COUNTY	CONTRACT	F.A.P. REG. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		1	66

THE STATE OF DELAWARE

State of Delaware

STATE HIGHWAY DEPARTMENT

PLAN FOR

"AS BUILT PLANS" BY J.R.R. 2-10-65

CONSTRUCTION OF CONTRACT Nº I-1(21)-1

STA. 120+05 TO STA. 123+06 (CONNECTION A)

301 FEET: 0.057 MILES

SCALE: PLAN: 1 IN.= 50 FT.
PROFILE: HOR. 1 IN.= 50 FT.
VERT. 1 IN.= 5 FT.

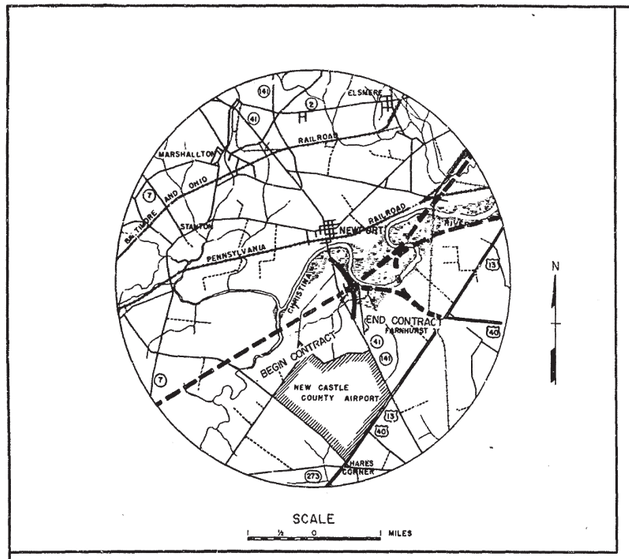
SUMMARY OF MILEAGE

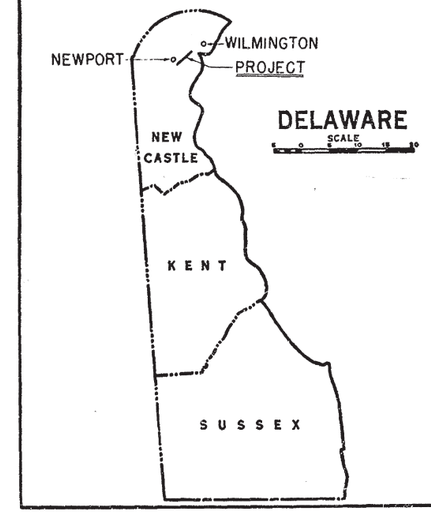
Basin Road (N.B.)	7,055.73 Lin. Ft.
Basin Road (S.B.)	650.00
Airport Road	143.40
Relocated Airport Road	229.12
F.A.I. 1 (W.B.)	600.00
F.A.I. 1 (E.B.)	300.00
Connection A	301.00
Connection E	600.00
Ramp C	298.00
Ramp D	494.41
Ramp F	1,301.00
Ramp J	600.00
Ramp L	450.00
Ramp M	450.00
Ramp N	400.00
TOTAL	13,872.66 Lin. Ft. = 2.627 Miles

DESIGN SPEEDS

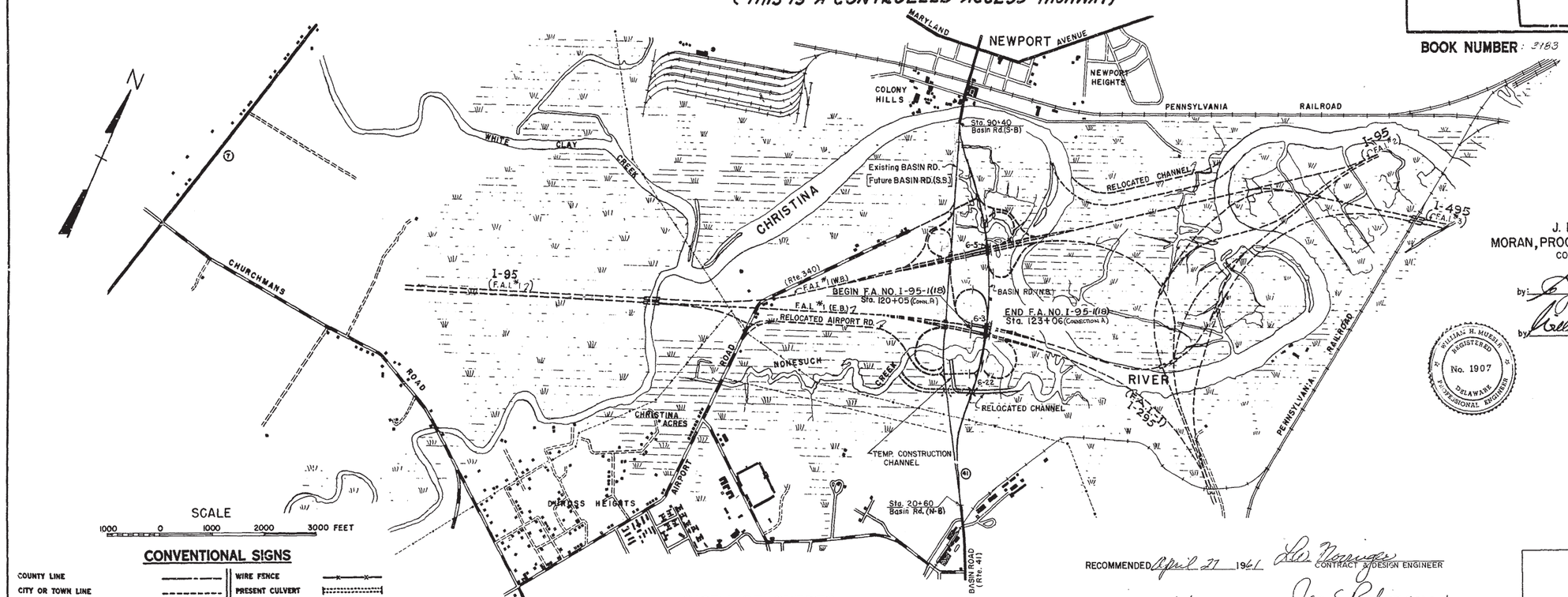
70 M.P.H. F.A.I. # 1
60 M.P.H. Basin Road and Connections A & E
40 M.P.H. Relocated Airport Road
30 M.P.H. All Ramps

FEDERAL AID PROJECT Nº I-95-1(18) & I-95-1(11)
(THIS IS A CONTROLLED ACCESS HIGHWAY)





BOOK NUMBER: 3183



J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

by: J. J. Donnelly
by: William H. Muser

WILLIAM H. MUESER REGISTERED No. 1907 DELAWARE PROFESSIONAL ENGINEER

CONVENTIONAL SIGNS

COUNTY LINE
CITY OR TOWN LINE
RIGHT OF WAY LINE
CENTRE LINE, PROPOSED ROAD
MACADAM, TRAVELLED ROAD
TROLLEY OR RAILROAD
CONC. INTAKE APRON, TYPE 2
CONDUIT
WIRE FENCE
PRESENT CULVERT
PROPOSED CULVERT
TELEGRAPH POLE
TREE

PROFILE: GRADE, GROUND, DATUM

INDEX OF SHEETS

SHEET Nº 1 TITLE SHEET
2-6 TYPICAL SECTION
7-26 PLAN AND PROFILE
27-46 BRIDGES & CULVERTS
47-49 PAVING PLANS
50-51 QUANTITIES
52-60 STANDARDS----B, DT, G, H, M, M-M, Q, W, Y
61-66 UTILITY - WATER

RECOMMENDED April 27 1961 — CONTRACT & DESIGN ENGINEER
RECOMMENDED 4/27 1961 — ASSISTANT CHIEF ENGINEER
APPROVED 4/27 1961 — CHIEF ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:

DIVISION ENGINEER DATE

For Informational Purposes Only

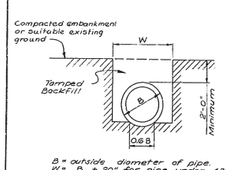
COUNTY	CONTRACT			FED. AID PROJECT NO.		SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-I(21)-1	2	DEL	I-95-1 (18)		2	66

BASIN ROAD

TYPICAL SECTIONS

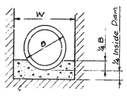
Scale: 1/4" = 1'-0"

Note:
A quantity of Stone Bedding for Pipes has been provided in the Proposal. This item is to be used only as directed by the Engineer.



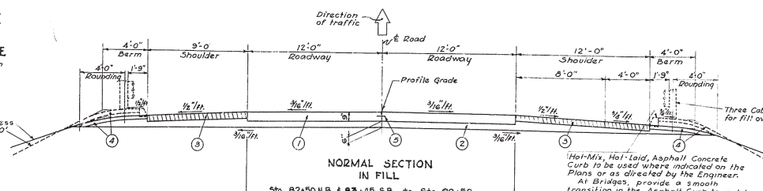
B = outside diameter of pipe.
W = B + 20" for pipe under 42" size.
W = B + 24" for pipe 42" size and over.

TYPICAL PIPE TRENCH & BEDDING



CONCRETE PIPE CRADLE

To be used only where shown on the Plans, or as directed by the Engineer.



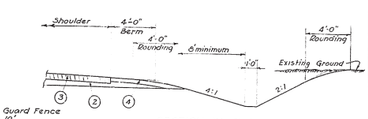
NORMAL SECTION IN FILL

Sta. 82+50 N.B. & 83+45 S.B. to Sta. 89+50

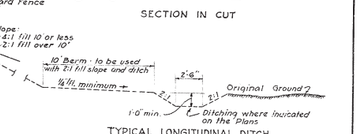
Use Flexible Pavement - See Detail

Hot-Mix, Hot-Laid, Asphalt Concrete Curb to be used where indicated on the Plans or as directed by the Engineer.

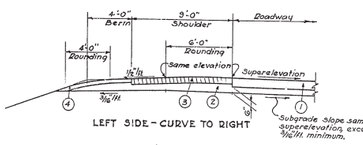
At Bridges, provide a smooth transition in the Asphalt Curb to match the Bridge curb section in a distance of approx. 8'. The cost of this transition is to be included in the unit price bid for Hot-Mix, Hot-Laid Asphalt Concrete Curb.



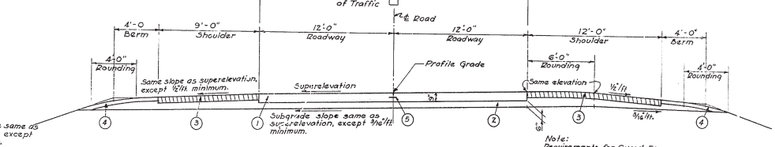
SECTION IN CUT



TYPICAL LONGITUDINAL DITCH

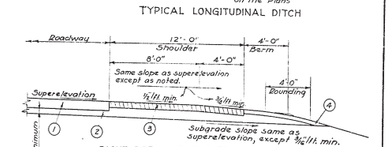


LEFT SIDE - CURVE TO RIGHT

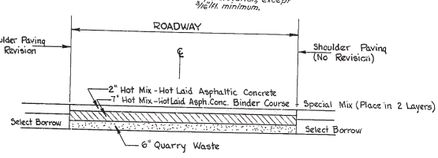


SUPERELEVATED SECTION CURVE TO LEFT

Note:
Requirements for Guard Fence, Asphalt Curb, and side slopes are to be the same as for the normal section.



RIGHT SIDE - CURVE TO RIGHT

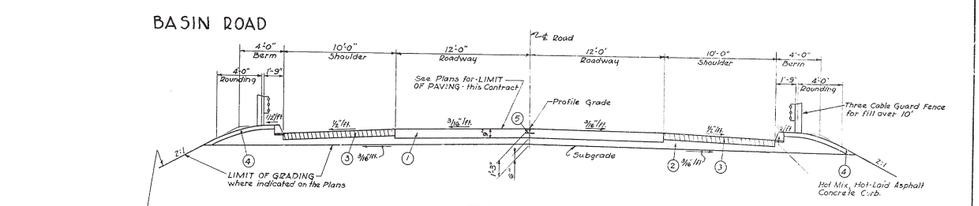


Slopes To Conform To Typical Section.

DETAIL OF FLEXIBLE PAVEMENT FOR BASIN ROAD

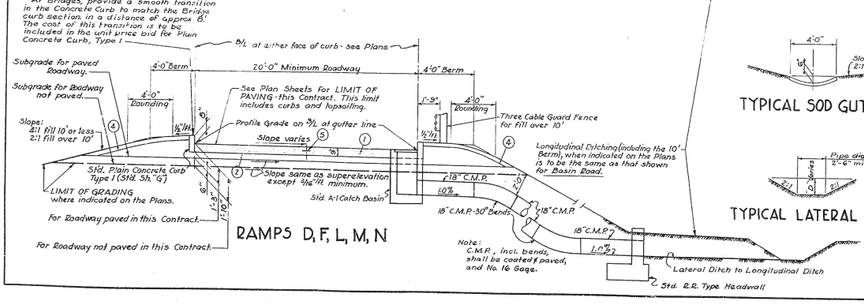
STA. 82+50 N.B. & 83+45 S.B. - STA. 89+50

BASIN ROAD

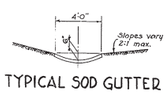


RELOCATED AIRPORT ROAD, AND AIRPORT ROAD

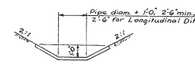
Note:
At Bridges, provide a smooth transition in the Concrete Curb to match the Bridge curb section in a distance of approx. 8'. The cost of this transition is to be included in the unit price bid for Plain Concrete Curb, Type I.



RAMPS D, F, L, M, N

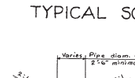


TYPICAL SOD GUTTER



TYPICAL SOD DITCH

TYPICAL LATERAL DITCH



CONC. GUTTER TYPE "3"

Legend

1. 9" Reinforced Concrete Pavement.
2. Select Borrow
3. 1½" Hot Mix Asphaltic Concrete.
4. 4½" Binder Course - Special Mix.
5. 4" Topsoil, seed & mulch.
6. Dowel Jed Longitudinal Saw-Cut Joint.
7. Bituminous Surface Treatment.

See Revision 9/14/62

Notes:
For General Notes, see Sheet No. 8.
Finished cut and fill slopes, and ditches are to be seeded (including mulching) except where otherwise indicated on the Plans.
Pavement details shown on Standard Sheet "B" shall apply with the exception that the thickness of reinforced concrete pavement shall be 9".
Portions of Ramps which are to be graded but not paved in this Contract will have a lower subgrade to provide for a deeper paving section. The transition in depth of subgrade shall be made in a distance of approximately ten feet beyond the limit of paving shown on the Plans.

DESIGNED AND DRAWN UNDER THE SUPERVISION OF A. B. Cullen Jr.
ROAD DESIGN ENGINEER

CHECKED
DRAWN
REVISIONS
BENCH MARKS
BENCH MARKS
BENCH MARKS
DRAWING

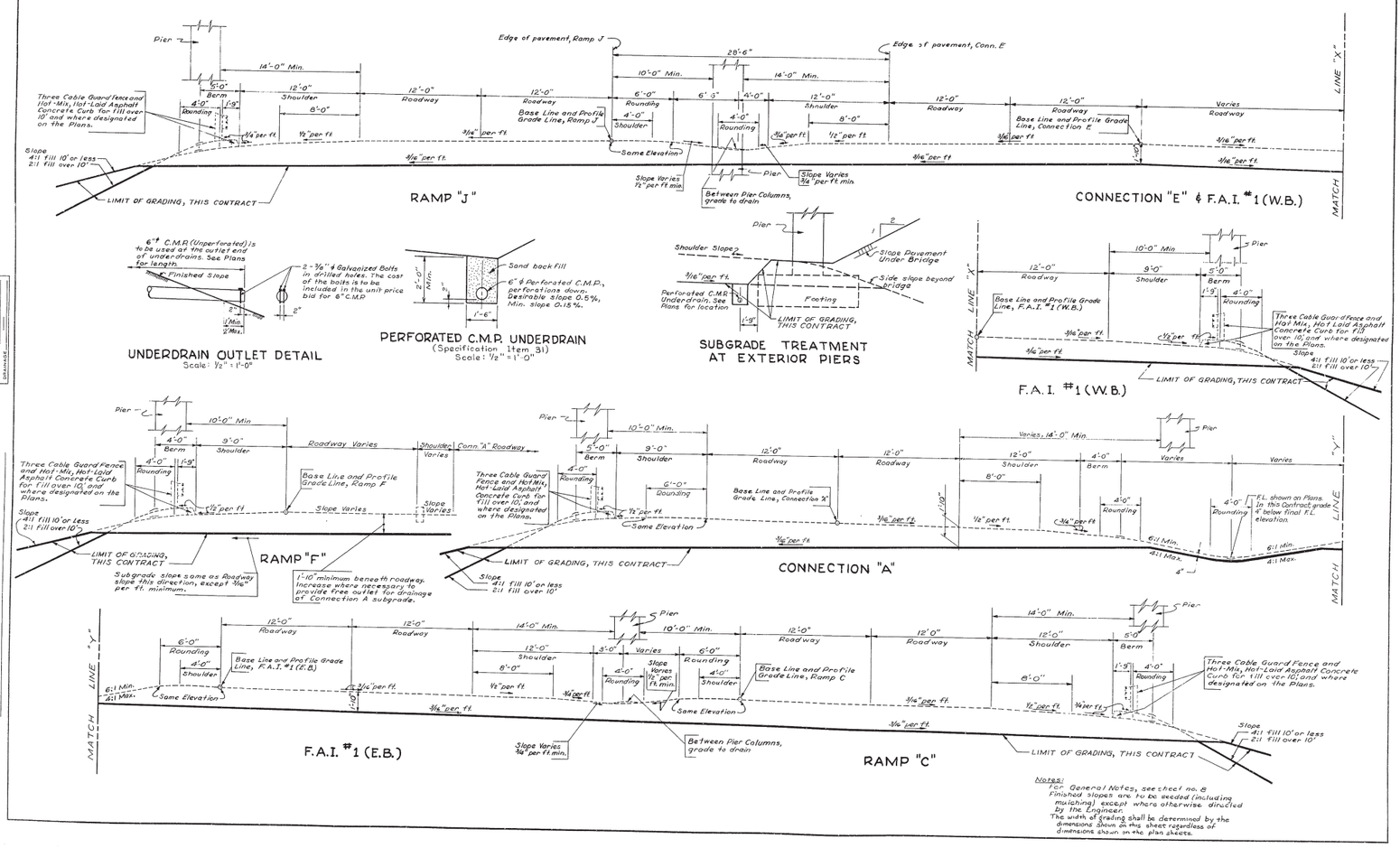
REVISIONS
9/14/62 - Conc. Curb & Flume Sta. 87+50 N.B. & 88+45 S.B.
9/21/62 - Title

COUNTY	CONTRACT	F.A.P. NO.	STATE	FED. AID PROJECT NO.	TOTAL SHEETS	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL	I-95-1(18)		3	66

BASIN ROAD

TYPICAL SECTIONS

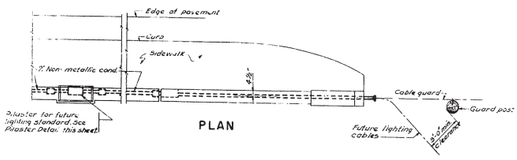
Scale: 1/4" = 1'-0"
Unless Noted

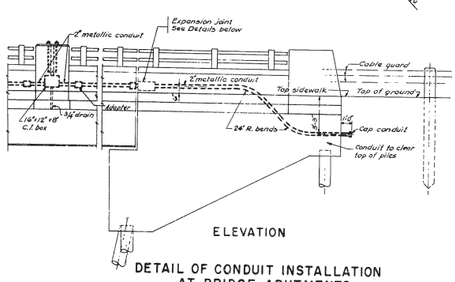


Notes:
For General Notes, see sheet no. 8
Finished slopes are to be seeded (including mulching) except where otherwise directed by the Engineer.
The width of grading shall be determined by the dimensions shown on the sheet regardless of dimensions shown on the plan sheets.

REVISIONS
4/26/94 Changed Cl. Levels & Slopes & Added Curb Revised Plan & & 8" Sec

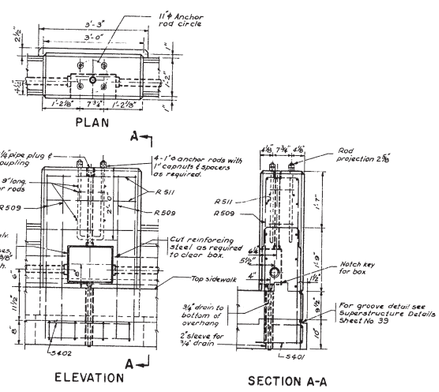
COUNTY	CONTRACT	R & B DIST. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-I(21)-1	2	DEL	I-95-1(18)		4	66





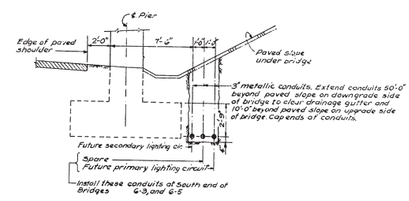
DETAIL OF CONDUIT INSTALLATION AT BRIDGE ABUTMENTS

Scale: 1/4"=1'-0"



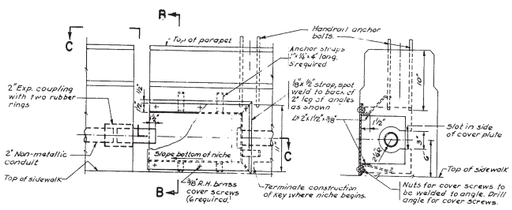
PILASTER DETAIL FOR FUTURE LIGHTING STANDARD

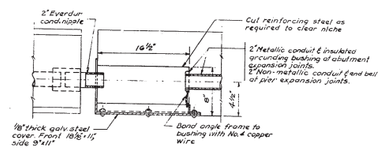
Scale: 3/4"=1'-0"



CONDUITS CROSSING UNDER PAVED SLOPES

Scale: 1/4"=1'-0"



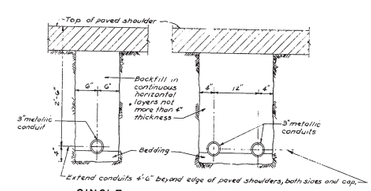


SECTION C-C

EXPANSION JOINT DETAIL

For joints at piers and both abutments-Bridges G-3 and G-5.

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



CONDUITS CROSSING UNDER PAVEMENT

Scale: 1"=1'-0"

NOTES

1. For locations of pilasters on bridges and reinforcing bar schedule, see Superstructure-Deck Sheet, for the individual bridge.
2. For locations of conduit crossings under paved areas, see Sheets 9, 10 and 11.
3. For General Notes, see Sheet No. 6.

Approved: _____ Bridge Engineer

DELAWARE STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1 (21)
CHRISTINA RIVER INTERCHANGE

CONDUIT DETAILS

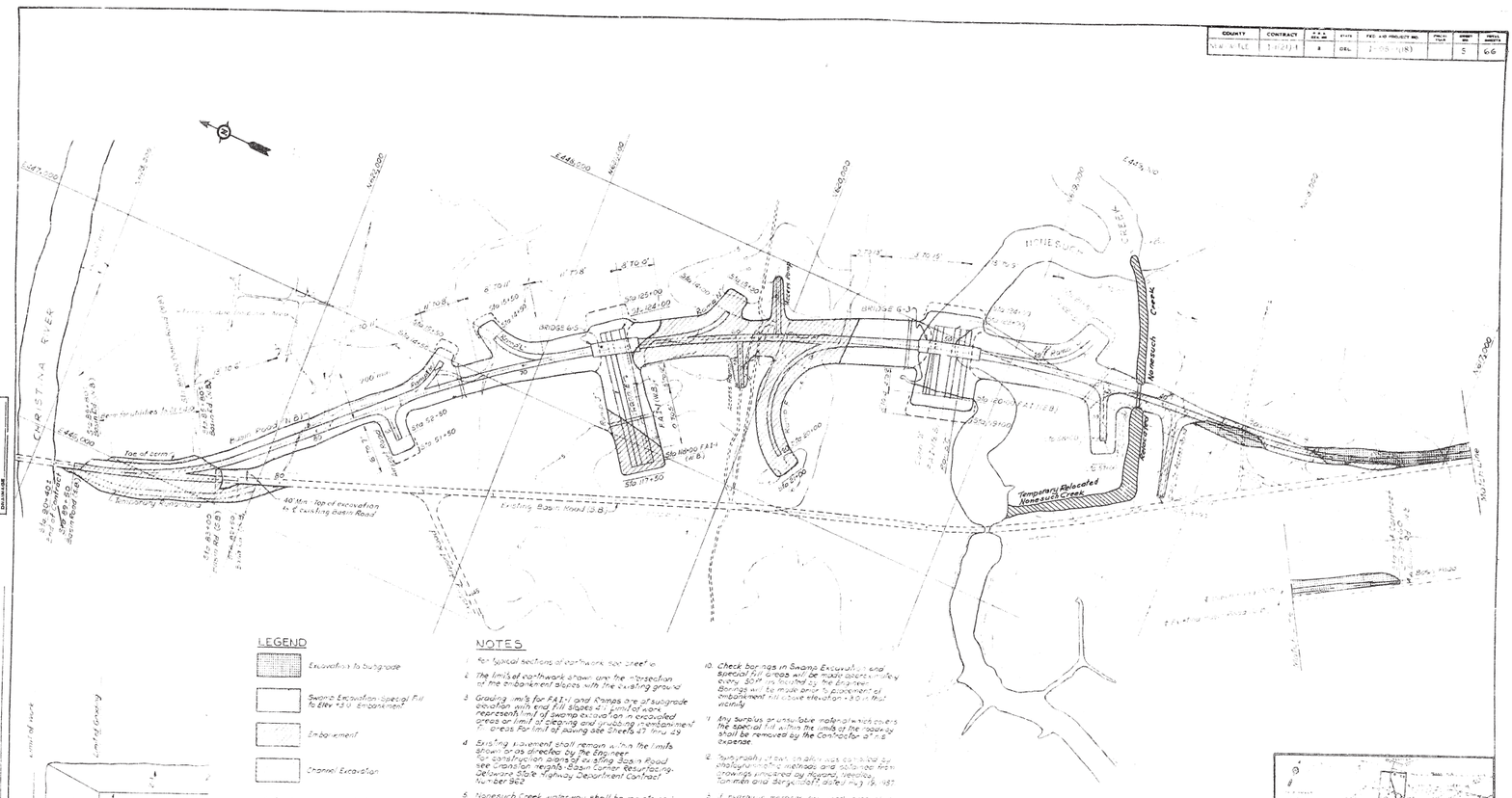
J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: W.B.D. CHECKED: W.H.M. DATE: 12-31-50
DRAWN: W.H.M. IN CHARGE: T.E.M. SCALE: AS NOTED

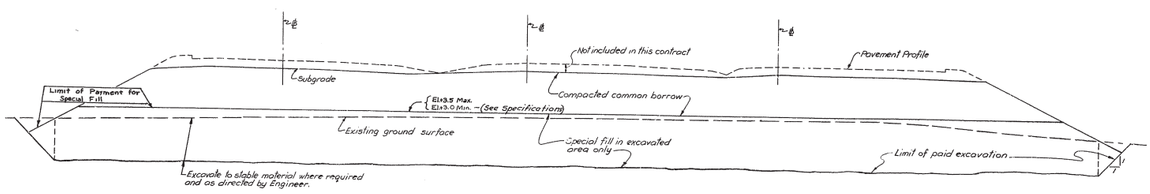
CHECKED
DETAILS
DESIGNS
REVISIONS
BENCH MARKS
DRAWING
TRACINGS

REVISIONS

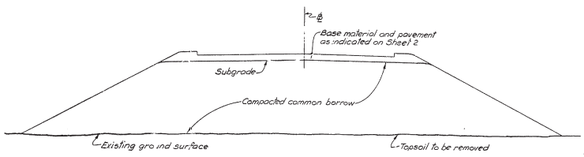
COUNTY	CONTRACT	F.A.P. NO.	STATE	FED. AID PROJECT NO.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
New Castle	3-1-21-1	8	DEL.	I-095-1(13)		5	66


CHRISTINA RIVER
Toe of berm
Existing Basin Road (N.B.)
Temporary Relocated Minquadale Creek
Minquadale Creek
Existing Basin Road (S.B.)
Basin Road F.A.I.-1 (N.B.)
Basin Road F.A.I.-1 (S.B.)
BRIDGE 6-J
BRIDGE 6-J
BRIDGE 6-K
BRIDGE 6-L
Existing Bridge
Existing Culvert
Existing Culvert
Existing Culvert

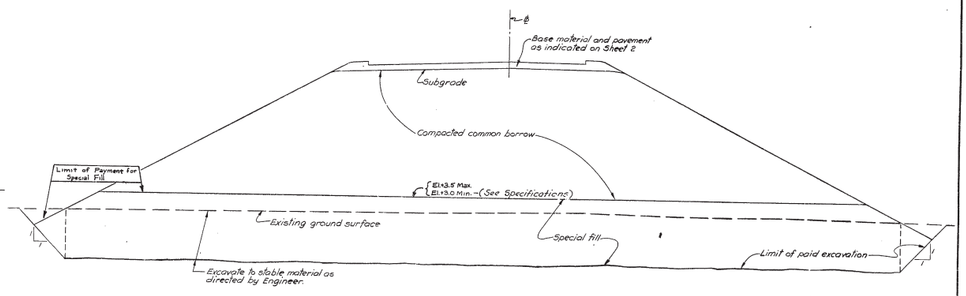
COUNTY	CONTRACT	R.R. & BR. NO.	STATE	FED. AID PROJECT NO.	PROJECT YEAR	PROJECT NO.	SHEET NO.
NEW CASTLE	I-(21)-1	8	DEL.	I-95-1(18)		G	66



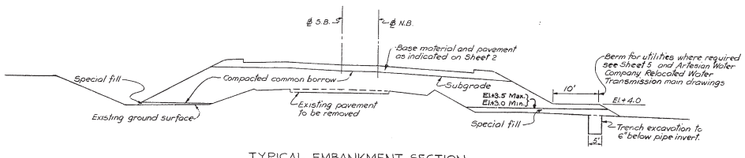
F.A.I-1-EASTBOUND AND WESTBOUND
EXCAVATION-BACKFILL-EMBANKMENT



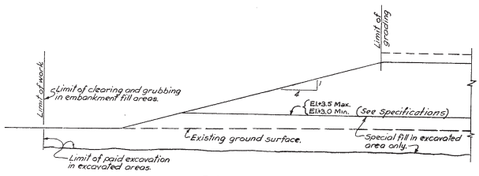
TYPICAL EMBANKMENT SECTION



TYPICAL SWAMP EXCAVATION SECTION



TYPICAL EMBANKMENT SECTION
OVER EXISTING BASIN ROAD



END FILL SECTION

NOTES

1. Areas for which each type of earthwork shall apply are as noted or as designated on Sheet 5 and as determined by the Engineer.
2. Depths of base material and pavement, dimensions of roadways, shoulders and berms are as shown on Typical Section Sheets 2 & 3.
3. For ditch details see Typical Section Sheet 2.
4. For typical section of Relocated Nonesuch Creek see Sheet 13.
5. For embankment fill slope see Typical Section Sheets 2 & 3.

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD-(N.B.)
TYPICAL SECTIONS FOR EARTHWORK

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: R.C.K. CHECKED: R.C.K. DATE: 12-21-59
DRAWN: J.L.P. IN CHARGE: J.W.K. SCALE: 1" = 10'

REVISIONS

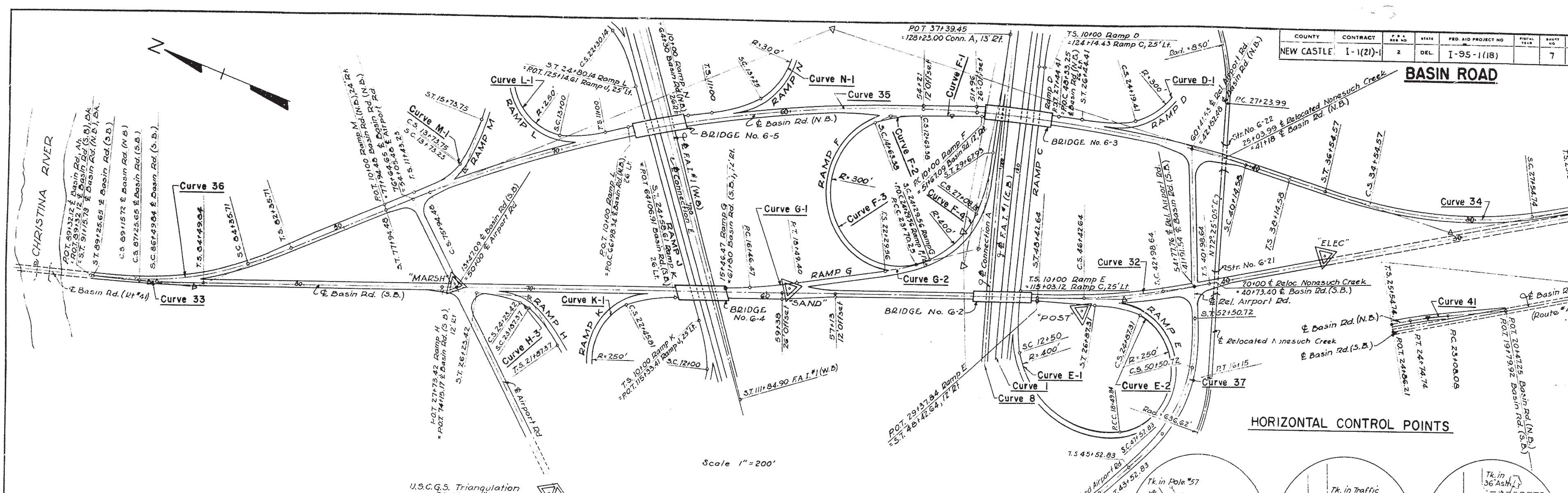
BASIN ROAD
N.B. CONTR.
S.B. CONTR.
EARTHWORK
STRUCTURE

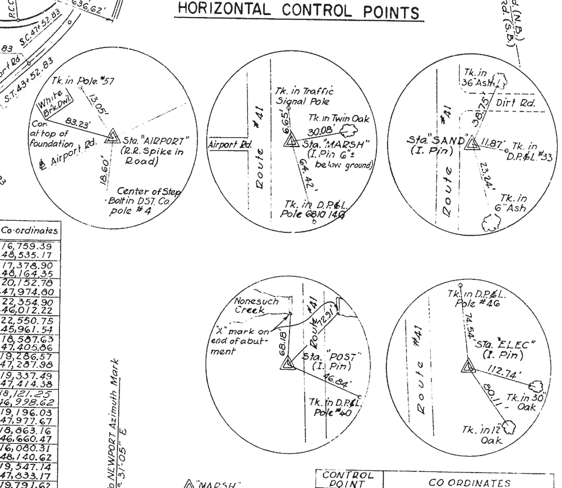
REVISIONS

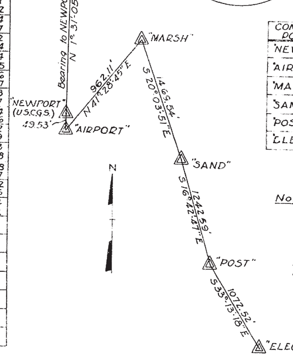
CHECKED	
GRADE	—
BEARINGS	W.K. Upton
TIE POINTS	W.K. Upton
BENCH MARKS	—
EARTHWORK	—
DRAINAGE	—

COUNTY	CONTRACT	F.P.A. REG NO	STATE	FED AID PROJECT NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		7	66

BASIN ROAD







NOTE: Symbols for curve functions follow those used in "Transition Curves for Highways" by Joseph Barnett. Subscripts 1 and 2 have been added to designate the functions for the leading and following (stationwise) spirals, respectively.

* Note that the P.I. is in reverse position due to Δ greater than 180°.

CURVE DATA

Location	Curve No.	Δ	T_{s1}	T_{s2}	E_s	Δ_c	D_c	R_c	L_c	T_c	E_c	L_{s1}	θ_{s1}	p_1	k_1	x_{c1}	y_{c1}	$L.T._1$	$S.T._1$	L_{s2}	θ_{s2}	p_2	k_2	x_{c2}	y_{c2}	$L.T._2$	$S.T._2$	Max. S.E.	Curve No.	P.I. Co-ordinates
Basin Rd. (N.B.)	41	5°00'00"	—	—	—	5°00'00"	3°-00'	1,909.86	166.67	83.39	1.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9%	41	N 616,759.39 E 448,535.17
"	34	26°-59'-40.9"	558.62	558.62	55.14	20°-59'-40.9"	3°-00'	1,909.86	699.82	353.88	32.81	200	3°00'	0.87	99.99	199.95	3.49	133.35	66.68	200	3°00'	0.87	99.99	199.95	3.49	133.35	66.68	6.6%	34	N 617,378.90 E 448,164.35
"	35	37°-47'-56.5"	2061.72	2061.72	326.80	35°-47'-56.5"	1°-00'	5,729.58	3579.90	1850.55	291.44	200	1°00'	0.29	100.00	199.99	1.16	133.34	66.67	200	1°00	0.29	100.00	199.99	1.16	133.34	66.67	2.2%	35	N 620,152.78 E 447,974.80
"	36	27°-12'-01.6"	446.80	446.80	42.52	19°-12'-01.6"	4°-00'	1,432.39	480.01	242.28	20.35	200	4°00'	1.16	99.98	199.90	4.65	133.37	66.70	200	4°00	1.16	99.98	199.90	4.65	133.37	66.70	7.6%	36	N 622,354.90 E 446,012.22
Basin Rd. (S.B.)	33	5°-30'-58"	238.03	238.03	3.90	1° 30'-58"	2° 00'	2,864.79	75.81	37.90	0.25	200	2°00'	0.58	100.00	199.98	2.33	133.34	66.67	200	2°00	0.58	100.00	199.98	2.33	133.34	66.67	4.7%	33	N 622,550.75 E 445,961.54
"	32	10°-52'-48"	372.87	372.87	13.55	6°-52'-48"	2°-00'	2,864.79	344.00	172.21	5.17	200	2°00'	0.58	100.00	199.98	2.33	133.34	66.67	200	2°00	0.58	100.00	199.98	2.33	133.34	[illegible]	4.7%	32	N 618,587.63 E 447,405.86
F.A.I. #1 (E.B.)	1	14°-12'-51.5"	2,957.24	2,857.83	—	13°-57'-51.5"	0°-15'	22,918.31	5,585.72	2,806.77	171.23	200	0°-15'	0.07	100.00	200.00	0.29	133.33	66.67	—	—	—	—	—	—	—	—	1.56%	1	N 619,286.57 E 447,287.98
Connection A	8	12°-30'-00"	2,609.97	2,609.97	137.11	12°-00'-00"	0°-15'	22,918.31	4,800.00	2408.81	126.24	200	0°-15'	0.07	100.00	200.00	0.29	133.33	66.67	200	0°-15'	0.07	100.00	200.00	0.29	133.33	66.67	1.56%	8	N 619,337.49 E 447,414.38
Relocated Airport Rd.	37	51°-57'-03.8"	368.83	368.83	64.95	31°-01'-58.4"	10°-25'-02.7"	550.00	297.89	152.70	20.80	200	10°-25'-02.7"	3.03	99.89	199.34	12.09	133.56	66.88	200	10°-25'-02.7"	3.03	99.89	199.34	12.09	133.56	66.88	7.8%	37	N 618,121.25 E 446,998.62
Ramp D	D-1	271°-05'-12.4"	*189.25	*189.25	*730.10	228°-06'-53.8"	19°-05'-54.9"	300.00	1,194.41	*672.00	*1035.92	225	21°-29'-09.3"	7.00	111.97	221.86	27.84	151.12	76.02	225	21°-29'-09.3"	7.00	111.97	221.86	27.84	151.12	76.02	7.8%	D-1	N 619,196.03 E 447,977.67
Ramp E	E-1	103°-49'-30.6"	636.56	517.05	—	85°-55'-12.9"	14°-19'-26.2"	400.00	599.84	372.49	146.58	250	17°-54'-17.8"	6.49	124.59	247.57	25.86	167.53	84.12	—	—	—	—	—	—	—	—	7.1%	E-1	N 618,863.16 E 446,660.47
Ramp E	E-2	169°-00'-57.7"	2,634.95	2,733.78	—	146°-05'-51.7"	22°-55'-05.9"	250.00	637.47	820.21	607.47	—	—	—	—	—	—	—	—	200	22°-55'-05.9"	6.63	99.47	196.82	26.36	134.47	67.70	8.0%	E-2	N 616,080.31 E 448,140.62
Ramp F	F-1	2°-38'-01.8"	—	—	—	2°-38'-01.8"	1°-00'	5,729.58	263.38	131.71	1.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.2%	F-1	N 619,547.14 E 447,833.17
"	F-2	20°-05'-54.9"	—	—	Spiral between Curves F-1 & F-3					—	—	200	18°-05'-54.9"	5.24	—	—	—	131.24	70.83	—	—	—	—	—	—	—	—	↕	F-2	N 619,791.62 E 447,736.34
"	F-3	173°-11'-55.7"	—	—	—	173°-11'-55.7"	19°-05'-54.9"	300.00	906.87	5,048.68	4757.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.8%	F-3	N 623,613.74 E 444,330.35
"	F-4	67° 00'-17.5"	272.39	391.25	—	48°-23'-53"	14°-19'-26.2"	400.00	337.88	179.76	38.54	—	—	—	—	—	—	—	—	259.80	18°-36'-24.5"	7.00	129.44	257.07	27.91	174.17	87.48	7.1%	F-4	N 619,249.66 E 447,375.07
Ramp G	G-1	6°-05'-15.9"	—	—	—	6°-05'-15.9"	3°-00'	1,909.86	202.93	101.56	2.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G-1	N 620,013.08 E 446,910.37
Ramp H	H-3	54°-05'-53.3"	230.50	230.50	38.15	8°-15'-41.5"	22°-55'-05.9"	250.00	36.05	18.06	0.65	200	22°-55'-05.9"	6.63	99.47	196.82	26.36	134.47	67.70	200	22°-55'-05.9"	6.63	99.47	196.82	26.36	134.47	67.70	8.0%	H-3	N 620,987.04 E 446,497.46
Ramp K	K-1	286°-59'-05.9"	*91.39	*83.92	—	239°-40'-53.7"	22°-55'-05.9"	250.00	1,045.81	*435.80	*752.42	200	22°-55'-05.9"	6.63	99.47	196.82	26.36	134.47	67.70	212.80	24°-23'-06.3"	7.50	105.76	208.98	29.80	143.24	72.18	8.0%	K-1	N 620,319.92 E 446,760.59
Ramp L	L-1	264°-44'-16.6"	*185.59	*157.72	—	215°-10'-18.3"	22°-55'-05.9"	250.00	930.14	*839.36	*1125.80	200	22°-55'-05.9"	6.63	99.47	196.82	26.36	134.47	67.70	250	28°-38'-52.4"	10.32	123.97	243.82	40.93	168.90	85.37	8.0%	L-1	N 620,739.13 E 447,331.48
Ramp M	M-1	49° [illegible]'-30.9"	230.39	220.28	—	0°-07'-03.7"	22°-55'-05.9"	250.00	0.51	0.26	0.00	230	26°-21'-21.8"	8.75	114.19	225.18	34.74	155.07	78.25	200	22°-55'-05.9"	6.63	99.47	196.82	26.36	134.47	67.70	8.0%	M-1	N 621,428.98 E 446,869.57
Ramp N	N-1	149° [illegible]'-23.2"	1,222.64	1,210.70	—	108°-35'-19"	19°-05'-54.9"	300.00	568.57	417.41	214.03	225	21°-29'-09.3"	7.00	111.97	221.86	27.84	151.12	76.02	200	19°-05'-54.9"	5.53	99.63	197.79	22.05	134.12	67.38	7.8%	N-1	N 619,444.82 E 448,065.36
Ramp G	G-2	14°-1[illegible]'-17.6"	—	—	—	0°	14°-17'-17.6"	401.00	0.00	—	—	200	14°-17'-17.6"	4.15	99.79	198.76	16.55	133.77	67.06	—	—	—	—	—	—	—	—	7.1%	G-2	N 619,475.34 E 447,209.82
Relocated Airport Rd.	38	50°-26'-33.8"	360.38	360.38	61.30	29°-36'-28.4"	10°-25'-02.7"	550.00	284.22	145.36	18.88	200	10°-25'-02.7"	3.03	99.89	199.34	12.09	133.56	66.88	200	10°-25'-02.7"	3.03	99.89	199.34	12.09	133.56	66.88	7.8%	38	N 618,579.53 E 446,190.29

CONTROL POINT	CO-ORDINATES	
"NEWPORT"	N 620,638.36	E 445,801.18
"AIRPORT"	N 620,588.85	E 445,799.87
"MARSH"	N 621,309.66	E 446,437.12
"SAND"	N 619,929.31	E 446,341.28
"POST"	N 618,739.21	E 447,298.62
"ELEC"	N 617,841.99	E 447,886.23

Notes

For General Notes, see sheet no 8
All curve P.I. numbers shown on the detail construction plans correspond with their respective curve numbers.
All curve and spiral properties are based on the arc definition.

REVISIONS

8/22/61 – STA. 25+10± To STA 28+10± RIGHT – Added four proposed entrances and 44' of 18" R.C.P. under proposed entrances. Deleted ditch grades in this area. – J.J.S.
8/22/62 Stop Construction P.T. 24+74.74 N.B. Hot Mix Pavement in Median Sta 24+74.74 to Sta 29+00 N.B. to be placed to permit both N.B. & S.B. Traffic Travel Lanes during Construction of Contracts I-(21)-1, I-(21)2 and 1974. See Notes above.
9/14/62 – Added Flexible Pav't to General Notes – J.E.R.

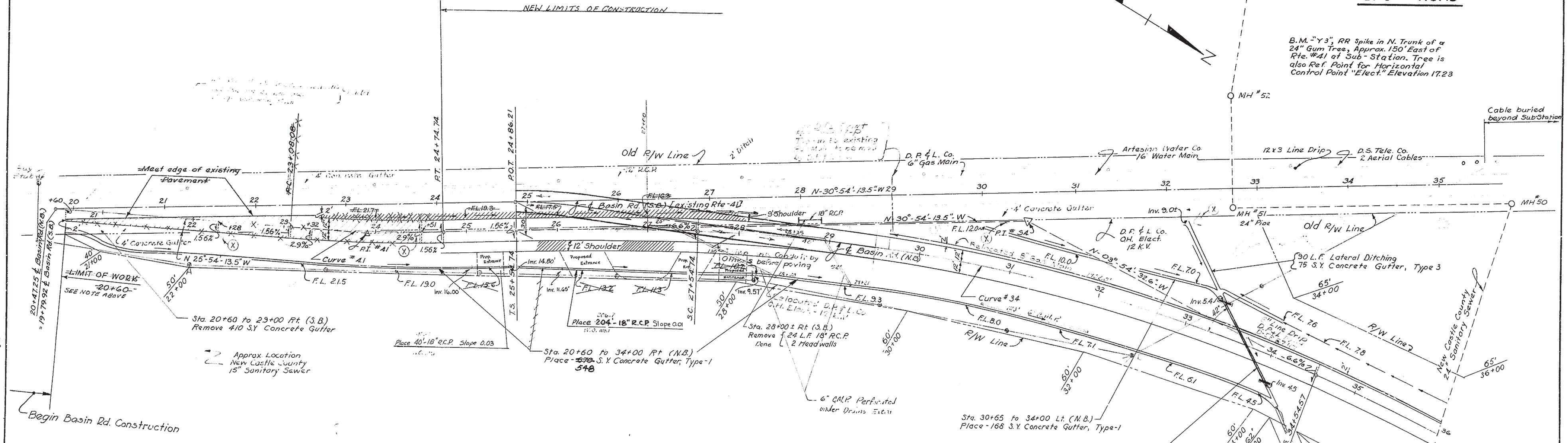
GRADE	—
BEARINGS	W.K. Upton
TIE POINTS	—
BENCH MARKS	W.K. Upton
EARTHWORK	—
DRAINAGE	R.P. Borcherding

COUNTY	CONTRACT	F.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		8	GG

BASIN ROAD

B.M. "Y3", RR Spike in N. Trunk of a 24" Gum Tree, Approx. 150' East of Rte. #41 at Sub-Station. Tree is also Ref. Point for Horizontal Control Point "Elect." Elevation 17.23

NOTE: REBUILD SHOULDER AS DIRECTED STA. 20+60 N.B. TO P.T. STA. 24+74.74 N.B., CONSTRUCT MEDIAN STRIP, TO PERMIT FLOW OF BOTH NORTH & SOUTH BOUND TRAFFIC DURING CONSTRUCTION.



GENERAL NOTES

SPECIFICATIONS

This Contract to be built under Standard Specifications dated 1 July 1960 and Special Provisions except as amended by these General Notes and Plans.

ELEVATION DATUM

All elevations are based on U.S.C.&G. datum.

PAVEMENT DETAILS

▭ indicates 9" reinforced concrete pavement or Flexible Pav't - Sheet 12. Pavement details shown on Standard Sheet "B" shall apply with the exception that the thickness of reinforced concrete pavement shall be 9".

SUPERELEVATION

Superelevation of curves shall be developed by rotating the roadway (s) about the ℄ (or ℄L). The stages in the transition from normal section to full superelevation are indicated on the Plans by cross-slopes, shown thus: 2%. Breaks in cross-slope which do not occur on a ℄ or a ℄L are designated on the Plans as Ridge Lines.

Subgrade cross-slope shall not be less than 3/16" per foot to provide drainage for the subbase. In a curve transition where the pavement cross-slope becomes less than 3/16" per foot, the 3/16" per foot minimum cross-slope of the subgrade shall be maintained until abrupt reversal of the subgrade cross-slope can be accomplished.

Normal shoulder cross-slopes shall be maintained on the outside of curve transitions until the adjacent pavement cross-slope becomes level.

GUARD FENCE REMOVAL

Existing Guard Fence along Basin Road is to be removed and stored at the location designated by the Engineer. Payment for removal and storage of Guard Fence will not be made separately, but will be included in the cost of excavation.

SEEDING

Waste areas and other disturbed areas within the limits of construction shall be seeded (including mulching) as directed by the Engineer.

UTILITIES

Utility construction included in this Contract consists of the relocation of the Delaware Power and Light Co. 8" Gas Main, and the relocation of the Artesian Water Co. 16" Water Main. The location of this work is shown on the Plans. Details not shown are covered in supplemental Plans and Special Provisions.

All work required for removing and relocating electric and telephone facilities will be done by the respective owners. Changes in these Utilities have been noted on the plans for information.

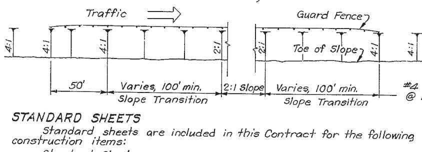
Ⓧ indicates utility poles which are to be removed by others.

BUILDING REMOVAL

Buildings marked by Ⓡ will be removed by others.

FILL SLOPES

The criteria for fill slopes shown on the Typical Sections is a general one based upon height of fill. For safety and appearance, short segments of fill less than 10 feet in height have been planned for 2:1 slopes. Fill slopes shall be determined by the location of guard fence in accordance with the following sketch:



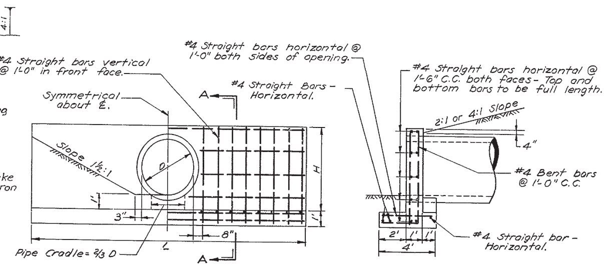
STANDARD SHEETS

Standard sheets are included in this Contract for the following construction items:

Standard Sheet	Items
B	Pavement Details
DT	Signs and Barricades
G	Concrete Curb and Concrete Gutter
H	Guard Fence, Asphalt Curb, Concrete Intake Apron, Type 2 and Downspout Splash Apron
M, M-M, W, Y	Catch Basins
Q	Headwalls

Gas and Water Mains shall be placed, tested and accepted prior to surfacing paved areas.

Note: The lateral limits of this contract shall extend from the Westerly R/W of South Bound Basin Road called existing Basin Road to the Easterly R/W or easement line of the North Bound Basin Road and shall include the "Permissable Disposal Area".



Note:
3/4" chamfer on edges.
Cover over reinforcing bars shall be 2".
Quantities are for one headwall.

Pipe Size D	H	L	Conc.-C.Y.	Steel - Lbs.
48"	6'-0"	17'-0"	5.7	330

STRAIGHT HEADWALL FOR 48" PIPE

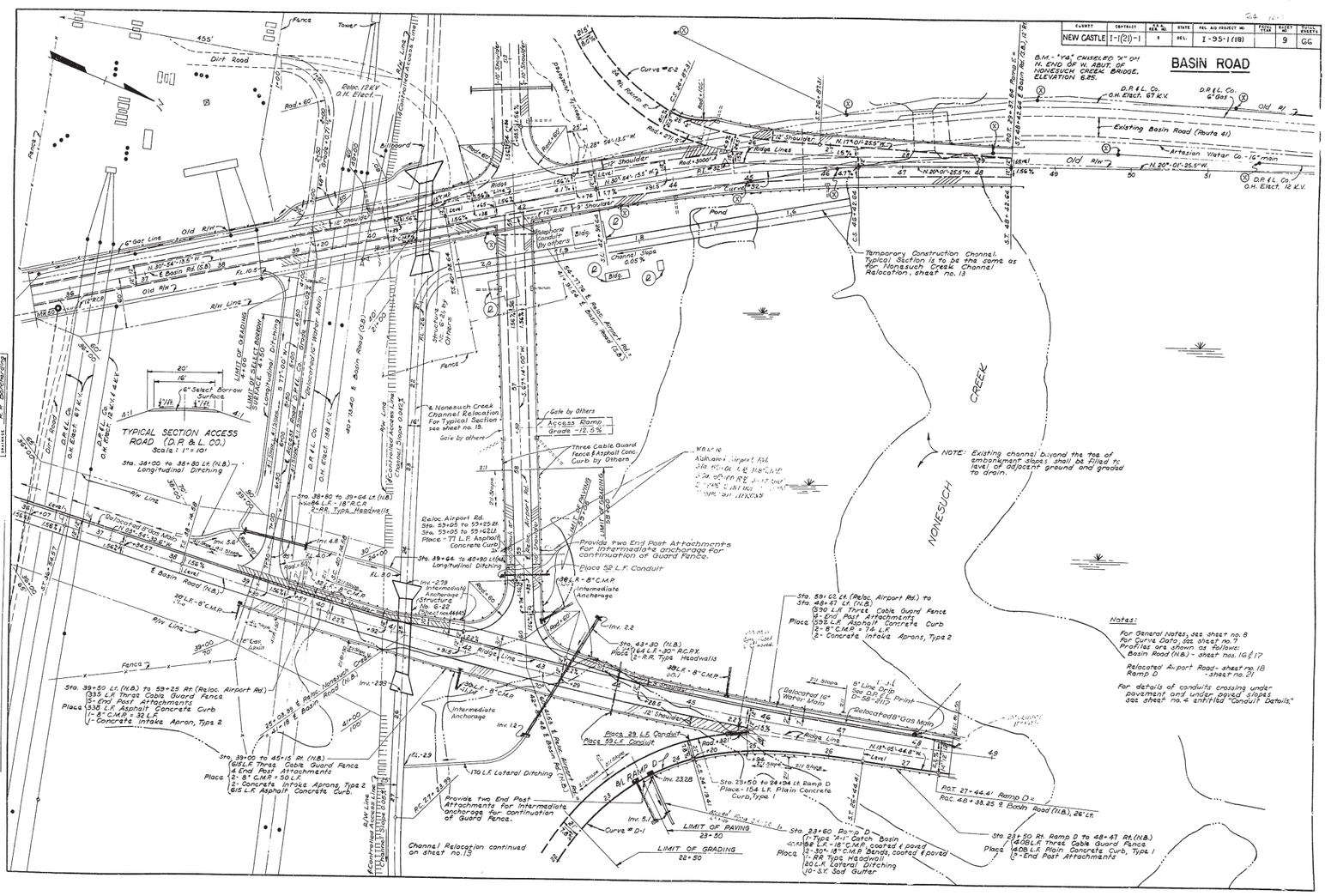
Notes:

For Curve Data, see sheet no. 7

For Profile, see sheet no. 16

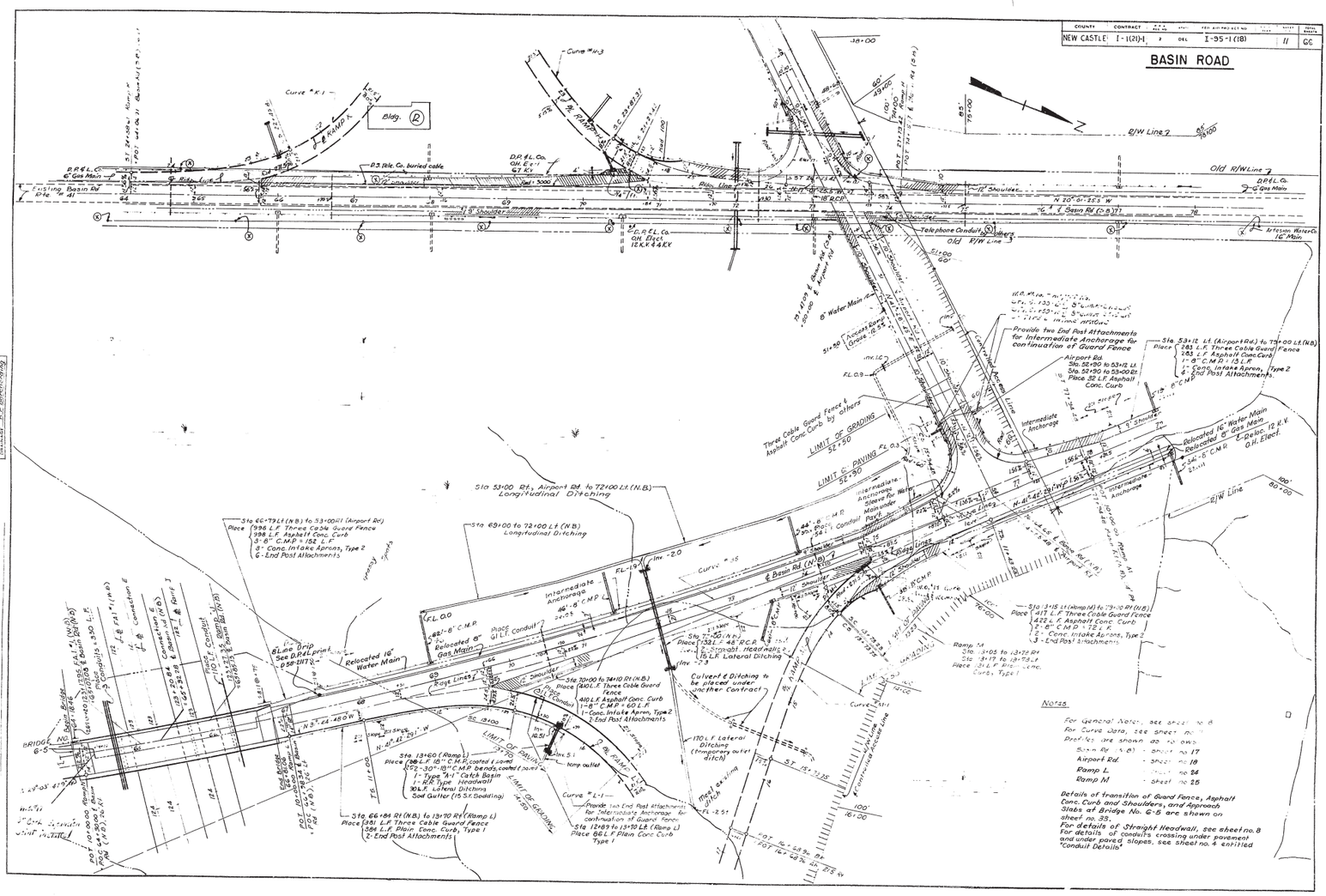
COUNTY	CONTRACT NO.	FED. AID NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	4	DEL.	I-95-1(18)	9	GG

BASIN ROAD


B.M. "Y4" CHISELED "X" ON N. END OF W. ABUT. OF NONESUCH CREEK BRIDGE. ELEVATION 6.25.
Existing Basin Road (Route 41)
Temporary Construction Channel Typical Section is to be the same as for Nonesuch Creek Channel Relocation, sheet no. 13
NONESUCH CREEK
NOTE: Existing channel beyond the toe of embankment slopes shall be filled to level of adjacent ground and graded to drain.
TYPICAL SECTION ACCESS ROAD (D.P.&L. CO.)
Scale 1:1" = 10'
Sta. 38+00 to 38+80 Lt. (N.B.) Longitudinal Ditching
Sta. 38+80 to 39+64 Lt. (N.B.) 36.46 L.F. - 8" R.C.P. 2-RR. Type Headwalls
Sta. 39+50 to 45+25 Rt. (Reloc. Airport Rd.) 535 L.F. Three Cable Guard Fence 4 End Post Attachments 5-End Post Attachments Place 536 L.F. Asphalt Concrete Curb 1-8" C.M.P. @ 32 L.F. 1-Concrete Intake Apron, Type 2
Sta. 39+00 to 45+15 Rt. (N.B.) 625 L.F. Three Cable Guard Fence 4 End Post Attachments Place 5-8" C.M.P. - 50 L.F. 2-Concrete Intake Aprons, Type 2 615 L.F. Asphalt Concrete Curb.
Sta. 49+64 to 49+90 (N.B.) 26 L.F. - 8" C.M.P.
Place 59 L.F. Conduit
Sta. 49+90 (N.B.) Place 64 L.F. - 30" R.C.P.Y. 2-RR. Type Headwalls
Provide two End Post Attachments for Intermediate anchorage for continuation of Guard Fence.
Sta. 59+00 Lt. (Reloc. Airport Rd.) to Sta. 48+83 Lt. (N.B.) 590 L.F. Three Cable Guard Fence 14-End Post Attachments 558 L.F. Asphalt Concrete Curb 2-8" C.M.P. - 76 L.F. 2-Concrete Intake Aprons, Type 2
Sta. 23+50 to 24+94 Lt. Ramp D Place - 154 L.F. Plain Concrete Curb, Type 1
Sta. 23+50 Rt. Ramp D Place 2-1 Type 2-1 Catch Basin 98 L.F. - 18" C.M.P. coated & paved 2-30° - 18" C.M.P. Bends, coated & paved 2-RR. Type Headwall 80 L.F. Lateral Ditching 10'-S.K. Sod Gutter
Sta. 33+50 Rt. Ramp D to 48+47 Rt. (N.B.) 1408 L.F. Three Cable Guard Fence Place 14 End Post Attachments 1408 L.F. Plain Concrete Curb, Type 1
Sta. 33+50 Rt. Ramp D Place 1-End Post Attachments
Channel Relocation continued on sheet no. 13
Notes:
For General Notes, see sheet no. 8
For Curve Data, see sheet no. 7
Profiles are shown as follows:
Basin Road (N.B.) - sheet nos. 16 & 17
Relocated Airport Road - sheet no. 18
Ramp D - sheet no. 21
For details of conduits crossing under pavement and under paved slopes see sheet no. 4 entitled "Conduit Details."
LIMIT OF GRADING 23+50
LIMIT OF GRADING 32+50
Relocated 12" Water Main
Relocated 8" Gas Main
Relocated 12" Sewer
Relocated 8" Gas Main
Relocated 8" Gas Main
Relocated 8" Gas Main

REVISIONS

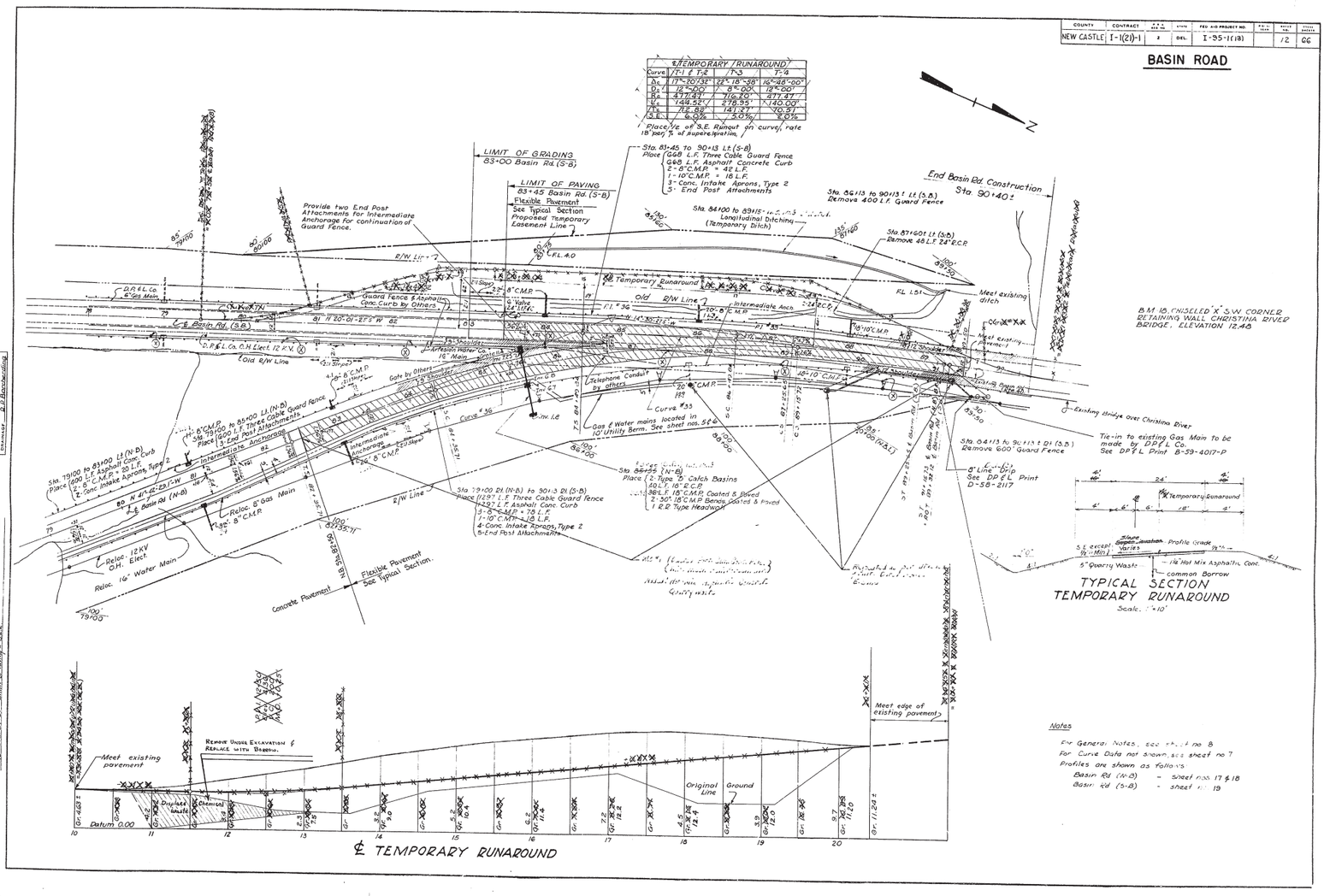
CHECKED	
GRADE	
BEARINGS	W. K. Upton
TIE POINTS	
BENCH MARKS	
EARTHWORK	
DRAINAGE	R.P. Borcherding



CHECKED
DRAWN
REVISIONS
DESIGN MAKE
DESIGNED
DRAWN
CHECKED
REVISIONS

COUNTY	CONTRACT	P.A. NO.	STATE	FED. AID PROJECT NO.	P.A. NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		12	66

BASIN ROAD



Curve	T71 & T72	T73	T74
Δ	17°-10'-32"	22°-18'-38"	16°-38'-00"
D	12°-00'	8°-00'	12°-00'
R	477.52'	716.20'	477.47'
L	149.52'	278.95'	140.00'
T	75.52'	141.27'	70.51'
S.E.	6.0%	5.0%	6.0%

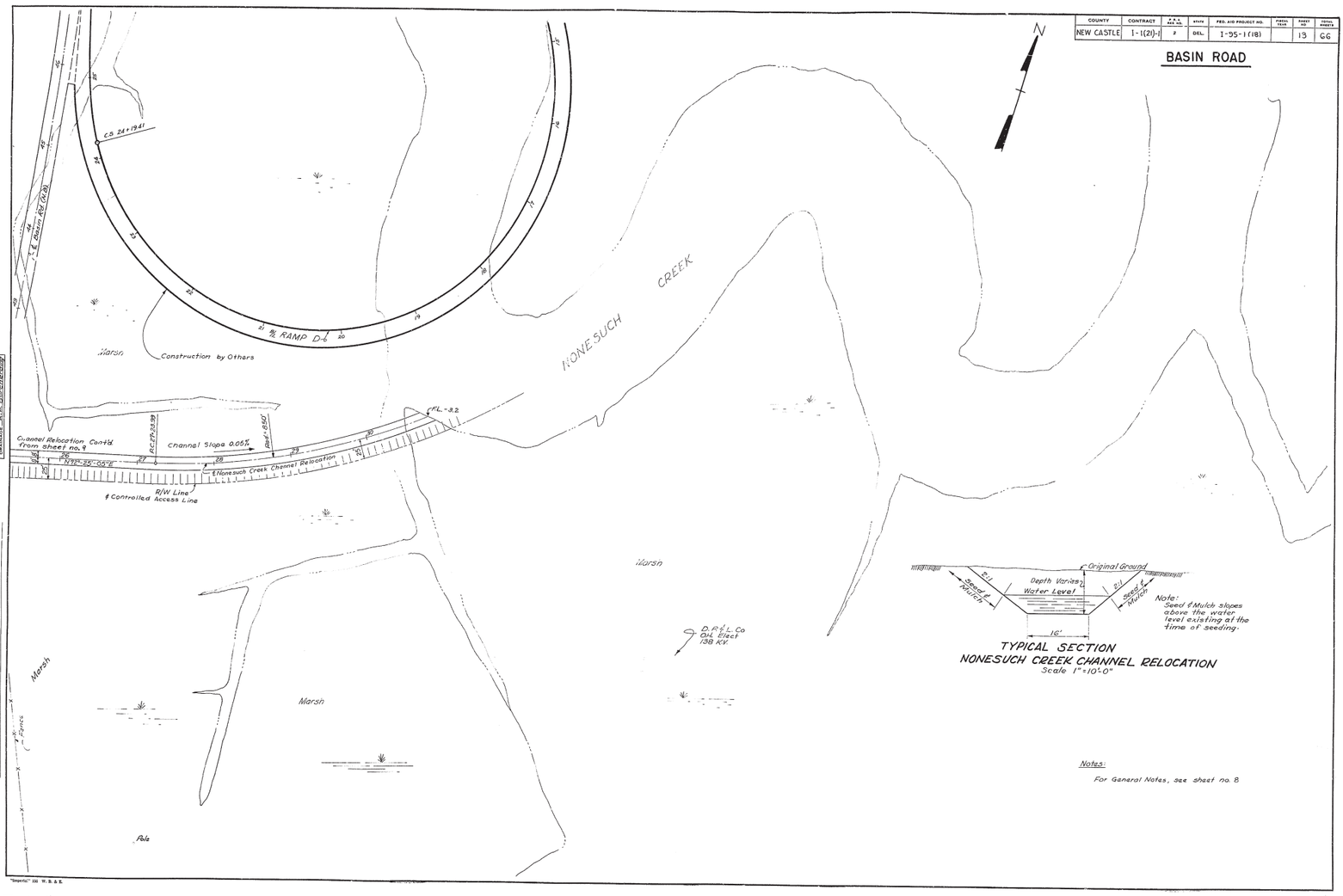
1 Place 1/2 of S.E. Runout on curve, rate 18 pad % of superelevation.

REVISIONS
Revised Temporary Runaround. Changed work of Sta. 90+40±
Sta. 84+00 Longitudinal Ditch
Sta. 84+13 Concrete Barrier to Guide Rail Tie-in
Sta. 79+00 Limit of Grading
Sta. 83+45 Limit of Paving
Sta. 87+60 Remove 48 L.F. 24" R.C.P.

CHECKED
Design Engineer
Designer
Design Manager
Chief Engineer
Drawing

COUNTY	CONTRACT	F.A.P. REF. NO.	STATE	FED. AID PROJECT NO.	FINISH YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		13	66

BASIN ROAD



TYPICAL SECTION
NONESUCH CREEK CHANNEL RELOCATION
Scale 1"=10'-0"

Notes:

For General Notes, see sheet no. 8

REVISIONS

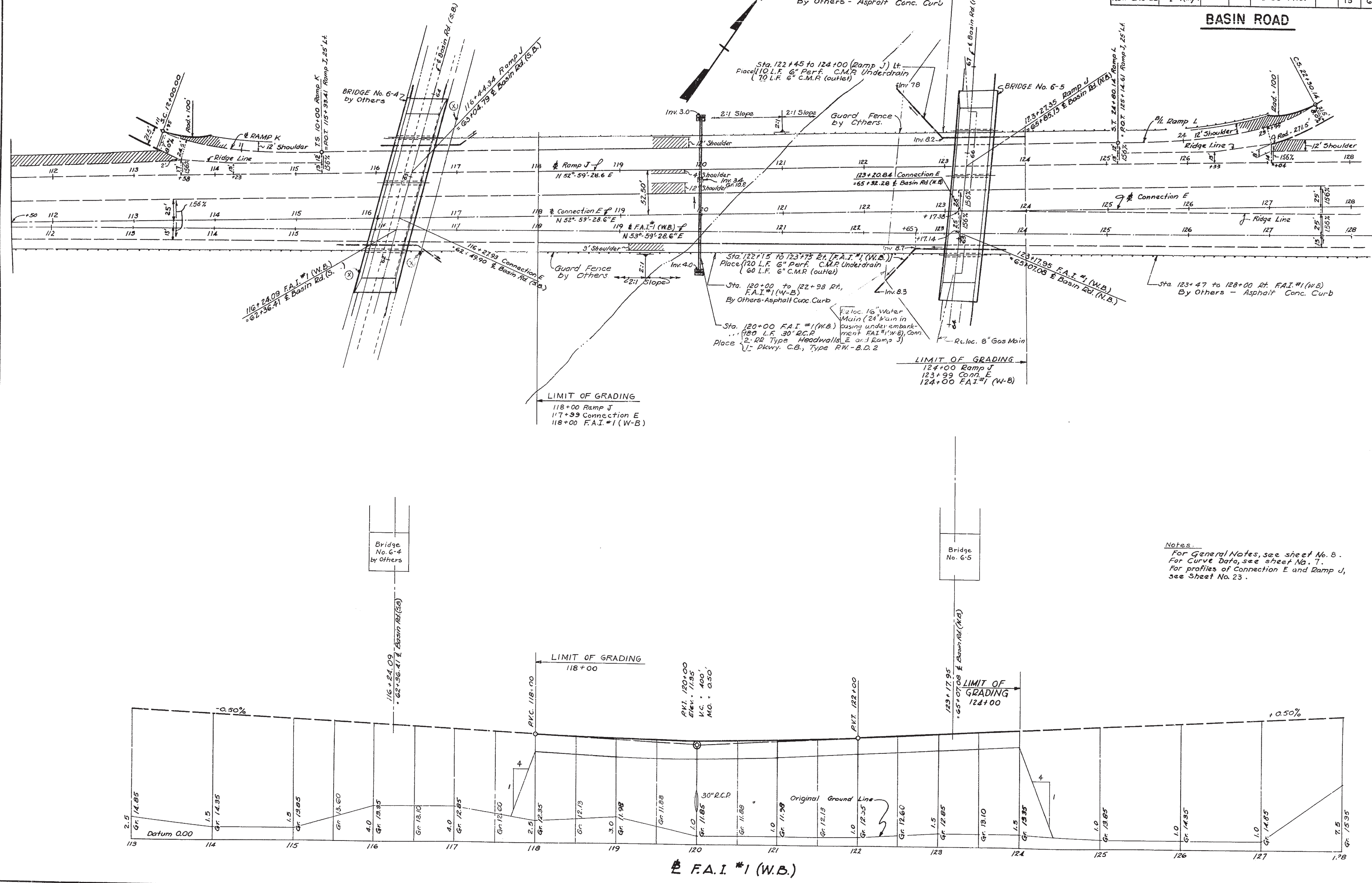
GRADE
BEARINGS C. Robinson
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE R.R. Borcherding

REVISIONS

CHECKED
GRADE W.R. Upton
BEARINGS W.R. Upton
TIE POINTS
BENCH MARKS
EARTHWORKS
DRAINAGE R.R. Borcherding

COUNTY	CONTRACT	F.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		15	66

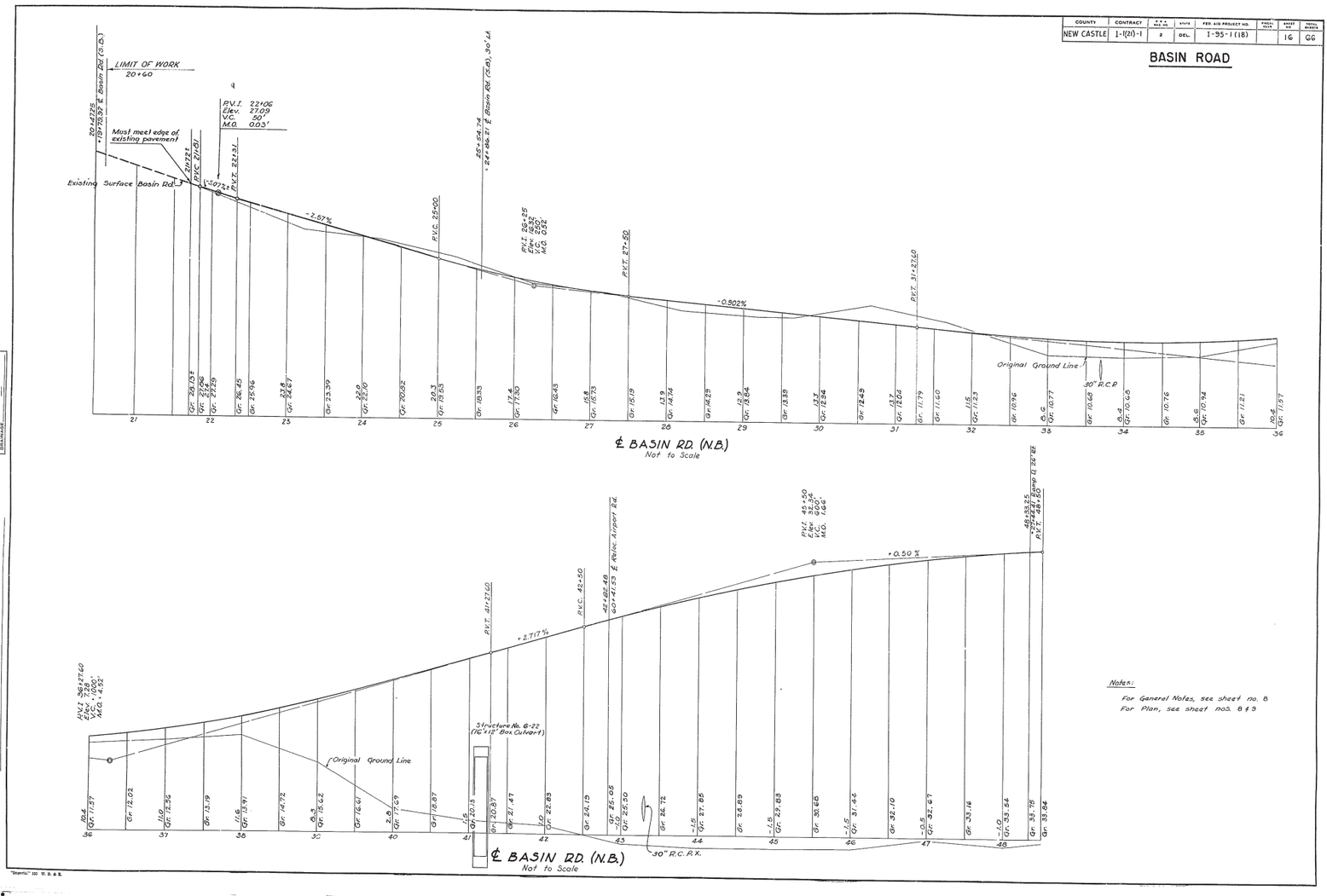
BASIN ROAD



Notes.
For General Notes, see sheet No. 8.
For Curve Data, see sheet No. 7.
For profiles of Connection E and Ramp J, see Sheet No. 23.

COUNTY	CONTRACT		STATE	FED. AID PROJECT NO.		SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		16	66

BASIN ROAD



Notes:

For General Notes, see sheet no. 8

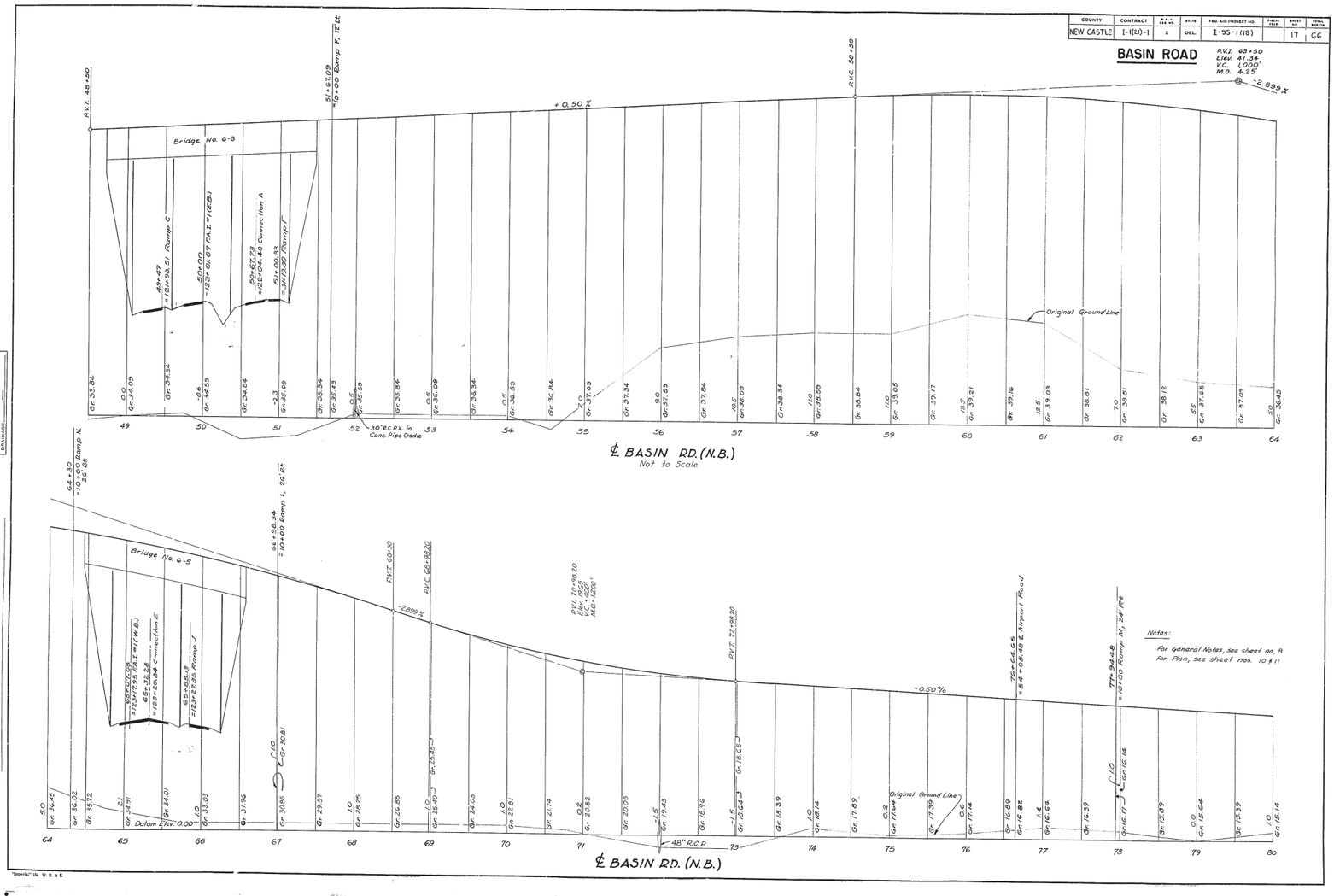
For Plan, see sheet nos. 8 & 9

REVISIONS

COUNTY	CONTRACT	P.A.I. FED. RD.	STATE	FED. AID PROJECT NO.	PROJ. TOTAL	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		17	66

BASIN ROAD

P.V.I. 63+50
Elev. 41.34
V.C. 1,000'
M.O. 4.25'



REVISIONS

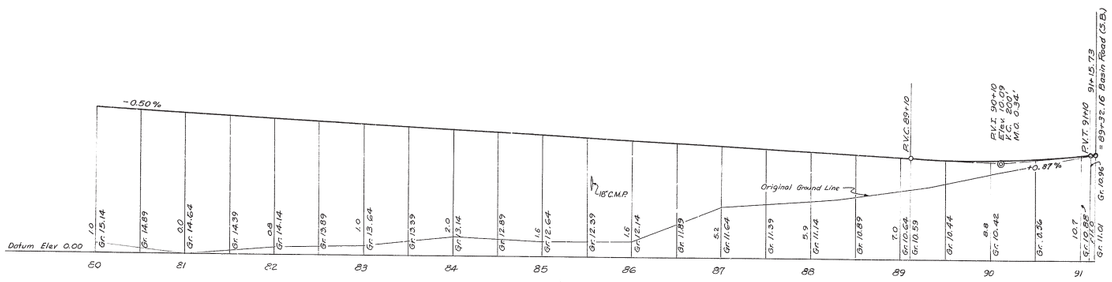
W. L. Upton

GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

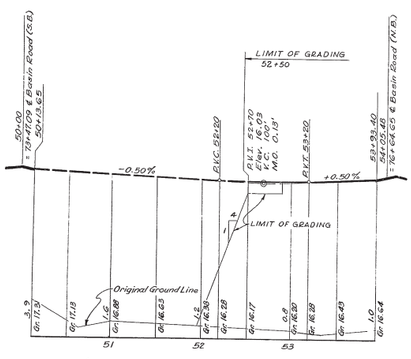
"Interstate" Div. W. B. & R.

COUNTY	CONTRACT	R.R.N. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(20)-1	2	DEL.	I-95-1(18)		18	66

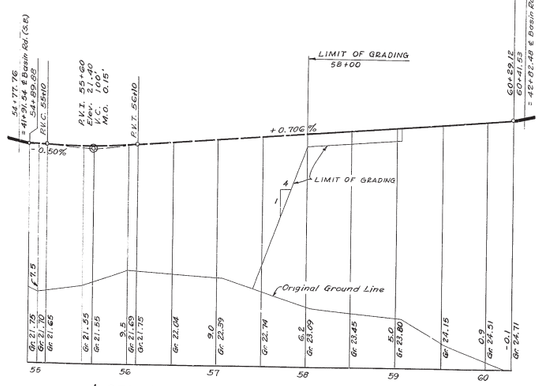
BASIN ROAD



℄ BASIN RD. (N.B.)



℄ AIRPORT ROAD



℄ RELOCATED AIRPORT ROAD
Not to Scale

Notes:

For General Notes, see sheet no. 8

For Plan, see the following sheets:
Basin Rd. (N-B) - sheet no. 12
Airport Rd. - sheet no. 11
Relocated Airport Rd. - sheet no. 9

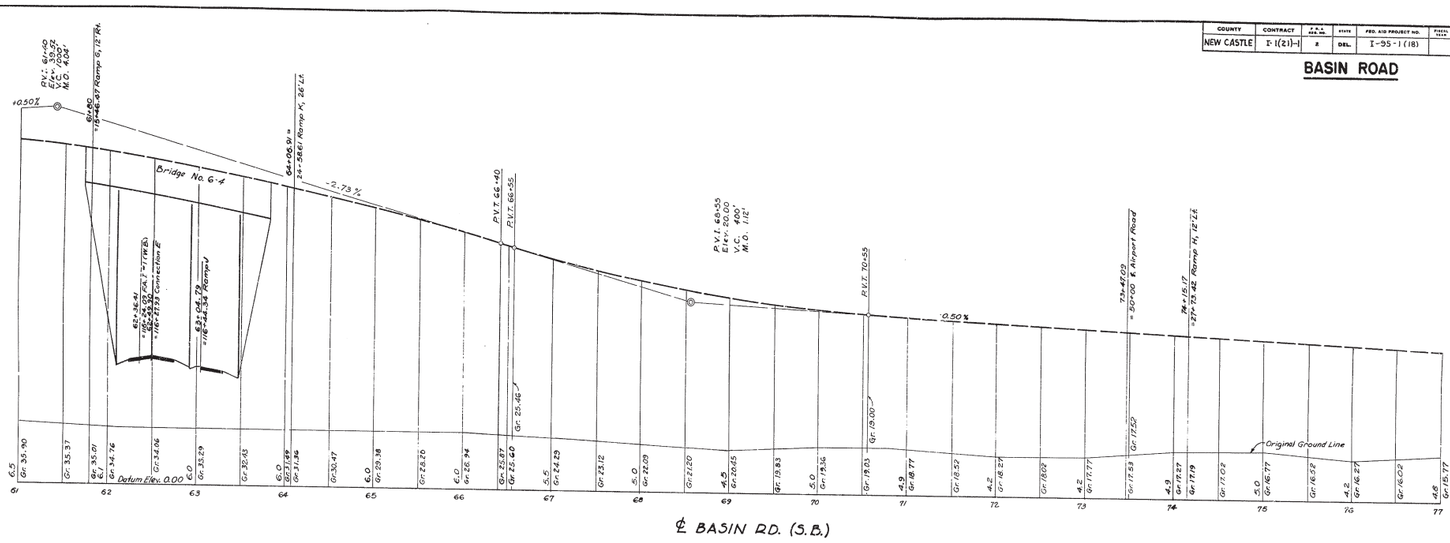
CHECKED BY
GRADE
STRUCTURE
TIE POINTS
BENCHMARKS
EARTHWORK
DRAINAGE

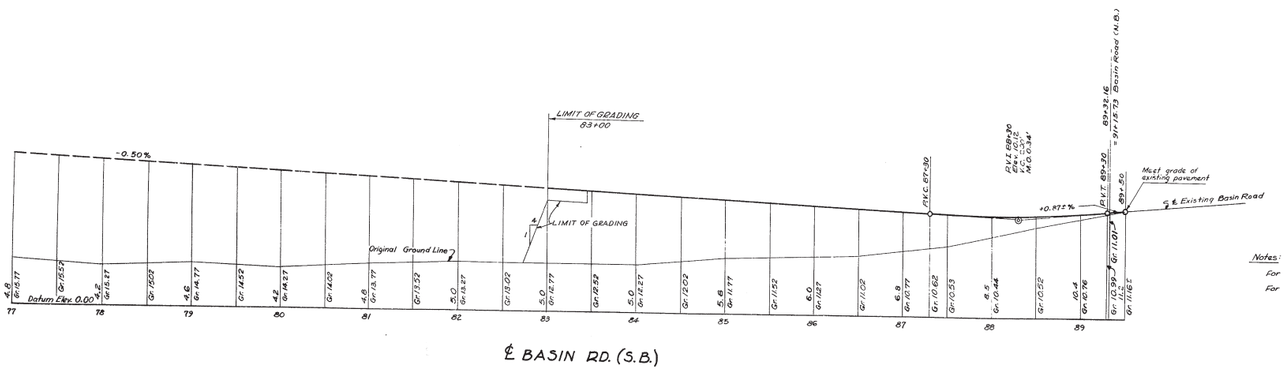
REVISIONS

Drawing No. 1 Imperial 24 W.B.&R.

COUNTY	CONTRACT		STATE	FED. AID PROJECT NO.		SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	X	DEL.	I-95-1(18)		19	66

BASIN ROAD





Notes:

For General Notes, see sheet no. 8

For Plan, see sheet no. 12

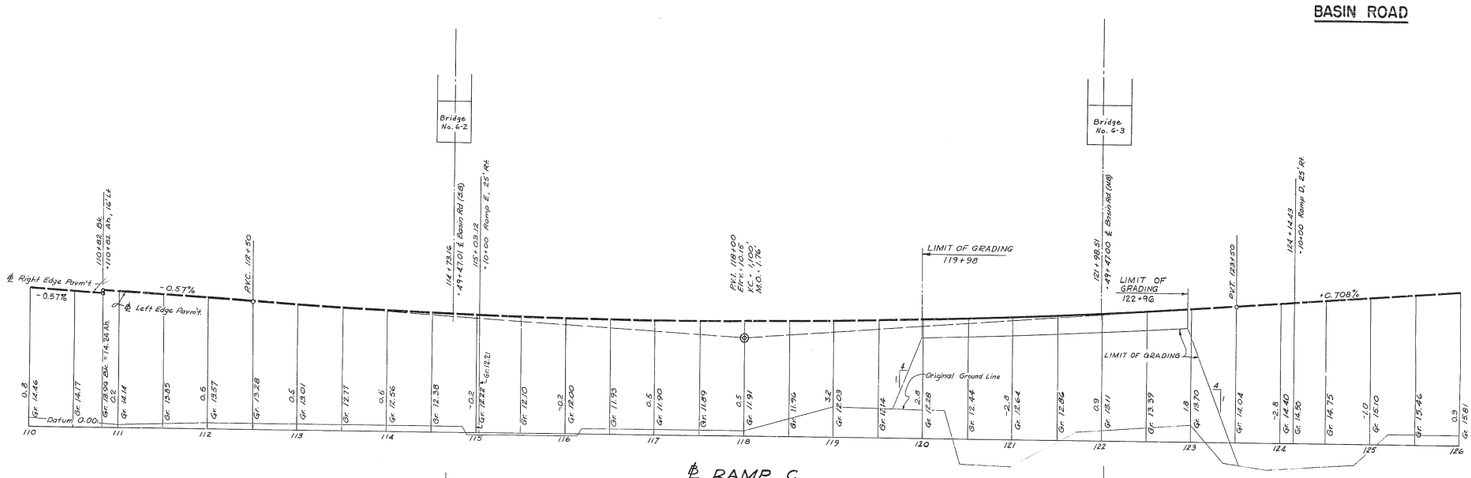
CHECKED W.L. Lipton

REVISIONS

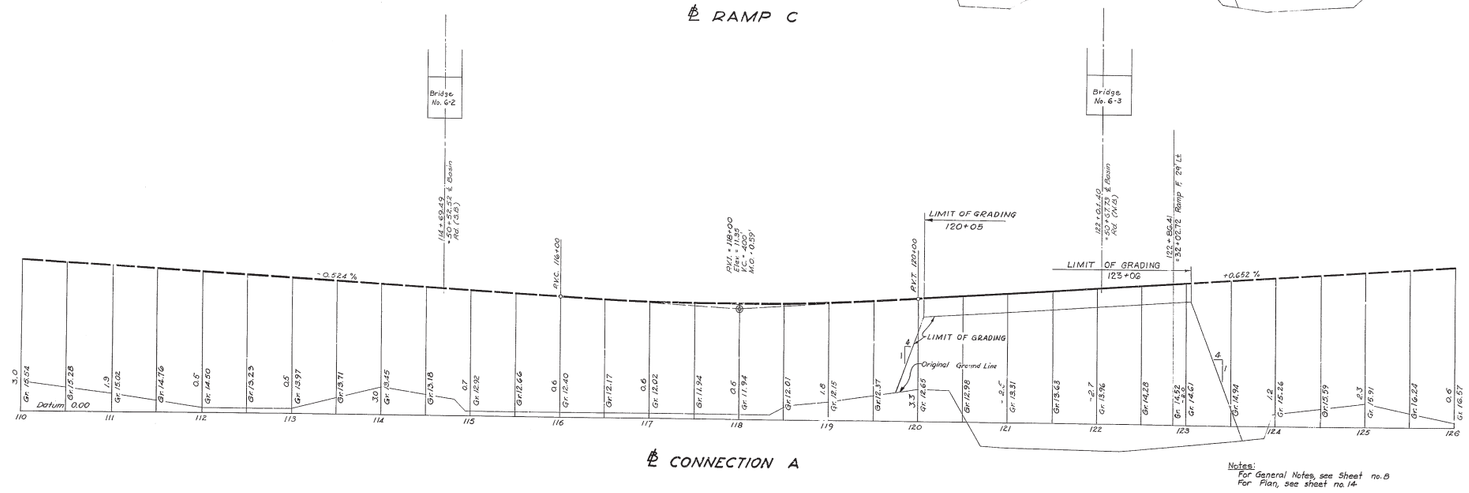
D C B A A B C D

COUNTY	CONTRACT	P.A. AND NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		20	GG

BASIN ROAD



℄ RAMP C



℄ CONNECTION A

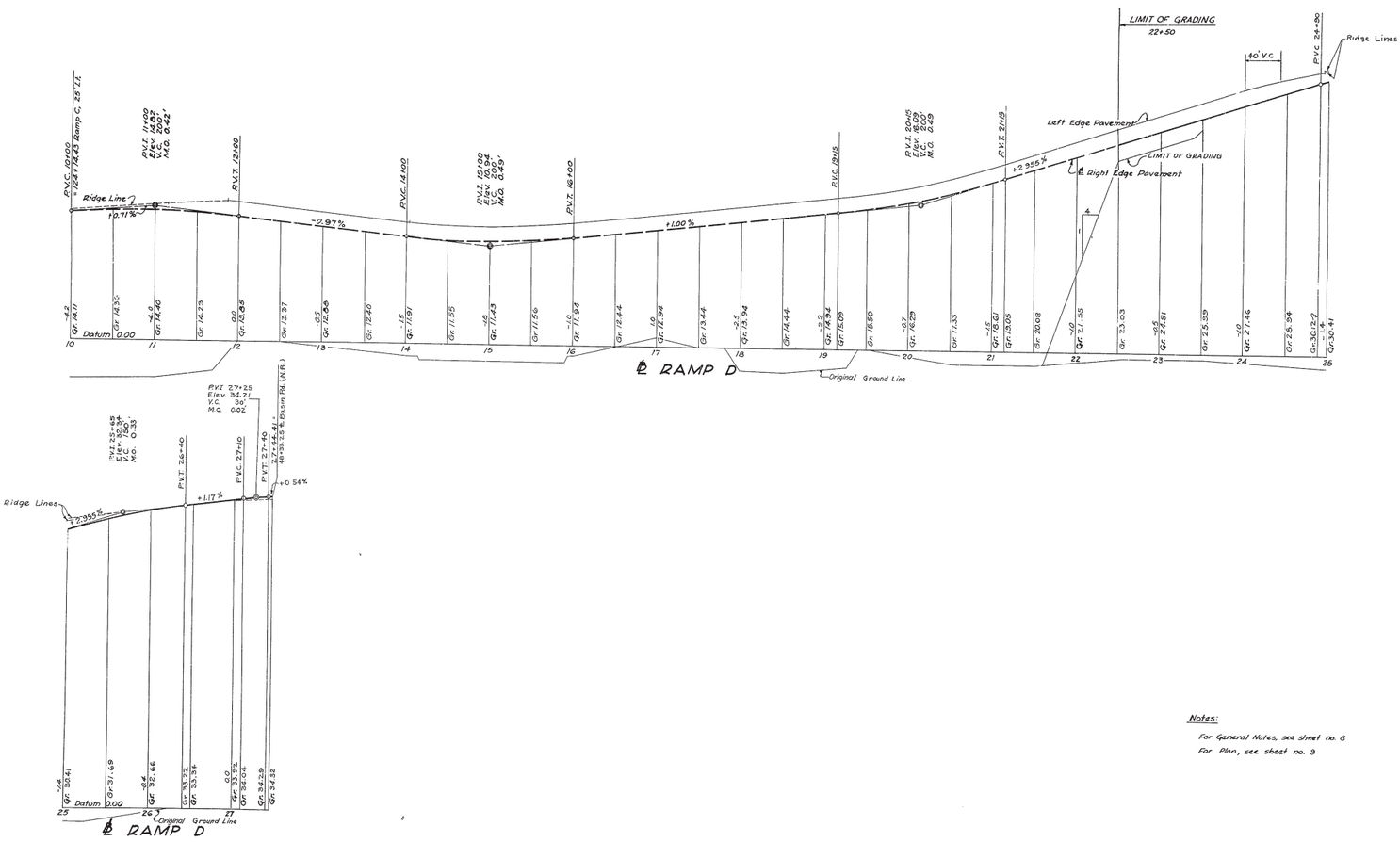
Notes:
For General Notes, see Sheet no. 8
For Plan, see sheet no. 14

REVISIONS

CHECKED

COUNTY	CONTRACT		STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		21	66

BASIN ROAD



Notes:

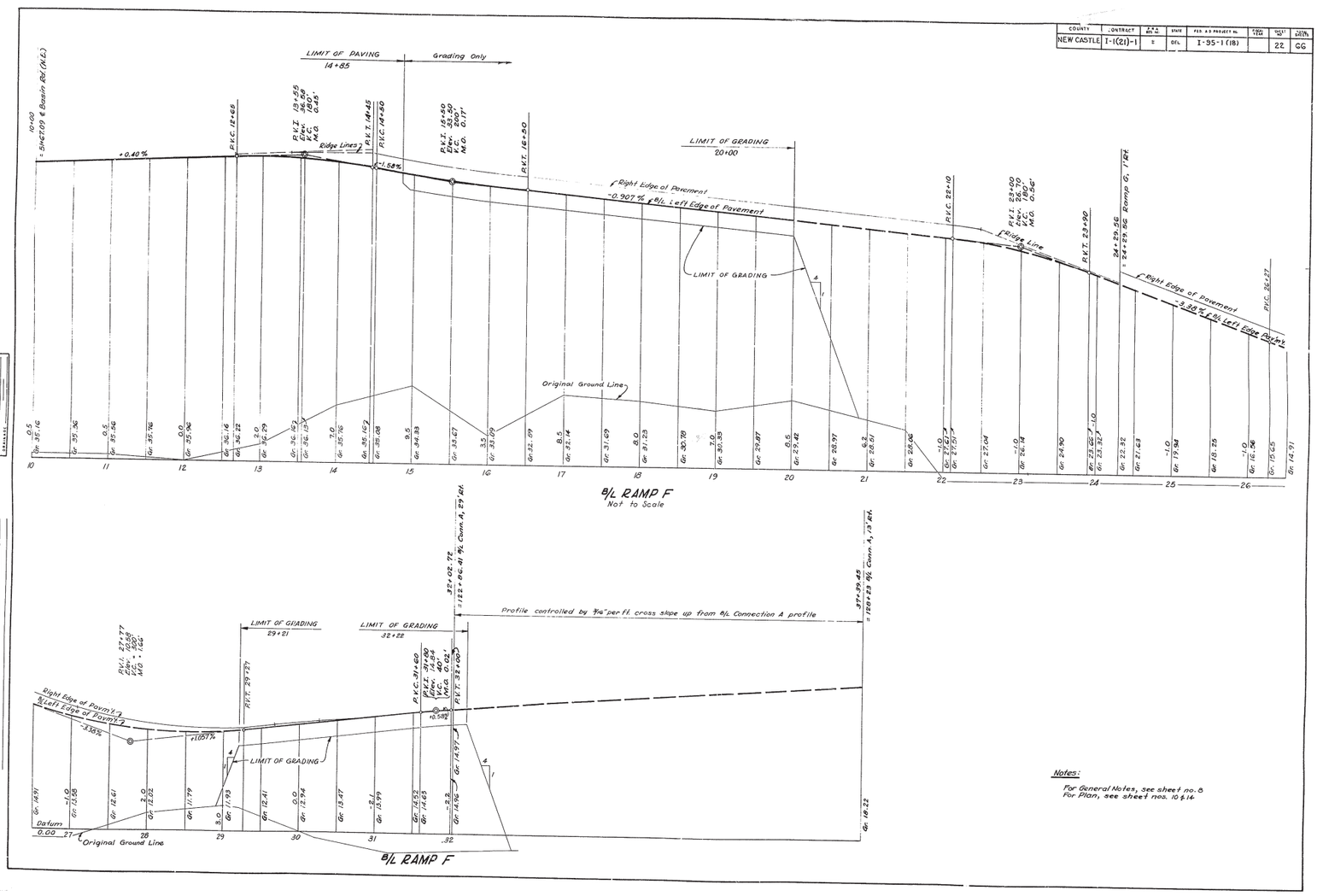
For General Notes, see sheet no. 8

For Plan, see sheet no. 9

CHECKED
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

REVISIONS

COUNTY	CONTRACT		STATE	FED. AID PROJECT NO.		SHEET NO.	DATE
NEW CASTLE	I-1(21)-1	II	DEL	I-95-1(18)		22	GG



Notes:

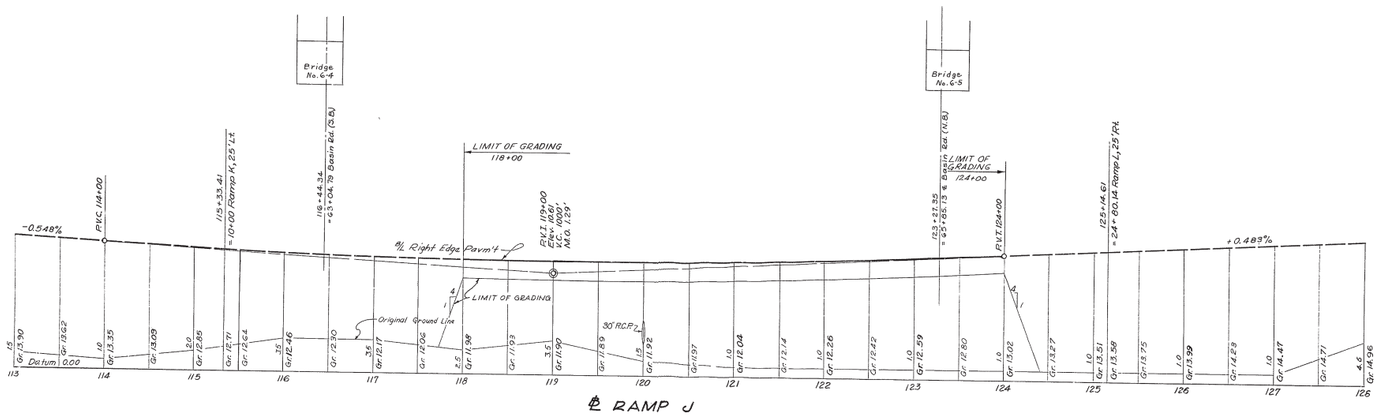
For General Notes, see sheet no. 8
For Plan, see sheet nos. 10 & 14

CHECKED
N.K. Lupton

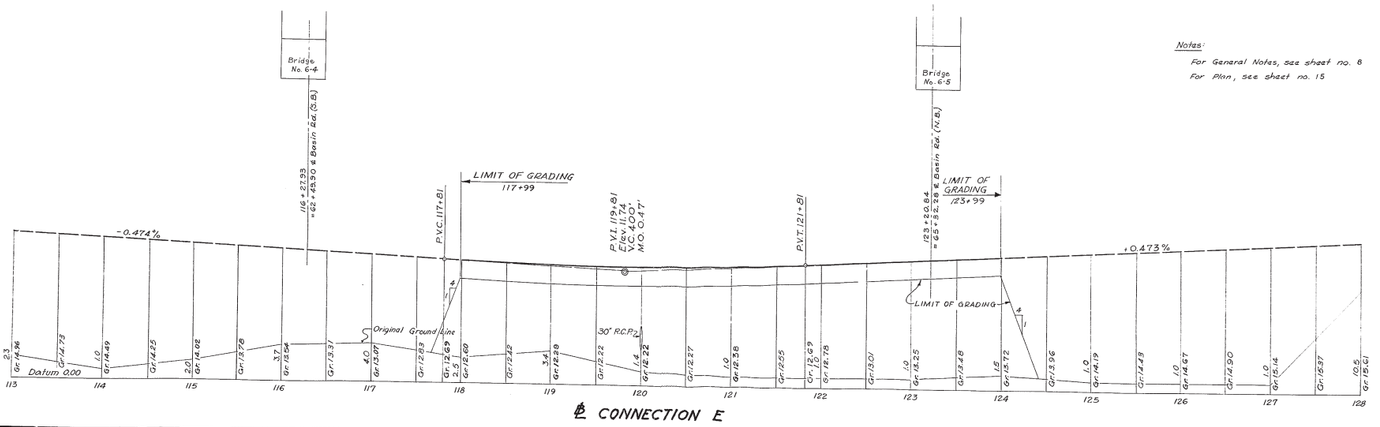
REVISIONS

COUNTY	CONTRACT	F.A.S. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		23	66

BASIN ROAD



℄ RAMP J



℄ CONNECTION E

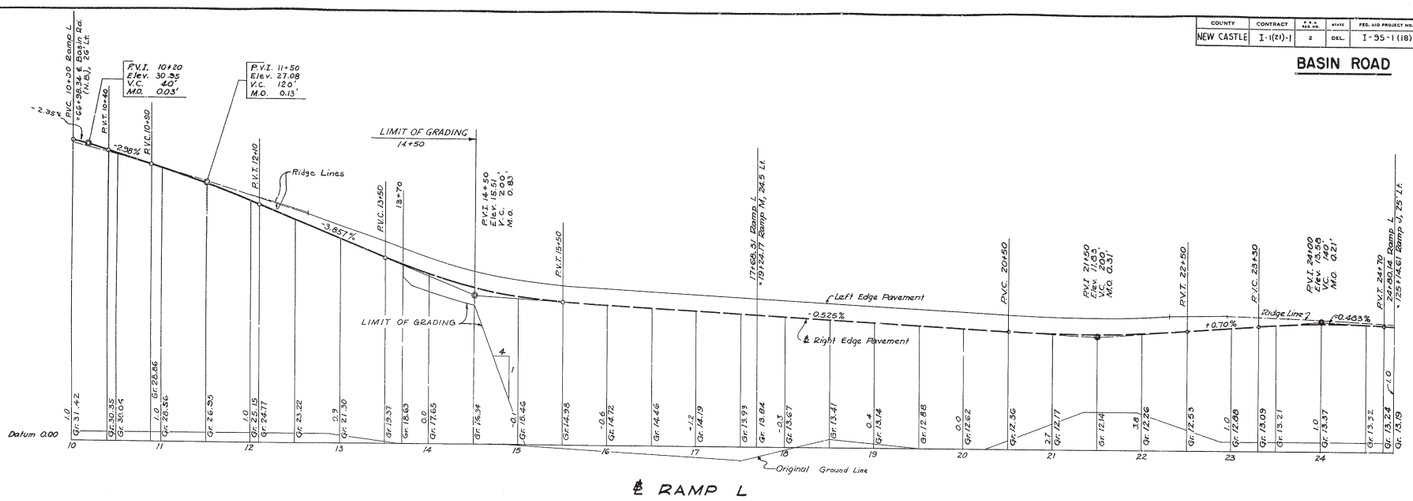
Notes:
For General Notes, see sheet no. 8
For Plan, see sheet no. 15

REVISIONS

CHECKED

COUNTY	CONTRACT	F.A.P. NO.	STATE	FED. AID PROJECT NO.	FINISH YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		24	66

BASIN ROAD



Notes:

For General Notes, see sheet no. 8

For Plan, see sheet no. 11

REVISIONS

No. Description

REVISIONS

CHECKED
GRADE K. Upton
BEARINGS —
TIE POINTS —
BENCH MARKS —
EARTHWORK —
DRAINAGE —

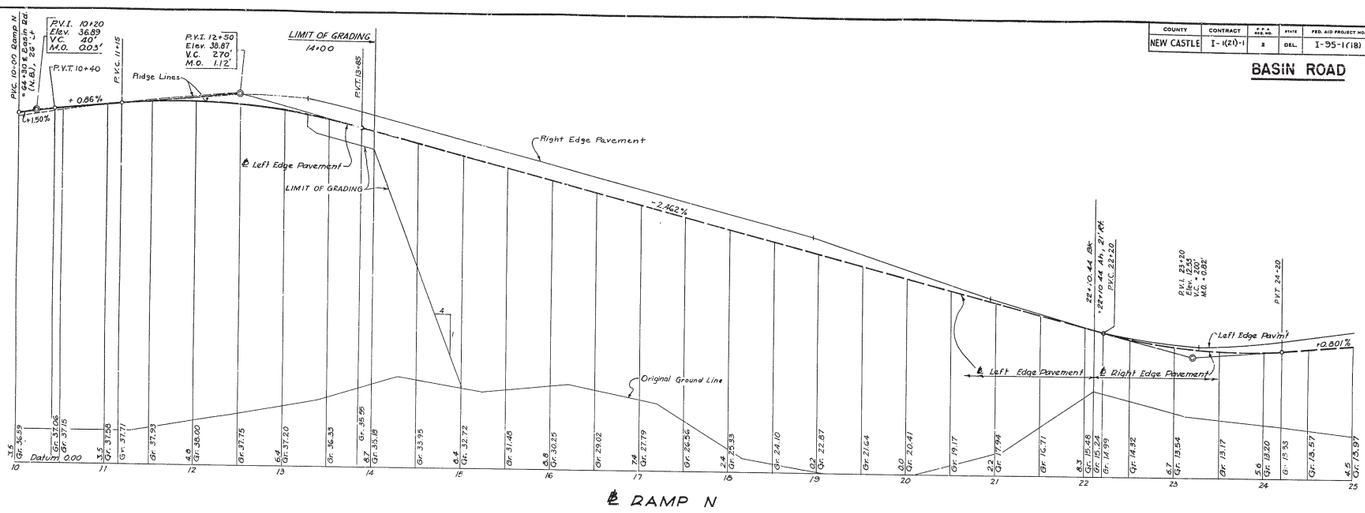
Notes:
For General Notes, see sheet no. 8
For Plan, see sheet no. 1.

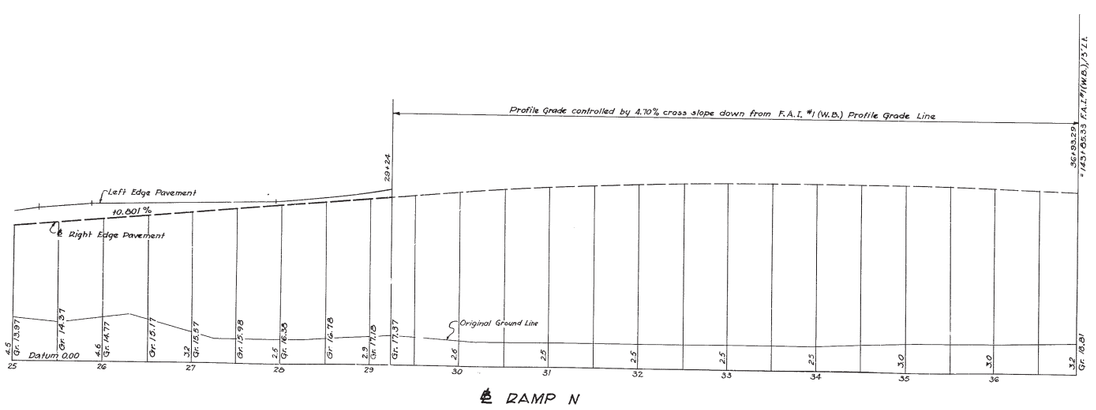
COUNTY	CONTRACT	SHEET	SCALE	SHEET	TOTAL SHEETS
NEW CASTLE	T-(ID)-1	8	1"=5'-1(18)	25	24

BASIN ROAD

COUNTY	CONTRACT	F.A.I. NO.	STATE	FED. AID PROJECT NO.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		26	66

BASIN ROAD





Notes:
For General Notes, see sheet no. 8
For Plan, see sheet nos. 10 & 11

REVISIONS

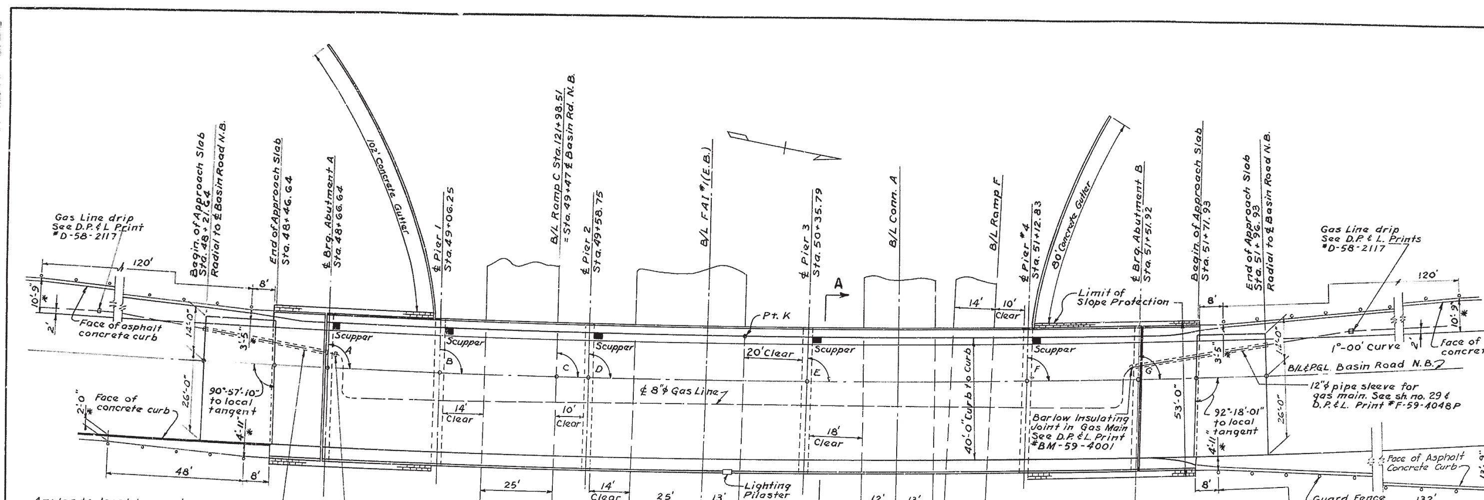
CHECKED
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

REVISIONS

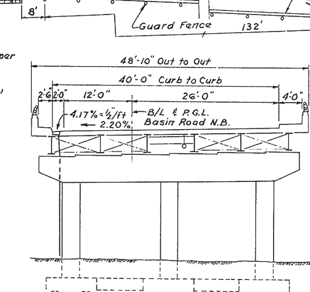
4/25/61 Date of Standard Specifications from '57 to '60 (A.A.)

	MADE BY	CHECKED BY
	C.A.S. & R.C.C.	R.L.N. & E.G.R.
	A.J.S. & C.F.D.	R.L.N & R.C.C.
	B.W.L.	

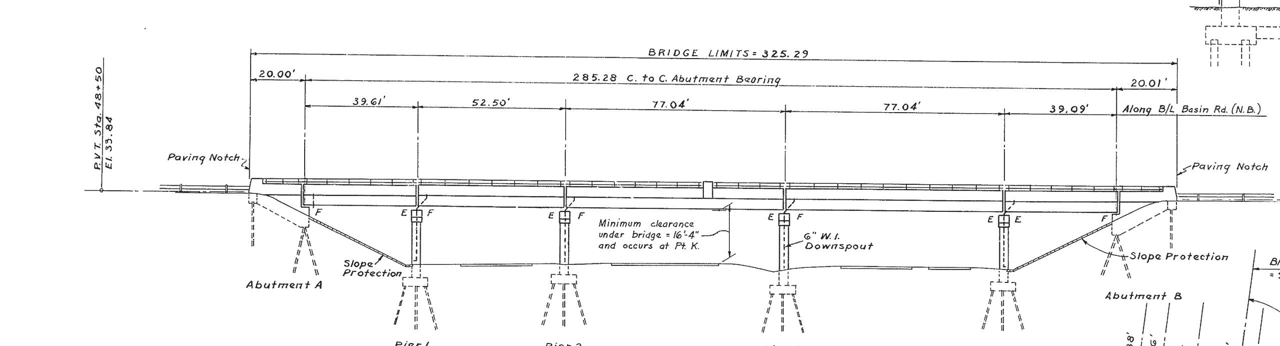
COUNTY	CONTRACT	P.R.A. REG NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		27	66



PLAN
1" = 20'



SECTION A-A
1" = 10'



ELEVATION
1" = 20'

NOTES:
Dead Load: Concrete - 150# per cu. ft.; Wearing Surface - 25# per sq. ft.
Live Load: H20-S16-44 Modified, Slab designed for 16K wheel load.
Unit Stresses: Reinforcing Steel (Intermediate Grade) fs = 20,000 p.s.i. Concrete f'c = 3,000 p.s.i.; fc = 1200 p.s.i.
Superstructure: Concrete Deck, Steel Beam Construction, composite action under live load
For details of slope protection and gutters, see Slope Protection and Drainage Details sheet no. 42.

GENERAL NOTES FOR STRUCTURES

Specifications: Design criteria are based on 1957 Standard Specifications for Highway Bridges, American Association of State Highway Officials, with current corrections and addenda.

Material and workmanship are to conform with State of Delaware, State Highway Department Standard Specifications dated July 1, 1960 unless otherwise noted and/or specified by Special Provisions of Specifications.

Elevations: Elevations are based on U.S.C. & G. datum.

Borings: The subsoil data and interpretations do not form a part of the Contract, and will be available to the bidders for their information only. Available soil samples taken at the site may be examined by arrangement with State Highway Department, Interstate Highway Office, DuPont Highway and State Road, Wilmington, Delaware. The State makes no representations regarding the character or extent of the soil or other subsurface conditions to be encountered. The correctness of boring information is not guaranteed.

The contractor must make his own deductions of subsoil conditions which may affect his methods or cost of construction.

Foundations: All piles shall be cast-in-place concrete piles. The nominal diameter and shell thickness of the steel casings or shells shall be as shown in the Specifications or on the Plans or approved by the Engineer.

All piles in pier and abutment footings shall be driven to develop a minimum bearing capacity of 35 tons as determined in Special Provisions to Standard Specifications under item "Pile Bearing Values."

At least one test pile per bridge shall be driven in a pier footing at permanent pile location, as directed by the Engineer.

Excavation for Structures: The depth of excavation measured for payment shall be the vertical distance from the bottom of concrete to the ground line existing at the time of excavation but not above finished grade. The horizontal limits of excavation for payment shall be 1'-6" beyond the face of concrete.

Portland Cement Concrete Masonry: All concrete shall be controlled concrete with a minimum compressive strength of 3000 psi in 28 days. Cover over bar reinforcement shall be 2" except as otherwise noted on the drawings or as follows: Pile Caps - 3", Abutment Slab - 1½"

All exposed edges of concrete shall be chamfered 1"×1" unless otherwise shown.

Concrete in all areas under bearing plates to be a minimum of ⅛" above finished elevations. See Specifications.

Bar Reinforcement: Bar reinforcement to be deformed type (ASTM-A305), billet steel of intermediate grade (ASTM-A15). Lapped splices, unless otherwise noted, to be 35 bar diameters.

Superficial Waterproofing: Interior faces of the front and side walls of abutments shall be waterproofed in accordance with Delaware Standard Specifications, Item 19.

Silicone Surface Treatment: The following surfaces and areas are to be given an application of an approved silicone solution (See Special Provisions).

1. Surfaces of sidewalks and safety walks (including curbs) on superstructures.
2. Inside and outside faces at parapet (super structures and abutments).
3. Top surfaces at piers and abutments.

Slope Protection: Precast concrete block slope protection to the extent indicated on the drawings shall be as specified in Special Provisions.

Structural Steel and Steelwork: All welded structural steel shall conform with the requirements of A.S.T.M. Designation A-373-58T (Structural Steel for Welding). All structural steel not welded shall conform with the requirements of A.S.T.M. Designation A-7 or A.S.T.M. Designation A373-58T

All welding shall conform to the 1956 Standard Specifications for Welded Highway and Railway Bridges of the American Welding Society, with current corrections and addenda.

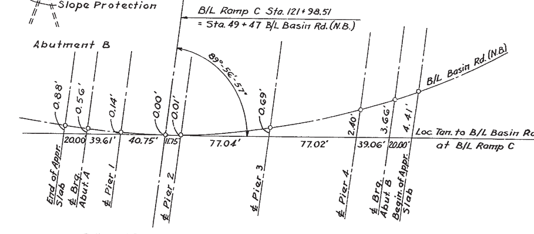
For notes pertaining to shoes see sheet entitled "Bearing Details."

All dimensions shown on the drawings are for the structures at a normal temperature of +68°F.

To avoid oversight the shop drawings shall show clearly the nature, dimensions and locations of all welds, bolt sizes, open holes, painting, etc.

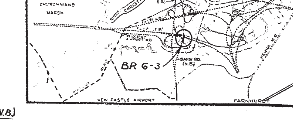
Deck Slab: Longitudinal construction joints in the superstructure deck slab are optional with the contractor. Location of these joints, if used, shall be approved by the Engineer.

Shear Connectors: The contractor may submit in writing for approval by the Engineer, alternate shear connector devices which will develop the equivalent shear of the connectors shown on the Plans. See Special Provisions.



B/L BASIN ROAD (N.B.) FROM TANGENT AT B/L RAMP C
No Scale

APPROVED F. D. Fox BRIDGE ENGINEER



DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.) - BRIDGE NO. 6-3
SITE PLAN
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS
DESIGNED: C.A.S. CHECKED: R.L.N. DATE: 12-31-59
DRAWN: A.J.S. IN CHARGE: B.W.L. SCALE: As Shown

D C B A A B C D

REVISIONS

GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

NOTES:

1. For General Notes see Sheet No. 27.
2. For Footing "A", Wing Footings F-1, F-2, Footing for Grillage see Sheet No. 39.
3. Elevations shown of beam bearings are approximate. See Section G-G for masonry elevations.

COUNTY	CONTRACT	F.A.P. NO.	SHEET	PROJECT NO.	SHEET	SHEETS
NEW CASTLE	1-(2)1-1	9	1-95-1(18)		28	64

REINFORCING SCHEDULE

Bent Bars (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	REMARKS
A401	120	4	6'-5"	1	1'-6"	5'-5"	1'-6"					
A501	6	5	5'-3"	1	1'-3"	1'-9"	1'-3"					Increment = 1"
A502	14	5	5'-0"	1	1'-0"	1'-3"	1'-0"					
A503	20	5	6'-8"	1	1'-4"	2'-0"	1'-4"					
A504	1	5	18'-6"	1	4'-0"	10'-6"	—					
A505	8	5	17'-11"	1	3'-11"	10'-1"	—					
A506	1	5	7'-8"	1	1'-3"	5'-8"	1'-3"					
A507	8	5	10'-11"	1	2'-11"	6'-11"	—					
A508	1	5	7'-8"	1	1'-3"	5'-8"	1'-3"					
A509	16	5	16'-7"	4	4'-10"	1'-8"	4'-10"					Increments 5"
A510	16	5	16'-7"	4	4'-10"	1'-8"	4'-10"					
A511	15	5	6'-2"	1	1'-2"	4'-2"	1'-2"					
A512	12	5	18'-6"	1	4'-0"	10'-6"	—					
A513	12	5	17'-11"	1	3'-11"	10'-1"	—					
A514	48	5	7'-11"	1	1'-3"	5'-11"	1'-3"					Increments 5"
A515	8	5	6'-10"	1	1'-3"	5'-10"	1'-3"					
A516	4	5	6'-8"	1	1'-3"	5'-8"	1'-3"					
A517	2	5	18'-6"	1	4'-0"	10'-6"	—					
A551	8	5	6'-10"	1	1'-3"	5'-10"	1'-3"					Increment = 3/4" of dash
A552	4	5	6'-8"	1	1'-3"	5'-8"	1'-3"					
A553	2	5	18'-6"	1	4'-0"	10'-6"	—					
A601	10	4	10'-2"	1	1'-9"	6'-10"	1'-9"					
A602	8	4	6'-1"	1	1'-3"	3'-10"	1'-3"					
A701	79	7	4'-9"	1	1'-3"	2'-6"	—					
A801	6	10	14'-6"	2	1'-10"	10'-10"						
A802	10	4	10'-2"	1	1'-9"	6'-10"						
A804	8	4	6'-1"	1	1'-3"	3'-10"						

Bent Bars (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	REMARKS
A451	16	4	14'-4"	
A451	12	4	14'-4"	
A551	2	5	6'-2"	
A552	2	5	7'-1"	
A553	2	5	6'-7"	
A554	2	5	6'-7"	
A555	20	5	18'-6"	Note 3 of 39
A556	2	5	17'-6"	
A557	1	5	15'-9"	
A558	1	5	15'-9"	
A559	1	5	15'-9"	
A560	1	5	17'-11"	
A561	1	5	17'-11"	
A562	12	5	15'-9"	Increment = 2'-4"
A563	12	5	15'-9"	Increment = 2'-4"
A564	12	5	15'-9"	Increment = 2'-4"
A565	12	5	15'-9"	Increment = 2'-4"
A566	12	5	15'-9"	Increment = 2'-4"
A567	12	5	15'-9"	Increment = 2'-4"
A651	47	6	5'-3"	
A751	158	7	18'-8"	
A601	14	10	17'-6"	
A801	14	10	17'-6"	
A803	2	10	28'-6"	
A804	2	10	28'-6"	

Bent Bars (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	REMARKS
A401	120	4	6'-5"	
A501	6	5	5'-3"	
A502	14	5	5'-0"	
A503	20	5	6'-8"	
A504	1	5	18'-6"	
A505	8	5	17'-11"	
A506	1	5	7'-8"	
A507	8	5	10'-11"	
A508	1	5	7'-8"	
A509	16	5	16'-7"	
A510	16	5	16'-7"	
A511	15	5	6'-2"	
A512	12	5	18'-6"	
A513	12	5	17'-11"	
A514	48	5	7'-11"	
A515	8	5	6'-10"	
A516	4	5	6'-8"	
A517	2	5	18'-6"	
A601	10	4	10'-2"	
A602	8	4	6'-1"	
A701	79	7	4'-9"	
A801	6	10	14'-6"	
A802	10	4	10'-2"	
A804	8	4	6'-1"	

Straight Bars

MARK	NO	SIZE	LENGTH	REMARKS
A451	16	4	14'-4"	
A451	12	4	14'-4"	
A551	2	5	6'-2"	
A552	2	5	7'-1"	
A553	2	5	6'-7"	
A554	2	5	6'-7"	
A555	20	5	18'-6"	Note 3 of 39
A556	2	5	17'-6"	
A557	1	5	15'-9"	
A558	1	5	15'-9"	
A559	1	5	15'-9"	
A560	1	5	17'-11"	
A561	1	5	17'-11"	
A562	12	5	15'-9"	Increment = 2'-4"
A563	12	5	15'-9"	Increment = 2'-4"
A564	12	5	15'-9"	Increment = 2'-4"
A565	12	5	15'-9"	Increment = 2'-4"
A566	12	5	15'-9"	Increment = 2'-4"
A567	12	5	15'-9"	Increment = 2'-4"
A651	47	6	5'-3"	
A751	158	7	18'-8"	
A601	14	10	17'-6"	
A801	14	10	17'-6"	
A803	2	10	28'-6"	
A804	2	10	28'-6"	

APPROVED

BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE FAI-1(2)1-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.)-BRIDGE NO. 6-3
ABUTMENT "A"

MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

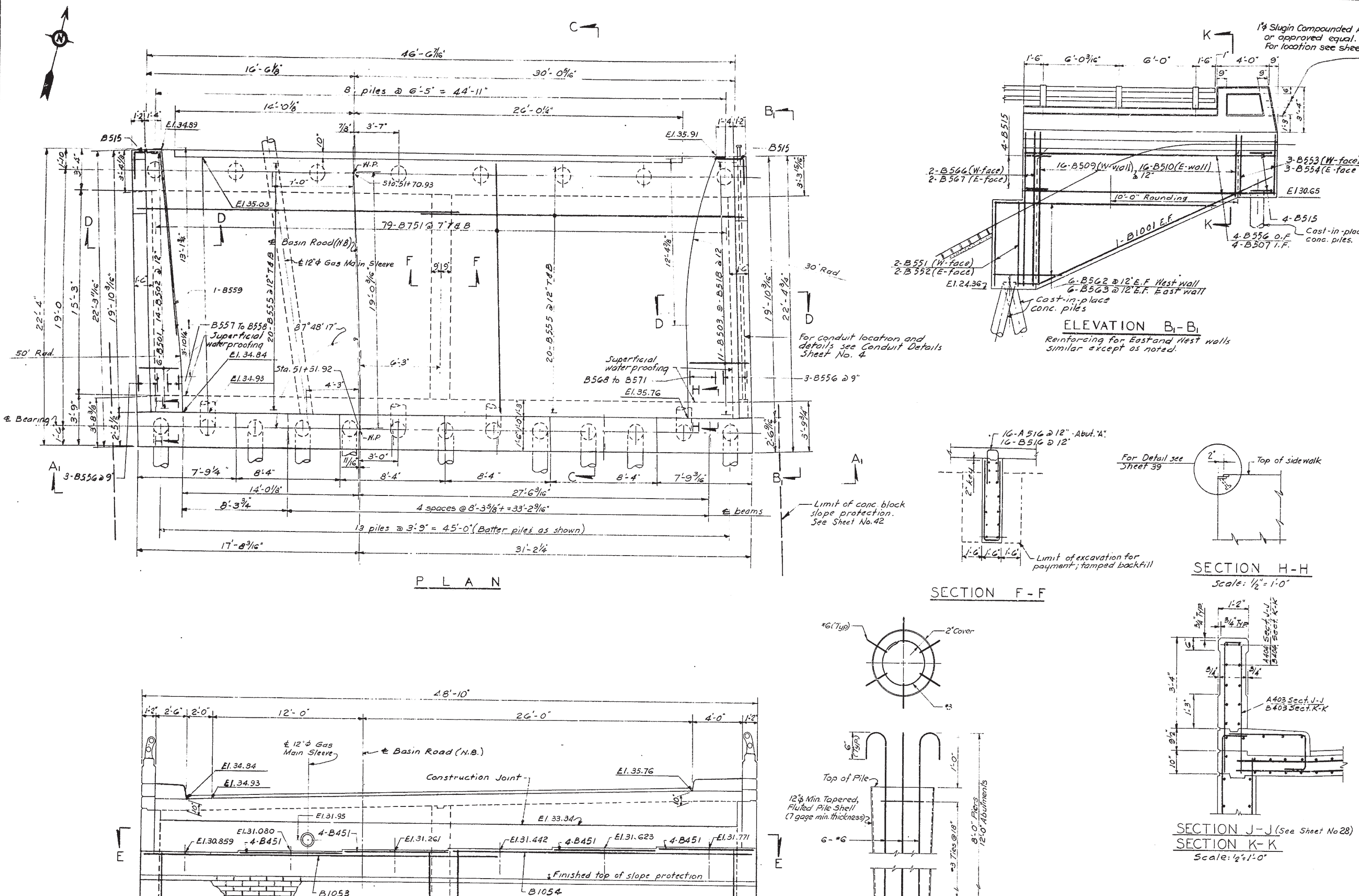
A.E. GRIEBER CO.
GENERAL CONTRACTORS

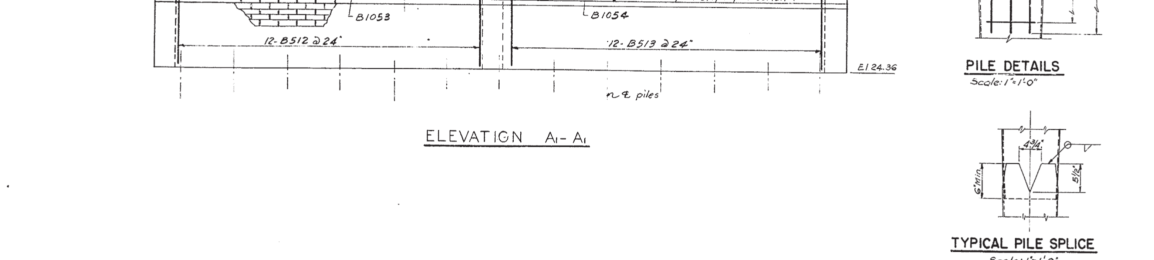
DESIGNED: J.R.L. DATE: 7-8-63
DRAWN: J.R.L. DATE: 7-8-63
CHECKED: J.R.L. DATE: 7-8-63
SCALE: 1/4" = 1'-0"

REVISIONS
4/25/61 - Pile notes deleted JAJ

CHECKED
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	3	DEL.	I-95-1(18)		29	66





REINFORCING SCHEDULE

Bent Bars (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	REMARKS
B401	72	4	6-5	1	1-6	3-5	1-6					
B402	40	4	7-7	1	3-5	0-9	3-5					
B501	6	5	5-3	1	3-3	1-3	0-9					
B502	14	5	4-0 To 5-1	1	2-0 To 3-1	1-3	0-9					Increment = 1"
B503	11	5	6-8	1	1-3	4-8	0-9					
B504	1	5	18-10	1	8-10	1-2	8-10					
B505	3	5	17-11	1	0-9	17-2	—					
B506	3	5	33-11	1	0-9	33-2	—					
B507	14	5	19-5	1	0-9	18-8	—					
B508	1	5	7-8	1	3-3	1-2	3-3					
B509	16	5	10-7 To 23-1	4	3-10 To 10-1	1-2	4-7 To 10-10	1-0				Increment = 5"
B510	16	5	12-7 To 25-1	4	4-10 To 11-1	1-2	5-7 To 11-10	1-0				Increment = 5"
B511	15	5	7-6 To 19-2	1	3-2 To 9-0	1-2	3-2 To 9-0					Increment = 5"
B512	12	5	19-6	5	3-5	5-10	0-6					
B513	12	5	20-6	5	3-5	6-4	0-6					
B514	48	5	13-11 To 15-11	8	2-3	1-10 To 2-10	3-0	2-9 To 3-9	2-2	1-11		Increment = 3/4" 2 of each
B515	8	5	4-0	1	2-0	2-0	—					
B516	15	5	6-8	1	2-9	1-2	2-9					
B517	2	5	18-6	2	16-3	2-3				1-8	1-8	
B518	9	5	4-6 To 6-6	1	2-6 To 4-6	1-3	0-9					Increment = 3"
B601	47	6	7-6	1	2-3	5-3	—					
B701	79	7	4-9	1	2-3	2-6	—					
B1001	6	10	19-6	2	18-0	1-6				0-7	1-4½	
B403	10	4	10-2	1	4-9	0-8	4-9					Pylon Reinforcing
B404	8	4	6-1	1	2-9	0-7	2-9					Pylon Reinforcing

Straight Bars

MARK	NO	SIZE	LENGTH	REMARKS
B451	16	4	8-0	
B452	12	4	19-4	
B551	2	5	6-2	
B552	2	5	7-1	
B553	3	5	4-7	
B554	3	5	5-7	
B555	80	5	24-7	Slope in field to slab shape
B556	16	5	19-6	
B557	1	5	6-9	
B558	1	5	15-9	
B559	1	5	15-3	
B560	18	5	17-2	
B561	15	5	33-2	
B562	12	5	5-10 To 17-6	Increment = 2'-4" 2 of each
B563	12	5	6-8 To 18-4	Increment = 2'-4" 2 of each
B564	12	5	5-6 To 17-2	Increment = 2'-4" 2 of each
B565	3	5	30-2	
B566	2	5	11-0	
B567	2	5	11-10	
B568	1	5	18-9	
B569	1	5	16-9	
B570	1	5	14-6	
B571	1	5	9-6	
B651	47	6	5-3	
B751	158	7	18-8	
B1051	14	10	17-6	
B1052	14	10	34-6	
B1053	6	10	28-6	
B1054	6		24-0	

NOTE: All above marks are prefixed by 6-3

TYPE 1
TYPE 2
TYPE 4
TYPE 5
TYPE 8

NOTES:

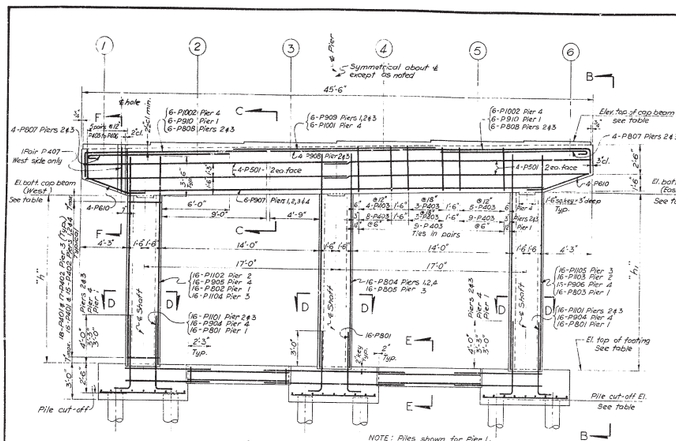
1. For Sections C-C, D-D, E-E, Detail "A" and Grillage Detail see Abutment "A" Sheet No. 28. Reinforcing detailing for these sections for Abutment "B" is similar to Abutment "A" and is shown on schedule for Abutment "B" by substituting prefix "B" for prefix "A" for corresponding bar mark numbers.
2. For Key Plan see Sheet No. 30
3. For railing and deck joint details see Sheet No. 39
4. For slope protection and drainage details see Sheet No. 42
5. For shoe and anchor bolt details see Sheet No. 40
6. Elevations shown at beam bearings are finished top of masonry elevations. See Section G-G on Sheet No. 28
7. For fill under Abutments see Sheet 28.

APPROVED J. M. Fox
BRIDGE ENGINEER

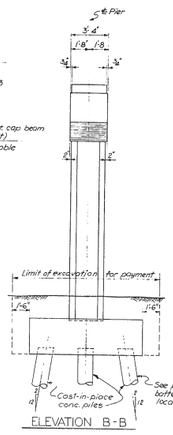
DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.) - BRIDGE NO. 6-3
ABUTMENT "B"

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

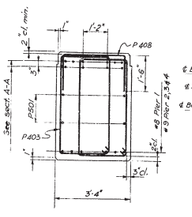
DESIGNED: A.J.T. CHECKED: R.P. & M.A.G. DATE: 12-31-59
DRAWN: L.A. IN CHARGE: K.K.K. SCALE: 1/4" = 1'-0"



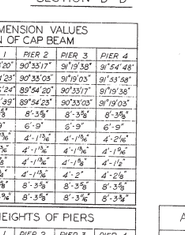
SECTION A-A



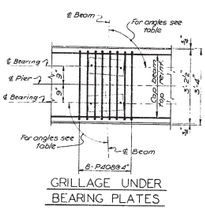
ELEVATION B-B



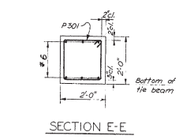
SECTION C-C



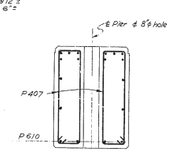
SECTION D-D



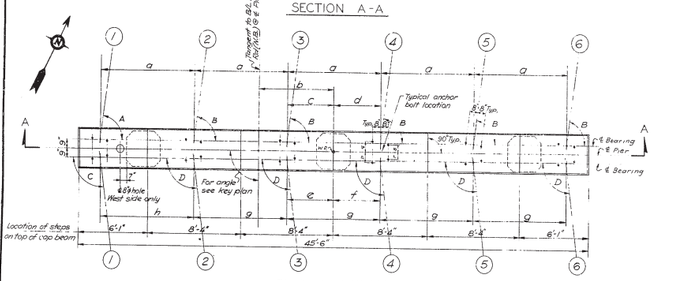
GRILLAGE UNDER BEARING PLATES



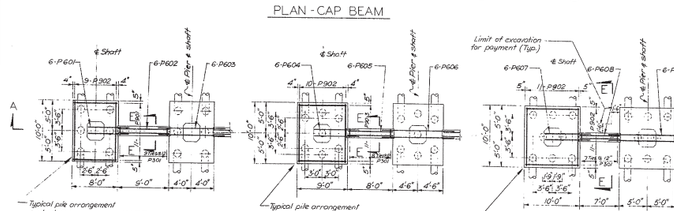
SECTION E-E



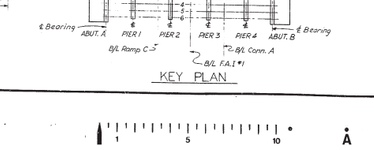
SECTION F-F



PLAN - CAP BEAM



FOOTING PLANS



KEY PLAN

COUNTY	CONTRACT		STATE	FED. AID PROJECT NO.	TOTAL SHEETS	SHEET NO.
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)	30	66

REINFORCING SCHEDULE FOR PIERS 1,2,3 & 4

	STRAIGHT BARS					BENT BARS					BENDING DIAGRAMS (All dimensions are out to out)
	MARK	PIER	TOTAL NO. REQ'D	SIZE	LENGTH	MARK	PIER	TOTAL NO. REQ'D	SIZE	LENGTH	
FOOTING	P601	1	12	#6	7'-9	P301	1,2,3,4	64	#3	7'-2	1'-8 P.301
	P602	1	12		9'-0						
	P603	1	6		12'-6	P801	1,2,3,4	96	#8	6'-6	
	P604	2,4	24		16'-3						
	P605	2,4	24		15'-0	P904	4	32	#9	7'-0	
	P606	2,4	12		13'-0						
	P607	3	12		6'-9	P1101	2,3	64	#11	8'-0	
	P608	3	12		7'-0						
	P609	3	6	#6	18'-6						
	P901	1	33	#9	7'-6						
	P902	1,2,4	63	#9	9'-6						
	P903	2,4	66	#9	8'-6						
SHAFT	P802	1	16	#8	19'-0	P401	1,2,3,4	768	#4	10'-4	1'-10 P.401 P.402
	P803	1	16	#8	20'-0	P402	1,2,3,4	384	#4	9'-0	
	P804	2,4	48	#8	19'-6						
	P805	3	16	#8	21'-6						
	P905	4	16	#9	19'-0						
	P906	4	16	#9	20'-0						
	P1102	2	16	#11	19'-9						
	P1103	2	16	#11	20'-0						
	P1104	3	16	#11	21'-0						
	P1105	3	16	#11	22'-0						
CAP BEAM	P501	1,2,3,4	32	#5	29'-5	P403	1,2,3,4	260	#4	12'-0	2'-1 P.403
						P404	1	16	1	12'-0	
						P405		16	1	11'-4	
						P406		16		10'-8	
	P907	1,2,3,4	24	#9	13'-0						2'-10 P.408
	P908	2,3	8	#9	12'-6	P407	1	8	1	10'-2	
	P909	2,3	16	#9	19'-6	P408	1,2,3,4	192	#4	5'-0	
	P1001	4	6	#10	20'-0	P610	1,2,3,4	32	#8	5'-9	4'-5" P.610
						P807	2,3	16	#8	14'-0	
						P808	2,3	24	#8	18'-3	
						P910	1	12	#9	18'-5	16'-0 P.805 P.810 P.1105
						P1002	4	12	#10	18'-3	15'-0 P.807

NOTE: All above marks are prefixed by 6-3

ANGLE & DIMENSION VALUES FOR PLAN OF CAP BEAM

	PIER 1	PIER 2	PIER 3	PIER 4
Angle A	89°54'20"	90°35'17"	91°19'38"	91°54'48"
" B	89°54'23"	90°35'05"	91°19'05"	91°54'08"
" C	89°26'24"	89°54'20"	90°35'17"	91°19'38"
" D	89°26'49"	89°54'23"	90°35'05"	91°19'05"
Dimension a	8'-3⅝"	8'-3⅝"	8'-3⅝"	8'-3⅝"
" b	6'-9"	6'-9"	6'-9"	6'-9"
" c	4'-1⅞"	4'-1⅞"	4'-1⅞"	4'-2⅛"
" d	4'-1⅞"	4'-1⅞"	4'-1⅞"	4'-1⅞"
" e	4'-1⅞"	4'-1⅞"	4'-1⅞"	4'-1⅞"
" f	4'-1⅞"	4'-1⅞"	4'-2"	4'-2⅛"
" g	8'-3⅝"	8'-3⅝"	8'-3⅝"	8'-3⅝"
h	8'-3⅝"	8'-3⅝"	8'-3⅝"	8'-3⅝"

ELEVATIONS & HEIGHTS OF PIERS

	PIER 1	PIER 2	PIER 3	PIER 4
El. (1)	29.628	28.745	30.126	30.514
El. (2)	30.086	30.117	30.360	30.335
El. (3)	30.269	30.300	30.532	30.917
El. (4)	30.452	30.482	30.714	31.098
El. (5)	30.135	30.655	30.895	31.279
El. (6)	30.532	30.637	31.077	31.461
El. bott. of cap beam (West)	25.334	25.451	25.834	26.220
" " " (East)	26.229	26.343	26.726	27.112
El. top of footing	10.001	10.118	8.501	10.887
Pile cut-off El.	7.501	7.618	6.001	8.387
Dimension "h"	15'-4"	15'-4"	17'-4"	15'-4"
Dimension "h"	16'-2⅝"	16'-3⅛"	18'-3⅛"	16'-3⅛"

NOTE: Elevations (1) thru (6) are finished top of pier elevations.

ANCHOR BOLT LOCATIONS

	PIER 1	PIER 2	PIER 3	PIER 4
p	8⅝"	9"	9¼"	9⅝"
r	9¼"	9"	8⅝"	8⅝"
q	9"	8⅝"	8⅝"	8¾"
s	9"	9¼"	9¾"	9¼"

NOTES

1. For General Notes see sheet No. 27
2. Angles given on key plan are to local tangent ℄ B.S. Basin Road (N.B.)
3. For shoe and anchor bolt details see sheet No. 40
4. For drainage details see sheets Nos. 41 & 42
5. For pile details see Sheet No. 29

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE

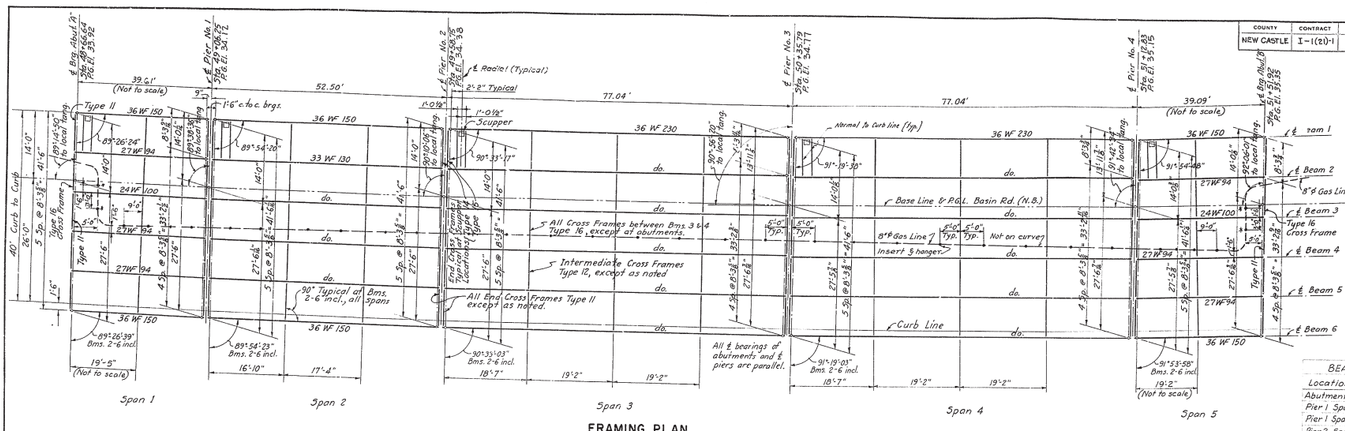
BASIN ROAD (N.B.) - BRIDGE NO. 6-3
PIERS 1,2,3 & 4

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: J.K.R. CHECKED: L.L. DATE: 12-29-59
DRAWN: J.R. IN CHARGE: N.W.K. SCALE: 1/8", 1/4", 1/2"

REVISIONS
BRIDGE NAME
BRIDGE NO.
DRAWING

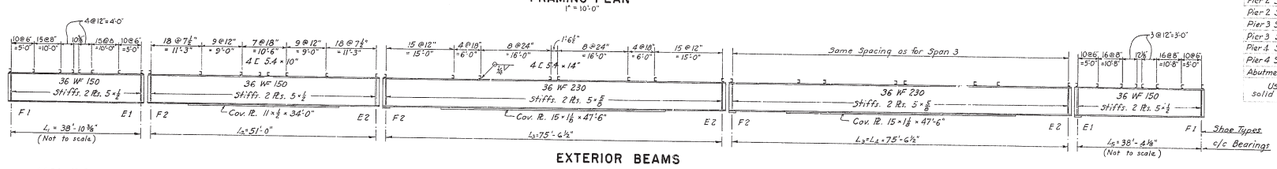
COUNTY	CONTRACT		STATE	FED. AID PROJECT NO.		SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		31	GC



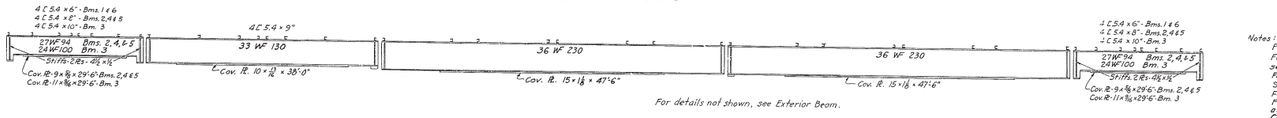
FRAMING PLAN
1" = 10'-0"

Note: See Sheets 28 & 29 for location of 8"ϕ Gas Line through Abutments A & B.

Use standard hangers for Gas Main at all points except where noted at swivel hangers (*)
See D.P.&L. Print # S-58-2250-P

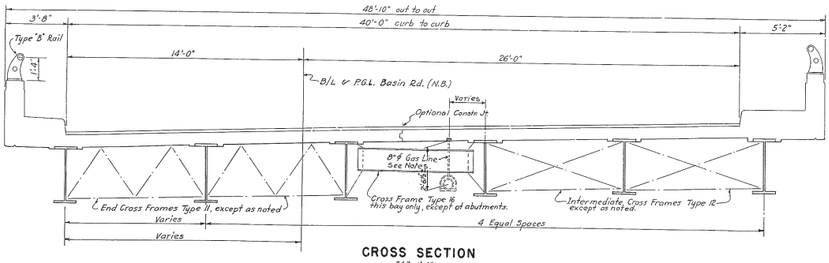


EXTERIOR BEAMS



For details not shown, see Exterior Beam.

INTERIOR BEAMS



CROSS SECTION
3/8" = 1'-0"

BEARING FILL HEIGHTS AT SHOES

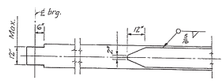
Location	Beams 1 & 6	Beams 2, 4 & 5	Beam 3
Abutment "A"	–	9" *	11 7/8" *
Pier 1 Span 1	–	6 3/16" *	9 1/16" *
Pier 1 Span 2	–	–	–
Pier 2 Span 2	–	13/16"	15/16"
Pier 2 Span 3	1 13/16"	–	–
Pier 3 Span 3	–	–	–
Pier 3 Span 4	1 13/16"	1 13/16"	1 13/16"
Pier 4 Span 4	–	–	–
Pier 4 Span 5	1 13/16"	10 13/16" *	13 13/16" *
Abutment "B"	–	9" *	11 7/8" *

Use stool for fills noted *, otherwise use solid fill. See Bearing Details sheet No. 59

Notes:
For General Notes, see Sheet No. 27
For cross frames, dams and bridge railing, see "Superstructure Details" sheet No. 39
For scuppers and scupper framing, see "Scupper Details" sheet No. 41
For shoes, see "Bearing Details" sheet No. 40
For details of 8"ϕ Gas Line, inserts, hangers and pipe see Delaware Power & Light Co. Drawings and Special Provisions.

CAMBER INCREMENTS FOR DEAD LOADS (INCHES)
(NO VERTICAL CURVE)

	SPANS 1 and 5				SPAN 2				SP. 3 & 4	
	Bms. 1 & 6	Bms. 2, 3, 4 & 5			Bms. 1 & 6	Bms. 2, 3, 4 & 5			Bms. 1 & 6	
	1/4 L1	1/2 L1	1/4 L2	1/2 L2	1/4 L1	1/2 L1	1/4 L2	1/2 L2	1/4 L3	1/2 L3
Structural Steel	–	1/16	1/16	1/16	1/16	1/8	1/16	1/8	5/16	7/16
Concrete Deck Slab	1/8	1/8	1/16	5/16	5/16	3/8	3/8	1/2	7/16	1 3/16
Sidewalk and Parapet	–	–	–	1/16	1/16	1/8	1/16	1/16	1/8	3/16
2" Wearing Surface	–	–	–	–	–	–	–	1/16	1/16	1/8
Full Dead Load	1/8	3/16	5/16	7/16	7/16	5/8	1/2	3/4	1 3/8	1 15/16
Vertical Curve	None		None		None		None		None	
Total Camber at 1/2 Ln	Natural Camber Place up		Natural Camber Place up		5/8"		3/4"		1 15/16"	



BOTTOM FLANGE DETAIL

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.)-BRIDGE NO. 6-3
SUPERSTRUCTURE - FRAMING

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED ...F.r.W. CHECKED ...R.L.N. DATE: 12-31-59
DRAWN ...S.C.P. IN CHARGE: B.W.L. SCALE: As Shown

REVISIONS

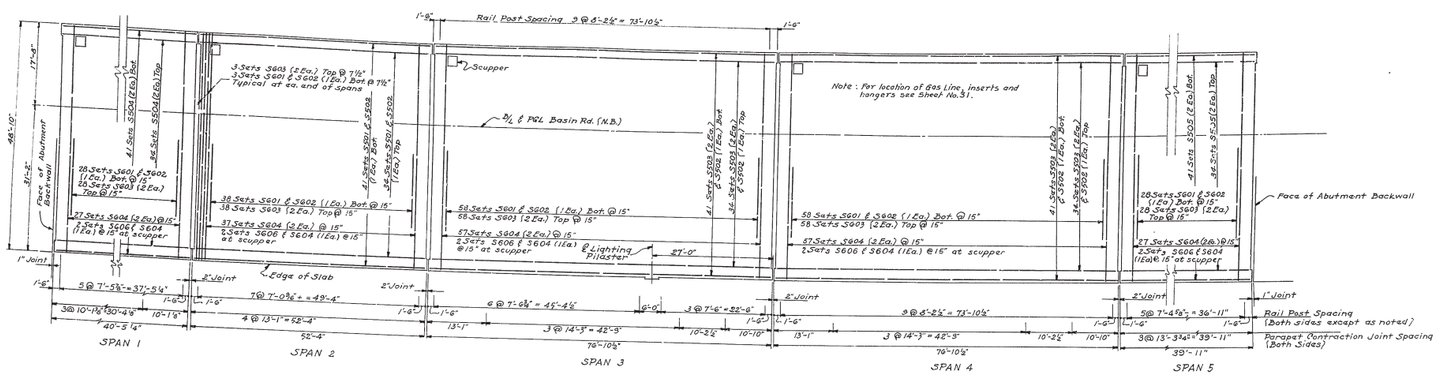
CHECKED

GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

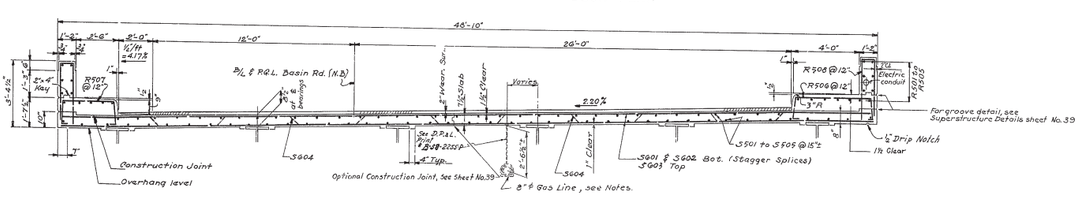
"Imperial" 100 W. B. & E.

D C B A 1 5 10 A B C

COUNTY	CONTRACT	A.P.A. NO.	STATE	FED. AID PROJECT NO.	TOTAL SHTS.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		32	66



DECK PLAN



TYPICAL SECTION

$\frac{3}{8}$" = 1'-0"

REINFORCING SCHEDULE

Straight Bars

Loc.	Mark*	Number Required Span 1	Span 2	Span 3	Span 4	Span 5	Length	Total Weight
Deck	S601	34	44	64	64	34	29'-8"	
	S602	34	44	64	64	34	20'-8"	
	S603	68	88	128	128	68	25'-2"	
	S603(a)	6	6	6	6	6	6'-0"	
	S501		75				29'-8"	
	S502		75	75	75		23'-2"	
	S503			150	150		28'-8"	
	S504	150					20'-8"	
	S505					150	20'-5"	
	S402(b)			2			2'-6"	
Sidewalk and Parapet	R501	96		24	24		9'-9"	
	R502		36	24	24		12'-7"	
	R503			72	72		13'-9"	
	R504			24	24		10'-6"	
	R505					72	12'-10"	

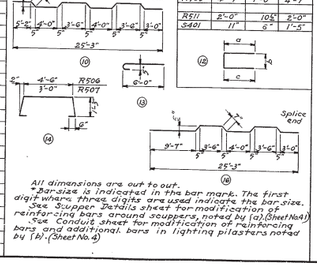
Bent Bars

Mark*	Number Required Span 1	Span 2	Span 3	Span 4	Span 5	Length	Total Weight	Type
S604	56	76	116	116	56	26'-1"		10
S600(a)	2	2	2	2	2	25'-11"		16
S507(b)	3	3	3	3	3	6'-5"		13
S401(b)			4			2'-10"		12
S509(b)			4			10'-2"		12
S511(b)			4			6'-10½"		12
R506	41	53	77	77	41	3'-0"		14
R507	41	53	77	77	41	6'-6"		14
R508	82	106	151	154	82	6'-8½"		12

TOTAL WEIGHT 91,923 lbs.

Bending Diagrams

	a	b	c
R508	3'-0"	4½"	3'-0"
R509	4'-7"	1'-0"	4'-7"
R511	2'-0"	10½"	2'-0"
S401	11"	6"	1'-5"



All dimensions are out to out.
*Bar size is indicated in the bar mark. The first digit where three digits are used indicate the bar size.
See Super Details sheet for modification of reinforcing bars around scuppers, noted by (a) (Sheet No. 41)
See Conduit sheet for modification of reinforcing bars and additional bars in lighting pilasters noted by (b) (Sheet No. 9)

"Material" ISE W.B.A.E.

NOTE
For General Notes see Sheet No. 27

For railing details, roadway and sidewalk dams, see Superstructure Details sheet No. 39

For details of roadway slab construction joint and parapet contraction joints, see Superstructure Details sheet No. 39

For details of electric conduit and boxes in parapet, see Conduit Details sheet No. 4

For details of 8" ϕ Gas Line, inserts, hangers and pipe see Delaware Power & Light Co. drawings and Special Provisions.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD (N.B.)-BRIDGE NO. 6-3
SUPERSTRUCTURE - DECK

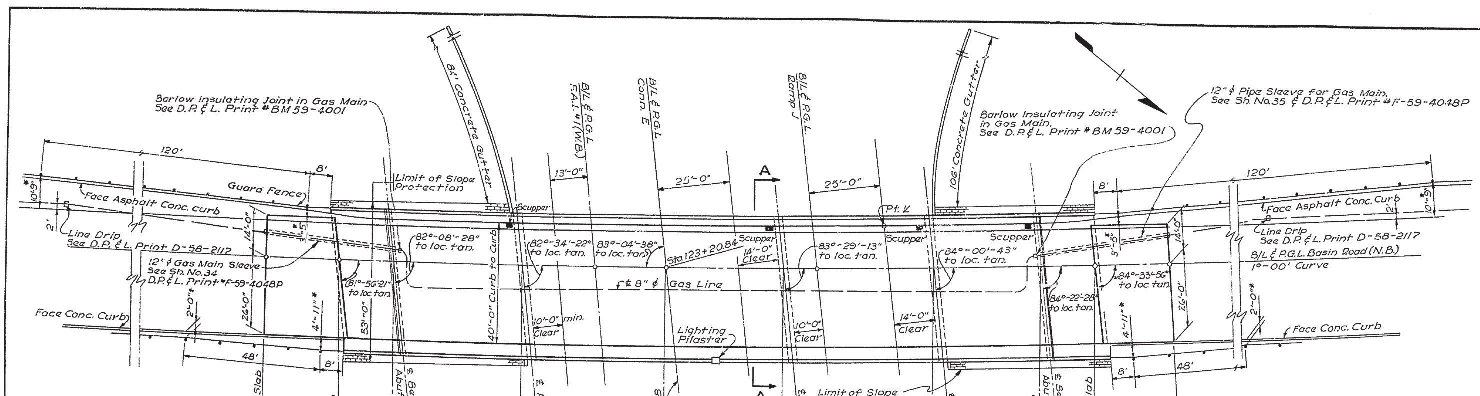
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: R.L.R. CHECKED: R.L.R. DATE: 12-31-59
DRAWN: J.L.F. IN CHARGE: W.W.L. SCALE: AS SHOWN

REVISIONS

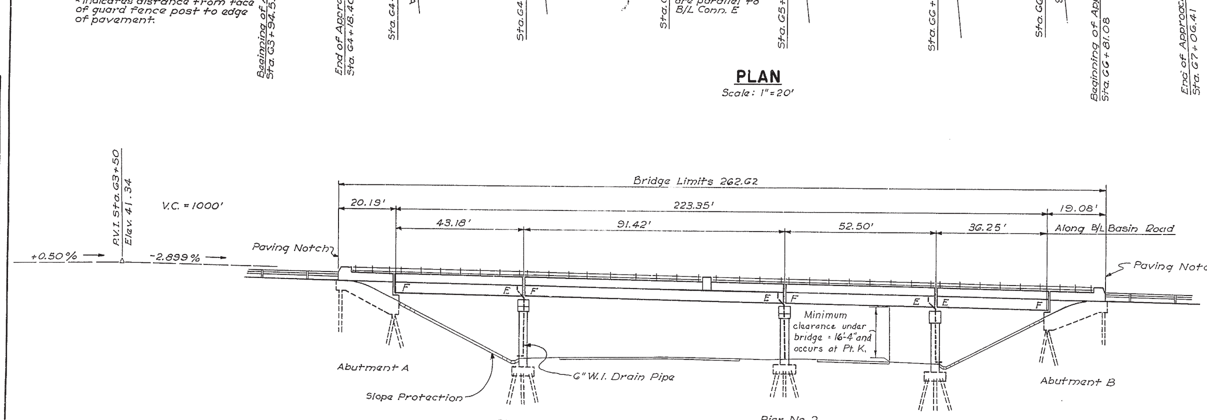
D C B A 1 5 10 A B C

COUNTY	CONTRACT	F.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		33	66



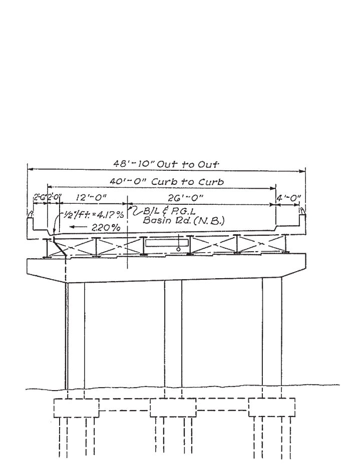
PLAN

Scale: 1" = 20'



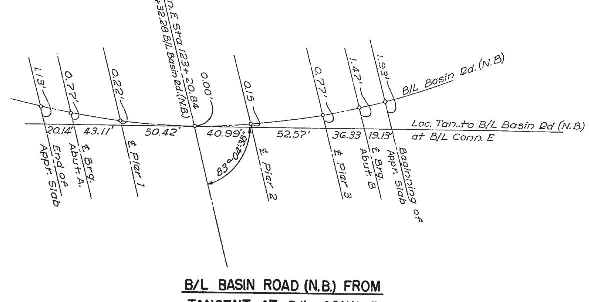
ELEVATION

Scale: 1" = 20'



SECTION A-A

Scale: 1" = 10'



B/L BASIN ROAD (N.B) FROM TANGENT AT B/L CONN. E

No Scale

NOTES

Specifications:
Construction: State of Delaware, State Highway Department, Standard Specifications, 1960.
Design: A.A.S.H.O. Standard Specifications for Highway Bridges, 1957.

Dead Load: Concrete - 150# per cu. ft.; Wearing Surface - 25# per sq. ft.

Live Load: H20-S16-44 Modified. Slab designed for 16k Wheel load

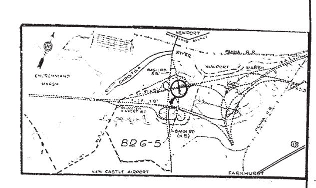
Unit Stresses: Reinforcing Steel (Intermediate Grade) f_s = 20,000 p.s.i. Concrete f'_c = 3,000 p.s.i.; f_c = 1200 p.s.i.

Superstructure: Concrete Deck - Steel Beam Construction, composite action under live load.

Elevations: Elevations are based on U.S.C.& G. datum.

For General Notes see Sheet No. 21

For Details of slope protection and gutters, see slope Protection and Drainage Details sheet No. 42



DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.) BRIDGE NO. 6-5
SITE PLAN
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS
DESIGNED: C.A.S. CHECKED: R.L.N. DATE: 12-31-59
DRAWN: E.J.S. IN CHARGE: B.W.L. SCALE: As Shown

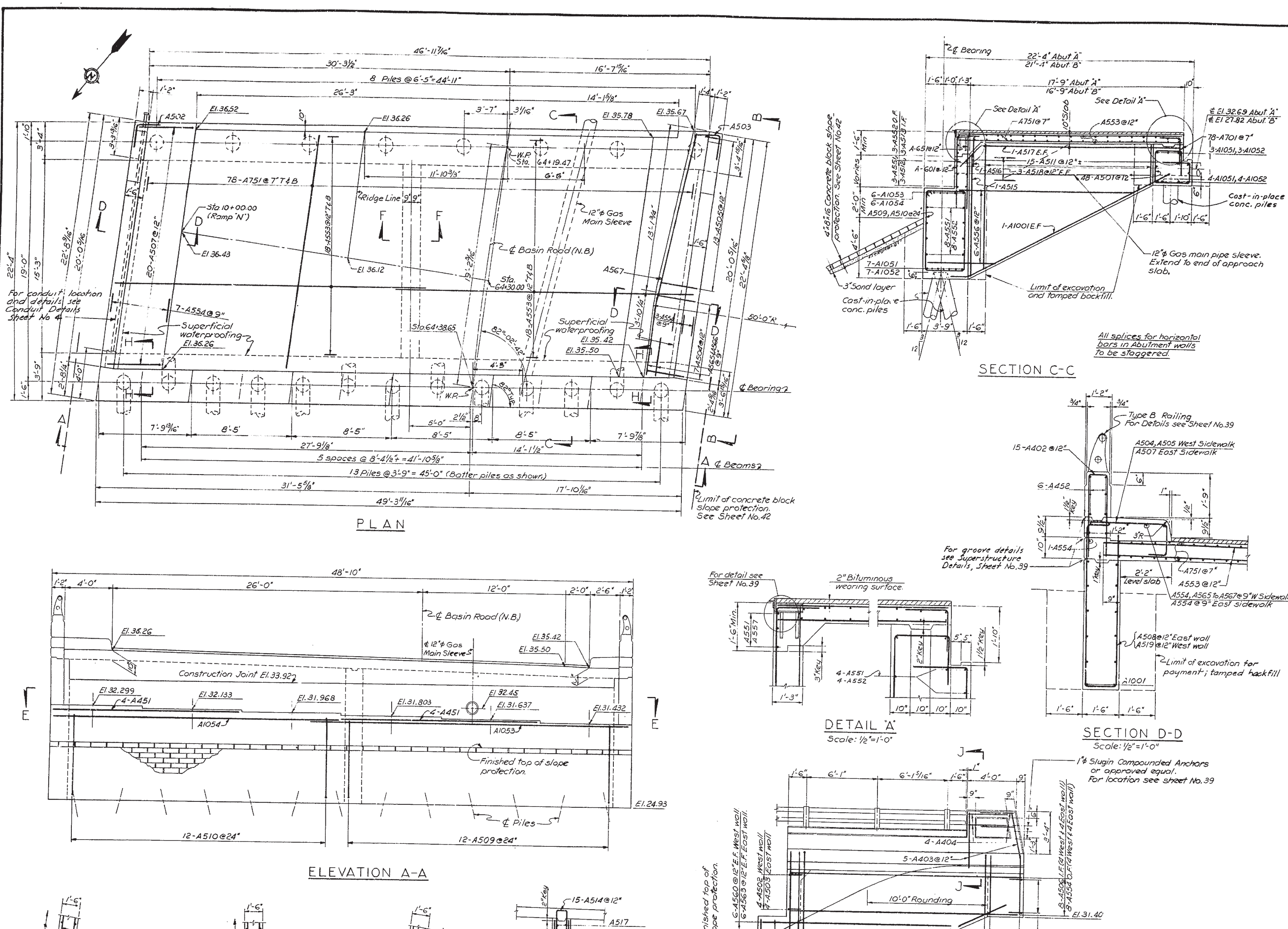
APPROVED ___ BRIDGE ENGINEER

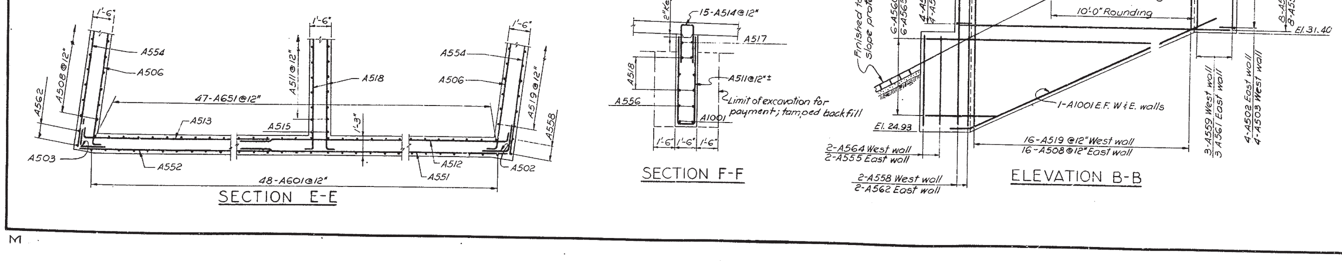
REVISIONS
4/25/61 Date of Standard Specs. from 57 to 60 (A.A.)

GRADE, BEARINGS, TIE POINTS, BENCH MARKS, EARTHWORK, DRAINAGE

	MADE BY	CHECKED BY
DESIGN	C.A.S. & R.L.N.	J.E.P. & F.F.W.
DETAILING	E.J.S.	R.L.N.
QUANTITIES		
IN CHARGE	B.W.L.	

COUNTY	CONTRACT	F.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		34	66





REINFORCING SCHEDULE

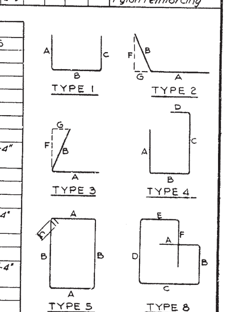
BENT BARS (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	REMARKS
A401	72	#4	6-5	1	1-6	3-5	1-6					
A402	30	#4	7-0	1	3-2	8"	3-2					
A501	48	#5	13-11 To 15-11	8	2-3	1-10 To 2-10	3-0	2-9 To 3-9	2-2	1-11		Increment 1/2" 2ea.
A502	8	#5	4-0	2	2-0	2-0				1-11	3"	
A503	8	#5	4-0	3	2-0	2-0				1-11	3"	
A504	7	#5	5-3	1	3-3	1-3	9"					
A505	13	#5	4-1 To 5-1	1	2-1 To 3-1	1-3	9"					Increment 1"
A506	8	#5	20-5	1	9	19-8						
A507	20	#5	6-8	1	1-3	4-8	9					
A508	16	#5	12-5 To 24-11	4	4-9 To 11-0	1-2	5-6 To 11-9	1-0				Increment 5"
A509	12	#5	19-6	5	3-5	5-10	6"					
A510	12	#5	20-6	5	3-5	6-4	6"					
A511	15	#5	7-6 To 19-2	1	3-2 To 9-0	1-2	3-2 To 9-0					Increment 5"
A512	3	#5	18-3	1	9"	17-6	—					
A513	3	#5	33-9	1	9"	33-0	—					
A514	15	#5	6-8	1	2-9	1-2	2-9					
A515	1	#5	19-2	1	9-0	1-2	9-0					
A516	1	#5	7-8	1	3-3	1-2	3-3					
A517	2	#5	18-6	2	16-3	2-3				1-8	1-8	
A518	6	#5	19-5	1	9"	18-8	—					
A519	16	#5	10-5 To 22-11	4	3-9 To 10-0	1-2	4-6 To 10-9	1-0				Increment 5"
A601	48	#6	7-8	1	2-3	5-5	—					
A701	78	#7	4-9	1	2-6	2-3	—					
A1001	6	#10	20-2	2	18-8	1-6				7"	1-4	
A403	10	#4	10-2	1	4-9	8"	4-9					Pylon reinforcing
A404	8	#4	6-1	1	2-9	7"	2-9					Pylon reinforcing

STRAIGHT BARS

MARK	NO.	SIZE	LENGTH	REMARKS
A451	8	#4	16-6	
A452	12	#4	19-7	
A551	18	#5	17-6	
A552	15	#5	33-0	
A553	72	#5	25-0	
A554	20	#5	19-7	
A555	2	#5	7-0	
A556	12	#5	5-6 To 17-2	Increment 2'-4" 2 of each
A557	3	#5	31-3	
A558	2	#5	10-7	
A559	3	#5	4-6	
A560	12	#5	5-10 To 17-6	Increment 2'-4" 2 of each
A561	3	#5	5-5	
A562	2	#5	11-5	
A563	12	#5	6-8 To 18-3	Increment 2'-4" 2 of each
A564	2	#5	6-2	
A565	1	#5	6-6	
A566	1	#5	16-3	
A567	1	#5	14-6	
A651	47	#6	5-3	
A751	156	#7	18-9	
A1051	14	#10	17-9	
A1052	14	#10	35-0	
A1053	6	#10	28-3	
A1054	6	#10	24-0	

NOTE: All above marks are prefixed by 6-5



NOTES:

1. For General Notes see Sheet No. 27
2. For Abutment 'B', Notes and Sections H-H and J-J see Sheet No.35.
3. For pile details see Sheet No.29
4. Elevations shown at beam bearings are finished top of masonry elevations. See Section G-G on Sheet No.35
5. For fill under Abutments see Sheet 28.

APPROVED ________ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1 (21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD (N.B.) - BRIDGE NO. 6-5
ABUTMENT "A"

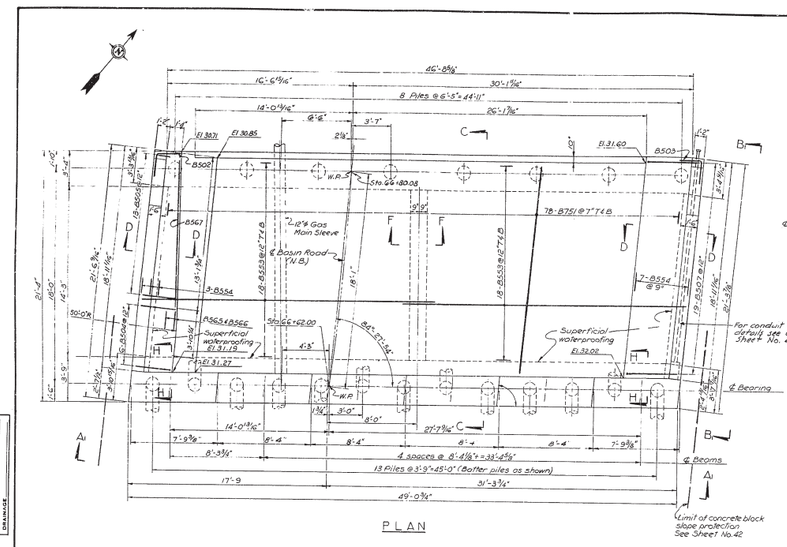
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: S.L.T. CHECKED: B.P. & M.A.G. DATE: 12-31-59
DRAWN: P.F. IN CHARGE: N.W.K. SCALE: [illegible]

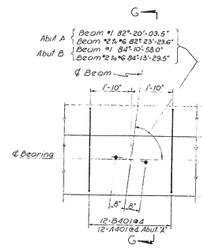
REVISIONS

GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

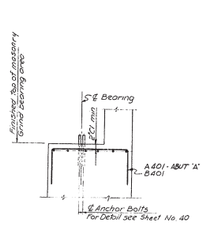
COUNTY	CONTRACT	F.A.P. NO.	STATE	FED. A.P. PROJECT NO.	FINAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	8	DEL.	I-95-1(18)		35	66



PLAN

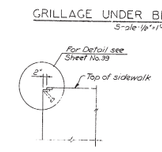


PLAN

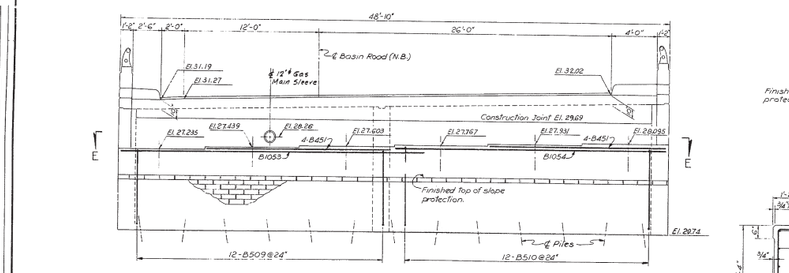


SECTION G-G

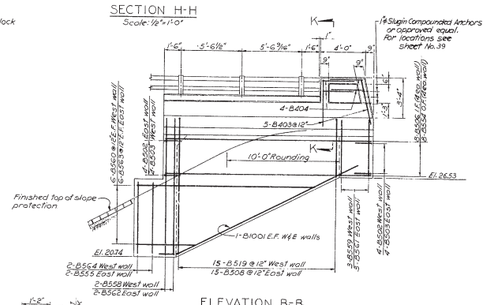
GRILLAGE UNDER BEARING PLATES
Scale: 1½"=1'-0"



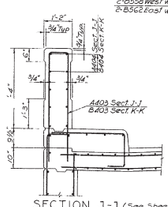
SECTION H-H
Scale: 1½"=1'-0"



ELEVATION A-A



ELEVATION B-B



SECTION J-J (See Sheet No. 34)
SECTION K-K
Scale: 1½"=1'-0"

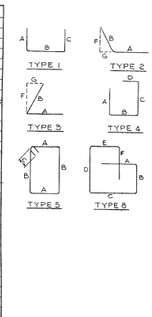
REINFORCING SCHEDULE

BENT BARS (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	REMARKS
B401	78	*6	6-5	1	1'-6	3'-5	1'-6					
B402	28	*4	7-0	1	3'-2	0'	3'-2					
B501	48	*5	13'-11 / 15'-11	B	2'-3	4'-0 / 2'-00	5'-0	5'-9 / 7'-3	2'-2	1'-11		Increment ½" Eco.
B502	8	*5	3'-6	C	1'-0	1'-0				1'-11	3"	
B503	8	*5	3'-6	3	1'-0	1'-0				1'-11	3"	
B504	6	*5	5'-3	1	3'-3	1'-3	9"					
B505	15	*5	6'-1 / 5'-1	1	3'-1 / 3'-1	1'-3	9"					Increment 1" per bar
B506	8	*5	19'-4	1	9"	18'-7						
B507	19	*3	5'-11	1	1'-3	4'-8						
B508	19	*5	10'-9 / 9'-4 / 24'-4	4	4'-11 / 1'-4 / 10'-3	1'-2	5'-8 / 1'-4 / 11'-6	1'-0				Increment 5"
B509	12	*5	19'-6	5	3'-5	5'-00	6"					
B510	12	*5	20'-6	5	3'-3	6'-4	6"					
B511	15	*5	7'-6 / 1'-4 / 19'-2	1	5'-2 / 1'-2 / 9'-6	1'-2	3'-2 / 1'-2 / 9'-2					Increment 5" per tie
B512	3	*5	18'-3	1	9"	17'-6	—					
B513	3	*5	33'-9	1	9"	33'-0	—					
B514	15	*5	6'-8	1	2'-9	1'-2	2'-9					
B515	1	*5	19'-0	1	8'-11	1'-2	8'-11					
B516	1	*5	7'-8	1	3'-3	1'-2	3'-3					
B517	2	*5	17'-6	2	9'-3	2'-3				1'-8	1'-8	
B518	6	*5	18'-5	1	9"	17'-8	—					
B519	15	*5	16'-9 / 1'-4 / 22'-4	4	3'-11 / 1'-4 / 9'-9	1'-2	4'-28 / 1'-8 / 10'-6	1'-0				Increment 5" per bar
B601	48	*6	7'-8	1	2'-3	5'-8	—					
B701	78	*7	4'-9	1	2'-6	2'-3	—					
B1001	6	*10	18'-9	2	17'-3	1'-6				7"	1'-4	
B403	10	*4	10'-2	1	4'-9	8"	4'-9					Pylon reinforcing
B404	8	*4	6'-1	1	2'-9	7"	2'-9					Pylon reinforcing

STRAIGHT BARS

MARK	NO	SIZE	LENGTH	REMARKS
B451	8	*4	16'-6	
B452	12	*4	18'-7	
B551	18	*5	17'-6	
B552	15	*5	33'-0	
B553	12	*5	26'-9	
B554	20	*5	18'-7	
B555	2	*5	7'-0	
B556	12	*5	5'-6 / 1'-0 / 17'-2	Increment 2'-4" 2 of each
B557	3	*5	31'-3	
B558	2	*5	10'-7	
B559	3	*5	4'-6	
B560	12	*5	5'-4 / 1'-0	Increment 2'-4" 2 of each
B561	3	*5	5'-6	
B562	2	*5	11'-5	
B563	12	*5	5'-7 / 1'-0 / 17'-3	Increment 2'-4" 2 of each
B564	2	*5	6'-2	
B565	1	*5	5'-0	
B566	1	*5	13'-3	
B567	1	*5	15'-0	
B651	47	*6	5'-3	
B751	156	*7	17'-8	
B1051	14	*10	17'-6	
B1052	14	*10	35'-0	
B1053	6	*10	28'-3	
B1054	6	*10	24'-0	



NOTE: All above marks are prefixed by G-5

NOTES:

1. For sections C-C, D-D, E-E, F-F, Detail 'X' see Abutment 'A' Sheet No. 34. Reinforcing detailing for these sections for Abutment 'B' is similar to Abutment 'A' and is shown on schedule for Abutment "B" by substituting prefix 'B' for prefix 'A' for corresponding bar mark numbers.
2. For key plan see Sheet No. 36
3. For Railing and Deck Joint details see Sheet No. 39.
4. For slope protection and drainage details see Sheet No. 42
5. For shoe and anchor bolt details see Sheet No. 40
6. Elevations shown at beam bearings are finished top of masonry elevations. See Section G-G.
7. For pile details see Sheet No. 29.
8. For fill under Abutments see Sh. 23.

APPROVED: BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE FA.I-1(21)-1
CHRISTINA RIVER INTERCHANGE

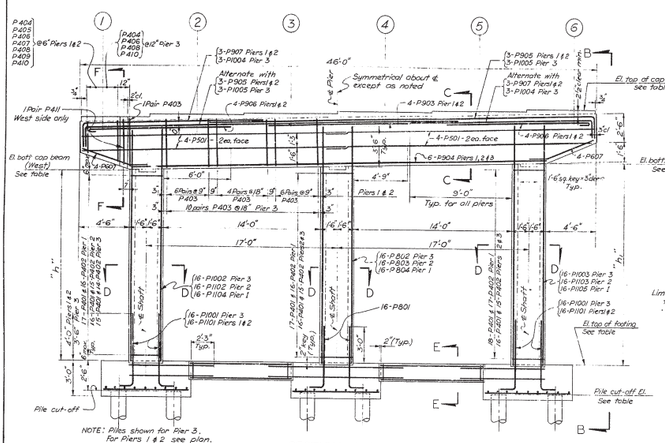
BASIN ROAD (N.B.) - BRIDGE NO. 6-5
ABUTMENT "B"

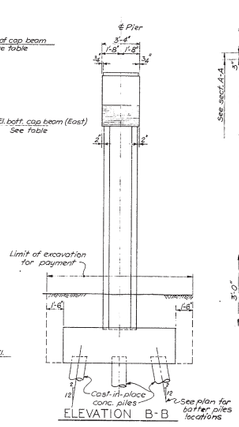
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

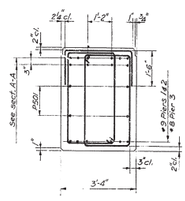
DESIGNED: A.A.T.... CHECKED: A.G.M.G. DATE: 12-14-59
DRAWN: T.F.... IN CHARGE: A.R.G.... SCALE: AS SHOWN

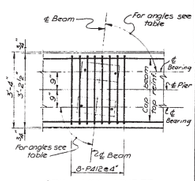
REVISIONS

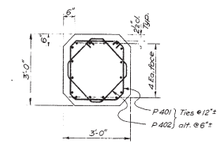
DRAWN
TRACED
TO PROVED
TO PROVED
EARTHWORK
REVISIONS

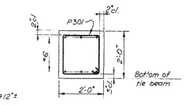


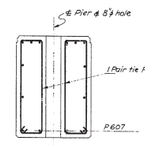


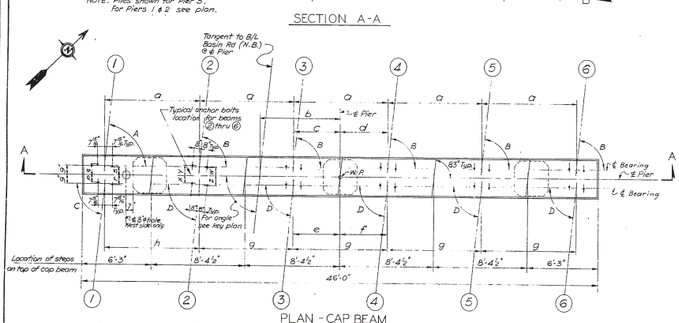


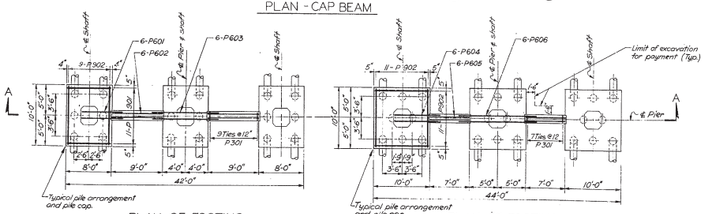








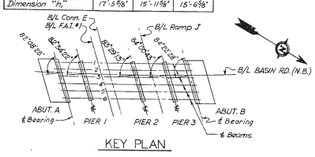




ANGLE & DIMENSION VALUES FOR PLAN OF CAP BEAM			
	PIER 1	PIER 2	PIER 3
Angle A	83°00'46"	83°44'03"	84°10'58"
" B	83°03'48"	83°46'46"	84°13'30"
" C	81°20'04"	83°00'46"	83°44'03"
" D	82°23'24"	83°03'48"	83°46'46"
Dimension a	8'-4 7/16"	8'-4 1/8"	8'-4 1/8"
" b	6'-9 11/16"	6'-9 7/16"	6'-9 1/2"
" c	4'-1 1/16"	4'-1 1/16"	4'-1 1/8"
" d	4'-3 3/8"	4'-3 3/16"	4'-3"
" e	4'-3 1/8"	4'-3 3/4"	4'-3 3/8"
" f	4'-0 7/8"	4'-0 7/16"	4'-0 7/8"
" g	8'-4 1/2"	8'-4 1/16"	8'-4 1/4"
" h	8'-4 1/8"	8'-3 1/2"	8'-3 3/4"

ELEVATIONS & HEIGHTS OF PIERS			
	PIER 1	PIER 2	PIER 3
El. (1)	30.668	28.902	27.903
El. (2)	30.872	29.106	28.334
El. (3)	31.037	29.270	28.498
El. (4)	31.202	29.434	28.662
El. (5)	31.366	29.598	28.826
El. (6)	31.531	29.762	28.762
El. bott. of cap beam (West)	26.380	24.615	23.615
" " (East)	27.183	25.414	24.414
El. top of footing	9.713	9.448	8.865
Pile cut-off El.	7.213	6.948	6.365
Dimension "h"	16'-8"	15'-2"	14'-9"
Dimension "h"	17'-5 5/8"	15'-11 5/8"	15'-6 5/8"

NOTE: Elevations (1) thru (6) are finished top of pier elevations.



ANCHOR BOLT LOCATIONS			
	PIER 1	PIER 2	PIER 3
Y	9 13/16"	9 3/8"	9 3/16"
X	7 15/16"	8 1/4"	8 1/8"
Z	10 1/16"	9 3/16"	9 7/8"
W	8 1/4"	8 3/8"	8 3/16"
P	7 15/16"	8"	8 1/8"
q	10"	9 3/8"	9 3/16"
r	10 1/16"	10"	9 7/8"
S	8"	8 1/8"	8 1/16"

COUNTY	CONTRACT	F.A.I. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		36	66

REINFORCING SCHEDULE FOR PIERS 1, 2 & 3

LOCATION	STRAIGHT BARS MARK	PIER	NO. PER PIER	SIZE	LENGTH	BENT BARS MARK	PIER	NO. PER PIER	SIZE	LENGTH	BENDING DIAGRAMS (All dimensions are out to out)
FOOTING	P601	3	12	#6	7-9	P301	1,2,3	46	#3	7-2	
	P602	3	12	1	9-0						
	P603	3	6		12-6	P801	1,2,3	48	#8	6-6	
	P604	1,2	24		8-9						
	P605	1,2	24	1	7-0	P1001	3	32	#10	7-3	
	P606	1,2	12	#6	16-6						
						P1101	1,2	64	#11	8-0	
	P901	3	33	#9	7-6						
	P902	1,2,3	159	#9	9-6						
SHAFT	P802	3	16	#8	19-0	P401	1,2,3	147	#4	10-6	
	P803	2	16	#8	19-3	P402	1,2,3	138	#4	9-0	
	P804	1	16	#8	29-9						
	P1002	3	16	#10	18-6						
	P1003	3	16	#10	19-3						
	P1102	2	16	#11	19-0						
	P1103	2	16	#11	19-9						
	P1104	1	16	#11	20-3						
	P1105	1	16	#11	21-3						
CAP BEAM	P501	1,2,3	24	#5	23-8	P403	1,2,3	180	#4	2-6	
						P404	1,2,3	12	1	12-0	
						P405	1,2	8		11-10	
						P406	1,2,3	12		11-6	
	P903	1,2	8	#9	12-6	P407	1,2	8		11-2	
	P904	1,2,3	18	#9	37-0	P408	1,2,3	12		10-10	
						P409	1,2	8		10-6	
						P410	1,2,3	12		10-2	
						P411	1,2,3	6	1	10-2	
						P412	1,2,3	144	#4	5-10	
						P607	1,2,3	24	#6	6-0	
						P905	1,2	12	#9	34-9	
						P906	1,2	16	#9	14-6	
						P907	1,2	12	#9	18-6	
						P1004	3	6	#10	18-6	
						P1005	3	6	#10	35-3	

NOTE: All above marks are prefixed by 6-5

NOTES

1. For General Notes see sheet 27
2. Angles given on key plan are to local tangent of B/L Basin Road (N.B.)
3. For shoe and anchor bolt details see sheet 40
4. For drainage details see sheets 41 & 42
5. For pile details see Sheet No 29

APPROVED [signature] BRIDGE ENGINEER

DELAWARE STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1 (21)-1 CHRISTINA RIVER INTERCHANGE

BASIN ROAD (N.B.)-BRIDGE NO. 6-5 PIERS 1, 2 & 3

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: J.G. CHECKED: W.J.A. DATE: 12-31-59
DRAWN: D.P. IN CHARGE: S.H.K. SCALE: N.A.S.A.C.S.

REVISIONS

COUNTY	CONTRACT						
NEW CASTLE	I-(21)-1	3	6	1	I-95-1(18)	37	66

C-	MADE BY	CHECKED BY
DESIGN	J.E.D & B.L.N.	P.P.W.
DRAWING	B.L.N. & J.E.W.	B.L.N.
TRACING	B.L.N. & J.E.W.	B.L.N.
QUANTITIES	J.C.P. & P.P.W.	C.R.S. & J.E.W.
IN CHARGE	B.W.L.	C.R.S.

CHECKED
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

REVISIONS
Alignment 23°-0'-0" - 2-2-2001

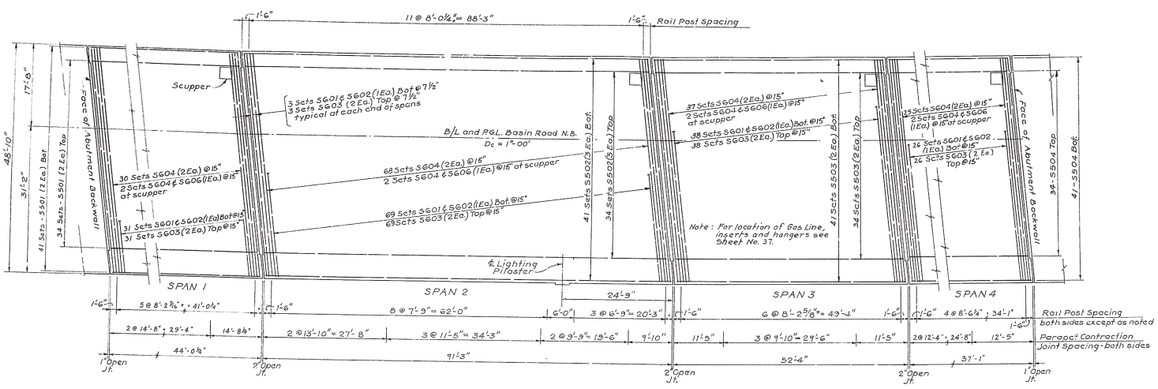
DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE FAI-(12)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.)- BRIDGE NO. 6-5
SUPERSTRUCTURE - FRAMING

MORAN, PROCTOR, MUELLER & RIGHTMIRE
CONSULTING ENGINEERS
J. C. GREINER CO.
CONSULTING ENGINEERS

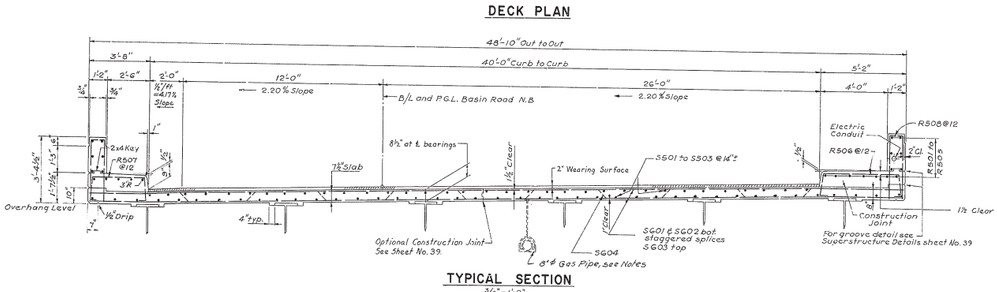
DESIGNED: J.E.D. CHECKED: P.P.W. DATE: 12-20-00
DRAWN: J.E.W. B.L.N. IN CHARGE: J.E.W. SCALE: As shown

APPROVED: BRIDGE ENGINEER

COUNTY	CONTRACT	R.P.A. NO.	STATE	FED. AID PROJECT NO.	PLAN NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		38	66



DECK PLAN



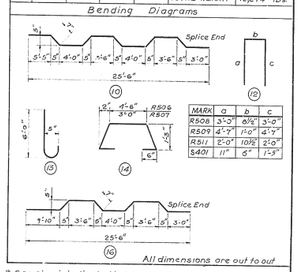
TYPICAL SECTION

3/8" = 1'-0"

REINFORCING SCHEDULE

Loc.	Mark*	Number Required Span 1	Span 2	Span 3	Span 4	Length	Total Weight	Type
Deck	S601	37	75	44	32	30'-0"		Str.
	S602	37	75	44	32	21'-0"		Str.
	S603	74	150	88	64	25'-6"		Str.
	S604	62	138	76	52	26'-6"		10
	S606(a)	2	2	2	2	26'-3"		16
	S607(a)	6	6	6	6	6'-0"		Str.
	S501	150	–	–	–	22'-5"		Str.
	S502	–	225	–	–	3'-1'-2"		Str.
	S503	–	–	150	–	26'-8"		Str.
	S507(a)	3	3	3	3	6'-5"		15
	S504	–	–	–	75	36'-1"		Str.
	S401(b)	–	4	–	–	2'-10"		12
	S402(b)	–	2	–	–	2'-6"		Str.
Sidewalk and Parapet	R501	–	72	48	–	10'-11"		Str.
	R502	–	48	–	–	15'-2"		Str.
	R503	–	72	72	–	9'-6"		Str.
	R506	45	72	53	38	8'-0		14
	R507	45	72	53	38	6'-0"		14
	R508	90	151	109	76	6'-8½"		12
	R509(b)	–	4	–	–	10'-2"		12
	R511(b)	–	4	–	–	4'-10½"		12
	R504	–	–	–	72	11'-9"		Str.
	R505	72	–	–	–	14'-2"		Str.
						TOTAL WEIGHT	72,274	lbs.

Bending Diagrams



MARK	a	b	c
R508	3'-3"	6½"	3'-0"
R509	4'-7"	11'-0"	4'-7"
R511	5'-0"	10½"	2'-0"
S401	11"	6"	1'-3"

All dimensions are out to out

* Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four digits are used indicate the bar size.

Note: Scupper Details sheet for modification of reinforcing bars around scuppers, noted by (a) (Sheet No. 41)

See Conduit sheet for modification of reinforcing bars and additional bars in lighting pilaster, noted by (b). (Sheet No. 4)

NOTE:

For General Notes see Sheet No. 37

For railing details, roadway and sidewalk dams, see Superstructure Details sheet No. 39

For details of roadway slab construction joints and parapet contraction joints, see Superstructure Details Sh. No. 39

For details of electric conduit and boxes in parapet, see Conduit Details sheet No. 4.

For details of 8" ϕ Gas Line, inserts, hangers and pipe see Delaware Power & Light Co. drawings and Special Provisions.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-I(21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD (N.B.)-BRIDGE NO. 6-5
SUPERSTRUCTURE - DECK

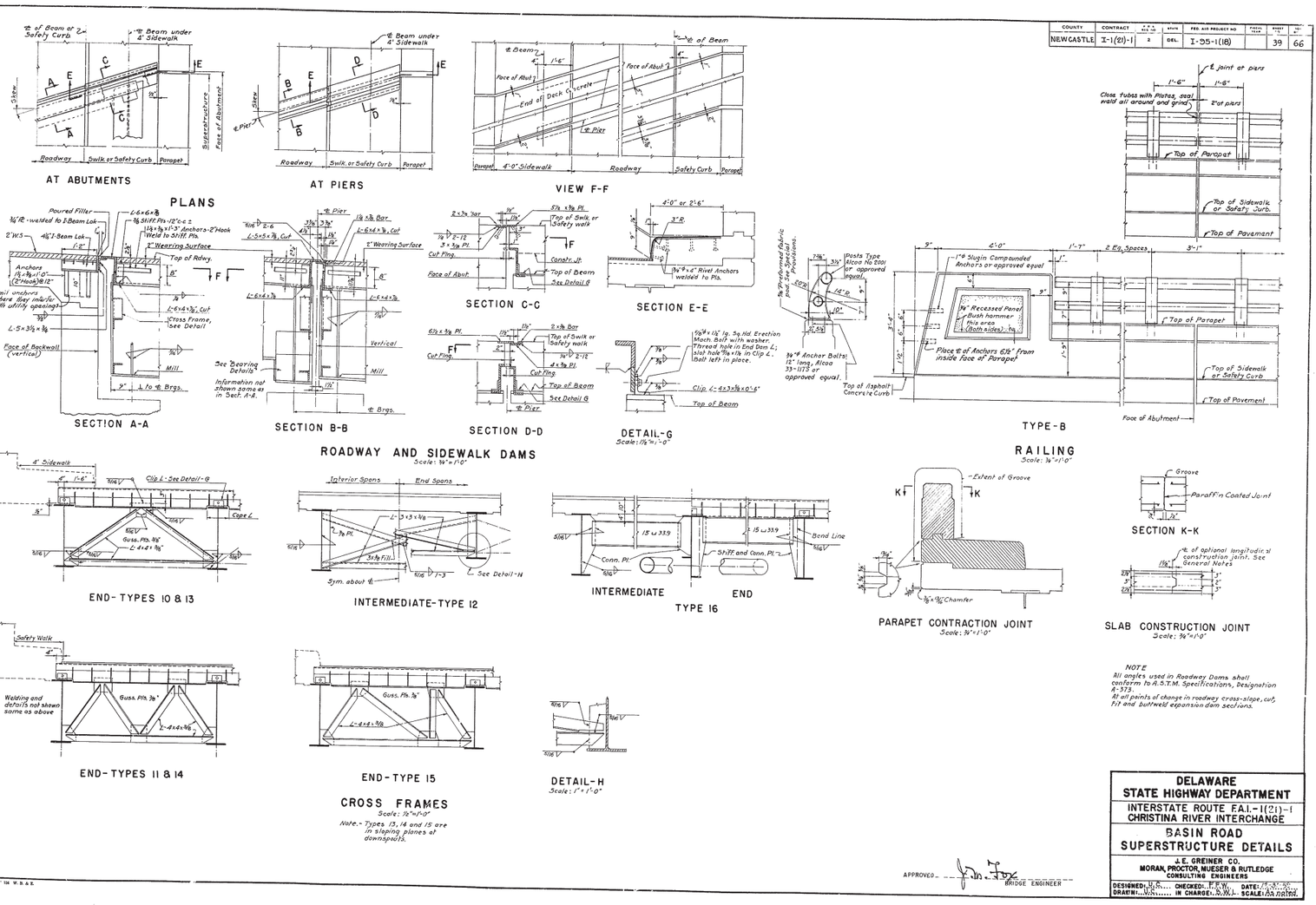
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: R.A.N. CHECKED: R.J.N. DATE: 12-3-80
DRAWN: J.J.S. IN CHARGE: R.J.N. SCALE: AS SHOWN

REVISIONS

"Standard" 108 W.B.&.B.

COUNTY	CONTRACT	F.A.P. NO.	STATE	FED. AID PROJECT NO.	PLATE NO.	SHEET NO.	TOTAL SHEETS
NEWCASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		39	66



NOTE
All angles used in Roadway Dams shall conform to A.S.T.M. Specifications, Designation A-373.
At all points of change in roadway cross-slope, cut, fill and butt weld expansion dam sections.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD
SUPERSTRUCTURE DETAILS

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

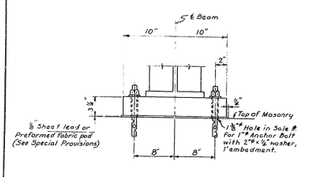
DESIGNED: M. G. ..... CHECKED: R. R. W. DATE: 12-31-60
DRAWN: W. A. ..... IN CHARGE: R. W. L. SCALE: As noted

CHECKED
REVISIONS
DATE
REVISIONS
BENCH MARKS
BY
DRAWN
REVISIONS

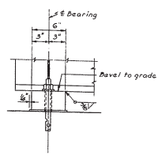
REVISIONS

*Imperial 104 W. B. & E.

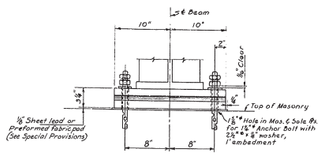
COUNTY	CONTRACT	R.P.N. FED. AID NO.	SHEETS	FED. AID PROJECT NO.	FIELD TASK	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	3	DEL	I-95-1(18)		40	66



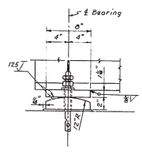
TYPE F1

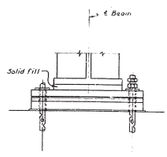


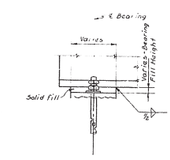
FIXED SHOES
1½"=1'-0"



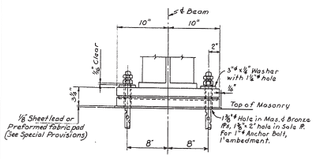
TYPE F2



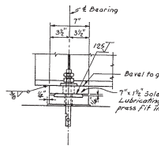




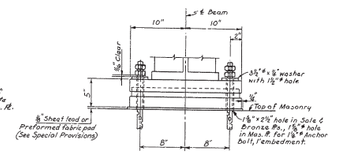
SOLID FILL
1½"=1'-0"



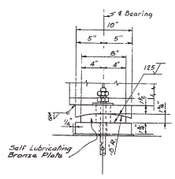
TYPE E1

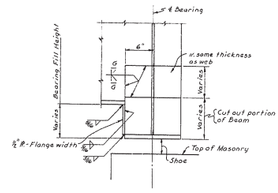


EXPANSION SHOES
1½"=1'-0"



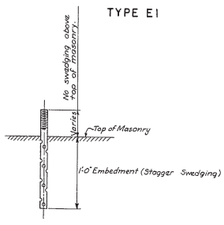
TYPE E2





STOOL
1"=1'-0"

BEARING FILLS



ANCHOR BOLT DETAILS
1½"=1'-0"

NOTES:

Corners of masonry plates shall be cut where necessary to provide a minimum of 3/8" to the edge of pier cap.
The surface finish of metal in contact indicated by the symbol ⊂ shall meet the requirements as defined in American Standard Association Specification ASAB-462.
All sliding surfaces to be finished in the direction of expansion or rotation.
For General Notes see Sheet No. 27

CHECKED
GRADE
STRUCTURE
TIE-DOWNS
ELECTRICAL
EARTHQUAKE
MISCELLANEOUS

REVISIONS

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD
BEARING DETAILS

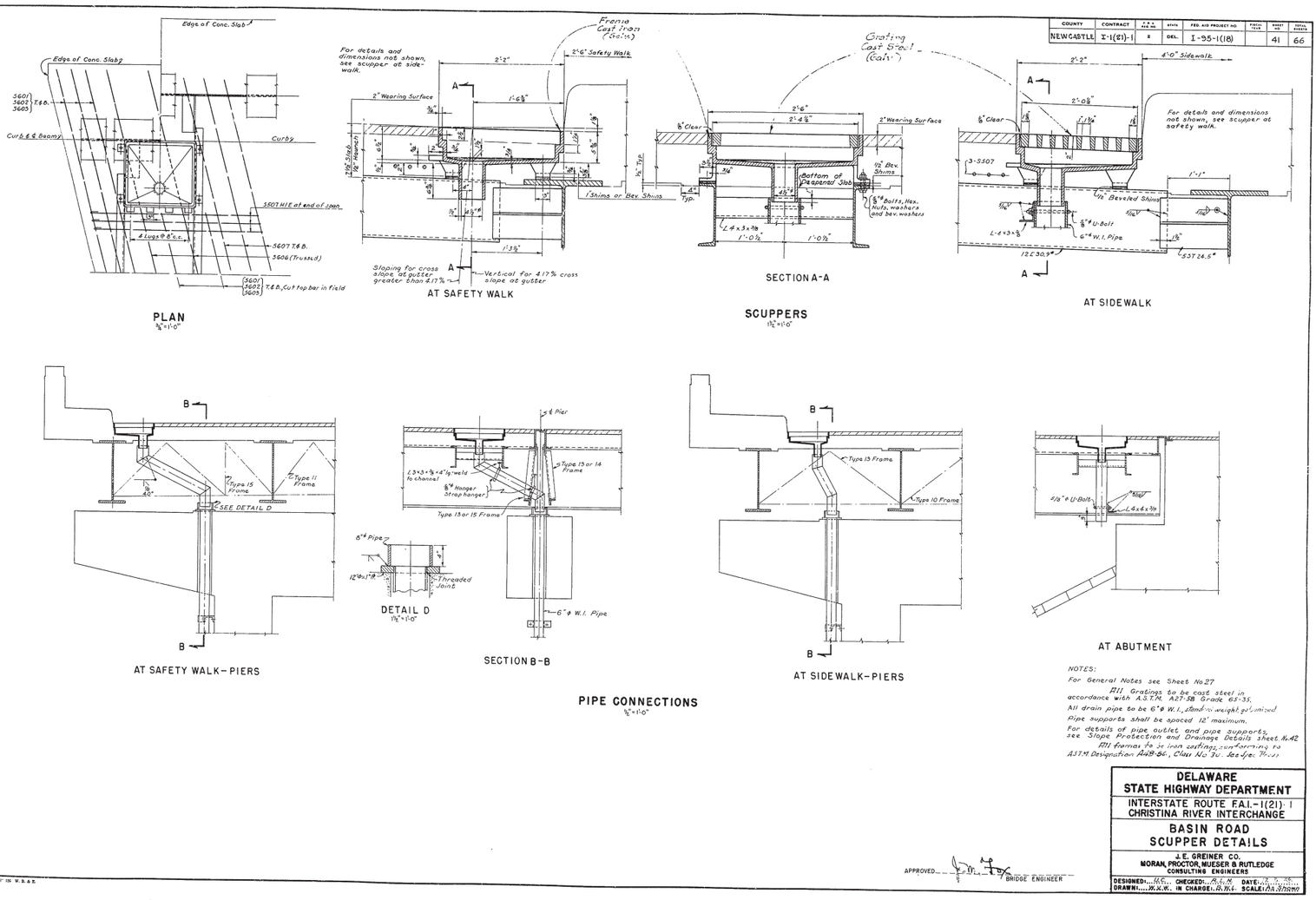
J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: J.J.O.'Q.F. CHECKED: J.C.M. DATE: 12-30-59
DRAWN: N.K.W. IN CHARGE: A.N.L. SCALE: AS SHOWN

"Properties" Ltr. W.D.A.E.

D C B A 1 5 10 A B C D

COUNTY	CONTRACT	F.A.P. & S.H. NO.	STATE	FED. AID PROJECT NO.	PROJ. YEAR	SHEET NO.	TOTAL SHEETS
NEWCASTLE	I-1(21)-1	8	DEL.	I-95-1(18)		41	66



NOTES:
For General Notes see Sheet No. 27
All Gratings to be cast steel in accordance with A.S.T.M. A27-38 Grade 65-35.
All drain pipe to be 6" ø W.I., standard weight galvanized.
Pipe supports shall be spaced 12' maximum.
For details of pipe outlet and pipe supports, see Slope Protection and Drainage Details Sheet No. 42
All frames to be iron castings conforming to A.S.T.M. Designation A48-36, Class No. 30. See Spec. Book.

CHECKED	
W.O. SHEET	
ESTIMATE	
BENCH MARKS	
ELEVATIONS	
DRAINAGE	

REVISIONS
Approval Date ... Approved for L.F.H.A.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE FAI-1(21)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD
SCUPPER DETAILS
J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS
DESIGNED: M.G. CHECKED: R.L.K. DATE: 12-7-58
DRAWN: W.K.W. IN CHARGE: R.W.L. SCALE: As Shown

"Transfer" 138 W.B.&B.

COUNTY	CONTRACT	FED. AID PROJECT NO.	SHEET	TOTAL SHEETS
NEW CASTLE	1-(63)-1	I-95-1(18)	42	66

REVISIONS

BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

NOTES:
1. For Gutter Notes see Sheet No. 27
2. For length and locations of concrete gutters see Site Plans for Bridges No's. 6-3 and 6-5
3. For locations of drain pipes see Superstructure-Plans for Bridges No's. 6-3 and 6-5
4. For details of drain pipes see Sheet No. 41

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE FAI-1/(E)-1
CHRISTINA RIVER INTERCHANGE
BASIN ROAD-BRIDGE NOS. 6-3 & 6-5
SLOPE PROTECTION & DRAINAGE DETAILS

NORAM ENGINEERING & CONSULTANTS
A.E. GREINER CO.
CONSULTING ENGINEERS

DESIGNED: J.W.H. DATE: 1-15-70
CHECKED: J.C.T. DATE: 1-15-70
CHARGE: J.W.H. DRAWN: J.W.H. SCALE: AS SHOWN

REVISIONS

CHECKED
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

DECK PLAN
No Scale

SECTION A–A
¾"=1'-0"

SECTION B–B
¾"=1'-0"

SECTION C–C
¾"=1'-0"

LONGITUDINAL CONSTRUCTION JOINT DETAIL
No Scale

Note: Clear distance from face of concrete to reinforcing steel shall be 2" except on bottom where it shall be 3".

REINFORCING SCHEDULE

Mark	Type	ABUTMENT "A" BRIDGE NO. 8-2 Number Required	Length	ABUTMENT "B" BRIDGE NO. 8-2 Number Required	Length	ABUTMENT "A" ABUT. NO. 8-2 Number Required	Length	ABUTMENT "B" ABUT. NO. 8-2 Number Required	Length
			L		L		L		L
M1101	5	31	Varies 24'-0" to 26'-3"	31	Varies 24'-0" to 26'-3"	31	Varies 24'-0" to 26'-3"	31	Varies 24'-0" to 26'-3"
M1102	6	9	23'-11"	9	23'-7"	9	Varies 18'-6" to 18'-10"	9	Varies 18'-6" to 18'-10"
M1103	6	9	22'-6"	9	22'-1"	9	Varies 22'-0" to 22'-4"	9	Varies 22'-0" to 22'-4"
M401	5t	28	39'-6"	28	39'-6"	28	39'-6"	24	39'-6"
M502	"					4	Varies 30'-3"	4	Varies 30'-3"
M503	5t	2	39'-9"	2	39'-9"	4	40'-1"	4	40'-1"
M504	1	4	6'-0"	4	6'-0"	4	6'-0"	4	6'-0"
M505	2					4	6'-0"	4	6'-0"
M501	5t	41	Varies 26'-0" to 25'-0"	41	Varies 26'-0" to 25'-1"	41	Varies 27'-1" to 25'-1"	41	Varies 27'-1" to 25'-1"
M502	"	26	39'-6"	26	39'-6"	26	39'-6"	24	39'-6"
M503	"					4	Varies 30'-0"	4	Varies 30'-0"
M401	5t	28	4'-2"	28	4'-2"	27	4'-2"	27	4'-2"
TOTAL WEIGHT-LBS.		12,045		12,114		12,270		12,270	

All dimensions are out to out. Bar size is indicated in bar mark. The first digit represents bar size and the first two digits are used, and the last two digits are used to indicate the bar size.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE FAI-1 (I-95)
CHRISTINA RIVER INTERCHANGE
BASIN ROAD (N.B.)
APPROACH SLABS

R. E. GREINER CO.
MORAN PROCTOR MUELLER & RIDGELEDGE
CONSULTING ENGINEERS

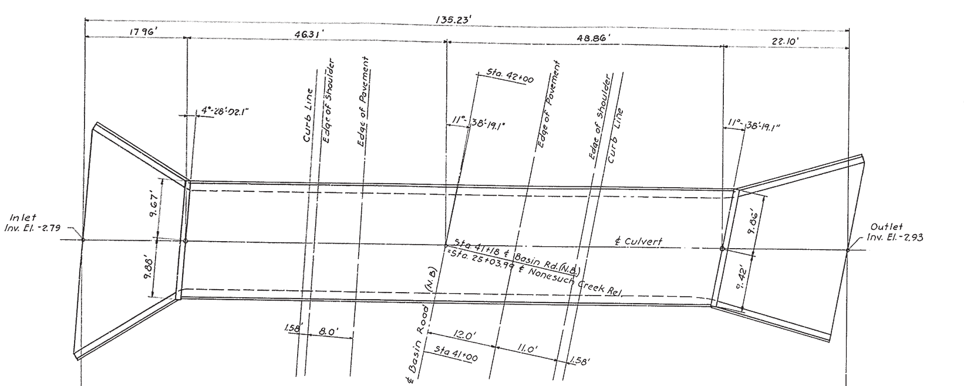
DESIGNED: W.W.W. CHECKED: J.W.W.
DRAWN: W.W.W. IN CHARGE: A.R.H.
DATE: 12/2/68
SCALE: As shown

COUNTY	CONTRACT						
NEW CASTLE	I-1(20)-1	R	SHEET OAL	1-95-1(18)		SHEET	43 / SHEETS 66

REVISIONS
B-501 WAS 9'8" 11'7", B-504 WAS 9'9" 11'10", C-504 WAS 14'11", C-509 WAS 14'11"
D-503 WAS 21'8", D-540 WAS 2'2" INCR., F-502 WAS 20'5", C-508 WAS 14'9"
D-523 WAS 6'1"

DESIGN R.C.C. & J.W.H. H.F.M. & C.B.M.
DRAWING H.F.M. & E.D.R.
TRACING H.F.M. & E.D.R. J.W.H. & J.W.H.
QUANTITIES H.F.M. & J.W.H. J.W.H. & C.B.M.
IN CHARGE B.W.L. & B.W.L.

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEWCASTLE	I-1(21)-1	2	DEL.	I-55-1(18)		44	66

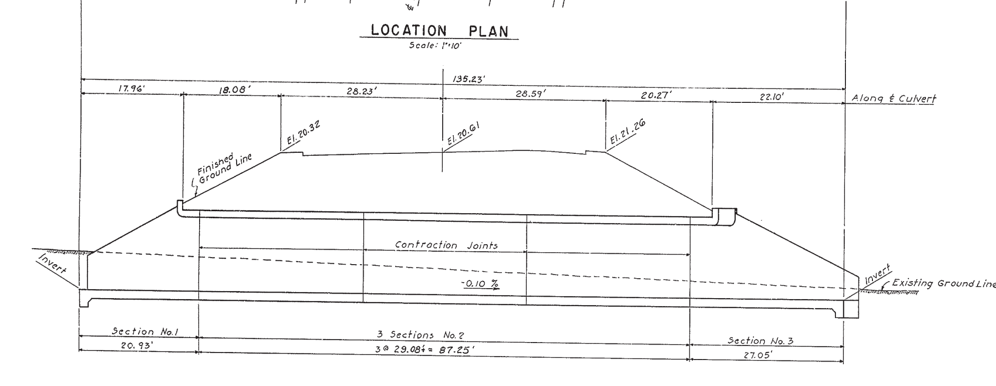


LOCATION PLAN

Scale: 1"=10'

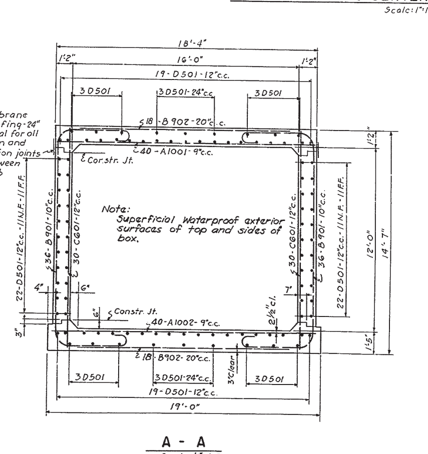
HYDRAULIC DATA

DRAINAGE AREA	=	1.8 SQ. MI.
DISCHARGE ($Q_{50 yr.}$)	=	940 CFS.
TAILWATER ELEVATION	=	+ 8.8
VELOCITY	=	5.0 '/sec.



SECTION ALONG CENTER-LINE OF CULVERT

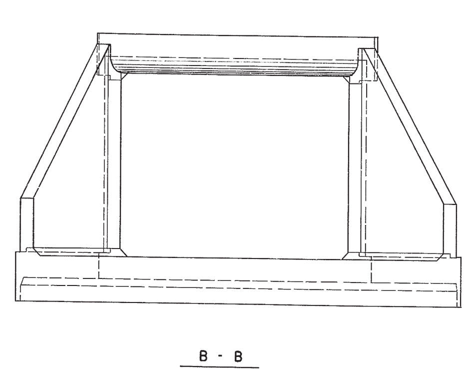
Scale: 1"=10'



A - A

Scale: ¼"=1'-0"

Reinforcing shown is for one Section 2 - Three sections required.



B - B

Scale: ¼"=1'-0"

REINFORCING SCHEDULE

SECTION NO. 2 - 3 REQD

Mark	No Reqd Per Sect.	Length	Weight Lbs.	Type
A 1001	40	18'-0"		Str.
A 1002	40	18'-8"		Str.
B 901	72	25'-6"		10
B 902	36	14'-8"		Str.
C 601	60	14'-2"		Str.
D 501	100	28'-9"		Str.

Weight Per Section 18,625

SECTION NO. 1 - 1 REQD

Mark	No Reqd.	Length	Weight Lbs.	Type
A 1001	5	18'-0"		Str.
A 1002	7	18'-8"		Str.
B 501	1 Series of 5	Var. 9'4" to 11'6" 3½" Incr.		12
B 504	1 Series of 6	Var. [illegible] to 9'5" 5" Incr.		12
B 901	12	25'-6"		10
B 903	4	14'-10"		Str.
B 904	4	15'-10"		Str.
B 905	1 Series of 7	Varies 14'9" to 17'6" 5½" Incr.		12
B 906	1 Series of 9	Varies 18'0" to 20'0" 4¼" Incr.		12
B 907	1 Series of 9	Varies 15'0" to 18'0" 4⅜" Incr.		12
B 908	1 Series of 8	Varies 18'0" to 20'0" 3¼" Incr.		12
C 601	8	14'-2"		Str.
C 504	1 Series of 14	Varies 6'8" to 14'3" 5½" Incr.		Str.
C 505	4	15'-1"		Str.
C 509	1 Series of 21	Varies 6'6" to 14'11" 5" Incr.		Str.
D 502	2 Series of 15 each	Varies 19'11" to 28'1" 1" Incr.		Str.
D 503	2	21'-8"		14
D 504	1	21'-4"		14
D 505	2	24'-10"		14
D 506	1	24'-6"		14
D 518	10	17'-9"		Str.
D 519	2 Series of 7 each	Varies 3'4" to 16'4" 2'2" Incr.		Str.
D 520	13	5'-9"		14
D 521	12	5'-5"		14
D 539	10	19'-1"		Str.
D 540	2 Series of 7 each	Varies 4'5" to 18'5" 2'4" Incr.		Str.
D 541	13	7'-4"		14
D 542	12	7'-0"		14
D 543	1 Series of 19	Varies 4'5" to 5'11" 1" Incr.		13
D 544	1 Series of 10	Varies 4'5" to 5'11" 2" Incr.		13
D 545	9	4'-1"		13
D 555	2	19'-6"		Str.
D 558	2	20'-10"		Str.
E 501	3	37'-4"		Str.
E 502	3	38'-6"		Str.
E 503	2 Series of 10 each	Varies 20'11" to 36'8" 1'9" Incr.		Str.
F 501	2	22'-1"		Str.
F 502	2 Series of 8 each	Varies 5'4" to 20'5" 2'2" Incr.		Str.
F 503	2 Series of 8 each	Varies 7'2" to 24'1" 2'5" Incr.		Str.
H 501	39	7'-6"		11
J 501	4	19'-2"		Str.

Weight per Section = 9,074.5

Dimensions are out to out of bars.

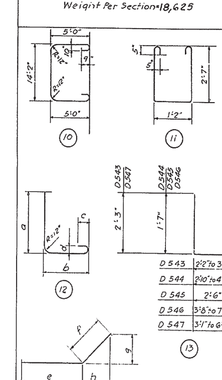
SECTION NO. 3 - 1 REQD.

Mark	No Reqd	Length	Weight Lbs.	Type
A 1001	6	18'-0"		Str.
A 1002	8	18'-8"		Str.
A 1004	1 Series of 4	Varies 8'4" to 17'10" 3'2" Incr.		Str.
A 1005	1 Series of 3	Varies 8'6" to 14'10" 3'2" Incr.		Str.
B 502	1 Series of 9	Varies 7'10" to 11'6" 5½" Incr.		12
B 503	1 Series of 8	Varies 7'10" to 11'4" 6" Incr.		12
B 901	16	25'-6"		10
B 902	4	14'-8"		Str.
B 903	2	14'-10"		Str.
B 904	2	15'-10"		Str.
B 909	2	13'-6"		Str.
B 911	2	19'-0"		Str.
B 912	1 Series of 7	Varies 18'9" to 20'9" 4" Incr.		12
B 913	1 Series of 9	Varies 14'7" to 18'3" 5½" Incr.		12
B 914	1 Series of 7	Varies 14'6" to 17'6" 6" Incr.		12
B 915	1 Series of 8	Varies 18'0" to 20'4" 4½" Incr.		12
C 601	13	14'-2"		Str.
C 505	3	15'-1"		Str.
C 507	1 Series of 23	Varies 4'8" to 14'9" 5½" Incr.		Str.
C 508	1 Series of 21	Varies 4'8" to 14'8" 6" Incr.		Str.
D 507	2 Series of 15 each	Varies 25'2" to 28'1" 2½" Incr.		Str.
D 508	2	30'-5"		14
D 509	1	30'-2"		14
D 510	2	24'-7"		14
D 511	1	24'-5"		14
D 512	3	21'-11"		Str.
D 513	2 Series of 9 each	Varies 3'10" to 21'2" 2'2" Incr.		Str.
D 514	13	10'-1"		14
D 515	12	9'-11"		14
D 516	6	20'-0"		Str.
D 517	2 Series of 9 each	Varies 3'2" to 19'2" 2'0" Incr.		Str.
D 522	13	5'-3"		14
D 523	12	5'-9"		14
D 545	9	4'-1"		13
D 546	1 Series of 10	Varies 5'3" to 9'0" 5" Incr.		13
D 547	1 Series of 19	Varies 5'4" to 9'1" 2½" Incr.		13
D 548	2	24'-7"		Str.
D 549	2	22'-4"		Str.
E 504	3	29'-10"		Str.
E 505	3	30'-5"		Str.
E 506	2 Series of 13 each	Varies 19'8" to 29'8" 10" Incr.		Str.
F 504	2 Series of 6 each	Varies 6'9" to 28'0" 4'3" Incr.		Str.
F 505	2 Series of 5 each	Varies 7'6" to 22'10" 3'10" Incr.		Str.
F 506	2	24'-10"		Str.
H 501	30	7'-6"		11
J 502	4	18'-11"		Str.

Weight Per Section = 10,324.5

Total Weight of Bar Reinforcem't. for structure. 75,274.5 lbs.

#674



D 543	2'2" to 3'8" 1" Inc.
D 544	2'10" to 4'4" 2" Inc.
D 545	2'6"
D 546	3'8" to 7'5" 5" Inc.
D 547	3'1" to 6'10" 2½" Inc.

Type 12

Mark	a	b	c	d
B 501	6'6" to 8'4" 5½" Inc.	3'0"	5"	5"
B 502	4'8" to 8'4" 5½" Inc.	3'0"	5"	5"
B 503	4'8" to 8'2" 6" Inc.	3'0"	5"	5"
B 504	6'6" to 8'7" 5" Inc.	3'0"	5"	5"
B 905	8'10" to 11'7" 5½" Inc.	5'0"	10¼"	11¼"
B 906	10'1" to 14'1" 4¼" Inc.	5'0"	10¼"	11¼"
B 907	9'1" to 12'5" 5⅜" Inc.	5'0"	10¼"	11¼"
B 908	12'9" to 14'11" 3¼" Inc.	5'0"	10¼"	11¼"
B 912	12'11" to 14'11" 4" Inc.	5'0"	10¼"	11¼"
B 913	8'9" to 12'5" 5½" Inc.	5'0"	10¼"	11¼"
B 914	3'8" to 11'8" 6" Inc.	5'0"	10¼"	11¼"
B 915	12'2" to 14'11" 4½" Inc.	5'0"	10¼"	11¼"

Type 14

Mark	e	f	g	h
D 503	19'8"	2'0"	1'0"	1'9"
D 504	19'3"	2'1"	1'0"	1'10"
D 505	21'4"	3'6"	1'9"	3'0"
D 506	20'11"	3'7"	1'9"	3'1"
D 508	24'4"	6'1"	1'7"	5'10½"
D 509	23'8"	6'6"	1'8"	6'3"
D 510	22'3"	2'4"	0'7"	2'3"
D 511	21'8"	2'9"	0'8½"	2'8"
D 514	6'1"	4'0"	1'0½"	3'10"
D 515	6'6"	3'5"	0'10½"	3'3½"
D 520	3'9"	2'0"	1'0"	1'9"
D 521	3'3"	2'2"	1'1"	1'10½"
D 522	2'11"	2'4"	0'7"	2'3"
D 523	3'0"	2'9"	0'8½"	2'8"
D 541	3'10"	3'6"	1'9"	3'0"
D 542	3'5"	3'7"	1'9½"	3'1"

APPROVED J.M. Fox BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1(21)-1
CHRISTINA RIVER INTERCHANGE

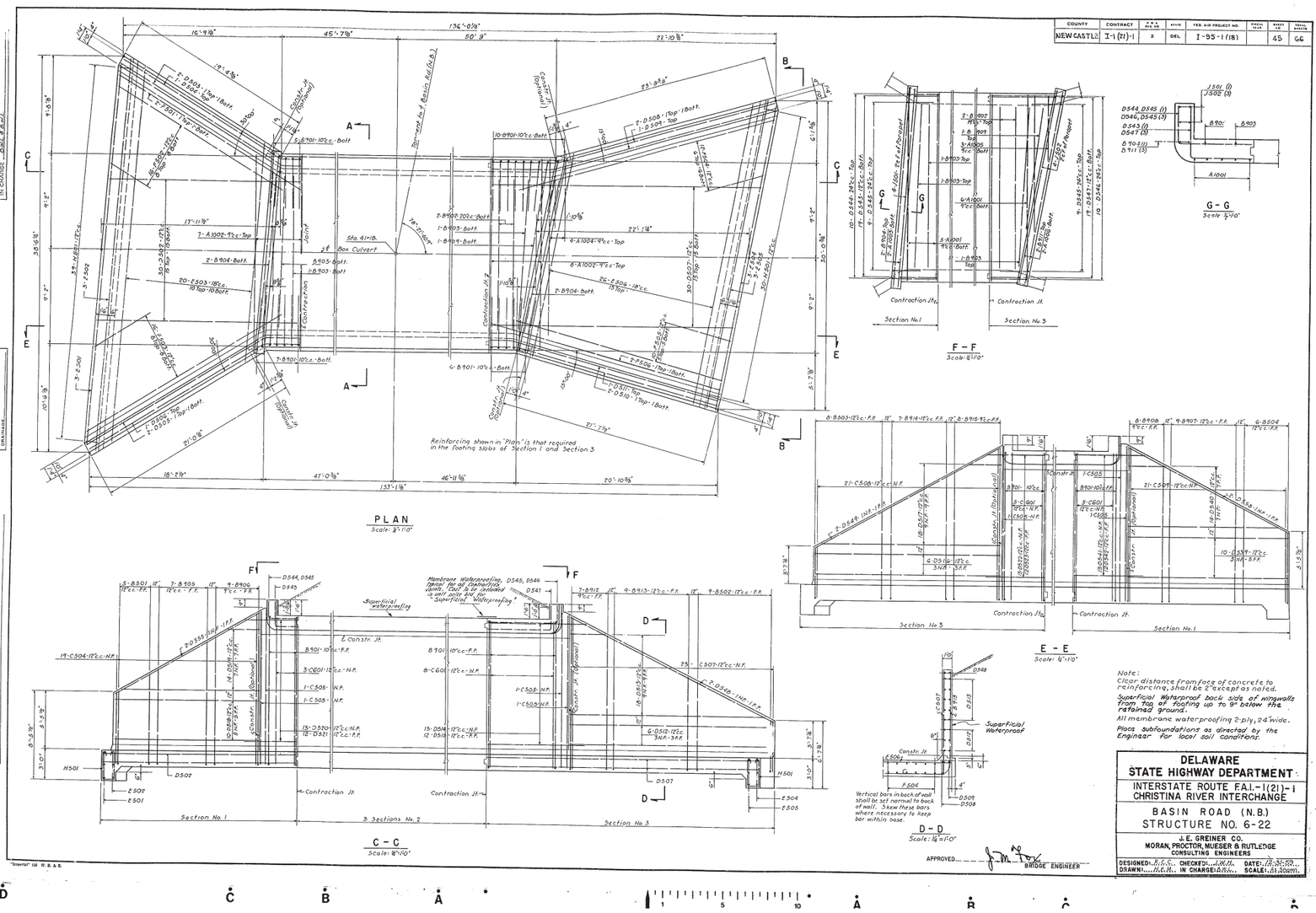
BASIN ROAD (N.B.)
STRUCTURE NO. 6-22

J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: R.C.C. CHECKED: J.W.H. DATE: 12-31-59
DRAWN: H.F.M. IN CHARGE: B.W.L. SCALE: As Shown

"Imperial" 156 W. B. & E.

COUNTY	CONTRACT	R.R. CROSSING	STATE	FED. AID PROJECT NO	PLATE NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		45	66



Note:
Clear distance from face of concrete to reinforcing, shall be 2" except as noted.

Superficial Waterproof back side of wingwalls from top of footing up to 9" below the retained ground.

All membrane waterproofing 2-ply, 24" wide.

Place subfoundations as directed by the Engineer for local soil conditions.

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE FAI.-1(21)-1
CHRISTINA RIVER INTERCHANGE

BASIN ROAD (N.B.)
STRUCTURE NO. 6-22

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: R.C.C. CHECKED: J.M.M. DATE: 12-30-59
DRAWN: H.C.H. IN CHARGE: J.M.M. SCALE: 1.61.30mm.

APPROVED: J. M. Fox BRIDGE ENGINEER

MADE BY: R.C.C. 8-24-59
CHECKED BY: J.M.M. 8-24-59
DRAWING: H.C.H. 8-24-59
CHECKED: J.M.M. 8-24-59
QUANTITIES: R.C.C. 8-24-59
CHECKED: J.M.M. 8-24-59

CHECKED
DRAIN:
STRUCTURE:
TIE POINTS:
TRAFFIC:
EARTHWORK:
DATE:

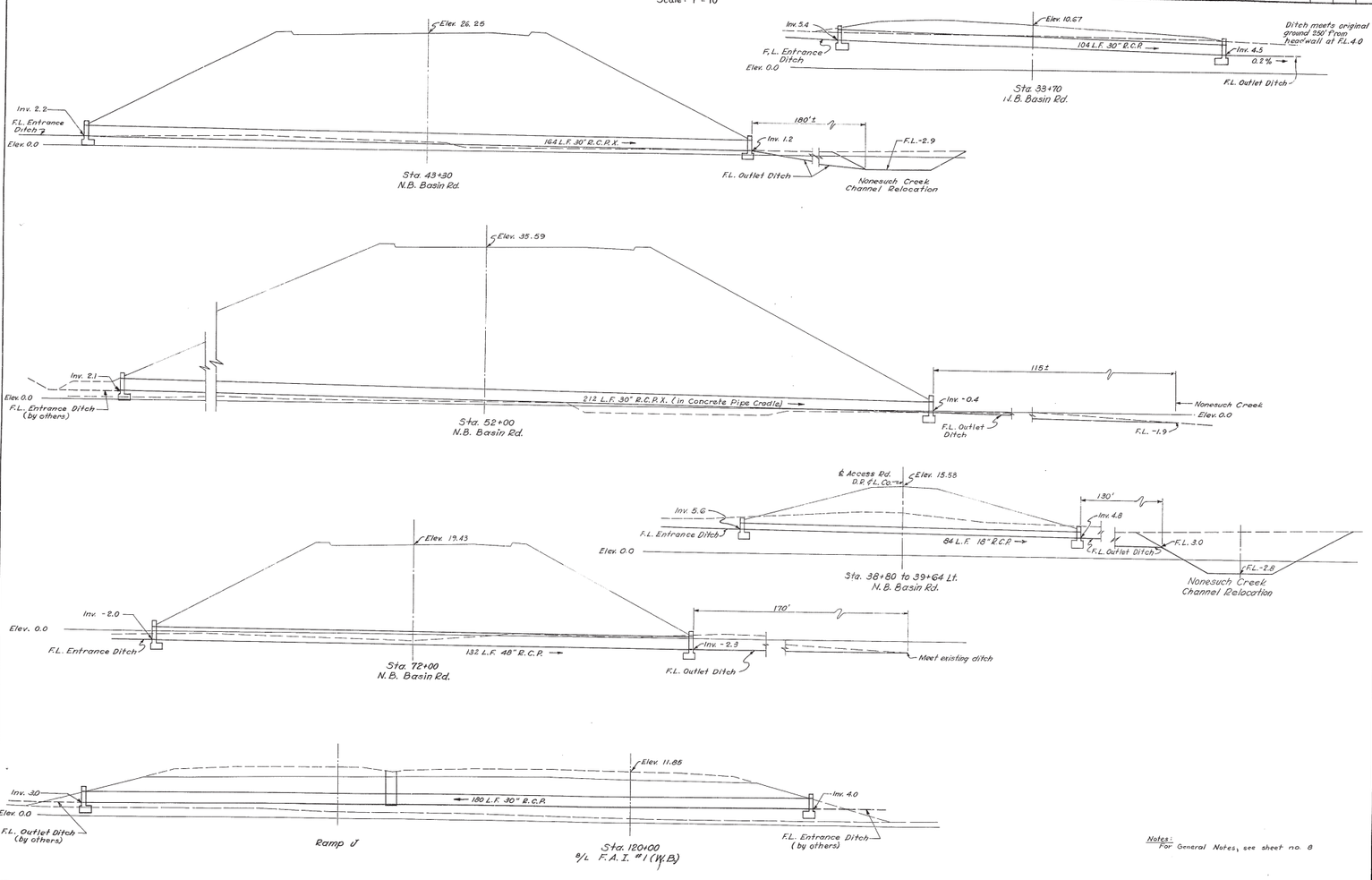
REVISIONS

"Greenlee" 124 W. S. & E.

PIPE CULVERT SECTIONS

Scale: 1" = 10'

COUNTY	CONTRACT	R.R. & BR. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL.	I-95-1(18)		46	66



Notes:
For General Notes, see sheet no. 8

CHECKED
GRADE
TRACINGS
PLANS
BENCH MARKS
ESTIMATE
DRAINAGE E.E. Dougherty

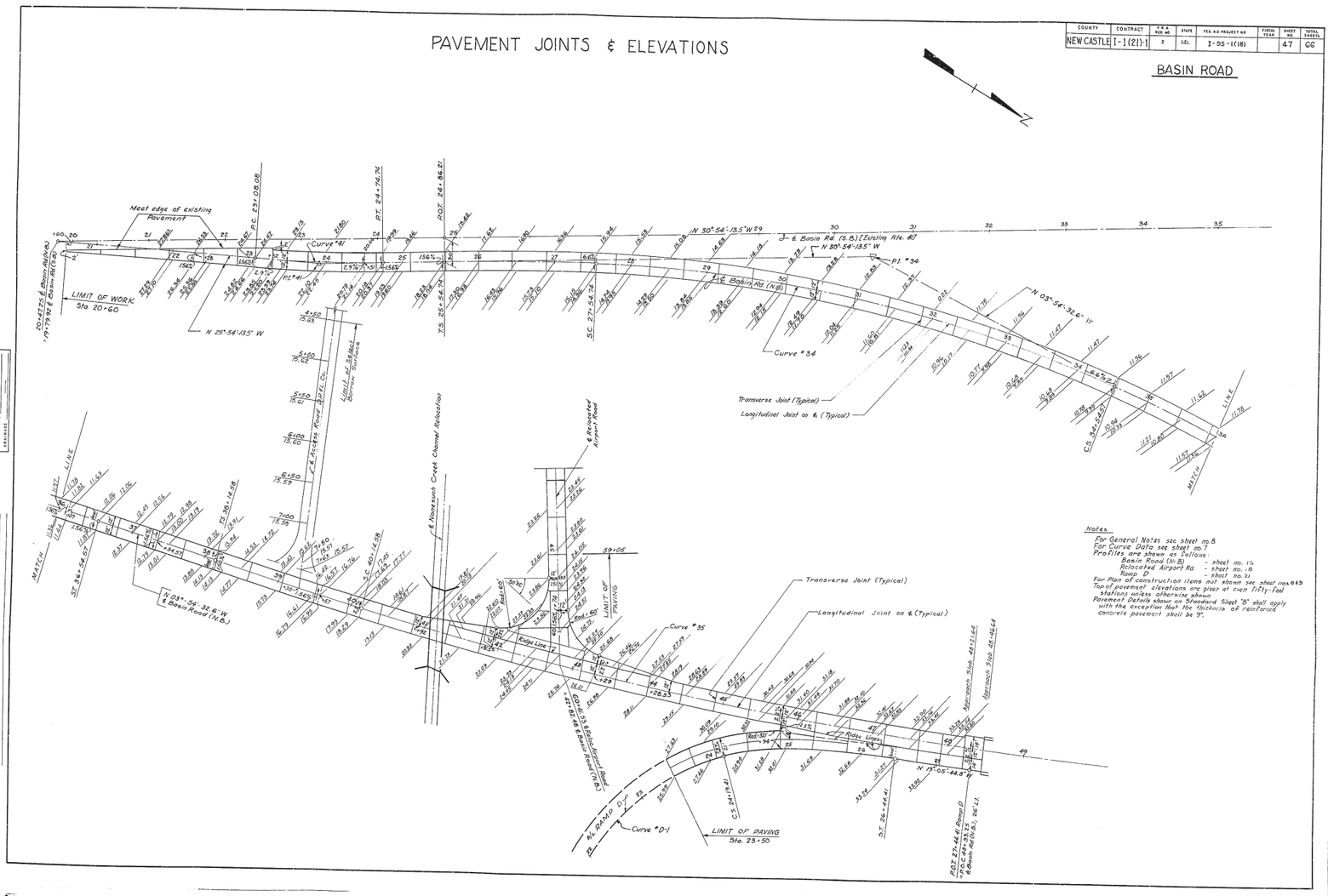
REVISIONS

D C B A 1 5 10 A B C D

PAVEMENT JOINTS & ELEVATIONS

COUNTY	CONTRACT	F.A.P. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	SEL.	I-95-1(18)		47	66

BASIN ROAD



Notes

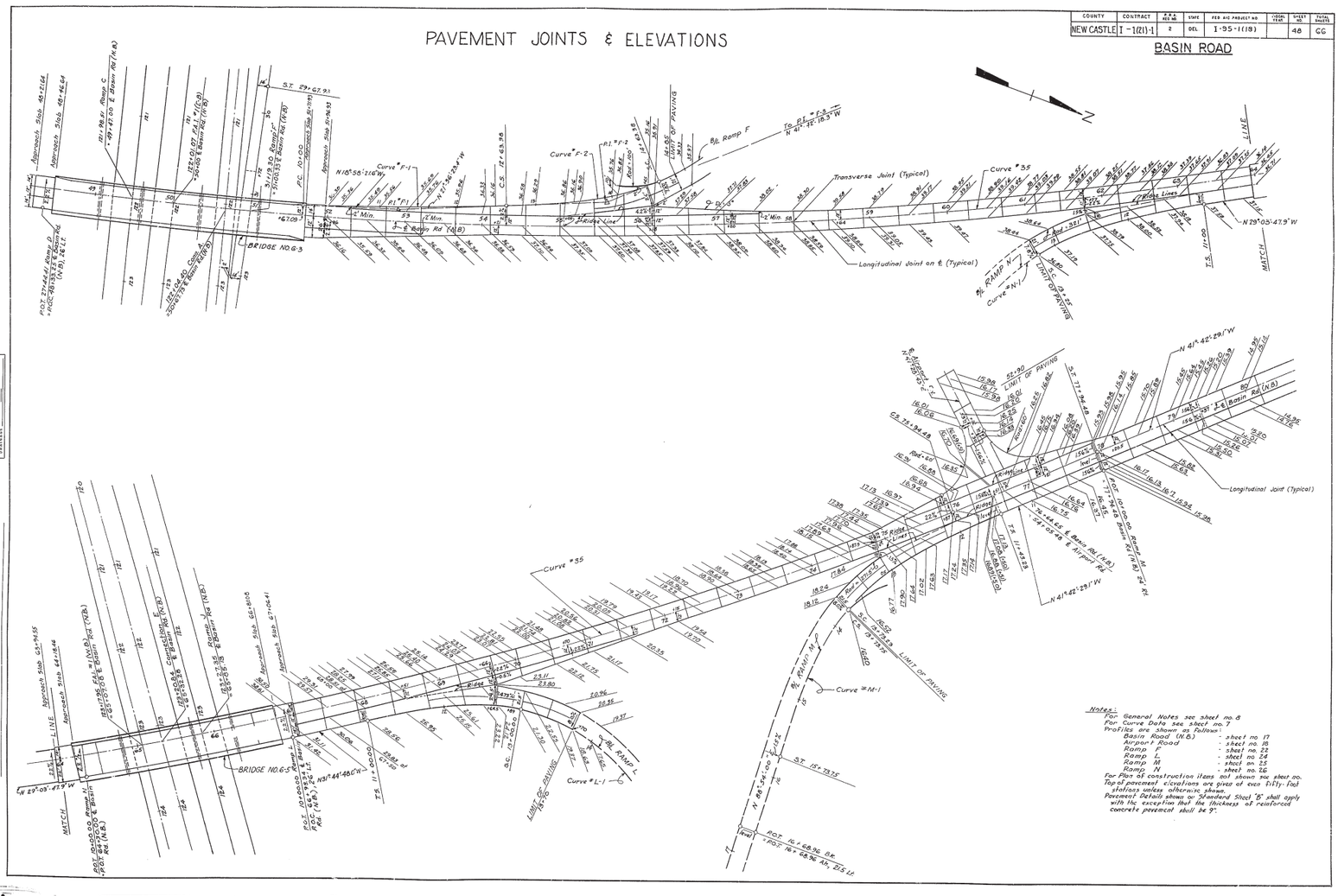
For General Notes see sheet no. 8
For Curve Data see sheet no. 7
Profiles are shown as follows:
Basin Road (N.B.) - sheet no. 16
Relocated Airport Rd - sheet no. 18
Ramp D - sheet no. 21
For Plan of construction items not shown see sheet nos. 41 & 43
Top of pavement elevations are given at even fifty-foot stations unless otherwise shown.
Pavement Details shown on Standard Sheet "B" shall apply with the exception that the thickness of reinforced concrete pavement shall be 9".

CHECKED
DESIGN W.F. Kuchinsky
ESTIMATE W.F. Kuchinsky
CHECKED
DESIGN BY
ESTIMATE
REVISIONS

COUNTY	CONTRACT	F.A.P. REF. NO.	STATE	FED. AID PROJECT NO.	FROM	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1	2	DEL	I-95-1(18)		48	66

PAVEMENT JOINTS & ELEVATIONS

BASIN ROAD



Notes:
For General Notes see sheet no. 8
For Curve Data see sheet no. 7
Profiles are shown as follows:

Basin Road (N.B.)	- sheet no. 17
Airport Road	- sheet no. 18
Ramp F	- sheet no. 22
Ramp L	- sheet no. 24
Ramp M	- sheet no. 25
Ramp N	- sheet no. 26

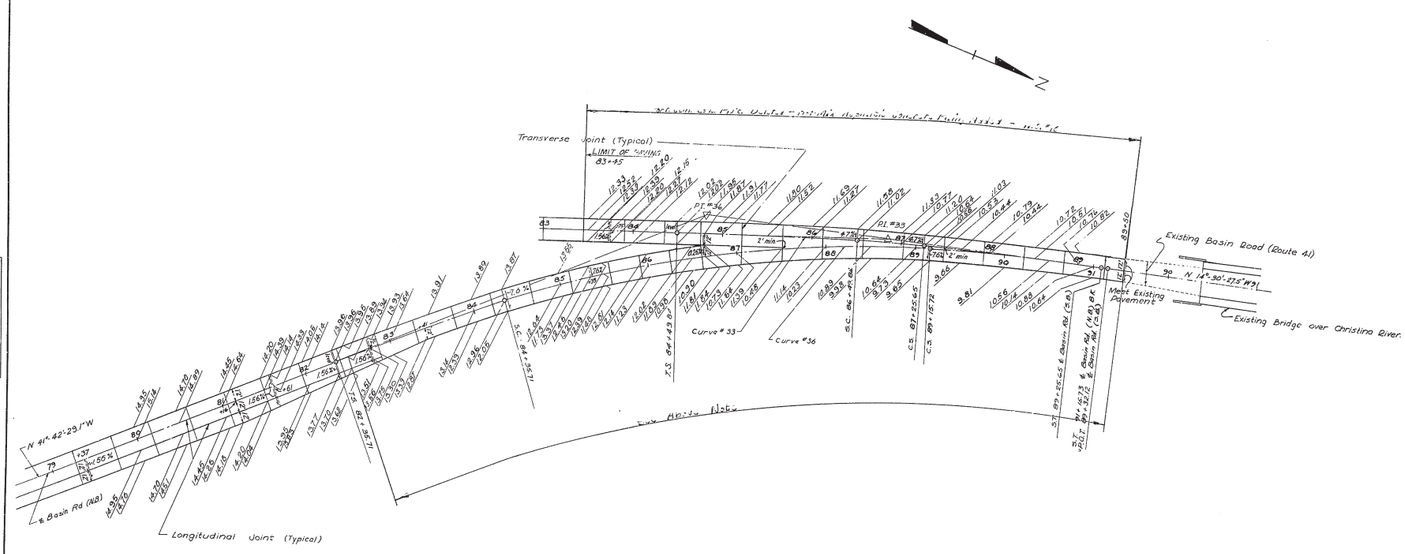
For Plan of construction items not shown see sheet no.
Top of pavement elevations are given at even fifty-foot stations unless otherwise shown.
Pavement Details shown on Standard Sheet "B" shall apply with the exception that the thickness of reinforced concrete pavement shall be 9".

REVISIONS

COUNTY	CONTRACT	F.A.P. REG. NO.	STATE	FED. AID PROJECT NO.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)	2	DEL.	I-95-1(18)		49	66

PAVEMENT JOINTS & ELEVATIONS

BASIN ROAD



Notes:

For General Notes, see sheet no. 8
For Curve Data, see sheet no. 7
For Profile, see sheet nos. 18 & 19
For Plan of construction items not shown, see sheet no. 12
Top of pavement elevations are given at even fifty-foot stations unless otherwise shown.
Pavement Details shown on Standard Sheet "B" shall apply with the exception that the thickness of reinforced concrete pavement shall be 3"

REVISIONS

COUNTY	CONTRACT	F.A.P. NO.	STATE	FED. AID PROJECT NO.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-I(21)-1	2	DEL.	I-95-1(18)		50	66

BASIN ROAD

DRAINAGE

STATIONS	SIDE	CATCH BASINS Type A-1 Ea.	Type B Ea.	Type PW-7-D.O.T. Ea.	Lateral Ditching L.F.	4" Portland Cement Conc. Gutter S.Y.	15" R.C.P. L.F.	30" R.C.P. L.F.	48" R.C.P. L.F.	30" R.C.P. Extra Strength L.F.	Portland Cement Conc. Masonry C.Y.	Bar Reinf. lbs.	6" Perforated C.M.P. Underdrains L.F.	18" C.M.P. 14 Ga. Coated & Paved L.F.	18" C.M.P. 16 Ga. Not Coated & Paved Ea.	6" C.M.P. L.F.	Excavation for Structures C.Y.
Basin Road (N-B)																	
20+60 to 34+00	R					670											
30+65 to 34+00	L					168											
33+00 I	L				90	75											
33+70	L&R				250	25		104									
38+90 to 39+64	L						84		L		7.8	152					37
41+80 to 43+00 I	R				170						4.0	86					20
43+30	L&R																
52+00	L&R									164	7.[illegible]	192					37
										212	7.8	192					37
72+00	L&R				185				132								
											11.4	660					38
85+55	L&R		2				40				2.0	43		36	2		10
F.A.I. #1 (W-B)																	
120+00	R&L			1					180								
122+15 to 123+75	R										7.8	152					37
													120			60	
Ramp "C"																	
121+05 to 122+60	R												100			80	
Ramp "F"																	
14+05	L		1			25					2.0	43		44	2		10
30+20 to 31+80	L												110			76	
Ramp "J"																	
122+45 to 124+00	L												110			70	
Ramp "L"																	
13+60	R	1				30					2.0	43		28	2		10
Ramp "D"																	
23+60	R	1				30					2.0	43		52	2		10
From Structure Summary						249											
GRAND TOTALS		2	3	1		770	1,187	124	284	132	376	54.6	1,526	440	160	8	265		246
PROPOSAL		2	3	1		800	1,250	130	300	140	400	60	*	500	170	8	300		*

*See Structure Summary.

WIRE ROPE GUARD FENCE & CURB

STATIONS	SIDE	Wire Rope Guard Fence Wood Posts L.F.	End Post Attachments Ea.	Machine Laid, Well Mix, High Lift Conc. Curb L.F.	Portland Cement Concrete Curb, Type I L.F.	Concrete Inlets Aprons, Type 2 Ea.	Down-spout Splash Aprons Ea.	8" C.M.P. 16 Ga. L.F.	10" C.M.P. 16 Ga. L.F.
Basin Road (N-B)									
39+00 to 45+15	R	615	4	615		2	2	50	
39+50 to 59+25 (Bdg. Airport Rd)	L	335	5	338		1	1	32	
48+47 to 53+50 (Ramp "D")	R	408	2		408				
48+47 to 59+62 (Bdg. Airport Rd)	L	590	4	592		2	2	74	
51+71 to 57+92	R	621	3	621		3	3	204	
56+06 to 61+35	R	327	2	192		1	1	82	
56+42 to 59+72	L	330	2	330		2	2	74	170
59+68 to 64+15	L	427	1	427		2	2	164	
64+84 to 134+70 (Ramp "L")	R	381	2		384				
66+73 to 53+00 (Airport Rd)	L	988	6	988		3	3	152	
70+00 to 74+10	R	410	2	410		1	1	60	
79+00 to 134+15 (Ramp "M")	R	417	3	422		2	2	72	
79+00 to 53+12 (Airport Rd)	L	283	4	283		1	1	13	
79+00 to 80+13 (S-B)	R	1,297	5	1,297		4	4	76	16
79+00 to 85+00	L	600	3	600		2	2	20	
Basin Road (S-B)									
83+45 to 90+13	L	668	5	668		3	3	42	15
Airport Road									
52+90 to 53+12	L			22					
52+90 to 53+00	R			10					
Relocated Airport Rd.									
59+05 to 59+25	R			20					
59+05 to 59+62	L			57					
Ramp "F"									
10+07 to 14+10	L	403	1	403		1	1	94	
14+09 to 14+85	L				79				
14+47 to 14+85	R				38				
Ramp "L"									
12+89 to 13+70	L				66				
Ramp "M"									
13+05 to 13+75	R				70				
13+17 to 13+75	L				61				
Ramp "N"									
10+10 to 13+25	L	315	2		315				
12+50 to 13+25	R				80				
Ramp "D"									
23+50 to 24+94	L				154				
GRAND TOTALS		8,425	56	8,105	1,675	30	30	1,191	206
PROPOSAL		10,000	60	9,500	1,700	30	30	1,200	220

PAVEMENT

LOCATION	9" Portland Cement Concrete Pavement Cu. Yds.	Wire Mesh Reinforcement Squares	Hot Mix, Asphaltic Concrete Tons	RC-1 Asphalt Tack Coat Gals.	Select Borrow Cu. Yds.	RC-1 Asphalt Gals.	RC-3 Asphalt Gals.	Coarse Aggregate Sq. Yds.
Basin Road (N-B)								
20+60.00 to 48+46.64	1,728	612	2,011	1,171	4,160			
51+71.93 to 64+18+46	801	277	863	536	1,912			
64+81.08 to 91+15.73	1,481	511	1,627	1,020	3,760			
Bridge Nos. 6-5 & 6-9			480	600				
Basin Road (S-B)								
83+45 to 85+50	318	110	300	170	600			
Relocated Airport Road	205	71	100	60	355			
Airport Road	190	66	92	52	325			
Temporary Runaround			200	500				
Ramp "D"	254	87			435			
Ramp "F"	209	72			510			
Ramp "L"	252	87			413			
Ramp "M"	320	110			540			
Ramp "N"	190	55			293			
Access Road					140			
Access Ramps						400	400	950
GRAND TOTALS	5,958	2,058	5,679	4,138	13,423	400	400	950
PROPOSAL	6,000	2,100	6,000	5,000	16,000	500	500	1000

TOPSOIL & SEEDING

LOCATION	Side	Topsoil (4" Deep) Sq. Yds.	Seeding Acres	Mulching Sq. Yds.
Basin Road (N-B)				
20+60.0 to 48+46.64	R&L	3,820	4.60	22,300
51+71.93 to 64+18.46	R&L	1,910	4.06	23,000
64+81.08 to 91+15.73	R&L	3,200	4.44	21,500
Basin Road (S-B)				
83+45 to 89+50	R&L	465	1.09	5,280
Relocated Airport Road	R&L	188	0.22	1,050
Airport Road	R&L	160	0.13	640
Monmouth Ch. Channel Relocation			0.56	2,730
F.A.I. #1 (W-B)	R&L		0.55	2,660
F.A.I. #1 (E-B)	R&L		0.28	1,340
GRAND TOTALS		9,743	16.73	81,100
PROPOSAL		**	17.00	83,000

** 2,500 sq. yds. topsoil
7,500 sq. yds. topsoiling

QUARRY WASTE

Temporary Runaround	2,750 S.Y.
PROPOSAL	3,000 S.Y.

TEMPORARY ROADWAY MATERIAL

ITEM	PROPOSAL
Cold Laid Bituminous Concrete	100 Tons
Select Borrow	300 C.Y.

REVISIONS
Ramp "D" Slab Series to Bituminous Surfaced Gravel Drive
Quantities Adj. From Struc. Sum. 10-8-87 — R.D.M. 8-18-87

BY/DATE: R.D.M.
CHECKED:
DESIGNED:
DRAWN:
CHECKED:
SUBMITTED:

REVISIONS
10 CHANGED % TO SUM TOTAL TO ESTIMATED FIELD QUANTITY
4/23/81 CHANGED CONC PIPE CRADLE FROM L.F. TO CU. YDS. - KRK
4/23/81 ELIMINATED SHRINKAGE FACTOR FROM EMBANKMENT - KRK
5/26/81 REMOVED PIPE GRATING FROM BARROW

PREPARED
QUANTITIES RA Grill
BLASTING
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

EARTHWORK

LOCATION	Station Limits	Excavation Excavation C.Y.	Subsidiary Excavation C.Y.	Special Fill C.Y.	Embankment C.Y.	Longitudinal Excavation C.Y.	Borrow C.Y.
Basin Road (S-B)	85+00 to 90+40		345	1670	10,000		
Basin Road (N-B)	20+60 to 33+00	3250					
Basin Road (S-B)	35+00 to 46+00	900	42,800	11,000	12,480	980	
Basin Road (N-B)	51+55 to 64+94		36,100	46,600	17,000	2,070	
Basin Road (N-B)	64+62 to 84+90		101,400	126,500	18,000		
Airport Road	91+50 to 94+35		6,770	7,970	4,192		
Relocated Airport Road	37+00 to 59+95		220	400	10,720		
F.A.I. #1 (W.B)	117+50 to 129+00		39,600	46,700	24,720		
F.A.I. #1 (E.B)	119+00 to 134+90		78,900	95,100	24,880		
Ramp "D"	21+60 to 24+10		6,750	11,200	11,200		
Ramp "F"	15+00 to 21+00				39,200		
Ramp "L"	13+00 to 15+50		11,750	13,800	5,880		
Ramp "M"	12+90 to 15+50		9,780	10,940	3,000		
Ramp "N"	12+50 to 15+00				13,840		
Temporary Pavement			3,235	1,850			
Access Roads - Del. E.F.L.			1,520				
Access Ramps			4,080				
GRAND TOTALS PROPOSAL		6,150 7,000	333,710 370,000	432,280 480,000	239,110	4520 5000	524,900 550,000

Embankment 539,110 C.Y.
Excavation 333,710 C.Y.
Borrow 524,900 C.Y.
PROPOSAL Borrow 550,000 C.Y.

STRUCTURE QUANTITIES

LOCATION	DESCRIPTION	Excavation Structure C.Y.	Abut. Pier Footings C.Y.	Portland Cement Concrete Pier Shafts (Bents) C.Y.	Cement Concrete Pier Caps C.Y.	Cement Concrete Approach Slabs C.Y.	Cement Concrete Box Culvert C.Y.	Bar Reinforcing Steel Lb.	Structural Steel Lb.	Pile Load Tests Ea.	Cast-in-Place Concrete Piles L.F.	Steel Pipe Piles L.F.	Auxiliary Bridge Railing L.F.	Sidewalk Paving with Curb Bridge SY.	Concrete Work on Bridge Drainage L.S.	Portland Cement Concrete Gutter S.Y.	Portland Cement Concrete Masonry (Sidewalk Stairs) C.Y.
Sta. 41+18 Basin Road (N-B)	Box Culvert No. 23	737															
Sta. 50+00 Basin Road (N-B)	Bridge No. 6-3	749	176	130	159	112	340	376	77,055								50
Sta. 65+50 Basin Road (N-B)	Bridge No. 6-5	642	179	101	118	238	111	142	201,619	541,600	1	7,150	49	648	408	1.3	1.3	125
From Drainage Summary		746						141	173,600	304,200	1	5,880	50	504	430	1.3	1.5	124
GRAND TOTALS PROPOSAL		2,370 2,400	353 353	231 231	276 276	975 975	223 223	380 380	859 900	1,964,000 LUMP SUM 454,000 LUMP SUM	2 2	15,030 14,000	99 95	1,152 1,140	858 900	LUMP SUMS LUMP SUMS	LUMP SUMS LUMP SUMS	249 *

** Fixed Quantity Items

* See Drainage Summary

MAINTENANCE OF TRAFFIC

PROPOSAL — LUMP SUM

CLEARING AND GRUBBING

PROPOSAL — LUMP SUM

CALCIUM CHLORIDE FOR DUST CONTROL

PROPOSAL — 4 Tons

EXTRA PORTLAND CEMENT

PROPOSAL — 200 Bags

REMOVAL OF PRESENT CONCRETE PAVEMENT

LOCATION	Square Yards
Basin Road	
PROPOSAL	1,870
	2,000

CHECK BORINGS

PROPOSAL — 270 L.F.

CHANNEL EXCAVATION

LOCATION	Sta.
Temporary Channel: Nonesuch Creek	3,100
Relocated Channel: Nonesuch Creek	7,000
GRAND TOTALS	10,100
PROPOSAL	11,000

REMOVAL OF EXISTING MASONRY

PROPOSAL — 5 Cu. Yds.

STONE BEDDING FOR PIPES

PROPOSAL — 30 Tons

BORROW PIT STRIPPING#

PROPOSAL — 500 C.Y.

This item applicable only to State owned Borrow Pits.

SODDING

LOCATION	Side	Square Yards
23+60 Ramp D	R	110
14+05 Ramp F	L	12
13+60 Ramp L	R	15
GRAND TOTAL PROPOSAL		37 50

CONCRETE PIPE CRADLE

LOCATION	Cu. Yds.
Sta. 57+00 Basin Road (N-B)	47
PROPOSAL	90

CONDUITS UNDER PAVED AREAS

LOCATION	3" Galvanized Wrought Iron L.F.
Basin Road (N-B)	
Sta. 49+00 Under Bridge No. 6-3	89
Sta. 51+00 Under Bridge No. 6-3	330
Sta. 61+00 Under Bridge No. 6-5	110
Sta. 64+00 Under Bridge No. 6-5	330
Sta. 64+00 Under Bridge No. 6-5	110
Sta. 74+00	94
Relocated Airport Road	
Sta. 59+00	52
Ramp "D"	
Sta. 24+00	29
Ramp "L"	
Sta. 13+00	51
Ramp "N"	
Sta. 13+00	29
GRAND TOTAL PROPOSAL	1261 1,300

Non-Participating

COUNTY KENT CASTLE | CONTRACT 1-(23)+ 2 | F.A.P. NO. BRL | FED. AID PROJECT NO. I-95-1(18) | SHEET NO. 51 | TOTAL SHEETS 66

BASIN ROAD

COUNTY	CONTRACT	F.A. PROJECT NO.	STATE	FAP NO. FAI-I-95-1(18)	PROJECT TITLE	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1 I-1(23) I-1(24)	2	DEL.	I-95-1(18) I-95-1(11) I-95-1(15) I-95-1(16)			2

THE STATE OF DELAWARE

STATE HIGHWAY DEPARTMENT

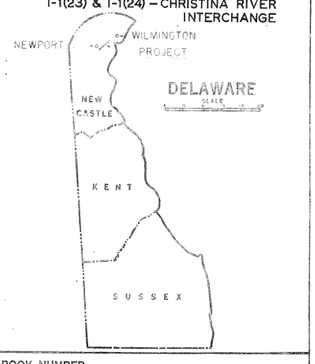
INFORMATION PLAN
FOR
CONSTRUCTION OF CONTRACT Nº I-1(21)-1, I-1(23) & I-1(24)

STA. 120 + 05 Conn. A TO STA. 205+00 I-95(FAI-2)
9,890.58 FEET: 1.873 MILES

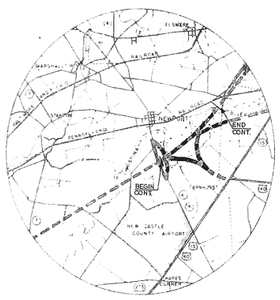
SCALE: PLAN: 1 IN. = 200 FT.
PROFILE: HOR. 1 IN. = 10 FT.
VERT. 1 IN. = 10 FT.

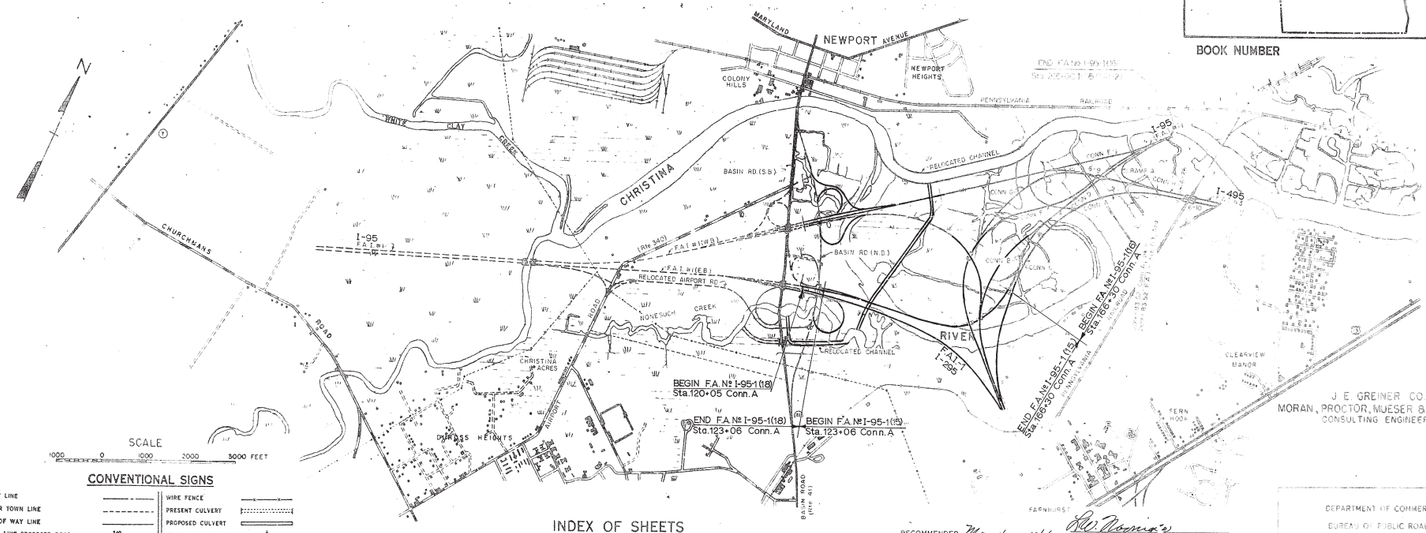
FEDERAL AID PROJECT Nos I-95-1(18), I-95-1(11), I-95-1(15) & I-95-1(16)

INTERSTATE CONTRACTS I-1(21)-1, I-1(23) & I-1(24) – CHRISTINA RIVER INTERCHANGE



BOOK NUMBER





CONVENTIONAL SIGNS

COUNTY LINE		WIRE FENCE	
CITY OR TOWN LINE		PRESENT CULVERT	
RIGHT OF WAY LINE		PROPOSED CULVERT	
CENTRE LINE, PROPOSED ROAD		TELEGRAPH POLE	
MACADAM, TRAVELLED ROAD		TREE	
TROLLEY OR RAILROAD			
CONC. INTAKE APRON, TYPE 2			
CONDUIT			

PROFILE

INDEX OF SHEETS

SHEET Nº 1 TITLE SHEET
2 QUANTITIES

RECOMMENDED May 4 1961 — R. W. Norris — CONTRACT & DESIGN ENGINEER

RECOMMENDED May 4 1961 — Jae S. Robinson — ASSISTANT CHIEF ENGINEER

APPROVED May 4 1961 — W. J. Miller Jr. — ACTING CHIEF ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER DATE

D C B A 1 5 10 A B C D

COUNTY	CONTRACT	R/W or FED. FUNDS	STATE	FED. AID PROJECT NO.	PARCEL NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	I-1(21)-1 I-1(23) I-1(24)	X	DEL.	I-I-95-1 (18) I-I-95-1 (11) I-95-1 (15) I-95-1 (16)		2	2

QUANTITIES

ITEM	UNIT	I-1-(21)-1 TOTAL	I-1 (23) TOTAL	I-1 (24) TOTAL	GRAND TOTAL	PROPOSAL
Clearing & Grubbing	L.S.	L.S.		L.S.	L.S.	L.S.
Excavation	C.Y.	6,150	2,000		8,150	9,000
Removal of Existing Masonry	C.Y.	5			5	5
Swamp Excavation	C.Y.	39,375	2,066,000	1,228,610	3,628,325	3,770,000
Excavation for Structures	C.Y.	2,370	8,898	3,938	15,206	16,100
Longitudinal Ditch Excavation	C.Y.	4,520	38,110	6,710	49,340	52,000
Channel Excavation	C.Y.	10,100	452,700	5,500	468,300	472,000
Special Fill	C.Y.	432,280	2,799,760	1,584,330	4,816,370	4,880,000
Borrow - (Pit Measurement)	C.Y.		30,240	1,766,965	1,797,205	1,882,000
Sand Drains	L.F.			770,520	770,520	775,000
Sand Blanket	C.Y.			154,580	154,580	160,000
Sand Drain Collector Pipes & Drainage Windrows	L.S.			L.S.	L.S.	L.S.
18" Reinforced Concrete Pipe	L.F.	124			124	130
24" " " "	L.F.		310		310	330
30" " " "	L.F.	284	202	348	834	870
36" " " "	L.F.		100		100	110
42" " " "	L.F.		118		118	130
48" " " "	L.F.	132	84		216	230
54" " " "	L.F.		110		110	120
18" " " " Extra Strength	L.F.			156	156	170
30" " " " " "	L.F.	376	168		544	580
36" " " " " "	L.F.			180	180	190
42" " " " " "	L.F.		162	168	330	350
18" Corrugated Metal Pipe, 16 Ga. Coated & Paved	L.F.	160	22		182	200
18" " " " 16 Ga., 30° Bends, Coated & Paved	Ea.	8			8	8
6" Corrugated Metal Pipe	L.F.	285			285	300
6" Perforated Corrugated Metal Pipe, Underdrain	L.F.	440			440	500
Type A-1 Catch Basin	Ea.	2			2	2
" B	Ea.	3			3	3
" PW-BD-2 Catch Basin	Ea.	1		1	2	2
Portland Cement Conc. Masonry for Drainage Structures	C.Y.	54.6	113.72	39.28	207.6	235
Lateral Ditching	L.F.	770	795	510	2,075	2,190
Concrete Pipe Cradle	C.Y.	47	100	100	247	290
Stone Bedding for Pipes	Ton	30	50	50	130	130
Portland Cement Concrete Gutter	S.Y.	1,187	27	180	1,394	1,460
Tide Gate - 54" ϕ	Ea.		1		1	1
Tide Gate - 7' x 7'	Ea.		3		3	3
Plain Rip-Rap	S.Y.		36,600		33,600	37,000
Bedding for Rip-Rap	Ton		16,200		16,500	17,000
Seeding	S.Y.	37	2,364	295	2,696	2,860
Removal of Present Concrete Pavement	S.Y.	1,870			1,870	2,000
9" Portland Cement Concrete Pavement	C.Y.	5958			5958	6,000
Wire Mesh Reinforcement	Square	2058			2058	2,100
Hot Mix Hot-Laid Asphaltic Concrete	Ton	5679			5679	6,000
RC-2 Tack Coat	Gal.	4,139			4,139	5,000
Select Borrow	C.Y.	13,423	540		13,963	16,600
RC-5 Asphalt	Gal.	460			460	500
RC-3 Asphalt	Gal.	460			460	500
Coarse Aggregate	S.Y.	950			950	1,010
Wire Rope Guard Fence (Wood Posts)	L.F.	9,425			9,425	10,000
End Post Attachments	Ea.	56			56	60
Machine Laid Hot Mix Asphaltic Concrete Curb	L.F.	8,105			8,105	8,500
Portland Cement Concrete Curb - Type 1	L.F.	1,675			1,675	1,700
Concrete Inlet Apron - Type 2	Ea.	30			30	30
Downspout Splash Apron	Ea.	30			30	30
18" Corrugated Metal Pipe - 16 Ga.	L.F.	1,191			1,191	1,200
10" " " " - 16 Ga.	L.F.	206			206	220
Seeding	Acre	16.73	2.2	15.68	34.61	35.5
Mulching	S.Y.	81,100	10,700	75,900	167,700	172,500
Topsoiling	S.Y.	7,500			7,500	7,500
Topsoil (4" Deep)	S.Y.	2,243			2,243	2,500
Quarry Waste (Temporary Runaround)	S.Y.	2750			2,750	3,000
Cold Laid Bituminous Concrete - T.R.M.	Ton	100			100	100
Select Borrow - T.R.M.	C.Y.	300			300	300
Extra Portland Cement	Bag	200			200	200
Calcium Chloride for Dust Control	Ton	4			4	4
Maintenance of Traffic	L.S.	L.S.			L.S.	L.S.
Check Borings	L.F.	270	1,700	1,400	3,370	3,370
Settlement Plates - Type A (Control Devices)	Ea.			13	13	15
" " - Type B " "	Ea.			84	84	90
Piezometers " "	Ea.			43	43	50
Alignment Stakes " "	L.S.			L.S.	L.S.	L.S.
Portland Cement Concrete Masonry for Abutments	C.Y.	353			353	353
" " " " " " Pier Footings	C.Y.	231			231	231
" " " " " " Piers above Footings	C.Y.	276			276	276
" " " " " " Superstructures	C.Y.	975			975	975
" " " " " " Approach Slabs	C.Y.	223			223	223
" " " " " " Box Culverts	C.Y.	380	1,660	1,125	3,165	3,165
" " " " " " Subfoundations	C.Y.	20	220	100	370	370
Superficial Waterproofing	S.Y.	859	2,350	1,402	4,611	4,610
Bar Reinforcement	Lb.	494,000	318,847	205,569	978,416	978,416
Structural Steel	L.S.	L.S.			L.S.	L.S.
Pile Load Tests	Ea.	2			2	2
Cast In-Place Concrete Piles	L.F.	13,030			13,030	14,000
Steel Shell Test Piles	L.F.	95			95	95
Aluminum Bridge Railing	L.F.	1,132			1,132	1,140
Slope Paving with Cement Concrete Blocks	S.Y.	838			838	900
Bridge Drainage - Bridge 6-3	L.S.	L.S.			L.S.	L.S.
Conduit Work on Bridge 6-3	L.S.	L.S.			L.S.	L.S.
Borrow Pit Stripping	C.Y.	500			500	500
Conduits Under Paved Areas - 3" Galvanized Iron	L.F.	1,261			1,261	1,300
Timber Sheet Piles (Left In Place)	M.F.B.M.		7.5	1.9	9.4	10
Borrow (In Place Measurement)	C.Y.	524,960			524,960	550,000
Bridge Drainage - Bridge 6-5	L.S.	L.S.			L.S.	L.S.
Conduit Work on Bridge 6-5	L.S.	L.S.			L.S.	L.S.

QUANTITY SUMMARY FOR INTERSTATE CONTRACTS I-1(21)-1, I-1(23) & I-1(24) CHRISTINA RIVER INTERCHANGE

Note:

See Plans of Individual Contracts for Design. The Quantities Shown on this Sheet Are for Roadway and Bridge Constructions. See Contract I-1(21)-1 for Utility Quantities which Are a Part of this Contract.

REVISIONS

GRADE
SUPERELEVATION
TIE POINTS
BRIDGE BEARINGS
EARTHWORK
MISCELLANEOUS

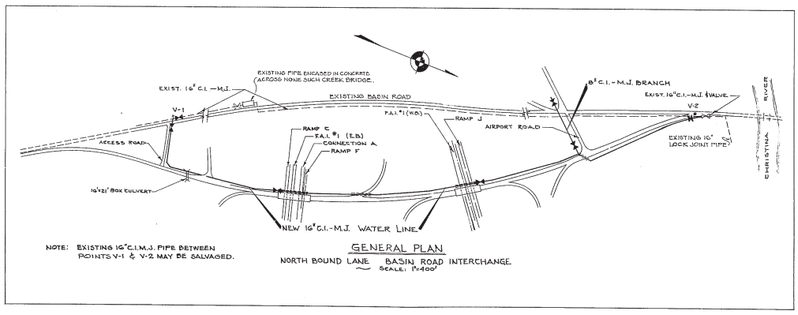
"Standard" 06 97/6/6

ARTESIAN WATER COMPANY

NEWPORT, DELAWARE

RELOCATED WATER TRANSMISSION MAIN

ALBRIGHT & FRIEL INC. CONSULTING ENGINEERS
3 PENN CENTER PLAZA PHILADELPHIA 2 PENNA.



SET CONTAINS [redacted] DRAWINGS

SET NO. [redacted]

CONTRACT NO.	FEDERAL AID PROJECT NO.	SHEET NO.
I-(2)-1	I-95-(1)	W-1

PROFILE

PLAN

NOTES:
1. ALL CONSTRUCTION INCIDENT TO CONTRACT MUST BE SUBORDINATE TO ROAD CONSTRUCTION WORK ON PLAN-11 BASIN ROAD INTERCHANGE - STA 47+00 TO 49+50

NOTES:
1. MINIMUM COVER OVER PIPE = 5'-0", OVER TYPE NE
2. PROVIDE OPEN TRENCH OR AS REQUIRED WITH VALVE & MANHOLE

△ 12-01-01 - TRANSMISSION MAIN RE-ROUTED
△ 5-6-99 REVISED

ARTESIAN WATER COMPANY
NEWPORT, DELAWARE

RELOCATED WATER TRANSMISSION MAIN
NORTH BOUND LANE - BASIN ROAD INTERCHANGE
STA 0+00 to STA 48+50

ALBRIGHT & FRIEL, INC.
CONSULTING ENGINEERS
PHILADELPHIA, PA.

SCALE: AS NOTED
DATE: 12-5-99
DRAWN BY: RMD
DESIGNED BY: FVF
APPROVED: [signature]
DATE: OCT. 1, 1958
DRAWING NO.: 58054-1

REGISTERED PROFESSIONAL ENGINEER

CONTRACT NO.	FEDERAL AID PROJECT NO.	SHEET NO.
I-1(21)-1	I-95-1(11)	W-2

63

△ REVISION - TRANSMISSION MAIN RE-RELOCATED
△ GENERAL REVISIONS
△ ENCASEMENT TUNNEL REVISED

ARTESIAN WATER COMPANY
NEWPORT, DELAWARE

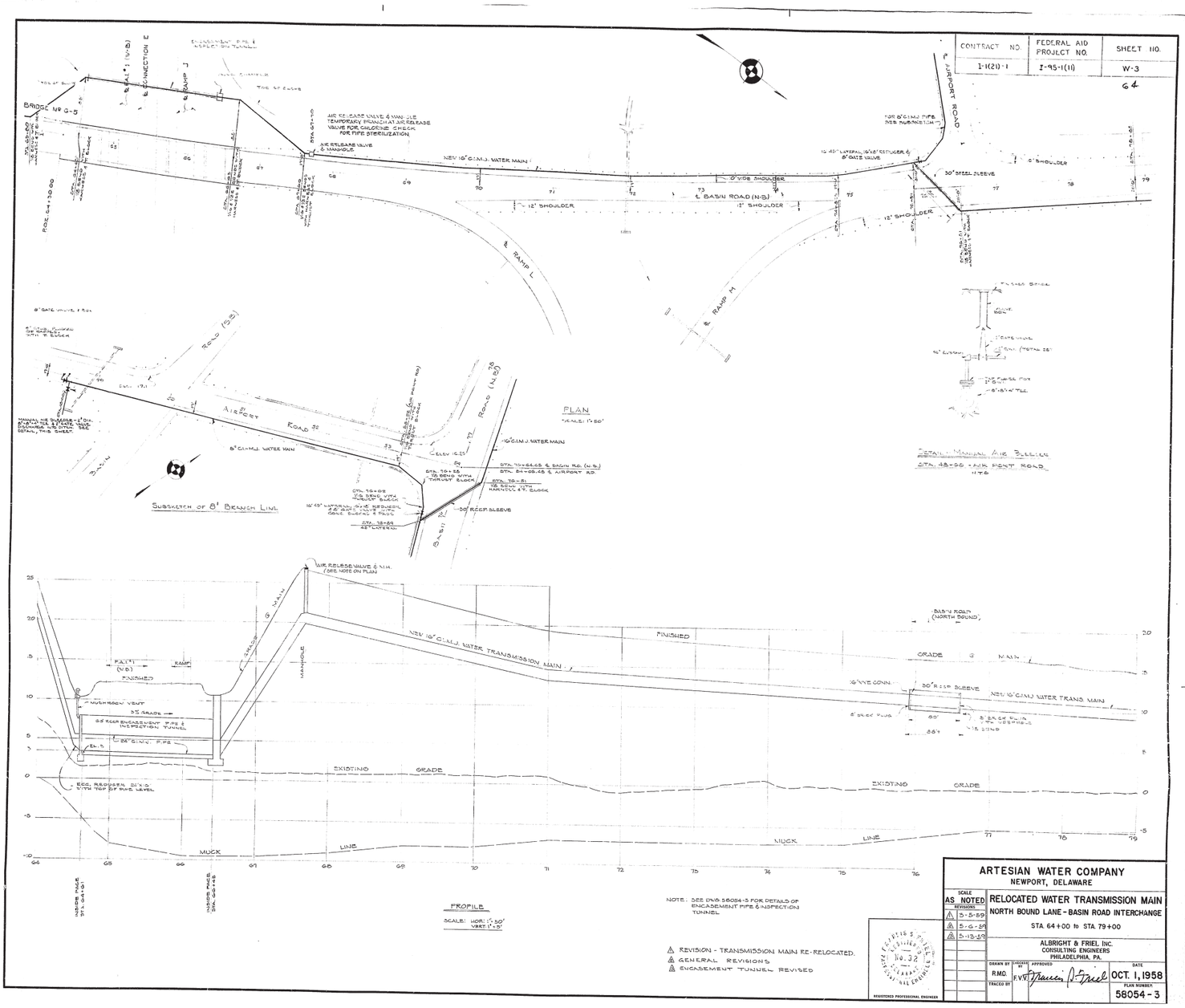
SCALE		
AS NOTED	REVISIONS	
	△ 3-5-59	
	△ 3-6-59	
	△ 3-13-59	

RELOCATED WATER TRANSMISSION MAIN
NORTH BOUND LANE - BASIN ROAD INTERCHANGE
STA. 48 + 50 to STA. 64+00

ALBRIGHT & FRIEL INC.
CONSULTING ENGINEERS
PHILADELPHIA, PA.

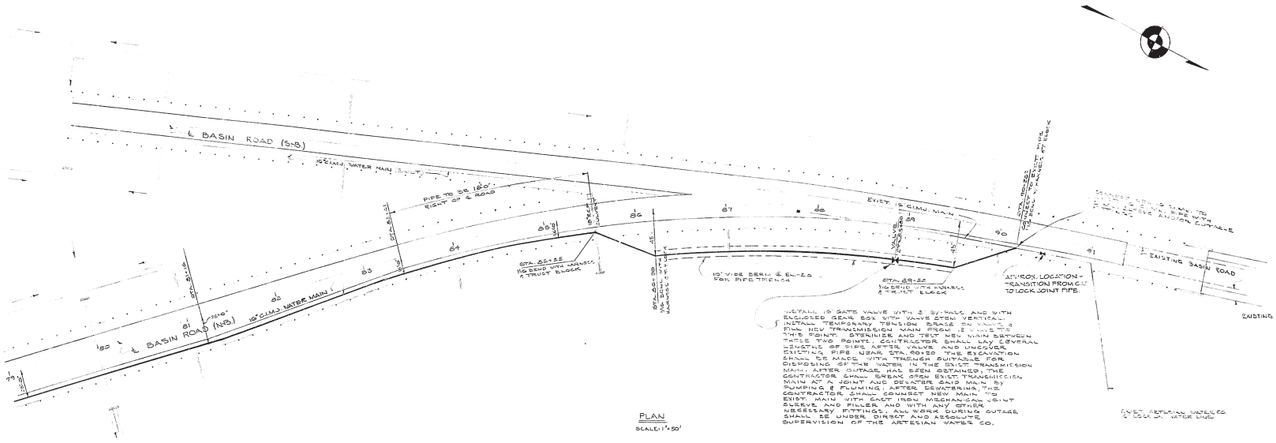
DRAWN BY	CHECKED BY	APPROVED	DATE
R.M.O.	F.V.V.	Francis V. Friel	OCT. 1, 1958
TRACED BY			PLAN NUMBER

FRANCIS V. FRIEL REGISTERED No. 32 DELAWARE PROFESSIONAL ENGINEER


CONTRACT NO. I-1(21)-1
FEDERAL AID PROJECT NO. I-95-1(11)
SHEET NO. W-3
64
BRIDGE No G-5
AIR RELEASE VALVE & MANHOLE TEMPORARY PRANCH AT AIR RELEASE VALVE FOR CHLORINE CHECK FOR PIPE STERILIZATION
AIR RELEASE VALVE & MANHOLE
NEW 16" C.I.M.J. WATER MAIN
0' WIDE SHOULDER
℄ BASIN ROAD (N-B)
12' SHOULDER
℄ RAMP L
℄ RAMP M
℄ AIRPORT ROAD
30" STEEL SLEEVE
PLAN
SCALE: 1"=50'
AIRPORT ROAD
8" C.I.M.J. WATER MAIN
16" C.I.M.J. WATER MAIN
SUBSKETCH OF 8" BRANCH LINE
DETAIL: MANUAL AIR BLEEDER
STA. 48+00 - AIR PORT ROAD
AIR RELEASE VALVE & M.H. (SEE NOTE ON PLAN)
NEW 16" C.I.M.J. WATER TRANSMISSION MAIN
FINISHED
GRADE
EXISTING GRADE
MUCK LINE
PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: SEE DWG. 58054-5 FOR DETAILS OF ENCASEMENT PIPE & INSPECTION TUNNEL
REVISION - TRANSMISSION MAIN RE-RELOCATED.
GENERAL REVISIONS
ENCASEMENT TUNNEL REVISED
ARTESIAN WATER COMPANY
NEWPORT, DELAWARE
SCALE AS NOTED
REVISIONS
5-5-59
5-6-59
5-13-59
RELOCATED WATER TRANSMISSION MAIN
NORTH BOUND LANE - BASIN ROAD INTERCHANGE
STA. 64+00 to STA. 79+00
ALBRIGHT & FRIEL, INC.
CONSULTING ENGINEERS
PHILADELPHIA, PA.
DRAWN BY R.M.O.
CHECKED BY F.V.V.
APPROVED
DATE OCT. 1, 1958
TRACED BY
PLAN NUMBER 58054-3
REGISTERED PROFESSIONAL ENGINEER

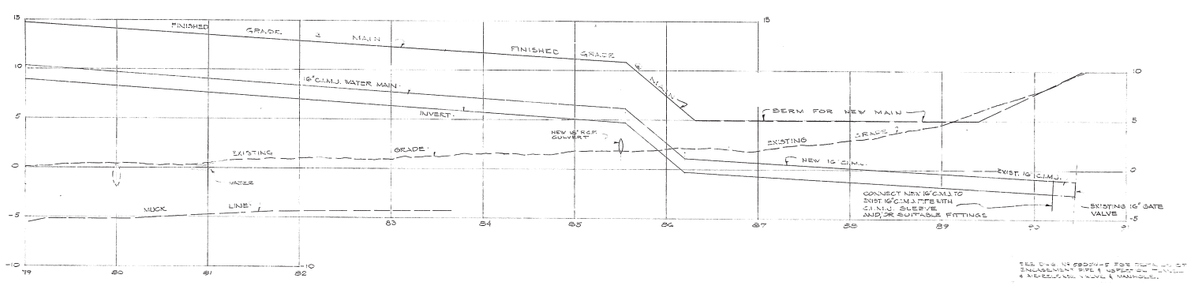
CONTRACT NO.	FEDERAL AID PROJECT NO.	SHEET NO.
I-I(21)-1	I-95-1(11)	W-4

65



PLAN

SCALE: 1" = 50'



PROFILE

SCALES: HOR. 1" = 50' VERT. 1" = 5'

SEE SHEET 17 FOR PLAN & PROFILE FOR TEMPORARY INTERCHANGE PIPE & GATE VALVE & MECHANICAL JOINT & UNION.

△1 REVISION - TRANSMISSION MAIN RE-RELOCATED
△2 GENERAL REVISIONS
△3 ALIGNMENT REVISED

REGISTERED PROFESSIONAL ENGINEER

ARTESIAN WATER COMPANY
NEWPORT, DELAWARE

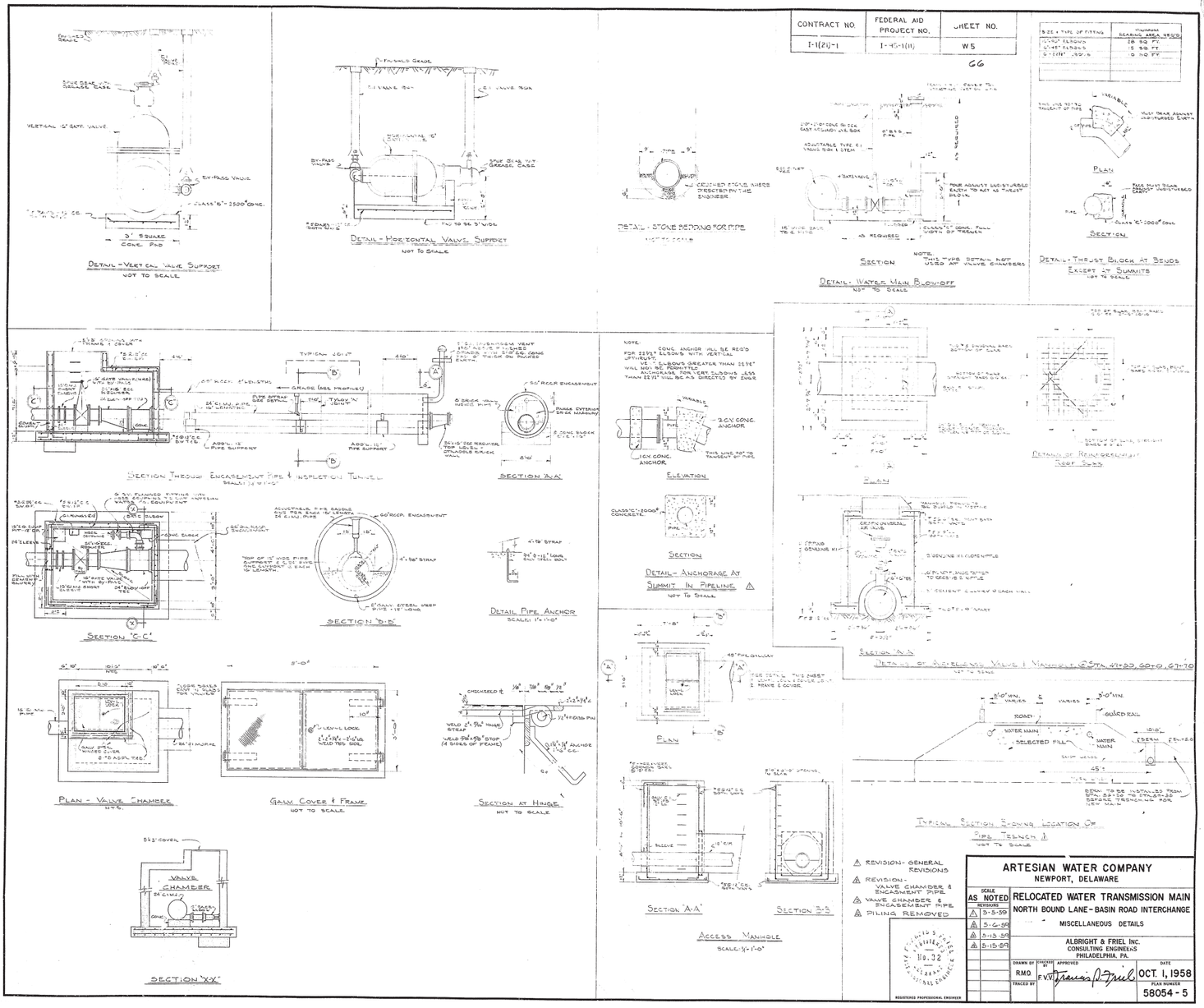
SCALE		
AS NOTED		RELOCATED WATER TRANSMISSION MAIN
REVISIONS		NORTH BOUND LANE - BASIN ROAD INTERCHANGE
△1	5-3-59	STA. 79 + 00 to NORTHERN TERMINUS
△2	5-6-59	
△3	5-15-59	ALBRIGHT & FRIEL INC. CONSULTING ENGINEERS PHILADELPHIA, PA.

DRAWN BY	CHECKED BY	APPROVED	DATE
R.M.O.	F.V.V.	Francis V. Friel	OCT. 1, 1958
TRACED BY			PLAN NUMBER 58054 - 4

CONTRACT NO.	FEDERAL AID PROJECT NO.	SHEET NO.
I-1(21)-1	I-95-1(11)	W5

66

SIZE & TYPE OF FITTING	CHAINAGE SEARING AREA, REQ'D
12"-90° TEE (DOWN)	28.00 SQ. FT.
6"-45° TEE (DOWN)	5.00 SQ. FT.
6"-11¼° BEND	0.00 SQ. FT.



△ REVISION - GENERAL REVISIONS

△ REVISION - VALVE CHAMBER & ENCASEMENT PIPE

△ VALVE CHAMBER & ENCASEMENT PIPE

△ PILING REMOVED

ARTESIAN WATER COMPANY
NEWPORT, DELAWARE

SCALE	RELOCATED WATER TRANSMISSION MAIN
AS NOTED	NORTH BOUND LANE - BASIN ROAD INTERCHANGE
REVISIONS	MISCELLANEOUS DETAILS
△ 3-5-59	
△ 3-6-59	
△ 3-13-59	
△ 3-15-59	

ALBRIGHT & FRIEL INC.
CONSULTING ENGINEERS
PHILADELPHIA, PA.

DRAWN BY	CHECKED BY	APPROVED	DATE
RMO	F.V.F.	Francis V. Friel	OCT. 1, 1958
TRACED BY			PLAN NUMBER 58054-5

REGISTERED PROFESSIONAL ENGINEER