

GENERAL LOCATION OF CONTRACT

# THE STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION



## CONSTRUCTION & RIGHT-OF-WAY PLANS FOR: BR 2-163A ON VICTORY CHAPEL ROAD OVER PENROSE BRANCH

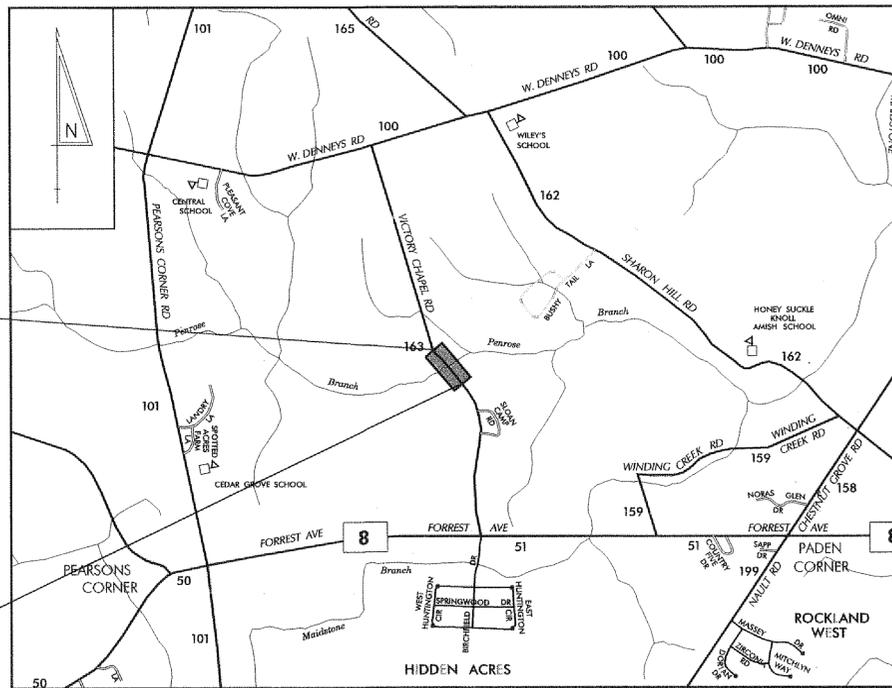
CONTRACT NUMBER: **T201107207**  
FEDERAL AID PROJECT NUMBER: **EBROS-K163(01)**

COUNTY: **KENT** M.R. #: **163**

U.S. CUSTOMARY  
UNITS

DESIGN DESIGNATION		
FUNCTIONAL CLASS: RURAL LOCAL ROAD	D.H.V. PROJECTED: 40	YEAR: 2040
TYPE OF CONSTRUCTION: PIPE REPLACEMENT	DESIGN SPEED: 55 M.P.H.	
A.A.D.T. CURRENT: 295	YEAR: 2008	TRUCKS: 14 %
A.A.D.T. PROJECTED: 550	YEAR: 2040	DIRECTION OF DISTRIBUTION: 65 %
INDEX OF SHEETS		
SHEET NO	TABLE OF CONTENTS	
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**DISCLAIMER:**  
THIS PLAN SET IS INTENDED TO BE A GUIDELINE FOR PREPARING A SET OF PLANS INVOLVING THE CONSTRUCTION OF A PRECAST CONCRETE THREE-SIDED FRAME. IT IS NOT INTENDED TO BE A SET OF STANDARDS. THE DESIGN ENGINEER IS STILL RESPONSIBLE FOR PERFORMING THE DESIGN AND NECESSARY DOCUMENTATION USING HIS/HER ENGINEERING JUDGMENT AND EXPERTISE.



**BEGIN**  
CONTRACT T201107207  
STATION 0+86.00

**END**  
CONTRACT T201107207  
STATION 6+30.00

**RECOMMENDED**  
*Bryan D. Park* 1/22/12  
SQUAD MANAGER, CONSTRUCTION DATE

*JT 724* 1/26/12  
GROUP ENGINEER, CONSTRUCTION DATE

ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS (CONSTRUCTION) DATE

**RECOMMENDED**  
*Vincent W. Davis*  
STORMWATER ENGINEER  
DATE 27 JAN 2012



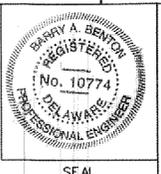
**RECOMMENDED**  
*[Signature]*  
SQUAD MANAGER, TRANSPORTATION SOLUTIONS (PROJECT DEVELOPMENT OR BRIDGE DESIGN)  
DATE 1/17/12



**RECOMMENDED**  
*[Signature]*  
BRIDGE DESIGN ENGINEER  
DATE 1/17/12



**RECOMMENDED**  
*[Signature]*  
ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS  
DATE FEBRUARY 13, 2012



**APPROVED**  
*Natalie Bamhart*  
CHIEF ENGINEER  
DATE February 13, 2012



TOTAL SHEETS: 15			
APPROVED DESIGN EXCEPTIONS			
DESIGN PARAMETER	REQUIRED	PROVIDED	DATE
ADDENDA & REVISIONS			
DESCRIPTION	NAME & DATE		
ASSOCIATED CONTRACTS			
CONTRACT NO.	CONTRACT NAME		
78-052-01	KENT COUNTY RD 163 (RTE #8 TO RD #100)		

## EXISTING SYMBOLS

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

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

MANMADE ROADSIDE FEATURES	
	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

SURVEY CONTROL & MONUMENTATION	
	SURVEY BENCHMARK LOCATION
	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS
	PROPERTY MARKER - CONCRETE MON.
	PROPERTY MARKER - IRON PIPE

## PROPOSED SYMBOLS

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BUTT JOINT
	CONSTRUCTION BASELINE
	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, TYPES 1 & 3
	GUARDRAIL, TYPE 2
	GUARDRAIL END TREATMENT - PARALLEL
	GUARDRAIL END TREATMENT - PARABOLIC
	HORIZONTAL CLEARANCE
	JUNCTION BOX - DRAINAGE
	LIMIT OF CONSTRUCTION
	MANHOLE
	PAVEMENT PATCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK @ 4"
	P.C.C. SIDEWALK @ 6"
	UNDERDRAIN
	UNDERDRAIN OUTLET

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

CONSTRUCTION PHASING SYMBOLS	
	BARRICADE, TYPE 3
	CONCRETE SAFETY BARRIER - PORTABLE
	CONSTRUCTION WARNING SIGN LOCATION
	CONSTRUCTION WARNING SIGN
	CRASH CUSHION ARRAY
	DRUM - TRAFFIC CONTROL
	PHASING TRAFFIC FLOW ARROW

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
	DRAINAGE INLET
	DO NOT DISTURB
	FLARED END SECTION
	FILTRATION STRUCTURE
	GUARDRAIL
	JUNCTION BOX
	LANDSCAPE PLANTINGS
	MANHOLE
	MONUMENT - RIGHT-OF-WAY
	PIPE
	RELOCATE BY CONTRACTOR
	RELOCATE BY OTHERS
	REMOVE BY CONTRACTOR
	REMOVE BY OTHERS
	SEDIMENT TRAP
	SILT FENCE
	UNDERDRAIN

LANDSCAPING	
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

PAVEMENT SECTION(S)	
	N/A
	1 1/4" WMA, SUPERPAVE, TYPE C, PG 64-22, 115 GYRATIONS (CARBONATE STONE) 2 1/4" WMA, SUPERPAVE, TYPE B, PG 64-22, 115 GYRATIONS 8" GRADED AGGREGATE BASE COURSE, TYPE B
	N/A

RIGHT-OF-WAY SYMBOLS	
	PROPOSED RIGHT-OF-WAY MONUMENT
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	EXISTING RIGHT-OF-WAY
	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
	HISTORIC RIGHT-OF-WAY BASELINE

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

LAST REVISED: 3/12/2008  
Y:\KENT\163\BRIDGE\T201107207\PLANS\LG.DGN

# 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 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 AT THE TIME OF BID. 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 AT THE TIME OF BID. 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.
( )	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.

- THE DISTURBED AREA FOR THIS PROJECT IS 0.514 ACRES.

## LEGEND

- ITEM 401800 - WMA, SUPERPAVE TYPE C, PG 64-22, 115 GYRATIONS (CARBONATE STONE)
- ITEM 401809 - WMA, SUPERPAVE TYPE B, PG 64-22, 115 GYRATIONS
- ITEM 302007 - GRADE AGGREGATE BASE COURSE, TYPE 'B'
- ITEM 732005 - TOPSOIL  
ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- ITEM 209006 - BORROW, TYPE F

# 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.
- UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR SHALL, AS PART OF HIS PROJECT SCHEDULE, SUBMIT TO THE ENGINEER AN ESTIMATE OF THE MONTHLY PAYMENTS EXPECTED TO BE RECEIVED ON THE CONTRACT. THIS WILL BE REFERENCED AS THE "MONTHLY PAYMENT CHART".

A CHART IN MICROSOFT EXCEL, MICROSOFT WORD, OR HAND WRITTEN FORMAT WILL BE ACCEPTABLE FOR THIS PURPOSE. THE CHART SHOULD INCLUDE, AS A MINIMUM, COLUMNS FOR THE MONTH, YEAR AND ESTIMATED MONTHLY PAYMENTS. THE TOTAL OF ALL ESTIMATED MONTHLY PAYMENTS SHOULD EQUAL THE AWARDED CONTRACT TOTAL BID PRICE.

THE ENGINEER MAY REQUEST AN UPDATED "MONTHLY PAYMENT CHART" AT HIS DISCRETION, DEPENDING ON THE ACCURACY OF THE INITIAL ESTIMATES AND ACCORDING TO THE OVERALL NEEDS OF THE DEPARTMENT.

THE "MONTHLY PAYMENT CHART" WILL NOT BE CONSIDERED A BINDING DOCUMENT BY EITHER THE CONTRACTOR OR THE DEPARTMENT AND IS CONSIDERED SOLELY INFORMATIONAL.

ON PROJECTS REQUIRING CPM SCHEDULES, THE CONTRACTOR MAY, BUT IS NOT REQUIRED TO, "COST LOAD" THE CPM SCHEDULE IN ORDER TO GENERATE THE MONTHLY SPEND PAYMENT CHART.

COSTS TO PREPARE AND/OR UPDATE THE "MONTHLY PAYMENT CHART" ARE ADDRESSED AS FOLLOWS:

- ON CONTRACTS REQUIRING CPM SCHEDULES AND UPDATES, PREPARATION OF THE INITIAL CHART SHALL BE INCIDENTAL TO ITEM 763508. UPDATES SHALL BE INCIDENTAL TO ITEM 763509.
- ON CONTRACTS NOT REQUIRING CPM SCHEDULES, THE COST TO PREPARE AND UPDATE THE "MONTHLY PAYMENT CHART" SHALL BE INCLUDED IN ITEM 763000 - INITIAL 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
  - EXISTING DRIVEWAY RCP
- THE ENGINEER MAY REQUIRE THE CONTRACTOR TO EXCAVATE TEST PITS ALONG PROPOSED DRAINAGE RUNS, AT POINTS OF POSSIBLE UTILITY CONFLICTS, TO DETERMINE IF A CONFLICT EXISTS. ANY CONFLICTS SHALL BE COORDINATED BY THE CONTRACTOR, WITH THE ENGINEER AND THE UTILITY COMPANY INVOLVED. THE ENGINEER SHALL ULTIMATELY DETERMINE THE SOLUTION TO THE UTILITY CONFLICT. TEST HOLES SHALL BE MEASURED AND PAID FOR IN ACCORDANCE WITH ITEM 202000 - EXCAVATION AND EMBANKMENT, BUT ONLY TO THE ACTUAL DEPTH EXCAVATED.
- STABILIZING STRUCTURAL EXCAVATIONS  
SHORING SHALL BE REQUIRED FOR ANY EXCAVATION EXCEEDING 5 FEET IN HEIGHT, THE COST OF SHORING SHALL BE INCIDENTAL TO ITEM \*207000 - EXCAVATION AND BACKFILL FOR STRUCTURES. IN LIEU OF SHORING, THE CONTRACTOR MAY USE A 2:1 CUT SLOPE. NO PAYMENT SHALL BE MADE FOR ADDITIONAL EXCAVATION OR FILL OUTSIDE THE LIMITS AS DEFINED IN SECTION 207 OF THE STANDARD SPECIFICATIONS.
- REFER TO THE ENVIRONMENTAL COMPLIANCE PLAN FOR FURTHER RESTRICTIONS/GUIDANCE ASSOCIATED WITH THIS PROJECT.

## SECTION 600

- THE DEPARTMENT AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES AND DRAINAGE STRUCTURES TO BE USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION PRIOR TO THE START OF CONSTRUCTION. EXISTING PIPES AND DRAINAGE STRUCTURES DAMAGED DUE TO CONTRACTOR OPERATIONS SHALL BE REPAIRED OR REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS REQUIRED TO VIDEO INSPECT NEW PIPE RUNS TO CONFIRM CONDITION PRIOR TO ACCEPTANCE. PAYMENT FOR VIDEO INSPECTION OF NEW PIPES WILL BE MADE UNDER ITEM 612529 - VIDEO INSPECTION.
- BAR REINFORCEMENT  
REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL A CLEAR COVER OF 2" MINIMUM UNLESS OTHERWISE SPECIFIED ON PLANS. ALL REINFORCING STEEL SHALL BE PROTECTED WITH EPOXY COATED REINFORCING CONFORMING TO 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 (BARRIERS) F'c = 4.5 KSI  
MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS WITH THE FOLLOWING EXCEPTIONS:  
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.
- CENTERLINE OF ROAD SHALL BE STRIPED WITH A DOUBLE YELLOW LINE. SHOULDERS SHALL BE STRIPED WITH A SINGLE WHITE LINE. STRIPING SHALL EXTEND THE LENGTH OF THE PROJECT LIMITS. PAYMENT UNDER ITEM \*748548.

## MISCELLANEOUS

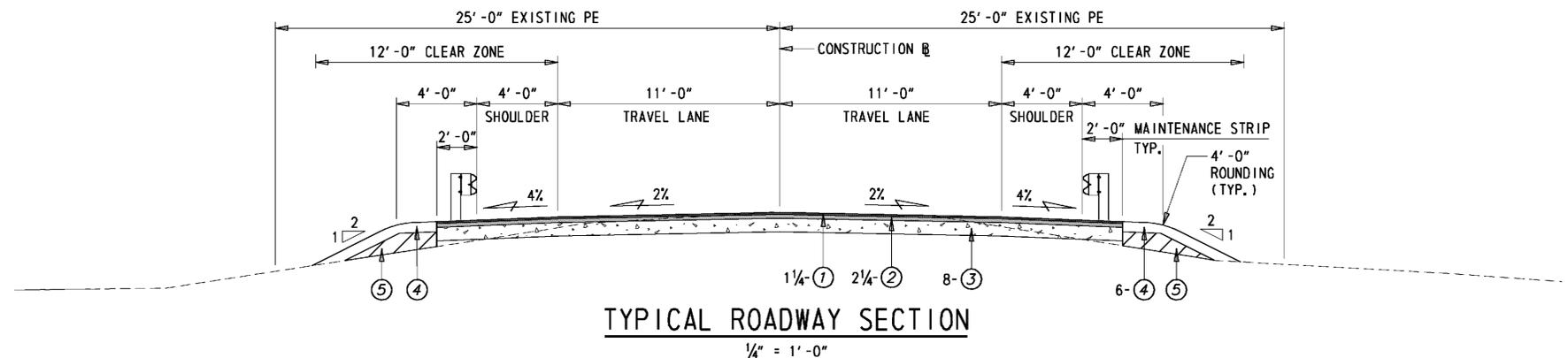
- DESIGN CRITERIA  
2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION.
- LOADING  
AASHTO HL-93 FOR LIVE LOAD  
25 PSF DEAD LOAD HAS BEEN INCLUDED FOR FUTURE OVERLAY.
- HYDRAULIC DATA  
DRAINAGE AREA = 3.91 SQ. MILES  
DESIGN FREQUENCY = 25 YEARS  
DESIGN DISCHARGE = 583 CFS  
25 YEAR FLOOD ELEVATION = 49.50 FT

SCOUR ANALYSIS  
THE PROPOSED STRUCTURE HAS BEEN ANALYZED 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 DESIGN VELOCITY: 8.0 FT/S  
DESIGN DISCHARGE: 1317 CFS TAILWATER DEPTH: 5.04 FT

- VERIZON AND DELMARVA UNDERGROUND UTILITIES WILL BE MOVED PRIOR TO THE START OF CONSTRUCTION. SEE UTILITY STATEMENT FOR FULL DETAILS.
- ENVIRONMENTAL COMPLIANCE  
SEE ENVIRONMENTAL COMPLIANCE PLAN FOR FURTHER RESTRICTIONS/GUIDANCE ASSOCIATED WITH THIS PROJECT.

LRFR LOAD RATINGS			
RATING VEHICLE	WEIGHT	LOAD RATING FACTOR	LOAD RATING (tons)
HL-93 INVENTORY	N/A	1.10	N/A
HL-93 OPERATING	N/A	1.42	N/A
HS-20 INVENTORY	N/A	1.38	49.84
HS-20 OPERATING	N/A	1.79	64.61
S220	20	2.54	20.00
S335	35	1.38	35.00
S437	37	1.52	37.00
T330	30	2.44	30.00
T435	35	1.90	35.00
T540	40	1.83	40.00
AC2	28	1.68	28.00
AC3	42	1.17	42.00
AC4	56	1.19	56.00
AC5	60	1.35	60.00



SCALE: AS NOTED

BR 2-163A ON  
VICTORY CHAPEL ROAD  
OVER PENROSE BRANCH

CONTRACT	BRIDGE NO.	2-163A
T201107207	DESIGNED BY: EM	
KENT	CHECKED BY: JNH	

GENERAL AND PROJECT  
NOTES SHEET

SHEET NO.	3
TOTAL SHTS.	15

HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 1	0+04.23	17.34 R	424048.22	594610.13	55.07
TP 2	2+49.70	12.98 R	423856.80	594766.45	52.04

**DATUM REFERENCE:**

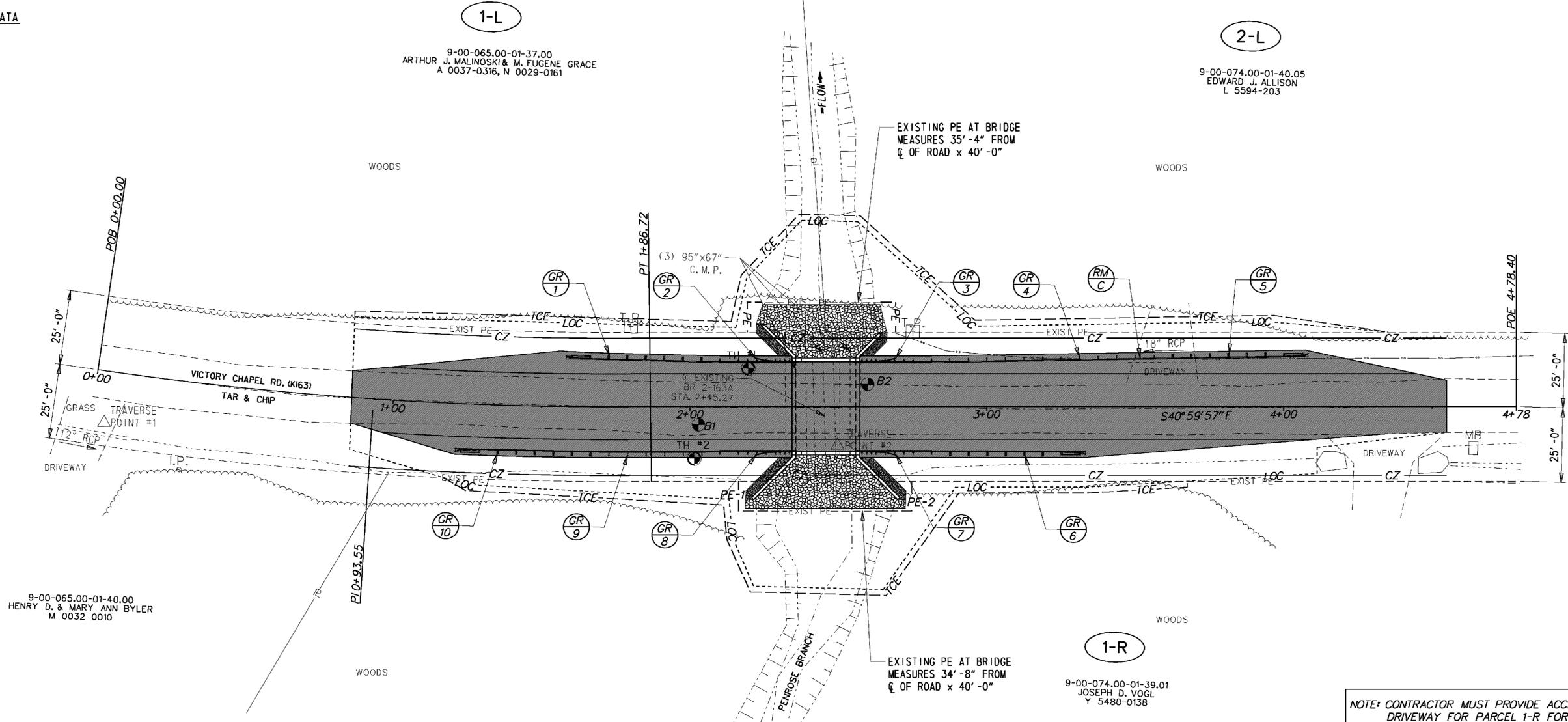
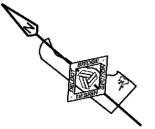
HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/91).

VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

**HORIZONTAL CURVE DATA**

P. I. STA. = 0+93.55  
 $\Delta = 8^{\circ}54'06''$   
 R = 1201.78'  
 T = 93.55'  
 L = 186.72'  
 E = 3.63'

CONSTRUCTION BASELINE CONTROL				
DESCRIPTION	STATION	NORTHING	EASTING	
POB	0+00.00	424061.42	594622.14	
PI	0+93.55	423982.75	594672.75	
PT	1+86.72	423912.85	594734.92	
POE	4+78.40	423692.72	594926.28	



9-00-065.00-01-40.00  
 HENRY D. & MARY ANN BYLER  
 M 0032 0010

9-00-074.00-01-39.01  
 JOSEPH D. VOGL  
 Y 5480-0138

NOTE: CONTRACTOR MUST PROVIDE ACCESS TO THE DRIVEWAY FOR PARCEL 1-R FOR THE DURATION OF THE CONTRACT. CONTRACTOR SHALL COORDINATE WITH THE OWNERS OF PARCEL 1-R WHEN PERFORMING THE ROADWAY WORK ADJACENT TO THE DRIVEWAY.

NOTE: CONTRACTOR TO REMOVE EXISTING 18" REINFORCED CONCRETE PIPE AND GRADE DITCH TO DRAIN. RELOCATE DRIVEWAY APPROX. 260' SOUTH TO STA 6+20, AT END OF WOODLINE AND INSTALL 18" HDPE PIPE. SEE DETAIL FOR MORE INFO.

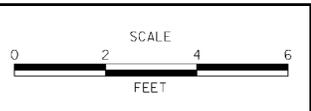
GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION / TYPE	BEG IN STA.	OFFSET	LENGTH
1	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	1+59.93	16.00	50.00
2	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	2+10.09	15.00	25.00
3	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	2+54.52	15.00	25.00
4	TYPE 1-31 GUARDRAIL	2+81.46	15.00	75.00
5	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	3+56.46	15.90	50.00
6	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	2+81.46	15.00	50.00
7	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	2+54.52	15.00	25.00
8	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2-31	2+10.09	15.00	25.00
9	TYPE 1-31 GUARDRAIL	1+72.76	15.00	37.50
10	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	1+23.38	16.00	50.00

SOIL BORING SCHEDULE				
PT.	STATION	OFFSET	NORTHING	EASTING
B1	2+02.87	4.56R	423897.52	594742.10
B2	2+61.63	8.79L	423862.40	594788.62

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ADDENDUMS / REVISIONS	

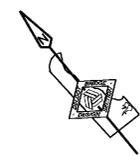


**BR 2-163A ON  
 VICTORY CHAPEL RD  
 OVER PENROSE BRANCH**

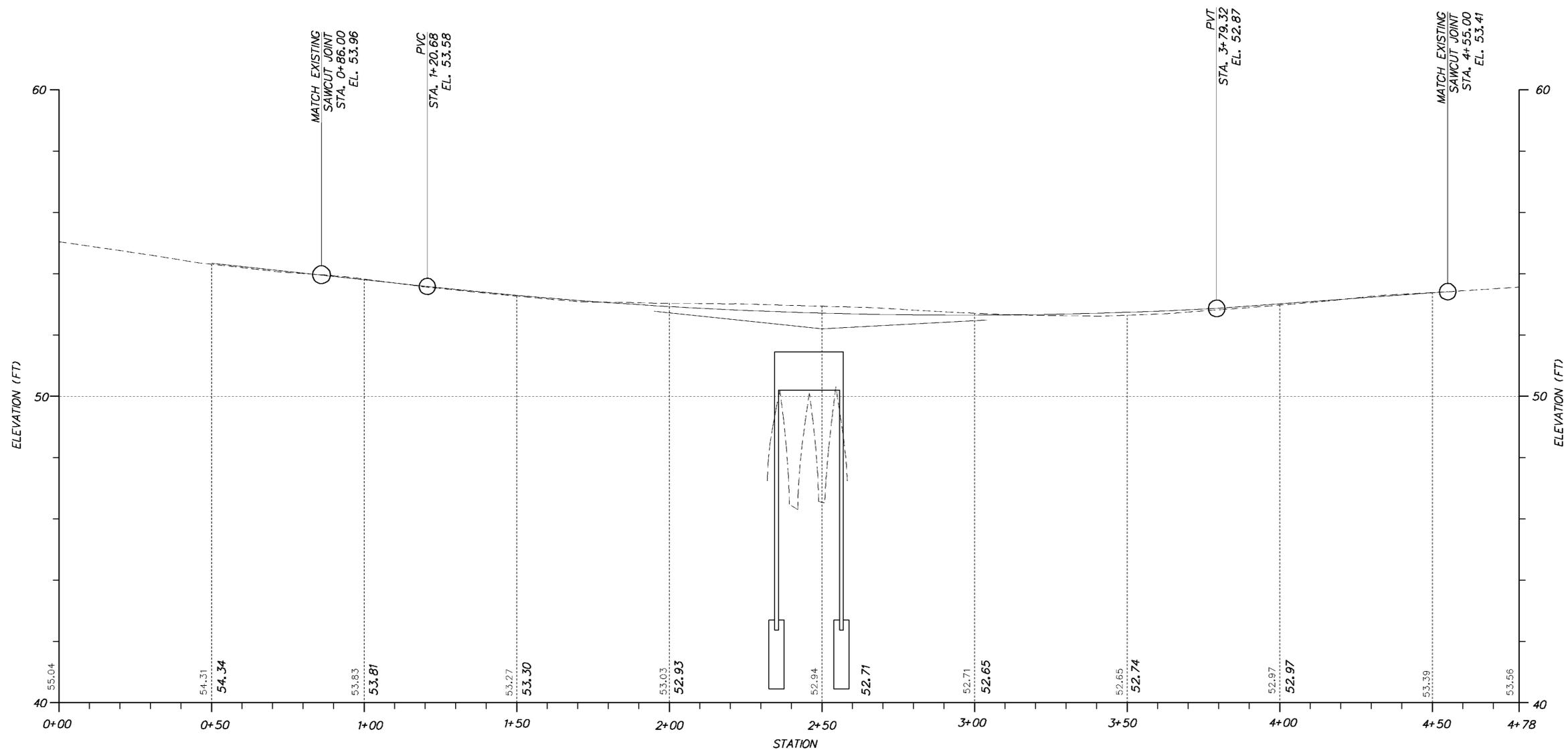
CONTRACT	BRIDGE NO.	<b>2-163A</b>
T201107207	DESIGNED BY:	E.M.
KENT	CHECKED BY:	JNH

**CONSTRUCTION PLAN**

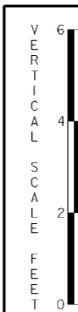
SHEET NO.	4
TOTAL SHTS.	15



**VERTICAL CURVE DATA**  
 L. V. C. = 259.00'  
 P. V. I. STA. = 2+50.00  
 P. V. I. ELEV. = 52.20  
 G<sub>1</sub> = -1.07%  
 G<sub>2</sub> = 0.51%  
 E = 0.5124'



**VICTORY CHAPEL ROAD**



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ADDENDUMS / REVISIONS	

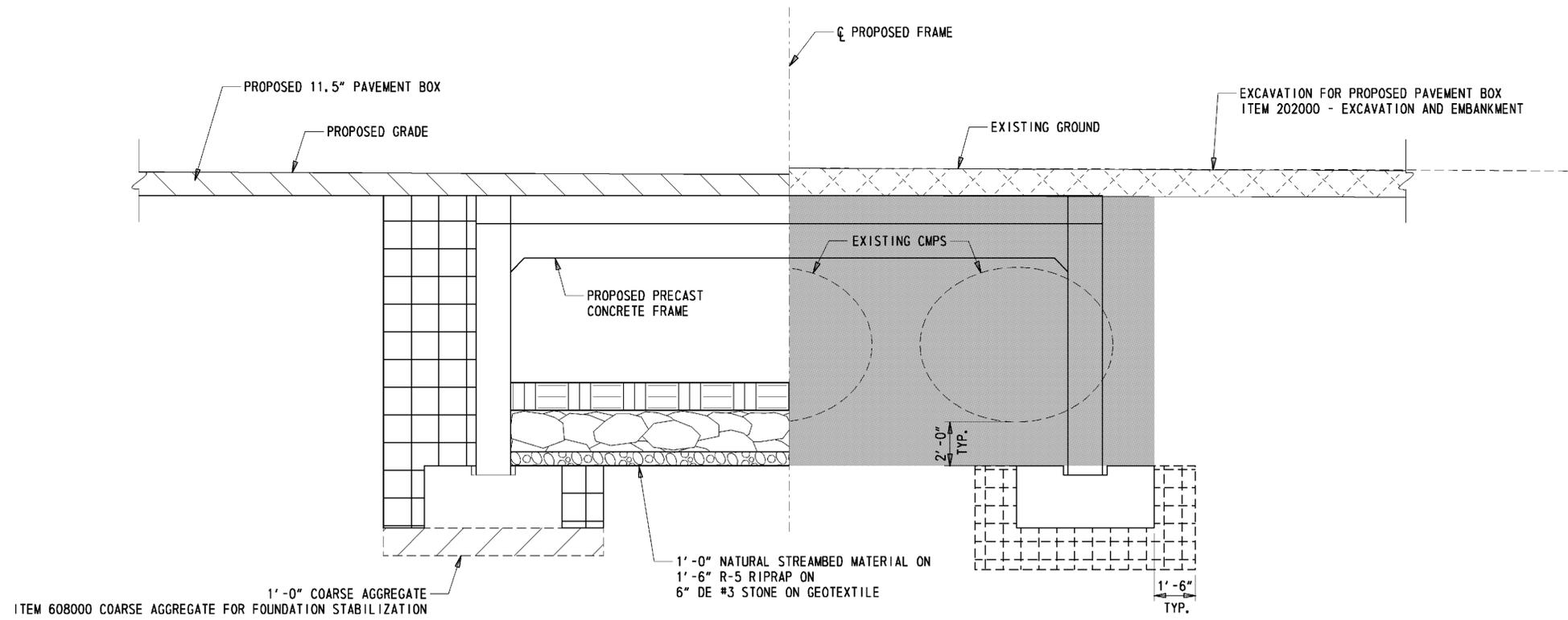


**BR. 2-163A ON  
 VICTORY CHAPEL RD  
 OVER PENROSE BRANCH**

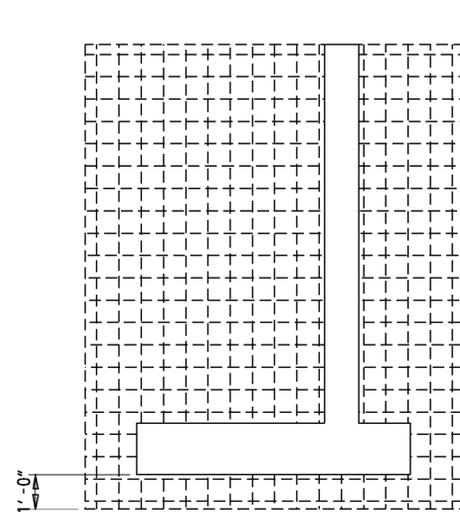
CONTRACT	BRIDGE NO.	<b>2-163A</b>
T201107207	DESIGNED BY:	E.M.
COUNTY	CHECKED BY:	J.N.H.
KENT		

**PROFILE**

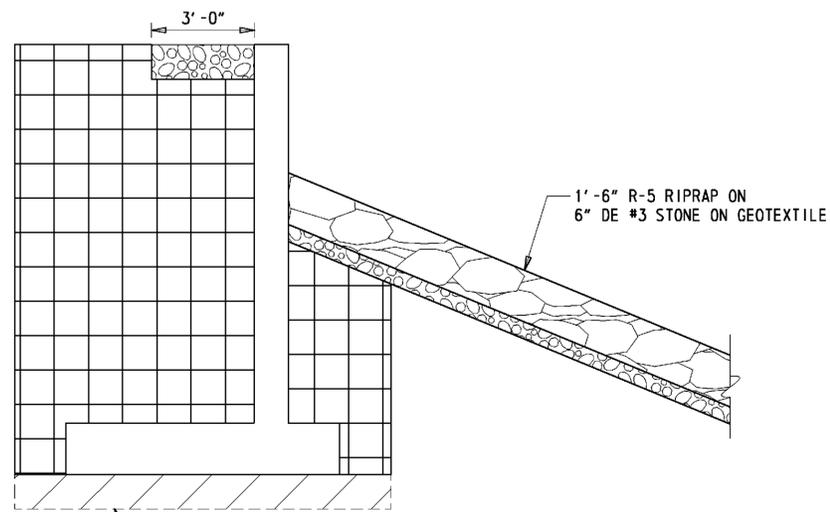
SHEET NO.	5
TOTAL SHTS.	15



**FRAME PAY LIMIT DETAIL**



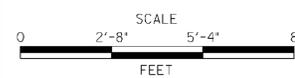
**WINGWALL EXCAVATION**



**WINGWALL BACKFILL**

-  REMOVAL OF EXISTING PIPES  
ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS
-  EXCAVATION FOR PROPOSED STRUCTURES  
ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES
-  BACKFILL AROUND PROPOSED STRUCTURES  
ITEM 209003 - BORROW TYPE 'C'

ADDENDUMS / REVISIONS

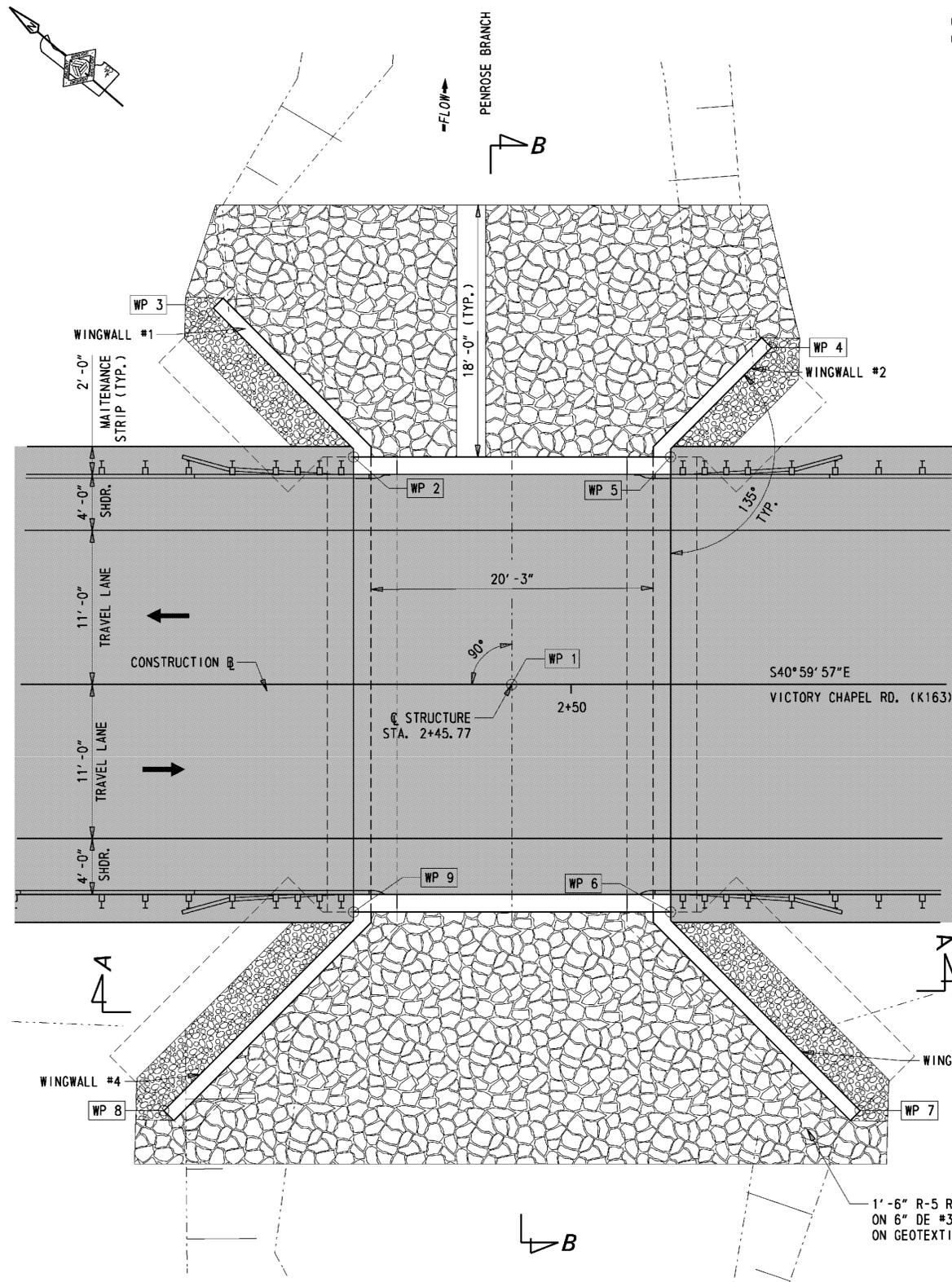


**BR 2-163A ON  
VICTORY CHAPEL ROAD  
OVER PENROSE BRANCH**

CONTRACT	BRIDGE NO.	<b>2-163A</b>
T201107207	DESIGNED BY:	EM
COUNTY	CHECKED BY:	JNH
KENT		

**PAY LIMITS**

SHEET NO.	6
TOTAL SHTS.	15

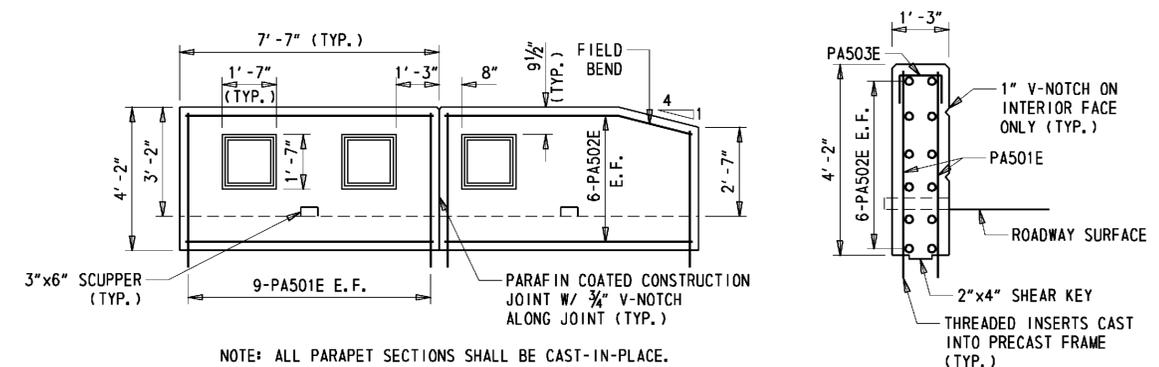
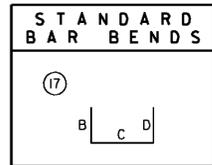


**BRIDGE PLAN**  
 $\frac{3}{8}'' = 1'-0''$

- ① MARKS WITH SUFFIX 'E' DENOTE EPOXY COATED REINFORCING STEEL
- ② MARK 'LOCATION PREFIXES' ARE AS FOLLOWS: PA = PARAPET

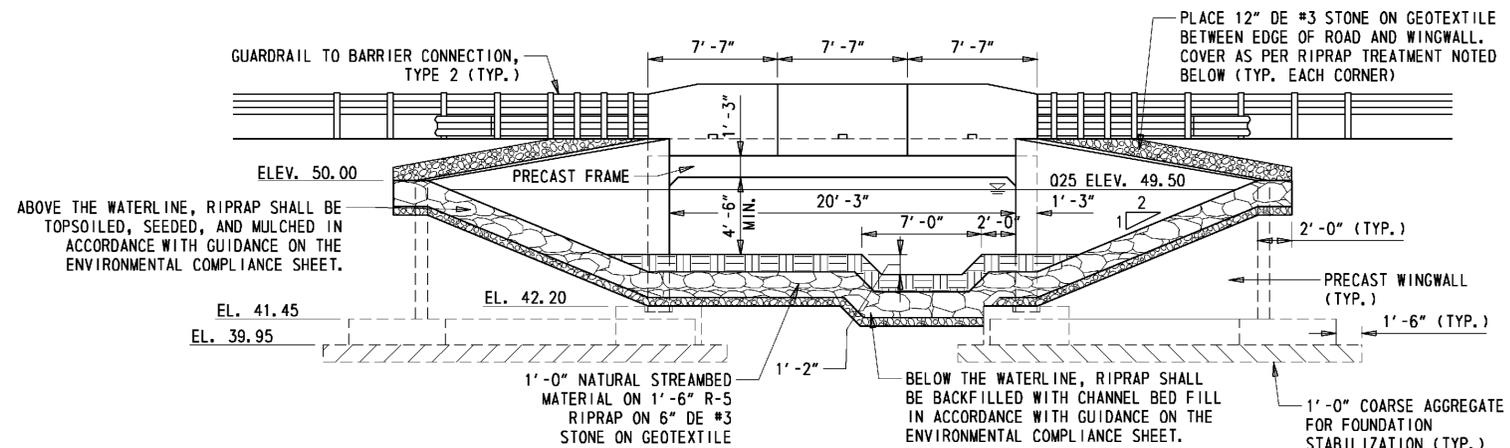
CAST-IN-PLACE CONCRETE REINFORCING BAR LIST							
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C D
108	5	4-30	PA501E	STR		4-70	
72	5	7-30	PA502E	STR		7-30	
108	5	2-110	PA503E	17	1-00	0-105	1-00

NOTE: THE LENGTH OF BAR PA501 ASSUMES 6" TO BE THREADED AND INSERTED INTO THE THREADED INSERT PROVIDED IN PRECAST SECTIONS. THIS LENGTH MAY BE ADJUSTED TO MATCH WITH THE CONTRACTOR'S OR PRECASTER'S CHOICE OF THREADED INSERT



**TYPICAL PARAPET ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$

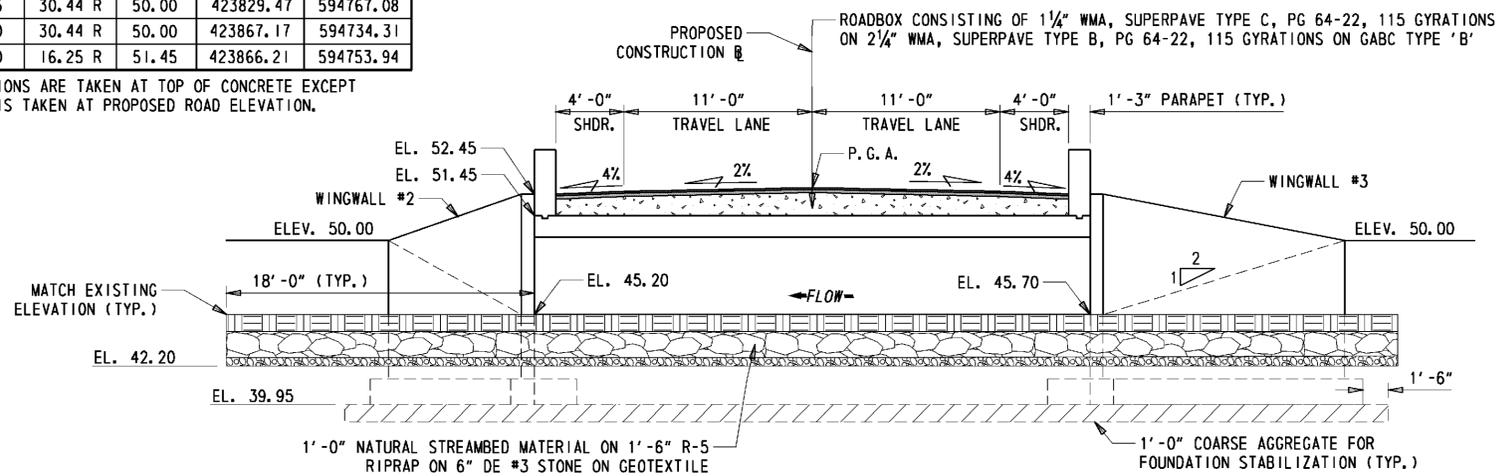
**TYP. PARAPET SECTION**  
 $\frac{1}{2}'' = 1'-0''$



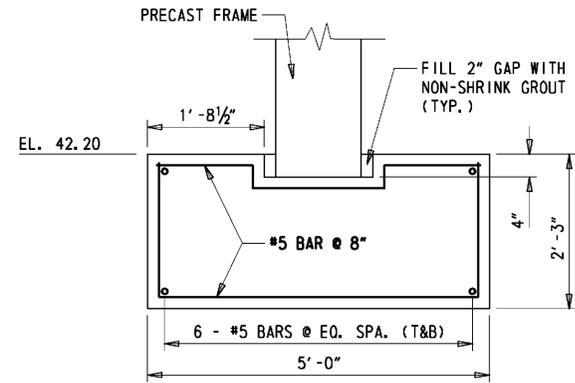
**SECTION A**  
 $\frac{3}{8}'' = 1'-0''$

WORKING POINTS					
POINT	STATION	OFFSET	ELEV.	NORTHING	EASTING
WP 1	2+45.77	0.00	52.72	423868.28	594773.66
WP 2	2+34.40	16.25 L	51.45	423887.53	594778.46
WP 3	2+24.33	26.90 L	49.00	423902.11	594779.90
WP 4	2+64.38	24.07 L	50.00	423870.03	594804.04
WP 5	2+57.15	16.25 L	51.45	423870.36	594793.39
WP 6	2+57.15	16.25 R	51.45	423849.04	594768.86
WP 7	2+70.75	30.44 R	50.00	423829.47	594767.08
WP 8	2+20.80	30.44 R	50.00	423867.17	594734.31
WP 9	2+34.40	16.25 R	51.45	423866.21	594753.94

NOTE: ELEVATIONS ARE TAKEN AT TOP OF CONCRETE EXCEPT WP 1, WHICH IS TAKEN AT PROPOSED ROAD ELEVATION.

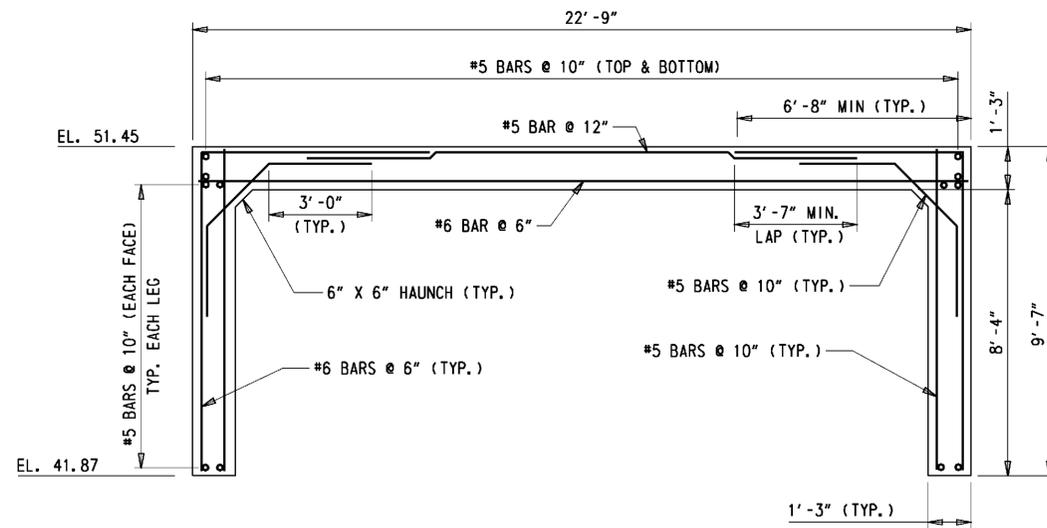


**SECTION B**  
 $\frac{3}{8}'' = 1'-0''$



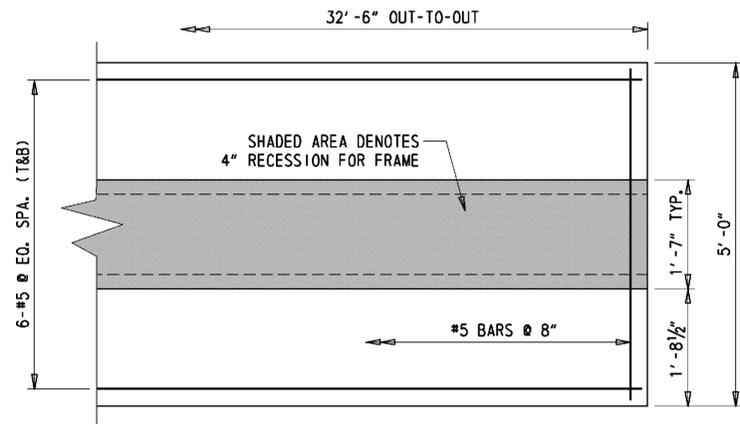
**PRECAST FOOTER SECTION**

3/4" = 1'-0"



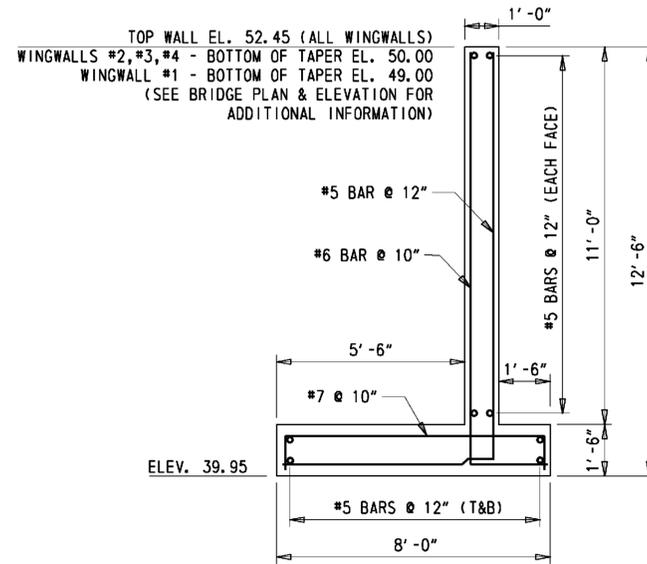
**PRECAST RIGID FRAME SECTION**

3/8" = 1'-0"



**PRECAST FOOTER PLAN**

3/4" = 1'-0"

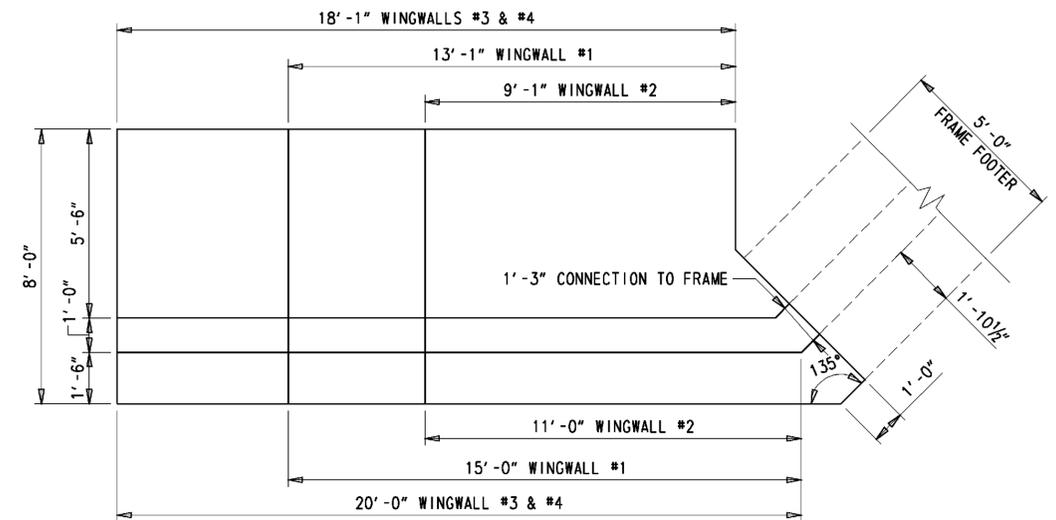


**PRECAST WINGWALL SECTION**

3/8" = 1'-0"

**PRECAST ELEMENT NOTES**

1. 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
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.



NOTE: CONTRACTOR HAS THE OPTION TO DIVIDE WINGWALLS INTO SMALLER POST-TENSIONED SECTIONS.

**WINGWALL PLAN**

3/8" = 1'-0"

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<p><b>DELAWARE</b> DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	SCALE: AS NOTED	BR 2-163A ON VICTORY CHAPEL ROAD OVER PENROSE BRANCH	CONTRACT	BRIDGE NO.	<p><b>2-163A</b></p> <p>DESIGNED BY: EM</p> <p>CHECKED BY: JNH</p>	<p><b>PRECAST CONCRETE</b> DETAILS</p>	SHEET NO.	
					T201107207				8
					COUNTY				TOTAL SHTS.
					KENT				15

**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:**

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. 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 12" CHANNEL BED FILL TO MATCH EXISTING ELEVATIONS. 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.

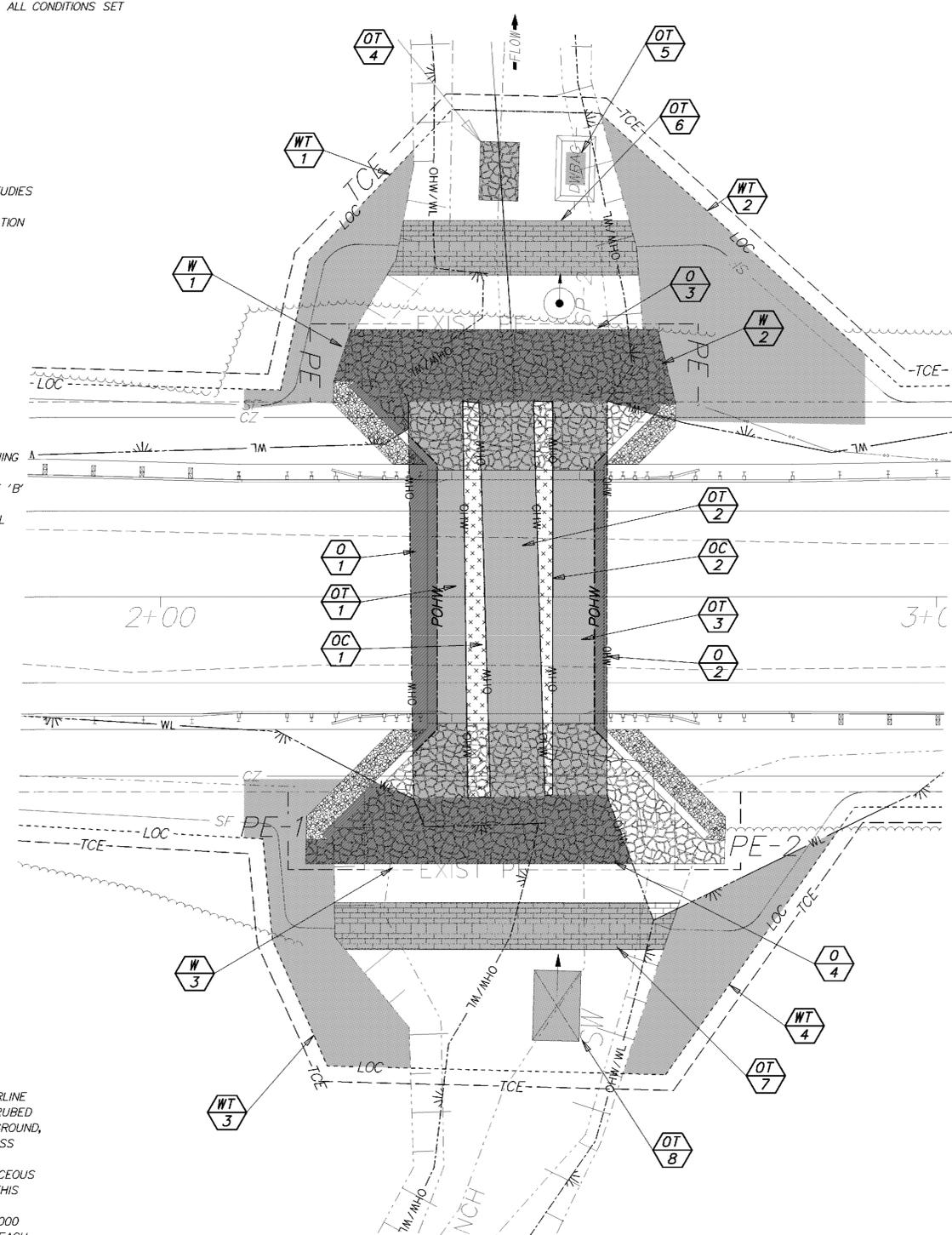
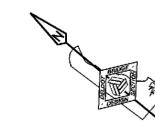
D. ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, SHALL BE CHOKED WITH DELAWARE #57 STONE, AND FILLED WITH TOPSOIL PLACE JUST ENOUGH CHOKE MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. AN ADDITIONAL 4" TOPSOIL LAYER SHALL BE PLACED ON TOP OF THE RIPRAP. SEEDING SHALL BE PERMANENT GRASS SEEDING WET GROUND (ITEM NO. 734015) FROM STREAM BASE FLOW ELEVATION TO 2' UP THE SLOPE AND PERMANENT GRASS SEEDING DRY GROUND (ITEM NO. 734013) ON THE REMAINING SLOPE. 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 PAY ITEMS.

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

6. CLEARING IN WETLAND AREAS SHALL BE KEPT TO A 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).

7. 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 AREA WITHIN THE TOS AND RIPRAP PROTECTION, LIMITED TO 35' NORTH OF BRIDGE CENTERLINE AND 45' SOUTH OF BRIDGE CENTERLINE). 26 RED MAPLE TREES (TOTAL) SHALL BE PLANTED IN DISTURBED WETLAND AREAS (PAYMENT UNDER ITEM \*737523 - PLANTING). TEMPORARY GRASS SEEDING - DRY GROUND, SHALL BE PLACED IN DISTURBED WETLAND AREAS (PAYMENT UNDER ITEM \*734017 - TEMPORARY GRASS SEEDING, DRY GROUND).

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.



**LEGEND**

	CREATION AREA
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
--- POHW ---	PROPOSED ORDINARY HIGH WATER
--- OHW ---	ORDINARY HIGH WATER
--- WL ---	WETLAND BOUNDARY
--- OHW/WL ---	ORD. HIGH WATER / WETLAND
	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 McCORMICK TAYLOR ON 05-24-2011 IN ACCORDANCE WITH THE US ARMY CORPS OF ENGINEERS "CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (1987)".

ORIGINAL SHEET PREPARED BY EMILY MAURER DELDOT BRIDGE DESIGN, ON 05-23-2011. SHEET LAST UPDATED ON 09-15-2011.

**OPEN WATER CREATION AREA SCHEDULE**

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OC-1	NEW FRAME	128.05	0.0029	21.46	COE/DNREC
OC-2	NEW FRAME	88.08	0.0020	14.68	COE/DNREC
<b>TOTAL OPEN WATER CREATION AREAS</b>		<b>216.13</b>	<b>0.0049</b>	<b>36.14</b>	<b>COE/DNREC</b>

**TEMPORARY OPEN WATER IMPACT AREA SCHEDULE**

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-1	PIPE REMOVAL	228.33	0.0052	38.05	COE/DNREC
OT-2	PIPE REMOVAL	353.84	0.0081	58.97	COE/DNREC
OT-3	PIPE REMOVAL	294.99	0.0068	49.16	COE/DNREC
OT-4	PUMP DISCHARGE AREA	37.50	0.0009	2.78	COE/DNREC
OT-5	DEWATERING BAG	39.06	0.0009	5.78	COE/DNREC
OT-6	SANDBAGS (OUTLET)	158.18	0.0036	17.58	COE/DNREC
OT-7	SANDBAGS (INLET)	106.37	0.0024	11.82	COE/DNREC
OT-8	STILLING WELL	54.00	0.0012	10.00	COE/DNREC
<b>TOTAL TEMPORARY OPEN WATER IMPACTS</b>		<b>1272.27</b>	<b>0.0291</b>	<b>194.14</b>	<b>COE/DNREC</b>

**PERMANENT OPEN WATER IMPACT AREA SCHEDULE**

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-1	FILL	127.28	0.0029	25.93	COE/DNREC
O-2	FILL	57.87	0.0013	11.79	COE/DNREC
O-3	RIPRAP AREA (OUTLET)	233.77	0.0054	17.32	COE/DNREC
O-4	RIPRAP AREA (INLET)	150.96	0.0035	11.18	COE/DNREC
<b>TOTAL PERMANENT OPEN WATER IMPACTS</b>		<b>569.88</b>	<b>0.0131</b>	<b>66.22</b>	<b>COE/DNREC</b>

**PERMANENT WETLAND IMPACT AREA SCHEDULE**

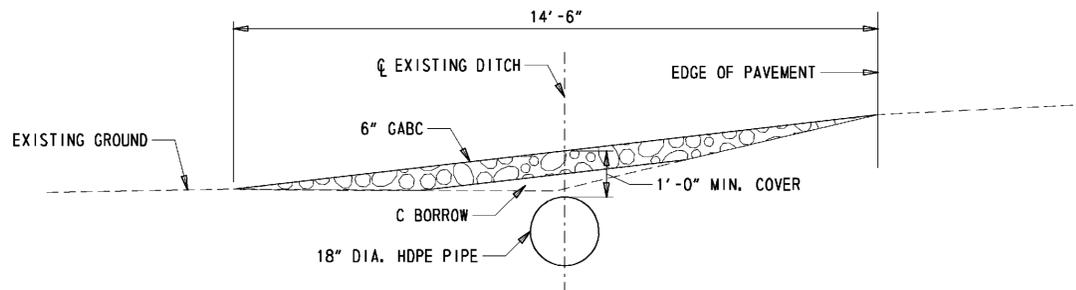
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
W-1	RIPRAP AREA (OUTLET)	112.68	0.0026	N.A.	COE
W-2	RIPRAP AREA (OUTLET)	48.82	0.0011	N.A.	COE
W-3	RIPRAP AREA (INLET)	175.74	0.0040	N.A.	COE
<b>TOTAL PERMANENT TIDAL WETLAND IMPACTS</b>		<b>337.24</b>	<b>0.0077</b>	<b>N.A.</b>	<b>COE</b>

**TEMPORARY WETLAND IMPACT AREA SCHEDULE**

ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
WT-1	E&S MEASURES	279.59	0.0064	N.A.	COE
WT-2	E&S MEASURES	646.74	0.0148	N.A.	COE
WT-3	E&S MEASURES	487.46	0.0112	N.A.	COE
WT-4	E&S MEASURES	282.98	0.0065	N.A.	COE
<b>TOTAL TEMPORARY WETLAND IMPACTS</b>		<b>1696.77</b>	<b>0.0389</b>	<b>N.A.</b>	<b>COE</b>

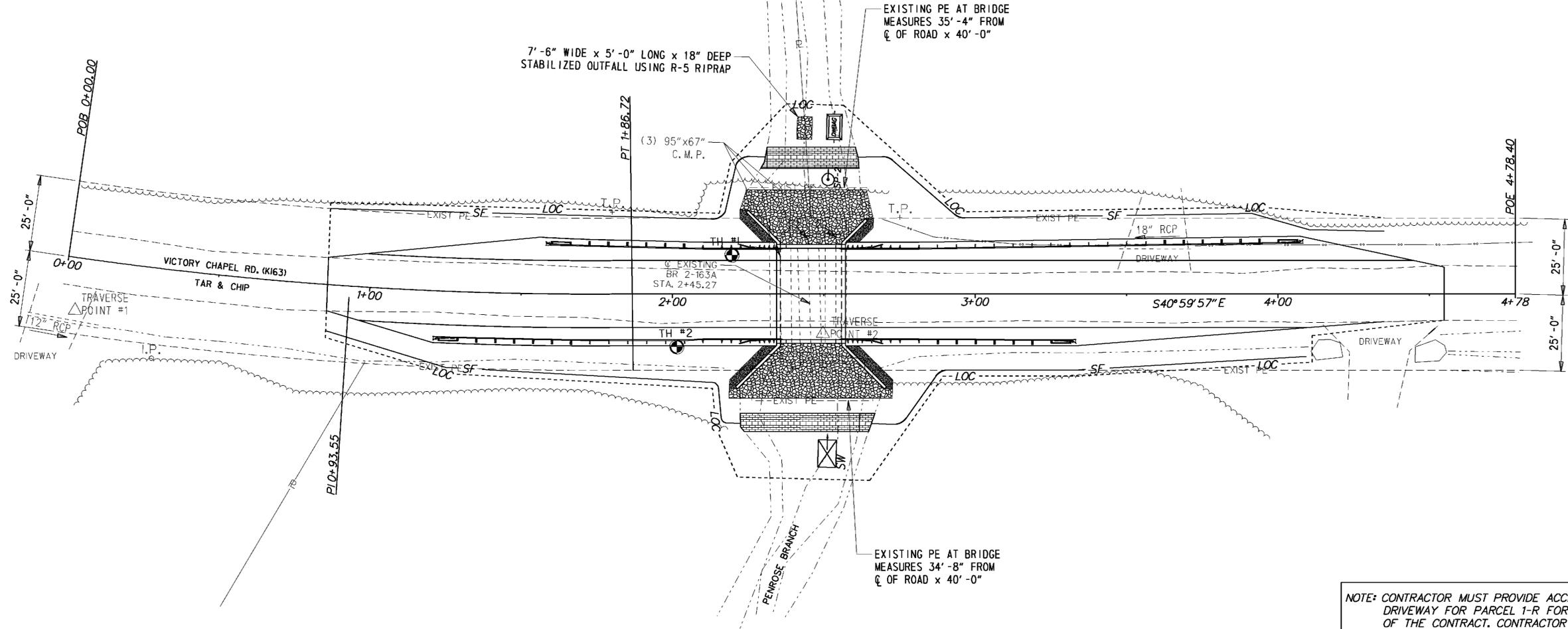
SEQUENCE OF CONSTRUCTION

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 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 AND AS DIRECTED BY THE ENGINEER.
12. REMOVE ALL MAINTENANCE OF TRAFFIC DEVICES.



DRIVEWAY PIPE PLACEMENT @ STA. 6+20

1" = 2'-0"



NOTE: CONTRACTOR MUST PROVIDE ACCESS TO THE DRIVEWAY FOR PARCEL 1-R FOR THE DURATION OF THE CONTRACT. CONTRACTOR SHALL COORDINATE WITH THE OWNERS OF PARCEL 1-R WHEN PERFORMING THE ROADWAY WORK ADJACENT TO THE DRIVEWAY.

NOTE: CONTRACTOR TO REMOVE EXISTING 18" REINFORCED CONCRETE PIPE AND GRADE DITCH TO DRAIN. RELOCATE DRIVEWAY APPROX. 260' SOUTH TO STA 6+20, AT END OF WOODLINE AND INSTALL 18" HDPE PIPE. SEE DETAIL FOR MORE INFO.

Y:\KENT\163\BRIDGE\T201107207\PLANS\CP.DGN

<p><b>DELAWARE</b> DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	<p>SCALE</p> <p>FEET</p>	<p><b>BR 2-163A ON</b> <b>VICTORY CHAPEL RD</b> <b>OVER PENROSE BRANCH</b></p>	CONTRACT	BRIDGE NO.	<b>2-163A</b>	<p><b>CONSTRUCTION PHASING,</b> <b>AND EROSION</b> <b>CONTROL PLAN</b></p>	SHEET NO.
						T201107207		DESIGNED BY: E.M.
				KENT	CHECKED BY: JNH		TOTAL SHTS.	15

CHANGEABLE MESSAGE BOARDS

PRIOR TO DETOUR  
(10 Days prior to beginning of detour)

CMS-1

VICTORY CHAPEL CLOSED

STARTING ON  
XXXXXX

DURING DETOUR

CMS-1

XXXXXXXX  
XXXXXXXX  
XXXXXXXX

XXXXXXXX  
XXXXXXXX  
XXXXXXXX

PRIOR TO DETOUR  
(10 Days prior to beginning of detour)

CMS-2

XXXXXXXX  
XXXXXXXX  
XXXXXXXX

XXXXXXXX  
XXXXXXXX  
XXXXXXXX

DURING DETOUR

CMS-2

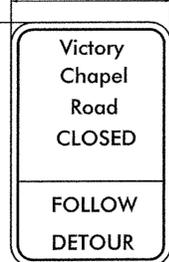
XXXXXXXX  
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XXXXXXXX  
XXXXXXXX  
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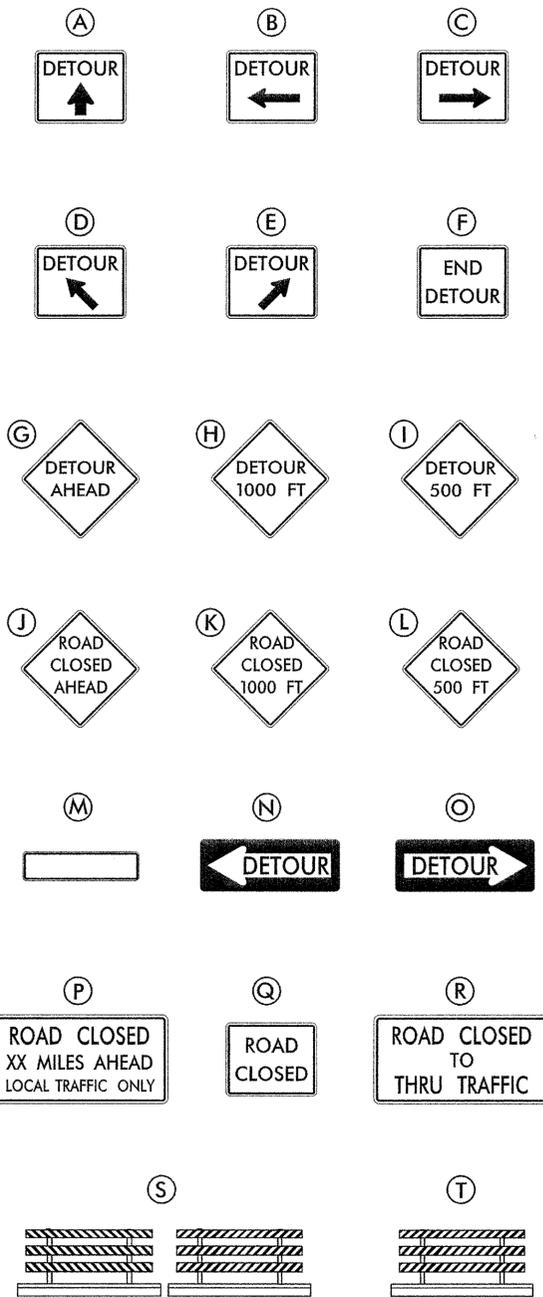
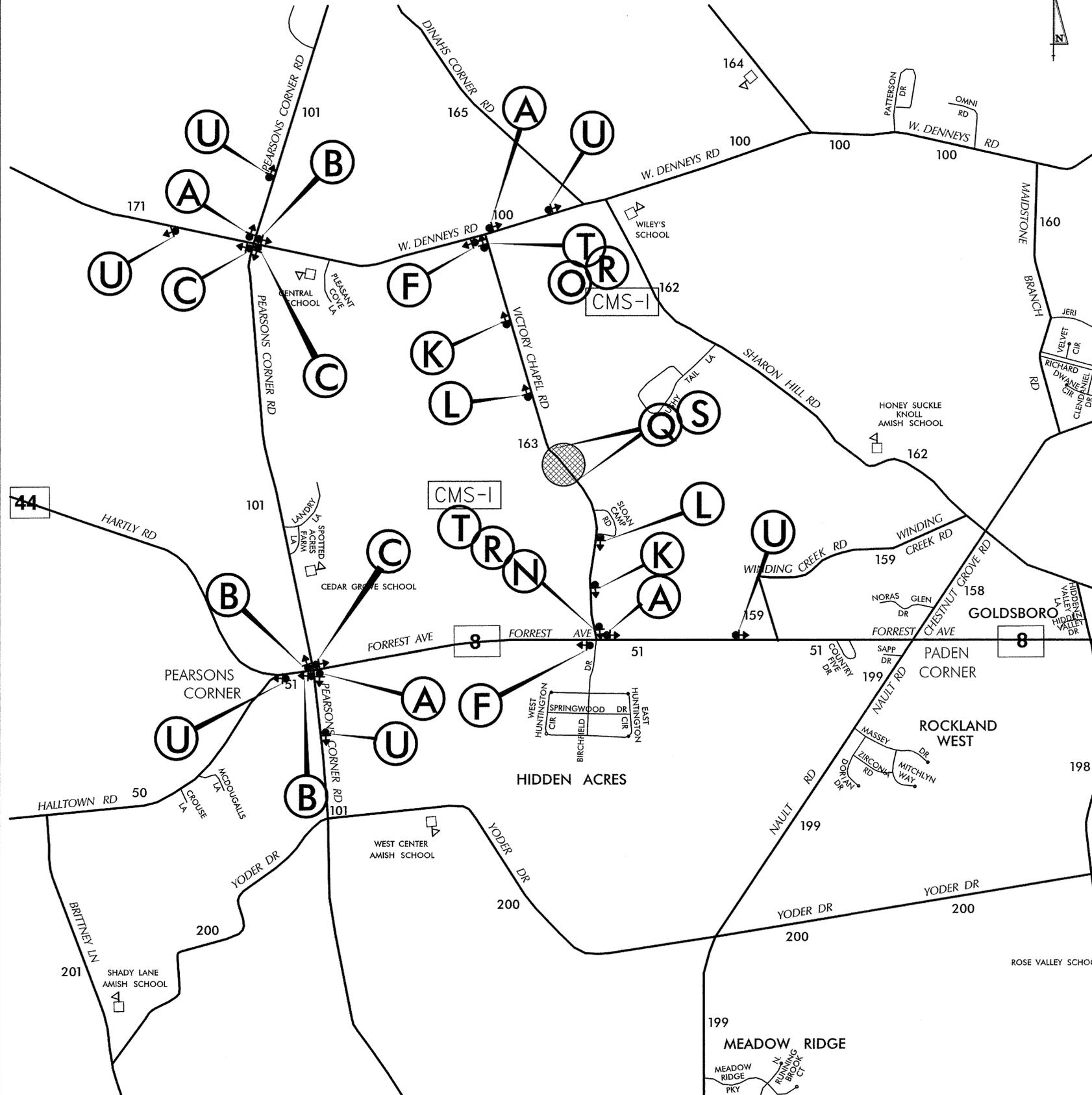
SPECIAL SIGNS

U

48"



D/G ORANGE  
BLACK LEGEND



GENERAL NOTES

1. ALL DETOUR SIGNING INCLUDING, TRAILBLAZERS, ARE TO BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR IN COMPLIANCE TO THE DE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. 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)
3. 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.
4. SIGNS J THROUGH L AND P THROUGH R, THE WORD (ROAD) SHOULD BE CHANGED TO RAMP, R/R OR BRIDGE WHERE APPLICABLE.
5. WARNING SIGNS SHOULD BE MOUNTED ON BREAKAWAY POSTS AND HAVE RETROREFLECTIVE FLUORESCENT SHEETING.
6. \*S\* BARRICADES SHALL COMPLETELY RUN THE FULL WIDTH OF ROADWAY.
7. BARRICADES SHALL BE A MINIMUM OF 6 FEET WIDE UNLESS DIRECTED BY THE ENGINEER.

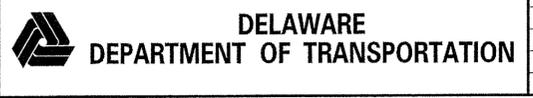
RECOMMENDED *Wyle Fleming* DATE: 8-8-11

RECOMMENDED *John C. Subida* DATE: 8-8-11

RECOMMENDED \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED CHIEF SAFETY OFFICER *David P. Mag...* DATE: 8-8-11

APPROVED TRAFFIC ENGINEER *Al...* DATE: 8/8/11

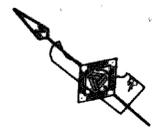


ADDENDUM / REVISIONS

NOT TO SCALE

BR 2-163A ON VICTORY CHAPEL ROAD OVER PENROSE BRANCH

CONTRACT	T20107207	ROAD NO.	163	DETOUR PLAN BRIDGE 2-163A	SHEET NO.	11
COUNTY	KENT	DESIGNED BY:	MF		TOTAL SHTS.	15
CHECKED BY:						

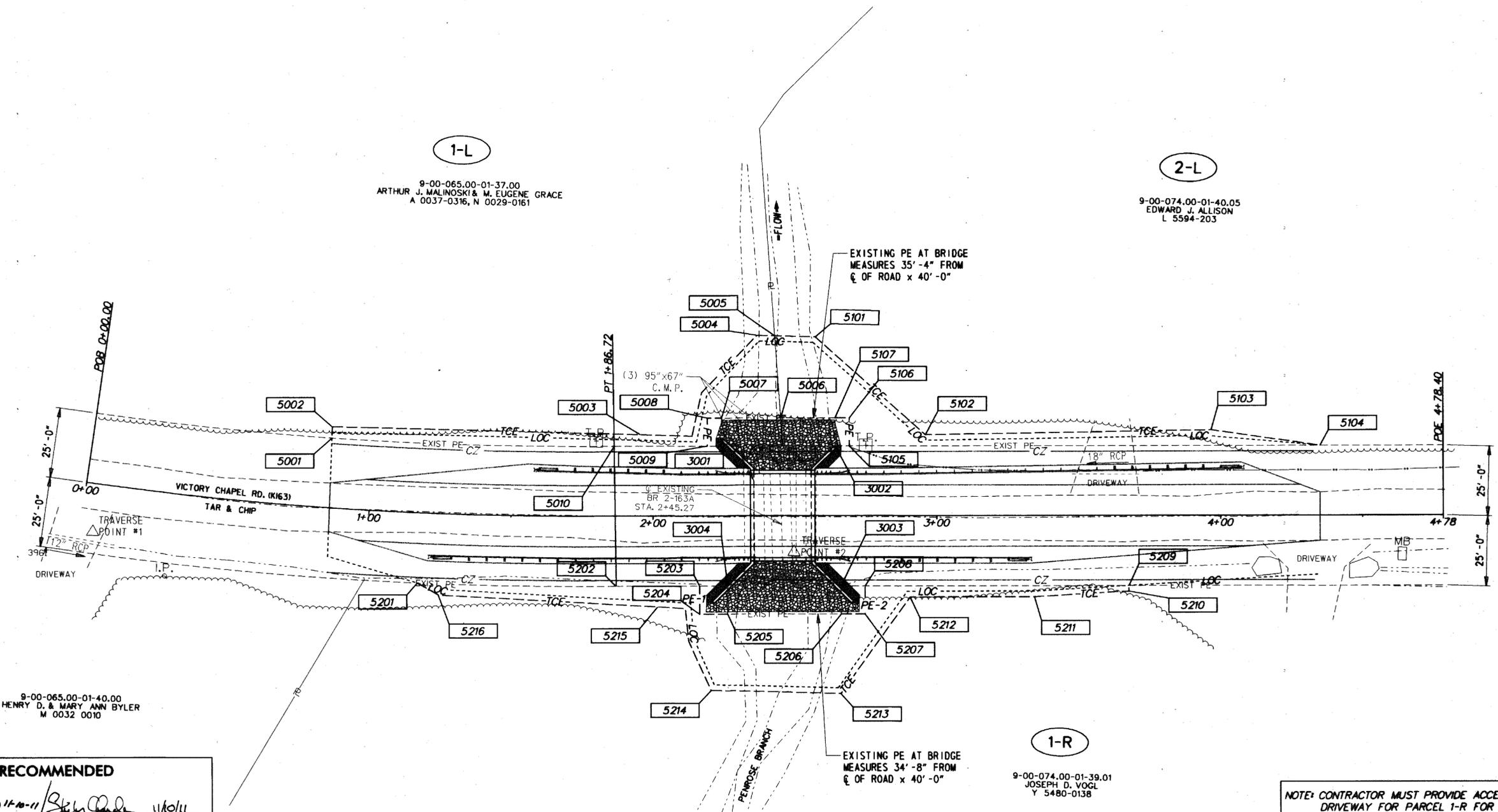


1-L

9-00-065.00-01-37.00  
 ARTHUR J. MALINOSKI & M. EUGENE GRACE  
 A 0037-0316, N 0029-0161

2-L

9-00-074.00-01-40.05  
 EDWARD J. ALLISON  
 L 5594-203



9-00-065.00-01-40.00  
 HENRY D. & MARY ANN BYLER  
 M 0032 0010

1-R

9-00-074.00-01-39.01  
 JOSEPH D. VOGL  
 Y 5480-0138

NOTE: CONTRACTOR MUST PROVIDE ACCESS TO THE DRIVEWAY FOR PARCEL 1-R FOR THE DURATION OF THE CONTRACT. CONTRACTOR SHALL COORDINATE WITH THE OWNERS OF PARCEL 1-R WHEN PERFORMING THE ROADWAY WORK ADJACENT TO THE DRIVEWAY.

NOTE: CONTRACTOR TO REMOVE EXISTING 18" REINFORCED CONCRETE PIPE AND GRADE DITCH TO DRAIN. RELOCATE DRIVEWAY APPROX. 260' SOUTH TO STA 6+20, AT END OF WOODLINE AND INSTALL 18" HDPE PIPE. SEE DETAIL FOR MORE INFO.

**RECOMMENDED**

*Justin Campbell* 11-10-11 / *Stacy Clarke* 11/10/11  
 TEAM SUPPORT SQUAD MANAGER DATE

*Heather Dull* 11-10-11  
 TEAM SUPPORT ENGINEER DATE

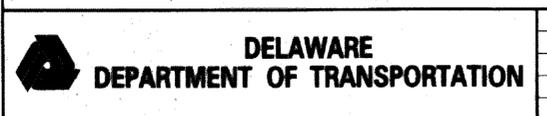
*Robert B. McClean* 11/10/11  
 ASSISTANT DIRECTOR, ENGINEERING SUPPORT DATE

**"AS-ACQUIRED" PLANS**

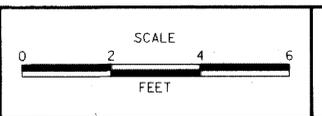
I CERTIFY THAT ALL PROPOSED RIGHT-OF-WAY HAS BEEN ACQUIRED IN THE NAME OF THE STATE OF DELAWARE AND THAT THESE PLANS ACCURATELY DEPICT THE NATURE AND EXTENT OF THE REAL ESTATE SECTION ACQUISITION UNDER THIS PROJECT.

\_\_\_\_\_  
 CHIEF, REAL ESTATE DATE

Y:\KENT\163 BRIDGE\T201107207-PLANS\CP.DGN



ADDENDUMS / REVISIONS



**BR 2-163A ON  
 VICTORY CHAPEL RD  
 OVER PENROSE BRANCH**

CONTRACT	BRIDGE NO.	<b>2-163A</b>
T201107207	DESIGNED BY:	E.M.
COUNTY	CHECKED BY:	JNH
KENT		

**RIGHT-OF-WAY PLAN  
 RW SHEET 1 OF 3**

SHEET NO.	12
TOTAL SHTS.	15

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-39.01	{1-R} JOSEPH D. & CYNTHIA L. VOGL	P/E-1	Y 0040-0052	7.600							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5203	BASEL INF	2+16.42	25.00	423874.0391	594735.5361	S 40°59'57.17" E	9.8513				
3004	BASEL INF	2+26.27	25.00	423866.6042	594741.9990	S 49°00'02.83" W	10.0000				
5204	BASEL INF	2+26.27	35.00	423860.0437	594734.4519	S 40°59'57.17" E	9.8506				
5205	BASEL INF	2+16.42	35.00	423867.4781	594727.9894	N 48°59'49.06" E	10.0000				
5203	BASEL INF	2+16.42	25.00	423874.0391	594735.5361						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-40.05	{2-L} EDWARD J. ALLISON	P/E	L 5594-203	19.640							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5107	BASEL INF	2+64.27	-35.00	423877.2851	594812.2143	S 40°59'57.17" E	5.0000				
5106	BASEL INF	2+69.27	-35.00	423873.5115	594815.4946	S 49°00'02.83" W	10.0000				
5105	BASEL INF	2+69.27	-25.00	423866.9511	594807.9474	N 40°59'57.17" W	5.0000				
3002	BASEL INF	2+64.27	-25.00	423870.7246	594804.6671	N 49°00'02.83" E	10.0000				
5107	BASEL INF	2+64.27	-35.00	423877.2851	594812.2143						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-39.01	{1-R} JOSEPH D. & CYNTHIA L. VOGL	P/E-2	Y 0040-0052	7.600							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
3003	BASEL INF	2+66.27	25.00	423836.4154	594768.2410	S 40°59'57.17" E	8.4789				
5208	BASEL INF	2+74.75	25.00	423830.0162	594773.8036	S 49°00'02.83" W	10.0000				
5207	BASEL INF	2+74.75	35.00	423823.4557	594766.2564	N 40°59'57.17" W	8.4789				
5206	BASEL INF	2+66.27	35.00	423829.8550	594760.6938	N 49°00'02.83" E	10.0000				
3003	BASEL INF	2+66.27	25.00	423836.4154	594768.2410						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-40.05	{2-L} EDWARD J. ALLISON	TCE	L 5594-2023	19.640							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5005	BASEL INF	2+43.12	-64.33	423912.4914	594820.4752	S 39°31'07.43" E	14.3167				
5101	BASEL INF	2+57.43	-63.96	423901.4473	594829.5854	S 1°09'50.11" W	52.1568				
5102	BASEL INF	2+96.09	-28.95	423849.3013	594828.5259	S 41°54'16.83" E	100.6149				
5103	BASEL INF	3+96.69	-30.54	423774.4179	594895.7259	S 32°46'02.11" E	38.7052				
5104	BASEL INF	4+35.00	-25.00	423741.8716	594916.6742	N 40°59'57.17" W	165.7299				
5105	BASEL INF	2+69.27	-25.00	423866.9511	594807.9474	N 49°00'02.83" E	10.0000				
5106	BASEL INF	2+69.27	-35.00	423873.5115	594815.4946	N 40°59'57.17" W	5.0000				
5107	BASEL INF	2+64.27	-35.00	423877.2851	594812.2143	N 40°59'57.17" W	19.1147				
5006	BASEL INF	2+45.16	-35.00	423891.7114	594799.6741	N 45°01'44.27" E	29.4023				
5005	BASEL INF	2+43.12	-64.33	423912.4914	594820.4752						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-39.01	{1-R} JOSEPH D. VOGL	TCE	Y 5480-0138	7.600							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5201	BASEL INF	1+18.06	25.00	423949.9041	594671.1823	S 40°00'51.28" E	69.9296		69.9391		-1226.7851
5203	BASEL INF	1+86.86	25.00	423896.3460	594716.1456	S 40°59'57.17" E	29.5566				
5202	BASEL INF	2+16.42	25.00	423874.0391	594735.5361	S 48°59'49.06" W	10.0000				
5204	BASEL INF	2+16.42	35.00	423867.4781	594727.9894	S 40°59'57.17" E	9.8506				
5205	BASEL INF	2+26.27	35.00	423860.0437	594734.4519	S 40°59'57.17" E	40.0000				
5206	BASEL INF	2+66.27	35.00	423829.8550	594760.6938	S 40°59'57.17" E	8.4789				
5207	BASEL INF	2+74.75	35.00	423823.4557	594766.2564	N 49°00'02.83" E	10.0000				
5208	BASEL INF	2+74.75	25.00	423830.0162	594773.8036	S 40°59'57.17" E	92.8444				
5209	BASEL INF	3+67.59	25.00	423759.9448	594834.7140	S 50°29'10.02" W	2.0007				
5210	BASEL INF	3+67.54	27.00	423758.6719	594833.1706	N 44°23'29.57" W	33.3138				
5211	BASEL INF	3+34.28	28.97	423782.4771	594809.8657	N 41°02'01.50" W	43.8077				
5212	BASEL INF	2+90.48	29.00	423815.5222	594781.1058	S 84°22'07.02" W	42.1256				
5213	BASEL INF	2+66.09	63.34	423811.3928	594739.1852	N 39°31'07.43" W	45.7560				
5214	BASEL INF	2+20.35	62.16	423846.6897	594710.0693	N 16°35'18.11" E	35.2371				
5215	BASEL INF	2+01.46	32.42	423880.4602	594720.1293	N 37°48'37.43" W	77.2133				
5216	BASEL INF	1+25.50	29.00	423941.4621	594672.7936	N 10°48'20.53" W	8.5943				
5201	BASEL INF	1+18.06	25.00	423949.9041	594671.1823						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-40.05	{2-L} EDWARD J. ALLISON	TCE	L 5594-2023	19.640							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5005	BASEL INF	2+43.12	-64.33	423912.4914	594820.4752	S 39°31'07.43" E	14.3167				
5101	BASEL INF	2+57.43	-63.96	423901.4473	594829.5854	S 1°09'50.11" W	52.1568				
5102	BASEL INF	2+96.09	-28.95	423849.3013	594828.5259	S 41°54'16.83" E	100.6149				
5103	BASEL INF	3+96.69	-30.54	423774.4179	594895.7259	S 32°46'02.11" E	38.7052				
5104	BASEL INF	4+35.00	-25.00	423741.8716	594916.6742	N 40°59'57.17" W	165.7299				
5105	BASEL INF	2+69.27	-25.00	423866.9511	594807.9474	N 49°00'02.83" E	10.0000				
5106	BASEL INF	2+69.27	-35.00	423873.5115	594815.4946	N 40°59'57.17" W	5.0000				
5107	BASEL INF	2+64.27	-35.00	423877.2851	594812.2143	N 40°59'57.17" W	19.1147				
5006	BASEL INF	2+45.16	-35.00	423891.7114	594799.6741	N 45°01'44.27" E	29.4023				
5005	BASEL INF	2+43.12	-64.33	423912.4914	594820.4752						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-065.00-01-37.00	{1-L} ARTHUR J. MALINOSKI & M. EUGENE GRACE	P/E	A 0037-0316, N 0029-0161	7.200							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5008	BASEL INF	2+19.27	-35.00	423911.2475	594782.6921	S 40°59'57.17" E	5.0000				
5007	BASEL INF	2+24.27	-35.00	423907.4739	594785.9724	S 49°00'02.83" W	10.0000				
3001	BASEL INF	2+24.27	-25.00	423900.9134	594778.4252	N 40°59'57.17" W	5.0000				
5009	BASEL INF	2+19.27	-25.00	423904.6870	594775.1449	N 49°00'02.83" E	10.0000				
5008	BASEL INF	2+19.27	-35.00	423911.2475	594782.6921						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-074.00-01-40.05	{2-L} EDWARD J. ALLISON	TCE	L 5594-2023	19.640							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5001	BASEL INF	0+85.16	-25.00	424006.4776	594690.7197	N 51°00'26.46" E	4.0029				
5002	BASEL INF	0+85.00	-29.00	424008.9963	594693.8308	S 39°24'15.70" E	108.5497				
5003	BASEL INF	1+95.71	-29.04	423925.1215	594762.7370	S 81°46'44.85" E	54.2799				
5004	BASEL INF	2+36.81	-64.49	423917.3600	594816.4592	S 39°31'07.43" E	6.3112				
5005	BASEL INF	2+43.12	-64.33	423912.4914	594820.4752	S 45°01'44.27" W	29.4023				
5006	BASEL INF	2+45.16	-35.00	423891.7114	594799.6741	N 40°59'57.17" W	20.8853				
5007	BASEL INF	2+24.27	-35.00	423907.4739	594785.9724	N 40°59'57.17" W	5.0000				
5008	BASEL INF	2+19.27	-35.00	423911.2475	594782.6921	S 49°00'02.83" W	10.0000				
5009	BASEL INF	2+19.27	-25.00	423904.6870	594775.1449	N 41°00'07.43" W	32.8393				
5010	BASEL INF	1+86.72	-25.00	423929.4704	594753.5995			N 39°13'59.50" W	99.4182	99.4478	1176.5695
5011	BASEL INF	0+85.16	-25.00	424006.4776	594690.7197						

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
9-00-065.00-01-37.00	{1-L} ARTHUR J. MALINOSKI & M. EUGENE GRACE	TCE	A 0037-0316, N 0029-0161	7.200							
ALIGNMENT NUMBER & DESCRIPTION:											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
5001	BASEL INF	0+85.16	-25.00	424006.4776	594690.7197	N 51°00'26.46" E	4.0029				
5002	BASEL INF	0+85.00	-29.00	424008.9963	594693.8308	S 39°24'15.70" E	108.5497				



**NOTE: TYPICALLY, THE SOIL BORING LOGS WILL BE LOCATED AFTER THE BRIDGE DETAIL SHEETS.**

BORING: VCR # 1						BORING: VCR # 2															
STATION:		OFFSET:		ELEVATION:		NORTHING:		EASTING:		DATE DRILLED:		STATION:		OFFSET:		ELEVATION:		NORTHING:		EASTING:	
COMMENTS:						COMMENTS:															
DEPTH (FT.)	NO.	SAMPLE DEPTH	Blows/6"	SAMPLE DESCRIPTION	CLASS./G.I.	REMARKS	DEPTH (FT.)	NO.	SAMPLE DEPTH	Blows/6"	SAMPLE DESCRIPTION	CLASS./G.I.	REMARKS								
0.0'	1	0.0'	2	No Sampling		Asphalt - 10". Crushed	0.0'	1	0.0'	2	No Sampling		Asphalt - 9". Crushed								
2.0'	2	2.0'	6	0" RECOVERY	A-2-4(0)	Stone.	2.0'	2	2.0'	6	0" RECOVERY	A-2-4(0)	Stone - 8".								
4.0'	3	4.0'	6	Moist medium dense gray silty fine to coarse sand w/trace of fine gravel.	A-4(0)		4.0'	3	4.0'	6	Wet loose gray silty fine to coarse sand w/trace of fine gravel.	A-2-4(0)									
6.0'	4	6.0'	5	16" RECOVERY	A-2-4(0)		6.0'	4	6.0'	5	18" RECOVERY	A-3									
8.0'	5	8.0'	1	Saturated soft dark brown fine sandy silt w/trace of coarse sand.	A-1-b	Attempted Shelby Tube - No Recovery.	8.0'	5	8.0'	1	Wet very loose black organic silty fine to coarse sand w/trace of fine gravel.	A-1-b									
10.0'	6	10.0'	2	18" RECOVERY	A-2-4(0)	Mud Rotary @ 10.0'.	10.0'	6	10.0'	2	13" RECOVERY	A-1-b	Bottom of footing elev.								
12.0'	7	12.0'	2	Saturated loose dark brown organic silty fine sand w/trace of coarse sand.	A-1-b	Bottom of footing elev.	12.0'	7	12.0'	2	17" RECOVERY	A-1-b									
14.0'	8	14.0'	4	16" RECOVERY	A-1-b		14.0'	8	14.0'	4	17" RECOVERY	A-1-b									
16.0'	9	16.0'	5	Saturated very loose tan fine gravelly coarse to fine sand w/trace of silt.	A-1-b		16.0'	9	16.0'	5	12" RECOVERY	A-1-b	Mud Rotary @ 18.0'.								
18.0'	10	18.0'	W/H	18" RECOVERY	A-1-b		18.0'	10	18.0'	W/H	12" RECOVERY	A-1-b									
20.0'	11	20.0'	W/H	Saturated loose light gray fine sand w/some silt, trace of coarse sand.	A-1-b		20.0'	11	20.0'	W/H	14" RECOVERY	A-1-b									
22.0'	12	22.0'	4	9" RECOVERY	A-1-b		22.0'	12	22.0'	4	14" RECOVERY	A-1-b									
24.0'	13	24.0'	2	Saturated loose tan fine to coarse sand w/some fine gravel and silt.	A-3		24.0'	13	24.0'	2	17" RECOVERY	A-1-b									
26.0'	14	26.0'	4	5" RECOVERY	A-3		26.0'	14	26.0'	4	15" RECOVERY	A-3									
28.0'	15	28.0'	5	Saturated medium dense tan fine to coarse sand and fine gravel w/trace of silt.	A-4(0)		28.0'	15	28.0'	5	15" RECOVERY	A-3									
30.0'	16	30.0'	7	8" RECOVERY	A-7-5(7)		30.0'	16	30.0'	7	14" RECOVERY	A-4(0)									
32.0'		32.0'	8	Saturated loose brown coarse sand w/some fine gravel and fine sand, trace of silt.			32.0'		32.0'	8	14" RECOVERY										
34.0'		34.0'	6	12" RECOVERY			34.0'		34.0'	6	14" RECOVERY										
36.0'		36.0'	4	Saturated loose tan fine gravel and coarse to fine sand w/trace of silt.			36.0'		36.0'	4	16" RECOVERY										
38.0'		38.0'	5	12" RECOVERY			38.0'		38.0'	5	16" RECOVERY										
40.0'		40.0'	5	Saturated medium dense tan coarse to fine sand w/some fine gravel, trace of silt.			40.0'		40.0'	5	14" RECOVERY										
42.0'		42.0'	8	12" RECOVERY			42.0'		42.0'	8	16" RECOVERY										
44.0'		44.0'	12	Saturated medium dense brown fine to coarse sand w/trace of fine gravel and silt.			44.0'		44.0'	12	16" RECOVERY										
46.0'		46.0'	10	12" RECOVERY			46.0'		46.0'	10	16" RECOVERY										
48.0'		48.0'	11	Saturated medium dense brown fine sand w/trace of coarse sand and silt.			48.0'		48.0'	11	16" RECOVERY										
50.0'		50.0'	6	14" RECOVERY			50.0'		50.0'	6	16" RECOVERY										
52.0'		52.0'	10	Saturated medium dense brown fine sand w/trace of coarse sand and silt.			52.0'		52.0'	10	16" RECOVERY										
54.0'		54.0'	12	12" RECOVERY			54.0'		54.0'	12	16" RECOVERY										
56.0'		56.0'	20	Saturated dense brown fine sand w/trace of coarse sand and silt.			56.0'		56.0'	20	16" RECOVERY										
58.0'		58.0'	22	15" RECOVERY			58.0'		58.0'	22	16" RECOVERY										
60.0'		60.0'	4	Saturated very stiff dark brown organic fine sandy silt w/trace of coarse sand.			60.0'		60.0'	4	16" RECOVERY										
62.0'		62.0'	10	20" RECOVERY			62.0'		62.0'	10	16" RECOVERY										
64.0'		64.0'	12	Saturated very stiff dark brown organic fine sandy silt w/trace of coarse sand.			64.0'		64.0'	12	16" RECOVERY										
66.0'		66.0'	4	20" RECOVERY			66.0'		66.0'	4	16" RECOVERY										
68.0'		68.0'	6	Saturated stiff dark brown organic fine sandy clay w/some silt and coarse sand.			68.0'		68.0'	6	16" RECOVERY										
70.0'		70.0'	8	20" RECOVERY			70.0'		70.0'	8	16" RECOVERY										
72.0'		72.0'	11	Saturated stiff gray organic fine sandy silt w/trace of coarse sand.			72.0'		72.0'	11	16" RECOVERY										
74.0'		74.0'	7	22" RECOVERY			74.0'		74.0'	7	16" RECOVERY										
76.0'		76.0'	7	End of Boring			76.0'		76.0'	7	16" RECOVERY										
78.0'		78.0'					78.0'		78.0'												
80.0'		80.0'					80.0'		80.0'												
82.0'		82.0'					82.0'		82.0'												
84.0'		84.0'					84.0'		84.0'												
86.0'		86.0'					86.0'		86.0'												
88.0'		88.0'					88.0'		88.0'												
90.0'		90.0'					90.0'		90.0'												
92.0'		92.0'					92.0'		92.0'												
94.0'		94.0'					94.0'		94.0'												
96.0'		96.0'					96.0'		96.0'												
98.0'		98.0'					98.0'		98.0'												
100.0'		100.0'					100.0'		100.0'												
102.0'		102.0'					102.0'		102.0'												
104.0'		104.0'					104.0'		104.0'												
106.0'		106.0'					106.0'		106.0'												
108.0'		108.0'					108.0'		108.0'												
110.0'		110.0'					110.0'		110.0'												
112.0'		112.0'					112.0'		112.0'												
114.0'		114.0'					114.0'		114.0'												
116.0'		116.0'					116.0'		116.0'												
118.0'		118.0'					118.0'		118.0'												
120.0'		120.0'					120.0'		120.0'												
122.0'		122.0'					122.0'		122.0'												
124.0'		124.0'					124.0'		124.0'												
126.0'		126.0'					126.0'		126.0'												
128.0'		128.0'					128.0'		128.0'												
130.0'		130.0'					130.0'		130.0'												
132.0'		132.0'					132.0'		132.0'												
134.0'		134.0'					134.0'		134.0'												
136.0'		136.0'					136.0'		136.0'												
138.0'		138.0'					138.0'		138.0'												
140.0'		140.0'					140.0'		140.0'												
142.0'		142.0'					142.0'		142.0'												
144.0'		144.0'					144.0'		144.0'												
146.0'		146.0'					146.0'		146.0'												
148.0'		148.0'					148.0'		148.0'												
150.0'		150.0'					150.0'		150.0'												

ADDENDUMS / REVISIONS



**BR 2-163 ON VICTORY CHAPEL RD OVER PENROSE BRANCH**

CONTRACT	BRIDGE NO.	<b>2-163</b>
T201107207	DESIGNED BY:	
COUNTY	CHECKED BY:	
KENT		

**SOIL BORING LOG #1**

SHEET NO.	15
TOTAL SHTS.	15

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