

THE STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION



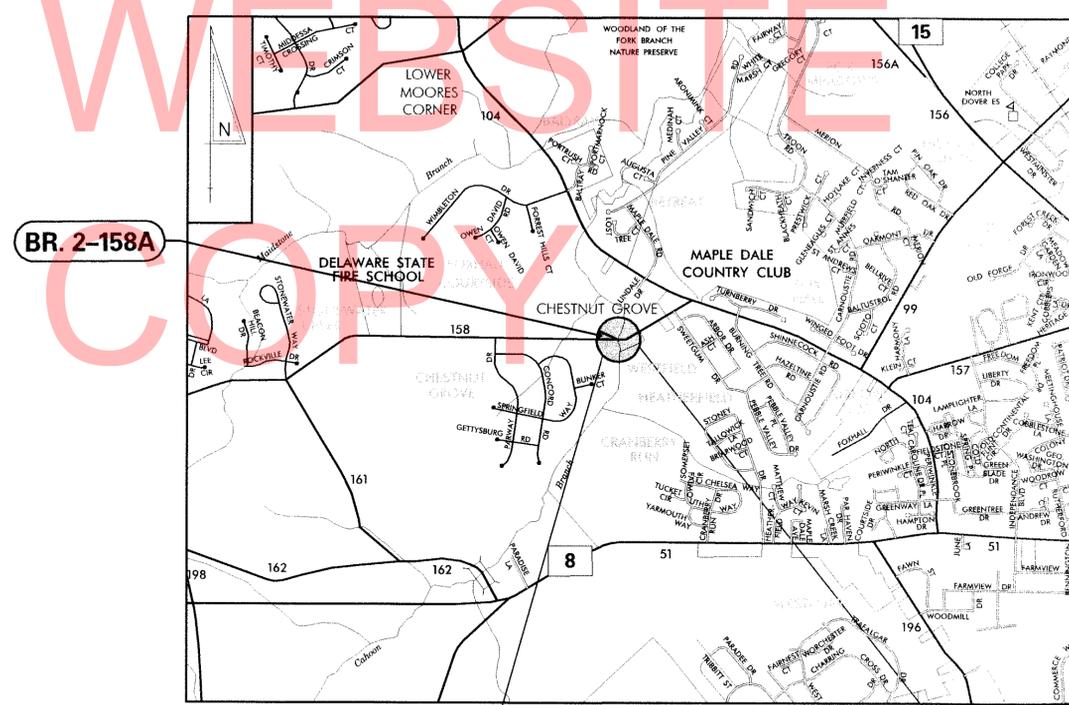
CONSTRUCTION & RIGHT-OF-WAY PLANS FOR: BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH

CONTRACT NUMBER: T201107204
 FEDERAL AID PROJECT NUMBER: EBROS-K158(01)
 COUNTY: KENT M.R. #: 158

U.S. CUSTOMARY
UNITS

DESIGN DESIGNATION		
FUNCTIONAL CLASS: URBAN LOCAL ROAD	D.H.V. PROJECTED: 240	YEAR: 2040
TYPE OF CONSTRUCTION: BRIDGE REPLACEMENT	DESIGN SPEED: 50 M.P.H.	
A.A.D.T. CURRENT: 2329	YEAR: 2008	TRUCKS: 13 %
A.A.D.T. PROJECTED: 4000	YEAR: 2040	DIRECTION OF DISTRIBUTION: 60 %

INDEX OF SHEETS	
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BR. 2-158A

BEGIN
CONTRACT
STATION 1+00

END
CONTRACT
STATION 5+00

TOTAL SHEETS: 15

APPROVED DESIGN EXCEPTIONS			
DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

ADDENDA & REVISIONS	
DESCRIPTION	NAME & DATE

ASSOCIATED CONTRACTS	
CONTRACT NO.	CONTRACT NAME
1927	BRIDGE REPLACEMENTS - KENT COUNTY BR 158A, BR 162B, BR 203A

RECOMMENDED

[Signature] 2/1/13
SQUAD MANAGER, CONSTRUCTION DATE

[Signature] 2/1/13
GROUP ENGINEER, CONSTRUCTION DATE

ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS (CONSTRUCTION) DATE

RECOMMENDED

Vincent W. Davis
STORMWATER ENGINEER

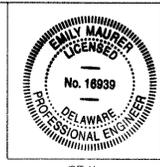
DATE 4 FEB 2013



RECOMMENDED

Emily Maurel
SQUAD MANAGER, TRANSPORTATION SOLUTIONS (PROJECT DEVELOPMENT OR BRIDGE DESIGN)

DATE 2/4/2013



RECOMMENDED

Douglas R. M.
BRIDGE DESIGN ENGINEER

DATE 2/4/2013



RECOMMENDED

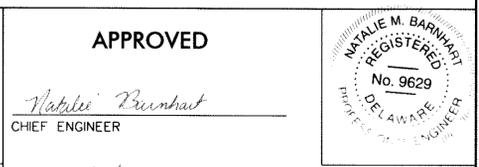
[Signature]
ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS

DATE FEBRUARY 4, 2013

RECOMMENDED

[Signature]
CHIEF ENGINEER

DATE 2/4/13



LAST REVISED: 8/7/2008
Y:\PROJECTS\BRIDGE\T201107204\PLANS\T01.DGN

EXISTING SYMBOLS

DRAINAGE	
	DITCH OR STREAM CENTERLINE
	DIRECTIONAL STREAM FLOW ARROW
	DRAINAGE INLET
	DRAINAGE JUNCTION BOX
	DRAINAGE MANHOLE
	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES	
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	CURB
	CURB AND GUTTER
	FENCE - CHAINLINK OR STRANDED
	FENCE - STOCKADE OR SPLIT RAIL
	FLAG POLE
	GUARDRAIL - STEEL BEAM
	GUARDRAIL - WIRE ROPE
	LAMP AND POST - RESIDENTIAL
	MAILBOX
	PARKING METER AND POST
	PAVEMENT - FLEXIBLE
	PAVEMENT - RIGID
	PILE - BRIDGE
	PILLAR OR MISCELLANEOUS POST
	TRAFFIC SIGN AND POST
	WALL - BRICK OR BLOCK
	WALL - STONE

NATURAL ROADSIDE FEATURES	
	GRASS LAWN
	HEDGEROW OR THICKET
	MARSH BOUNDARY LINE
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY

RIGHT-OF-WAY SYMBOLS	
	PROPERTY MARKER - CONCRETE MON.
	PROPERTY MARKER - IRON PIPE
	HISTORIC RIGHT-OF-WAY BASELINE
	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	EXISTING DENIAL OF ACCESS
	EXISTING R/W & DENIAL OF ACCESS

SURVEY CONTROL & MONUMENTATION	
	SURVEY BENCHMARK LOCATION
	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS

UTILITY	
	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
	CABLE TV DISTRIBUTION BOX
	ELECTRIC MANHOLE
	ELECTRIC METER
	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
	GAS MANHOLE
	GAS METER
	GAS VALVE
	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
	SANITARY SEWER MANHOLE
	SANITARY SEWER VALVE
	SANITARY SEWER VENT OR CLEANOUT
	SEPTIC DRAIN FIELD
	TELEPHONE BOOTH
	TELEPHONE MANHOLE
	TELEPHONE TEST POINT
	TRAFFIC - CONDUIT JUNCTION WELL
	TRAFFIC - LIGHT POLE AND BASE
	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
	TRAFFIC - SIGNAL POLE AND BASE
	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
	WATER - FIRE HYDRANT
	WATER METER
	WATER VALVE
	WELL HEAD
	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES	
	CHESAPEAKE UTILITY - GAS
	CITY OF DOVER - SEWER
	VERIZON

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	BRICK PATTERNED SURFACE
	BUTT JOINT
	CONSTRUCTION BASELINE
	CONSTRUCTION SAFETY FENCE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
	CLEAR ZONE
	DRAINAGE INLET
	DITCH
	FENCE - METAL
	FENCE - WOOD
	FLARED END SECTION
	GUARDRAIL, TYPE 1
	GUARDRAIL, TYPE 2
	GUARDRAIL, TYPE 3
	GUARDRAIL END ANCHORAGE
	GUARDRAIL END TREATMENT, TYPE 1
	GUARDRAIL END TREATMENT, TYPE 2
	GUARDRAIL END TREATMENT, TYPE 3
	HORIZONTAL CLEARANCE
	IMPACT ATTENUATOR
	JUNCTION BOX - DRAINAGE
	LIMIT OF CONSTRUCTION
	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK @ 4"
	P.C.C. SIDEWALK @ 6"
	UNDERDRAIN
	UNDERDRAIN OUTLET

RIGHT-OF-WAY SYMBOLS	
	PROPOSED RIGHT-OF-WAY MONUMENT
	PROPOSED DENIAL OF ACCESS
	PROPOSED PERMANENT EASEMENT
	PROPOSED RIGHT-OF-WAY
	PROPOSED R/W & DENIAL OF ACCESS
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED RIGHT-OF-WAY BASELINE

PROPOSED SYMBOLS

IDENTIFIERS	
	ADJUST BY CONTRACTOR
	ADJUST BY OTHERS
	CONCRETE SAFETY BARRIER
	CURB OR CURB & GUTTER
	CONVERT TO JUNCTION BOX
	CONVERT TO DRAINAGE MANHOLE
	CURB OPENING
	CURB RAMP / TYPE
	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
	CONSTRUCTION SAFETY FENCE
	DRAINAGE INLET
	DO NOT DISTURB
	ENERGY DISSIPATOR
	FENCE
	FLARED END SECTION
	FILL WITH FLOWABLE FILL
	FILTRATION STRUCTURE
	GUARDRAIL
	JUNCTION BOX
	MANHOLE
	MONUMENT - RIGHT-OF-WAY
	PIPE
	RELOCATE BY CONTRACTOR
	RELOCATE BY OTHERS
	REMOVE BY CONTRACTOR
	REMOVE BY OTHERS
	UNDERDRAIN / LENGTH
	UNDERDRAIN OUTLET PIPE

LANDSCAPING	
	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

TRAFFIC	
	ITMS CONDUIT
	SIGNAL CONDUIT
	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)	
	2" WMA, SUPERPAVE, TYPE C HOTMIX
	6" GRADED AGGREGATE BASE COURSE, TYPE B
	1 1/2" WMA, SUPERPAVE, TYPE C HOT-MIX
	2 1/4" WMA, SUPERPAVE, TYPE B HOT-MIX
	3" WMA, SUPERPAVE, BCBC
	8" GRADED AGGREGATE BASE COURSE, TYPE B
	N/A

EROSION & SEDIMENT CONTROL	
	DEWATERING BAG
	DEWATERING BASIN
	EARTH DIKE
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
	PORTABLE SEDIMENT TANK
	SANDBAG DIKE
	SANDBAG DIVERSION
	STONE CHECK DAM
	STABILIZED CONSTRUCTION ENTRANCE
	SILT FENCE / LENGTH
	SILT FENCE
	SILT FENCE - REINFORCED
	SUMP PIT, TYPE 1
	SUMP PIT, TYPE 2
	SEDIMENT TRAP
	SEDIMENT TRAP
	SEDIMENT TRAP WITH INLET AS OUTLET
	SEDIMENT TRAP PIPE OUTLET
	STILLING WELL
	TEMPORARY SWALE
	TEMPORARY SLOPE DRAIN
	TURBIDITY CURTAIN / LENGTH
	TURBIDITY CURTAIN

LAST REVISED: 12/02/2010
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GENERAL NOTES

- THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED AUGUST 2001 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2001, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.
- THE CONTRACTOR SHALL GIVE TWO (2) WEEKS NOTICE TO THE PROPERTY OWNER WHEN ANY FIXTURE, SHRUB OR OTHER OBJECT MUST BE REMOVED FROM THE RIGHT OF WAY OR EASEMENT AREA. IF THE OWNER HAS NOT ATTEMPTED TO SALVAGE THIS PROPERTY, THE CONTRACTOR SHALL REMOVE IT WITHOUT OBLIGATION. COMPENSATION SHALL BE INCIDENTAL TO THE CONTRACT.
- THE ENDS OF ALL CURBS SHALL BE DEPRESSED FLUSH WITH THE PAVEMENT AT A RATIO OF TWELVE TO ONE (12:1) UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC SLEEVES (4" INSIDE MINIMUM DIAMETER, 6" INSIDE MAXIMUM DIAMETER) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL SIT ON THE TOP OF THE SUBBASE MATERIAL. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.
- STAGING AREAS - PROPER EROSION AND SEDIMENT CONTROL MEASURES AS DETERMINED BY THE ENGINEER SHALL BE INSTALLED IN ALL STAGING AREAS. ALL AREAS USED BY THE CONTRACTOR FOR STAGING OPERATIONS SHALL BE FULLY RESTORED BY THE CONTRACTOR UPON COMPLETION OF THE CONTRACT. IF THE STAGING AREA IS PAVED, IT SHALL BE RESTORED TO ITS ORIGINAL CONDITION. IF THE AREA IS UNPAVED, IT SHALL BE RE-GRADED, TOPSOILED, SEEDED AND MULCHED IN ACCORDANCE WITH DELAWARE STANDARD SPECIFICATIONS 732, 734 AND 735, FOR TOPSOIL, SEED AND MULCH RESPECTIVELY, TO THE SATISFACTION OF THE ENGINEER. THE SEED SHALL ADHERE TO THE SPECIFICATIONS OF SECTION 734 FOR PERMANENT GRASS SEEDING - DRY GROUND. ALL COSTS ASSOCIATED WITH RESTORATION OF THE STAGING AREA SHALL BE AT THE CONTRACTOR'S EXPENSE. IF THE ENGINEER DETERMINES THAT A SATISFACTORY STAND OF GRASS DOES NOT EXIST AT THE TIME OF FINAL INSPECTION, ALL COSTS ASSOCIATED WITH REESTABLISHING A SATISFACTORY STAND OF GRASS SHALL BE AT THE CONTRACTOR'S EXPENSE.
- SITE REVIEWER - AN EROSION CONTROL SITE REVIEWER SHALL BE A PERSON FROM THE CONTRACTOR'S STAFF ASSIGNED TO EROSION AND SEDIMENT CONTROL IMPLEMENTATION AND MAINTENANCE AND SHALL BE REQUIRED ON SPECIFIC PROJECTS. THE NAME AND DNREC CERTIFICATION NUMBER OF EACH SITE REVIEWER SO REQUIRED SHALL BE SUBMITTED TO THE DEPARTMENT. THE NAME OF THE DELAWARE REGISTERED PROFESSIONAL ENGINEER PROVIDING DIRECTION AND SUPERVISION OF THE SITE REVIEWER, AS REQUIRED IN SECTION 12.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, SHALL ALSO BE SUBMITTED TO THE DEPARTMENT. THE SITE REVIEWER REQUIREMENTS IN EFFECT ON THIS PROJECT SHALL BE MARKED WITH AN "X" BELOW:

EROSION POTENTIAL FOR THIS PROJECT	SITE REVIEWER REQUIREMENT
() INSIGNIFICANT	NONE
() MINOR	CONTRACTOR CERTIFICATION COURSE TRAINING ONLY, AS DEFINED IN SECTION 13 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
(X) MEDIUM	AT THE TIME OF BID OF THE CONTRACT, EITHER THE SUPERINTENDENT OR A SEPARATE INDIVIDUAL FROM THE CONTRACTOR'S STAFF SHALL BE A CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 12 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
() MAJOR	SUPERINTENDENT AND AN INDIVIDUAL FROM CONTRACTOR'S STAFF SHALL BE CCR. ONE INDIVIDUAL FROM THE CONTRACTOR'S STAFF MUST BE A CCR AT THE TIME OF BID OF THE CONTRACT. THE SUPERINTENDENT MUST BECOME A CCR WITHIN ONE YEAR AFTER THE AWARD OF CONTRACT.

- ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE CONTRACTOR INCLUDE:

()	NONE
()	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	RASTER FILES, IN .CAL FILE FORMAT, FOR ALL PLAN SHEETS.
()	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

- AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

(X)	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR IS INCIDENTAL TO ITEM 743000.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE ATSSA SUPERVISOR'S SOLE JOB SHALL BE SUPERVISION OF THE INSTALLATION, OPERATION AND MAINTENANCE OF TRAFFIC CONTROL DEVICES FOR THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT SHALL NOT BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR SHALL BE PAID FOR UNDER ITEM 743031.

- THE DISTURBED AREA FOR THIS PROJECT IS 0.5502 ACRES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO THE CONSTRUCTION SITE POLLUTION PREVENTION SPECIFICATIONS AS DETAILED IN SECTION 3.6 OF THE "DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK". ALL COSTS ASSOCIATED WITH ADHERING TO THE STANDARDS SHALL BE INCIDENTAL TO THE OVERALL CONTRACT COSTS.
- THE EROSION AND SEDIMENT CONTROL PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE EROSION AND SEDIMENT CONTROL PLANS ARE VALID FOR A THREE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE THREE YEARS, THE CONTRACTOR SHALL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE EROSION AND SEDIMENT CONTROL PLAN APPROVAL. DELDOT WILL REVIEW THE CURRENT EROSION AND SEDIMENT CONTROL PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

PROJECT NOTES

SECTION 100

- ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

SECTION 200

- ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - EXISTING CORRUGATED METAL PIPES
 - EXISTING GUARDRAIL

SECTION 300

- A. THE CONTRACTOR MAY ELECT TO USE ANY OF THE FOLLOWING MATERIALS TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B':
 - CRUSHED STONE (PER STANDARD SPECIFICATION 821)
 - CRUSHED CONCRETE (PER STANDARD SPECIFICATION 821)
 - HOT-MIX MILLINGS (PER SPECIAL PROVISION 302514 MILLED HOT-MIX BASE COURSE)

THE CONTRACTOR WILL NOT BE ALLOWED TO MIX DIFFERENT MATERIALS (OR SIMILAR MATERIALS FROM DIFFERENT SOURCES) TO MEET THE REQUIREMENTS OF ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

ALL OF THE ABOVE LISTED MATERIALS ARE PERMITTED FOR USE ON THE JOB, PROVIDED THEY ARE SEPARATED INTO APPROVED AREAS. EACH AREA OF BASE COURSE MUST BE CONSTRUCTED USING MATERIALS FROM A SINGULAR SOURCE, FULL DEPTH, IN ORDER THAT PROPER TESTING MAY BE ACCOMPLISHED. THE CONTRACTOR AND ENGINEER SHALL AGREE ON THE LIMITS OF EACH SOURCE OF MATERIAL PRIOR TO PLACEMENT.

- THE QUANTITY USED FOR BASE OF EACH OF THE ABOVE LISTED MATERIALS WILL BE THE CONTRACTOR'S CHOICE, WITH THE TOTAL BEING EQUAL TO THE ACTUAL QUANTITY USED UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

- THE CONTRACTOR MAY ALSO ELECT TO RECYCLE MILLINGS FOR USE IN HOT-MIX AS PERMITTED BY THE STANDARD SPECIFICATIONS. THE CHOICE OF THE QUANTITY OF MILLINGS USED FOR THIS PURPOSE, OR FOR BASE COURSE, LIES WITH THE CONTRACTOR. ALL EXCESS MILLING MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.

- HOT-MIX MILLINGS MAY BE GENERATED FROM THE FOLLOWING SOURCES:
 - MATERIAL MILLED ON THIS CONTRACT AT THE CONTRACTOR'S CHOICE UNDER ITEM 202000.
 - MILLED MATERIAL FURNISHED ON THE JOB FROM THE CONTRACTOR'S YARD OR OTHER OUTSIDE SOURCE.
 ALL MILLED MATERIALS SHALL MEET THE MATERIAL REQUIREMENTS OF ITEM 302514 - MILLED HOT-MIX BASE COURSE.

- PAYMENT CLARIFICATION:
 - SHOULD THE CONTRACTOR ELECT TO MILL PORTIONS OF HOT-MIX SHOWN ON THE PLANS TO BE REMOVED UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT THE COST OF MILLING THIS HOT-MIX WILL BE PAID AS ITEM 202000 - EXCAVATION AND EMBANKMENT. THE MILLINGS GENERATED MAY BE RECYCLED INTO HOT-MIX, UTILIZED FOR BASE COURSE, OR DISPOSED OF TO AN APPROVED SITE. HAULING COSTS FOR DISPOSAL AND/OR RECYCLING ARE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.

- SHOULD THE CONTRACTOR ELECT TO TEMPORARILY STOCKPILE MILLINGS ON THE JOB SITE FOR LATER USE, ALL COSTS FOR STOCKPILING AND SUBSEQUENT REHANDLING SHALL BE INCIDENTAL TO ITEM 202000 - EXCAVATION AND EMBANKMENT.

- MILLINGS USED FOR BASE COURSE SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE. NO SEPARATE PAYMENT WILL BE MADE TO FURNISH MILLINGS FROM AN OUTSIDE SOURCE OR TRANSPORT MILLINGS WITHIN THE PROJECT LIMITS. MILLINGS USED FOR BASE COURSE WILL BE PAID FOR AT THE UNIT BID PRICE FOR ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'.

- ALL COSTS TO UTILIZE MILLINGS IN RECYCLED HOT-MIX WILL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE HOT-MIX ITEM USING THE RECYCLED MATERIAL.

- SPECIAL PROVISION 302514 - MILLED HOT-MIX BASE COURSE IS PROVIDED TO SPECIFY THE MEANS OF LAY DOWN AND COMPACTION AS WELL AS THE MATERIAL REQUIREMENTS FOR MILLINGS USED AS BASE COURSE. ALL COSTS TO BRING THE MILLINGS INTO COMPLIANCE WITH THE REQUIREMENTS OF ITEM - 302514 MILLED HOT-MIX BASE COURSE ARE INCIDENTAL TO ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE 'B'. NO PAYMENT WILL BE MADE FOR ITEM 302514 - MILLED HOT-MIX BASE COURSE. THE QUANTITY OF MILLINGS USED FOR BASE COURSE WILL BE PAID FOR UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE.

SECTION 600

- BAR REINFORCEMENT REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2" MINIMUM UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL REINFORCING STEEL SHALL BE PROTECTED WITH EPOXY COATED REINFORCING CONFORMING TO AASHTO M284 (ASTM D3963).
- PORTLAND CEMENT CONCRETE STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED:
 - f'c = 28 DAY COMPRESSIVE STRENGTH
 - PRECAST CONCRETE f'c = 5 KSI
 - CLASS A (PARAPETS) f'c = 4.5 KSI
 MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE STANDARD SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED. ALL EXPOSED CONCRETE SURFACES SHALL BE COATED WITH SILICONE ACRYLIC CONCRETE SEALER.

SECTION 700

- ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT. ALL HOT-MIX SAW CUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. MATCH PAVEMENT ELEVATIONS AT TIE-INS.
- CENTERLINE AND EDGES OF ROAD SHALL BE STRIPED TO MATCH EXISTING STRIPING ON THE ROAD. STRIPING SHALL EXTEND THE LENGTH OF THE PROJECT LIMITS. PAYMENT UNDER ITEM *748548.
- TEMPORARY TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE PLANS, THE MUTCD, AND THE REQUIREMENTS OF ITEM *763643 - MAINTENANCE OF TRAFFIC, ALL INCLUSIVE.

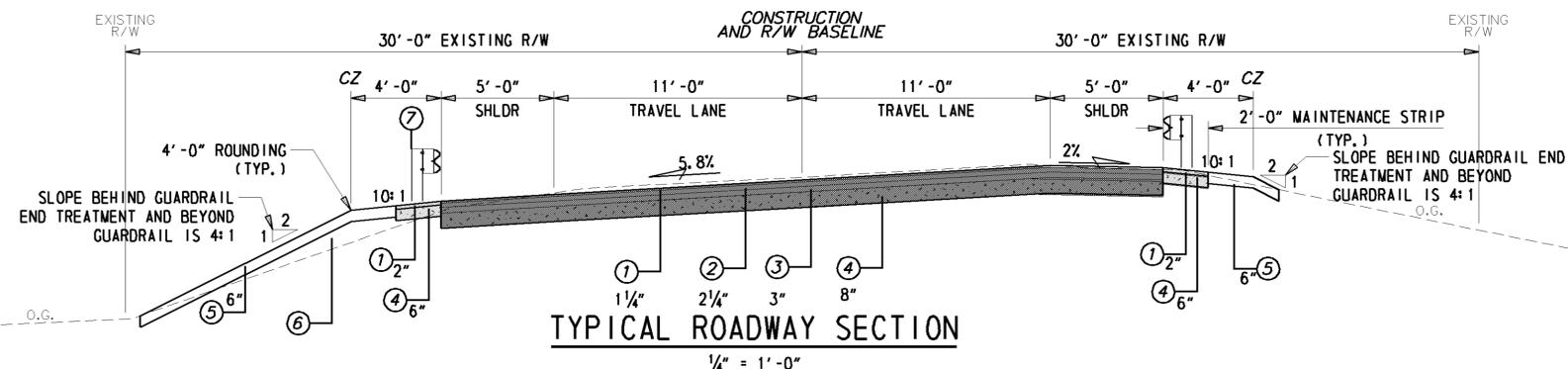
MISCELLANEOUS

- DESIGN CRITERIA
2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5th EDITION.
- LOADING
AASHTO HL-93 OR DELAWARE LEGAL LOAD FOR LIVE LOAD, 25 psf FOR FUTURE WEARING SURFACE.
- LOAD RATINGS FOR BR 2-158A HAVE BEEN PERFORMED BY DELDOT'S BRIDGE MANAGEMENT SECTION IN ACCORDANCE WITH THE 2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE MANUAL FOR BRIDGE EVALUATION. ALL CURRENT AASHTO, DELAWARE LEGAL AND PERMIT LOADS HAVE BEEN CONFIRMED TO HAVE A MINIMUM LOAD RATING FACTOR OF 1.0 IN ACCORDANCE WITH DELDOT'S BRIDGE DESIGN MANUAL.
- HYDRAULIC DATA
DRAINAGE AREA: 5.96 sq mi
DESIGN FREQUENCY: 25-yr FLOOD
DESIGN DISCHARGE: 956 cfs
25 YEAR FLOOD ELEVATION: 34.26'
- SCOUR ANALYSIS
THE PROPOSED STRUCTURE HAS BEEN ANALYSED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH HEC-18 - 'EVALUATING SCOUR AT BRIDGES' AND HEC-14 - 'HYDRAULIC DESIGN OF ENERGY DISSIPATORS FOR CULVERTS AND CHANNELS.' SCOUR COUNTERMEASURES HAVE BEEN DESIGNED FOR THE WORST CASE OF THE OVERTOPPING FLOOD OR THE 500-YR FLOOD EVENT.

DESIGN EVENT: OVERTOPPING FLOOD DESIGN VELOCITY: 7.33 ft/s
DESIGN DISCHARGE: 1412 cfs TAILWATER DEPTH: 6.07 ft
- ENVIRONMENTAL COMPLIANCE:
SEE ENVIRONMENTAL COMPLIANCE PLAN FOR FURTHER RESTRICTIONS/GUIDANCE ASSOCIATED WITH THIS PROJECT.
- UTILITIES
SEE THE UTILITIES STATEMENT FOR UTILITIES INFORMATION.

LEGEND

- ITEM 401801 - WMA, SUPERPAVE TYPE C, PG 64-22, 160 GYRATIONS (CARBONATE STONE)
- ITEM 401810 - WMA, SUPERPAVE TYPE B, PG 64-22, 160 GYRATIONS
- ITEM 401819 - WMA, SUPERPAVE, BCBC, PG 64-22, 160 GYRATIONS
- ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
- ITEM 732004 - TOPSOIL
ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- ITEM 209006 - BORROW, TYPE F
- ITEM 720050 - GUARDRAIL, TYPE 1-31



SCALE AS NOTED

BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH

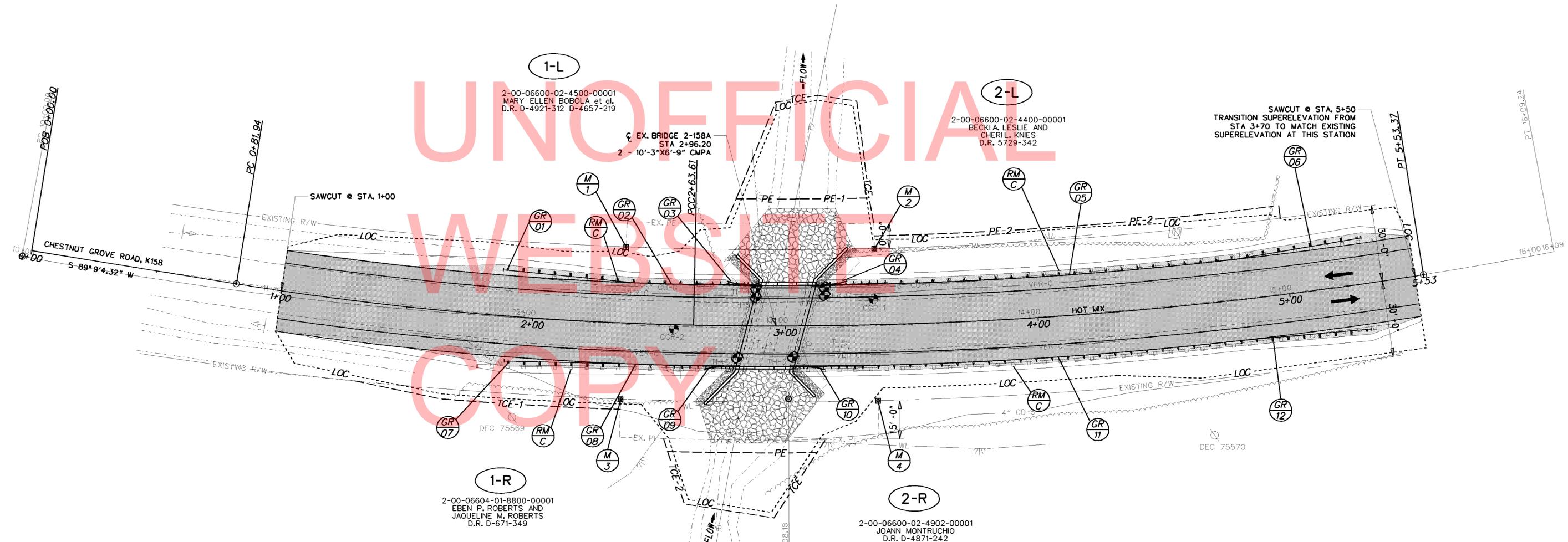
CONTRACT	BRIDGE NO.	2-158A
T20107204	DESIGNED BY:	JAT
COUNTY	CHECKED BY:	JNH
KENT		

NOTES

SHEET NO.	3
TOTAL SHTS.	15

ADDENDUMS / REVISIONS

RIGHT-OF-WAY MONUMENT SCHEDULE					
NO.	TYPE	STATION	OFFSET	NORTHING	EASTING
1	CAPPED REBAR	2+35.79	-30.00	425519.7522	610737.1101
2	CAPPED REBAR	3+35.93	-30.00	425536.1814	610833.8774
3	CAPPED REBAR	2+36.06	30.00	425460.3196	610745.3420
4	CAPPED REBAR	3+35.93	30.00	425477.3622	610845.7223



UTILITY TEST HOLE SCHEDULE						
NO.	UTILITY	STATION	OFFSET	GRND EL.	COVER	D. D. & MATERIAL
TH-1	GAS	3+15.00	-15.00	35.56	2.15	6" PLASTIC
TH-2	TELEPHONE	3+15.00	-11.90	35.89	2.43	3/4" TELEPHONE
TH-3	TELEPHONE	3+03.00	12.20	37.22	3.16	1 1/2" TELEPHONE
TH-4	GAS	2+88.00	-14.70	35.39	1.82	6" PLASTIC
TH-5	TELEPHONE	2+88.00	-11.20	35.96	2.25	3/4" TELEPHONE
TH-6	TELEPHONE	2+81.00	12.60	37.34	3.18	1 1/2" TELEPHONE

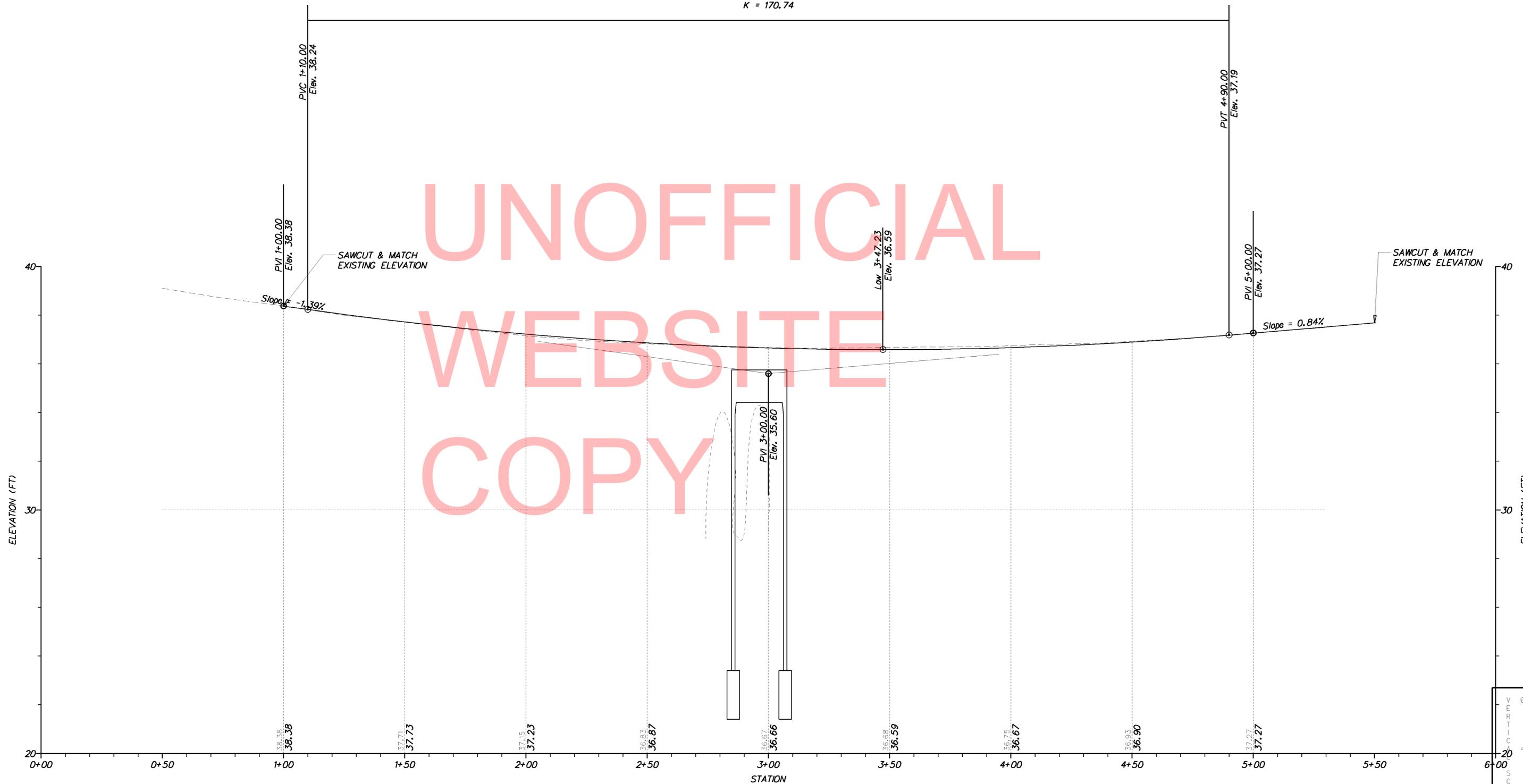
SOIL BORING SCHEDULE				
NO.	STATION	OFFSET	NORTHING	EASTING
CGR-1	3+35.04	-10.14	42516.54	610836.96
CGR-2	2+55.87	1.72	425491.19	610761.24

GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
01	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	1+88.86	-18.00	50.00
02	TYPE 1-31 GUARDRAIL	2+39.49	-16.00	12.50
03	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	2+64.80	-16.00	25.00
04	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	3+11.55	-16.00	25.00
05	TYPE 1-31 GUARDRAIL	3+36.80	-16.00	137.50
06	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	4+79.06	-16.00	50.00
07	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	1+91.40	18.00	50.00
08	TYPE 1-31 GUARDRAIL	2+40.75	16.00	25.00
09	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	2+56.40	16.00	25.00
10	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	3+02.43	16.00	25.00
11	TYPE 1-31 GUARDRAIL	3+27.18	16.00	150.00
12	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	4+79.07	16.00	50.00

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 DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 20 40 60 FEET	BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH	CONTRACT T201107204	BRIDGE NO. 2-158A	CONSTRUCTION PLAN	SHEET NO. 5
				COUNTY KENT	DESIGNED BY: JAT		TOTAL SHTS. 15
				CHECKED BY: JNH			

Type of Curve = Symmetric Parabola
 Direction = Sag
 Length = 380.00'
 L1 = 190.00'
 L2 = 190.00'
 G1 = -1.39%
 G2 = 0.84%
 SSD = 1309.54'
 K = 170.74

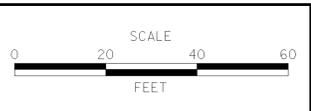


K158 - CHESTNUT GROVE ROAD

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ADDENDUMS / REVISIONS	

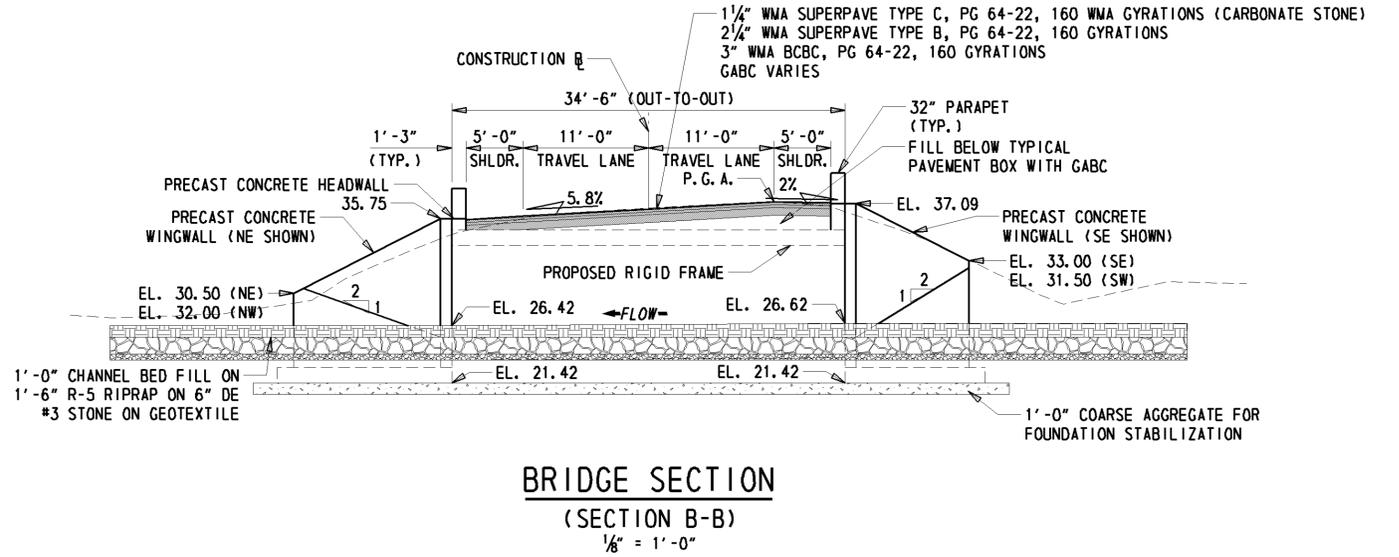
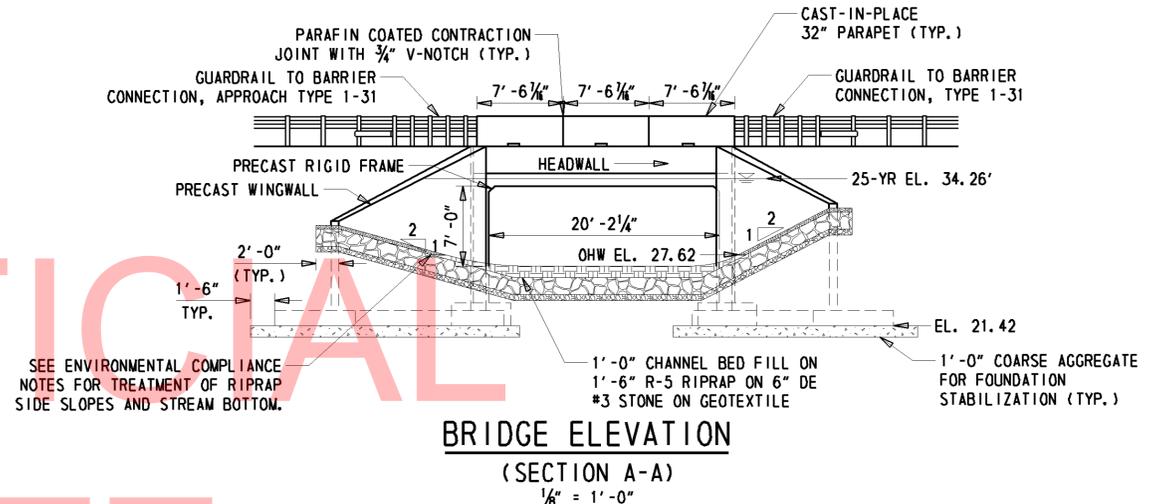
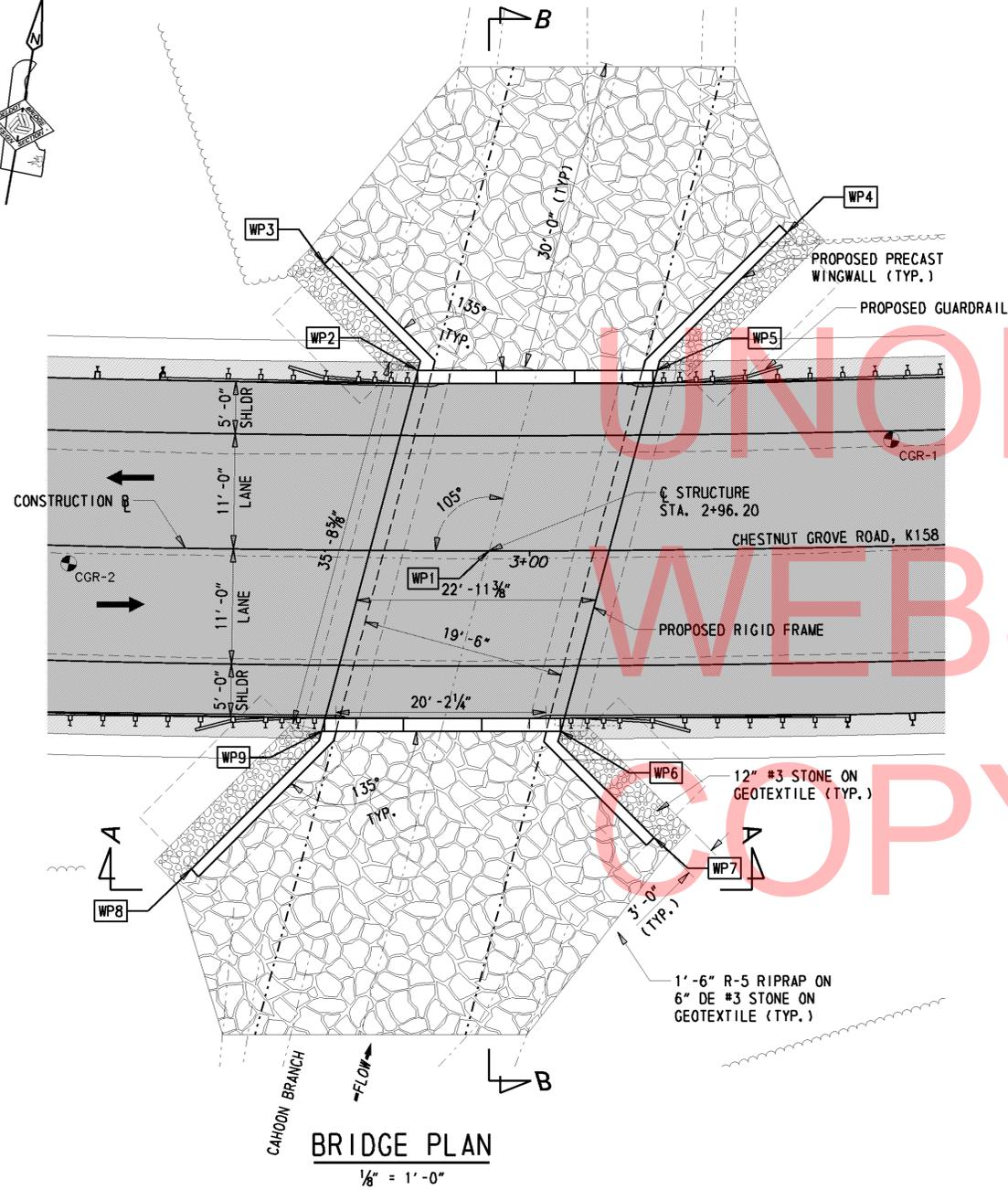


**BR 2-158A ON
CHESTNUT GROVE ROAD
OVER CAHOON BRANCH**

CONTRACT T201107204	BRIDGE NO. 2-158A
COUNTY KENT	DESIGNED BY: JAT
	CHECKED BY: JNH

PROFILE

VERTICAL SCALE FEET	6 4 2 0
SHEET NO.	6
TOTAL SHTS.	15



COORDINATE LIST				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
WP-1	2+96.20	0.0000	425499.3986	610800.7658
WP-2	2+89.28	-17.2355	425515.1973	610791.0236
WP-3	2+80.11	-27.3307	425523.6450	610780.4291
WP-4	3+25.33	-30.1592	425534.3127	610823.6396
WP-5	3+12.47	-17.1700	425519.1809	610813.6239
WP-6	3+02.98	17.2642	425483.5998	610810.5081
WP-7	3+11.76	27.4835	425475.1524	610821.1027
WP-8	2+68.14	30.6585	425464.4845	610777.8921
WP-9	2+80.27	17.3283	425479.6163	610787.9078

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	ADDENDUMS / REVISIONS	SCALE 	BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCE	CONTRACT T201107204	BRIDGE NO. 2-158A	BRIDGE PLAN, SECTION AND ELEVATION	SHEET NO. 7
					KENT		DESIGNED BY: JAT

NOTE: - ALL PARAPET SECTIONS SHALL BE CAST-IN-PLACE.
 - 3"x12" SCUPPER SHALL BE GALVANIZED, PAYMENT INCIDENTAL TO ITEM
 602017 - PORTLAND CEMENT CONCRETE MASONRY, CLASS A, PARAPET

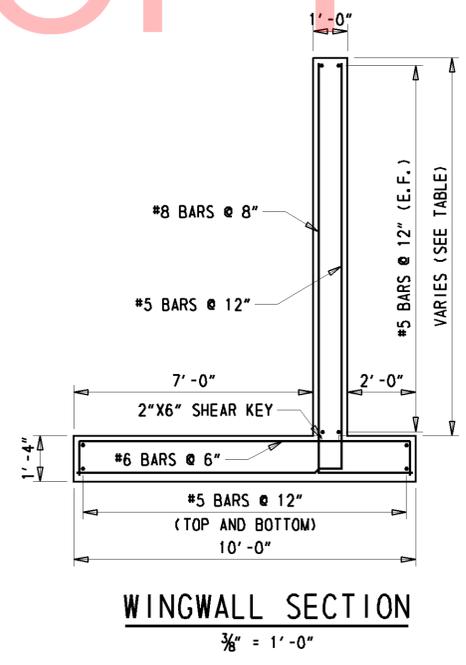
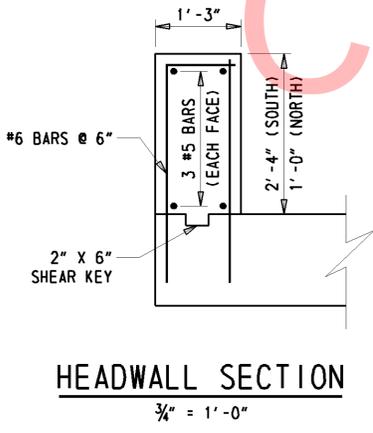
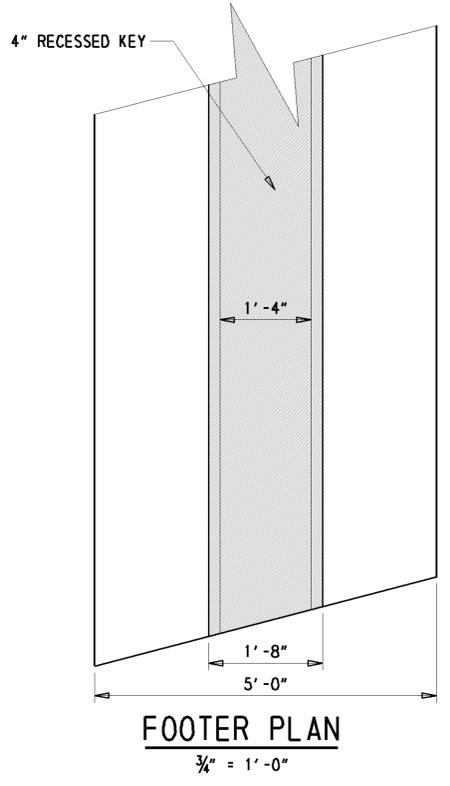
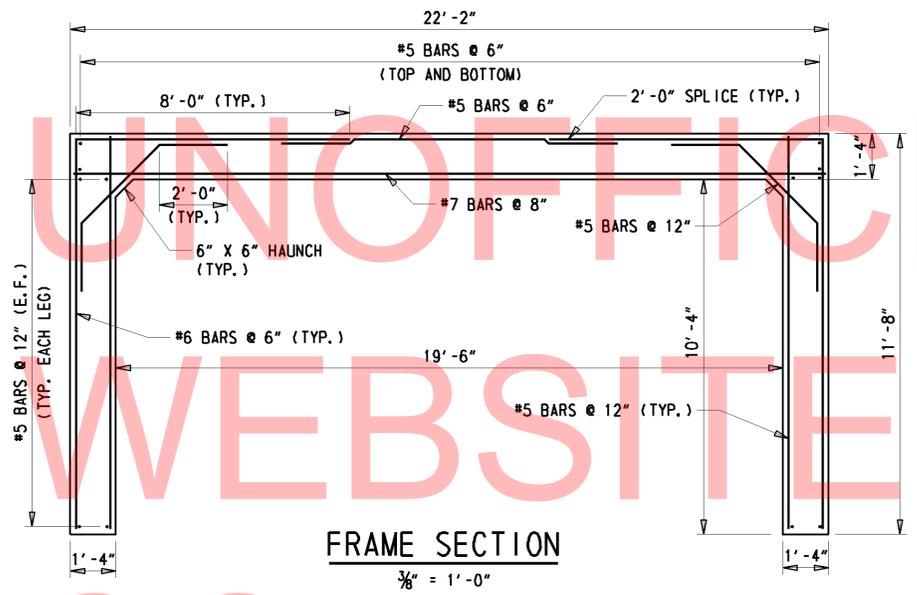
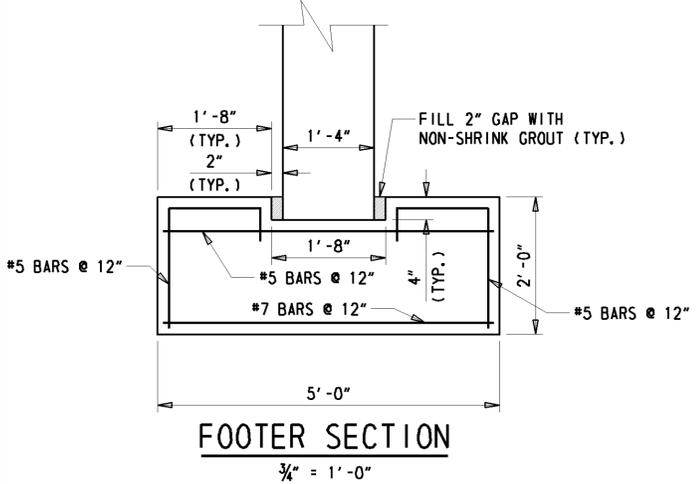
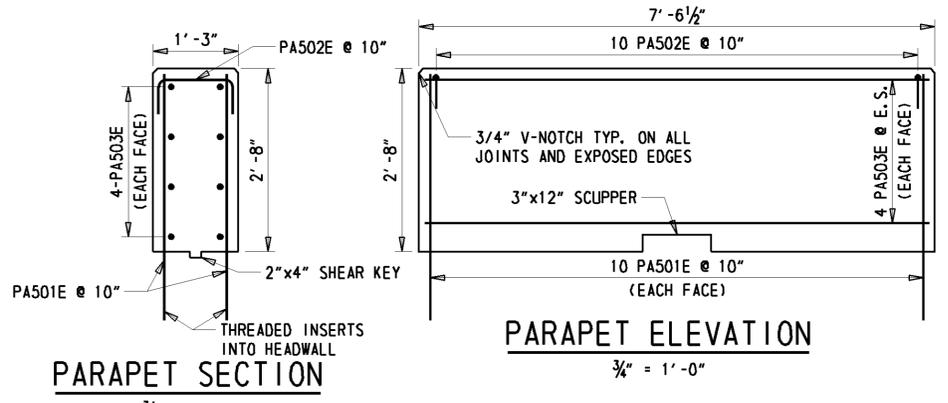
REINFORCING BAR LIST				
MARK	SIZE	NUMBER	TYPE	LENGTH
PA501E	5	120	STR	3' - 6"
PA502E	5	60	U	1' - 11"
PA503E	5	48	STR	7' - 2 1/2"

BENDING DIAGRAMS	
	PA502E

NOTE:
 LENGTH OF PA501E ASSUMES 1'-0"
 LENGTH FOR THREADED INSERT.
 ACTUAL LENGTH MAY BE ADJUSTED
 FOR CONTRACTOR'S OR PRECASTER'S
 PREFERENCE OF THREADED INSERT.

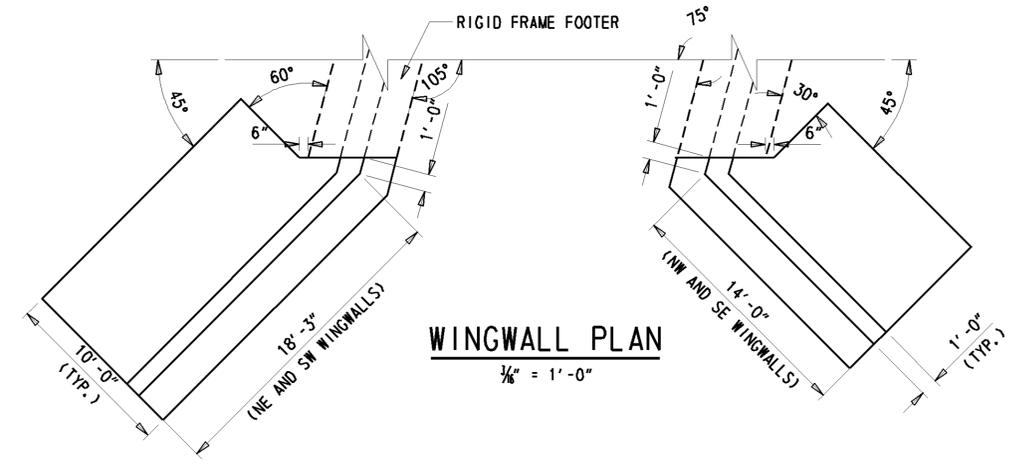
PRECAST ELEMENT NOTES

- DESIGN PLANS / WORKING DRAWINGS
 INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE RIGID FRAME 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 DRAWINGS FOR THE PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH. THE SHOP DRAWINGS SHALL INCLUDE:
 A. AN OVERALL PLAN SHOWING ALL UNITS TOGETHER AND DETAILS OF EACH TYPE OF UNIT.
 B. A PLAN VIEW OF REINFORCEMENT FOR ANY IRREGULAR SHAPED (SKEWED, CURVED, ETC.) SECTIONS.
 C. REINFORCING BAR LIST
 D. BILL OF MATERIALS INCLUDING ALL ACCESSORIES
 E. METHOD AND SEQUENCE OF POST-TENSIONING
- PRECAST ELEMENTS, ACCESSORIES AND INSTALLATION
 PAYMENT FOR ITEM 602739 - PRECAST RIGID FRAME AND ITEM 602738 - PRECAST CONCRETE RETAINING WALL SHALL INCLUDE:
 A. ALL PRECAST ELEMENTS FOR THE RESPECTIVE ITEM (RIGID FRAME, FOOTERS UNDER ITEM 602739 AND WINGWALLS UNDER ITEM 602738).
 B. ALL ASSOCIATED REINFORCEMENT
 C. ALL ACCESSORIES (INCLUDING, BUT NOT LIMITED TO, WEEP HOLES, CONCRETE FINISH, POST-TENSIONING TENDONS, CONNECTION PLATES, GROUT, JOINT WRAP, THREADED INSERTS) MENTIONED IN THE FOLLOWING NOTES UNLESS NOTED OTHERWISE.
 D. DELIVERY AND INSTALLATION OF ALL PRECAST ELEMENTS AND ALL ACCESSORIES.
- MISCELLANEOUS CONCRETE NOTES
 A. ALL EXPOSED SURFACES SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING SILANE SEALER.
 B. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
- RIGID FRAME POST-TENSIONING
 THE PRECAST RIGID FRAME SECTIONS SHALL BE POST-TENSIONED TOGETHER WITH A MINIMUM OF FOUR POST-TENSIONING TENDONS. THE CULVERT SHALL BE POST-TENSIONED SUCH THAT THE NEOPRENE GASKETS ARE COMPRESSED ALL AROUND AND THERE IS A 1/2" MAXIMUM GAP BETWEEN SECTIONS. MAXIMUM POST-TENSIONING FORCE SHALL BE 28,900 LBS. POST-TENSIONING DETAILS (PLACEMENT, SEQUENCE OF TENSIONING, ETC.) SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS. ALL POCKETS FOR POST-TENSIONING DUCTS SHALL BE FILLED WITH NON-SHRINK GROUT.
- WINGWALL POST TENSIONING
 A. THE PRECAST WINGWALL SECTIONS SHALL BE POST TENSIONED TOGETHER AND POSITIVELY CONNECTED TO THE RIGID FRAME WITH A MINIMUM OF TWO TENDONS. POST-TENSIONING SHALL BE AS PER NOTE 4.
 B. AT LOCATIONS WHERE POST TENSIONING OF THE WINGWALLS IS NOT FEASIBLE, A BOLTED CONNECTION MAY BE USED. BOLTED CONNECTION DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS.
- BOLTED CONNECTIONS
 THE BOLTED CONNECTION MUST CONSIST OF A MINIMUM OF TWO 3'-0" WIDE x 2'-0" TALL x 1/4" THICK PLATES PER JOINT WITH AT LEAST FOUR 3/4" BOLTS PER PLATE. ANGLED PLATES SHALL HAVE 8 BOLTS. SLOTTED HOLES IN THE PLATE SHALL NOT BE PERMITTED. HOLES FOR ANCHOR BOLTS MAY BE FIELD DRILLED.
- JOINTS BETWEEN PRECAST SECTIONS
 A. NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. AFTER INSTALLATION, THE GASKETS SHALL BE COMPRESSED SUCH THAT GAPS ARE NOT VISIBLE.
 B. ALL JOINTS BETWEEN PRECAST FRAME SECTIONS SHALL HAVE A SHEAR KEY ALL AROUND.
 C. ALL WINGWALL TO WINGWALL, AND WINGWALL TO RIGID FRAME JOINTS SHALL HAVE A SHEAR KEY.
 D. THE LOCATIONS OF THE JOINTS IN THE PRECAST SECTIONS SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL.
 E. THE REINFORCEMENT SHALL HAVE 2" COVER AT THE END OF EACH SECTION AND MEET OR EXCEED THE MINIMUM AREA OF STEEL PER FOOT NOTED ON THE PLANS.
 F. ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9" WIDE WRAP CENTERED ON THE JOINT AS PER THE SPECIAL PROVISION FOR ITS RESPECTIVE ITEM.



WINGWALL STEM HEIGHTS

	A	B
NW	13'-0"	9'-3"
NE	13'-0"	7'-9"
SW	14'-4"	8'-9"
SE	14'-4"	10'-3"



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BORING: CGR # 1		DATE DRILLED: 12/8/2010		STATION: 3+35.07		OFFSET: -10.14		ELEVATION: 36.08'		NORTHING: 425516.54		EASTING: 610836.96	
COMMENTS: N/A													
SAMPLE INFORMATION													
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS								
1	0.0		NO SAMPLING										
2	0.0	17	MOIST MEDIUM DENSE ORANGISH BROWN COARSE SAND W/SOME FINE SAND, TRACE OF SILT AND FINE GRAVEL.	A-1-B									
		7											
		10											
3	2.0	14	MOIST MEDIUM DENSE BROWN FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-1-B									
		12											
		11											
4	4.0	2	MOIST LOOSE ORANGISH BROWN COARSE TO FINE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)									
		3											
		2											
5	6.0	2	WET MEDIUM DENSE GRAYISH TAN FINE GRAVELLY COARSE TO FINE SAND W/SOME SILT.	A-1-B	WATER LEVEL EL. 29.08'								
		2											
		9											
6	8.0	14	WET LOOSE GRAY FINE GRAVEL AND COARSE SAND W/SOME FINE SAND, TRACE OF SILT.	A-1-B									
		10											
		9											
7	10.0	4	NO SIEVE ANALYSIS - INDICATION OF WET STIFF GRAY SANDY CLAY W/SOME SILT.										
		6											
		3											
8	12.0	1	WET LOOSE GRAY COARSE SAND W/SOME FINE SAND, TRACE OF SILT.	A-1-B									
		3											
		3											
9	14.0	4	SATURATED LOOSE GRAY FINE SAND W/SOME SILT AND COARSE SAND, TRACE OF FINE GRAVEL.	A-2-4(0)									
		3											
		5											
10	16.0	2	SATURATED LOOSE GRAY SILTY FINE SAND W/TRACE COARSE SAND.	A-2-4(0)									
		4											
		5											
11	18.0	8	SATURATED MEDIUM DENSE GRAY FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)									
		7											
		7											
12	23.0	2	SATURATED DENSE GRAY FINE TO COARSE SAND W/TRACE SILT AND FINE GRAVEL.	A-3									
		7											
		35											
13	28.0	35	SATURATED VERY DENSE GRAY FINE TO COARSE SAND W/TRACE SILT AND FINE GRAVEL.	A-3									
		50/3"											
		50/3"											
14	33.0	50/5"	SATURATED DENSE GRAY COARSE TO FINE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-1-B									
		38.0											
		40											
15	38.0	40	SATURATED VERY DENSE GRAY FINE TO COARSE SAND W/TRACE SILT AND FINE GRAVEL.	A-3									
		50/4"											
		50/4"											
16	43.0	38	NO SIEVE ANALYSIS - INDICATION OF SATURATED VERY DENSE GRAY SILTY SAND.										
		50/4"											
		50/4"											
17	48.0	38	END OF BORING										
		50/4"											
		50/4"											

BORING: CGR # 2 CONT.					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
11	28.0	25	SATURATED LOOSE GRAY FINE TO COARSE SAND W/TRACE OF SILT AND FINE GRAVEL.	A-3	
		26			
		29			
12	33.0	35	SATURATED VERY DENSE GRAY FINE TO COARSE SAND W/TRACE OF SILT AND FINE GRAVEL.	A-3	
		38.0			
		50/4"			
13	38.0	35	SATURATED DENSE GRAY COARSE TO FINE SAND W/TRACE OF SILT AND FINE GRAVEL.	A-1-B	
		43.0			
		50/4"			
14	43.0	40	SATURATED VERY DENSE GRAY COARSE TO FINE SAND W/TRACE OF SILT AND FINE GRAVEL.	A-1-B	
		48.0			
		50/4"			
15	48.0	40	END OF BORING		
		48.0			
		50.0			

UNOFFICIAL
WEBSITE
COPY

BORING: CGR # 2		DATE DRILLED: 12/8/2010		STATION: 2+55.89		OFFSET: 1.72		ELEVATION: 36.90		NORTHING: 425491.19		EASTING: 610761.24	
COMMENTS: N/A													
SAMPLE INFORMATION													
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS								
1	0.0		NO SAMPLING										
2	0.0	7	MOIST MEDIUM DENSE ORANGE SILTY COARSE TO FINE SAND W/TRACE OF FINE GRAVEL.	A-2-4(0)									
		9											
		12											
3	2.0	6	MOIST MEDIUM DENSE BROWN COARSE TO FINE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-1-B									
		9											
		6											
4	4.0	4	WET FIRM GRAY COARSE TO FINE SANDY SILT W/TRACE OF CLAY AND FINE GRAVEL.	A-4(0)									
		4											
		4											
5	6.0	5	WET MEDIUM DENSE GRAY FINE GRAVELLY COARSE TO FINE SAND W/SOME SILT.	A-1-B									
		14											
		9											
6	8.0	8	WET MEDIUM DENSE BROWN COARSE SAND W/SOME FINE SAND AND SILT, TRACE OF FINE GRAVEL.	A-1-B	WATER LEVEL EL. 29.00'								
		12											
		10											
7	10.0	4	SATURATED FIRM GRAY SILTY CLAY W/SOME FINE SAND, TRACE OF COARSE SAND.	A-6(11)									
		3											
		4											
U-1	12.0	4	SATURATED ORGANIC SILT W/SOME FINE SAND, TRACE OF COARSE SAND AND CLAY.	A-5(9)									
		3											
		4											
8	14.0	2	SATURATED FIRM GRAY FINE SANDY SILT W/SOME COARSE SAND, TRACE OF ORGANIC MATTER.	A-4(0)									
		3											
		3											
9	16.0	2	SATURATED LOOSE GRAY FINE SAND W/SOME SILT, TRACE OF COARSE SAND AND ORGANIC MATTER.	A-2-4(0)	BOTTOM OF STONE								
		3											
		5											
10	18.0	7	SATURATED MEDIUM DENSE GRAY FINE TO COARSE SAND W/TRACE OF SILT AND ORGANIC MATTER.	A-3									
		9											
		10											
11	23.0	13											
		13											
		14											

NOTES:
1. BORING LOGS MADE BY DELAWARE DEPARTMENT OF TRANSPORTATION, SUBSURFACE EXPLORATION COMPLETED BY WALTON CORPORATION AND GEOTECHNOLOGY ASSOCIATES INC. (GTA).
2. LOCATIONS OF BORINGS REFERENCED TO PLAN SHEET. REFER TO CONSTRUCTION PLAN SHEET (PAGE 5). BORING LOGS LABELED AS EL-1 AND EL-2.
3. SOIL SAMPLING: 2 IN. OUTSIDE DIA. SPLIT BARREL SAMPLER, DRIVEN WITH A 140 LB. HAMMER FALLING 30 IN.
4. ALL DEPTHS GIVEN ARE IN FEET.

 DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH	CONTRACT	BRIDGE NO.	2-158A	BORING LOG	SHEET NO.
	T201107204	DESIGNED BY:		JAT	9			
	NEW CASTLE	CHECKED BY:		JNH	TOTAL SHTS.			
								15

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ENVIRONMENTAL COMPLIANCE NOTES

1. GENERAL NOTES:

- A. THE PURPOSE OF THIS SHEET IS TO IDENTIFY THOSE ITEMS ASSOCIATED WITH ENVIRONMENTAL COMPLIANCE. IMPACT CALCULATIONS ARE FOR THE 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 NATURAL AND/OR CULTURAL RESOURCES) IS NECESSARY, THE ENVIRONMENTAL STUDIES SECTION SHALL BE CONTACTED AT (302)760-2264 TO ALLOW FOR COORDINATION WITH THE APPROPRIATE RESOURCE AGENCIES AND 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*:

U.S. ARMY CORPS OF ENGINEERS (COE): NATIONWIDE PERMIT *3(A) AND (C) (NO PCN)
 DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): PROJECT CONSISTENT WITH DEL. CODE CH. 72, SECTION 7217(b), AS AMENDED BY SB 186.
 DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): WAIVED (PROJECT IS NOT LOCATED IN CRW).

* THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING AND/OR OBTAINING THIS APPROVAL.

NOTE: THE ABSENCE OF ASTERISKS AFTER A PERMIT (COE, WLSL, WQC, CZM) INDICATES THAT COORDINATION HAS BEEN DONE WITH THAT AGENCY BUT NO WRITTEN AUTHORIZATION WAS REQUIRED. AS SUCH, NO PAPERWORK FROM THAT AGENCY SHOULD BE ANTICIPATED.

B. CONSTRUCTION RESTRICTIONS:

FISHERIES - NONE
 ENDANGERED SPECIES - NONE
 MIGRATORY BIRDS - NONE

3. CULTURAL RESOURCE ISSUES:

A. NONE

4. STREAM RESTORATION AND SLOPE RIPRAP TREATMENT

- 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, ITEM #735535 - SOIL RETENTION BLANKET MULCH, TYPE 5, OR OTHER BLANKET AS SHOWN ON THE PLANS 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 DELAWARE #57 STONE SHALL BE INCIDENTAL TO THE RIPRAP ITEM. ALL OTHER ITEMS SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS.

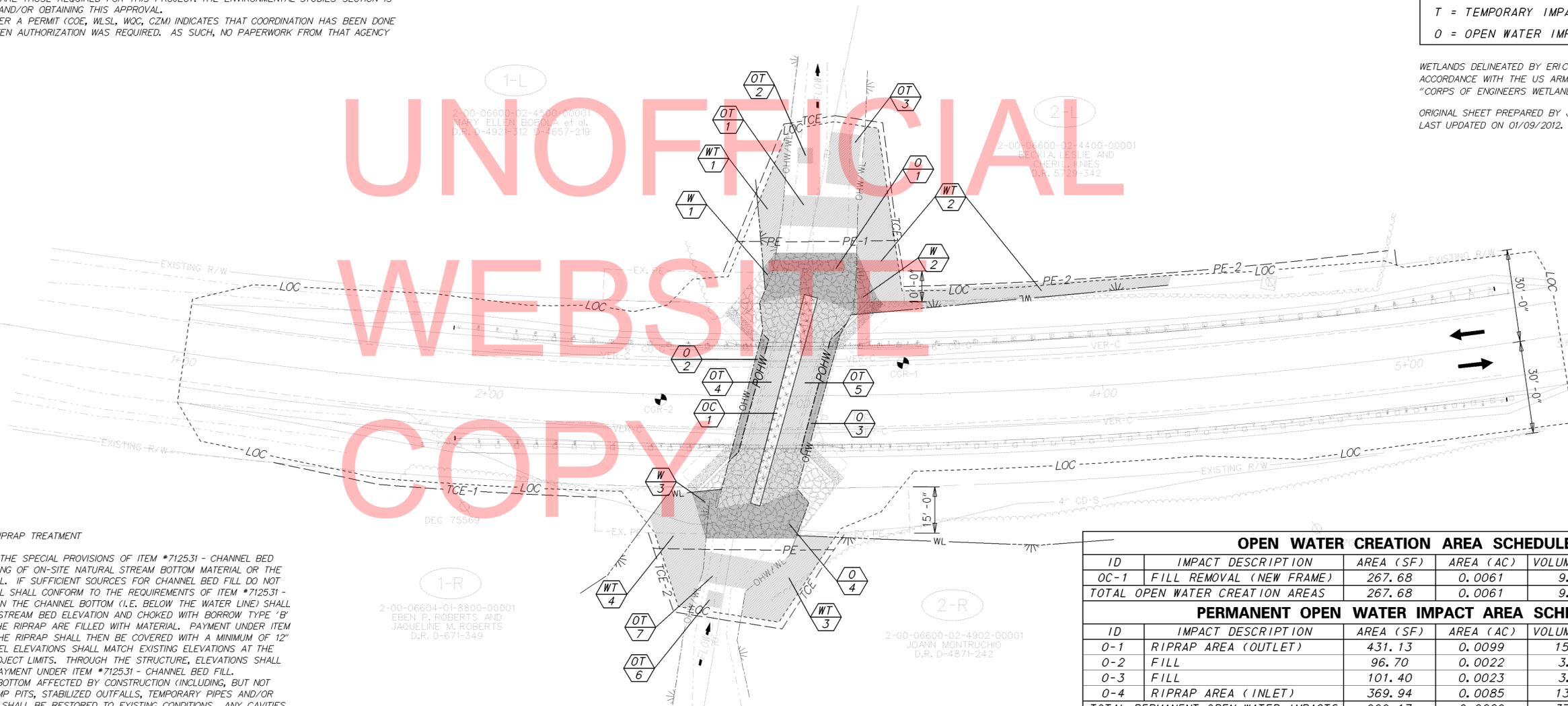
5. CONTRACTOR SHALL ACCESS STREAM FROM NORTHWEST AND SOUTHEAST ROADWAY CORNERS ONLY.

PERMANENT WETLAND IMPACT AREA SCHEDULE										
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION					
W-1	RIPRAP AREA (OUTLET)	20.25	0.0005	N/A	COE					
W-2	RIPRAP AREA (OUTLET)	95.31	0.0021	N/A	COE					
W-3	RIPRAP AREA (INLET)	62.40	0.0014	N/A	COE					
TOTAL PERMANENT WETLAND IMPACT AREAS		177.96	0.0041	N/A	COE					
TEMPORARY WETLAND IMPACT AREA SCHEDULE										
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION					
WT-1	E&S/ACCESS	218.01	0.0050	N/A	COE					
WT-2	E&S/ACCESS	961.74	0.0221	N/A	COE					
WT-3	E&S/ACCESS	378.60	0.0087	N/A	COE					
WT-4	E&S/ACCESS	444.16	0.0102	N/A </tr <tr> <td colspan="2">TOTAL TEMPORARY WETLAND IMPACT AREAS</td> <td>2002.51</td> <td>0.0460</td> <td>N/A</td> <td>COE</td> </tr>	TOTAL TEMPORARY WETLAND IMPACT AREAS		2002.51	0.0460	N/A	COE
TOTAL TEMPORARY WETLAND IMPACT AREAS		2002.51	0.0460	N/A	COE					

LEGEND	
	CREATION AREA
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
--- OHW ---	ORDINARY HIGH WATER
--- POHW ---	PROPOSED ORDINARY HIGH WATER
--- OHW/WL ---	ORD. HIGH WATER / WETLAND
--- WL ---	WETLAND BOUNDARY
	IMPACT AREA TYPE ID. (SEE BELOW) IMPACT AREA ID. AND/OR NUMBER
T	TEMPORARY IMPACT
C	CREATION AREA
O	OPEN WATER IMPACT
W	WETLAND IMPACT

WETLANDS DELINEATED BY ERIC CONSULTANTS, ERION 09-25-2011 IN ACCORDANCE WITH THE US ARMY CORPS OF ENGINEERS "CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (1987)".
 ORIGINAL SHEET PREPARED BY JONATHAN TICE ON 05-21-2011. SHEET LAST UPDATED ON 01/09/2012.

UNOFFICIAL WEBSITE COPY



OPEN WATER CREATION AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OC-1	FILL REMOVAL (NEW FRAME)	267.68	0.0061	9.91	COE/DNREC
TOTAL OPEN WATER CREATION AREAS		267.68	0.0061	9.91	COE/DNREC
PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-1	RIPRAP AREA (OUTLET)	431.13	0.0099	15.97	COE/DNREC
O-2	FILL	96.70	0.0022	3.58	COE/DNREC
O-3	FILL	101.40	0.0023	3.76	COE/DNREC
O-4	RIPRAP AREA (INLET)	369.94	0.0085	13.70	COE/DNREC
TOTAL PERMANENT OPEN WATER IMPACTS		999.17	0.0229	37.01	COE/DNREC
TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-1	SANDBAGS (OUTLET)	241.96	0.0056	8.96	COE/DNREC
OT-2	STABILIZED OUTFALL	25.00	0.0006	0.93	COE/DNREC
OT-3	DEWATERING BAG	167.17	0.0038	6.19	COE/DNREC
OT-4	PIPE REMOVAL	279.41	0.0064	10.35	COE/DNREC
OT-5	PIPE REMOVAL	278.77	0.0064	10.32	COE/DNREC
OT-6	STILLING WELL	25.00	0.0006	0.93	COE/DNREC
OT-7	SANDBAGS (INLET)	197.53	0.0045	7.32	COE/DNREC
TOTAL TEMPORARY OPEN WATER IMPACTS		1214.84	0.0279	44.99	COE/DNREC

6. WETLAND CLEARING AND RESTORATION

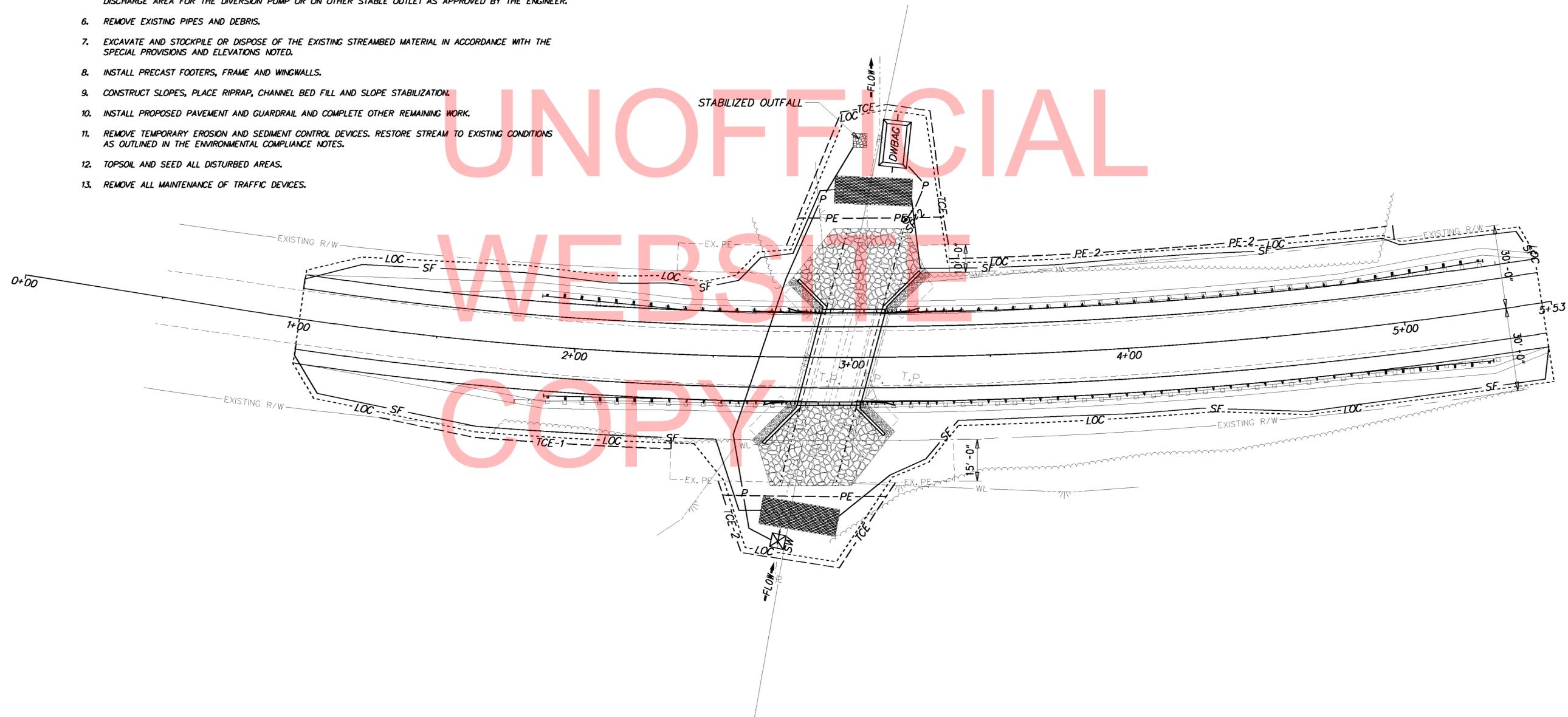
- A. CLEARING IN WETLAND AREAS SHALL BE KEPT TO THE MINIMUM ABSOLUTELY NECESSARY FOR CONSTRUCTION ACCESS. IN WETLAND AREAS THAT ARE CLEARED, THERE SHALL BE NO GRUBBING EXCEPT WHERE NECESSARY TO CONSTRUCT PROJECT COMPONENTS SUCH AS FOUNDATIONS AND RIPRAP PROTECTION. VEGETATION SHALL BE CUT FLUSH WITH THE GROUND (I.E. NO DISTURBANCE OF THE ROOT MAT). SIDECASTING INTO THE WETLANDS IS PROHIBITED.
- B. ALL MATERIALS ASSOCIATED WITH A TEMPORARY ACCESS ROAD WILL BE REMOVED IN THEIR ENTIRETY UPON COMPLETION OF THE PROJECT. THE DISTURBED WETLAND AREAS WILL BE RESTORED I.E., ORIGINAL ELEVATIONS & GRADES WILL BE RE-ESTABLISHED. TOPSOIL WILL BE ADDED AS NEEDED.
- C. NATURALIZE PLANTING OF RED MAPLES (1 1/2' TO 1 3/4' CAL., BB OR CONT.) ON 10' CENTER-SPACING (8' MIN. AND 12' MAX.) WITHIN DISTURBED WETLAND AREAS (ALL WETLAND AREAS WITHIN LOC, EXCLUDING THE AREA WITHIN THE TOS AND RIPRAP PROTECTION). 30 RED MAPLE TREES (TOTAL) SHALL BE PLANTED IN DISTURBED WETLAND AREAS (PAYMENT UNDER ITEM #737523 - PLANTING). WET GROUND EROSION CONTROL GRASS SEEDING - FLATS, SHALL BE PLACED IN DISTURBED WETLAND AREAS (PAYMENT UNDER ITEM #734552 - WET GROUND EROSION CONTROL GRASS SEEDING - FLATS) AND MULCHED WITH SOIL RETENTION BLANKET MULCH, TYPE 5 (ITEM #735535). NO BREAKOUT SHEET FOR ITEM #737523 - PLANTING IS INCLUDED.
- D. THE CONTRACTOR SHALL BE REQUIRED TO WATER ALL MAJOR AND MINOR TREES, SHRUBS AND ALL HERBACEOUS BEDS BI-WEEKLY DURING THE PERIOD FROM JUNE 15 THROUGH OCTOBER 1 OVER THE COURSE OF THIS PERIOD. THERE ARE NINE DISTINCT WATERINGS. WATERING, ONCE INITIATED SHALL CONTINUE WITHOUT INTERRUPTION UNTIL ALL PLANTS ON THE PROJECT HAVE BEEN WATERED. PAYMENT SHALL BE PER 1,000 GALS OF WATER APPLIED AND SHALL BE BASED ON APPLYING FIFTEEN (15) GALLONS OF WATER TO EACH PLANT EACH OF THE NINE WATERINGS. PAYMENT SHALL BE MADE UNDER ITEM #737523 - PLANTING.

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<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	SCALE 0 20 40 60 FEET	BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH	CONTRACT T20107204 COUNTY KENT	BRIDGE NO. 2-158A DESIGNED BY: JAT CHECKED BY: JNH	ENVIRONMENTAL COMPLIANCE PLAN	SHEET NO. 10 TOTAL SHTS. 15
	BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH						

SEQUENCE OF CONSTRUCTION

1. INSTALL MAINTENANCE OF TRAFFIC DEVICES AS PER DETOUR PLAN.
2. INSTALL SILT FENCE, EXCEPT CONNECTION TO SANDBAG DIKES.
3. INSTALL A 6'x9' STILLING WELL UPSTREAM OF THE PROPOSED UPSTREAM PUMP WITH THE TOP OF STONES LEVEL WITH THE EXISTING STREAM BOTTOM.
4. CONSTRUCT SANDBAG DIKES AT THE LOCATIONS SHOWN TO THE TOP OF THE STREAM BANK. CONNECT SILT FENCE TO SANDBAG DIKES TO COMPLETELY ENCLOSE THE WORK AREA. INSTALL STABILIZED OUTFALL USING R-5 RIPRAP.
5. INSTALL SUMP PIT, TYPE 2, AND DEWATERING BAG AS A SEDIMENT TRAPPING DEVICE. DEWATER THE WORK AREA IN ACCORDANCE WITH SECTION 111 OF DELDOT STANDARD SPECIFICATIONS. DISCHARGE CLEAN EFFLUENT FROM THE APPROVED SEDIMENT TRAPPING DEVICE AT THE RIPRAPPED DISCHARGE AREA FOR THE DIVERSION PUMP OR ON OTHER STABLE OUTLET AS APPROVED BY THE ENGINEER.
6. REMOVE EXISTING PIPES AND DEBRIS.
7. EXCAVATE AND STOCKPILE OR DISPOSE OF THE EXISTING STREAMBED MATERIAL IN ACCORDANCE WITH THE SPECIAL PROVISIONS AND ELEVATIONS NOTED.
8. INSTALL PRECAST FOOTERS, FRAME AND WINGWALLS.
9. CONSTRUCT SLOPES, PLACE RIPRAP, CHANNEL BED FILL AND SLOPE STABILIZATION.
10. INSTALL PROPOSED PAVEMENT AND GUARDRAIL AND COMPLETE OTHER REMAINING WORK.
11. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES. RESTORE STREAM TO EXISTING CONDITIONS AS OUTLINED IN THE ENVIRONMENTAL COMPLIANCE NOTES.
12. TOPSOIL AND SEED ALL DISTURBED AREAS.
13. REMOVE ALL MAINTENANCE OF TRAFFIC DEVICES.



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DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 20 40 60 FEET	BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH	CONTRACT T201107204	BRIDGE NO. 2-158A	CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN - PHASE 1	SHEET NO. 11
					COUNTY KENT		DESIGNED BY: JAT

CHANGEABLE MESSAGE BOARDS:

CMS-1 PRIOR TO DETOUR
(10 DAYS PRIOR TO BEGINNING OF DETOUR)

CHESTNUT GROVE ROAD **TO CLOSE STARTING XXXXXX**

CMS-1 DURING DETOUR
(DISPLAY FOR 5 DAYS AFTER IMPLEMENTATION OF DETOUR)

CHESTNUT GROVE ROAD **CLOSED FOLLOW DETOUR**

CMS-2 DURING DETOUR
(DISPLAY FOR THE DURATION OF DETOUR)

CHESTNUT GROVE ROAD **CLOSED USE ALT ROUTE**

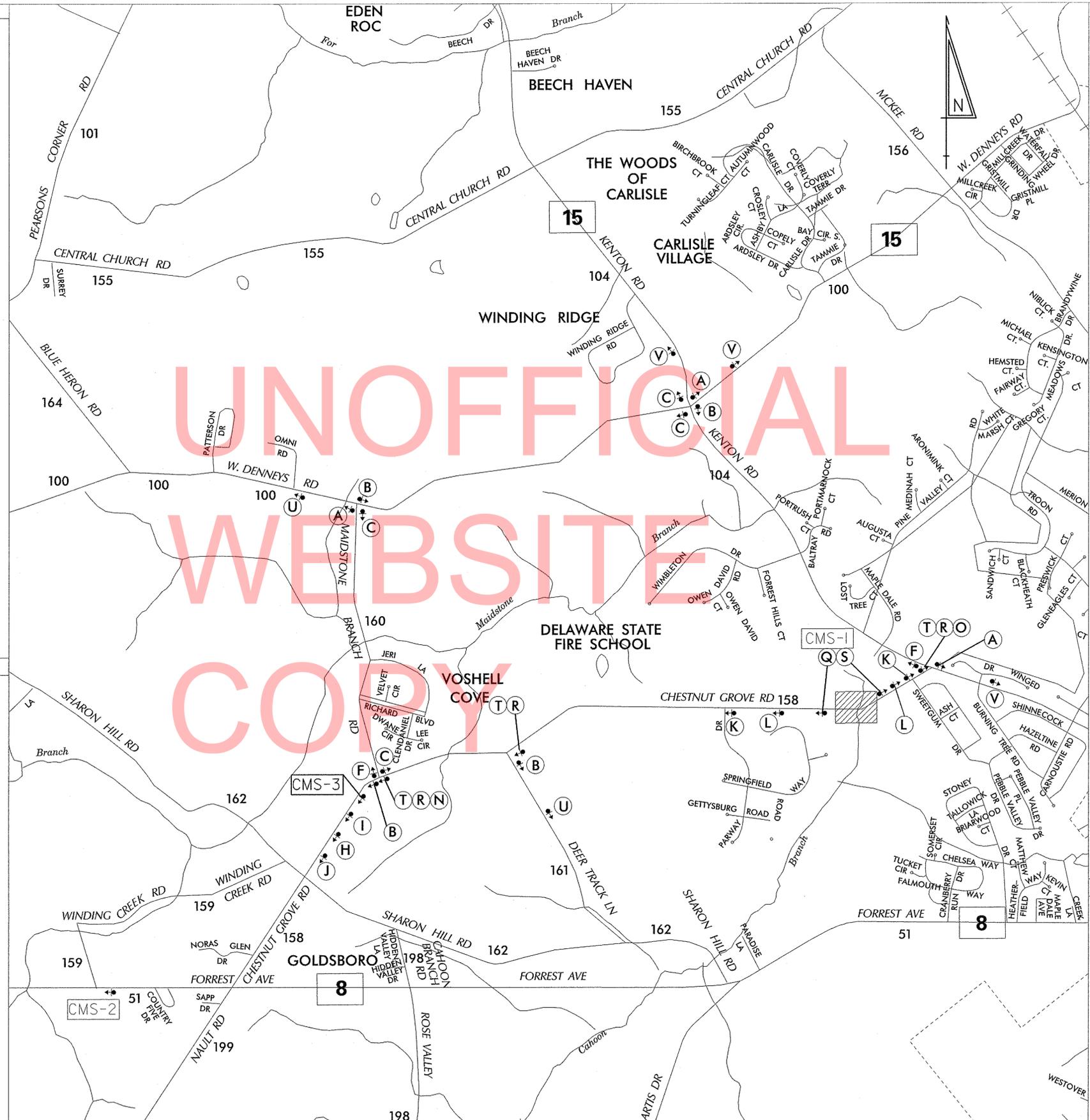
CMS-3 DURING DETOUR
(DISPLAY FOR THE DURATION OF DETOUR)

CAUTION CAUTION CAUTION **DETOUR AHEAD**

SPECIAL SIGNS:

U	Chestnut Grove Rd CLOSED EAST OF DE Fire School FOLLOW DETOUR	6°C 6°C 6°C 6°C 6°C 6°C
V	Chestnut Grove Rd CLOSED WEST OF Kenton Rd FOLLOW DETOUR	6°C 6°C 6°C 6°C 6°C 6°C

D/G FLUORESCENT ORANGE; BLACK LEGEND



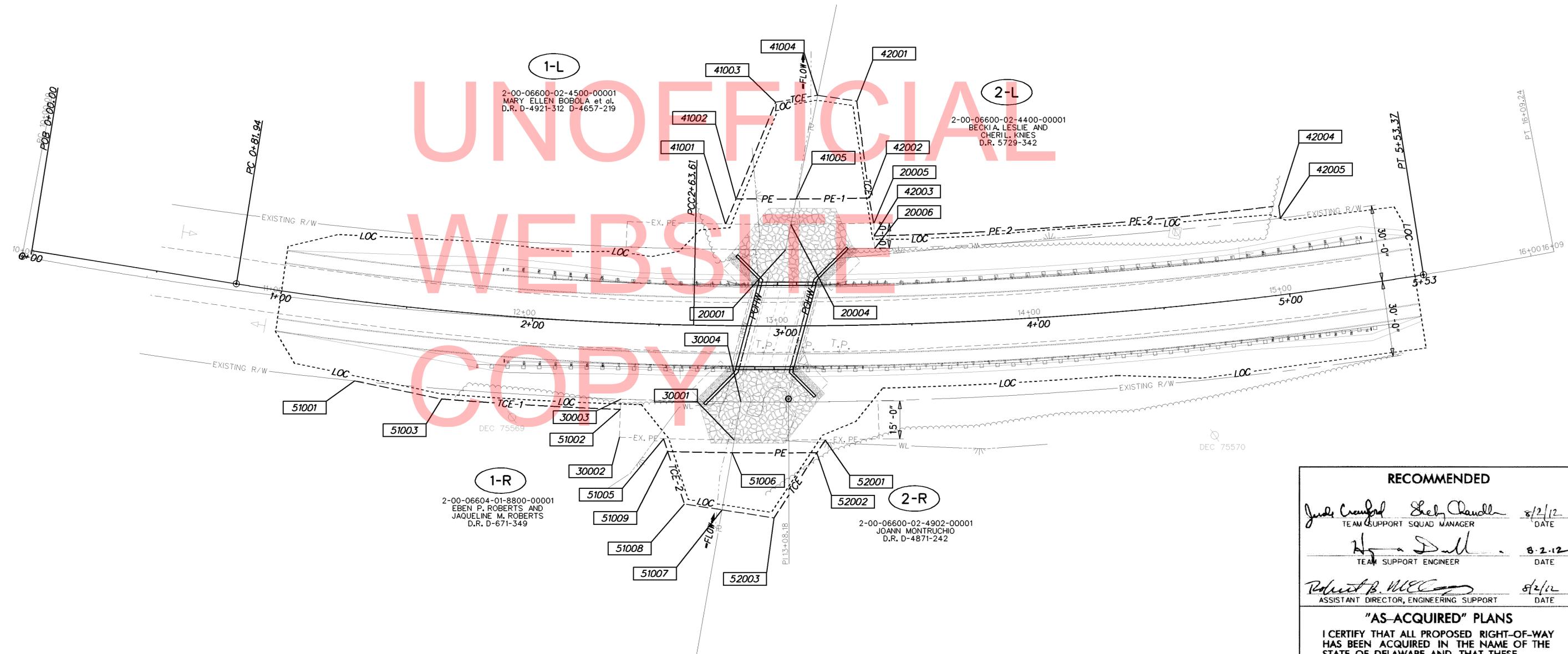
LEGEND:

A	B	C
DETOUR ↑	DETOUR ←	DETOUR →
D	E	F
DETOUR ↙	DETOUR ↗	END DETOUR
G	H	I
DETOUR AHEAD	DETOUR 1000 FT	DETOUR 500 FT
J	K	L
ROAD CLOSED AHEAD	ROAD CLOSED 1000 FT	ROAD CLOSED 500 FT
M	N	O
ROAD NAME	DETOUR ←	DETOUR →
P	Q	R
ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	ROAD CLOSED	ROAD CLOSED TO THRU TRAFFIC
S	T	
[Barricade Symbol]	[Barricade Symbol]	[Barricade Symbol]

- GENERAL NOTES:**
- ALL DETOUR SIGNING INCLUDING, TRAILBLAZERS, ARE TO BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR IN COMPLIANCE TO THE DE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
 - THE CONTRACTOR SHALL COMPLY WITH GUIDELINES IN "THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DE- MUTCD PART 6) FOR LIGHTS, BARRICADES AND SIGNS.(AS PER LATEST REVISION)
 - FIELD CONDITIONS MAY DICTATE CHANGES AT SOME TIME DURING THE LIFE OF THE CONTRACT. IN THE EVENT OF OMISSIONS OR CORRECTIONS, THE SIGNING PROVISIONS OF THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WILL PREVAIL.
 - SIGNS J THROUGH L AND P THROUGH R, THE WORD (ROAD) SHOULD BE CHANGED TO RAMP, R/R OR BRIDGE WHERE APPLICABLE.
 - WARNING SIGNS SHOULD BE MOUNTED ON BREAKAWAY POSTS AND HAVE RETROREFLECTIVE FLUORESCENT SHEETING.
 - *S* BARRICADES SHALL COMPLETELY RUN THE FULL WIDTH OF ROADWAY.
 - BARRICADES SHALL BE A MINIMUM OF 6 FEET WIDE UNLESS DIRECTED BY THE ENGINEER.

RECOMMENDED *M. M.* DATE: 1-3-12 RECOMMENDED *J. K.* DATE: 10/2/12 RECOMMENDED _____ DATE: _____ APPROVED CHIEF SAFETY OFFICER *Shahid M...* DATE: 1-10-12 APPROVED TRAFFIC ENGINEER *[Signature]* DATE: 1/1/12

W:\MSV8\CELLS\PROJDEV\SB.CEL



1-L
2-00-06600-02-4500-00001
MARY ELLEN BOBOLA et al.
D.R. D-4921-312 D-4657-219

2-L
2-00-06600-02-4400-00001
BECKIA LESLIE AND
CHERIL KNIES
D.R. 5729-342

1-R
2-00-06604-01-8800-00001
EBEN P. ROBERTS AND
JAQUELINE M. ROBERTS
D.R. D-671-349

2-R
2-00-06600-02-4902-00001
JOANN MONTRUCHIO
D.R. D-4871-242

RECOMMENDED

Jude Crawford *Sheb Chandler* 8/2/12
TEAM SUPPORT SQUAD MANAGER DATE

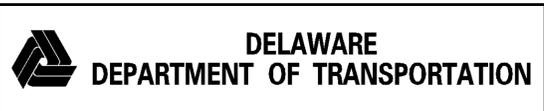
Hy Dull 8-2-12
TEAM SUPPORT ENGINEER DATE

Robert B. McCann 8/2/12
ASSISTANT DIRECTOR, ENGINEERING SUPPORT DATE

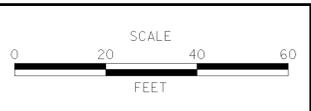
"AS-ACQUIRED" PLANS
I CERTIFY THAT ALL PROPOSED RIGHT-OF-WAY HAS BEEN ACQUIRED IN THE NAME OF THE STATE OF DELAWARE AND THAT THESE PLANS ACCURATELY DEPICT THE NATURE AND EXTENT OF THE REAL ESTATE SECTION ACQUISITION UNDER THIS PROJECT.

CHIEF, REAL ESTATE DATE

RW SHEET 1 OF 3



ADDENDUMS / REVISIONS



BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCH

CONTRACT T201107204	BRIDGE NO. DESIGNED BY: JAT	2-158A
COUNTY KENT	CHECKED BY: JNH	

RIGHT-OF-WAY PLAN	SHEET NO. 13
	TOTAL SHTS. 15

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ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4500-00001	(1-L) MARY ELLEN BOBOLA, ET AL.	P/E	4921-312	109.50							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
20004	1002	13+05.79	-40.00	425539.8394	610799.6811			S 80°15'14.94" W	25.8144	25.8147	1597.0204
41001	1002	12+79.33	-40.00	425535.4696	610774.2393	N 12°20'22.63" E	10.7623				
41002	1002	12+83.42	-50.00	425545.9833	610776.5393			N 80°08'39.18" E	23.8113	23.8116	-1587.0204
41005	1002	13+07.99	-50.00	425550.0590	610799.9992	S 1°46'57.26" W	10.2245				
20004	1002	13+05.79	-40.00	425539.8394	610799.6811						
FIGURE 41001 AREA = 248.1338 SQ. FT. (0.0057 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4500-00001	(1-L) MARY ELLEN BOBOLA, ET AL.	TCE	4921-312	109.50							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
41002	1002	12+83.42	-50.00	425545.9833	610776.5393	N 12°20'22.63" E	41.1326				
41003	1002	12+99.54	-88.13	425586.1656	610785.3295	N 70°39'54.68" E	16.9221				
41004	1002	13+17.22	-90.78	425591.7683	610801.2972	S 1°46'57.26" W	41.7295				
41005	1002	13+07.99	-50.00	425550.0590	610799.9992			S 80°08'39.18" W	23.8113	23.8116	1587.0204
41002	1002	12+83.42	-50.00	425545.9833	610776.5393						
FIGURE 41002 AREA = 783.4966 SQ. FT. (0.0180 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4400-00001	(2-L) BECKI A. LESLIE & CHERI L. KNIES	P/E-1	5729-342	1.90							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
20004	1002	13+05.79	-40.00	425539.8394	610799.6811	N 1°46'57.26" E	10.2245				
41005	1002	13+07.99	-50.00	425550.0590	610799.9992	N 79°11'32.60" E	28.9168		28.9172		-1587.0204
42002	1002	13+37.81	-50.00	425555.4813	610828.4031	S 20°13'56.73" E	10.1212				
20005	1002	13+39.42	-40.00	425545.9846	610831.9033			S 79°12'09.50" W	32.8029	32.8035	1597.0204
20004	1002	13+05.79	-40.00	425539.8394	610799.6811						
FIGURE 42001 AREA = 308.6042 SQ. FT. (0.0071 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4400-00001	(2-L) BECKI A. LESLIE & CHERI L. KNIES	TCE	5729-342	1.90							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
41004	1002	13+17.22	-90.78	425591.7683	610801.2972	N 88°29'55.59" E	15.6679				
42001	1002	13+33.57	-88.23	425592.1787	610816.9598	S 17°19'08.03" E	38.4403				
42002	1002	13+37.81	-50.00	425555.4813	610828.4031			S 79°11'32.60" W	28.9168	28.9172	1587.0204
41005	1002	13+07.99	-50.00	425550.0590	610799.9992	N 1°46'57.26" E	41.7295				
41004	1002	13+17.22	-90.78	425591.7683	610801.2972						
FIGURE 42002 AREA = 879.8405 SQ. FT. (0.0202 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4400-00001	(2-L) BECKI A. LESLIE & CHERI L. KNIES	P/E-2	5729-342	1.90							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
20006	1002	13+39.42	-30.00	425536.1814	610833.8774	N 11°23'08.88" W	5.0000				
42003	1002	13+39.42	-35.00	425541.0830	610832.8904			N 75°44'33.07" E	160.5202	160.5874	-1602.0204
42004	1002	15+03.52	-35.00	425580.6159	610988.4663	S 17°07'44.98" E	5.0000				
42005	1002	15+03.52	-30.00	425575.8377	610989.9390			S 75°44'33.07" W	161.0212	161.0886	1607.0204
20006	1002	13+39.42	-30.00	425536.1814	610833.8774						
FIGURE 42003 AREA = 804.1902 SQ. FT. (0.0185 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-6604-01-8800-00001	(1-R) EBEN P. ROBERTS & JAQUELINE M. ROBERTS	TCE-1	671-349	6.71							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
51001	1002	11+35.84	30.00	425449.1622	610640.4750			N 83°55'36.57" E	105.4589	105.4765	-1667.0204
30003	1002	12+39.42	30.00	425460.3196	610745.3420	S 7°53'08.87" E	4.0000				
51002	1002	12+39.42	34.00	425456.3574	610745.8908			S 83°19'41.14" W	70.8004	70.8057	1671.0204
51003	1002	11+70.05	34.00	425448.1316	610675.5698	N 88°19'04.29" W	35.1100				
51001	1002	11+35.84	30.00	425449.1622	610640.4750						
FIGURE 51001 AREA = 350.4453 SQ. FT. (0.0080 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-6604-01-8800-00001	(1-R) EBEN P. ROBERTS & JAQUELINE M. ROBERTS	P/E	671-349	6.71							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
51005	1002	12+56.52	45.00	425447.9625	610764.7883			N 81°02'24.01" E	27.9351	27.9354	-1682.0204
30001	1002	12+83.71	45.00	425452.3132	610792.3825	S 0°02'28.00" E	5.0678				
51006	1002	12+82.90	50.00	425447.2455	610792.3862			S 81°01'27.90" W	25.4459	25.4461	1687.0204
51009	1002	12+58.21	50.00	425443.2756	610767.2518	N 27°43'38.58" W	5.2949				
51005	1002	12+56.52	45.00	425447.9625	610764.7883						
FIGURE 51002 AREA = 133.4537 SQ. FT. (0.0031 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-6604-01-8800-00001	(1-R) EBEN P. ROBERTS & JAQUELINE M. ROBERTS	TCE-2	671-349	6.71							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
51006	1002	12+82.90	50.00	425447.2455	610792.3862	S 0°02'28.00" E	22.8663				
51007	1002	12+79.34	72.57	425424.3792	610792.4026	S 88°45'27.46" W	15.0504				
51008	1002	12+65.05	70.53	425424.0529	610777.3557	N 27°43'38.58" W	21.7164				
51009	1002	12+58.21	50.00	425443.2756	610767.2518			N 81°01'27.90" E	25.4459	25.4461	-1687.0204
51006	1002	12+82.90	50.00	425447.2455	610792.3862						
FIGURE 51003 AREA = 432.8524 SQ. FT. (0.0099 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4902-00001	(2-R) JOANN MONTRUCHIO	TCE	4871-242	2.07							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
51006	1002	12+82.90	50.00	425447.2455	610792.3862			N 80°01'22.32" E	33.5327	33.5333	-1687.0204
52002	1002	13+15.44	50.00	425453.0552	610825.4118	S 23°32'24.46" W	30.7891				
52003	1002	12+98.95	75.59	425424.8284	610813.1149	S 88°45'27.46" W	20.7172				
51007	1002	12+79.34	72.57	425424.3792	610792.4026	N 0°02'28.00" W	22.8663				
51006	1002	12+82.90	50.00	425447.2455	610792.3862						
FIGURE 52001 AREA = 665.3317 SQ. FT. (0.0153 ACRES)											

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
2-00-06600-02-4902-00001	(2-R) JOANN MONTRUCHIO	P/E	4871-242	2.07							
ALIGNMENT NUMBER & DESCRIPTION: 1002 - CHESTNUT GROVE ROAD CONSTRUCTION BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
30001	1002	12+83.71	45.00	425452.3132	610792.3825			N 79°57'04.15" E	35.9943	35.9950	-1682.0204
52001	1002	13+18.74	45.00	425458.5938	610827.8246	S 23°32'24.46" W	6.0414				
52002	1002	13+15.44	50.00	425453.0552	610825.4118			S 80°01'22.32" W	33.5327	33.5333	1687.0204
51006	1002	12+82.90	50.00	425447.2455	610792.3862	N 0°02'28.00" W	5.0678				
30001	1002	12+83.71	45.00	425452.3132	610792.3825						
FIGURE 52002 AREA = 173.8188 SQ. FT. (0.0040 ACRES)											

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LEGEND	
FE	AREA OF ACQUISITION
RW	AREA OCCUPIED BY EXISTING RW
BE	PERMANENT EASEMENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
••	OFFSET IS LEFT OF BASELINE
••	CURVE TURNS TO THE LEFT



ADDENDUMS / REVISIONS

BR 2-158A ON CHESTNUT GROVE ROAD OVER CAHOON BRANCE

CONTRACT	BRIDGE NO.	2-158A
T20107204	DESIGNED BY:	JAT
COUNTY	CHECKED BY:	JNH
KENT		

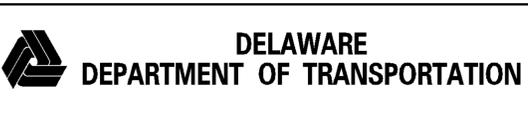
RIGHT-OF-WAY DATA SHEET	
SHEET NO.	14
TOTAL SHTS.	15

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COUNTY ASSESSMENT PARCEL NUMBER	PLAN SHEET NUMBER	OWNERSHIP OF RECORD	TITLE SOURCE	PROPERTY AREA BEFORE ACQUISITION (ACRE) D=DEED C=CALCULATED A=ASSESSMENT	ACQUISITION CODE FEE, R/W, P/E, TCE	AREA TO BE ACQUIRED				PROPERTY AREA REMAINING (SQ. FEET /ACRES)	DEED RECORD OF ACQUISITION	REMARKS
						ACQUISITION (SQ. FEET /ACRES)	AREA OCCUPIED BY EXISTING RIGHT OF WAY (SQ. FEET /ACRES)	EASEMENT				
								PERMANENT (SQ. FEET /ACRES)	TEMPORARY (SQ. FEET /ACRES)			
2-00-06600-02-4500-00001	10	(1-L) MARY ELLEN BOBOLA, ET AL.	4921-312	D - 109.50	P/E TCE			248,1338 / 0.01	783,4966 / 0.02	4769820.00 / 109.50		
2-00-06600-02-4400-00001	10	(2-L) BECKI A. LESLIE & CHERI L. KNIES	5729-342	A - 1.90	P/E-1 TCE P/E-2			308,6042 / 0.01	879,8405 / 0.02	82764.00 / 1.90		
2-00-6604-01-8800-00001	10	(1-R) EBEN P. ROBERTS & JAQUELINE M. ROBERTS	671-349	D - 6.71	TCE-1 P/E TCE-2			133,4537 / 0.00	350,4453 / 0.01	292287.60 / 6.71		
2-00-06600-02-4902-00001	10	(2-R) JOANN MONTRUCHIO	4871-242	D - 2.07	TCE P/E			173,8188 / 0.00	665,3317 / 0.02	90169.20 / 2.07		

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COPY

ACQUISITION CODES
FEE - ACQUISITION P/E - PERMANENT EASEMENT
R/W - AREA OCCUPIED BY EXISTING R/W TCE - TEMPORARY EASEMENT



ADDENDUMS / REVISIONS

**BR 2-158A ON
CHESTNUT GROVE ROAD
OVER CAHOON BRANCE**

CONTRACT T201107204	BRIDGE NO. 2-158A
COUNTY KENT	DESIGNED BY: JAT
	CHECKED BY: JNH

RIGHT-OF-WAY TABULATION SHEET	SHEET NO. 15
	TOTAL SHTS. 15

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