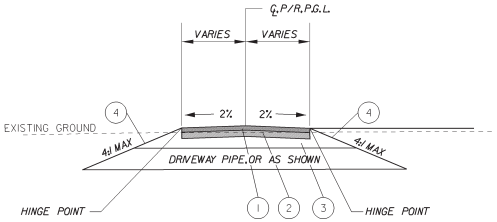
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	161	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



NOTE: MAX. ROLLOVER = 4%

DRIVEWAY SECTION
NOT TO SCALE

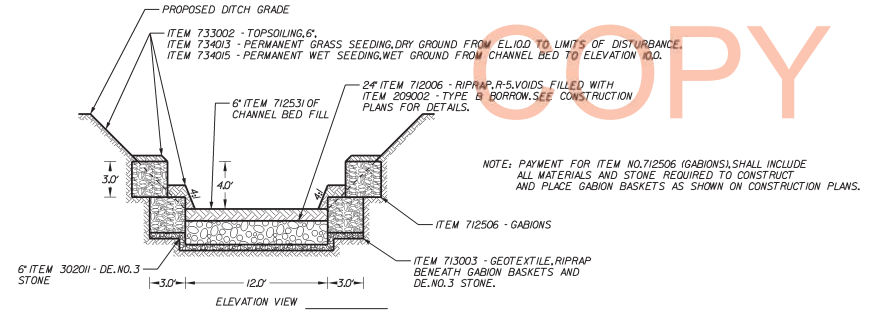
LEGEND

(1) 2" ITEM 401830 - WMA, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 70-22 (NON CARBONATE STONE)

(2) 8" ITEM 302005 - GRADED AGGREGATE BASE COURSE, TYPE B

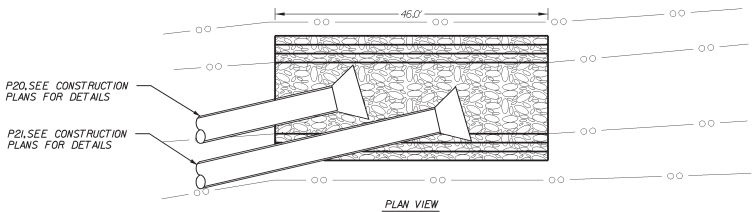
(3) ITEM 209006 - BORROW, TYPE F

(4) ITEM 732002 OR 733002 - TOPSOIL OR TOPSOILING 6" DEPTH
ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND



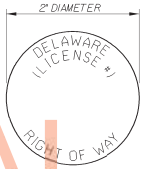
NOTE: PAYMENT FOR ITEM NO. 712506 (GABIONS), SHALL INCLUDE ALL MATERIALS AND STONE REQUIRED TO CONSTRUCT AND PLACE GABION BASKETS AS SHOWN ON CONSTRUCTION PLANS.

ELEVATION VIEW

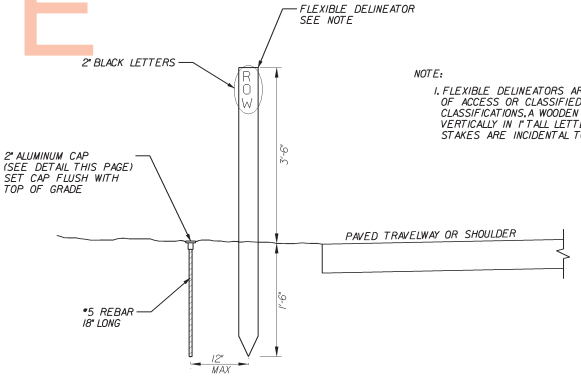


PLAN VIEW

GABION STREAM STABILIZATION
NOT TO SCALE



ALUMINUM CAP STAMP DETAIL



NOTE:
1. FLEXIBLE DELINEATORS ARE ONLY TO BE USED ON ROADS WITH A SPECIFIED DENIAL OF ACCESS OR CLASSIFIED AS MINOR ARTERIALS OR HIGHER, ON ALL OTHER ROAD CLASSIFICATIONS, A WOODEN STAKE SHALL BE PLACED WITH "ROW" HANDWRITTEN VERTICALLY IN 1" TALL LETTERS. ALL COSTS FOR DELINEATORS AND/OR WOODEN STAKES ARE INCIDENTAL TO ITEM 727555.

REBAR AND CAP WITH FLEXIBLE DELINEATOR DETAIL

ITEM 727555 – RIGHT-OF-WAY MARKER, CAPPED REBAR
NOT TO SCALE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

7/14/2003
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8:25:48

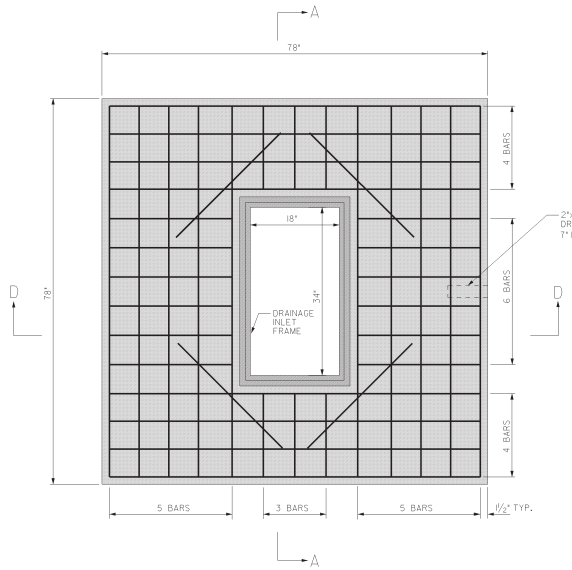
CONSTRUCTION DETAILS
SPECIAL INLET COVERS

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	162	589

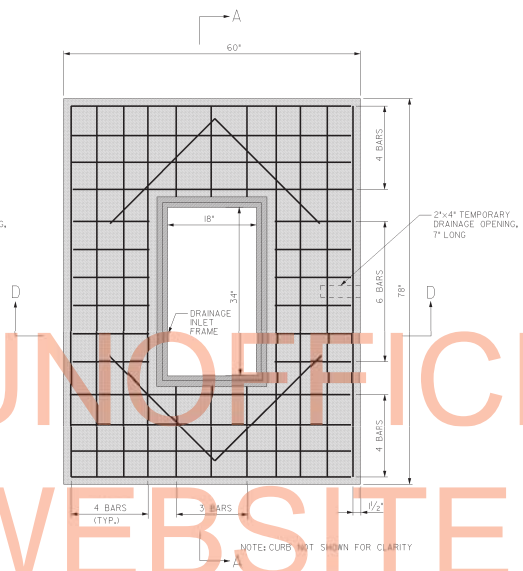
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

1 ADDED TOP MAT OF REBAR	
4/21/2010, WJH	

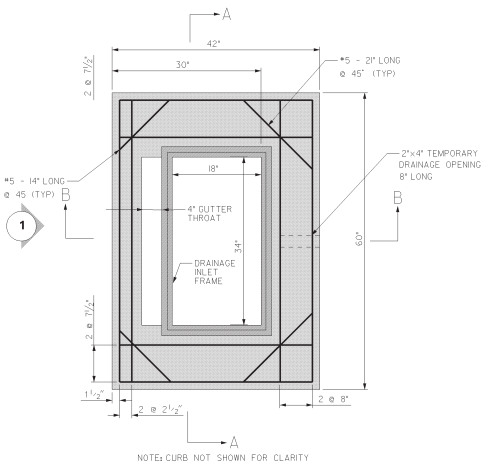


66" x 66" LAWN BASIN
ITEM# 708512, DRAINAGE INLET SPECIAL I

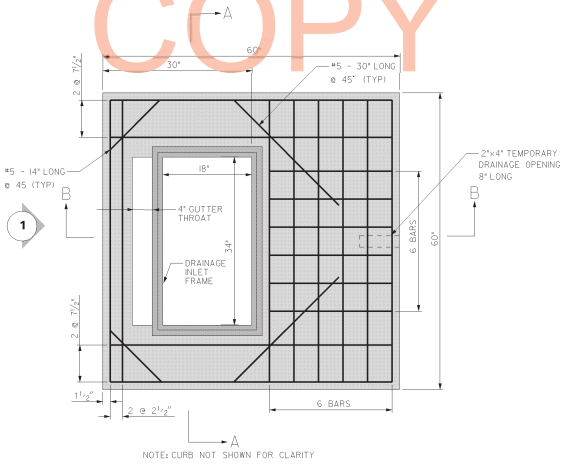


66" x 48" LAWN BASIN
ITEM# 708513, DRAINAGE INLET SPECIAL II

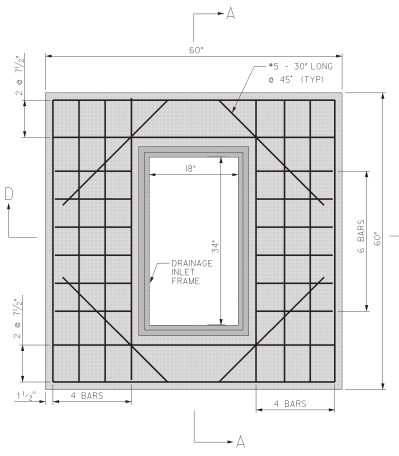
SPECIAL DRAINAGE INLET SPECIFICATIONS			
DRAINAGE INLET NO.	SIZE (L x W) (INSIDE DIMENSIONS)	STATION	CROSS SLOPE (S)
2	48"x30"	11+30 L	-6.0%
38	48"x30"	45+55 L	0.0%
48	48"x48"	56+52 R	0.0%
49	48"x48"	58+00 L	0.0%
50	66"x66"	59+50 L	0.0%
63	48"x30"	74+50 R	0.0%
70	48"x30"	83+80 R	0.0%
71	48"x30"	84+63 R	0.0%
79	48"x48"	85+45 R	0.0%
80	48"x48"	87+50 R	0.0%
81	48"x48"	87+50 R	0.0%
84	48"x48"	90+20 R	0.0%
85	66"x48"	91+68 R	0.0%
87	48"x30"	96+00 L	-4.0%
169	48"x48"	160+00 R	-4.0%
170	48"x48"	162+00 R	-4.0%
182	66"x48"	734+83 L	0.0%
189	48"x30"	174+55 R	-4.0%
197	48"x48"	179+00 R	-4.0%
201	48"x48"	180+78 R	-4.0%
209	66"x30"	194+27 L	-4.0%
213	48"x48"	190+30 R	-4.0%
214	66"x66"	191+90 R	-4.0%
215	66"x66"	193+50 R	-4.0%
216	66"x66"	194+25 R	-4.0%
223	48"x48"	204+25 L	-4.0%
227	48"x48"	208+75 L	-4.0%
229	48"x48"	209+14 L	-0.0%
230	48"x48"	210+24 L	0.0%
233	48"x30"	204+25 R	-4.0%
234	48"x30"	205+80 R	-4.0% & VARIES
235	48"x30"	206+62 R	-4.0% & VARIES



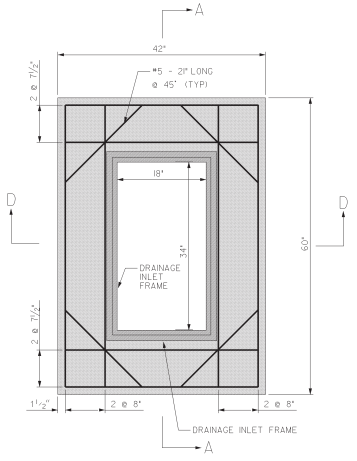
48" x 30" INLET WITH CURB
ITEM# 708514, DRAINAGE INLET SPECIAL III



48" x 48" INLET WITH CURB
ITEM# 708515, DRAINAGE INLET SPECIAL IV



48" x 48" LAWN BASIN
ITEM# 708516, DRAINAGE INLET SPECIAL V



48" x 30" LAWN BASIN
ITEM# 708517, DRAINAGE INLET SPECIAL VI

PREL. TRACING ____ DESIGN ____ CHK'D. ____

7/17/2013
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SHEET

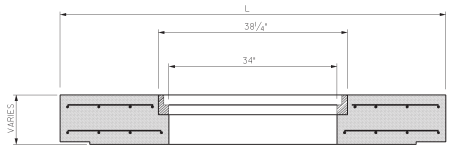
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T20041210	SUSSEX	SEE TITLE SHEET	163	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

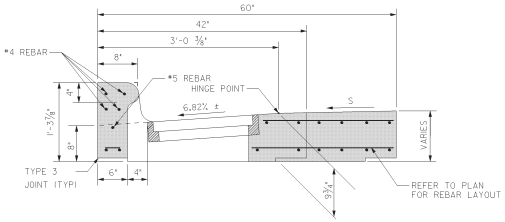
CONSTRUCTION DETAILS SPECIAL INLET COVERS

NOTES:
1. 4" THROAT IS FOR TYPE B TOP UNITS ONLY.
2. INLET COVERS SHALL BE PRE-CAST AND MUST BE SIZED TO FIT INLET BOX DIMENSIONS.
3. ALL BARS ARE TO BE #5 SPACED @ 6" +/- UNLESS NOTED OTHERWISE.
4. MINIMUM BAR COVER = 1½".
5. "W" REPRESENTS OVERALL WIDTH OF COVER SLAB.
6. "S" REPRESENTS ROADWAY CROSS SLOPE. VALUES GIVEN IN TABLE ON PREVIOUS PAGE. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT INLET TOP SLOPE MATCHES FINAL ROADWAY CROSS SLOPE.

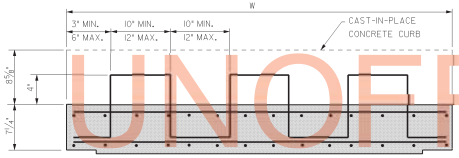


NOTE:
REFER TO PLAN FOR REBAR QUANTITY AND LAYOUT.

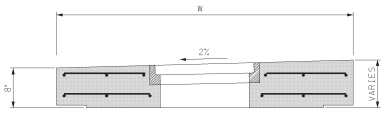
COVER SLAB SECTION A-A



COVER SLAB SECTION B-B

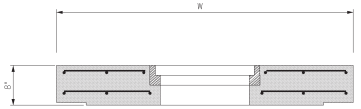


ELEVATION I



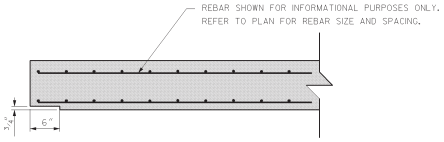
NOTE:
REFER TO PLAN FOR REBAR QUANTITY AND LAYOUT.

COVER SLAB SECTION C-C

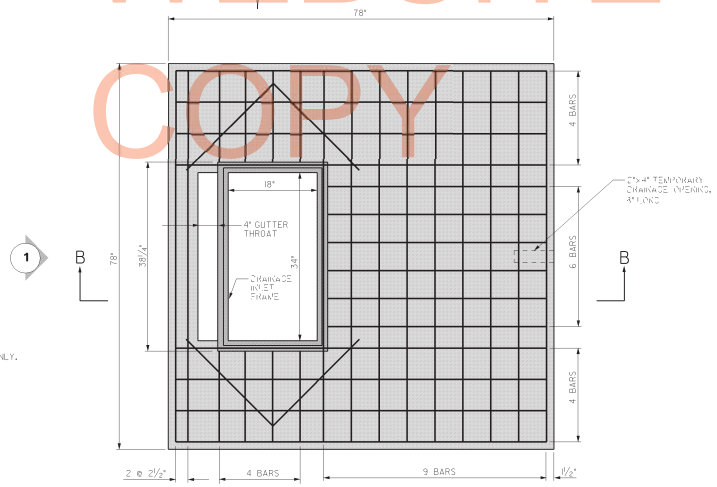


NOTE:
REFER TO PLAN FOR REBAR QUANTITY AND LAYOUT.

COVER SLAB SECTION D-D

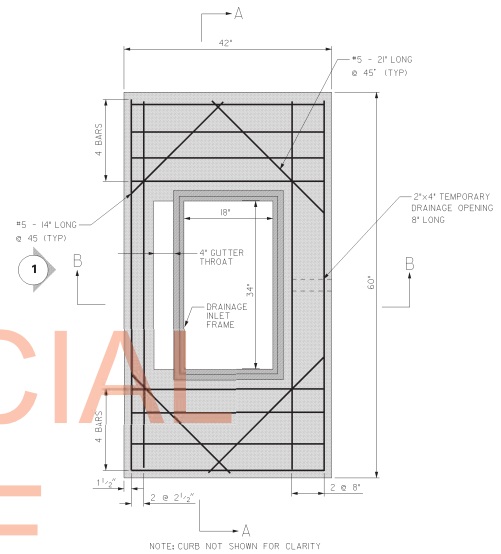


TYPE 3 JOINT DETAIL



66" x 66" INLET WITH CURB

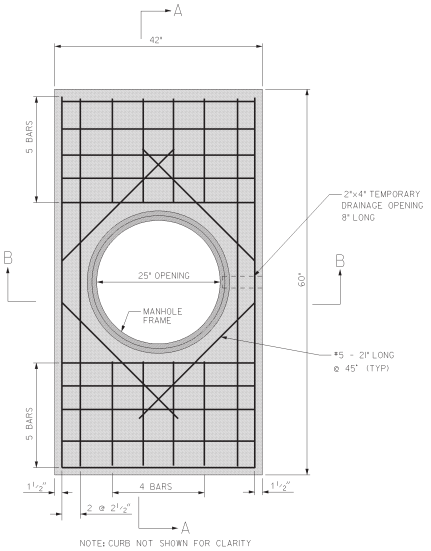
ITEM# 708656



NOTE: CURB NOT SHOWN FOR CLARITY

66" x 30" INLET WITH CURB

ITEM# 708655



NOTE: CURB NOT SHOWN FOR CLARITY

66" x 30" MANHOLE

ITEM# 708582 - MANHOLE, SPECIAL I

PREL. TRACING ____ DESIGN ____ CHK'D. ____

7/17/2003
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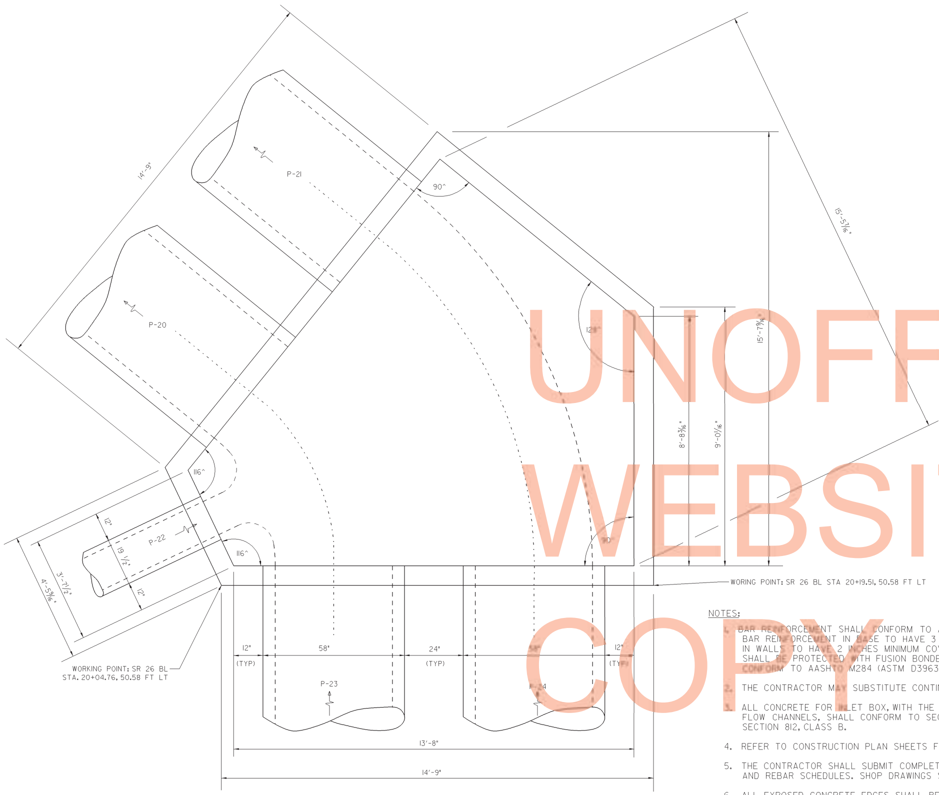
54434

CONSTRUCTION DETAILS

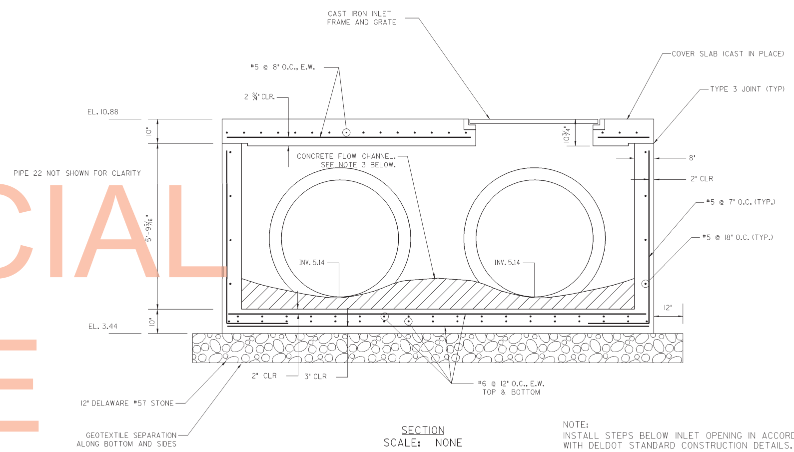
SCALE AS SHOWN

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN
SCALE: ½"= 1'-0"



SECTION
SCALE: NONE

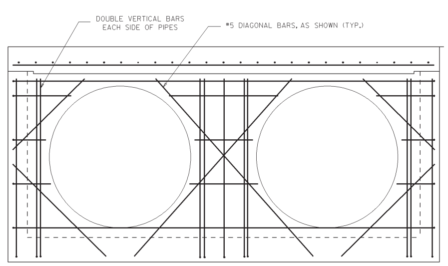
NOTE:
INSTALL STEPS BELOW INLET OPENING IN ACCORDANCE WITH DELDOT STANDARD CONSTRUCTION DETAILS.

NOTES:

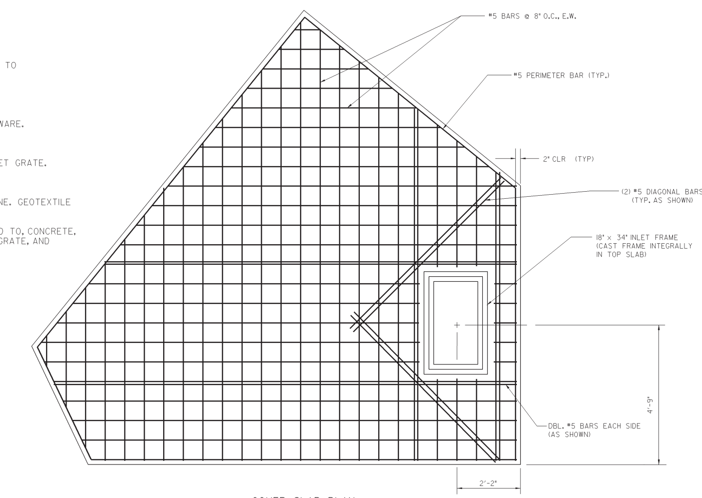
1. BAR REINFORCEMENT SHALL CONFORM TO AASHTO M31 (ASTM A615) - GRADE 60 KSI. ALL BAR REINFORCEMENT IN BASE TO HAVE 3 INCHES MINIMUM COVER. ALL BAR REINFORCEMENT IN WALLS TO HAVE 2 INCHES MINIMUM COVER. ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963).
2. THE CONTRACTOR MAY SUBSTITUTE CONTINUOUS REBAR AT ALL LAP LOCATIONS SHOWN.
3. ALL CONCRETE FOR INLET BOX, WITH THE EXCEPTION OF THE CONCRETE USED TO FORM THE FLOW CHANNELS, SHALL CONFORM TO SECTON 812, CLASS A. FLOW CHANNELS SHALL CONFORM TO SECTION 812, CLASS B.
4. REFER TO CONSTRUCTION PLAN SHEETS FOR ALL PIPE SIZES, TYPES AND INVERTS.
5. THE CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS INCLUDING ALL DIMENSIONS AND REBAR SCHEDULES. SHOP DRAWINGS SHALL BE SIGNED BY AN ENGINEER LICENSED IN DELAWARE.
6. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED ¾ INCHES UNLESS NOTED OTHERWISE.
7. THE STATION AND OFFSET GIVEN FOR THE STRUCTURE ARE GIVEN TO THE CENTER OF THE INLET GRATE.
8. STRUCTURE SHALL BE CAST-IN-PLACE.
9. STONE FOR FOUNDATION SHALL FOLLOW SPECIFICATIONS FOR ITEM# 302012-DELAWARE #57 STONE. GEOTEXTILE SHALL FOLLOW SPECIFICATIONS FOR ITEM 713002.
10. ALL MATERIALS AND LABOR NECESSARY TO CONSTRUCT THE INLET INCLUDING, BUT NOT LIMITED TO, CONCRETE, REINFORCING STEEL, COVER SLABS, GROUT, STEPS, GEOTEXTILE, AGGREGATE, EXCAVATION, FRAME, GRATE, AND FOUNDATION SHALL BE INCLUDED UNDER ITEM# 708653.

ITEM 708653 – DRAINAGE INLET, SPECIAL, VIII

INLET # 20



ELEVATION
SCALE: ½"=1'-0"



COVER SLAB PLAN
SCALE: ½"= 1'-0"

PREL. TRACING —— DESIGN —— CHKD.

7/14/2013
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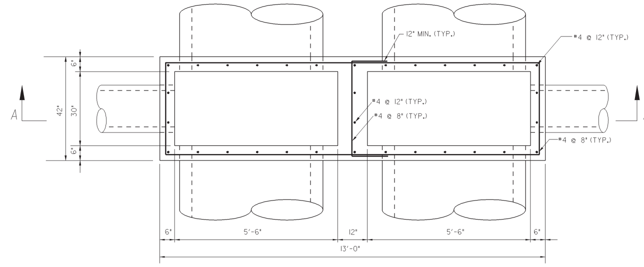
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	165	585

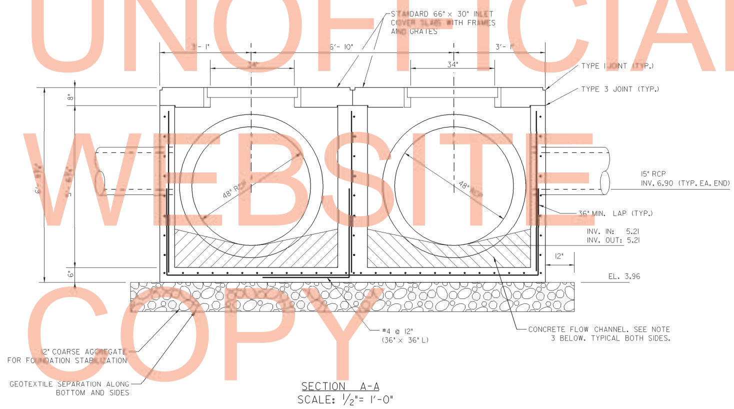
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

CONSTRUCTION DETAILS

SCALE AS SHOWN





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

NOTES:

1. BAR REINFORCEMENT SHALL CONFORM TO AASHTO M31(ASTM A615) - GRADE 60 KSI. ALL BAR REINFORCEMENT IN BASE TO HAVE 3 INCHES MINIMUM COVER. ALL BAR REINFORCEMENT IN WALLS TO HAVE 2 INCHES MINIMUM COVER. ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963).
2. THE CONTRACTOR MAY SUBSTITUTE CONTINUOUS REBAR AT ALL LAP LOCATIONS SHOWN.
3. ALL CONCRETE FOR INLET BOX SHALL CONFORM TO SECTON 812, CLASS B. FLOW CHANNELS SHALL CONFORM TO SECTION 812, CLASS C.
4. REFER TO CONSTRUCTION PLAN SHEETS FOR ALL PIPE SIZES, TYPES AND INVERTS.
5. THE CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS INCLUDING ALL DIMENSIONS AND REBAR SCHEDULES. SHOP DRAWINGS SHALL BE SIGNED BY AN ENGINEER LICENSED IN DELAWARE.
6. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4 INCHES UNLESS NOTED OTHERWISE.
7. THE STATION AND OFFSET GIVEN FOR THE STRUCTURE ARE GIVEN TO THE CENTER OF THE STRUCTURE ALONG THE FLOW LINE.
8. COARSE AGGREGATE FOR FOUNDATION SHALL FOLLOW SPECIFICATIONS FOR ITEM# 608000. GEOTEXTILE SHALL FOLLOW SPECIFICATIONS FOR ITEM 713002.
9. ALL MATERIALS AND LABOR NECESSARY TO CONSTRUCT THE INLET INCLUDING, BUT NOT LIMITED TO, CONCRETE, REINFORCING STEEL, COVER SLABS, GROUT, STEPS, GEOTEXTILE, AGGREGATE, EXCAVATION, FRAMES, GRATES, AND FOUNDATION SHALL BE INCLUDED UNDER ITEM# 708518.

ITEM 708518 – DRAINAGE INLET, SPECIAL, VII

INLET # 21

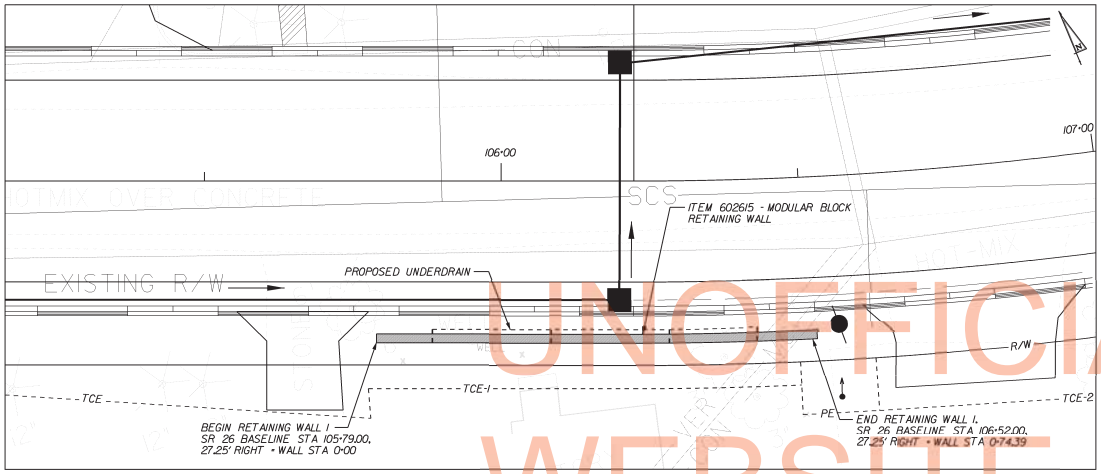
PREL. TRACING
DESIGN
CHKD.

CONSTRUCTION DETAILS
SCALE AS SHOWN

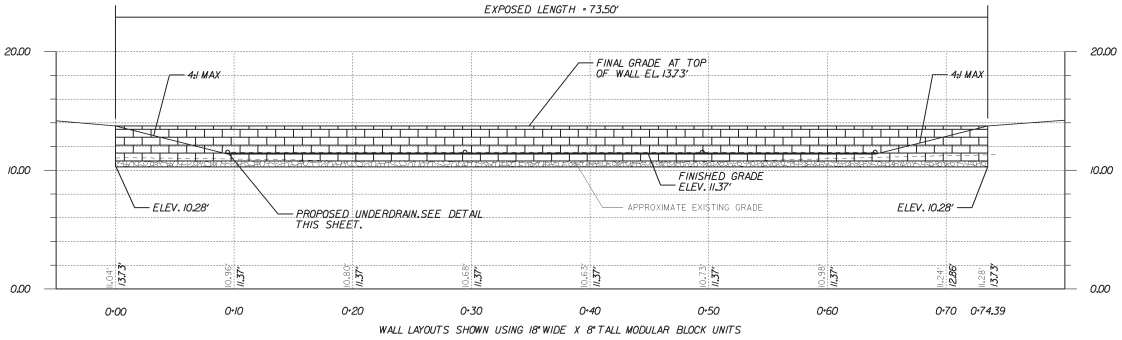
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	166	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS	



MODULAR BLOCK RETAINING WALL 1 PLAN
SCALE: 1"=10'

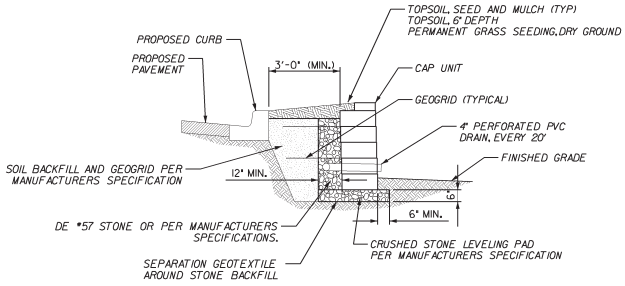


WALL LAYOUTS SHOWN USING 18"WIDE X 8"TALL MODULAR BLOCK UNITS

MODULAR BLOCK RETAINING WALL 1 ELEVATION
SCALE 1"=5'

NOTES:

1. ALL DESIGN INFORMATION SHOWN IS CONCEPTUAL AND FOR INFORMATIONAL PURPOSES ONLY. WALL MANUFACTURER TAKES FULL RESPONSIBILITY FOR ENGINEERING DESIGN AND CALCULATION AND ASSURING THAT ALL DESIGN ASSUMPTIONS ARE PRESENTED IN THEIR DRAWING AND SPECIFICATIONS. INSTALLATION INFORMATION AND DIRECTION PROVIDED BY THE MANUFACTURER SUPERSEDES ALL INFORMATION SHOWN ON THIS SHEET.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF DELAWARE FOR REVIEW AND APPROVAL.
3. ACCEPTABLE MODULAR BLOCK RETAINING WALLS ARE:
   A. "ALLAN BLOCK RETAINING WALL SYSTEMS" STYLE AB THREE AS MANUFACTURED BY FIZZANO BROS., INC., 1776 CHESTER PIKE, CRUM LYNNE, PA 19022 (TELEPHONE (610) 833-1100).
   B. "KEYSTONE RETAINING WALL SYSTEMS", KEYSTONE STANDARD UNIT WITH STRAIGHT FACE AS MANUFACTURED BY ANCHOR CONCRETE PRODUCTS, INC., P.O. BOX 601, BRIDGEPORT, NJ 08014 (TELEPHONE (609) 241-1544).
   C. APPROVED EQUAL.
4. COLOR SHALL BE MANUFACTURERS STANDARD COLOR, RESEMBLING SHERWIN-WILLIAMS 6121-WHOLE WHEAT. COLOR SAMPLES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.
5. WALLS SHALL BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS. LEVELING PAD SIZE, MATERIAL, AND GEOTEXTILE FABRIC SHALL BE PER MANUFACTURERS SPECIFICATION.
6. WALLS SHALL HAVE A NEAR VERTICAL FACE WITH MINIMUM SETBACKS AS RECOMMENDED BY THE MANUFACTURER.
7. WALLS SHALL BE PAID UNDER ITEM 602615 - MODULAR BLOCK RETAINING WALL. ALL ITEMS REQUIRED FOR WALL INSTALLATION INCLUDING, BUT NOT LIMITED TO, EXCAVATIONS, WALL MATERIALS, SOIL AND STONE BACKFILL, SHOP DRAWINGS, GEOGRID, GEOTEXTILES, AND UNDERDRAINS SHALL BE INCIDENTAL TO ITEM 602615.
8. STATION AND OFFSET MEASUREMENTS GIVEN ARE TO OUTSIDE FACE OF WALL. OFFSET REMAINS CONSTANT ALONG LENGTH OF WALL.
9. END TREATMENTS SHALL BE PER MANUFACTURERS SPECIFICATIONS, AND ARE NOT SHOWN IN THE WALL PROFILE.
10. ALLOWABLE BEARING PRESSURE FOR MODULAR BLOCK WALL FOOTINGS SHALL BE 1500 POUNDS PER SQUARE FOOT.
11. AREA OF WALL FOR PAYMENT SHALL BE MEASURES FROM THE BOTTOM OF THE FIRST COURSE OF RETAINING WALL TO THE TOP OF THE CAP OF THE RETAINING WALL.



RETAINING WALL SECTION
NOT TO SCALE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

7/14/2003
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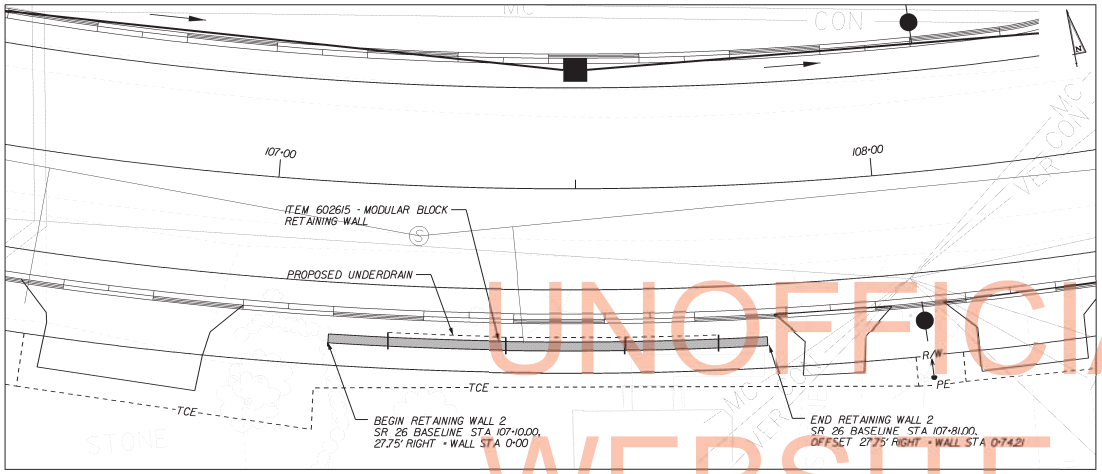
62931

CONSTRUCTION DETAILS
SCALE AS SHOWN

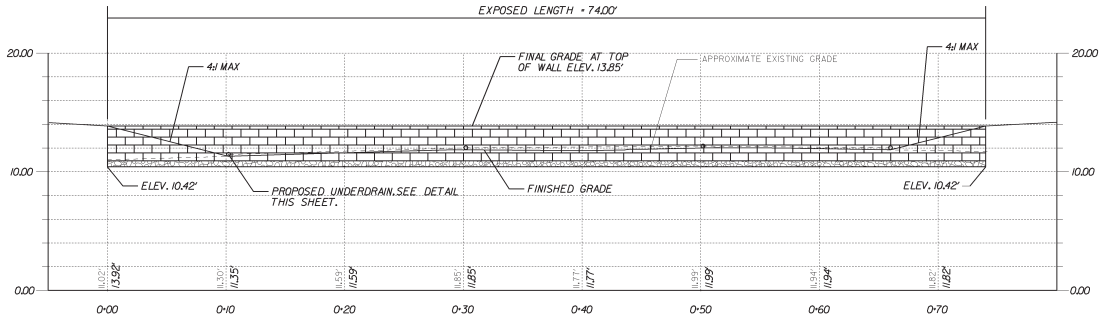
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	167	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



MODULAR BLOCK RETAINING WALL 2 PLAN
SCALE: 1"=10'

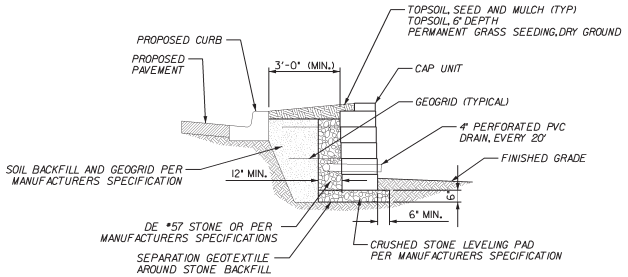


WALL LAYOUTS SHOWN USING 18" WIDE X 8" TALL MODULAR BLOCK UNITS

MODULAR BLOCK RETAINING WALL 2 ELEVATION
SCALE: 1"=5'

NOTES:

1. ALL DESIGN INFORMATION SHOWN IS CONCEPTUAL AND FOR INFORMATIONAL PURPOSES ONLY. WALL MANUFACTURER TAKES FULL RESPONSIBILITY FOR ENGINEERING DESIGN AND CALCULATION AND ASSURING THAT ALL DESIGN ASSUMPTIONS ARE PRESENTED IN THEIR DRAWING AND SPECIFICATIONS. INSTALLATION INFORMATION AND DIRECTION PROVIDED BY THE MANUFACTURER SUPERSEDES ALL INFORMATION SHOWN ON THIS SHEET.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF DELAWARE FOR REVIEW AND APPROVAL.
3. ACCEPTABLE MODULAR BLOCK RETAINING WALLS ARE:
   A. "ALLAN BLOCK RETAINING WALL SYSTEMS" STYLE AB THREE AS MANUFACTURED BY FIZZANO BROS., INC., 1776 CHESTER PIKE, CRUM LYNNE, PA 19022 (TELEPHONE (610) 833-1100).
   B. "KEYSTONE RETAINING WALL SYSTEMS", KEYSTONE STANDARD UNIT WITH STRAIGHT FACE AS MANUFACTURED BY ANCHOR CONCRETE PRODUCTS, INC., P.O. BOX 601, BRIDGEPORT, NJ 08014 (TELEPHONE (609) 241-1544).
   C. APPROVED EQUAL.
4. COLOR SHALL BE MANUFACTURERS STANDARD COLOR, RESEMBLING SHERWIN-WILLIAMS 6121-WHOLE WHEAT. COLOR SAMPLES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.
5. WALLS SHALL BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS. LEVELING PAD SIZE, MATERIAL, AND GEOTEXTILE FABRIC SHALL BE PER MANUFACTURERS SPECIFICATION.
6. WALLS SHALL HAVE A NEAR VERTICAL FACE WITH MINIMUM SETBACKS AS RECOMMENDED BY THE MANUFACTURER.
7. WALLS SHALL BE PAID UNDER ITEM 602615 - MODULAR BLOCK RETAINING WALL. ALL ITEMS REQUIRED FOR WALL INSTALLATION INCLUDING, BUT NOT LIMITED TO, EXCAVATIONS, WALL MATERIALS, SOIL AND STONE BACKFILL, SHOP DRAWINGS, GEOGRID, GEOTEXTILES, AND UNDERDRAINS SHALL BE INCIDENTAL TO ITEM 602615.
8. STATION AND OFFSET MEASUREMENTS GIVEN ARE TO OUTSIDE FACE OF WALL. OFFSET REMAINS CONSTANT ALONG LENGTH OF WALL.
9. END TREATMENTS SHALL BE PER MANUFACTURERS SPECIFICATIONS, AND ARE NOT SHOWN IN THE WALL PROFILE.
10. ALLOWABLE BEARING PRESSURE FOR MODULAR BLOCK WALL FOOTING SHALL BE 1500 POUNDS PER SQUARE FOOT.
11. AREA OF WALL FOR PAYMENT SHALL BE MEASURED FROM THE BOTTOM OF THE FIRST COURSE OF RETAINING WALL TO THE TOP OF THE CAP OF THE RETAINING WALL.



RETAINING WALL SECTION
SCALE: NONE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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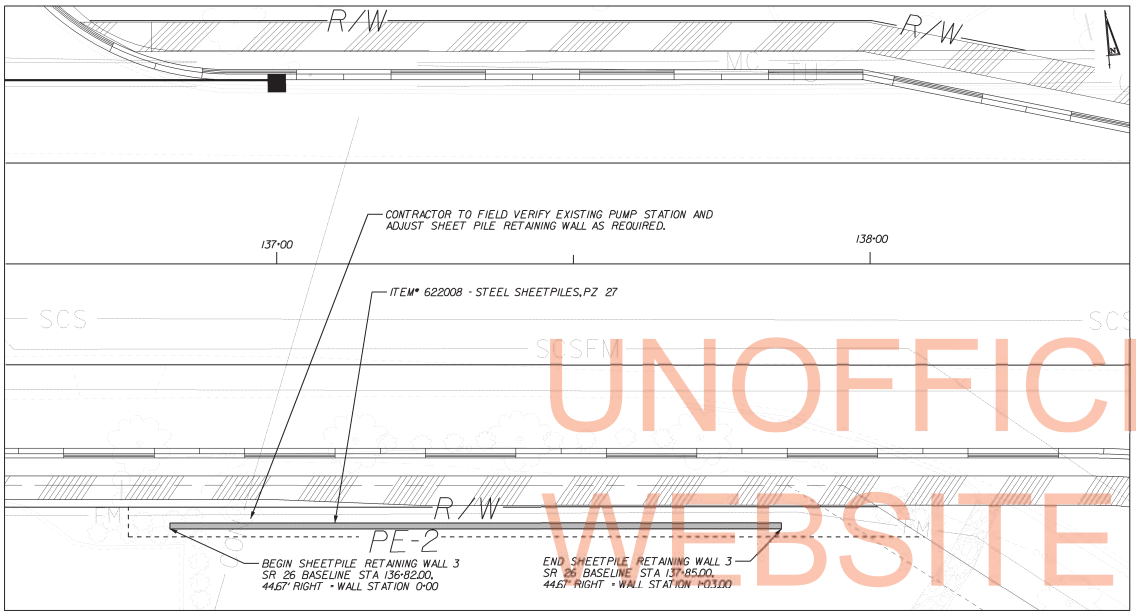
6/23/09

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	168	589

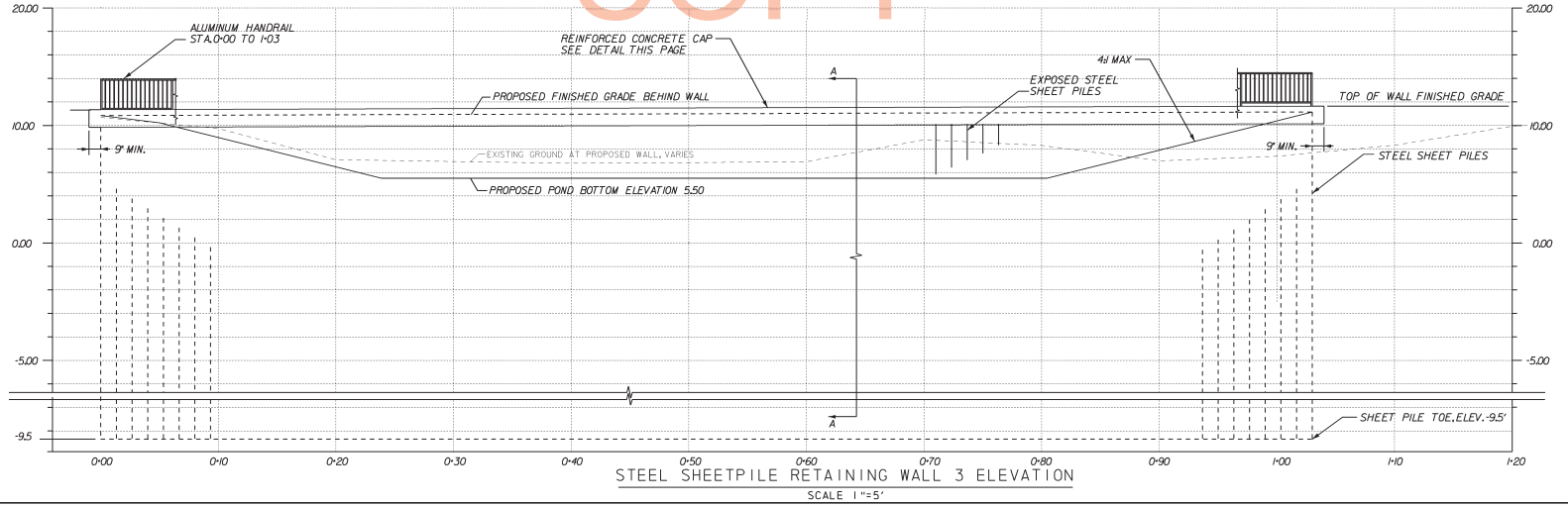
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

CONSTRUCTION DETAILS
SCALE AS SHOWN



STEEL SHEETPILE RETAINING WALL #3 PLAN
SCALE: 1"=10'



STEEL SHEETPILE RETAINING WALL 3 ELEVATION
SCALE 1"=5'

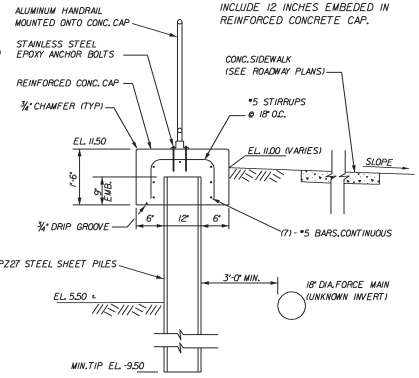
SHEETPILE RETAINING WALL NOTES:

1. STEEL SHEETPILES SHALL BE PAID USING ITEM# 622008 - STEEL SHEETPILE, PZ 27.
2. CONCRETE FOR CAPSTONE SHALL BE CLASS "B" CONCRETE WITH f'c = 3000 PSI MIN AT 28 DAYS. REINFORCING STEEL AND TIES SHALL BE EPOXY COATED IN ACCORDANCE WITH AASHTO M284. CONCRETE CAPSTONE SHALL BE PAID USING ITEM# 602005 - PORTLAND CEMENT CONCRETE, ABOVE FOOTING, CLASS B. ALL WORK AND MATERIALS REQUIRED TO PLACE THE CAPSTONE SHALL BE INCIDENTAL TO ITEM# 602005, INCLUDING, BUT NOT LIMITED TO CONCRETE, STEEL REINFORCEMENT, AND SHOP DRAWINGS.
4. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED ¾" INCH, UNLESS NOTED OTHERWISE.
3. STATION AND OFFSET MEASUREMENTS GIVEN ARE TO OUTSIDE FACE OF SHEETPILE. OFFSET REMAINS CONSTANT ALONG LENGTH OF WALL.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF DELAWARE FOR REVIEW AND APPROVAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE EXISTENCE AND LOCATION OF ALL UTILITIES WITHIN THE AREA OF THE SHEETPILE RETAINING WALL PRIOR TO CONSTRUCTION.

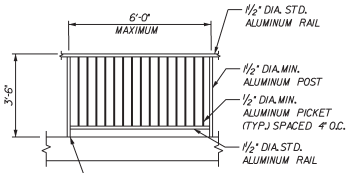
ALUMINUM HANDRAIL NOTES

1. ALL POST RAILS, AND PICKETS SHALL BE ALUMINUM ALLOY TYPE 6064-T6, 6061-T6, OR 6005-T5. FASTENERS SHALL BE 2024-T4, 18-8 SERIES 300 NON-MAGNETIC STAINLESS STEEL, OR CADMIUM PLATED OR OTHER CORROSION RESISTANT MATERIAL AND SHALL COMPLY WITH 5WC SPECIFICATIONS FOR ALUMINUM STRUCTURES - SECTION I, THE ALUMINUM ASSOCIATION, INC.
2. ALUMINUM HANDRAIL SHALL BE PROTECTED WITH A VINYL OR KYNAR FINISH. (COLOR TO BE MATTE BLACK.)
3. ALL ANCHOR BOLTS FOR ALUMINUM HANDRAIL SHALL BE AISI 304 OR AISI 316 STAINLESS STEEL MEETING THE REQUIREMENTS OF ASTM F 593 (CONDITION CW) OR APPROVED EQUAL. MINIMUM EMBEDMENT OF ANCHORS SHALL BE 6 INCHES.
4. CONTRACTOR SHALL PROVIDE HANDRAIL SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF DELAWARE. THE SHOP DRAWINGS SHALL DETAIL ALL CONNECTIONS, WELDS, MATERIALS, CALL OUTS, AND FINISHES.
5. ALL ITEMS REQUIRED FOR THE ALUMINUM HANDRAIL, INCLUDING, BUT NOT LIMITED TO, MATERIAL, SHOP DRAWINGS, WELDS, AND FINISHES SHALL BE INCIDENTAL TO ITEM# 606504 - ALUMINUM HANDRAIL.
6. ALUMINUM HANDRAILS, INCLUDING ALL POSTS, TOP RAILS, BASE CONNECTIONS, ETC. SHALL BE CAPABLE OF SUPPORTING LOADS AS REQUIRED BY THE INTERNATIONAL BUILDING CODE, THE PROVISIONS OF ASCE 7-05, AND ALL LOCAL CODES, INCLUDING ALL FACTORS OF SAFETY, SHOWN ON THE SHOP DRAWINGS.

NOTE:
MEASUREMENT OF SHEET PILE SHALL INCLUDE 12 INCHES EMBEDED IN REINFORCED CONCRETE CAP.



TYPICAL SECTION A-A
SCALE: NONE



NOTE:
1. PROVIDE PROVISIONS FOR EXPANSION OF TOP AND BOTTOM RAILS AT 18 FEET MAXIMUM THROUGHOUT THE LENGTH OF HANDRAIL. EXPANSION DEVICE SHALL ALLOW FOR NO LESS THAN 1 INCH EXPANSION AND CONTRACTION.
2. POST SPACING TO BE DETERMINED BY MANUFACTURER TO PROVIDE REQUIRED STRENGTH.

ALUMINUM HANDRAIL DETAIL
NOT TO SCALE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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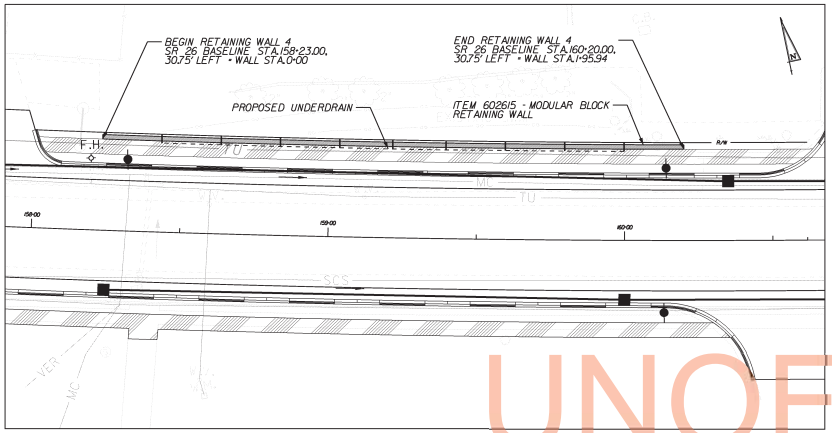


MODULAR BLOCK RETAINING WALL 4 PLAN

SCALE: 1"=20'

CONSTRUCTION DETAILS

SCALE AS SHOWN

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	169	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

NOTES:

1. ALL DESIGN INFORMATION SHOWN IS CONCEPTUAL AND FOR INFORMATIONAL PURPOSES ONLY. WALL MANUFACTURER TAKES FULL RESPONSIBILITY FOR ENGINEERING DESIGN AND CALCULATION AND ASSURING THAT ALL DESIGN ASSUMPTIONS ARE PRESENTED IN THEIR DRAWING AND SPECIFICATIONS. INSTALLATION INFORMATION AND DIRECTION PROVIDED BY THE MANUFACTURER SUPERSEDES ALL INFORMATION SHOWN ON THIS SHEET.

2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF DELAWARE FOR REVIEW AND APPROVAL.

3. ACCEPTABLE MODULAR BLOCK RETAINING WALLS ARE:

   A. "ALLAN BLOCK RETAINING WALL SYSTEMS" STYLE AB THREE AS MANUFACTURED BY FIZZANO BROS., INC., 1776 CHESTER PIKE, CRUM LYNNE, PA 19022 (TELEPHONE (610) 833-1100).

   B. "KEYSTONE RETAINING WALL SYSTEMS", KEYSTONE STANDARD UNIT WITH STRAIGHT FACE AS MANUFACTURED BY ANCHOR CONCRETE PRODUCTS, INC., P.O. BOX 601, BRIDGEPORT, NJ 08014 TELEPHONE (609) 241-1544).

   C. APPROVED EQUAL.

4. COLOR SHALL BE MANUFACTURERS STANDARD COLOR, RESEMBLING SHERWIN-WILLIAMS 6121-WHOLE WHEAT. COLOR SAMPLES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

5. WALLS SHALL BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS. LEVELING PAD SIZE, MATERIAL, AND GEOTEXTILE FABRIC SHALL BE PER MANUFACTURERS SPECIFICATION.

6. WALLS SHALL HAVE A NEAR VERTICAL FACE WITH MINIMUM SETBACKS AS RECOMMENDED BY THE MANUFACTURER.

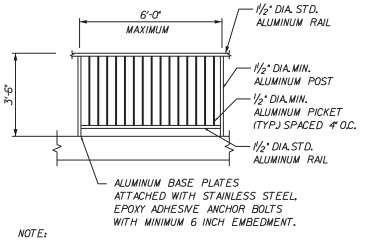
7. WALLS SHALL BE PAID UNDER ITEM 602615 - MODULAR BLOCK RETAINING WALL. ALL ITEMS REQUIRED FOR WALL INSTALLATION INCLUDING, BUT NOT LIMITED TO, EXCAVATION, WALL MATERIALS, BACKFILL, SHOP DRAWINGS, GEOGRID, AND UNDERDRAINS SHALL BE INCIDENTAL TO ITEM 602615.

8. STATION AND OFFSET GIVEN IS TO OUTER FACE OF WALL. OFFSET REMAINS CONSTANT ALONG LENGTH OF WALL.

9. END TREATMENTS SHALL BE PER MANUFACTURERS SPECIFICATION AND ARE NOT SHOWN IN THE PROFILE.

10. ALLOWABLE BEARING PRESSURE FOR MODULAR BLOCK WALL FOUNDATIONS SHALL BE 1500 POUNDS PER SQUARE FOOT.

11. HANDRAIL SHALL BE PAID FOR UNDER ITEM 605504 - ALUMINUM HANDRAIL. PRICE SHALL INCLUDE SHOP DRAWING SUBMITTALS.



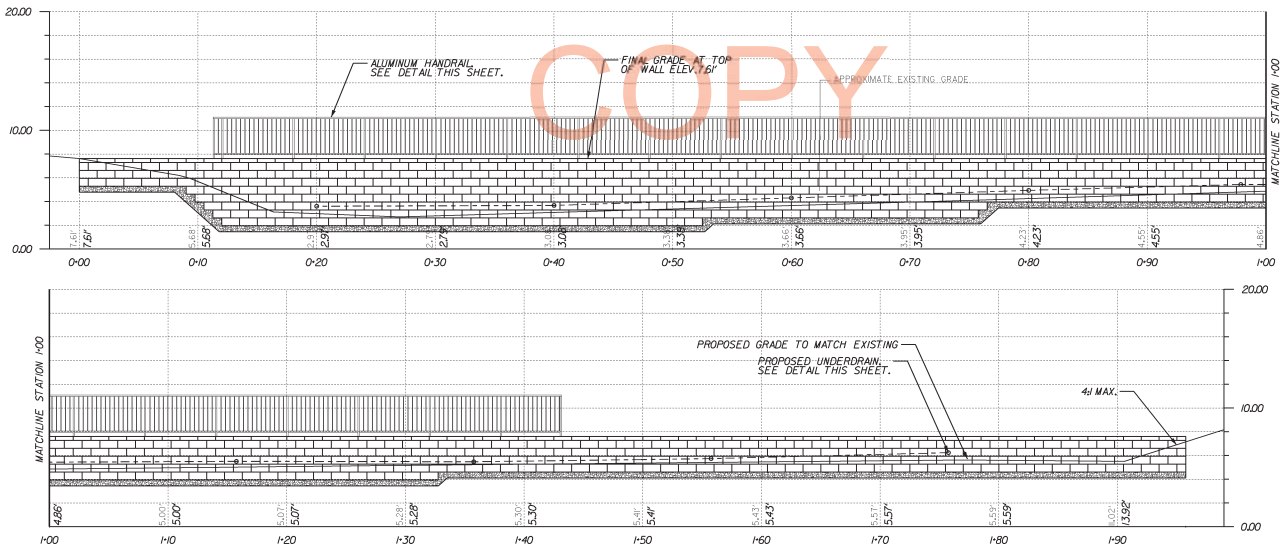
NOTE:

1. PROVIDE PROVISIONS FOR EXPANSION OF TOP AND BOTTOM RAILS AT 18 FOOT INCREMENTS, MAXIMUM THROUGHOUT THE LENGTH OF HANDRAIL. EXPANSION DEVICE SHALL ALLOW FOR NO LESS THAN 1 INCH EXPANSION AND CONTRACTION.

2. POST SPACING TO BE DETERMINED BY MANUFACTURER TO PROVIDE REQUIRED STRENGTH.

ALUMINUM HANDRAIL DETAIL

NOT TO SCALE



WALL LAYOUTS SHOWN USING 18" WIDE X 8" TALL MODULAR BLOCK UNITS

MODULAR BLOCK RETAINING WALL 4 ELEVATION

SCALE: 1"=5'

ALUMINUM HANDRAIL NOTES

1. ALL POST RAILS AND PICKETS SHALL BE ALUMINUM ALLOY TYPE 6064-T6, 6061-T6, OR 6005-T5. FASTENERS SHALL BE 2024-T4, 18-8 SERIES 300 NON-MAGNETIC STAINLESS STEEL, OR CADMIUM PLATED OR OTHER CORROSION RESISTANT MATERIAL AND SHALL COMPLY WITH SJJC SPECIFICATIONS FOR ALUMINUM STRUCTURES - SECTION 1, THE ALUMINUM ASSOCIATION, INC.

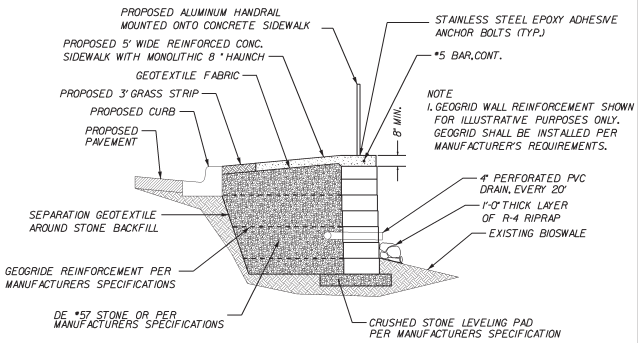
2. ALUMINUM HANDRAIL SHALL BE PROTECTED WITH A VINYL OR KYNAR FINISH. (COLOR TO BE MAT BLACK.)

3. ALL ANCHOR BOLTS FOR ALUMINUM HANDRAIL SHALL BE AISI 304 OR AISI 316 STAINLESS STEEL MEETING THE REQUIREMENTS OF ASTM F 593 (CONDITION CW) OR APPROVED EQUAL. MINIMUM EMBEDMENT OF ANCHORS SHALL BE 6 INCHES.

4. CONTRACTOR SHALL PROVIDE HANDRAIL SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE STATE OF DELAWARE. THE SHOP DRAWINGS SHALL DETAIL ALL CONNECTIONS, WELDS, MATERIALS, CALL OUTS, AND FINISHES.

5. ALL ITEMS REQUIRED FOR THE ALUMINUM HANDRAIL, INCLUDING, BUT NOT LIMITED TO, MATERIAL, SHOP DRAWINGS, WELDS, AND FINISHES SHALL BE INCIDENTAL TO ITEM* 606504 - ALUMINUM HANDRAIL.

6. ALUMINUM HANDRAILS, INCLUDING ALL POSTS, TOP RAILS, BASE CONNECTIONS, ETC. SHALL BE CAPABLE OF SUPPORTING LOADS AS REQUIRED BY THE INTERNATIONAL BUILDING CODE. THE PROVISIONS OF ASCE 7-05, AND ALL LOCAL CODES, INCLUDING ALL FACTORS OF SAFETY, AND SHALL BE INCLUDED ON THE SHOP DRAWINGS.



NOTES:

1. 8 INCH SIDEWALK TO BE MEASURED AND PAID FOR UNDER ITEM 705001.
2. SIDEWALK REINFORCEMENT TO BE 6 X6 W1.4/W1.4 WELDED WIRE FABRIC AND PAID FOR UNDER ITEM 705001.

RETAINING WALL SECTION

NOT TO SCALE

7/14/2003
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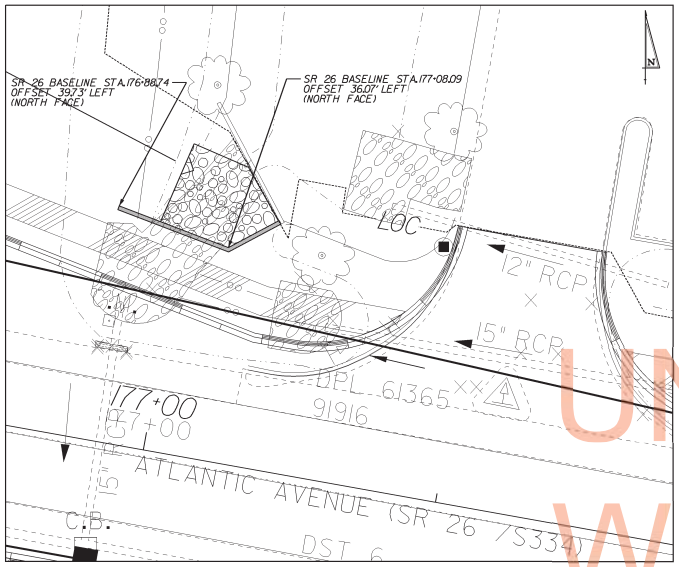
PRELIM. TRACING ____ DESIGN ____ CHK'D. ____

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	170	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

CONSTRUCTION DETAILS
SCALE AS SHOWN



ITEM 602537 - CONCRETE RETAINING WALL 5
SCALE: 1"=10'

NOTES:

1. SPECIFICATIONS:
DELAWARE DEPARTMENT OF TRANSPORTATION - STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AUGUST 2001, INCLUDING ALL SUPPLEMENTS.

2. MATERIALS:
CONCRETE FOR FOOTINGS SHALL BE CLASS "B" CONCRETE WITH f'c - 3000 PSI MIN. AT 28 DAYS. CONCRETE ABOVE FOOTINGS SHALL BE CLASS "A" CONCRETE WITH f'c - 4500 PSI MIN. AT 28 DAYS. REINFORCING STEEL SHALL BE A.A.S.H.T.O. M31 GRADE 60. ALL COSTS INCLUDED IN ITEM "602537 - RETAINING WALL.

REINFORCING STEEL AND TIES SHALL BE EPOXY COATED IN ACCORDANCE WITH A.A.S.H.T.O. M284.

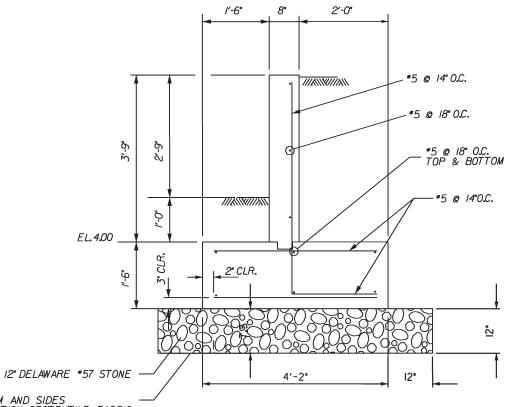
COARSE AGGREGATE FOR FOUNDATION STABILIZATION SHALL MEET THE SPECIFICATIONS OF ITEM" 302012.

3. EXCAVATION SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE. AFTER EXCAVATION, ALL EARTH SHALL BE INSPECTED BY A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER AND APPROVED FOR AN ALLOWABLE BEARING PRESSURE OF 1500 PSF, BEFORE PROCEEDING WITH CONSTRUCTION. GEOTECHNICAL ENGINEER TO BE FURNISHED AND PAID FOR BY THE CONTRACTOR, INCIDENTAL TO THE ITEM BEING INSTALLED.

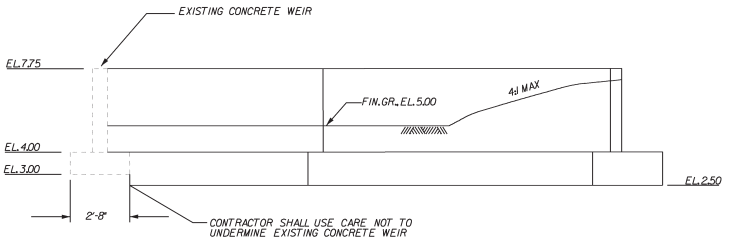
4. BACKFILL MATERIAL OVER FOUNDATIONS SHALL BE TYPE F BORROW OR AS APPROVED BY THE ENGINEER. ALL DIMENSIONS, ELEVATIONS, AND FIELD CONDITIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION.

5. FURNISHING, CONSTRUCTING AND PLACING ALL ITEMS ASSOCIATED WITH THE STRUCTURE, INCLUDING BUT NOT LIMITED TO, CONCRETE, REINFORCING STEEL, DELAWARE "57 STONE, GEOTEXTILE, FASTENERS, SHOP DRAWINGS, EXCAVATION, AND BACKFILL MATERIAL SHALL BE INCLUDED IN ITEM" 602537 - RETAINING WALL.

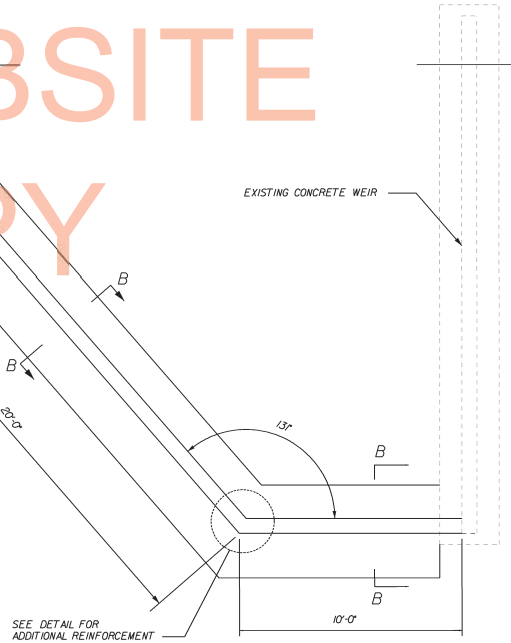
6. ALL EXPOSED EDGES SHALL HAVE ¾ INCH CHAMFERS, UNLESS NOTED OTHERWISE.



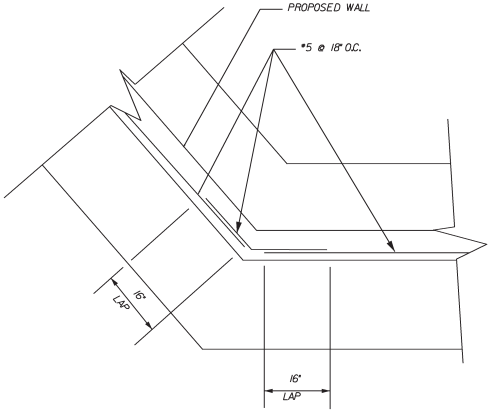
SECTION B-B
SCALE: ¾" = 1'-0"



SECTION A - A
SCALE: ⅜" = 1'-0"



CONCRETE RETAINING WALL 5 PLAN
SCALE: ⅜" = 1'-0"



DETAIL
NOT TO SCALE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	171	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

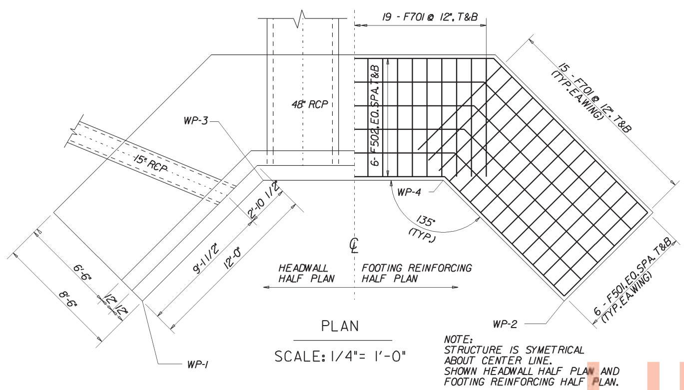
CONSTRUCTION DETAILS
HEADWALL DETAILS

SCALE AS SHOWN

REVISIONS

ITEM	QUANTITY
602004 - PCC MASONRY ABUTMENT FOOTING,CLASS B (CY)	20
602015 - PCC MASONRY ABUTMENT ABOVE FOOTING,CLASS A (CY)	7.5
604000 - BAR REINFORCEMENT,EPOXY COATED (LBS)	3555
302012 - DELAWARE NO.57 STONE (TON)	24
708563 - PERSONAL GRATE FOR INLET PIPE (2-EACH) (LS)	1
713002 - GEOTEXTILE,SEPARATION (SY)	53

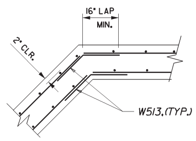
WORKING POINTS		
MARK	NORTHING	EASTING
WP-1	200410.4920	733667.2013
WP-2	200421.8809	733693.3883
WP-3	200421.2720	733671.4467
WP-4	200426.1263	733682.6084



PLAN

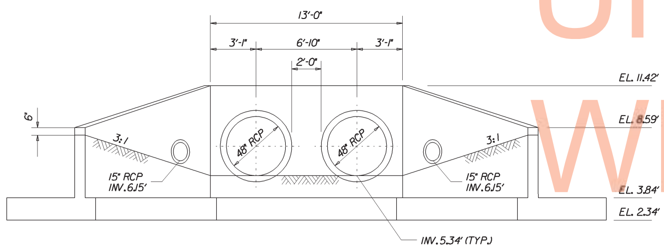
SCALE: 1/4"= 1'-0"

NOTE:
STRUCTURE IS SYMETRICAL ABOUT CENTER LINE. SHOWN HEADWALL HALF PLAN AND FOOTING REINFORCING HALF PLAN.



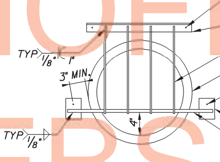
REBAR DETAIL WINGWALL/HEADWALL JOINT

N.T.S.



ELEVATION

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



GALVANIZED 1/2"⌀ HAS ROD, HILTI HVA ADHESIVE SYSTEM, WITH A MINIMUM OF 2 1/4" EMBANKMENT, OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S REQUIREMENTS.

L 1 1/2" X 1 1/2" X 1/4" (TYP.)

1/2"⌀ ROUND STEEL BARS W/4" CLEARANCE BETWEEN BARS.

CULVERT PIPE

GALVANIZED 1/2" ⌀ HAS ROD, HILTI HVA ADHESIVE SYSTEM, WITH A MINIMUM OF 2 1/4 " EMBEDMENT, OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S REQUIREMENTS.

PL 1/4" X 4" X 0'-6" (TYP.)

1/2" SQUARE STEEL ROD

NOTES:

1. ALL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A-153, AFTER FABRICATION AND WELDING.
2. GRATE SHALL BE SIZED TO COMPLETELY COVER PIPE OPENING. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL BY OWNER.

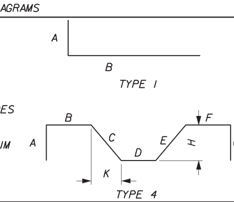
ITEM 708563 - PERSONAL GRATE FOR INLET PIPE

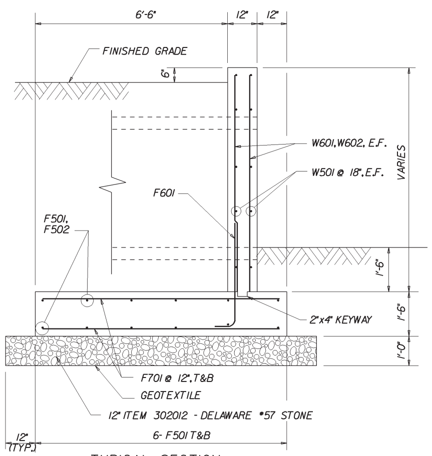
N.T.S.

REINFORCING BAR LIST												
LENGTHS AND QUANTITIES SHOWN REPRESENT ONE STRUCTURE												
	MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	H	K	REMARKS
FOOTING	F701	7	98	8'-0"	STR.	-	-	-	-	-	-	-
	F601	6	36	4'-2 1/2"	1	10 1/2"	3'-7"	-	-	-	-	-
	F501	5	24	11'-5" TO	STR.	-	-	-	-	-	-	4 SETS OF 6
				14'-9"								
	F502	5	12	12'-4" TO	STR.	-	-	-	-	-	-	2 SETS OF 6
				19'-2"								
HEADWALL	W601	6	16	7'-4 3/4"	STR.	-	-	-	-	-	-	-
	W501	5	3	13'-0"	STR.	-	-	-	-	-	-	-
	W502	5	4	9'-6"	STR.	-	-	-	-	-	-	-
	W503	5	4	4'-6"	STR.	-	-	-	-	-	-	-
	W504	5	4	3'-11"	STR.	-	-	-	-	-	-	-
	W505	5	2	2'-9 3/4"	STR.	-	-	-	-	-	-	-
	W506	5	4	1'-6"	STR.	-	-	-	-	-	-	-
	W507	5	3	13'-9"	STR.	-	-	-	-	-	-	-
WINGWALLS	WW602	6	56	4'-7 1/2" TO	STR.	-	-	-	-	-	-	VAR., 2 SETS
				7'-3"								(SEE DETAIL)
	WW603	6	4	2'-7 1/2"	STR.	-	-	-	-	-	-	-
	WW507	5	12	12'-0"	STR.	-	-	-	-	-	-	-
	WW508	5	4	7'-10"	STR.	-	-	-	-	-	-	-
	WW509	5	4	1'-9"	STR.	-	-	-	-	-	-	-
	WW510	5	4	12'-1"	STR.	-	-	-	-	-	-	-
	WW511	5	16	2'-4"	STR.	-	-	-	-	-	-	-
	WW512	5	4	4'-8"	STR.	-	-	-	-	-	-	-
	WW513	5	24	2'-8"	4	-	1'-4"	1'-4"	-	0'-11"	0'-11"	-

BENDING DIAGRAMS

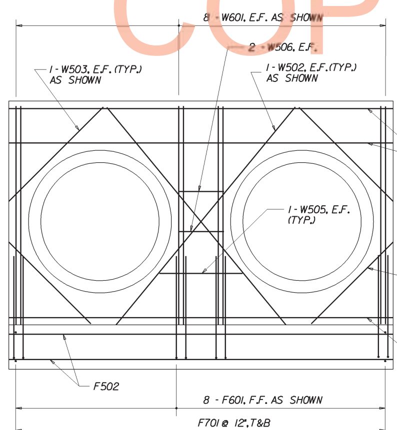
NOTES:
1. ALL REINFORCEMENT TO BE EXPOXY COATED.
2. ALL DIMENSIONS ARE FROM OUT TO OUT.
3. ALL BENDS SHALL BE IN ACCORDANCE WITH THE MANUAL OF STANDARD PARACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES (ACI 315) FOR GRADE 60 REINFORCING.
4. F502E BARS MAY BE SPLICED WITH A MINIMUM SPLICE LENGTH OF 2'-4", STAGGERED.
5. SINGLE BAR MAY SUBSTITUTE SPLICED BARS.





TYPICAL SECTION

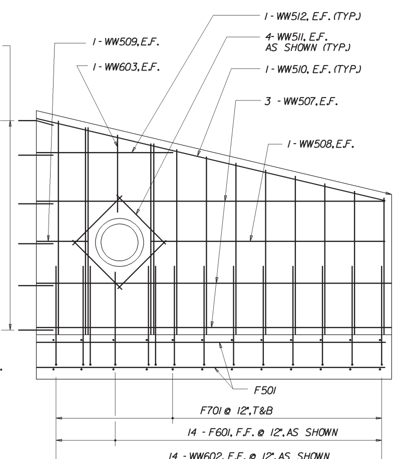
SCALE: 1/2"= 1'-0"



HEADWALL REBAR DETAIL

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

NOTE:
DOUBLE VERTICAL REINFORCEMENT ON EACH SIDE OF PIPE OPENINGS, AS SHOWN.



TYPICAL WINGWALL REBAR DETAIL (2 EA.)

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

NOTES:

1. BAR REINFORCEMENT SHALL CONFORM TO AASHTO M31 (ASTM A615) - GRADE 60 KSI. ALL BAR REINFORCEMENT IN FOOTINGS TO HAVE 3 INCHES MINIMUM COVER. ALL BAR REINFORCEMENT IN HEADWALLS AND WINGWALLS TO HAVE 2 INCHES MINIMUM COVER. ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963) AND SHALL BE PAID FOR UNDER ITEM 604000 - BAR REINFORCEMENT, EPOXY COATED.
2. THE CONTRACTOR MAY SUBSTITUTE CONTINUOUS REBAR AT ALL LAP LOCATIONS SHOWN.
3. ALL CONCRETE FOR HEADWALL AND WINGWALL FOUNDATIONS SHALL CONFORM TO AND BE PAID UNDER ITEM 602004 - PCC MASONRY, ABUTMENT FOOTING, CLASS B.
4. ALL CONCRETE FOR HEADWALLS AND WINGWALLS SHALL CONFORM TO AND BE PAID UNDER ITEM 602015 - PCC MASONRY, ABUTMENT ABOVE FOOTING, CLASS A.
5. GEOTEXTILE SHALL BE PAID FOR UNDER ITEM NUMBER 713002 - GEOTEXTILE, SEPARATION.
6. REFER TO CONSTRUCTION PLAN SHEETS FOR ALL PIPE SIZES, TYPES AND INVERTS.
7. ALL STONE BASE COURSE SHALL CONFORM TO AND BE PAID FOR UNDER ITEM 302012 - DELAWARE *57 STONE.
8. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4 INCHES UNLESS NOTED OTHERWISE.
9. PROVIDE A MINIMUM OF 1'-0" COVER OVER MAIN CULVERT CROSS PIPES, UNLESS NOTED OTHERWISE.
10. HEADWALL SHALL BE CAST-IN-PLACE.
11. ALL HEADWALLS ARE PARALLEL WITH THE ROAD ALIGNMENT.
12. ALL EXCAVATION FOR STRUCTURES SHALL BE INCIDENTAL TO ITEM 602004 - PCC MASONRY ABUTMENT FOOTING, CLASS B.

CHKD.
DESIGN
PREL. TRACING

7/17/2013
J:\PROJECTS\sr26mainline\Survey\headwall details.dgn

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200481210	SUSSEX	SEE TITLE SHEET	172	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

BRIDGE NOTES

1. LOCATION AND DESCRIPTION
BRIDGES 3-427 AND 3-428 ARE LOCATED IN SUSSEX COUNTY, DELAWARE. BRIDGE 3-427 IS LOCATED IN MILLVILLE AND CARRIES SR26 OVER WHITE CREEK. BRIDGE 3-428 IS LOCATED IN OCEAN VIEW AND CARRIES SR26 OVER WHITE CREEK DITCH. BOTH BRIDGES ARE CURRENTLY REINFORCED CONCRETE BOX CULVERTS AND ARE TO BE REPLACED WITH NEW REINFORCED CONCRETE BOX CULVERTS.

2. EXISTING BRIDGE PLANS AND DETAILS
EXISTING PLANS FOR BOTH BRIDGES ARE AVAILABLE FROM DELDOT. BOTH STRUCTURES WERE ORIGINALLY CONSTRUCTED AS PART OF CONTRACT NUMBER CS27. BRIDGE 3-428 WAS EXTENDED TWICE, ONCE AS PART OF CONTRACT NUMBER 322 AND AGAIN AS PART OF CONTRACT NUMBER 1959.

3. DESIGN CRITERIA
BOTH BRIDGES ARE TO BE DESIGNED TO MEET THE STANDARDS SET FORTH BY THE 2004 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THIRD EDITION, WITH INTERIM SPECIFICATIONS THROUGH 2006. THE AASHTO HL-93 SHALL BE USED FOR LIVE LOAD. 25 PSF SHALL BE USED FOR ADDITIONAL WEARING SURFACE LOAD.

4. HYDRAULIC DATA

BRIDGE 3-427:

DRAINAGE AREA	0.95 SQ MI	DESIGN VELOCITY	7.32 FPS
DESIGN FREQUENCY	50 YEARS	HIGH WATER ELEVATION	5.03 FT
DESIGN DISCHARGE	193.60 CFS	PROPOSED OPENING	26 SQ FT
SCOUR EVENT DESIGN VELOCITY	10.39 FPS		
SCOUR EVENT WATER DEPTH	8.92 FT		

BRIDGE 3-428:

DRAINAGE AREA	0.65 SQ MI	DESIGN VELOCITY	5.26 FPS
DESIGN FREQUENCY	50 YEARS	HIGH WATER ELEVATION	2.03 FT
DESIGN DISCHARGE	159.79 CFS	PROPOSED OPENING	30.4 SQ FT
SCOUR EVENT DESIGN VELOCITY	11.34 FPS		
SCOUR EVENT WATER DEPTH	6.45 FT		

THE PROPOSED STRUCTURES HAVE BEEN ANALYZED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH HEC-18 - 'EVALUATING SCOUR AT BRIDGES' AND HEC-23 - 'BRIDGE SCOUR AND STREAM INSTABILITY COUNTERMEASURES'. SCOUR COUNTERMEASURES ARE DESIGNED FOR THE WORST CASE OF THE 500-YEAR STORM EVENT.

5. GEOTECHNICAL
FOUNDATION DESIGN AND QUANTITIES ARE BASED ON A STUDY OF THE SUB-SOIL BORINGS MADE AT THE SITE. THIS BORING INFORMATION, THE ACCURACY OF WHICH THE STATE DOES NOT GUARANTEE, IS PRESENTED ON THESE PLANS TO THE CONTRACTOR FOR HIS OR HER INFORMATION ONLY. THE CONTRACTOR MUST MAKE HIS OR HER OWN DETERMINATION OF THE SUB-SOIL CONDITIONS, WHICH MAY AFFECT THE METHOD AND/OR COST OF CONSTRUCTION.

6. BAR REINFORCEMENT
REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2", UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL REINFORCING STEEL SHALL BE PROTECTED WITH FUSION-BONDED EPOXY. EPOXY COATING SHALL CONFORM TO AASHTO M284 (ASTM D3963).

7. PORTLAND CEMENT CONCRETE
STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE FOR BOTH BRIDGES SHALL BE AS NOTED: (F'c = 28-DAY COMPRESSIVE STRENGTH)
CLASS A - CAST IN PLACE PARAPETS (F'c = 4500 PSI)
CLASS A - CAST IN PLACE STRUCTURE (F'c = 4500 PSI)
CLASS B - CAST IN PLACE SUBSTRUCTURE (F'c = 3000 PSI)
PRECAST CONCRETE - BOX CULVERT SECTIONS, WINGWALL SECTIONS (F'c = 5000 PSI)
MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELDOT STANDARD SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾" UNLESS OTHERWISE NOTED.

8. REMOVAL OF STRUCTURES
BRIDGE 3-427: THE EXISTING STRUCTURE SHALL BE REMOVED IN ITS ENTIRETY. PAYMENT UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE BOX CULVERT, WINGWALLS, PARAPETS, AND ANY OTHER ADDITIONAL STRUCTURAL ELEMENTS AS DIRECTED BY THE ENGINEER IN THE FIELD.
BRIDGE 3-428: THE EXISTING STRUCTURE SHALL BE REMOVED IN ITS ENTIRETY. PAYMENT UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE BOX CULVERT, WINGWALLS, PARAPETS, ADJACENT RETAINING WALL ON NORTH SIDE, AND ANY ADDITIONAL STRUCTURAL ELEMENTS AS DIRECTED BY THE ENGINEER IN THE FIELD. THE EXISTING CATCH BASINS AND DRAINAGE PIPES SHALL ALSO BE REMOVED. WITH ALL COSTS INCIDENTAL TO ITEM 211000.

9. STABILIZING STRUCTURAL EXCAVATIONS
SHORING SHALL BE REQUIRED FOR ANY EXCAVATION EXCEEDING 5'-0" IN DEPTH. THE COST OF SHORING SHALL BE PAID FOR UNDER ITEM 207501 - SHEETING AND SHORING.

10. CONSTRUCTION JOINTS
KEYED CONSTRUCTION JOINTS SHALL BE 2" x 4" (NOMINAL) OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A ¾" V-NOTCH.

11. GEOTEXTILES
ALL GEOTEXTILES SHALL BE KEYED UNDER ADJACENT SOIL OR RIPRAP A MINIMUM OF 6" IN LENGTH TO PREVENT FREE EDGES. GEOTEXTILE SHALL BE PAID FOR UNDER ITEM 713002 - GEOTEXTILE SEPARTION.

12. CONCRETE SEAL COATING
APPLICATION SHALL BE TO ALL EXPOSED CONCRETE SURFACES AND CANNOT OCCUR UNTIL 28 DAYS AFTER PLACEMENT OF CONCRETE. THE COLOR SHALL BE FEDERAL COLOR *37925 - WHITE (LUSTERLESS). PAYMENT SHALL BE ITEM 602646 - SILICONE ACRYLIC CONCRETE SEALER.

13. ALUMINUM HANDRAIL SHALL BE PAID FOR UNDER ITEM 606002 - METAL BRIDGE RAILING, ALUMINUM.

14. CONCRETE BRIDGE PARAPET SHALL CONFORM TO AND BE PAID FOR UNDER ITEM 602017 - PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A.

15. STREAM RESTORATION AND RIPRAP TREATMENTS
A. THE CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS OF ITEM *712531 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFF-SITE MATERIAL. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ITEM *712531 - CHANNEL BED FILL. ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) SHALL BE RECESSED ONE FOOT BELOW STREAM BED ELEVATION AND CHOKED WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH MATERIAL. PAYMENT UNDER ITEM *209002 - BORROW TYPE 'B'. THE RIPRAP SHALL THEN BE COVERED WITH A MINIMUM OF 12" CHANNEL BED FILL. FINAL CHANNEL ELEVATIONS SHALL MATCH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS. THROUGH THE STRUCTURE, ELEVATIONS SHALL BE AS NOTED ON THE PLANS. PAYMENT UNDER ITEM *712531 - CHANNEL BED FILL.

B. OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) SHALL BE RESTORED TO EXISTING CONDITIONS. ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE FILLED WITH CHANNEL BED FILL. PAYMENT UNDER ITEM *712531 - CHANNEL BED FILL.

C. WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES ARE REMOVED AND THE STREAM RETURNS TO ITS NATURAL FLOW CONDITIONS, THE FLOW MUST REMAIN ABOVE GROUND AND ABOVE THE RIPRAP (I.E. THE FLOW CANNOT BE "LOST" IN THE RIPRAP OR BENEATH THE STRUCTURE). IF THIS IS NOT ACHIEVED, THE CONTRACTOR WILL BE REQUIRED TO TAKE CORRECTIVE ACTION AT THE CONTRACTOR'S EXPENSE.

D. ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, SHALL BE CHOKED WITH DELAWARE *57 STONE, FILLED WITH TOPSOIL, AND SEEDED. PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. AN ADDITIONAL 4-INCH TOPSOIL LAYER SHALL BE PLACED ON TOP OF THE RIPRAP. SLOPE SEEDING SHALL BE WITH ITEM *734531 - STREAMBANK SEED MIX. FOLLOWING THE SEEDING OPERATION, BLANKET MULCH SHALL BE INSTALLED. ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING SHALL BE COMPLETED PRIOR TO ANY RAIN EVENT. PAYMENT FOR RIPRAP AND DELAWARE *57 STONE SHALL BE PAID FOR UNDER THE RIPRAP ITEM. ALL OTHER ITEMS SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

16. SEEDING
SEEDING SHALL BE AS FOLLOWS:

FROM THE MEAN HIGH WATERLINE TO 1 FOOT ABOVE THE MEAN HIGH WATERLINE
ITEM 732002/733002 - 6" TOPSOIL/TOPSOILING
ITEM 734015 - PERMANENT GRASS SEEDING, WET GROUND

1 FOOT ABOVE THE MEAN HIGH WATERLINE
ITEM 732002/733002 - 6" TOPSOIL/TOPSOILING
ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND

17. THERE IS A POSSIBILITY OF ENCOUNTERING POOR SOILS IN THE VICINITY OF THE STRUCTURES. IF POOR SOILS ARE ENCOUNTERED, THE CONTRACTOR, AT THE DIRECTION OF THE ENGINEER, SHALL UNDERCUT UP TO A DEPTH OF 5', PLACE GEOTEXTILE, AND BACKFILL WITH DE NO.57 STONE. ALL COSTS SHALL BE PAID FOR UNDER THE RESPECTIVE BID ITEMS.

18. A MINIMUM CLEARANCE OF 10 L.F FOR PRIMARY ELECTRIC LINES AND 3 L.F. FOR SECONDARY ELECTRIC LINES MUST BE MAINTEINED BETWEEN THE CONTRACTOR EQUIPMENT. NO OUTAGES OR TEMPORARY RELOCATION OF OVERHEAD LINES WILL BE PERMITTED. ANY ADDITIONAL COST ASSOCIATED WITH CONSTRUCTION OF THE CULVERTS WITHIN THESE CONSTRAINTS SHALL BE INCIDENTAL TO THE CULVERT AND PAID FOR UNDER ITEM 602506 - PRECAST CONCRETE CULVERT.

19. THE CONTRACTOR MAY ELECT TO INSTALL STEEL SHEETING, STEEL TRENCH BOXES, A COMBINATION OF THESE, OR AN ALTERNATE METHOD OF EFFECTIVELY SUPPORTING ALL EXCAVATION AND STREAM DIVERSION REQUIRED FOR CONSTRUCTION OF THE CULVERTS AND TO DEWATER THE AREA. ALL APPLICABLE OSHA REGULATIONS MUST BE MET BY THE CONTRACTOR'S PROPOSED SHORING METHOD. PRIOR TO BEGINNING ANY EXCAVATION FOR THE CULVERTS OR WINGWALLS, THE CONTRACTOR SHALL HAVE SUBMITTED AND RECEIVED APPROVAL OF THEIR MEANS AND METHODS FOR SHORING, DEWATERING, AND INSTALLING THE CULVERTS AND WINGWALLS. SPECIFIC REFERENCE SHALL BE INCLUDED TO ADDRESS MAINTAINING THE REQUIRED OVERHEAD UTILITY CLEARANCES. WITHIN THE PAVED ROADWAY AND SHOULDER AREAS THE CONTRACTOR MUST EXCAVATE VERTICALLY AND WILL NOT BE PERMITTED TO "SLOPE BACK" THE EXCAVATION FARTHER INTO THE PAVEMENT. REGARDLESS OF THE CONTRACTOR'S CHOSEN METHODS FOR SHORING AND DEWATERING, PAYMENT FOR STRUCTURE EXCAVATION WILL BE AS DETAILED ON THE PLANS AND PAID UNDER ITEM 207000. COST FOR ALL SHEETING, SHORING AND DEWATERING SHALL BE PAID FOR UNDER ITEM 207501.

20. PRIOR TO EXCAVATING, THE CONTRACTOR SHALL SAWCUT FULL DEPTH THE EXISTING PAVED SURFACES OVER THE CULVERTS. PAYMENT SHALL BE INCLUDED IN ITEM 762001 - SAWCUTTING, HOTMIX AND ITEM 762002 - SAWCUTTING, CONCRETE, FULL DEPTH.

21. ALL MATERIALS, INCLUDING HOTMIX, CONCRETE, ETC, LOCATED WITHIN THE PAVEMENT REMOVAL LIMITS WILL BE INCLUDED IN THE MEASURED QUANTITY OF ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES. THE EXISTING CULVERT AND ASSOCIATED WINGWALLS AND HEADWALL SHALL BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS.

22. THE CONTRACTOR SHALL DESIGN AND SUBMIT FOR APPROVAL THE METHOD OF SHORING FOR THIS CONSTRUCTION. SUBMITTALS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE.

23. ALL COSTS ASSOCIATED WITH STREAM DIVERSION AND DEWATERING FOR THE CULVERTS, INCLUDING BUT NOT LIMITED TO DESIGN, INSTALLATION, REMOVAL, AND ALL MATERIALS AND LABOR, SHALL BE INCLUDED IN THE ITEM 207501 - SHEETING AND SHORING.

24. THE CONTRACTOR SHALL DESIGN AND SUBMIT FOR APPROVAL THE METHOD OF TEMPORARILY SUPPORTING ALL UNDERGROUND UTILITIES. ALL COSTS FOR TEMPORARY SUPPORT OF UTILITIES SHALL BE INCLUDED IN THE COSTS FOR ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES.

25. CULVERTS ARE CALLED OUT AS PRECAST CONCRETE. THE CONTRACTOR HAS THE OPTION TO CAST IN PLACE. IF THE CONTRACTOR ELECTS TO CAST IN PLACE, FORM WORK SHOP DRAWINGS AND COMPUTATIONS MUST BE SUBMITTED FOR REVIEW AND APPROVAL. CULVERTS SHALL BE PAID FOR UNDER ITEM 602506 - PRECAST CONCRTE CULVERT, REGARDLESS OF THE METHOD OF CONSTRUCTION SELECTED BY THE CONTRACTOR. COMPLETION WITHIN THE SPECIFIED TIME PERIOD (JANUARY 03 TO MARCH 31) IS CRITICAL. NO EXTENSION OF TIME WILL BE CONSIDERED UNLESS SNOW EXCEEDING 12 INCHES IN ONE STORM OR TEMPERATURES CONSISTENTLY BELOW 20 DEGREES FARENHEIT OCCUR AT THE SITE. CONCRETE PLACEMENT DURING COLD WEATHER SHOULD BE ANTICIPATED FOR ALL CAST-IN-PLACE ELEMENTS WITH COSTS INCIDENTAL TO ITEM 602506 - PRECAST CONCRETE CULVERT.

26. THE CONTRACTOR SHALL ENSURE THAT ALL PRECAST CONCRETE ELEMENTS, INCLUDING CULVERT AND WINGWALLS, ARE ON SITE BEFORE CLOSING THE ROAD TO TRAFFIC. NO ADDITIONAL TIME SHALL BE ALLOWED FOR THIS OPERATION.

INDEX OF BRIDGE SHEETS

BRIDGE QUANTITIES

			BR. 3-427	BR. 3-428
ITEM NO.	ITEM TITLE	UNIT	QUANTITY	QUANTITY
207000	EXCAVATION AND BACKFILL FOR STRUCTURES	CY	1,565	1,429
207501	SHEETING AND SHORING	LS	1	1
209002	BORROW, TYPE B	CY	1,215	1,083
302011	DELAWARE NUMBER 3 STONE	TON	18	13
602011	PCC MASONRY, SUBSTRUCTURE, CLASS A	CY	2.5	2.5
602017	PCC MASONRY, PARAPET, CLASS A	CY	10	11.5
602506	PRECAST CONCRETE CULVERT	LS	1	1
602646	SILICONE ACRYLIC CONCRETE SEALER	SF	1,044	1,089
604000	BAR REINFORCEMENT, EPOXY COATED	LB	1,029	1,062
606002	METAL BRIDGE RAILING, ALUMINUM	LF	50.5	54
302012	DELAWARE *57 STONE	TON	65	103
712531	CHANNEL BED FILL	CY	23	24
713002	GEOTEXTILE SEPARATION	SY	222	279
732002	TOPSOIL, 6" DEPTH	SY	300	297
734013	PERMANENT GRASS SEEDING, DRY GROUND	SY	300	297
734015	PERMANENT GRASS SEEDING, WET GROUND	SY	21	21.5
762001	SAW CUTTING, HOTMIX	LF	84	84
762002	SAW CUTTING, CONCRETE, FULL DEPTH	LF	84	84

PROPOSED LOAD RATINGS - BRIDGE 3-427

	INVENTORY RATING		OPERATING RATING	
TYPE OF TRUCK	RATING FACTOR	LOAD RATING (IN TONS)	RATING FACTOR	LOAD RATING (IN TONS)
AASHTO HS20-44 TOTAL VEHICLE WEIGHT: 36.0 TONS	1.50	54.07	2.50	90.13
S335 (DE 3-AXLE SINGLE UNIT) TOTAL VEHICLE WEIGHT: 35.0 TONS	1.30	45.50	2.17	75.85
S437 (DE 4-AXLE SINGLE UNIT) TOTAL VEHICLE WEIGHT: 37.0 TONS	1.69	61.54	2.81	102.58
T540 (DE 5-AXLE SEMI) TOTAL VEHICLE WEIGHT: 40.0 TONS	1.59	63.67	2.65	106.14

PROPOSED LOAD RATINGS - BRIDGE 3-428

	INVENTORY RATING		OPERATING RATING	
TYPE OF TRUCK	RATING FACTOR	LOAD RATING (IN TONS)	RATING FACTOR	LOAD RATING (IN TONS)
AASHTO HS20-44 TOTAL VEHICLE WEIGHT: 36.0 TONS	1.52	54.78	2.54	91.32
S335 (DE 3-AXLE SINGLE UNIT) TOTAL VEHICLE WEIGHT: 35.0 TONS	1.13	39.67	1.89	66.12
S437 (DE 4-AXLE SINGLE UNIT) TOTAL VEHICLE WEIGHT: 37.0 TONS	2.10	76.51	3.49	127.54
T540 (DE 5-AXLE SEMI) TOTAL VEHICLE WEIGHT: 40.0 TONS	1.46	58.28	2.43	97.16

PREL. TRACING — DESIGN — CHKD.

BR. 3-427	CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
	T200411210	SUSSEX	SEE TITLE SHEET	173	589

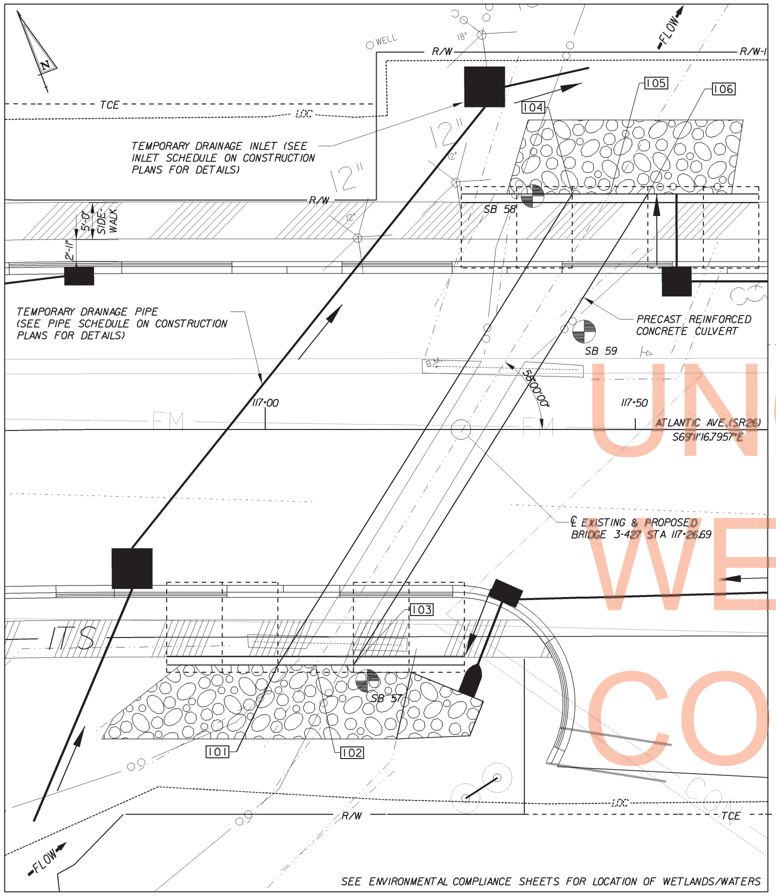
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

WORKING POINTS

POINT	STATION	OFFSET	NORTHING	EASTING
101	117+01.69	31.83	199627.01	742766.30
102	117+06.80	31.83	199625.20	742771.08
103	117+11.91	31.83	199623.38	742775.85
104	117+41.47	-31.83	199672.38	742826.10
105	117+46.58	-31.83	199670.57	742830.88
106	117+51.69	-31.83	199668.75	742835.65

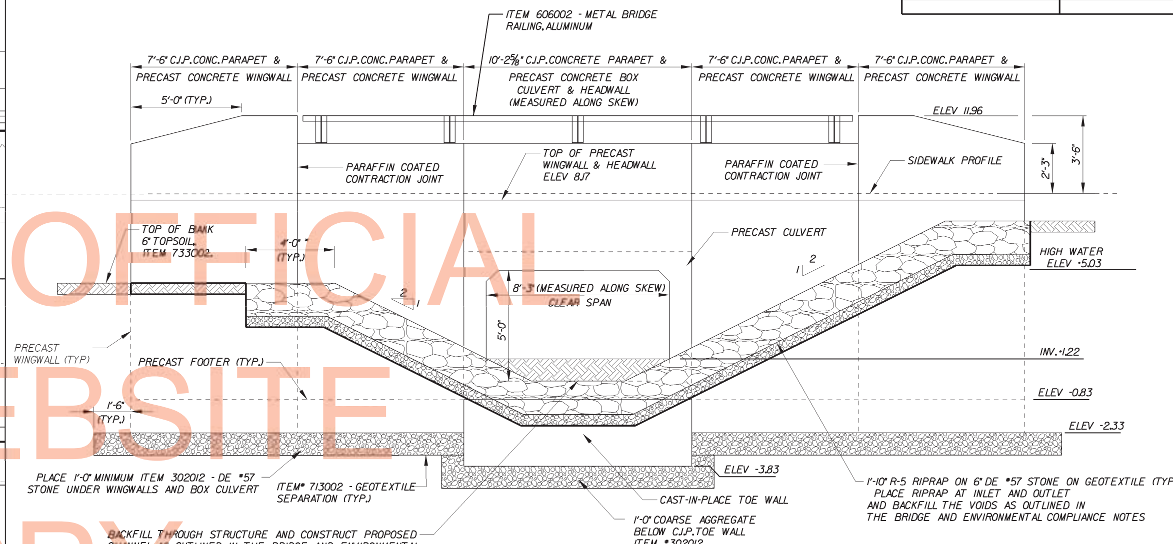
NOTE:
PARAPET SECTIONS SHALL BE POURED IN ALTERNATING SECTIONS. PARAPETS SHALL NOT BE POURED CONTINUOUSLY.


WELL
R/W
FLOW
TCE
LOC
TEMPORARY DRAINAGE INLET (SEE INLET SCHEDULE ON CONSTRUCTION PLANS FOR DETAILS)
12"
105
106
104
SB 58
5'-0" SIDEWALK
2'-11"
TEMPORARY DRAINAGE PIPE (SEE PIPE SCHEDULE ON CONSTRUCTION PLANS FOR DETAILS)
PRECAST REINFORCED CONCRETE CULVERT
SB 59
117+00
117+50
FM
ATLANTIC AVE.(SR26)
S63°11'16.7957"E
℄ EXISTING & PROPOSED BRIDGE 3-427 STA 117+26.69
ITS
103
SB 57
101
102
SEE ENVIRONMENTAL COMPLIANCE SHEETS FOR LOCATION OF WETLANDS/WATERS

PLAN

1/8" = 1'-0"

PAVEMENT LEGEND
(1) ITEM 401830 - WMA, SUPERPAVE TYPE C, 160 GYRATIONS PG 70-22 (NON CARBONATE STONE)
(2) ITEM 401813 - WMA, SUPERPAVE TYPE B, 160 GYRATIONS, PG 70-22
(3) ITEM 401813 - WMA, SUPERPAVE TYPE B, 160 GYRATIONS, PG 70-22 (SEE NOTE BELOW)
(4) ITEM 302005 - GRADED AGGREGATE BASE COURSE, TYPE B
(5) ITEM 760507 - PROFILE MILLING AS REQUIRED
(6) ITEM 701022 - IPCC CURB & GUTTER, TYPE 3-8
(7) ITEM 705001 - PCC SIDEWALK, 4"
(8) ITEM 732002 OR 733002 - TOPSOIL OR TOPSOILING, 6" DEPTH; ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
(9) ITEM 401824 - WMA, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22, WEDGE
(10) ITEM 209001 - BORROW, TYPE A
(11) ITEM 209006 - BORROW, TYPE F
(12) ITEM 705002 - PCC SIDEWALK 6"
(13) ITEM 401752 - SAFETY EDGE FOR ROADWAY PAVEMENT (SEE DETAIL)
(14) ITEM 713002 - GEOTEXTILE, SEPARATION

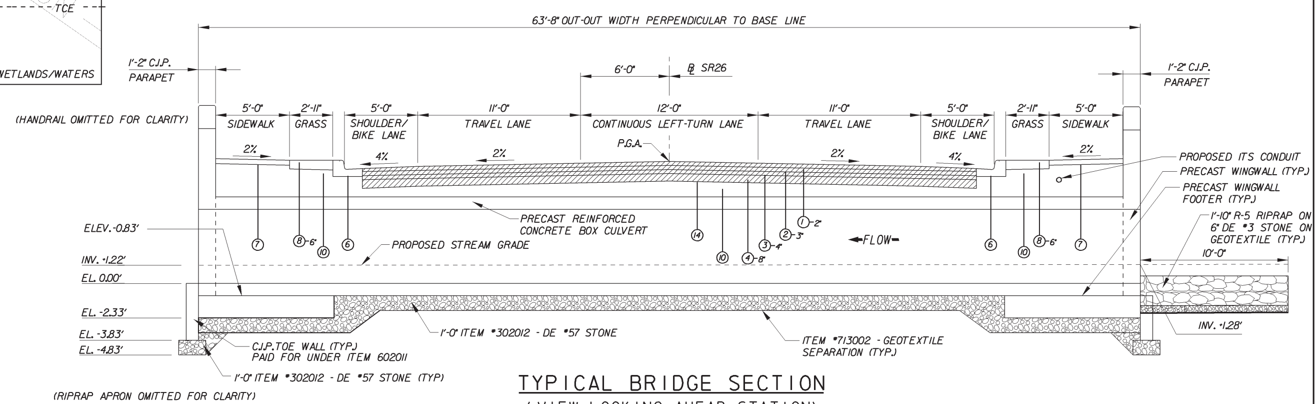

ITEM 606002 - METAL BRIDGE RAILING, ALUMINUM
7'-6" C.I.P. CONC. PARAPET & PRECAST CONCRETE WINGWALL
10'-2⅝" C.I.P. CONCRETE PARAPET & PRECAST CONCRETE BOX CULVERT & HEADWALL (MEASURED ALONG SKEW)
5'-0" (TYP.)
ELEV 11.96
PARAFFIN COATED CONTRACTION JOINT
TOP OF PRECAST WINGWALL & HEADWALL ELEV 8.17
SIDEWALK PROFILE
2'-3"
3'-6"
TOP OF BANK
6" TOPSOIL, ITEM 733002
4'-0" (TYP.)
PRECAST CULVERT
HIGH WATER ELEV +5.03
8'-3" (MEASURED ALONG SKEW) CLEAR SPAN
5'-0"
PRECAST WINGWALL (TYP.)
PRECAST FOOTER (TYP.)
INV. +1.22
ELEV -0.83
1'-6" (TYP.)
ELEV -2.33
ELEV -3.83
PLACE 1'-0" MINIMUM ITEM 302012 - DE #57 STONE UNDER WINGWALLS AND BOX CULVERT
ITEM# 713002 - GEOTEXTILE SEPARATION (TYP.)
CAST-IN-PLACE TOE WALL
1'-10" R-5 RIPRAP ON 6" DE #57 STONE ON GEOTEXTILE (TYP.) PLACE RIPRAP AT INLET AND OUTLET AND BACKFILL THE VOIDS AS OUTLINED IN THE BRIDGE AND ENVIRONMENTAL COMPLIANCE NOTES
1'-0" COARSE AGGREGATE BELOW C.I.P. TOE WALL ITEM #302012
BACKFILL THROUGH STRUCTURE AND CONSTRUCT PROPOSED CHANNEL AS OUTLINED IN THE BRIDGE AND ENVIRONMENTAL COMPLIANCE NOTES. PAYMENT TO BE INCLUDED IN ITEM #712531 - CHANNEL BED FILL.

ELEVATION

(VIEW LOOKING DOWNSTREAM)

3/8" = 1'-0"

NOTE:
STREAM, STREAM BED CHANNEL, STREAM BANK AND SLOPE SHOWN 2:1 AS MEASURED PERPENDICULAR TO STREAM. ALL OTHER DIMENSIONS AS MEASURED ALONG SKEW AT FACE OF STRUCTURE.


63'-8" OUT-OUT WIDTH PERPENDICULAR TO BASE LINE
1'-2" C.I.P. PARAPET
6'-0"
℄ SR26
(HANDRAIL OMITTED FOR CLARITY)
5'-0" SIDEWALK
2'-11" GRASS
5'-0" SHOULDER/ BIKE LANE
11'-0" TRAVEL LANE
12'-0" CONTINUOUS LEFT-TURN LANE
P.G.A.
2%
4%
PROPOSED ITS CONDUIT
PRECAST WINGWALL (TYP.)
PRECAST WINGWALL FOOTER (TYP.)
1'-10" R-5 RIPRAP ON 6" DE #3 STONE ON GEOTEXTILE (TYP.)
10'-0"
PRECAST REINFORCED CONCRETE BOX CULVERT
PROPOSED STREAM GRADE
FLOW
ELEV. -0.83'
INV. +1.22'
EL. 0.00'
EL. -2.33'
EL. -3.83'
EL. -4.83'
INV. +1.28'
C.I.P. TOE WALL (TYP.) PAID FOR UNDER ITEM 602011
1'-0" ITEM #302012 - DE #57 STONE
1'-0" ITEM #302012 - DE #57 STONE (TYP.)
ITEM #713002 - GEOTEXTILE SEPARATION (TYP.)
(RIPRAP APRON OMITTED FOR CLARITY)

TYPICAL BRIDGE SECTION

(VIEW LOOKING AHEAD STATION)

1/4" = 1'-0"

PREL. TRACING — DESIGN — CHKD.

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BRIDGE 3-427
PAY LIMIT DETAILS
BRIDGE SHEET 3 OF 14

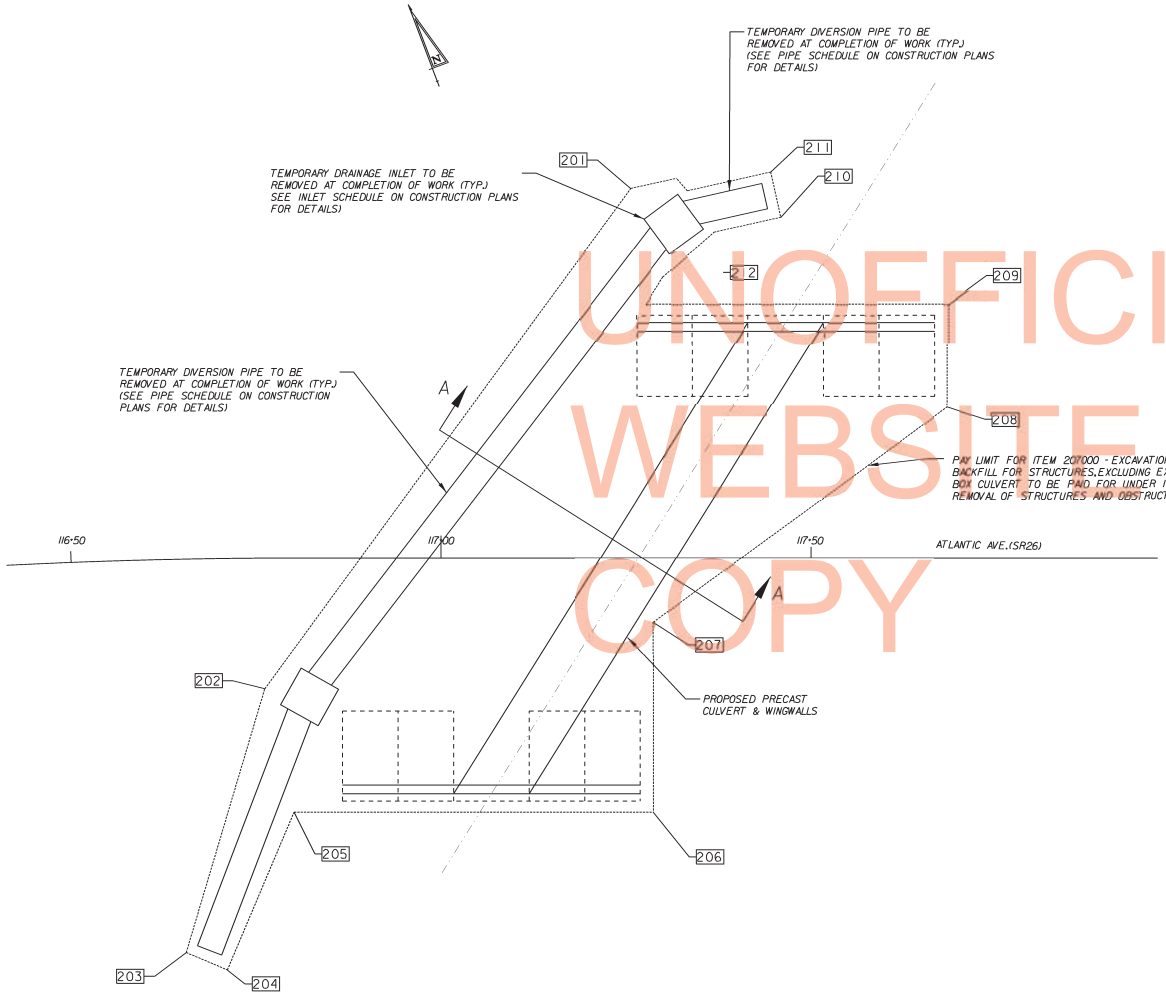
BR. 3-427

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	174	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

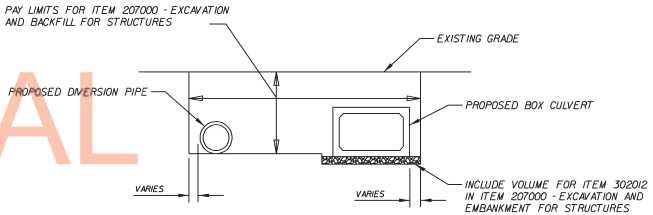
REVISIONS

NOTES:
1. SEE CONSTRUCTION SEQUENCE SHEET FOR PAVEMENT SAWCUTTING LIMITS.
2. NO SEPARATE PAYMENT SHALL BE MADE FOR ITEM 208000 - EXCAVATION AND BACKFILL FOR PIPE TRENCH, WITHIN THE PAY LIMITS SHOWN ON THIS SHEET.
3. STRUCTURAL BACKFILL SHALL CONFORM TO AND BE PAID FOR UNDER ITEM 209002 - BORROW, TYPE B. LIMITS OF TYPE B BORROW TO BE FROM TOP OF BOX CULVERT TO BOTTOM OF EXCAVATION.
4. BACKFILL FROM THE TOP OF THE BOX CULVERT TO THE PAVEMENT BOX SHALL CONFORM TO AND BE PAID FOR UNDER ITEM 209001 - BORROW, TYPE A. REFER TO TYPICAL PAVEMENT SECTIONS.



PLAN

1/8" = 1'-0"



SECTION A-A
PAY LIMITS FOR EXCAVATION
NONE

PAY LIMITS SHALL NOT INCLUDE THE VOLUME OF THE EXISTING BOX CULVERT TO BE REMOVED. REMOVAL OF EXISTING BOX CULVERT TO BE PAID FOR UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS. EXISTING BOX CULVERT NOT SHOWN FOR CLARITY.

WORKING POINTS

POINT	STATION	OFFSET	NORTHING	EASTING
201	117+25.62	-49.92	199694.94	742817.72
202	116+76.19	17.65	199649.33	742747.50
203	116+65.57	53.28	199619.80	742724.91
204	116+71.13	55.63	199615.62	742729.28
205	116+80.15	34.33	199632.33	742745.27
206	117+28.68	34.33	199615.08	742790.65
207	117+28.68	8.66	199639.08	742799.77
208	117+68.37	-20.32	199652.07	742847.17
209	117+68.37	-34.32	199665.16	742852.14
210	117+45.96	-46.03	199684.08	742835.30
211	117+44.54	-52.12	199609.27	742836.19
212	117+27.65	-34.32	199679.63	742814.08

PREL. TRACING ____ DESIGN ____ CHKD. ____

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BRIDGE 3-427
CULVERT AND WINGWALL DETAILS
BRIDGE SHEET 4 OF 14

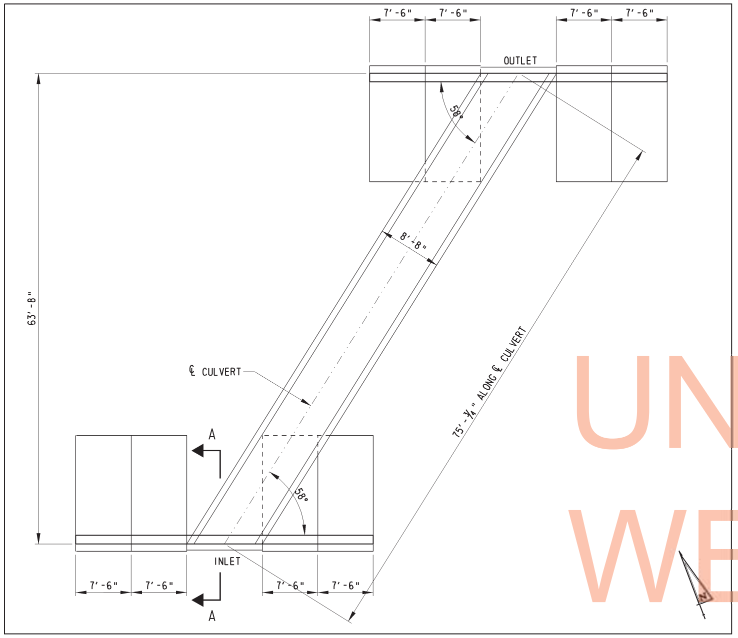
BR. 3-427

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	175	589

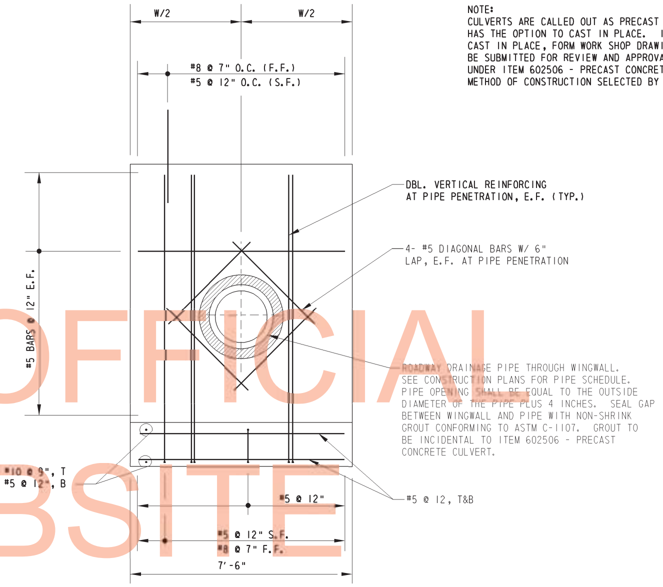
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

NOTE:
CULVERTS ARE CALLED OUT AS PRECAST CONCRETE. THE CONTRACTOR HAS THE OPTION TO CAST IN PLACE. IF THE CONTRACTOR ELECTS TO CAST IN PLACE, FORM WORK SHOP DRAWINGS AND COMPUTATIONS MUST BE SUBMITTED FOR REVIEW AND APPROVAL. CULVERTS SHALL BE PAID FOR UNDER ITEM 602506 - PRECAST CONCRETE CULVERT, REGARDLESS OF THE METHOD OF CONSTRUCTION SELECTED BY THE CONTRACTOR.

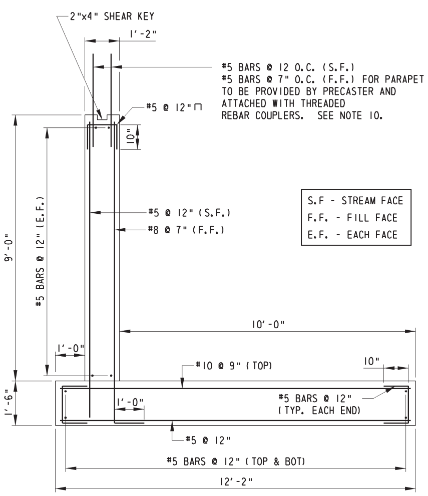


CULVERT PLAN
1/4" = 1'-0"



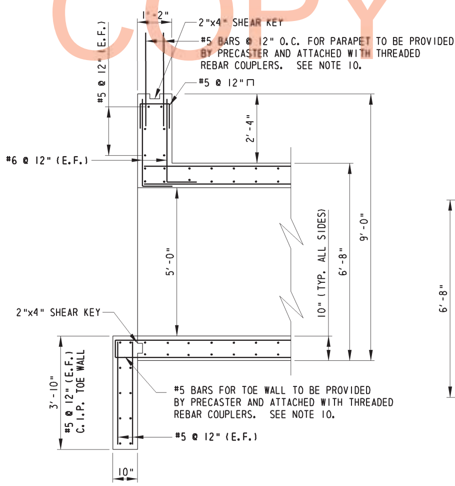
W/2
#8 @ 7" O.C. (F.F.)
#5 @ 12" O.C. (S.F.)
DBL. VERTICAL REINFORCING AT PIPE PENETRATION, E.F. (TYP.)
4- #5 DIAGONAL BARS W/ 6" LAP, E.F. AT PIPE PENETRATION
#5 BARS @ 12" E.F.
ROADWAY DRAINAGE PIPE THROUGH WINGWALL. SEE CONSTRUCTION PLANS FOR PIPE SCHEDULE. PIPE OPENING SHALL BE EQUAL TO THE OUTSIDE DIAMETER OF THE PIPE PLUS 4 INCHES. SEAL GAP BETWEEN WINGWALL AND PIPE WITH NON-SHRINK GROUT CONFORMING TO ASTM C-1107. GROUT TO BE INCIDENTAL TO ITEM 602506 - PRECAST CONCRETE CULVERT.
#10 @ 9", T
#5 @ 12", B
#5 @ 12"
#5 @ 12, T&B
#5 @ 12" S.F.
#8 @ 7" F.F.
7'-6"

TYPICAL WINGWALL ELEVATION
1/2" = 1'-0"



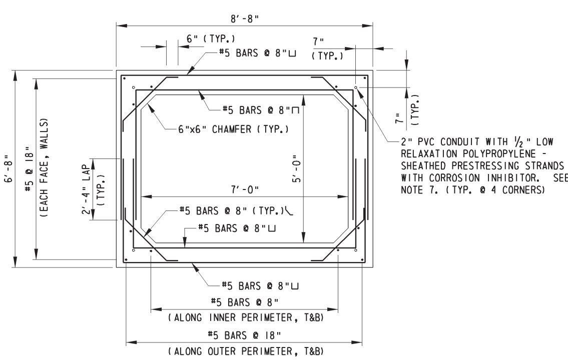
2"x4" SHEAR KEY
1'-2"
#5 BARS @ 12 O.C. (S.F.)
#5 BARS @ 7" O.C. (F.F.) FOR PARAPET TO BE PROVIDED BY PRECASTER AND ATTACHED WITH THREADED REBAR COUPLERS. SEE NOTE 10.
#5 @ 12"
S.F - STREAM FACE
F.F. - FILL FACE
E.F. - EACH FACE
#5 @ 12" (S.F.)
#8 @ 7" (F.F.)
9'-0"
#5 BARS @ 12" (E.F.)
10'-0"
1'-0"
#10 @ 9" (TOP)
10"
1'-6"
1'-0"
#5 BARS @ 12" (TYP. EACH END)
#5 @ 12"
#5 BARS @ 12" (TOP & BOT)
12'-2"

TYPICAL WINGWALL SECTION
1/2" = 1'-0"



1'-2"
2"x4" SHEAR KEY
#5 BARS @ 12" O.C. FOR PARAPET TO BE PROVIDED BY PRECASTER AND ATTACHED WITH THREADED REBAR COUPLERS. SEE NOTE 10.
#5 @ 12"
#5 @ 12" (E.F.)
2'-4"
#6 @ 12" (E.F.)
5'-0"
10" (TYP. ALL SIDES)
6'-8"
9'-0"
2"x4" SHEAR KEY
3'-10"
#5 @ 12" (E.F.) C.I.P. TOE WALL
#5 BARS FOR TOE WALL TO BE PROVIDED BY PRECASTER AND ATTACHED WITH THREADED REBAR COUPLERS. SEE NOTE 10.
#5 @ 12" (E.F.)
10"

SECTION A-A: HEADWALL DETAIL
1/2" = 1'-0"



8'-8"
6" (TYP.)
#5 BARS @ 8"
7" (TYP.)
#5 BARS @ 8"
6"x6" CHAMFER (TYP.)
7" (TYP.)
2" PVC CONDUIT WITH 1/2" LOW RELAXATION POLYPROPYLENE - SHEATHED PRESTRESSING STRANDS WITH CORROSION INHIBITOR. SEE NOTE 7. (TYP. @ 4 CORNERS)
6'-8"
#5 @ 18" (EACH FACE, WALLS)
2'-4" LAP (TYP.)
7'-0"
5'-0"
#5 BARS @ 8" (TYP.)
#5 BARS @ 8"
#5 BARS @ 8"
#5 BARS @ 8" (ALONG INNER PERIMETER, T&B)
#5 BARS @ 18" (ALONG OUTER PERIMETER, T&B)

TYPICAL CULVERT SECTION
1/2" = 1'-0"

NOTES FOR PRECAST ELEMENTS

1. DESIGN PLANS/WORKING DRAWINGS
INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE BOX CULVERT AND WINGWALL SECTIONS IS INTENDED TO SERVE AS AN INDICATION OF THE TYPE OF CONSTRUCTION ACCEPTABLE FOR USE. THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT FOR APPROVAL A COMPLETE SET OF DETAILED SHOP PLANS FOR THE PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH.

2. PRECAST ELEMENTS
ALL PRECAST ELEMENTS (BOX CULVERT, WINGWALLS, ETC.) AND ASSOCIATED BAR REINFORCEMENT WILL BE PAID UNDER ITEM 602506 - PRECAST CONCRETE CULVERT.

3. CONCRETE STRENGTHS
THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS EQUALS 5.0 ksi. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

4. BAR REINFORCEMENT
MATERIALS REQUIREMENT: AASHTO M31 (ASTM A615) - GRADE 60 (ksi). ALL BAR REINFORCEMENT TO HAVE 2" MINIMUM COVER EXCEPT AS NOTED OR DETAILED. ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963). BAR SIZES ARE GIVEN IN STANDARD ENGLISH FORM.

5. CONCRETE FINISH
ALL EXPOSED CONCRETE SURFACES SHALL BE PROTECTED WITH A SILICONE ACRYLIC CONCRETE SEALER, COLOR TO BE WHITE. SEALER TO CONFORM TO AND BE PAID FOR UNER ITEM 602646 - SILICONE ACRYLIC CONCRETE SEALER.

6. INSTALLATION
DURING PLACEMENT OF PRECAST ELEMENTS, USAGE OF A HEAVY LIFTING MACHINE WILL BE REQUIRED. TO PROTECT THE SUBGRADE MATERIAL DURING THIS OPERATION, TIMBER MATS OR AN APPROVED METHOD OF PROTECTION SHALL BE PLACED UNDER THE MACHINE. ANY DISTURBANCE TO THE SUBGRADE RESULTING FROM THE INSTALLATION OF THE PRECAST ELEMENTS SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

7. CULVERT POST TENSIONING
THE PRECAST BOX SECTIONS SHALL BE POST TENSIONED TOGETHER WITH A MINIMUM OF FOUR 1/2" DIA., 270 ksi LOW RELAXATION POLYSTRANDS. EACH POLYSTRAND SHALL BE POST TENSIONED TO 30 kips. MINIMUM ULTIMATE STRENGTH ON EACH STRAND EQUALS 40 kips. PAYMENT FOR CULVERT POST TENSIONING IS INCIDENTAL TO ITEM 602506 - PRECAST CONCRETE CULVERT. POST TENSIONING DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS FOR THE CULVERT. POST TENSIONING DETAILS SHALL INCLUDE METHODS FOR CONNECTING NORTH HALF AND SOUTH HALF OF CONSTRUCTION. POST-TENSION BOX CULVERT AND WINGWALLS PRIOR TO BACKFILLING.

8. WINGWALL POST TENSIONING
THE PRECAST WINGWALL SECTIONS SHALL BE POST TENSIONED TOGETHER AND POSITIVELY CONNECTED TO THE BOX CULVERT WITH A MINIMUM OF TWO 1/2" DIA. 270 ksi LOW RELAXATION POLYSTRANDS. EACH POLYSTRAND SHALL BE POST TENSIONED TO 30 kips. MINIMUM ULTIMATE STRENGTH FOR EACH STRAND EQUALS 40 kips. PAYMENT FOR WINGWALL POST-TENSIONING IS INCIDENTAL TO ITEM 602506 - PRECAST CONCRETE CULVERT. POST TENSIONING DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS FOR THE WINGWALLS.

9. JOINTS BETWEEN PRECAST SECTIONS
NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. ALL JOINTS BETWEEN PRECAST BOX SECTIONS SHALL BE TONGUE AND GROOVE. ALL WINGWALL TO WINGWALL AND WINGWALL TO BOX CULVERT JOINTS SHALL HAVE A SHEAR KEY. THE LOCATIONS OF THE JOINTS IN THE BOX CULVERT SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL. ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9" WIDE WRAP CENTERED ON THE JOINT AS PER THE SPECIAL PROVISION FOR ITEM 602506 - PRECAST CONCRETE CULVERT.

10. THREADED REBAR COUPLERS FOR PARAPET AND TOE WALL TO BE CAST FLUSH WITH PRECAST HEADWALL END SECTION AND SHALL BE DAYTON SUPERIOR MODEL D-101-A "STRAIGHT", DYWIDAG-SYSTEMS DOWEL BAR SPLICE OR APPROVED EQUAL WITH EMBEDMENT LENGTH SUFFICIENT TO SATISFY MINIMUM SPLICE DEVELOPMENT LENGTH. SEE PARAPET DETAILS.

PREL. TRACING — DESIGN — CHKD.

NOTE:
PARAPETS ARE TO BE CAST IN PLACE ONLY,
NO PRECAST SUBSTITUTION WILL BE ENTERTAINED.

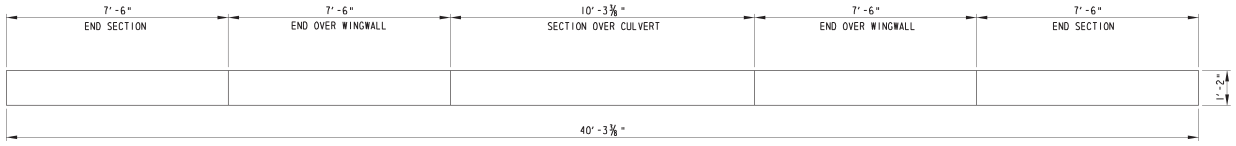
BRIDGE 3-427
PARAPET DETAILS
BRIDGE SHEET 5 OF 14

BR. 3-427

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	176	589

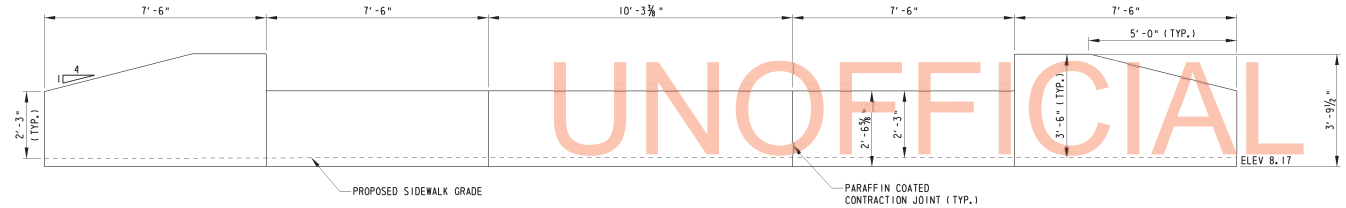
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

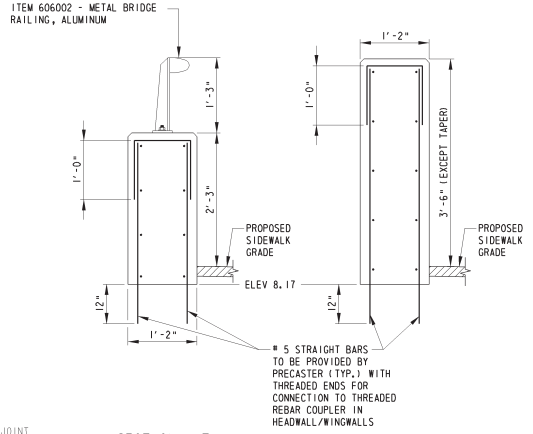


PLAN
½" = 1'-0"

NOTE:
HANDRAIL NOT SHOWN FOR CLARITY,
SEE ALUMINUM HANDRAIL DETAIL SHEET



PARAPET ELEVATION
½" = 1'-0"



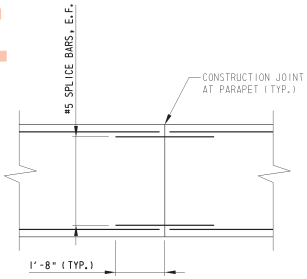
SECTION WITH HANDRAIL

END SECTION

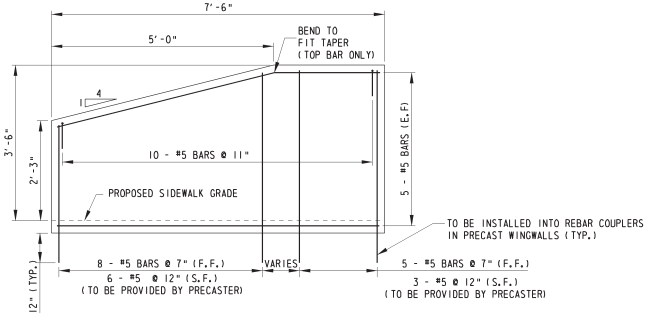
TYPICAL SECTIONS
1" = 1'-0"

NOTES:

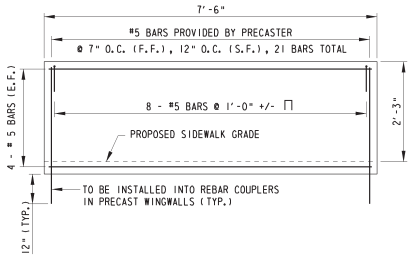
1. CHAMFERS ON FACE OF PARAPETS AT EACH JOINT ANT TOP SURFACES NOT SHOWN ON TYPICAL ELEVATIONS FOR CLARITY.
2. BARS LABELED 'PROVIDED BY PRECASTER' CORRESPOND TO THE PRECAST CULVERT AND WINGWALL DETAIL SHEET.
3. ALUMINUM HANDRAIL NOT SHOWN FOR CLARITY.
4. REBAR FOR CAST-IN-PLACE ELEMENTS NOT LABELED "PROVIDED BY THE PRECASTER" SHALL BE PAID FOR UNDER ITEM 604000 - BAR REINFORCEMENT, EPOXY COATED.
5. CONCRETE FOR PARAPETS SHALL BE PAID FOR UNDER ITEM 602017 - PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A.



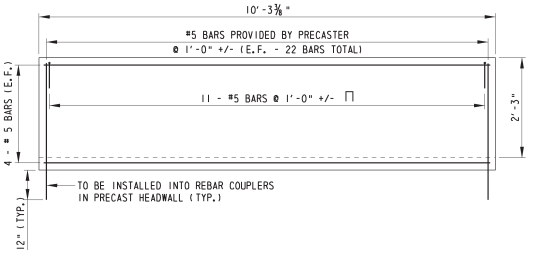
REINFORCEMENT SPLICE AT PARAPET
¾" = 1'-0"



TYPICAL END SECTION ELEVATION
¾" = 1'-0"



TYPICAL ELEVATION OVER WINGWALL
¾" = 1'-0"



TYPICAL ELEVATION OVER HEADWALL/CULVERT
¾" = 1'-0"

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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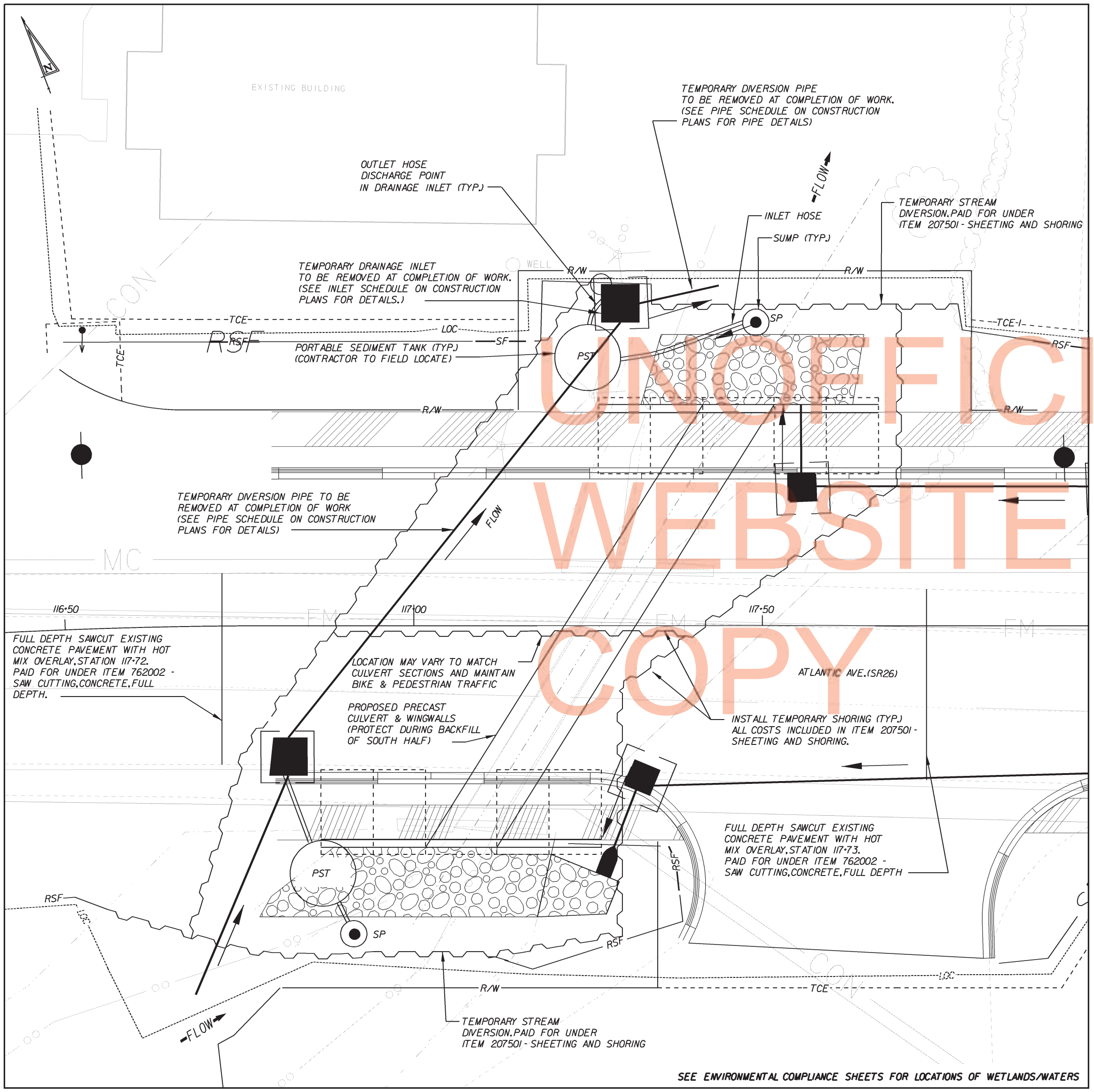
BRIDGE 3-427
CONSTRUCTION SEQUENCE
BRIDGE SHEET 6 OF 14

BR. 3-427	CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
	T200411210	SUSSEX	SEE TITLE SHEET	177	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN

1/8" = 1'-0"

NOTES:

1. THE SEQUENCE OF CONSTRUCTION SHOWN BELOW IS BASED ON THE CONCEPT OF MAINTAINING PEDESTRIAN TRAFFIC ON SR26 BY BUILDING THE PROPOSED CULVERT IN TWO SEPARATE SECTIONS. THE CONTRACTOR MAY PROPOSE OTHER MEANS OF MAINTAINING BIKE & PEDESTRIAN TRAFFIC, SUCH AS A PORTABLE TEMPORARY BRIDGE, PROVIDED THAT ADA STANDARDS ARE MET. THIS MAY ALLOW THE CULVERT TO BE PLACED IN ONE PHASE, END TO END. DETAILS FOR ALTERNATE MUST BE SUBMITTED AND APPROVED PRIOR TO BEGINNING WORKING ON THE CULVERT. ANY PLAN THAT INCREASES WATERS OF U.S. OR WETLANDS IMPACTS MUST BE SUBMITTED TO THE ENVIRONMENTAL STUDIES SECTION FOR REVIEW AND APPROVAL.
2. DEWATERING SHALL BE INCIDENTAL TO ITEM 207501 - SHEETING AND SHORING. THE CONTRACTOR HAS THE OPTION TO SUBMIT FOR REVIEW AND APPROVAL AN ALTERNATE METHOD OF DEWATERING.
3. THIS PLAN SHOWS SHEET PILES AS A METHOD OF PROVIDING TEMPORARY SHORING AND STREAM DIVERSION. THE CONTRACTOR HAS THE OPTION TO SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF TEMPORARY SHORING.
4. THIS PLAN SHOWS A PORTABLE SEDIMENT TANK AND SUMP PIT AS A METHOD OF DEWATERING. THE CONTRACTOR HAS THE OPTION TO SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF DEWATERING IN ACCORDANCE WITH THE DELAWARE SEDIMENT AND STORMWATER LAWS.
5. NO ADDITIONAL COSTS OR EXTENSION OF TIME WILL BE CONSIDERED FOR ALTERNATES PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

SEQUENCE OF CONSTRUCTION

(SEQUENCE OF CONSTRUCTION IS NOT ALL INCLUSIVE.)

1. CLOSE ROAD IN AREA OF WORK FOLLOWING METHODS SHOWN IN MAINTENANCE OF TRAFFIC PLANS.
2. INSTALL SILT FENCE EXCEPT CONNECTIONS TO TEMPORARY SHORING. AFTER TEMPORARY SHORING PILES ARE CONSTRUCTED, CONNNECT ENDS OF SILT FENCE TO TEMPORARY SHORING TO COMPLETELY ENCLOSE THE WORK AREA
3. SAWCUT EXISTING ROADWAY AND PAVED SHOULDERS. REMOVE EXISTING PAVEMENT IN AREA OF EXCAVATION FOR DIVERSION PIPE AND PROPOSED BOX CULVERT.
4. INSTALL MIDDLE ROW OF TEMPORARY SHORING FOR INSTALLATION OF SOUTH SECTION OF TEMPORARY DIVERSION PIPE. CONTRACTOR SHALL PROVIDE PROPER BLOCKOUT FOR INSERTION OF TEMPORARY DIVERSION PIPE AND SEAL AROUND TEMPORARY DIVERSION PIPE TO PREVENT LEAKAGE OF SOIL AND/OR WATER. MAINTAIN PEDESTRIAN ACCESS ALONG NORTH SIDE OF ROAD DURING THIS OPERATION AS SHOWN IN PEDESTRIAN MAINTENANCE OF TRAFFIC PLAN.
5. STABILIZE THE PROPOSED DISCHARGE AREA OF THE TEMPORARY DIVERSION PIPE AND OUTLET HOSE WITH R5 RIPRAP (ITEM 712006) UNDERLAIN WITH GEOTEXTILE (ITEM 713003). PLACE TOP OF RIPRAP LEVEL WITH THE EXISTING STREAM BOTTOM. DIMENSIONS OF THE RIPRAP-LINED AREA ARE: WIDTH = 6 FEET, LENGTH = 11 FT.
6. INSTALL SOUTH SECTION OF TEMPORARY DIVERSION PIPE AT LOCATION SHOWN. PLACE THE UPSTREAM END OF THE PIPE TO MATCH EXISTING STREAM BOTTOM USING PIPE WITH WATER-TIGHT JOINTS. SECURE THE PIPE TO ELIMINATE MOVEMENT DURING USE TO PREVENT LEAKAGE INTO THE WORK AREA.
7. BACKFILL SOUTH SECTION OF TEMPORARY DIVERSION PIPE AND STABILIZE AREA. INSTALL PEDESTRIAN ACCESS ON SOUTH SIDE IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLAN.
8. INSTALL NORTH SECTION OF TEMPORARY DIVERSION PIPE, BACKFILL AND STABILIZE AREA. PAYMENT FOR EXCAVATION AND BACKFILLING DIVERSION PIPE IS INCIDENTAL TO ITEM 207000.
9. CONSTRUCT THE TEMPORARY SHORING ON NORTH AND SOUTH SIDE OF STRUCTURE TO A MINIMUM HEIGHT OF 5.5 FEET ABOVE STREAM BED, OR TO TOP OF STREAM BANK, WHICHEVER IS LOWER. CONNECT SILT FENCE TO TEMPORARY SHORING TO COMPLETELY ENCLOSE THE WORK AREA. STREAMFLOW WILL NOW BE THROUGH DIVERSION PIPE. A SECTION OF AT LEAST 4 FEET OF SHEETING MUST BE FLUSH OR BELOW ROADWAY SURFACE IN EACH PHASE TO ALLOW PIKE & PEDESTRIAN TRAFFIC.
10. INSTALL DEWATERING METHODS IN ACCORDANCE WITH THE APPROVED PLAN. DEWATER THE WORK AREA IN ACCORDANCE WITH SECTION 110.13 OF DELDOT STANDARD SPECIFICATIONS. DISCHARGE CLEAN EFFLUENT FROM THE APPROVED SEDIMENT TRAPPING DEVICE INTO ADJACENT DRAINAGE INLET OR ON OTHER STABLE OUTLET AS APPROVED BY THE ENGINEER. THE COST FOR DEWATERING SHALL BE INCLUDED IN ITEM 207501 - SHEETING AND SHORING.
11. REMOVE THE NORTH SECTION OF THE EXISTING BOX CULVERT AND WINGWALLS AND INSTALL THE NORTH SECTION OF PRECAST BOX CULVERT AND PRECAST WINGWALLS AND POST TENSION SEGMENTS.
12. CONSTRUCT DRAINAGE INLETS AND PIPES ADJACENT TO THE HEADWALL. REFER TO PHASING SHEETS.
13. CONSTRUCT SLOPES AND PLACE RIPRAP ON THE NORTH END OF THE STRUCTURE.
14. BACKFILL NORTH SECTION OF PRECAST BOX CULVERT AND CONSTRUCT ASSOCIATED SIDEWALK.
15. RELOCATE PEDESTRAIN ACCESS TO NORTH SIDE OF CULVERT. INSTALL SUMP PIT AND PORTABLE SEDIMENT TANK AT SOUTH SIDE OF CULVERT.
16. REMOVE SOUTH SECTION OF EXISTING BOX CULVERT AND WINGWALLS AND INSTALL THE SOUTH SECTION OF PRECAST BOX CULVERT AND PRECAST WINGWALLS. POST TENSION SEGMENTS WITH POST TENSION CABLES ATTACHED TO SOUTH HALF OF BOX CULVERT.
17. CONSTRUCT DRAINAGE INLETS AND PIPES ADJACENT TO THE HEADWALL. REFER TO MAINTENANCE OF TRAFFIC PHASING SHEETS.
18. CONSTRUCT SLOPES AND PLACE RIPRAP ON THE SOUTH END OF THE STRUCTURE. BACKFILL SOUTH SECTION OF CULVERT.
19. REMOVE TEMPORARY SHORING AND ASSOCIATED SOIL RETAINAGE STRUCTURES. ALL COSTS SHALL BE INCLUDED IN ITEM 207501 - SHEETING AND SHORING.
20. REMOVE STREAM DIVERSION JUNCTION BOX AND DIVERSION PIPE IN REVERSE ORDER OF INSTALLATION, MAINTAINING PEDESTRIAN TRAFFIC AT ALL TIMES. REMOVAL COSTS SHALL BE INCLUDED IN THE COST OF ITEM 207501 - SHEETING AND SHORING.
21. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES WHEN APPROVED BY THE ENGINEER. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THESE PLANS AND AS DIRECTED BY THE ENGINEER.
22. CONSTRUCT REMAINING IMPROVEMENTS IN ACCORDANCE WITH THE PHASING PLANS.

PREL. TRACING — DESIGN — CHKD.

7/17/2013

BRIDGE 3-427
SOIL BORINGS
BRIDGE SHEET 7 OF 14

BR. 3-427

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	178	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

BORING NO. SB-57 | SURFACE ELEVATION: 3.56' | DATE: 5/9/2006
STATION: 116+65 | OFFSET: 45' RT. C.L. | WATER DEPTH: 4.00'

SAMPLE NO.	SAMPLE DEPTH-FEET FROM	SAMPLE DEPTH-FEET TO	DEPTH STRATA FEET FROM	DEPTH STRATA FEET TO	SAMPLE DESCRIPTION	BLOWS *A		
1	2.0'	4.0'			Wet loose brown silty fine to coarse sand w/trace of gravel. 20" RECOVERY	2	3	3
2	5.5'	7.0'			Saturated very loose gray fine to coarse sand w/trace of silt. 10" RECOVERY	W/H	2	2
3	10.5'	12.0'			Saturated very loose brown fine to coarse sand w/some silt, trace of gravel. 16" RECOVERY	1	1	2
4	15.5'	17.0'			Saturated very loose brown fine sand w/some silt and coarse sand, trace of gravel. 16" RECOVERY	2	1	2
5	20.5'	22.0'			Saturated loose brown fine to coarse sand w/some silt, trace of gravel. 18" RECOVERY	3	2	3
6	25.5'	27.0'			Saturated loose brown fine to coarse sand w/some silt, trace of gravel. 18" RECOVERY	2	3	3
7	30.5'	32.0'			Saturated very loose brown fine sand w/some silt and coarse sand, trace of gravel. 18" RECOVERY	2	3	3
8	35.5'	37.0'			Saturated loose brown fine to coarse sand w/some silt, trace of gravel. 18" RECOVERY			

BORING NO. SB-58 | SURFACE ELEVATION: 1.47 | DATE:
STATION: 117+25 | OFFSET: 35' LT. C.T. | WATER DEPTH: X.X'

SAMPLE NO.	SAMPLE DEPTH-FEET FROM	SAMPLE DEPTH-FEET TO	DEPTH STRATA FEET FROM	DEPTH STRATA FEET TO	SAMPLE DESCRIPTION	BLOWS *A		
1	2.0'	4.0'			Moist loose brown fine to coarse sand w/trace of silt and gravel. 16" RECOVERY	7	4	5
2	5.5'	7.0'			Saturated loose brown fine sand w/some coarse sand, trace of silt. 14" RECOVERY	1	2	4
3	10.5'	12.0'			Saturated very gray fine sand w/some coarse sand and silt, trace of gravel. 18" RECOVERY	1	1	1
4	15.5'	17.0'			Saturated very gray fine sand w/some silt, trace of coarse sand. 18" RECOVERY	1	W/H	2
5	20.5'	22.0'			Saturated very loose gray fine sand w/some silt, trace of coarse sand and gravel. 18" RECOVERY	1	2	1
6	25.5'	27.0'			Saturated very loose gray fine sand w/some silt, trace of coarse sand and gravel. 18" RECOVERY	1	1	1
7	30.5'	32.0'			Saturated loose gray fine to coarse sand w/some silt, trace of gravel. 18" RECOVERY	2	4	5
8	35.5'	37.0'			Saturated loose gray fine to coarse sand w/some silt, trace of gravel. 16" RECOVERY	3	2	3

BORING NO. SB-59 | SURFACE ELEVATION: 2.57' | DATE:
STATION: 117+50 | OFFSET: XX' RT. | WATER DEPTH: X.X'

SAMPLE NO.	SAMPLE DEPTH-FEET FROM	SAMPLE DEPTH-FEET TO	DEPTH STRATA FEET FROM	DEPTH STRATA FEET TO	SAMPLE DESCRIPTION	BLOWS *A		
1	3.0'	4.5'			Moist medium dense brown fine sand w/some coarse sand and silt, trace of gravel. 16" RECOVERY	12	12	8
2	5.5'	7.0'			No Sieve Analysis 8" RECOVERY	W/H	2	1
3	10.5'	12.0'			No Sieve Analysis 1" RECOVERY	2	2	2
4	15.5'	17.0'			Saturated very loose brown fine sand w/some silt and coarse sand, trace of gravel. 16" RECOVERY	2	2	2
5	20.5'	22.0'			Saturated very loose brown coarse to fine sand w/trace of silt and gravel. 16" RECOVERY	2	2	2
6	25.5'	27.0'			Saturated loose brown fine sand w/some silt and coarse sand, trace of gravel. 18" RECOVERY	2	3	4
7	30.5'	32.0'			Saturated loose gray fine sand w/some silt, trace of coarse sand. 18" RECOVERY	4	2	3
8	35.5'	37.0'			Saturated loose gray fine to coarse sand w/some silt, trace of gravel. 18" RECOVERY	4	4	4

PREL. TRACING ____ DESIGN ____ CHK'D. ____

BR. 3-428

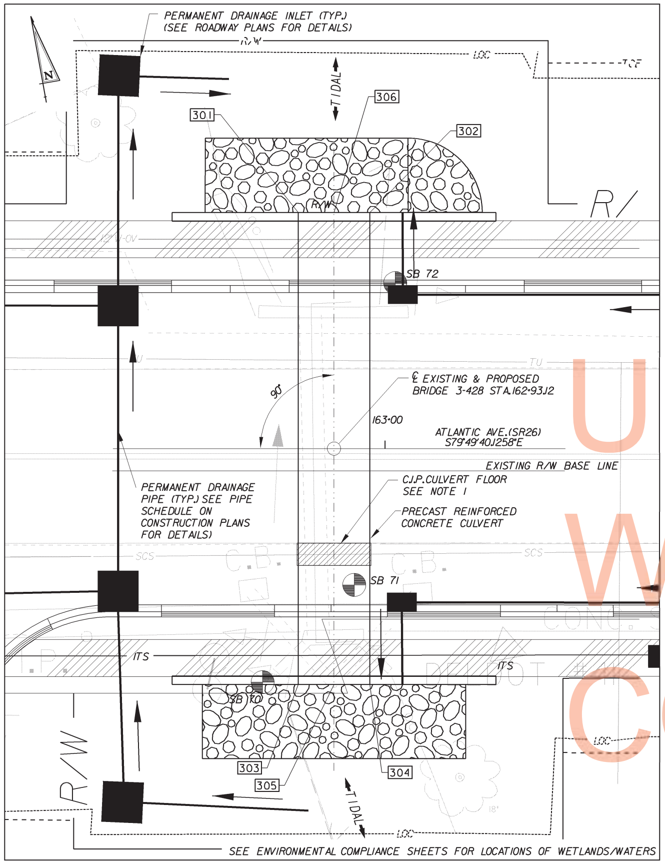
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	179	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

WORKING POINTS				
POINT	STATION	OFFSET	NORTHING	EASTING
301	162+88.29	-31.83'	198807.91	747257.69
302	162+97.95	-31.83'	198806.20	747267.21
303	162+88.29	31.83'	198745.24	747246.45
304	162+97.95	31.83'	198743.53	747255.97
305	162+93.12	31.83'	198744.39	747251.21
306	162+93.12	-31.83'	198807.05	747262.45

NOTES:
1. SECTION OF PRECAST CULVERT FLOOR SHALL BE CAST-IN-PLACE OVER EXISTING SANITARY SEWER GRAVITY LINE. PRECAST MANUFACTURER SHALL BLOCK OUT BOTTOM MAT OF REBAR AND FLOOR SLAB TO FIT AROUND THE PIPE. CONTRACTOR SHALL VERIFY THE LOCATION OF THE PIPE AND SUPPLY TO PRECAST MANUFACTURER PRIOR TO FABRICATION.



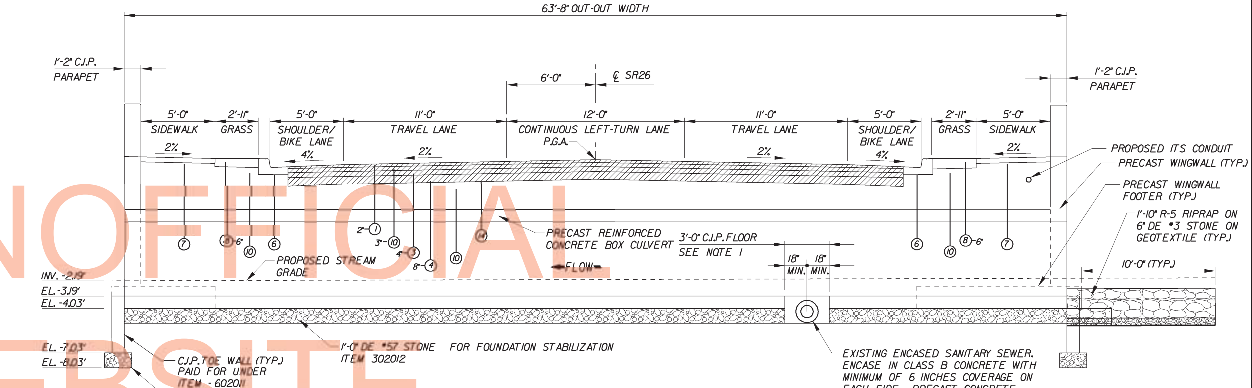
PERMANENT DRAINAGE INLET (TYP.)
(SEE ROADWAY PLANS FOR DETAILS)
301
302
303
304
305
306
TIDAL
SB 72
SB 71
SB 70
℄ EXISTING & PROPOSED
BRIDGE 3-428 STA.162+93.12
163+00
ATLANTIC AVE.(SR26)
S79°49'40.1258"E
EXISTING R/W BASE LINE
C.I.P. CULVERT FLOOR
SEE NOTE 1
PRECAST REINFORCED
CONCRETE CULVERT
PERMANENT DRAINAGE
PIPE (TYP.) SEE PIPE
SCHEDULE ON
CONSTRUCTION PLANS
FOR DETAILS)
ITS
R/W
SEE ENVIRONMENTAL COMPLIANCE SHEETS FOR LOCATIONS OF WETLANDS/WATERS

PLAN

1/8" = 1'-0"

PAVEMENT LEGEND

1. ITEM 401830 - WMA, SUPERPAVE TYPE C, 160 GYRATIONS PG 70-22 (NON CARBONATE STONE)
2. ITEM 401813 - WMA, SUPERPAVE TYPE B, 160 GYRATIONS, PG 70-22
3. ITEM 401813 - WMA, SUPERPAVE TYPE B, 160 GYRATIONS, PG 70-22 (SEE NOTE BELOW)
4. ITEM 302005 - GRADED AGGREGATE BASE COURSE, TYPE B
5. ITEM 760507 - PROFILE MILLING AS REQUIRED
6. ITEM 701022 - IPCC CURB & GUTTER, TYPE 3-8
7. ITEM 705001 - PCC SIDEWALK, 4"
8. ITEM 732002 OR 733002 - TOPSOIL OR TOPSOILING, 6" DEPTH
   ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
9. ITEM 401824 - WMA, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22, WEDGE
10. ITEM 209001 - BORROW, TYPE A
11. ITEM 209006 - BORROW, TYPE F
12. ITEM 705002 - PCC SIDEWALK 6"
13. ITEM 401752 - SAFETY EDGE FOR ROADWAY PAVEMENT (SEE DETAIL)
14. ITEM 713002 - GEOTEXTILE, SEPARATION

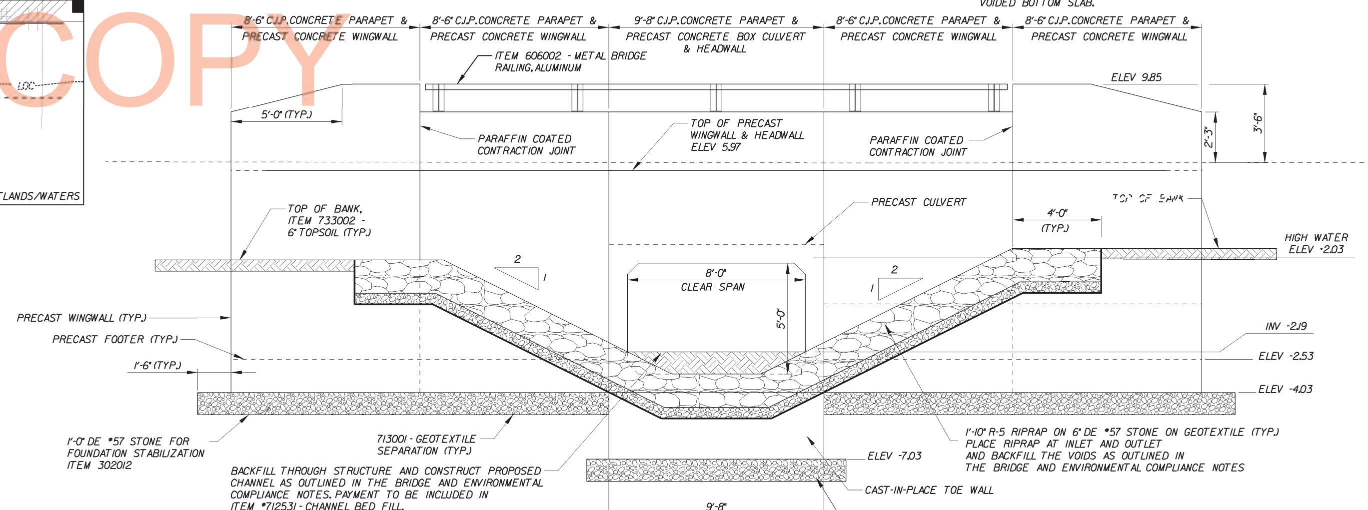


63'-8" OUT-OUT WIDTH
1'-2" C.I.P. PARAPET
6'-0"
℄ SR26
5'-0" SIDEWALK
2'-11" GRASS
5'-0" SHOULDER/ BIKE LANE
11'-0" TRAVEL LANE
12'-0" CONTINUOUS LEFT-TURN LANE
P.G.A.
11'-0" TRAVEL LANE
5'-0" SHOULDER/ BIKE LANE
2'-11" GRASS
5'-0" SIDEWALK
2%
4%
PROPOSED ITS CONDUIT
PRECAST WINGWALL (TYP.)
PRECAST WINGWALL FOOTER (TYP.)
1'-10" R-5 RIPRAP ON 6" DE #3 STONE ON GEOTEXTILE (TYP.)
10'-0" (TYP.)
PRECAST REINFORCED CONCRETE BOX CULVERT
3'-0" C.I.P. FLOOR SEE NOTE 1
18" MIN.
18" MIN.
PROPOSED STREAM GRADE
FLOW
INV. -2.19'
EL. -3.19'
EL. -4.03'
EL. -7.03'
EL. -8.03'
C.I.P. TOE WALL (TYP.) PAID FOR UNDER ITEM - 602011
1'-0" DE #57 STONE (TYP.) ITEM 302012
1'-0" DE #57 STONE FOR FOUNDATION STABILIZATION ITEM 302012
(RIPRAP APRON NOT SHOWN FOR CLARITY)
EXISTING ENCASED SANITARY SEWER. ENCASE IN CLASS B CONCRETE WITH MINIMUM OF 6 INCHES COVERAGE ON EACH SIDE. PRECAST CONCRETE BOX CULVERT SHALL HAVE BOTTOM SLAB VOIDED AT THIS LOCATION. COST FOR ENCASEMENT SHALL BE INCLUDED IN THE COST FOR ITEM 602506 - PRECAST CONCRETE CULVERT. CONTRACTOR/PRECASTER SHALL PROVIDE TERMINATE POST-TENSIONING AT VOIDED BOTTOM SLAB.

TYPICAL BRIDGE SECTION

(VIEW LOOKING AHEAD STATION)

1/4" = 1'-0"



8'-6" C.I.P. CONCRETE PARAPET & PRECAST CONCRETE WINGWALL
8'-6" C.I.P. CONCRETE PARAPET & PRECAST CONCRETE WINGWALL
9'-8" C.I.P. CONCRETE PARAPET & PRECAST CONCRETE BOX CULVERT & HEADWALL
8'-6" C.I.P. CONCRETE PARAPET & PRECAST CONCRETE WINGWALL
8'-6" C.I.P. CONCRETE PARAPET & PRECAST CONCRETE WINGWALL
ITEM 606002 - METAL BRIDGE RAILING, ALUMINUM
ELEV 9.85
5'-0" (TYP.)
PARAFFIN COATED CONTRACTION JOINT
TOP OF PRECAST WINGWALL & HEADWALL ELEV 5.97
2'-3"
3'-6"
TOP OF BANK, ITEM 733002 - 6" TOPSOIL (TYP.)
PRECAST CULVERT
TOP OF BANK
4'-0" (TYP.)
HIGH WATER ELEV -2.03
8'-0" CLEAR SPAN
5'-0"
PRECAST WINGWALL (TYP.)
PRECAST FOOTER (TYP.)
1'-6" (TYP.)
INV -2.19
ELEV -2.53
ELEV -4.03
1'-0" DE #57 STONE FOR FOUNDATION STABILIZATION ITEM 302012
713001 - GEOTEXTILE SEPARATION (TYP.)
BACKFILL THROUGH STRUCTURE AND CONSTRUCT PROPOSED CHANNEL AS OUTLINED IN THE BRIDGE AND ENVIRONMENTAL COMPLIANCE NOTES. PAYMENT TO BE INCLUDED IN ITEM #712531 - CHANNEL BED FILL.
ELEV -7.03
CAST-IN-PLACE TOE WALL
9'-8"
1'-10" R-5 RIPRAP ON 6" DE #57 STONE ON GEOTEXTILE (TYP.) PLACE RIPRAP AT INLET AND OUTLET AND BACKFILL THE VOIDS AS OUTLINED IN THE BRIDGE AND ENVIRONMENTAL COMPLIANCE NOTES
1'-0" DE #57 STONE (TYP.) ITEM 302012

ELEVATION

(VIEW LOOKING DOWNSTREAM)

3/8" = 1'-0"

PREL. TRACING — DESIGN — CHKD.

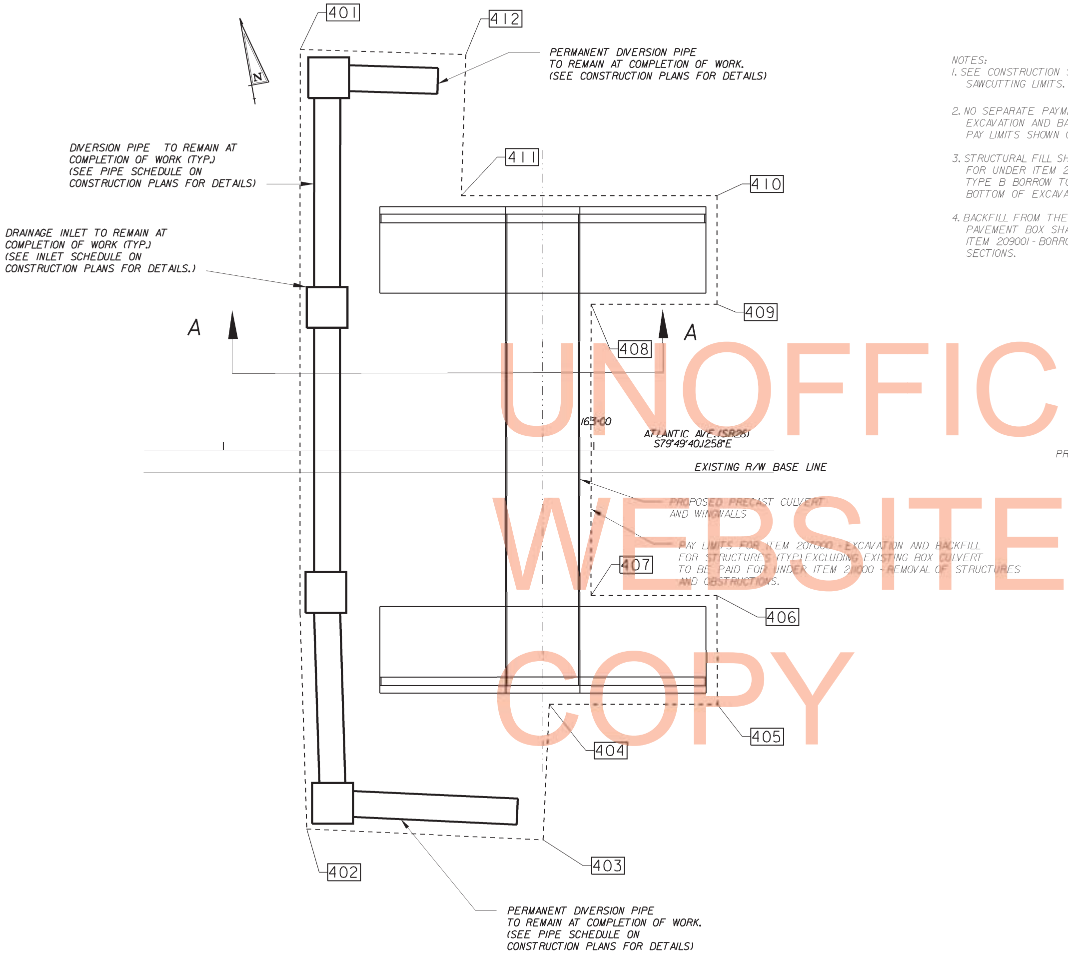
7/17/2013

BR. 3-428	CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
	T200411210	SUSSEX	SEE TITLE SHEET	180	589

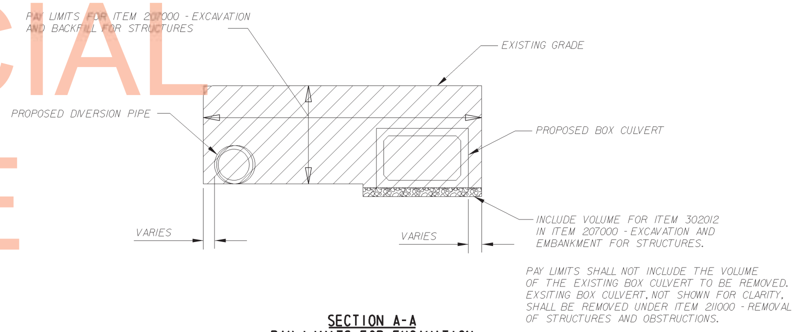
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

NOTES:
1. SEE CONSTRUCTION SEQUENCE SHEET FOR PAVEMENT SAWCUTTING LIMITS.
2. NO SEPARATE PAYMENT SHALL BE MADE FOR ITEM 208000 - EXCAVATION AND BACKFILL FOR PIPE TRENCH, WITHIN THE PAY LIMITS SHOWN ON THIS SHEET.
3. STRUCTURAL FILL SHALL CONFORM TO AND BE PAID FOR UNDER ITEM 209002 - BORROW, TYPE B. LIMITS OF TYPE B BORROW TO BE FROM TOP OF BOX CULVERT TO BOTTOM OF EXCAVATION.
4. BACKFILL FROM THE TOP OF THE BOX CULVERT TO THE PAVEMENT BOX SHALL CONFORM TO AND BE PAID FOR UNDER ITEM 209001 - BORROW, TYPE A. REFER TO TYPICAL PAVEMENT SECTIONS.


401
412
411
410
409
408
407
406
405
404
403
402
N
A
A
PERMANENT DIVERSION PIPE TO REMAIN AT COMPLETION OF WORK. (SEE CONSTRUCTION PLANS FOR DETAILS)
DIVERSION PIPE TO REMAIN AT COMPLETION OF WORK (TYP.) (SEE PIPE SCHEDULE ON CONSTRUCTION PLANS FOR DETAILS)
DRAINAGE INLET TO REMAIN AT COMPLETION OF WORK (TYP.) (SEE INLET SCHEDULE ON CONSTRUCTION PLANS FOR DETAILS.)
163+00
ATLANTIC AVE. (SR26) S79°49'40.1258"E
EXISTING R/W BASE LINE
PROPOSED PRECAST CULVERT AND WINGWALLS
PAY LIMITS FOR ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES (TYP.) EXCLUDING EXISTING BOX CULVERT TO BE PAID FOR UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS.
PERMANENT DIVERSION PIPE TO REMAIN AT COMPLETION OF WORK. (SEE PIPE SCHEDULE ON CONSTRUCTION PLANS FOR DETAILS)

PLAN
1/8" = 1'-0"


PAY LIMITS FOR ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES
EXISTING GRADE
PROPOSED DIVERSION PIPE
PROPOSED BOX CULVERT
VARIES
VARIES
INCLUDE VOLUME FOR ITEM 302012 IN ITEM 207000 - EXCAVATION AND EMBANKMENT FOR STRUCTURES.
PAY LIMITS SHALL NOT INCLUDE THE VOLUME OF THE EXISTING BOX CULVERT TO BE REMOVED. EXSITING BOX CULVERT, NOT SHOWN FOR CLARITY, SHALL BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS.

SECTION A-A
PAY LIMITS FOR EXCAVATION
N. T. S.

WORKING POINTS				
POINT	STATION	OFFSET	NORTHING	EASTING
401	162+60.38	-54.052	198834.71	747234.15
402	162+61.25	51.18	198730.97	747216.42
403	162+93.14	52.66	198723.88	747247.55
404	162+93.98	34.33	198741.77	747251.62
405	163+16.62	34.33	198737.78	747273.90
406	163+16.62	19.66	198752.21	747276.49
407	162+99.62	19.66	198755.228	747259.76
408	162+99.62	-19.66	198793.93	747266.71
409	163+16.62	-19.66	198790.93	747283.44
410	163+16.62	-34.33	198805.36	747286.03
411	162+82.13	-34.33	198811.46	747252.07
412	162+82.72	-53.36	198830.09	747256.01

PREL. TRACING — DESIGN — CHKD.

7/17/2013 l:\PROJECTS\sr26mainline\Structures\Semi-Final Phase 2\bpl428.dgn

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	181	589

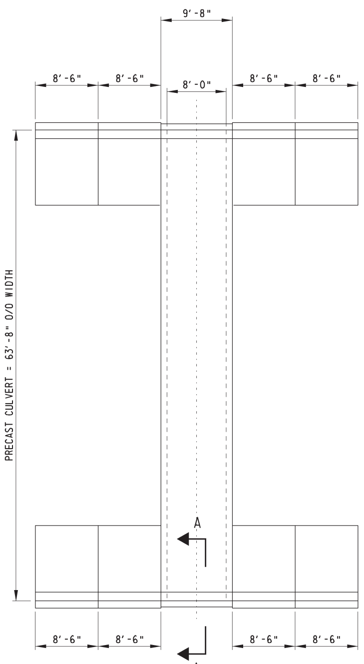
BR. 3-428

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

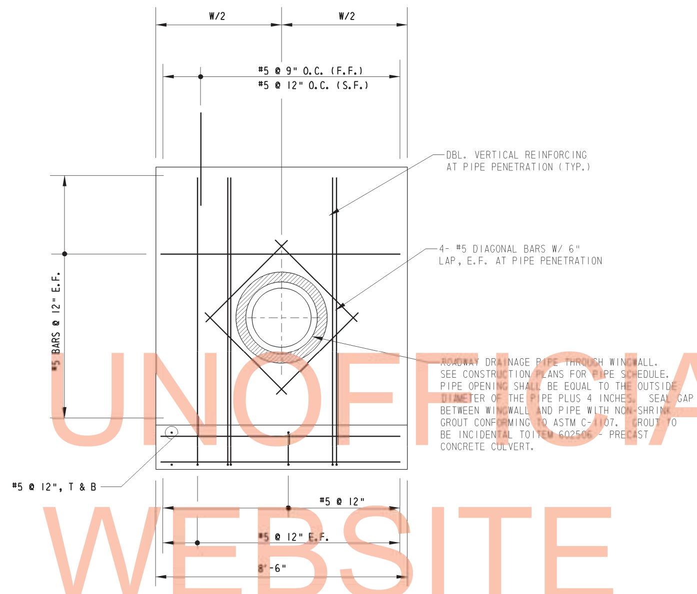
REVISIONS

BRIDGE 3-428
CULVERT AND WINGWALL DETAILS
BRIDGE SHEET 10 OF 14

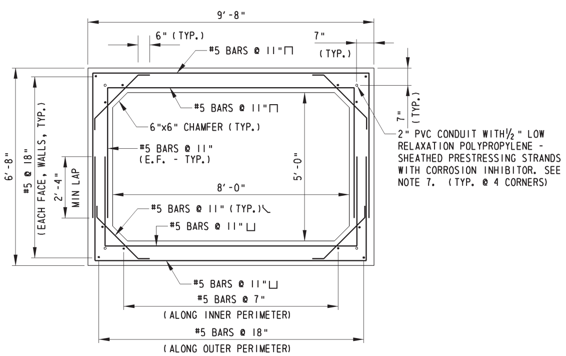
NOTE:
CULVERTS ARE CALLED OUT AS PRECAST CONCRETE. THE CONTRACTOR HAS THE OPTION TO CAST IN PLACE. IF THE CONTRACTOR ELECTS TO CAST IN PLACE, FORM WORK SHOP DRAWINGS AND COMPUTATIONS MUST BE SUBMITTED FOR REVIEW AND APPROVAL. CULVERTS SHALL BE PAID FOR UNDER ITEM 602506 - PRECAST CONCRETE CULVERT, REGARDLESS OF THE METHOD OF CONSTRUCTION SELECTED BY THE CONTRACTOR.



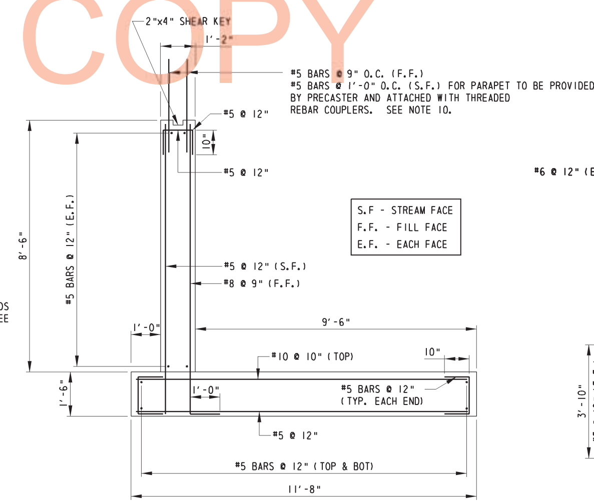
CULVERT PLAN
1/8" = 1'-0"



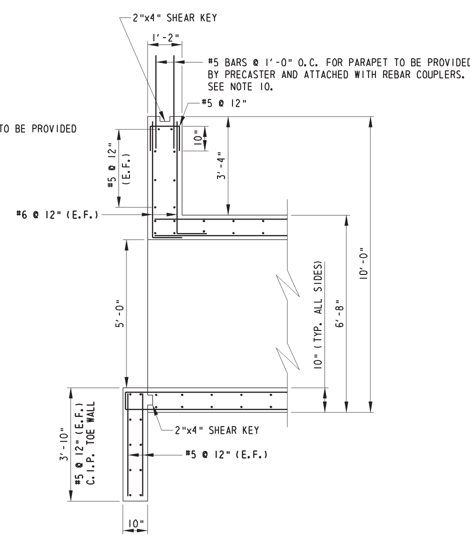
TYPICAL WINGWALL ELEVATION
1/2" = 1'-0"



TYPICAL CULVERT SECTION
1/2" = 1'-0"



TYPICAL WINGWALL SECTION
1/2" = 1'-0"



SECTION A-A: HEADWALL DETAIL
1/2" = 1'-0"

NOTES FOR PRECAST ELEMENTS

1. DESIGN PLANS/WORKING DRAWINGS
INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE BOX CULVERT AND WINGWALL SECTIONS IS INTENDED TO SERVE AS AN INDICATION OF THE TYPE OF CONSTRUCTION ACCEPTABLE FOR USE. THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT FOR APPROVAL A COMPLETE SET OF DETAILED SHOP PLANS FOR THE PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH.

2. PRECAST ELEMENTS
ALL PRECAST ELEMENTS (BOX CULVERT, WINGWALLS, ETC.) AND ASSOCIATED BAR REINFORCEMENT WALL BE PAID UNDER ITEM 602506 - PRECAST CONCRETE CULVERT.

3. CONCRETE STRENGTHS
THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS EQUALS 5.0 ksi. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

4. BAR REINFORCEMENT
MATERIALS REQUIREMENT: AASHTO M31 (ASTM A615) - GRADE 60 (ksi). ALL BAR REINFORCEMENT TO HAVE 2" MINIMUM COVER EXCEPT AS NOTED OR DETAILED. ALL BAR REINFORCEMENT AND CHAIR SUPPORTS SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963). BAR SIZES ARE GIVEN IN STANDARD ENGLISH FORM.

5. CONCRETE FINISH
ALL EXPOSED CONCRETE SURFACES SHALL BE PROTECTED WITH A SILICONE ACRYLIC CONCRETE SEALER, COLOR TO BE WHITE. SEALER TO CONFORM TO AND BE PAID FOR UNER ITEM 602646 - SILICONE ACRYLIC CONCRETE SEALER.

6. INSTALLATION
DURING PLACEMENT OF PRECAST ELEMENTS, USAGE OF A HEAVY LIFTING MACHINE WILL BE REQUIRED. TO PROTECT THE SUBGRADE MATERIAL DURING THIS OPERATION, TIMBER MATS OR AN APPROVED METHOD OF PROTECTION SHALL BE PLACED UNDER THE MACHINE. ANY DISTURBANCE TO THE SUBGRADE RESULTING FROM THE INSTALLATION OF THE PRECAST ELEMENTS SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

7. CULVERT POST TENSIONING
THE PRECAST BOX SECTIONS SHALL BE POST TENSIONED TOGETHER WITH A MINIMUM OF FOUR 1/2" DIA., 270 ksi LOW RELAXATION POLYSTRANDS. EACH POLYSTRAND SHALL BE POST TENSIONED TO 30 kips. MINIMUM ULTIMATE STRENGTH ON EACH STRAND EQUALS 40 kips. PAYMENT FOR CULVERT POST TENSIONING IS INCIDENTAL TO ITEM 602506 - PRECAST CONCRETE CULVERT. POST TENSIONING DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS FOR THE CULVERT. POST TENSIONING DETAILS SHALL INCLUDE METHODS FOR CONNECTING NORTH HALF AND SOUTH HALF OF CONSTRUCTION.

8. WINGWALL POST TENSIONING
THE PRECAST WINGWALL SECTIONS SHALL BE POST TENSIONED TOGETHER AND POSITIVELY CONNECTED TO THE BOX CULVERT WITH A MINIMUM OF TWO 1/2" DIA. 270 ksi LOW RELAXATION POLYSTRANDS. EACH POLY-STRAND SHALL BE POST TENSIONED TO 30 kips. MINIMUM ULTIMATE STRENGTH FOR EACH STRAND EQUALS 40 kips. PAYMENT FOR WINGWALL POST-TENSIONING IS INCIDENTAL TO ITEM 602506 - PRECAST CONCRETE CULVERT. POST TENSIONING DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS FOR THE WINGWALLS.

9. JOINTS BETWEEN PRECAST SECTIONS
NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. ALL JOINTS BETWEEN PRECAST BOX SECTIONS SHALL BE TONGUE AND GROOVE. ALL WINGWALL TO WINGWALL AND WINGWALL TO BOX CULVERT JOINTS SHALL HAVE A SHEAR KEY. THE LOCATIONS OF THE JOINTS IN THE BOX CULVERT SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL. ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9" WIDE WRAP CENTERED ON THE JOINT AS PER THE SPECIAL PROVISION FOR ITEM 602506.

10. THREADED REBAR COUPLERS FOR PARAPET AND TOE WALL TO BE CAST FLUSH WITH PRECAST HEADWALL END SECTION AND SHALL BE DAYTON SUPERIOR MODEL D-101-A, "STRAIGHT", DYWIDAG-SYSTEMS DOWEL BAR SPLICE, OR APPROVED EQUAL, WITH EMBEDMENT LENGTH SUFFICIENT TO SATISFY MINIMUM SPLICE DEVELOPMENT LENGTH. SEE PARAPET DETAILS.

PREL. TRACING — DESIGN — CHKD.

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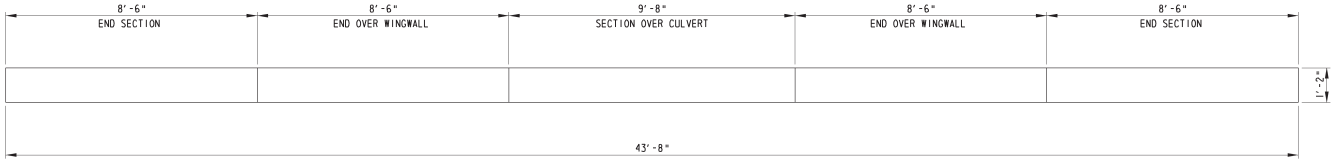
BRIDGE 3-428
PARAPET DETAILS
BRIDGE SHEET 11 OF 14

BR. 3-428

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	182	589

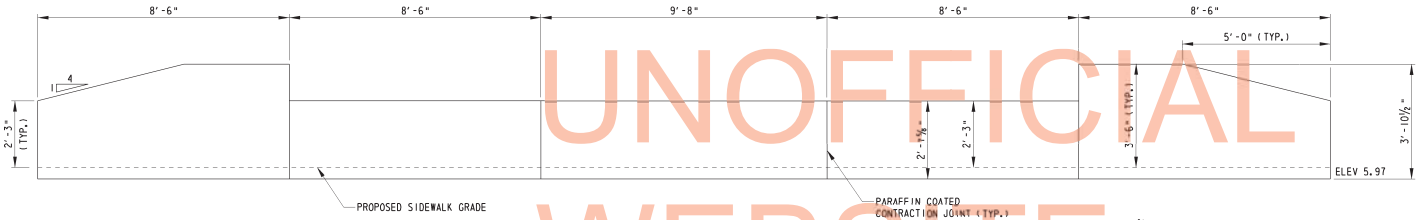
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



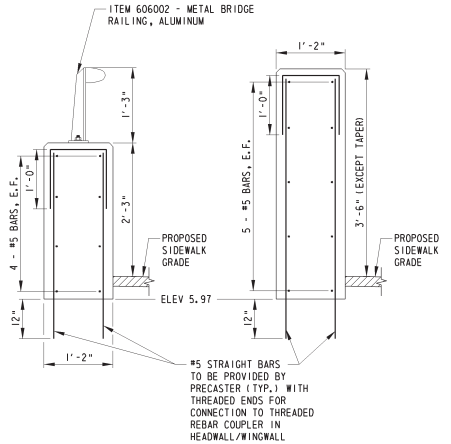
PLAN
½" = 1'-0"

NOTE:
HANDRAIL NOT SHOWN FOR CLARITY,
SEE ALUMINUM HANDRAIL DETAIL SHEET



PARAPET ELEVATION
½" = 1'-0"

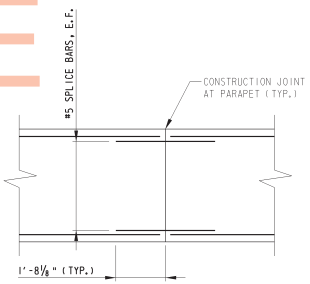
NOTE:
PARAPETS ARE TO BE CAST IN PLACE ONLY,
NO PRECAST SUBSTITUTION WILL BE ENTERTAINED.



SECTION WITH HANDRAIL

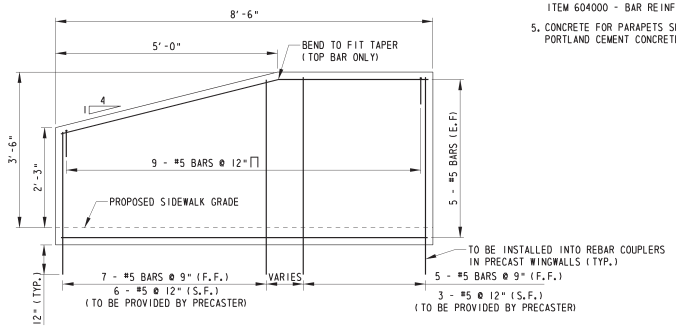
END SECTION

TYPICAL SECTIONS
1" = 1'-0"

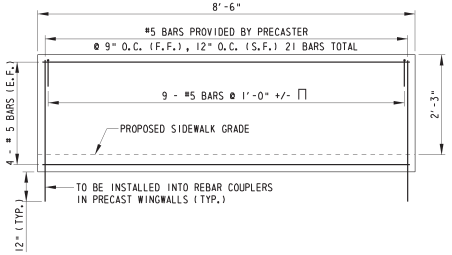


REINFORCEMENT SPLICE AT PARAPET
¾" = 1'-0"

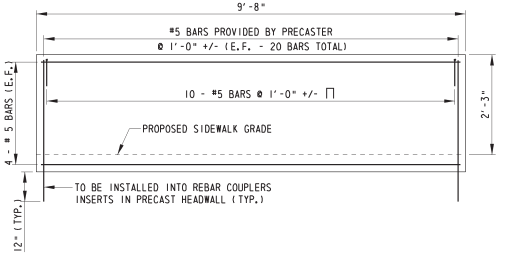
NOTES:
1. CHAMFERS ON FACE OF PARAPETS AT EACH JOINT AND ON TOP SURFACES NOT SHOWN ON TYPICAL ELEVATIONS FOR CLARITY.
2. BARS LABELED 'PROVIDED BY PRECASTER' CORRESPOND TO THE PRECAST CULVERT AND WINGWALL DETAIL SHEET.
3. ALUMINUM HANDRAIL NOT SHOWN FOR CLARITY.
4. REBAR FOR CAST-IN-PLACE ELEMENTS NOT LABELED "PROVIDED BY PRECASTER" SHALL BE PAID FOR UNDER ITEM 604000 - BAR REINFORCEMENT, EPOXY COATED.
5. CONCRETE FOR PARAPETS SHALL BE PAID FOR UNDER ITEM 602017 - PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A.



TYPICAL END SECTION ELEVATION
¾" = 1'-0"



TYPICAL ELEVATION OVER WINGWALL
¾" = 1'-0"



TYPICAL ELEVATION OVER HEADWALL/CULVERT
¾" = 1'-0"

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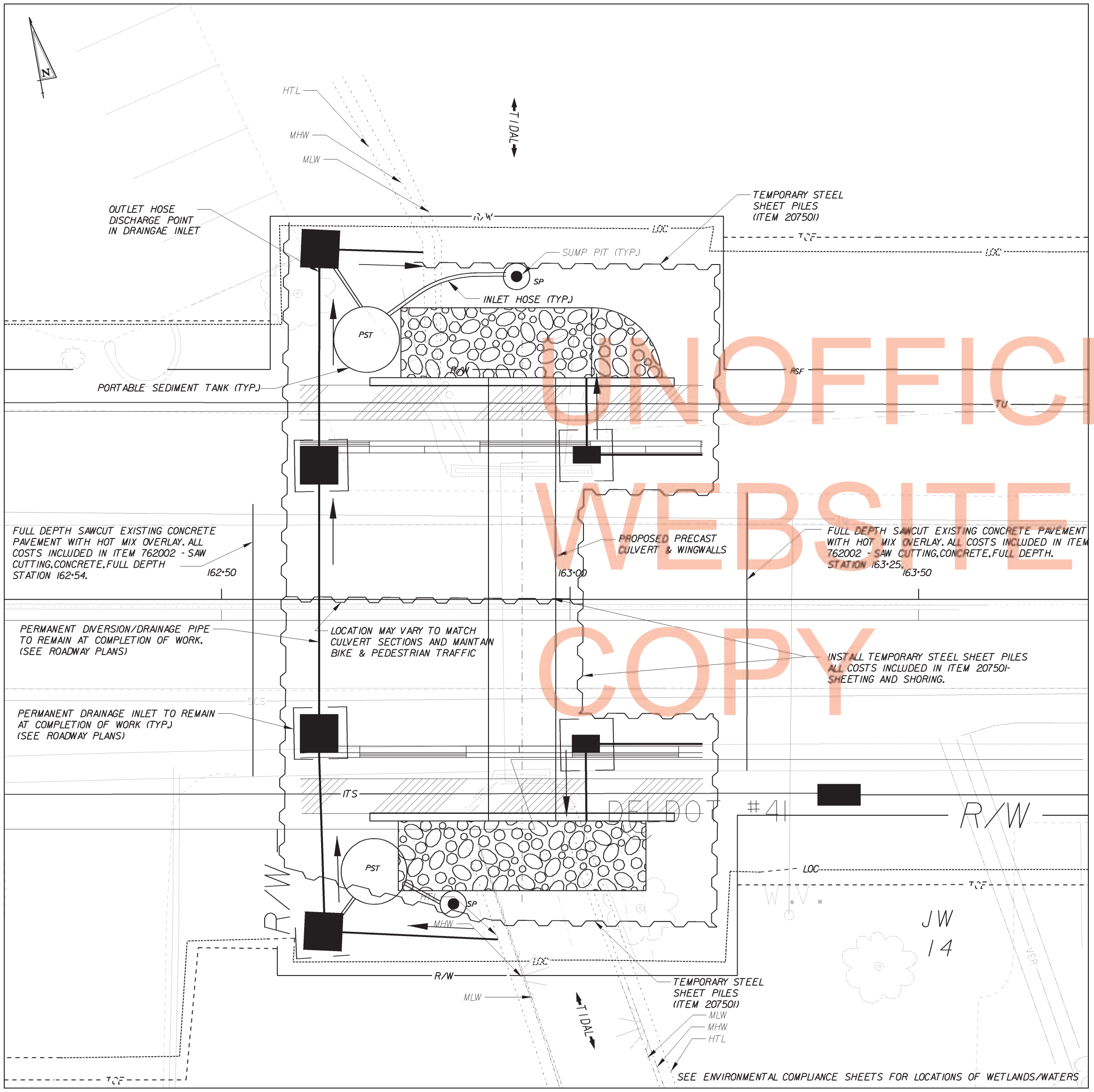
PREL. TRACING ____ DESIGN ____ CHK'D. ____

BR. 3-428	CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
	T200411210	SUSSEX	SEE TITLE SHEET	183	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN
1/8" = 1'-0"

NOTES:

1. THE SEQUENCE OF CONSTRUCTION SHOWN BELOW IS BASED ON THE CONCEPT OF MAINTAINING PEDESTRIAN TRAFFIC ON SR26 BY BUILDING THE PROPOSED CULVERT IN TWO SEPARATE SECTIONS. THE CONTRACTOR MAY PROPOSE OTHER MEANS OF MAINTAINING BIKE & PEDESTRIAN TRAFFIC SUCH AS A PORTABLE TEMPORARY BRIDGE,PROVIDED THAT ADA STANDARDS ARE MET. THIS MAY ALLOW THE CULVERT TO BE PLACED END TO END IN ONE PHASE. DETAILS FOR AN ALTERNATE MUST BE SUBMITTED AND APPROVED PRIOR TO BEGINNING WORK. ANY PLAN THAT INCREASES WATERS OF U.S.OR WETLAND IMPACTS MUST BE SUBMITTED TO THE ENVIRONMENTAL STUDIES SECTION FOR REVIEW AND APPROVAL.
2. DEWATERING SHALL BE INCIDENTAL TO ITEM 207501 - SHEETING AND SHORING. THE CONTRACTOR HAS THE OPTION TO SUBMIT FOR REVIEW AND APPROVAL AN ALTERNATE METHOD OF DEWATERING.
3. THIS PLAN SHOWS SHEET PILES AS A METHOD OF PROVIDING TEMPORARY SHORING AND STREAM DIVERSION. THE CONTRACTOR HAS THE OPTION TO SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF TEMPORARY SHORING.
4. THIS PLAN SHOWS A PORTABLE SEDIMENT TANK AND SUMP PIT AS A METHOD OF DEWATERING. THE CONTRACTOR HAS THE OPTION TO SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF DEWATERING IN ACCORDANCE WITH THE DELAWARE SEDIMENT AND STORMWATER LAWS.
5. DIVERSION PIPES AND ASSOCIATED DRAINAGE INLETS SHALL REMAIN IN-PLACE TO BE PART OF FINAL ROADWAY DRAINAGE SYSTEM AND SECONDARY FLOW CHANNEL FOR STREAM/DITCH CROSSING.
6. NO ADDITIONAL COSTS OR TIME EXTENSION WILL BE CONSIDERED FOR ALTERNATES PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

SEQUENCE OF CONSTRUCTION

(SEQUENCE OF CONSTRUCTION IS NOT ALL INCLUSIVE.)

1. CLOSE ROAD IN AREA OF WORK FOLLOWING METHODS SHOWN IN MAINTENANCE OF TRAFFIC PLANS.
2. INSTALL SILT FENCE EXCEPT CONNECTIONS TO TEMPORARY SHORING. AFTER TEMPORARY SHORING IS CONSTRUCTED, CONNNECT ENDS OF SILT FENCE TO TEMPORARY SHORING TO COMPLETELY ENCLOSE THE WORK AREA
3. SAWCUT EXISTING ROADWAY AND PAVED SHOULDERS. REMOVE EXISTING PAVEMENT IN AREA OF EXCAVATION FOR DIVERSION PIPE AND PROPOSED BOX CULVERT.
4. INSTALL MIDDLE ROW OF TEMPORARY SHORING FOR INSTALLATION OF NORTH SECTION OF DIVERSION PIPE. CONTRACTOR SHALL PROVIDE PROPER BLOCKOUT FOR INSERTION OF DIVERSION PIPE AND SEAL AROUND DIVERSION PIPE TO PREVENT LEAKAGE OF SOIL AND/OR WATER. MAINTAIN PEDESTRIAN ACCESS ALONG SOUTH SIDE OF ROAD DURING THIS OPERATION AS SHOWN IN PEDESTRIAN MAINTENANCE OF TRAFFIC PLAN.
5. STABILIZE THE PROPOSED DISCHARGE AREA OF THE DIVERSION PIPE AND OUTLET HOSE WITH R5 RIPRAP (ITEM 712006) UNDERLAIN WITH GEOTEXTILE (ITEM 713003). PLACE TOP OF RIPRAP LEVEL WITH THE EXISTING STREAM BOTTOM. DIMENSIONS OF THE RIPRAP-LINED AREA ARE: WIDTH = 6 FEET, LENGTH = 11 FT.
6. INSTALL NORTH SECTION OF DIVERSION PIPE AT LOCATION SHOWN. MAINTAIN PEDESTRIAN TRAFFIC ON SOUTH SIDE OF ROAD.
7. BACKFILL NORTH HALF OF DIVERSION PIPE AND STABILIZE AREA. MAINTAIN PEDESTRIAN TRAFFIC ON NORTH SIDE OF ROAD.
8. INSTALL SOUTH HALF OF DIVERSION PIPE, BACKFILL AND STABILIZE AREA AS NECESSARY.
9. CONSTRUCT THE TEMPORARY SHORING ON NORTH AND SOUTH SIDE OF STRUCTURE TO A MINIMUM HEIGHT OF 5.5 FEET ABOVE STREAM BED,OR TO TOP OF STREAM BANK, WHICHEVER IS LOWER. CONNECT SILT FENCE TO TEMPORARY STEEL SHEET PILES TO COMPLETELY ENCLOSE THE WORK AREA. STREAM FLOW WILL NOW BE THROUGH DIVERSION PIPE. A GAP IN THE SHEETING AT LEAST 4 FEET WIDE MUST BE CREATED TO MAINTAIN BIKE & PEDESTRIAN TRAFFIC. TOP OF THE SHEETING WITHIN THE GAP MUST BE FLUSH OR BELOW THE ROADWAY SURFACE.
10. INSTALL DEWATERING METHODS IN ACCORDANCE WITH THE APPROVED PLAN. DEWATER THE WORK AREA IN ACCORDANCE WITH SECTION 110.13 OF DELDOT STANDARD SPECIFICATIONS. DISCHARGE CLEAN EFFLUENT FROM THE APPROVED SEDIMENT TRAPPING DEVICE INTO ADJACENT INLET OR OTHER STABLE OUTLET AS APPROVED BY THE ENGINEER. THE COST FOR DEWATERING SHALL BE INCLUDED IN THE ITEM 207501 - SHEETING AND SHORING.
11. REMOVE THE SOUTH HALF OF THE EXISTING BOX CULVERT AND WINGWALLS AND INSTALL THE SOUTH HALF OF PRECAST BOX CULVERT AND PRECAST WINGWALLS AND POST TENSION SEGMENTS.
12. CONSTRUCT DRAINAGE INLETS AND PIPES ADJACENT TO THE HEADWALL.
13. CONSTRUCT SLOPES AND PLACE RIPRAP ON THE SOUTH END OF THE STRUCTURE.
14. BACKFILL SOUTH SECTION OF PRECAST BOX CULVERT AND CONSTRUCT ASSOCIATED SIDEWALK.
15. RELOCATE PEDESTRAIN ACCESS TO NEW SIDEWALK ON SOUTH SIDE OF CULVERT. INSSTALL SUMP PIT AND PORTABLE SEDIMENT TANK AT NORTH END OF THE CULVERT.
16. REMOVE NORTH SECTION OF EXISTING BOX CULVERT AND WINGWALLS AND INSTALL THE NORTH HALF OF PRECAST BOX CULVERT AND PRECAST WINGWALLS. POST TENSION SEGMENTS WITH POST TENSION CABLES ATTACHED TO SOUTH HALF OF BOX CULVERT.
17. CONSTRUCT DRAINAGE INLETS AND PIPES ADJACENT TO THE HEADWALL. REFER TO PHASING SHEETS.
18. BACKFILL NORTH HALF OF BOX CULVERT, CONSTRUCT SLOPES AND PLACE RIPRAP ON THE NORTH END OF THE STRUCTURE.
19. REMOVE TEMPORARY SHORING AND ASSOCIATED SOIL RETAINAGE STRUCTURES. ALL COSTS SHALL BE INCLUDED IN ITEM 207501 - SHEETING AND SHORING.
20. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AS DIRECTED BY THE ENGINEER. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THESE PLANS AND AS DIRECTED BY THE ENGINEER.
21. CONSTRUCT REMAINING IMPROVEMENTS IN ACCORDANCE WITH THE PHASING PLANS.

PREL. TRACING
DESIGN
CHKD.

BRIDGE 3–428
SOIL BORINGS
BRIDGE SHEET 13 OF 14

BR. 3-428

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	184	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

BORING NO. SB-70 — STATION: 162+80 — OFFSET: 30′ RT. C.T. — SURFACE ELEVATION: 1.91 — WATER DEPTH: 3.7′ — DATE: 5/16/2006

SAMPLE NO.	SAMPLE DEPTH-FEET FROM	SAMPLE DEPTH-FEET TO	DEPTH STRATA FEET FROM	DEPTH STRATA FEET TO	SAMPLE DESCRIPTION	BLOWS *A		
1	1.5′	3.0′			SATURATED VERY LOOSE BROWN FINE TO COARSE SAND W/ SOME SILT, GRAVEL & ORGANIC MATTER. 10" RECOVERY	1	1	2
2	5.5′	7.0′			SATURATED LOOSE BROWN ORGANIC FINE SAND W/ SOME SILT AND COARSE SAND. 14" RECOVERY	1	1	1
3	10.5′	12.0′			SATURATED LOOSE BROWNISH GRAY COARSE TO FINE SAND W/ SOME SILT, TRACE OF GRAVEL. 12" RECOVERY	3	3	3
4	15.5′	17.0′			SATURATED LOOSE GRAY COARSE TO FINE SAND W/ TRACE OF GRAVEL AND SILT. 16" RECOVERY	5	3	5
5	20.5′	22.0′			SATURATED MEDIUM DENSE GRAY FINE TO COARSE SAND W/ SOME SILT, TRACE OF GRAVEL. 12" RECOVERY	8	6	8
6	25.5′	27.0′			SATURATED LOOSE GRAY FINE TO COARSE SAND W/ TRACE OF SILT AND GRAVEL. 12" RECOVERY	4	5	5
7	30.5′	32.0′			SATURATED LOOSE GRAY COARSE TO FINE SAND W/ TRACE OF SILT AND GRAVEL. 6" RECOVERY	4	5	5
8	35.5′	37.0′			SATURATED LOOSE GRAY COARSE TO FINE SAND W/ SOME GRAVEL, TRACE OF SILT. 6" RECOVERY	3	3	7

BORING NO. SB-71 — STATION: 163+00 — OFFSET: 6′ RT. C.T. — SURFACE ELEVATION: +4.8′ — WATER DEPTH: 4.5′ — DATE: 5/16/2006

SAMPLE NO.	SAMPLE DEPTH-FEET FROM	SAMPLE DEPTH-FEET TO	DEPTH STRATA FEET FROM	DEPTH STRATA FEET TO	SAMPLE DESCRIPTION	BLOWS *A		
1	3.0′	4.5′			MOIST MEDIUM DENSE BROWN FINE TO COARSE SAND W/ SOME GRAVEL AND SILT. 6" RECOVERY	7	7	4
2	5.5′	7.0′			0′ RECOVERY	3	3	2
3	10.5′	12.0′			WET VERY LOOSE GRAY SILTY FINE SAND W/ TRACE OF COARSE SAND. 18" RECOVERY	2	2	2
4	15.5′	17.0′			WET VERY LOOSE GRAY SILTY FINE SAND W/ TRACE OF COARSE SAND AND GRAVEL. 12" RECOVERY	1	1	1
5	20.5′	22.0′			SATURATED VERY LOOSE GRAY COARSE TO FINE SAND W/ SOME SILT, TRACE OF GRAVEL. 16" RECOVERY	1	2	2
6	25.5′	27.0′			SATURATED LOOSE GRAY FINE TO COARSE SAND W/ SOME SILT, TRACE OF GRAVEL. 10" RECOVERY	5	4	5
7	30.5′	32.0′			SATURATED LOOSE GRAY COARSE TO FINE SAND W/ TRACE OF SILT AND GRAVEL. 12" RECOVERY	8	5	5
8	35.5′	37.0′			SATURATED MEDIUM DENSE GRAY COARSE SAND W/ TRACE OF GRAVEL, FINE SAND AND SILT. 12" RECOVERY	9	6	5

BORING NO. SB-72 — STATION: 163+00 — OFFSET: 6′ LT.C.L. — SURFACE ELEVATION: +4.8′ — WATER DEPTH: 4.8′ — DATE: 5/16/2006

SAMPLE NO.	SAMPLE DEPTH-FEET FROM	SAMPLE DEPTH-FEET TO	DEPTH STRATA FEET FROM	DEPTH STRATA FEET TO	SAMPLE DESCRIPTION	BLOWS *A		
1	3.0′	4.5′			WET MEDIUM DENSE BROWN SILTY FINE SAND W/ SOME COARSE SAND, TRACE OF GRAVEL AND ORGANIC MATTER. 12″ RECOVERY	4	6	5
2	5.5′	7.0′			WET LOOSE BROWN FINE SAND W/ SOME COARSE SAND, TRACE OF SILT. 12″ RECOVERY	2	5	4
3	10.5′	12.0′			WET STIFF GRAY FINE SANDY SILT W/ TRACE OF COARSE SAND. 6″ RECOVERY	4	7	3
4	15.5′	17.0′			WET FIRM GRAY FINE SANDY SILT W/ TRACE OF COARSE SAND AND AND CLAY. 16″ RECOVERY	2	2	3
5	20.5′	22.0′			WET VERY LOOSE GRAY SILTY FINE SAND W/ SOME COARSE SAND, TRACE OF GRAVEL. 16″ RECOVERY	1	2	2
6	25.5′	27.0′			WET VERY LOOSE GRAY FINE TO COARSE SAND W/ SOME SILT, TRACE OF GRAVEL. 12″ RECOVERY	1	1	2
7	30.5′	32.0′			WET LOOSE GRAY COARSE TO FINE SAND W/ TRACE OF SILT AND GRAVEL. 12″ RECOVERY	6	3	3
8	35.5′	37.0′			WET VERY LOOSE GRAY COARSE SAND W/ SOME GRAVEL AND FINE SAND, TRACE OF SILT. 12″ RECOVERY	5	2	2

PREL. TRACING — DESIGN — CHKD.

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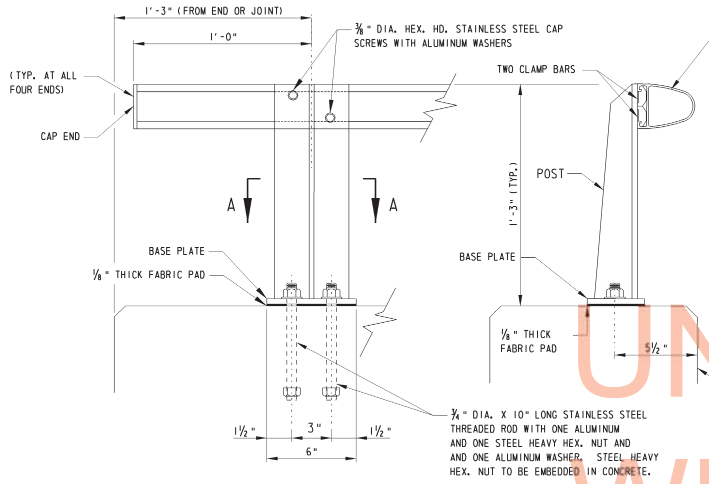
HANDRAIL DETAILS
BRIDGE SHEET 14 OF 14

BR. 3-427	CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
BR. 3-428	T200411210	SUSSEX	SEE TITLE SHEET	185	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

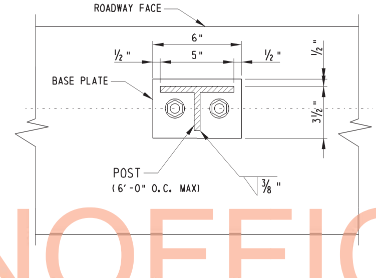
REVISIONS



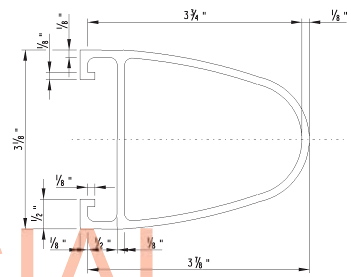
ELEVATION

SIDE VIEW

METAL BRIDGE RAILING
N.T.S.



SECTION A-A
N.T.S.



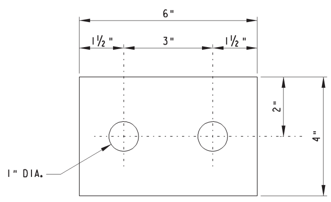
SEMI-ELLIPTICAL HANDRAIL
N.T.S.

GENERAL NOTES

1. HANDRAIL ASSEMBLY IS AASHTO BR-1 ALUMINUM, TYPE C POSTS WITH SEMI-ELLIPSE ALUMINUM RAIL.
2. POSTS SHALL BE PERPENDICULAR TO GRADE.
3. POSTS MAY BE MOVED 6" OR LESS TO CLEAR EXPANSION AND DEFLECTION JOINTS.
4. RAILS SHALL BE CONTINUOUS FROM END TO END OF BRIDGE WITH SPLICES WHERE RAIL SECTIONS CROSS EXPANSION JOINTS.
5. THE CENTERLINE OF ANY SPLICE SHALL BE LOCATED AT LEAST 2'-0" AWAY FROM CENTERLINE OF A POST.
6. DESIGN - IN ACCORDANCE WITH AASHTO LRFD SPECIFICATIONS.
7. DETAILS SHOWN ON THIS SHEET ARE FOR ALUMINUM. IF GALVANIZED STEEL RAILS ARE TO BE USED, THE CONTRACTOR SHALL SUBMIT DETAILS FOR APPROVAL BY THE ENGINEER.
8. PAYMENT FOR ALL MATERIAL AND LABOR ASSOCIATED WITH THIS ALUMINUM HAND RAILING SHALL BE INCLUDED UNDER ITEM 606002 - METAL BRIDGE RAILING, ALUMINUM.

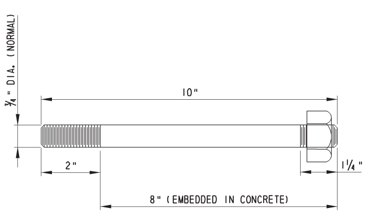
MATERIAL NOTES - ALUMINUM RAILS

1. POST, BASE PLATES, SLEEVES AND CLAMP BARS: ASTM B-221 ALLOY 6061-T6.
2. ALUMINUM WASHERS: ASTM B-209 ALLOY ALCALD 2024-T3.
3. STAINLESS STEEL CAP SCREWS: ASTM A-193, GRADE B-8.
4. END PLUGS: ASTM B-26, B-108, ALLOY A-356-F.
5. ANCHOR STUDS: ASTM A-276 TYPE 430 (THREADS TO BE ROLLED NOT CUT).
6. ALUMINUM NUTS: ASTM B-221, ALUMINUM ALLOY 6061-T6.
7. RAILS: ASTM B-221, ALLOY 6061-T6 OR 6351-T5.
8. STEEL NUTS: ASTM A-307, STEEL.

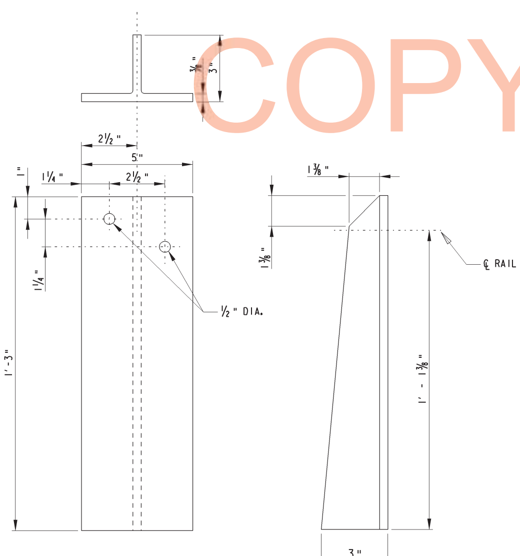


NOTE: BASE PLATE ½" THICK

BASE PLATE
N.T.S.



ANCHOR BOLT
N.T.S.



POST
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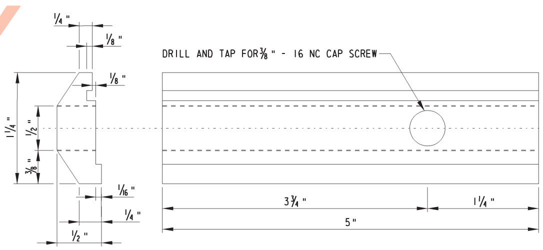
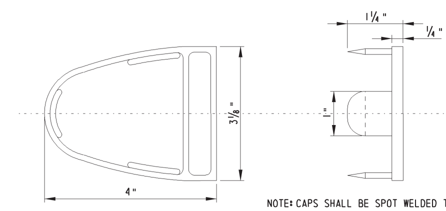
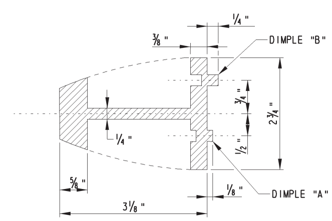


CLAMP BAR
N.T.S.

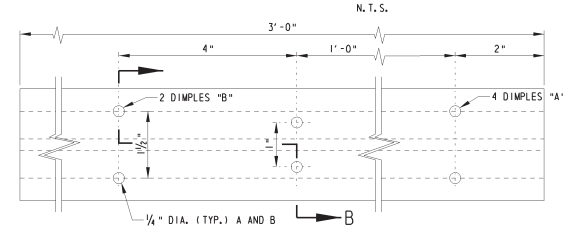


END CAP
N.T.S.

NOTE: CAPS SHALL BE SPOT WELDED TO RAILS WITH WELDS GROUND SMOOTH (3 WELDS REQUIRED EACH CAP)



SECTION B-B
N.T.S.



SLEEVE
N.T.S.

PREL. TRACING DESIGN CHKD.

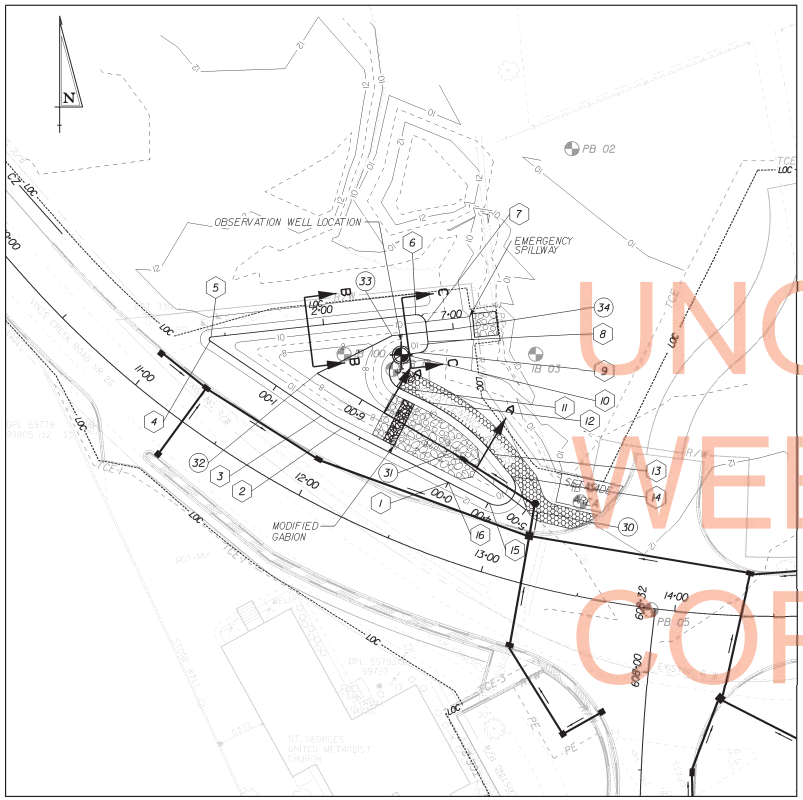
STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #330

0 30 60 120

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	186	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN – DELDOT SWM FACILITY # 330
SCALE : AS NOTED

POND CONSTRUCTION SEQUENCE AND NOTES

THE STORMWATER MANAGEMENT POND SHALL NOT FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL NOT BE CONSTRUCTED UNTIL ALL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED. THE STORMWATER MANAGEMENT FACILITY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS AS APPLICABLE:

SECTION 271 - STORMWATER MANAGEMENT POND

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON THE E&S PLANS.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AND ORANGE SAFETY FENCE AS SHOWN IN THE EROSION AND SEDIMENT CONTROL PLANS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION. ALL TREES, BRUSH, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE FACILITY.
5. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT, EMERGENCY SPILLWAY AND BASIN TO LINES, GRADES, AND DETAILS SHOWN IN THE CONSTRUCTION PLANS. INSTALL MODIFIED GABION CHECKDAM, OBSERVATION WELL AND INSTALL MAINTENANCE ACCESS ROAD FOLLOWING DETAIL ON STORMWATER MANAGEMENT STANDARD DETAILS SHEET. AT NO TIME DURING CONSTRUCTION SHALL HEAVY EQUIPMENT BE ALLOWED IN THE BOTTOM OF THE FACILITY. EQUIPMENT OPERATING IN THE FACILITY SHALL HAVE A TIRE OR TRACK PRESSURE LESS THAN 10 POUNDS PER SQUARE INCH.
6. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE STOCKPILED SO THAT IT WILL NOT DRAIN INTO THE FACILITY DURING CONSTRUCTION.
7. STABILIZE ALL BARE AREAS USING PERMANENT SEEDING W/ TOPSOIL AND STABILIZE. NOTE: SEE EROSION AND SEDIMENT CONTROL PLANS FOR LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.
8. INSTALL PERMANENT BMP MARKER AS STATED IN BMP MARKER GENERAL NOTES ON THE STORMWATER MANAGEMENT STANDARD DETAIL SHEET.

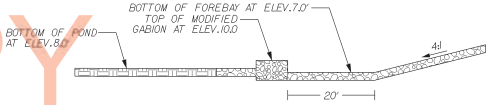
NOTE:
EMBANKMENT ALIGNMENT IS LOCATED AT 11.00' ELEVATION

℄ EMBANKMENT

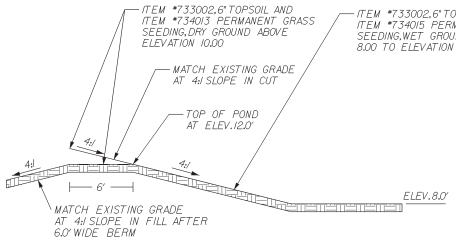
	STATION	NORTHING	EASTING	RADIUS
1	POB STA. 0+00.00	200337.6196	732981.5632	
2	PC STA. 0+60.35	200365.0540	732927.8080	
	PI STA. 0+66.49	200367.8428	732922.3437	100.00
3	PT STA. 0+72.61	200371.2786	732917.2612	
4	PC STA. 1+40.36	200409.2240	732861.1299	
	PI STA. 1+43.08	200410.7492	732858.8736	1.00
5	PT STA. 1+42.80	200411.0464	732861.5809	
6	PC STA. 2+46.53	200422.3663	732964.6908	
	PI STA. 2+51.53	200422.9199	732969.6609	5.00
7	PT STA. 2+54.38	200417.9418	732970.2066	
8	PC STA. 2+63.65	200408.7254	732971.2184	
	PI STA. 2+68.50	200403.9021	732971.7476	5.00
9	PT STA. 2+71.36	200403.2283	732966.9426	
10	PC STA. 2+78.83	200402.1901	732959.5396	
	PI STA. 3+07.97	200398.1436	732930.6839	9.00
11	PT STA. 3+01.71	200385.2122	732956.7953	
12	PC STA. 3+18.03	200377.9724	732971.4140	
	PI STA. 3+39.53	200368.4287	732990.6850	100.00
13	PT STA. 3+60.39	200351.8066	733004.3291	
14	PC STA. 3+74.73	200340.7223	733013.4275	
	PI STA. 4+17.85	200307.3964	733040.7827	9.00
15	PT STA. 3+99.30	200326.9957	733002.3798	
16	POE STA. 4+22.67	200337.6196	732981.5632	

℄ SPILLWAY

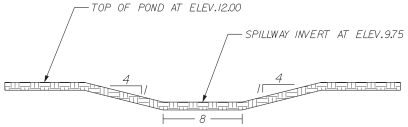
	STATION	NORTHING	EASTING
20	POB STA. 5+00.00	200323.7614	733020.7463
21	PI STA. 5+47.06	200352.6602	732983.6066
22	PI STA. 6+26.23	200392.6421	732915.2740
23	PI STA. 6+68.66	200430.1660	732953.1209
24	POE STA. 6+99.77	200415.0706	732984.0669



SECTION A – A
SCALE : NONE



SECTION B – B
SCALE : NONE



SECTION C – C
SCALE : NONE

POND DESIGN SUMMARY FOR BMP # 330				
DESIGN STORM	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT)
QUALITY STORM (2.0")	0.08	0.00	8.05	0.001
2 - YEAR	1.68	0.00	9.29	0.058
10 - YEAR	6.29	4.51	10.06	0.117
100 - YEAR	19.10	17.70	10.46	0.156

HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378

DRAINAGE AREA TO FACILITY: 6.38 ACRES

MANAGEMENT PROVIDED BY FACILITY: WATER QUALITY BY INFILTRATION OF FIRST 2.0" OF RUNOFF. WATER QUANTITY FOR 2 AND 10 YEAR STORMS.

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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ESTEVO

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	187	589

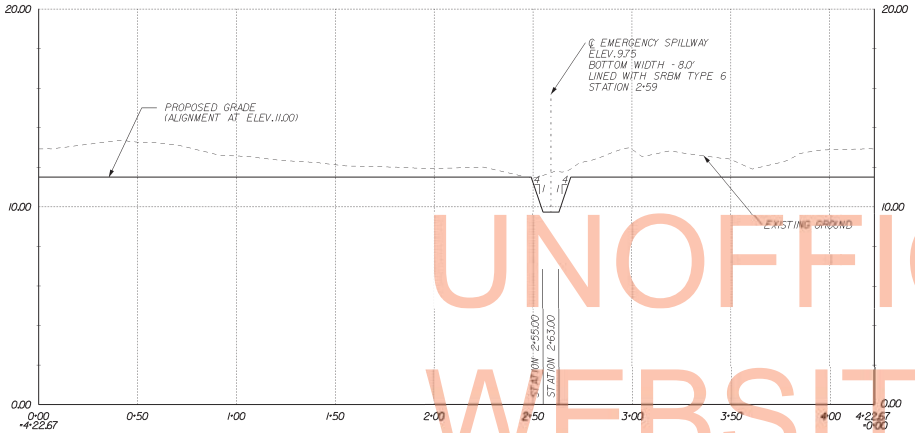
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #330

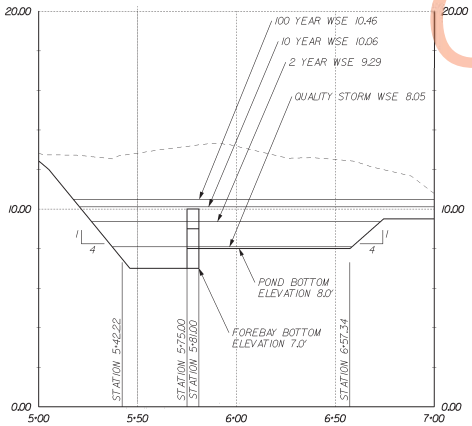
0 30 60 120

12 6 3 0



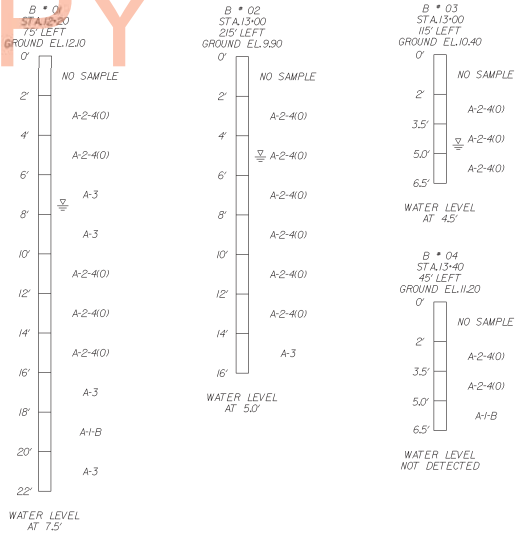
EXCAVATION FOR BMP # 330

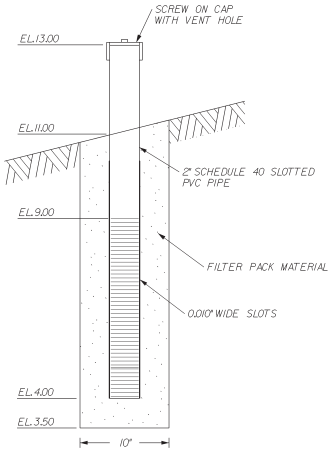
SCALE: AS NOTED



SPILLWAY PROFILE FOR BMP #330

SCALE: AS NOTED





OBSERVATION WELL DETAIL STATION 2+80.00

SCALE: NONE

NOTE: OBSERVATION WELL PAID UNDER ITEM #202528

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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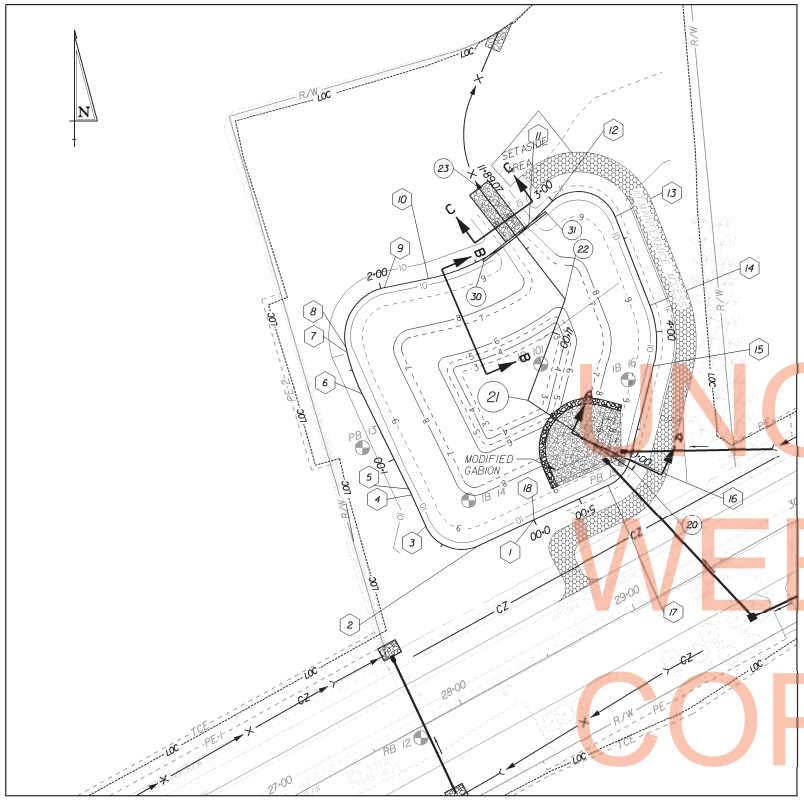
STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #331

0 30 60

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	188	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN – DELDOT SWM FACILITY # 331

SCALE: AS NOTED

POND CONSTRUCTION SEQUENCE AND NOTES

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS AS IS APPLICABLE:

SECTION 271 - STORMWATER MANAGEMENT POND
SECTION 272 - POND OUTLET STRUCTURE, CONCRETE

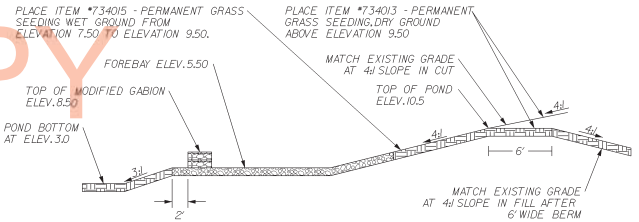
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN EROSION AND SEDIMENT CONTROL PLANS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
5. CONSTRUCT POND OUTLET STRUCTURE AND RIPRAP ENERGY DISSIPATOR AT END OF PRINCIPAL SPILLWAY AND PARTIAL EMBANKMENT AS NEEDED TO INSTALL POND OUTLET STRUCTURE. INSTALL SKIMMER DEWATERING DEVICE. DE-WATER FOUNDATION AS NEEDED IN ACCORDANCE WITH SECTION 1103.3 AND USE SUMP PIT FOR PUMPING. (SEE DELDOT STANDARD DETAILS FOR SKIMMER DEWATERING DEVICE INSTALLATION.)
6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT, EMERGENCY SPILLWAY AND BASIN TO LINES, GRADES, AND DETAILS SHOWN IN THE CONSTRUCTION PLANS. EXCAVATE POND BOTTOM TO ELEVATION 5.5 AS SHOWN FOR SEDIMENT STORAGE DURING CONSTRUCTION.
7. STABILIZE ALL BARE AREAS USING TEMPORARY SEEDING (NO TOPSOIL). NOTE: SEE EROSION AND SEDIMENT CONTROL PLANS FOR LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

MAINTENANCE OF POND AS A SEDIMENT BASIN

1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION 6.50 ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.

CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND

1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO ELEVATION 3.0 AND DISPOSE OF SEDIMENT AT LOCATION APPROVED BY THE ENGINEER. INSTALL MODIFIED GABION CHECK DAMS AS SHOWN.
3. INSTALL MAINTENANCE ACCESS ROAD AND COMPLETE STABILIZATION OF ALL BARE AREAS USING 6" TOPSOIL, PERMANENT SEEDING AND STRAW MULCH. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.
4. INSTALL PERMANENT BMP MARKER AS STATED IN THE BMP GENERAL NOTES ON THE STORMWATER MANAGEMENT STANDARD DETAIL SHEET.



SECTION A – A

SCALE : NONE

NOTE:
EMBANKMENT ALIGNMENT IS LOCATED AT TOP OF POND.

℄ EMBANKMENT

	STATION	NORTHING	EASTING	RADIUS
1	POB STA. 0+00.00	200922.0213	734401.9227	
5	PC STA. 0+30.88	734373.9681	200908.9096	
	PI STA. 0+51.17	200900.2926	734355.5964	20.00
3	PT STA. 0+62.58	200918.7875	734347.2468	
4	PC STA. 0+79.93	200934.6003	734340.1080	
	PI STA. 0+81.56	200936.0870	734339.4368	100.00
5	PT STA. 0+83.19	200937.5510	734338.7175	
6	PC STA. 1+36.84	200985.7018	734315.0597	
	PI STA. 1+47.94	200995.6607	734310.1666	100.00
7	PT STA. 1+58.94	201006.4500	734307.5758	
8	PC STA. 1+61.61	201009.0397	734306.9540	
	PI STA. 1+87.49	201034.2096	734300.9099	25.00
9	PT STA. 2+01.75	201039.3743	734326.2749	
10	PC STA. 2+24.5456	201043.9229	734348.6141	
	PI STA. 2+54.65	201049.9291	734378.1118	100
11	PT STA. 2+83.03	201071.2211	734399.3920	
12	PC STA. 2+98.40	201082.0978	734410.2628	
	PI STA. 3+29.01	201103.7458	734431.8989	20.00
13	PT STA. 3+38.08	201075.2381	734443.0374	
14	PC STA. 3+86.30	201030.3283	734460.5845	
	PI STA. 4+02.34	201015.3864	734466.4226	50.00
15	PT STA. 4+17.35	200999.8369	734462.4779	
16	PC STA. 4+66.04	200952.6354	734450.5033	
	PI STA. 4+75.57	200943.3988	734448.1601	20.00
17	PT STA. 4+83.83	200939.3998	734439.5106	
18	POE STA. 5+25.24	200922.0213	734401.9227	

℄ SPILLWAY

	STATION	NORTHING	EASTING
20	POB STA. 10+00.00	200947.3397	734451.6900
21	PI STA. 10+63.40	200982.4221	734398.8789
22	PI STA. 11+17.90	201033.5130	734417.7461
23	POE STA. 11+89.07	201089.8102	734374.1357

OUTLET STRUCTURE LOCATION

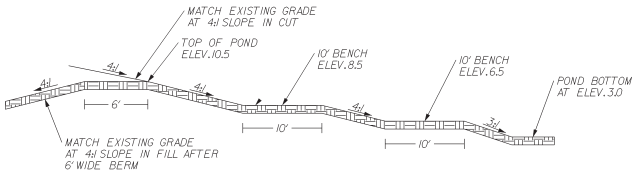
	STATION	NORTHING	EASTING
30		201052.6237	734376.7488
31		201077.1196	734408.3709

POND DESIGN SUMMARY FOR BMP # 331				
DESIGN STORM	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT)
QUALITY STORM (2.0")	0.35	0.02	7.75	0.044
2 - YEAR	2.51	0.22	8.18	0.125
10 - YEAR	6.82	1.09	8.78	0.278
100 - YEAR	17.32	7.91	9.55	0.539

HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378

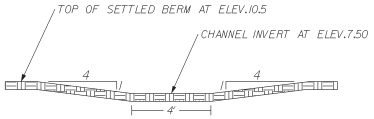
DRAINAGE AREA TO FACILITY: 3.34 ACRES

MANAGEMENT PROVIDED BY FACILITY: WATER QUALITY BY EXTENDED DETENTION OF FIRST 2.0" OF RUNOFF, WATER QUANTITY FOR 2 AND 10 YEAR STORMS.



SECTION B – B

SCALE : NONE



SECTION C – C

SCALE: NONE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #331

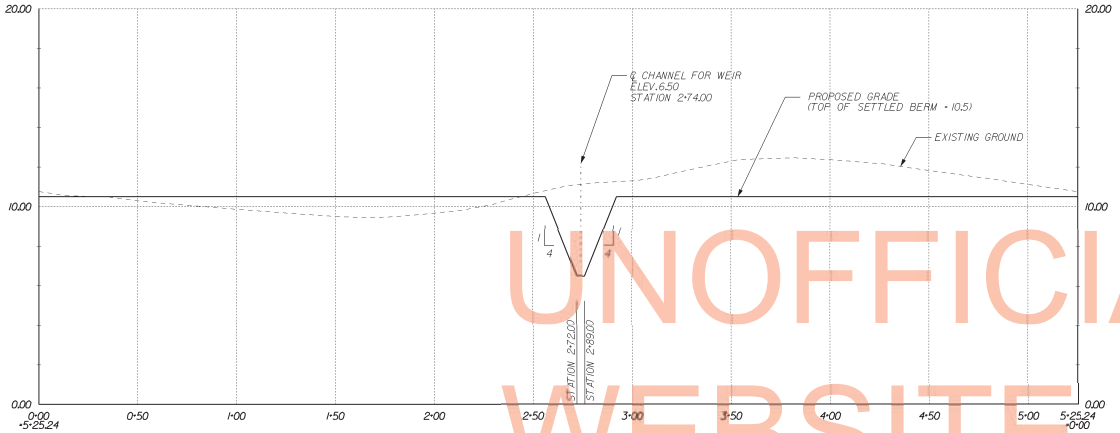
0 30 60 120

12 6 3 0

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	189	589

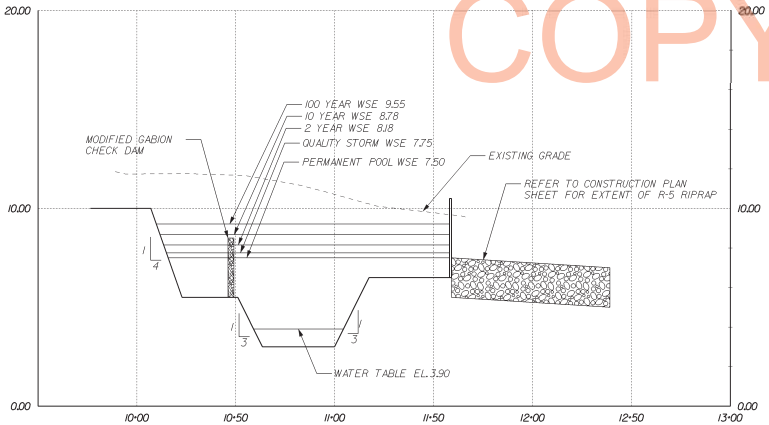
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



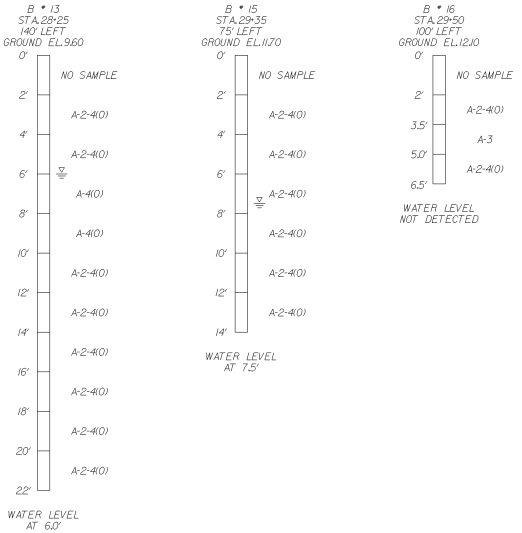
EMBANKMENT FOR BMP # 331

SCALE: AS NOTED



SPILLWAY PROFILE FOR BMP # 331

SCALE: AS NOTED



PREL. TRACING ____ DESIGN ____ CHK'D. ____

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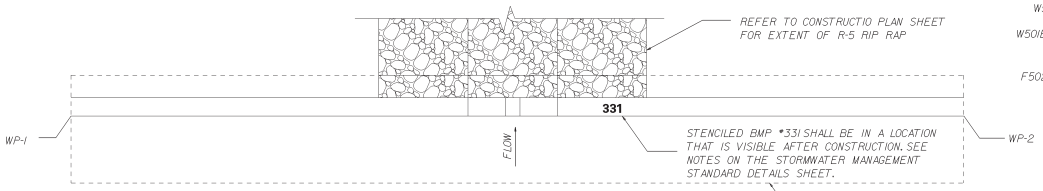
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	190	589

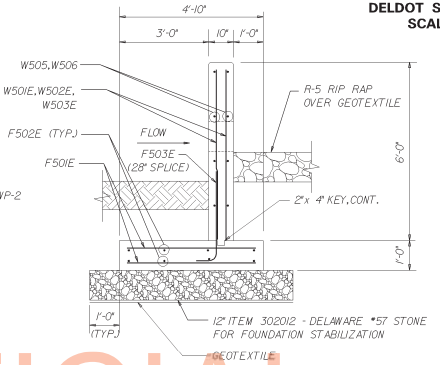
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #331
SCALE AS SHOWN

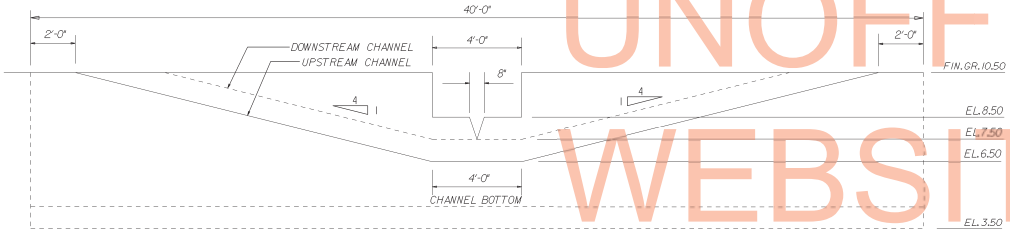


PLAN
SCALE: 1/8" = 1'-0"



SECTION A–A
SCALE: 1/2" = 1'-0"

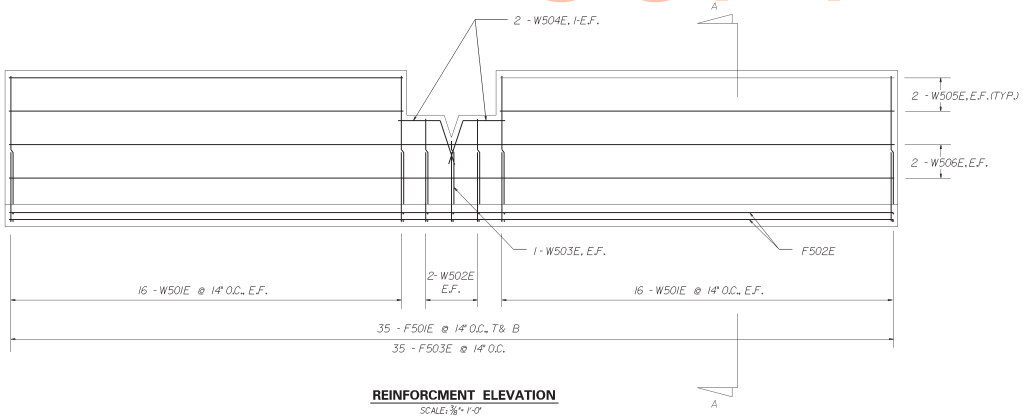
NOTE:
ANY EXCAVATION, BACKFILL, GABC TYPE B, OR GEOTEXTILE REQUIRED FOR THE INSTALLATION OF THE STRUCTURE SHALL BE INCLUDED IN THE ITEM 272000 OUTLET STRUCTURE, CONCRETE, #1.



ELEVATION
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. SPECIFICATIONS:
   DELAWARE DEPARTMENT OF TRANSPORTATION - STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AUGUST 2001, INCLUDING ALL SUPPLEMENTS.
2. MATERIALS:
   CONCRETE FOR FOOTINGS SHALL BE CLASS "B" CONCRETE WITH f'c - 3000 PSI MIN. AT 28 DAYS. CONCRETE ABOVE FOOTINGS SHALL BE CLASS "A" CONCRETE WITH f'c - 4500 PSI MIN. AT 28 DAYS. REINFORCING STEEL SHALL BE A.A.S.H.T.O. M31 GRADE 60. ALL COSTS INCLUDED IN ITEM "272000-POND OUTLET STRUCTURE, CONCRETE, #1.
   REINFORCING STEEL AND TIES DESIGNATED "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH A.A.S.H.T.O. M284 WHERE NOTED.
3. EXCAVATION SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER OR THEIR REPRESENTATIVE. AFTER EXCAVATION, ALL EARTH SHALL BE INSPECTED BY A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER AND APPROVED FOR AN ALLOWABLE BEARING PRESSURE OF 2500 PSF, BEFORE PROCEEDING WITH CONSTRUCTION.
4. BACKFILL MATERIAL OVER FOUNDATIONS SHALL BE TYPE F BORROW OR AS APPROVED BY THE ENGINEER. FURNISHING AND PLACING BACKFILL MATERIAL SHALL BE INCLUDED IN ITEM "272000-POND OUTLET STRUCTURE, CONCRETE, #1. ALL DIMENSIONS, ELEVATIONS, AND FIELD CONDITIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
5. FURNISHING, CONSTRUCTING AND PLACING ALL ITEMS ASSOCIATED WITH THE OUTLET STRUCTURE, INCLUDING BUT NOT LIMITED TO, TRASH RACKS, CONCRETE, REINFORCING STEEL, DELAWARE "57 STONE, GEOTEXTILE, FASTNERS, EXCAVATION AND BACKFILL MATERIAL SHALL BE INCLUDED IN ITEM "272000.
6. REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO A.A.S.H.T.O. M 31M-94, GRADE 60. ALL FASTNERS SHALL BE GRADE 8.



REINFORCMENT ELEVATION
SCALE: 3/8" = 1'-0"

WORKING POINTS		
MARK	NORTHING	EASTING
WP-1	201052.6237	734376.7488
WP-2	201077.1196	734408.3709

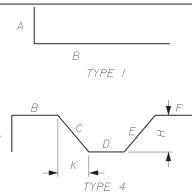
REINFORCING BAR LIST

LENGTHS AND QUANTITIES SHOWN REPRESENT ONE OUTLET STRUCTURE.

MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	H	K
F501E	5	70	4'-4"	STR.	-	-	-	-	-	-
F502E	5	8	39'-6"	STR.	-	-	-	-	-	-
F503E	5	35	3'-9"	1	0'-8"	3'-1"	-	-	-	-
W501E	5	64	5'-10"	STR.	-	-	-	-	-	-
W502E	5	4	3'-10"	STR.	-	-	-	-	-	-
W503E	5	2	2'-10"	STR.	-	-	-	-	-	-
W504E	5	4	4'-0"	4	-	2'-0"	2'-0"	-	2'-0"	0'-8"
W505E	5	8	17'-6"	STR.	-	-	-	-	-	-
W506E	5	4	39'-6"	STR.	-	-	-	-	-	-

BENDING DIAGRAMS

NOTES:
1. (E) DENOTES EPOXY COATED BARS.
2. ALL DIMENSIONS ARE FROM OUT TO OUT.
3. ALL BENDS SHALL BE IN ACCORDANCE WITH THE MANUAL OF STANDARD PARACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES (ACI 315) FOR GRADE 60 REINFORCING.
4. F502E BARS MAY BE SPLICED WITH A MINIMUM SPLICE LENGTH OF 2'-4", STAGGERED.
5. SINGLE BAR MAY SUBSTITUTE SPLICED BARS.



PREL. TRACING ____ DESIGN ____ CHK'D. ____

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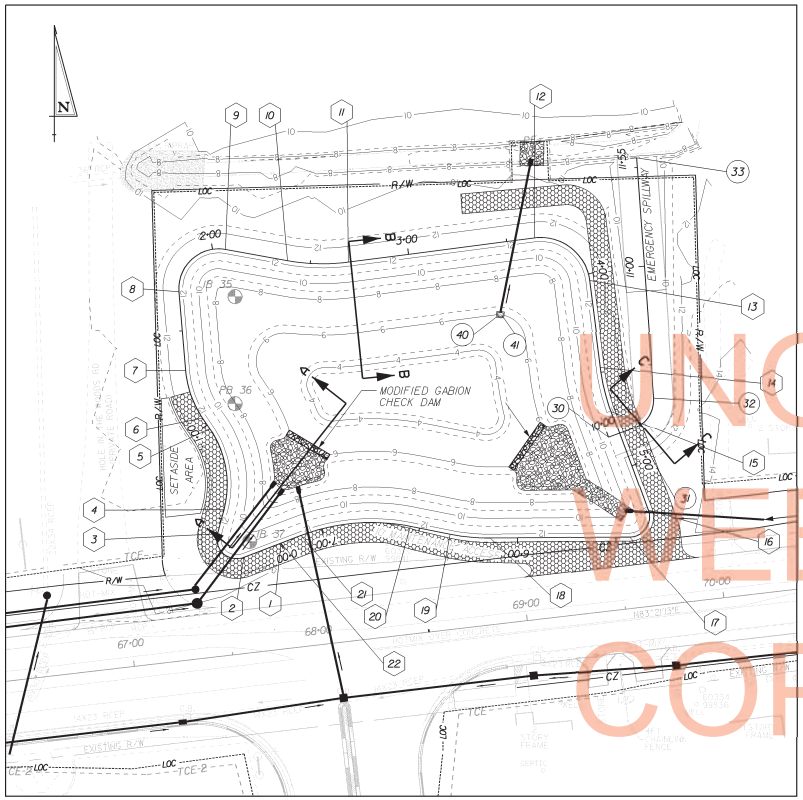
STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #332

0 30 60 120

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	191	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN – DELDOT SWM FACILITY # 332

SCALE: AS NOTED

POND CONSTRUCTION SEQUENCE AND NOTES

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS AS IS APPLICABLE:

SECTION 271 - STORMWATER MANAGEMENT POND
SECTION 272 - POND OUTLET STRUCTURE,CONCRETE

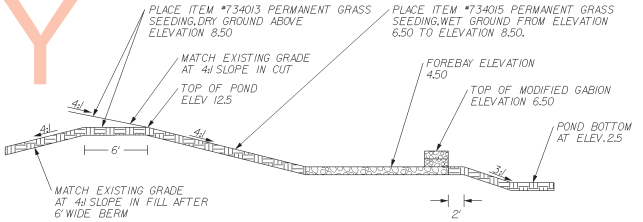
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN EROSION AND SEDIMENT CONTROL PLANS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
5. CONSTRUCT POND OUTLET STRUCTURE AND RIPRAP ENERGY DISSIPATOR AT END OF PRINCIPAL SPILLWAY AND PARTIAL EMBANKMENT AS NEEDED TO INSTALL POND OUTLET STRUCTURE. INSTALL SKIMMER DEWATERING DEVICE. DE-WATER FOUNDATION AS NEEDED IN ACCORDANCE WITH SECTION 1103 AND USE SUMP PIT FOR PUMPING. (SEE DELDOT STANDARD DETAILS FOR SKIMMER DEWATERING DEVICE INSTALLATION.)
6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT, EMERGENCY SPILLWAY AND BASIN TO LINES, GRADES, AND DETAILS SHOWN IN THE CONSTRUCTION PLANS. EXCAVATE POND BOTTOM TO ELEVATION 4.5 AS SHOWN FOR SEDIMENT STORAGE DURING CONSTRUCTION.
7. STABILIZE ALL BARE AREAS USING TEMPORARY SEEDING (NO TOPSOIL). NOTE: SEE EROSION AND SEDIMENT CONTROL PLANS FOR LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

MAINTENANCE OF POND AS A SEDIMENT BASIN

1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION 5.50' ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.

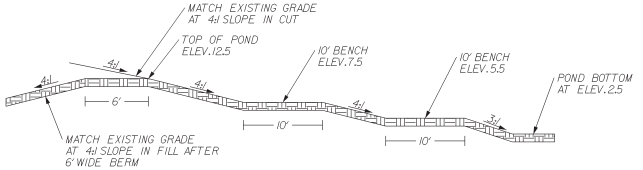
CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND

1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO ELEVATION 2.5 AND DISPOSE OF SEDIMENT AT LOCATION APPROVED BY THE ENGINEER. INSTALL MODIFIED GABION CHECK DAMS AS SHOWN.
3. INSTALL MAINTENANCE ACCESS ROAD AND COMPLETE STABILIZATION OF ALL BARE AREAS USING 6" TOPSOIL, PERMANENT SEEDING AND STRAW MULCH. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.
4. INSTALL PERMANENT BMP MARKER AS STATED IN THE BMP GENERAL NOTES ON THE STORMWATER MANAGEMENT STANDARD DETAIL SHEET.



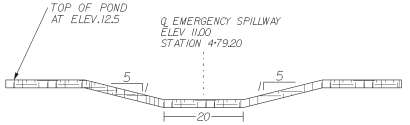
SECTION A – A

SCALE: NONE



SECTION B – B

SCALE : NONE



SECTION C – C

SCALE : NONE

POND DESIGN SUMMARY FOR BMP # 332				
DESIGN STORM	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT)
QUALITY STORM (2.0")	2.03	0.57	7.12	0.171
2 - YEAR	8.34	1.29	8.61	0.742
10 - YEAR	19.47	4.66	10.20	1.528
100 - YEAR	45.29	34.03	11.42	2.230

HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378

DRAINAGE AREA TO FACILITY: 14.55 ACRES

MANAGEMENT PROVIDED BY FACILITY: WATER QUALITY BY EXTENDED DETENTION OF FIRST 2.0" OF RUNOFF. WATER QUANTITY FOR 2 AND 10 YEAR STORMS.

NOTE:
EMBANKMENT ALIGNMENT IS LOCATED AT TOP OF POND

℄ EMBANKMENT

	STATION	NORTHING	EASTING	RADIUS
1	POB STA. 0+00.00	200791.9192	738107.0759	
2	PC STA. 0+20.18	200784.7174	738088.2211	
	PI STA. 0+39.64	200777.7745	738070.0444	10.00
3	PT STA. 0+42.10	200796.5957	738074.9800	
4	PC STA. 0+54.77	200808.8452	738078.1923	
	PI STA. 0+54.77	200808.8452	738078.1923	50.00
5	PT STA. 0+97.63	200849.7943	738071.0712	
6	PC STA. 1+04.07	200855.1038	738067.4324	
	PI STA. 1+17.27	200865.9955	738059.9677	50.00
7	PT STA. 1+29.89	200879.1527	738058.8541	
8	PC STA. 1+69.89	200919.0090	738055.4805	
	PI STA. 1+95.98	200945.0066	738053.2799	20.00
9	PT STA. 2+06.56	200940.3787	738078.9568	
10	PC STA. 2+38.48	200934.7164	738110.3719	
	PI STA. 2+54.00	200931.9628	738125.6495	100.00
11	PT STA. 2+69.28	200933.9705	738141.0430	
12	PC STA. 3+64.17	200946.2420	738235.1319	
	PI STA. 3+89.26	200949.4871	738260.0132	25.00
13	PT STA. 4+03.53	200924.5941	738263.1669	
14	PC STA. 4+47.59	200880.8851	738268.7044	
	PI STA. 4+59.06	200869.5004	738270.1468	100.00
15	PT STA. 4+70.44	200858.7384	738274.1306	
16	PC STA. 5+24.00	200808.5064	738292.7252	
	PI STA. 5+38.25	200795.1478	738297.6702	10.00
17	PT STA. 5+43.18	200795.0352	738283.4262	
18	PC STA. 6+13.74	200794.4773	738212.8664	
	PI STA. 6+24.02	200794.3961	738202.5892	100.00
19	PT STA. 6+34.22	200796.4069	738192.5103	
20	PC STA. 6+54.73	200800.4188	738172.4020	
	PI STA. 6+83.58	200806.0639	738144.1075	100.00
21	PT STA. 7+10.90	200795.7688	738117.1545	
22	POE STA. 7+21.69	200791.9192	738107.0759	

℄ SPILLWAY

	STATION	NORTHING	EASTING	RADIUS
30	POB STA. 10+00.00	200845.4952	738272.6352	
31	PC STA. 10+14.08	200850.3746	738285.8397	
	PI STA. 10+25.35	200854.2812	738296.4118	15.00
32	PT STA. 10+33.41	200865.5229	738295.6017	
33	POE STA. 11+54.90	200986.7031	738286.8687	

OUTLET STRUCTURE LOCATION

	STATION	NORTHING	EASTING	RADIUS
40		200906.0798	738215.8429	
41		200905.7715	738219.6630	

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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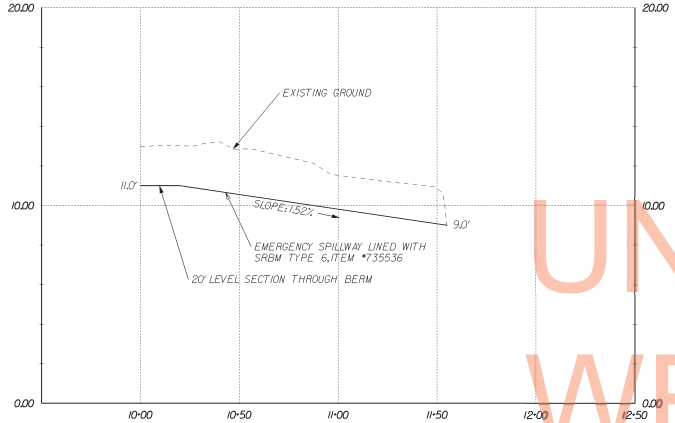
STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #332

0 30 60 120

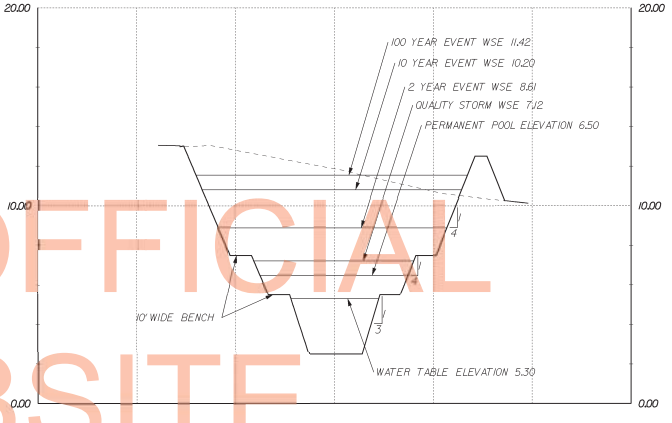
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	192	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

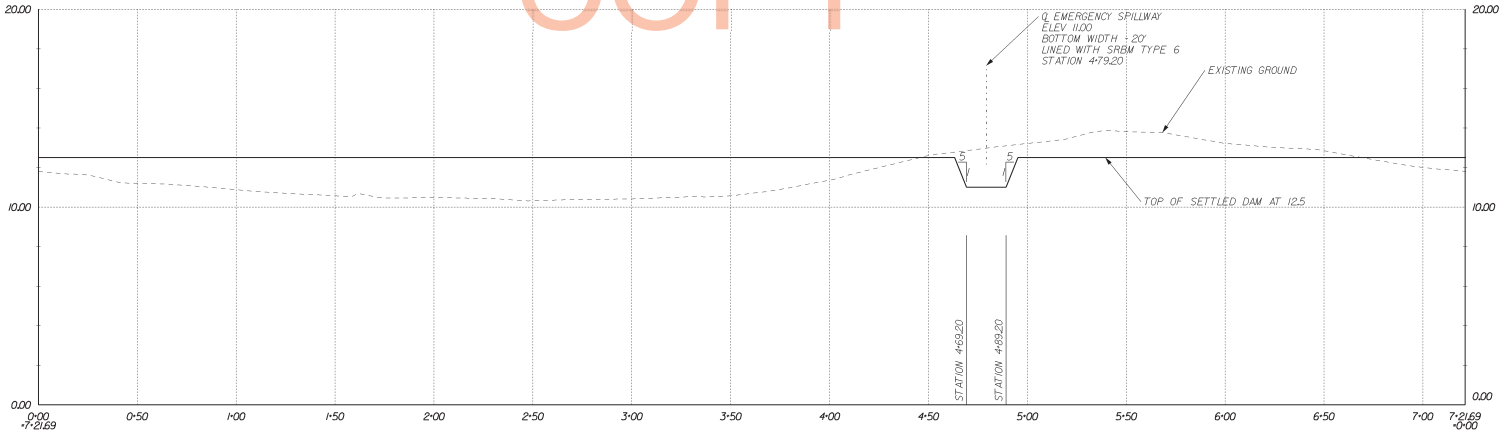
REVISIONS



SPILLWAY PROFILE FOR BMP #332
SCALE: AS NOTED



CROSS SECTION PROFILE FOR BMP #332
SCALE: AS NOTED



EMBANKMENT PROFILE FOR BMP #332
SCALE: AS NOTED

B # 35
STA. 67+60
180' LEFT
GROUND EL. 11.80

0'	NO SAMPLE
2'	A-2-4(0)
3.5'	A-2-4(0)
5.0'	A-2-4(0)
6.5'	

WATER LEVEL NOT DETECTED

B # 37
STA. 67+60
55' LEFT
GROUND EL. 11.50

0'	NO SAMPLE
2'	A-2-4(0)
3.5'	A-2-4(0)
5.0'	A-2-4(0)
6.5'	

WATER LEVEL NOT DETECTED

B # 36
STA. 67+60
130' LEFT
GROUND EL. 11.00

0'	NO SAMPLE
2'	A-2-4(0)
4'	A-2-4(0)
6'	A-2-4(0)
8'	A-2-4(0)
10'	A-2-4(0)
12'	A-2-4(0)
14'	A-2-4(0)
16'	A-2-4(0)
18'	A-2-4(0)
20'	A-2-4(0)
22'	

WATER LEVEL AT 5.5'

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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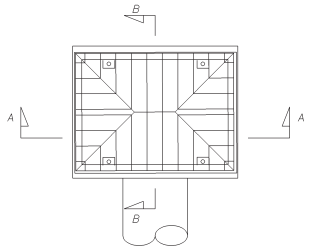
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	193	589

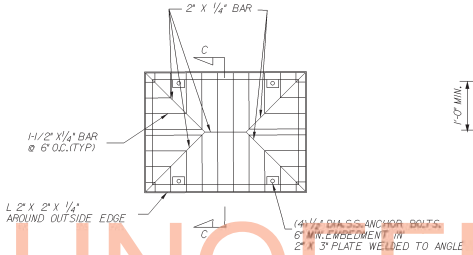
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

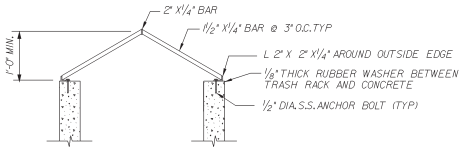
STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #332



TOP VIEW

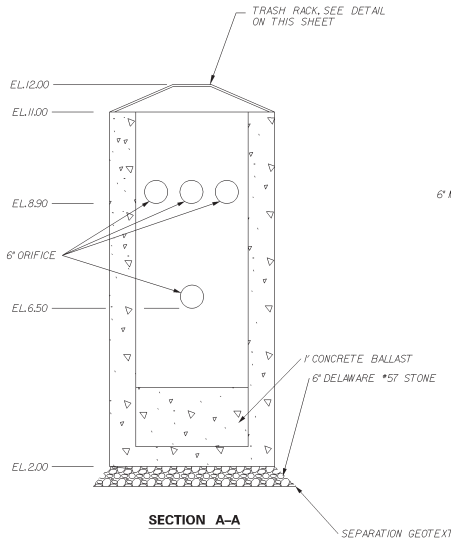


OVERFLOW TRASH RACK
SCALE: NOT TO SCALE

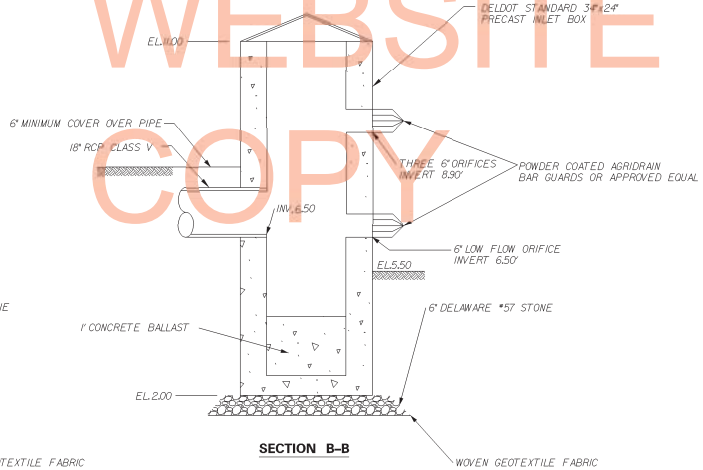


SECTION C–C

NOTE:
TRASH RACKS SHALL BE CONSTRUCTED OF 6061-T6 OR 6063-T6 ALUMINUM CONFORMING TO ASTM B 211
ALL CONNECTIONS SHALL BE DOUBLE FILLET WELDS OR FULL PENETRATION BEVEL WELDS AS REQUIRED.



SECTION A–A



SECTION B–B

RISER STRUCTURE OUTLET DETAILS
SCALE: NOT TO SCALE

NOTES:

1. FURNISHING, CONSTRUCTING AND PLACING ALL ITEMS ASSOCIATED WITH THE OUTLET STRUCTURE, INCLUDING BUT NOT LIMITED TO, TRASH RACKS, CONCRETE, REINFORCING STEEL, DELAWARE #57 STONE, GEOTEXTILE, BALLAST, EXCAVATION, FASTNERS AND BACKFILL MATERIAL SHALL BE INCLUDED IN ITEM #272001 POND OUTLET STRUCTURE, CONCRETE, *2.
2. ALL CONCRETE FOR OUTLET STRUCTURE SHALL BE PORTLAND CEMENT CONCRETE CLASS A.
3. REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO AASHTO M31-94, GRADE 60. ALL FASTNERS SHALL BE GRADE 8.
4. GEOTEXTILE SHALL CONFORM TO ITEM #713002 - GEOTEXTILES, SEPERATION.
5. CONCRETE BALLAST SHALL HAVE A MINIMUM WEIGHT OF 150 LB/CU.FT. AND SHALL CONFORM TO CLASS B CONCRETE.
6. STRUCTURE SHALL BE CONSTRUCTED FROM DELDOT STANDARD 34"x24" PRECAST INLET BOX.
7. CONTRACTOR SHALL STENCIL THE APPROVED DELDOT BMP NUMBER ONTO THE CONCRETE OUTLET STRUCTURE. NUMBERS SHALL BE 4" TALL AND STENCILED IN PERMANENT BLACK PAINT. COST SHALL BE INCIDENTAL TO ITEM #272001 POND OUTLET STRUCTURE, CONCRETE, *2.
8. 18" RCP, CLASS V PIPE SHALL BE INSTALLED AND PAID FOR UNDER ITEM #612030 18" REINFORCED CONCRETE PIPE.
9. GABC, GEOTEXTILE, PIPE CRADLE, ANTI-SEEP COLLARS AND EXCAVATION AND EMBANKMENT SHALL BE INCIDENTAL TO ITEM #272001 POND OUTLET STRUCTURE, CONCRETE, *2.
10. INLET SCREENS SHALL BE AGRIDRAIN BAR GUARDS, OR APPROVED EQUAL, AND SHALL BE INCIDENTAL TO ITEM #272001 POND OUTLET STRUCTURE, CONCRETE, *2. CONTRACTOR SHALL SUMBIT INLET SCREEN INFORMATION FOR REVIEW.

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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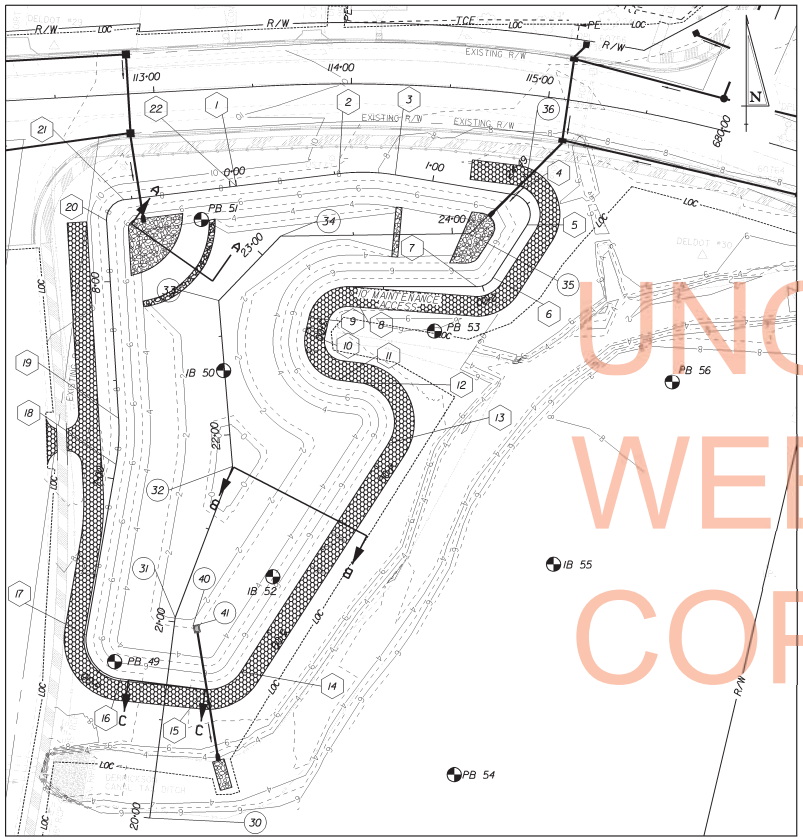
STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #333

0 30 60 120

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	194	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS



PLAN – DELDOT SWM FACILITY # 333
SCALE: AS NOTED

POND CONSTRUCTION SEQUENCE AND NOTES

THE STORMWATER MANAGEMENT POND SHALL FUNCTION AS A SEDIMENT BASIN DURING ROADWAY CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS AS IS APPLICABLE:

SECTION 271 - STORMWATER MANAGEMENT POND
SECTION 272 - POND OUTLET STRUCTURE, CONCRETE

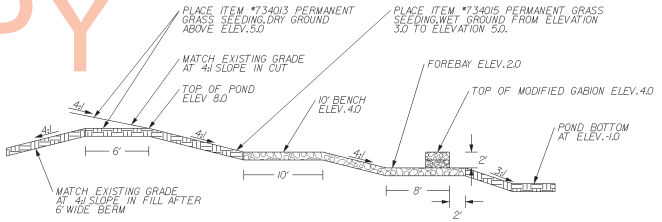
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS.
3. INSTALL PERIMETER SEDIMENT CONTROLS AS SHOWN IN EROSION AND SEDIMENT CONTROL PLANS.
4. CLEAR AND GRUB REMAINING AREA FOR POND CONSTRUCTION.
5. CONSTRUCT POND OUTLET STRUCTURE AND RIPRAP ENERGY DISSIPATOR AT END OF PRINCIPAL SPILLWAY AND PARTIAL EMBANKMENT AS NEEDED TO INSTALL POND OUTLET STRUCTURE. INSTALL SKIMMER DEWATERING DEVICE. DE-WATER FOUNDATION AS NEEDED IN ACCORDANCE WITH SECTION 110.3 AND USE SUMP PIT FOR PUMPING. (SEE DELDOT STANDARD DETAILS FOR SKIMMER DEWATERING DEVICE INSTALLATION.)
6. EXCAVATE THE POND AND COMPLETE THE EMBANKMENT, EMERGENCY SPILLWAY AND BASIN TO LINES, GRADES, AND DETAILS SHOWN IN THE CONSTRUCTION PLANS. DURING EXCAVATION, THE CONTRACTOR SHALL SALVAGE AND STOCKPILE SOILS CLASSIFIED AS CH, OL, AND OM PER THE UNIFIED SOIL CLASSIFICATION SYSTEM TO BE USED TO CONSTRUCT EMBANKMENT AND TO LINE THE POND AS SHOWN IN THE PLANS. THE ABOVE CLASSIFIED SOILS MAY BE OBTAINED FROM ELSEWHERE WITHIN THE PROJECT LIMITS, IF NECESSARY. EXCAVATE POND BOTTOM TO ELEVATION 1.0 AS SHOWN FOR SEDIMENT STORAGE DURING CONSTRUCTION.
7. STABILIZE ALL BARE AREAS WITH TEMPORARY SEEDING (NO TOPSOIL). NOTE: SEE EROSION AND SEDIMENT CONTROL PLANS FOR LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES.

MAINTENANCE OF POND AS A SEDIMENT BASIN

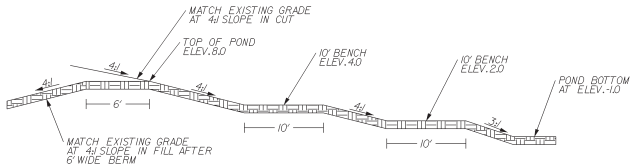
1. CONTRACTOR SHALL INSPECT THE BASIN IMMEDIATELY AFTER EVERY RAIN AND MAKE REPAIRS AS NEEDED.
2. CONTRACTOR SHALL CLEARLY MARK THE CLEANOUT ELEVATION 2.0 ON A STAKE DRIVEN INTO THE GROUND AT A LOCATION CLEARLY VISIBLE FROM THE EMBANKMENT. SEDIMENT SHALL BE REMOVED WHEN CLEANOUT ELEVATION IS REACHED AND DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER.

CONVERSION TO PERMANENT STORMWATER MANAGEMENT POND

1. CONVERT THE BASIN INTO THE PERMANENT STORMWATER MANAGEMENT POND AFTER ALL AREAS DRAINING TO THE POND HAVE BEEN PERMANENTLY STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.
2. REMOVE ACCUMULATED SEDIMENT TO ELEVATION 1.0 AND DISPOSE OF SEDIMENT AT LOCATION APPROVED BY THE ENGINEER. INSTALL MODIFIED GABION CHECK DAMS AS SHOWN.
3. INSTALL MAINTENANCE ACCESS ROAD AND COMPLETE STABILIZATION OF ALL BARE AREAS USING 6" TOPSOIL, PERMANENT SEEDING AND STRAW MULCH. REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEACTIVATE SKIMMER DEWATERING DEVICE.
4. INSTALL PERMANENT BMP MARKER AS STATED IN THE BMP GENERAL NOTES ON THE STORMWATER MANAGEMENT STANDARD DETAIL SHEET.



SECTION A – A
SCALE: NONE



SECTION B – B
SCALE: NONE

NOTE:
EMBANKMENT ALIGNMENT IS LOCATED AT TOP OF POND.

℄ EMBANKMENT

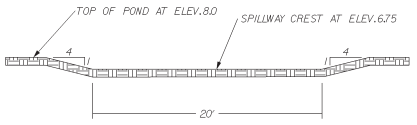
	STATION	NORTHING	EASTING	RADIUS
1	POB STA. 0+00.00	199663.4211	742425.2869	
2	PC STA. 0+52.28	199659.7161	742477.1822	
	PI STA. 0+66.66	199671.4478	742491.4583	100.00
3	PT STA. 0+80.84	199669.0865	742505.6439	
4	PC STA. 1+41.51	199659.1255	742565.4853	
	PI STA. 1+56.71	199656.6293	742580.4811	10.00
5	PT STA. 1+61.29	199643.8475	742572.2512	
6	PC STA. 1+93.01	199617.1713	742555.0750	
	PI STA. 1+98.47	199612.5849	742552.1219	10.00
7	PT STA. 2+03.00	199612.5849	742546.6671	
8	PC STA. 2+68.22	199612.5849	742481.4496	
	PI STA. 2+84.27	199612.5849	742465.4009	20.00
9	PT STA. 2+95.27	199596.9173	742461.9245	
10	PC STA. 3+02.87	199589.4923	742460.2770	
	PI STA. 3+24.75	199568.1294	742455.5369	20.00
11	PT STA. 3+36.09	199565.3249	742477.2389	
12	PC STA. 3+46.73	199563.9604	742487.7980	
	PI STA. 3+78.44	199559.8970	742519.2424	20.00
13	PT STA. 3+87.05	199533.2689	742502.0318	
14	PC STA. 5+24.26	199418.0375	742427.5537	
	PI STA. 5+36.84	199407.4727	742420.7254	20.00
15	PT STA. 5+46.72	199409.0522	742408.2455	
16	PC STA. 5+88.56	199414.3068	742366.7293	
	PI STA. 6+09.54	199416.9401	742345.9228	20.00
17	PT STA. 6+20.93	199437.5982	742349.5403	
18	PC STA. 7+07.34	199522.7143	742364.4453	
	PI STA. 7+19.10	199534.2936	742366.4730	100.00
19	PT STA. 7+30.74	199546.0275	742365.7601	
20	PC STA. 8+30.90	199645.9947	742359.6865	
	PI STA. 8+40.31	199655.3944	742359.1154	10.00
21	PT STA. 8+46.00	199656.5284	742368.4639	
22	POE STA. 9+03.24	199663.4211	742425.2869	

℄ SPILLWAY

	STATION	NORTHING	EASTING
20	POB STA. 20+00.00	199343.9321	742381.5013
21	PI STA. 21+02.14	199445.2681	742394.3269
22	PI STA. 21+83.90	199521.6954	742423.3588
23	PI STA. 22+68.08	199605.5874	742416.3581
24	PI STA. 23+13.13	199638.0878	742447.5540
25	PI STA. 24+08.78	199639.4067	742543.1941
26	POE STA. 24+49.21	199667.6141	742572.2540

OUTLET STRUCTURE LOCATION

	STATION	NORTHING	EASTING
43		199441.1760	742403.3980
44		199441.7990	742406.3330



SECTION C – C
SCALE: NONE

POND DESIGN SUMMARY FOR BMP # 333				
DESIGN STORM	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT)
QUALITY STORM (2.0")	1.13	0.13	3.57	0.122
2 - YEAR	4.95	0.34	4.50	0.454
10 - YEAR	11.80	0.74	5.79	1.119
100 - YEAR	27.76	9.81	6.64	1.627

HAZARD CLASSIFICATION: CLASS A AS PER POND CODE 378

DRAINAGE AREA TO FACILITY: 7.55 ACRES

MANAGEMENT PROVIDED BY FACILITY: WATER QUALITY BY DETENTION OF FIRST 2.0" OF RUNOFF, WATER QUANTITY FOR 2 AND 10 YEAR STORMS.

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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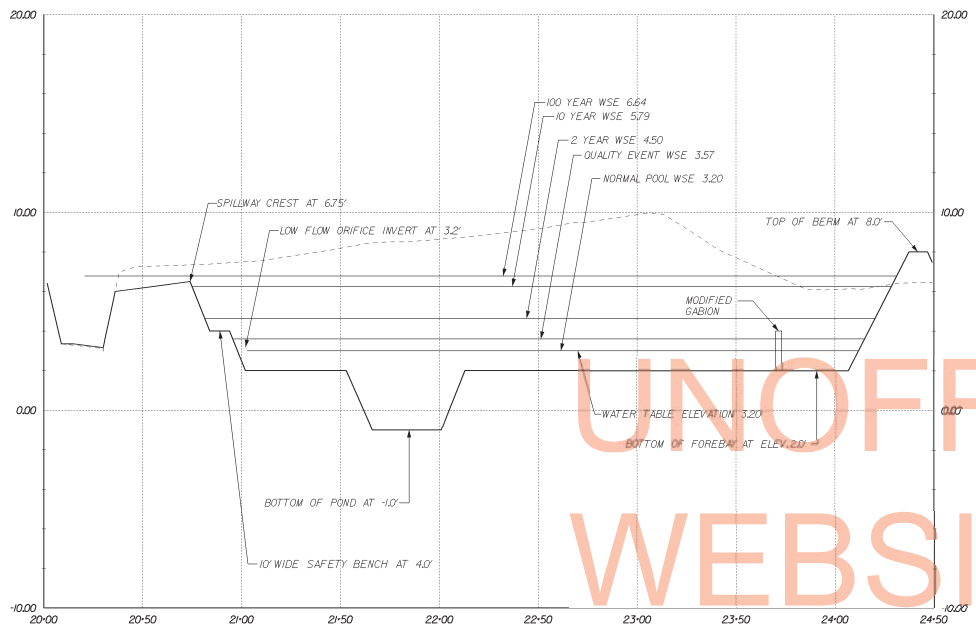
kcobb

STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #333

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	195	589

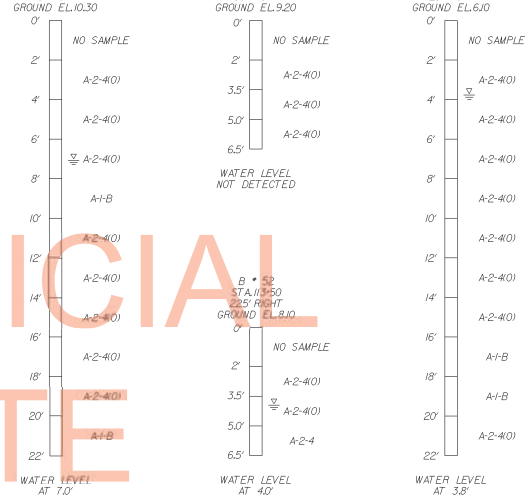
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

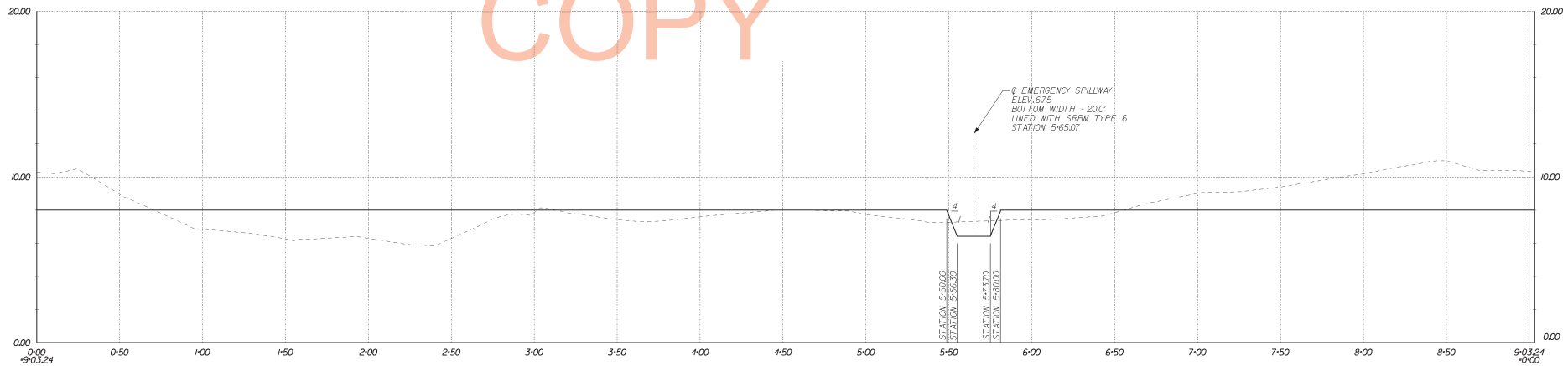
REVISIONS



SPILLWAY PROFILE FOR BMP # 333

SCALE: AS NOTED





EMBANKMENT PROFILE FOR BMP # 333

SCALE: AS NOTED

PREL. TRACING ____ DESIGN ____ CHK'D. ____

7/17/2003
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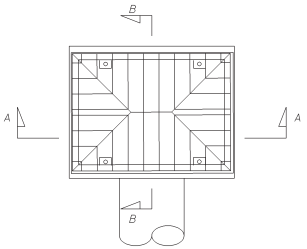
kgant

STORMWATER MANAGEMENT DETAILS
DELDOT SWM FACILITY #333

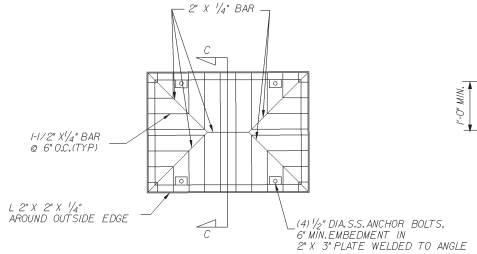
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	196	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

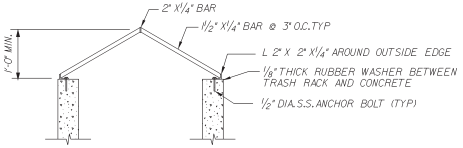
REVISIONS



TOP VIEW

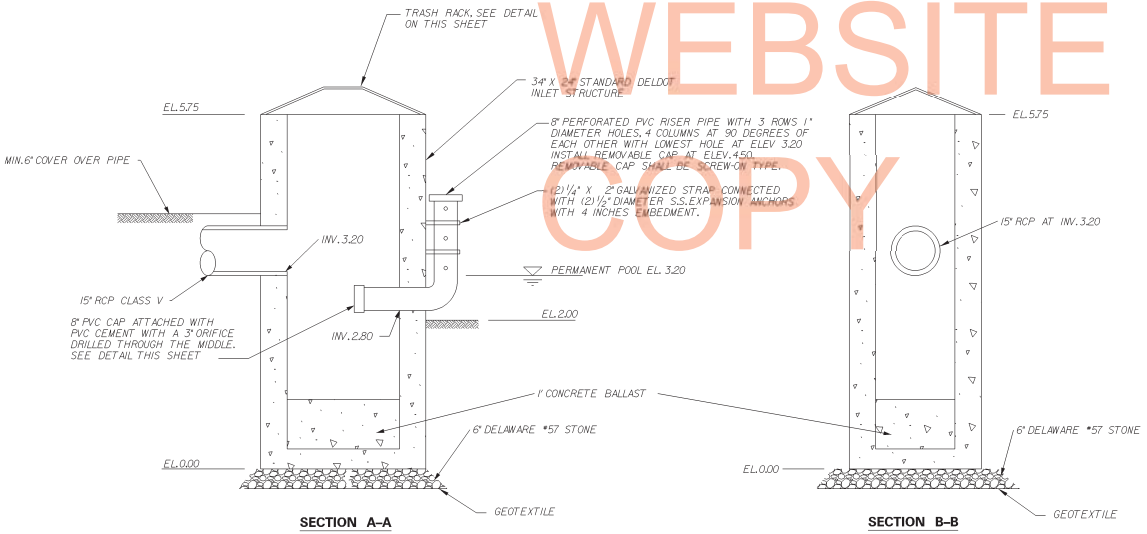


OVERFLOW TRASH RACK
SCALE: NOT TO SCALE



SECTION C–C

NOTE:
TRASH RACKS SHALL BE CONSTRUCTED OF 6061-T6 OR 6063-T6 ALUMINUM CONFORMING TO ASTM B 211
ALL CONNECTIONS SHALL BE DOUBLE FILLET WELDS OR FULL PENETRATION BEVEL WELDS AS REQUIRED.

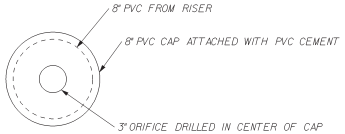


SECTION A–A **SECTION B–B**

RISER STRUCTURE OUTLET DETAIL
SCALE: NOT TO SCALE

NOTES:

1. FURNISHING, CONSTRUCTING AND PLACING ALL ITEMS ASSOCIATED WITH THE OUTLET STRUCTURE, INCLUDING BUT NOT LIMITED TO, TRASH RACKS, PVC RISER PIPE, CONCRETE, REINFORCING STEEL, DELAWARE #57 STONE, GEOTEXTILE, BALLAST, HARDWARE, EXCAVATION, FASTNERS AND BACKFILL MATERIAL SHALL BE INCLUDED IN ITEM #272002 POND OUTLET STRUCTURE, CONCRETE, *3.
2. ALL CONCRETE FOR OUTLET STRUCTURE SHALL BE PORTLAND CEMENT CONCRETE CLASS A.
3. REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO AASHTO M31-94, GRADE 60. ALL FASTNERS SHALL BE GRADE B.
4. GEOTEXTILE SHALL CONFORM TO ITEM #713002 - GEOTEXTILES, SEPERATION.
5. CONCRETE BALLAST SHALL HAVE A MINIMUM WEIGHT OF 150 LB/CU.FT. AND SHALL CONFORM TO CLASS B CONCRETE.
6. STRUCTURE SHALL BE CONSTRUCTED FROM DELDOT STANDARD 3'-4" x 2'-4" PRECAST INLET BOX.
7. CONTRACTOR SHALL STENCIL THE APPROVED DELDOT BMP NUMBER ONTO THE CONCRETE OUTLET STRUCTURE. NUMBERS SHALL BE 4" TALL AND STENCILED IN PERMANENT BLACK PAINT. COST SHALL BE INCIDENTAL TO ITEM #272002 POND OUTLET STRUCTURE, CONCRETE, *3.
8. 15" RCP, CLASS V PIPE SHALL BE INSTALLED AND PAID FOR UNDER ITEM #612032 15" REINFORCED CONCRETE PIPE.
9. GABC, GEOTEXTILE, PIPE CRADLE, ANTI-SEEP COLLARS AND EXCAVATION AND EMBANKMENT SHALL BE INCIDENTAL TO ITEM #272002 POND OUTLET STRUCTURE, CONCRETE, *3.
10. INLET SCREENS SHALL BE AGRIDRAIN BAR GUARDS, OR APPROVED EQUAL, AND SHALL BE INCIDENTAL TO ITEM #272002 POND OUTLET STRUCTURE, CONCRETE, *3. CONTRACTOR SHALL SUMBIT INLET SCREEN INFORMATION FOR REVIEW.



PVC LOW FLOW ORIFICE DETAIL
SCALE: NOT TO SCALE

PREL. TRACING ____ DESIGN ____ CHK'D. ____

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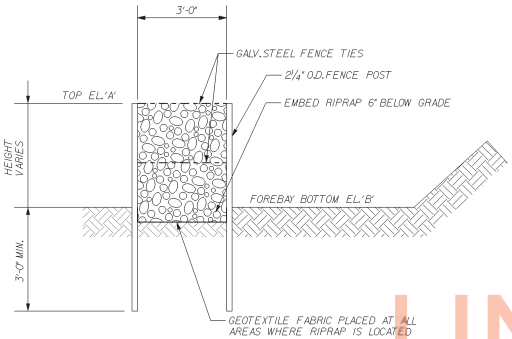
6/2018

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	197	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

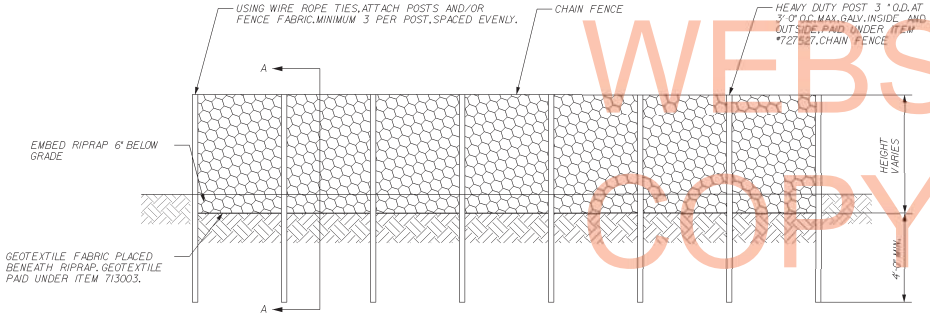
REVISIONS



SWM FACILITY NO.	A	B
330	10.0'	7.0'
331	8.5'	5.5'
332	15.5'	12.5'
333	4.0'	2.0'

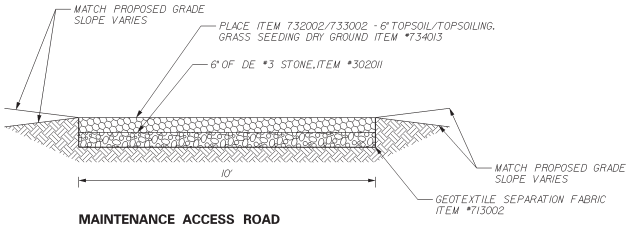
MODIFIED GABION CHECK DAM SECTION A–A

SCALE: NOT TO SCALE



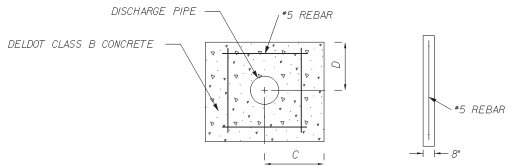
MODIFIED GABION CHECK DAM ELEVATION

SCALE: NOT TO SCALE



MAINTENANCE ACCESS ROAD

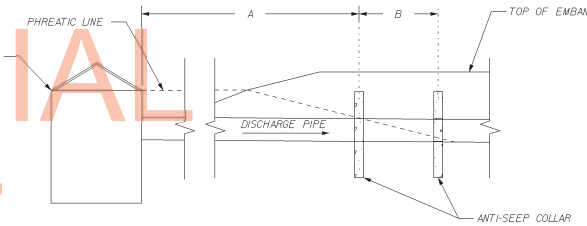
SCALE: NOT TO SCALE



ANTI-SEEP COLLAR DETAILS

SCALE: NOT TO SCALE

SWM FACILITY NO.	A	B	C	D
330	-	-	-	-
331	-	-	-	-
332	32'	10'	3.5'	3.5'
333	28'	10'	3'	3'



ANTI-SEEP COLLAR SECTION

SCALE: NOT TO SCALE

ANTI-SEEP COLLAR GENERAL NOTES

1. CONCRETE FOR ANTI-SEEP COLLAR SHALL BE DELDOT CLASS 'B' CONCRETE.

2. REINFORCING STEEL SHALL CONFIRM TO A.A.S.H.T.O.M.31M-94, GRADE 60. ALL FASTNERS SHALL BE GRADE 8. ALL REINFORCING STEEL AND TIES SHALL BE EPOXY COATED IN ACCORDANCE WITH AASHTO M284.

3. ANTI-SEEP COLLARS SHALL BE INCIDENTAL TO THE ASSOCIATED STORMWATER MANAGEMENT FACILITY OUTLET STRUCTURE.

MODIFIED GABION GENERAL NOTES

1. FENCE POST SHALL BE TIED TOGETHER USING 1/8" GALVANIZED STEEL ROPE. TWO TIES PER FENCE POST. FENCE POST SHALL BE PAID UNDER ITEM *727527, CHAIN FENCE.

2. CHAIN LINK FENCE SHALL BE TIED TOGETHER USING 1/8" GALVANIZED STEEL ROPE. TIES SHALL BE SPACED 2' O.C. ALONG LENGTH. TWO TIES PER SECTION. CHAIN LINK FENCE SHALL BE PAID UNDER ITEM *727527, CHAIN FENCE.

3. THE STONE PLACED INSIDE MODIFIED GABION SHALL BE R-4 RIPRAP. SPECIAL CARE SHALL BE TAKEN WHEN PLACING THE ROCK TO ENSURE THAT THE COATING ON THE FENCE IS NOT DAMAGED. RIPRAP SHALL BE PAID UNDER ITEM *712020, R-4 RIPRAP.

4. GEOTEXTILE BENEATH THE RIPRAP FOREBAY SHALL BE PAID UNDER ITEM *713003.

BMP MARKER GENERAL NOTES

1. FOR BMPS THAT DO NOT HAVE A CONCRETE OUTLET STRUCTURE CONTRACTOR SHALL INSTALL A 6"x12" CONCRETE MARKER ALONG THE PERIMETER OF THE FACILITY. THE MARKER SHALL BE PLACED AT THE TOP OF BANK AND FLUSH WITH THE GROUND AT A LOCATION THAT IS CLEARLY VISIBLE FROM THE ROADWAY. THE APPROVED DELDOT BMP NUMBER SHALL BE STENCILED ONTO THE CONCRETE MARKER WITH 4" TALL LETTERING IN PERMANENT BLACK PAINT. COST SHALL BE INCIDENTAL TO ITEM *271000.

2. FOR BMPS THAT HAVE A CONCRETE OUTLET STRUCTURE THE CONTRACTOR SHALL STENCIL THE APPROVED DELDOT BMP NUMBER ON THE OUTLET STRUCTURE. WEIR STRUCTURES SHALL HAVE THE BMP NUMBER STENCILED ON THE TOP AND DOWNSTREAM FACE. ALL OTHER STRUCTURES SHALL HAVE THE BMP NUMBER STENCILED ON TWO SIDES THAT ARE CLEARLY VISIBLE FROM THE ROADWAY. THE APPROVED DELDOT BMP NUMBER SHALL BE STENCILED WITH 4" TALL LETTERING AND PERMANENT BLACK PAINT. COST SHALL BE INCIDENTAL TO ITEM *271000.

POND SEDIMENT BASIN GENERAL NOTES

1. FOR ALL PONDS THAT SHALL FUNCTION AS A SEDIMENT BASIN, A SKIMMER DEWATERING DEVICE SHALL BE INSTALLED AT THE TIME THE OUTLET STRUCTURE IS CONSTRUCTED. INSTALLATION AND REMOVAL OF THE SKIMMER DEWATERING DEVICE SHALL BE PAID UNDER ITEM 272500 - SKIMMER DEWATERING DEVICE. THE SKIMMER DEVICE SHALL REMAIN PROPERTY OF THE CONTRACTOR.

2. CLEANOUT ELEVATIONS SHALL BE AS SPECIFIED ON THE STORMWATER DETAIL SHEETS. SEDIMENT REMOVAL SHALL BE PAID UNDER ITEM 250000 - SEDIMENT REMOVAL.

3. CONVERSION TO A PERMANENT FACILITY SHALL NOT OCCUR UNTIL ALL UPLAND AREAS HAVE BEEN STABILIZED AND THE ENGINEER HAS APPROVED THE CONVERSION.

PREL. TRACING ____ DESIGN ____ CHK'D. ____

7/17/2013
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SHEET PREPARED BY:
CENTURY ENGINEERING, INC
4134 N. DUPONT HWY
DOVER, DE 19901
JUNE 2009
UPDATED DECEMBER 12, 2011
WETLAND DELINEATED BY:
CENTURY ENGINEERING, INC
JUNE 2006, IN ACCORDANCE WITH THE
1987 CORPS OF ENGINEERS MANUAL

ENVIRONMENTAL COMPLIANCE SUMMARY

0 500 1000 2000

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	198	589

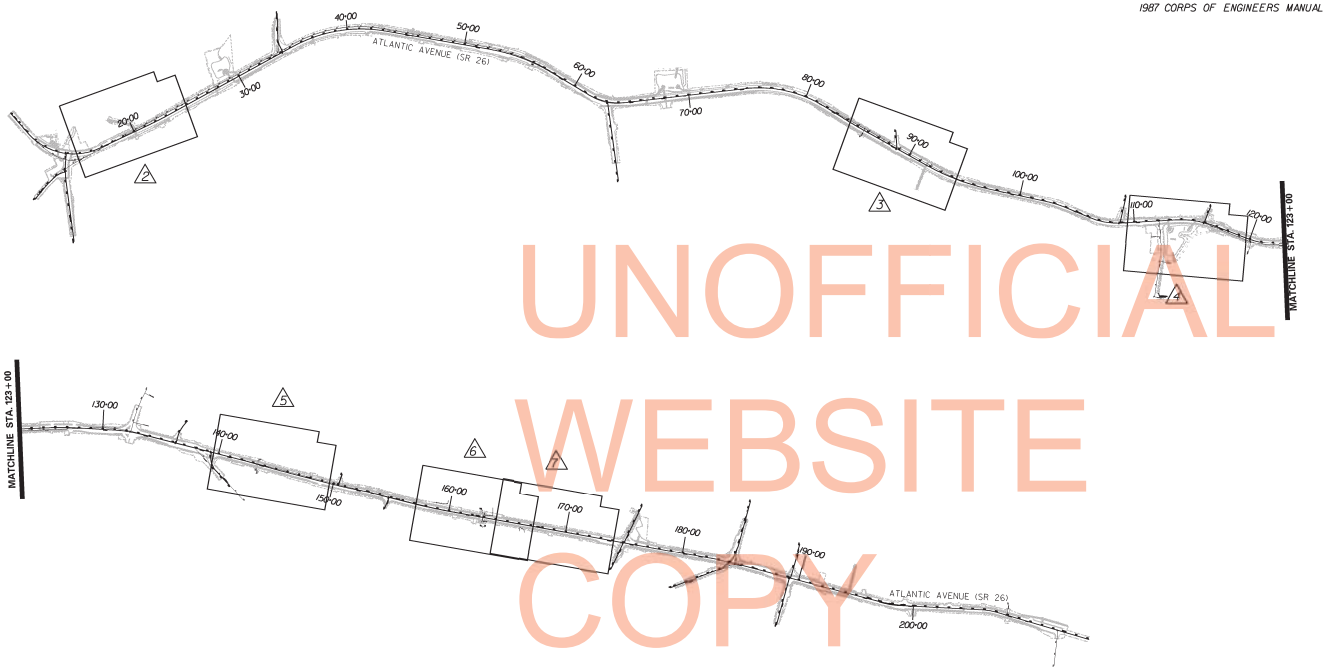
SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

LEGEND

△ ENVIRONMENTAL COMPLIANCE PLAN SHEET

O - OPEN WATER IMPACT
T - TEMPORARY IMPACT
W - WETLAND IMPACT



1. GENERAL NOTES:
A. THE PURPOSE OF THIS SHEET IS TO IDENTIFY THOSE ITEMS ASSOCIATED WITH ENVIRONMENTAL COMPLIANCE. IMPACT CALCULATIONS ARE FOR AGENCY PERMIT REPORTING PURPOSES ONLY AND ARE NOT TO BE USED FOR BIDDING PURPOSES.

B. IF A DEPARTURE FROM THE APPROVED PLANS (WHICH WOULD AFFECT ANY OF THE NATURAL AND/OR CULTURAL RESOURCE ISSUES) IS NECESSARY, THE ENVIRONMENTAL STUDIES SECTION SHALL BE CONTACTED AT (302) 760-2264 TO ALLOW THE DEPARTMENT TO COORDINATE WITH THE APPROPRIATE RESOURCE AGENCIES FOR APPROVAL.

C. USE OF THIS SHEET DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.

2. NATURAL RESOURCE ISSUES:
A. PERMIT REQUIREMENTS / APPROVALS:
CORPS OF ENGINEERS - NWP *14*
DNREC - SUBAQUEOUS LAND PERMIT IS REQUIRED FOR BRIDGE 428

THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING/OBTAINING THESE PERMITS/APPROVALS.
**THE CONTRACTOR MUST ENSURE THAT THEY ARE IN POSSESSION OF THIS PERMIT (COE, DNREC) PRIOR TO THE BEGINNING OF CONSTRUCTION IN THE PERMITTED AREAS). THIS PERMIT SHALL BE DISPLAYED ON-SITE DURING THE ENTIRE CONSTRUCTION PERIOD.

B. CONSTRUCTION RESTRICTIONS:
FISHERIES - NONE

MIGRATORY BIRDS - NONE

ENDANGERED SPECIES - NONE

C. PROTECTION OF TREES & WETLANDS:
IN ORDER TO PROTECT RESOURCES LOCATED ALONG THE PROJECT, SILT FENCE OR PROTECTIVE FENCING SHALL BE PLACED AT THE LIMITS OF CONSTRUCTION AT ALL JURISDICTIONAL WETLANDS AND WATERS LOCATIONS.

D. STREAM RESTORATION AND RIPRAP TREATMENTS
I. THE CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS OF ITEM *712531 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFF-SITE MATERIAL. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ITEM *712531 - CHANNEL BED FILL. ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) SHALL BE RECESSED ONE FOOT BELOW STREAM BED ELEVATION AND CHOKED WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH MATERIAL. PAYMENT UNDER ITEM *203002 - BORROW TYPE 'B'. THE RIPRAP SHALL THEN BE COVERED WITH A MINIMUM OF 12" CHANNEL BED FILL. FINAL CHANNEL ELEVATIONS SHALL MATCH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS, THROUGH THE STRUCTURE. ELEVATIONS SHALL BE AS NOTED ON THE PLANS. PAYMENT UNDER ITEM *712531 - CHANNEL BED FILL.

II. OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SUMP PITS, STABILIZED OUTLETS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) SHALL BE RESTORED TO EXISTING CONDITIONS. ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE FILLED WITH CHANNEL BED FILL. PAYMENT UNDER ITEM *712531 - CHANNEL BED FILL.

III. WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES ARE REMOVED AND THE STREAM RETURNS TO ITS NATURAL FLOW CONDITIONS, THE FLOW MUST REMAIN ABOVE GROUND AND ABOVE THE RIPRAP (I.E. THE FLOW CANNOT BE "LOST" IN THE RIPRAP OR BENEATH THE STRUCTURE). IF THIS IS NOT ACHIEVED, THE CONTRACTOR WILL BE REQUIRED TO TAKE CORRECTIVE ACTION AT THE CONTRACTOR'S EXPENSE.

IV. ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, SHALL BE CHOKED WITH DELAWARE *57 STONE, FILLED WITH TOPSOIL, AND SEEDED. PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. AN ADDITIONAL 4-INCH TOPSOIL LAYER SHALL BE PLACED ON TOP OF THE RIPRAP. SLOPE SEEDING SHALL BE WITH ITEM *734531 - STREAMBANK SEED MIX. ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING SHALL BE COMPLETED PRIOR TO ANY RAIN EVENT. PAYMENT FOR TOPSOIL, RIPRAP AND DELAWARE *57 STONE SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

3. CULTURAL RESOURCES ISSUES:
A. DELDOT SUBMITTED "FINDING OF NO ADVERSE EFFECTS" OF HISTORIC PROPERTIES TO SHPO AS PART OF ENVIRONMENTAL COMPLIANCE (APPROVED).

THERE ARE NATIONALLY ELIGIBLE PROPERTIES LOCATED ALONG THE PROJECT, AS FOLLOWS:

NAME	STATION LOCATION	IMPACT TYPE	IMPACT AMOUNT
M.D. WEBB HOUSE	STA. 116+00 - 117+00 RT	TCE	289 SF
EDMUND J. & SADIE E. EVANS SPRING BANKE	STA. 21+00 - 22+00 LT	N/A	
	STA. 35+00 - 41+00 LT	N/A	
MARK HEISTAND	STA. 43+50 - 44+50 RT	R/W, P/E	2834 SF, 1080 SF
CAMPBELL FARM	STA. 45+50 - 46+50 LT	R/W, P/E, TCE	991 SF, 343 SF, 495 SF
RUSSELL BANKS	STA. 86+00 - 88+00 LT	TCE	137 SF
PAUL & MARGARET MCGINN	STA. 102+50 - 103+20 RT	R/W, TCE	1487 SF, 769 SF
HOWARD HICKMAN	STA. 104+50 - 106+00 LT	R/W	1581 SF
GRADE D. WOLFE	STA. 118+50 - 120+00 RT	N/A	
BLAINE T. PHILLIPS	STA. 123+00 - 124+50 RT	N/A	
TOWNSEND STORE & DWELLING	STA. 124+50 - 125+50 RT	N/A	
RALPH & GERALDINE B. WEST	STA. 128+50 - 130+50 LT	R/W, TCE	579 SF, 1950SF
MARK & PAUL BROWN	STA. 148+50 - 149+50 LT	P/E	720 SF
LORD BALTIMORE ELEM. SCHOOL	STA. 155+00 - 161+00 RT	TCE	993 SF

B. STOCKPILING AND DISPOSAL
STOCKPILING AND DISPOSAL MUST BE IN UPLAND, NON-ARCHAEOLOGICALLY-SENSITIVE SITE(S) REVIEWED AND APPROVED BY THE STATE HISTORIC PRESERVATION OFFICE (SHPO). THE DEPARTMENT WILL NOT CONSIDER ANY DELAYS OR MONETARY CLAIMS OF ANY NATURE RESULTING FROM THE CONTRACTOR'S FAILURE OR DIFFICULTY IN FINDING NECESSARY DISPOSAL SITES TO MEET THE TIME FRAMES AND CAPACITIES REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PLANS, PERMITS, EROSION AND SEDIMENTATION CONTROL MEASURES, ETC. REQUIRED BY THE APPROPRIATE REGULATORY AGENCY FOR UTILIZING OFF-SITE SPOIL AREAS.

4. WETLANDS CREATION
DUE TO THE QUANTITY OF PERMANENT WETLANDS/WATERS IMPACTS (GREATER THAN 1/10 ACRE), COMPENSATORY MITIGATION, IN THE FORM OF WETLANDS CREATION AT THE JORDAN PROPERTY, IS REQUIRED TO SATISFY THE CORPS OF ENGINEERS PERMIT. REFER TO DELDOT CONTRACT 21-112-04 FOR WETLAND MITIGATION PLAN SHEETS.

PERMANENT IMPACTS

PERMANENT OPEN WATER IMPACT

SHEET	TYPE	ID	AREA (SF)	AREA (AC)	VOLUME (CY)
02	RIPRAP	O-01	814.98	0.0187	65.40
02	FILL	O-02	305.77	0.0070	22.65
02	FILL	O-03	243.46	0.0056	13.51
02	RIPRAP	O-04	106.62	0.0024	5.92
04	RIPRAP	O-05	62.82	0.0014	2.33
04	RIPRAP	O-06	61.20	0.0014	2.27
04	FILL	O-07	38.90	0.0009	1.44
04	BRIDGE	O-08	430.47	0.0099	15.94
04	RIPRAP	O-09	134.94	0.0031	5.00
05	FILL	O-11	89.87	0.0021	3.33
05	RIPRAP	O-12	100.82	0.0023	3.73
06	BRIDGE	O-13	375.47	0.0086	13.91
06	RIPRAP	O-14	176.46	0.0041	3.26
06	RIPRAP	O-15	210.42	0.0048	3.89
06	FILL	O-16	88.55	0.0020	3.28
SUBTOTAL PERMANENT OPEN WATER IMPACTS			3240.75	0.0744	165.86

PERMANENT WETLAND IMPACT

SHEET	TYPE	LOC	AREA (SF)	AREA (AC)	VOLUME (CY)
04	FILL	W1	223.51	0.0051	N/A
04	RIPRAP	W2	94.53	0.0022	N/A
06	FILL	W3	1583.60	0.0364	N/A
06	RIPRAP	W4	106.78	0.0025	N/A
07	FILL	W5	172.14	0.0040	N/A
SUBTOTAL PERMANENT WETLAND IMPACT			2180.56	0.0501	N/A
TOTAL PERMANENT IMPACTS			5421.31	0.1245	165.86

TEMPORARY IMPACTS

TEMPORARY OPEN WATER IMPACT

SHEET	TYPE	ID	AREA (SF)	AREA (AC)	VOLUME (CY)
02	PIPE	OT-1	532.50	0.0122	36.69
02	DIKE	OT-2	300.34	0.0069	11.12
04	BRIDGE	OT-3	220.07	0.0051	8.15
04	DEWATER	OT-4	52.24	0.0012	1.93
04	DEWATER	OT-5	92.14	0.0021	3.41
05	PIPE	OT-6	84.19	0.0019	3.67
05	DIKE	OT-7	212.66	0.0049	5.91
06	DEWATER	OT-8	254.12	0.0058	4.71
06	BRIDGE	OT-9	239.08	0.0055	8.85
06	DEWATER	OT-10	180.18	0.0041	3.34
SUBTOTAL TEMPORARY OPEN WATER IMPACTS			2167.51	0.0498	87.79

TEMPORARY IMPACTS

TEMPORARY WETLAND IMPACT

SHEET	TYPE	ID	AREA (SF)	AREA (AC)	VOLUME (CY)
04	DEWATER	WT-1	33.63	0.0008	N/A
04	GRADING	WT-2	89.97	0.0021	N/A
06	DEWATER	WT-3	178.72	0.0041	N/A
SUBTOTAL PERMANENT WETLAND IMPACT			302.22	0.0100	N/A
TOTAL TEMPORARY IMPACTS			2469.73	0.0567	87.79

PREL. TRACING ____ DESIGN ____ CHKD. ____

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ENVIRONMENTAL COMPLIANCE – 02

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CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
T200411210	SUSSEX	SEE TITLE SHEET	199	589

SR 26, ATLANTIC AVENUE FROM CLARKSVILLE TO ASSAWOMAN CANAL

REVISIONS

LEGEND

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA
- OHW - - - - ORDINARY HIGH WATER
- IMPACT AREA TYPE IDENTIFIER
- IMPACT AREA LOCATION NUMBER
- O = OPEN WATER IMPACT T=TEMPORARY IMPACT

TABLE OF IMPACT AREAS

IDENTIFIER	AREA (SF)	AREA (ACRE)	VOLUME (CY)
RIPRAP 'O-1'	814.98	0.0187	65.40
FILL 'O-2'	305.77	0.0070	22.65
FILL 'O-3'	243.46	0.0056	13.51
RIPRAP 'O-4'	106.62	0.0024	5.92
PIPE REPLACEMENT 'OT-1'	532.50	0.0122	36.69
SANDBAG DIKE 'OT-2'	300.34	0.0069	11.12

WATERS ARE DNREC AND CORPS OF ENGINEERS JURISDICTIONAL

MATCHLINE STA. 15+25

MATCHLINE STA. 23+50

THE WEBB PROPERTY
ELIGIBLE NRHP

PREL. TRACING _____ DESIGN _____ CHK'D. _____

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