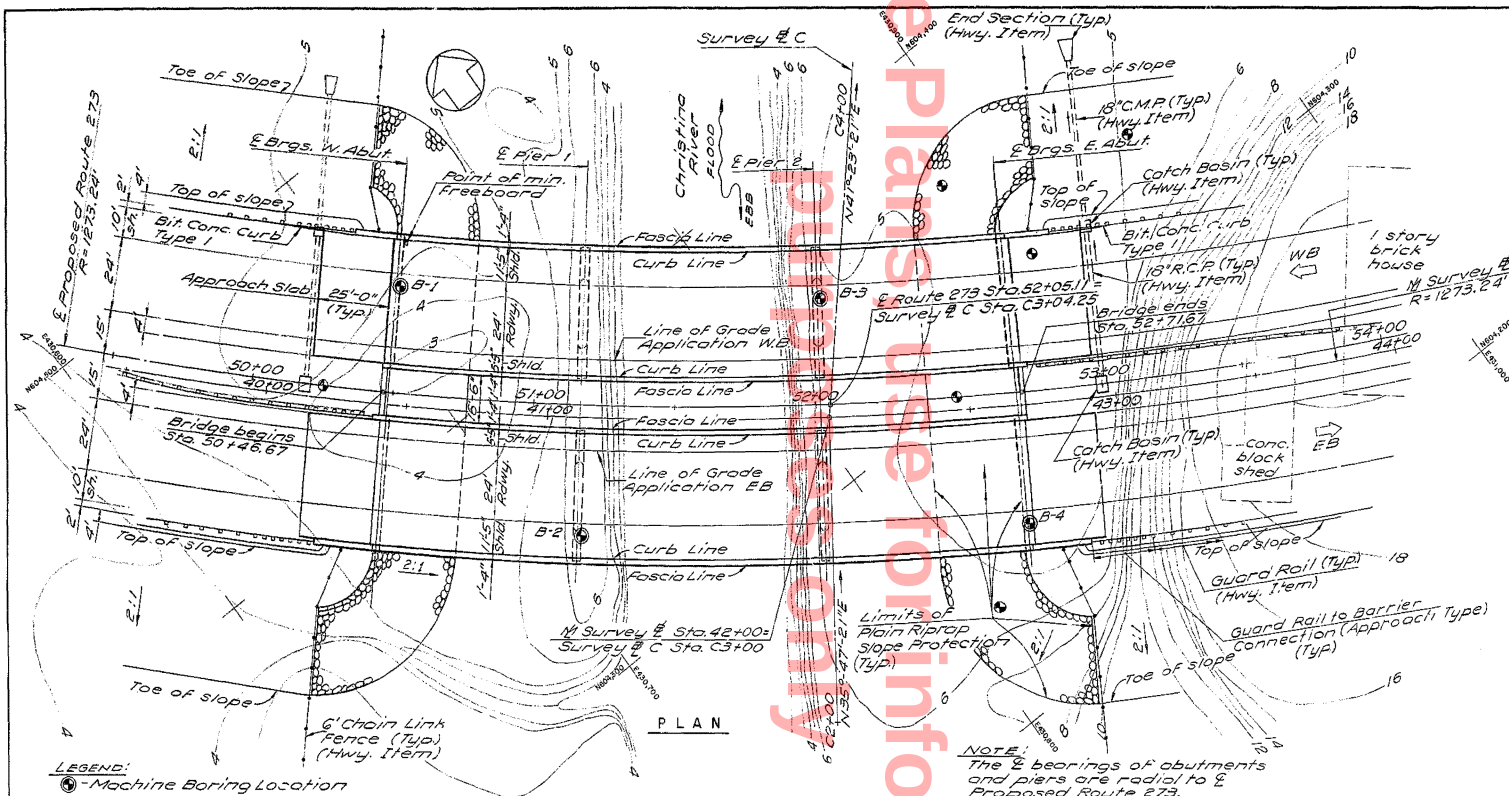


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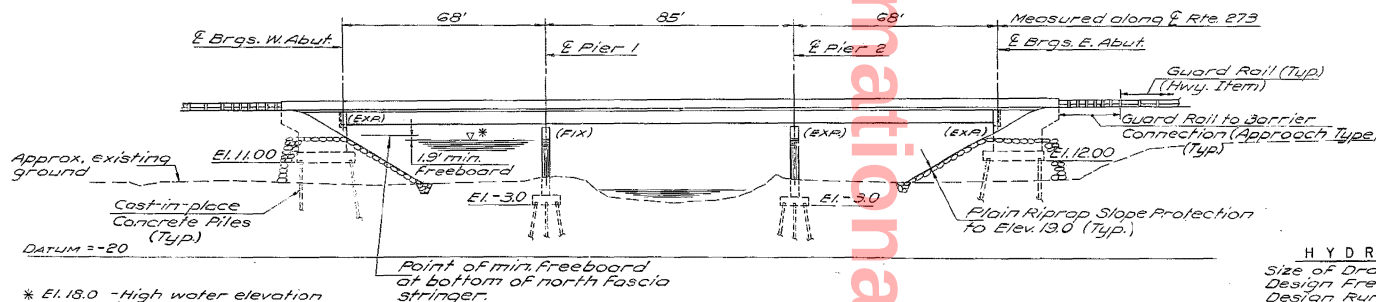
Due to the nature and complexity of certain materials, including construction plans, technical drawings, historical documents, maps, and other graphic-intensive files, some documents may not currently be fully digitally accessible or compliant with current accessibility standards. In some cases, these documents are provided for historical, reference, informational, or procurement purposes only.

If you require an accessible version of a document or need assistance accessing any content, please contact DelDOT, and reasonable efforts will be made to provide the information in an accessible format upon request. DelDOT appreciates your patience and understanding as accessibility improvements continue to be implemented.



PLAN

- LEGEND:
- Machine Boring Location
 - Hand Auger Boring Location



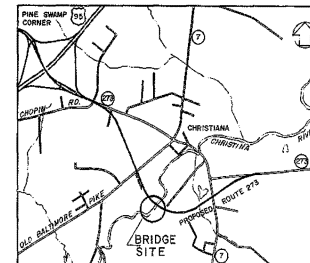
ELEVATION

* EL. 13.0 - High water elevation for design flood (100 year)

REFERENCES:
1. For Index of Drawings see Dwg. No. 2.

HYDRAULIC DATA
Size of Drainage Area: 46.5 sq. mi.
Design Frequency: 100 years
Design Runoff: 7800 c.f.s.
Design Velocity: 2.5 ft per sec.
Design Surface Elev.: 18.0
Normal Surface Elev.: 2.5 (high tide)

COUNTY	CONTRACT	P.A.A. NO.	DATE	REV. NO.	REV. DATE	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036 (2)	97	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



LOCATION PLAN
Scale 1" = 2000'

GENERAL NOTES

- DESIGN SPECIFICATIONS: AASHTO 1977 WITH CURRENT MODIFICATIONS AND ADDITIONS. WELDING TO CONFORM TO 1980 AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE, AWS D1.1.
- LOADING: HS 20-44
- MATERIAL AND FABRICATION: DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS DATED JANUARY 1, 1974 WITH CURRENT MODIFICATIONS AND ADDITIONS AND SPECIAL PROVISIONS.
- DESIGN: SUPERSTRUCTURE: THREE CONTINUOUS SPANS, WELDED BUILT-UP PLATE GIRDERS CURVED TO RADIUS WITH REINFORCED CONCRETE SLAB USING STAT-14-PLACE FORMS. GIRDER DESIGN COMPOSITE WITH SLAB
- SUBSTRUCTURE: REINFORCED CONCRETE ABUTMENTS AND PIERS.
- STRUCTURAL STEEL: ASTM DESIGNATION A588, UNPAINTED WITH $f_y = 27,000$ psi.
- REINFORCING STEEL: ASTM DESIGNATION A615 GRADE 60. TOP STEEL OF DECK AND ALL STEEL OF PARAPETS TO BE EPOXY COATED.
- CONCRETE: FOOTING: $f'_c = 3,000$ p.s.i., ABOVE FOOTING: $f'_c = 4,000$ p.s.i., CHAMFER EXPOSED EDGES $3/4"$ UNLESS SHOWN OTHERWISE.
- FOUNDATION: ABUTMENTS AND PIERS SUPPORTED BY CAST-IN-PLACE CONCRETE PILES, DESIGN CAPACITY 35 TONS MINIMUM.
- REMOVE ALL TREES, ROOTS, TOPSOIL AND ANY OTHER SURFICIAL ORGANIC SOIL FROM BENEATH THE APPROACH EMBANKMENTS.
- AT PIERS: PLACE 12 INCHES OF COARSE AGGREGATE BENEATH THE FOOTING OF PIERS.

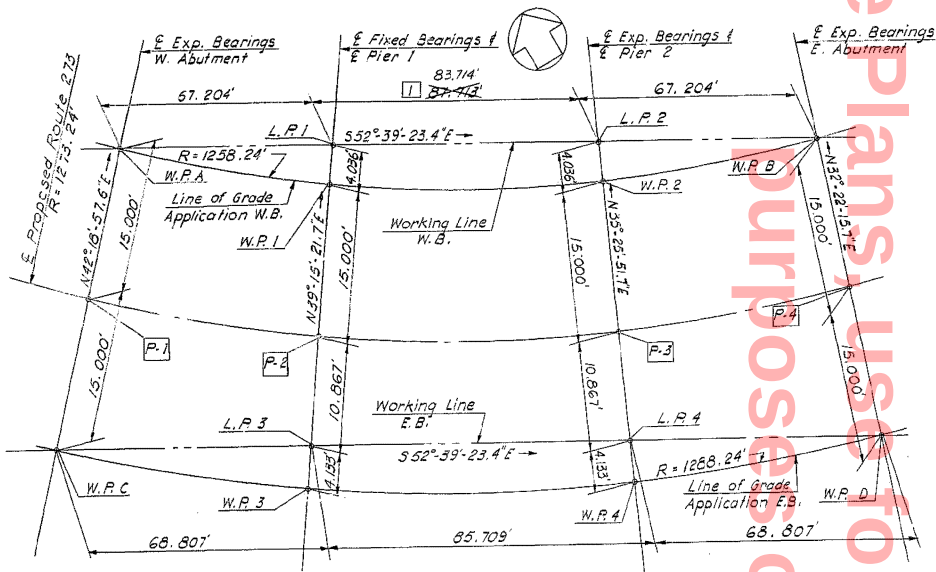
DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GENERAL PLAN AND ELEVATION

BRIDGE OVER CHRISTIANA RIVER

DWG. NO.	D.	T.	C.	SCALE	APPROVED BY:	BRIDGE ENGINEER
1				1" = 20' & 1" = 40'	Noted	

Goodkind & Odele, Inc.
CONSULTING ENGINEERS
AND PLANNERS



LAYOUT PLAN

NOTE:
All Brgs. are radial to E
proposed Route 273.

POINT	STATION	COORDINATES	
		NORTH	EAST
P-1	50 + 48.667	604422.624	430686.811
P-2	51 + 16.667	604378.210	430738.291
P-3	52 + 01.667	604326.659	430805.855
P-4	52 + 69.667	604288.736	430862.288
W.P. A	50 + 48.667, 15' LT.	604433.716	430696.909
W.P. 1	51 + 16.667, 15' LT.	604389.825	430747.783
W.P. 2	52 + 01.667, 15' LT.	604338.881	430814.550
W.P. B	52 + 69.667, 15' LT.	604301.405	430870.319
W.P. C	50 + 48.667, 15' RT.	604411.533	430676.713
W.P. 3	51 + 16.667, 15' RT.	604366.595	430728.799
W.P. 4	52 + 01.667, 15' RT.	604314.437	430797.159
W.P. D	52 + 69.667, 15' RT.	604276.067	430854.257
L.P. 1	51 + 16.667, 19.036' LT.	604392.950	430750.337
L.P. 2	52 + 01.667, 19.036' LT.	604342.170	430816.891
L.P. 3	51 + 16.667, 10.867' RT.	604369.795	430731.415
L.P. 4	52 + 01.667, 10.867' RT.	604317.804	430799.555

ESTIMATED QUANTITIES			
SECTION	DESCRIPTION	UNIT	QUANTITY
237	EXCAVATION AND BACKFILL FOR STRUCTURES	C.Y.	690
209	BORROW TYPE C	C.Y.	1,525
*602	PORTLAND CEMENT CONCRETE MASONRY - APPROACH SLABS	C.Y.	235
*602	PORTLAND CEMENT CONCRETE MASONRY - ABUTMENT FOOTINGS	C.Y.	292
*602	PORTLAND CEMENT CONCRETE MASONRY - ABUTMENT ABOVE FOOTINGS	C.Y.	321
*602	PORTLAND CEMENT CONCRETE MASONRY - PIER FOOTINGS	C.Y.	96
*602	PORTLAND CEMENT CONCRETE MASONRY - PIER ABOVE FOOTINGS	C.Y.	230
*602	PORTLAND CEMENT CONCRETE MASONRY - SUPERSTRUCTURE	C.Y.	625
*605	BAR REINFORCEMENT	LBS.	172,000
*605A	BAR REINFORCEMENT - EPOXY COATED	LBS.	91,500
606	STEEL STRUCTURES (APPROXIMATE WEIGHT 572,500 LBS.)	L.S.	1
609	COARSE AGGREGATE FOR FOUNDATION STABILIZATION	TONS	78
624	CAST-IN-PLACE CONCRETE PILES - 12 IN. DIA.	L.F.	10,971
624	STEEL SHELL TEST PILES - 12 IN. DIA.	L.F.	500
S.P.	GUARD RAIL TO BARRIER CONNECTION (APPROACH TYPE)	EACH	6
733	RIPRAP, PLAIN	S.Y.	1,570
737	6" PERFORATED PIPE UNDERDRAIN (C.M.P.)	L.F.	284
*S.P.	STRIP SEAL JOINT SYSTEM	L.F.	175

NOTE:
ITEMS INDICATED (*) ARE FIXED QUANTITY ITEMS. SEE SECTION 109.06 OF THE
STANDARD SPECIFICATIONS.

COUNTY	CONTRACT	P.E. NO. SITE NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL.	RS-1036(2)	98	
CHRISTIANA BYPASS						
NO.	REVISIONS			BY	DATE	
11	DIMENSION CORRECTION BETWEEN L.P. 1 & L.P. 2			NTD	5/11/82	

INDEX OF DRAWINGS	
1	GENERAL PLAN AND ELEVATION
2	LAYOUT PLAN, INDEX OF DRAWINGS, AND QUANTITIES
3	PROFILES AND TYPICAL SECTION
4	WEST ABUTMENT
5	WEST ABUTMENT DETAILS
6	EAST ABUTMENT
7	EAST ABUTMENT DETAILS
8	ABUTMENT FOOTING PLAN AND PILE LAYOUT
9	ABUTMENT AND WINGWALL SECTIONS AND DETAILS
10	PIER 1
11	PIER 2
12	PIER DETAILS
13	SUBSTRUCTURE DETAILS
14	FRAMING PLAN
15	GIRDER DETAILS
16	CROSSFRAMES AND GIRDER SPLICE DETAILS
17	CAMBER TABLE
18	BEARING DETAILS - TYPES I, II AND III
19	BEARING DETAILS - TYPES IV AND V
20	JOINT AND FORM DETAILS
21	DECK SLAB PLANS
22	DECK CROSS SECTIONS
23	FINISHED DECK ELEVATIONS AND DEAD LOAD DEFLECTIONS
24	APPROACH SLAB PLANS
25-29	BAR LISTS
30	BORING LOGS

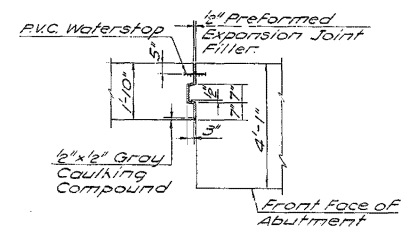
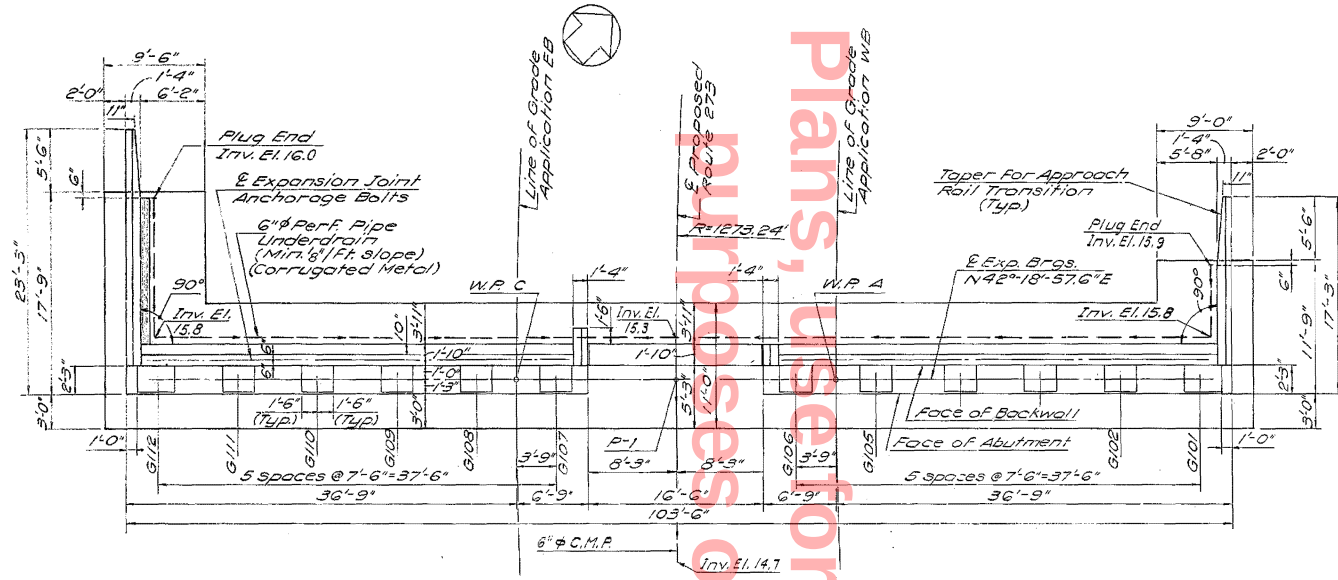
DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LAYOUT PLAN, INDEX OF DRAWINGS
AND QUANTITIES

BRIDGE OVER CHRISTIANA RIVER

Goodkind & Ode, Inc.	CONSULTING ENGINEERS AND SURVEYORS	DWG. NO.	D	SCALE	APPROVED BY:
		2	T.	Not to Scale	
			C.		BRIDGE ENGINEER

COUNTY	CONTRACT	P.A. L. NO.	DATE	REV. OF PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036 (2)	100	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



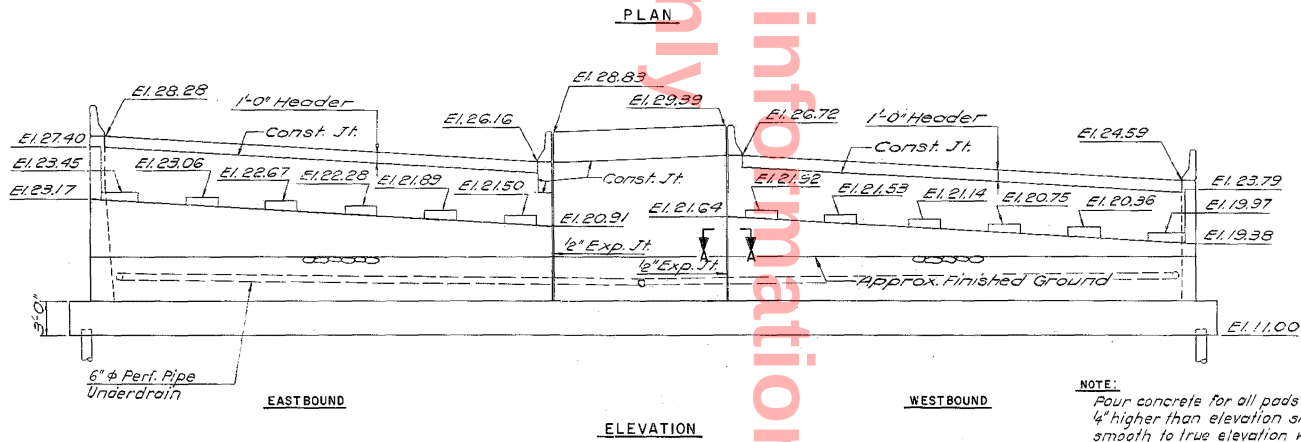
SECTION A-A
Scale: 1/2" = 1'-0"

ABUTMENT REFERENCES:

1. For layout of Working Points, see Layout Plan, Dwg. No. 2.
2. For Footing Plan and Pile Layout, see Dwg. No. 3.
3. For Abutment and Wingwall Sections, Cantilever Detail and Rod Reinforcement Detail see Dwg. No. 9.
4. For Anchor Bolt Layout see Dwg. No. 6.
5. For Anchor Bolt Detail see Dwg. No. 19.
6. For Pile, Joint, Pay Limits and Drainage Details, see Dwg. No. 13.
7. For Expansion Joint Details see Dwg. No. 20.
8. For Guard Rail Connection Details see Standard Sh. G-7-1.

REFERENCES:

1. For Wingwall Elevations, Abutment and wingwall reinforcing see Dwg. No. 5.



NOTE:
Pour concrete for all pads approximately 4\"/>

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
WEST ABUTMENT			
BRIDGE OVER CHRISTINA RIVER			
GOODKIND & ODEA, INC. CONSULTING ENGINEERS AND PLANNERS	DWG. NO. 4	D. T. C.	APPROVED BY: SCALE 3/8" = 1'-0" & AS NOTED BRIDGE ENGINEER



Diagram illustrating the cross-section of a girder and its connection to a wall and abutment. The diagram shows a central rectangular section (Girder) with two circular holes. Dimensions are indicated by arrows and text:

- Overall width: 1'-0"
- Overall height: 2'-0"
- Distance from the center of the girder to the center of the wall: 9"
- Distance from the center of the girder to the center of the abutment: 9"
- Distance from the center of the girder to the center of the wall: 1'-6"
- Distance from the center of the girder to the center of the abutment: 1'-6"
- Labels: "Front Face of Backwall", "Front Face of Abutment", "Tangent to & Girder of & Exp. Brgs."

EAST ABUTMENT

BRIDGE OVER CHRISTINA RIVER

EAST ABUTMENT

BRIDGE OVER CHRISTINA RIVER

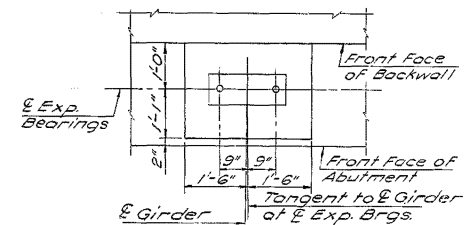
BRIDGE ENGINEER

1. For Section A-A and abutment references, see Dwg. No. 4.
2. For Wingwall Elevations, Abutment and wingwall reinforcing, see Dwg. No. 7.

Anchor bolts shall be set in concrete or grouted in sleeve. No drilling will be permitted.

Scale: $\frac{3}{4}" = 1'-0"$

Scale: $\frac{3}{4}" = 1'-0"$



PLAN



NOTE: Pour concrete for all pads approximately 4" higher than elevation shown and grind smooth to true elevation with a perfectly horizontal surface.

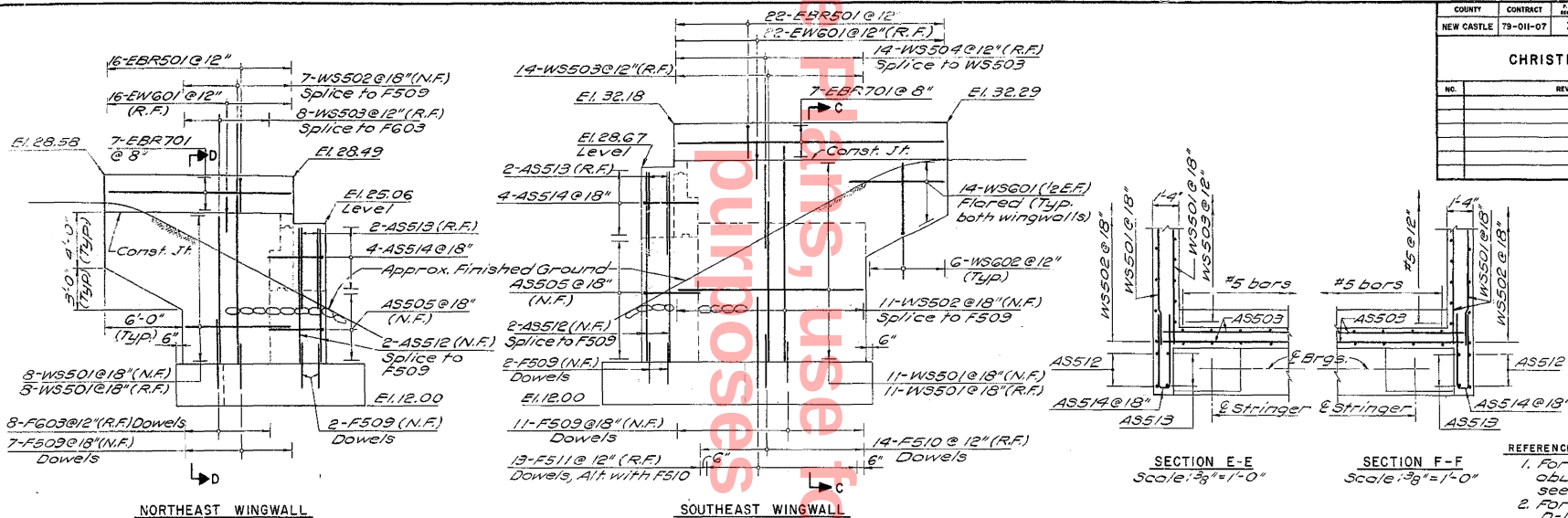
ELEVATION

WESTBOUND

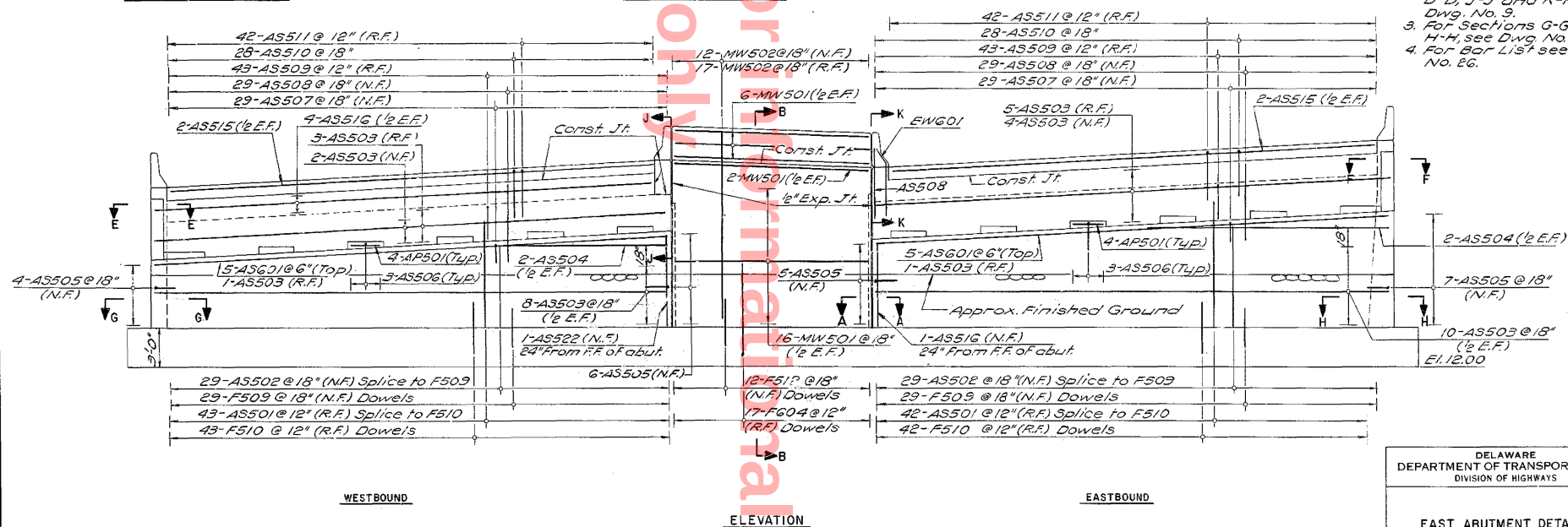
EASTBOUND

Division Checked by J. B. McKandawire
 Retained by R. METCALF
 Detail Checked by R. C. [Signature]

COUNTY	CONTRACT	FILE NO.	DATE	ISS. AND REVISION NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1056 (2)	103	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



- REFERENCES:
1. For Section A-A and abutment references see Dwg. No. 4.
 2. For Sections B-B, C-C, D-D, J-J and K-K see Dwg. No. 9.
 3. For Sections G-G and H-H, see Dwg. No. 5.
 4. For Bar List see Dwg. No. 6g.



DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

EAST ABUTMENT DETAILS

BRIDGE OVER CHRISTIANA RIVER

SCALE
4" = 1'-0"
& As Noted

APPROVED BY:

BRIDGE ENGINEER

Goodkind
& Odeh, Inc.

DWG. NO.
7

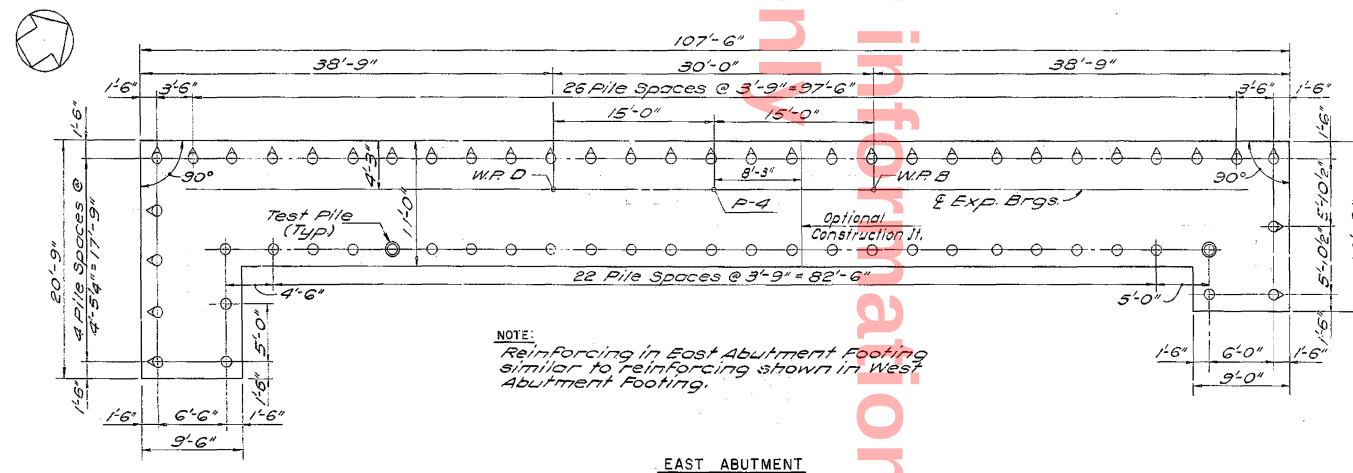
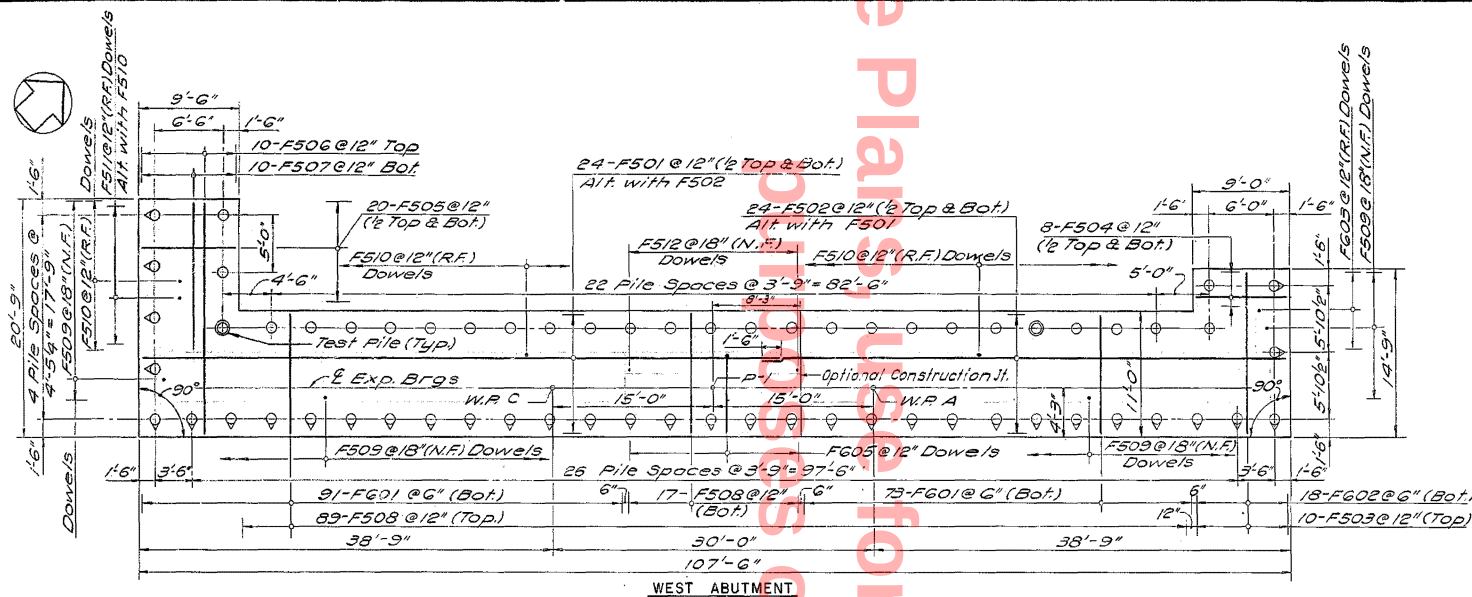
D.
T.
C.

SCALE
4" = 1'-0"
& As Noted

APPROVED BY:

BRIDGE ENGINEER

Design Checked by: [Signature]
Reviewed by: [Signature]
Approved by: [Signature]

[illegible]

LEGEND:

- - Indicates vertical pile.
- ◑ - Indicates pile battered 1:6 in direction of arrow.
- ⊙ - Indicates test pile.

PILE NOTES:

1. Estimated length of piles:
West Abutment 57 feet
East Abutment 58 feet
2. Estimated length of test piles:
70 feet.
3. Required minimum Safe Bearing
Capacity = 35 tons.

REFERENCES:

1. For General Pile Notes and Details
see Dwg. No. 13.

**DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

ABUTMENT FOOTING PLAN
AND PILE LAYOUT

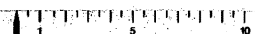
BRIDGE OVER CHRISTINA RIVER

Goodkind & Odea, Inc. CONSULTING ENGINEERS AND PLANNERS

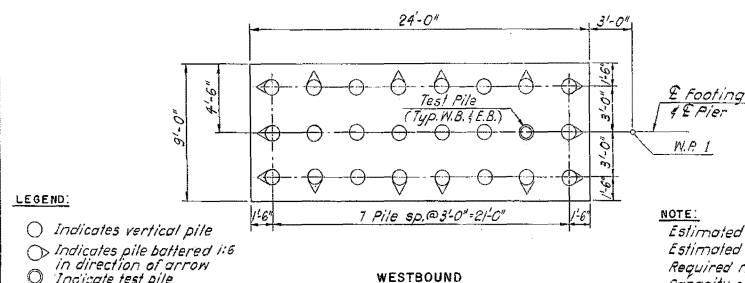
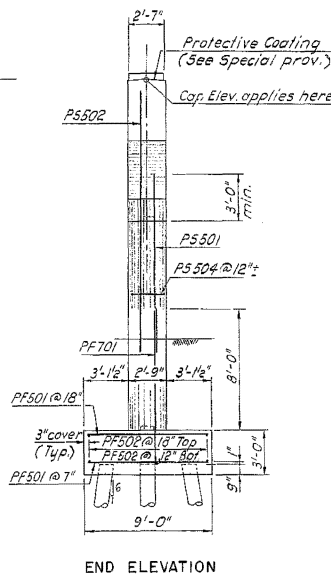
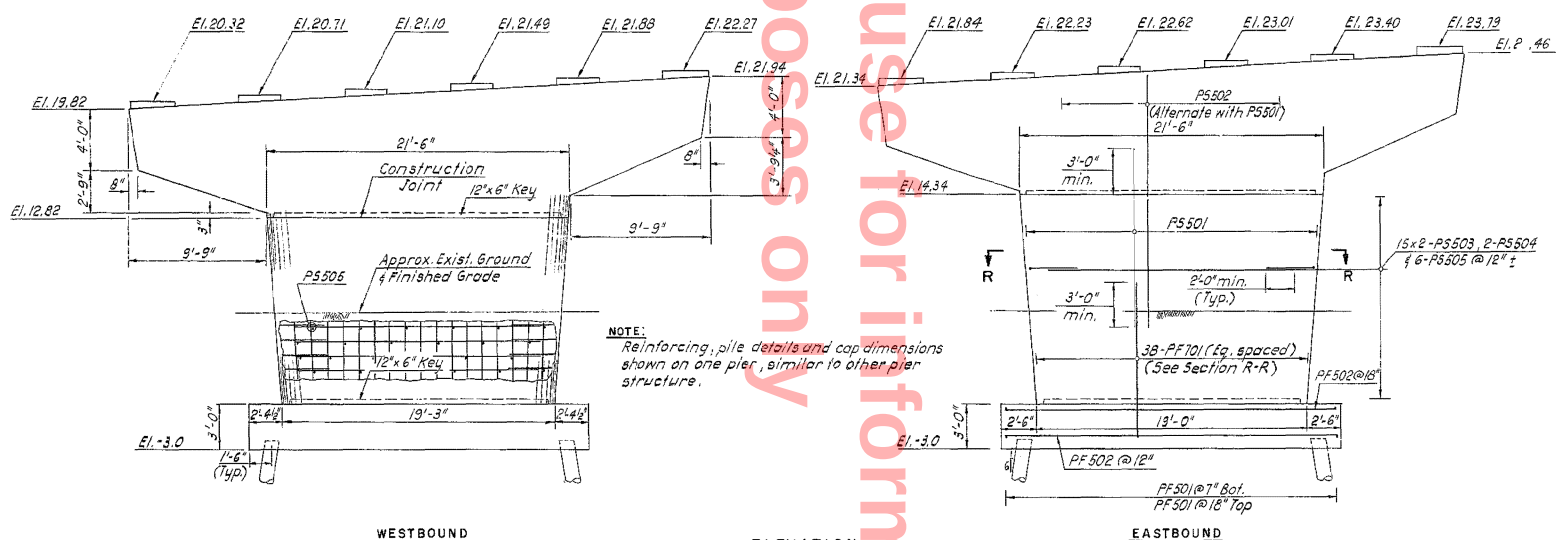
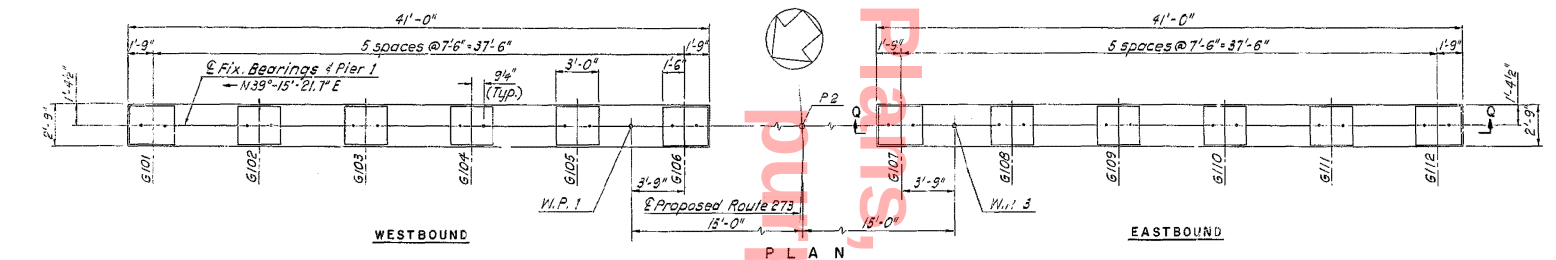
DWG. NO.	8
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D.	SCALE
T.	$\frac{3}{16}'' = 1'-0''$
C.	

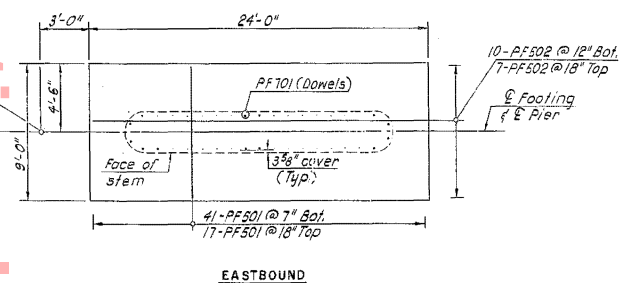
APPROVED BY:



COUNTY	CONTRACT	P. & S. NO.	DATE	REV. NO. PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1056 (2)	106	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



NOTE:
Estimated pile length = 43'
Estimated test pile length = 55'
Required minimum safe bearing capacity = 35 tons



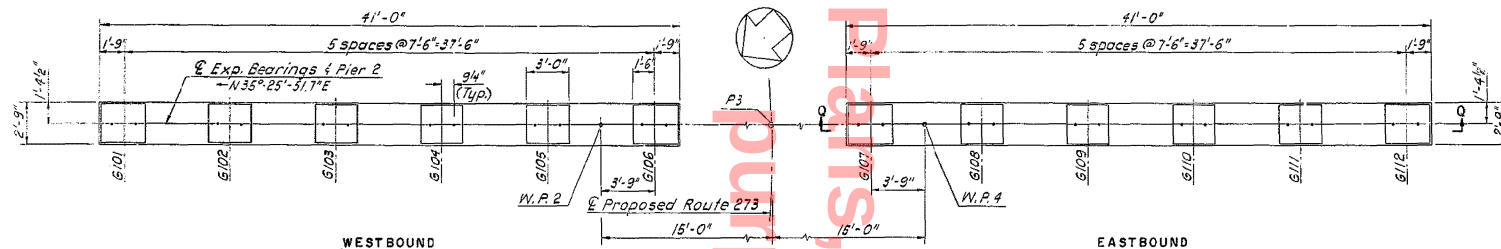
- REFERENCES:**
1. For layout of Working Points, see Layout Plan, Dwg. No. 2.
 2. For Sections Q-Q, R-R, Pedestal Details and Anchor Bolt Layout, see Dwg. No. 12.
 3. For Pile and Pile Limit Details, see Dwg. No. 13.
 4. For Bar List, see Dwg. No. 21.

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
PIER 1			
BRIDGE OVER CHRISTIANA RIVER			
DWG. NO.	SCALE	APPROVED BY:	BRIDGE ENGINEER
10	1/4" = 1'-0"		

Goodkind & Odeh, Inc.
CONSULTING ENGINEERS
ANAPOLIS, MD.

Designed by: J. L. H. H. H.
Checked by: J. L. H. H. H.
Drawn by: J. L. H. H. H.
Title: Bridge Engineer

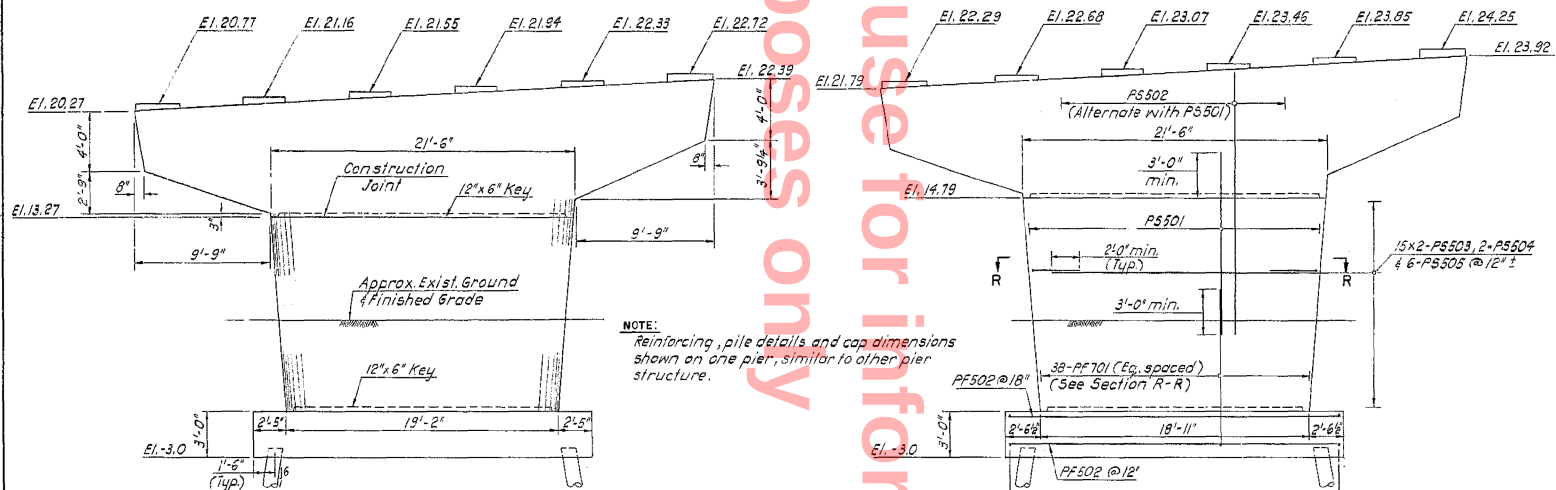
COUNTY	CONTRACT	222 SHEET NO.	DATE	728-428 PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036(2)	107	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



WESTBOUND

EASTBOUND

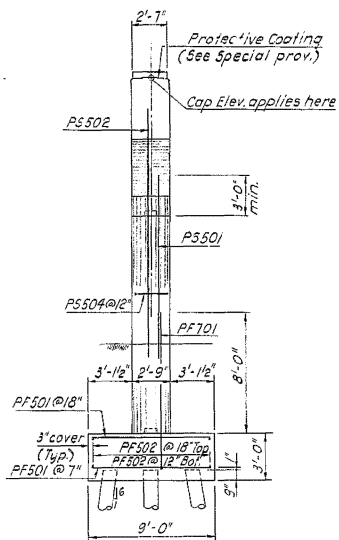
PLAN



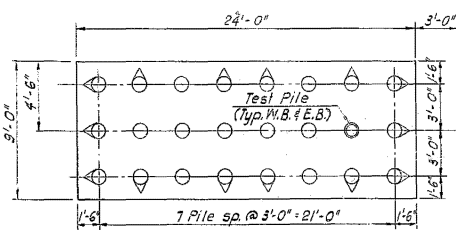
WESTBOUND

EASTBOUND

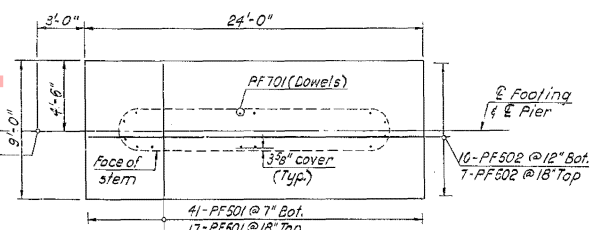
ELEVATION



END ELEVATION



WESTBOUND



EASTBOUND

FOOTING PLAN

NOTE:
Estimated pile length = 43'
Estimated test pile length = 55'
Required minimum Safe Bearing Capacity = 35 tons.

- REFERENCES:
1. For layout of Working Points, see Layout Plan, Dwg. No. 2.
 2. For Sections Q-Q, R-R, Pedestal Details and Anchor Bolt Layout, see Dwg. No. 12.
 3. For Pile and Pile Limit Details, see Dwg. No. 13.
 4. For Bar List, see Dwg. No. 28.
 5. For Pile Legend, see Dwg. No. 10.
 6. For Tie arrangement, see Pier 1 Dwg. No. 10.

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

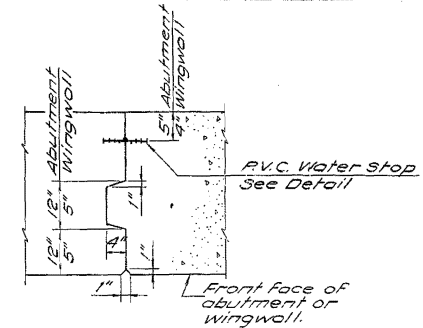
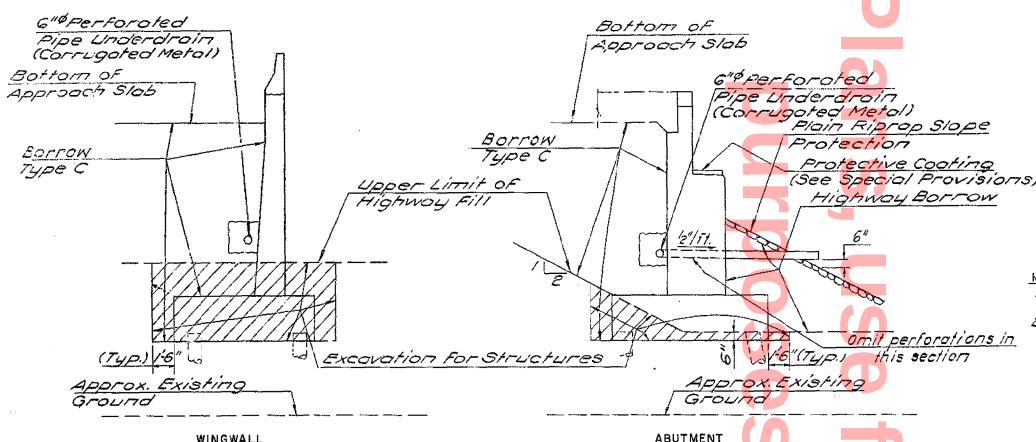
PIER 2

BRIDGE OVER CHRISTIANA RIVER

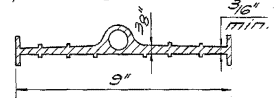
Goodkind & Odeh, Inc.	CONSULTING ENGINEERS AND PLANNERS	DWG. NO.	11	D.	T.	C.	SCALE	1/4" = 1'-0"	APPROVED BY:	BRIDGE ENGINEER
-----------------------	-----------------------------------	----------	----	----	----	----	-------	--------------	--------------	-----------------

Designed by: R. J. Geller
Design Checked by: J. J. Geller
Reviewed by: J. J. Geller
Drawn by: J. J. Geller

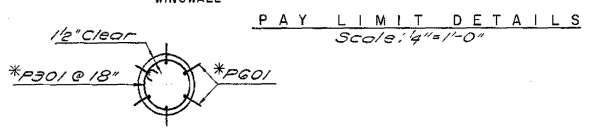
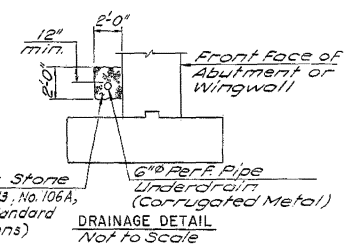
Archive Plans for informational purposes only



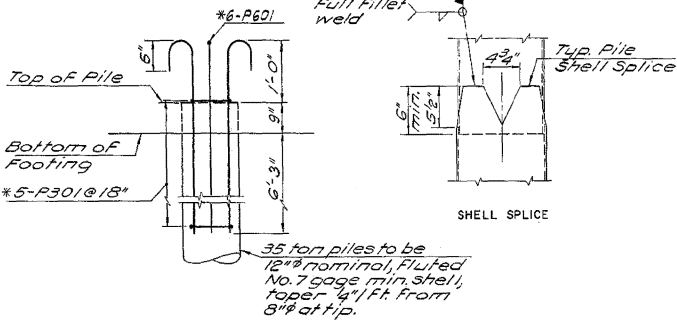
CONSTRUCTION JOINT
Not to Scale
NOTES:
1. Reinforcing shall pass through construction joint.
2. Reinforcing shall not pass through expansion joint.



COUNTY	CONTRACT	F. & L. SEC. NO.	DATE	REV. AND PROJECT NO.	REVISION NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036 (2)	109	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			

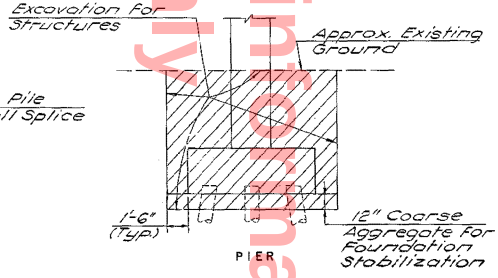


* Paid For in unit price bid For Cast-In-Place Concrete Piles.



PILE DETAILS
Not to Scale

- GENERAL PILE NOTES:
1. All piles shall conform to Section G24 "Cast-in-Place Concrete Piles" of the Standard Specifications and have a minimum bearing of 35 tons.
 2. Any alternate type of pile complying with Section G24 will be considered for acceptance.

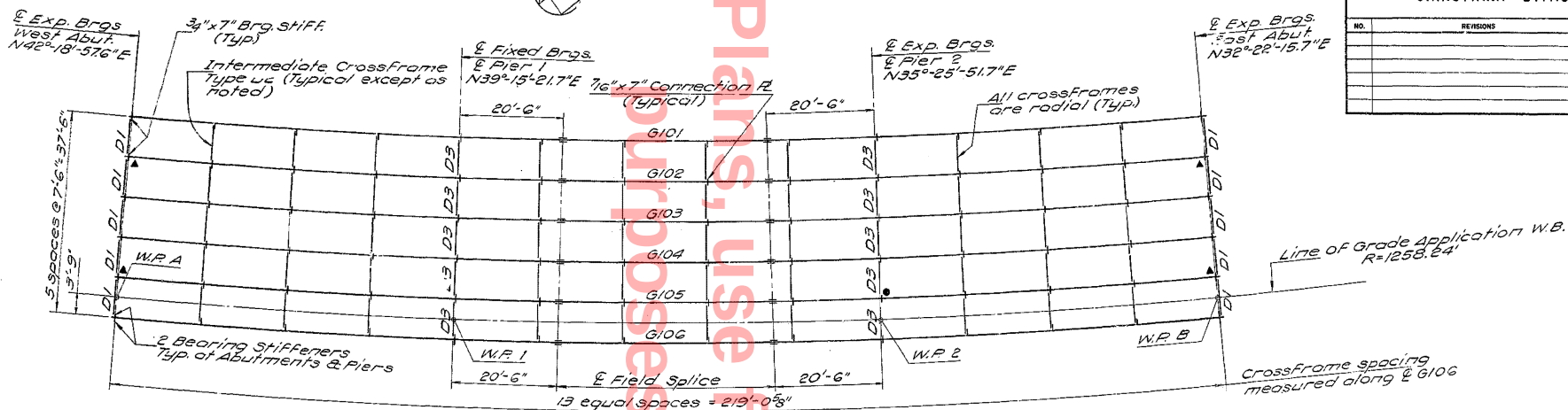


DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
SUBSTRUCTURE DETAILS			
BRIDGE OVER CHRISTIANA RIVER			
DWG. NO.	D.	SCALE	APPROVED BY:
1/3	T.	As Noted	BRIDGE ENGINEER
C.	C.		

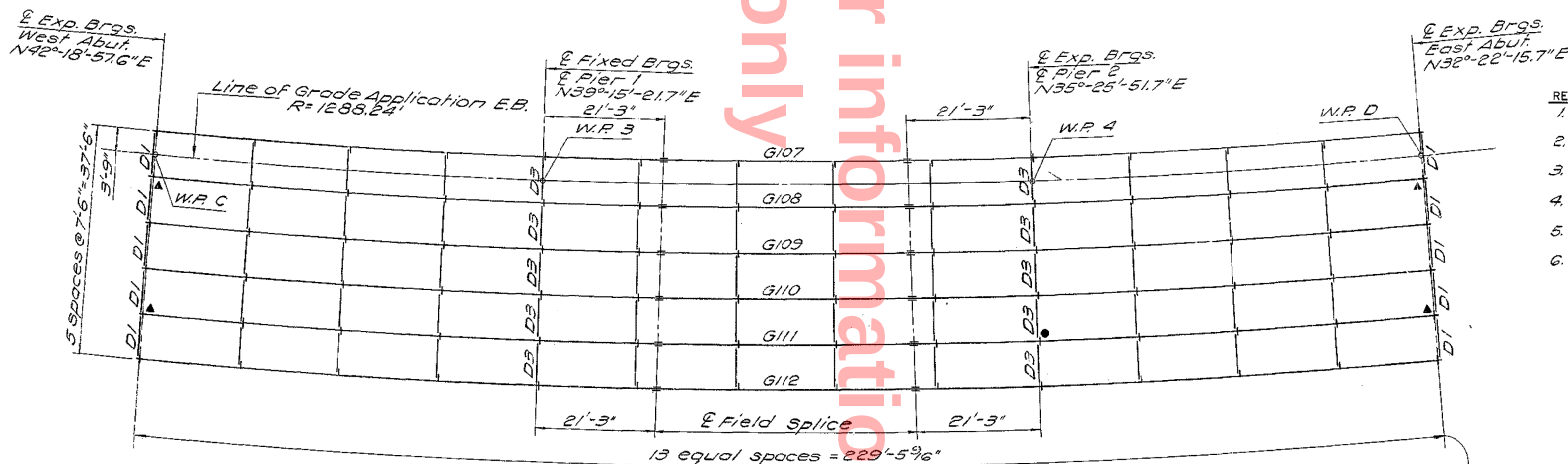
Goodkind & Odeh, Inc.
CONSULTING ENGINEERS AND PLANNERS

Designed by: J. L. BOWEN
Drawn by: J. L. BOWEN
Checked by: J. L. BOWEN
Reviewed by: J. L. BOWEN

COUNTY	CONTRACT	SHEET NO.	DATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036(2)	110	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



WESTBOUND



REFERENCES:

1. For Working Point Layout see Dwg. No. 2.
2. For Deck Cross Sections see Dwg. No. 21.
3. For Girder and Shear Connector Details see Dwg. Nos. 15 & 16.
4. For Crossframe and Field Splice Details see Dwg. No. 16.
5. For Bearing and Anchor Bolt Details see Dwg. No. 18 & 19.
6. For Expansion Joint Details see Dwg. No. 20.

LEGEND:

- ▲ - Bearings, Type I
- - Bearings, Type IV

EASTBOUND

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FRAMING PLAN

BRIDGE OVER CHRISTINA RIVER

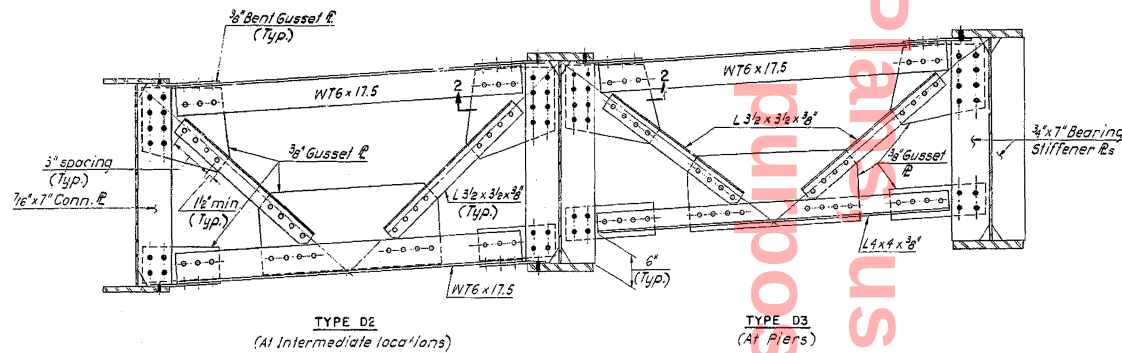
DWG. NO.	SCALE	APPROVED BY
14	1"=10'	
D.		
T.		
C.		

Goodkind
& Ode, Inc.

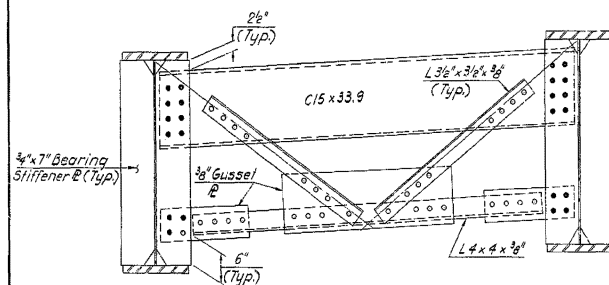
CONSULTING ENGINEERS
AND PLANNERS

BRIDGE ENGINEER

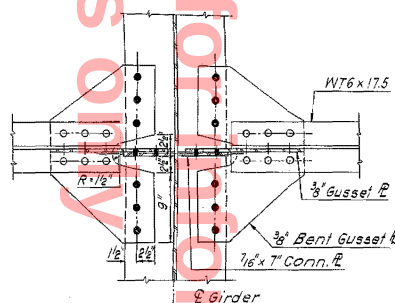
COUNTY	CONTRACT	D. & E. JOB NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	75-011-07	3	DEL	RS-1036(2)	112	
CHRISTIANA BYPASS						
NO.	REVISIONS				BY	DATE



INTERMEDIATE CROSSFRAMES
Scale: 1" = 1'-0"



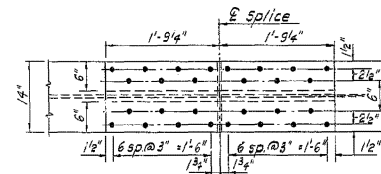
END CROSSFRAME - TYPE D1
Scale: 1" = 1'-0"



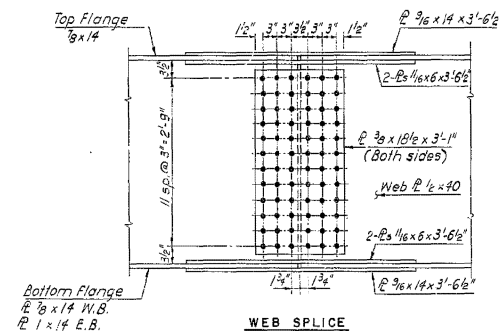
NOTE:
Connection to bottom flange
for Type D2 Crossframe
similar.

SECTION 2-2
Scale: 1/2" = 1'-0"

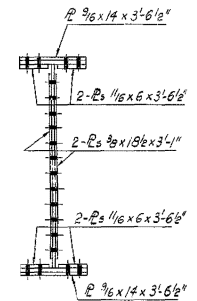
NOTES:
1. Unless noted otherwise, all bolts are Type 3
6"-A325 High Strength Bolts. Bolt pitch is 3" and
minimum edge distance is 1/2".



FLANGE SPLICE



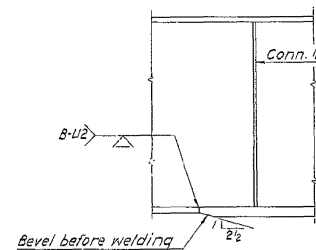
WEB SPLICE



SECTION

FIELD SPLICE DETAILS
Scale: 1" = 1'-0"

REFERENCES:
1. For Structural Steel Notes,
see Dwg. No. 15.



FLANGE SPLICE DETAIL
Not to scale

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AND PLANNERS

DWG. NO.
16

D.
T.
C.

SCALE
As noted

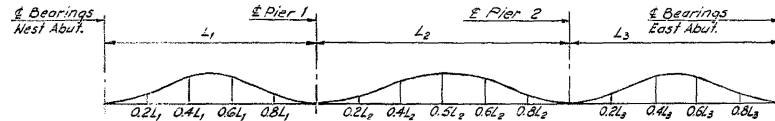
APPROVED BY
BRIDGE ENGINEER

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CROSSFRAMES AND
GIRDER SPLICE DETAILS

BRIDGE OVER CHRISTIANA RIVER

Designed by J.D. WINGGERSHOF
Drawn by H. H. H. H. H.
Checked by J. D. WINGGERSHOF
Revised by J. D. WINGGERSHOF



CAMBER DIAGRAM

NOTE:
 "DLS" DENOTES DEFLECTION DUE TO STRUCTURAL STEEL.
 "DLC" DENOTES DEFLECTION DUE TO DECK SLAB.
 "SOL" DENOTES DEFLECTION DUE TO BARRIER RAILS.
 "HCC" DENOTES CAMBER DUE TO HEAT CURVING CAMBER LOSSES.

COUNTY	CONTRACT	F.S.D. NO.	STATE	FED. AID PROJECT NO.	SHEET	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036(2)	1/3	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			

DEFLECTIONS AND TOTAL CAMBERS (IN INCHES)

G I R D E R	0.2L ₁	0.4L ₁	0.6L ₁	0.8L ₁	Q PIER 1	0.2L ₂	0.4L ₂	0.5L ₂	0.6L ₂	0.8L ₂	Q PIER 2	0.2L ₃	0.4L ₃	0.6L ₃	0.8L ₃
G101	DLS	1/16	1/16	1/16	0	0	1/16	1/16	1/16	1/16	0	0	1/16	1/16	1/16
	DLC	1/4	3/8	1/4	1/8	0	1/8	3/8	3/8	1/8	0	1/8	1/4	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/16	1/16	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	7/8	1-1/8	3/4	1/8	0	15/16	1-1/16	15/16	1/4	0	1/8	3/4	1-1/8	7/8
G102	DLS	1/16	1/8	1/16	0	0	1/16	1/16	1/16	0	0	0	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	7/8	1-3/16	13/16	1/8	0	1/4	1	1-1/8	1	0	1/8	13/16	1-3/16	7/8
G103	DLS	1/16	1/8	1/16	0	0	1/16	1/16	1/16	0	0	0	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	7/8	1-3/16	13/16	1/8	0	1/4	1	1-1/8	1	0	1/8	13/16	1-3/16	7/8
G104	DLS	1/16	1/16	1/16	0	0	1/16	1/16	1/16	0	0	0	1/16	1/16	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	7/8	1-3/16	13/16	1/8	0	1/4	1-1/16	1-1/8	1-1/16	0	1/8	13/16	1-3/16	7/8
G105	DLS	1/16	1/16	1/16	0	0	1/16	1/16	1/16	0	0	0	1/16	1/16	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	15/16	1-3/16	13/16	1/8	0	1/4	1-1/16	1-1/8	1-1/16	0	1/8	13/16	1-3/16	15/16
G106	DLS	1/16	1/8	1/16	0	0	1/16	1/16	1/16	0	0	0	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	7/8	1-3/16	13/16	1/8	0	1/4	1	1-1/8	1	0	1/8	13/16	1-3/16	7/8
G107	DLS	1/16	1/8	1/16	0	0	1/16	1/8	1/16	0	0	0	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	7/8	1-3/16	13/16	1/8	0	1/4	1	1-3/16	1	0	1/8	13/16	1-3/16	7/8
G108	DLS	1/16	1/8	1/16	0	0	1/16	1/8	1/16	0	0	1/16	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	15/16	1-1/4	7/8	3/16	0	1/4	1-1/16	1-1/4	1-1/16	0	3/16	7/8	1-1/4	15/16
G109	DLS	1/16	1/8	1/16	0	0	1/16	1/8	1/16	0	0	1/16	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	15/16	1-1/4	7/8	3/16	0	1/4	1-1/16	1-1/4	1-1/16	0	3/16	7/8	1-1/4	15/16
G110	DLS	1/16	1/8	1/16	0	0	1/16	1/8	1/16	0	0	1/16	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	15/16	1-1/4	7/8	3/16	0	1/4	1-1/16	1-1/4	1-1/16	0	3/16	7/8	1-1/4	15/16
G111	DLS	1/16	1/8	1/16	0	0	1/16	1/8	1/16	0	0	1/16	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	15/16	1-1/4	7/8	3/16	0	1/4	1-1/16	1-1/4	1-1/16	0	3/16	7/8	1-1/4	15/16
G112	DLS	1/16	1/8	1/16	0	0	1/16	1/8	1/16	0	0	1/16	1/16	1/8	1/16
	DLC	1/4	3/8	5/16	1/8	0	3/16	3/8	7/16	3/8	0	1/8	5/16	3/8	1/4
	SDL	1/16	1/16	1/16	0	0	1/16	1/8	1/8	1/16	0	0	1/16	1/16	1/16
	HCC	1/2	5/8	3/8	0	0	7/16	1/2	7/16	0	0	0	3/8	5/8	1/2
	TOTAL	15/16	1-1/4	7/8	3/16	0	1/4	1-1/16	1-3/16	1-1/16	0	3/16	7/8	1-1/4	15/16

REFERENCES:
 1. For Slab Elevations, Dead Load Deflections and Additional Notes, see Dwg. No. 23.

DELAWARE
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

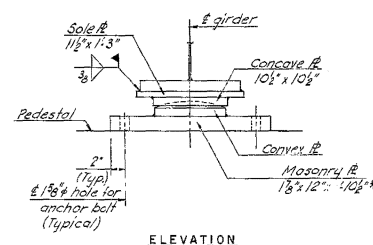
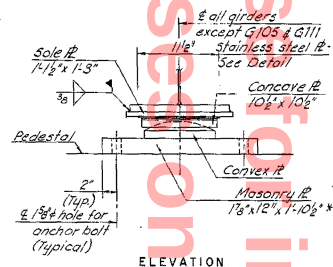
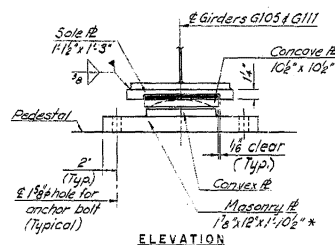
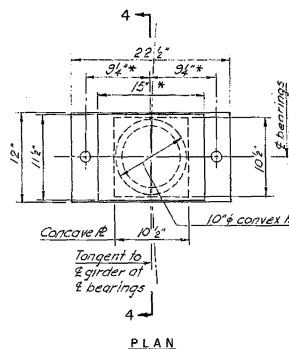
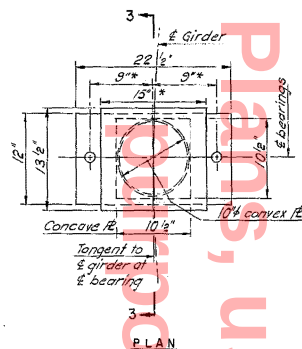
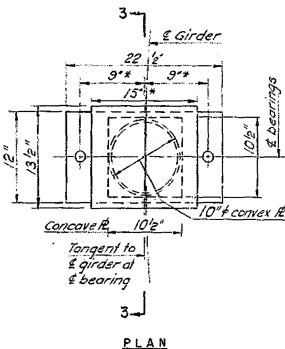
CAMBER TABLE

BRIDGE OVER CHRISTINA RIVER

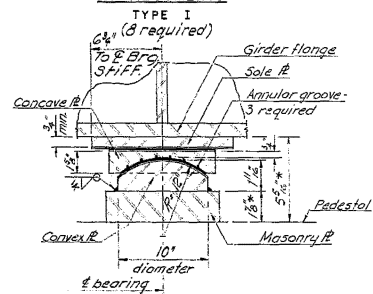
D. T. C.	NO. 17	SCALE Not to Scale	APPROVED BY:
			BRIDGE ENGINEER

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 CONSULTING ENGINEERS
 AND PLANNERS

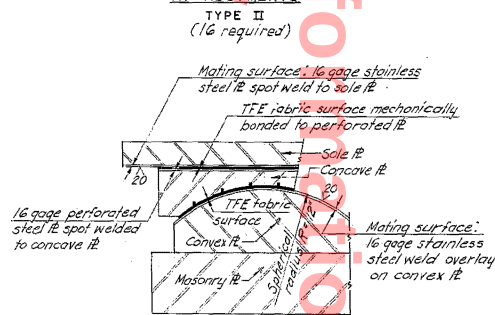
archive plans, use for informational



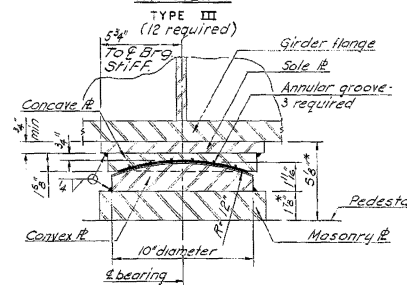
EXPANSION ALIGNMENT BEARINGS
AT ABUTMENTS



EXPANSION BEARINGS AT ABUTMENTS



FIXED BEARINGS
AT PIER 1

[illegible]

CHRISTIANA BYPASS

[illegible]

BEARING NOTES:

1. BEARINGS SHOWN ARE LUBRITE "M" AS MANUFACTURED BY MERRIMAN OF HINGHAM, MASSACHUSETTS.
2. ALTERNATE BEARINGS CONFORMING TO REQUIREMENTS OF THE SPECIAL PROVISIONS WILL BE ACCEPTABLE.
3. DIMENSIONS MARKED "M" ARE CONTROL DIMENSIONS AND SHALL NOT BE CHANGED.
4. STEEL FOR THE MASONRY PLATE, SOLE PLATE, CONVEX AND CONCAVE PLATES SHALL MEET THE REQUIREMENTS OF ASTM DESIGNATION A588 AND SHALL BE UNPAINTED.
5. ALTERNATE MATING SURFACES WILL BE ACCEPTABLE, PROVIDED THAT MATERIAL AND METHOD OF ATTACHMENT TO THE SUBSTRATE CONFORM TO THE SPECIAL PROVISIONS.
6. THE TPE SLIDING SURFACES MAY BE BONDED TO THE SUBSTRATE IN LIEU OF USING THE ANNULAR GROOVES OR PERFORATED STEEL PLATE, IF REQUIREMENTS OF THE SPECIAL PROVISIONS ARE SATISFIED.
7. BEARINGS SHALL PERMIT A ROTATION OF 2° IN ALL DIRECTIONS.
8. THE COST OF ALL BEARINGS IS TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 606, "STEEL STRUCTURES".

REFERENCES:

1. For Table of Loads, Anchor Bolt Detail and Details of Types IV and V Bearings, see Dwg. No. 19.
2. For Anchor Bolt Layout, see Dwgs. Nos. 6 and 12.
3. For Type I Alignment Bearing locations, see Dwg. No. 14.

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEARING DETAILS
TYPES I, II AND III

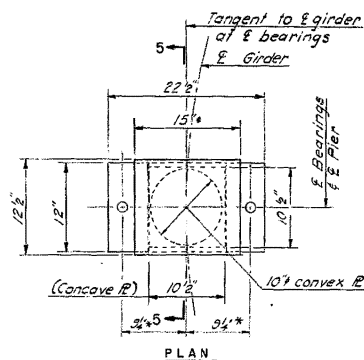
BRIDGE OVER CHRISTINA RIVER

Goodkind & O'dea, Inc. CONSULTING ENGINEERS AND PLANNERS

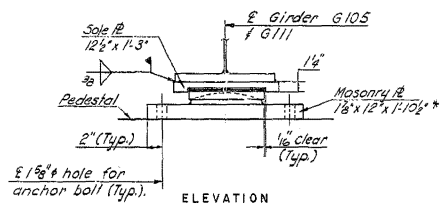
DWG.	NO
	18

D.	SCALE
T.	$1\frac{1}{2}" = 1'-0"$
C.	as noted

APPROVED BY:



PLAN

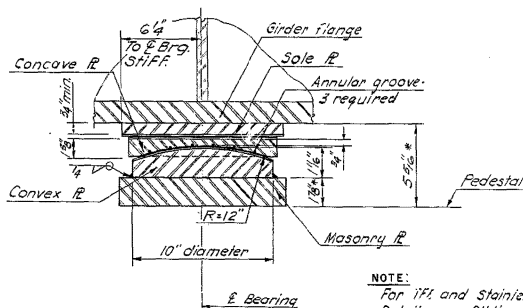


ELEVATION

EXPANSION ALIGNMENT BEARINGS

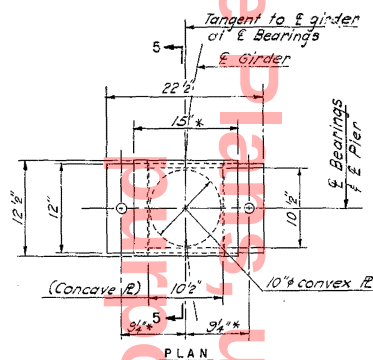
AT PIER 2

TYPE IV
(2 required)

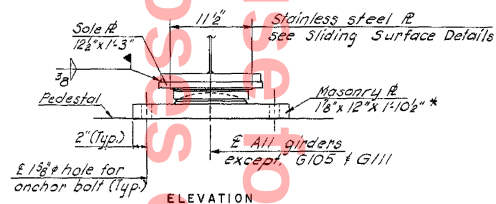


SECTION 5-5
Scale: 3/4" = 1'-0"

NOTE:
For 171 and Stainless Steel
Details, see Sliding Surface
Detail.



PLAN



ELEVATION

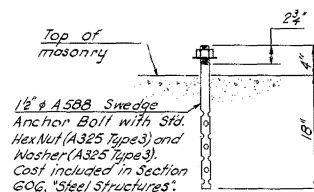
EXPANSION BEARINGS

AT PIER 2

TYPE V
(10 required)

LOAD AND MOVEMENT TABLE				
BEARING TYPE	DEAD LOAD (KIPS)	TOTAL LOAD (KIPS)	TRANSVERSE LOAD (KIPS)	LONGITUDINAL TRAVEL* (IN)
I	37	100	15	1 1/4
II	37	100	-	1 1/4
III	125	210	6	-
IV	125	210	42	3/4
V	125	210	-	3/4

* Maximum travel from normal position of bearing at 68°F.



ANCHOR BOLT DETAIL FOR ALL BEARINGS

COUNTY	CONTRACT	SHEET NO.	DATE	FILE NO. PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036 (2)	1/5	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			

REFERENCES:

1. For Bearing Notes, Sliding Surface Details and Details of Type I, II and III Bearings, see Dwg. No. 18.
2. For Anchor Bolt Layout, see Dwg. Nos. 6 and 12.
3. For Type IV Alignment Bearing locations, see Dwg. No. 14

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEARING DETAILS
TYPES IV AND V

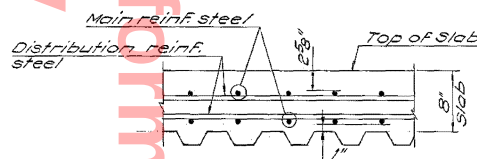
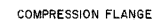
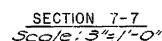
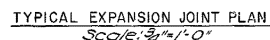
BRIDGE OVER CHRISTIANA RIVER

Goodkind
& Odea, Inc.
CONSULTING ENGINEERS
AND PLANNERS

DWG. NO.
19

D. SCALE
1/2" = 1'-0"
T. and
C. As Noted

APPROVED BY:
BRIDGE ENGINEER

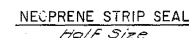
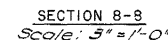


STEEL FORM SECTION

SUGGESTED DETAILS OF STAY-IN-PLACE STEEL FORMS
Not to Scale

STEEL FORM NOTES:

1. No welding of these forms to Flanges in tension is permitted.
2. These forms shall be vertically adjusted to attain line and grade required on the plans.
3. Steel forms to be 20 gage min. thickness copper bearing steel 200 oz. min. galvanized total weight both sides per sq. ft. of sheet.



EXPANSION JOINT NOTES:

1. *Steel For the Expansion J₁ Steel Plates and Steel Expansion Strips* meet the requirements of ASTM Designation A558 or A229.
2. *The joints shall be painted in accordance with Section 606 "Steel Structures Clearing and Painting" in the Special Provisions.*
3. *Dimensions of the Steel Expansion and Neoprene Strip Seal are nominal and may vary depending on the manufacturer.*

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOINT AND FORM DETAILS

BRIDGE OVER CHRISTINA RIVER

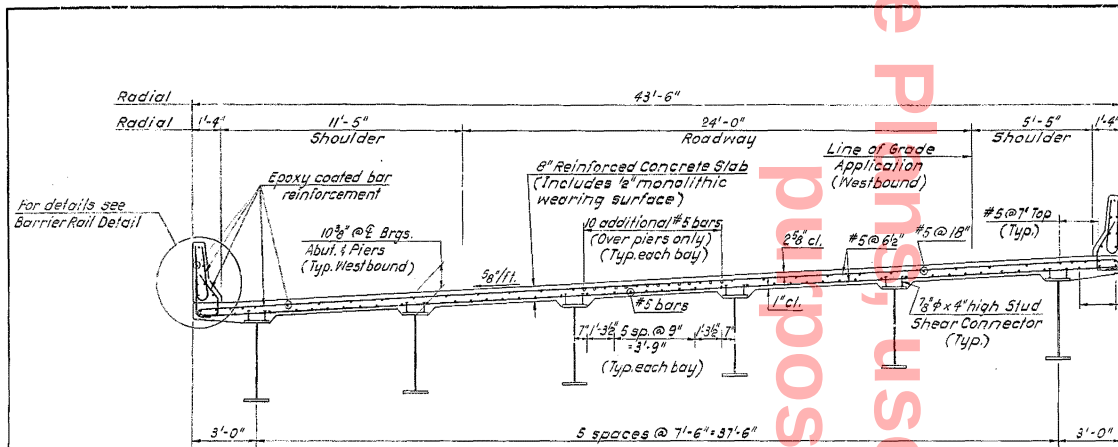
Goodkind
& Odea, Inc.

CONSULTING ENGINEERS
AND PLANNERS

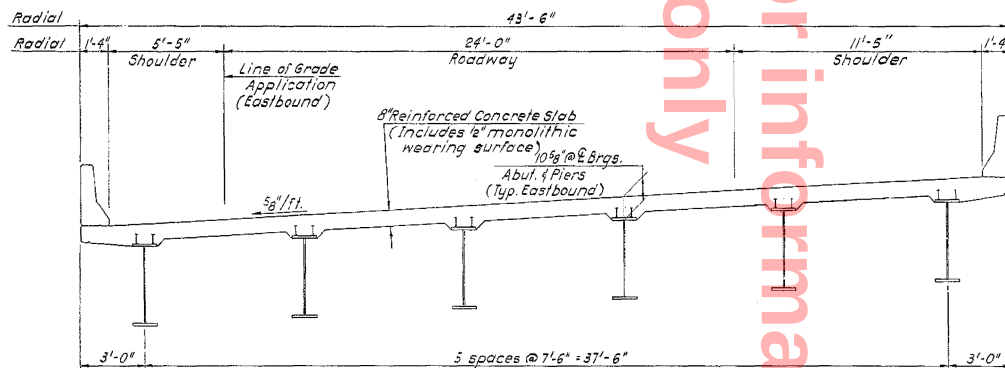
DWG.	NO
20	

D.	D.	SCALE
	T.	AS

APPROVED BY:



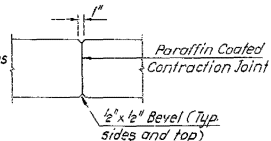
WESTBOUND



EASTBOUND

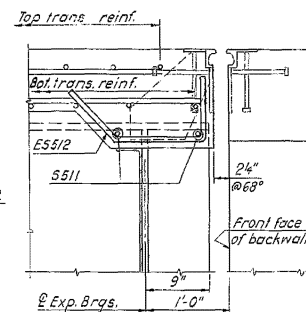
NOTE:
Deck slab reinforcing details similar to Westbound Roadway.

NOTE:
Reinforcing steel does not pass through joint.



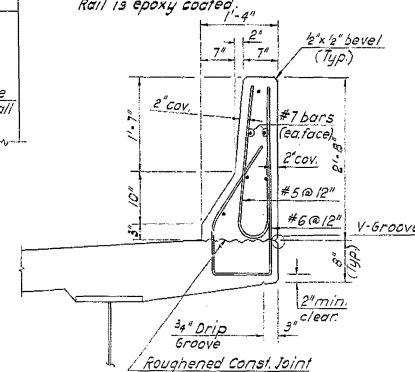
BARRIER RAIL JOINT DETAIL
Scale: 1/2" = 1'-0"

DECK CROSS SECTIONS
Scale: 3/8" = 1'-0"



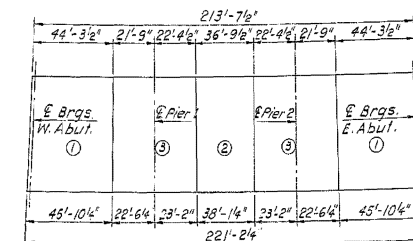
SECTION 9-9
Scale: 1/2" = 1'-0"

NOTE: All reinforcing in Barrier Rail is epoxy coated.

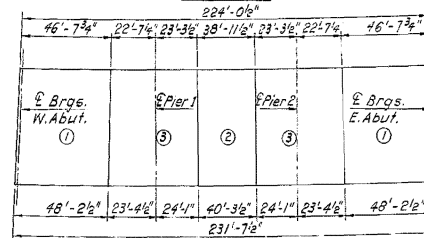


BARRIER RAIL DETAIL
Scale: 1" = 1'-0"

REFERENCES:
1. For V-Groove Detail, see Dwg. No. 9
2. For Joint and Stay in Place Form Details, see Dwg. No. 20.



WESTBOUND



EASTBOUND

DECK SLAB POURING SEQUENCE
Not to scale

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

DECK CROSS SECTIONS

BRIDGE OVER CHRISTINA RIVER

Goodkind & Odeh, Inc.
CONSULTING ENGINEERS
AND PLANNERS

DWG. NO. 22

D. T. C.

SCALE: As noted

APPROVED BY:

BRIDGE ENGINEER

NOTES:

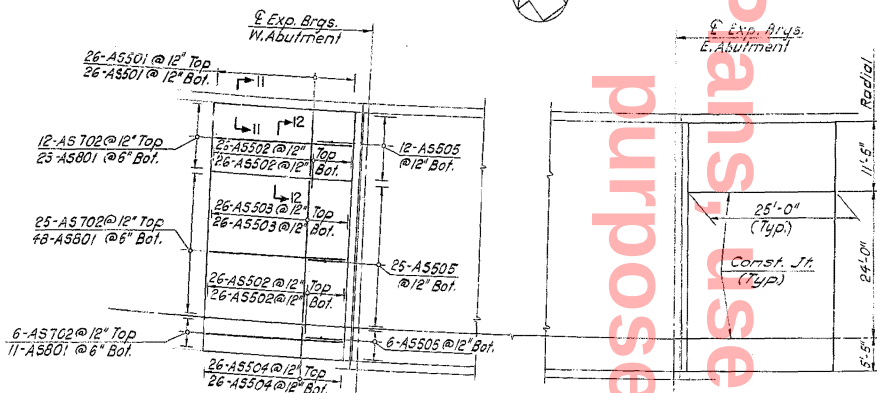
1. CAMBER: BEAMS SHALL BE CAMBERED FOR DEAD LOAD DEFLECTIONS AS SHOWN IN THE TABLE OF "DEFLECTIONS AND TOTAL CAMBERS". BEAMS SHALL NOT BE CAMBERED MORE THAN SHOWN EVEN THOUGH THE CAMBER IS LESS THAN THAT LIKELY TO REMAIN PERMANENT.
2. BEAMS SHALL BE ASSEMBLED IN THE SHOP TO THE CORRECT BLOCKING ELEVATIONS BEFORE RAPPING OR DRILLING SPLICES, AND LIKEWISE SHALL BE ASSEMBLED IN THE FIELD BEFORE BOLTING.
3. IN THE TABLE OF "DEAD LOAD DEFLECTIONS", THE DEFLECTIONS GIVEN ARE FOR DEAD LOADS DUE TO THE CONCRETE DECK SLAB AND THE BARRIER RAILS ONLY.
4. AFTER ALL BEAMS HAVE BEEN ASSEMBLED, ELEVATIONS SHALL BE SET USING THE TABLE OF "DEFLECTIONS AND TOTAL CAMBERS". THE BEAMS AT POINTS WHERE BRIDGE ELEVATIONS ARE SHOWN WILL DIFFER BETWEEN THESE TWO ELEVATIONS PLUS THE AMOUNT OF DEFLECTION AND HEAT CURVING CAMBER LOSS LISTED AT EACH POINT WILL BE THE THICKNESS OF THE SLAB AND HAUNCH OR THE TOP OF THE BEAM AT THE CENTERLINE OF BEAM. THE MINIMUM SLAB HAUNCH DEPTH OVER THE CENTERLINE OF BEAM SHALL NOT BE LESS THAN 9 INCHES.

DEAD LOAD DEFLECTIONS (IN FEET)																										
GIRDER	L BRGS. # X DIST STATION 50+48.667	PIER 1 STATION 51+18.667										PIER 2 STATION 52+61.667										L BRGS. # X DIST STATION 52+60.000				
		STA. 50+50	STA. 50+60	STA. 50+70	STA. 50+80	STA. 50+90	STA. 51+00	STA. 51+10	STA. 51+20	STA. 51+30	STA. 51+40	STA. 51+50	STA. 51+60	STA. 51+70	STA. 51+80	STA. 51+90	STA. 52+00	STA. 52+10	STA. 52+20	STA. 52+30	STA. 52+40		STA. 52+50	STA. 52+60		
WESTBOUND	G101	0.0	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.015	0.016	0.017	0.018	0.019	0.020	0.021	0.022	0.023	0.024	0.025	0.026
	G102	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G103	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G104	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G105	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
EASTBOUND	G106	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G107	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G108	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G109	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G110	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G111	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	G112	0.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
H C C	0.0	0.006	0.037	0.051	0.048	0.028	0.0	0.0	0.0	0.0	0.013	0.025	0.042	0.033	0.008	0.0	0.0	0.0	0.032	0.060	0.050	0.333	0.0	0.0	0.0	0.0

REFERENCES:
1. For Deflections and Total Camber Table, see Dwg. No. 17.

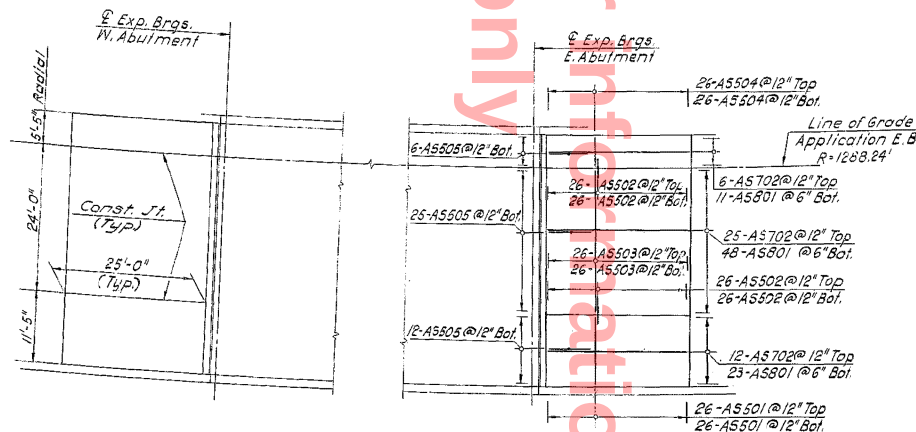
Version written by T. Gort
 Detailed by T. Gort
 Detail Checked by P.C. King

COUNTY	CONTRACT	P.A. & S.D. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036 (2)	120	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			



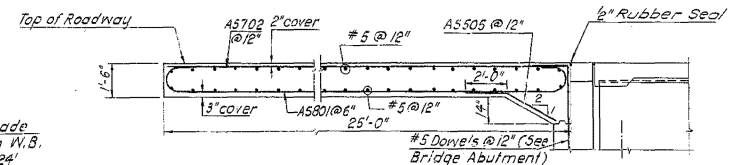
NOTE:
Longitudinal reinforcement
to follow curvature of
roadway.

WESTBOUND

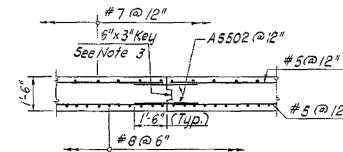


EASTBOUND

APPROACH SLAB PLANS
Scale: 1"=10'

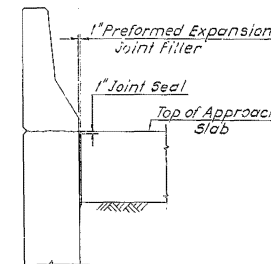


TYPICAL APPROACH SLAB SECTION
Scale: 3/8"=1'-0"



SECTION 12-12
Scale: 3/8"=1'-0"

- NOTES:**
- Cost of Approach Slab reinforcement is to be included in Price Bid in Section 605.
 - Longitudinal Construction Joints are optional.
 - Roughen surface, blast clean, then apply a neat cement grout or other suitable bonding material immediately prior to placing adjacent pour.



SECTION 11-11
Scale: 3/4"=1'-0"

- REFERENCES:**
- For Expansion Joint Details, see Dwg. No. 20.
 - For Bar Lists, see Dwg. No. 29.

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROACH SLAB PLANS

BRIDGE OVER CHRISTIANA RIVER

DWG. NO.	P.	T.	C.	SCALE	APPROVED BY:
24				As noted	BRIDGE ENGINEER

Goodkind
& Odeh, Inc.

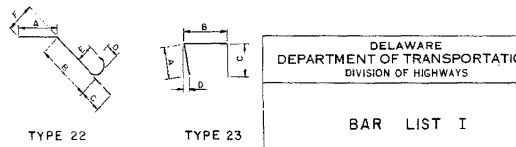
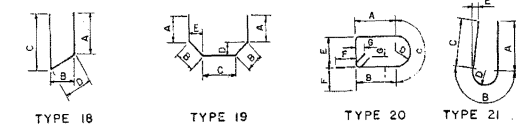
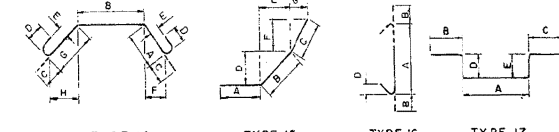
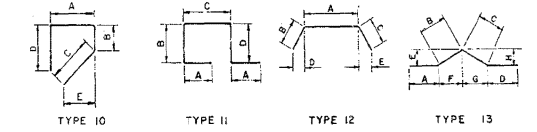
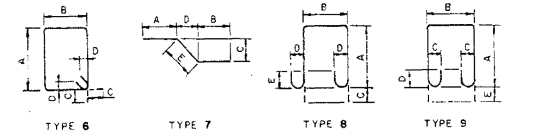
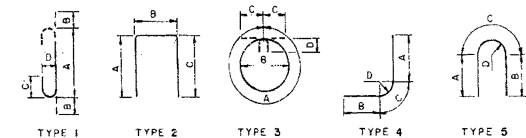
CONSULTING ENGINEERS
AND SURVEYORS

Archive Plans for informational

COUNTY	CONTRACT	P. & A. REF. NO.	STATE	PER. AND PROJECT NO.	PROJECT NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL	RS-1036(2)	/21	
CHRISTIANA BYPASS						
NO.				REVISIONS	BY	DATE

BAR BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT OF BARS



DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BAR LIST I

BRIDGE OVER CHRISTINA RIVER

Goodkind & Ode, Inc.	CONSULTING ENGINEERS (P.E. PLANNERS)	DWG. NO.	D	T	C	SCALE	APPROVED BY	BRIDGE ENGINEER
		25						

MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	REMARKS
WEST ABUTMENT										
WEST ABUTMENT FOOTING										
F 501	5	STR	60-0	24						LONG TOP
F 502	5	STR	48-6	24						LONG TOP
F 503	5	STR	14-3	10						TRANS TOP
F 504	5	STR	8-6	8						LONG TOP
F 505	5	STR	9-0	20						LONG TOP
F 506	5	STR	20-3	10						TRANS TOP
F 507	5	STR	11-6	10						TRANS BOT
F 508	5	STR	10-6	106						TRANS TOP
F 509	5	STR	3-0	80						DOWELS
F 510	5	STR	4-4	99						DOWELS
F 511	5	STR	7-1	15						DOWELS
F 512	5	STR	3-8	12						DOWELS
F 601	6	STR	10-6	164						TRANS BOT
F 602	6	STR	14-3	18						TRANS BOT
F 603	6	STR	5-6	8						DOWELS
F 604	6	4	13-4	17	6-1	5-7	1-7.8	1-0		DOWELS
SUBTOTAL THIS POUR					8833 LBS.					
PILE REINFORCING										
*P 301	3	5	2-11	315	2-2.9	0-9	0-4	0-4		TIES
*P 601	6	1	8-8	378	8-0	0-8	0-6	0-6		VERT
* PAID FOR IN UNIT PRICE BID FOR CAST-IN-PLACE PILES										
WEST ABUTMENT-EASTBOUND										
ABUTMENT STEM										
AS 501	5	STR	6-11	43						VERT RF
AS 502	5	STR	5-2	29						VERT NF
AS 503	5	STR	43-2	18						HORIZ EF
AS 504	5	STR	23-3	2						HORIZ EF
AS 505	5	2	5-8	10	3-9	2-0	--			HORIZ NF
AS 506	5	2	5-5	18	1-11	1-9	1-11			VERT PAD
AS 507	5	2	5-2	29	1-6	3-9	--			TRANS SEAT
AS 508	5	STR	5-10	32						VERT BKWL
AS 509	5	2	3-11	43	2-6	1-6	--			VERT BKWL
AS 510	5	2	6-10	28	4-0	0-8	2-4			VERT BKWL
AS 511	5	2	5-7	42	4-0	1-8	--			VERT BKWL
AS 512	5	STR	9-7	2						VERT NF
AS 513	5	STR	5-9	2						VERT CKWL
AS 514	5	2	8-2	4	3-10	0-8	3-10			HORIZ CKWL
AS 515	5	STR	40-6	2						HORIZ NEAR
AS 516	5	STR	7-6	1						VERT NF
AS 601	6	STR	43-2	5						HORIZ SEAT
PAD REINFORCING										
AP 501	5	STR	2-8	24						HORIZ PAD
SUBTOTAL THIS POUR					3094 LBS.					
NORTHWEST WINGWALL										
WS 501	5	STR	8-8	16						HORIZ NF
WS 502	5	STR	12-0	7						VERT NF
WS 503	5	STR	10-4	8						VERT RF
WS 601	6	STR	8-10	14						HORIZ CAN
WS 602	6	2	9-9	6	3-9	1-0	5-3			VERT CANT
			10-11		10	1-0	7-10			
SUBTOTAL THIS POUR					615 LBS.					
EPOXY COATED BARS-NW WINGWALL AND BARRIER RAIL										
EW 601	6	7	4-0	19	--	2-6	0-10	1-3	1-6	VERT NW S
EBW701	7	STR	14-8	7						HORIZ BAR
EBW501	5	21	5-0	19	2-2 1/4	0-7 3/4	2-2	0-2 3/16	0-2 3/8	VERT BAR
EBW502	5	STR	1-6	1						HORIZ MED
EBW503	5	2	3-1	1	1-6	0-3	1-6			HORIZ MED
EBW504	5	2	3-2	1	1-6	0-4	1-6			HORIZ MED
EBW505	5	2	3-9	1	1-6	0-11	1-6			HORIZ MED
SUBTOTAL THIS POUR					435 LBS.					

MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	REMARKS
WEST ABUTMENT										
WEST ABUTMENT-EASTBOUND										
AS 501	5	STR	8-5 10-8	42						VERT RF
AS 502	5	STR	6-8 9-11	29						VERT NF
AS 503	5	STR	43-2	18						HORIZ EF
AS 504	5	STR	24-2	2						HORIZ EF
AS 505	5	2	5-8	12	3-9	2-0	--			HORIZ NF
AS 506	5	2	5-5	18	1-11	1-9	1-11			VERT PAD
AS 507	5	2	5-2	29	1-6	3-9	--			TRANS SEAT
AS 508	5	STR	5-10	31						VERT BKWL
AS 509	5	2	3-11	43	2-6	1-6	--			VERT BKWL
AS 510	5	2	6-10	28	4-0	0-8	2-4			VERT BKWL
AS 511	5	2	5-7	42	4-0	1-8	--			VERT BKWL
AS 512	5	STR	13-2	2						VERT NF
AS 513	5	STR	5-9	2						VERT NF
AS 514	5	2	8-2	4	3-10	0-8	3-10			HORIZ CKWL
AS 515	5	STR	40-6	2						HORIZ CKWL
AS 516	5	STR	41-10	4						HORIZ CKWL
AS 517	5	7	6-10	1	--	2-10	2-10	2-10	4-0	VERT NF
AS 518	5	2	4-1	1	2-8	1-6	--			HORIZ NF
AS 519	5	2	5-7	2	2-8	3-0	--			HORIZ NF
AS 520	5	2	2-6	1	1-9	0-10	--			HORIZ RF
AS 521	5	2	4-0	1	1-9	2-4	--			HORIZ RF
AS 522	5	STR	6-9	1						VERT NF
AS 601	6	STR	43-2	5						HORIZ SEAT
PAD REINFORCING										
AP 501	5	STR	2-8	24						HORIZ PAD
SUBTOTAL THIS POUR					3335 LBS.					
SOUTHWEST WINGWALL										
WS 501	5	STR	14-8	20						HORIZ NF
WS 502	5	STR	13-8	11						VERT NF
WS 503	5	STR	11-6	14						VERT RF
WS 504	5	STR	5-8	14						VERT RF
WS 601	6	STR	8-10	14						HORIZ CANT
WS 602	6	2	9-9 14-11	6	3-9 10 14-4	1-0 10 1-0	5-3 7-10			VERT CANT
SUBTOTAL THIS POUR					1035 LBS.					
EPOXY COATED BARS-SW WINGWALL & BARRIER RAIL										
EBR501	5	21	5-0	26	2-2 1/2	0-7 1/2	2-2	0-2 3/16	0-2 5/8	VERT BARS
EBR502	5	STR	3-0	1						HORIZ MED
EBR503	5	2	6-1	1	3-0	0-3	3-0			VERT MED
EBR504	5	2	6-2	1	3-0	0-4	3-0			HORIZ MED
EBR505	5	2	6-9	1	3-0	0-11	3-0			HORIZ MED
EW 601	6	7	4-0	22	--	2-6	0-10	1-3	1-6	VERT WS
EW 602	6	7	6-6	2	--	5-0	0-10	1-3	1-6	VERT MED
EW 603	6	7	3-9	1	--	2-3	0-10	1-3	1-6	VERT MED
EW 604	6	10	3-7	1	1-0	1-2	1-6	--	0-10	VERT MED
EBR701	7	STR	20-8	7						HORIZ DAP
SUBTOTAL THIS POUR					810 LBS.					
MEDIAN WALL-WEST ABUTMENT										
MW 501	5	STR	16-1	24						HORIZ NF
MW 502	5	STR	14-5	29						VERT NF
SUBTOTAL THIS POUR					839 LBS.					

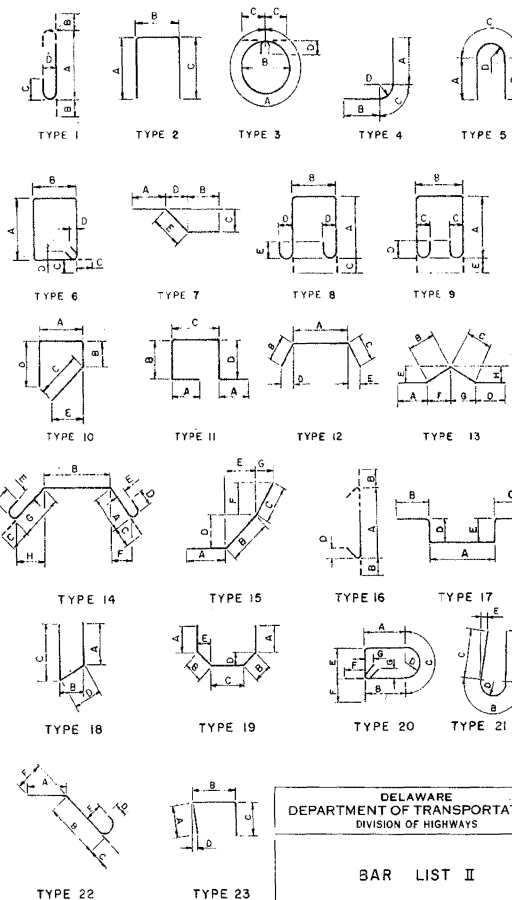
MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	REMARKS
EAST ABUTMENT FOOTING										
F 501	5	STR	60-0	24						LONG TOP
F 502	5	STR	48-6	24						LONG TOP
F 503	5	STR	14-3	20						TRANS TOP
F 504	5	STR	8-6	8						LONG TOP
F 505	5	STR	9-0	20						LONG TOP
F 506	5	STR	20-3	10						TRANS TOP
F 507	5	STR	11-6	10						TRANS BOT
F 508	5	STR	10-6	106						TRANS TOP
F 509	5	STR	3-0	80						DOWELS
F 510	5	STR	4-4	99						DOWELS
F 511	5	STR	7-1	13						DOWELS
F 512	5	STR	5-8	12						DOWELS
F 601	6	STR	10-6	164						TRANS BOT
F 602	6	STR	14-3	18						TRANS BOT
F 603	6	STR	5-6	8						DOWELS
F 604	6	4	13-4	17	6-1	5-7	1-7.8	1-0		DOWELS
SUBTOTAL THIS POUR					8982 LBS.					
PILE REINFORCING										
*P 501	3	3	3-8	315	2-2.9	0-9	0-4	0-4		TIES
*P 501	6	1	8-8	378	8-0	0-8	0-6	0-6		VERT
* PAID FOR IN UNIT PRICE BID FOR CAST-IN-PLACE PILES										
EAST ABUTMENT-VESTBOUND ABUTMENT STEM										
AS 501	5	STR	7-1 9-4	43						VERT RF
AS 502	5	STR	5-5 7-8	29						VERT NF
AS 503	5	STR	43-2	14						HORIZ EF
AS 504	5	STR	27-2	2						HORIZ NF
AS 505	5	2	5-8	10	3-9	2-0	--			HORIZ NF
AS 506	5	2	5-5	18	1-11	1-9	1-11			VERT PAD
AS 507	5	2	5-2	29	1-6	3-9	--			TRANS SE
AS 508	5	STR	3-10	31						VERT BKWL
AS 509	5	2	3-11	43	2-6	1-6	--			VERT BKWL
AS 510	5	2	6-10	28	4-0	0-8	2-4			VERT NF
AS 511	5	2	5-7	42	4-0	1-8	--			VERT BKWL
AS 512	5	STR	9-10	2						VERT NF
AS 513	5	STR	5-9	2						VERT NF
AS 514	5	2	8-2	4	3-10	0-8	3-10			HORIZ CKWL
AS 515	5	STR	40-6	2						HORIZ CKWL
AS 516	5	STR	41-10	4						HORIZ BKWL
AS 517	5	7	6-10	1	--	2-10	2-10	2-10	4-0	VERT NF
AS 518	5	2	4-1	1	2-8	1-6	--			HORIZ NF
AS 519	5	2	5-7	2	2-8	3-0	--			HORIZ NF
AS 520	5	2	2-6	1	1-9	0-10	--			HORIZ RF
AS 521	5	2	4-0	2	1-9	2-4	--			HORIZ RF
AS 522	5	STR	7-8	1						VERT NF
AS 601	6	STR	43-2	5						HORIZ SEAT
PAD REINFORCING										
AP 501	5	STR	2-8	24						HORIZ PAD
SUBTOTAL THIS POUR					3047 LBS.					
NORTHEAST WINGWALL										
WS 501	5	STR	8-8	16						HORIZ NF
WS 502	5	STR	12-4	7						VERT NF
WS 503	5	STR	10-8	9						VERT RF
WS 601	6	STR	8-10	14						HORIZ CANT
WS 602	6	2	9-9 10 14-11	6	3-9 10 10	1-0 1-0 6-4	5-3 7-10 7-10			VERT CANT
SUBTOTAL THIS POUR					621 LBS.					
EPOXY COATED BARS NE WINGWALL AND BARRIER RAIL										
EBR501	5	21	5-0	20	2-21	0-73	2-2	0-23	0-23	VERT BARRIER
EBR502	5	STR	3-0	1						HORIZ MED
EBR503	5	2	6-1	1	3-0	0-3	3-0			HORIZ MED
EBR504	5	2	6-2	1	3-0	0-4	3-0			HORIZ MED
EBR505	5	2	6-9	1	3-0	0-11	3-0			HORIZ MED
EW 601	6	7	4-0	16	--	2-6	0-10	1-3	1-6	VERT WM
EW 602	6	7	6-6	2	--	5-0	0-10	1-3	1-6	VERT MED
EW 603	6	7	3-9	1	--	2-3	0-10	1-3	1-6	VERT MED
EW 604	6	10	3-7	1	1-0	1-2	1-6	--	0-10	VERT MED
EBR701	7	STR	14-8	7						HORIZ BARRIER
SUBTOTAL THIS POUR					464 LBS.					

MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	REMARKS
EAST ABUTMENT-EASTBOUND ABUTMENT STEM										
AS 501	5	STR	8-7 10-11	42						VERT RF
AS 502	5	STR	6-11 7-2	29						VERT NF
AS 503	5	STR	43-2	20						HORIZ EF
AS 504	5	STR	27-1	2						HORIZ NF
AS 505	5	2	5-8	13	3-9	2-0	--			HORIZ NF
AS 506	5	2	5-5	18	1-11	1-9	1-11			VERT PAD
AS 507	5	2	5-2	29	1-6	3-9	--			TRANS SE
AS 508	5	STR	5-10	32						VERT BKWL
AS 509	5	2	3-11	43	2-6	1-6	--			VERT BKWL
AS 510	5	2	6-10	26	4-0	0-8	2-4			VERT NF
AS 511	5	2	5-7	42	4-0	1-8	--			VERT NF
AS 512	5	STR	13-5	2						VERT NF
AS 513	5	STR	5-9	2						VERT CKWL
AS 514	5	2	10-2	4	3-10	0-8	3-10			VERT CKWL
AS 515	5	STR	40-6	2						HORIZ NF
AS 516	5	STR	6-11	1						VERT NF
AS 601	6	STR	43-2	5						HORIZ SE
PAD REINFORCING										
AP 501	5	STR	2-6	24						HORIZ PAD
SUBTOTAL THIS POUR					3335 LBS.					
SOUTHEAST WINGWALL										
WS 501	5	STR	14-8	22						HORIZ NF
WS 502	5	STR	10-11	18						VERT NF
WS 503	5	STR	11-6	14						VERT RF
WS 504	5	STR	5-11	14						VERT RF
WS 601	6	STR	8-10	14						HORIZ CA
WS 602	6	2	9-9 12-11	6	3-9 6-4	1-0 1-0	5-3 7-10			VERT CA
SUBTOTAL THIS POUR					1072 LBS.					
EPOXY COATED BARS-SE WINGWALL & BARRIER RAIL										
EBR501	5	21	5-0	25	2-21	0-73	2-2	0-23	0-23	VERT BAR
EBR502	5	STR	1-6	1						HORIZ ME
EBR503	5	2	3-1	1	1-6	0-3	1-6			HORIZ ME
EBR504	5	2	3-2	1	1-6	0-4	1-6			HORIZ ME
EBR505	5	2	3-9	1	1-6	0-11	1-6			HORIZ ME
EW 601	6	7	4-0	25	--	2-6	0-10	1-3	1-6	VERT MW
EBR701	7	STR	20-8	7						HORIZ BA
SUBTOTAL THIS POUR					586 LBS.					
MEDIAN WALL-EAST ABUTMENT										
MW 501	5	STR	16-1	24						HORIZ NF
MW 502	5	STR	14-1C	29						VERT NF
SUBTOTAL THIS POUR					851 LBS.					

COUNTY	CONTRACT	P.E. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	2	DEL	RS-1036(2)	22	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			

BAR BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT OF BARS



DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BAR LIST II

BRIDGE OVER CHRISTINA RIVER

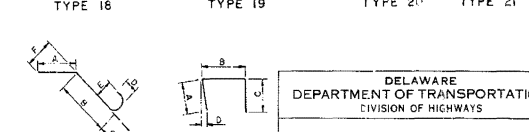
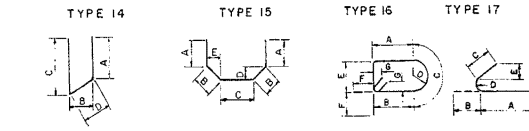
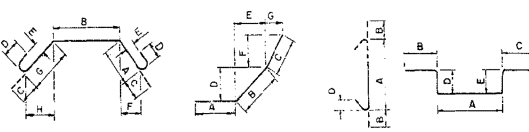
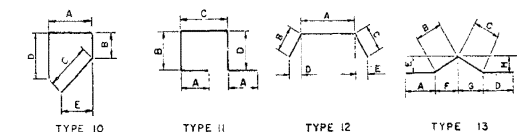
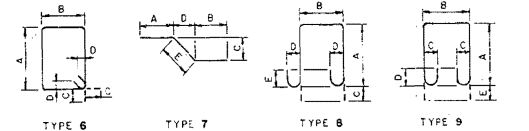
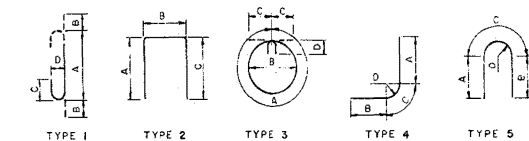
DWG. NO.	DATE	SCALE	APPROVED BY:	BRIDGE ENGINEER
26				

Goodkind & Odeh, Inc.
CONSULTING ENGINEERS
AND PLANNERS

COUNTY	CONTRACT	F.S.D. NO.	STATE	REV. AND PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-01-07	5	DEL.	RS-1036(2)	123	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			

BAR BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT OF BARS



DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BAR LIST III

BRIDGE OVER CHRISTIANA RIVER

DWG. NO.	SCALE	APPROVED BY
27		

Goodkind
& Odeh, Inc.
CONSULTING ENGINEERS
AND ARCHITECTS

BRIDGE ENGINEER

PIER 1 - WESTBOUND

MARK	SIZE	TYPE	LENGTH	NO.	A	B	C	D	E	F	REMARKS
PF 501	5	STR	8-6	58							TRANS TOP & BOT.
PF 502	5	STR	23-6	17							LONG TOP & BOT.

PF 701	7	1	11-1	38	10-3	0-10	0-7	0-7			VERT DOWELS
*P 501	3	3	2-11	120	2-2.9	0-9	0-4	0-4			PILE TIES
*P 601	6	1	8-8	144	8-0	0-8	0-6	0-6			PILE VERT

SUBTOTAL THIS POUR 1738 LBS.

(* NOT INCLUDED IN SUBTOTAL)

PIER STEM

PS 501 5 STR 12-9 22

PS 502 5 STR 18-0 16

PS 503 5 STR 16-2 30

PS 504 5 5 10-2 30

PS 505 5 1 3-5 90

PS 506 5 2 3-9 28

PS 507 5 2 10-11 28

PS 508 5 2 5-11 8

PS 509 5 2 6-1 18

PS 510 5 2 2-8 18

PS 511 5 2 2-3 18

PS 512 5 2 7-7 1

PS 513 5 2 2-0 2-0

PS 514 5 2 3-6.5 1-1.5

PS 515 5 2 2-0 2-0

PS 516 5 2 3-6.5 1-1.5

PS 517 5 2 3-6.5 1-1.5

PS 518 5 2 3-6.5 1-1.5

PS 519 5 2 3-6.5 1-1.5

PS 520 5 2 3-6.5 1-1.5

PS 521 5 2 3-6.5 1-1.5

PS 522 5 2 3-6.5 1-1.5

PS 523 5 2 3-6.5 1-1.5

PS 524 5 2 3-6.5 1-1.5

PS 525 5 2 3-6.5 1-1.5

PS 526 5 2 3-6.5 1-1.5

PS 527 5 2 3-6.5 1-1.5

PS 528 5 2 3-6.5 1-1.5

PS 529 5 2 3-6.5 1-1.5

PS 530 5 2 3-6.5 1-1.5

PS 531 5 2 3-6.5 1-1.5

PS 532 5 2 3-6.5 1-1.5

PS 533 5 2 3-6.5 1-1.5

PS 534 5 2 3-6.5 1-1.5

PS 535 5 2 3-6.5 1-1.5

PS 536 5 2 3-6.5 1-1.5

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PS 538 5 2 3-6.5 1-1.5

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PS 542 5 2 3-6.5 1-1.5

PS 543 5 2 3-6.5 1-1.5

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PS 545 5 2 3-6.5 1-1.5

PS 546 5 2 3-6.5 1-1.5

PS 547 5 2 3-6.5 1-1.5

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PS 556 5 2 3-6.5 1-1.5

PS 557 5 2 3-6.5 1-1.5

PS 558 5 2 3-6.5 1-1.5

PS 559 5 2 3-6.5 1-1.5

PS 560 5 2 3-6.5 1-1.5

PS 561 5 2 3-6.5 1-1.5

PS 562 5 2 3-6.5 1-1.5

PS 563 5 2 3-6.5 1-1.5

PS 564 5 2 3-6.5 1-1.5

PS 565 5 2 3-6.5 1-1.5

PS 566 5 2 3-6.5 1-1.5

PS 567 5 2 3-6.5 1-1.5

PS 568 5 2 3-6.5 1-1.5

PS 569 5 2 3-6.5 1-1.5

PS 570 5 2 3-6.5 1-1.5

PS 571 5 2 3-6.5 1-1.5

PS 572 5 2 3-6.5 1-1.5

PS 573 5 2 3-6.5 1-1.5

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PS 575 5 2 3-6.5 1-1.5

PS 576 5 2 3-6.5 1-1.5

PS 577 5 2 3-6.5 1-1.5

PS 578 5 2 3-6.5 1-1.5

PS 579 5 2 3-6.5 1-1.5

PS 580 5 2 3-6.5 1-1.5

PS 581 5 2 3-6.5 1-1.5

PS 582 5 2 3-6.5 1-1.5

PS 583 5 2 3-6.5 1-1.5

PS 584 5 2 3-6.5 1-1.5

PS 585 5 2 3-6.5 1-1.5

PS 586 5 2 3-6.5 1-1.5

PS 587 5 2 3-6.5 1-1.5

PS 588 5 2 3-6.5 1-1.5

PS 589 5 2 3-6.5 1-1.5

PS 590 5 2 3-6.5 1-1.5

PS 591 5 2 3-6.5 1-1.5

PS 592 5 2 3-6.5 1-1.5

PS 593 5 2 3-6.5 1-1.5

PS 594 5 2 3-6.5 1-1.5

PS 595 5 2 3-6.5 1-1.5

PS 596 5 2 3-6.5 1-1.5

PS 597 5 2 3-6.5 1-1.5

PS 598 5 2 3-6.5 1-1.5

PS 599 5 2 3-6.5 1-1.5

PS 600 5 2 3-6.5 1-1.5

PS 601 5 2 3-6.5 1-1.5

PS 602 5 2 3-6.5 1-1.5

PS 603 5 2 3-6.5 1-1.5

PS 604 5 2 3-6.5 1-1.5

PS 605 5 2 3-6.5 1-1.5

PS 606 5 2 3-6.5 1-1.5

PS 607 5 2 3-6.5 1-1.5

PS 608 5 2 3-6.5 1-1.5

PS 609 5 2 3-6.5 1-1.5

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PS 611 5 2 3-6.5 1-1.5

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PS 618 5 2 3-6.5 1-1.5

PS 619 5 2 3-6.5 1-1.5

PS 620 5 2 3-6.5 1-1.5

PS 621 5 2 3-6.5 1-1.5

PS 622 5 2 3-6.5 1-1.5

PS 623 5 2 3-6.5 1-1.5

PS 624 5 2 3-6.5 1-1.5

PS 625 5 2 3-6.5 1-1.5

PS 626 5 2 3-6.5 1-1.5

PS 627 5 2 3-6.5 1-1.5

PS 628 5 2 3-6.5 1-1.5

PS 629 5 2 3-6.5 1-1.5

PS 630 5 2 3-6.5 1-1.5

PS 631 5 2 3-6.5 1-1.5

PS 632 5 2 3-6.5 1-1.5

PS 633 5 2 3-6.5 1-1.5

PS 634 5 2 3-6.5 1-1.5

PS 635 5 2 3-6.5 1-1.5

PS 636 5 2 3-6.5 1-1.5

PS 637 5 2 3-6.5 1-1.5

PS 638 5 2 3-6.5 1-1.5

PS 639 5 2 3-6.5 1-1.5

PS 640 5 2 3-6.5 1-1.5

PS 641 5 2 3-6.5 1-1.5

PS 642 5 2 3-6.5 1-1.5

PS 643 5 2 3-6.5 1-1.5

PS 644 5 2 3-6.5 1-1.5

PS 645 5 2 3-6.5 1-1.5

PS 646 5 2 3-6.5 1-1.5

PS 647 5 2 3-6.5 1-1.5

PS 648 5 2 3-6.5 1-1.5

PS 649 5 2 3-6.5 1-1.5

PS 650 5 2 3-6.5 1-1.5

PS 651 5 2 3-6.5 1-1.5

PS 652 5 2 3-6.5 1-1.5

PS 653 5 2 3-6.5 1-1.5

PS 654 5 2 3-6.5 1-1.5

PS 655 5

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COUNTY	CONTRACT	C.A. NO.	STATE	PER. AND PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	76-01-07	3	DEL	RS-1036(2)	124	
CHRISTIANA BYPASS						
NO.	REVISIONS	BY	DATE			

PIER 2 - WESTBOUND

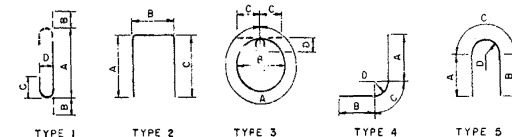
MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	F	REMARKS
PIER FOOTING											
PF 501	5	STR	8-6	58							TRANS TOP & BOT.
PF 502	5	STR	23-6	17							LONG TOP & BOT.
PF 701	7	1	11-1	38	10-3	0-10	0-7	0-7			VERT DWELS
PF 701	3	3	2-11	120	2-2.9	0-9	0-4	0-4			PILE TIES
PF 601	6	1	8-8	144	8-0	0-8	0-6	0-5			PILE VERT
SUBTOTAL THIS POUR 1732 LBS. (# NOT INCLUDED IN SUBTOTAL)											
PIER STEM											
PS 501	5	STR	12-9	22							VERT STEM
PS 502	5	STR	18-0	16							VERT STEM
PS 503	5	STR	16-2	30							HOR EF
PS 504	5	5	10-2	30	3-3.5	3-3.5	3-6.5	1-1.5			END OF STEM
PS 505	5	1	3-5	90	2-3	0-7	0-7	0-5			HOR TIES
SUBTOTAL THIS POUR 1738 LBS.											
PIER CAP											
PB 501	5	STR	40-1	2							LONG EF
PB 502	5	STR	39-9	2							LONG EF
PB 503	5	STR	39-5	2							LONG EF
PB 504	5	STR	36-5	2							LONG EF
PB 505	5	STR	30-10	2							LONG EF
PB 506	5	STR	25-3	2							LONG EF
PB 507	5	STR	20-0	2							LONG EF
PB 508	5	2	9-9	28	3-9	2-3	3-9				VERT TIES
PB 509	5	2	10-11	28	4-5	2-3	4-5				VERT TIES
PB 510	5	2	5-11	8	2-0	2-1.7	2-0				HOR END
PB 511	5	2	6-1	18	2-0	2-3	2-0				VERT PEDESTAL
PB 512	5	STR	2-8	18							HOR PEDESTAL
PB 513	5	STR	2-3	18							TRANS SUPPORT
PB 514	5	5	7-7	1	2-0	2-0	3-6.5	1-1.5			END OF STEM
PB 601	6	7	15-5	4	11-8	--	3-2	--	3-9		LONG END
PB 602	6	12	15-3	4	9-6	2-0	3-9	1-11.5	1-9		LONG END
PB 603	6	22	10-1	2	1-6	7-11	0-8	0-6	0-6	1-0	HOR BENT
PB 604	6	22	11-0	2	2-11	7-5	0-8	0-6	0-6	2-0.5	HOR BENT
PB 605	6	22	11-11	2	4-4	6-10.5	0-8	0-6	0-6	3-0.5	HOR BENT
PB 606	6	22	13-0	2	5-5	6-10.5	0-8	0-6	0-6	3-10	HOR BENT
PB 607	6	22	13-10	2	6-10	6-4	0-8	0-6	0-6	4-10	HOR BENT
PB 608	6	22	14-9	2	8-3	5-9.5	0-8	0-6	0-6	5-10	HOR BENT
PB 609	6	22	10-4	2	1-6	8-2	0-8	0-6	0-6	1-0	HOR BENT
PB 610	6	22	11-3	2	2-11	7-8	0-8	0-6	0-6	2-0.5	HOR BENT
PB 611	6	22	12-2	2	4-4	7-2	0-8	0-6	0-6	3-0.5	HOR BENT
PB 612	6	22	13-2	2	5-5	7-1	0-8	0-6	0-6	3-10	HOR BENT
PB 613	6	22	14-1	2	6-10	6-7	0-8	0-6	0-6	4-10	HOR BENT
PB 614	6	22	15-0	2	8-3	6-1	0-8	0-6	0-6	5-10	HOR BENT
PB1001	10	STR	40-7	6							LONG TOP
PB1002	10	22	25-9	2	10-10	5-10	1-5	0-11.5	1-0.7	7-7.5	HOR BENT
PB1003	10	22	27-8	2	12-3	5-4	1-5	0-11.5	1-0.7	8-7.5	HOR BENT
PB1004	10	22	28-9	2	13-7	4-1	1-5	0-11.5	1-0.7	9-7.5	HOR BENT
PB1005	10	22	29-0	2	13-8	4-3.5	1-5	0-11.5	1-0.7	9-7.5	HOR BENT
PB1006	10	22	27-10	2	12-3	5-4	1-5	0-11.5	1-0.7	8-7.5	HOR BENT
PB1007	10	22	26-0	2	10-10	6-1	1-5	0-11.5	1-0.7	7-7.5	HOR BENT
SUBTOTAL THIS POUR 4456 LBS.											

PIER 2 - EASTBOUND

MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	F	REMARKS
PIER FOOTING											
PF 501	5	STR	8-6	58							TRANS TOP & BOT.
PF 502	5	STR	23-6	17							LONG TOP & BOT.
PF 701	7	1	11-1	38	10-3	0-10	0-7	0-7			VERT DWELS
PF 701	3	3	2-11	120	2-2.9	0-9	0-4	0-4			PILE TIES
PF 601	6	1	8-8	144	8-0	0-8	0-6	0-5			PILE VERT
SUBTOTAL THIS POUR 1732 LBS. (# NOT INCLUDED IN SUBTOTAL)											
PIER STEM											
PS 501	5	STR	12-9	22							VERT STEM
PS 502	5	STR	18-0	16							VERT STEM
PS 503	5	STR	16-2	30							HOR EF
PS 504	5	5	10-2	30	3-3.5	3-3.5	3-6.5	1-1.5			END OF STEM
PS 505	5	1	3-5	90	2-3	0-7	0-7	0-5			HOR TIES
SUBTOTAL THIS POUR 1738 LBS.											
PIER CAP											
PB 501	5	STR	40-1	2							LONG EF
PB 502	5	STR	39-9	2							LONG EF
PB 503	5	STR	39-5	2							LONG EF
PB 504	5	STR	36-5	2							LONG EF
PB 505	5	STR	30-10	2							LONG EF
PB 506	5	STR	25-3	2							LONG EF
PB 507	5	STR	20-0	2							LONG EF
PB 508	5	2	9-9	28	3-9	2-3	3-9				VERT TIES
PB 509	5	2	10-11	28	4-5	2-3	4-5				VERT TIES
PB 510	5	2	5-11	8	2-0	2-1.7	2-0				HOR END
PB 511	5	2	6-1	18	2-0	2-3	2-0				VERT PEDESTAL
PB 512	5	STR	2-8	18							HOR PEDESTAL
PB 513	5	STR	2-3	18							TRANS SUPPORT
PB 514	5	5	7-7	1	2-0	2-0	3-6.5	1-1.5			END OF STEM
PB 601	6	7	15-5	4	11-8	--	3-2	--	3-9		LONG END
PB 602	6	12	15-3	4	9-6	2-0	3-9	1-11.5	1-9		LONG END
PB 603	6	22	10-1	2	1-6	7-11	0-8	0-6	0-6	1-0	HOR BENT
PB 604	6	22	11-0	2	2-11	7-5	0-8	0-6	0-6	2-0.5	HOR BENT
PB 605	6	22	11-11	2	4-4	6-10.5	0-8	0-6	0-6	3-0.5	HOR BENT
PB 606	6	22	13-0	2	5-5	6-10.5	0-8	0-6	0-6	3-10	HOR BENT
PB 607	6	22	13-10	2	6-10	6-4	0-8	0-6	0-6	4-10	HOR BENT
PB 608	6	22	14-9	2	8-3	5-9.5	0-8	0-6	0-6	5-10	HOR BENT
PB 609	6	22	10-4	2	1-6	8-2	0-8	0-6	0-6	1-0	HOR BENT
PB 610	6	22	11-3	2	2-11	7-8	0-8	0-6	0-6	2-0.5	HOR BENT
PB 611	6	22	12-2	2	4-4	7-2	0-8	0-6	0-6	3-0.5	HOR BENT
PB 612	6	22	13-2	2	5-5	7-1	0-8	0-6	0-6	3-10	HOR BENT
PB 613	6	22	14-1	2	6-10	6-7	0-8	0-6	0-6	4-10	HOR BENT
PB 614	6	22	15-0	2	8-3	6-1	0-8	0-6	0-6	5-10	HOR BENT
PB1001	10	STR	40-7	6							LONG TOP
PB1002	10	22	25-9	2	10-10	5-10	1-5	0-11.5	1-0.7	7-7.5	HOR BENT
PB1003	10	22	27-8	2	12-3	5-4	1-5	0-11.5	1-0.7	8-7.5	HOR BENT
PB1004	10	22	28-9	2	13-7	4-1	1-5	0-11.5	1-0.7	9-7.5	HOR BENT
PB1005	10	22	29-0	2	13-8	4-3.5	1-5	0-11.5	1-0.7	9-7.5	HOR BENT
PB1006	10	22	27-10	2	12-3	5-4	1-5	0-11.5	1-0.7	8-7.5	HOR BENT
PB1007	10	22	26-0	2	10-10	6-1	1-5	0-11.5	1-0.7	7-7.5	HOR BENT
SUBTOTAL THIS POUR 4456 LBS.											

BAR BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT OF BARS



[illegible]

MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	F	REMARKS
DECK SLAB-LOADBOUND											
S 501	5	STR	60-0	138							LONG BOT
S 502	5	STR	58-0	3							LONG BOT
S 503	5	STR	50-6	5							LONG BOT
S 504	5	STR	52-1	8							LONG BOT
S 505	5	STR	53-5	8							LONG BOT
S 506	5	STR	54-8	8							LONG BOT
S 507	5	STR	56-0	8							LONG BOT
S 508	5	STR	57-2	8							LONG BOT
S 509	5	STR	43-2	428							TRANS BOT
S 511	5	STR	7-2	20							TRANS BO

SUBTOTAL THIS POUR 32673 LBS.

ES 510	5	1	44-4	426	43-2	0-7	0-5	0-4.5	
ES 512	5	10	2-7	70	0-8	1-3.5	0-9	--	0-6.5
ES 513	5	STR	45-5	100					
ES 514	5	STR	60-0	102					
ES 515	5	STR	50-6	5					
ES 516	5	STR	58-0	29					

ES 601 6 10 5-3 485 1-0 0-10 1-6 2-1 0-10.5

EBR501	5	21	5-0	484	2-2 ¹ ₄	0-7 ³ ₄	2-2	0-2 ³ ₁₆	0-2 ⁵ ₈
EBR701	7	STR	14-8	182					
EBR702	7	STR	8-11	14					
EBR703	7	STR	11-3	14					
EBR704	7	STR	10-2	7					
EBR705	7	STR	13-1	7					

SUBTOTAL THIS POUR	45679 LBS.
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APPROACH SLAB-EASTBOUND									
AS 501	5	STR	10-11	104					
AS 502	5	STR	3-0	208					
AS 503	5	STR	23-6	104					
AS 504	5	STR	4-11	104					
AS 505	5	7	4-7	86	2-0	--	1-2	2-4	2-7
AS 506	8	1	28-6	164	74-5	2-0	0-10.5	1-1	
AS 701	7	STR	24-6	66					

SUBTOTAL THIS POUR 22114 LBS.

MARK	SIZE	TYPE	LENGTH	NO	A	B	C	D	E	F	REMARKS
DECK SLAB-WESTBOUND											
S	501	5	STR	60-0	138						
S	502	5	STR	47-6	3						LONG BOT
S	503	5	STR	60-3	3						LONG BOT
S	504	5	STR	41-6	8						LONG BOT
S	505	5	STR	42-11	8						LONG BOT
S	506	5	STR	44-2	8						LONG BOT
S	507	5	STR	45-7	8						LONG BOT
S	508	5	STR	47-3	8						LONG BOT
S	509	5	STR	45-2	40P						TRANS 60
S	511	5	STR	7-2	20						TRANS 60

SUBTOTAL THIS POUR 29320 LBS.

ES 510	5	1	44-4	407	43-2	0-7	0-5	0-4,5	
ES 512	5	10	2-7	70	0-8	1-3,5	0-9	--	0-6,5
ES 513	5	STR	43-8	100					
ES 514	5	STR	60-0	102					
ES 515	5	STR	40-3	5					
ES 516	5	STR	47-5	29					

ES 601	6	10	5-3	465	1-0	0-10	1-6	2-1	0-10.5
EBR501	5	21	5-0	465	2-2 $\frac{1}{4}$	0-7 $\frac{3}{4}$	2-2	0-2 $\frac{3}{16}$	0-2 $\frac{5}{8}$

EBR701	7	STR	14-8	182
EBR702	7	STR	5-8	14
EBR703	7	STR	8-0	14
EBR704	7	STR	6-2	7
EBR705	7	STR	9-1	7
SUBTOTAL THIS POUR				43659 LBS.

APPROACH SLAB-WESTBOUND

AS 501	5	STR	10-11	104					
AS 502	5	STR	3-0	208					
AS 503	5	STR	23-6	104					
AS 504	5	STR	4-11	104					
AS 505	5	7	4-7	86	2-0	--	1-2	2-4	2-7

AS 801	8	1	28-6	164	24-6	2-0	0-10.5	1-1
AS 702	7	STR	24-6	86				

SUBTOTAL THIS POUR 22114 LBS.

REMARKS
LONG BOT
LONG BOT
LONG BOT
LONG BOT
LONG BOT
LONG BOT
LONG BOT
LONG BOT
TRANS BOT
TRANS BOT ENG

TRANS TOP
LONG END
LONG TOP PIERS
LONG TOP
LONG TOP
LONG TOP

DECK TO BARRIER
VERT BARRIER

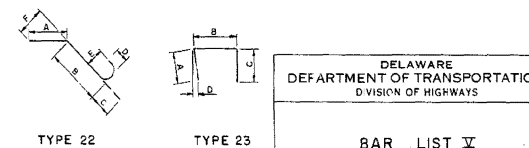
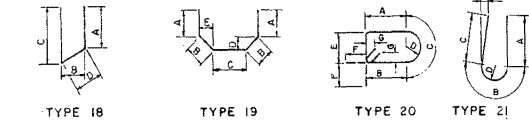
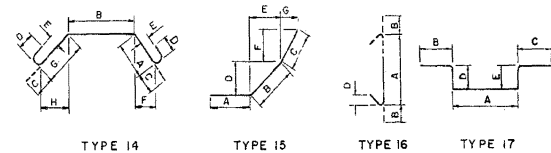
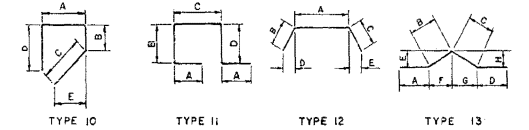
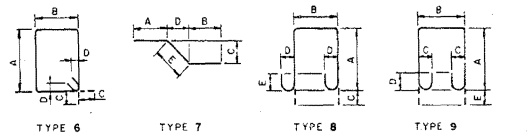
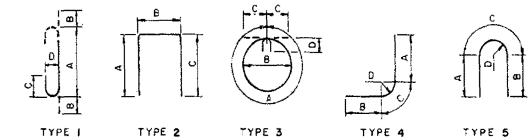
HOR BARRIER
HOR BARRIER
HOR BARRIER
HOR BARRIER
HOR BARRIER

TRANS TOP & BOT
TRANS DOWELS
TRANS TOP & BOT
TRANS TOP & BOT
LONG BOT

LONG BOT
LONG TOP

BAR BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT OF BARS



DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

8AR LIST V

BRIDGE OVER CHRISTINA RIVER

Goodkind
& O'Lea, Inc.

**CONSULTING ENGINEERS
AND PLANNERS**

DWG.	NO.
	29

SCALE	APPROVED BY:
-------	--------------

BRIDGE ENGINEER

B-1
Station : 40+45
Offset : 39' Lt. (Radial)

B-2
Station : 41+13
Offset : 39' Rt. (Radial)

B-3
Station : 41+98
Offset : 39' Lt. (Radial)

B-4
Station : 42+66
Offset : 39' Rt. (Radial)

COUNTY	CONTRACT	DATE	FOR AND PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-011-07	3	DEL RS-1036 (2)	126	
CHRISTIANA BYPASS					
NO.	REVISIONS	BY	DATE		

Offset : 39' Lt.(Radiol)

Offset : 39' Rt.(Radiol)

Offset : 39' Lt.(Radiol)

Offset : 39' Rt.(Radiol)

Grd. Elev. = 4.8

Grd. Elev. = 6.5

Grd. Elev. = 5.4

Grd. Elev. = 4.6

NO.	Depth	Blow(s)	SAMPLE DESCRIPTION	STRATA	Depth	Blow(s)
1	0.0-4.5	3	Wet gray stiff silty clay.			
2	4.5-5.0	3	18" Spile - 18" Rec.			
3	5.0-5.5	4	18" Spile - 18" Rec.			
4	5.5-6.0	5	18" Spile - 18" Rec.			
5	6.0-6.5	6	18" Spile - 18" Rec.			
6	6.5-7.0	7	18" Spile - 18" Rec.			
7	7.0-7.5	8	18" Spile - 18" Rec.			
8	7.5-8.0	9	18" Spile - 18" Rec.			
9	8.0-8.5	10	18" Spile - 18" Rec.			
10	8.5-9.0	11	18" Spile - 18" Rec.			
11	9.0-9.5	12	18" Spile - 18" Rec.			
12	9.5-10.0	13	18" Spile - 18" Rec.			
13	10.0-10.5	14	18" Spile - 18" Rec.			
14	10.5-11.0	15	18" Spile - 18" Rec.			
15	11.0-11.5	16	18" Spile - 18" Rec.			
16	11.5-12.0	17	18" Spile - 18" Rec.			
17	12.0-12.5	18	18" Spile - 18" Rec.			
18	12.5-13.0	19	18" Spile - 18" Rec.			
19	13.0-13.5	20	18" Spile - 18" Rec.			
20	13.5-14.0	21	18" Spile - 18" Rec.			
21	14.0-14.5	22	18" Spile - 18" Rec.			
22	14.5-15.0	23	18" Spile - 18" Rec.			
23	15.0-15.5	24	18" Spile - 18" Rec.			
24	15.5-16.0	25	18" Spile - 18" Rec.			
25	16.0-16.5	26	18" Spile - 18" Rec.			
26	16.5-17.0	27	18" Spile - 18" Rec.			
27	17.0-17.5	28	18" Spile - 18" Rec.			
28	17.5-18.0	29	18" Spile - 18" Rec.			
29	18.0-18.5	30	18" Spile - 18" Rec.			
30	18.5-19.0	31	18" Spile - 18" Rec.			
31	19.0-19.5	32	18" Spile - 18" Rec.			
32	19.5-20.0	33	18" Spile - 18" Rec.			
33	20.0-20.5	34	18" Spile - 18" Rec.			
34	20.5-21.0	35	18" Spile - 18" Rec.			
35	21.0-21.5	36	18" Spile - 18" Rec.			
36	21.5-22.0	37	18" Spile - 18" Rec.			
37	22.0-22.5	38	18" Spile - 18" Rec.			
38	22.5-23.0	39	18" Spile - 18" Rec.			
39	23.0-23.5	40	18" Spile - 18" Rec.			
40	23.5-24.0	41	18" Spile - 18" Rec.			
41	24.0-24.5	42	18" Spile - 18" Rec.			
42	24.5-25.0	43	18" Spile - 18" Rec.			
43	25.0-25.5	44	18" Spile - 18" Rec.			
44	25.5-26.0	45	18" Spile - 18" Rec.			
45	26.0-26.5	46	18" Spile - 18" Rec.			
46	26.5-27.0	47	18" Spile - 18" Rec.			
47	27.0-27.5	48	18" Spile - 18" Rec.			
48	27.5-28.0	49	18" Spile - 18" Rec.			
49	28.0-28.5	50	18" Spile - 18" Rec.			
50	28.5-29.0	51	18" Spile - 18" Rec.			
51	29.0-29.5	52	18" Spile - 18" Rec.			
52	29.5-30.0	53	18" Spile - 18" Rec.			
53	30.0-30.5	54	18" Spile - 18" Rec.			
54	30.5-31.0	55	18" Spile - 18" Rec.			
55	31.0-31.5	56	18" Spile - 18" Rec.			
56	31.5-32.0	57	18" Spile - 18" Rec.			
57	32.0-32.5	58	18" Spile - 18" Rec.			
58	32.5-33.0	59	18" Spile - 18" Rec.			
59	33.0-33.5	60	18" Spile - 18" Rec.			
60	33.5-34.0	61	18" Spile - 18" Rec.			
61	34.0-34.5	62	18" Spile - 18" Rec.			
62	34.5-35.0	63	18" Spile - 18" Rec.			
63	35.0-35.5	64	18" Spile - 18" Rec.			
64	35.5-36.0	65	18" Spile - 18" Rec.			
65	36.0-36.5	66	18" Spile - 18" Rec.			
66	36.5-37.0	67	18" Spile - 18" Rec.			
67	37.0-37.5	68	18" Spile - 18" Rec.			
68	37.5-38.0	69	18" Spile - 18" Rec.			
69	38.0-38.5	70	18" Spile - 18" Rec.			
70	38.5-39.0	71	18" Spile - 18" Rec.			
71	39.0-39.5	72	18" Spile - 18" Rec.			
72	39.5-40.0	73	18" Spile - 18" Rec.			
73	40.0-40.5	74	18" Spile - 18" Rec.			
74	40.5-41.0	75	18" Spile - 18" Rec.			
75	41.0-41.5	76	18" Spile - 18" Rec.			
76	41.5-42.0	77	18" Spile - 18" Rec.			
77	42.0-42.5	78	18" Spile - 18" Rec.			
78	42.5-43.0	79	18" Spile - 18" Rec.			
79	43.0-43.5	80	18" Spile - 18" Rec.			
80	43.5-44.0	81	18" Spile - 18" Rec.			
81	44.0-44.5	82	18" Spile - 18" Rec.			
82	44.5-45.0	83	18" Spile - 18" Rec.			
83	45.0-45.5	84	18" Spile - 18" Rec.			
84	45.5-46.0	85	18" Spile - 18" Rec.			
85	46.0-46.5	86	18" Spile - 18" Rec.			
86	46.5-47.0	87	18" Spile - 18" Rec.			
87	47.0-47.5	88	18" Spile - 18" Rec.			
88	47.5-48.0	89	18" Spile - 18" Rec.			
89	48.0-48.5	90	18" Spile - 18" Rec.			
90	48.5-49.0	91	18" Spile - 18" Rec.			
91	49.0-49.5	92	18" Spile - 18" Rec.			
92	49.5-50.0	93	18" Spile - 18" Rec.			
93	50.0-50.5	94	18" Spile - 18" Rec.			
94	50.5-51.0	95	18" Spile - 18" Rec.			
95	51.0-51.5	96	18" Spile - 18" Rec.			
96	51.5-52.0	97	18" Spile - 18" Rec.			
97	52.0-52.5	98	18" Spile - 18" Rec.			
98	52.5-53.0	99	18" Spile - 18" Rec.			
99	53.0-53.5	100	18" Spile - 18" Rec.			
100	53.5-54.0	101	18" Spile - 18" Rec.			
101	54.0-54.5	102	18" Spile - 18" Rec.			
102	54.5-55.0	103	18" Spile - 18" Rec.			
103	55.0-55.5	104	18" Spile - 18" Rec.			
104	55.5-56.0	105	18" Spile - 18" Rec.			
105	56.0-56.5	106	18" Spile - 18" Rec.			
106	56.5-57.0	107	18" Spile - 18" Rec.			
107	57.0-57.5	108	18" Spile - 18" Rec.			
108	57.5-58.0	109	18" Spile - 18" Rec.			
109	58.0-58.5	110	18" Spile - 18" Rec.			
110	58.5-59.0	111	18" Spile - 18" Rec.			
111	59.0-59.5	112	18" Spile - 18" Rec.			
112	59.5-60.0	113	18" Spile - 18" Rec.			
113	60.0-60.5	114	18" Spile - 18" Rec.			
114	60.5-61.0	115	18" Spile - 18" Rec.			
115	61.0-61.5	116	18" Spile - 18" Rec.			
116	61.5-62.0	117	18" Spile - 18" Rec.			
117	62.0-62.5	118	18" Spile - 18" Rec.			
118	62.5-63.0	119	18" Spile - 18" Rec.			
119	63.0-63.5	120	18" Spile - 18" Rec.			
120	63.5-64.0	121	18" Spile - 18" Rec.			
121	64.0-64.5	122	18" Spile - 18" Rec.			
122	64.5-65.0	123	18" Spile - 18" Rec.			
123	65.0-65.5	124	18" Spile - 18" Rec.			
124	65.5-66.0	125	18" Spile - 18" Rec.			
125	66.0-66.5	126	18" Spile - 18" Rec.			
126	66.5-67.0	127	18" Spile - 18" Rec.			
127	67.0-67.5	128	18" Spile - 18" Rec.			
128	67.5-68.0	129	18" Spile - 18" Rec.			
129	68.0-68.5	130	18" Spile - 18" Rec.			
130	68.5-69.0	131	18" Spile - 18" Rec.			
131	69.0-69.5	132	18" Spile - 18" Rec.			
132	69.5-70.0	133	18" Spile - 18" Rec.			
133	70.0-70.5	134	18" Spile - 18" Rec.			
134	70.5-71.0	135	18" Spile - 18" Rec.			
135	71.0-71.5	136	18" Spile - 18" Rec.			
136	71.5-72.0	137	18" Spile - 18" Rec.			
137	72.0-72.5	138	18" Spile - 18" Rec.			
138	72.5-73.0	139	18" Spile - 18" Rec.			
139	73.0-73.5	140	18" Spile - 18" Rec.			
140	73.5-74.0	141	18" Spile - 18" Rec.			
141	74.0-74.5	142	18" Spile - 18" Rec.			
142	74.5-75.0	143	18" Spile - 18" Rec.			
143	75.0-75.5	144	18" Spile - 18" Rec.			
144	75.5-76.0	145	18" Spile - 18" Rec.			
145	76.0-76.5	146	18" Spile - 18" Rec.			
146	76.5-77.0	147	18" Spile - 18" Rec.			
147	77.0-77.5	148	18" Spile - 18" Rec.			
148	77.5-78.0	149	18" Spile - 18" Rec.			
149	78.0-78.5	150	18" Spile - 18" Rec.			
150	78.5-79.0	151	18" Spile - 18" Rec.			
151	79.0-79.5	152	18" Spile - 18" Rec.			
152	79.5-80.0	153	18" Spile - 18" Rec.			
153	80.0-80.5	154	18" Spile - 18" Rec.			
154	80.5-81.0	155	18" Spile - 18" Rec.			
155	81.0-81.5	156	18" Spile - 18" Rec.			
156	81.5-82.0	157	18" Spile - 18" Rec.			
157	82.0-82.5	158	18" Spile - 18" Rec.			
158	82.5-83.0	159	18" Spile - 18" Rec.			
159	83.0-83.5	160	18" Spile - 18" Rec.			
160	83.5-84.0	161	18" Spile - 18" Rec.			
161	84.0-84.5	162	18" Spile - 18" Rec.			
162	84.5-85.0	163	18" Spile - 18" Rec.			
163	85.0-85.5	164	18" Spile - 18" Rec.			
164	85.5-86.0	165	18" Spile - 18" Rec.			
165	86.0-86.5	166	18" Spile - 18" Rec.			
166	86.5-87.0	167	18" Spile - 18" Rec.			
167	87.0-87.5	168	18" Spile - 18" Rec.			
168	87.5-88.0	169	18" Spile - 18" Rec.			
169	88.0-88.5	170	18" Spile - 18" Rec.			
170	88.5-89.0	171	18" Spile - 18" Rec.			
171	89.0-89.5	172	18" Spile - 18" Rec.			
172	89.5-90.0	173	18" Spile - 18" Rec.			
173	90.0-90.5	174	18" Spile - 18" Rec.			
174	90.5-91.0	175	18" Spile - 18" Rec.			
175	91.0-91.5	176	18" Spile - 18" Rec.			
176	91.5-92.0	177	18" Spile - 18" Rec.			
177	92.0-92.5	178	18" Spile - 18" Rec.			
178	92.5-93.0	179	18" Spile - 1			