

C:\PROJECTS\155001.00 DMS\Title and M&M\155001.03 Design of Little Creek Boat Ramp.dwg, 7/26/2017, 3:20 PM

GENERAL NOTES (LAST REVISED AUGUST 31, 2016)

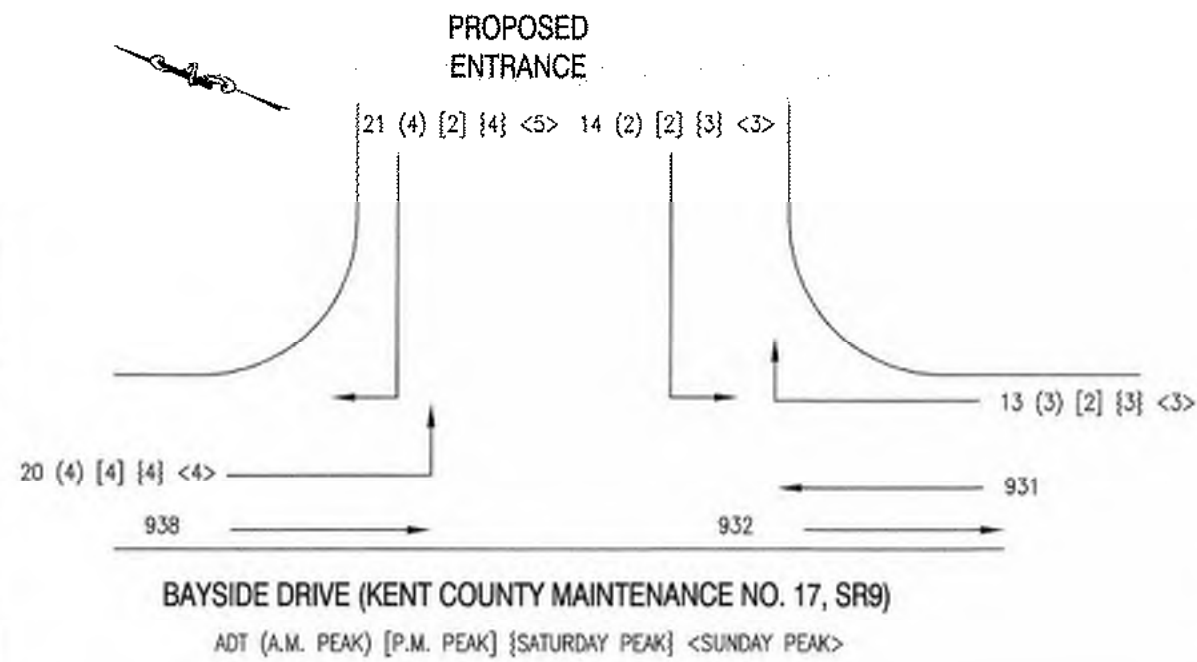
- ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT STANDARDS AND REGULATIONS FOR SUBDIVISION STREETS AND STATE HIGHWAY ACCESS AND SHALL BE SUBJECT TO ITS APPROVAL.
- ALL MATERIALS AND WORKMANSHIP WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH CURRENT STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SUPPLEMENTAL SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, SPECIAL PROVISIONS AND DESIGN GUIDANCE MEMORANDUMS.
- ALL DISTURBED AREAS WITHIN THE STATE RIGHT-OF-WAY, BUT NOT IN THE PAVEMENT, SHALL BE TOP-SOILED (6" MINIMUM), FERTILIZED, SEEDED AND MULCHED. IF SOD IS USED NEXT TO SIDEWALK OR SHARED-USE PATH, CONTRACTOR SHALL GRADE TOPSOIL ADJACENT TO THE SIDEWALK OR SHARED-USE PATH PRIOR TO PLACEMENT OF SOD TO ENSURE THAT SOD IS PLACED FLUSH OR JUST BELOW EDGE OF SIDEWALK OR SHARED-USE PATH TO AVOID WATER PONDING ON THE SIDEWALK OR SHARED-USE PATH.
- A 72-HOUR (MINIMUM) NOTICE SHALL BE GIVEN TO THE DELDOT DISTRICT PERMIT SUPERVISOR PRIOR TO STARTING ENTRANCE CONSTRUCTION.
- MISS UTILITY OF DELAWARE SHALL BE NOTIFIED THREE (3) CONSECUTIVE WORKING DAYS PRIOR TO EXCAVATION, AT 1-800-282-8555.
- ALL SIGNING, STRIPING AND MAINTENANCE OF TRAFFIC IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL FOLLOW THE GUIDELINES SHOWN IN THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DE MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION). THE OWNER OR MAINTENANCE CORPORATION SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL SIGNS INSTALLED AS PART OF THIS PROJECT.
- PLAN LOCATION AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE DIRECTED BY THE DELDOT INSPECTOR.
- A COPY OF THE UP TO DATE APPROVED CONSTRUCTION DOCUMENTS AND DELDOT APPROVAL LETTERS SHALL BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES AND BE AVAILABLE FOR INSPECTION BY DELDOT PERSONNEL.
- EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO UTILITY LOCATION AND ELEVATION. NO CONSTRUCTION AROUND OR ADJACENT TO UTILITIES SHALL BEGIN WITHOUT NOTIFYING THEIR OWNERS AT LEAST 48-HOURS IN ADVANCE. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DONE TO THEM DUE TO HIS/HER NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT THE CONTRACTOR'S EXPENSE. TO LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELAWARE (SEE NOTE #5).
- SHOULD UTILITY RELOCATION BE REQUIRED, THE DEVELOPER MUST SUBMIT A UTILITY RELOCATION PLAN FOR DELDOT REVIEW, ALONG WITH CORRESPONDENCE FROM THE UTILITY COMPANIES STATING PRELIMINARY APPROVAL TO THE RELOCATION AND DESIGN OF THE UTILITIES PRIOR TO THE DELDOT PRE-CONSTRUCTION MEETING. NO PHYSICAL CONSTRUCTION CAN OCCUR UNTIL THE UTILITY PLANS ARE APPROVED, THE INDIVIDUAL UTILITY COMPANIES ISSUE FINAL APPROVAL, AND A DELDOT UTILITY PERMIT IS ISSUED TO THE UTILITY COMPANY.
- UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED USE PATH ACROSS THE PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. THESE DISTURBED AREAS SHALL BE TOP-SOILED (6" MINIMUM), FERTILIZED, SEEDED AND MULCHED. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION AND IN CONFORMANCE WITH DELDOT'S "SHARED-USE PATH AND/OR SIDEWALK TERMINATION POLICY".
- DELDOT WILL NOT PROVIDE THE RESPECTIVE LOCAL LAND USE AGENCY WITH A "NO OBJECTION TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY NOTICE" UNTIL THE ENTRANCE(S) ARE COMPLETED TO THE SATISFACTION OF THE DEPARTMENT.
- DESIGN, FABRICATION AND INSTALLATION OF ALL PERMANENT SIGNING SHALL BE AS OUTLINED IN THE LATEST VERSION OF THE DE MUTCD.
- DESIGN AND INSTALLATION OF ALL PAVEMENT MARKINGS AND STRIPING SHALL BE AS OUTLINED IN THE LATEST VERSION OF THE DE MUTCD. FOR FINAL PERMANENT PAVEMENT MARKINGS:
  - EPOXY RESIN PAINT SHALL BE REQUIRED FOR LONG LINE STRIPING.
  - THERMO PLASTIC (EXTRUDED OR PREFORMED MATERIAL) WILL BE REQUIRED ON ASPHALT SURFACES, FOR SHORT LINE STRIPING, I.E. SYMBOLS/LEGENDS.
  - PERMANENT PAVEMENT MARKING TAPE (PER DELDOT APPROVED MATERIALS LIST) WILL BE REQUIRED ON CONCRETE SURFACES, FOR SHORT LINE STRIPING, I.E. SYMBOLS/LEGENDS.
- REMOVAL OF LONG LINE PAVEMENT STRIPING SHALL BE PERFORMED USING: SHOT, SAND OR HYDRO-BLASTING
- BREAKAWAY POSTS SHALL BE USED WHEN INSTALLING ALL SIGNS. REFERENCE DELDOT STANDARD CONSTRUCTION DETAIL T-15.
- NO CONSTRUCTION TIME RESTRICTIONS ARE IN EFFECT.
- CONTRACTOR SHALL SUPPLY MESSAGE BOARDS THAT ARE TO BE PLACED TEN (10) DAYS PRIOR TO CONSTRUCTION ALONG BAYSIDE DRIVE. THE PROPER WORDING ON THE MESSAGE BOARD WILL NEED TO BE COORDINATED WITH THE DISTRICT SAFETY OFFICER.
- STANDARD NOTE 19 DOES NOT APPLY TO THIS PROJECT.
- MAINTENANCE OF THE STREETS WITHIN THIS SUBDIVISION WILL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION, OR BOTH. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THESE STREETS.
- STANDARD NOTE 21 DOES NOT APPLY TO THIS PROJECT.
- STANDARD NOTE 22 DOES NOT APPLY TO THIS PROJECT.
- MAINTENANCE OF ALL LANDSCAPING SHOWN ON THIS PLAN WILL BE THE RESPONSIBILITY OF THE DEVELOPER, THE HOMEOWNERS ASSOCIATION OR BOTH. THE STATE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THE LANDSCAPING. DELDOT MUST REVIEW AND APPROVE ANY PLANTINGS PROPOSED WITHIN THE RIGHT OF WAY PRIOR TO INSTALLATION. IF ANY PLANTINGS ARE PLANTED WITHOUT DELDOT'S KNOWLEDGE AND/OR APPROVAL, THEN DELDOT HAS THE RIGHT TO HAVE THE DEVELOPER REMOVE THE PLANTINGS, WITH ALL COSTS BEING PAID FOR BY THE DEVELOPER.
- VERIFY IF ANY UTILITIES WILL NEED TO BE RELOCATED DUE TO THE ADDITION OF THE SHOULDER. FOR CLEAR ZONE PURPOSES, ALL UTILITIES ARE TO BE A MINIMUM OF 10-FEET FROM THE EDGE OF TRAVEL LANE OR 5-FEET FROM THE EDGE OF PAVEMENT. ANY UTILITY THAT DOES NOT MEET THIS REQUIREMENT SHALL BE RELOCATED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT PAVING WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY IS INSTALLED TO THE ELEVATIONS SHOWN AND THAT NO PONDING OF WATER EXISTS AFTER PAVING IS COMPLETE.
- ALL STORM DRAIN PIPING DESIGNATED AS RCP IS TO BE REINFORCED CONCRETE PIPE, MEETING AASHTO M-170 SPECIFICATIONS. SEE PLANS FOR SPECIFIC CLASS OF PIPE.
- ALL PROPOSED CLOSED STORMDRAIN SYSTEMS SHALL BE VIDEO INSPECTED, REPAIRED AS NECESSARY AND APPROVED PRIOR TO THE INSTALLATION OF FINAL PAVING. IF REPAIRS ARE NEEDED, THE REPAIRED PIPE SECTIONS WILL NEED TO BE VIDEO INSPECTED AGAIN BEFORE THE REPAIR CAN BE APPROVED.
- DRIVEWAYS WILL NOT BE PERMITTED TO BE PLACED AT DRAINAGE INLET LOCATIONS.
- BITUMINOUS CONCRETE SHALL BE PLACED IN ACCORDANCE WITH DELDOT SPECIAL PROVISIONS 401007 & 401055 - BITUMINOUS CONCRETE SUPERPAVE.
- CORRUGATED POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH DELDOT SPECIAL PROVISION(S) 612519 & 612527.
- THE DEVELOPER AND EXISTING/FUTURE OWNER OF NON-STATE-MAINTAINED ROADWAYS SHALL ENSURE THAT THE TRAFFIC CONTROL DEVICES ON SAID ROADWAYS OPEN TO PUBLIC TRAVEL ARE IN COMPLIANCE WITH THE LATEST VERSION OF THE DELAWARE MUTCD.
- FOR INFORMATION ON OBTAINING A UTILITY PERMIT IN KENT COUNTY CONTACT M&O-CENTRAL DISTRICT-PUBLIC WORKS AT (302) 760-2424.
- FOR INFORMATION ON GETTING APPROVAL FOR PROPOSED OUTDOOR ADVERTISING IN KENT COUNTY CONTACT M&O-CENTRAL DISTRICT-PUBLIC WORKS AT (302) 760-2424.

SEQUENCE OF CONSTRUCTION

- CONTACT DELDOT CENTRAL DISTRICT PRIOR TO CONSTRUCTION. CONTRACTOR MUST OBTAIN PERMIT FOR ENTRANCE CONSTRUCTION FROM DELDOT PRIOR TO BEGINNING WORK.
- INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS.
- STRIP TOPSOIL AND STOCKPILE.
- CONSTRUCT ENTRANCE AND ASSOCIATED DRAINAGE IMPROVEMENTS.
- PLACE PERMANENT STABILIZATION ON ALL DISTURBED AREAS.
- ONCE STABILIZATION HAS BEEN ESTABLISHED REMOVE PERIMETER EROSION AND SEDIMENT CONTROLS.

TRIP GENERATION - BAYSIDE DRIVE KCR17

(FULL MOVEMENT) EXISTING USE: BOAT RAMP



ROAD TRAFFIC DATA - BAYSIDE DRIVE SR9 (K16)

FUNCTIONAL CLASSIFICATION  
POSTED SPEED LIMIT = 25 MPH  
2015 ROADWAY EXISTING ADT = 1,583 VEH/DAY (FROM 2015 DELDOT TRAFFIC SUMMARY)  
2025 ROADWAY 10-YEAR PROJECTED ADT = 1.16 X 1,583 = 1,836 VEH/DAY  
ROADWAY 10-YEAR PROJECTED ADT + SITE ADT = 1,836 + 68 = 1,904 VEH/DAY  
TRAFFIC PATTERN GROUP 6 (FROM 2015 DELDOT TRAFFIC SUMMARY)  
10-YR PROJECTED PEAK HOUR TRAFFIC = 11.77% X 1,904 = 224 VEH/DAY

SITE TRAFFIC DATA

SOURCE: ITE TRIP GENERATION MANUAL 9TH EDITION (LUC 411 CITY PARK)\*  
ONE PROPOSED ENTRANCE - FULL MOVEMENT  
DESIGN VEHICLE - P/T  
GROSS FLOOR AREA= 225 S.F. ENFORCEMENT STORAGE BUILDING  
2.973 ACRE BOAT ACCESS FACILITY

TOTAL ADT = 22.75 X 2.973= 68 VEH/DAY (SINCE THIS TYPE OF RECREATIONAL FACILITY IS TYPICALLY A WEEKEND TRAFFIC GENERATOR, THE SITE ADT WAS GENERATED USING THE GENERATION RATE FOR SATURDAY)

DIRECTIONAL DISTRIBUTION

PROPOSED ENTRANCE (FULL MOVEMENT)

60% TO AND FROM NORTH	ADT 41	A.M. PEAK 8	P.M. PEAK 6	SATURDAY PEAK 8	SUNDAY PEAK 9
40% TO AND FROM SOUTH	ADT 27	A.M. PEAK 5	P.M. PEAK 4	SATURDAY PEAK 6	SUNDAY PEAK 6

6.45% TRUCKS & BUSES AT ENTRANCE = 9

\* THE CURRENT ITE MANUAL HAS NO DATA FOR A BOAT RAMP FACILITY. THE LAND USES AVAILABLE UNDER RECREATIONAL FACILITIES THAT WOULD BE REASONABLY REPRESENTATIVE BASED ON OWNERSHIP AND USE WOULD BE THE PUBLIC PARK LAND USES. FROM AMONG THOSE, CITY PARK WAS THE BEST FIT BASED ON THE SIZE/ACERAGE OF THE PROPOSED FACILITY EVEN THOUGH THE SITE IS STATE OWNED.

# ENTRANCE PLANS

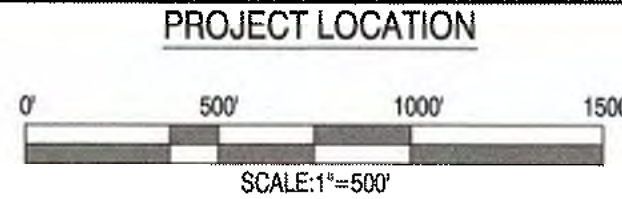
## DELAWARE DIVISION OF FISH & WILDLIFE

### LITTLE CREEK BOAT RAMP

T.P. ED-00-078.00-01-08.00

## BAYSIDE DRIVE (SR9, KCR17)

### LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE



DATA COLUMN

- COUNTY TAX MAP: ED-00-78.00-01-08.00
- ADDRESS OF SITE: BAYSIDE DRIVE  
DOVER, DE 19901
- ZONING: BG: GENERAL BUSINESS  
AC: AGRICULTURAL CONSERVATION
- LOT AREA: 2.973± ACRES (129,504± S.F.)
- EXISTING USE: FISHING AREA
- PROPOSED USE: BOAT RAMP/FISHING PIER/PARKING LOT
- TOTAL NUMBER OF LOTS: 1
- POSTED SPEED LIMIT: 25 M.P.H.
- SOURCE OF TITLE: DEED NO. 7173-327
- DATUM: VERTICAL - NAVD 88  
HORIZONTAL - NAD 83
- SETBACK: BG ZONING: FRONT: 75' AC ZONING: FRONT: 75'  
SIDE: 20' SIDE: 25'  
REAR: 40' REAR: 40'
- SEWER PROVIDER: NO SEWER SERVICE IS PROPOSED
- WATER PROVIDER: ON-SITE WELL
- TRANSPORTATION IMPROVEMENT DISTRICT: THIS PROJECT IS NOT WITHIN A TRANSPORTATION IMPROVEMENT DISTRICT.
- FLOODPLAIN: ACCORDING TO FIRM NO. 10005C01784, DATED JULY 7, 2014, THE SUBJECT PARCEL IS DETERMINED TO BE WITH ZONE AE (BASE FLOOD ELEVATION DETERMINED: ELEV. 11)
- WETLANDS: A WETLANDS INVESTIGATION WAS PERFORMED BY COASTAL & ESTUARINE RESEARCH, INC. AND WETLANDS WERE FOUND WITHIN THE SUBJECT PROPERTY. SEE REPORT DATED JUNE 2016.
- OWNER: STATE OF DELAWARE  
DIVISION OF FISH & WILDLIFE  
(DEPARTMENT OF FISH & WILDLIFE - KENT COUNTY RECORDS)  
89 KINGS HIGHWAY  
DOVER, DE 19901
- APPLICANT: STATE OF DELAWARE  
DIVISION OF FISH & WILDLIFE  
(DEPARTMENT OF FISH & WILDLIFE - KENT COUNTY RECORDS)  
89 KINGS HIGHWAY  
DOVER, DE 19901
- AGENCY RESPONSIBLE FOR LAND USE APPROVAL: KENT COUNTY PLANNING AND ZONING  
55 S. BAY ROAD  
DOVER, DE 19901
- CIVIL ENGINEER: CENTURY ENGINEERING, INC.  
4134 NORTH DUPONT HIGHWAY  
DOVER, DE 19901  
(302) 734-9188
- BOUNDARY SHOWN PERFORMED BY MILLER LEWIS, INC. AND PROVIDED BY DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL. CENTURY ENGINEERING, INC. TAKES NO RESPONSIBILITY FOR THE ACCURACY OF THE BOUNDARY SHOWN.
- EXISTING TOPOGRAPHY PERFORMED BY MILLER LEWIS, INC. AND PROVIDED BY DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL. CENTURY ENGINEERING, INC. TAKES NO RESPONSIBILITY FOR THE ACCURACY OF THE TOPOGRAPHY AND EXISTING LOCATIONS SHOWN.
- PARKING RATIONALE: REQUIRED: N/A  
CONCEPTUAL PROPOSED: 26 SPACES (INCLUDES 2 ACCESSIBLE SPACES)
- INVESTMENT LEVEL AREA: LEVEL 5

INDEX OF SHEETS

EP200	ENTRANCE PLAN - COVER SHEET
EP201	ENTRANCE PLAN - LEGEND
EP202	ENTRANCE PLAN - TYPICAL SECTIONS, NOTES AND DETAILS
EP203	ENTRANCE PLAN - HORIZONTAL AND VERTICAL CONTROL
EP204	ENTRANCE PLAN - CONSTRUCTION PLAN
EP205	ENTRANCE PLAN - PROFILES
EP206	ENTRANCE PLAN - GRADES AND GEOMETRICS
EP207	ENTRANCE PLAN - TURNING TEMPLATE DETAIL

CERTIFICATION OF OWNERSHIP

I, JOHN CLARK, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E. BLUE CARD HOLDERS) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVER SHEET.

*John H. Clark*

JOHN CLARK - FISHERIES SECTION ADMINISTRATOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
89 KINGS HIGHWAY  
DOVER, DE 19901  
PHONE: (302) 739-9914

9/29/17  
DATE

CERTIFICATION OF PLAN ACCURACY

I, ALEXANDER SCHMIDT, HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER WITH A BACKGROUND IN CIVIL ENGINEERING IN THE STATE OF DELAWARE AND THAT ALL OF THE INFORMATION ON THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY ACCEPTED ENGINEERING STANDARDS AND PRACTICES AND BY THE CITY OF DOVER CODE.

*Alexander Schmidt*

ALEXANDER SCHMIDT, P.E., DE NO. 16139  
CENTURY ENGINEERING, INC.  
4134 NORTH DUPONT HIGHWAY  
DOVER, DELAWARE 19901  
(302) 734-9188



1-oct-2017  
DATE

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**CENTURY**  
**ENGINEERING**  
CONSULTING ENGINEERS ■ SURVEYORS

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EMAIL: cel@centuryeng.com

REVISIONS

REVISED PER DELDOT COMMENTS	6/21/17
REVISED PER DELDOT COMMENTS	9/13/17
REVISED PER DELDOT COMMENTS	9/28/17

ADDENDUM

DESCRIPTION	DATE
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DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR9, KCR17)  
LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

PROJECT

SHEET TITLE

ENTRANCE PLAN -  
COVER SHEET

DELDOT  
SUBMISSION  
MARCH 9, 2017

DRAWN CHK'D/DESIGNER

DLD AES

SCALE SHEET NO.

1" = 500'

PROJECT NO.

155001.03

EP200

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## 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
	GRAVEL
	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	
	CITY OF DOVER OVERHEAD ELECTRIC
	CITY OF DOVER UNDERGROUND ELECTRIC
	DOVER AIR FORCE BASE COMMUNICATION
	KENT COUNTY FORCEMAIN
	RUNWAY 32 CLEAR ZONE
	OVERHEAD UTILITY

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 -- CHAIN LINK
	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
	DITCH LINE
	STORM PIPE

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)	
	FULL DEPTH PAVEMENT

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



23-05-207

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REVISIONS	
REVISED PER DELDOT COMMENTS	6/21/17
REVISED PER DELDOT COMMENTS	9/13/17
REVISED PER DELDOT COMMENTS	9/28/17

ADDENDUM	
△ DESCRIPTION	DATE

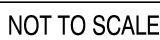
PROJECT  
DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR9, KCRT17)  
LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

SHEET TITLE  
ENTRANCE PLAN -  
LEGEND

DELDOT  
SUBMISSION  
MARCH 9, 2017  
DRAWN DLD  
SCALE NOT TO SCALE  
CHK'D/DESIGNER AES  
SHEET NO. AES  
PROJECT NO. EP201  
155001.03



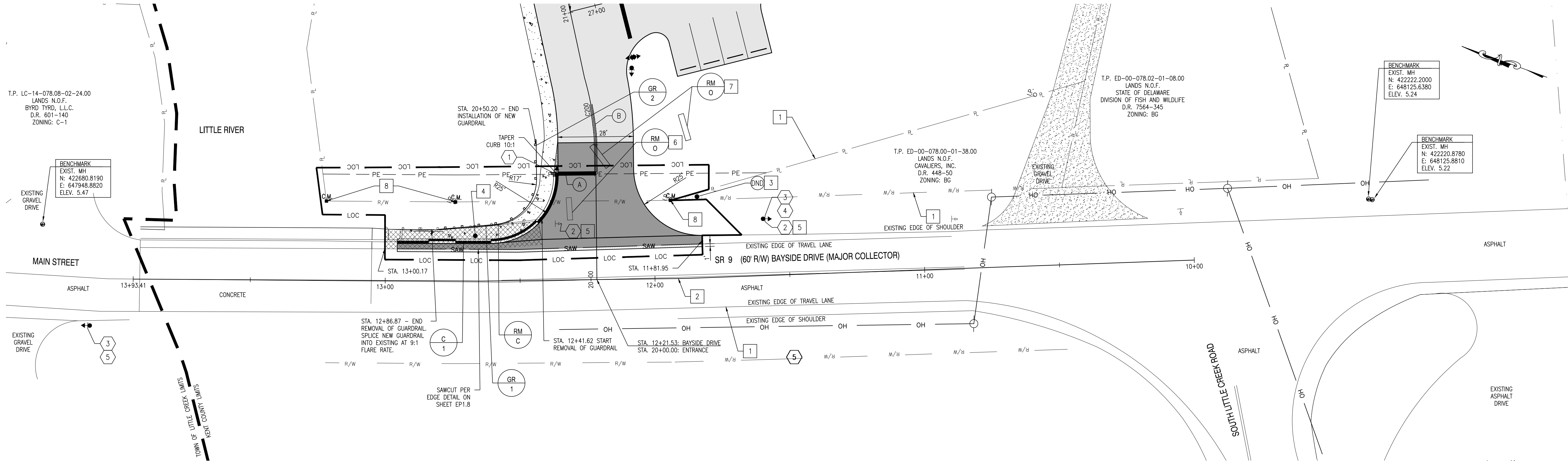
1. ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL REASONABLY PROVIDE THE LEAST PRACTICABLE OBSTRUCTION TO ROAD USERS, INCLUDING VEHICULAR TRAFFIC, BICYCLE TRAFFIC AND PEDESTRIAN TRAFFIC.
2. ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH: THE CONTRACT DOCUMENTS, THE LATEST EDITION OF THE MANUAL TITLED "STATE OF DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)" (HEREINAFTER REFERRED TO AS THE "DELAWARE MUTCD"), THE CURRENT STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND SUPPLEMENTAL SPECIFICATIONS, INCLUDING ALL REVISIONS AS OF THE DATE OF THE ENTRANCE PERMIT APPROVAL.
3. THE DEPARTMENT RESERVES THE RIGHT TO STOP THE CONTRACTOR'S OPERATIONS, IF, IN THE OPINION OF THE DEPARTMENT'S REPRESENTATIVE, THE CONTRACTOR'S OPERATIONS ARE NOT IN COMPLIANCE WITH THE DELAWARE MUTCD, THE SPECIFICATIONS OR THE PLANS OR IF THE CONTRACTOR'S OPERATIONS ARE DEEMED UNSAFE.
4. IF THE CONTRACTOR DESIRES TO DEVIATE FROM THE TEMPORARY TRAFFIC CONTROL PLAN (TTCP) PROVIDED IN THE PLAN SET OR DESIRES CHANGES TO THE PHASING OR SCOPE OF THE TTCP, THE CONTRACTOR SHALL SUBMIT A NEW TTCP TO THE DISTRICT SAFETY OFFICER FOR APPROVAL PRIOR TO THE START OF WORK AT EACH AND EVERY LOCATION. THE TTCP SHALL BE PREPARED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE AND SHALL BE PREPARED IN ACCORDANCE WITH ALL APPLICABLE DELDOT STANDARDS. THE TTCP SHALL BE SUBMITTED 14 CALENDAR DAYS IN ADVANCE OF STARTING WORK.
5. ALL ROADWAY CLOSURES OR LANE CLOSURES BEYOND THOSE SPECIFIED AND APPROVED IN THE PLANS SHALL BE APPROVED BY THE DISTRICT SAFETY OFFICER AT A MINIMUM OF TWO WEEKS IN ADVANCE OF THE PROPOSED RESTRICTION.
6. TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED IN GOOD CONDITION IN ACCORDANCE WITH THE BROCHURE ENTITLED "QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES", PUBLISHED BY THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA). ANY TEMPORARY TRAFFIC CONTROL DEVICES THAT DO NOT MEET THE QUALITY GUIDELINES SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE DEVICES. FAILURE TO COMPLY WILL RESULT IN WORK STOPPAGE.
7. TEMPORARY TRAFFIC CONTROL DEVICES USED ON ALL ROADWAYS OPEN TO THE PUBLIC IN DELAWARE SHALL CONFORM TO THE DELAWARE MUTCD AND SHALL BE IN NEW OR REFURBISHED CONDITION. ALL DEVICES SHALL BE CRASHWORTHY IN ACCORDANCE WITH THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 AND/OR IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL FOR ASSASSING SAFETY HARDWARE (MSAH), PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (ASHTO). THE CONTRACTOR SHALL SUBMIT CERTIFICATION FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES USED SPECIFICALLY ON THIS PROJECT TO THE DISTRICT SAFETY OFFICER AT OR PRIOR TO THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL DESIGN WORK OR PLACE ANY TEMPORARY TRAFFIC CONTROL DEVICES UNTIL THE CERTIFICATION OF DEVICES HAS BEEN APPROVED BY THE DISTRICT SAFETY OFFICER.
8. ANY DEFICIENCIES RELATED TO TEMPORARY TRAFFIC CONTROL THAT ARE REPORTED TO THE CONTRACTOR IN WRITING SHALL BE CORRECTED WITHIN 24 HOURS OR AS DIRECTED BY THE DISTRICT SAFETY OFFICER. CORRECTIVE ACTIONS ON SEVERE DEFICIENCIES SHALL BE TAKEN IMMEDIATELY. FAILURE TO COMPLY WILL RESULT IN THE SUSPENSION OF WORK UNTIL DEVICES ARE BROUGHT BACK INTO COMPLIANCE.
9. ACCESS TO ALL BUSINESSES AND RESIDENCES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THIS CONTRACT. ANY TEMPORARY CLOSURE OF A DRIVEWAY OR ENTRANCE FOR TIE-IN PURPOSES SHALL BE COORDINATED WITH THE ENGINEER AND THE PROPERTY OWNER IN ADVANCE OF THE CLOSURE.
10. ACCESS TO ALL TRANSIT STOPS LOCATED WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED UNLESS OTHERWISE DIRECTED BY THE PLANS OR THE ENGINEER. MAINTAINING ACCESS TO THE TRANSIT STOP SHALL INCLUDE MAINTAINING AN AREA OF THE TRANSIT VEHICLE TO STOP TO PICK-UP AND DISCHARGE PASSENGERS AND ALSO AN ACCESSIBLE PATH FOR PEDESTRIANS TO SAFELY ACCESS THE TRANSIT STOP.
11. THE CONTRACTOR SHALL PROVIDE ALL PROPERTY OWNERS AND RESIDENTS WHO LIVE ADJACENT TO THE WORK ZONE WITH WRITTEN NOTICE, 48 HOURS IN ADVANCE OF THE START OF CONSTRUCTION WORK. THIS NOTIFICATION SHALL INCLUDE THE SCOPE OF WORK, WORKING HOURS, ANTICIPATED START AND COMPLETION DATES, A SUMMARY OF CONSTRUCTION ACTIVITIES AND HOW THEY MAY INTERFERE WITH ACCESS TO THE PROPERTY INCLUDING A SCHEDULE AND ACCESS COORDINATION PLAN. THE CONTRACTOR'S NAME AND ADDRESS AND A DELDOT CONTACT PHONE NUMBER, FAILURE TO GIVE PROPER NOTICE WILL RESULT IN A SUSPENSION OF THE WORK AND REQUIRE NOTICE, UNTIL PROPER NOTICE IS PROVIDED, THE CONTRACTOR SHALL PROVIDE WRITTEN VERIFICATION TO THE ENGINEER THAT THE PROPERTY OWNERS AND RESIDENTS WERE NOTIFIED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE LOCAL 911 CENTER, LOCAL SCHOOLS AND THE DELDOT PUBLIC INFORMATION CENTER OF ALL ROADS AND LANES TO BE CLOSED A MINIMUM OF SEVEN CALENDAR DAYS BEFORE THE CLOSURE.
13. THE CONTRACTOR SHALL NOTIFY THE LOCAL 911 CENTER IF ACCESS TO A FIRE HYDRANT IS TEMPORARILY RESTRICTED.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE TRANSPORTATION MANAGEMENT CENTER IS NOTIFIED EACH AND EVERY DAY WHEN WORK IS BEING PERFORMED IN STATE RIGHT-OF-WAY. THE CONTRACTOR SHALL IDENTIFY THE TYPE OF WORK, ANY LANE(S) OR SHOULDERS CLOSED, THE LENGTH OF TIME WORK WILL BE IN THE WORK AREA, AND THE DURATION OF THE WORK. IF RESTRICTIONS ARE LIFTED, CONTACT PERSON/PHONE NUMBER, SIGN AND SIGN INSTRUCTIONS. THE TRANSPORTATION MANAGEMENT CENTER CAN BE REACHED AT (302) 659-4600.
15. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL CORRECT ALL VERTICAL DIFFERENCES IN ACCORDANCE WITH TABLE 60-1 OF THE DELAWARE MUTCD.
16. AT THE END OF EACH DAY'S OPERATION AND BEFORE TRAFFIC IS RETURNED TO UNRESTRICTED ROADWAY USE, TEMPORARY PAVEMENT MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE DELAWARE MUTCD AND DELDOT'S TEMPORARY PAVEMENT MARKINGS POLICY.
17. WHEN SIDE ROADS INTERSECT THE WORK ZONE, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERECTED INCLUDING PAVEMENT WARNING SIGNS.
18. WHEN STORAGE OF EQUIPMENT AND MATERIAL SHALL COMPLY WITH SECTION 66.21 OF THE DELAWARE MUTCD.
19. ALL FLAGGERS SHALL COMPLY WITH CHAPTER 66 OF THE DELAWARE MUTCD.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS/HER WORK WITH OTHER CONTRACTORS IN THE AREA.
21. ALL PERSONS WORKING WITHIN THE STATE RIGHT-OF-WAY SHALL WEAR A MINIMUM OF AN ANSI CLASS II SAFETY VEST MEETING OR EXCEEDING THE ANSI 107-2004 REQUIREMENTS, AS SPECIFIED IN THE DELAWARE MUTCD.
22. ALL PAVEMENT MARKINGS THAT ARE NO LONGER IN USE AND CONFLICT WITH TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED AND COMPLETELY OBLITERATED BY A METHOD APPROVED BY THE ENGINEER. PAINTING OVER THE CONFLICTING PAVEMENT MARKINGS WILL NOT BE ACCEPTED AS A METHOD OF REMOVAL.
23. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF EXISTING PAVEMENT WITHIN THE PROJECT LIMITS FOR THE DURATION OF THE CONTRACT OR AS DIRECTED BY THE ENGINEER.
24. ALL ROADWAYS AND ENTRANCES NOT OPEN TO TRAFFIC SHALL BE CLOSED USING TYPE III BARRICADES AND SHALL BE INSTALLED PER THE DELAWARE MUTCD. IF THE ROADWAY OR ENTRANCE IS CLOSED FOR MORE THAN ONE MONTH, THE CONTRACTOR SHALL ERECT PERMANENT BARRICADES AS DIRECTED IN PART 3 OF THE DELAWARE MUTCD.
25. WITHIN THE MAINLINE WORK AREA, PERMANENT ADVANCE WARNING SIGNS WITH THE LEGENDS ROAD WORK 1500 FT, ROAD WORK 1000 FT AND ROAD WORK 500 FT SHALL BE INSTALLED IN ADVANCE OF THE WORK AREA IN BOTH DIRECTIONS. AN END ROAD WORK SIGN SHALL BE LOCATED 500 FEET DOWNSTREAM FROM THE BEGINNING OF THE WORK AREA. ON INTERSECTING ROADWAYS WITHIN THE PROJECT LIMITS, A ROAD WORK AHEAD SIGN SHALL BE PLACED AT A DISTANCE NOT LESS THAN 500 FEET IN ADVANCE OF THE WORK AREA AND AN END ROAD WORK SIGN SHALL BE LOCATED 500 FEET DOWNSTREAM OF THE WORK AREA. ALL PERMANENT ADVANCE WARNING SIGNS SHALL BE GROUND MOUNTED ON TWO NCHRP-350 OR MASH APPROVED BREAKAWAY POSTS AND SHALL BE MOUNTED IN COMPLIANCE WITH THE DELAWARE MUTCD. PERMANENT ADVANCE WARNING SIGNS SHALL BE MOUNTED AT A HEIGHT OF 7 FEET, MEASURED FROM THE BOTTOM OF THE SIGN. THE USE OF SKID MOUNTED SIGN SUPPORTS IS NOT ALLOWED UNLESS THE CONTRACTOR CAN DEMONSTRATE THAT A UTILITY CONFLICT EXISTS, WHICH SHALL BE VERIFIED BY THE ENGINEER, OR CONCRETE MEDIANS PREVENT THE INSTALLATION OF THE PERMANENT ADVANCE WARNING SIGNS IN THE APPROPRIATE LOCATION.
26. TYPICAL APPLICATIONS PER THE DELAWARE MUTCD SHALL BE INCORPORATED TO ACHIEVE REQUIRED TEMPORARY TRAFFIC CONTROL AND SAFETY REQUIREMENTS. THIS PROJECT IS SUBJECT TO THE FOLLOWING TYPICAL APPLICATIONS UNLESS DIRECTED OTHERWISE BY THE DISTRICT SAFETY OFFICER: TYPICAL APPLICATION TA-1, ROAD BEYOND THE SHOULDER + 10 FEET FROM THE EDGE OF THE TRAVELED WAY AND TA-2, LANE CLOSURE ON A TWO LANE ROAD WITH FLAGGERS.



1. MAXIMUM ALGEBRAIC DIFFERENCE OF CROSS SLOPES SHALL NOT EXCEED 8%.
2. CONTRACTOR SHALL LOAD TEST ALL SUBGRADE SOIL PRIOR TO THE PLACEMENT OF THE SUBBASE COURSE. ALL UNSUITABLE MATERIAL FOUND SHALL BE EXCAVATED TO THE DEPTH OF STABLE SOIL AND BACKFILLED WITH APPROVED MATERIAL. THE CONTRACTOR SHALL COMPACT ALL MATERIALS TO MEET THE MDDOT STANDARD SPECIFICATIONS.
3. SEE GRADES AND GEOMETRICS FOR FURTHER DETAILS.
4. DELAWARE 57 STONE OR BORROW, TYPE B, SHALL BE UTILIZED FOR ALL UNDERCUT LOCATIONS AS DIRECTED BY ENGINEER IN THE FIELD.

<b>DELDT</b>	
<b>SUBMISSION</b>	
MARCH 9, 2017	
DRAWN	CHK'D/DESIGNER
<b>DL D</b>	<b>AES</b>
SCALE	SHEET NO.
<b>NOT TO SCALE</b>	<b>EP202</b>
PROJECT NO. 155001.03	





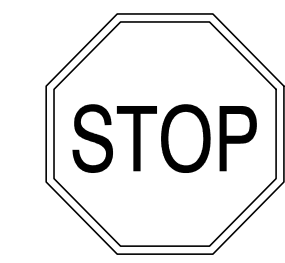
#### GENERAL NOTES:

- RIGHT OF WAY, LOCATIONS, PROPERTY LINES PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. CENTURY ENGINEERING TAKES NO RESPONSIBILITY FOR THEIR ACCURACY.
- CENTERLINE ALIGNMENT BASED UPON EXISTING LOCATIONS PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. ALIGNMENT DOES NOT REPRESENT THE PHYSICAL CENTERLINE OF THE RIGHT OF WAY.
- CONTRACTOR NOT TO DISTURB GRAVEL LOCATED ON ADJOINING PROPERTY.
- CONTRACTOR TO REMOVE EXISTING ASPHALT.
- CONTRACTOR TO CONTACT DELDOT SIGN SHOP FOR DIRECTION ON THE CORRECT BYWAYS SIGN TO REPLACE.
- EXISTING WELCOME SIGN TO BE REMOVED AS PART OF THIS PROJECT. SIGN WILL BE RELOCATED BY THE TOWN OF LITTLE CREEK TO AN UNDETERMINED LOCATION.
- EXISTING CONCRETE BARRIERS TO BE REMOVED BY THE OWNER.
- CONCRETE MONUMENTS (3) TO BE PER DELDOT STANDARD DETAIL M-2 (2017).

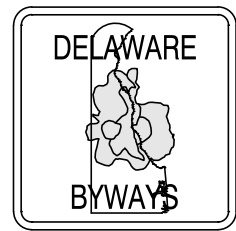
GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION/TYPE	BEGIN STATION	OFFSET	LENGTH
1	GALV. STEEL BEAM GUARDRAIL, TYPE 1-27	12+80.18	19.14'	61'
2	END ANCHORAGE, TYPE 27	12+43.37	52.18'	1 EA.

CURB SCHEDULE			
CURB NO.	TYPE	LENGTH	
1	P.C.C. CURB & GUTTER, TYPE 3-8	73'	

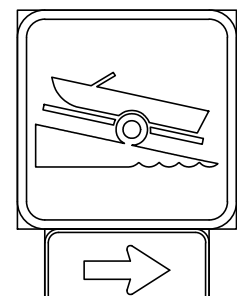
PAVEMENT MARKING S LEGEND	
SYMBOL	ITEM
(A)	16" SOLID WHITE ALKYL THERMOPLASTIC PAVEMENT STRIPING
(B)	4" DOUBLE YELLOW EPOXY RESIN PAINT PAVEMENT STRIPING



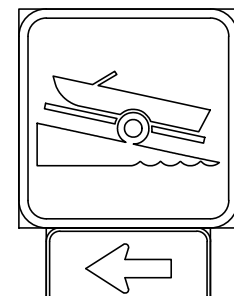
1 STOP SIGN DETAIL  
NOT TO SCALE



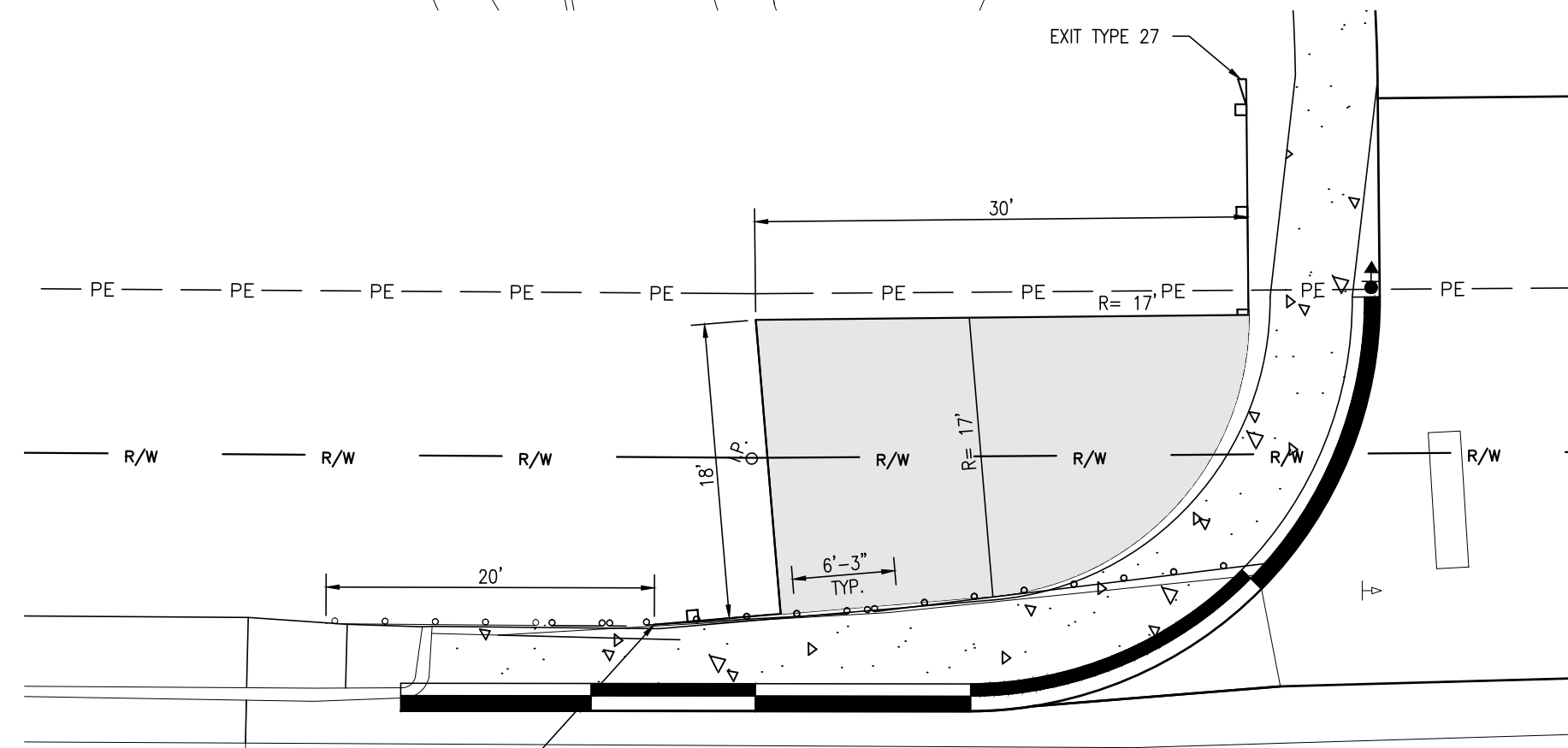
2 DELAWARE BYWAYS DETAIL  
NOT TO SCALE



3 BOAT RAMP SIGN DETAIL (RIGHT)  
NOT TO SCALE



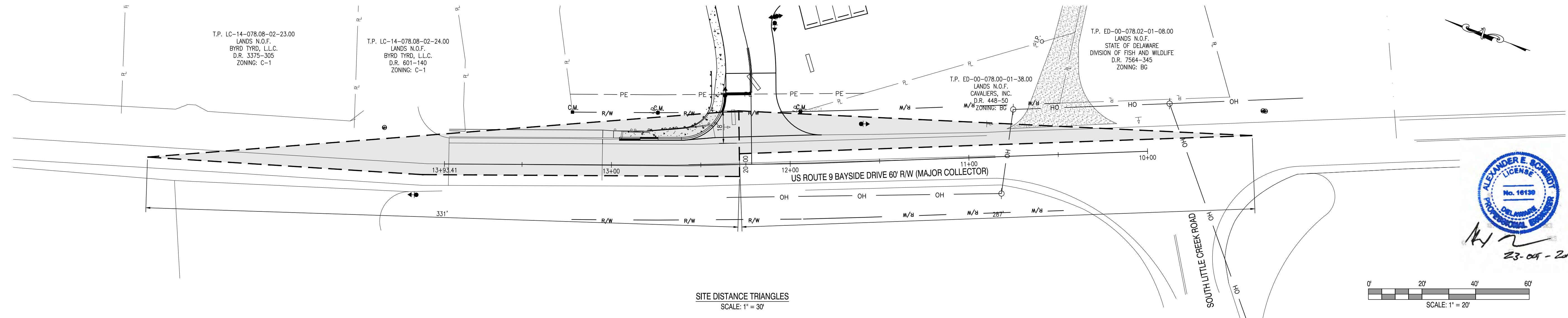
3 BOAT RAMP SIGN DETAIL (LEFT)  
NOT TO SCALE



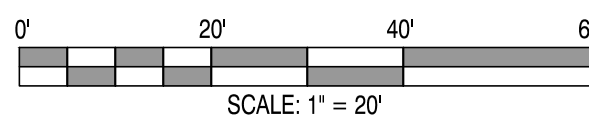
GENERAL NOTE:  
REFER TO DELDOT STANDARD CONSTRUCTION DETAILS, LATEST EDITION,  
FOR CONSTRUCTION DETAILS

GUARDRAIL INSTALLATION DETAIL  
SCALE: 1" = 10'

#	SHEET NO.	PLAN IDENTIFIER	SIGN DESIGNATION	QTY.	DESCRIPTION	SIGN WIDTH (IN)	SIGN HEIGHT (IN)	SIGN AREA (SF)	ITEM 819018 SINGLE POST (EACH)			ITEM 819019 INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON MULTIPLE SIGN POSTS (SF)			POST INSTALLATION TYPE	Code X11 12 Post (W/ Basepost)	ITEM 819016 4" HOLE, 0-6" (EACH)	ITEM 819017 4" HOLE, >6" (EACH)	REMARKS
									SIGN DISPOSITION	REMOVE	INSTALL	SIGN DISPOSITION	REMOVE	INSTALL					
1	EP204	1	R1-1(18)	1	STOP	18"	18"	2.3	NEW		1				SOIL	1			
1873	EP204	2	D14-4-DE	1	DELAWARE BYWAYS	24"	24"	8.0	REPOSITION	1	1				SOIL				CONTRACTOR TO CONTACT DELDOT, SEE NOTE 5
-	EP204	3	RS-054	2	BOAT RAMP	24"	24"	8.0	NEW		2				SOIL	2			
-	EP204	4	-	1	DIRECTIONAL ARROW (RS), RIGHT	18"	9"	1.1	NEW						SOIL				
-	EP204	5	-	1	DIRECTIONAL ARROW (RS), LEFT	18"	9"	1.1	NEW						SOIL				
PAGE TOTALS								13		1	4		0	0		3	0	0	



SITE DISTANCE TRIANGLES  
SCALE: 1" = 30'



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#### REVISIONS

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REVISED PER	DELETED COMMENTS	6/21/17
REVISED PER	DELETED COMMENTS	9/13/17
REVISED PER	DELETED COMMENTS	9/28/17

#### ADDENDUM

DESCRIPTION	DATE
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DELaware DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP

FOR  
DELaware DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR9, KC17)  
LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

ENTRANCE PLAN -  
CONSTRUCTION PLAN

DELDOT  
SUBMISSION  
MARCH 9, 2017

DRAWN CHK'D/DESIGNER

DLD AES

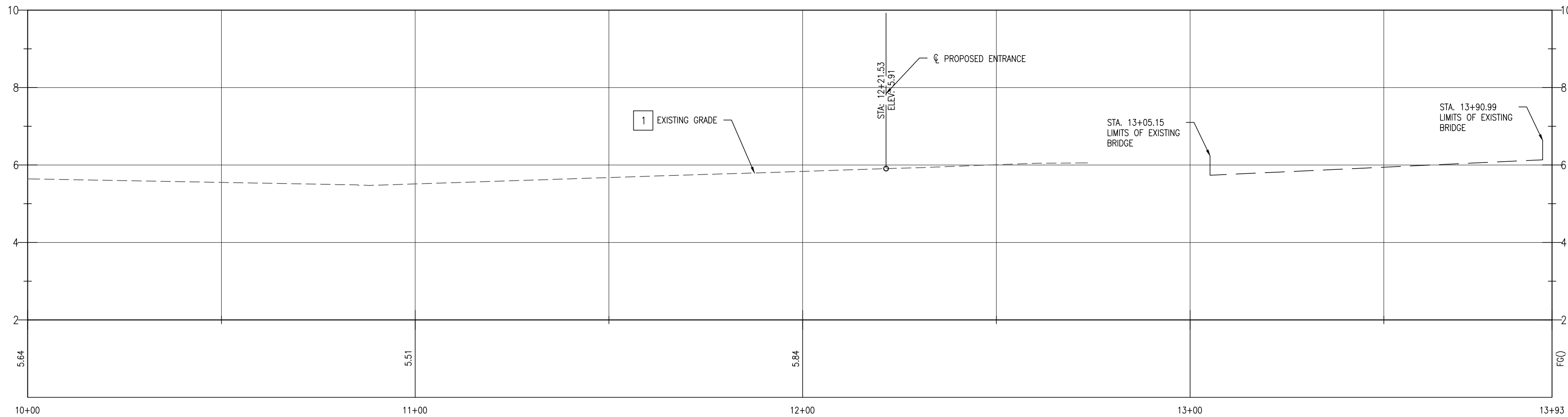
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AS NOTED

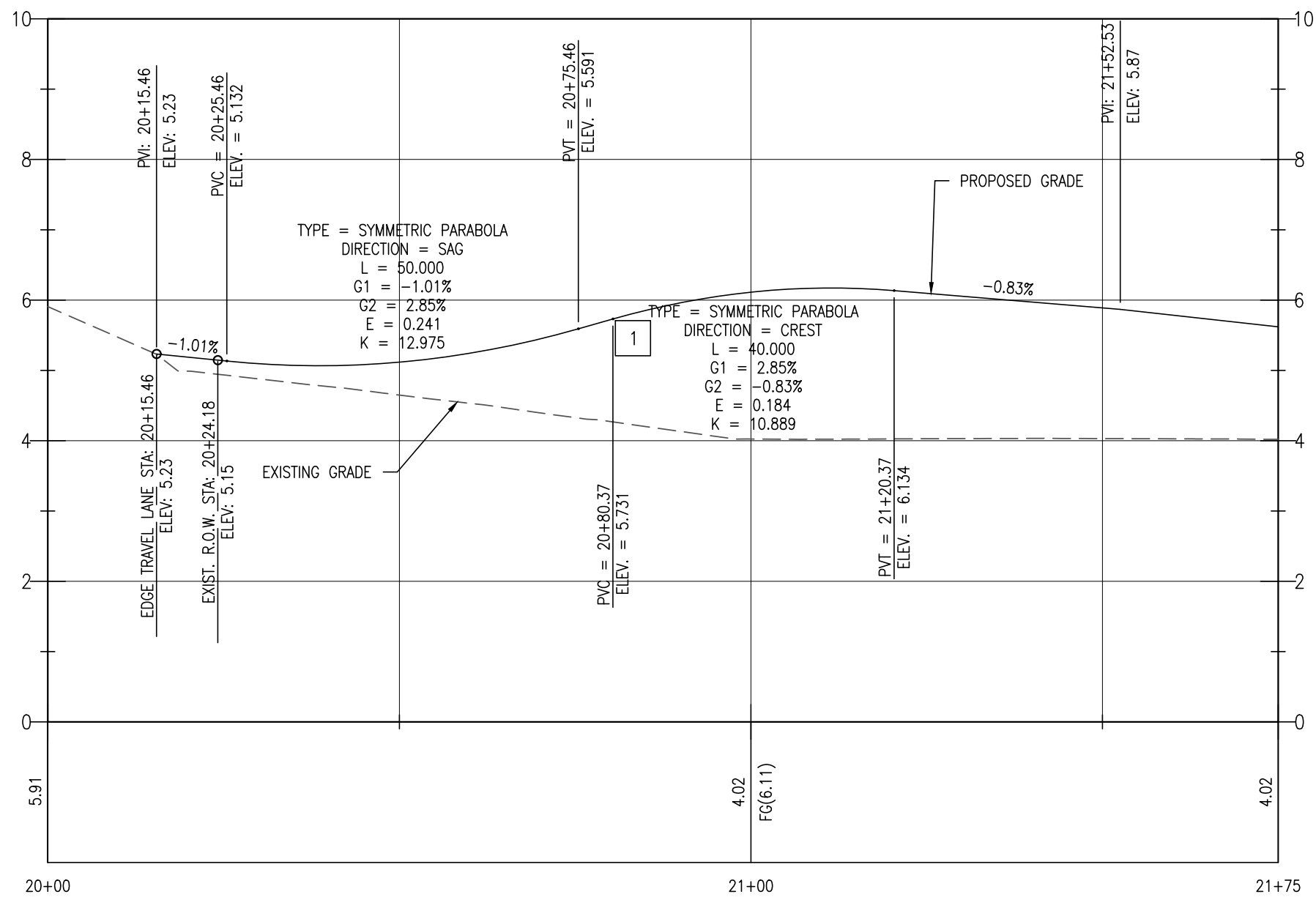
PROJECT NO. EP204

155001.03

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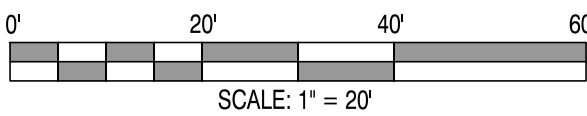
BAYSIDE DRIVE  
SCALE: HORIZ. 1" = 20'  
VERT. 1" = 2'



CENTERLINE ENTRANCE ROAD  
SCALE: HORIZ. 1" = 20'  
VERT. 1" = 2'

GENERAL NOTE:

1 CENTERLINE ALIGNMENT BASED UPON EXISTING LOCATIONS PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. ALIGNMENT DOES NOT REPRESENT THE PHYSICAL CENTERLINE OF THE RIGHT OF WAY.



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REVISIONS

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REVISED PER DELDOT COMMENTS	9/13/17
REVISED PER DELDOT COMMENTS	9/28/17

ADDENDUM

△ DESCRIPTION	DATE
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PROJECT  
DELAWARE DIVISION OF FISH & WILDLIFE

LITTLE CREEK BOAT RAMP

FOR  
DELAWARE DIVISION OF FISH & WILDLIFE

BAYSIDE DRIVE (SR9, KCR17)  
LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

SHEET TITLE

ENTRANCE PLAN -  
PROFILES

DELDOT

SUBMISSION  
MARCH 9, 2017

DRAWN  
CHK'D/DESIGNER

DLD

AES

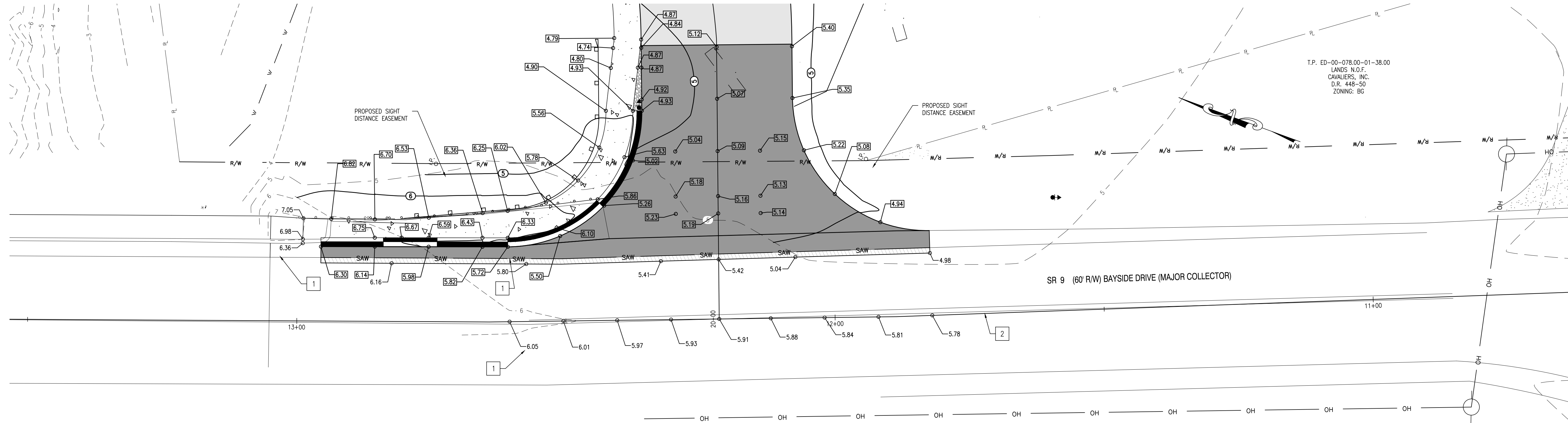
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AS NOTED

PROJECT NO.  
155001.03

EP205

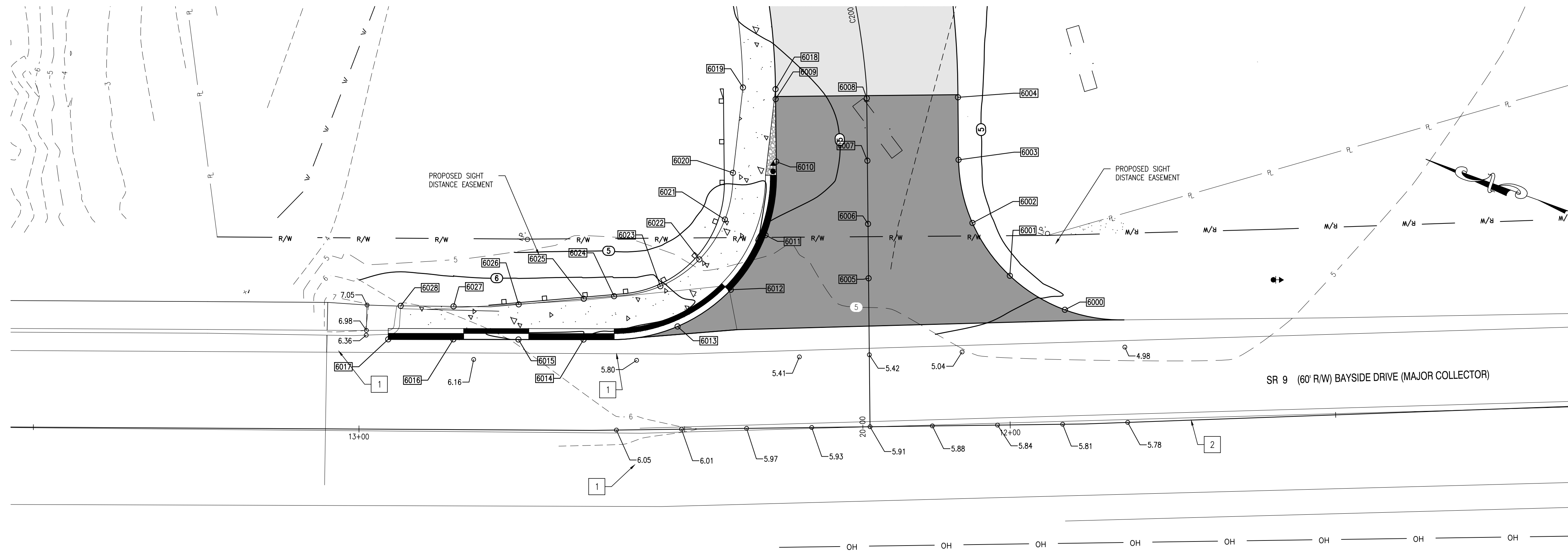
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GRADES AND GEOMETRICS PLAN  
SCALE: 1" = 10'

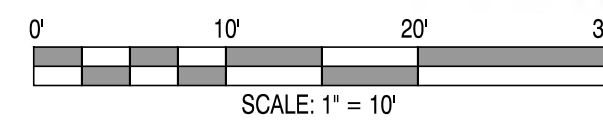
GENERAL NOTE:

- EXISTING SPOT ELEVATIONS TAKEN FROM SURFACE PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. CENTURY ENGINEERING TAKES NO RESPONSIBILITY FOR THEIR ACCURACY.
- CENTERLINE ALIGNMENT BASED UPON EXISTING LOCATIONS PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. ALIGNMENT DOES NOT REPRESENT THE PHYSICAL CENTERLINE OF THE RIGHT OF WAY.



ENTRANCE POINTS LAYOUT  
SCALE: 1" = 10'

ENTRANCE POINT LAYOUT			
POINT NO.	NORTHING	EASTING	ELEVATION
6000	422458.7653	648026.9134	4.94
6001	422468.4896	648028.9412	5.08
6002	422476.6566	648034.5958	5.22
6003	422481.9768	648042.9844	5.35
6004	422485.3450	648051.9676	5.40
6005	422488.7424	648021.1509	5.16
6006	422491.6769	648028.9776	5.09
6007	422495.0857	648038.0694	5.07
6008	422498.4538	648047.0526	5.12
6009	422511.5627	648042.1376	4.84
6010	422508.1946	648033.1545	4.79
6011	422505.8723	648021.9688	5.02
6012	422508.0200	648012.2703	5.26
6013	422513.7750	648004.1737	5.50
6014	422526.6505	647997.3544	5.82
6015	422536.0519	647993.9463	5.98
6016	422545.4571	647990.5487	6.14
6017	422554.8547	647987.1300	6.30
6018	422512.0991	648043.5682	4.87
6019	422516.8904	648042.1035	4.77
6020	422513.8553	648029.2531	4.72
6021	422512.5624	648022.0888	5.56
6022	422514.1528	648014.9938	5.78
6023	422518.3718	648009.0798	6.02
6024	422524.5323	648005.2126	6.25
6025	422528.7598	648003.2494	6.36
6026	422537.8673	647999.0200	6.53
6027	422547.1605	647995.3094	6.70
6028	422554.8126	647992.6130	6.82



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REVISED PER DELDOT COMMENTS	9/28/17

ADDENDUM

DESCRIPTION	DATE
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PROJECT  
**DELAWARE DIVISION OF FISH & WILDLIFE**  
**LITTLE CREEK BOAT RAMP**  
FOR  
**DELAWARE DIVISION OF FISH & WILDLIFE**  
BAYSIDE DRIVE (SR9, KCR17)  
LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

SHEET TITLE

**ENTRANCE PLAN -**  
**GRADES AND**  
**GEOMETRICS PLAN**

**DELDOT**  
**SUBMISSION**  
MARCH 9, 2017

DRAWN CHK'D/DESIGNER

**DLD** **AES**

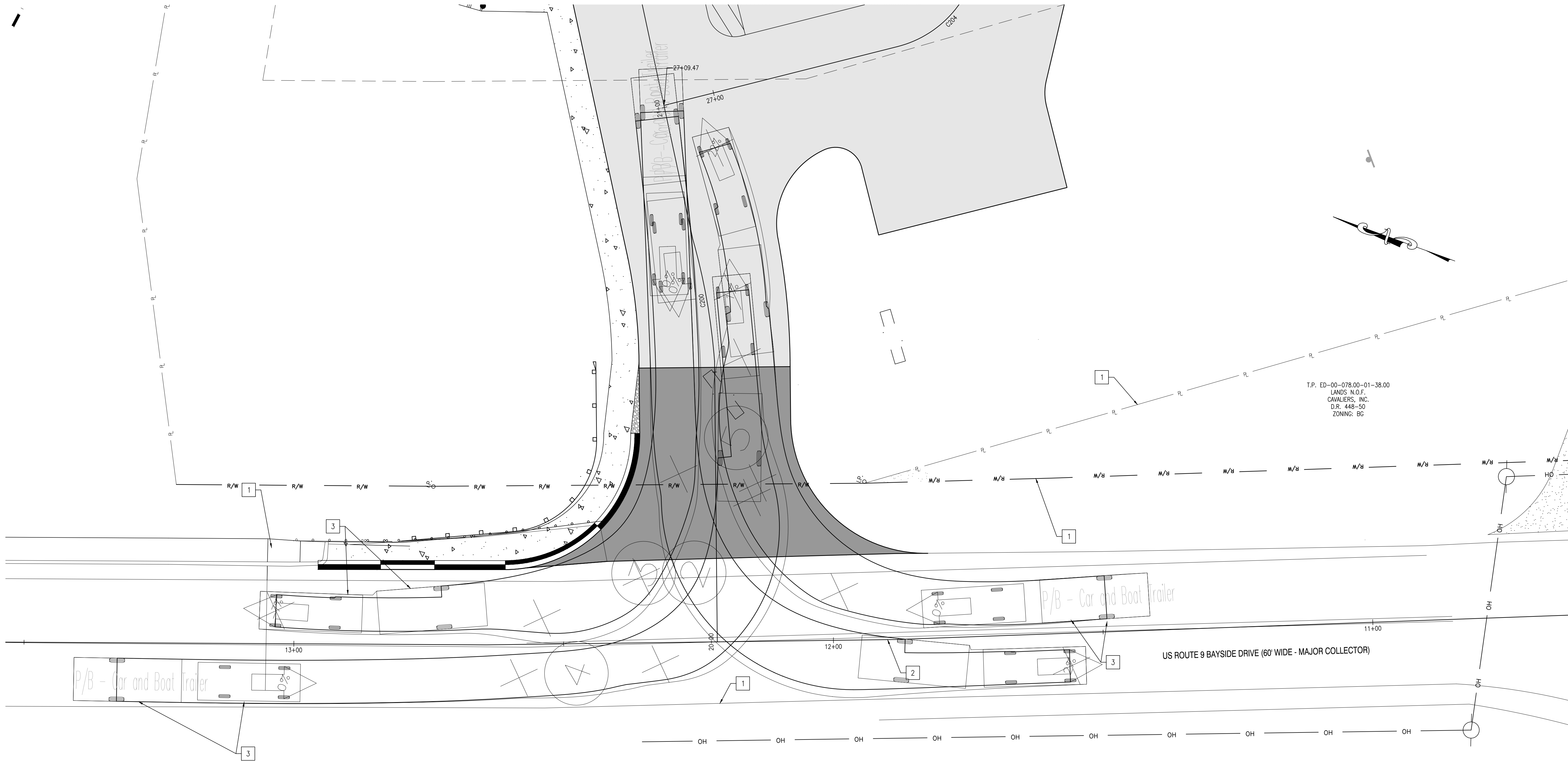
SCALE SHEET NO.

**AS NOTED**

PROJECT NO.  
155001.03

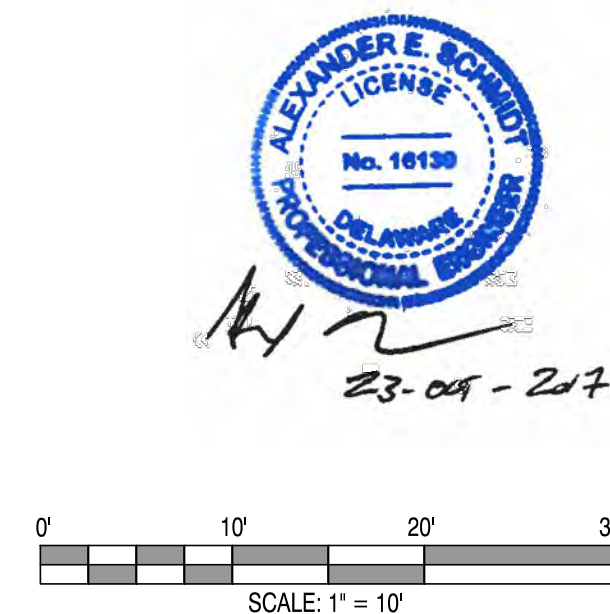
**EP206**

C:\WORKSPACES\155001.03\_DELDOT\_Fish and Wildlife\155001.03\_Design of Little Creek Boat Ramp\155001.03\_DELDOT\_Fish and Wildlife\155001.03\_Design of Little Creek Boat Ramp\155001.03\_DELDOT\_Fish and Wildlife\155001.03\_Design of Little Creek Boat Ramp.dwg, 10/24/2017 10:09 AM



TURNING TEMPLATE - P/T  
SCALE: 1" = 10'

- GENERAL NOTE:
- RIGHT OF WAY, LOCATIONS, PROPERTY LINES PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. CENTURY ENGINEERING TAKES NO RESPONSIBILITY FOR THEIR ACCURACY.
  - CENTERLINE ALIGNMENT BASED UPON EXISTING LOCATIONS PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. ALIGNMENT DOES NOT REPRESENT THE PHYSICAL CENTERLINE OF THE RIGHT OF WAY.
  - VEHICLE USED:  
PICK-UP TRUCK: 19.94' OVERALL LENGTH  
TRAILER: 20.00' OVERALL LENGTH



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**CENTURY**  
**ENGINEERING**  
CONSULTING ENGINEERS ■ SURVEYORS

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WEBSITE:  
www.centuryeng.com  
EMAIL:  
ce@centuryeng.com

REVISIONS		
REVISED PER DELDOT COMMENTS		6/21/17
REVISED PER DELDOT COMMENTS		9/13/17
REVISED PER DELDOT COMMENTS		9/28/17

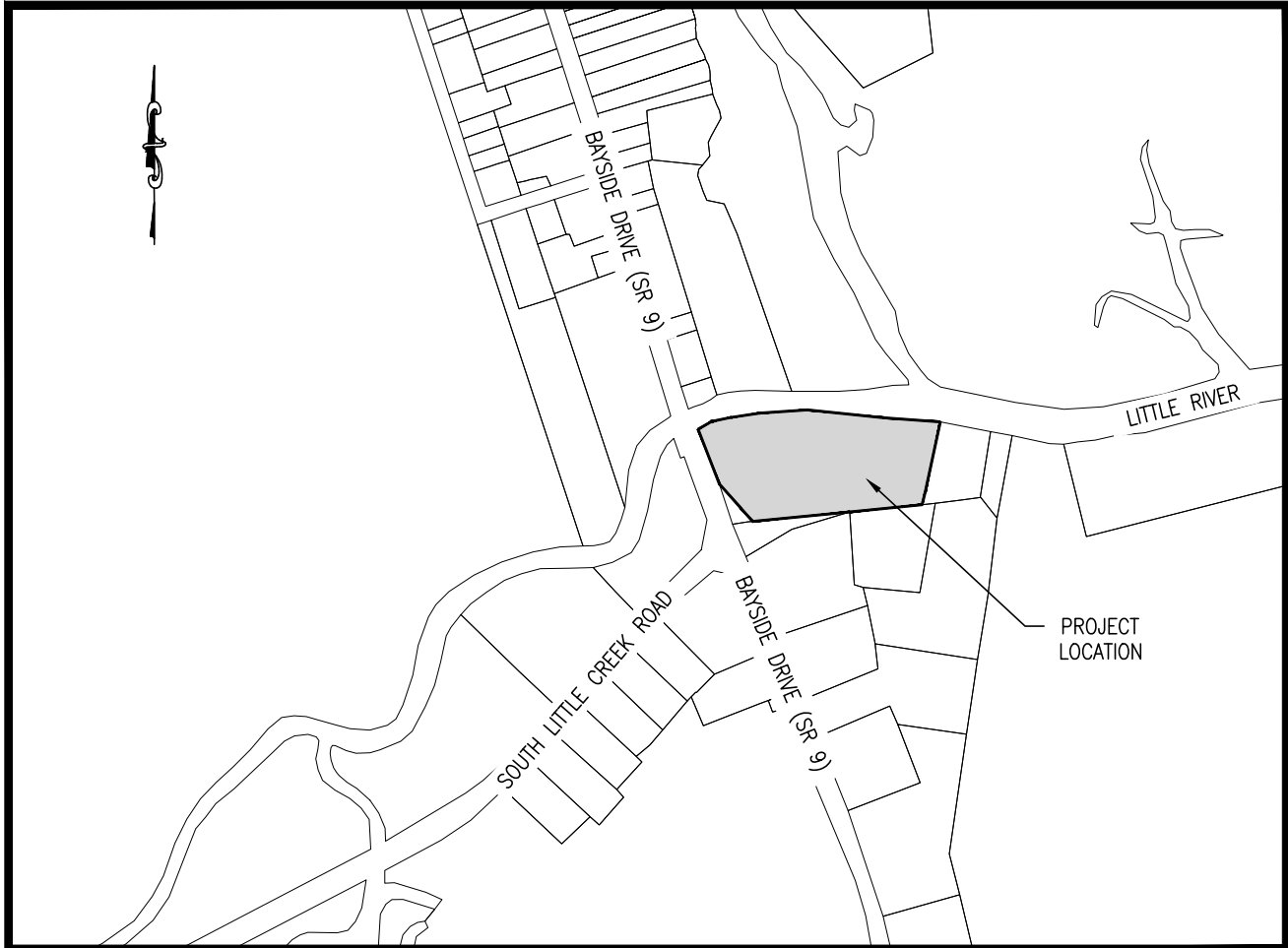
ADDENDUM	
DESCRIPTION	DATE

PROJECT  
DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR9, KCR17)  
LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

SHEET TITLE  
ENTRANCE PLAN -  
TURNING TEMPLATE  
DETAIL

DELDOT  
SUBMISSION  
MARCH 9, 2017

DRAWN	CHK'D/DESIGNER
DLD	AES
SCALE	SHEET NO.
1" = 10'	EP207
PROJECT NO.	155001.03



LOCATION MAP SCALE: 1" = 500'

DATA COLUMN	
1. TAX PARCEL NUMBER:	ED-00-078.00-01-08.00
2. APPLICATION NUMBER:	
3. ADDRESS OF SITE:	BAYSIDE DRIVE DOVER, DE 19901
4. ZONING:	BG: GENERAL BUSINESS AC: AGRICULTURAL CONSERVATION
5. LOT AREA:	3.125± ACRES (BASED UPON PLAN PREPARED BY MILLER LEWIS, INC., DATED JUNE 13, 2016)
6. NUMBER OF LOTS:	EXISTING: 1 PROPOSED: 1
7. SOURCE OF TITLE:	D.B. 7173-327
8. EXISTING USE:	FISHING AREA
9. PROPOSED USE:	BOAT RAMP/FISHING PIER/PARKING LOT
10. DATUM:	NAD83 (PER MILLER LEWIS, INC.)
11. MONUMENTS:	EXISTING: 4 (IRON ROD) PROPOSED: 0 (MONUMENTS)
12. FLOODPLAIN MAP:	PER FEMA MAP NO.10001C01874, DATED JULY 7, 2014, THE SUBJECT PARCEL IS DETERMINED TO BE WITHIN ZONE AE (BASE FLOOD ELEVATION DETERMINED: ELEV.: 11).
13. PURPOSE OF PLAN:	THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED BOAT RAMP, COURTESY DOCK, ENFORCEMENT DOCK, AND FISHING PIER WITH A PARKING AREA AND SUPPORTING AMENITIES.
14. REQUIRED PARKING:	REQUIRED: N/A PROPOSED: 26 SPACES (INCLUDES 2 ACCESSIBLE SPACES)
15. SITE BREAKDOWN:	
EXISTING SITE	BG ZONING AC ZONING GRAVEL: 10,274± S.F. 17± S.F. WETLAND: 49,368± S.F. 45,716± S.F. OPEN SPACE: 22,012± S.F. 4,739± S.F. OVERALL TOTAL: 85,659± S.F. 50,474± S.F.
LOT TOTAL: 85,659± + 50,474± = 136,133± (3.125± ACRES)	
PROPOSED SITE	BG ZONING AC ZONING CONCRETE: 631± S.F. 2,043± S.F. PAVEMENT: 28,708± S.F. 7,386± S.F. OPEN SPACE: 56,320± S.F. 41,043± S.F. OVERALL TOTAL: 85,659± S.F. 50,474± S.F.
LOT TOTAL: 85,659± + 50,474± = 136,133± (3.125± ACRES)	
PROPOSED IMPERVIOUS	BG ZONING AC ZONING PAVEMENT: 28,708± S.F. 7,386± S.F. CONCRETE: 631± S.F. 2,043± S.F. BOARDWALK: 467± S.F. 467± S.F. OVERALL TOTAL: 29,806± S.F. (0.684± ACRES) 9,898± S.F. (0.227± ACRES)
% IMPERVIOUS COVERAGE:	BG ZONING: 0.684 ACRES/1.966 ACRES = 34.8% AC ZONING: 0.227 ACRES/1.159 ACRES = 19.6%
TOTAL AREA WITHIN WOODLAND PRESERVATION:	0.00 ACRES
TOTAL AREA WITHIN STORMWATER MANAGEMENT AREA:	0.00 ACRES
% SLOPE:	AVERAGE 2.50%
16. DEBRIS DISPOSAL:	NO DEBRIS SHALL BE BURIED ON THE SITE. ANY BURIED DEBRIS ENCOUNTERED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED FACILITY.
17. TOPOGRAPHY:	TOPOGRAPHY TAKEN FROM SITE SURVEY PERFORMED BY MILLER LEWIS, INC. AND CENTURY ENGINEERING, INC.
18. WETLANDS (2.159± ACRES ON PARCEL):	A WETLANDS INVESTIGATION WAS PERFORMED BY COASTAL & ESTUARINE RESEARCH, INC. AND WETLANDS WERE FOUND ON SUBJECT PROPERTY. SEE REPORT DATED JUNE 2016.
19. TOTAL LAND DISTURBANCE:	THE TOTAL LAND DISTURBANCE PROPOSED BY THIS PLAN IS 1.87± ACRES (81,457± S.F.)
20. PROPOSED DISCHARGE LOCATIONS:	POA 1: LITTLE RIVER - CONTRIBUTING LOD = 1.87± ACRES (81,457± S.F.)
21. OWNER/DEVELOPER:	STATE OF DELAWARE DIVISION OF FISH & WILDLIFE 89 KINGS HIGHWAY DOVER, DE 19901 JOHN CLARK (302) 739-9914 / JOHN.CLARK@STATE.DE.US
22. APPLICANT:	STATE OF DELAWARE DIVISION OF FISH & WILDLIFE 89 KINGS HIGHWAY DOVER, DE 19901 JOHN CLARK (302) 739-9914 / JOHN.CLARK@STATE.DE.US
23. ENGINEER:	CENTURY ENGINEERING, INC. 4134 N. DUPONT HIGHWAY DOVER, DE 19901 ALEXANDER SCHMIDT, P.E. (302) 734-9186 / ASCHMIDT@CENTURYENG.COM

# SEDIMENT AND STORMWATER MANAGEMENT PLANS

FOR

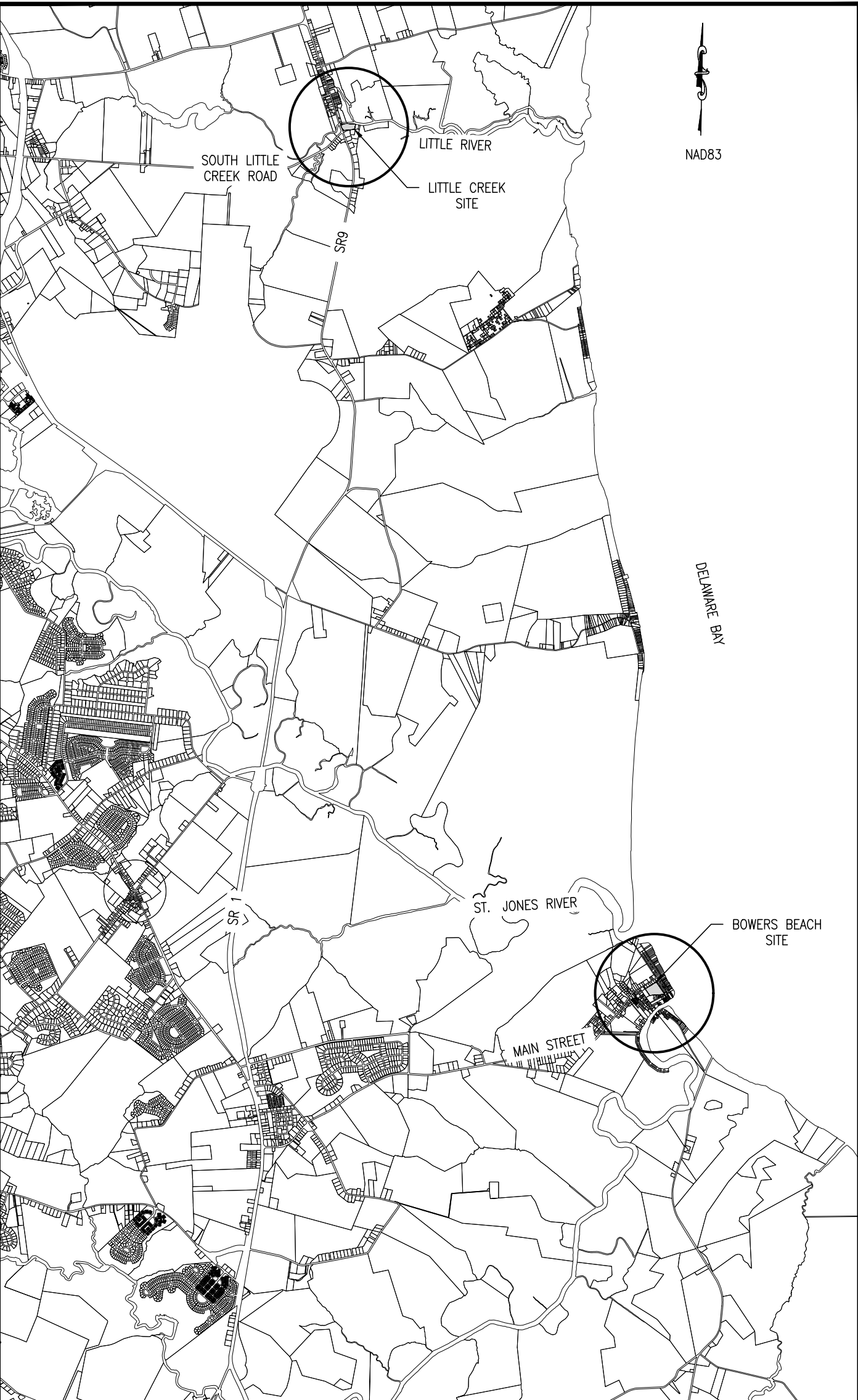
## DELAWARE DIVISION OF FISH & WILDLIFE LITTLE CREEK BOAT RAMP

T.P. ED-00-078.00-01-08.00

BAYSIDE DRIVE (SR9, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE  
LITTLE CREEK WATERSHED

LEGEND	
EXISTING	PROPOSED
PROPERTY LINE	N/A
RIGHT OF WAY LINE	N/A
CONTOUR	N/A
OVERHEAD UTILITY	N/A
FEDERAL WETLAND LINE	N/A
STATE WETLAND LINE	N/A
SPARTINA PATENS/ ALTERNIFLORA MARSH LINE	N/A
MEAN HIGH WATER LINE	N/A
MEAN LOW WATER LINE	N/A
ZONING LINE	N/A
CURB LINE	N/A
SIGN	N/A
SITE LIGHTING	N/A
IRON ROD	N/A
MONUMENT	N/A
UTILITY POLE	N/A
MANHOLE	N/A
PAVEMENT	N/A
GUARD RAIL	N/A
GRAVEL AREA	N/A
CONCRETE AREA	N/A
SIDEWALK	N/A
DOCK/PIER	N/A
GANGWAY	N/A
WELL	N/A
UNDERGROUND ELECTRIC	N/A
2" WATERLINE	N/A
8" WATERLINE	N/A
PILES	N/A
BOLLARD	N/A

LOCATION MAP



0' 5000' 10000' 15000'  
SCALE: 1" = 5000'

### INDEX OF SHEETS

SWM400	COVER SHEET
SWM401	PRE-CONSTRUCTION SITE STORMWATER MANGEMENT PLAN
SWM402	CONSTRUCTION SITE STORMWATER MANGEMENT PLAN
SWM403	CONSTRUCTION SITE DETAILS
SWM404	CONSTRUCTION SITE DETAILS
SWM405	CONSTRUCTION SITE DETAILS
SWM406	CONSTRUCTION SITE DETAILS
SWM407	CONSTRUCTION SITE DETAILS
SWM408	BMP CONTRIBUTING DRAINAGE AREA PLAN
SWM409	BMP CONTRIBUTING DRAINAGE AREA PLAN-BOWERS
SWM410	PRE-DEVELOPED SUBAREA LIMIT OF DISTURBANCE DRAINAGE AREA PLAN

### GENERAL NOTES

1. THE DNREC SEDIMENT AND STORMWATER MANAGEMENT PROGRAM MUST BE NOTIFIED IN WRITING FIVE (5) DAYS PRIOR TO COMMENCING WITH CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. REVIEW AND APPROVAL OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM ERRORS OR OMISSIONS IN THE APPROVED PLAN.
3. IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY DNREC OR THE DELEGATED AGENCY.
4. FOLLOWING THE SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED FOR ALL PERIMETER SEDIMENT CONTROLS, SOIL STOCKPILES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE WITHIN 14 CALENDAR DAYS UNLESS MORE RESTRICTIVE FEDERAL REQUIREMENTS APPLY.
5. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
6. AT ANY TIME A Dewatering OPERATION IS USED, IT SHALL BE PREVIOUSLY APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER FOR A NON-EROSIVE POINT OF DISCHARGE, AND A Dewatering PERMIT SHALL BE APPROVED BY THE DNREC WELL PERMITTING BRANCH.
7. APPROVED PLANS REMAIN VALID FOR 5 YEARS FROM THE DATE OF APPROVAL.
8. POST CONSTRUCTION VERIFICATION DOCUMENTS ARE TO BE SUBMITTED TO THE SUSSEX CONSERVATION DISTRICT WITHIN 60 DAYS OF STORMWATER MANAGEMENT FACILITY COMPLETION.
9. APPROVAL OF A SEDIMENT AND STORMWATER PLAN DOES NOT GRANT OR IMPLY A RIGHT TO DISCHARGE STORMWATER RUNOFF. THE OWNER/DEVELOPER IS RESPONSIBLE FOR ACQUIRING ANY AND ALL AGREEMENTS, EASEMENTS, ETC., NECESSARY TO COMPLY WITH STATE DRAINAGE AND OTHER APPLICABLE LAWS.
10. THE NOTICE OF INTENT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER NPDES GENERAL PERMIT FOR THIS PROJECT IS #5523. AT ANY TIME THE OWNERSHIP FOR THIS PROJECT CHANGES, A TRANSFER OF AUTHORIZATION OR A CO-PERMITTEE APPLICATION MUST BE SUBMITTED TO DNREC. THE PERMITTEE OF RECORD SHALL NOT BE RELIEVED OF THEIR RESPONSIBILITIES UNTIL A NOTICE OF TERMINATION HAS BEEN PROCESSED BY DNREC.
11. THE OWNER SHALL BE FAMILIAR WITH AND COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION GENERAL PERMIT ASSOCIATED WITH THE PROJECT, INCLUDING, BUT NOT LIMITED TO, PERFORMING WEEKLY SITE INSPECTIONS DURING CONSTRUCTION AND AFTER RAIN EVENTS, AND MAINTAINING WRITTEN LOSS OF THESE INSPECTIONS.
12. BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHALL CALL MISS UTILITY AT 811 OR 1.800.282.8555 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ONSITE.
13. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENT FROM LEAVING THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
14. BEST AVAILABLE TECHNOLOGY (BAT) SHALL BE EMPLOYED TO MANAGE TURBID DISCHARGES IN ACCORDANCE WITH REQUIREMENTS OF 7 DEL. C. CHAPTER 60, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, SECTION 9.1.02, KNOWN AS SPECIAL CONDITIONS FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES AND DEPARTMENT POLICIES, PROCEDURES, AND GUIDANCE.
15. DOCUMENTATION OF SOIL TESTING AND MATERIALS USED FOR TEMPORARY OR PERMANENT STABILIZATION INCLUDING BUT NOT LIMITED TO SOIL TEST RESULTS, SEED TAGS, SOIL AMENDMENT TAGS, ETC. SHALL BE PROVIDED TO THE DEPARTMENT OR DELEGATED AGENCY TO VERIFY THAT THE PERMANENT OR TEMPORARY STABILIZATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN. THE DEPARTMENT OR DELEGATED AGENCY MAY REQUIRE ADDITIONAL SOIL TESTING AND REAPPLICATION OF PERMANENT OR TEMPORARY STABILIZATION IN ACCORDANCE WITH SPECIFICATIONS PROVIDED IN THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, OR ALTERNATIVE MEASURES THAT PROVIDE FUNCTIONAL EQUIVALENCY.

### WETLAND CERTIFICATION

THIS PROPERTY, TAX MAP #ED-00-078.00-01-08.00, HAS BEEN EXAMINED BY COASTAL & ESTUARINE RESEARCH, INC. FOR THE PRESENCE OF WATERS OF THE UNITED STATES, INCLUDING WETLANDS (SECTION 404 AND SECTION 10), STATE SUBAQUEOUS LANDS AND STATE REGULATED WETLANDS AS ESTABLISHED BY THE REVIEWING AGENCIES IN THE FORM OF MANUALS, POLICIES AND PROCEDURES IN PLACE AT THE TIME THAT THE INVESTIGATION WAS CONDUCTED. THE WETLAND INFORMATION CONTAINED IN THIS PLAN SET IS IN ACCORDANCE WITH THIS CRITERIA. THE WETLAND DELINEATION FOR THIS PROJECT WAS COMPLETED BY COASTAL & ESTUARINE RESEARCH, INC.

EVELYN MAURMEYER  
COASTAL & ESTUARINE RESEARCH, INC.  
MARINE STUDIES COMPLEX  
P.O. BOX 674  
LEWES, DELAWARE 19958  
PHONE: (302) 645-9610

### CERTIFICATION OF OWNERSHIP

I, JOHN CLARK, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E. BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVERSHEET.

JOHN CLARK  
FISHERIES SECTION ADMINISTRATOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
89 KINGS HIGHWAY  
DOVER, DE 19901  
PHONE: (302) 734-9186

### CERTIFICATION OF PLAN ACCURACY

I, HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

ALEXANDER E. SCHMIDT, P.E., DE NO. 16139  
CENTURY ENGINEERING, INC.  
4134 NORTH DUPONT HIGHWAY  
DOVER, DELAWARE 19901  
PHONE: (302) 734-9186  
FAX: (302) 734-4589

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WWW: www.centuryeng.com

### REVISIONS

DESCRIPTION	DATE
-------------	------

DELAWARE DIVISION OF FISH & WILDLIFE

LITTLE CREEK BOAT RAMP

FOR

DELAWARE DIVISION OF FISH & WILDLIFE

BAYSIDE DRIVE (SR9, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

PROJECT

SHEET TITLE

COVER SHEET

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS

JULY 19, 2017

DRAWN CHK'D/DESIGNER

JSW/MDS AES

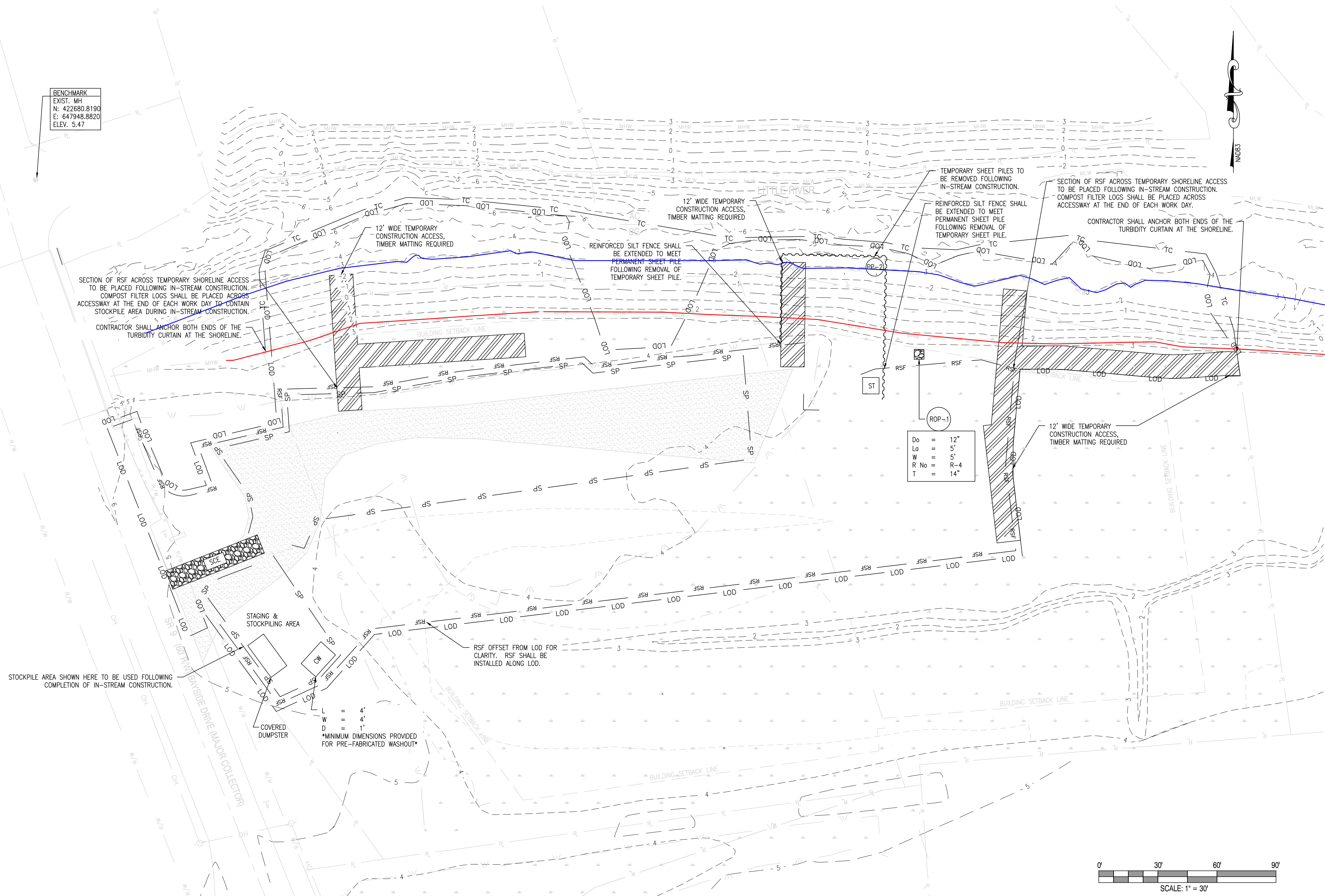
SCALE SHEET NO.

PROJECT NO.

155001.03

SWM400

C:\WORK\DESIGN\55001.03\_SWM401\_Plan\ConstructionSiteSWM401.dwg 2/19/2017 4:45 PM



PROJECT NOTES

- TOTAL LOD AREA = 1.87 ACRES (81,457± S.F.)
- TOTAL WETLAND AREA WITHIN LOD = 0.70 ACRES (30,492± S.F.) - FEDERAL WETLANDS  
= 0.30 ACRES (13,068± S.F.) - STATE WETLANDS
- THE ENTIRE LOD IS LOCATED WITHIN THE 100-YR FLOODPLAIN PER FEMA MAP NO 10001C0187J, DATED JULY 7, 2014.
- EXCAVATION VOLUMES: SPOIL: 2,385 CY / BORROW: 106 CY  
ALL SPOIL MATERIAL TO BE HAULED OFFSITE.
- GEOTEXTILE FOR THE STABILIZED CONSTRUCTION ENTRANCE AND TEMPORARY RIPRAP OUTLET PROTECTION SHALL MEET DNREC TYPE GS-1 SPECIFICATIONS.  
EXAMPLE PRODUCTS INCLUDE: MIRAFI 600X, AMOCO 2006, AND GEOTEX 315ST
- SPRINKLING SHALL BE THE STABILIZATION MEASURE INITIATED IF DUST CONTROL BECOMES A PROBLEM.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND REPAIR ALL EROSION AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION.
- LOCATIONS OF DUMPSTER AND CONCRETE WASHOUT ARE SHOWN ON PLANS. IF THESE LOCATIONS MUST BE MOVED, THE NEW LOCATION SHALL BE APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
- STOCKPILE AREAS SHOWN FOR BIDDING/INFORMATIONAL PURPOSES ONLY. STOCKPILE LOCATIONS MAY BE ADJUSTED AS REQUIRED. CONTRACTOR SHALL COORDINATE ALL STOCKPILE LOCATIONS WITH THE OWNER TO AVOID EXISTING TREES AND OTHER ITEMS TO REMAIN. NO STOCKPILING SHALL OCCUR WITHIN WETLAND AREAS.
- MAXIMUM STOCKPILE HEIGHT SHALL BE 6.0' WITH A MAXIMUM SIDE SLOPE OF 3:1.

LEGEND:

LIMITS OF DISTURBANCE (LOD)	LOD	LOD
REINFORCED SILT FENCE	RSF	RSF
STABILIZED CONSTRUCTION ENTRANCE		
CONCRETE WASHOUT	CW	
SOIL STOCKPILE AREA	SP	SP
TURBIDITY CURTAIN	TC	TC
PORTABLE SEDIMENT TANK	ST	
PUMPING PIT - TYPE 2	PP-2	
RIPRAP OUTLET PROTECTION - TYPE 1 (TEMPORARY)	ROP-1	

BENCHMARK  
EXIST. MH  
N: 422680.8190  
E: 647948.8820  
ELEV. 5.47

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REVISIONS

DESCRIPTION	DATE
-------------	------

DELAWARE DIVISION OF FISH & WILDLIFE

LITTLE CREEK BOAT RAMP

FOR  
DELAWARE DIVISION OF FISH & WILDLIFE

BAYSIDE DRIVE (SR9, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

PROJECT

SHEET TITLE

PRE-CONSTRUCTION SITE  
STORMWATER  
MANGEMENT PLAN

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS

JULY 19, 2017

DRAWN CHK'D/DESIGNER

JSW/MDS

AES

SCALE SHEET NO.

1" = 30'

SWM401

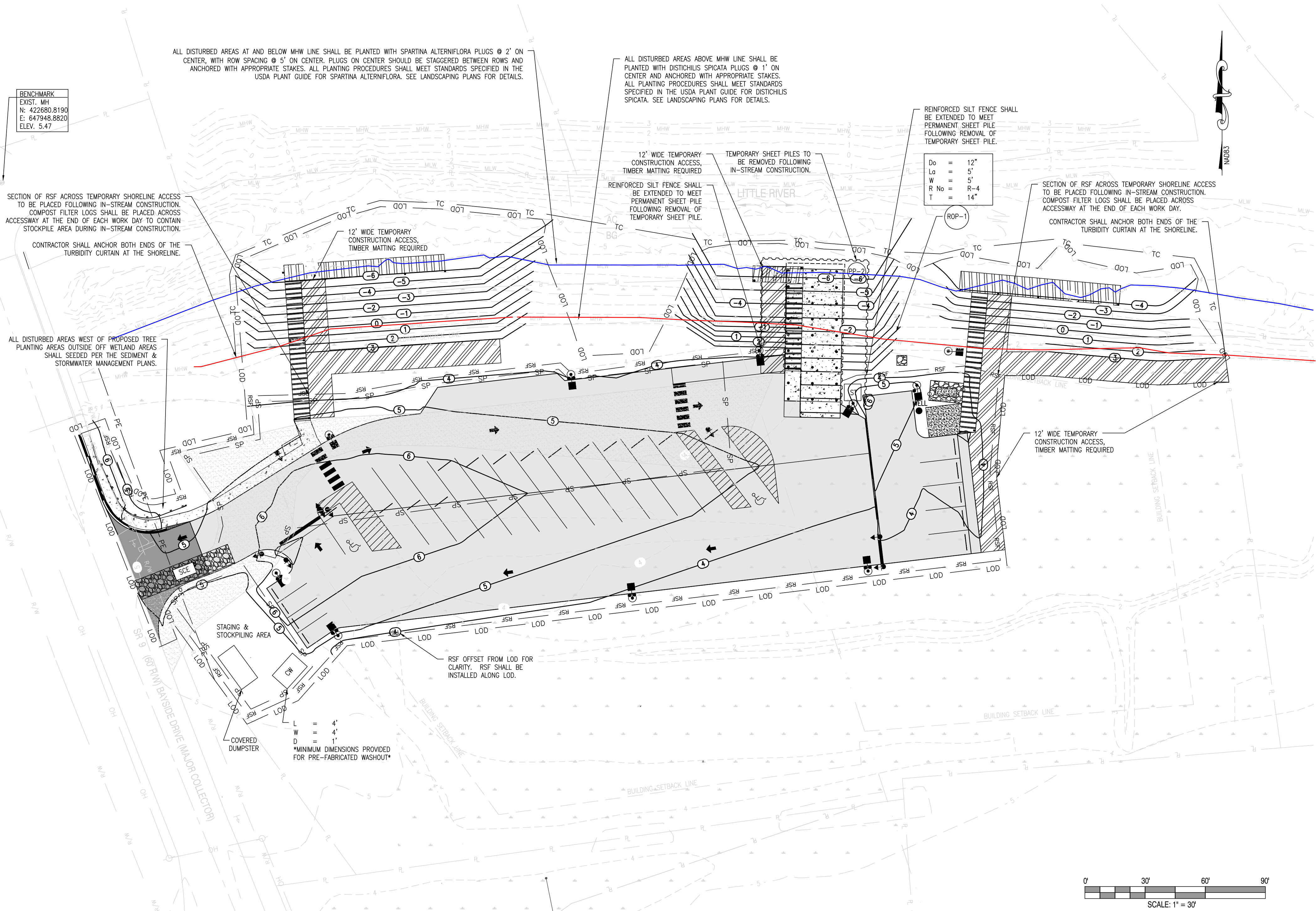
PROJECT NO.

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  - TOTAL WETLAND AREA WITHIN LOD = 0.70 ACRES (30,492± S.F.) - FEDERAL WETLANDS  
= 0.30 ACRES (13,068± S.F.) - STATE WETLANDS
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  - EXCAVATION VOLUMES: SPOIL: 2,385 CY / BORROW: 106 CY  
ALL SPOIL MATERIAL TO BE HAULED OFFSITE.
  - GEOTEXTILE FOR THE STABILIZED CONSTRUCTION ENTRANCE AND TEMPORARY RIPRAP OUTLET PROTECTION SHALL MEET DNREC TYPE GS-1 SPECIFICATIONS.  
EXAMPLE PRODUCTS INCLUDE: MIRAFI 600X, AMOCO 2006, AND GEOTEX 3155T
  - SPRINKLING SHALL BE THE STABILIZATION MEASURE INITIATED IF DUST CONTROL BECOMES A PROBLEM.
  - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND REPAIR ALL EROSION AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION.
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  - MAXIMUM STOCKPILE HEIGHT SHALL BE 6.0' WITH A MAXIMUM SIDE SLOPE OF 3:1.

SEQUENCE OF CONSTRUCTION

- NOTIFY THE DNREC SEDIMENT AND STORMWATER PROGRAM IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
- PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRECONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED WITH THE AGENCY CONSTRUCTION SITE REVIEWER, THE LANDOWNER/DEVELOPER, CONTRACTOR, AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS RECOMMENDED TO ATTEND.
- CLEAR AND GRUB AS REQUIRED TO INSTALL STABILIZED CONSTRUCTION ENTRANCE. INSTALL STABILIZED CONSTRUCTION ENTRANCE. CLEAR AND GRUB AS REQUIRED TO INSTALL REINFORCED SILT FENCE. INSTALL REINFORCED SILT FENCE. COMPOST FILTER LOGS SHALL BE PLACED IN-STREAM OF REINFORCED SILT FENCE AT TIMBER MATTING TEMPORARY ACCESS AREAS DURING IN-STREAM CONSTRUCTION. PLACE TEMPORARY TIMBER MATTING, AND INSTALL TURBIDITY CURTAIN. THE TURBIDITY CURTAIN SHALL BE ANCHORED AT BOTH ENDS ALONG THE SHORELINE. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
- THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
- CLEAR AREAS WITHIN LOD.
- INSTALL COFFERDAM SURROUNDING BOAT RAMP. INSTALL SUMP PIT, PORTABLE SEDIMENT TANK, AND TEMPORARY RIPRAP OUTFALL FOR DEWATERING OPERATION AT THE BOAT RAMP. PERFORM GRADING AT PROPOSED DOCKS AND BOAT RAMPS. INSTALL ALL PILING, INCLUDING PERMANENT SHEET PILES AT THE BOAT RAMP.
- PERFORM ROUGH GRADING.
- INSTALL UNDERGROUND ELECTRIC, WELL, AND WATERLINES.
- PLACE STONE FOUNDATION FOR ALL AREAS TO PAVED.
- PLACE CONCRETE FOR BOAT RAMP, CURBS, SIDEWALKS, FUEL TANK PAD, BUILDING PAD, POLE BASES AND GANGWAY FOOTINGS.
- PLACE DOCKS, GANGWAYS, AND ALL ASSOCIATED COMPONENTS. PLACE PLANTING PLUGS, INCLUDING ANCHORS IN ALL DISTURBED AREAS BETWEEN THE MEAN LOW WATER LINE AND THE MEAN HIGH WATER LINE.
- UPON COMPLETION OF IN-STREAM CONSTRUCTION, REINFORCED SILT FENCE SHALL BE PLACED ACROSS THE TIMBER MATTING TEMPORARY ACCESS AREAS AND THE COMPOST FILTER LOGS SHALL BE REMOVED. REMOVE SUMP PIT & PORTABLE SEDIMENT TANK. REMOVE TEMPORARY SHEET PILES. EXTEND REINFORCED SILT FENCE TO MEET PERMANENT SHEET PILES AT THE BOAT RAMP.
- PAVE ALL AREAS TO BE PAVED INCLUDING ENTRANCE, PARKING AREAS, AND DRIVE AISLES.
- PERFORM FINAL SITE GRADING. SEED AND STABILIZE ALL REMAINING DISTURBED AREAS. WETLAND SEED MIX SHALL BE PLACED FOR ALL AREAS ABOVE MEAN HIGH WATER LINE.
- INSTALL GUARDRAIL, SITE LIGHTING, AND PLACE FUEL TANK.
- EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH WRITTEN APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.
- THE TERMINATION OF THE CONSTRUCTION GENERAL PERMIT WILL REQUIRE SUBMISSION AND ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, AND ALL ELEMENTS OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN IMPLEMENTED.



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REVISIONS

DESCRIPTION	DATE
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DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP

FOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR8, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

PROJECT

SHEET TITLE

CONSTRUCTION SITE  
STORMWATER  
MANGEMENT PLAN

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS  
JULY 19, 2017

DRAWN: JSW/MDS CHK'D/DESIGNER: AES

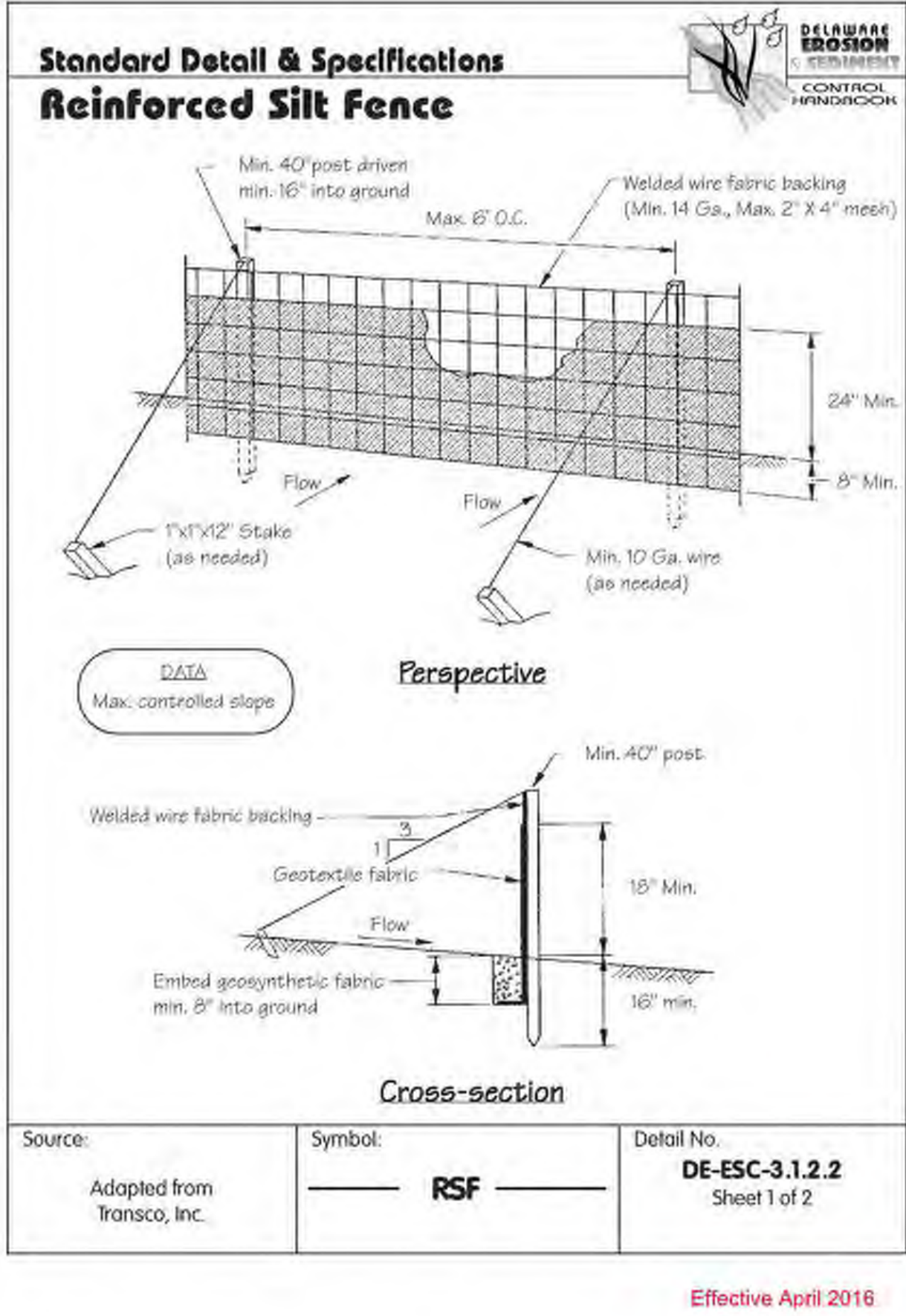
SCALE: 1" = 30' SHEET NO.

PROJECT NO.

155001.03

SWM402

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## Standard Detail & Specifications Vegetative Stabilization



TEMPORARY SEEDING BY RATES, DEPTHS AND DATES									
Mix #	Species <sup>1</sup>	Seeding Rate	Optimum Seeding Dates <sup>1</sup> O = Optimum Seeding Period; A = Acceptable Seeding Period						Planting Depth <sup>1</sup>
				Coastal Plain			Piedmont		All
Certified Seed		lb/Ac <sup>2</sup>	lb/1000 sq.ft.	3-1/4 400	7-1/4 8/14	8-1/4 10/31	9-1/4 11/15	10-1/4 12/31	10-1/4 12/31
1	Barley	125	4	O	A	O	A	O	1-2 inches
2	Oats	125	4	O	A	A	O	A	2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	1-2 inches
4	Perennial Ryegrass	125	4	O	A	O	O	A	2-3" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	1-2 inches
6	Winter Wheat	125	4	O	A	O	O	A	1-2 inches
7	Pearl Millet	20 PLS	0.5						0.5 inches
8	Pearl Millet	20 PLS	0.5						1-2" sandy soils

- Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
- May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
- Applicable on slopes 3:1 or less.
- Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.
- Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
- Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

NOTE: TEMPORARY SEED MIX #3, 5, OR 6 SHALL BE USED FOR ALL TEMPORARY STABILIZATION.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		<b>DE-ESC-3.4.3</b> Sheet 1 of 4

Effective April 2016

## Standard Detail & Specifications Vegetative Stabilization



PERMANENT SEEDING AND SEEDING DATES									
Seeding Mixtures		Seeding Rate <sup>1</sup>	Optimum Seeding Dates <sup>1</sup> O = Optimum Seeding Period; A = Acceptable Seeding Period						Remarks
Mix No.	Certified Seed <sup>1</sup>	lb/Ac	Coastal Plain	Piedmont	All				
1	Well Drained Soils	140	3.2	A	O	A	O	A	15/01-2/1
2	Deepening Sheep Fescue Common Lespedeza <sup>1</sup> Inoculated	30 30 15	0.89 0.89 0.35	A	O	A	A	O	Add 100 lb/Ac Winter Rye Good erosion control mix Tolerant of low fertility soils Good wildlife cover and food
3	Tall Fescue (1-4" deep) Sheep Fescue Perennial Ryegrass	50 50 50	1.15 1.15 1.15	O	A	O	O	A	Add 100 lb/Ac Winter Rye Good erosion control mix Tall Fescue for droughty conditions. Sheeps Fescue for heavy shade. Ryegrass to suppress weedy vegetation.
4	Sheep Fescue Kentucky Bluegrass Perennial Ryegrass or Ryegrass	100 70 15	2.3 1.61 0.35	O	A	O	O	A	Add 100 lb/Ac Winter Rye Use Ryegrass for increased drought tolerance.
5	Swainsona <sup>1</sup> or Coastal Perennial Ryegrass Little Bluestem Indian Grass	10 10 5 5	0.23 0.23 0.11 0.11			O			Native warm-season mixture Tolerant of low fertility soils. Drought tolerant. Pair shade tolerant. No fertilizer discouraged - seeds.
6	Sheep Fescue Kentucky Bluegrass Perennial Ryegrass	150 25 25	3.5 0.45 0.45	O	A	O	O	A	Native mixture Three cultures of Kentucky Bluegrass. Traffic tolerant.
7	Big Bluestem Indian Grass Little Bluestem Sheep Fescue Sheep Fescue Partridge Pea Buck Clover Wild Indigo Sheep Fescue	10 10 5 30 30 5 3 3 2	0.23 0.23 0.11 0.89 0.89 0.11 0.07 0.07 0.05	O	A	O	O	A	All species are native Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill. Sheep Fescue will provide erosion protection while the warm season grasses get established.

NOTE: PERMANENT SEED MIX #5 SHALL BE PLACED FOR ALL PERMANENTLY GRADED AREAS TO BE SEEDDED AS INDICATED ON THE LANDSCAPING PLANS. PLANTINGS SHALL MATCH SPECIES LISTED ON THE LANDSCAPE PLAN IN THE CONSTRUCTION PLAN SET.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		<b>DE-ESC-3.4.3</b> Sheet 2 of 4

Effective April 2016

## Standard Detail & Specifications Vegetative Stabilization



PERMANENT SEEDING AND SEEDING DATES (cont.)									
Seeding Mixtures		Seeding Rate <sup>1</sup>	Optimum Seeding Dates <sup>1</sup> O = Optimum Seeding Period; A = Acceptable Seeding Period						Remarks
Mix No.	Certified Seed <sup>1</sup>	lb/Ac	Coastal Plain	Piedmont	All				
9	Poorly Drained Soils	150	3.5	O	A	O	O	A	10/31-2/1
10	Deepening Sheep Fescue Rough Bluegrass	35 35 35	0.89 0.89 0.89	O	A	O	O	A	Add 100 lb/Ac Winter Rye Quick stabilization of disturbed areas and waterways
11	Residential Lawns	100	2.3	O	A	O	O	A	High value, high maintenance, light traffic, erosion necessary. Well drained soils, full sun.
12	Tall Fescue Perennial Ryegrass Sheep Fescue	100 25 25	2.3 0.45 0.45	O	A	O	O	A	Moderate value, low maintenance, traffic tolerant.
13	Sheep Fescue Rough Bluegrass Kentucky Bluegrass	50 50 20	1.15 1.15 0.4	O	A	O	O	A	Shade tolerant, moderate traffic tolerance, moderate maintenance.
14	Sheep Fescue Rough Bluegrass or Sheep Fescue	50 90	1.15 2.1	O	A	O	O	A	Shade tolerant, moisture tolerant.
15	K-31 Tall Fescue	150	3.5	O	A	O	O	A	Monoculture, but performs well alone in shade. Discouraged.

- When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%.
- Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are averages for Delaware. These dates may require adjustment to reflect local conditions.
- All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The maximum % of weed seeds shall be in accordance with Section 1, Chapter 24, Title 3 of the Delaware Code.
- Cool season species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
- All leguminous seed must be inoculated.
- Warm season grasses may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
- Warm season grasses require a soil temperature of at least 50 degrees in order to germinate, and will remain dormant until then.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		<b>DE-ESC-3.4.3</b> Sheet 3 of 4

Effective April 2016

## Standard Detail & Specifications Vegetative Stabilization



### Construction Notes:

- Site Preparation
  - Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
  - Final grading and shaping is not necessary for temporary seedings.

### Seedbed Preparation

It is important to prepare a good seedbed to insure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.

### Soil Amendments

- Lime - Apply liming materials based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
- Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soil.

### Seeding

- For **temporary stabilization**, select a mixture from **Sheet 1**. For a **permanent stabilization**, select a mixture from **Sheet 2** or **Sheet 3** depending on the conditions.
- Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
- Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.

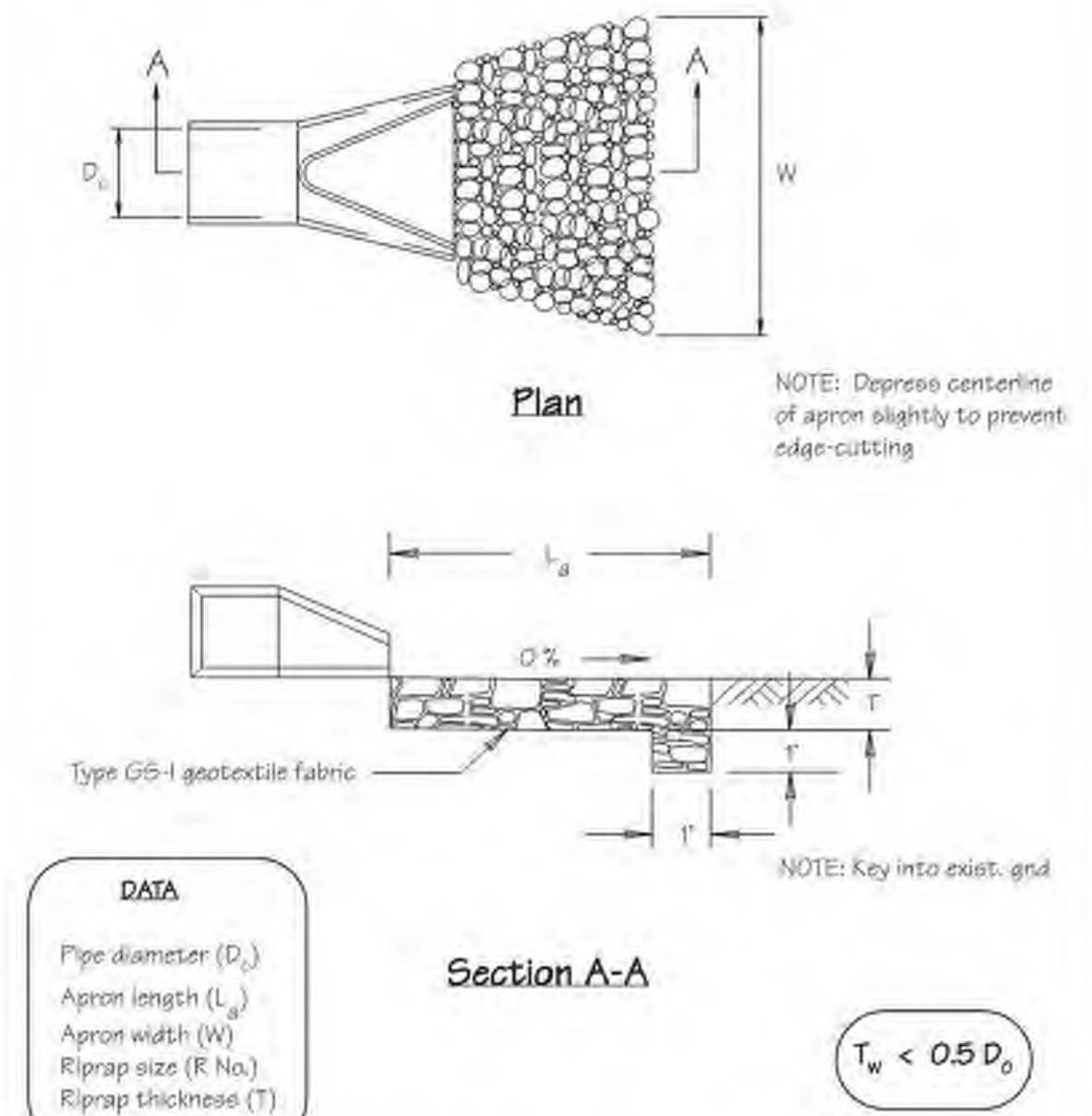
### Mulching

All mulching shall be done in accordance with detail **DE-ESC-3.4.5**

Source:	Symbol:	Detail No.
Delaware ESC Handbook		<b>DE-ESC-3.4.3</b> Sheet 4 of 4

Effective April 2016

## Standard Detail & Specifications Riprap Outlet Protection - 1



Source:	Symbol:	Detail No.
Adapted from MD Sids. & Specs. for ESC	<b>ROP-1</b>	<b>DE-ESC-3.3.10.1</b> Sheet 1 of 2

Effective April 2016

## Standard Detail & Specifications Riprap Outlet Protection - 1



### Construction Notes:

- The subgrade for the riprap shall be prepared to the required lines and grades as shown on the plan. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The riprap shall conform to the grading limits as shown on the plan.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter cloth.
- Stone for the riprap or gabion outlets may be placed by equipment. Riprap shall be placed in a manner to prevent damage to the filter cloth. Hand placement will be required to the extent necessary to prevent damage to the conduits, structures, etc.

Source:	Symbol:	Detail No.
Adapted from MD Sids. & Specs. for ESC	<b>ROP-1</b>	<b>DE-ESC-3.3.10.1</b> Sheet 2 of 2

Effective April 2016

## Standard Detail & Specifications Dust Control



### Temporary Methods:

- Mulches - See **DE-ESC-3.4.5**, Standard Detail and Specifications for Mulching.
- Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
- Adhesives - Use on mineral soils only (not effective on muck soils). Keep traffic off these areas. The following table may be used for general guidance.

Type of Emulsion	Water Dilution	Type of Nozzle	Apply Gal/Ac.
Latex emulsion	12.5:1	Fine spray	235
Resin-in-water emulsion	4:1	Fine spray	300
Acrylic emulsion (non-traffic)	7:1	Coarse spray	450
Acrylic emulsion (traffic)	3.5:1	Coarse spray	350

- Tillage - For emergency temporary treatment, scarify the soil surface to prevent or reduce the amount of blowing dust until a more appropriate solution can be implemented. Begin the tillage operation on the windward side of the site using a chisel-type plow for best results.
- Sprinkling - Sprinkle site with water until the surface is moist. Repeat as needed.
- Calcium Chloride - Apply as flakes or granular material with a spreader at a rate that will keep the soil surface moist. Re-apply as necessary.
- Barriers - Place barriers such as solid board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height.

### Permanent Methods:

- Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
- Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook		<b>DE-ESC-3.4.8</b> Sheet 1 of 1

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### REVISIONS

DESCRIPTION	DATE
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DELaware DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELaware DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR8, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELaware

PROJECT

SHEET TITLE

CONSTRUCTION SITE  
DETAILS

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS

JULY 19, 2017

DRAWN CHK'D/DISIGNER

JSW/MDS AES

SCALE SHEET NO.

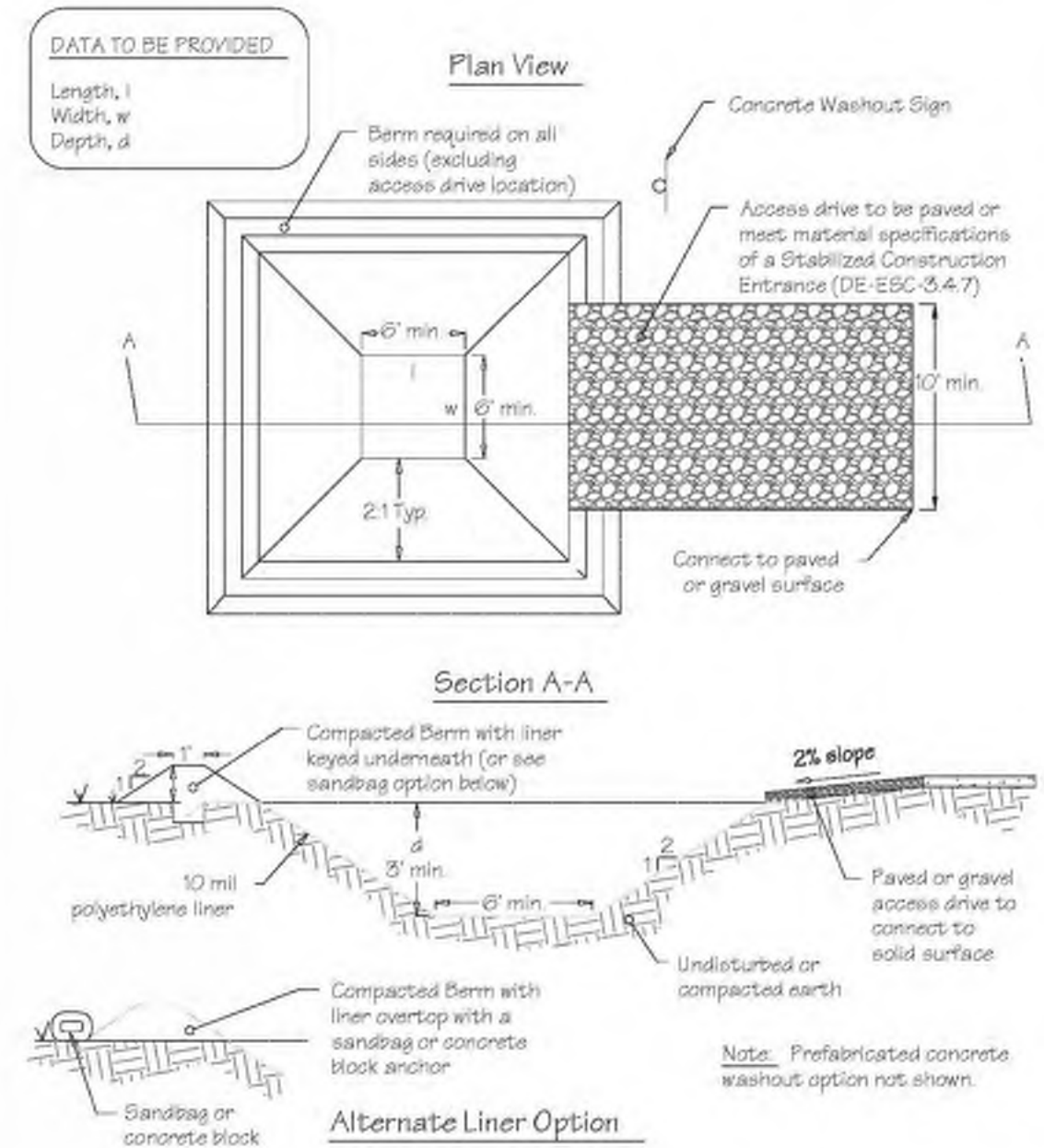
NOT TO SCALE

PROJECT NO.

155001.03

SWM405

### Standard Detail & Specifications Concrete Washout



Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	Symbol: <b>CW</b>	Detail No. <b>DE-ESC-3.6.2</b> Sheet 1 of 2
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Effective April 2016

### Standard Detail & Specifications Concrete Washout

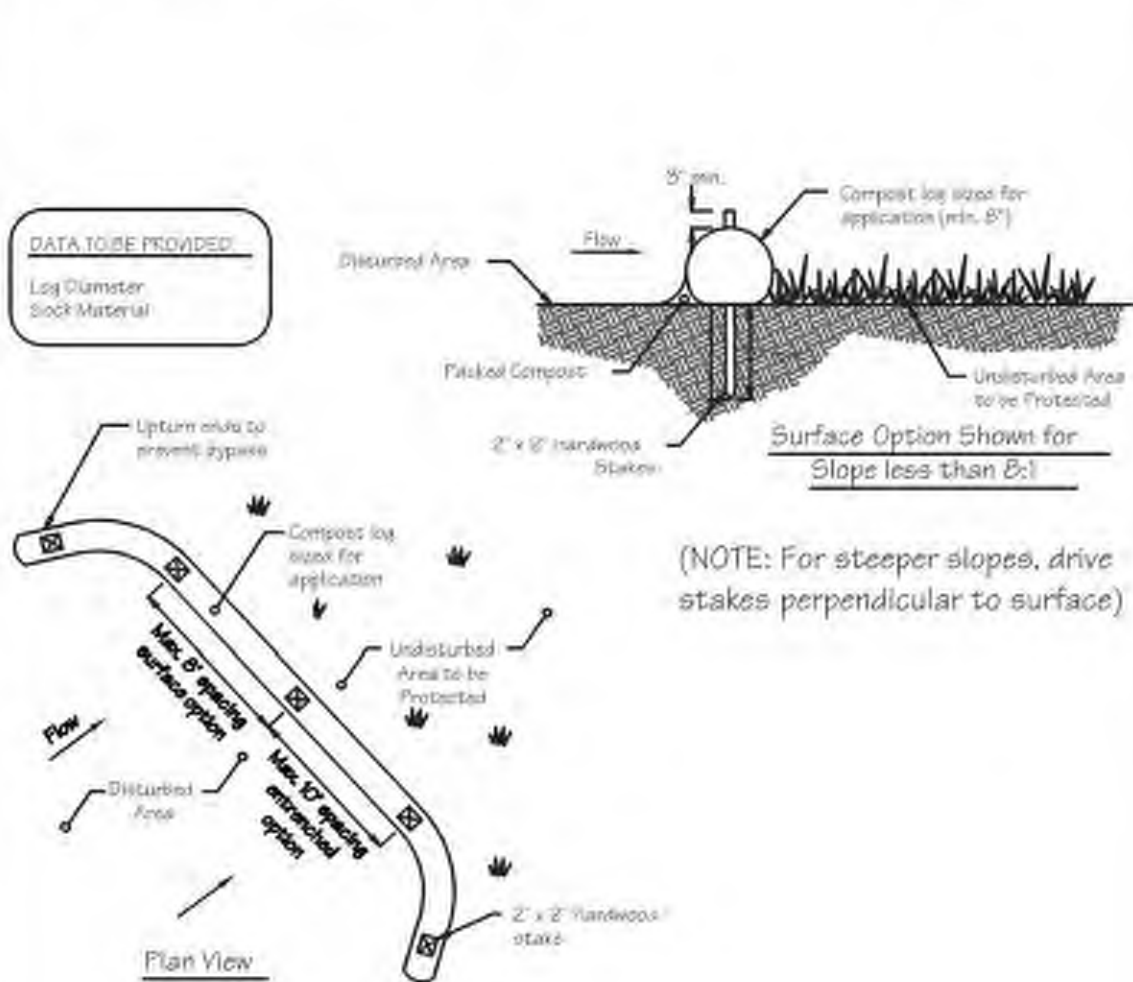
#### Construction Notes:

1. Locate washout area a minimum of 50 feet from open channels, stormdrain inlets, wetlands or waterbodies.
2. Locate washout area so that it is accessible to concrete equipment (serve with a minimum 10 foot wide gravel accessway), but so it is not in a highly active construction area causing accidental damage.
3. Minimum dimensions for prefabricated units are 4 feet by 4 feet by 1 foot deep with a minimum 4mil polyethylene plastic liner. Minimum dimensions for constructed concrete washout areas are 6 feet by 6 feet by 3 feet deep, with a minimum 10mil polyethylene liner, 2:1 side slopes, and a 1 foot high by 1 foot wide compacted fill berm.
4. The liner must be free of tears or holes and placed over smooth surfaces to prevent puncturing. For excavated washouts, anchor the liner underneath the berm or overlap with sandbags or concrete blocks to hold in place.
5. Provide a sign designating the washout area, and for large construction sites, provide signs throughout directing traffic to its location.
6. Allow washed out concrete mixture to harden through evaporation of the wastewater. Once the facility has reached 75 percent of its capacity, remove the hardened concrete by reusing the broken aggregate onsite, recycling, or disposing of offsite. The hardened material can be buried on site with minimum of 1 foot of clean, compacted fill.
7. Apply a new liner before reusing the station for additional washouts after maintenance has occurred.

Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	Symbol: <b>CW</b>	Detail No. <b>DE-ESC-3.6.2</b> Sheet 2 of 2
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Effective April 2016

### Standard Detail & Specifications Compost Filter Log



Source: Adapted from MD Sds & Specs for ESC & Filtrex™ International	Symbol: <b>CFL</b>	Detail No. <b>DE-ESC-3.1.7</b> Sheet 1 of 2
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Effective April 2016

### Standard Detail & Specifications Compost Filter Log

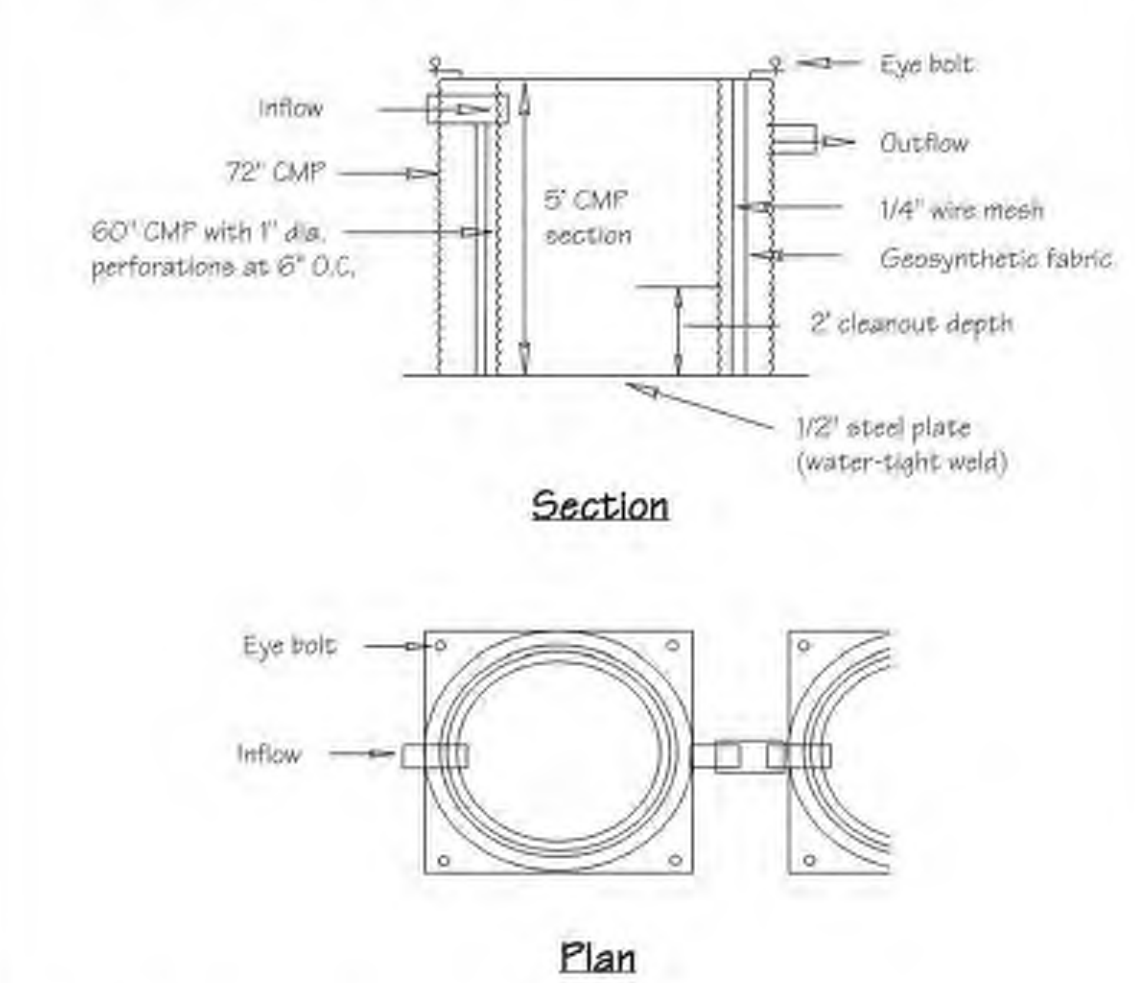
#### Construction Notes:

1. Prior to installation, clear bedding area of obstructions including rocks or debris larger than 1 inch and fill in any sharp depression areas.
2. Fill the sock fabric using a pneumatic blower so that the logs are rigid and do not deform. Terminate at the desired length.
3. For trenched applications, excavate 2 to 4 inches below grade along the width and length of the compost filter log.
4. Install the compost filter logs perpendicular to the flow direction and parallel to the slope with the beginning and end of the installation pointing up the slope a minimum of 1 foot elevation difference. On sites where this is not possible, upturn at a minimum length of 10' at a 30 degree angle to prevent runoff bypass.
5. For untrenched applications, blow or hand pack soil, mulch, or compost on the upslope side of the log, filling the bottom void area.
6. Stake the filled log every 10 feet maximum through the center of the sock for trenched applications, or every 8 feet for untrenched. The stake shall be a 2" by 2" hardwood. It should extend 12" below grade and protrude at least 3" above the top of the sock. If located on a slope greater than 8:1, the stake shall be angled downslope at a 45 degree angle to prevent the force of the water from dislodging to log.
7. When the length of the compost filter log needed exceeds the available compost filter sock length, the next sock shall be overlapped a minimum of 12" before being filled, and a stake placed through both socks at the overlap.
8. Remove accumulated sediment when it has reached half of the effective height of the log.
9. Inspect weekly and after rain event. If sock is degrading or the sock is failing, vegetate to secure the compost, replace the log, or reinforce with an additional log. If the log has been crushed due to construction equipment, it can be "luffed" back to its effective height. If the effective height can no longer be restored, the log shall be replaced or reinforced with an additional compost filter log.

Source: Adapted from MD Sds & Specs for ESC & Filtrex™ International	Symbol: <b>CFL</b>	Detail No. <b>DE-ESC-3.1.7</b> Sheet 2 of 2
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### Standard Detail & Specifications Portable Sediment Tank



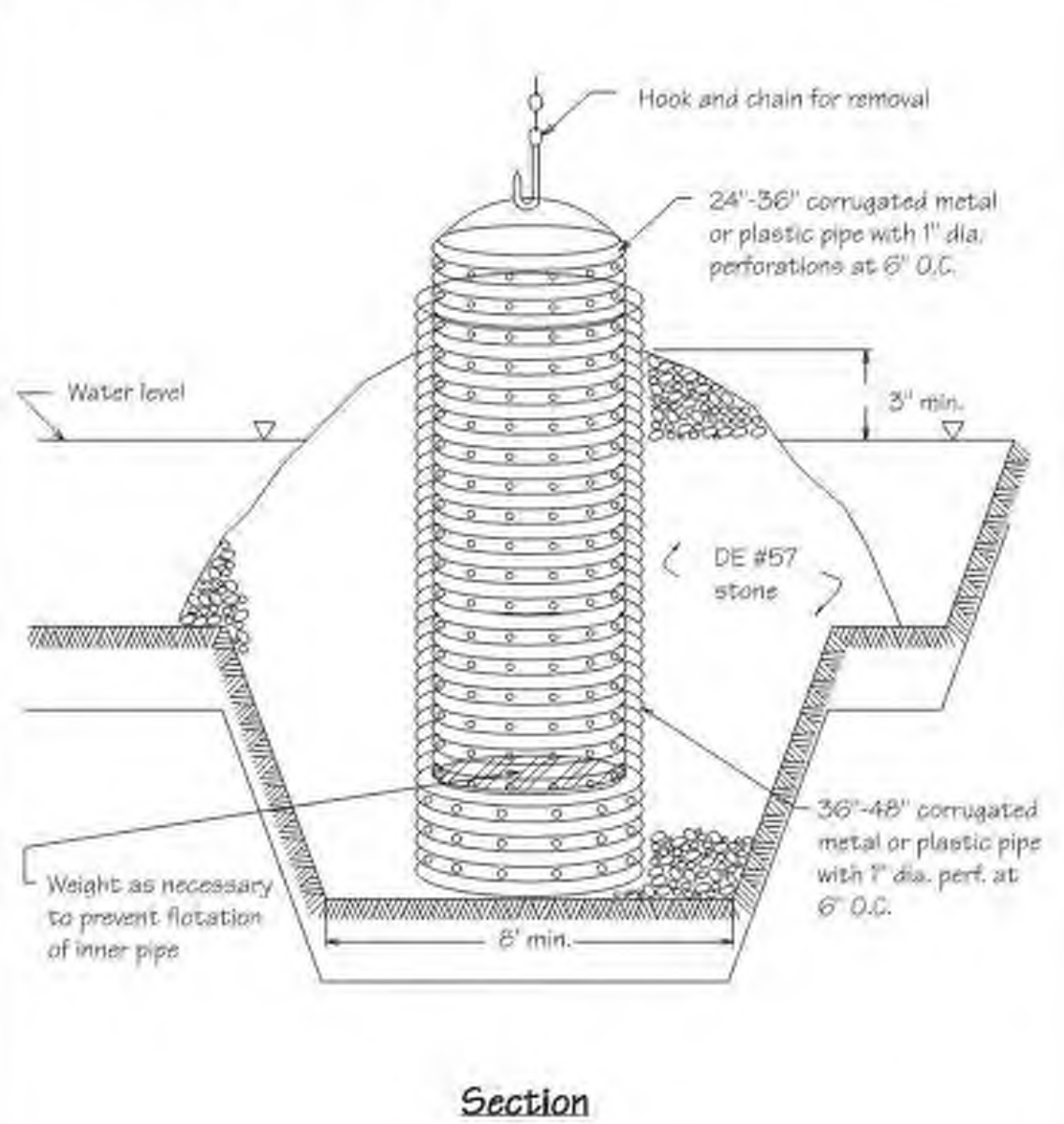
#### Construction Notes:

1. Required storage volume = 1 c.f. storage/1 gpm pump discharge.
2. Tanks may be connected in series to provide required storage.

Source: Adapted from MD Sds. & Specs. for ESC	Symbol: <b>ST</b>	Detail No. <b>DE-ESC-3.2.1.1</b> Sheet 1 of 1
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Effective April 2016

### Standard Detail & Specifications Pumping Pit - Type 2



Source: Adapted from MD Sds. & Specs. for ESC	Symbol: <b>PP-2</b>	Detail No. <b>DE-ESC-3.2.2.2</b> Sheet 1 of 2
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Effective April 2016

### Standard Detail & Specifications Pumping Pit - Type 2

#### Construction Notes:

1. Pit shall have a minimum bottom width of 8'.
2. The inside standpipe should be constructed by perforating a 24" to 36" diameter corrugated or PVC pipe. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center.
3. The outside pipe shall be at least 12" larger in diameter than the inside pipe.
4. After installing the standpipes, the pit surrounding the standpipes should then be backfilled with DE #57 aggregate. The height of the stone shall be a min. 3' above the design high water elevation in the trap or basin.
5. The standpipes should extend 12" to 18" above the design high water elevation in the trap or basin.

NOTE: If discharge will be pumped directly to a storm drainage system, the standpipe must be wrapped with Type GD-II geotextile fabric before installation. If desired, 1/2" hardware cloth may be placed around the standpipe, prior to attaching the geotextile fabric. This will increase the rate of water seepage into the pipe.

Source: Adapted from MD Sds. & Specs. for ESC	Symbol: <b>PP-2</b>	Detail No. <b>DE-ESC-3.2.2.2</b> Sheet 2 of 2
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#### REVISIONS

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DELaware DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP

FOR  
DELaware DIVISION OF FISH & WILDLIFE

BAYSIDE DRIVE (SR8, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

#### CONSTRUCTION SITE DETAILS

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS  
JULY 19, 2017

DRAWN: JWSW/MDS CHK'D/DESIGNER: AES

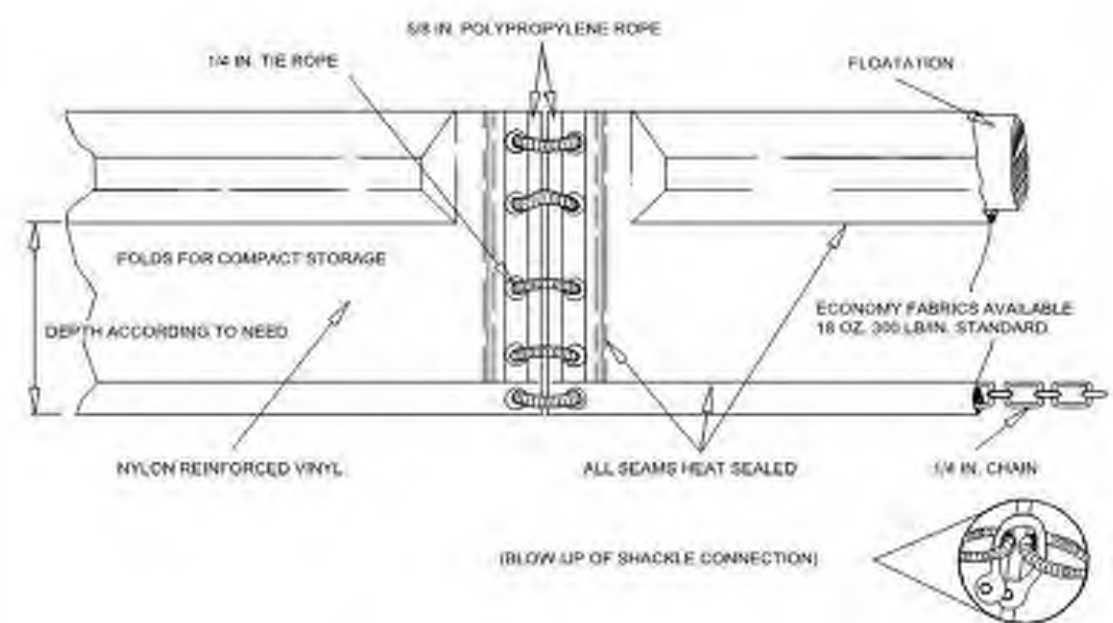
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PROJECT NO. SWM406

155001.03

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## Standard Detail & Specifications Turbidity Curtain



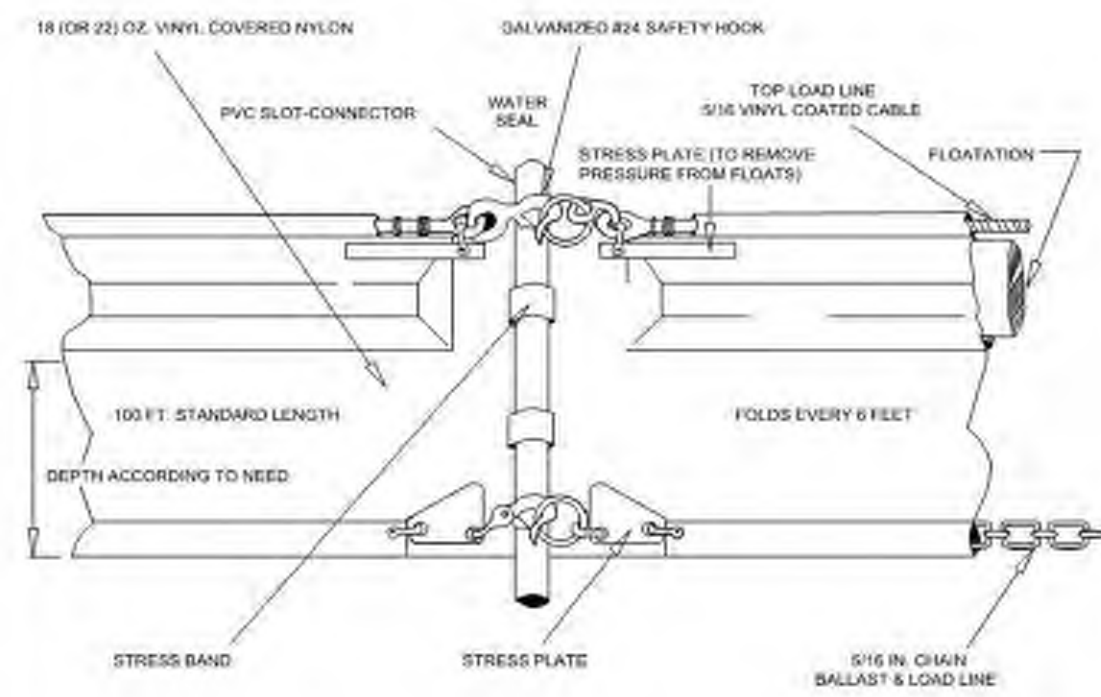
Typical Section - Type 1

DATA  
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Layout (Std. or Alt.)

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 1 of 8

Effective April 2016

## Standard Detail & Specifications Turbidity Curtain



Typical Section - Type 2

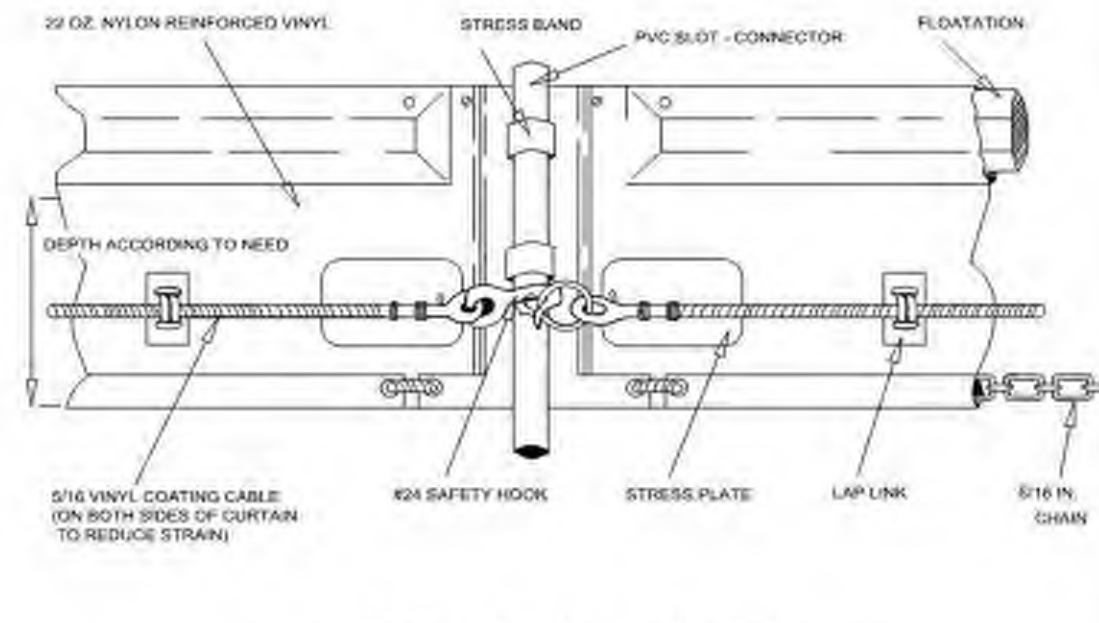
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Layout (Std. or Alt.)

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 2 of 8

Effective April 2016

NOTE: TYPE 3 TURBIDITY CURTAIN SHALL BE PLACED ALONG THE SHORELINE OF THE LITTLE RIVER AS SHOWN ON THE CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN.

## Standard Detail & Specifications Turbidity Curtain



Typical Section - Type 3

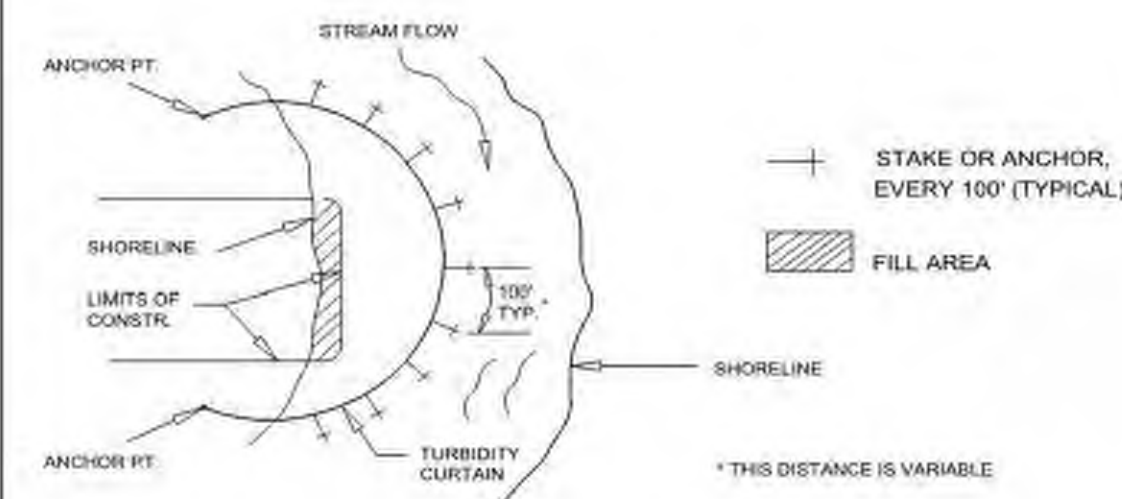
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Layout (Std. or Alt.)

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 3 of 8

Effective April 2016

## Standard Detail & Specifications Turbidity Curtain

NOTE: The standard layout shown is intended for use in streams, ponds and other non-tidal waters.



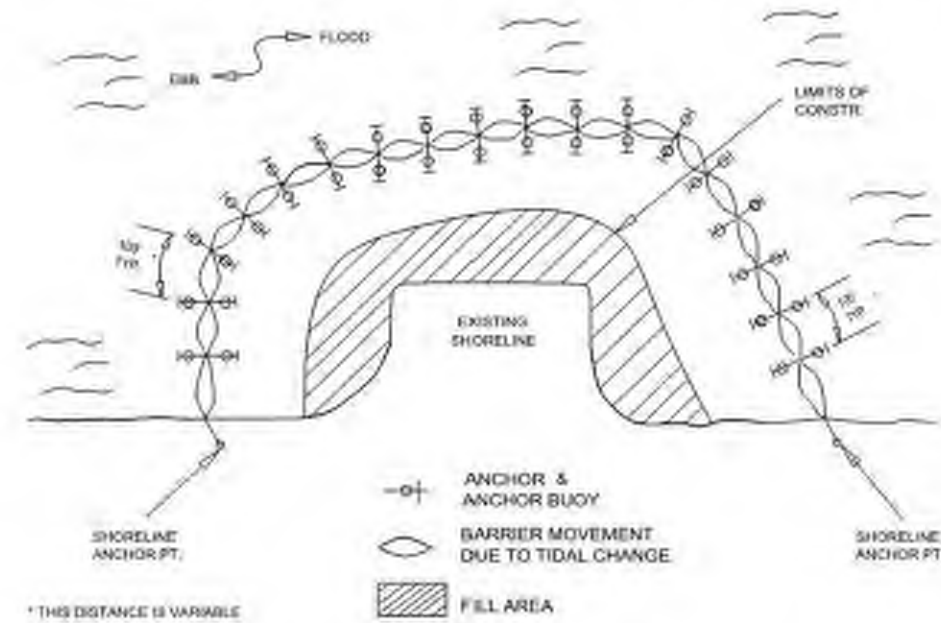
Plan - Std. Layout

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 4 of 8

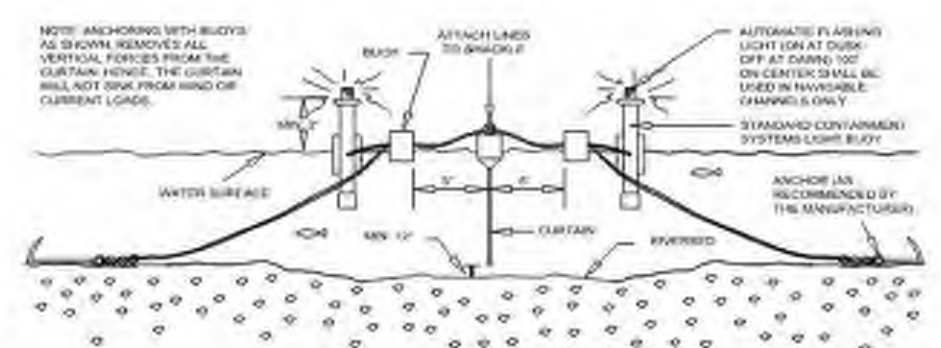
Effective April 2016

## Standard Detail & Specifications Turbidity Curtain

NOTE: The alternative layout shown is intended for tidal waters and/or heavy wind and wave action.



Plan - Alt. Layout



Additional Requirements for Navigable Waters

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 5 of 8

Effective April 2016

## Standard Detail & Specifications Turbidity Curtain

### Construction Notes:

- Materials**
  - Barriers should be a bright color (yellow or "international" orange are recommended) that will attract the attention of nearby boaters.
  - The curtain fabric shall meet manufacturer's recommendations for the application.
  - Seams in the fabric shall be either vulcanized welded or sewn and shall develop the full strength of the fabric.
  - Floatation devices shall be flexible, buoyant units contained in an individual floatation sleeve or collar attached to the curtain. Buoyancy provided by the floatation units shall be sufficient to support the weight of the curtain and maintain a freeboard of at least 3 inches above the water surface level.
  - Load lines must be fabricated into the bottom of all floating turbidity curtains. Type II and Type III must have load lines also fabricated into the top of the fabric. The top load line shall consist of woven webbing or vinyl-sheathed steel cable and shall have a break strength in excess of 10,000 pounds. The supplemental (bottom) load line shall consist of a chain incorporated into the bottom hem of the curtain of sufficient weight to serve as ballast to hold the curtain in a vertical position. Additional anchorage shall be provided as necessary. The load lines shall have suitable connecting devices which develop the full breaking strength for connection to load lines in adjacent sections as shown in the detail.
  - External anchors may consist of wooden or metal stakes (2- x 4-inch or 2-1/2-inch minimum diameter wood or 1.33 lbs/linear foot steel) when Type I installation is used; when Type II or Type III installations are used, bottom anchors should be used.
  - Bottom anchors must be sufficient to hold the curtain in the same position relative to the bottom of the watercourse without interfering with the action of the curtain. The anchor may dig into the bottom (grappling hook, plow or fluke-type) or may be weighted (mushroom type) and should be attached to a floating anchor buoy via an anchor line. The anchor line should then run from the buoy to the load line of the curtain. When used with Type III installations, these lines must contain enough slack to allow the buoy and curtain to float freely with tidal changes without pulling the buoy or curtain down and must be checked regularly to make sure they do not become entangled with debris. As previously noted, anchor spacing will vary with current velocity and potential wind and wave action; manufacturer's recommendations should be followed. See detail for orientation of external anchors and anchor buoys for tidal installations.

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 6 of 8

Effective April 2016

## Standard Detail & Specifications Turbidity Curtain

### Construction Notes (cont.)

- Installation**
  - In the calm water of lakes or ponds (Type I installation) it is usually sufficient to set the curtain end stakes or anchor points using anchor buoys if bottom anchors are employed; then tow the curtain in the furled condition out and attach it to the stakes or anchor points. Following this, any additional stakes or buoyed anchors required to maintain the desired location of the curtain may be set and these anchor points made fast to the curtain. Only then shall the furling lines be cut to allow the curtain skirt to drop.
  - In rivers or in other moving waters (Type II and Type III installations) it is important to set all curtain anchor points. Care must be taken to ensure that anchor points are of sufficient holding power to retain the curtain under the existing current conditions, prior to putting the furled curtain into the water. Anchor buoys should be employed on all anchors to prevent the current from submerging the floatation at the anchor points. If the curtain is being installed into tidal areas which would be subject to currents in both directions, anchors should be provided on both sides of the curtain. This will minimize curtain movement and prevent the curtain from overrunning the anchors during tide reversals. After the anchors have been secured, the furled curtain should be secured to the upstream anchor point and then sequentially attached to each next downstream anchor point until the entire curtain is in position. Before unfurling, the "lay" of the curtain should be assessed and any necessary adjustments made to the anchors. Once the location has been deemed adequate, the furling lines may be cut to allow the skirt to drop.
  - Anchor lines should be attached to the floatation device, not to the bottom of the curtain. The anchoring line attached to the floatation device on the downstream side will provide support for the curtain. Attaching the anchors to the bottom of the curtain could cause premature failure of the curtain due to the stresses imparted on the middle section of the curtain.
  - Turbidity curtain shall not be installed across channel flows unless there is a danger of causing sediment deposition to occur in the middle of a watercourse, thereby blocking access or creating a sand bar. In such situations, the curtain may be installed so as to form a long-sided, sharp "V" to deflect clean water around a work site, confining most of the silt-laden water to the work area inside the "V" and directing it to the shoreline. In no case shall the curtain be installed perpendicular to the channel flow.

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 7 of 8

Effective April 2016

## Standard Detail & Specifications Turbidity Curtain

### Construction Notes (cont.)

- Maintenance**
  - The individual(s) identified on the plan as responsible for maintenance of the curtain shall do so for the duration of the project in order to ensure the continuous protection of the watercourse.
  - Should repairs to the geotextile fabric become necessary, repair kits are generally available from the manufacturer. The manufacturer's instructions must be followed to ensure the adequacy of the repair.
  - When the curtain is no longer required as determined by the inspector, the curtain and related components shall be removed in such a manner as to minimize turbidity. Remaining sediment shall be sufficiently settled before removing the curtain. Sediment may be removed and the original depth (or plan elevation) restored. Any spoils must be taken to an approved upland disposal area and stabilized in accordance with the approved plan.
- Removal**
  - Care shall be taken to protect the skirt from damage as the turbidity curtain is dragged from the watercourse.
  - The site selected to bring the curtain ashore should be free of sharp rocks, broken cement, debris, etc. so as to minimize damage when hauling the curtain over the area.
  - If the curtain has a deep skirt, it can be further protected by running a small boat along its length with a crew installing furling lines before attempting to remove the curtain from the water.

Source: Adapt. from Amer. Boom and Barrier Corp.  
Symbol: **TC-(1/2/3)**  
(Std/Alt)  
Detail No. **DE-ESC-3.5.3**  
Sheet 8 of 8

Effective April 2016

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REVISIONS	
DESCRIPTION	DATE

PROJECT  
DELaware DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELaware DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR8, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

SHEET TITLE  
CONSTRUCTION SITE  
DETAILS

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS  
JULY 19, 2017

DRAWN CHK'D/DISIGNER  
JSW/MDS AES

SCALE SHEET NO.

NOT TO SCALE

PROJECT NO. SWM407  
155001.03

Sub-Area No.	POA	BMP ID	Contributing Area				Post-Development Cover within LOD (Acres)		Contributing Area RCN	
			HSG (Acres)				Total Area (Acres)	Impervious Area		Total LOD
			HSG A	HSG B	HSG C	HSG D				
1	1	-	-	-	-	1.87	1.87	0.91	1.87	85
TOTAL:			-	-	-	1.87	1.87	0.91	1.87	-

POI: Little Creek Boat Ramp - RPv Offset @ Bowers Parking Area									
Ref. #	Sub-Area ID <sup>(2)</sup>	Contributing Area (ac)	RPv Runoff Reduction Shortfall(+) or Credit(-)	Adjusted RPv CN after all reductions <sup>(4)</sup>	Cv RCN for H&H Modeling <sup>(4)</sup>	Fv RCN for H&H Modeling <sup>(4)</sup>	TN Pollutant Load (lb/yr)	TP Pollutant Load (lb/yr)	TSS Pollutant Load (lb/yr)
1	POA 1	1.67	2727	88.76	88.76	88.76	22.34	3.02	670.13
2	POA 2	0.84	-2735	74.00	74.00	74.00	5.31	0.72	159.28
<b>Totals to Common POI</b>		<b>2.71 ac</b>	<b>-9 cu. ft.</b>	<b>84.18</b>	<b>84.18</b>	<b>84.18</b>	<b>27.65 lb/yr</b>	<b>3.73 lb/yr</b>	<b>829.41 lb/yr</b>
<b>RPv Runoff Reduction Goal Met?</b>			<b>YES</b>						
<b>If Not, Total Offset Volume Required</b>			<b>N/A</b>						


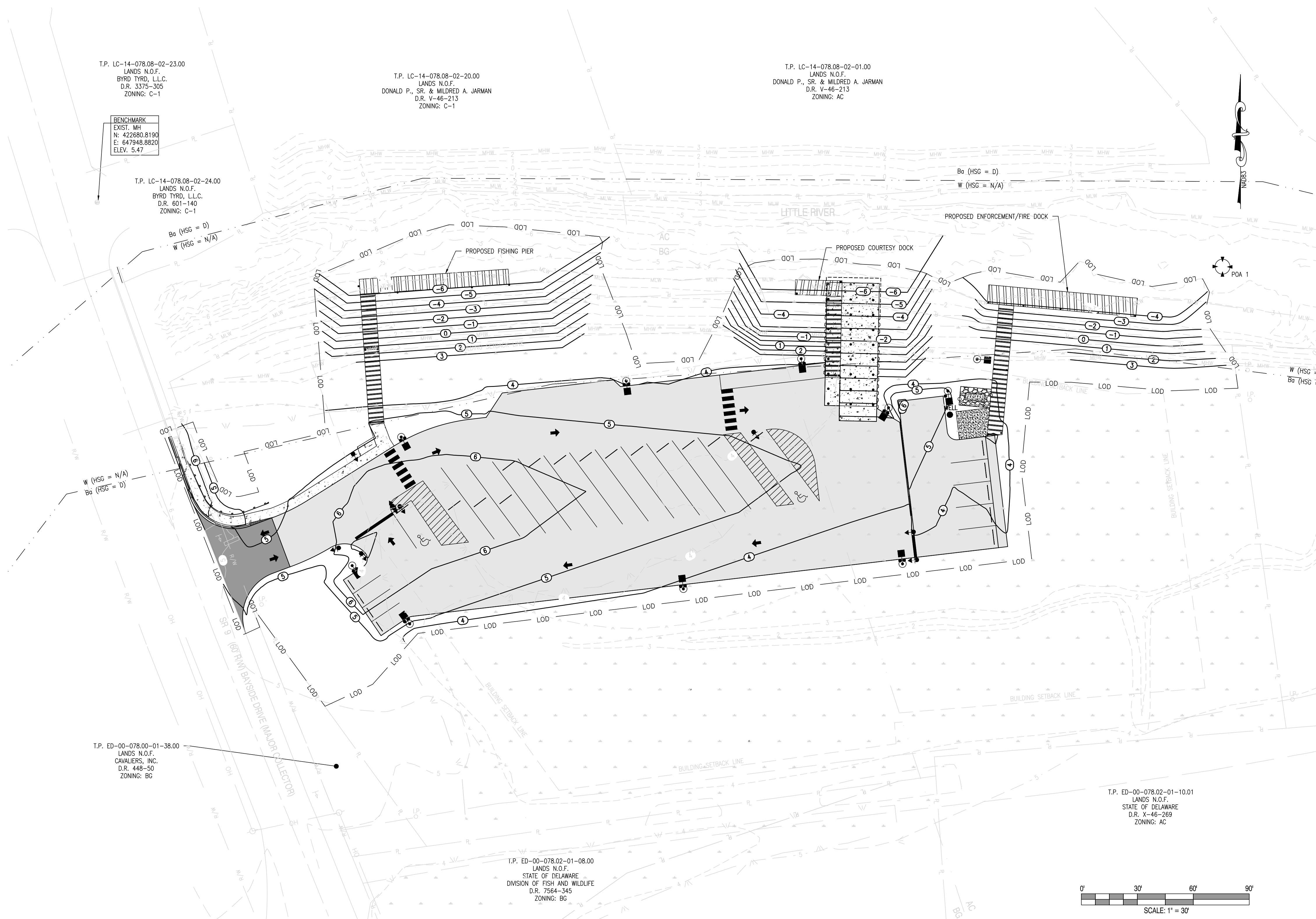
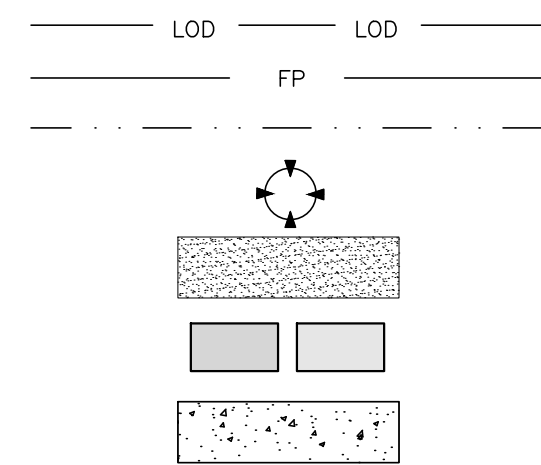
1. As long as the site lies within the same watershed, all sub-areas within the site can be tallied to reflect global site conditions; or, the summary table can be used to show conditions to a specific POI.

2. Only the most downstream sub-area information should be entered for a series of sub-areas that drain directly into each other, as the upstream areas will already be accounted for in the DURMM computations.

3. A RPv runoff reduction shortfall should be entered as a positive number, as it is the runoff volume still needed to be reduced. A RPv credit should be entered as a negative number, as it indicates the additional volume that was reduced past the requirement.

4. To portray an accurate total weighted CN value for the RPv, Cv and Fv events, an entry must be made for every defined sub-area. If a sub-area's contributing drainage acreage is entered, but not its corresponding CN value, then the total weighted CN should be entered.

6. Rpv COMPLIANCE IS PURSUED THROUGH A PROJECT-WIDE OFFSET AND THUS NO DRAINAGE AREAS ARE DELINEATED. ALL AREAS WITHIN THE PROPOSED LIMITS OF DISTURBANCE CONTRIBUTE TO POA 1 (LITTLE RIVER).



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REVISIONS	
△ DESCRIPTION	DATE

DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELAWARE DIVISION OF FISH & WILDLIFE

SHEET TITLE

**BMP CONTRIBUTING  
DRAINAGE AREA PLAN**

## SEDIMENT AND STORMWATER MANAGEMENT PLANS

DRAWN	CHK'D/DESIGNER
JSW/MDS	AES
SCALE	SHEET NO.

SWM408

PRE-DEVELOPMENT SUBAREA DATA TABLE:

Sub-Area No.	POA	BMP ID	Contributing Area					Pre-Development Cover within LOD (Acres)		Contributing Area RCN
			HSG (Acres)				Total Area (Acres)	Impervious Area	Total LOD	
			HSG A	HSG B	HSG C	HSG D				
2	2	-	-	-	0.84	-	0.84	0.84	0.84	98
TOTAL:			-	-	0.84	-	0.84	0.84	0.84	-

PRE-DEVELOPMENT AERIAL:



POST-DEVELOPMENT SUBAREA DATA TABLE:

Sub-Area No.	POA	BMP ID	Contributing Area				Post-Development Cover within LOD (Acres)		Contributing Area RCN
			HSG (Acres)				Impervious Area	Total LOD	
			HSG A	HSG B	HSG C	HSG D			
2	2	-	-	-	0.84	-	-	0.84	74
TOTAL:			-	-	0.84	-	-	0.84	-

POST-DEVELOPMENT AERIAL RENDERING:



RPv COMPLIANCE SUMMARY:

Summary Table for Sub-Areas Draining to a Common Point of Interest (POI) <sup>(1)</sup>								
POI: Little Creek Boat Ramp - RPv Offset @ Bowers Parking Area								
Ref. #	Sub-Area ID <sup>(2)</sup>	Contributing Area (ac)	RPv Runoff Reduction Shortfall(+) or Credit(-)	Adjusted RPv CN after all reductions <sup>(4)</sup>	Cv RCN for H&H Modeling <sup>(4)</sup>	Fv RCN for H&H Modeling <sup>(4)</sup>	TN Pollutant Load (lb/yr)	TSS Pollutant Load (lb/yr)
1	POA 1	1.87	2727	88.76	88.76	88.76	22.34	670.13
2	POA 2	0.84	-2735	74.00	74.00	74.00	5.31	159.28
Totals to Common POI		2.71 ac	-9 cu.ft.	84.18	84.18	84.18	27.65 lb/yr	829.41 lb/yr
RPv Runoff Reduction Goal Met?			YES					
If Not, Total Offset Volume Required			N/A					

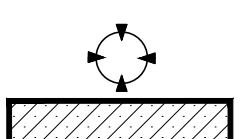

1. As long as the site lies within the same watershed, all sub-areas within the site can be tallied to reflect global site conditions; or, the summary table can be used to show conditions to a specific POI.  
2. Only the most downstream sub-area information should be entered for a series of sub-areas that drain directly into each other, as the upstream areas will already be accounted for in the DURMM computations.  
3. A RPv runoff reduction shortfall should be entered as a positive number, as it is the runoff volume still needed to be reduced. A RPv credit should be entered as a negative number, as it indicates the additional volume that was reduced past the requirement.  
4. To portray an accurate total weighted CN value for the RPv, Cv and Fv events, an entry must be made for every defined sub-area. If a sub-area's contributing drainage acreage is entered, but not its corresponding CN value, then the total weighted CN will be skewed.

NOTE: POA 1 REPRESENTS ALL AREAS ASSOCIATED WITH THE LITTLE CREEK BOAT RAMP CONSTRUCTION. POA 2 REPRESENTS ALL AREAS ASSOCIATED WITH THE OFF-SITE IMPERVIOUS REMOVAL AT THE BOWERS BEACH PARKING REMOVAL PROJECT ON THIS SHEET. THE RPv CREDIT GENERATED BY THE IMPERVIOUS AREA REMOVED AT BOWERS WILL BE APPLIED TO OFFSET THE RPv SHORTFALL GENERATED AT THE LITTLE CREEK SITE. BOTH POA'S ULTIMATELY DRAIN TO THE DELAWARE BAY.

GENERAL NOTES:

- PER FEMA MAP 10001C0267J (DATED JULY 7, 2014), THE ENTIRE SITE IS WITHIN FLOOD HAZARD ZONE AE (B.F.E. = ELEV. 10.00).
- ALL SOILS ON SITE ARE MAPPED AS SUNKEN MUCKY SILT LOAM, 0-2% SLOPES, OCCASIONALLY FLOODED, TIDAL (SuA).
- COMPLETE CONSTRUCTION PLANS ARE IN DEVELOPMENT FOR THE REDEVELOPMENT OF THE BOWERS PARKING AREA AND WILL BE SUBMITTED TO THE DNREC SEDIMENT & STORMWATER MANAGEMENT PROGRAM UPON COMPLETION.
- POST-DEVELOPMENT PARKING REMOVAL RENDERING DEVELOPED BY BECKER MORGAN GROUP, INC. AND PROVIDED TO CENTURY ENGINEERING, INC. BY THE DELAWARE DIVISION OF FISH & WILDLIFE.

LEGEND:

- LIMITS OF DISTURBANCE (LOD) \_\_\_\_\_ LOD \_\_\_\_\_ LOD \_\_\_\_\_
- 100-YEAR FLOODPLAIN \_\_\_\_\_ FP \_\_\_\_\_
- SOIL GROUP BOUNDARY - - - - -
- POINT OF ANALYSIS 
- PAVEMENT REMOVAL AREA 

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REVISIONS

DESCRIPTION	DATE
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DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP  
FOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR9, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

PROJECT

SHEET TITLE

BMP CONTRIBUTING  
DRAINAGE AREA  
PLAN-BOWERS

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS

JULY 19, 2017

DRAWN CHK'D/DISIGNER

JSW/MDS AES

SCALE SHEET NO.

1" = 30'

SWM409

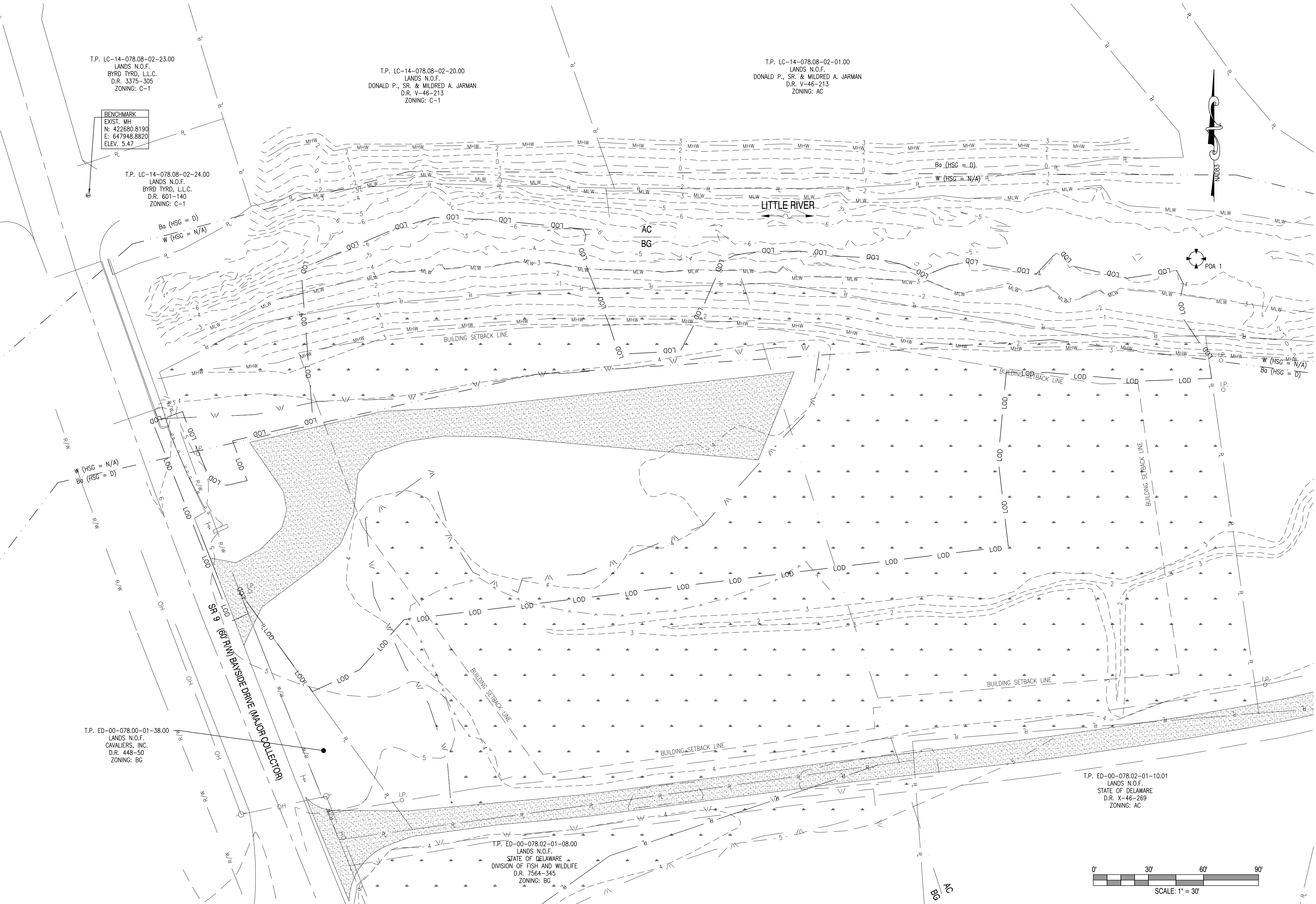
PROJECT NO.

155001.03

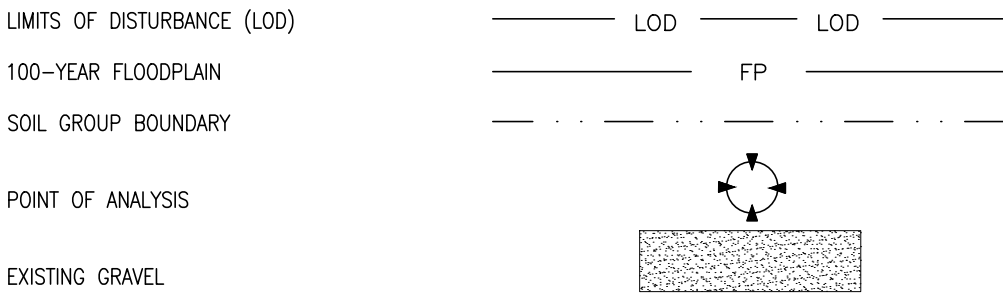
PRE-DEVELOPMENT COVER CONDITIONS:

Sub-Area No.	POA	BMP ID	Contributing Area					Pre-Development Cover within LOD (Acres)		Contributing Area RCN
			HSG (Acres)				Total Area (Acres)	Impervious Area	Total LOD	
			HSG A	HSG B	HSG C	HSG D				
1	1	-	-	-	-	1.87	1.87	0.24	1.87	76
TOTAL:			-	-	-	1.87	1.87	0.24	1.87	-

NOTE: POA 1 REPRESENTS ALL AREAS SHOWN ON THIS SHEET ASSOCIATED WITH THE LITTLE CREEK BOAT RAMP CONSTRUCTION. POA 2 REPRESENTS ALL AREAS ASSOCIATED WITH THE OFF-SITE IMPERVIOUS REMOVAL AT THE BOWERS BEACH PARKING REMOVAL PROJECT (SEE SHEET SWM407). THE RPV CREDIT GENERATED BY THE IMPERVIOUS AREA REMOVED AT BOWERS WILL BE APPLIED TO OFFSET THE RPV SHORTFALL GENERATED AT THE LITTLE CREEK SITE. BOTH POA'S ULTIMATELY DRAIN TO THE DELAWARE BAY.



LEGEND:



GENERAL NOTES:

- RIGHT OF WAY, LOCATIONS, PROPERTY LINES PROVIDED BY MILLER LEWIS, INC. CENTURY ENGINEERING, INC. TAKES NO RESPONSIBILITY FOR THEIR ACCURACY.
- CENTERLINE ALIGNMENT OF BAYSIDE DRIVE BASED UPON EXISTING LOCATIONS PROVIDED BY DEPARTMENT OF FISH & WILDLIFE. CENTURY ENGINEERING, INC. TAKES NO RESPONSIBILITY FOR THEIR ACCURACY.
- ENTIRE SITE IS WITHIN ZONE AE FLOOD PLAIN (B.F.E. = ELEV. 11.00).
- ALL SOILS ON SITE ARE MAPPED AS BROADKILL-APPOQUINIMINK COMPLEX, VERY FREQUENTLY FLOODED, TIDAL (Bg).
- Cv & Fv COMPLIANCE IS PROVIDED THROUGH PROVIDED A STABLE DISCHARGE TO TIDAL WATERS (LITTLE RIVER).
- RPV COMPLIANCE IS PURSUED THROUGH A PROJECT-WIDE OFFSET AND THUS NO DRAINAGE AREAS ARE DELINEATED. ALL AREAS WITHIN THE PROPOSED LIMITS OF DISTURBANCE CONTRIBUTE TO POA 1 (LITTLE RIVER).

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REVISIONS

DESCRIPTION	DATE
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DELAWARE DIVISION OF FISH & WILDLIFE  
LITTLE CREEK BOAT RAMP

FOR  
DELAWARE DIVISION OF FISH & WILDLIFE  
BAYSIDE DRIVE (SR9, K16), LITTLE CREEK HUNDRED, KENT COUNTY, DELAWARE

SHEET TITLE  
PRE-DEVELOPED SUBAREA  
LIMIT OF DISTURBANCE  
DRAINAGE AREA PLAN

SEDIMENT AND STORMWATER  
MANAGEMENT PLANS  
JULY 19, 2017

DRAWN: JSW/MDS  
CHK'D/DESIGNER: AES  
SCALE: 1" = 30'  
SHEET NO.

PROJECT NO.  
155001.03  
SWM410