

**APPENDIX E**

**CULTURAL RESOURCES COORDINATION**

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**Initial Section 106 Consultation Correspondence with  
Maryland Historical Trust and  
Virginia Department of Historic Resources**

**October 2008**

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DEPARTMENT OF THE NAVY  
NAVAL SUPPORT ACTIVITY  
SOUTH POTOMAC  
6509 SAMPSON ROAD SUITE 216  
DAHLGREN, VIRGINIA 22448-5106

IN REPLY REFER TO  
5090  
Ser PRSP4PAA/073

6 Oct 08

Ms. Elizabeth J. Cole  
Administrator, Review & Compliance  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

RE: Section 106 Consultation for the Environmental Impact  
Statement on Outdoor Research, Development, Test and  
Evaluation Activities

Dear Ms. Cole:

Naval Surface Warfare Center, Dahlgren Site (NSWCDL), located on the Naval Support Facility (NSF) Dahlgren, in King George County, Virginia (Figure 1), is preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's regulations implementing NEPA (40 CFR parts 1500-1508). The document is also being prepared in accordance with Section 106 of the National Historic Preservation Act (NHPA) and the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800). The EIS will evaluate the potential environmental consequences of increasing NSWCDL research, development, test, and evaluation (RDT&E) activities taking place outdoors.

Pursuant to 36 CFR 800.3 and 36 CFR 800.4(a), NSF Dahlgren herein submits documentation to initiate the Section 106 review process for this proposed action and requests your concurrence with the enclosed archaeological and historical architectural Areas of Potential Effects (APEs) and list of potential consulting parties because the proposed APEs occur within Virginia and Maryland. Consultation has also been initiated with Virginia Department of Historic resources (VDHR). Because NSWCDL is located in Virginia, we have requested that VDHR serve as the lead State Historic Preservation Officer for this project in accordance with 36 CFR 800.3(c)(2). We request your concurrence with the proposed APEs, proposed list of consulting parties, as well as the designation of VDHR.

## Project Description

The **purpose** of the proposed action is to enable NSWCDL to meet mission-related warfare and force protection requirements by providing RDT&E for ordnance, surface ship combat systems, force-level warfare, and force protection operations. The **need** for the proposed action is to enable the Navy and other stakeholders to successfully meet current and future national and global defense challenges by developing a robust capability to carry out assigned RDT&E activities at the installation.

The EIS will evaluate the environmental impacts of current and future RDT&E activities conducted outdoors at two test range complexes, the Explosives Experimental Area (EEA) Complex and the Potomac River Test Range (PRTR) Complex, as well as at adjoining Mission Areas (see Figures 2 and 3). The EIS will also evaluate the impacts of activities occurring within the installation's Special Use Airspace, which consists of the airspace up to 60,000 feet above the PRTR and 7,000 feet above the EEA.

NSWCDL is considering three alternative levels of RDT&E activities in the EIS, as shown in Table 1. These alternatives are described in the enclosed NSWCDL fact sheet and are briefly summarized below. Further information is available on the project website at <http://www.nswc.navy.mil/EIS/>.

**Table 1**  
**Dahlgren Outdoor RDT&E Activities EIS**  
**Average Annual Operations by Alternative**

Activity	No Action Alternative	Alternative 1	Alternative 2 (Preferred)	Change
Laser Operations (Class 3 & 4)	60 Events	125 Events	145 Events	Increase
Electromagnetic Operations	103 Events	210 Events	240 Events	Increase
Guns/Projectile Tests	4,700 Projectiles	4,700 Projectiles	4,700 Projectiles	None
Small Arms Tests	6,000 Bullets	6,000 Bullets	6,000 Bullets	None
Detonations	192 Events	200 Events	230 Events	Increase
Chemical & Biological Sensor Tests	54 Events	324 Events	372 Events	Increase
Major Noise- Producing Activities <sup>1</sup>	Steady	Steady	Steady	None
Potomac River Range Test Use	750 Hours	770 Hours	890 Hours	Increase

### **No Action Alternative**

Under the No Action Alternative, the annual level of outdoor RDT&E activities taking place in the PRTR, EEA, Mission Areas, and Special Use Airspace would remain similar to existing levels; there would be no expansion of NSWCDL's outdoor RDT&E capabilities.

### **Alternative 1**

Alternative 1 includes existing baseline activities. In addition, with the exception of Gun/Projectile and Small Arms tests, NSWCDL's outdoor RDT&E activities would increase as shown in Table 1 to accommodate known workload requirements. This increase would take place over the next seven years or so.

### **Alternative 2, Preferred Alternative**

Alternative 2, the Preferred Alternative, includes baseline activities, all Alternative 1 increased activities, plus further increases to take place over approximately the next 15 years. The alternative generally provides for a 15 percent increase in mission activities above Alternative 1 levels, plus new applications of existing technology. This is the preferred alternative because it allows for the greatest level of flexibility in adapting to program changes in the future.

### **Proposed Areas of Potential Effect**

#### **Historic Architectural APE**

The proposed Historic Architectural APE for this project, enclosed as Figure 4, was developed to account for potential direct and indirect effects of the proposed action on historic architectural resources in accordance with Section 106 of NHPA. Therefore, the Historic Architectural APE includes all areas where the proposed action may directly impact historic architectural resources, or result in a change in character of their use or setting. In addition, the Historic Architectural APE also includes areas where the proposed action may indirectly cause the introduction of visual, atmospheric or audible elements that might diminish significant features of such resources.

Most RDT&E activities conducted at NSWCDL do not generate noise in the vicinity of the installation above ambient levels. However, activities associated with ordnance, particularly the firing of large-caliber guns on the PRTR, generate high noise levels, well above ambient levels. The noise generated by ordnance is called impulsive noise - each event can be singled out. This is different from continuous noise, such as generated by a lawn mower.

According to research conducted by the US Bureau of Mines in 1987, impulsive vibration noises are typically noticed when they reach levels of 120 peak decibels (dBP). Similarly, low frequency impulsive sounds such as large-gun firing and thunder can rattle loose window panes at levels starting at 120 dBP and may cause concern on the part of property owners. It is possible for window panes and plaster to crack in weak structures at sound pressure levels starting at 134 dBP. More extensive structural damage can occur at levels of 175 dBP or higher.

Therefore, Figure 4 depicts the 120 dBP and the 134 dBP noise contours. Although the 120 dBP contour is below the property damage-causing threshold, it has the potential to concern surrounding property owners. Thus, it has been selected as the Historic Architectural APE for this project.

To generate the noise contours in Figure 4, BNOISE2, a large-weapon noise modeling software program developed by the US Army, was utilized. The model incorporates inputs such as types of weapons, weather, and sound propagation surface conditions to predict peak noise contours generated by ordnance used and expected to be used by NSWCDL. The contour lines represent locations where average peak noise levels of 120 dB and 134 dB are predicted to occur under a range of weather conditions. The four individual 134 dBP contours reflect noise levels originating from guns fired from NSF Dahlgren (Mainside) and ordnance detonations on the EEA. The three 134 dBP contours in the Potomac River coincide with target areas where live (explosive) projectiles detonate.

The noise contours result from modeling the firing of live projectiles from an 8-inch caliber gun. Dahlgren very rarely fires an 8-inch gun today and never with live projectiles. Most

tests today are conducted using 5-inch caliber or smaller guns that produce considerably smaller noise contours than shown. The noise contours on the map are based on an 8-inch caliber gun because in the next ten to fifteen years it is possible that Dahlgren may need to test new types of ordnance with explosive capabilities up to this size.

The 134 dBP contours also include target areas for the firing of inert (non-explosive) projectiles with live fuzes. It should be noted that most of the projectiles fired at NSWCDL are totally inert and contain no explosive material. When totally inert projectiles are fired, the only noise source is at the gun--there is no second noise source at the target area down river. Therefore, the 120 dBP contour is much smaller when inert ordnance is fired.

#### **Archaeological APE**

Traditionally, the Archaeological APE is concerned with *direct effects* and is defined through the examination of the areas of ground disturbance that would occur as a result of carrying out proposed project actions. In terms of the RDT&E project, the proposed activities should have little-to-no direct impact on archaeological resources within or near NSWCDL, as ground disturbing activities are not proposed. However, *indirect effects* upon archaeological resources resulting from ordnance testing-related vibration are of concern, particularly with regard to shipwrecks in the Potomac River.

Therefore, the Archaeological APE, enclosed as Figure 5, is based on that portion of the Potomac River Test Range Complex (PRTR) that would be utilized during the RDT&E activities. In addition, the APE includes a 100-meter wide buffer zone along the southern boundary of the Explosives Experimental Area (EEA) from Upper Machodoc Creek to the Potomac River shoreline where indirect impacts resulting from testing-related vibration may occur.

#### **Section 106 Public Outreach**

In accordance with Section 106 of NHPA, NSWCDL must initiate a public outreach process to inform the public of the proposed undertaking and seek and consider the views of the



public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties. A preliminary draft list of agencies and organizations that should be considered consulting parties for this project is enclosed.

Department of Navy procedures for cultural resource management requires "Navy commands to consult with federally recognized tribes on a government-to-government basis about proposed actions with the potential to affect sites of religious or cultural importance to the tribe." While the Bureau of Indian Affairs' list of federally recognized tribes indicates none for Maryland, it is possible that federally recognized tribes currently residing in other states may have ancestral ties to properties that fall within the APEs for this project.

If you are aware of federally recognized tribal contacts that are routinely included as consulting parties in Maryland, we will amend the enclosed list accordingly.

#### **Conclusion**

Upon receipt of your concurrence with the proposed archaeological and historic architectural APEs and list of potential consulting parties (including any Indian tribes you identify as appropriate consulting parties), NSF Dahlgren will initiate a formal review of the project in accordance with Maryland Historical Trust (MHT) guidelines.

Please use the enclosed Concurrence Sheet to indicate your concurrence. We would appreciate a response in writing for the project file. However, if we do not hear from you within 30 days of receipt of this letter, we will assume the proposed APE boundaries and list of consulting parties to be adequate for Section 106 review purposes and will begin to prepare documentation for formal review of the project by MHT.

Please direct all correspondence to:

Attn: Mr. Jeffrey C. Bossart, PRSP4  
17483 Dahlgren Road, Suite 104  
Dahlgren, Virginia 22448-5119

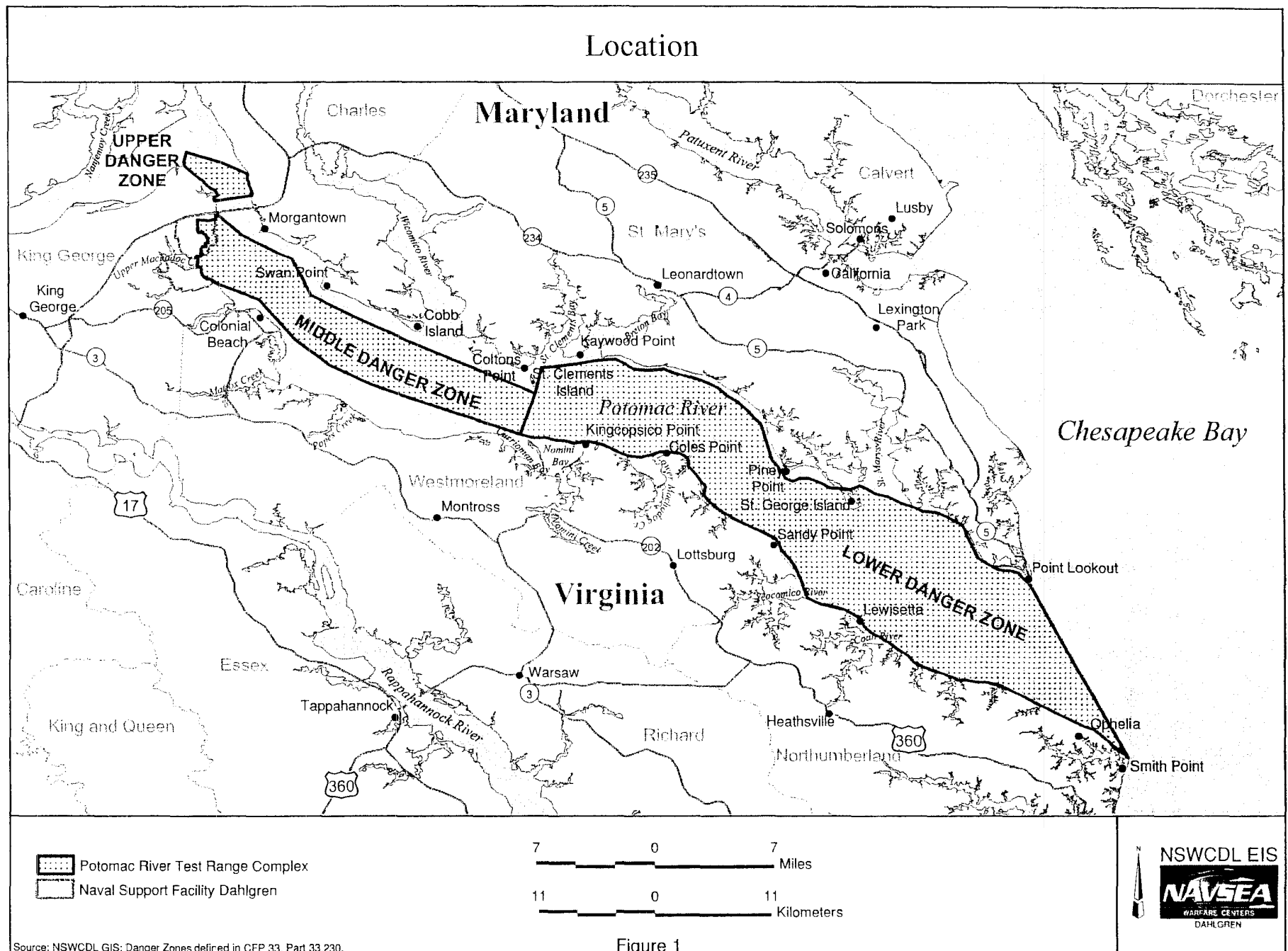
5090  
Ser PRSP4PAA/073

For more information, please contact Patricia Albert at  
(540) 653-8584.

Sincerely,

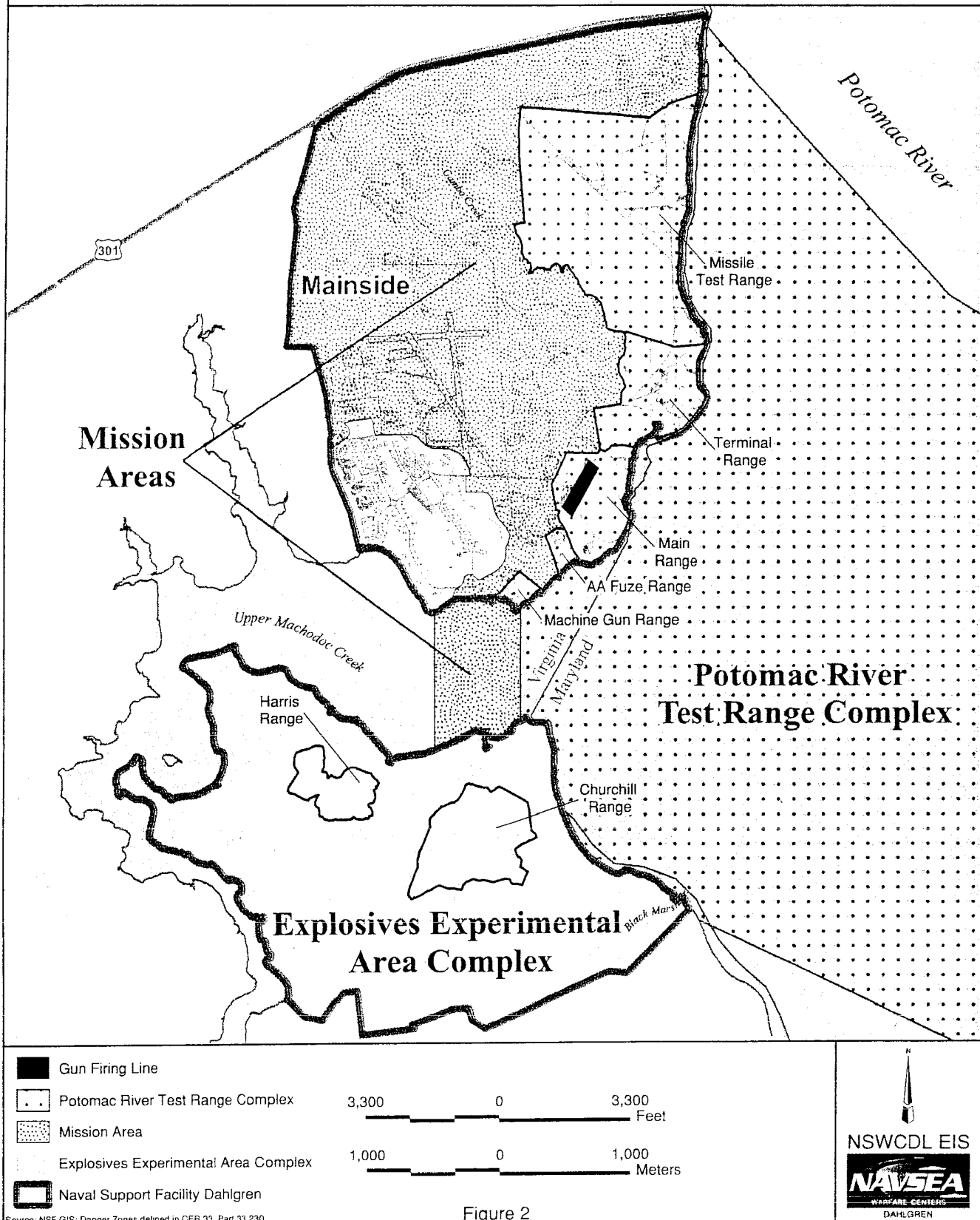
JEFFREY C. BOSSART  
Director, Environmental Office  
By direction of the Commander

Enclosures: 1. Figure 1 - Location  
2. Figure 2 - Dahlgren's Ranges and Mission Areas  
3. Figure 3 - Potomac River Test Range Primary  
Gunnery Target Area  
4. Figure 4 - Historical Architectural Area of  
Potential Effect  
5. Figure 5 - Archaeological Area of Potential  
Effect  
6. Preliminary Draft List of Potential 106  
Consulting Parties  
7. Concurrence Sheet



ENCLOSURE(1)

# Dahlgren's Ranges and Mission Areas



# Potomac River Test Range Primary Gunnery Target Area

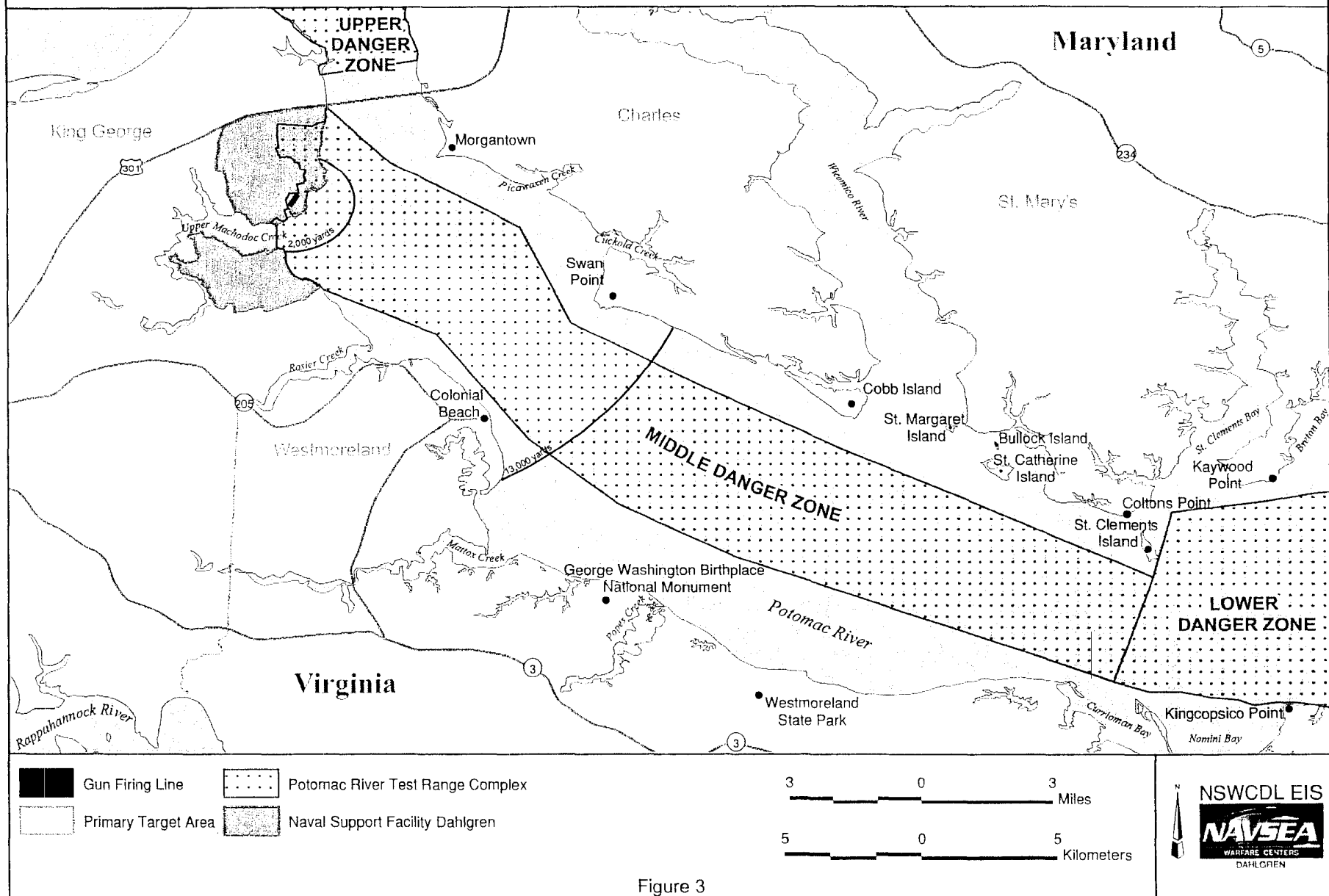
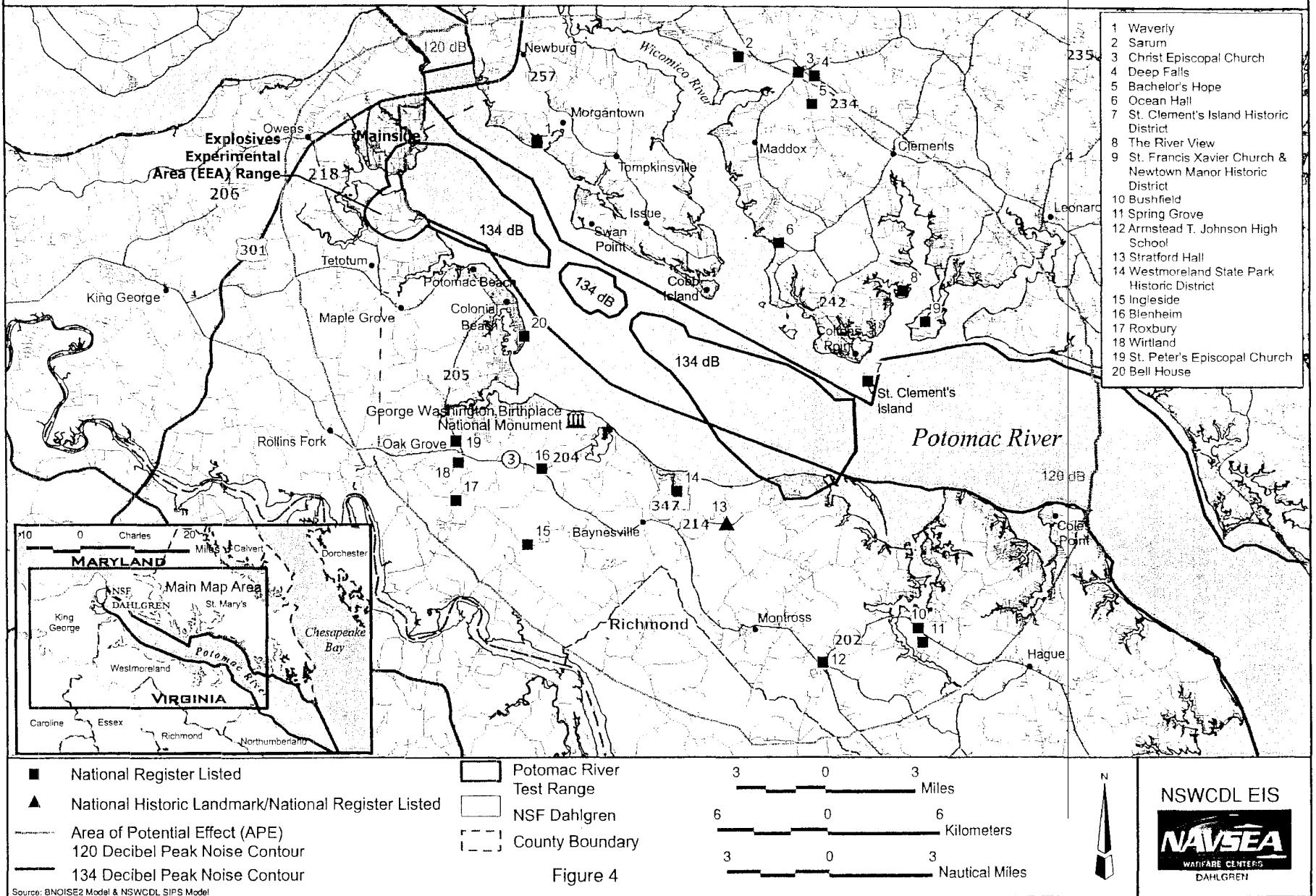


Figure 3

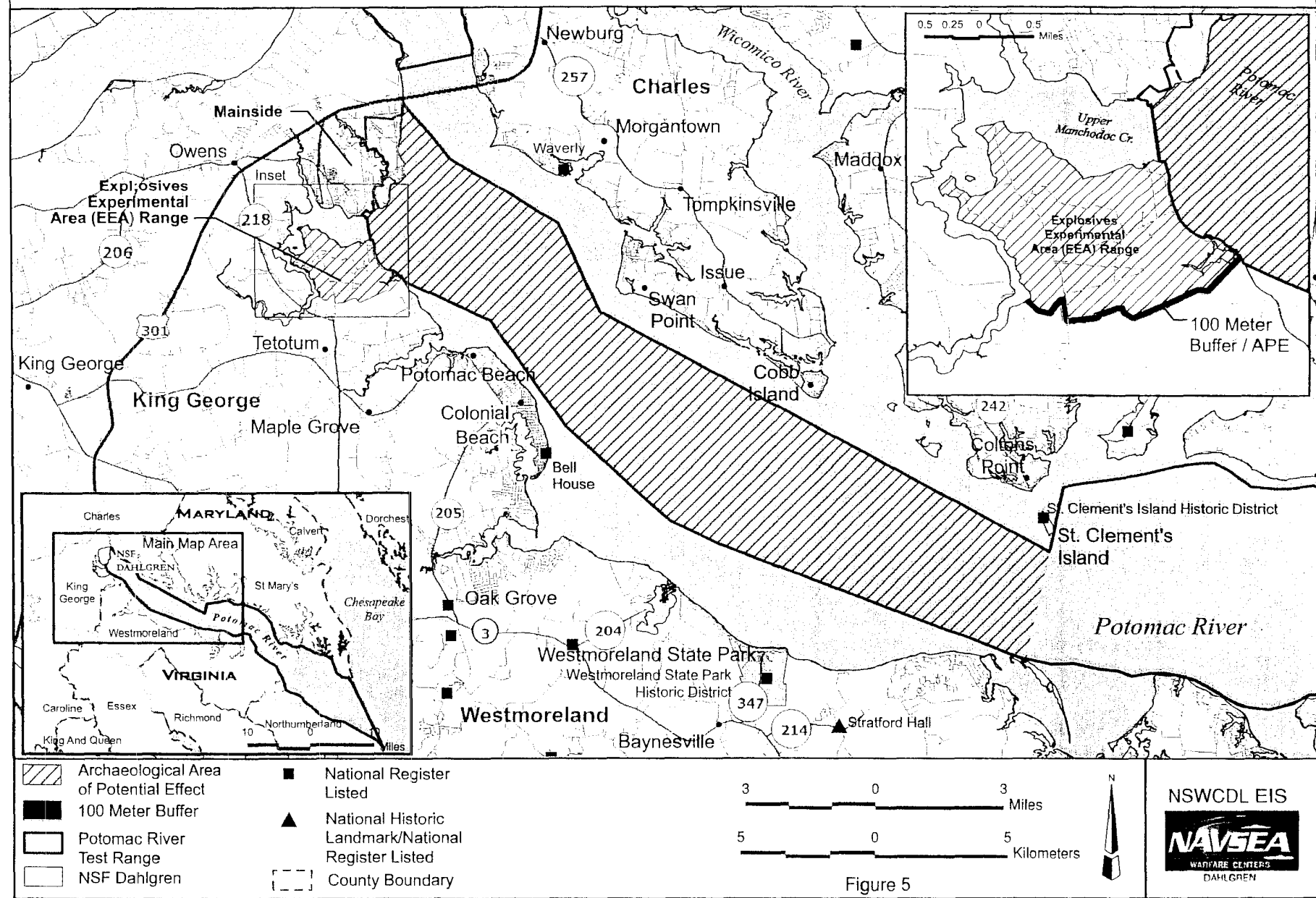
ENCLOSURE(3)

# Historical Architectural Area of Potential Effect



ENCLOSURE(4)

# Archaeological Area of Potential Effect



**Revised Draft List of Potential Section 106 Consulting Parties  
Environmental Impact Statement  
Naval Surface Warfare Center, Dahlgren Site  
Outdoor Research, Development, Test and Evaluation Activities  
Dahlgren, Virginia**

**July 25, 2008**

***Virginia Department of Historic Resources***

Department of Defense Projects

Mr. Marc Holma  
Architectural Historian  
Review & Compliance  
Virginia Department of Historic Resources  
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Richmond, Virginia 23221

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***Maryland Historical Trust***

Review and Compliance

Ms. Elizabeth J. Cole  
Administrator, Review & Compliance  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

Phone: 410-514-7631  
E-mail: [BCole@mdp.state.md.us](mailto:BCole@mdp.state.md.us)

Underwater Archaeology

Ms. Susan Langley  
State Underwater Archaeologist  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

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*Historical Societies and Museums, Virginia*

Ms. Virginia Brown  
President  
Northern Neck of Virginia Historical Society  
43 Courthouse Square  
PO Box 716  
Montross, Virginia 22520

Phone: 804-493-8440 (see Westmoreland County Museum and Library, Inc.)

---

Ms. Elizabeth Lee  
President  
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PO Box 424  
King George, Virginia 22485

Museum street address:  
9483 Kings Highway  
King George, Virginia, 22485

Phone: 540-775-9477  
E-mail: [inquiry@kghistory.org](mailto:inquiry@kghistory.org)

---

Mr. Walter Heyer  
Executive Director  
Westmoreland County Museum and Library, Inc.  
PO Box 247  
Montross, Virginia 22520-0247

Museum street address:  
43 Court Square  
Montross, Virginia, 22520

Phone: 804-493-8440  
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Mr. A. Wiatt Garland  
President  
Northumberland County Historical Society  
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Ms. Courtney Sisson  
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***Historical Societies and Preservation Organizations, Maryland***

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PO Box 2806  
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Phone: 301-934-2564

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---

Mr. David Rose  
Charles County Historical Trust, Inc.  
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Newberg, Maryland 20664

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---

Ms. Roz Racanello  
Executive Director  
Southern Maryland Heritage Area Consortium  
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Ms. Patricia McGarry  
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Southern Maryland Studies Center  
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Email: [smc@csmd.edu](mailto:smc@csmd.edu)  
[PatriciaM@csmd.edu](mailto:PatriciaM@csmd.edu)

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### ***County Governments – Virginia***

#### Regional Planning Commission

Mr. Jerry Davis  
Executive Director  
Northern Neck Planning District Commission  
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457 Main Street  
PO Box 1600  
Warsaw, Virginia 22572

Phone: 804-333-1900  
Fax: 804-333-5274  
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### ***King George County, Virginia***

#### King George County Planning Commission (works with Board of Supervisors)

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***Westmoreland County, Virginia***

Westmoreland County Planning Department

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Westmoreland County Planning Commission

Mr. Robert McDermott  
Chair  
Westmoreland County Planning Commission  
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Montross, Virginia 22520

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***Northumberland County, Virginia***

Northumberland County Building and Zoning Department

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Building Official, Director of Code Compliance  
PO Box 129  
Heathsville, Virginia 22473

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Northumberland County Planning Commission

Northumberland County Planning Commission  
c/o E. Luttrell Tadlock  
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---

***Richmond County, Virginia***

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Richmond County Planning Office

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---

***County Governments - Maryland***

***Charles County, Maryland***

Charles County Department of Planning and Growth Management

Ms. Cathy Hardy  
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Charles County Planning Commission

Mr. Raymond Detig  
Chairman  
Charles County Planning Commission  
PO Box 2150  
La Plata, Maryland 20646

Phone: 301-645-0550 or 301-870-3000

---

***St. Mary's County, Maryland***

St. Mary's County Historic Preservation Commission

Harold Willard, Chairman  
St. Mary's County Historic Preservation Commission  
22131 Point Lookout Road  
Leonardtown, Maryland 20650  
(Member: 3/30/03 to 6/30/08)

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Fax: 301-475-3526  
E-mail: [hwillard@md.metrocast.net](mailto:hwillard@md.metrocast.net)

St. Mary's County Department of Land Use and Growth Management

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Planner II – Historic Preservation  
St. Mary's County Department of Land Use and Growth Management  
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St. Mary's County Planning Commission

Mr. Stephen T. Reeves  
Chair  
St. Mary's County Planning Commission  
PO Box 653  
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Leonardtown, Maryland 20650

Phone: 301-475-4200, X1321

### ***Naval Organizations***

Point-of-contact  
Naval Historical Center  
Washington Navy Yard  
805 Kidder Breese Street, SE  
Washington, DC 20374-5060

Phone: 202-433-2331

Underwater Archaeology Branch  
Building 1, 2<sup>nd</sup> Floor

Phone: 202-433-9784/9787

---

### ***Publicly Accessible National Historic Landmark***

#### ***Westmoreland County, Virginia***

##### Stratford Hall Plantation\*

Paul C. Reber  
Executive Director  
Stratford Hall Plantation  
483 Great House Road  
Stratford, Virginia 22558

Phone: (804) 493-8038

Email: [preber@stratfordhall.org](mailto:preber@stratfordhall.org)

\*Also National Register Listed

---

### ***Publicly Accessible National Register Listed Properties***

#### ***Westmoreland County, Virginia***

##### Bell House

Ms. Anne Bolin  
Innkeeper  
Bell House Bed & Breakfast  
821 Irving Avenue  
Colonial Beach, Virginia 22443

Phone: 804-224-7000

Email: [annebolin@thebellhouse.com](mailto:annebolin@thebellhouse.com)

Armstead Tasker Johnson High School Museum

Armstead Tasker Johnson High School Museum  
18849 King's Highway  
Montross, Virginia 22520

Phone: 804-493-7070

St. Peter's Episcopal Church

St Peter's Episcopal Church  
Rev. Dr. Prentice Kinser III  
PO Box 177  
Montross, Virginia 22520

Phone: 804-493-8285

Westmoreland State Park Historic District

Mr. William L. Jacobs  
Park Manager  
Westmoreland State Park  
1650 State Park Road  
Montross, Virginia 22520

Phone: 804-493-8821

---

***St Mary's County, Maryland***

St. Clements Island Historic District

Ms. Debra Pence  
Museum Division Manager  
St. Mary's County Museum Division  
c/o St. Clement's Island Museum  
38370 Point Breeze Road  
Colton's Point, Maryland 20626

Phone: 301-769-3235

Email: [debra.pence@stmarysmd.com](mailto:debra.pence@stmarysmd.com)

Christ Episcopal Church

The Reverend William Jessee Neat  
Rector  
Christ Episcopal Church  
37497 Zach Fowler Road  
Chaptico, Maryland 20621

Phone: 301-884-3451



## CONCURRENCE SHEET

\_\_\_\_\_ I concur with VDHR acting as the lead SHPO for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia in accordance with 36 CFR 800.3(c)(2).

\_\_\_\_\_ I do not concur with VDHR acting as the lead SHPO for the following reason(s):

\_\_\_\_\_ I concur with the Historic Architectural APE depicted on Figure 4 for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):

\_\_\_\_\_

\_\_\_\_\_ I concur with the Archaeological APE as depicted on Figure 5 for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):

\_\_\_\_\_ I concur with the proposed list of consulting parties for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):

\_\_\_\_\_ The following Native American tribes must be consulted for this project:

\_\_\_\_\_ No Native American tribes are required to be consulted for this project.

\_\_\_\_\_  
Elizabeth Cole  
Maryland Historic Trust

\_\_\_\_\_  
Date

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*Maryland Department of Planning  
Maryland Historical Trust*

*Martin O'Malley  
Governor*

*Anthony G. Brown  
Lt. Governor*

*Richard Eberhart Hall  
Secretary*

*Matthew J. Power  
Deputy Secretary*

December 3, 2008

Mr. Jeffrey C. Bossart  
PRSP4  
17483 Dahlgren Road, Suite 104  
Dahlgren, Virginia 22448-5119

Re: Outdoor Research, Development, Test and Evaluation Activities  
Naval Surface Warfare Center, Dahlgren Site (NSWDL)  
Section 106 Consultation

Dear Mr. Bossart:

Thank you for your recent letter, dated 8 October 2008 and received by the Maryland Historical Trust (Trust) on 16 October 2008. The letter initiated consultation with the Trust on the above-referenced undertaking, pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. We appreciate the Navy's detailed submittal informing the Trust of the proposed project and requesting our concurrence with the Navy's delineation of the area of potential effects (APE), identification of consulting parties, and designation of a lead SHPO. We offer the following concurrence and preliminary comments.

Based on the documentation included with your submittal, the Trust concurs with the Navy on the following items:

- the Historic Architectural APE as depicted on Figure 4 in the Navy's letter;
- the Archeological APE illustrated on Figure 5 in the Navy's submittal; and
- the proposed list of consulting parties for Maryland.

The Trust has no specific recommendations on federally recognized Indian tribes the Navy should invite into consultation for the Maryland section of the project. We do suggest that the Navy include the Maryland Commission on Indian Affairs (MCIA) as a potential consulting party for this undertaking. Here is the contact information for MCIA:

Maryland Commission on Indian Affairs  
Keith Colston, Executive Director  
301 W. Preston St., Suite 1500  
Baltimore, MD 21202  
410-767-7631  
[www.americanindian.maryland.gov](http://www.americanindian.maryland.gov)

Finally, the Navy's letter requested the Trust's concurrence with designating the Virginia Department of Historic Resources (VDHR) as the lead SHPO for consultation on this project. Although the Section 106 regulations provide the option of designating a lead SHPO for undertakings involving more than one state [36 CFR 800.3(c)(2)], it is not a requirement to do so. Since the undertaking has the potential to affect submerged historic properties located within Maryland owned bottom lands of the Potomac River, the Trust would like to remain involved in full Section 106 consultation for resources located within Maryland that may be affected by the undertaking. The Trust's Project Review and Compliance and Underwater Archeology Units will collaborate in our review of the Maryland section of the project.

Jeffrey Bossart  
Outdoor Research, Development, Test and Evaluation Activities  
Naval Surface Warfare Center, Dahlgren Site  
December 3, 3008  
Page 2

We look forward to working with the Navy, VDHR, and other consulting parties to ensure the successful completion of Section 106 consultation for this undertaking. If you have questions or require further assistance, please contact me at 410-514-7631 or [bcole@mdp.state.md.us](mailto:bcole@mdp.state.md.us). Thank you for providing us this opportunity to comment.

Sincerely,



Elizabeth J. Cole  
Administrator, Project Review and Compliance

EJC/200803445

cc: Patricia Albert (Navy – South Potomac)  
Kevin Montgomery (Navy – DNW)  
Marc Holma (VDHR)

## CONCURRENCE SHEET

\_\_\_\_\_ I concur with VDHR acting as the lead SHPO for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia in accordance with 36 CFR 800.3(c)(2).

No I do not concur with VDHR acting as the lead SHPO for the following reason(s): *Given the project's potential for impacts to underwater cultural resources, MD SHPO wants to remain in full consultation*

Yes I concur with the Historic Architectural APE depicted on Figure 4 for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):  
\_\_\_\_\_  
\_\_\_\_\_

Yes I concur with the Archaeological APE as depicted on Figure 5 for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):  
\_\_\_\_\_  
\_\_\_\_\_

Yes I concur with the proposed list of consulting parties for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia. - *Please add the MCEA*

\_\_\_\_\_ I do not concur for the following reason(s):  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ The following Native American tribes must be consulted for this project:  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ No Native American tribes are required to be consulted for this project.

✓ *No specific Native American tribes identified for Maryland at this time. Please consult with MCEA*

*Elizabeth Cole*  
Elizabeth Cole  
Maryland Historic Trust

*12/1/2008*  
Date

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DEPARTMENT OF THE NAVY  
NAVAL SUPPORT ACTIVITY  
SOUTH POTOMAC  
6509 SAMPSON ROAD SUITE 216  
DAHLGREN, VIRGINIA 22448-5106

IN REPLY REFER TO  
5090  
Ser PRSP4PAA/072

80ct 08

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Kathleen Kilpatrick  
Commonwealth of Virginia  
Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

RE: Section 106 Consultation for the Environmental Impact  
Statement on Outdoor Research, Development, Test and  
Evaluation Activities

Dear Ms. Kilpatrick:

Naval Surface Warfare Center, Dahlgren Site (NSWCDL), located on the Naval Support Facility (NSF) Dahlgren, in King George County, Virginia (Figure 1), is preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's regulations implementing NEPA (40 CFR parts 1500-1508). The document is also being prepared in accordance with Section 106 of the National Historic Preservation Act (NHPA) and the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800). The EIS will evaluate the potential environmental consequences of increasing NSWCDL research, development, test, and evaluation (RDT&E) activities taking place outdoors.

Pursuant to 36 CFR 800.3 and 36 CFR 800.4(a), NSF Dahlgren herein submits documentation to initiate the Section 106 review process for this proposed action and requests your concurrence with the enclosed archaeological and historical architectural Areas of Potential Effects (APEs) and list of potential consulting parties. Because the proposed APEs occur within Virginia and Maryland, consultation will also be conducted with the Maryland Historical Trust (MHT). In accordance with 36 CFR 800.3(c)(2), NSF Dahlgren requests that VDHR be designated the lead State Historic Preservation Office (SHPO) for this project since the installation itself is located in Virginia. NSF Dahlgren is requesting concurrence from MHT as well, regarding

this designation, the proposed APEs and proposed list of consulting parties.

### **Project Description**

The **purpose** of the proposed action is to enable NSWCDL to meet mission-related warfare and force protection requirements by providing RDT&E for ordnance, surface ship combat systems, force-level warfare, and force protection operations. The **need** for the proposed action is to enable the Navy and other stakeholders to successfully meet current and future national and global defense challenges by developing a robust capability to carry out assigned RDT&E activities at the installation.

The EIS will evaluate the environmental impacts of current and future RDT&E activities conducted outdoors at two test range complexes, the Explosives Experimental Area (EEA) Complex and the Potomac River Test Range (PRTR) Complex, as well as at adjoining Mission Areas (see Figures 2 and 3). The EIS will also evaluate the impacts of activities occurring within the installation's Special Use Airspace, which consists of the airspace up to 60,000 feet above the PRTR and 7,000 feet above the EEA.

NSWCDL is considering three alternative levels of RDT&E activities in the EIS, as shown in Table 1. These alternatives are described in the enclosed NSWCDL fact sheet and are briefly summarized below. Further information is available on the project website at <http://www.nswc.navy.mil/EIS/>.



**Table 1**  
**Dahlgren Outdoor RDT&E Activities EIS**  
**Average Annual Operations by Alternative**

Activity	No Action Alternative	Alternative 1	Alternative 2 (Preferred)	Change
Laser Operations (Class 3 & 4)	60 Events	125 Events	145 Events	Increase
Electromagnetic Operations	103 Events	210 Events	240 Events	Increase
Guns/Projectile Tests	4,700 Projectiles	4,700 Projectiles	4,700 Projectiles	None
Small Arms Tests	6,000 Bullets	6,000 Bullets	6,000 Bullets	None
Detonations	192 Events	200 Events	230 Events	Increase
Chemical & Biological Sensor Tests	54 Events	324 Events	372 Events	Increase
Major Noise- Producing Activities <sup>1</sup>	Steady	Steady	Steady	None
Potomac River Range Test Use	750 Hours	770 Hours	890 Hours	Increase

#### **No Action Alternative**

Under the No Action Alternative, the annual level of outdoor RDT&E activities taking place in the PRTR, EEA, Mission Areas, and Special Use Airspace would remain similar to existing levels; there would be no expansion of NSWCDL's outdoor RDT&E capabilities.

### **Alternative 1**

Alternative 1 includes existing baseline activities. In addition, with the exception of Gun/Projectile and Small Arms tests, NSWCDL's outdoor RDT&E activities would increase as shown in Table 1 to accommodate known workload requirements. This increase would take place over the next seven years or so.

### **Alternative 2, Preferred Alternative**

Alternative 2, the Preferred Alternative, includes baseline activities, all Alternative 1 increased activities, plus further increases to take place over approximately the next 15 years. The alternative generally provides for a 15 percent increase in mission activities above Alternative 1 levels, plus new applications of existing technology. This is the preferred alternative because it allows for the greatest level of flexibility in adapting to program changes in the future.

### **Proposed Areas of Potential Effect**

#### **Historic Architectural APE**

The proposed Historic Architectural APE for this project, enclosed as Figure 4, was developed to account for potential direct and indirect effects of the proposed action on historic architectural resources in accordance with Section 106 of NHPA. Therefore, the Historic Architectural APE includes all areas where the proposed action may directly impact historic architectural resources, or result in a change in character of their use or setting. In addition, the Historic Architectural APE also includes areas where the proposed action may indirectly cause the introduction of visual, atmospheric or audible elements that might diminish significant features of such resources.

Most RDT&E activities conducted at NSWCDL do not generate noise in the vicinity of the installation above ambient levels. However, activities associated with ordnance, particularly the firing of large-caliber guns on the PRTR, generate high noise levels, well above ambient levels. The noise generated by ordnance is called impulsive noise - each event can be singled

out. This is different from continuous noise, such as generated by a lawn mower.

According to research conducted by the US Bureau of Mines in 1987, impulsive vibration noises are typically noticed when they reach levels of 120 peak decibels (dBP). Similarly, low frequency impulsive sounds such as large-gun firing and thunder can rattle loose window panes at levels starting at 120 dBP and may cause concern on the part of property owners. It is possible for window panes and plaster to crack in weak structures at sound pressure levels starting at 134 dBP. More extensive structural damage can occur at levels of 175 dBP or higher.

Therefore, Figure 4 depicts the 120 dBP and the 134 dBP noise contours. Although the 120 dBP contour is below the property damage-causing threshold, it has the potential to concern surrounding property owners. Thus, it has been selected as the Historic Architectural APE for this project.

To generate the noise contours in Figure 4, BNOISE2, a large-weapon noise modeling software program developed by the US Army, was utilized. The model incorporates inputs such as types of weapons, weather, and sound propagation surface conditions to predict peak noise contours generated by ordnance used and expected to be used by NSWC DL. The contour lines represent locations where average peak noise levels of 120 dB and 134 dB are predicted to occur under a range of weather conditions. The four individual 134 dBP contours reflect noise levels originating from guns fired from NSF Dahlgren (Mainside) and ordnance detonations on the EEA. The three 134 dBP contours in the Potomac River coincide with target areas where live (explosive) projectiles detonate.

The noise contours result from modeling the firing of live projectiles from an 8-inch caliber gun. Dahlgren very rarely fires an 8-inch gun today and never with live projectiles. Most tests today are conducted using 5-inch caliber or smaller guns that produce considerably smaller noise contours than shown. The noise contours on the map are based on an 8-inch caliber gun because in the next ten to fifteen years it is possible that Dahlgren may need to test new types of ordnance with explosive capabilities up to this size.

The 134 dBP contours also include target areas for the firing of inert (non-explosive) projectiles with live fuzes. It should be noted that most of the projectiles fired at NSWCDL are totally inert and contain no explosive material. When totally inert projectiles are fired, the only noise source is at the gun--there is no second noise source at the target area down river. Therefore, the 120 dBP contour is much smaller when inert ordnance is fired.

### **Archaeological APE**

Traditionally, the Archaeological APE is concerned with *direct effects* and is defined through the examination of the areas of ground disturbance that would occur as a result of carrying out proposed project actions. In terms of the RDT&E project, the proposed activities should have little-to-no direct impact on archaeological resources within or near NSWCDL, as ground disturbing activities are not proposed. However, *indirect effects* upon archaeological resources resulting from ordnance testing-related vibration are of concern, particularly with regard to shipwrecks in the Potomac River.

Therefore, the Archaeological APE, enclosed as Figure 5, is based on that portion of the Potomac River Test Range Complex (PRTR) that would be utilized during the RDT&E activities. In addition, the APE includes a 100-meter wide buffer zone along the southern boundary of the Explosives Experimental Area (EEA) from Upper Machodoc Creek to the Potomac River shoreline where indirect impacts resulting from testing-related vibration may occur.

### **Section 106 Public Outreach**

In accordance with Section 106 of NHPA, NSWCDL must initiate a public outreach process to inform the public of the proposed undertaking and seek and consider the views of the public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties. A preliminary draft list of agencies and organizations that should be considered consulting parties for this project is enclosed.

Department of Navy procedures for cultural resource management requires "Navy commands to consult with federally

recognized tribes on a government-to-government basis about proposed actions with the potential to affect sites of religious or cultural importance to the tribe." While the Bureau of Indian Affairs' list of federally recognized tribes indicates none for the Commonwealth of Virginia, it is possible that federally recognized tribes currently residing in other states may have ancestral ties to properties that fall within the APEs for this project.

If you are aware of federally recognized tribal contacts that are routinely included as consulting parties in Virginia, we will amend the enclosed list accordingly.

#### **Conclusion**

Upon receipt of your concurrence with the proposed archaeological and historic architectural APEs and list of potential consulting parties (including any Indian tribes you identify as appropriate consulting parties), NSF Dahlgren will prepare the VDHR Project Review Form in accordance with VDHR guidelines.

Please use the enclosed Concurrence Sheet to indicate your concurrence. We would appreciate a response in writing for the project file. However, if we do not hear from you within 30 days of receipt of this letter, we will assume the proposed APE boundaries and list of consulting parties to be adequate for Section 106 review purposes and will begin preparation of the VDHR Project Review Form.

Please direct all correspondence to:

Attn: Mr. Jeffrey C. Bossart, PRSP4  
17483 Dahlgren Road, Suite 104  
Dahlgren, Virginia 22448-5119

5090  
Ser PRSP4PAA/072

For more information, please contact Patricia Albert, Code  
PRSP4PAA at (540) 653-8584.

Sincerely,

JEFFREY C. BOSSART  
Director, Environmental Office  
By direction of the Commander

Enclosures: (1) Figure 1 - Location  
(2) Figure 2 - Dahlgren's Ranges and Mission Areas  
(3) Figure 3 - Potomac River Test Range Primary  
Gunnery Target Area  
(4) Figure 4 - Historical Architectural Area of  
Potential Effect  
(5) Figure 5 - Archaeological Area of Potential  
Effect  
(6) Preliminary Draft List of Potential 106  
Consulting Parties  
(7) Concurrence Sheet



# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.  
Secretary of Natural Resources

**Department of Historic Resources**  
2801 Kensington Avenue, Richmond, Virginia 23221-0311

Kathleen S. Kilpatrick  
Director

3 March 2009

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
[www.dhr.virginia.gov](http://www.dhr.virginia.gov)

Captain C. T. Hanft  
Department of the Navy  
Naval Support Activity  
South Potomac  
6509 Sampson Road, Suite 216  
Dahlgren, Virginia 22448-5106

Re: EIS Outdoor Research, Development, Test and Evaluation Activities  
Naval Surface Warfare Center, Dahlgren Site, NSF Dahlgren, Virginia  
DHR File No. 2009-0099

Dear Captain Hanft:

We have received your letter of 16 January 2009 regarding the above reference project. It is our understanding that the Department of the Navy (Navy) is developing an Environmental Impact Statement (EIS) for the proposed expansion of the capacities at Naval Surface Warfare Center, Dahlgren Site (NSWC DL), located on Naval Support Facility (NSF) Dahlgren in King George County, Virginia. The expansion involves the increase in capabilities within the Potomac River Test Range and Explosives Experimental Area complexes, the adjoining mission areas, and the special use airspace over the ranges. These capabilities include outdoor operations that require the use of ordinance, electromagnetic energy, lasers, and chemical and biological simulants.

We have read and concur with the Navy's recommendations for the Area of Potential Effects (APE) for architectural and archaeological resources. We also agree with the proposed approach presented to address archaeological resources.

In your 16 January correspondence you request any information that the Department of Historic Resources (DHR) may have on historic properties in the project APE. The DHR is the repository for survey materials on significant architectural and archaeological resources in the Commonwealth. In order for the Navy to obtain that information we request that you contact our archive at (804) 367-2323, Ext. 125. Additionally, for further guidance on consultation with the DHR pursuant to Section 106 of the National Historic Preservation Act please reference our website at [http://www.dhr.virginia.gov/review/section\\_106.htm](http://www.dhr.virginia.gov/review/section_106.htm).

If you have any questions, please call me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma, Architectural Historian  
Office of Review and Compliance

Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way, 2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Northern Region Office  
5357 Main Street  
PO Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7033  
Fax: (540) 868-7033

CONCURRENCE SHEET

X I concur with VDHR acting as the lead SHPO for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia in accordance with 36 CFR 800.3(c)(2).

\_\_\_\_\_ I do not concur with VDHR acting as the lead SHPO for the following reason(s):

X I concur with the Historic Architectural APE depicted on Figure 4 for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):

X I concur with the Archaeological APE as depicted on Figure 5 for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

\_\_\_\_\_ I do not concur for the following reason(s):

\_\_\_\_\_ I concur with the proposed list of consulting parties for the NSWCDL RDT&E project located at NSF Dahlgren in King George County, Virginia.

X I do not concur for the following reason(s): *Include the Virginia Council on Indians and The James Monroe Birthplace Foundation*

X The following Native American tribes must be consulted for this project: *TUSCARORA NATION, CHEROKEE NATION, EASTERN SHAWNEE TRIBE, SHAWNEE TRIBE*

\_\_\_\_\_ No Native American tribes are required to be consulted for this project.

\_\_\_\_\_  
Kathleen Kilpatrick  
VA Department of Historic Resources

\_\_\_\_\_  
Date



**Virginia and Maryland SHPO Approved List of Potential Section 106  
Consulting Parties and  
Sample Letter Sent to the Potential Consulting Parties**

**January 2009**

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**Section 106 Consulting Parties  
Environmental Impact Statement  
Naval Surface Warfare Center, Dahlgren Site  
Outdoor Research, Development, Test and Evaluation Activities  
Dahlgren, Virginia**

***Native American Tribal Contacts – Virginia SHPO***

Virginia Council on Indians

Virginia Council on Indians  
P.O. Box 1475  
Richmond, Virginia 23218

Phone: 804-225-2084  
Fax: 804-255-2585  
E-mail: [vci@governor.virginia.gov](mailto:vci@governor.virginia.gov)

---

Tuscarora Nation

Leo Henry, Chief  
Tuscarora Nation  
2006 Mount Hope Road  
Lewiston, New York 14092

Phone : 716-622-7061

Tuscarora Nation  
5616 Walmore Road  
Lewiston, New York 14092

Phone: 716-622-7061  
Fax: 716-297-7355

*Environmental Contact :*

Neil Patterson, Jr., Director  
Tuscarora Environmental Program  
2045 Upper Mountain Road  
Sanborn, New York 14132

Phone: 716-609-3810  
E-mail: [neil.patterson@starband.net](mailto:neil.patterson@starband.net)

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Cherokee Nation

Cherokee Nation  
P.O. Box 948  
Tahlequah, Oklahoma 74465

Phone: 918-453-5000  
Website: <http://www.cherokee.org>

Eastern Shawnee Tribe of Oklahoma

Mrs. Robin Dushane  
Cultural Resources Specialist  
Eastern Shawnee Tribe of Oklahoma  
127 West Oneida Street  
PO Box 350  
Seneca, Missouri 64865

Admin. Phone: 866-674-3766

Website: [www.easternshawnee.org](http://www.easternshawnee.org)

---

Absentee Shawnee Tribe of Oklahoma

Mrs. Karen Kaniatobe  
Cultural Resources Specialist  
Absentee Shawnee Tribe of Oklahoma  
2025 South Gordon Cooper  
Shawnee, Oklahoma 74801

Phone: 405-275-4030

Website: <http://www.astribetribal.com>

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***Native American Tribal Contacts – Maryland SHPO***

Mr. E. Keith Colston  
Executive Director  
Maryland Commission on Indian Affairs  
301 West Preston Street, Suite 1500  
Baltimore, Maryland 21201

Phone: 410-767-7631

Fax: 410-333-7542

E-mail: [KColston@goci.state.md.us](mailto:KColston@goci.state.md.us)

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***Virginia Department of Historic Resources***

Department of Defense Projects

Mr. Marc Holma  
Architectural Historian  
Review & Compliance  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

Phone: 804-367-2323, X114

E-mail: [marc.holma@dhr.virginia.gov](mailto:marc.holma@dhr.virginia.gov)

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## ***Maryland Historical Trust***

### Review and Compliance

Ms. Elizabeth J. Cole  
Administrator, Review & Compliance  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

Phone: 410-514-7631  
E-mail: [BCole@mdp.state.md.us](mailto:BCole@mdp.state.md.us)

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### Underwater Archaeology

Ms. Susan Langley  
State Underwater Archaeologist  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

Phone: 410-514-7631  
E-mail: [SLangley@mdp.state.md.us](mailto:SLangley@mdp.state.md.us)

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## ***Historical Societies and Museums, Virginia***

Ms. Virginia Brown  
President  
Northern Neck of Virginia Historical Society  
43 Courthouse Square  
PO Box 716  
Montross, Virginia 22520

Phone: 804-493-8440 (see Westmoreland County Museum and Library, Inc.)

---

Ms. Elizabeth Lee  
President  
King George County Historical Society  
PO Box 424  
King George, Virginia 22485

Museum street address:  
9483 Kings Highway  
King George, Virginia, 22485

Phone: 540-775-9477  
E-mail: [inquiry@kghistory.org](mailto:inquiry@kghistory.org)

---

Mr. Walter Heyer  
Executive Director  
Westmoreland County Museum and Library, Inc.  
PO Box 247  
Montross, Virginia 22520-0247

Museum street address:  
43 Court Square  
Montross, Virginia, 22520

Phone: 804-493-8440  
Fax: 804-493-1312  
E-mail: [westmorelnmuse@rivnet.net](mailto:westmorelnmuse@rivnet.net)

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Mr. A. Wiatt Garland  
President  
Northumberland County Historical Society  
PO Box 221  
Heathsville, Virginia 22473

Phone: 804-580-8581

---

Ms. Courtney Sisson  
Museum Director  
Richmond County Museum  
5874 Richmond Road  
P.O. Box 884  
Warsaw, Virginia 22572

Phone: 804-333-3607  
Fax: 804-333-3408  
E-mail: [museum@co.richmond.va.us](mailto:museum@co.richmond.va.us)

---

Stanley L. Klos, Chairman  
James Monroe Birthplace Foundation  
1009 Bainbridge Street  
Richmond, VA 23224

G. William Thomas, President  
James Monroe Foundation  
Phone: 804-231-1827  
Website: <http://www.monroefoundation.org>

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### ***Historical Societies and Preservation Organizations, Maryland***

Ms. Kaye O'Kelley  
Historical Society of Charles County  
PO Box 2806  
La Plata, Maryland 20646

Phone: 301-934-2564  
Appendix E

Mr. Richard Gass  
President  
St. Mary's County Historical Society  
PO Box 212  
41625 Court House Drive  
Leonardtown, Maryland 20657-0212

Phone: 301-475-2467 (Business Office)  
301-475-9455 (Research Center)  
E-mail: [smchsresearch@md.metrocast.net](mailto:smchsresearch@md.metrocast.net)  
[smch@md.metrocast.net](mailto:smch@md.metrocast.net)

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Mr. David Rose  
Charles County Historical Trust, Inc.  
Box 11430 Edgehill Road  
Newberg, Maryland 20664

Phone: 301-259-4393

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Ms. Roz Racanello  
Executive Director  
Southern Maryland Heritage Area Consortium  
PO Box 745  
Hughesville, Maryland 20637

Phone: 301-274-4083  
Fax: 301-274-1924  
E-mail: [SoMDHeritage@tccsmd.org](mailto:SoMDHeritage@tccsmd.org)

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Ms. Patricia McGarry  
Archives Manager  
Southern Maryland Studies Center  
College of Southern Maryland  
8730 Mitchell Road  
PO Box 910  
La Plata, Maryland 20646-0910

Phone: 301-934-7626, X7107  
Email: [smsc@csmd.edu](mailto:smsc@csmd.edu)  
[PatriciaM@csmd.edu](mailto:PatriciaM@csmd.edu)

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## ***County Governments – Virginia***

### **Regional Planning Commission**

Mr. Jerry Davis  
Executive Director  
Northern Neck Planning District Commission  
The Regional Center  
457 Main Street  
PO Box 1600  
Warsaw, Virginia 22572

Phone: 804-333-1900  
Fax: 804-333-5274  
E-mail: [jdavis@nnpdc17.state.va.us](mailto:jdavis@nnpdc17.state.va.us)

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### ***King George County, Virginia***

#### King George County Planning Commission (works with Board of Supervisors)

Ms. Jessica Herrink  
Mr. William A. Robie, Jr.  
King George County Planning Commission - Dahlgren  
King George County  
10459 Courthouse Drive  
King George, Virginia 22485-3865

Phone: 540-775-9181  
Fax: 540-775-5248

---

### ***Westmoreland County, Virginia***

#### Westmoreland County Planning Department

Mr. Gary Ziegler  
Director, Planning & Community Development  
Westmoreland County  
PO Box 1000  
Montross, Virginia 22520

Phone: 804-493-0120  
Fax: 804-493-0604  
E-mail: [landuse@westmoreland-county.org](mailto:landuse@westmoreland-county.org)

#### Westmoreland County Planning Commission

Mr. Robert McDermott  
Chair  
Westmoreland County Planning Commission  
c/o 1824 Federal Farm Road  
Montross, Virginia 22520

Phone: 804-493-1955

---

### ***Northumberland County, Virginia***

#### Northumberland County Building and Zoning Department

Mr. W.M. Knight  
Building Official, Director of Code Compliance  
PO Box 129  
Heathsville, Virginia 22473



Phone: 804-580-8910 or 804-580-7921  
Fax: 804-580-8082  
E-mail: [bknight@co.northumberland.va.us](mailto:bknight@co.northumberland.va.us)

Mr. Wellington H. Shirley, Jr.  
Zoning Administrator  
Building Official, Director of Code Compliance  
PO Box 129  
Heathsville, Virginia 22473

Phone: 804-580-8910 or 804-580-7921  
Fax: 804-580-8082  
E-mail: [wshirley@co.northumberland.va.us](mailto:wshirley@co.northumberland.va.us)

#### Northumberland County Planning Commission

Northumberland County Planning Commission  
c/o E. Luttrell Tadlock  
PO Box 129  
Heathsville, Virginia 22473

Phone: 804-580-8910 or 804-580-7921  
Fax: 804-580-8082

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### ***Richmond County, Virginia***

#### Richmond County Administrative Office

Mr. Michael Sisson  
Environmental Compliance Officer  
Richmond County Administrative Office  
101 Court Circle  
P.O. Box 1000  
Warsaw, Virginia 22572

Phone: 804-333-3415  
Fax: 804-333-3408  
E-mail: [msisson@co.richmond.va.us](mailto:msisson@co.richmond.va.us)

#### Richmond County Planning Office

Mr. Christopher H. Jett  
Director of Planning  
101 Court Circle  
P. O. Box 1000  
Warsaw, Virginia 22572

Phone: 804-333-3415  
E-mail: [cjett@co.richmond.va.us](mailto:cjett@co.richmond.va.us)

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## ***County Governments - Maryland***

### ***Charles County, Maryland***

#### Charles County Department of Planning and Growth Management

Ms. Cathy Hardy  
Community Planning Program Manager  
Charles County Department of Planning and Growth Management  
PO Box 2150  
La Plata, Maryland 20646

Phone: 301-396-5815  
E-mail: [hardyc@charlescounty.org](mailto:hardyc@charlescounty.org)

#### Charles County Planning Commission

Mr. Raymond Detig  
Chairman  
Charles County Planning Commission  
PO Box 2150  
La Plata, Maryland 20646

Phone: 301-645-0550 or 301-870-3000

---

### ***St. Mary's County, Maryland***

#### St. Mary's County Historic Preservation Commission

Harold Willard, Chairman  
St. Mary's County Historic Preservation Commission  
22131 Point Lookout Road  
Leonardtown, Maryland 20650  
(Member: 3/30/03 to 6/30/08)

Phone: 301-475-5077  
Fax: 301-475-3526  
E-mail: [hwillard@md.metrocast.net](mailto:hwillard@md.metrocast.net)

#### St. Mary's County Department of Land Use and Growth Management

Ms. Teri Wilson  
Planner II – Historic Preservation  
St. Mary's County Department of Land Use and Growth Management  
PO Box 653  
23115 Leonard Hill Drive  
Leonardtown, Maryland 20650

Phone: 301-475-4200, X1549  
E-mail: [teresa.wilson@co.saint-marys.md.us](mailto:teresa.wilson@co.saint-marys.md.us)

St. Mary's County Planning Commission

Mr. Stephen T. Reeves  
Chair  
St. Mary's County Planning Commission  
PO Box 653  
23115 Leonard Hill Drive  
Leonardtown, Maryland 20650

Phone: 301-475-4200, X1321

---

***Naval Organizations***

Naval Historical Center  
Washington Navy Yard  
805 Kidder Breese Street, SE  
Washington, DC 20374-5060

Phone: 202-433-2331

Underwater Archaeology Branch  
Building 1, 2<sup>nd</sup> Floor

Phone: 202-433-9784/9787

---

***Publicly Accessible National Historic Landmark***

***Westmoreland County, Virginia***

Stratford Hall Plantation\*

Paul C. Reber  
Executive Director  
Stratford Hall Plantation  
483 Great House Road  
Stratford, Virginia 22558

Phone: (804) 493-8038  
E-mail: [preber@stratfordhall.org](mailto:preber@stratfordhall.org)

\*Also National Register Listed

---

Bell House

Ms. Anne Bolin  
Innkeeper  
Bell House Bed & Breakfast  
821 Irving Avenue  
Colonial Beach, Virginia 22443

Phone: 804-224-7000  
E-mail: [annebolin@thebellhouse.com](mailto:annebolin@thebellhouse.com)

Armstead Tasker Johnson High School Museum

Armstead Tasker Johnson High School Museum  
18849 King's Highway  
Montross, Virginia 22520

Phone: 804-493-7070

---

St. Peter's Episcopal Church

St Peter's Episcopal Church  
Rev. Dr. Prentice Kinser III  
PO Box 177  
Montross, Virginia 22520

Phone: 804-493-8285

---

Westmoreland State Park Historic District

Mr. William L. Jacobs  
Park Manager  
Westmoreland State Park  
1650 State Park Road  
Montross, Virginia 22520

Phone: 804-493-8821

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***Publicly Accessible National Register-Listed Properties***

***St Mary's County, Maryland***

St. Clements Island Historic District

Ms. Debra Pence  
Museum Division Manager  
St. Mary's County Museum Division  
c/o St. Clement's Island Museum  
38370 Point Breeze Road  
Colton's Point, Maryland 20626

Phone: 301-769-3235  
E-mail: [debra.pence@stmarysmd.com](mailto:debra.pence@stmarysmd.com)

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Christ Episcopal Church

The Reverend William Jessee Neat  
Rector  
Christ Episcopal Church  
37497 Zach Fowler Road  
Chaptico, Maryland 20621

Phone: 301-884-3451  
Appendix E

***Publicly Accessible National Monument***

***Westmoreland County, Virginia***

George Washington Birthplace National Monument

Mr. Vidal Martinez  
Superintendent  
George Washington Birthplace National Monument  
National Park Service  
1732 Popes Creek Road  
Washington's Birthplace, Virginia 22443-5115

Phone: 804-224-1732  
Fax: 804-224-2142

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DEPARTMENT OF THE NAVY  
NAVAL SUPPORT ACTIVITY  
SOUTH POTOMAC  
6509 SAMPSON ROAD SUITE 216  
DAHLGREN, VIRGINIA 22448-5106

IN REPLY REFER TO

5000

N1

JAN 15 2008

Mr. Marc Holma  
Architectural Historian Review & Compliance  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

RE: Section 106 Consultation Environmental Impact Statement for  
Outdoor Research, Development, Test and Evaluation Activities,  
Naval Surface Warfare Center, Dahlgren Site, NSF Dahlgren,  
Virginia

Dear Mr. Holma:

Naval Surface Warfare Center, Dahlgren Site (NSWCDL),  
located on Naval Support Facility (NSF) Dahlgren in King George  
County, Virginia, is preparing an Environmental Impact Statement  
(EIS) in conjunction with NSWCDL's proposed expansion of its  
capabilities (Figure 1).

The EIS is being prepared in compliance with two key  
federal laws, the National Environmental Policy Act of 1969  
(NEPA) and Section 106 of the National Historic Preservation Act  
(NHPA) (Section 106). The focus of this letter concerns your  
role in the Section 106 process.

**Section 106 of the National Historic Preservation Act**

Section 106 requires that NSWCDL, the lead federal agency  
for the project, take into account the impacts of their  
undertakings on cultural resources (buildings, structures,  
sites, objects or historic districts) included in, or eligible  
for inclusion in the National Register of Historic Places within  
the area of potential effect (APE) defined for the project.  
Cultural resources that are over 50 years old might be eligible  
for listing in the National Register if they possess historic  
significance and architectural integrity.

Implementing regulations for Section 106, established by the Advisory Council on Historic Preservation (ACHP), are contained in 36 CFR Part 800-Protection of Historic Properties. The enclosed brochure explains the Section 106 process. A detailed explanation of the Section 106 process may also be found at <http://www.achp.gov/usersguide.html>.

Pursuant to Section 106, and specifically 36 CFR 800.4, NSF Dahlgren is seeking your input on this project and it's potential impacts on the archaeological or historic architectural resources present within the Archaeological APE and/or Historic Architectural APE defined for this project (described below). Furthermore, please note that your agency or organization is also entitled to participate in the Section 106 process as a consulting party pursuant to 36 CFR 800.2.

### **Project Description**

The **proposed action** to be analyzed in the EIS is expansion of Dahlgren's RDT&E capabilities within the Potomac River Test Range and Explosives Experimental Area complexes, the adjoining mission areas, and the special use airspace over the ranges (Figures 2 and 3). These capabilities include outdoor operations that require the use of ordnance, electromagnetic energy, lasers, and chemical and biological simulants. The **purpose** of the proposed action is to enable NSWCDL to meet mission-related warfare and force protection requirements by providing RDT&E for ordnance, surface ship combat systems, force-level warfare, and force protection operations. The **need** for the proposed action is to enable the Navy and other stakeholders to successfully meet current and future national and global defense challenges by developing a robust capability to carry out assigned RDT&E activities at the installation. NSWCDL is considering three alternative levels of RDT&E activities in the EIS, as shown in Table 1 and briefly described below. Further information is available on the project website at <http://www.nswc.navy.mil/EIS/>.



Table 1  
Dahlgren Outdoor RDT&E Activities EIS  
Average Annual Operations by Alternative

RDT&E Activity	No Action Alternative Annual Operations	Alternative 1 Annual Operations	Alternative 2 Annual Operations
Laser Operations Class 3 & 4	60 events	125 events	145 events
Electromagnetic Operations	490 events	590 events	680 events
Gun/Projectile Tests	4,700 projectiles	4,700 projectiles	4,700 projectiles
Small Arms Tests	6,000 bullets	6,000 bullets	6,000 bullets
Detonations	190 events	200 events	230 events
Chemical & Biological Sensor Tests	55 events Chemical only	325 events	375 events
PRTR Use	750 hours	770 hours	890 hours

#### No Action Alternative

Under the No Action Alternative, the annual level of outdoor RDT&E activities taking place in the PRTR, EEA, Mission Areas, and Special Use Airspace would remain similar to existing levels; there would be no expansion of NSWCDL's outdoor RDT&E capabilities.

#### Alternative 1

Alternative 1 includes existing baseline activities. In addition, with the exception of Gun/Projectile and Small Arms tests, NSWCDL's outdoor RDT&E activities would increase as shown in the table to accommodate known workload requirements. This increase would take place over approximately the next seven years.

## **Alternative 2, Preferred Alternative**

Alternative 2, the Preferred Alternative, includes baseline activities, all Alternative 1 increased activities, plus further increases to take place over approximately the next 10 to 15 years.

The alternative generally provides for a 15 percent increase in mission activities above Alternative 1 levels, plus new applications of existing technology. This is the preferred alternative because it allows for the greatest level of flexibility in adapting to program changes in the future.

## **Section 106 Identification of Historic Properties**

In accordance with Section 106, Archaeological and Historic Architectural APEs have been delineated for this project in portions of Virginia and Maryland. Section 106 defines the APE as "the area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of archaeological and historic architectural resources. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR 800.16 Definitions).

NSWDCL is currently in the process of identifying archaeological and historic architectural resources within both APEs, in coordination with the Virginia Department of Historic Resources (VDHR) and the Maryland Historical Trust (MHT), overseers of the Section 106 process in those respective states.

## **Archaeological APE**

Traditionally, an archaeological APE is concerned with *direct effects* and defined by considering the areas of ground disturbance that would occur as a result of carrying out a proposed project action, such as building a new facility. In terms of the proposed action addressed in this EIS, the proposed activities would have little-to-no direct impact on archaeological resources within or near NSF Dahlgren, because no groundbreaking activities are proposed. However, *indirect effects* upon archaeological resources resulting from vibrations

associated with gun testing-related noise are of potential concern, particularly with regard to shipwrecks in the Potomac River.

Therefore, the Archaeological APE for this project is based on that portion of the PRTR that would be utilized during RDT&E activities that generate noise, that is, the EEA from detonations and within the Middle Danger Zone (MDZ) from large-caliber gun fire. In addition, the Archaeological APE includes a 300-foot wide buffer zone along the southern boundary of the EEA from Upper Machodoc Creek to the Potomac River shoreline where indirect impacts resulting from testing-related noise may occur. Figure 4 depicts the location of the Archaeological APE. The Archaeological APE has been approved by VDHR and MHT.

#### **Historic Architectural APE**

The Historic Architectural APE for this project, enclosed as Figure 5, was developed to account for potential *direct and indirect effects* of the proposed action on historic architectural resources in accordance with Section 106. Therefore, the Historic Architectural APE includes all areas where the proposed action may directly impact historic architectural resources, or result in a change in character of their use or setting. In addition, the Historic Architectural APE also includes areas where the proposed action may indirectly cause the introduction of visual, atmospheric or audible elements that might diminish significant features of such resources. The Historic Architectural APE has been approved by VDHR and MHT.

Most RDT&E activities conducted at NSWCDL do not generate noise in the vicinity of the installation above ambient levels. However, activities associated with ordnance, particularly the firing of large-caliber guns on the PRTR, generate high noise levels, well above ambient levels. The noise generated by ordnance is called impulsive noise - each event can be singled out. This is different from continuous noise, such as generated by a lawn mower.

According to research conducted by the US Bureau of Mines in 1987, impulsive vibration noises are typically noticed when they reach levels of 120 peak decibels (dBP). Similarly, low

frequency impulsive sounds such as large-gun firing and thunder can rattle loose window panes at levels starting at 120 dBP and may cause concern on the part of property owners. It is possible for window panes and plaster to crack in weak structures at sound pressure levels starting at 134 dBP. More extensive structural damage can occur at levels of 175 dBP or higher.

Therefore, Figure 5 depicts the 120 dBP and the 134 dBP noise contours. Although the 120 dBP contour is below the property damage-causing threshold, it has the potential to concern surrounding property owners. Thus, it has been selected as the Historic Architectural APE for this project.

To generate the noise contours in Figure 5, BNOISE2, a large-weapon noise modeling software program developed by the US Army, was utilized. The model incorporates inputs such as types of weapons, weather, and sound propagation surface conditions to predict peak noise contours generated by ordnance used and expected to be used by NSWCDL. The contour lines represent locations where average peak noise levels of 120 dB and 134 dB are predicted to occur under a range of weather conditions. There are three 134 dBP contours:

- One 134 dBP contour reflects noise levels originating from guns fired from Mainside and ordnance testing on the EEA.
- Two 134 dBP contours in the Potomac River coincide with target areas where live (explosive) projectiles detonate.

The noise contours result from modeling the firing of live projectiles from an 8-inch caliber gun. Dahlgren very rarely fires an 8-inch gun today and last fired live projectiles from it in 2000. Most tests today are conducted using 5-inch caliber or smaller guns that produce considerably smaller noise contours than shown. The noise contours on the map are based on an 8-inch caliber gun because in the next ten to fifteen years it is possible that Dahlgren may need to test new types of ordnance with explosive capabilities up to this size.

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Ser N1

The 134 dBP contours also include target areas for the firing of inert (non-explosive) projectiles with live fuzes. It should be noted that most of the projectiles fired at NSFDL are totally inert and contain no explosive material. When totally inert projectiles are fired, the only noise source is at the gun — there is no second noise source at the target area down river. Therefore, the 134 dBP and 120 dBP contours are much smaller when inert ordnance is fired.

#### **Information Request and Participation in the Section 106 Process**

Under Section 106, representatives of state and local governments with jurisdiction over the area in which the effects of an undertaking may occur have an opportunity to become a consulting party and actively participate in the Section 106 process (see 36 CFR 800.2[c][3]). Furthermore, certain private citizens and organizations with a demonstrated interest in the undertaking may participate as consulting parties "due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties" (see 36 CFR 800.2[c][5]).

In addition to your potential participation as a consulting party, we are also interested in obtaining information that your agency or organization may have about archaeological and/or historic architectural resources within the respective APEs. Therefore, if you have information that you would like to share with us, please notify me via letter or e-mail at the address indicated below.

If you are interested in becoming a consulting party, please make your request in writing to:

Naval Support Activity, South Potomac  
Public Affairs Office, Bldg 101  
Attn: Mr. Gary Wagner  
6509 Sampson Road  
Dahlgren, Virginia 22448-5108  
540-653-1475  
E-mail: [gary.wagner@navy.mil](mailto:gary.wagner@navy.mil)

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Ser N1

When requesting consulting party status, please explain what information or interest you have, and why you believe your participation would be valuable to this project. In addition, please indicate who will serve as your principal contact and representative during this process, as well as the contact's information (i.e., name, address, phone number, and e-mail address).

Sincerely,

A handwritten signature in black ink, appearing to read 'C. T. HANFT', with a long, sweeping horizontal stroke extending to the right.

C. T. HANFT  
Captain, U.S. Navy  
Commanding Officer

Enclosures: 1. Maps and Schematics  
2. Brochure, "Protecting Historic Properties  
a Citizen's Guide to Section 106 Review"

**Section 106 Consulting Parties Response**

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.....February – March 2009

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# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.  
Secretary of Natural Resources

**Department of Historic Resources**  
2801 Kensington Avenue, Richmond, Virginia 23221-0311

Kathleen S. Kilpatrick  
Director

3 March 2009

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
[www.dhr.virginia.gov](http://www.dhr.virginia.gov)

Captain C. T. Hanft  
Department of the Navy  
Naval Support Activity  
South Potomac  
6509 Sampson Road, Suite 216  
Dahlgren, Virginia 22448-5106

Re: EIS Outdoor Research, Development, Test and Evaluation Activities  
Naval Surface Warfare Center, Dahlgren Site, NSF Dahlgren, Virginia  
DHR File No. 2009-0099

Dear Captain Hanft:

We have received your letter of 16 January 2009 regarding the above reference project. It is our understanding that the Department of the Navy (Navy) is developing an Environmental Impact Statement (EIS) for the proposed expansion of the capacities at Naval Surface Warfare Center, Dahlgren Site (NSWCDL), located on Naval Support Facility (NSF) Dahlgren in King George County, Virginia. The expansion involves the increase in capabilities within the Potomac River Test Range and Explosives Experimental Area complexes, the adjoining mission areas, and the special use airspace over the ranges. These capabilities include outdoor operations that require the use of ordinance, electromagnetic energy, lasers, and chemical and biological simulants.

We have read and concur with the Navy's recommendations for the Area of Potential Effects (APE) for architectural and archaeological resources. We also agree with the proposed approach presented to address archaeological resources.

In your 16 January correspondence you request any information that the Department of Historic Resources (DHR) may have on historic properties in the project APE. The DHR is the repository for survey materials on significant architectural and archaeological resources in the Commonwealth. In order for the Navy to obtain that information we request that you contact our archive at (804) 367-2323, Ext. 125. Additionally, for further guidance on consultation with the DHR pursuant to Section 106 of the National Historic Preservation Act please reference our website at [http://www.dhr.virginia.gov/review/section\\_106.htm](http://www.dhr.virginia.gov/review/section_106.htm).

If you have any questions, please call me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma, Architectural Historian  
Office of Review and Compliance

Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way, 2nd Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Northern Region Office  
5357 Main Street  
PO Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7331  
Fax: (540) 868-7033

From: B Cole  
Sent: Thursday, February 05, 2009 8:54 AM  
To: 'gary.wagner@navy.mil'  
Cc: S Langley; B Jordan; 'Albert, Patricia A CIV NAVFAC Washington, Environmental Dept'; kevin.p.montgomery@navy.mil  
Subject: Dahlgren Test and Evaluation Activities

Dear Mr. Wagner:

Thank you for your recent letter, dated January 16, 2009, which was sent to Susan Langley and me at the Maryland Historical Trust, inviting us to become consulting parties for the Section 106 consultation for the Outdoor Research, Development, Test, and Evaluation Activities, Naval Surface Warfare Center, Dahlgren Site. The Navy has already initiated Section 106 consultation with the Trust (as MD's SHPO office); please see the attached PDF copy of the Trust's response letter dated December 3, 2008. As staff in the SHPO office, we are already participating as a defined consulting party under Section 106. It is not necessary to send duplicative submittals to our office, as we will internally coordinate and provide you with a collective response from the MD SHPO. You may direct all future correspondence to my attention.

We look forward to working with the Navy and other involved parties to successfully complete the Section 106 coordination for this undertaking. If you have questions or need further assistance, please feel free to contact me.

Have a good day,

Beth Cole

Beth Cole

Administrator, Project Review & Compliance

Maryland Historical Trust

100 Community Place

Crownsville, MD 21032

410-514-7631

410-987-4071 (fax)

bcole@mdp.state.md.us

[www.marylandhistoricaltrust.net](http://www.marylandhistoricaltrust.net)

Please consider the environment before printing.

**CHARLES COUNTY GOVERNMENT**  
Planning and Growth Management

MELVIN C. BEALL, JR., P.E., *Director*



February 23, 2009

Naval Support Activity, South Potomac  
Public Affairs Office, Bldg 101  
Attn: Mr. Gary Wagner  
6509 Sampson Road  
Dahlgren, VA 22448-5108

Re: 5090 Ser PRDH42PA/104

Section 106 Consultation Environmental Impact Statement for Outdoor Research, Development, Test and Evaluation Activities, Naval Surface Warfare Center, Dahlgren Site, NSF Dahlgren, Virginia

Dear Mr. Wagner,

Our office received your January 16, 2009 letter and materials regarding the Section 106 Consultation Environmental Impact Statement for the proposed expansion of the Naval Support Facility in Dahlgren, Virginia. We would like to thank you for the opportunity to review and comment on this project. Charles County would also like to participate in the process as a consulting party, and I, Cathy Hardy, will remain the principal contact on behalf of Charles County. Please send all correspondence to:

Cathy Hardy  
Community Planning Program Manager  
Charles County Government – PGM  
La Plata, MD 20646  
Phone: 301-396-5815  
Email: [hardyc@charlescounty.org](mailto:hardyc@charlescounty.org)

We have reviewed the materials provided and do have concerns for two properties listed on the National Register of Historic Places, Waverley (CH-30) and Sarum (CH-15), that are located in or near the area of potential effect. The location of Sarum is actually incorrect on the included Historic Architectural Area of Potential Effect map. Sarum is located in Charles County at the end of Sarum Manor Drive off of Rte. 234. It appears that the actual location of Sarum is just outside of the area of potential effect; however, this will need to be confirmed. If additional information on these or other impacted historical sites in Charles County are required, the Maryland Historical Trust can provide this information through their website ([www.marylandhistoricaltrust.net](http://www.marylandhistoricaltrust.net)).

**SAY NO TO DRUGS**

Post Office Box 2150 \* La Plata, Maryland 20646

Administration: (301) 645-0627 \* Capital Services: (301) 645-0621 \* Development Services (301) 645-0618 / (301) 870-3937

Permits: (301) 645-0692 / (301) 870-3935 \* Planning: (301) 645-0689 / (301) 645-0540 / (301) 870-3896

TDD Transfer Number for the Hearing Impaired: 1-800-735-2258

[www.charlescounty.org/pgm](http://www.charlescounty.org/pgm)

EQUAL OPPORTUNITY COUNTY

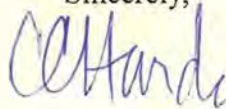


In addition to historic resources of concern, there are two waterfront communities in Charles County, Cobb Island and Swan Point, that could potentially be impacted by the proposed expansion of the Naval Support Facility in Dahlgren. Swan Point is a large waterfront planned community currently undergoing local and state approvals. Several approvals have occurred to date including the Swan Point General Development Plan that was approved on June 5, 2006; the Growth Allocation, which was approved on March 7, 2007; and the State of Maryland Board of Public Works Wetland License effective May 21, 2008.

The proposed development at Swan Point will add approximately 1,500 dwelling units to the existing community. A hotel and convention center is also planned for the site. In addition, a commercial marina with six pier systems and 143 boat slips will be constructed. The location of this marina in the Potomac River is also likely near or within the Naval Surface Warfare Center's middle danger zone for the Potomac River Test Range Primary Gunnery Target Area.

Thank you again for the opportunity to review and comment on this project. We look forward to working with you to ensure that Charles County historic resources are minimally impacted by this project.

Sincerely,



Cathy Hardy  
Community Planning Program Manager

cc: Beth Cole, Maryland Historical Trust  
Beth Groth, Planner  
CP Read File

February 12, 2009

C.T. Hanft, Captain, US Navy  
Department of the Navy  
Naval Support Activity  
6509 Sampson Road Suite 216  
Dahlgren, VA 22448-5106



RE: 5000 Ser N1  
Impact of Activities upon Historic Resources

Dear Mr. Hanft,

I hereby request inclusion as a consultant in the evaluation of testing and the pressures it places upon historical resources near Dahlgren, Virginia. I believe I will bring valuable insight to this process, and as an owner of a Historic Property that falls within the designated area, I have a vested interest in the activities at Dahlgren in addition to my interest in the historic properties within Charles County, Maryland.

Qualifications:

I own Planchek, Incorporated and serve as President. Planchek Inc. is a contract agent for Charles County Government.

The services we provide Charles County Government include:

1. Building code plan review using the International Code Council standards for the issuance of building permits – commercial and residential.
2. Architectural plan review to assure the adopted design standards are met.
3. Inspection services to verify building code compliance for all commercial and residential construction.

I served as President for the Charles County Chapter of the Maryland Historic Trust for two years. My participation in this organization dates to 1994.

I am presently engaged with Charles County Government to develop Historic preservation criterion, tax incentives, and other policy and guidelines.

I own and restored Edge Hill Farm, circa 1831. Edge Hill is listed with the Maryland Historic Trust. Edge Hill is located within the area designated on the maps I received with your package – 11450 Edge Hill Road, MD. I know first hand what impact the activities at Dahlgren visit upon historic properties.

I was raised in a Navy family and understand the demands and needs the military face to adequately serve and protect our nation.

I trust my experience is appropriate and adequate to be included in this project. Should you require additional information in this matter, please contact me.

Sincerely,

David Rose, 301-870-8710 – work / drose@planchekinc.com





March 31, 2009

Naval Support Activity, South Potomac  
Public Affairs Office, Building 101  
Attn: Mr. Gary Wagner  
6509 Sampson Road  
Dahlgren, VA 22448-5108

RE: Section 106 Review for Proposed Expansion of Capabilities

Dear Mr. Wagner:

On behalf of the Robert E. Lee Memorial Association, owners of Stratford Hall, a National Historic Landmark property located in Stratford, Virginia, I am writing to request consulting party status for the proposed changes to Dahlgren's capabilities as described in the letter from Captain C.T. Hanft dated January 16, 2009.

Because of Stratford Hall's close proximity to Dahlgren and the Potomac River Test Range, we are very concerned about the potential impact of the proposed changes on Stratford Hall's historic resources and our ongoing business operations.

As the Executive Director of the Robert E. Lee Memorial Association, I will serve as the principal contact. You may contact me at the address shown on this letterhead and by phone at 804/493-8038 ext. 8511 or by email at [preber@stratfordhall.org](mailto:preber@stratfordhall.org).

Sincerely,

Paul C. Reber  
Executive Director

PCR/pmg

cc: Kathleen Kilpatrick, Virginia State Historic Preservation Officer

-----Original Message-----

From: Baldwin, Caroline L LTC RET [\[mailto:caroline.baldwin@us.army.mil\]](mailto:caroline.baldwin@us.army.mil)

Sent: Wednesday, March 18, 2009 10:04

To: Wagner, Gary R CIV NSASP Public Affairs

Cc: Robert Opperman; Brad Reeves; John Colton

Subject: 5090 Ser PRDH42PA/104

Dear Mr. Wagner,

I belong to Christ Church Chaptico and have been asked to contact you regarding the letter we received regarding the Environmental Impact Statement (EIS) the Navy is preparing for Outdoor Research, Development, Test and Evaluation Activities, Naval Surface Warfare Center, Dahlgren Site, NSF Dahlgren, Virginia.

Christ Church Chaptico is number 3 in figure 5 of your letter. It is on the border of the delineated 120 dBP area. As described in your letter the church structure is historic and currently does show some cracks in the plaster, brick and some of the old windows. We also detect the vibrations and windows rattle when current events occur at Dahlgren. These do cause us some concern regarding the increased levels of detonations. While your diagram and explanation indicates that the building should not suffer any structural damage at the 120 dBP level and that we are far from the 134 dBP areas, we would like some physical assurances that these representations are in fact accurate.

There may be several ways of accomplishing this to include vibration monitoring and I would appreciate an opportunity to discuss it further with you. Please feel free to email me at this address or phone me. My cell number is (703) 405-7760.

Best Regards,

Caroline L. Baldwin

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**Noise and Vibration Monitoring at Six Historic Properties  
Coordination Correspondence**

**March 18, 2009; June – July 2009; October – December 2009**

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In June and July 2009, the Department of the Navy sent the following letter and enclosures (pp. D-87 - D-92) to the National Register-listed or National Register-eligible sites and Consulting Parties listed below. The letter proposed to conduct noise monitoring and vibration testing at the six listed and eligible sites during weapons testing at NSF Dahlgren.

Historic Sites:

Christ Episcopal Church Parish Hall  
Attn.: Ms. Caroline L. Baldwin  
37497 Zach Fowler Road  
Chaptico, MD 20621

Bell House Bed & Breakfast  
Attn.: Anne Bolin, Innkeeper  
821 Irving Avenue  
Colonial Beach, VA 22443

Greg House  
Attn.: Mr. Greg Stiff and Mr. David Stiff  
1763 McKinney Boulevard  
Colonial Beach, VA 22443-1634

St. Francis Xavier Church  
Attn.: Reverend John Mattingly, Pastor  
21370 Newtowne Neck Road  
Leonardtown, MD 20650

Stratford Hall  
Attn.: Dr. Paul Reber, Executive Director  
483 Great House Road  
Stratford, VA 22558

Mr. Gary Mason and Ms. Christine Mason  
13535 Waverly Point Road  
Newburg, MD 20664-2821

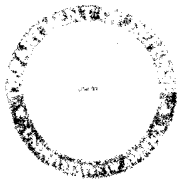
Consulting Parties:

Charles County Historical Trust  
Attn.: Mr. David Rose, c/o PLANCHEK, Inc.  
6C Industrial Park Drive  
Waldorf, MD 20602

Ms. Cathy Hardy  
Community Planning Program Manager  
Charles County Government – PGM  
La Plata, MD 20646

The response received from Christ Episcopal Church (p. D-93) is indicative of those received from the other listed and eligible sites. All six listed and eligible sites agreed to participate in the noise monitoring and vibration test activities.

A follow-up letter was sent by the Department of the Navy (p. D-94) to representatives at each of the listed and eligible historic sites stating the tentative date for the monitoring and testing activities.



DEPARTMENT OF THE NAVY  
NAVAL SUPPORT ACTIVITY  
SOUTH POTOMAC  
6509 SAMPSON ROAD  
DAHLGREN, VIRGINIA 22448-5106

5000  
N1/106

JUL 07 2009

From: Commanding Officer, Naval Support Activity South Potomac  
To: Ms. Caroline L. Baldwin, Christ Episcopal Church Parish  
Hall, 37497 Zach Fowler Road, Chaptico, MD 20621

Subj: RD&T NOISE EVALUATION

Ref: (a) NSWC ltr 5090 Ser PRDH42PA/104 Letter of 16 Jan 09

Encl: (1) NSWCDL RDT&E List of National Register-Listed &  
National Register-Eligible Resources Recommended for  
Monitoring  
(2) Historic Architectural Area of Potential Effect

1. Thank you for your response on behalf of Christ Episcopal Church to our letter dated January 16, 2009 concerning preparation of an Environmental Impact Statement (EIS) for proposed expansion of research, development, testing, and evaluation capabilities at Naval Surface Warfare Center, Dahlgren Site. In compliance with Section 106 of the National Historic Preservation Act, Naval Surface Warfare Center, Dahlgren Site notified the Maryland Historical Trust (MHT) about this project in 2008, including identification of the Historic Architectural Area of Potential Effect (APE) and list of consulting parties. MHT approved the Historic Architectural APE and list of consulting parties. Christ Episcopal Church is located in the Historic Architectural APE and was notified as a consulting party in January 2009.

2. In July 2007, we held the EIS scoping meeting for St. Mary's County at the Christ Church hall, and took the opportunity to visit the church. Christ Church is not only a wonderfully preserved historical church, but we are indebted to your congregation, which supported our efforts to communicate our plans.

3. While noise and vibration impacts to structures have been well studied over many years, your point is well taken. The noise models we used are the conventional tools utilized for numerous military installations to conservatively forecast weapons noise. These models have been developed through stringent validation procedures based on a large number of field measurements. However, we understand your congregation's desire


Subj: RD&T NOISE EVALUATION

to have actual site-specific measurements when our weapon tests occur.

4. In response, we propose to place noise and vibration monitors on Christ Episcopal Church and five other representative historic properties close to the Potomac River Test Range (PRTR) during test events expected to take place in the near future. These events will consist of firing explosive rounds from one or more of the larger guns located on the PRTR land ranges into the river and loud detonations at the Explosives Experimental Area Complex.

5. The attached Table 1 identifies six properties within the Historic Architectural APE, keyed to Figure 1, where monitors may be placed, including three properties in Maryland, and three properties in Virginia. The properties were selected based on proximity to NSF Dahlgren and the PRTR, building type, construction materials, and owner concern. Christ Episcopal Church has been recommended as one of the three properties in Maryland.

6. Thank you for your interest and willingness to participate in the Section 106 process for this project. I look forward to hearing from you and obtaining your concurrence to place these sensors to monitor conditions at Christ Episcopal Church. Please contact the NSASP Public Affairs Officer, Mr. Gary Wagner at 540-653-1475 for any additional information.

  
C. T. HANFT  
Captain, U.S. Navy  
Commanding Officer

Copy to:

Ms. Kathleen Kilpatrick  
Director  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

Ms. Elizabeth J. Cole  
Administrator, Review & Compliance  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

**Table 1**  
**NSWCDL RDT&E List of National Register-Listed & National Register-Eligible Resources**  
**Recommended for Monitoring**

Number on Figure 1	Resource Name	Location	Description	Status	Justification
1	Waverly	Waverly Point Road Newburg Charles County, MD	<p>This National Register-listed, two-story, Federal-style, brick house is significant under Criteria A and C.</p> <p>It is significant under Criterion A as the home of Dr. Morgan Harris, a member of a prominent and influential local family.</p> <p>It is also significant under Criterion C as a good example of a Federal-style home constructed in 1782. It was extensively renovated in the 1820s when it was acquired by Dr. Harris.</p>	National Register-listed, 1987	<p>Example of an architecturally significant 18<sup>th</sup>-century brick residence.</p> <p>Property is located along the Potomac River in close proximity to Dahlgren.</p>
3	Christ Episcopal Church	<p>Church: 25390 Maddox Road Chaptico St. Mary's County, MD</p> <p>Parish Hall: 37497 Zach Fowler Road Chaptico St. Mary's County, MD</p>	<p>This National Register-listed Colonial-style brick church is significant under Criteria A and C.</p> <p>It is significant under Criterion A as one of the oldest churches in continual use in the United States.</p> <p>It is also significant under Criterion C as good example of a Colonial-style church constructed in 1736. It was altered in the 1830s and early 20<sup>th</sup> century.</p>	National Register-listed, 1994	<p>Example of an architecturally significant 18<sup>th</sup>-century brick church.</p> <p>Complaints received from church occupants.</p>
9	St. Francis Xavier Church & Newtown Manor	Newtown Neck Road (Maryland State Route	This National Register-listed historic district, which consists of a 700-acre farm complex with a frame church and	National Register-listed, 1972	Example of an architecturally significant 18 <sup>th</sup> -century frame church with original barrel-vaulted

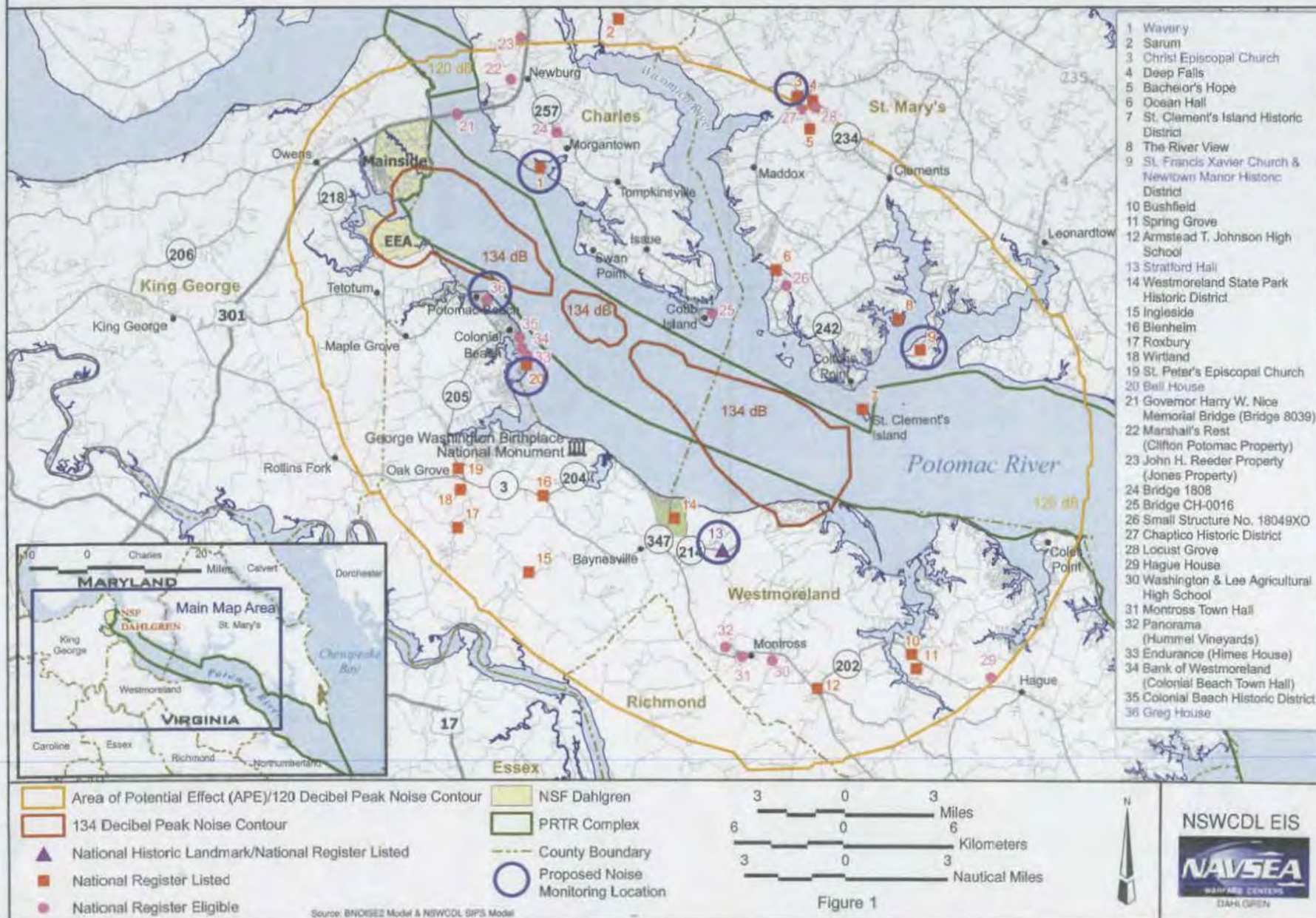
ENCLOSURE(1)

Number on Figure 1	Resource Name	Location	Description	Status	Justification
	Historic District	243) Leonardtown St. Mary's County, MD	brick manor house, is significant under Criteria A and C.  It is significant under Criterion A as an example of an 18 <sup>th</sup> -century self-contained Jesuit community.  It is also significant under Criterion C as good example of a farm complex with a frame church with a unique barrel-vaulted ceiling and a two-and-a-half story brick manor house. Both buildings were constructed ca. 1767.		ceiling and brick manor house.  Property is located along the Potomac River.
13	Stratford Hall	Great House Road Stratford Westmoreland County, VA	This National Historic Landmark and National Register-listed property is significant under Criteria A and C. It is operated as an 18 <sup>th</sup> -century house museum with a 1,900-acre plantation.  It is significant under Criterion A as the birthplace of General Robert E. Lee, Commander of the Confederate Army. It is also significant as the home of two signers of the Declaration of Independence, Richard Henry and Francis Lightfoot Lee.  It is also significant under Criterion C as an H-plan, brick, Georgian-style plantation house built in the 1730s by the Lee family.	National Historic Landmark/National Register-listed, 1966	As a National Historic Landmark, Stratford Hall is one of Virginia's most significant historic architectural resources.  Excellent example of an 18 <sup>th</sup> -century, Georgian-style, brick plantation house.  Property is located along the Potomac River; plantation house is set back from the river and screened by mature trees.
20	Bell House	821 Irving Avenue Colonial Beach	This National Register-listed, frame, Stick-style building is significant under Criteria A and C.	National Register-listed, 1987	Example of an architecturally significant, 19 <sup>th</sup> -century, Stick-style frame house.



Number on Figure 1	Resource Name	Location	Description	Status	Justification
		Westmoreland County, VA	<p>It is significant under Criterion A as the only residence in Virginia directly associated with Alexander Graham Bell, inventor of the telephone. Bell's family, purchased the house in 1886, and he inherited it in the early 20<sup>th</sup> century.</p> <p>It is also significant under Criterion C as a rare example of a Stick-style house in Virginia. It is also one of the oldest homes in Colonial Beach.</p>		Property located along the Potomac River in close proximity to Dahlgren.
36	Greg House	1763 McKinney Boulevard, Colonial Beach Westmoreland County, VA	This National Register-eligible one-and-a-half-story frame bungalow appears to be significant under Criterion C. Built ca. 1925, it is a good example of an early 20 <sup>th</sup> -century bungalow in Potomac Beach and overlooks the Potomac River.	National Register-eligible, 2008	<p>Example of an architecturally significant 1920s-era frame bungalow.</p> <p>Property is located along the Potomac River in close proximity to Dahlgren.</p>

# Historic Architectural Area of Potential Effect



- 1 Wavory
- 2 Sarum
- 3 Christ Episcopal Church
- 4 Deep Falls
- 5 Bacheior's Hope
- 6 Ocean Hall
- 7 St. Clement's Island Historic District
- 8 The River View
- 9 St. Francis Xavier Church & Newtown Manor Historic District
- 10 Bushfield
- 11 Spring Grove
- 12 Armstead T. Johnson High School
- 13 Stratford Hall
- 14 Westmoreland State Park Historic District
- 15 Ingleside
- 16 Blenheim
- 17 Roxbury
- 18 Wirtland
- 19 St. Peter's Episcopal Church
- 20 Bell House
- 21 Governor Harry W. Nice Memorial Bridge (Bridge 8039)
- 22 Marshall's Rest (Clifton Potomac Property)
- 23 John H. Reeder Property (Jones Property)
- 24 Bridge 1808
- 25 Bridge CH-0016
- 26 Small Structure No. 18049XO
- 27 Chaptico Historic District
- 28 Locust Grove
- 29 Hague House
- 30 Washington & Lee Agricultural High School
- 31 Montross Town Hall
- 32 Panorama (Hummel Vineyards)
- 33 Endurance (Himes House)
- 34 Bank of Westmoreland (Colonial Beach Town Hall)
- 35 Colonial Beach Historic District
- 36 Greg House

## *Christ Church*

King and Queen Parish  
Maddox Road \* Post Office Box 8  
Chaptico, Maryland 20621

Commanding Officer  
Department of the Navy  
Naval Support Activity  
South Potomac  
6509 Sampson Road  
Dahlgren, VA 22448-5106

Attention: Gary Wagner, NSASP Public Affairs Officer

Reference: NSWC ltr 5000 N1/106 Letter dated July 7, 2009, RD&T Noise Evaluation

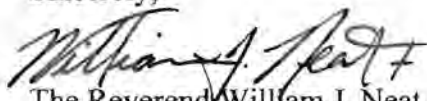
Dear Mr. Wagner,

We received your letter regarding your offer to place monitors at Christ Church Chaptico in order to test for noise and vibration levels as part of the development of your Environmental Impact Study for the expanded use of the Potomac River Test Range (PRTR). We are very interested in participating in this activity and appreciate the opportunity to do so.

I understand that the test plan and schedule are under development but that we will have an opportunity to see them when they are available. We appreciate this opportunity. The more realistic and representative the testing and monitoring is of not only current munitions tests but also future potential needs, the better we will be able to understand the impacts if any on our beautiful historic church.

Again, I thank you for the opportunity and look forward to working with you during the noise and vibration monitoring. If you have any questions, please feel free to call me at (301) 884-3451 or Ms. Caroline Baldwin on her cell at (703) 405-7760.

Sincerely,

  
The Reverend William J. Neat  
Rector



## DEPARTMENT OF THE NAVY

NAVAL SURFACE WARFARE CENTER  
DAHLGREN DIVISION  
6149 WELSH ROAD, SUITE 203  
DAHLGREN, VIRGINIA 22448-5130

IN REPLY REFER TO

5090  
Ser CX8/071  
5 Oct 09

Ms. Caroline Baldwin  
Christ Episcopal Church Parish Hall  
37497 Zach Fowler Road  
Chaptico, MD 20621

SUBJ: RESEARCH, DEVELOPMENT, TEST AND EVALUATION NOISE  
EVALUATION AND VIBRATION MONITORING

Dear Ms. Baldwin,

Thank you for agreeing on behalf of Christ Episcopal Church to allow the Navy to conduct noise and vibration monitoring at the Christ Episcopal Church. As you may remember, the proposed monitoring is in response to Section 106 of the National Historic Preservation Act. The results of this monitoring will be part of Naval Surface Warfare Center, Dahlgren Laboratory's evaluation of impacts for the ongoing *Environmental Impact Statement for Outdoor Research, Development, Test and Evaluation Activities*.

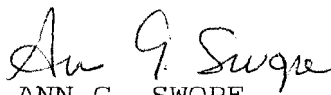
We have tentatively arranged a date(s) for firing projectiles using the largest, and thus noisiest, gun available. We anticipate being able to conduct the noise and vibration monitoring during the week of November 16, 2009. We will inform you either by phone or email of the exact date(s) as it approaches, providing at least one week advance notice.

On the actual test day, we will arrive at the Christ Episcopal Church at approximately 8:00 AM, and if you are available, describe and demonstrate the test equipment. If you are also available during the firings, we invite you to observe the monitoring. In the interim, if you should have any questions, please contact me at 540-653-8695 or via email at [ann.swope@navy.mil](mailto:ann.swope@navy.mil).



SUBJ: RESEARCH, DEVELOPMENT, TEST AND EVALUATION NOISE  
EVALUATION AND VIBRATION MONITORING

Sincerely,



ANN G. SWOPE  
Head, Safety and Environmental  
Office  
By Direction of the Commander

Copy to:

Mr. Marc Holma  
Architectural Historian  
Review & Compliance  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

Ms. Elizabeth J. Cole  
Administrator, Review & Compliance  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, Maryland 21032-2023

Naval Support Activity South Potomac  
Attn: Mr. Gary Wagner  
Public Affairs Office, Building 101  
6509 Sampson Road, Ste. 217  
Dahlgren, Virginia, 22448-5108

NAVFAC WASHINGTON  
Environmental Program Office  
Attn: Mr. Walter Legg (PRSP4WL)  
18329 Thompson Road, Building 182  
Dahlgren, Virginia 22448

-----Original Message-----

From: Phil Mark [<mailto:PMark@stratfordhall.org>]  
Sent: Thursday, November 19, 2009 12:38  
To: Swope, Ann G CIV NSWCD, CX8  
Cc: Paul Reber; Gretchen Goodell; Sarah Holland;  
Julie.Langan@dhv.virginia.gov; [marc.holma@dhv.virginia.gov](mailto:marc.holma@dhv.virginia.gov)  
Subject: Stratford Hall Monitoring

Ms. Swope,

I am concerned about the way the noise and vibration monitoring was done here at Stratford Hall on Monday and Tuesday, during the weapon testing. The gentleman that was here conducting the testing was a pleasure to work with and was very respectful of our property. The problem is that he left Tuesday afternoon around 2pm, before the weapons testing was complete. After he departed on Tuesday, and also on Wednesday, the loudest explosions were heard and felt here at Stratford Hall. It was the opinion of multiple people here that the loudest explosions occurred after the departure of the sound and vibration consultant. On Wednesday it was noticed that the Great House actually shook during at least two rounds of testing.

In light of these details I don't believe it would be possible to get a complete picture of the possible affects the testing of these larger rounds could have on Stratford Hall's valuable historic structures. Can you please explain why the sound and vibration monitoring did not continue during the complete duration of the weapons testing? Will there be more monitoring in the future?

The fact that the Great House actually shook while no sound and vibration monitoring was being completed worries me a great deal. I would appreciate any feed back that you can provide.

Sincerely,

Phil

Phil Mark  
Director of Preservation  
Stratford Hall  
483 Great House Rd.  
Stratford, VA  
804-493-8038 ext. 1559

-----Original Message-----

From: Neil, Richard D CTR NSWCDD, CX8 [\[mailto:richard.neil.ctr@navy.mil\]](mailto:richard.neil.ctr@navy.mil)  
Sent: Monday, December 21, 2009 3:20 PM  
To: [PMark@stratfordhall.org](mailto:PMark@stratfordhall.org)  
Cc: Julie.Langan@dhr.virginia.gov; marc.holma@dhr.virginia.gov;  
PReber@stratfordhall.org; ggoodell@stratfordhall.org; Swope, Ann G CIV NSWCDD, CX8  
Subject: RE: Stratford Hall Monitoring

Phil,

Ann Swope is on leave until January 11th. She worked on this response before heading out last Friday, but thought that I should send it in case you have more questions about the noise and vibration monitoring.  
If you respond to me, I can get you an answer.

Hopefully the following answers your questions:

I appreciate your concern about the timing of the noise and vibration monitoring conducted at Stratford Hall on November 16th through the 18th. Initial review of the sound and vibration data from that week of testing supports your comment that the loudest noises heard and felt at Stratford Hall occurred after the departure of our acoustic consultant.

The purpose of the tests conducted November 16-18 was to evaluate ballistic characteristics of a new projectile explosive charge with different fuses. This was the first opportunity that became available to piggy back our noise analysis since I first notified you of our intentions to do this. The gun and projectile testing that was conducted using the same propelling charge in the gun and the same explosive charge in the projectile.

We scheduled our noise and vibration monitoring to coincide with the gun test months in advance of the actual monitoring. We planned for one day of noise and vibration monitoring (Monday, 11/16) with an option for a second day if needed due to weather conditions. As it happened, the first day of testing on Monday was cut short because of river traffic and poor visibility on the river. We collected data throughout the entire second day of testing on Tuesday on a Maryland historic structure, located a comparable distance from the detonations as Stratford Hall. Since we recorded data at all six historic sites from multiple impact areas by mid-day on Tuesday, we began to send the acoustic engineers home.

Based on our initial analysis, you did experience greater noise levels on Wednesday than on Monday and to a lesser degree on Tuesday afternoon.

The only factors affecting the noise levels at Stratford Hall were locations of projectile detonation and meteorological conditions.

Tuesday afternoon clouds began to accumulate, and on Wednesday there was at times 100% cloud cover.

Cloud cover can intensify sound, particularly at low frequencies. While we didn't have the acoustic engineers on site after Tuesday afternoon, peak noise levels were captured throughout all three days at range stations between Dahlgren and Stratford Hall. Because of this cloud cover, a few noise measurements registered higher than on Monday and early Tuesday.

At this time, we do not intend to do more noise and vibration monitoring specifically at Stratford Hall. We will continue to monitor noise at Dahlgren and at our range stations along the river.

Thanks for your assistance on this effort. We intend to share our noise and vibration monitoring report with you as it becomes available.

Please let us know if you have any more questions regarding our noise and vibration monitoring.

Rick Neil (for Ann Swope)

540-220-5354



The following letter (pp. D-100 – D-101) was sent by the Department of the Navy to representatives at each of the six National Register-listed and National Register-eligible sites where noise monitoring and vibration testing was conducted in November 2009.

A copy of the Noise and Vibration Measurements at Six Historic Structures Report is included in Appendix C.



## DEPARTMENT OF THE NAVY

NAVAL SURFACE WARFARE CENTER  
DAHLGREN DIVISION  
6149 WELSH ROAD, SUITE 203  
DAHLGREN, VIRGINIA 22448-5130

IN REPLY REFER TO

5090

Ser CX8/047

03 SEP 2010

Ms. Caroline Baldwin  
Christ Episcopal Church Parish Hall  
37497 Zach Fowler Road  
Chaptico, MD 20621

Dear Ms. Baldwin:

SUBJECT: RESEARCH, DEVELOPMENT, TEST AND EVALUATION NOISE  
AND VIBRATION MONITORING

Thank you for allowing the Navy to conduct noise and vibration monitoring at Christ Episcopal Church in November 2009. As you may remember, the monitoring was in response to Section 106 of the National Historic Preservation Act. The enclosed report provides the results of the noise and vibration monitoring at the six historic structures. This report will be part of Naval Surface Warfare Center, Dahlgren Laboratory's evaluation of impacts for the ongoing *Environmental Impact Statement for Outdoor Research, Development, Test and Evaluation Activities*.

Thank you for your interest and willingness to participate in the Section 106 process and the noise and vibration monitoring. If you should have any questions concerning the report, please contact Ms. Stacia Courtney in the Corporate Communications Office on (540)653-8154 or email [Stacia.Courtney@navy.mil](mailto:Stacia.Courtney@navy.mil).

Sincerely,

M. H. SMITH  
Captain, U.S. Navy  
Commander

Enclosure: 1. Noise and Vibration Measurements at Six Historic Structures Report

5090  
Ser CX8/047  
**03 SEP 2010**

Copy to (w/o encl):  
Mr. Marc Holma  
Architectural Historian  
Review and Compliance  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, VA 23221

Ms. Elizabeth J. Cole  
Administrator, Review & Compliance  
Maryland Historical Trust  
Division of Historical and Cultural Programs  
100 Community Place  
Crownsville, MD 21032-2023

NAVFAC Washington  
Environmental Program Office (PRSP4WL)  
18329 Thompson Road, Bldg 182  
Dahlgren, VA 22448-5106

NAVFAC Washington  
Environmental Program Office (PRSP4MG)  
18329 Thompson Road, Bldg 182  
Dahlgren, VA 22448-5106

Naval Support Activity South Potomac  
Mr. Gary Wagner  
Public Affairs Office, Building 101  
6509 Sampson Road, Ste. 217  
Dahlgren, VA 22448-5108

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**Section 106 Consultation Correspondence with  
Maryland Historical Trust and  
Virginia Department of Historic Resources and  
Concurrence of Maryland Historical Trust and Virginia Department of  
Historic Resources**

**May 2012 – June 2012**

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DEPARTMENT OF THE NAVY  
NAVAL SUPPORT ACTIVITY  
SOUTH POTOMAC  
6509 SAMPSON ROAD SUITE 217  
DAHLGREN, VIRGINIA 22448-5108

IN REPLY REFER TO  
5090  
Ser PRSD41MG/038  
May 17, 2012

Ms. Elizabeth Cole  
Administrator, Project Review and Compliance  
Maryland Historical Trust  
100 Community Place  
Crownsville, Maryland 21032

Dear Ms. Cole:

SUBJECT: SECTION 106 CONSULTATION FOR THE ENVIRONMENTAL IMPACT  
STATEMENT FOR OUTDOOR RESEARCH, DEVELOPMENT, TEST &  
EVALUATION ACTIVITIES, MARYLAND HISTORICAL TRUST  
(MHT) NO. 200803445

The Naval Surface Warfare Center, Dahlgren Division (NSWCDD), a tenant of Naval Support Facility (NSF) Dahlgren, Naval Support Activity South Potomac, initiated Section 106 consultation in October 2008 in conjunction with the preparation of an Environmental Impact Statement for the proposed action to increase outdoor research, development, test, and evaluation activities requiring the use of ordnance, electromagnetic energy, high energy lasers, and chemical and biological stimulants (undertaking). A Federal and State Historic Preservation Review Package is provided as enclosure (1).

Per your response dated December 1, 2008, MHT requested to be involved in full Section 106 consultation for resources located within Maryland that may be affected by the undertaking, concurred with the Historic Architectural and the Archeological Areas of Potential Effect (APE) and provided additional parties for inclusion with the Navy's proposed list of potential consulting parties. The parties shown on enclosure (2) were offered the opportunity to consult regarding this undertaking in January 2009. The resulting list of consulting parties is shown on enclosure (3).

SUBJECT: SECTION 106 CONSULTATION FOR THE ENVIRONMENTAL IMPACT  
STATEMENT FOR OUTDOOR RESEARCH, DEVELOPMENT, TEST &  
EVALUATION ACTIVITIES, MARYLAND HISTORICAL TRUST  
(MHT) NO. 200803445

The Navy identified 36 National Register of Historic Places (NRHP) eligible or listed architectural historic properties within Maryland and Virginia outside of NSF Dahlgren in the Historic Architectural APE. On November 16 and 17, 2009, the Navy conducted a study within Maryland and Virginia to measure noise and vibration levels at six of the 36 NRHP eligible or listed properties along the Potomac River Test Range (PRTR) during the firing of the largest routinely fired caliber gun (5"/62) with the amounts of detonation explosive ranging up to nine pounds (the largest typically used) at five different target areas. The Navy coordinated with the consulting parties and the property owners/managers in advance. The study report *Noise and Vibration Measurements at Six Historic Structures, August 2010* concluded that the potential for structural damage impacts along the PRTR due to noise or vibration from the firing of NSWCDD's large caliber guns was minimal. Copies of the report were provided to consulting parties and the property managers/owners in September 2010. The only response regarding the report was a no comment with concurrence from Virginia Department of Historic Resources dated October 14, 2010.

In accordance with Section 106 of the National Historic Preservation Act (36 CFR Part 800), the Navy has applied the Criteria of Adverse Effect in accordance with 36 CFR 800.5 and determined that the undertaking would have no adverse effect to historic properties within the archaeological or architectural APE's. Enclosure (4) is provided for your use to provide concurrence of No Adverse Effect or recommendations.

Please direct all correspondence to:

ATTN: Director, Environmental Division  
Department of the Navy  
NAVFAC Washington, PWD South Potomac  
18329 Thompson Road, Suite 226  
Dahlgren, VA 22448-5110



SUBJECT: SECTION 106 CONSULTATION FOR THE ENVIRONMENTAL IMPACT  
STATEMENT FOR OUTDOOR RESEARCH, DEVELOPMENT, TEST &  
EVALUATION ACTIVITIES, MARYLAND HISTORICAL TRUST  
(MHT) NO. 200803445

For further information, please contact Ms. Mary Geil, Cultural  
Resources Program Office, at (540) 653-8584.

Sincerely,



JEFFREY C. BOSSART  
By direction

Enclosures: 1. MHT Federal and State Historic  
Preservation Review Package  
2. Section 106 Invited Consulting Parties  
3. Section 106 Consulting Parties  
4. Concurrence Sheet

Copy to: (w/o encls)  
Ms. Kathleen Kilpatrick  
Commonwealth of Virginia  
Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

SUBJECT: SECTION 106 CONSULTATION FOR THE ENVIRONMENTAL IMPACT  
STATEMENT FOR OUTDOOR RESEARCH, DEVELOPMENT, TEST &  
EVALUATION ACTIVITIES, MARYLAND HISTORICAL TRUST  
(MHT) NO. 200803445

Blind copy to:  
Reading File  
PRSD41MG (Geil)  
CX8 (Boyd)

Writer: M. Geil, PRSD41MG, x38584  
Typist: C. McGinniss, 1 May 12

**Maryland Historical Trust  
Federal and State Historic Preservation Review Package**

**Environmental Impact Statement  
Naval Surface Warfare Center, Dahlgren Division  
Outdoor Research, Development, Test and Evaluation Activities  
Naval Support Facility Dahlgren, King George County, Virginia**

---

**1) Detailed Description of Proposed Project, Noting Nature of State and/or Federal Involvement**

**Proposed Action**

The US Navy, a federal agency, proposes to expand Naval Surface Warfare Center Dahlgren Division's (NSWCDD's) research, development, testing and evaluation (RDT&E) activities within the Potomac River Test Range (PRTR) Complex (Figure 1, Potomac River Test Range Complex), the Explosives Experimental Area (EEA) Complex and the Mission Area (Figure 2, Ranges and Mission Area), and in the special-use airspace. NSWCDD is a tenant on Naval Support Facility (NSF) Dahlgren. These capabilities include outdoor activities that require the use of:

- Ordnance
- Electromagnetic (EM) energy
- Lasers
- Chemical and biological (chem/bio) simulants

The purpose of the Proposed Action is to enable NSWCDD to meet current and future mission-related warfare and force protection requirements by providing RDT&E of surface ship combat systems, ordnance, lasers and directed energy systems, force level warfare, and homeland and force protection. The need for the proposed action is to enable the Navy and other stakeholders to successfully meet current and future national and global defense challenges by developing a robust capability to carry out assigned RDT&E activities on ranges complexes, in the Mission Area, and in special use airspace.

Under the Proposed Action, the number of firings, detonations, events, and hours of range use that would take place annually would increase above recent levels for all activities except large-caliber gun firing, as described in the following sections. The alternatives being evaluated in the Draft Environmental Impact Statement (DEIS) – the No Action Alternative, Alternative 1, and Alternative 2 (Preferred Alternative) – reflect different numbers of annual firings, detonations, and events for each activity.

The No Action Alternative includes the number of firings, detonations, and events typical of the years from 1993 (1995 for ordnance) through 2009. Alternative 1 includes annual increases of 325 percent in small-arms firing, 5 percent in detonations, 20 percent in EM energy events, 108 percent in laser events, 400 percent in chem/bio events, and 16 percent in PRTR hours of use



above recent levels. Alternative 2 includes annual increases of 400 percent in small-arms firing, 21 percent in detonations, 39 percent in EM energy events, 142 percent in laser events, 483 percent in chem/bio events, and 33 percent in PRTR hours of use above recent levels, or approximately an annual average 16 percent increase above Alternative 1 levels of all activities. Under Alternative 2, NSWCDD would gain the greatest flexibility to adapt to program changes in the future. The alternatives are summarized in Table 1.

Table 1  
NSWCDD Outdoor RDT&E Activities - DEIS Alternatives

RDT&E Activity	No Action Alternative Activity Magnitude	No Action Alternative Average Annual Activity Levels	Alternative 1 Average Annual Activity Levels	Alternative 2 (Preferred Alternative) Average Annual Activity Levels
Guns/ Projectiles	>20 mm to 8" caliber gun/ projectile	4,700 projectiles	4,700 projectiles	4,700 projectiles
Small-Arms	≤20 mm caliber gun/bullet	6,000 bullets	25,500 bullets	30,000 bullets
Detonations	<0.01 lbs to 1,000 lbs NEW	190 detonations	200 detonations	230 detonations
EM Energy	300 kHz to 300 GHz frequency 10 W to 500 MW average power	490 events	590 events	680 events
Lasers	500 nm to 11 μm wavelength 1 mW to 100 kW maximum power	60 events 100 kW maximum power	125 events 500 kW maximum power	145 events 500 kW maximum power
Chemical & Biological Defense	≤20 gals of simulant/event	12 events Chemical simulants only	60 events Chemical and biological simulants used separately	70 events Chemical and biological simulants used separately and together
PRTR Use	750 hours annually	750 hours	870 hours	1,000 hours

These RDT&E activities included under the alternatives are described below.

### Ordinance Activities

- **Large-caliber Guns/Projectiles.** The guns included in the all alternatives are large-caliber weapons that can fire either live (explosive) or inert (non-explosive) projectiles. The guns range in size from more than 20 millimeters (mm) up to 8" (inch) caliber, although the largest gun normally fired is the 155 mm howitzer (the 8" gun is only fired occasionally to launch non-explosive canisters of electronic components of new projectiles to test how well they can withstand high gravitational forces). The gun fired most frequently is the 5" gun. Each projectile fired from a gun counts as one of the 4,700 projectiles fired annually on average in particularly active years. In most years, the

average number of projectiles fired is considerably less than 4,700 projectiles; in some years, the number fired annually exceeds 4,700. Most projectiles are fired into the river range, but some projectiles fired on the Missile Test Range and Terminal Range are aimed at gun butts on land, rather than targets in the river. Under Alternative 1 and the Preferred Alternative the number of large-gun projectiles would not change, but long-range guns would fire into a target area from 32,000 to 35,000 yards in the PRTR up to 10 days a year, which is more frequently than over the last 15 years.

- **Small-Arms Activities.** NSWCDD's small-arms ( $\leq 20$  mm) tests usually employ machine guns firing mostly inert bullets with small propellant charges, which produce lower noise levels that affect a smaller area than the noise resulting from firing large-caliber guns. Approximately ten percent of the bullets are fired into the river range. Each bullet fired counts as one of the bullets fired annually. Under Alternative 1 smalls arms use outdoors would increase from 6,000 to 25,500, while under the Preferred Alternative it would increase to 30,000 bullets fired annually.
- **Detonations.** Most ordnance detonations take place on the EEA's Churchill and Harris Ranges, but a few take place on the Explosive Ordnance Disposal training area of the Missile Test Range. Non-fragmenting ordnance detonated on the Explosive Ordnance Disposal training area includes detonators but no other explosives. The amount of explosives used in the ordnance that is detonated on the EEA can vary from less than 0.01 lbs up to 1,000 lbs net explosive weight (NEW). Each detonation that takes place on the EEA is counted towards the total annual detonations. Under Alternative 1 the annual number of detonations would increase from 190 to 200, and under the Preferred Alternative it would increase to 230.

## Electromagnetic (EM) Activities

EM energy and its application for military use is a major area of RDT&E at NSWCDD. Use of EM technology promises to be one of the most important areas for advancing the ability to communicate, detect objects or substances, protect against enemy weapons, and destroy enemy targets with levels of speed, accuracy, and safety not possible with conventional guns and missiles. NSWCDD is in the process of moving directed energy from indoor laboratory science to outdoor development, test, and evaluation. The PRTR provides a unique test capability not found elsewhere within the Department of Defense (DoD): an instrumented maritime range with a high-power microwave propagation source close to the water, allowing study of the effects of maritime conditions on high-power microwave tests using non-lethal harbor scenarios, open-water boat swarms, and counter-drug interdictions.

Activities employing higher-power EM energy are evaluated in the alternatives. EM energy emitters operate in the frequency range of 300 kilohertz (kHz) (or 300,000 cycles per second) to more than 300 gigahertz (GHz) (or 300 billion cycles per second) at powers ranging from 10 watts (W) to more than 500 megawatts (MW) (or 500,000,000 watts) (average power). Under Alternative 1, EM operations would increase annually from 490 to 590 events. Under the Preferred Alternative, these operations would increase annually to 680 events. An event consists



of all the tests that take place under one Standard Operating Procedure (SOP) on one day. If two groups of tests are conducted on the same day under separate SOPs, then each group counts as a separate event.

### **High Energy (HE) Laser Activities**

The high-energy (HE) lasers that are operated at NSWCDD covered under the No Action Alternative emit focused (lased) light ranging in power from 1 milliwatt (mW) (Class 3) to 100 kilowatts (kW) (Class 4) in a wavelength range from 500 nanometers (nm) to 11 micrometers (μm). Class 1 and Class 2 lasers, which are usually eye-safe, are not included in the Proposed Action because they have negligible environmental impacts.

High-power lasers or HE laser RDT&E will focus on directing increasing levels of power at various types of targets. Before lasers can effectively be used as a weapon to replace guns on ships, they must be able to perform in the marine environment. Little is known about how lasers perform in the marine environment. This problem becomes significantly more pronounced during inclement weather such as fog and rain. Therefore, this will be an important area of testing as different types of lasers, using different frequencies and power levels, will be fired in various weather conditions. Firings will occur across Upper Machodoc Creek between the Electromagnetic Research and Engineering Facility building north of the Machine Gun Range within the PRTR Complex, and the Counter Explosive Test Facility building. Firings will also originate at land ranges within the PRTR Complex across the creek to the EEA Complex.

A laser event is defined as consisting of the tests that take place under one SOP on one day. Under Alternative 1, laser operations would increase annually from 60 to 125 events with a maximum power of 500 kW. Under the Preferred Alternative, these operations would increase annually to 145 events also with a maximum power of 500 kW.

### **Chemical/Biological Simulant Activities**

As new chem/bio detectors, decontaminants, and collective protection systems are developed and existing ones upgraded under the DoD's Chemical and Biological Defense Program, they will need to be operated in maritime conditions and aboard vessels over water. NSWCDD, as the primary Navy laboratory for this program, is the most cost-effective site for such activities. Activities would also take place on land ranges and the Mission Area.

Testing detectors in an outdoor marine/estuarine environment is essential. Stand-off detectors such as the Joint Service Lightweight Stand-off Chemical Agent Detector remotely detect chemical-agent vapors some distance from the source using a scanner, a detector, and an electronics module to process and communicate information. These sensors detect infrared radiation, recognized as temperature differences – such as the temperature difference between a vapor cloud and the surrounding air. When the background air being sensed includes the area where water and sky meet (the water-sky interface), the infrared sensor may lose sensitivity, making it more difficult to distinguish a harmful vapor. Water vapor and fog from the marine/estuarine environment present a challenge for chemical sensors, which must be

overcome. Passive infrared sensors such as the Joint Service Lightweight Stand-off Chemical Agent Detector do not emit infrared radiation. Point detector sensors, typically tested by first attaching the sensor (a badge, a patch or a small unit) to a surface or to the inside or outside of a protective suit; then challenging the sensors with a cloud of simulant at various concentrations; and, finally, observing whether the sensors detect the simulant would also be used.

Chemical and biological simulants may be tested on ranges previously used – the PRTR, EEA, and Main Range – as well as other land ranges, the Mission Area, and parts of the middle danger zone (MDZ), where they have not been tested in the past. Future activities using chemical and biological simulants outdoors on the land and water range complexes and the Mission Area would increase from the current No Action baseline of 12 events annually using chemical simulants. Under Alternative 1 there would be up to 60 events annually of either chemical or biological simulants released for each event, but chemical and biological simulants would not be mixed. Under the Preferred Alternative the number of events would increase to up to 70 events annually and outdoor tests could include mixtures of chemical and biological simulants.

### **PRTR Use**

When NSWCDD is using the PRTR for mission activities, public access to the part of the range in use is restricted. Currently, only access to the part of the MDZ or upper lower danger zone (LDZ) in use is restricted. The types of activities conducted on the upper danger zone (UDZ) and mid-to-lower LDZ do not require that public access to these danger zones be restricted. Access to the MDZ or part of the MDZ or LDZ currently is restricted an average of 750 hours a year, based on the hours that range control boats are deployed. This would increase to 870 hours annually under Alternative 1 and to 1,000 hours annually under the Preferred Alternative.

NSWCDD usually conducts outdoor RDT&E operations Monday through Friday between 8 am and 5 pm. Operations outside these times are infrequent. Occasional ordnance being subjected to slow cookoff tests within the EEA Complex may detonate at night or on weekends, as the outcome of these tests cannot be determined in advance – it is the reason for the testing.

In the future, because of the growing need to test EM equipment, HE lasers, and chemical/biological sensors in foggy, rainy, or nighttime conditions, some testing would take place at night and on weekends. This would enable tests to be conducted when conditions match realistic operational requirements.



## 2) Description of Historic Architectural and Archaeological Areas of Potential Effect and Associated Figure

The Historic Architectural APE encompasses portions of 16 United States Geological Survey (USGS) Quadrangles in King George, Westmoreland and Richmond counties in Virginia, and St. Mary's and Charles counties, and the Potomac River in Maryland. The Archaeological APE encompasses portions of six USGS Quadrangles in portions of King George County, Virginia, and Charles and St. Mary's counties and the Potomac River in Maryland. Figure 3, Historic Architectural and Archaeological APEs, shows an overlay of the Historic Architectural and Archaeological APEs on the appropriate USGS Quadrangles. Table 2 provides a list of the relevant USGS Quadrangles.

Table 2  
USGS Quadrangles within Historic Architectural and Archaeological APEs

USGS Quadrangle	Historic Architectural APE	Archaeological APE
Champlain, VA	X	
Charlotte Hall, MD	X	
Colonial Beach North, VA-MD	X	X
Colonial Beach South, VA-MD	X	X
Dahlgren VA-MD	X	X
Hollywood, MD	X	
Leonardtown, MD	X	
Machodoc, VA	X	
Mathias Point, MD-VA	X	
Montross, VA	X	
Piney Point, MD-VA	X	
Popes Creek, MD	X	
Rock Point, MD	X	X
Rollins Fork, VA	X	
St. Clement's Island, MD-VA	X	X
Stratford Hall, VA-MD	X	X

The Historic Architectural APE encompasses 313,103 acres in Virginia and Maryland, including the 4,320-acre NSF Dahlgren installation that NSWCDD is a tenant upon. Approximately 64,578 land-based acres are situated in Maryland. The Archaeological APE encompasses 34,417 acres, the majority of which is located within the Potomac River under the jurisdiction of Maryland. Each APE is briefly described below.

### Historic Architectural APE

The Historic Architectural APE for this project was developed to account for potential *direct* and *indirect effects* of the proposed action on historic architectural resources in accordance with



Section 106. The Historic Architectural APE has been approved by the Virginia Department of Historic Resources (VDHR) and Maryland Historical Trust (MHT).

The proposed action is to expand NSWCDD's outdoor RDT&E capabilities within the PRTR and EEA complexes and the Mission Area (see Figures 1 and 2). The Historic Architectural APE is based upon peak-noise contours associated with multiple gun/projectile tests and detonations that would not occur simultaneously, but combined together, form the worst case scenario. The gun/projectile tests include the live and inert firing of multiple large-caliber guns tested at land-based ranges within the PRTR Complex. Detonations include testing of ordnance within the EEA Complex. Two key events help define the peak- noise contours which form the Historic Architectural APE featured in Figure 3. These events include:

- Live firing of 8" guns at a 27,500-yard distance from the Main Range of the PRTR Complex.
- Detonations of 200-lb net NEW ordnance within Churchill Range at the EEA Complex.

The 120 dBP noise contour and three 134 dBP noise contours depicted in Figure 3 represent locations where average peak-noise levels associated with these events are predicted to occur under a range of weather conditions.

Impulsive noises resulting in vibrations associated with large-gun firing and detonations, such as those produced by NSWCDD, are typically noticed when they reach levels of 120 dBP. Such noises may result in vibrations which have the potential to rattle loose window panes and cause concern on the part of property owners. Within the 134 dBP, however, large-gun firing and detonations have the potential to result in vibrations which may cause window panes and plaster to crack in weak buildings.

Although the 120 dBP noise contour is below the property damage-causing threshold, it has the potential to concern affected property owners. Thus, it has been selected as the larger Historic Architectural APE for this project.

The three 134 dBP noise contours depicted in Figure 3 are situated within the 120 dBP noise contour. These include the westernmost, central and easternmost contours, and are described below:

- The westernmost contour reflects noise levels originating from guns fired from Main Range of the PRTR Complex, and detonations within Churchill Range at the EEA Complex. The contour partially occurs on land within NSF Dahlgren and within the PRTR MDZ in the Potomac River.
- Two contours coincide with target areas where live (explosive) projectiles fired from the Main Range of the PRTR Complex. The central contour solely occurs within the PRTR MDZ. The majority of the easternmost contour occurs within the

PRTR MDZ, while the southeast portion of the contour occurs in the Stratford Harbour development in Westmoreland County, Virginia. When totally inert projectiles are fired, the only noise source is at the gun – there is no second noise source at a target area down river.

The 134 dBP noise contours also represent target areas from the firing of inert projectiles with live fuzes. It should be noted that most of the projectiles fired at NSWCD are totally inert and contain no explosive material. Therefore, the 120 dBP noise contour is much smaller when inert ordnance is fired.

### **Archaeological APE**

Traditionally, an archaeological APE is concerned with *direct effects* and defined by considering the areas of ground disturbance that would occur as a result of carrying out a proposed project action, such as building a new facility. In terms of the proposed action, they would have little-to-no direct impact on archaeological resources within or near NSWCD, because no groundbreaking activities are proposed. However, *indirect effects* upon archaeological resources resulting from testing-related noise are of potential concern, particularly with regard to shipwrecks in the Potomac River.

Therefore, the Archaeological APE for this project is based on portions of the PRTR and EEA complexes that would be utilized during noise-generating RDT&E activities. These include detonations at the EEA Complex and the large-caliber gun fire within the PRTR MDZ. In addition, the Archaeological APE includes a 300-foot (ft) wide buffer zone along the southern boundary of the EEA Complex from Upper Machodoc Creek to the Potomac River shoreline where indirect impacts resulting from testing-related noise may occur. Figure 3 depicts the location of the Archaeological APE that has been approved by VDHR and MHT.

### **3) Photographs of the Project Site**

See Appendix 1.

### **4) Proposed Construction/Demolition/Rehabilitation**

Not applicable to project.

### **5) Brief Description of Past and Present Land Use in Project Area (tilled field, wooded, mined, etc.)**

The project area in Maryland consists of portions of the Potomac River, St. Mary's County and Charles County. Each element is briefly described below.



## Potomac River in Vicinity of Project Area

The Potomac River has served as a major transportation route over time. From its headwaters in Fairfax Stone, West Virginia, the river travels through four states before flowing into Chesapeake Bay approximately 45 miles southeast of NSF Dahlgren. Tributaries in the vicinity of NSF Dahlgren include the Port Tobacco and Wicomico rivers and Nanjemoy and Rosier creeks in Maryland. Within NSF Dahlgren, Gambo Creek crosses the northern portion of the installation known as Mainside. Upper Machodoc Creek passes between Mainside and the EEA Complex, and Black Marsh Creek flows through the southeastern end of the EEA Complex. Several bays are located farther south along the east and west banks of the Potomac River, including Nomini, St. Clement's, and Breton.

European explorers first visited the Potomac River during the mid to late 16<sup>th</sup> century. Settlement along the Potomac River Tidewater Region began in the mid-17<sup>th</sup> century and prompted the need for river crossings. Due to the river's wide expanse, ferry crossings provided the only practical solution, and by the early 18<sup>th</sup> century, Virginia began to establish service to Maryland (Wilstach, 1921). Hooes Ferry, established in the vicinity of present-day NSF Dahlgren, was one of the earliest river crossings in the Northern Neck (ca. 1720) (Mullen, 2012; Wilstach, 1921). Crossings on smaller, surrounding creeks and rivers would also have been necessary as settlement expanded.

Other vessels plying the waters during this period included merchant ships carrying cargo between ports. The closest major port to present-day NSF Dahlgren was in the town of Dumfries, Virginia, several miles upriver. The need for navigation along the river led to the use of lightships, and later the construction of lighthouses in the Potomac River. During the 19<sup>th</sup> century, several existed within the vicinity of present-day NSF Dahlgren, including at Mathias Point to the north and on St. Clement's Island to the south (Payette, 1999).

Downed row galley ships in the Wicomico River attest to maritime activity in the area during the American Revolution (1776-83) (MHT, February 1997; US Navy, April 2006). Over the course of the 19<sup>th</sup> century activity on the river between the newly established Washington Navy Yard in Washington DC and the Chesapeake Bay increased greatly, starting with the War of 1812 (1812-14) and heightening through the Civil War (1861-65). During this time, ships of the British, United States, and Confederate States armies and navies traversed the river (US Navy, n.d.).

Major batteries were constructed along the river during the Civil War to control movement on the waterway, including one at Mathias Point, north of present-day NSF Dahlgren, where the river curves. Activity along the river was also monitored and controlled via ships, including the US Navy's Potomac Flotilla. During the war, many Confederate ships and fewer United States ships were sunk, burned, or otherwise lost in the river (MHT, February 1997; Naval Historical Center, September 2008). One particular ship serving in the Potomac Flotilla, the *USS Tulip*, sunk in 1864 when a boiler exploded, taking the lives of 49 people on board (MHT, February 1997). The shipwreck of the *Tulip*, considered a Civil War grave site, is located in the Potomac River in the vicinity of Coles Point, Virginia and Piney Point, Maryland, approximately 25 miles southeast of NSF Dahlgren, well below NSWCDD's gunnery target areas.

The 19<sup>th</sup> and 20<sup>th</sup> centuries saw the establishment of gun proving grounds along the river by the Navy, first at the Washington Navy Yard in Washington, DC, then at Indian Head, Maryland, and finally at what was initially the “Lower Proving Ground,” at Dahlgren, Virginia. Mine testing conducted approximately 30 miles downriver from present-day NSF Dahlgren off Piney Point, Maryland utilized the U-1105, or Black Panther, a German submarine acquired by the United States as a war prize after World War II. The wreckage of the ship was designated as Maryland's first historic shipwreck preserve in 1994. Portions of the lower Potomac River continue to be utilized for non-ordnance-related testing by the Navy today.

### **St. Mary's County, Maryland**

The first settlers of Maryland came to present-day St. Mary's County in 1634. They sailed from the Isle of Wight, England on two ships, the *Ark* and the *Dove*. They landed at St. Clement's Island, located in the Potomac River at the southwestern edge of the MDZ. They chose this as their first landing site because of its strategic location at a distance from the possibly hostile Native Americans. Upon landing, they celebrated the first known Catholic mass within the thirteen colonies (Hammett, 1977). Soon after landing, the colonists established friendly relations with the Native Yaocomico tribe. Governor Leonard Calvert traded axes, hoes, hatchets, and cloth with the tribe for a 30-mile area that was roughly contiguous with present-day St. Mary's County (Hammett, 1977).

The first settlement in Maryland was established at St. Mary's City, located east of the Historic Architectural APE. Until the first decade of the 18<sup>th</sup> century, the citizens of St. Mary's County were almost entirely immigrants (Hammett, 1977). Although St. Mary's County was a Catholic colony, settlers of any religion were welcome. However, Protestants took control in 1689 and forbade Catholics from holding office, serving on juries, and bearing arms (Reno, 2004). By 1695, there were 1,049 taxable settlers in St. Mary's County, and Protestants succeeded in transferring the capital of Maryland from St. Mary's City to Annapolis, which remains the seat of Maryland's state government today (Hammett, 1977).

The area of St. Mary's County within the Historic Architectural APE, including a number of small islands in the Potomac River, was settled very slowly. By the end of the American Revolution in 1776, historic maps document no major settlements, as opposed to Virginia across the Potomac River, which was sparsely developed by that period (Jefferys, 1776). Like many of the surrounding counties, St. Mary's County was primarily agricultural, and heavily dependent upon tobacco cultivation and the fishing industry.

During the Civil War, Maryland aligned itself with the Union. However, because of its dependence upon the tobacco/slave farming system, St. Mary's County heavily supported the Confederacy. In 1977, historian Regina Combs Hammett wrote that, in some parts of St. Mary's County, the Civil War was referred to as “the War of Northern Invasion.” Many St. Mary's County residents participated by smuggling food and supplies across the Potomac River into Confederate Virginia. Until the Draft Act was passed in 1862, only four of St. Mary's County residents had enlisted in the Union Army (Hammett, 1977).



After the Civil War, St. Mary's County continued to retain its rural character and agricultural use. An 1892 map shows a small number of roads with residences scattered along them in the Historic Architectural APE. Only two areas in the county were developed: Wicomico, near an arm of the Wicomico River; and Chaptico, on the shores of Chaptico Creek (USGS, 1892). By 1914, the Historic Architectural APE was largely unchanged, save some unfinished roads and a smattering of new buildings along them (USGS, 1914).

During World War II (1939-1945), St. Mary's County's focus began to shift from purely agriculture and fishing to military use. In 1943, the Patuxent River Naval Air Station, or Pax River, was established. Pax River now covers 6,500 acres along the Patuxent River waterfront well east of the Historic Architectural APE, and is home to the Navy's principal naval aircraft RDT&E and fleet support facilities.

Pax River has had a dramatic effect on the local economy, and now employs approximately 20,200 people, including civilians and the over 200 high-tech defense contractors based within the county (Maryland Department of Business and Economic Development, 2011). The county is also considered to be the outer edge of the Washington, DC commuter shed. Still, as of 1997, 54 percent of St. Mary's County was forested, and 28 percent was dedicated to agriculture. Today, the main concentrations of residential and commercial development in the area of St. Mary's county within the Historic Architectural APE are found along the Potomac River, while the upland areas remain predominately undeveloped or dedicated to agriculture. St. Mary's County has created a managed growth plan to balance its natural resource areas with new development. Within the Historic Architectural APE, only Chaptico and Clements are considered "village centers," targeted growth areas for rural community facilities, services and activities (St. Mary's County, Maryland, 2010).

In addition to its rural character, present-day St. Mary's County also has a strong historical consciousness. St. Mary's City is now an 800-acre archaeology and living history museum. The museum has over 5 million artifacts from St. Mary's City, and visitors can experience a reconstructed historic town, including a tobacco plantation, a farm, and the State House (Historic St. Mary's City, Maryland, 2011).

### **Charles County, Maryland**

Charles County originally comprised an area much larger than its current boundaries. It was created by Cecil Calvert, the second Lord Baltimore, in 1650. It included all of present-day Charles County, as well as parts of present-day Calvert, St. Mary's, and Prince George's counties. During this time, southern Maryland was plagued by political struggle and hostility between the area's Puritan settlers and Roman Catholic England. George Calvert, the Catholic third Lord Baltimore, wanted to establish a colony free of religious persecution. In 1658, with this goal in mind, and to honor the first Lord Baltimore, Charles Calvert brokered the county's rededication with its current boundaries (Brown, 1976).

Early settlers of Charles County benefited from prime farming conditions, and focused their efforts on the cultivation of tobacco, which was grown in the area to the almost complete exclusion of other crops (Brown, 1976). The major settlement of colonial Charles County was Port Tobacco, located on the banks of the Potomac River to the northwest of the Historic Architectural APE. Due to the popularity of agriculture and the fact that easy access to the Potomac River and its tributary the Wicomico River made major seaports unnecessary, colonial Charles County was very rural, and has remained so through much of its history. By the end of the American Revolution in 1776, the area of Charles County within the Historic Architectural APE was known as Swan's Point. A 1776 atlas documents no settlements in this area, as opposed to Virginia across the Potomac River, which was sparsely developed by this period (Jefferys, 1776).

Charles County maintained stability until the War of 1812, during which the British Navy maintained fleets in the Potomac River. After the War of 1812, as the economy began to diversify, fishing became a major industry in the area. By 1832, there were 150 fisheries on the Potomac River, which employed 6,500 people (Charles County Historic Preservation Advisory Council, 2004). Still, while an 1835 map of Maryland depicts two new towns in Charles County north of the Historical Architectural APE (Allen Fresh and New Port), it documents no major settlements within the Swan's Point area (Burr, 1835).

During the Civil War, Charles County also primarily sympathized with the Confederacy, largely due to its tobacco/slave-dependent economy. As a result, and because of its location on the Union-Confederate border, the area was occupied by Union troops. Many Charles County men joined the Confederate Army (Charles County Historic Preservation Advisory Council, 2004).

After slavery was banned in Maryland in 1864, tobacco farming began to decline. By the end of the 19<sup>th</sup> century, producing tobacco without slave labor was so expensive that farmers could barely cover the cost of production. As a result, many farmers diversified their production. Aided by new railroads, farmers could take a variety of goods to market, and many even turned to canning. In the 1890s, the Baltimore & Potomac Railroad was the only railroad near the Historic Architectural APE in Cobb Neck. The railroad terminated northeast of the Historic Architectural APE near Pope Creek (USGS, 1892). The first cannery in Charles County opened in La Plata in April 1883, and many others followed. Fisheries also regained their prominence in the area during this time (Brown, 1976).

At the turn of the 20<sup>th</sup> century, only a few settlements existed in the Cobb Neck area, including Newburg, Lower Cedar Point, Tompkinsville, and Issue. These settlements were spread out and connected by only a few roads. Each had a small number of buildings. The primary land use in the Historic Architectural APE remained agriculture (USGS, 1902).

By 1914, settlement of Cobb Neck had increased dramatically. The road network, including both improved and unimproved roads, had expanded. New development followed, including new towns such as Shiloh and Cooksey. Still, much of Cobb Neck remained undeveloped and dedicated primarily to agriculture (USGS, 1914).



Charles County remained primarily rural in the 20<sup>th</sup> century. In the last few decades, however, nearby military installations and legalized gambling have spurred development (Brown, 1976). Now considered part of the Washington-Arlington-Alexandria Metropolitan Area, the county has struggled to balance suburban development with the preservation of forest and agricultural lands. The county's 2006 comprehensive plan indicated that in 2002, approximately half the land in Cobb Neck was still dedicated to agriculture. Residential development has occurred along the Potomac Riverfront. As part of the county's attempt to preserve its agricultural heritage, Cobb Neck now includes fourteen agricultural districts and six agricultural easements. The 2006 plan designates only two areas in the Historic Architectural APE for development: a small commercial/industrial district southeast of Newburg, and a mixed-use district on the peninsula of Swan Point. The county's managed growth strategy directs 75 percent of its growth to the Development District which encompasses the towns of Waldorf and Bryans Road, and the area between them, approximately 20 miles north of the Historic Architectural APE (Charles County, Maryland, 2007).

## 6) Previously Identified Resources within the Archaeological APE

No National Register-listed or -eligible archaeological resources have been identified within the Archaeological APE at NSF Dahlgren. However, eleven unevaluated archaeological sites have been recorded within or potentially within the Archaeological APE, and are on file with various agencies, including the MHT, the VDHR, NSF Dahlgren and the Naval Historical Center (NHC). These sites include six terrestrial archaeological sites and five maritime archaeological resources; the exact location of three of the unevaluated maritime archaeological resources (comprised of five Navy shipwrecks) is unknown, but a MHT study depicts them potentially within the Archaeological APE (MHT, 1997). These resources are listed in Table 3.

Table 3  
Archaeological Resources Within or Potentially Within the Archaeological APE

Resource Name	Resource Type	Recommendation and/or Condition of Resource	On File
44KG217 (Black Marsh 1)	Terrestrial	Recommended NRE <sup>2</sup>	VDHR and NSF Dahlgren
44KG218 (Black Marsh 2)	Terrestrial	Not recommended NRE <sup>2</sup>	VDHR and NSF Dahlgren
MWC17	Terrestrial	Unknown <sup>3</sup>	NSF Dahlgren
MWC18	Terrestrial	Unknown <sup>3</sup>	NSF Dahlgren
MWC19	Terrestrial	Unknown <sup>3</sup>	NSF Dahlgren
MWC34	Terrestrial	Unknown <sup>3</sup>	NSF Dahlgren
Colonial Beach South QF04 (Dahlgren Anchor Site)	Maritime	Anchor recovered from site by US Coast Guard in 1990 <sup>4</sup>	MHT
STRATF QF05 [side-scan sonar anomaly]	Maritime	Unknown <sup>4</sup>	MHT
Christiana Keen <sup>1</sup>	Maritime	Burned and sunk <sup>5</sup>	NHC
Frances Elmor <sup>1</sup>	Maritime	Burned and sunk <sup>5</sup>	NHC
Three Boats <sup>1</sup>	Maritime	"Destroyed" and sunk <sup>5</sup>	NHC

<sup>1</sup> Resource located within or potentially within the Archaeological APE (MHT, 1997).  
<sup>2</sup> NSF Dahlgren and Engineering Field Activity Chesapeake, 2006.  
<sup>3</sup> GIS data from NSWCDD, 2008.  
<sup>4</sup> Site file forms at MHT.  
<sup>5</sup> MHT, 1997.

## 7a) Previously Identified Resources within the Maryland Portion of the Historic Architectural APE

Seventeen previously identified historic architectural resources have been identified within the vicinity of the Maryland portion of the Historic Architectural APE. These include nine National Register-listed resources and eight National Register-eligible resources. These resources are listed in Table 4 and depicted on Figure 4, Previously Identified Resources Within Historic Architectural APE.





Table 4  
National Register-Listed and Eligible Resources within Vicinity of  
Maryland Portion of Historic Architectural APE

Resource Number *	Resource Name	Location	Description	Status
1	Waverly	Waverly Point Road Newburg Charles County, MD	Federal-style brick home built between 1782 and 1823	National Register-listed, 1987
2	Sarum	Budds Creek Road (Maryland State Route 234) Newport Charles County, MD	"Virginia-style" home, built ca. 1680; oldest documented structure in Charles County.	National Register-listed, 1974
3	Christ Episcopal Church	<b>Church:</b> 25390 Maddox Road Chaptico St. Mary's County, MD <b>Parish Hall:</b> 37497 Zach Fowler Road Chaptico St. Mary's County, MD	Congregation was established in 1640; Colonial-style brick church was constructed in 1736 and is one of the oldest in continual use in the United States.	National Register-listed, 1994
4	Deep Falls	Deep Falls Road Chaptico St. Mary's County, MD	Built in 1745 by the Thomas family.	National Register-listed, 1975
5	Bachelor's Hope	Manor School Road Chaptico St. Mary's County, MD	Two-story, three-bay brick dwelling constructed in the 18 <sup>th</sup> century.	National Register-listed, 2007
6	Ocean Hall	Bushwood Road Bushwood St. Mary's County, MD	Built before 1670, Ocean Hall is the oldest surviving home in Maryland.	National Register-listed, 1973
7	St. Clement's Island Historic District	St. Clement's Island St. Mary's County, MD	Small, deserted island in the Potomac River, which marks the location of the first landing of the English settlers of Maryland and the first Catholic mass held in the New World.	National Register-listed, 1972
8	The River View	Burch Road St. Mary's County, MD	Built in the early 18 <sup>th</sup> century by the Gardiner family, this property is notable for its smokehouse, shed, and log quarter – the largest grouping of such buildings in St. Mary's County.	National Register-listed, 1976
9	St. Francis Xavier Church and Newtown Manor Historic District	Newtown Neck Road (Maryland State Route 243) Leonardtown St. Mary's County, MD	Constructed in 1767, these buildings, including a frame church, brick manor house, and the surrounding 700-ac farm comprise an example of a self-contained Jesuit community.	National Register-listed, 1972



Table 4 (cont'd)  
National Register-Listed and Eligible Resources within Vicinity of  
Maryland Portion of Historic Architectural APE

Resource Number *	Resource Name	Location	Description	Status
21	Governor Harry W. Nice Memorial Bridge (Bridge 8039)	US Route 301 over the Potomac River Newburg Charles County, MD	This 1.7-mi-long bridge was built between 1939 and 1940 as part of Maryland's Primary Bridge Program which was initiated in the 1930s to provide access to previously isolated areas in Maryland; the only known example of a metal cantilever bridge in Maryland.	National Register-eligible, 2001
22	Marshall's Rest (Clifton Potomac Property)	11985 Edgehill Road Newburg Charles County, MD	Built in 1847, this home is a representative example of a mid-19 <sup>th</sup> -century farmhouse with Federal-style influences.	National Register-eligible, 1997
23	John H. Reeder Property (Jones Property)	11450 Edgehill Road Newburg Charles County, MD	Built ca. 1865, this property is a good example of a mid-19 <sup>th</sup> -century I-house with associated outbuildings, including barns, spring house, and smokehouse, all of which have retained integrity.	National Register-eligible, 1997
24	Bridge 1808	Maddox Road (Maryland State Route 238) over Burroughs Run Vicinity of Maddox St. Mary's County, MD	Bridge was built in 1929 by the State Roads Commission as part of the St. Mary's County road expansion; survives as a significant example of a single-span closed concrete-arch bridge with pierced concrete parapets.	National Register-eligible, 2001
25	Bridge CH-0016	Rock Point Road over Ditchley Prong Vicinity of the Village of Wayside Charles County, MD	Built in the 1920s, this single concrete beam-span bridge with concrete parapets is a representative example of its type, and has retained a high degree of integrity.	National Register-eligible, 2001
26	Small Structure No. 18049XO	Maryland State Route 520 over Branch of Whites Neck Creek Bushwood St. Mary's County, MD	Built in the 1930s-40s, bridge is an example of a concrete slab structure with concrete pier abutments, wing walls, and balustrade which has retained integrity.	National Register-eligible, 1997
27	Chaptico Historic District	Chaptico St. Mary's County, MD	This cluster of 18 <sup>th</sup> -, 19 <sup>th</sup> -, and early-20 <sup>th</sup> century religious, commercial, and residential buildings form a rare surviving village center which originated in the 18 <sup>th</sup> century in St. Mary's County.	National Register-eligible, 2004
28	Locust Grove	25434 Hurry Road Chaptico St. Mary's County, MD	Built ca. 1850, this home is a good example of well-preserved 19 <sup>th</sup> -century domestic architecture. The interior features rare examples of Greek Revival-style woodwork and faux graining.	National Register-eligible, 2004

\*See Figure 4 for resource locations.



## 7b) Previously Identified Resources within the Virginia Portion of the Historic Architectural APE

Nineteen previously identified resources are located within the Historic Architectural APE in Virginia. These include 11 National Register-listed resources and eight National Register-eligible resources. These resources are listed in Table 5 and depicted on Figure 4.

Table 5  
National Register-Listed and Eligible Resources within Vicinity of Virginia Portion of the Historic Architectural APE

Resource Number*	Resource Name	Location	Description	Status
10	Bushfield	367 Club House Loop Virginia State Route 708 Mount Holly Westmoreland County, VA	Early-18 <sup>th</sup> -century home once owned by George Washington's brother; renovated in 1919 in the Colonial Revival style by architect Waddy Butler Wood.	National Register-listed, 2004
11	Spring Grove	Virginia State Route 202 Mount Holly Westmoreland County, VA	Federal-style estate is an outstanding example of early-19th century architecture in rural Virginia.	National Register-listed, 1985
12	Armstead T. Johnson High School	Virginia State Route 202 Montross Westmoreland County, VA	High school constructed in 1937 specifically for African- American students during the era of segregation; funded by Works Progress Administration (WPA) and donations from community.	National Register-listed, 1998
13	Stratford Hall	Great House Road Stratford Westmoreland County, VA	Built in the 1730s by the Lee family, this H-shaped brick building is a notable example of an early Georgian-style home. It was the birthplace of General Robert E. Lee, Commander of the Confederate armies, as well as the home of two signers of the Declaration of Independence, Richard Henry and Francis Lightfoot Lee.	NHL/National Register-listed, 1966
14	Westmoreland State Park Historic District	Westmoreland State Park, Westmoreland County, VA	One of six planned state parks conceived by the Commonwealth of Virginia during the 1920s and 1930s, the park was jointly developed between 1933 and 1943 by the Civilian Conservation Corps, NPS, and Virginia Commission on Conservation and Development. Park consists of a beach, cliffs, wetlands, ravines, and heavily forested areas; includes cabins, campgrounds and recreational areas.	National Register-listed, 2005
15	Ingleside	Virginia State Route 638 Oak Grove; Westmoreland County, VA	Built as Washington Academy in 1834; Classical Revival-style building was based on the Virginia Capitol in Richmond.	National Register-listed, 1977
16	Blenheim	Virginia State Route 3 Oak Grove Westmoreland County, VA	Colonial-style home built by William Augustine Washington, George Washington's half-brother, in 1780.	National Register-listed, 1976



Table 5 (cont'd)  
National Register-Listed and Eligible Resources within Vicinity of Virginia Portion of the Historic  
Architectural APE

Resource Number *	Resource Name	Location	Description	Status
17	Roxbury	Virginia State Route 638 Oak Grove Westmoreland County, VA	Built in 1861, this home's mid-Victorian style is more commonly found in the north.	National Register-listed, 1977
18	Wirtland	Virginia State Route 638 Oak Grove Westmoreland County, VA	Built in 1850 by Dr. William Wirt, Jr., this home is one of the few examples of domestic Gothic Revival-style architecture in Westmoreland County.	National Register-listed, 1977
19	St. Peter's Episcopal Church	Virginia State Route 3 Oak Grove Westmoreland County, VA	Built in 1849, this church is a rare example of the Gothic Revival style; Washington, Monroe, and Lee families worshipped at the church.	National Register-listed, 2004
20	Bell House	821 Irving Avenue Colonial Beach Westmoreland County, VA	Shingle-style frame house erected ca. 1883 when Colonial Beach emerged as a popular waterfront resort; acquired by family of Alexander Graham Bell in 1886.	National Register-listed, 1987
29	Hague House	Virginia State Route 202 Hague Westmoreland County, VA	Built during the late 18 <sup>th</sup> century by John and Joseph Hague, this one-and-a-half story, four-bay wood-frame residence was transformed into the rear ell of a newly-constructed two-story residence around 1900.	National Register-eligible, 1996
30	Washington & Lee Agricultural High School	16380 Kings Highway (Virginia State Route 3) Montross Westmoreland County, VA	Built ca. 1930, this is a one-and-a-half story, brick, Cape Cod-style school building.	National Register-eligible, 2000
31	Montross Town Hall (Bank of Montross) <b>DEMOLISHED IN 2001<sup>1</sup></b>	100 Hawthorne Street Montross Westmoreland County, VA	Built in 1925 by Edward G. "Peck" Heflin, this one-and-a-half story brick, Classical Revival-style house had a flat roof and arched windows. It served as the second location of the Bank of Montross, established in 1908, and later the Montross Town Hall; demolished in 2001.	National Register-eligible, 2000
32	Panorama (Hummel Vineyards) <sup>2</sup>	1005 Panorama Road Montross Westmoreland County, VA	Built in 1932 in the Georgian style by the last private owners of Stratford Hall Plantation (home of Robert E. Lee), the bricks of this three-story house are thought to have been made at Stratford Hall.	National Register-eligible, 2004; nominated to the National Register in 2008; National Register listing pending
33	Endurance (Himes House) <sup>3</sup>	29 Irving Avenue South Colonial Beach Westmoreland County, VA	Built in 1906 in the Queen Anne style based upon a Sears, Roebuck, & Co. pattern, this two-story, three-bay, side-passage, double-pile house is located in an area known as "The Point," laid out around the turn of the 20 <sup>th</sup> century by the Colonial Beach Improvement Company.	National Register-eligible, 2001; also located within the potentially National Register-eligible Colonial Beach Historic District.



Table 5 (cont'd)  
National Register-Listed and Eligible Resources within Vicinity of Virginia Portion of the Historic  
Architectural APE

Resource Number *	Resource Name	Location	Description	Status
34	Bank of Westmoreland (Colonial Beach Town Hall) <sup>3</sup>	18 Irving Avenue North Colonial Beach Westmoreland County, VA	Built in 1904 by the Mumford Company of Cape Charles, VA, this one-story, three-bay, side-passage commercial bank building is located in downtown Colonial Beach; converted to function as Bank of Westmoreland in 1907; currently functions as Town Hall of Colonial Beach.	National Register-eligible, 2001; also located within the potentially National Register-eligible Colonial Beach Historic District.
35	Colonial Beach Historic District <sup>4</sup>	Colonial Beach Westmoreland County, VA	District encompasses a 56-acre portion of Colonial Beach, a resort town on the Potomac River; primarily includes vernacular residential and commercial buildings constructed between 1900 and 1920.	National Register-eligible, 2001
36	Greg House	1763 McKinney Boulevard Colonial Beach, Westmoreland County, VA	Built ca. 1925, this one-and-a-half story, three-bay, center-passage, double-pile, frame, bungalow, sits atop a promontory overlooking the Potomac River.	National Register-eligible, 2008

\*See Figure 4 for resource locations.

<sup>1</sup> Reamy, Brenda, Town Manager, Town of Montross, Virginia, pers. comm., December 15, 2008.

<sup>2</sup> Nominated to the National Register in 2008; National Register listing pending.

<sup>3</sup> Contributes to the National Register-eligible Colonial Beach Historic District.

<sup>4</sup> *The Town of Colonial Beach Comprehensive Plan, 2009-2029* indicates that a preliminary historic district is proposed within the Point and older sections of the Central Area of Colonial Beach. The preliminary district encompasses the majority of the Colonial Beach peninsula, and includes the 56-acre Colonial Beach Historic District which was determined National Register eligible by VDHR in 2001. The 2009 plan indicates that research and documentation must occur within the preliminary historic district to develop precise district boundaries for a National Register nomination form. Upon completion, the form would be submitted to VDHR for review, approval, and eventual listing in the National Register. Following listing of the district in the National Register, the 2009 plan indicates that town officials should also consider its designation as a local historic district which would be subject to local zoning ordinances and design review procedures (Town of Colonial Beach, 2009).

## 8) Effects of Proposed Action

### Archeological Resources

Under the Proposed Action increased EM energy, laser, and chem/bio defense activities are not expected to affect previously identified or potential archaeological resources within the Archaeological APE as these activities would not affect resources underground.

There would be no increase in the number of large-caliber projectiles fired and no change to the target areas historically used. Therefore, indirect impacts to previously identified or potential archaeological resources in the Archaeological APE are not anticipated.

Under the Preferred Alternative there would be an increase in small arms with the number of bullets increasing from 6,000 to 30,000 annually. The majority of the rounds would be fired on land, typically into butts or backstops, while typically ten percent would be fired into the river within 1,000 ft of shore. As the bullets on land would be fired into set targets, this action would not impact known or unknown archaeological resources. Similarly, the firing of rounds into the



river should not impact known or unknown archaeological resources due to the small size of the rounds and the rapid deceleration of the rounds as they enter the water.

The increase in the number of annual detonations at the Churchill and Harris ranges within the EEA Range Complex from 190 to 230 annually under the Preferred Alternative has the potential to directly or indirectly impact the ranges and the area immediately surrounding the ranges. A study conducted for military safety testing within the EEA noted that ground impacts from a buried detonation of up to 1,000 lbs NEW (the largest detonation that takes place on the EEA) could cause ground motion that could impact structures less than 300 ft away. As there are no previously identified sites within these locations on file with the VDHR or NSF Dahlgren, there would be no impacts to known resources from the proposed actions. The archaeological potential for unknown resources to be present within these two ranges is none-to-low, as a result of past subsurface disturbances. The Churchill and Harris ranges have been subjected to extensive subsurface disturbance as the result of aircraft bombing from 1944 to 1957 and detonations since World War II.

Finally, an increase in the number of annual hours of use of the PRTR is proposed – from 750 hours to 870 hours. For more than 90 years, activities within the PRTR Complex have included the firing of inert and live projectiles from the PRTR land ranges into the Potomac River. Currently, inert projectiles consist of a steel case filled with material such as concrete, replicating the weight of live projectiles. Live ordnance utilized have included naval gun projectiles, small explosives (i.e., grenades), aircraft bombs, and small rockets, which are set to explode in the air above the water or upon impact with the water. However, it should be noted that due to the nature of testing, some projectiles remain unexploded. Remnants of the inert and live projectiles are propelled into the river bottom, where they remain, covered in silt.

Five unevaluated maritime resources have been identified within or possibly within the PRTR portion of the Archaeological APE. One of these resources – the anchor of the Colonial Beach South QF04-Dahlgren Anchor Site – has been removed to another location, while three others were either wholly or partially destroyed before they came to rest on the river bottom (shipwrecks of the *Christiana Keen*, *Frances Elmor*, and *Three Boats*). The remaining resource, known via a side-scan sonar anomaly identified in 2006, is situated along the river bottom at the northeastern end of the Archaeological APE. In addition, there is the potential for unknown resources to be located within the Archaeological APE. However, the prior nine decades of gun-testing in this area have likely heavily disturbed the river bottom. Therefore, while the previously described activities may cause indirect impacts to previously identified and unknown resources within the Archaeological APE, in accordance with Section 106, they are not expected to have an adverse effect on archaeological resources within it.

Therefore, the proposed activities are not expected to cause indirect impacts to previously identified and unknown resources within the Archaeological APE, in accordance with Section 106, they are not expected to have an adverse effect on archaeological resources within it.

### **Effects on Historic Architectural Resources**

Most of outdoor RDT&E activities associated with the Proposed Actions are not anticipated to affect resources within the Historic Architectural APE. These activities and the reasons for no effect are:



- **Small-Arms Activities.** The increase in firing of small arms would generate additional noise in the vicinity of the installation, including the Proposed Main Battery Historic District at NSF Dahlgren Mainside, the site of the Main Range. However, small-arms testing would not cause vibrations to buildings and, therefore there would be no impact to buildings in the vicinity of the installation.
- **EM Energy Activities.** As EM energy activities are guided by stringent safety standards, the activities of emitters are unlikely to affect the built environment.
- **Laser Activities.** Because HE laser activities are guided by stringent safety standards, laser activities are unlikely to affect the built environment.
- **Chemical and Biological Defense Activities.** Chemical and biological sensor tests employ low toxicity simulants rather than actual agents, in accordance with federal laws. The low concentrations of already low-impact simulants used would not affect buildings.
- **PRTR Use.** Increased use of the river would have no effect on buildings. The increased use would be to support non-ordnance activities, including EM energy, lasers, and chem/bio sensor tests.

Impacts from large-caliber gun firing and explosive detonation RDT&E activities may affect resources in the Historic Architectural APE. The Historic Architectural APE is based upon peak-noise contours associated with multiple gun/projectile firings and detonations that would not occur simultaneously, but combined together to form the worst-case scenario under each alternative.

Four peak-noise contours are shown on Figure 3: the 120-dBP noise contour, which circumscribes a wide area and three 134-dBP noise contours around smaller, more-focused areas. The easternmost 134-dBP contour partially occurs on land and in target areas in the Potomac River, and is associated with gun/projectile activities. The central contour occurs in target areas in the Potomac River, and is associated with gun/projectile activities. The westernmost contour partially occurs on land and in target areas in the Potomac River, and is associated with both gun/projectile activities at Mainside and detonations on the EEA.

Impulse noises associated with large-gun firing and detonations have the potential to cause minor damage to structures when they reach levels of 134 dBP. Within the land-based portions of the easternmost and westernmost 134-dBP contours, such noises may result in vibrations that have the potential to cause window panes and plaster to crack in structurally-compromised buildings. As these buildings are in Virginia, NSWCDD is coordinating with the VDHR and will ensure that NSWCDD personnel undertake repairs, as required in the event of damage to plaster and/or windows.

There are no previously identified and evaluated National Register-listed or National Register-eligible resources located within the land-based portions of the easternmost and westernmost 134-dBP noise contours associated with worst-case scenario gun/projectile firings or detonations outside NSF Dahlgren.

Noises within the 120-dBP contours may result in vibrations which have the potential to rattle loose window panes and cause concern on the part of property owners. NSWCDD selected six historic architectural resources within the 120-dBP contour of the Historic Architectural APE to



conduct noise and vibration monitoring during the firing of live projectiles from the 5"/62 gun on the PRTR Complex's AA Fuze Range in November 2009. Measured peak noise levels ranged from 89 to 129 dBP. Vibration levels ranged from non-detectable to slightly above 0.5 inches per second (in/sec). Vibration levels of 2.0 in/sec are regarded as the threshold at which minor structural damage may begin to occur. However, 0.5 in/sec has been conservatively identified as a potential level at which glass and plaster may crack in poorly maintained buildings and structures.

Although the six resources were not damaged during gun/projectile firings, live projectiles from the 5"/62-caliber gun resulted in indirect noise and vibration effects. It is unlikely that vibrations which may result from the large-gun firing or the detonations would diminish the integrity of the resources within and adjacent to the 120-dBP contour. Because of their age and their having remained intact through the period when 12", 14", and 16" guns were being fired (the 16" gun, for example, required a very large quantity of explosives to fire – the firing charge – and fired projectiles that contained 150 lbs of explosives vs. 9 lbs in the 5"/62 projectiles fired during noise measurements at historic structures), these resources have been subjected to such vibrations over time and would not likely suffer damage. There would be no increase in large-gun firing and no change in target areas under any of the alternatives. Furthermore, the current NSWCDD Noise Management Process would ensure that noise and vibrations anticipated as a result of gun/projectile firing and detonations are kept to reasonable levels.

Therefore, in accordance with Section 106 and NEPA, worst-case scenario gun/projectile firings and detonations would have no adverse effect on the resources within and adjacent to the 120-dBP contour.

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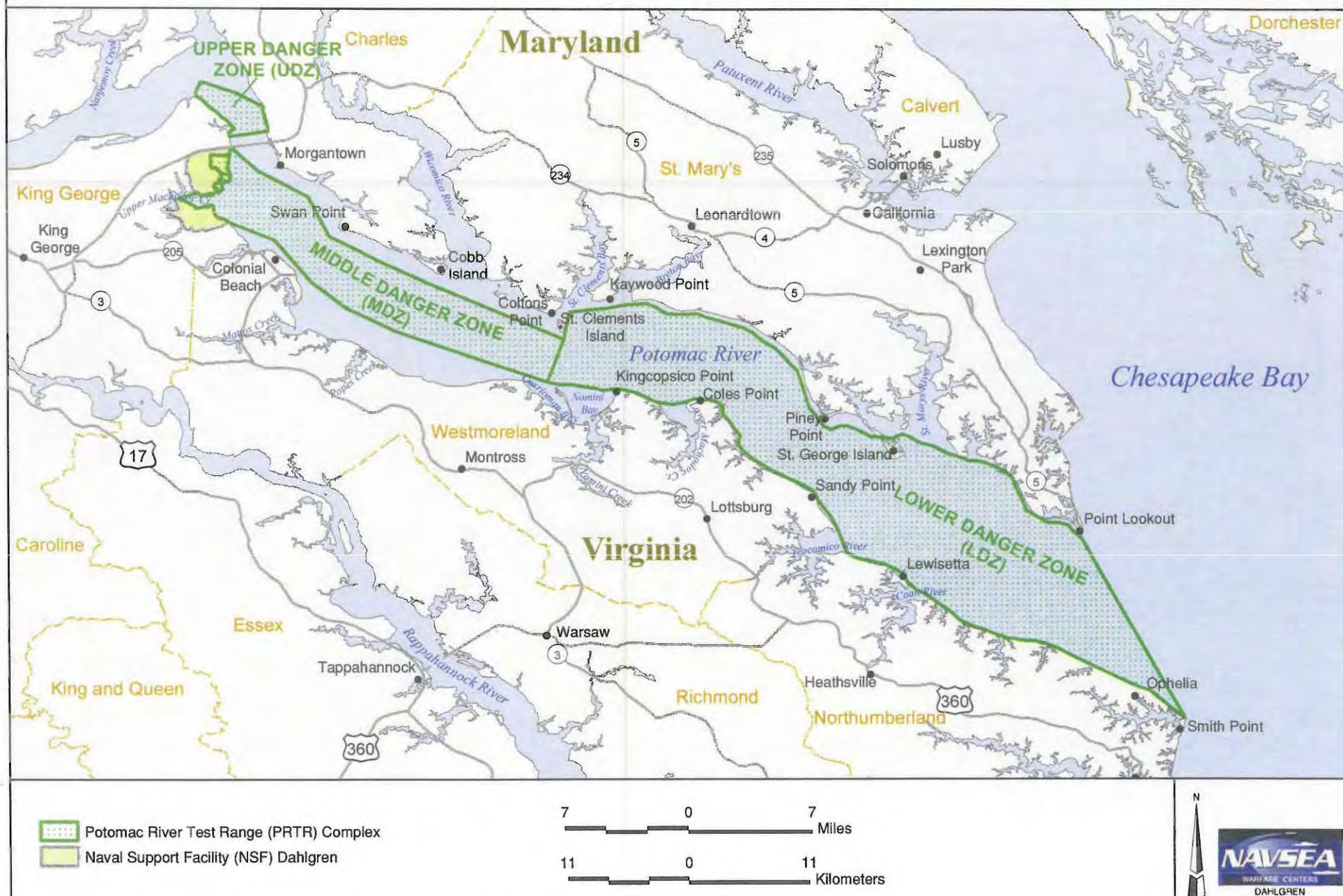
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# Potomac River Test Range Complex



Source: NSWCCD GIS (2008 - 2011); Danger Zones defined in 33 CFR § 334.230.

Figure 1





# Range Complexes and Mission Areas

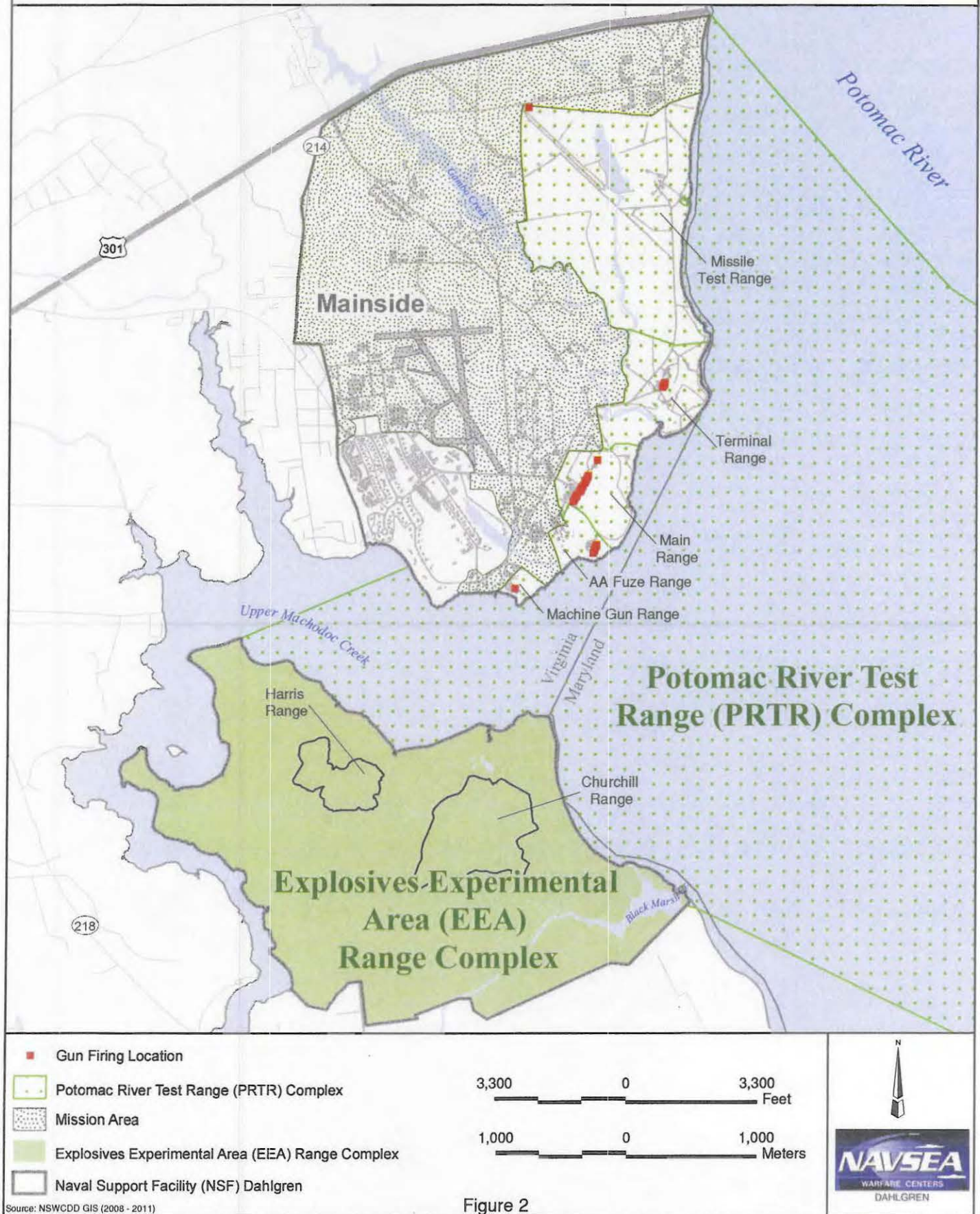


Figure 2



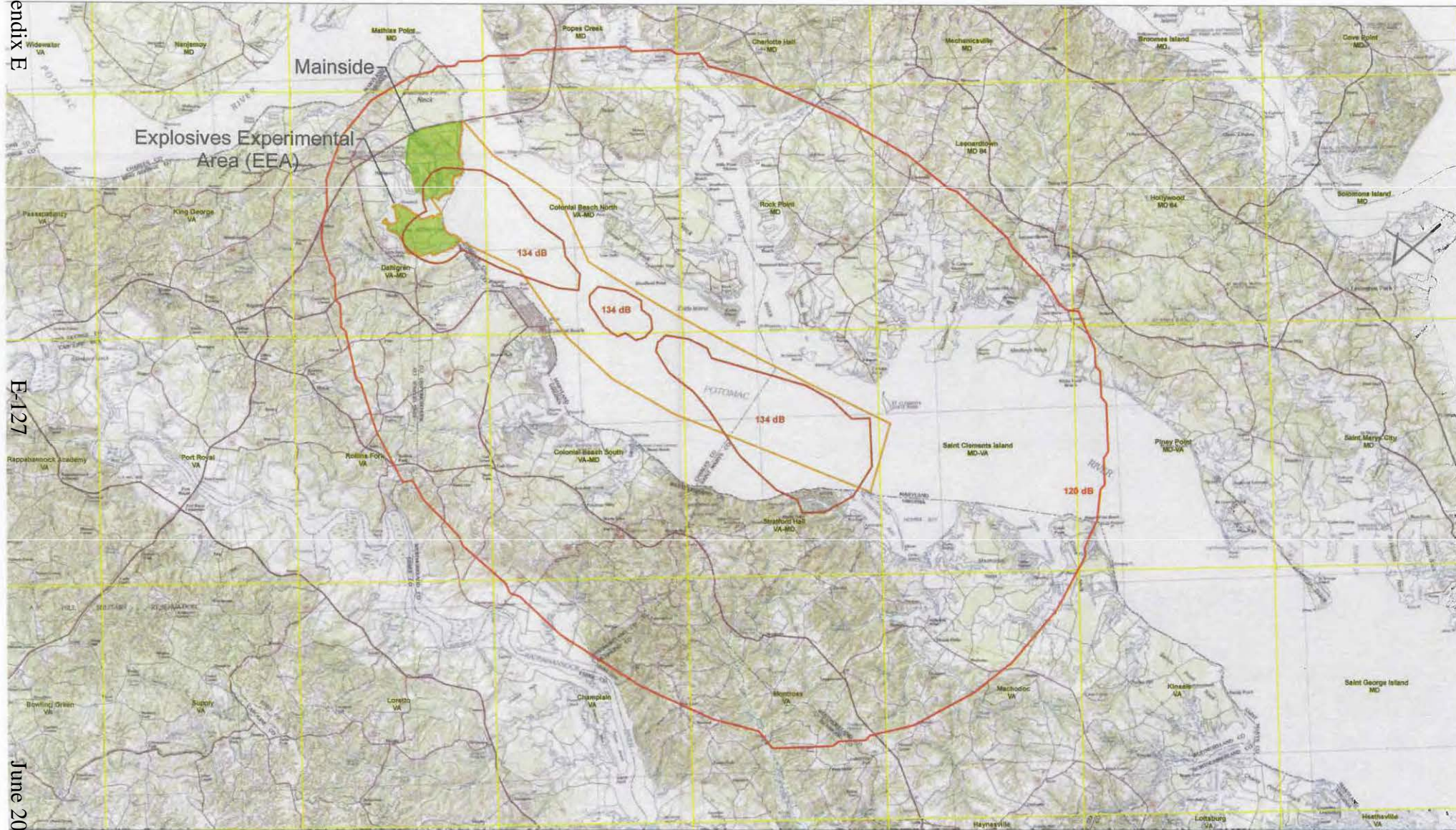


# Historic Architectural and Archaeological Areas of Potential Effect

Appendix E

E-127

June 2013

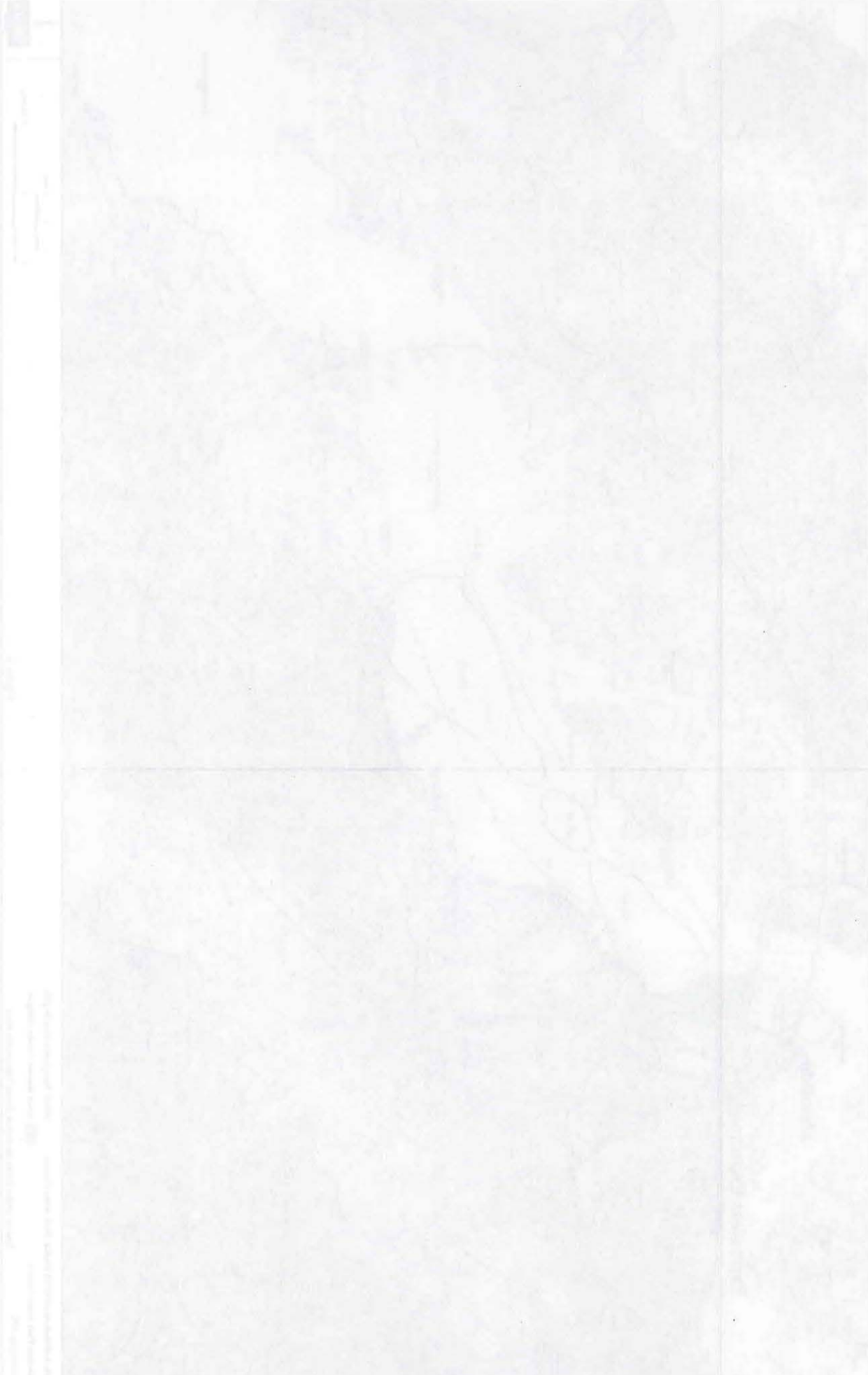


Historic Architectural APE/120 Decibel Peak Noise Contour  
 134 Decibel Peak Noise Contour  
 Archaeological APE  
 USGS Topographic Map 24,000  
 Naval Support Facility Dahlgren  
 Source: United States Geological Survey Topographic Maps

Figure 3







Historic Architectural and Landscape Views of Lincoln Park



# Identified Resources Within Historic Architectural Area of Potential Effect

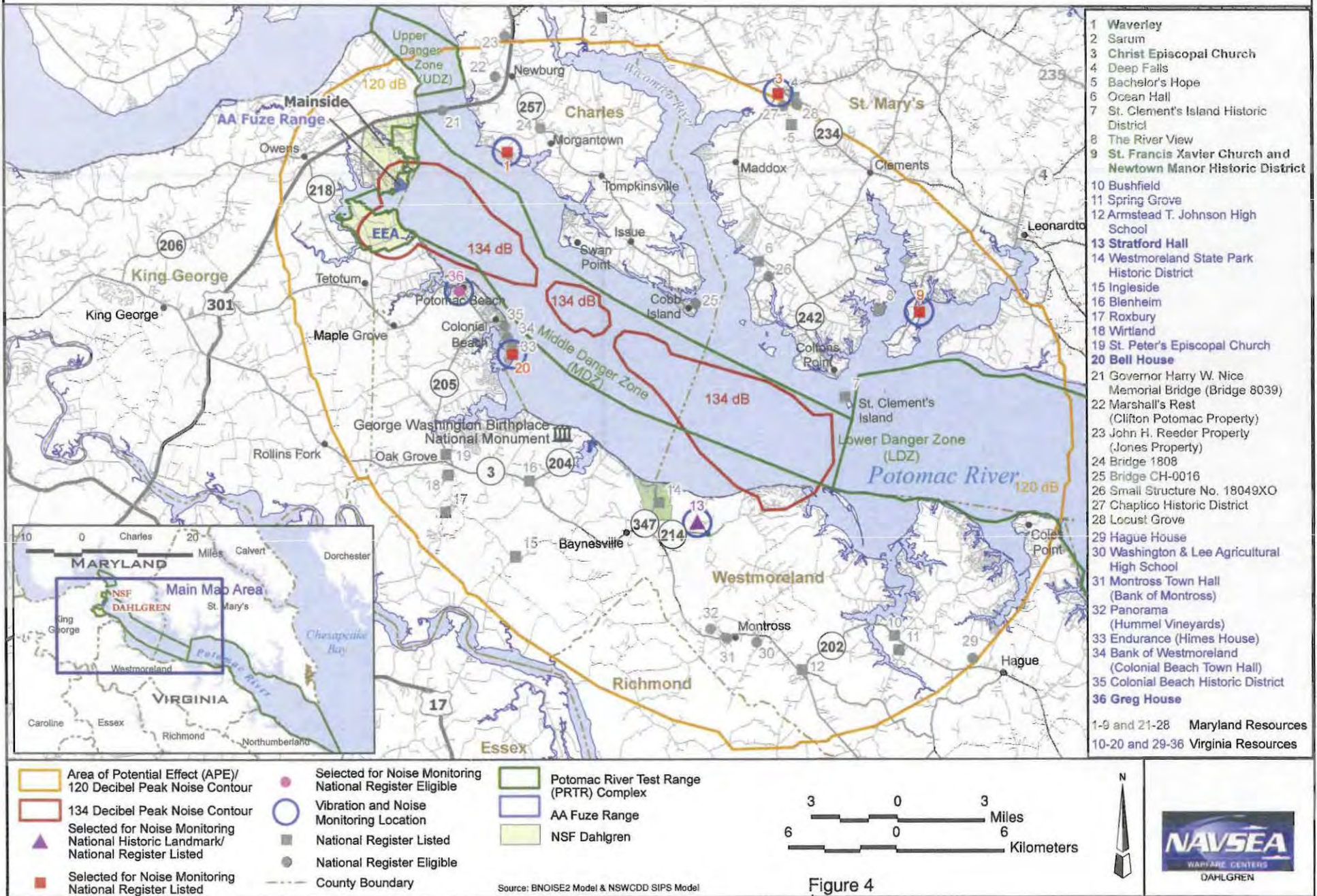
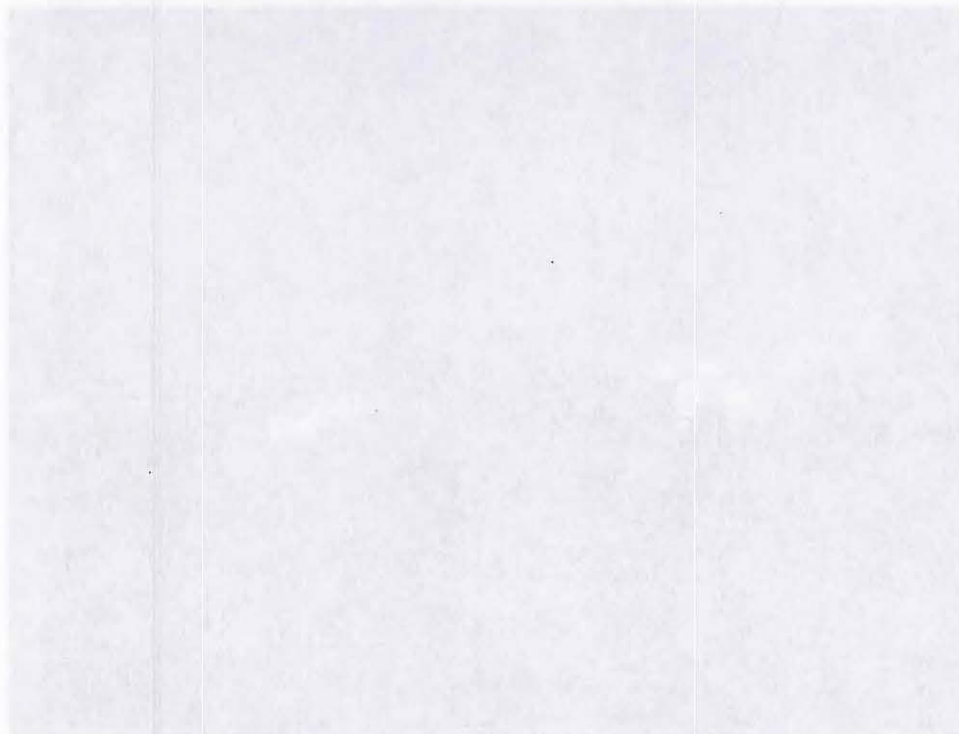


Figure 4









## **Appendix 1**

### **Photographs of the Project Site**

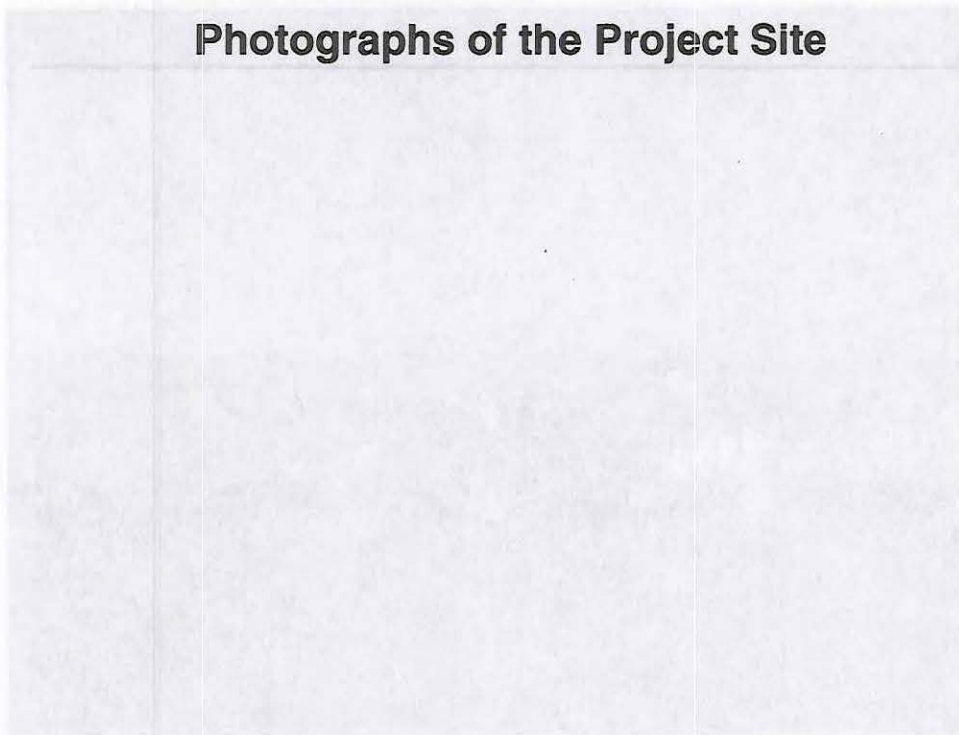




Photo 1: View of the firing line on the Main Range – Mainside, Potomac River Test Range Complex, one of the ranges where gun/projectile tests occur.

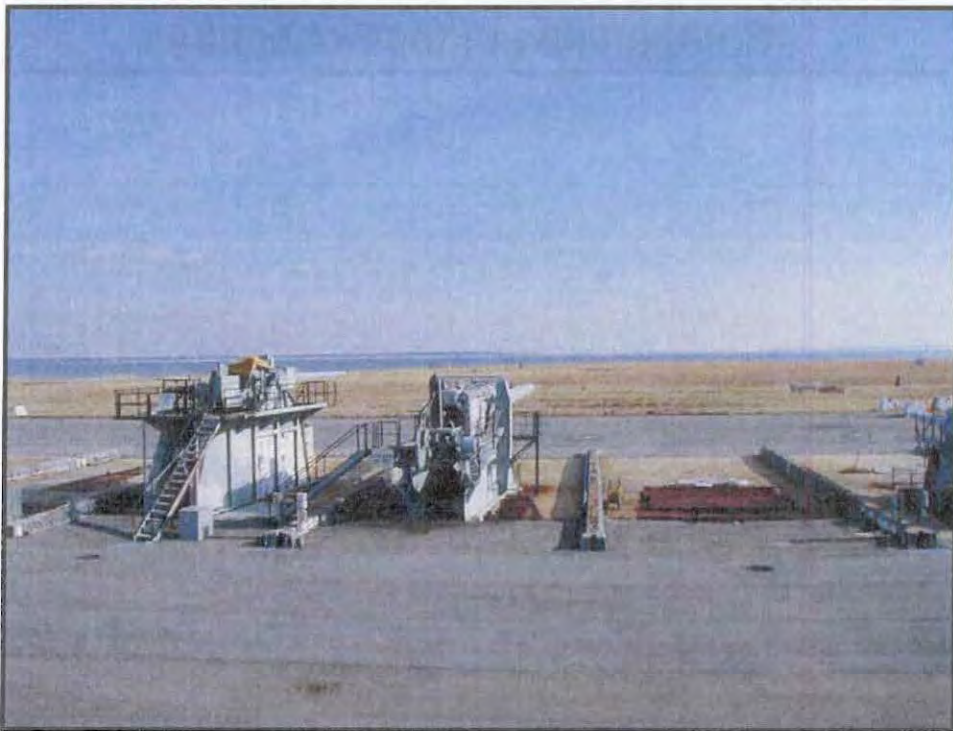


Photo 2: View of gun emplacements located in the Main Range, Mainside, Potomac River Test Range Complex. Gun/projectile tests are fired down the Potomac River from this location.



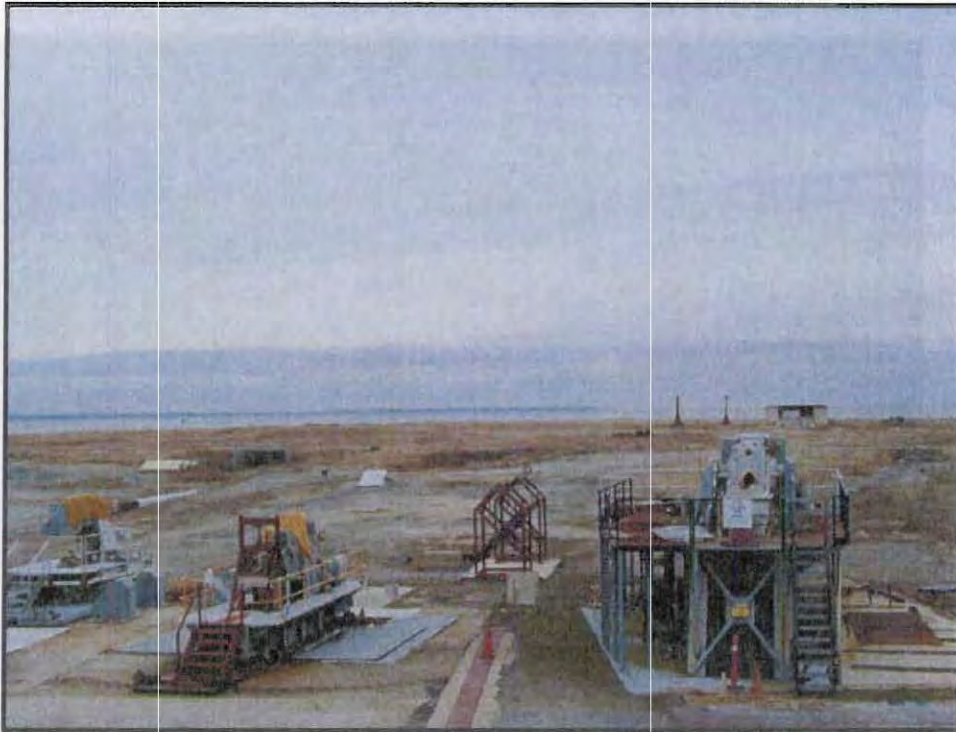


Photo 3: View of gun emplacements at the Terminal Range - Mainside, one of the ranges on the Potomac River Test Range Complex where gun-projectile tests occur. Gun/projectile tests are fired down the Potomac River from this location.



Photo 4: View of Building 409, Magazine, located in the Anti-Aircraft Fuze Range, Potomac River Test Range Complex. This range is one of the ranges where gun/projectile tests occur.





Photo 5: View of Building 9420, Firing Shelter, located in the Churchill Range, Explosives Experimental Area Range Complex (EEA). This range is one of two ranges on the EEA where detonations occur.



Photo 6: View of Building 9421, Personnel Shelter, located in the Harris Range, EEA Complex. This range is one of two ranges on the EEA where detonations occur.



**Section 106 Consulting Parties  
Environmental Impact Statement  
Naval Surface Warfare Center, Dahlgren Site  
Outdoor Research, Development, Test and Evaluation Activities  
Dahlgren, Virginia**

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Cherokee Nation

Cherokee Nation  
P.O. Box 948  
Tahlequah, Oklahoma 74465

Phone: 918-453-5000  
Website: <http://www.cherokee.org>

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Eastern Shawnee Tribe of Oklahoma

Mrs. Robin Dushane  
Cultural Resources Specialist  
Eastern Shawnee Tribe of Oklahoma  
127 West Oneida Street  
PO Box 350  
Seneca, Missouri 64865

Admin. Phone: 866-674-3766

Website: [www.easternshawnee.org](http://www.easternshawnee.org)

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Absentee Shawnee Tribe of Oklahoma  
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Shawnee, Oklahoma 74801

Phone: 405-275-4030

Website: <http://www.atribe.com>

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***Native American Tribal Contacts – Maryland SHPO***

Mr. E. Keith Colston  
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Maryland Commission on Indian Affairs  
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Phone: 410-767-7631

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***Virginia Department of Historic Resources***

Department of Defense Projects

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Virginia Department of Historic Resources  
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## ***Maryland Historical Trust***

### Review and Compliance

Ms. Elizabeth J. Cole  
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Crownsville, Maryland 21032-2023

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### Underwater Archaeology

Ms. Susan Langley  
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## ***Historical Societies and Museums, Virginia***

Ms. Virginia Brown  
President  
Northern Neck of Virginia Historical Society  
43 Courthouse Square  
PO Box 716  
Montross, Virginia 22520

Phone: 804-493-8440 (see Westmoreland County Museum and Library, Inc.)

---

Ms. Elizabeth Lee  
President  
King George County Historical Society  
PO Box 424  
King George, Virginia 22485

Museum street address:  
9483 Kings Highway  
King George, Virginia, 22485

Phone: 540-775-9477  
E-mail: [inquiry@kghistory.org](mailto:inquiry@kghistory.org)

---

Mr. Walter Heyer  
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Westmoreland County Museum and Library, Inc.  
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Museum street address:  
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Montross, Virginia, 22520

Phone: 804-493-8440  
Fax: 804-493-1312  
E-mail: [westmorelnmuse@rivnet.net](mailto:westmorelnmuse@rivnet.net)

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Mr. A. Wiatt Garland  
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Northumberland County Historical Society  
PO Box 221  
Heathsville, Virginia 22473

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Ms. Courtney Sisson  
Museum Director  
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Phone: 804-333-3607  
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James Monroe Birthplace Foundation  
1009 Bainbridge Street  
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G. William Thomas, President  
James Monroe Foundation  
Phone: 804-231-1827  
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---

### ***Historical Societies and Preservation Organizations, Maryland***

Ms. Kaye O'Kelley  
Historical Society of Charles County  
PO Box 2806  
La Plata, Maryland 20646

Phone: 301-934-2564

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Mr. Richard Gass  
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St. Mary's County Historical Society  
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Mr. David Rose  
Charles County Historical Trust, Inc.  
Box 11430 Edgehill Road  
Newberg, Maryland 20664

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Ms. Roz Racanello  
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Southern Maryland Heritage Area Consortium  
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### ***County Governments – Virginia***

#### **Regional Planning Commission**

Mr. Jerry Davis  
Executive Director  
Northern Neck Planning District Commission  
The Regional Center  
457 Main Street  
PO Box 1600  
Warsaw, Virginia 22572

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Phone: 804-333-1900  
Fax: 804-333-5274  
E-mail: [jdavis@nnpdc17.state.va.us](mailto:jdavis@nnpdc17.state.va.us)

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### ***King George County, Virginia***

#### **King George County Planning Commission (works with Board of Supervisors)**

Ms. Jessica Herrink  
Mr. William A. Robie, Jr.  
King George County Planning Commission - Dahlgren  
King George County  
10459 Courthouse Drive  
King George, Virginia 22485-3865

Phone: 540-775-9181  
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---

### ***Westmoreland County, Virginia***

#### **Westmoreland County Planning Department**

Mr. Gary Ziegler  
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Westmoreland County  
PO Box 1000  
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Phone: 804-493-0120  
Fax: 804-493-0604  
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#### **Westmoreland County Planning Commission**

Mr. Robert McDermott  
Chair  
Westmoreland County Planning Commission  
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Montross, Virginia 22520

Phone: 804-493-1955

---

### ***Northumberland County, Virginia***

#### **Northumberland County Building and Zoning Department**

Mr. W.M. Knight  
Building Official, Director of Code Compliance  
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Fax: 804-580-8082  
E-mail: [bknight@co.northumberland.va.us](mailto:bknight@co.northumberland.va.us)

Mr. Wellington H. Shirley, Jr.  
Zoning Administrator  
Building Official, Director of Code Compliance  
PO Box 129  
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Fax: 804-580-8082  
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Northumberland County Planning Commission

Northumberland County Planning Commission  
c/o E. Luttrell Tadlock  
PO Box 129  
Heathsville, Virginia 22473

Phone: 804-580-8910 or 804-580-7921  
Fax: 804-580-8082

---

***Richmond County, Virginia***

Richmond County Administrative Office

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Environmental Compliance Officer  
Richmond County Administrative Office  
101 Court Circle  
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Richmond County Planning Office

Mr. Christopher H. Jett  
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101 Court Circle  
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## ***County Governments - Maryland***

### ***Charles County, Maryland***

#### Charles County Department of Planning and Growth Management

Ms. Cathy Hardy  
Community Planning Program Manager  
Charles County Department of Planning and Growth Management  
PO Box 2150  
La Plata, Maryland 20646

Phone: 301-396-5815  
E-mail: [hardyc@charlescounty.org](mailto:hardyc@charlescounty.org)

#### Charles County Planning Commission

Mr. Raymond Detig  
Chairman  
Charles County Planning Commission  
PO Box 2150  
La Plata, Maryland 20646

Phone: 301-645-0550 or 301-870-3000

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### ***St. Mary's County, Maryland***

#### St. Mary's County Historic Preservation Commission

Harold Willard, Chairman  
St. Mary's County Historic Preservation Commission  
22131 Point Lookout Road  
Leonardtown, Maryland 20650  
(Member: 3/30/03 to 6/30/08)

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Fax: 301-475-3526  
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#### St. Mary's County Department of Land Use and Growth Management

Ms. Teri Wilson  
Planner II – Historic Preservation  
St. Mary's County Department of Land Use and Growth Management  
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Leonardtown, Maryland 20650

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St. Mary's County Planning Commission

Mr. Stephen T. Reeves  
Chair  
St. Mary's County Planning Commission  
PO Box 653  
23115 Leonard Hill Drive  
Leonardtown, Maryland 20650

Phone: 301-475-4200, X1321

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***Naval Organizations***

Naval Historical Center  
Washington Navy Yard  
805 Kidder Breese Street, SE  
Washington, DC 20374-5060

Phone: 202-433-2331

Underwater Archaeology Branch  
Building 1, 2<sup>nd</sup> Floor

Phone: 202-433-9784/9787

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***Publicly Accessible National Historic Landmark***

***Westmoreland County, Virginia***

Stratford Hall Plantation\*

Paul C. Reber  
Executive Director  
Stratford Hall Plantation  
483 Great House Road  
Stratford, Virginia 22558

Phone: (804) 493-8038  
E-mail: [preber@stratfordhall.org](mailto:preber@stratfordhall.org)

\*Also National Register Listed

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Bell House

Ms. Anne Bolin  
Innkeeper  
Bell House Bed & Breakfast  
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Colonial Beach, Virginia 22443

Phone: 804-224-7000  
E-mail: [annebolin@thebellhouse.com](mailto:annebolin@thebellhouse.com)



Armstead Tasker Johnson High School Museum

Armstead Tasker Johnson High School Museum  
18849 King's Highway  
Montross, Virginia 22520

Phone: 804-493-7070

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St. Peter's Episcopal Church

St Peter's Episcopal Church  
Rev. Dr. Prentice Kinser III  
PO Box 177  
Montross, Virginia 22520

Phone: 804-493-8285

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Westmoreland State Park Historic District

Mr. William L. Jacobs  
Park Manager  
Westmoreland State Park  
1650 State Park Road  
Montross, Virginia 22520

Phone: 804-493-8821

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***Publicly Accessible National Register-Listed Properties***

***St Mary's County, Maryland***

St. Clements Island Historic District

Ms. Debra Pence  
Museum Division Manager  
St. Mary's County Museum Division  
c/o St. Clement's Island Museum  
38370 Point Breeze Road  
Colton's Point, Maryland 20626

Phone: 301-769-3235  
E-mail: [debra.pence@stmarysmd.com](mailto:debra.pence@stmarysmd.com)

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Christ Episcopal Church

The Reverend William Jessee Neat  
Rector  
Christ Episcopal Church  
37497 Zach Fowler Road  
Chaptico, Maryland 20621

Phone: 301-884-3451

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***Publicly Accessible National Monument***

***Westmoreland County, Virginia***

**George Washington Birthplace National Monument**

Mr. Vidal Martinez  
Superintendent  
George Washington Birthplace National Monument  
National Park Service  
1732 Popes Creek Road  
Washington's Birthplace, Virginia 22443-5115

Phone: 804-224-1732

Fax: 804-224-2142

Section 106 Consulting Parties  
Environmental Impact Statement  
Outdoor Research, Development, Test & Evaluation Activities  
Dahlgren, VA

1. Virginia State Historic Preservation Officer (SHPO)

Ms. Kathleen Kilpatrick  
Commonwealth of Virginia  
Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

2. Maryland SHPO

Ms. Elizabeth Cole  
Administrator, Project Review and Compliance  
Maryland Historical Trust  
100 Community Place  
Crownsville, Maryland 21032

3. Ms. Cathy Hardy  
Community Planning Program Manager  
Charles County Government - PGM  
La Plata, MD 20646

4. Mr. David Rose  
Planck, Inc.  
6C Industrial Park Drive  
Waldorf, MD 20602

5. Mr. Paul C. Reber  
Executive Director  
Stratford Hall  
483 Great House Road  
Stratford, VA 22558

Enclosure (3)

20120278

CONCURRENCE SHEET

X I concur that the NSWCDD RDT&E proposed action on the Potomac River Test Range bordered by Charles and St. Mary's counties, Maryland will have no direct or indirect adverse effect to archaeological resources within the Archaeological Area of Potential Effect (APE).

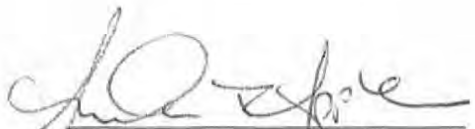
\_\_\_\_\_ I do not concur for the following reason(s):

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X I concur that the NSWCDD RDT&E proposed action on the Potomac River Test Range bordered by Charles and St. Mary's counties, Maryland will have no adverse effect on National Register of Historic Places eligible or listed properties within the Maryland portion of the Historic Architectural APE.

\_\_\_\_\_ I do not concur for the following reason(s)

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Elizabeth Cole - Amanda Apple  
Maryland Historic Trust  
Presentation Officer

6/11/12  
Date