STRUCTURES STANDARDS

JANUARY 1982

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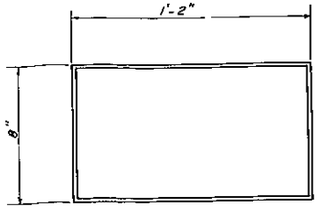
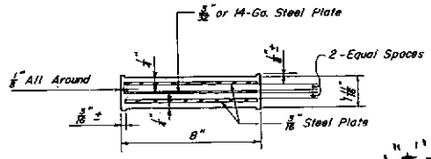
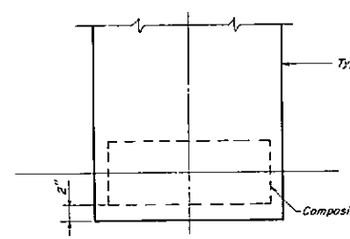
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



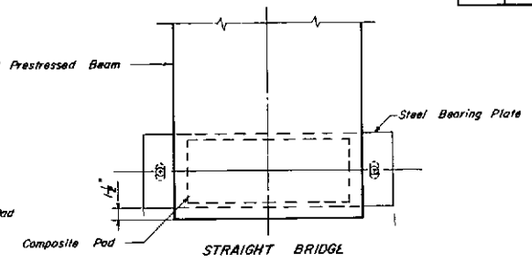
PLAN



TYPICAL SECTION largest "t" = .3594"
Avg "t" = .3047"

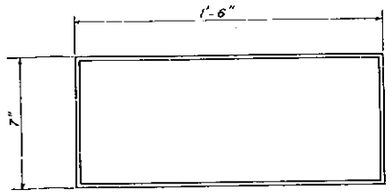


STRAIGHT BRIDGE

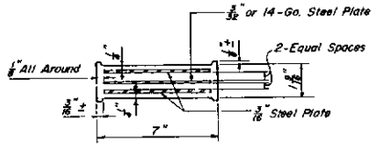


STRAIGHT BRIDGE

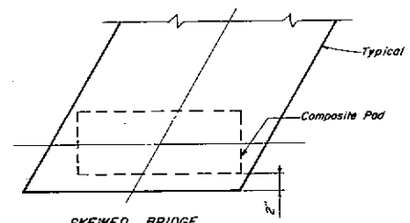
COMPOSITE PAD
For Type II Beams



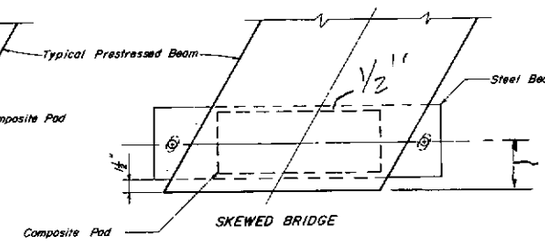
PLAN



TYPICAL SECTION

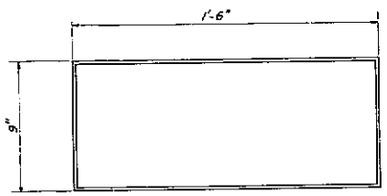


SKEWED BRIDGE

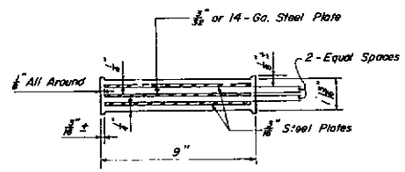


SKEWED BRIDGE

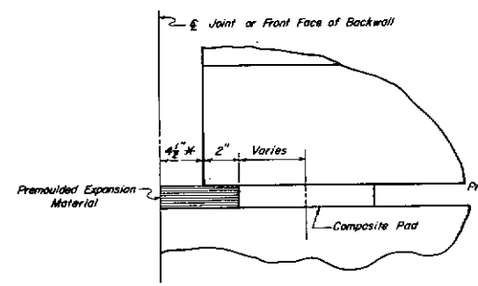
COMPOSITE PAD
For Type III Beams



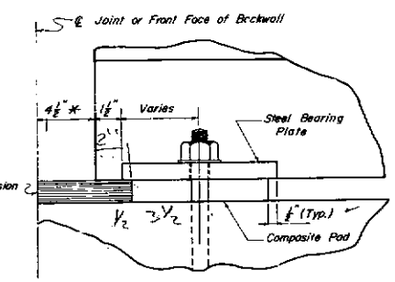
PLAN



TYPICAL SECTION



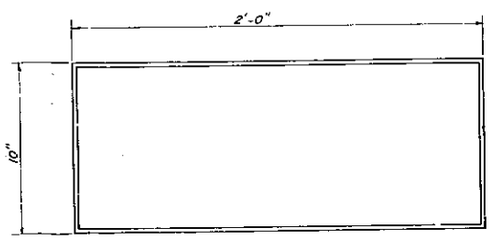
TYPICAL PAD DETAIL
INTERIOR BEAM



TYPICAL PAD DETAIL
EXTERIOR BEAM

COMPOSITE PAD
For Type IV Beams

* Unless otherwise noted on Beam Sheets.



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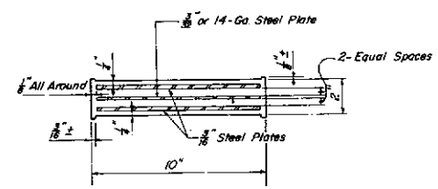


TYPICAL SECTION

COMPOSITE PAD
For Type V & VI Beams

GENERAL NOTES

Neoprene in all Bearing Pads shall have a Grade 50 durometer hardness.

Steel plates in composite pads shall conform to A.S.T.M. A-36 or A-245 Grade C or D, or A-570 Grade C or SAE 1010, SAE 1020.
Variations in pad dimensions will be allowed provided revised pads will meet the current specifications and are approved by the Engineer.

Bearing seat shall be finished parallel to the bottom of Beam.

Steel Bearing Plates, Anchor Bolts, Nuts and Washers shall be hot dip galvanized in accordance with A.S.T.M. Specification A-123. Payment for steel bearing plate assemblies shall be included in the Contract Unit Price for Prestressed Beams or Structural Steel. For location and details of Bearing Plates see Beam sheets.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

COMPOSITE NEOPRENE BEARING PADS

REVISIONS	
Dates	Descriptions

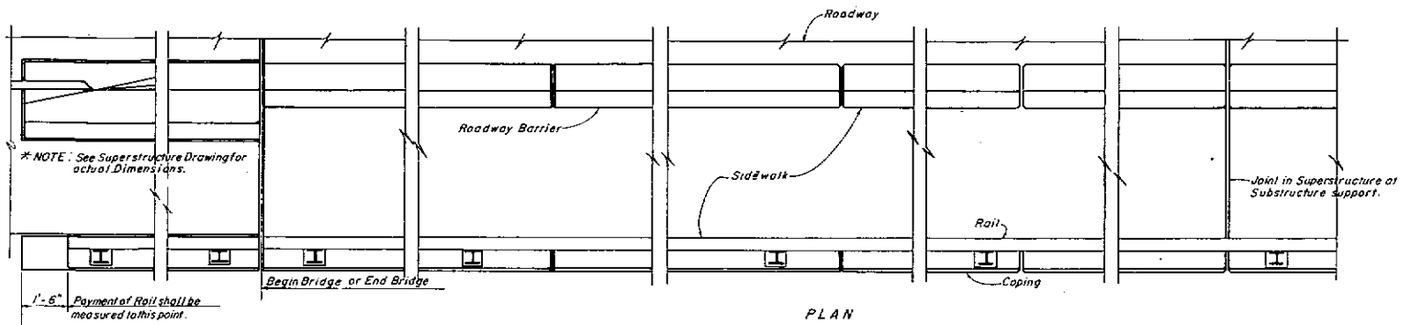
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	W E H	9-76
Checked by	D E K	9-76
Quantities by		
Checked by		
Supervised by	S H N	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No. 1 of 1
Index No. 12037

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



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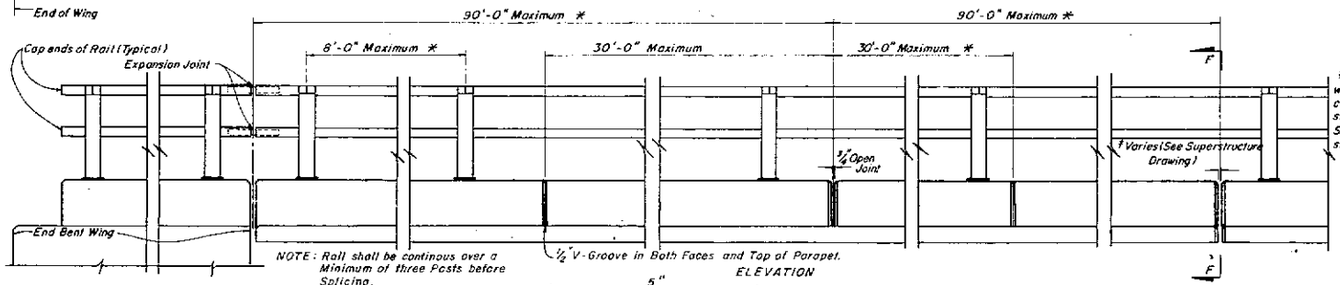
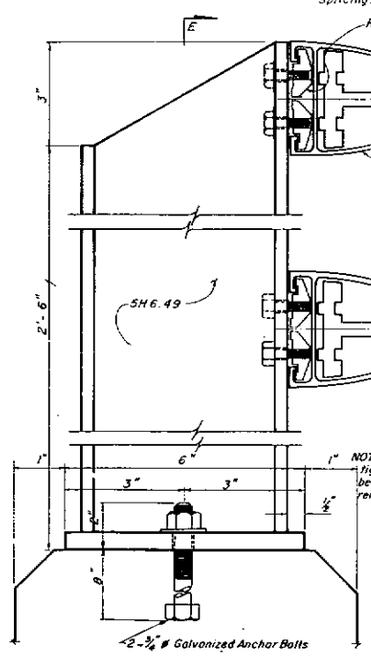


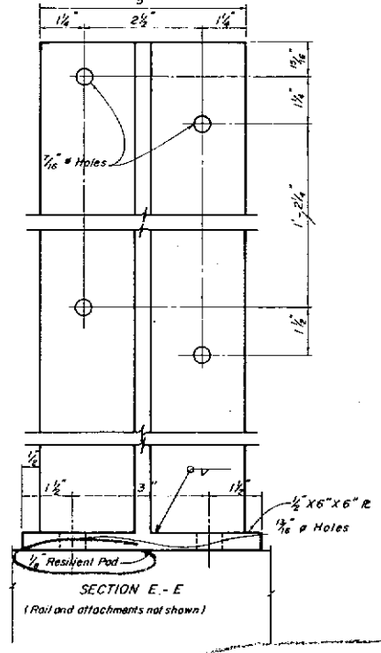
† At Substructure Supports where Roadway Slab is continuous, the Joint in Parapet shall be sealed as shown in Section F-F. Joint Opening shall be 3/4" min.

NOTE: Rail shall be continous over a Minimum of three Posts before Splicing.

ELEVATION



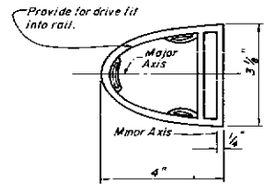
SECTION THRU RAIL



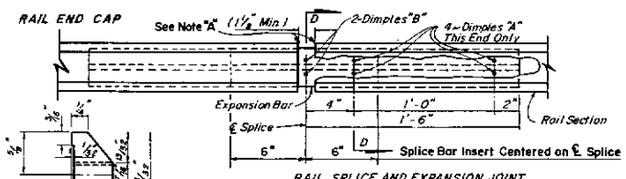
SECTION E-E

(Rail and attachments not shown)

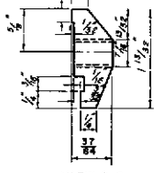
NOTE: Where Aluminum comes in contact with Concrete or other metals, contacting surfaces shall be thoroughly coated with Aluminum impregnated caulking compound.



RAIL END CAP

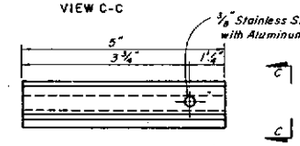


RAIL SPLICE AND EXPANSION JOINT

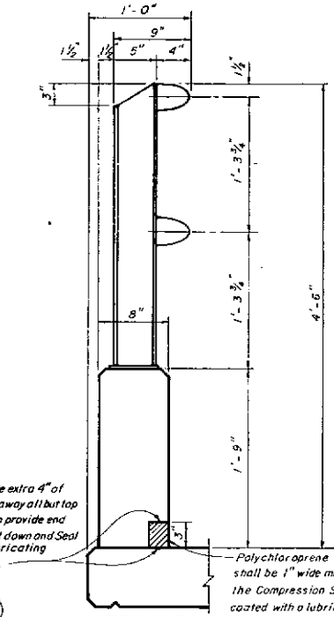


VIEW C-C

NOTE "A"-Rough Cut Ends and Edges of Aluminum Rails shall be Ground or Filed Smooth to Remove All Sharp Edges, Nicks or Burrs that would be Injurious to the Human Touch.



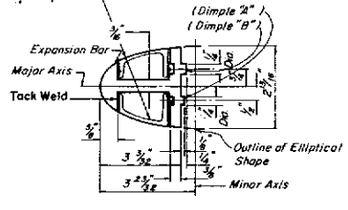
RAIL CLAMP BAR



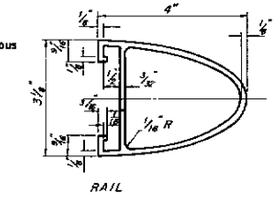
SECTION F-F

Provide extra 4" of Seal. Cut away all but top of Shell to provide end flap. Bend down and Seal with a Lubricating Adhesive.

Splice Bar Insert 12" Long-Tack Weld Two Places Each End to Expansion Bar



SECTION D-D



RAIL

GENERAL NOTES

1. The cost of all materials in Parapet shall be included in Concrete (Superstructure) and Reinforcing Steel (Superstructure)
2. Aluminum Rail shall be paid for per linear foot and shall be measured along the centerline of the top surface of the Rail. Payment includes Anchor Bolts, Nuts, Resilient Pads, all incidental materials and labor required to complete the installation.
3. For details of Rail Alignment and Post Spacing see Superstructure, and End Bent Details.

SPECIFICATIONS FOR BRIDGE RAIL

POST: Aluminum A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5 with welding using filler wire 4043.

RAIL & RAIL SPLICE: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.

RAIL CLAMP BAR: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5

ANCHOR BOLTS: Anchor Bolts shall be in accordance with A.S.T.M. A-36 or A-307. Anchor Bolts, nuts and washers shall be hot-dip galvanized in accordance with A.S.T.M. Designation A-153.

RAIL END CAP: A.S.T.M. B 26 sand cast aluminum alloy, SG70A-F (Alum. Assoc. alloy designation A-356-F1).

RAIL INSTALLATION: Rail Post shall be normal to Profile Grade. Posts shall be seated on 1/8" thick resilient pads in accordance with Article 932-2.1. The dimension shall be the same as the post base. Rail expansion joints shall occur in the panel between post on either side of Bridge expansion joints. Rail expansion joints shall be similar to rail splices with provision for movement equal to 1.5 times the bridge joint opening.

SHOP DRAWINGS: Complete details and description of materials of the proposed bridge rail shall be submitted by the contractor for the Engineers approval prior to fabrication.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

ALUMINUM HANDRAIL (SIDEWALK)

REVISIONS	
Dates	Descriptions
1-4-79	Change Curb from 9" to 1'-9"
3-21-80	Added note to "Rail Splice And Expansion Joint"
3-19-81	Added Splice Bar Insert & Note "A"
6-17-81	CHANG Splice Bar Dimension

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	W.L.D./J.F.L.	9/76
Checked by	R.D.S.	9/76
Quantities by		
Checked by		
Supervised by	P. BYRD	

APPROVED BY: T. Allen Lee
Deputy Design Engineer, Structures

Drawing No.	Index No.
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FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
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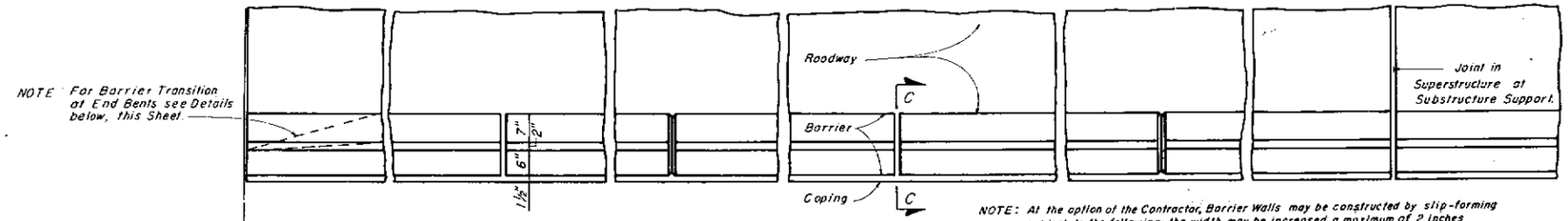
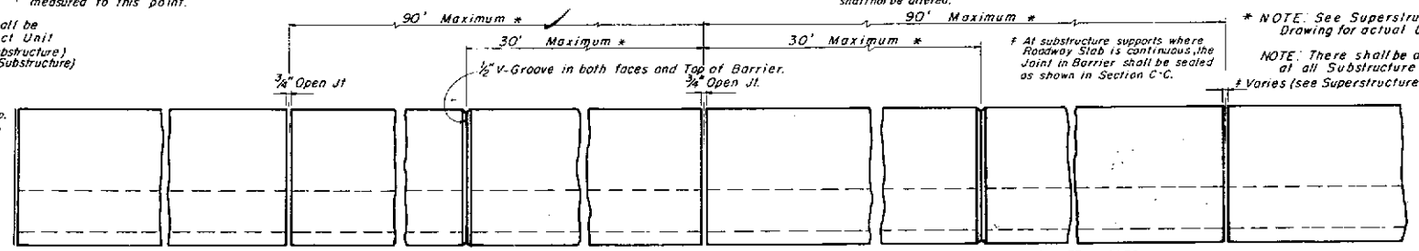


PLAN

NOTE: At the option of the Contractor, Barrier Walls may be constructed by slip-forming subject to the following: the width may be increased a maximum of 2 inches provided that the front face at the base of each barrier infringes on the clear roadway width no more than ½" and that any additional materials required are at the expense of the Contractor. The shape of the Barrier on the Roadway side shall not be altered.

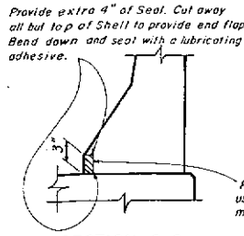
NOTE: Concrete Wing Post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure)



ELEVATION

* NOTE: See Superstructure Drawing for actual Dimensions.

NOTE: There shall be a ¾" Min. Open Joint at all Substructure Supports.



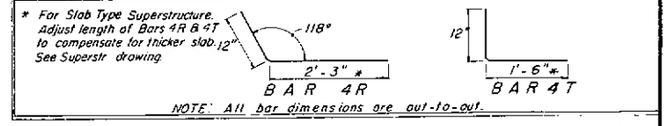
SECTION C-C

NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.

REINFORCING STEEL NOTES

All Reinforcing Steel in Barrier shall be No. 4's. Bars 4R, 4T & 4U to be spaced at 8" c.c. At all open joints bars 4R, 4T, 4U and the ends of bars 4S shall have 2" min cover. At all construction joints bars 4S may be either continuous or spliced. All splices in bars 4S shall be 1'-4" minimum.

BENDING DIAGRAMS

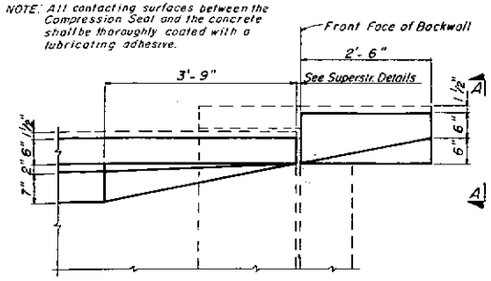


NOTE: All bar dimensions are out-to-out.

QUANTITIES: Class II Concrete = 0.07594 Cu. Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of .02'/ft.). REINFORCING STEEL = 15.782 lbs. per linear ft. of Barrier.

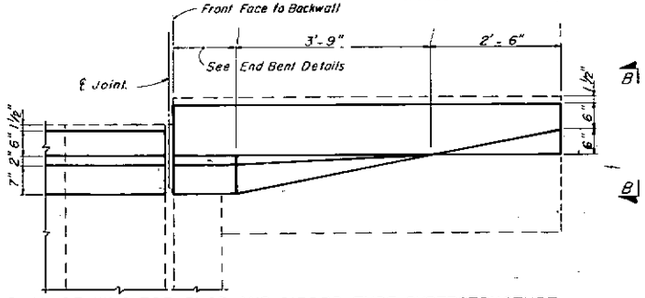
GENERAL NOTES

CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Concrete and Reinforcing Steel. Barrier shall be measured along the center line of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.
MARKERS: Markers recording the Elevation shall be placed on top of the Barrier at End Bents. On Bridges longer than 100 ft. one marker shall be placed at each end of the Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department of Transportation and installed by the Contractor. The Cost of installing the Markers shall be included in the Contract Unit Price for Concrete Barrier.
ANCHOR BOLTS: Anchor Bolts, Nuts, and Washers shall be hot dip galvanized in accordance with A.S.T.M. A-123.

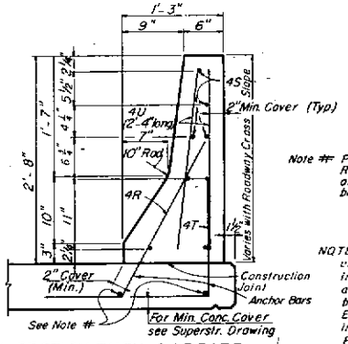


PLAN OF WING FOR SLAB TYPE SUPERSTRUCTURE

NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover.



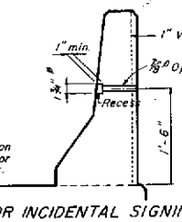
PLAN OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE



TYPICAL SECTION THRU BARRIER

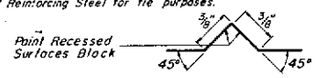
NOTE: The Longitudinal Reinforcing Steel shown above shall be normal Longitudinal Slab Steel spaced as shown, do not add Reinforcing Steel for tie purposes.

Note # Place bottom slab longitudinal Reinforcing Steel at each position as shown to facilitate tying anchor bars in Concrete Handrail Barrier.



HOLES FOR INCIDENTAL SIGNING

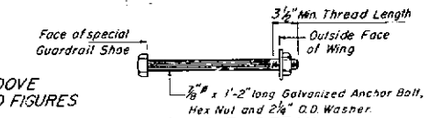
NOTE: Holes and grooves shall be placed on barrier type handrails of divided and undivided bridges as shown in the plans for designated type "C" single column, informational, guide, regulatory and warning sign locations (see signing plans) and at approximately 500' intervals along the right handrails of bridges between designated locations for future signs as directed by the Engineer. The cost of the extra holes and grooves shall be included in the contract unit price for Concrete Handrail (Barrier). If Signing Plans are not available the Project Engineer should secure necessary information from the District Maintenance or Traffic Operations Office.



SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

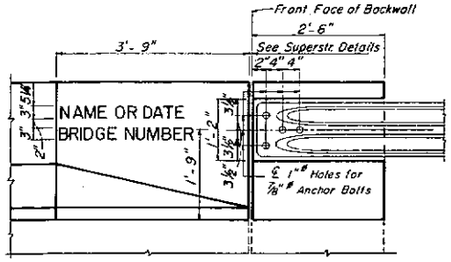
NOTES

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The Date to be placed on the drivers left when approaching Bridge. The Date shall be the Year the Bridge is constructed.
Block Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by ⅜" "V" Grooves. "V" Grooves shall be formed by preformed Letters and Figures.

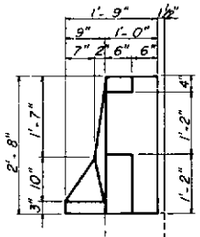


ANCHOR BOLT DETAIL

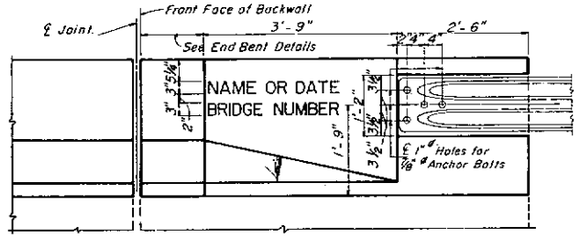
NOTE: Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail.



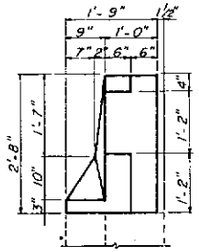
ELEVATION OF WING FOR SLAB TYPE SUPERSTRUCTURE



VIEW A-A



ELEVATION OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE



VIEW B-B

DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe See Standard Drawing in Roadway Plans.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

CONCRETE HANDRAIL BARRIER

REVISIONS	
Dates	Descriptions
10-19-77	Change Anchor Bolt Detail
1-6-78	Hex Head on Anchor Bolt
5-26-78	Hand Steel Revised & Deleted Reference to 1975 Supplement
7-17-90	Slip-Forming Note Added
3-2-81	Added Anchor Bar Tie Notes.
8-21-81	Change Anchor Bolt Dim.

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	D.O.D.	3/78
Checked by	P.B.	3/78
Quantities by		
Checked by		
Supervised by	P.B.	

APPROVED BY: T. [illegible]
Deputy Design Engineer, Structures

Drawing No.	Index No.
1 of 1	11407

FED. ROAD DIV. NO.	STATE	PROJECT NO.	PHASE YEAR	SHEET NO.
3	FLA.			

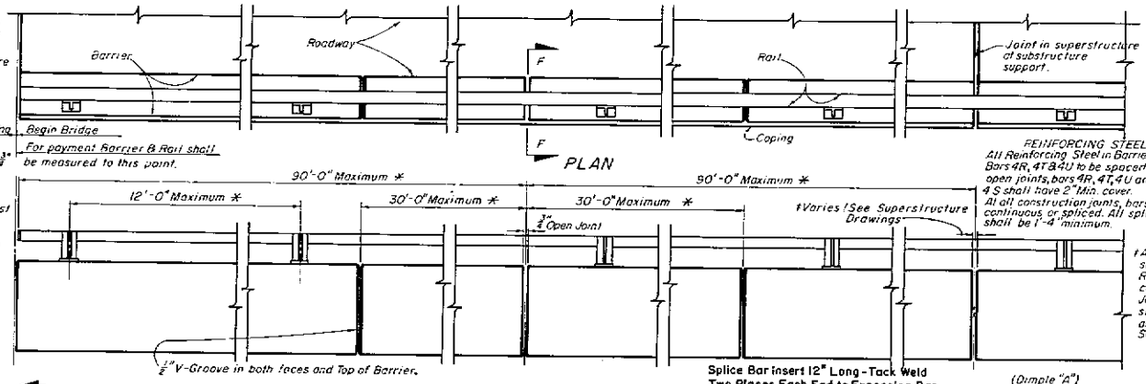
NOTE: For Barrier Transition at End Bents see Details below, this sheet.

* NOTE: See Superstructure Drawing for actual Dimensions.

NOTE: There shall be a 3/8" Min. Open Joint at all Substructure Supports.

NOTE: Concrete Wing Post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure).

NOTE: Rail shall be continuous over a minimum of 3 Posts before splicing.



PLAN

ELEVATION

NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.

Provide extra 4" of Seal Cut away all but top of Shelf to provide end flap. Bend down and seal with a lubricating adhesive.

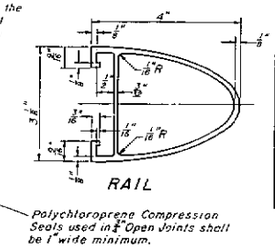
Polychloroprene Compression Seals used in 3/4" Open Joints shall be 1" wide minimum.

SECTION F-F

REINFORCING STEEL NOTES

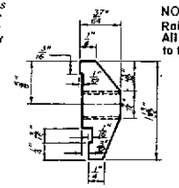
All Reinforcing Steel in Barrier shall be No. 4's. Bars 4R, 4T & 4U to be spaced at 8" c.c. At all open joints, bars 4R, 4T, 4U and the ends of bars 4S shall have 2" Min. cover. At all construction joints, bars 4S may be either continuous or spliced. All splices in bars 4S shall be 1'-4" minimum.

†At substructure supports where Roadway Slab is continuous, the Joint in Barrier shall be sealed as shown in Section F-F.



RAIL

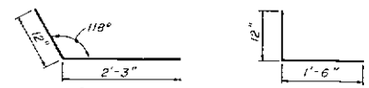
NOTE "A"-Rough Cut Ends and Edges of Aluminum Rails shall be Ground or Filed Smooth to Remove All Sharp Edges, Nicks or Burrs that would be Injurious to the Human Touch.



VIEW C-C

BENDING DIAGRAM

NOTE: All bar dimensions are out-to-out.

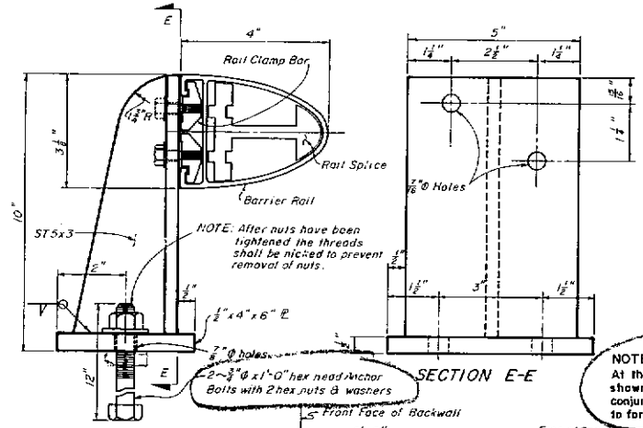


BAR 4R BAR 4 T

QUANTITIES: Class II Concrete = 0.07594 Cu. Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of .02 ft/ft.).
REINFORCING STEEL = 15.782 lbs. per linear ft. of Barrier.

GENERAL NOTES

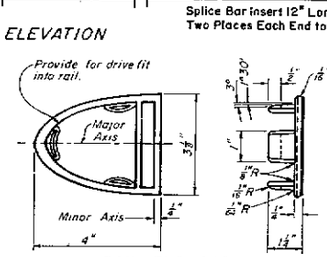
CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Rail, Concrete and Reinforcing Steel. Barrier shall be measured along the centerline of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.
MARKERS: Markers recording the Elevation shall be placed on top of the Barrier at End Bents. On Bridges longer than 100 ft. one marker shall be placed at each end of the Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department of Transportation and installed by the Contractor. The Cost of installing the Markers shall be included in the Contract Unit Price for Concrete Barrier.
ANCHOR BOLTS: Anchor Bolts, Nuts and Washers shall be hot dip galvanized in accordance with A.S.T.M. A-123.



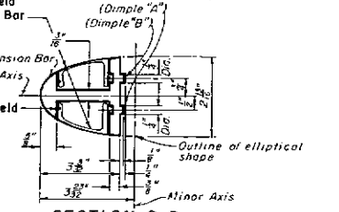
NOTE: After nuts have been tightened the threads shall be nicked to prevent removal of nuts.

SECTION THRU RAIL

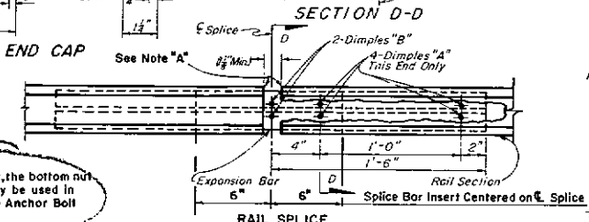
SECTION E-E



RAIL END CAP

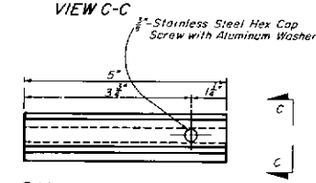


SECTION D-D



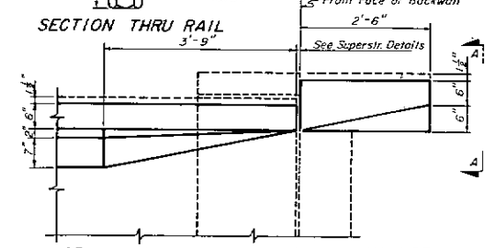
RAIL SPLICE

Splice Bar insert 12" Long - Tack Weld Two Places Each End to Expansion Bar



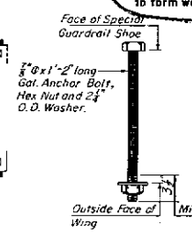
RAIL CLAMP BAR

NOTE:
At the option of the contractor, the bottom nut shown in "Section Thru Rail" may be used in conjunction with top nut to secure Anchor Bolt to form work during pour.



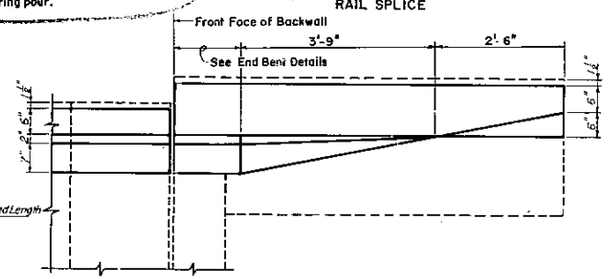
PLAN OF WING FOR SLAB TYPE SUPERSTRUCTURE

NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover.

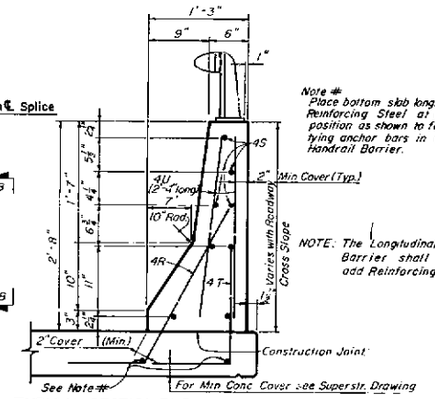


ANCHOR BOLT DETAIL

NOTE: Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail.



PLAN OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE



Note #
Place bottom slab longitudinal Reinforcing Steel at each position as shown to facilitate tying anchor bars in Concrete Handrail Barrier.

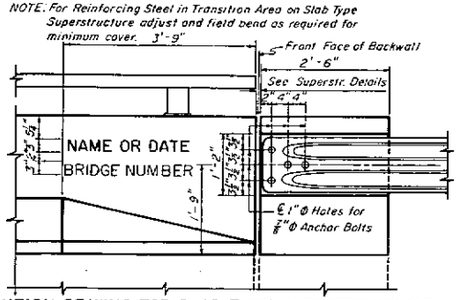
NOTE: The Longitudinal Reinforcing Steel shown in Slab of Typical Section Thru Barrier shall be normal Longitudinal Slab Steel spaced as shown, do not add Reinforcing Steel for tie purposes.

TYPICAL SECTION THRU BARRIER

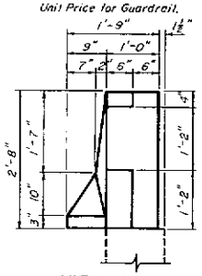
SPECIFICATIONS FOR BRIDGE RAIL

POST: Fabricated wrought aluminum A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5 with welding using filler wire 4043.
RAIL & RAIL SPLICE: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.
RAIL CLAMP BAR: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.
ANCHOR BOLTS: Anchor Bolts shall be in accordance with A.S.T.M. A-36 or A-307. Anchor Bolts, nuts and washers shall be hot-dip galvanized in accordance with A.S.T.M. Designation A-153.
RAIL END CAP: A.S.T.M. B 26 sand cast aluminum alloy, S G 70A-F (Alum. Assoc. alloy designation A-356-F).
RAIL INSTALLATION: Rail Post shall be normal to Profile Grade. Posts shall be seated on 1/8" thick resilient pads in accordance with Article 932-21. The dimension shall be the same as the post base. Rail expansion joints shall occur in the panel between posts on either side of Bridge expansion joints. Rail expansion joints shall be similar to rail splices with provision for movement equal to .5 times the bridge joint opening.
SHOP DRAWINGS: Complete details and description of materials of the proposed bridge rail shall be submitted by the contractor for the Engineers approval prior to fabrication.

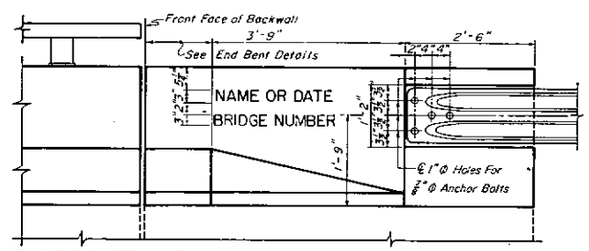
NOTE: At the option of the Contractor, Barrier Walls may be constructed by slip-forming subject to the following: the width may be increased a maximum of 2 inches provided that the front face at the base of each barrier infringes on the clear roadway width no more than 1/2" and that any additional materials required are at the expense of the Contractor. The shape of the Barrier on the Roadway side shall not be altered.



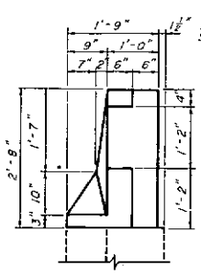
ELEVATION OF WING FOR SLAB TYPE SUPERSTRUCTURE



VIEW A-A

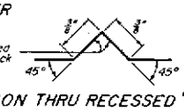


ELEVATION OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE



VIEW B-B

Paint Recessed Surfaces Black



SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

Black Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by 3/8" "V" Grooves. "V" Grooves shall be formed by preformed Letters and Figures.

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The date to be placed on the drivers left when approaching Bridge. The date shall be the Year the Bridge is constructed.

DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe See Standard Drawing in Roadway Plans

REVISIONS	
Dates	Descriptions
6/30/75	In reference to 1975 Supplement.
8 2975	Bridge Number added to Wingwall
10 13 78	Change Anchor Bolt Detail
9 28 78	Steel Revised & Deleted Reference to 1975 Supplement
5-21-80	Added note to "Rail Splice"
7-27-80	Slip-Forming Note Added
8-21-81	Has Head on Anchor Bolt, & Change Anchor Bolt Dim.
3-2-81	Added Anchor Bar Tie Notes
5-13-81	Added Splice Bar Insert & Note "A"
8-17-81	CHGD Splice Bar Dimension.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SIDEWALK BARRIER

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	WHD	5-74
Checked by	JLM	5-74
Quantities by		
Checked by		
Supervised by	PB	

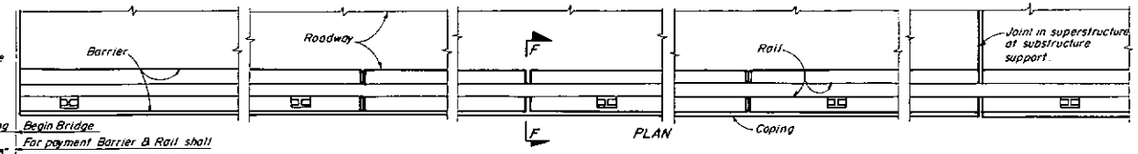
APPROVED BY T. Ott
Deputy Design Engineer, Structures

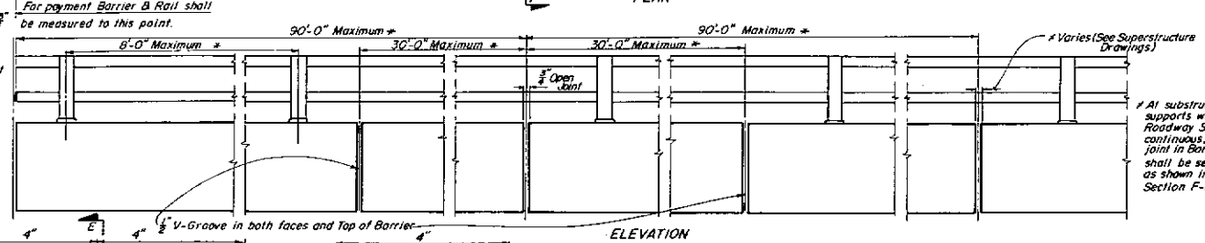
Drawing No. 1 of 1 | Index No. 11,460

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

NOTE: For Barrier Transition at End Bents see Details Below, this sheet

* NOTE: See Superstructure drawing for actual dimensions.



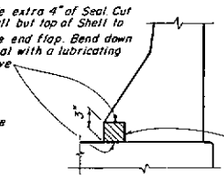


NOTE: There shall be a 3/4" Min. Open Joint at all Substructure Supports.

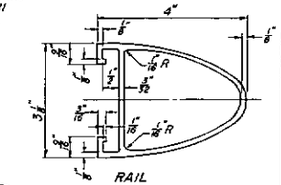
NOTE: Concrete Wing post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure)

NOTE: Rail shall be continuous over a minimum of 3 posts before splicing.

NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.

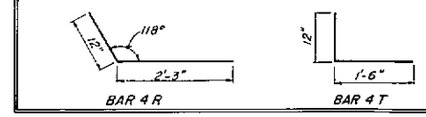


Polychloroprene Compression Seals used in 3/4" Open Joints shall be 1" wide minimum.



BENDING DIAGRAM

NOTE: All bar dimensions are out-to-out.



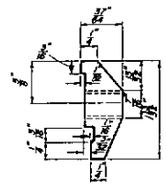
QUANTITIES: Class II Concrete = 0.07594 Cu.Yds per linear ft. of Barrier (Based on Roadway Cross Slope of .02 ft/ft.)
REINFORCING STEEL = 15.782 lbs. per linear ft. of Barrier.

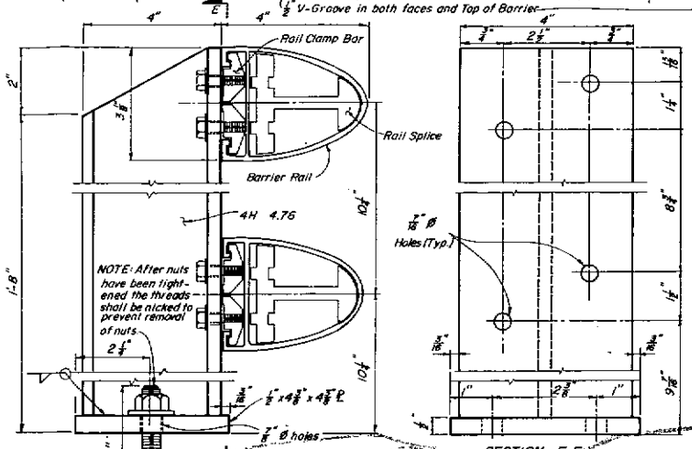
GENERAL NOTES

CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Rail, Concrete and Reinforcing Steel. Barrier shall be measured along the centerline of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days
MARKERS: Markers recording the Elevation shall be placed on top of the barrier at End Bents. On Bridges longer than 100 ft. one marker shall be placed at each end of the Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department of Transportation and installed by the Contractor. The Cost of installing the markers shall be included in the Contract Unit Price for Concrete Barrier.

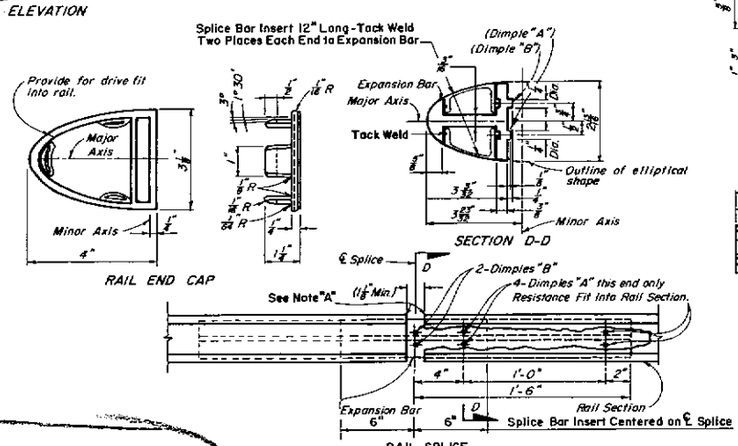
REINFORCING STEEL NOTES

All Reinforcing Steel in Barrier shall be No. 4's. Bars 4R, 4T & 4U to be spaced at 8" C.C. At all open joints, Bars 4R, 4T, 4U and the ends of bars 4S shall have 2" Min. cover. At all construction joints, bars 4S may be either continuous or spliced. All splices in bars 4S shall be 1'-4" minimum.

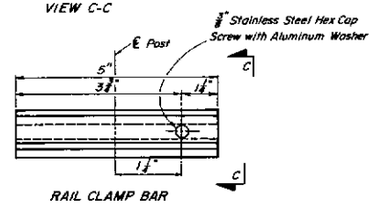




NOTE: At the option of the Contractor, the bottom nut shown in "Section Thru Rail" may be used in conjunction with top nut to secure Anchor Bolt to form work during pour.

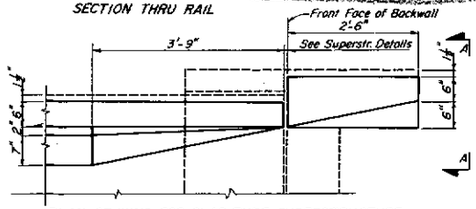


NOTE "A"-Rough Cut Ends and Edges of Aluminum Rails shall be Ground or Filed Smooth to Remove All Sharp Edges, Nicks or Burrs that would be Injurious to the Human Touch.

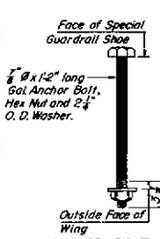


SPECIFICATIONS FOR BRIDGE RAIL

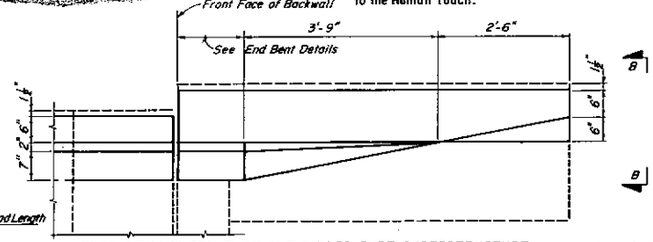
POST: Fabricated wrought aluminum A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5 with welding using filler wire 4043.
RAIL & RAIL SPLICE: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5
RAIL CLAMP BAR: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5
ANCHOR BOLTS: Anchor Bolts shall be in accordance with A.S.T.M. A-36 or A-307. Anchor Bolts, nuts and washers shall be hot-dip galvanized in accordance with A.S.T.M. Designation A-153.
RAIL END CAP: A.S.T.M. B 26 sand cast aluminum alloy, S G 70A-F (Alum. Assoc. alloy designation A-356-F).
RAIL INSTALLATION: Rail Post shall be normal to Profile Grade. Posts shall be seated on 1/8" thick resilient pads in accordance with Article 932-2.1. The dimension shall be the same as the post base. Rail expansion joints shall occur in the panel between posts on either side of Bridge expansion joints. Rail expansion joints shall be similar to rail splices with provision for movement equal to 1.5 times the bridge joint opening.
SHOP DRAWINGS: Complete details and description of materials of the proposed bridge rail shall be submitted by the contractor for the Engineers approval prior to fabrication.

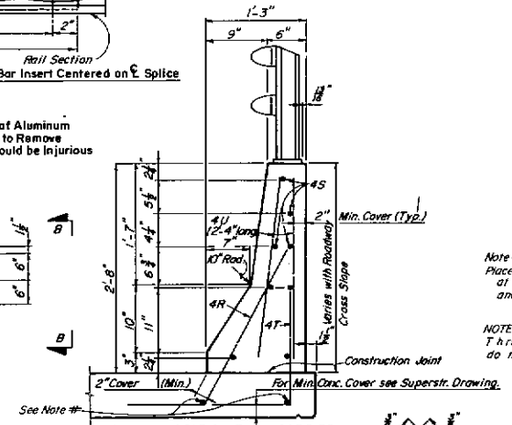


NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover.



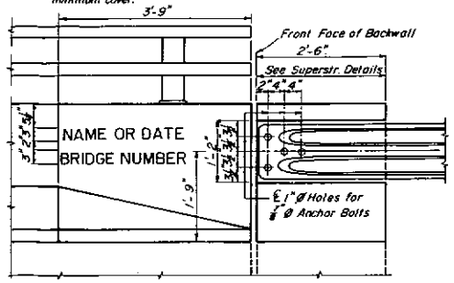
NOTE: Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail

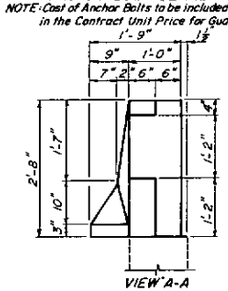




Note #
Place bottom slab longitudinal Reinforcing Steel at each position as shown to facilitate tying anchor bars in Concrete Handrail Barrier.

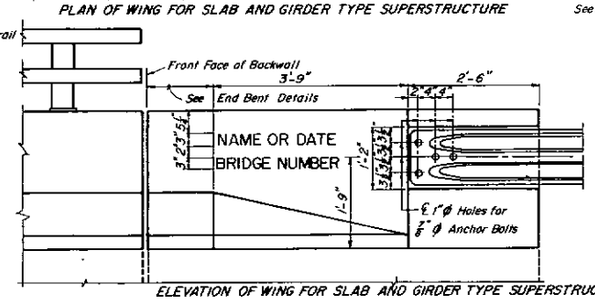
NOTE: The Longitudinal Reinforcing Steel shown in the slab of the Typical Section Thru Barrier shall be normal Longitudinal Slab Steel spaced as shown, do not add Reinforcing Steel for tie purposes.

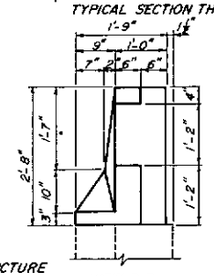


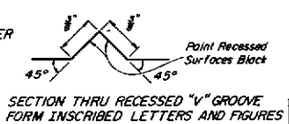


DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe see Road Design Standards Booklet.







SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

Black Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by 3/8" "V" Grooves. "V" Grooves shall be formed by preformed Letters and Figures.

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The date to be placed on the drivers left when approaching Bridge. The date shall be the Year the Bridge is constructed.

REVISIONS		
Dates	Descriptions	
3-2-81	Added Anchor Bar Tie Notes	
3-10-81	Added Splice Bar Insert & Note "A"	
5-17-81	CHGD Splice Bar Dimension	
5-21-81	Change Anchor Bolt Dim.	

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

BICYCLE BARRIER

ROAD NO.	COUNTY	PROJECT NO.

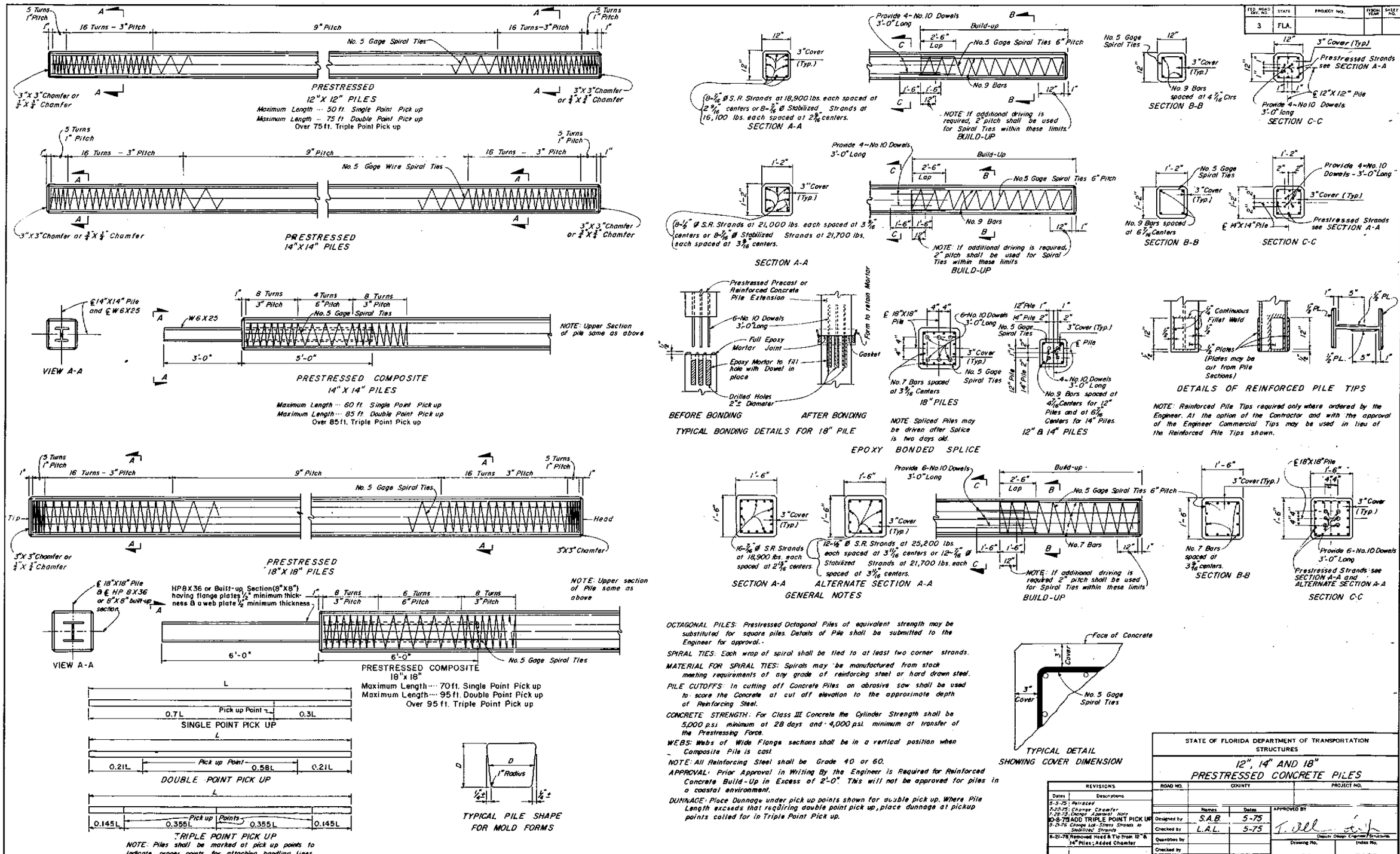
	Names	Dates
Designed by	CAC	1-79
Checked by	DEK	1-79
Quantities by		
Checked by		
Supervised by	SHN	

APPROVED BY: Deputy Design Engineer, Structures

Drawing No. 1 of 1

Index No. 12931

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



OCTAGONAL PILES: Prestressed Octagonal Piles of equivalent strength may be substituted for square piles. Details of Pile shall be submitted to the Engineer for approval.

SPIRAL TIES: Each wrap of spiral shall be tied to at least two corner strands.

MATERIAL FOR SPIRAL TIES: Spirals may be manufactured from stock meeting requirements of any grade of reinforcing steel or hard drawn steel.

PILE CUTOFFS: In cutting off Concrete Piles on abrasive saw shall be used to score the Concrete at cut off elevation to the approximate depth of Reinforcing Steel.

CONCRETE STRENGTH: For Class III Concrete the Cylinder Strength shall be 5,000 p.s.i. minimum at 28 days and 4,000 p.s.i. minimum at transfer of the Prestressing Force.

WEBS: Webs of Wide Flange sections shall be in a vertical position when Composite Pile is cast.

NOTE: All Reinforcing Steel shall be Grade 40 or 60.

APPROVAL: Prior Approval in Writing By the Engineer is Required for Reinforced Concrete Build-Up in Excess of 2'-0". This will not be approved for piles in a coastal environment.

DUNNAGE: Place Dunnage under pick up points shown for double pick up. Where Pile Length exceeds that requiring double point pick up, place dunnage at pickup points called for in Triple Point Pick up.

REVISIONS	
Dates	Descriptions
5-23-75	Retraced
6-20-75	Change Chamfer
7-28-75	Change Approval Note
10-8-75	ADD TRIPLE POINT PICK UP
9-2-76	Change Lat. Stress Strands to Stabilized Strands
8-21-78	Removed Head & Tip from 12" & 14" Piles; Added Chamfer

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

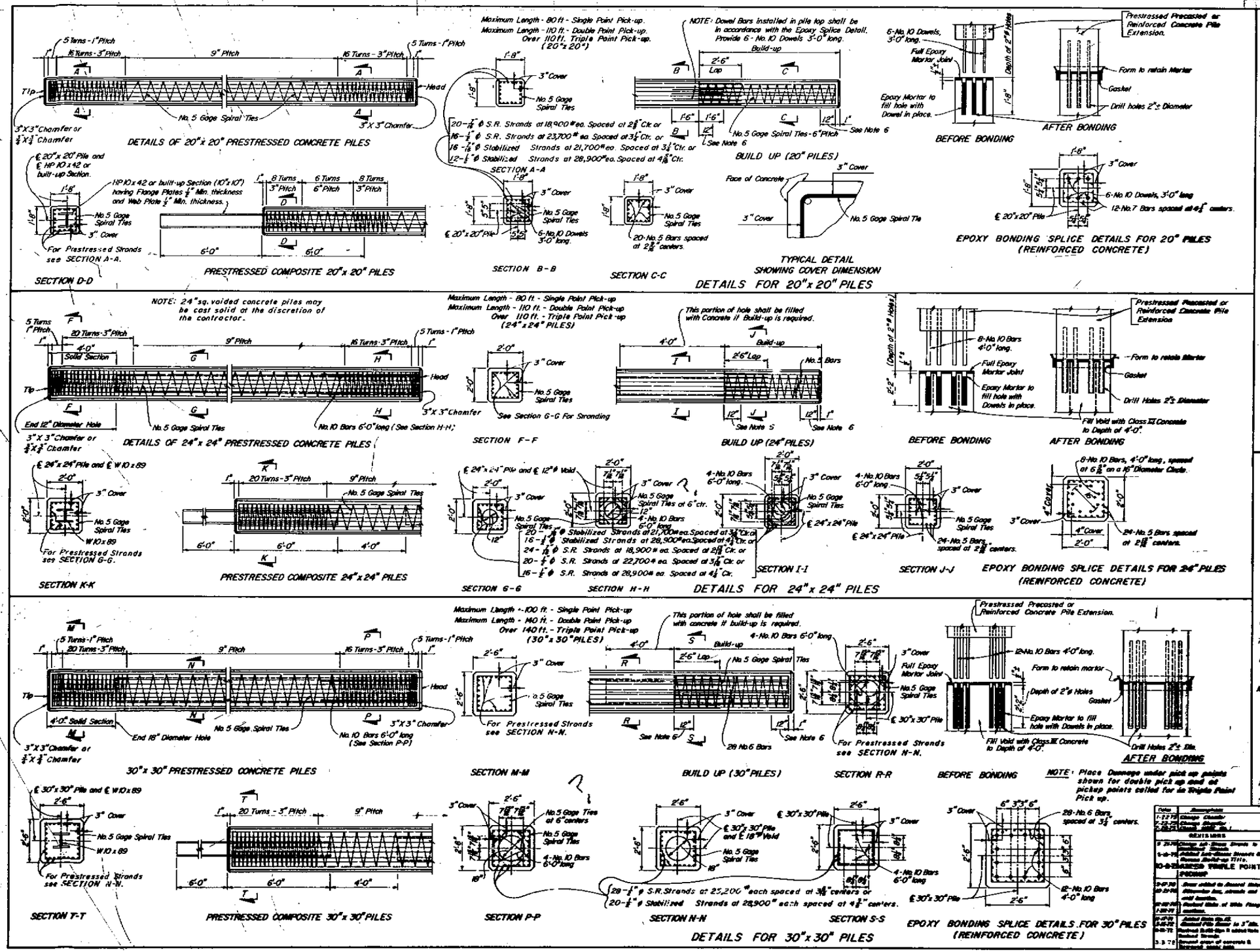
12", 14" AND 18" PRESTRESSED CONCRETE PILES

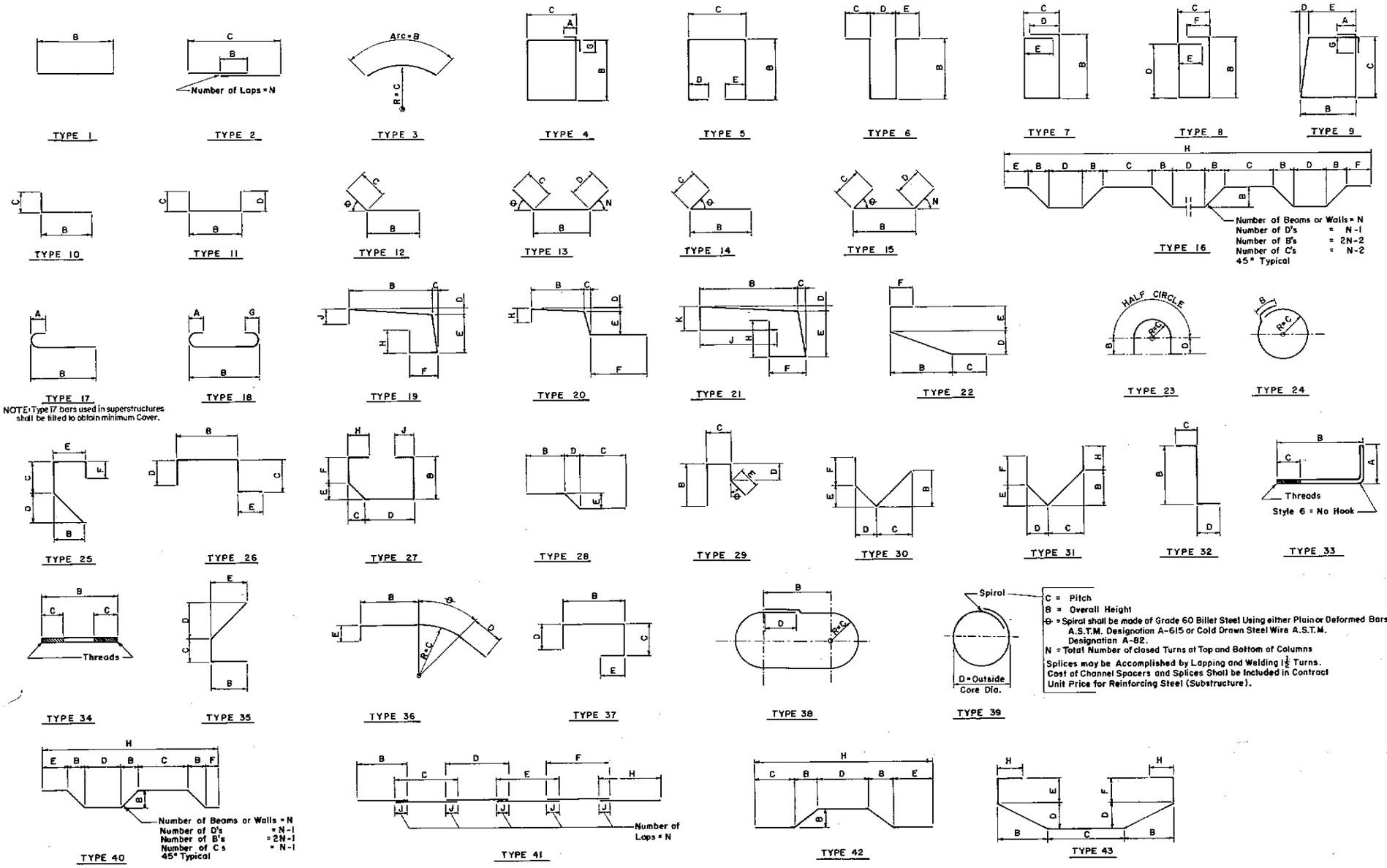
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	S.A.B.	5-75
Checked by	L.A.L.	5-75
Quantities by		
Checked by		
Supervised by		

APPROVED BY T. Allen Gill
Deputy Design Engineer (Structures)

Drawing No.	Index No.
1 of 1	3400


DETAILS OF 20" x 20" PRESTRESSED CONCRETE PILES
Maximum Length - 80 ft - Single Point Pick-up.
Maximum Length - 110 ft. - Double Point Pick-up.
Over 110 ft. Triple Point Pick-up.
(20" x 20")
NOTE: Dowel Bars installed in pile top shall be in accordance with the Epoxy Splice Detail. Provide 6 - No. 10 Dowels 3'-0" long.
BUILD UP (20" PILES)
BEFORE BONDING
AFTER BONDING
Prestressed Precasted or Reinforced Concrete Pile Extension.
Form to retain Mortar
Gasket
Drill holes 2" ± Diameter
Epoxy Mortar to fill hole with Dowel in place.
Full Epoxy Mortar Joint
6-No. 10 Dowels, 3'-0" long.
Depth of 2" ø Holes
SECTION A-A
SECTION D-D
PRESTRESSED COMPOSITE 20" x 20" PILES
SECTION B-B
SECTION C-C
TYPICAL DETAIL SHOWING COVER DIMENSION
EPOXY BONDING SPLICE DETAILS FOR 20" PILES (REINFORCED CONCRETE)
DETAILS FOR 20" x 20" PILES
NOTE: 24" sq. voided concrete piles may be cast solid at the discretion of the contractor.
Maximum Length - 80 ft - Single Point Pick-up
Maximum Length - 110 ft. - Double Point Pick-up
Over 110 ft. - Triple Point Pick-up
(24" x 24" PILES)
This portion of hole shall be filled with Concrete if Build-up is required.
DETAILS OF 24" x 24" PRESTRESSED CONCRETE PILES
SECTION F-F
BUILD UP (24" PILES)
BEFORE BONDING
AFTER BONDING
SECTION K-K
PRESTRESSED COMPOSITE 24" x 24" PILES
SECTION G-G
SECTION H-H
SECTION I-I
SECTION J-J
EPOXY BONDING SPLICE DETAILS FOR 24" PILES (REINFORCED CONCRETE)
DETAILS FOR 24" x 24" PILES
Maximum Length - 100 ft. - Single Point Pick-up
Maximum Length - 140 ft. - Double Point Pick-up
Over 140 ft. - Triple Point Pick-up
(30" x 30" PILES)
30" x 30" PRESTRESSED CONCRETE PILES
SECTION M-M
BUILD UP (30" PILES)
SECTION R-R
BEFORE BONDING
AFTER BONDING
NOTE: Place Dowelings under pick up points shown for double pick up and at pickup points called for in Triple Point Pick up.
SECTION T-T
PRESTRESSED COMPOSITE 30" x 30" PILES
SECTION P-P
SECTION N-N
SECTION S-S
EPOXY BONDING SPLICE DETAILS FOR 30" PILES (REINFORCED CONCRETE)
DETAILS FOR 30" x 30" PILES
DETAILS OF REINFORCED PILE TIPS
Plates may be cut from Pile Sections.
DETAILS SHOWING VENT HOLES IN PILES CAST WITH VOIDS
SECTION THRU PLUG WHEN PILE WITH VOID IS USED FOR PILE BUILD-UP
TYPICAL PILE SHOE FOR SOLID PILES
PICK-UP POINT LOCATIONS
GENERAL NOTES
1. Prior Approval in Writing by the Engineer is Required for Reinforced Concrete Build-ups in Excess of 2'-0". Shims will not be approved for piles in a coastal environment.
2. SPIRAL TIES: Each wrap of spirals shall be tied to all bend loop in corner strands.
3. MATERIAL FOR SPIRAL TIES: Spirals may be manufactured from stock mending requirements of any grade of reinforcing steel, or hard drawn wire.
4. PILE CUT OFF: In cutting off concrete piles an abrasive saw shall be used to score the concrete at the cut off elevation to the approximate depth of the reinforcing steel.
5. CONCRETE STRENGTH: For Class III Concrete the Cylinder Strength shall be 5,000 p.s.i. minimum at 28 days and 4,000 psi. minimum at transfer of the Prestressing Force.
6. ADDITIONAL DRIVING: If additional driving is required, 2" Pitch shall be used for spiral ties within these limits.
7. SPLICED PILES: Spliced piles may be driven after splice is two days old.
8. BUILD-UPS: All build-ups shall be made with Class II Concrete.
9. PICK-UP POINTS: Piles shall be marked at Pick-up Points to indicate proper points for attaching handling lines.
10. REINFORCED STEEL PILE TIPS: Reinforced Pile Tips required only where ordered by the Engineer. At the option of the Contractor and with the approval of the Engineer, Commercial Tips may be used in lieu of the Reinforced Pile Tips shown.
11. VOIDS: Form material used to form the hollow cores may be left in place at the option of the Contractor. The form material shall be neutral with respect to the generation of products harmful to the physical and structural properties of the pile. The contractor shall retain responsibility for any deterioration resulting from the presence of the form material within the pile.
12. WEBS: Webs of Web Flange sections shall be in a vertical position when Composite Pile is cast.
13. REINFORCING STEEL: All Reinforcing Steel shall be Grade 40 or 60
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES
20", 24" AND 30" PRESTRESSED CONCRETE PILES
REVISIONS
Designed by MHJ 12-69
Checked by PB 12-69
1 of 1
10000 F

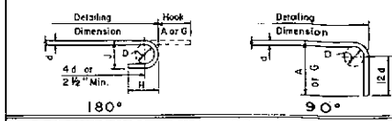


NOTE: For Bar Dimensions See Reinforcing Bar List Sheet.

REVISIONS	
Dates	Descriptions
4-81	GENERAL REVIEW

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

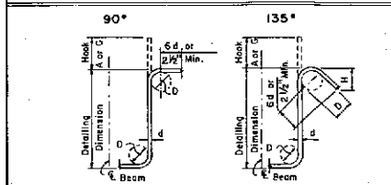
HOOK DETAILS



RECOMMENDED END HOOKS

All Grades
D = 6d for #3 through #8
D = 8d for #9, #10, and #11
D = 10d for #14 and #19

Bar Size	180° HOOKS		90° HOOKS
	A or G	J	A or G
#3	5	3	6
#4	6	4	8
#5	7	5	10
#6	8	6	1-0
#7	10	7	1-2
#8	11	8	1-4
#9	1-3	11¾	1-7
#10	1-5	1-1¼	1-10
#11	1-7	1-2¾	2-0
#14	2-3	1-9¾	2-7
#18	3-0	2-4½	3-5
STYLE	1		3



STIRRUPS
(TIES SIMLAR)

RECOMMENDED STIRRUP & TIE HOOK DIMENSIONS

Bar Size	D (in.)	90° HOOK	135° HOOK	
		HOOK A or G	HOOK A or G	Approx. H
#3	1½	4	4	2½
#4	2	4½	4½	3
#5	2½	6	5½	3¾
#6	4½	1-0	7¾	4½
#7	5¼	1-2	9	5¼
#8	6	1-4	10¼	6
STYLE		4	5	

STYLE 6 = NO HOOK

Hook Styles Detailed on this Sheet are for illustration Only Actual Hook Style for any Particular Bar will be Shown Under A or G Heading on Reinforcing Bar List Sheet.
All Dimensions are Out To Out.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

STANDARD BAR BENDING DETAILS

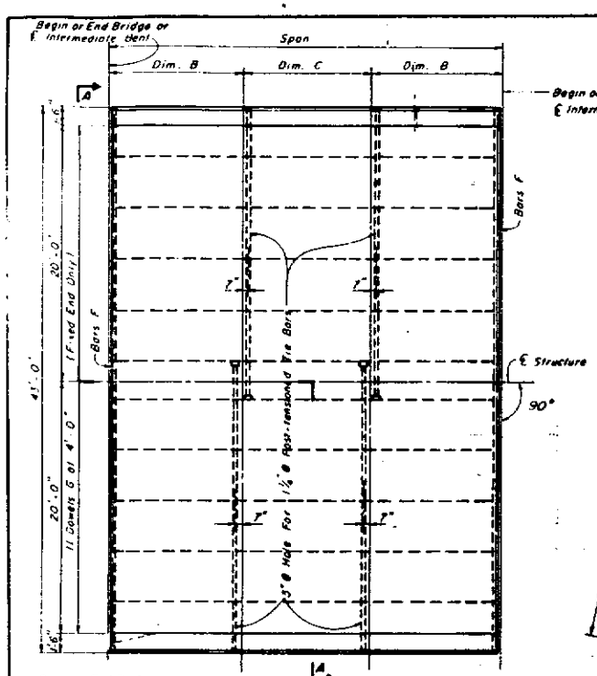
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	M.B.	9-70
Checked by	C.W.B.	10-70
Quantities by		
Checked by		
Supervised by	L.B.A.	

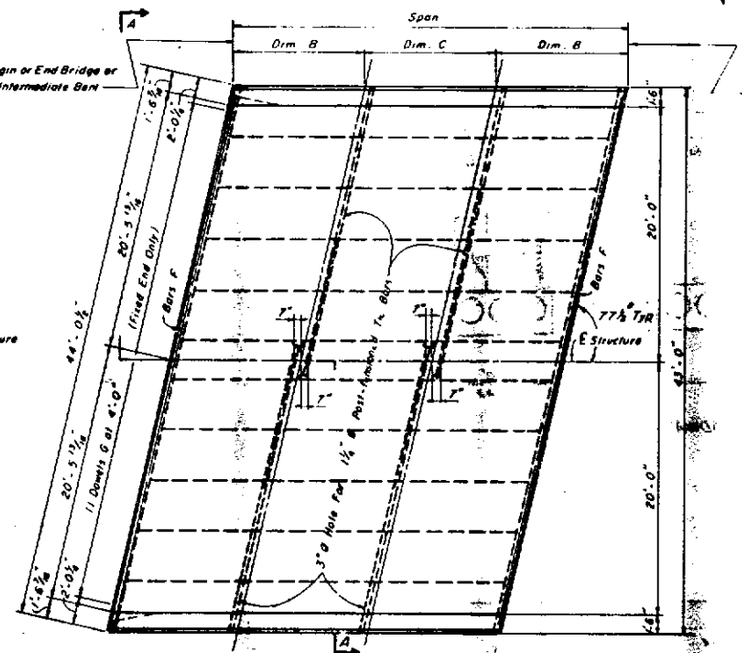
APPROVED BY: T. Ali
Deputy Design Engineer, Structures

Drawing No.: 1 of 1
Index No.: 10587

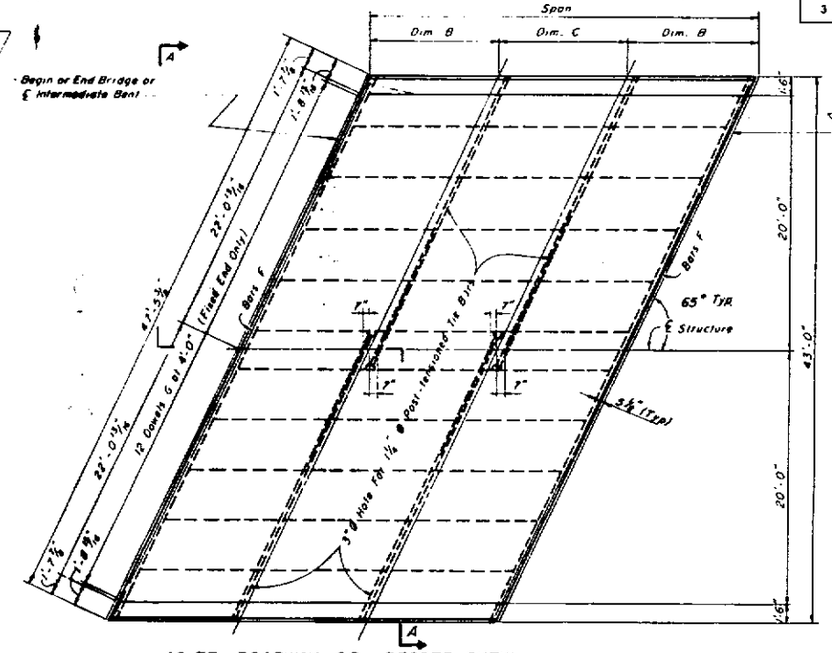
FED. ROAD DIV. NO.	STATE	PROJECT NO.	TYPICAL YEAR	SHEET NO.
3	FLA.			



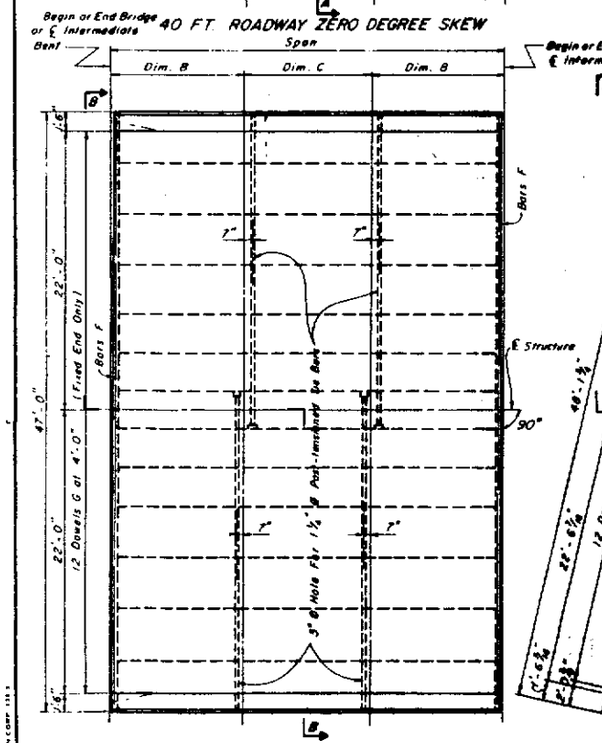
40 FT. ROADWAY ZERO DEGREE SKEW



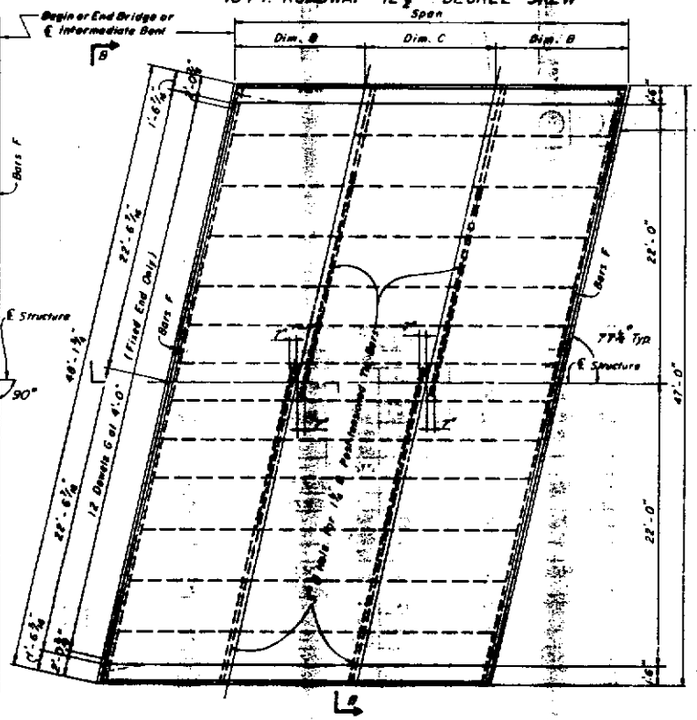
40 FT. ROADWAY 12½ DEGREE SKEW



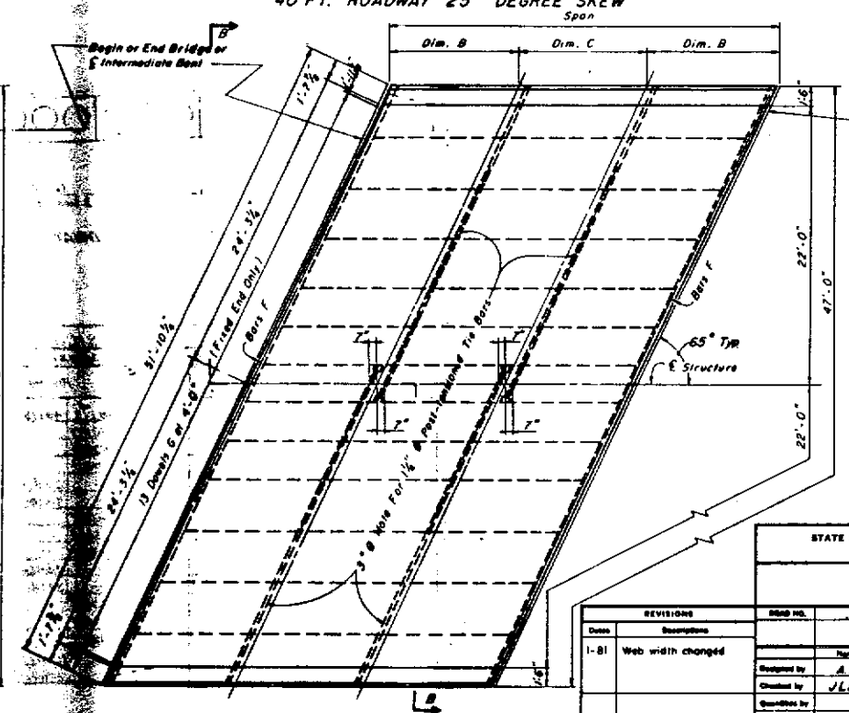
40 FT. ROADWAY 25 DEGREE SKEW



44 FT. ROADWAY ZERO DEGREE SKEW



44 FT. ROADWAY 12½ DEGREE SKEW



44 FT. ROADWAY 25 DEGREE SKEW

NOTE: For Details of Barrier Wall Transition at End Bents see Concrete Handrail Barrier Sheet.

NOTE: Details Shown are for Skew Right Bridge. Skew Left Bridge is Opposite Hand.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SUPERSTRUCTURE

REVISIONS	
Date	Description
1-81	Web width changed

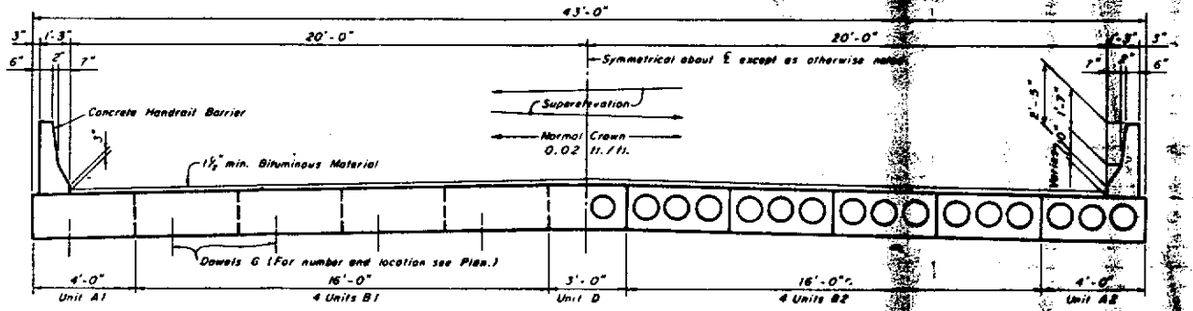
ROAD NO.	COUNTY	PROJECT NO.

	Name	Date
Designed by	A.M.	7/78
Checked by	JLM	7/78
Quantities by		
Checked by		

APPROVED BY

Deputy Design Engineer, Structures

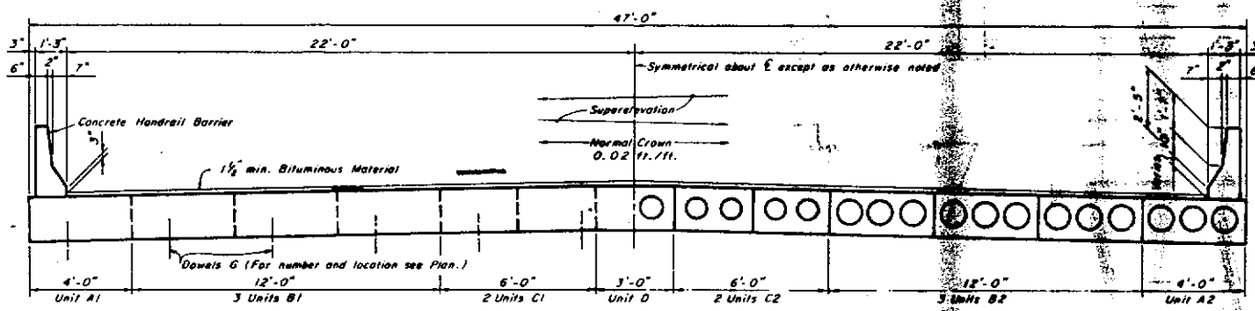
Drawing No.	Index No.
1 of 2	12669



HALF END ELEVATION

HALF SECTION THRU ROADWAY

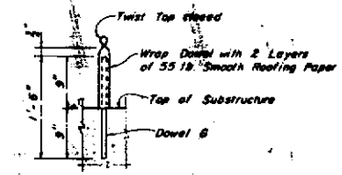
40 FT ROADWAY
SECTION A-A



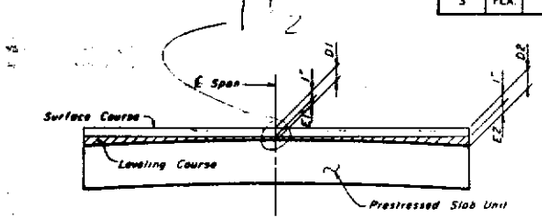
HALF END ELEVATION

HALF SECTION THRU ROADWAY

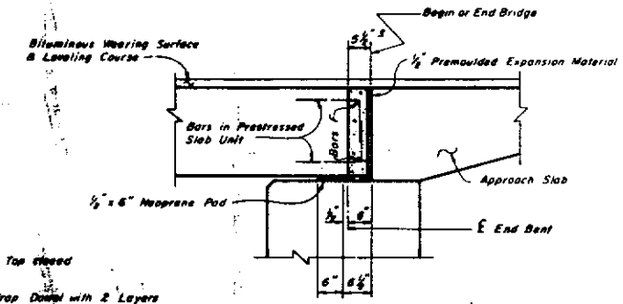
44 FT. ROADWAY
SECTION B-B



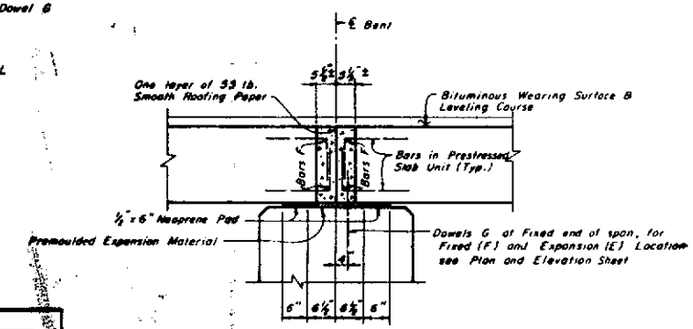
DOWEL DETAIL



LEVELING COURSE FOR SURFACING



TYPICAL SECTION AT END BENT
(NORMAL TO ℄ BENT)



TYPICAL SECTION AT INTERMEDIATE BENT
(NORMAL TO ℄ BENT)

BILL OF REINFORCING STEEL

		Mark	Size	Type	No.	Length
40'-0"	0°	F	4	1	4	43'-11"
		G	6	Str.	11	1'-6"
	12½°	F	4	1	4	44'-11"
		G	6	Str.	11	1'-6"
	25°	F	4	1	4	48'-4"
		G	6	Str.	12	1'-6"
44'-0"	0°	F	4	1	4	47'-11"
		G	6	Str.	12	1'-6"
	12½°	F	4	1	4	49'-0"
		G	6	Str.	12	1'-6"
	25°	F	4	1	4	52'-9"
		G	6	Str.	13	1'-6"

Roadway Width — Skew Angle

1'-3" * Includes Laps for " 4 Bars more than 40'-0" Long

Length *

TYPE I

TABLE OF VARIABLE DIMENSIONS & ESTIMATED QUANTITIES *

Skew ∠	Span	Variable Dimensions B	C	D1	**D2	E1	**E2	40 FT ROADWAY: Class II Conc. (Superstructure) End Span	Int. Span	Reinf Steel (Superstructure)	Prestressed Units 48x18	48x15	36x15	36x18	44 FT ROADWAY: Class II Conc. (Superstructure) End Span	Int. Span	Reinf Steel (Superstructure)	Prestressed Units 48x15	48x18	36x15	36x18
0 Degrees	25'-0"	8'-5½"	8'-1"	1½"	1½"	1"	1½"	1.74 C.Y.	1.88 C.Y.	142 Lbs.	240.8LF	—	241LF	—	1.90 C.Y.	1.98 C.Y.	152 Lbs.	192.7LF	—	1'04LF	—
	27'-6"	9'-3½"	8'-11"	"	1½"	"	1½"	"	"	"	265.8LF	—	27.6LF	—	"	"	"	212.7LF	—	1'29LF	—
	30'-0"	10'-1½"	9'-9"	"	1½"	"	1½"	"	"	"	290.8LF	—	22.1LF	—	"	"	"	232.7LF	—	145.8LF	—
	32'-6"	10'-11½"	10'-7"	"	1½"	"	1½"	2.09 C.Y.	2.18 C.Y.	"	—	368.8LF	—	31.6LF	2.28 C.Y.	2.39 C.Y.	"	—	252.7LF	—	157.9LF
	35'-0"	11'-9½"	11'-5"	"	1½"	"	1½"	"	"	"	—	340.8LF	—	34.1LF	"	"	"	—	272.7LF	—	170.4LF
12½ Degrees	25'-0"	8'-5½"	8'-1"	1½"	1½"	1"	1½"	1.78 C.Y.	1.87 C.Y.	145 Lbs.	240.8LF	—	241LF	—	1.95 C.Y.	2.04 C.Y.	158 Lbs.	192.5LF	—	180.3LF	—
	27'-6"	9'-3½"	8'-11"	"	1½"	"	1½"	"	"	"	265.8LF	—	26.8LF	—	"	"	"	212.5LF	—	132.8LF	—
	30'-0"	10'-1½"	9'-9"	"	1½"	"	1½"	"	"	"	290.8LF	—	23.1LF	—	"	"	"	232.5LF	—	145.3LF	—
	32'-6"	10'-11½"	10'-7"	"	1½"	"	1½"	2.14 C.Y.	2.24 C.Y.	"	—	368.8LF	—	31.6LF	2.34 C.Y.	2.45 C.Y.	"	—	252.5LF	—	157.8LF
	35'-0"	11'-9½"	11'-5"	"	1½"	"	1½"	"	"	"	—	340.8LF	—	34.1LF	"	"	"	—	272.5LF	—	170.3LF
25 Degrees	25'-0"	8'-5½"	8'-1"	1½"	1½"	1"	1½"	1.98 C.Y.	2.01 C.Y.	156 Lbs.	240.8LF	—	24.0LF	—	2.10 C.Y.	2.20 C.Y.	170 Lbs.	192.0LF	—	120.0LF	—
	27'-6"	9'-3½"	8'-11"	"	1½"	"	1½"	"	"	"	265.8LF	—	26.3LF	—	"	"	"	212.0LF	—	132.5LF	—
	30'-0"	10'-1½"	9'-9"	"	1½"	"	1½"	"	"	"	290.8LF	—	23.0LF	—	"	"	"	232.0LF	—	145.0LF	—
	32'-6"	10'-11½"	10'-7"	"	1½"	"	1½"	2.31 C.Y.	2.42 C.Y.	"	—	368.8LF	—	31.5LF	2.52 C.Y.	2.64 C.Y.	"	—	252.0LF	—	157.5LF
	35'-0"	11'-9½"	11'-5"	"	1½"	"	1½"	"	"	"	—	340.8LF	—	34.0LF	"	"	"	—	272.0LF	—	170.0LF

* Estimated Quantities are for one Span only

** These dimensions may vary due to vertical profile of bridge.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SUPERSTRUCTURE

REVISIONS		
Date	Description	
11-78	Reference to Separation note removed	
1-81	Conc & Prestressed Unit Quantities Revised. Web width changed. Location of Dowel changed.	

	Name	Date
Designed by	R.N	7/78
Checked by	JLM	7/78
Quantities by	JLM/AMM	7/78
Checked by	RDS	9/80
Supervised by	JLM	

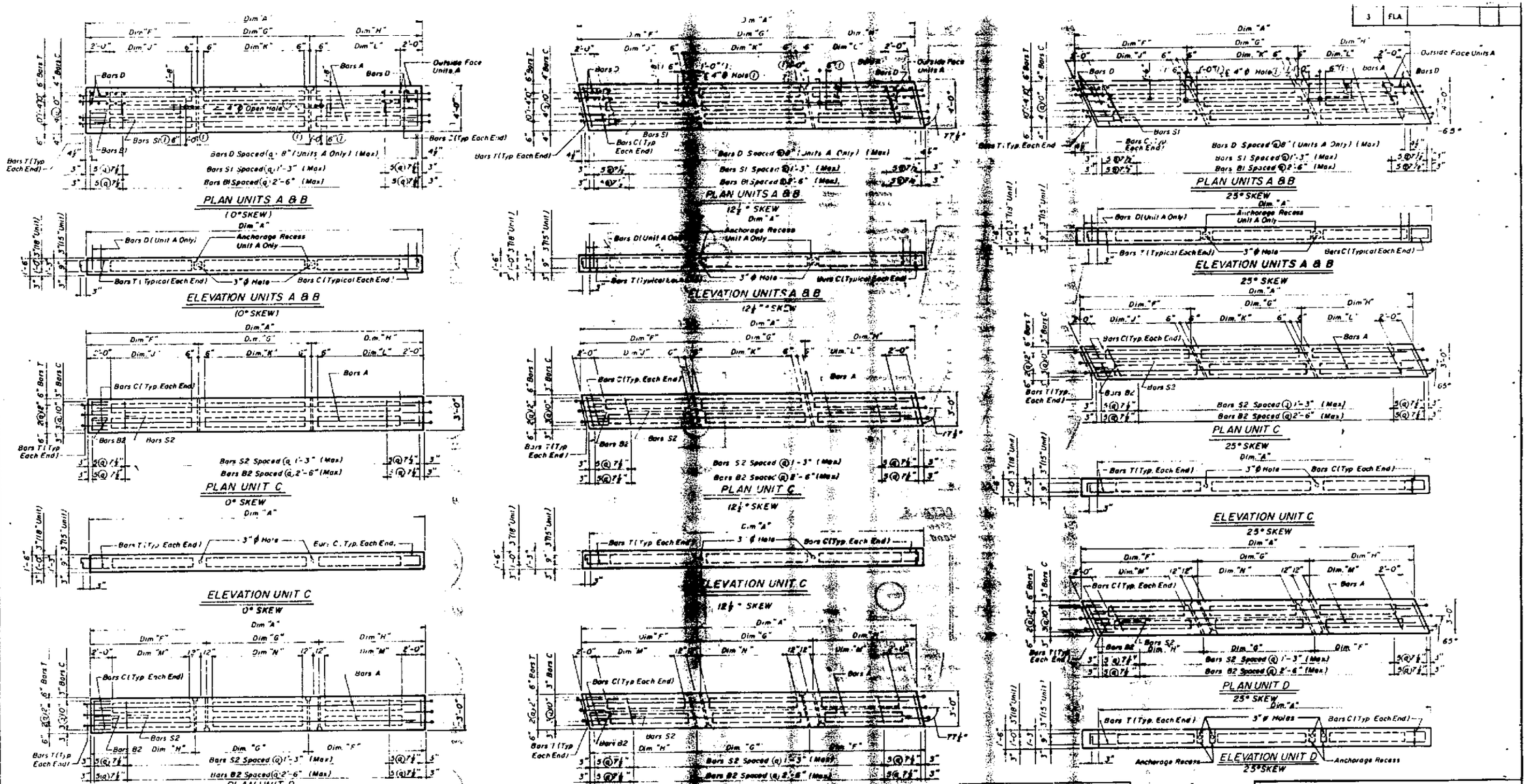
ROAD NO. | COUNTY | PROJECT NO.

APPROVED BY

Chief, Design Engineer, Structures

Drawing No. 2 OF 2

Index No. 12669



(1) Applies only where Roadway Drains are shown on Bridge Plan and Elevation sheet.

NOTE: Details Shown are for Skew Left of Bridge. Skew Right Bridge is Opposite Hand.

REVISIONS	
Date	Descriptions
10-79	Severed Ends of All Voids
11-80	Bars S2 & Dim. 3" ϕ Holes
1-81	Dimensions changed for unit D Maximum spacing added Dimension for projection of Bar Change

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

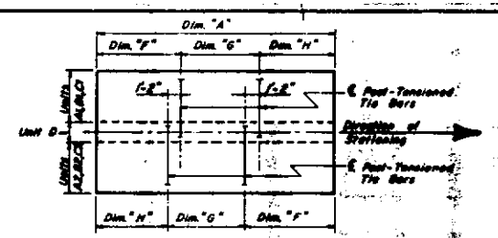
PRESTRESSED SLAB UNITS

ROAD NO.	COUNTY	PROJECT NO.

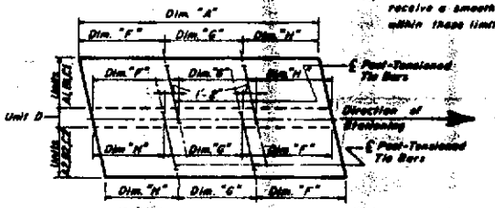
	Signature	Date	APPROVED BY
Designed by	R.N.	7/78	
Detailed by	J.L.M.	7/78	Deputy Design Engineer, Structures
Quantities by			
Checked by			Drawing No. 1 of 3
Supervised by	J.L.M.		Index No. 12,670

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FOR OFFICE USE	SHEET NO.
3	FLA.			

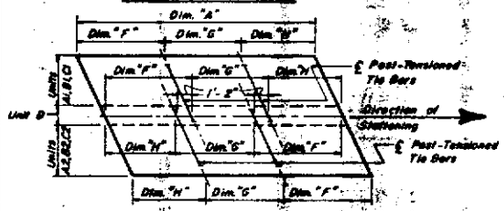
Optional Corner Detail For Mold Form



ZERO DEGREE SKEW



12½ DEGREE SKEW

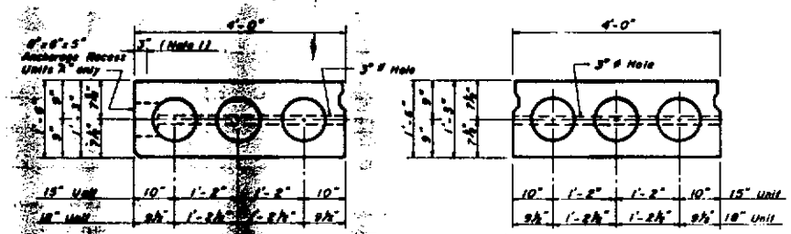


25 DEGREE SKEW

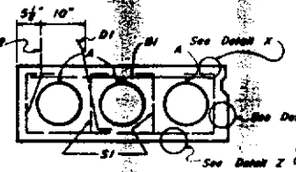
TIE BAR LOCATION DETAILS

(Skew Left Details Shown. Skew Right Details Opposite Hand.)

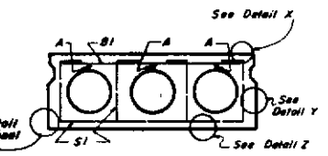
Note: (1) Exterior Units A shall receive a smooth finish within these limits.



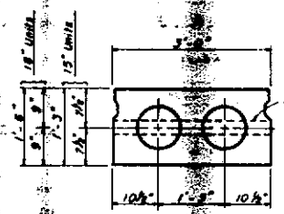
Note: Voids for 18" Units are 10" Diameter and for 15" Units are 8" Diameter.

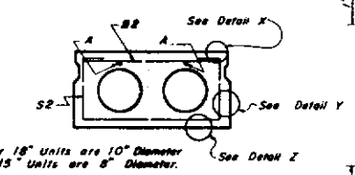


TYPICAL SECTION UNIT A



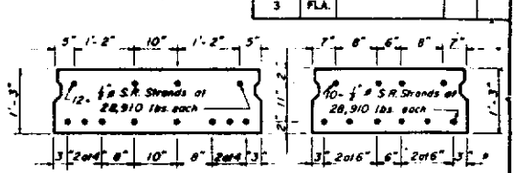
TYPICAL SECTION UNIT B



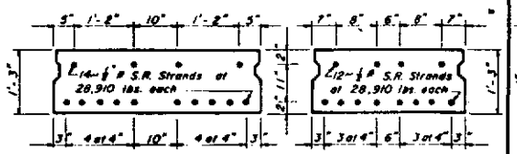


Note: Voids For 18" Units are 10" Diameter and for 15" Units are 8" Diameter.

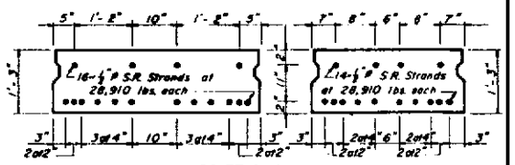
TYPICAL SECTIONS UNITS C & D



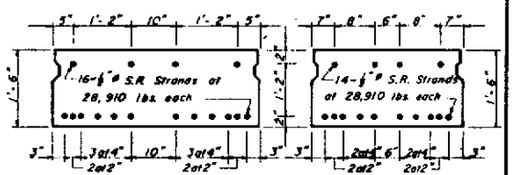
25 FT. SPAN



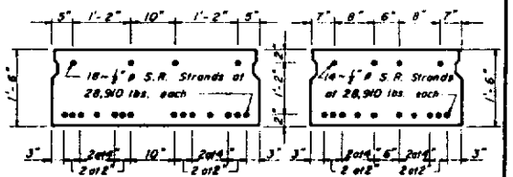
27.5 FT. SPAN



30 FT. SPAN



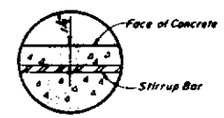
32.5 FT. SPAN



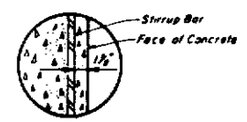
35 FT. SPAN

UNITS A & B — UNITS C & D

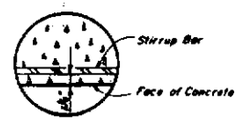
PRESTRESSING STRAND LOCATIONS



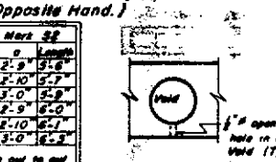
DETAIL X



DETAIL Y



DETAIL Z



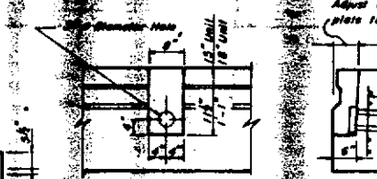
½" ø open vent hole in each Void (Typical)

VENT DETAIL

(Typical Each Void)

NOTE: Place Vent to Clear ½" ø Strands in Prestressed Slab Units.

PLAN OF BARS "D" IN UNITS A ADJACENT TO END BENTS



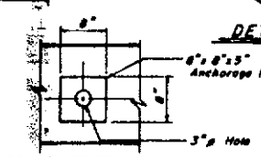
DETAIL OF UNIT D ANCHORAGE RECESS

ALTERNATE SHEAR KEYS

Adjust as required for the bearing plate to be normal to bar

Post-Tension Anchorage Reinforcement to be detailed in Shop Plans.

Post-Tension Anchorage Reinforcement to be detailed in Shop Plans.



DETAILS OF UNIT A ANCHORAGE RECESS

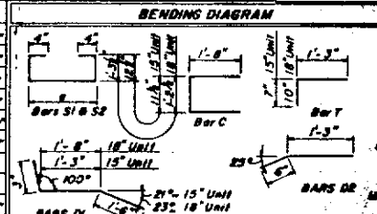
Cut Bar to Minimum Length

ø See Bending Diagram

BILL OF REINFORCING STEEL

Mark	Size	No. Req'd Per Unit A1,B1,A2,B2	C,B2	C,B2	Length	Mark	Size	No. Req'd Per Unit A1,B1,A2,B2	C,B2	C,B2	Length
Span = 25'-0"						Span = 32'-6"					
A	3	3	3	2	25'-9"	A	3	3	3	2	32'-3"
B1	3	18	18	-	3'-7"	B1	3	21	21	-	3'-7"
B2	3	-	-	18	2'-7"	B2	3	-	-	21	2'-7"
C	3	10	10	8	4'-4"	C	3	10	10	8	4'-7"
D1	4	36	-	-	3'-0"	D1	4	48	-	-	3'-5"
D2	4	36	-	-	1'-9"	D2	4	48	-	-	1'-9"
S1	4	50	50	-	*	S1	4	62	62	-	*
S2	4	-	-	25	*	S2	4	-	-	31	*
T	4	16	16	12	1'-10"	T	4	16	16	12	2'-1"
Span = 27'-6						Span = 35'-0"					
A	3	3	3	2	26'-3"	A	3	3	3	2	33'-9"
B1	3	19	19	-	3'-7"	B1	3	22	22	-	3'-7"
B2	3	-	-	19	2'-7"	B2	3	-	-	22	2'-7"
C	3	10	10	8	4'-4"	C	3	10	10	8	4'-7"
D1	4	40	-	-	3'-0"	D1	4	51	-	-	3'-5"
D2	4	40	-	-	1'-9"	D2	4	51	-	-	1'-9"
S1	4	54	54	-	*	S1	4	66	66	-	*
S2	4	-	-	27	*	S2	4	-	-	33	*
T	4	16	16	12	1'-10"	T	4	16	16	12	2'-1"
Span = 30'-0"											
A	3	3	3	2	28'-9"						
B1	3	20	20	-	3'-7"						
B2	3	-	-	20	2'-7"						
C	3	10	10	8	4'-4"						
D1	4	44	-	-	3'-0"						
D2	4	44	-	-	1'-9"						
S1	4	58	58	-	*						
S2	4	-	-	29	*						
T	4	16	16	12	1'-10"						

BENDING DIAGRAM



	Mark S1		Mark S2	
Skew	a	Length	a	Length
0	2'-5"	5'-2"	2'-9"	5'-6"
12½	2'-6"	5'-3"	2'-10"	5'-7"
25	2'-8"	5'-5"	3'-0"	5'-8"
0	2'-5"	5'-8"	2'-9"	6'-0"
12½	2'-6"	5'-9"	2'-10"	6'-1"
25	2'-8"	5'-11"	3'-0"	6'-3"

NOTE: All bar dimensions are out to out

TABLE OF DIMENSIONS

Skew	A	F	G	H	J*	K*	L*	M**	N**
25 FT. SPAN									
0°	24'-1"	8'-7"	8'-1"	7'-5"	6'-1"	7'-1"	4'-11"	5'-0"	6'-1"
12½°	24'-0"	8'-6"	8'-1"	7'-4"	6'-0"	7'-1"	4'-10"	4'-11"	6'-1"
25°	24'-0"	8'-6"	8'-1"	7'-4"	6'-0"	7'-1"	4'-10"	4'-11"	6'-1"
27.5 FT. SPAN									
0°	26'-7"	9'-5"	8'-11"	8'-3"	6'-11"	7'-11"	5'-9"	5'-10"	6'-11"
12½°	26'-6"	9'-4"	8'-11"	8'-2"	6'-10"	7'-11"	5'-8"	5'-9"	6'-11"
25°	26'-6"	9'-4"	8'-11"	8'-2"	6'-10"	7'-11"	5'-8"	5'-9"	6'-11"
30 FT. SPAN									
0°	29'-1"	10'-3"	9'-9"	9'-1"	7'-9"	8'-9"	6'-7"	6'-8"	7'-9"
12½°	29'-0"	10'-2"	9'-9"	9'-0"	7'-8"	8'-9"	6'-6"	6'-7"	7'-8"
25°	29'-0"	10'-2"	9'-9"	9'-0"	7'-8"	8'-9"	6'-6"	6'-7"	7'-8"

Skew	A	F	G	H	J*	K*	L*	M**	N**
32.5 FT. SPAN									
0°	34'-7"	11'-1"	10'-7"	9'-11"	8'-7"	9'-7"	7'-5"	7'-6"	8'-7"
12½°	34'-6"	11'-0"	10'-7"	9'-10"	8'-6"	9'-7"	7'-4"	7'-5"	8'-7"
25°	34'-6"	11'-0"	10'-7"	9'-10"	8'-6"	9'-7"	7'-4"	7'-5"	8'-7"
35 FT. SPAN									
0°	34'-1"	11'-11"	11'-5"	10'-6"	9'-5"	10'-5"	8'-3"	8'-4"	9'-5"
12½°	34'-0"	11'-10"	11'-5"	10'-6"	9'-4"	10'-5"	8'-2"	8'-3"	9'-5"
25°	34'-0"	11'-10"	11'-5"	10'-6"	9'-4"	10'-5"	8'-2"	8'-3"	9'-5"

* All Units Except "D"
** Unit "D" Only

REVISIONS	
Date	Description
10-78	Detail Showing Cover Between Void & S.R. Strands Removed
11-80	Dim. Unit D (J & L)
1-81	Table of Dimensions Revised
10-81	Optional Corner Detail added

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRESTRESSED SLAB UNITS

ROAD NO.	COUNTY	PROJECT NO.

	Name	Date
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		

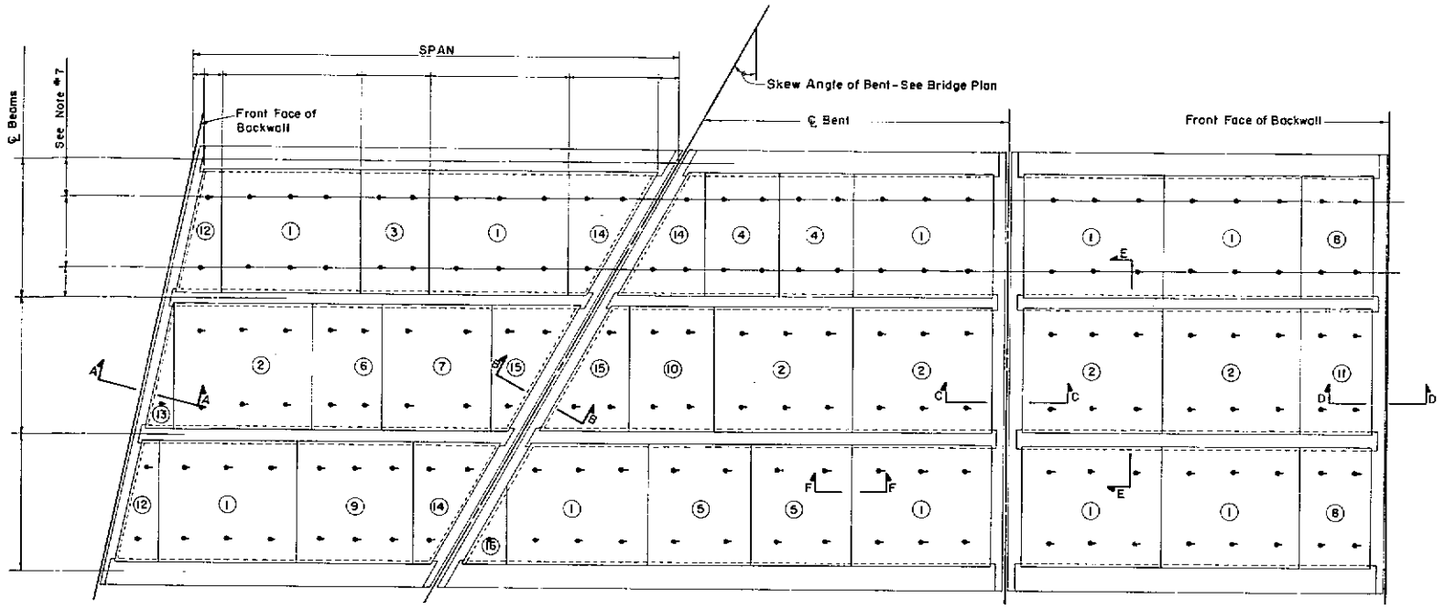
APPROVED BY

Deputy Dirsp. Engineer Structures

Drawing No. 2 of 3

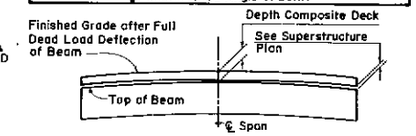
Index No. 12,670

FED. ROAD DIV. NO.	STATE	PROJECT NO	FISCAL YEAR	SHEET NO.
3	FLA.			



PLAN OF DECK PANELS
(SEE TABLE "A")

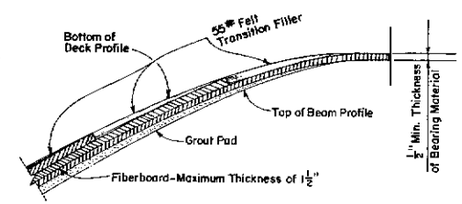
TABLE "A"	
PANEL NO.	REMARKS
① ②	Fabricators Standard Width Panel
③	Filler Panel, 2'-0" Minimum Width
④ ⑤	Filler Panels of Equal Width Both 2'-0" or Wider
⑥ ⑦	Filler Panels - One 2'-0" (Min. Width) Unit, Other Panel Width as Required.
⑧ ⑨ ⑩ ⑪	Filler Panels - Width as Required > 2'-0"
⑫ ⑭ ⑬ ⑮	End Panels at Skewed Bents Saw Cut from Rectangular Panel Bear Skewed Edge 1" on Support
⑯	Permissable Only Where Required by Extreme Skew Angle of Bent.



SKETCH SHOWING RELATIONSHIP OF BEAM AND DECK SLAB

PROFILE – DECK AND SUPPORT

Where beam camber differs from that shown in the Plans, adjust thickness of bearing material. Maximum thickness of fiberboard to be $1\frac{1}{2}$". When necessary to achieve a thickness greater than $1\frac{1}{2}$", fiberboard may be set on an approved grout pad so that the Deck thickness conforms to the Plan dimension. Transitions in bearing thickness shall be accomplished by using layers of 55# roofing felt, fiberboard and grout pads so placed as to control the bottom of the Panel Profile so that it is Parallel to the finished grade profile, and the Plan Deck Thickness is Maintained. Adequate measures shall be taken to ensure the sealing of all contact surfaces between Precast, Prestressed Panels and Supporting Units. (See Enlarged Schematic)



SCHEMATIC - CAMBER ADJUSTMENT

NOTE "B"
After the precast prestressed panels have been set to proper grade on Fiber Bearing Material, The remaining space between the end of the panels and the fiber bearing material [$1\frac{1}{2}$" Min. Width] shall be filled with cement mortar. The mortar shall consist of one part portland cement to two parts clean sand with enough water to make a thick paste mixture. The mortar paste shall be placed by Trowel on moisture saturated surfaces and allowed to set before placing cast-in-place concrete. The mortar shall be placed in a manner which will produce a leakproof seal.

GENERAL NOTES

1- All Changes in the Contract Drawing Deck Slab Design to Accommodate the Use of Precast Prestressed Panels shall be the Responsibility of the Contractor, Who shall Submit Complete Detailed Plans of the Redesigned Deck Slab for the Approval of the Engineer. The Top Reinforcing shall be the same as Shown on the Contract Drawings. When Truss Bars are Required in the Contract Drawings, Full Length Straight Bars Equal in Cross Sectional Area shall be Substituted in Their Place.
Also, Shop Drawings Showing Precast Panel Details, Sizes and Installation Details are to be Submitted for Approval.

2- End Diaphragms Shown in Sections are not Dimensioned in Width, See Bridge Plan for Sizes. Add One (1) Inch to Width of Diaphragms at Skewed Bents to Provide Bearing for Precast Panels. Reinforcing Steel in End Diaphragms will not Change.

3- The Erected Precast Panels shall Bear Uniformly on Continuous Layers of an Approved Material Such as Mastic, Felt, Fiberboard and /or Grout that will Provide a Mortar Tight Uniform Bearing. The Bearing Material [$\frac{1}{2}$" Min. Width, 1" Max. Width and $\frac{1}{2}$" Min. Thickness] Shall be Placed Along the Outer Edges of Each Beam and the Inside Edge of the End Diaphragms at Skewed Bents.

4- Precast Panels in their Final Position shall be Mortar Tight at Both the Outer Edges and the Mating Surfaces. The Top Surface of the Precast Panels Must be Free of Any Foreign Material to Insure Full Bond with the Cast-In-Place Concrete. Immediately Prior to Placing the Cast-In-Place Concrete the Precast Panels shall be Saturated with Fresh Water.

5- When Precast Prestressed Panels are Substituted, Payment shall be made at the Contract Unit Prices for Concrete and Steel. The Quantities to be Paid for will be those Quantities which would be Paid for If Conventional Construction was Utilized. The Contract Unit Price for Concrete shall Include the Cost of All Bearing Materials.

6- Producers of Concrete Beams shall Provide a 3" Wide Smooth Finish at the Outside Edges of the Top Flange for Precast Panel Bearing and Grout Seal.

7- The Transverse Spacing of The Mechanical Interlock Reinforcing Shall Clear the Longitudinal Distribution Steel of the Poured in Place Concrete and the Transverse Spacing Shall Be Constant Thru-Out Spans of Equal Beam Spacing.

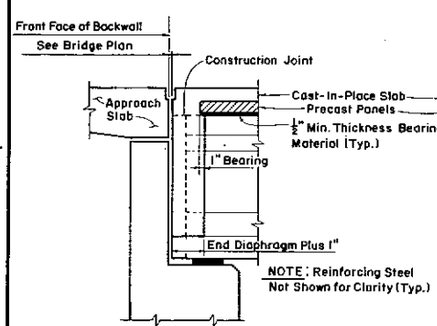
8- When Precast Prestressed Panels are Used on a Bridge Structure at the Option of the Contractor, It shall be the Sole Responsibility of the Contractor to Increase the Finished Grade Elevations $1\frac{1}{4}$" and to make all Adjustments Required by this Increase.

9- Before Any Precast Prestressed Panels are Placed in Position in Any Span, the Contractor shall Establish the Finished Grade Elevations and make the Required Camber Adjustments in a minimum of Two Spans Ahead of the Span To be Set.

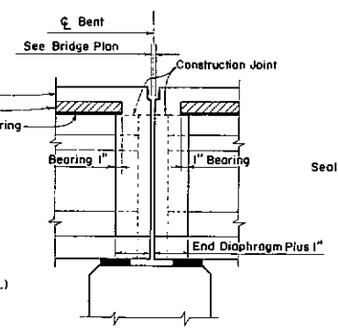
10- Panels With Longitudinal Cracks (Parallel To Strands) Can be Accepted Providing Cracks are 2" from the Center Line of A Prestressing Strand.

11- The Bearing Width on Type V and Type VI Precast Prestressed Beams shall be $2\frac{1}{2}$" ($-\frac{1}{2}$", +0") Past the End of Transverse Reinforcing Steel in the Top Flange of the Beam.

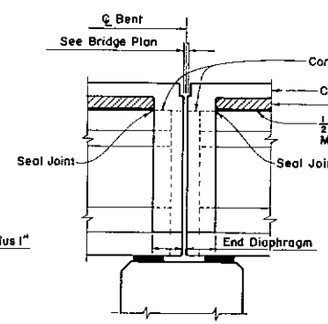
12- Remove All Laitance Scale from Saw Cut Ends of Precast Panels.



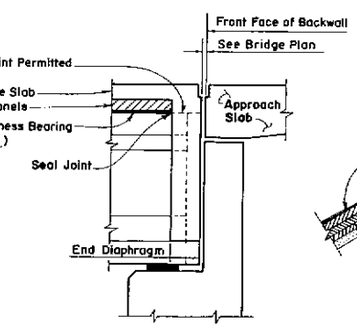
SECTION A-A
(AT SKEWED END BENT)



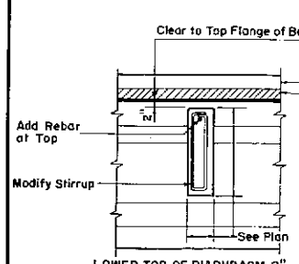
SECTION B-B
(AT SKEWED BENT)



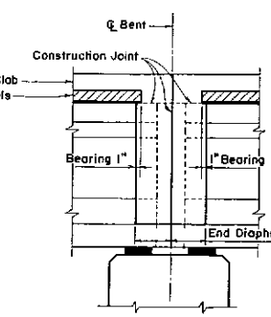
SECTION C-C
(BENT PERPENDICULAR TO ROADWAY)



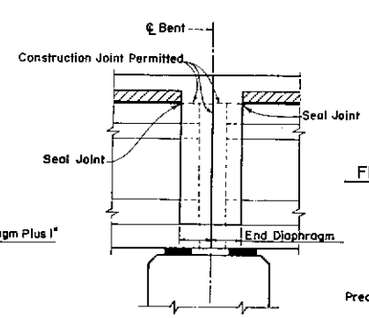
SECTION D-D
(END BENT PERPENDICULAR TO ROADWAY)



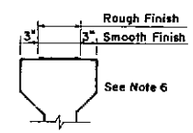
SECTION AT INTERMEDIATE DIAPHRAGMS



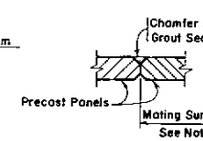
CONTINUOUS SPAN SECTION AT SKEWED BENT



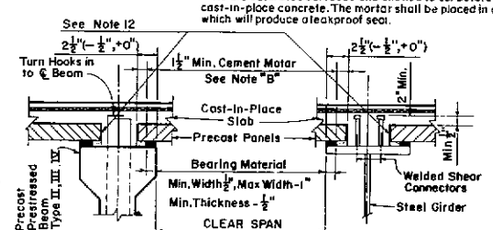
CONTINUOUS SPAN SECTION AT PERPENDICULAR BENT



REQUIRED FINISH OF TOP FLANGE OF CONCRETE BEAM



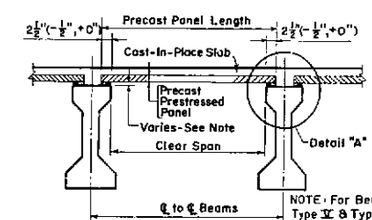
SECTION F-F



DETAIL "A" FOR CONCRETE BEAMS

DETAIL "A" FOR STEEL GIRDERS

NOTE "A": A Crack up to $\frac{3}{8}$" Wide Can be Sealed With Grout From Above. Any Crack Over $\frac{3}{8}$" to $1\frac{1}{2}$" Max. Shall Be Sealed With Tape on the Bottom Side of the Precast Panel and the Entire Crack Filled With Grout.



NOTE: For Bearing on Type V & Type VI Beams See General Note #1.

SECTION E-E

FHWA APPROVED: 10-2-80

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PRESTRESSED PANELS
FOR COMPOSITE CONCRETE DECK

REVISIONS	
Dates	Descriptions
8-73	Added Tolerances & Revised Design
6-80	Increased Min. Bearing Added Note "B"
8-80	Changed Bearing Material Tolerances & Added Gen. Note #11
8-81	Changed 1" Min. Cement Mortar (Note B) to $1\frac{1}{2}$". Added Note 12

ROAD NO.	COUNTY	PROJECT NO.

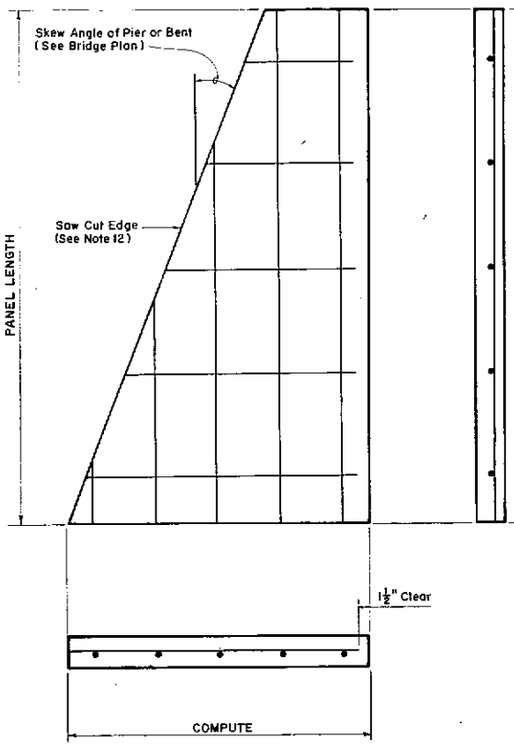
	Names	Dates
Designed by	CK	5-78
Checked by	CWB	5-78
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY: Deputy Design Engineer, Structures

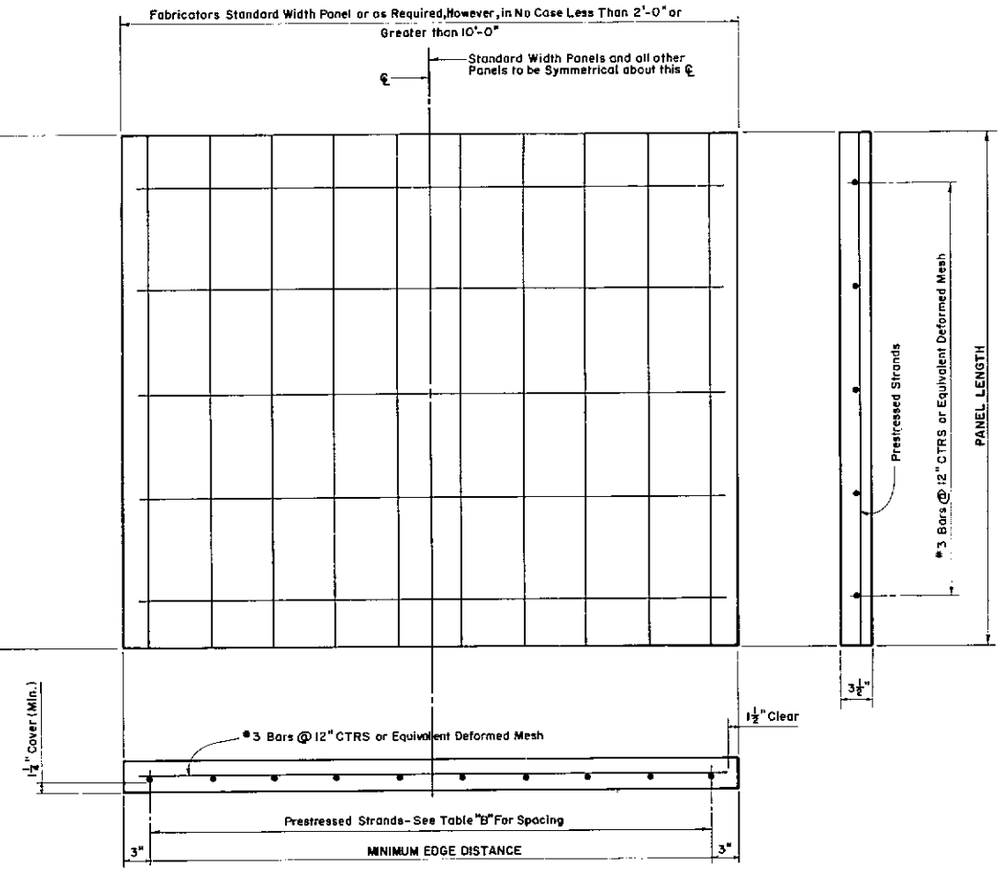
Drawing No. 1 of 3

Index No. 12641

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL-PRECAST PRESTRESSED PANELS-RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class III (f'_c=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b-Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, in Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) $+\frac{1}{4}$" to $-\frac{1}{8}$" ✱; Length of Panel ± 1"
Position of Strands $+\frac{1}{8}$", -0" Vertically ✱
± $\frac{1}{2}$" Horizontally
✱ Measured from Bottom of Panel.

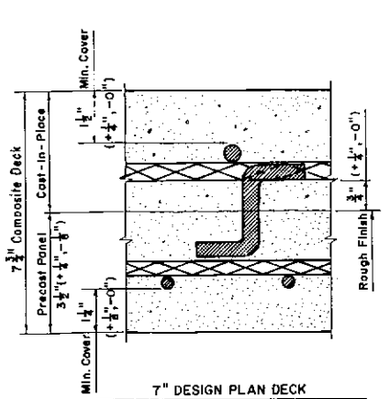
10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

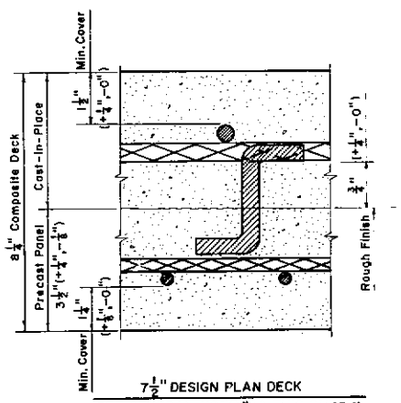
12- Saw Cut Edges, With Exposed Distribution Steel, Must Be Placed In Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel In The Cast-In-Place Portion, This 7" Design Plan Deck will be Poured 7¾" Thick in all cases in the field at No Additional Increase In Contract Price.

14- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 7½" Design Plan Deck will be Poured 8¼" Thick in all cases in the field at No Additional Increase In Contract Price.



7" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱13-THIS SHEET)

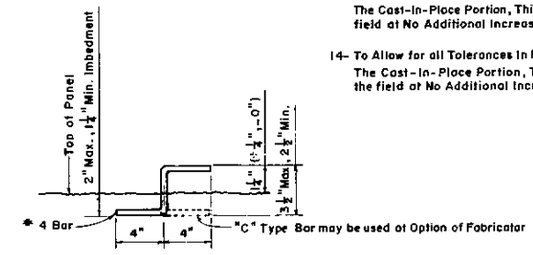


7½" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱14-THIS SHEET)

MINIMUM COVERAGE DETAILS

DESIGN TABLE "B"-3½" FLAT PANELS						
CLEAR SPAN		DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH UP TO AND INCLUDING	40"	7"	3/8"ø 250K	9.5"	7/16"ø 250K	13"
	50"			9"		12"
	60"			8"		11"
	70"			7"		10"
	80"			6"		9"
	90"			5.5"		8"
	100"			5"		7"
	110"			4.5"		6"
	60"	7½"		9"		12"
	70"			8"		10"
	80"			7"		9"
	90"			6"		8"
	100"			5.5"		7"
	110"			4.75"		6"
	120"			4"		5"

Prestressing Pull for $\frac{3}{8}$"ø 250K Strands = 14,000 lbs. Each.
Prestressing Pull for $\frac{7}{16}$"ø 250K Strands = 18,900 lbs. Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of ✱4 Bar shall have a Minimum Imbedment of 1¼" in Precast Panel and shall have a Minimum Cover of 1¼" (+⅛", -0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than 1½" (1¼", +¼", -0") Above the Top of the Panel.

FHWA APPROVED: 10-2-80

FLAT PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7" AND 7½" COMPOSITE DECK
1¼" CLEAR AT BOTTOM-1½" CLEAR AT TOP

REVISIONS	
Dates	Descriptions
6-79	Added Tolerances & Revised Design
6-80	Design Table Expanded

ROAD NO.	COUNTY	PROJECT NO.

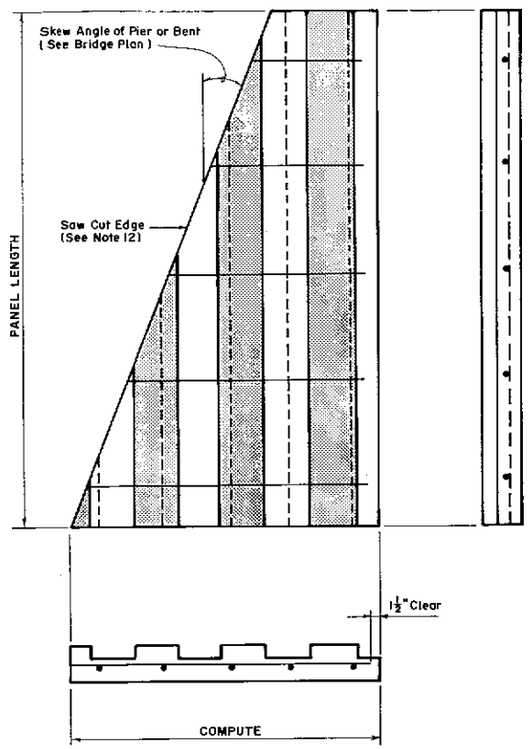
	Names	Dates
Designed by	CK	5-78
Checked by	CWB	6-78
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No. 2 of 3
Index No. 12641

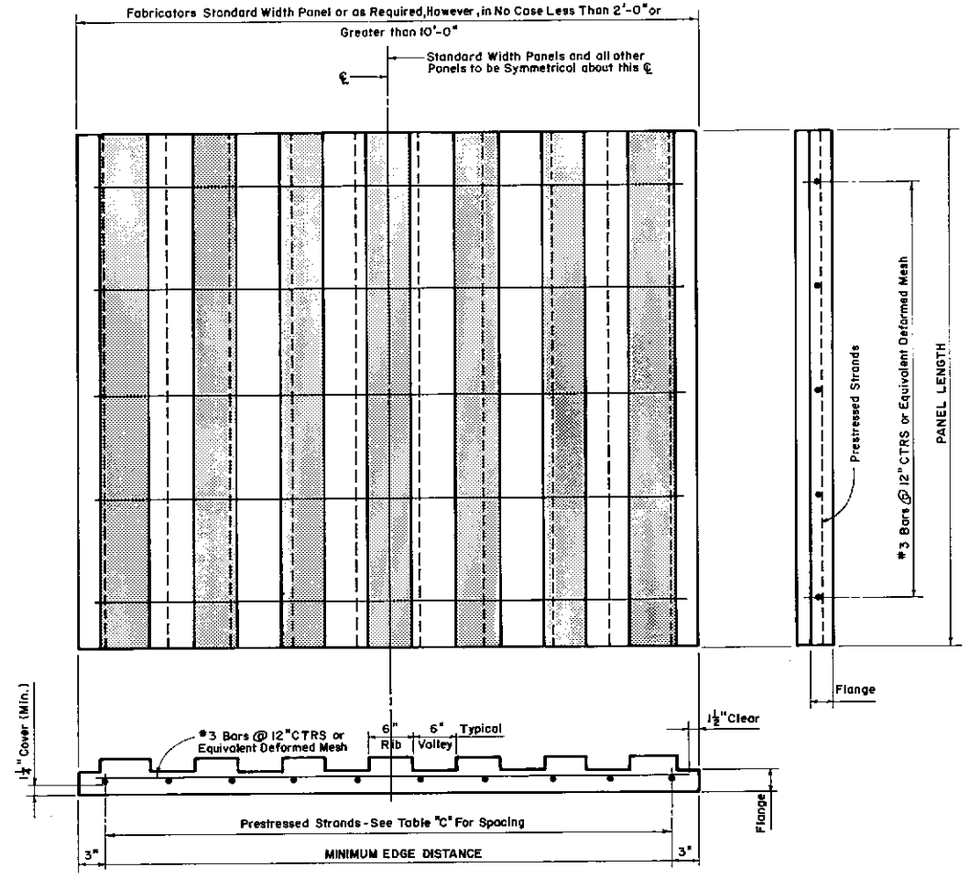
FED. ROAD DIV. NO.	STATE	PROJECT NO	FISCAL YEAR	SHEET NO.
3	FLA.			

NOTE: Prestressing Strands Shown as Heavy Dashed Line in Plan and Side View for Clarity Prestressing Strands May Be Placed Under Ribs Only In A Symmetrical Pattern About The Center Line.



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT

(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL RIBBED-PRECAST PRESTRESSED PANELS - RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a- Concrete shall be Class III ($f'c$=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b- Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A416. See Table.

c- All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d- Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e- The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel - Class E) or Mortar Blocks, In Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) $+\frac{1}{4}$" to $-\frac{1}{8}$" ✱; Length of Panel ± 1"
Position of Strands $+\frac{1}{8}$", -0" Vertically ✱
± ½" Horizontally
✱ Measured from Bottom of Panel.

10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

12- Saw Cut Edges, With Exposed Distribution Steel, Must Be Placed In Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel In The Cast-In-Place Portion, This 7" Design Plan Deck will be Poured 7¾" Thick in all cases in the field at No Additional Increase In Contract Price.

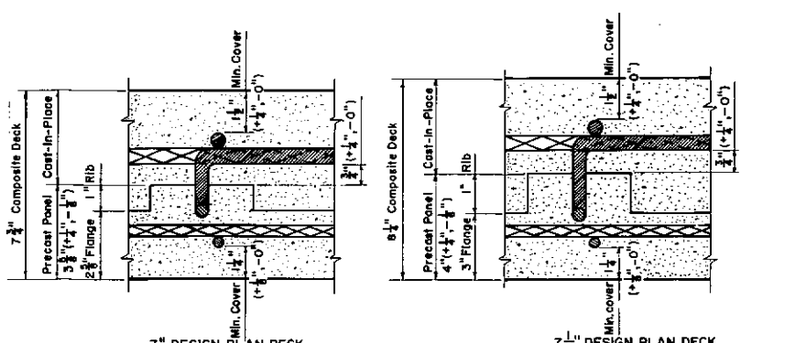
14- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 7½" Design Plan Deck will be Poured 8¼" Thick in all cases in the field at No Additional Increase In Contract Price.

15- The Fabricator May Elect to Fill One Valley on Each Side of the Center Line Symmetrically to Provide Coverage so that He Can Use A "Z", "C" or other Type of Mechanical Interlock Bar. See Sheet 2 of 3 for Details.

DESIGN TABLE "C"-RIBBED PANELS							
CLEAR SPAN		DESIGN DECK THICKNESS	STRANDS		STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH	40"	7"	⅜"ø	250K	9.5"	7/16"ø 250K	13"
UP TO AND INCLUDING	50"				9"		12"
	60"				8"		11"
	70"				7"		10"
	80"				6"		9"
	90"				5.5"		8"
	100"				5"		7"
	110"				4.5"		6"
	60"	7½"			9"		12"
	70"				8"		10"
	80"				7"		9"
	90"				6"		8"
	100"				5.5"		7"
	110"				4.75"		6"
	120"				4"		5"

Prestressing Pull for ⅜"ø 250K Strands = 14,000 lbs. Each.

Prestressing Pull for 7/16"ø 250K Strands = 18,900 lbs. Each.



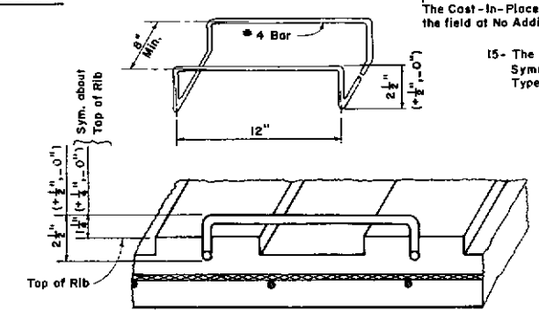
7" DESIGN PLAN DECK

(SEE GENERAL NOTE #13-THIS SHEET)

7½" DESIGN PLAN DECK

(SEE GENERAL NOTE #14-THIS SHEET)

MINIMUM COVERAGE DETAILS



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of #4 Bar shall have a Minimum Imbedment of 1¼" in Precast Panel and shall have a Minimum Cover of 1¼"(+⅛", -0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than 1½"(1¼", +¼", -0") Above the Top of the Panel.

FHWA APPROVED: 10-2-80

RIBBED PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STRUCTURES

PRECAST PANELS FOR 7" AND 7½" COMPOSITE DECKS

1¼" CLEAR AT BOTTOM 1½" CLEAR AT TOP

REVISIONS	
Dates	Descriptions
6-79	Added Tolerances & Revised Design
9-80	Design Table Expanded

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	JMG	5-78
Checked by	CK	6-78
Quantities by		
Checked by		
Supervised by	AJH	

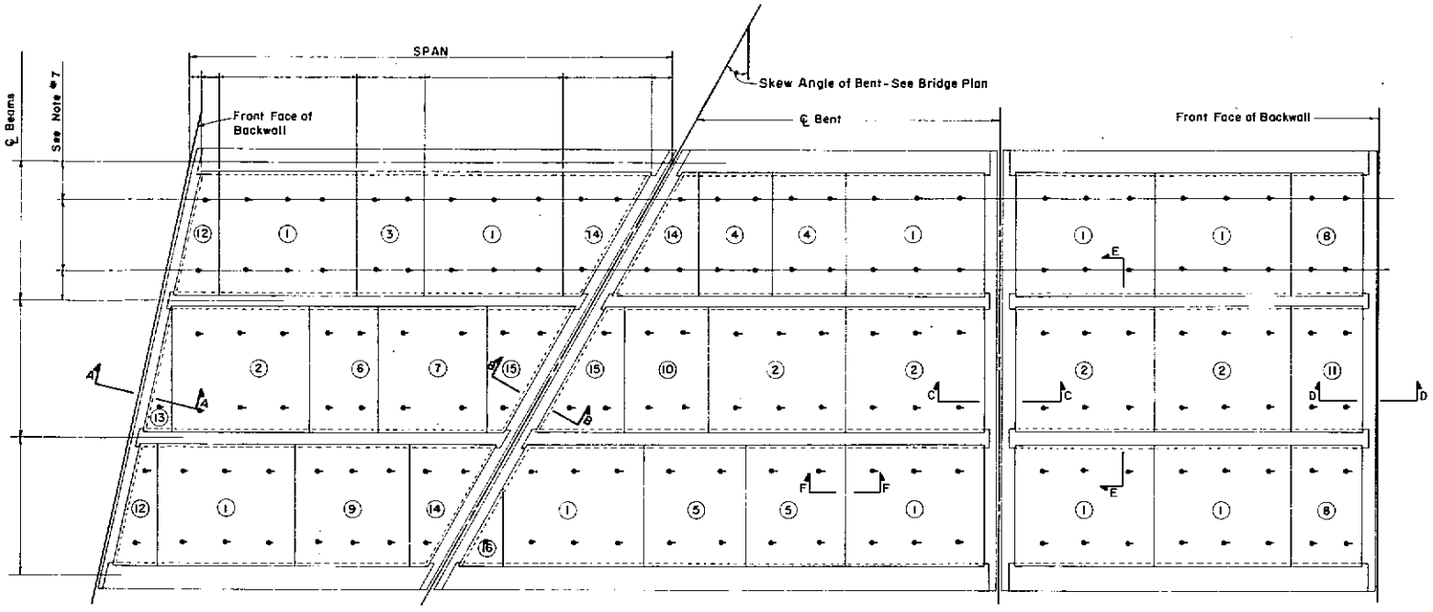
APPROVED BY: F. W. Ali
Deputy Design Engineer, Structures

Drawing No. 3 of 3

Index No. 12641

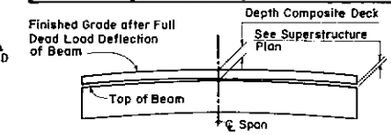
DIETZGEN CORP. 126-143

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PLAN OF DECK PANELS
(SEE TABLE "A")

TABLE "A"	
PANEL NO.	REMARKS
① ②	Fabricators Standard Width Panel
③	Filler Panel, 2'-0" Minimum Width
④ ⑤	Filler Panels of Equal Width Both 2'-0" or Wider
⑥ ⑦	Filler Panels - One 2'-0" (Min. Width) Unit, Other Panel Width as Required.
⑧ ⑨ ⑩ ⑪	Filler Panels - Width as Required > 2'-0"
⑫ ⑭	End Panels at Skewed Bents
⑬ ⑮	Saw Cut from Rectangular Panel Bear Skewed Edge 1" on Support
⑯	Permissable Only Where Required by Extreme Skew Angle of Bent.



SKETCH SHOWING RELATIONSHIP OF BEAM AND DECK SLAB

GENERAL NOTES

1- All Changes in the Contract Drawing Deck Slab Design to Accommodate the Use of Precast Prestressed Panels shall be the Responsibility of the Contractor, Who shall Submit Complete Detailed Plans of the Redesigned Deck Slab for the Approval of the Engineer. The Top Reinforcing shall be the same as Shown on the Contract Drawings. When Truss Bars are Required in the Contract Drawings, Full Length Straight Bars Equal in Cross Sectional Area shall be Substituted in Their Place.

Also, Shop Drawings Showing Precast Panel Details, Sizes and Installatidh Details are to be Submitted for Approval.

2- End Diaphragms Shown in Sections are not Dimensioned in Width, See Bridge Plan for Sizes. Add One (1) Inch to Width of Diaphragms at Skewed Bents to Provide Bearing for Precast Panels. Reinforcing Steel in End Diaphragms will not Change.

3- The Erected Precast Panels shall Bear Uniformly on Continuous Layers of an Approved Material Such as Mastic, Felt, Fiberboard and / or Grout that will Provide a Mortar Tight Uniform Bearing. The Bearing Material [$\frac{1}{2}$" Min. Width, 1" Max. Width and $\frac{1}{2}$" Min. Thickness] Shall be Placed Along the Outer Edges of Each Beam and the Inside Edge of the End Diaphragms at Skewed Bents.

4- Precast Panels in their Final Position shall be Mortar Tight at Both the Outer Edges and the Mating Surfaces. The Top Surface of the Precast Panels Must be Free of Any Foreign Material to Insure Full Bond with the Cast-In-Place Concrete. Immediately Prior to Placing the Cast-In-Place Concrete the Precast Panels shall be Saturated with Fresh Water.

5- When Precast Prestressed Panels are Substituted, Payment shall be made at the Contract Unit Prices for Concrete and Steel. The Quantities to be Paid for will be those Quantities which would be Paid for if Conventional Construction was Utilized. The Contract Unit Price for Concrete shall Include the Cost of All Bearing Materials.

6- Producers of Concrete Beams shall Provide a 3" Wide Smooth Finish at the Outside Edges of the Top Flange for Precast Panel Bearing and Grout Seal.

7- The Transverse Spacing of The Mechanical Interlock Reinforcing Shall Clear the Longitudinal Distribution Steel of the Poured in Place Concrete and the Transverse Spacing Shall Be Constant Thru-Out Spans of Equal Beam Spacing.

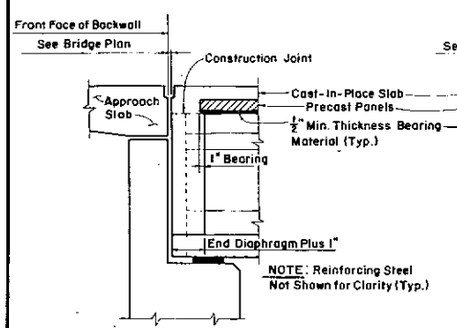
8- When Precast Prestressed Panels are Used on a Bridge Structure at the Option of the Contractor, It shall be the Sole Responsibility of the Contractor to Increase the Finished Grade Elevations 1$\frac{1}{4}$" and to make all Adjustments Required by this Increase.

9- Before Any Precast Prestressed Panels are Placed in Position in Any Span, the Contractor shall Establish the Finished Grade Elevations and make the Required Camber Adjustments in a minimum of Two Spans Ahead of the Span To be Set.

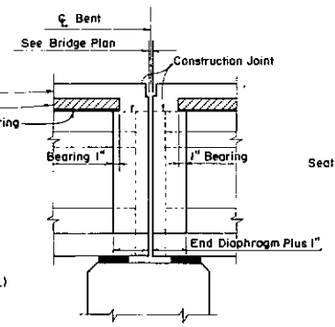
10- Panels With Longitudinal Cracks (Parallel To Strands) Can be Accepted Providing Cracks are 2" from the Center Line of A Prestressing Strand.

11- The Bearing Width on Type IV and Type VI Precast Prestressed Beams shall be 2$\frac{1}{2}$" ($-\frac{1}{2}$", +0") Past the End of Transverse Reinforcing Steel in the Top Flange of the Beam.

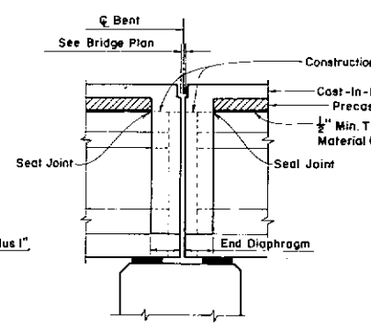
12- Remove All Laitance Scale from Saw Cut Ends of Precast Panels.



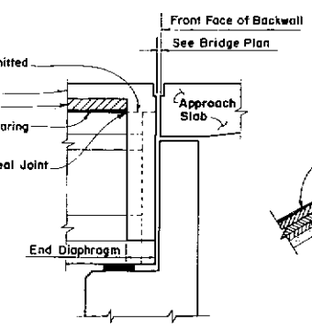
SECTION A-A
(AT SKEWED END BENT)



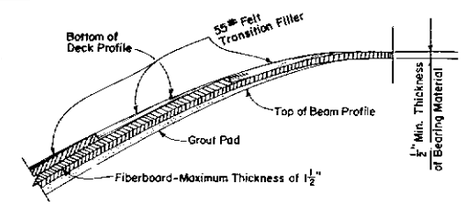
SECTION B-B
(AT SKEWED BENT)



SECTION C-C
(BENT PERPENDICULAR TO ROADWAY)



SECTION D-D
(END BENT PERPENDICULAR TO ROADWAY)

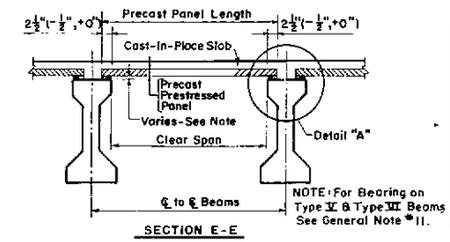


SCHEMATIC-CAMBER ADJUSTMENT

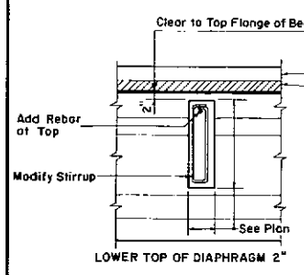
PROFILE – DECK AND SUPPORT

Where beam camber differs from that shown in the Plans, adjust thickness of bearing material. Maximum thickness of fiberboard to be 1$\frac{1}{2}$". When necessary to achieve a thickness greater than 1$\frac{1}{2}$", fiberboard may be set on an approved grout pad so that the Deck thickness conforms to the Plan dimension. Transitions in bearing thickness shall be accomplished by using layers of 55# roofing felt, fiberboard and grout pads so placed as to control the bottom of the Panel Profile so that it is Parallel to the finished grade profile, and the Plan Deck Thickness is Maintained. Adequate measures shall be taken to ensure the sealing of all contact surfaces between Precast, Prestressed Panels and Supporting Units. (See Enlarged Schematic)

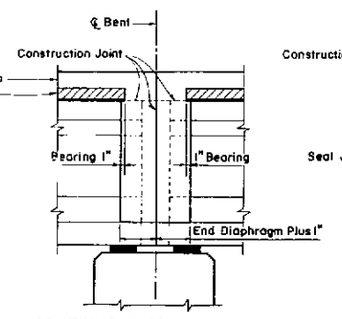
NOTE "B"
After the precast prestressed panels have been set to proper grade on Fiber Bearing Material, The remaining space between the end of the panels and the fiber bearing material [$\frac{1}{2}$" Min. Width] shall be filled with cement mortar. The mortar shall consist of one part portland cement to two parts clean sand with enough water to make a thick paste mixture. The mortar paste shall be placed by Trowel on moisture saturated surfaces and allowed to set before placing cast-in-place concrete. The mortar shall be placed in a manner which will produce aleakproof seal.



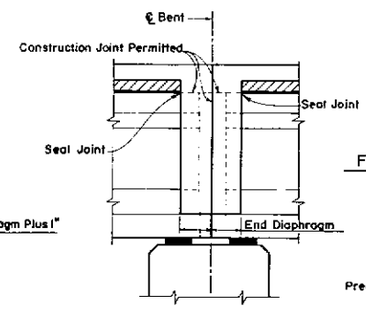
SECTION E-E



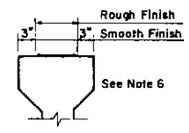
SECTION AT INTERMEDIATE DIAPHRAGMS



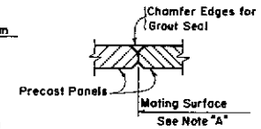
CONTINUOUS SPAN SECTION AT SKEWED BENT



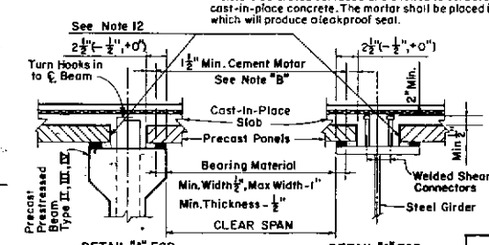
CONTINUOUS SPAN SECTION AT PERPENDICULAR BENT



REQUIRED FINISH OF TOP FLANGE OF CONCRETE BEAM



SECTION F-F



DETAIL "A" FOR CONCRETE BEAMS

DETAIL "A" FOR STEEL GIRDERS

NOTE "A": A Crack up to $\frac{3}{8}$" Wide Can be Sealed With Grout From Above. Any Crack Over $\frac{3}{8}$" to 1$\frac{1}{2}$" Max. Shall Be Sealed With Tape on the Bottom Side of the Precast Panel and the Entire Crack Filled With Grout.

FHWA APPROVED: 10-2-80

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PRESTRESSED PANELS
FOR COMPOSITE CONCRETE DECK

REVISIONS	
Dates	Descriptions
8-79	Added Tolerances & Revised Design.
6-80	Increased Min. Bearing Added Note "B"
8-80	Changed Bearing Material Tolerances & Added Gen. Note #11
8-81	Changed 1" Min. Cement Mortar (Note B) to 1$\frac{1}{2}$". Added Note 12

ROAD NO.	COUNTY	PROJECT NO.

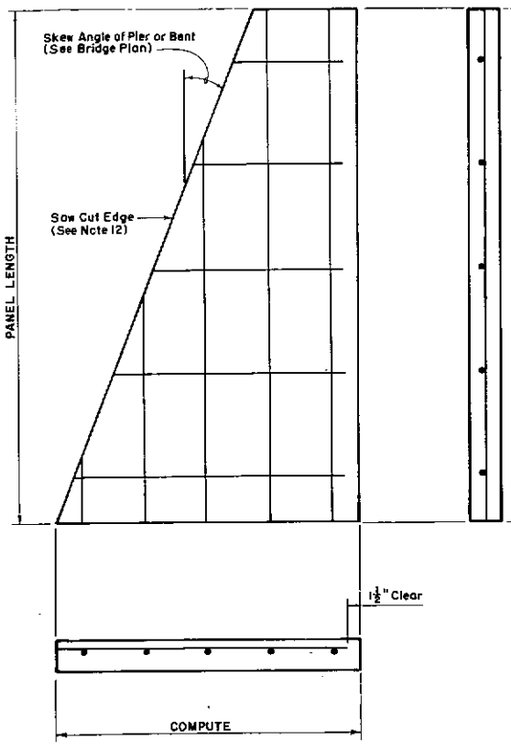
	Names	Dates
Designed by	CK	5-78
Checked by	CWB	5-78
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY: F. [illegible]
Deputy Design Engineer, Structures

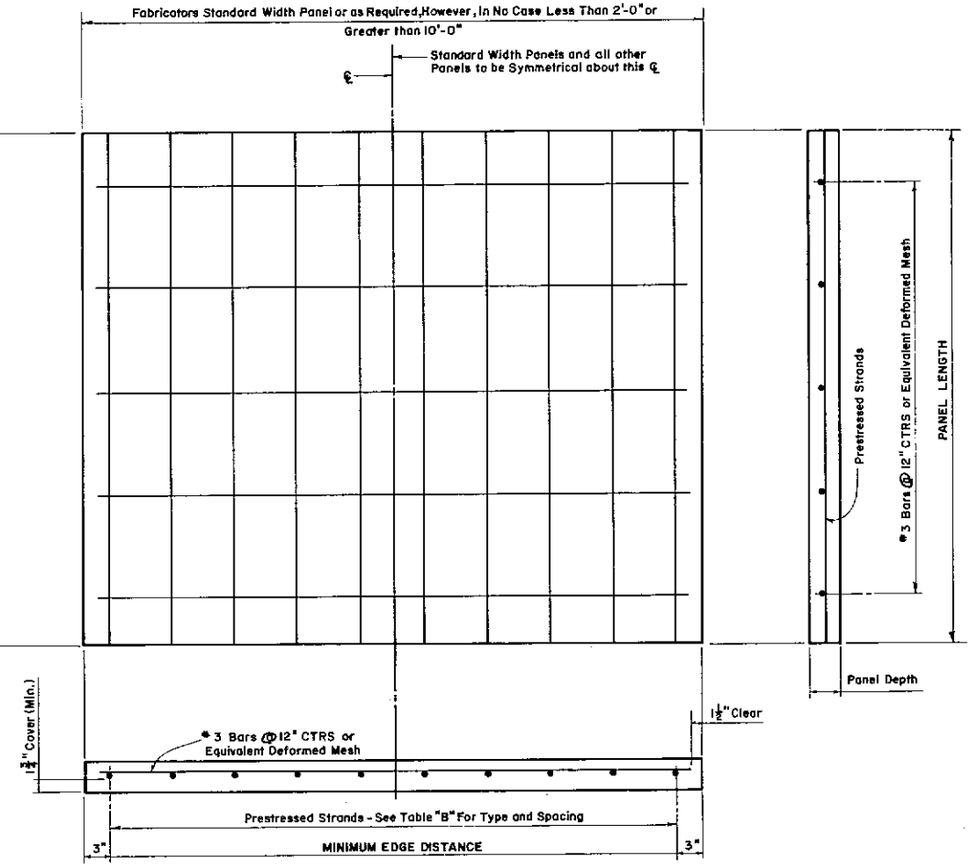
Drawing No. 1 of 3

Index No. 12642

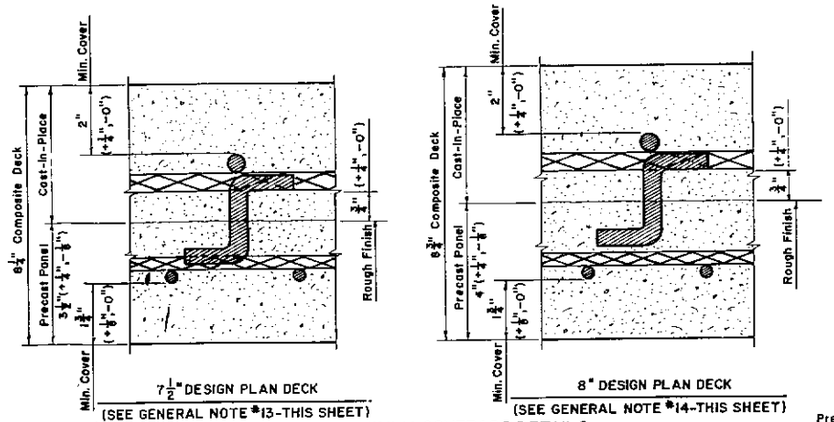
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL-PRECAST PRESTRESSED PANELS-RECTANGULAR

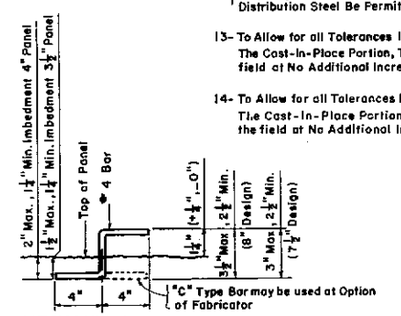


MINIMUM COVERAGE DETAILS

DESIGN TABLE "B"-3½" AND 4" FLAT PANELS

CLEAR SPAN		DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH	40"	7½"	3/8"ø 250K	9.5"	7/16"ø 250K	13"
UP TO AND INCLUDING	50"		3/8"ø 270K	8.75"		10"
	60"			6"		7.5"
	70"			5"		5.5"
	80"			4"		4.5"
	90"			3"		3.75"
	100"			2.5"		3"
	70"	8"		7"		8.25"
	80"			6"		7"
	90"			5"		5.75"
	100"			4.5"		5.25"
	110"			4"		4.5"
	120"			3.5"		4"
	130"			3"		3.5"

Prestressing Pull for 3/8"ø 250K Strands=14,000lbs.Each; Prestressing Pull for 7/16"ø 250K Strands=18,900lbs.Each, Prestressing Pull for 3/8"ø 270K Strands=16,100lbs.Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of #4 Bar shall have a Minimum Imbedment of 1¼" in Precast Panel and shall have a Minimum Cover of 1¾"(+⅛", -0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than 1½"(1¼", +¼", -0") above the Top of the Panel.

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class IV (f'_c=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b-Prestressing Strands shall be 3/8"ø or 7/16"ø 250 K or 270 K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, In Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) +¼" to −⅛" *, Length of Panel ± 1"
Position of Strands +⅛", -0" Vertically *
± ½" Horizontally
* Measured from Bottom of Panel.

10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

12- Saw Cut Edges, With Exposed Distribution Steel, Must be Placed In Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel In The Cast-In-Place Portion, This 7½" Design Plan Deck will be Poured 8¼" Thick in all cases in the field at No Additional Increase in Contract Price.

14- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 8" Design Plan Deck will be Poured 8¾" Thick in all cases in the field at No Additional Increase in Contract Price.

FHWA APPROVED: 10-2-80

FLAT PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

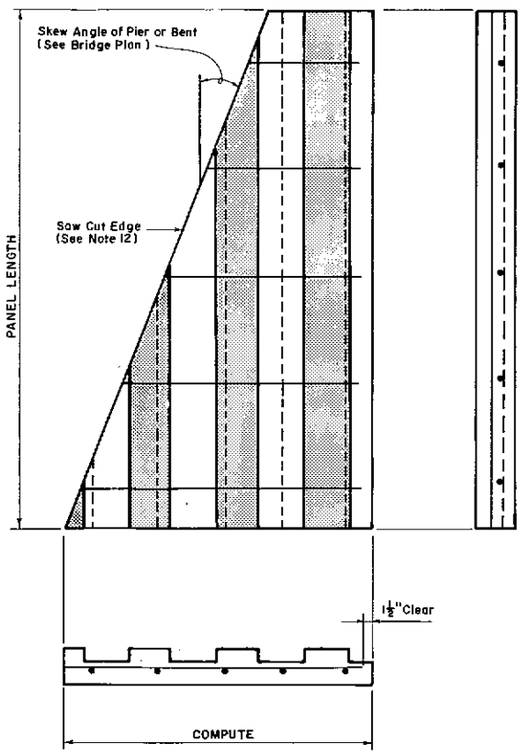
PRECAST PANELS FOR 7½" AND 8" COMPOSITE DECK
1¾" CLEAR AT BOTTOM - 2" CLEAR AT TOP

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions			
8-79	Added Tolerances & Revised Design			
8-80	Design Table Expanded			

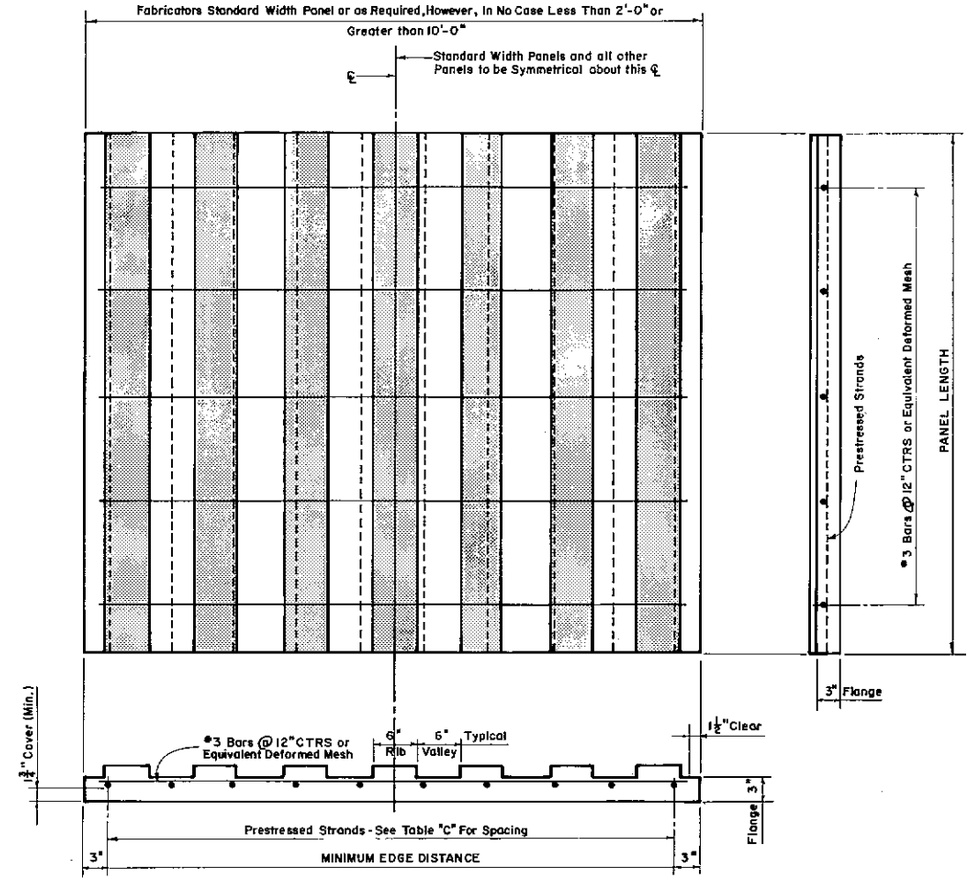
	Names	Dates	APPROVED BY
Designed by	CK	5-78	T. Ali
Checked by	CWB	6-78	Deputy Design Engineer, Structures
Quantities by			Drawing No. / Index No.
Checked by			2 of 3 / 12642
Supervised by	AJH		

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

NOTE: Prestressing Strands Shown as Heavy Dashed Line in Plan and Side View for Clarity Prestressing Strands May Be Placed Under Ribs Only In A Symmetrical Pattern About The Center Line.



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL RIBBED-PRECAST PRESTRESSED PANELS-RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class IV ($f'c$=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b-Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250 K or 270 K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A 416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, In Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) $+\frac{1}{4}$" to $-\frac{1}{8}$" ✱; Length of Panel ± 1"
Position of Strands $+\frac{1}{8}$", -0" Vertically ✱
± ½" Horizontally
✱-Measured from Bottom of Panel.

10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

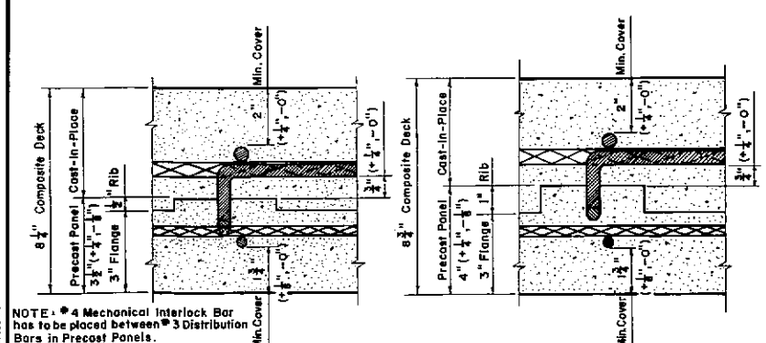
11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

12- Saw Cut Edges, With Exposed Distribution Steel, Must be Placed In Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 7½" Design Plan Deck will be Poured 8¼" Thick in all cases in the field at No Additional Increase In Contract Price.

14- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 8" Design Plan Deck will be Poured 8¾" Thick in all cases in the field at No Additional Increase In Contract Price.

15- The Fabricator May Elect to Fill One Valley on Each Side of the Center Line Symmetrically to Provide Coverage so that He Can Use A "Z", "C" or other Type of Mechanical Interlock Bar. See Sheet 2 of 3 for Details.



NOTE: ✱4 Mechanical Interlock Bar has to be placed between ✱3 Distribution Bars in Precast Panels.

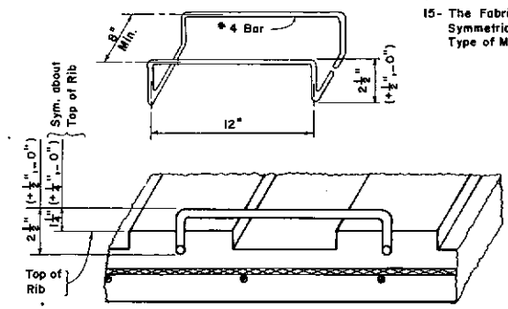
7½" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱13-THIS SHEET)

8" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱14-THIS SHEET)

MINIMUM COVERAGE DETAILS

DESIGN TABLE "C"- RIBBED PANELS						
CLEAR SPAN		DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH	40"	7½"	⅜"ø 250K	9.5"	7/16"ø 250K	13"
UP TO AND INCLUDING	50"		⅜"ø 270K	8.75"		10"
	60"			6"		7.5"
	70"			5"		5.5"
	80"			4"		4.5"
	90"			3"		3.75"
	100"			2.5"		3"
	70"	8"		7"		8.25"
	80"			6"		7"
	90"			5"		5.75"
	100"			4.5"		5.25"
	110"			4"		4.5"
	120"			3.5"		4"
	130"			3"		3.5"

Prestressing Pull for ⅜"ø 250K Strands=14,000lbs. Each; Prestressing Pull for 7/16"ø 250K Strands=18,900lbs. Each, Prestressing Pull for ⅜"ø 270K Strands=16,100lbs. Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of ✱4 Bar shall have a Minimum Imbedment of 1¾" in Precast Panel and shall have a Minimum Cover of 1¾"(+⅛", -0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than 1½"(1¼", +¼", -0") Above the Top of the Panel.

FHWA APPROVED: 10-2-80

RIBBED PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7½" AND 8" COMPOSITE DECK
1¾" CLEAR AT BOTTOM - 2" CLEAR AT TOP

REVISIONS	
Dates	Descriptions
8-79	Added Tolerances & Revised Design
8-80	Design Table Expanded

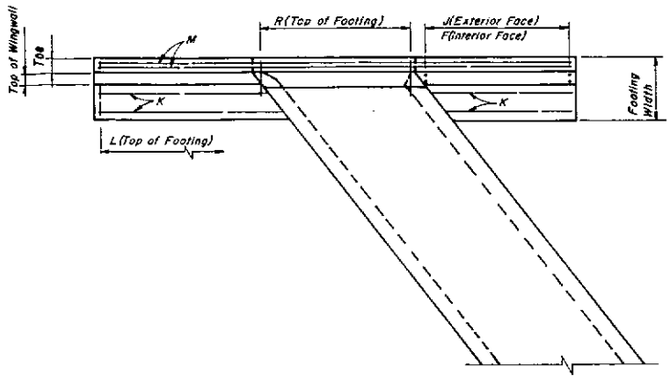
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	JMG	5-78
Checked by	CK	6-78
Quantities by		
Checked by		
Supervised by	AJH	

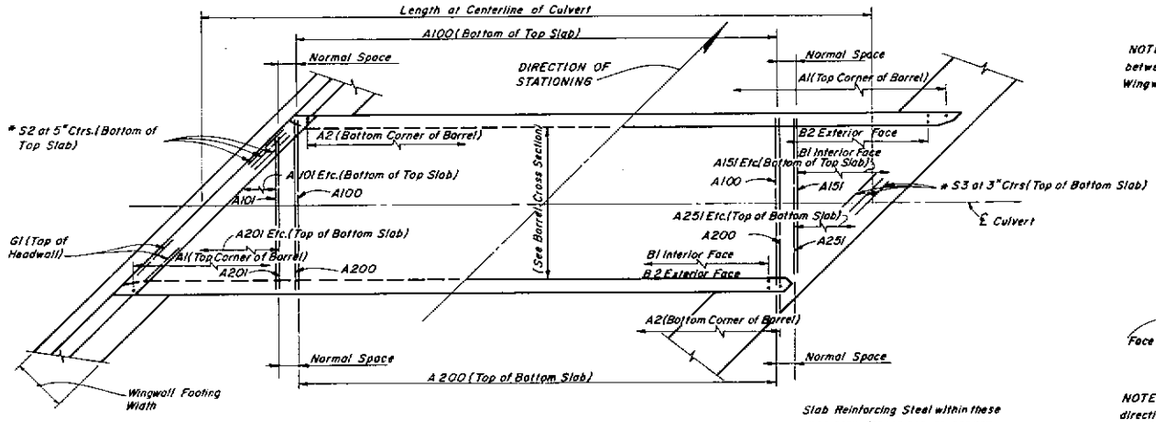
APPROVED BY T. Allen Hitt
Deputy Design Engineer, Structures

Drawing No. 3 of 3
Index No. 12642

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PART PLAN AT END OF CULVERT



Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the left wingwall is skewed,

Also the skewed portion of slabs at both ends of culverts when the left and right wingwalls are skewed the same.

Slab Reinforcing Steel within these limits apply for nonskewed culverts.

Also the nonskewed portion of culverts with one or two skewed wingwalls.

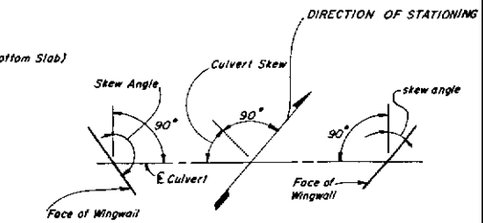
Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slab when the right wingwall only is skewed,

Also the skewed portion of slabs at the right end of culverts when the left and right wingwalls are both skewed but not the same.

PART PLAN TOP SLAB

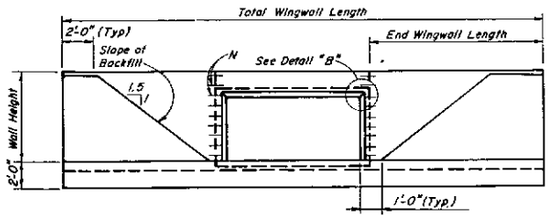
PART PLAN BOTTOM SLAB

NOTE: Skew for Computerized Culvert Design Only is the angle between a line perpendicular to the ℄ Culvert and the face of Wingwall measured clockwise.

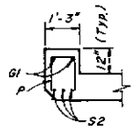


SKETCH "A"

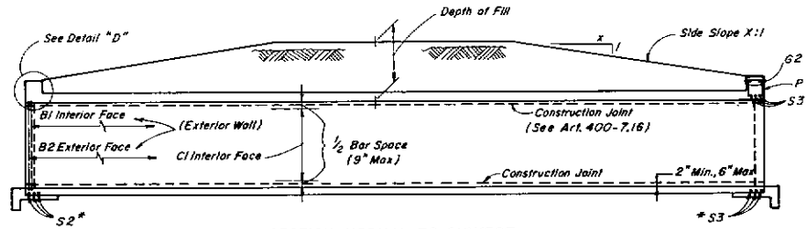
NOTE: Normally Wingwalls are parallel to ℄ Roadway in the direction of stationing, for exceptions and the direction of skews see Roadway Plans.



END ELEVATION

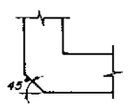


DETAIL "D"

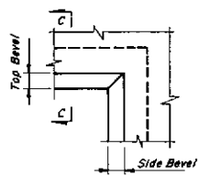


SECTION NORMAL TO CULVERT

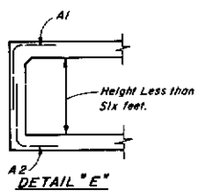
NOTE: Depth of fill indicates distance from top of Finish Grade to bottom of top Slab.



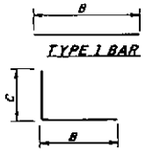
SECTION C-C



DETAIL "B"

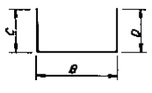


DETAIL "E"



TYPE I BAR

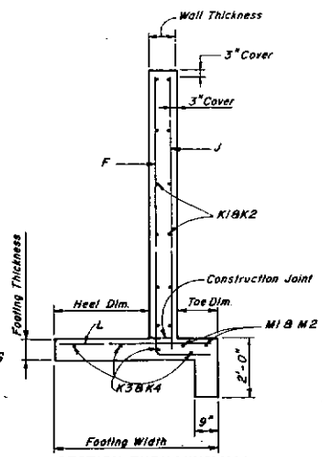
TYPE IO BAR



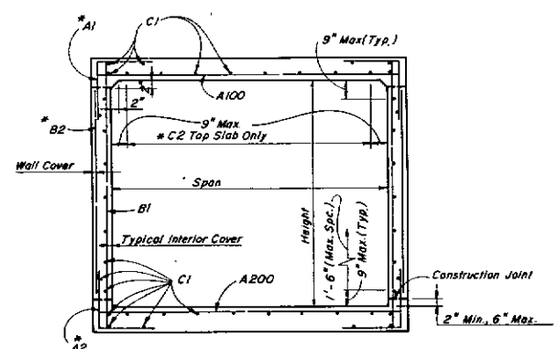
TYPE II BAR

TABLE OF MINIMUM BAR SPLICE LENGTHS

BAR SIZE	SPLICE	BAR SIZE	SPLICE
4	1'-8"	8	3'-10"
5	2'-2"	9	4'-10"
6	2'-7"	10	6'-1"
7	3'-0"	11	7'-6"



SECTION THRU WINGWALL



SECTION THRU BARREL

NOTE: When the wingwalls are not skewed with relation to the barrel bars K2, K4 and M2 will not be utilized.

NOTE: The location of the first bar from the ends of the culvert shall not be less than 3", but not greater than one half the bar spacing.

GENERAL NOTES

DESIGN SPECIFICATIONS; A.A.S.H.T.O., 1977.

LOADING; HS20-44, Modified for Military Loading as Required.

SURFACE FINISH; The Class Surface finish for all concrete surfaces shall be a general surface finish.

REINFORCING; Deformed welded wire fabric may be substituted for all or part of the reinforcing steel provided an equal area of steel is used and if the details are approved by the Engineer.

SKEWED CONSTRUCTION JOINTS; Construction Joints in barrels of culverts with skewed wingwalls may be placed parallel to the wingwalls; and the reinforcing steel, in the slabs may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with the table (lower left) this sheet. The cost of construction joints shall be at the expense of the Contractor.

* REINFORCING BAR SCHEDULE:

A. When the depth of fill is less than or equal to 2.0 feet, Bars C2 are utilized in the bottom of the top slab. In all other cases, Bars C2 are replaced with Bars C1 spaced at 18 inches on centers.

B. When the skew angle for a side equals 0° ± 11° then the respective S Bars (S2 or S3) will not be utilized.

C. When the barrel height is less than 6 feet, Bars B2 shall be eliminated as shown in Detail E.

D. When the wingwalls are parallel, the following bars are equal in size, length and spacing: K1 = K2, K3 = K4, M1 = M2, G1 = G2, S2 = S3, A101 (etc.) = A151 (etc.), A201 (etc.) = A251 (etc.). Also, only Bars K1, K3, M1, G1, S2, A101 (etc.), and A201 (etc.) shall be listed in the Reinforcing Bar Schedule.

E. If the span is less than five feet, Bars A1 and A2 will be Type II Bars.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SINGLE BARREL CONCRETE BOX CULVERT

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions			

	Names	Dates
Designed by	C.W. / A.M.M.	10-81
Checked by	R.D.S.	10-81
Quantities by		
Checked by		
Supervised by	R.C.B.	

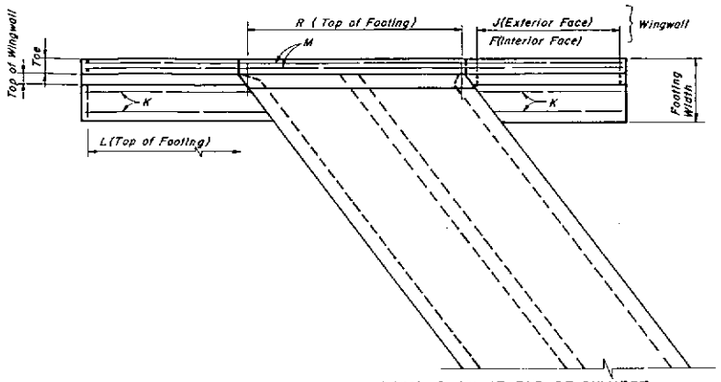
APPROVED BY

Deputy Design Engineer, Structures

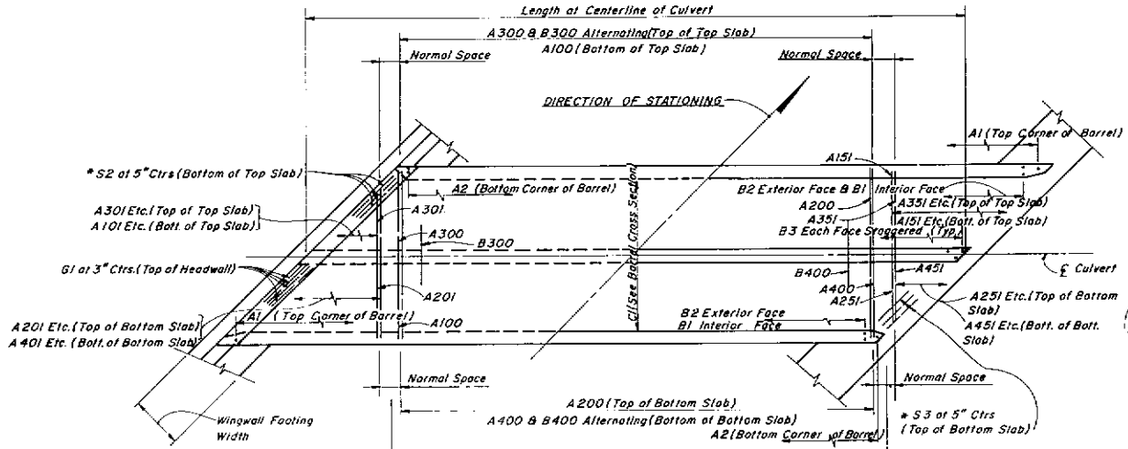
Drawing No. 1 OF 1

Index No. 12836

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PART PLAN AT END OF CULVERT



Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the left wingwall is skewed.

Also the skewed portion of slabs at both ends of culverts when the left and right wingwalls are skewed the same.

PART PLAN TOP SLAB

Slab Reinforcing Steel within these limits apply for nonskewed culverts.

Also the nonskewed portion of culverts with one or two skewed wingwalls.

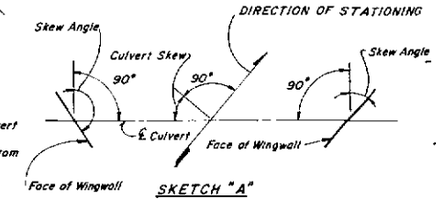
NOTE: Bars B3 & B400 Shall be located at the ℄ of the interior walls.

PART PLAN BOTTOM SLAB

Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the right wingwall only is skewed.

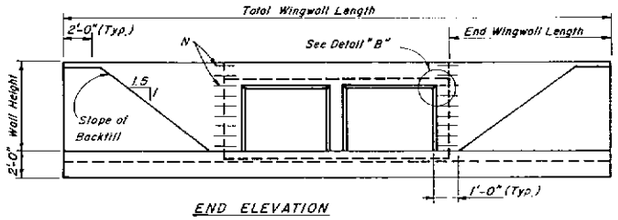
Also the skewed portion of slabs at the right end of culverts when the left and right wingwalls are both skewed but not the same.

NOTE: Skew for Computerized Culvert Design Only is the angle between a line peperdicular to the ℄ Culvert and the face of Wingwall measured clockwise.

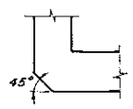


SKETCH "A"

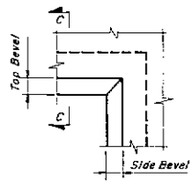
NOTE: Normally Wingwalls are parallel to ℄ Roadway in the direction of Stationing; for exceptions and the direction of skews see Roadway Plans.



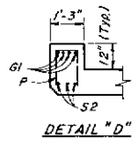
END ELEVATION



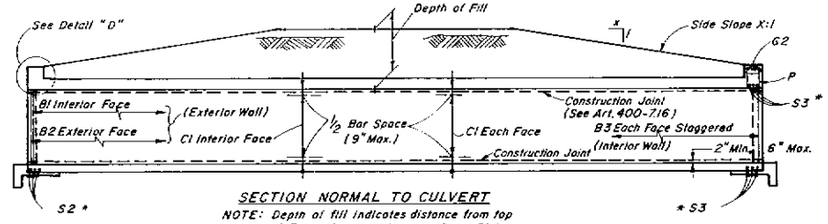
SECTION C-C



DETAIL "B"



DETAIL "D"



SECTION NORMAL TO CULVERT

NOTE: Depth of fill indicates distance from top of Finish Grade to bottom of top Slab.

GENERAL NOTES

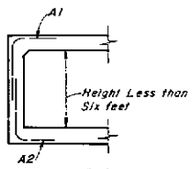
DESIGN SPECIFICATIONS; A.A.S.H.T.O., 1977

LOADING; HS20-44, Modified for Military Loading as Required.

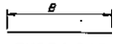
SURFACE FINISH; The Class Surface finish for all concrete surfaces shall be a general surface finish.

REINFORCING; Deformed welded wire fabric may be substituted for all or part of the reinforcing steel provided an equal area of steel is used and if the details are approved by the Engineer.

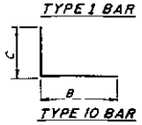
SKEWED CONSTRUCTION JOINT; Construction Joints in barrels of culverts with skewed wingwalls may be placed parallel to the wingwalls; and the reinforcing steel, in the slabs, may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with the table (lower left) this sheet. The cost of construction joints shall be at the expense of the Contractor.



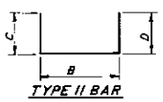
DETAIL "E"



TYPE 1 BAR



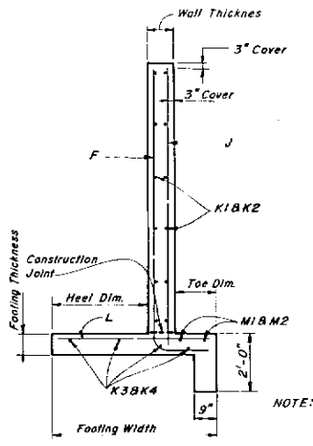
TYPE 10 BAR



TYPE 11 BAR

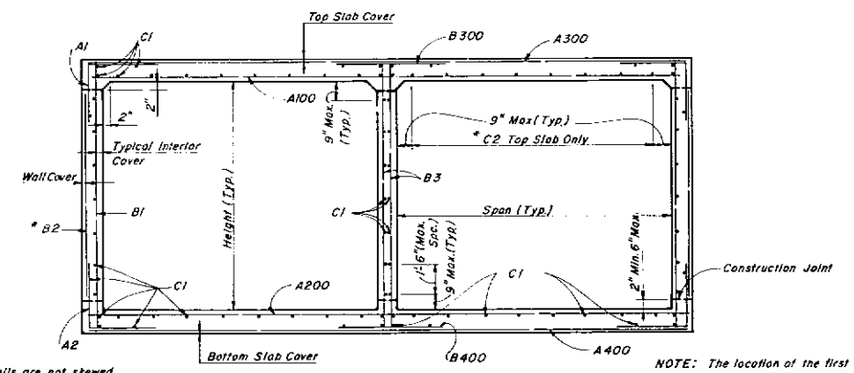
TABLE OF MINIMUM BAR SPLICE LENGTHS

BAR SIZE	SPLICE	BAR SIZE	SPLICE
4	1'-8"	8	3'-10"
5	2'-2"	9	4'-10"
6	2'-7"	10	6'-1"
7	3'-0"	11	7'-6"



SECTION THRU WINGWALL

NOTE: When the wingwalls are not skewed with relation to the barrel bars K2, K4 and M2 will not be utilized.



SECTION THRU BARREL

NOTE: The location of the first bar from the ends of the culvert shall not be less than 3", but not greater than one half the bar spacing.

* REINFORCING BAR SCHEDULE:

A. When the depth of fill is less than or equal to 2.0 feet, Bars C2 are utilized in the bottom of the top slab. In all other cases, Bars C2 are replaced with Bars C1 spaced at 18 inches on centers.

B. When the skew angle for a side equals 0° ± 11° then the respective S Bars (S2 or S3) will not be utilized.

C. When the barrel height is less than 6 feet, Bars B2 shall be eliminated as shown in Detail E.

D. When the wingwalls are parallel, the following bars are equal in size, length and spacing: K1 = K2, K3 = K4, M1 = M2, G1 = G2, S2 = S3, A101 (etc.) = A151 (etc.), A201 (etc.) = A251 (etc.), A301 (etc.) = A351 (etc.), A401 (etc.) = A451 (etc.) Also, only Bars K1, K3, M1, G1, S2, A101 (etc.), A201 (etc.), A301 (etc.), and A401 (etc.) shall be listed in the Reinforcing Bar Schedule.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

DOUBLE BARREL CONCRETE BOX CULVERT

REVISIONS	
Date	Description

ROAD NO.	COUNTY	PROJECT NO.

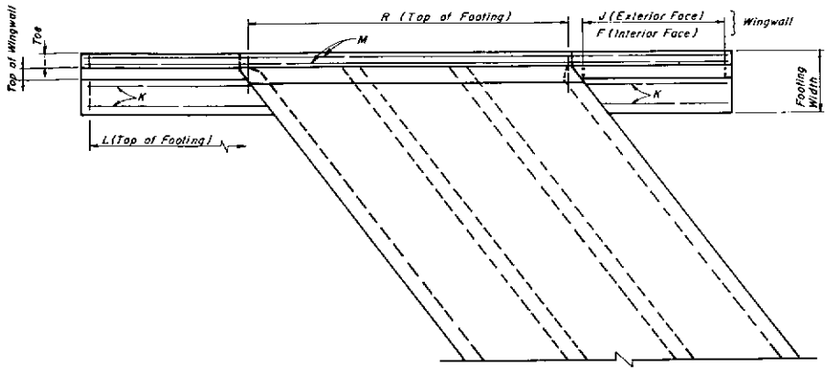
	Names	Dates
Designed by	C.W. / A.M.M.	10-81
Checked by	R.D.S.	10-81
Quantities by		
Checked by		
Supervised by	R.C.B.	

APPROVED BY

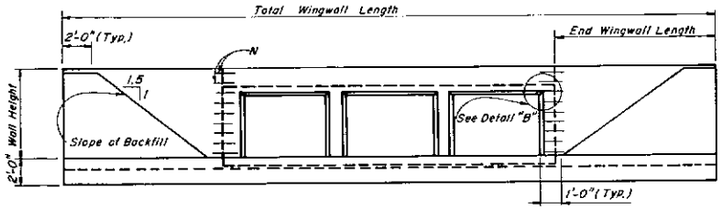
Deputy Design Engineer, Structures

Drawing No.	Index No.
1 OF 1	12837

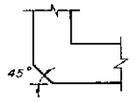
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



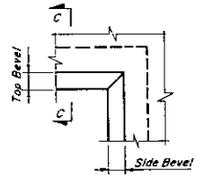
PART PLAN AT END OF CULVERT



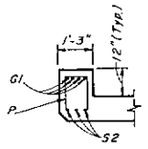
END ELEVATION



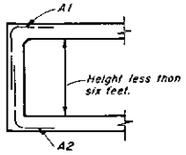
SECTION C-C



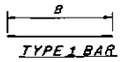
DETAIL "B"



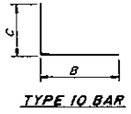
DETAIL "D"



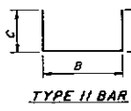
DETAIL "E"



TYPE 1 BAR



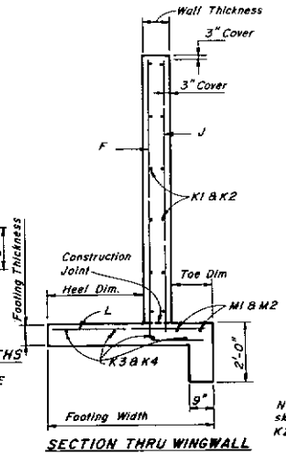
TYPE 10 BAR



TYPE 11 BAR

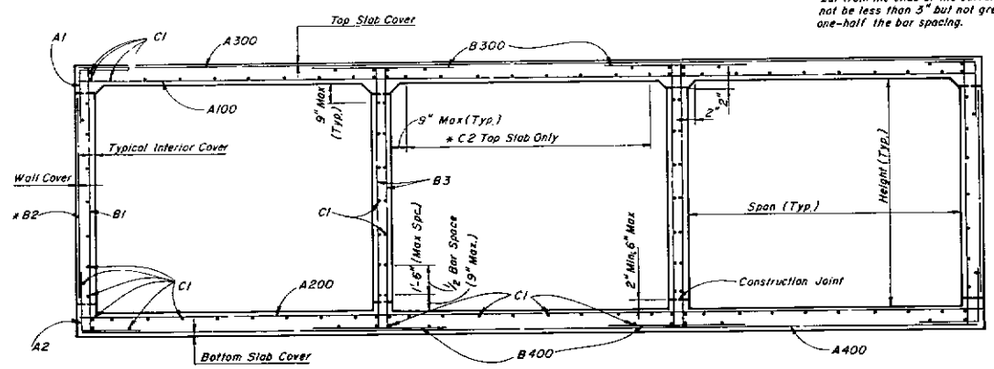
TABLE OF MINIMUM BAR SPLICE LENGTHS

BAR SIZE	SPLICE	BAR SIZE	SPLICE
4	1'-8"	8	3'-10"
5	2'-2"	9	4'-10"
6	2'-7"	10	6'-1"
7	3'-0"	11	7'-6"



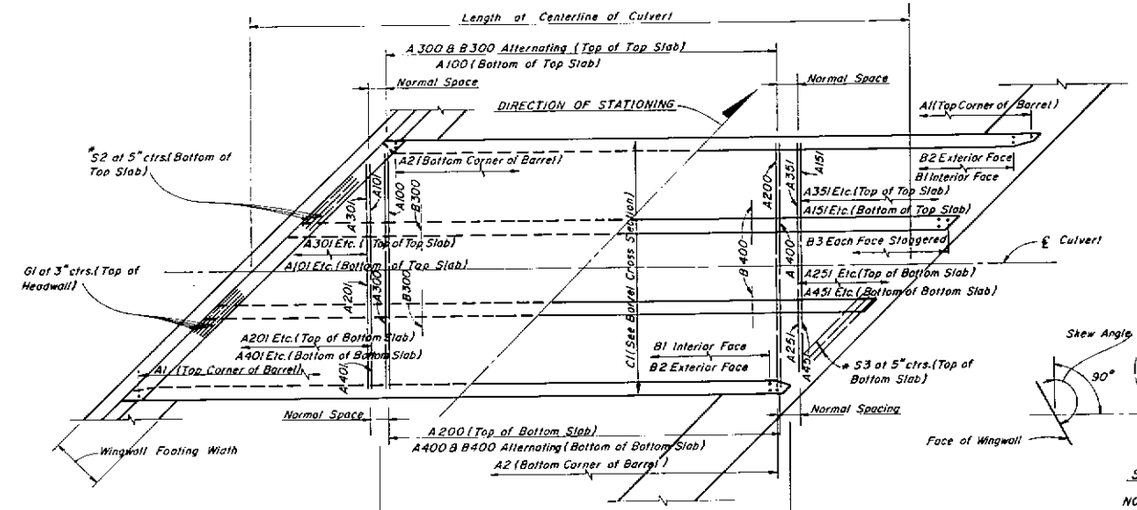
SECTION THRU WINGWALL

NOTE: When the wingwalls are not skewed with relation to the barrel, bars K2, K4 and M2 will not be utilized.

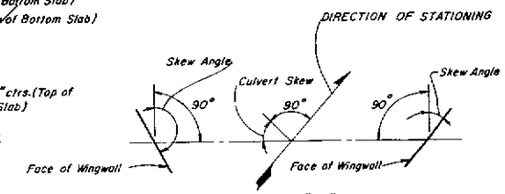


SECTION THRU BARREL

NOTE: The location of the first bar from the ends of the culvert shall not be less than 3" but not greater than one-half the bar spacing.



NOTE: Skew for Computerized Culvert Design Only is the angle between a line peperdicular to the ℄ Culvert and the face of Wingwall measured clockwise.



SKETCH "A"

NOTE: Normally Wingwalls are parallel to ℄ Roadway in the direction of stationing, for exceptions and the direction of skews see Roadway Plans.

Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the left wingwall is skewed.

Also the skewed portion of slabs at both ends of culverts when the left and right wingwalls are skewed the same.

Slab Reinforcing Steel within these limits apply for non-skewed culverts.

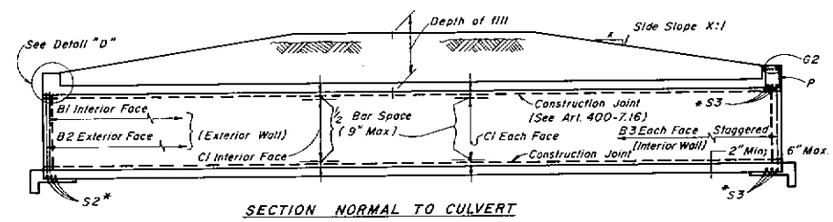
Also the non-skewed portion of culverts with one or two skewed wingwalls.

Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the right wingwall only is skewed.

Also the skewed portion of slabs at the right end of culverts when the left and right wingwalls are both skewed but not the same.

PART PLAN TOP SLAB

PART PLAN BOTTOM SLAB



SECTION NORMAL TO CULVERT

NOTE: Depth of fill indicates distance from top of Finish Grade to bottom of Slab.

GENERAL NOTES

DESIGN SPECIFICATIONS; A.A.S.H.T.O., 1977.

LOADING; HS20-44, Modified for Military Loading as Required.

SURFACE FINISH; The Class Surface finish for all concrete surfaces shall be a general surface finish.

REINFORCING; Deformed welded wire fabric may be substituted for all or part of the reinforcing steel provided an equal area of steel is used and if the details are approved by the Engineer.

SKEWED CONSTRUCTION JOINT; Construction Joints in barrels of culverts with skewed wingwalls may be placed parallel to the wingwalls; and the reinforcing steel, in the slabs, may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with the table (lower left) this sheet. The cost of construction joints shall be at the expense of the Contractor.

* REINFORCING BAR SCHEDULE:

A. When the depth of fill is less than or equal to 2.0 feet, Bars C2 are utilized in the bottom of the top slab. In all other cases, Bars C2 are replaced with Bars C1 spaced at 18 inches on centers.

B. When the skew angle for a side equals 0° ± 11° then the respective S Bars (S2 or S3) will not be utilized.

C. When the barrel height is less than 6 feet, Bars B2 shall be eliminated as shown in Detail E.

D. When the wingwalls are parallel, the following bars are equal in size, length and spacing; K1 = K2, K3 = K4, M1 = M2, G1 = G2, S2 = S3, A101 (etc.) = A151 (etc.), A201 (etc.) = A251 (etc.), A301 (etc.) = A351 (etc.), A401 (etc.) = A451 (etc.). Also, only Bars K1, K3, M1, G1, S2, A101 (etc.), A201 (etc.), A301 (etc.), and A401 (etc.) shall be listed in the Reinforcing Bar Schedule.

REVISIONS	
Dates	Descriptions

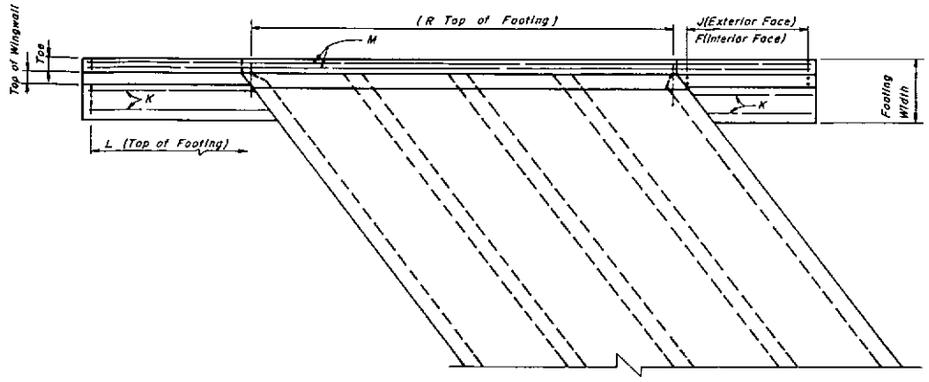
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

TRIPLE BARREL CONCRETE BOX CULVERTS

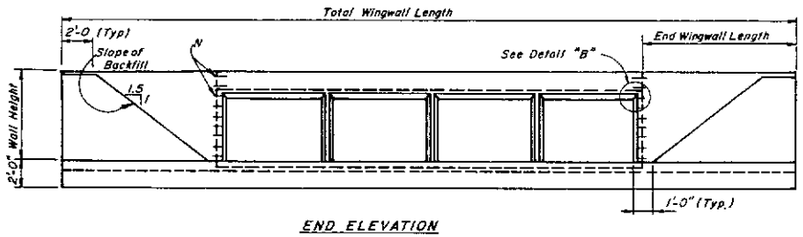
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates	APPROVED BY
Designed by	C.W./A.M.M.	10-81	
Checked by	R.D.S.	10-81	
Quantities by			Dep. Dir. Design Engineer, Structures
Checked by			Drawing No. / Index No.
Supervised by	R.C.B.		1 OF 1 / 12838

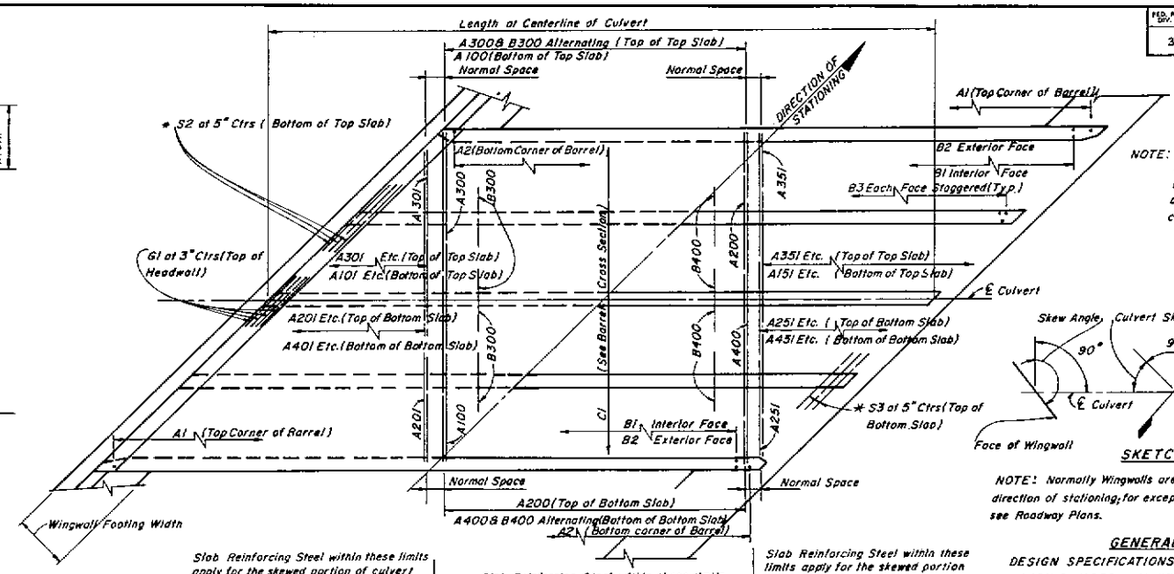
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PART PLAN AT END OF CULVERT



END ELEVATION



Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the left wingwall is skewed,

Also the skewed portion of slabs at both ends of culverts when the left and right wingwalls are skewed the same.

Slab Reinforcing Steel within these limits apply for nonskewed culverts,

Also the nonskewed portion of culverts with one or two skewed wingwalls.

Slab Reinforcing Steel within these limits apply for the skewed portion of culvert slabs when the right wingwall only is skewed,

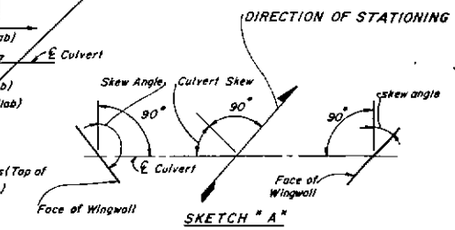
Also the skewed portion of slabs at the right end of culverts when the left and right wingwalls are both skewed but not the same.

NOTE: Bars B300 & B400 Shall be Located at the ℄ of the Interior walls.

PART PLAN TOP SLAB

PART PLAN BOTTOM SLAB

NOTE: Skew for Computerized Culvert Design Only is the angle between a line peperdicular to the ℄ Culvert and the face of Wingwall measured clockwise.



SKETCH "A"

NOTE: Normally Wingwalls are parallel to ℄ Roadway in the direction of stationing; for exceptions and the direction of skews see Roadway Plans.

GENERAL NOTES

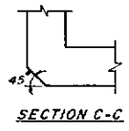
DESIGN SPECIFICATIONS; A.A.S.H.T.O., 1977.

LOADING; HS20-44, Modified for Military Loading as Required.

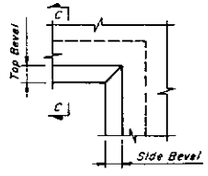
SURFACE FINISH; The Class Surface finish for all concrete surfaces shall be a general surface finish.

REINFORCING; Deformed welded wire fabric may be substituted for all or part of the reinforcing steel provided an equal area of steel is used and if the details are approved by the Engineer.

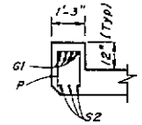
SKEWED CONSTRUCTION JOINTS; Construction joints in barrels of culverts with skewed wingwalls may be placed parallel to the wingwalls; and the reinforcing steel, in the slabs, may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with the table (lower left) this sheet. The cost of construction joints shall be at the expense of the Contractor.



SECTION C-C



DETAIL "B"



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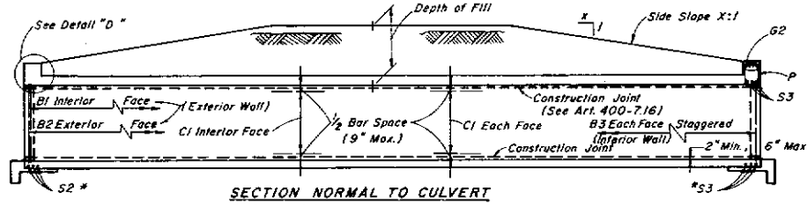
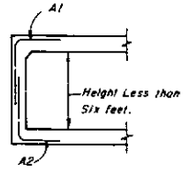
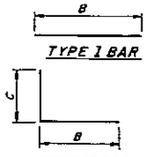


SECTION NORMAL TO CULVERT

NOTE: Depth of fill indicates distance from top of Finish Grade to bottom of top Slab.



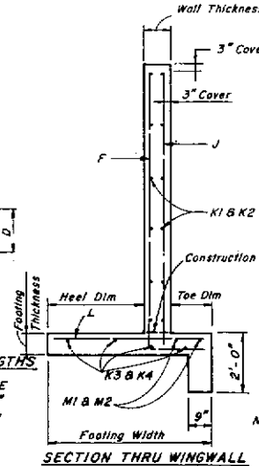
DETAIL "E"



TYPE I BAR

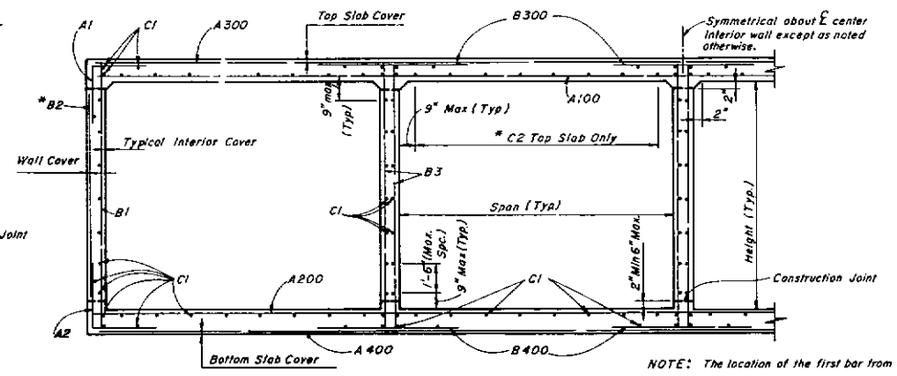
TYPE 10 BAR

TYPE 11 BAR



SECTION THRU WINGWALL

NOTE: When the wingwalls are not skewed with relation to the barrel bars K2, K4 and M2 will not be utilized.



SECTION THRU BARREL

NOTE: The location of the first bar from the ends of the culvert shall not be less than 3", but not greater than one half the bar spacing.

* REINFORCING BAR SCHEDULE:

A. When the depth of fill is less than or equal to 2.0 feet, Bars C2 are utilized in the bottom of the top slab. In all other cases, Bars C2 are replaced with Bars C1 spaced at 18 inches on centers.

B. When the skew angle for a side equals 0° ± 11° then the respective S Bars (S2 or S3) will not be utilized.

C. When the barrel height is less than 6 feet, Bars B2 shall be eliminated as shown in Detail E.

D. When the wingwalls are parallel, the following bars are equal in size, length and spacing; K1 = K2, K3 = K4, M1 = M2, G1 = G2, S2 = S3, A101 (etc.) = A151 (etc.), A201 (etc.) = A251 (etc.), A301 (etc.) = A351 (etc.), A401 (etc) = A451 (etc.). Also, only Bars K1, K3, M1, G1, S2, A101 (etc.), A201 (etc.), A301 (etc.), and A401 (etc.) shall be listed in the Reinforcing Bar Schedule.

TABLE OF MINIMUM BAR SPLICE LENGTHS

BAR SIZE	SPLICE	BAR SIZE	SPLICE
4	1'-8"	8	3'-10"
5	2'-2"	9	4'-10"
6	2'-7"	10	6'-1"
7	3'-0"	11	7'-6"

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

QUADRUPLE BARREL CONCRETE BOX CULVERT

REVISIONS	
Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	C.W./A.M.M.	10-81
Checked by	R.D.S.	10-81
Quantities by		
Checked by		
Supervised by	R.C.B.	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No. 1 OF 1

Index No. 12839

FED. ROAD DIV. NO.	STATE	PROJECT NO	FISCAL YEAR	SHEET NO.
3	FLA.			

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: State of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Current Edition with approved Supplements thereto.

DESIGN SPECIFICATIONS: American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges, Current Edition with Approved Revisions thereto.

DESIGN LOADING: Designed in accordance with HS20-44 loading.

FUTURE WEARING SURFACE: An allowance of 15 lbs. per sq. ft. is included for future wearing surfaces.

REINFORCING STEEL: All reinforcing steel shall conform to ASTM A-615 Grade 40 or Grade 60 unless otherwise noted.

PILING: Piling shall be 18" sq. Prestressed Concrete Piles. For Quantities see Summary of Bridge Pay Items. Maximum pile loads shall be as follows:

BRIDGE WIDTH	SPAN LENGTH (FT)	LOCATION	PILE LOAD (TONS)
40 FT. ROADWAY	25 To 35	End Bent	30
	25 & 27.5	Intermediate Bent	40
	30 & 32.5	Intermediate Bent	45
	35	Intermediate Bent	50
44 FT. ROADWAY	25 To 35	End Bent	30
	25	Intermediate Bent	40
	27.5 & 30	Intermediate Bent	45
	32.5	Intermediate Bent	50
	35	Intermediate Bent	55

CONCRETE: Class II Concrete (fc' = 3400 psi) shall be used throughout the Substructure. Class II Concrete (fc' = 3400 psi) shall be used for field cast concrete in the Superstructure. Class III Concrete (fc' = 5000 psi) shall be used for prestressed members.

CONCRETE FINISH: Concrete shall be finished in accordance with Specifications. All exposed top, inside and outside surfaces of End Bent Wingwalls, and Concrete Handrail Barrier and outside surfaces of Slab Units shall receive a "Class 5 Applied Finish Coating."

ENVIRONMENT: These plans shall only apply to structures located in noncorrosive (Non Coastal) environments.

LIMITATIONS FOR USE: These drawings shall not be used for Structures located in Superelevation Transition or for Structures on alignments where the slope (Camber not used) of the slab unit on the bearing is greater than 0.04 feet per foot.

BITUMINOUS MATERIAL: For Type of Bituminous Material, Estimated Quantities, and payment See Roadway Plans.

ALTERNATE SECTIONS: At the option of the Contractor, wider units may be furnished provided the amount of prestressing per foot of width is maintained.

PRESTRESSED MEMBERS

FINISH: The top of prestressed units shall be finished smooth by floating or brooming. All other surfaces of the units shall receive a "Class 3" surface finish. The edges of the top surface of the units shall be finished by use of a small radius tool.

CONCRETE STRENGTH: At transfer of the prestressing load, the cylinder strength of the concrete shall be 4000 psi

HANDLING & STORAGE: During handling and storage, the prestressed units must be maintained in an upright position at all times. The units must be picked up at the ends of the units to prevent damage.

FORMS & PALLETS: All prestressed units shall be cast on concrete based pallets and in metal forms.

STRANDS: At the option of the Contractor, stabilized strands may be used in lieu of stress relieved strands. Calculations are to be submitted showing the substitution meets the following requirements:
1. The strands meet all requirements of ASTM A-416 Grade 270.
2. The net compressive stress in the concrete after all losses is at least as large as that provided by the 270K stress relieved strands.
3. The ultimate strength of the structure meets the requirements of the applicable AASHTO Specifications.

At the option of the Contractor, 250K stress relieved strands may be substituted in lieu of the 270K strands shown provided that calculations are submitted showing compliance with the requirements of items 2 and 3 above. Where alternate strands are proposed, the required calculations shall be submitted with the Shop Drawings.

STRAND EXTENSION: All strands shall extend $2\frac{1}{2}$" beyond the ends of the prestressed units.

TIE BARS: Tie bars shall be $1\frac{1}{4}$" ø Bars for post-tensioning and shall comply with the requirments of Section 933 of the Specifications. The tie bars shall be stressed and anchored at 125,000 lbs. per post-tensioned bar.

SHOP DRAWINGS: The contractor shall submit 7 sets of shop drawings, showing complete details of the proposed prestressed units. The drawings shall include reinforcing steel, prestressing steel, prestressing bed layout, tensioning and detensioning schedules, and all computations required to control the work.

BEARING PADS: Neoprene bearing pads shall be $\frac{1}{2}$" X 6" strips in accordance with section 932-2 of the Specifications. The pads may be continuous strips or multiple lengths of 2'-0" minimum length. The pads may be cut from commercially available sheets.

PAYMENT: The contract unit price for the precast-prestressed units shall include the units, prestressed strands, reinforcing steel shipped with the units, tie bars and anchorages, neoprene bearing pads, premoulded expansion material, and epoxy mortar.

TIE BAR ANCHORAGES: The fabricator shall submit details of the Tie Bar Anchorage and Anchorage Reinforcement details for approval with the Shop Plans.

CONSTRUCTION NOTES

EQUIPMENT ON UNITS: Before heavy construction equipment is permitted on the structure during construction, sketches showing the axle spacing and anticipated loadings shall be submitted to and approved by the Engineer.

FILLING KEYWAYS: During placement of the units, or prior to filling the joints between the units and keyways with epoxy mortar, the bottom of the openings shall be sealed to prevent leakage during placement of the epoxy mortar. The seal shall extend upward from the bottom of the unit a maximum of 1 inch. The material proposed for the seal shall be shown on the shop plans for approval by the Engineer. After the seals are in place for the entire superstructure, the joints and keyways shall be filled with epoxy mortar (See Epoxy Mortar Note below). Careful attention shall be given to the areas where the tie bars and anchorages for the tie bars are to be installed to avoid filling these holes.

TIE BARS: The transverse post-tensioned tie bars shall not be tensioned until the epoxy mortar in the joints and keyways has been cured for a minimum of 72 hours. The bars shall be installed, post-tensioned and anchored to 125,000 lbs. each.

GROUTING BARS: The tie bars shall be grouted in accordance with section 450-11 of the Specifications. The grouted tie bars shall not be disturbed, nor shall appreciable loads be placed on the span for a period of 72 hours following grouting.

FILLING ANCHORAGE BLOCKOUTS: All recesses and blockouts for post-tensioned tie bars shall be filled with non-shrinking grout.

"CONTINUED"

PLACING BARRIER WALLS & SURFACING: After all tie bars have been grouted and the minimum 72 hours have passed for all tie bars, the barrier walls and wearing course shall be placed.

SAWED JOINTS: A control crack shall be provided by sawing at all supports a joint, the depth of the wearing surface, from gutter to gutter. The joint shall be centered over the centerline of the concrete joint and shall be sawed upon completion of the surfacing.

EPOXY MORTAR MIX: The epoxy mortar shall be composed of a mixed epoxy binder and sand as follows:

(a) BINDER
The binder shall be a two component (1:1 ratio hydro-ester) material meeting the following requirements:

(1.) The material shall be insensitive to moisture.

(2.) The material shall adhere to wet concrete.

(b) SAND
The sand filler shall be kiln dried silica sand meeting these gradation requirements:

STANDARD SAND

U.S. Sieve Size	% Passing
No. 4	100
No. 16	90-100
No. 30	30-50
No. 50	0-10
No. 100	0-5

ALTERNATE SAND

U.S. Sieve Size	% Passing
No. 4	100
No. 10	90-100
No. 20	0-5
No 40	0

(c) MIXING
The epoxy mortar shall be machine mixed in strict accordance with the manufacturer's directions.

(1.) One part of binder shall be combined with a maximum of three parts of sand filler.

(2.) No more filler shall be mixed than can be placed into the joints and keyways in a peroid of 20 min. Any material so mixed and not used within the 20 minutes immediately following shall be discarded.

(3.) For joints where the above mix will not flow into the voids, the mix may be thinned by adding additional binder to the mix.

(d) STRENGTH
The strength of the epoxy mortar shall be considered acceptable provided that 2 inch cubes of the material demonstrate a compressive strength of 6500 psi when tested. The mix proportions for the test cubes shall consist of one part binder to one part sand filler. The specimen shall be cured at a temperature of 66°F to 74°F and shall be tested in accordance with Section 926 (2.3(a)) of the Specifications.

3.2(b)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

GENERAL & CONSTRUCTION NOTES

REVISIONS	
Dates	Descriptions
10/80	Revised Environment Note added (Non Coastal)
11/13/80	Concrete Finish
5/81	Concrete Finish

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	C.W.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M	

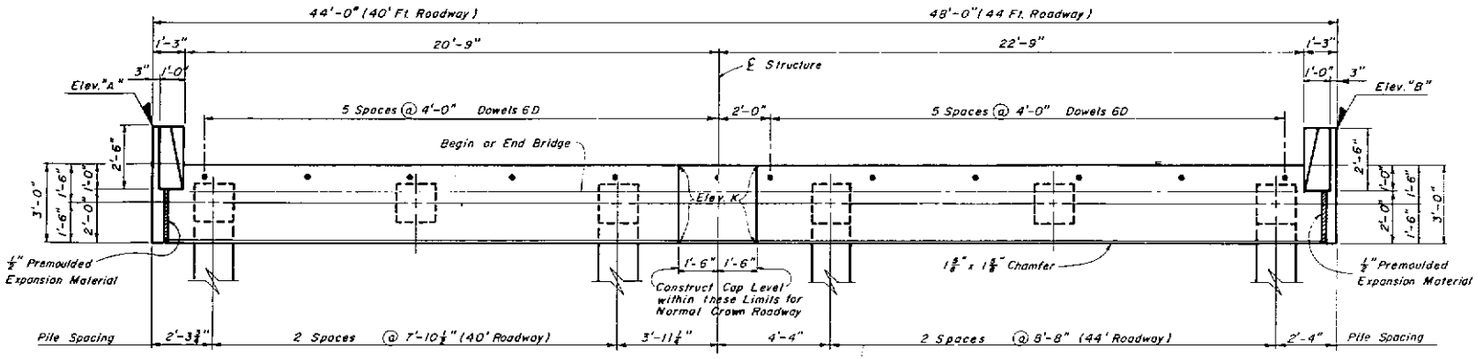
APPROVED BY
Deputy Design Engineer, Structures

Drawing No.	Index No.
1 OF 1	12661

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

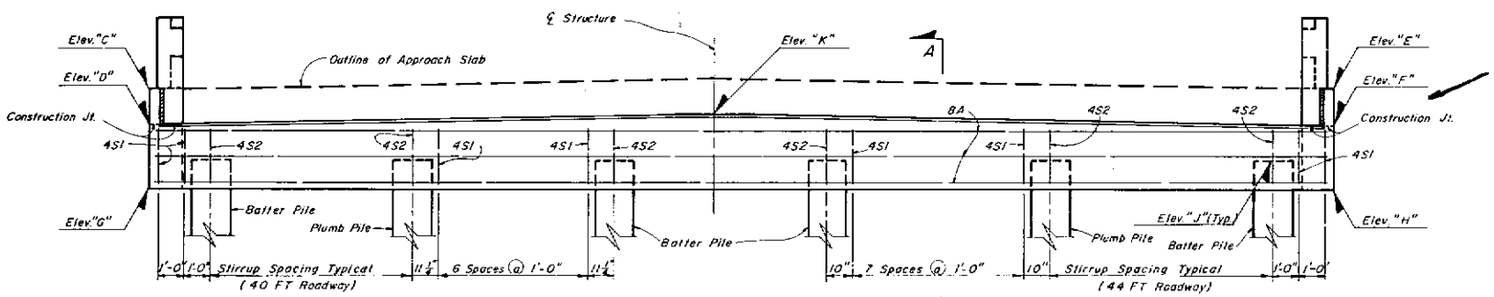
ESTIMATED QUANTITIES

WIDTH	ITEM	CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. RDWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.0	1,724
	Spans = 32.5' & 35' Normal Cross Slope	14.1	1,729
	Spans = 25', 27.5' & 30' Superelevated Slope	12.9	1,724
	Spans = 32.5' & 35' Superelevated Slope	13.0	1,729
44 FT. RDWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.3	1,865
	Spans = 32.5' & 35' Normal Cross Slope	15.4	1,871
	Spans = 25', 27.5' & 30' Superelevated Slope	14.0	1,865
	Spans = 32.5' & 35' Superelevated Slope	14.1	1,871



HALF PLAN 40FT. ROADWAY

HALF PLAN 44FT. ROADWAY



cheekwall Ht. ?

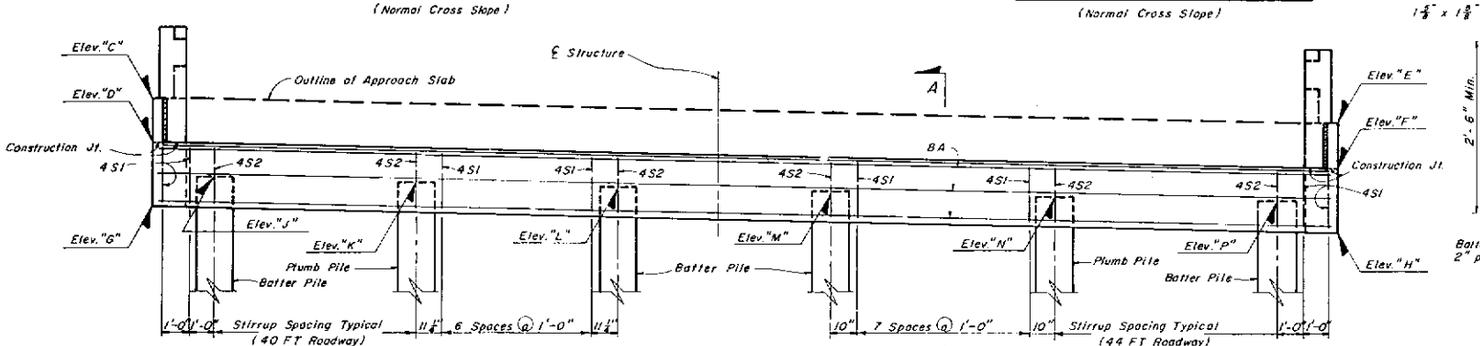
FOR WING DETAILS SEE END BENT WING DETAILS INDEX NO. 12665

HALF ELEVATION 40 FT. ROADWAY

(Normal Cross Slope)

HALF ELEVATION 44 FT. ROADWAY

(Normal Cross Slope)

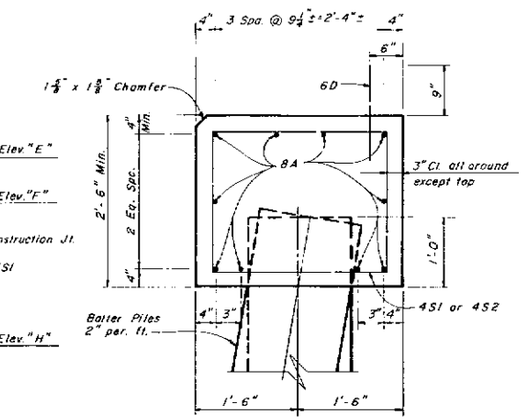


HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)



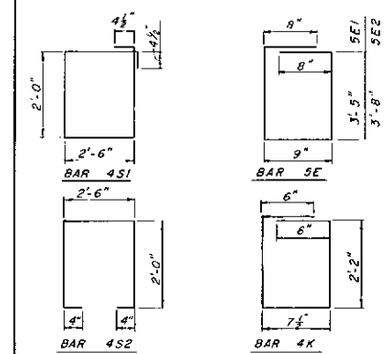
SECTION A-A

BILL OF REINFORCING

MARK	40 FT. ROADWAY NO.	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO.	44 FT. ROADWAY LENGTH	BENDING
8A	10	43'-6"	10	47'-6"	Straight
4C1	16	4'-0"	16	4'-0"	Straight
4C2	4	2'-0"	4	2'-0"	Straight
6D	11	1'-6"	12	1'-6"	Straight
*5E					
5F	18	3'-9"	18	3'-9"	Straight
4J	12	2'-2"	12	2'-2"	Straight
4K	4	6'-0"	4	6'-0"	See Bending
4T	6	2'-6"	6	2'-6"	Straight
4S1	39	9'-9"	44	9'-9"	See Bending
4S2	6	7'-2"	6	7'-2"	See Bending
5E1	10	8'-11"	10	8'-11"	See Bending
5E2	10	9'-5"	10	9'-5"	See Bending

NOTE: The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.

* Use Bars 5E1 for Spans = 25'-0", 27'-6" & 30'-0"
Use Bars 5E2 for Spans = 32'-6" & 35'-0"



Note : All bar dimensions are out to out.

TABLE OF ELEVATIONS

End Bent No.	Elev."A"	Elev."B"	Elev."C"	Elev."D"	Elev."E"	Elev."F"	Elev."G"	Elev."H"	Elev."J"	Elev."K"	Elev."L"	Elev."M"	Elev."N"	Elev."P"

REVISIONS	
Dates	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT ZERO DEGREE SKEW

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

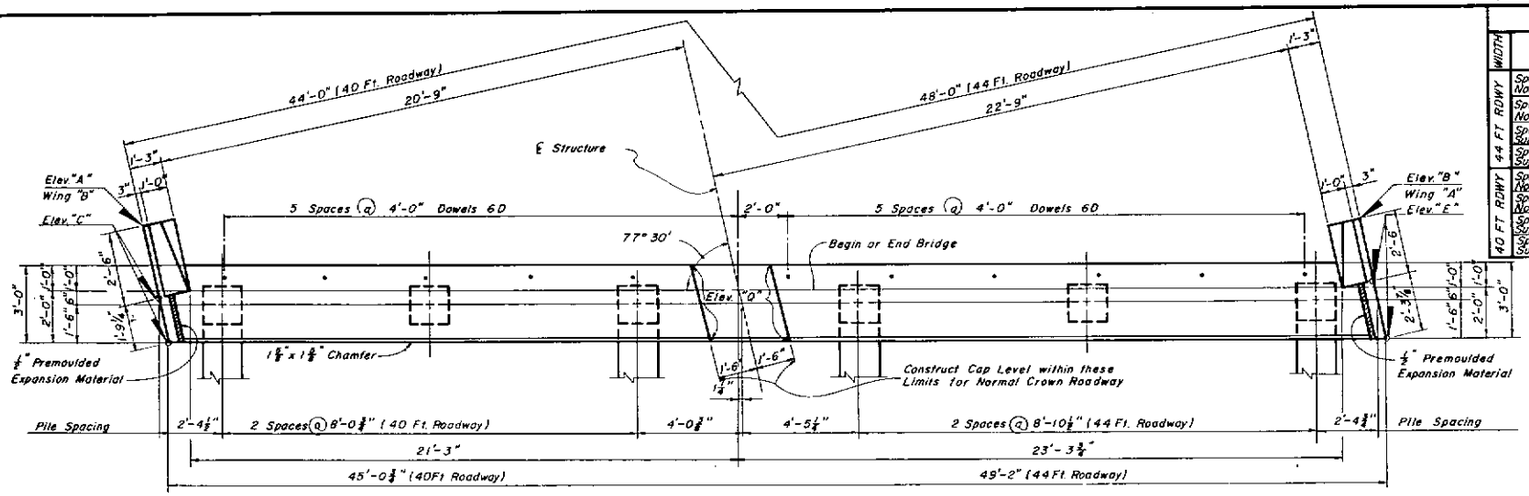
APPROVED BY

Deputy Design Engineer, Structures

Drawing No. 1 of 1

Index No. 12662

DIETGEN CORP. 1983

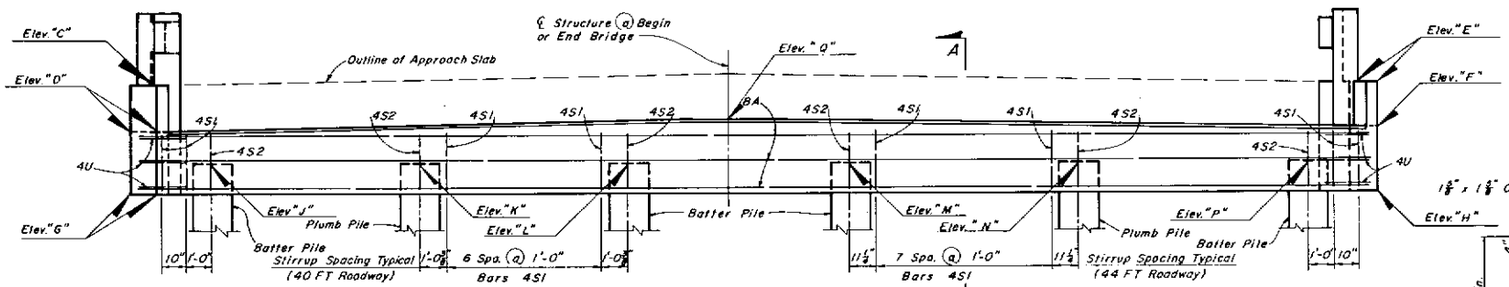


HALF PLAN 40 Ft. ROADWAY

HALF PLAN 44 Ft. ROADWAY

NOTE: Details Shown for Skew Right Bridge
Skew Left Bridge is Opposite Hand.

FOR WING DETAILS SEE
END BENT WING DETAILS
INDEX NO. 12665

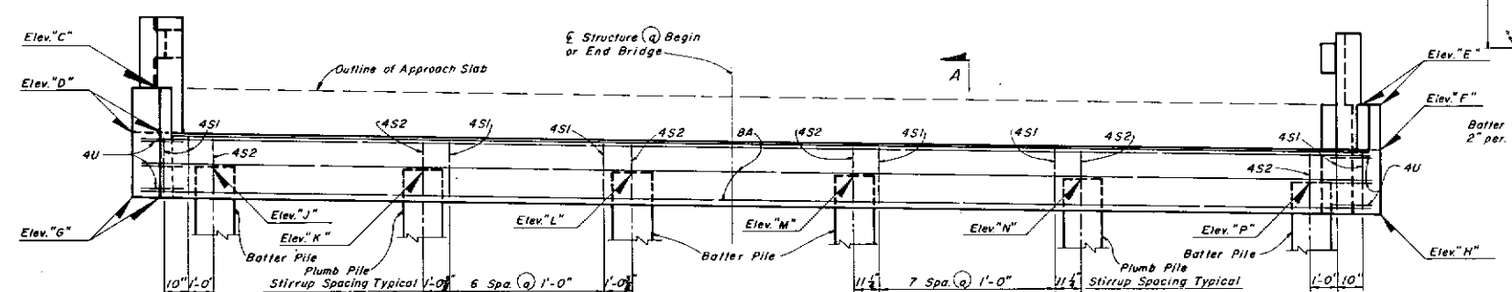


HALF ELEVATION 40 FT. ROADWAY

(Normal Cross Slope)

HALF ELEVATION 44 FT. ROADWAY

(Normal Cross Slope)

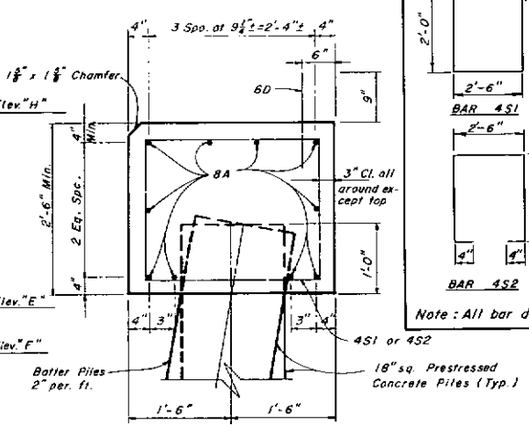


HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)



SECTION A-A

ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
44 FT ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.6	1912
	Spans = 32.5' & 35' Normal Cross Slope	15.7	1917
	Spans = 25', 27.5' & 30' Superelevated Slope	14.4	1912
	Spans = 25', 27.5' & 30' Superelevated Slope	14.4	1917
40 FT ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.3	1767
	Spans = 32.5' & 35' Normal Cross Slope	14.4	1772
	Spans = 25', 27.5' & 30' Superelevated Slope	13.2	1767
	Spans = 32.5' & 35' Superelevated Slope	13.3	1772

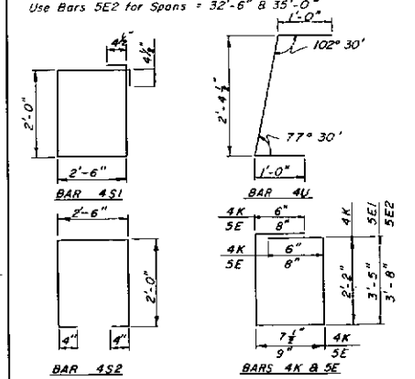
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

BILL OF REINFORCING

MARK	40 FT. ROADWAY NO.	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO.	44 FT. ROADWAY LENGTH	BENDING
8A	10	44'-6"	10	48'-8"	Straight
4C1	8	4'-1"	8	4'-1"	Straight
4C2	4	2'-0"	4	2'-0"	Straight
4C3	8	3'-9"	8	3'-9"	Straight
6D	11	1'-6"	12	1'-6"	Straight
*5E					
5F	18	3'-9"	18	3'-9"	Straight
4J	12	2'-2"	12	2'-2"	Straight
4K	4	6'-0"	4	6'-0"	See Bending
4T	5	2'-6"	5	2'-6"	Straight
4S1	39	9'-9"	44	9'-9"	See Bending
4S2	6	7'-2"	6	7'-2"	See Bending
4U	6	4'-6"	6	4'-6"	See Bending
5E1	10	8'-11"	10	8'-11"	See Bending
5E2	10	9'-5"	10	9'-5"	See Bending

NOTE: The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.

* Use Bars 5E1 for Spans = 25'-0", 27'-6" & 30'-0"
Use Bars 5E2 for Spans = 32'-6" & 35'-0"



Note: All bar dimensions are out to out.

TABLE OF ELEVATIONS

End Bent No.	Elev."A"	Elev."B"	Elev."C"	Elev."D"	Elev."E"	Elev."F"	Elev."G"	Elev."H"	Elev."J"	Elev."K"	Elev."L"	Elev."M"	Elev."N"	Elev."P"	Elev."Q"

REVISIONS	
Dates	Descriptions
11-80	Length of Bars 8A, 4C1 & 4C3 Reinf Steel Quantities

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

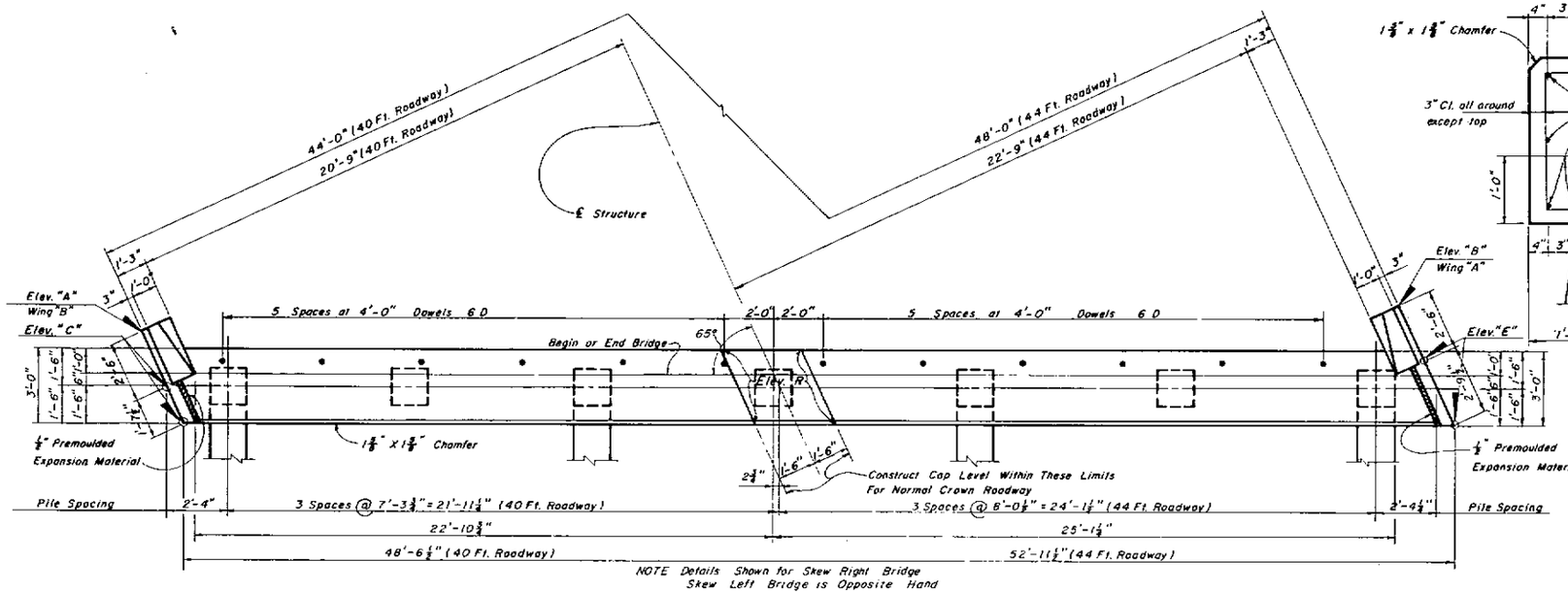
END BENT 12½ DEGREE SKEW

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

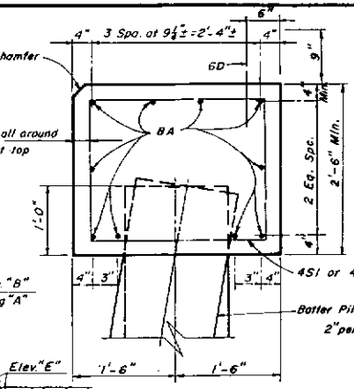
APPROVED BY
Deputy Design Engineer, Structures
Drawing No. 1 of 1
Index No. 12663

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



HALF PLAN 40 FT. ROADWAY

HALF PLAN 44 FT. ROADWAY



SECTION A-A

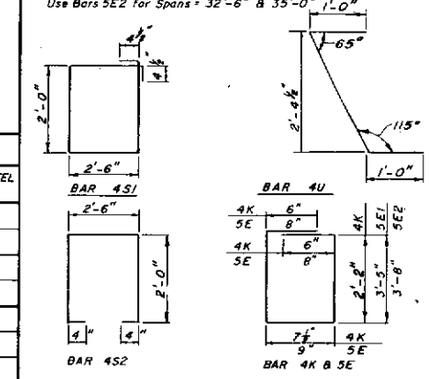
FOR WING DETAILS SEE END BENT WING DETAILS (INDEX NO. 12662)

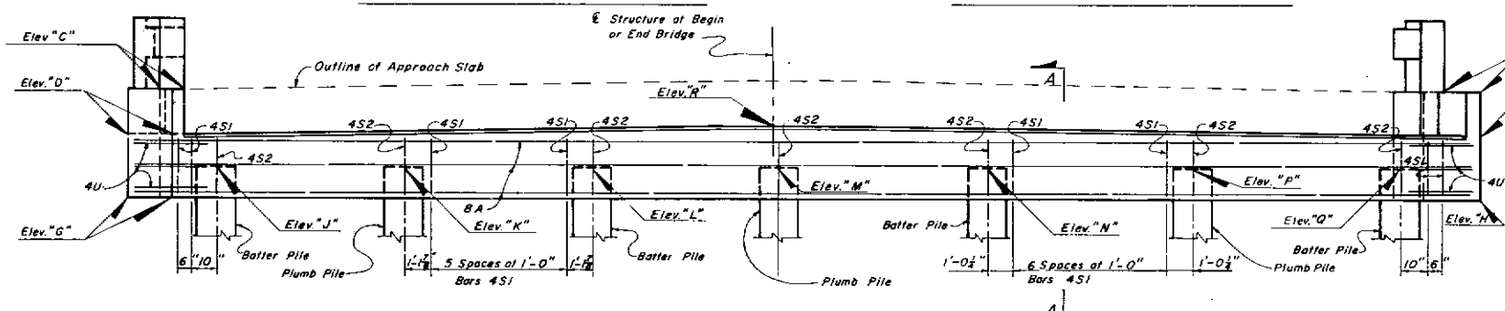
BILL OF REINFORCING

MARK	40 FT. ROADWAY NO.	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO.	44 FT. ROADWAY LENGTH	BENDING
8A	10	48'-0"	10	52'-5"	Straight
4C1	8	4'-4"	8	4'-4"	Straight
4C2	4	2'-0"	4	2'-0"	Straight
4C3	8	3'-9"	8	3'-9"	Straight
6D	12	1'-6"	12	1'-6"	Straight
#5E					
5F	18	3'-9"	18	3'-9"	Straight
4J	12	2'-2"	12	2'-2"	Straight
4K	4	6'-0"	4	6'-0"	See Bending
4T	5	2'-6"	5	2'-6"	Straight
4S1	40	9'-9"	46	9'-9"	See Bending
4S2	7	7'-2"	7	7'-2"	See Bending
4U	6	4'-8"	6	4'-8"	See Bending
5E1	10	8'-11"	10	8'-11"	See Bending
5E2	10	9'-5"	10	9'-5"	See Bending

NOTE The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.

Use Bars 5E1 for Spans = 25'-0", 27'-6" & 30'-0"
Use Bars 5E2 for Spans = 32'-6" & 35'-0"



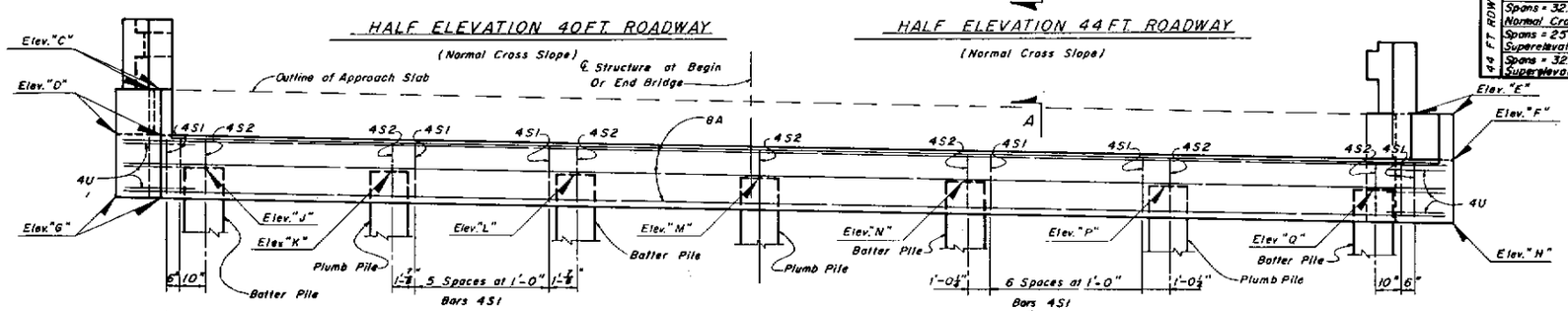


HALF ELEVATION 40 FT. ROADWAY

(Normal Cross Slope)

HALF ELEVATION 44 FT. ROADWAY

(Normal Cross Slope)



HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)

ESTIMATED QUANTITIES

WIDTH	ITEM	CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.2	1875
	Spans = 32.5' & 35' Normal Cross Slope	15.2	1880
	Spans = 25', 27.5' & 30' Superelevated Slope	14.1	1875
	Spans = 32.5' & 35' Superelevated Slope	14.2	1880
44 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	16.6	2032
	Spans = 32.5' & 35' Normal Cross Slope	16.7	2037
	Spans = 25', 27.5' & 30' Superelevated Slope	15.3	2032
	Spans = 32.5' & 35' Superelevated Slope	15.4	2037

TABLE OF ELEVATIONS

End Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"	Elev. "L"	Elev. "M"	Elev. "N"	Elev. "P"	Elev. "Q"	Elev. "R"	Elev. "S"

REVISIONS	
Dates	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT 25 DEGREE SKEW

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

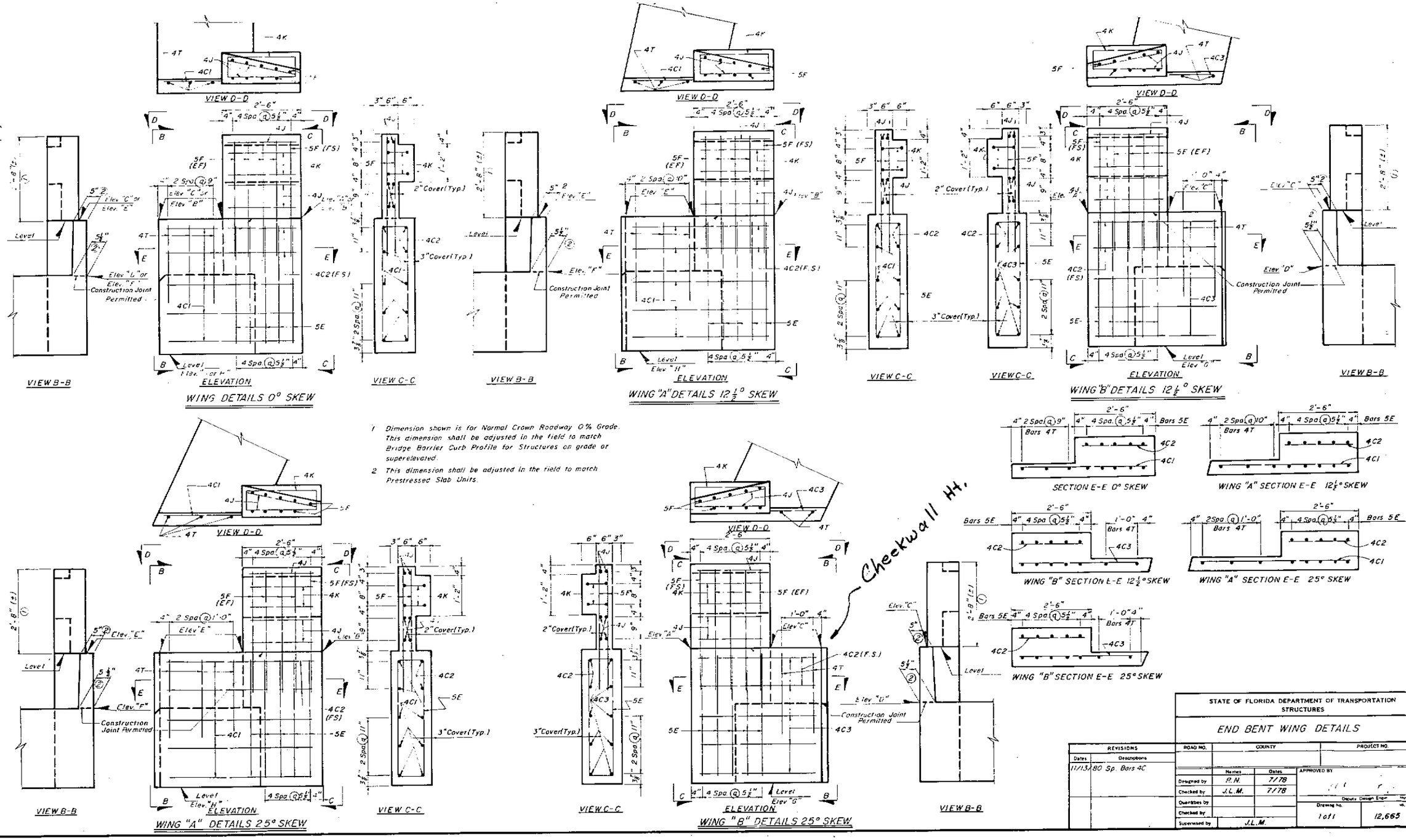
APPROVED BY

County Design Engineer, Structures

Drawing No.	Index No.
1 of 1	12664

DIETZGEN COPY 1783

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



1 Dimension shown is for Normal Crown Roadway 0% Grade. This dimension shall be adjusted in the field to match Bridge Barrier Curb Profile for Structures on grade or superelevated.

2 This dimension shall be adjusted in the field to match Prestressed Slab Units.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT WING DETAILS

REVISIONS	
Dates	Descriptions
11/13/80	Sp. Bars 4C

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M.	

APPROVED BY

Deputy Design Engr. Structures

Drawing No. 1 of 1

No. 12,665

DIETZGEN CORP. 118-M3

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

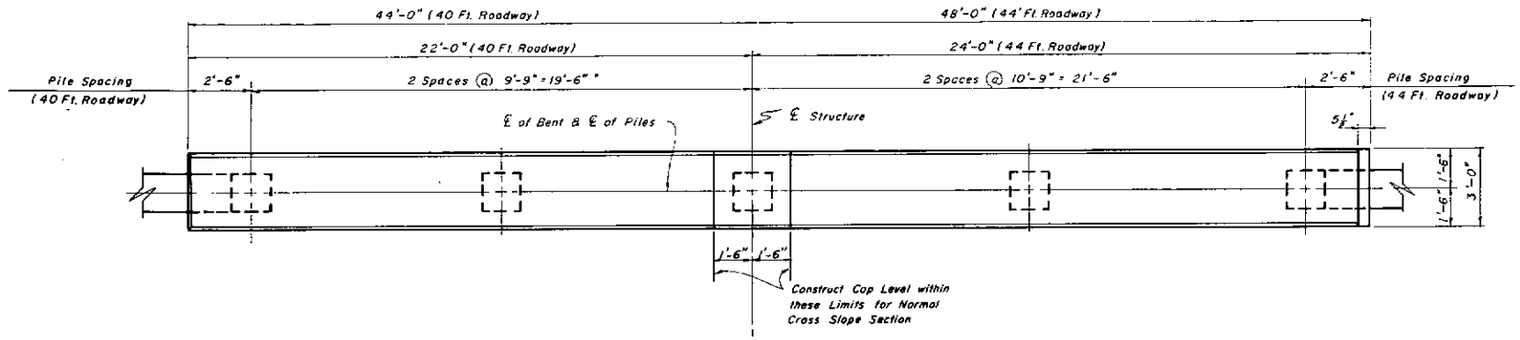
ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	12.9	1487
	Spans = 32.5' & 35' Normal Cross Slope	12.9	1487
	Spans = 25', 27.5' & 30' Superelevated Slope	11.8	1491
	Spans = 32.5' & 35' Superelevated Slope	11.8	1491
44 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.2	1626
	Spans = 32.5' & 35' Normal Cross Slope	14.2	1626
	Spans = 25', 27.5' & 30' Superelevated Slope	12.9	1629
	Spans = 32.5' & 35' Superelevated Slope	12.9	1629

REINFORCING STEEL

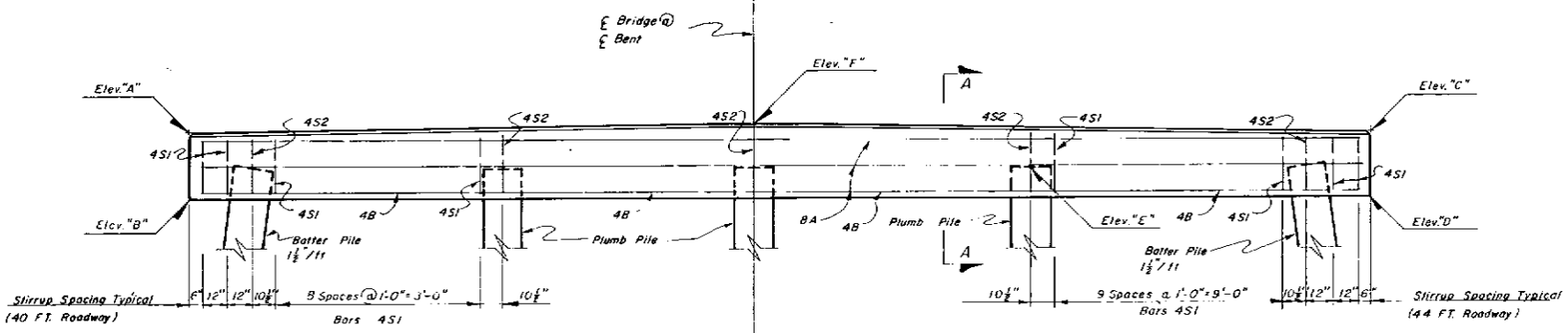
MARK	40 FT ROADWAY No.	40 FT ROADWAY Length	44 FT ROADWAY No.	44 FT ROADWAY Length	BENDING
8A	10	43'-6"	10	47'-6"	Straight
4B	8	7'-9"	8	8'-9"	Straight
4C	1	5'-6"	1	5'-6"	See Diagram.
4S1	40	9'-9"	44	9'-9"	See Diagram
4S2	5	7'-2"	5	7'-2"	See Diagram

NOTE: The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.



HALF PLAN 40 FT. ROADWAY

HALF PLAN 44 FT. ROADWAY

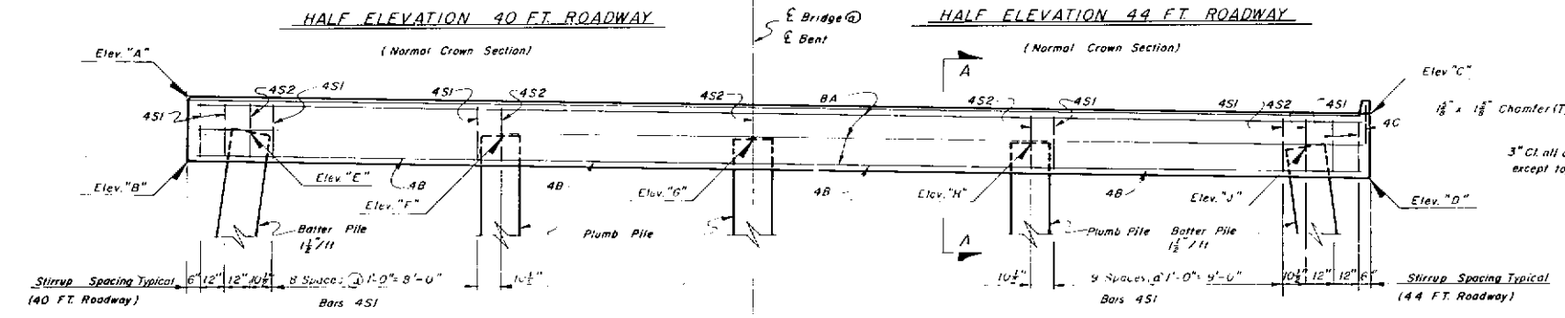


HALF ELEVATION 40 FT. ROADWAY

(Normal Crown Section)

HALF ELEVATION 44 FT. ROADWAY

(Normal Crown Section)

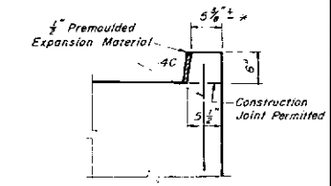


HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

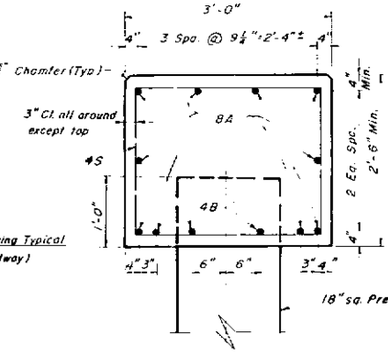
HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)



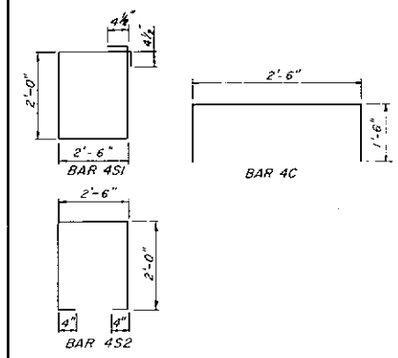
TYPICAL SECTION THRU KEEPER BLOCK

* This dimension shall be adjusted in the field for Structures superelevated and shall apply only on the low side.



SECTION A-A

BENDING DIAGRAMS



NOTE: All bar dimensions are out to out.

NOTE: Place Dowels "G" at Fixed (F) ends of Spans (See Superstructure Details and Plan and Elevation sheet.

TABLE OF ELEVATIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

INTERMEDIATE BENT ZERO DEGREE SKEW

REVISIONS Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R. N.	7/78
Checked by	J. L. M.	7/78
Quantities by	J. L. M.	7/78
Checked by	R. D. S.	9/80
Supervised by	J. L. M.	

APPROVED BY

Deputy Design Engineer, Structures

Drawing No.	Index No.
1 OF 1	12666

GILTZGLN COMP 1983

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

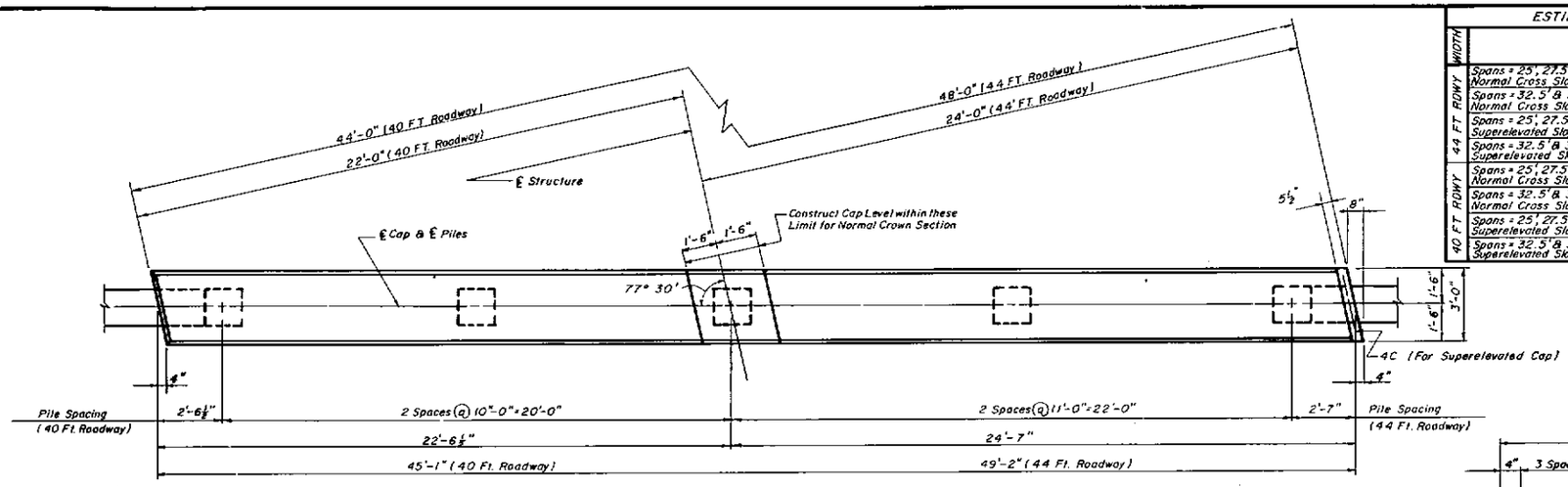
ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
44 FT ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.5	1689
	Spans = 32.5' & 35' Normal Cross Slope	14.5	1689
	Spans = 25', 27.5' & 30' Superelevated Slope	13.3	1693
	Spans = 32.5' & 35' Superelevated Slope	13.3	1693
40 FT ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	13.2	1549
	Spans = 32.5' & 35' Normal Cross Slope	13.2	1549
	Spans = 25', 27.5' & 30' Superelevated Slope	12.1	1553
	Spans = 32.5' & 35' Superelevated Slope	12.1	1553

REINFORCING STEEL

MARK	40 Ft. Roadway No.	40 Ft. Roadway Length	44 Ft. Roadway No.	44 Ft. Roadway Length	BENDING
8A	10	44'-7"	10	48'-8"	Straight
4B	8	8'-0"	8	9'-0"	"
4C	1	5'-7"	1	5'-7"	See Diagram
4S1	40	9'-9"	44	9'-9"	" "
4S2	5	7'-2"	5	7'-2"	" "
4U	6	4'-6"	6	4'-6"	" "
4S3	2	9'-11"	2	9'-11"	" "

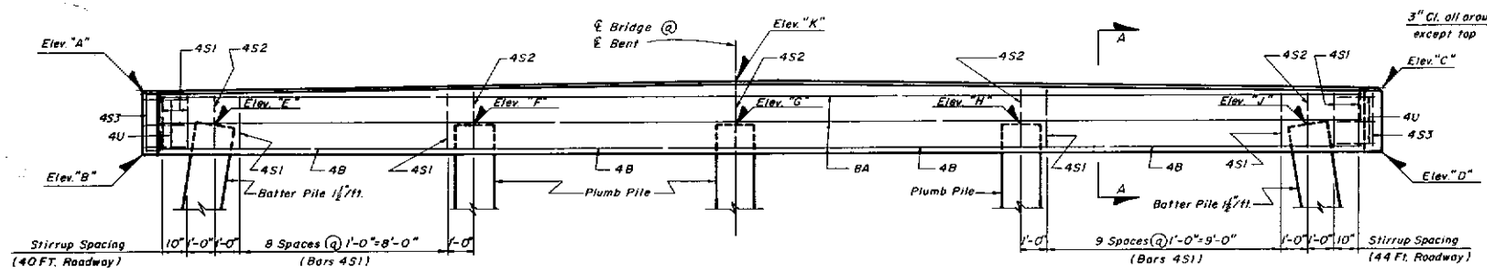
NOTE The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.



HALF PLAN 40 FT. ROADWAY

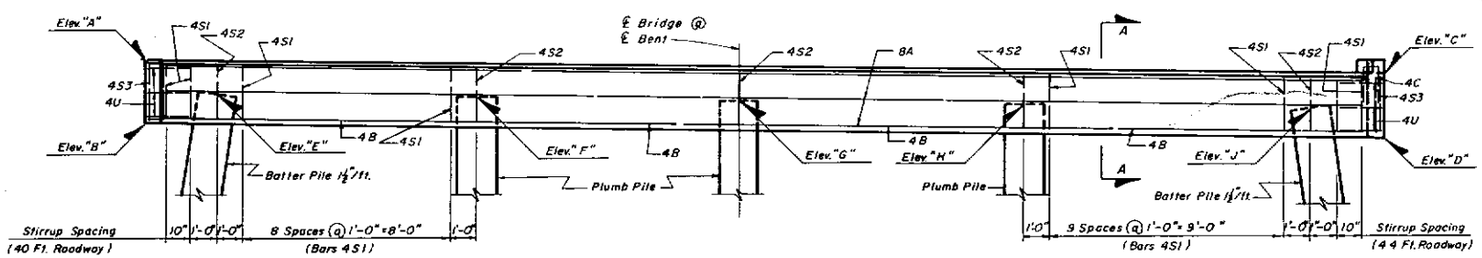
HALF PLAN 44 FT. ROADWAY

Note: Details Shown are for Skew Right Bridge.
Skew Left Bridge is Opposite Hand.



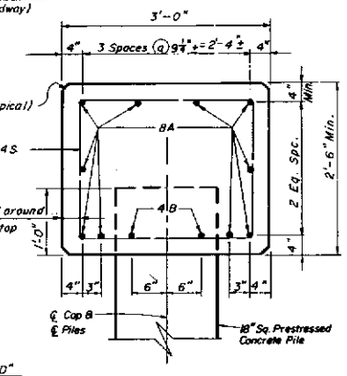
HALF ELEVATION 40 FT. ROADWAY
(Normal Crown Section)

HALF ELEVATION 44 FT. ROADWAY
(Normal Crown Section)

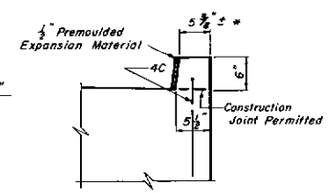


HALF ELEVATION 40 FT. ROADWAY
(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY
(Superelevated Section)



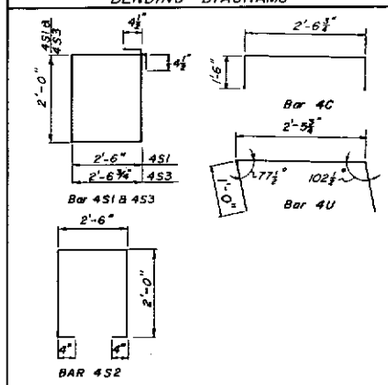
SECTION A-A



TYPICAL SECTION THRU KEEPER BLOCK

* This dimension shall be adjusted in the field for Structures superelevated and shall apply only on the low side.

BENDING DIAGRAMS



Note: All bar dimensions are out to out.

NOTE: Place Dowels "G" at Fixed (F) ends of Spans (See Superstructure Details and Plan and Elevation Sheet.

TABLE OF ELEVATIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"

REVISIONS	
Dates	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

INTERMEDIATE BENT 12½ DEGREE SKEW

ROAD NO. | COUNTY | PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	JLM	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	JLM	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No. 1 OF 1 | Index No. 12667

DIETERICH CORP. 1-10-63

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

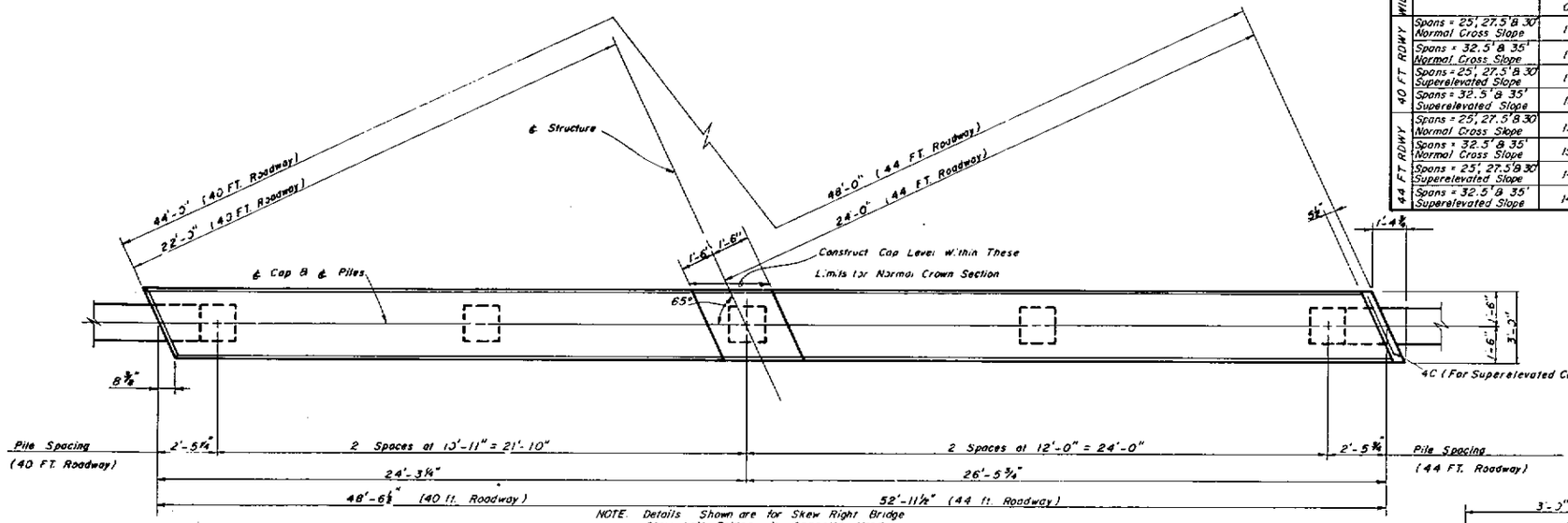
ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.3	1672
	Spans = 32.5' & 35' Normal Cross Slope	14.3	1672
	Spans = 25', 27.5' & 30' Superelevated Slope	13.1	1676
	Spans = 32.5' & 35' Superelevated Slope	13.1	1676
44 FT ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.7	1822
	Spans = 32.5' & 35' Normal Cross Slope	15.7	1822
	Spans = 25', 27.5' & 30' Superelevated Slope	14.3	1826
	Spans = 32.5' & 35' Superelevated Slope	14.3	1826

REINFORCING STEEL

MARK	40 FT. ROADWAY NO	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO	44 FT. ROADWAY LENGTH	BENDING
8A	10	48'-0"	10	52'-5"	Straight
4B	3	8'-11"	8	10'-0"	Straight
4C	1	5'-9"	1	5'-9"	See Diagram
4S1	44	9'-9"	48	9'-9"	See Diagram
4S2	5	7'-2"	5	7'-2"	See Diagram
4U	6	4'-8"	6	4'-8"	See Diagram
4S3	2	10'-3"	2	10'-3"	See Diagram

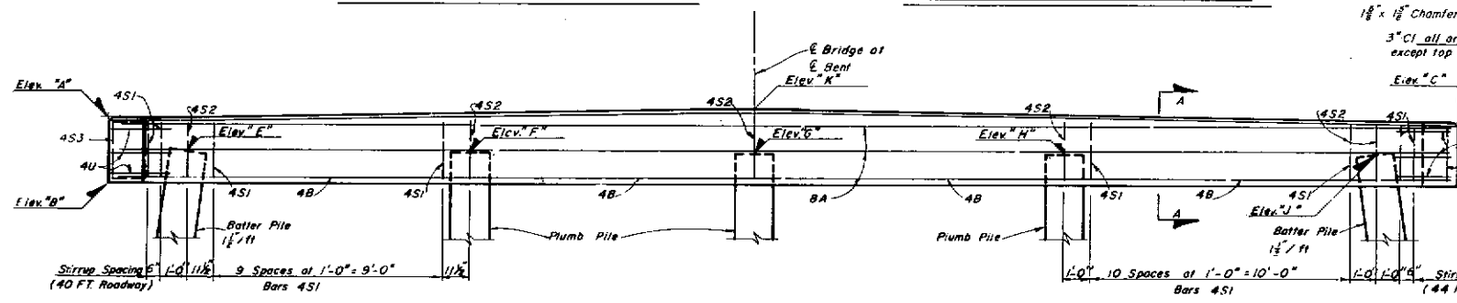
NOTE: The Numeric Prefix of the Bar Mark indicates the Bar size, ie 8A is a Bar size 8



NOTE: Details Shown are for Skew Right Bridge Skew Left Bridge is Opposite Hand.

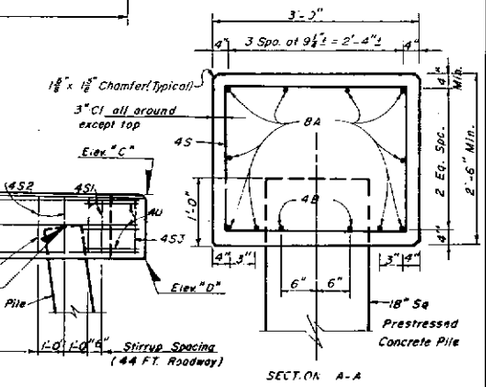
HALF PLAN 40 FT. ROADWAY

HALF PLAN 44 FT. ROADWAY



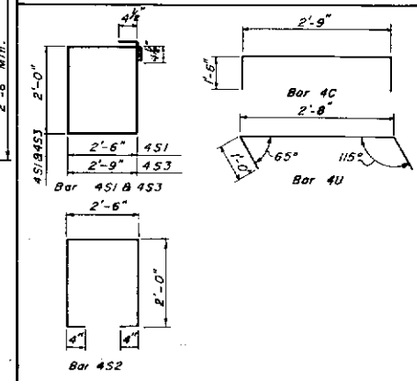
HALF ELEVATION 40 FT. ROADWAY
(Normal Crown Section)

HALF ELEVATION 44 FT. ROADWAY
(Normal Crown Section)

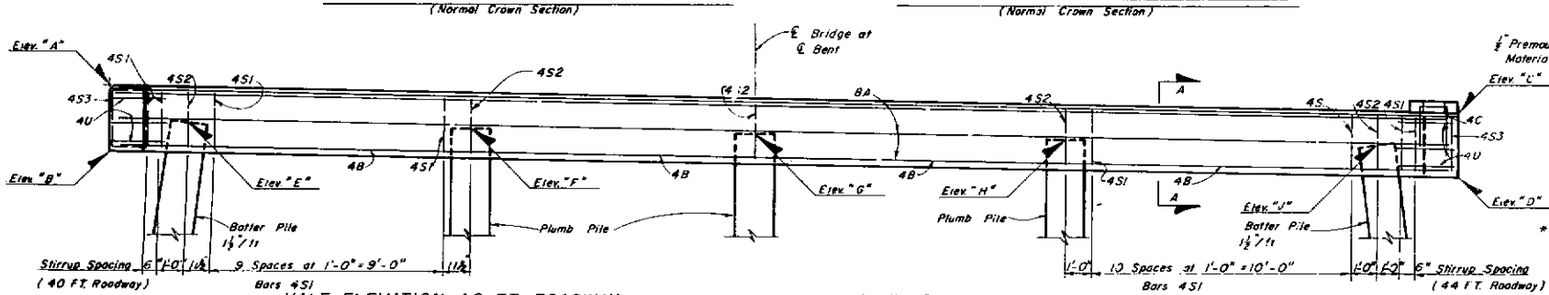


SECTION A-A

BENDING DIAGRAMS

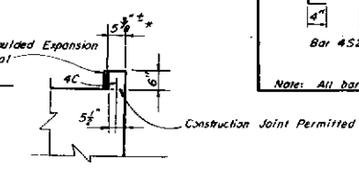


Note: All bar dimensions are out to out.



HALF ELEVATION 40 FT. ROADWAY
(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY
(Superelevated Section)



TYPICAL SECTION THRU KEEPER BLOCK

* This dimension shall be adjusted in the field for structures superelevated and shall apply only on the low side.

NOTE: Place Dowels "A" at Fixed (F) ends of Spans See Superstructure Details and Plan and Elevation sheet.

TABLE OF ELEVATIONS

Bent No.	Elev."A"	Elev."B"	Elev."C"	Elev."D"	Elev."E"	Elev."F"	Elev."G"	Elev."H"	Elev."J"	Elev."K"

REVISIONS	
Dates	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

INTERMEDIATE BENT 25 DEGREE SKEW

ROAD NO.	COUNTY	PROJECT NO.

	Name	Date
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/80
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

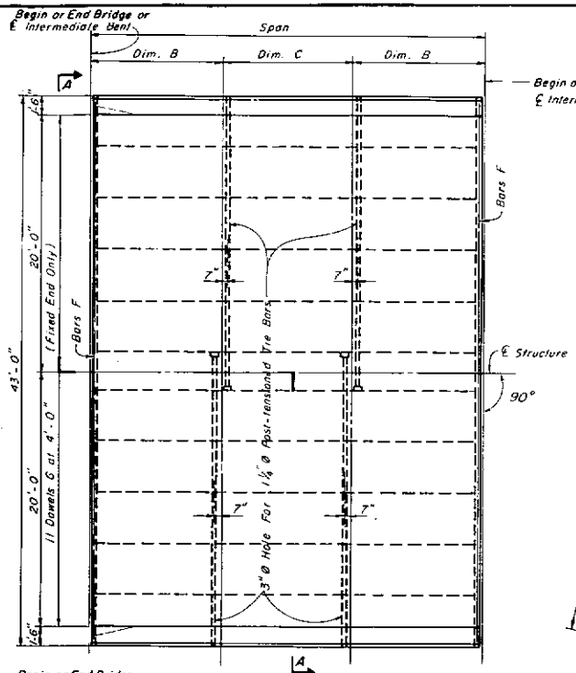
APPROVED BY

Deputy Design Engineer, Structures

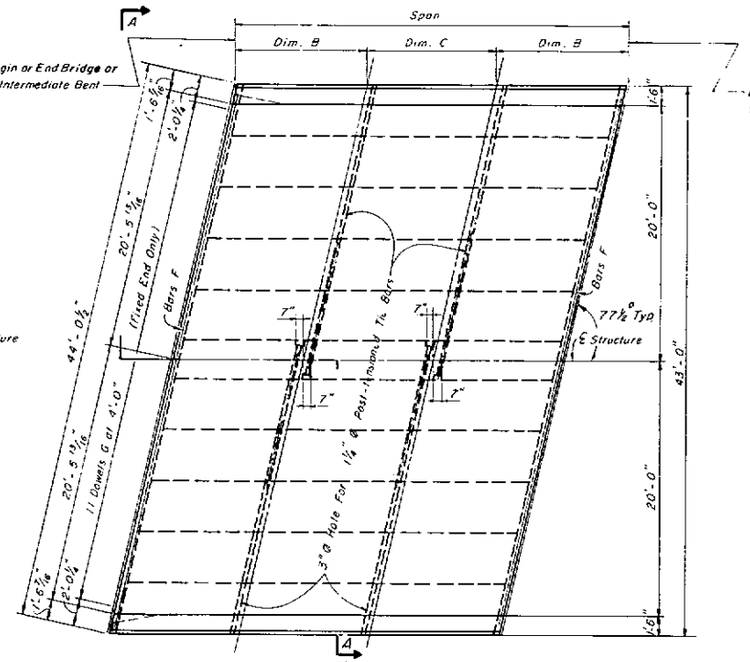
Drawing No. 1 of 1

Index No. 12668

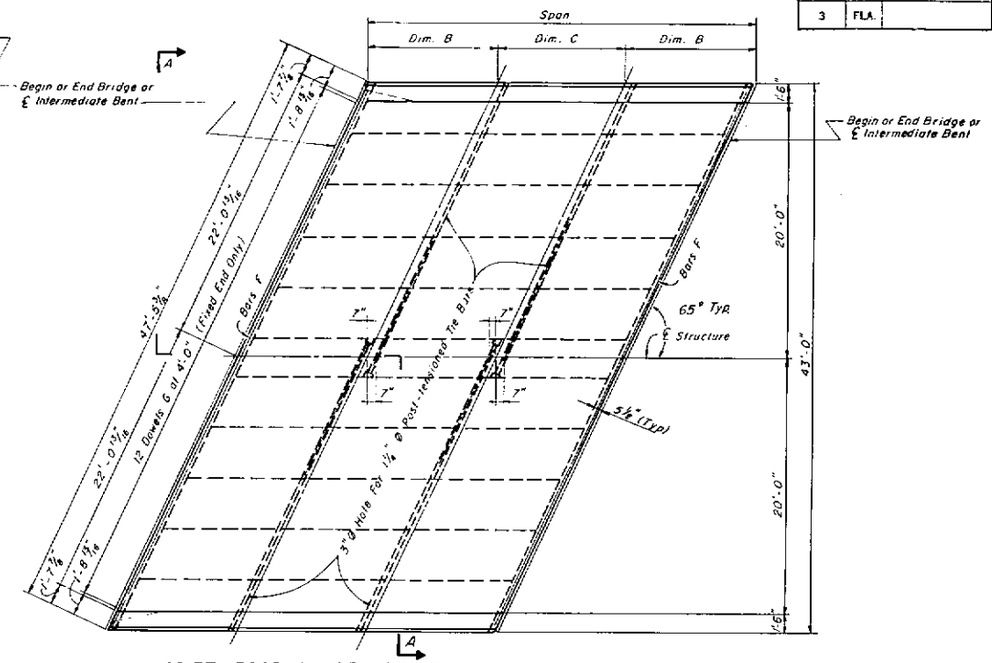
FED. ROAD DIV. NO.	STATE	PROJECT NO	FISCAL YEAR	SHEET NO.
3	FLA.			



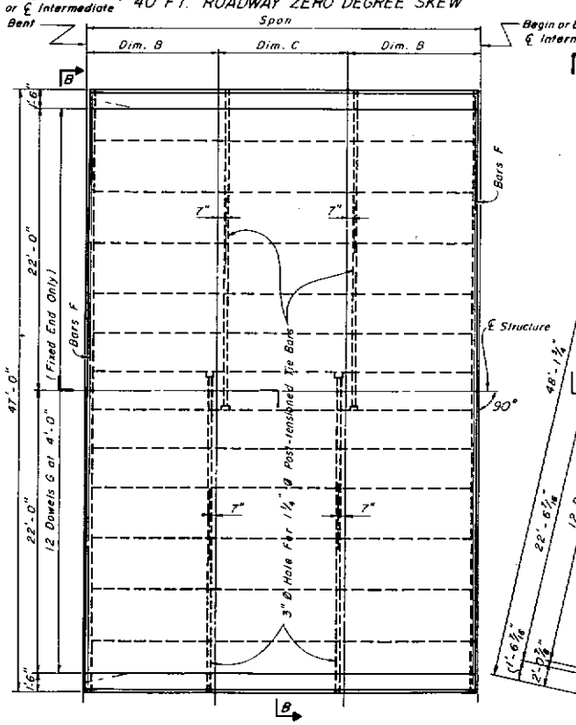
40 FT. ROADWAY ZERO DEGREE SKEW



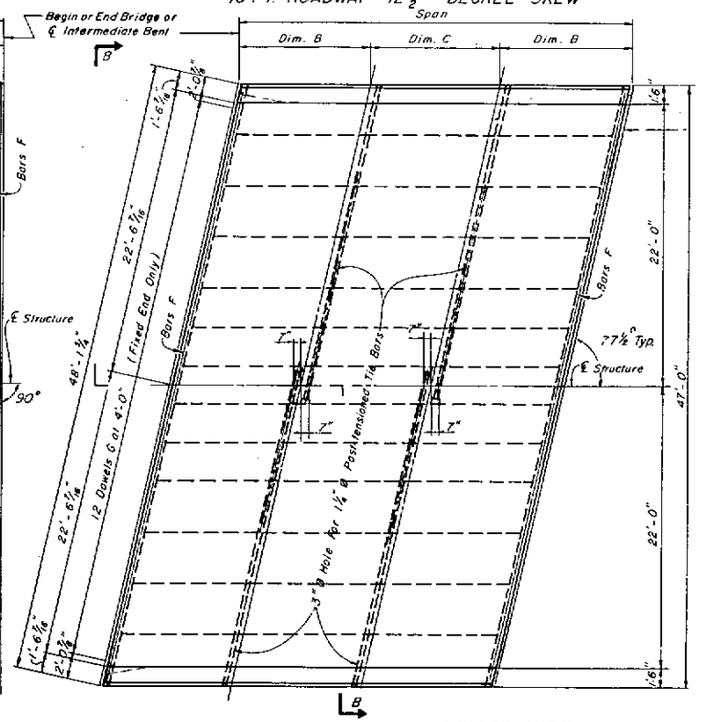
40 FT. ROADWAY 12½ DEGREE SKEW



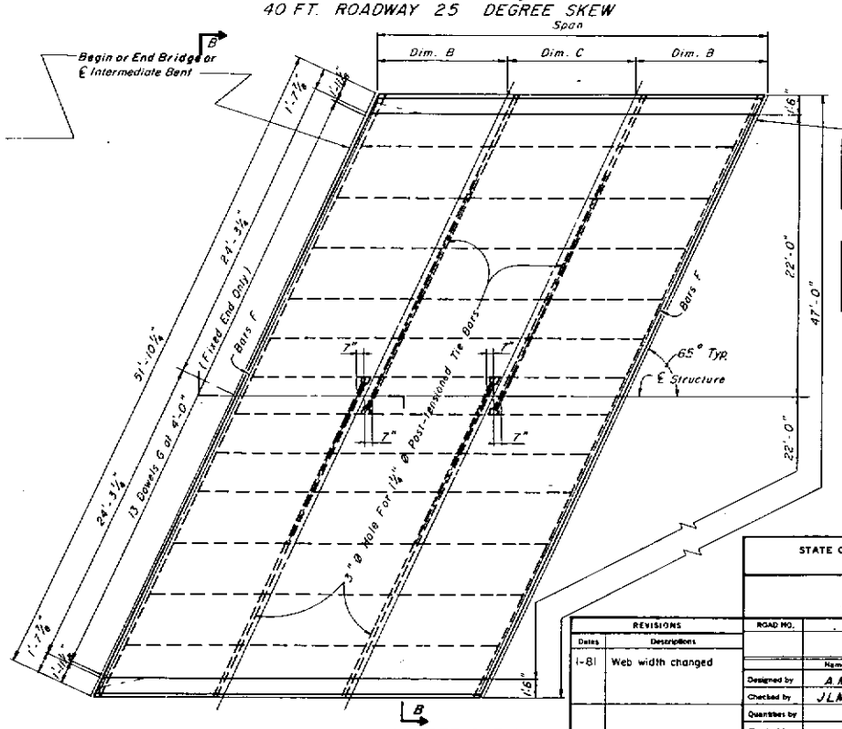
40 FT. ROADWAY 25 DEGREE SKEW



44 FT. ROADWAY ZERO DEGREE SKEW



44 FT. ROADWAY 12½ DEGREE SKEW



44 FT. ROADWAY 25 DEGREE SKEW

NOTE: For Details of Barrier Wall Transition at End Bents see Concrete Handrail Barrier Sheet.

NOTE: Details Shown are for Skew Right Bridge. Skew Left Bridge is Opposite Hand.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SUPERSTRUCTURE

REVISIONS	
Dates	Descriptions
1-81	Web width changed

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	A.M.	7/78
Checked by	JLM	7/78
Quantities by		
Checked by		
Supervised by	JLM	

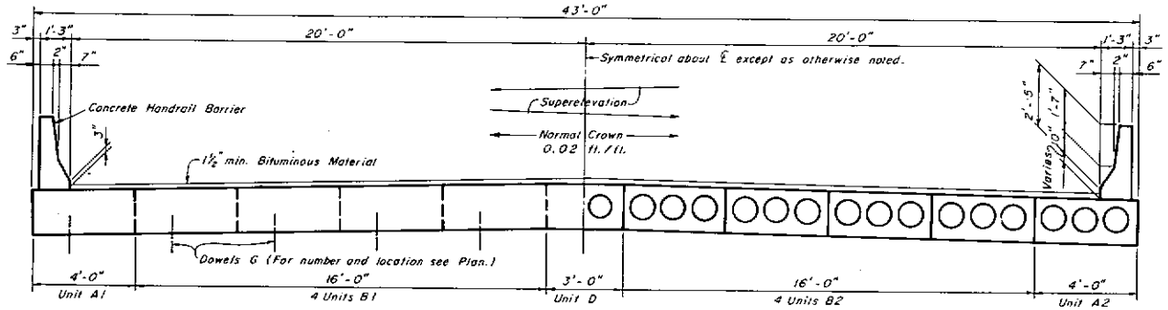
APPROVED BY

Deputy Design Engineer, Structures

Drawing No.	Index No.
1 of 2	12669

DIETGEN CORP. 1965

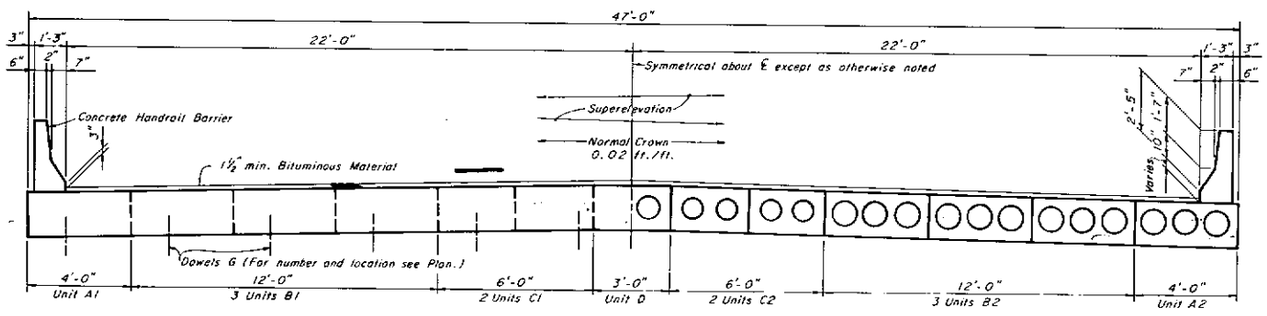
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



HALF END ELEVATION

HALF SECTION THRU ROADWAY

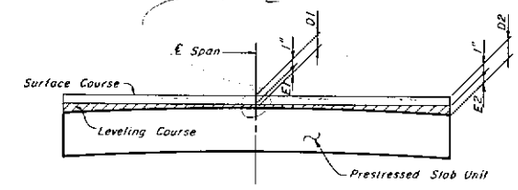
40 FT ROADWAY
SECTION A-A



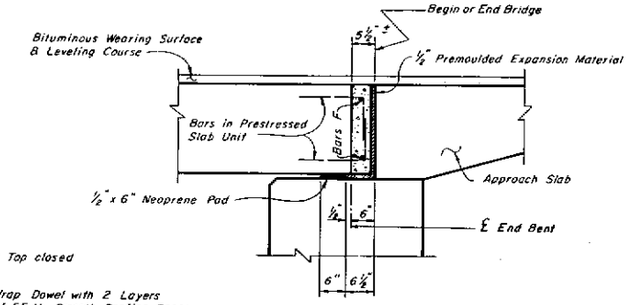
HALF END ELEVATION

HALF SECTION THRU ROADWAY

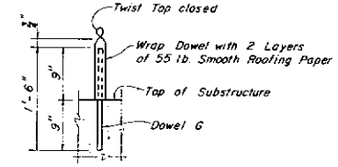
44 FT. ROADWAY
SECTION B-B



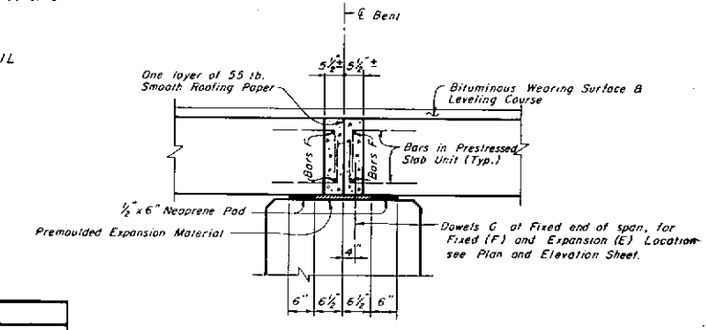
LEVELING COURSE FOR SURFACING



TYPICAL SECTION AT END BENT
(NORMAL TO ℄ BENT)



DOWEL DETAIL



TYPICAL SECTION AT INTERMEDIATE BENT
(NORMAL TO ℄ BENT)

BILL OF REINFORCING STEEL

		Mark	Size	Type	No.	Length
40'-0"	0°	F	4	1	4	43'-11"
		G	6	Str.	11	1'-6"
	12½°	F	4	1	4	44'-11"
	25°	G	6	Str.	11	1'-6"
		F	4	1	4	48'-4"
		G	6	Str.	12	1'-6"
44'-0"	0°	F	4	1	4	47'-11"
		G	6	Str.	12	1'-6"
	12½°	F	4	1	4	49'-0"
		G	6	Str.	12	1'-6"
	25°	F	4	1	4	52'-9"
		G	6	Str.	13	1'-6"

Roadway Width — Skew Angle

1'-3" * Includes Laps for # 4 Bars more than 40'-0" Long.

Length *

TYPE I

TABLE OF VARIABLE DIMENSIONS & ESTIMATED QUANTITIES*

Skew	Span	Variable Dimensions: B	C	D1	**D2	E1	**E2	40 FT. ROADWAY: Class II Conc. (Superstructure) End Span	Int. Span	Reinf Steel (Superstructure)	Prestressed Units 48x15	48x18	36x15	36x18	44 FT. ROADWAY: Class II Conc. (Superstructure) End Span	Int. Span	Reinf. Steel (Superstructure)	Prestressed Units 48x15	48x18	36x15	36x18
0 Degrees	25'-0"	8'-5 7/16"	8'-1"	1 1/2"	1 13/16"	1/2"	1 5/8"	1.74 CY	1.82 CY	142 Lbs.	240.8LF	—	24.1LF	—	1.90 CY	1.99 CY	158 Lbs.	192.7LF	—	19.0LF	—
	27'-6"	9'-3 11/16"	8'-11"	"	1 11/16"	"	1 13/16"	"	"	"	265.8LF	—	26.6LF	—	"	"	"	212.7LF	—	172.9LF	—
	30'-0"	10'-1 15/16"	9'-9"	"	1 13/16"	"	1 13/16"	"	"	"	290.8LF	—	29.1LF	—	"	"	"	232.7LF	—	145.4LF	—
	32'-6"	10'-11 5/8"	10'-7"	"	1 3/4"	"	1 3/4"	2.09 CY	2.19 CY	"	—	315.8LF	—	31.6LF	2.28 CY	2.39 CY	"	—	252.7LF	—	157.9LF
	35'-0"	11'-9 7/16"	11'-5"	"	1 7/8"	"	1 7/8"	"	"	"	—	340.8LF	—	34.1LF	"	"	"	—	272.7LF	—	170.4LF
12½ Degrees	25'-0"	8'-5 7/16"	8'-1"	1 1/2"	1 5/8"	1/2"	1 3/4"	1.78 CY	1.87 CY	145 Lbs.	240.6LF	—	24.1LF	—	1.95 CY	2.04 CY	158 Lbs.	192.5LF	—	120.3LF	—
	27'-6"	9'-3 7/16"	8'-11"	"	1 11/16"	"	1 11/16"	"	"	"	265.6LF	—	26.6LF	—	"	"	"	212.5LF	—	132.8LF	—
	30'-0"	10'-1 7/16"	9'-9"	"	1 13/16"	"	1 13/16"	"	"	"	290.6LF	—	29.1LF	—	"	"	"	232.5LF	—	145.3LF	—
	32'-6"	10'-11 5/8"	10'-7"	"	1 3/4"	"	1 3/4"	2.14 CY	2.24 CY	"	—	315.6LF	—	31.6LF	2.34 CY	2.45 CY	"	—	252.5LF	—	157.8LF
	35'-0"	11'-9 3/8"	11'-5"	"	1 7/8"	"	1 7/8"	"	"	"	—	340.6LF	—	34.1LF	"	"	"	—	272.5LF	—	170.3LF
25 Degrees	25'-0"	8'-5 3/8"	8'-1"	1 1/2"	1 3/4"	1/2"	1 3/4"	1.92 CY	2.01 CY	156 Lbs.	240.0LF	—	24.0LF	—	2.10 CY	2.20 CY	170 Lbs.	192.0LF	—	120.0LF	—
	27'-6"	9'-3 3/8"	8'-11"	"	1 11/16"	"	1 11/16"	"	"	"	265.0LF	—	26.5LF	—	"	"	"	212.0LF	—	132.5LF	—
	30'-0"	10'-1 3/8"	9'-9"	"	1 13/16"	"	1 13/16"	"	"	"	290.0LF	—	29.0LF	—	"	"	"	232.0LF	—	145.0LF	—
	32'-6"	10'-11 1/2"	10'-7"	"	1 3/4"	"	1 3/4"	2.31 CY	2.42 CY	"	—	315.0LF	—	31.5LF	2.52 CY	2.64 CY	"	—	252.0LF	—	157.5LF
	35'-0"	11'-9 1/2"	11'-5"	"	1 7/8"	"	1 7/8"	"	"	"	—	340.0LF	—	34.0LF	"	"	"	—	272.0LF	—	170.0LF

* Estimated Quantities are for one Span only

** These dimensions may vary due to vertical profile of bridge.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SUPERSTRUCTURE

REVISIONS	
Dates	Descriptions
11-79	Reference to limitation note removed
1-81	Conc. & Prestressed Unit Quantities Revised Web width changed, location of Dowel changed.

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	JLM	7/78
Quantities by	JLM/AMM	7/78
Checked by	RDS	9/80
Supervised by	JLM	

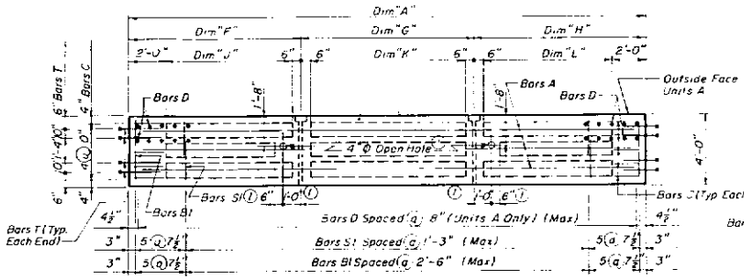
APPROVED BY

Deputy Design Engineer, Structures

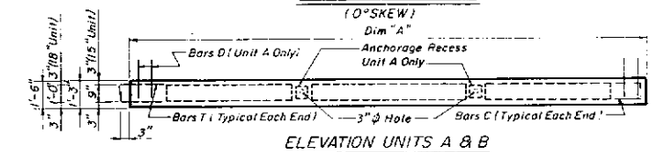
Drawing No.	Index No.
2 OF 2	12669

DILLYGLN.COM-183

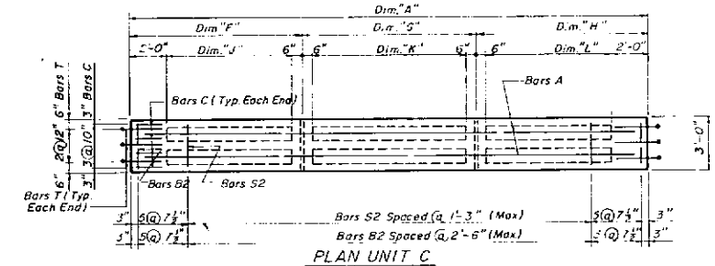
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



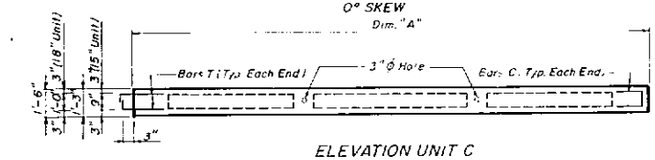
PLAN UNITS A & B
(0° SKEW)



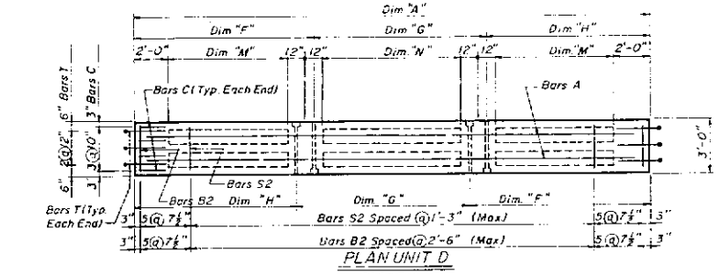
ELEVATION UNITS A & B
(0° SKEW)



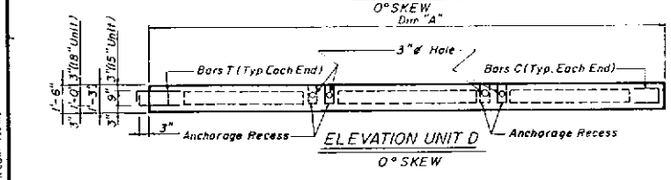
PLAN UNIT C
0° SKEW



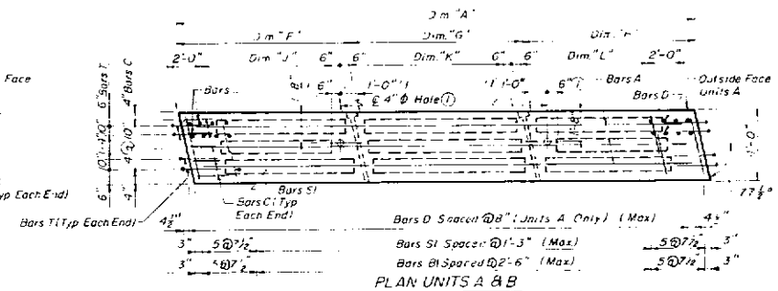
ELEVATION UNIT C
0° SKEW



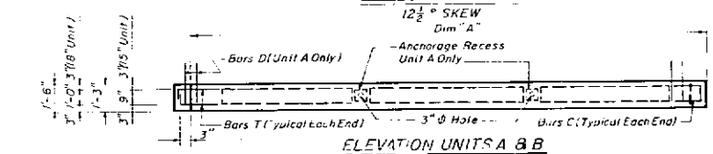
PLAN UNIT D
0° SKEW



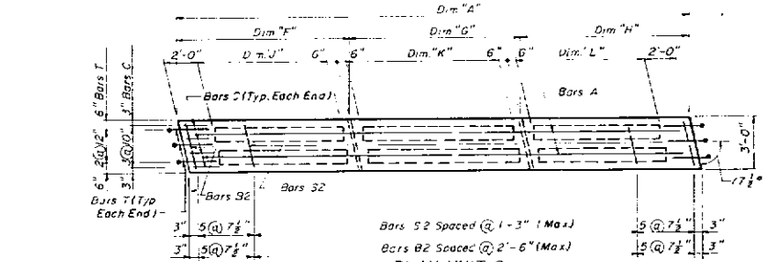
ELEVATION UNIT D
0° SKEW



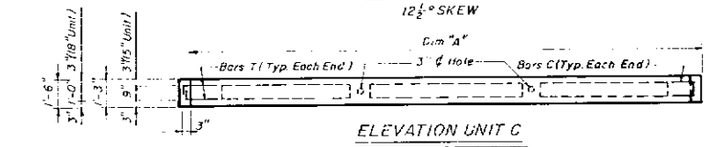
PLAN UNITS A & B
12½° SKEW



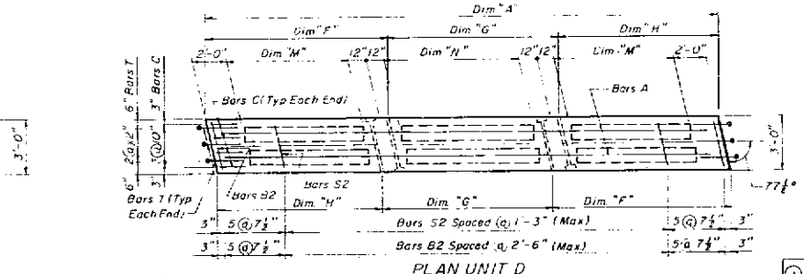
ELEVATION UNITS A & B
12½° SKEW



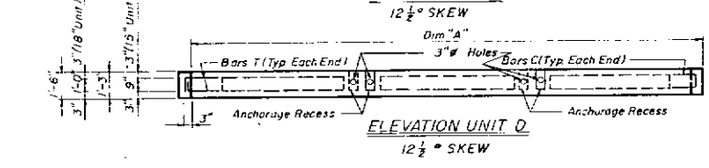
PLAN UNIT C
12½° SKEW



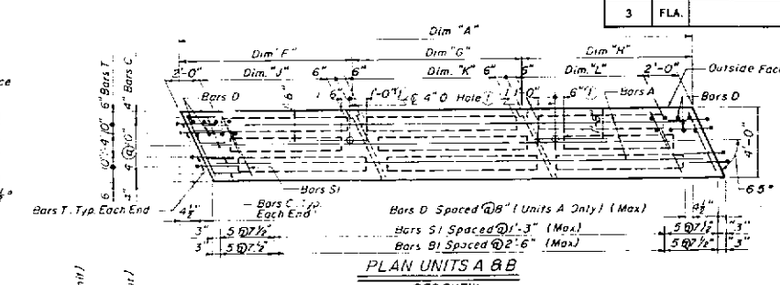
ELEVATION UNIT C
12½° SKEW



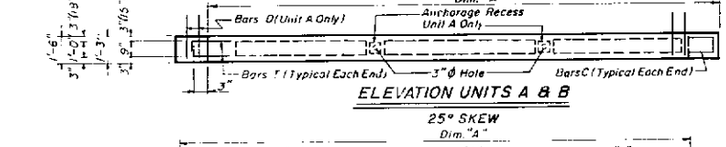
PLAN UNIT D
12½° SKEW



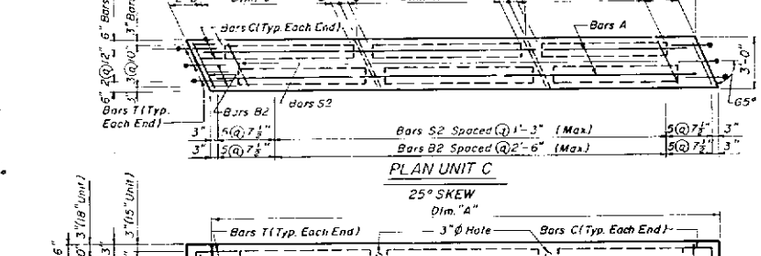
ELEVATION UNIT D
12½° SKEW



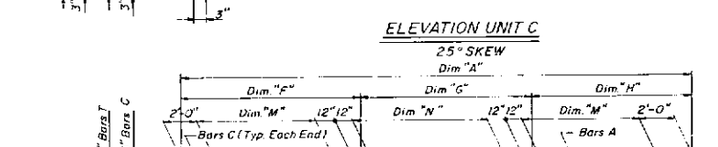
PLAN UNITS A & B
25° SKEW



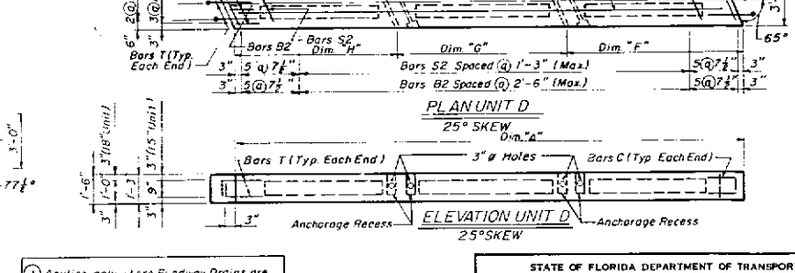
ELEVATION UNITS A & B
25° SKEW



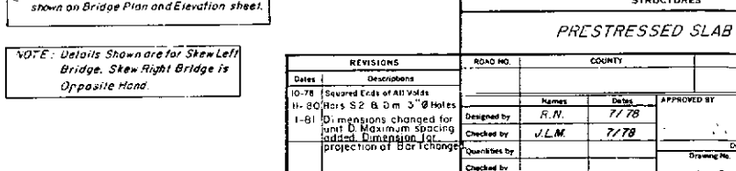
PLAN UNIT C
25° SKEW



ELEVATION UNIT C
25° SKEW



PLAN UNIT D
25° SKEW



ELEVATION UNIT D
25° SKEW

(1) Applies only where Roadway Drains are shown on Bridge Plan and Elevation sheet.

NOTE: Details Shown are for Skew Left Bridge. Skew Right Bridge is Opposite Hand.

REVISIONS	
Dates	Descriptions
10-78	Squared Ends of All Voids
11-80	Bars S2 & Dim 3" Ø Holes
1-81	Dimensions changed for unit D. Maximum Spacing added. Dimension for projection of Bar changed

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRESTRESSED SLAB UNITS

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M.	

APPROVED BY

Deputy Design Engineer, Structures

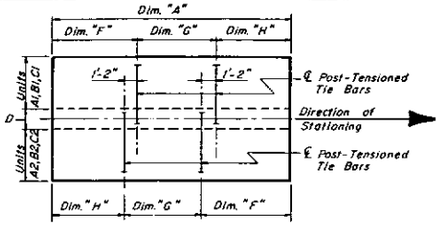
Drawing No. 1 of 3

Index No. 12,670

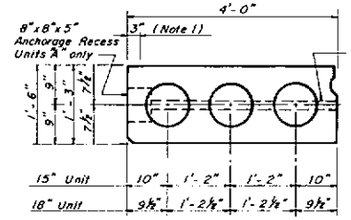
DIETGEN CORP. 139 143

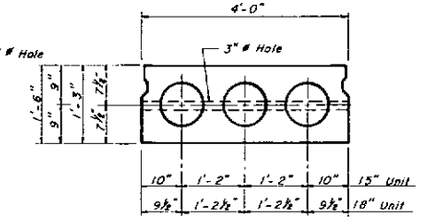
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

Optional Corner Detail For Mold Form

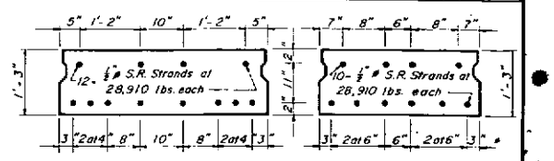


ZERO DEGREE SKEW





Note: Voids for 18" Units are 10" Diameter and for 15" Units are 8" Diameter.

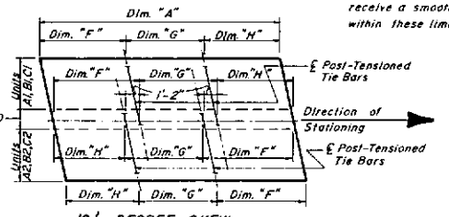


25 FT. SPAN

* See Bending Diagram

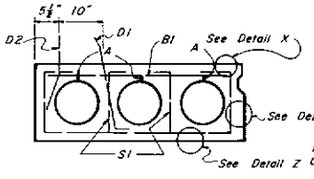
BILL OF REINFORCING STEEL

Mark	Size	No. Req'd Per Unit A1&A2	B1&B2	C&D	Length	Mark	Size	No. Req'd Per Unit A1&A2	B1&B2	C&D	Length
Span = 25'-0"						Span = 32'-6"					
A		3	3	3	2	23'-9"	A	3	3	3	2	31'-3"
B1		3	18	18	-	3'-7"	B1	3	21	21	-	3'-7"
B2		3	-	-	18	2'-7"	B2	3	-	-	21	2'-7"
C		3	10	10	8	4'-4"	C	3	10	10	8	4'-7"
D1		4	36	-	-	3'-0"	D1	4	48	-	-	3'-5"
D2		4	36	-	-	1'-9"	D2	4	48	-	-	1'-9"
S1		4	50	50	-	*	S1	4	62	62	-	*
S2		4	-	-	25	*	S2	4	-	-	31	*
T		4	16	16	12	1'-10"	T	4	16	16	12	2'-1"
Span = 27'-6						Span = 35'-0"					
A		3	3	3	2	26'-3"	A	3	3	3	2	33'-9"
B1		3	19	19	-	3'-7"	B1	3	22	22	-	3'-7"
B2		3	-	-	19	2'-7"	B2	3	-	-	22	2'-7"
C		3	10	10	8	4'-4"	C	3	10	10	8	4'-7"
D1		4	40	-	-	3'-0"	D1	4	51	-	-	3'-5"
D2		4	40	-	-	1'-9"	D2	4	51	-	-	1'-9"
S1		4	54	54	-	*	S1	4	66	66	-	*
S2		4	-	-	27	*	S2	4	-	-	33	*
T		4	16	16	12	1'-10"	T	4	16	16	12	2'-1"
Span = 30'-0"											
A		3	3	3	2	28'-9"					
B1		3	20	20	-	3'-7"					
B2		3	-	-	20	2'-7"					
C		3	10	10	8	4'-4"					
D1		4	44	-	-	3'-0"					
D2		4	44	-	-	1'-9"					
S1		4	58	58	-	*					
S2		4	-	-	29	*					
T		4	16	16	12	1'-10"					

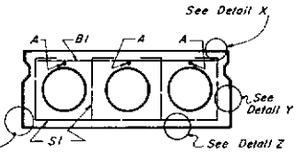


12½ DEGREE SKEW

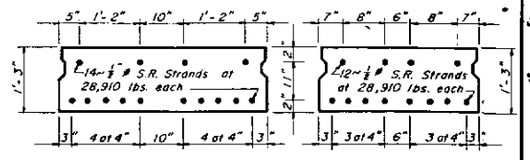
Note 1: Exterior Units A shall receive a smooth finish within these limits.



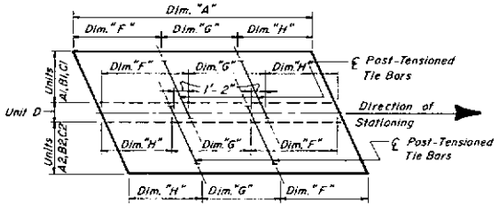
TYPICAL SECTION UNIT A



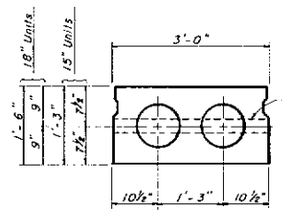
TYPICAL SECTION UNIT B



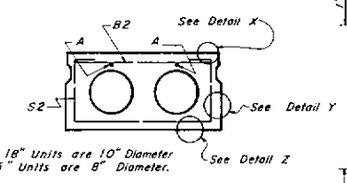
27.5 FT. SPAN



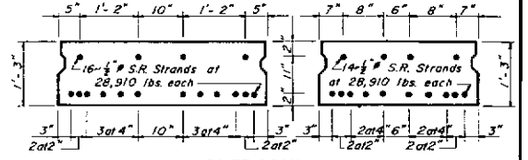
25 DEGREE SKEW



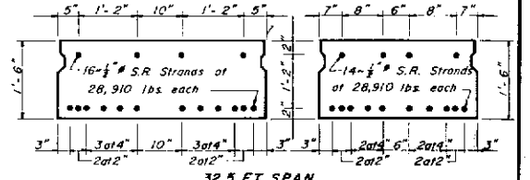
TYPICAL SECTIONS UNITS C & D



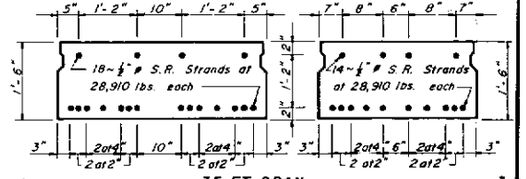
Note: Voids For 18" Units are 10" Diameter and for 15" Units are 8" Diameter.



30 FT. SPAN



32.5 FT. SPAN

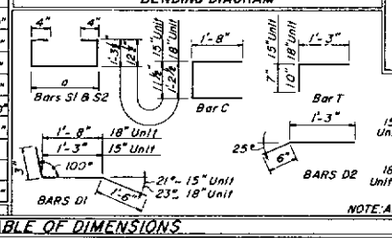


35 FT. SPAN

UNITS A & B — UNITS C & D

PRESTRESSING STRAND LOCATIONS

BENDING DIAGRAM

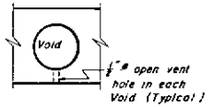


TIE BAR LOCATION DETAILS

(Skew Left Details Shown. Skew Right Details Opposite Hand.)

		Mark S1		Mark S2	
	Skew	a	Length	a	Length
15" Unit	0	2'-5"	5'-2"	2'-9"	5'-6"
	12½	2'-6"	5'-3"	2'-10"	5'-7"
	25	2'-8"	5'-5"	3'-0"	5'-9"
18" Unit	0	2'-5"	5'-8"	2'-9"	6'-0"
	12½	2'-6"	5'-9"	2'-10"	6'-1"
	25	2'-8"	5'-11"	3'-0"	6'-3"

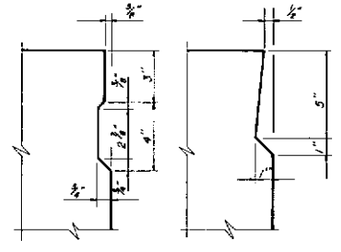
NOTE: All bar dimensions are out to out



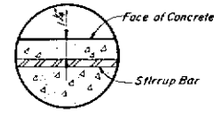
VENT DETAIL

(Typical Each Void)

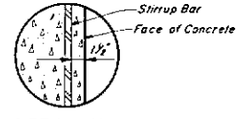
NOTE: Form Vent to Clear ½" ø Strands in Prestressed Slab Units.



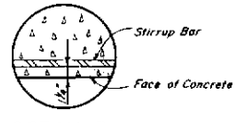
ALTERNATE SHEAR KEYS



DETAIL X



DETAIL Y



DETAIL Z

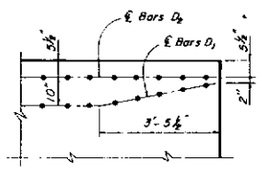
TABLE OF DIMENSIONS

Skew	A	F	G	H	J*	K*	L*	M**	N**
25 FT. SPAN									
0°	24'-1"	8'-7"	8'-1"	7'-5"	6'-1"	7'-1"	4'-11"	5'-0"	6'-1"
12½°	24'-0"	8'-6½"	8'-1"	7'-4½"	6'-0½"	7'-1"	4'-10½"	4'-11½"	6'-1"
25°	24'-0"	8'-6½"	8'-1"	7'-4½"	6'-0½"	7'-1"	4'-10½"	4'-11½"	6'-1"
27.5 FT. SPAN									
0°	26'-7"	9'-5"	8'-11"	8'-3"	6'-11"	7'-11"	5'-9"	5'-10"	6'-11"
12½°	26'-6½"	9'-4½"	8'-11"	8'-2½"	6'-10½"	7'-11"	5'-8½"	5'-9½"	6'-11"
25°	26'-6"	9'-4½"	8'-11"	8'-2½"	6'-10½"	7'-11"	5'-8½"	5'-9½"	6'-11"
30 FT. SPAN									
0°	29'-1"	10'-3"	9'-9"	9'-1"	7'-9"	8'-9"	6'-7"	6'-8"	7'-9"
12½°	29'-0½"	10'-2½"	9'-9"	9'-0½"	7'-8½"	8'-8"	6'-6½"	6'-7½"	7'-9"
25°	29'-0"	10'-2½"	9'-9"	9'-0½"	7'-8½"	8'-8"	6'-6½"	6'-7½"	7'-9"

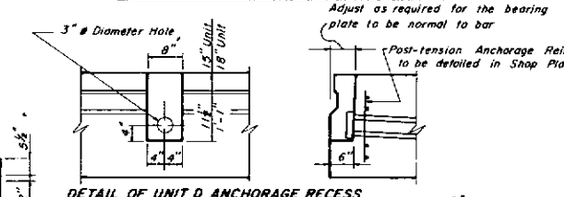
Skew	A	F	G	H	J*	K*	L*	M**	N**
32.5 FT. SPAN									
0°	31'-7"	11'-1"	10'-7"	9'-11"	8'-7"	9'-7"	7'-5"	7'-6	8'-7"
12½°	31'-6½"	11'-0½"	10'-7"	9'-10½"	8'-6½"	9'-7"	7'-4½"	7'-5½"	8'-7"
25°	31'-6"	11'-0½"	10'-7"	9'-10½"	8'-6½"	9'-7"	7'-4½"	7'-5½"	8'-7"
35 FT. SPAN									
0°	34'-1"	11'-11"	11'-5"	10'-9"	9'-5"	10'-5"	8'-3"	8'-4"	9'-5"
12½°	34'-0"	11'-10½"	11'-5"	10'-8½"	9'-4½"	10'-5"	8'-2½"	8'-3½"	9'-5"
25°	34'-0"	11'-10½"	11'-5"	10'-8½"	9'-4½"	10'-5"	8'-2½"	8'-3½"	9'-5"

* All Units Except "D"

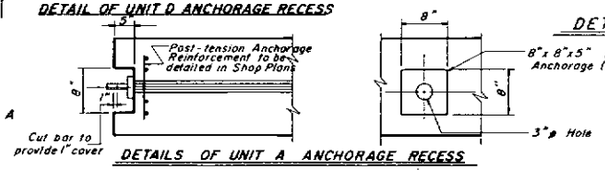
** Unit "D" Only



PLAN OF BARS "D" IN UNITS A ADJACENT TO END BENTS



DETAIL OF UNIT D ANCHORAGE RECESS



DETAILS OF UNIT A ANCHORAGE RECESS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRESTRESSED SLAB UNITS

REVISIONS Dates	Descriptions
10-78	Detail Showing Cover Between Void & S.R. Strands Removed.
11-80	Dim. Unit D (J & L)
1-81	Table of Dimensions Revised.
10-81	Optional Corner Detail added

ROAD NO.	COUNTY	PROJECT NO.

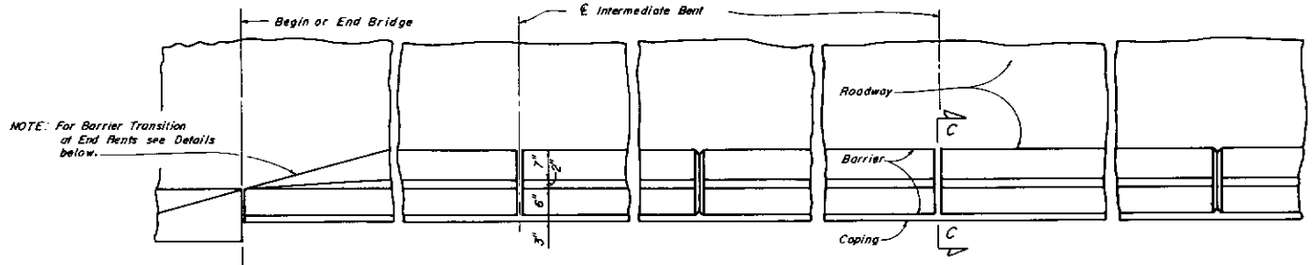
	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M.	

APPROVED BY (((( )
Deputy Design Engineer, Structures

Drawing No.	Index No.
2 of 3	12,670

POLYTRACE 933

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



NOTE: For Barrier Transition at End Bents see Details below.

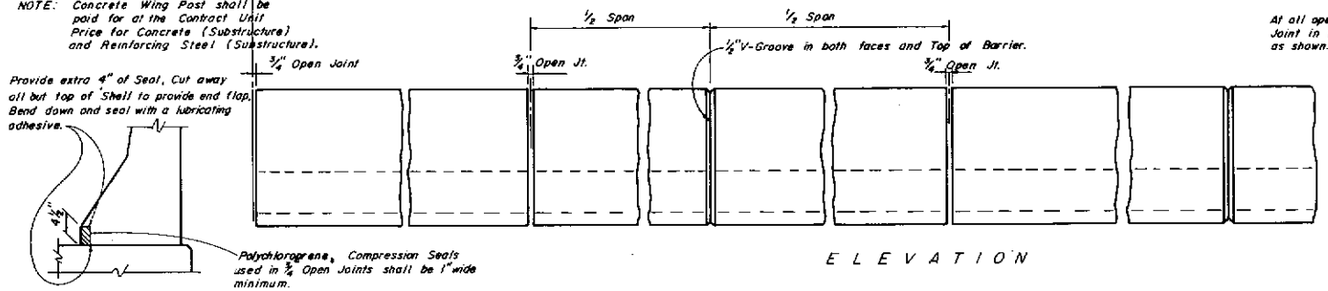
For payment Barrier shall be measured to this point.

PLAN

NOTE: At the option of the Contractor, Barrier walls may be constructed by slip-forming subject to the following: the width may be increased a maximum of 2 inches provided that the Front Face at the Base of each Barrier infringes on the clear Roadway width no more than 1/2" and that any additional materials required are at the expense of the Contractor. The shape of the Barrier on the Roadway side shall not be altered.

QUANTITIES: Class II Concrete = 0.0817 Cu. Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of 0.02 ft/ft)
REINFORCING STEEL = 10.19 lbs. per linear ft. of Barrier.

NOTE: Concrete Wing Post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure).



At all open joints the Joint in Barrier shall be sealed as shown in Section C-C.

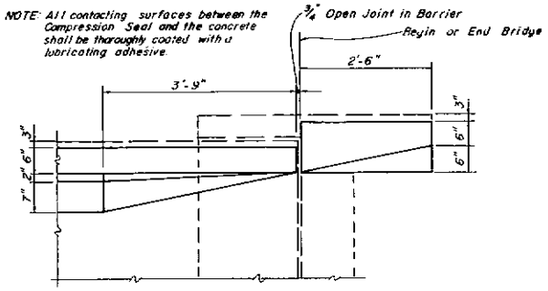
ELEVATION

SECTION C-C

GENERAL NOTES

CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Concrete and Reinforcing Steel. Barrier shall be measured along the centerline of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.
MARKERS: Markers recording the Elevation shall be placed on top of the Barrier at End Bents. On Bridges longer than 100 ft. one marker shall be placed at each end of the Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department of Transportation and installed by the Contractor. The Cost of installing the Markers shall be included in the Contract Unit Price for Concrete Barrier.
ANCHOR BOLTS: Anchor Bolts, Nuts and Washes shall be hot dip galvanized in accordance with A.S.T.M. A-123.

NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.



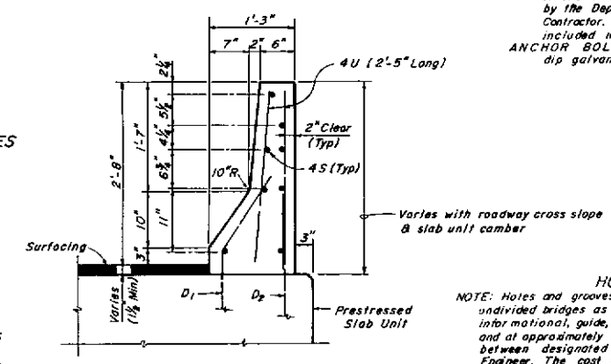
PLAN OF BARRIER TRANSITION AT END BENT

NOTE: Reinforcing Steel within transition area shall be adjusted or field bent as needed to obtain required minimum cover.

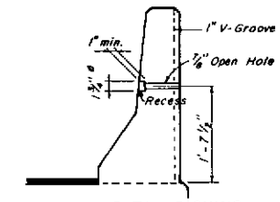
REINFORCING STEEL NOTES

Bars D1 & D2 shall be cast in the prestressed Slab unit. Payment for Bars D1 & D2 Shall be included in the Contract Unit Price for Prestressed Slab Units.

All reinforcing steel in Barrier shall be No. 4's. Bars 4U to be spaced at 8" c.c. (Spliced to Bars D).
At all open joints Bars 4U and the ends of Bars 4S shall have 2" min. cover.
At all construction joints Bars 4S may be either continuous or lap spliced. All splices in Bars 4S shall be 1'-4" min.

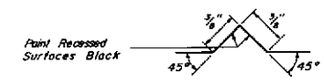


TYPICAL SECTION THRU BARRIER



HOLES FOR INCIDENTAL SIGNING

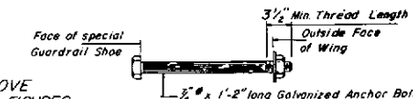
NOTE: Holes and grooves shall be placed on barrier type handrails of divided and undivided bridges as shown in the plans for designated type "C" single column, informational, guide, regulatory and warning sign locations (see signing plans) and at approximately 500' intervals along the right handrails of bridges between designated locations for future signs as directed by the Engineer. The cost of the extra holes and grooves shall be included in the contract unit price for Concrete Handrail (Barrier). If Signing Plans are not available the Project Engineer should secure necessary information from the District Maintenance or Traffic Operations Office.



SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

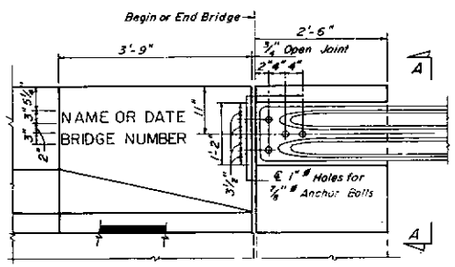
NOTES

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The Date to be placed on the drivers left when approaching Bridge. The Date shall be the Year the Bridge is constructed.
Black Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by 3/8" "V" Grooves.
"V" Grooves shall be formed by preformed Letters and Figures.

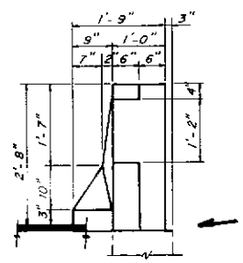


ANCHOR BOLT DETAIL

NOTE: Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail.



ELEVATION OF BARRIER TRANSITION AT END BENT



← Top of Wing Elev. ?

VIEW A-A

DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe and Attachment See Standard Drawing in Roadway Plans.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

CONCRETE HANDRAIL BARRIER

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions			
1-81	Slip-Forming Note added			
8-21-81	Change Anchor Bolt Dim.			

	Names	Dates	APPROVED BY
Designed by	D.O.D.	3/78	T. W. [illegible]
Checked by	P.B.	3/78	Deputy Design Engineer, Structures
Quantities by			Drawing No. 3 of 3
Checked by			Index No. 12,670
Supervised by	P.B.		