Statement of Findings for Wetlands

for Proposed Flight 93 National Memorial

Stoneycreek Township,
Somerset County, Pennsylvania

Recommended: Joanne Hanley Oct 5, 2009
Joanne Hanley, Superintendent, Flight 93 National Memorial (NPS) Date

Concurred: _____
Bill Jackson, Chief, Water Resources Division (NPS) Date

Approved: _____
Dennis R. Reidenbach, Director, Northeast Region (NPS) Date

Introduction

On September 24, 2002, Congress passed the Flight 93 National Memorial Act (P.L. 107-226), creating the Flight 93 National Memorial. The Act authorizes a national memorial, "to commemorate the passengers and crew of Flight 93 who, on September 11, 2001, courageously gave their lives thereby thwarting a planned attack on our Nation's Capital" (NPS, 2007a).

The Act charged the Federal Advisory Commission to develop recommendations for the planning, design, construction, and long-term management of a permanent memorial at the crash site. Those recommendations were to be submitted to the Secretary of the Interior and Congress by September 2005. The Commission and its partners agreed that the recommendations would be developed through a public design competition (NPS, 2007b).

Registration opened for the public design competition on September 11, 2004, and was followed by a two-stage process involving public input and juries comprised of professionals, family members, National Park Service (NPS) staff, and members of the local community. The selected design for the Flight 93 National Memorial was announced on September 7, 2005 (NPS, 2007b). The selected design incorporated portions of existing on-site wetlands to represent a renewal of life in this field that experienced so many deaths. This decision to locate the design partially within existing wetlands has a direct, permanent effect on the wetlands.

The NPS has prepared and made available a Final General Management Plan and Environmental Impact Statement (Final GMP/EIS) for the Flight 93 National Memorial in Stoneycreek Township, Somerset County, Pennsylvania (NPS, 2007a), which incorporates the selected design.

Executive Order 11990 (Protection of Wetlands) requires the NPS and other federal agencies to evaluate the likely impacts of actions in wetlands. NPS Director's Order #77-1: Wetland Protection and Procedural Manual #77-1 provides NPS procedures for complying with Executive Order 11990. This Statement of Findings (SOF) documents compliance with the NPS wetland protection procedures.

Proposed Action

Completion of the preferred design alternative would involve full development of the site and implementation of the selected design, which would include:

- acquisition of approximately 1,355 acres comprising the crash site, the debris field and areas where human remains were found, and lands necessary for viewing and accessing the national memorial;
- acquisition of approximately 907 additional acres comprising the perimeter view shed to further protect the crash site;

- construction of an 8,000-square-foot visitor facility;
- construction of a 0.75 mile tree-lined Allee (10.5 acres);
- construction of 40 groves of 40 trees (25 acres);
- construction of a Ring Road which will parallel the Allee for 1.15 miles;
- construction of a plaza from which visitors may view the Sacred Ground;
- construction of foot paths;
- construction of a memorial feature, the "Tower of Voices";
- construction of an approach and return road;
- construction of parking areas; and
- construction of a new entrance from U.S. Route 30 to serve as access to the site.

This Statement of Findings addresses the first phase of development which includes:

- construction of an 8,000-square-foot visitor facility;
- construction of a 0.75 mile tree-lined Allee (10.5 acres);
- construction of 40 groves of 40 trees (25 acres);
- construction of a Ring Road which will parallel the Allee for 1.15 miles; and
- construction of a memorial plaza and associated parking area from which visitors may view the Sacred Ground.

Construction of the proposed visitor facility, tree groves, and plaza will not result in impacts to wetlands or other waters of the United States. Construction of the Allee, Ring Road, and minor bowl grading will result in permanent impacts to 1.99 acres of palustrine wetlands (emergent and open water), and 521 linear feet of intermittent stream (riverine wetland). Approximately 2.56 acres of vegetated wetland habitat will be created adjacent to the area of impacts as mitigation. These acreage figures represent the areas addressed in the Final GMP/EIS completed for the Flight 93 Memorial as well as the acreages included in the joint application for a 401/404 U.S. Army Corps of Engineers (USACE) permit under the Clean Water Act. However, for the purposes of this Statement of Findings, the NPS addresses only those wetlands included under the jurisdiction of the NPS Wetland Protection and Procedural Manual #77-1, which provides exceptions for the man-made wetlands on the site that were created as sedimentation basins for former mining operations. Therefore, the remainder of this document addresses only those wetlands under NPS jurisdiction; this includes impacts to 1.77 acres of emergent and open water wetlands (part of a wetland that had been constructed as a mitigation wetland) and the 521 linear feet of intermittent stream/riverine wetland.

Site Description

Wetlands

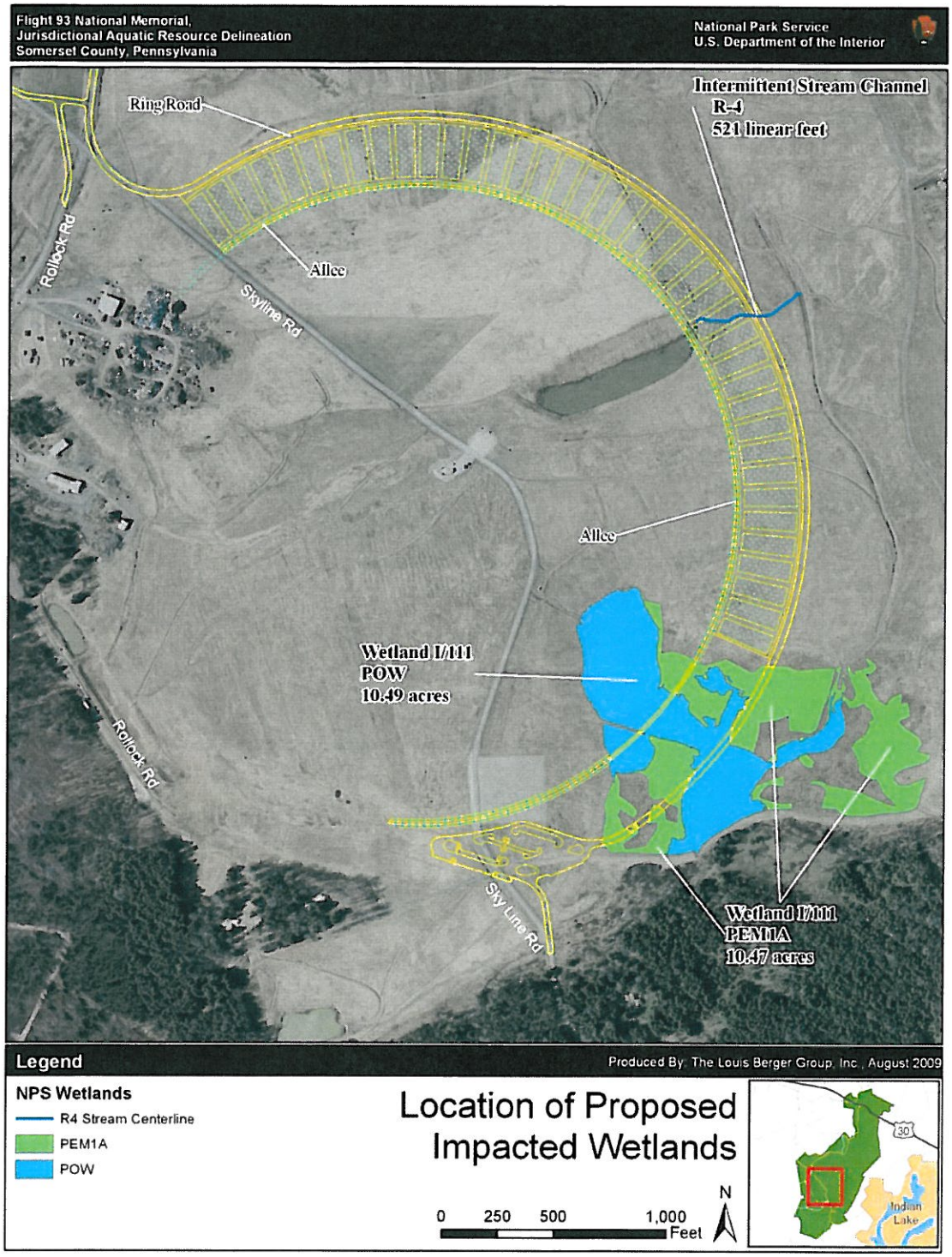
During the wetland survey, the following wetlands that reflect NPS jurisdiction were identified on the site:

Wetland I/111 (Wetland or Other WOUS ID: LBG-111/COE-I): This wetland system is comprised of a 10.49 acre man-made pond and approximately 10.47 acres of vegetated wetlands. Under the Cowardin system (Cowardin, 1979), the pond is classified as palustrine, open water system (POW), more specifically POWUB, indicating an unconsolidated bottom. The vegetated portion of this wetland is an emergent marsh, classified as PEM1A. This system is dominated by black willow (*Salix nigra*), broadleaf cattail (*Typha latifolia*), woolgrass (*Scirpus cyperinus*), common rush (*Juncus effusus*), broom sedge (*Carex scoparia*), and switchgrass (*Panicum virgatum*).

Wetland or Other WOUS ID: COE –L: This includes 521 feet of an intermittent stream channel that is classified under the Cowardin system as R4 or intermittent riverine wetland. The stream has a well defined bed and bank with substrate consisting of boulders, gravel, and mine spoil.

Figure 1 shows the general location of these wetlands and their respective classifications in the area where construction of the Allee and Ring Road will occur.

Figure 1. NPS Wetland Resources within the Flight 93 Project Area



Wetlands Functional Values Assessment

Wetland functions and values were evaluated using the U.S. Army Corps of Engineers (COE) New England District "Highway Methodology Workbook Supplement: Wetland Function and Values, A Descriptive Approach," (USACE, 1999). This descriptive method is acceptable in the Pittsburgh District of the COE; however, the Pennsylvania Department of Environmental Protection (PADEP) prefers to use the Wetland Evaluation Technique (WET II). WET II is not considered an acceptable evaluation method by the COE because WET II is not regionally sensitive and does not satisfy the concerns of the COE and the U.S. Fish and Wildlife Service. Additionally, the author of WET II, Dr. Paul Adamus, no longer considers WET II a reliable evaluation method of wetland functions and values because it is too generalized and does not consider regional conditions (Adamus, 2009, personal communication). To satisfy the needs of both regulatory agencies (COE and PADEP), an agreement was made between representatives of the NPS and PADEP that the functions and values of wetlands would be evaluated using the New England Highway Methodology, but a ranking of Low, Moderate, or High would also be provided. The New England Highway Methodology considers 13 function(s)/values; classification of wetlands as Low, Moderate, or High was determined in the following manner:

- Low: The evaluated wetland met between 1 and 4 principal function(s)/values
- Moderate: The evaluated wetland met between 5 and 9 principal function(s)/values
- High: The evaluated wetland met between 10 and 13 principal function(s)/values

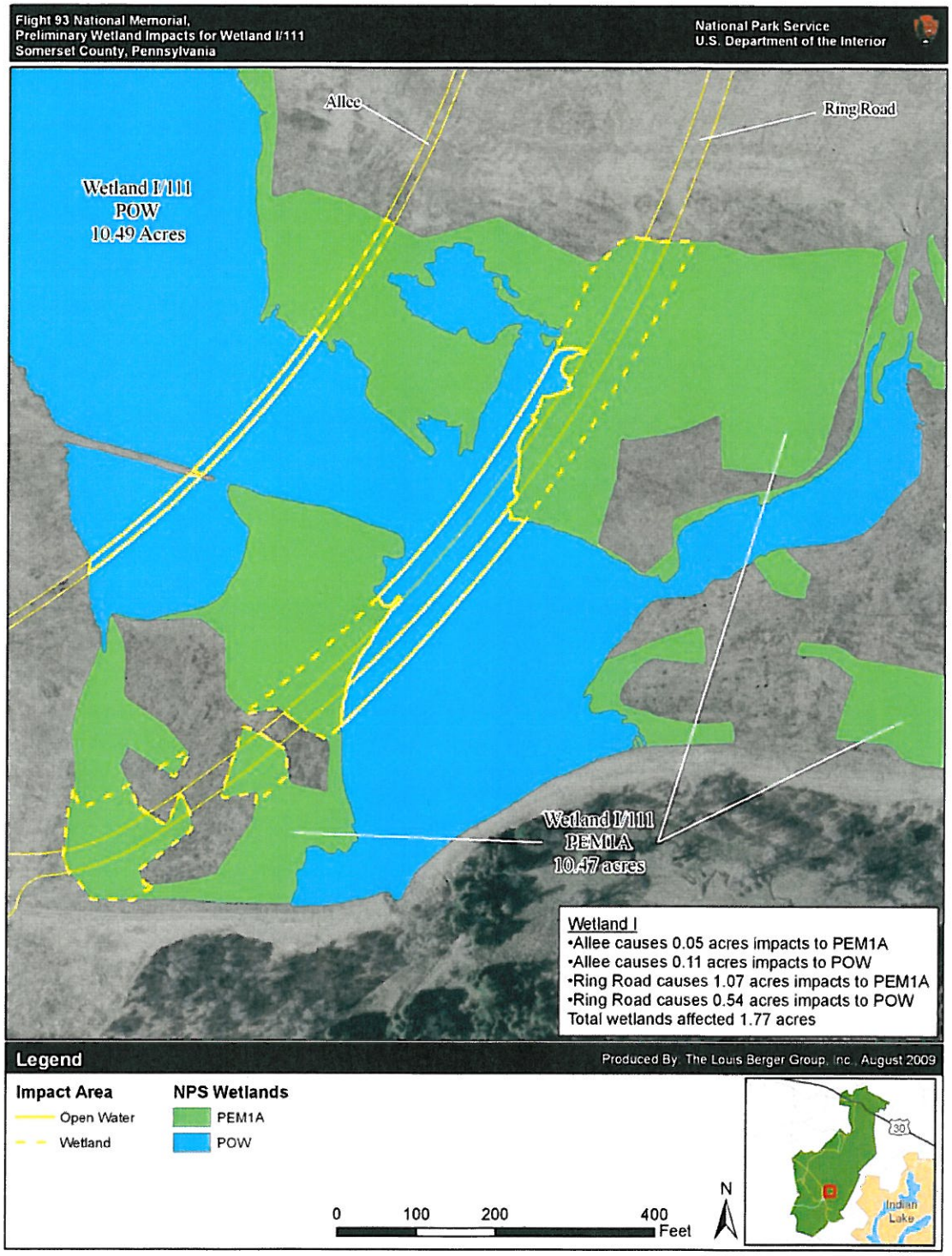
The following functions and values were ascribed to the NPS wetland systems present on the site:

- **Wetland I/111 (Wetland or Other WOUS ID: LBG-111/COE-I)**: This wetland system is comprised of a 10.49 acre man-made pond (POW) and approximately 10.47 acres of PEM1A vegetated wetland (previously constructed as a wetland mitigation site). The principal functions and values of this wetland system include groundwater discharge/recharge, flood flow alteration, sediment/toxicant retention, fish and wildlife habitat, and visual quality/aesthetics. Five of the 13 principal functions/values were met; thus, this wetland complex was ranked as providing moderate functions and values. Figure 2 shows the proposed 1.77 acres of impact to this wetland system, which includes 1.12 acres of vegetated wetlands and 0.65 acre of open water.

- **Wetland or Other WOUS ID: COE –L:** This riverine wetland (R4) will be directly disturbed by construction of the Allee and Ring Road and tree groves (figure 3). The New England

Highway Methodology does not readily lend itself to assessing stream quality, functions, or values, thus its functions and values were not assessed using that analysis. However, this intermittent stream is essentially a rock-lined ditch on a reclaimed mine site, and it displays sign of erosion and contains mine spoil. Therefore, it has little functional value. The 521 feet that will be disturbed can be seen on Figures 1 and 3.

Figure 2. Impacts to Wetland I/111



Justification for Use of the Wetlands

The purpose of this project is to provide a memorial "to commemorate the passengers and crew of Flight 93 who, on September 11, 2001, courageously gave their lives thereby thwarting a planned attack on our Nation's Capital" (NPS 2007a), and to create a Visitor Facility that will educate the public about the events that occurred on that day. Each of the five finalists in the design competition incorporated the previously mentioned wetlands. In the winning design, the wetland area is meant to represent a renewal of life in this field that experienced so many deaths. Thus, the nature of the design determined that the Allee and Ring Road would be routed through portions of two man-made waters of the United States and an intermittent stream; however, it is anticipated that there will be a net gain of vegetated wetlands because mitigation for the permanently impacted open water areas will not be in-kind. Instead, vegetated wetlands will be created to mitigate the impacts to the mostly open water habitat. Appropriate permits will be obtained for all proposed construction (see Compliance Section).

Investigation of Alternative Sites and Designs

In addition to the proposed action, the NPS and its partners explored a reasonable range of options for developing the memorial. Some of these options were considered infeasible or were determined to not fully meet the mission of the memorial or the challenges of the site. The alternatives that were subsequently eliminated from further consideration include the following:

No Action. The No Action alternative provides a baseline from which change can be measured through comparison and evaluation of the Preferred Design Alternative. This alternative does not meet project needs.

Memorial on Mall in Washington, DC. The establishment of a memorial on the Mall in Washington, DC, instead of in Pennsylvania was considered. This idea was not carried forward because the Flight 93 National Memorial Act states that a memorial should be developed at the crash site in Somerset County, Pennsylvania, and because this site is the final resting place of the 40 passengers and crew members of Flight 93.

Memorial to Commemorate all Victims of September 11, 2001. The concept of developing a memorial to collectively commemorate the events and all victims of September 11, 2001 was considered. The Flight 93 National Memorial Act is specific in its authorization to create a national memorial. However, it is anticipated that interpretive materials and displays would make such connections and complement the presentations at the memorials in New York City and the Pentagon in Arlington, Virginia, both of which had been initiated before planning began for the Flight 93 National Memorial.

International Design Competition Concepts. Through an open International Design Competition process, design professionals and the public were offered an opportunity to actively participate in the creation of the memorial by submitting their ideas for the Flight 93 National Memorial. Four preliminary alternatives were explored in greater detail through the International Design Competition.

The impacts of the four design concepts originally considered (and the no action alternative) on wetlands and other waters of the United States are summarized in Table 1 (EADS Group, 2009) (see first four alternatives listed after no action). All of the alternatives considered impacted wetlands to some degree, and only the GMP baseline alternative met the project needs. The avoidance alternatives and the bridging alternative impacted less wetland acreage but did not meet project needs. The avoidance alternatives would decrease the number of groves possible, place the pedestrian walkway adjacent to the road, and increase the Allee slope, thus impacting Americans with Disability Act requirements. The bridging alternative would increase the project cost by over $11 million and potentially damage the clay liner of the wetland that this alternative would be designed to avoid.

Table 1 - Summary of Impacts from Design Alternatives
(from EADS Group 2009, Alternatives Analysis, Exhibit Q)

Alternatives	Impacts (Acreage)					Meets Project Needs	
	Total Wetland Impacts	Vegetated Wetland Impacts	Non-Vegetated Wetlands	Drainage Courses (feet)	Waters of the U.S.	Yes	No
GMP/EIS Alternatives							
No Action	0	0	0	0			X
Baseline Design Alternative	8.50	4.85	3.65	920	Yes	X	
Avoidance Alternatives							
Alternative 1: Smaller Circle	0.27	0.27	0	0	Yes		X
Alternative 2	0.02	0.02	0	521	Yes		X
Minimization Alternatives							
Alternative 1: Bridging Wetlands	1.10	0.60	0.50	521	Yes		X
Alternative 2: Minimized Baseline Alternative	1.99	1.24	0.75	521	Yes	X	

Of all the designs considered, the baseline design alternative under the GMP was considered the preferred alternative because it met all of the project needs for the Flight 93 National Memorial such as, defining the Sacred Ground thru design continuity, complying with the Flight 93 Act, and optimizing access for disabled visitors. However, it had approximately 8.50 acres of wetland impacts. Therefore, the preferred alternative was further refined in order to minimize wetland impacts as much as practical. The baseline design was reduced in size by five percent to reduce the wetland impacts and avoid impacting the dam for the constructed wetland. This reduced the wetland impacts to approximately eight acres. In an effort to further reduce wetland impacts, the Ring Road slopes were lowered and steepened as they pass through the constructed wetland. In addition a boardwalk will be constructed for the Allee rather than using an earthen-fill embankment walkway. These minimization efforts reduced the wetland impacts to approximately 1.99 acres total for the preferred alternative, of which 1.77 acres are under NPS jurisdiction. The new minimized baseline alternative was carried forward as the selected alternative.

Wetland Mitigation

Wetland mitigation includes avoidance, minimization, and compensation. As described above, avoidance was not possible given the approved design concept and project needs, and minimization was used to reduce total wetland impacts of the preferred alternative from 8.50 acres to 1.77 acres of NPS wetlands, while still meeting the project needs. With these measures, the Flight 93 National Memorial will permanently impact 1.14 acres of NPS palustrine emergent wetland, 0.85 acres of NPS palustrine open water wetland, and 521 feet of riverine wetland (intermittent stream channel). Impacts to these resources will be compensated for through onsite mitigation. The 1.77 acres of impact will be mitigated at an approximately 1:1 ratio by the expansion of wetland I/111 to the north. The intermittent stream will be relocated and reconstructed to the south of its original location on the inside of the Allee, its length extended to 1,314 feet. Table 2 provides a summary of impacts and mitigation for NPS jurisdictional wetlands (modified from EADS Group, 2009), and Figure 3 depicts the proposed compensation sites and stream relocation.

Table 2 - Impact and Mitigation Summary
(modified from EADS Group 2009, Mitigation Plan, Exhibit R)

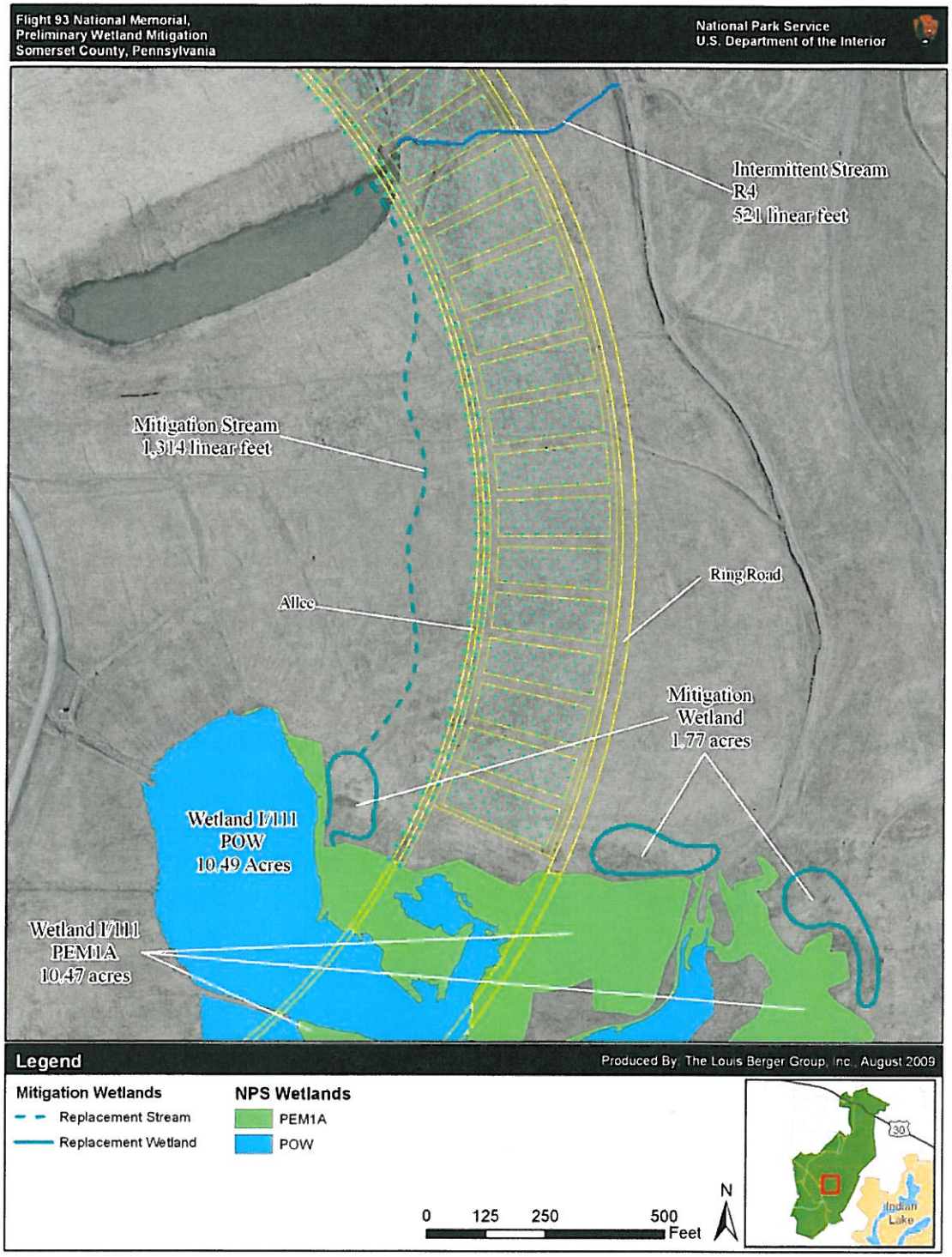
Waters ID	Wetland Type	Area	Latitude	Longitude	Impact Type	Impact Acres	Proposed Mitigation
I/111	Emergent Wetland / Open Water	20.96 acres	40.0518	-78.896731	Permanent	1.77	Expand I/111 - 1.79 acre
					Temporary	2.09	N/A

Waters ID	Tributary Type	Length	Latitude	Longitude	Impact Type	Impact Length	Proposed Mitigation
L	Unnamed Intermittent Tributary 1	2,570 feet	40.05546	-78.894453	Permanent	521 feet	Relocation into new 1,314-foot channel
					Temporary	N/A	N/A

To offset the 1.77 acre impact to Wetland I/111 the northern boundary of Wetland I/111 will be expanded in three areas by 1.79 acres. This will be accomplished by lining the substrate (below a layer of topsoil) with 12 inches of compacted clay that will form a hydrologic seal to prevent surface water filtration. The clay liner will be an extension of the clay liner underlying the existing wetland. Additionally, a variety of hydrophytic species will be planted.

The intermittent stream channel will be reconstructed south of its original location on the inside of the Allee. The new 1,314 linear feet meandering channel will be 15 feet wide, which is sufficient to carry water from a 100-year storm event. This represents a 793 foot increase in length from the original stream, and the design will be similar to the original channel, with a geotextile liner and rock base.

Figure 3. Mitigation Wetlands, Including Reconstruction of Stream Channel



Compliance

Clean Water Act Section 404
The proposed action impacts waters of the United States as defined by the Clean Water Act and are therefore subject to review by the U.S. Army Corps of Engineers. The Clean Water Act Section 404 regulates the discharge of dredged or fill material into waters of the United States. A joint application for 401 water quality certification and U.S. Army Corps of Engineers Section 404 permit was completed on July 28, 2009.

National Environmental Policy Act
The Environmental Impact Statement, Section 106 Compliance Review, this Statement of Findings for Executive Order 11990, and the Record of Decision will complete the requirements for the National Environmental Policy Act for this project.

Dam Safety and Encroachments Act Chapter 105
The proposed action impacts waters of the United States as defined by the Dam Safety and Encroachments Act Chapter 105 of the Pennsylvania Department of Environmental Protection (PaDEP). The Dam Safety and Encroachments Act Chapter 105 provides wetland permitting criteria, mitigation, and replacement requirements for waters of the state of Pennsylvania. The NPS, as a federal agency, is exempted from needing a Chapter 105 permit and is therefore following the federal process, but has prepared the permit with information and forms that would be required for a joint permit.

Conclusion

The proposed action was designed to minimize impacts to wetlands and to compensate for unavoidable impacts to wetlands. The total area of 1.77 acres of NPS wetland impact will be compensated with 1.79 acres of created wetland. The loss of 512 feet of riverine wetland channel will be replaced with 1,314 feet of new channel. Creation and restoration of wetland areas will be funded through the Line Item Construction Program and additional funding may be provided by the NPS. It is expected that the planted areas of emergent wetlands will take one to two growing seasons to fill in. The planted areas will be monitored through the first two growing seasons to ensure that the plants are acclimating.

The NPS finds that this proposed action is consistent with the policies and procedures of NPS Director's Order #77-1: Wetland Protection, including the "no-net-loss of wetlands" policy.

References

Adamus, Paul. 2009. Personal communication with Chris Flannagan of the Louis Berger Group on January 13, 2009 regarding use of WET II .

Cowardin, Carter, Golet, and LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Prepared for the Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

EADS Group. 2009. Joint Application for 401 Water Quality Certification and US Army Corps of Engineers Section 404 Permit.

National Park Service, Department of the Interior (NPS).
2007a. Flight 93 National Memorial General Management Plan/EIS.
2007b. Pre-Design Report: Flight 93 National Memorial.

NPS Directors Order 77-1: Wetland Protection. 2008. Accessed at: http://www.nps.gov/policy/DOrders/DO77-1-Reissue.htm.

NPS Procedural Manual #77-1: Wetland Protection Procedural Manual. 2008. Accessed at: http://www.nps.gov/water/wetlands/Wetlands_Protection_Manuals.cfm.