

Final Report

White Clay Creek Wild and Scenic River Shad Restoration Project (Removal of Byrnes Dam No. 1)

New Castle County
Wilmington, Delaware

April 1, 2015



Prepared for:

American Rivers
Washington, D.C.

U. S. Department of Commerce
National Oceanic and Atmospheric Administration (NOAA)
Annapolis, Md.

Prepared by:

Gerald J. Kauffman, Director
University of Delaware
Water Resources Agency
Newark, Del.



April 1, 2015

Serena McClain
American Rivers
1101 14th Street NW, Suite 1400
Washington, DC 20005

Laura Craig
American Rivers
P.O. Box 14986
Philadelphia, PA 19149

Re: American Rivers/NOAA White Clay Creek Removal of Byrnes Dam No. 1

Dear Serena and Laura:

Enclosed is the final report under the terms of our American Rivers/NOAA grant that documents the removal of White Clay Creek Byrnes Dam No. 1 in December 2014:

- Final report (final progress report)
- Match letter and documentation
- Final budget and copies of invoices (contractor)) documenting expenditure of the award
- Final copies of other materials relevant to funded phase (feasibility report, appendices)

We look forward to scheduling a public event with American Rivers and NOAA during the spring 2015 spawning runs to commemorate the reopening of the White Clay Creek National Wild and Scenic River to fish passage and mark the installation of the creek-side interpretative sign.

Thank you for of your assistance from American Rivers and NOAA during this first-ever dam removal for fish passage in the State of Delaware.

Warmly,

Gerald J. Kauffman

Gerald J. Kauffman, Director
Water Resources Agency
University of Delaware

American Rivers/NOAA Community-based Restoration Program
(Final Progress Report April 1, 2015)

Project Title

White Clay Creek Wild & Scenic River Shad Restoration Project (Delaware)
Removal of Dam No. 1

Project Narrative

The objective of this project was to remove White Clay Creek Dam No. 1 (RM 4.2) to reopen 3.5 miles and 42 acres of spawning habitat along the National Wild and Scenic River for the passage of American shad, hickory shad, and herring in New Castle County, Delaware. The dam was removed by the contractor on December 4 and 5, 2014. This was the first dam removal project for fish passage in the State of Delaware. Removal of downstream-most Dam No. 1 along the White Clay Creek Wild and Scenic River is the first and most critical step in a 5-year plan to remove an additional 6 upstream dams and reopen fish passage for 14 miles from tidewater inland to the Piedmont at the Delaware/Pennsylvania state line.

Methodology

We utilized construction funds to remove the deteriorated middle 40 feet of Dam No. 1 for fish passage while preserving 60 feet of the historic remnants of the 100 feet long 1770's Colonial era mill dam such as the timber crib, masonry abutments, and vestiges of the original raceway.

With receipt of permits, we worked with the owner Delaware Racing, Inc. at the White Clay Creek Country Club, Merit Construction, Inc., and Duffield Associate, Consulting Engineers to remove Dam No. 1 during December 2014 well before the traditional end of the spring anadromous fish spawning season which begins in March/April 2015. We utilized the contractor to utilize low impact hydraulic construction equipment and work to remove the stone and boulder-sized rocks and timber from 40 feet of the crumbling dam. The rocks will be repositioned along both stream banks at the site of the dam as part of stream restoration. Snagged trees and concrete debris were removed from the site. A 40 feet wide portion of the dam was removed from right to left (looking upstream) starting at an existing breach in the dam to allow for a gentle flushing of accumulated sediment. Important historic timber frame structure in the left side of the dam will be left intact as an example of 18th century engineering. The timber remnants and iron spike were transported by the contractor to a laboratory at the University of Delaware STAR campus for further evaluation by archeologists. Volunteers will plant trees to reforest the stream banks and increase effective shading area to reduce stream water temperatures during spring/fall 2015. An interpretative sign is under design for installation at the dam site during spring 2015.

Results/Progress to Date

We have completed the following work to date (April 1, 2015).

**AR NOAA White Clay Creek Dam No. 1 Delaware
Progress Report April 1, 2015**

Budget Item	Progress
I. Public Education/Outreach	Complete 2011 (Funded by FAF)
II. Field Survey	Complete 2011 (Funded by FAF)
III. Pre-project Stream Monitoring	Complete 2011 (Funded by FAF)
IV. Design Drawings and Specifications	Complete 2011 (Funded by FAF)
V. Obtain Permits	Submitted applications June 2011 Rec'd Del. Subaqueous Permit (Aug 2012) Rec'd New Castle Co. floodplain approval (Jan 2014) Rec'd NPS Wild & Scenic Sec 7 approval (Feb 2014) Rec'd Sec 106 Fed. Historic Approval by MOA (Apr 2014) Rec'd USACOE approval (Jun 2014)
VI. Sediment Transport Monitoring	Baseline sediment sampling complete. Post removal sediment transport monitoring to be conducted during spring 2015.
VII. Cultural Survey, Phase II (White Clay Creek Dam No. 1)	Completed cultural survey field work. Completed MOA for Section 106 SHPO approval. Historic Covenant prepared. Five interested parties participated in Section 106 process.
VIII. Interpretive Signage Supplies (3 sided weather-proof kiosk) \$2,000 Installation (2 laborers, 1day @ \$500/day \$1,000)	To be installed at site of Byrnes Dam No. 1 during spring 2015.
IX. Remove Dam No. 1 Retain contractor to remove Dam No. 1.	Owner reviewed bids and selected approved contractor. Contractor (Merit Construction with oversight by Duffield Associates) removed 40 ft of dam during Dec 2014.
X. Stream Habitat Restoration/Reforestation Volunteer (Restoration/reforestation)	Planned Spring 2015 after dam removal
XI. Stream Cleanup	Planned Spring 2015 after dam removal.
XII. Post-project Monitoring/Fish Abundance	Planned Spring 2014 after dam removal.

Budget (Expended)

Staff:	\$39,268
Grad Research Student:	\$5,242
Undergraduate Research Student:	\$2,430
Subcontractor (Duffield/Contractor):	\$27,500
Administrative/Overhead	<u>\$11,166</u>
AR/NOAA Grant	<u>\$85,606</u>

List the habitat type(s) and the stream miles opened upstream and downstream for fish access. Actual and Projected columns should add up to the total(s) for acreage to be restored with CRP funds indicated in the approved proposal.

Habitat Type	Actual Stream Miles Opened for Fish Access	Projected Stream Miles Opened for Fish Access (i.e. Remainder to be restored with CRP funds by award end date)
Tidal/Freshwater	4.3	7.8

Monitoring and Maintenance Activities

Conducted water quality and sediment monitoring (Oct 2012).

Completed field studies to characterize historic nature of 1777 dam (Feb 2013)

MONITORING ACTIVITIES

*List of monitoring techniques used (e.g. salinity, fish counts, vegetation presence/absence):*1.

- Water quality monitoring.
- 2. Field survey of dam
- 3.
- 4.
- 5.

Community Involvement

Will conduct stream cleanup Spring 2015.

Outreach Activities

Press releases regarding dam removal in UD Daily newsletter, Delaware News Journal, American River blog, and National Geographic.

Additional Project Benefits

Supporting Materials

UD receives grant to restore habitat in White Clay Creek

The White Clay Creek—a designated National Wild and Scenic River near Newark, Delaware—will benefit from the \$85,606 grant awarded to the University of Delaware through a national partnership between American Rivers and the National Oceanic and Atmospheric Administration (NOAA).

American Rivers selected the White Clay Creek restoration project in Delaware as one of just six projects from more than 200 grant applications submitted nationwide. Projects in California,

Delaware, Massachusetts, and Oregon will receive restoration grants. Delaware's project is titled "White Clay Creek Dam No. 1 Removal."

Removing White Clay Creek's Dam No. 1, a historic colonial mill timber-crib dam built around 1777 near present-day Delaware Park, reopens 3.5 miles and 42 acres of spawning habitat along the waterway in New Castle County for passage of anadromous fish (American shad, hickory shad, and herring) for the first time in over two centuries and will also improve public safety during floods, as the dam is in disrepair and in danger of failing.

As the first dam-removal project for fish passage in the state of Delaware, this is the first and most critical step in a five-year plan to remove an additional six upstream dams, which will reopen fish passage for 14 miles from tidewater inland to the Piedmont at the Delaware/Pennsylvania state line.

Principal Investigator Gerald Kauffman, director of the Water Resources Agency (WRA), a unit within the School of Public Policy & Administration's Institute for Public Administration (IPA), provided oversight of research and field work during dam removal.

The American Rivers/NOAA grant funded a multi-disciplinary UD research team, which includes internships for undergraduate and graduate students in IPA and the Center for Historic Architecture and Design, both of which are research centers in the School of Public Policy and Administration (College of Arts and Sciences), Department of Geologic Sciences (College of Earth, Ocean, and Environment), and Department of Civil & Environmental Engineering (College of Engineering).

Key UD partners in this project included the U.S. National Park Service, White Clay Creek Wild and Scenic Watershed Management Committee, Delaware Division of Fish and Wildlife, Delaware Park, Inc., Merit Construction, and Duffield Associates

The White Clay Creek watershed is one of only a few unspoiled and ecologically functioning river systems in the metropolitan corridor between Philadelphia and Baltimore. About 180,000 people—about 20% of Delaware's population—receive drinking water from the watershed, which spans 107 square miles from southeast Pennsylvania to northwest Delaware. In 2000 it became first interstate watershed to be designated a National Wild and Scenic River and protected in its entirety. UD is one of just two universities in the U.S. that has a National Wild and Scenic River flowing through campus.

Rivers connect us to one another, to nature, and to future generations. Since 1973, American Rivers, the leading organization working to protect and restore the nation's rivers and streams, has fought to preserve these connections by helping protect and restore more than 150,000 miles of rivers through advocacy efforts, on-the-ground projects, and the annual release of the America's Most Endangered Rivers® list. Headquartered in Washington, D.C., American Rivers has offices across the country and more than 100,000 supporters, members, and volunteers nationwide.

Funding Information (In-kind)

Budget Category	AR/NOAA Funds	Matching Contributions	Total Expense	Nature (cash or in-kind) and Source of Match
Vi. Sediment Transport	3,500	5,546	9,046	In-kind from UDWRA
VII. Cultural Survey	7,940	25,000	32,940	In-kind from UDWRA

Budget Narrative: Describe expenditures by category and explain any differences between actual and scheduled expenditures. Include documentation of volunteer hours and in-kind donations.

RESTORATION INFORMATION- Please complete this section to the best of your ability.

What indirect benefits resulted from this project? (e.g. improved water quality, increased awareness/stewardship)

Improved water quality and enhanced of freshwater mussel abundance.
Stream erosion control.

Report Prepared By: Gerald J. Kauffman
Signature

April 1, 2015
Date

Please send semi-annual and final progress reports and supporting materials to:

Serena McClain
American Rivers
1101 14th Street, NW
Suite 1400
Washington, DC 20005

CONTACT INFORMATION

Contact Name: Gerald J. Kauffman
University of Delaware
Street Address: DGS Annex Academy St.
City: Newark
State: Delaware_ Zip: 19716
Phone: 302-831-4929_ Fax: _____
E-mail: jerryk@udel.edu
Organization website (if applicable): www.wra.udel.edu

PROJECT INFORMATION

Project Title: « White Clay Creek Wild & Scenic River Shad Restoration Project (Delaware) - Removal of Dam No. 1

Project Award Number: _____ «ID» _____ Project Reporting Period: April 15, 2014 – April 1, 2015

Project Location - Wilmington, DE, New Castle County

Congressional District(s): DE (1)

Landmark (e.g. road intersection, beach): White Clay Creek at Delaware Park

Land Ownership: Delaware Race Track

Geographic Coordinates (in decimal degrees):

Longitude (X-coord): _____

Latitude (Y-coord): _____

River Basin: White Clay Creek

Geographic Identifier (e.g. Chesapeake Bay): Delaware Estuary

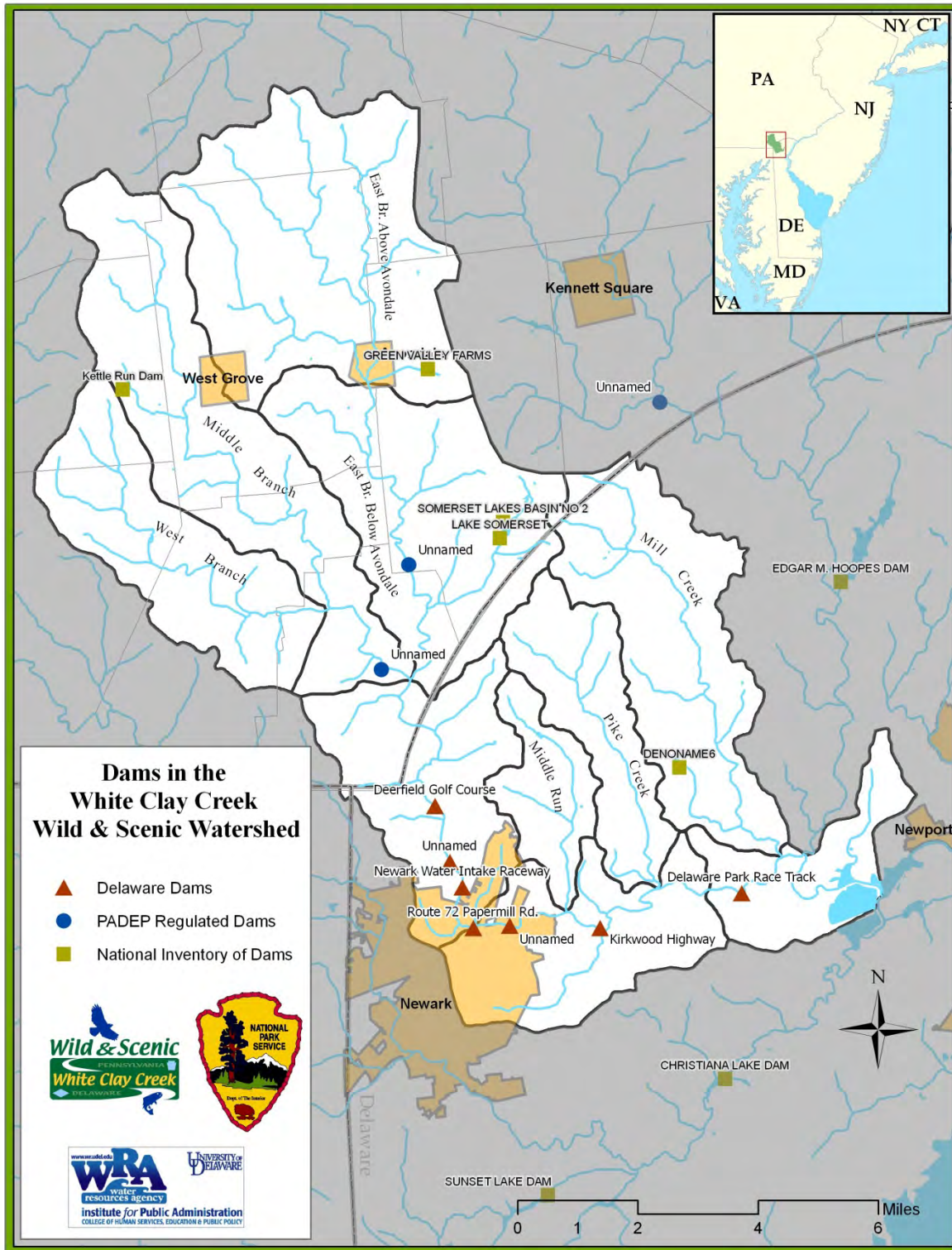
Project Start Date: Oct 1, 2013 Project End Date: December 15, 2015

Project Volunteers:

Number of Volunteers: _____ Volunteer Hours: _____

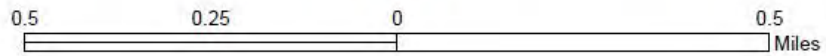
Mapping

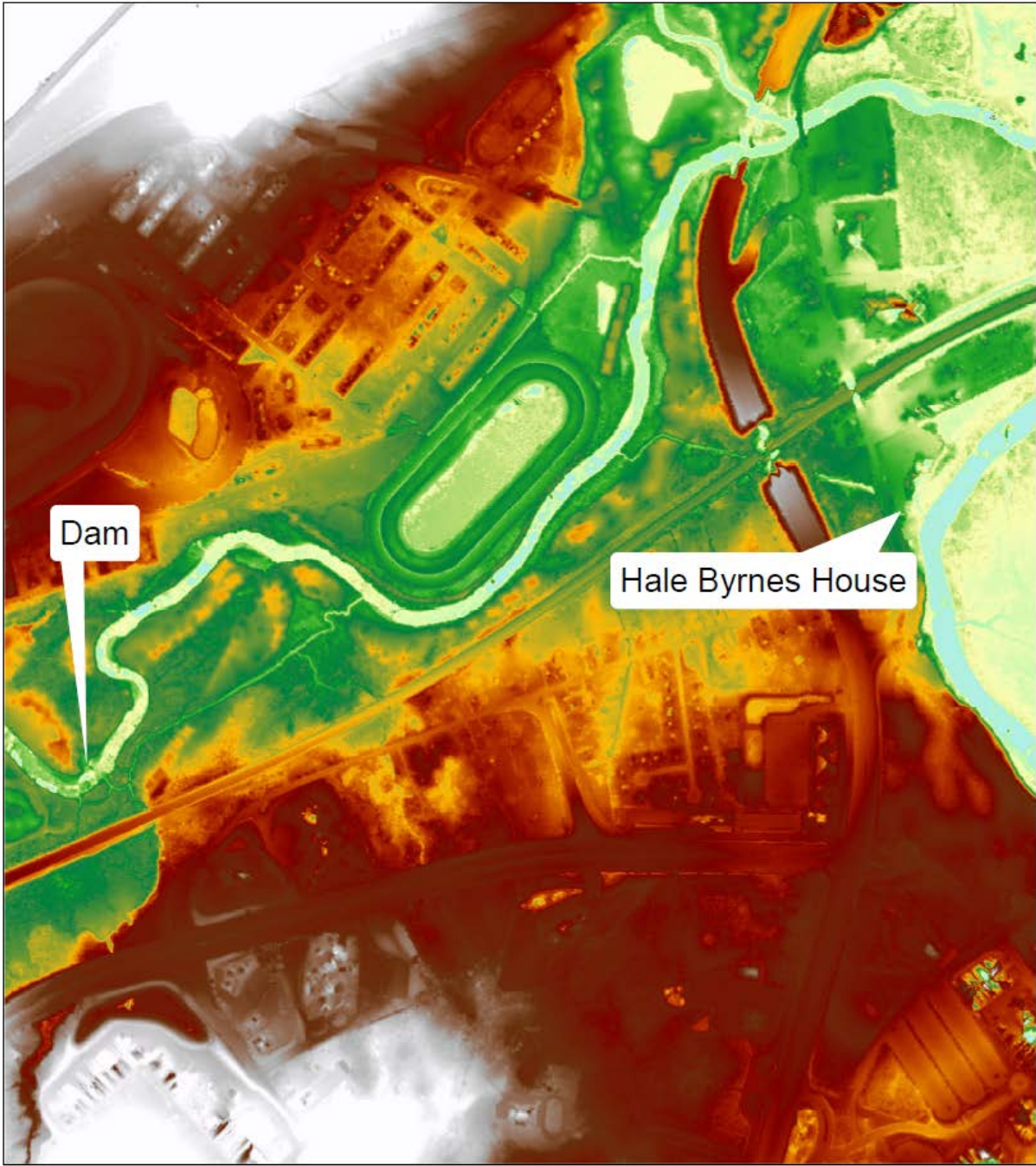




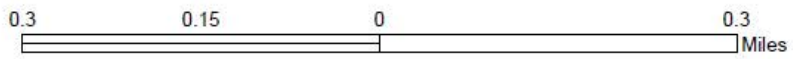


Delaware Park Dam to Hale Byrnes House
2007





Delaware Park Dam to Hale Byrnes House
2007 LIDAR



Documents/Correspondence

PH0021563

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE: Delaware	
COUNTY: New Castle	
FOR NPS USE ONLY: JUN 2 1972	
ENTRY NUMBER 2-9-20-257	DATE 4-9-72

1872

SEE INSTRUCTIONS

1. NAME

COMMON:
Boyce

AND/OR HISTORIC:
Hale-Byrnes House

2. LOCATION

STREET AND NUMBER:
Corner of Route 7 and Route 4

CITY OR TOWN:
Stanton

STATE:
Delaware

CODE: 10 COUNTY: New Castle CODE: 003



3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input type="checkbox"/> Site <input type="checkbox"/> Object <input checked="" type="checkbox"/> Building <input type="checkbox"/> Structure	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Park <input type="checkbox"/> Public Association <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered	<input checked="" type="checkbox"/> Occupied <input type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress	<input checked="" type="checkbox"/> Yes: Restricted <input type="checkbox"/> Unrestricted <input type="checkbox"/> No
PRESENT USE (Check One or More as Appropriate)			
<input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input type="checkbox"/> Museum	<input type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input type="checkbox"/> Transportation <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Cemeteries

4. OWNER OF PROPERTY

OWNER'S NAME:
State of Delaware, Division of Historical & Cultural Affairs,
Department of State

STREET AND NUMBER:
Hall of Records

CITY OR TOWN:
Dover

STATE:
Delaware

CODE:
10

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC:
New Castle County Courthouse

STREET AND NUMBER:
Rodney Square

CITY OR TOWN:
Wilmington

STATE:
Delaware

CODE:
10

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:
Historic American Building Survey

DATE OF SURVEY: 1936 Federal State County Local

DEPOSITORY FOR SURVEY RECORDS:
Library of Congress

STREET AND NUMBER:
[Blank]

CITY OR TOWN:
Washington, D.C.

STATE:
[Blank]

CODE:
[Blank]

STATE: Delaware

COUNTY: New Castle

FOR NPS USE ONLY

ENTRY NUMBER: 2-9-20-257

DATE: JUN 2 1972



7. DESCRIPTION Date 8/1972 CONDITION	(Check One)					
	<input checked="" type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
8. PLEASE CHECK THE PRESENT AND ORIGINAL (IF known) PHYSICAL APPEARANCE	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

The Hale-Syrnes house sits on the west bank of White Clay Creek where route 7 from Stanton to Christiana meets route 4 to Ogletown. It is a five bay brick house built upon stone. There are two stories with attic on the road side. The sharp slope of the bank allows the basement to be fully exposed on the creek side.

The house was built in two sections. The south section has been dated 1750, and the north section is somewhat later. The larger south end was designed in the William Penn style. That is, two small rooms off one large main entrance room which takes in the entire width of the house. During restoration, only one of these small rooms, the "Miller's Office" on the creek side, has been retained. These two south end rooms had a triangular chimney in common. The fireplaces with curved reveals and the floors are original. All other architectural features, such as chair rails, doors, panelled walls, iron fixtures, belong to the restoration. The stair is old, and installed in the location of the original stairway.

The second floor above this part has three rooms with small fireplaces in each. There is a main door on this floor opening out over the creek onto probably what was once a landing. This may have been used to facilitate moving of furniture to the second story as the stairway, narrow and circular, restricted movement. The attic does not run across the entire building, but is divided where the two original sections were joined. Original pegs and numbers in the rafters can be seen.


The north, later section of the house is divided into two rooms. The west, road side has a handsome large brick fireplace 5'4" high that takes up almost all of one side of the wall. There is evidence of a former bee hive oven in the back of the fireplace. Two pintels, both on the right side of the fireplace, are original. The other iron work has been added recently to fit the style and period of the building. The room next to this and the second floor above have been adapted for the needs of the present caretaker's quarters. Again each of the two rooms above has the original small fireplace. The flooring and stairs have the original boards of Delaware red pine.

Within, the house has been tastefully restored. Outside, the Georgian brick work remains. There is a belt course and a water table and the roof, now new, replaces the original as it was. Modern landscaping and parking area adapt the setting to meet the present purpose of the house, that is for civic, patriotic societies, and public visitation. This is enhanced by the natural beauty of the creek, several handsome, old sycamore trees, and an old spring house to be restored. The professional architect who assisted in the restoration was Mr. Albert Kruse.

SEE INSTRUCTIONS

SEE INSTRUCTIONS

5. SIGNIFICANCE			
PERIOD (Check One or More as Appropriate)			
<input type="checkbox"/> Pre-Columbian	<input type="checkbox"/> 16th Century	<input checked="" type="checkbox"/> 18th Century	<input type="checkbox"/> 20th Century
<input type="checkbox"/> 12th Century	<input checked="" type="checkbox"/> 17th Century	<input type="checkbox"/> 19th Century	
SPECIFIC DATES (If Applicable and Known) <u>ca. 1750 - 1772</u>			
AREAS OF SIGNIFICANCE (Check One or More as Appropriate)			
<input type="checkbox"/> Aboriginal	<input type="checkbox"/> Education	<input type="checkbox"/> Political	<input type="checkbox"/> Urban Planning
<input type="checkbox"/> Prehistoric	<input type="checkbox"/> Engineering	<input checked="" type="checkbox"/> Religion/Philosophy	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Historic	<input checked="" type="checkbox"/> Industry	<input type="checkbox"/> Science	<input type="checkbox"/> Sculpture
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Landscape Architecture	<input type="checkbox"/> Social/Humanities	<input type="checkbox"/> Theater
<input checked="" type="checkbox"/> Architecture	<input type="checkbox"/> Literature	<input type="checkbox"/> Military	<input type="checkbox"/> Transportation
<input type="checkbox"/> Art	<input type="checkbox"/> Literature	<input type="checkbox"/> Music	
<input checked="" type="checkbox"/> Commerce			
<input type="checkbox"/> Communications			
<input type="checkbox"/> Conservation			



STATEMENT OF SIGNIFICANCE

The Hale-Byrnes House had a significant role in local industrial history and was a specific scene for an important encounter of the American Revolutionary War. Still in its original site, it remains a handsome example of 18th century architecture with its exterior Georgian brick work and interior original fireplaces.

First mention of the Hale-Byrnes House on White Clay Creek appears in 1752. The south end built in the William Penn plan was probably constructed by Samuel Hale after he purchased the property in 1750. Samuel Hale, from Philadelphia, was a potter and used the long cellar opening onto the creek as storage space for his pottery. It was conveniently near the creek's landing described by a contemporary source (1752) as the "most frequented landing on said creek." White Clay Creek empties one mile south into the Christiana River, then a major artery of northern Delaware.

The property changed hands and was bought by Daniel Byrnes who built a mill nearby about 1772. As he moved his family to live there at this time it is surmised that the north wing was added then to extend the living area and allow a separate kitchen area. Byrnes, a native of Kent County, was a devout Quaker and a spiritual leader in the Society of Friends when he moved to Philadelphia in 1784. While still in Delaware it is said that he held Quaker meetings in his home at White Clay Creek. Byrnes also invented a wooden instrument (later produced in brass) for the purpose of taking lunar observations to measure the angular distance between the sun and moon including the attitudes of both at the same time.

On September 3, 1777, a few days previous to the Battle of the Brandywine, the first battle between the invading British and Hessians and the defending light infantry of the Continentals had taken place at Cooches Bridge, less than five miles away from the Byrnes residence. This house is at the intersection of the Ogletown Road from Newark and the King's Highway from Christiana, and since the British under Lord William Howe were only a few miles down both roads, everyone knew a battle might occur at any time. General George Washington had ordered the Continental cannon to be placed directly in front of the house so that the artillerymen could cover both roads if the British came up either of them. The cannon

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Coghlan, Jill M., "Chain of Title Old Boyce House." Unpublished manuscript, N.D.
Delaware Advertiser, July 30, 1829.
Delaware Gazette, September 21, 1821.
Delaware Journal, September 12, 1828.
Delaware Military Archives, III, 1863.
 Scharf, J. Thomas, History of Delaware, 1609-1888, 2 vols., Richards & Co., Philadelphia, 1888.
The Pennsylvania Magazine of History and Biography, LIV, 106; VI, 343; XLVII, 378.

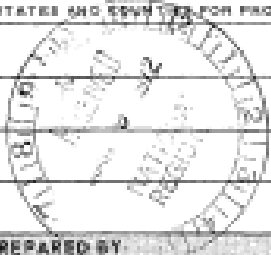
10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds	
NW	° ' "	° ' "		75° 40' 00"	39° 43' 30"	
NE	° ' "	° ' "				
SE	° ' "	° ' "				
SW	° ' "	° ' "				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 1.004

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES:

STATE	CODE	COUNTY	CODE



SEE INSTRUCTIONS

11. FORM PREPARED BY:

NAME AND TITLE: Mr. Rea Wilkie, Historic Registrar

ORGANIZATION: Div. of Historical & Cultural Affairs DATE: 1/14/72

STREET AND NUMBER: Hall of Records

CITY OR TOWN: Dover STATE: Delaware CODE: 10

12. STATE LIAISON OFFICER CERTIFICATION NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National State Local

Name Dr. E. Berkeley Tompkins
 Title State Liaison Officer
 Date 1-26-72

I hereby certify that this property is included in the National Register.

Robert W. Tuttle
 Chief, Office of Archeology and Historic Preservation
 Date 4/2/72

ATTEST:
William H. Neenke
 Director of the National Register
 Date _____

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Delaware	
COUNTY	New Castle	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE
		JUN 8 1972

(Number all entries)

8. SIGNIFICANCE (cont'd.) -- Page 2

were placed on this rise of ground as thick as they could stand. General Washington, Marquis de la Fayette, General Anthony Wayne, General Nathaniel Greene and other high ranking officers including Captain Robert Kirkwood of near Newark, had arranged earlier in the day for Daniel Byrnes to make his house available for a council of war. It was decided to move picket lines a few miles closer to the British who were at this time still south of Christiana.

In 1790 Byrnes sold the house and it passed through several owners including Andrew C. Gray, the distinguished lawyer and democratic leader. The property eventually was acquired by the Delaware Society for the Preservation of Antiquities who were responsible for the restoration. On August 31, 1971, the property was generously given to the Division of Historical and Cultural Affairs of the State of Delaware.



Bethany M. Bearmore, P.E.
Coastal Restoration Engineer
NOAA Restoration Center
James J. Howard Marine Fisheries Laboratory
74 Magruder Road
Highlands, New Jersey 07732

August 26, 2010

Re: FAF 10025 White Clay Creek Shad Restoration Project – Removal of Dam No. 1
Engineering Design and Permits Scope

Dear Ms. Bearmore:

I am writing this letter in support of the University of Delaware's Institute for Public Administration, Water Resources Agency (UDWRA) project proposed for funding under the FishAmerica Foundation. The proposed project will complete the engineering design and permit applications for removing Dam No. 1. The intended outcome of this project is to restore fish passage on the Wild and Scenic White Clay Creek.

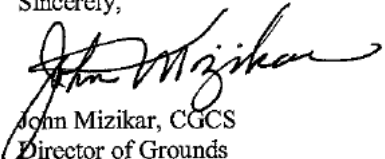
The White Clay Creek watershed was federally designated a Wild and Scenic River in 2000 and lies in the 565 square mile Christina River Basin and spans 107 square miles in Pennsylvania and Delaware. The White Clay Creek watershed is an extremely significant watershed locally, nationally, and regionally. The White Clay Creek is the first National Wild and Scenic River designated as such on a watershed basis rather than as a single river corridor.

This preliminary step (engineering design and permit applications) is critical to achieve the ultimate goal, removing Dam No. 1. Situated at the head of tide, 4.2 miles above the creek mouth, Dam No. 1 is the first and most critical obstacle to fish passage. Removal of Dam No. 1 will be the first dam removal project in the State of Delaware, will restore upstream and downstream habitat, and will open an additional 3.5 miles of stream to shad and anadromous fish migration. Funding for the design and permit applications for Dam No. 1 should launch the systematic removal of all 7 fish passage barriers on the Wild and Scenic White Clay Creek along 14 miles between sea level and the stateline at Pennsylvania.

This project also has the potential to initiate the systematic shad restoration efforts at a new level of awareness in a broader community and to bring new partners and funding sources into both the Brandywine Creek watershed and the White Clay Creek watershed shad restoration efforts. As property owner, I support this effort on the White Clay Creek. Thank you for the opportunity to support this application.

If you have any questions concerning my support for this project, please contact me at (302) 994-2521 ext. 7307

Sincerely,



John Mizikar, CGCS
Director of Grounds

White Clay Creek Country Club @ Delaware Park



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM
4878 Hay Point Landing Road
Smyrna, Delaware 19077
Phone: 302-735-8651
Fax: 302-453-3431

December 30, 2010
(Request received November 23, 2010)

Martha Corrozi Narvaez
Water Resources Agency
Institute for Public Administration
University of Delaware
Newark, DE 19716

RE: Removal of Dam #1 on White Clay Creek at Delaware Park, Newark, DE

Dear Ms Narvaez:

Thank you for contacting the Natural Heritage and Endangered Species program about information on rare, threatened and endangered species, unique natural communities, and other significant natural resources as they relate to the above referenced project.

Bog Turtle

Phase I surveys in the vicinity of Dam #1 revealed that there is no habitat that would support the federally threatened bog turtle (*Glyptemys mühlenbergii*). Although there is no habitat at this project site, White Clay Creek is a potential migration corridor between habitats. Because dam #1 is likely an impediment to migratory activities and given the high energy of flow at the dam and distance from potential habitats, it is unlikely turtles would occur within the project area. Therefore, a time of year restriction for in-water work is not being requested.

Fisheries Concerns

White Clay Creek supports important resident and migratory fish species. The protection of spawning and nursery habitats and migratory corridors during the spawning season is important in maintaining these fisheries resources. American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), and alewife (*Alosa pseudoharengus*) collectively known as alosines, utilize the river during spawning and then as a nursery habitat for young-of-the-year. Habitat degradation is one factor leading to a decline in the populations of these species. American shad numbers have indicated serious declines along the East Coast and is a species currently undergoing restoration efforts. Alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*), often collectively referred to as 'river herring', are listed by the National Marine Fisheries Service as a Species of Concern¹. These species are

¹ Species of Concern are those species about which NOAA's National Marine Fisheries Service (NMFS) has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act (ESA).

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Sent to: mcorrozi@UDeI.Edu
U of DE 2010 WCC Dam 1

important to both commercial and recreational fisheries and form an important forage base for other fish and animal species. In addition, the following state-rare fish species were observed in White Clay Creek during recent sampling efforts: *Noturus insignis* (marginated madtom) and *Lampetra appendix* (American brook lamprey). These state-rare fish species are also listed as Species of Greatest Conservation Need⁷ in the Delaware Wildlife Action Plan.

This project will largely benefit all the fish species listed above because it involves the removal of an impediment to upstream migration. In order to minimize direct impacts to spawning adults and developing fry, we recommend in-water project activities not take place March 1st - June 30th.

State Natural Heritage Site Determination

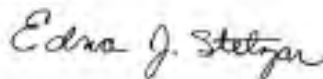
This project is expected to improve habitat for species of conservation concern by removal of an impediment to upstream migration. At present, this project does not lie within a State Natural Heritage Site, nor does it lie within a Delaware National Estuarine Research Reserve which are two criteria used to identify "Designated Critical Resource Waters" in the Army Corps of Engineers (ACOE) Nationwide Permit General Condition No. 19. A copy of this letter shall be included in any permit application or pre-construction notification submitted to the Army Corps of Engineers for activities on this property.

White Clay Creek Wild and Scenic

This project is within the area designated as the White Clay Creek Wild and Scenic River as administered by the National Park Service (NPS). Contact Charles Barscz, Program Leader at NPS for more information: (215) 397-6482 or e-mail charles_barscz@nps.gov.

We are continually updating records on Delaware's rare, threatened and endangered species, unique natural communities and other significant natural resources. If the start of the project is delayed more than a year past the date of this letter, please contact us again for the latest information. If you have any questions, please contact me at (302) 733-8634 or Edna.Stetzar@state.de.us.

Sincerely,



Edna J. Stetzar
Biologist/Environmental Review Coordinator

CC: Andy Moser, Endangered Species Biologist, Chesapeake Bay Field Office, USFWS

⁷ Species of greatest conservation need are indicative of the overall diversity and health of the State's wildlife resources. Some may be rare or declining, others may be vital components of certain habitats, and still others may have a significant portion of their population in Delaware. SOCN are identified in the Delaware Wildlife Action Plan (DEWAP) which is a comprehensive strategy for conserving the full array of native wildlife and habitats-common and uncommon-as vital components of the state's natural resources. Congress challenged the states to demonstrate comprehensive wildlife conservation. Delaware, along with all of the other states and provinces throughout the country are working to implement their wildlife action plans. This document can be viewed via the Division of Fish and Wildlife's website at <http://www.dfw.delaware.gov/dwaps/index/defa01.asp>.

Sent to: mccorrori@UDeI.Edu
U of DE 2010 WCC Dam 1

State of Delaware
Historical and Cultural Affairs

2) The Green
Dover, DE 19901-3611

Phone: (302) 739.7400

Fax: (302) 739.3000

December 8, 2011

Review Code: 2010.11.23.01

Dr. Laura Craig
Associate Director
River Restoration
American Rivers
P.O. Box 14986
Philadelphia, PA 19149

Project: Removal of White Clay Creek Dam One at Delaware Park
New Castle County, DE

Dear Dr. Craig,

The staff of this Office has reviewed *Significance Evaluation of the White Clay Creek Dam One, White Clay Creek and Mill Creek Hundred, New Castle County, Delaware*, written by Catherine Morrissey and Rebecca Sheppard of the University of Delaware Center for Historic Architecture and Design. Our technical comments on this report were presented in separate correspondence.

Dam Number One is a unique feature in our landscape. Its exposed timbers can allow the researcher to study the construction methods of an 18th century dam. The methods employed by the builders do not easily conform to our current understanding of dam construction that is based on the historical sources. The dam offers valuable data for future research that will enhance our understanding of these important structures. Therefore, we find Dam Number One to eligible for the inclusion in the National Register of Historic Places under Criterion D, for the data it contains. The National Register boundary of this property should include the immediate area of the dam which encompasses both stone abutments, the stone central pier, the wooden timbers, and the water control structure. Also, we recommend the western or upper section of the mill race should be included as well, given that it retains good integrity. The thirty foot-wide historical boundary for the mill race would be appropriate for the National Register boundary.

In the meeting of November 30 at the University of Delaware, several design options were presented that would meet the goal of fish passage. At this time, all of the options would have an adverse effect on the dam. It was the consensus of the meeting that more research is required to understand the dam ruins in order to develop a sensitive design.



Letter to Dr. L. Craig
December 6, 2011
Page 2

Given the ambitious construction schedule, we recommend that your organization work with the National Oceanic and Atmospheric Administration, which is funding this undertaking, to immediately begin the process that is triggered when an adverse effect is anticipated. The Advisory Council on Historic Preservation must be notified of the determination and a packet of documentation should be sent. The required contents and the format can be found at 36CFR800.11(e), which is displayed at: <http://www.achp.gov/regs-rev04.pdf>. This documentation must also be sent to our office.

We urge you to consider alternatives that may avoid or minimize adverse effects to this historic structure. We are available to meet again in the near future to consult over the design features, or to negotiate a Memorandum of Agreement if avoidance of adverse effects is not possible. Please contact Craig Lukezic, who is reviewing this project, at craig.lukezic@state.de.us when you are ready to proceed with these steps.

Sincerely,



Gwennyth A. Davis
Deputy State Historic Preservation Officer

cc: Timothy Slavin, Director and State Historic Preservation Officer, DHCA
Craig Lukezic, Division of Historical and Cultural Affairs
Dr. Gerald J. Kauffman, University of Delaware.



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

MAY - 7 2012

May 4, 2012

Delaware Racing Association
Attn: Bill Fasy
777 Delaware Park Blvd.
Wilmington, DE 19804

Re: Subaqueous Lands Permit – SP-313/11 - To remove Dam No. 1 from the White Clay Creek at Delaware Park, 777 Delaware Park Blvd., Wilmington, New Castle County, Delaware

Dear Mr. Fasy:

Enclosed is the Subaqueous Lands Permit granted by the State of Delaware. Please carefully read all of the Special and General Conditions. The permittee and the contractor are responsible to ensure that all conditions of the Permit are strictly adhered to. **Please note that the enclosed Contractor's Pre-Construction Authorization Form must be completed, signed by the contractor, and submitted to this office prior to beginning construction, and the Post Construction Contractor's Completion Report form must be completed and returned to this office within 10 days of completing the permitted work.**

If you have any questions regarding this approval, please contact Jim Chaconas of this office.

Sincerely,

Laura M. Herr
Section Manager
Wetlands & Subaqueous
Lands Section

c: Jerry Kauffman, UD Water Resources Agency

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STATE OF DELAWARE
 DEPARTMENT OF NATURAL RESOURCES &
 ENVIRONMENTAL CONTROL
 DIVISION OF WATER
 89 KINGS HIGHWAY
 DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
 LANDS SECTION

TELEPHONE (302) 739-9945
 FACSIMILE (302) 739-6304

**SUBAQUEOUS LANDS PERMIT
 PRE-CONSTRUCTION CONTRACTOR'S
 AUTHORIZATION FORM**

Recipient of Permit: Delaware Racing Association
 Subaqueous Lands Permit No.: SP-313/11
 Approval Date of Approved Plans: May 2, 2012

I hereby certify, that I have read and understand all of the special and general conditions of the above-referenced Permit, and that I will construct the project authorized by the Permit in accordance with the approved plans for the project, as referenced on page one of the Permit. I further certify that a copy of the approved plans shall be available at the project site at all times during construction of the project.

_____	_____
Contractors Name	Contractors Company
_____	_____
Contractor's Signature	Date

Daytime Telephone Number	

Prior to construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

*DNREC
 Wetlands and Subaqueous Lands Section
 89 Kings Highway
 Dover, Delaware 19901*

Or faxed to the Wetlands and Subaqueous Lands Section at: 302/739-6304

This form must be received by the Department prior to the start of construction. Once the form has been received, the Department will call the contractor's telephone number listed above to confirm receipt.

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STATE OF DELAWARE
 DEPARTMENT OF NATURAL RESOURCES &
 ENVIRONMENTAL CONTROL
 DIVISION OF WATER
 89 KINGS HIGHWAY
 DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
 LANDS SECTION

TELEPHONE (302) 739-9943
 FACSIMILE (302) 739-6304

**SUBAQUEOUS LANDS PERMIT
 POST-CONSTRUCTION
 CONTRACTOR'S COMPLETION REPORT**

Recipient of Permit: Delaware Racing Association

Subaqueous Lands Permit: SP-313/11

Approval Date of Approved Plans: May 2, 2012

I hereby certify that I have constructed the project authorized by the above-referenced Permit in accordance with the approved plans for the project, as referenced in the Permit.

 Printed Name of Contractor

 Name of Company

 Contractor's Signature

 Date

 Daytime Telephone Number

Upon completion of construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

*DNREC
 Wetlands and Subaqueous Lands Section
 89 Kings Highway
 Dover, Delaware 19901*

Or faxed to the Wetlands and Subaqueous Lands Section at: 302/739-6304

This form must be received by the Department within ten days of the date that construction is completed. Once the form has been received, the Department will call the contractor's telephone number listed above to confirm receipt.

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DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
NOTICE OF AUTHORIZATION

Permit/Lease No. and Description: SP-313/11 TO REMOVE DAM 1, CONSTRUCT A STONE WEIR, INSTALL 90 LINEAR FEET OF COIR LOG AND PLANT NATIVE VEGETATION IN AND ALONG WHITE CLAY CREEK AT DELAWARE PARK, 777 DELAWARE PARK BLVD, WILMINGTON, NEW CASTLE COUNTY, DELAWARE

Issued to: The Delaware Racing Association

Location of Work: Same as above

Date of Expiration: 05/07/2015

**DISPLAY THIS CERTIFICATE IN A
HIGHLY VISIBLE LOCATION ON THE JOB SITE.**


Laura M. Herr, Section Manager
Wetlands & Subaqueous Lands Section



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

Subaqueous Lands Permit: SP-313/11
Date of Issuance: 5/7/2012
Construction Expiration Date: 5/7/2015
Amended Date:
Tax Map Nos.: 08-050.00012, 08-055.00-
005 & 09-017.00-056

**SUBAQUEOUS LANDS PERMIT
GRANTED TO THE DELAWARE RACING ASSOCIATION
TO REMOVE DAM 1, CONSTRUCT A STONE WEIR, INSTALL 90 LINEAR FEET
OF COIR LOG AND PLANT NATIVE VEGETATION
IN AND ALONG WHITE CLAY CREEK
AT DELAWARE PARK, 777 DELAWARE PARK BLVD.
WILMINGTON, NEW CASTLE COUNTY, DELAWARE**

Delaware Racing Association
Attn: Bill Fasy
777 Delaware Park Blvd.
Wilmington, DE 19804

Pursuant to the provisions of 7 Del. C., §7205, and the Department's Regulations Governing the Use of Subaqueous Lands, permission is hereby granted on this 7th day of May A.D. 2012, to construct the above referenced project in accordance with the plans for this Permit (7 sheets), as approved on May 2, 2012 and received by this Division on October 12, 2011; and application dated September 19, 2011, and received by this Division on June 2, 2010, with additional information received on December 2, 2011.

WHEREAS, pursuant to the provisions of 7 Del. C., §7203, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

This Permit is issued subject to the following conditions:



SPECIAL CONDITIONS

1. To protect spawning fish in this stream corridor, none of the construction activity authorized by this Permit shall be conducted from March 1 through June 30 of any year.
2. All work should be planned for periods of low waterway base flows. In the event that sediment and erosion controls are damaged or destroyed due to storm events, such controls shall be repaired and/or replaced immediately.
3. Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants in surface waters.
4. Erosion control and/or soil stabilization matting used for this project shall be free of any plastic or other non-degradable materials. Erosion control and/or soil stabilization matting shall be comprised of natural degradable materials such as coir or jute. Disturbed areas shall be seeded with a mix of herbaceous native plant species suitable for shady conditions.
5. All construction debris, excavated material, brush, rocks and refuse incidental to such work shall be placed above the influence of surface waters.
6. Removal of wetlands and/or aquatic vegetation adjacent to the permitted construction by burning, cutting, herbicide treatments or other methods is prohibited. Removal of wetlands and/or aquatic vegetation in the path of construction shall be minimized.
7. The woody and herbaceous plantings and the seed mix identified in the approved plans shall be planted immediately following construction, or by the beginning of the planting season following completion of the stabilization work.
8. All in-stream structures including the stone weir and coir logs shall be monitored for a period of two years following construction to make certain the structures were installed correctly and are functioning as intended. The permittee and contractor are responsible to take corrective measures in the event the structures are damaged or fail to function for their intended purpose. Corrective actions may include reconstruction, removal, or redesign (with prior Department approval) of structures, as necessary.
9. This office shall be notified within 10 days of the completion of the work by completing and submitting the enclosed Subaqueous Lands Permit Post Construction Contractor's Completion Report.

GENERAL CONDITIONS

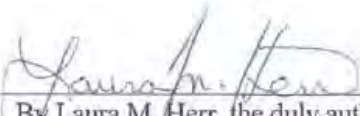
1. The work authorized herein shall be completed in accordance with the terms and conditions of the Department of the Army Nationwide Permit No. 27 for aquatic habitat, restoration, establishment, and enhancement activities.
2. This Permit is granted for the purpose of removing a dam to improve fish passage and sediment transport in this reach of White Clay Creek, as stated in the permit application. Any other use without prior approval shall constitute reason for this Permit being revoked.
3. The permittee and contractor shall at all times comply with all applicable laws and regulations of the Department of Natural Resources and Environmental Control.
4. The activities authorized herein shall be undertaken in accordance with the permit conditions, the final stamped and approved plans, and with the information provided in the permit application.
5. A copy of this Permit and the stamped approved plans shall be available on-site during all phases of construction activity.
6. The conditions contained herein shall be incorporated into any and all construction contracts associated with the construction authorized herein. The permittee and contractor are responsible to ensure that the workers executing the activities authorized by this Permit have full knowledge of, and abide by, the terms and conditions of this Permit.
7. The permittee shall protect and save the State of Delaware harmless from any loss, cost or damage resulting from the activities authorized herein.
8. The issuance of this Permit does not constitute approval for any activities that may be required by any other local, state or federal government agency.
9. The issuance of this Permit does not imply approval of any other part, phase, or portion of any overall project the permittee may be contemplating.
10. This Permit authorizes only the activities described herein. Modifications to the project may require a supplemental approval from this office prior to the initiation of construction. A determination of the need for a supplemental approval will be made by this office pursuant to

the permittee submitting written notification and revised plans indicating project changes. Failure to contact the Department prior to executing changes to the project shall constitute reason for this Permit being revoked.

11. Representatives of the Department of Natural Resources and Environmental Control shall be allowed to access the property to inspect all work during any phase of the construction and may conduct pre and post-construction inspections, collect any samples or conduct any tests that are deemed necessary.
12. The activities authorized herein shall be conducted so as not to violate the State of Delaware's Surface Water Quality Standards, as amended June 11, 2011.
13. All construction materials, waste or debris associated with this activity shall be properly disposed of and contained at all times to prevent its entry into waters or wetlands. Construction materials shall not be stockpiled in subaqueous lands or wetlands.
14. Disturbance of subaqueous lands or wetlands adjacent to the authorized structures or activities is prohibited. Disturbance of subaqueous lands or wetlands in the path of construction activity shall be minimized. Any temporarily impacted subaqueous lands or wetlands shall be returned to pre-disturbance elevations and conditions.
15. The permittee and contractor shall employ measures during construction to prevent spills of fuels, lubricants or other hazardous substances. In the event of a spill, the permittee and contractor shall make every effort to stop the leak and contain the spill, and shall immediately contact the Hazardous Spill Response Team (HAZMAT) at 1-800-662-8802 and this office at (302) 739-9943. The permittee and contractor are responsible to comply with all directives to contain and clean up the spilled material(s) as stipulated by the HAZMAT team, and to restore the site as may be required by this office.
16. None of the activities authorized herein shall occur after the construction expiration date identified on Page 1 of this Permit. The permittee may file one construction expiration date extension request of up to one (1) year if necessary to complete the authorized work. Such requests must be received by the Department at least thirty (30) days prior to the construction expiration date.
17. The permittee shall notify the Wetlands and Subaqueous Lands Section prior to the commencement of the work authorized by this Permit.
18. The permittee shall maintain all authorized structures and activities in a good and safe condition.

19. Any actions, operations or installations which are found by the Department to be contrary to the public interest may constitute reason for the discontinuance and/or removal of said action, operation or installation. Removal and restoration shall be at the expense of the permittee and/or upland property owner within thirty (30) days of receipt of written notice of revocation and demand for removal.
20. This Permit is personal but may be transferred provided the permittee provides prior notice to the Department of the intent to transfer and the new property owner provides appropriate documentation to substantiate ownership of the adjacent upland property and/or the structures authorized herein. Failure to transfer this Permit to a new owner may result in the revocation of the Permit and the removal of all structures authorized by this Permit at the expense of the permittee.
21. Failure to comply with any of the terms or conditions of this Permit may result in enforcement action, which could include the revocation of this Permit and subsequent restoration of the site to preconstruction conditions.

IN WITNESS WHEREOF, I, Laura M. Herr, the duly authorized representative of Collin P. O'Mara, Secretary of the Department of Natural Resources and Environmental Control, have hereunto set my hand this 7th day of May, 2012.



By Laura M. Herr, the duly authorized
representative of the Secretary of the
Department of Natural Resources and
Environmental Control

**Preservation Covenant for White Clay Creek Dam No. 1 and Millrace
(Delaware Racing Association) Draft Feb 10, 2013**

In consideration of the preservation of certain real property, hereafter referred to as contained within a portion of the lands of Delaware Racing Association, located in the County of New Castle, State of Delaware, which is more fully described as:

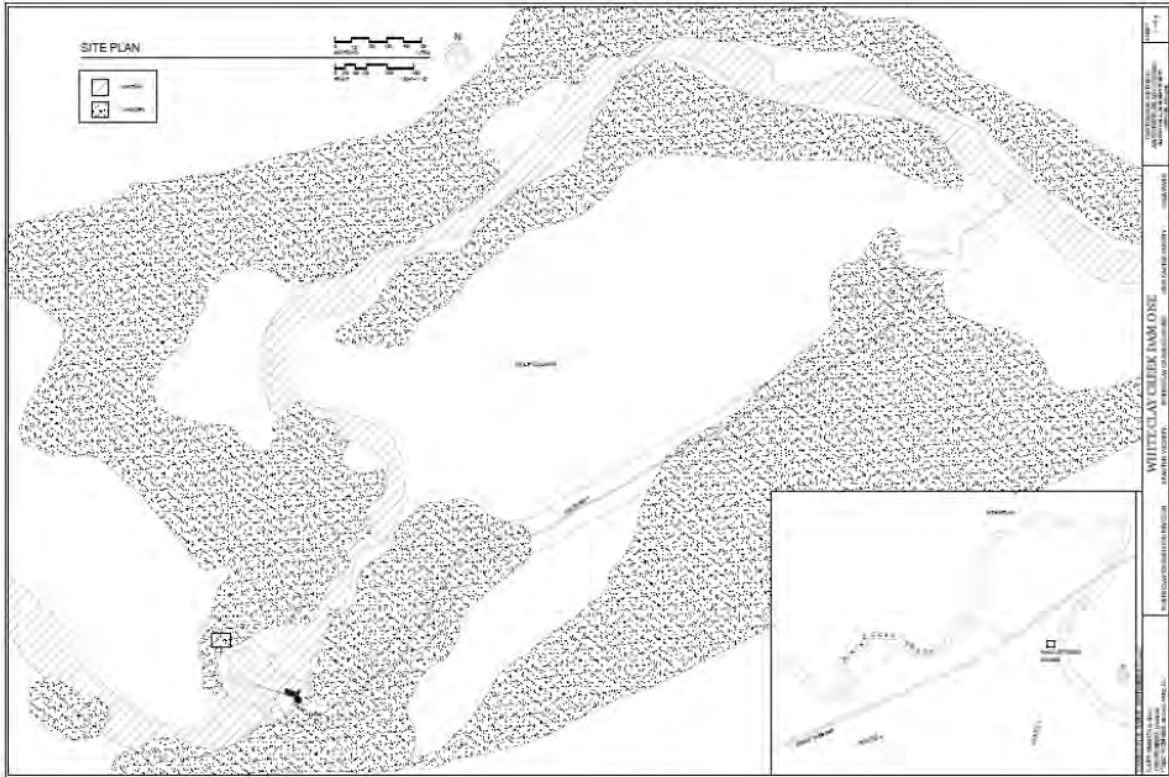
White Clay Creek Dam No. 1 and associated masonry abutments and millrace that flows from the dam and 2100 feet downstream to its intersection with White Clay Creek all bounded by a 300 feet buffer as depicted on Attachment A, White Clay Creek Dam One prepared by the Center for Historic Architecture and Design, University of Delaware, March 9, 2011.

Delaware Racing Association hereby covenant on behalf of themselves, their heirs, successors and assigns at all time to the Delaware State Historic Preservation Officer (hereafter DE SHPO) to maintain and preserve the parcel of land which contains White Clay Creek Dam No. 1 and associated millrace as follows:

1. Delaware Racing Association shall preserve and maintain this White Clay Creek Dam No. 1 and associated millrace in accordance with the attached Management Plan in order to preserve and protect the historic remnants of an 18th century timber crib dam.
2. No construction, alteration or disturbance of the ground surface or any other thing, not identified in this Preservation Covenant and the attached Management Plan, shall be undertaken or permitted to be undertaken on this White Clay Creek Dam No. 1 and associated millrace which would affect the integrity of the historic dam and millrace without the express prior written permission of the DE SHPO, signed by fully authorized representatives thereof.
3. The DE SHPO shall be permitted at all reasonable times to inspect this White Clay Creek Dam No. 1 and associated millrace in order to ascertain if the above conditions are being observed.
4. This covenant is binding on Delaware Racing Association, their heirs, successors, and assigns in perpetuity. Restrictions, stipulations, and covenants contained herein shall be inserted by Delaware Racing Association verbatim or by express reference in any deed or other legal instrument by which it divests itself of either the fee simple title or any other lesser estate of property which includes the land which contains this White Clay Creek Dam No. 1 and associated millrace or any part thereof.
5. The failure of the DE SHPO to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any other right or remedy or the use of such right or remedy at any other time.
6. The DE SHPO may, for good cause, modify or cancel any or all of the foregoing conditions or restrictions upon application of the Delaware Racing Association, their heirs, successors

The area included in this preservation covenant encompasses the White Clay Creek Dam No. 1 and associated millrace. It is surrounded by other lands of Delaware Racing Association. The White Clay Creek Dam No. 1 and millrace includes 190,000 square feet of land, more or less, and currently includes the historic remnants of an 18th century timber crib dam thought to be constructed by Daniel Byrnes circa 1777. The dam along the White Clay Creek is currently left untouched. Portions of the mill race serves as a drainage channel for the golf course. During operation of the golf course, Delaware Racing Association, their heirs and successors will preserve and protect this White Clay Creek Dam No. 1 and millrace in the following manner:

- a. The limits of the White Clay Creek Dam No. 1 and millrace will be delineated in the field by a surveyor licensed by the State of Delaware following the survey location information contained within Attachment A of the Preservation Covenant. Conspicuous, permanent markers will be placed at all corners which bound it. These boundary markers will be installed prior to initiating any clearing of vegetation and/or site development preparation. These boundary markers will be maintained at all times.
- b. Any ground disturbance associated with the full or partial removal of Dam No. 1 or development of the golf course will avoid any transgression into the preservation area. Prior to the initiation of any construction, White Clay Creek Dam No. 1 and millrace will be temporarily fenced off, using conspicuous orange blaze fencing or its equivalent, from all construction activity.
- c. Landscape development and maintenance of the area will be conducted with care so as not to disturb the historic remnants of the dam that will be left intact after removal.
- d. Landscape development may include the installation of a perimeter fence around the dam. Plans and specifications for a permanent perimeter fence will be submitted to the DE SHPO for review and approval.
- e. At no time will mechanical equipment larger than a _____ be permitted to transgress the White Clay Creek Dam No. 1.
- h. All landscape vegetation located within the area containing the dam and raceway including grass, will be reasonably maintained.
- i. It shall be the responsibility of Delaware Racing Association, their heirs, successors or assigns to inform landscape installers and/or other maintenance workers as to the restrictions contained within the Preservation Covenant and this Management Plan.



Attachment A

White Clay Creek Dam One prepared by Center for Historic Architecture and Design, University of Delaware, March 9, 2011.



School of Public Policy
& Administration
INSTITUTE FOR PUBLIC ADMINISTRATION

180 Graham Hall
Newark, DE 19716-7380
Phone: 302-831-8971
Fax: 302-831-5488
Email: ipa@udel.edu

Craig Lukezic
State of Delaware
Division of Historical and Cultural Affairs
21 The Green
Dover, DE 19901-3611

March 15, 2013

RE: Dam No. 1 – White Clay Creek National Wild and Scenic River

Dear Craig:

This is in reference to the proposed removal of a portion of Dam No. 1 to restore passage of anadromous fish along the White Clay Creek National Wild and Scenic River in New Castle County, Delaware. Based on the findings from the State Historic Preservation Office (SHPO) that the circa 1777 dam is historic, we are preparing to notify the Advisory Council on Historic Preservation of the determination and submit a packet of documentation.

Could you kindly review the following draft documentation and submit comments for us to incorporate before we notify the Advisory Council?

1. Draft Preservation Covenant
2. Draft MOA
3. Draft Nomination to the National Historic Register

Should you have any questions, please do not hesitate to contact me at 302-831-4929 or jerryk@udel.edu. Thank you.

Warmly:

Gerald J. Kauffman, Director
University of Delaware
Water Resources Agency

Cc: Laura Craig, American Rivers
Rebecca Sheppard, University of Delaware, Center for Historic Architecture and Design

May 6, 2013

Ms. Edna Stetzar
Delaware DNREC, Natural Heritage Program
Division of Fish and Wildlife
4876 Hay Point Landing Road
Smyrna, Delaware 19977

RE: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware, NHPA Section 106 Compliance, Invite to Potential Consulting Parties

Dear Ms. Stetzar:

The purpose of this letter is to inform you of the Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware and to invite you to become a consulting party in the Section 106 consultation process in accordance with the National Historic Preservation Act.

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), is entering into the Section 106 consultation process in accordance with the National Historic Preservation Act. The project team has developed engineering plans and is currently in project regulatory permitting.

The project partners aim to restore fish passage for river herring, shad and American eel in the White Clay Creek watershed through partial removal of the Byrnes Mill Dam, also known as White Clay Creek Dam #1, located on the White Clay Creek. The dam lies within the grounds of the White Clay Creek Country Club's golf course, northwest of the intersection of Ogletown-Stanton Road (Route 4) and Churchmans Road (Route 58) in the vicinity of Stanton, Delaware. Daniel Byrnes constructed the millrace and dam circa 1773-1777. The dam is eligible for inclusion in the National Register of Historic Places under Criterion D, for the data it contains. As a result, the project has been designed to minimize site impacts. The preferred alternative is to remove the deteriorating middle 40 feet of the 100 foot wide, 3-8 foot high timber and rockfill dam to restore fish passage.

If you would like a copy of any of the proposed work plans and/or the historic/archaeological information developed to date, please let me know and I will provide this to you.

Please notify me by May 20, 2013 if your organization would like to serve as a consulting party in the Section 106 consultation. It is assumed that if NOAA is not contacted by this date, your organization is not interested in serving as a consulting party. Please call (410-267-5644) or email me (mary.andrews@noaa.gov) of your interest to participate, or if you have any questions about this request.

Sincerely,

Mary P. Andrews, P.E., P.W.S.
Environmental Engineer
NOAA Restoration Center

Cc: Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Gwenyth A. Davis, Deputy State Historic Preservation Officer
Laura Craig, American Rivers

Potential Consulting Parties List:

Ms. Edna Stetzar
Delaware DNREC, Natural Heritage Program
Division of Fish and Wildlife
4876 Hay Point Landing Road
Smyrna, Delaware 19977

Ms. Dorothy Miller
Coalition for Natural Stream Valleys
430 Orchard Rd., Newark DE 19711

Mr. John Theilacker
Brandywine Conservancy
US Route 1, P.O. Box 141
Chadds Ford PA 19317

Mr. Kevin Donnelly
New Castle County Conservation District
2430 Old Country Road
Newark, DE 19702

Ms. Kristen Travers
Delaware Nature Society
58 East Mill Station Drive
Newark DE 19711

Linda Stapleford
White Clay Creek State Park Advisory Committee
802 Dallam Road
Newark, DE 19711 Shane Morgan

White Clay Creek Wild and Scenic River Coordinator
182 Sawmill Road
Landenberg, PA 19350

Tom Zawislak
White Clay Watershed Association
120 Great Circle Rd.
Landenberg PA 19350

United Water Delaware
505 N. Market Street
Wilmington, Delaware 19801

Delaware Historical Society
505 N. Market Street
Wilmington, Delaware 19801

Preservation Delaware
New Castle Courthouse Museum
211 Delaware St.
New Castle, DE 19720

The Hale-Byrnes House
606 Stanton Christiana Rd
Newark, DE 19713

Dennis J. Coker: Principal Chief
Lenape Indian Tribe of Delaware
P.O. Box 79 Cheswold
DE 19936

Friends of White Clay Creek State Park
P. O. Box 9734
Newark, DE 19714

Mr. Don Klima, Director
Eastern Office of Project Review
Advisory Council on Historic Preservation
The Old Post Office Building
1100 Pennsylvania Avenue, NW RM 803
Washington DC 20004

May 6, 2013

Mr. Don Klima, Director
Eastern Office of Project Review
Advisory Council on Historic Preservation
The Old Post Office Building
1100 Pennsylvania Avenue, NW RM 803
Washington DC 20004

Re: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware

Dear Mr. Klima:

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), wishes to notify the Advisory Council on Historic Preservation (ACHP) of a finding of adverse effect for the Byrnes Mill Dam AKA White Clay Creek Dam #1 Removal Project in New Castle, Delaware. In addition, this letter provides a description of the work that has been completed as part of this proposed project for your review and is intended to provide you with an opportunity to participate in the consultation process should you choose to do so.

Project Description

The Byrnes Mill Dam, also known as White Clay Creek Dam #1, is located on the White Clay Creek, approximately 1.2 miles upstream from the mouth of the Creek. The dam lies within the grounds of the White Clay Creek Country Club's golf course, northwest of the intersection of Ogletown-Stanton Road (Route 4) and Churchmans Road (Route 58) in the vicinity of Stanton, Delaware. Daniel Byrnes constructed the millrace and dam circa 1773-1777. Typical of plank crib dams, the Byrnes Mill Dam has four main elements: abutments (or cribs), aprons, a foundation, and a dam wall. Currently, the north side of the dam is breached, and the building elements on that side of the creek are damaged. The most intact remains of the dam are on the south side of the creek, where the plank crib dam construction is visible.

The plank wall of the mill dam spans from the fieldstone abutment on the south side of the White Clay Creek to the remains of the abutment, now breached, on the north side. The mill dam wall is constructed with squared hand-hewn timbers, laid across the creek. Though almost one-third of the mill dam wall is mostly intact, the other two-thirds of the dam are breached on the north end, leaving only portions of the bottom timber and the apron intact. The Byrnes Mill Dam apron is made of planks about 2 inches thick and is pinned to the foundation that extends underneath the dam wall face.

The apron originally spanned the entire creek, but now survives only on the south side. The fieldstone abutment on the north side of the creek is constructed of uncoursed mortared

fieldstone. The southern fieldstone abutment is coated with poured cement, dated 1900, for stabilization of the structure.

The millrace originally stretched almost 2 miles, opening on the south side of the creek just upstream from the dam and running to the mill located near the Hale-Byrnes House (Delaware CRS# N00246). The race itself ranges from 4 to 10 feet in width, and is a hand-dug earthen channel that originally terminated downstream on the White Clay Creek near Bread and Cheese Island. Today, with the breach of the dam, the water is no longer high enough to fill the raceway. Thus, the millrace is no longer functional. Most of the raceway is still visible and can be followed on foot across the golf course. However, the watercourse of the White Clay Creek was altered in the twentieth century, and one section of the raceway was absorbed by the creek's new course around the racetrack on the north side of the Creek, while another part was cut off by the reconfiguration of Routes 7 and 4. The race is no longer visible at the historic terminus point near the Hale-Byrnes House.

The project partners propose to remove White Clay Creek Dam No. 1 to restore anadromous fish passage. In consultation with the State of Delaware Historical and Cultural Affairs, the preferred alternative to remove the deteriorating middle 40 feet of the 100 foot wide, 3-8 foot high timber and rockfill dam.

Steps Taken to Identify Historic Properties

White Clay Creek Dam #1 is a unique feature in our landscape and is eligible for inclusion in the National Register of Historic Places under Criterion C. In consultation with the State of Delaware Historical and Cultural Affairs, NOAA concluded that the partial dam removal will have an adverse effect on historic resources. NOAA is working cooperatively with State of Delaware Historical and Cultural Affairs, property owners, and interested parties to determine appropriate mitigation measures and will be developing a Memorandum of Agreement (MOA) with the State of Delaware Historical and Cultural Affairs.

Anticipated mitigation may include preservation of portions of the historic dam structures and disseminating information on Delaware's architectural history in relationship to the project and APE. These efforts may include pamphlets, guides, or other media that provide historical information in the Project Area or describe National Register listed or eligible historic properties identified in the project area. NOAA and the State of Delaware Historical and Cultural Affairs will also consider interpretive signage at the site, although initial discussions indicate that signage may not be an appropriate mitigation measure due to limited accessibility by the public.

Opportunities were provided to potential consulting parties to participate in project planning and design through multiple public meetings over a three year period, as well as written letters to potential consulting parties to afford them an opportunity to become formally involved in the Section 106 consultation. To date, no one has responded to NOAA or any other project partners, relative to becoming a formal consulting party. However, NOAA has identified interested parties and has worked with them to develop the partial dam removal design and will continue to work with them as the design is finalized. The project will continue to be advertised as it completes regulatory review.

The following project documentation is available upon request:

- Significance Evaluation of the White Clay Creek Dam One, White Clay Creek and Mill Creek Hundred, New Castle County, Delaware, written by Catherine Morrissey and Rebecca Sheppard of the University of Delaware Center for Historic Architecture and Design
- Restoration of Shad and Anadromous Fish to the White Clay Creek National Wild and Scenic River: A Feasibility Report. June 2010
- December 2011 Determination Letter from State of Delaware Historical and Cultural Affairs
- Minutes from Public Meetings April 2010, September 2011, January 2012, September 2012 and December 2012 in which the dam removal was discussed with the general public.

A final draft of the MOA will be forwarded to you for ACHP review and comment. Please advise NOAA as to whether the ACHP will participate in this consultation. NOAA will continue to work with the project proponents, State of Delaware Historical and Cultural Affairs, regulatory agencies, other interested parties and the general public to ensure the development of a MOA meets the regulatory intent of the National Historic Preservation Act. Project permitting is expected to conclude in summer 2013 and construction is anticipated to begin by December 2013.

NOAA appreciates the opportunity to work cooperatively with your office on this important project. If you have any questions, please contact Mary Andrews, NOAA Technical Monitor for the White Clay Creek Dam #1 Removal Project at (410) 267-5644.

Sincerely,

John Catena
 Northeast Regional Supervisor
 NOAA Restoration Center

cc: Gerald J. Kauffman, University of Delaware - Water Resources Agency
 Ms. Joan Larrivee, Delaware State Historic Preservation Office
 Ms. Gwenyth Davis, Deputy State Historic Preservation Officer
 Laura Craig, American Rivers
 Mary Andrews, NOAA Restoration Center
 Miguel Aparicio, NOAA Federal Preservation Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

May 13, 2013

Mr. Don Klima, Director
Eastern Office of Project Review
Advisory Council on Historic Preservation
The Old Post Office Building
1100 Pennsylvania Avenue, NW RM 803
Washington DC 20004

Re: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware

Dear Mr. Klima:

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), wishes to notify the Advisory Council on Historic Preservation (ACHP) of a finding of adverse effect for the Byrnes Mill Dam AKA White Clay Creek Dam #1 Removal Project in New Castle, Delaware. In addition, this letter provides a description of the work that has been completed as part of this proposed project for your review and is intended to provide you with an opportunity to participate in the consultation process should you choose to do so.

Project Description

The Byrnes Mill Dam, also known as White Clay Creek Dam #1, is located on the White Clay Creek National Wild and Scenic River, approximately 1.2 miles upstream from the mouth of the Creek. The dam lies within the grounds of the White Clay Creek Country Club's golf course, northwest of the intersection of Ogletown-Stanton Road (Route 4) and Churchmans Road (Route 58) in the vicinity of Stanton, Delaware. Daniel Byrnes constructed the millrace and dam circa 1773-1777. Typical of plank crib dams, the Byrnes Mill Dam has four main elements: abutments (or cribs), aprons, a foundation, and a dam wall. Currently, the north side of the dam is breached, and the building elements on that side of the creek are damaged. The most intact remains of the dam are on the south side of the creek, where the plank crib dam construction is visible.

The plank wall of the mill dam spans from the fieldstone abutment on the south side of the White Clay Creek to the remains of the abutment, now breached, on the north side. The mill dam wall is constructed with squared hand-hewn timbers, laid across the creek. Though almost one-third of the mill dam wall is mostly intact, the other two-thirds of the dam are breached on the north end, leaving only portions of the bottom timber and the apron intact. The Byrnes Mill Dam



Section 106 consultation. To date, no one has responded to NOAA or any other project partners, relative to becoming a formal consulting party. However, NOAA has identified interested parties and has worked with them to develop the partial dam removal design and will continue to work with them as the design is finalized. The project will continue to be advertised as it completes regulatory review.

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A final draft of the MOA will be forwarded to you for ACHP review and comment. Please advise NOAA as to whether the ACHP will participate in this consultation. NOAA will continue to work with the project proponents, State of Delaware Historical and Cultural Affairs, regulatory agencies, other interested parties and the general public to ensure the development of a MOA meets the regulatory intent of the National Historic Preservation Act. Project permitting is expected to conclude in summer 2013 and construction is anticipated to begin by December 2013.

NOAA appreciates the opportunity to work cooperatively with your office on this important project. If you have any questions, please contact Mary Andrews, for the White Clay Creek Dam #1 Removal Project at (410) 267-5644.

Sincerely,



John Catena
Northeast Regional Supervisor
NOAA Restoration Center

cc: Mr. Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Gwenyth Davis, Deputy State Historic Preservation Officer
Ms. Laura Craig, American Rivers
Ms. Mary Andrews, NOAA Restoration Center
Mr. Miguel Aparicio, NOAA Federal Preservation Officer



Preserving America's Heritage

May 16, 2013

Mr. John Catena
Northeast Regional Supervisor
National Oceanic and Atmospheric Administration
National Marine Fisheries Services
55 Great Republic Drive
Gloucester, MA 01930

Ref: *Proposed Byrnes Mill Dam (White Clay Creek Dam #1) Removal Project
New Castle County, Delaware*

Dear Mr. Catena:

On May 14, 2013, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed in or eligible for listing in the National Register of Historic Places. Unfortunately, the background documentation does not meet the specifications listed in Section 800.11(e). We, therefore, are unable to determine whether Appendix A of the regulations, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, applies to this undertaking. Accordingly, we request that you submit the following information so that we can determine whether our participation is warranted.

- A description of the undertaking, including photographs and maps, as necessary;
- A description of the steps to identify historic properties;
- A description of the affected historic properties, including information on the characteristics that qualify them for the National Register;
- A description of the undertaking's effects on historic properties;
- An explanation of why the criteria of adverse effect were found applicable or inapplicable; and
- Copies or summaries of any views provided by consulting parties and the public, including comments from the Tribal Historic Preservation Officers, Indian tribes, and the Delaware State Historic Preservation Officer (SHPO).

Upon receipt of the additional information, we will notify you within 15 days of our decision. Also, the letter from your office was addressed to Don Klima. For your information, Don is no longer the Director of Office of Federal Agency Programs. Don retired in January 2009. The new director is Reid Nelson. Please check our website at achp.gov for staff information if needed.

If you have any questions, feel free to contact Tom McCulloch at 202-606-8554, or via email at tmcculloch@achp.gov.

Sincerely,

Raymond V. Wallace
Historic Preservation Technician
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
56 Great Republic Drive
Gloucester, MA 01930-2276

May 20, 2013

Mr. Tom McCulloch
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW RM 803
Washington DC 20004

Re: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware

Dear Mr. McCullough:

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), is supplying supporting documentation to the Advisory Council on Historic Preservation (ACHP) of a finding of adverse effect for the Byrnes Mill Dam AKA White Clay Creek Dam #1 Removal Project in New Castle, Delaware.

The following project documentation is included with this correspondence:

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- Restoration of Shad and Anadromous Fish to the White Clay Creek National Wild and Scenic River: A Feasibility Report. June 2010

Project Description and Location

The Byrnes Mill Dam, also known as White Clay Creek Dam #1, is located on the White Clay Creek National Wild and Scenic River, approximately 1.2 miles upstream from the mouth of the Creek. The dam lies within the grounds of the White Clay Creek Country Club's golf course,



northwest of the intersection of Ogletown-Stanton Road (Route 4) and Churchmans Road (Route 58) in the vicinity of Stanton, Delaware. Daniel Byrnes constructed the millrace and dam circa 1773-1777. Typical of plank crib dams, the Byrnes Mill Dam has four main elements: abutments (or cribs), aprons, a foundation, and a dam wall. Currently, the north side of the dam is breached, and the building elements on that side of the creek are damaged. The most intact remains of the dam are on the south side of the creek, where the plank crib dam construction is visible.

Description of the Undertaking

The project partners propose to partially remove White Clay Creek Dam No. 1 to restore anadromous fish passage. In consultation with the State of Delaware Historical and Cultural Affairs, the proposed preferred alternative is to remove the deteriorating middle 40 feet of the 100 foot wide, 3-8 foot high timber and rockfill dam. Design plans are included for your review. Other alternatives investigated during the design phase include full dam removal and addition of fish passage structures. Full dam removal would eliminate the entire historical dam structure from abutment to abutment and did not meet the requirement to minimize effects to historical resources. Fish passage structures are not technically feasible given the current breached state of the dam and would require attaching concrete structures to the historic dam. Therefore, a partial removal of only the middle 40 feet of the breached dam was deemed both technically feasible and minimized adverse effects to historical resources. Additional details on the importance of restoring anadromous fish passage and a summary of fish passage alternatives investigated can be found in "Restoration of Shad and Anadromous Fish to the White Clay Creek National Wild and Scenic River: A Feasibility Report. June 2010."

Description of Undertaking's Effect on Historical Resources

The proposed preferred alternative is to remove the deteriorating middle 40 feet of the 100 foot wide, 3-8 foot high timber and rockfill dam. This will require the removal of 40 feet of the dam structure, including partial removal of the dam apron and foundation found within the river channel of White Clay Creek. This alternative does not alter the dam abutments or cribs, retaining wall, and raceway/millrace.

Steps Taken to Identify Historic Properties

The Center for Historic Architecture and Design at the University of Delaware completed a report titled "Significance Evaluation of the White Clay Creek Dam One, White Clay Creek and Mill Creek Hundred, New Castle County, Delaware" in 2011 and determined White Clay Creek Dam #1 is a unique feature in our landscape. The structure is eligible for inclusion in the National Register of Historic Places under Criterion D, for the data it contains. In consultation with the State of Delaware Historical and Cultural Affairs, NOAA concluded that the partial dam removal will have an adverse effect on historic resources. NOAA is working cooperatively with State of Delaware Historical and Cultural Affairs, property owners, and interested parties to determine appropriate mitigation measures and will be developing a Memorandum of Agreement (MOA) with the State of Delaware Historical and Cultural Affairs.

Anticipated mitigation may include preservation of portions of the historic dam structures and disseminating information on Delaware's architectural history in relationship to the project and APE. These efforts may include pamphlets, guides, or other media that provide historical information in the Project Area or describe National Register listed or eligible historic properties identified in the project area. NOAA and the State of Delaware Historical and Cultural Affairs will also consider interpretive signage at the site, although initial discussions indicate that signage may not be an appropriate mitigation measure due to limited accessibility by the public.

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A final draft of the MOA will be forwarded to you for ACHP review and comment. Please advise NOAA as to whether the ACHP will participate in this consultation. NOAA will continue to work with the project proponents, State of Delaware Historical and Cultural Affairs, regulatory agencies, other interested parties and the general public to ensure the development of a MOA meets the regulatory intent of the National Historic Preservation Act. Project permitting is expected to conclude in summer 2013 and construction is anticipated to begin by December 2013.

NOAA appreciates the opportunity to work cooperatively with your office on this important project. If you have any questions, please contact Mary Andrews, for the White Clay Creek Dam #1 Removal Project at (410) 267-5644.

Sincerely,



John Catena
Northeast Regional Supervisor
NOAA Restoration Center

cc: Mr. Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Gwenyth Davis, Deputy State Historic Preservation Office
Ms. Laura Craig, American Rivers
Ms. Mary Andrews, NOAA Restoration Center
Mr. Miguel Aparicio, NOAA Federal Preservation Officer

May 20, 2013

Mr. Tom McCulloch
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW RM 803
Washington DC 20004

Re: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware

Dear Mr. McCullough:

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Steps Taken to Identify Historic Properties

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Sincerely,

John Catena
Northeast Regional Supervisor
NOAA Restoration Center

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Ms. Joan Larrivee, Delaware State Historic Preservation Office
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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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56 Great Republic Drive
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May 20, 2013

Mr. Tom McCulloch
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW RM 803
Washington DC 20004

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Anticipated mitigation may include preservation of portions of the historic dam structures and disseminating information on Delaware's architectural history in relationship to the project and APE. These efforts may include pamphlets, guides, or other media that provide historical information in the Project Area or describe National Register listed or eligible historic properties identified in the project area. NOAA and the State of Delaware Historical and Cultural Affairs will also consider interpretive signage at the site, although initial discussions indicate that signage may not be an appropriate mitigation measure due to limited accessibility by the public.

Opportunities were provided to potential consulting parties to participate in project planning and design through multiple public meetings over a three year period, as well as written letters to potential consulting parties to afford them an opportunity to become formally involved in the Section 106 consultation. To date three parties have responded to NOAA relative to becoming a formal consulting party. However, NOAA will continue to work with them as the design is finalized and an MOA is signed. The project will continue to be advertised as it completes regulatory review.

A final draft of the MOA will be forwarded to you for ACHP review and comment. Please advise NOAA as to whether the ACHP will participate in this consultation. NOAA will continue to work with the project proponents, State of Delaware Historical and Cultural Affairs, regulatory agencies, other interested parties and the general public to ensure the development of a MOA meets the regulatory intent of the National Historic Preservation Act. Project permitting is expected to conclude in summer 2013 and construction is anticipated to begin by December 2013.

NOAA appreciates the opportunity to work cooperatively with your office on this important project. If you have any questions, please contact Mary Andrews, for the White Clay Creek Dam #1 Removal Project at (410) 267-5644.

Sincerely,



John Catena
Northeast Regional Supervisor
NOAA Restoration Center

cc: Mr. Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Gwenyth Davis, Deputy State Historic Preservation Office
Ms. Laura Craig, American Rivers
Ms. Mary Andrews, NOAA Restoration Center
Mr. Miguel Aparicio, NOAA Federal Preservation Officer



Preserving America's Heritage

May 24, 2013

Mr. John Catena
Northeast Regional Supervisor
National Oceanic and Atmospheric Administration
National Marine Fisheries Services
55 Great Republic Drive
Gloucester, MA 01930

*Ref: Proposed Byrnes Mill Dam (White Clay Creek Dam #1) Removal Project
New Castle County, Delaware*

Dear Mr. Catena:

On May 21, 2013, the Advisory Council on Historic Preservation (ACHP) received the additional information in support of your notification of adverse effects of the referenced project on properties listed on and eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Delaware SHPO, and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the opportunity to review this undertaking. If you have any questions, please contact Tom McCulloch at 202-606-8554, or via email at tmcculloch@achp.gov.

Sincerely,

Raymond V. Wallace
Historic Preservation Technician
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov



Wild & Scenic White Clay Creek

Ours to enjoy. Ours to protect.

- Mussel Survey Update (Doug)

Steering Committee Meeting Minutes

June 5, 2013, 10:00a.m. - Noon, London Britain Township Building

Attendees:

Wendel Cassel	James Walner	April Schmitt	Doug Janeic
Andrew Dinsmore	Don Peters	Kristen Travers	Jenny Egan
Ed O'Donnell	Martha Narvaez	Gary Schroeder	Ed Trommelen
Julie Bell	Aileen Parrish	Tom Hubbard	Bill Morton
Phil Geoghegan	Dorothy Miller	Andrea Withers	Linda Stapleford
John Theilacker	Jack Stefferud	Shane Morgan	Ingrid Feustel
Gerald Darke			

Introduction of Ed Trommelen, our summer intern. Ed is pursuing a BA in Parks and Recreation at California University of Pennsylvania. This internship is for 12 weeks and is unpaid, but after completing it, he will receive 12 credits towards his degree and fulfill his graduation requirements. Ed was given a 12-week work plan in which he will work half time for Delaware Nature Society (under Kristen T. supervision) doing stream monitoring and working on habitat and rain gardens (under Greg G. supervision). He will also work with the Brandywine Conservancy on some of the White Clay Creek Reforestation Sites doing maintenance and monitoring of tree mortality. He will also be working on a stormwater PR campaign for the WCCWSP as his final project for college credit.

Approval of March 2013 Minutes.

Next meeting will be scheduled for September.

Second Quarter 2013 Statement of Financials reviewed. It was noted that while we still do not have our final budget for FY2013, the expected budget is down to \$87,000. Shane Morgan proposed moving the allotted \$2848.50 for creek fest to the restoration budget since there is a surplus in that budget line, enough to fund next year's creek fest with out additional funds. The Committee voted to approve this adjustment to next year's budget.

Wendel Cassel, member of the Friends of White Clay Creek Preserve, gave a presentation on the proposed Tri-state marker trail followed by a question and answer period. The trail is a 4-mile loop with 9 stream crossings. Julie Bell, National Parks Service (NPS), indicated that no formal flora or faunal survey has been submitted to NPS. Bill Morton, White Clay Creek Preserve (PA) Manager, said there have been formal studies on the entire preserve and that he could provide a

copy to Julie. It was also noted that a small portion of the loop (~1mile) resides in Delaware, and while they have the support of the Delaware Park Management, they have no formal approval. The Friends Group has pursued approval in PA first since the majority of the trail resides there (~3 miles), and they have the support of PA DCNR. The goal is to gather momentum by getting the larger PA portion approved, and then apply for the smaller section in Delaware to get approved. Wendel will be presenting the trail loop to the Delaware Advisory Council in July.

Gary Schroeder mentioned that they have 100 members in the Friends group, and an adopt-a-trail program to handle trail maintenance.

Shane Morgan asked about where the rare plant species were located in regards to the trail. The trail does not go through those areas.

Linda Stapleford noted that she is excited about the project, and its historical significance. She endorsed the loop trail for its sustainable trails that should reduce maintenance, and for creating a bi-state loop that both Delaware and Pennsylvania residents can easily access.

Aileen Parrish, London Britain Township, echoed Linda's support.

April Schmitt asked about the machinery that would be used. Wendel said they would use a Ditch Witch SK500, a small walk behind bulldozer. The bridge crossings would be completed first before bringing in any equipment.

Wendel noted that they still need funding to construct the bridges and Jack Stefferud indicated that he could assist them in finding funding sources.

Announcements

- Stream and Buffer Ecology Workshop at Stroud, June 6, 9:30-3.
- Coalition for the Delaware River Watershed First Annual Meeting and Conference, June 10-11, 2013
- On-site lecture and tour with Margot Taylor. Her property is a Sustainable SITES pilot. We are working on picking a date in September. The tour needs to be limited to 20 people.

Subcommittee Reports

Education/Outreach (Shane)

- **Stream Adoption Workshop** (July/exact date TBD)– Kristen Travers is working with our intern, Ed Trommelen on setting this up at Middle Run (DE).
- **Children in Nature/Interpretive Hike** (Goddard Park, LGT) June 8, 10a.m. Twenty-four people registered for this hike. Watershed passports will be given out to children, and White Clay Creek trail maps will be provided for interested adults.
- Two schools were awarded scholarships for fieldtrips to **Educational Programs at Stroud**. 44 students from Holy Angels (DE) attended a 4.5-hour stream study

plus bussing, and 27 students from Assumption BVM (PA) were awarded a 4.5-hour stream study at Stroud (transportation not needed).

- **Creek Fest.** We had our largest attendance with over 1000 people, three new monetary sponsors, City of Newark, American Mushroom Institute, and Delaware Friends of the White Clay Creek State Park. 290 water bottles were given out, and **Watershed Passports** were provided to all children. It was noted that Matt Slap Subaru did not sponsor the passports, and the Creek Fest committee will be rethinking how to add different levels of sponsorships for next year's Creek Fest to be better prepared for corporate sponsors.

Research and Restoration

- ⑩ **Mussel Survey Update** (Doug) – PDE has completed their mussel survey in the White Clay Creek and did not find any mussels. They are now surveying the Red Clay Creek and will use their findings as a comparison. They will provide a summary to the Committee to review. Kristen T. added that DNS plans on doing some volunteer surveys in the White Clay Creek this summer.
- ⑩ **Dam removal/Shad restoration update** (Jerry) – Still waiting for a few things to be completed with SHPO. Once that is finalized the dam will be scheduled for removal, tentatively after Labor Day of this year. Jerry also noted that the William Penn Foundation has chosen the Christina Basin as one of eight target 'clusters' to receive watershed restoration funding. There are eight target clusters and between all eight, there is 8 million dollars to be awarded over a ten-year period for restoration projects with in the watershed clusters. They are currently working on forming an advisory committee for the Christina 'cluster'.
- ⑩ **Stream Monitoring for Bacteria** (Jenny) – PA DEP 2012 bacteria sampling testing resulting in two sites (sites 1 and 5) along the East Branch as having levels above 200 cfu, but the tests are inconclusive since one sample for each site was missing. Volunteers are needed to collect one more sample from each of the original 5 sites this swimming season (July-August). We may do additional sampling of these sites throughout the season and could add up to five more sites. PADEP would also like to do E. coli sampling at these sites, in addition to the fecal coliform tests, as they may be more indicative of bacteria that can cause human health issues. Kristen added that the headwaters of Mill Creek (DE) are also be sampled for bacteria. Delaware protocols test for enterococcus. It was also noted that in order to target the source of the bacteria, in either PA or DE, further testing using RNA would be needed.
- ⑩ **Fairfield Crest Community Habitat Garden** – (Shane) This garden was installed in May.
- ⑩ **Hoopes Farm Tour**- Tom Hubbard mentioned that there was a recent tour of Hoopes Farm (New Garden Township) during the DEEC conference. The Hoopes farm is part of UWDE Watershed Control Plan. Sixteen different environmental regulators from 5 different states in EPA Region 3 attended the tour. The Hoopes Farm is a great example of building bridges and cooperation among various stakeholders.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
NOAA Restoration Center
NOAA Chesapeake Bay Office
410 Severn Avenue, Suite 207A
Annapolis, MD 21403

September 20, 2013

President Robert Chicks
Stockbridge-Munsee Community
N8476 Moh He Con Nuck Road
P.O. Box 70
Bowler, Wisconsin 54416

RE: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware, NHPA Section 106 Compliance, Invite to Potential Consulting Parties

Dear President Chicks:

The purpose of this letter is to inform you of the Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware and to invite you to become a consulting party in the Section 106 consultation process in accordance with the National Historic Preservation Act.

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), is entering into the Section 106 consultation process in accordance with the National Historic Preservation Act. The project team has developed engineering plans and is currently in project regulatory permitting.

The project partners aim to restore fish passage for river herring, shad and American eel in the White Clay Creek National Wild and Scenic River through partial removal of the Byrnes Mill Dam, also known as White Clay Creek Dam #1. The dam lies within the grounds of the White Clay Creek Country Club's golf course, northwest of the intersection of Ogletown-Stanton Road (Route 4) and Churchmans Road (Route 58) in the vicinity of Stanton, Delaware. Daniel Byrnes constructed the millrace and dam circa 1773-1777. The dam is eligible for inclusion in the National Register of Historic Places under Criterion D, for the data it contains. As a result, the project has been designed to minimize site impacts. The preferred alternative is to remove the deteriorating middle 40 feet of the 100 foot wide, 3-8 foot high timber and rockfill dam to restore fish passage.

If you would like a copy of any of the proposed work plans and/or the historic/archaeological information developed to date, please let me know and I will provide this to you.



Please notify me by October 26, 2013 if your organization would like to serve as a consulting party in the Section 106 consultation. It is assumed that if NOAA is not contacted by this date, your organization is not interested in serving as a consulting party. Please call (410-267-5644) or email me (mary.andrews@noaa.gov) of your interest to participate, or if you have any questions about this request.

Sincerely,



Mary P. Andrews, P.E., P.W.S.
Environmental Engineer
NOAA Restoration Center

Cc: Mr. Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Craig Lukezic, State Historic Preservation Officer
Ms. Laura Craig, American Rivers



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
NOAA Restoration Center
NOAA Chesapeake Bay Office
410 Severn Avenue, Suite 207A
Annapolis, MD 21403

September 20, 2013

President Kerry Holton
Delaware Nation of Oklahoma
P.O. Box 825
Anadarko, OK 73005

RE: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware, NHPA Section 106 Compliance, Invite to Potential Consulting Parties

Dear President Holton:

The purpose of this letter is to inform you of the Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware and to invite you to become a consulting party in the Section 106 consultation process in accordance with the National Historic Preservation Act.

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), is entering into the Section 106 consultation process in accordance with the National Historic Preservation Act. The project team has developed engineering plans and is currently in project regulatory permitting.

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Sincerely,

A handwritten signature in cursive script that reads "Mary P. Andrews".

Mary P. Andrews, P.E., P.W.S.
Environmental Engineer
NOAA Restoration Center

Cc: Mr. Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Craig Lukezic, State Historic Preservation Officer
Ms. Laura Craig, American Rivers



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
NOAA Restoration Center
NOAA Chesapeake Bay Office
410 Severn Avenue, Suite 207A
Annapolis, MD 21403

September 20, 2013

Chief Paula Pechonick
Delaware Tribe of Indians
Delaware Tribal Offices
170 NE Barbara
Bartlesville, OK 74006

RE: Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware, NHPA Section 106 Compliance, Invite to Potential Consulting Parties

Dear Chief Pechonick:

The purpose of this letter is to inform you of the Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware and to invite you to become a consulting party in the Section 106 consultation process in accordance with the National Historic Preservation Act.

The National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, acting as the lead federal agency on behalf of the other project partners, including the Delaware Racing Association, University of Delaware Water Resources Agency, and American Rivers (hereafter, project partners), is entering into the Section 106 consultation process in accordance with the National Historic Preservation Act. The project team has developed engineering plans and is currently in project regulatory permitting.

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Sincerely,

A handwritten signature in cursive script that reads "Mary P. Andrews".

Mary P. Andrews, P.E., P.W.S.
Environmental Engineer
NOAA Restoration Center

Cc: Mr. Gerald J. Kauffman, University of Delaware - Water Resources Agency
Ms. Joan Larrivee, Delaware State Historic Preservation Office
Ms. Craig Lukezic, State Historic Preservation Officer
Ms. Laura Craig, American Rivers



Wild & Scenic White Clay Creek

Ours to *enjoy*. Ours to *protect*.

White Clay Creek Wild and Scenic Program
Steering Committee Meeting
December 10, 2013, 1:00 p.m. - 3:00 p.m.
New Garden Township Building, 299 Starr Road, Landenberg PA 19350

AGENDA

Introductions

Approval of September Minutes

Fourth Quarter 2013 Statement of Financials

Announcements

2013 FWCCSP Annual Meeting, Deerfield Golf Course, December 11th. Doors open at 6:30. Meeting starts at 7:00. This year Jeff Moore will be presenting a talk on "The Native People of Delaware". This presentation will focus on the daily activities and tools of the ancestral Lenape people.

DNLA awarded Stormwater Basin Retrofits at Hunt at Louviers - commercial category winner. Award ceremony at the Delaware Horticulture Industry Expo on January 23 & 24 in Dover. Winning entries will be posted on the DNLA website.

Presentations

Removal of White Clay Creek Dam No. 1 (Jerry Kauffman)
Chester County Natural Heritage Inventory Update (Jake Michael)

Administrative Business:

Steering Committee Membership/Nominations - update of current members, review of committee procedures, and discussion of potential nominees.

Subcommittee Reports

Education/Outreach (Kristen and Martha)

- Christina Basin Education Task Force - Public Outreach Campaign
- White Clay Creek Watershed Symposium (Fall 2014)
- School programs/Stroud
- Community Habitat Coordinator update (+97 residential homes needed)

Research and Restoration

- Mussel Survey Update (Doug)

Thomas P. Gordon
County Executive



Eileen P. Fogarty
General Manager

DEPARTMENT OF LAND USE

February 4, 2014

Gerald Kauffman, Director
University of Delaware - WRPA
DGS Annex
Newark, DE 19716

RE: Dam #1 - Removal
White Clay Creek
SLD # 20140036

Dear Mr. Kaufman:

The Department of Land Use has reviewed the floodplain application associated with the removal of dam #1 along White Clay Creek, near Delaware Park in New Castle County, DE.

Based on our review, the application is approved. The 10% annual chance event or 10 year storm tops the dam by 7 feet. The dam is located at approximately 22000 feet upstream from confluence of White Clay Creek and Christiana River between sections C and D on the profile. The water surface profile appears unaffected by the submerged structure (dam). The streambed will be affected as the sediment adjusts to the new flow regime. The land that the project is occurring on is a large racetrack parcel. Any impacts to regulatory flood elevations will likely take place and be mitigated on site. According to Section D of the Riverine Structures Form as part of the MT-2 form for CLOMR and LOMR only affects to base flood elevations require the form to be completed. No affects to base flood elevation are anticipated.

Please contact me if you have questions regarding this matter at 302 395 5473.

Sincerely,

John Gysling, PE CFM
Civil Engineer II


Pc: file



UNITED STATES DEPARTMENT OF COMMERCE
Office of the General Counsel
Washington, D.C. 20230

FEB 24 2014

MEMORANDUM FOR: Kelly L. Quickle
Director
Office of Decision Coordination and the Executive Secretariat
National Oceanic and Atmospheric Administration

FROM: Barbara S. Fredericks
Assistant General Counsel for Administration 

SUBJECT: Agreement among the National Marine Fisheries Service (NMFS),
Delaware Racing Association, University of Delaware Water
Resources Agency, and Delaware State Historic Preservation
Office for the Byrnes Mill Dam Removal Project (# 14-035131)

This provides clearance for the attached agreement among NMFS and the abovementioned parties. The agreement establishes the terms and conditions under which the parties will document and treat historic and archeological resources impacted by the partial removal of the Byrnes Mill Dam (also known as the White Clay Creek Dam # 1) in New Castle County, Delaware, in order to restore a free-flowing riverine system for migratory and resident fish passage. The agreement is effective for five years from the date of its filing with the Advisory Council on Historic Preservation.

White Clay Creek Dam # 1 is eligible to be listed on the National Register of Historic Places. Under the National Historic Preservation Act, 16 U.S.C. § 470 *et seq.*, it is the responsibility of a Federal agency with direct or indirect jurisdiction over a Federally-assisted undertaking to assess the effects of the undertaking on any structure or object that is listed or eligible for listing on the National Historic Register of Places. 16 U.S.C. § 470f. As such, any undertaking which may have an adverse effect on the White Clay Creek Dam # 1, including partial removal of the dam to permit the river to flow free, must comply with the NHPA. The agreement evidences compliance with, and is authorized by, the NHPA. The agreement does not involve the transfer of funds.

Feel free to contact Hector Benitez-Solivan of my staff at 202-482-4724 with any questions on this matter.

Attachment

cc: Sheryl Trent
Brenda Hernandez

**MEMORANDUM OF AGREEMENT BETWEEN
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION -
NATIONAL MARINE FISHERIES SERVICE, THE DELAWARE RACING
ASSOCIATION, UNIVERSITY OF DELAWARE WATER RESOURCES
AGENCY, AND DELAWARE STATE HISTORIC PRESERVATION OFFICE
FOR THE
BYRNES MILL DAM, ALSO KNOWN AS, WHITE CLAY CREEK DAM #1
REMOVAL PROJECT, NEW CASTLE COUNTY, DELAWARE
HC-260**

WHEREAS, the University of Delaware Water Resources Agency is proposing the removal of White Clay Creek Dam #1 to restore a free-flowing riverine system for migratory and resident fish passage; and

WHEREAS, the Delaware Racing Association is the owner of White Clay Creek Dam #1 in New Castle County, Delaware, and agrees that the Dam be removed; and

WHEREAS, the University of Delaware Water Resources Agency is proposing to assist Delaware Racing Association in the removal of White Clay Creek Dam #1 to restore a free-flowing riverine system for migratory and resident fish passage; and

WHEREAS, the National Oceanic and Atmospheric Administration - National Marine Fisheries Service (NMFS) has determined that its assistance to the Project through the Community-based Restoration Program is an Undertaking subject to the requirements of Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) and its implementing regulations at 36 CFR Part 800 (Section 106); and

WHEREAS, in accordance with the requirements of Section 106, NMFS has consulted with the Delaware State Historic Preservation Office (DE SHPO); and,

WHEREAS, NMFS has determined, in consultation with the SHPO, that the White Clay Creek Dam #1 is eligible for listing in the National Register of Historic Places under criteria A, C and D for its role in the development of milling in the Piedmont region and as a rare surviving example of timber crib dam and mill race construction; and,

WHEREAS, NMFS, in consultation with the SHPO, has determined that the removal of the White Clay Creek Dam #1 will have an adverse effect on historic resources; and,

WHEREAS, NMFS has consulted with University of Delaware Water Resources Agency regarding the removal of the White Clay Creek Dam #1 and, because University of Delaware Water Resources Agency has responsibilities assigned to it under the terms of this Memorandum of Agreement (Agreement), has invited University of Delaware Water Resources Agency to be a signatory to this Agreement; and,

WHEREAS, NMFS has invited the Advisory Council on Historical Preservation (ACHP) to participate in the consultation process, and in a letter dated May 24, 2013 the ACHP has determined that their participation to resolve adverse effects is not necessary; and,

WHEREAS, NMFS has contacted the Lenape Indian Tribe of Delaware, Delaware Nation of Oklahoma, Delaware Tribe of Indians and Stockbridge Munsee Community and to date the Tribes have not indicated their intent to participate in the consultation; and

WHEREAS, NMFS and the University of Delaware Water Resources Agency identified and consulted with the following parties in the Section 106 process: Delaware Department of Natural Resources and Environmental Control Natural Heritage Program, Coalition for Natural Stream Valleys, White Clay Creek State Park Advisory Committee, White Clay Creek Wild and Scenic River Coordinator and White Clay Watershed Association regarding the effects of the Undertaking on historic properties and have invited these parties to comment on the Agreement.

NOW THEREFORE, the NMFS, Delaware Racing Association, University of Delaware Water Resources Agency and DE SHPO agree that the Project undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties:

Stipulations

The NMFS shall insure that the following measures are carried out:

I. Interpretive Signage

An exhibit panel (approximately 36" X 24" and comprised of a digital laminate composite) incorporating information from the White Clay Creek Dam #1 site documentation will be prepared by University of Delaware Water Resources Agency, with assistance of a 36 CFR 61 qualified historian. A draft of this panel will be provided to DE SHPO for review and comment. The panel shall be located near the site of the White Clay Creek Dam #1 on land owned by the Delaware Racing Association in a specific location agreed to by the Delaware Racing Association and approved by the DE SHPO. The deadline for posting the signage shall be three (3) years from the date of execution of this MOA. This deadline may be extended if mutually agreeable between the NMFS, DE SHPO, Delaware Racing Association and University of Delaware Water Resources Agency. All consulting parties will be notified when the interpretive signage has been posted.

II. Partial Preservation of Dam Structures

The NMFS and University of Delaware Water Resources Agency shall ensure dam abutments or cribs, retaining wall, and raceway/millrace (as detailed in the White Clay Creek Dam #1 Removal Project Construction

Plan) remain undisturbed for historical preservation purposes. Construction activities are limited to removing the deteriorating middle 40 feet of the 100 foot wide, 3-8 foot high timber and rockfill dam, including the dam apron and foundation to the river bottom. The White Clay Creek Dam #1 Removal Project Construction drawings shall be provided to DE SHPO for approval prior to removal of the dam structure.

III. Documentation of Historic Properties

Prior to and during the disassembly of the dam, the University of Delaware Water Resources Agency, shall complete written, graphic and photographic documentation for the White Clay Creek Dam #1 and mill race. The documentation shall be in accordance with the DE SHPO's *Delaware Guidelines for Documentation of Historic Properties (February 2013)* or subsequent revisions to this document. The University of Delaware Water Resources Agency shall submit documentation to the SHPO for review, comment and approval and to the other consulting parties for review and comment within six (6) months of the last signature on this Agreement.

IV. Unidentified Historic Properties

- A. In the event that previously unidentified archaeological resources are discovered during activities, University of Delaware Water Resources Agency shall order the discontinuation of all construction work involving subsurface disturbance in the area of the resource and in the surrounding area where further subsurface resources can reasonably be expected to occur and immediately notify NMFS and the SHPO of the discovery.
- B. The NMFS, University of Delaware Water Resources Agency, and the SHPO, or an archeologist approved by them, shall immediately inspect the work site and determine the area and nature of the affected archeological resource. Construction work may then continue in the area outside the archeological resource as defined by the NMFS and the SHPO, or their designated representative.
- C. Within five (5) working days of the original notification of discovery, the NMFS, in consultation with the SHPO, shall determine the NRHP eligibility of the resource.
- D. If the resource is determined eligible for the NRHP, NMFS shall prepare a plan for its avoidance, protection or recovery of information. NMFS and SHPO shall approve such plan prior to implementation.
- E. Work in the affected area shall not proceed until either:

1. the development and implementation of appropriate data recovery or other recommended mitigation procedures, or
 2. the determination is made that the located resources are not eligible for inclusion on the NRHP.
- F. Any disputes over the evaluation or treatment of previously unidentified resources shall be resolved as provided in the section of this Agreement entitled Dispute Resolution.
- V. Dispute Resolution
- A. Should any signatory to this Agreement object within thirty (30) days to any actions proposed or carried out pursuant to this Memorandum of Agreement (MOA), NMFS shall consult with DE SHPO to resolve the objection. If the NMFS determines that the objection cannot be resolved, the NMFS shall forward all documentation relevant to the dispute to the Advisory Council on Historic Preservation (ACHP). Within thirty (30) days after receipt of all pertinent documentation, the ACHP will either:
1. Provide the NMFS with recommendations which the NMFS will take into account in reaching a final decision regarding the dispute; or
 2. Notify the NMFS that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any recommendations or comment provided by the Council will be understood to pertain only to the subject of the dispute; the NMFS responsibility to carry out all actions under the MOA that are not subjects of the dispute will remain unchanged.
- B. If at any time during the implementation of the measures stipulated in this MOA, an objection should be raised by an interested member of the public or consulting parties, the NMFS will consult with the other parties to this MOA to determine the appropriate response. This MOA shall not create any rights or responsibilities of any third party not a signatory hereto.

VI. Limitations and Assurances

This MOA is not a fiscal or fund obligating document and no funds are transferred hereunder. NMFS will ensure that the University of Delaware Water Resources Agency and the Delaware Racing Association gain best professional estimates for all activities proposed in this undertaking. NMFS agrees to not proceed with the undertaking until the University of Delaware Water Resources Agency and project partners have obtained adequate funding, based on best professional estimates, to fulfill obligations under this MOA.

VII. Duration

This agreement shall continue in full force and effect until five (5) years after the date of filing with the ACHP. Prior to such time, NMFS may consult with the other signatories to reconsider the terms of this MOA and amend it in accordance with Stipulation VII below.

VIII. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

X. Termination


- A. If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.
- B. In the event that the MOA is terminated, NMFS will either execute an MOA with signatories pursuant to 36 CFR 800.6 (c) or request the comments of the ACHP under 36 CFR 800.7 (a).

Execution of this Memorandum of Agreement by NMFS and DE SHPO and its subsequent filing with the ACHP, and implementation of its terms evidences that NMFS has afforded the Council an opportunity to comment on the removal of the White Clay Creek Dam #1, and that NMFS has taken into account the effects of the undertaking on historic properties.

NATIONAL MARINE FISHERIES SERVICE

By:  Date: 3/4/14
Frederick C. Sutter, Director, Office of Habitat Conservation

DELAWARE STATE HISTORIC PRESERVATION OFFICE

By:  Date: 3/12/14
Timothy Slavin, Director, Historical & Cultural Affairs

UNIVERSITY OF DELAWARE WATER RESOURCES AGENCY

By:  Date: 3/17/14
Gerald J. Kauffman, PE, University of Delaware Water Resources Agency

PROPERTY OWNER

By:  Date: 4/1/14
~~Christopher Fawcett~~ Senior Vice President, Delaware Racing Association
William Fawcett



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Northeast Region
United States Custom House
200 Chestnut Street
Philadelphia, PA 19106

L6015 (NERO/NRS-NWSR)

February 25, 2014

Mary P. Andrews, P.E, PWS
Environmental Engineer
NOAA Restoration Center
410 Severn Ave., Suite 107A
Annapolis, MD 21403

**Re: Removal of Dam #1, White Clay Creek at Delaware Park / White Clay Creek Country Club
New Castle County, Delaware
Parcel Nos. 08-050.00012, 08-055.00-005, 09-017.00-056**

Dear Ms. Andrews:

The above referenced dam removal project is located on the mainstem of White Clay Creek. White Clay Creek is designated a National Wild and Scenic River (P.L.106-357). National wild and scenic rivers are protected by Section 7(a) of the Wild & Scenic Rivers Act. Pursuant to Section 7(a): "no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established."

The National Park Service considers water resource projects to include dams, diversion projects, bridge and roadway projects involving construction in the bed or on the banks of the river, bank stabilization projects, fisheries habitat and watershed restoration or enhancement projects, and activities that require a section 404 permit from the Army Corps of Engineers or state-assumed federal permitting such as NPDES and 401 Water Quality Certifications.

According to the submitted plans, an existing historic low-head dam would be v-notched and portions systematically removed from the White Clay Creek mainstem, to allow for more natural free flow and fish passage. Approximately 60 feet of the 100-foot-wide dam would be retained in two sections along the north and south banks of the creek. These dam sections would be preserved and interpreted. Stone from the section of dam to be removed would be re-used to protect the toe of slope on an upstream portion of the north bank; add to an area downstream on the north bank, adjacent to a low-lying area; and serve as a weir to protect a remaining portion of the historic dam. A low-lying area beyond the north bank would be restored and stabilized with native vegetation. It appears that some of the dam removal and restoration activities would impact wetlands; however, the types of wetlands and total wetlands acreage impacts are not indicated.

Based on our review of project documentation, we believe that on balance, the proposed project will improve water quality, free flow, and habitat in an urban area. We do not believe that the proposed project should directly and adversely impact the aforementioned Section 7(a) values of the White Clay Creek National Wild and Scenic River, provided the applicant address the following areas of concern/conditions:

- 1) Plan sheet #6 showing Phase III indicates a wildflower seed mix is to be introduced into the low-lying area behind the proposed coir log stabilization system. The seed mix does not appear to include native species appropriate to wet soils, with the exception of lobelia. Our understanding is that the purple cone flower


(*Echinacea purpurea*) is not a native Delaware species, nor is *Coreopsis tinctoria*—these species are associated more with prairies and dry soils. Blue false indigo (*Baptisia australis*) is not native to Delaware, although it can work in wet conditions. Butterfly weed (*Asclepias tuberosa*) is native to Delaware; however, it prefers well-drained sandy soils and is not likely to survive long-term in the low-lying area in question.

We are concerned that the wildflowers identified on the plan would not survive to provide the anticipated diversity and water quality benefits. Please substitute a suitable wet meadow wildflower seed mix for the existing seed mix indicated on plan sheet #6, or install live plants. We recommend native species such as blue flag (*Iris versicolor*), Joe-pye weed (*Eupatorium fistulosum*), and *Asclepias incarnata* (swamp milkweed), along with lobelia. We further recommend you work with a botanist to identify those species most tolerant of the growing conditions specific to the site.

- 2) Please clarify the purpose of the randomly placed stones that would be installed in front of the coir logs, as well as their size and whether they would be placed on the slope, at toe of slope or top of bank. If the purpose is to stabilize the slope in this area, then the random placement would likely not be effective and the rock would be dislodged and wash downstream during a significant storm event. If the purpose is to provide for habitat enhancement, their placement could be effective under certain conditions. To reduce the potential for adverse impacts to the Wild & Scenic River, we generally advocate the use of natural approaches to streambank stabilization, except in instances where infrastructure may need additional protection with some type of hard armoring. There does not appear to be any infrastructure such as sewer or water lines in the vicinity of the north bank near the coir logs, nor is this area located immediate to the golf course; therefore, placement of the rock may be unnecessary. You may, for instance, substitute wood logs anchored to the toe of slope; however, the coir logs may be sufficient with native vegetation to help bank stabilization.
- 3) The stone weir design indicated in plan sheet #7 is not sufficient in detail for us to fully evaluate its potential efficacy in protecting the remaining section of historic dam. We do not know if the rocks are of sufficient size to withstand the combined flow velocities and volumes from the mainstem and adjacent tributary upstream of the weir. Looking at the cross-section, there does not appear to be adequate footer depth to prevent scouring and undermining of the structure. The weir structure does not seem to be sufficiently keyed into the bank. The slope may be steeper than is needed to provide maximum energy dissipation. Scouring at the end of the weir in the channel may be anticipated. The slope and depth in relation to bankful stage is critical to ensure the long-term sustainability of the weir; therefore, we recommend a more detailed review of the structure by an engineer with expertise and training in the design and installation of these structures and extensive knowledge regarding in-stream flow deflection. We believe the project consultant has this type of expertise and may have already have provided the detailed plans for the weir structure. If so, we request that the information be included in the permitting packet for NPS to review.
- 4) We understand that interpretive signage is to be designed and installed as part of this project. Any streamside signage should reference, at a minimum, the White Clay Creek as a National Wild & Scenic River. A Wild & Scenic Rivers logo can be provided upon request.

Thank you for providing the National Park Service with the opportunity to comment on the proposed dam removal project. If you have any other questions, please call me at (215) 597-6473.

Sincerely,



Julia Bell, River Manager
National Wild and Scenic Rivers

Cc: Michael F. Green, Regulatory Branch, U. S. Army Corps of Engineers



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
James J. Howard Marine Sciences Laboratory
74 Magruder Road
Highlands, New Jersey 07732

March 19, 2014

TO: Mary Andrews
NOAA Restoration Center
410 Severn Avenue
Annapolis, MD 21403

SUBJECT: White Clay Creek Dam #1
New Castle County, DE

 Karen Greene
(Reviewing Biologist)

We have reviewed the information provided to us regarding the above subject project. We offer the following preliminary comments pursuant to the Endangered Species Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act:

Endangered Species Act

No threatened or endangered species under the jurisdiction of the NMFS are known to occur in within the project area. As a result, further consultation by the federal action agency is not required. However should project plans change that would alter the basis for determination, or if new species or critical habitat is designated, consultation should be reinitiated.

Fish and Wildlife Coordination Act

White Clay Creek provides habitat for a variety of NOAA trust resources including striped bass, alewife, blueback herring, American eel and American shad. Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960's they have designated as species of concern by NOAA. The removal of the dam will improve the habitat value of the waterway for our resources, but increases in turbidity due to the resuspension of sediments into the water column during construction can degrade water quality, lower dissolved oxygen levels, and mask pheromones used by migratory fishes to reach their spawning grounds and impede their migration. To minimize impacts to these anadromous fishes, we recommend dam removal be avoided from March 15 to June 30 of each year.

Magnuson-Stevens Fishery Conservation and Management Act

Essential Fish Habitat

No Essential Fish Habitat (EFH) has been designated within the project area. Further EFH consultation by the federal action agency will not be required as part of the federal permit process. Should project plans change that would alter the basis for determination, or if new species or EFH is designated, consultation should be reinitiated. For a listing of EFH and further information, please go to our website at: <http://www.nero.noaa.gov/habitat>. If you wish to discuss this further, please call 732-872-3023 or e-mail karen.greene@noaa.gov.





March 20, 2014

Julia Bell, River Manager
National Wild and Scenic Rivers
National Park Service, Northeast Region
United States Custom House
200 Chestnut Street
Philadelphia, PA 19106

RE: Removal of Dam No. 1, White Clay Creek at Delaware Park

Dear Ms. Bell:

Thank you for your February 25, 2014 comments regarding the removal of Dam No. 1 along the White Clay Creek National Wild and Scenic River to restore anadromous fish such as American shad and river herring. Based on your comments we have made the following modifications to the proposal and enclosed drawings.

1. We have revised plan sheet #6 to specify the following native wildflower seed mix:

<i>Iris versicolor</i> (Blue Flag)	25%
<i>Eupatorium fistulosum</i> (Joe-pye Weed)	25%
<i>Asclepias incarnate</i> (Swamp Milkweed)	25%
<i>Lobelias cardinalis</i> (Cardinal Flower)	25%

2. We have deleted the specification of stones in front of the coir logs as the coir logs should be sufficient to stabilize the stream bank along with native vegetation.
3. We have deleted the specification of the stone weir just upstream from the historic dam. Our hydraulic model (U.S. Army Corps of Engineers HECRAS) indicates that removal of the middle 40 feet of the dam will reduce velocities at the dam, therefore erosion protection and additional structural measures such as the stone weir are unnecessary.
4. Our streamside signage will reference the White Clay Creek National Wild and Scenic River and we will request a Wild and Scenic Rivers logo from you when we design the sign.

Thank you for your comments. Please do not hesitate to contact me at 302-831-4929 or jerryk@udel.edu.

Sincerely,

Gerald J. Kauffman

Gerald J. Kauffman, Ph.D., P.E., Director
University of Delaware
Water Resources Agency



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

April 2, 2014

Mary P. Andrews, PE, PWS
NOAA Restoration Center
410 Severn Ave., suite 107A
Annapolis, MD 21403

RE: White Clay Creek Dam No. 1 Consultation, DE

Dear Mary P. Andrews:

This responds to your letter, received March 20, 2014, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Except for occasional transient individuals, no proposed or federally listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further Section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Edna Stetzar, of the Delaware Natural Heritage and Endangered Species Program, at (302) 653-2883 ext. 126. You may also obtain information on how to make such a request by visiting the Program website at www.dnrec.state.de.us/nhp.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.



If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at:

<http://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities.

An additional concern of the Service is wetlands protection. The Service's wetlands policy has the interim goal of no overall net loss of Delaware Bay's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands proposed, the U.S. Army Corps of Engineers, Philadelphia District should be contacted for permit requirements. They can be reached at (215) 656-6728.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Trevor Clark at (410) 573-4527.

Sincerely,



Genevieve LaRouche
Supervisor



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

PHILADELPHIA DISTRICT CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

JUN 05 2014

Regulatory Branch
Application Section I

SUBJECT: CENAP-OP-R 2011-00953 NWP27
DNREC: Subaqueous Lands Permit-SP-313/11 - To remove Dam No. 1 from the White Clay
Creek at Delaware Park, 777 Delaware Park Blvd., Wilmington, New Castle County, Delaware
Location: 39.69813° N and -75.66529 ° W

Mr. Bill Fasy
Delaware Racing Association
777 Delaware Park Blvd.
Wilmington, DE 19804

Dear Mr. Fasy:

This is in regard to your proposal to partially remove the Byrnes Mill Dam, also known as White Clay Creek Dam #1, a 100 foot wide, 3-8 foot high timber and rockfill dam and to install 90 linear feet of coir logs and plant native vegetation in, and along, White Clay Creek. The location of the work is within the grounds of the White Clay Creek Country Clubs' golf course, Delaware tax map nos.: 08-050.00012, 08-055.00-005 & 09-017.00-056, approximately 1.2 miles upstream from the mouth of the creek, New Castle County, Delaware.

Under current Federal regulations, a Department of the Army permit is required for work or structures in navigable waters of the United States and/or the discharge of dredged or fill material into waters of the United States including adjacent and isolated wetlands. Based upon our review of the information you have provided, it has been determined that the proposed work is approved by the existing Department of the Army Nationwide Permit (NWP) described below.

27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services. To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms, are removed; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches

to restore wetland hydrology; the installation of structures or fills necessary to establish or re-establish wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site. This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services. Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include

the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 31), except for the following activities:

- (1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;
- (2) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or
- (3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency. However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

You are advised that this verification of NWP authorization is valid until the Nationwide Permits expire on March 18, 2017, unless the NWP authorization is modified, suspended, or revoked prior to this date. In the event that the NWP authorization is modified during that time period, this expiration date will remain valid, provided the activity complies with any subsequent modification of the NWP authorization.

It is noted that CZM consistency from the State is only required for those activities in or affecting a State's coastal zone. Additionally, some of the NWPs do not involve a discharge of dredged or fill material, and as such, do not require a 401 WQC. If the State has denied the required WQC and/or not concurred with the Corps' CZM consistency determination, the NWP authorization is considered denied without prejudice until an individual project specific WQC

and/or CZM approval is obtained. This approval must be obtained in order for the activity to be authorized under the NWP and a copy provided to this office before work begins. Any project specific conditions required by the State for the WQC and/or CZM approval will automatically become part of the NWP authorization.

You should carefully note that this NWP authorization is based upon your agreement to comply with the terms and conditions of this NWP (Enclosure 1) including any and all attached project specific special conditions listed below. Initiation of any authorized work shall constitute your agreement to comply with all of the NWP's conditions. You should also note that the authorized work may be subject to periodic inspections by a representative of this office. The verification of a Nationwide Permit including all general and special conditions is not subject to appeal.

PROJECT SPECIFIC SPECIAL CONDITIONS:

1. All work performed in association with the above noted project shall be conducted in accordance with a set of 7 plans, cover sheet entitled "Dam No. 1 Removal White Clay Creek Country Club" prepared by Duffield Associates, Wilmington, Delaware, prepared for the Delaware Racing Association, Wilmington, DE, dated August 9, 2011, with plan sheet 5 or 7 last revised on May 27, 2014.

The plans provide for partial removal of the Byrnes Mill Dam, also known as White Clay Creek Dam #1, a 100 foot wide, 3-8 foot high timber and rockfill dam and installation of 90 linear feet of coir logs and planting of native vegetation in, and along, White Clay Creek. The purpose of the project is to remove White Clay Creek Dam #1 to restore anadromous fish passage.

2. Construction activities include removal of portions of the dam and the installation of 90 linear feet of 12 inch diameter coir logs in waters of the United States and shall not result in a loss of waters.

3. Any deviation in construction methodology or project design from that shown on the above noted plans must be approved by this office, in writing, prior to performance of the work. All modifications to the above noted project plans shall be approved, in writing, by this office. No work shall be performed prior to written approval of this office.

4. This office shall be notified prior to the commencement of authorized work by completing and signing the enclosed Notification/ Certification of Work Commencement Form (Enclosure 2). This office shall also be notified within 10 days of the completion of the authorized work by completing and signing the enclosed Notification/Certification of Work Completion/Compliance Form (Enclosure 3). All notifications required by this condition shall be in writing. The Notification of Commencement of work may be sent to this office by facsimile or other electronic means; all other notification shall be transmitted to this office by registered mail. Oral notifications are not acceptable. Similar notification is required each time maintenance work is to be done under the terms of this Corps of Engineers permit.

5. The permitted understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the

opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

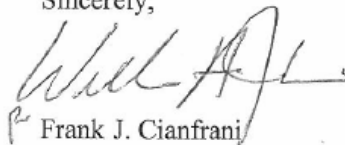
6. A Memorandum of Agreement between, The National Oceanic and Atmospheric Administration-National Marine Fisheries Service; The Delaware Racing Association; University of Delaware Water Resources Agency and Delaware State Historic Preservation Office for the Byrnes Mill Dam, also known as, White Clay Creek Dam #1 Removal Project, New Castle County, Delaware HC-260 was finalized on April 14, 2014.

7. To protect spawning fish in this stream corridor, none of the construction activity authorized by this Permit shall be conducted from March 15 through June 30 of any year.

8. Any temporary fills that may be necessary shall be removed and the area returned to its pre-construction condition.

Also enclosed is a pre-addressed postal card (Enclosure 4) soliciting your comments on the processing of your application. Any comments, positive or otherwise, on the procedures, timeliness, fairness, etc., may be made on this card. If you should have any questions regarding this matter, please contact Michael Green at 215-656-6836 or write to the above address.

Sincerely,



Frank J. Cianfrani
Chief, Regulatory Branch

Enclosures

Copies Furnished:

DDNREC, Wetlands and Subaqueous Lands (Dover, DE)
DDNREC, Coastal Zone Management Program (Dover, DE)
NMFS (Sandy Hook, NJ)
USEPA, Region III (Philadelphia, PA)
USFWS (Annapolis, MD)
NPS, (Philadelphia, PA)
SHPO (Dover, DE)
NOAA Restoration Center
Mary P. Andrews, Environmental Engineer
NOAA Restoration Center
410 Severn Ave., Suite 107A
Annapolis, MD 21403
University of Delaware,
Gerald J. Kauffman
University of Delaware Water Resources Agency
DGS Annex, Academy Street
Newark, DE 19716

Merit Construction Engineers, Inc.

5700 Kirkwood Highway, Suite 201
Wilmington, DE 19808
Office: 302-992-9810
Fax: 302-992-9568

November 7, 2014

Mr. Gerald Kauffman
Director
University of Delaware – Water Resources Agency
School of Public Policy and Administration
College of Arts and Sciences
DGS Annex, Academy Street
Newark, DE 19716

Re: Proposal for Dam No. 1 Removal – White Clay Creek Country Club

Dear Mr. Kauffman,

We respectfully submit the following proposal to furnish all labor, material and equipment necessary to perform the work associated with the removal of Dam No. 1 at the White Clay Creek Country Club.

Scope of Work:

1. Mobilize and access the work area. We will identify the path of access prior in order to minimize disturbance to the surrounding golf course.
2. Perform only the work associated with removing the middle 40'-0" wide portion of the dam. The removed timbers and iron spikes collected during the demolition will be transported to either the maintenance yard or a designated area off site.
3. This proposal assumes that work will be done during normal creek flows and that bypass pumping and/or a cofferdam will not be required.
4. Based upon data provided and a visual inspection of the dam, it appears the dam consists of loose (un-mortared) rubble. This proposal is based upon this assumption.
5. Stream restoration and plantings are excluded from this proposal as directed.
6. Permits are excluded from this proposal.

Total Lump Sum Price = \$17,200.00 Revised: \$22,500 (12/14)

We can begin work during the week of either December 1st or December 8th 2014. Please contact me with any questions.

Regards,

Merit Construction Engineers, Inc.


Vincent Dills

Cc: File

A Heavy/Highway and Specialty Construction Company



School of Public Policy
& Administration
INSTITUTE FOR PUBLIC ADMINISTRATION

180 Graham Hall
Newark, DE 19716-7380
Phone: 302-831-8971
Fax: 302-831-3488
Email: ipa@udel.edu

December 2, 2104

Vincent Dills, Vice President
Merit Construction Engineers, Inc.
5700 Kirkwood Highway
Suite 201
Wilmington, DE 19808

Re: White Clay Creek Dam No. 1 Removal

Dear Mr. Dills:

Please consider this as notice to proceed on the removal of White Clay Creek Dam No. 1 in accordance with your proposal dated November 7, 2014. Should you have any questions, please do not hesitate to contact me at cell 302-893-1571 or jerryk@udel.edu.

Warmly,

Gerald J. Kauffman

Gerald J. Kauffman, Director
University of Delaware
Water Resources Agency

NOTIFICATION/CERTIFICATION OF WORK COMPLETION/COMPLIANCE FORM

Permit Number: CENAP-OP-R-2011-00953 (NWP27)
State Permit #: Subaqueous Lands Permit-SP-313/11
Name of Permittee: Delaware Racing Association
Name of Contractor: MELI CONSTRUCTION ENGINEERS, INC.
Project Name: Dam No. 1 White Clay Creek
Waterway: White Clay Creek
County: New Castle State: Delaware

Within 10 days of completion of the activity authorized by this permit, please sign this certification and return it to the following address:

U.S. Army Corps of Engineers, Philadelphia District
Wanamaker Building - 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390
Attention: CENAP-OP-R

Please note that the permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to return this notification form or fail to perform work in compliance with the permit, you are subject to administrative, civil and/or criminal penalties. Further, the subject permit may be suspended or revoked.

The authorized work was commenced on 12/03/14.

The authorized work was completed on 12/05/14.

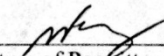
I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the above noted permit.



Signature of Contractor

Address: 5700 KIRKWOOD HIGHWAY
WILMINGTON, DE 19808

Telephone Number: 302-992-9810

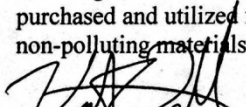


Signature of Permittee

Address: 777 Delaware Park Blvd
Wilmington, DE 19804

Telephone Number: 302-994-2521 ext. 2201

For project located in areas identified as shellfish habitat, you must include with this form a bill of lading, sales order or any other document(s) demonstrating non-polluting materials were purchased and utilized for your project. I hereby certify that I and/or my contractor have utilized non-polluting materials as defined in the above noted permit.



Signature of Contractor



Signature of Permittee

Enclosure 3

Colonial dam removed on White Clay Creek

Molly Murray, *The News Journal* 10:52 a.m. EST December 15, 2014

Researchers from the University of Delaware have worked for the last four years to remove a dam from the White Clay Creek that has been blocking the spawning route of local shad since the Revolutionary War. It's finally gone.



Buy Photo

(Photo: SUCHAT PEDERSON/THE NEWS JOURNAL)

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Jerry Kauffman tells the story of the spring day he visited the dam along White Clay Creek in Stanton a few years ago.

There were hickory shad everywhere on one side of the dam, he said. On the other, there were none.

"They were literally hitting their heads on the dam trying to swim upstream," he said.

Last week, after four years of study, fish sampling, hydrology work and permitting, a large section of the colonial era dam was removed –making this stretch of the creek free flowing.

"This now connects the freshwater White Clay Creek with the tidewater for the first time since the American Revolution," said Kauffman, director of the Water Resources Agency.

Because the dam is historic, only a portion of it was removed and that will be studied by historians at the University of Delaware. The large hewn timbers and hand-forged spikes that held the dam together will tell the story of how the dam was built to withstand floods, storms and the changing creek course for more than two centuries. Catherine Morrissey, a research associate at the University's Center for historic architecture and design said there isn't any information in Delaware's historic records about how dams such as this one were built.

She said they knew the basics of the design from what they could see: there is a raceway, a spillway and there was a timber, crib structure with stone support walls. But the fine details of the construction and design were unknown.



[Buy Photo](#)

Over two hundred years old spikes from the old dam sticks out of a piece of the wood. Byrnes Mill Dam also known as Dam #1 is located on the White Clay Creek Country Club golf course at Delaware Park and has been removed to restore fish passage up the creek. The dam was blocking the upstream movement of

American and hickory shad, fish with a long history in the region. *(Photo: SUCHAT PEDERSON/THE NEWS JOURNAL)*

"Now is our first opportunity to understand how the dam was built and how it functioned," Morrissey said.

Some of the timbers used in the construction were large. One was 32 feet long and 2 feet wide, she said. And the metal spikes used to tie the timbers together were hand forged, she said.

Through historic analysis, the research team should be able to find out what type of wood was used and possible even the forest where it came from, she said. The work will likely take several months.

This dam is of special interest because there are not many old mill dams left in the state. Most burned or washed out in floods, she said.

What Morrissey already knows is that historic property records show that Daniel Byrnes purchased four properties in Stanton but he only bought the land right along the creek. He wanted the water rights and the ability to build a mill dam.

Morrissey said there is no indication that he farmed in the area so it is likely that he operated his mill as a for profit venture.

The records also show that between 1773 and 1777, he built his first mill along the Brandywine and operated that with his brother.

Morrissey said they moved to the White Clay as the Brandywine became crowded with mills.

The mill at Stanton was in operation from 1789 to 1840, she said.

The project to remove the dam had its start in 2010 when Martha Corrozi Narvaez, a senior policy analyst at the Water Resource Agency applied on a grant to study the feasibility of dam removal on the White Clay. There are six dams on the Delaware stretch of the White Clay and more in Pennsylvania.

Kauffman said there were several reasons why the agency decided to tackle this dam first. They knew that opening this stretch of the creek would likely result in idea spawning habitat for several species of fish. And they knew the property owner, Delaware Racing, would be willing to work with the agency.



Gerald Kauffman at the dam behind White Clay Creek Country Club.*(Photo: Courtesy of Danielle Quigley)*

The White Clay Creek Country Club golf course adjoins the creek and because of the meandering nature of the creek during storms and heavy water flow, they were seeing loss of property from erosion, Kauffman said.

"I have to say a lot about the owners," Kauffman said. "They were just fantastic" to work with.

The agency received grants from the National Oceanic and Atmospheric Administration, American Rivers, the National Fish and Wildlife Foundation and Fish America Foundation.

In all, \$210,000 was spent to plan and remove the dam, Kauffman said.

One species of fish Kauffman would like to see resume spawning in White Clay Creek is the American Shad. And it might also provide spawning habitat for striped bass and river herring.

With this dam gone, they can at least make it up stream to Landenberg, Pennsylvania. he said. There, another dam blocks the passage.

Between Stanton and Landenberg there is plenty of clear, fresh water and grainy sand bottom – habitats that most scientists think will be suitable for fish spawning.

Kauffman said no one is sure how far upstream they will go.

"We haven't had a chance to observe this in over 200 years," he said.

Reach Molly Murray at 463-3334 or mmurray@delawareonline.com. Follow her on Twitter [@MollyMurraytnj](https://twitter.com/MollyMurraytnj).

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Movement to Take Down Thousands of Dams Goes Mainstream

A dam in Delaware comes tumbling down; last year 71 others did too.

By **Michelle Nijhuis**, [National Geographic](#)

PUBLISHED JANUARY 29, 2015

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The Glines Canyon Dam (seen in the lower part of this aerial photo) in Washington is one of 72 dams that was either torn down or blown up in the U.S. last year.

PHOTOGRAPH BY ELAINE THOMPSON, AP

This spring, for the first time in more than two centuries, American shad, striped bass, and river herring may spawn in White Clay Creek, a tributary of the Delaware River in northern Delaware. Early one morning last month, a five-person crew waded

into the frigid creek and pulled down most of a timber-and-stone dam that had blocked the river's flow since the early years of the Revolutionary War.

The White Clay Creek dam was the first ever removed in the state of Delaware, but it was far from the only one removed in the United States last year. On Tuesday, the conservation group [American Rivers](#) announced that 72 dams were torn down or blown up in 2014, restoring some 730 miles of waterways from California to Pennsylvania.

Twenty years ago, dam removal was a fringe notion, and early demolition efforts gained support only because the dams in question were no longer in use and, in some cases, were dangerous to people living nearby.

Now, the U.S. dam removal movement has wide acceptance as well as bigger ambitions; on Tuesday, producers of a recent [documentary called DamNation](#) met with members of Congress and White House officials to press their case for the removal of four large federal dams from the lower Snake River in eastern Washington.

Small Challenges

While public attention focuses on the most spectacular dam demolitions, such as the removal of the last section of the 210-foot-high Glines Canyon Dam on the Elwha River in Washington state last summer, most of the 865 dams removed in the United States during the past 20 years are small structures originally built for flood control, irrigation, or very local hydropower. The White Clay Creek dam, built to run a long-gone flour mill, was only eight feet tall at its highest point.

But small dams can stop fish as effectively as big ones. [Gerald Kauffman](#), of the Water Resources Agency at the University of Delaware, remembers watching hickory shad bumping their snouts against the downstream face of the White Clay Creek dam, trying and failing to swim upstream to spawn.

Small or large, every dam-removal project has its particular challenges. Some dams, like the one on White Clay Creek, are historic structures that must be carefully surveyed and partially preserved; others have trapped vast amounts of sediment and debris, and must be removed gradually so as not to harm fish, wildlife, and people downstream.

Removals also require support from the dam owners and from nearby communities, state and federal permits, and, finally, money for demolition. The dismantling of the

White Clay Creek dam, a relatively small project, cost \$210,000. Serena McClain of American Rivers, which helped fund the White Clay removal, says it typically takes three years to plan and execute a removal.

Large dam removals, like those just completed on the Elwha River and proposed for the lower Snake River, take much longer: For well over a decade, scientists and environmentalists have criticized the federal [Snake River dams for their devastating effects on salmon](#).

The White Salmon River in Washington state began flowing again in 2011, after the nearly 100-year-old Condit Dam was disabled by an explosion—a 2-hour process condensed into this 2-minute time-lapse video.

ANDY MASER FILMS

Dam Defenders

But the Snake River dams and their reservoirs have influential defenders, since they provide transportation and irrigation water to inland wheat farmers and contribute hydropower to the region's electricity supply. Removal is gaining support, but it remains a long way away.

While few removals are as complex or challenging as those proposed for the lower Snake, dam-removal advocates are tackling more controversial projects than they used to.

"We're trying to work more strategically, to have the biggest impact with limited funds and limited people," says McClain. "So we're looking not just at old and outdated dams, but at dams that currently serve a purpose." Many dams now targeted for removal still supply some services to humans, and those services must be replaced in order to win public backing for approval.

The dam-removal movement is also beginning to shift its strategy toward watershed-wide restoration efforts involving multiple dams. To date, five dams have been removed from the Des Plaines River in Illinois, and six more are scheduled to come down.

The White Clay Creek dam demolition is the first of several anticipated removals on the creek. Some states, notably Pennsylvania, have encouraged these broader restoration projects by streamlining their permitting processes.

Support for river restoration through dam demolition is also growing in Europe and Japan. But some countries in Latin America, Africa, and Asia continue to propose and build large hydropower dams, both to meet domestic power demand and to produce electricity for export.

And some 80,000 dams taller than six feet-along with tens of thousands of smaller dams-still obstruct U.S. rivers. Former Interior Secretary Bruce Babbitt, a proponent of dam demolition, once observed that "on average, we have constructed one dam every day since the signing of the Declaration of Independence."

One of the first of those was the White Clay Creek dam, built in 1776 or 1777 by the mill owner and Quaker minister Daniel Byrnes. Byrnes's nearby house was the site of a historic meeting on September 6, 1777, when George Washington, the Marquis de Lafayette, and several other Continental Army officers gathered there to plan the defense of Philadelphia. Though Washington lost the subsequent battle against the British, he won the war. Today, the same might be said of White Clay Creek.

Follow Michelle Nijhuis on [Twitter](#).

Invoice

DUFFIELD ASSOCIATES, INC.
 5400 Limestone Road
 Wilmington, DE 19808
 Phone (302) 239-6634

January 13, 2015
 Project No: 00.08849.WB
 Invoice No: 64257
INVOICE 64257 replaces
INVOICE 64084 Dated 12/17/2014

MR. GERALD KAUFFMAN P.E.
 DIR OF WATERSHED POLICY/STATE WATER COOR
 UNIVERSITY OF DE WATER RESOURCES AGENCY
 180 GRAHAM HALL
 NEWARK, DE 19716

NOAA/American Rivers Byrnes Mill Dam (White Clay Creek Dam #1 Removal Project)
Professional Services through December 17, 2014

Phase 00000 Dam No. 1 Removal - Construction Review
 • For engineering oversight

Fee				
Total Fee	5,000.00			
Percent Complete	100.00	Total Earned	5,000.00	
		Previous Fee Billing	0.00	
		Current Fee Billing	5,000.00	
		Total Fee		5,000.00
		Total this Phase		\$5,000.00

Phase	00001	Merit Construction - Dam Removal- Construction		
Fee				
Total Fee	22,500.00			
Percent Complete	100.00	Total Earned	22,500.00	
		Previous Fee Billing	0.00	
		Current Fee Billing	22,500.00	
		Total Fee		22,500.00
		Total this Phase		\$22,500.00
		Total this Invoice		\$27,500.00



April 1, 2015

Serena S. McClain
American Rivers
1101 14th Street, NW, Suite 1400
Washington, DC 20005

Dear Serena:

The University of Delaware Water Resources Agency has matched the \$85,606 grant from American Rivers and the NOAA Restoration Center for the White Clay Creek Dam Removal #1 (Delaware) Grant Agreement #481.

The \$30,546 non-federal match has been provided by the University of Delaware Water Resources Agency in the form of in-kind services. The voluntary, non-federal match from the University of Delaware Water Resources Agency provided oversight in obtaining environmental and cultural resources permits/approvals, project design/specifications, and construction oversight.

The donation of in-kind services is intended to qualify as a match for the American Rivers/NOAA Restoration Center grant award of \$85,606. The donation was not used to match any other federal money received for this project and was used within the grant period outlined within University of Delaware Water Resources Agency's signed Grant Agreement for this project.

Sincerely,

Gerald J. Kauffman, Director
University of Delaware
Water Resources Agency

Photographs



Looking south at Dam No. 1 (April 2011).



Looking upstream at Dam No. 1 (April 2011).



Plan view of White Clay Creek Dam No. 1. Note breach along overbank to left.



Dam No. 1 along the White Clay Creek (RM 4.2) at Delaware Park looking upstream



Dam No. 1 along White Clay Creek (RM 4.2) at Delaware Park, note timber frame



Dam No. 1 along White Clay Creek at Delaware Park looking toward left bank.



Dam No. 1 looking upstream (April 2011).



Dam No. 1 looking upstream (April 2011).



Delaware DNREC fisheries biologist with American shad sampled during fish abundance survey just downstream from Dam No. 1 along the White Clay Creek, May 2010



White Clay Creek Dam No. 1 (April 2014)



White Clay Creek Dam Removal (December 2014)



Removal of White Clay Creek Dam No. 1 (December 2014)



Timber remnants from White Clay Creek Dam No. 1 (December 2014)



Timber remnants from White Clay Creek Dam No. 1 (December 2014)



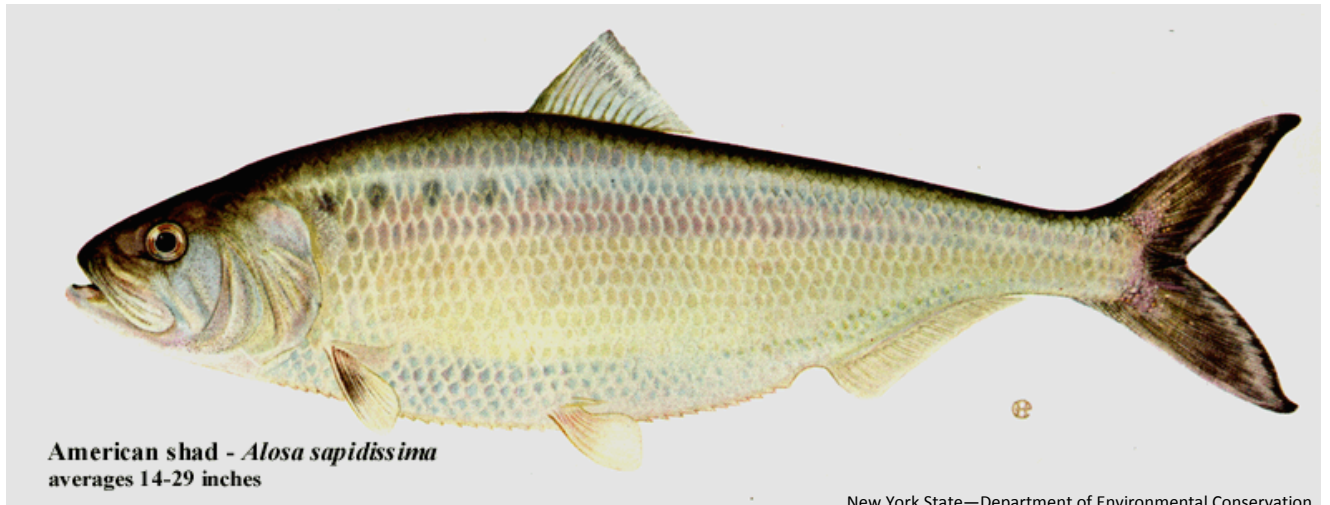
UD archeologists surveying removal of White Clay Creek Dam No. 1 (December 2014)



Historic timber crib to remain at White Clay Creek Dam No. 1 (December 2014)



Removal of White Clay Creek Dam No. 1 (December 2014)



New York State—Department of Environmental Conservation

American Shad (*Alosa sapidissima*)



New York State—Department of Environmental Conservation

Hickory Shad (*Alosa mediocris*)