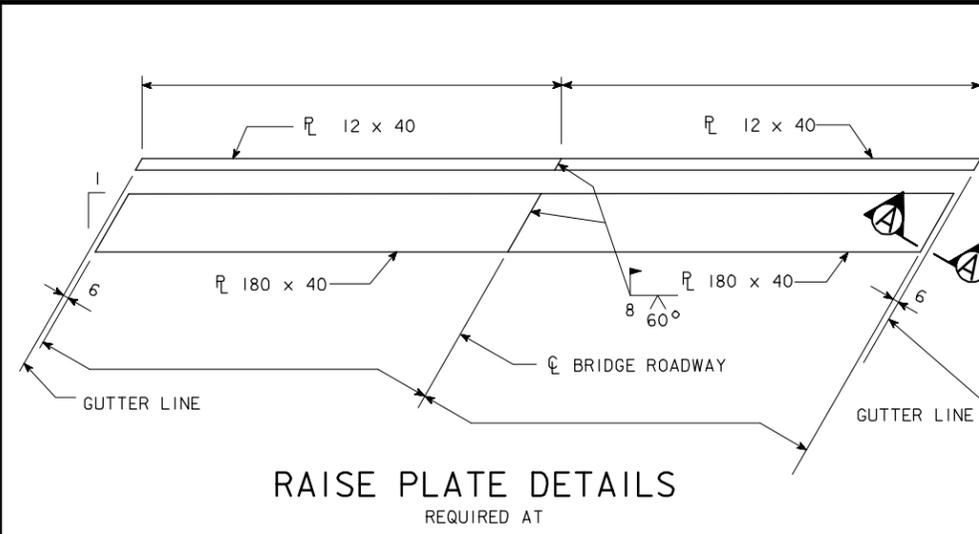
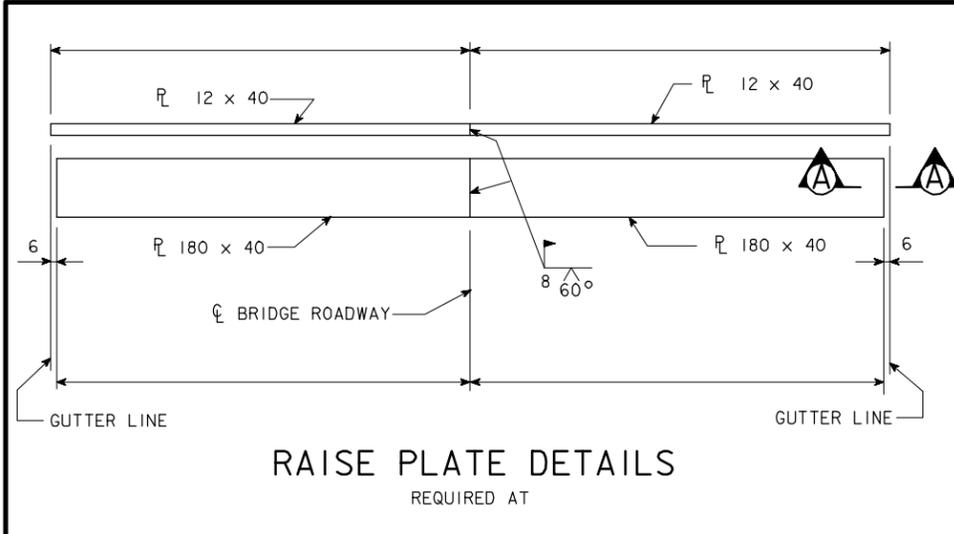


PART LONGITUDINAL SECTION ALONG ROADWAY ABUTMENT

REVISED: 9-12-96 - NOTE "UNLESS OTHERWISE DIRECTED BY THE ENGINEER" DELETED. M1040.S01: THIS SHEET ISSUED 9-1-95.

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
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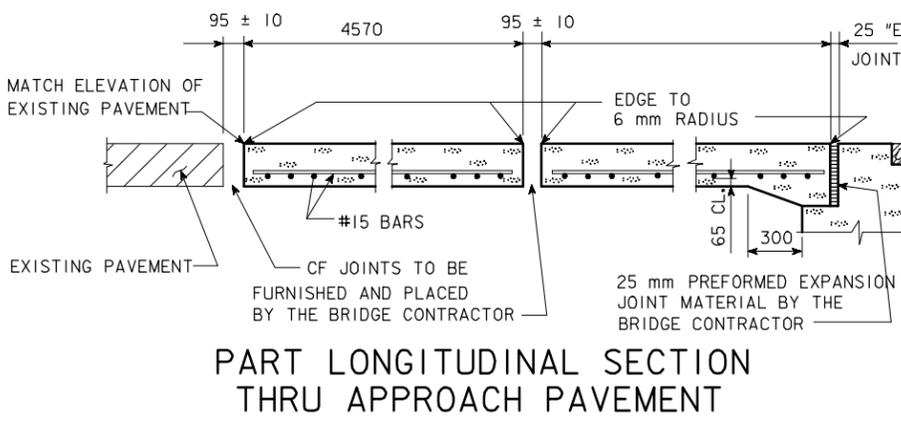
REVISED 07-04 - NEW BACKWALL REPAIR FOR RAISED PLATE AT STUB ABUTMENTS. M1041.S01: THIS SHEET ISSUED 9-1-95.



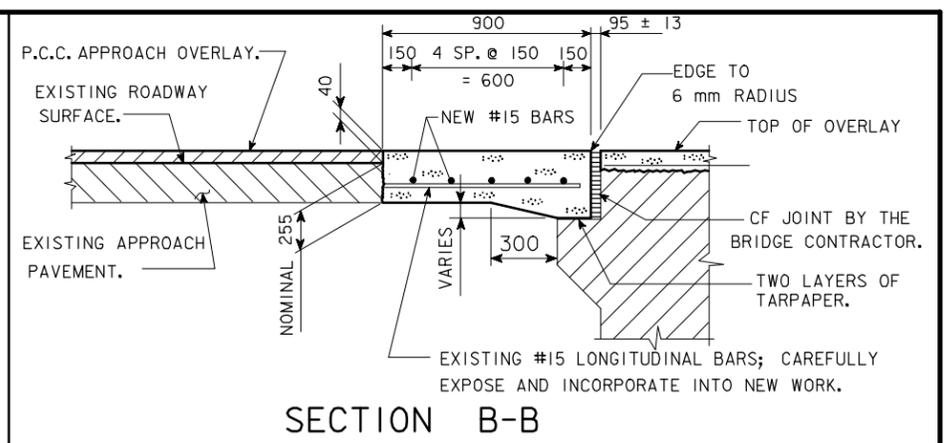
PART LONGITUDINAL SECTION ALONG ROADWAY ABUTMENT

RAISE PLATE NOTES:
 RAISE PLATES ARE TO BE INSTALLED IN STAGES OVER ONE HALF OF THE BRIDGE AT A TIME. RAISE PLATES FOR EACH STAGE ARE TO BE IN PLACE BEFORE THE NEW BRIDGE FLOOR OVERLAY FOR THAT STAGE IS PLACED.

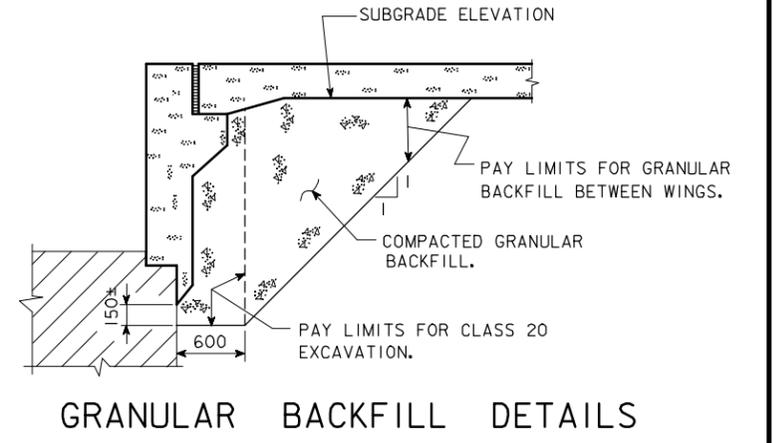
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___



PART LONGITUDINAL SECTION THRU APPROACH PAVEMENT



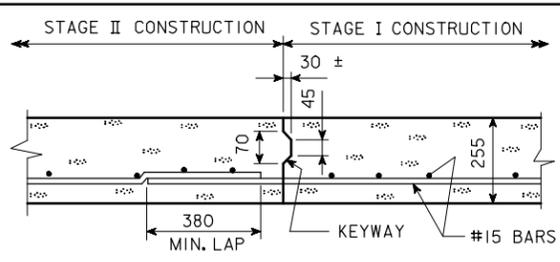
SECTION B-B



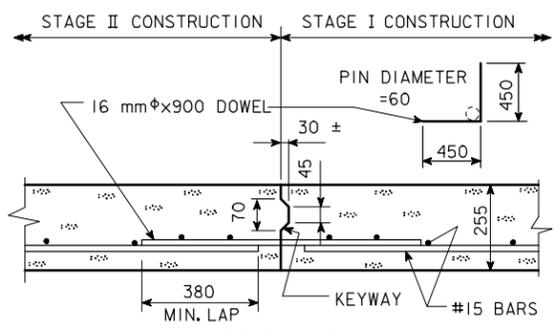
GRANULAR BACKFILL DETAILS

APPROACH PAVEMENT DETAILS

REQUIRED AT



SECTION A-A



SECTION A-A

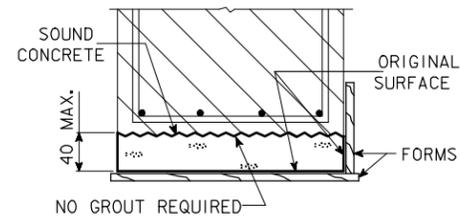
NOTE:
THE 15 mm ϕ x 900 DOWEL SHALL BE FABRICATED AS A BENT BAR. AFTER STAGE II PAVEMENT REMOVAL THE 15 mm ϕ DOWEL SHALL BE STRAIGHTENED TO LAP WITH THE #15 TRANSVERSE BARS.

APPROACH PAVEMENT QUANTITIES	
LOCATION	QUANTITY
??? ABUTMENT - STAGE I	
??? ABUTMENT - STAGE II	
TOTAL - m ³	

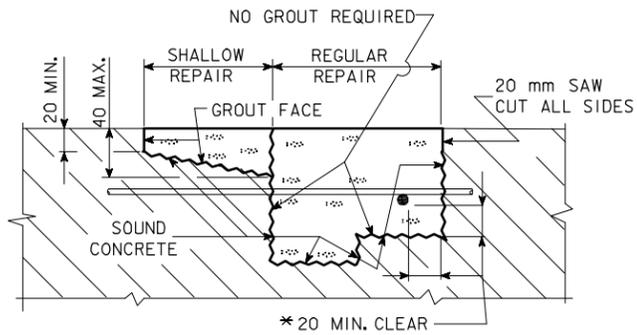
NOTE:
ALL APPROACH PAVEMENT REINFORCING IS TO BE #15 BARS.
APPROACH PAVEMENT REINFORCING AND JOINT MATERIAL TO BE INCLUDED IN PRICE BID FOR "BRIDGE APPROACH SECTION REINFORCED AS PER PLAN".
THE "E" JOINTS SHALL BE SEALED AS DIRECTED BY THE ENGINEER. THE SEALER SHALL BE AS SPECIFIED IN THE STANDARD SPECIFICATIONS.
THE CONCRETE USED FOR THE APPROACH PAVEMENT SHALL BE PAVEMENT MIX AND PLACED IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS FOR CONCRETE PAVING, INCLUDING VIBRATION.
SEE THE FOLLOWING IOWA D.O.T. ROAD STANDARDS FOR DETAILS OF JOINT MATERIALS:

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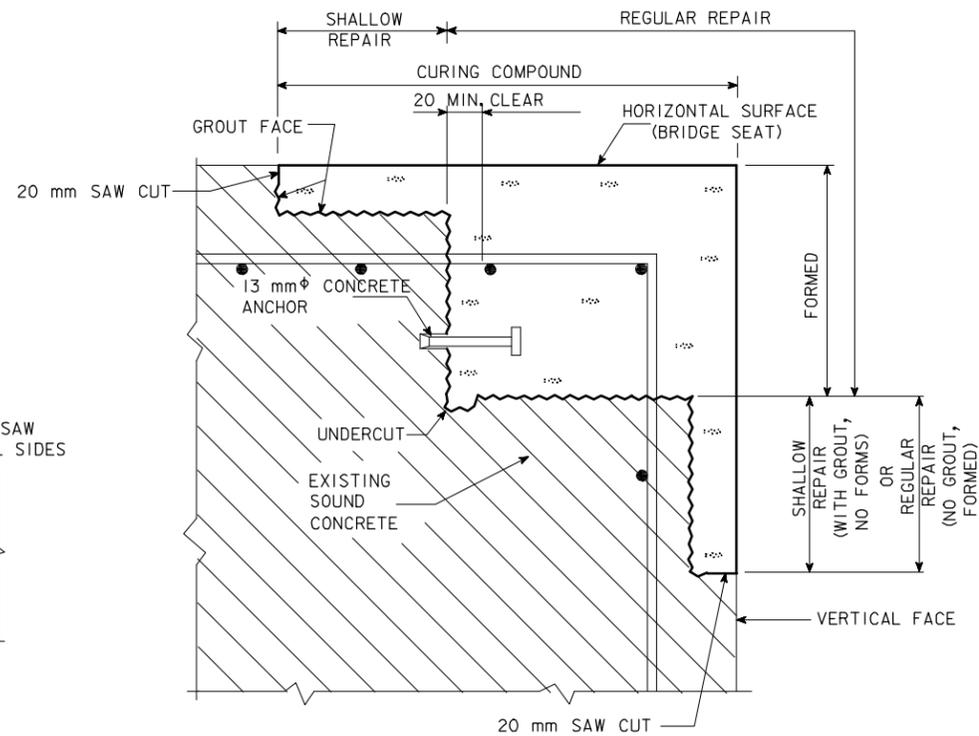


**SHALLOW REPAIR
BOTTOM SURFACE**

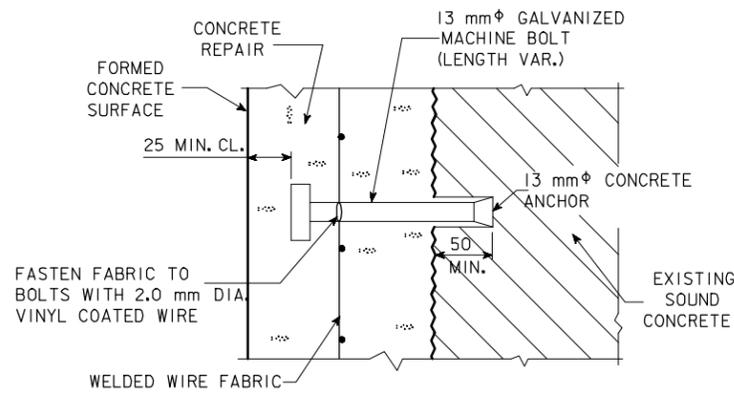


REPAIR DEFINITION

* INDICATES CLEARANCE FOR AN UN-BONDED REBAR.

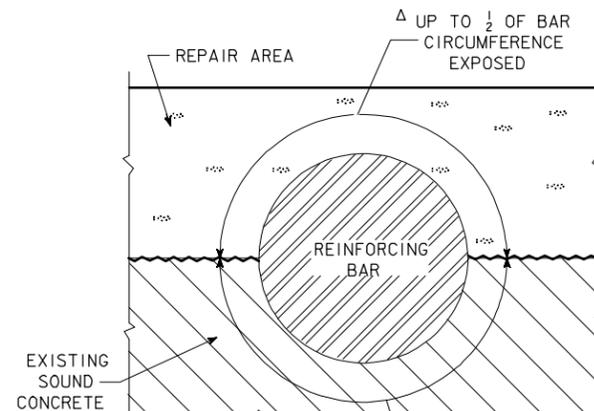


CORNER REPAIR

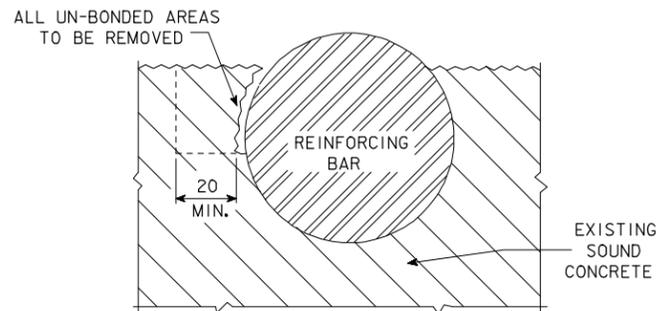


ANCHOR DETAIL

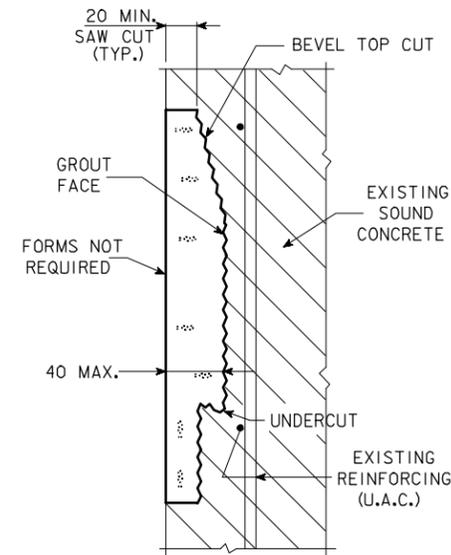
FOR SPACING AND USE OF CONCRETE ANCHORS AND WWF SEE THE STANDARD NOTES.



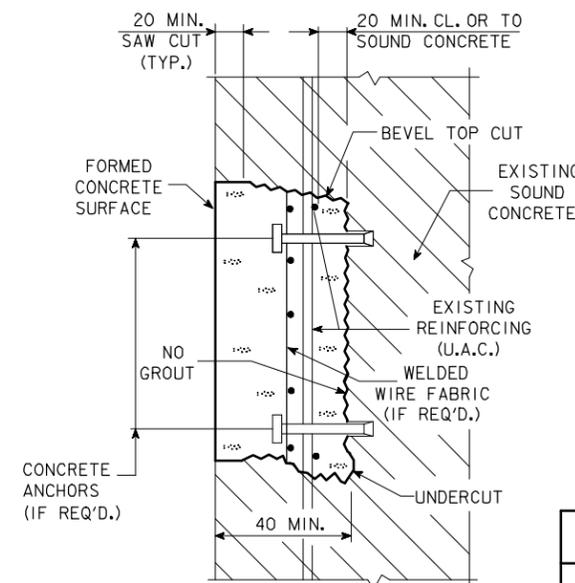
Δ UP TO 1/2 OF BAR CIRCUMFERENCE EXPOSED
Δ IF MORE THAN 1/2 OF THE REBAR IS EXPOSED IT SHALL BE TREATED AS AN UN-BONDED REBAR.



**CONCRETE REMOVAL
ADJACENT TO REINFORCING**



**SHALLOW REPAIR
VERTICAL FACE**



**REGULAR REPAIR
VERTICAL FACE**

STANDARD NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED OR SHOWN.
 THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE AS NOTED AND SHOWN IN THESE PLANS SHALL BE REPAIRED AS FOLLOWS:
 ALL THE COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".
 THE PRICE BID FOR "CONCRETE REPAIR" SHALL INCLUDE THE COST OF ALL CONCRETE ANCHORS AND MESH REQUIRED BY THE PLANS.
 THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIRS. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE METER BASIS BASED ON THE PRICE BID PER SQUARE METER.
 ALL EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK, EXCEPT BADLY DETERIORATED EXISTING REINFORCING WHICH SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.
 THE CONCRETE ANCHORS REQUIRED SHALL HAVE A MINIMUM PULL OUT OF 22.2 KN BASED ON 28 MPa CONCRETE. AN ANCHOR MEETING THE REQUIREMENTS OF IOWA D.O.T. MATERIALS I.M. 453.09 AND THE PULL OUT LOAD ABOVE IS REQUIRED. THE ANCHORS SHALL BE GALVANIZED AND SHALL BE INSTALLED ACCORDING TO RECOMMENDATIONS OF THE MANUFACTURER. THE COST OF FURNISHING AND INSTALLING THE CONCRETE ANCHORS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".
 THE WELDED WIRE FABRIC SHALL BE ASTM A185 AND GALVANIZED AS PER ASTM A-641 M. THE WWF WIRES SHALL BE SPACED 75x75 OR 100x100 AND THE WIRES SHALL HAVE A NOMINAL AREA OF 9.08 TO 18.70 mm² INCLUSIVE, EXAMPLE "WWF 75x75 - W1.4xW2.9".
 WHERE REINFORCEMENT HAS BEEN EXPOSED AND CLEARANCE AROUND THE PERIPHERY OF THE EXISTING BAR IS PROVIDED NO SUPPLEMENTAL REINFORCING IS REQUIRED, EXCEPT WHERE EXISTING REINFORCEMENT DENSITY AND PATTERN ARE SUCH THAT INDIVIDUAL OPEN SPACES BETWEEN BARS ARE OF 0.139 m² OR LARGER. FOR THIS CONDITION 13 mm DIA. CONCRETE ANCHORS, AND WELDED WIRE FABRIC SHALL BE INSTALLED AT THE RATE OF ONE CONCRETE ANCHOR WITH WWF PER EACH 0.139 m² OF AREA WITHIN EACH OPEN SPACE.
 SEE "STRUCTURAL CONCRETE REPAIR" IN CURRENT METRIC STANDARD SPECIFICATIONS FOR MORE INFORMATION CONCERNING THIS WORK.

CONCRETE PLACEMENT QUANTITIES			
MARK	TYPE	UNITS	QUANTITY
①	SHALLOW REPAIR	m ²	
②	REGULAR REPAIR	m ²	
		TOTAL	m ²

ESTIMATED CONCRETE REPAIR QUANTITIES		
DESCRIPTION	UNITS	AMOUNT
CONCRETE REPAIR	m ²	

CONCRETE REPAIRS

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 DESIGN SHEET NO. ____ OF ____ FILE NO. ____ DESIGN NO. ____

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