ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON, DELAWARE

FOR

NEWCASTLE COUNTY, DELAWARE

ALBAN P. SHAW, COUNTY ENGINEER

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44 FOOT ROADWAY

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1. GENERAL PLAN AND ELEVATION
2. GENERAL ARRANGEMENT OF BASCULE SPAN AND PIER
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26. ABUTMENTS
27. RETAINING WALLS AND PYLONS

ASH-HOWARD-NEEDLES AND TAMMEN

CONSULTING ENGINEERS

KANSAS CITY — NEW YORK

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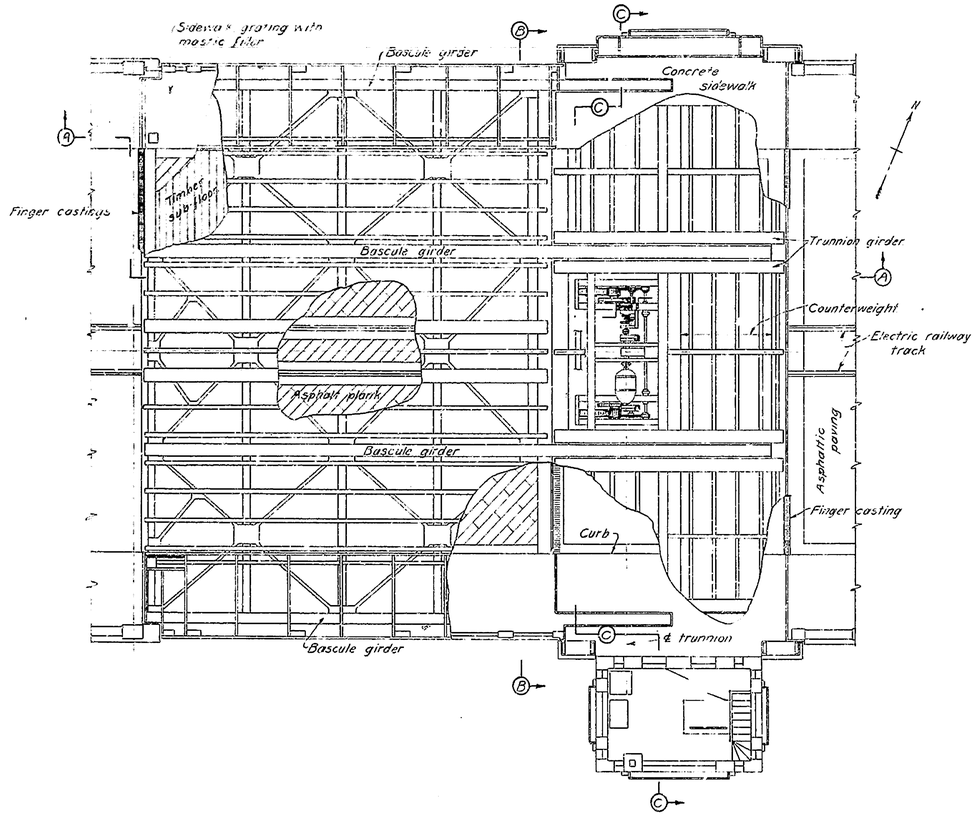
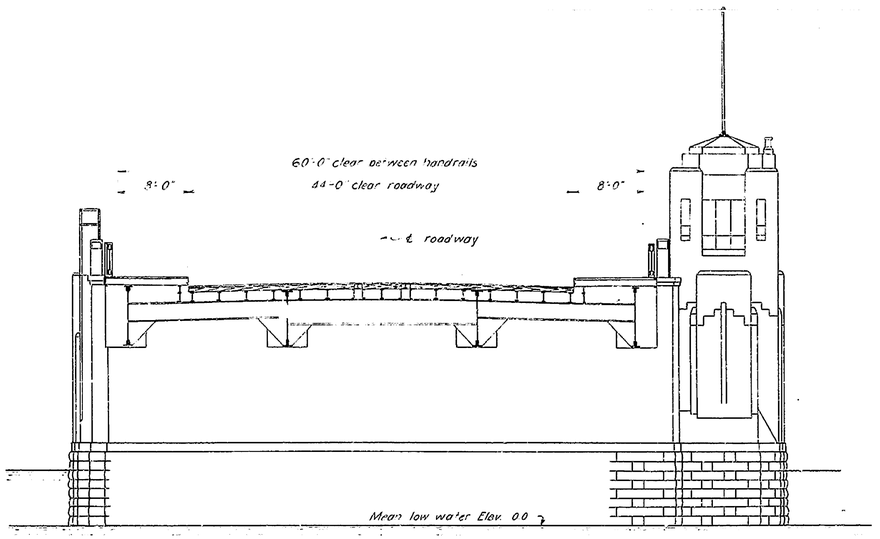
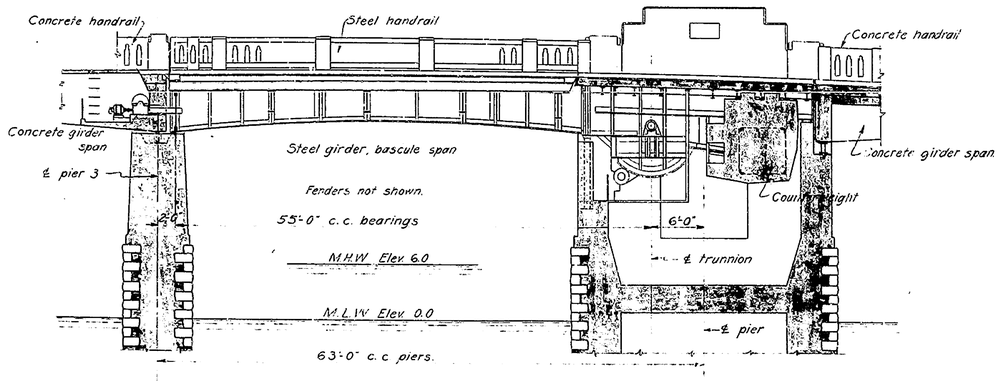
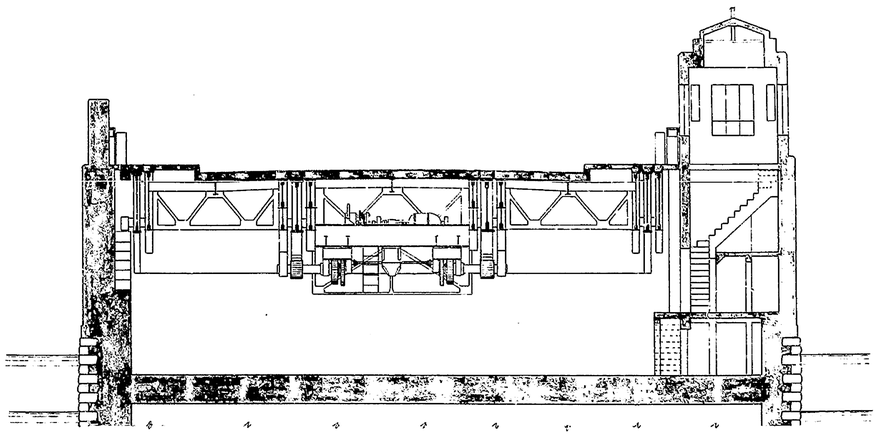




SECTION B-B



SECTION A-A



SECTION C-C

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

GENERAL ARRANGEMENT OF
BASCULE SPAN AND PIER

8'-0"
G.A. 8-25-31
G.A. 8-31-31

Provide hole in channel as necessary to pour concrete and cover with 1" plate welded into place

Bumping block. Adjust to just touch gate in closed position

1/2" cover plate. Attach with 8-1/2" Cap screws as shown

3/4" bolts c'sk.

PLAN
Scale 3/8"=1'-0"

SECTION J-J
Scale 1"=1'-0"

Latch and keepers to be of 3/8" metal

6'-7" for 44' roadway
4'-7" for 30' roadway

23'-2 1/2" for 44' roadway
16'-2 1/2" for 30' roadway

c to c between gates - Sym. about ℄ except as shown or noted.
For 44' Roadway
For 30' Roadway

1'-4" for 44' roadway abt 3900# of punching concrete
3'-8" for 30' roadway abt 3300# of punching concrete

6'-8 1/2" (2 panels in web)
6'-8 1/2" (2 panels in web)
7'-7" (3 panels in web)
8'-11" (4 panels in web)
9'-6" (4 panels in web)

Sym about ℄

Continuous Welds Test welds 1 long - 4" ctrs

Handrail Post

1/2" cover pl. Attach with 3/4" cap screws as shown (Near side only)

4 Pls. - 30" x 1/2"

2-37"x1/2" Web Pls.

1/2" cover plate

3/4" Bent Pls.

Provide limit switch contacts here See Notes

75 watt light

Cast Steel Latch

3/4" Pin

Cast Steel Keeper

2 @ 2 1/2"x2 1/2"x1/2"

1/2" Web Pl.

Opening

11" c-c Pls.

2 @ 2 1/2"x2 1/2"x1/2"

7"℄ @ 9.8#

Tack welds 1" long @ abt. 4" ctrs.

All stiffeners 2 1/2"x1/2" Pls. Tack welded to web and flanges with 1" welds @ abt. 4" ctrs.

Notch pls. for ℓ.

Tack welds-1" long @ abt. 4" ctrs.

SECTION A-A
Scale 3/8"=1'-0"

SECTION H-H

Fasten upper block to lower with 6-60d. nails.

Top of Sidewalk

3/4" bolts-1'-0" into concrete

4"x8" Paint with aluminum paint.

Fill holes with asphalt.

2'-0"x2'-0" recess in slab 1" deep. Fill with grout after lining up post.

8-1"ϕx3'-0" anchor bolts per post. with 4"x4"x3/8" washers.

Slope 1/4" in 1'-0" down

1'-2 1/2"

℄ Curb Line

SECTION K-K

3/4" ϕ Pin

Provide means of locking latches.

1/2" bar - close fit in box

L - 3 1/2" long.

LATCH FOR HOLDING GATE IN OPEN POSITION
Scale 1 1/2"=1'-0"

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

10" Casting

1/4" Pl.

5/16" Splice plate Weld as indicated

Steel Casting ground to fit ℄ and welded thereto.

3"

1/4" Pl.

SECTION C-C
Scale 1"=1'-0"

1/2" fillet weld

10"

Notch 12"℄ to clear 7"℄

Continuous welds

10"x3/8" Pl. Weld to ℄ 4 sides

See Sec. EE

Tack weld 30"x1/8" pls. and 37" web plates together and to 12"℄ thru 5/8" ϕ holes punched in 30" pls. at suitable spacing to fasten plates firmly together.

1/2" fillet weld

1'-6"

SECTION D-D
Scale 1"=1'-0"

8 1/4"ϕ

6"ϕ for i.s. casting

5 1/2"ϕ for o.s. casting

6 1/2"

3 1/2"

1/4"

Fill gate post with concrete

Steel Casting

Bronze Washer

1" Fillet Weld

Outside post not shown.

Conduit for wires to limit switch.

Steel Casting Tight fit in Pipe

(Nominal)

8"ϕ Extra Strong Steel Pipe

Hole in ℄ and Pl. to be 1/8" larger diameter than pipe.

5 1/2"ϕ (Nominal)

3/8" fillet weld all around

Pipe and Casting Threaded

Base Casting steel

10 1/8"ϕ

2"

1'-2"

2"

1'-6" square

Holes for 1"ϕ bolts

SECTION E-E
Showing Gate Post and Castings
Scale 1/2"=1'-0"

Provide catches to hold rods in raised position.

2-1/2" Pls.-Weld

1/2" Pins

1"ϕ Eye Rods

Top of pavement

VIEW B-B

3/4" ϕ hoops

℄ gate and protection posts.

6 Grooves 1" wide, 3/8" deep

1'-2"

℄ Curb Line

SECTION F-F

SECTION GG

Finish of tops of posts to be such as to provide drainage.

6'-8 1/2"
4'-8 1/2"
For 44' Roadway
For 30' Roadway

25'-4"
16'-4"

2" 8 1/2" 3" 3 1/2" 1'-6"

1/2" Round corners

Outline of Gate

3/4"ϕ bars-11

1" Chamfer

6" chamfer

2-3/4"ϕ bars

2-1 1/2"ϕ bars

3'-10 1/4" for 44' Roadway
3'-9 1/4" for 30' Roadway

2'-0"

4 1/2"

3 1/2"

℄ Gate Post and ℄ Pier No. 2

10"

3 1/16 % Grade Up

Top of Sidewalk at ℄ Posts

Bars to extend 2'-6" below top of sdwk.

Latch - See detail

1'-3"

3 1/2"

3 1/2"

6" 2"

1" chamfer

3'-0" for 44' Roadway
3'-2 1/4" for 30' Roadway

1'-3 1/4"

Reinforcement same as for other post except as shown.

GATE PROTECTION POSTS
Scale 3/4"=1'-0"

NOTES:

For location of gates see sheet 1.

All connections to be welded except as shown or noted.

All welds to be 1/4" fillet welds except as noted. Welds to be continuous unless otherwise noted.

All exposed welds shall be of smooth uniform appearance. They shall be ground if necessary to obtain a good appearance.

Counterweight shall be composed of layers of steel punchings consolidated with a grout of one part cement and two parts sand, so as to give a concrete weighing about 300# per cubic foot.

Electrical contractor to provide contacts or limit switches, operated in the open and closed positions of the gates, to care for operation of indicator lights and interlocking with traffic signals See Sheet 21.

For general notes on steel see sheet 9.

For general notes on concrete see sheet 23.

Gate protection posts to be of Class A concrete. See Specifications.

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

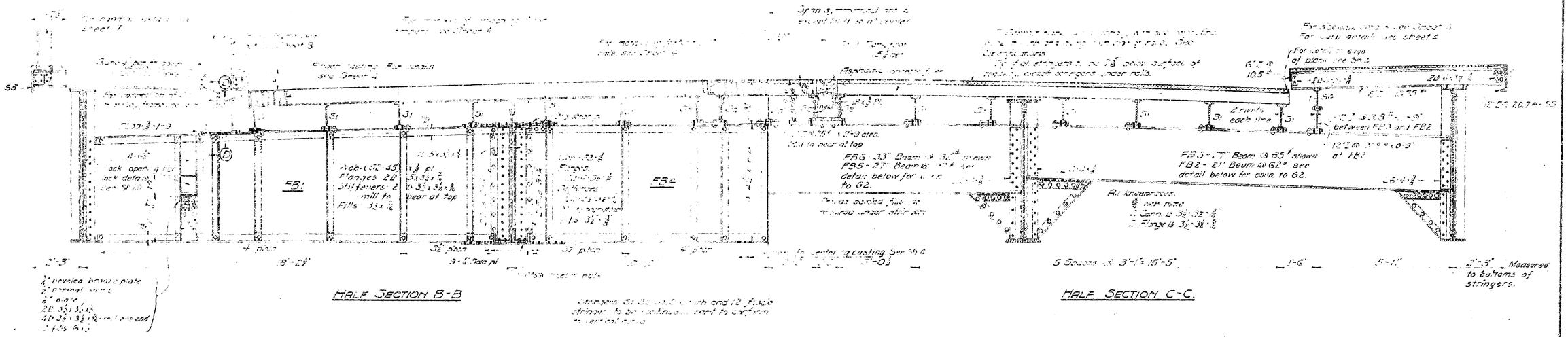
30 AND 44 FOOT ROADWAYS

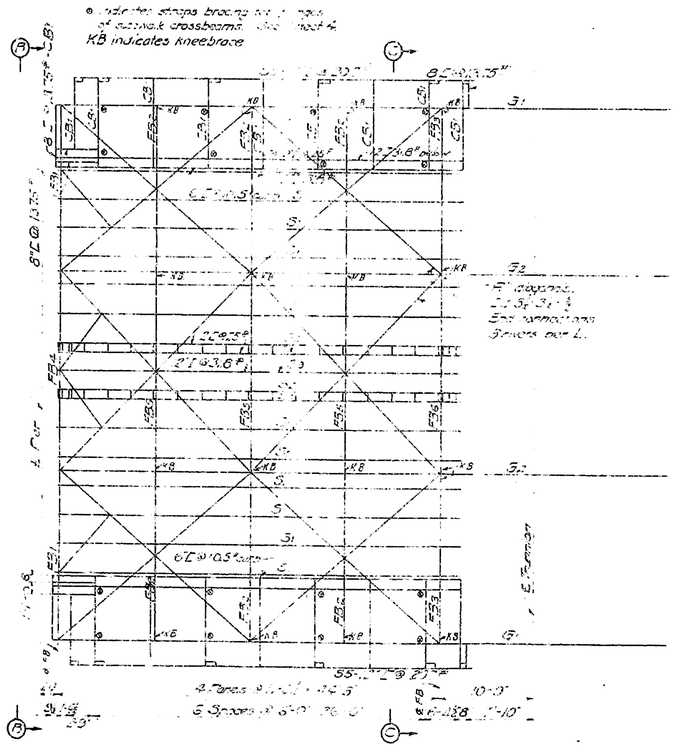
TRAFFIC GATES

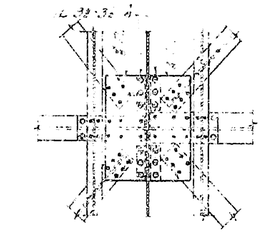
SCALE 1/2"&1"=1'-0" | DES. BY [illegible] | DRAWN BY [illegible] | CHECKED BY [illegible] | DATE [illegible]

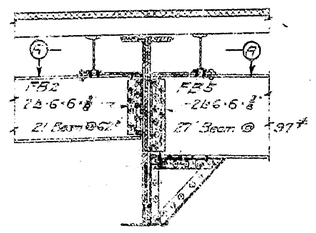
A.E.M. HOWARD - STATE ROAD ENGINEER - DOVER, DELAWARE

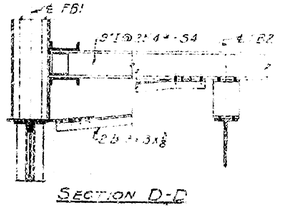
SHEET NO. 8

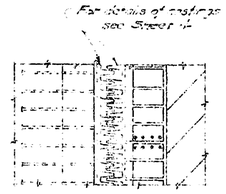


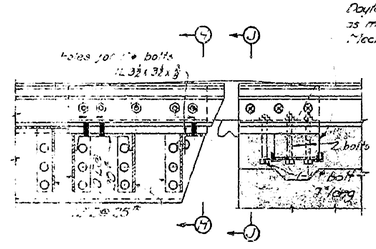


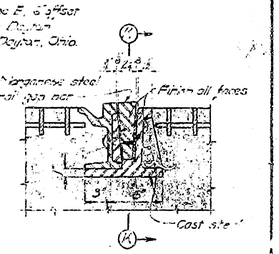


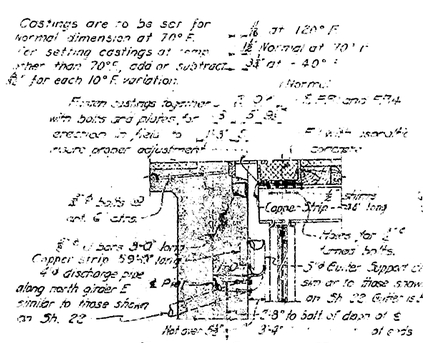


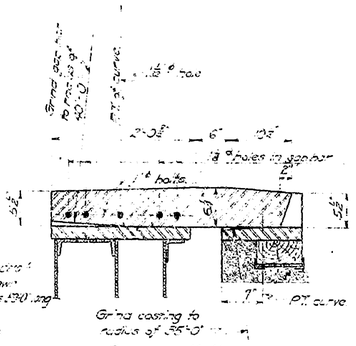


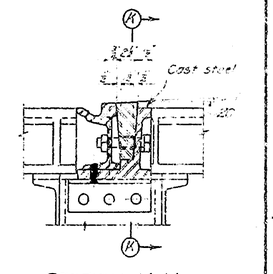


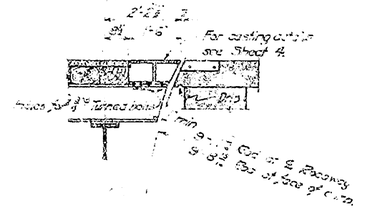












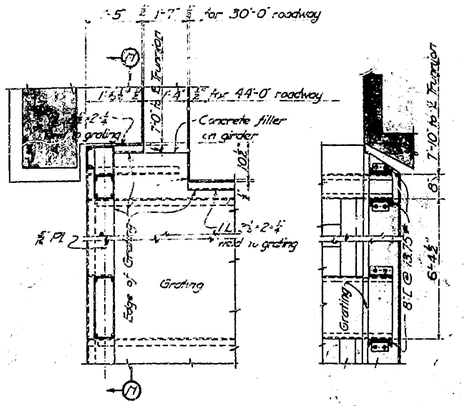
Notes.
For General Notes on structure see Sheet 4.
For rail break at pier 3 see Sheet 4.
Bolts and plates used in erecting finger castings are temporary and not included in bolt quantities.

FOR INFORMATION ONLY

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

BASCULE SPAN
FLOOR AND LATERALS



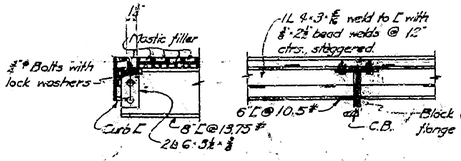
REAR SIDEWALK BREAK

SECTION M-M

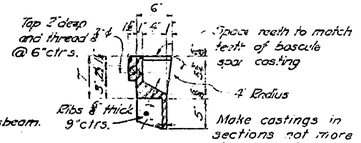
SIDEWALK GRATING

Vertical straight bars 1⅛"×⅛" @ 2½" ctrs. Use 2¾"×⅜" horizontal bars between upper ⅝"×⅜" type M reticuline bars and lower ¾"×⅜" type T reticuline bars. Fill with M cement mortar above horizontal bars.

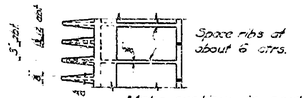
Attach grating to all crossbeams with standard clips C2 of 2.5" centers. Above types and numbers refer to grating manufactured by Irving Iron Works Company, Long Island City, N.Y. Use Irving grating or approved equivalent. Gratings with the lower reticuline bars omitted will be accepted if the 2¾"×⅜" horizontal bars are adequately welded to the vertical bars.



CURB CONNECTION TO CROSSBEAM
1"=1'-0"

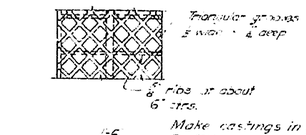


TOOTH CASTING
APPROACH SPAN
1"=1'-0"
(Cast Steel)



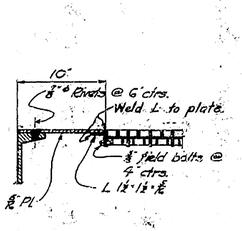
Material - Cast steel

TOOTH CASTING
BASCULE SPAN
1"=1'-0"

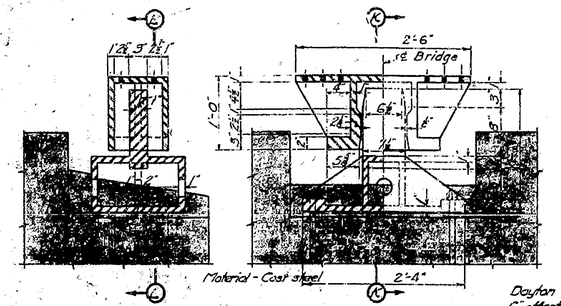


Material - Cast steel

REAR BREAK CASTING
1"=1'-0"



SECTION M-M



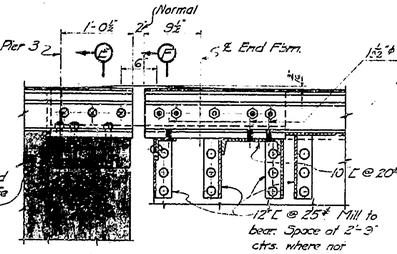
Material - Cast steel

SECTION K-K

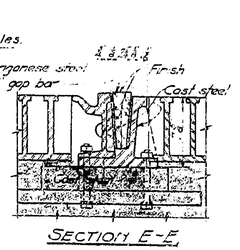
HALF SEC. L-L

HALF END VIEW

CENTERING CASTINGS
Scale 1"=1'-0"



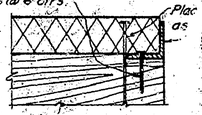
SECTION G-G



SECTION E-E

Dayton steel tie, Type E, 6" offset, as manufactured by Dayton Mechanical Tie Co., Dayton, Ohio.

2½" Helyx flat-headed nails m'f'g'd. by Hillwood Mfg. Co., Cleveland, Ohio. Nails @ 6" ctrs.



DETAIL AT EDGE OF ROADWAY

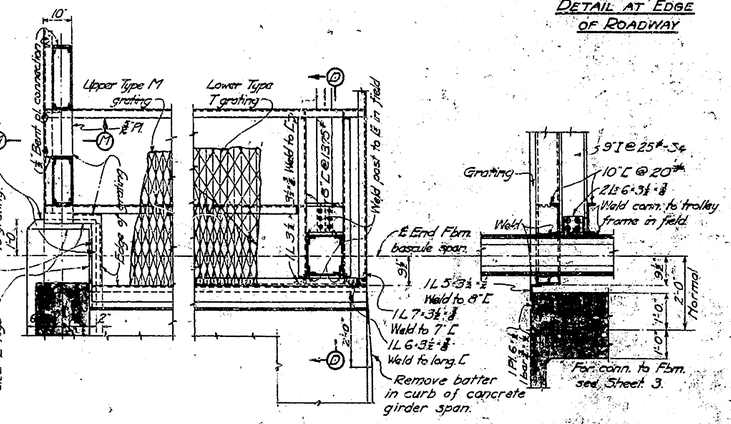
NOTES:

All floor timbers to be Southern Long Leaf Yellow Pine, surfaced four sides, (treated - see Specifications) bent over tops of stringers to conform to crown of roadway. Top of timber deck shall present a smooth surface. Fill all depressions flush with asphalt filler. Fasten floor planks to stringers as follows:

Use 1-⅞" ϕ bolt thru each end of all timbers. Also fasten each timber to alternate stringers with one ⅞" ϕ bolt. Bolts to be staggered about ℄ of stringers, with beveled washers under heads below flanges and O.G. malleable iron washers at top under nuts in counter-bored holes in planks filled with asphalt. Attach each timber to each adjacent timber with ½" ϕ headless drift bolts about 15" long at about 12" centers driven into ½" ϕ holes bored in field. Place bolts on vertical ℄ of timber and stagger in alternate timbers.

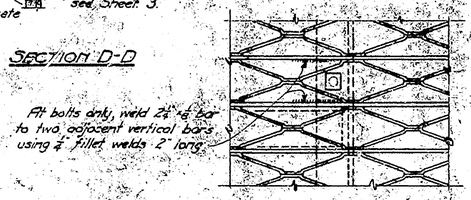
All bolts, nuts, washers, nails, drift bolts for attachment of floor plank and all edge angles are to be galvanized or cadmium plated. See Specifications.

Castings both sides of joint at toe end of bascule span are to be assembled in shop in proper relative position to insure correct clearances and true top surfaces, and matchmarked. Adjust to give 6" minimum lateral clearance in extreme closed position. Finish sides of teeth and top surfaces of casting if necessary. Top surface of castings shall not vary more than ⅛" measured from a straight edge representing the chord to which the top of casting is to conform. Any greater variation than ⅛" is to be remedied by grinding or finishing. Roadway expansion castings are to be galvanized, hot dipped. All bolts and nuts for attachment of castings on bascule span are to be galvanized.

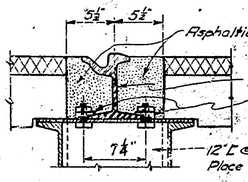


PLAN, SHOWING HANDRAIL POST AND TROLLEY FRAME CONNECTIONS

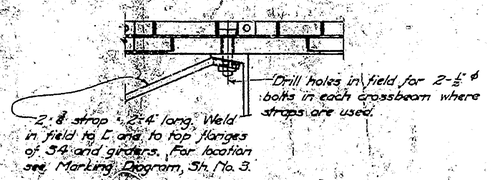
SECTION D-D



Pit bolts only, weld 2¼"×⅜" bar to two adjacent vertical bars using ¼" fillet welds 2" long.



RAIL FASTENING
1½"=1'-0"



METHOD OF FASTENING GRATING
3"=1'-0"

GENERAL NOTES:

All rivets ⅞" ϕ unless noted otherwise.

Open holes 1⅛" ϕ unless noted otherwise.

For general requirements regarding punching, reaming, painting, and shop practice, see Specifications. In order to avoid oversight these requirements shall be clearly noted on the shop drawings.

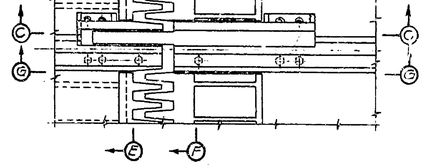
Rivet pitch not to exceed 6" or 16 times the thickness of the thinnest outside plate or angle connected except in angles having two gauge lines with rivets staggered, where the pitch in each line may be twice the above, with a maximum of 10 inches.

Members composed of two angles in contact shall be stitch-riveted, using a pitch not greater than 12".

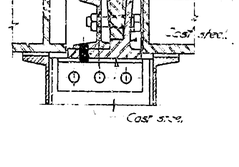
Normal dimensions are at 70° F.

Provide suitable washers under nuts of all anchor bolts.

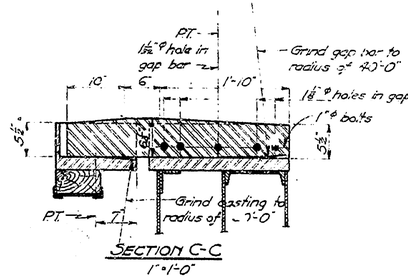
Sections marked "I" are American standard I-beams. Sections marked "Beam" are Carnegie or Bethlehem beam sections.



PLAN OF BREAK AT PIER 3
1"=1'-0"



SECTION C-E
1"=1'-0"



SECTION C-C
1"=1'-0"

Note

Rails, fastenings and rail break castings are to be furnished and installed by the street railway company. Ties also furnished and installed by street railway company. See specifications.

RAIL BREAK AT PIER 3

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

30 AND 44 FOOT ROADWAYS

BASCULE SPAN FLOOR

SCALE ½"=1'-0" Unless Noted
MADE BY G.A. DATE 2-3-31
TRACED BY M.E.M. DATE 3-3-31

INSIDE GIRDER G2

SECTION A-A

MASONRY PLATE

OUTSIDE GIRDER G-1

Scale ¼" = 1'-0"

Details not shown same as for G-2

Notes:

Rivet pitch in vertical legs of flange Ls to be same in top and bottom flanges unless otherwise shown or noted. Cover plates to be riveted with 5" alternate spacing except as shown or noted and at ends of cover plates where 3" spacing shall be used for a distance of 2'-6".

All floorbeams and stiffener Ls vertical.

Dimensions given are horizontal or vertical measurements unless otherwise shown or noted.

Trunnion shaft to be turned for shrinkage fit in girder. See Sheet 20.

Do not paint portions of girders in contact with concrete.

For General Notes on steel see Sheet No. 4.

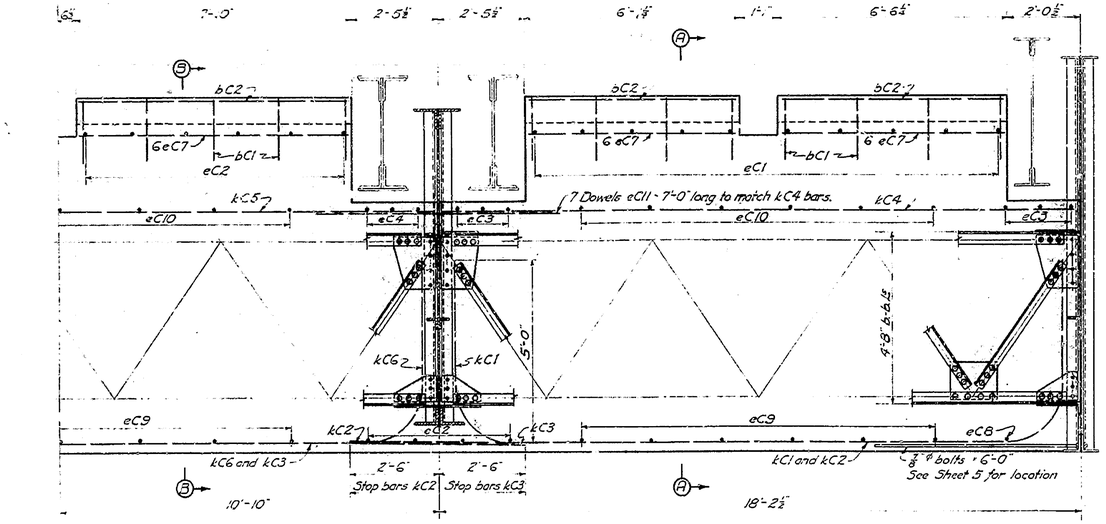
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

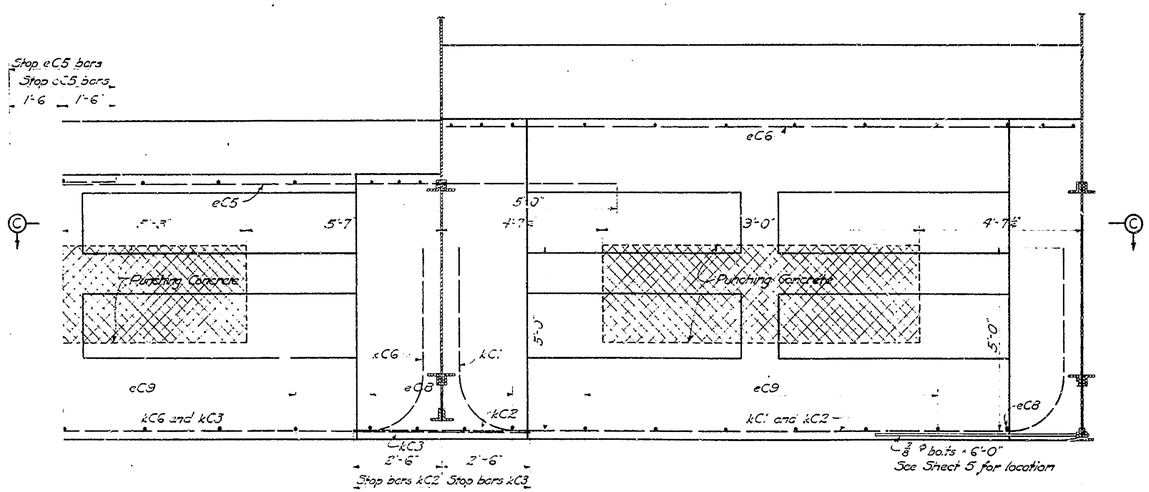
BASCULE SPAN-GIRDERS

Scale ½" = 1'-0" Unless Noted
Made by J.P.E. Date 8-12-31
Traced by M.E.M. Date 8-28-31

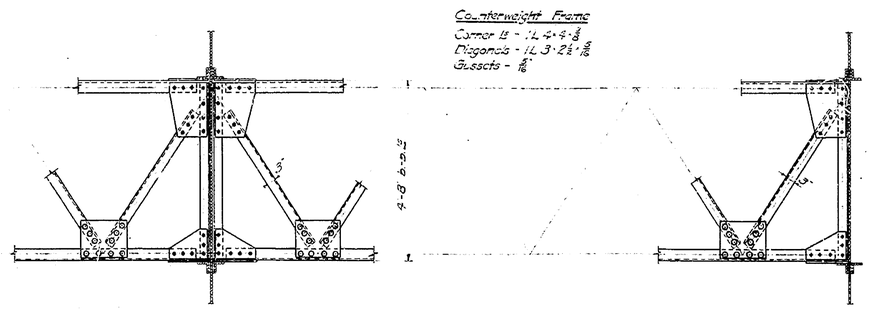
Ash Howard Needles & Tammen
Consulting Engineers
Kansas City New York



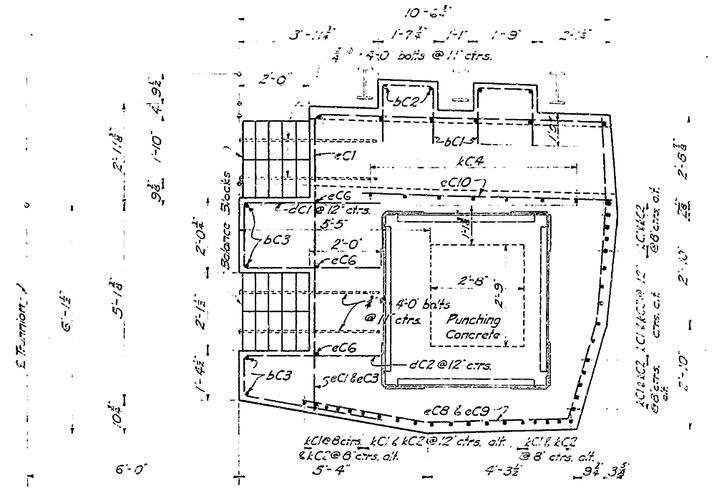
HALF SECTION C-C



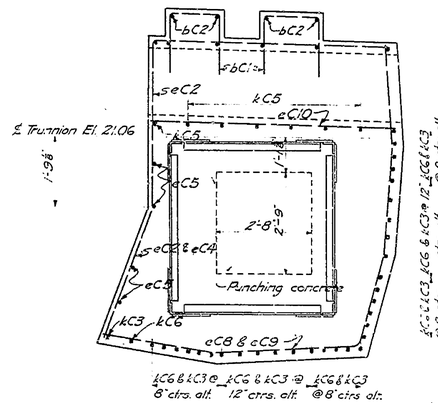
HALF PLAN



HALF PLAN OF COUNTERWEIGHT FRAME

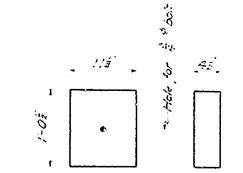


SECTION A-A



SECTION B-B

Dimensions not shown same as for Section A-A



CAST IRON BALANCE BLOCKS

Scale 1" = 1'-0"

BAR MARKING TABLE

Mark	Size	Mark	Location
b	1" ϕ	C	Counterweight
d	0.6" ϕ		
e	0.9" ϕ		
k	Various ϕ		

COUNTERWEIGHT BALANCE TABLE

	Item	Weight	Horizontal Moment about ℄ Trunnion		Vertical Moment about ℄ Trunnion	
			Arm	Moment	Arm	Moment
Moving Leaf except Ctwt. and Balance Blocks	Structural Metal and Castings	234 300	+21.8	+5 107 100	+ 2.76	+649 400
	Rails, rail joints and Fastenings	5 000	+31.6	+ 158 400	+ 5.01	+ 25 100
	Timber floor @ 22.0# per sq. ft.	41 600	+32.8	+1 363 000	+ 4.98	+207 100
	Asphalt plank @ 16.2# per sq. ft.	30 800	+32.5	+1 008 000	+ 5.15	+158 400
	Sidewalk Mastic and Grating	21 300	+34.6	+ 737 300	+ 5.09	+108 500
	Mastic fill along rails & exp. jts. @ 150#/cu. ft.	4 300	+32.5	+ 139 800	+ 5.05	+ 21 700
	Concrete over girders @ 150#/cu. ft.	7 300	+ 1.46	+ 10 700	+ 5.04	+ 36 800
	TOTAL	344 600	+24.75	+8 524 300	+ 3.50	+1 207 000
Ctwt. and Balance Blocks	Stone Concrete 3877 cu. ft. (Net) @ 155.5#/cu. ft.	600 900	- 12.0	-7 219 400	- 1.58	- 952 300
	Punching Concrete 183 cu. ft. @ 300#/cu. ft.	54 900	- 12.75	- 700 000	- 2.52	-138 500
	Reinforcing steel in Ctwt.	23 800	- 12.9	- 307 000	- 3.15	- 75 000
	Cast Iron Balance Blocks @ 490#/cu. ft.	42 200	- 7.06	- 297 900	- .97	- 41 200
		721 800	- 11.82	-8 524 300	- 1.67	-1 207 000

GENERAL NOTES ON COUNTERWEIGHT:

Counterweight shall be made of Class B concrete weighing about 155 # per cu. ft. with the exception of the volume occupied by cross bracing which shall consist of layers of two punchings consolidated with a coat of cement and two coats of sand. This punching concrete shall weigh about 300 # per cu. ft.

The monolithic portion of concrete counterweight with its reinforcing steel shall be made to balance, as closely as possible, 95 2/3 % of the moving leaf other than the counterweight and its reinforcing so that moments about ℄ Trunnion will be zero.

The remainder of the moving leaf shall be balanced by movable cast iron balance blocks. Sufficient space is provided for adjustment from 95 % down to 91 % and the calculated moment. Blocks shall be furnished in increments for combination. When an accurate balance is attained, blocks shall be secured in place by grouting and bolting to their portion.

Balance blocks shall not be less than 92 % of calculated moment.

The contractor shall furnish calculations showing the required weight, dimensions and center of gravity of counterweight with moments about horizontal and vertical axes as provided in the Specifications.

For General Notes on Concrete see Sheet 13.

For General Notes on Steel see Sheet 4.

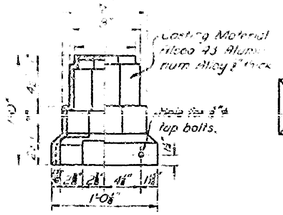
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

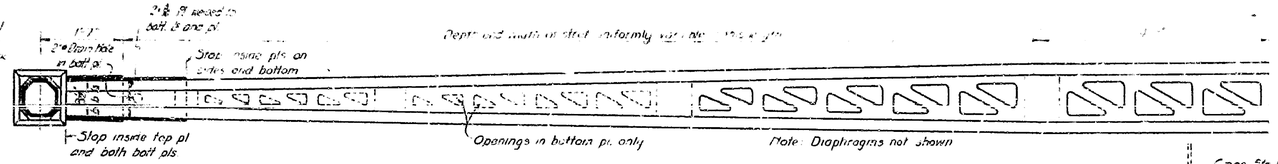
COUNTERWEIGHT AND COUNTERWEIGHT FRAME

DESIGN & DETAIL Unless Noted
WORK BY LEE & FARGO, 1931
TRACED BY M.E.M. — 8-31-3

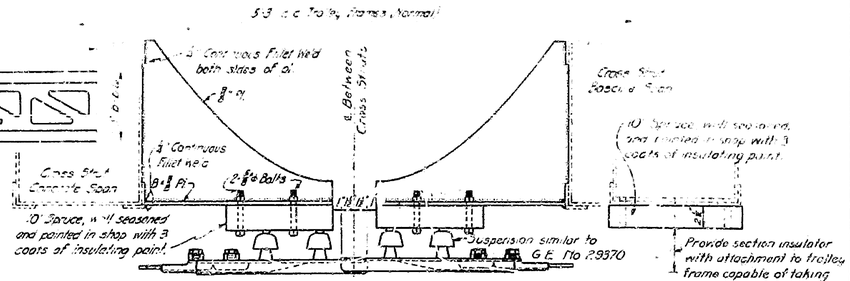
HOWARD NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK



CASTING AT TOP OF POLE
Scale 12"=1'-0"

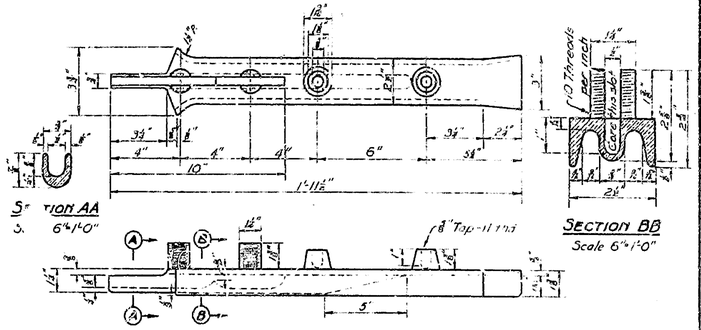


TOP VIEW OF TROLLEY FRAME

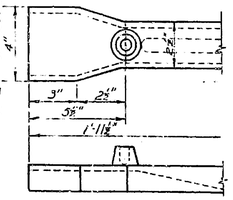


TROLLEY BREAKER AT PIER 3
Scale 12"=1'-0"

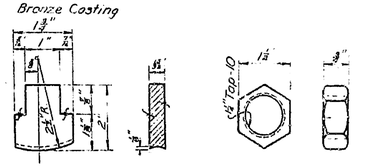
TROLLEY SUPPORT AT WEST END OF SPAN 5



TROLLEY PAN - SPAN 3
Scale 3"=1'-0"
Bronze Casting

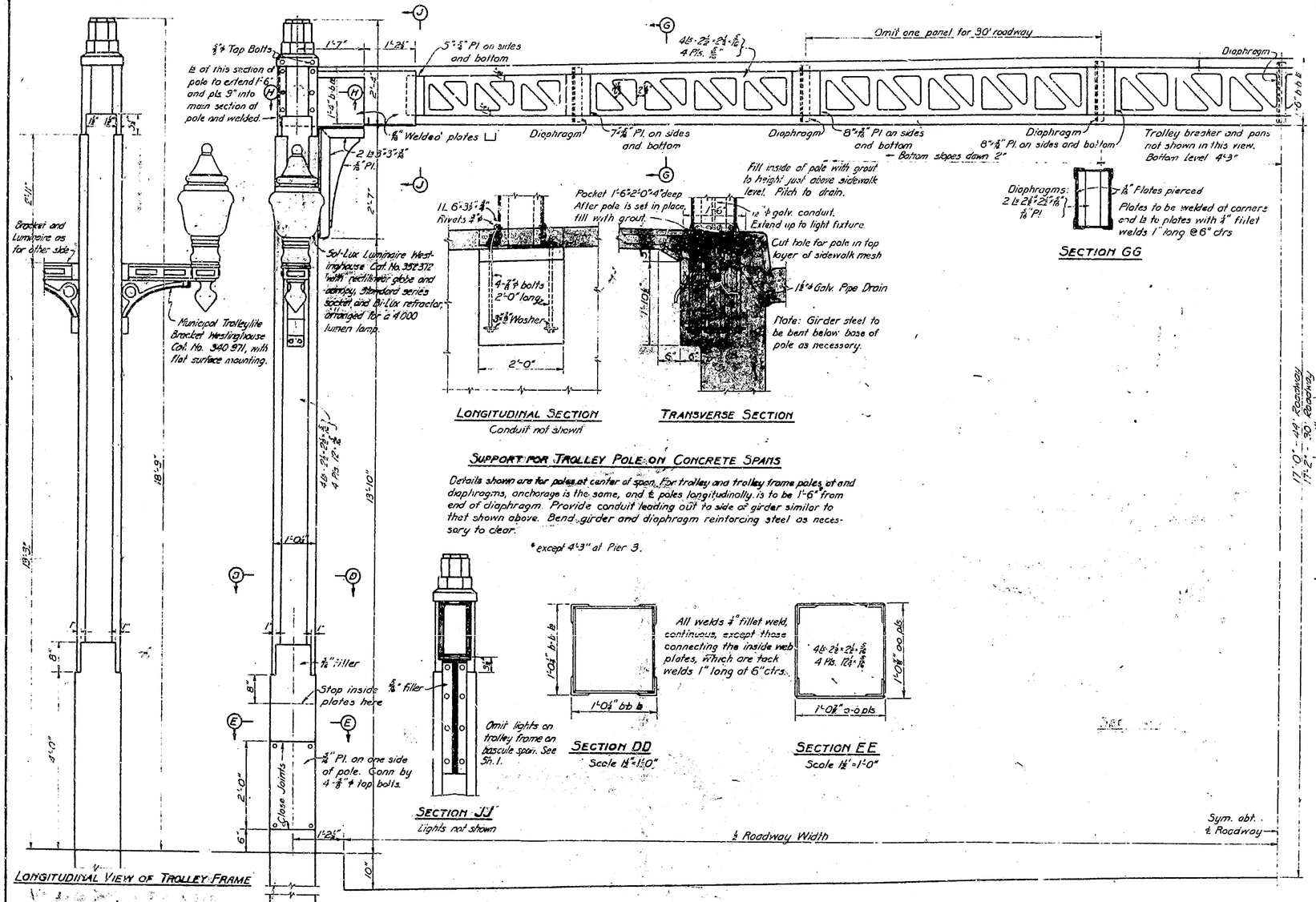


TROLLEY PAN - BASCULE SPAN
Details not shown same as other pan.



WIRE CLAMP
Cast Iron - 4 req'd.
Scale 6"=1'-0"

CLAMPING NUT
Brass Casting - 4 Req'd.
Scale 6"=1'-0"



LONGITUDINAL VIEW OF TROLLEY FRAME

LONGITUDINAL SECTION
Conduit not shown

TRANSVERSE SECTION

SECTION GG

SUPPORT FOR TROLLEY POLE ON CONCRETE SPANS

Details shown are for poles at center of span. For trolley and trolley frame poles at end diaphragm, anchorage is the same, and ℄ poles longitudinally is to be 1'-6" from end of diaphragm. Provide conduit leading out to side of girder similar to that shown above. Bend girder and diaphragm reinforcing steel as necessary to clear.

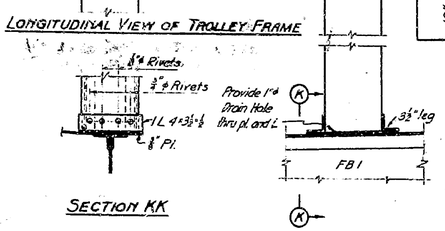
*except 4'-3" at Pier 3.

SECTION JJ
Lights not shown

SECTION DD
Scale 12"=1'-0"

All welds 1/4" fillet weld, continuous, except those connecting the inside web plates, which are tack welds 1" long at 6" ctrs.

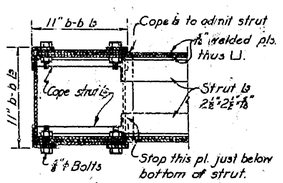
SECTION EE
Scale 12"=1'-0"



SECTION KK

SUPPORT FOR FRAME ON BASCULE SPAN

Shown for 44' roadway. Conn. for 30' roadway same except FB 4 are 8"x8"x3/4". For further details see Shs. 3 and 4.



SECTION HH
Scale 12"=1'-0"

Showing details of top section of pole at trolley frame only.

HALF ELEVATION OF TROLLEY FRAMES

TROLLEY POLE same as poles of trolley frames except omit details pertaining to connection of cross strut and provide holes through poles near top for connection of cross wire supports.

NOTES:

For general notes on steel see sheet 4.

For locations of trolley frames and trolley poles see sh 1.

Provision shall be made as shown on sh. 21 for disconnecting the trolley wire on span 5 from the trolley wire on the bascule pier when the traffic signals are set against traffic. See Specifications.

Trolley frames and trolley poles to be painted with aluminum paint

Alcoa castings to have polished finish. All bolts passing through Alcoa, together with nuts, to be cadmium plated, thickness of plating to be .0005".

Trolley poles, conduit for lighting cables and lighting fixtures to be provided under this contract. Lamps and wiring therefor to be furnished and installed by the power company.

Trolley pans, clamp, blocks, wire, and all attachments to be furnished and installed by the street railway company. Trolley frames to be provided under this contract.

All poles and trolley frames to be set so as to be vertical, allowance being made in setting for pull in trolley wires and cross wires.

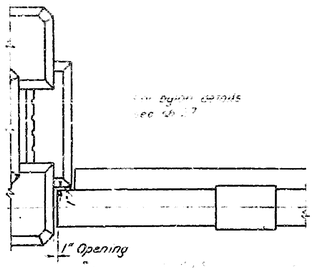
Trolley frames and trolley poles to be of copper-bearing steel, with a minimum copper content of 0.20%.

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

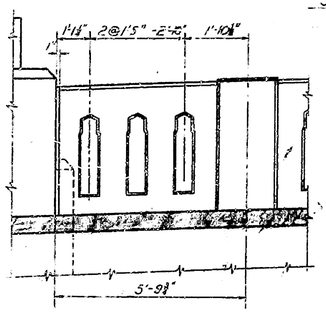
30 AND 44 FOOT ROADWAYS

TROLLEY FRAMES AND POLES

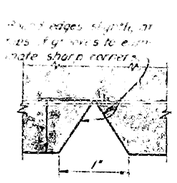
SCALE 3"=1'-0" Unless Noted — AEM-HOWARD ... ENGINEERS AND ARCHITECTS
MADE BY JK — DATE 8-11-31 — CONSULTING ENGINEERS
TRACED BY JBS — DATE 8-11-31 — KANSAS CITY — NEW YORK



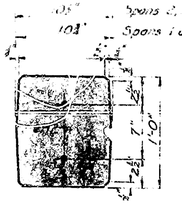
PLAN OF RAILING AT ABUTMENT



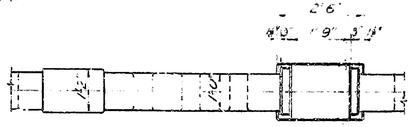
RAILING ADJACENT TO ABUTMENTS



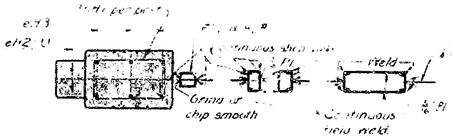
GROOVE IN POSTS
Scale Full Size



SECTION A-A
Scale 1½"=1'-0"



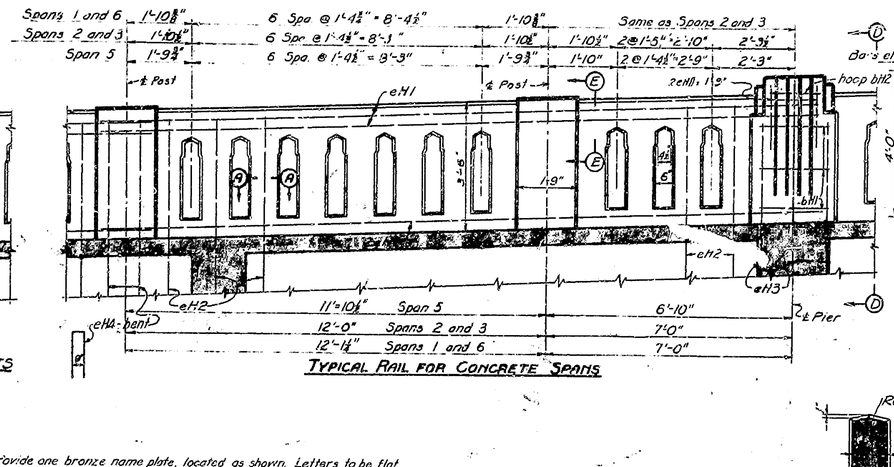
PART PLAN OF CONCRETE RAIL



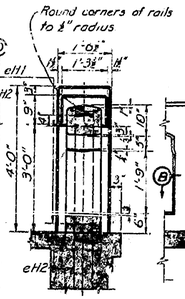
SECTION B-B

PART PLAN OF STEEL RAIL

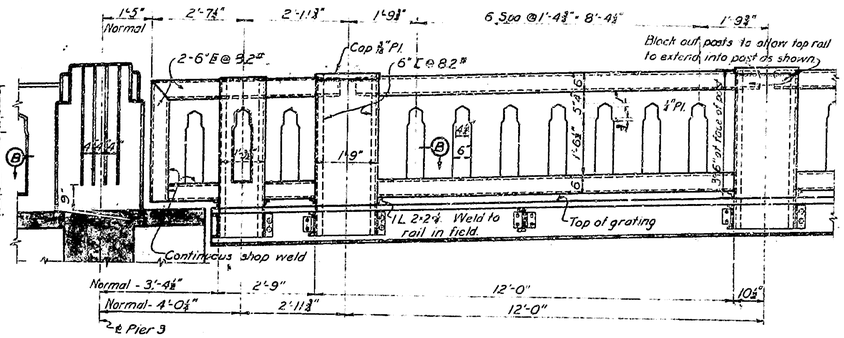
Use ¼" fillet welds for steel rail



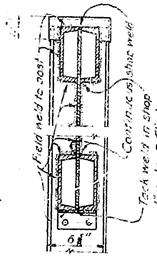
TYPICAL RAIL FOR CONCRETE SPANS



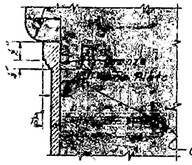
SECTION D-D



TYPICAL RAIL FOR BASCULE SPAN

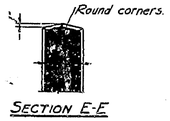


RAIL CONNECTION TO POST
Scale 1½"=1'-0"

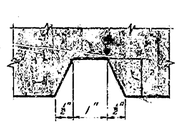


Provide one bronze name plate, located as shown. Letters to be flat top, "Classic Style". Tops of letters and border to be smooth finish. Background of hard matted surface (stippled effect) oxidized dark. Plate to be cast in one piece of statuary bronze. Exact size and inscription will be furnished later. Contractor to submit full size rubbing for approval. Payment will be made by pound price; weight of plate included with structural metal.

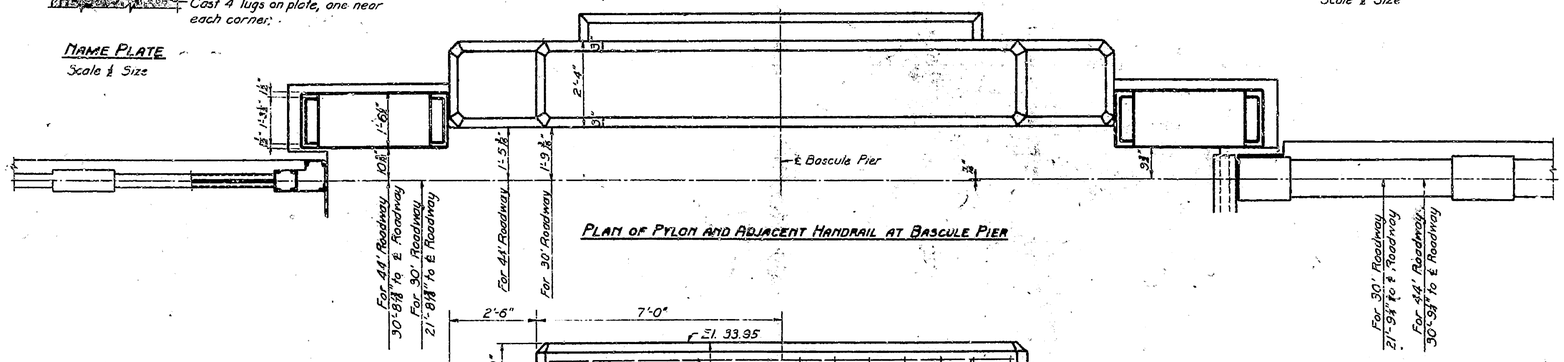
NAME PLATE
Scale ½ Size



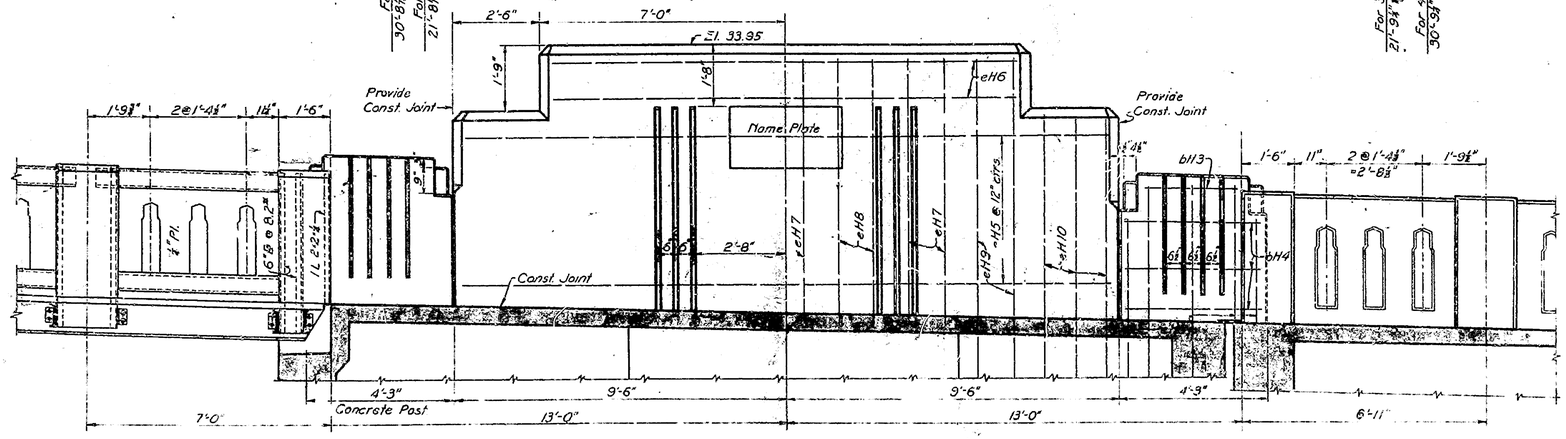
SECTION E-E



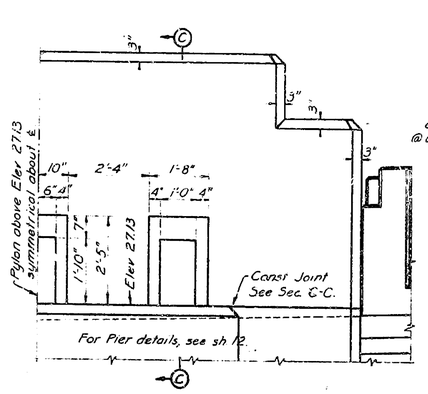
GROOVE DETAIL FOR PYLON AT BASCULE PIER
Scale ½ Size



PLAN OF PYLON AND ADJACENT HANDRAIL AT BASCULE PIER



ELEVATION OF PYLON AND ADJACENT HANDRAIL AT BASCULE PIER



HALF OUTSIDE ELEVATION OF PYLON AT BASCULE PIER

SECTION C-C

NOTES:

For general notes on steel, see sh 4
For general notes on concrete, see sh 23
Concrete in handrail and pylon to be Class A. See Specifications.
Distance from face of concrete to ℄ of reinforcing bars to be not less than 2½" for all bars in handrail and pylon. Particular care shall be taken in placing reinforcing to insure that this minimum distance is maintained.
Posts and openings in rail to be vertical. Rail on bascule span is to be straight between posts; rail on concrete spans is to follow crown of roadway.
All exposed corners of handrail and pylon to be chamfered ¾"-45° unless otherwise shown or noted.
For finish of handrail and pylon see Specifications. Finish of tops of posts and pylon to be such as to provide drainage.
Vertical bars in handrail and pylon to extend 2'-9" below construction joint at top of sidewalk except as otherwise shown or noted.

BAR MARKING TABLE

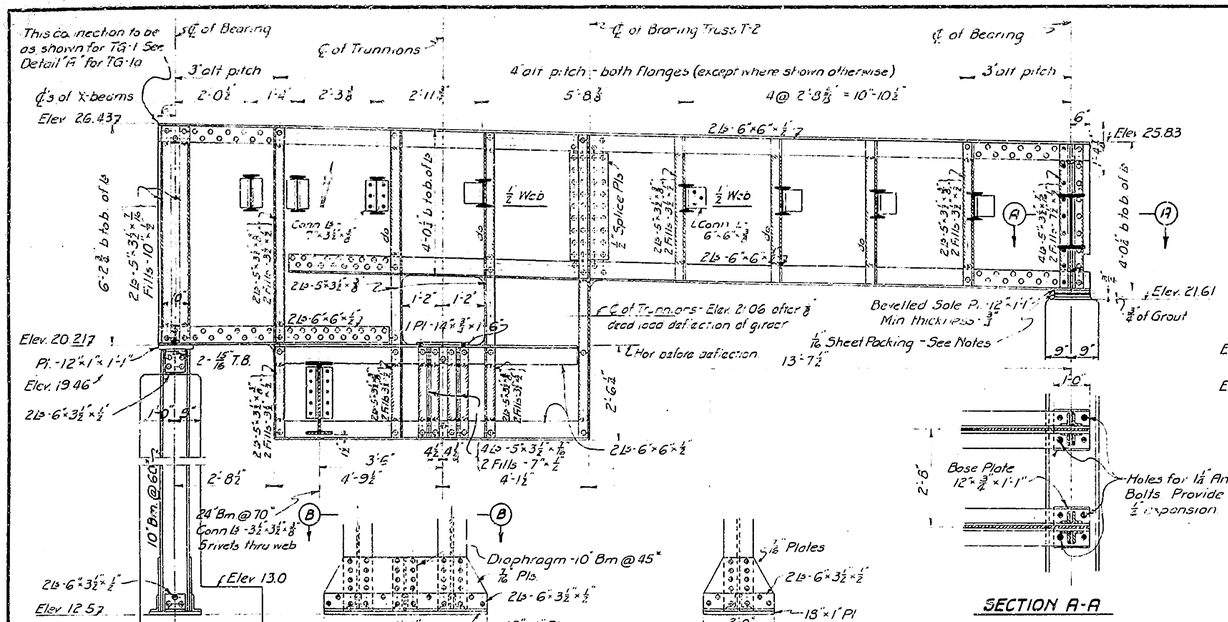
Mark	Size	Mark	Location
b	⅝	H	Handrail
c	¾		

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

30 AND 44 FOOT ROADWAYS

HANDRAILS ON SPANS

SCALE ½"=1'-0" Unless Noted
DRAWN BY G.A.
CHECKED BY J.B.S.



DETAIL "A"
(To be used for TG-1a only)

Notes on Trunnion Girders:-

Girder TG-1 -

Girder flanges (back of ℄ of trunnions) are to be parallel.

Top flanges of all crossbeams shown are to be set 1-1 1/2" below crown of roadway.

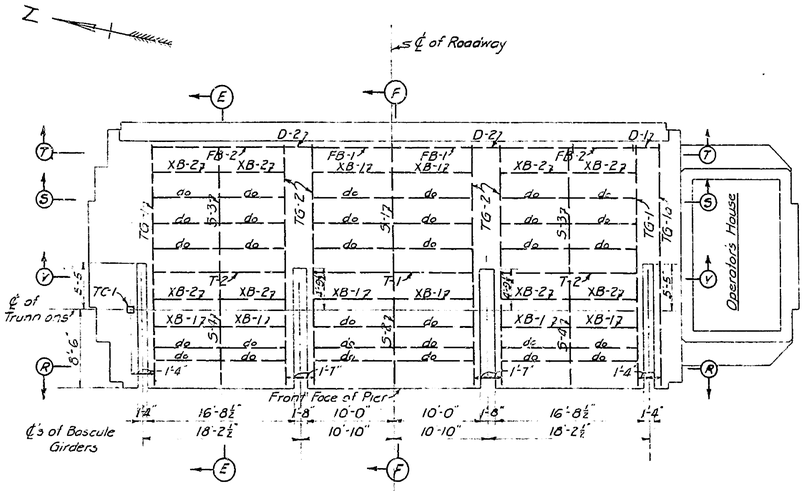
Stiffeners under trunnion bearings are to be ground to bear at top.

Girder TG-2 -

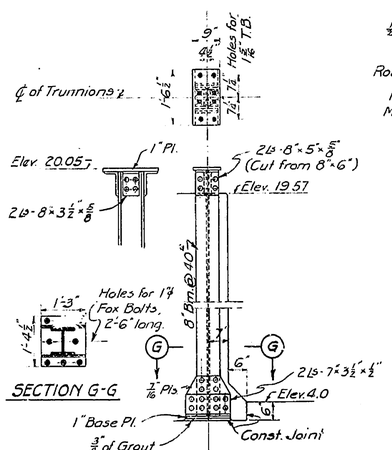
Top girder flange is to be parallel to crown of roadway. Bottom flange may be made straight. Rivet pitch in cover plates to be 3" for a distance of 2'-0" from each end, and 6" over remainder of length.

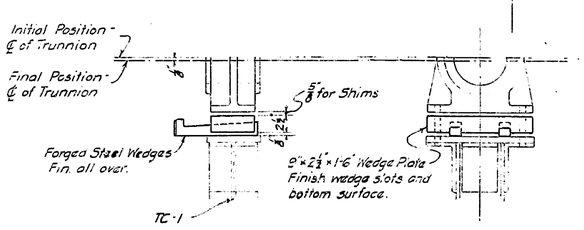
Top flanges of crossbeams are to be set flush with backs of top flange angles.

Stiffeners under trunnion bearings to be ground to bear at top.



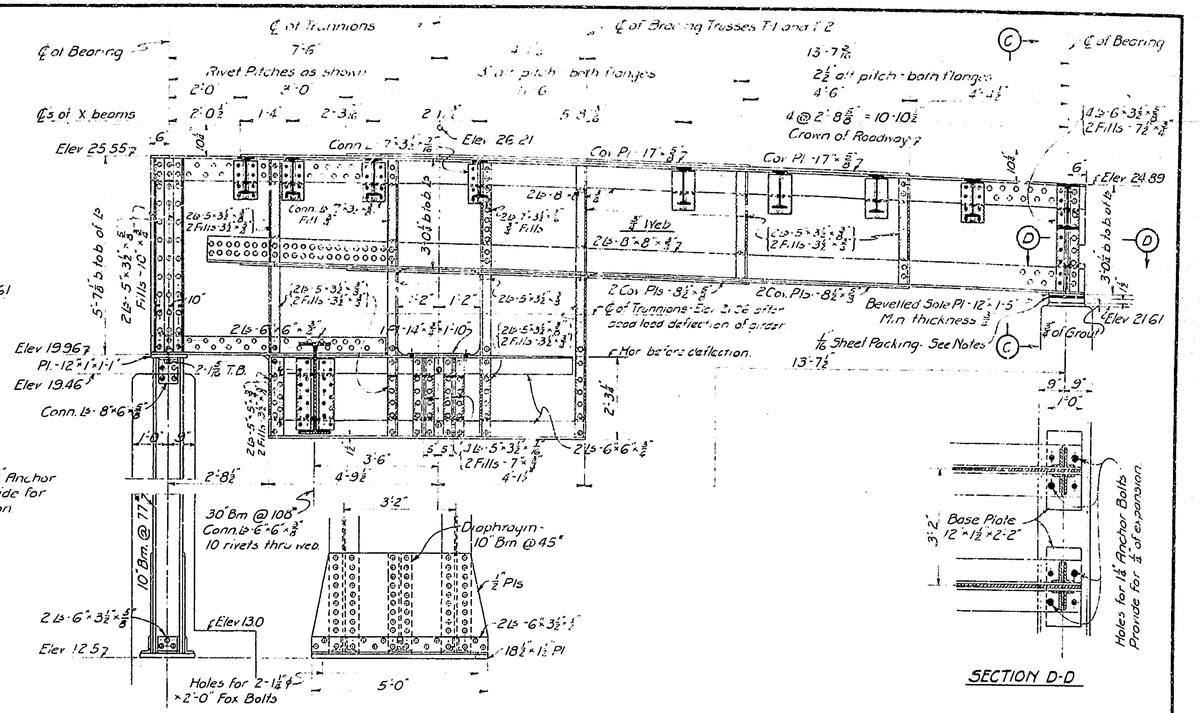
PLAN

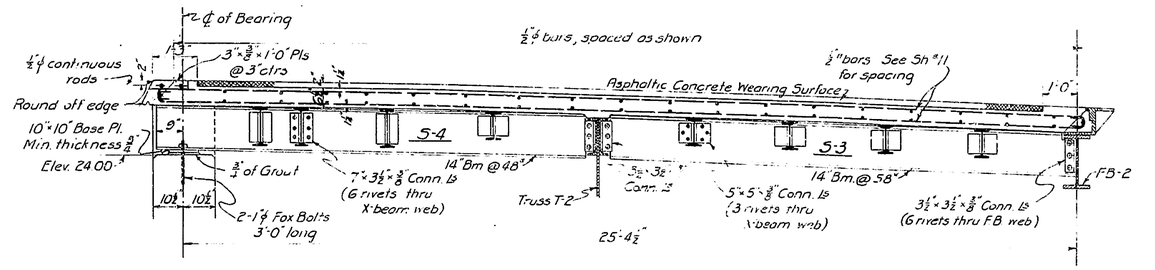


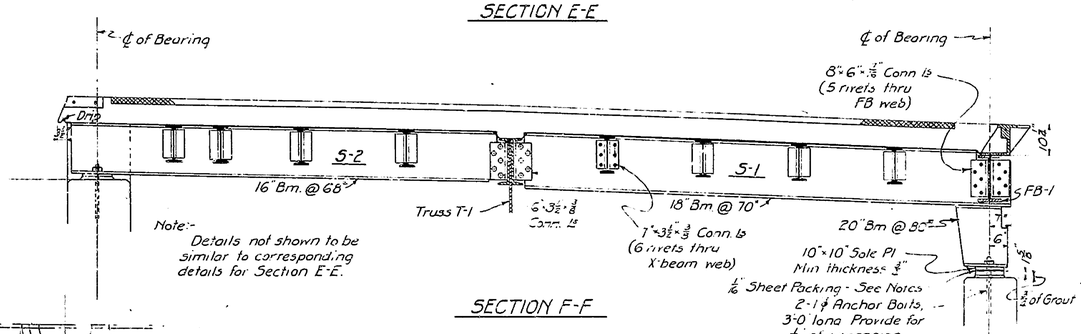


Before starting erection of bascule, wedges are to be set so that there is 5/8" clear between wedge plate and sole plate on column. As erection progresses, the wedge plate is to be lowered, by driving wedges, until wedge plate rest upon sole plate, after which bearing is to be bolted to column.

METHOD OF RAISING TRUNNION BEARING ON TC-1 DURING ERECTION







Note:- Details not shown to be similar to corresponding details for Section E-E.

SECTION F-F

NOTES:-

See Sheet No. 4 for General Notes.

See Sheet No. 11 for Sections R-R, S-S, and T-T.

See Sheet No. 11a for Section V-V.

Concrete fills are to be provided as may be required over stringers, crossbeams, and trunnion girders.

Wherever sheet packing is called for on this sheet, use one layer of 1/8" Johns-Manville asbestos sheet packing No. 60.

All concrete hereon to be Class B. See Specifications.

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON, DELAWARE

FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

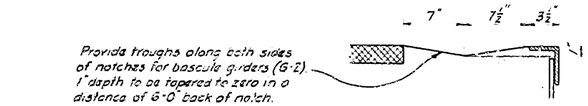
STEEL FRAMING - BASCULE PIER

SCALE 1/8"=1'-0" Unless Noted — AGH HOWARD NEEDLES & TAMMEN CONSULTING ENGINEERS NEW YORK

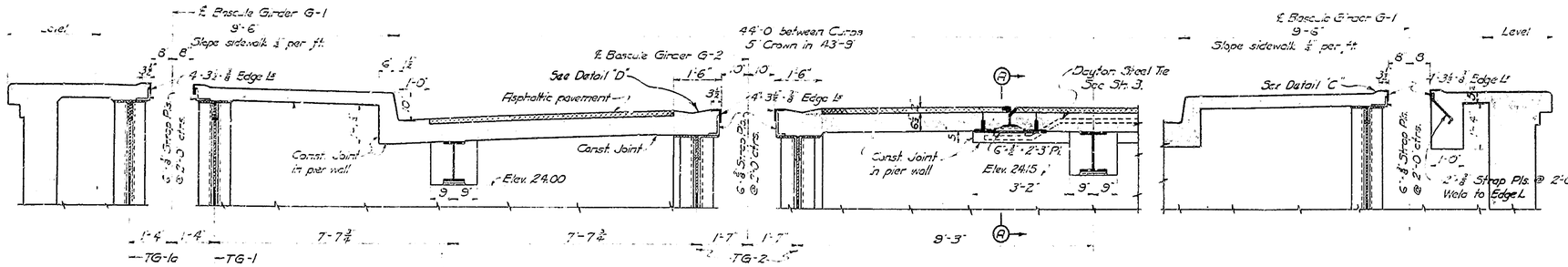
MADE BY P.A.U. DATE 8-15-31

TRACED BY P.A.U. DATE 8-27-31

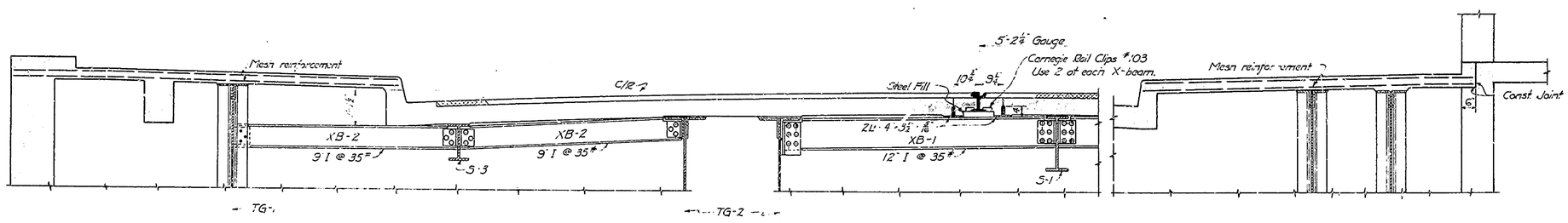
RANSOM CITY



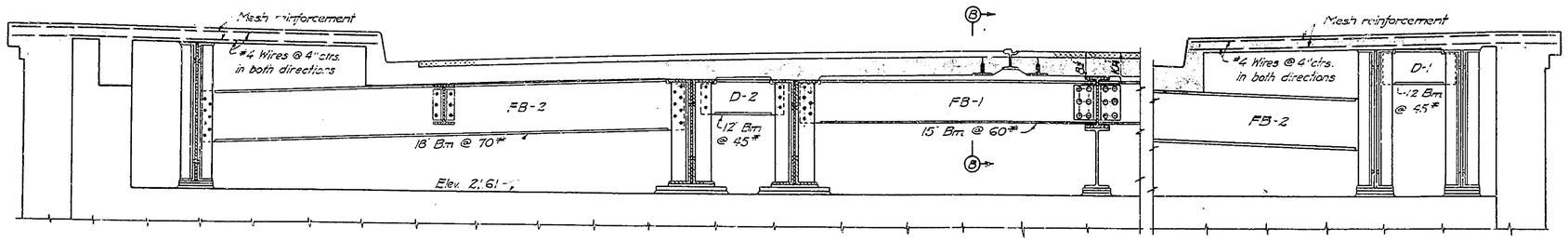
DETAIL "D"
Scale - 1½"=1'-0"



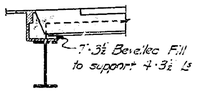
SECTION R-R



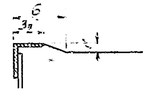
SECTION S-S



SECTION T-T

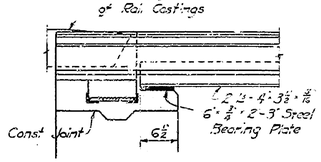


SECTION B-B



DETAIL "C"
Scale - 1½"=1'-0"

Sidewalk to be raised as shown around edges of bascule girder notches. Raise to be tapered to zero in a distance of 9'-2" front of bascule pier



SECTION A-A

NOTES:

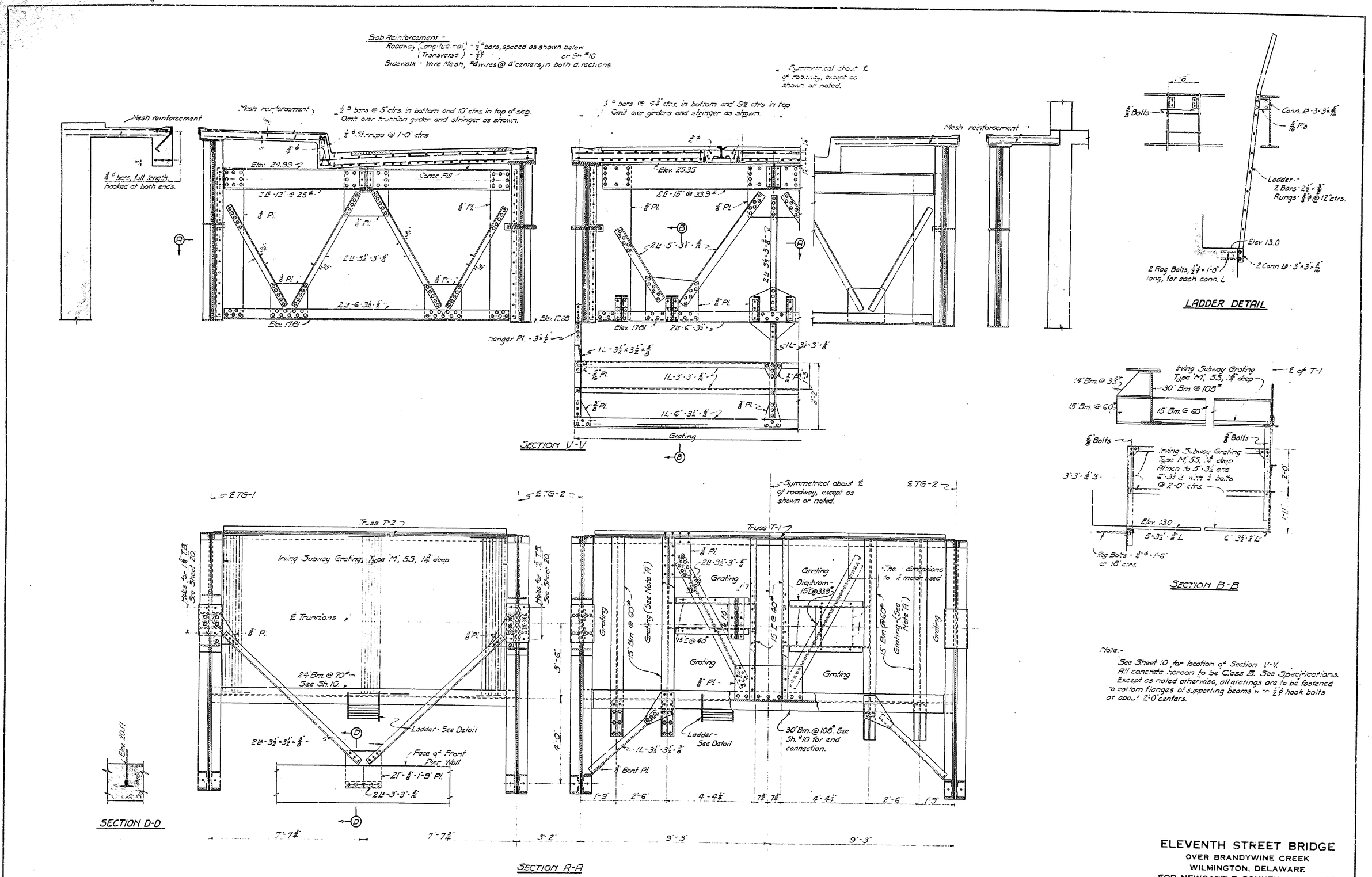
See General Notes on Sheet 4.
See Sheet 10 for location of Sections R-R, S-S, and T-T.
Sidewalk slabs are not to be poured until trunnion girders are carrying "full dead load" including roadway slab.
All edge Ls are to be welded to supporting strap plates.
Concrete fills are to be provided, where required, over crossbeams, stringers, and trunnion girders.
All concrete thereon to be Class B. See Specifications.

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

STEEL FRAMING AND FLOOR-BASCULE PIER

SCALE 3"=1'-0" Unless Noted — HIGHWAY DEPARTMENT
DRAWN P.A.U. DATE 8-31-31 — STATE HIGHWAY ENGINEER
TRACED M.E.M. DATE 9-10-31. — DOVER, DELAWARE



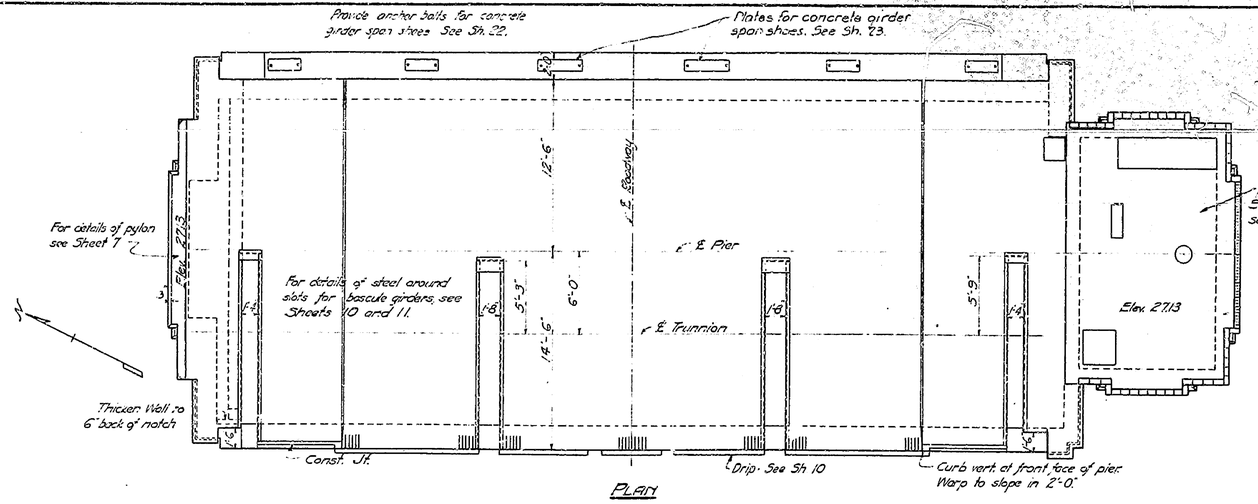
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

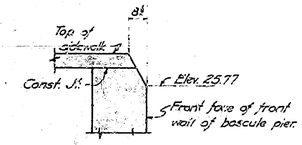
STEEL FRAMING AND FLOOR-BASCULE PIER

SCALE ½" = 1'-0"
MADE BY P.A.U. DATE 9-12-31
TRACED BY M.E.M. DATE 9-14-31

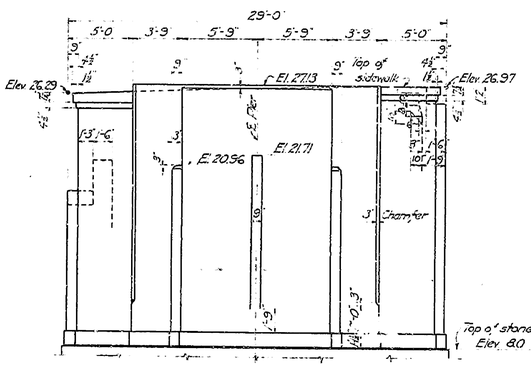
ASH-HOWARD, NEEDLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK



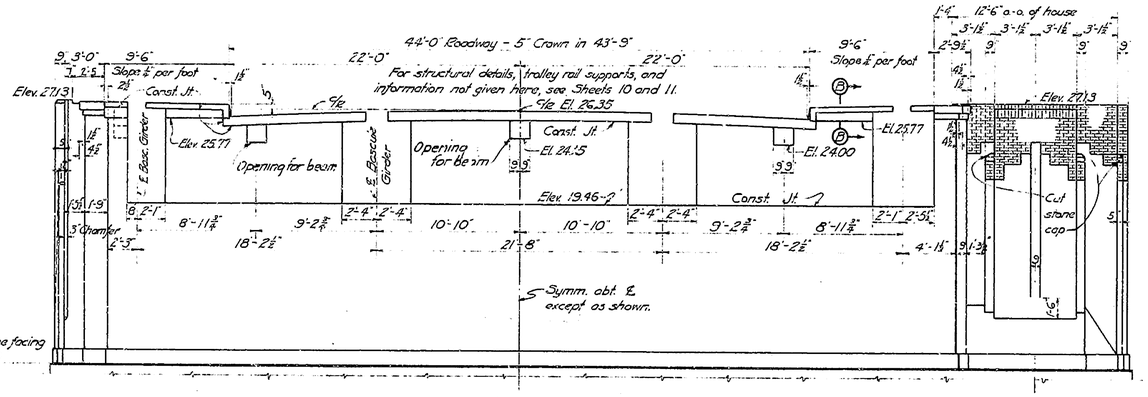
PLAN



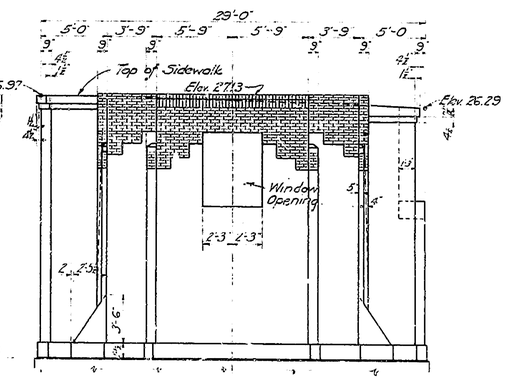
SECTION B-B
1" = 1'-0"



NORTH ELEVATION

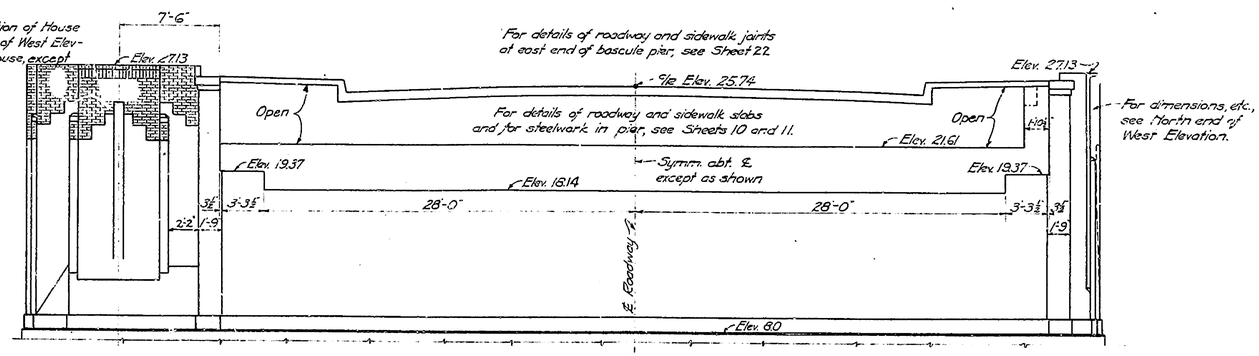


WEST ELEVATION



SOUTH ELEVATION

Note:
East Elevation of House opp. hand of West Elevation of House, except as shown.



EAST ELEVATION

NOTES:
For details of pier see Sheets 13 and 14.
For General Notes see Sheet 13.
Portion of pier below elev 8.0 not shown hereon; see Sh. 13
Except as otherwise shown or noted, all exterior corners to have ¾"×45° bevel.

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

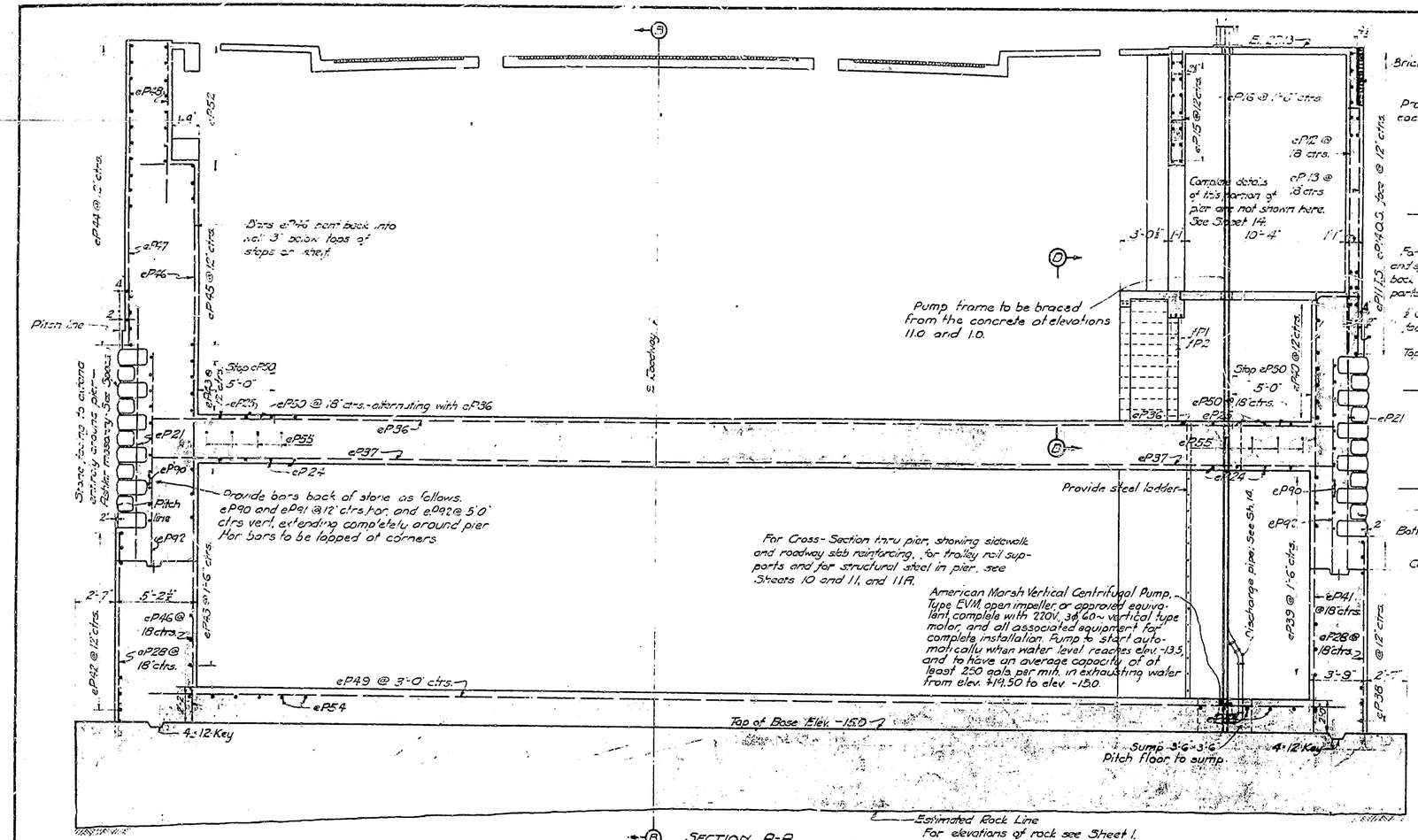
44 FOOT ROADWAY

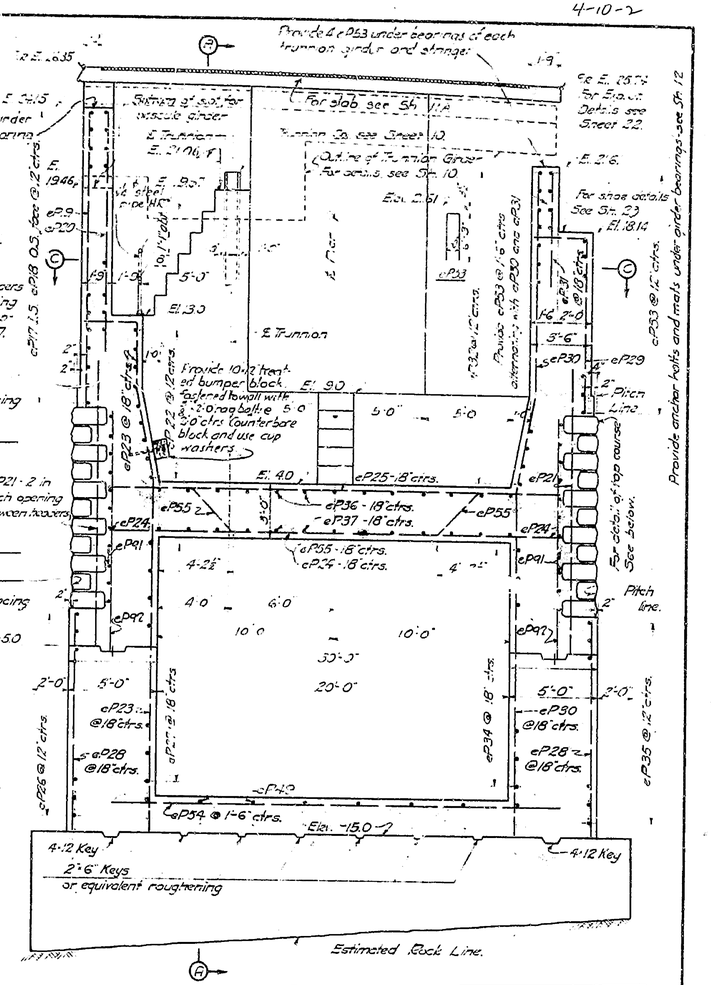
BASCULE PIER

SCALE ¼"=1'-0" Unless Noted
MADE BY G.E.W. DATE 2-21-31
TRACED BY M.E.M. DATE 8-14-31

AGH-HOWARD-NEECLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

4-10-2



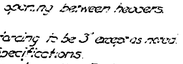


SECTION B-B
On ℄ Roadway

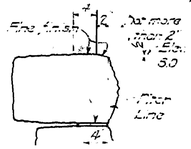
BAR MARKING TABLE			
Mark	Size	Mark	Location
e	¾" ø	P	Pier

GENERAL NOTES:

Provide Vertical bars in both faces of all walls ¾" ø @ 8" ctrs. except as shown.
Provide horizontal bars in both faces of all walls ¾" ø @ 12" ctrs. except as shown.
Bars ePP21 back of stone to be located two in each opening between louvers. Openings about 3" centers.
Minimum clear distance from face of concrete to reinforcing to be 3" except as noted.
All concrete in bascule pier to be Class B - See Specifications.
Provide suitable construction joints as may be approved by the Engineer.
Adequate keys shall be provided at all construction joints. Continuous 6 copper strips shall be provided at all construction joints in outside walls.
All reinforcing steel to be deformed bars of intermediate grade accurately spaced and securely wired in place before concrete is poured.
Minimum distance center to center of bars shall be 3 diameters, with a preferable minimum clear distance of 3".
Bars shall be lapped 44 diameters unless otherwise noted, at all splices.
Minimum radius of bends shall be 4 diameters of the bar except for stirrups, hoops and similar pieces requiring sharper bends.
Hooks shall be made in accordance with the sketch shown.



Splices in bars shall be made only with the approval of the Engineer.
C - Finish corner to pitch line of stone, when indicated thus.
⊗ Indicates "chisel draft"
Extensions of bars beyond concrete surfaces to be 2'-9" unless shown otherwise.



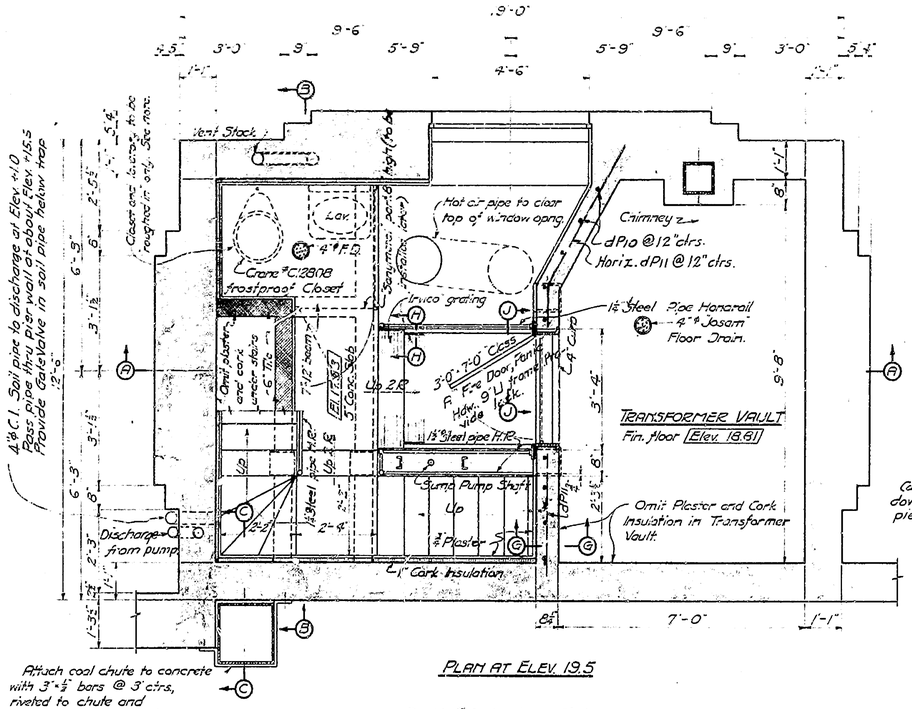
DETAIL OF TOP COURSE
Scale 1" = 1'-0"

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

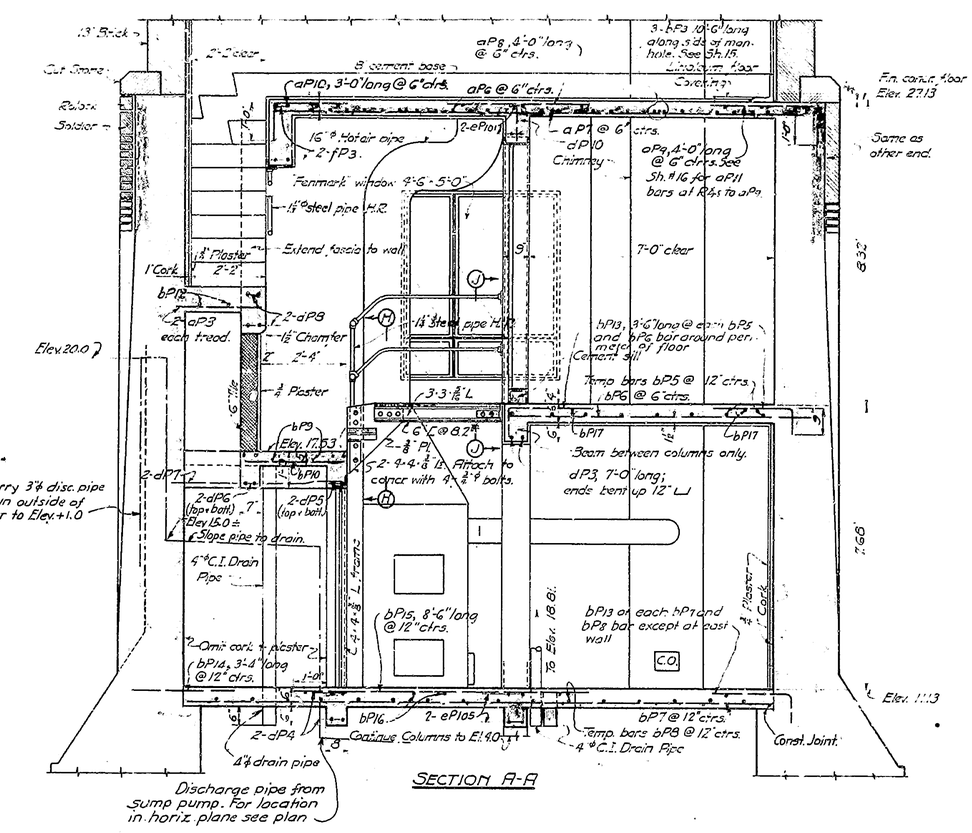
BASCULE PIER

SCALE ½" = 1'-0" Unless Noted — ASH, HOWARD, NEEDLES & TAMMEN
MADE BY G.E.W. DATE 2-19-31 — CONSULTING ENGINEERS
CHECKED M.S.V. — KANSAS CITY, MISSOURI

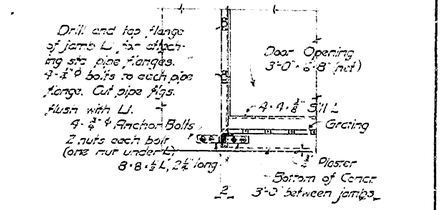


PLAN AT ELEV. 19.5

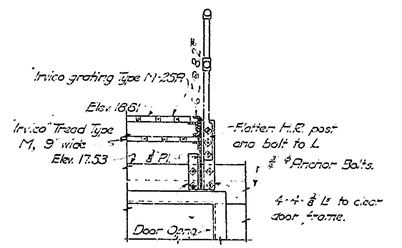
Attach coal chute to concrete with 3"x¼" bars @ 3' ctrs, riveted to chute and bolted to concrete with ¾"ϕ lag bolts, 6" long, in expansion shields.



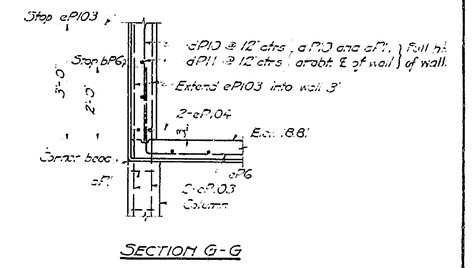
SECTION A-A



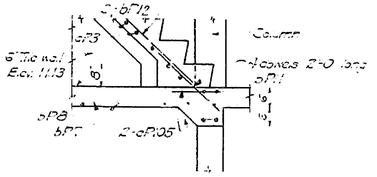
SECTION J-J



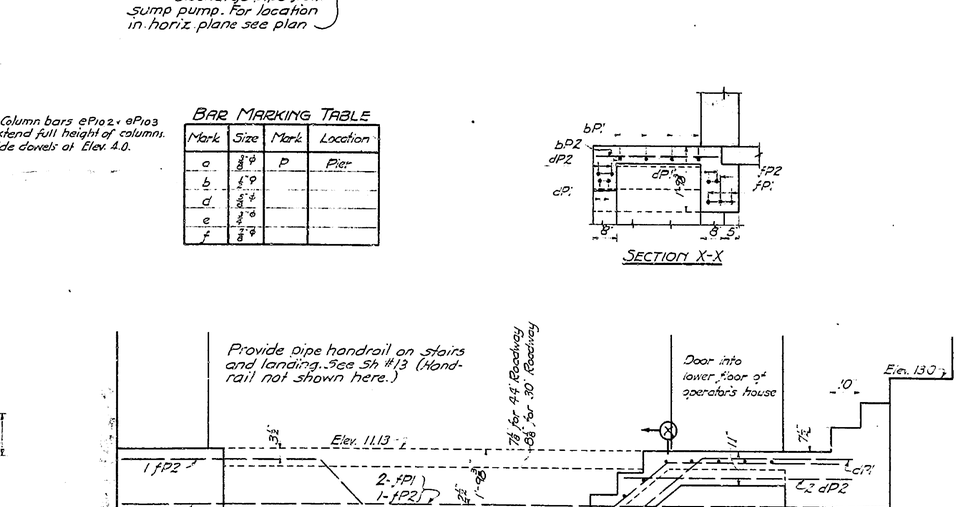
SECTION H-H



SECTION G-G



SECTION F-F



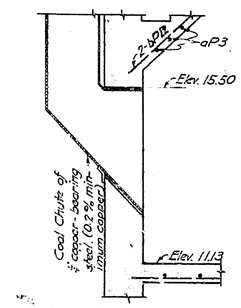
PLAN AT ELEV. 11.13

Note: Column bars ePl02 & ePl03 to extend full height of columns. Provide dowels at Elev. 4.0.

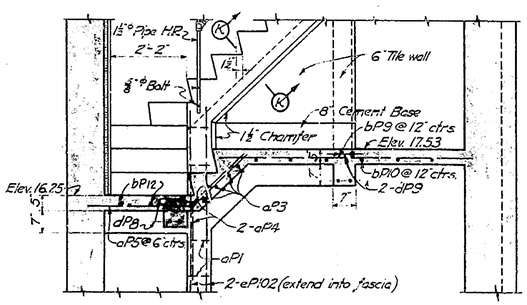
BAR MARKING TABLE

Mark	Size	Mark	Location
a	⅜"ϕ	P	Pier
b	½"ϕ		
d	⅝"ϕ		
e	¾"ϕ		
f	⅜"ϕ		

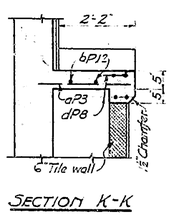
SECTION X-X



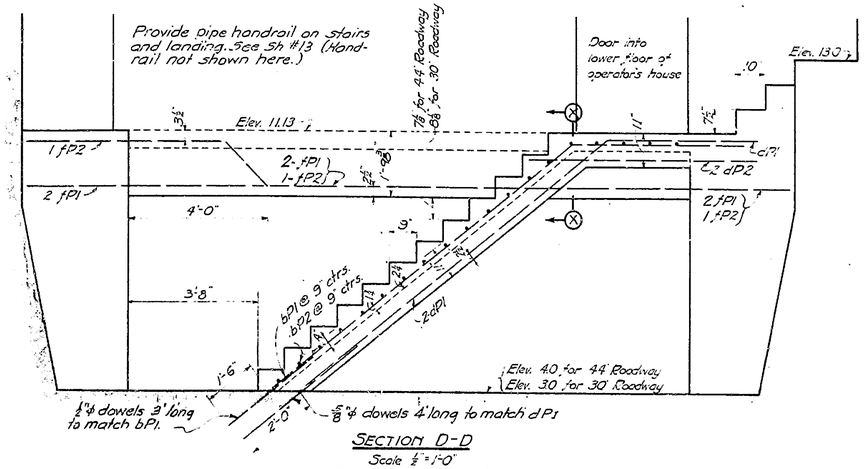
SECTION C-C



SECTION B-B



SECTION K-K



SECTION D-D

Scale ½"=1'-0"

For location, see Sheet 13

NOTES:

For other details of Scheme, Plan see Sheets 12 and 13.

For details of Operators House see Sheets 15 and 13.

Plumbing fixtures and toilet partitions are not to be installed at this time. Install all floor drains complete and provide all necessary water pipe, soil pipe, vent stack, etc so that fixtures may be set later without disturbing masonry. Open ends of pipes to be capped or plugged until fixtures are attached.

Steel pipe handrail, grating and structural steel supports to be painted one shop coat of red lead and oil and two field coats of aluminum.

Provide sleeve thru pier wall to pass future insulated water pipe above Elev. 20.

For General Notes on Pier see Sh. #13. Clear distance bars to face of conc. 2" except 1" in slabs unless noted.

Cork insulation applied to concrete shall be laid in hot asphalt unless noted otherwise

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON, DELAWARE

FOR NEWCASTLE COUNTY, DELAWARE

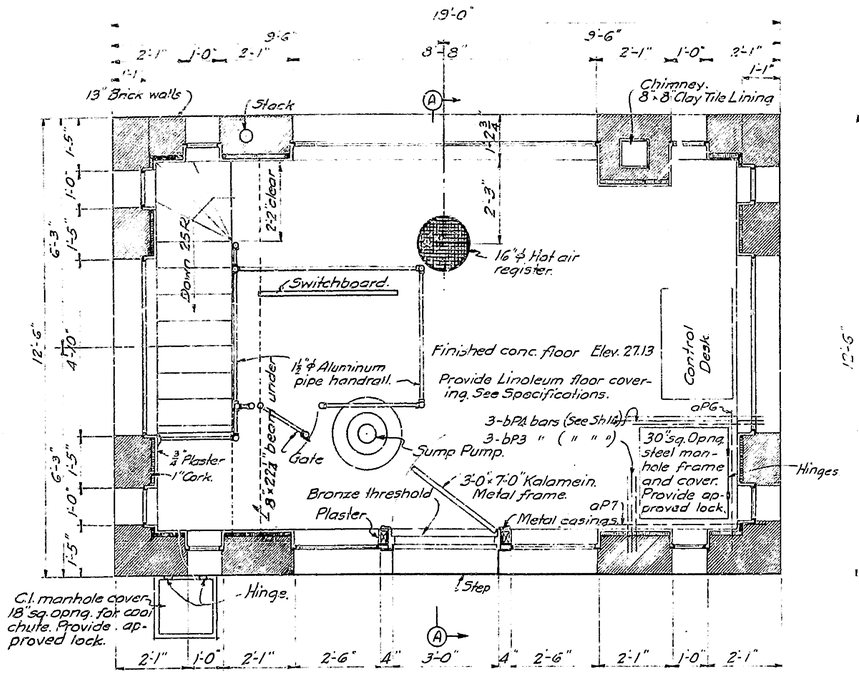
30 AND 44 FOOT ROADWAYS

BASCULE PIER

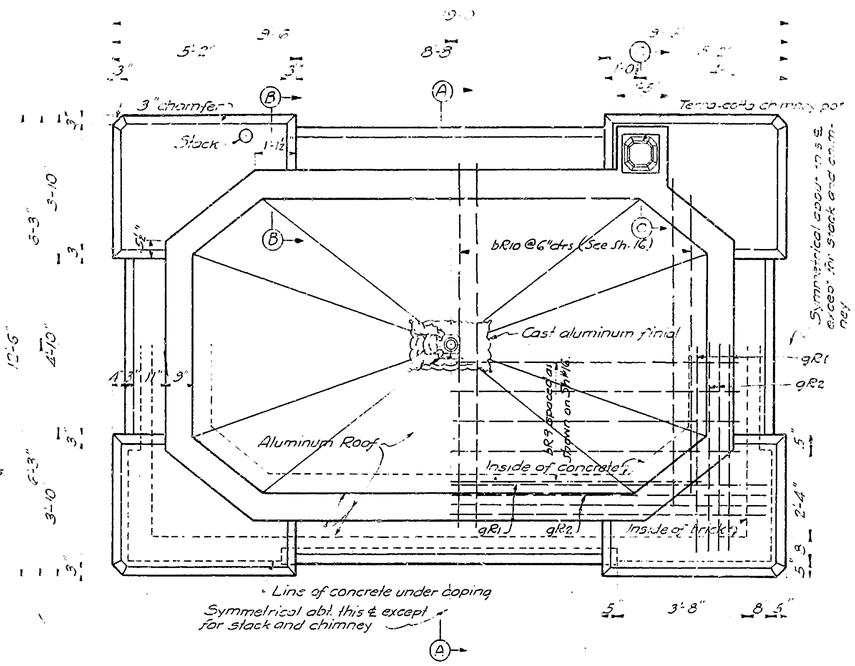
SCALE ½"=1'-0" | DRAWN A.R. | DATE 9 22 31 | TRACED M.E.M. | DATE 9-3-31

A&M HOWARD NEEDLES & TAMMEN BERGENDOFF

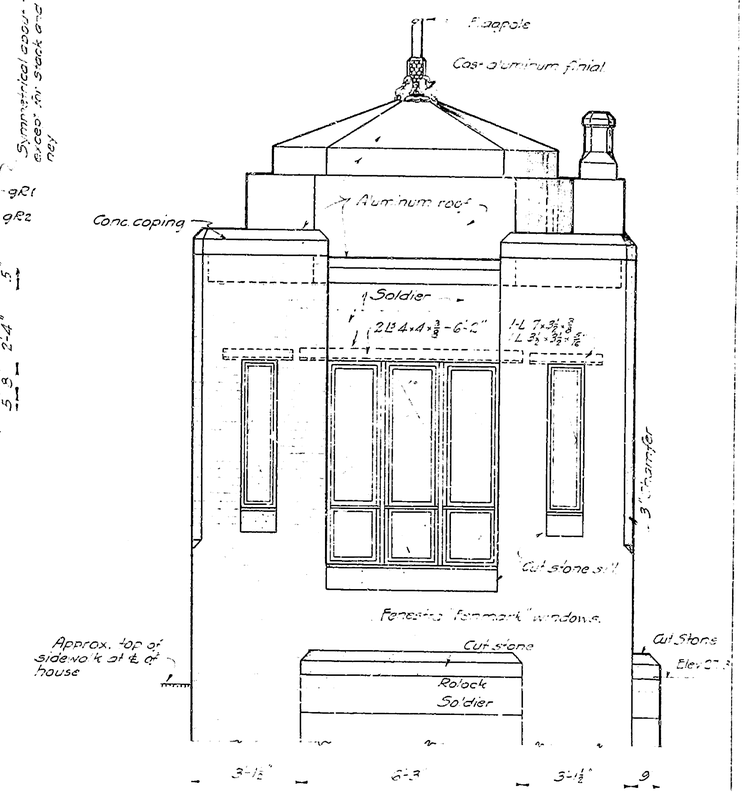
DESIGNED J. | CHECKED



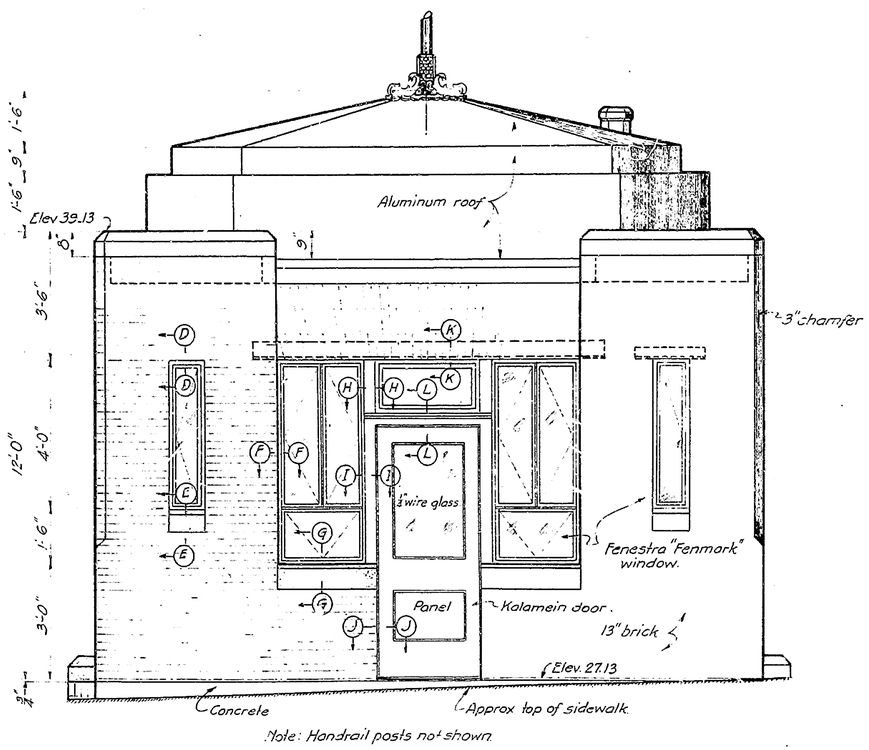
PLAN.



PLAN OF ROOF.

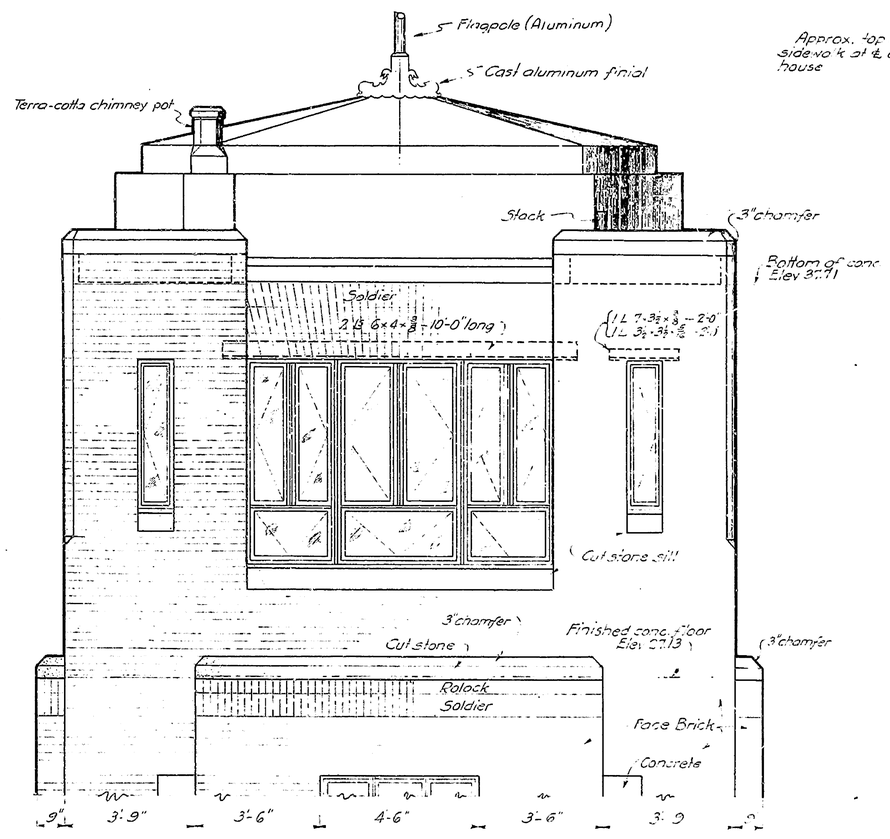


WEST ELEVATION
East Elevation similar



Note: Handrail posts not shown.

NORTH ELEVATION.



SOUTH ELEVATION.

For notes on house, and for Sections A-A to K-K inclusive, see Sh #16

For details of Pier below Elev 27.13 see Sheets 12, 13 & 14

See Specifications.

All exterior corners of concrete to be sharp except where noted otherwise.

Wherever specific products or products of a particular manufacturer are called for, it is understood that approved equivalent products of other manufacturers will be permitted.

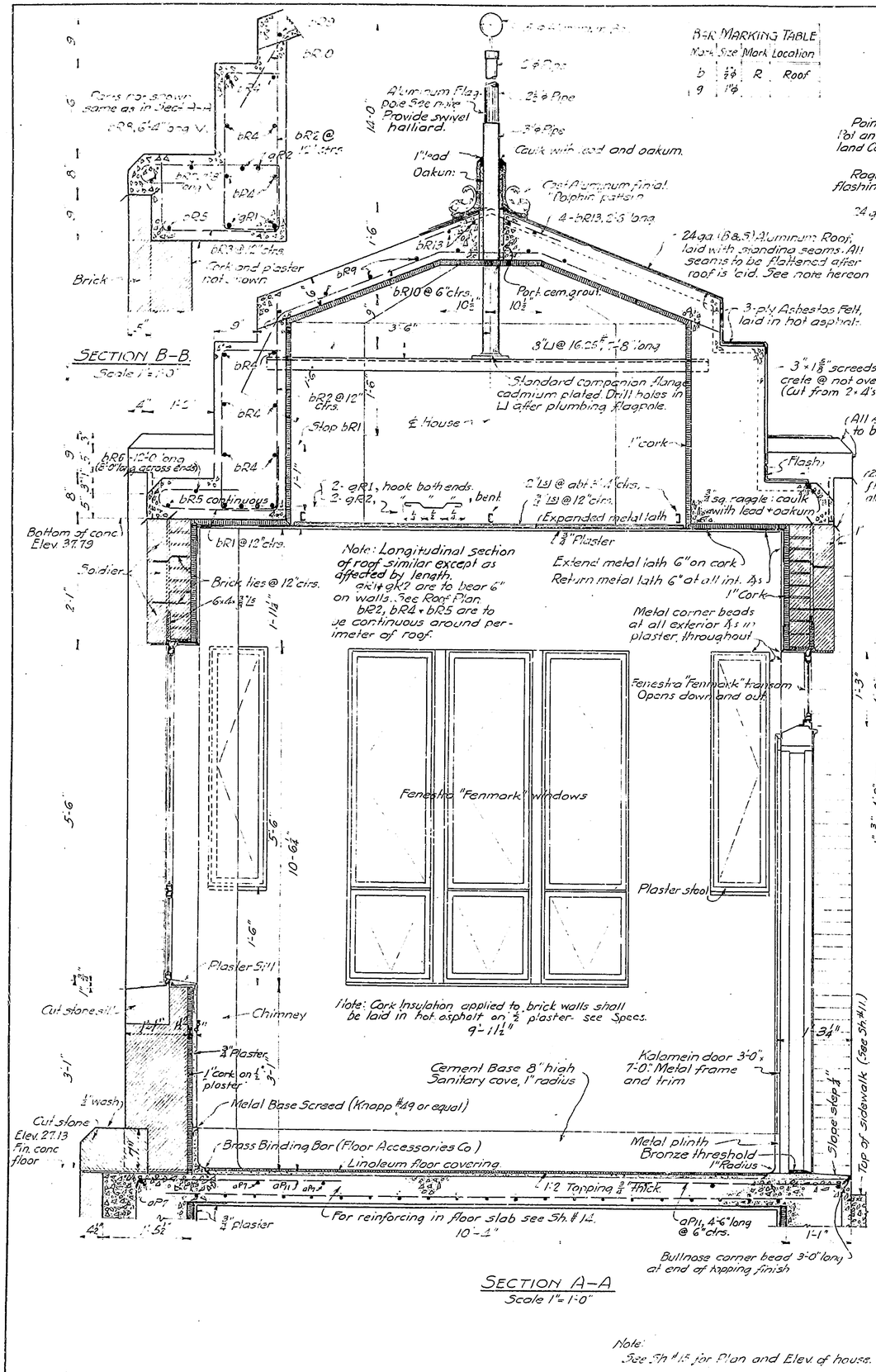
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

30 AND 44 FOOT ROADWAYS

OPERATOR'S HOUSE

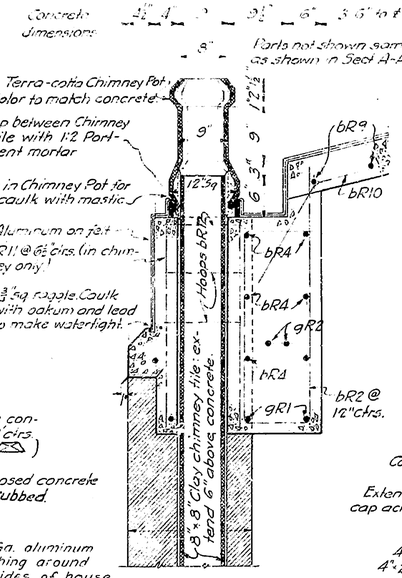
SCALE ¼" = 1'-0"
MADE BY A.R. DATE 8-28-31
TRACED BY A.R. DATE 8-29-31
CHECKED BY
REID HOWARD NEEDLES & TAMMEN
CONSULTING ENGINEERS
HANSAS CITY NEW YORK

SHEET NO. 15

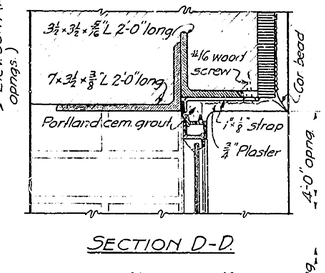


B-K MARKING TABLE

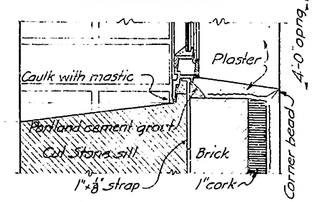
Mark	Size	Mark Location
b	⅝	R Roof
g	1"	



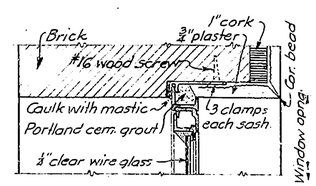
SECTION C-C.
Scale 1"=1'-0"



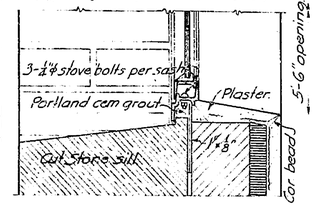
SECTION D-D.



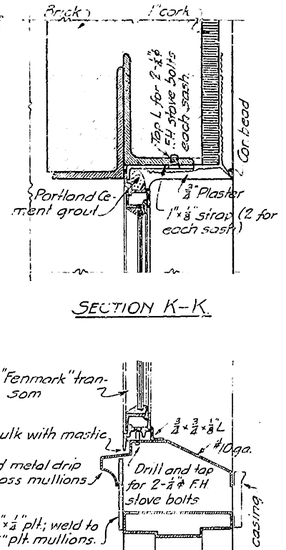
SECTION E-E.



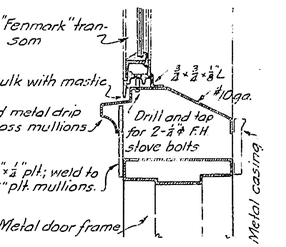
SECTION F-F.
(Typical jamb for 5'-6" windows.)



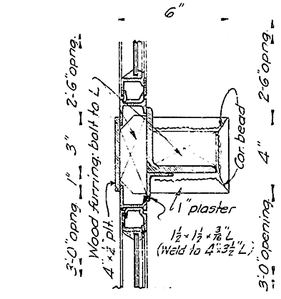
SECTION G-G.



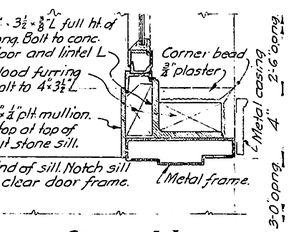
SECTION K-K.



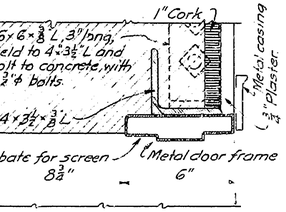
SECTION L-L



SECTION H-H.



SECTION I-I.



SECTION J-J.

DETAILS OF OPENINGS.
Scale 3"=1'-0"

NOTES ON HOUSE

CONCRETE.
Concrete in house shall be Class B and shall conform to the General Specifications.
All exposed exterior concrete surfaces shall be given a rubbed finish. See Specifications.
For general notes on concrete see Sh #23, except that minimum clear distance from bar to edge of conc. shall be 1" in slabs.

BRICKWORK.
Brick shall be laid in English bond with ¼" struck joints. Not more than five stretcher courses shall be laid between header courses.
Face brick shall be smooth pressed brick of best quality, having a light gray color similar to concrete in pier. Samples of face brick shall be submitted to the Engineers for approval.
Mortar for brickwork shall be 1:3 Cement mortar gaged with hydrated lime. Mortar for face brick shall be colored to match the face brick.
"Backing up" brick shall be #2 common.

CORK INSULATION.
Insulate all walls (except transformer and coal room walls) and the roof with Corkboard 1" thick. Cork insulation shall be applied in accordance with the Specifications by mechanics skilled in that work.
Corkboard on concrete of roof shall be laid in forms before pouring concrete. Galvanized nails shall be driven into the corkboard at an angle of 45° to assist in bonding cork to concrete. Nails shall be equally spaced at the rate of 3 nails per sq. ft.

PLASTER.
Plaster on cork insulation and suspended ceiling shall be three-coat work; on ceiling of lower floor, two-coat, applied directly to the concrete. Sand finish throughout. See Specifications.

ROOF. (See note on "Aluminum" below.)
Roof shall be standing seam 24 ga (B&S Aluminum laid over 30# saturated asbestos felt as shown in drawings. Felt shall be laid in hot asphalt and thoroughly mopped in.
Seams in aluminum shall be continuous and shall be flattened down to present a neat appearance after roof is laid.

FLOORS.
Upper floor shall be finished to a plane surface with 1:2 Portland Cement topping ¾" thick, and shall be covered with a Battleship Linoleum laid on felt and properly fastened down.
Lower floors may be finished monolithic. Provide a uniform pitch to floor drains.

DOORS.
All doors shall be two-panel Kalamein metal doors with metal frames, conforming to the requirements of Fire Underwriters' Laboratories Specifications, or approved equivalent, except as noted.
Door in upper story of house shall be glazed with 4" clear wire glass in the upper panel, and shall be weather-stripped.
Door to Transformer Vault to be a Class A Fire Door, provided with panic hardware. See Specifications.

WINDOWS.
All windows are to be Fenestra "Fenmark" metal windows as manufactured by Detroit Steel Products Co. or approved equivalent. Windows are to be provided with bronze hardware and with metal-mounted copper screens that permit the operation of ventilators without disturbing screens.
Windows shall be glazed with ¼" clear wire glass set in Steel Casement Sash Putty and held in place by copper-plated steel wire glazing clips.
Setting and glazing of windows and doors to be done in the most approved manner to make them weather-right.

HEATING.
Provide cast iron furnace with 13"ø firebowl and galvanized iron casing as shown in the drawings. Furnace to have one 16"ø hot air pipe with floor register, also a cold air intake at the lower floor. Provide a damper and a chain-operated check in smoke pipe, and a cast iron cleanout door in the chimney.
All work in connection with making up and installing furnace to be done in the most approved manner.

PLUMBING.
See specifications and notes on Sh #15.

WIRING.
House to be wired for lighting as shown on Sh #21 and as provided in the specifications.

ALUMINUM.
Aluminum used in house shall be Alcoa as manufactured by Aluminum Co. of America as follows:
For roofing, Alloy No 3S½H
For cast finial, Alloy No 43
For flagpole and pipe handrail, Alloy No 3SH.
Flagpole, handrail and roofing to have polished finish; cast finial to have sand-blasted finish.
All bolts passing thru aluminum, together with nuts, shall be cadmium-plated, thickness of plating to be .0005.
Submit photographs of model of cast finial to the Engineer for approval.

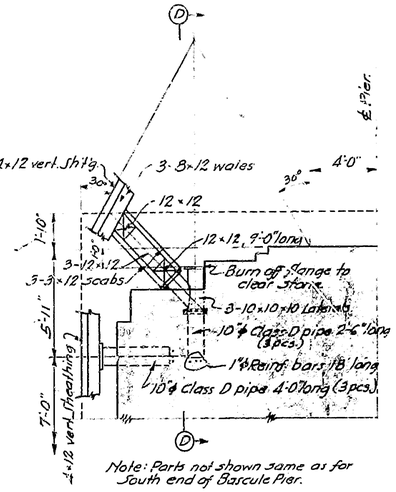
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

30 AND 44 FOOT ROADWAYS

OPERATOR'S HOUSE

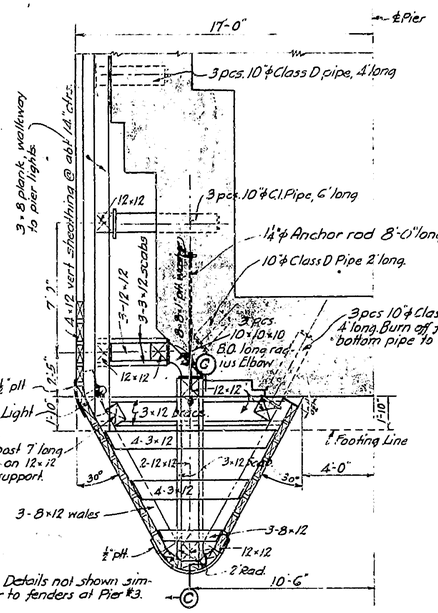
SCALE 1"=1'-0"
DRAWN A.R. TRACED 9-23-21
TRACED A.R. CHKD. 8-3-31

KANSAS CITY NEW YORK



Note: Parts not shown same as for South end of Bascule Pier.

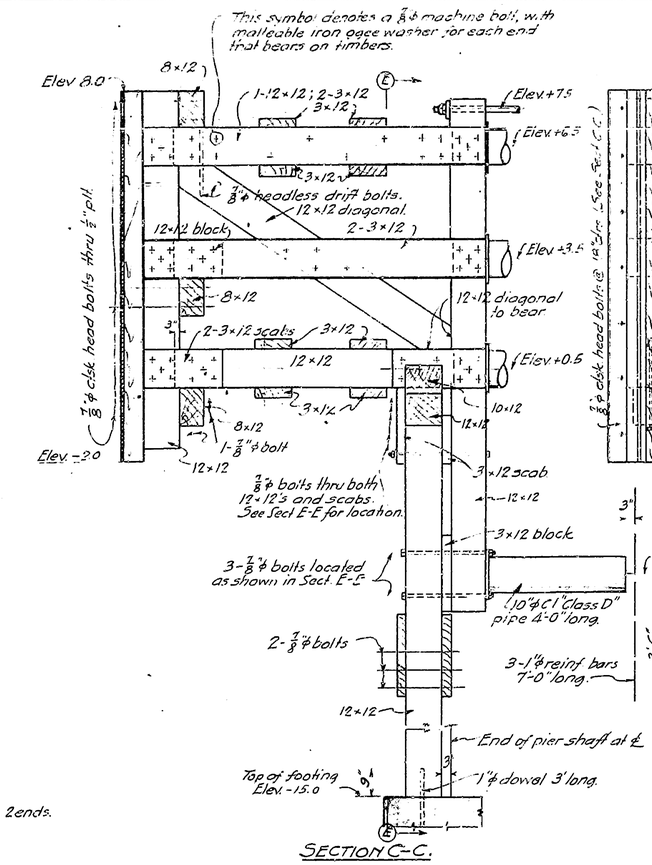
PLAN AT NORTH END OF BASCULE PIER.
Scale $\frac{1}{4}$"=1'-0"



PLAN AT SOUTH END OF BASCULE PIER.
Scale $\frac{1}{4}$"=1'-0"

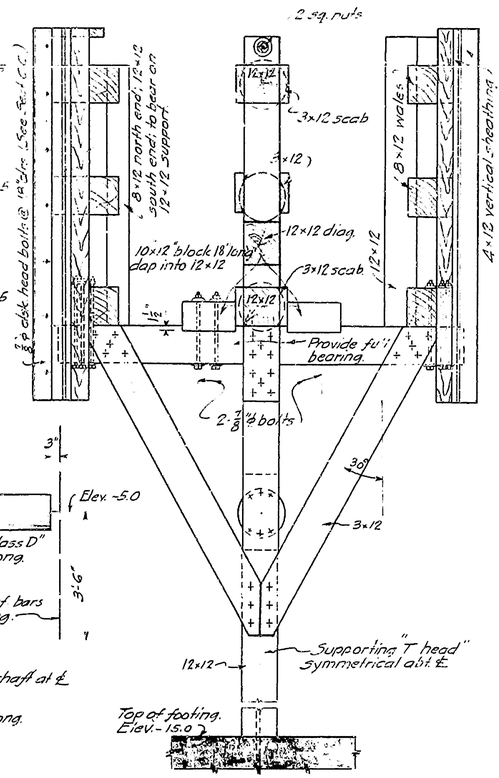
Bolt each timber to flange with 6-⅞"ø bolts.

SECTION H-H.
Scale $\frac{1}{2}$"=1'-0"

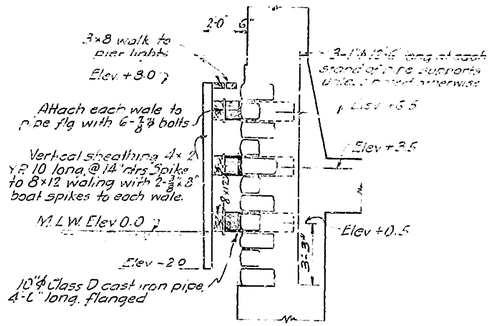


SECTION C-C.

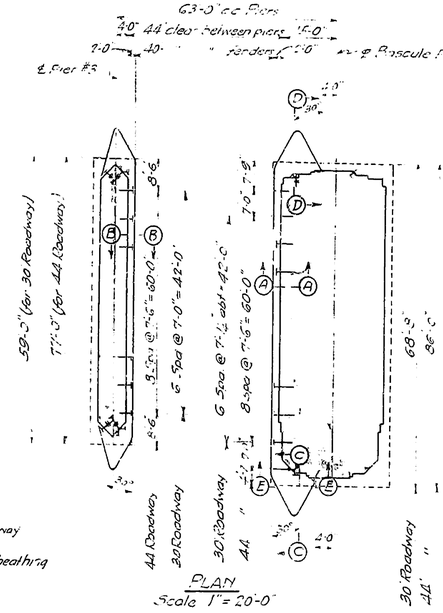
Section D-D same except for differences in plan at N. end of bascule pier
Scale $\frac{1}{2}$"=1'-0"

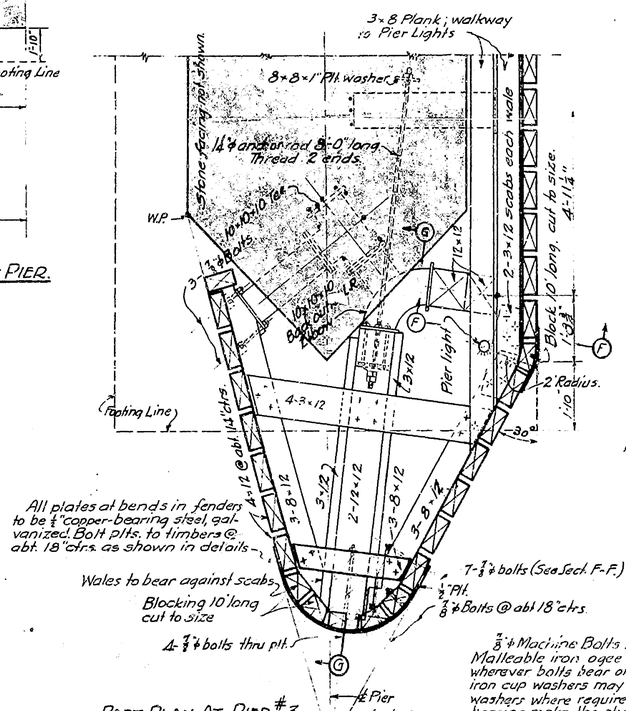


SECTION E-E.
Scale $\frac{1}{2}$"=1'-0"



SECTION A-A
Section B-B similar
Scale $\frac{1}{4}$"=1'-0"



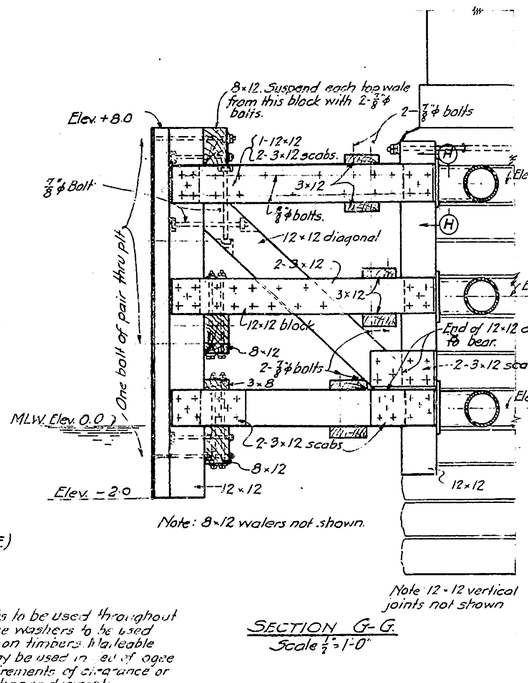


All plates at bends in fenders to be ¼" copper-bearing steel, galvanized. Bolt plts. to timbers @ abt. 18" ctrs. as shown in details.

Wales to bear against scabs.

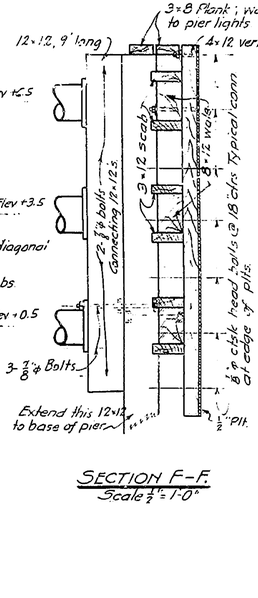
Blocking 10' long cut to size

PART PLAN AT PIER #3
Scale ⅜"=1'-0"



Note: 8×12 walers not shown.

SECTION G-G.
Scale $\frac{1}{2}$"=1'-0"



SECTION F-F.
Scale $\frac{1}{2}$"=1'-0"

Note 12×12 vertical joints not shown

⅞"ø Machine Bolts to be used throughout. Malleable iron ogee washers to be used wherever bolts bear on timbers. Malleable iron cup washers may be used in lieu of ogee washers where requirements of clearance or bearing make the change desirable.

All bolts, fastenings and all other metal

NOTES:

All timber in fenders to be Long Leaf Yellow Pine, S1S1E, and is to be creosoted.

Boring, dapping and notching to be accurately done, before creosoting, to give full bearing and rigid connections.

10"ø Class D flanged cast iron pipe and "Extra Heavy" flanged cast iron fittings are to be used throughout for attaching timbers to piers. Joints in pipe and connections of timbers to pipes to have at least 6-⅞"ø bolts drawn up tight. Fill all pipe flush with exposed flange and allow to set hard before placing in pier forms.

Point up holes in stonework due to pipes, bolts, etc., with 1:2 Portland Cement mortar.

See notes relative to bolts and other fastenings elsewhere on this sheet.

For details of Piers see Sheets 12 to 14, inclusive.

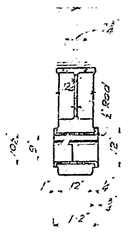
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

30 AND 44 FOOT ROADWAYS

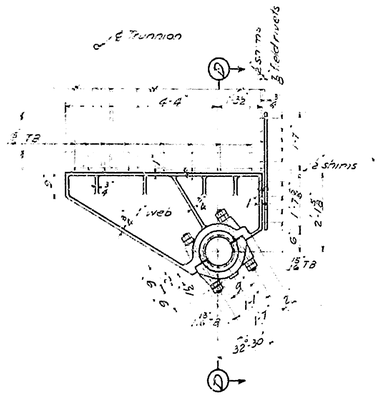
FENDERS

SCALE: As Noted
DESIGNED: A.B.
TRACED: A.B.
CHECKED: A.B.

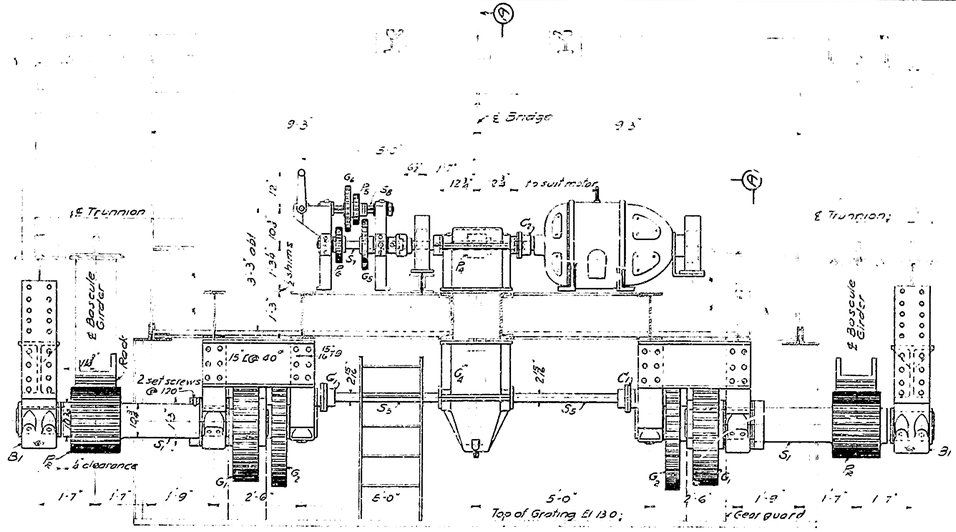
ASH-HOWARD-NEEDLES-TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK



SECTION D-D

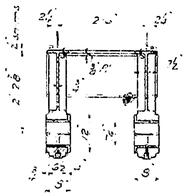


BEARING B1.

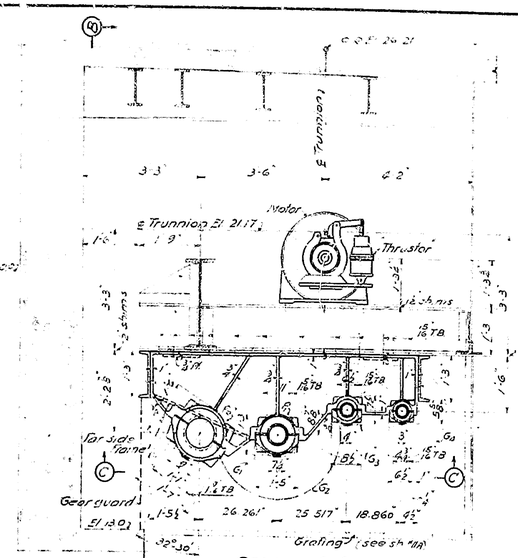


SECTION B-B

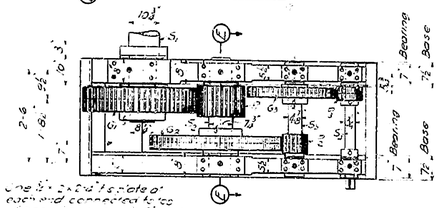
TYPICAL SHIM



SECTION E-E



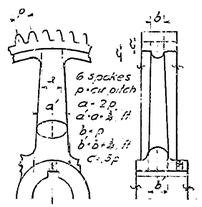
SECTION A-A



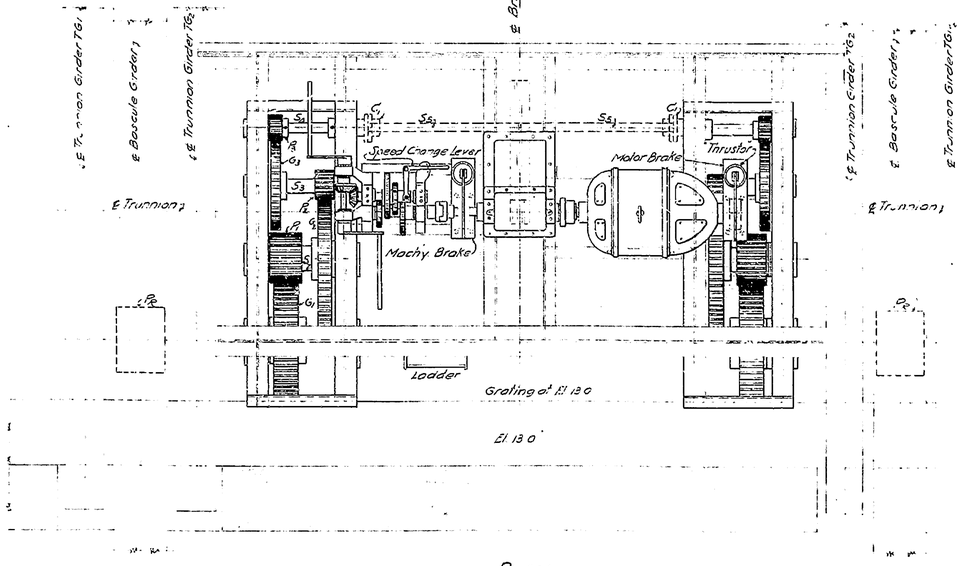
VIEW C-C

GEAR TABLE

Mark	Number of teeth	Pitch	Pitch Dia	Face	Hub Bore	Hub Diam	Hub Length	Keys No.	Keys Size
Rack	4	5-9	Rad	4	-	-	-	-	-
P_6	15	4	19.099	162	Integral with S_1				
G_1	40	3	38.197	8	8¼	15 11	2	2	2 × 2 × 11
P_5	15	3	14.324	10½	Integral with S_3				
G_2	83	1¼	46.235	5	7⅞	14 8	2	1	½ × ½ × 8
P_2	14	1¼	7.799	6½	Integral with S_3				
G_3	64	1½	30.558	3	4⅜	8½ 6	1	1	1 × 1 × 6
P_3	15	1½	7.162	4	3½	5⅜ 6	1	1	½ × ½ × 6
G_4	93	1	29.770	6	2⅞	6½ 5⅝	Bronze Bush		Sprockets for Silent Chain Drive
P_4	21	1	6.740	6	3½	5⅜ 7½	1	1	½ × ½ × 7½
G_5	39	1½	15.518	2	2½	4 5½	1	1	½ × ½ × 5½
P_5	23	1¼	9.151	2	4	Press fit	1	1	½ × ½ × 2
G_6	34	1¼	13.528	2	3	- 8	2	1	½ × ½ × 12½
P_6	28	1½	11.141	2	2½	4	4	1	½ × ½ × 4
G_7	51	1½	20.292	3	2⅞	5¾	4	1	½ × ½ × 4	Differential Bevel Gears
P_7	19	1½	7.560	3	1⅞	3½	3⅜	Bronze Bush	
M	20	1½	7.958	2½	2	3½	3½	1	½ × ½ × 3½	Miter gears for hand operation



GEAR PROPORTIONS.



PLAN

MACHINERY HOUSE EQUIPMENT

1 Work bench 2'×5' abt
1 Machinist's vise 5" jaw
1 File smooth flat 10"
1 " coarse flat 10"
1 " smooth ½ round 10"
1 " coarse ½ round 10"
1 " smooth ½ square 8"
1 " coarse ½ round 10"
1 Knife file
1 Chisel flat ½"
1 Cape chisel ½"
1 Tap set, ref with tack
1 Machinist's hammer 1"
1 Machinist's hammer 2"
1 Stillson wrench 8"
1 Monkey wrench with knife handle
1 Screw driver with insulated handle 6" blade
1 Machinist's screw driver 8" blade
Semi-finished wrenches from ⅜" to 1½" 1" wide each
1 Pair of slip joint pliers "7
1 Hacksaw with 8" blades
2 wrenches for each size of set screw
1 Fire extinguisher Fire Guard 1½ gal made by Foamite Childs Corp Utica N.Y.

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

OPERATING MACHINERY

SCALE ½" = 1'-0"
MAY 1931 REVISED AUG 22 31
AGH HOWARD NEEDLES & TAMMEN
CONSULTING ENGINEERS
BONNER BRIDGE
WILMINGTON, DEL.

GENERAL NOTES.

GEARS: All gears large and small to be cast steel. All pinions to be forged steel. All gears & pinions same face to have 20° involute machine cut teeth with pitch circles set tool on same sides of teeth hub diam to right bore. Gears pinions, pinion tools and angles not otherwise noted to have addendum on shafts and tooth clearance provided. Pinions to be fitted subject set screw to gear key and one wrench for each size of set screw. Diam of set screw equal width of key but not over ½ diam.

SHAFTS: Trunnion shafts shown S1 S2 and S3 to be forged steel and of same design with shafts of other shafts may be of cast steel. All journals to be high polished.

CASTINGS: All castings to be steel unless otherwise noted. All castings to be annealed. All corners to have fillets of at least 1 rad. All corners & edges to be finished.

BUSHINGS: All bushings to be of phosphor bronze unless otherwise noted. Thickness of bushings to be ¼ of diam of bore but not less than ⅜ thick.

BOLTS: All bolts head bolts to have a shank or larger than threaded part. All nuts to be hexagon and finished. Use lock nuts or one nut and lock washer on all bolts.

LUBRICATION: Provide Alemite fittings or equivalent to be provided for all bearings. Provide one Alemite All oil to be greased with grease gun.

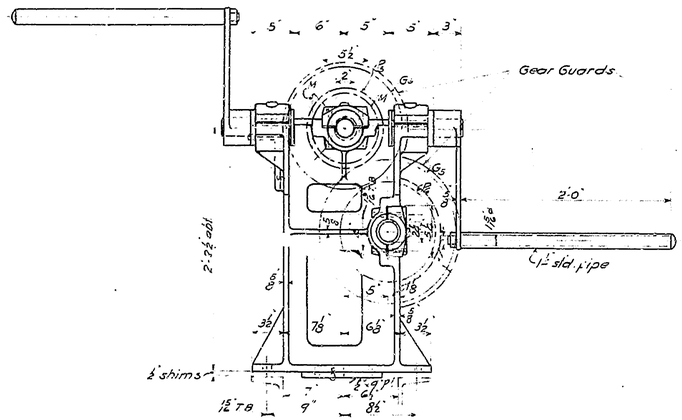
GEAR GUARDS: Provide gear guards for gears G and all hand operated gears as indicated with dotted lines. Provide guards to permit gears removal.

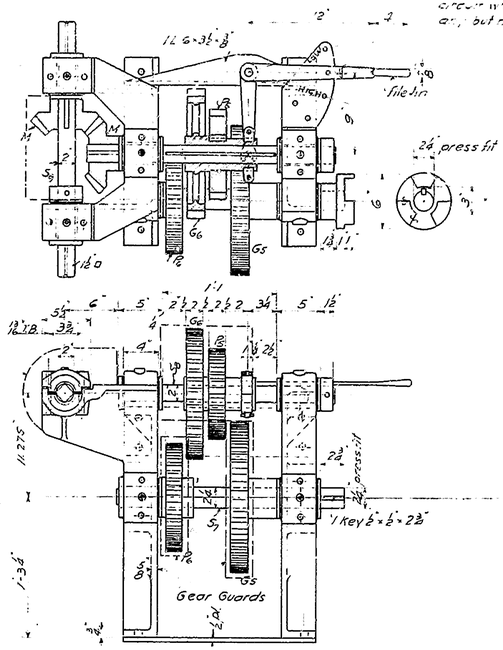
MOTOR: One totally enclosed electric motor 50 H.P. 600 R.P.M. synch speed 220 volts 3 ph 60 cycles similar to General Electric Co's type WC or Westinghouse type CT. Shaft projecting to be cylindrical & drilled in keyway for ⅜ × ⅜ key.

BRAKES: One motor mounted motor brake on motor shaft similar to General Electric Co's type CR9516 or Westinghouse type P with 73 ft lbs torque not to exceed 300 equipped with thruster similar to G.E.C.'s type CR9506 for releasing brake or approved equivalent. One floor mounted machinery brake on shaft S2 same type and make as motor brake with 284 ft lbs not to exceed 300 ft lbs torque remotely controlled by thruster. Thruster to release brake and to be equipped with variable speed motor for torque control. Provide handles for releasing motor and machinery brake.

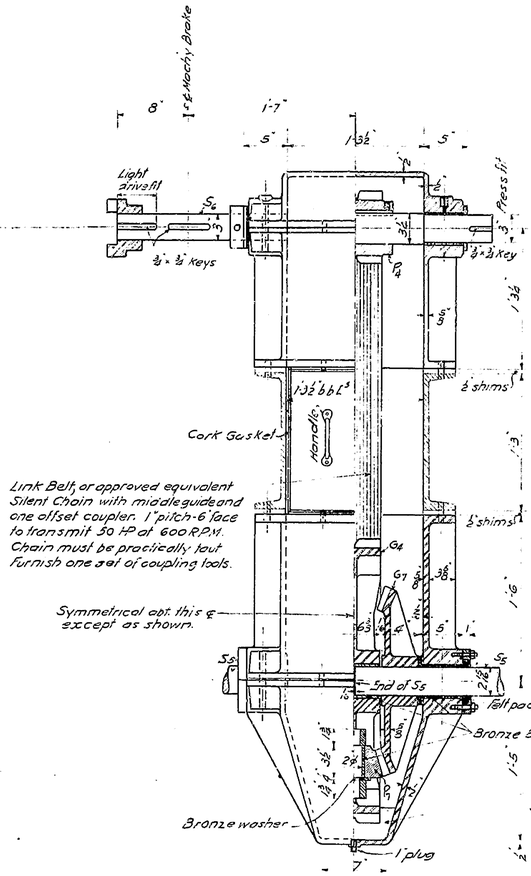
COUPLINGS: Two couplings G1 for shafts S1 and S2 similar to Falk Steelflex Sleeve Coupling Co's Baltimore Md extended flexible coupling size 7½ with 7½ bore or approved equivalent. One coupling for motor and S2 shaft one Flexible 1003 Falk or approved equivalent.

FRICTION: After bascule span is broken and fully loaded with a dead load including counterweight, rack & pinions fully and properly adjusted & proper mesh with teeth the same over bearings and gear frames and secured and adjusted in rack pinion shafts S1. See also specifications.

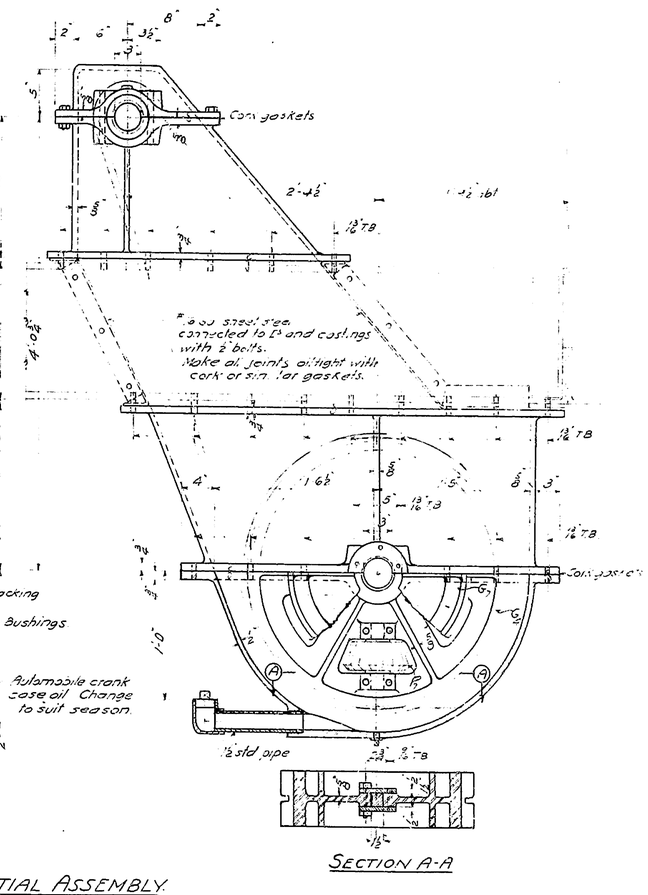




HAND OPERATING MECHANISM.

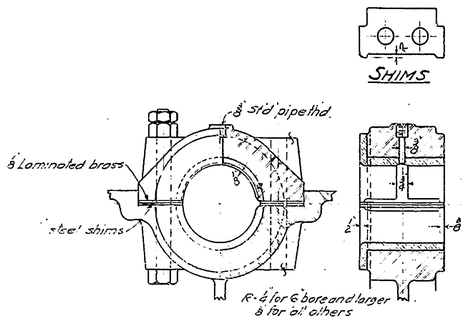


HALF ELEVATION. HALF SECTION



SECTION A-A

DIFFERENTIAL ASSEMBLY.



TYPICAL BEARING
Shown for bushing with single flange
No scale.

For General Notes see sheet N° 18.

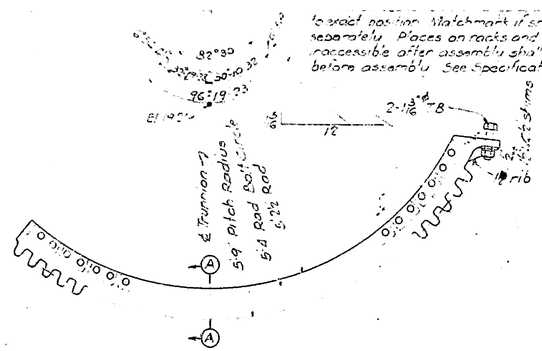
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

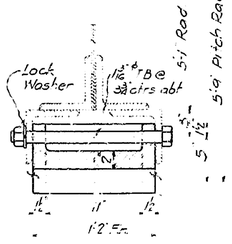
OPERATING MACHINERY

SCALE 1½"=1'-0"
DRAWN BY J.J.F. DATE 8-24-31
TRACED BY J.J.F. DATE 9-9-31

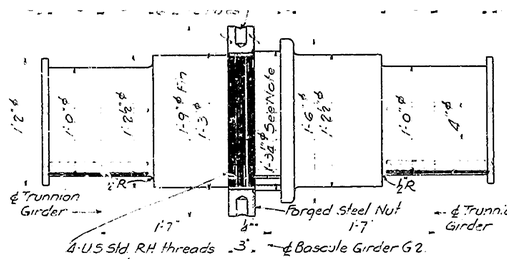
ASH HOWARD NEEDLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK



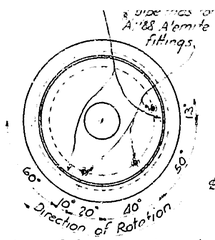
RACK
Scale ¾" = 1'-0"
2 Reqd - Steel Castings



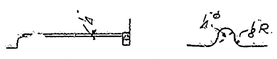
SECTION A-A
Scale 1½" = 1'-0"



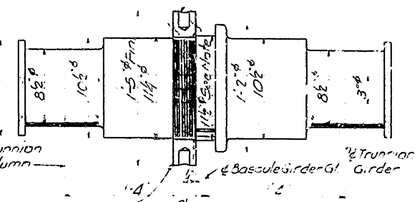
TRUNNION SHAFT FOR G2
Scale 1½" = 1'-0"
2 Reqd - Forged Steel - Finish all over.
Journals to be highly polished, showing no trace of tool marks.
Note:- 15⅞ diameter to be not less than .005" nor more than .007" larger than micrometered bore of girder.



Shown for Span Down position

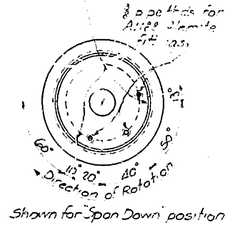


DETAIL OF OIL GROOVES



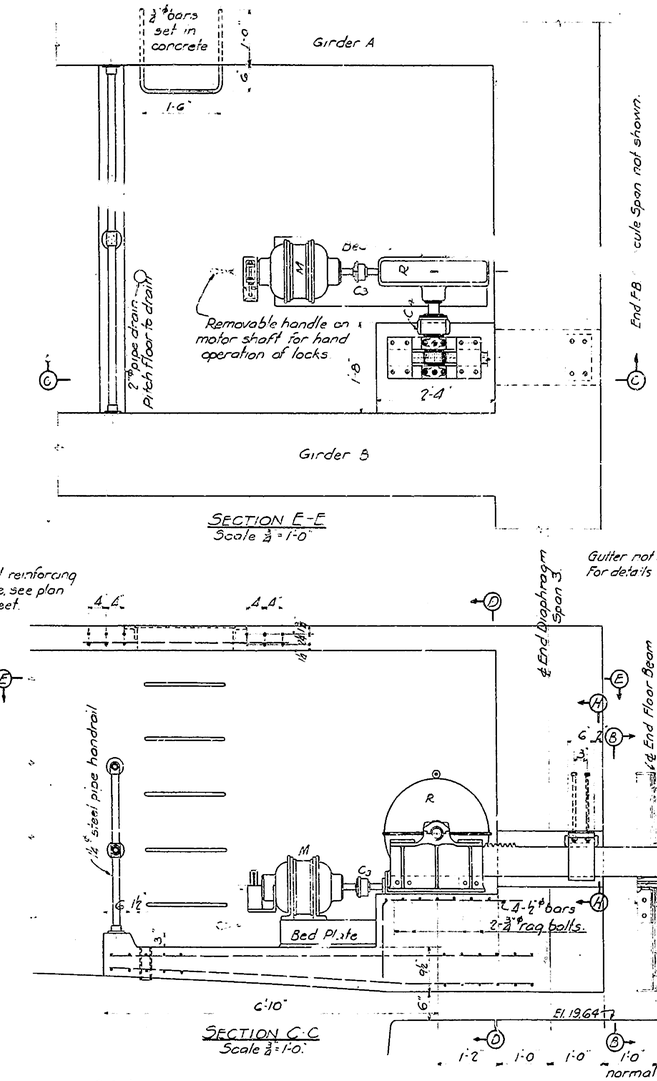
Forged Steel Nut 4 U.S Std. R.H. threads per inch

TRUNNION SHAFT FOR G1
Scale 1½" = 1'-0"
2 Reqd - Forged Steel - Finish all over.
1 Reqd As Shown - 1 Reqd Opp Hand.
Journals to be highly polished, showing no trace of tool marks.
Note:- 11½ diameter to be not less than .003" nor more than .005" larger than micrometered bore of girder



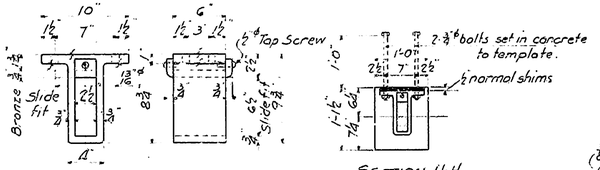
Shown for Span Down position

Note -
0.1' groves same as grooves in shaft for G2



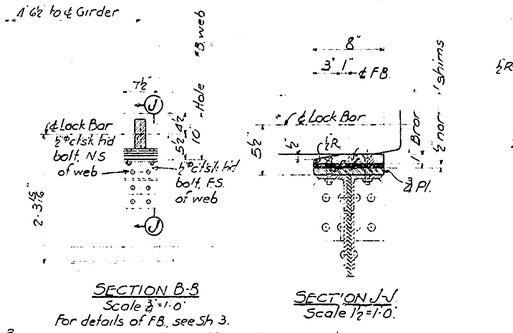
SECTION E-E
Scale ¾" = 1'-0"

SECTION C-C
Scale ¾" = 1'-0"



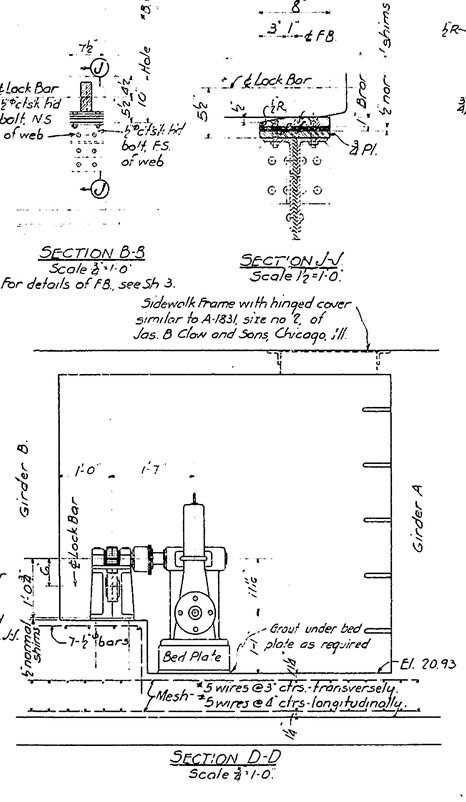
LOCK CASTING IN DIAPHRAGM
Scale 1½" = 1'-0"
Material Cast Steel.

SECTION H-H
Scale ¾" = 1'-0"

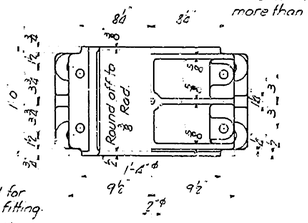


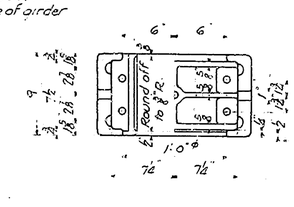
SECTION B-B
Scale ¾" = 1'-0"
For details of F.B., see Sh. 3.

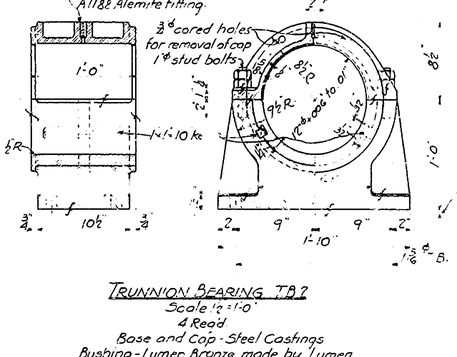
SECTION J-J
Scale 1½" = 1'-0"



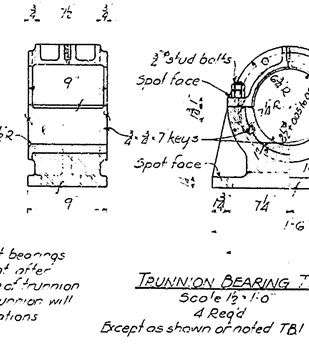
SECTION D-D
Scale ¾" = 1'-0"





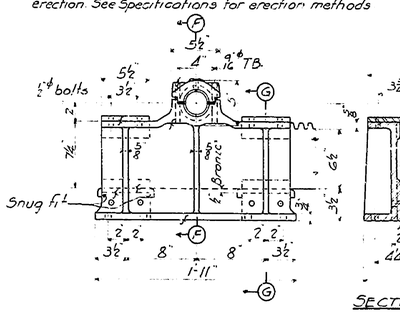


TRUNNION BEARING TB2
Scale 1½" = 1'-0"
4 Reqd.
Base and Cap - Steel Castings
Bushing - Lumen Bronze made by Lumen Bearing Co., Buffalo, N.Y. or approved equivalent.
Scrape bushings to ℄ journals, and matchmark for erection. See Specifications for erection methods

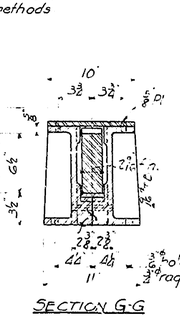


Note:-
Shims provided at bearings ⅜ high initially so that after dead load deflection of trunnion girders of ℄ of trunnion will be at specified elevations

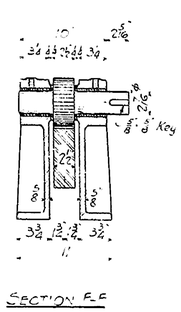
TRUNNION BEARING TB1
Scale 1½" = 1'-0"
4 Reqd
Except as shown or noted TB1 same as TB2



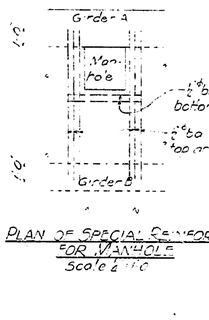
END LOCK DETAILS
Scale 1½" = 1'-0"
Castings - Steel
Pinion - Forged Steel, integral with shaft
15 machine cut, 20° involute teeth,
1" circular pitch, 4.775" P.D., 2½" face.



SECTION G-G

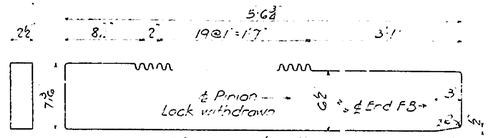


SECTION E-E



PLAN OF SPECIAL REINFORCING FOR MANHOLE
Scale ¾" = 1'-0"

Notes -
For General Notes on Machinery see Sh. 18.
Bronze for lock details to be of quality specified for machinery bushings. See Specifications.



LOCK BAR
Scale ½" = 1'-0"
Material Forged Steel, fin all over

LOCK EQUIPMENT - 2 Sets Reqd.
M - 3 HP motor, 900 RPM synch speed, 220 volt, 3 phase, 60 cycles, similar to G.E. Co's type K T totally enclosed, and equipped with motor mounted brake of 20" refording torque.
R - Speed Reducer, 70 to 1 ratio, 3.52 H.P., D.O. James Mfg Co's size 116, or approved equivalent with C.I. bed plate for reducer and motor
C1 Flexible Coupling, Falk size 5C, or approved equivalent
C4 Flexible Coupling, Falk size 8C5, or approved equivalent

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

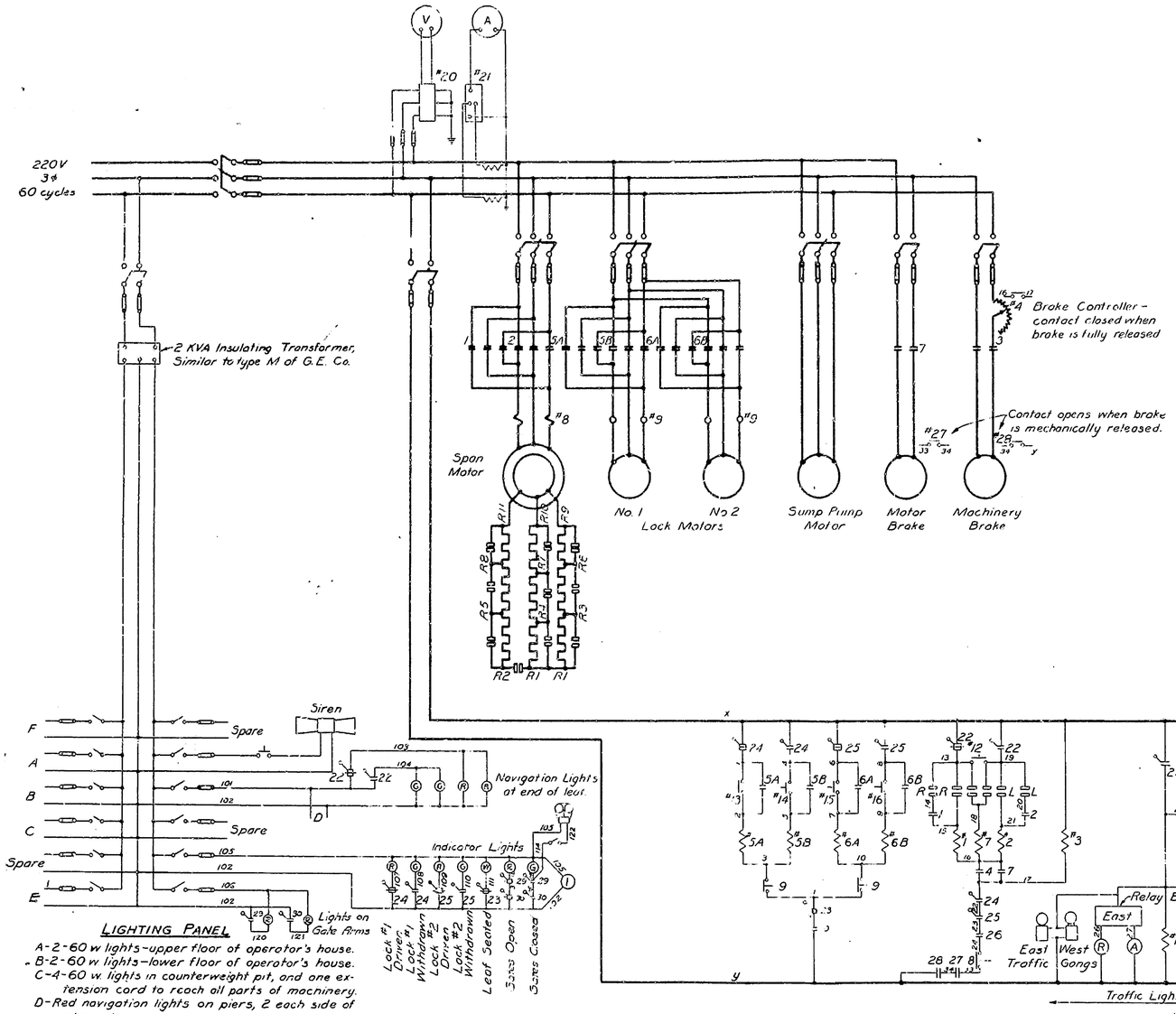
44 FOOT ROADWAY

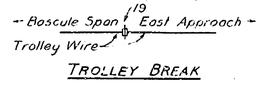
RACKS, TRUNNIONS, BEARINGS AND LOCKS

SCALE 3/32 Noted
TRACED BY [illegible] DATE 9-10-31
DESIGNED BY [illegible] DATE 9-16-31
CHECKED BY ____ DATE ____

ASH-HOWARD-NEEDLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

SHEET NO. 20





TROLLEY BREAK

LIST OF DEVICE NUMBERS

No.	Name	Service
1	Contactor	Main Motor, Raise
2	Contactor	Main Motor, Lower
3	Contactor	Opens Mach. Brake Circuit
4	Mach Brake Controller	Varies Mach. Brake Torque
5A	Contactor	Lock #1 Withdraw
5B	Contactor	Lock #1 Drive
6A	Contactor	Lock #2 Withdraw
6B	Contactor	Lock #2 Drive
7	Contactor	Opens Motor Brake Circuit
8	Overload Relay	Main Motor
9	Overload Relays	Lock Motors
10	Contactor	Traf Sig and Lock Interlock
11	Pushbutton	Controls Traffic Signal
12	Pushbutton	Limit Switch Bypass
13	Pushbutton	Lock #1 Withdraw
14	Pushbutton	Lock #1 Drive
15	Pushbutton	Lock #2 Withdraw
16	Pushbutton	Lock #2 Drive
17	Leaf Position Ind.	Transmitter
18	Leaf Position Ind	Indicator
19	Contactor	Opens Trolley Circuit
20	Voltmeter Switch	
21	Ammeter Switch	
22	Leaf Limit Switch	
23	Limit Switch at End of Leaf	
24	Lock Limit Switch	
25	Lock Limit Switch	
26	Hand Operation Interlock	
27	Brake Release Interlock	Motor Brake
28	Brake Release Interlock	Machinery Brake
29	Gate Limit Switch	
30	Gate Limit Switch	

NOTES:

Reversing contactors 1 & 2, 5A & 5B, and 6A & 6B, to be mechanically interlocked.

Master controller, lock switches, traffic signal switch, signal siren switch, indicator lights, meters, etc., shall be incorporated in a control desk of neat design located on upper floor of operator's house.

Control panel shall be as small as practicable.

Navigation signal sirens shall be motor-operated, similar to type A, manufactured by Norwood-Noonan Co., Chicago, Ill., and shall be placed on west face of operator's house, one pointing upstream and one pointing downstream.

Electric Leaf Position Indicator shall be of the Selsyn type, manufactured by the General Electric Co., or approved equivalent.

For motors, brakes, thrustors, etc., see sheet No. 18.

Lock motors shall be provided with standard motor-mounted brake of 20'# retarding torque.

For information on submarine cables, etc., and for other information not given on this sheet, see specifications.

The normal load on the motor is about 20% of full load, but in rare instances the motor load may be about 150% of full load. The overload relays should be capable of adjustment from 125% to 200%, and the resistors should be designed so that the torque peaks, while accelerating 150% of full load to full speed, should exceed 150% as little as practicable. Provision should also be made to prevent too rapid acceleration of normal load of 20% of full load.

Means shall be provided for mechanical release of the brakes.

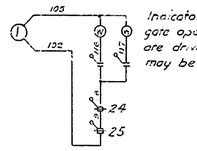
For sump pump, see sheet No. 13.

Traffic signals to be Crouse-Hinds TSP-11, or approved equivalent. Relays to be so arranged that amber will automatically change to red in a predetermined time after device #11 is switched to "Stop" position. Gongs to ring continuously on amber and red.

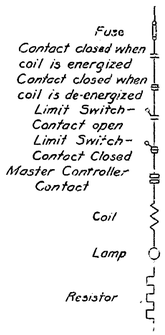
For submarine cable, see Specifications.

LIGHTING PANEL

A-2-60 w lights-upper floor of operator's house.
B-2-60 w lights-lower floor of operator's house.
C-4-60 w lights in counterweight pit, and one extension cord to reach all parts of machinery.
D-Red navigation lights on piers, 2 each side of channel.
E-2-200 w. lights-trolley frame at toe of span.
F-1-60 w. light over platform at Elev. 11.53, and 2-60 w. lights in transformer vault. See Specifications.

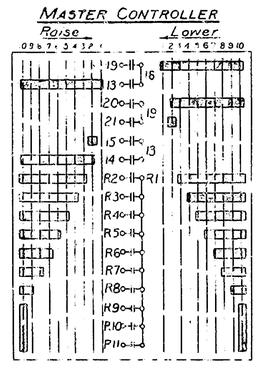


Indicator lights to notify gate operator that locks are driven and gates may be opened.

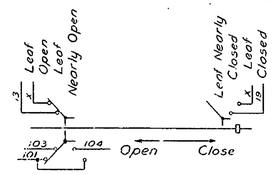


LEGEND

GATE LIMIT SWITCH
Device #29
Device #30 similar

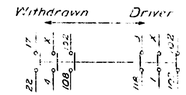


MASTER CONTROLLER



LEAF LIMIT SWITCH
Device #22

LIMIT SWITCH AT END OF LEAF
Device #23
Closed by seating of leaf



LOCK LIMIT SWITCH
Device #24
Device #25 Similar

HAND OPERATION INTERLOCK
Device #26
Closed only when lever is in position for motor operation.

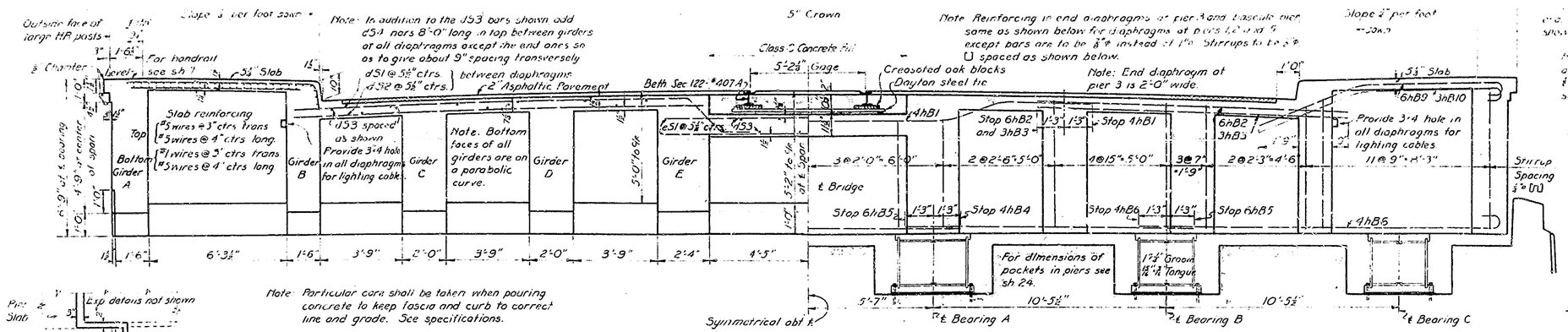
ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

30 AND 44 FOOT ROADWAYS

WIRING DIAGRAM

SCALE
WATER: BEW
INVERT: C.B.S.
CONSTRUCTION
BEN HOWARD STEPHENS & DANIELS
CHIEF ENGR.
ASSOC'D
DES'N
SHEET NO. 22

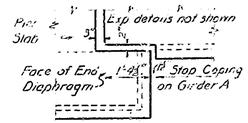


Note: Particular care shall be taken when pouring concrete to keep fascia and curb to correct line and grade. See specifications.

HALF SECTION AT ℄ SPAN SHOWING REINFORCING IN SLAB

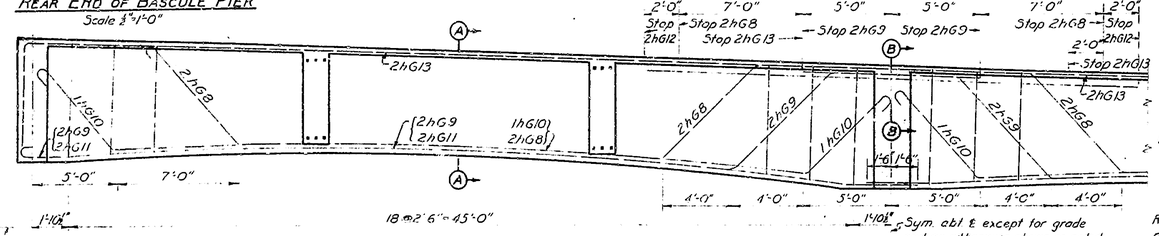
Scale ⅜"=1'-0"

HALF SECTION SHOWING REINFORCING IN DIAPHRAGMS OVER PIERS 1, 2 AND 5

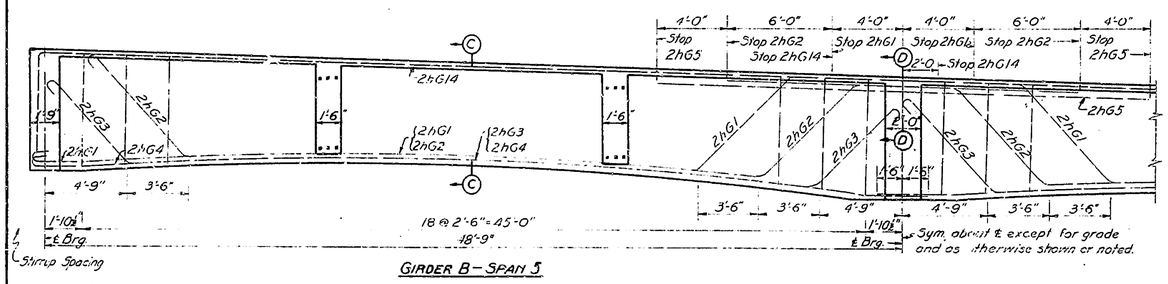


PLAN SHOWING COPING AT REAR END OF BASCULE PIER

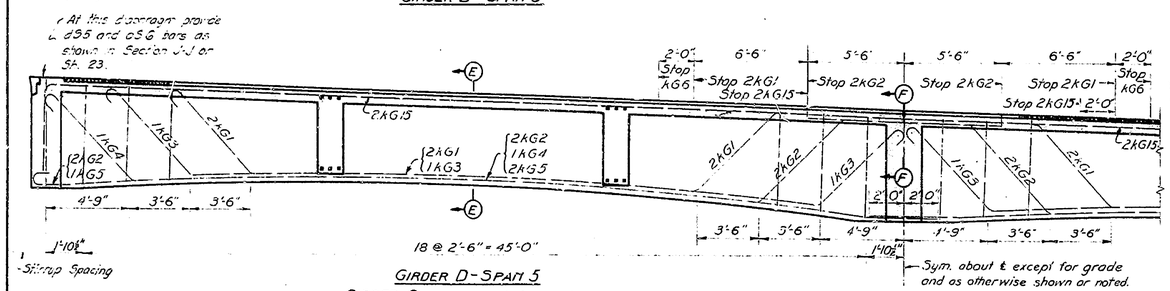
Scale ⅜"=1'-0"



GIRDER A – SPAN 5



GIRDER B – SPAN 5

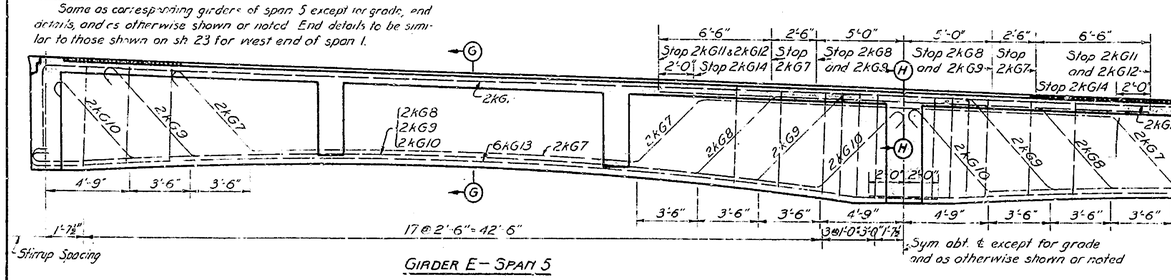


GIRDER D – SPAN 5

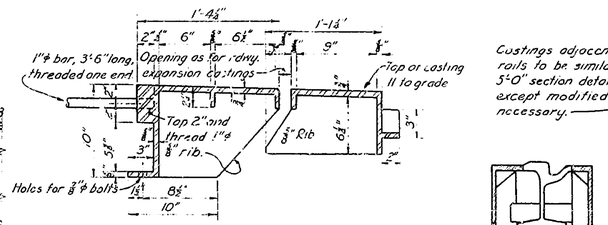
GIRDER C same except for depth.

ALL GIRDERS – SPAN 6

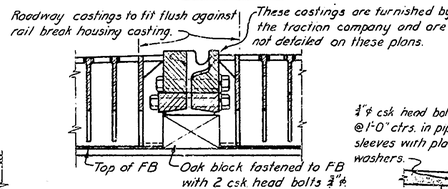
Same as corresponding girders of span 5 except for grade, end details, and as otherwise shown or noted. End details to be similar to those shown on sh 23 for west end of span 1.



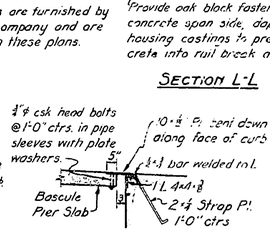
GIRDER E – SPAN 5



SECTION J-J

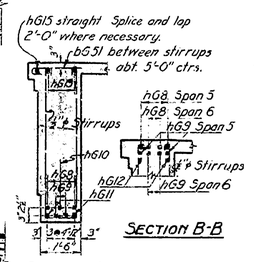


SECTION K-K

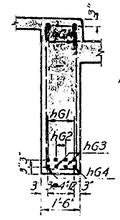


SIDEWALK EXPANSION JOINT REAR END OF BASCULE PIER

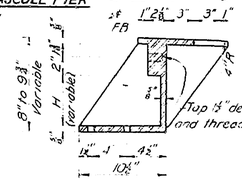
Scale ½"=1'-0"



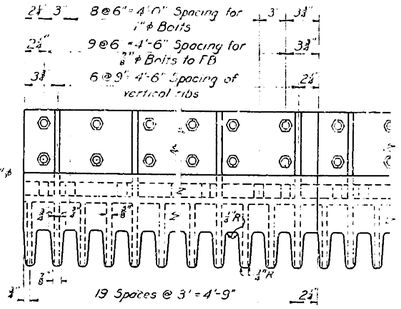
SECTION B-B



SECTION D-D



CROSS SECTION

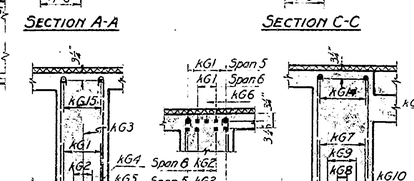


ROADWAY EXPANSION CASTING – PIER SIDE

Scale ½"=1'-0"

Material – Cast Steel, Galvanized, Hot Dipped

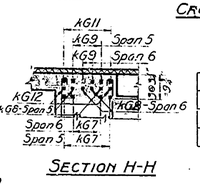
Provide 3 castings 5'-0" long as shown, 3 opposite hand and 3 as noted elsewhere on this sheet. Tops of castings to be straight and set on a chord of 5'-0" radius. Ends to be finished on radial lines. For general notes regarding castings see sheet 4.



SECTION E-E

SECTION F-F

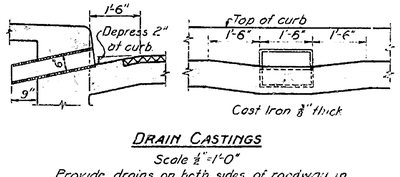
SECTION G-G



SECTION H-H

Sections A-A to H-H are drawn to scale ⅜"=1'-0".

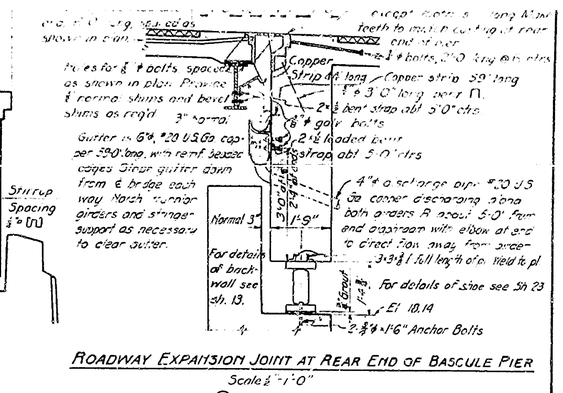
Casting	H
Between Rails	5⅛"
Adj. to Rails (variable)	4⅛" to 5"
All others	3⅛"



DRAIN CASTINGS

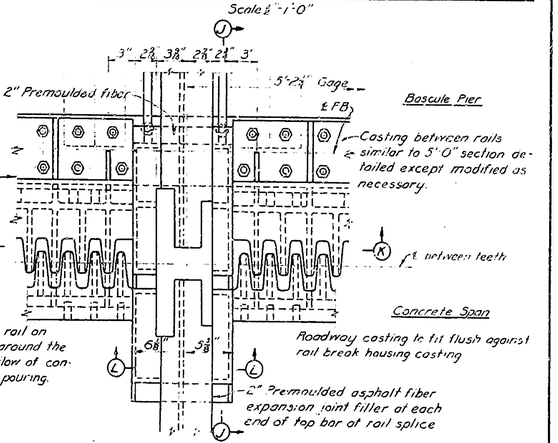
Scale ½"=1'-0"

Provide drains on both sides of roadway in each span abt. 10'-0" from low end of span.



ROADWAY EXPANSION JOINT AT REAR END OF BASCULE PIER

Scale ½"=1'-0"



SECTION L-L

RAIL BREAK AT REAR END OF BASCULE PIER

Scale ½"=1'-0"

Details of south rail shown. Details at north rail same except opposite hand.

NOTES:

Provide sufficient camber in all spans to prevent sag in fascia lines and in bottoms of girders under full dead load.

Stirrups are ½"ø unless otherwise shown or noted.

For general notes on concrete see sh 23.

For bar marking table, see sh 23.

For trolley pole connections on concrete spans, see sh. 8. Provide pockets and bend bars as reqd.

For details of roller shoes, see sh. 23.

For details of bottom curve of girders and of recess on Girder A, see sh. 23.

For details of end diaphragms at abutments, see sh 23.

Fill around street railway track shall be Class C concrete; all other concrete shall be Class B. See Specifications.

Chamfer all exposed edges ¾" except as noted.

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

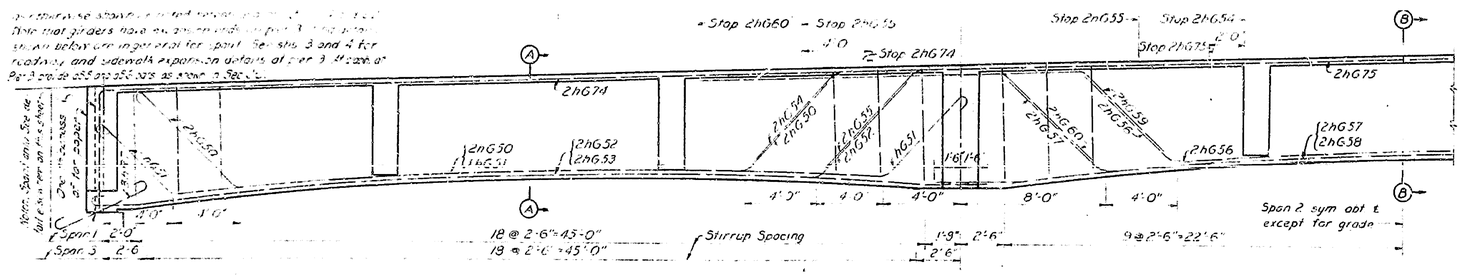
44 FOOT ROADWAY

CONCRETE GIRDER SPANS

SCALE ½"=1'-0" UNLESS NOTED
DRAWN — J.K. DATE — 8-13-31
TRACED — J.B.S. DATE — 8-22-31
CHECKED — DATE —

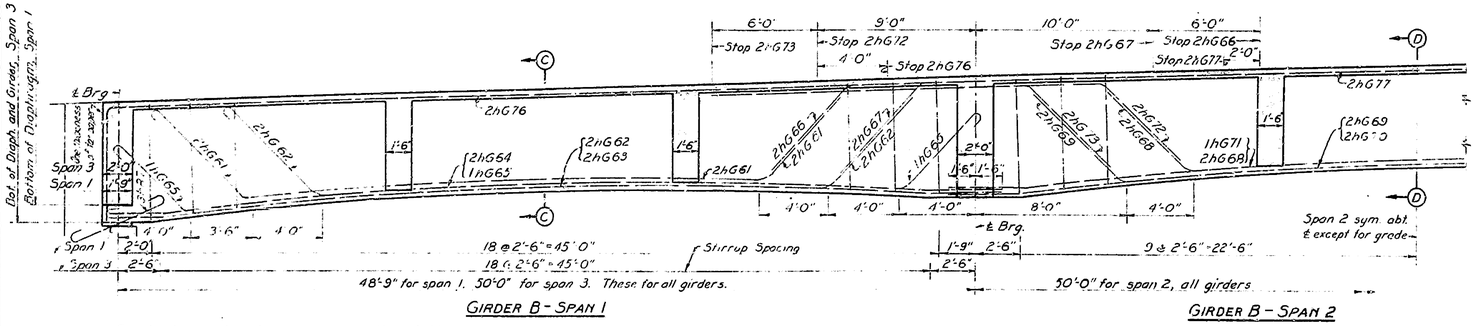
ASH HOWARD NEEDLES & TAMMEN
CONSULTING ENGINEERS
NEW YORK

SHEET NO. 22



GIRDER A - SPAN 1

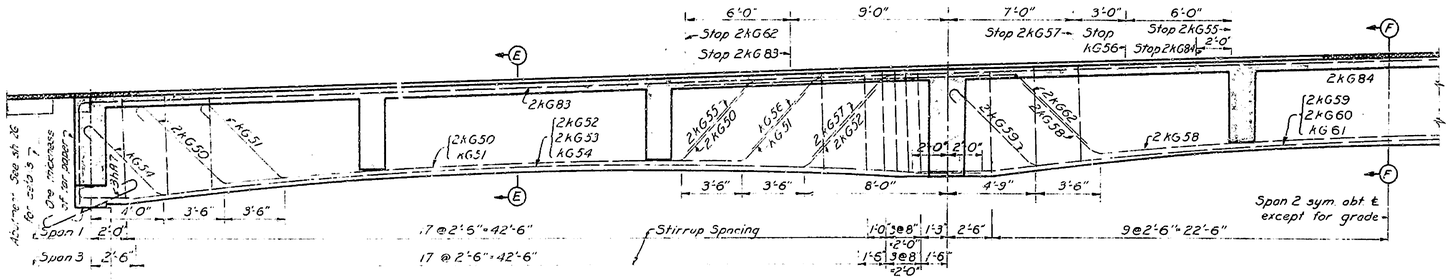
GIRDER A - SPAN 2



GIRDER B - SPAN 1

GIRDER B - SPAN 2

For depths of all girders see cross section, sh 22.



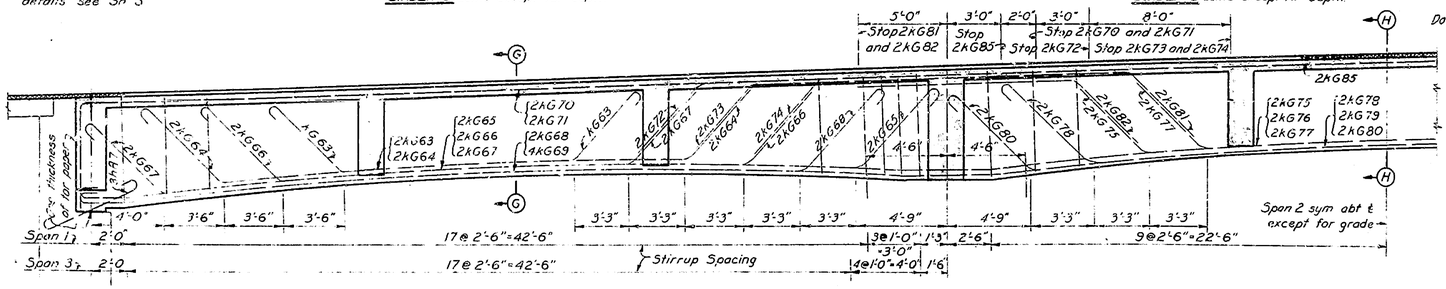
GIRDER D - SPAN 1

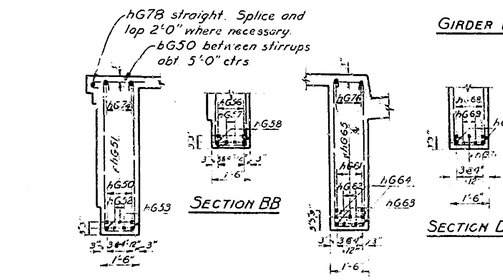
GIRDER C some except for depth

GIRDER D - SPAN 2

GIRDER C some except for depth

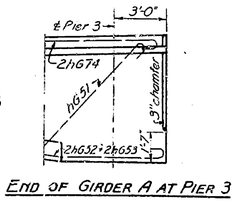
Provide copper gutter and flashing on end diaphragm at pier 3 For details see Sh 3





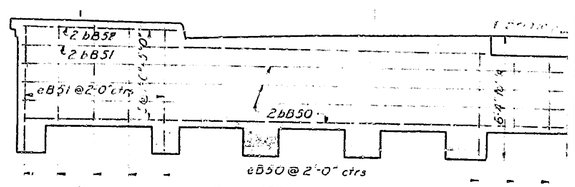
GIRDER E - SPAN 1

GIRDER E - SPAN 2



END OF GIRDER A AT PIER 3

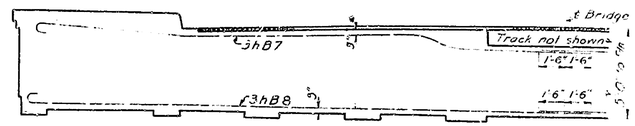
Main steel to be carried through as shown. Stirrup spacing as noted elsewhere. For plan see sh 4.



Note: d55 and d56 bars not shown in this section.

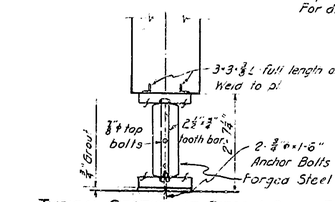
HALF SECTION OF DIAPHRAGM AT ABUTMENTS SHOWING REINFORCING

BAR MARKING TABLE			
Mark	Size	Mark	Location
E	5/8" ϕ	B	Diaphragms
G	3/4" ϕ	G	Girders
S	3/4" ϕ	S	Slabs
n	1" ϕ		
A	1 3/8" ϕ		



HALF CROSS SECTION SHOWING REINFORCING IN INTERMEDIATE DIAPHRAGMS

These diaphragms located at 4 points of span. For diaphragms at piers see sh 22.

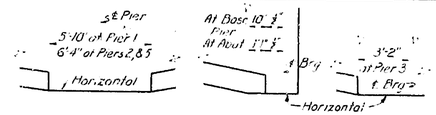


TYPICAL SECTION AT PIERS 1, 2, AND 5 SHOWING ROLLER SHOES

Scale 1/2" = 1'-0"

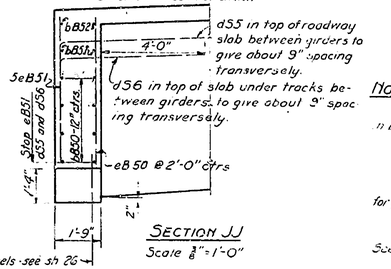
Note- Rollers and bearing plates to be copper-bearing steel with minimum copper content of 0.20%.

Item	Piers 1, 2, and 5		Pier 3 and Bascule Pier	
	Bearing A	Bond C	Bearing A	B and C
Top Brg. Pls.	18½" x 40" x 3½"	18" x 33" x 3½"	10" x 36'2"	10" x 26'-2"
Rollers	9" x 24" x 36"	9" x 24" x 29"	5" x 12'8" x 32"	5" x 12'8" x 22"
Bott. Brg. Pls	18½" x 44" x 3½"	18" x 37" x 3½"	10" x 40'-2"	10" x 30'-2"
Notch in Brg. Pl for Tooth Bar	1½"	1½"	1"	1"
c.c Anchor Bolts	3'-4"	2'9"	3'-5"	2'-2"



DETAILS OF BOTTOM CURVE OF GIRDERS AND OF RECESS ON GIRDER A

Bottom curve of all girders parabolic



SECTION JJ

Scale 3/8" = 1'-0"

NOTES:

There be sufficient camber in all spans to prevent sag in fascia lines and in bottoms of girders under full dead load.

Stirrups are 5/8" ϕ unless otherwise shown or noted.

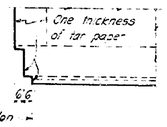
For trolley pole connections on concrete spans see sh 8.

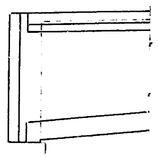
Chamfer all exposed edges 3/4" except as otherwise noted.

Provide anchor bolts for traffic gate supports, and reinforcing steel for gate protection posts. For details, see sh 9.

Provide drains as shown on sh 22.

Provide box chambers and manholes in sidewalks for access to chambers. See Sh 20.





DETAIL OF GIRDER A AT ABUTMENTS

Showing notches for pylon

GENERAL NOTES ON CONCRETE:

For classification of concrete see individual sheets, and Specifications

Construction joints other than those shown on the plans shall be made only with the approval of the Engineer. Adequate keys shall be provided as shown on the plans and as directed by the Engineer.

Unless otherwise shown or noted, the minimum clear distance of reinforcing steel from edge of concrete shall be 2"

Bars shall be lapped 44 diameters at all splices unless otherwise shown or noted

Bends in bars went up or down for diagonal tension reinforcement shall make an angle of 45° with the direction of the bar. Steel shall be accurately placed and securely wired in place before concrete is poured

Minimum radius of bends shall be 4 diameters of bar except for stirrups, hooks, and similar pieces requiring sharper bends.

Hooks shall be made by bending the end of the bar through 180 degrees to a diameter not less than 6 diameters of the bar, the total length of hook being not less than 16 diameters of the bar.

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON, DELAWARE

FOR NEWCASTLE COUNTY, DELAWARE

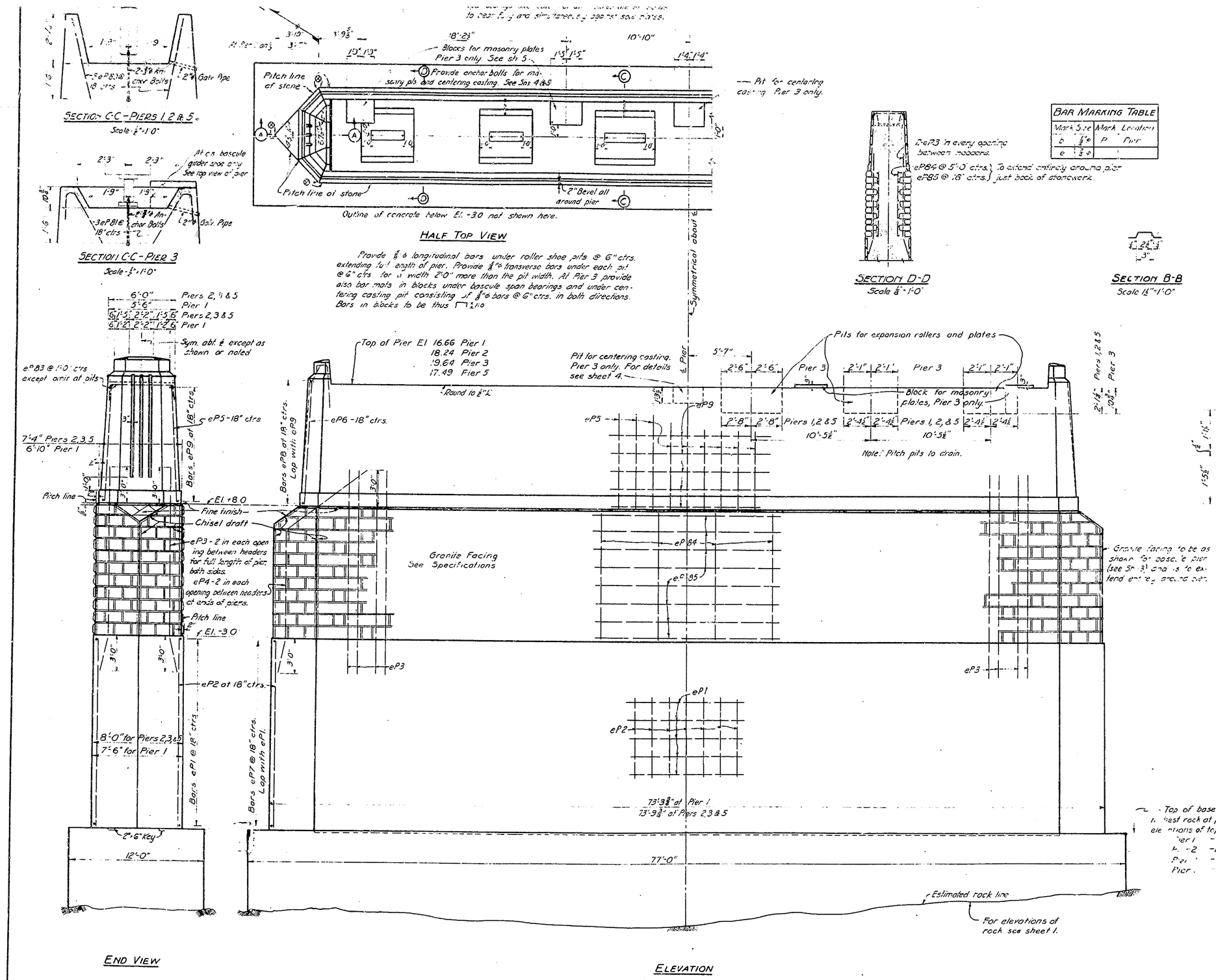
44 FOOT ROADWAY

CONCRETE GIRDER SPANS

SCALE 3/4"=1'-0" Unless Noted
DRAWN K. DATE 8-18-31
TRACED BS DATE 8-25-31
CHECKED BY DATE

JOHN HOWARD SIBLEY & TAMMEN
CONSULTING ENGINEERS
NEW YORK

SHEET NO. 23



NOTES:

For general notes on concrete see sheet 23.

Concrete shall be Class C, except that poured under water which shall be Class B. See Specifications.

All exposed edges of concrete to be sharp unless otherwise noted.

Minimum clear distance of reinforcing bars from face of concrete shall be 3" except as noted.

Provide substantial keys at all construction joints.

For details of girder span shoes, see sheet 23.

⊗ Provide 1" chisel draft.

Provide 5/8" ϕ @ 18" ctrs. vertically and horizontally in all faces and ends of piers except provide bars between El. -3.0 and El. +8.0 as shown.

For details of fenders at Pier 3 and for special reinforcing back of fender supports see Sh. 7.

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

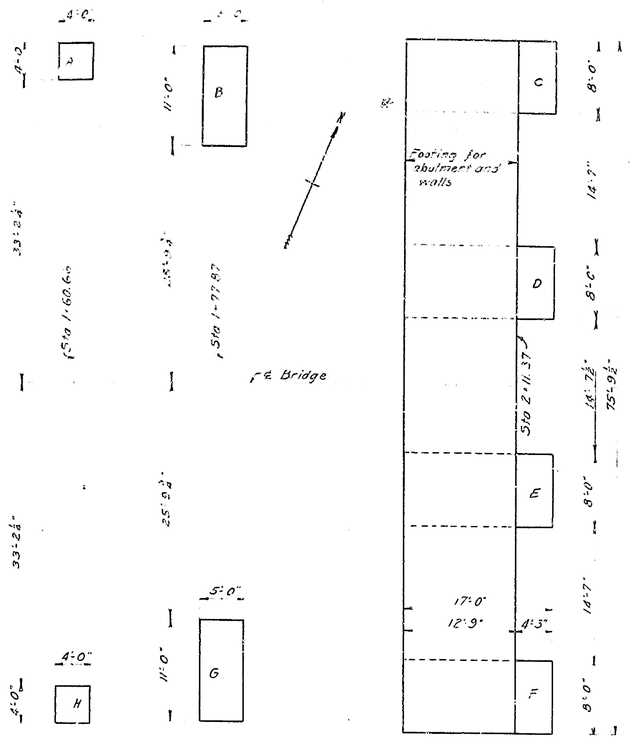
44 FOOT ROADWAY

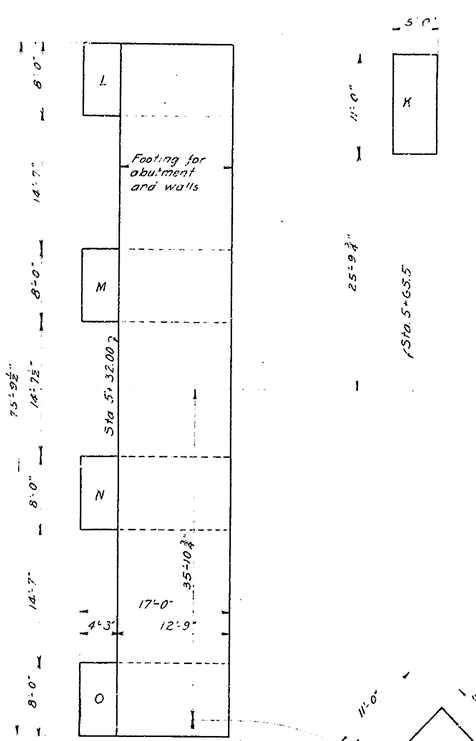
PIERS 1, 2, 3 AND 5

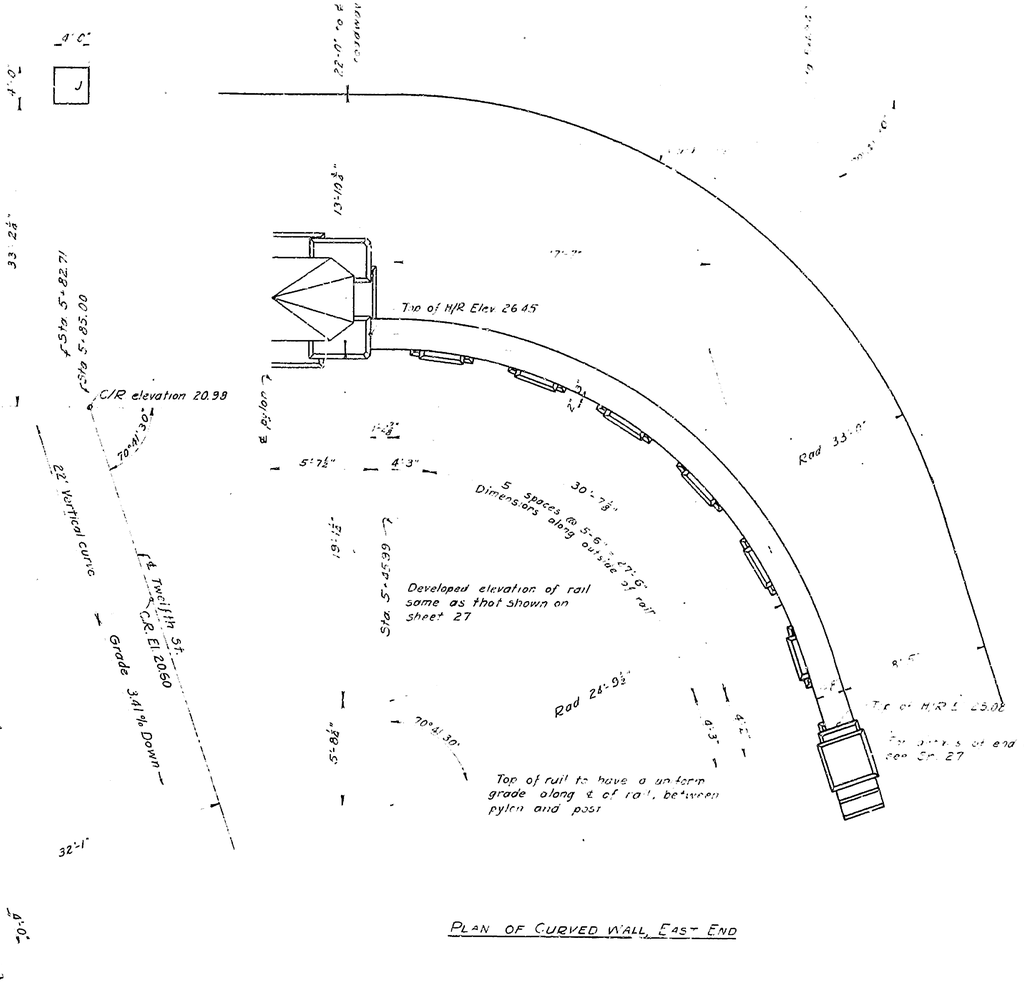
SCALE 3/4" = 1'-0" Unless Noted
MADE BY G.E.W. DATE 1-20-31
TRACED BY J.B.S. DATE 7-28-31
CHECKED BY ... DATE ...

ABN. HOWARD NECOLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

SHEET NO. 24



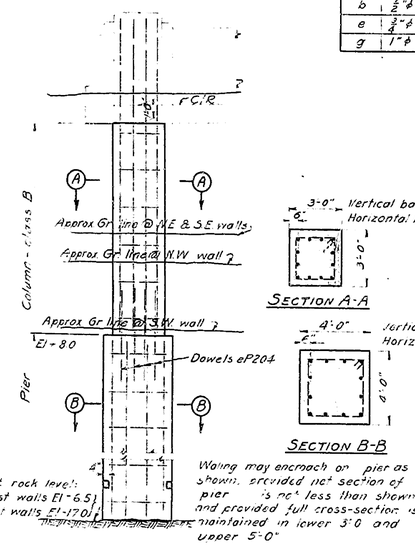




PLAN OF PIERS SUPPORTING ABUTMENTS, RETAINING WALLS, AND PYLONS
Scale ⅛"=1'-0

PLAN OF CURVED WALL, EAST END

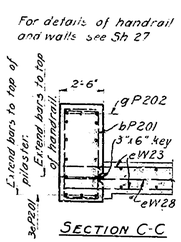
BAR MARKING		
Mark	Size	Mark Location
b	⅝"ϕ	P Piers
e	¾"ϕ	W Walls
g	1"ϕ	

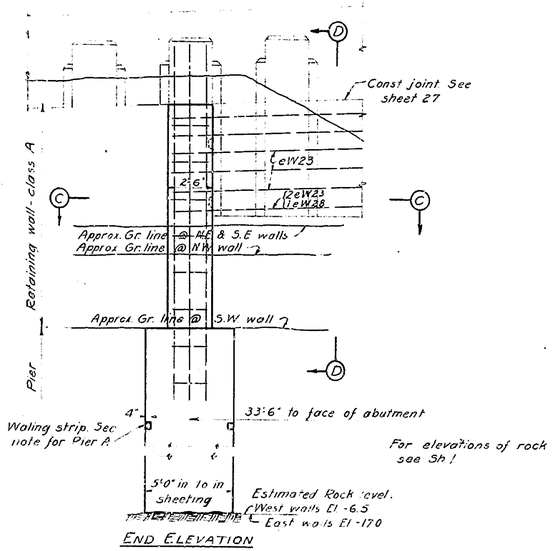


PIERS A, H, J, AND Q

Waling may encroach on pier as shown, provided net section of pier is not less than shown and provided full cross-section is maintained in lower 3'-0" and upper 5'-0"

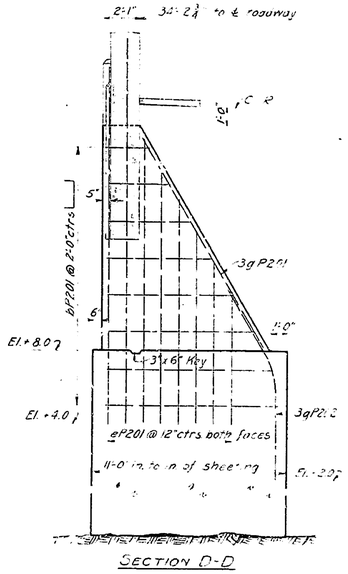
Concrete in piers shall be class C except that deposited under water which shall be Class B.





For elevations of rock see Sh 1

PIERS B, G, K, AND P



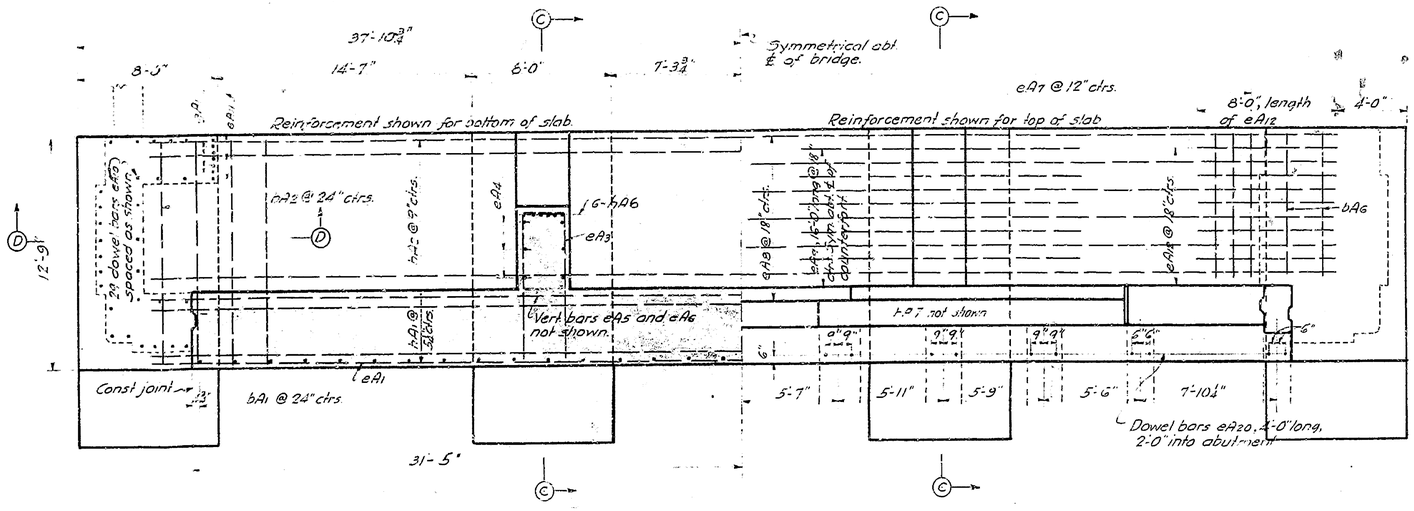
For General Notes on concrete, see Sh 23
Clear distances from reinforcing bars to edge of concrete to be 3" unless otherwise shown

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

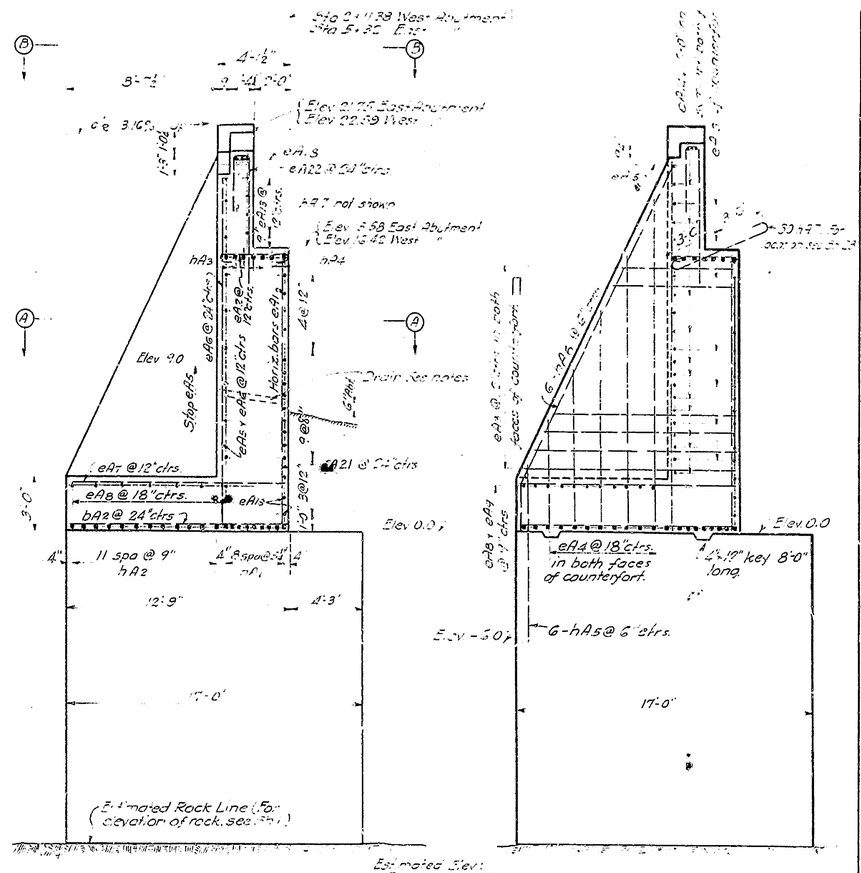
ABUTMENTS AND RETAINING WALLS

SHEET NO. 25



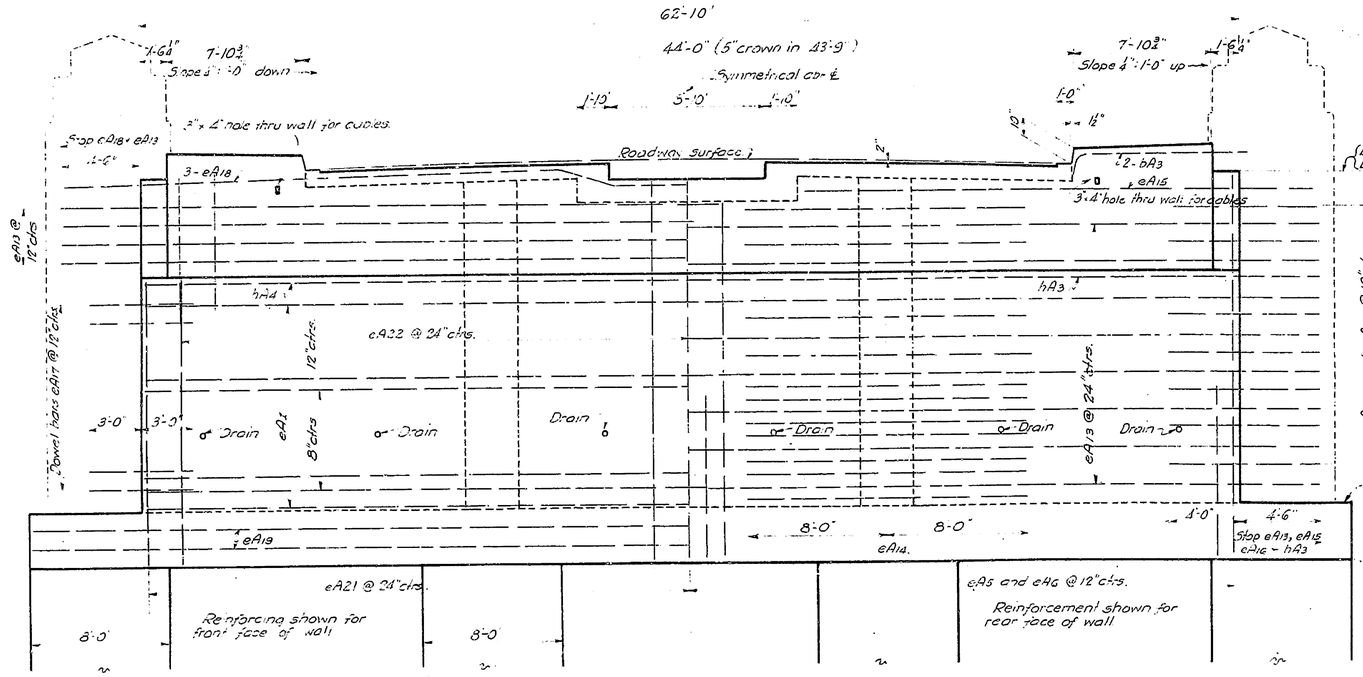
HALF SECTION A-A.

HALF SECTION B-B.

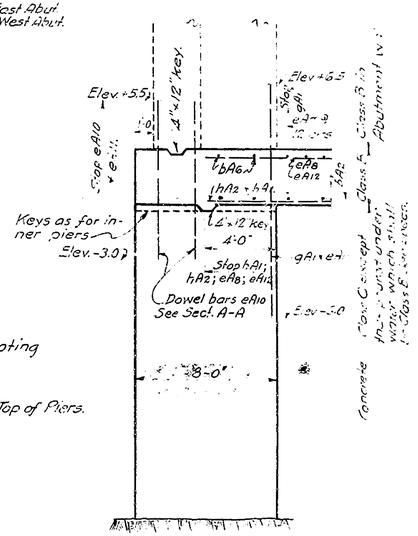


LONGITUDINAL SECTION ON ℄ ROADWAY.

SECTION C-C.



FRONT VIEW.



SECTION D-D

NOTES:

All concrete below Elev 0.0 to be Class C except that poured under water, which shall be Class B See Specification No. 4" concrete above Elev. 0.0 to be Class B

Clear distance from edge of concrete to reinforcing shall be 3" except as shown or noted otherwise.

All exposed corners to be chamfered ½"

For general notes on concrete see Sh. # 23

Provide 4" tile drains in abutment walls as shown, with outlets abt. 6" above ground line. Place ½ cu.yd. of coarse rock behind each drain. Cost of drain and rock included in price paid for concrete.

BAR MARKING TABLE

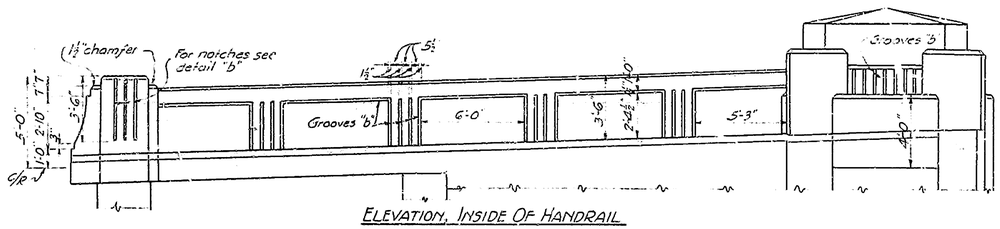
Mark	Size	Mark	Location
b	[illegible]	A	Abutment
e	3/4" ⌀		
g	1 ⌀		
h	1 □		

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

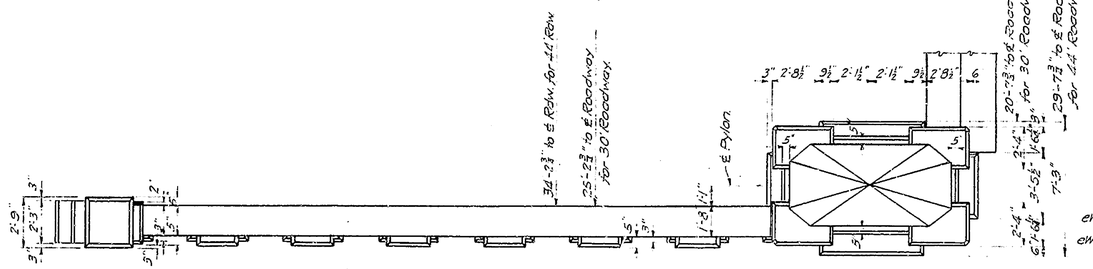
44 FOOT ROADWAY

ABUTMENTS

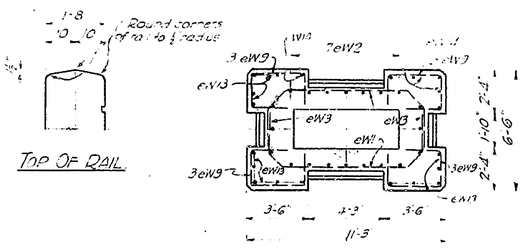
SHEET NO. 26



ELEVATION, INSIDE OF HANDRAIL

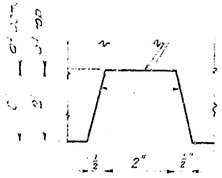


PLAN, HANDRAIL AND PYLON

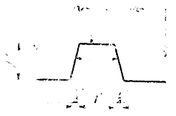


TOP OF RAIL

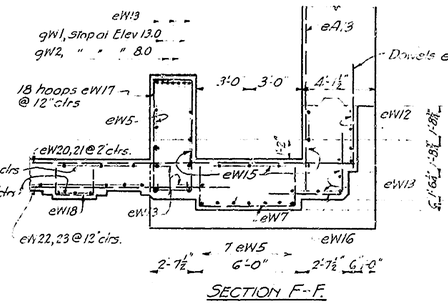
SECTION D-D



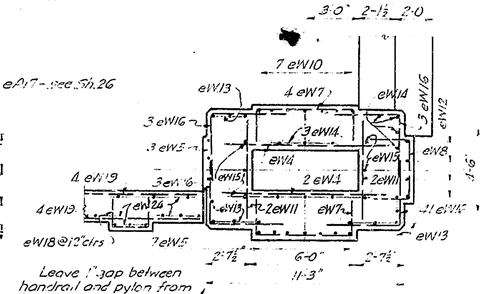
GROOVE "a"
Half size



GROOVE "b"
Half size

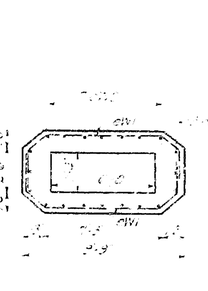


SECTION F-F

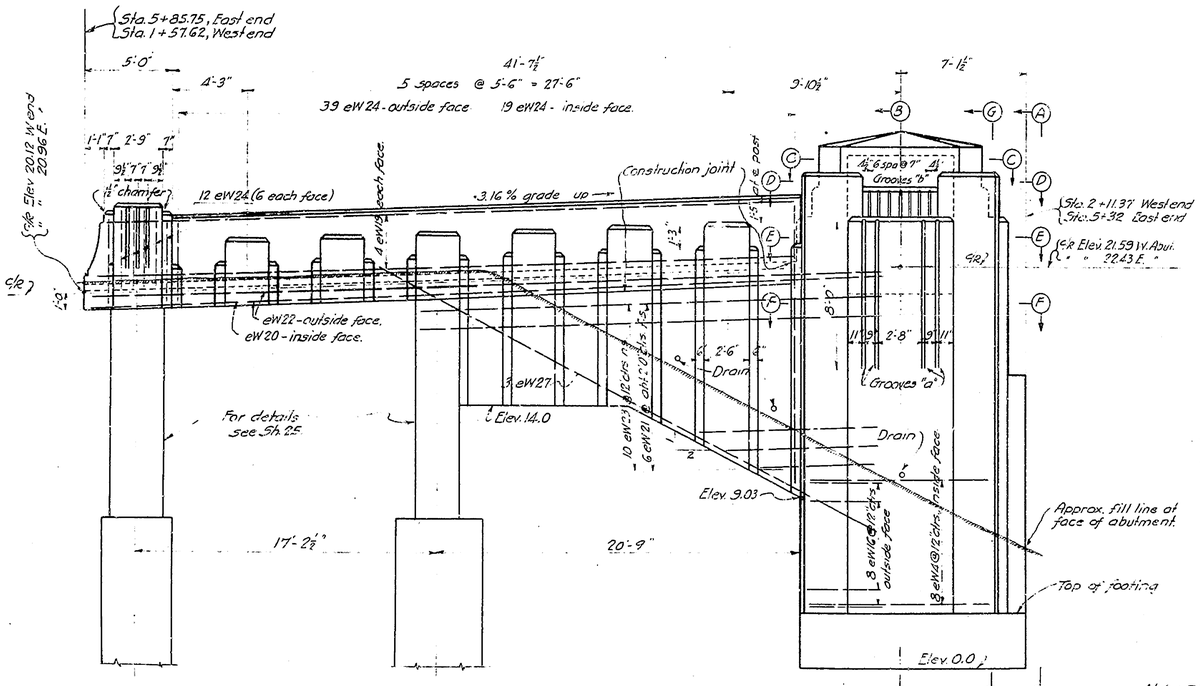


Leave ½" gap between handrail and pylon from top of handrail to top of sidewalk

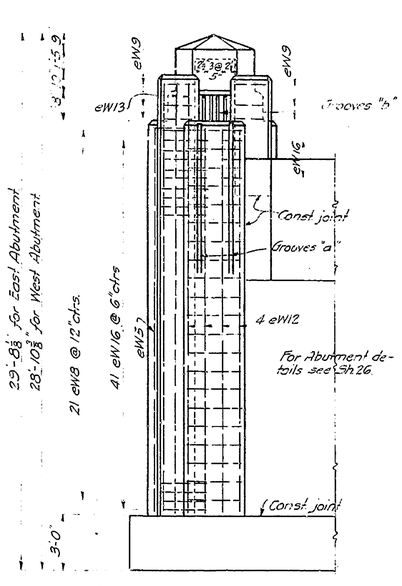
SECTION E-E



SECTION C-C

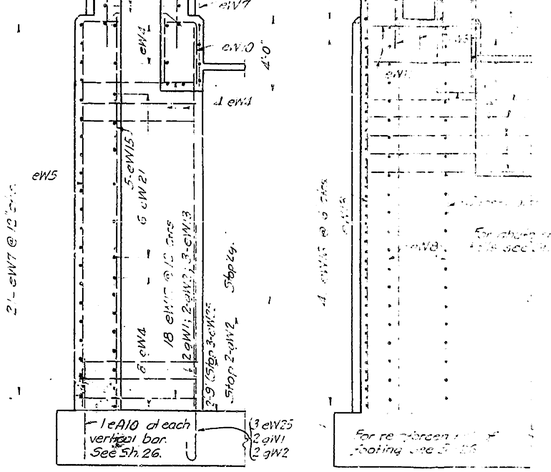


ELEVATION OF RETAINING WALLS AND PIERS.



Note: Piers under footing not shown.

VIEW A-A.



SECTION B-B

SECTION

BAR MARKING TABLE			
Mark	Size	Mark	Location
e	⅜ ø	W	Wall
℄	1" ø		

Notes:

Concrete in handrail, in pylons and in retaining walls above footings shall be Class A.

Distance from face of concrete to ℄ of reinforcing bars to be not less than 3" for all bars in handrail, walls and pylon. Particular care shall be taken in placing reinforcing to insure that this minimum distance is maintained.

All exposed corners to be chamfered ¾" @ 45° where no chamfer is shown. Chamfers shown are 2⅛" @ 45° except as noted.

All projections to be horizontal and vertical.

For finish of concrete, see specifications. Finish of tops of post and horizontal surfaces of pylon to be such as will provide drainage.

Provide 4"ø tile drains in retaining walls as shown, with outlets 20" above ground line. Place ½ cu. yd. of coarse rock behind each drain. Cost of drain and rock included in price paid for concrete.

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON DELAWARE

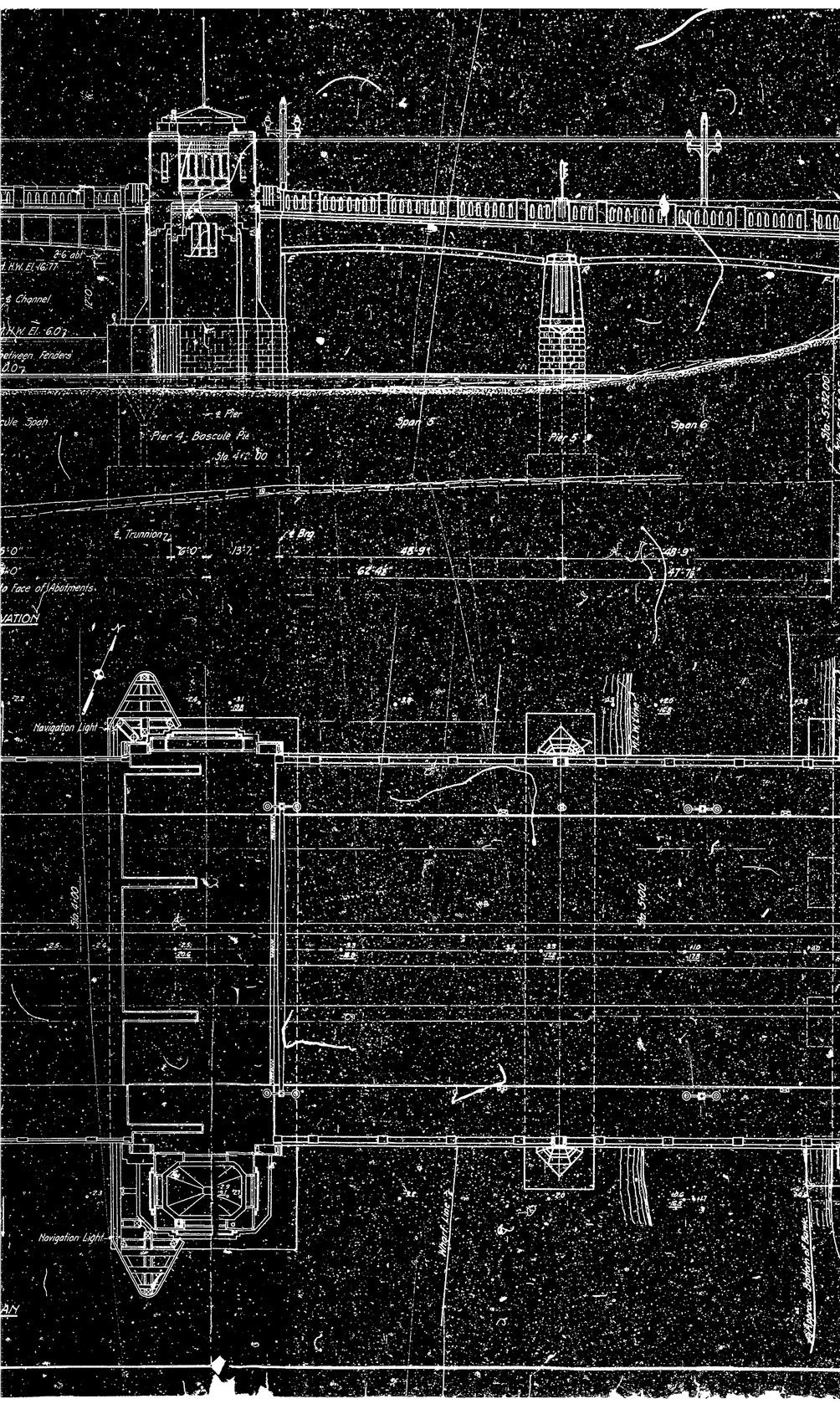
FOR NEWCASTLE COUNTY, DE. AND INC.

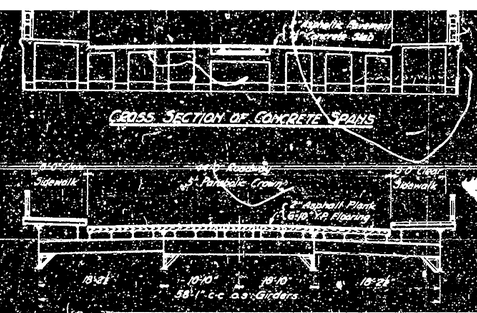
30 AND 44 FOOT ROADWAYS

RETAINING WALLS AND PIERS

DES. RMB GA
DET. AR
CHKD.

NOTE
The ground and rock lines shown are estimated, being plotted from the elevations shown at points marked • in plan, +170 indicating ground elevation and -8.5 indicating rock elevation. All soundings were made with a 1½" jet, except those marked *, which were made with a 1½" pipe driven with a maul.
The material is a soft mud, changing to a stiffer consistency as depth is reached. Apparently this material has very little resistance to side pressure. There appears to be from 1' to 2' of gravel and sand on top of rock.
40'0" Clear Span Up
Sta 3+85.00
Rl. El. 27.30
One navigation light on each outside girder arranged to show green for span fully open and red for all other positions
Required Clearance Line
Ext. H.W. El 16.77
℄ Channel
M.H.W. El. 6.03
40'0" Clear between Fenders
M.L.W. El 0.07
Ground Line 40' North of ℄
Ground Line on ℄ Bridge
Ground Line 40' South of ℄
Sta 2+11.97
C/R El 21.81
Span 1
Span 2
Span 3
Span 4 Bascule Span
Span 5
Pier 1
Pier 2
Pier 3
℄ Pier
Pier 4 Bascule Pit
Pier 5
Sta 4+12.00
Rock Line 40' South of ℄
Rock Line 40' North of ℄
Rock Line on ℄ Bridge
℄ Brg.
℄ Brg. Bascule Span
℄ Trunnion
48'9"
47'7½"
50'0"
55'0"
63'0"
6'0"
13'7"
62'9½"
320'7¼" Face to Face of Abutments
ELEVATION
M.H.W. Line
M.L.W. Line
Navigation Light
CREEK
Flood
BRANDYWINE
Ebb
Traffic Gates
Traffic Signal
Trolley Pole
Drain
Sta 2+00
Sta 3+00
Sta 4+00
Wharf Line
PLAN





NOTES

Datum Reference - Elevations given refer to City Datum, which is 0.82 ft. below U.S. Govt. Datum and = M.L.W. in Christiana River at Market St. Bridge.

Specifications

Structural - American Association of State Highway Officials, 1928.

Machinery - Ash-Howard-Needles & Tammen.

Live Loads

Floor System

Electric Ry. - Two 60-ton cars followed or preceded or both by a uniform load of 600# per ft. of track.

Roadway - 20 ton trucks passing; 9 ft. traffic lane

1 or 2 lanes loaded - 100%

3 " " - 90%

4 " " - 80%

Sidewalk - 100 #/s.f.

Girders

Electric Ry. - Same as for floor system.

Roadway - On each 9 ft. traffic lane, 600# per linear ft. plus a 20,000# concentration.

Sidewalk - $R = 0.8\,(80 + 0.125\,L)\,\#/s.f.$ where L = loaded length.

Impact Loads

Floor System - I = 30% except 60% for end floorbeams and all floorbeam connections.

Girders - $I = \frac{L+320}{4L+500}$ for both roadway and electric ry. loads but not to exceed 30%, where L = length of span loaded (regardless of number of traffic lanes loaded).

Sidewalks - no impact.

Standard Truck

Electric Ry. Loading (30,000# axle load)

Angle of Opening 80°-30' Normal - 82°-30' Maximum

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON, DELAWARE

FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

GENERAL PLAN AND ELEVATION

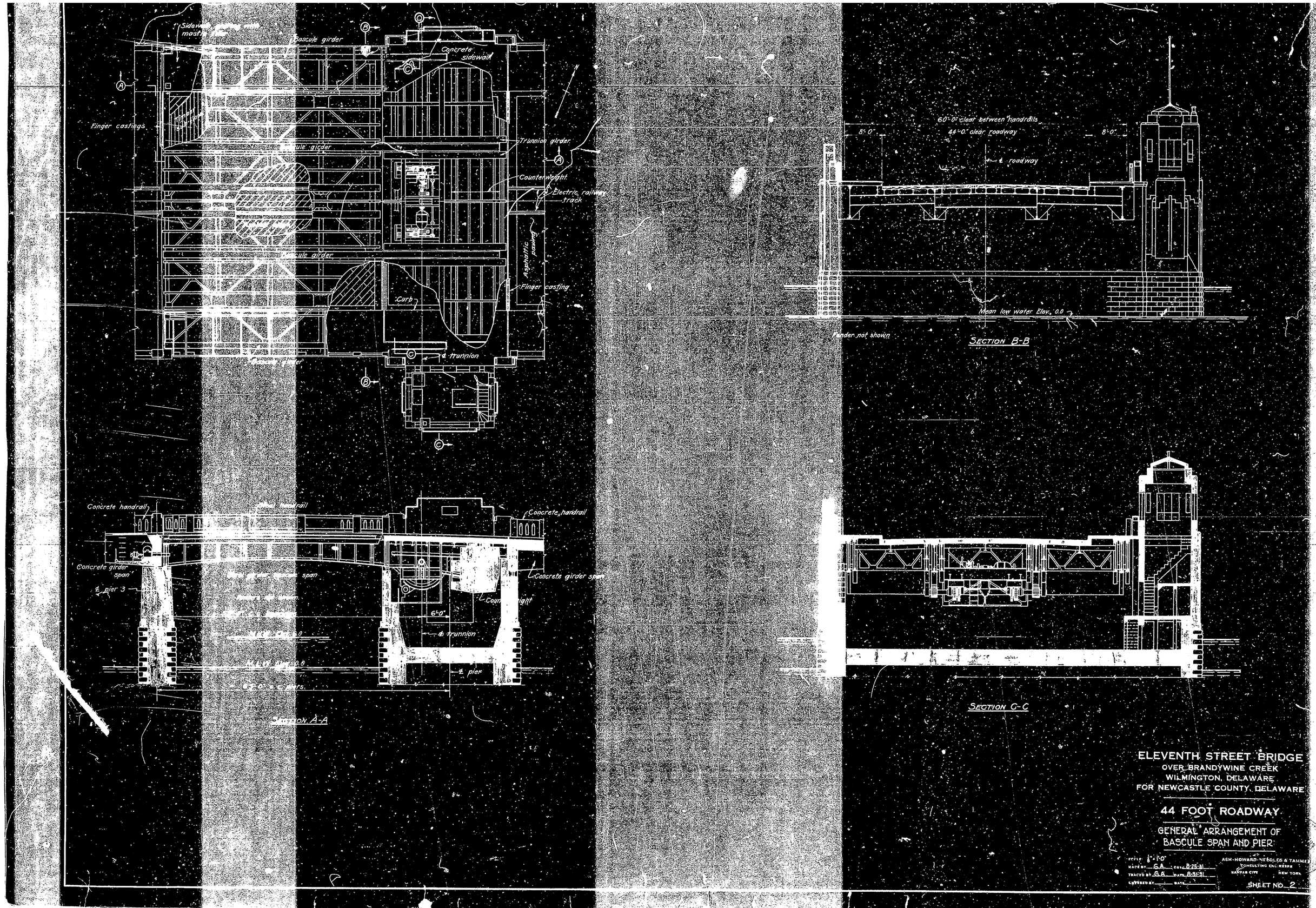
SCALE 1" = 10' Unless Noted — ASH-HOWARD-NEEDLES & TAMMEN, CONSULTING ENGINEERS

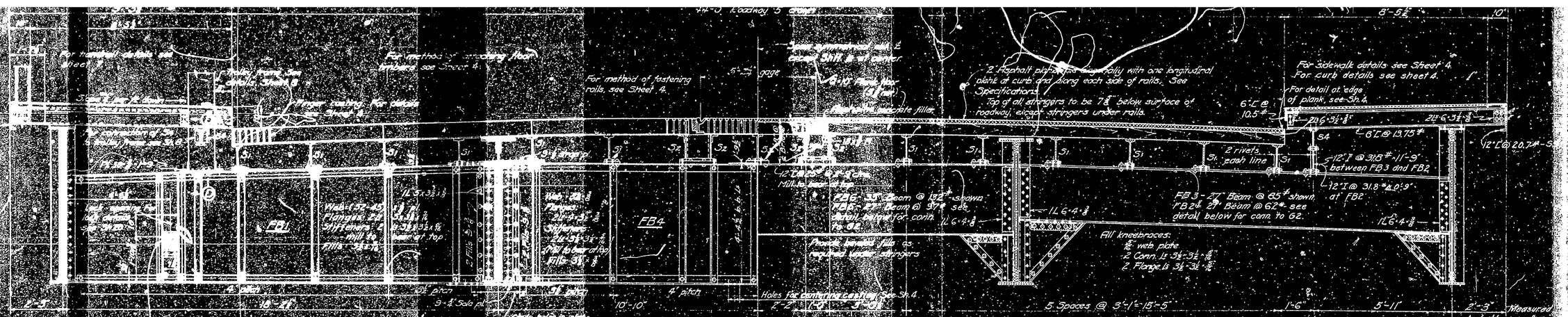
DRAWN J.K. DATE 8-12-31

TRACED BY J.K. DATE 9-11-41

CHECKED ____ DATE ____

SHEET No. 2


Bascule girder
Concrete sidewalk
Finger castings
Trunnion girder
Counterweight
Electric railway track
Asphaltic paving
Finger casting
Curb
℄ trunnion
60'-0" clear between handrails
44'-0" clear roadway
8'-0"
8'-0"
℄ roadway
Mean low water Elev. 0.0
Fender not shown
SECTION B-B
Concrete handrail
Concrete handrail
Concrete girder span
Concrete girder span
℄ pier 3
6'-0"
℄ trunnion
℄ pier
SECTION A-A
SECTION C-C
ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE
44 FOOT ROADWAY
GENERAL ARRANGEMENT OF
BASCULE SPAN AND PIER
SCALE 1/8" = 1'-0"
MADE BY G.A. DATE 8-25-31
TRACED BY G.A. DATE 8-31-31
CHECKED BY DATE
ASH-HOWARD-NEEDLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
SHEET NO. 2



ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

BASCULE SPAN
FLOOR AND LATERALS

SCALE 1"=1'-0" UNLESS NOTED
MADE BY G.A. DATE 8-2-31
TRACED BY H.E.M. DATE 8-2-31
CHECKED BY — DATE —

AGH-HOWARD-NEEDLES & TAMMEN
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

SHEET NO. 3

Note: In addition to the d33 bars shown, add d34 bars 8'-6" long in top between girders at all diaphragms except the end ones so as to give about 9" spacing transversely.

Note: Reinforcing in end diaphragms at pier 3 and bascule pier same as shown below for diaphragms at piers 1, 2 and 4 except bars are to be ⅞" ϕ instead of 1" ϕ. Stirrups to be ⅝" ϕ U spaced as shown below.

Note: End diaphragm at pier 4 is 2'-0" wide.

Note: Particular care shall be taken when pouring concrete to keep fascia and curb to correct line and grade. See specifications.

Exp. details not shown

Stop Coping on Girder A

Half Section at ℄ Span Showing Reinforcing in Slab

Scale ⅜"=1'-0"

Half Section Showing Reinforcing in Diaphragms over Piers 1, 2 and 3

Scale ⅜"=1'-0"

Roadway Expansion Joint at Rear End of Bascule Pier

Scale 1½"=1'-0"

...n Showing Coping at ...End of Bascule Pier

Scale 1½"=1'-0"

Girder A – Span 3

18 @ 2'-6" = 45'-0"

Girder B – Span 3

18 @ 2'-6" = 45'-0"

Girder D – Span 3

18 @ 2'-6" = 45'-0"

Girder C – Same except for depth.

...irders – Span 6

...as corresponding girders of span 3, except for grade, end ...and as otherwise shown or noted. End details to be simi... those shown on sh. 23 for west end of span 1.

Girder E – Span 3

17 @ 2'-6" = 42'-6"

Section J-J

Section K-K

Section A-A

Section B-B

Section C-C

Section D-D

Section E-E

Section F-F

Section G-G

Sections A-A to K-K are drawn to scale ⅜"=1'-0"

Section H-H

Casting	H
Between Rails	5¾"
Adj. to Rails (variable)	4¾" to 5"
All others	3¾"

Section L-L

Cross Section

Rail Break at Rear End of Bascule Pier

Scale 4"=1'-0"

Details of south rail shown. Details at north rail same except opposite hand.

Sidewalk Expansion Joint at Rear End of Bascule Pier

Scale 1"=1'-0"

Drain Castings

Scale 1"=1'-0"

Provide drains on both sides of roadway in each span abt. 10'-0" from low end of span.

Roadway Expansion Castings – Plan View

Scale 1"=1'-0"

Material – Cast Steel, Galvanized, Hot Pl...

Provide 3 castings 5'-0" long as shown, 3 op... hand, and 3 as noted elsewhere on this sheet. Top... castings to be straight and set on a chord at 3'-7¼"-5... Ends to be finished on radial lines. For general note... regarding castings see Sheet 4.

Castings adjacent to rails to be similar to 5'-0" section detailed except modified as necessary.

Provide oak block fastened to rail on concrete span side, dapped around the housing castings to prevent flow of concrete into rail break during pouring.

These castings are furnished by the traction company and are not detailed on these plans.

Roadway castings to fit flush against rail break housing casting.

Top of FB

Oak block fastened to FB with 2 cak. head bolts ⅞" ϕ

Holes for ⅞" ϕ bolts

Top of casting ½" to grade.

Depress 2" at curb

Top of curb

Cast Iron ½" thick

Notes:

Provide sufficient camber in all spans to prevent sag in fascia lines and in bottoms of girders under full dead load.

Stirrups are ½" ϕ unless otherwise shown or noted.

For general notes on concrete see sh. 23.

For bar marking table, see sh. 23.

For trolley pole connections on concrete spans, see sh. 8. Provide pockets and bend bars as req'd.

For details of rollers shoes, see sh. 23.

For details of bottom curve of girders and of recess on Girder A, see sh. 23.

For details of end diaphragms at abutments, see sh. 23.

Fill around street railway track shall be Class C concrete; all other concrete shall be class B. See Specifications.

Chamfer all exposed edges ¾" except as noted.

ELEVENTH STREET BRIDGE
OVER BRANDYWINE CREEK
WILMINGTON, DELAWARE
FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

CONCRETE GIRDER SPAN

SCALE 1"=1'-0" Unless Noted
DRAWN J.K. DATE 8-13-31
TRACED BY J.R.S. DATE 8-22-31
DESIGNED BY DATE

HOWARD-NEEDLES-TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

SHEET 22

hore expansion ends on pier 3. End details
in general for span 1. See shs. 3 and 4. for
dewalk expansion details at pier 3. At diaph
d36 bars as shown in Sec. JJ.

Stop 2hG60 — Stop 2hG59 — 4'-0" — Stop 2hG74 — Stop 2hG75 — 2'-0"

2hG74 — 2hG75 — 2hG76 — 2hG77

2hG54 2hG50 — 2hG53 2hG52 — 2hG51 — 2hG55 2hG56 — 2hG57 2hG58 — 2hG59 2hG60 — 2hG36 — 2hG57 2hG58

1hG51 — 1hG52 — 1hG53 — 1hG54 — 1hG55 — 1hG56 — 1hG57 — 1hG58 — 1hG59 — 1hG60 — 1hG61

4'-0" 4'-0" 4'-0" 8'-0" 4'-0"

2'-0" 2'-6" 18 @ 2'-6" = 45'-0" 18 @ 2'-6" = 45'-0" Stirrup Spacing 1'-3" 2'-6" 9 @ 2'-6" = 22'-6"

Span 2 sym. abt. ℄ except for grade

GIRDER A - SPAN 1 — GIRDER A - SPAN 2

Stop 2hG73 — 6'-0" — 9'-0" — Stop 2hG72 — 4'-0" — Stop 2hG76 — 10'-0" — Stop 2hG67 — 6'-0" — Stop 2hG66 — Stop 2hG77 — 2'-0"

2hG76 — 2hG77

2hG64 2hG65 — 2hG62 2hG63 — 2hG61 — 2hG66 2hG67 — 2hG68 2hG69 — 2hG69 2hG70 — 1hG71 2hG68 — 2hG69 2hG70

1hG62 — 1hG63 — 1hG64 — 1hG65 — 1hG66 — 1hG67 — 1hG68

4'-0" 3'-6" 4'-0" 4'-0" 4'-0" 4'-0" 8'-0" 4'-0"

2'-0" 2'-6" 18 @ 2'-6" = 45'-0" 18 @ 2'-6" = 45'-0" Stirrup Spacing 1'-3" ℄ Brg. 2'-6" 9 @ 2'-6" = 22'-6"

Span 2 sym. abt. ℄ except for grade

48'-9" for span 1; 50'-0" for span 3. These for all girders. — 50'-0" for span 2, all girders

GIRDER B - SPAN 1 — GIRDER B - SPAN 2

or depths of all girders see cross-section, sh. 22.

6'-0" — 3'-0" — Stop 2kG62 — Stop 2kG83 — 7'-0" — Stop 2kG57 — 3'-0" — Stop kG56 — 6'-0" — Stop 2kG84 — 2'-0"

2kG83 — 2kG84

2kG52 2kG53 — 2kG54 — 2kG55 2kG56 — 2kG57 2kG58 — 2kG59 2kG60 — 2kG58 — 2kG59 2kG60 kG61

kG50 kG51 — kG51 — kG52 — kG53 — kG54 — kG55 — kG56 — kG57 — kG58 — kG59 — kG60 — kG61

3'-6" 3'-6" 8'-0" 4'-9" 3'-6"

2'-0" 2'-6" 17 @ 2'-6" = 42'-6" 17 @ 2'-6" = 42'-6" Stirrup Spacing 1'-0" 3 @ 8" 1'-3" 2'-6" 9 @ 2'-6" = 22'-6"

Span 2 sym. abt. ℄ except for grade

GIRDER D - SPAN 1 — GIRDER D - SPAN 2

GIRDER C same except for depth. — GIRDER C same except for depth.

3'-0" — 3'-0" — 2'-0" — 3'-0" — 8'-0" — Stop 2kG81 and 2kG82 — Stop 2kG85 — Stop 2kG70 and 2kG71 — Stop 2kG72 — Stop 2kG73 and 2kG74

2kG85

2kG65 2kG66 — 2kG66 2kG67 — 2kG67 2kG68 — 2kG68 2kG69 — 2kG69 2kG70 — 2kG70 2kG71 — 2kG71 2kG72 — 2kG72 2kG73 — 2kG73 2kG74 — 2kG74 2kG75 — 2kG75 2kG76 — 2kG76 2kG77 — 2kG77 2kG78 — 2kG78 2kG79 — 2kG79 2kG80 — 2kG80 2kG81 — 2kG81 2kG82 — 2kG82 2kG83 — 2kG83 2kG84 — 2kG84 2kG85

2kG63 2kG64 — 1kG63 — 1kG64 — 1kG65 — 1kG66 — 1kG67 — 1kG68 — 1kG69 — 1kG70 — 1kG71 — 1kG72 — 1kG73 — 1kG74 — 1kG75 — 1kG76 — 1kG77 — 1kG78 — 1kG79 — 1kG80 — 1kG81 — 1kG82 — 1kG83 — 1kG84 — 1kG85

4'-0" 3'-6" 3'-6" 3'-6" 4'-6" 4'-6"

2'-0" 2'-6" 17 @ 2'-6" = 42'-6" 17 @ 2'-6" = 42'-6" Stirrup Spacing 3 @ 1'-0" 1'-3" 2'-6" 4 @ 1'-0" 1'-6" 9 @ 2'-6" = 22'-6"

Span 2 sym. abt. ℄ except for grade

…er gutter and flashing
…hragm at pier 3. For
…sh. 3.

kG78 straight. Splice and lap 2'-0" where necessary. kG50 between stirrups abt. 5'-0" ctrs.

GIRDER E - SPAN 1 — GIRDER E - SPAN 2

SECTION AA — SECTION BB — SECTION CC — SECTION DD — SECTION EE — SECTION FF — SECTION GG — SECTION HH

Scale 1" = 1'-0"

END OF GIRDER A AT PIER 3

Main steel to be carried through as shown. Stirrup spacing as noted elsewhere. For plan see sh. 4.

2hG74 — 2hG61 — 2hG62 + 2hG63 — ℄ Pier 3 — 3'-0"

HALF SECTION OF DIAPHR… — …ABUTMENTS SHOWING REINFORCING

Note: … not sho… — …d d36 bars … this section.

BAR MARKING TABLE

Mark	Size	Mark	Location
b	1"	B	Diaphragms
d	1"	G	Girders
e	1"	S	Slabs
h	1"		
k	1"		

2'-0" ctrs

℄ Bridge

Track not shown

HALF CROSS SECTION SHOWING … — …ORCING IN INTERMEDIATE DIAPHRAGMS

These diaphragms … — … of 3 points of span. For diaphr… — … piers see sh. 22.

3'-3" ℄ full length of pl. … weld to pl.

2" x 1" Teeth bar — 1/2" x 1'-6" Anchor Bolts Forged Steel

Note - Rollers and bearing plates to be copper-bearing steel with minimum copper content of 0.20%.

Item	Piers 1, 2, and 5		Pier 3 and Bascule Pier	
	Bearing A	B and C	Bearing A	B and C
Top Brg. Pls.	18" x 40" x 3/4"	18" x 33" x 3/4"	10" x 36" x 2"	10" x 26" x 2"
Rollers	9" x 24" x 36"	9" x 24" x 29"	5" x 12" x 32"	5" x 12" x 22"
Bott. Brg. Pls.	18" x 44" x 8 1/2"	18" x 37" x 8 1/2"	10" x 40" x 2"	10" x 30" x 2"
Notch in Brg. Pl. for Teeth Bar	1 1/2"	1 1/2"	1"	1"
c-c Anchor Bolts	3'-4"	2'-9"	3'-0"	2'-2"

℄ Pier 1 — 3'-10" at Pier 1, 6 3/4" at Piers 2 & 3 — Horizontal — At Base 10" ℄ Pin at About 14" ℄ — ℄ Brg. — 3'-2" of Pier 3 ℄ Brg. — Horizontal

CTION AT PIERS 1, 2 AND 5 — WING ROLLER SHOES

Scale 1" = 1'-0"

… as shown except for dimensions. … PIER similar except for dimensions. …h. 22. For dimensions see table.

…k mesh not shown.

…d36 in top of roadway slab between girders to give about 9" spacing transversely.

…in top of slab under tracks be…ur girders to give about 9" spac… transversely.

…n @ 2'-0" ctrs.

SECTION JJ

Scale 1" = 1'-0"

One thickness of tar paper

…line — …f Pylon

TAIL OF GIRDER A AT ABUTMENT

Showing notches for pylon.

DETAILS OF BOTTOM CURVE OF GIRDERS AND OF RECESS ON GIRDER A

Bottom curve of all girders parabolic.

…ide sufficient camber in all spans to prevent sag in fascia lines and …ns of girders under full dead load.

…rups are 1/2" ℄ unless otherwise shown or noted.

…trolley pole connections on concrete spans see sh. 8.

…mfer all exposed edges 3/4" except as otherwise noted.

…ide anchor bolts for traffic gate supports and reinforcing steel …protection posts. For details, see sh. 9.

…ide drains as shown on sh. 22.

…ide lock chambers and manholes in sidewalks for access to chambers …20.

…AL NOTES ON CONCRETE:

…classification of concrete see individual sheets, and Specifications.

…struction joints other than those shown on the plans shall be made …ith the approval of the Engineer. Adequate keys shall be pro… … shown on the plans and as directed by the Engineer.

…ess otherwise shown or noted, the minimum clear distance of …ing steel from edge of concrete shall be 2".

…" shall be lapped 44 diameters at all splices unless otherwise shown …

…ds in bars bent up or down for diagonal tension reinforcement …ake an angle of 45° with the direction of the bar. Steel shall …ately spaced and securely wired in place before concrete is …

…imum radius of bends shall be 4 diameters of bar except for …hoops, and similar pieces requiring sharper bends.

…ks shall be made by bending the end of the bar through 180° … a diameter not less than 6 diameters of the bar, the total …f hook being not less than 16 diameters of the bar.

ELEVENTH STREET BRIDGE

OVER BRANDYWINE CREEK

WILMINGTON, DELAWARE

FOR NEWCASTLE COUNTY, DELAWARE

44 FOOT ROADWAY

CONCRETE GIRDER SPANS

SCALE 1/2" = 1'-0" Unless Noted — ASH-HOWARD-NEEDLES & TAMMEN, CONSULTING ENGINEERS, KANSAS CITY — NEW YORK

MADE BY J.K.C. DATE 8-18-31

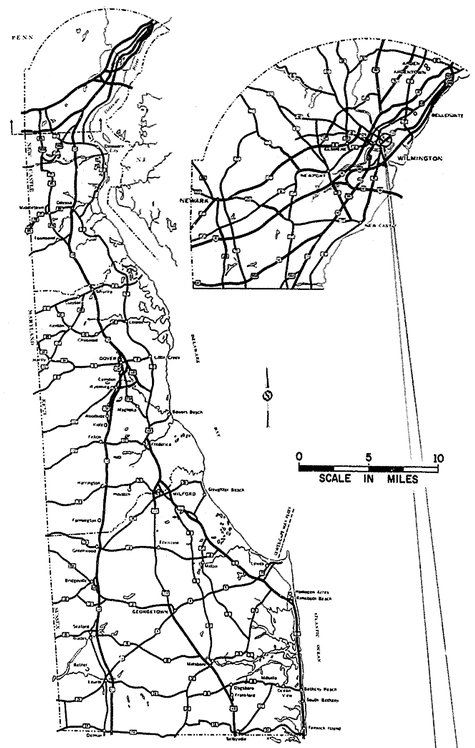
TRACED BY J.B.S. DATE 8-25-31

CHECKED BY — DATE

SHEET NO. 23

D C B A

STATE OF DELAWARE



GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SPECIFICATION AND CONSTRUCTION PLANS FOR:

SIDEWALK REPLACEMENT
BR. NO. 577 ON RD. NO 50
(CHURCH STREET)

CONTRACT NUMBER 84-074-02

~~**FEDERAL AID PROJECT NUMBER**~~ _____

ROADWAY LENGTH _____ FEET= _____ MILES

STRUCTURE LENGTH _____ FEET= _____ MILES

TOTAL LENGTH _____ FEET= _____ MILES

CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
84-074-02	N. C.	DE	3		1	3

DESIGN DESIGNATION

FUNCTIONAL CLASS _____

TYPE OF CONSTRUCTION _____

A.D.T. CURRENT _____

A.D.T. PROJECTED _____

D.H.V. PROJECTED _____

DESIGN SPEED _____

% TRUCKS _____

DIRECTION DISTRIBUTION % _____

SCALES

PLAN SHEET: 1"= _____ Feet

PROFILE SHEET:

Horizontal: 1"= _____ Feet

Vertical: 1"= _____ Feet

DETAIL SHEET: 1"= _____ Feet

INDEX OF SHEETS

SHEET N°	TABLE OF CONTENTS
1	QUANTITIES & GENERAL LOCATION OF CONT.
2	PLAN & ELEVATION
3	SIDEWALK REPLACEMENT DETAILS

CONTRACT QUANTITIES

NO.	SECTION TITLE	UNIT	PROPOSAL
210	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	L.S.
602	PORTLAND CEMENT CONCRETE MASONRY — LIGHTWEIGHT	C.Y.	100
✱605A	BAR REINFORCEMENT — EPOXY COATED	LBS.	9270
608	REMOVAL OF EXISTING MASONRY	C.Y.	90
S. P.	PREPARATION — TYPE I	S.F.	1200
S. P.	PAINT SYSTEM — TYPE V	S.F.	1200
S. P.	MAINTENANCE OF TRAFFIC	L.S.	L.S.
S. P.	INITIAL EXPENSE	L.S.	L.S.

✱ DENOTES FIXED QUANTITY ITEM — SECTION 109.06 OF STANDARD SPECIFICATIONS

GENERAL NOTES

1. The Contractor shall submit details of S.I.P. Forms for approval by the Bridge Engineer.
2. All P.C.C. Masonry shall be "Lightweight Concrete", see Special Provisions.
3. After concrete curbs and sidewalks have been removed, the Inspector shall check all exposed structural steel for condition; repair or replace as directed by the Engineer.
4. Paint Steel Bridge Railing on Bascule Span and other structural steel as specified on the plans and/or directed by the Engineer. See Special Provisions for Painting Specifications.
5. All dimensions shall be verified in the field.
6. All Bar Reinforcement shall be Epoxy Coated. All Wire Mesh shall be Galvanized. Cut to fit, and touch-up Epoxy as necessary.
7. Existing Scuppers shall be reused in repaired curb areas.
8. Remove existing Overhead Sign Structure below sidewalk. Payment under Section 210.

DIVISION OF HIGHWAYS

RECOMMENDED
C.R. Lightfoot
PROJECT ENGINEER
RECOMMENDED 2/24/ 19 84

CHARLES R. LIGHTFOOT REGISTERED NO. 3870 DELAWARE PROFESSIONAL ENGINEER
SEAL

RECOMMENDED
_____
ROAD DESIGN ENGINEER
RECOMMENDED _____ 19 ____

SEAL

RECOMMENDED
Chao N. Hu
ACTING BRIDGE ENGINEER
RECOMMENDED 2-24 19 84

CHAO H. HU REGISTERED NO. 4274 DELAWARE PROFESSIONAL ENGINEER
SEAL

RECOMMENDED
Gary B. Homewood
DEPUTY DIRECTOR OF HIGHWAYS
RECOMMENDED 2-24 19 84

GARY B. HOMEWOOD REGISTERED NO. 2662 DELAWARE PROFESSIONAL ENGINEER
SEAL

APPROVED
John T. Davis
DIRECTOR OF HIGHWAYS
APPROVED 2/27/ 19 84

JOHN TYLER, JR. REGISTERED NO. 4376 DELAWARE PROFESSIONAL ENGINEER
SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ 19 ____

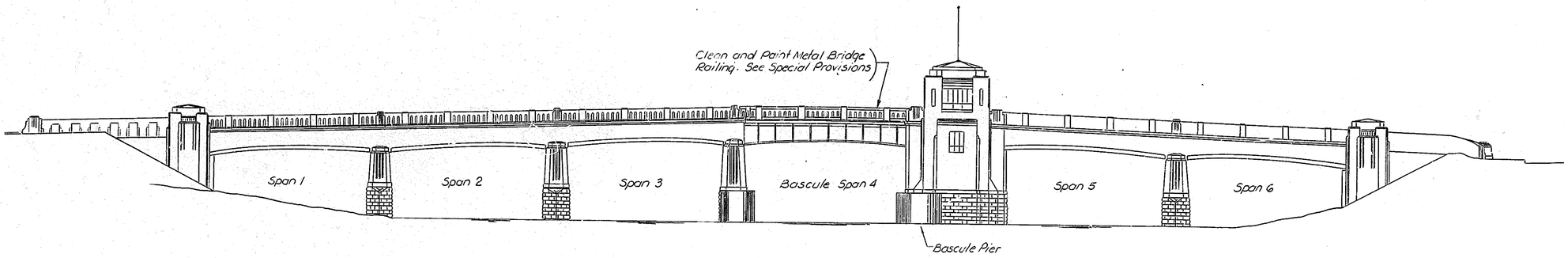
_____
DIVISION ADMINISTRATOR

40389

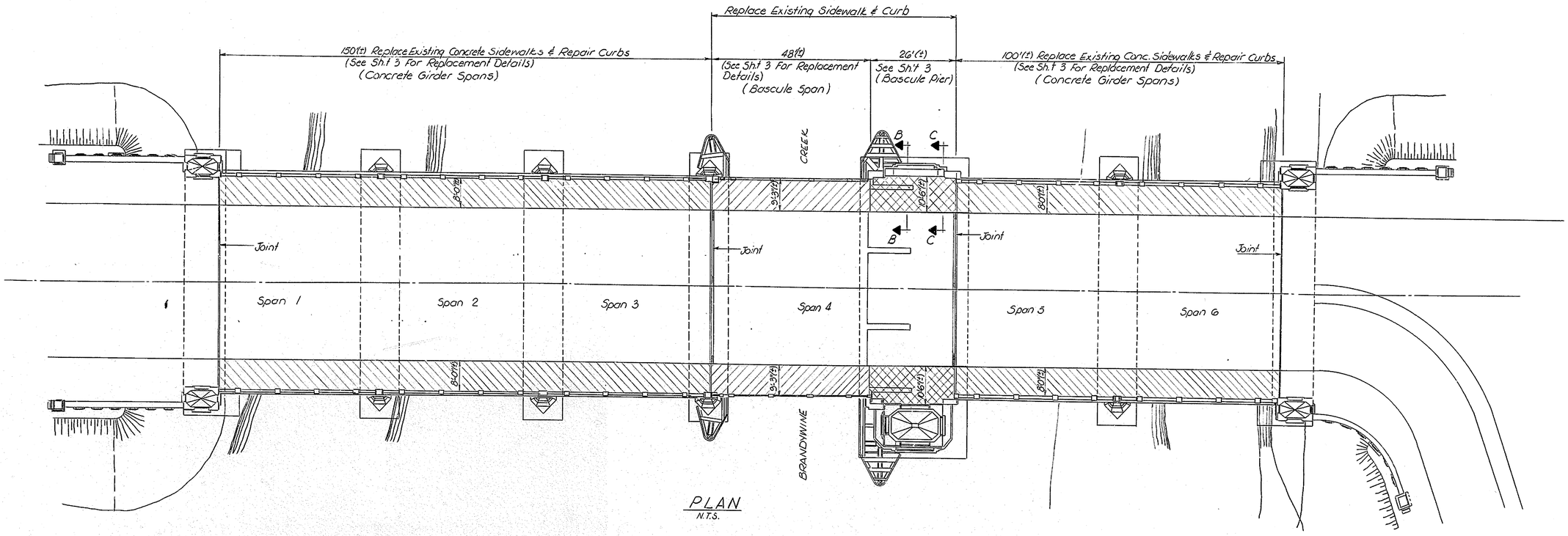
CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
84-074-02	N. C.		2	3

SIDEWALK REPLACEMENT
BR. NO. 577 ON RD. NO. 50
(CHURCH STREET)

REVISIONS



ELEVATION
N.T.S.



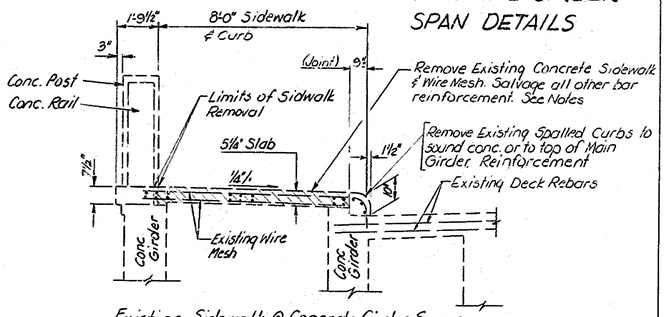
PLAN
N.T.S.

PREL. TRACING G.R.Deering 9/84 DESIGN G.R.D. & E.J.Z. 9/84 CHKD.

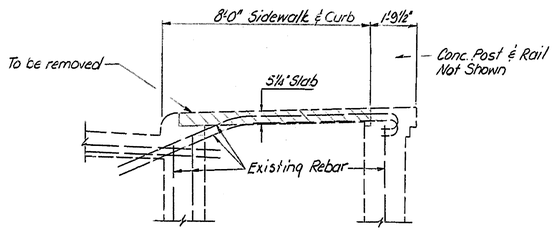
CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
B4-074-02	N.C.		3	3

SIDEWALK REPLACEMENT
BR. NO. 577 ON RD. NO. 50
(CHURCH STREET)

CONCRETE GIRDER SPAN DETAILS

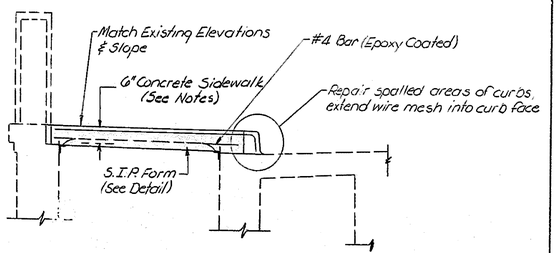


Existing Sidewalk @ Concrete Girder Spans @ ℄ Span
3/8"=1'-0"



Existing Sidewalk @ Concrete Girder Spans (Showing Diaphragm Rebars)
3/8"=1'-0"

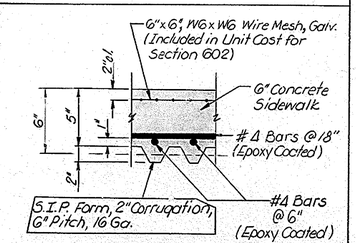
Note: This section is shown for reference to Bar Reinforcement. Salvage all rebars except wire mesh.



Proposed Sidewalk @ Concrete Girder Spans
3/8"=1'-0"

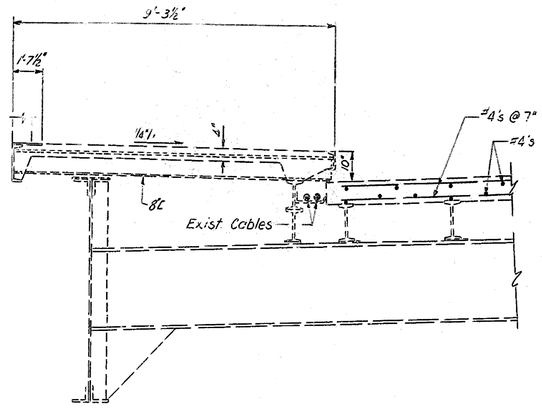
NOTE: Roughen all Concrete Joints and apply Epoxy Bonding Agent.

NOTE: DO NOT remove existing concrete below top of Main Girder Reinforcement.

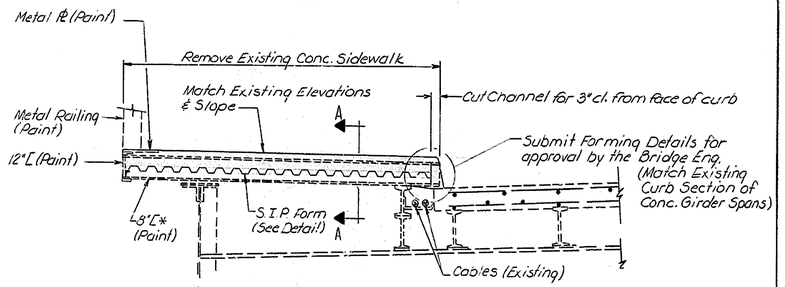


TYP. REINFORCEMENT DETAIL USING S.I.P. FORMS
N.T.S.

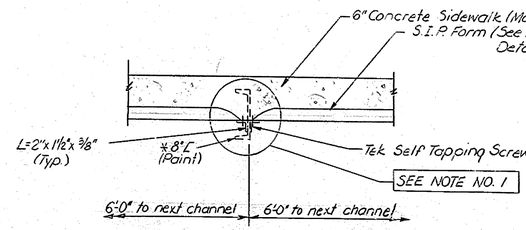
BASCULE SPAN DETAILS



Existing Sidewalk @ Bascule Span
1/2"=1'-0"



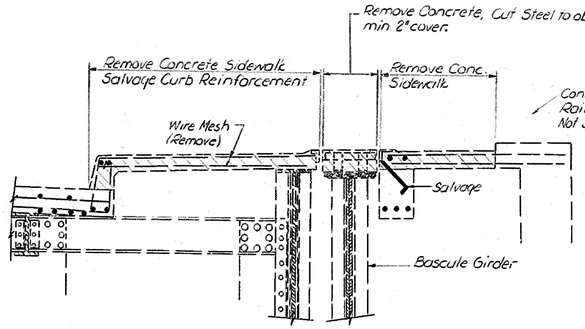
Proposed Sidewalk @ Bascule Span
1/2"=1'-0"



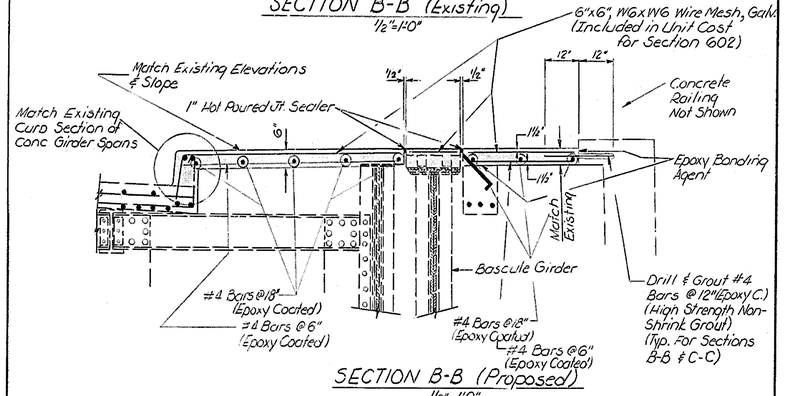
SECTION A-A
N.T.S.

* All Channels ([) shall checked after existing Concrete Sidewalk has been removed for structural condition. Repair or replace as directed by the Engineer. Paint all Structural Steel Specified.

BASCULE PIER DETAILS

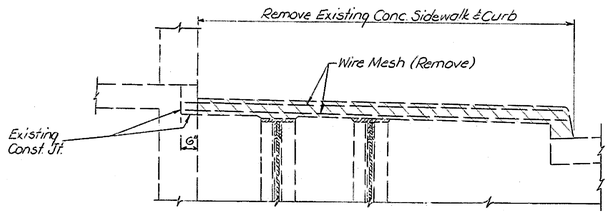


SECTION B-B (Existing)
1½"=1'-0"

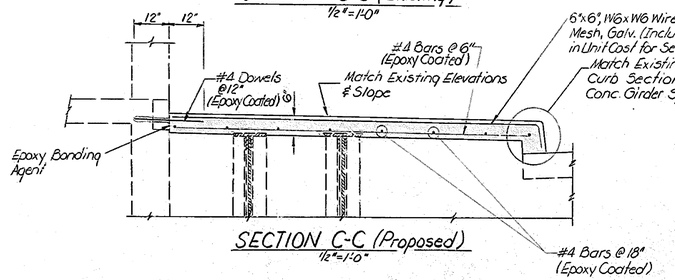


SECTION B-B (Proposed)
1½"=1'-0"

NOTE: Roughen all Concrete Joints and apply Epoxy Bonding Agent.



SECTION C-C (Existing)
1½"=1'-0"



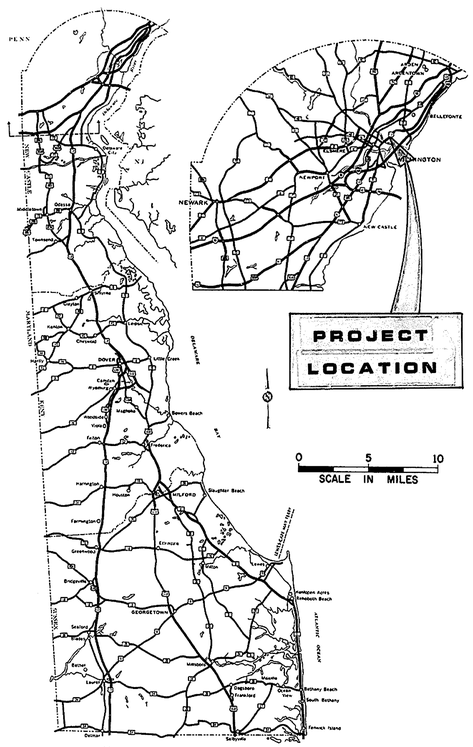
SECTION C-C (Proposed)
1½"=1'-0"

REVISIONS

PREL. TRACING G.R. Deering 2/84 DESIGN G.R.D. & E.J.Z. 2/84 CHKD.

10089

STATE OF DELAWARE



GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SPECIFICATION AND CONSTRUCTION PLANS FOR:

U.S. 13, (N.E. BLVD.) 4R
BRANDYWINE RIVER TO EDGEMOOR ROAD

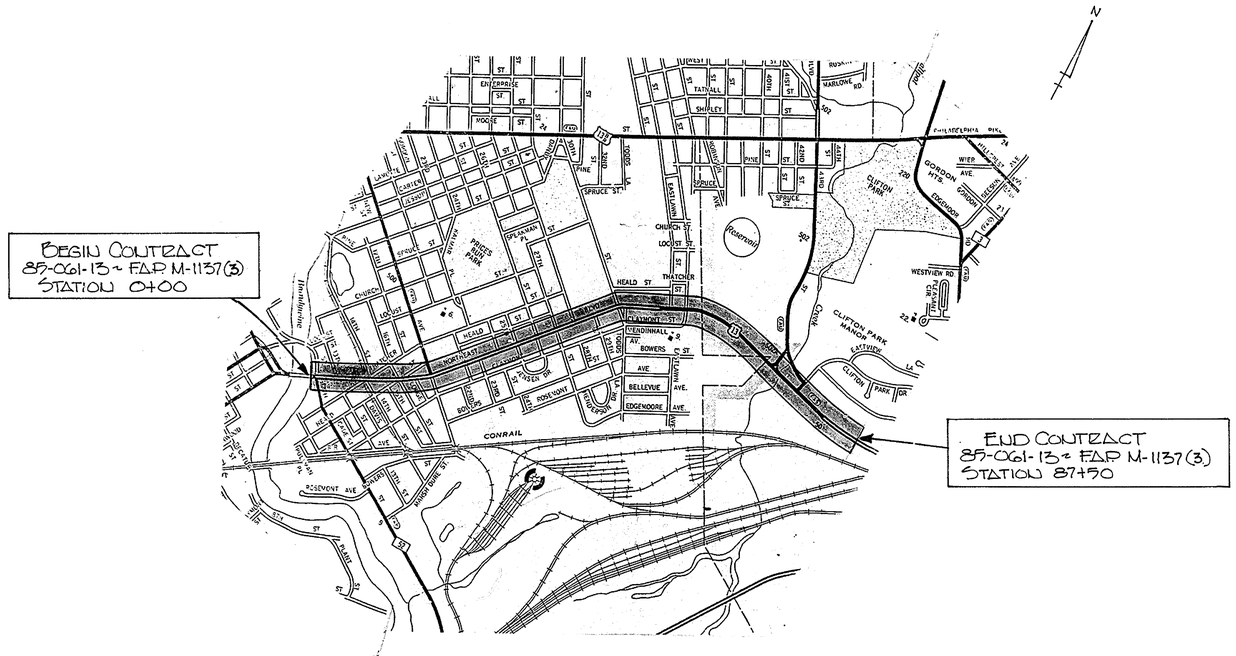
CONTRACT NUMBER 85-061-13

FEDERAL AID PROJECT NUMBER M-1137 (3)

ROADWAY LENGTH 8750.00 FEET= 1.657 MILES

STRUCTURE LENGTH ——— FEET= ——— MILES

TOTAL LENGTH 8750.00 FEET= 1.657 MILES



CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
85-061-13	NEW CASTLE	DE.	3	M-1137(3)	1	42

DESIGN DESIGNATION

FUNCTIONAL CLASS Minor Arterial

TYPE OF CONSTRUCTION 4R

A.D.T. CURRENT 20,828 (1983)

A.D.T. PROJECTED 23,077 (1995)

D.H.V. PROJECTED 0.10

DESIGN SPEED 35 MPH

% TRUCKS 10%

DIRECTION DISTRIBUTION % 60%

SCALES

PLAN SHEET: 1"= 50 Feet

PROFILE SHEET:

Horizontal: 1"= 50 Feet

Vertical: 1"= 10 Feet

DETAIL SHEET: 1"= ____ Feet

INDEX OF SHEETS

SHEET Nº	TABLE OF CONTENTS
1	TITLE SHEET
2	QUANTITY SHEET ~ LEGENDS
3	TYPICAL SECTIONS
4	GEN. NOTES ~ MAINT. OF TRAFFIC ~ PATCHING SCH.
5-11	PLAN SHEETS
12	P.C.C. PATCHING DETAIL
13-28	STANDARD SHEETS: C-1; C-2; C-4; C-5; D-1-11; D-2-4; D-9-7; D-12-3; D-19-5; D-16; E-1; G-2-9; G-3-5; G-4-6; G-5; D-7-5;
29-35	SIGNING AND STRIPING PLANS
36-42	UTILITY INFORMATION

BUREAU OF RIGHT OF WAY

RECOMMENDED FOR APPROVAL

Harvey J. Berry — 9-9 1985

CHIEF RIGHT OF WAY — DATE

Wayne D. Epp — Sept. 9 1985

REVIEWED R W ENGINEERING — DATE

9 Aug 94

DIVISION OF HIGHWAYS

RECOMMENDED	RECOMMENDED	RECOMMENDED	RECOMMENDED	APPROVED
PROJECT ENGINEER	ROAD DESIGN ENGINEER	DESIGN ENGINEER	DEPUTY DIRECTOR OF HIGHWAYS	DIRECTOR OF HIGHWAYS
RECOMMENDED 9/13/1985	RECOMMENDED 9/13 1985	RECOMMENDED 9/13 1985	RECOMMENDED 9/16 1985	APPROVED 9/16/1985
SEAL	SEAL	SEAL	SEAL	SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ 19 __

DIVISION ADMINISTRATOR

QUANTITY SHEET

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	2	42

U.S. 13 (N.E. BLVD) AT BRANDYWINE RIVER TO EDGEMOOR ROAD

** THERE ARE APPROX. 128,250 SY-IN OF ROTOMILLED MATERIAL AVAILABLE FOR RECYCLING INTO BITUMINOUS CONCRETE PAVEMENT

	Nº.	DESCRIPTION		UNIT	PROPOSAL
	201	CLEARING AND GRUBBING		L.S.	L.S.
	202	EXCAVATION AND EMBANKMENT		C.Y.	3360
	208	EXCAVATION AND BACKFILL FOR PIPE TRENCHES		C.Y.	1750
	209	BORROW TYPE 'C'		C.Y.	1500
	209	BORROW TYPE 'F'		C.Y.	400
	302	SELECT BORROW		C.Y.	800
	303	CRUSHER RUN BASE COURSE		SY-IN	5000
	206	ROCK EXCAVATION FOR STRUCTURES AND TRENCHES		C.Y.	100
	309	BITUMINOUS CONCRETE BASE COURSE (DEEP LIFT)		TON	5580
**	401	HOT-MIX, HOT LAID BITUM. CONC. PAVE.	TYPE 'C'	TON	9980
	210	REMOVAL OF STRUCTURES AND OBSTRUCTIONS		L.S.	L.S.
	402	HOT-MIX BITUM. CONC. AND/OR ASPHALT COLD PATCH (TRM)		TON	100
	502-A	PATCHING PORTLAND CEM. CONC. PAVEMENT	9"	SY.	400
	608	REMOVAL OF EXISTING MASONRY		C.Y.	75
	615	REINFORCED CONCRETE PIPE	12"	L.F.	40
		" " "	15"	L.F.	752
		" " "	18"	L.F.	843
		" " "	21"	L.F.	1008
	617	CORRUGATED STEEL PIPE-24", 14 GA., 2⅔"x½" CORR.		L.F.	160
	705	PORTLAND CEMENT CONCRETE CURB	TYPE 1	L.F.	8,446
	706	PORT. CEM. CONC. PARKWAY CURB	TYPE 1	L.F.	660
	707	INTEG. PORT. CEM. CONC. CURB AND GUTTER	TYPE 1	L.F.	990
		INTEG. PORT. CEM. CONC. CURB AND GUTTER	TYPE 3	L.F.	3215
	708	PORTLAND CEMENT CONCRETE SIDEWALK	4"	S.F.	39,371
		" " " "	6"	S.F.	2,235
	709	HOT-MIX, HOT LAID BITUM. CONC. CURB	TYPE 1	L.F.	870
	711	CATCH BASINS	TYPE J	EA.	16
			PW-BD-2	EA.	8
			TYPE A	EA.	6
	713	ADJUSTING AND REPAIRING EXISTING C.B.'S AND M.H.'S		EA.	15
	715	GALVANIZED STEEL BEAM GUARDRAIL (STEEL POST)		L.F.	875
	716	TWISTED END ANCHORAGES		EA.	2
	722	TOPSOIL	4"	S.Y.	900
	723	PERMANENT ROADSIDE SEEDING AND MULCHING		S.Y.	2000
	725	T.W.P.C. SEEDING 1		ACRE	1
	732	SACKED CONCRETE RIPRAP		C.Y.	8
	736	REMOVAL OF EXIST. P.C.C. PAVE. CURB & SIDEWALK ETC.		S.Y.	4,021
	733	RIPRAP (PLAIN)		S.Y.	48
	738	FLAGMAN		HRS.	800
	737	PERFORATED PIPE UNDERDRAINS (P.C.C. PATCH)		L.F.	100
	739	FIELD OFFICE		L.S.	L.S.
	720	CHAIN LINK FENCE (8'X2" MESH - #9 GA.)		L.F.	30
		TERMINAL POSTS (3" EXTRA HEAVY)		EA.	2
	S.P.	SAWCUTTING CONCRETE		L.F.	6500
	S.P.	SAWCUTTING HOT-MIX		L.F.	5500
	S.P.	FURNISHING BORROW TYPE C FOR PIPE AND UTILITY			
		TRENCH BACKFILL		C.Y.	1634
	S.P.	UNDERCUT EXCAVATION		C.Y.	170
	S.P.	CRUSHER RUN	(TRM)	TON	100
	S.P.	HOT-MIX PATCHING		SY.	1000

Nº	DESCRIPTION		UNIT	PROPOSAL
S.P.	CRACK AND JOINT SEALING (TRANSVERSE AND LONGITUDINAL)	LESS THAN ¾"	L.F.	40,000
		¾" TO 1¾"	L.F.	25,000
S.P.	JUNCTION BOX TYPE A		EA.	2
S.P.	JUNCTION BOX, Nº 1		EA.	2
S.P.	STANDARD CATCH BASIN GRATE 45 DEGREES		EA.	60
S.P.	PATCHING CONCRETE		SY-IN	2880
S.P.	SMOOTH COATED DOWELS		EA.	180
S.P.	DEFORMED STEEL BARS		EA.	180
S.P.	CONVERTING EXIST. CATCH BASIN TO JUNCTION BOX		EA.	1
S.P.	SILT FENCE		L.F.	800
S.P.	ARROW BOARDS		EA/DA	300
S.P.	BARRICADE WARNING LIGHTS	TYPE A	EA.	100
		TYPE B	EA.	200
		TYPE C	EA.	400
S.P.	TEMPORARY BARRICADE	TYPE II	EA.	200
S.P.	WARNING SIGNS	STATIONARY	EA.	80
		TEMPORARY	EA.	50
S.P.	PERMANENT PAVEMENT STRIPING		S.F.	582.10
S.P.	PERMANENT PAVEMENT STRIPING	4"	L.F.	39,400
S.P.	BALED HAY OR STRAW		EA.	100
S.P.	ADJUST WATER VALVE BOXES.		EA.	50
S.P.	ROTO MILLING		SY-IN	135,000
S.P.	TRAINEE (1)		HRS	1020
S.P.	MAINTENANCE OF TRAFFIC		L.S.	L.S.
S.P.	INITIAL EXPENSE		L.S.	L.S.

LEGEND

CONSTRUCTION LEGEND

- ROTO MILL 2" EXISTING HOT-MIX PAVEMENT RESURFACE WITH 2" HOT-MIX "TYPE C".
- 2" HOT-MIX "TYPE C", OVER 9" BITUMINOUS CONCRETE BASE COURSE.
- 2" HOT-MIX "TYPE C".
- 4" PORTLAND CEMENT CONCRETE SIDEWALK OVER 4" CRUSHER RUN BASE COURSE (AS DIRECTED BY THE ENGINEER).
- 6" PORTLAND CEMENT CONCRETE SIDEWALK OVER 6" CRUSHER RUN BASE COURSE (AS DIRECTED BY THE ENGINEER).
- PORTLAND CEMENT CONCRETE CURB (TYPE 1)
- INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER (TYPE 3-1-II)
- INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER (TYPE 1-3-I)
- PORTLAND CEMENT CONCRETE PARKWAY CURB (TYPE 1)
- HOT-MIX, HOT LAID BITUMINOUS CONCRETE CURB (TYPE 1)
- WR 1 — WHEEL CHAIR RAMP (TYPE 1)
- WR 2 — WHEEL CHAIR RAMP (TYPE 2)
- WR 3 — WHEEL CHAIR RAMP (TYPE 3)
- WR 4 — WHEEL CHAIR RAMP (TYPE 4) (See detail on plan sheet No.)
- A — REPLACE EXISTING CATCH BASIN GRATE WITH STANDARD 45° CATCH BASIN GRATE
- SC — SAWCUTTING CONCRETE
- SHM — SAWCUTTING HOT-MIX
- R — REMOVE

UTILITY LEGEND

- CW-W-16" — CITY OF WILMINGTON (WATER)
- CW-S-12" — CITY OF WILMINGTON (SEWER)
- UGDPL-G-6" — DELMARVA POWER (GAS)
- UGDST B — UNDERGROUND DIAMOND STATE TELEPHONE (BURIED)
- UGDST C — UNDERGROUND DIAMOND STATE TELEPHONE (CONDUIT)

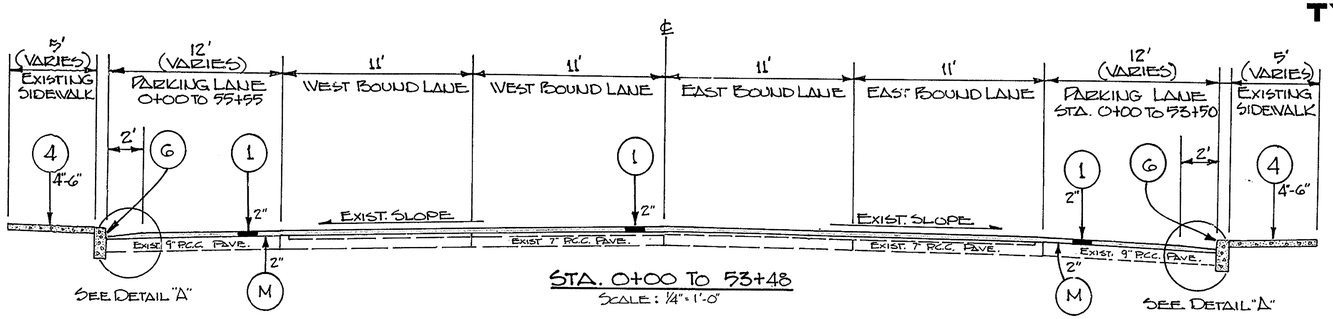
REVISIONS
11 REVISION - INTEG. P.C.C. CURB & GUTTER, TYPE 1 ↔ TYPE 3 2-6-85

DESIGN ZEBO 8/85 CHKD
PREL. TRACING ZEBO 8/85

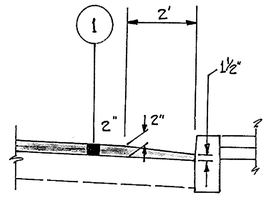
TYPICAL SECTIONS

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	3	42

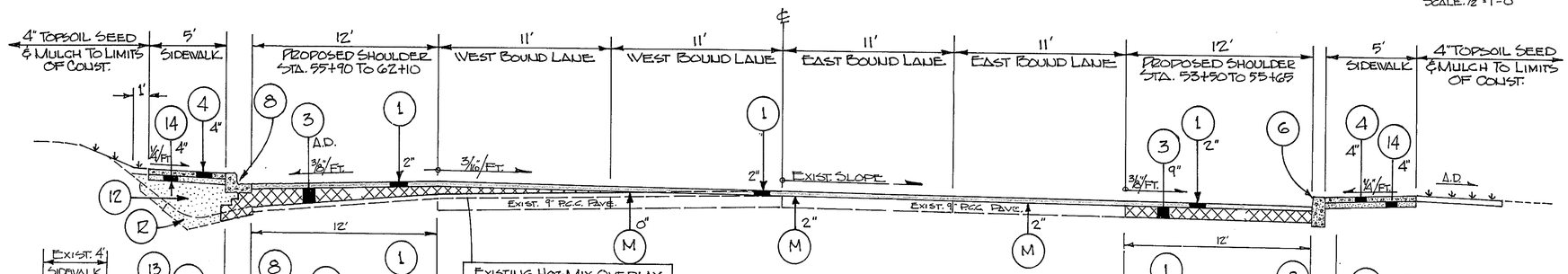
U.S. 13, (N.E. BLVD) & BRANDYWINE RIVER TO EDGEMOOR ROAD



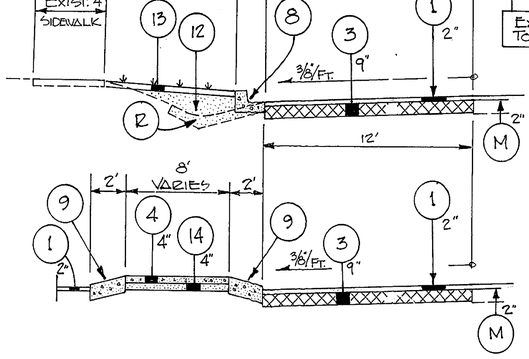
STA. O+00 TO 53+48
SCALE: 1/4" = 1'-0"



DETAIL "A"
SCALE: ½" = 1'-0"

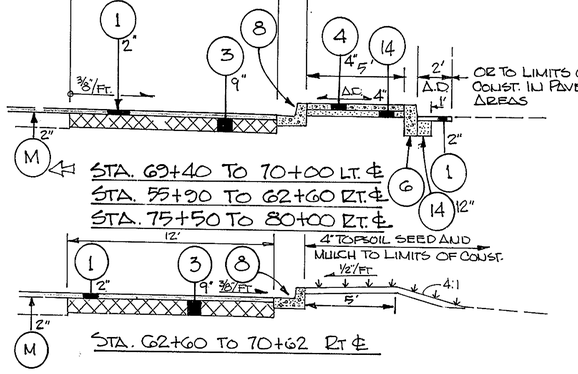


STA. 53+48 TO 70+00
SCALE: 1/4" = 1'-0"



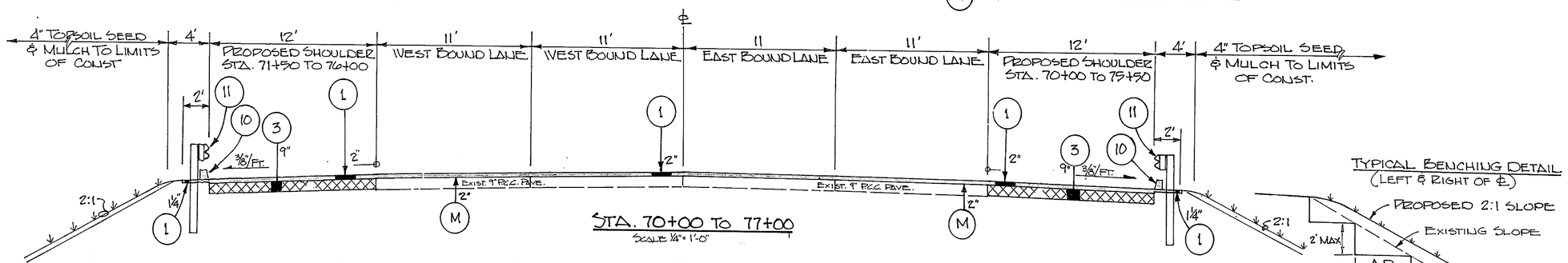
STA. 65+05 TO 69+40

STA. 62+60 TO 64+70



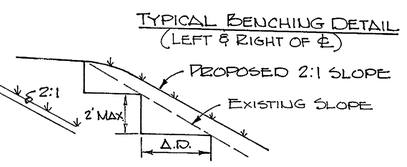
STA. 69+40 TO 70+00 LT. ℄
STA. 55+90 TO 62+60 RT. ℄
STA. 75+50 TO 80+00 RT. ℄

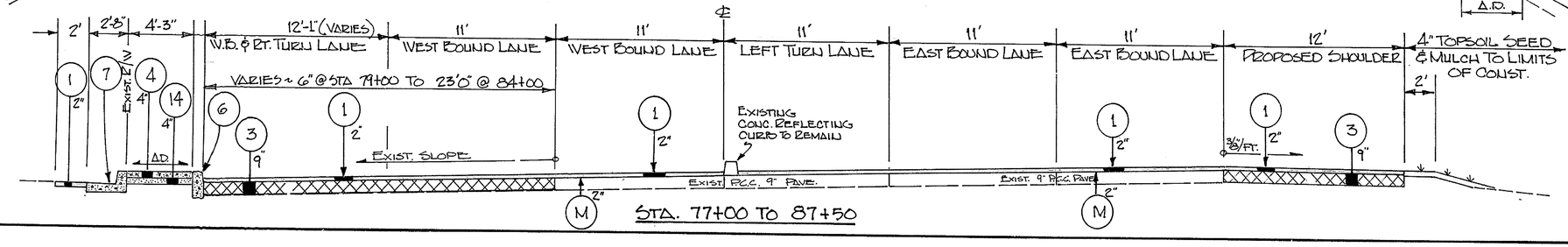
STA. 62+60 TO 70+62 RT ℄



STA. 70+00 TO 77+00
SCALE 1/4" = 1'-0"

TYPICAL BENCHING DETAIL
(LEFT & RIGHT OF ℄)





STA. 77+00 TO 87+50

INDEX

1. HOT-MIX TYPE 'C'
2. HOT-MIX TYPE 'B'
3. BITUMINOUS CONCRETE BASE COURSE. (ALSO USED AS LEVELING COURSE, 4½" MAX. LIFT)
4. * PORTLAND CEMEMENT CONC. SIDEWALK 4" STANDARD 6" AT ENTRANCES
5. SELECT BORROW
6. * PORTLAND CEMENT CONCRETE CURB TYPE 1
7. * INTEGRAL P.C.C. CURB & GUTTER TYPE 1
8. * INTEGRAL P.C.C. CURB & GUTTER TYPE 3
9. * PORT. CEM. CONC. PARKWAY CURB TYPE 1
10. * HOT-MIX, HOT LAID BITUM. CONC CURB TYPE 1
11. * GALVANIZED STEEL BEAM GUARDRAIL
12. BORROW TYPE TYPE C
13. 4" TOPSOIL SEED AND MULCH TO LIMITS OF CONSTRUCTION
- (M) ROTOMILLED FINISH DEPTH
- (R) REMOVE
- (A.D.) AS DIRECTED BY THE ENGINEER
14. CRUSHER RUN BASE COURSE

* EXISTING, PROPOSED OR REPLACEMENT, SEE PLAN SHEETS FOR DETAIL.

REVISIONS

PREL. TRACING Reed 7/85 DESIGN CHKD.

GENERAL NOTES
PATCHING SCHEDULE
MAINTENANCE OF TRAFFIC

CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	4	42

US. 13 (N.E. BLVD) AT BRANDYWINE RIVER TO EDGEMOOR ROAD

REVISIONS
1) REVISED PAVEMENT & THICKNESS FOR MAINT OF TRAFFIC / SUGGESTED CONST SEQUENCE - DEC 11/85

DESIGN _____ CHKD _____

PREL TRACING _____

MAINTENANCE OF TRAFFIC

GENERAL NOTES

1. All work shall be performed in a manner that will insure the least practicable obstruction to the traffic, consistent with safety and shall comply with the manual titled DELAWARE TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS as revised January, 1984.
2. Case XVI Page 93 of the Delaware Traffic Controls Manual shall be used for all lane closures dated January 1, 1984.
3. Side streets shall be appropriately signed for a particular phase of construction. Use Case III for lane closures for daytime operation only.
4. A "Flagman" sign will be displayed when a flagman is directing traffic.
5. The use of "Keep Right", "Keep Left", "Do Not Pass", and "Speed Reduction" signs should be considered for use at various locations.
6. "Uneven Pavement Joint" sign and "Low Shoulder" sign shall be used at various locations on the job as directed by the above referenced manual page 40, C-2, Vertical Difference.

SUGGESTED CONSTRUCTION SEQUENCE

Step 1: Roto Mill 2" of existing pavement to limits indicated on plans or as directed by the engineer.

Step 2: Patch all portland cement concrete pavement (See Detail Sheet No. 12). Rebuild or place curb and sidewalk as shown on plans or as directed by the engineer and install drainage.

Step 3: Excavate 3" shoulder areas and pave with 3" Bituminous Concrete base course, and bench embankment areas.

Step 4: Place 2" hot-mix Type C over travel lanes and shoulders (No restrictions to length of work section).

~~Step 5: Place 1 1/4" hot-mix Type C over travel lanes and shoulders (No restrictions to length of work section). Place hot-mix curb and new guardrail.~~

All other sections of work not mentioned in the above sequence is not critical to the maintenance of traffic for this project. Their construction shall be left to the contractor's discretion.

This process may be revised by the contractor if approval is granted, in writing, by the District Engineer.

PCC PATCHING SCHEDULE

STA	WIDTH	LENGTH	S.F. AREA
1+00 c Lt.	6.7	35.9	235.24
10+66 c Lt & Rt	25.3	6.6	164.13
15+72 c Rt	11.11	8.3	98.34
19+00 c Lt	18.3	6.5	117.17
51+18 c Rt	12.4	4.4	53.39
56+52 c Rt	12.9	4.4	55.20
57+11 c Rt	12.5	17.9	220.46
63+97 c Rt	12.9	20.7	262.40
65+18 c Rt	12.9	8.2	104.17
69+41 c Rt & Lt	21.5	5.5	116.10
69+15 c Rt	13.0	6.4	82.29
75+25 c	11.7	3.9	43.43
81+25 c Rt	13.5	4.8	62.67
83+35 c Rt	5.7	10.8	59.54
TOTAL PATCH AREA S.F.			1,674.53
S.Y.			186.06

HOT-MIX PATCHING SCHEDULE

STA	WIDTH	LENGTH	S.F. AREA
2+42 c Lt & Rt	62.2	45.7	2833.71
53+81 c Rt	8.0	250.0	2000.00
78+83 c Lt	20.5	50.0	1021.00
TOTAL PATCH AREA S.F.			5854.71
S.Y.			650.52

GENERAL NOTES

1. This contract to be built under Delaware Department of Highways and Transportation Standard Specifications dated January 1, 1974, Supplemental Specifications dated January 1, 1980, these General Notes and Plans and as amended by the Special Provisions.
2. All areas disturbed by construction to be topsoiled, seeded or Hot-Mixed as directed bythe engineer.
3. Connecting into existing drainage facilities to be incidental to the unit price bid for that particular size pipe.
4. The contractor shall remove and reset all mail boxes to maintain mail service; remove, reset and reconnect all house lamps and lamp posts as directed by the engineer. These items are not to be left lying on the ground at the end of any working day, but shall be stored in an acceptable manner. The cost thereof shall be incidental to the unit price bid for Section 201 - Clearing and Grubbing.
5. The contractor, prior to laying a run of drainage pipe, shall excavate within the proposed alignment at points of possible conflict to the depth of the proposed storm sewer main to determine if a conflict is inevitable. If the above test holes indicate a change in the alignment of a pipe is required, excavation and backfill of the test holes shall be measured and paid for in accordance with Section 208 - Excavation and Backfill of Pipe Trenches, but only to the actual depth excavated. If a conflict is eminent, the engineer will determine a new invert for the proposed drainage pipe, if possible.
6. Trash and rubbish removal shall be incidental to Section 201 - Clearing and Grubbing.
7. Grade existing drives to conform to plans or as directed by the engineer. The cost shall be incidental to the unit price bid for Section 202 - Excavation and Embankment.
8. The contractor is responsible for the maintenance of existing pavement within the project limits for the duration of the contract or as directed by the engineer.
9. The contractor shall maintain and be responsible for all street signs and traffic control devices and shall replace any signs removed or damaged during construction.
10. All utilities plotted on plan sheets are from the best available information. Any conflicts of these utilities with proposed construction shall be coordinated by the contractor with the engineer and the utility company involved.
11. The contractor shall bench all existing embankments where new fill is to be placed. Payment to be incidental to section 202 "Excavation and Embankment.
12. Excavated material from the project shall be used for embankment if it meets the requirements for Type F Borrow and for backfill material and if it meets the requirements for Type C Borrow.
13. During construction, baled straw or hay shall be placed at inlets and outlets of the drainage system. The dams shall be secured and accumulated sediment shall be periodically removed.
14. When sawing P.C.C. pavement which has been previously resurfaced, no compensation shall be made for hot-mix cutting.
15. Maintenance of traffic during lane closures for pipe placement and pavement patching shall conform to Case XVI Page 93 of the manual titled DELAWARE TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS (REVISED January 1, 1984).
16. The contractor shall not leave excavated areas deeper than 2" adjacent to the travelway after construction has shut down for the day.
17. The contractor and others shall perform all work in a manner that will insure the least practicable obstruction to traffic consistent with safety and shall comply with the manual titled, DELAWARE TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS (REVISED January 1, 1984).
18. Use Class C pipe bedding unless otherwise directed by the engineer.
19. All erosion and sediment control measures shall be in accordance with the DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, 1980.
20. All disturbed soil surfaces including soil stockpiles, are subjected to erosion and shall be stabilized either temporarily or permanently within fifteen (15) days of exposure.
21. The riprap proposed at pipe inlets and outlets shall be placed before the pipe outlets become operational.
22. The erosion and sediment control objectives will be achieved by minimizing exposure time of potentially erosive soils to runoff, and installation of the temporary and permanent conservation measures in proper sequence with construction.
23. Silt Filter Fence shall be placed on the perimeter of the project site or as directed by the engineer to prevent sediment from being carried into the drainage system and off-site.
24. All existing concrete and hot-mix streets and driveways shall be saw cut at tie-in points for proposed pavement curb and sidewalk locations.
25. No separate payment shall be made for temporary pavement striping. Payment shall be incidental to the unit price bid for S.P. "Maintenance of Traffic".
26. The P.C.C. patches shown on this contract are for information only. Actual areas for patching shall be as directed by the engineer. The patching quantity shown reflects anticipated additional pavement failure areas.
27. The locations of replacement for curb and sidewalk indicated on the plans may vary in size and are for information only. The actual limits of replacement, and new locations of replacement, shall be as directed by the engineer.
28. The contractor shall measure each catch basin grate prior to the ordering thereof for replacement to verify specific size.
29. No additional compensation will be made for rotomilling across existing Portland Cement Concrete patches.
30. The City shall supply and the State's Contractor shall install new manhole frames and covers, lamphole frames and covers, monument frames and covers and street valve boxes and lids that are worn or broken in accordance with the City's Standard Specifications. The existing frames and covers, boxes and lids that are removed shall become the property of the State's Contractor. The new frames, covers, boxes and lids shall be picked up by the State's Contractor at the City's Service Division Yard at 12th and Thatcher Streets. No separate payment shall be made for picking up the above items.

    Installation of new manhole frames and covers, lamphole frames and covers shall be paid for under the unit price bid for Section 713 "Adjusting and Repairing Existing Catch Basins and Manholes." Installation of monument frames and covers and street valve boxes and lids shall be paid for under the unit price bid for Section S.P. "Adjust Water Valve Boxes."

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137 (3)	5	42

U.S. 13, (N.E. BLVD.) 4R BRANDYWINE RIVER TO EDGEMOOR ROAD

REVISED S.E. COR. OF 12TH ST. & GOV. PRINTZ BLVD. TO INCLUDE P.E. & DETAIL REB 10/11/85

"AS-ACQUIRED PLAN" This plan accurately depicts the nature and extent of RIGHT-OF-WAY acquisition under this project.

REMOVE EXIST. CATCH BASIN AS DIRECTED BY THE ENGINEER.

PROPOSED REINFORCED CONCRETE COVER.

TOP TO BE PRECAST AFTER DETERMINING EXACT DIMENSIONS IN THE FIELD.

PROPOSED REINFORCED CONC. COVER.

5/8" ⌀ HOOKED BARS @ 6" O.C.

NOTE: COST OF PORT. CEM. CONC. MASONRY, REINFORCED STEEL AND REMOVAL OF EXISTING CATCH BASIN TO BE INCLUDED IN THE UNIT PRICE BID FOR "CONVERTING EXISTING CATCH BASIN TO JUNCTION BOX." (SPECIAL PROVISION).

DETAIL FOR CONVERTING EXISTING CATCH BASIN TO JUNCTION BOX
NO SCALE

BEGIN CONTRACT 85-061-13
FAP M-1137 (3)
STATION 0+00

REMOVE EXISTING ABANDONED RAILS, ATTACHMENTS AND APPURTENANCES, AND SET ASIDE TO BE RECOVERED BY OTHERS. PATCH EXPOSED RAILWAY BED WITH P.C.C. PAVEMENT PATCHING. PAYMENT TO BE INCIDENTAL TO SECTION 210 "REMOVAL OF STRUCTURES AND OBSTRUCTIONS."

NOTE Nº 1
REMOVE EXISTING 50± LF 8' H CHAIN LINK FENCE, AS DIRECTED BY THE ENGINEER, AND SET ASIDE TO BE RECOVERED BY THE CITY OF WILMINGTON. THE COST OF WHICH SHALL BE INCIDENTAL TO SECTION 210 "REMOVAL OF STRUCTURES AND OBSTRUCTIONS"

PLACE 30 LF OF CHAIN LINK FENCE (8' x 2" MESH #9 GA.)
PLACE 2 TERMINAL POSTS (3" EXTRA HEAVY) AT LOCATIONS SHOWN.

[1] THE SECURITY AND FENCING AT THIS CORNER SHALL BE MAINTAINED INTACT AT ALL TIMES DURING CONSTRUCTION.

[1] CURB & SIDEWALK DETAIL IS CORRECT. (SEE "REVISED DETAIL 'C'" [1] FOR RIGHT FOR NEW P.E. - T.C.E. & RELOCATED FENCE.)

INTERSECTION IMPROVEMENT
FOR GOV. PRINTZ BLVD. AND 12TH ST.
SCALE: 1" = 20'

DETAIL 'C'
CITY OF WILMINGTON MOTOR VEH. DEPT.
26-036.40-001

	89.771 ± S.F.	0.0021 ± Ac.
A-1 PERM. EASEMENT AREA:	~~294.923 ± S.F.~~	~~0.0068 ± Ac.~~
A-2 TEMP. CONST. EASEMENT:	~~283.126 ± S.F.~~	~~0.0065 ± Ac.~~
	205.153 ± S.F.	= 0.0047 ± Ac.

P.E. D.B. 363-177

[1] REVISION, REVISED S.E. COR. OF GOV. PRINTZ BLVD. & 12TH ST. EASEMENTS & PROPOSED FENCE, & SECURITY NOTE. REB 12/6/85

PREL. TRACING REB 7/85 DESIGN ___ CHKD. ___

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	6	42

U.S. 13, (N.E. BLVD.) AR. BRANDYWINE RIVER TO EDGEMOOR ROAD

REVISIONS

PREL. TRACING 3/85 DESIGN CHKD.

55963

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	7	42

U.S. 13 (N.E. BLVD.) 4R. BRANDYWINE RIVER TO EDGEMOOR ROAD

REVISIONS

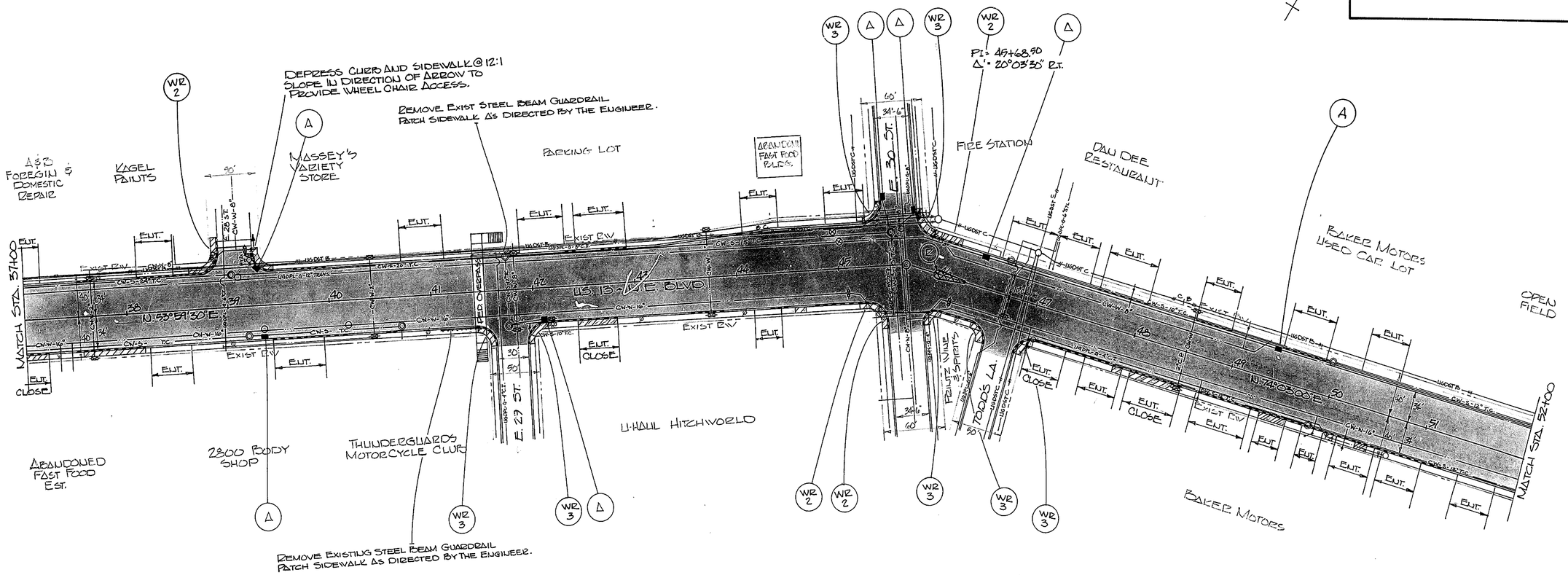
PREL. TRACING ___ 3/85 DESIGN ___ CHKD. ___

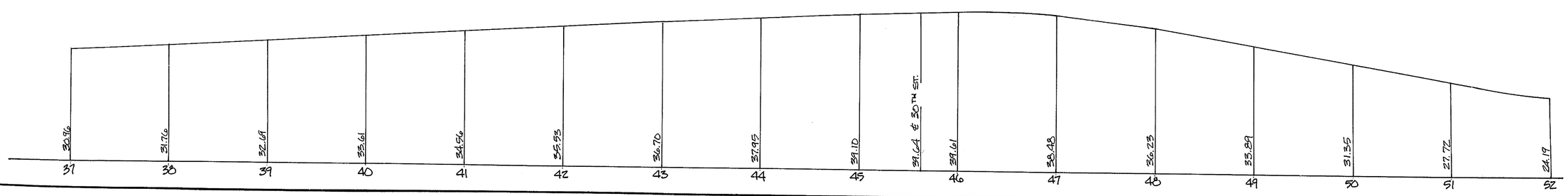
55963

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	8	42

U.S. 13 (N.E. BLVD) AR. BRANDYWINE RIVER TO EDGEMOOR ROAD





REVISIONS

PREL. TRACING REB 3/85 DESIGN CHKD.

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	9	42

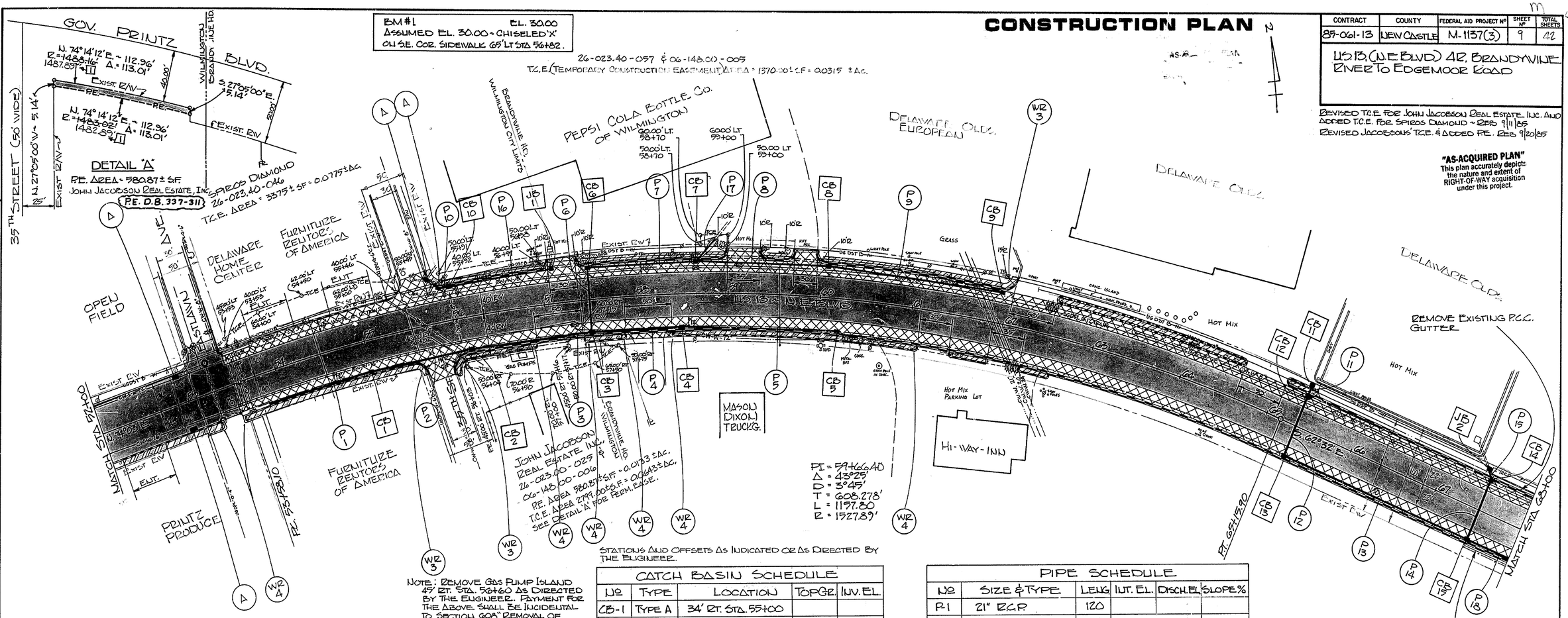
US 13, (N.E. BLVD) 4R, BRANDYWINE RIVER TO EDGEMOOR ROAD

BM #1 EL. 30.00
ASSUMED EL. 30.00 + CHISELED 'X' ON SE. COR. SIDEWALK 65' LT STA 56+82.

26-023.40-057 & 06-148.00-005
T.C.E./TEMPORARY CONSTRUCTION EASEMENT AREA = 1370.00± S.F. = 0.0315 ± AC.

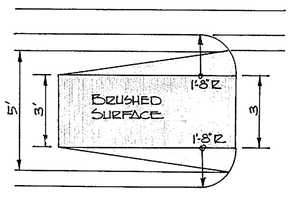
REVISED T.C.E. FOR JOHN JACOBSON REAL ESTATE, INC. AND ADDED T.C.E. FOR SPIROS DIAMOND - RBB 9/11/85
REVISED JACOBSONS' T.C.E. & ADDED P.E. - RBB 9/20/85

"AS-ACQUIRED PLAN"
This plan accurately depicts the nature and extent of RIGHT-OF-WAY acquisition under this project.

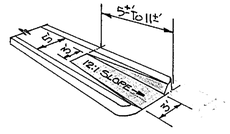


STATIONS AND OFFSETS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

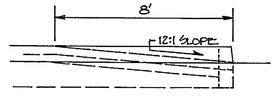
NOTE: REMOVE GAS PUMP ISLAND 45' RT. STA. 56+60 AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE ABOVE SHALL BE INCIDENTAL TO SECTION 608 "REMOVAL OF EXIST. MASONRY."



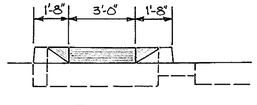
TOP VIEW



WHEEL CHAIR RAMP TYPE 4



SIDE VIEW



END VIEW

CATCH BASIN SCHEDULE

Nº	TYPE	LOCATION	TOPGR.	INV. EL.
CB-1	TYPE A	34' RT. STA. 55+00		
CB-2	TYPE J	34' RT. STA. 56+15		
CB-3	TYPE J	34' RT. STA. 57+60		
CB-4	TYPE J	34' RT. STA. 58+50		
CB-5	TYPE J	34' RT. STA. 60+20		
CB-6	TYPE J	34' LT. STA. 57+60		
CB-7	TYPE J	34' LT. STA. 58+66		
CB-8	TYPE J	34' LT. STA. 60+05		
CB-9	TYPE J	34' LT. STA. 61+95		
CB-10	TYPE J	34' LT. STA. 56+00		
CB-11	PV-BD-2	45' LT. STA. 65+35		
CB-12	TYPE J	34' LT. STA. 65+35		
CB-13	TYPE J	34' RT. STA. 65+35		
CB-14	TYPE J	34' LT. STA. 67+50		
CB-15	TYPE J	34' RT. STA. 67+50		

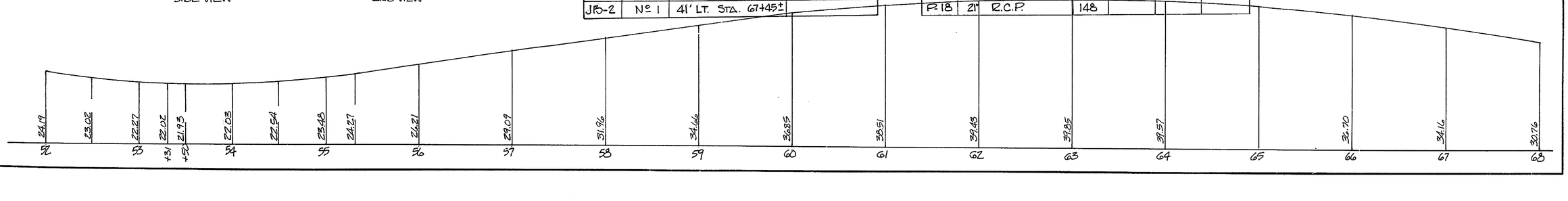
JUNCTION BOX SCHEDULE

JB-1	Nº 1	38' LT. STA. 57+08	
JB-2	Nº 1	41' LT. STA. 67+45±	

PIPE SCHEDULE

Nº	SIZE & TYPE	LENG	INT. EL.	DISCH. EL	SLOPE %
P-1	21" R.C.P.	120			
P-2	21" R.C.P.	108			
P-3	21" R.C.P.	138			
P-4	15" R.C.P.	100			
P-5	15" R.C.P.	168			
P-6	18" R.C.P.	68			
P-7	18" R.C.P.	116			
P-8	15" R.C.P.	143			
P-9	15" R.C.P.	193			
P-10	15" R.C.P.	10			
P-11	15" R.C.P.	8			
P-12	18" R.C.P.	65			
P-13	18" R.C.P.	213			
P-14	18" R.C.P.	65			
P-15	12" R.C.P.	10			
P-16	15" R.C.P.	110			
P-17	12" R.C.P.	30			
P-18	21" R.C.P.	148			

NOTE: INVERTS AND GRADES TO BE DETERMINED AFTER TEST HOLES ARE DUG TO VERIFY EXIST. UTILITY ELEVATIONS. (FOR BIDDING PURPOSES ASSUME 4' DEPTH)



REVISED RADIUS ON DETAIL 'A' JOHN JACOBSON FEB. 12/85

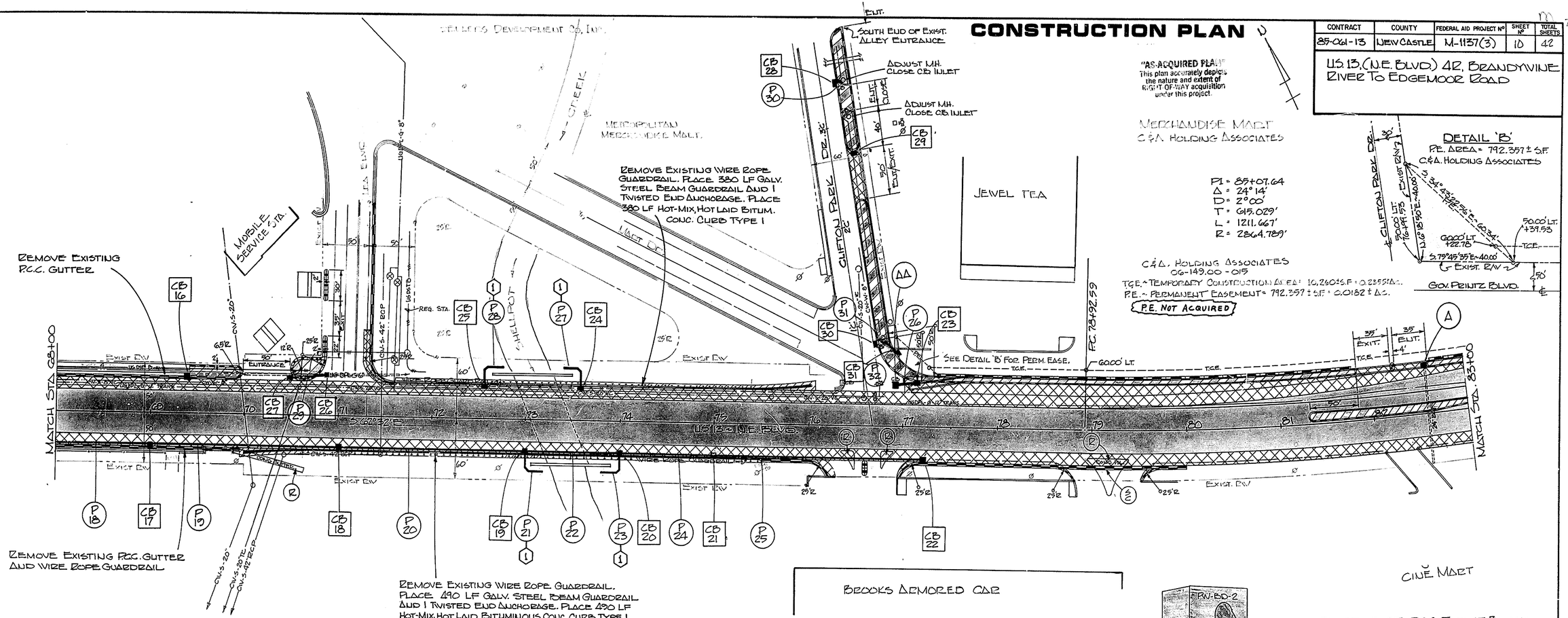
PREL. TRACING RBB 3/85 DESIGN CHKD.

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	10	42

U.S. 13, (N.E. BLVD) 4R, BRANDYWINE RIVER TO EDGEMOOR ROAD

"AS-ACQUIRED PLAN"
This plan accurately depicts the nature and extent of RIGHT-OF-WAY acquisition under this project.



P1 = 85+07.64
Δ = 24° 14'
D = 2° 00'
T = 615.029'
L = 1211.667'
R = 2864.789'

C&A. HOLDING ASSOCIATES
06-149.00 - 015
T.C.E. = TEMPORARY CONSTRUCTION AREA: 10,260 S.F. = 0.2355 AC.
P.E. = PERMANENT EASEMENT = 792.357 ± S.F. = 0.0182 ± AC.

DETAIL 'B'

P.E. AREA = 792.357 ± S.F.
C&A. HOLDING ASSOCIATES

NOTE: INVERTS AND GRADES TO BE DETERMINED AFTER TEST HOLES ARE DUG TO VERIFY EXIST. UTILITY ELEVATIONS.

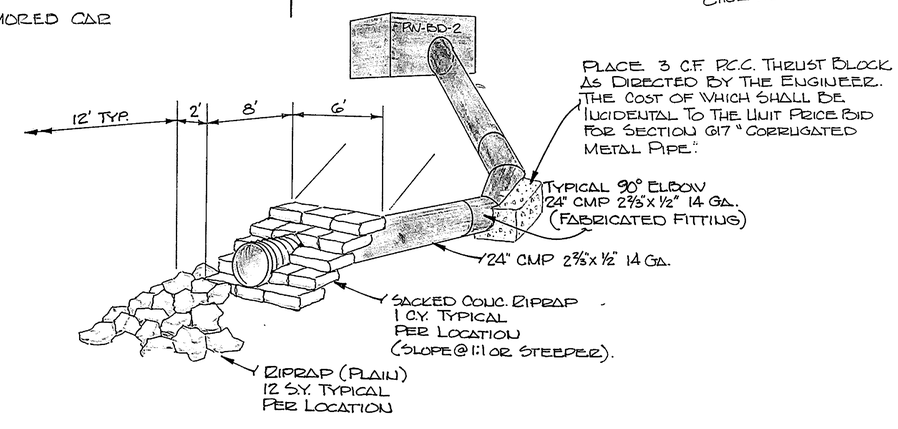
CATCH BASIN SCHEDULE

Nº	TYPE	LOCATION	TOP GR.	INV. EL.
CB-16	TYPE J	34' LT. STA. 69+40		
CB-17	TYPE J	34' RT. STA. 69+00		
CB-18	PW-BD-2	32' RT. STA. 71+00		
CB-19	PW-BD-2	32' RT. STA. 73+00		
CB-20	PW-BD-2	32' RT. STA. 74+00		
CB-21	PW-BD-2	32' RT. STA. 75+00		
CB-22	TYPE J	34' RT. STA. 77+20		
CB-23	TYPE A	44' LT. STA. 77+15		
CB-24	PW-BD-2	32' LT. STA. 73+60		
CB-25	PW-BD-2	32' LT. STA. 72+55		
CB-26	CONV. EXIST CATCH BASIN TO JUNCTION BOX			
CB-27	PW-BD-2	36' LT. STA. 70+50		
CB-28	TYPE A	16' RT. STA. 'C' 3+45		
CB-29	TYPE A	24' RT. STA. 'C' 2+72		
CB-30	TYPE A	16' RT. STA. 'C' 0+80		
CB-31	TYPE A	38' RT. STA. 'C' 0+68		

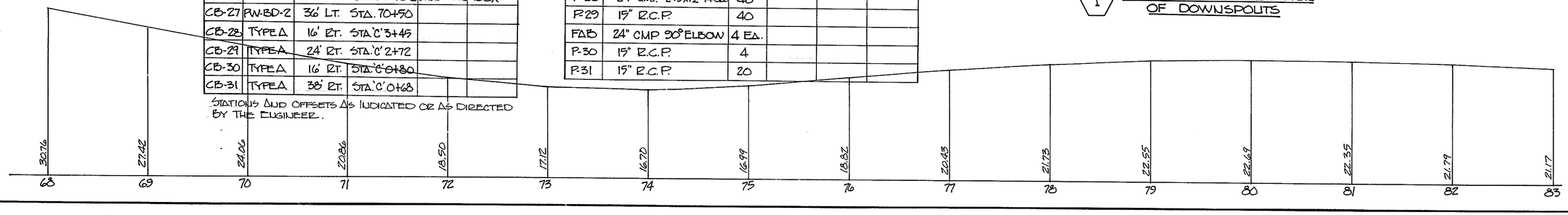
STATIONS AND OFFSETS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

PIPE SCHEDULE

Nº	SIZE & TYPE	LENG.	INT. EL.	DISCH. EL.	SLOPE %
P-18	21" R.C.P.	148			
P-19	21" R.C.P.	198			
P-20	21" R.C.P.	198			
P-21	24" CMP-2⅔"x½"-14 GA.	40			
P-22	21" R.C.P.	98			
P-23	24" CMP-2⅔"x½" 14 GA.	40			
P-24	18" R.C.P.	98			
P-25	18" R.C.P.	218			
P-26	15" R.C.P.	20			
P-27	24" CMP-2⅔"x½"-14 GA.	40			
P-28	24" CMP-2⅔"x½"-14 GA.	40			
P-29	15" R.C.P.	40			
FAB	24" CMP 90° ELBOW	4 EA.			
P-30	15" R.C.P.	4			
P-31	15" R.C.P.	20			



1 DETAIL FOR INSTALLATION OF DOWNSPOUTS

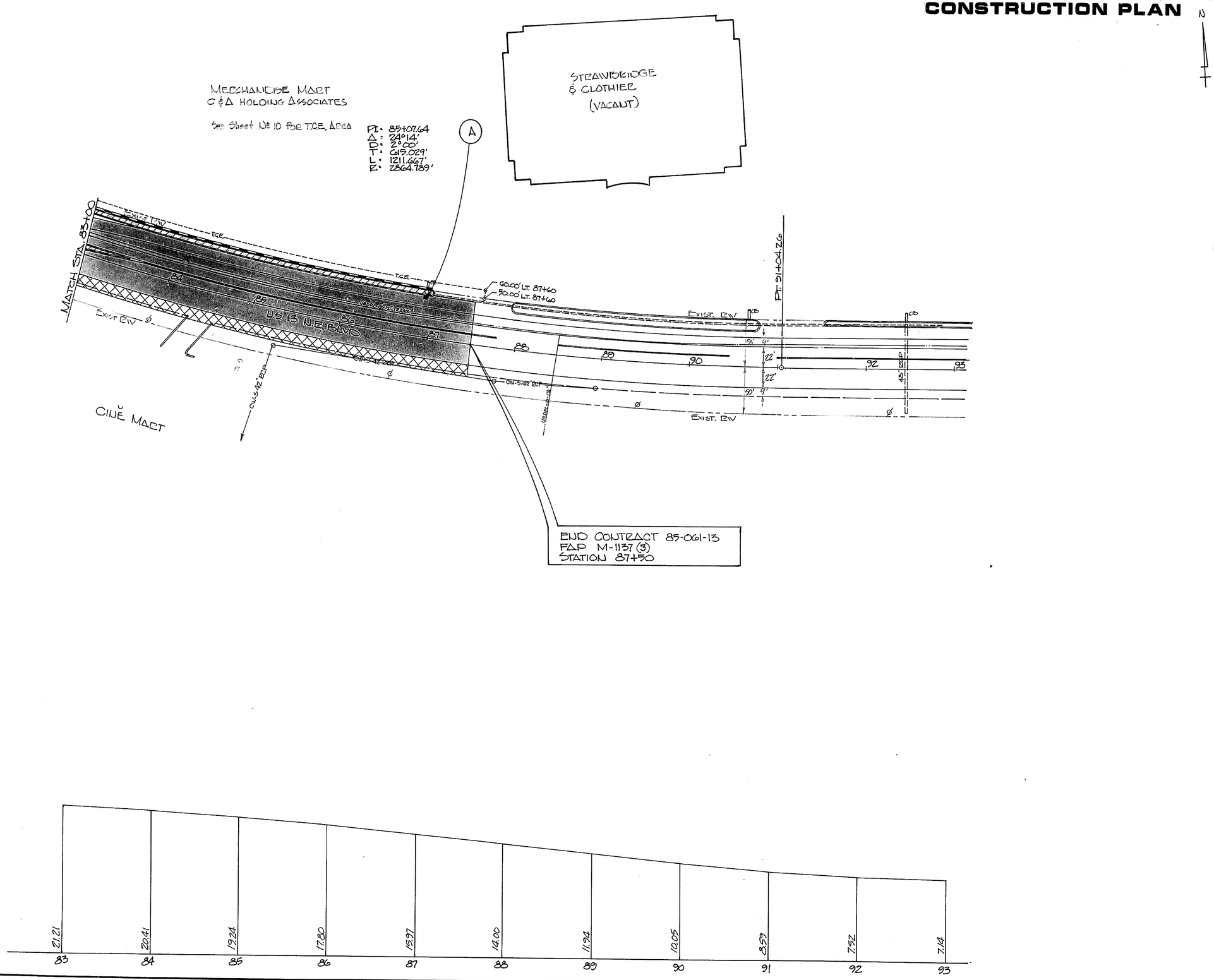


PREL. TRACING FEB 3/85 DESIGN CHKD

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137 (3)	11	42

U.S. 13, (N.E. BLVD.) 4R, BRANDYWINE RIVER TO EDGEMOOR ROAD



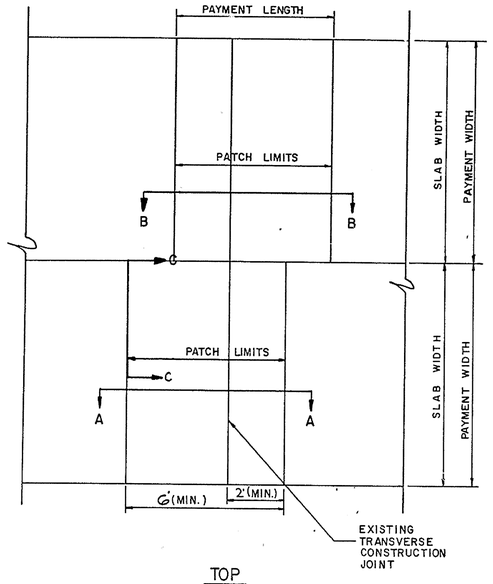
REVISIONS

PREL. TRACING REB 3/85 DESIGN CHKD.

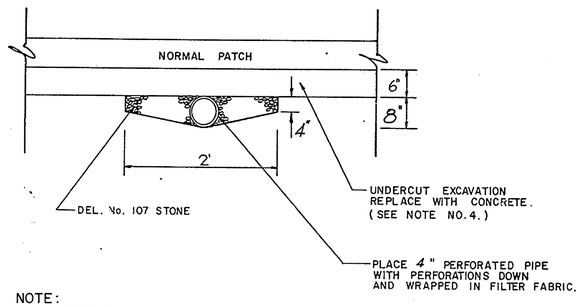
P.C.C. PAVEMENT PATCHING
DETAILS AND NOTES

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	12	42

US 13 (N.E. BLVD.) AT BRANDYWINE RIVER TO EDGEMOOR ROAD



TOP

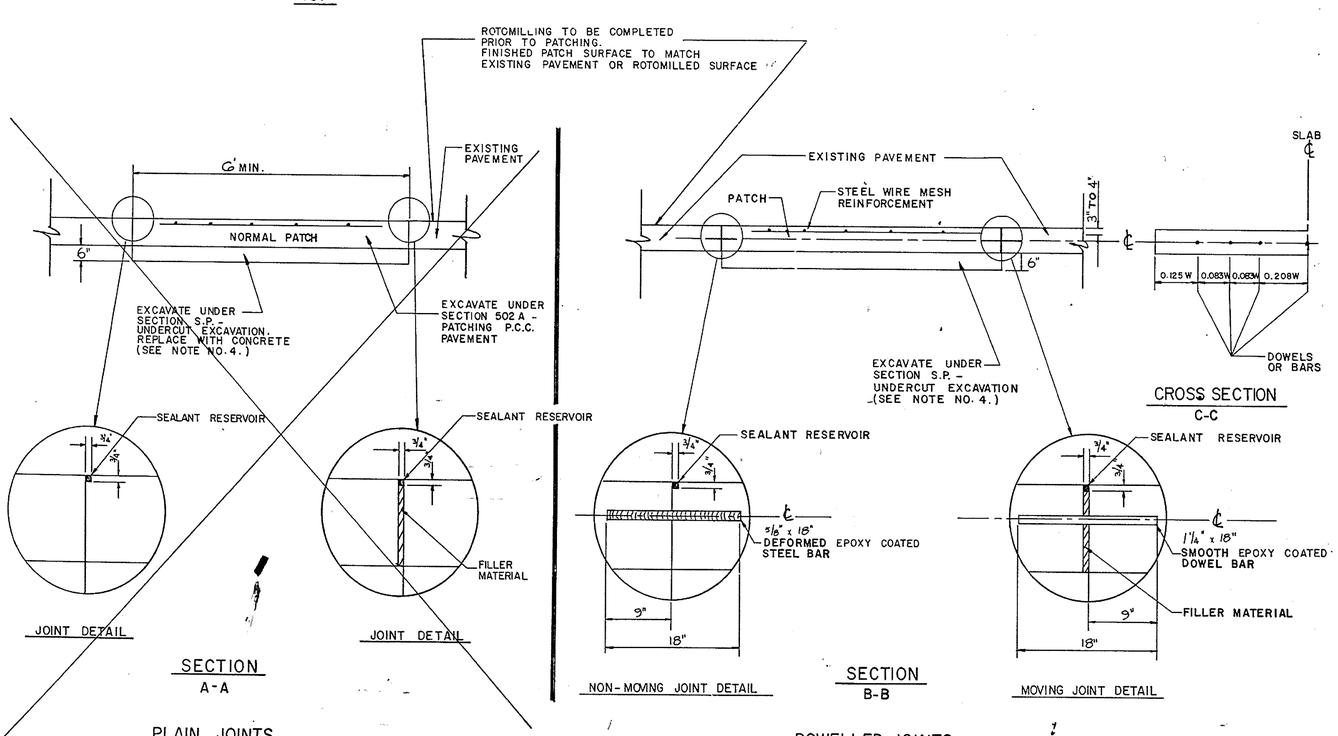


NOTE:

COST OF DEL. No.107 STONE AND ALL INCIDENTALS NECESSARY FOR COMPLETION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SECTION 737, "PERFORATED PIPE UNDERDRAIN (P.C.C. PATCH).

DETAIL FOR PERFORATED PIPE UNDERDRAIN

NO SCALE



FULL WIDTH, FULL DEPTH, PCC PATCH

1) The limits of the patch shall be determined in the field by the Engineer through visual examination and sounding the existing pavement with a hammer. An additional length of approximately 12 inches of sound concrete on each end shall be included within the patch area designated for removal. If an existing joint area is within the patch area, at least two (2) feet beyond the joint line will be designated for removal. Only the areas marked by the Engineer will be measured for payment.

2) Saw cut for pavement removal will be vertical, full depth, and paid for under Section SP - Saw Cutting Concrete. No separate payment shall be made for cutting through existing hot mix overlay. All existing longitudinal joint tie steel extending into the patch area shall be cut flush to the face of the existing slab, to be incidental to Section 502A - Patching PCC Pavement.

3) The removal of the existing concrete and hot mix overlay shall be executed with minimal disturbance to the remaining concrete or foundation. Any damage beyond the limits of the patch caused by the improper actions of the Contractor shall be repaired to the satisfaction of the Engineer at no cost to the State.

4) The foundation shall be examined by the Engineer. Pumping or similar movement that indicates instability will require corrective action, that shall include excavation and replacement of the existing foundation to a maximum depth of six (6) inches. This excavating is to be paid for under Section SP - Undercut Excavation with the replacement material to be Concrete (SY/IN), paid for under Section SP - Patching Concrete.

   Excessive moisture below the above mentioned corrective action may indicate the need for underdrain placement. Underdrain to be placed at center of patch or as directed by the Engineer with a minimum of 3' from nearest joint. Pipe and filter fabric to be incidental to Section 737 - Perforated Pipe Underdrain (PCC Patch). Excavation is to be paid for under Section SP - Undercut Excavation. Underdrain and stone box are to extend through shoulder to existing drainage system, and be incidental to Section 737 - Perforated Pipe Underdrain (PCC Patch).

5) The Contractor shall remove pavement only at those areas that can be poured by sunset of the same day and his operations shall provide for the inclusion of possible underdrain construction. To maintain traffic, refer to the manual titled DELAWARE TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS, as revised January 1984. Also, on four-lane divided highways, one lane in each direction is to remain open at all times. Any patch areas which, during non-working hours, have a grade difference of more than two (2) inches from the normal traveling surface shall be filled with TRM material and shall conform with the requirements of Section SP - Maintenance of Traffic.

6) Steel wire mesh reinforcement shall be placed in all patches conforming to the requirements of AASHTO M-32 or M-55, of longitudinal #2 wire at 6 inches on center and transverse #4 wire at 12 inches on center. The mesh shall be placed to result in 3 to 4 inches of concrete cover to the surface and sides of the patch and be incidental to Section SP - 502A.

7) On one transverse side of the patch, 3/4 inch thick cork or rubber filler material conforming to the requirements of AASHTO M-153 shall be placed directly against the face of the existing concrete; it shall extend across the full width of the transverse joint and from the bottom of the existing concrete slab to 3/4 inch of the top surface of the slab, or as needed by the sealant system requirements and shall be incidental to Section - 502A Patching PCC Pavement.

8) The surface edges of all patches where adjacent to concrete shall be tooled, formed, sawed, etc. to result in a properly dimensioned reservoir for sealant and shall be incidental to Section 502A - Patching PCC Pavement. All joints so constructed shall be sealed (whether or not an overlay is anticipated). Payment for joint sealant material shall be incidental to Section 502A - Patching PCC Pavement and shall conform to the requirements for ASTM-D3045.

9) A patch area shall not be closer than ten (10) feet to an existing joint; if so, removal of the remaining length to the joint will be made, as well as two (2) feet past the joint line. For areas where the existing dowelled joint is removed, the joint will be relocated to the end of the proposed patch and reconstructed with a new load transfer system. If more than one existing dowelled joint is affected by continuous patching operations placement of load transfer systems shall be completed as directed by the Engineer.

   A load transfer system will consist of smooth epoxy coated dowel bars with dimensions of 1-1/4 inch diameter and 18 inches long being placed as shown on the plans and paid for under Section SP - Smooth Coated Dowel. It is critical that each smooth dowel is placed parallel with the centerline of the slab, both vertically and horizontally.

10) At the transverse joint, in dowelled patches, where no existing dowelled joint is present, deformed epoxy coated steel bars conforming to the requirements of AASHTO M-31 grade 60, with dimensions of 5/8 inch diameter and 18 inches long, shall be placed as shown on the plans and be paid for under Section SP - Deformed Steel Bars.

    Longitudinal concrete pavement slabs shall not be tied together.

11) A bond breaker shall be placed on any concrete face along the longitudinal joints exposed within the patch. Polyethlyne sheet, a coat of approved latex paint, or an approved alternate system may be used, as directed by the Engineer, to prevent bonding between the new and existing concrete, payment to be incidental to Section 502A - Patching PCC Pavement.

12) Forms are required which will provide a patch with vertical sides for the full depth of patch. Also, shoulder paving adjacent to slab replacement damaged or removed due to operations during construction, shall be repaired in kind or better and compensation to be incidental to Section 502A - Patching PCC Pavement.

13) The cross section of the first ten (10) feet of the patch shall be finished to match the existing cross section of the roadway (any existing rutting will be continued for that length). A broomed texture is required and shall be incidental to Section 502A - Patching PCC Pavement.

14) An approved curing compound shall be applied uniformly, immediately upon completion of the patch texturing and shall be incidental to Section 502A - Patching PCC Pavement.

Pay Items Associated with PCC Pavement Patching

502A	-	Patching Portland Cement Concrete Pavement	- SY
737	-	Perforated Pipe Underdrain (PCC Patch)	- LF
SP	-	Saw Cutting Concrete	- LF
SP	-	Undercut Excavation	- CY
SP	-	Patching Concrete	- SY/IN
SP	-	Smooth Coated Dowels	- EA
SP	-	Deformed Steel Bars	- EA
SP	-	Crusher Run (TRM)	- TON
402	-	Hot Mix Bituminous Concrete and/or Asphalt Cold Patch (TRM)	- TON

REVISIONS

PREL. TRACING DBD DESIGN GLM 4-26-85 CHKD. KDF 4-26-85

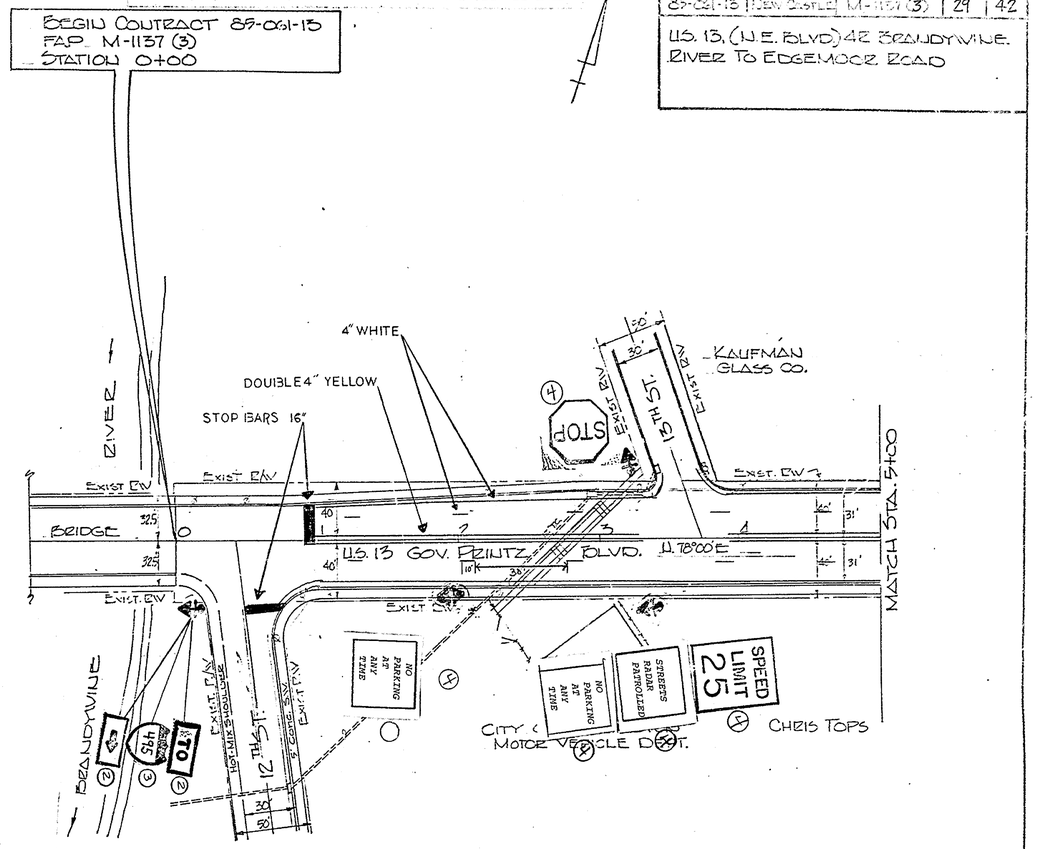
55103

SIGNING AND STRIPING

CONTRACT	COUNTY	FEDERAL AID NUMBER	SHEET	OF
89-061-13	NEW CASTLE	M-1137 (3)	29	42

U.S. 13 (N.E. BLVD) AT BRANDYWINE RIVER TO EDGEMOOR ROAD

BEGIN CONTRACT 89-061-13
FAP M-1137 (3)
STATION 0+00



Signing Legend

1. Existing sign remove.
2. Existing sign remain
3. New sign.
4. Renew existing sign.
5. Reposition existing sign.

STRIPING QUANTITIES

2,1000 LF. 4" White TAPE 5730
18,400 LF. 4" Yellow Tape 5731
2EA. 25.0 SQ.FT. STRAIGHT ARROW
5EA. 77.5 SQ.FT. LEFT ARROW
2EA. 40.0 SQ.FT. COMBINATION ARROW
39.6 SQ.FT. 8" TRANSVERSE (CROSSWALK)
400 SQ.FT. 16" TRANSVERSE (STOP BARS)

REPLACE STREET BLADES FOR THE FOLLOWING LOCATIONS:

NORTHBOUND

SIDE STREET	MAIN STREET
E. 12th STREET	NORTHEAST BOULEVARD
THATCHER STREET	NORTHEAST BOULEVARD
E. 14th STREET	NORTHEAST BOULEVARD
E. 16th STREET	NORTHEAST BOULEVARD
LODGE STREET	NORTHEAST BOULEVARD
VANDEVER AVENUE	NORTHEAST BOULEVARD
E. 22nd STREET	NORTHEAST BOULEVARD
E. 23rd STREET	NORTHEAST BOULEVARD
E. 25th STREET	NORTHEAST BOULEVARD
E. 26th STREET	NORTHEAST BOULEVARD
E. 27th STREET	NORTHEAST BOULEVARD
E. 28th STREET	NORTHEAST BOULEVARD
E. 30th STREET	NORTHEAST BOULEVARD
TODD'S LANE	NORTHEAST BOULEVARD
E. 35th STREET	NORTHEAST BOULEVARD

SOUTHBOUND

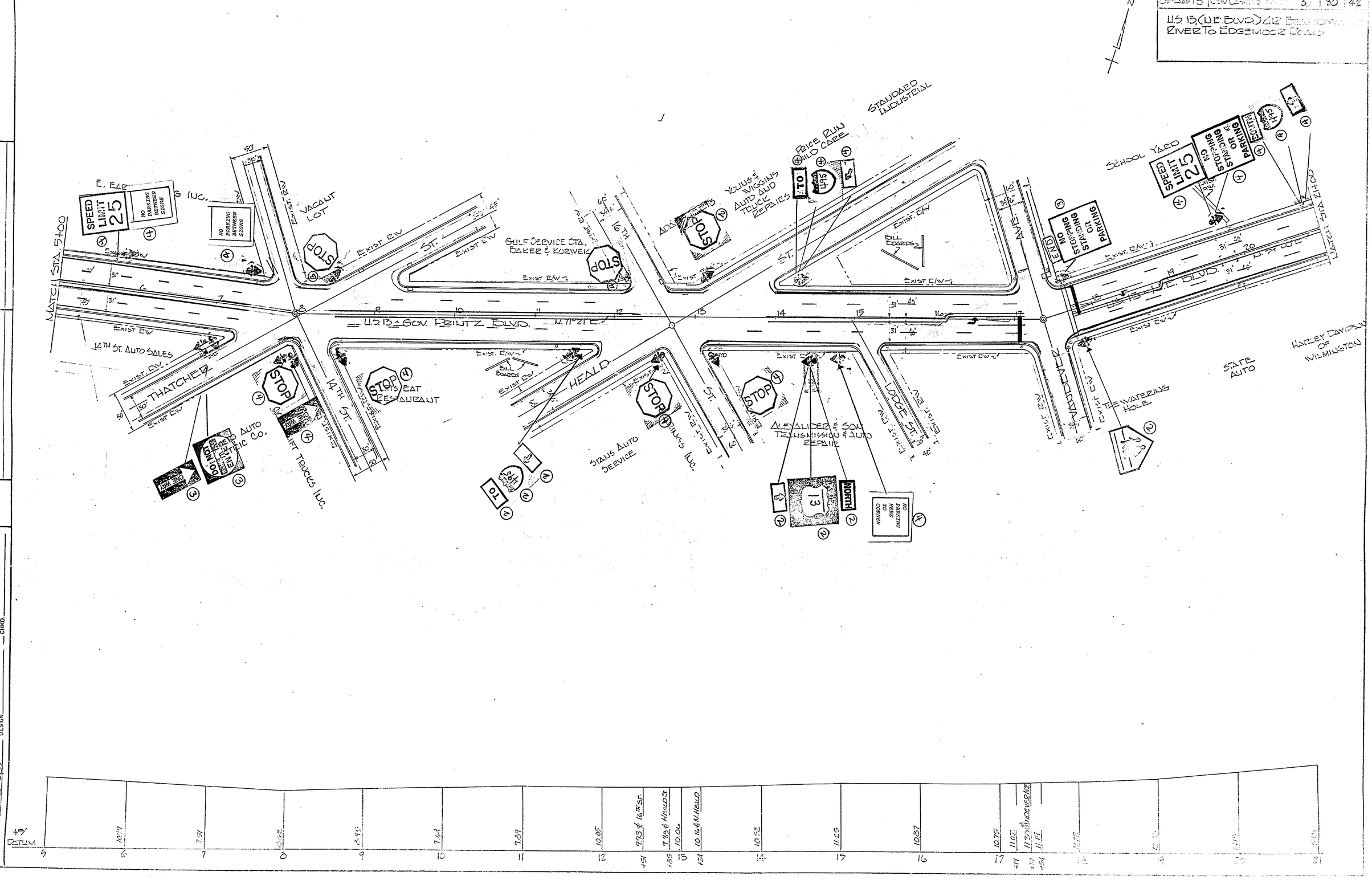
SIDE STREET	MAIN STREET
E. 35th STREET	NORTHEAST BOULEVARD
E. 30th STREET	NORTHEAST BOULEVARD
EAST LAWN AVENUE	NORTHEAST BOULEVARD
E. 28th STREET	NORTHEAST BOULEVARD
E. 27th STREET	NORTHEAST BOULEVARD
E. 26th STREET	NORTHEAST BOULEVARD
E. 25th STREET	NORTHEAST BOULEVARD
E. 24th STREET	NORTHEAST BOULEVARD
E. 23rd STREET	NORTHEAST BOULEVARD
E. 22nd STREET	NORTHEAST BOULEVARD
VANDEVER AVENUE	NORTHEAST BOULEVARD
HEALD STREET	NORTHEAST BOULEVARD
16th STREET	NORTHEAST BOULEVARD
THATCHER STREET	NORTHEAST BOULEVARD
13th STREET	NORTHEAST BOULEVARD

CHKD
DESIGN
7/92

SIGNING AND STRIPING

CONTRACT	COUNTY			
85-061-13	NEW CASTLE	[illegible] 3	30	42

U.S. 13 (N.E. BLVD.) AIR BRANDYWINE RIVER TO EDGEMOOR ROAD



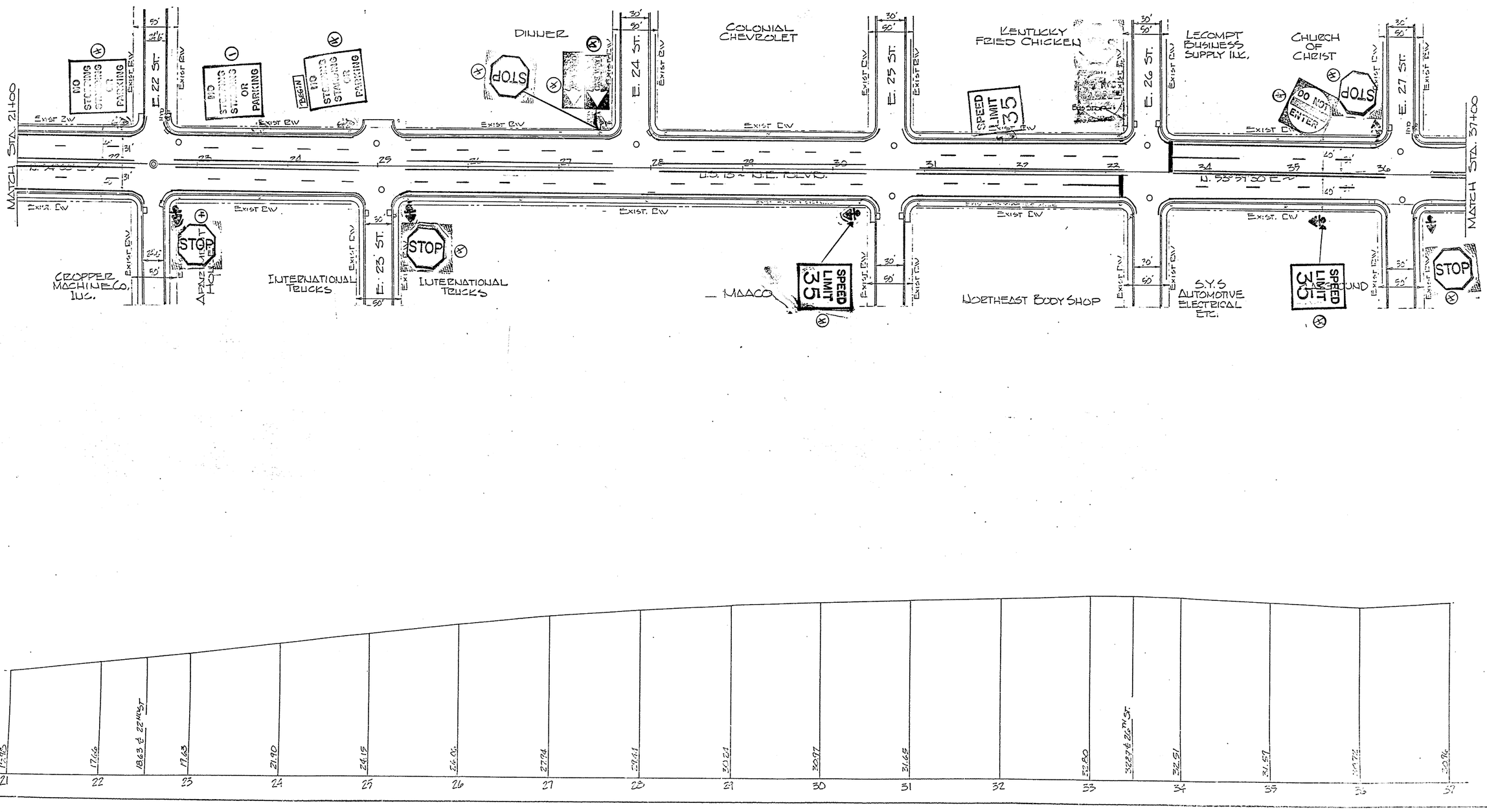
REVISIONS

FIELD TRACING RED 3/85 DESIGN CHKD.

SIGNING AND STRIPING

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
S5-061-13	NEW CASTLE	M-1137(3)	31	42

U.S. 13 (N.E. BLVD) 4R. BRANDYWINE RIVER TO EDGEMOOR ROAD



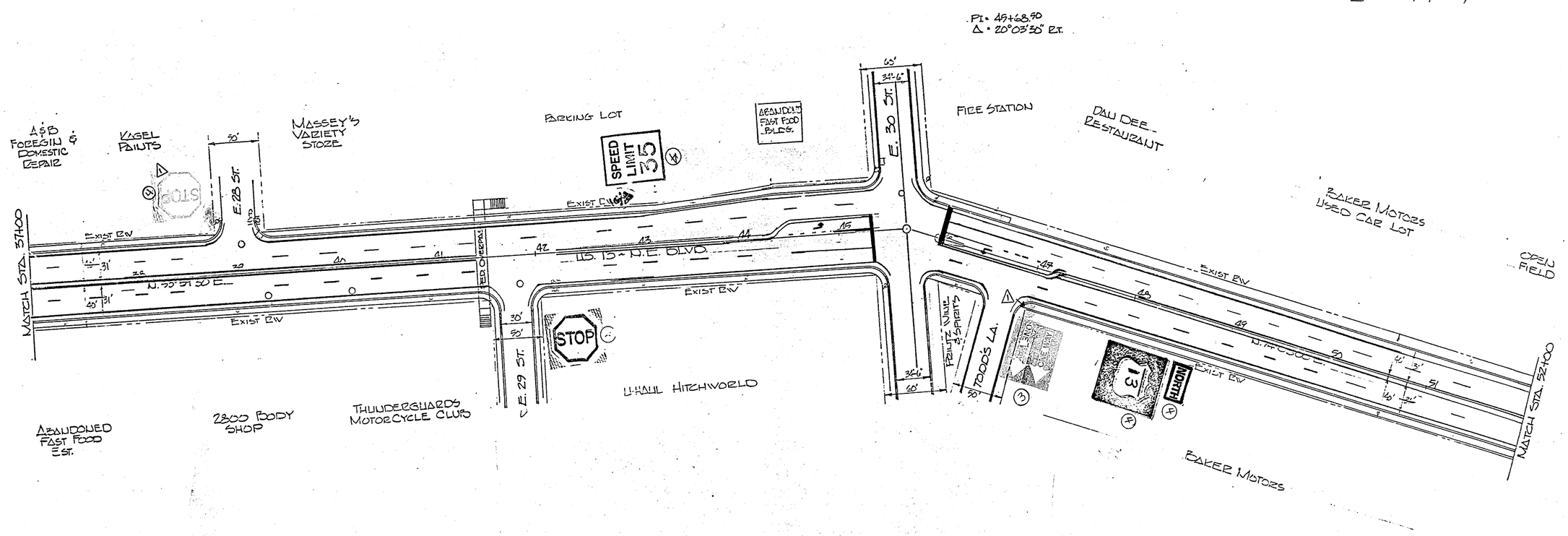
PHEL. TRACING DESIGN CHKD.

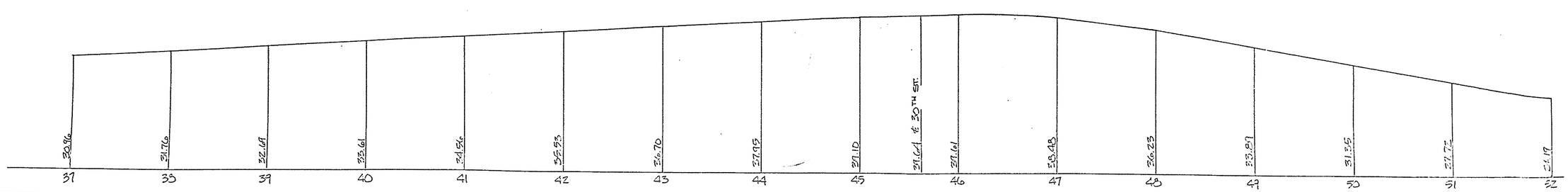
SIGNING AND STRIPING

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.		
85-061-13	NEW CASTLE	M-1137(3)	32	42

U.S. 13 (N.E. BLVD) 4R. BRANDYWINE RIVER TO EDGEMOOR ROAD

△1 Revised 9/24/85 JJH





FIELD TRACING Rev. 3/85 DESIGN CHKD.

SIGNING AND STRIPING

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
83-061-13	NEW CASTLE	M-1157(3)	33	42

U.S. 13 (N.E. BLVD) 4R, BRANDYWINE RIVER TO EDGEMOOR ROAD

PREL. TRACING RER 3/85 DESIGN ____ CHKD. ____

SIGNING AND STRIPING

CONTRACT	COUNTY	FEDERAL AID PROJECT No.	SHEET No.	TOTAL SHEETS
85-061-15	NEW CASTLE	M-1157(3)	34	42

US 13, (N.E. BLVD) AR. BRANDYWINE RIVER TO EDGEMOOR ROAD

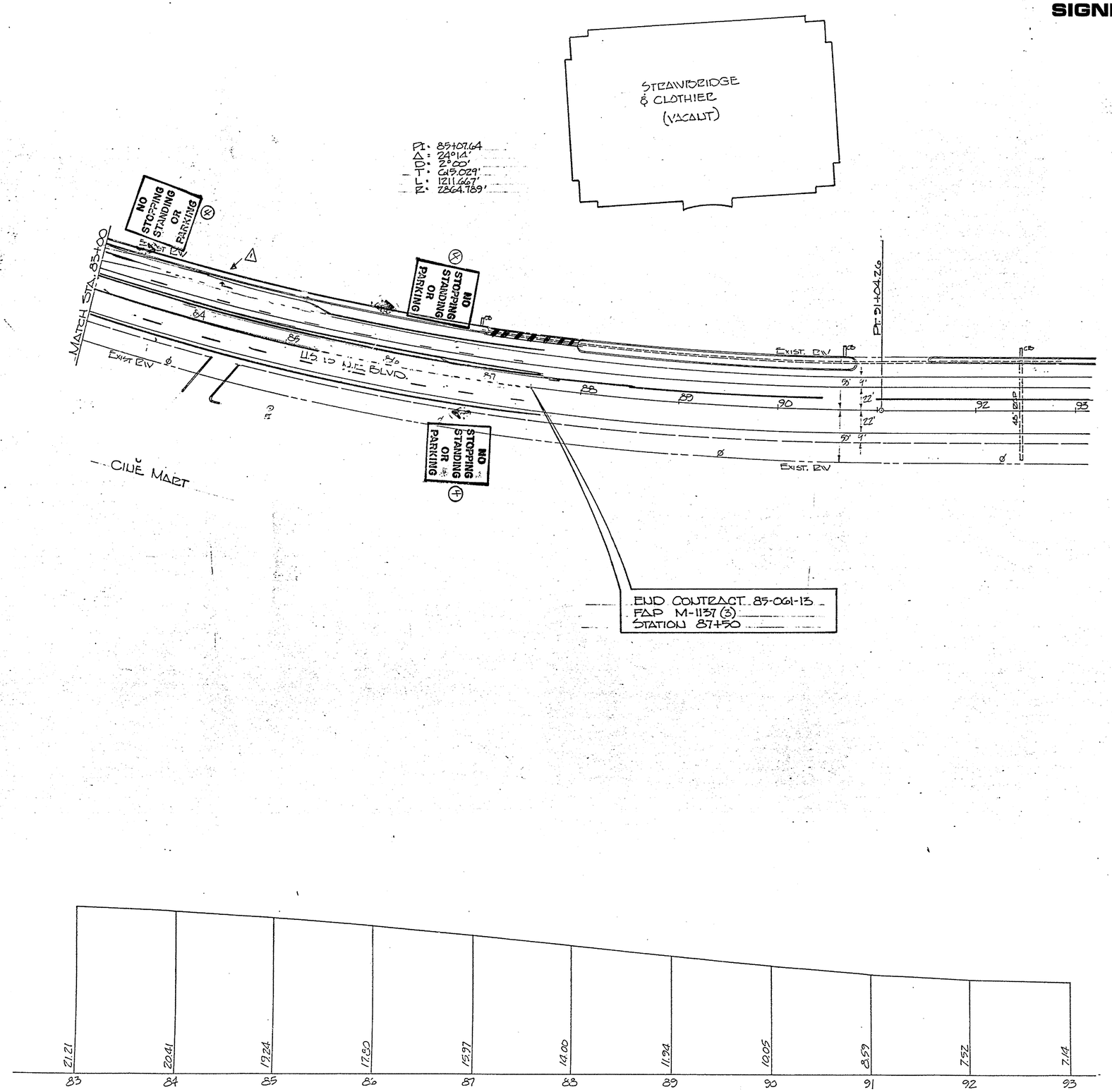
REVISIONS

PREL. TRACING Bers 3/85 DESIGN CHKD.

SIGNING AND STRIPING

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137 (3)	35	42

US 13, (N.E. BLVD.) 4R, BRANDYWINE RIVER TO EDGEMOOR ROAD



PREL. TRACING RES 3/85 DESIGN CHKD.

UTILITIES

[illegible]	[illegible] M-1137 (3)	36	42

[illegible] BRANDYWINE
[illegible] ROAD

REVISIONS

PREL. TRACING [illegible] 7/87 DESIGN ____ CHKD. ____

UTILITIES

FED.RTE.	PROJECT		SHEET NO.	TOTAL SHTS.	
		W.I.D.	3	37	42

US 13/US 40/SR 141 FELTON/WYOMING
ENGLISH CONFERENCE ROAD

PREL. TRACING FED 3195 DESIGN CHKD

MATCH STA 5100

E. EARL DOWLING INC.

VACANT LOT

GULF SERVICE STA. BAKER & KORWEK

ADAMS PARTS INC.

YOUNG & WIGGINS AUTO AND TRUCK REPAIRS

PRICE RUN CHILD CARE

STAUDACO INDUSTRIAL

CONRAIL

HAZLETTA HIGHWAY

MATCH STA 5100

MAYER AUTO ELECTRIC CO.

GOD LIFT TRUCK, INC.

LETS EAT RESTAURANT

STALLS AUTO SERVICE

ALEXANDER & SON TRANSMISSION & AUTO REPAIR

HADLEY DIVISION OF WILMINGTON

STATE AUTO

THIRSTY DUCK

US 13 - GOV. PRINTZ BLVD. N. 71°21' E.

US 13 - U.E. BLVD.

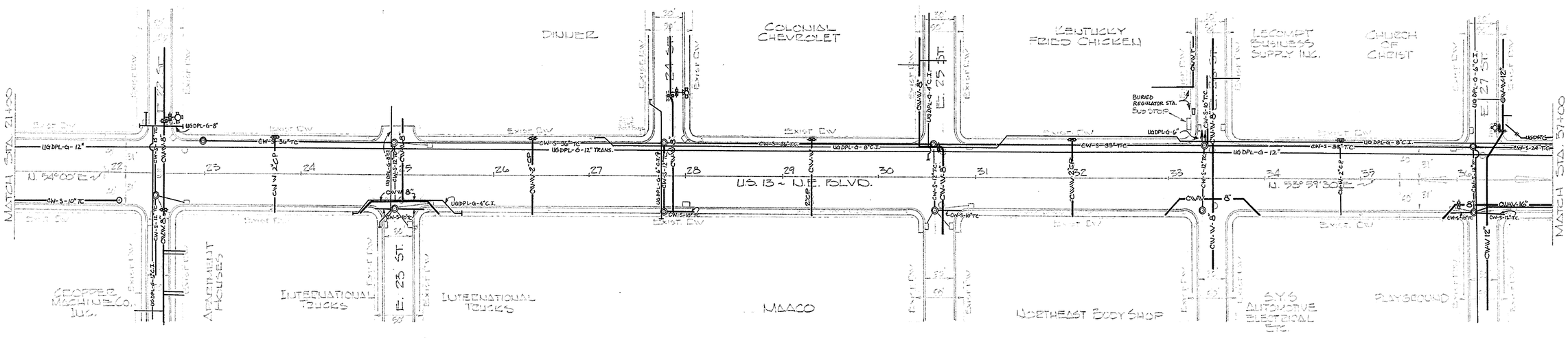
5	6	7	8	9	10	11	12	451	485	13	424	14	15	16	17	417	437	454	18	19	20	21
+5'	10.79	9.51	8.62	8.95	9.64	9.87	10.05	293 ft 16" RCP	9.83 ft HEADER	10.06	10.16 ft HEADER	10.22	11.25	10.87	10.75	11.02	11.30 SHOULDER AND	11.17	11.22	12.20	11.15	15.18
EXTEN																						

D C B A 1 5 10 A B C D

UTILITIES

CONTRACT	COUNTY	ROUTE AND PROJECT NO.	SHEET	TOTAL
95-001-13	NEW CASTLE	U-1157(3)	38	42

US 13 (N.E. BLVD.) AR BRANDYWINE RIVER TO EDGEMOOR ROAD

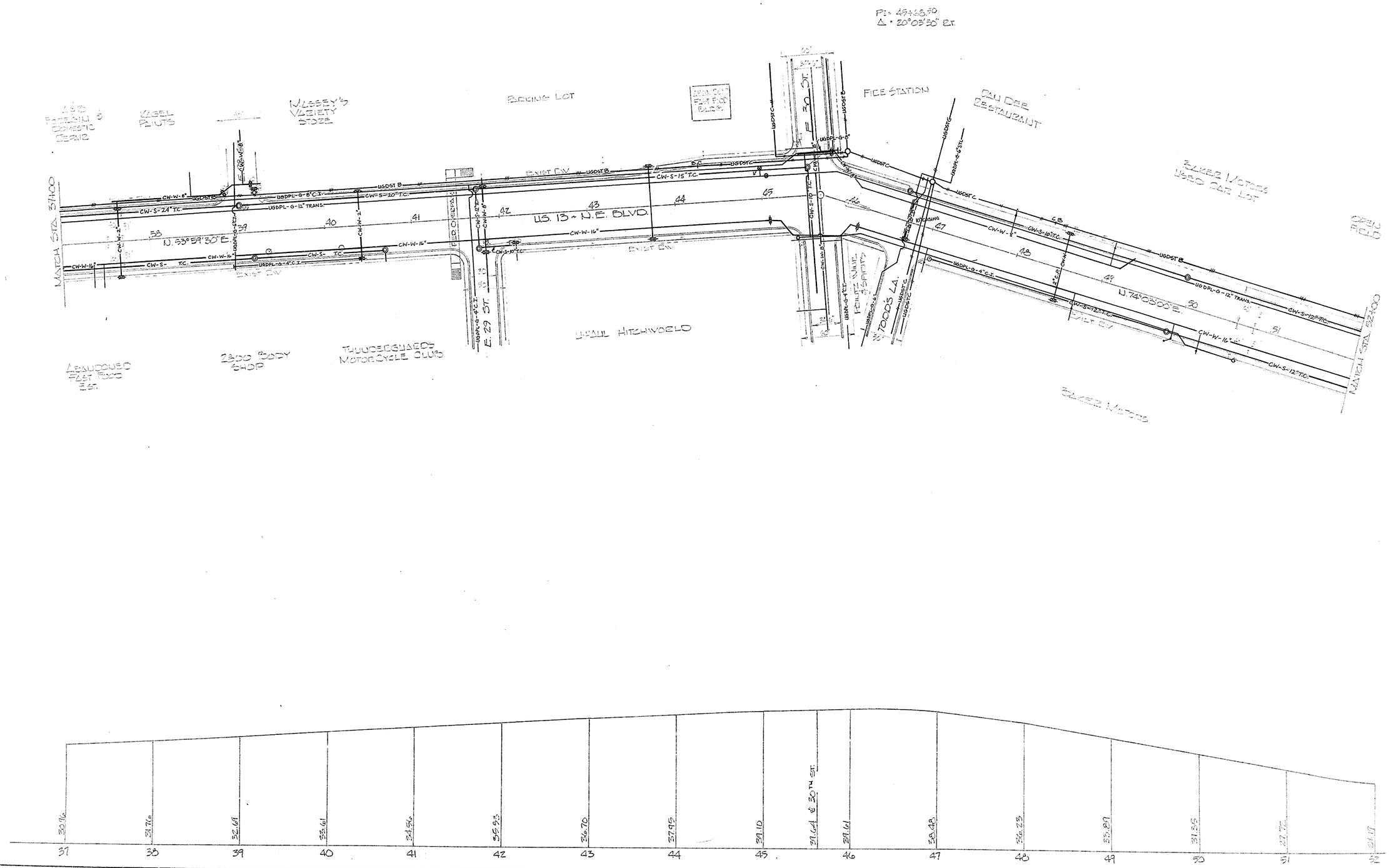


FIELD TRACING DEPS 3/85 DESIGN CHKD.

UTILITIES

89-061-13	NEW CASTLE	M-1157 (3)	39	42

US 13 (N.E. BLVD) 42 BRANDYWINE RIVER TO EDGEMOOR ROAD



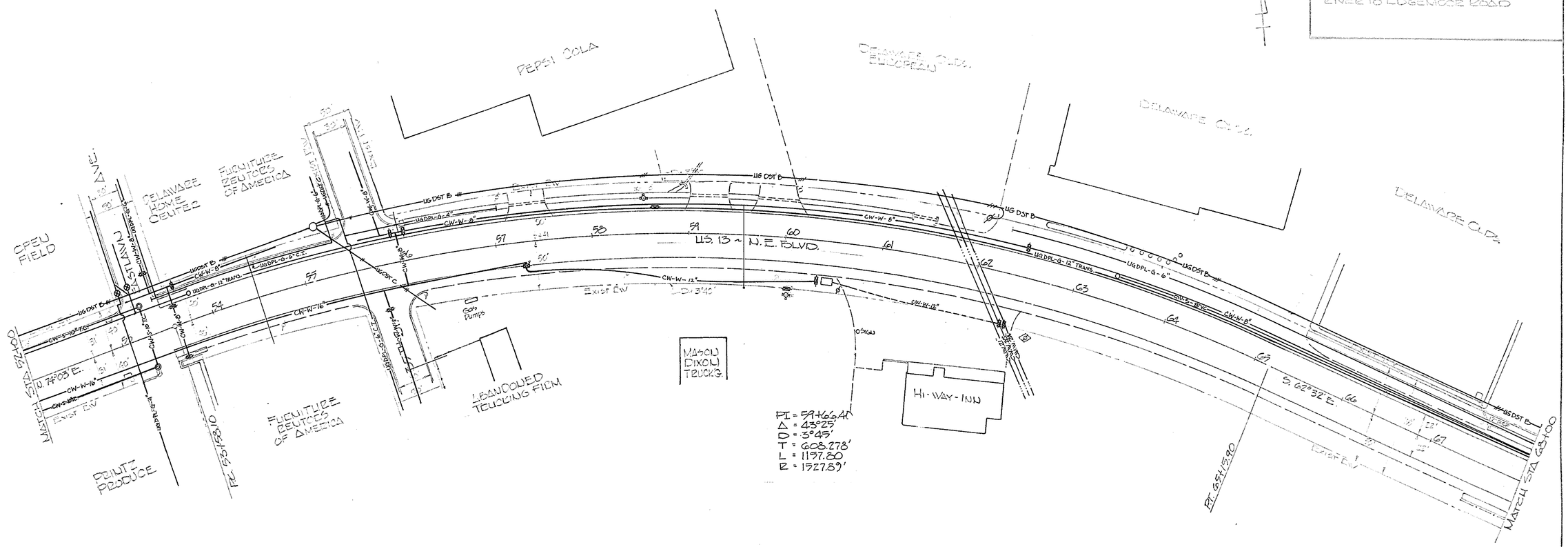
REVISIONS

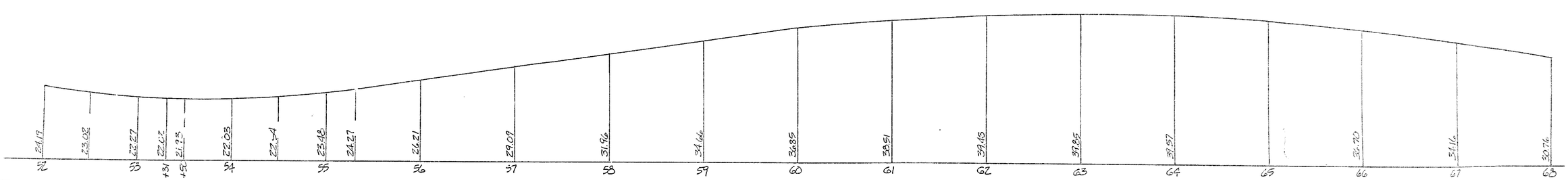
PRELIM. TRACING Dec 3/85 DESIGN CHKD.

UTILITIES

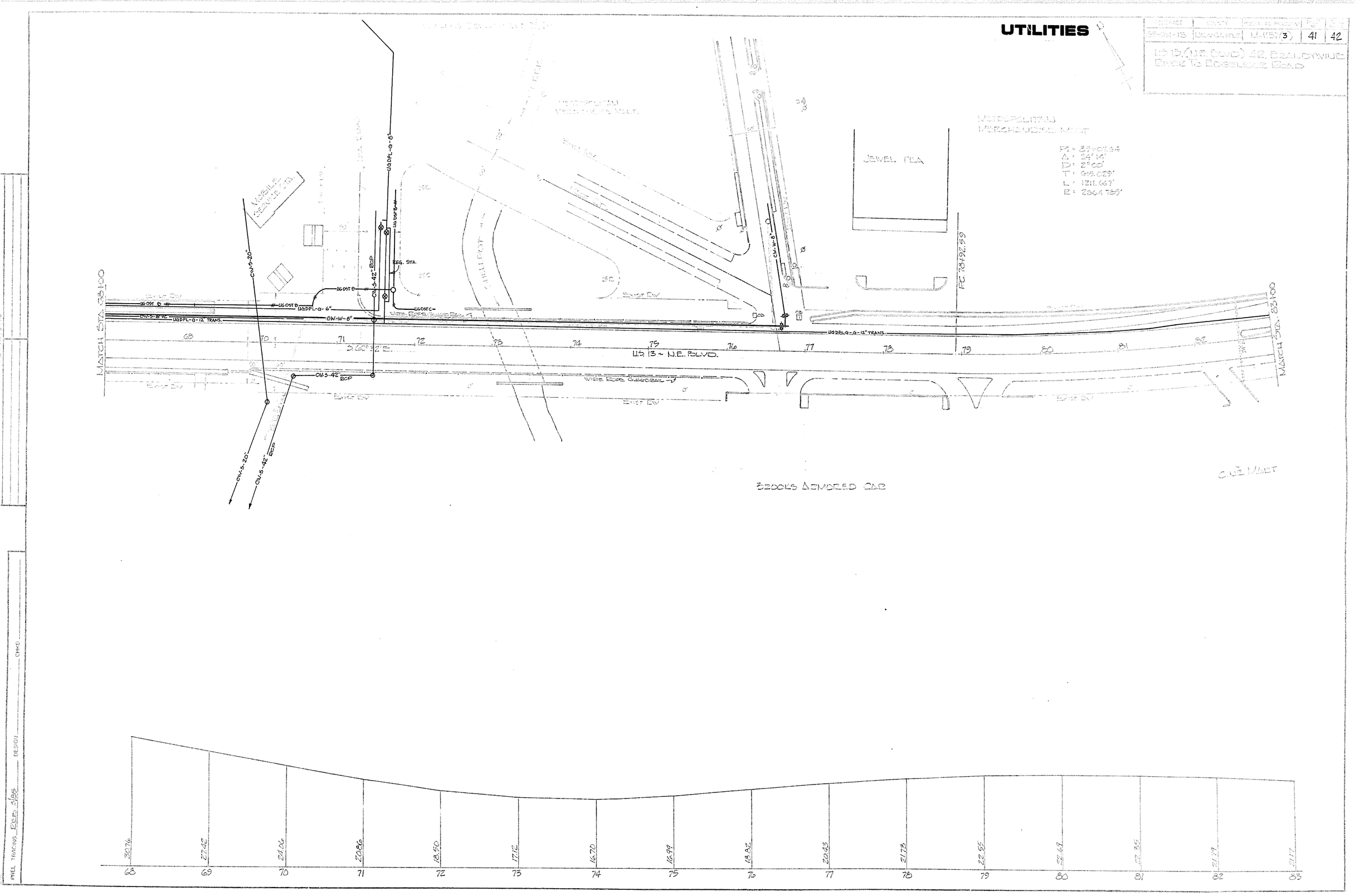
CONTRACT	COUNTY	FEDERAL AID PROJECT No.	SHEET No.	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1157(3)	40	42

US 13 (N.E. BLVD) AR. BRANDYWINE RIVER TO EDGEMOOR ROAD





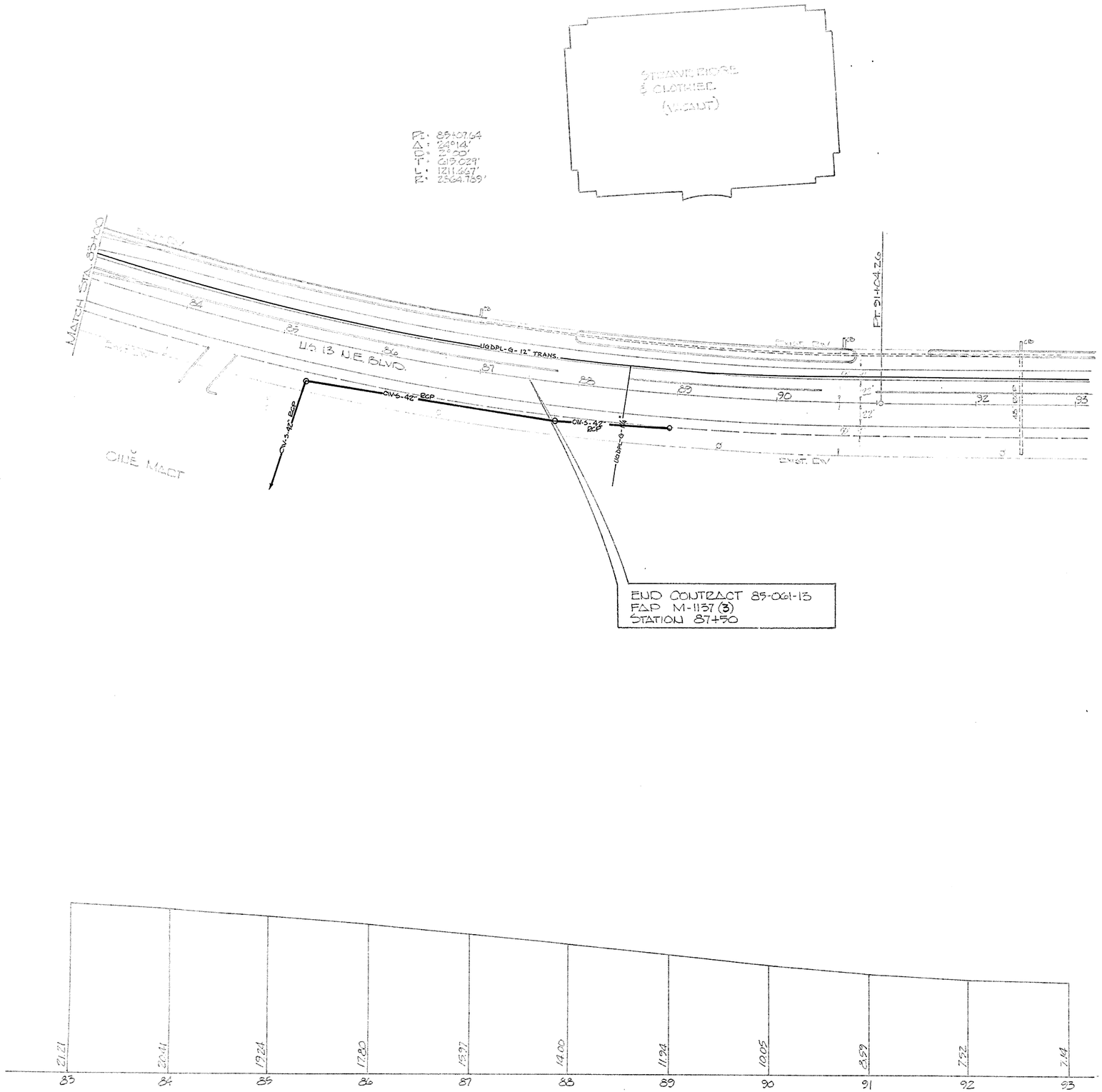
PREL. TRACING Rob 3/85 DESIGN CHKD.


UTILITIES
US 13 (N.E. BLVD) 4R, BRANDYWINE RIVER TO EDGELIGHT ROAD
METROPOLITAN MERCHANDISE MART
JEWEL TEA
MOBILE SERVICE STA.
MATCH STA. 68+00
MATCH STA. 83+00
US 13 ~ N.E. BLVD.
BROOKS ARMORED CAR
C.N.E. MART
PC 78+92.59
CW-S-20"
CW-S-42" RCP
UGDPL-G-8"
UGDPL-G-6"
UGDPL-G-12" TRANS.
CW-W-8"
REG. STA.
WIRE ROPE GUARDRAIL
EXIST DIV
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
30.76
27.42
24.06
20.86
18.50
17.12
16.70
16.99
18.82
20.43
21.73
22.55
22.69
22.35
21.79
21.17

UTILITIES

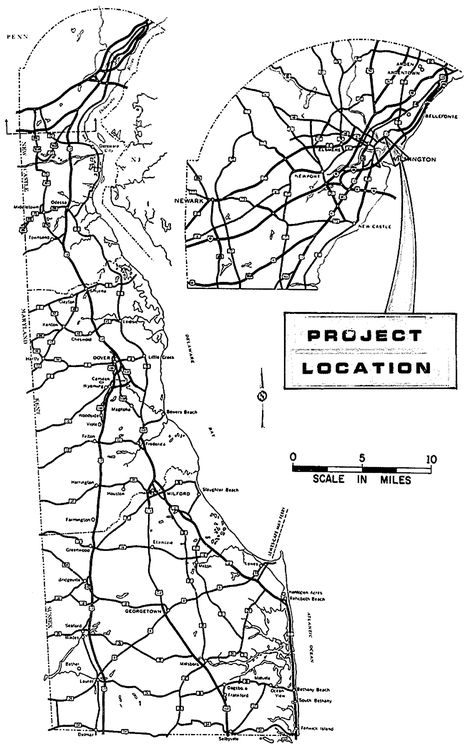
CONTRACT	COUNTY	ROUTE	SHEET	TOTAL
85-061-13	NEW CASTLE	M-1137 (3)	42	42

US 13, (N.E. BLVD.) 42, BRANDYWINE RIVER TO EDGEMOOR ROAD



PREL. TRACING RED 3/85 DESIGN CHKD

STATE OF DELAWARE



GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SPECIFICATION AND CONSTRUCTION PLANS FOR:

U.S. 13, (N.E. BLVD.) 4R
BRANDYWINE RIVER TO EDGEMOOR ROAD

CONTRACT NUMBER 85-061-13
FEDERAL AID PROJECT NUMBER M-1137 (3)

ROADWAY LENGTH 8750.00 FEET= 1.657 MILES
STRUCTURE LENGTH ——— FEET= ——— MILES
TOTAL LENGTH 8750.00 FEET= 1.657 MILES

CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
85-061-13	NEW CASTLE	DE.	3	M-1137(3)	1	42

DESIGN DESIGNATION

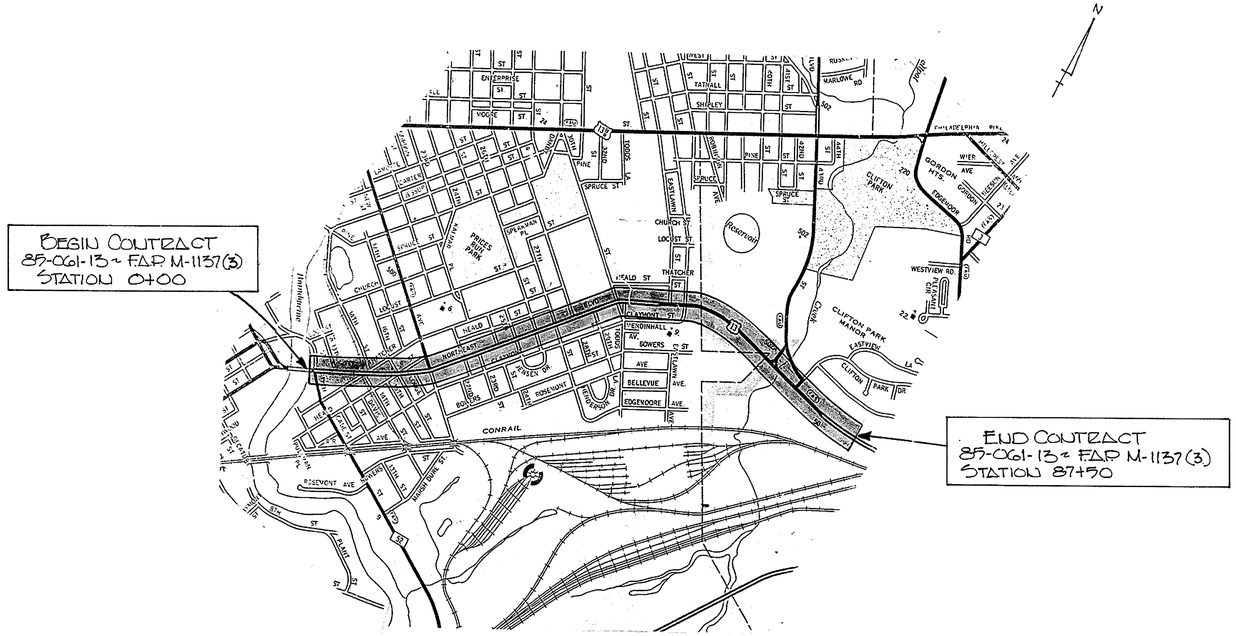
FUNCTIONAL CLASS MINOR ARTERIAL
TYPE OF CONSTRUCTION 4R
A.D.T. CURRENT 20,828 (1983)
A.D.T. PROJECTED 23,077 (1995)
D.H.V. PROJECTED 0.10
DESIGN SPEED 35 MPH
% TRUCKS 10%
DIRECTION DISTRIBUTION % 60%

SCALES

PLAN SHEET: 1"= 50 Feet
PROFILE SHEET:
Horizontal: 1"= 50 Feet
Vertical: 1"= 10 Feet
DETAIL SHEET: 1"= ____ Feet

INDEX OF SHEETS

SHEET Nº	TABLE OF CONTENTS
1	TITLE SHEET
2	QUANTITY SHEET ~ LEGENDS
3	TYPICAL SECTIONS
4	GEN. NOTES ~ MAINT. OF TRAFFIC ~ PATCHING SCH.
5-11	PLAN SHEETS
12	P.C.C. PATCHING DETAIL
13-28	STANDARD SHEETS: C-1; C-2; C-4; C-5; D-1-11; D-2-4; D-9-7; D-12-3; D-19-5; D-16; E-1; G-2-9; G-3-5; G-4-6; G-5; D-7-5;
29-35	SIGNING AND STRIPING PLANS
36-42	UTILITY INFORMATION



BUREAU OF RIGHT OF WAY

RECOMMENDED FOR APPROVAL

Harvey D. Berry — 9-9 1985
CHIEF RIGHT OF WAY — DATE

Wayne D. Epp — Sept. 9 1985
REVIEWED R W ENGINEERING — DATE

DIVISION OF HIGHWAYS

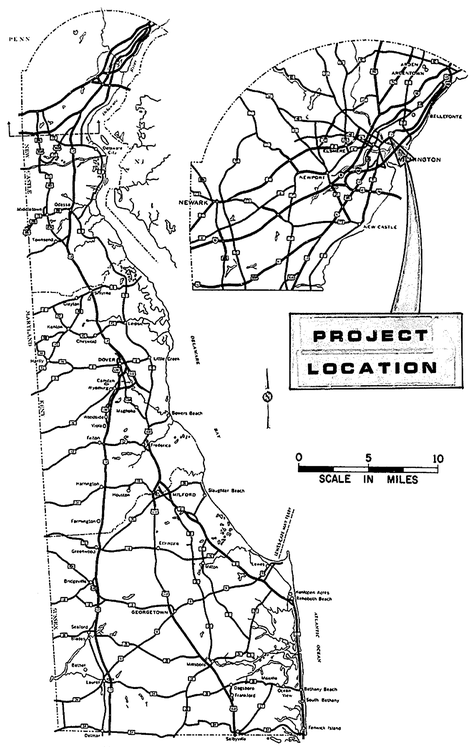
RECOMMENDED		RECOMMENDED		RECOMMENDED		RECOMMENDED		APPROVED	
PROJECT ENGINEER	VENUSTO L. DONATO, JR. REGISTERED NO. 4960 DELAWARE PROFESSIONAL ENGINEER	ROAD DESIGN ENGINEER	PROFESSIONAL ENGINEER	DESIGN ENGINEER		DEPUTY DIRECTOR OF HIGHWAYS		DIRECTOR OF HIGHWAYS	
RECOMMENDED 9/13/1985	SEAL	RECOMMENDED 9/13 1985	SEAL	RECOMMENDED 9/13 1985	SEAL	RECOMMENDED 9/16 1985	SEAL	APPROVED 9/16/1985	SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ 19 ___

_____
DIVISION ADMINISTRATOR

STATE OF DELAWARE



GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SPECIFICATION AND CONSTRUCTION PLANS FOR:

U.S. 13, (N.E. BLVD.) 4R
BRANDYWINE RIVER TO EDGEMOOR ROAD

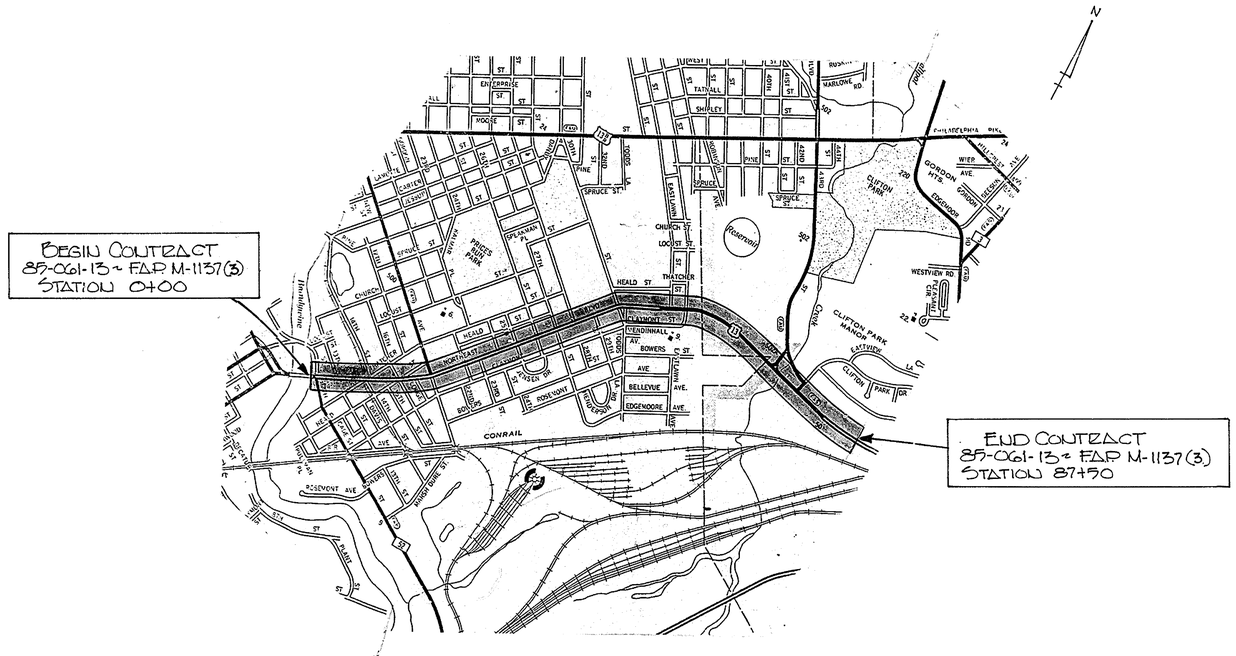
CONTRACT NUMBER 85-061-13

FEDERAL AID PROJECT NUMBER M-1137 (3)

ROADWAY LENGTH 8750.00 FEET= 1.657 MILES

STRUCTURE LENGTH ——— FEET= ——— MILES

TOTAL LENGTH 8750.00 FEET= 1.657 MILES



CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
85-061-13	NEW CASTLE	DE.	3	M-1137(3)	1	42

DESIGN DESIGNATION

FUNCTIONAL CLASS Minor Arterial

TYPE OF CONSTRUCTION 4R

A.D.T. CURRENT 20,828 (1983)

A.D.T. PROJECTED 23,077 (1995)

D.H.V. PROJECTED 0.10

DESIGN SPEED 35 MPH

% TRUCKS 10%

DIRECTION DISTRIBUTION % 60%

SCALES

PLAN SHEET: 1"= 50 Feet

PROFILE SHEET:

Horizontal: 1"= 50 Feet

Vertical: 1"= 10 Feet

DETAIL SHEET: 1"= ____ Feet

INDEX OF SHEETS

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13-28	STANDARD SHEETS: C-1; C-2; C-4; C-5; D-1-11; D-2-4; D-9-7; D-12-3; D-19-5; D-16; E-1; G-2-9; G-3-5; G-4-6; G-5; D-7-5;
29-35	SIGNING AND STRIPING PLANS
36-42	UTILITY INFORMATION

BUREAU OF RIGHT OF WAY

RECOMMENDED FOR APPROVAL

Harvey J. Berry — 9-9 1985

CHIEF RIGHT OF WAY — DATE

Wayne D. Epp — Sept. 9 1985

REVIEWED R W ENGINEERING — DATE

9 Aug 94

DIVISION OF HIGHWAYS

RECOMMENDED	RECOMMENDED	RECOMMENDED	RECOMMENDED	APPROVED
PROJECT ENGINEER	ROAD DESIGN ENGINEER	DESIGN ENGINEER	DEPUTY DIRECTOR OF HIGHWAYS	DIRECTOR OF HIGHWAYS
RECOMMENDED 9/13/1985	RECOMMENDED 9/13 1985	RECOMMENDED 9/13 1985	RECOMMENDED 9/16 1985	APPROVED 9/16/1985
SEAL	SEAL	SEAL	SEAL	SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ 19 __

DIVISION ADMINISTRATOR

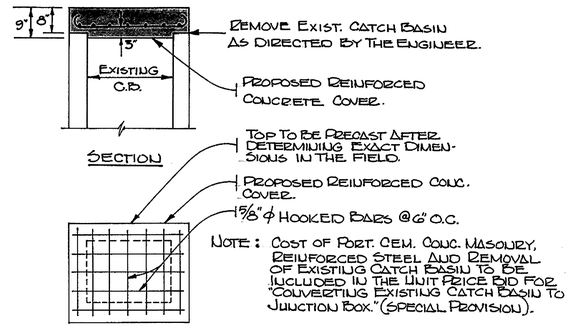
CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	5	42

US. 13, (N.E. BLVD.) AT BRANDYWINE RIVER TO EDGEMOOR ROAD

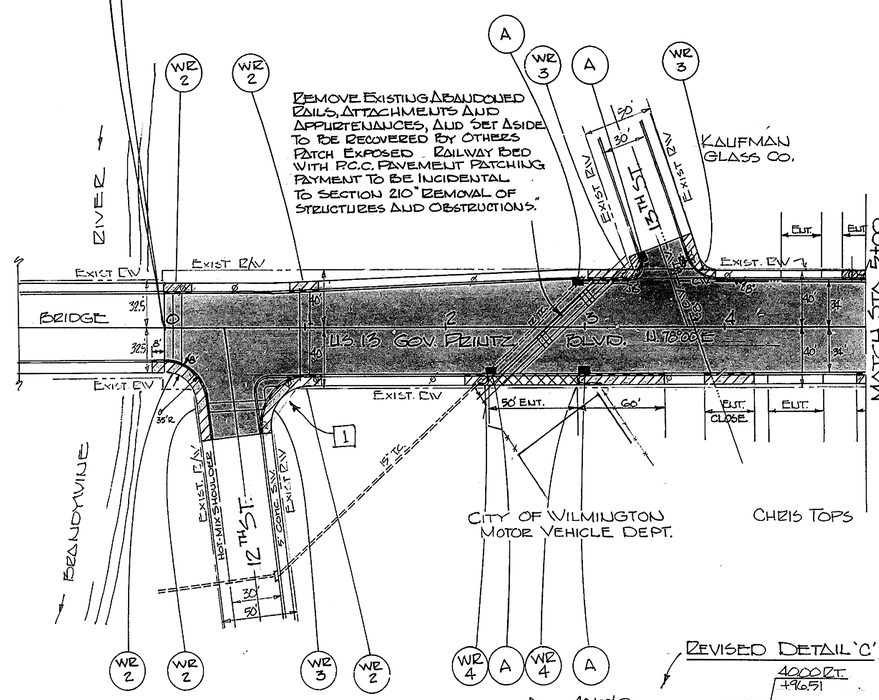
REVISED S.E. COR. OF 12TH ST. & GOV. PRINTZ BLVD. TO INCLUDE P.E. & DETAIL REB 10/11/85

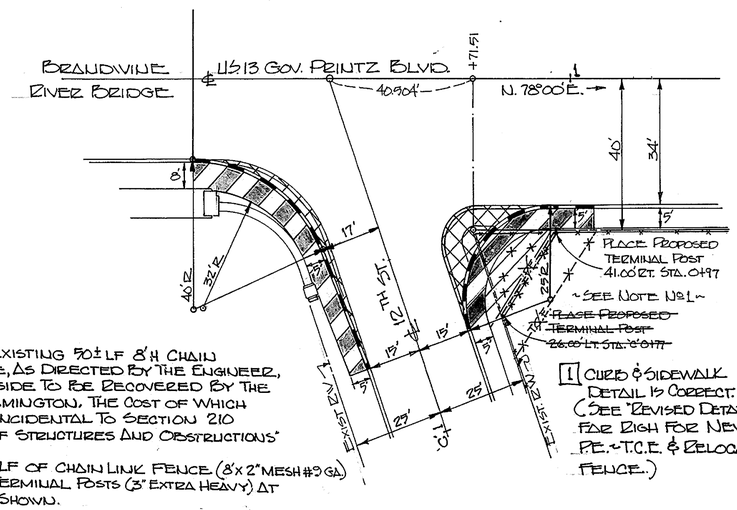
BEGIN CONTRACT 85-061-15
FAP M-1137(3)
STATION 0+00



NOTE: COST OF PORT. CEM. CONC. MASONRY, REINFORCED STEEL AND REMOVAL OF EXISTING CATCH BASIN TO BE INCLUDED IN THE UNIT PRICE BID FOR "CONVERTING EXISTING CATCH BASIN TO JUNCTION BOX." (SPECIAL PROVISION).

DETAIL FOR CONVERTING EXISTING CATCH BASIN TO JUNCTION BOX
NO SCALE





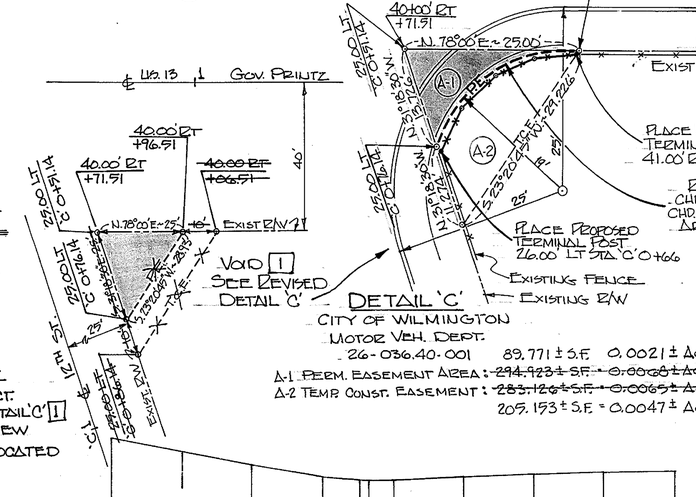
NOTE Nº 1
REMOVE EXISTING 50± LF 8'H CHAIN LINK FENCE, AS DIRECTED BY THE ENGINEER, AND SET ASIDE TO BE RECOVERED BY THE CITY OF WILMINGTON. THE COST OF WHICH SHALL BE INCIDENTAL TO SECTION 210 "REMOVAL OF STRUCTURES AND OBSTRUCTIONS"

PLACE 30 LF OF CHAIN LINK FENCE (8'x 2" MESH #9 GA) PLACE 2 TERMINAL POSTS (3" EXTRA HEAVY) AT LOCATIONS SHOWN.

1 THE SECURITY AND FENCING AT THIS CORNER SHALL BE MAINTAINED INTACT AT ALL TIMES DURING CONSTRUCTION.

1 CURB & SIDEWALK DETAIL IS CORRECT. (SEE "REVISED DETAIL 'C'" FOR RIGH FOR NEW P.E. - T.C.E. & RELOCATED FENCE.)

INTERSECTION IMPROVEMENT
FOR GOV. PRINTZ BLVD AND 12TH ST.
SCALE: 1" = 20'



REVISIONS
1 REVISION, REVISED S.E. COR. OF GOV. PRINTZ BLVD. & 12TH ST. EASEMENTS & PROPOSED FENCE & SECURITY NOTE. REB 10/16/85

PREL. TRACING REB 7/85 DESIGN CHKD.

D C B A

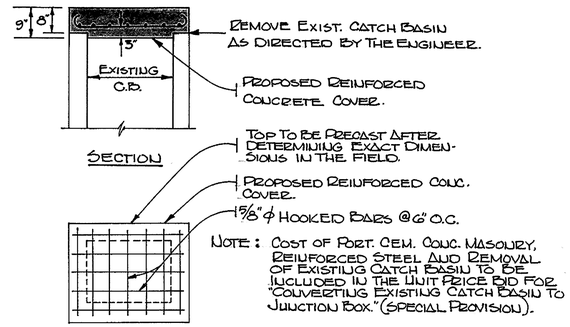
CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
85-061-13	NEW CASTLE	M-1137(3)	5	42

US. 13, (N.E. BLVD.) AT BRANDYWINE RIVER TO EDGEMOOR ROAD

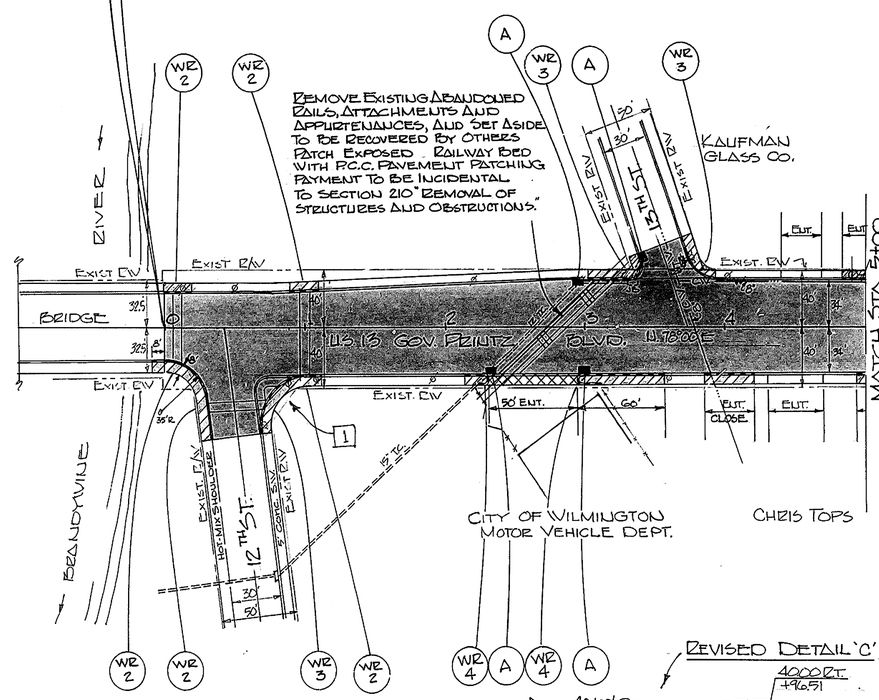
REVISED S.E. COR. OF 12TH ST. & GOV. PRINTZ BLVD. TO INCLUDE P.E. & DETAIL REB 10/11/85

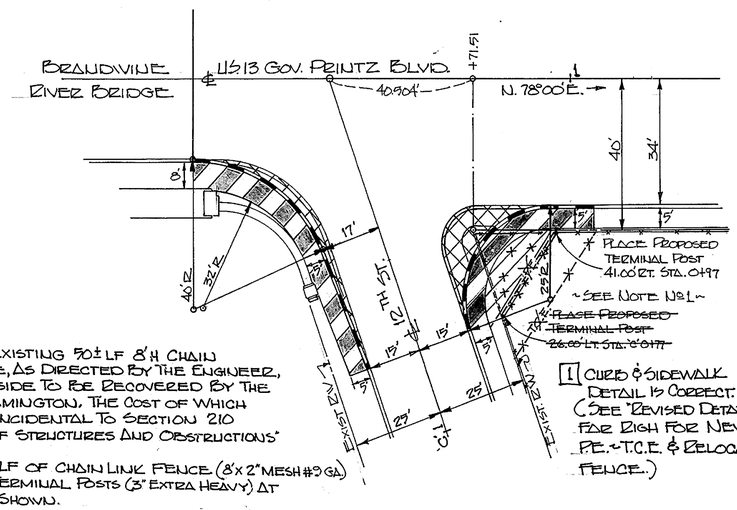
BEGIN CONTRACT 85-061-15
FAP M-1137(3)
STATION 0+00



NOTE: COST OF PORT. CEM. CONC. MASONRY, REINFORCED STEEL AND REMOVAL OF EXISTING CATCH BASIN TO BE INCLUDED IN THE UNIT PRICE BID FOR "CONVERTING EXISTING CATCH BASIN TO JUNCTION BOX." (SPECIAL PROVISION).

DETAIL FOR CONVERTING EXISTING CATCH BASIN TO JUNCTION BOX
NO SCALE





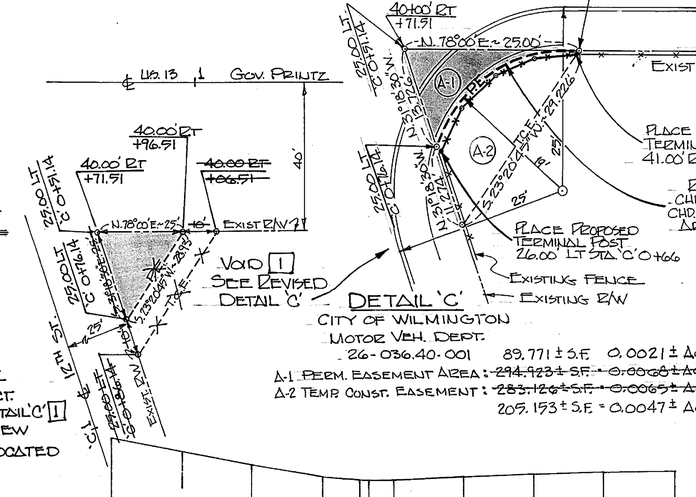
NOTE Nº 1
REMOVE EXISTING 50± LF 8'H CHAIN LINK FENCE, AS DIRECTED BY THE ENGINEER, AND SET ASIDE TO BE RECOVERED BY THE CITY OF WILMINGTON. THE COST OF WHICH SHALL BE INCIDENTAL TO SECTION 210 "REMOVAL OF STRUCTURES AND OBSTRUCTIONS"

PLACE 30 LF OF CHAIN LINK FENCE (8'x 2" MESH #9 GA) PLACE 2 TERMINAL POSTS (3" EXTRA HEAVY) AT LOCATIONS SHOWN.

1 THE SECURITY AND FENCING AT THIS CORNER SHALL BE MAINTAINED INTACT AT ALL TIMES DURING CONSTRUCTION.

1 CURB & SIDEWALK DETAIL IS CORRECT. (SEE "REVISED DETAIL 'C'" FOR RIGH FOR NEW P.E. - T.C.E. & RELOCATED FENCE.)

INTERSECTION IMPROVEMENT
FOR GOV. PRINTZ BLVD AND 12TH ST.
SCALE: 1" = 20'



REVISIONS
1 REVISION, REVISED S.E. COR. OF GOV. PRINTZ BLVD. & 12TH ST. EASEMENTS & PROPOSED FENCE & SECURITY NOTE. REB 10/16/85

PREL. TRACING REB 7/85 DESIGN CHKD.

D C B A

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
89-061-13	NEW CASTLE	M-1137(3)	9	42

US 13 (N.E. BLVD) AT BRANDYWINE RIVER TO EDGEMOOR ROAD

REVISED T.C.E. FOR JOHN JACOBSON REAL ESTATE, INC. AND ADDED T.C.E. FOR SPIROS DIAMOND - REB 9/11/85
REVISED JACOBSONS' T.C.E. & ADDED P.E. - REB 9/20/85

BM #1 EL. 30.00
ASSUMED EL. 30.00 - CHISELED 'X' ON S.E. COR. SIDEWALK 65' LT STA 56+82.

26-023.40-057 & 06-148.00-005
T.C.E. (TEMPORARY CONSTRUCTION EASEMENT) AREA = 1370.20 S.F. = 0.0315 ±AC.

GOV. PRINTZ BLVD.
N. 74°14'12" E. ~ 112.36'
R = 1488.16'
1487.89' [1]
A = 113.01'
EXIST. R/W
P.E.
EXIST. R/W
N. 74°14'12" E. ~ 112.36'
R = 1483.02'
1482.89' [1]
A = 113.01'
S. 27°05'00" E. 5.14'
40.00'
50.00'
EXIST. R/W
P.E.
WILMINGTON & BRANDYWINE HD.
35TH STREET (60' WIDE)
N. 27°05'00" W ~ 5.14'
EXIST. R/W
25'

DETAIL "A"
P.E. AREA = 580.87 ± S.F.
JOHN JACOBSON REAL ESTATE

SPIROS DIAMOND
26-022.40-046
T.C.E. AREA = 3375 ± S.F. = 0.0775 ± AC.

PEPSI COLA BOTTLE CO. OF WILMINGTON
BRANDYWINE HD. WILMINGTON CITY LIMITS
DELAWARE COUNTRY CLUB
EUROPEAN
DELAWARE CLUB
DELAWARE HOME CENTER
FURNITURE REPTORS OF AMERICA
OPEN FIELD
PRIVATE DRIVE
PRIVATE PRODUCE
MASON DIXON TRUCKING
HOT MIX PARKING LOT
HI-WAY-INN
GRASS
HOT MIX
CONC. ISLAND
REMOVE EXISTING P.C.C. GUTTER
REMOVE EXISTING P.C.C. GUTTER AND WIRE ROPE GUARDRAIL.
MATCH STA 68+00
PT. 68+13.40
N. 74°08' E.
S. 62°32' E.
JOHN JACOBSON REAL ESTATE INC.
26-023.40-025
06-148.00-006
P.E. AREA 580.87 S.F. ~ 0.0133 ±AC.
T.C.E. AREA 2199.00 S.F. = 0.0643 ±AC.
SEE DETAIL 'A' FOR PERM. EASE.

PI = 59+66.40
Δ = 43°25'
D = 3°45'
T = 608.278'
L = 1137.80
R = 1527.89'

STATIONS AND OFFSETS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

NOTE: REMOVE GAS PUMP ISLAND 49' RT. STA. 56+60 AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE ABOVE SHALL BE INCIDENTAL TO SECTION 608 "REMOVAL OF EXIST. MASONRY."

NOTE: INVERTS AND GRADES TO BE DETERMINED AFTER TEST HOLES ARE DUG TO VERIFY EXIST. UTILITY ELEVATIONS. (FOR BIDDING PURPOSES ASSUME 4' DEPTH)

CATCH BASIN SCHEDULE

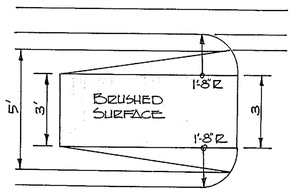
Nº	TYPE	LOCATION	TOP GR.	INV. EL.
CB-1	TYPE A	34' RT. STA. 55+00		
CB-2	TYPE J	34' RT. STA. 56+15		
CB-3	TYPE J	34' RT. STA. 57+60		
CB-4	TYPE J	34' RT. STA. 58+50		
CB-5	TYPE J	34' RT. STA. 60+20		
CB-6	TYPE J	34' LT. STA. 57+60		
CB-7	TYPE J	34' LT. STA. 58+66		
CB-8	TYPE J	34' LT. STA. 60+05		
CB-9	TYPE J	34' LT. STA. 61+95		
CB-10	TYPE J	34' LT. STA. 56+00		
CB-11	PW-BD-2	45' LT. STA. 65+35		
CB-12	TYPE J	34' LT. STA. 65+35		
CB-13	TYPE J	34' RT. STA. 65+35		
CB-14	TYPE J	34' LT. STA. 67+50		
CB-15	TYPE J	34' RT. STA. 67+50		

JUNCTION BOX SCHEDULE

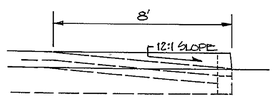
JB-1	Nº 1	38' LT. STA. 57+08
JB-2	Nº 1	41' LT. STA. 67+45±

PIPE SCHEDULE

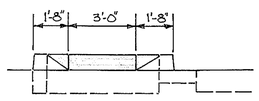
Nº	SIZE & TYPE	LENG.	INT. EL.	DISCH. EL.	SLOPE %
P-1	21" R.C.P.	120			
P-2	21" R.C.P.	108			
P-3	21" R.C.P.	138			
P-4	15" R.C.P.	100			
P-5	15" R.C.P.	168			
P-6	18" R.C.P.	68			
P-7	18" R.C.P.	116			
P-8	15" R.C.P.	143			
P-9	15" R.C.P.	193			
P-10	15" R.C.P.	10			
P-11	15" R.C.P.	8			
P-12	18" R.C.P.	65			
P-13	18" R.C.P.	213			
P-14	18" R.C.P.	65			
P-15	12" R.C.P.	10			
P-16	15" R.C.P.	110			
P-17	12" R.C.P.	30			
P-18	21" R.C.P.	148			



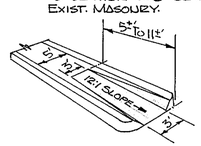
TOP VIEW



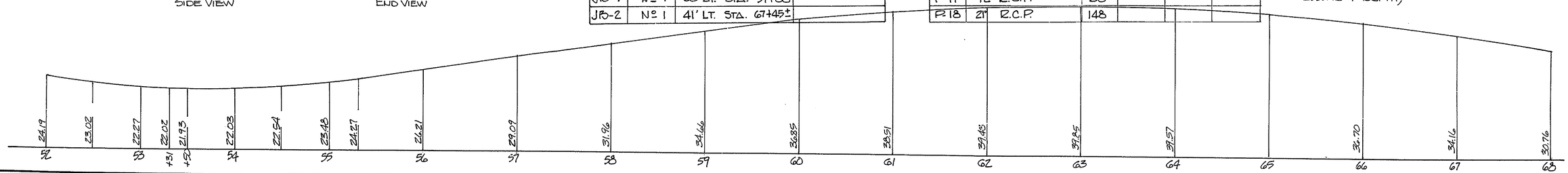
SIDE VIEW



END VIEW



WHEEL CHAIR RAMP TYPE 4



REVISIONS
1 REVISED RADIUS ON DETAIL 'A' JOHN JACOBSON DEC. 12, 85

PREL. TRACING REB 3/85 DESIGN CHKD.

59883

CONSTRUCTION PLAN

CONTRACT	COUNTY	FEDERAL AID PROJECT Nº	SHEET Nº	TOTAL SHEETS
38-061-13	NEW CASTLE	M-1137(3)	10	42

US 13, (N.E. BLVD) 4R, BRANDYWINE RIVER TO EDGEMOOR ROAD

REVISIONS

PREL. TRACING REC'D 3/85 DESIGN CHKD.

55983

REMOVE EXISTING P.C.C. GUTTER

REMOVE EXISTING P.C.C. GUTTER AND WIRE ROPE GUARDRAIL

REMOVE EXISTING WIRE ROPE GUARDRAIL. PLACE 380 LF GALV. STEEL BEAM GUARDRAIL AND 1 TWISTED END ANCHORAGE. PLACE 380 LF HOT-MIX, HOT LAID BITUM. CONC. CURB TYPE 1

REMOVE EXISTING WIRE ROPE GUARDRAIL. PLACE 490 LF GALV. STEEL BEAM GUARDRAIL AND 1 TWISTED END ANCHORAGE. PLACE 490 LF HOT-MIX, HOT LAID BITUMINOUS CONC. CURB TYPE 1.

SOUTH END OF EXIST. ALLEY ENTRANCE

ADJUST M.H. CLOSE C.B. INLET

ADJUST M.H. CLOSE C.B. INLET

MERCHANDISE MART
C & A. HOLDING ASSOCIATES

JEWEL TEA

CLIFTON PARK DR.

MOBILE SERVICE STA.

MERCHANDISE MART

CINE MART

BROOKS ARMORED CAR

MATCH STA. 68+00

MATCH STA. 85+00

US 13 - N.E. BLVD.

P.I. = 85+07.64
Δ = 24° 14'
D = 2° 00'
T = 615.029'
L = 1211.667'
R = 2864.789'

P.C. 78+92.59

DETAIL 'B'
P.E. AREA = 792.357 ± S.F.
C & A. HOLDING ASSOCIATES

C & A. HOLDING ASSOCIATES
06-149.00-015
T.C.E. = TEMPORARY CONSTRUCTION EASEMENT = 10,260 S.F. ± 0.2355 Ac.
P.E. = PERMANENT EASEMENT = 792.357 ± S.F. = 0.0182 ± Ac.

GOV. PEINTZ BLVD.

SEE DETAIL 'B' FOR PERM. EASE.

NOTE: INVERTS AND GRADES TO BE DETERMINED AFTER TEST HOLES ARE DUG TO VERIFY EXIST. UTILITY ELEVATIONS.

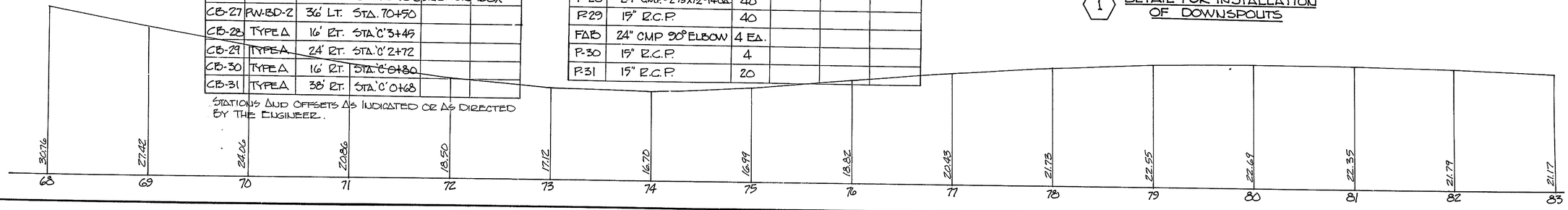
CATCH BASIN SCHEDULE

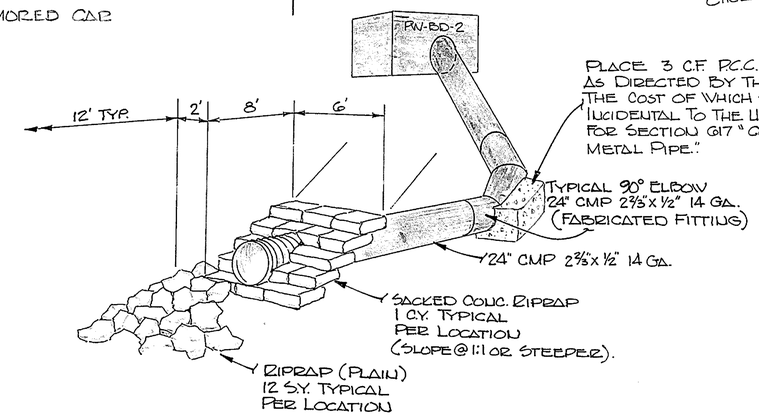
Nº	TYPE	LOCATION	TOP GR.	INV. EL.
CB-16	TYPE J	34' LT. STA. 69+40		
CB-17	TYPE J	34' RT. STA. 69+00		
CB-18	PW-BD-2	32' RT. STA. 71+00		
CB-19	PW-BD-2	32' RT. STA. 73+00		
CB-20	PW-BD-2	32' RT. STA. 74+00		
CB-21	PW-BD-2	32' RT. STA. 75+00		
CB-22	TYPE J	34' RT. STA. 77+20		
CB-23	TYPE A	44' LT. STA. 77+15		
CB-24	PW-BD-2	32' LT. STA. 73+60		
CB-25	PW-BD-2	32' LT. STA. 72+55		
CB-26	CONV. EXIST CATCH BASIN TO JUNCTION BOX			
CB-27	PW-BD-2	36' LT. STA. 70+50		
CB-28	TYPE A	16' RT. STA. 'C' 3+45		
CB-29	TYPE A	24' RT. STA. 'C' 2+72		
CB-30	TYPE A	16' RT. STA. 'C' 0+80		
CB-31	TYPE A	38' RT. STA. 'C' 0+68		

STATIONS AND OFFSETS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

PIPE SCHEDULE

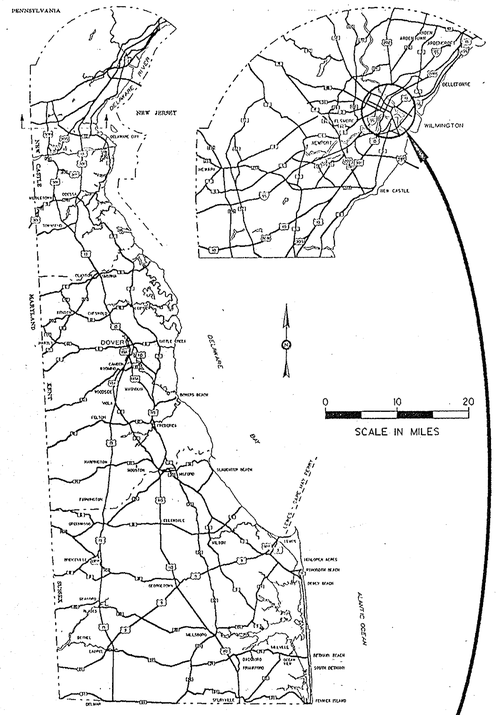
Nº	SIZE & TYPE	LENG.	INT. EL.	DISCH. EL.	SLOPE %
P-18	21" R.C.P.	148			
P-19	21" R.C.P.	198			
P-20	21" R.C.P.	198			
P-21	24" CMP-2⅔"x½"-14GA	40			
P-22	21" R.C.P.	98			
P-23	24" CMP-2⅔"x½" 14GA	40			
P-24	18" R.C.P.	98			
P-25	18" R.C.P.	218			
P-26	15" R.C.P.	20			
P-27	24" CMP-2⅔"x½"-14GA	40			
P-28	24" CMP-2⅔"x½"-14GA	40			
P-29	15" R.C.P.	40			
FAB	24" CMP 90° ELBOW	4 EA.			
P-30	15" R.C.P.	4			
P-31	15" R.C.P.	20			





1 DETAIL FOR INSTALLATION OF DOWNSPOUTS

STATE OF DELAWARE



GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

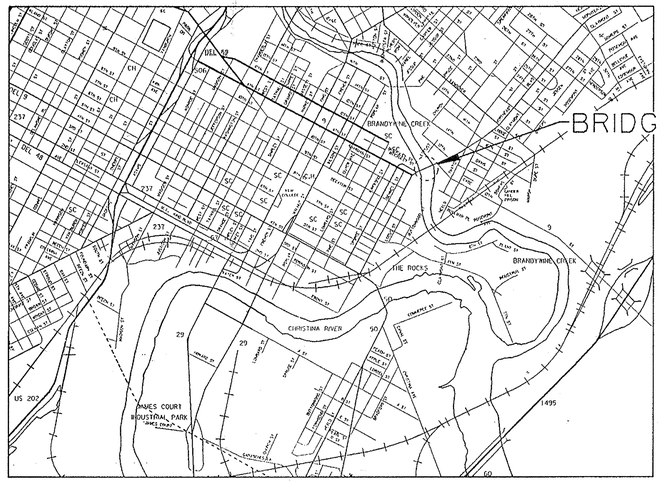
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SPECIFICATION AND CONSTRUCTION PLANS FOR:

BR. 577, NORTHEAST BLVD. OVER BRANDYWINE CREEK

CONTRACT NUMBER 90-074-01

FEDERAL AID PROJECT NUMBER BHM-1137(5)

ROADWAY LENGTH 0.00 FEET= 0.00 MILES
STRUCTURE LENGTH 322.88 FEET= 0.06 MILES
TOTAL LENGTH 322.88 FEET= 0.06 MILES



LOCATION MAP

BR. 1-577	CONTRACT	COUNTY	M.R. NO.	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
	90-074-01	NEW CASTLE		3	BHM-1137(5)	1	24

DESIGN DESIGNATION

FUNCTIONAL CLASS PRINCIPAL ARTERIAL
TYPE OF CONSTRUCTION REHABILITATION BRTDGE
A.D.T. CURRENT 15871 (1990)
A.D.T. PROJECTED 20514 (2010)
D.H.V. PROJECTED 1846 (2010)
DESIGN SPEED
% TRUCKS 10
DIRECTION OF DISTRIBUTION % 65
CLEAR ZONE (S)

SCALES

PLAN SHEET: 1"= * Feet
PROFILE SHEET:
Horizontal: 1"= * Feet
Vertical: 1"= * Feet
DETAIL SHEET: 1"= * Feet

* As Noted

INDEX OF SHEETS

SHEET N°	TABLE OF CONTENTS
1	TITLE SHEET
2	QUANTITIES
3	TYPICAL CROSS SECTIONS & GENERAL NOTES
4	GENERAL PLAN & ELEVATION
5	BASCULE SPAN STEEL MODIFICATIONS
6	BASCULE SPAN DETAILS & BRIDGE SEAT MODS.
7	CONC. GIRDER MODIFICATIONS - SPANS 1,2,3,5 & 6
8	BEARING MODIFICATION DETAILS
9	EXPANSION JOINT SYSTEM - PIERS 3 & 4
10	DECK JOINT SYSTEM AT PIER 4 & ABUTMENTS
11	PREFABRICATED EXPANSION JOINT SYSTEM DETAILS
12	DECK REINFORCEMENT SPANS 1 & 2
13	DECK REINFORCEMENT SPANS 3,4 & BASCULE PIER
14	DECK REINFORCEMENT SPANS 5 & 6
15	DECK CROSS SECTIONS
16	DECK DETAILS & APPROACH SIDEWALK
17	SUBSTRUCTURE & FENDER SYSTEM REPAIRS
18	MISCELLANEOUS DETAILS
19	CONCRETE GIRDER REINFORCEMENT SCHEDULE
20	DECK REINFORCEMENT SCHEDULE
21	TRAFFIC STAGING
22	TRAFFIC CONTROL PLAN
23	TRAFFIC CONTROL DETAILS
24	TRAFFIC STRIPING PLAN
MILEPOST	

UTILITIES

DP & L GAS —G—

PICKERING, CORTS & SUMMERSON, INC.
CONSULTING ENGINEERS
WEST TRENTON, NJ NEWTOWN, PA

GLEN DANTE VASQUEZ REGISTERED No. 6562 DELAWARE PROFESSIONAL ENGINEER

Glen Vasquez 8-14-92
SIGNATURE DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ 19 ____

DIVISION ADMINISTRATOR

DIVISION OF HIGHWAYS

RECOMMENDED
PROJECT ENGINEER
RECOMMENDED _____ 19 ____
SEAL

RECOMMENDED
John F. Bister
STORMWATER ENGINEER
RECOMMENDED 8/17 19 92
JOHN F. BISTER REGISTERED NO. 4332 DELAWARE PROFESSIONAL ENGINEER
SEAL

RECOMMENDED
N.T. Chaudhri
BRIDGE ENGINEER
RECOMMENDED 8.17. 19 92
Muhammad T. Chaudhri REGISTERED NO. 5693 DELAWARE PROFESSIONAL ENGINEER
SEAL

RECOMMENDED
ROAD DESIGN ENGINEER
RECOMMENDED _____ 19 ____
SEAL

RECOMMENDED
Chao H. Hu
DESIGN ENGINEER
RECOMMENDED 8/17 19 92
CHAO H. HU REGISTERED NO. 4274 DELAWARE PROFESSIONAL ENGINEER
SEAL

APPROVED
Raymond D Richter for RMH
CHIEF ENGINEER
APPROVED Aug 21 19 92
RAYMOND D. RICHTER REGISTERED NO. 3840 DELAWARE PROFESSIONAL ENGINEER
SEAL

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	2	24

QUANTITY SUMMARY

ITEM	601519	602002	602013*	602514	602547*	602572	602579	602580	602581	604000*	605001	605511	605522	605533	605578	605603	605604	605605	605606	606501	610502
ITEM TITLE	REPAIRING FENDER SYSTEM	PCC MASONRY, CLASS B	PCC MASONRY, SUPERSTRUCTURE, CLASS D	REPAIR OF CONCRETE STRUCTURES BY EPOXY INJECTION	WATERPROOFING BRIDGE DECKS, SIDEWALKS, ETC.	REPAIRING EXISTING PCC STRUCTURES	DRILLING & GROUTING DOWEL HOLES	PARTIAL REMOVAL OF PCC MASONRY	GROUTING	BAR REINFORCMENT, EPOXY COATED	STEEL STRUCTURES	PREFABRICATED EXPANSION JOINT SYSTEM 3"	URETHANE PAINTING SYSTEM	CLEANING EXISTING STEEL STRUCTURES	REPLACING STEEL RIVETS	REPLACING BRIDGE BEARINGS	JOINT SYSTEM WITH ELASTOMERIC CONCRETE, 2"	RESETTING BRIDGE BEARINGS	TEMPORARY BRIDGE SUPPORT SYSTEM	METAL BRIDGE RAILING	POINTING EXISTING STONE MASONRY
UNIT	L.S.	C.Y.	C.Y.	GAL.	S.F.	LB.	EA.	C.Y.	C.F.	LB.	LB.	L.F.	L.S.	L.S.	EA.	L.S.	L.F.	EA.	L.S.	L.F.	L.F.
SHEET NO. FROM STA. TO STA.	1	12	535	5	30,000	2,500	14,000	550	308	191,400	30,000	182	1	1	100	1	124	6	1	762	170
TOTAL	1	12	535	5	30,000	2,500	14,000	550	308	191,400	30,000	182	1	1	100	1	124	6	1	762	170
PROPOSAL	1	12	535	5	30,000	2,500	14,000	550	308	191,400	30,000	182	1	1	100	1	124	6	1	762	170

Note:
A: Federal Participation Road Construction
C: Federal Participation Bridge Construction
**: Fixed Quantity, See Section 109.06*
***: Fixed Price*

ITEM	720504	720506	720540	720527	742040**	743003	743504	743500	743501	743502	748023	748501	748506	759002	763000	763500	763501	763522												
ITEM TITLE	PORTABLE PCC SAFETY BARRIER	RELOCATING PORTABLE PCC SAFETY BARRIER	DELINEATORS	PLASTIC DRUMS	FLAGGER, FEDERAL	ARROWPANELS, TYPE C	WARNING SIGNS	BARRICADE WARNING LIGHTS, TYPE A	BARRICADE WARNING LIGHTS, TYPE B	BARRICADE WARNING LIGHTS, TYPE C	INTERMEDIATE MARKINGS, PAINT, 4"	REMOVAL OF PAVEMENT STRIPING	PERMANENT PAVEMENT STRIPING EPOXY RESIN PAINT, 4"	FIELD OFFICE, TYPE II	INITIAL EXPENSE	MAINTENANCE OF TRAFFIC	CONSTRUCTION ENGINEERING	COAST GUARD SPECIFIC CONDITIONS												
UNIT	L.F.	L.F.	EA.	EA.-DY	HR	EA.-DY	EA.	EA.-DY.	EA.-DY.	EA.-DY.	L.F.	L.F.	L.F.	L.S.	L.S.	L.S.	L.S.	L.S.												
SHEET NO. FROM STA. TO STA.	790	880	60	19080	1,040	671	67	660	6900	14460	4,100	3,500	2,900	1	1	1	1	1												
TOTAL	790	880	60	19080	1,040	671	67	660	6900	14460	4,100	3,500	2,900	1	1	1	1	1												
PROPOSAL	790	880	60	19080	1,040	671	67	660	6900	14460	4,100	3,500	2,900	1	1	1	1	1												

ITEM																														
ITEM TITLE																														
UNIT																														
SHEET NO. FROM STA. TO STA.																														
TOTAL																														
PROPOSAL																														

REVISIONS

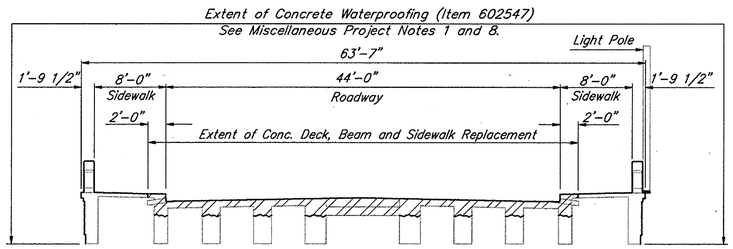
PREL. TRACING JPB DESIGN JAP CHKD. JAP

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	3	24

TYPICAL CROSS SECTIONS AND GENERAL NOTES

REVISIONS

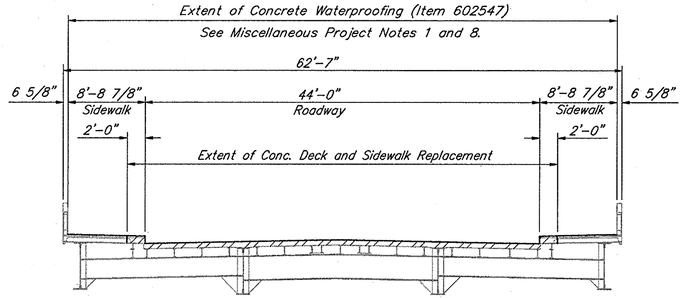
PREL. TRACING — J.P. Bartholomay DESIGN — J. A. Prybella — CHKD. — J. A. Prybella



TYPICAL DECK CROSS SECTION

SPANS 1, 2, 3, 5 & 6

Scale: 1/8" = 1'-0"



TYPICAL DECK CROSS SECTION

BASCULE SPAN – SPAN 4

Scale: 1/8" = 1'-0"

GENERAL NOTES

GENERAL:

1 MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH DELAWARE STANDARD SPECIFICATIONS, JULY, 1985, INCLUDING ALL REVISIONS AND CORRECTIONS AND THE CONTRACT SPECIAL PROVISIONS.
2 DESIGN SPECIFICATIONS IN ACCORDANCE WITH THE DESIGN DIVISION OF AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", 1989, INCLUDING ALL INTERIMS.
3 PERFORM WELDING IN ACCORDANCE WITH 1998 AASHTO/AWS D1.5 AND THE SPECIAL PROVISIONS.
4 CONSTRUCTION SHALL CONFORM WITH THE TRAFFIC CONTROL PLAN AND IS TO BE DONE IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC SPECIFICATIONS. ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL INSURE THE LEAST PRACTICAL OBSTRUCTION TO TRAFFIC CONSISTENT WITH SAFETY AND SHALL COMPLY WITH THE MANUAL TITLED, "DELAWARE TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND EMERGENCY OPERATIONS" (REVISED JUNE, 1992 WITH ALL REVISIONS MADE UP TO THE ADVERTISEMENT DATE OF THIS PROJECT).
5 CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD PRIOR TO BEGINNING SHOP DRAWINGS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS WITH THE DETAILS.
6 ANY DAMAGE TO THE STRUCTURE, DUE TO THE CONTRACTORS' OPERATIONS, BEYOND THE LIMITS OF THIS WORK WILL BE REPAIRED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER, AT NO ADDITIONAL COST TO THE DEPARTMENT.

PROJECT NOTES

GENERAL:

1 AS BUILT PLANS OF THE EXISTING STRUCTURE DATED 1931, AND REPAIR AND REHABILITATION DRAWINGS, DATED 1952, 1963, 1968, 1974 & 1984, ARE AVAILABLE AND SHALL BE OBTAINED THROUGH THE DEPARTMENT AND USED IN CONJUNCTION WITH THESE DRAWINGS. THE STATIONING AND ELEVATIONS SHOWN ON THE DRAWINGS ARE TAKEN FROM THE ORIGINAL DRAWINGS AND SHOULD BE VERIFIED IN THE FIELD.
2 THE PLACEMENT OF ALL RIGGING, WORK PLATFORMS, NETTING, ETC. SHALL BE COORDINATED WITH THE U.S. COAST GUARD AND BE IN ACCORDANCE WITH THE SPECIFIC CONDITIONS OUTLINED IN ITEM 763522.
3 BOLTS USED TO REPLACE EXISTING 7/8" DIAMETER RIVETS TO BE 1" DIAMETER HIGH STRENGTH CARBON STEEL CONFORMING TO ASTM A-325, TYPE 1, MECHANICALLY GALVANIZED, UNLESS NOTED OTHERWISE. ALL OTHER BOLTS SHALL BE 7/8" DIAMETER CONFORMING TO ASTM A-325, TYPE 1, MECHANICALLY GALVANIZED, UNLESS NOTED OTHERWISE.
4 CONTRACTOR SHALL SURVEY THE ELEVATIONS OF THE TOP OF EXISTING DECK AT MAXIMUM INTERVALS OF 10' ALONG THE TOP OF EACH LONGITUDINAL CONCRETE GIRDER, STEEL GIRDER AND STEEL STRINGER. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING DEAD LOAD DEFLECTIONS, MAINTAINING A MINIMUM DECK THICKNESS AS SHOWN ON DRAWINGS, AND ASSURING THAT TOP OF THE NEW DECK MATCHES THE ELEVATIONS OF THE EXISTING DECK. CONTRACTORS PLAN FOR ACCOMPLISHING THE ABOVE REQUIREMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. PAYMENT SHALL BE MADE UNDER ITEM 763501.

DEMOLITION:

1 VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING ANY DEMOLITION.
2 DURING DEMOLITION OF CONCRETE, DO NOT SAWCUT OR OTHERWISE REMOVE OR DAMAGE REINFORCEMENT BARS INTENDED FOR RE-USE. BARS CUT OR DAMAGED SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S SOLE EXPENSE.
3 ALL EXISTING REINFORCING EXPOSED DURING CONSTRUCTION OPERATIONS AND INTENDED FOR RE-USE SHALL BE SANDBLASTED CLEAN OF DIRT, RUST AND DEBRIS BEFORE PLACEMENT OF NEW CONCRETE. PAYMENT IS INCIDENTAL TO ITEM 604000.
4 PROVIDE SATISFACTORY SHIELDING TO PREVENT DEBRIS FROM FALLING BELOW THE DECK. THE CONTRACTOR SHALL SUBMIT A TEMPORARY SHIELDING PLAN TO THE ENGINEER FOR APPROVAL. PAYMENT FOR TEMPORARY SHIELDING SHALL BE INCIDENTAL TO ITEM 602580.
5 REMOVAL OF THE EXISTING DECK, INCLUDING THE STAY-IN-PLACE FORMS, THE TOP OF THE CONCRETE BEAMS AS INDICATED, AND PORTIONS OF THE CURBS AND SIDEWALKS, INCLUDING THE APPROACH SIDEWALK, IS INCLUDED UNDER ITEM 602580. FOR LIMITS OF DEMOLITION AND SEQUENCE OF DEMOLITION, REFER TO THE DECK REINFORCEMENT SHEETS.

STRUCTURAL STEEL:

1 ALL EXPOSED EXISTING STEEL SURFACES SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH ITEMS 605533 AND 605522. THE METHODS OF REMOVING, CONTAINING AND DISPOSING THE LEAD BASED PAINT AS DETAILED IN THE SPECIAL PROVISIONS SHALL BE STRICTLY ADHERED TO.
2 ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M183 (ASTM A-36) AND SHALL BE PAINTED. PAINTING OF NEW STEEL IS INCIDENTAL TO ITEM 605001.
3 ALL DETERIORATED RIVETS SHALL BE IDENTIFIED BY THE ENGINEER AND SHALL BE REPLACED WITH HIGH STRENGTH BOLTS IN ACCORDANCE WITH ITEM 605578.
4 ALL DEBRIS SHALL BE REMOVED FROM THE BEARING PITS TO FACILITATE CLEANING AND PAINTING OF THE BEARINGS. PAYMENT IS INCIDENTAL TO ITEM 605533.
5 WELDED STUD SHEAR CONNECTORS ARE INCIDENTAL TO ITEM 605001.

REINFORCEMENT STEEL:

1 ALL NEW REINFORCEMENT BARS SHALL BE EPOXY COATED.
2 REINFORCING STEEL SHALL CONFORM TO AASHTO M31, GRADE 60.
3 PROVIDE 2" CONCRETE COVER ON REINFORCEMENT BARS EXCEPT AS NOTED.
4 MECHANICAL SPLICERS AS SHOWN ON THE DRAWINGS SHALL BE SPLICING DEVICES AS MANUFACTURED BY LENTON REBAR SPLICING, 34600 SOLON ROAD, SOLON, OHIO 44139, (216) 248-0100; DAYTON SUPERIOR CORPORATION, 721 RICHARD STREET, MIAMISBURG, OHIO 45342, (513) 866-0711; WILLIAMS FORM ENGINEERING, P. O. BOX 324A, BLUE BELL, PA 19422, (215) 584-0701, OR AN APPROVED EQUAL. PAYMENT FOR FURNISHING AND PLACING THE MECHANICAL SPLICERS SHALL BE INCIDENTAL TO ITEM 604000.
5 DRILLING AND GROUTING OF DOWEL HOLES FOR ANCHOR BOLTS, DOWEL BARS, OR STIRRUPS IS PAID UNDER ITEM 602579.

PORTLAND CEMENT CONCRETE:

1 STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED:
CLASS D – DECK SLAB, BRIDGE CURBS AND SIDEWALKS, CONCRETE BEAMS, BRIDGE SEAT, PEDESTALS AND DIAPHRAGMS (f'c = 4500 PSI)
CLASS B – APPROACH SIDEWALK AND CURB (f'c = 3000 PSI)
(f'c = 28 DAY COMPRESSIVE STRENGTH)
2 ALL CONCRETE SURFACES OF THE DECK, CURBS, SIDEWALKS AND BALUSTRADES SHALL BE WATERPROOFED IN ACCORDANCE WITH ITEM 602547 TO THE LIMITS SHOWN ON THE DRAWINGS. THE USE OF A MEMBRANE FORMING CURING COMPOUND ON ANY CONCRETE SURFACE TO BE WATERPROOFED IS PROHIBITED. CONCRETE AT THESE LOCATIONS SHALL BE WATER CURED PER SECTION 602 OF THE STANDARD SPECIFICATIONS.
3 USE AN APPROVED EPOXY BONDING COMPOUND BETWEEN THE OLD AND NEW CONCRETE SURFACES. THE BONDING COMPOUND SHALL CONFORM TO REQUIREMENTS GIVEN IN SECTION 602 OF THE STANDARD SPECIFICATIONS. PAYMENT IS INCIDENTAL TO THE PCC MASONRY CLASS BEING PLACED AND BONDED.
4 STAY-IN-PLACE METAL DECK FORMS MAY BE UTILIZED UNDER THE DECK AT THE APPROVAL OF THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.
5 THE PLACEMENT OF THE SCUPPERS IN THE DECK IS INCIDENTAL TO ITEM 602013.

DECK JOINTS:

1 A PREFABRICATED EXPANSION JOINT SYSTEM SHALL BE PROVIDED AT PIER 3 AND AT BOTH JOINTS OVER PIER 4 AND THE JOINT SYSTEMS SHALL BE INSTALLED WITH AN OPENING SET AT 2" AT 68 DEGREES F AND SHALL BE CAPABLE OF EXPANDING TO 3". ALL MATERIALS AND LABOR ASSOCIATED WITH THE INSTALLATION OF THIS JOINT SYSTEM ARE INCLUDED UNDER ITEM 605511.
2 A JOINT SYSTEM WITH ELASTOMERIC CONCRETE SHALL BE PROVIDED AT THE ABUTMENTS AND THE JOINT SYSTEMS SHALL BE INSTALLED WITH AN OPENING SET AT 1.75" AT 68 DEGREES F AND SHALL BE CAPABLE OF EXPANDING TO 2". ALL MATERIALS AND LABOR ASSOCIATED WITH THE INSTALLATION OF THIS JOINT SYSTEM ARE INCLUDED UNDER ITEM 605604.
3 BOTH JOINT SYSTEMS SHALL BE MANUFACTURED BY WATSON BOWMAN & ACME CORPORATION, 95 PINEVIEW DRIVE, AMHERST, NY 14120, (716) 691-7566; THE D.S. BROWN COMPANY, 300 E. CHERRY STREET, NORTH BALTIMORE, OHIO 45872-0158, (419) 257-3561; E-POXY INDUSTRIES, INC., 14 WEST SHORE STREET, RAVENA, NY 12143, (518) 756-6193, OR AN APPROVED EQUAL.
4 CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD PRIOR TO BEGINNING SHOP DRAWINGS AND FABRICATION OF THE JOINT SYSTEMS. FINISH LINES AND GRADES WILL FOLLOW THE CROSS SLOPES OF THE NEW DECK, EXCEPT AS NOTED.
5 INSTALLATION PROCEDURES FOR THE JOINT SYSTEMS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. JOINT SYSTEM SHALL BE SHOP ASSEMBLED AS A UNIT AND PRESET PRIOR TO SHIPMENT.
6 THE STRIP SEAL SHALL BE FURNISHED AND PLACED IN ONE CONTINUOUS PIECE FOR THE FULL WIDTH OF THE JOINT. SPLICING THE STRIP SEAL WILL NOT BE PERMITTED.
7 THE FURNISHING AND INSTALLATION OF THE SIDEWALK COVER PLATES OVER THE JOINT SYSTEMS ARE INCIDENTAL TO ITEM 605001.

BEARINGS:

1 RESETTING OR REPLACING BEARINGS SHALL BE DONE PRIOR TO DEMOLITION OF THE EXISTING DECK.
2 JACKING OF THE SUPERSTRUCTURE SHALL BE PERFORMED IN 1/8" LIFTS, AND THE SUPERSTRUCTURE SHALL ONLY BE JACKED TO FACILITATE BEARING REMOVAL, RESETTING OR REPLACEMENT. PAYMENT FOR JACKING WILL BE INCLUDED UNDER ITEM 605603 FOR THE BEARING REPLACEMENTS, AND ITEM 605605 FOR THE RESETTING OF THE BEARINGS.
3 IF THE SPAN LOCKS PREVENT EFFECTIVE JACKING OF THE BEAMS, THEY MAY BE REMOVED AND/OR MODIFIED UPON APPROVAL BY THE ENGINEER.
4 CONSTRUCTION OR RECONSTRUCTION OF THE BRIDGE SEAT OR BEARING PEDESTALS TO FACILITATE THE RESETTING OR REPLACEMENT OF BRIDGE BEARINGS IS INCIDENTAL TO ITEM 602013.
5 THE CLEANING OF THE BRIDGE SEATS AND BEARING PITS TO FACILITATE THE REPLACEMENT OR RESETTING OF THE BEARINGS IS INCIDENTAL TO ITEM 605603 AND 605605, RESPECTIVELY.

METAL BRIDGE RAILING:

1 METAL RAILS, POSTS, SHIMS AND BASE PLATES SHALL CONFORM TO AASHTO M183 (ASTM A-36). MATERIAL AND LABOR TO SUPPLY AND INSTALL RAILING SHALL BE PAID FOR UNDER ITEM 606501, PAINTING OF RAILING SHALL CONFORM WITH PROVISIONS FOR PAINTING IN SECTION 605 OF THE STANDARD SPECIFICATIONS. PAINTING IS INCIDENTAL TO ITEM 606501.

UTILITIES:

1 ALL UTILITIES PLOTTED ON THE PLAN SHEET ARE FROM THE BEST AVAILABLE INFORMATION. VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK.
2 BEFORE BEGINNING WORK, THE CONTRACTOR SHALL GIVE NOTIFICATION BY TELEPHONE BY CALLING "MISS UTILITY" AT 1-800-282-8555 A MINIMUM OF 48 HOURS PRIOR TO START OF WORK.
3 COORDINATE THE REQUIREMENTS FOR PROTECTION AND/OR RELOCATION OF ANY UTILITY WITH THE UTILITY OWNER PRIOR TO STARTING WORK.
4 CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED, AND ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OR TYPE, SIZE AND LOCATION OF ANY UTILITY.
5 CONTRACTOR SHALL NOT REMOVE LIGHT POLES. LIGHTS ARE TO REMAIN IN SERVICE AND POWER TO LIGHTS SHALL NOT BE INTERRUPTED AS A RESULT OF THE CONTRACTOR'S WORK.
6 PRIOR TO START OF CONCRETE DEMOLITION, CONTRACTOR SHALL DETERMINE THE LOCATION OF POWER LINES SERVICING THE LIGHT POLES.

MAINTENANCE OF TRAFFIC/ CONSTRUCTION STAGING:

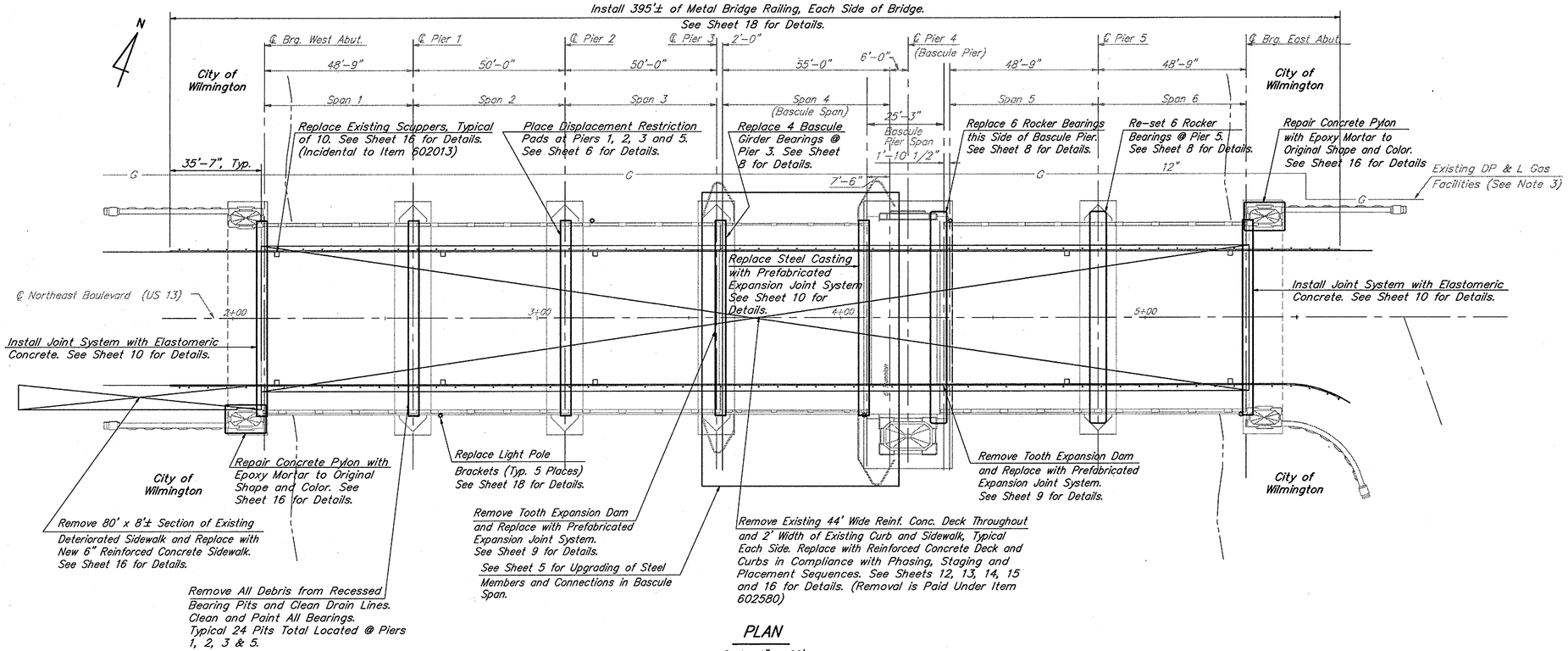
1 THE EXTENT OF WORK OUTLINED ON THE GENERAL PLAN AND ELEVATION SHEET SHALL BE PERFORMED DURING THREE DISTINCT STAGES OF CONSTRUCTION. TRAFFIC FLOW IS REDUCED TO ONE LANE IN EACH DIRECTION DURING EACH STAGE OF CONSTRUCTION. THE STAGING LIMITS AND SEQUENCING ARE DEFINED ON THE TRAFFIC CONTROL PLAN (SHEETS 21, 22 AND 23), PLACING SEQUENCE (SHEET 16) AND THE MISCELLANEOUS DETAILS (SHEET 18). 2-WAY TRAFFIC SHALL BE MAINTAINED ON THE SOUTHERNMOST LANES WHILE WORK IS DONE ON THE NORTHERN THIRD OF THE BRIDGE. AFTER COMPLETION OF THE WORK UNDER STAGE 1, THE TRAFFIC WILL BE SHIFTED TO THE OUTERMOST LANES OF THE DECK WHILE WORK IS COMPLETED IN THE CENTER PORTION OF THE BRIDGE DURING STAGE 2. AFTER COMPLETION OF THE WORK UNDER STAGE 2, THE TWO LANES OF TRAFFIC WILL BE SHIFTED TO THE NORTHERNMOST LANES WHILE WORK IS COMPLETED ON THE SOUTHERN THIRD OF THE BRIDGE. THE STAGING IS NECESSARY TO FACILITATE THE REPLACEMENT OF THE DECK AND CURBS, AND THE REHABILITATION OF THE SUPERSTRUCTURE, SIDEWALKS, BALUSTRADES AND OTHER INCIDENTAL WORK, ETC.
2 DURING CONCRETE PLACEMENTS FOR GIRDERS AND DECK, AND FOR A PERIOD OF 24 HOURS AFTER COMPLETION OF PLACEMENTS, VEHICULAR TRAFFIC ON THE BRIDGE SHALL BE RESTRICTED TO A MAXIMUM WEIGHT OF 5 TONS. CONTRACTOR SHALL PROVIDE, LOCATE AND ERECT REQUIRED SIGNS IN CONFORMANCE WITH GENERAL NOTE NO. 4 AND AS APPROVED BY THE ENGINEER. ALL COSTS SHALL BE INCIDENTAL TO ITEM 763500.

MISCELLANEOUS:

1 WATERPROOFING CONCRETE SURFACES SHALL BE PERFORMED AFTER EACH STAGE OF CONSTRUCTION TO THE LIMITS SHOWN ON THE PLANS IN ACCORDANCE WITH ITEM 602547. THE COLOR OF THE SEALER PLACED ON THE CONCRETE BALUSTRADE AND PYLONS SHALL MATCH THE NATURAL COLOR OF THE BALUSTRADE AND PYLON. THE SEALER SHALL ALSO BE CAPABLE OF COVERING NEWLY PATCHED AREAS WITH NO NOTICEABLE DIFFERENCE IN COLOR. THE CONTRACTOR SHALL SUBMIT COLOR CHARTS AND TECHNICAL INFORMATION OBTAINED FROM THE MANUFACTURER FOR DEPARTMENT'S APPROVAL PRIOR TO ORDERING THE SEALING PRODUCT.
2 ALL COMPONENTS OF THE FENDER SYSTEM, AS OUTLINED IN THE PLANS, SHALL BE REPLACED IN ACCORDANCE WITH ITEM 601519.
3 TEMPORARY SHORING OF THE CONCRETE BEAMS IS REQUIRED BEFORE REMOVING ANY PORTION OF THE EXISTING DECK BECAUSE THE CONTINUITY STEEL OVER THE PIERS WILL BE REMOVED WITH THE DECK. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A TEMPORARY SUPPORT SYSTEM WHICH MUST BE APPROVED BY THE DEPARTMENT. A SUGGESTED TEMPORARY SUPPORT SYSTEM IS SHOWN ON SHEET 18. ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR ERECTION AND REMOVAL OF TEMPORARY SHORING SHALL BE PAID UNDER ITEM 605606.
4 THE REPAIR OF SPALLS IN THE SUBSTRUCTURE, SUPERSTRUCTURE AND IN THE BRIDGE RAILING PYLONS IS INCLUDED UNDER ITEM 602572.
5 PRESSURE INJECTING CRACKS WITH EPOXY, AS REQUIRED, IS INCLUDED UNDER ITEM 602514.
6 THE DISPLACEMENT RESTRICTION PADS SHOWN ON SHEET 6 SHALL BE CONSTRUCTED USING A FLOWABLE GROUT SPECIFIED IN ITEM 602581.
7 THE CONSTRUCTION OF THE SOUTHWEST APPROACH SIDEWALK AND CURB SHALL BE PAID UNDER ITEM 602002.
8 THE WATERPROOFING ON THE CONCRETE SURFACES SHALL CONTINUE ON THE BALUSTRADES AND PYLONS BEYOND THE BRIDGE TO THE END OF THE RAILING AND IS PAID UNDER ITEM 602547.

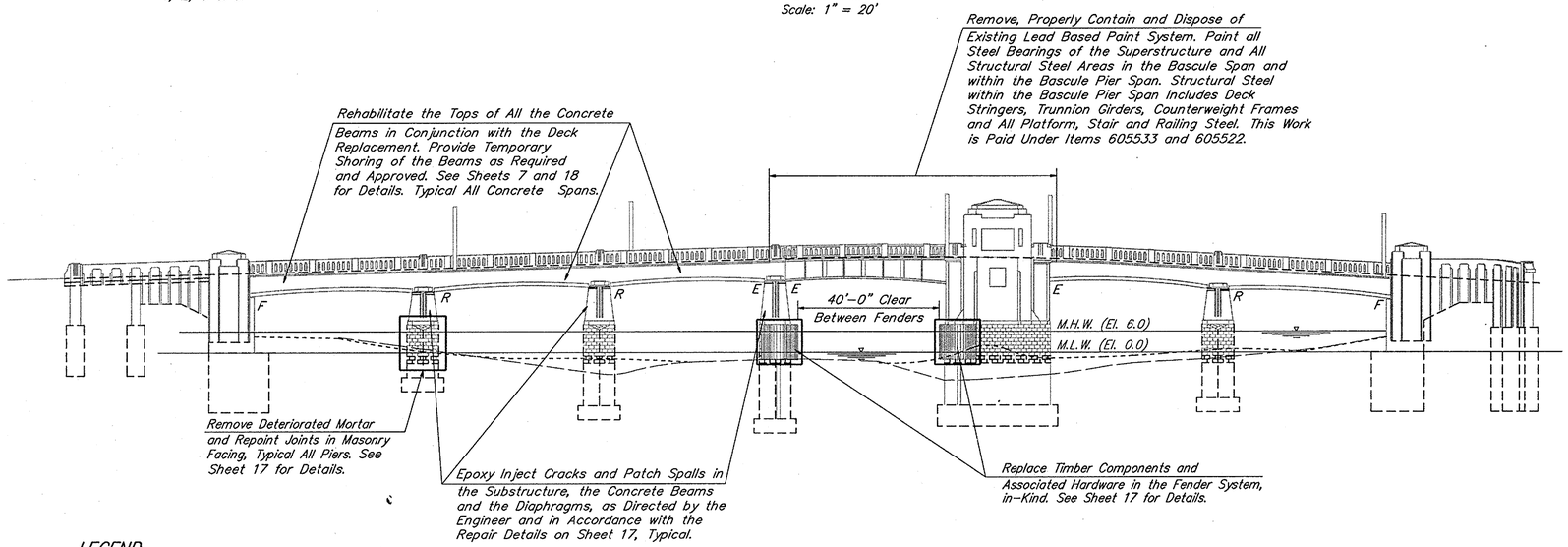
BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	4	24

GENERAL PLAN & ELEVATION



PLAN

Scale: 1" = 20'



ELEVATION

Scale: 1" = 20'

LEGEND

- Streambed Along North Fascia
- Streambed Along South Fascia

Note:
Elevations given refer to City Datum, which is 0.82' below U.S. Government Datum and equal to M.L.W. elevation in Christina River at Market Street Bridge.
M.H.W. elevation is 6.0, M.L.W. elevation is 0.0.

NOTES:

1. *The purpose of this sheet is to highlight specific areas of the bridge intended to be rehabilitated. For details about the specific repairs, including the indicated items under which payment will be made, refer to the sheet indicated in the description of the repair.*
2. *Refer to the General Notes and Project Notes for additional information.*
3. *All gas mains are approximately 3'-0" deep. All gas services are approximately 3'-0" deep at the main and 1'-6"deep at the building. All measurements shall be verified in the field.*
4. *All concrete surfaces of the bridge including the full length of the concrete railings shall be waterproofed in accordance with Item 602547. See sheet 3 for limits.*
5. *Refer to sheet 3, utility notes 5 and 6 for locating and maintaining electric service to light poles.*

REVISIONS

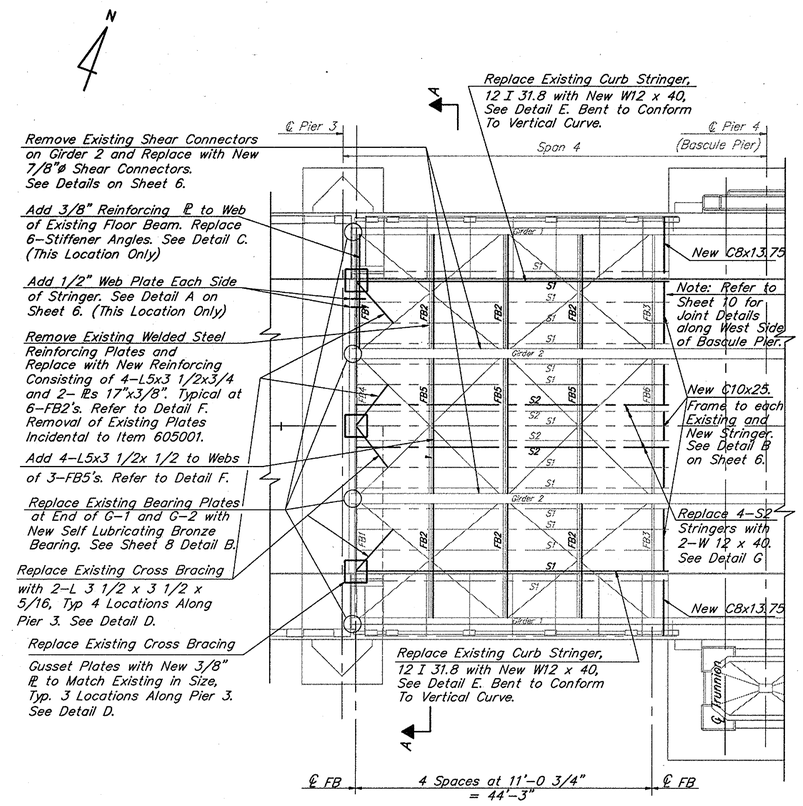
PREL. TRACING J.P. Bartholomay DESIGN J. A. Pribella CHKD. J. A. Pribella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEWCASTLE	BHM-1137(5)	5	24

BASCULE SPAN STEEL MODIFICATIONS

REVISIONS

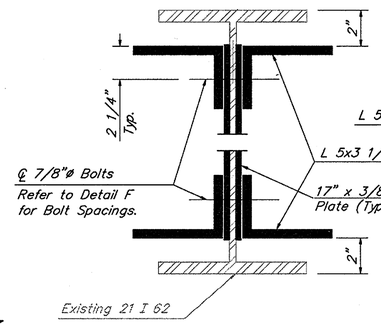
PREL. TRACING J.P. Bartholomay DESIGN W. M. Ahola CHKD. W. M. Ahola



FRAMING PLAN OF EXISTING STEEL BASCULE SPAN

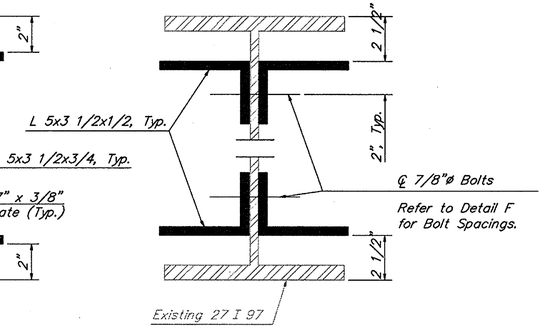
Scale: 3/32" = 1'-0

Existing S1 - 12 I 31.8
Existing S2 - 12 C 25
Existing FB2 - 21 I 62
Existing FB3 - 27 I 97



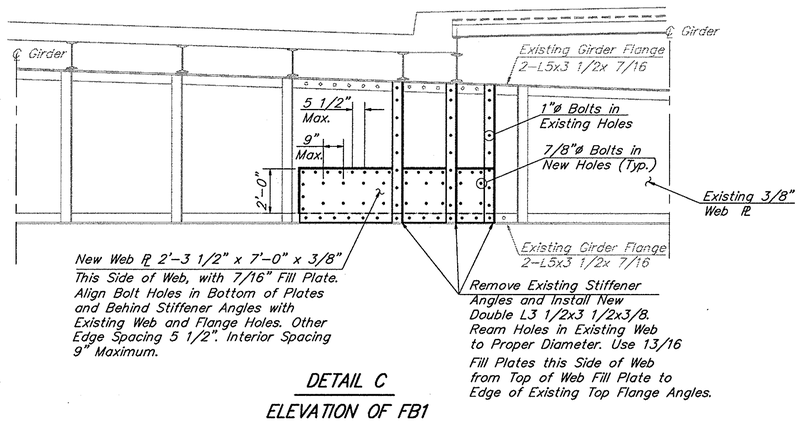
SECTION C-C FB2 UPGRADING

Scale: 3" = 1'-0"



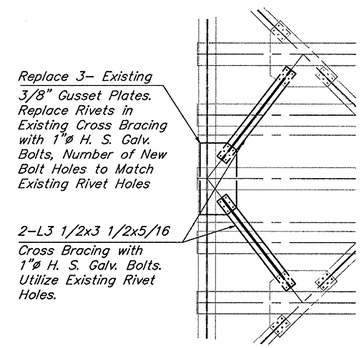
SECTION B-B FB5 UPGRADING

Scale: 3" = 1'-0"



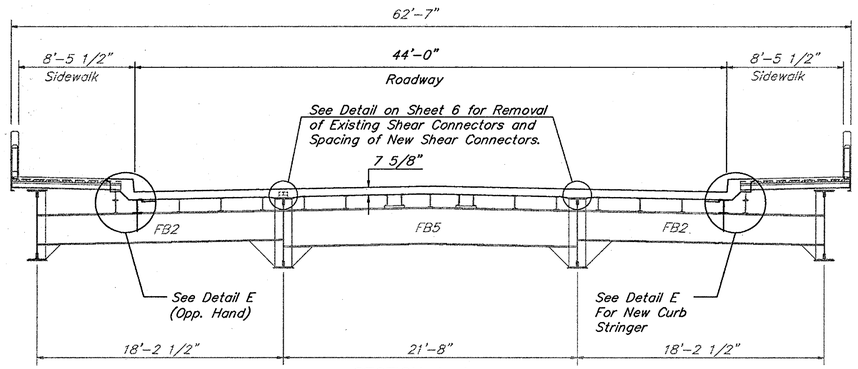
DETAIL C ELEVATION OF FB1

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



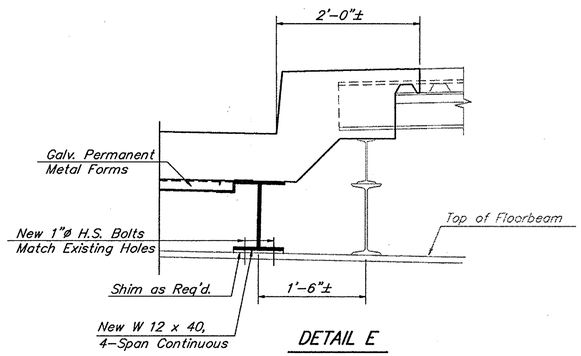
DETAIL D CROSS BRACING REPLACEMENT

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



SECTION A-A TYPICAL EXISTING DECK CROSS SECTION

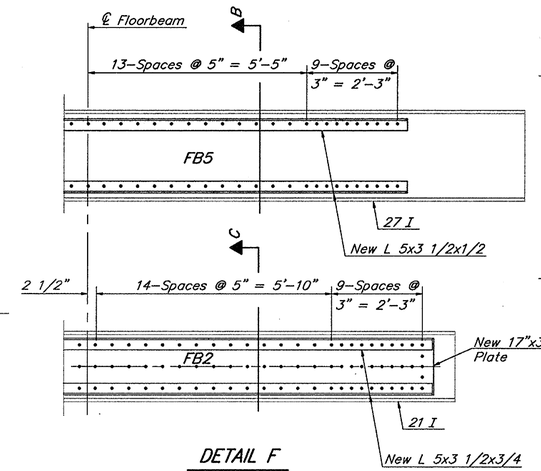
(EXCEPT AS NOTED)
Scale: 3/16" = 1'-0"



DETAIL E STRINGER S1 REPLACEMENT

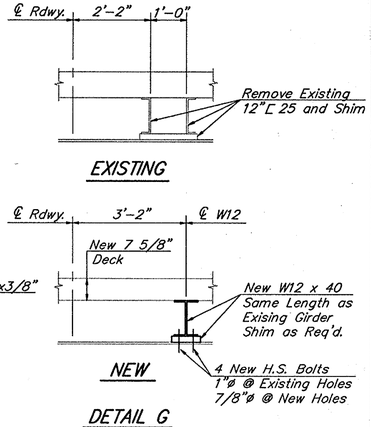
Scale: 1" = 1'-0"

NOTE: See Details A and B on Sheet 6 For Dimensions at End of Stringer.



DETAIL F FB2 & FB5 UPGRADING

N.T.S.



DETAIL G NEW S2 STRINGERS

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

NOTES:

Material and Installation of All New Structural Steel Shown on this Sheet, Shall be Paid Under Item 605001. Removal of Existing Steel Shall be Incidental to Item 605001.

At Locations Where Existing 7/8"ø Rivets have Deteriorated, But will not be Replaced as a Result of Indicated Structural Steel Repairs, Rivets Shall be Removed and Replaced with New 1"ø High Strength Bolts as Directed by the Engineer. Rivet Replacement at These Locations Shall be Paid Under Item 605578.

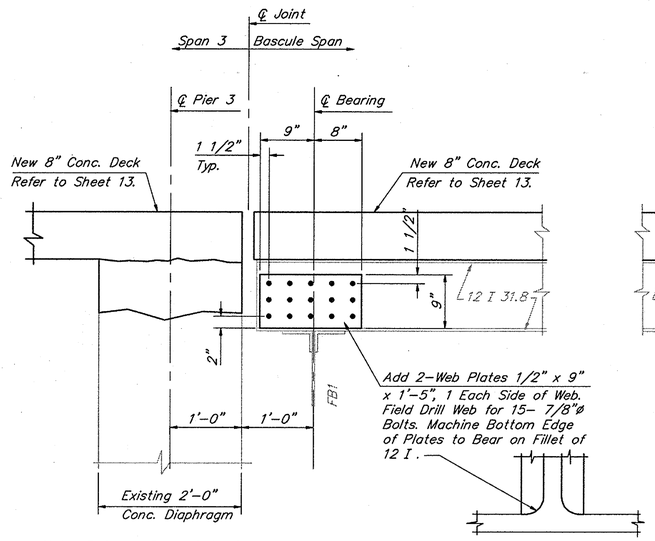
For Information Only
Estimated Quantities of Rivets to be Replaced Under Item 605578 100 Each

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	6	24

BASCULE SPAN STEEL MODIFICATION AND REPAIR DETAILS

REVISIONS

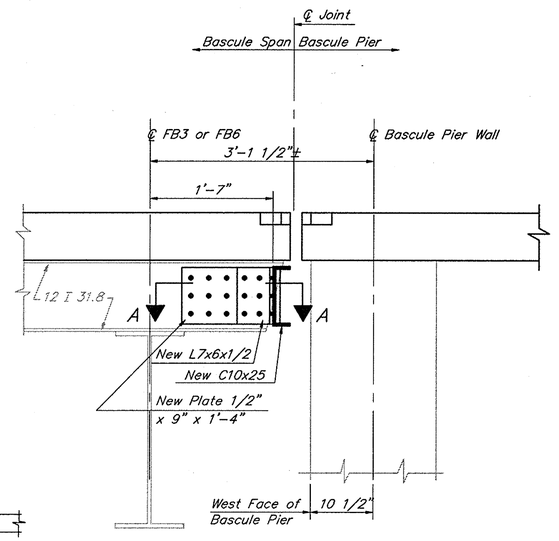
PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. W. M. Ahola



Note: Refer to Sheet 9 for Deck Joint Detail between the Bascule Span and Span 3.

DETAIL A
WEB STRENGTHENING OF BASCULE STRINGER
(1 REQUIRED)

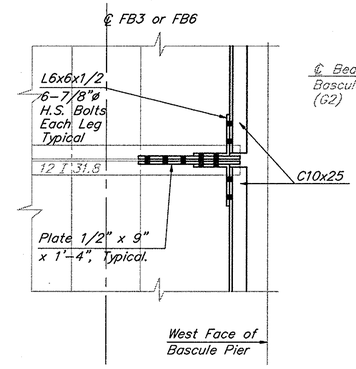
Scale: 1"=1'-0"



Note: Refer to Sheet 10 for Deck Joint Detail between the Bascule Pier and the Bascule Span.

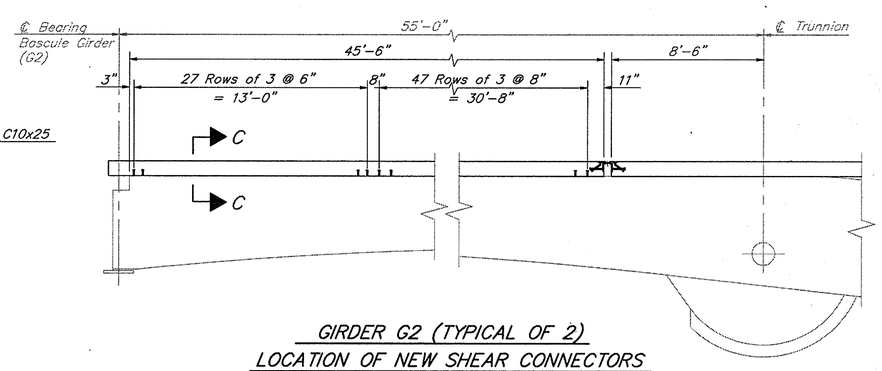
DETAIL B
DECK SUPPORT CHANNEL AT BASCULE PIER
WEST FACE TYPICAL @ 15 STRINGERS

Scale: 1"=1'-0"



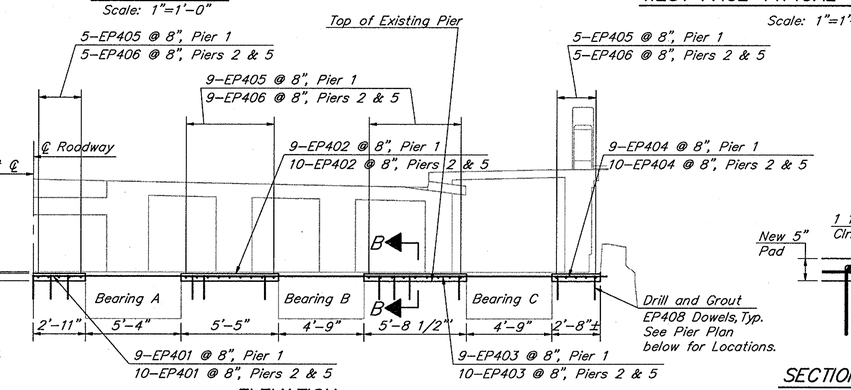
SECTION A-A

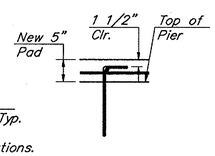
Scale: 1"=1'-0"



GIRDER G2 (TYPICAL OF 2)
LOCATION OF NEW SHEAR CONNECTORS

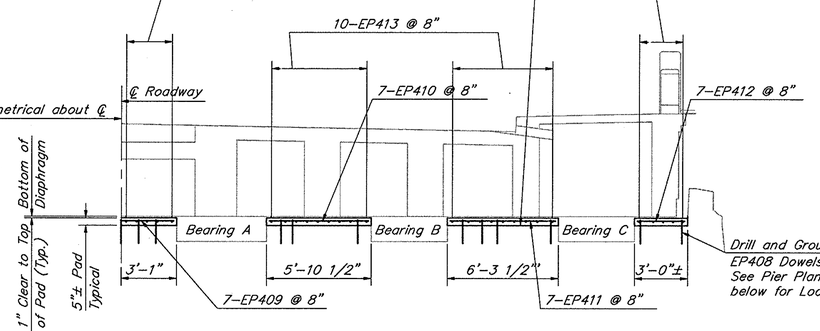
Scale : 1/4" = 1'-0"



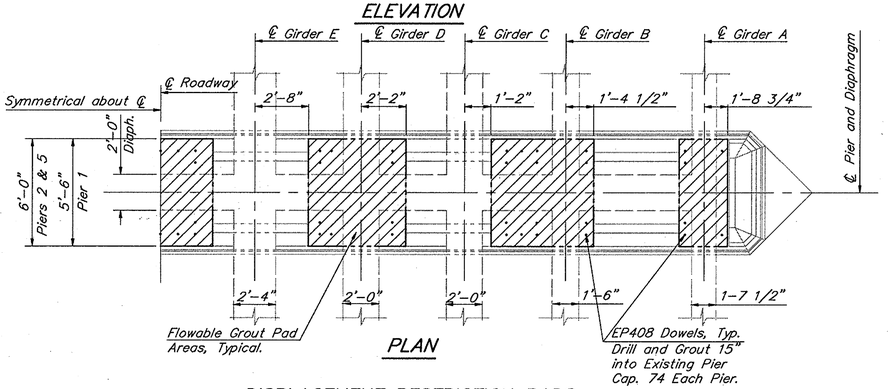


SECTION B-B

N. S.



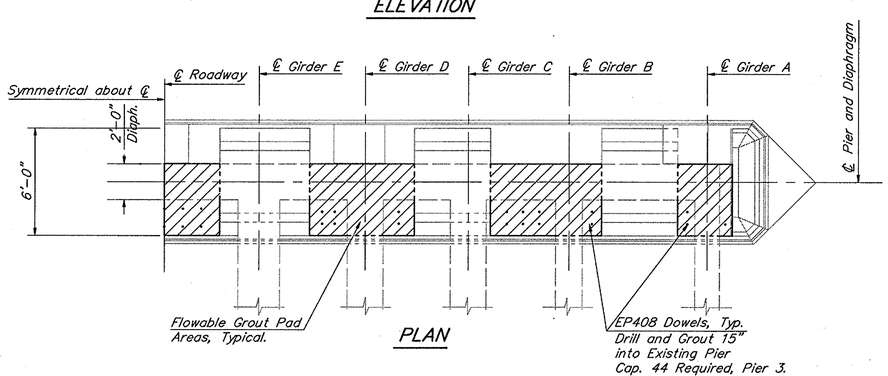
ELEVATION



PLAN

DISPLACEMENT RESTRICTION PADS
PIERS 1, 2 AND 5

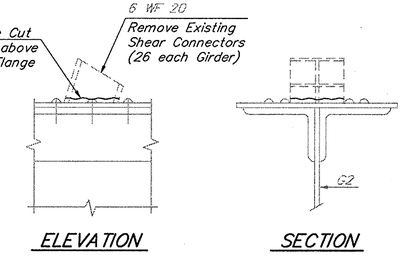
Scale : 1/4" = 1'-0"



PLAN

DISPLACEMENT RESTRICTION PADS
PIER 3

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

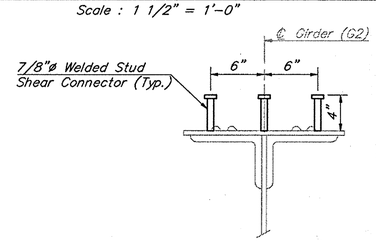


ELEVATION

SECTION

GIRDER G2 (TYPICAL OF 2)
REMOVAL OF EXISTING SHEAR CONNECTORS

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



SECTION C-C

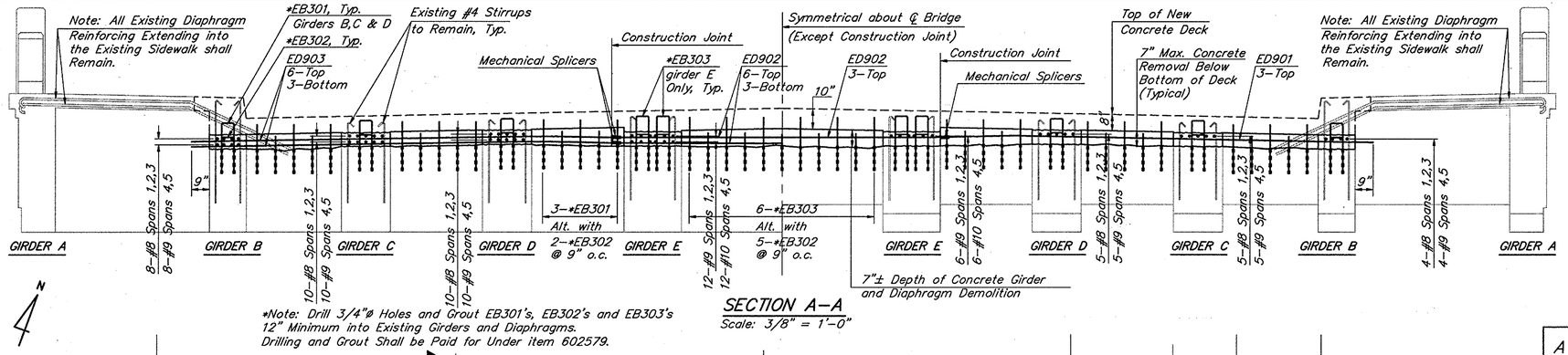
Scale : 1 1/2" = 1'-0"

NOTE:
At Locations Indicated, Sandblast Clean Concrete Surfaces in Cross Hatched Areas. Drill and Grout Dowels, Place Horizontal Reinforcement, Pour Flowable, Self Leveling Grout to Within 1" of Bottom of Diaphragm. Cure Grout Per Manufacturers Recommendations.

All Materials and Installation of Grout Shall be Paid Under Item 602581. Sandblasting of Top of Pier Shall be Incidental to Item 602581. Drilling and Grouting Dowel Holes Shall be Paid Under Item 602579. All Material and Installation of Dowels and Reinforcing Shall be Paid Under Item 604000.

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	7	24

CONCRETE GIRDER MODIFICATIONS SPANS 1,2,3,5 and 6

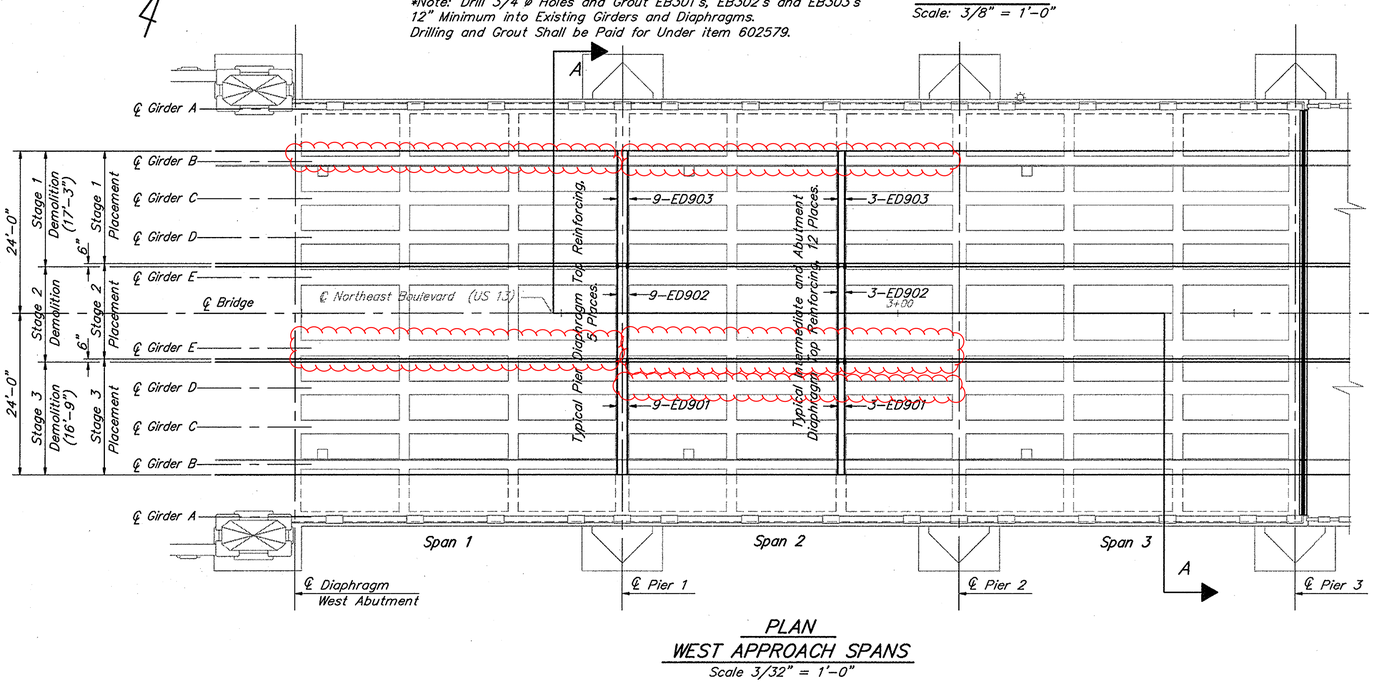


*Note: Drill 3/4"Ø Holes and Grout EB301's, EB302's and EB303's 12" Minimum into Existing Girders and Diaphragms. Drilling and Grout Shall be Paid for Under item 602579.

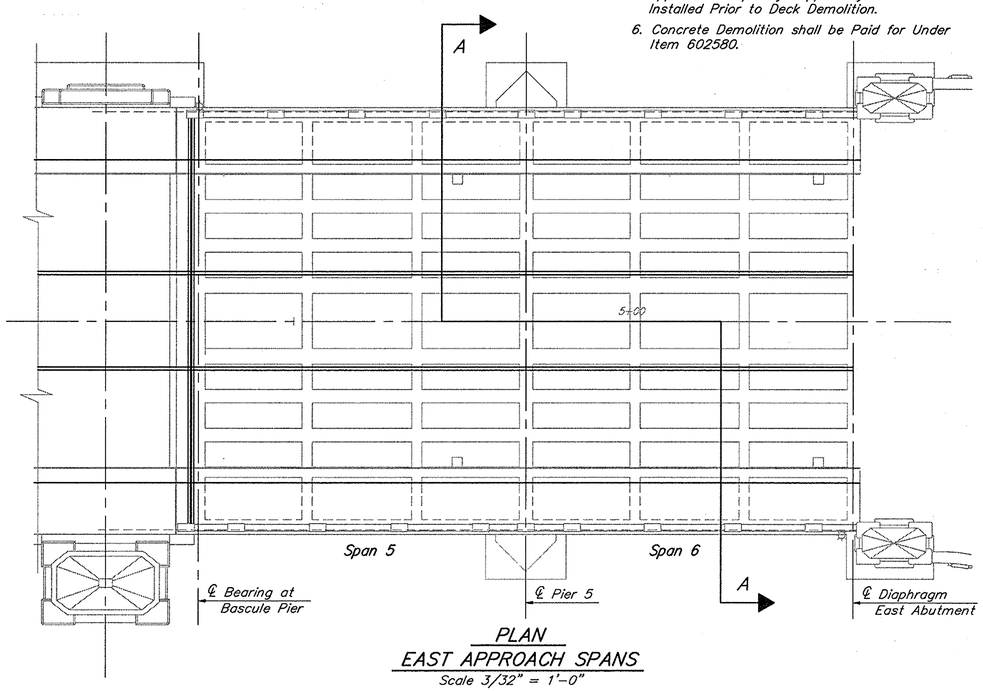
SECTION A-A
Scale: 3/8" = 1'-0"

Notes:

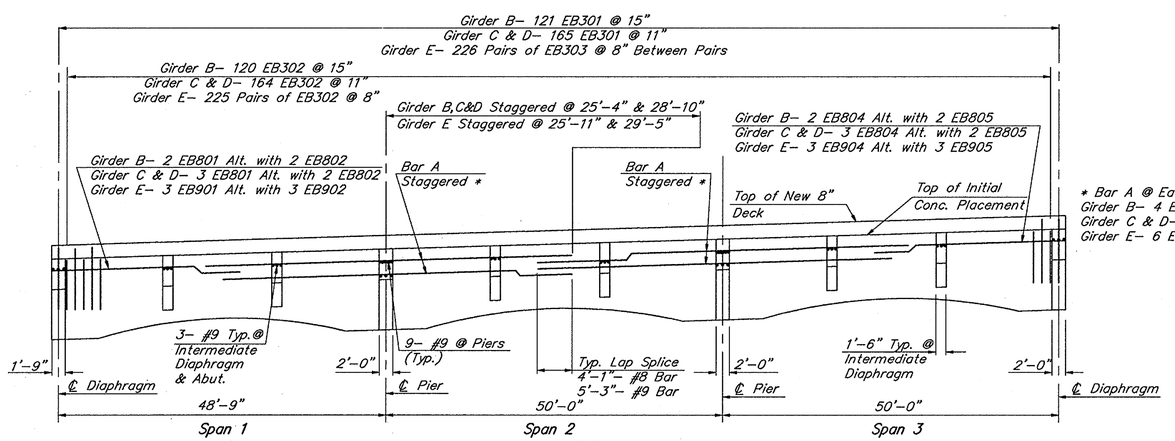
1. Refer to Sheet 15 for Concrete Girder Widths and Center to Center Spacings.
2. Refer to Sheet 16 for Deck Placing Sequence.
3. Material, Labor and Equipment to Supply and Install Reinforcing Steel shall be Paid for Under Item 604000.
4. All New Concrete shall be Class D. Material, Labor and Equipment to Supply and Install New Concrete shall be Paid for Under Item 602013.
5. As Required per Project Notes on Sheet 3, an Approved Temporary Support System shall be Installed Prior to Deck Demolition.
6. Concrete Demolition shall be Paid for Under Item 602580.



PLAN
WEST APPROACH SPANS
Scale 3/32" = 1'-0"

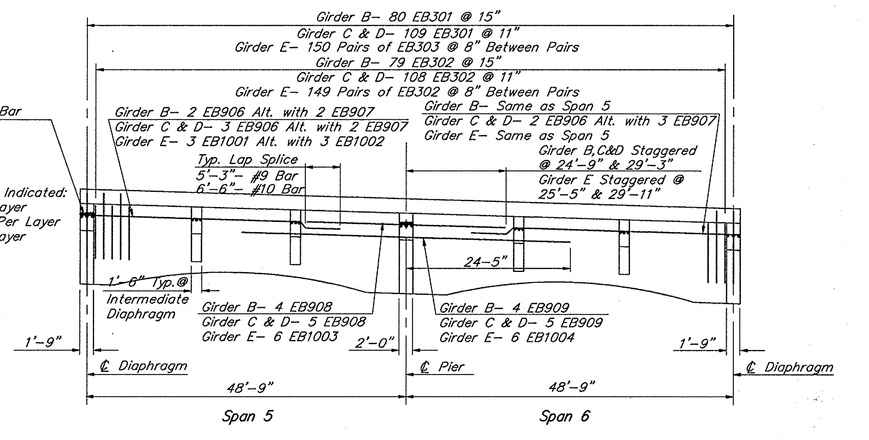


PLAN
EAST APPROACH SPANS
Scale 3/32" = 1'-0"



ELEVATION
Note: Vertical Dimensions are not to Scale.

* Bar A @ Each Location Indicated:
Girder B- 4 EB803 Per Layer
Girder C & D- 5 EB803 Per Layer
Girder E- 6 EB903 Per Layer



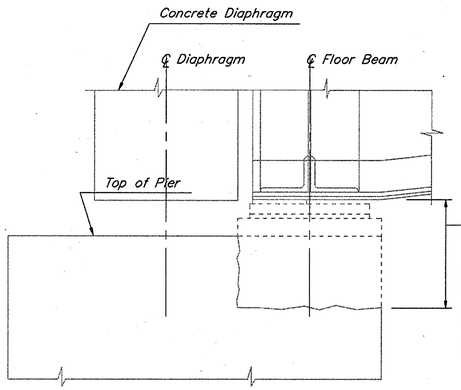
ELEVATION
Note: Vertical Dimensions are not to Scale.

REVISIONS

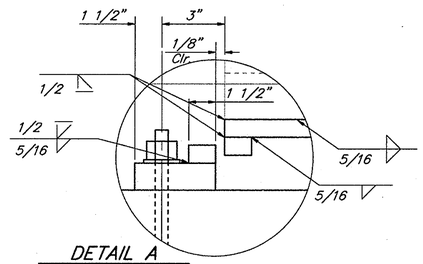
PREL. TRACING R.J. Ashley DESIGN J.A. Prybella CHKD. J.A. Prybella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	8	24

BEARING MODIFICATION DETAILS

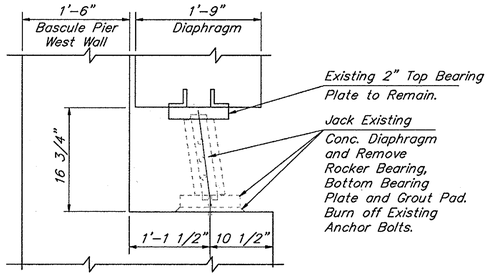


DEMOLITION

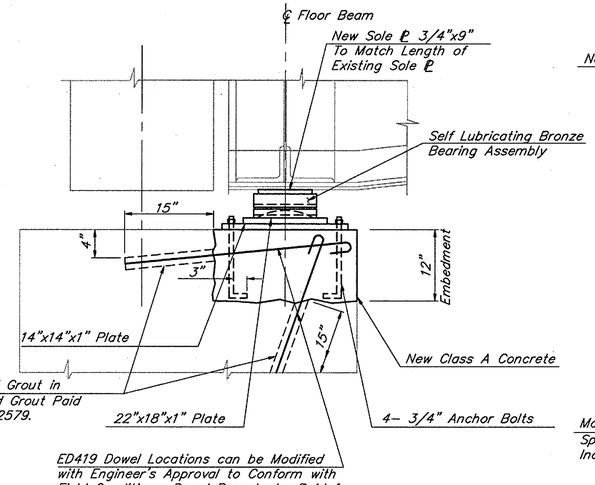


DETAIL A

Scale : 3" = 1'-0"

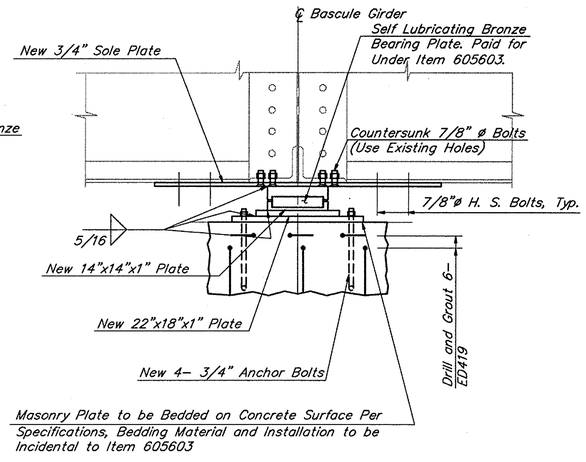


REMOVAL OF EXISTING BEARING (6 LOCATIONS)



DETAIL B
BASCULE GIRDER BEARING REPLACEMENT (4 LOCATIONS)

Scale: 1" = 1'-0"



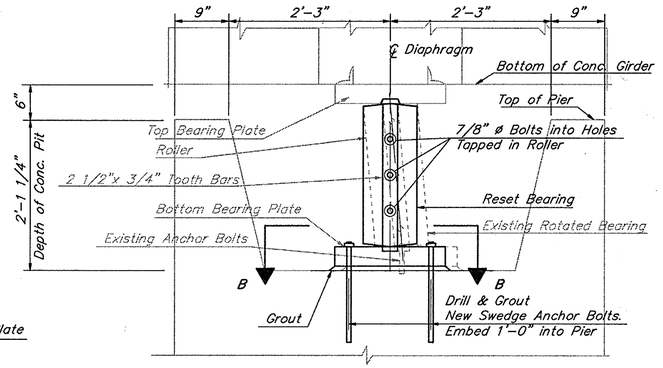
NEW BASCULE GIRDER BEARINGS @ G1 & G2

All Plates and Anchor Bolts, Except Bronze Pearing Plates, shall Conform to AASHTO M183. All Anchor Bolts, Jacking and Shoring, Steel Plates, and Self Lubricating Bronze Plates shall be Paid for Under Item 605603.

BEARING RESET NOTES

All New Material and Work (Including Jacking and Shoring) Related to Resetting of Bearings shall be Paid for Under Item 605605.

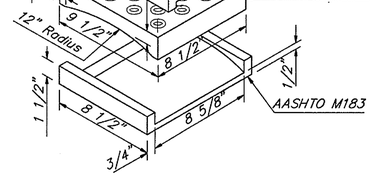
1. Jack and Shore Existing Beams.
2. Remove Anchor Bolt Nuts. Remove Rollers, Tooth Bars and Bottom Bearing Plate.
3. Burn off 2-Anchor Bolts Flush with Top/Pier.
4. Drill 4-New 1"ø Holes in Bottom Bearing Plate.
5. Drill 1 1/2"ø Holes for New Anchor Bolts.
6. Reset Bottom Bearing Plate and Roller.
7. Grout in New 4-3/4"ø Swedged Anchor Bolts and Tighten after Grout has Cured.
8. Remove Shoring and Jacks.



BEARING RESET DETAIL PIER 5 (6 REQUIRED)

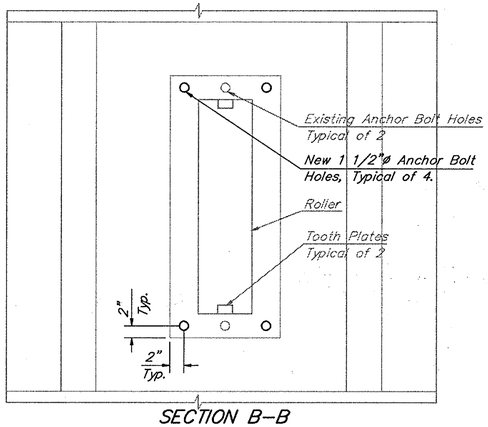
Scale : 1" = 1'-0"

Note: Existing Bearings are Set in Pits at the Top of Pier 5. For Additional Information on Pit Locations and Orientation to Concrete Girder, See Sheet 6, PLAN AND ELEVATION OF DISPLACEMENT RESTRICTION PADS, PIERS 1,2 & 5



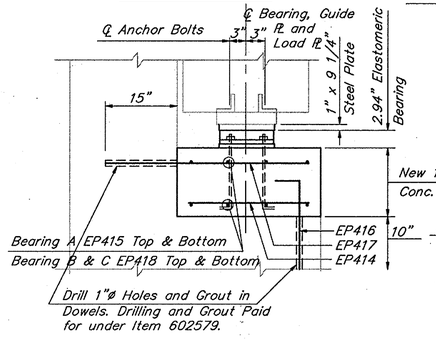
SELF LUBRICATING BRONZE BEARING ASSEMBLY

N.T.S.



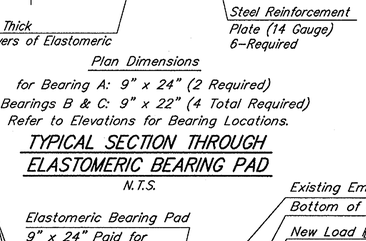
SECTION B-B

Scale : 1" = 1'-0"



REPLACEMENT
BEARING A & B REPLACEMENT- EAST SIDE OF BASCULE PIER (SPAN 5) (6 LOCATIONS)

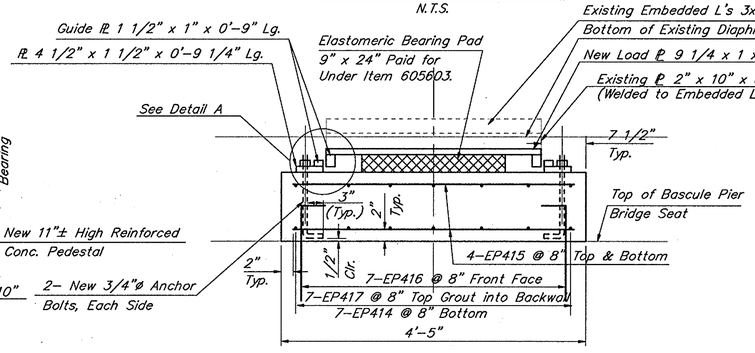
Scale : 1" = 1'-0"



Plan Dimensions
for Bearing A: 9" x 24" (2 Required)
for Bearings B & C: 9" x 22" (4 Total Required)
Refer to Elevations for Bearing Locations.

TYPICAL SECTION THROUGH ELASTOMERIC BEARING PAD

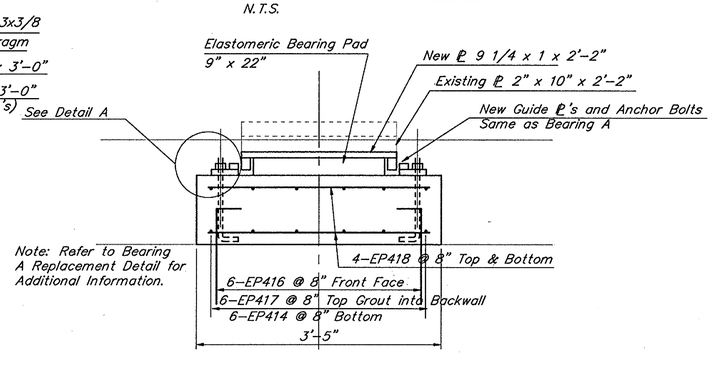
N.T.S.



BEARING A REPLACEMENT- EAST SIDE BASCULE PIER (2 LOCATIONS)

Scale : 1" = 1'-0"

NOTE: Jack and Shore Existing Concrete Girders. Remove Existing Roller Bearing, Masonry Plate and Anchor Bolts. Weld New 1" Plate to Existing Embedded Plate, Drill and Grout in New Pedestal Reinforcing, Install New Elastomeric Bearing and Guide Plates.



BEARING B & C REPLACEMENT- EAST SIDE BASCULE PIER (4 LOCATIONS)

Scale : 1" = 1'-0"

All Material, Labor and Equipment to Install Elastomeric Pads Shall be Paid for Under Item 605603. Jacking, Shoring, Removal of Existing Bearings and Furnishing and Installing Anchor Bolts, Guide Plates and Load Plates is Incidental to Item 605603. Dowel Bars and Reinforcing Steel to be Paid for Under Item 604000. Pedestals to be Class D Concrete, Paid Under Item 602013.

Item	Pier 5	
	Bearing A	Bearings B & C
Top Bearing Plate (in)	18 1/2x 40x 3 1/4	18x 33x 3 1/4
Rollers (in)	9x 24" øx 36	9x 24" øx 29
Bottom Bearing Plate (in)	18 1/2x 44x 3 1/4	18x 37x 3 1/4
c-c Anchor Bolts	3'-4"	2'-9"

REVISIONS

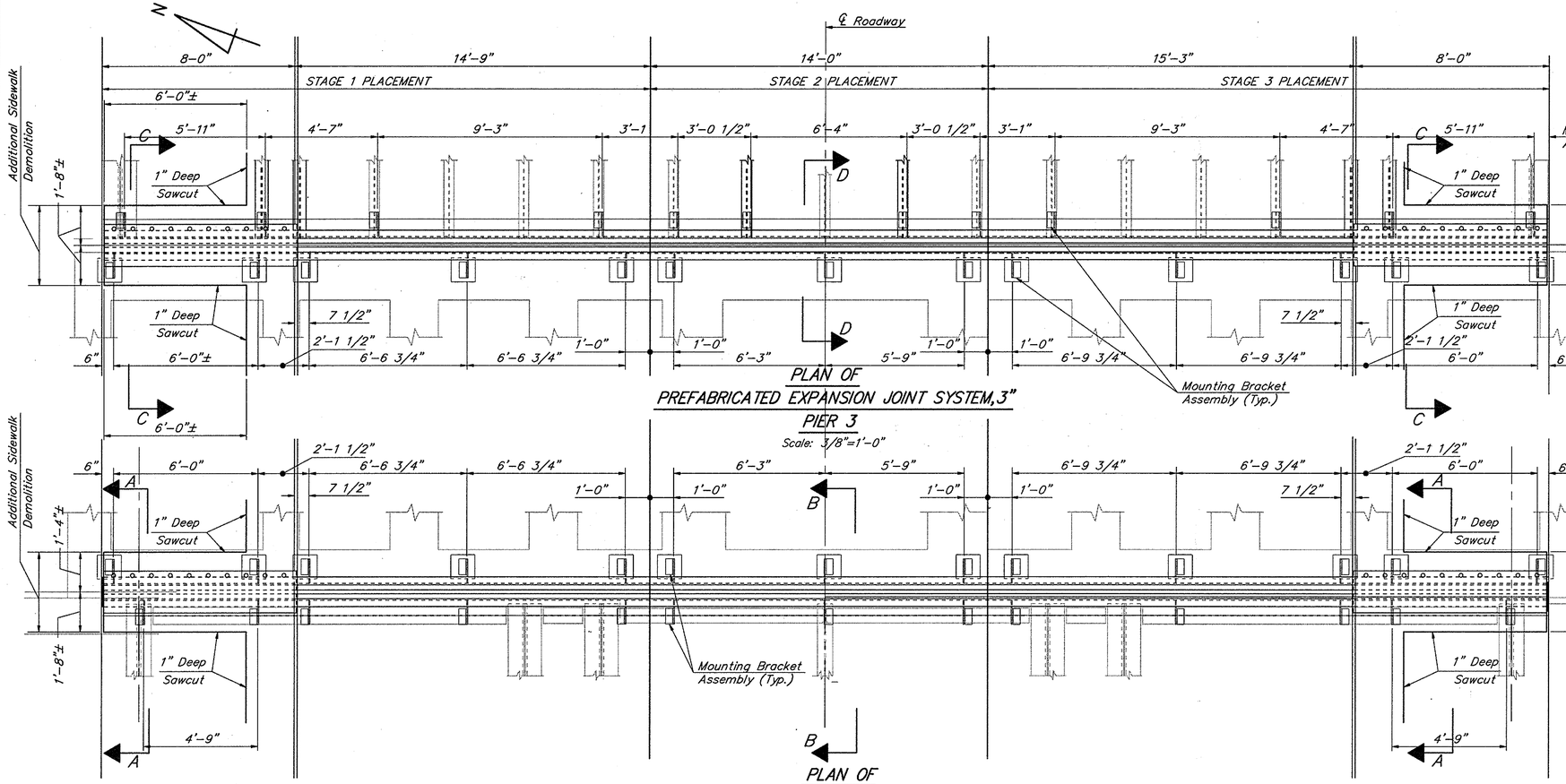
PREL. TRACING J.P. Bartholomay DESIGN W. M. Ahola CHKD. W. M. Ahola

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	9	24

EXPANSION JOINT SYSTEM PIERS 3 & 4

REVISIONS

PREL. TRACING J.P. Bartholomay DESIGN J.A. Prybella CHKD. J.A. Prybella

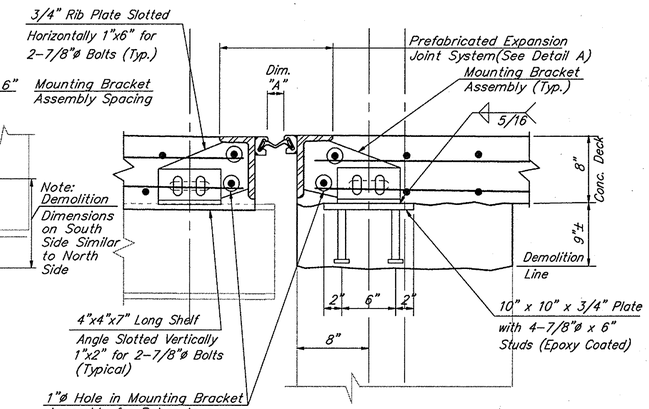


PLAN OF
PREFABRICATED EXPANSION JOINT SYSTEM,3"
PIER 3
Scale: 3/8"=1'-0"

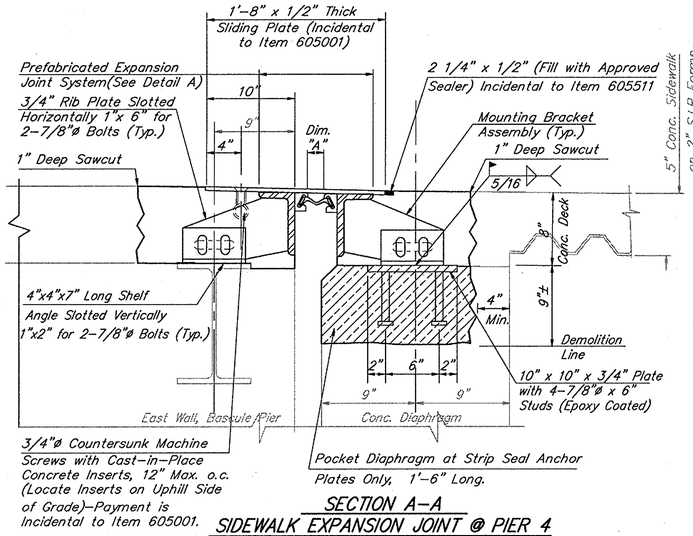
PLAN OF
PREFABRICATED EXPANSION JOINT SYSTEM,3"
EAST FACE OF PIER 4 (BASCULE PIER)
Scale: 3/8"=1'-0"

PREFABRICATED EXPANSION JOINT SYSTEM

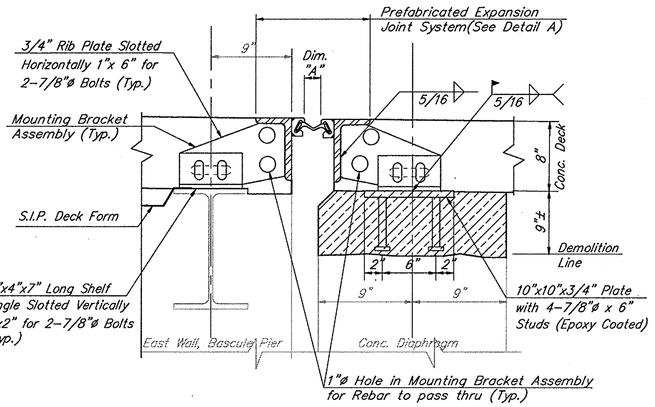
NOTES:
1. THIS JOINT SYSTEM SHALL BE INSTALLED AT THE EXPANSION JOINTS AT PIER 3 AND AT THE EAST SIDE OF PIER 4 AND ALSO AT THE DECK JOINT ON THE WEST SIDE OF PIER 4 (SEE SHEET 10).
2. FOR TABLE OF DIMENSION "A", SEE SHEET 11.
3. THE CONTINUOUS STRIP SEAL SHALL BE TYPE S-300 AS MANUFACTURED BY WATSON-BOWMAN AND ACME CORPORATION OR APPROVED EQUAL.
4. THE CONTINUOUS NEOPRENE STRIP SEAL SHALL BE CAPABLE OF EXPANDING TO 3" AND SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. SPLICING THE STRIP SEAL IS NOT PERMITTED.
5. FURNISHING THE MATERIALS AND INSTALLING THE MOUNTING BRACKET ASSEMBLIES IS INCLUDED IN THE COST FOR ITEM 605511.
6. DEMOLITION ASSOCIATED WITH THE INSTALLATION OF THE PREFABRICATED EXPANSION JOINT SYSTEM IS PAID UNDER ITEM 602580. REPLACEMENT CONCRETE SHALL BE CLASS D PCC MASONRY.
7. SEE SHEET 11 FOR DETAIL A.



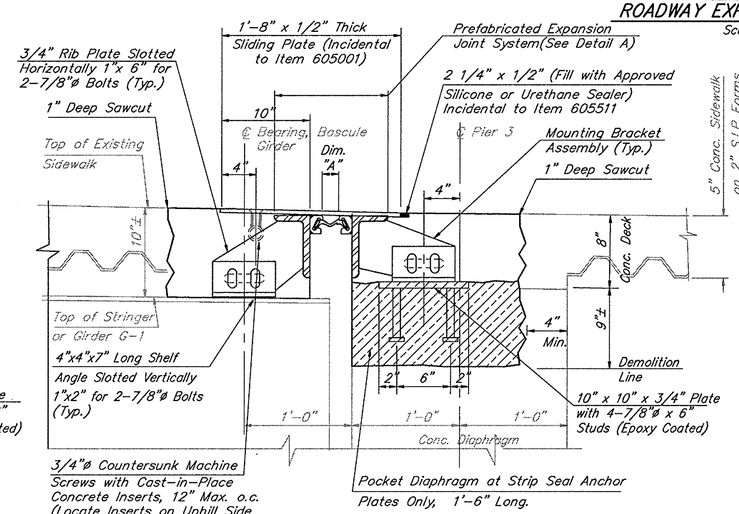
SECTION D-D
ROADWAY EXPANSION JOINT @ PIER 3
Scale: 1 1/2"=1'-0"



SECTION A-A
SIDEWALK EXPANSION JOINT @ PIER 4
Scale: 1 1/2"=1'-0"



SECTION B-B
ROADWAY EXPANSION JOINT @ PIER 4
Scale: 1 1/2"=1'-0"



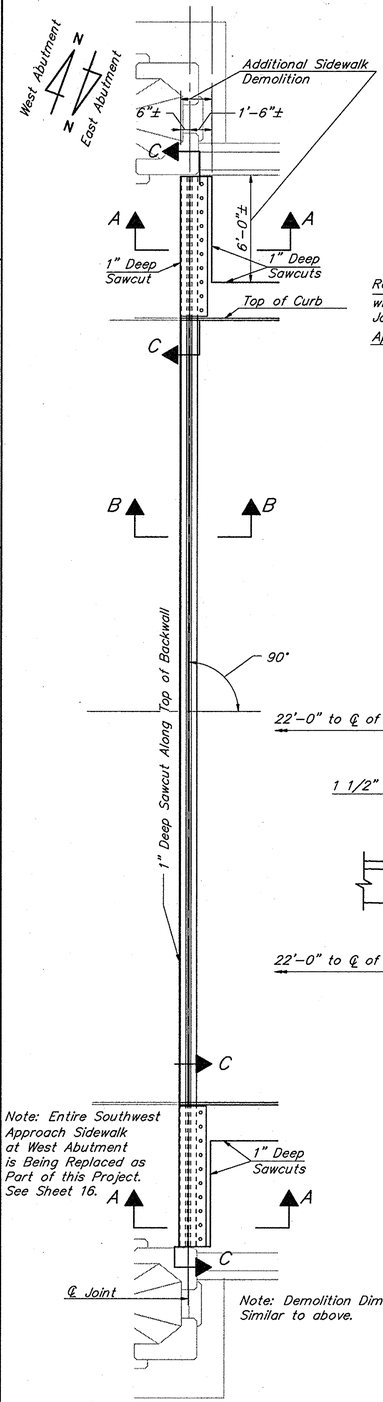
SECTION C-C
SIDEWALK EXPANSION JOINT @ PIER 3
Scale: 1 1/2"=1'-0"

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	10	24

DECK JOINT SYSTEMS AT PIER 4 AND ABUTMENTS

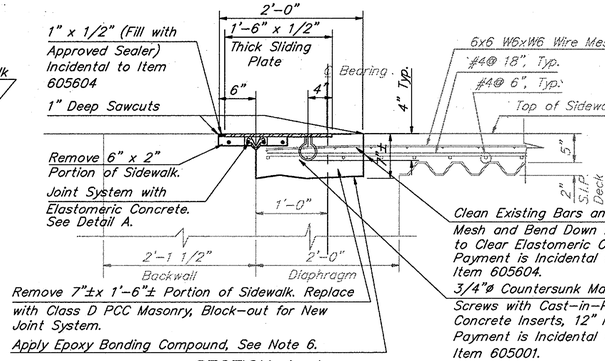
REVISIONS

PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. J. A. Prybella



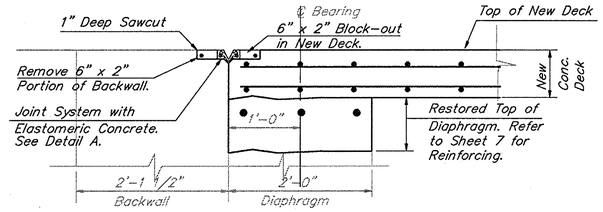
PLAN AT ABUTMENTS

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



SECTION A-A AT SIDEWALKS OVER ABUTMENTS

Scale: 1"=1'-0"

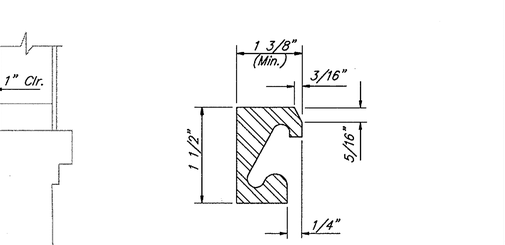


SECTION B-B AT ROADWAY OVER ABUTMENT

Scale: 1"=1'-0"

SECTION C-C TYPICAL SECTION @ SIDEWALK ALONG JOINT

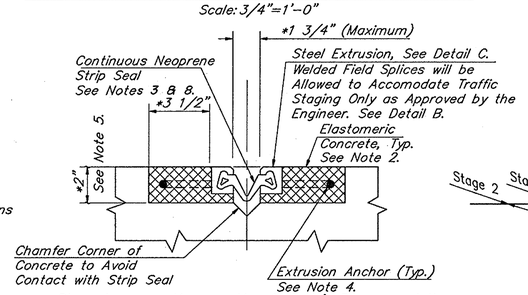
Scale: 3/4"=1'-0"



STEEL EXTRUSION DETAIL C

Scale: N.T.S.

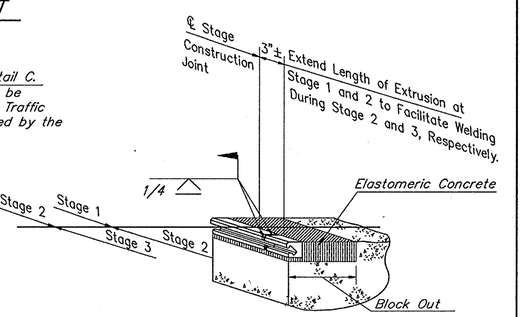
Note: This Extrusion Applies at Joint System with Elastomeric Concrete Only.



*Dimensions may Vary per Manufacturer's Recommendations and as Approved by Engineer.

DETAIL A NEW JOINT SYSTEM WITH ELASTOMERIC CONCRETE (ITEM 605604)

Scale: 3"=1'-0"



Note: All Welds shall be Ground Smooth and Painted with a Cold Applied Touch-up Paint Supplied by the Fusion Bonded Epoxy Coating Manufacturer. Payment Incidental to Item 605604.

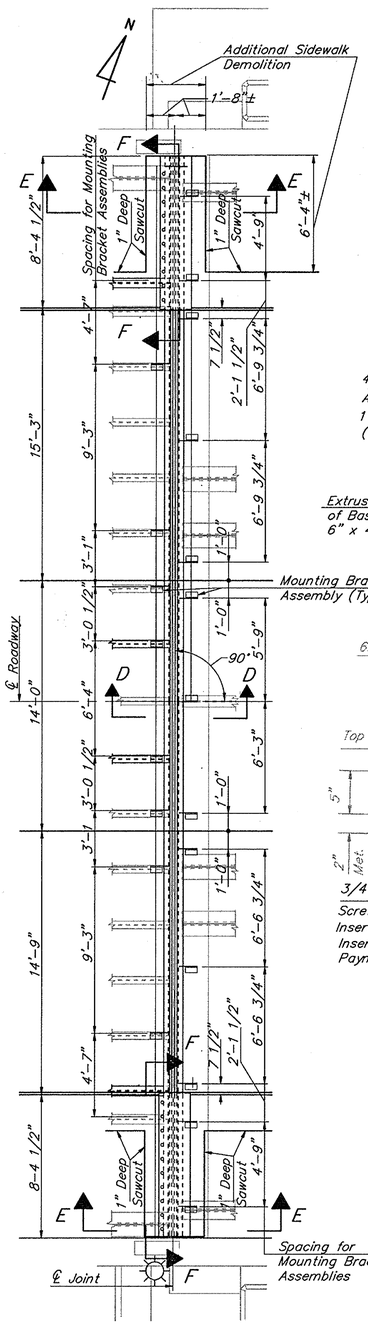
EXTRUSION SPLICE DETAIL B

N.T.S.

JOINT SYSTEM WITH ELASTOMERIC CONCRETE

NOTES:

1. This Joint System shall be Installed at Each Abutment.
2. The Elastomeric Concrete shall be Provided as Recommended by the Manufacturer of the Joint System and as Approved by the Department.
3. The Continuous Neoprene Strip Seal of the Joint System with Elastomeric Concrete shall be Capable of Expanding to 2" and shall be Installed per the Manufacturer's Recommendations. Splicing the Strip Seal is not Permitted.
4. The Extrusion Anchors shall be Provided as per the Manufacturer's Recommendations. Furnishing and Placement is Incidental to Item 605604.
5. At the Sidewalks, the Bottom of the Elastomeric Concrete will be 2 1/2" below the Finished Sidewalk Surface to Allow for the 1/2" Thick Sidewalk Cover Plate.
6. Apply an Approved Epoxy Bonding Compound to All Existing/New Concrete Interfaces, Payment is Incidental to Item 602013.
7. All Concrete Demolition shall be Paid under Item 602580.
8. The Continuous Strip Seal shall be Type S-200 as Manufactured by Watson-Bowman and Acme Corporation or Approved Equal.

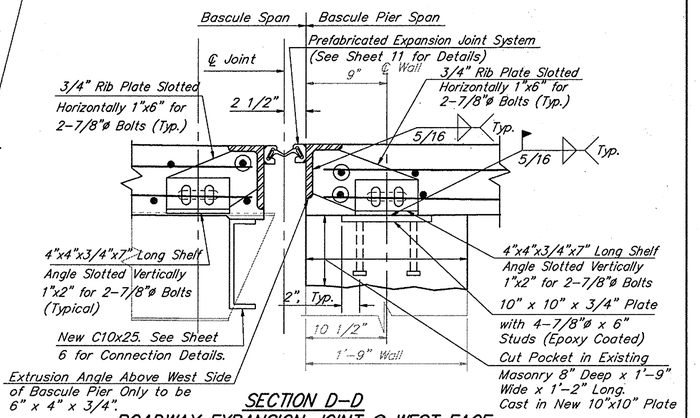


PLAN OF PREFABRICATED EXPANSION JOINT SYSTEM, 3" BASCULE PIER - WEST SIDE

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

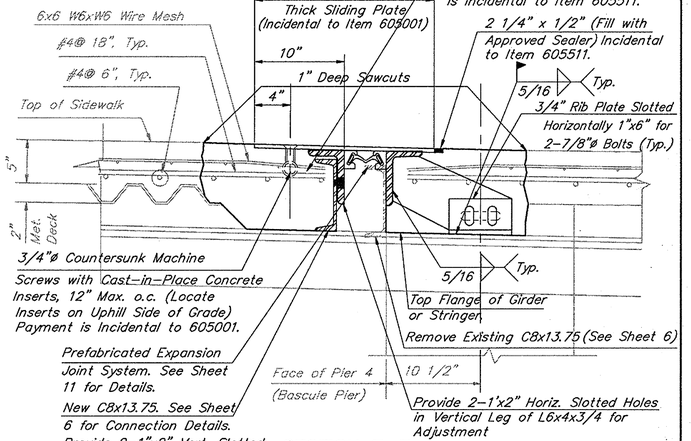
NOTES:

1. For Prefabricated Expansion Joint System Notes, See Sheet 9.
2. Work this Side of Sheet with Sheets 9 and 11.



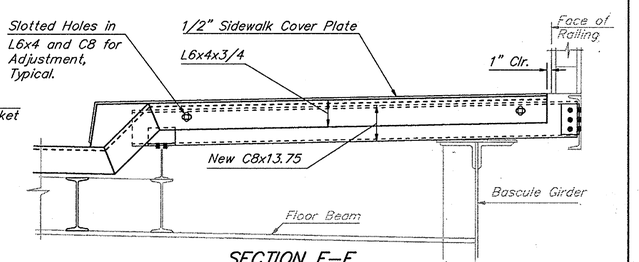
SECTION D-D ROADWAY EXPANSION JOINT @ WEST FACE

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



SECTION E-E AT BASCULE PIER - WEST FACE SIDEWALK

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

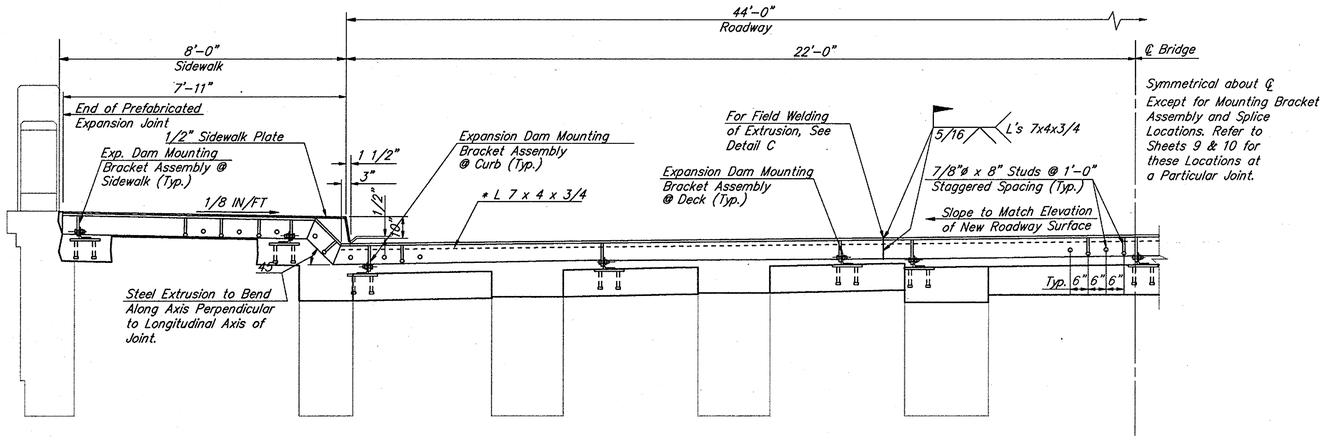


SECTION F-F AT BASCULE PIER - WEST FACE SIDEWALK

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

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	11	24

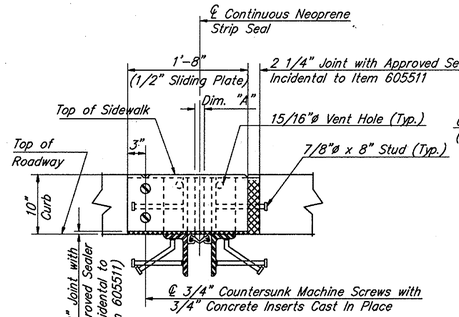
PREFABRICATED EXPANSION JOINT SYSTEM DETAILS



Note: Mounting Bracket Assembly Locations and Types Differ from Joint to Joint.
Refer to Sheets 9 & 10 for Particular Information about a Specific Joint.
*Note: At West Face of Bascule Pier Use L6x4x3/4. Refer to Sheet 10 For Details.

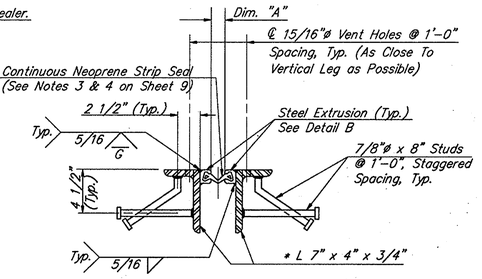
TYPICAL PREFABRICATED EXPANSION JOINT SYSTEM PIER 3 SHOWN, BASCULE PIER JOINTS SIMILAR

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



SECTION A-A SECTION @ CURB

Scale: 1"=1'-0"

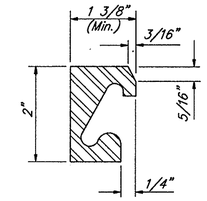


*Note: At West Face of Bascule Pier Use L6x4x3/4. Refer to Sheet 10 For Details.

DETAIL "A"

PREFABRICATED EXPANSION JOINT SYSTEM, 3" (Item 605511)

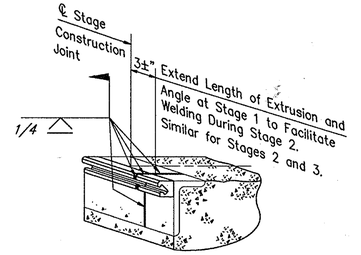
Scale: 1 1/2"=1'-0"



Note: This Extrusion Applies to Prefabricated Expansion Joint System Only.

STEEL EXTRUSION DETAIL "B"

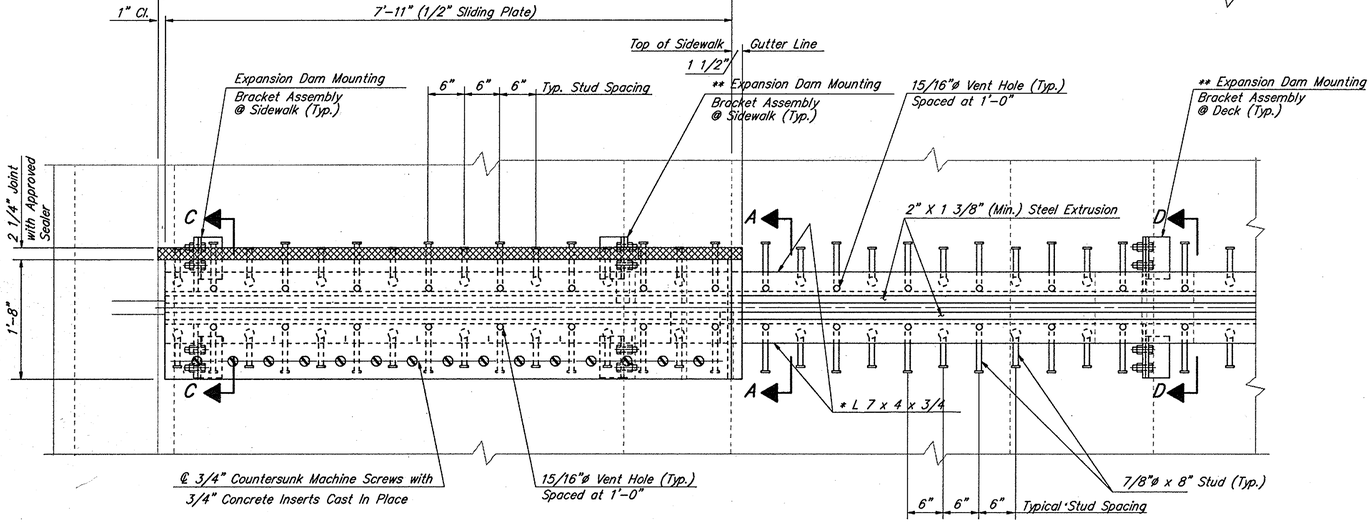
Scale: N.T.S.



Note: All Welds shall be Ground Smooth and Painted with a Cold Applied Touch-up Paint Supplied by the Fusion Bonded Epoxy Coating Manufacturer. Payment Incidentgl to Item 605511.

EXTRUSION SPLICE DETAIL "C"

N.T.S.



** Note: Mounting Bracket Assembly Locations and Types Differ from Joint to Joint.
Refer to Sheets 9 & 10 for Particular Information about a Specific Joint.
*Note: At West Face of Bascule Pier Use L6x4x3/4. Refer to Sheet 10 For Details.

PLAN AT SIDEWALKS

Scale: 1"=1'-0"

TABLE OF Dim. "A"			
Temp. (F)	Pier 3	West Face Bascule Pier	East Face Bascule Pier
20	2.72"	2.00"	2.34"
30	2.52"	2.00"	2.27"
40	2.42"	2.00"	2.20"
50	2.27"	2.00"	2.13"
60	2.12"	2.00"	2.06"
68	2.00"	2.00"	2.00"
70	1.97"	2.00"	1.99"
80	1.82"	2.00"	1.92"
90	1.67"	2.00"	1.85"
100	1.52"	2.00"	1.78"

NOTES:

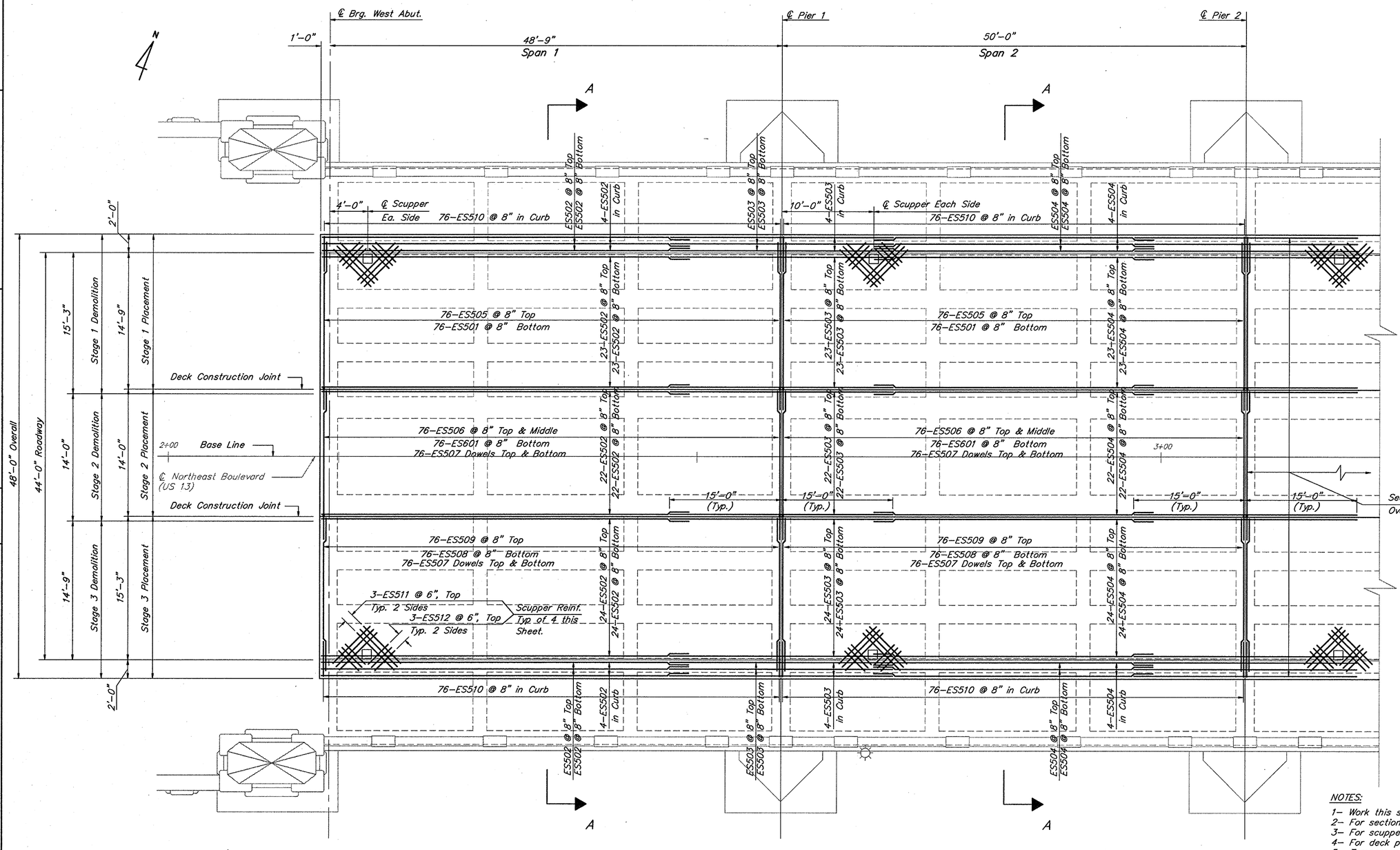
- Refer to Sheet 9 for the Prefabricated Expansion Joint System Notes.
- Work This Sheet with Sheets 9 and 10.
- Sections C-C and D-D are Shown on Sheet 9.

REVISIONS

PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. J. A. Prybella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	12	24

DECK REINFORCEMENT SPANS 1 & 2



DECK REINFORCEMENT PLAN

Scale: 3/16" = 1'-0"

NOTES:

1- Work this sheet with sheet 13, 14, 15, 16, & 20.
2- For section A-A, see sheet 15.
3- For scupper detail, see sheet 16.
4- For deck placement sequence within each stage, see sheet 16.
5- Temporary shoring, as approved by the department, must be in place before demolition of the deck.
6- Demolition to include removal of deck in its entirety, a 2' wide portion of curb and 7" ± of the top of concrete beams (refer to sheets 3 and 7 for cross sections).
7- For the deck joint system block out at west abutment see sheet 10.

REVISIONS

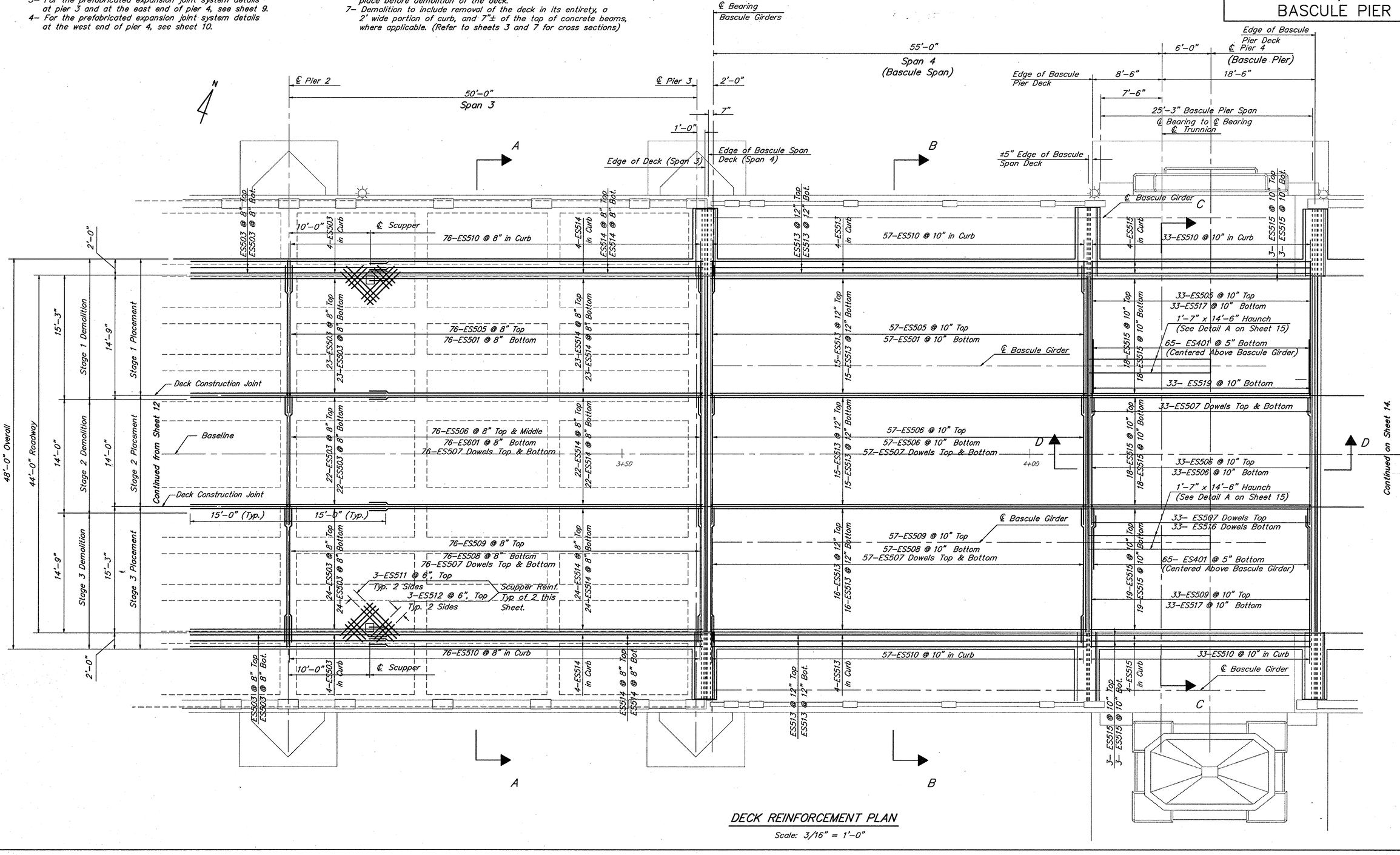
PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. J. A. Prybella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	13	24

DECK REINFORCEMENT SPANS 3, 4 AND BASCULE PIER

NOTES:

1- Work this sheet with sheets 12, 14, 15, 16, & 20.
2- For sections A-A, B-B, C-C, & D-D see sheet 15.
3- For the prefabricated expansion joint system details at pier 3 and at the east end of pier 4, see sheet 9.
4- For the prefabricated expansion joint system details at the west end of pier 4, see sheet 10.
5- For deck placement sequence within each stage, see sheet 16.
6- Temporary shoring as approved by the Department, must be in place before demolition of the deck.
7- Demolition to include removal of the deck in its entirety, a 2' wide portion of curb, and 7"± of the top of concrete beams, where applicable. (Refer to sheets 3 and 7 for cross sections)



DECK REINFORCEMENT PLAN

Scale: 3/16" = 1'-0"

REVISIONS

PREL. TRACING J.P. Bartholomay DESIGN J. A. Pribella CHKD. J. A. Pribella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	14	24

DECK REINFORCEMENT SPANS 5 & 6

REVISIONS

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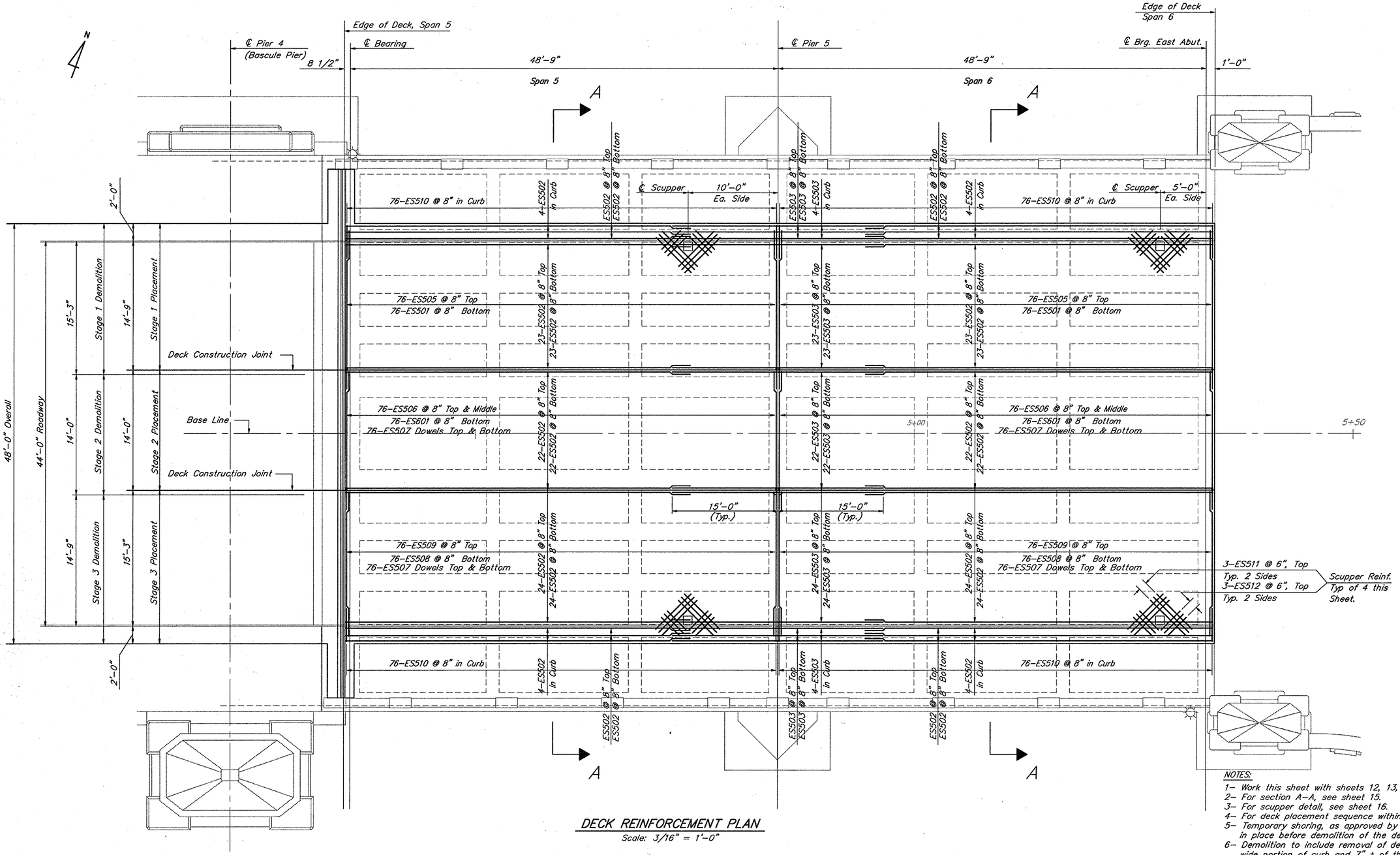


DECK REINFORCEMENT PLAN

Scale: 3/16" = 1'-0"

NOTES:

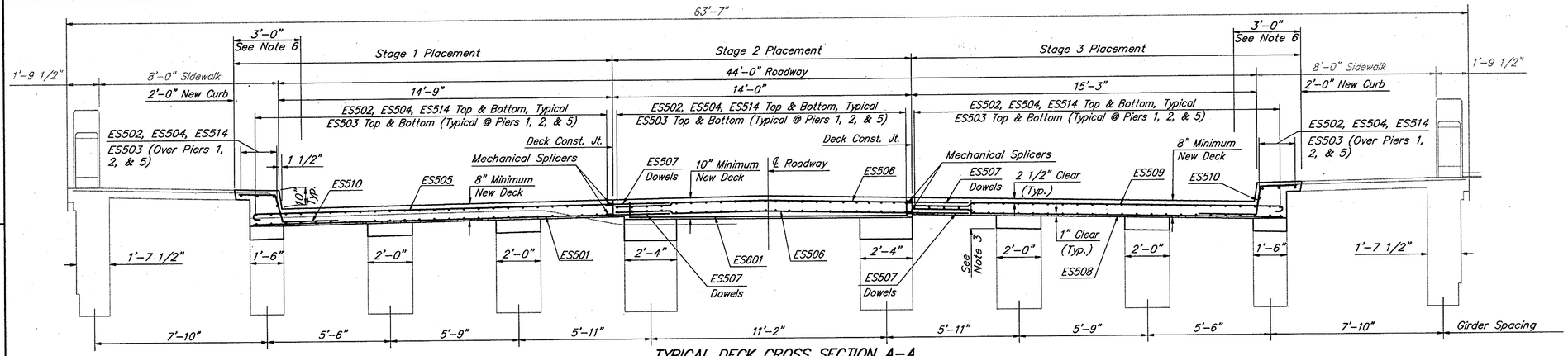
1- Work this sheet with sheets 12, 13, 15, 16, & 20.
2- For section A-A, see sheet 15.
3- For scupper detail, see sheet 16.
4- For deck placement sequence within each stage, see sheet 16.
5- Temporary shoring, as approved by the department, must be in place before demolition of the deck.
6- Demolition to include removal of deck in its entirety, a 2' wide portion of curb and 7" ± of the top of concrete girders (refer to sheets 3 and 7 for cross sections).
7- For the deck joint system block out at east abutment see sheet 10.

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	15	24

DECK CROSS SECTIONS

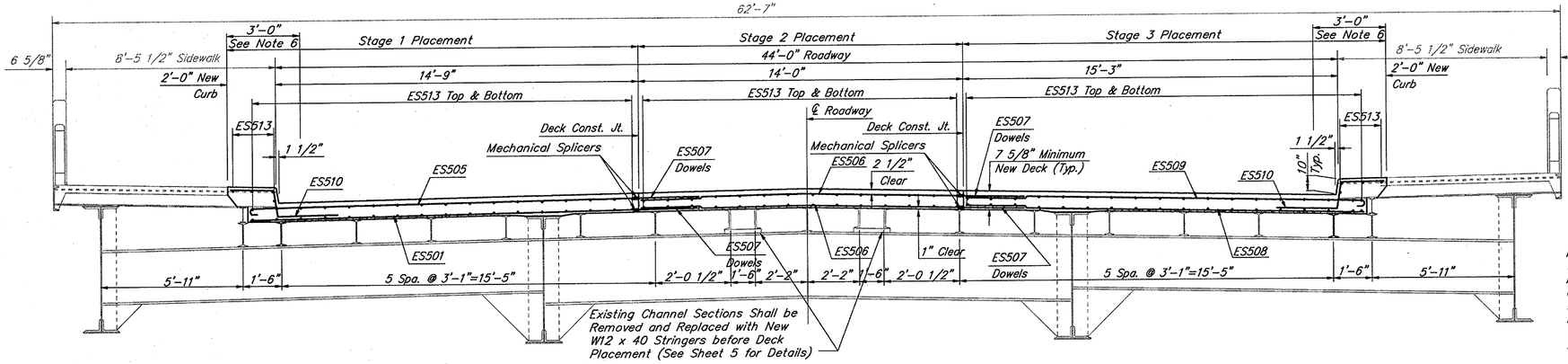
NOTES:

1- Work this sheet with sheets 12, 13, 14, & 16.
2- See sheet 20 for deck reinforcing schedule.
3- See sheet 7 for top of beam restoration details.
4- New deck and curbs to be Class D PCC masonry.
5- Apply an approved epoxy bonding compound to all existing/new concrete interfaces (incidental to item 602013).
6- All existing reinforcing bars in curb areas to remain. The bars shall be cleaned and lapped a minimum of 3'-0" to new reinforcement.



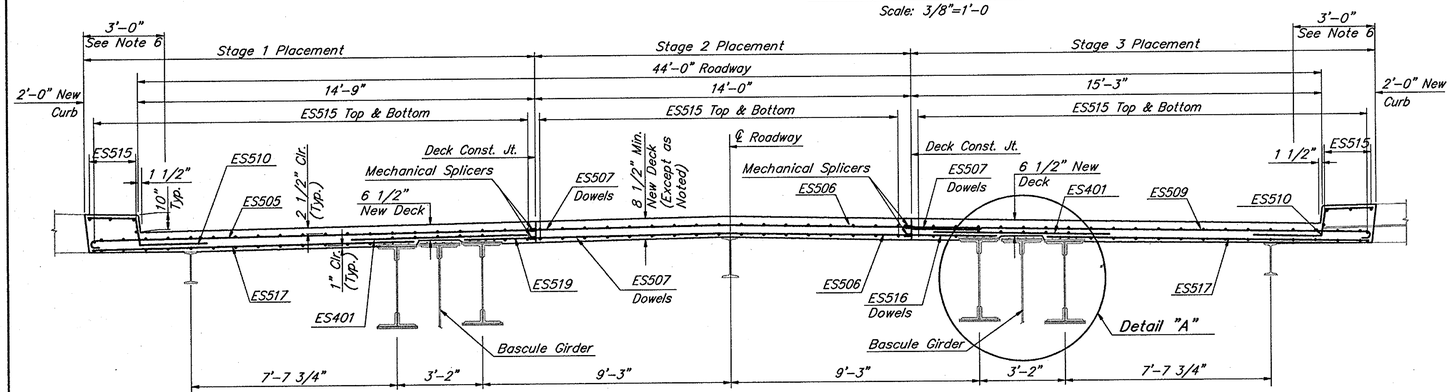
TYPICAL DECK CROSS SECTION A-A
(Spans 1,2,3,5 & 6)

Scale: 3/8"=1'-0



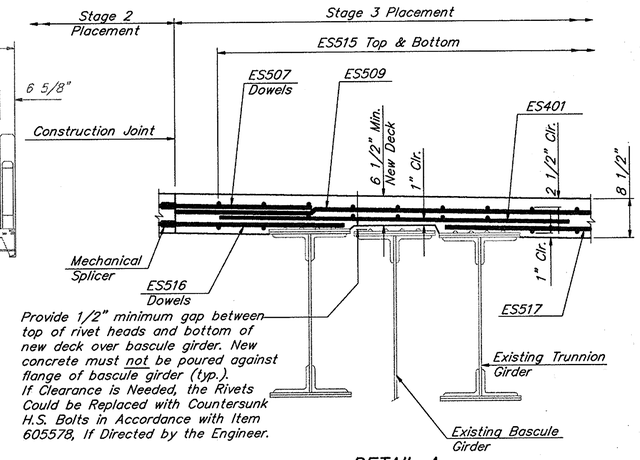
TYPICAL DECK CROSS SECTION B-B
(Bascule Span - Span 4)

Scale: 3/8"=1'-0



TYPICAL DECK CROSS SECTION C-C
(Bascule Pier Span - Pier 4)

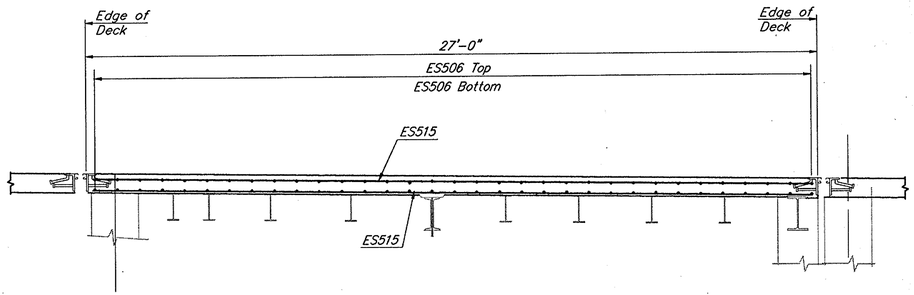
Scale: 3/8"=1'-0



Provide 1/2" minimum gap between top of rivet heads and bottom of new deck over bascule girder. New concrete must not be poured against flange of bascule girder (typ.). If Clearance is Needed, the Rivets Could be Replaced with Countersunk H.S. Bolts in Accordance with Item 605578, If Directed by the Engineer.

DETAIL A
SOUTH BASCULE GIRDER SHOWN
NORTH BASCULE GIRDER SIMILAR

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



DECK SECTION D-D
(Bascule Pier Span - Pier 4)

Scale: 3/8"=1'-0

REVISIONS

PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. J. A. Prybella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	16	24

DECK DETAILS AND APPROACH SIDEWALK

REVISIONS

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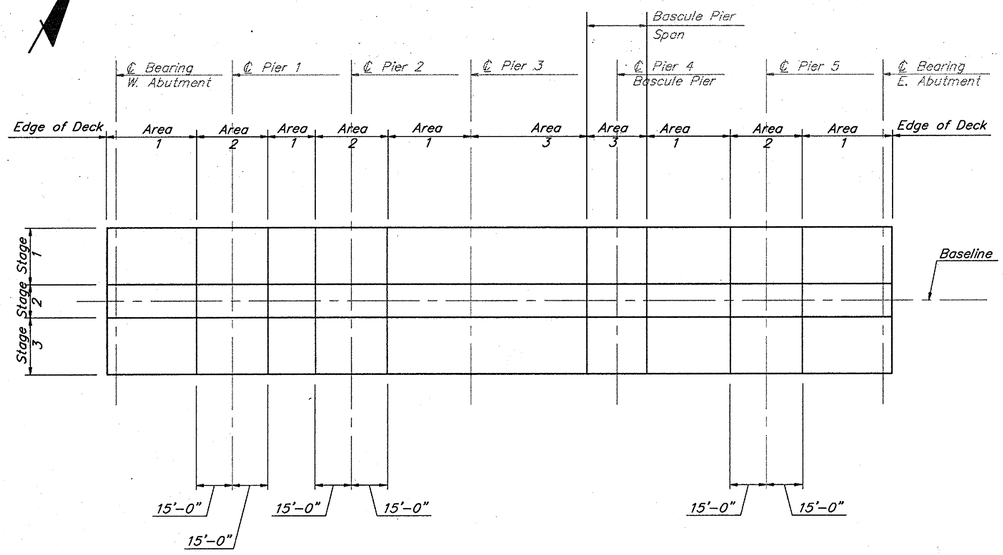


DECK PLACEMENT SEQUENCE DIAGRAM

Scale: 1" = 30'-0"

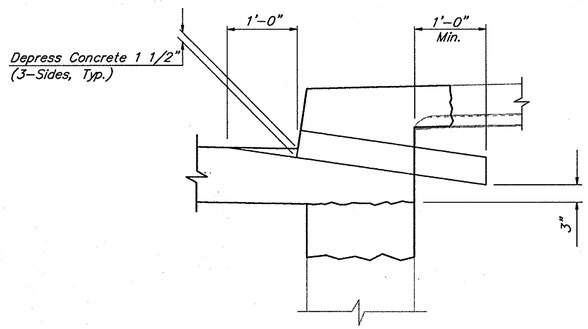
PLACEMENT NOTES:

1. *The placement sequence outlined on this sheet refers to the order of placing concrete within each individual stage. The stages of construction shall be in conformance with the traffic control plan and work on each portion of the bridge shall be performed in the order specified.*
2. *Refer to Suggested Construction Sequence on sheet 18 for additional information on the temporary shoring, demolition, and placement sequence.*
3. *Refer to sheets 12, 13 and 14 for deck placement widths for each stage of construction.*
4. *Upon completion of Step 2 in the placement sequence, full strength (f'c=4500 psi) must be obtained in the PCC Masonry in the top of the beams and diaphragms before Step 3 can be performed.*

*PLACEMENT SEQUENCE **

STEP NO.	ITEM
1	Cast the top (± 7") of the concrete girders and diaphragms within Area 1 of Stage 1. (All intermediate concrete diaphragms are included in this step).
2	Cast the top (± 7") of the concrete girders and the diaphragms within Area 2. (All end diaphragms are included within this step).
3	Cast the reinforced concrete deck within Areas 1 and 3.
4	Cast the reinforced concrete deck within Area 2.
5	Repeat steps 1 thru 4 for Stage 2 construction and repeat again for Stage 3 construction.

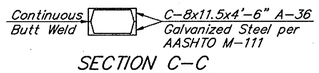
** The Steps Listed Above Represent the Sequential Order in which the Beams and Deck Must be Placed. The Placements Must also be in Accordance with the Application of the Temporary Shoring and its Removal as Dictated on Sheet 18.*



SCUPPER THROUGH CURB

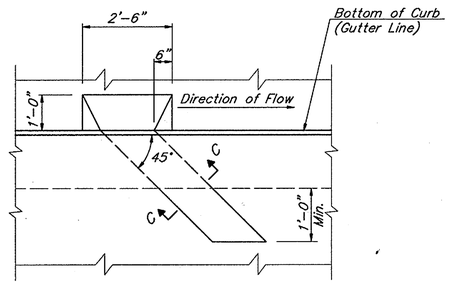
Scale: 1" = 1'-0"

(Incidental to Item 602013)



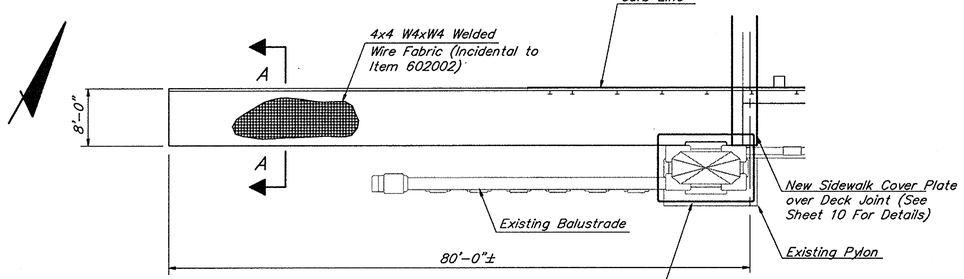
SECTION C-C

Scale: 1" = 1'-0"



PLAN

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



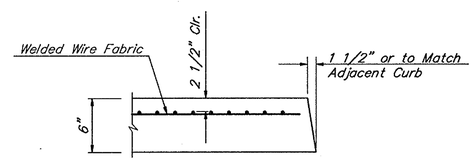
NOTE: *Existing Sidewalk to be Removed (Incidental to Item 602580)*

PLAN VIEW S.W. APPROACH SIDEWALK/CURB REPLACEMENT (ITEM 602002)

Scale: 1" = 10'-0"

Restore the Concrete Pylon and Any Spalls on the Concrete Bridge Railing to Their Original Dimensions by Chipping to Sound Material, Applying an Approved Epoxy Bonding Compound, and Patching as Required. This Work is Incidental to Item 602572. (Southwest Pylon Shown, Northeast Pylon Similar).

Waterproofing the Finished Concrete Surface is Incidental to Item 602547 (Refer to Miscellaneous Project Notes 1 and 8).

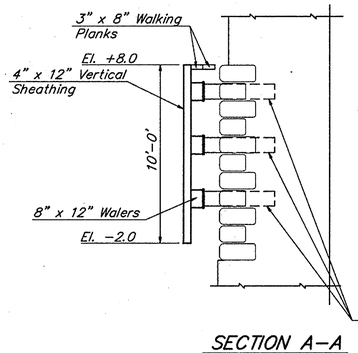


SECTION A-A

N.T.S.

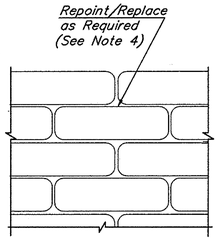
BR. 1–577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90–074–01	NEW CASTLE	BHM–1137(5)	17	24

SUBSTRUCTURE AND FENDER SYSTEM REPAIRS



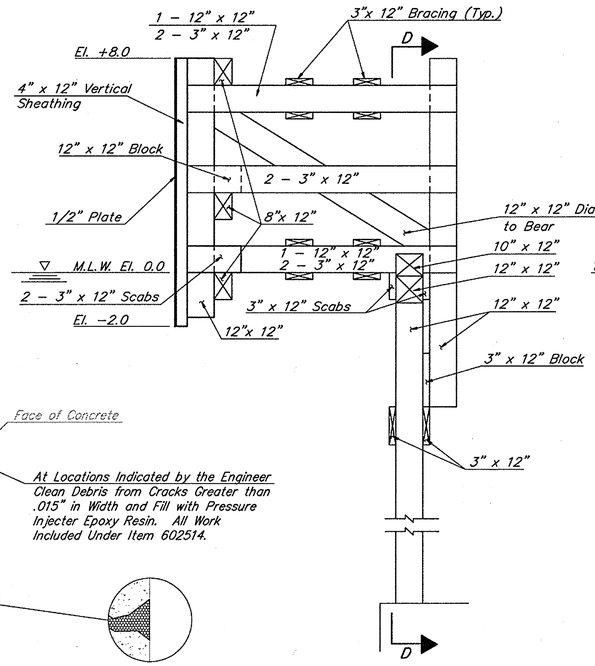
SECTION A–A

SECTION B–B SIMILAR
Scale: 1/4"= 1'–0"



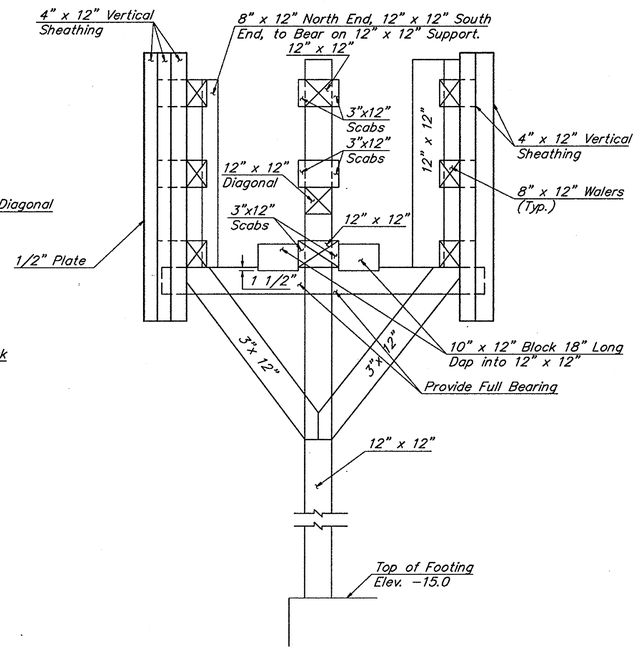
STONE MASONRY FACING

NTS



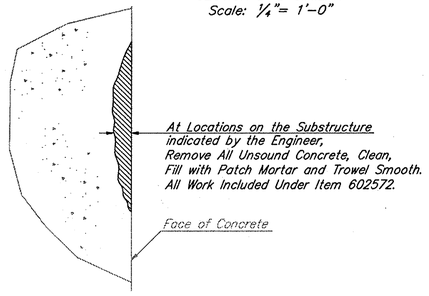
SECTION C–C

Scale: 3/8" = 1'–0"



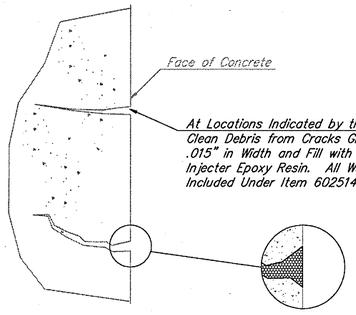
SECTION D–D

Scale: 3/8" = 1'–0"



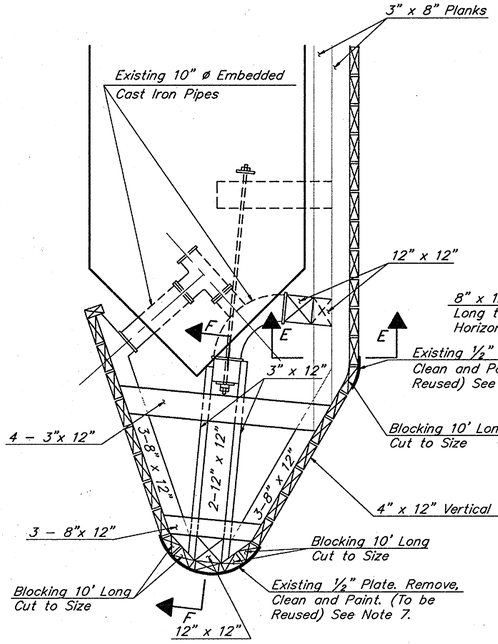
CONCRETE SPALL REPAIR

Scale: N.T.S.



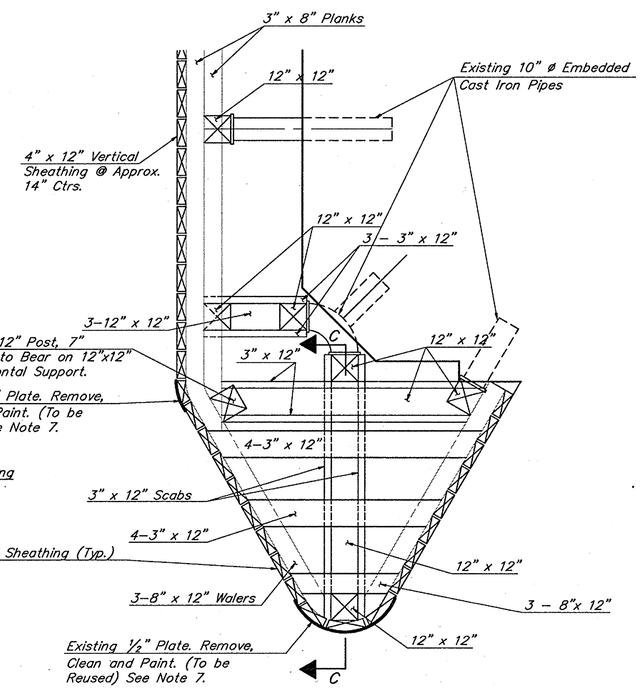
CONCRETE CRACK REPAIR

Scale: N.T.S.



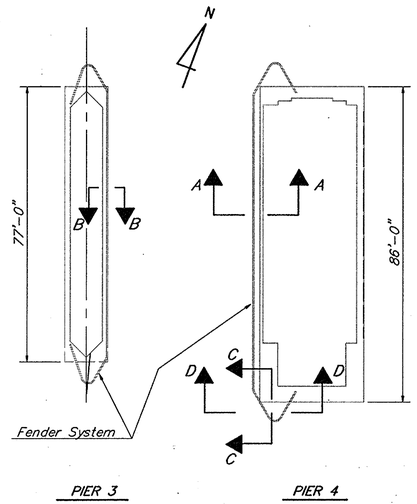
PIER 3

Scale: 3/8"= 1'–0"



PIER 4

Scale: 3/8"= 1'–0"



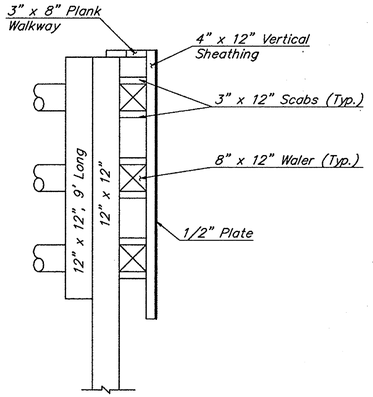
PIER 3 PIER 4

PLAN

Scale: 1"= 20'

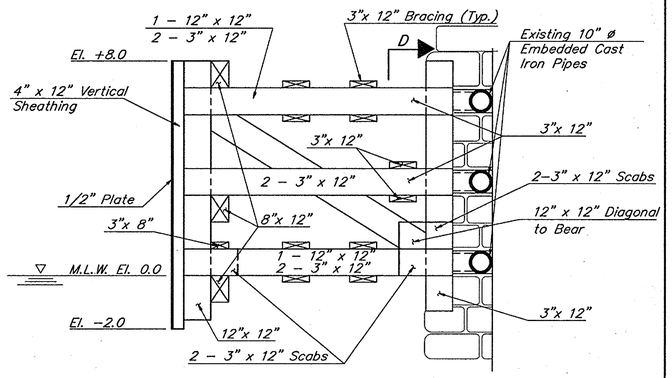
NOTES:

1. ALL VERTICAL SHEATHING, WALKING PLANKS, WALERS AND SCABS SHALL BE REPLACED IN THEIR ENTIRETY. ALL OTHER COMPONENTS OF THE FENDER SYSTEM (e.g. DIAGONALS, BRACING, ETC.) SHALL BE REPLACED AS DIRECTED BY THE ENGINEER WHEN THEIR CONDITION WARRANTS. PAYMENT IS MADE UNDER ITEM 601519.
2. MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE "DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS" DATED JULY 1985, WITH CURRENT MODIFICATIONS, ADDITIONS AND SPECIAL PROVISIONS.
3. CONNECTION OF TIMBERS TO EXISTING 10" ø CAST IRON PIPES SHALL HAVE AT LEAST 6–7/8" ø BOLTS IN ACCORDANCE WITH SECTION 601 OF THE STANDARD SPECIFICATIONS. BOLTS SHALL MATCH EXISTING HOLES IN PIPE FLANGES. ALL INCIDENTAL HARDWARE WHICH REQUIRES REPLACEMENT AS DEEMED NECESSARY BY THE ENGINEER SHALL BE INCIDENTAL TO ITEM 601519.
4. REPLACE AND REPAIR MISSING MASONRY AND MORTAR IN ALL PIERS AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH ITEM 610502 OF THE SPECIAL PROVISIONS.
5. ALL REPLACEMENT TIMBER IN THE FENDER SYSTEM SHALL RECEIVE A WATERBORNE PRESERVATION TREATMENT IN ACCORDANCE WITH SECTION 601 OF THE STANDARD SPECIFICATIONS.
6. REMOVAL OF EXISTING FENDER SYSTEM SHALL BE INCIDENTAL TO ITEM 601519.
7. CLEAN AND PAINT ALL FENDER PLATES IN ACCORDANCE WITH ITEMS 605533 & 605522 TO THE SATISFACTION OF THE ENGINEER. REMOVAL AND REMOUNTING OF PLATES SHALL BE INCIDENTAL TO ITEM 601519.
8. FOR ADDITIONAL INFORMATION ON THE ORIGINAL CONSTRUCTION OF THE FENDER SYSTEM, REFER TO THE ORIGINAL DRAWINGS, DATED 1931, WHICH CAN BE OBTAINED FROM THE DEPARTMENT.



SECTION E–E

Scale: 3/8" = 1'–0"



SECTION F–F

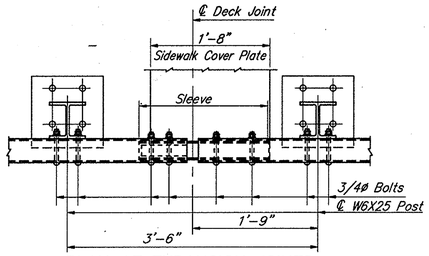
Scale: 3/8" = 1'–0"

REVISIONS

PREL. TRACING K. R. Cronlund DESIGN J. A. Prybella CHKD. J. A. Vogel

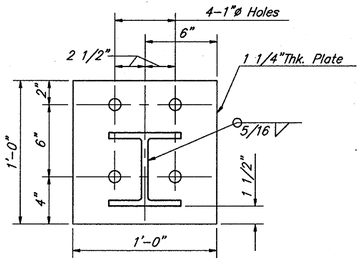
BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	18	24

MISCELLANEOUS DETAILS



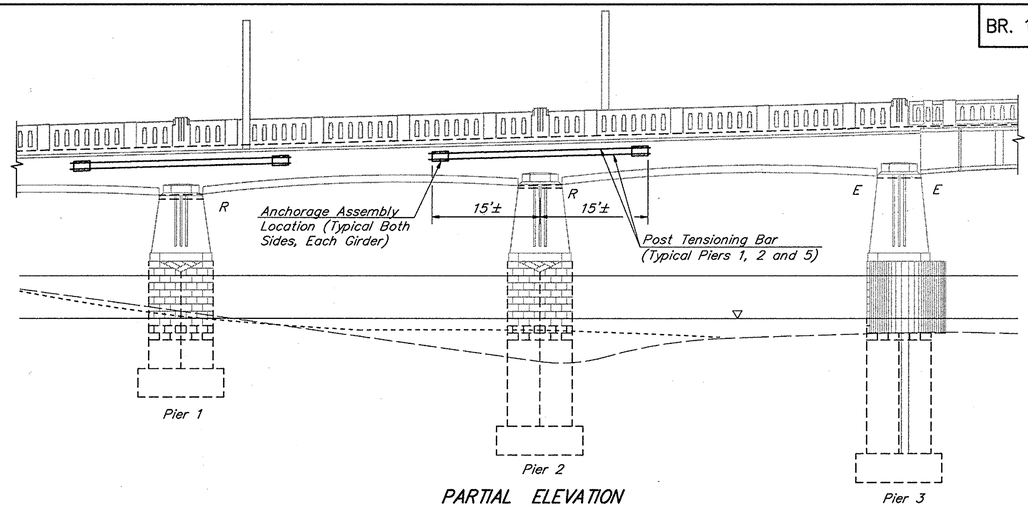
PLAN AT EXPANSION JOINTS

Scale: 1"=1'-0"



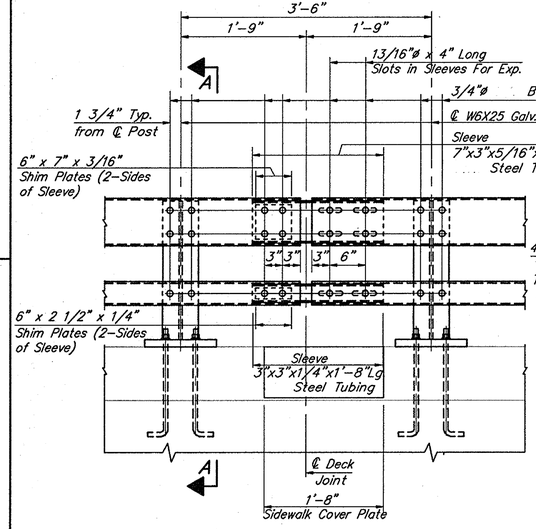
BASE PLATE

Scale: 2"=1'-0"



PARTIAL ELEVATION

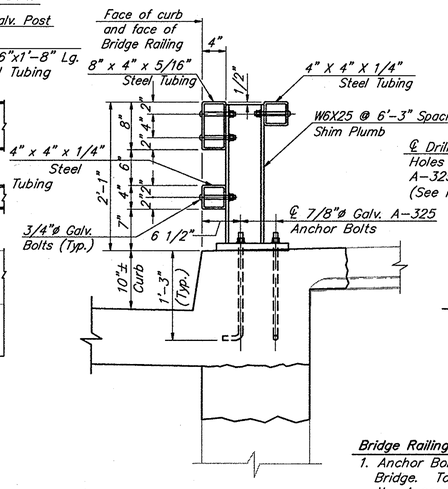
Scale: 1" = 10'



DETAIL "B"

EXPANSION PROVISIONS IN BRIDGE RAILINGS

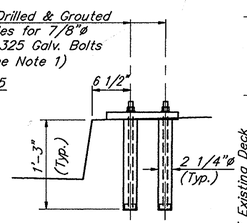
Scale: 1"=1'-0"



SECTION A-A

BRIDGE CURB

Scale: 1"=1'-0"



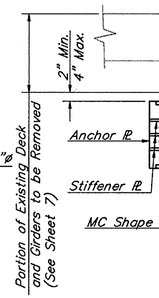
DETAIL "A"

APPROACH CURB

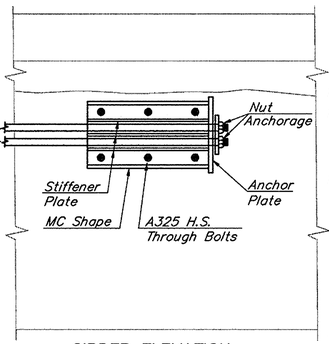
Scale: 1"=1'-0"

Bridge Railing Notes:

1. Anchor Bolts Shall be Cast in the New Curb on the Bridge. To Facilitate Installation of the Railing on the Approaches, Drill and Grout Holes as Shown in Detail "A". Drilling and Grouting to be Paid under Item 602579.
2. All Components of the Bridge/Approach Railing Shall be Painted.
3. Post Spacing Shall not Exceed 6'-3".
4. All Materials, Labor and Equipment Necessary for the Installation of the Bridge Railing Shall be Paid Under Item 606501.



TYPICAL GIRDER SECTION



GIRDER ELEVATION

NOTE: All Details and Dimensions Shown are for Conceptual Purposes. Contractor Must Provide Design, Details and Specifications for the Shoring Scheme Based on Actual Structure Loadings and Existing Conditions. The Temporary Shoring Shall be Designed by a Professional Engineer Registered in the State of Delaware, Shall Conform to AASHTO Specifications and Shall be Approved for Usage by the Department Before Implementation. All Materials, Labor and Equipment Necessary to Provide the Temporary Shoring of the Structure Including the Removal of the Shoring and Subsequent Repairs to the Existing Members is Included Under Item 605606.

TEMPORARY SHORING DETAILS

N. T. S.

SUGGESTED CONSTRUCTION SEQUENCE

1.) Install Anchorage Assemblies at the Locations Shown on Both Sides of Each Beam.

2.) Provide Core Holes Thru Diaphragms at Piers and Install Post Tension Bars.

3.) Tension All Bars to the Predetermined Force as Indicated by the Design.

4.) Place Temporary Support Blocks Under the Diaphragms at Piers 1, 2, 3 & 5 and at the East Side of the Bascule Pier in the Locations Below Girders A, B and D on Each Side of the Bridge. Shim as Required for Tight Fit.

5.) Remove the Existing Slab and the Top Portion of the Girders as Specified for Stage 1. (Refer to Sheets 7, 12, 13, and 14 for Limits of Removal).

6.) After Placement of the Reinforcing Steel, Cast New Concrete in the Top of Girders as Described in Steps 1 and 2 of the Placement Sequence on Sheet 16.

7.) Upon Achieving the 28 Day Strength of the Newly Placed Concrete, Re-establish Girder Continuity by Relaxing the Post-Tensioning Bars on All Girders within the Stage 1 Zone. (This Includes the North Fascia Girder during Stage 1 Construction and the South Fascia Girder during Stage 3 Construction.)

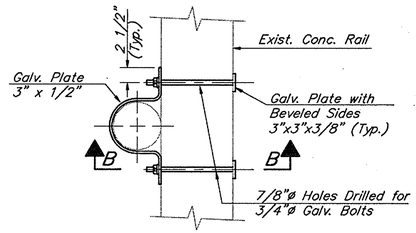
8.) Cast the Reinforced Concrete Deck as Described in Steps 3 and 4 on Sheet 16.

9.) Repeat Items 5 thru 8 for Stage 2 Construction.

10.) Repeat Items 5 thru 8 for Stage 3 Construction.

11.) After the New Deck and Curbs have been Placed in All 3 Stages of Construction, Remove All Post-Tensioning Bars, Anchorage Assemblies and the Temporary Support Blocks.

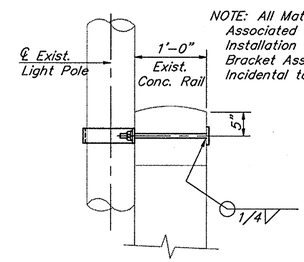
12.) Repair the Core Holes in the Girders and Diaphragms. Fill Holes with an Epoxy Grout, Specified Under Item 602572, and Finish All Surfaces to Match Existing Concrete.



PLAN VIEW

Scale: 1"=1'-0"

NOTE: All Materials and Labor Associated with the Installation of the Mounting Bracket Assembly is Incidental to Item 605001.



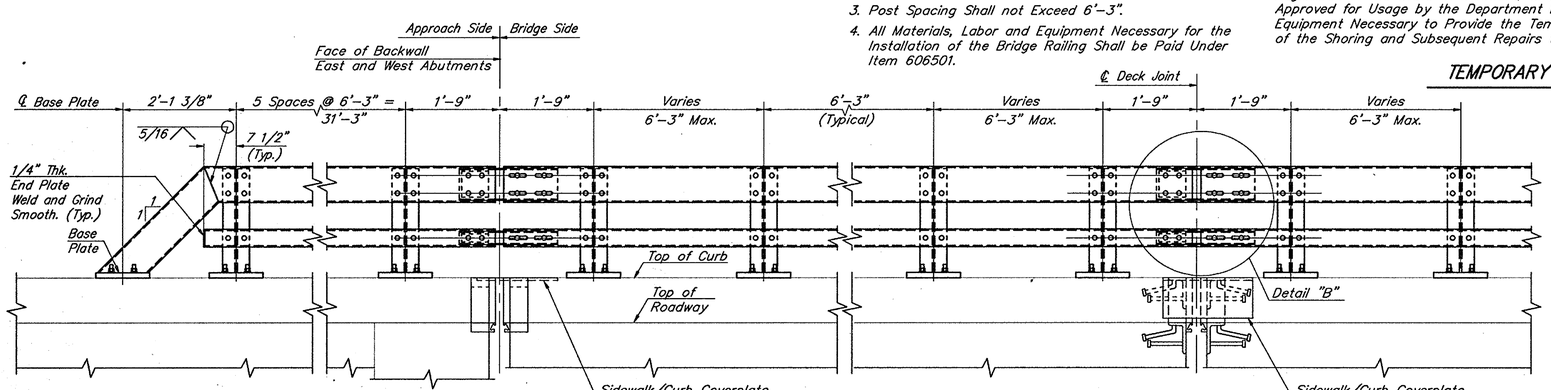
SECTION B-B

Scale: 1"=1'-0"

LIGHT POLE

MOUNTING BRACKET ASSEMBLY

(5 REQUIRED)



AT APPROACHES

AT ABUTMENTS

AT PIER 3 AND BOTH FACES OF BASCULE PIER

Note:
See Sheet 4 for Length and Location of New Bridge Railing

TYPICAL ELEVATION

BRIDGE RAILING

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

REVISIONS

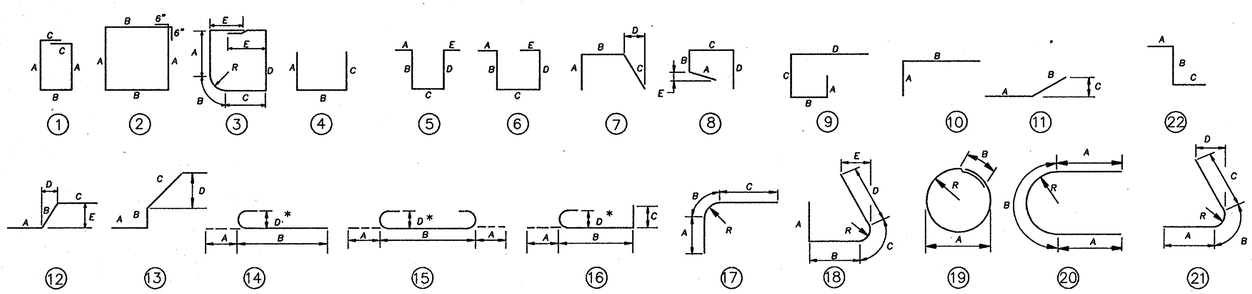
PREL. TRACING S. M. McCreesh DESIGN J. A. Pribella CHKD. J. A. Pribella

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No.	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	19	24

CONCRETE GIRDER REINFORCEMENT SCHEDULE

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
GIRDER REINFORCEMENT											
E B301	3	1804	4 '-6	4	2 '-0	0 '-6	2 '-0				
E B302	3	3271	3 '-6	4	1 '-6	0 '-6	1 '-6				
E B303	3	1606	5 '-0	4	2 '-3	0 '-6	2 '-3				
E B801	8	16	28 '-4	Str.							
E B802	8	12	24 '-10	Str.							
E B803	8	56	54 '-1	Str.							
E B804	8	16	26 '-2	Str.							
E B805	8	12	29 '-8	Str.							
E B901	9	6	28 '-11	Str.							
E B902	9	6	25 '-5	Str.							
E B903	9	48	55 '-3	Str.							
E B904	9	6	26 '-9	Str.							
E B905	9	6	30 '-3	Str.							
E B906	9	28	30 '-0	Str.							
E B907	9	28	25 '-6	Str.							
E B908	9	28	54 '-0	Str.							
E B909	9	28	49 '-6	Str.							
E B1001	10	12	30 '-7	Str.							
E B1002	10	12	26 '-1	Str.							
E B1003	10	12	55 '-4	Str.							
E B1004	10	12	49 '-8	Str.							
DIAPHRAGM REINFORCEMENT											
E D901	9	93	17 '-1	Str.		Include Mechanical Splicers on Threaded End					Thread 1 End
E D902	9	93	14 '-0	Str.		Include Mechanical Splicers on 1 Threaded End					Thread Each End
E D903	9	93	17 '-5	Str.							Thread 1 End

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
PIER PAD AND PEDESTAL REINFORCEMENT											
E P401	4	29	5 '-6	Str.							
E P402	4	58	5 '-1	Str.							
E P403	4	58	5 '-4	Str.							
E P404	4	58	2 '-4	Str.							
E P405	4	56	5 '-2	Str.							
E P406	4	112	5 '-8	Str.							
E P408	4	266	1 '-6	10	0 '-3	1 '-3					
E P409	4	7	5 '-10	Str.							
E P410	4	14	5 '-6	Str.							
E P411	4	14	5 '-11	Str.							
E P412	4	14	2 '-8	Str.							
E P413	4	60	3 '-8	Str.							
E P414	4	38	1 '-8	Str.							
E P415	4	16	4 '-1	Str.							
E P416	4	38	2 '-0	10	0 '-8	1 '-4					
E P417	4	38	3 '-1	Str.							
E P418	4	32	3 '-1	Str.							
E P419	4	36	2 '-8	14	0 '-8	2 '-0					



- FIGURES IN CIRCLES SHOW TYPES.
- "*" DIMENSION ON 180 HOOKS ARE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- 'E' PREFIX INDICATES EPOXY COATED REINFORCEMENT BARS.
- Fy = 60 KSI
- LENGTH OF THREADED BAR ENDS SHALL BE PER REQUIREMENTS OF MECHANICAL SPLICER MANUFACTURERS.

REVISIONS

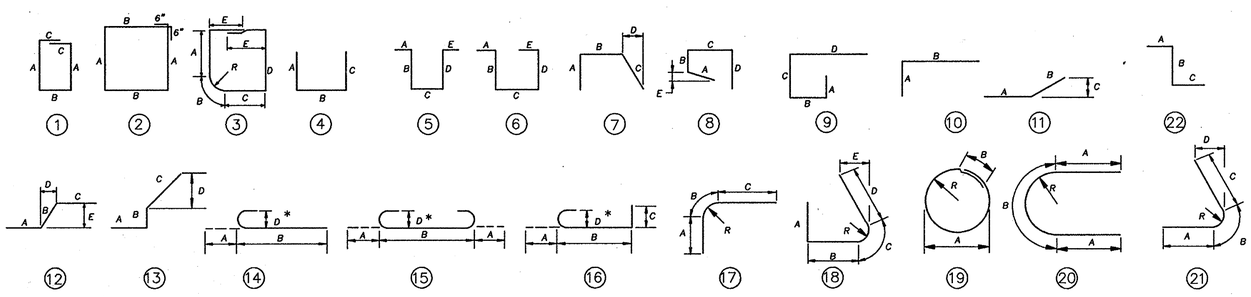
PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. W. M. Ahola

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	20	24

DECK REINFORCEMENT SCHEDULE

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	R	REMARKS
		DECK REINFORCEMENT									
E S401	4	130	6 '-6	Str.							
E S501	5	437	16 '-1	Str.			Include Mechanical Splicers on Threaded End				Thread 1 End 2"
E S502	5	462	37 '-6	Str.							
E S503	5	462	30 '-0	Str.							
E S504	5	154	25 '-0	Str.							
E S505	5	470	16 '-11	14	0 '-10	16 '-1	Include Mechanical Splicers on Threaded End				Thread 1 End 2"
E S506	5	940	13 '-10	Str.			Include Mechanical Splicers on Threaded End				Thread 1 End 2"
E S507	5	1847	2 '-6	Str.							Thread 1 End 2"
E S508	5	437	16 '-5	Str.							
E S509	5	470	17 '-3	14	0 '-10	16 '-5					
E S510	5	940	5 '-1	12	2 '-6	0 '-11	1 '-8	0 '-2	1 '-2		
E S511	5	60	5 '-8	Str.							
E S512	5	60	3 '-0	Str.							
E S513	5	108	46 '-2	Str.							
E S514	5	154	38 '-3	Str.							
E S515	5	130	26 '-6	Str.							
E S516	5	33	3 '-1	Str.							Thread 1 End 2"
E S517	5	66	12 '-1	Str.							
E S518			Not Used								
E S519	5	33	2 '-8	Str.			Include Mechanical Splicers on Threaded End				Thread 1 End 2"
E S601	6	380	14 '-0	4	0 '-5	13 '-2	0 '-5				

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	R	REMARKS



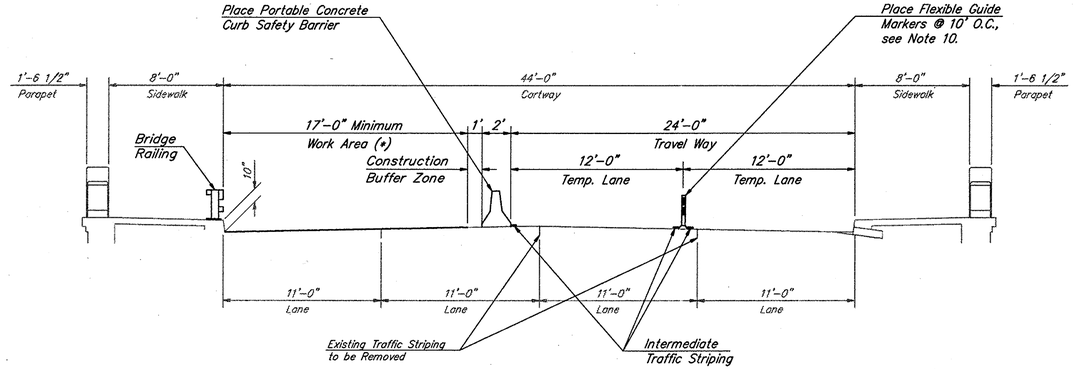
- FIGURES IN CIRCLES SHOW TYPES.
- "*" DIMENSION ON 180 HOOKS ARE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- 'E' PREFIX INDICATES EPOXY COATED REINFORCEMENT BARS.
- Fy = 60 KSI

REVISIONS

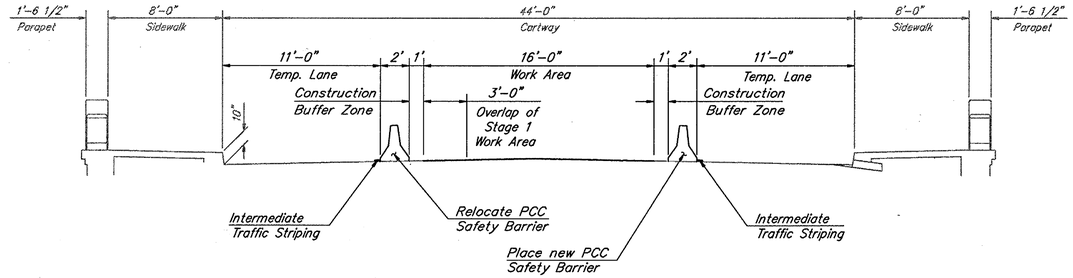
PREL. TRACING J.P. Bartholomay DESIGN J. A. Prybella CHKD. J. A. Prybella

BR. 1–577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90–074–01	NEW CASTLE	BHM–1137(5)	21	24

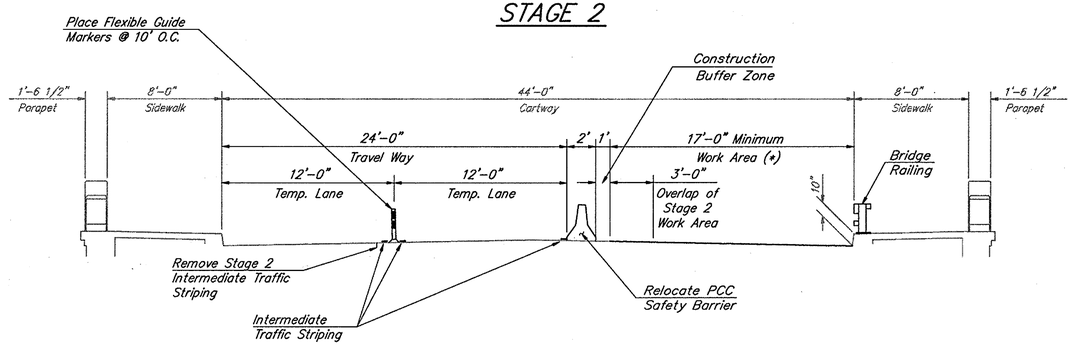
TRAFFIC STAGING



STAGE 1



STAGE 2



STAGE 3

NOTES:

1. *All Sections are looking station ahead.*
2. *For the required Placement Sequence of the Deck Girders and Slabs, see Sheet 16.*
3. *For the Suggested Construction Sequence, see Sheet 18.*
4. *For Maintenance and Protection of Traffic see the Traffic Control Plan and Traffic Control Details.*
5. *(*) Limits of Work Area to include portions of the sidewalk as required to install the Deck Joint Systems and Metal Bridge Railing.*
6. *Extreme caution must be used for work adjacent to an open lane. All responsibility for construction operations in these areas devolves on the Contractor.*
7. *The Contractor is to avoid occupying the Construction Buffer Zone with his equipment and personnel.*
8. *Pay Item 720504 – PORTABLE PCC SAFETY BARRIER includes supplying, placing, maintaining, and removing the Precast Concrete Curb Safety Barrier.*
9. *Pay Item 720506 – RELOCATE PORTABLE PCC SAFETY BARRIER includes moving, maintaining, and removing the previously placed PCC Safety Barrier to a new location within the construction site.*
10. *Pay Item 720540 – DELINEATORS includes supplying, placing, relocating, and removal of the Flexible Guide Markers.*
11. *Removal of Intermediate and Existing Traffic Striping shall be paid for under Pay Item 748501.*
12. *Existing and Intermediate Traffic Striping will be destroyed by the proposed construction on the bridge. The Contractor is directed to remove the remaining portions of this striping on the approaches where it is in conflict with other Traffic Striping.*
13. *Pay Item 748023 – INTERMEDIATE MARKINGS, PAINT, 4" includes supplying, placing, and maintaining the Intermediate Traffic Striping during the various Construction Stages as shown on the plans.*

REVISIONS

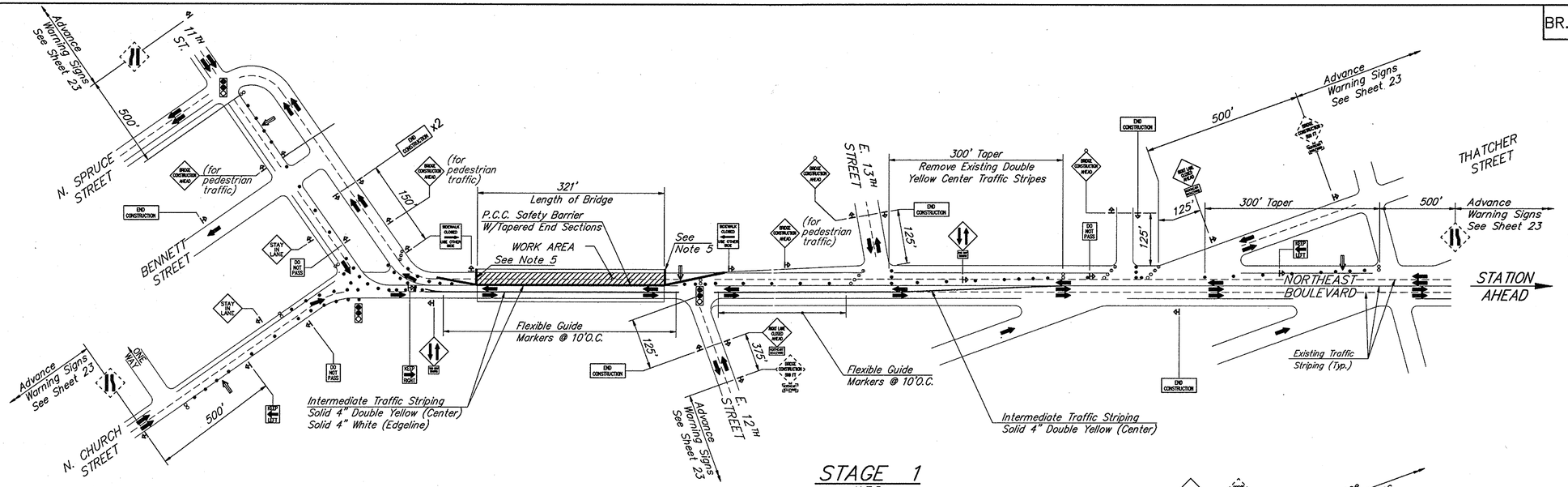
PREL. TRACING R.J. Ashley DESIGN J.A. Pribella CHKD. D.A. Nolan

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	22	24

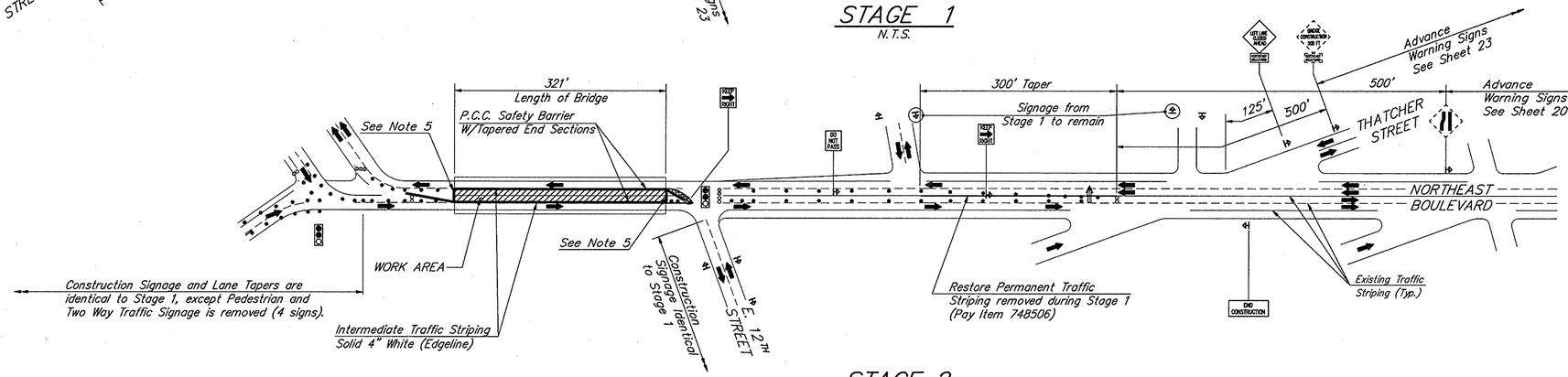
TRAFFIC CONTROL PLAN

REVISIONS

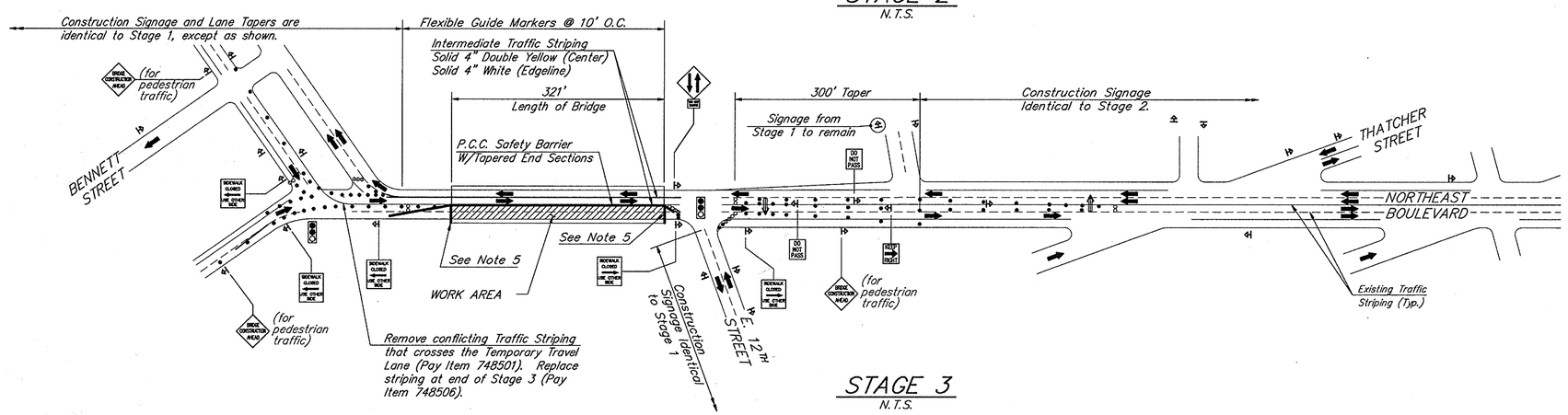
PREL. TRACING D.A.Nolan DESIGN D.A.Nolan CHKD. J.A.Prybella



STAGE 1
N.T.S.



STAGE 2
N.T.S.



STAGE 3
N.T.S.

LEGEND

- Arrow Panel
- Traffic Flow
- Sign (Bottom of Sign 5' minimum above Road)
- Type "A" amber flashing light
- Type "B" amber high intensity light
- Type "B" red high intensity light
- Type "C" amber steady burning light

(Mounted on Plastic Drum (Section C-12 of the Traffic Control Manual))

- Portable PCC Safety Barrier
- Work Area

NOTES:

1. Work this sheet with Sheets 21 and 23.
2. For the required Placement Sequence of the Deck Girders and Slabs, see Sheet 16.
3. For the Suggested Construction Sequence, see Sheet 18.
4. Extreme caution must be used for work adjacent to an open lane. All responsibility for construction operations in these areas devolves on the Contractor.
5. Pay Item 720504 – PORTABLE PCC SAFETY BARRIER includes supplying, placing, maintaining, and removing the Precast Concrete Curb Safety Barrier. Openings to the Work Area must be sealed to prevent all vehicular and pedestrian access during non-working hours.
6. Type "C" lights or Reflective Panels shall be supplied on P.C.C. Safety Barrier at 50' intervals, six minimum, and are considered incidental to Pay Item 720504.
7. Pay Item 720506 – RELOCATE PORTABLE PCC SAFETY BARRIER includes moving, maintaining, and removing the previously placed PCC Safety Barrier at a new locataion within the construction site.
8. Pay Item 720540 – DELINEATORS includes supplying, placing, relocating, and removal of the Flexible Guide Markers.
9. Pay Item 72052**7** – PLASTIC DRUMS includes supplying, placing, relocating, and maintaining the Plastic Drums supporting the various Warning Lights as indicated on the plans.
10. Pay Item 743003 – ARROW PANELS, TYPE C includes supplying, placing, relocating, and maintaining the Arrow Panels at the locations indicated on the plans.
11. Pay Item 743504 – WARNING SIGNS, STATIONARY includes supplying the sign and support system and maintaining, relocating, and removing the signs and supports as indicated on the plans. The Sign support systems shall be approved by the Engineer prior to construction.
12. The Contractor shall cover with a suitable material or remove all existing or temporary traffic signs which are in conflict with the current Construction Site conditions. This will be considered incidental to the Pay Item 743504.
13. Pay Items 7435**00**, 7435**01**, and 7435**02** – BARRICADE WARNING LIGHTS, TYPES A, B & C includes supplying, installing, relocating, maintaining, and removing the Plastic Drum mounted Type "A", "B", and "C" Lights indicated on the plans.
14. Pay Item 748023 – INTERMEDIATE MARKINGS, PAINT, 4" includes supplying, placing, and maintaining the Intermediate Traffic Striping during the various Construction Stages as shown on the plans.
15. Removal of Intermediate and Existing Traffic Striping shall be paid for under Pay Item 748501.
16. Conflicting Existing or Intermediate Traffic Striping must be completely removed by approved methods prior to the placement of new traffic striping pattern. These measures are considered incidental to Pay Item 748501.
17. All Traffic Control materials and procedures shall be in accordance with the State of Delaware, Department of Transportation, "Traffic Controls for Streets and Highway Construction, Maintenance, Utility and Emergency Operations", June 1992 as ammended, hereafter referred to as the Traffic Control Manual.
18. One sidewalk on the bridge must remain operational at all times during construction.

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	23	24

TRAFFIC CONTROL DETAILS

STANDARD CONSTRUCTION SIGNS

SIGN DESIGN	①② SIGN TYPE	① SIGN SIZE	NO. OF SIGNS NEEDED DURING EACH STAGE OF CONSTRUCTION 1	2	3	① SIGN DESIGN DETAILS
④ BRIDGE CONSTRUCTION ③	W20-1 (Similar)	48"x48"	③ 2-b 2-c 12-d	③ 2-b 2-c 9-d	③ 2-b 2-c 12-d	PAGE 23
④ ③ LANE CLOSED ③	W20-5	48"x48"	③ 2-g,b 3-h,b 2-h,d	③ 3-g,b 1-g,d 2-h,b 1-h,d	③ 3-g,b 1-g,d 2-h,b 1-h,d	PAGE 27
TWO WAY TRAFFIC	W6-3	48"x48" and 24"x18"	2 2	– –	2 2	PAGE 29
DO NOT PASS	R4-1	36"x48"	3	3	4	PAGE 16
KEEP RIGHT	R4-7a	36"x48"	2	3	4	PAGE 17
KEEP LEFT	R4-8a	36"x48"	2	1	1	PAGE 18
END CONSTRUCTION	G20-2	60"x24"	7	7	7	PAGE 45

SPECIAL CONSTRUCTION SIGNS

SIGN DESIGN	②⑤ SIGN TYPE	⑤ SIGN SIZE	NO. OF SIGNS NEEDED DURING EACH STAGE OF CONSTRUCTION 1	2	3	⑤ SIGN DESIGN DETAILS
	W4-2	48"x48"	2	3	3	PAGE 2-20
	W4-2	48"x48"	3	2	2	PAGE 2-20
5/8"Border Line; SIDEWALK CLOSED / USE OTHER SIDE; 3C 2¼" 3C 1½" 3C 2¼" 3C; 7½"; Black on White	–	24"x30"	1	–	3	–
5/8"Border Line; SIDEWALK CLOSED / USE OTHER SIDE; 3C 2¼" 3C 1½" 3C 2¼" 3C; 7½"; Black on White	–	24"x30"	2	–	2	–
1¼"Border Line; STAY IN LANE; 4" 8D 3" 8D 3" 8D	–	48"x48"	2	2	2	–
5/8"Border Line; NORTHEAST BOULEVARD; 6B 4½" 6B 3" 6B 4½"	–	36"x24"	8	8	8	–

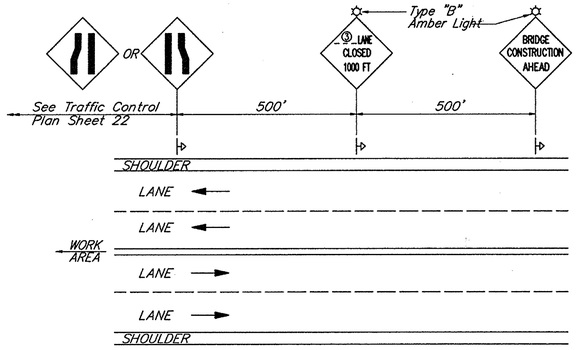
TRAFFIC CONTROL DEVICES

DESCRIPTION	ITEM	UNIT	ESTIMATE OF QUANTITIES STAGE 1	STAGE 2	STAGE 3	PROJECT TOTALS
Portable PCC Safety Barrier	720504	L.F.	440	370	–	790
Reloc. Port. PCC Safety Barrier	720506	L.F.	–	440	440	880
Delineators	720540	Each	60	–	40	60
Plastic Drums	720527	EA-DY	6600	5760	6720	19080
Arrow Panel, Type C	743003	EA-DY	244	183	244	671
Warning Signs, Stationary	743504	Each	59	49	63	67 (*)
Bar. Warning Lights, Type A	743500	EA-DY	180	300	180	660
Bar. Warning Lights, Type B	743501	EA-DY	2580	2040	2280	6900
Bar. Warning Lights, Type C	743502	EA-DY	4860	4380	5220	14460
Intermediate Markings, Paint, 4"	748023	L.F.	2300	700	1100	4100
Removal of Pavement Striping	748501	L.F.	400	1500	1600	3500

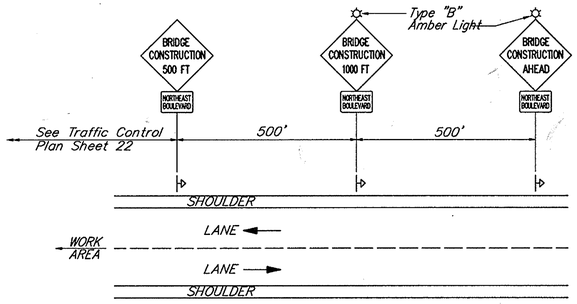
(*) Quantity reflects the total number of different signs from the Tables above.

NOTES FOR CONSTRUCTION SIGNS:

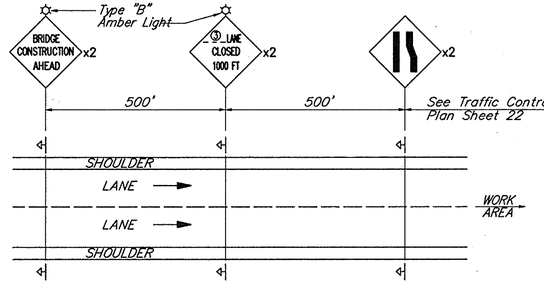
(1) *Reference is made to the Publication "Traffic Controls for Streets and Highway Construction, Maintenance, Utility and Emergency Operations" by the Delaware Department of Transportation, revised June 1992.*
(2) *All Signs will have a Reflective Quality Background and be fabricated from the material specified in Section A-7 of the Traffic Control Manual, and shall have a Black Legend on Orange Background unless indicated otherwise.*
(3) *Insert:* a. 1500 FT d. AHEAD g. LEFT; b. 1000 FT e. ½ MILE h. RIGHT; c. 500 FT f. 1 MILE
(4) *One Type "B" Amber Light Must be Mounted on the first two Advance Warning Signs.*
(5) *Reference is made to the Publication "Standard Highway Signs as Specified in the Manual on Uniform Traffic Control Devices" 1979 Revision 2, by the U.S. Department of Transportation, Federal Highway Administration.*



NORTHEAST BOULEVARD
(FOUR LANES - TWO WAY)



THATCHER STREET AND E. 12TH STREET
(TWO LANES - TWO WAY)



CHURCH STREET AND 11TH STREET
(TWO LANES - ONE WAY)

ADVANCE WARNING SIGNS
N.T.S.

GENERAL NOTES:

1. *Work this sheet with Sheets 21 and 22.*
2. *For the required Placement Sequence of the Deck Girders and Slabs, see Sheet 16.*
3. *For the Suggested Construction Sequence, see Sheet 18.*
4. *Prior to beginning construction, Traffic Control Devices shall be placed where shown on the Plans or as directed by the Engineer.*
5. *When Construction Signs conflict with existing Traffic Signs, the existing Signs shall be covered. When Construction Signs are no longer required, they shall be removed. If they are temporarily not required, such as overnight, they shall be temporarily removed or covered. Signs covered from view of the travelling public shall be completely covered with opaque material securely fastened so that it does not blow in the wind. Burlap shall not be used. This work shall be considered incidental to the Pay Item 743504 - WARNING SIGNS, STATIONARY.*
6. *All Signs shall be erected in a manner to be approved by the Engineer, and shall be maintained so as to provide maximum visibility and legibility at all times. This work shall be paid for under Pay Item 743504 - WARNING SIGNS.*

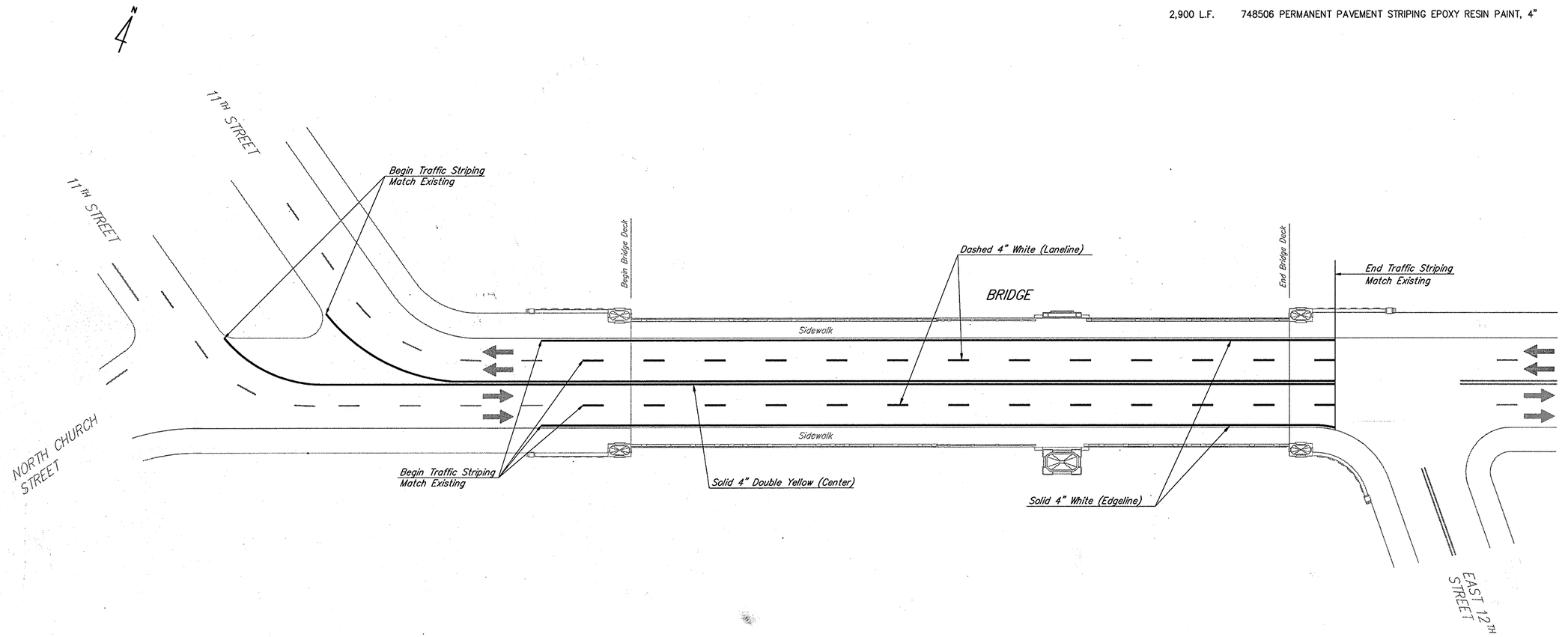
REVISIONS

PREL. TRACING R.J. Ashley DESIGN D.A. Nolan CHKD. D.A. Nolan

BR. 1-577	CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
	90-074-01	NEW CASTLE	BHM-1137(5)	24	24

TRAFFIC STRIPING PLAN

2,900 L.F. 748506 PERMANENT PAVEMENT STRIPING EPOXY RESIN PAINT, 4"

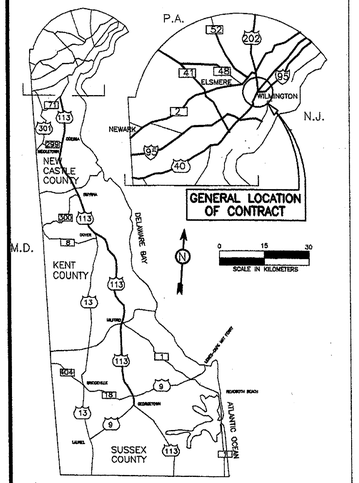


NOTES:

1. Replace 600 L.F. of Solid 4" Double Yellow (Center) Permanent Traffic Striping in the Temporary Lane Taper established in Stage 1. See Sheet 22 for approximate location.
2. Pay Item 748506 – PERMANENT PAVEMENT STRIPING EPOXY RESIN PAINT 4 INCH includes supplying and placing the final Traffic Striping as indicated on the plans.

REVISIONS

PREL. TRACING R.J. ASHLEY DESIGN D.A. NOLAN CHKD. D.A. NOLAN



GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS AND CONSTRUCTION PLANS FOR:

11TH STREET ENHANCEMENT - WILMINGTON, DE

WALNUT STREET TO NORTHEAST BLVD.

CONTRACT NUMBER 99-011-02 **READVERTISED**

FEDERAL AID PROJECT NUMBER ESTP-N999(71)

	FROM KILOMETER POST		TO KILOMETER POST	
ROADWAY LENGTH	888	METERS =	0.888	KILOMETERS
TOTAL LENGTH	888	METERS =	0.888	KILOMETERS

BEGINNING OF CONTRACT
99-011-02
STATION 0+130

END OF CONTRACT
99-011-02
10+278

METRIC

CONTRACT	COUNTY	M.R. NO.	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
99-011-02	NEW CASTLE			ESTP-N999(71)	1	58

11TH STREET ENHANCEMENT

FROM WALNUT STREET TO NORTHEAST BLVD.

INDEX OF SHEETS

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3	TYPICAL SECTIONS – ROADWAY
4–7	EXISTING CONDITIONS & PROJECT NOTES
8–11	CONSTRUCTION PLANS
12–14	GRADING & DRAINAGE PLANS
15–18	PAVEMENT MARKING PLANS
19–21	SIGNING PLAN
22	EROSION AND SEDIMENT CONTROL PLAN
23–24	DETAILS – CIVIL
25–27	LANDSCAPE PLAN
28–31	LANDSCAPE PLAN DETAILS
32–35	DETAILS – SITE
36–38	LIGHTING PLAN
39	LIGHTING PLAN – BRIDGE LIGHTING DETAILS
40	LIGHTING SCHEDULES, LEGEND, NOTES
41–42	LIGHTING DETAILS
43–45	POLE ARRANGEMENT
46–54	MPOT PLANS
54A–54D	SIGNALIZATION PLANS
55–58	QUANTITIES

PREPARED BY:

URBAN DESIGN

Eric J. Sturm, ASLA / Synterra Ltd.

a JOINT VENTURE

4007 NORTH MARKET STREET
WILMINGTON, DE 19802
(302) 764-0802 FAX (302) 764-0960

ERIC JOHN STURM No. 156-E STATE OF DELAWARE REGISTERED LANDSCAPE ARCHITECT

SEAL

DATE: 2-8-99

CIVIL/TRAFFIC/TRANSPORTATION ENGINEERING

Frederic R. Harris, Inc.

260 S. BROAD STREET
PHILADELPHIA, PA 19102

RICHARD P. MARKWITH, JR. REGISTERED No. 10890 DELAWARE PROFESSIONAL ENGINEER

SEAL

DATE: 2-9-99

ELECTRICAL ENGINEERING

Endecon, Inc.

117 North Market Street
Wilmington, DE 19801

LAND SURVEYING

Karins & Associates, Inc.

17 POLLY DRUMMOND CENTER
SUITE 201
NEWARK, DE 19711

DEPARTMENT OF TRANSPORTATION

RECOMMENDED	RECOMMENDED	RECOMMENDED	RECOMMENDED	RECOMMENDED	RECOMMENDED
PROJECT ENGINEER	STORM WATER ENGINEER	BRIDGE ENGINEER	QUALITY MANAGEMENT ENGINEER	DESIGN ENGINEER	CHIEF ENGINEER
RECOMMENDED 19	RECOMMENDED March 1 1999	RECOMMENDED 19	RECOMMENDED 19	RECOMMENDED 19	RECOMMENDED MARCH 3 1999
SEAL	SALVADOR F. PALALAY REGISTERED No. 11101 DELAWARE PROFESSIONAL ENGINEER SEAL	SEAL	SEAL	SEAL	RAYMOND M. HARBESON, JR. REGISTERED NO. 4672 DELAWARE PROFESSIONAL ENGINEER SEAL

EXISTING PHYSICAL & UTILITY LEGEND

- LIGHT ARM — TRAFFIC LIGHT ARM
- STREET SIGN
- ROOF DOWN DRAIN
- METAL TRAFFIC POLE
- STOOP/STEPS
- INLET
- FIRE HYDRANT
- WOOD UTILITY POLE
- UTILITY POLE
- WATER VALVE BOX
- WATER VALVE
- GAS VALVE BOX
- SIDEWALK GRATE
- DECIDUOUS TREE
- DECIDUOUS STREET TREE
- GATEWAY SIGN
- OH — OVERHEAD UTILITY LINE CONECTIV POWER DELIVERY
- W — WATER LINE / CITY OF WILMINGTON
- G — GAS LINE / CONECTIV POWER DELIVERY
- S — STORM/SANITARY SEWER CITY OF WILMINGTON
- UCC — UNDERGROUND COMMUNICATIONS CABLE – BELL ATLANTIC, DE
- FIBER — UNDERGROUND COMMUNICATIONS CABLE – AT &T
- AC — AERIAL COMMUNICATIONS CABLE – BELL ATLANTIC, DE
- UTILITY MANHOLE
- TRAFFIC LINE
- ROW — RIGHT OF WAY LINE
- DEPRESSED CURB LENGTH
- GRANITE / CONCRETE CURB
- 5.2 — EX. CONTOUR
- CITY OF WILMINGTON STREET MONUMENT

CONSTRUCTION PHASING

- ST — SEDIMENT TRAP IDENTIFIER
- TRAFFIC CONTROL PLASTIC DRUMS
- ROAD CONSTRUCTION 1500 FT — CONSTRUCTION WARNING SIGNS
- 5 — EXISTING CONTOURS
- SF — SILT FENCE
- SF — SILT FENCE IDENTIFIER
- PORTABLE CONCRETE SAFETY BARRIER
- STABILIZED CONSTRUCTION ENTRANCE

PROPOSED LEGEND

URBAN/STREETSCAPE

- 1/15 — DETAIL NUMBER REFERENCE; SHEET NUMBER REFERENCE
- DECIDUOUS STREET TREE @ 1/34, 2/34, 3/34, 5/35; PAVER GRATE W/ UNIT PAVER TYPES 'C' AND 'D'
- UNIT PAVER TYPE "A" PAVING 1/8; BRICK SIDEWALK ON 100mm PCC 1/9; SEE PLANS FOR LOCATIONS
- 100mm P.C.C CONCRETE SIDEWALK PAVING 1/8
- UNIT PAVER TYPE "E" PAVING; BRICK SIDEWALK ON 150 mm PCC 1/8
- 150 mm P.C.C HEAVY SIDEWALK PAVING
- IN-STREET COBBLESTONE AND BRICK UNIT PAVERS 1/9; UNIT PAVER TYPES 'F' & 'G' 4/35; OVER 150 mm P.C.C.
- UNIT PAVER TYPE "B" PAVING 2/35, 3/35
- POROUS FLEXIBLE PAVEMENT
- P.C.C ACCESSIBLE CURB RAMP 2/8, 2/9
- HEAVY LANDSCAPE BOULDER 6/33
- B — METAL ORNAMENTAL BOLLARD 5/33
- METAL WICKET FENCE 4/28
- METAL ORNAMENTAL FENCE 4/33
- METAL ORNAMENTAL GATE 6/35
- PROPOSED ORNAMENTAL TREE
- PROPOSED SHRUBS
- GATEWAY SIGN AND BASE NOT IN CONTRACT

ELECTRICAL

- SURFACE MOUNTED CONDUIT
- UNDER GROUND CONDUIT
- 15A–125V DUPLEX RECEPTICALE
- SINGLE HEAD LUMINAIRE / LIGHT POLE
- TWIN HEAD LUMINAIRE / LIGHT POLE
- UL — UP – LIGHT FIXTURE
- PC — PHOTOCELL CONTROL
- LIGHTING FIXTURE 'C' TYPE
- BC — BRANCH LIGHTING CIRCUIT
- LS — LIGHT STANDARD IDENTIFIER

CONSTRUCTION

- HOT MIX PAVING
- CATCH BASIN
- CB — CATCH BASIN IDENTIFIER
- DRAINAGE PIPE & FLOW ARROW
- P — PIPE IDENTIFIER
- JUNCTION BOX
- JB — JUNCTION BOX IDENTIFIER
- C/JB — CONVERT TO JB IDENTIFIER
- GRANITE CURB

MISCELLANEOUS SYMBOLS

- — —LOC— — LIMIT OF CONSTRUCTION
- 0+100 — CONSTRUCTION BASELINE

SIGNING, STRIPING AND CONDUITS

- PAVE — CONDUITS UNDER PAVEMENT
- SOD — CONDUITS IN TRENCH
- CONDUIT JUNCTION WELL
- PAVEMENT MARKINGS
- LANE STRIPING
- STOP BAR / PEDESTRIAN CROSSING PAVEMENT MARKINGS
- NO TURN ON RED — TRAFFIC SIGN AND POST

MAINTENANCE AND PROTECTION OF TRAFFIC

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or — Temporary Barrier (TB)
- • or ▮ — Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT — Construction Warning Signs

GENERAL NOTES AND LEGEND

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	2	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	

GENERAL NOTES

1. THIS CONTRACT IS TO BE CONSTRUCTED IN ACCORDANCE WITH DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED JANUARY 1998 – METRICATED JUNE 1995, AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 1997/1998.
   REFERENCE IN THE STANDARD SPECIFICATIONS TO "STANDARD DRAWINGS" OR "STANDARD SHEETS" SHALL BE IGNORED. FOR DETAILS OF GUARDRAIL, BRIDGE RAIL, CONCRETE SAFETY BARRIER, CURBS, ENTRANCES, EROSION CONTROL MEASURES, P.C.C. PAVEMENT, TRAFFIC SIGNAL FACILITIES, AND RELATED ITEMS THE CONTRACTOR IS REFERRED TO THE "STANDARD CONSTRUCTION DETAILS", DATED 1998, IF DETAILS ARE NOT INCLUDED IN THE PLANS.
2. MAINTENANCE OF TRAFFIC – ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL INSURE THE LEAST PRACTICABLE OBSTRUCTION TO TRAFFIC CONSISTENT WITH SAFETY AND SHALL COMPLY WITH THE DEPARTMENT MANUAL ENTITLED "TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND EMERGENCY OPERATIONS". THE MOST CURRENT VERSION OF THIS MANUAL IN EFFECT AT THE TIME OF ADVERTISEMENT FOR BIDS SHALL BE USED. HEREINAFTER, THIS MANUAL SHALL BE REFERED TO AS THE "TRAFFIC CONTROL MANUAL".
   THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER BEFORE THE START OF THE PROJECT.
3. ALL UTILITIES PLOTTED ON THE PLAN SHEETS ARE FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR, PRIOR TO LAYING A RUN OF DRAINAGE PIPE OR OTHER INVOLVED CONSTRUCTION, SHALL EXCAVATE WITHIN THE ALIGNMENT AT POINTS OF POSSIBLE CONFLICT TO DETERMINE IF A CONFLICT EXISTS. ANY CONFLICTS SHALL BE COORDINATED BY THE CONTRACTOR WITH THE ENGINEER AND THE UTILITY INVOLVED. THE ENGINEER SHALL DETERMINE THE SOLUTION.
4. THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC SLEEVES (100 mm INSIDE DIAMETER MINIMUM, 150 mm INSIDE DIAMETER MAXIMUM) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL SIT ON TOP OF THE SUBBASE. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.

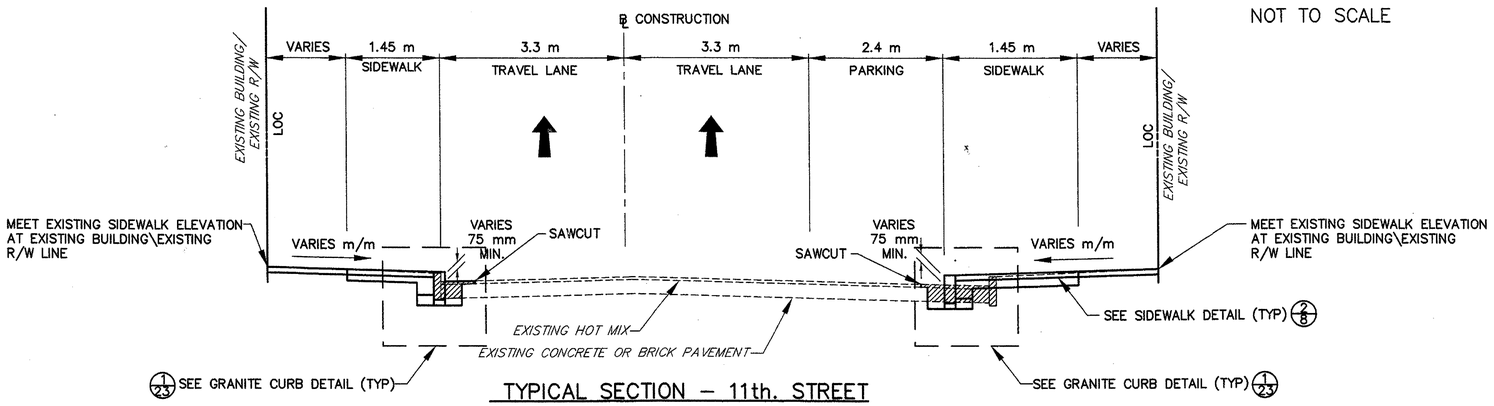
TYPICAL SECTIONS

NOT TO SCALE

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	3	58

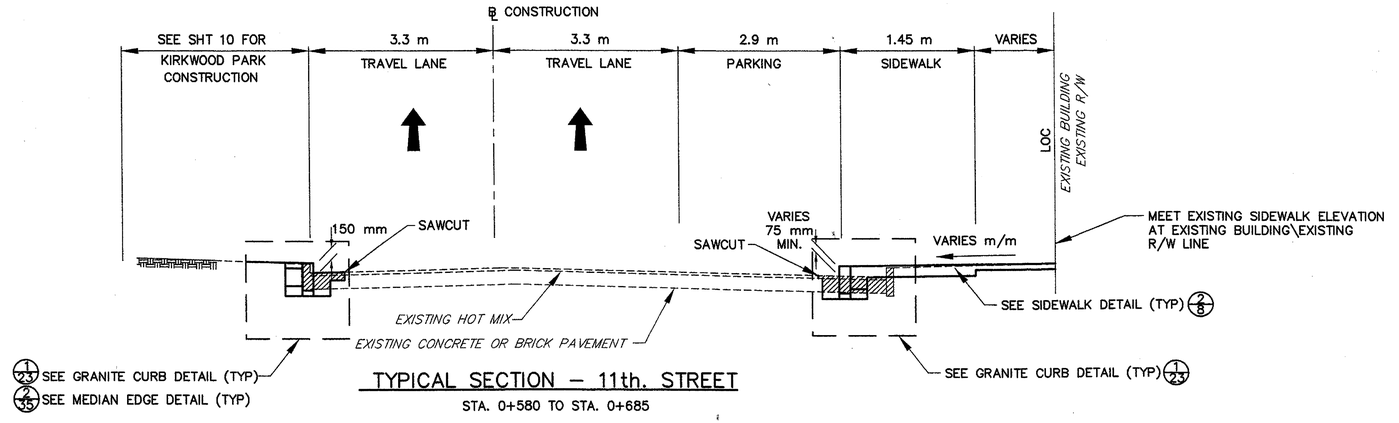
11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

REVISIONS	



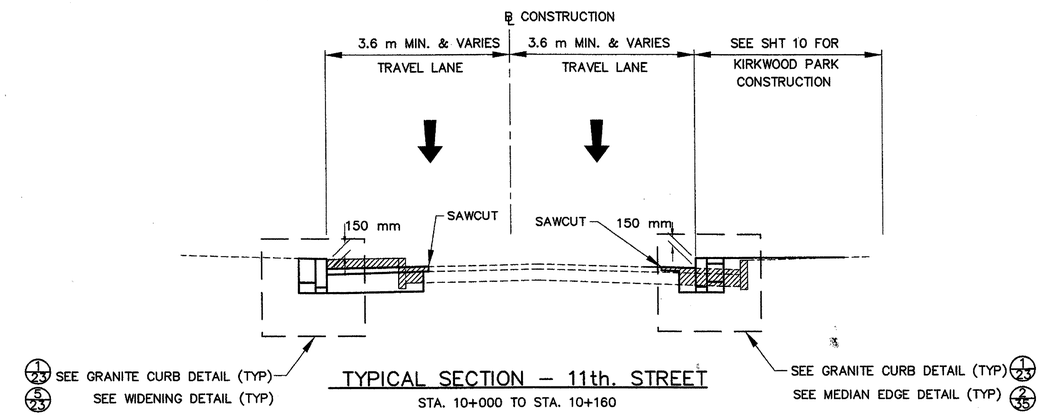
TYPICAL SECTION – 11th. STREET

STA. 0+100 TO STA. 0+580



TYPICAL SECTION – 11th. STREET

STA. 0+580 TO STA. 0+685



TYPICAL SECTION – 11th. STREET

STA. 10+000 TO STA. 10+160

F:\3456\01\11TH STREET\CIVIL\TYP_SEC.DWG

PROJECT NOTES

1. ALL TOPOGRAPHIC AND PHYSICAL EXISTING INFORMATION BASE DATA IS TAKEN FROM A SURVEY PREPARED BY KARINS & ASSOCIATES, NEWARK, DE DATED SEPTEMBER 21, 1997.
2. CONTOUR INTERVAL IS 0.2 METERS
3. DATUM: CITY OF WILMINGTON
4. ALL EXISTING UNDERGROUND UTILITY INFORMATION IS TAKEN FROM THE BEST AVAILABLE PUBLIC RECORDS, FIELD SURVEYS AND INFORMATION PROVIDED BY EACH UTILITY COMPANY HAVING UTILITITES IN THE PROJECT AREA. THE EXACT LOCATIONS AND DEPTHS OF ALL UNDERGROUND UTILITIES HAVE NOT BEN VERIFIED.
5. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" OF DELAWARE AT 1 (800) 282-8555 PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL BE REPONSIBLE FOR MAINTAINING UNDERGROUND UTILITY LOCATIONS PROVIDED BY "MISS UTILITY" DURING THE DURATION OF THE PROJECT AS WELL AS NEW UTILITY INSTALLATIONS AND SHALL ENSURE COORDINATION OF ALL NEW UTILITY INSTALLATIONS TO ALLOW FOR THIER PROTECTION DURING CONSTRUCTION.
6. ALL SITE LAYOUT ITEMS INCLUDING PAVING AREAS, LIGHT POLES, BOLLARDS, STREET TREES, FENCING, BOULDERS ETC SHALL BE APPROVED BY THE SITE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. THE SITE ARCHITECT AND ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY CONSTRUCTION LAYOUT AND STAKE-OUT DESCREPANCIES FOR BOTH VERTICAL AND HORIZONTAL CONTROL.
7. THE CONTRACTOR SHALL PROTECT EXISTING STOOPS, STEPS, FOUNDATIONS, BUILDINGS, BILCO DOORS, PORCHES ETC. DURING CONSTRUCTION SO AS TO CAUSE NO DAMAGE. THE CONTRACTOR SHALL PROVIDE A VIDEO TAPE OF THE PROJECT'S CONSTRUCTION AREA. THE VIDEOTAPE SHALL INCLUDE EXISTING (PRE-CONSTRUCTION) CONDITIONS ALONG EACH SIDE OF 11TH STREET, THE 11TH STREET BRIDGE, KIRKWOOD PARK FRONTAGE AND ADJACENT AREAS. THE VIDEOPTAPE SHALL BE APPROVED PRIOR TO CONSTRUCTION BY THE ENGINEER. ONE RECORD COPY OF THE VIDEOTAPE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO CONCTRUCTION. THE COST OF THE VIDEOTAPE SHALL BE INCIDENTAL TO ALL CONSTRUCTION CONTRACT ITEMS.
8. ALL PROPOSED ANGLES ARE 30°, 45°, 60° OR 90° UNLESS NOTED OTHERWISE.
9. RIGHT OF WAY LINE AND/OR BUILDING FACE SHALL BE LIMIT OF CONTRACT / WORK LINE WHERE LOC LINE IS NOT SHOWN.
10. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER FOR POINTS OF ACCESS AND EQUIPMENT STAGING AND LAYDOWN ON THE CITY OF WILMINGTON PROPERTIES INCLUSIVE OF KIRKWOOD PARK AND THE EXISTING GRAVEL PARKING LOT AT THE SOUTH EAST INTERSECTION CORNER OF 11TH STREET AND CHURCH STREET.
11. ALL UTILITY COVERS, GRATES, BOXES, VALVES, VENTS, CLEAN-OUTS ETC. SHALL BE ADJUSTED AS EROUIRED TO MATCH FINISHED GRADE. PAYMENT FOR ADJUSTMENTS TO THESE LISTED UTILITY COMPONENTS, IF REQUIRED, SHALL BE INCIDENTAL TO THE CONSTRUCTION ITEMS UNLESS THEY ARE SPECIFICALLY LISTED IN THE QUANTITIES.
12. MATCH PROPOSED PAVEMENT, CURB AND SIDEWALK ELEVATIONS WITH EXISTING ROAD, CURB, SIDEWALK AND OTHER PAVED AREA ELEVATIONS. THE CONTRACTOR SHALL PLACE AN EXPANSION JOINT WHERE PROPOSED CONCRETE PAVEMENT MEETS EXISTING VERTICAL SURFACES.
13. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION LAYOUT AND STAKE-OUT.
14. THE CONTRACTOR SHALL ENSURE POSITIVE SIDEWALK DRAINAGE FROM ALL ALLEY-WAYS TO FACE OF CURB.
15. ALL MATERIALS THAT ARE REMOVED DURING CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY AND LEGALLY DISPOSED OF OFF-SITE UNLESS DIRECTED OTHERWISE BY THE ENGINEER OR NOTED OTHERWISE ON THE PLANS.
16. THESE PLANS DO NOT INCLUDE THE NECESSARY PRECAUTIONS AND COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATION SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPURTENANT.
17. THE CONTRACTOR SHALL VISIT THE SITE AND BE AWARE AND FAMILIAR WITH ALL EXISTING CONDITIONS AS THEY PERTAIN TO THE PROPOSED CONSTRUCTION ITEMS PRIOR TO SUBMIITTING A BID.
18. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER AND/OR OWNER FOR POINTS OF ACCESS, EQUIPMENT LAYDOWN AND STAGING PRIOR TO BEGINNING WORK. ANY CORRECTIVE WORK OR CLEAN-UP CREATED BY NON-COMPLIANCE WITH THIS REQUIREMENT SHALL BE BORN BY THE CONTRACTOR AT NO ADDITIONAL COST.
19. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND STRUCTURES DURING DEMOLITION, EXCAVATION AND CONSTRUCTION THROUGHOUT THE DURATION OF THE CONSTRUCTION PERIOD. ANY DAMAGE DONE TO THE EXISTING UTILITIES, STRUCTURES ETC. DUE TO THE CONTRACTOR'S NEGLIGENCE, UNAWARENESS AND/OR LACK OF MAINTAINING RECORDS OF MISS UTILITY MARKED LOCATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL ALSO MAINTAIN RECORDS OF THE NEWLY INSTALLED IMPROVEMENTS AND COORDINATE THE LOCATIONS OF THE NEWLY INSTALLED IMPROVEMENTS WITH ALL TRADES THROUGHOUT THE DURATION OF THE CONSTRUCTION PERIOD.
20. THE EROSION POTENTIAL FOR THIS PROJECT HAS BEEN DETERMINED TO BE "MINOR". THE SITE REVIEWER SHALL MEET THE REQUIREMENTS OF THE CONTRACTOR CERTIFIFCATION PROGRAM AS DEFINED IN SECTION 13 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS. THE CONTRACTOR SHALL PROVIDE A CERTIFIED SITE REVIEWER FOR THE PROJECT.

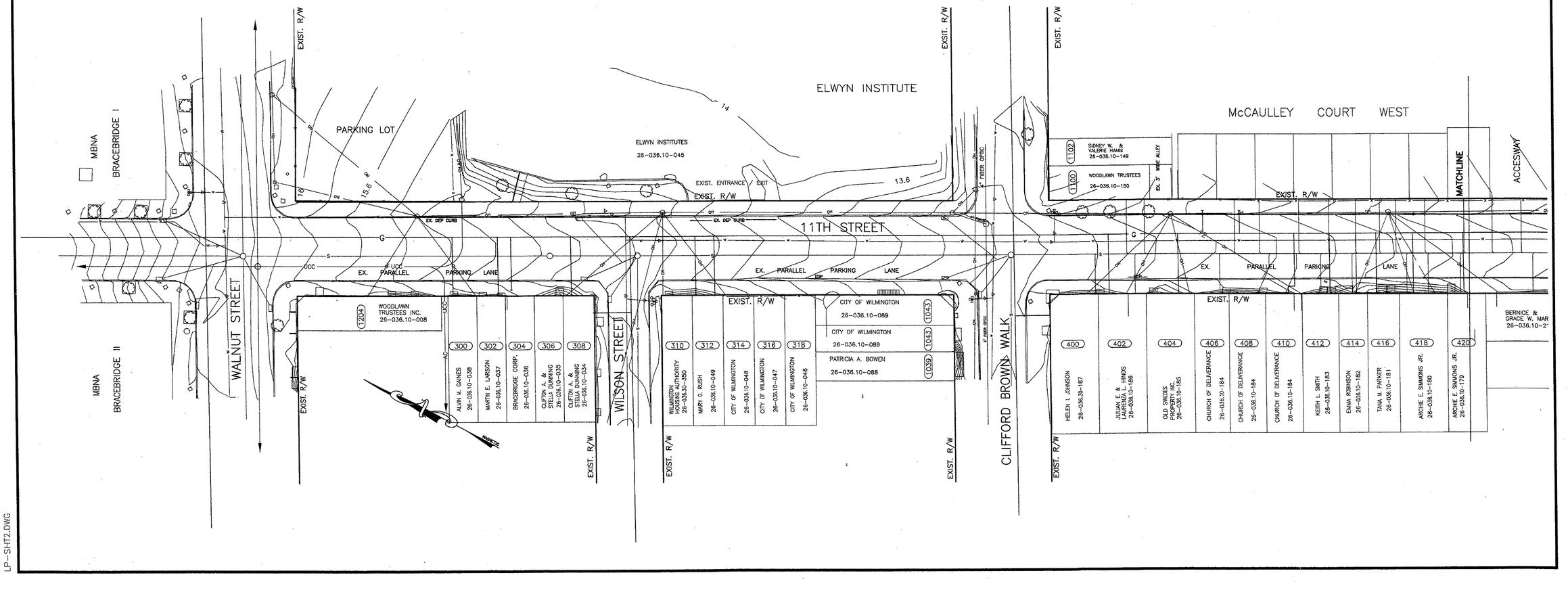
EXISTING CONDITIONS, PROJECT NOTES

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	4	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	

0 5 10 20 30
GRAPHIC SCALE (1:300)



LP-SHT2.DWG

PROJECT NOTES

21. THE CONTRACTOR SHALL ONLY CLEAR THE AREA OF EXISTING SIDEWALK, CURB AND OTHER HARD SURFACE MATERIAL THAT CAN BE STABALIZED COMPLETELY OR TEMPORARILY TO TOP OF BASE COURSE AT THE END OF EACH WORK DAY.

22. ACCESS FOR EMERGENCY VEHICLES MUST BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES.

23. ACCESS MUST BE MAINTAINED TO ALL RESIDENTS AND BUSINESSES WITHIN THE PROJECT LIMITS AT ALL TIMES THROUGHOUT CONSTRUCTION.

24. ALL CIVIL/TRAFFIC PLAN DIMENSIONS ON SHEETS 12–18 ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. ALL CURB RADII ARE MEASURED TO THE FACE OF CURB.

25. ALL EXISTING DRAINAGE SYSTEMS SHOWN WITHIN THE RIGHT OF WAY ARE TO REMAIN UNLESS OTHERWISE NOTED. THE ENGINEER AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES TO BE USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION OF THOSE PIPES PRIOR TO CONSTRUCTION. IF DAMAGE OCCURS TO THOSE PIPES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, OR REPLACEMENT, OF THE DAMAGED PIPES.

26. THIS PROJECT IS REFERENCED TO AN ASSUMED COORDINATE SYSTEM.

27. THE CONTRACTOR WILL ASSURE IN ADVANCE THAT ALL CURB RETURNS DRAIN POSITIVELY.

28. THE CONSTRUCTION OF CONNECTIONS TO EXISTING PIPES, CATCH BASINS AND MANHOLES SHALL BE INCIDENTAL TO THE PIPE ITEMS IN THE CONTRACT. THE CONTRACTOR MUST INSTALL ALL PROPOSED PIPE AT A MINIMUM 0.5% SLOPE.

29. ALL LOCATIONS WHERE THE PROPOSED SIDEWALK TIES INTO THE EXISTING PORTLAND CEMENT CONCRETE SIDEWALK SHALL BE SAW CUT OR REMOVED TO A NEARBY JOINT AS DIRECTED.

30. THE CONTRACTOR SHALL SALVAGE ANY GRANITE CURB (OTHER THAN TO BE RE–USED PER THE PLANS) AND OTHER ITEMS AS DIRECTED BY THE ENGINEER WITHIN THE LIMITS OF CONSTRUCTION AND DELIVER THE SALVAGED ITEMS TO THE CITY OF WILMINGTON'S DEPT. OF PUBLIC WORKS CITY YARD ON SOUTH MADISON STREET. THE SALVAGING, LOADING, UNLOADING, STOCKPILING, TRANSPORTATION, AND OTHER WORK ASSOCIATED WITH THE SALVAGING REQUIREMENTS SHALL BE INCIDENTAL TO ITEM 022000, EXCAVATION AND EMBANKMENT.

31. THE CONTRACTOR WILL REMOVE PAVEMENT STRIPING WHICH MAY CREATE CONFUSION FOR MOTORISTS DURING ALL STAGES OF TRAFFIC CONTROL. THE CONTRACTOR WILL ALSO PROVIDE TEMPORARY PAVEMENT MARKINGS TO GUIDE TRAFFIC THROUGH THE CONSTRUCTION ZONE, AS DIRECTED BY THE ENGINEER.

32. THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF THE TRAFFIC SIGNALS WITH THE STAGING OF TRAFFIC CONTROL TO ENSURE THAT THE SIGNALS OPERATE CONTINUOUSLY AND THAT THE SIGNAL FACES ARE VISIBLE AT ALL TIMES.

33. ITEMS IDENTIFIED TO BE REMOVED BY THE CONTRACTOR OTHER THAN PORTLAND CEMENT CONCRETE CURB, SIDEWALK AND GRANITE CURB ARE TO BE PAID FOR UNDER ITEM 21100 REMOVAL OF STRUCTURES AND OBSTRUCTIONS.

34. THE EXISTING PAVEMENT COMPOSITION VARIES THROUGHOUT THE PROJECT. THE PAVEMENT IS GENERALLY 150 mm PORTLAND CEMENT CONCRETE OR 88 mm THICK BRICK WITH A HOT– MIX OVERLAY (38 mm TO 200 mm THICK).

35. THE PORTLAND CEMENT CONCRETE ADA CURB RAMPS SHALL BE PAID FOR UNDER ITEM NO. 705001.

36. REFER TO THE TECHNICAL SPECIFICATIONS FOR UNIT PAVER DESCRIPTIONS, STYLES, SIZES, BASE AND/OR SETTING MATERIALS THAT ARE INCIDENTAL TO THE UNIT PRICE FOR EACH TYPE OF UNIT PAVER.

37. REMOVAL OF EXISTING STREET TREES AND PRUNING SHALL BE INCIDENTAL AND PAID FOR UNDER ITEM 201000 CLEARING AND GRUBBING.

38. REMOVAL OF THE EXISTING CHAIN LINK SECURITY FENCE ALONG THE NORTH SIDE OF 11TH STREET WILL BE REMOVED BY OTHERS AND IS NOT IN CONTRACT.

39. THE CONTRACTOR SHALL VERIFY THE STONE CURB QUANTITIES NECESSARY TO COMPLETE THE PROJECT FOR BOTH STRAIGHT CURB RUNS AND RADIAL CURB RUNS WITH THE STONE CURB SUPPLIER PRIOR TO ORDERING.

40. ALL CURB RAMPS SHALL BE CENTERED ON THE CURB RADIUS AT 45° UNLESS OTHERWISE DIMENSIONED ON THE PLANS. THE CONTRACTOR SHALL PREPARE ONE MOCK UP OF A TYPICAL CURB RAMP THAT INCLUDES THE CONVEX WASHBOARD GROOVED TEXTURE BANDS FINISH AS SHOWN ON THE DETAILS. PAYMENT FOR PLACING THE WASHBOARD TEXTURE BANDS SHALL BE INCIDENTAL TO ITEM 705001– 'PORTLAND CEMENT CONCRETE SIDEWALK 100mm.

41. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH THE DELAWARE TRANSIT CORPORATION (302–577–3278) AT LEAST 48 HOURS PRIOR TO WORKING IN OR ADJACENT TO EXISTING BUS STOPS TO FACILITATE ACCESS TO AND OR ALTERNATE TEMPORARY LOCATIONS FOR THE EXISTING BUS STOPS. PAYMENT FOR COORDINATION SHALL BE INCIDENTAL TO ITEM 763500 – MAINTENANCE OF TRAFFIC.

42. REMOVAL OF EXISTING GRANITE CURBING SHALL BE PAID FOR UNDER ITEM 758000.

43. THE EXISTING GRANITE CURBING THAT WILL BE REUSED FOR THE GRANITE GARDEN EDGE SHALL BE APPROVED BY THE SITE ARCHITECT AND ENGINEER PRIOR TO PLACEMENT FOR GARDEN WALK EDGES IN KIRKWOOD PARK.

44. THE FOUR PLANTING BEDS IN THE KIRKWOOD PARK GARDEN SHALL HAVE THE FINISH GRADE 25 mm BELOW THE TOP OF GRANITE GARDEN EDGE. THE FINISH GRADE AT THE CENTER OF EACH RAISED PLANTING BED SHALL BE 150 mm ABOVE THE TOP OF THE GRANITE GARDEN EDGE. THE MATERIAL TO BE USED TO RAISE THE PLANTING BEDS SHALL BE TOPSOIL. THE CONTRACTOR SHALL BACKFILL WITH TOPSOIL BEHIND ALL GRANITE GARDEN EDGING AT THE PERIMETER OF THE GARDEN TO 50mm BELOW TOP OF EDGE. THE SUPPLYING AND PLACING OF TOPSOIL SHALL BE PAID FOR UNDER ITEM 732500 TOPSOIL.

45. FIELD DETERMINATIONS FOR ITEMS 750000 ADJUST WATER VALVE BOXES AND 710507 ADJUST AND REPAIR EXISTING SANITARY CLEANOUTS SHALL BE MADE BY THE ENGINEER PRIOR TO THE CONTRACTOR PERFORMING THE WORK. PAYMENT WILLL BE MADE ONLY IF THESE ITEMS ARE DEEMED NECESSARY BY THE ENGINEER.

46. ALL CONSTRUCTION MEANS, METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH DELDOT STANDARD SPECIFICATIONS AND DETAILS AND/OR WITH CITY OF WILMINGTON STANDARD SPECIFICATIONS AND DETAILS UNLESS NOTED OR SHOWN OTHERWISE ON THE PLANS.

⚠1 47. ALL REMOVALS OF EXISTING ROAD MATERIAL INCLUDING BUT NOT LIMITED TO CONCRETE PAVING, BRICK PAVING AND HOT-MIX OVERLAYS SHALL BE INCIDENTAL TO ITEM #705515, UNIT PAVER, TYPE F AND ITEM #705516, UNIT PAVER TYPE G

EXISTING CONDITIONS, PROJECT NOTES

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99–011–02	NEW CASTLE	ESTP–N999(71)	5	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	
⚠ ADDENDUM 1 –	ADDED PROJECT NOTE 47 – 4-27-99

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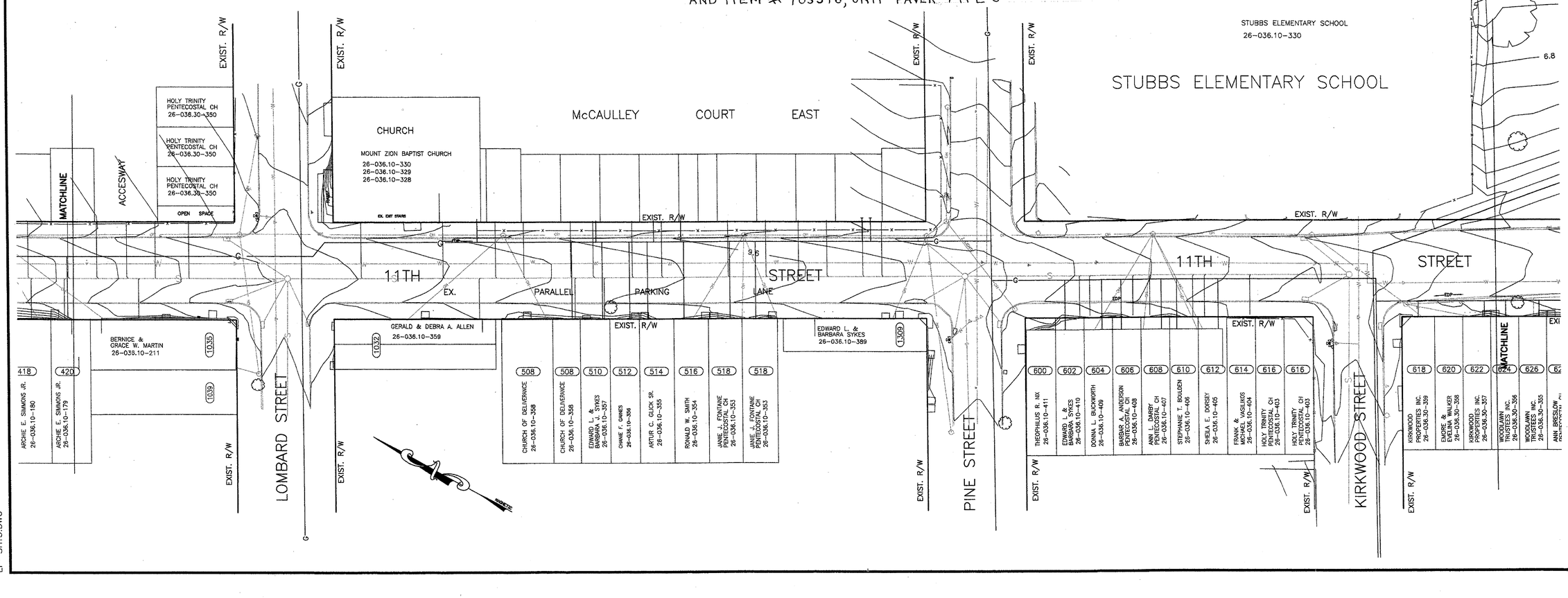
GRAPHIC SCALE (1:300)



LP–SHT3.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

EXISTING CONDITIONS

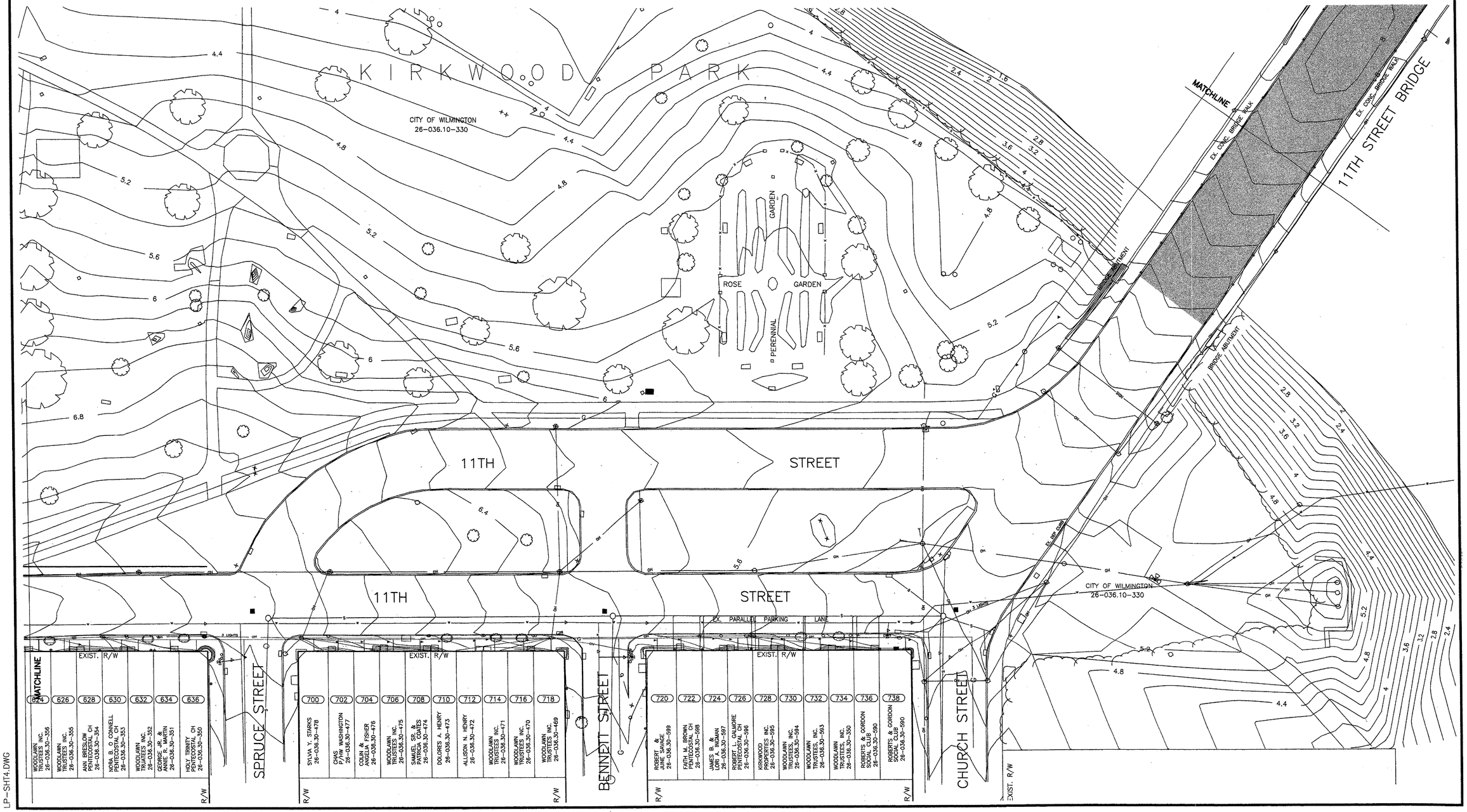
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	6	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	

0 5 10 20 30

GRAPHIC SCALE (1:300)



LP-SHT4.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS.

EXISTING CONDITIONS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	7	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	

0 5 10 20 30

GRAPHIC SCALE (1:300)

EX. VACANT PARKING LOT

NORTHEAST BLVD.

SHOPPING CENTER

12TH STREET

BRIDGE ABUTMENT

BRANDYWINE CREEK

11TH STREET BRIDGE (BRIDGE #577)

EX. CONCRETE BRIDGE DECK

EX. CONC. BRIDGE WALK

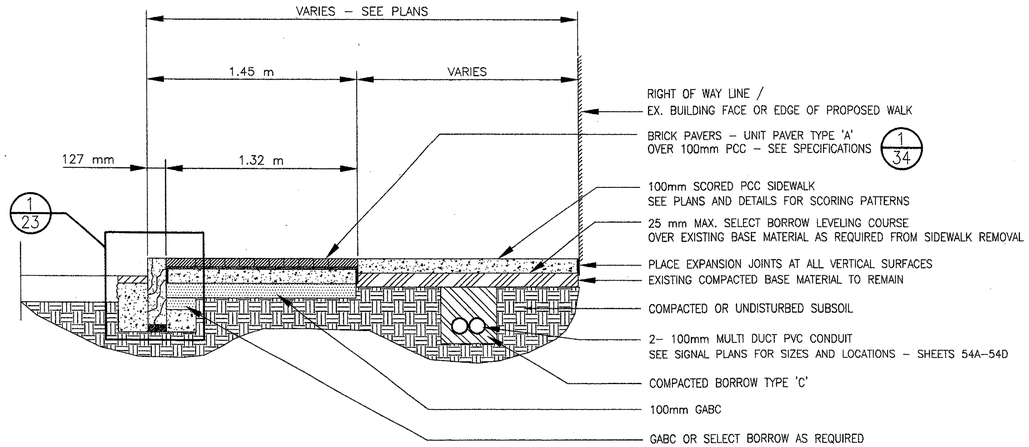
BRIDGE HOUSE

MATCHLINE

BRANDYWINE CREEK

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS NOTED OTHERWISE.



NOTE: FINISH OF SCORED PCC SIDEWALK SHALL BE PICTURE FRAME TOOLED EDGE WITH FAN SHAPED WOOD FLOAT FINISH INSIDE PANELS. SEE PLANS AND PLAN NOTES FOR SCORING PATTERNS.

1 TYPICAL BRICK AND CONCRETE SIDEWALK

N.T.S.

CONSTRUCTION PLAN

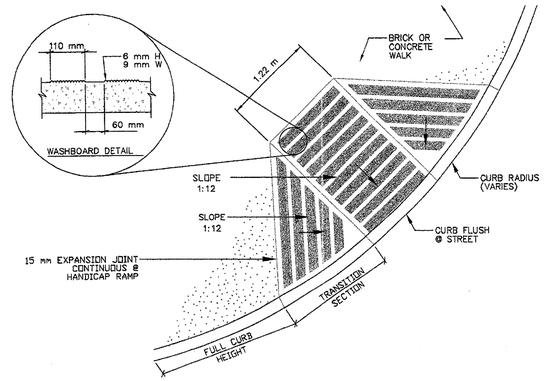
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	8	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	

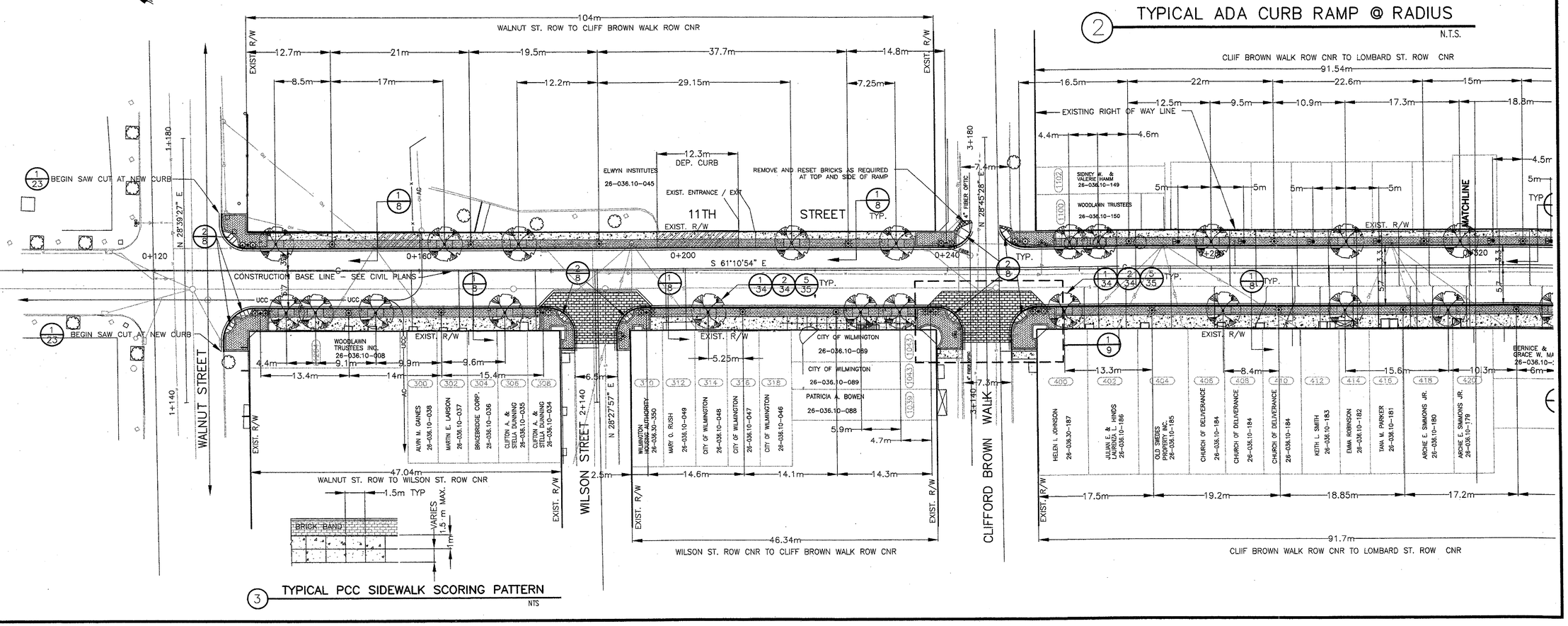
0 5 10 20 30

GRAPHIC SCALE (1:300)



2 TYPICAL ADA CURB RAMP @ RADIUS

N.T.S.



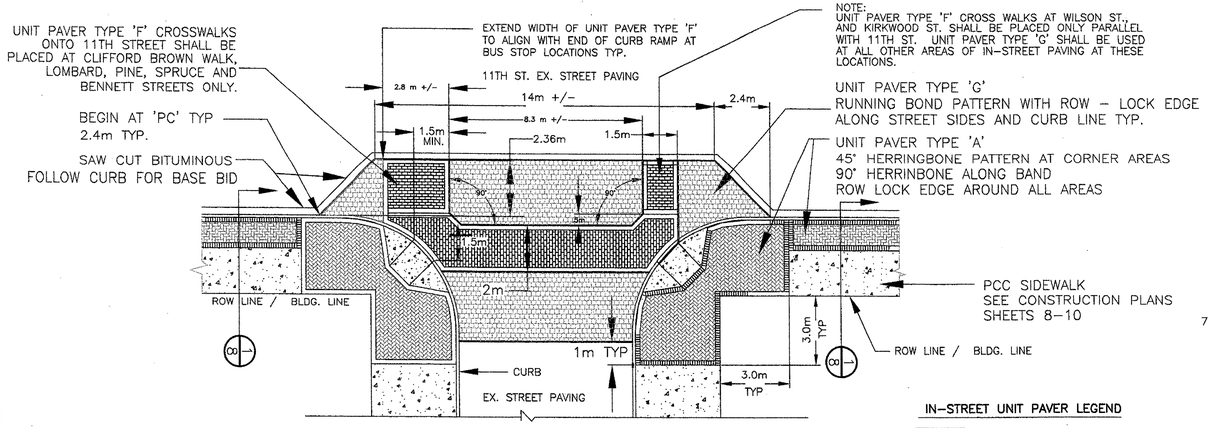
3 TYPICAL PCC SIDEWALK SCORING PATTERN

NTS

CD-SHT2.DWG

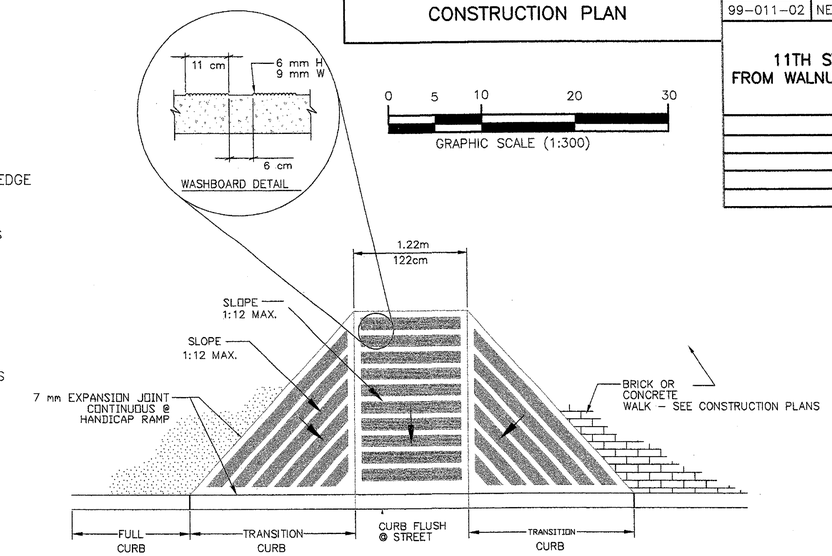
GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS.



TYPICAL PAVING PATTERNS FOR UNIT PAVER TYPE 'A' + ADD-ALTERNATE #1: IN-STREET UNIT PAVING TYPES 'F' & 'G"

1 N.T.S.



ADA CURB RAMP @ TANGENT

2 N.T.S.

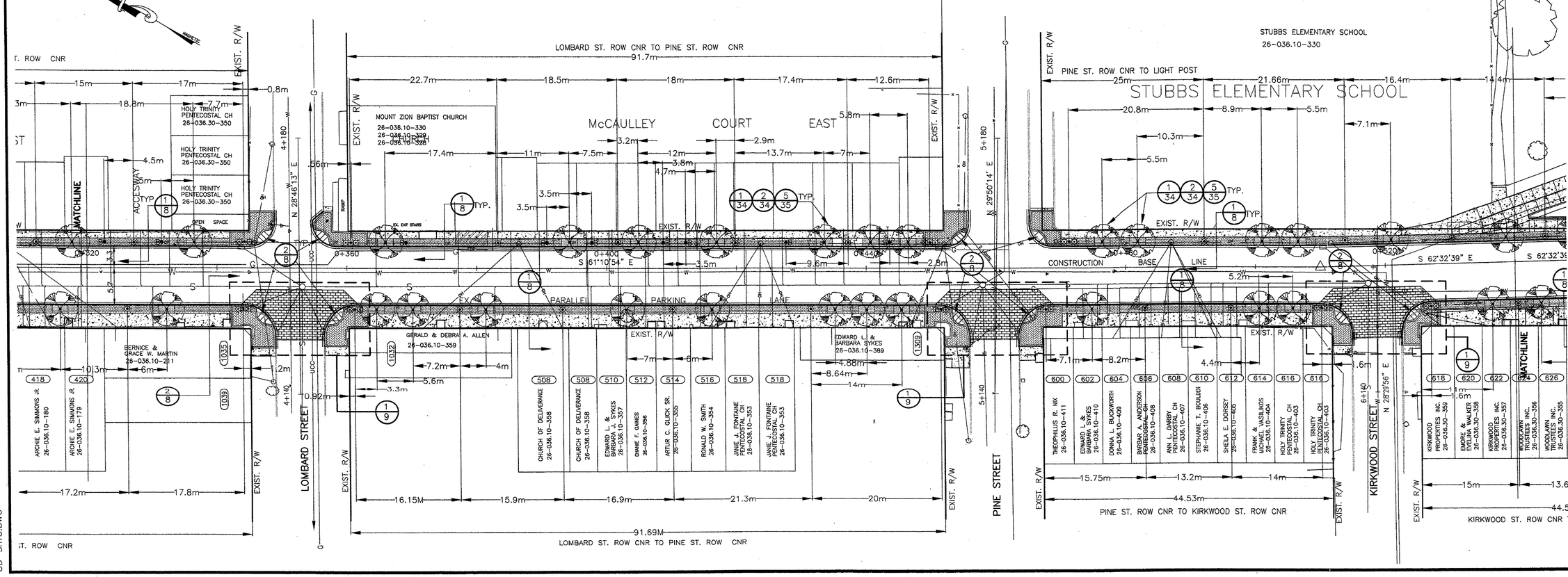
0 5 10 20 30
GRAPHIC SCALE (1:300)

CONSTRUCTION PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	9	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	



CD-SHT3.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS.

CONSTRUCTION PLAN

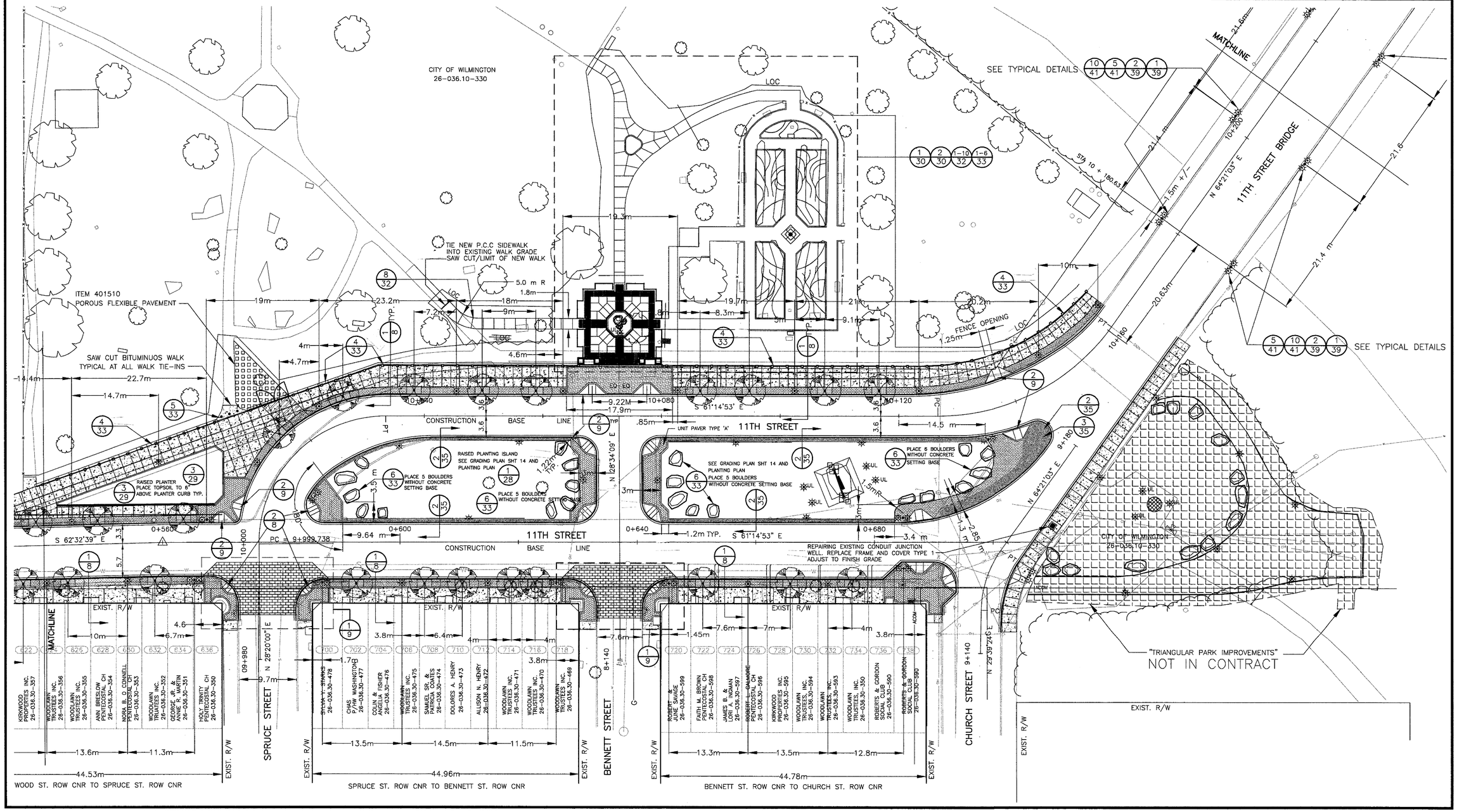
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	10	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS



CD-SHT4.DWG

GENERAL NOTES:

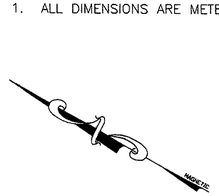
1. ALL DIMENSIONS ARE METERS.

CONSTRUCTION PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	11	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS	



EX. VACANT PARKING LOT

NORTHEAST BLVD.

SHOPPING CENTER

12TH STREET

BRIDGE ABUTMENT

BRIDGE ABUTMENT

BRIDGE ABUTMENT

BRIDGE ABUTMENT

BRANDYWINE CREEK

BRANDYWINE CREEK

SEE TYPICAL DETAILS (10/41) (5/41) (2/39) (1/39)

SEE ELECTRICAL PLANS SHEETS 38,39,44
FOR POLE TYPE AND DETAIL REFERENCES

SEE TYPICAL DETAILS (10/41) (5/41) (2/39) (1/39)

SEE TYPICAL DETAILS (5/41) (10/41) (2/39) (1/39)

SEE ELECTRICAL PLANS SHEETS 38,39,44
FOR POLE TYPE AND DETAIL REFERENCES

SEE TYPICAL DETAILS (1/30) (2/30) (11-10/32) (1-6/33)

MATCHLINE

CONC. BRIDGE WALK

CONC. BRIDGE WALK

BRIDGE DECK

22.9m

24.1m

21.6m

22.9m

24.1m

21.6m

21.4 m

0 5 10 20 30

GRAPHIC SCALE (1:300)

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. SEE THE CONSTRUCTION PLANS FOR THE LIMITS OF SIDEWALK REPLACEMENT. THE CONTRACTOR SHALL CONFIRM THE LIMITS AND TIE-IN LOCATIONS IN THE FIELD WITH THE ENGINEER PRIOR TO PERFORMING THE WORK. MATCH EXISTING SIDEWALK CROSS SLOPE AND TOP OF CURB ELEVATION AT THE TIE-IN LOCATION.
3. THE CONTRACTOR MAY USE PRE-FABRICATED ELBOWS TO CONNECT TO THE EXISTING PIPE BY POURING A CONCRETE COLLAR AROUND THE CONNECTION OR USING A CLAMPED CONNECTION. CONNECTION TO THE EXISTING PIPE IS INCIDENTAL TO ITEM 612533.
4. SEE THE CONSTRUCTION PLANS FOR THE DETAILS OF THE HANDICAP CURB RAMPS.
5. THE CONTRACTOR SHALL LOCATE ALL EXISTING DEPRESSED CURBS BEFORE PERFORMING WORK. ALL DEPRESSED CURBS SHALL BE REPLACED WITH NEW GRANITE DEPRESSED CURBS AS PER THE CONSTRUCTION DETAILS.

BASELINE CONTROL DATA

STATION	NORTH	EAST
0+100.000	1291.723	485.658
0+510.000	1094.089	844.881
0+560.000	1071.036	889.249
0+710.000	998.884	1020.756
1+140.000	1262.359	497.539
1+180.000	1297.460	516.722
2+140.000	1232.393	552.007
2+160.000	1249.975	561.540
3+140.000	1203.883	603.827
3+180.000	1238.949	623.071
4+140.000	1152.406	697.392
4+180.000	1187.468	716.644
5+140.000	1100.821	791.160
5+180.000	1135.519	811.062
6+140.000	1072.549	842.967
6+160.000	1090.125	852.510
8+140.000	1016.415	947.224
8+181.295	1052.681	966.972
9+140.000	988.081	1000.978
9+147.520	994.616	1004.699
9+153.083	999.450	1007.452
9+158.303	1001.858	1012.466
9+180.000	1011.250	1032.025
9+980.000	1045.621	893.995
9+999.738	1062.994	903.362
10+021.294	1081.968	913.593
10+033.509	1071.599	932.493
10+126.572	1026.834	1014.082
10+145.074	1017.935	1030.302
10+160.753	1025.943	1046.981
10+278.000	1076.695	1152.675

CATCH BASIN SCHEDULE

NO.	TYPE	T.G. EL.	INV. EL.	STATION	OFFSET
1	MOD. A	14.560	13.250	0+177.500	5.70 RT
2	MOD. A	12.910	11.800	0+236.000	5.70 RT

PIPE SCHEDULE

NO.	SIZE mm/TYPE	LENGTH m	INT. INV.
1	254 CPP	4.0	13.250
2	254 CPP	3.0	11.800

CURBLINE CONTROL DATA

STATION	OFFSET	NORTH	EAST
1+168.700	5.642 RT	1284.838	516.253
1+166.884	5.637 RT	1283.247	515.378
0+133.725	3.300 LT	1278.357	516.797
0+240.357	3.300 LT	1226.957	610.224
1+147.700	5.685 RT	1266.390	506.221
1+149.284	5.690 RT	1267.777	506.984
0+135.227	5.700 RT	1269.748	513.775
0+179.459	5.700 RT	1248.426	552.529
2+150.319	3.208 LT	1242.994	554.106
2+147.800	3.224 LT	1240.786	552.891

CURBLINE CONTROL DATA

STATION	OFFSET	NORTH	EAST
2+147.800	3.170 RT	1237.739	558.512
2+150.280	3.185 RT	1239.912	559.707
0+193.853	5.700 RT	1241.488	565.140
0+238.214	5.700 RT	1220.105	604.007
3+150.304	3.650 LT	1214.672	605.584
3+147.800	3.653 LT	1212.478	604.377
0+251.679	3.300 LT	1221.499	620.143
0+344.911	3.300 LT	1176.558	701.828
4+167.303	3.732 LT	1178.135	707.261
4+168.800	3.731 LT	1179.447	707.983
3+147.800	3.700 RT	1208.941	610.823
3+150.296	3.703 RT	1211.127	612.026
0+253.567	5.700 RT	1212.704	617.459
0+343.972	5.700 RT	1169.126	696.668
4+149.303	3.686 LT	1162.335	698.638
4+147.600	3.688 LT	1160.843	697.817

CATCH BASIN REMOVAL SCHEDULE

NO.	STATION	OFFSET
1	0+180	6.41 RT
2	0+237	6.43 RT

GRADING AND DRAINAGE PLAN

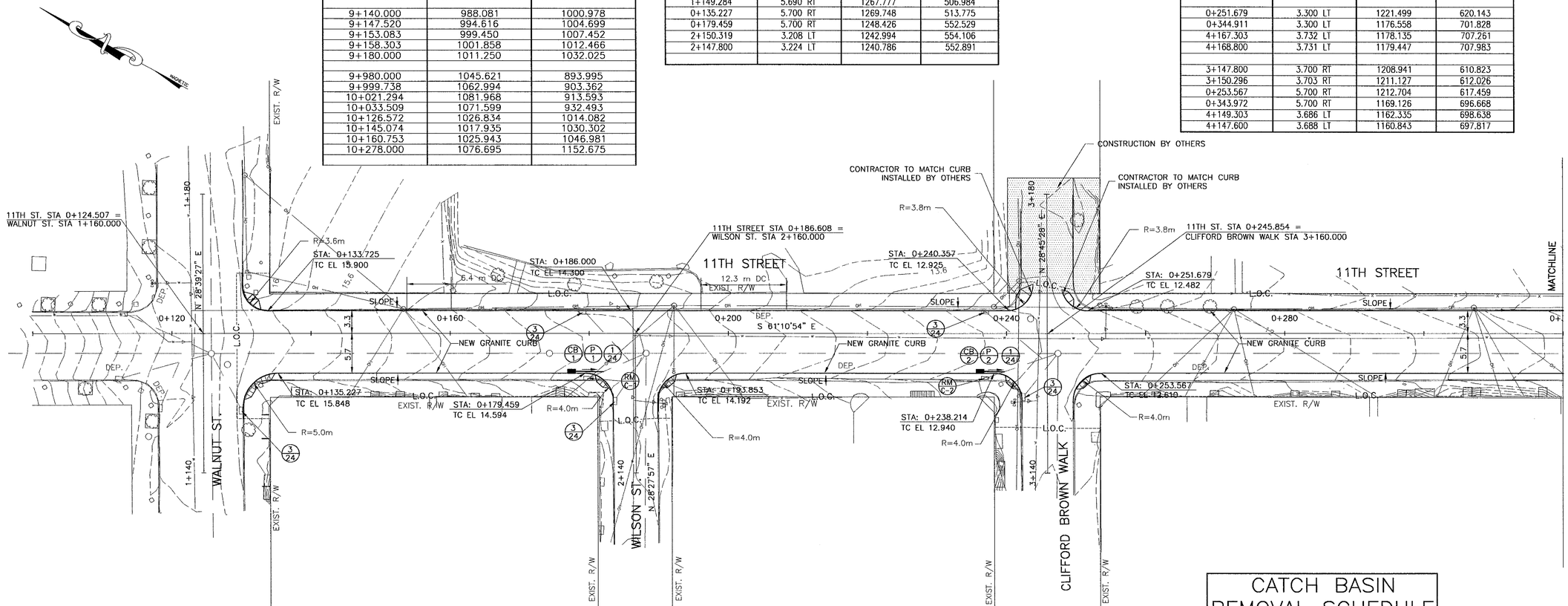
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	12	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS



F:\3456\01\11TH STREET\CIVIL\GD-SHT2.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METRIC UNLESS OTHERWISE NOTED.
2. LIMITS OF SIDEWALK REPLACEMENT ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM LIMITS AND TIE-IN LOCATIONS IN THE FIELD WITH THE ENGINEER PRIOR TO PERFORMING THE WORK.
3. THE CONTRACTOR MAY USE PRE-FABRICATED ELBOWS TO CONNECT TO THE EXISTING PIPE BY POURING A CONCRETE COLLAR AROUND THE CONNECTION OR USING A CLAMPED CONNECTION. CONNECTION TO THE EXISTING PIPE IS INCIDENTAL TO ITEM 612533.

CURBLINE CONTROL DATA

STATION	OFFSET	NORTH	EAST
4+147.900	3.766 RT	1157.518	704.495
4+149.296	3.767 RT	1158.742	705.169
0+361.426	5.700 RT	1160.712	711.960
0+450.945	5.700 RT	1117.561	790.392
5+149.228	3.907 LT	1110.770	792.363
5+147.800	3.882 LT	1109.518	791.674
4+168.682	3.760 RT	1175.738	714.492
4+167.480	2.212 RT	1175.429	712.557
4+167.098	2.077 RT	1175.159	712.255
0+358.521	3.300 LT	1169.998	713.753
0+452.216	3.300 RT	1124.834	795.844
5+166.823	4.349 LT	1126.253	800.733
5+168.800	4.384 LT	1127.985	801.686
5+147.900	3.582 RT	1105.892	798.198
5+149.361	3.556 RT	1107.172	798.902
0+468.409	5.700 RT	1109.143	805.693
0+509.900	5.700 RT	1089.143	842.046
6+149.116	3.755 LT	1082.352	844.016
6+147.700	3.763 LT	1081.111	843.334

CURBLINE CONTROL DATA

STATION	OFFSET	NORTH	EAST
6+147.700	3.774 RT	1077.515	849.958
6+149.486	3.784 RT	1079.079	850.819
0+527.188	5.700 RT	1081.106	857.505
0+560.064	5.700 RT	1066.008	886.564
0+567.728	5.700 RT	1062.321	893.283
9+989.368	3.589 LT	1055.570	895.282
9+986.700	3.586 LT	1053.220	894.019
5+169.000	4.927 RT	1123.526	809.863
5+166.989	4.963 RT	1121.763	808.893
0+468.729	3.300 LT	1116.874	810.312
0+510.039	3.300 LT	1096.999	846.437
0+560.000	3.300 LT	1073.947	890.804
0+572.017	3.300 LT	1068.149	901.372
10+003.537	3.600 LT	1068.403	902.635
10+033.509	3.600 LT	1074.755	934.224
10+121.711	3.600 LT	1032.329	1011.552
10+162.998	3.206 LT	1029.805	1047.617

GRADING AND DRAINAGE PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	13	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

0 5 10 20 30

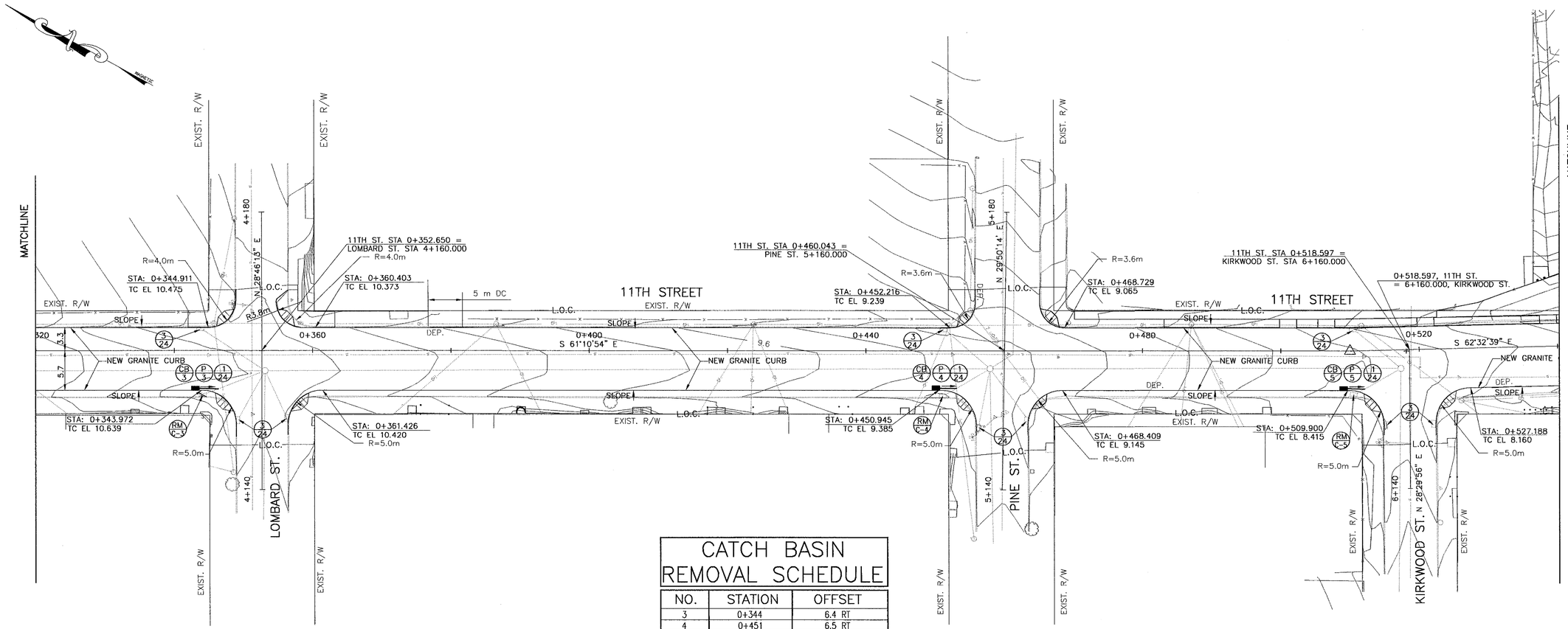
GRAPHIC SCALE (1:300)

CATCH BASIN SCHEDULE

NO.	TYPE	T.G. EL.	INV. EL.	STATION	OFFSET
3	MOD. A	10.660	9.548	0+343.000	5.70 RT
4	MOD. A	9.320	8.325	0+450.000	5.70 RT
5	MOD. A	8.350	7.523	0+509.000	5.70 RT

PIPE SCHEDULE

NO.	SIZE mm/TYPE	LENGTH m	INT. INV
3	254 CPP	3.0	9.548
4	254 CPP	3.0	8.325
5	254 CPP	2.5	7.523



CATCH BASIN REMOVAL SCHEDULE

NO.	STATION	OFFSET
3	0+344	6.4 RT
4	0+451	6.5 RT
5	0+510	6.3 RT

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GRADING AND DRAINAGE PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	14	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

0 5 10 20 30

GRAPHIC SCALE (1:300)

CURBLINE CONTROL DATA

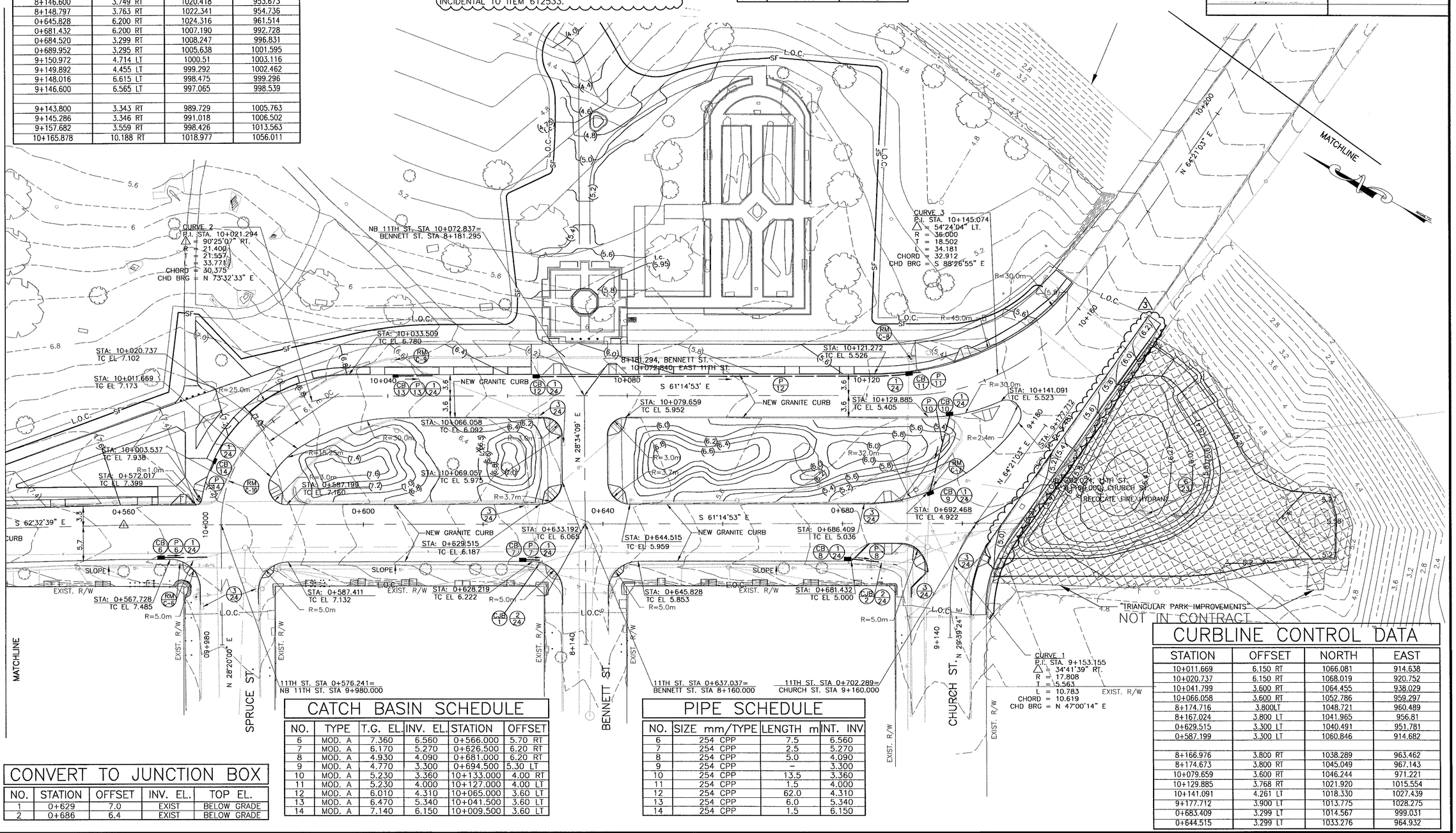
STATION	OFFSET	NORTH	EAST
9+986.700	6.094 RT	1048.626	902.539
9+988.706	6.090 RT	1050.394	903.487
0+587.411	6.200 RT	1052.415	910.299
0+628.219	6.200 RT	1032.786	946.075
8+148.823	3.854 LT	1026.007	948.059
8+146.600	3.857 LT	1024.055	946.994
8+146.600	3.749 RT	1020.418	953.673
8+148.797	3.763 RT	1022.341	954.736
0+645.828	6.200 RT	1024.316	961.514
0+681.432	6.200 RT	1007.190	992.728
0+684.520	3.299 RT	1008.247	996.831
0+689.952	3.295 RT	1005.638	1001.595
9+150.972	4.714 LT	1000.51	1003.116
9+149.892	4.455 LT	999.292	1002.462
9+148.016	6.615 LT	998.475	999.296
9+146.600	6.565 LT	997.065	998.539
9+143.800	3.343 RT	989.729	1005.763
9+145.286	3.346 RT	991.018	1006.502
9+157.682	3.559 RT	998.426	1013.563
10+165.878	10.188 RT	1018.977	1056.011

GENERAL NOTES:

1. ALL DIMENSIONS ARE METRIC UNLESS OTHERWISE NOTED.
2. LIMITS OF SIDEWALK REPLACEMENT ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM LIMITS AND TIE-IN LOCATIONS IN THE FIELD WITH THE ENGINEER PRIOR TO PERFORMING THE WORK.
3. THE CONTRACTOR MAY USE PRE-FABRICATED ELBOWS TO CONNECT TO THE EXISTING PIPE BY POURING A CONCRETE COLLAR AROUND THE CONNECTION OR USING A CLAMPED CONNECTION. CONNECTION TO THE EXISTING PIPE IS INCIDENTAL TO ITEM 612533.

REMOVE CATCH BASIN SCHEDULE

NO.	STATION	OFFSET
6	0+569	6.3 RT
7	0+695	6.0 LT
8	10+128	5.9 LT
9	10+041	6.0 LT
10	10+008	0.1 LT



CATCH BASIN SCHEDULE

NO.	TYPE	T.G. EL.	INV. EL.	STATION	OFFSET
6	MOD. A	7.360	6.560	0+566.000	5.70 RT
7	MOD. A	6.170	5.270	0+626.500	6.20 RT
8	MOD. A	4.930	4.090	0+681.000	6.20 RT
9	MOD. A	4.770	3.300	0+694.500	5.30 LT
10	MOD. A	5.230	3.360	10+133.000	4.00 RT
11	MOD. A	5.230	4.000	10+127.000	4.00 LT
12	MOD. A	6.010	4.310	10+065.000	3.60 LT
13	MOD. A	6.470	5.340	10+041.500	3.60 LT
14	MOD. A	7.140	6.150	10+009.500	3.60 LT

PIPE SCHEDULE

NO.	SIZE mm/TYPE	LENGTH m	INT. INV
6	254 CPP	7.5	6.560
7	254 CPP	2.5	5.270
8	254 CPP	5.0	4.090
9	254 CPP	–	3.300
10	254 CPP	13.5	3.360
11	254 CPP	1.5	4.000
12	254 CPP	62.0	4.310
13	254 CPP	6.0	5.340
14	254 CPP	1.5	6.150

CONVERT TO JUNCTION BOX

NO.	STATION	OFFSET	INV. EL.	TOP EL.
1	0+629	7.0	EXIST	BELOW GRADE
2	0+686	6.4	EXIST	BELOW GRADE

CURBLINE CONTROL DATA

STATION	OFFSET	NORTH	EAST
10+011.669	6.150 RT	1066.081	914.638
10+020.737	6.150 RT	1068.019	920.752
10+041.799	3.600 RT	1064.455	938.029
10+066.058	3.600 RT	1052.786	959.297
8+174.716	3.800LT	1048.721	960.489
8+167.024	3.800 LT	1041.965	956.81
0+629.515	3.300 LT	1040.491	951.781
0+587.199	3.300 LT	1060.846	914.682
8+166.976	3.800 RT	1038.289	963.462
8+174.673	3.800 RT	1045.049	967.143
10+079.659	3.600 RT	1046.244	971.221
10+129.885	3.768 RT	1021.920	1015.554
10+141.091	4.261 LT	1018.330	1027.439
9+177.712	3.900 LT	1013.775	1028.275
0+683.409	3.299 LT	1014.567	999.031
0+644.515	3.299 LT	1033.276	964.932

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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

PAVEMENT MARKING PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	15	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

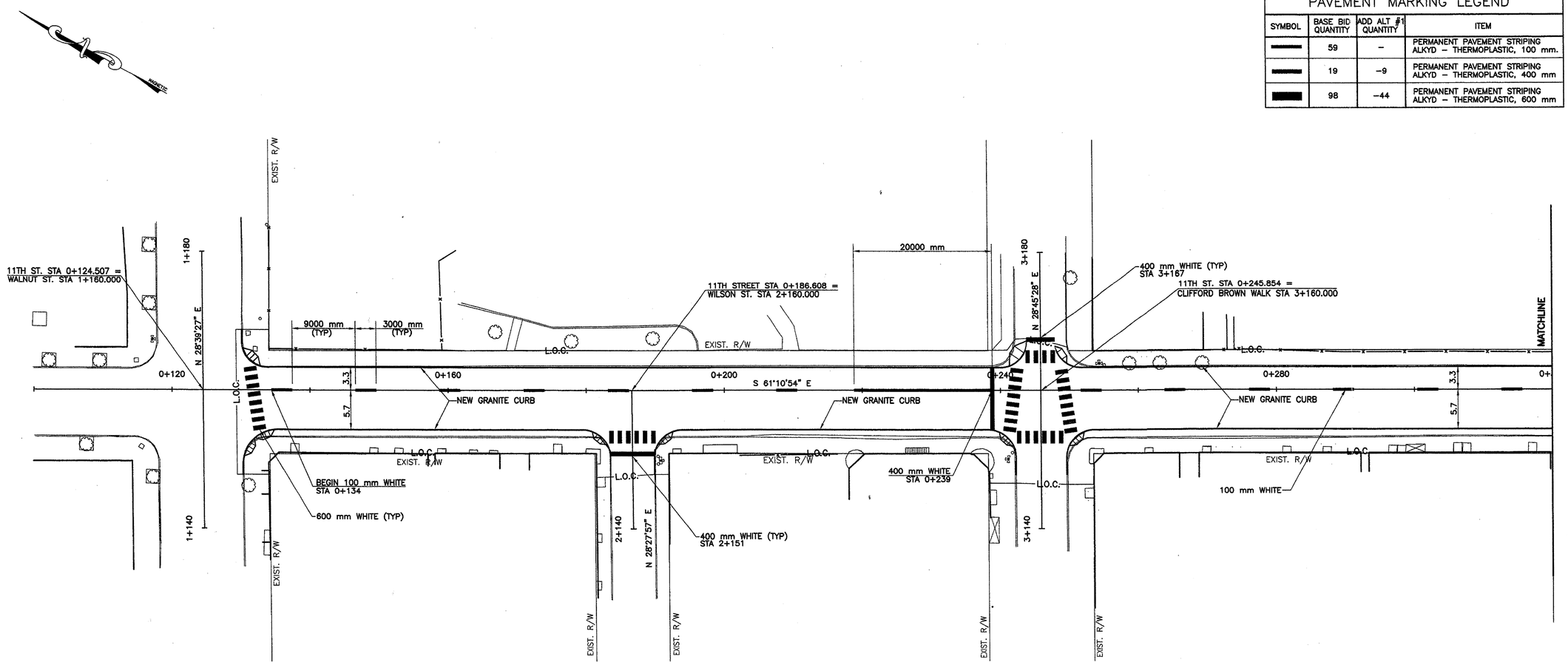
REVISIONS

0 5 10 20 30

GRAPHIC SCALE (1:300)

PAVEMENT MARKING LEGEND

SYMBOL	BASE BID QUANTITY	ADD ALT #1 QUANTITY	ITEM
▬	59	–	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 100 mm.
▬	19	–9	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 400 mm
▬	98	–44	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 600 mm



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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

PAVEMENT MARKING PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	16	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

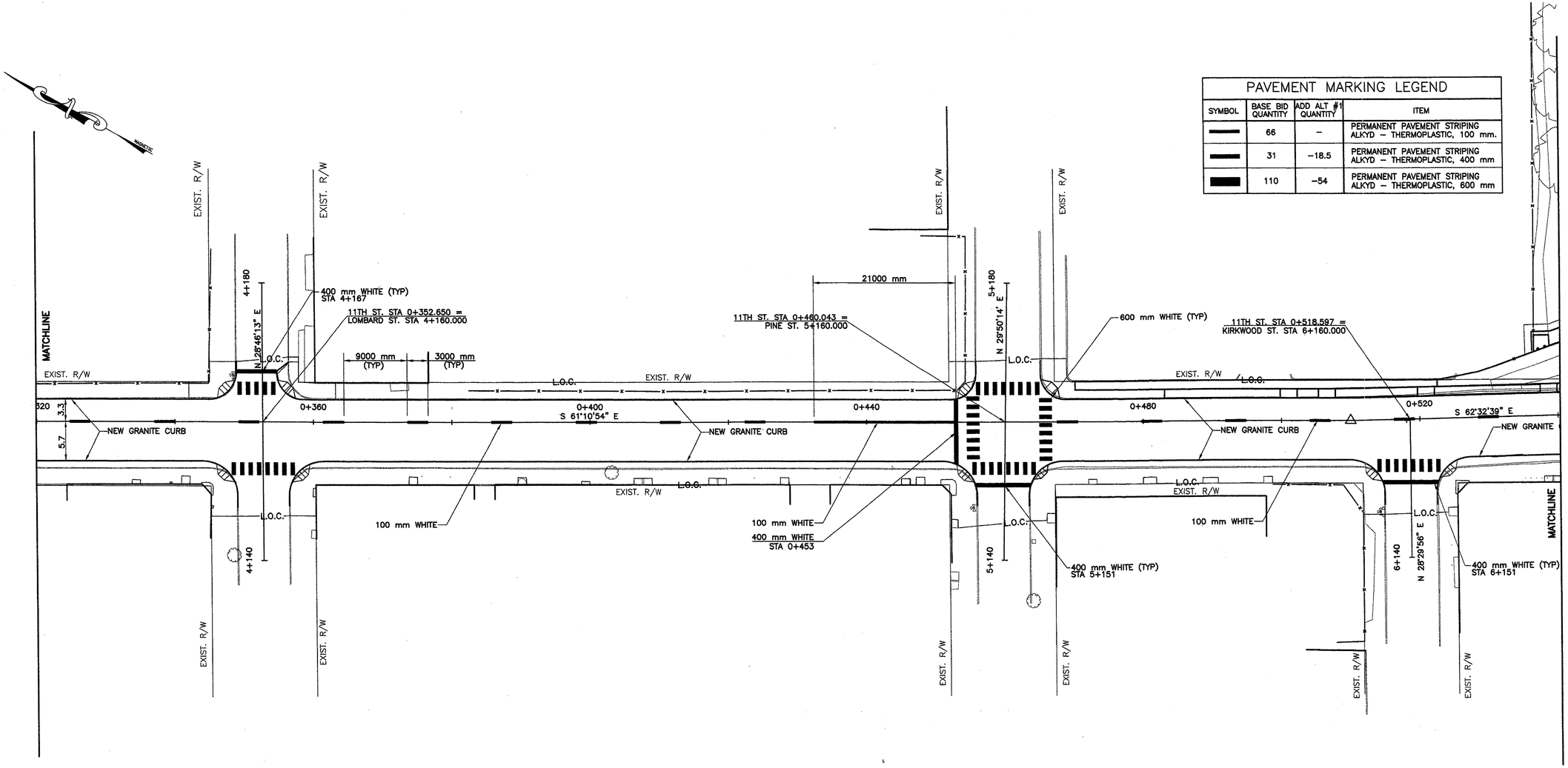
REVISIONS	

0 5 10 20 30

GRAPHIC SCALE (1:300)

PAVEMENT MARKING LEGEND

SYMBOL	BASE BID QUANTITY	ADD ALT #1 QUANTITY	ITEM
	66	–	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 100 mm.
	31	-18.5	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 400 mm
	110	-54	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 800 mm



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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. THE LIMITS OF EPOXY RESIN PAINT SHALL BE DETERMINED BY THE FIELD ENGINEER.

PAVEMENT MARKING LEGEND

SYMBOL	BASE BID QUANTITY	ADD ALT #1 QUANTITY	ITEM
▬▬	305	–	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 100 mm.
▬▬	34	–	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 150 mm
▬▬	63	–6.5	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 400 mm
▬▬	225	–69	PERMANENT PAVEMENT STRIPING ALKYD – THERMOPLASTIC, 600 mm
▬▬	19	–	PERMANENT PAVEMENT STRIPING EPOXY RESIN PAINT, 100 mm

PAVEMENT MARKING PLAN

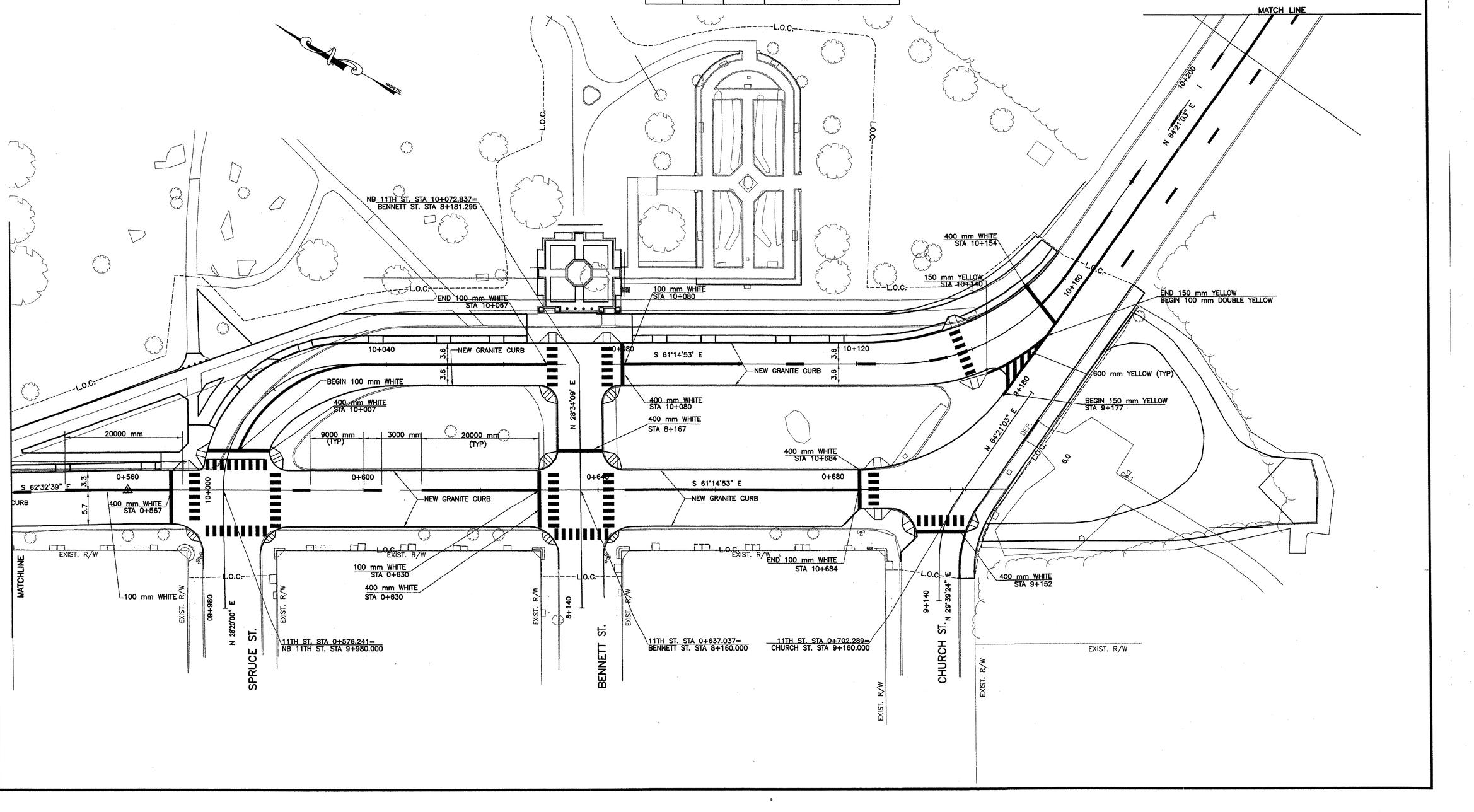
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	17	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	



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GENERAL NOTES:

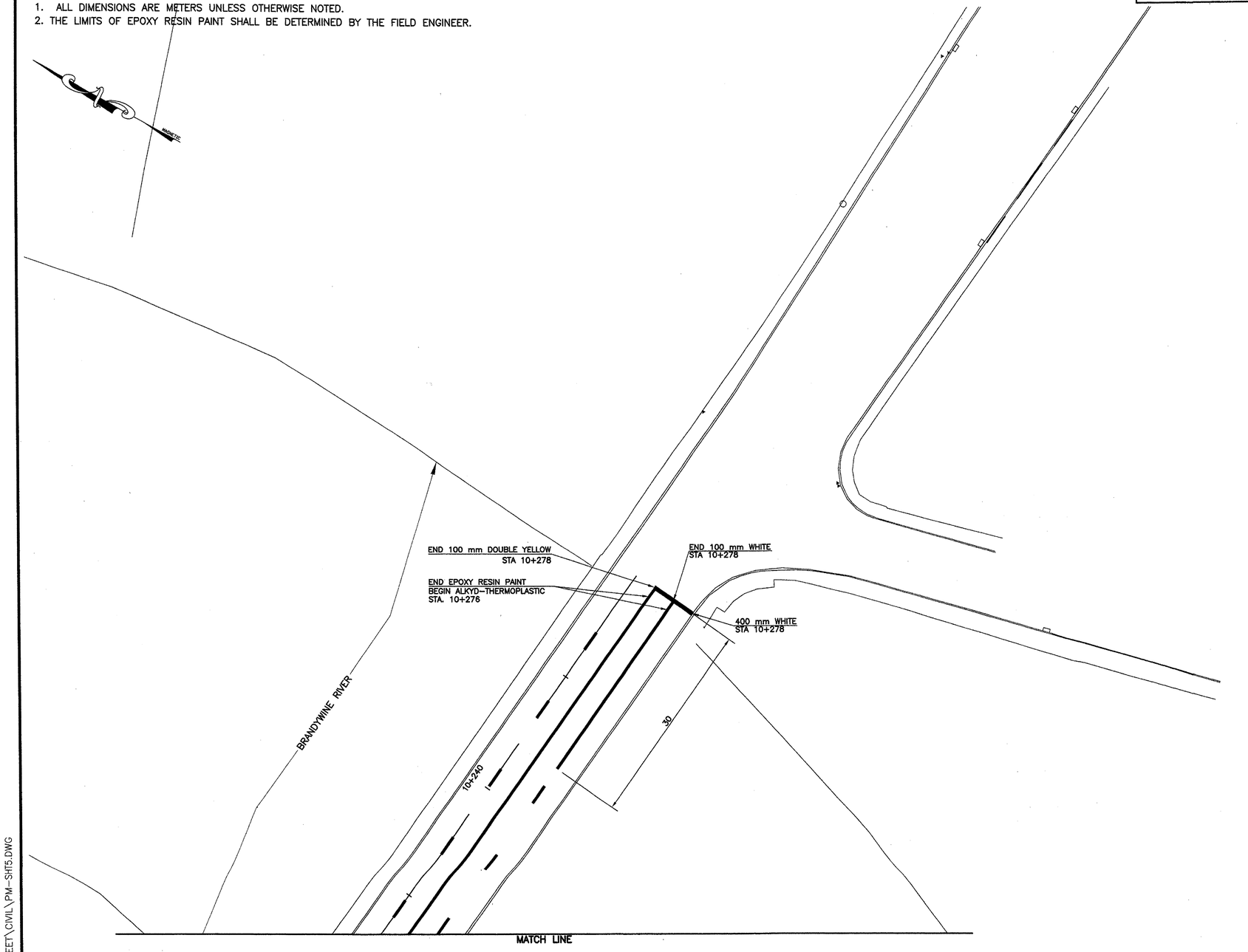
1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. THE LIMITS OF EPOXY RESIN PAINT SHALL BE DETERMINED BY THE FIELD ENGINEER.

PAVEMENT MARKING PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	18	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

REVISIONS



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GRAPHIC SCALE (1:300)

PAVEMENT MARKING LEGEND

SYMBOL	QUANTITY	ITEM
	18	PERMANENT PAVEMENT STRIPING ALKYD - THERMOPLASTIC, 100 mm.
	6	PERMANENT PAVEMENT STRIPING ALKYD - THERMOPLASTIC, 400 mm
	152	PERMANENT PAVEMENT STRIPING EPOXY RESIN PAINT, 100 mm

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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. ALL EXISTING SIGNS ARE TO REMAIN UNLESS OTHERWISE NOTED.

SIGNING LEGEND
① RENEW EXISTING SIGN
② PLACE NEW SIGN
③ REPOSITION EXISTING SIGN
④ RENEW AND REPOSITION EXISTING SIGN

SIGNING PLAN

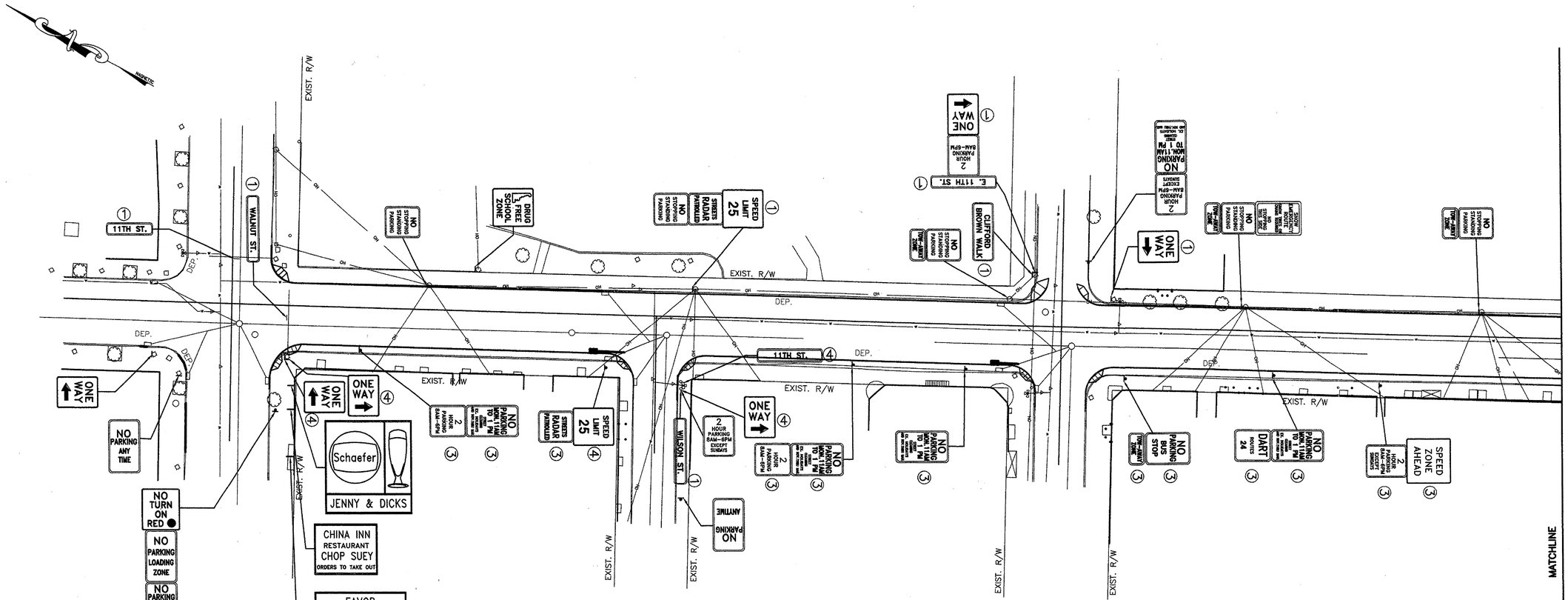
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	19	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	



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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. ALL EXISTING SIGNS ARE TO REMAIN UNLESS OTHERWISE NOTED.

SIGNING LEGEND
① RENEW EXISTING SIGN
② PLACE NEW SIGN
③ REPOSITION EXISTING SIGN
④ RENEW AND REPOSITION EXISTING SIGN

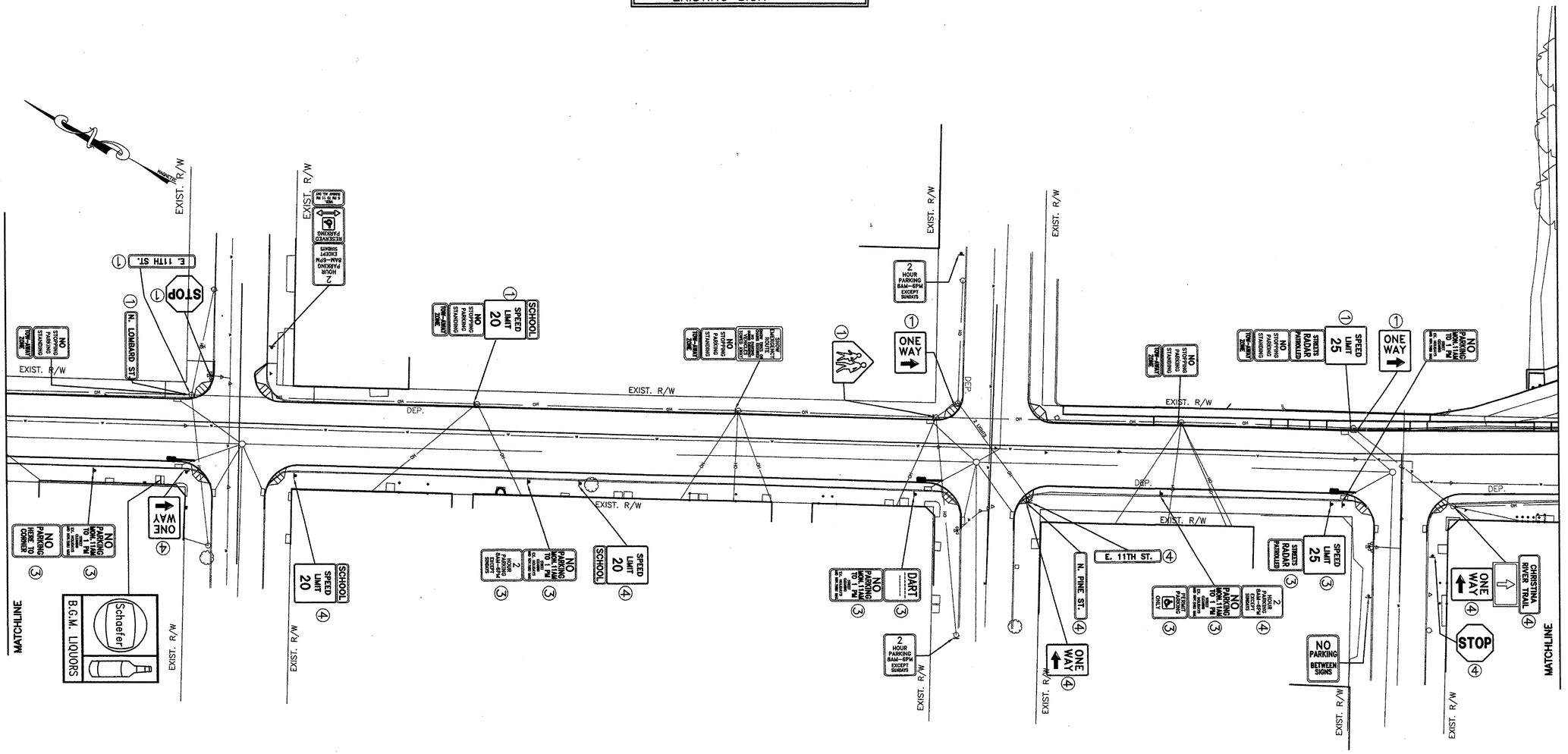
SIGNING PLAN

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	20	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

REVISIONS



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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. ALL EXISTING SIGNS ARE TO REMAIN UNLESS OTHERWISE NOTED.

SIGNING LEGEND
① RENEW EXISTING SIGN
② PLACE NEW SIGN
③ REPOSITION EXISTING SIGN
④ RENEW AND REPOSITION EXISTING SIGN

SIGNING PLAN

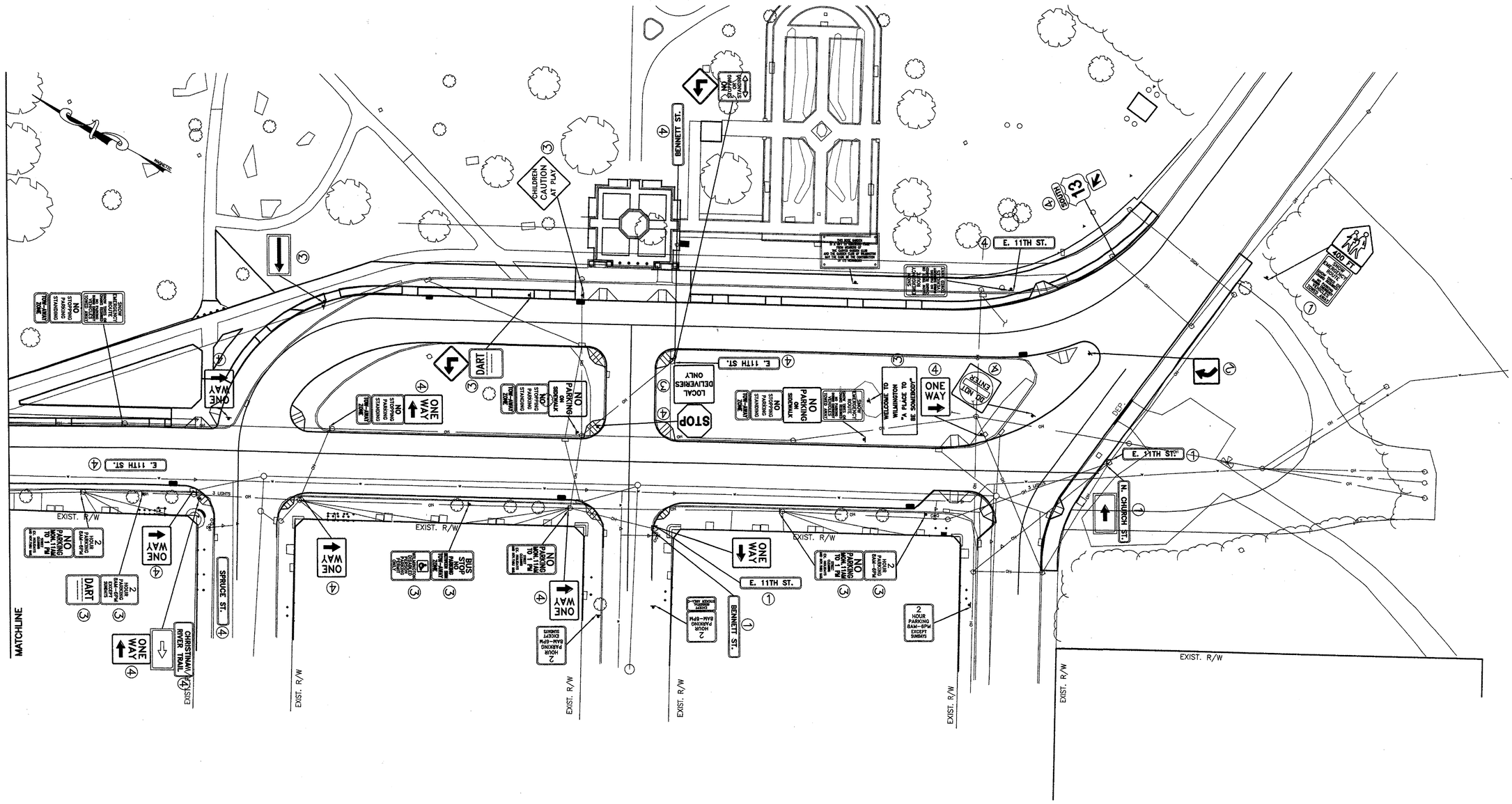
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	21	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

REVISIONS



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PROJECT NOTES FOR SEDIMENT AND STORMWATER MANAGEMENT

1. DUST CONTROL. DUST IS TO BE CONTROLLED EXCLUSIVELY THROUGH THE USE OF WATER. COSTS ASSOCIATED WITH THE FURNISHING AND APPLICATION OF WATER FOR DUST CONTROL SHALL BE INCIDENTAL TO ALL THE CONTRACT BID ITEMS.

2. MOWING. THE CONTRACTOR SHALL MAINTAIN ALL GRASS ESTABLISHED BY TEMPORARY AND PERMANENT SEEDING TO A MAXIMUM HEIGHT OF 150 mm UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH MAINTAINING A 150 mm MAXIMUM HEIGHT SHALL BE INCIDENTAL TO THE VARIOUS TEMPORARY AND PERMANENT SEEDING ITEMS. GRASS ESTABLISHED BY CROWN VETCH SEEDING SHALL BE EXCLUDED FROM THIS REQUIREMENT.

3. CONSTRUCTION ENTRANCES. IT IS INTENDED THAT MUD TRACKING BE ELIMINATED ON ALL STATE MAINTAINED ROADWAYS ADJOINING THE PROJECT. EACH POINT OF INGRESS AND EGRESS FROM THE PROJECT SHALL HAVE INSTALLED A STABILIZED CONSTRUCTION ENTRANCE IN CONFORMANCE WITH DEPARTMENT STANDARDS. ALL PAVED SURFACES ADJOINING THE PROJECT LIMITS SHALL BE LEFT IN A BROOM CLEAN CONDITION AT THE END OF EACH WORK DAY. STABILIZED CONSTRUCTION ENTRANCES SHALL BE TOP DRESSED WITH 50 mm OF CLEAN DE NO. 3 STONE WHEN THE VOIDS BECOME CLOGGED OR AS DIRECTED BY THE ENGINEER. ADDITIONAL STONE REQUIRED TO MAINTAIN THE ENTRANCES WILL BE PAID UNDER ITEM 302500, DELAWARE NUMBER 3 STONE.

4. THE EROSION POTENTIAL FOR THIS PROJECT HAS BEEN DETERMINED TO BE "MINOR". THE SITE REVIEWER SHALL MEET THE REQUIREMENTS OF THE CONTRACTOR CERTIFICATION PROGRAM AS DEFINED IN SECTION 1.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.

5. THE CONTRACTOR SHALL ONLY CLEAR THE AREA OF EXISTING SIDEWALK, CURB AND OTHER HARD SURFACE MATERIAL THAT CAN BE STABILIZED COMPLETELY OR TEMPORARILY TO TOP OF BASE COURSE AT THE END OF EACH WORKDAY

EROSION AND SEDIMENT CONTROL PLAN

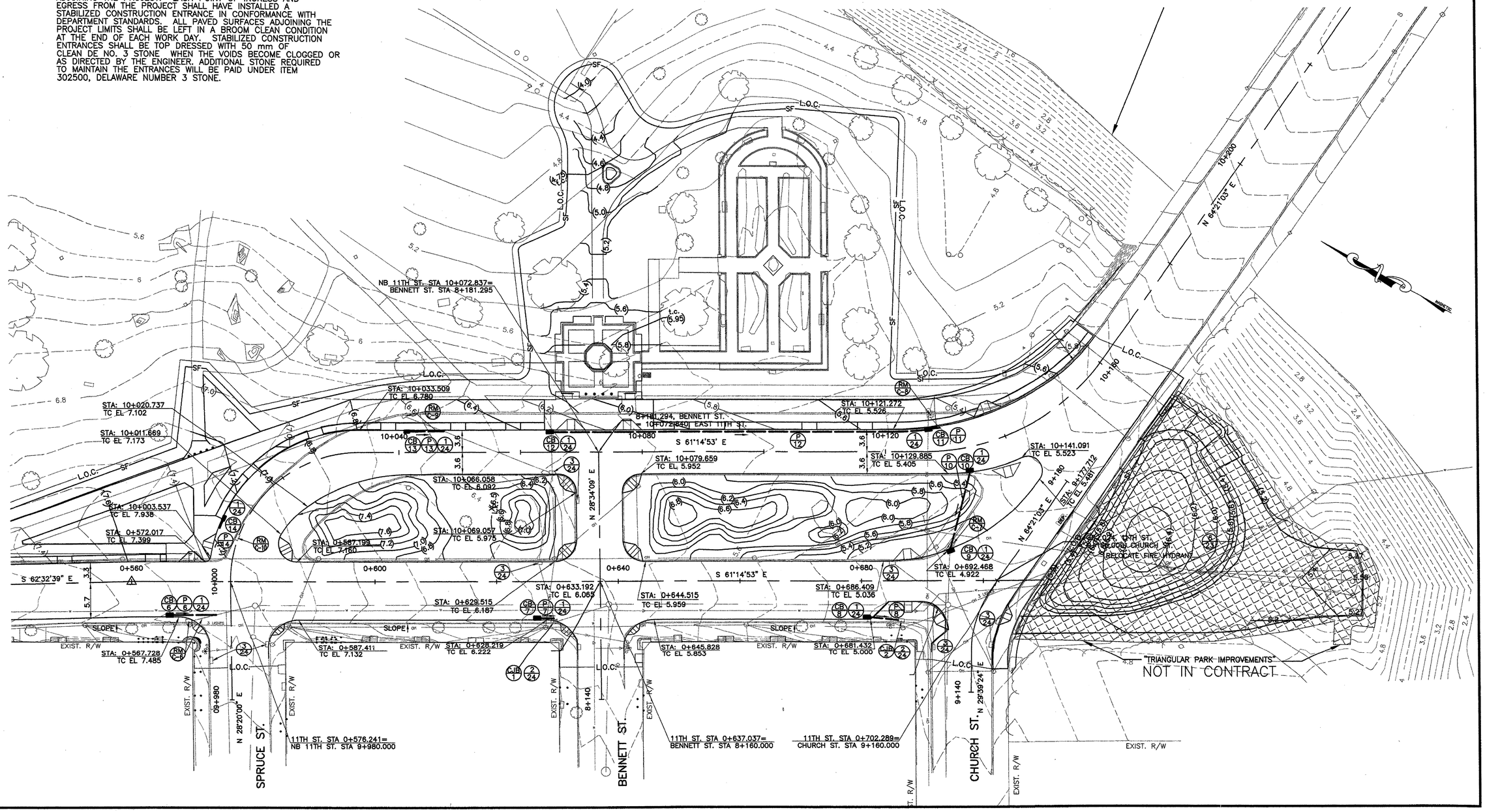
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	22	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

REVISIONS	

0 5 10 20 30

GRAPHIC SCALE (1:300)



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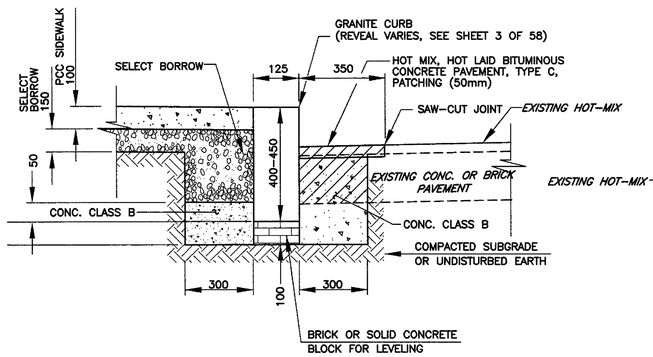
DETAILS-I

NOT TO SCALE

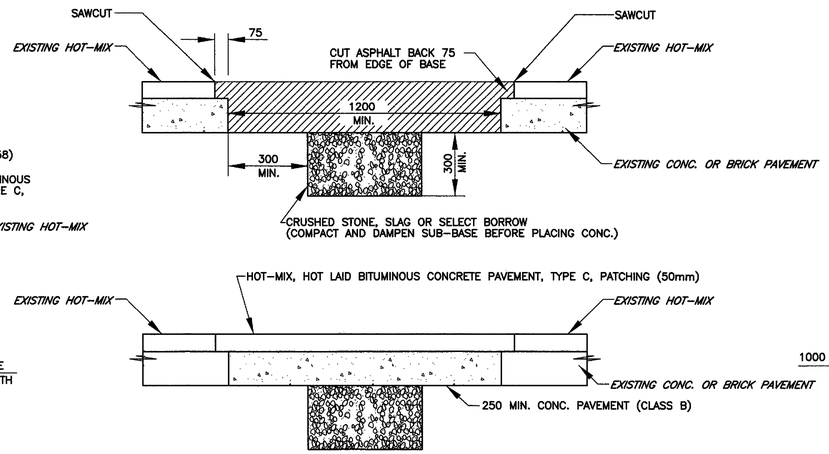
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	23	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

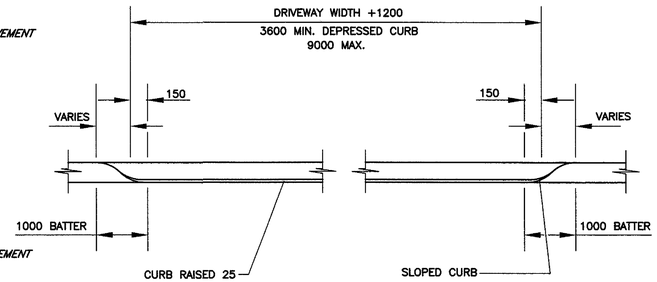
REVISIONS



① GRANITE CURB – TYPE I

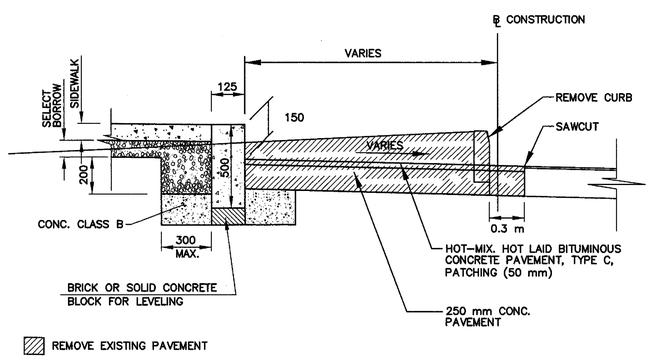


② BITUMINOUS SURFACED RIGID-BASE FOR TRENCH EXCAVATION IN PAVEMENT



③ DEPRESSED CURB (TYP)

(SEE NOTE 2)



⑤ WIDENING DETAIL – 11th STREET

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO REPLACE ALL EXISTING DEPRESSED CURBS, MATCH EXISTING WIDTH, WITHIN CONTRACT LIMITS

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DETAILS – 2

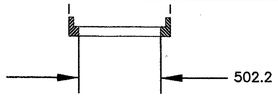
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	24	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

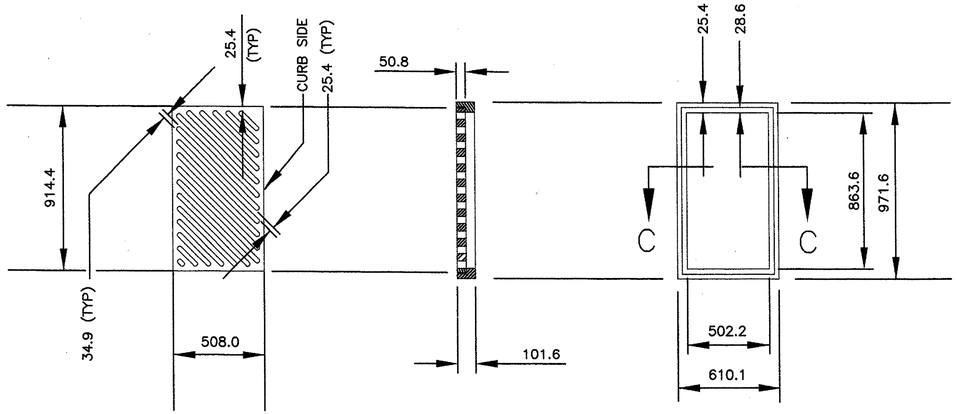
REVISIONS	

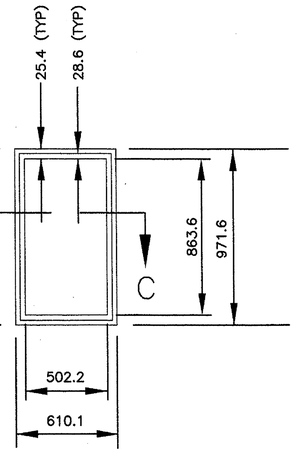
0 5 10 20 30

GRAPHIC SCALE (1:300)



SECTION C–C





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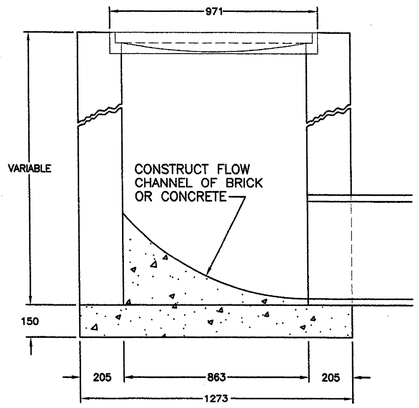
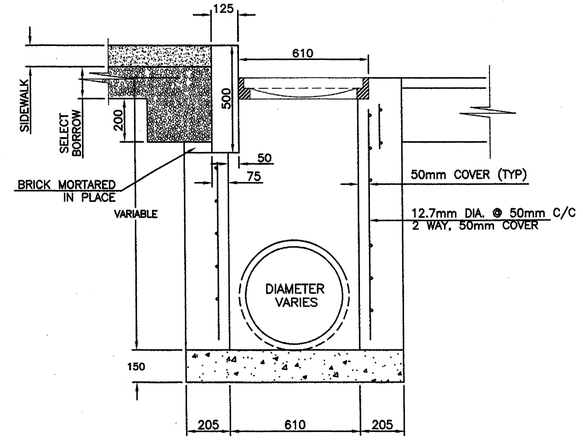
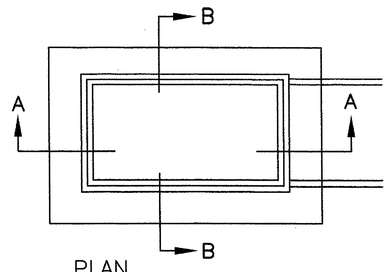


SECTION A–A
N.T.S.



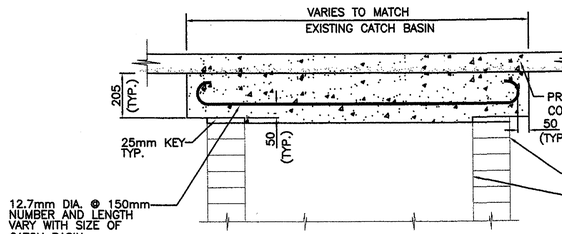
SECTION B–B
N.T.S.



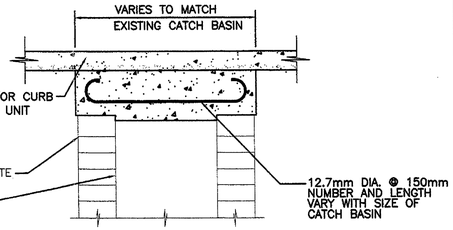
PLAN
N.T.S.

STEPS ARE TO BE PLACED IN ALL CATCH BASINS AND MANHOLES OVER 1.220mm DEEP. COST OF STEPS INCLUDED IN COST OF CATCH BASIN.

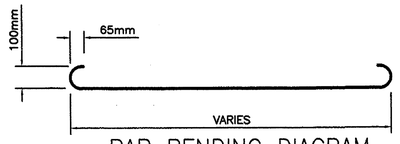
1 CATCH BASIN A, MODIFIED



SECTION D–D

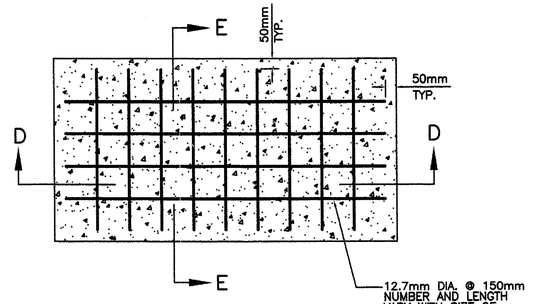


SECTION E–E



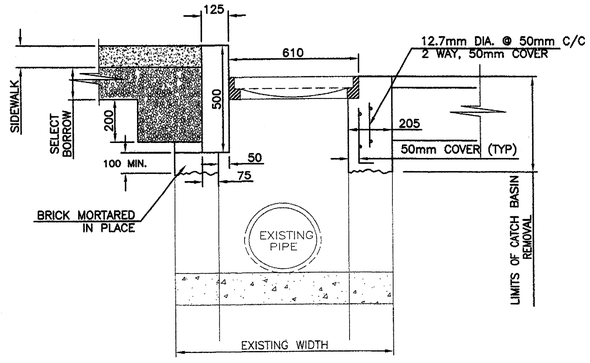
BAR BENDING DIAGRAM
N.T.S.

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
2. REINFORCING STEEL SHALL CONFORM TO AASHTO M31M–94 GRADE 400.
3. CONCRETE SHALL BE PORTLAND CEMENT CONCRETE CLASS B (20MPa).
4. THE CONTRACTOR SHALL EXCAVATE TO THE REQUIRED DEPTH TO SET THE TOP OF CONCRETE CAP BELOW ALL PROPOSED WORK (PROPOSED SIDEWALK AND PROPOSED CURB).



PLAN

2 CONVERTING EXISTING DRAINAGE INLET TO JUNCTION BOX



3 RECONSTRUCTING CATCH BASIN TOP UNIT

N.T.S.

NOTE:
CONTRACTOR WILL DOWEL INTO EXISTING CATCH BASINS (BRICK OR CONCRETE). THE ENGINEER MAY DIRECT THE CONTRACTOR TO REPLACE THE ENTIRE CATCH BASIN AND REPLACE WITH "CATCH BASIN A, MODIFIED"

F:\3456\01\11TH STREET\CIVIL\DETAILS_2.DWG

PLANTING SCHEDULE

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
STREET TREES							
	CB	6	Carpinus betulus 'Fastigiata'	Pyramidal European Hornbeam	65–75mm Cal.	B&B	
	PS	9	Prunus sargentii 'Columnaris'	Columnar Sargent Cherry	75–90mm Cal.	B&B	
	ZS	6	Zelkova serrata 'Green Vase'	Green Vase Zelkova	75–90mm Cal.	B&B	

LANDSCAPE PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	25	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

0 5 10 20 30
GRAPHIC SCALE (1:300)

PLANTING SCHEDULE

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
STREET TREES							
	AC	6	Acer campestre	Hedge Maple	65–75mm Cal.	B&B	
	CB	4	Carpinus betulus 'Fastigiata'	Pyramidal European Hornbeam	75–90mm Cal.	B&B	
	PS	9	Prunus sargentii 'Columnaris'	Columnar Sargent Cherry	75–90mm Cal.	B&B	
	SJ	9	Sophora japonica 'Princeton Upright'	Princeton Upright Scholartree	75–90mm Cal.	B&B	

LANDSCAPE PLAN

0 5 10 20 30

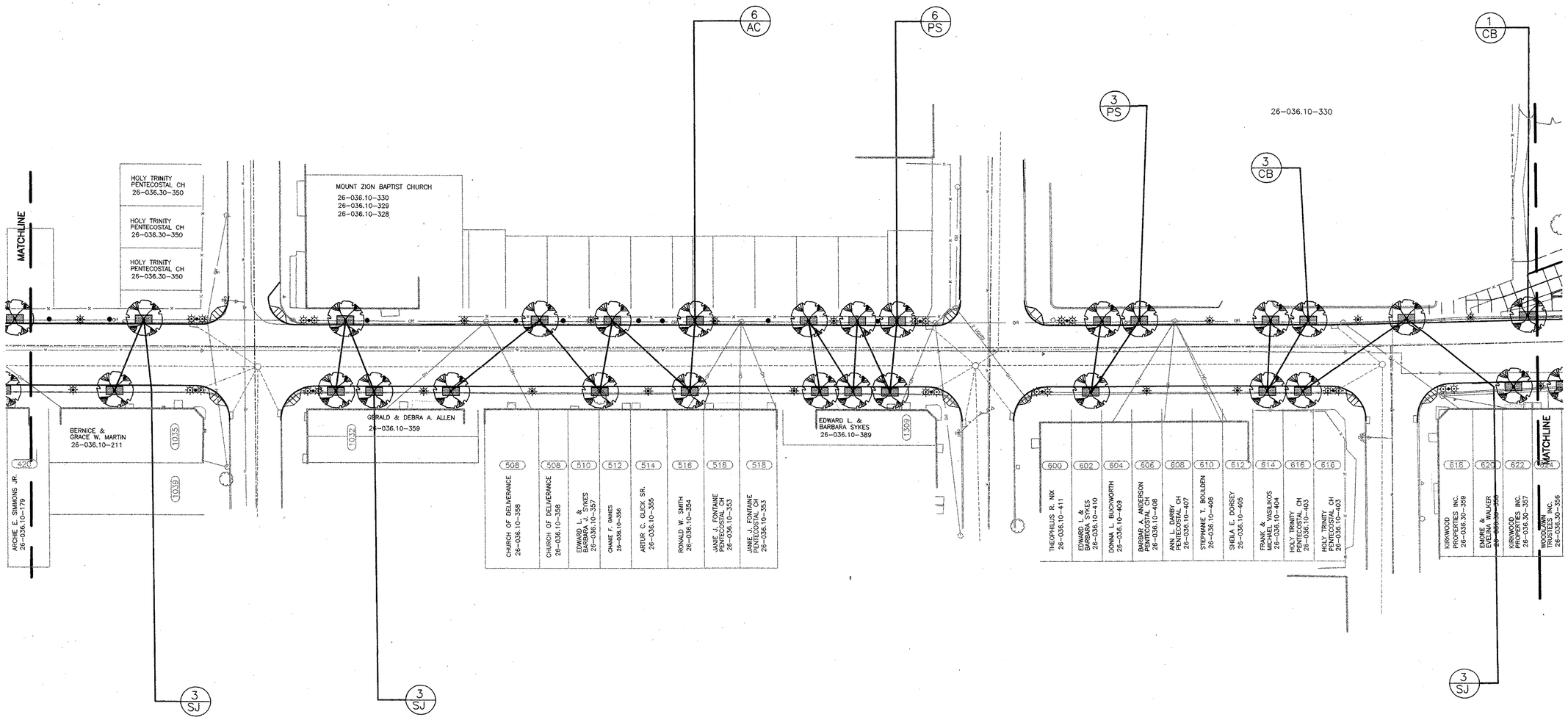
GRAPHIC SCALE (1:300)

NORTH

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	26	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS



GENERAL NOTES:

1. Prune trees back by one third. Prune deadwood or diseased limbs. Prune any damaged branches. Do not top off, leave stubs, or cut the tree collar. Do not remove excessive branches.

2. All woody vegetation to remain within 7.5m of the limit of construction shall be protected by tree protection fencing. All tree protection fencing shall be placed at the driplines of trees and shrubs.

3. No material shall be stockpiled under or within protected vegetation areas. All contruction traffic shall be prohibited within protected vegetation areas.

4. New plant material within the driplines of existing trees shall be installed by hand.

5. All tree roots or branches broken during construction shall be cleanly cut. All tree roots exposed by excavation or demolition shall be covered with plastic sheeting or wet burlap until finished grade is restored.

PLANTING SCHEDULE

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
STREET TREES							
	CB	4	Carpinus betulus 'Fastigiata'	Pyramidal European Hornbeam	65–75mm Cal.	B&B	
	SJ	9	Sophora japonica 'Princeton Upright'	Princeton Upright Scholartree	75–90mm Cal.	B&B	
	ZS	8	Zelkova serrata 'Green Vase'	Green Vase Zelkova	75–90mm Cal.	B&B	
ORNAMENTAL TREES							
	MH	7	Malus 'Harvest Gold'	Harvest Gold Crabapple	50–65mm Cal.	B&B	
	KP	4	Koelreuteria paniculata	Golden Rain Tree	65–75mm Cal.	B&B	

LANDSCAPE PLAN

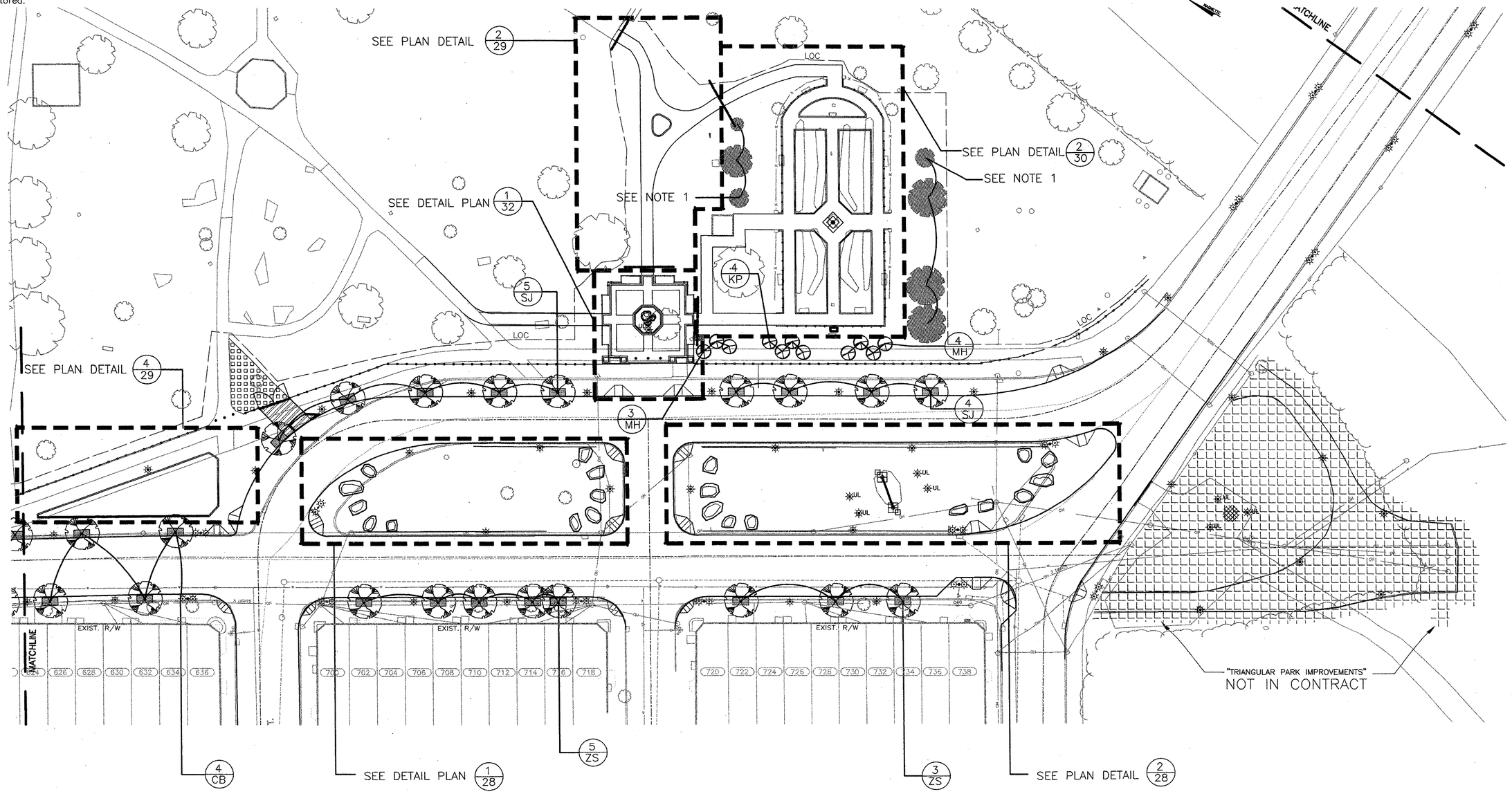
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	27	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

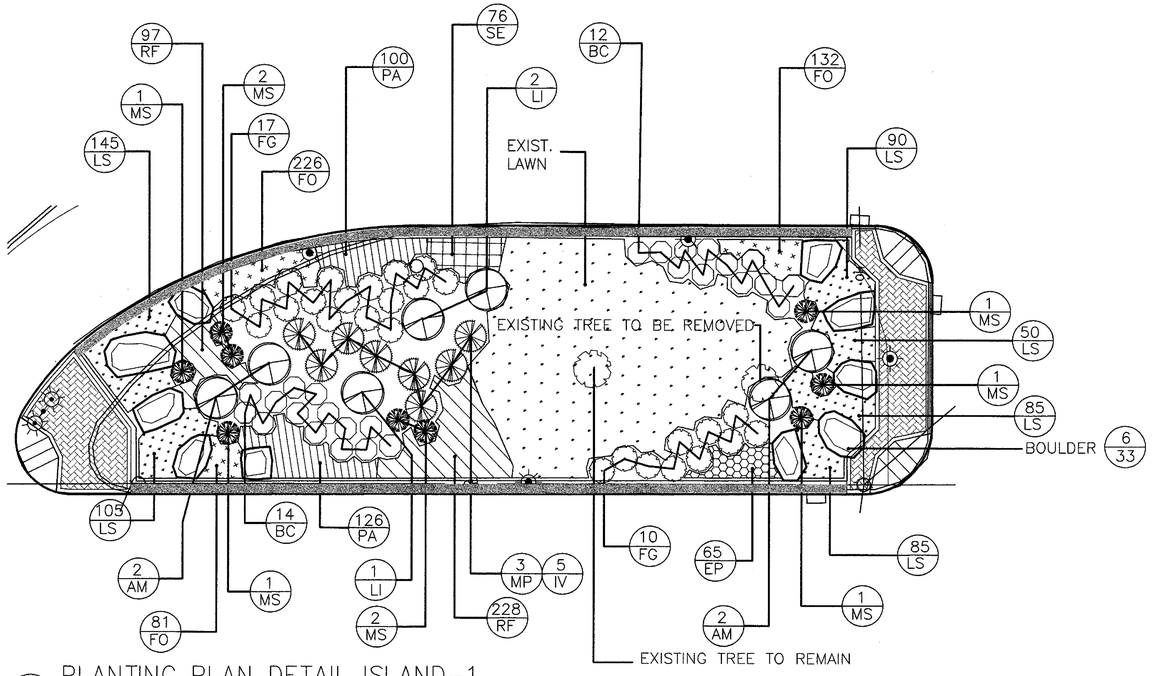


LANDSCAPE PLAN DETAILS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	28	58

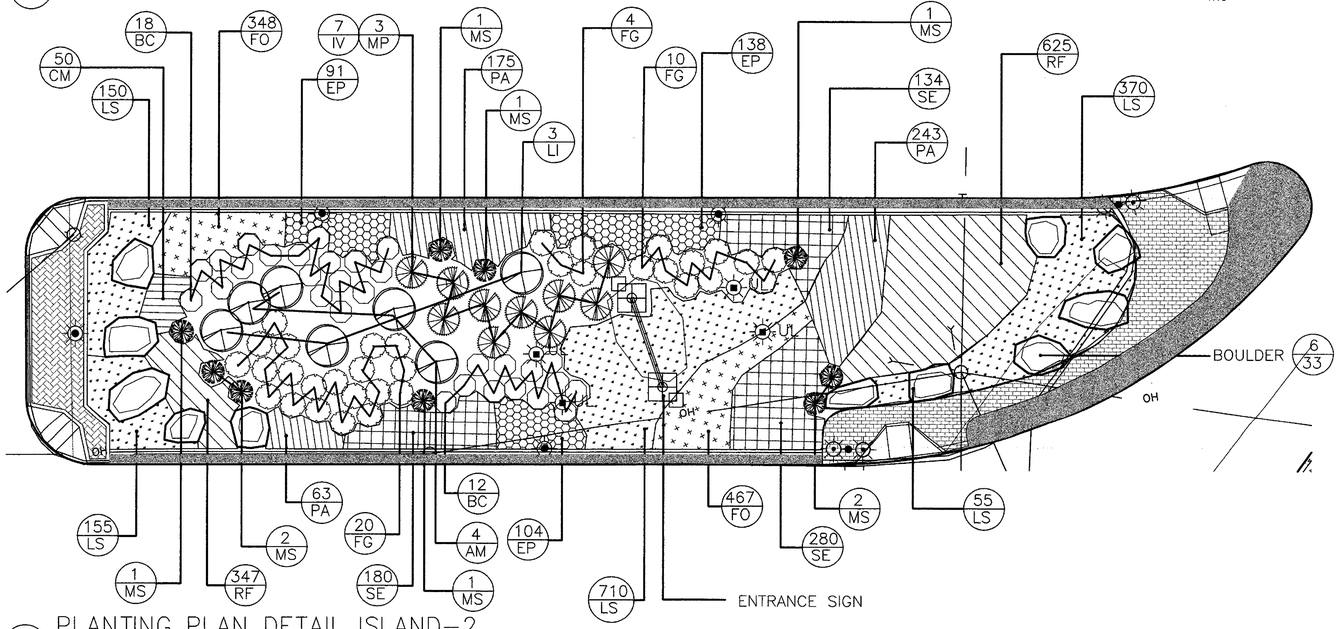
11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	



1 PLANTING PLAN DETAIL ISLAND-1

NTS

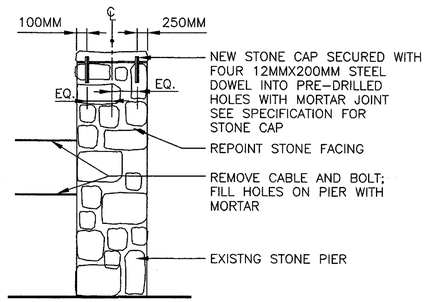


2 PLANTING PLAN DETAIL ISLAND-2

NTS

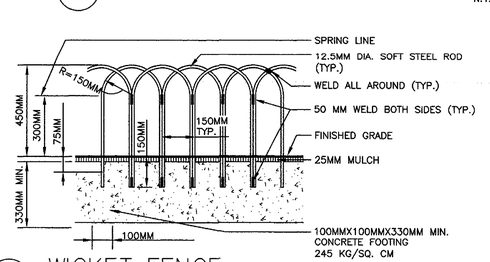
PLANTING SCHEDULE

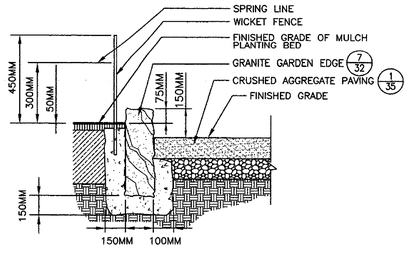
ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
ORNAMENTAL TREES							
	AM	8	Amelanchier canadensis	Serviceberry	1.8–2.4m Ht.	B&B	Tree Form
	LI	6	Lagerstroemia indica 'Tuscarora'	Coral Pink Crapemyrtle	2.2–2.4m Ht.	B&B	3–4 Leg Tree Form
SHRUBS:							
	BC	56	Berberis thunbergii 'Crimson Pygmy'	Crimson Pygmy Barberry	0.45–0.6m Ht.	Cont.	1.0m O.C.
	FG	61	Fothergilla gardenii	Dwarf Fothergilla	0.45–0.6m Ht.	B&B	1.0m O.C.
	IV	12	Itea virginica 'Henry's Garnet'	Sweetspire	0.6–0.9m Ht.	B&B	field locate
	MP	6	Myrica pennsylvanica	Northern Bayberry	1.0–1.2m Ht.	B&B	field locate
PERENNIALS							
	A	45	Allium Gigantium	Giant Allium	Bulbs		field locate
	AR	50	Armeria maritima 'Rubiflora'	Thrift	5 Pt.		field locate
	AS	30	Asclepias tuberosa'Purpurescens'	Butterfly Weed	5 Pt.		field locate
	CM	50	Chrysanthemum maximum	Shasta Daisy	#1 CAN		0.3m O.C.
	EP	398	Echinacea purpurea	Purple Coneflower	#1 CAN		0.3m O.C.
	FO	1254	Festuca ovina glauca	Blue Fescue	#1 CAN		0.2m O.C.
	MS	18	Miscanthus sinensis 'Gracillimus'	Maiden Grass	#1 CAN		0.9m O.C.
	PA	707	Pennisetum alopecuroides	Fountain Grass	#1 CAN		0.3m O.C.
	RF	1297	Rudbeckia fulgida 'Goldsturm'	Goldsturm Coneflower	#1 CAN		0.3m O.C.
	SE	670	Sedum 'Autumn Joy'	Autumn Joy Sedum	#1 CAN		0.3m O.C.
GROUNDCOVER:							
	LS	2000	Liriope spicata	Creeping Lily-Turf	100 mm	Peat pot	0.3m O.C.
	EF	2100	Euonymus fortunei 'Coloratus'	Purpleleaf Wintercreeper	100 mm	Peat pot	0.3m O.C.



3 STONE PILLAR @ ROSE GARDEN

N.T.S.





4 WICKET FENCE

N.T.S.

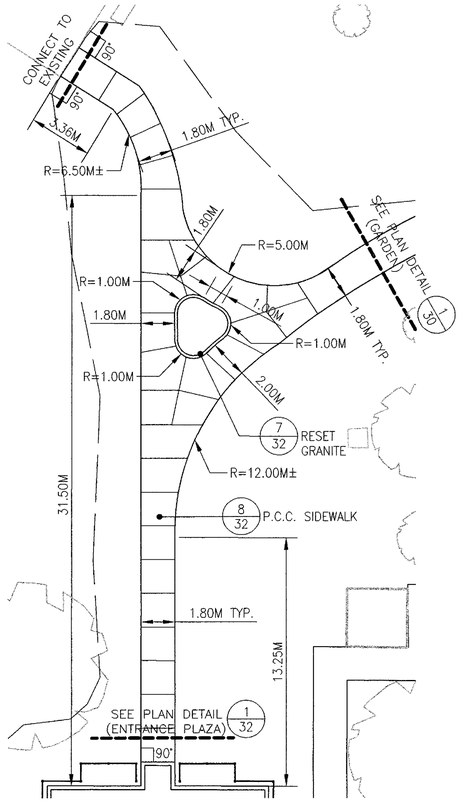
LANDSCAPE PLAN DETAILS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	29	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

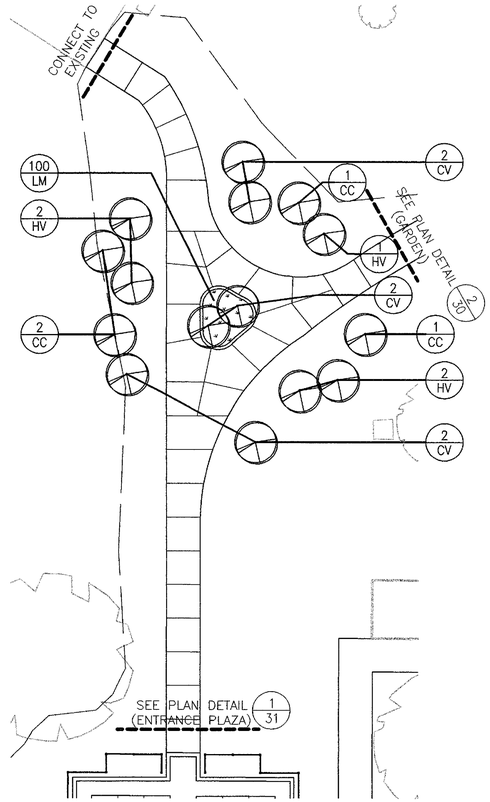
REVISIONS

⚠ ORNAMENTAL FENCE 5/5/99	⚠ BOLLARDS 5/5/99



① PATH LAYOUT PLAN

SCALE: 1:150



② PATH PLANTING PLAN DETAIL

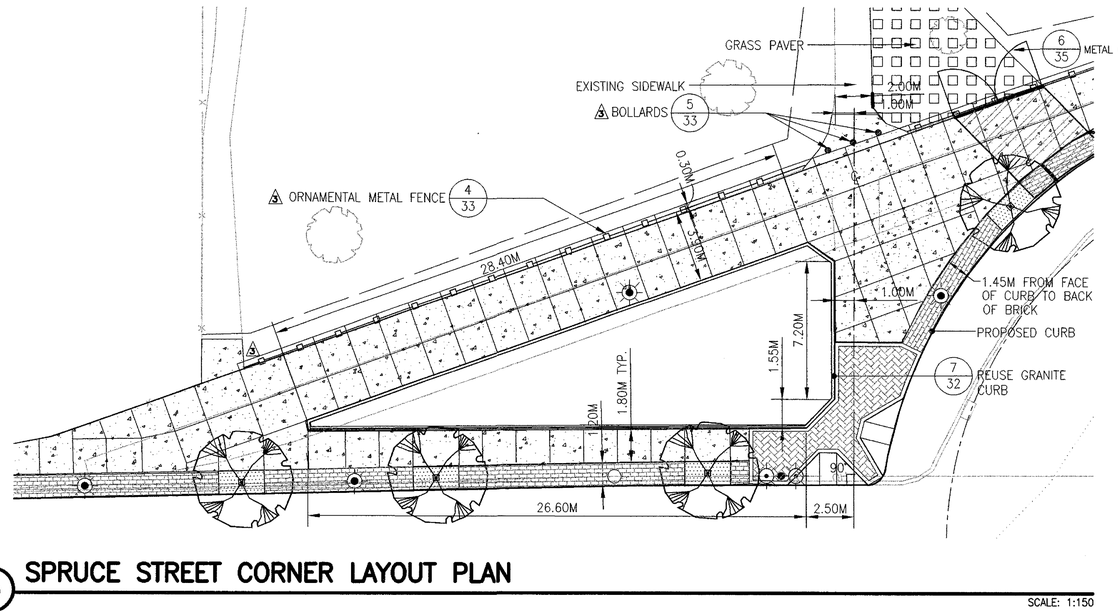
SCALE: 1:100

PLANTING SCHEDULE FOR PATH

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
ORNAMENTAL TREES							
	CC	4	Cercis canadensis	Eastern Redbud	50 to 65 mm Cal.	B&B	Tree Form
	CV	6	Chionanthus virginicus	White Fringe Tree	1.5–1.8m Ht.	B&B	Tree Form
	HV	5	Hamamelis virginiana	Common Witch Hazel	1.5–1.8m Ht.	B&B	Tree Form
GROUNDCOVER:							
	LM	100	Liriope muscari 'Lilac Beauty'	Lilac Beauty Lily-Turf	100mm	Peat Pot	0.3m O.C.

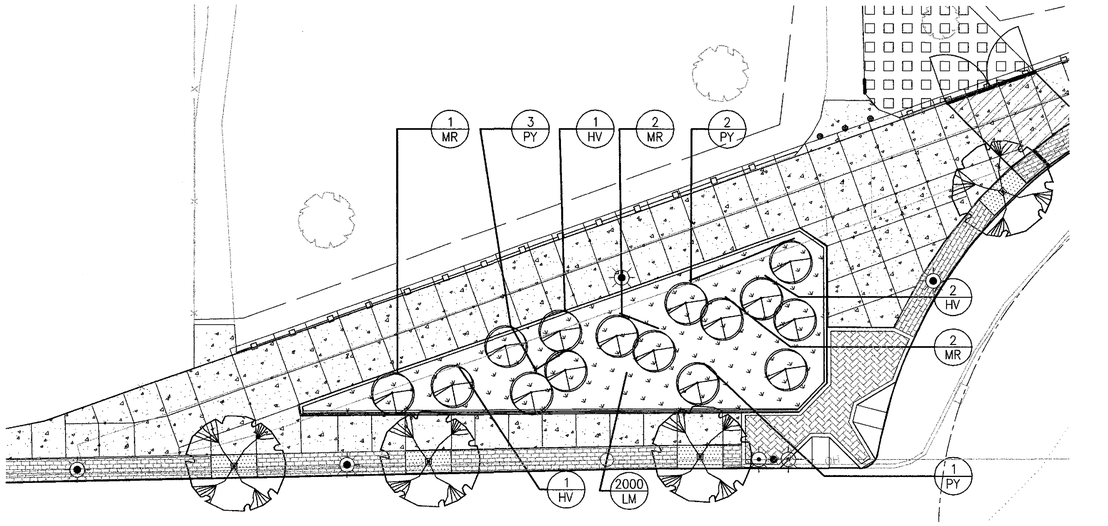
PLANTING SCHEDULE FOR SPRUCE STREET CORNER

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
ORNAMENT TREES:							
	HV	4	Hamamelis virginiana	Common Witch Hazel	1.5–1.8m Ht.	B&B	Tree Form
	MR	5	Malus 'Red Jewel'	'Red Jewel' Crab	50 to 65 mm Cal.	B&B	
	PY	6	Prunus X yedonesis	Yoshino Cherry	65 to 75 mm Cal.	B&B	
GROUNDCOVER:							
	LM	2000	Liriope muscari 'Lilac Beauty'	Lilac Beauty Lily-Turf	100mm	Peat Pot	0.3m O.C.



③ SPRUCE STREET CORNER LAYOUT PLAN

SCALE: 1:150



④ SPRUCE STREET CORNER PLANTING PLAN DETAIL

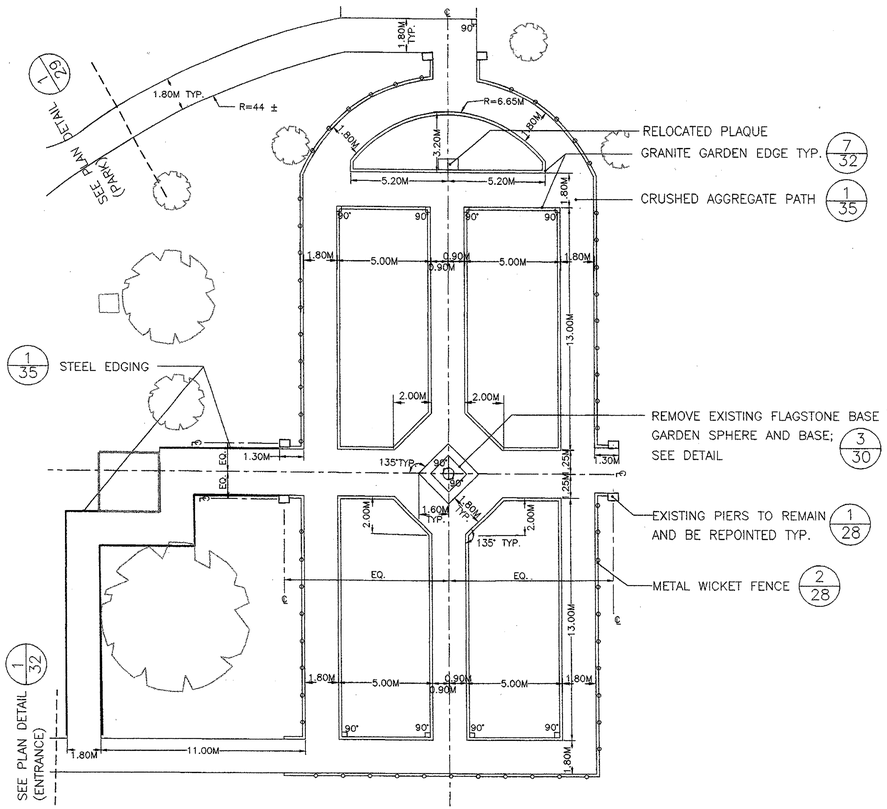
SCALE: 1:150

LANDSCAPE PLAN DETAILS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	30	58

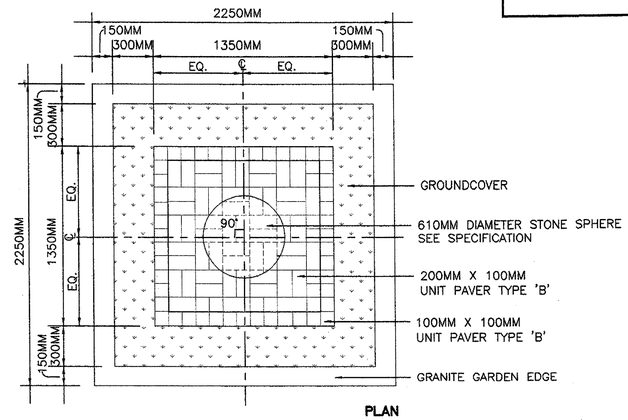
11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	



1 GARDEN LAYOUT PLAN

SCALE: 1:100



3 GARDEN SPHERE AND BASE DETAIL

N.T.S.

PLANTING SCHEDULE

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
DECIDUOUS SHRUBS:							
	AS	28	Amelanchier stolonifera	Running Serviceberry	0.3–0.5m Ht.	B&B	Multi-stemmed
	HQ	22	Hydrangea quercifolia	Oakleaf Hydrangea	0.3–0.4m Ht.	B&B	
		132	Rosa floribunda 'Gruss on Aachen'	'Gruss on Aachen' Floribunda Rose	0.4–0.5m Ht.	B&B	0.6m O.C.
EVERGREEN SHRUBS:							
	IL	117	Ilex crenata 'Green Luster'	'Green Luster' Japanese Holly	0.2–0.3m Ht.	B&B	1.0m O.C.
	IG	16	Ilex glabra 'Compacta'	Compact Inkberry Holly	0.3–0.5m Ht.	B&B	
	RA	12	Rhododendon 'Aurora'	'Aurora' Hybrid Azalea	0.25–0.35m Ht.	B&B	
PERENNIALS:							
		70	Astilbe 'Bridal Veil'	False Spirea	#1 CAN		0.45m O.C.
		35	Cimicifuga racemosa	Black Snakeroot	#1 CAN		0.45m O.C.
		209	Epimedium x rubrum	Red Barrenwort	#1 CAN		0.3m O.C.
		181	Galium oderatum	Sweet Woodruff	#1 CAN		0.3m O.C.
		65	Hemerocallis 'Stella de Oro'	'Stella de Oro' Daylily	#1 CAN		0.45m O.C.
		70	Heuchera 'Palace Purple'	'Palace Purple' Coral Bells	#1 CAN		0.45m O.C.
		30	Ligularia 'Othello'	'Othello' Ligularia	#1 CAN		0.45m O.C.
		115	Scabiosa "Butterfly Blue"	Pincushion Flower	#1 CAN		0.45m O.C.
		85	Tiarella cordifolia	Allegheny Foamflower	#1 CAN		0.45m O.C.
GROUNDCOVER:							
		750	Hedera helix	English Ivy	100 mm	Peat pot	0.3m O.C.

2 GARDEN PLANTING PLAN DETAIL

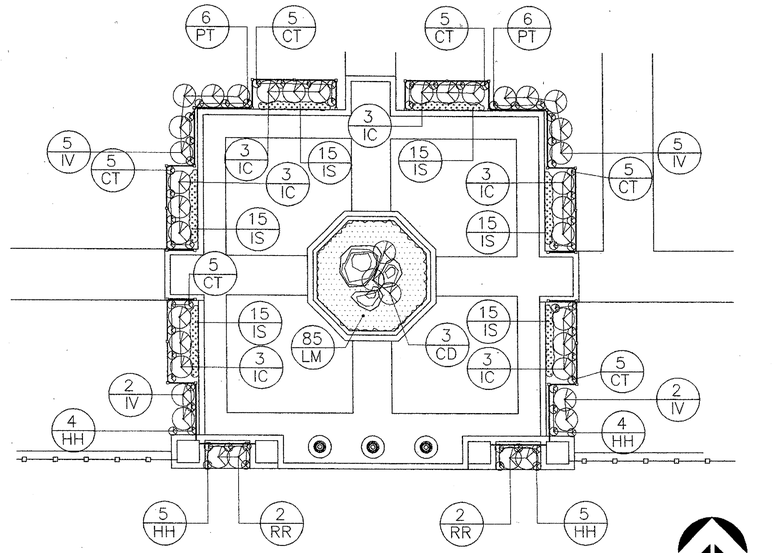
N.T.S.

LANDSCAPE PLAN DETAILS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	31	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

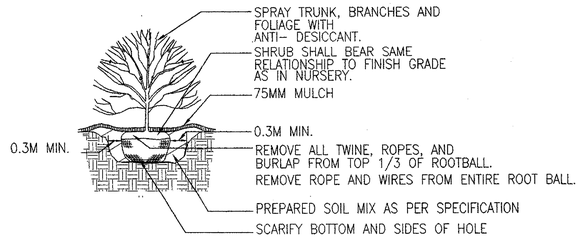


1 ENTRANCE PLAZA PLANTING PLAN

N.T.S.

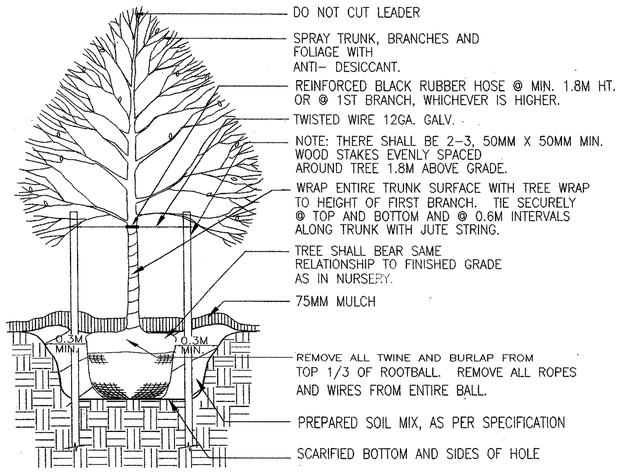
ENTRANCE PLAZA PLANTING SCHEDULE

ITEM	SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARK
SHURUBS:							
	CD	3	Cotoneaster dammeri 'Coral Beauty'	Coral Beauty Cotoneaster	0.45-0.6m Ht.	#2 Can	1.0m O.C.
	IC	18	Ilex crenata 'Helleri'	Dwarf Japanese Holly	0.45-0.6m Ht.	#3 Can	1.0m O.C.
	IV	14	Itea virginica 'Henry's Garnet'	Virginia Sweetspire	0.45-0.6m Ht.	#3 Can	1.0m O.C.
	RR	4	Rosa rugosa	Rugosa Rose	0.45-0.6m Ht.	#3 Can	1.0m O.C.
VINES:							
	CT	30	Campsis radicans 'Crimson Trumpet'	Crimson Trumpetcreeper		#1 Can	
	HH	18	Hedera helix 'Baltica'	Hardy English Ivy		Peat Pot	
	PT	12	Parthenocissus tricuspidata 'Veitchii'	Boston Ivy		#1 Can	
PERENNIALS:							
	IS	90	Iberis sempervirens 'Snowflake'	Snowflake Candytuft		#2 Can	0.2m O.C.
	LM	85	Liriope muscari 'Lilac Beauty'	Lilac Beauty Lily-turf	100mm	Peat Pot	0.3m O.C.



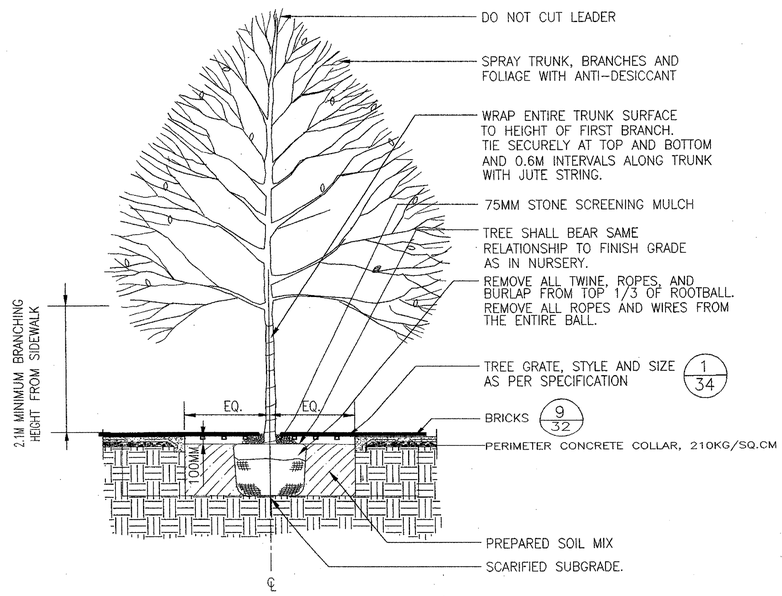
4 DECIDUOUS AND EVERGREEN SHRUB PLANTING

N.T.S.



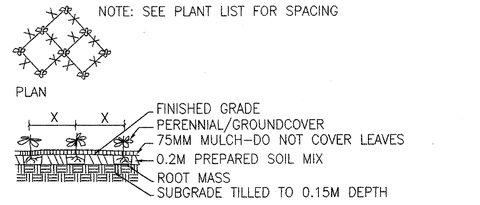
2 DECIDUOUS TREE PLANTING

N.T.S.



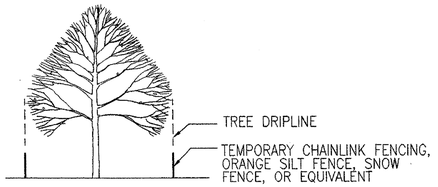
3 DECIDUOUS TREE PLANTING w/ PAVER GRATE

NTS



5 PERENNIAL AND GROUNDCOVER PLANTING

N.T.S.



6 EXISTING TREE PROTECTION

N.T.S.

J:\0152 4th and 11th St\cadd\construction documents\11th\11-pt3.dwg Thu Feb 04 11:07:46 1999

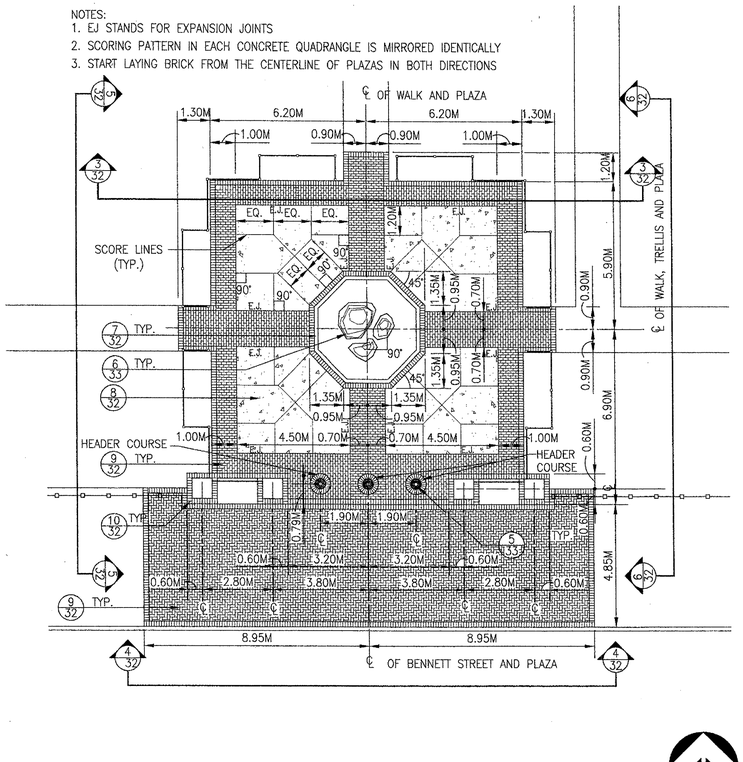
DETAILS – SITE

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	32	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

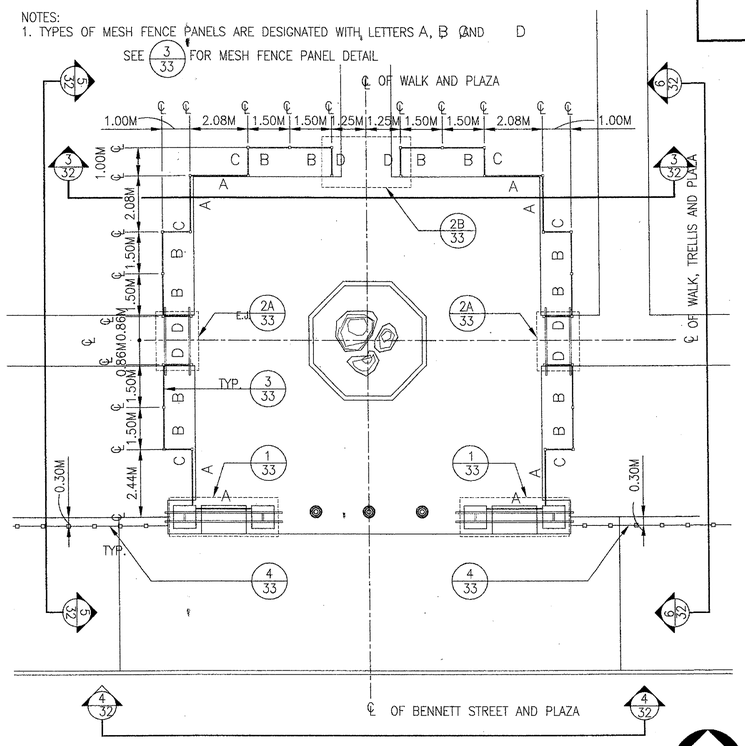
NOTES:
1. EJ STANDS FOR EXPANSION JOINTS
2. SCORING PATTERN IN EACH CONCRETE QUADRANGLE IS MIRRORED IDENTICALLY
3. START LAYING BRICK FROM THE CENTERLINE OF PLAZAS IN BOTH DIRECTIONS



1 ENTRANCE PLAZA PAVING LAYOUT PLAN

SCALE: 1:100

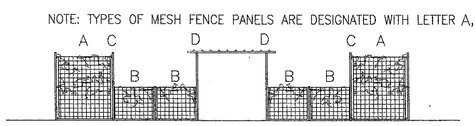
NOTES:
1. TYPES OF MESH FENCE PANELS ARE DESIGNATED WITH LETTERS A, B AND D SEE 3/33 FOR MESH FENCE PANEL DETAIL



2 ENTRANCE PLAZA TRELLIS AND FENCE LAYOUT PLAN

SCALE: 1:100

NOTE: TYPES OF MESH FENCE PANELS ARE DESIGNATED WITH LETTER A, B, C & D

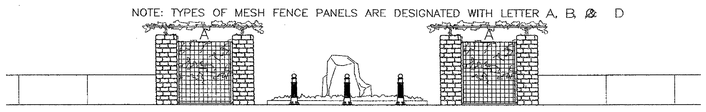


3 TRELLIS ELEVATION–NORTH

FOR CONTRACTORS' REFERENCE ONLY

N.T.S.

NOTE: TYPES OF MESH FENCE PANELS ARE DESIGNATED WITH LETTER A, B, C & D

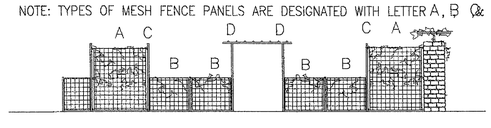


4 TRELLIS ELEVATION–SOUTH

FOR CONTRACTORS' REFERENCE ONLY

N.T.S.

NOTE: TYPES OF MESH FENCE PANELS ARE DESIGNATED WITH LETTER A, B, C & D

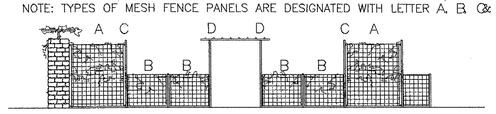


5 TRELLIS ELEVATION–WEST

FOR CONTRACTORS' REFERENCE ONLY

N.T.S.

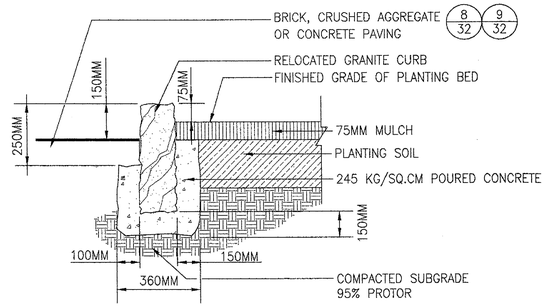
NOTE: TYPES OF MESH FENCE PANELS ARE DESIGNATED WITH LETTER A, B, C & D



6 TRELLIS ELEVATION–EAST

FOR CONTRACTORS' REFERENCE ONLY

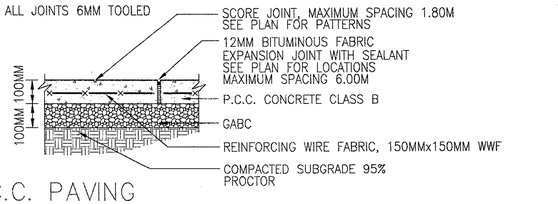
N.T.S.



7 GRANITE GARDEN EDGE

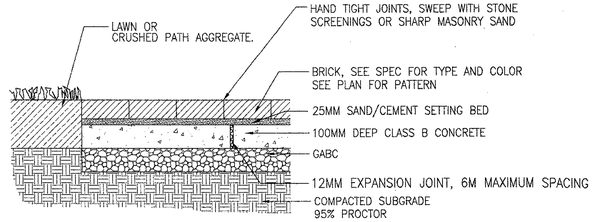
N.T.S.

NOTE: ALL JOINTS 6MM TOOLED



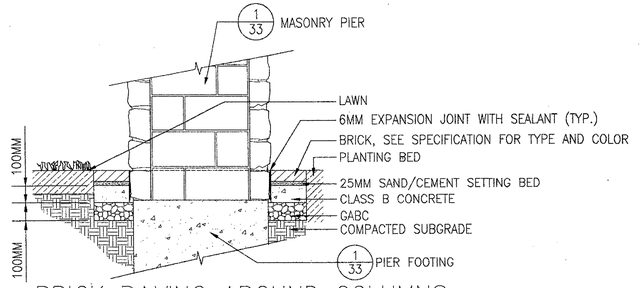
8 P.C.C. PAVING

N.T.S.



9 UNIT PAVER TYPE "A"

N.T.S.



10 BRICK PAVING AROUND COLUMNS

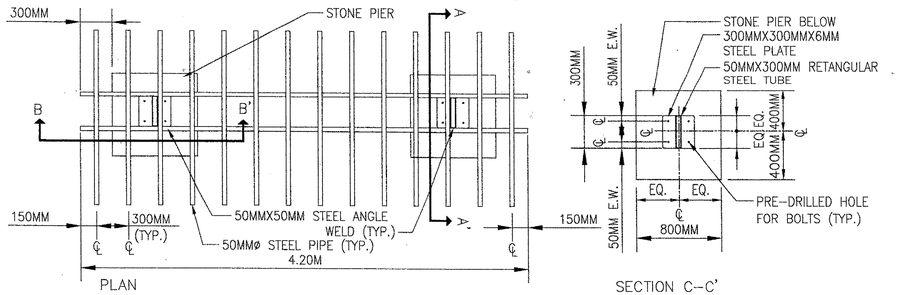
N.T.S.

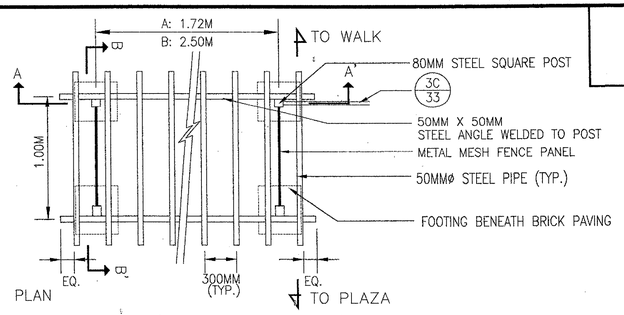
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	33	58

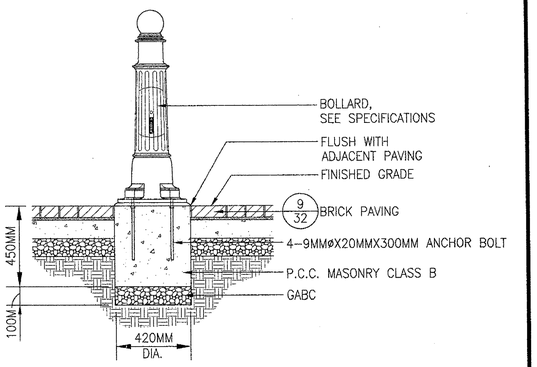
DETAILS -SITE

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS



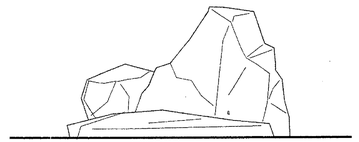




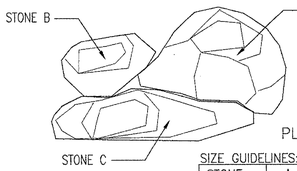
5 BOLLARDS

N.T.S.

NOTE: 1. CONTRACTOR SHALL SCHEDULE A MEETING WITH ENGINEER AT THE QUARRY FOR THE SELECTION OF THE BOULDERS.
2. NOTIFY SITE ARCHITECT TWO WEEKS PRIOR TO INSTALLATION OF BOULDERS TO SCHEDULE FOR THE ENGINEER TO PLACE BOULDERS ON SITE.



ELEVATION - SOUTH

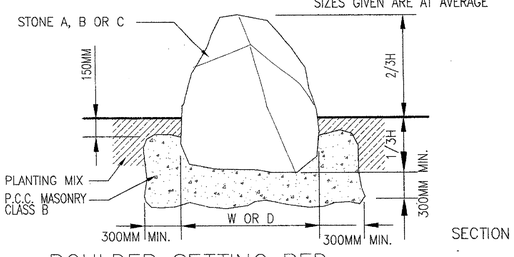


PLAN

SIZE GUIDELINES:

STONE	A	B	C
H	1.80M	1.00M	0.50M
W	1.20M	1.00M	2.50M
D	1.20M	0.80M	1.00M

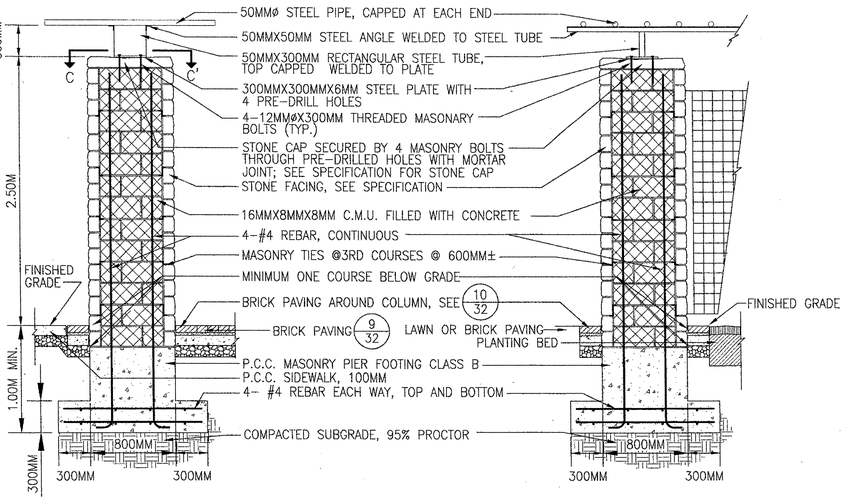
SIZES GIVEN ARE AT AVERAGE



SECTION

6 BOULDER SETTING BED

N.T.S.

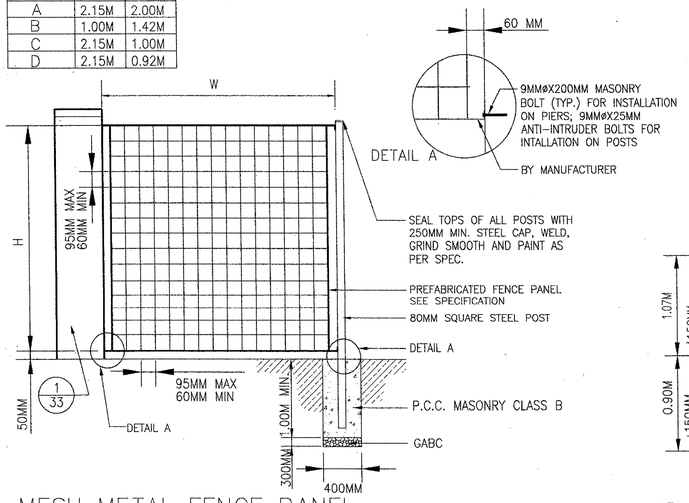


1 MASONRY PIER AND TRELLIS

N.T.S.

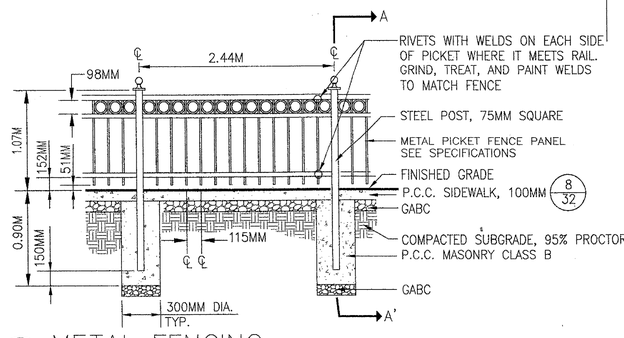
PANEL	H	W
A	2.15M	2.00M
B	1.00M	1.42M
C	2.15M	1.00M
D	2.15M	0.92M

NOTE: SEE PLAN FOR MOUNTING METHOD



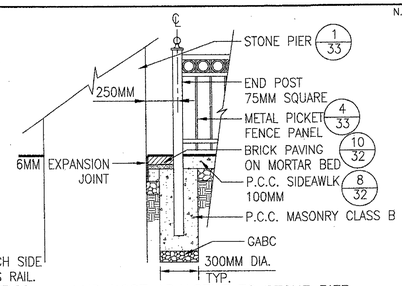
3 MESH METAL FENCE PANEL

N.T.S.

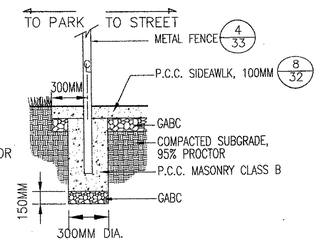


4 METAL FENCING

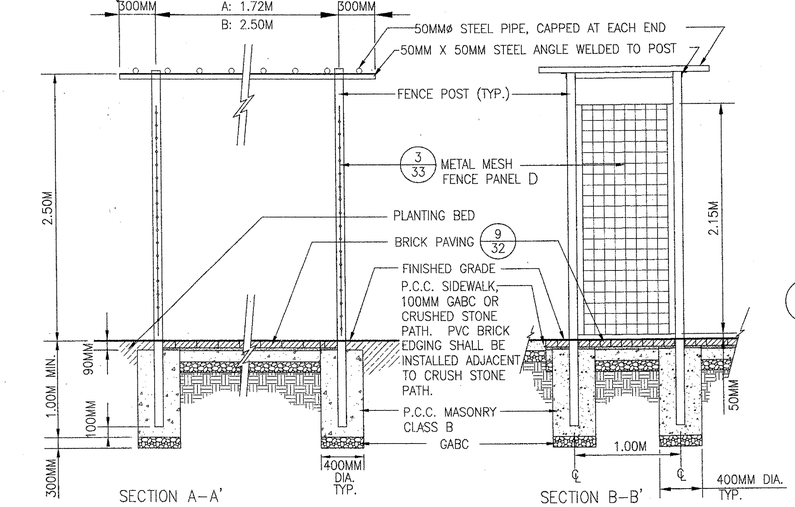
N.T.S.



END POST ADJACENT TO STONE PIER



SECTION A-A'



2 ARBOR AND TRELLIS

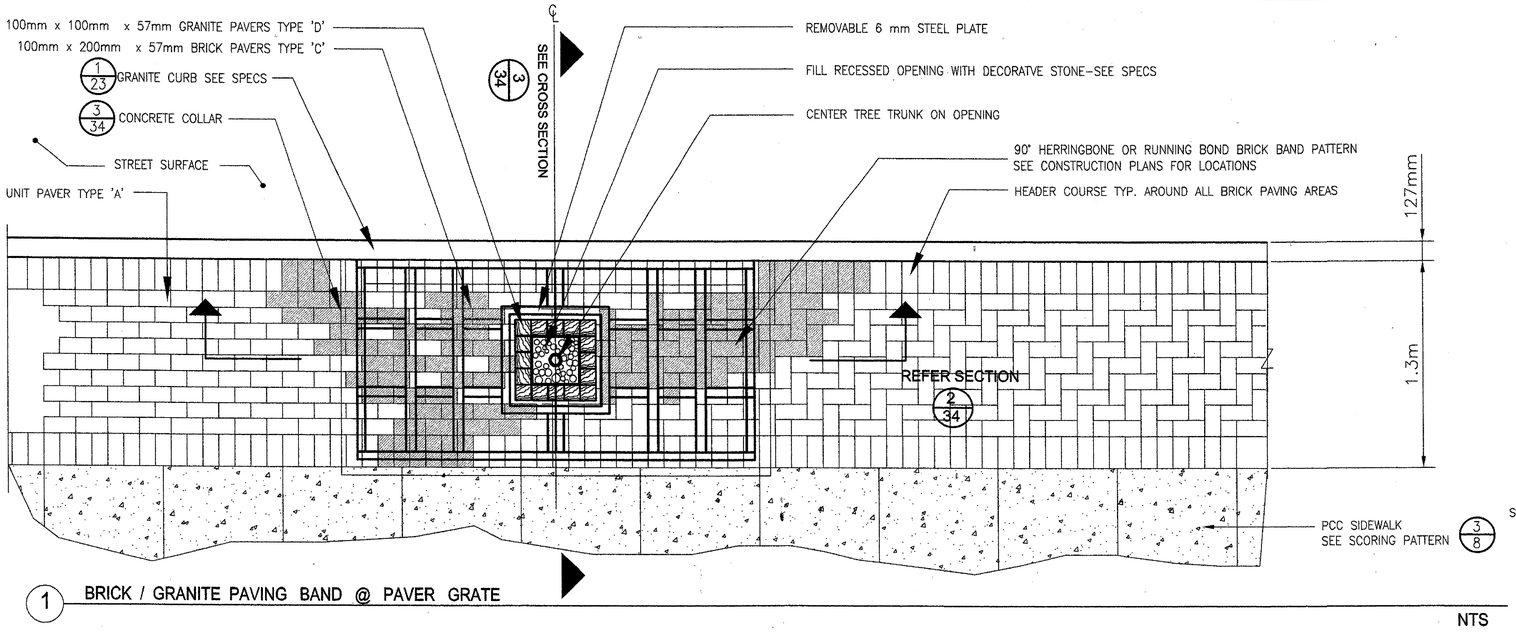
N.T.S.

DETAILS – SITE

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	34	58

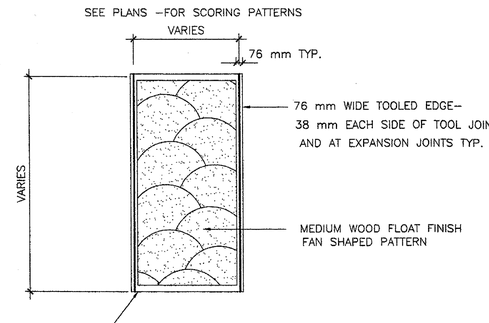
11TH STREET ENHANCEMENT
FROM WALNUT ST. TO NORTHEAST BLVD.

REVISIONS



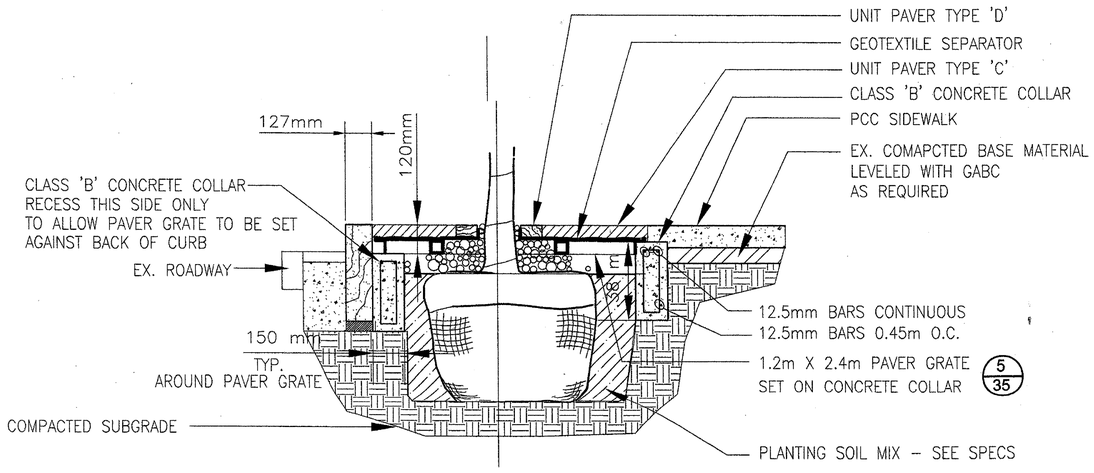
1 BRICK / GRANITE PAVING BAND @ PAVER GRATE

NTS

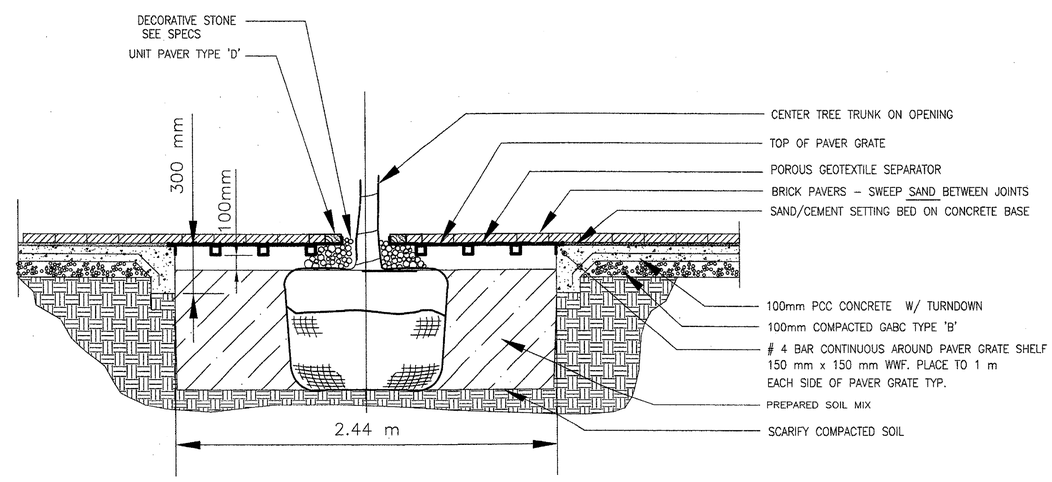


4 TYPICAL P.C.C SIDEWALK FINISH

NTS



3 PAVER GRATE AND SIDEWALK CROSS SECTION



2 DECIDUOUS TREE PLANTING W/ PAVER GRATE

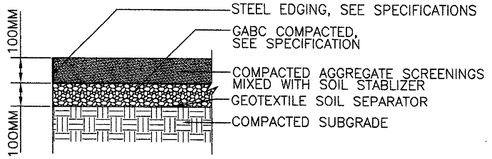
NTS

DETAILS – SITE

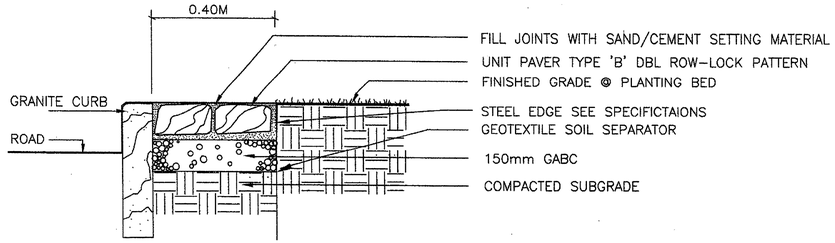
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	35	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT ST. TO NORTHEAST BLVD.

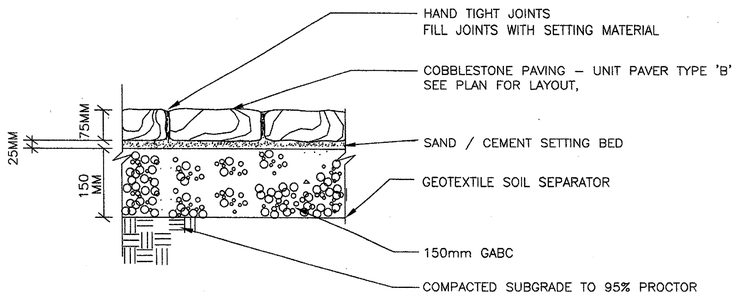
REVISIONS	



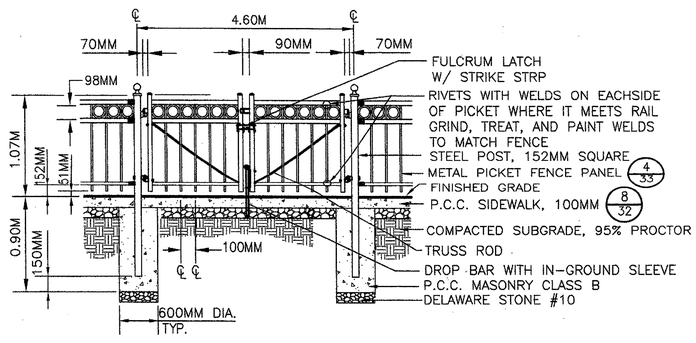
1 CRUSHED STONE PATH
N.T.S.



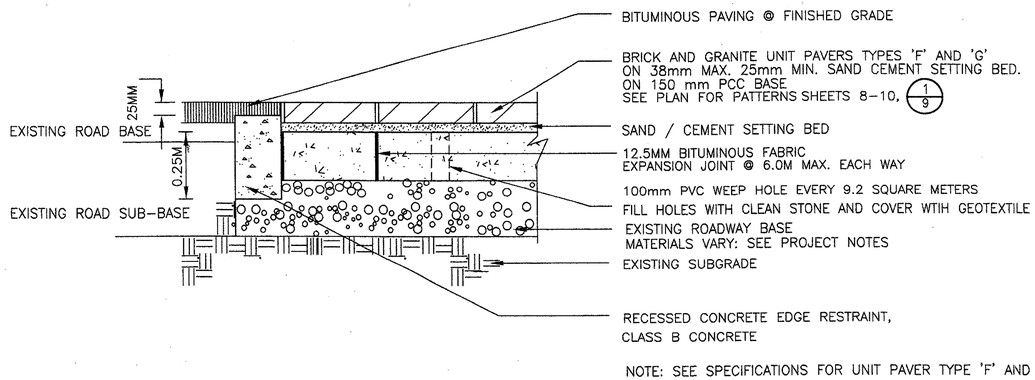
2 UNIT PAVER TYPE 'B' @ RAISED TRAFFIC ISLAND CURB EDGE
NTS



3 UNIT PAVER TYPE 'B' @ TRAFFIC ISLAND GRANITE COBBLESTONE PAVING
NTS

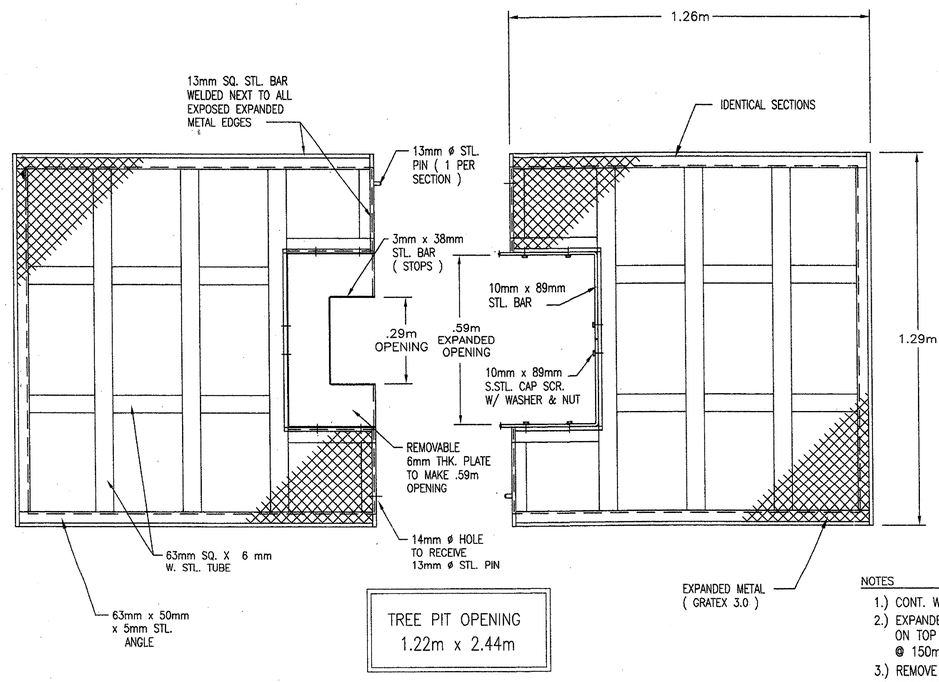


6 ORNAMENTAL METAL GATE
N.T.S.



NOTE: SEE SPECIFICATIONS FOR UNIT PAVER TYPE 'F' AND 'G'

4 BRICK AND COBBLESTONE UNIT PAVERS FOR ROADWAY INTERSECTION – UNIT PAVER TYPES 'F' AND 'G'
NTS



NOTES
1.) CONT. WELD ALL INTERSECTIONS
2.) EXPANDED METAL SHALL BE WELDED ON TOP OF FRAME WORK. SPOT WELD @ 150mm O.C. ON ALL ANGLES
3.) REMOVE ALL SHARP EDGES AND BURRS
4.) TREE GRATE FABRICATED IN TWO IDENTICAL HALVES.

5 PAVER GRATE
NTS

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET 46.

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portable Pcc)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT. Construction Warning Signs

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE V–A

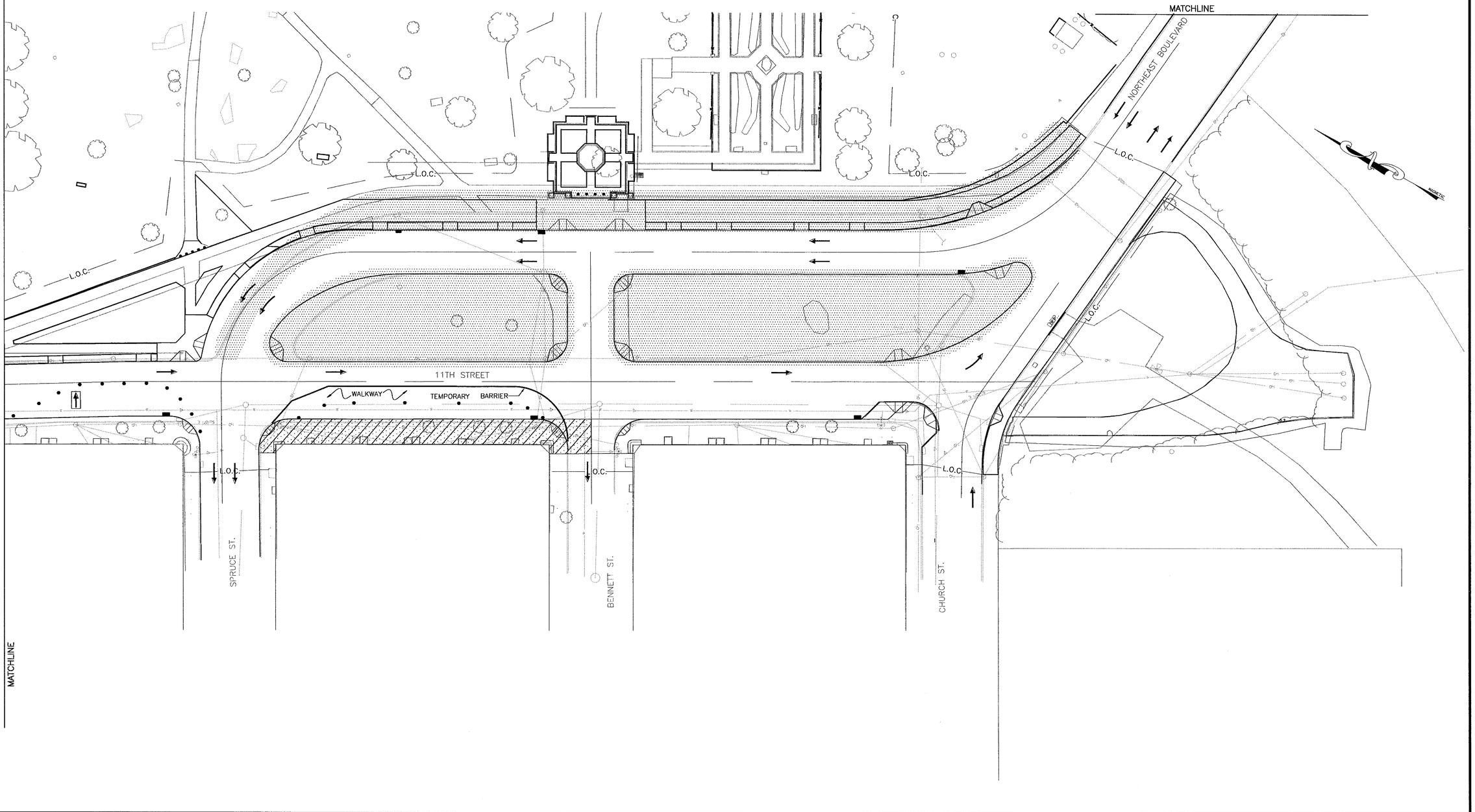
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99–011–02	NEW CASTLE	ESTP–N999(71)	53A	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	
3 ADDED SHEET	
5/7/99	



F:\3456\01\11TH STREET\CIVIL\MPT\MPT–STG11A.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET 46.

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portable Pcc)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT Construction Warning Signs

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE V–B

0 5 10 20 30

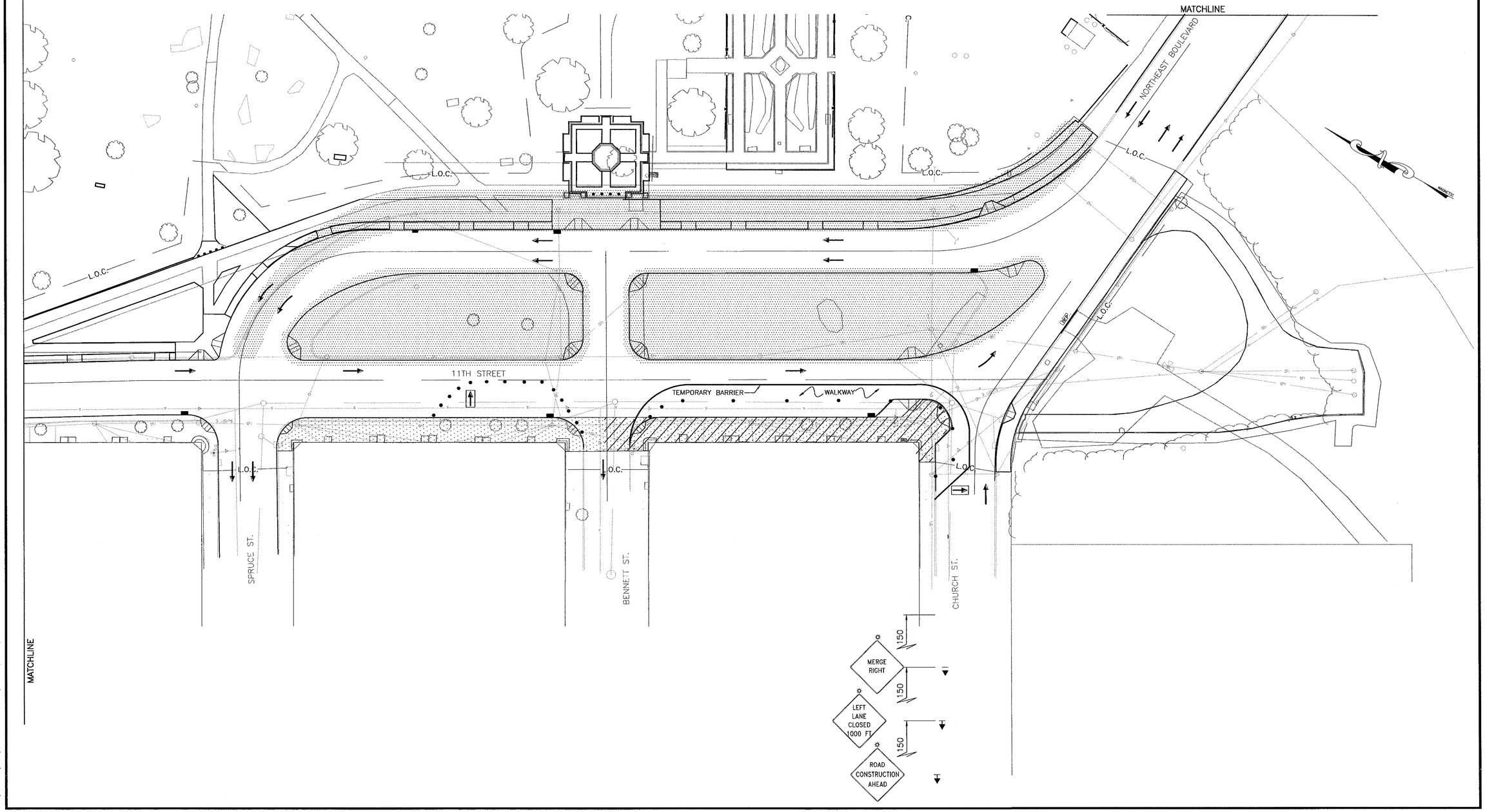
GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	53B	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

3 ADDED SHEET 5/7/99	



F:\3456\01\11TH STREET\CIVIL\MPT\MPT-STG11B.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

LIGHTING PLAN

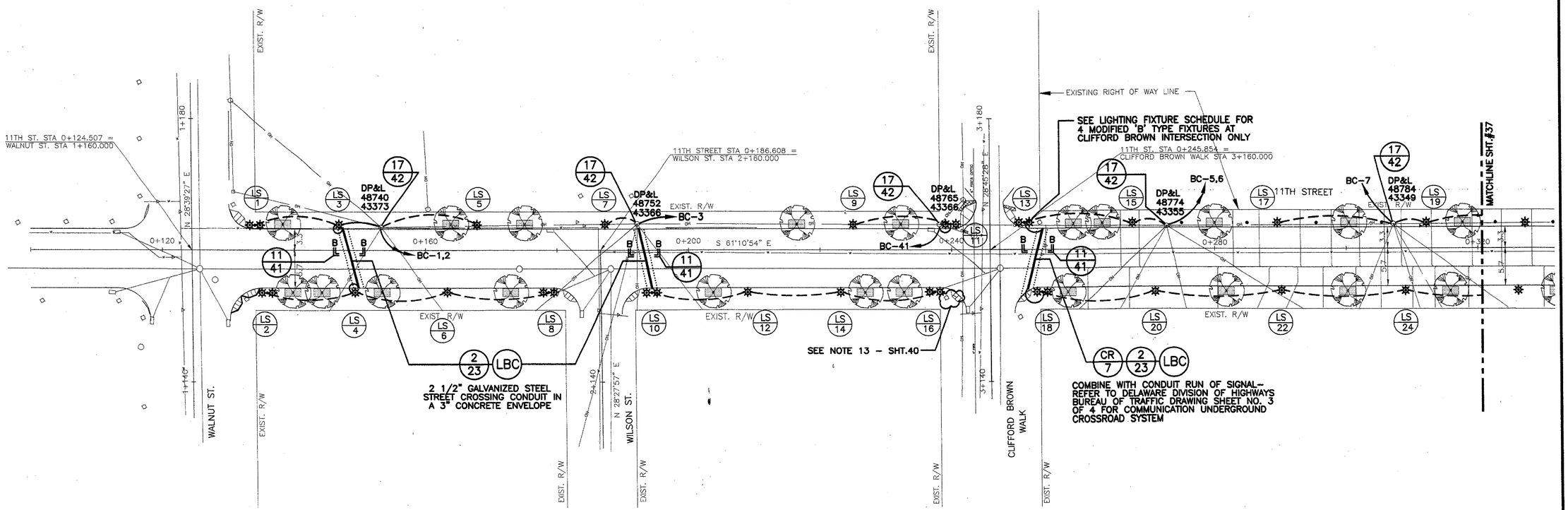
0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	36	58

11TH STREET ENHANCEMENT PLAN

REVISIONS



GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

LIGHTING PLAN

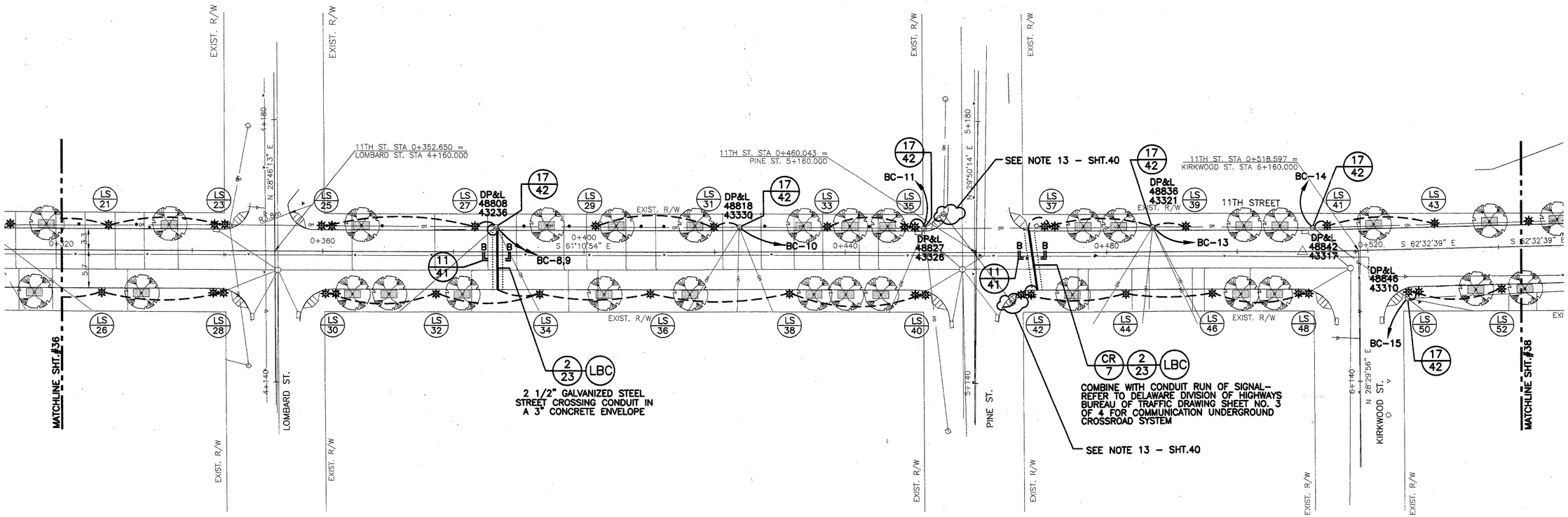
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	37	58

11TH STREET ENHANCEMENT PLAN

REVISIONS

0 5 10 20 30

GRAPHIC SCALE (1:300)



GENERAL NOTES:

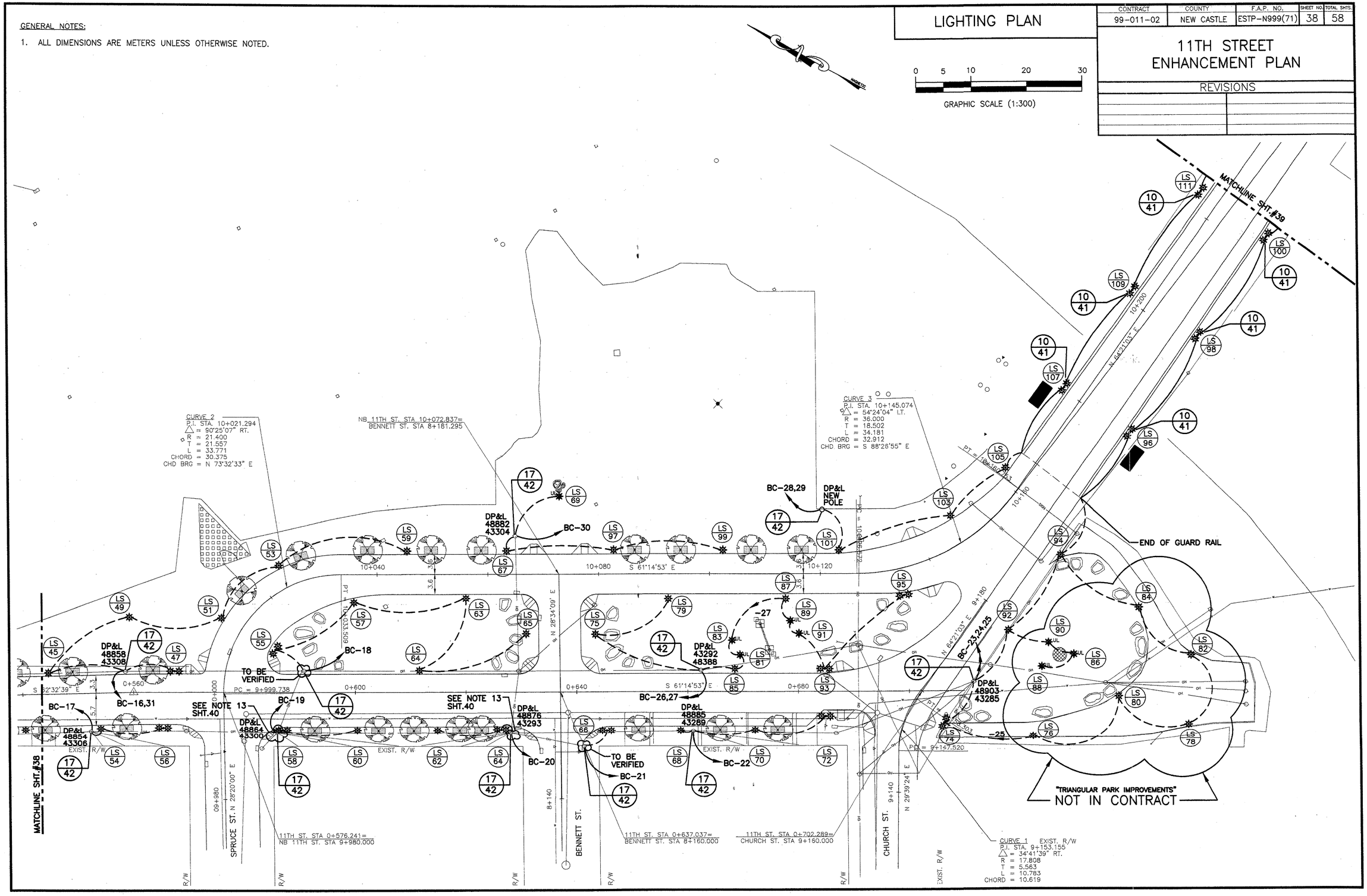
1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

LIGHTING PLAN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	38	58

11TH STREET ENHANCEMENT PLAN

REVISIONS



GENERAL NOTES:

ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.

LIGHTING PLAN– BRIDGE LIGHTING DETAILS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	39	58

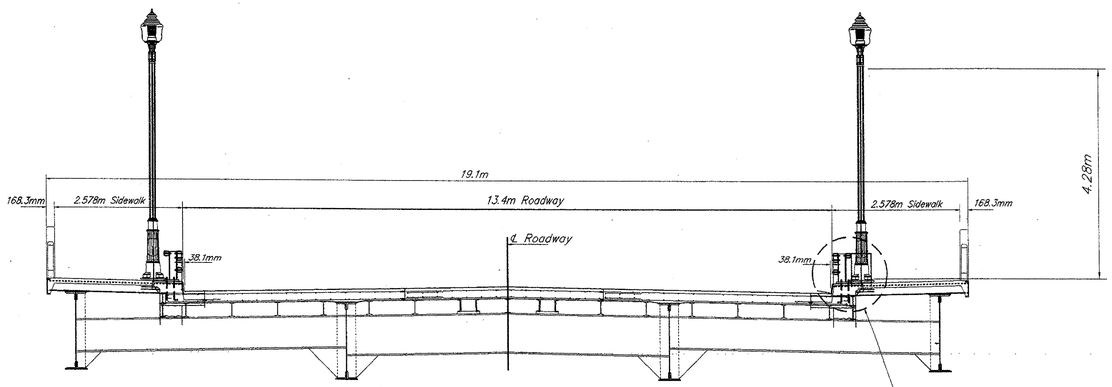
11TH STREET ENHANCEMENT PLAN

REVISIONS	

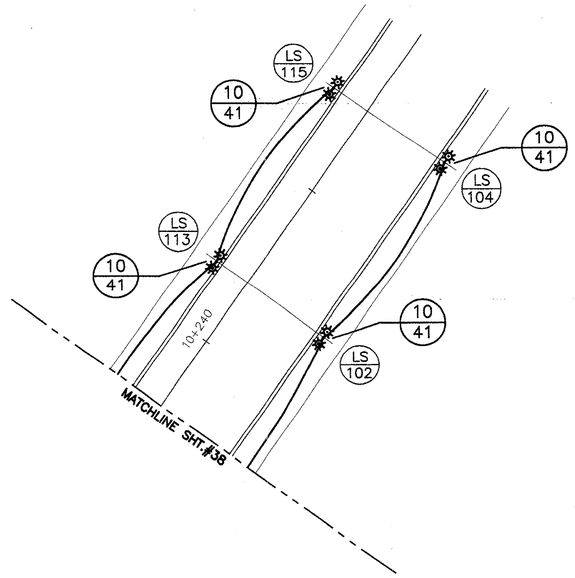
0 10 30

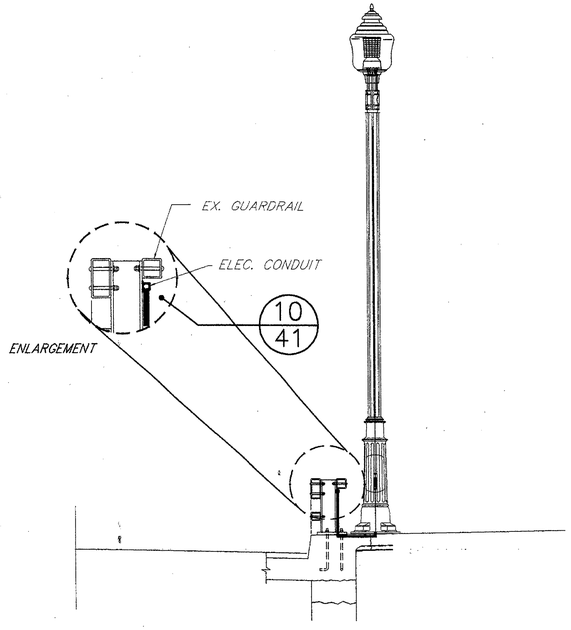
5 20

GRAPHIC SCALE :1:300 (METRIC)



1 PROPOSED CROSS SECTION – BRIDGE 577 LIGHT POLES
N.T.S.





2 CONDUIT PLACEMENT
N.T.S.

LIGHTING FIXTURE SCHEDULE

FIXTURE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS NO.	WATTS	FLUOR	INCAN	HID	TYPE	MOUNTING	REMARKS
A	SINGLE HEAD STREET LUMINAIRE	ZED	Z40-150H-3-120/ R80A-TBC1	1	150	–	–	√	MH	POLE	TRADITIONAL CAST ALUM. HSG. WITH ACRYLIC REFRACTOR GLOBE. BLACK FINISH ON 12' CAST BLK. ALUM. TRADITIONAL POLE.
B	TWIN HEAD STREET LUMINAIRE	ZED	Z40-150H-3-120-CRC ON R80A-TBC1	2	150	–	–	√	MH	POLE	SAME AS 'A' EXCEPT TWIN SET-UP. PROVIDE 4 TYPE 'B' FIXTURES WITH CLIFFORD BROWN SYMBOL AT CLIFFORD BROWN WALK INTERSECTION.
B1	TWIN HEAD BRIDGE LUMINAIRE	LUMEC	L51-150MH-3-120 ON R80A MOD BASE MTG.	2	150	–	–	√	MH	POLE	TRADITIONAL VICTORIAN BLK. CAST ALUM. TOP AND POLYCARBONATE GLOBE-FROSTED CLEAR FINISH. MOUNTED ON A TRADITIONAL POLE WITH TWIN ARM MTG.
C	GROUND-MOUNTED LAMP	HYDREL	7100-100MH-120 TS-KM-BL-JB-LC	1	100	–	–	√	MH	GROUND	DIE-CAST ALUM. ADJUSTABLE KNUCKLE-LEXAN LENS-BLK FINISH

BRANCH CIRCUITS ARRANGEMENT

BRANCH CIRCUIT NO.	DESCRIPTION OF LIGHTING STAND	LOAD IN WATTS	WIRE AND CONDUIT	DELMARVA POLE COORDINATES	BRANCH CIRCUIT FUSE LINK
1	LS-1,3,5,4	1140	2#6+GND-25.4mm C.	48740 43373	20A
2	LS-2,6,8	950	2#6+GND-25.4mm C.	48740 43373	20A
3	LS-7,10,12,14,16	1330	2#6+GND-25.4mm C.	48752 43366	20A
4	LS-9,11	570	2#6+GND-25.4mm C.	48765 43366	20A
5	LS-13,15,18,20	1140	2#6+GND-25.4mm C.	48774 43355	20A
6	LS-22,24,26,28	950	2#6+GND-25.4mm C.	48774 43355	20A
7	LS-17,19,21,23	950	2#6+GND-25.4mm C.	48784 43349	20A
8	LS-25,27,30	950	2#6+GND-25.4mm C.	48808 43236	20A
9	LS-32,34,36,38,40	950	2#6+GND-25.4mm C.	48808 43236	20A
10	LS-29,31	380	2#6+GND-25.4mm C.	48818 43330	20A
11	LS-33,35	570	2#6+GND-25.4mm C.	48827 43326	20A
12	LS-37,39	570	2#6+GND-25.4mm C.	48836 43321	20A
13	LS-42,44,46,48	1140	2#6+GND-25.4mm C.	48836 43321	20A
14	LS-41,43	380	2#6+GND-25.4mm C.	48842 43317	20A
15	LS-50,52	570	2#6+GND-25.4mm C.	48846 43316	20A
16	LS-45,47,49	760	2#6+GND-25.4mm C.	48858 43308	20A
17	LS-54,56	570	2#6+GND-25.4mm C.	48854 43306	20A
18	LS-55,57,63,64,65	1140	2#6+GND-25.4mm C.	TO BE VERIFIED	20A
19	LS-58,60	570	2#6+GND-25.4mm C.	48864 43300	20A
20	LS-62,64	570	2#6+GND-25.4mm C.	48876 43293	20A
21	LS-66	380	2#6+GND-25.4mm C.	TO BE VERIFIED	20A
22	LS-68,70,72	760	2#6+GND-25.4mm C.	48885 43289	20A
23	LS-98,100,102,104	1520	2#6+GND-25.4mm C.	48903 43285	20A
24	LS-74,90,94,96	1140	2#6+GND-25.4mm C.	48903 43285	20A
25	LS-76,80,78,82,84, 86,88,90	1340	2#6+GND-25.4mm C.	48903 43285	20A
26	LS-83,81,85,75,79	830	2#6+GND-25.4mm C.	48388 43292	20A
27	LS-87,89,91,93,95	1210	2#6+GND-25.4mm C.	48388 43292	20A
28	LS-101,103,105,107	950	2#6+GND-25.4mm C.	DELMARVA NEW POLE	20A
29	LS-109,111,113,115	1520	2#6+GND-25.4mm C.	DELMARVA NEW POLE	20A
30	LS-67,69,97,99	700	2#6+GND-25.4mm C.	48882 43304	20A
31	LS-51,53,59	630	2#6+GND-25.4mm C.	48858 43308	20A

THE FOLLOWING ARE THE ENGINEERING FORMULAS USED ON THIS PROJECT:

- SIZE OF CONDUCTOR FOR A SINGLE PHASE, 2 WIRE

$$CM = \frac{21.6 \times I \times L}{V_D}$$

$$V_D = \frac{21.6 \times I \times L}{CM}$$

$$I = \frac{CM \times V_D}{21.6 \times L}$$

$$L = \frac{CM \times V_D}{21.6 \times I}$$

- FOR A 3ø-60Hz

$$CM = \frac{10.8 \times I \times L \times 3}{V_D}$$

$$V_D = \frac{10.8 \times I \times L \times \sqrt{3}}{CM}$$

$$I = \frac{CM \times V_D}{10.8 \times L \times \sqrt{3}}$$

$$L = \frac{CM \times V_D}{10.8 \times I \times \sqrt{3}}$$

- VOLTAGE SYSTEMS

277/480V-3ø-4W
277V-1ø-2W
120/240-1ø3W

$$I = \frac{HP \times 746}{1.73 \times E \times EH \times P.F.}$$

$$I = \frac{KW \times 1000}{1.73 \times E \times P.F.}$$

$$I = \frac{KVA \times 1000}{1.73 \times E}$$

$$P = \frac{I \times E \times 1.73 \times P.F.}{1000}$$

LIGHTING SCHEDULES, NOTES AND LEGEND

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	40	58

11TH STREET ENHANCEMENT PLAN

REVISIONS	

GENERAL NOTES

ELECTRICAL SYSTEM HAS BEEN DESIGNED PER THE LATEST NATIONAL ELECTRICAL CODE (NEC). MATERIAL & EQUIPMENT SHALL CONFORM TO THE STANDARDS WHERE APPLICABLE OF THE NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION (NEMA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), NATIONAL ELECTRICAL CODE (NEC), AND UNDER-WRITERS LABORATORIES (UL), LATEST EDITIONS. WORK SHALL CONFORM TO APPLICABLE FEDERAL, STATE & LOCAL CODES. TRADE NAMES USED TO ESTABLISH QUALITY. EQUAL SUBSTITUTIONS SHALL BE APPROVED BY BUILDER. ELECTRICAL CONTRACTOR (EC) SHALL CALL TO THE ENGINEER'S ATTENTION ANY DIFFERENCES AND/OR CONFLICTS BETWEEN CONTRACT DRAWING & SPECIFICATION AND SHOP DRAWINGS. IF DIFFERENCES &/OR CONFLICTS ARE NOT NOTED TO BUILDER PRIOR TO CONTRACT, BUILDER SHALL DETERMINE GOVERNING CONDITION AND SUBCONTRACTOR SHALL PERFORM WORK AT NO ADDITIONAL COST.

SCOPE:

WORK INCLUDES FURNISHING LABOR, MATERIAL, EQUIPMENT & SERVICE NECESSARY AND REASONABLY INCIDENTAL TO PROPER COMPLETION OF THE ELECTRICAL WORK AS SHOWN. MINOR ITEMS, ACCESSORIES OR DEVICES REASONABLY INFERRED AS NECESSARY FOR COMPLETION & PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY SPECIFICATION OR DRAWINGS.

ELECTRICAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL HAVE THE COMPLETE INSTALLATION INSPECTED AS COMPLETION OF WORK BY MIDDLE DEPARTMENT AT HIS EXPENSE. CERTIFICATE OF INSPECTION SHALL BE TRANSFERRED TO OWNER.
2. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AT HIS EXPENSE ALL NECESSARY PERMITS AND CERTIFICATES AS REQUIRED.
3. ALL MATERIAL SHALL BE NEW AND BEAR THE LABEL OR LISTING OF A NATIONALLY RECOGNIZED INDEPENDENT TESTING LABORATORY SUCH AS UL, FM, ETC.
4. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT SITE PRIOR TO STARTING WORK.
5. THE ELECTRICAL CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO ORDERING MATERIALS.
6. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE CONSTRUCTION SUPERINTENDENT AND LATEST COPIES OF ARCHITECTUAL AND ELECTRICAL DRAWINGS. ALL LOCATIONS SHALL BE CHECKED TO VERIFY ROUGH-IN LOCATIONS AND FINAL CONNECTION LOCATIONS.
7. ALL OPENINGS SHALL BE SEALED UPON COMPLETION OF INSTALLATION TO PREVENT SPREAD OF SMOKE AND FIRE THROUGH OPENINGS. OPENINGS TO ROOF-MOUNTED EQUIPMENT SHALL BE SEALED TO PREVENT WATER SEEPAGE. ALL OPENINGS SHALL BE COORDINATED WITH OTHER CRAFTS TO PREVENT INTERFERENCE AND OBSTRUCTION.
8. THE ELECTRICAL CONTRACTOR SHALL APPLY IN WRITING FOR ANY INFORMATION REQUIRED AS PART OF THIS SCOPE OF WORK PRIOR TO ACTUAL NEEDING OF THIS INFORMATION FOR EXECUTION OF WORK. NO CHANGES OF EQUIPMENT LOCATION, CONDUIT ROUTING, MATERIAL TYPE OR QUANTITIES, OR DETAILS OF MOUNTING SHALL BE PERMITTED UNLESS APPROVED IN WRITING BY THE ENGINEER. SAMPLES AND LITERATURE OF MATERIALS SHALL BE PROVIDED WHEN REQUESTED BY ARCHITECT OR ENGINEER.
9. THE ELECTRICAL CONTRACTOR SHALL KEEP ONE SET OF THE LATEST ISSUE OF ELECTRICAL DWGS. WHICH SHALL REFLECT THE ACTUAL INSTALLED CONDITIONS AND CONNECTIONS OF ALL EQUIPMENT AND DEVICES. THE ELECTRICAL CONTRACTOR SHALL PROVIDE COPIES OF ALL MAINTENANCE INFORMATION AND INSTRUCTIONS RECEIVED WITH EQUIPMENT AND SYSTEMS. ALL "AS BUILT" DRAWINGS AND MISCELLANEOUS INFORMATION SHALL BE SUBMITTED TO ARCHITECT FOR INCORPORATION IN TO AS-BUILT DOCUMENT AT THE COMPLETION OF CONSTRUCTION.
10. THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL MATERIAL AND LABOR TO BE FREE FROM DEFECTS FOR A ONE YEAR PERIOD FROM THE TIME OF OWNER ACCEPTANCE. ANY DEFECTS OCCURRING DURING THIS PERIOD SHALL BE CORRECTED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
11. COORDINATE WITH SURBURBAN CABLES WIREMOLD EQUIPMENT. ALL WIREMOLD RACEWAY SHALL BE EQUIPPED WITH ALL THE NECESSARY PARTS FOR COMPLETE INSTALLATION.
12. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL THE CONTRACTORS INVOLVED ON THIS PROJECT.
13. EXISTING DP&L POLES TO BE RELOCATED AS DIRECTED IN THE FOLLOWING LOCATIONS:
    - SW CORNER OF CLIFFORD BROWN WALK.
    - SE & NW CORNER OF PINE STREET.
    - SE CORNER OF SPRUCE STREET.
    - SW CORNER OF BENNETT STREET.
14. THE ELECTRICAL CONTRACTOR SHALL COORDINATE STREET LIGHTING LOCATION AND UNDERGROUND CONDUIT RUNS WITH LANDSCAPE ARCHITECT DRAWINGS. WHERE ELECTRICAL CONDUIT INTERFERES WITH TREE PITS, RUN CONDUIT AROUND BACK OF TREE PIT UNDER CONCRETE SIDEWALK.
15. COORDINATE STREET LIGHTING SERVICE CONNECTION WITH DP&L.

SYMBOLS AND LEGEND

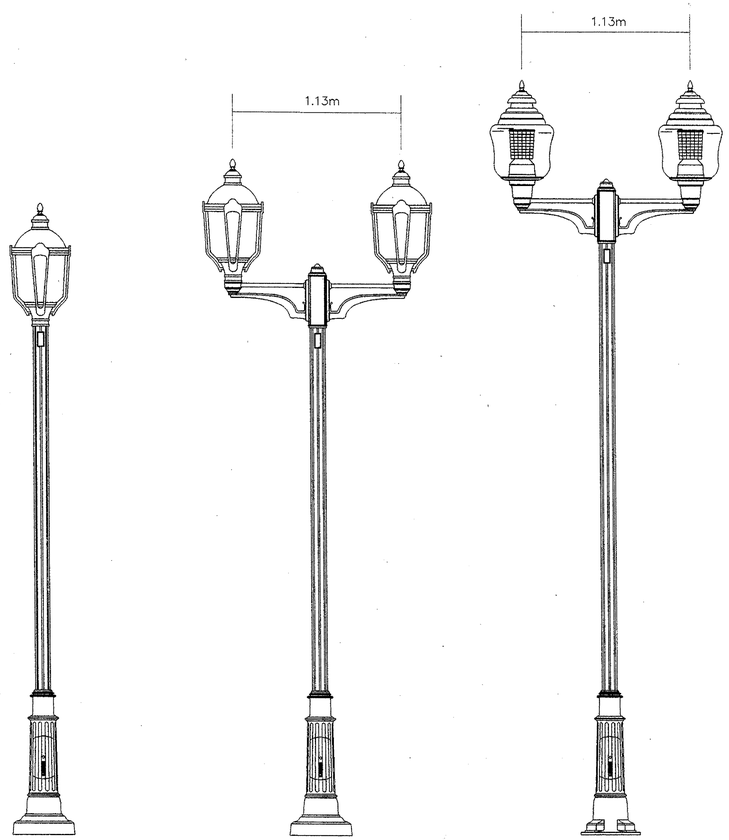
- SURFACE MOUNTED CONDUIT
- UNDER GROUND CONDUIT
- WP, GFI — 15A-125V DUPLEX RECEPTICALE
- SINGLE HEAD LUMINAIRE
- TWIN HEAD LUMINAIRE
- PC — PHOTOCELL CONTROL
- UL — LIGHTING FIXTURE 'C' TYPE
- BC — BRANCH LIGHTING CIRCUIT
- LS — LIGHT STANDARD NO.
- CR — CONDUIT RUN IDENTIFIER FOR COMMUNICATION CABLES
- LBC — LIGHTING BRANCH CIRCUIT CONDUIT RUN IDENTIFIER
- 2 / 23 — DETAIL NO. / SHEET REFERENCE NO.

LIGHTING DETAILS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	41	58

11TH STREET ENHANCEMENT PLAN

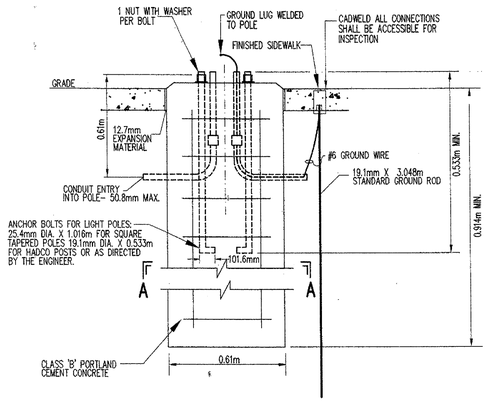
REVISIONS



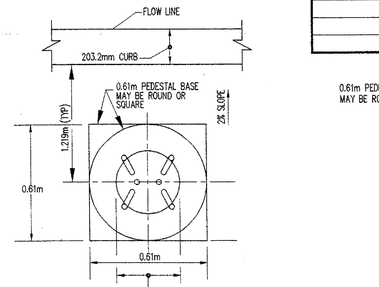
3 TYPE 'A' LIGHTING FIXTURE N.T.S.

4 TYPE 'B' LIGHTING FIXTURE N.T.S.

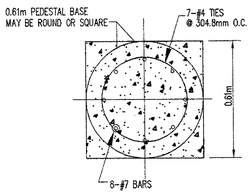
5 TYPE 'B1' LIGHTING FIXTURE N.T.S.



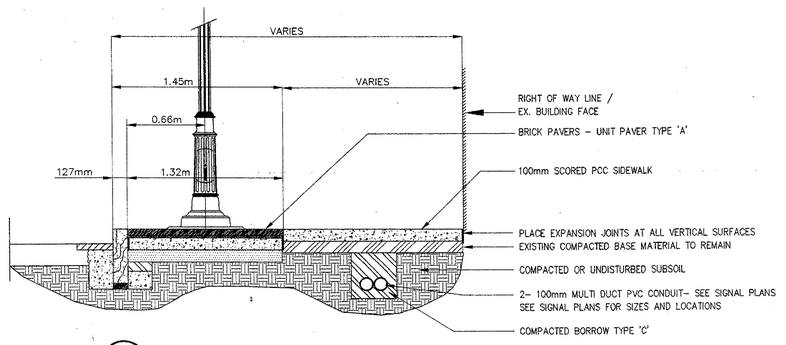
6 CONCRETE BASE N.T.S.



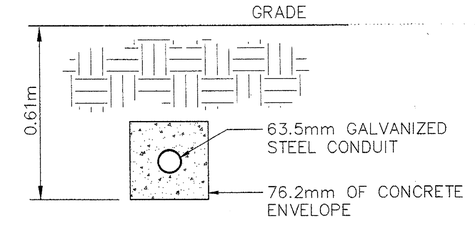
6A PLAN VIEW N.T.S.



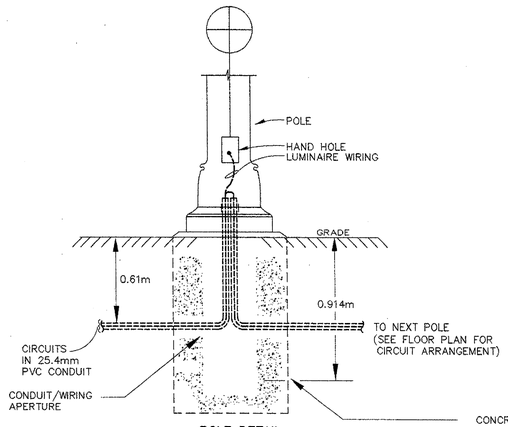
6B SECTION A-A N.T.S.



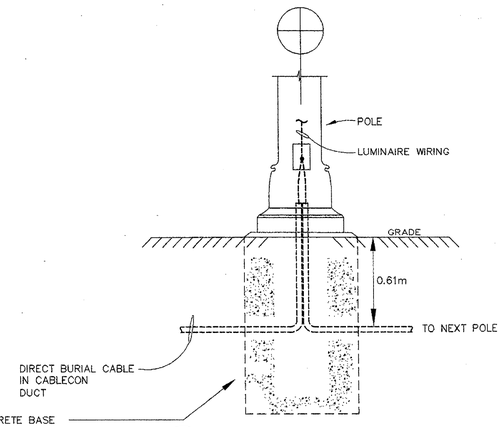
12 SIDEWALK/CURB SECTION-TYPICAL N.T.S.



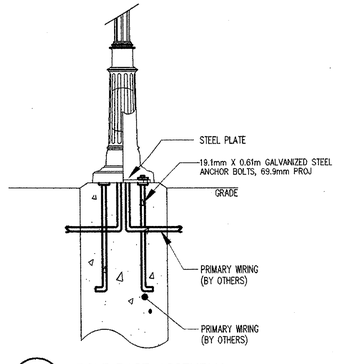
11 SECTION B-B (STREET CROSSING CONDUIT) N.T.S.



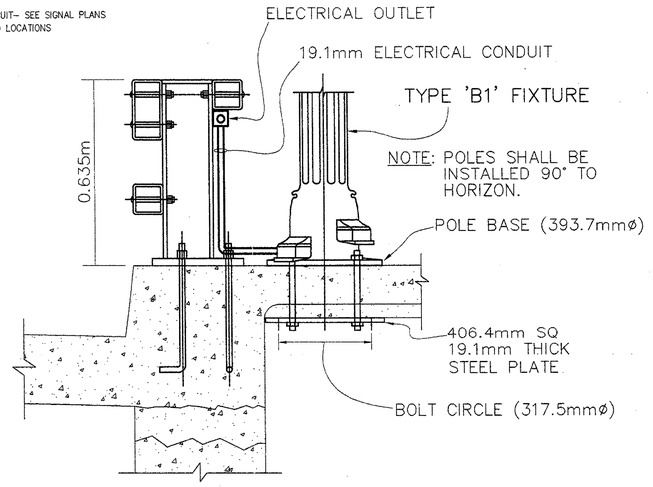
POLE DETAIL WITH UNDERGROUND PVC CONDUIT 7 N.T.S.



8 POLE WITH DIRECT BURIAL IN - "CABLECON" N.T.S.



9 POLE BASE ASSEMBLY N.T.S.



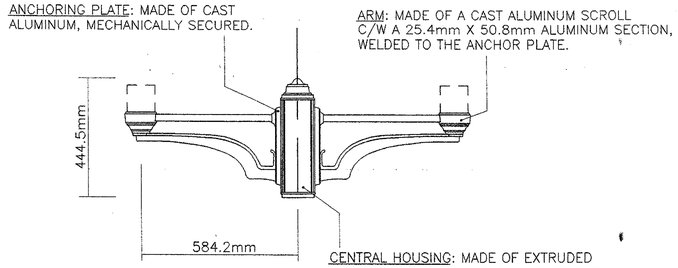
10 BRIDGE LIGHTING POST INSTALLATION DETAIL N.T.S.

LIGHTING DETAILS

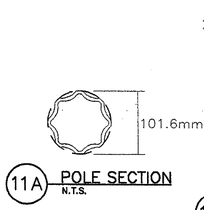
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	42	58

11TH STREET ENHANCEMENT PLAN

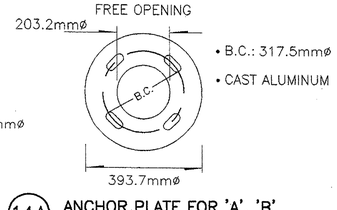
REVISIONS



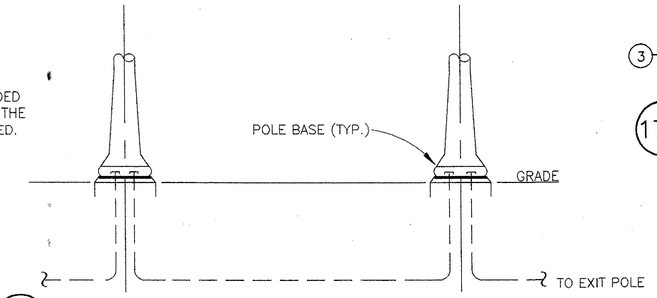
13 BRACKET FOR 'B' AND 'B1' TYPE LUMINAIRES
N.T.S.



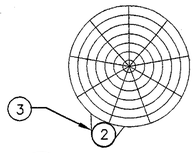
11A POLE SECTION
N.T.S.



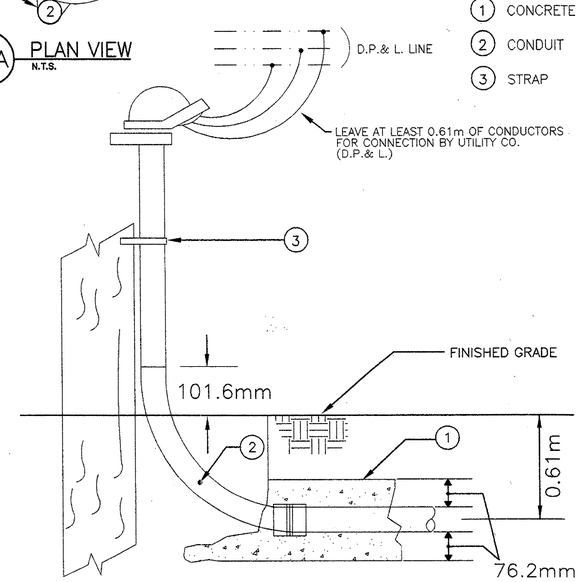
14A ANCHOR PLATE FOR 'A', 'B' AND 'B1' TYPE LUMINAIRES
N.T.S.



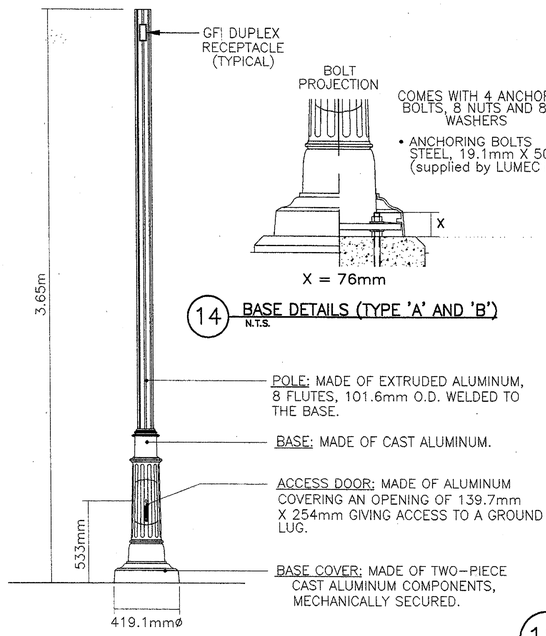
15 TYPICAL STREET LIGHTING CONDUIT ARRANGEMENT
N.T.S.



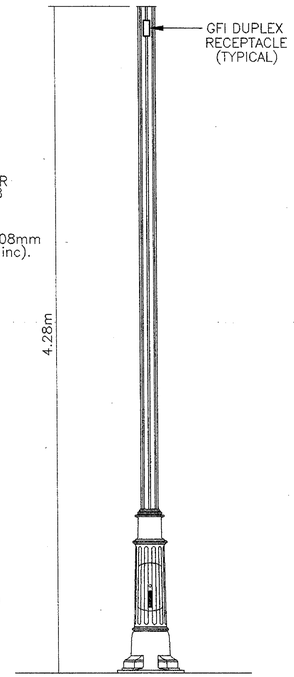
17A PLAN VIEW
N.T.S.



17 UTILITY SERVICE–STREET LIGHTING
N.T.S.



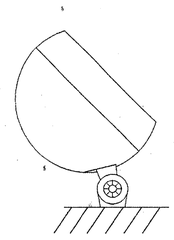
14 BASE DETAILS (TYPE 'A' AND 'B')
N.T.S.



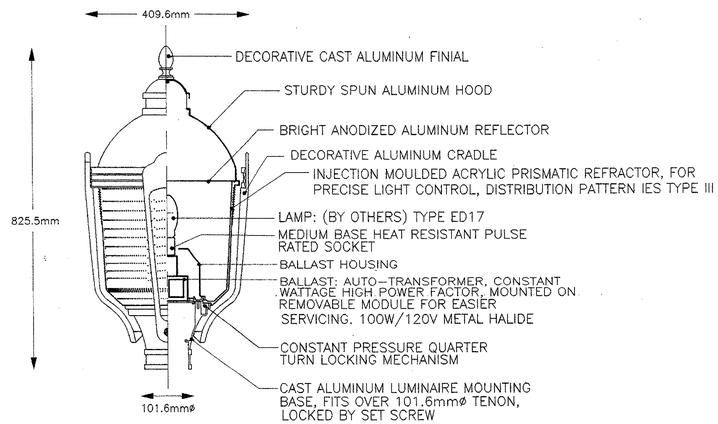
12 POLE DETAIL FOR 'B1' TYPE LUMINAIRE
N.T.S.

NOTES: ALL EXPOSED HARDWARE IN STAINLESS STEEL. PAINT ON ALL METALLIC PARTS WILL BE POLYESTER POWDER COATING, ELECTROSTATICLY APPLIED, MINIMUM THICKNESS OF 100 MICRONS, ACCORDING TO STANDARDS ASTM–B117 AND ASTM–D2247.

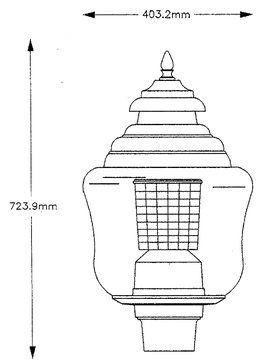
11 POLE DETAIL FOR 'A' AND 'B' TYPE LUMINAIRES
N.T.S.



16 TYPE 'C' LIGHTING FIXTURE
N.T.S.



18 SINGLE LUMINAIRE DETAIL (TYPE 'A' AND 'B')
N.T.S.



19 SINGLE LUMINAIRE DETAIL (TYPE 'B1')
N.T.S.

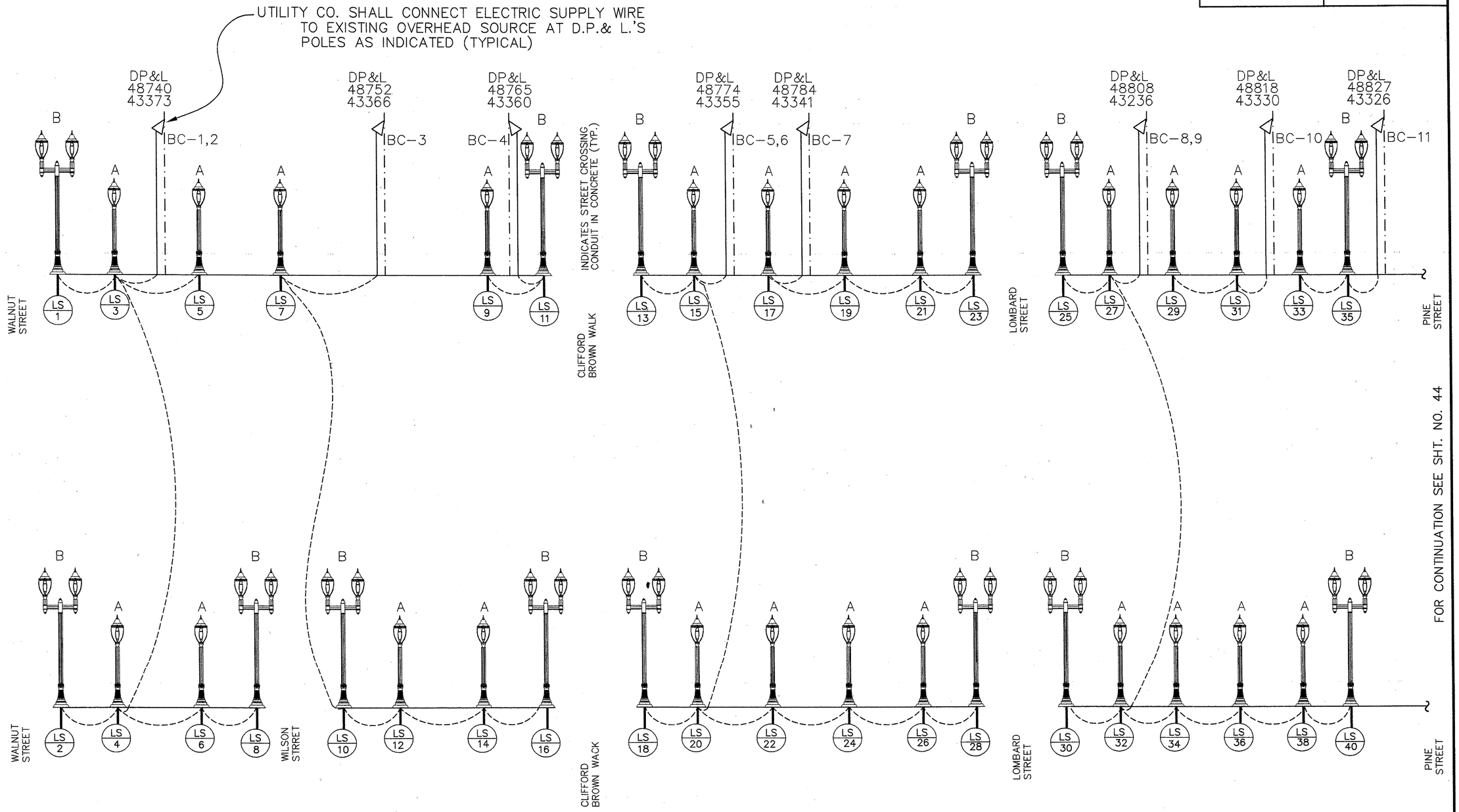
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	43	58

POLE ARRANGEMENT

11TH STREET ENHANCEMENT PLAN

REVISIONS

NOTE:
REFER TO BRANCH CIRCUIT SCHEDULE
ON SHT. NO. 40 FOR CIRCUIT ARRANGEMENT



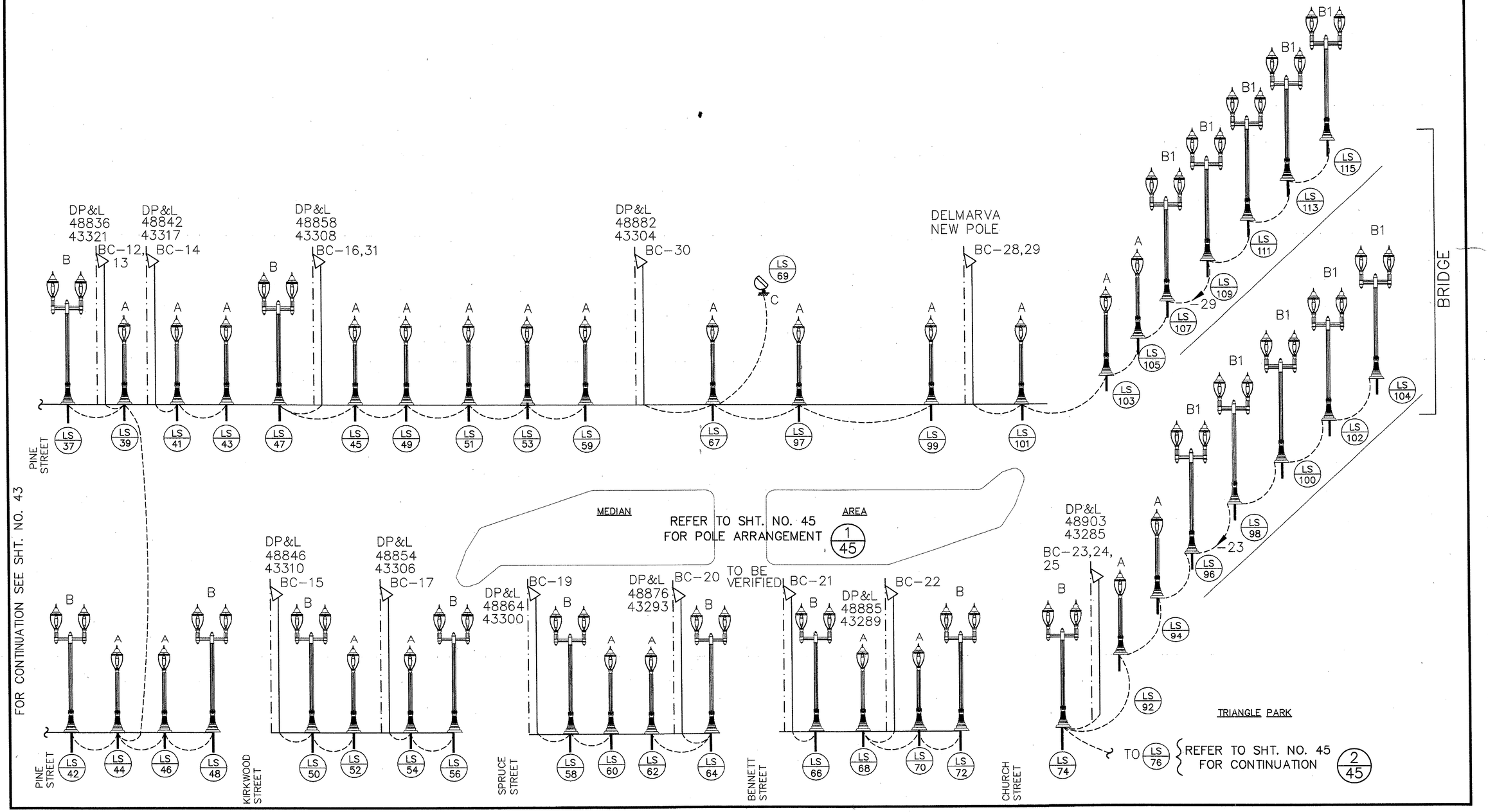
FOR CONTINUATION SEE SHT. NO. 44

POLE ARRANGEMENT

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	44	58

11TH STREET ENHANCEMENT PLAN

REVISIONS

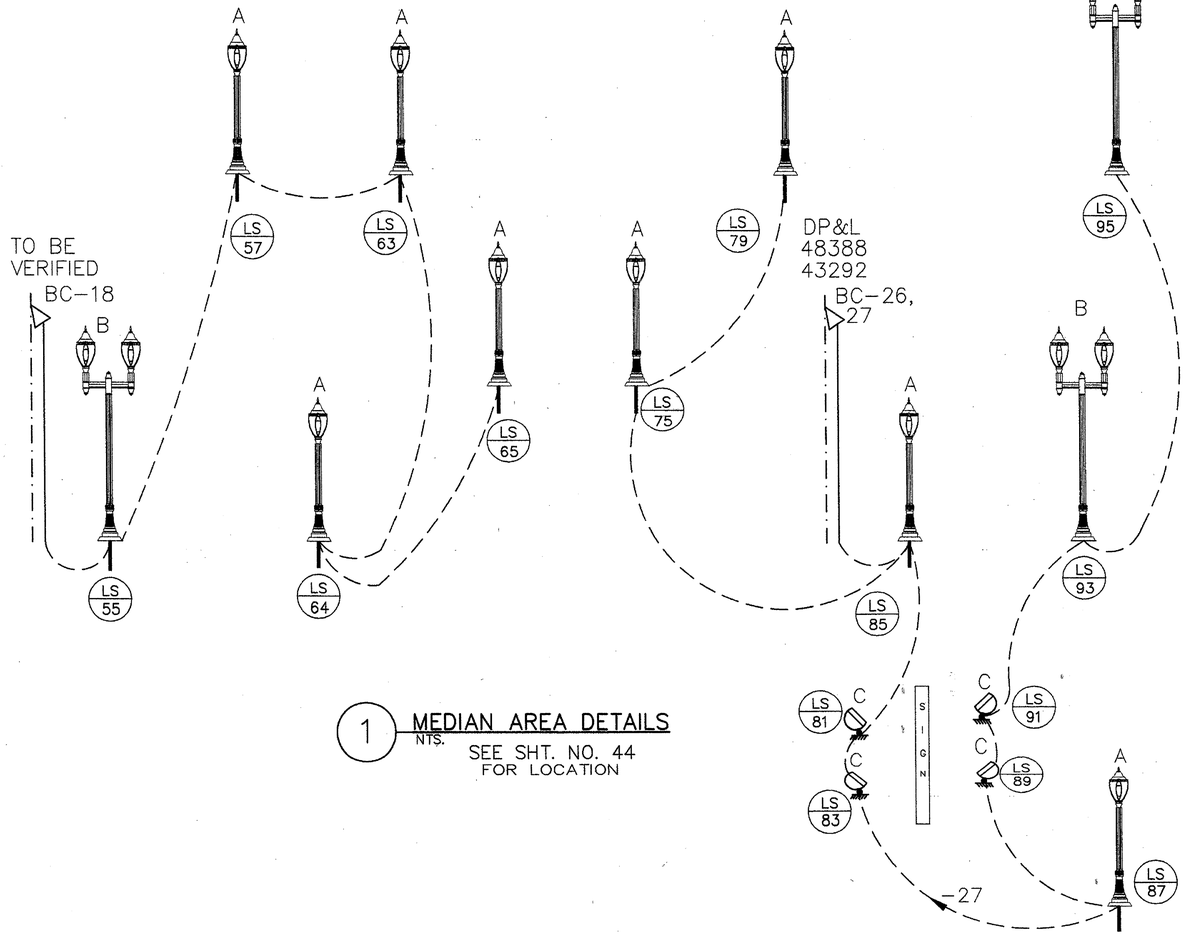


POLE ARRANGEMENT

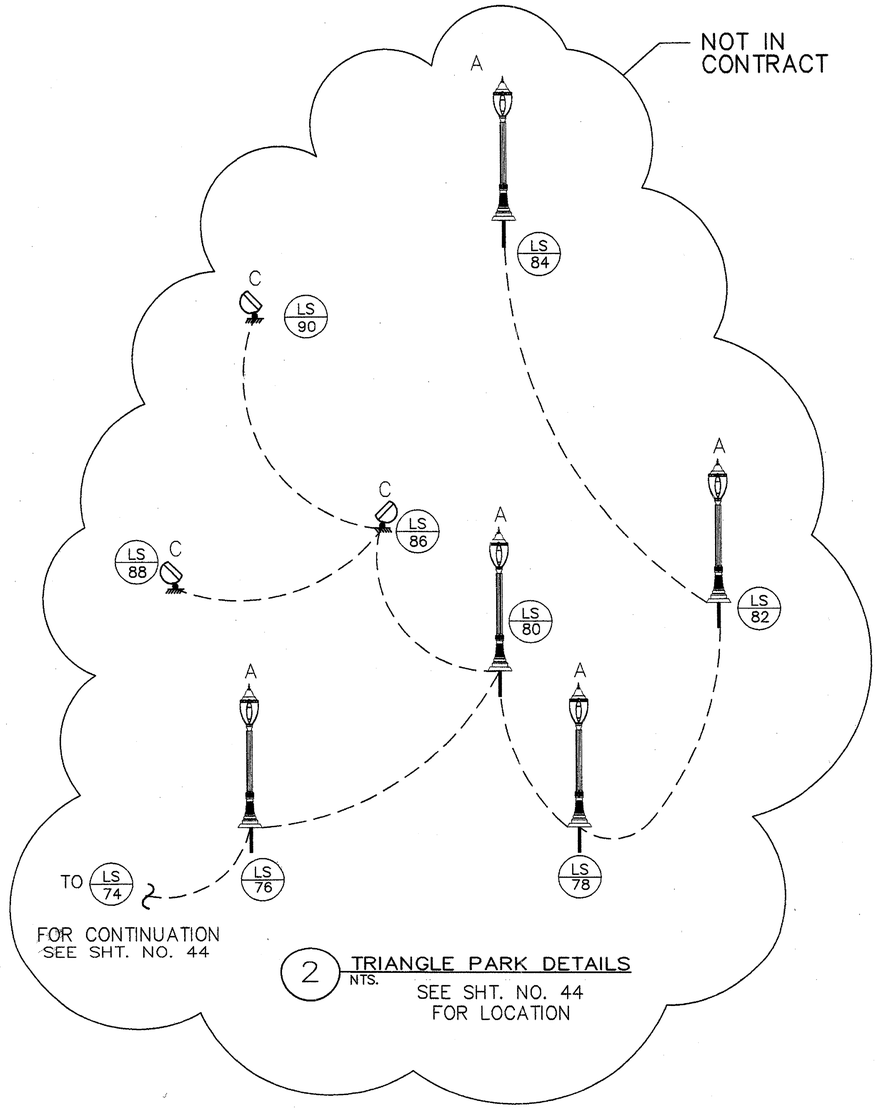
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	45	58

11TH STREET ENHANCEMENT PLAN

REVISIONS



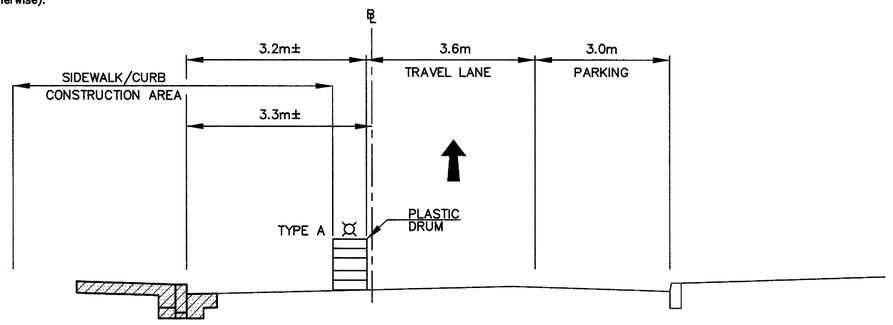
1 MEDIAN AREA DETAILS
NTS.
SEE SHT. NO. 44 FOR LOCATION



2 TRIANGLE PARK DETAILS
NTS.
SEE SHT. NO. 44 FOR LOCATION

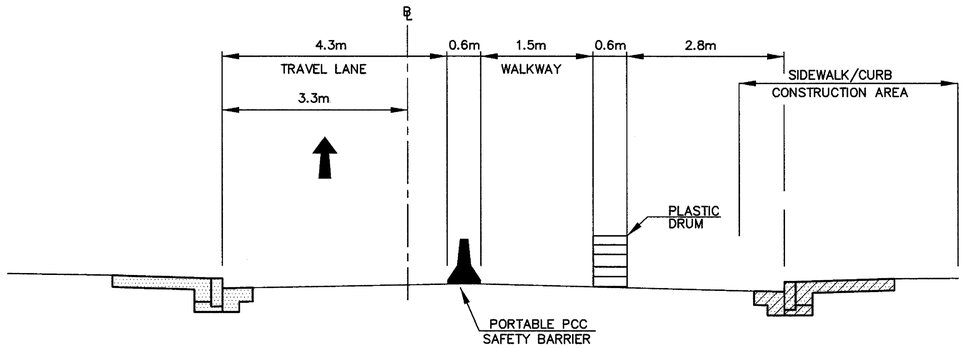
LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▮ Temporary Barrier (TB)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- Construction Warning Signs



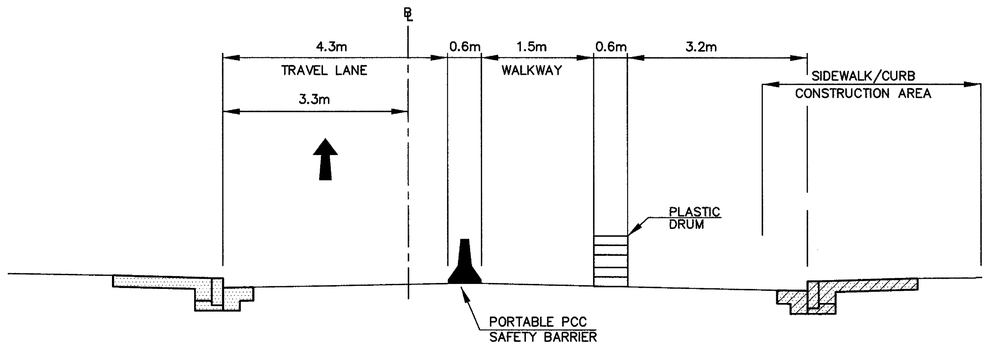
TYPICAL SECTION – SOUTHBOUND STAGE I CONSTRUCTION
LT. SIDEWALK/CURB STA 0+100 TO STA 0+685

N.T.S.



TYPICAL SECTION – SOUTHBOUND STAGE II CONSTRUCTION
RT. SIDEWALK/CURB STA. 0+100 TO STA. 0+580

N.T.S.



TYPICAL SECTION – SOUTHBOUND STAGE II CONSTRUCTION
RT. SIDEWALK/CURB STA. 0+580 TO STA. 0+685

N.T.S.

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE I AND II – TYPICAL SECTIONS

NOT TO SCALE

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	46	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	

NOTES

1. THIS WORK SHALL CONSIST OF THE MAINTENANCE OF TRAFFIC AND THE PROTECTION OF THE TRAVELING PUBLIC APPROACHING THE CONSTRUCTION AREA AND WITHIN THE LIMITS OF CONSTRUCTION.
2. IMMEDIATELY UPON COMPLETION OF THE WORK, THE DEVICES SHALL BE REMOVED BY THE CONTRACTOR AND UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS WILL REMAIN HIS PROPERTY.
3. REMOVE ALL CONFLICTING PAVEMENT MARKINGS. PAYMENT WILL BE INCIDENTAL TO ITEM 763500 MAINTENANCE OF TRAFFIC.
4. THE CONTRACTOR MUST PROVED INGRESS AND EGRESS TO ALL COMMERCIAL ESTABLISHMENTS AND RESIDENCES SITUATED ADJACENT TO ALL CONSTRUCTION AREAS.
5. EXACT LOCATION OF STAGE LIMIT LINES TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
6. DO NOT LEAVE A ROADSIDE DROP-OFF (2" OR GREATER) ADJACENT TO TRAVELED LANES DURING NON-HOURS. WHEN NECESSARY, CONSTRUCT A TEMPORARY TRAFFIC BEARING BERM ADJACENT TO THE PAVEMENT TO ASSURE THAT THERE IS NO DROP-OFF.
7. MAINTAIN ACCESS TO BUS STOPS DURING CONSTRUCTION, NOTIFY CHIEF OF SCHEDULES AT DART, FIRST STATE, PRIOR TO AFFECTING TRAFFIC.
8. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF TRAFFIC SIGNALS WITH DELDOT'S TRAFFIC UNIT. A COORDINATED TRAFFIC SIGNAL FLOW PATTERN SHALL BE MAINTAINED THROUGHOUT THE PROJECTS LIMITS. THE EXISTING TRAFFIC SIGNALS WILL REMAIN OPERATIONAL UNTIL ALL THE NEW SIGNALS ARE INSTALLED AND OPERATIONAL.
9. COORDINATE THE CLOSURE OF ALL SIDE STREETS WITH HE CITY OF WILMINGTON.

CONSTRUCTION SEQUENCE

STAGE I

PERFORM CURB AND SIDEWALK CONSTRUCTION ON THE NORTH SIDE OF 11th STREET FROM WALNUT STREET TO THE LIMIT OF CONSTRUCTION IN KIRKWOOD PARK.

PERFORM THE CURB AND SIDE WALK CONSTRUCTION ON THE EAST SIDE OF CHURCH STREET.

STAGE II

PERFORM CURB AND SIDEWALK CONSTRUCTION ON THE SOUTH SIDE OF 11th STREET IN THE FOLLOWING PHASES:

PHASE

A--WALNUT STREET TO CLIFFORD BROWN WALK.
B--CLIFFORD BROWN WALK TO PINE STREET.
C--PINE STREET TO SPRUCE STREET.
D--SPRUCE STREET TO BENNETT STREET.
E--BENNETT STREET TO CHURCH STREET.

STAGE III

PERFORM CURB CONSTRUCTION IN THE MEDIAN AREA FROM SPRUCE STREET TO CHURCH STREET.

F:\3456\01\11TH STREET\CIVIL\MPT\061099\MPT_SEC.dwg

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET NO. 46.

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- Temporary Barrier (Portable pcc)
- Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- Construction Warning Signs

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE I AND II – TYPICAL PLAN

0 5 10 20 30

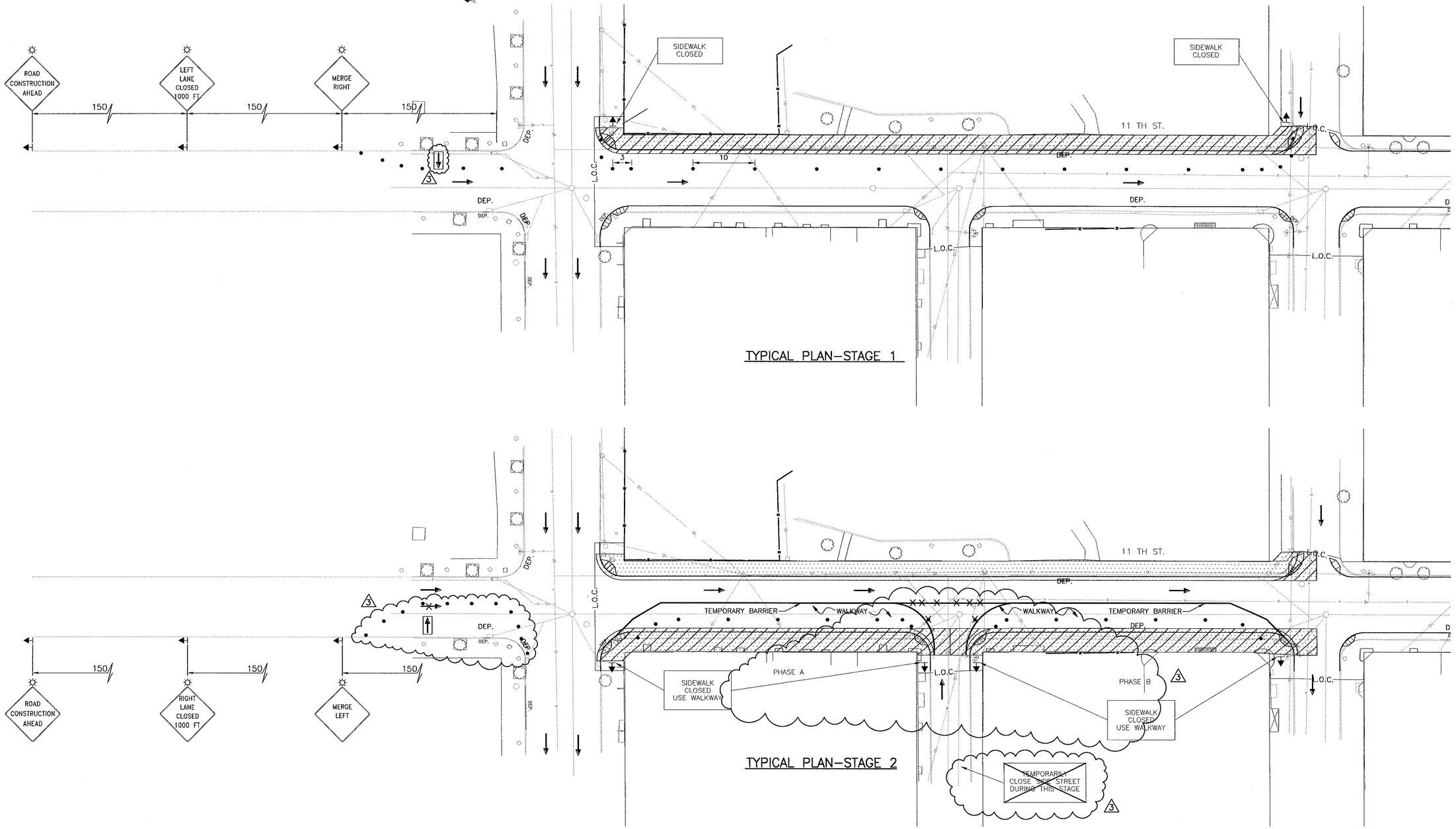
GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	47	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

3 ADDED ARROW PANELS, CHANGED PHASING 5/7/99	



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MAINTENANCE & PROTECTION OF TRAFFIC

STAGE I AND II – PHASING

0 5 10 20 30 40

GRAPHIC SCALE (1:400)

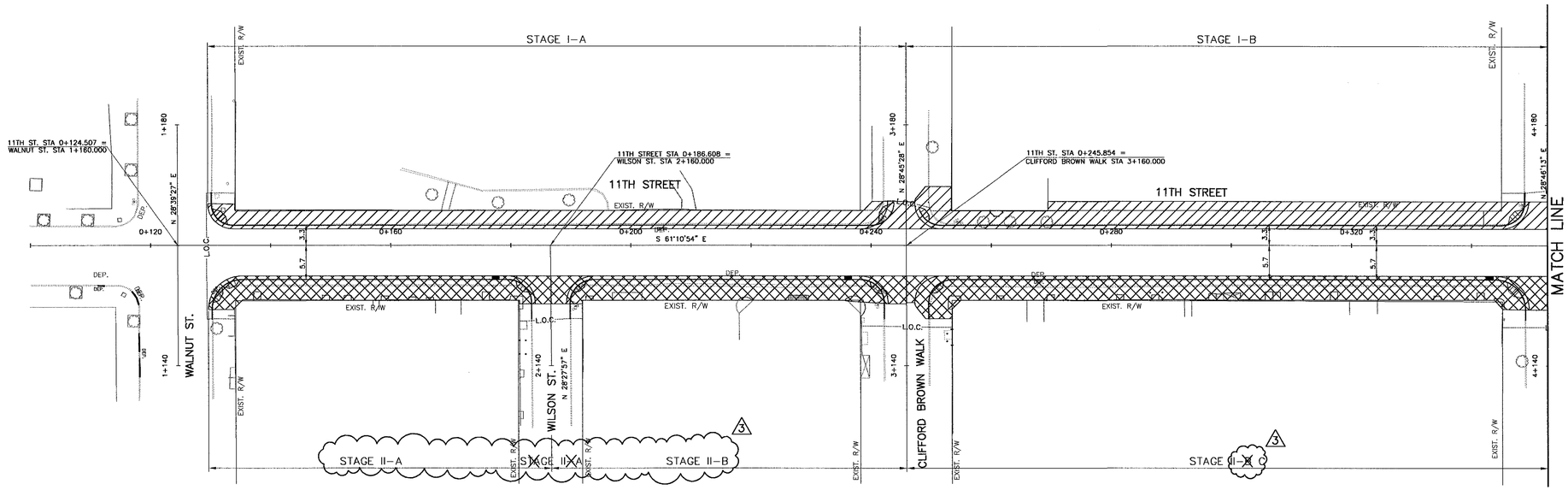
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	48	58

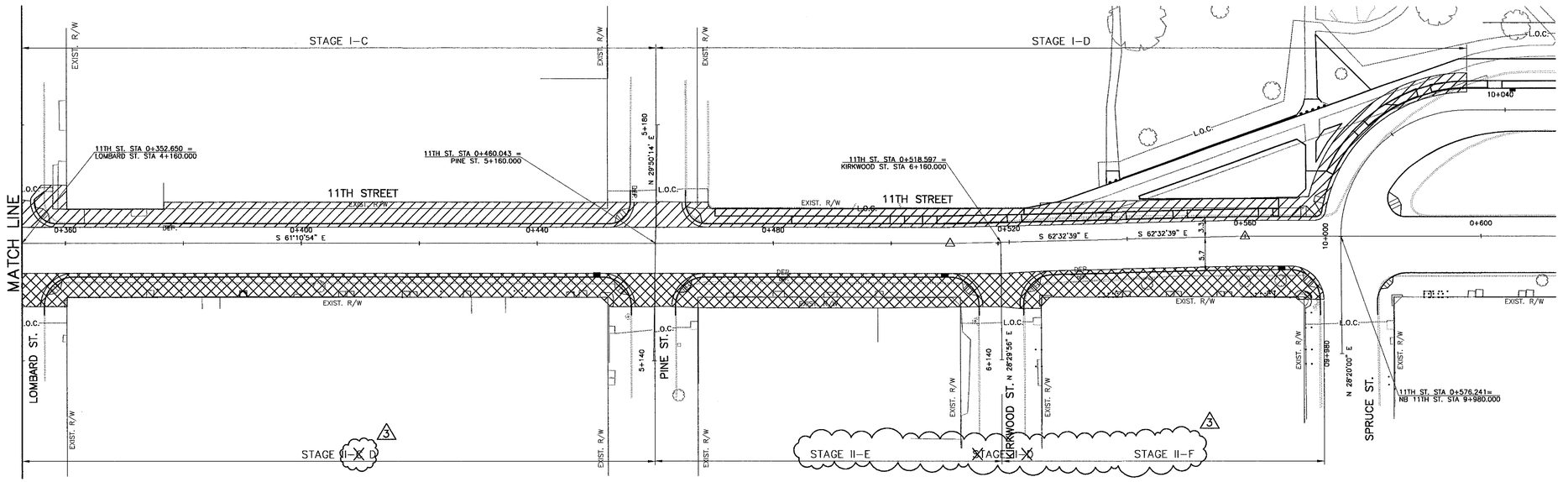
11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

3 CHANGED PHASING	
5/7/99	

STAGE I
STAGE II





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CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	49	58

MAINTENANCE & PROTECTION OF TRAFFIC

STAGE I AND II – PHASING

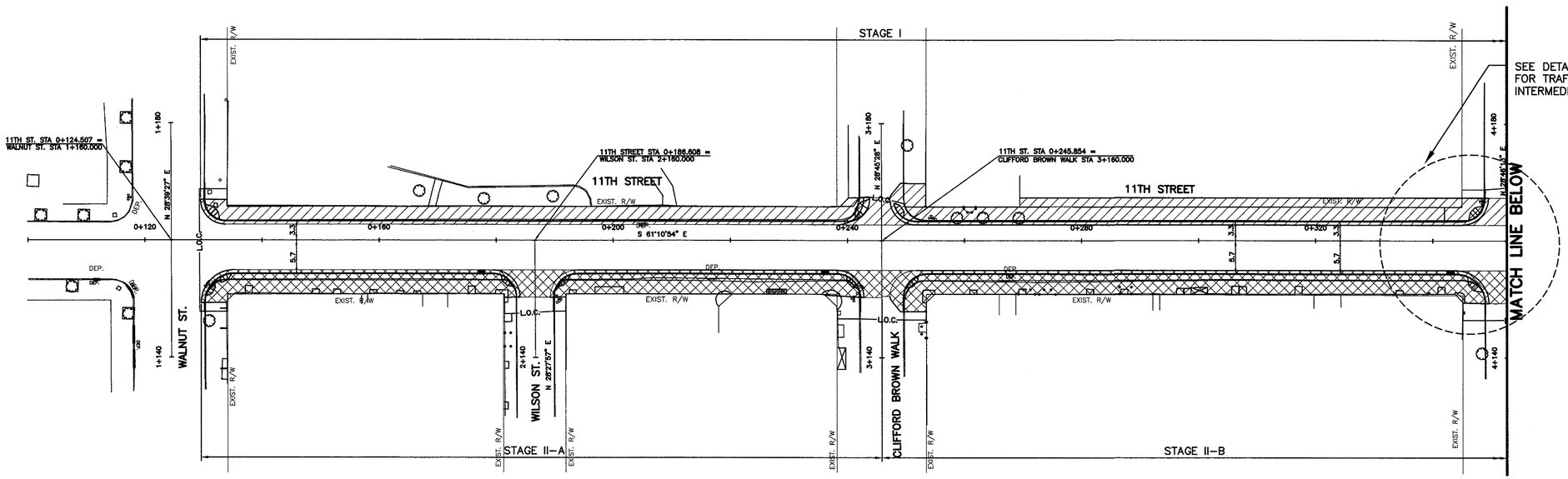
0 5 10 20 30 40

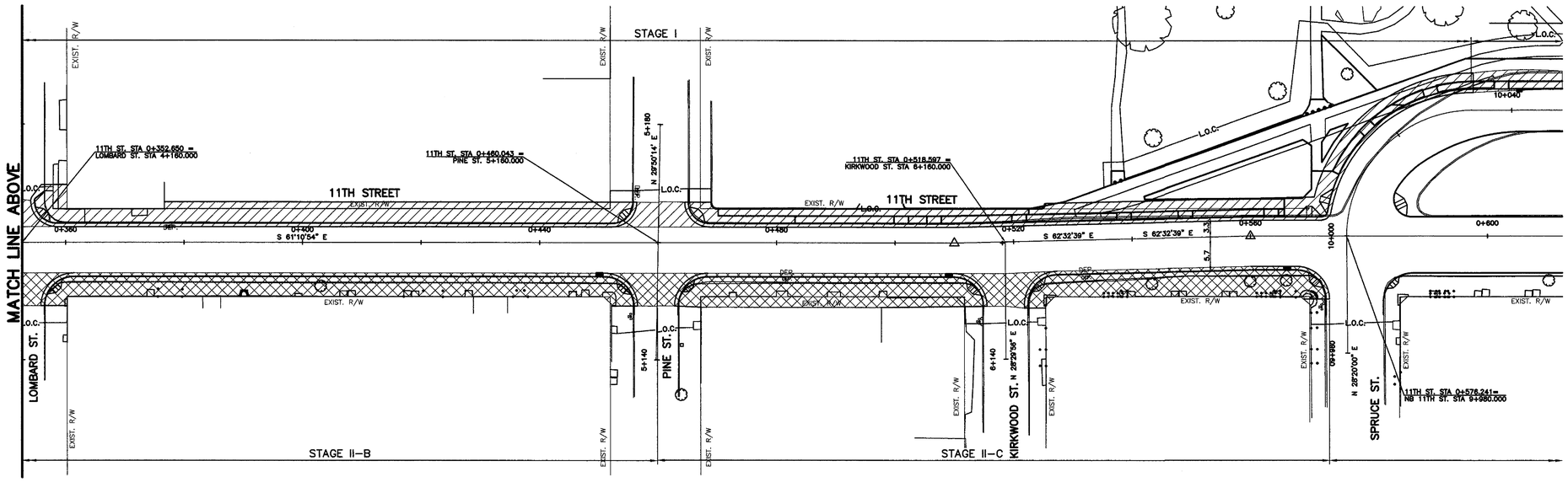
GRAPHIC SCALE (1:400)

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	

STAGE I
STAGE II





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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET NO. 46.

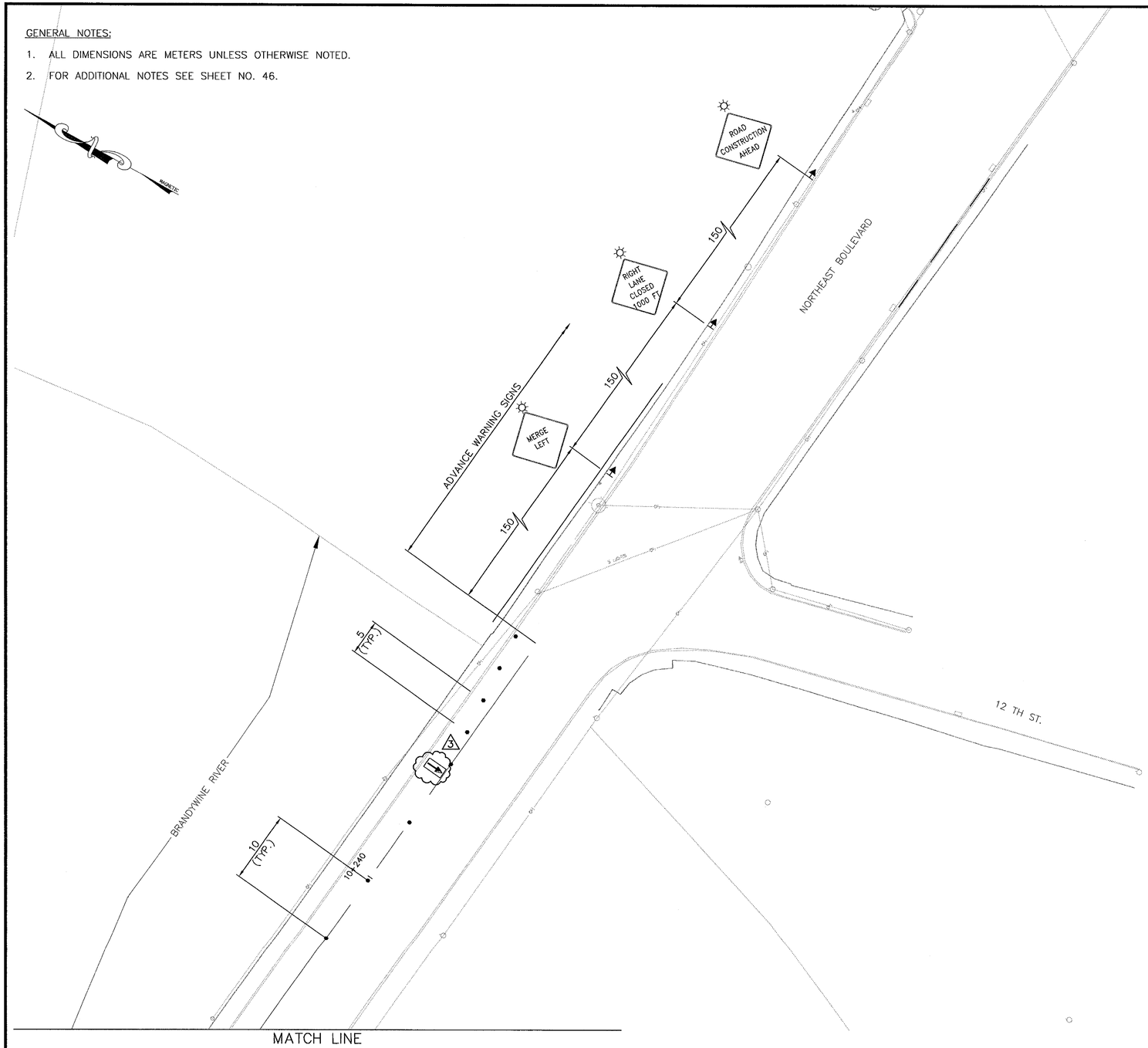
MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE III

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	50	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	
3 ADDED ARROW PANEL	
5/7/99	



0 5 10 20 30

GRAPHIC SCALE (1:300)

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portsble Pcc)
- ● or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT. Construction Warning Signs

F:\3456\01\11TH STREET\CIVIL\MPT\MPT-ST5.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET NO. 46.

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portable Pcc)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Maunted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT Construction Warning Signs

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE IV

0 5 10 20 30

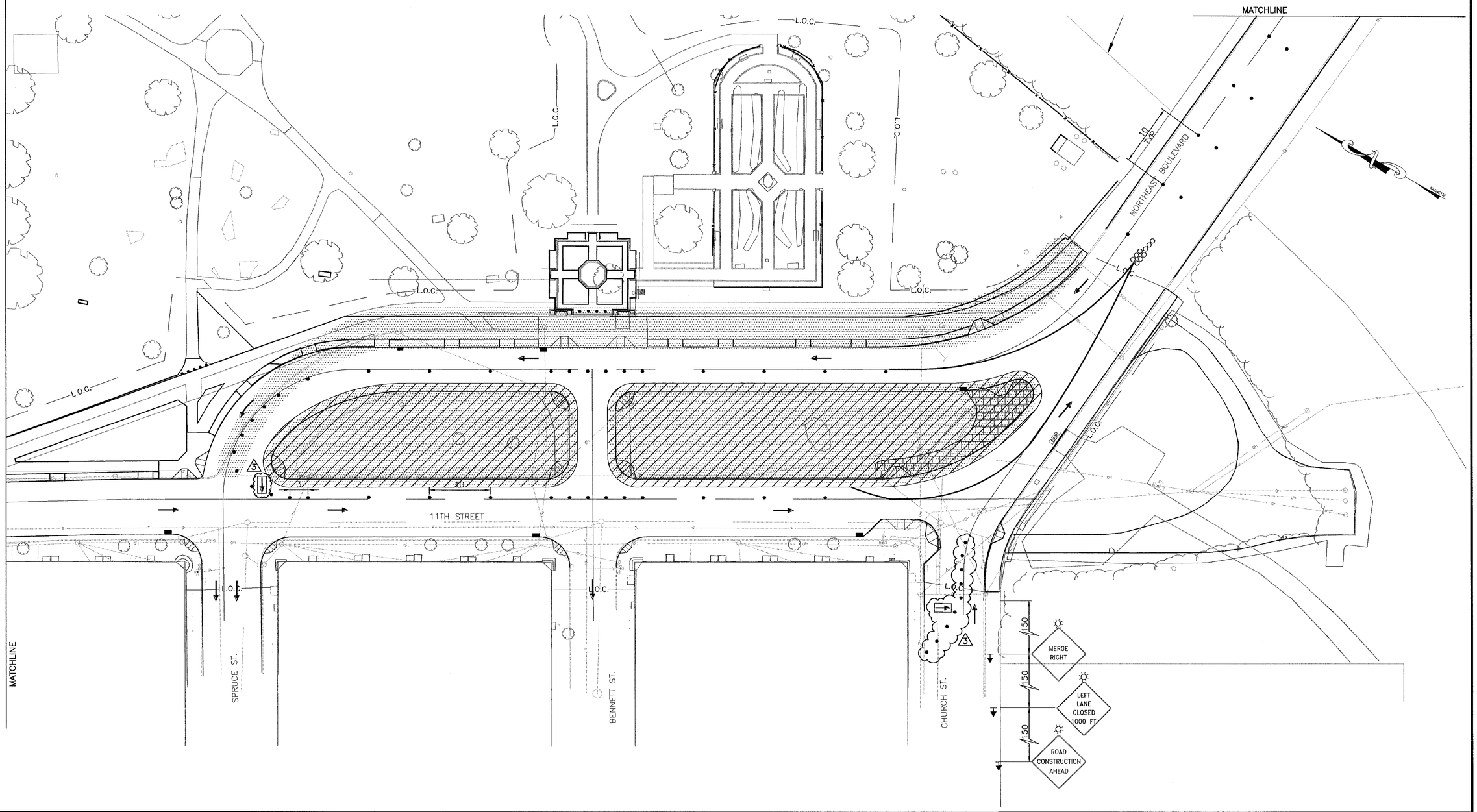
GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	51	58

11TH STREET ENHANCEMENT PLAN FROM WALNUT STREET TO 12TH STREET

REVISIONS

3 ADDED ARROW PANELS, 5/7/99	



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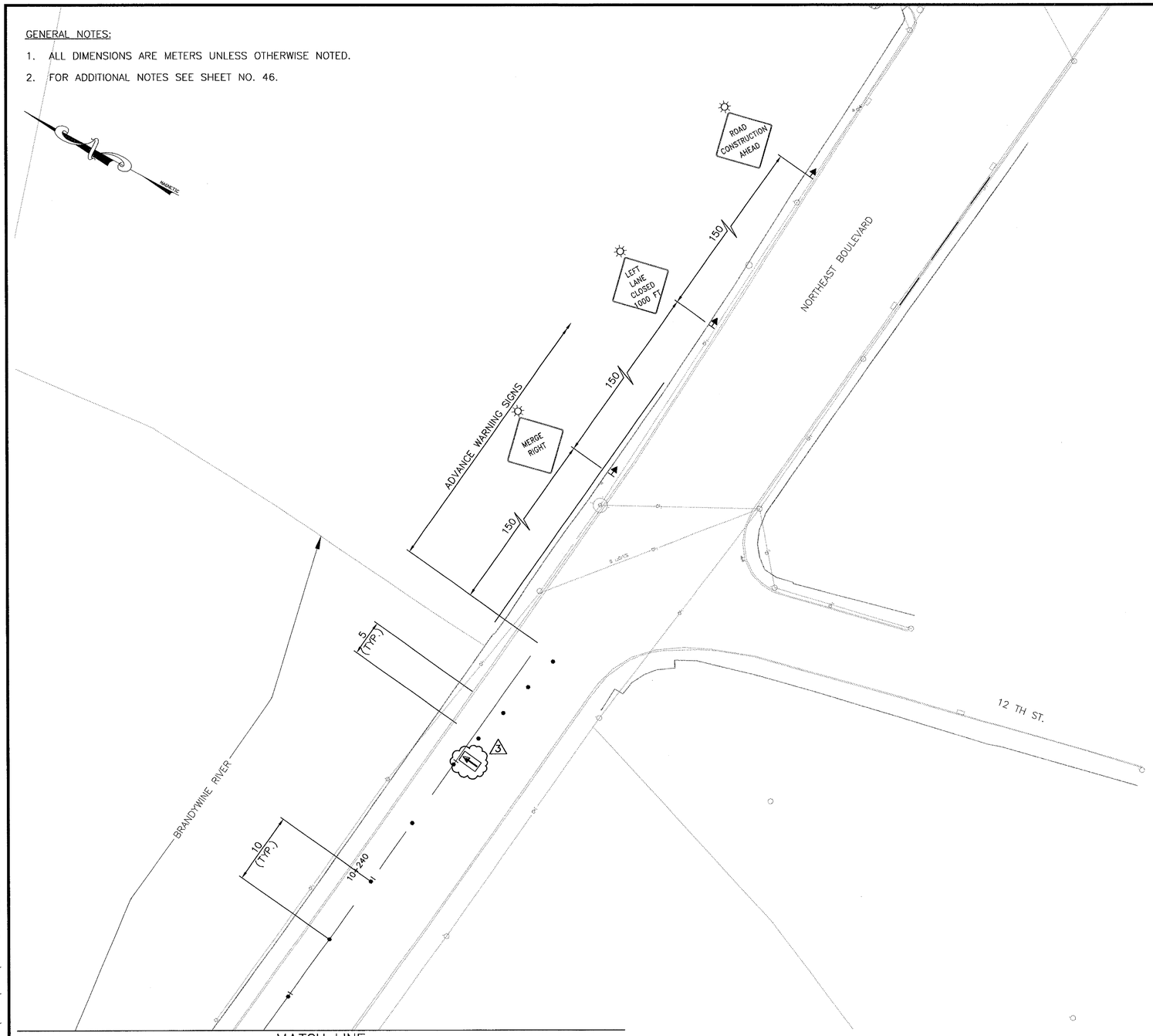
GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET NO. 46.



MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE IV

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	52	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS	
⚠3 ADDED ARROW PANELS, 5/7/99	

0 5 10 20 30
GRAPHIC SCALE (1:300)

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portable Pcc)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT Construction Warning Signs

F:\3456\01\11TH STREET\CIVIL\MPT\MPT-ST4-B.DWG

GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET 46.

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portable Pcc)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT Construction Warning Signs

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE V

0 5 10 20 30

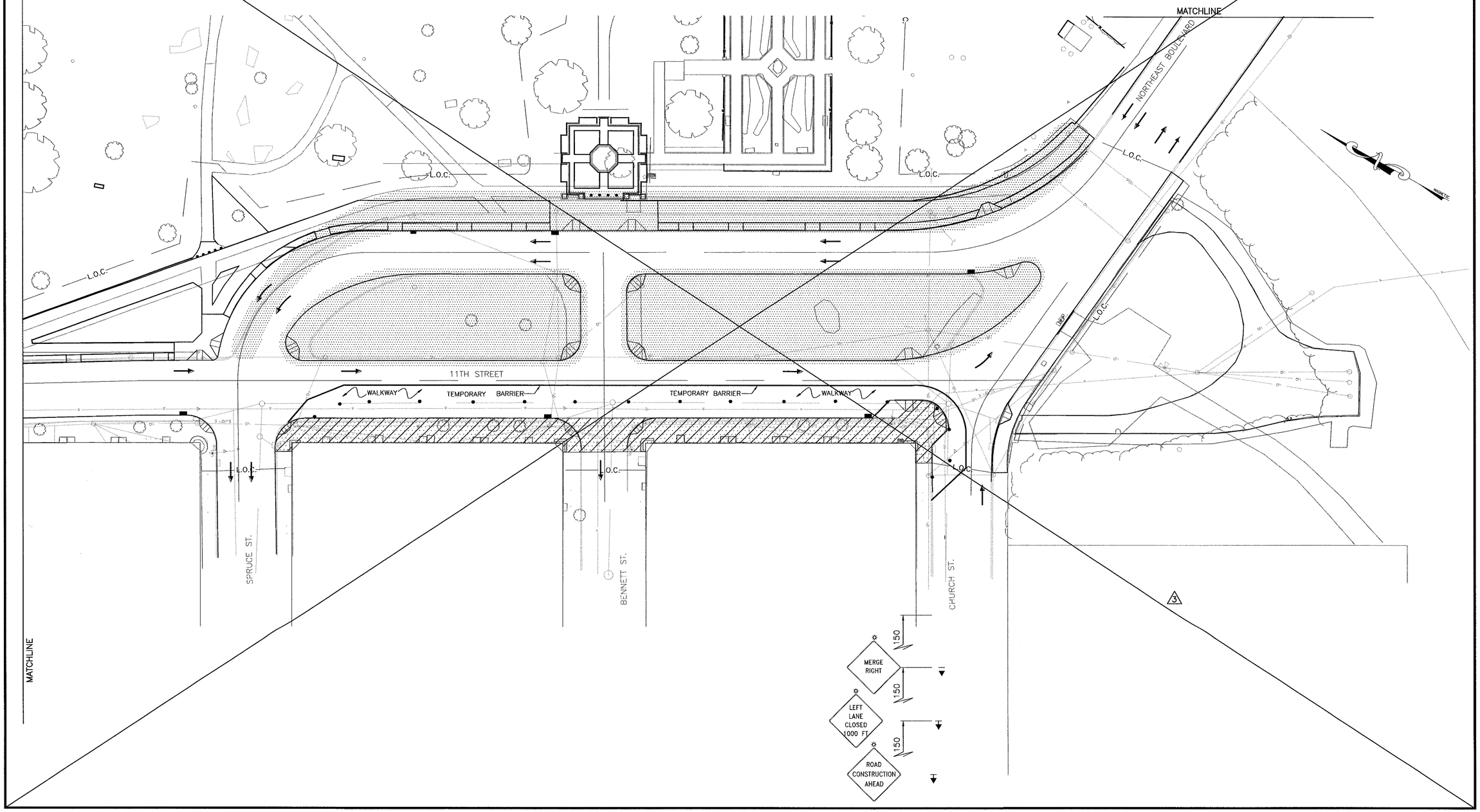
GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	53	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

3 DELETE SHEET 5/7/99	



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GENERAL NOTES:

1. ALL DIMENSIONS ARE METERS UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL NOTES SEE SHEET NO. 46.

LEGEND

- Construction Completed Previous Stage.
- Construction to be Done This Stage.
- Traffic Flow Arrow
- — or ▲ Temporary Barrier (Portable Pcc)
- • or ▮ Traffic Control Plastic Drum and One "Type A" Light Mounted on Top.
- Advanced Warning Traffic Control Unit (Battery Powered).
- High Intensity Flashing Warning Light, Type B (Yellow unless noted otherwise).
- Crash Cushion (Sand Barrels)
- ROAD CONSTRUCTION 1000 FT Construction Warning Signs

MAINTENANCE AND PROTECTION OF TRAFFIC

STAGE VI

0 5 10 20 30

GRAPHIC SCALE (1:300)

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	54	58

11TH STREET ENHANCEMENT PLAN
FROM WALNUT STREET TO 12TH STREET

REVISIONS

3 ADDED ARROW PANELS, ADDED HATCHING 5/7/99	

MATCH LINE

L.O.C.

11TH STREET

NORTHEAST BOULEVARD

MAGNETIC

SPRUCE ST.

BENNETT ST.

CHURCH ST.

MATCH LINE

150

MERGE LEFT

150

RIGHT LANE CLOSED 1000 FT

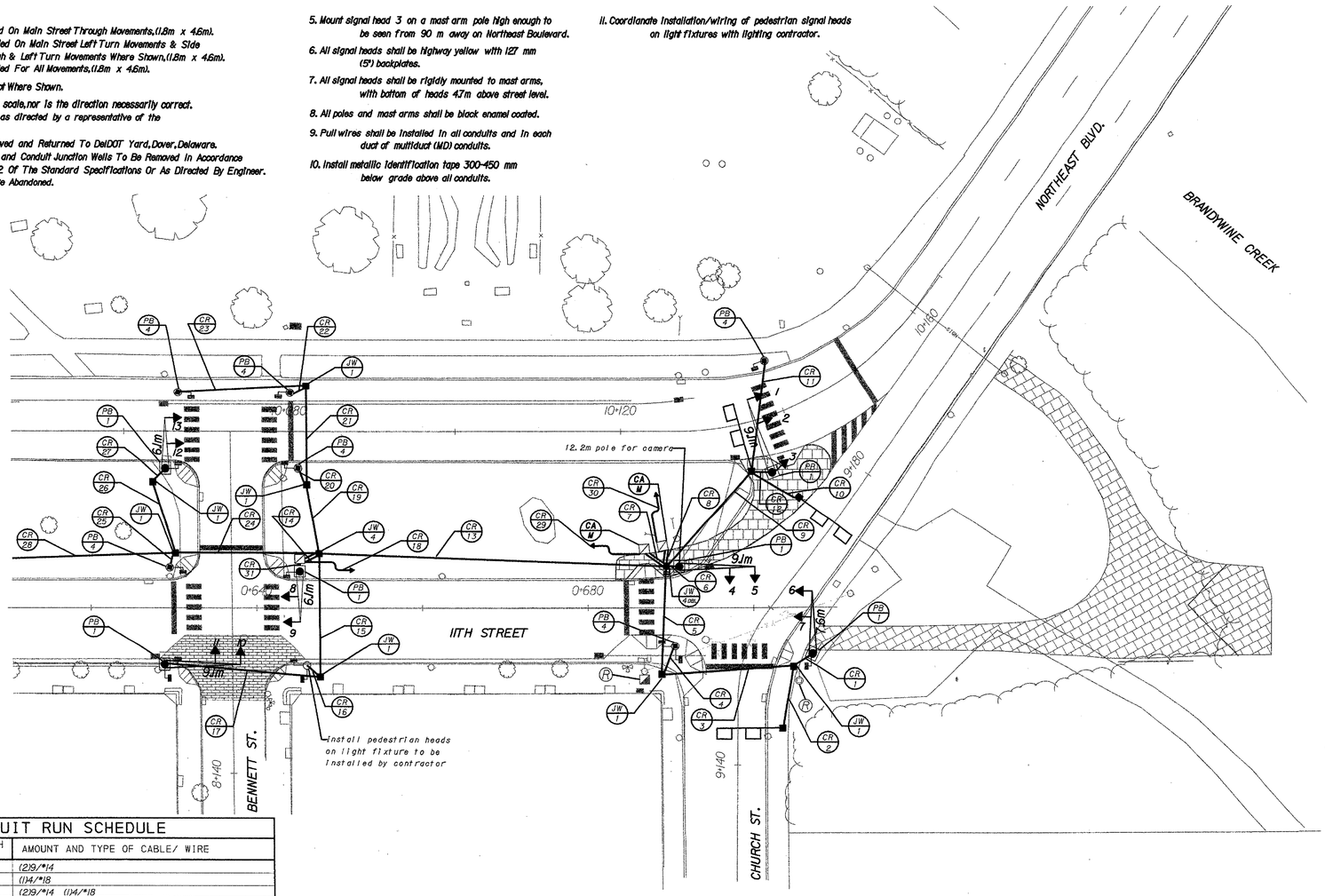
150

ROAD CONSTRUCTION AHEAD

F:\3456\01\11TH STREET\CIVIL\MPT\MPT-STG12.DWG

SIGNAL NOTES

1. LOOP DETECTORS:
   Type *1 - To Be Installed On Main Street Through Movements,(1.8m x 4.6m).
   Type *2 - To Be Installed On Main Street Left Turn Movements & Side Street Through & Left Turn Movements Where Shown,(1.8m x 4.6m).
   Type *3 - To Be Installed For All Movements,(1.8m x 4.6m).
2. All Signal Poles Will be 8.5m Except Where Shown.
3. Run *21,*32,*33 Is not drawn to scale,nor Is the direction necessarily correct. Actual placement shall be as directed by a representative of the Bureau of Traffic.
4. Existing Signal Poles To Be Removed and Returned To DelDOT Yard,Dover,Delaware. Pole Bases,Cabinet Base and Conduit Junction Wells To Be Removed In Accordance With Section 201 and 202 Of The Standard Specifications Or As Directed By Engineer. Existing Conduit Is To Be Abandoned.
5. Mount signal head 3 on a mast arm pole high enough to be seen from 90 m away on Northeast Boulevard.
6. All signal heads shall be highway yellow with 127 mm (5") backplates.
7. All signal heads shall be rigidly mounted to mast arms, with bottom of heads 4.7m above street level.
8. All poles and mast arms shall be black enamel coated.
9. Pull wires shall be installed in all conduits and in each duct of multiduct (MD) conduits.
10. Install metallic identification tape 300-450 mm below grade above all conduits.
11. Coordinate installation/wiring of pedestrian signal heads on light fixtures with lighting contractor.



CONDUIT RUN SCHEDULE

CR#	# OF CONDUITS	SIZE (mm)	LENGTH (M)	AMOUNT AND TYPE OF CABLE/ WIRE
1	1	63	3	(2)9/*14
2	1	38	8	(1)4/*18
3	1	63	16	(2)9/*14 (1)4/*18
4	1	63	4	(1)9/*14
5	1	63	13	(3)9/*14 (1)4/*18
6	1	63	2	(2)9/*14
7	2	63	3	(8)9/*14 (3)4/*18 COMMUNICATION CABLE
8	2	63	3	COMMUNICATION CABLE
9	1	63	15	(3)9/*14 (2)4/*18
10	1	38	7	(1)4/*18
11	1	63	13	(1)9/*14
12	1	63	3	(2)9/*14
13	2	100MD	42	COMMUNICATION CABLE
14	2	63	2	(9)9/*14 COMMUNICATION CABLE
15	1	63	15	(3)9/*14
16	1	63	2	(1)9/*14
17	1	63	19	(2)9/*14
18	1	38	31	(1)2/*8 U.F.W./GROUND
19	1	63	8	(3)9/*14
20	1	63	2	(1)9/*14
21	1	63	12	(2)9/*14
22	1	63	2	(1)9/*14
23	1	63	16	(1)9/*14
24	2	100MD	17	(3)9/*14 COMMUNICATION CABLE
25	1	63	2	(1)9/*14
26	1	63	9	(2)9/*14
27	1	63	2	(2)9/*14
28	2	100MD	41	COMMUNICATION CABLE
29	1	38	31	(1)2/*8 U.F.W./GROUND
30	1	38	31	(1)2/*8 U.F.W./GROUND
31	1	63	1	(2)9/*14

DELAWARE DIVISION OF HIGHWAYS
BUREAU OF TRAFFIC
DOVER DELAWARE

PERMIT NO.	CONTRACT NO.	FED. AID NO.	SHEET NO.	TOTAL
-------	99-011-02	ESTP-N999(71)	54A	58

11TH STREET & CHURCH STREET
11TH STREET & BENNETT STREET

PREL.TRACING	DATE	DESIGN	DATE
		JRR	

REVISION

LEGEND

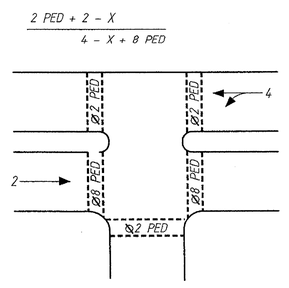
- PROPOSED POLE BASE IDENTIFIER (TYPE OF POLE BASE)
- EXISTING POLE BASE
- PROPOSED PEDESTAL BASE
- EXISTING PEDESTAL BASE
- PROPOSED POLE
- ∅ or ◎ EXISTING D.P.& L. POLE
- PROPOSED CABINET BASE
- EXISTING CABINET BASE
- PROPOSED CABINET BASE IDENTIFIER (TYPE OF CABINET)
- RIGHT-OF-WAY OR PROPERTY LINE
- PROPOSED LOOP DETECTOR (TYPE 1 OR 2)
- EXISTING LOOP DETECTOR
- PROPOSED JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
- EXISTING JUNCTION WELL
- PROPOSED JUNCTION WELL
- PROPOSED SPAN WIRE
- EXISTING SPAN WIRE
- PROPOSED SIGNAL HEAD
- EXISTING SIGNAL HEAD
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN SIGNAL HEAD
- PROPOSED MAST ARM
- (R) REMOVE
- (A) ABANDON
- (RB) REMOVE EXISTING CONCRETE BASE (6' BELOW GROUND LEVEL AND COVER, OR AS DIRECTED BY SIGNAL PLAN)
- CONDUIT RUN IDENTIFIER (RUN NUMBER)
- OVERHEAD SPAN IDENTIFIER (SPAN NUMBER)
- MICROWAVE DETECTOR
- EXISTING MICROWAVE DETECTOR
- XC------ EXISTING CONDUIT
- PROPOSED CONDUIT

JEFFREY R. RINGNER — REGISTERED — No. 9840 — DELAWARE PROFESSIONAL ENGINEER

PHASING DIAGRAM

11TH ST. & BENNETT ST.

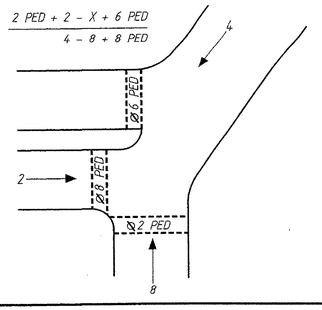
2 PED + 2 - X
4 - X + 8 PED



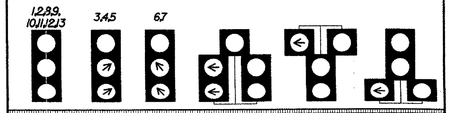
PHASING DIAGRAM

11TH ST. & CHURCH ST.

2 PED + 2 - X + 6 PED
4 - 8 + 8 PED



SIGNAL HEAD DIAGRAM



ORA — Orth - Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS
230 South Broad Street Philadelphia, Pennsylvania 19102
Phone (215) 735-9312 Fax (215) 735-9954

RECOMMENDED BY
PROJECT MANAGER
DATE

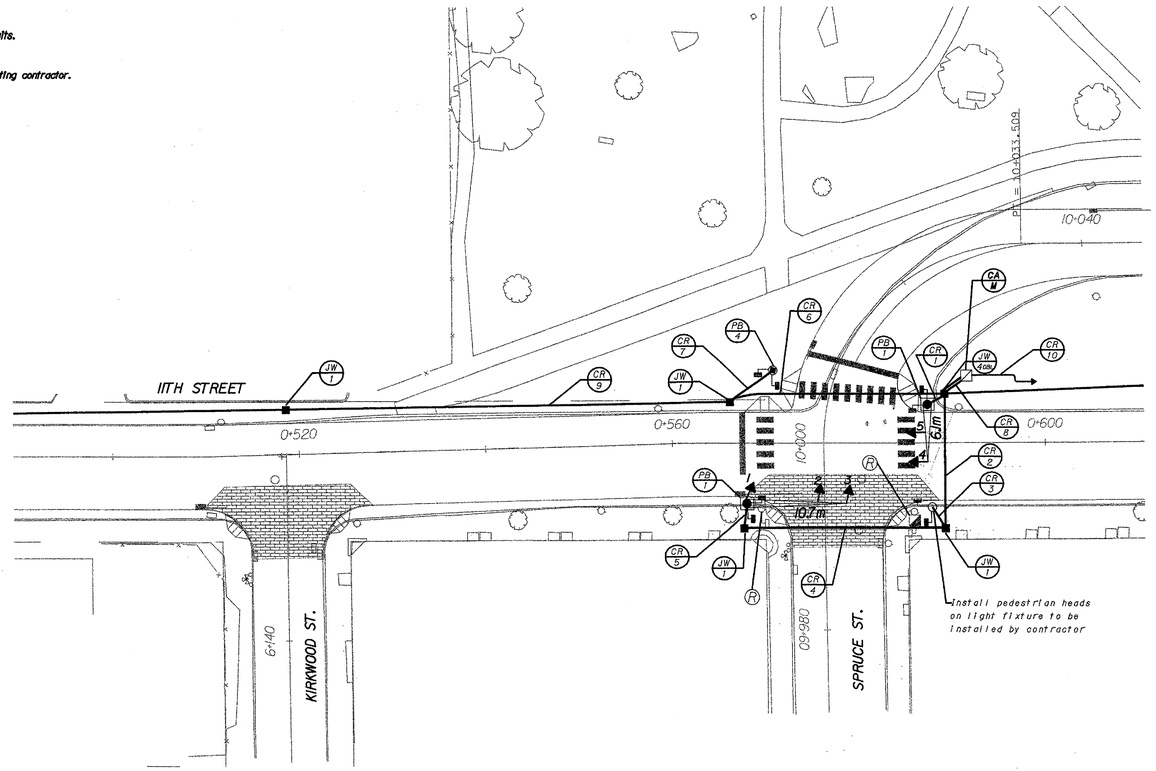
APPROVED TRAFFIC ENGINEER DATE

APPROVED for INSTL.
CHIEF TRAFFIC ENGINEER DATE

97048 ...\sig01.dgn 08 FEB 99

SIGNAL NOTES

1. LOOP DETECTORS:
   - Type #1 - To Be Installed On Main Street Through Movements.(1.8m x 4.6m).
   - Type #2 - To Be Installed On Main Street Left Turn Movements & Side Street Through & Left Turn Movements Where Shown.(1.8m x 4.6m).
   - Type #3 - To Be Installed For All Movements.(1.8m x 4.6m).
2. All Signal Poles Will be 8.5m Except Where Shown.
3. Run #10 Is not drawn to scale,nor is the direction necessarily correct. Actual placement shall be as directed by a representative of the Bureau of Traffic.
4. Existing Signal Poles To Be Removed and Returned To DelDOT Yard,Dover,Delaware. Pole Bases,Cabinet Base and Conduit Junction Wells To Be Removed In Accordance With Section 201 and 202 Of The Standard Specifications Or As Directed By Engineer. Existing Conduit Is To Be Abandoned.
5. All signal heads shall be highway yellow with 127 mm (5") backplates.
6. All signal heads shall be rigidly mounted to mast arms,with bottom of heads 4.7m above street level.
7. All poles and mast arms shall be black enamel coated.
8. Pull wires shall be installed in all conduits and in each duct of multiduct (MD) conduits.
9. Install metallic identification tape 300-450 mm below grade above all conduits.
10. Coordinate installation/wiring of pedestrian signal heads on light fixtures with lighting contractor.



0 5 10
1:300

DELAWARE DIVISION OF HIGHWAYS
BUREAU OF TRAFFIC
DOVER DELAWARE

PERMIT NO.	CONTRACT NO.	FED. AID NO.	SHEET NO.	TOTAL
-------	99-011-02	ESTP-N999(71)	54B	58

11TH STREET & SPRUCE STREET

PREL.TRACING	DATE	DESIGN	DATE
		JRR	

REVISION

LEGEND

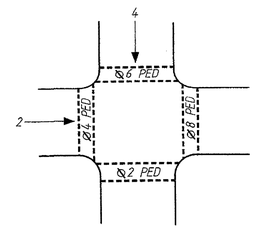
- PB 3 — PROPOSED POLE BASE IDENTIFIER (TYPE OF POLE BASE)
- EXISTING POLE BASE
- PROPOSED PEDESTAL BASE
- EXISTING PEDESTAL BASE
- PROPOSED POLE
- ∅ or ◎ — EXISTING D.P.& L. POLE
- PROPOSED CABINET BASE
- EXISTING CABINET BASE
- CA P — PROPOSED CABINET BASE IDENTIFIER (TYPE OF CABINET)
- RIGHT-OF-WAY OR PROPERTY LINE
- PROPOSED LOOP DETECTOR (TYPE 1 OR 2)
- EXISTING LOOP DETECTOR
- JW 1 — PROPOSED JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
- EXISTING JUNCTION WELL
- PROPOSED JUNCTION WELL
- PROPOSED SPAN WIRE
- EXISTING SPAN WIRE
- PROPOSED SIGNAL HEAD
- EXISTING SIGNAL HEAD
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN SIGNAL HEAD
- PROPOSED MAST ARM
- (R) — REMOVE
- (A) — ABANDON
- RB — REMOVE EXISTING CONCRETE BASE (6" BELOW GROUND LEVEL AND COVER, OR AS DIRECTED BY SIGNAL PLAN)
- CR X — CONDUIT RUN IDENTIFIER (RUN NUMBER)
- OS X — OVERHEAD SPAN IDENTIFIER (SPAN NUMBER)
- MICROWAVE DETECTOR
- EXISTING MICROWAVE DETECTOR
- XC----- EXISTING CONDUIT
- PROPOSED CONDUIT

JEFFREY R. RIEGNER — REGISTERED — No. 9840 — DELAWARE PROFESSIONAL ENGINEER

CONDUIT RUN SCHEDULE

CR#	# OF CONDUITS	SIZE (mm)	LENGTH (M)	AMOUNT AND TYPE OF CABLE/ WIRE
1	1	63	2	(2)9/#14
2	1	63	14	(3)9/#14
3	1	63	2	(1)9/#14
4	1	63	22	(2)9/#14
5	1	63	3	(2)9/#14
6	2	100MD	25	(1)9/#14 COMMUNICATION CABLE
7	1	63	6	(1)9/#14
8	2	63	3	(6)9/#14 COMMUNICATION CABLE
9	2	100MD	48	COMMUNICATION CABLE
10	1	38	31	(1)2/#8 U.F.W./GROUND

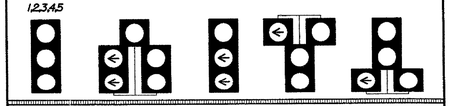
PHASING DIAGRAM



2 PED + 2 - X + 6 PED
4 PED + 4 - X + 8 PED

SIGNAL HEAD DIAGRAM

1,2,3,4,5



OR&A — Orth - Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS
230 South Broad Street Philadelphia,Pennsylvania 19102
Phone (215)735-1932 Fax (215)735-1954

RECOMMENDED BY
PROJECT MANAGER
2-8-99
DATE

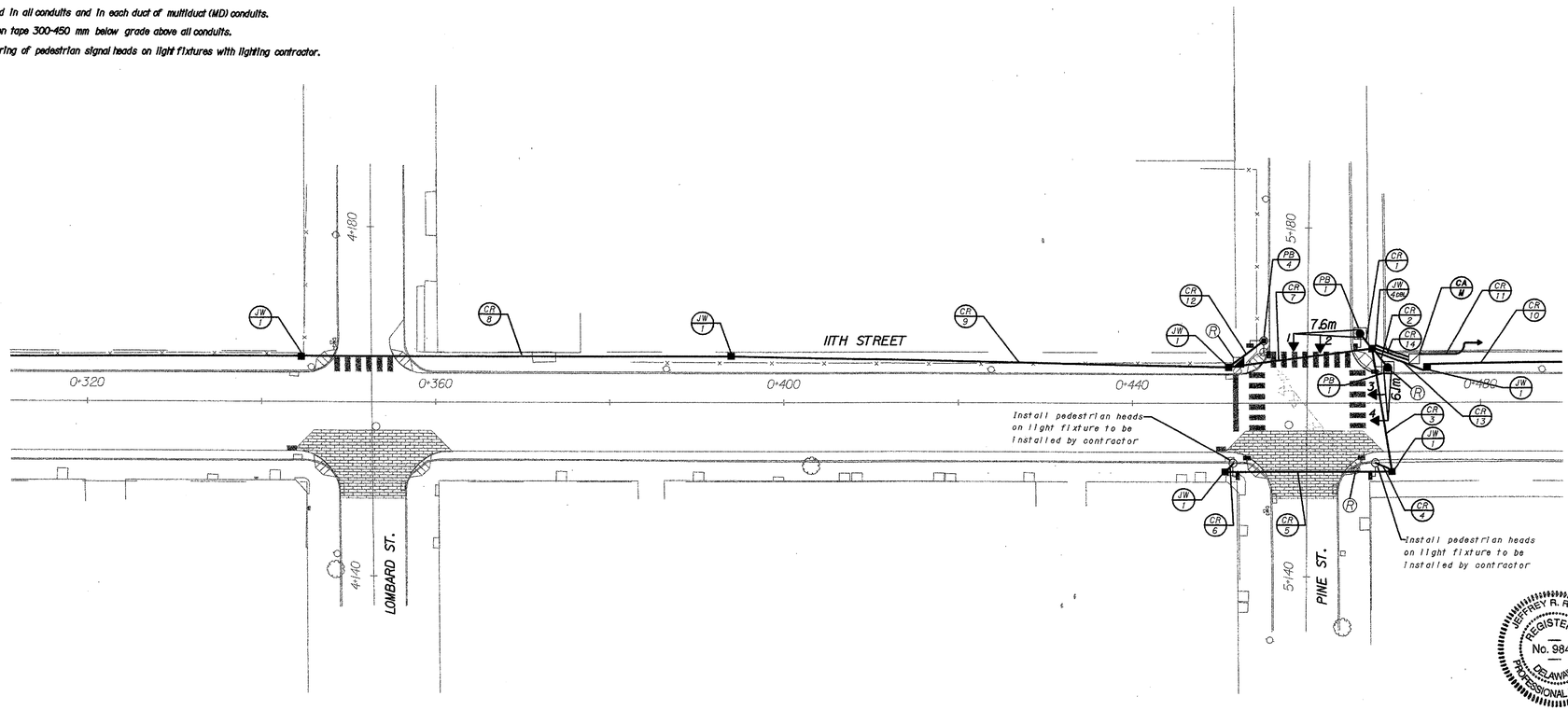
APPROVED TRAFFIC ENGINEER — DATE

APPROVED for INSTL.
CHIEF TRAFFIC ENGINEER — DATE

97048 ...\slg02.dgn 08 FEB 99

SIGNAL NOTES

1. LOOP DETECTORS:
   Type #1 - To Be Installed On Main Street Through Movements,(1.8m x 4.6m).
   Type #2 - To Be Installed On Main Street Left Turn Movements & Side Street Through & Left Turn Movements Where Shown,(1.8m x 4.6m).
   Type #3 - To Be Installed For All Movements,(1.8m x 4.6m).
2. All Signal Poles Will be 8.5m Except Where Shown.
3. Run #11 Is not drawn to scale,nor Is the direction necessarily correct. Actual placement shall be as directed by a representative of the Bureau of Traffic.
4. Existing Signal Poles To Be Removed and Returned To DelDOT Yard,Dover,Delaware. Pole Bases,Cabinet Base and Conduit Junction Wells To Be Removed In Accordance With Section 201 and 202 Of The Standard Specifications Or As Directed By Engineer. Existing Conduit Is To Be Abandoned.
5. All signal heads shall be highway yellow with 127 mm (5") backplates.
6. All signal heads shall be rigidly mounted to mast arms,with bottom of heads 4.7m above street level.
7. All poles and mast arms shall be black enamel coated.
8. Pull wires shall be installed in all conduits and in each duct of multiduct (MD) conduits.
9. Install metallic identification tape 300-450 mm below grade above all conduits.
10. Coordinate installation/wiring of pedestrian signal heads on light fixtures with lighting contractor.



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JEFFREY R. RIEGNER — REGISTERED — No. 9840 — DELAWARE PROFESSIONAL ENGINEER

DELAWARE DIVISION OF HIGHWAYS
BUREAU OF TRAFFIC
DOVER DELAWARE

PERMIT NO.	CONTRACT NO.	FED. AID NO.	SHEET NO.	TOTAL
-------	99-011-02	ESTP-N999(71)	54C	58

11TH STREET & PINE STREET

PREL.TRACING	DATE	DESIGN	DATE
		JRR	

REVISION

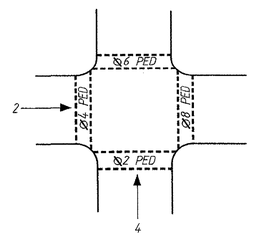
LEGEND

- PROPOSED POLE BASE IDENTIFIER (TYPE OF POLE BASE)
- EXISTING POLE BASE
- PROPOSED PEDESTAL BASE
- EXISTING PEDESTAL BASE
- PROPOSED POLE
- ∅ or ◎ EXISTING D.P.& L. POLE
- PROPOSED CABINET BASE
- EXISTING CABINET BASE
- PROPOSED CABINET BASE IDENTIFIER (TYPE OF CABINET)
- RIGHT-OF-WAY OR PROPERTY LINE
- PROPOSED LOOP DETECTOR (TYPE 1 OR 2)
- EXISTING LOOP DETECTOR
- PROPOSED JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
- EXISTING JUNCTION WELL
- PROPOSED JUNCTION WELL
- PROPOSED SPAN WIRE
- EXISTING SPAN WIRE
- PROPOSED SIGNAL HEAD
- EXISTING SIGNAL HEAD
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN SIGNAL HEAD
- PROPOSED MAST ARM
- (R) REMOVE
- (A) ABANDON
- (RB) REMOVE EXISTING CONCRETE BASE (6' BELOW GROUND LEVEL AND COVER, OR AS DIRECTED BY SIGNAL PLAN)
- CONDUIT RUN IDENTIFIER (RUN NUMBER)
- OVERHEAD SPAN IDENTIFIER (SPAN NUMBER)
- MICROWAVE DETECTOR
- EXISTING MICROWAVE DETECTOR
- XC----- EXISTING CONDUIT
- PROPOSED CONDUIT

CONDUIT RUN SCHEDULE

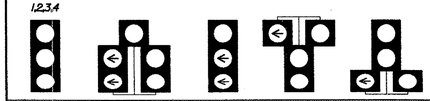
CR#	# OF CONDUITS	SIZE (mm)	LENGTH (M)	AMOUNT AND TYPE OF CABLE/ WIRE
1	1	63	2	(2)9/#14
2	2	100MD	5	(2)9/#14 COMMUNICATION CABLE
3	1	63	14	(2)9/#14
4	1	63	2	(1)9/#14
5	1	63	19	(1)9/#14
6	1	63	1	(1)9/#14
7	2	100MD	17	(1)9/#14 COMMUNICATION CABLE
8	2	100MD	50	COMMUNICATION CABLE
9	2	100MD	57	COMMUNICATION CABLE
10	2	100MD	43	COMMUNICATION CABLE
11	1	38	31	(1)12/#8 U.F.W./GROUND
12	1	63	5	(1)9/#14
13	2	100MD	7	COMMUNICATION CABLE
14	2	63	5	(7)9/#14 COMMUNICATION CABLE

PHASING DIAGRAM



2 PED + 2 - X + 6 PED
4 PED + 4 - X + 8 PED

SIGNAL HEAD DIAGRAM



OR&A
Orth - Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS
230 South Broad Street Philadelphia, Pennsylvania 19102
Phone (215)735-8532 Fax (215)735-9864

RECOMMENDED BY
Jeffrey R. Riegner
PROJECT MANAGER
2-8-99
DATE

APPROVED TRAFFIC ENGINEER ____ DATE ____

APPROVED for INSTL.
CHIEF TRAFFIC ENGINEER ____ DATE ____

97048 ...\sig03.dgn 08 FEB 99

SIGNAL NOTES

1. LOOP DETECTORS:
   Type #1 - To Be Installed On Main Street Through Movements.(1.8m x 4.6m).
   Type #2 - To Be Installed On Main Street Left Turn Movements & Side Street Through & Left Turn Movements Where Shown.(1.8m x 4.6m).
   Type #3 - To Be Installed For All Movements.(1.8m x 4.6m).
2. All Signal Poles Will be 8.5m Except Where Shown.
3. Run #1 Is not drawn to scale,nor Is the direction necessarily correct. Actual placement shall be as directed by a representative of the Bureau of Traffic.
4. Existing Signal Poles To Be Removed and Returned To DelDOT Yard,Dover,Delaware. Pole Bases,Cabinet Base and Conduit Junction Wells To Be Removed In Accordance With Section 201 and 202 Of The Standard Specifications Or As Directed By Engineer. Existing Conduit Is To Be Abandoned.
5. All signal heads shall be highway yellow with 127 mm (5") backplates.
6. All signal heads shall be rigidly mounted to mast arms,with bottom of heads 4.7m above street level.
7. All poles and mast arms shall be black enamel coated.
8. Pull wires shall be installed in all conduits and in each duct of multiduct (MD) conduits.
9. Install metallic identification tape 300-450 mm below grade above all conduits.

0 5 10
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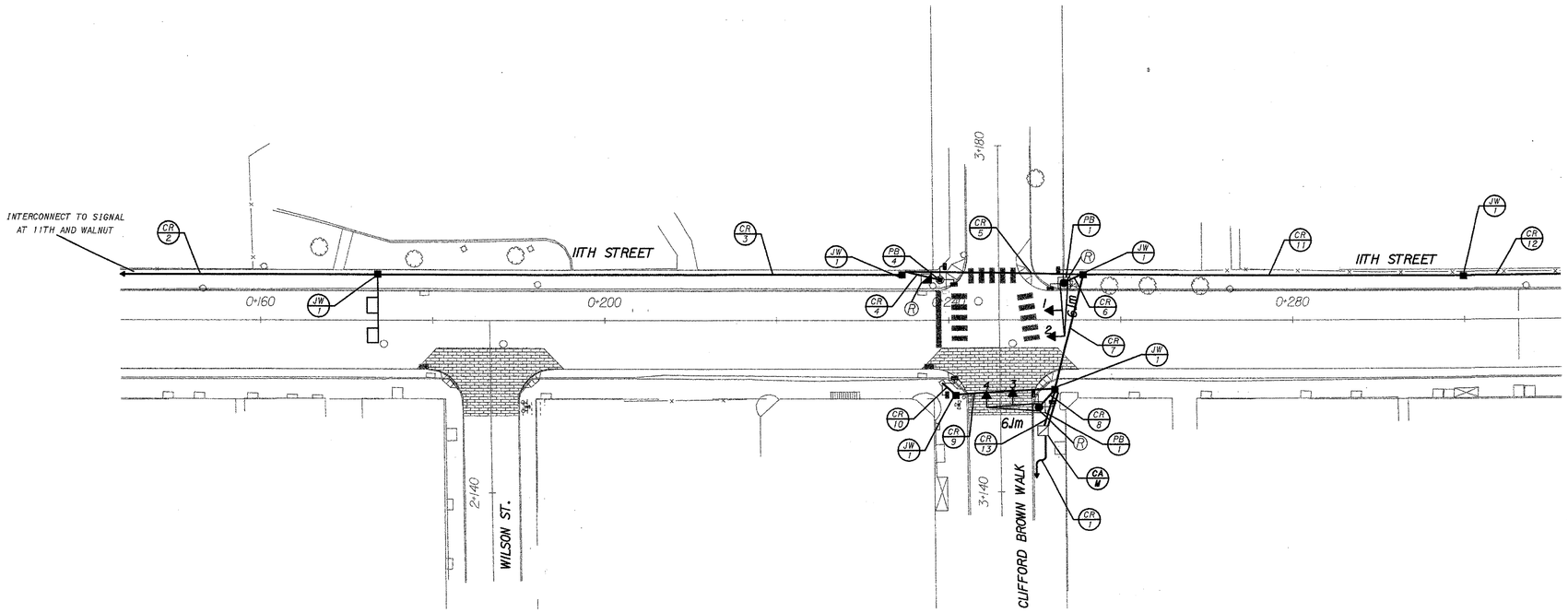


CONDUIT RUN SCHEDULE

CR#	# OF CONDUITS	SIZE (mm)	LENGTH (M)	AMOUNT AND TYPE OF CABLE/ WIRE
1	1	38	31	(11)2/#8 U.F.W./GROUND
2	2	100MD	42	COMMUNICATION CABLE
3	2	100MD	61	(11)4/#18 COMMUNICATION CABLE
4	1	63	5	(11)9/#14
5	2	100MD	21	(11)9/#14 (11)4/#18 COMMUNICATION CABLE
6	1	63	3	(12)9/#14
7	1	63	14	(13)9/#14 (1)4/#18 COMMUNICATION CABLE
8	1	63	3	(14)9/#14 (1)4/#18 COMMUNICATION CABLE
9	1	63	12	(11)9/#14
10	1	63	2	(11)9/#14
11	2	100MD	44	COMMUNICATION CABLE
12	2	100MD	45	COMMUNICATION CABLE
13	2	63	5	(6)9/#14 (1)4/#18 COMMUNICATION CABLE

DELAWARE DIVISION OF HIGHWAYS
BUREAU OF TRAFFIC
DOVER DELAWARE

PERMIT NO.	CONTRACT NO.	FED. AID NO.	SHEET NO.	TOTAL
--------	99-011-02	ESTP-N999(71)	54D	58

11TH STREET & CLIFFORD BROWN WALK

PREL.TRACING	DATE	DESIGN	DATE
		JRR	

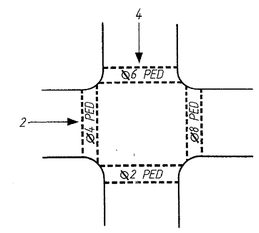
REVISION

LEGEND

- PROPOSED POLE BASE IDENTIFIER (TYPE OF POLE BASE)
- EXISTING POLE BASE
- PROPOSED PEDESTAL BASE
- EXISTING PEDESTAL BASE
- PROPOSED POLE
- ∅ or ⊗ EXISTING D.P.& L. POLE
- PROPOSED CABINET BASE
- EXISTING CABINET BASE
- PROPOSED CABINET BASE IDENTIFIER (TYPE OF CABINET)
- RIGHT-OF-WAY OR PROPERTY LINE
- PROPOSED LOOP DETECTOR (TYPE 1 OR 2)
- EXISTING LOOP DETECTOR
- PROPOSED JUNCTION WELL IDENTIFIER (TYPE OF JUNCTION WELL)
- EXISTING JUNCTION WELL
- PROPOSED JUNCTION WELL
- PROPOSED SPAN WIRE
- XX EXISTING SPAN WIRE
- PROPOSED SIGNAL HEAD
- EXISTING SIGNAL HEAD
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN SIGNAL HEAD
- PROPOSED MAST ARM
- (R) REMOVE
- (A) ABANDON
- (RB) REMOVE EXISTING CONCRETE BASE (6" BELOW GROUND LEVEL AND COVER, OR AS DIRECTED BY SIGNAL PLAN)
- CONDUIT RUN IDENTIFIER (RUN NUMBER)
- OVERHEAD SPAN IDENTIFIER (SPAN NUMBER)
- MICROWAVE DETECTOR
- EXISTING MICROWAVE DETECTOR
- XC----- EXISTING CONDUIT
- PROPOSED CONDUIT

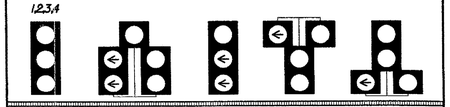
JEFFREY A. RIEGNER REGISTERED No. 9840 DELAWARE PROFESSIONAL ENGINEER

PHASING DIAGRAM



2 PED + 2 - X + 6 PED
4 PED + 4 - X + 8 PED

SIGNAL HEAD DIAGRAM



OR&A Orth - Rodgers & Associates, Inc.
TRANSPORTATION ENGINEERS and PLANNERS
230 South Broad Street Philadelphia,Pennsylvania 19102
Phone (215) 735-1932 Fax (215) 735-5954

RECOMMENDED BY
Jeffrey R. Riegner
PROJECT MANAGER
2-8-99
DATE

APPROVED TRAFFIC ENGINEER DATE

APPROVED for INSTL.
CHIEF TRAFFIC ENGINEER DATE

97048 ...\sig04.dgn 08 FEB 99

QUANTITIES

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	55	58

11TH STREET ENHANCEMENT
FROM WALNUT ST. TO NORTHEAST BLVD.

REVISIONS

③ DELETE ITEM 208000	5-7-99

ITEM		201000	202000	~~208000~~ ③	211000	251000	302007	302500	401510	401639	612533	702504	705001	705510	705511	705512	705513	705514	705515
ITEM TITLE		CLEARING & GRUBBING	EXCAVATION AND EMBANKMENT	~~EXCAVATION AND BACKFILL FOR PIPE TRENCHES~~	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	SILT FENCE	GRADED AGGREGATE BASE COURSE, TYPE B	DELAWARE NO. 3 STONE	POROUS FLEXIBLE PAVEMENT	SUPERPAVE HOTMIX TYPE C PATCH	CPP PIPE TYPE S, 254 mm	STONE CURB	P.C.C SIDEWALK - 100mm	UNIT PAVER TYPE 'A'	UNIT PAVER TYPE 'B'	UNIT PAVER TYPE 'C'	UNIT PAVER TYPE 'D'	UNIT PAVER TYPE 'E'	UNIT PAVER TYPE 'F' ADD ALTERNATE #1
UNIT		L.S.	m^3	~~m^3~~	LS	m	m^3	t	m^2	t	m	m	m^2	m^2	m^2	m^2	m^2	m^2	m^2	m^2
TOTALS	BASE BID	1	30	~~863~~	1	350	267	17	52	56	115	1,549	2,496	1,678	131	194	8	41	198.5
STATION 0+120-0+320	SHEET NO. 8	—	—	—	—	—	20	—	—	—	—	—	493	512	—	60.5	3.5	23	53
STATION 0+320-0+540	SHEET NO. 9	—	—	—	—	—	24	—	—	—	—	—	663	362	—	70.5	4.5	12	89
STATION 0+540-10+216	SHEET NO. 10	—	—	—	—	—	223	—	52	—	—	—	1,340	804	131	63	—	6	56.5
STATION 10+216-10+278	SHEET NO. 11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120-0+320	SHEET NO. 12	—	—	~~42~~	—	—	—	—	—	13	7	387	—	—	—	—	—	—	—
STATION 0+320-0+540	SHEET NO. 13	—	—	~~59~~	—	—	—	—	—	15	8.5	455	—	—	—	—	—	—	—
STATION 0+540-10+216	SHEET NO. 14	—	30	~~782~~	—	350	—	17	—	28	99.5	707	—	—	—	—	—	—	—
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TOTALS																			

QUANTITIES

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CSATLE	ESTP-N999(71)	56	58

11TH STREET ENHANCEMENT
FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS

3 ADDENDA 3 5-7-99	

ITEM	705516	708512	731001	731002	716000	720501	~~720504~~ 3	720506	720552	720558	732500	734016	735006	737523	742500	743500	743501	—	743002	720567
ITEM TITLE	UNIT PAVER TYPE 'G' ADD ALTERNATE #1	CATCH BASIN, SPECIAL I	GEOTEXTILES STABALIZATION	GEOTEXTILES SEPARATION	CONVERTING EXISTING DRAINAGE INLET TO JUNCTION BOX	CRASH CUSHION (SAND BARRELS) 3	~~PORTABLE P.C.C. SAFETY BARRIER~~	RELOCATING PORTABLE P.C.C SAFETY BARRIER	REFLECTOR PANELS	PLASTIC DRUMS	TOPSOIL	PERMANENT GRASS SEEDING SUBURBAN DEVELOPMENT	MULCHING, STRAW	LANDSCAPING, PLANTING	FLAGGER, NEW CASTLE CTY,	WARNING LIGHTS, TYPE A	WARNING LIGHTS, TYPE B	/	ARROW PANELS, TYPE B	FURNISH AND MAINTAIN P.C.C. SAFETY BARRIER
UNIT	m^2	EA	m^2	m^2	EA	EA	~~m~~	m	EA	EA	t	m^2	m^2	LS	h	EA-DY	EA-DY	—	EA-DY	m
BASE BID TOTALS	482.5	14	45	225	2	~~9~~	~~175~~	543	20	55	415	390	390	1	200	55	1,300 ~~8~~	—	239	175
STATION 0+120–0+320 SHEET NO. 8	145	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+320–0+540 SHEET NO. 9	204	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+540–10+216 SHEET NO. 10	133.5	—	45	225	—	—	—	—	—	—	415	390	390	—	—	—	—	—	—	—
STATION 10+216–10+278 SHEET NO. 11	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120–0+320 SHEET NO. 12	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+320–0+540 SHEET NO. 13	—	9	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+540–10+216 SHEET NO. 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120–10+160 SHEET NO. 25–31	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
— SHEET NO. 51	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120–10+278 SHEET NO. 46–54	—	—	—	—	—	—	~~175~~	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120–10+278 SHEET NO. 47–54	—	—	—	—	—	—	—	543	20	55	—	—	—	—	—	55	1,300 ~~8~~	—	239	175
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TOTALS																				

QUANTITIES

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	57	58

11TH STREET ENHANCEMENT
FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS

3 ADDENDA 3 5-7-99	

ITEM		743504	~~743537~~ 3	744001 3	745001	745003	745024	745026	746002	746008	746502	746516	746539	746529	746600	746670	746672	746674	747001	748014	744505
ITEM TITLE		WARNING SIGNS	~~FURNISH AND MAINTAIN TRUCK MAINTENANCE ATTENUATOR~~	CONDUIT JUNCTIONWELL TYPE 1	CONDUIT UNDER EXISTING PAVEMENT 38mm	CONDUIT UNDER EXISTING PAVEMENT 63mm	PVC CONDUIT UNDER NEW PAVEMT/SOD TRENCH 38 mm	PVC CONDUIT UNDER NEW PAVEMT/SOD TRENCH 63 mm	POLE BASE TYPE 2	POLE BASE TYPE 4	INSTALLATION OF DETECTOR WIRE	SERVICE INSTALLATION	REMOVAL OF EXISTING POLE	RELOCATING INFORMATION SIGN	AREA LIGHTING	MULTIDUCT CONDUIT, 100mm	MAST ARM POLE AND INSTALLATION	PEDESTRIAN SIGNAL POLE AND INSTALLATION	CABINET BASE	PERMANENT PAVEMNT STRIPING ALKYD 100mm	REPAIRING EXISTING CONDUIT JUNCTION WELL
UNIT		EA	~~DAY~~	EA	m	m	m	m	EA	EA	m	EA	EA	EA	LS	m	EA	EA	EA	m	EA
BASE BID	TOTALS	8	~~21~~	25	201	149	3	180	12	9	120	4	6	54	1	1,129	12	9	6	451	1 — 3 SHEET NO. 10
—	SHEET NO. 14	—	~~21~~	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120-0+320	SHEET NO. 15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	59	—
STATION 0+320-0+540	SHEET NO. 16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	66	—
STATION 0+540-10+216	SHEET NO. 17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	305	—
STATION 10+216-10+278	SHEET NO. 18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	—
STATION 0+120-0+320	SHEET NO. 19	—	—	—	—	—	—	—	—	—	—	—	—	14	—	—	—	—	—	—	—
STATION 0+320-0+540	SHEET NO. 20	—	—	—	—	—	—	—	—	—	—	—	—	18	—	—	—	—	—	—	—
STATION 0+540-10+216	SHEET NO. 21	—	—	—	—	—	—	—	—	—	—	—	—	22	—	—	—	—	—	—	—
STATION 0+120-10+278	SHEET NO. 36-45	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
—	SHEET NO. 47	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	SHEET NO. 49	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	SHEET NO. 50	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	SHEET NO.54A	—	—	25	—	—	—	—	6	6	—	—	1	—	—	—	6	6	3	—	—
—	SHEET NO. 54B	—	—	—	—	—	—	—	2	1	—	—	1	—	—	—	2	1	1	—	—
—	SHEET NO. 54C	—	—	—	—	—	—	—	2	1	—	—	2	—	—	—	2	1	1	—	—
—	SHEET NO. 54D	—	—	—	—	—	—	—	2	1	—	—	2	—	—	—	2	1	1	—	—
—	SHEET NO. 54A-D	—	—	—	201	149	3	180	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTALS																					

QUANTITIES

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	ESTP-N999(71)	58	58

11TH STREET ENHANCEMENT
FROM WALNUT STREET TO NORTHEAST BLVD.

REVISIONS

3 ADDENDA 3 5-7-99	

ITEM		748015	748017	748029	748506	748530	750000	758000	762001	762006	763000	763500	763510		763501	748019	748020		
ITEM TITLE		PERMANENT PAVEMNT STRIPING SYMBOL / LEGEND	PERMANENT PAVEMNT STRIPING ALKYD, 150mm	PERMANENT PAVEMNT STRIPING SYMBOL/LEGEND,ALKYD-THERMO ON HOT MIX TYPE C	PERMANENT PAVEMNT STRIPING EPOXY RESIN 100mm	REMOVAL OF PAVEMENT STRIPING	ADJUST WATER VALVE BOXES	REMOVAL OF EXISTING PCC PAVEMENT AND CURB . .	SAWCUTTING, HOT MIX	SAWCUTTING CONCRETE,100mm	INITIAL EXPENSE	MAINTENANCE OF TRAFFIC	SITE FURNISHINGS		CONSTRUCTION ENGINEERING	TEMPORARY MARKINGS, PAINT 100 mm	TEMPORARY MARKINGS, PAINT 150 mm		
UNIT		m^2	m	m	mm	m^2	EA	m^2	m	m	LS	LS	LS		LS	m	m		
BASE BID TOTALS		262	34	46.8	171	625	25	3,492	1,834	140	1	1	1		1	150	150		
STATION 0+120-0+320	SHEET NO. 4	—	—	—	—	—	—	746	—	—	—	—	—	—	—	—	—	—	—
STATION 0+320-0+540	SHEET NO. 5	—	—	—	—	—	—	1,204	—	—	—	—	—	—	—	—	—	—	—
STATION 0+540-10+216	SHEET NO. 6	—	—	—	—	—	—	1,542	—	—	—	—	—	—	—	—	—	—	—
STATION 0+120-0+320	SHEET NO. 8	—	—	—	—	—	8	—	445	43	—	—	—	—	—	—	—	—	—
STATION 0+320-0+540	SHEET NO. 9	—	—	—	—	—	10	—	514	72	—	—	—	—	—	—	—	—	—
STATION 0+540-10+216	SHEET NO. 10	—	—	—	—	—	7	—	875	25	—	—	—	—	—	—	—	—	—
STATION 0+120-0+320	SHEET NO. 15	59	—	7.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+320-0+540	SHEET NO. 16	67	—	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 0+540-10+216	SHEET NO. 17	136	34	24	19	—	—	—	—	—	—	—	—	—	—	—	—	—	—
STATION 10+216-10+278	SHEET NO. 18	—	—	2	152	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	SHEET NO. 8-10, 27-30, 32-35	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
STATION 0+120-10+278	SHEET NO. 46-54	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
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TOTALS																			

METRIC RW

CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	FISCAL YEAR	SHEET NUMBER	TOTAL SHEETS
99-011-02	NEW CASTLE	DE	3	N/A		1	7

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

RIGHT-OF-WAY PLANS FOR:

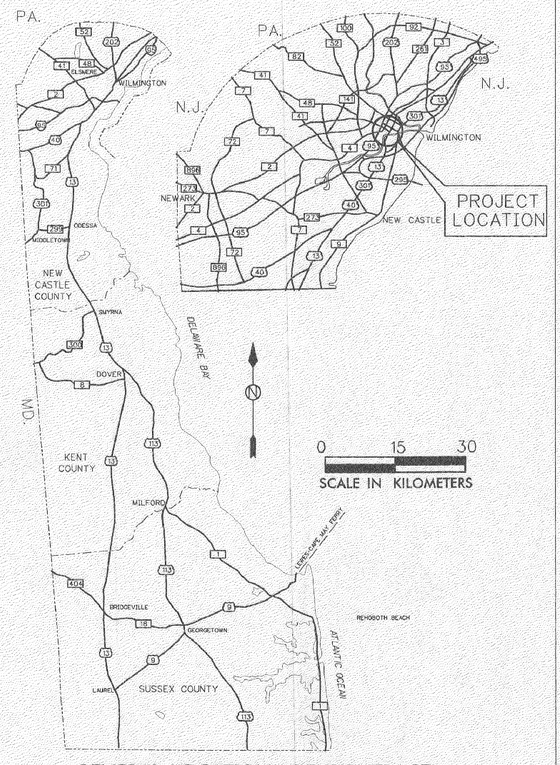
MARTIN LUTHER KING, JR. BOULEVARD
NORTH - SOUTH CONNECTIONS

PRE-PRELIMINARY PLANS

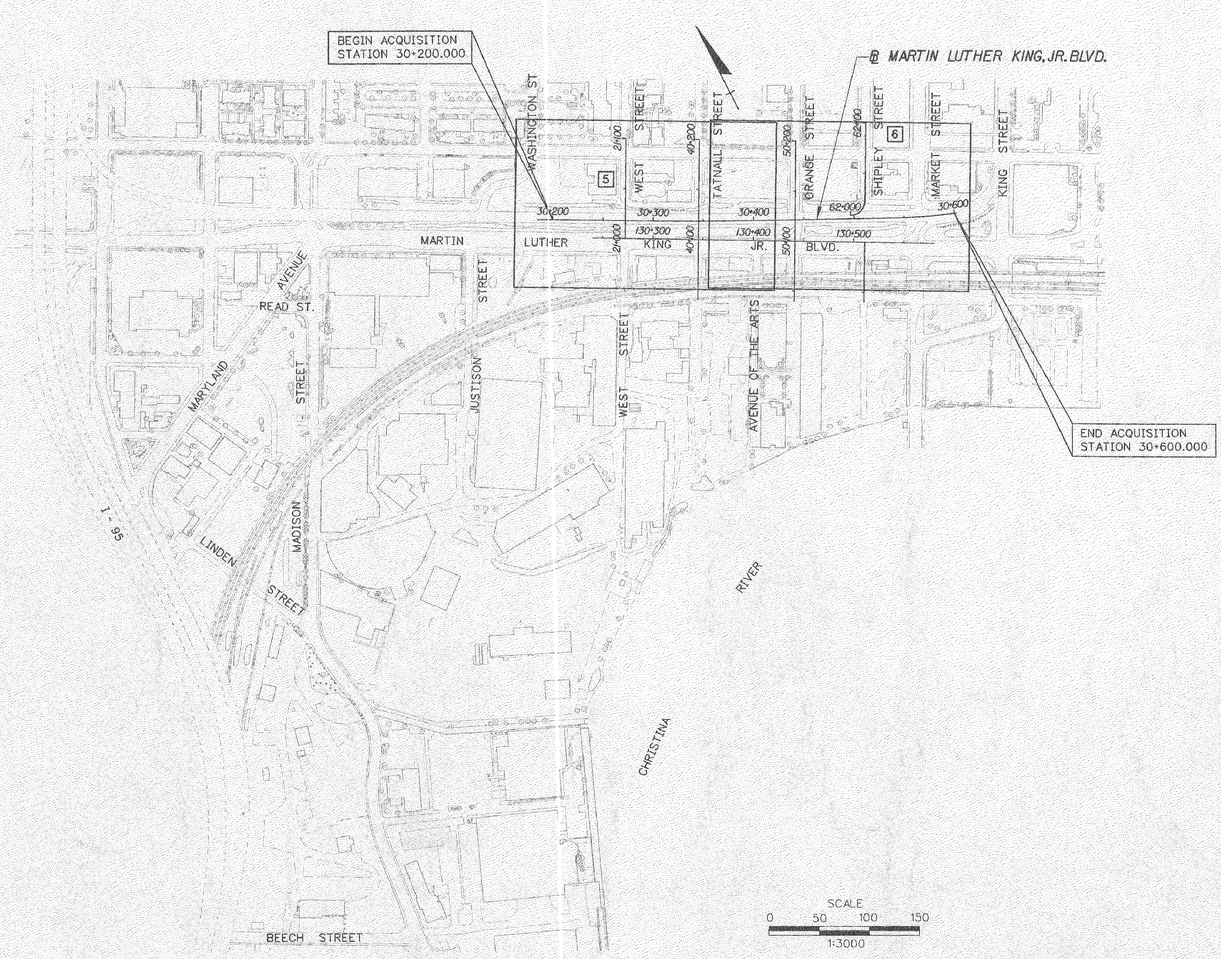
CONTRACT NUMBER 99-011-02
FEDERAL AID PROJECT NUMBER N/A

BEGIN PROJECT: STATION NO. 30+200.000 END PROJECT: STATION NO. 30+600.000

LENGTH : 400.000 METERS = 0.400 KILOMETERS



GENERAL LOCATION OF CONTRACT



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MARTIN LUTHER KING, JR. NORTH - SOUTH CONNECTIONS PRE-PRELIMINARY PLANS

REVISIONS:

INDEX OF PLAN SHEETS

		PLAN SHEET SCALES:
1	TITLE SHEET	1 : 3000
2	NOTES & LEGEND SHEET	
3	GEOMETRIC SHEET	1 : 1000
4	MOSAIC SHEET	1 : 500
5 - 6	R/W PLAN SHEETS	1 : 300
	R/W DATA SHEETS	
7	TABULATION SHEETS	

RIGHT OF WAY PREPARED UNDER SUPERVISION OF:

RUMMEL, KLEPPER & KAHL, LLP
FIRM CONSULTING ENGINEERS BALTIMORE, MARYLAND
NAME
CONSULTANT PROJECT ENGINEER
DATE 19 SEAL

RECOMMENDED

PROJECT ENGINEER
RECOMMENDED 19 SEAL

RECOMMENDED

DESIGN SUPPORT ENGINEERING MANAGER
RECOMMENDED 19 SEAL

RECOMMENDED

ASSISTANT DIRECTOR DESIGN SUPPORT
RECOMMENDED 19 SEAL

APPROVED

CHIEF ENGINEER
APPROVED 19 SEAL

"AS-ACQUIRED" PLANS

I Certify that all proposed Right-of-Way has been acquired in the name of THE STATE OF DELAWARE and that these plans accurately depict the nature and extent of THE RIGHT OF WAY SECTION acquisition under this project.

CHIEF , R/W

GENERAL NOTES

1. THIS CONTRACT IS TO BE CONSTRUCTED IN ACCORDANCE WITH DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED JULY 1985-METRICATED ON JUNE 1995.
2. MAINTENANCE OF TRAFFIC - ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL INSURE THE LEAST PRACTICABLE OBSTRUCTION TO TRAFFIC CONSISTENT WITH SAFETY AND SHALL COMPLY WITH THE DEPARTMENT MANUAL ENTITLED "TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND EMERGENCY OPERATIONS". THE MOST CURRENT VERSION OF THIS MANUAL IN EFFECT AT THE TIME OF ADVERTISEMENT FOR BIDS SHALL BE USED. HEREINAFTER, THIS MANUAL SHALL BE REFERED TO AS THE "TRAFFIC CONTROL MANUAL".
   THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER BEFORE THE START OF THE PROJECT.
3. ALL UTILITIES PLOTTED ON THE PLAN SHEETS ARE FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR, PRIOR TO LAYING A RUN OF DRAINAGE PIPE OR OTHER INVOLVED CONSTRUCTION, SHALL EXCAVATE WITHIN THE ALIGNMENT AT POINTS OF POSSIBLE CONFLICT TO DETERMINE IF A CONFLICT EXISTS. ANY CONFLICTS SHALL BE COORDINATED BY THE CONTRACTOR WITH THE ENGINEER AND THE UTILITY INVOLVED. THE ENGINEER SHALL DETERMINE THE SOLUTION. EXCAVATING AND BACKFILLING OF THE TEST HOLES SHALL BE MEASURED AND PAID FOR IN ACCORDANCE WITH ITEM 208000, EXCAVATION AND BACKFILL FOR PIPE TRENCHES, BUT ONLY TO THE ACTUAL DEPTH EXCAVATED.
4. THE CONTRACTOR SHALL GIVE TWO (2) WEEKS NOTICE TO THE PROPERTY OWNER WHEN ANY FIXTURE, SHRUB OR OTHER OBJECT MUST BE REMOVED FROM THE RIGHT OF WAY OR EASEMENT AREA. IF THE OWNER HAS NOT ATTEMPTED TO SALVAGE THIS PROPERTY, THE CONTRACTOR SHALL REMOVE IT WITHOUT OBLIGATION. COMPENSATION SHALL BE INCIDENTAL TO THE CONTRACT.
5. THE ENDS OF ALL CURBS SHALL BE DEPRESSED AT A RATIO OF TWELVE TO ONE (12:1) UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC SLEEVES (100 mm INSIDE DIAMETER MINIMUM, 150 mm INSIDE DIAMETER MAXIMUM) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL SIT ON THE TOP OF THE SUBBASE. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.
7. CATCH BASIN AND MANHOLE STEPS MAY BE OF THE TYPE CONSTRUCTED OF MOLDED PLASTIC WITH A REINFORCING BAR CORE, AT NO EXTRA COST, IN PLACE OF THE TYPE REQUIRED AND SHOWN ON THE DETAIL SHEETS. THE MOLDED PLASTIC TYPE STEPS SHALL CONFORM TO THE APPLICABLE SECTIONS OF ASTM A-615, ASTM A-478 AND ASTM D-4101.

CONSTRUCTION

- PAVING
- PAVING
- PAVING
- P.C.C. SIDEWALK AT 100 mm
- P.C.C. SIDEWALK AT 150 mm
- BUTT JOINT
- PAVEMENT PATCH
- RIPRAP
- CATCH BASIN
- CB — CATCH BASIN IDENTIFIER
- MANHOLE
- MH — MANHOLE IDENTIFIER
- DRAINAGE PIPE & FLOW ARROW
- P — PIPE IDENTIFIER
- FLARED END SECTION
- FE — FLARED END SECTION IDENTIFIER
- JUNCTION BOX
- JB — JUNCTION BOX IDENTIFIER
- CJB — CONVERT TO JB IDENTIFIER
- UNDERDRAIN
- UD — UNDERDRAIN IDENTIFIER
- UNDERDRAIN OUTLET STRUCTURE
- DITCH
- BFS — BIOFILTRATION SWALE

- INTEGRAL CURB AND GUTTER TYPE 1
- CURB TYPE 1
- PARKWAY CURB TYPE 1
- INTEGRAL CURB AND GUTTER TYPE 2
- INTEGRAL CURB AND GUTTER TYPE 3
- CURB (BY OTHERS)
- C — CURB IDENTIFIER
- C/O — CURB OPENING
- CR — CURB ACCESS RAMP IDENTIFIER WITH TYPE NUMBER
- CONCRETE SAFETY BARRIER
- B — BARRIER IDENTIFIER
- STEEL BEAM GUARDRAIL
- GUARDRAIL END SECTION
- GR — GUARDRAIL IDENTIFIER
- METAL FENCE
- WOOD FENCE
- R/W MONUMENT
- M — R/W MONUMENT IDENTIFIER
- RL/C — RELOCATE BY CONTRACTOR
- A/C — ADJUST AND/OR REPAIR BY CONTRACTOR
- RM/C — REMOVE BY CONTRACTOR
- RL/O — RELOCATE BY OTHERS
- A/O — ADJUST BY OTHERS
- RM/O — REMOVE BY OTHERS

CONSTRUCTION PHASING

- STONE CHECK DAM
- DRAINAGE INLET FILTER
- PERIMETER DIKE SWALE
- TEMPORARY SWALE
- ED — EARTH DIKE
- S-B — SAND BAG DIVERSION
- EROSION CONTROL FABRIC
- ST — SEDIMENT TRAP
- TRAFFIC CONTROL PLASTIC DRUMS
- CONSTRUCTION WARNING SIGNS (ROAD WORK 1000 FT)
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CRASH CUSHION (SAND BARRELS)

- PST — PORTABLE SEDIMENT TRAP
- SF — SILT FENCE
- RSF — REINFORCED SILT FENCE
- SF — SILT FENCE IDENTIFIER
- SW — STILLING WELL
- SP — SUMP PIT
- DWB — DEWATERING BASIN
- ST — SEDIMENT TRAP PIPE OUTLET
- TSD — TEMPORARY SLOPE DRAIN
- SBD — SAND BAG DIKE
- TYPE 3 BARRICADE
- PHASE — TRAFFIC FLOW ARROW
- PORTABLE CONCRETE SAFETY BARRIER
- STABILIZED CONSTRUCTION ENTRANCE

SIGNING, STRIPING AND CONDUITS

- PAVE — CONDUITS UNDER PAVEMENT
- SOD — CONDUITS IN TRENCH
- CONDUIT JUNCTION WELL
- PAVEMENT MARKINGS
- LANE STRIPING
- NO TURN ON RED — TRAFFIC SIGN AND POST (BY STATE FORCES)

RIGHT OF WAY

- RW — PROPOSED RIGHT-OF-WAY
- RW&DA — PROPOSED RIGHT OF WAY AND DENIAL OF ACCESS
- DA — PROPOSED DENIAL OF ACCESS
- PE — PROPOSED PERMANENT EASEMENT
- UE — PROPOSED UTILITY EASEMENT
- TCE — PROPOSED TEMPORARY CONSTRUCTION EASEMENT
- 0+100 — HISTORIC R/W CENTERLINE OR BASELINE
- 0+100 — PROPOSED RIGHT OF WAY BASELINE
- EXISTING RIGHT-OF-WAY LINE
- 12 — EXISTING PROPERTY LINE

PROPOSED LANDSCAPING

- CONIFEROUS TREE
- SHRUB
- DECIDUOUS TREE

MISCELLANEOUS SYMBOLS

- LOC — LIMIT OF CONSTRUCTION
- NORTH ARROW
- CZ — CLEAR ZONE
- 0+00 — CONSTRUCTION BASELINE

UTILITIES

- CWW-UG — CITY OF WILMINGTON WATER
- DPL-G-UG — DELMARVA POWER & LIGHT (GAS)
- BAD-UG — BELL ATLANTIC DELAWARE TELEPHONE
- BAD-OH — BELL ATLANTIC DELAWARE TELEPHONE (OVERHEAD)
- DPL-E-UG — DELMARVA POWER & LIGHT (ELECTRIC)
- CON-OH — CONECTIV COMMUNICATIONS (OVERHEAD)
- MCI-UG — MCI TELECOMMUNICATIONS (UNDERGROUND)
- CON-UG — CONECTIV COMMUNICATIONS (UNDERGROUND)
- MCI-UG — MCI TELECOMMUNICATIONS (UNDERGROUND)
- ATT-UG — AMERICAN TELEPHONE & TELEGRAPH (UNDERGROUND)
- PRI-E-OH — PRIVATE OVERHEAD ELECTRIC
- UNK-UG — UNKNOWN UNDERGROUND UTILITY

NOTES & LEGEND

SYMBOLS SHOWN ON THIS SHEET DO NOT NECESSARILY APPEAR IN THIS CONTRACT.

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS
99-011-02	NEW CASTLE	N/A	2	7

MARTIN LUTHER KING, JR. BOULEVARD NORTH - SOUTH CONNECTIONS

REVISIONS

EXISTING DETAIL

- SURVEY TRAVERSE POINT
- POINT OF INTERSECTION - TANGENTS
- POINT OF TANGENCY & CURVATURE
- T.P. — SURVEY TIE POINT LOCATION
- B.M. — BENCH MARK LOCATION
- A-4(4) A-3(4) — SOIL BORING LOG - PROFILE VIEW
- SOIL BORING LOCATION - PLAN VIEW
- GnB2 GnB3 — SOIL TYPE AND BOUNDARY LINE
- MARSH OR WET AREAS
- SMALL BUSH OR ORNAMENTAL SHRUB
- CONIFEROUS TREE 150 mm AND LARGER
- DECIDUOUS TREE 150 mm AND LARGER
- HEDGEROW OR THICKET
- WOODS LINE
- TREE STUMP
- UTILITY TEST HOLE LOCATION
- GAS MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- F.H. — FIRE HYDRANT
- TELEPHONE BOOTH
- UTILITY POLE GUY WIRE ANCHOR
- G.V. — GAS VALVE
- W.V. — WATER VALVE
- WOOD POLE
- W.M. — WATER METER
- VENT — SANITARY SEWER VENT
- S.V. — SANITARY SEWER SURFACE FIXTURE
- TELEPHONE TEST POINT
- G.M. — GAS METER
- POLE MOUNTED LUMINAIRE
- LAMP — RESIDENTIAL STREET LAMP AND POST

- (TYPE LABEL) — CURB
- (TYPE LABEL) — INTEGRAL CURB & GUTTER
- FLEXIBLE PAVEMENT EDGE
- RIGID PAVEMENT EDGE
- STEEL BEAM GUARD RAIL
- WOOD POST AND CABLE GUARD RAIL
- C.B. — STORM DRAINAGE SURFACE INLET
- STORM DRAINAGE MANHOLE
- J.B. — STORM DRAINAGE JUNCTION BOX
- (SIZE/TYPE LABEL) — EXISTING DRAINAGE PIPE AND FLOW ARROW
- DRAINAGE PIPE HEADWALL
- EROSION CONTROL STONE
- STREAM, DITCH OR POND BOUNDARY
- STREAM FLOW DIRECTION ARROW
- TRAFFIC CONTROL SIGN POST
- TRAFFIC SIGNAL SUPPORT BASE
- TRAFFIC SIGNAL CONTROL BOX AND/OR BASE
- J.W. — TRAFFIC SIGNAL CONDUIT JUNCTION WELL
- ELECTRIC TRANSFORMER
- CABLE TELEVISION DISTRIBUTION BOX
- C.M. — CONCRETE MONUMENT OR PROPERTY MARKER
- P.L.P. — PROPERTY LINE MARKER
- STONE PILLAR - CONC. BLOCK OR POURED
- STRAND OR WOVEN WIRE FENCE
- WOODEN FENCE
- LUMINAIRE SUPPORT POLE AND/OR BASE
- G.P. — SERVICE STATION FUEL PUMP
- WELL — WELL HEAD
- S.D.F. — SEPTIC DRAIN FIELD
- STONE WALL
- BLOCK WALL
- RAILROAD TRACKS
- WL — WETLANDS

PREL TRACING ____ DESIGN ____ CHKD ____

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CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS
99-011-02	NEW CASTLE	N/A	3	7

MARTIN LUTHER KING, JR. BOULEVARD
NORTH – SOUTH CONNECTIONS

REVISIONS

INTERSECTION STATIONS

ROADWAY	STATION	ROADWAY	STATION
MARTIN LUTHER KING, JR. BLVD. EB	130+272.209	WEST STREET	21+000.000
	130+345.079	TATNALL STREET	40+100.000
	130+441.198	ORANGE STREET	50+100.000
	130+510.725	SHIPLEY STREET SOUTH	60+100.000
MARTIN LUTHER KING, JR. BLVD. WB	30+272.010	WEST STREET	21+018.175
	30+345.007	TATNALL STREET	40+118.718
	30+441.110	ORANGE STREET	50+121.585

HORIZONTAL CONTROL

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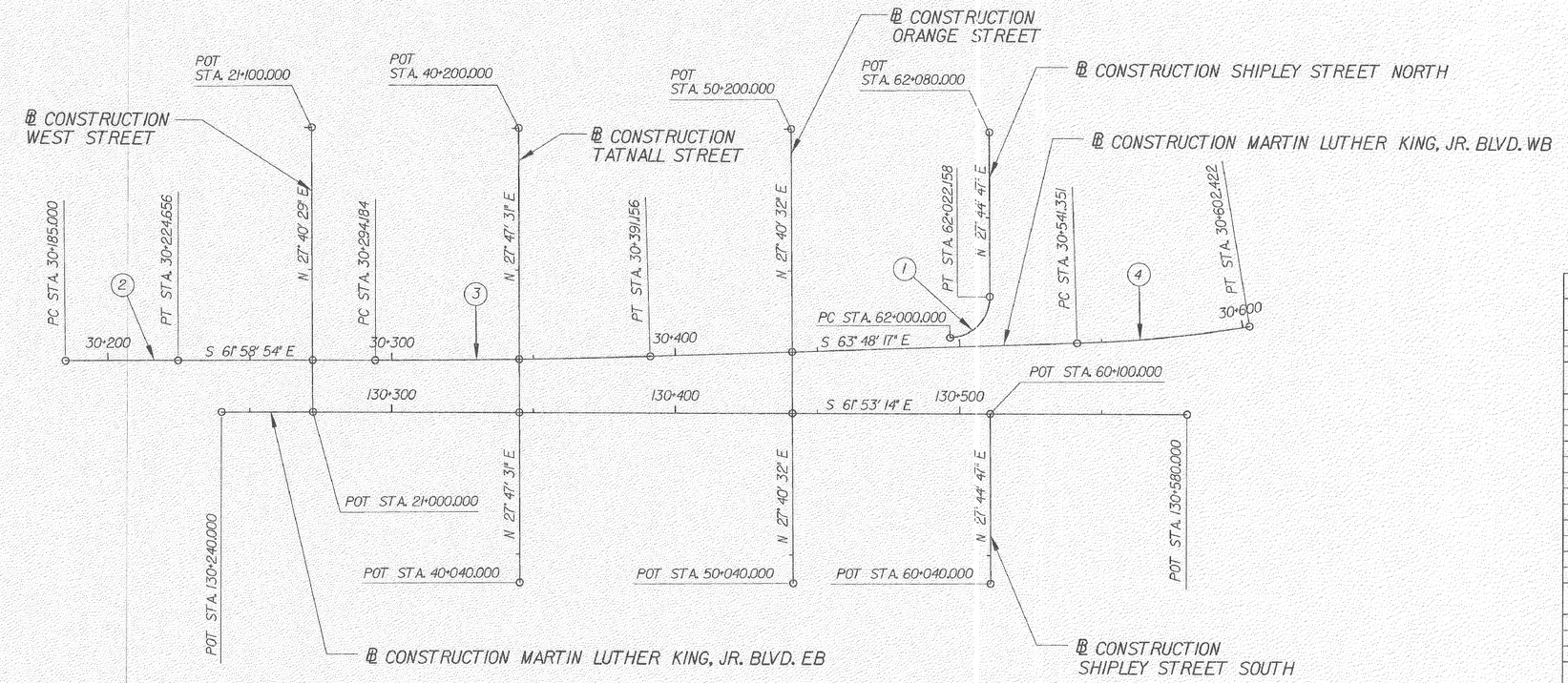

CONTROL COORDINATES

DESCRIPTION	NORTH	EAST
MARTIN LUTHER KING, JR. BOULEVARD EB ℄ CONSTRUCTION		
POT	130+240.000	193,109.448	188,036.794
POT	130+580.000	192,949.238	188,336.681
MARTIN LUTHER KING, JR. BOULEVARD WB ℄ CONSTRUCTION		
PC	30+185.000	193,151.083	187,996.647
PI	30+204.828	193,141.967	188,014.256
CC		190,042.859	186,387.627
PT	30+224.656	193,132.653	188,031.760
PC	30+294.184	193,099.992	188,093.139
PI	30+342.674	193,077.214	188,135.947
CC		195,790.761	189,524.945
PT	30+391.156	193,055.809	188,179.457
PC	30+541.351	192,989.508	188,314.226
PI	30+571.932	192,976.008	188,341.666
CC		193,399.751	188,516.049
PT	30+602.422	192,966.283	188,370.660
WEST STREET ℄ CONSTRUCTION		
POT	21+000.000	193,094.271	188,065.203
POT	21+018.175	193,110.366	188,073.644
POT	21+100.000	193,182.831	188,111.648
TATNALL STREET ℄ CONSTRUCTION		
POT	40+040.000	193,006.855	188,101.500
POT	40+100.000	193,059.934	188,129.476
POT	40+118.718	193,076.493	188,138.203
POT	40+200.000	193,148.399	188,176.102
ORANGE STREET ℄ CONSTRUCTION		
POT	50+040.000	192,961.507	188,186.387
POT	50+100.000	193,014.642	188,214.255
POT	50+121.585	193,033.757	188,224.280
POT	50+200.000	193,103.201	188,260.701
SHIPLEY STREET NORTH ℄ CONSTRUCTION		
PC	62+000.000	193,012.203	188,275.717
PI	62+013.999	193,005.951	188,288.242
CC		193,024.998	188,282.103
PT	62+022.158	193,018.340	188,294.759
POT	62+080.000	193,069.532	188,321.688
SHIPLEY STREET SOUTH ℄ CONSTRUCTION		
POT	60+040.000	192,928.779	188,247.646
POT	60+100.000	192,981.880	188,275.579

CURVE DATA

①	②	③	④
Δ = 88° 46' 46" LT	Δ = 0° 38' 57" RT	Δ = 1° 49' 22" LT	Δ = 7° 39' 12" LT
R = 14.300 m	R = 3500.000 m	R = 3048.000 m	R = 457.200 m
T = 13.999 m	T = 19.828 m	T = 48.490 m	T = 30.581 m
L = 22.158 m	L = 39.656 m	L = 96.972 m	L = 61.071 m
E = 5.711 m	E = 0.056 m	E = 0.386 m	E = 1.022 m
S/E = N/C	S/E = N/C	S/E = N/C	S/E = MATCH EXIST.
< 30 km/h AASHTO	50 km/h AASHTO	50 km/h AASHTO	50 km/h AASHTO

PREL. TRACING _____ DESIGN _____ CHKD. _____

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CONTRACT	COUNTY	F.A.P. NO.	SHEET NO	TOTAL SHTS
99-011-02	NEW CASTLE	N/A	4	7

MARTIN LUTHER KING, JR. BOULEVARD
NORTH – SOUTH CONNECTIONS

REVISIONS

SCALE
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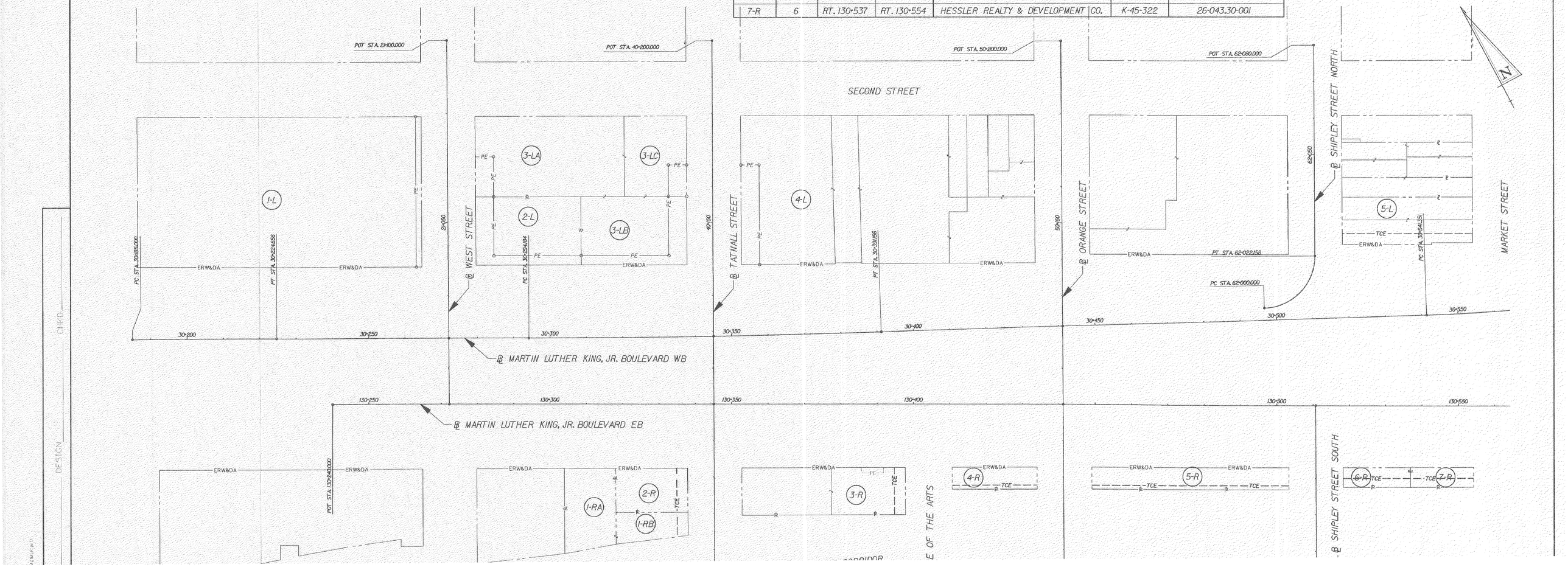
RIGHT OF WAY PROPERTY MOSAIC SHEET

PROJECT PARCEL NUMBER	PLAN SHEET NUMBER	APPROXIMATE CONTRACT LOCATION STA. TO STA.		OWNERSHIP OF RECORD	TITLE SOURCE D = DEED W = WILL	COUNTY ASSESSMENT PARCEL NUMBER
1-L	5	LT. 30+187	LT. 30+265	CITY OF WILMINGTON	B-90-721	26-043.10-033
2-L	5	LT. 30+280	LT. 30+309	THE STATE OF DELAWARE	U-98-33	26-043.10-072
3-L	5	LT. 30+280	LT. 30+338	BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE	2246-308 2226-30	26-043.10-071, 080, 081
4-L	5, 6	LT. 30+353	LT. 30+434	BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE	1892-319 1837-188 1642-207 1634-297	26-043.10-130 THRU 136 & 146, 147
5-L	6	LT. 30+519	LT. 30+555	JAMES R. NELSON & M. LORRAINE NELSON	1526-302	26-043.10-227 & 228
1-R	5	RT. 130+304	RT. 130+318	MAKO BLUE LLC	2422-338	26-043.10-083, 085

PROJECT PARCEL NUMBER	PLAN SHEET NUMBER	APPROXIMATE CONTRACT LOCATION STA. TO STA.		OWNERSHIP OF RECORD	TITLE SOURCE D = DEED W = WILL	COUNTY ASSESSMENT PARCEL NUMBER
2-R	5	RT. 130+318	RT. 130+338	SYLY COMPANY	F-84-18	26-043.10-082
3-R	5 & 6	RT. 130+353	RT. 130+398	KIRKS PLUMBING & HEATING SUPPLY CO.	A-108-87 D-53-101	26-043.10-148 & 149
4-R	6	RT. 130+411	RT. 130+434	AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R. CO.	N/A	26-043.10-150
5-R	6	RT. 130+449	RT. 130+503	AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R. CO.	N/A	26-043.10-179
6-R	6	RT. 130+518	RT. 130+537	AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R. CO.	N/A	26-043.10-000
7-R	6	RT. 130+537	RT. 130+554	HESSLER REALTY & DEVELOPMENT CO.	K-45-322	26-043.30-001



CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	N/A	5	7

MARTIN LUTHER KING, JR. BOULEVARD
NORTH – SOUTH CONNECTIONS

REVISIONS

RIGHT-OF-WAY PLAN
STA. 130+240 TO STA. 130+380

0 5 10 15
1:300

POT STA. 21+100.000

POT STA. 40+200.000

SECOND STREET

WEST STREET

TATNALL STREET

℄ CONSTRUCTION WEST ST.

℄ CONSTRUCTION TATNALL ST.

3015 3016 3017 3165 3018 3019

3047 3048 3167

3046 3049 3045 3044 3060 3061

3051 3050

E 134.27' (D)

W 55.90' (D)

N 72.50' (D)

E 95'-3" (D)

N 60°-11⅛" (D)

S 62°-5⅜" (D)

S 61.48' (D)

W 95'-3" (D)

W 94.92' (D)

N 193.050

S 27°-42'-00" W 177.00' (D)

N 58°-36'-23" W 79.48' (D)

S 58°-00'-00" E 237.83' (D)

N 31°-50'-30" E 107.60' (D)

N 72°-41'-04" W 18.94' (D)

N 70°-51'-39" W 36.39' (D)

N 69°-18'-58" W 18.35' (D)

N 71°-05'-35" W 18.98' (D)

N 75°-30'-04" W 19.29' (D)

S 31°-50'-30" W 13.00' (D)

N 58°-00'-00" W 16.50' (D)

N 31°-50'-30" E 9.70' (D)

N 65°-41'-29" W 40.35' (D)

N 31°-50'-30" E 6.50' (D)

N 67°-28'-00" W 18.24' (D)

N 68°-24'-54" W 16.60' (D)

N 66°-43'-18" W 18.46' (D)

N 58°-00'-00" W 20.00' (D)

S 31°-50'-30" W 70.00' (D)

E 78'-1" (D)

W 4.30' (D)

W 78'-1" (D)

1-L 26-043.10-033 CITY OF WILMINGTON D.R. 8-90-721

2-L 3-LA 3-LC 3-LD 26-043.10-071, 080, 081 BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE D.R. 2246-308, 2226-30

26-043.10-072 THE STATE OF DELAWARE D.R. U-98-33

1-U 26-043.10-130 THRU 136 & 146, 147 BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE D.R. 1892-319, 1837-188, 1642-207, 1634-297

26-043.10-039 SHELLHORN & HILL D.R. 484-205

1-RA 1-RB 26-043.10-084 DANIEL A. BACHTLER D.R. 2339-145

26-043.10-083, 085 MAKO BLUE LLC D.R. 2422-338

2-R 26-043.10-082 SYLY COMPANY D.R. F-84-18

3-R 26-043.10-148 & 149 KIRKS PLUMBING & HEATING SUPPLY CO. D.R. A-108-87, D-53-101

3140 3139 3138 3137 3136 3135 3134 3133 3132 3131 3130 3129 3128 3127 3126 3158 3160

3089 3096 3098 3097 3162 3164 3102 3101 3087 3086 3170 3104 3171

3363

MARTIN LUTHER KING, JR. BLVD. WBR

30+200 30+250 30+300 30+350

℄ CONSTRUCTION MARTIN LUTHER KING, JR. BLVD. WB

POT STA. 30+272.01 ℄ MARTIN LUTHER KING, JR., BLVD. WB

POT STA. 21+018.18 ℄ WEST STREET

POC STA. 30+345.00
℄ MARTIN LUTHER KING, JR., BLVD. WB
POT STA. 40+118.72 ℄ TATNALL STREET

MARTIN LUTHER KING, JR. BLVD. EBR

℄ CONSTRUCTION MARTIN LUTHER KING, JR. BLVD. EB

℄ CONSTRUCTION WEST ST.

130+250 130+300 130+350

POT STA. 130+272.21
℄ MARTIN LUTHER KING, JR., BLVD. EB
POT STA. 21+000.00 ℄ WEST STREET

POT STA. 130+345.08
℄ MARTIN LUTHER KING, JR., BLVD. EB
POT STA. 40+100.00 ℄ TATNALL STREET

POT STA. 130+240.000

POT STA. 30+185.000

PC STA. 30+224.656

PT STA. 30+294.84

PC STA. 30+294.84

AMTRAK'S NORTHEAST CORRIDOR

WATER STREET

POT STA. 40+040.000

ERW&DA CZ PE PKWY CNC 49' 40'-50' 21'-050 20'

MATCH LINE STA. 130+380 SEE SHEET NO.

DESIGN CHKD DETAIL TRACING

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
99-011-02	NEW CASTLE	N/A	6	7

RIGHT-OF-WAY PLAN
STA. 130+380 TO STA. 130+580

0 5 10 15
1:300

MARTIN LUTHER KING, JR. BOULEVARD NORTH - SOUTH CONNECTIONS

REVISIONS	

MATCH LINE STA. 130+380 SEE SHEET NO.

DESIGN CHK'D

PREL. TRACING

POT STA. 50+200.000

SECOND STREET

POT STA. 62+080.000

ORANGE STREET

SHIPLEY STREET

MARKET STREET

MARTIN LUTHER KING, JR. BLVD. WBR

MARTIN LUTHER KING, JR. BLVD. EBR

AVENUE OF THE ARTS

WATER STREET

AMTRAK'S NORTHEAST CORRIDOR

26-043.10-130 THRU 136 & 146, 147
BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE
D.R. 1892-319, 1837-188, 1642-207, 1634-297

26-043.10-176 & 178
THE STATE OF DELAWARE
D.R. B-100-116
D.R. V-104-22

26-043.1-232
ANTHONY E. SIMONE & ANDREA J. SIMONE
D.R. 2271-313

26-043.1-220, 221, 230 & 231
JESS AUTO SUPPLY CO.
D.R. U-76-564

26-043.1-229
JESS AUTO SUPPLY CO.
D.R. Y-46-78

26-043.10-227 & 228
JAMES R. NELSON & M. LORRAINE NELSON
D.R. 1526-302

26-043.10-148 & 149
KIRKS PLUMBING & HEATING SUPPLY CO.
D.R. A-108-87, D-53-101

26-043.10-150
AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R.CO.
D.R. N/A

26-043.10-179
AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R.CO.
D.R. N/A

26-043.10-000 AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R.CO. D.R. N/A

26-043.3-001
HESSLER REALTY & DEVELOPMENT CO.
D.R. K-45-322

℄ CONSTRUCTION ORANGE ST.

℄ CONSTRUCTION SHIPLEY ST. NORTH

℄ CONSTRUCTION SHIPLEY ST. SOUTH

℄ CONSTRUCTION MARTIN LUTHER KING, JR. BLVD. WB

℄ CONSTRUCTION MARTIN LUTHER KING, JR. BLVD. EB

POT STA. 50+391.56 PT

POT STA. 50+441.11 ℄ MARTIN LUTHER KING, JR. BLVD. WB

POT STA. 50+121.59 ℄ ORANGE STREET

PC STA. 62+000.000

PT STA. 62+022.158

PC STA. 30+541.35

POT STA. 130+441.20 ℄ MARTIN LUTHER KING, JR. BLVD. EB

POT STA. 50+100.00 ℄ ORANGE STREET

POT STA. 130+510.73 ℄ MARTIN LUTHER KING, JR. BLVD. EB

POT STA. 60+100.00 ℄ SHIPLEY STREET

POT STA. 130+580.000

POT STA. 50+040.000

POT STA. 60+040.000

3020 3021 3022 3023 3024 3029 3030 3031 3032 3033 3035 3040 3041 3042 3043 3062 3063 3067 3068 3069 3080 3081 3083 3084 3103 3105 3106 3107 3108 3109 3110 3111 3168 3169

4-R 5-R 6-R 7-R

ERW&DA TCE CZ CC&G

50'-150' 49.5' 42.25' 49' 60'-050'

30'-400 30'-450 30'-500 30'-550 130'-400 130'-500 130'-550

CONTRACT	COUNTY	F.A.P. NO	SHEET NO
99-011-02	NEW CASTLE	N/A	7

RIGHT OF WAY TABULATION SHEET

MARTIN LUTHER KING, JR. BOULEVARD NORTH - SOUTH CONNECTIONS

REVISIONS

PROJECT PARCEL NUMBER	PLAN SHEET NUMBER	APPROXIMATE CONTRACT LOCATION STA.	APPROXIMATE CONTRACT LOCATION TO STA.	OWNERSHIP OF RECORD	TITLE SOURCE D= DEED WR= WILL	COUNTY ASSESSMENT PARCEL NUMBER	PROPERTY AREA BEFORE ACQUISITION A = ASMT C = CALC D = DEED	PROPERTY AREA BEFORE ACQUISITION AREA: HECTARE (ACRE)	AREA OF ACQUISITION S.M. (S.F.)	AREA OF ACQUISITION HECTARE (ACRE)	AREA TO BE ACQUIRED ** (AREA OF ACQUISITION OCCUPIED BY EXISTING PERMANENT EASEMENT) S.M. (S.F.)	AREA TO BE ACQUIRED ** (AREA OF ACQUISITION OCCUPIED BY EXISTING PERMANENT EASEMENT) HECTARE (ACRE)	AREA TO BE ACQUIRED EASEMENT PERMANENT EASEMENT S.M. (S.F.)	AREA TO BE ACQUIRED EASEMENT PERMANENT EASEMENT HECTARE (ACRE)	AREA TO BE ACQUIRED EASEMENT TEMPORARY S.M. (S.F.)	AREA TO BE ACQUIRED EASEMENT TEMPORARY HECTARE (ACRE)	PROPERTY AREA REMAINING LEFT S.M. (S.F.)	PROPERTY AREA REMAINING LEFT HECTARE (ACRE)	PROPERTY AREA REMAINING RIGHT S.M. (S.F.)	PROPERTY AREA REMAINING RIGHT HECTARE (ACRE)	DEED RECORD OF ACQUISITION	REMARKS
1-L	5	LT.30+187	LT.30+265	CITY OF WILMINGTON	B-90-721	26-043.10-033	A	0.3237 ha (0.8000 AC)					53.883 m² (580 S.F.)	0.0054 ha (0.0133 AC)			3237.485 m² (34,848 S.F.)	0.3237 ha (0.8000 AC)				
2-L	5	LT.30+280	LT.30+309	THE STATE OF DELAWARE	U-98-33	26-043.10-072	A	0.0526 ha (0.1300 AC)					157.935 m² (1,700 S.F.)	0.0158 ha (0.0390 AC)			526.110 m² (5,663 S.F.)	0.0526 ha (0.1300 AC)				
3-LA	5	LT.30+280	LT.30+309	BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE	2226-30	26-043.10-071	C	0.0904 ha (0.2235 AC)					56.671 m² (610 S.F.)	0.0057 ha (0.0140 AC)			904.411 m² (9,735 S.F.)	0.0904 ha (0.2235 AC)				
3-LB	5	LT.30+309	LT.30+338	BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE	2246-308	26-043.10-080	C	0.0555 ha (0.1371 AC)					153.290 m² (1,650 S.F.)	0.0153 ha (0.0379 AC)			554.631 m² (5,970 S.F.)	0.0555 ha (0.1371 AC)				
3-LC	5	LT.30+321	LT.30+338	BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE	222-30	26-043.10-081.	C	0.0376 ha (0.0930 AC)					45.522 m² (490 S.F.)	0.0046 ha (0.0112 AC)			376.536 m² (4,053 S.F.)	0.0376 ha (0.0930 AC)				
4-L	5 & 6	LT.30+353	LT.30+434	BOARD OF TRUSTEES, DELAWARE TECHNICAL & COMMUNITY COLLEGE	1892-319 1837-188 1642-207 1634-297	26-043.10-130 THRU 136 & 146, 147	A	0.3328 ha (0.8224 AC)					137.497 m² (1,480 S.F.)	0.0137 ha (0.0340 AC)			3328.252 m² (35,825 S.F.)	0.3328 ha (0.8224 AC)				
5-L	6	LT.30+519	LT.30+555	JAMES R. NELSON & M. LORRAINE NELSON	1526-302	26-043.10-227 & 228	A	0.0481 ha (0.1189 AC)							104.051 m² (1,120 S.F.)	0.0104 ha (0.0257 AC)	481.052 m² (5,178 S.F.)	0.0481 ha (0.1189 AC)				
1-R	5	RT.130+304	RT.130+318	MAKO BLUE LLC	2422-338	26-043.10-083,085	A	0.0486 ha (0.1201 AC)							20.439 m² (220 S.F.)	0.0020 ha (0.0051 AC)			486.069 m² (5,232 S.F.)	0.0486 ha (0.1201 AC)		
2-R	5	RT.130+318	RT.130+338	SYLY COMPANY	F-84-18	26-043.10-082	A	0.0242 ha (0.0597 AC)							36.697 m² (395 S.F.)	0.0037 ha (0.0091 AC)			241.548 m² (2,600 S.F.)	0.0242 ha (0.0597 AC)		
3-R	5 & 6	RT.130+353	RT.130+398	KIRKS PLUMBING & HEATING SUPPLY CO.	A-108-87 D-53-101	26-043.10-148 & 149	A	0.0595 ha (0.1470 AC)							39.484 m² (425 S.F.)	0.0039 ha (0.0098 AC)			594.858 m² (6403 S.F.)	0.0595 ha (0.1470 AC)		
4-R	6	RT.130+411	RT.130+434	AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R.CO.	N/A	26-043.10-150	A	0.0143 ha (0.0354 AC)							116.129 m² (1,250 S.F.)	0.0116 ha (0.0287 AC)			143.071 m² (1,540 S.F.)	0.0143 ha (0.0354 AC)		
5-R	6	RT.130+449	RT.130+503	AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R.CO.	N/A	26-043.10-179	A	0.0333 ha (0.0822 AC)							270.348 m² (2,910 S.F.)	0.0270 ha (0.0668 AC)			332.593 m² (3,580 S.F.)	0.0333 ha (0.0822 AC)		
6-R	6	RT.130+518	RT.130+537	AMTRAK - FORMERLY PHILADELPHIA, BALTIMORE & WASHINGTON R.R.CO.	N/A	26-043.10-000	N/A	N/A							54.813 m² (590 S.F.)	0.0055 ha (0.0135 AC)			N/A	N/A		
7-R	6	RT.130+537	RT.130+554	HESSLER REALTY & DEVELOPMENT CO.	K-45-322	26-043.30-001	A	0.0095 ha (0.0236 AC)							52.955 m² (570 S.F.)	0.0053 ha (0.0131 AC)			95.319 m² (1,026 S.F.)	0.0095 ha (0.0236 AC)		