



**US Army Corps
of Engineers**
Philadelphia District

Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice

Public Notice No.	Date
CENAP-OP-R-2014-01030-64	JUN 03 2015

Application No.	File No.
CENAP-OP-R-2014-01030-64	CENAP-OP-R-2014-01030-64

In Reply Refer to:
REGULATORY BRANCH

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: Delaware Racing Association, 777 Delaware Park Boulevard Wilmington, DE 19804

AGENT: Duffield Associates, Inc., 5400 Limestone Road, Wilmington, DE 19808

WATERWAY: White Clay Creek

LOCATION: There are four (4) specific project sites that total approximately 1,000 linear feet within a 2,800 foot reach of the White Clay Creek on lands proximal to 777 Delaware Park Boulevard, Wilmington, New Castle County. The four (4) sites are located between 39.698944°N -75.667269°W (upstream location) and 39.701237° N -75.661851°W (downstream location)

ACTIVITY: The Delaware Park White Clay Creek Stabilization Project includes stream improvements along an approximately 2,800 foot reach of White Clay Creek at four (4) locations; work proposed within the reach includes approximately 1,000 linear feet of restoration, enhancement and bank stabilization, using various techniques including sand bar removal (reshaping channel), installation of rock vanes, coir logs, limited placement of fill material or rip-rap, toe boulders and erosion control materials along with installation of native riparian plants adjacent to the creek. The total estimated of area of fill within the 1,000 linear feet is 8,865 square feet (approximately 0.20 acre) with a total volume of fill estimated at 1,359 cubic yards.

For additional information see figures, drawings and photographs that that accompany this public notice.

PURPOSE: The purpose of the project is to restore, stabilize, and enhance approximately 1,000 linear feet of eroded bank areas, within an approximately 2,800 foot reach of White Clay Creek, at four specific locations that were identified by the Delaware Racing Association as

having potential to impact adjacent uplands, including portions of the active golf course area.

U.S. Fish and Wildlife Service (USFWS) listed species. A Department of the Interior, USFWS letter to the applicant, dated March 11, 2015, indicated, in part that, except for occasional transient individuals, no federally proposed or listed threatened or endangered species are known to exist within the project area. There is no bog turtle (*Glyptemys muhlenbergii*) habitat within the limits of disturbance for this project.

National Marine Fisheries Service (NMFS) listed species. A NMFS letter, dated January 2, 2015, indicated that there are no threatened or endangered species under the jurisdiction of the National Marine Fisheries Service known to occur within the project area.

U.S. Army Corps Determination. A review of this application, including letters noted above from the USFWS and NMFS indicates that the proposed work would not affect federally listed species or their critical habitat pursuant to Section 7 of the Endangered Species Act as amended.

This project is located within the White Clay Creek National Wild and Scenic River as administered by the National Park Service (NPS). The Wild and Scenic Rivers Act states that designated rivers possess outstandingly remarkable natural, cultural and other values, that they are to be preserved in free-flowing condition, and that they and their immediate environments are to be protected. A preliminary review of this application indicates that the proposed work would not adversely affect the Wild and Scenic River designation; this preliminary determination will be coordinated with NPS. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The White Clay Creek supports important resident and migratory fish species. American shad (*Alosa sapidissima*), blueback herring (*A. aestivalis*), and alewife (*A. pseudoharengus*) collectively known as alosines, utilize the river during spawning and then as a nursery habitat for young-of-the-year. The protection of spawning and nursery habitats and migratory corridors during the spawning season is important in maintaining these fisheries resources. Alewife and blueback herring, collectively referred to as river herring, are listed by the National Marine Fisheries Service as a Species of Concern. These species are important to both commercial and recreational fisheries and form an important forage base for other fish and animal species.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act 1996 (Public Law 104-267), requires all Federal agencies to consult with the National Marine Fisheries Service (NMFS) on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely effect Essential Fish Habitat (EFH). Essential Fish Habitat (EFH) has not been designated within the project area. As such, EFH consultation by the federal action agency is not required as part of the federal permit process.

Seasonal Restriction. To protect migratory fish any permit issued by this office will be conditioned to require no in water work during the period of March 1 through June 30 of any year.

In a letter to the applicant, dated March 4, 2015, the staff of the State Historic Preservation Office (SHPO) indicated that they had reviewed the materials submitted regarding the above cited project and there are no recorded cultural resources in the project area. Also, it was observed that all of the activities will occur on disturbed or re-deposited soils and, as such, it was determined that no historic properties, eligible for or listed in the National Register of Historic Places, will be affected by this project.

Compensatory mitigation. In accordance with the June 9, 2008, U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency Final Rule on Compensatory Mitigation for Losses of Aquatic Resources (33 CFR 325 and 332 and 40 CFR 230) the applicant has indicated that the proposed project has been designed to avoid and minimize adverse effects on the aquatic environment to the maximum extent practicable. Information enclosed in the application indicates that an estimated 1,000 linear feet of eroded bank areas on the White Clay Creek will be restored, stabilized, and enhanced. Proposed stabilization strategies/techniques are intended to be beneficial to the aquatic environment and enhance public safety. No compensatory mitigation has been proposed for this project as disturbance to the aquatic environment during stabilization activities is minimal and no wetlands are present within the project areas.

In accordance with Section 307(c) of the Coastal Zone Management Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's Coastal Zone Management Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State Coastal Zone Management (CZM) Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

In accordance with Section 401 of the Clean Water Act, a Water Quality Certificate is necessary from the State government in which the work is located. Any comments concerning the work described above which relate to Water Quality considerations should be sent to this office with a copy to the State.

The evaluation of the impact of the work described above on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state in writing, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics,

aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

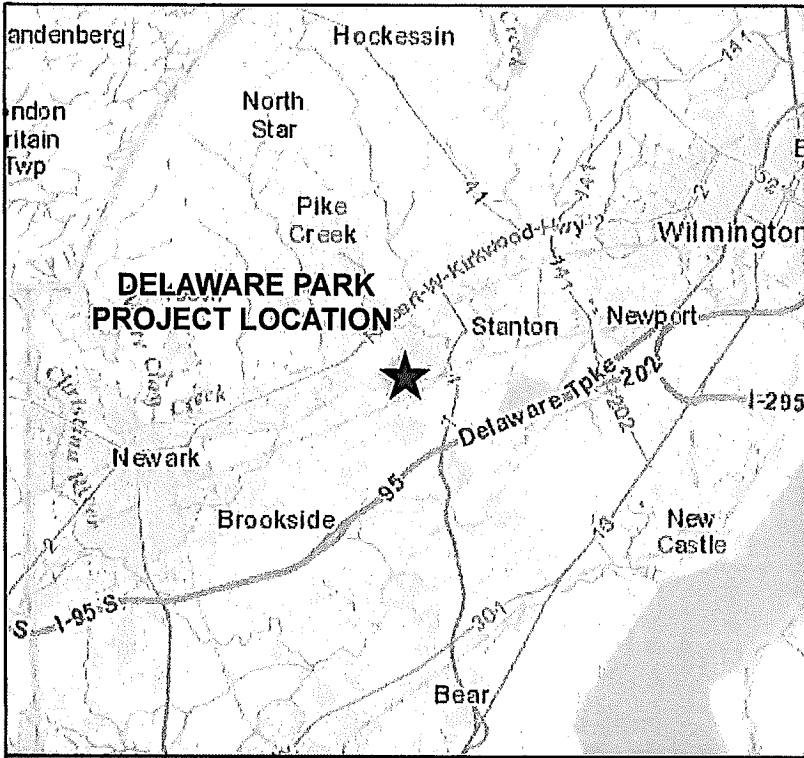
The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the proposed work should be submitted, in writing, within thirty (30) days to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.


Additional information concerning this permit application may be obtained by calling Michael Green at 215-656-6836, via email at Michael.F.Green@usace.army.mil, or writing this office at the above address.

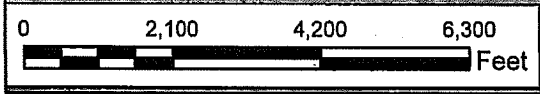


Frank J. Cianfrani
Chief, Regulatory Branch



Legend

 Property Boundary



Date: 03/2015
SCALE: AS SHOWN
PROJECT NO. 10393.CA
SHEET: FIGURE 2.1

SITE LOCATION SKETCH

**DELAWARE PARK WHITE CLAY
CREEK STABILIZATION PROJECT**

WILMINGTON~NEW CASTLE COUNTY~DELAWARE

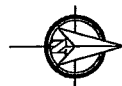
DESIGNED BY: ADK
DRAWN BY: JWF
CHECKED BY: RLH
FILE: 10393.CA.315.LocationSketch

DUFFIELD ASSOCIATES
Soil, Water & the Environment

5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL. (302)239-6634
FAX (302)239-8486

OFFICES IN PENNSYLVANIA,
SOUTHERN DELAWARE,
MARYLAND AND NEW JERSEY

EMAIL: DUFFIELD@DUFFNET.COM



LEGEND

- ⊕ EROSION
- ⊕ SAND BAR
- ⊕ DEBRIS

- PROPERTY BOUNDARY
- - - ADJACINER BOUNDARY

- SITES PRIORITIZED FOR STABILIZATION**
1. SITE 2: 1ST FAIRWAY STREAMBANK
 2. SITE 3: 12TH GREEN BRIDGE
 3. SITE 4: 11TH FAIRWAY STREAMBANK
 4. SITE 5: 11TH GREENZAND BRIDGE HEADING TO HOLE 3



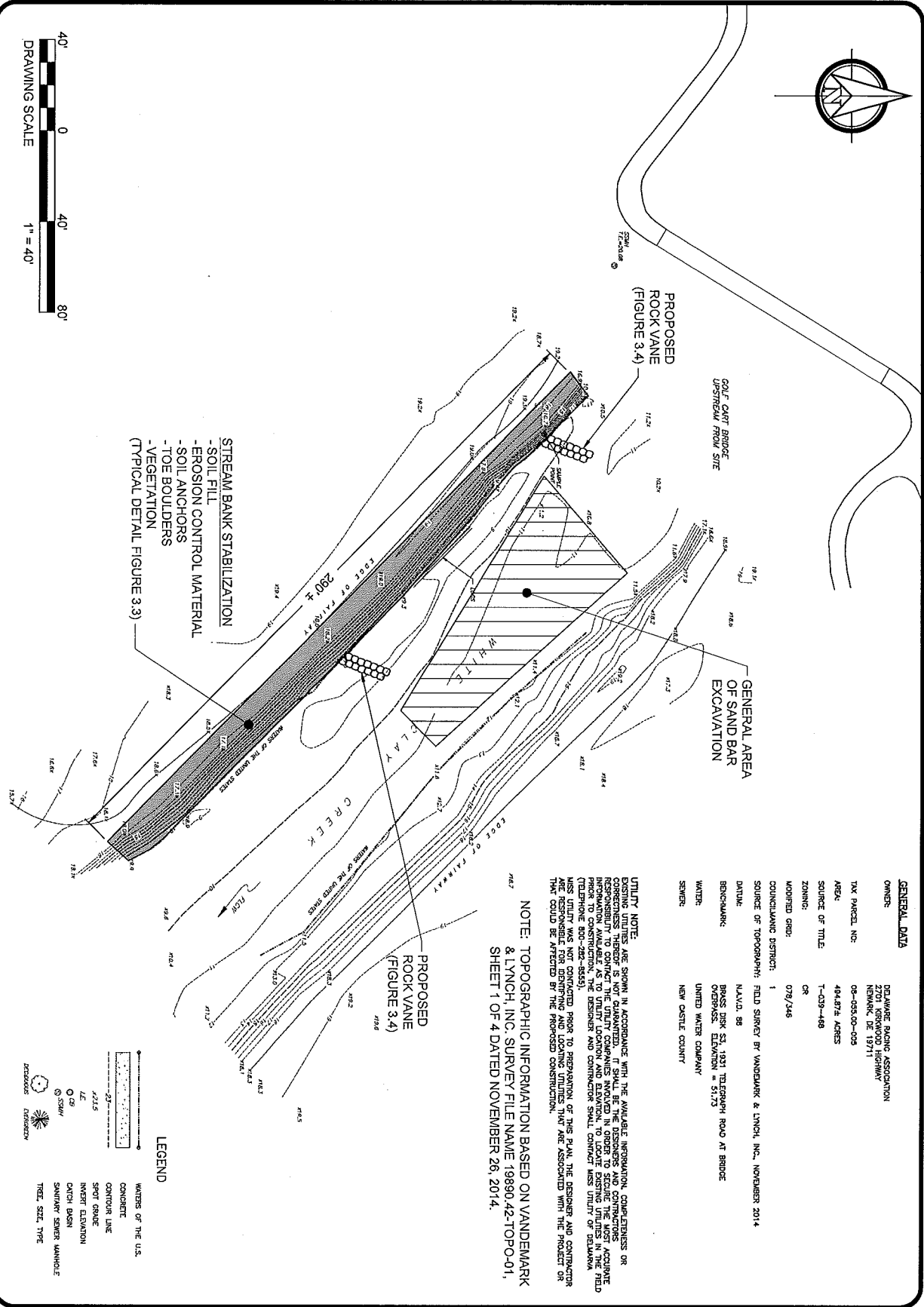
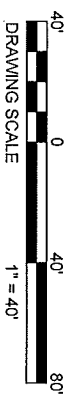
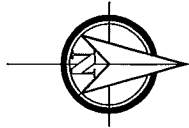
DATE:	6 MARCH 2015
SCALE:	1" = 1,000'
PROJECT NO.	10393.CA
SHEET:	FIGURE 22

PROJECT AREA LOCATION
DELAWARE PARK
WHITE CLAY CREEK BANK STABILIZATION PROJECT
777 DELAWARE PARK BOULEVARD
 NEWARK-NEW CASTLE COUNTY-DELAWARE

DESIGNED BY:	JFC
DRAWN BY:	JDM
CHECKED BY:	DSB
FILE:	10393.CA-EXHIBIT1-R1



3400 LILLESTONE ROAD
 WILMINGTON, DE 19806-1212
 TEL: 302.539.6054
 FAX: 302.539.4415
 OFFICES IN DELAWARE, MARYLAND,
 PENNSYLVANIA AND NEW JERSEY
 E-MAIL: DUFFIELD@DOVNET.COM



GENERAL DATA

OWNER: DELAWARE RACING ASSOCIATION
 2701 IRVINGWOOD HIGHWAY
 NEWARK, DE 19711

TAX PARCEL NO.: 09-008-00-003

AREA: 494,972 ACRES

SOURCE OF TITLE: T-C39-488

ZONING: CR

ADOPTED ORD.: 078/246

COUNCILMANIC DISTRICT: 1

SOURCE OF TOPOGRAPHY: FIELD SURVEY BY VANDENMARK & LYNCH, INC., NOVEMBER 2014

DATE: MARCH 08

BENCHMARK: BRASS DISK ST. 1931 TELEGRAPH ROAD AT BRIDGE
 OVERPASS ELEVATION = 5173

WATER: UNITED WATER COMPANY

SEWER: NEW CASTLE COUNTY

UTILITY NOTE:
 EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE AVAILABLE INFORMATION, COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. IT SHALL BE THE DESIGNER'S AND CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION. THE DESIGNER AND CONTRACTOR SHALL CONTACT MISS UTILITY OF DELAWARE (TELEPHONE 800-822-8859). MISS UTILITY WAS NOT CONTACTED PRIOR TO PREPARATION OF THIS PLAN. THE DESIGNER AND CONTRACTOR ASSUME RESPONSIBILITY FOR ANY AND ALL UTILITIES NOT ASSOCIATED WITH THE PROJECT OR THAT COULD BE AFFECTED BY THE PROPOSED CONSTRUCTION.

NOTE: TOPOGRAPHIC INFORMATION BASED ON VANDENMARK & LYNCH, INC. SURVEY FILE NAME 19890.42-1TOP-01, SHEET 1 OF 4 DATED NOVEMBER 26, 2014.

LEGEND

- WATERS OF THE U.S.
- CONCRETE
- CONTOUR LINE
- SPOT GRADE
- INVERT ELEVATION
- DITCH BASIN
- SANITARY SEWER MANHOLE
- TREE, SECT. TYPE

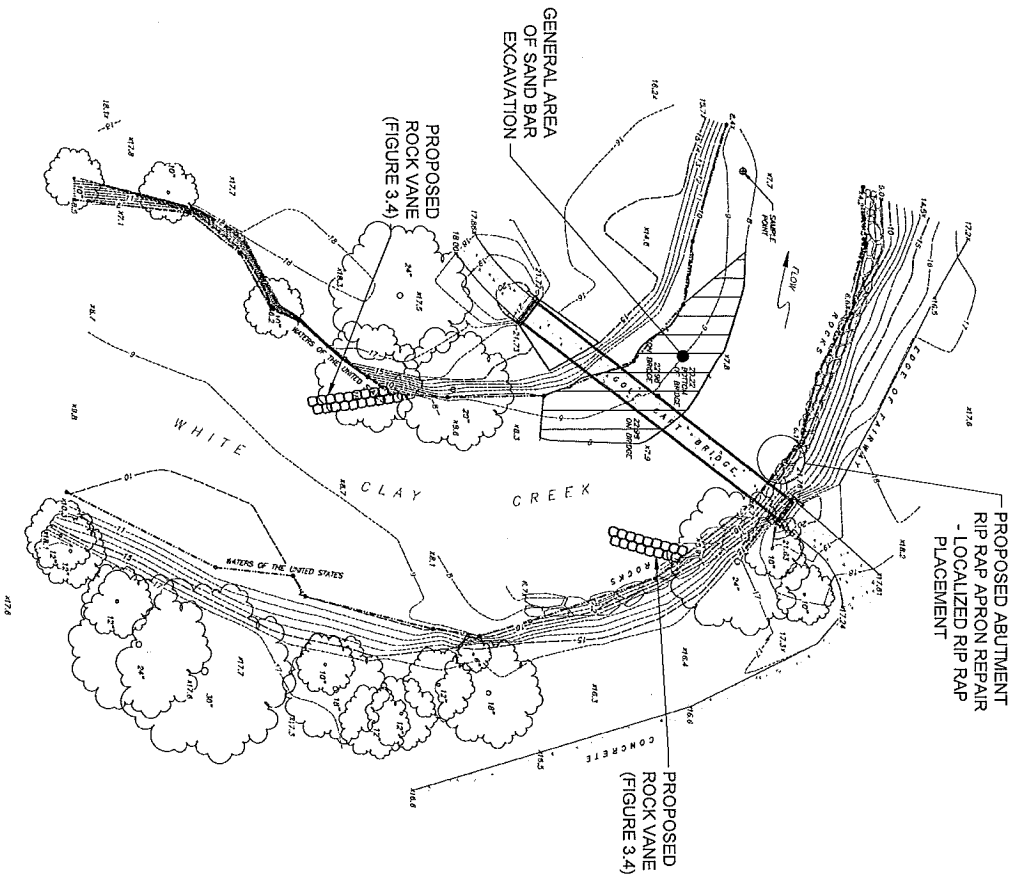
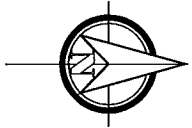
WATERS OF THE U.S.
 CONCRETE
 CONTOUR LINE
 SPOT GRADE
 INVERT ELEVATION
 DITCH BASIN
 SANITARY SEWER MANHOLE
 TREE, SECT. TYPE

DATE:	2015 MARCH 12
SCALE:	1" = 40'
PROJECT NO.	10393.CA
SHEET:	FIGURE 3.5

PROPOSED STABILIZATION
SITE 2 - 1ST FAIRWAY STEAM BANK
WHITE CLAY CREEK GOLF CLUB
DELAWARE PARK
 MILL CREEK HUNDRED ~ NEW CASTLE COUNTY ~ DELAWARE

DESIGNED BY:	JFC
DRAWN BY:	EJP
CHECKED BY:	
FILE:	10393CA-FIG3.dwg

DUFFIELD ASSOCIATES
 Soil, Water & the Environment
 5400 LIMESTONE ROAD
 WILMINGTON, DE 19808-1232
 TEL: 302.239.6644
 FAX: 302.239.8595
 OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY
 E-MAIL: DUFFIELD@DUFFNET.COM



GENERAL DATA

OWNER: DELAWARE PARKING ASSOCIATION
 1000 WILMINGTON, DE 19810
 NEWARK, DE 19711

TAX PARCEL NO: 06-055,00-005

AREA: 494,872 ACRES

SOURCE OF TITLE: T-039-488
 OR

ZONING: 07B/346

ADMITTED GRD: 1

COUNCILMANIC DISTRICT: 1

SOURCE OF TOPOGRAPHY: FIELD SURVEY BY VANDEMARK & LYNCH, INC., NOVEMBER 2014.

DATUM: NAD83

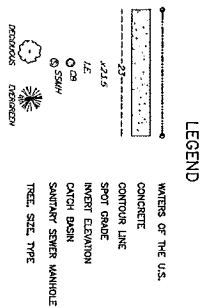
BENCHMARK: BENCH MARK 53, 1851 TELEGRAPH ROAD AT BRIDGE
 OVERPASS ELEVATION = 517.3

WATER: UNITED WATER COMPANY

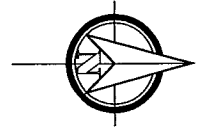
SEWER: NEW CASTLE COUNTY

UTILITY NOTE:
 EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE AVAILABLE INFORMATION, COMPLETENESS OR ACCURACY OF WHICH IS NOT GUARANTEED. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES. THE USER SHALL BE RESPONSIBLE TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO UTILITY LOCATION AND ELEVATION, TO LOCATE EXISTING UTILITIES IN THE FIELD AND TO OBTAIN THE NECESSARY PERMITS AND CONNECTIONS. THE DESIGNER AND CONTRACTOR SHALL CONTACT MISS UTILITY (TELEPHONE 800-282-4533).
 MISS UTILITY WAS NOT CONTACTED PRIOR TO PREPARATION OF THIS PLAN. THE DESIGNER AND CONTRACTOR ARE RESPONSIBLE FOR IDENTIFYING AND LOCATING UTILITIES THAT ARE ASSOCIATED WITH THE PROJECT OR THAT COULD BE AFFECTED BY THE PROPOSED CONSTRUCTION.

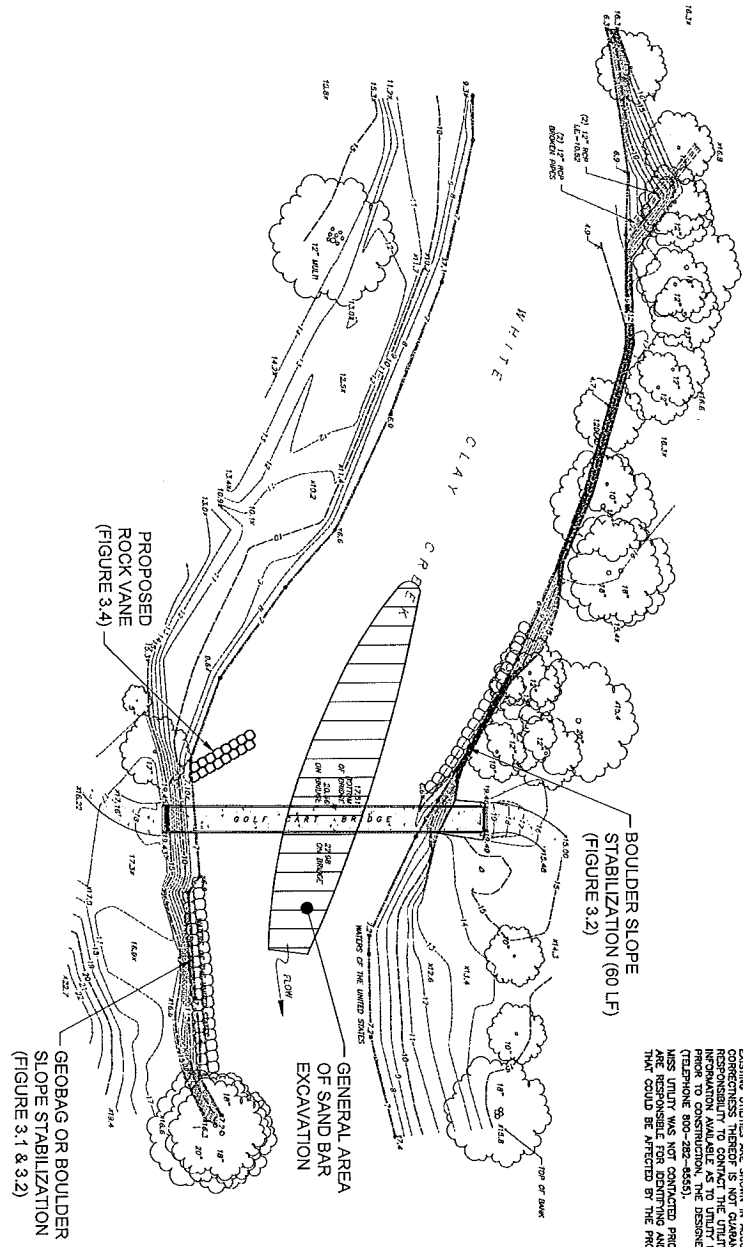
NOTE: TOPOGRAPHIC INFORMATION BASED ON VANDEMARK & LYNCH, INC. SURVEY FILE NAME 19890,42-TOPO-01, SHEET 2 OF 4 DATED NOVEMBER 26, 2014.



<p>PROPOSED STABILIZATION SITE 3 - 12TH GREEN BRIDGE WHITE CLAY CREEK GOLF CLUB DELAWARE PARK MILL CREEK HUNDRED ~ NEW CASTLE COUNTY ~ DELAWARE</p>	<p>DESIGNED BY: JFC</p>	<p>DUFFIELD ASSOCIATES Soil, Water & the Environment</p> <p>5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.235.6634 FAX 302.235.8485</p> <p>OFFICES IN DELAWARE, MARYLAND PENNSYLVANIA AND NEW JERSEY</p> <p>E-MAIL: DUFFIELD@DUFFIELD.COM</p>
	<p>DRAWN BY: EJP</p>	
	<p>CHECKED BY:</p>	
	<p>FILE: 10393CA-FIG3.dwg</p>	
<p>DATE: 2015 MARCH 12</p>		
<p>SCALE: 1" = 40'</p>		
<p>PROJECT NO. 10393.CA</p>		
<p>SHEET: FIGURE 3.6</p>		

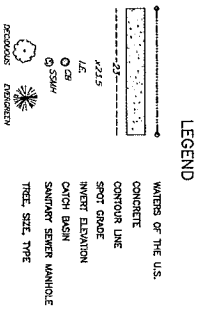


NOTE: TOPOGRAPHIC INFORMATION BASED ON VANDEMARK & LYNCH, INC. SURVEY FILE NAME 19890.42-1-PO-01, SHEET 4 OF 4 DATED NOVEMBER 26, 2014.



GENERAL DATA
 OWNER: DELAWARE PARK ASSOCIATION
 2701 KIRKWOOD HIGHWAY
 NEWARK, DE 19711
 TAX PARCEL NO: 08-055-00-005
 AREA: 194.872 ACRES
 SOURCE OF TITLE: T-4C39-468
 ZONING: CR
 MODIFIED ORD: 078/248
 COUNCILMANIC DISTRICT: 1
 SOURCE OF TOPOGRAPHY: FIELD SURVEY BY VANDEMARK & LYNCH, INC., NOVEMBER 2014
 DATUM: N.A.S.D. 88
 BENCH MARK: BRASS DISK S.S. 1931 TELEGRAPH ROAD AT BRIDGE
 OVERPASS ELEVATION = 51.73
 WATER: UNITED WATER COMPANY
 SEWER: NEW CASTLE COUNTY

UTILITY NOTE:
 EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE AVAILABLE INFORMATION, COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. IT SHALL BE THE DESIGNER'S AND CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES PROVIDED IN ORDER TO SECURE THE BEST AVAILABLE INFORMATION AND TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE DESIGNER AND CONTRACTOR SHALL CONTACT THE UTILITY OF DELAWARE (TELEPHONE 800-282-8555).
 MASS UTILITY WAS NOT CONTACTED PRIOR TO PREPARATION OF THIS PLAN. THE DESIGNER AND CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT COULD BE AFFECTED BY THE PROPOSED CONSTRUCTION.

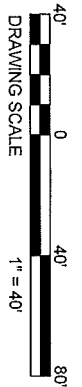
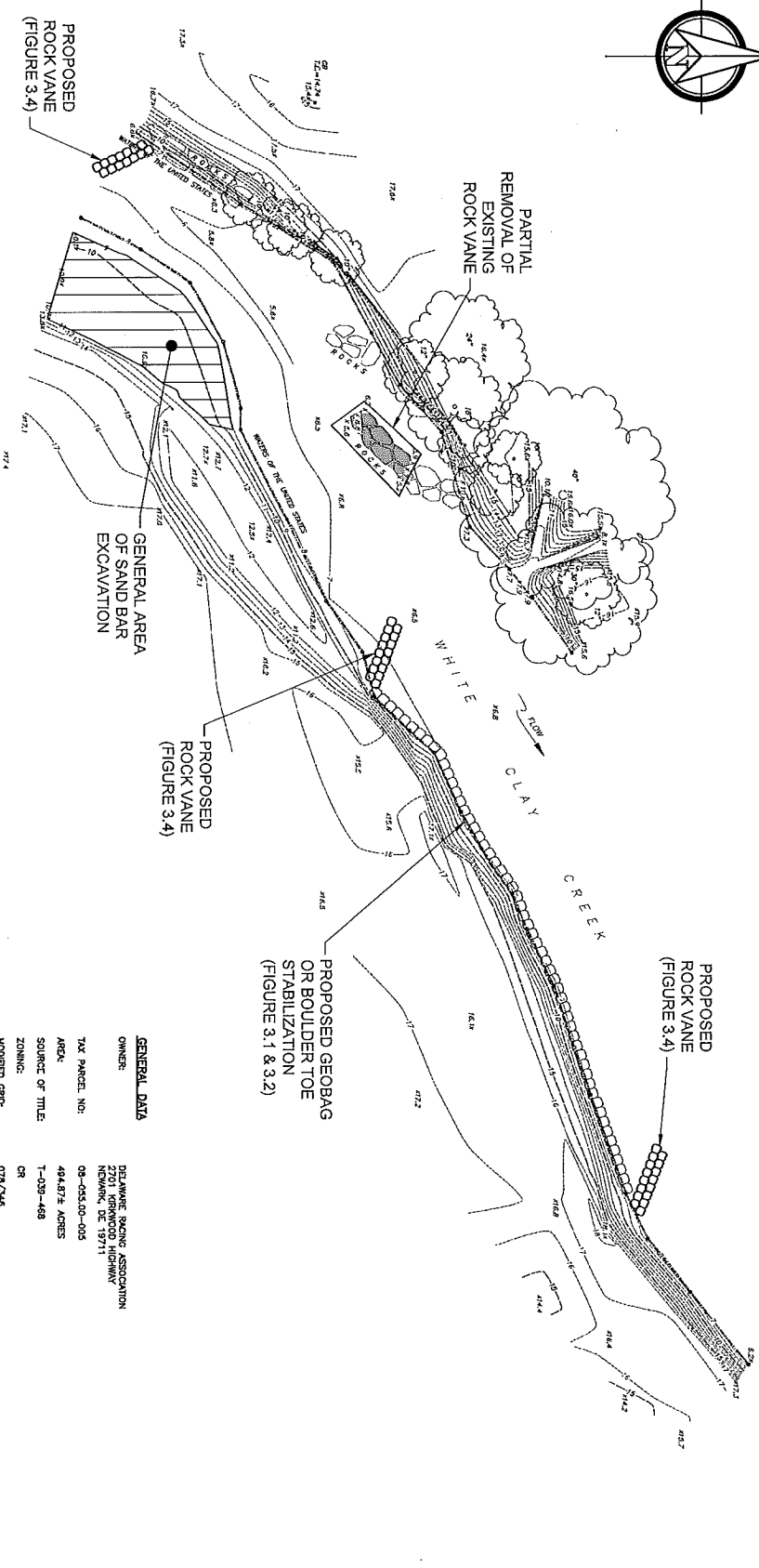
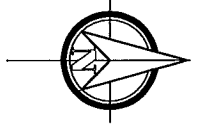


DATE: 2015 MARCH 12
 SCALE: 1" = 40'
 PROJECT NO: 10393.CA
 SHEET: FIGURE 3.7

PROPOSED STABILIZATION
 SITE 5 - 11TH GREEN / 2ND BRIDGE
 WHITE CLAY CREEK GOLF CLUB
 DELAWARE PARK
 MILL CREEK HUNDRED ~ NEW CASTLE COUNTY ~ DELAWARE

DESIGNED BY: JFC
 DRAWN BY: EJP
 CHECKED BY:
 FILE: 10393CA-FIG3.dwg

DUFFIELD ASSOCIATES
 Soil, Water & Air Environment
 5400 LIMESTONE ROAD
 WILMINGTON, DE 19806-1232
 TEL: 302.339.4681
 FAX: 302.339.8585
 OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY
 E-MAIL: DUFFIELD@DUFFINET.COM



- LEGEND**
- WATERS OF THE U.S.
 - CONCRETE
 - CONTOUR LINE
 - SPOT GRADE
 - INVERT ELEVATION
 - CURB BUSH
 - SKINNY SEWER MANHOLE
 - TREE, SIZE, TYPE
- PROPOSED APPROVED

NOTE: TOPOGRAPHIC INFORMATION BASED ON VANDENMARK & LYNCH, INC. SURVEY FILE NAME 19890-42-TOPO-01, SHEET 3 OF 4 DATED NOVEMBER 26, 2014.

PROPOSED ROCK VANE (FIGURE 3.4)

PROPOSED GEOBAG OR BOULDER TOE STABILIZATION (FIGURE 3.1 & 3.2)

GENERAL AREA OF SAND BAR EXCAVATION

PROPOSED ROCK VANE (FIGURE 3.4)

PARTIAL REMOVAL OF EXISTING ROCK VANE

GENERAL DATA

OWNER: DELAWARE RACING ASSOCIATION
2220 WILMINGTON AVENUE
NEWARK, DE 19711

TAX PARCEL NO.: 08-005-00-005

AREA: 404.87± ACRES

SOURCE OF TITLE: T-039-469

ZONING: OR

MODIFIED ORC: 078/246

COUNCILMANIC DISTRICT: 1

SOURCE OF TOPOGRAPHY: FIELD SURVEY BY VANDENMARK & LYNCH, INC., NOVEMBER 2014

DATUM: N.A.S.D. 83

BENCHMARK: BRASS DISK, S. 1331 TELEGRAPH ROAD AT BRIDGE OVERPASS, ELEVATION = 51.73

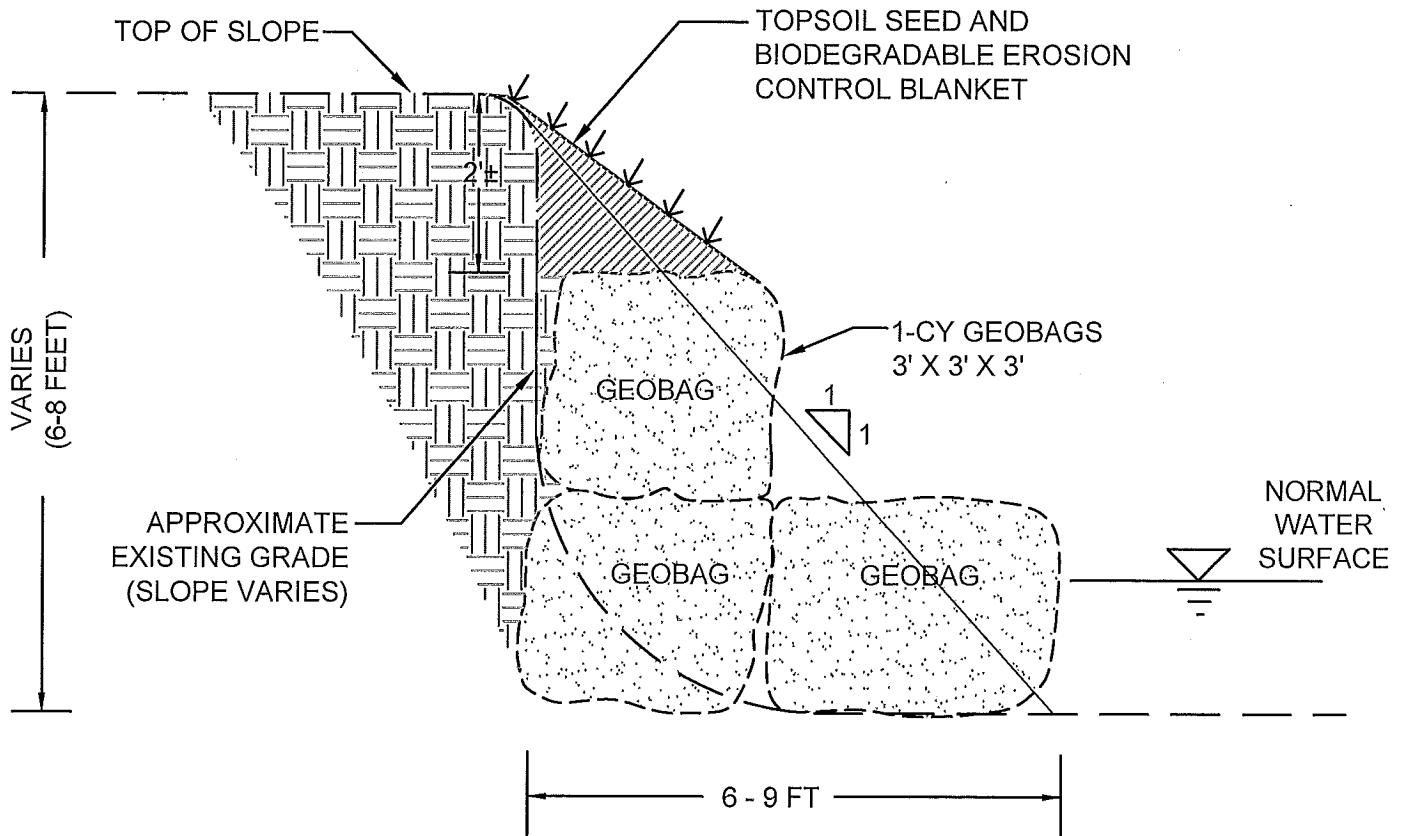
WATER: UNITED WATER COMPANY

SEWER: NEW CASTLE COUNTY

UTILITY NOTE:


UTILITIES SHOWN ARE SHOWN IN ACCORDANCE WITH THE AVAILABLE INFORMATION, CONSULTANTS OR CORRESPONDENTS. THERE IS NOT GUARANTEED. IT SHALL BE THE DESIGNER'S AND CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO LOCATION AND DEPTH, TO LOCATE EXISTING UTILITIES IN THE FIELD AND TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES BY FIELD SURVEY. THE DESIGNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF EXISTING UTILITIES BY FIELD SURVEY. THE DESIGNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF EXISTING UTILITIES BY FIELD SURVEY. THE DESIGNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF EXISTING UTILITIES BY FIELD SURVEY.

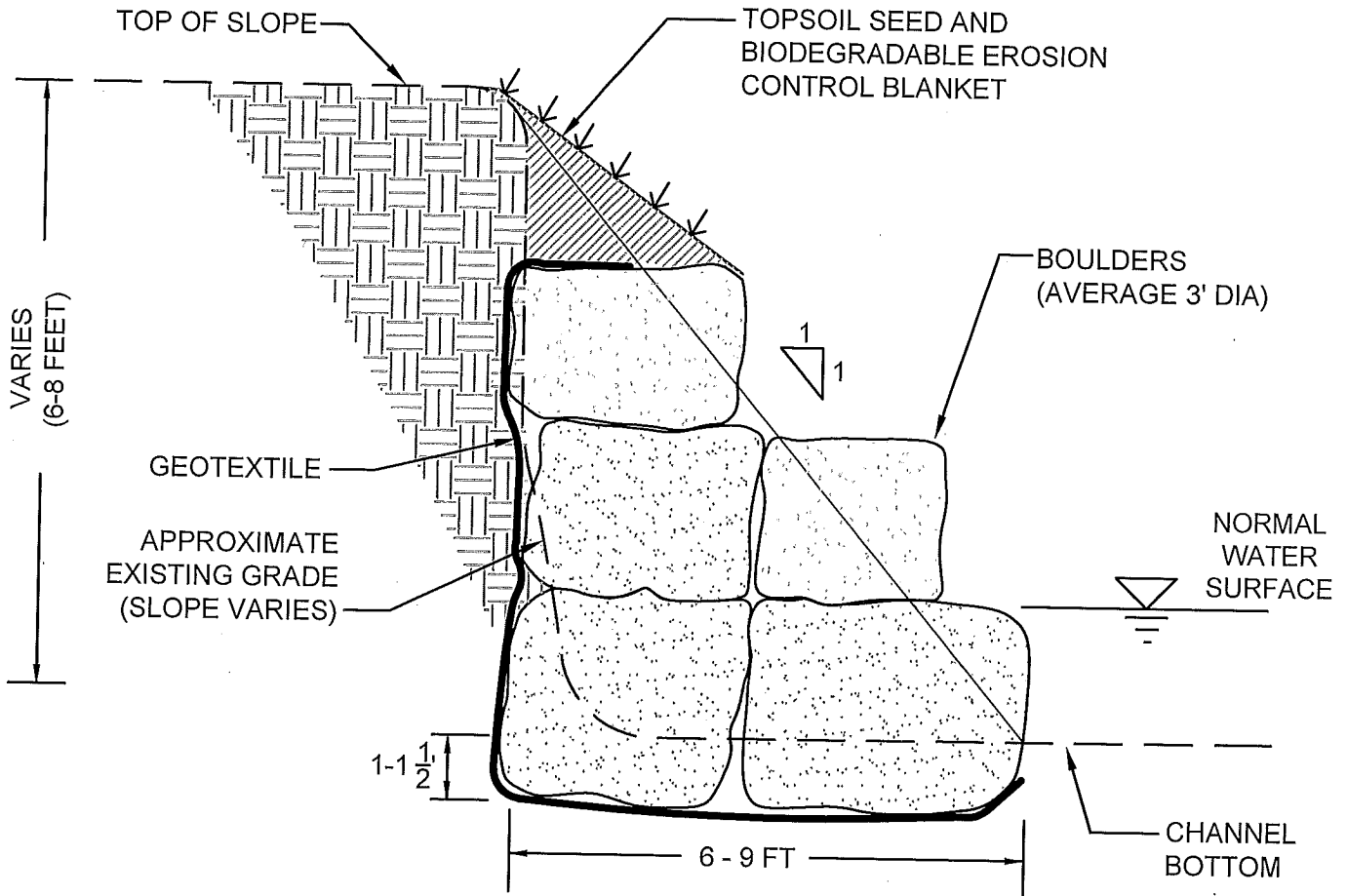
DESIGNED BY: JFC	DUFFIELD ASSOCIATES <small>Soil, Water & the Environment</small> 5400 LIMESTONE ROAD WILMINGTON, DE 19108-1232 TEL: 302.239.4624 FAX: 302.239.8685 OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY E-MAIL: DUFFIELD@DUFFIELD.NET
DRAWN BY: EJP	
CHECKED BY:	
FILE: 10393CA-FIG3.dwg	
PROPOSED STABILIZATION SITE 4 - 12TH FAIRWAY STEAM BANK WHITE CLAY CREEK GOLF CLUB DELAWARE PARK MILL CREEK HUNDRED ~ NEW CASTLE COUNTY ~ DELAWARE	
SCALE: 1" = 40'	DATE: 2015 MARCH 12
PRODUCT NO. 10393-CA	
SHEET: FIGURE 3.8	



NOTES:

1. GEOTEXTILE SAND BAGS (GEOBAG) SHALL CONSIST OF ONE-CUBIC YARD CAPACITY BAGS CONSTRUCTED OF POLYPROPYLENE OR APPROVED EQUIVALENT WITH DRAWSTRING AND LIFT HANDELS.
2. FILL GEOBAG WITH ON-SITE SOILS OR EXCAVATED SANDBAR MATERIALS.
3. SOME DISPLACEMENT OF SUBGRADE SOILS SHOULD BE ANTICIPATED DURING INSTALLATION OF BOTTOM LAYER GEOBAGS. FINAL GEOBAG CONFIGURATION SHOULD PROVIDE AN APPROXIMATE 1:1 SLOPE WHEN PROJECTED FROM TOP OF SLOPE EXISTING GRADE TO TOE OF STABILIZED SLOPE.

DATE: 6 MARCH 2015	TYPICAL DETAIL GEOTEXTILE BAG SLOPE STABILIZATION DELAWARE PARK WHITE CLAY CREEK BANK STABILIZATION PROJECT CITY OF WILMINGTON~NEW CASTLE COUNTY~DELAWARE	DESIGNED BY: JFC	 DUFFIELD ASSOCIATES Soil, Water & the Environment 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.239.6634 FAX 302.239.8485 OFFICES IN DELAWARE, MARYLAND PENNSYLVANIA AND NEW JERSEY E-MAIL: DUFFIELD@DUFFNET.COM
SCALE: NOT TO SCALE		DRAWN BY: MH	
PROJECT. NO. 10393.CA		CHECKED BY: JFC	
SHEET: FIGURE 3.1		FILE: 10393.CA-EX2.R0	



DATE: 6 MARCH 2015
SCALE: NOT TO SCALE
PROJECT NO. 10393.CA
SHEET: FIGURE 3.2

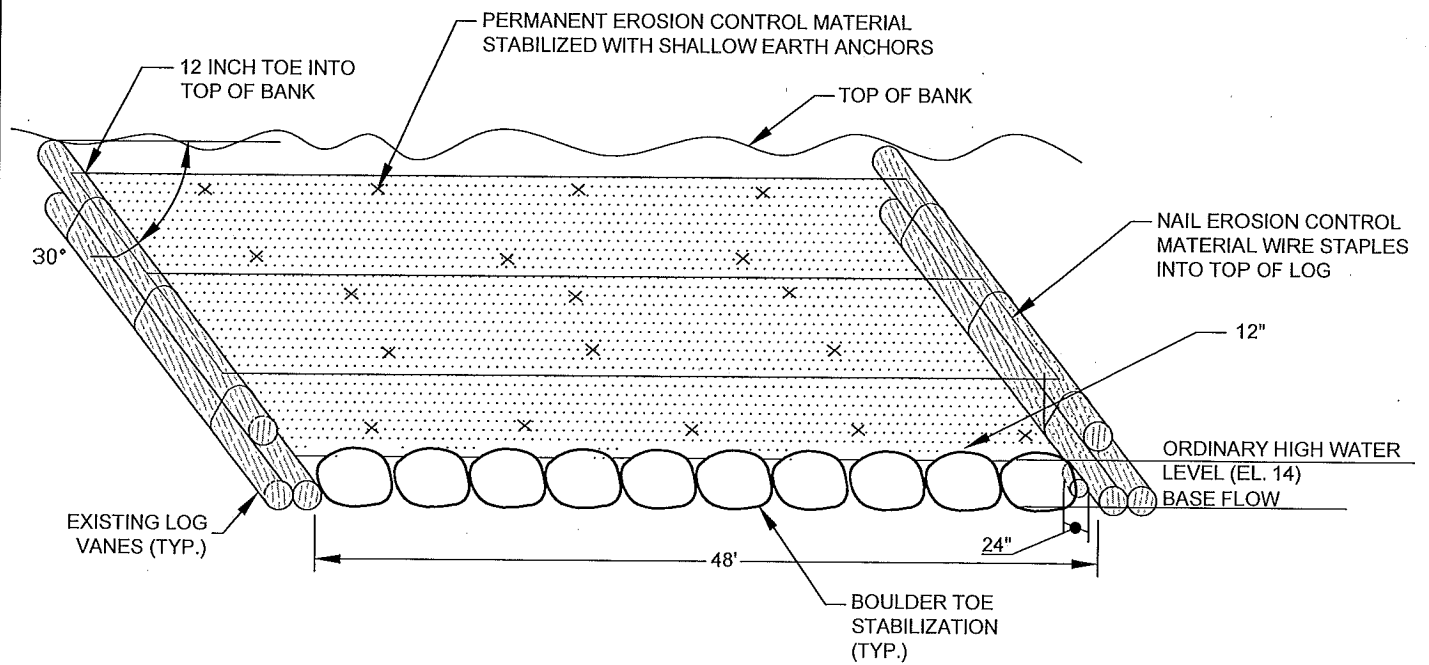
TYPICAL DETAIL
BOULDERS SLOPE STABILIZATION

DELAWARE PARK
WHITE CLAY CREEK
BANK STABILIZATION PROJECT
 CITY OF WILMINGTON-NEW CASTLE COUNTY-DELAWARE

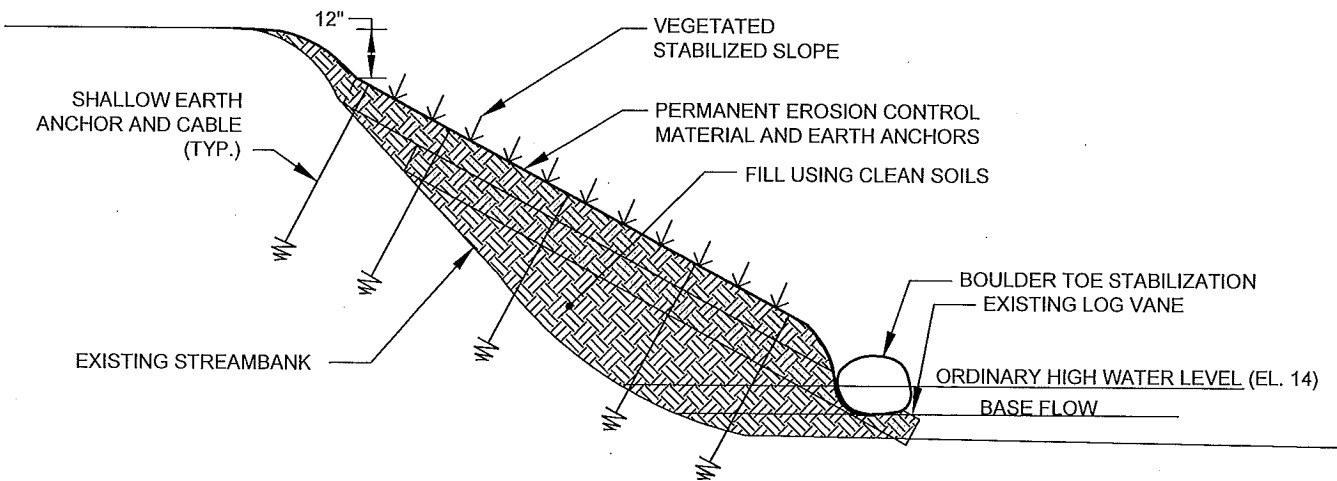
DESIGNED BY: JFC
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FILE:10393.CA-EX2.R0




DUFFIELD ASSOCIATES
 Soil, Water & the Environment
 5400 LIMESTONE ROAD
 WILMINGTON, DE 19808-1232
 TEL. 302.239.6634
 FAX 302.239.8485
 OFFICES IN DELAWARE, MARYLAND
 PENNSYLVANIA AND NEW JERSEY
 E-MAIL: DUFFIELD@DUFFNET.COM

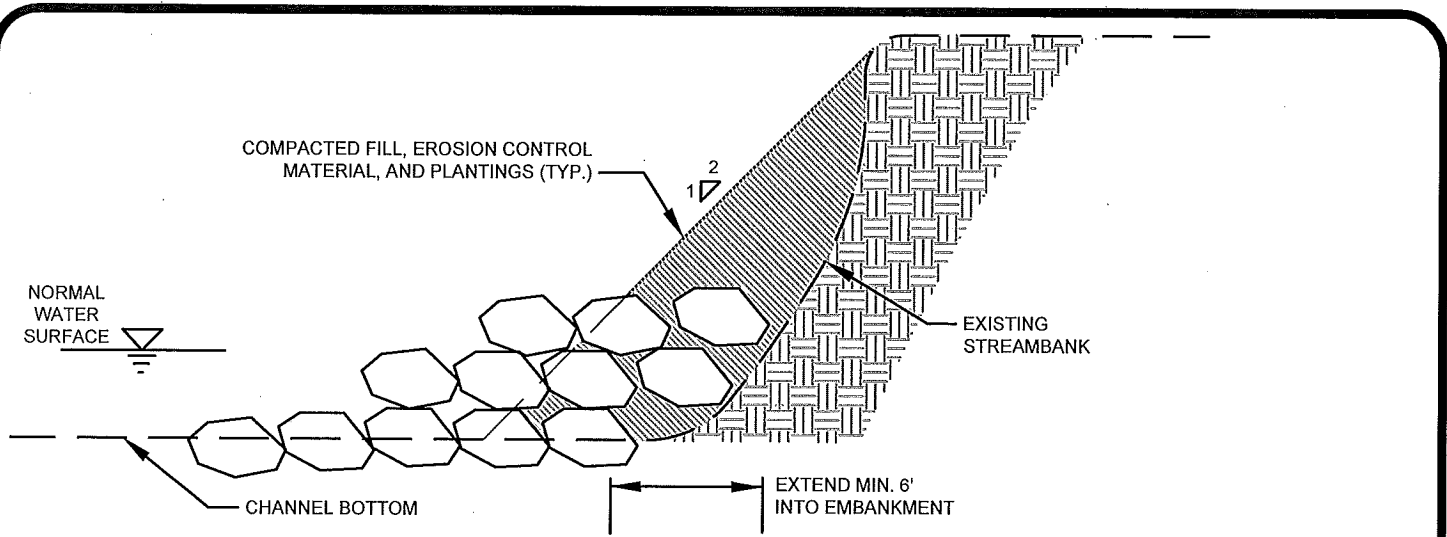


ISOMETRIC VIEW - STABILIZATION OF ERODED AREAS BETWEEN LOG VANES

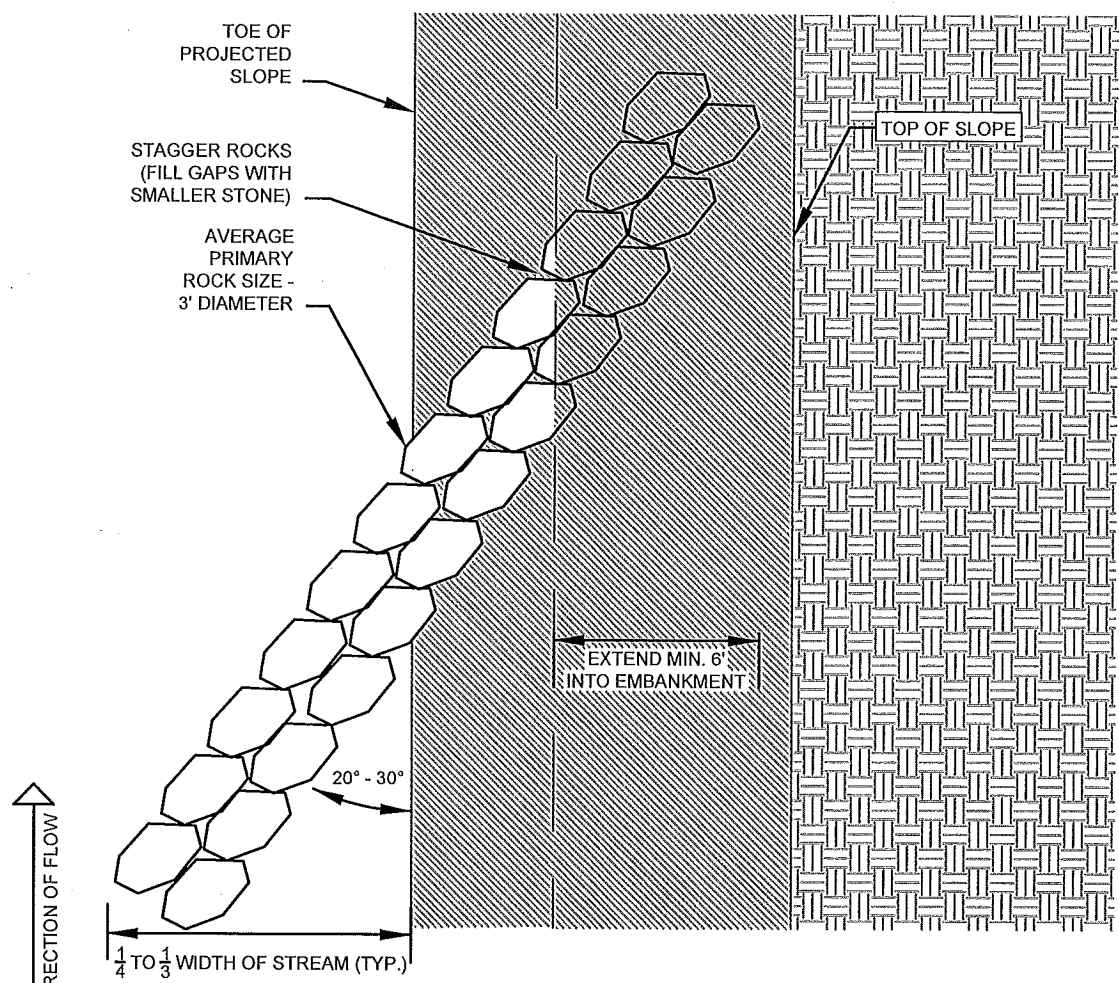


SECTION - STABILIZATION OF ERODED AREAS BETWEEN LOG VANES

DATE: 6 MARCH 2015	<p>TYPICAL DETAIL</p> <p>1ST FAIRWAY STREAMBANK STABILIZATION</p> <p>DELAWARE PARK</p> <p>WHITE CLAY CREEK</p> <p>BANK STABILIZATION PROJECT</p> <p>CITY OF WILMINGTON~NEW CASTLE COUNTY~DELAWARE</p>	DESIGNED BY: JFC	 <p>DUFFIELD ASSOCIATES Soil, Water & the Environment</p> <p>5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.239.6634 FAX 302.239.8485</p> <p>OFFICES IN DELAWARE, MARYLAND PENNSYLVANIA AND NEW JERSEY</p> <p>E-MAIL: DUFFIELD@DUFFNET.COM</p>
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SHEET: FIGURE 3.3		FILE:10393.CA-EX2.R0	



SECTION VIEW - ROCK VANE



PLAN VIEW - ROCK VANE

DATE: 6 MARCH 2015
SCALE: NOT TO SCALE
PROJECT. NO. 10393.CA
SHEET: FIGURE 3.4

TYPICAL DETAIL
ROCK VANE

**DELAWARE PARK
WHITE CLAY CREEK
BANK STABILIZATION PROJECT**

CITY OF WILMINGTON~NEW CASTLE COUNTY~DELAWARE

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Soil, Water & the Environment

5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL. 302.239.6634
FAX 302.239.8485

OFFICES IN DELAWARE, MARYLAND
PENNSYLVANIA AND NEW JERSEY

E-MAIL: DUFFIELD@DUFFNET.COM



Photograph 1 – Site 2: 1st Fairway Streambank



Photograph 2 – Site 2: 1st Fairway Streambank

**DELAWARE PARK
WHITE CLAY CREEK
STREAMBANK EROSION**

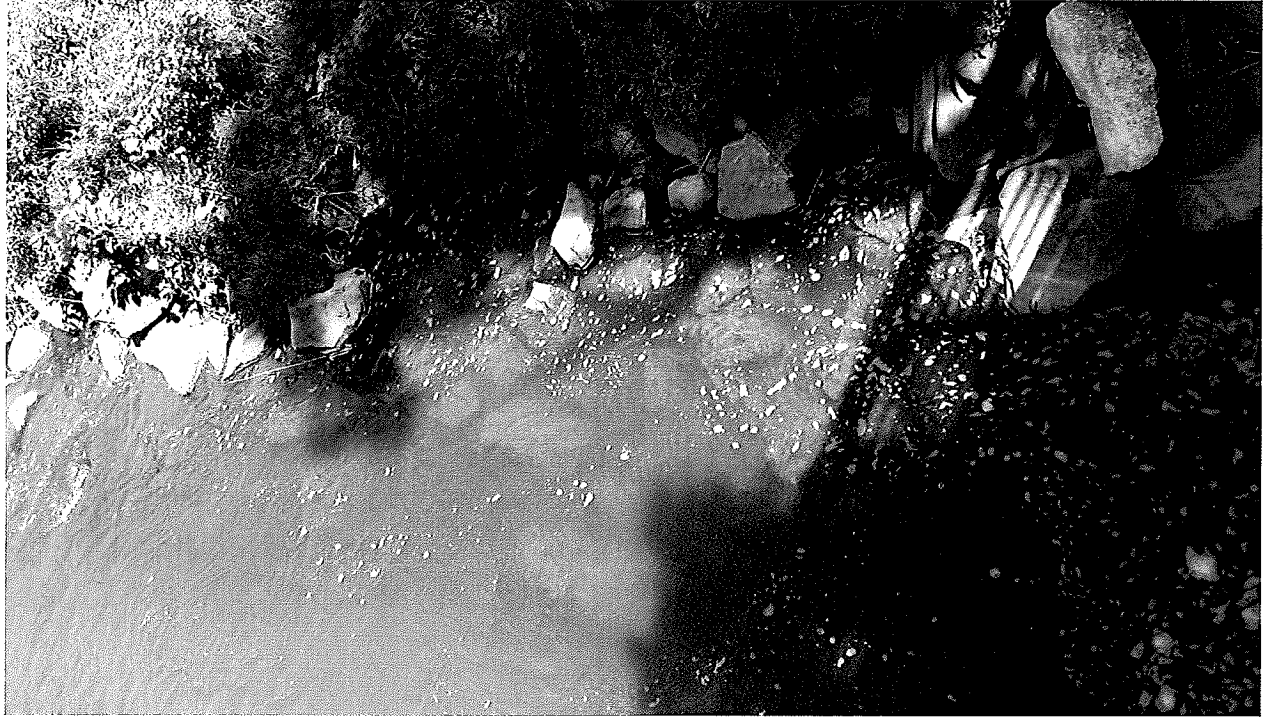


**DUFFIELD
ASSOCIATES**
Soil, Water & the Environment

5400 Limestone Road
Wilmington, Delaware 19808
Tel: (302) 239-6634 Fax: (302) 239-8485
E-MAIL: duffield@duffnet.com

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Date: August 28, 2014



Photograph 3 – Site 3: 12th Green Bridge Bank and Channel Scour



Photograph 4 – Site 3: 12th Green Bridge and Channel Scour

**DELAWARE PARK
WHITE CLAY CREEK
STREAMBANK EROSION**



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Tel: (302) 239-6634 Fax: (302) 239-8485
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Photograph 5 – Site 4: 12th Fairway Bank Erosion



Photograph 6 – Site 4: 12th Fairway Bank Erosion

**DELAWARE PARK
WHITE CLAY CREEK
STREAMBANK EROSION**



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ASSOCIATES**
Soil, Water & the Environment

5400 Limestone Road
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Tel: (302) 239-6634 Fax: (302) 239-8485
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Photograph 7 – Site 5: 11th Green/2nd Bridge heading to Hole 3



Photograph 8 – Site 5: 11th Green/2nd Bridge heading to Hole 3

**DELAWARE PARK
WHITE CLAY CREEK
STREAMBANK EROSION**



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