UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION MEMORANDUM

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environm ental Policy Act (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of reestablishment of water control - Unit II at Prime Hook National Wildlife Refuge.

-is a categorical exclusion as provided by 516 DM 6 Appendix 1. No further documentation will be made (see instructions on back)

✓-is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

-is found to have special environmental conditions as described in the attached Environmental Assessment. The attached Finding of No Significant Impact will not be final no any actions taken pending a 30-day period for public review (40 CFR1501.4(e)(2)).

-is found to have significant effects, and therefore a "Notice of Intent" will be published in the Federal Register to prepare an Environmental Impact Statement before the project is considered further.

-is denied because of environmental damage, Service policy, or mandate.

-is an emergency situation. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):

ACTING Regional Director — Date 8/25/86

(1) Initiator — Date 8-6-86

(2) Refuge Supervisor — Date 8-18-86

AM 8/18/86

(3) ACTING ARD-Wildlife Resources — Date 8-19-86

(4) Regional Environmental Coordinator — Date 8/21/86

* As delegated by 4 AM 4.1 Director Order No. 5

** For Special Review (see instructions)

FINDING OF NO SIGNIFICANT IMPACT

Based on a review and evaluation of the information contained in the supporting reference enumerated below, I have determined that the project to re-establish water control in Unit II at Prime Hook National Wildlife Refuge, Milton, Delaware, is not a major Federal action which would significantly affect the quality of the human environment within the meaning of Section 102 (2) (c) of the National Environmental Policy Act of 1969. Accordingly, preparation of an environmental impact statement of the proposed action is not required.

Supporting Reference

The environmental assessment is attached. It summarizes the environmental impacts and the reason why a statement is not required. The assessment is on file at this office and is available for public inspection upon request.

ACTING Regional Director

Date 8/25/86

ENVIRONMENTAL ASSESSMENT

REESTABLISHMENT OF WATER CONTROL - UNIT II

PRIME HOOK NATIONAL WILDLIFE REFUGE

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ENVIRONMENTAL ASSESSMENT
REESTABLISHMENT OF WATER CONTROL - UNIT II
PRIME HOOK NATIONAL WILDLIFE REFUGE

ABSTRACT:

An environmental assessment for reestablishment of water control in Unit II of the Prime Hook National Wildlife Refuge was prepared in November, 1985. The Fish and Wildlife Service determined at that time that the project would not have a significant environmental effect and issued a Finding of No Significant Impact. Since that time new information has become available which bears upon the proposed action and its impacts. This revised assessment has been prepared to address these recent occurences.

I. PURPOSE AND NEED

Prime Hook National Wildlife Refuge was established in 1963, primarily to preserve coastal wetlands that are of high value as waterfowl habitat. The refuge is located within the Atlantic Coastal Plain on the west shore of Delaware Bay and east of Milton, Delaware (Figure 1). The refuge contains 8,817 acres of marsh and water, timber, brush and cropland. Flowage easements have been obtained on 882 acres. Habitat diversity is maintained and developed to provide a maximum variety of native plants and animals.

Prime Hook is managed primarily to provide nesting, resting and feeding habitat for migratory waterfowl. Providing black duck wintering habitat is an important objective. Production of waterfowl, especially black ducks and wood ducks, is becoming increasingly important. Recreation objectives are to provide wildlife-oriented recreational opportunities compatible with habitat and wildlife objectives. Increased emphasis is being placed on development of environmental education opportunities.

For management purposes, Prime Hook is divided into four units using highways which transect the refuge (Figure 1). This proposal concerns the rehabilitation of wetlands habitat in Unit II for the benefit of waterfowl, marsh-oriented birds and mammals, and for the public enjoyment of these resources.

Unit II was formerly a high quality freshwater marsh. Slaughter Creek, the most significant watercourse in the unit, flowed southeasterly across the unit to Prime Hook Creek south of what is now State Route (SR) 39. Landowners adjacent to the marsh dug Slaughter Canal in the early 1900's to improve drainage of their upland areas by channelizing water north to Cedar Creek. Portions of the unit were grid ditched during the 1930's for mosquito control. To maintain water within the marsh during the fall and winter (for muskrat trapping and waterfowl hunting), private owners built water control structures in three locations (Figure 2).

FIGURE 1

PRIME HOOK NATIONAL WILDLIFE REFUGE

SUSSEX COUNTY, DELAWARE

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

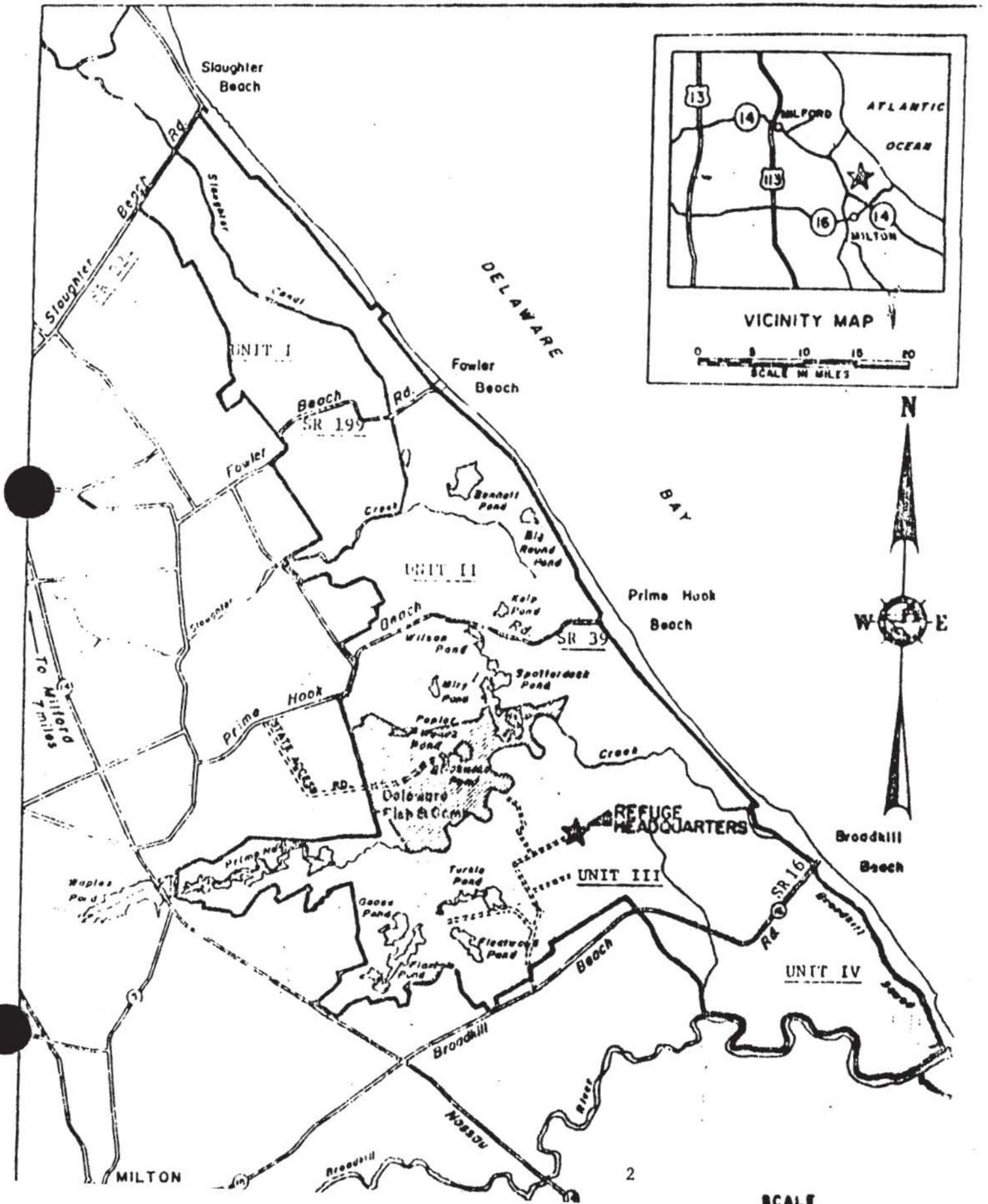

FIGURE 2 - FORMER WATER CONTROL STRUCTURES

PRIME HOOK NATIONAL WILDLIFE REFUGE

SUSSEX COUNTY, DELAWARE

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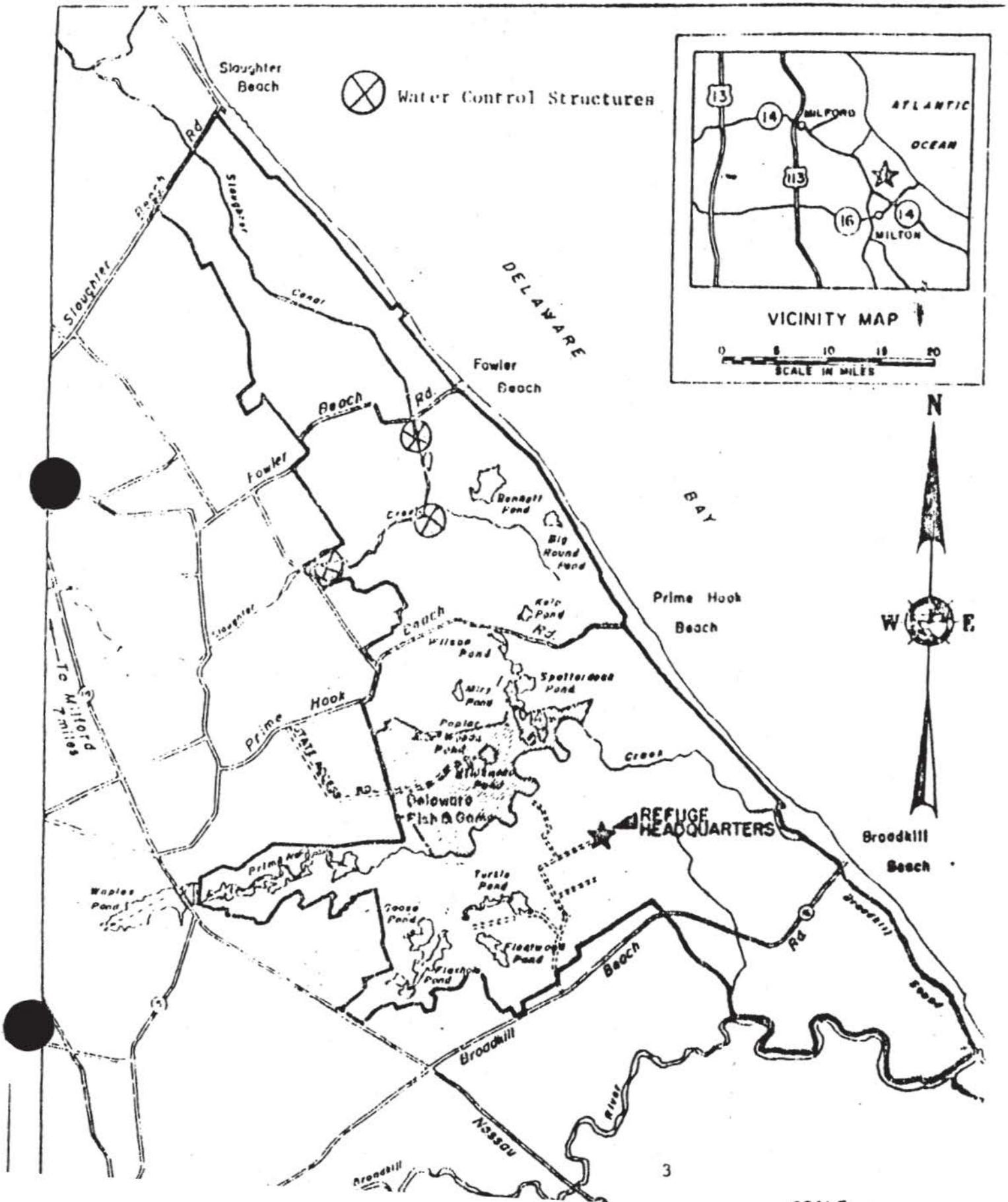


In 1963, the Service proposed a water management plan which outlined marsh management needs for the entire refuge (including management in Unit II) to the public. The plan was designed to provide water for the marsh without backing up water against upland areas. Local residents expressed strong opposition to the proposal and the State Drainage Engineer felt that it had the potential to flood or waterlog contiguous agricultural lands. A revised plan with inland canals to provide drainage of uplands was also strongly opposed. Subsequently, a "No Management" policy was adopted. This policy has resulted in a decline in the quality, quantity, and productivity of the marsh over the ensuing years.

Slaughter Canal vastly increased drainage within the marsh and upland areas and significantly altered tidal exchange. Improved drainage has dried the marsh until today, in Unit II, a narrow band of tidal marsh exists only along the edge of the canal and around Oak Island. The dredging may also have contributed to the colonization of Phragmites through sediment disturbance (Hoyt, 1980). Much of the remaining marsh has been occupied by dense stands of Phragmites, and many of its potholes have also been totally vegetated in by this pest plant.

Part of the Prime Hook Beach Development lies east of the marsh along Delaware Bay. Over 110 houses, used either as permanent or temporary residences, lie adjacent to Unit II. In addition to the loss of high quality marsh habitat, drying of the marsh and subsequent growth of Phragmites has increased the wildfire hazard to the nearby residential area.

Each spring, when Phragmites canes from the previous year are dry, an extreme fire danger exists. A wildfire in 1977 burned 1,000 acres in Unit II and threatened several houses in the adjacent Prime Hook Beach Development. Over 2,000 man hours were required to control that blaze.

During November, 1985 a wildfire burned approximately 960 acres in Unit II. Fortunately, during this conflagration an east wind prevailed, thus sparing the beach development from danger to people or property.

A number of Federal Laws, Executive Orders and State Laws have been enacted to protect wetlands and other interests. These documents have been reviewed to ensure compliance with the actions proposed in this assessment:

Executive Order 11988 - Floodplain Management
Executive Order 11990 - Protection of Wetlands
Antiquities Act of 1966
Archaeological and Historic Preservation Act of 1974
National Environmental Policy Act of 1969
State Wetlands Act
State Coastal Zone Act

Additional direction and guidance may be found in the final Recommendations on Management of the National Wildlife Refuge System, the National Waterfowl Management Plan, Program Management Documents and Annual Work Plan Advices which have recently placed greater emphasis on increasing quantity and quality of black duck wintering habitat.

II. ALTERNATIVES

By 1977 it was quite obvious that departure from the "No Management" policy would be necessary if the marsh was to be preserved. This assessment examines various alternatives for water management in Unit II. An intent common to each of the alternatives (other than no action) is to slow or stop the spread of Phragmites and to encourage marsh vegetation that provides food and cover for wildlife.

A. No Action

No action would consist of management of the Unit II marshland as currently conducted. It would be the least expensive of the alternatives. No water management would be practiced and no construction funds would be used. Only the lower lying portions of the marsh would receive regular flooding. Higher parts of the marsh would be flooded only during extreme tides or when washouts occurred along the dunes.

In September, 1985, approximately 1,300 acres of Phragmites in Unit II was sprayed with the chemical Rodeo. (Refer to Environmental Assessment "Marsh Vegetation Rehabilitation - Chemical control of Phragmites, Prime Hook National Wildlife Refuge" April 1983). Previous applications of this chemical in Unit III have produced excellent control of this species. Most commonly observed species following treatment were wild millet, nutsedge, pondweeds, smartweeds and rice cutgrass. It is expected that the same species will flourish in Unit II as a result of spraying in that area.

B. The Proposed Action: Slaughter Canal Water Control Structure

Phase 1 of the original proposed action, the temporary sheet piling dam across Slaughter Canal, will not be constructed. Factors in this decision included; the cost of the temporary structure installation as well as timely receipt of the permit necessary for installation, water level data gathering, and removal of the structure prior to agricultural operations on refuge-owned as well as private farmlands to the west of the unit. Data gathering was accomplished instead by a survey of the Unit II marsh perimeter conducted by Fish and Wildlife Service surveyors during January, 1986. The detailed results of the survey are available for public review at either the Prime Hook or Bombay Hook Refuge Offices. A summary of the results is included in the environmental consequences section of this assessment.

The second phase of this action would consist of construction of a multi-bay concrete water control structure across Slaughter Canal, south of the bridge on State Route 199 (Fowler Beach Road). Salt-treated timber sheeting or aluminum sheeting would be driven to tie the structure to the banks of the canal and to prevent water from spilling around the structure. This action would permit management of approximately 1,500 acres of marsh (Figure 3). A short access road from SR 199 to the structure would be required for its construction, operation, and maintenance.

Tidal flow, excess water from Unit III and, to a lesser extent, rainfall and upland runoff will provide water for the impoundment. Washouts through the dunes may also supply water.

C. Alternative #1 - Dike and Water Control Structure East of Slaughter Canal

This action will consist of constructing a low earthern dike for 6,000 feet southward from SR 199 to the edge of Oak Island. A small water control structure would be built across the old run of Slaughter Canal (Figure 4). The southernmost 1,600 feet (Dike 2-2) would be constructed of salt-treated, tongue and grove timber sheeting. The northernmost 4,400 feet (Dike 2-1), would be a low earthern dike with a top elevation of 3 feet msl, approximately 1.5 feet above the existing marsh elevation. Fill material for both sites would be from off-refuge pits. This action would permit management of approximately 1,100 acres of marsh. The water supply for this impoundment would be similar to the proposed action.

D. Alternative #2 - Relocate Alternative 1 Dike

The earthern portion (northern 4,400 feet) of the dike in Alternative 1 could be constructed along the banks of the Slaughter Canal. This would increase the size of the impoundment and freshwater marsh by about 70 acres; however, at the loss of a similar amount of salt marsh. Dike construction would be more expensive along the canal, and the dike would be more subject to erosion during peak flows within the canal (Figure 5).

E. Alternative #3 - Perimeter Diking

This alternative would create an impoundment by construction of 7.5 miles of perimeter diking (Figure 6). The diking would rise to 7 feet above the existing marsh level, have a 10 foot crown and a 3:1 slope. Ideally, management opportunities within the impoundments would be enhanced by creating two 650 acre sub-impoundments with a 1 mile cross dike. Up to three water control structures and a pumping station would be required. This alternative would require filling approximately 30 acres of marsh area.

Additionally, as Slaughter Canal would be contained within the impoundment, a 1 mile diversionary canal would be necessary to ensure drainage of the privately-owned farmlands to the west.

III. AFFECTED ENVIRONMENT

Two thousand years ago Slaughter Creek emptied into a lagoon which entered Delaware Bay through an inlet in the barrier beach. Five hundred years ago, much of the lagoon was completely filled in with organic, rich, fine grained sediments and several creeks existed. As the drainage to Delaware Bay continued to close, the area became poorly drained and dotted with freshwater ponds. Maps of 1868 show Slaughter Creek emptying into Prime Hook Creek (Hoyt, 1980).

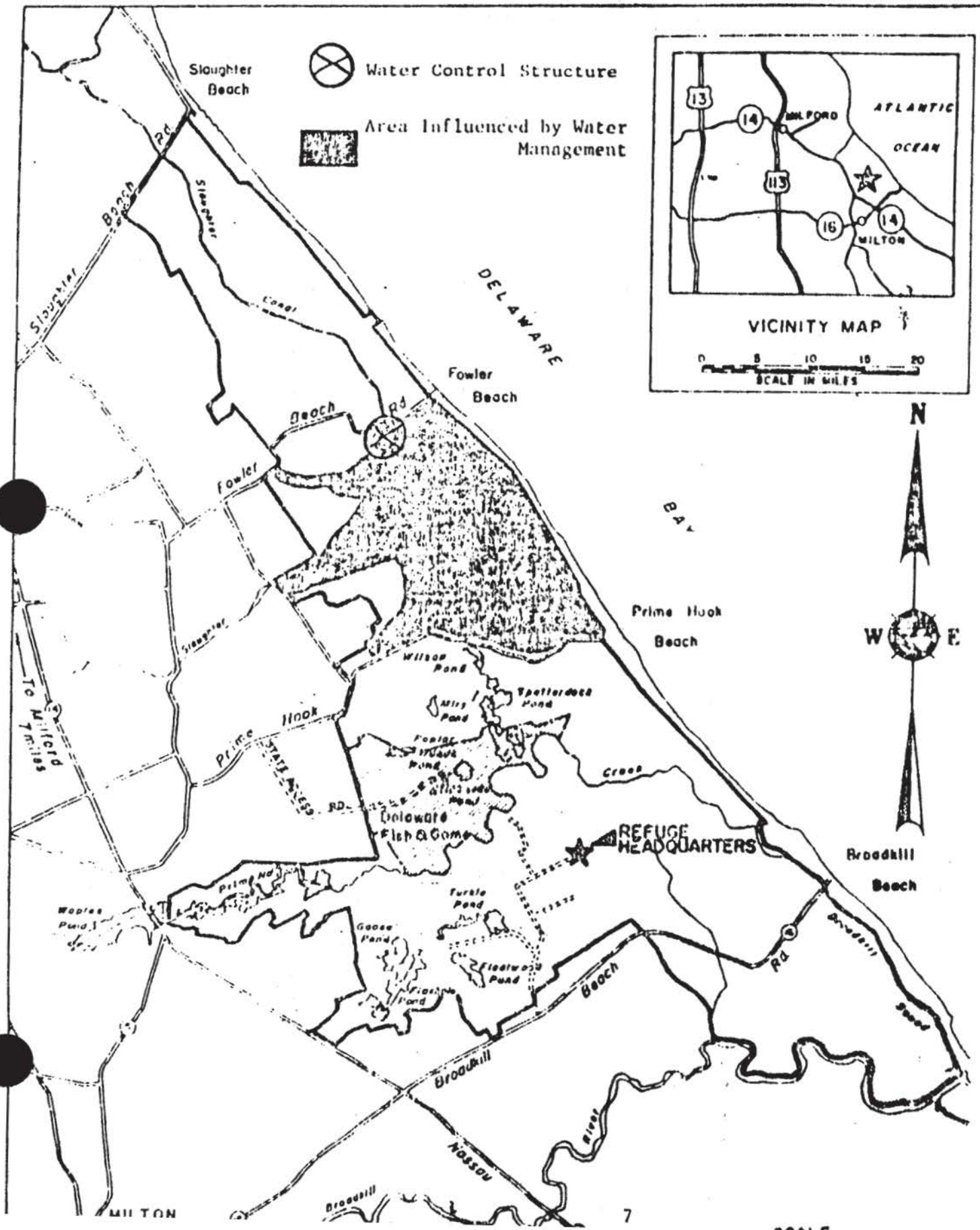
FIGURE 3 - PROPOSED ACTION

PRIME HOOK NATIONAL WILDLIFE REFUGE

SUSSEX COUNTY, DELAWARE

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



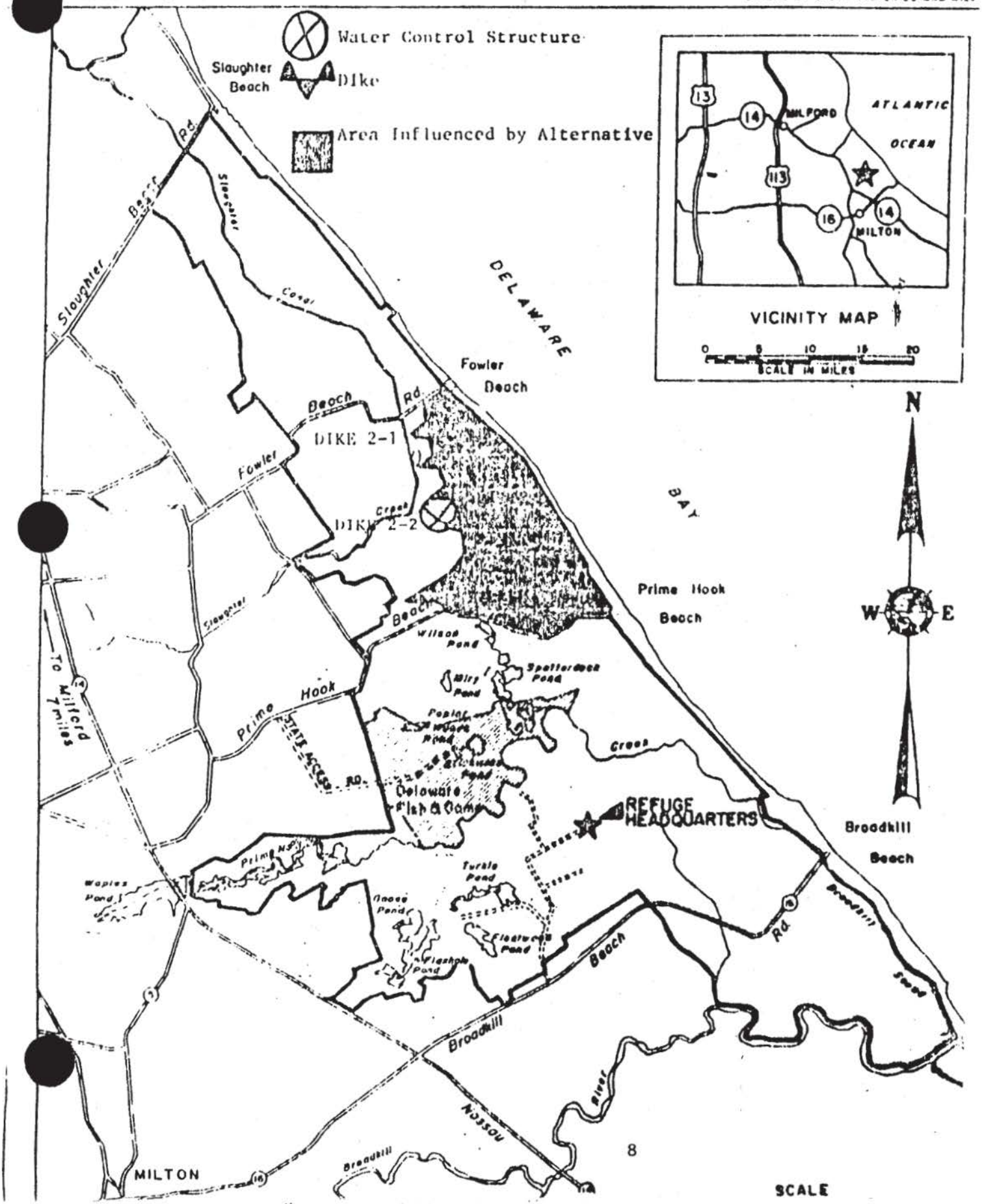
Alternative 1 - Dike and Water Control Structure -East of Slaughter Canal Figure 4

PRIME HOOK NATIONAL WILDLIFE REFUGE

UNITED STATES DEPARTMENT OF THE INTERIOR

SUSSEX COUNTY, DELAWARE

FISH AND WILDLIFE SERVICE BUREAU OF SPORT FISHERIES AND WILD



Alternative #2 - Relocate Alternative #1 Dike

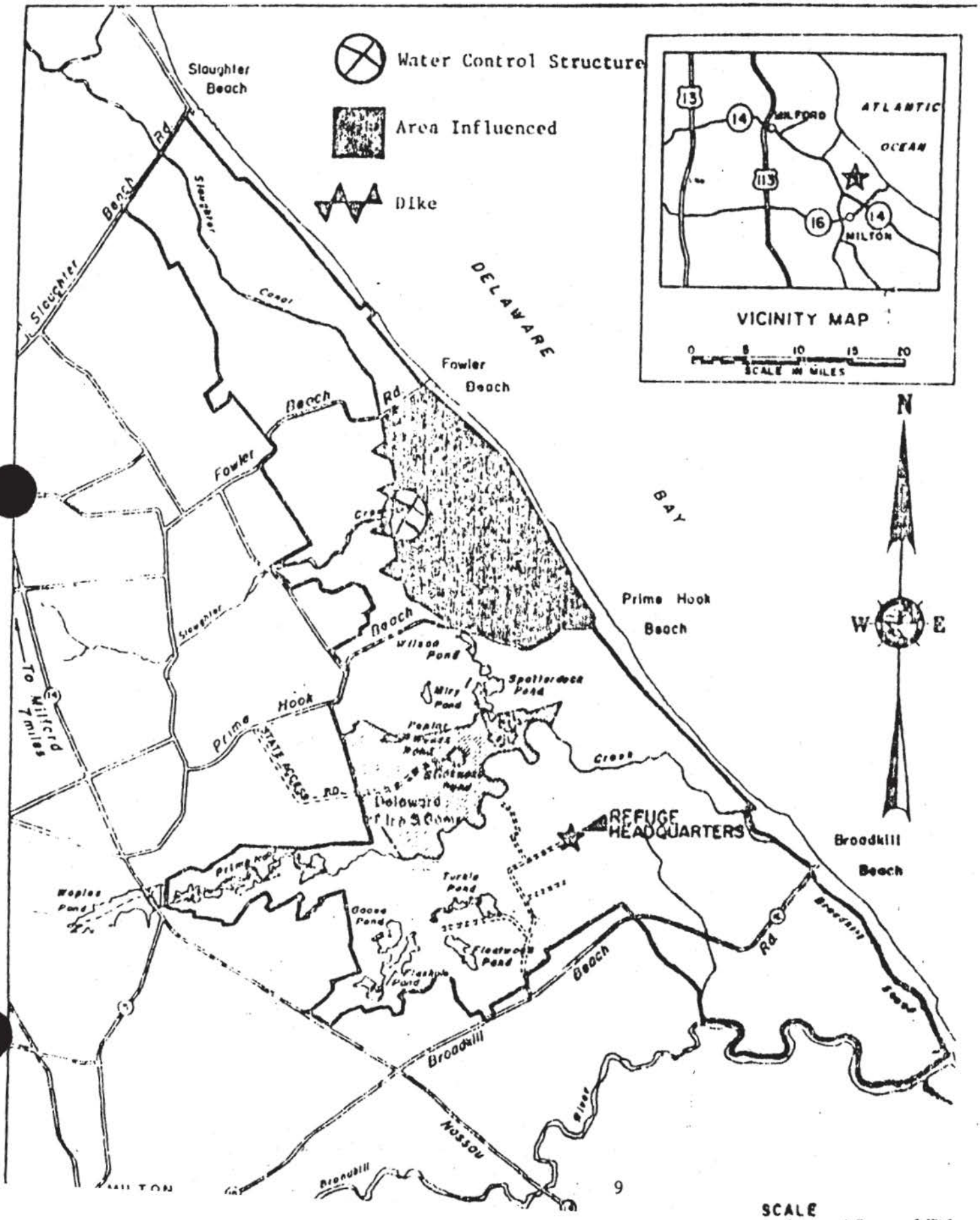
Figure 5

PRIME HOOK NATIONAL WILDLIFE REFUGE

SUSSEX COUNTY, DELAWARE

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE BUREAU OF SPORT FISHERIES AND WILDL



Alternative #3 - Perimeter Diking

Figure 6

PRIME HOOK NATIONAL WILDLIFE REFUGE

SUSSEX COUNTY, DELAWARE

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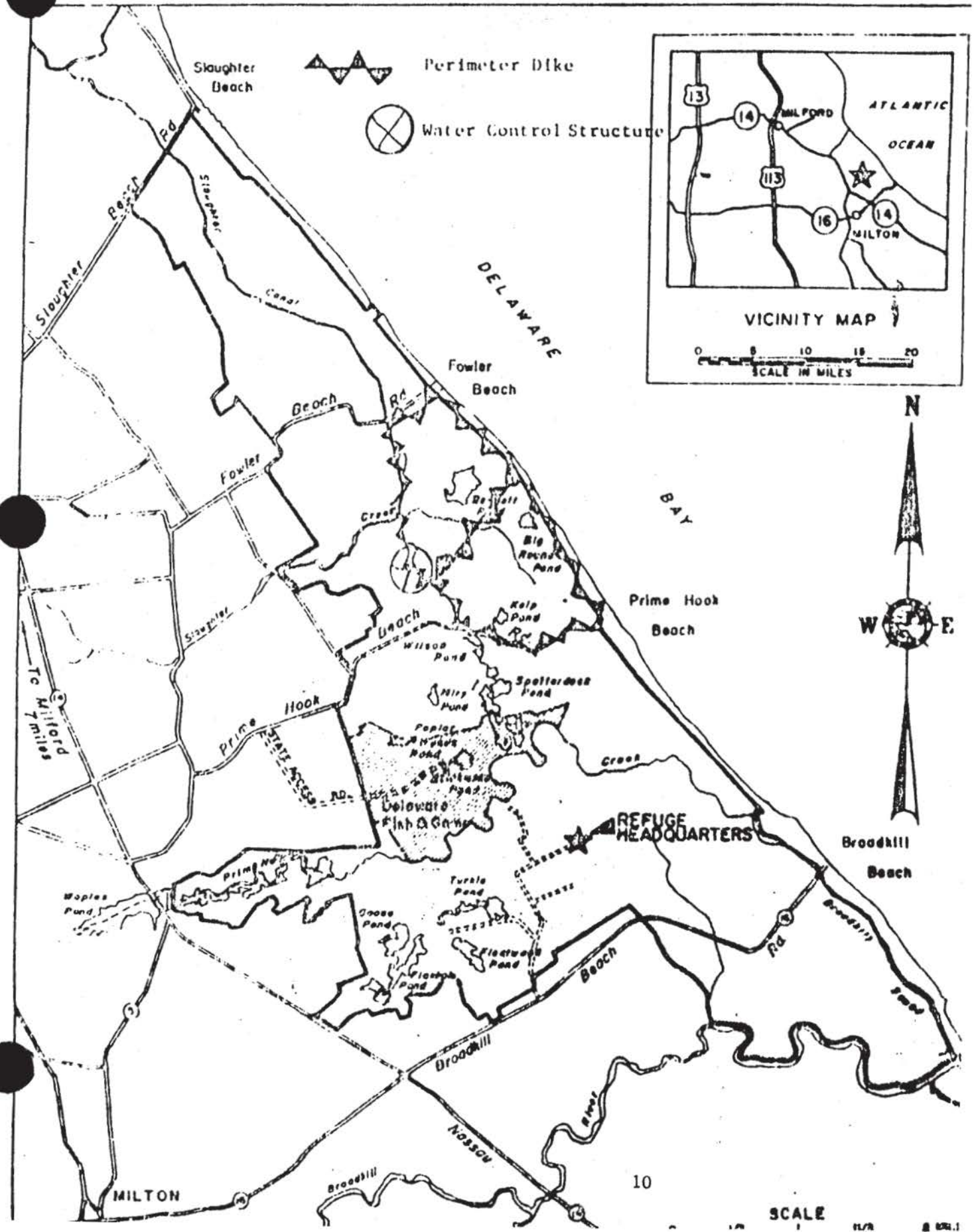


Until 1900, the marsh remained unchanged, consisting of a freshwater system dominated with cattails and sedges. In 1906, landowners adjacent to the marsh hired a dredge and dug a canal from Cedar Creek south to the vicinity of Oak Island (Slaughter Canal). Sediment disturbance caused by the dredging led to Phragmites colonization. Where tidal action was sufficient, salt marsh species flourished.

In 1934, a dike was dug by dragline, along the eastern edge of the marsh from Slaughter Beach to Prime Hook Beach to prevent the bay from washing into the marshes. The deep borrow ditch is still evident today; however sections have been filled by washouts.

In the 1940's portions of the marsh were grid ditched and drained for mosquito control. In the 50's and early 60's a high quality marsh was still evident; however as the marsh dried, Phragmites encroached, closing ditches, canals and ponds. Many of these ponds and ditches are barely visible today.

Between 1960 and 1968, a landowner adjacent to the marsh hired a dragline to dredge fill from the marsh to build up a portion of the northern end of the Prime hook Beach to permit development of houses.

Until the early 1950's, access to Prime Hook Beach was possible only by boat or during the dry summer by vehicle or horse. In the early 50's a gravel roadway was constructed across the marsh; and today this roadway is paved (SR 39). It has effectively acted as a dike between Units II and III, however, several culverts under the roadway permit limited flow of water between the units.

Unit II today consists of 1,500 acres of marsh and water, 200 acres of upland forest, 250 acres of cropland, and 150 acres of grassland.

A. Physical Considerations

The area is relatively flat with the exception of four islands. A former roadway just east of the canal is slightly elevated above the marsh. The area adjacent to Slaughter Canal is also slightly elevated due to spoil depositions during construction of the canal. Unit II is bounded by SR 199 to the north, SR 39 to the south, privately-owned lands and SR 38 to the west, and a sand dike and the Prime Hook Beach development to the east. During the storm tides, this dike has been breeched and washouts have deposited sand within the unit.

Three soil types predominate in Unit II. Soils in the marsh are classified as tidal marsh, relatively flat and waterlogged much of the time. South of SR 199 near Slaughter Canal and south of First Hill and Second Hill, soils are Fallsington Loam, also relatively flat and poorly drained. Main upland areas are composed of Sassafras Sandy Loam. Usually well drained, these soils may be tilled or used to pasture cattle.

The main sources of water for Unit II are Slaughter Creek and Slaughter Canal. Slaughter Creek originates west of the refuge and supplies good quality water. Slaughter Canal serves to drain the marsh and upland areas and as a source of tidal water. Water is also provided by rainfall, upland runoff and washouts which occur along the beach. Excess water from Unit III also enters the unit through culverts under SR 39. Saline water rarely reaches the bridge at SR 38 except during storm tides and during drought conditions. Only storm tides and washouts provide adequate water for much of the marsh. The flow in Old Slaughter Creek is poor as much of the channel has filled in or has been blocked by levees. Drainage and mosquito control ditches also serve to drain the marsh.

B. Biological Considerations

1. Vegetation

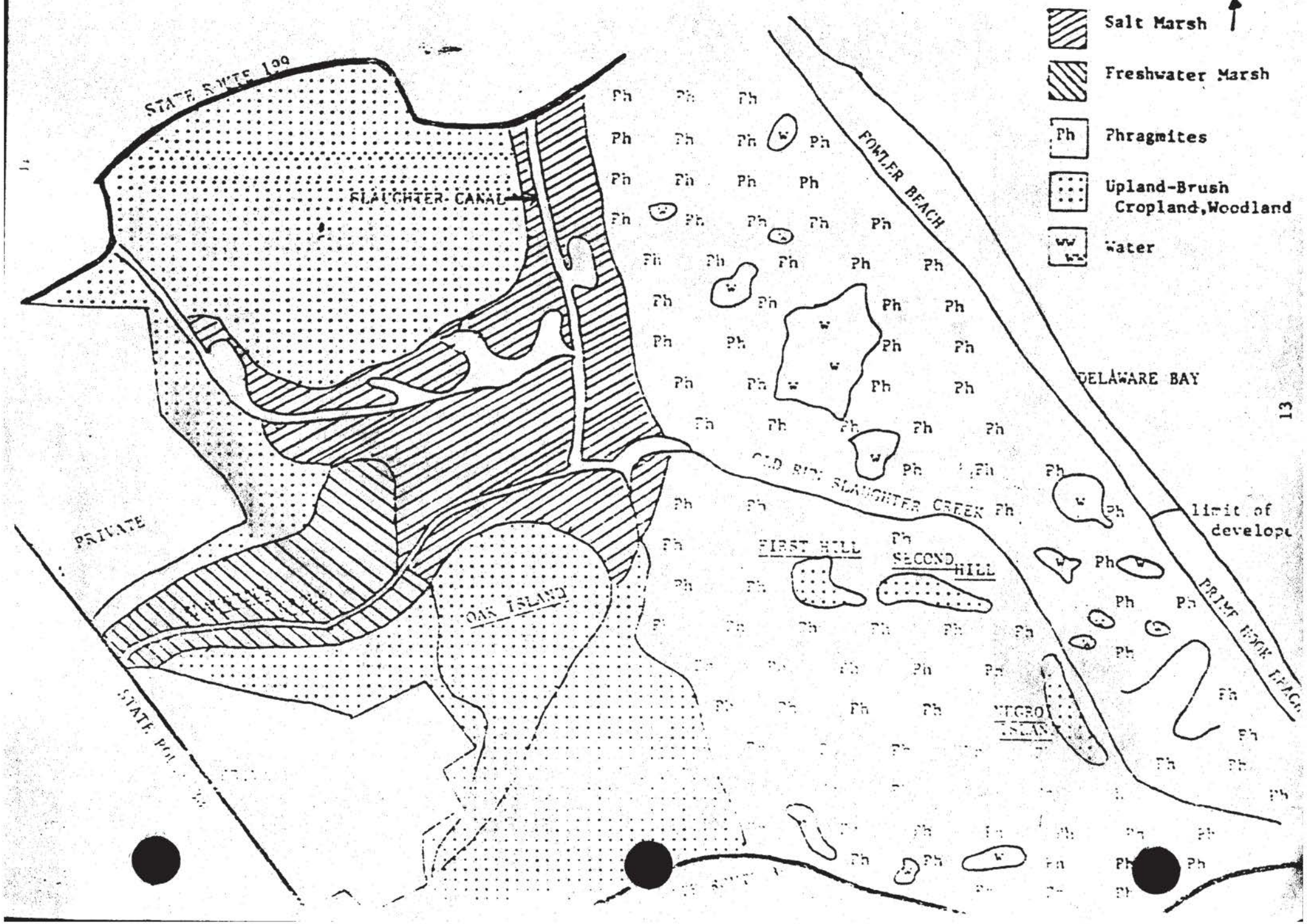
Figure 7 illustrates the general vegetative types, and Appendix Table 1 lists the common plants occurring within Unit II. No rare or endangered plants are known to exist in the unit. Much of the former salt marsh and freshwater marsh is now dominated by *Phragmites*. Upland portions of the unit contain woodlands or are used for pasture or farming. Corn and soybeans are the most commonly grown agricultural crops; while the woodlands are primarily an oak-pine association with white oak and loblolly pine predominating.

The remaining freshwater marsh is dominated by cattail. Marsh mallow is also common, and water willow is starting to encroach in many areas. In the salt marsh, salt marsh hay is dominant with saltgrass commonly mixed in. Salt marsh cordgrass is less common, but is found along the edge of the canal and in small ditches. Groundsel tree and marsh elder are found along the higher edges of the salt marsh.

Prior to refuge ownership, portions of the marsh were grazed by cattle and burned annually. This prevented encroachment of brush upon the marsh. Grazing has been discontinued in favor of providing dense nesting cover for waterfowl. Burning is not possible at this time due to the threat to private homes adjacent to the refuge on Prime Hook Beach.

Since 1983, a *Phragmites* control program has been undertaken on Prime Hook Refuge. This program will continue as funds are available and additional areas of *Phragmites* encroachment are scheduled for control. Control is effectuated via helicopter spraying with the chemical Rodeo.

FIGURE 7 VEGETATION MAP OF UNIT II



2. Wildlife

As much as 25 percent of refuge waterfowl use occurs in Unit II. In 1963, data indicated this use was primarily by ducks, most commonly mallards and black ducks. Today this use is predominately by Canada geese and snow geese with duck use limited to tidal ponds, larger ponds east of the canal, and the western portion of the creek. Black duck, mallard, wigeon, green-winged teal and blue-winged teal are commonly observed. Some gadwall, mallard and black duck nesting occurs on the upland portions of the unit, but annual production is probably less then 100 birds. Canada geese extensively use the tidal ponds on the northern side of Oak Island as a resting area. At these sites up to 15,000 geese have been observed. Snow geese also use this area with a range of 10,000 - 40,000 birds observed during peak use periods.

Use of this unit by shorebirds and marsh and water birds is not extensive; and most of this use occurs in the warmer months from May to September. Rough-legged, red-tailed and marsh hawks are common winter raptors. Great horned owls and screech owls are year-round residents and probably breed in the woodlands occuring on the marsh edges. Short-eared owls are winter residents. Other birds likely to be found in Unit II are noted in the attached pamphlet, Birds of Bombay Hook. (Appendix Table 2).

Two endangered species, the Peregrine falcon and bald eagle, infrequently migrate through the area. Ospreys are uncommon; and no nesting by this species occurs on the area. No other rare or endangered species are known to occur in the unit.

The most commonly observed mammals in the unit are white-tailed deer, raccoon and opossum. Other mammals thought to occur in the unit are listed in Appendix Table 3. Otter are regularly observed on the creek near SR 38, but their population is not high. Encroachment of Phragmites on the marsh has resulted in the loss of habitat for muskrats. This furbearer, whose population is now very low, was once common throughout the marsh.

Reptiles, amphibians and fishes found or thought to occur on the refuge are listed in Appendix Tables 4 and 5; however not all of these occur in unit II. White perch are caught commercially by nets in Slaughter Canal during the spring spawning run. Spawning probably occurs on the sand and gravel bars in Slaughter Canal. Gizzard shad and herring are also caught. Chain pickerel and carp are abundant in the western portion of Slaughter Creek; while blue crabs are abundant in tidal waters during the summer and early fall.

Little data is available on invertebrates and benthic organisms in Unit II. Mosquitoes, particularly Aedes cantator and Aedes sollicitans are common, probably due to the relatively stagnant pools and lack of overwintering fish populations. The area is treated in attempts to control mosquitoes, by the Mosquito Control Section of the Delaware Department of Natural Resources and Environmental Control.

. Social Considerations

Public use in Unit II is limited; there are only a few hundred visitors each year, primarily hunters and fishermen. The area north of Slaughter Creek is closed to general public use except immediately along the canal. Deer hunting is permitted in most of the unit west of Slaughter Canal to SR 39. Upland game hunting is permitted in the area south of Slaughter Creek.

Archaeological sites have been located on the elevated Pleistocene surfaces of Oak Island, First Hill and Second Hill. These sites are believed to be parts of a large shifting Indian encampment which existed during the last 300 years before European contact with the Indians. An archaeological reconnaissance entitled, "A Cultural Resource Survey, Prime Hook National Wildlife Refuge, Sussex County, Delaware, August, 1981," has been conducted by Mid-Atlantic Archaeological Research, Inc. A copy of this report is available in the refuge files.

Private lands on the western side of the unit are used for agriculture, with corn and soybeans being the most commmon crop. Some vegetables such as peas and lima beans are also grown. The Prime Hook Beach development borders the eastern side of the unit. Predominant use of the development is seasonal, but full-time residency is increasing. The present condition of the marsh presents a serious fire threat to these houses during the winter and spring months.

IV. Environmental Consequences

A. No Action

No Action would result in management of Unit II as it is currently conducted. No action would include no physical alterations of the Unit II marsh. The water table within the marsh would remain dependent upon rainfall, runoff into Slaughter Creek, and tidal action through Slaughter Canal. Draining will be uncontrolled, resulting in water loss and further drying of the marsh. Additional water will be provided from Unit III through culverts under SR 39, however this water would also drain uncontrolled through the marsh.

Although Phragmites was treated with Rodeo (glyphosate) in the fall of 1985, eradication of this noxious species will not be possible without restoration of the marsh water table. As a result, after several years, Phragmites will again colonize and expand in Unit II, resulting in additional loss of ponds and ditches. Valuable wetland plant species necessary for optimum wildlife use will continue to be lost, and future chemical treatments will be necessary.

Waterfowl use, particularly by ducks, will continue to decline as water and food become scarce. Goose use will also decline due to loss of open water areas. Muskrat numbers will remain low or decrease further.

Construction funds would not be used under this alternative, resulting in a savings of tax dollars. The public's use of Unit II, as it is currently practiced, will not be affected by this alternative. Perhaps the greatest impact to the public of no mangement will be on private dwellings along the eastern boundary of the refuge. The extreme fire danger would continue, placing such dwellings under an annual threat from marsh fires. The refuge would continue to construct fire breaks through use of a marsh tractor and rotary mower; however, availability of funds and fuel as well as the possibility of equipment breakdown make total reliance on this procedure inadvisable. Marsh fires in Phragmites have been known to spot fire up to 1,000 feet in advance of the main fire. In the case of a fire which is heading toward the beach, such fires easily could jump fire breaks and threaten private dwellings.

B. The Proposed Action - Slaughter Canal Water Control Structure

Only minor physical alterations to the marsh would be necessary under this alternative. A short access road would be required (about 100 feet) for the construction of the permanent structure. Some siltation and turbidity will occur during construction. Work will be planned at a time when the effects of siltation and turbidity will have a minimal impact on wildlife. The project will significantly enhance the water table within the impoundment area. Only areas or sites now inundated during some period of the year will be affected; however, water levels will be more stable over longer periods of time. The permanent control structure will provide the capability to maintain the water table by retention or release of water as necessary. Water for the impoundment will primarily come from tidal action, runoff from Slaughter Creek, excess water from the Unit III impoundment and from rainfall and local runoff. Tidal and freshwater would be exchanged at the site of the water control structure when tides in excess of the top of the stoplogs flow over the logs and into the impoundment.

An Interim Water Management Plan has been prepared which outlines Management intentions throughout an annual cycle. The general concepts of the plan would be applicable to each alternative discussed with the exception of the "no action" alternative (A). The plan is appended to this document.

Appendix 7 of the original assessment has been revised to show the final location of other benchmarks used to monitor marsh water levels (appended).

The project is located within the 100 year flood plain and in wetlands. Because of the nature of the work, (providing water control to manage water levels within the impoundment and preserving and restoring the marsh) there is no practicable alternative to this location. The project has been designed to minimize adverse impacts in these areas while furthering the Fish and Wildlife Service mission of protecting and enhancing wildlife habitat. The project lies within the Coastal Zone of Delaware and conforms to Delaware's Coastal Zone Management Plan.

This alternative will have a major positive impact on desirable wetland plant species within Unit II. Restoration and maintenance of the water table will impact the growth and encroachment of Phragmites. This will occur by stunting and/or stressing regrowth following use of the chemical Rodeo. The net result should be to reduce or eliminate this species within the Unit. Water management is necessary to stress regrowth of Phragmites and to provide optimum growing conditions for other wetland species. The combination of water and chemical control is expected to result in lush growth of aquatics such as nutsedge, wild millet, pondweeds, smartweeds, cattail and other species similar to those which occured in Unit III after water management was resumed.

Enhancement of water levels and marsh rehabilitation will generally improve the habitat for waterfowl, other migratory birds, resident birds and mammals, and other species which are water and marsh oriented. Waterfowl should benefit significantly from this project. Current duck use in Unit II is low primarily due to the poor quality of the wetland habitat. This project is expected to result in an additional 300,000 waterfowl use days, particularly for ducks. An increase in duck nesting is also expected, with production of about 700 birds to flight stage annually. Black ducks are expected to be the species which will most benefit from the proposed project. Nesting, feeding and wintering habitat will be improved. Increased fecal accumulation may result in increased nutrients in the area, and downstream coliform counts may increase. This situation is not expected to be significant or hazardous to the human environment.

Marsh and water birds as well as shorebirds will benefit as a result of fewer ponds and marsh areas being lost through Phragmites encroachment. Use days by such marsh-oriented birds as herons and ibis are expected to increase by about 300,000 annually. Owls and songbirds will not likely be affected by the project.

The project should result in increases of marsh and water-oriented mammals. Otters and muskrats, both previously abundant in the area, should benefit significantly by the improved habitat. In Unit III the number of muskrat houses more than tripled during the first year of active water management. Some species, including raccoon, fox, opossum and deer will be displaced initially but will benefit over the long term through the increase in food resources in the enhanced area. Burrowing animals, such as shrews and moles, will not benefit and will be displaced.

Reptiles and amphibians which depend on water will benefit from the proposed action. Frog and turtle populations are expected to increase. Terrestrial species of toads and snakes, however, will not benefit. There should be little effect on spawning of white perch and other anadromous fish since the permanent water control structure will be operated to allow passage of these species. Water retention may have a positive impact by providing additional fishery habitat.

Results of a Unit II perimeter survey conducted by Service surveyors during January, 1986 indicate that adjacent privately owned lands will not be adversely affected by water levels which will be managed through this project (see Interim Water Management Plan - appendix 14).

Farmland adjacent to Unit II will not be adversely affected by the proposed action. Water management will include a spring lowering of the water level within the impounded area to avoid adverse impacts on farmland. Retention of the water table during the summer or other dry periods may have a positive impact on adjacent farmland by making water available for plant growth. Drainage of adjacent farmland will not be affected. Crop depredation is not expected to increase. Increased water should not impact adversely on woody species in the four islands in Unit II. The maximum water level to be maintained will be held during the non-growing season.

Approximately 50 acres of privately owned marshland along the eastern boundary of the refuge will also be influenced by refuge water management. Only lands currently supporting marsh will be affected, and this will be limited to holding water on the marsh for a longer period each year. Furthermore, planned elevations could be reduced to lower impacts on adjacent non-refuge marshland.

A major benefit of the proposed action will be from improved aesthetics and a greatly reduced fire danger to the Prime Hook Beach Development. The changes will be a direct result of the ability to maintain the marsh water table and the use of Rodeo to eradicate Phragmites. As a result of this management, costs for fire insurance on the beach could decline.

During construction the local community will temporarily benefit from monies spent on services and supplies. No increased need for overnight services in the area will occur once the project is completed. Undeveloped land on the west side of Bay Shore Avenue will not incur additional problems in meeting septic system regulations for future development as a result of this proposal.

The water table in this area currently is too high to allow construction of conventional systems. Mound or other alternative type systems would be required. A similar water management program in Unit III has shown no effect on septic systems. Monitoring wells were installed to measure any potential changes in the vicinity of developed areas (See Appendix # 7).

Operation and maintenance costs of the control structure will be minimal, and no new jobs will be created. Significant increases in muskrat populations may result in increased local income if the need develops to trap this species to control its population.

Public visitation as a result of this project is not expected to increase greatly; however, the public will benefit from improved opportunities to view the increased wildlife using the improved habitat. The area may be used as an environmental education study site by local schools. Consumptive recreation (hunting and fishing) will not increase significantly as a result of this project.

Archaeological sites, located in Oak Island and First Hill, will not be adversely affected by this work.

C. Alternative #1 - Dike and Water Control Structure East of Slaughter Canal

This action would have the smallest impact on the topography of the area of any of the alternatives involving diking. Management would be possible over 1,100 acres of wetlands. Dike construction would require filling of approximately one acre of salt marsh vegetation. The water supply for the impoundment would be similar to the Proposed Action except that waters from Slaughter Creek would not be available. Approximately 400 acres of freshwater and tidal marshlands would be excluded from the managed area.

Within the impounded area, the effects on vegetation would be similar to the Proposed Alternative. Outside of the impounded area, Phragmites may eventually replace both tidal and fresh marsh plant species, unless an extensive spraying program is conducted.

Waterfowl, marsh and water birds, shorebirds and water-oriented mammals will benefit from this alternative in a manner similar to the Proposed Alternative, however at a reduced level. Owls and songbirds would not be affected by this alternative. Frog and turtle populations are expected to benefit from the improved freshwater marsh. Spawning of white perch and other anadromous fish species would not be affected. Water retention in the smaller impounded area under this alternative would still have a positive impact by providing additional fishery habitat.

This alternative would have minimal potential impact on farmlands as all farmland would lie outside the influence of the proposed action. Drainage of adjacent farmland would not be affected. Impacts on septic systems on Prime Hook Beach are not expected. The reduced fire danger and improved aesthetics will enhance these properties. Access to build the southern portion of the dike would be across privately owned lands. Costs for this alternative would be considerably higher than the Proposed Alternative, due to costs for dike construction. Marsh acreage lost to dike construction would need to be mitigated, adding to construction costs.

D. Alternative #2 - Relocate Alternative 1 Dike

This alternative is a variation of Alternative #1. The northern portion of the dike (4,400 feet) would be constructed along the bank of Slaughter Canal rather than along the old roadbed. The size of the impoundment would increase by about 70 acres, however, at the loss of a similar amount of salt marsh. Impacts of this alternative would be similar to those for Alternative 1, however construction would be more costly and the dike would be more subject to erosion during peak tides within the canal. The relocation would provide additional or improved access to the canal for fishermen.

E. Alternative #3 - Perimeter Diking

This alternative would have the most impact on the topography of the area of all alternatives. Dikes, drainage canals, water control structures and a pumping station would be needed.

This alternative provides the best management possibilities for controlling Phragmites and fire potential through water level manipulation. Higher water levels could be maintained during the growing season, without impact on adjacent lands, in order to stress growth of Phragmites. The maximum benefit to wildlife would be realized with this alternative, however considerable marsh would be lost during construction.

This alternative would minimize impacts to both the beach community and adjacent farmland, however the high costs of dike construction, and maintenance and operation of a pumping station would be prohibitive. The project is not cost effective and would involve the alteration of a large expanse of marsh. Due to the effects on existing marsh through filling, a permit application would likely be denied.

V. CONSULTATION AND COORDINATION

The proposed project requires approval from the U.S. Army Corps of Engineers and the Wetlands Section of the Delaware Division of Natural Resources and Environmental Control. On October 7, 1980, the project (with a preferred Alternative similar to Alternative 1 in this document), was discussed on-site with these and other State and Federal agencies including representatives from:

Delaware Department of Natural Resources and Environmental Control
- Wetlands Section
- Mosquito Control Section

U.S. Army Corps of Engineers
U.S. Geological Survey
National Marine Fishery Service
U.S. Fish and Wildlife Service
- Ecological Services, Annapolis Office

Regional Office, Engineering
Bombay Hook National Wildlife Refuge
Prime Hook National Wildlife Refuge

Further discussions have taken place with personnel of the aforementioned agencies and with personnel of the Delaware Department of Natural Resources and Environmental Control-Fisheries Section, the University of Delaware Extension Office, the U.S. Soil Conservation Service, and the Environmental Protection Agency. News releases were submitted to local media to inform the public and to offer the opportunity for public comment.

In May, 1981, an environmental assessment entitled "Establishment of Dike and Water Control Structure - Unit II, Prime Hook National Wildlife Refuge" (Alternative 1) was circulated to the public, interested agencies and clearing houses.

On June 25, 1981, a meeting was held with the Department of Natural Resources and Environmental Control, Wetlands Section of Dover, Delaware to discuss the project. The meeting included members of the Joint Processing Committee of State and Federal permitting agencies and approximately 25 members of the general public. Written comments were also received from the State of Delaware Division of Fish and Wildlife and from the general public. A sample of these comments are attached as Appendix 6.

On March 11, 1985 the new proposed action was discussed on site with personnel of the U.S. Fish and Wildlife Service Annapolis Ecological Services field office.

On July 18,1985, refuge personnel met with the Joint State/ Federal Permit Processing Committee in Dover, Delaware to discuss the project. The committee consists of personnel from the State Wetlands Section, Corps of Engineers, EPA, National Marine Fisheries Service and the Fish and Wildlife Service. The committee made suggestions for inclusion in the permit application.

The 1985 assessment was made available to the general public and governmental agencies for review. A news release was issued to various news media (Appendix 8), and an official, 30 day public comment period was conducted. Comments received have been reviewed, and are attached to the Environmental Assessment (Appendix 10). Written comments were received from only four persons (letters appended). Personal contacts were made with two additional persons. Three written comments were in favor of the project. The fourth comment, several letters from adjacent farmer and State Representative V. George Carey indicated opposition to certain aspects of the project.

Mr. Carey posed six questions concerning the project. Most importantly, Mr. Carey and Mr. Richard P. Bennett of the Soil Conservation Service indicate that holding water at the proposed level would flood Mr. Carey's fields and cause reduced drainage.

Refuge personnel met with Mr. Carey informally on two occasions. Acting Project Leader Smith met formally with Mr. Carey on August 20, and on September 26 a detailed letter was sent to Mr. Carey by Project Leader Daly answering his questions.

Mr. James C. Wells, also an adjacent farmer stopped at the refuge on July 31. Mr. Wells is also concerned with the potential for flooding or waterlogging of his fields. The owner of the field, Mr. J. Howard Isaacs, and Mr. Wells are in favor of the project, however they would like to have an observation well placed on or adjacent to his land to monitor the water table.

On August 2, Assistant Refuge Manager O'Shea met with Mr. James C. Downham of Prime Hook Beach. Mr. Downham is the leader of a group of homeowners on Prime Hook Beach. The nature and purpose of the project was explained to Mr. Downham. An offer was made to meet with homeowners to explain the project. however Mr. Downham turned down this offer.

Only one person stopped in the refuge office to review the 1985 Assessment, Sonny Clogg from the Soil Conservation Service.

Permit applications were made to the Army Corps of Engineers and the Delaware Department of Natural Resources and Environmental Control (Wetlands Section) on July 9, 1985 to cover installation of a temporary water control structure to gather data at 2.3' NGVD water level. The State permit was received on October 1, 1985 and the Corps permit on October 23, 1985. Copies are attached as Appendices 12 and 13. The Corps permit was subsequently withdrawn by letter on December 4, 1985 stating that the nationwide permit was inappropriate for the work proposed. The Service then decided to gather the necessary data by perimeter survey, thus negating the need for the temporary structure.

Elevations cited in the original environmental assessment (2.8' MSL for the temporary water control structure and proposed peak management level) were based on data available to the Fish and Wildlife Service at the time of the assessment preparation. The U.S. Soil Conservation Service advised that more recently revised vertical datum was currently available. Fish and Wildlife Service surveyors, using this revised USGS NGVD datum, reestablished vertical control points adjacent to Unit II prior to their perimeter survey of the marsh. All Service proposals were subsequently revised to reflect this new datum. Peak proposed management levels in Unit II, therefore, are now 2.3 MSL (NGVD).

At the request of State Representative V. George Carey the U.S. Army Corps of Engineers held a public meeting at Mr. Carey's residence on November 14, 1985 to discuss the project. Approximately twenty five individuals were in attendance. Following the meeting the Corps extended the public comment period for 10 days. Copies of letters submitted to the Corps as a result of this meeting, as well as the Refuge Manager's replies to concerns expressed in the letters are appended to this document (Appendix 15).

In effort to further inform the public of the Unit II project proposal, Assistant Refuge Manager O'Shea gave a presentation to the Milford Rotary Club, Milford, Delaware on February 6, 1986. This was followed by a question and answer session.

Project Manager Daly and Assistant Manager O'Shea met with Mr. Sonny Clogg of the U.S. Soil Conservation Service on May 23, 1986 to discuss the data produced by the Unit II perimeter survey. Mr. Clogg indicated that based on survey results water management in Unit II would not result in damage to adjacent landowners if conducted according to the Interim Water Management Plan. Project Manager Daly sent Representative V. George Carey a copy of the survey with a cover letter on June 10, 1986 requesting a meeting to discuss the data. No reply has been received (Copy attached in Appendix 15).

On July 3, 1986 a news release covering the preparation of the revised Environmental Assessment on the project was prepared and distributed to the news media and individuals who had earlier commented on the project or who had otherwise indicated an interest. A thirty day comment period was held in which to receive further comments from interested parties. A total of 2 replies were received. A copy of the news release and copies of each letter received are incorporated in this assessment as Appendix 16.

On July 8, 1986 a meeting was held at Prime Hook to discuss the proposed action with personnel of various public agencies. Agencies represented included:

U.S. Fish and Wildlife Service
- Regional Office, Wildlife Resources and Engineering
- Prime Hook National Wildlife Refuge
- Ecological Services, Annapolis Office

U.S. Army Corps of Engineers
Environmental Protection Agency
Delaware Department of Natural Resources and Environmental Control
- Division of Fish and Wildlife
- Wetlands Section

No one in attendance voiced objection to the proposed action. The Corps of Engineers representative indicated that the access road to the structure would not be over wetlands; therefore mitigation should not be required.

Appendix Table 1
Common Fresh and Salt Marsh Plants
Unit II Management Area

Common Name	Scientific Name
Red Maple	Acer rubrum
American Holly	Ilex opaca
Bayberry	Myrica pensylvanicus
Sweet Gum	Liquidambar styraciflus
White Oak	Quercus alba
Pignut Hickory	Carya glabra
Shadbush	Amelanchier canadensis
Willow	Salix sp.
Loblolly Pine	Pinus taeda
Red Cedar	Juniperus virginiana
Greenbriar	Smilax sp.
Poison Ivy	Rhus radicans
Switchgrass	Panicum virgatum
Buttonbush	Cephalanthus occidentalis
Water Willow	Decodon verticillatus
Phragmites	Phragmites australis
Black Rush	Juncus gerardi
Rose Mallow	Hibiscus palustris
Narrow-leaf Cattail	Typha angustifolia
Cattail	Typha latifolia
Groundsel Bush	Baccharis halimifolia
Hightide Bush	Iva frutescens
Salt Marsh Cordgrass	Spartina alterniflora
Salt Marsh Hay	Spartina patens
Giant Cordgrass	Spartina cynosuroides
Saltgrass	Distichlis spicata
Arrowhead	Sagittaria spp.
White Water Lily	Nymphaea odorata
Smartweed	Polygonum spp.
Pondweeds	Potamogeton spp.
Sedges	Carex spp.
Wigeon Grass	Ruppia maritima
Bladderwort	Utricularia spp.

APPENDIX TABLE 2

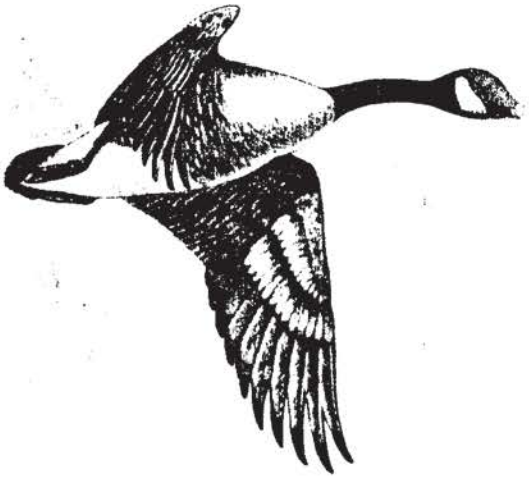
Please report any sightings of birds that are not included in this list to:

Refuge Manager
Bombay Hook National Wildlife Refuge
RD 1, Box 147
Smyrna, Delaware 19977
Telephone: (302) 653-9345

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U. S. administration.

RL 51550-2 AUGUST 1984



BIRDS of BOMBAY HOOK

National Wildlife Refuge

Delaware

BOMBAY HOOK NATIONAL WILDLIFE REFUGE lies low and flat on the Atlantic Coastal Plain along the western shore of Delaware Bay. Nearly two-thirds of its more than 15,000 acres spreads out into tidal salt marsh and cordgrass meadows interrupted by winding rivers and creeks. Away from the bay and marsh are man-made freshwater ponds called impoundments. Upland woods, swamps, brushy thickets, grassy fields, and croplands complete the diversity of habitat which attracts a wide variety of bird life.

Look for greatest numbers of waterfowl during March and November. Shorebirds, wading birds and songbirds are most abundant during May, August and September.

This list of 270 species of birds observed on the refuge since its establishment in 1937 is in accordance with the Sixth American Ornithologists' Check-list.

Most birds are migratory; their seasonal occurrence is coded as follows:

SEASON

s - Spring	March - May
S - Summer	June - August
F - Fall	September - November
W - Winter	December - February

† - Nesting has occurred on the refuge.

RELATIVE ABUNDANCE

a - abundant	a species which is very numerous.
c - common	certain to be seen or heard in suitable habitat
u - uncommon	present, but not certain to be seen.
o - occasional	seen only a few times during a season.
r - rare	seen at intervals of 2 to 5 years.

		s	S	F	W
LOONS · GREBES · COMORANT					
___	Red-throated Loon			r	r
___	Common Loon		r		
___	Pied-billed Grebe†	o	o	u	o
___	Horned Grebe	o	u	o	u
___	Eared Grebe				r
___	Double-crested Cormorant	u	u	c	u
BITTERNS · HERONS · IBISES					
___	American Bittern†	o	u	u	o
___	Least Bittern†	o	c	o	
___	Great Blue Heron	c	c	a	c
___	Great Egret	u	a	c	o
___	Snowy Egret	o	a	c	r
___	Little Blue Heron	o	c	c	
___	Tricolored Heron	o	u	o	
___	Cattle Egret	o	u	o	
___	Green-backed Heron	c	c	c	r
___	Black-crowned Night-Heron	c	c	c	u
___	Yellow-crowned Night-Heron	o	o	o	o
___	White Ibis		r	r	
___	Glossy Ibis	c	c	u	
SWANS · GEESE · DUCKS					
___	Fulvous Whistling-Duck	r	r	r	
___	Tundra Swan	o	r	c	u
___	Mute Swan	r	r	r	o
___	Greater White-fronted Goose	r		r	r
___	Snow Goose	c	r	a	a
___	Ross' Goose			r	r
___	Barnacle Goose			r	r
___	Canada Goose†	a	c	a	a
___	Wood Duck†	c	c	a	o
___	Green-winged Teal	a	o	a	c
___	American Black Duck†	c	c	c	c
___	Mallard†	a	c	a	a
___	Northern Pintail	a	o	a	a
___	Blue-winged Teal†	c	u	a	r
___	Northern Shoveler†	c	o	a	u
___	Gadwall†	c	a	a	u
___	Eurasian Wigeon	r	r	r	o
___	American Wigeon	c	o	a	c
___	Canvasback			o	o
___	Redhead	o		o	o
___	Ring-necked Duck	u		u	o
___	Greater Scaup	u	o	u	u
___	Lesser Scaup	u		u	u
___	Oldsquaw		r	u	o
___	Black Scoter	o	r	o	o
___	Surf Scoter	o		o	o

	s	S	F	W
White-winged Scoter	o		o	o
Common Goldeneye	u	r	u	u
Bufflehead	c	r	c	c
Hooded Merganser	u	o	u	c
Common Merganser	u	r	c	c
Red-breasted Merganser	u	r	u	u
Ruddy Duck	c	o	c	c
VULTURES - HAWKS - FALCONS				
Black Vulture	o	o	o	o
Turkey Vulture†	c	c	c	c
Osprey†	o	o	o	
Bald Eagle†	u	u	u	u
Northern Harrier†	c	o	c	c
Sharp-shinned Hawk	o	o	o	o
Cooper's Hawk	o	r	o	o
Northern Goshawk			r	
Red-shouldered Hawk†	o	o	c	c
Broad-winged Hawk	o	o	u	
Red-tailed Hawk†	u	o	c	c
Rough-legged Hawk	o		o	c
Golden Eagle			r	r
American Kestrel†	u	u	c	c
Merlin	r		o	r
Peregrine Falcon	r		o	r
PHEASANT - QUAIL				
Ring-necked Pheasant†	c	c	c	c
Northern Bobwhite†	c	c	c	c
RAILS - COOT				
Black Rail	r	r	r	
Clapper Rail†	c	c	c	o
King Rail†	c	c	c	o
Virginia Rail†	u	u	u	o
Sora	u	o	u	
Common Moorhen	o	u	o	r
American Coot†	c	u	a	u
PLOVERS - SANDPIPERS				
Black-bellied Plover	c	u	c	o
Lesser Golden-Plover	r	r	o	
Semipalmated Plover	c	u	c	r
Killdeer†	c	c	c	u
Black-necked Stilt	u	c	o	
American Avocet	u	c	u	r
Greater Yellowlegs	c	c	a	o
Lesser Yellowlegs	c	c	c	o
Solitary Sandpiper	o	o	o	
Willet†	a	a	o	r
Spotted Sandpiper	u	o	u	
Upland Sandpiper	o		o	

	s	S	F	W
Whimbrel	r	r	r	
Hudsonian Godwit	r		o	
Marbled Godwit		r	r	
Ruddy Turnstone	c	o	u	
Red Knot	u	o	o	
Sanderling	c	o	c	
Semipalmated Sandpiper	a	c	a	
Western Sandpiper	o	o	c	r
Least Sandpiper	c	c	c	r
White-rumped Sandpiper	u	o	u	
Baird's Sandpiper	r	r	r	
Pectoral Sandpiper	o	c	c	r
Dunlin	a	o	a	c
Curlew Sandpiper	r	r	r	
Stilt Sandpiper	u	o	o	
Buff-breasted Sandpiper			r	
Ruff	r	r	r	
Short-billed Dowitcher	c	c	a	r
Long-billed Dowitcher		o	o	
Common Snipe	c	o	c	u
American Woodcock†	c	u	c	r
Wilson's Phalarope	o	o	o	
Red-necked Phalarope	o		o	
GULLS - TERNS				
Laughing Gull	c	c	c	
Bonaparte's Gull	o	o	o	
Ring-billed Gull	c	u	a	c
Herring Gull	c	c	a	c
Glaucous Gull			o	o
Great Black-backed Gull	c	c	c	c
Gull-billed Tern	o	o	o	
Caspian Tern	o	u	o	
Royal Tern		o	r	
Common Tern	o	o	o	
Forster's Tern	o	c	c	
Least Tern	o	c	o	
Black Tern	r	r	r	
Black Skimmer	r	o	o	r
DOVES - CUCKOOS - OWLS - SWIFTS - HUMMINGBIRDS				
Rock Dove	o	o	o	o
Mourning Dove†	c	c	a	c
Black-billed Cuckoo†	o	o	o	
Yellow-billed Cuckoo†	c	c	c	
Common Barn-Owl†	u	u	u	u
Eastern Screech-Owl†	u	u	u	u
Great Horned Owl†	c	c	c	c
Barred Owl†	c	c	c	c

		s	S	F	W
___	Long-eared Owl			r	r
___	Short-eared Owl†	o	r	o	o
___	Northern Saw-whet Owl	r		r	r
___	Common Nighthawk	o	o	o	
___	Whip-poor-will	o	o		
___	Chimney Swift	c	c	c	
___	Ruby-throated Hummingbird†	c	c	c	
___	Belted Kingfisher†	c	u	c	c
WOODPECKERS - FLYCATCHERS					
___	Red-headed Woodpecker	r		r	r
___	Red-bellied Woodpecker†	c	c	c	c
___	Yellow-bellied Sapsucker	o		o	o
___	Downy Woodpecker†	c	c	c	c
___	Hairy Woodpecker†	o	u	u	o
___	Northern Flicker†	c	c	c	o
___	Olive-sided Flycatcher	r		r	
___	Eastern Wood-Pewee†	c	a	c	
___	Acadian Flycatcher†	u	c	o	
___	Alder Flycatcher	o		o	
___	Willow Flycatcher†	o	o	o	
___	Least Flycatcher	o		o	
___	Eastern Phoebe†	c	u	c	r
___	Great Crested Flycatcher†	c	c	c	
___	Eastern Kingbird†	c	a	c	

		s	S	F	W
LARKS - SWALLOWS - JAYS and CROWS					
___	Horned Lark†	c	o	c	c
___	Purple Martin†	c	c	o	
___	Tree Swallow†	c	a	a	r
___	Northern Rough-winged Swallow	u	o	u	
___	Bank Swallow	o	c	c	
___	Cliff Swallow	o		r	
___	Barn Swallow†	c	c	c	r
___	Blue Jay†	c	c	c	c
___	American Crow†	a	c	a	a
___	Fish Crow†	c	c	c	o
TITMICE - NUTHATCHES - WRENS					
___	Black-capped Chickadee			o	o
___	Carolina Chickadee†	c	c	c	c
___	Tufted Titmouse†	c	c	c	c
___	Red-breasted Nuthatch	o		o	u
___	White-breasted Nuthatch	u	o	u	u
___	Brown Creeper	c		c	c
___	Carolina Wren†	u	u	u	u
___	House Wren†	c	c	c	r
___	Winter Wren	u		u	c
___	Sedge Wren†	o	o	o	r
___	Marsh Wren†	c	c	c	o
KINGLETS - THRUSHES - THRASHERS					
___	Golden-crowned Kinglet	o		c	c
___	Ruby-crowned Kinglet	c		c	o
___	Blue-gray Gnatcatcher†	c	u	o	r
___	Eastern Bluebird	r	r	r	r
___	Veery	c	o	c	
___	Gray-cheeked Thrush	o		o	
___	Swainson's Thrush	c		c	
___	Hermit Thrush	c		c	o
___	Wood Thrush†	c	c	c	
___	American Robin†	c	c	c	o
___	Gray Catbird	c	c	c	o
___	Northern Mockingbird†	c	c	c	c
___	Brown Thrasher†	c	c	c	o
WAXWINGS - SHRIKES - STARLING					
___	Water Pipit	u		u	o
___	Cedar Waxwing	o	r	o	u
___	Loggerhead Shrike	o		o	o
___	European Starling†	a	a	a	a
VIREOS - WOOD WARBLERS					
___	White-eyed Vireo†	c	c	c	
___	Solitary Vireo	o		o	
___	Yellow-throated Vireo†	o	o	o	
___	Red-eyed Vireo†	a	a	a	
___	Blue-winged Warbler	o		o	

	s	S	F	W
Golden-winged Warbler	o		o	
Tennessee Warbler	o		o	
Orange-crowned Warbler	r		r	
Nashville Warbler	o		o	
Northern Parula	c	o	c	
Yellow Warbler†	c	c	c	
Chestnut-sided Warbler	c	o	c	
Magnolia Warbler	c		c	
Cape May Warbler	o		o	
Black-throated Blue Warbler	c		c	
Yellow-rumped Warbler	a		a	c
Black-throated Green Warbler	c		c	
Blackburnian Warbler	o	o	o	
Pine Warbler	c	o	o	
Prairie Warbler	c	o	o	
Palm Warbler	c		c	r
Bay-breasted Warbler	o		o	
Blackpoll Warbler	c		c	
Cerulean Warbler	r			
Black-and-white Warbler	c	o	c	
American Redstart†	c	o	c	
Prothonotary Warbler†	u	o	o	
Worm-eating Warbler	o		o	
Ovenbird	c	u	c	
Northern Waterthrush	c	o	c	
Louisiana Waterthrush†	o	o	o	
Kentucky Warbler†	c	c	o	
Common Yellowthroat†	c	a	c	r
Hooded Warbler	o	r	o	
Wilson's Warbler	o		o	
Canada Warbler	c	o	o	
Yellow-breasted Chat†	u	u	u	r
TANAGERS - SPARROWS				
Scarlet Tanager†	c	c	c	
Northern Cardinal†	c	c	c	c
Rose-breasted Grosbeak	o	u	o	
Blue Grosbeak†	c	c	u	
Indigo Bunting†	c	c	c	
Rufous-sided Towhee†	c	c	c	o
American Tree Sparrow	o		c	c
Chipping Sparrow†	c	u	c	r
Field Sparrow†	c	c	c	c
Vesper Sparrow	o	o	o	r
Savannah Sparrow	c	r	a	c
Grasshopper Sparrow†	o	u	o	
Henslow's Sparrow	r	o	r	r
Sharp-tailed Sparrow†	a	a	a	o
Seaside Sparrow†	a	a	a	o

	s	S	F
Fox Sparrow	o		u
Song Sparrow†	c	c	c
Swamp Sparrow†	c	c	c
White-throated Sparrow	a		a
White-crowned Sparrow	o		o
Dark-eyed Junco	c		c
Lapland Longspur			
Snow Bunting			o
BLACKBIRDS - FINCHES			
Bobolink	u	c	c
Red-winged Blackbird†	a	a	a
Eastern Meadowlark†	c	u	c
Boat-tailed Grackle	o	o	c
Common Grackle†	a	a	a
Brown-headed Cowbird†	c	c	c
Orchard Oriole†	c	u	o
Northern Oriole	u	u	o
Purple Finch	o		r
House Finch	o		u
Common Redpoll			r
Pine Siskin	o		u
American Goldfinch†	u	c	c
Evening Grosbeak	o		o
House Sparrow†	a	a	a

A leaflet entitled "Accidental Birds of Bombay Hook" available on request.

NOTES

Location _____

Date _____ Total _____

Observers _____

Weather _____ Wind _____

Time _____

Appendix Table 3
Mammals Found on Prime Hook Refuge

(Not all species are known to occur in Unit II)

Common Name	Scientific Name
Oppossum	Didelphis marsupialis
Masked Shrew	Sorex cinereus
Shorttail Shrew	Blarina brevicauda
Least Shrew	Cryptotis parva
Eastern Mole	Scalopus aquaticus
Starnose Mole	Condylura cristata
Little Brown Myotis	Myotis lucifugus
Silver-hared Bat	Lasionycteris noctivagans
Big brown Bat	Eptesicus fuscus
Red Bat	Lasiurus borealis
Hoary Bat	Lasiurus cinereus
Eastern Cottontail	Sylivilagus floridanus
Woodchuck	Marmota monax
Eastern Gray Squirrel	Sciurus carolinensis
Southern Flying Squirrel	Glaucomys volans
Rice Rat	Oryzomys palustris
White-footed mouse	Peromyscus leucopus
Meadow Vole	Microtus pennsylvanicus
Pine Vole	Pitymys pinetorum
Muskrat	Ondatra zibethicus
Norway Rat	Rattus norvegicus
Meadow Jumping Mouse	Zapus hudsonius
Red Fox	Vulpes fulva
Gray Fox	Urocyon cinereoargenteus
Raccoon	Procyon lotor
Longtail Weasel	Mustela frenata
Mink	Mustela vison
Striped Skunk	Mephitis mephitis
River Otter	Lutra canadensis
Whitetail Deer	Odocoileus virginianus

Appendix Table 4
Fishes of Prime Hook Creek and Petersfield Ditch
Nomeclature and classification from A List of Common and Scientific Names of Fishes From the United State and Canada, American Fisheries Society.

(Not all species are kinown to occur in Unit II)

Common Name	Scientific Name
Black-back Herring	Alosa aestiualis
Alewife	A. pseudoharengus
Menhaden	Brevoortia tyrannus
Gizzard Shad	Dorosoma cepedianum
Eastern Mudminnow	Umbra pygmaea
Redfin Pickerel	Esox americanus
Chain Pickerel	E. niger
Carp	Cyprinus capio
Golden Shiner	Notemigonus crysoleucas
Silverline Shiner	Notropis amoenus
White Sucker	Castostomus commersoni
White Catfish	Ictalurus catus
Yellow Bullhead	I. natalis
Brown Bullhead	I. nebulosus
American Eel	Angulla rostrata
Sheephead Minnow	Cyprinodon variegatus
Spotfin Killifish	Fundulus luciac
Striped Killifish	F. majalis
Mummichog	F. heteroclitus
Mosquito Fish	Gambusia affinis
White Perch	Roccus americanus
Striped Bass	R. saxatilis
Mud Sunfish	Acantharchus pomotis
Banded Sunfish	Ennecanthus obessus
Bluespotted Sunfish	E. gloriosus
Pumpkinseed	Lepomis gibbosus
Bluegill	L. macrochirus
Yellowbelly Sunfish	L. auritus
Largemouth Bass	Micropterus salmoides
White Crappie	Pomoxis annularis
Black Crappie	P. nigromaculatus
Yellow Perch	Perca flavescens
Bluefish	Pomatomus saltatrix
Spot	Leiostomus xanthrus
White Mullet	Mgil curema
Atlantic Silverside	Menidia menidia
Tidewater Silverside	M. beryllina
Rough Silverside	M. martinica

Appendix Table 5
Reptiles and Amphibians Inhabiting Prime Hook Refuge

(Not all species are known to occur in Unit II)

Common Name	Scientific Name
Turtle	
Snapping turtle	Chelydra serpentina
Stinkpot	Sternothaerus odoratus
Mud turtle	Kinosterno subrubrum
Spotted turtle	Clemmys guttata
Box turtle	Terrapene carolina
Diamondback terrapin	Malaclemys terrapin
Painted turtle	Chrysemys picta
Red-bellied turtle	Pseudemys rubriventris
Lizards	
Five-lined skink	Eumeces fasciatus
Fence lizard	Sceloporus undulatus
Snakes	
Water snake	Natrix sipedon
Garter snake	Thamnopis sirtalis
Ribbon snake	Thamnophis savritis
Racer	Coluber constrictor
Rat snake	Elaphe obsoleta
Eastern hognose snake	Heterodon platyrhinos
Rough-green snake	Opheoldrys vernalis
Salamanders	
Red-backed salamander	Plethodon cinereus
Spotted salamander	Ambrystoma maculatum
Toads and Frogs	
Cricket frog	Acris crepitans
Spring peper	Hyla crucifer
Bullfrog	Rana catesbeiana
Green frog	Rana clamitans
Leopard frog	Rana pipiens
Pickerel frog	Rana palustris
Gray tree frog	Hyla versicolor
Wood frog	Rana sylvatica
American toad	Bufo americanus
Fowler's toad	Bufo woodhousei fowleri

APPENDIX 6

PUBLIC COMMENTS

1981 MARSH MANAGEMENT PROPOSAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, BOX 147
SMYRNA, DELAWARE 19977

Perkuchin (302-653-9345)
O'Shea (302-684-8419)

MARSH MANAGEMENT PROPOSED AT PRIME HOOK REFUGE

FOR IMMEDIATE RELEASE:

The U.S. Fish and Wildlife Service plans to re-establish water management in the marshes of the Prime Hook National Wildlife Refuge by constructing a low dike and water control structure at the Junction of Slaughter Canal and Slaughter Creek, it was announced today by Refuge Manager Don R. Perkuchin. The refuge, consisting of 8,817 arces is located near Milton, Delaware.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. In 1934, Slaughter Canal was dug to channel the water flow northward and to improve upland drainage. This action served to seriously dry the marsh resulting in encroachment of giant reeds known as Phragmites. These plants, which grow up to 14 feet annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A fire in this area in 1977 threatened the community of Prime Hook Beach.

An earthen dike would be built by dragline from State Route 199 southward to the Junction of the two waterways. A wood piling water

more

control structure would be built across Slaughter Creek to impound about 1,200 acres of marsh. The impoundment would be completed by driving wooden sheet piling from the control structure to Oak Island. The dike would not be over 2 feet above existing marsh elevation.

The purpose of the project, according to Perkuchin would be to create improved wildlife habitat. Improved habitat and increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will benefit. The increased water table would also lessen danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, The Fish and Wildlife Service is preparing an environmental assessment on this marsh project. Interested persons should comment in writing to Refuge Manager, Prime Hook National Wildlife Refuge, R.D. #1, Box 147, Smyrna, Delaware, within thirty days. Comments will be included in drafting of the environmental assessment.

X X X X X

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF FISH AND WILDLIFE
P.O. Box 1401
EDWARD TAPPAN BUILDING
DOVER, DELAWARE 19901

OFFICE OF THE
DIRECTOR

TELEPHONE (302) 736-4431

June 10, 1981

Mr. John Green
Area Manager
Delmarva Area Office
U.S. Fish and Wildlife Service
1825 Virginia Street
Annapolis, Maryland 21401

Dear Mr. Green:

Enclosed are our specific comments relative to a review of the Environmental Assessment for a water management plan - Unit II at the Prime Hook National Wildlife Refuge in Delaware.

As a general comment, this Division is quite interested in seeing the Service install some type of water management on the Prime Hook marshes. We are uncertain if this is the best plan; it is only for a portion of the whole marsh complex and we do not know your plans for the balance of the marsh (if any). We question if tidal cycles from Slaughter Canal will furnish enough water to materially affect the marsh. It would certainly be helpful if the freshwater from Slaughter Creek could be utilized (Alternative E).

We will appreciate being advised of your plans as they proceed.

Sincerely,

William C. Wagner II
Director

WCW:RLG:my

Enclosure

DATE
JUN 15 198
REC'D

SURNAME
GREEN
HUTCH.
KINSER
RUDOLPH
DALY
MOSER
CARLISLE
HARRISON
SECY
OTHER
FILE
5604F

COMMENTS - ENVIRONMENTAL ASSESSMENT

WATER CONTROL PLAN - UNIT II - PRIME HOOK

Page 1

Paragraph 1: Question on statement "A flowage easement has been obtained on 109 acres." Does not the Service own all of the marsh?

Paragraph 4: Question the statement that "Prior to Service acquisition . . . were managed . . . and pumping stations." No historic information is available to use to show the use of pumps. The basic water management system after Slaughter Creek was dredged and the spoil used to form the dike was a ditch plug/water control structure at the mouth of old Slaughter Creek. Water supply was basically furnished from water impounded at the Broadkill Beach end of Prime Hook Creek backing up and flowing north through big ditch to the north unit.

Page 4

Paragraph 4: The State of Delaware Wetlands Act should be listed.

Page 5

Paragraph 3: Clarification is needed on "the maximum water level of 6 to 8 inches." Is this over the broad expanse of the marsh or at the dike/water control structure? The marsh at this location is obviously lower than the marshes in back of Prime Hook Beach, the "hills" and adjacent to the Prime Hook causeway. Also, will tidal action (on extreme high tides) provide sufficient water through a 4-foot wide stoplog water control structure?

Also, in this same paragraph, water management is discussed. Assuming one of the primary objectives is to control or curb the spread of phragmites, water should be held on the marsh surface during April - July to help preclude further germiniation and revegetation by phragmites.

Page 7

Figure 4: Depicts Alternative D - Perimeter Diking. Alternative C is not depicted by a Figure enclosed.

Page 10

1. Vegetation: The reference to Figure 4 showing generla vegetation type should be Figure 3.

Page 11, 12, 13

Before commentiong on Environmental Consequences, we need clarification on the depth of water to be held and the area of the marsh affected. On the one hand, effects are discussed as though extensive areas of the marsh (Unit II) will be covered with water; on the other hand, effects are discussed involving marsh areas that are presently influenced by tidal fluctuations.

Page 21

Appendix Table 4: Lists fishes of Prime Hook Creek and Petersfield Ditch. Is there evidence to show fishes such as herring, alewife, mehaden, striped bass, bluefish, etc. upstream in Slaughter Canal?

RLG:my

Re: NAPOP-R-81-0325.3

District Engineer:

June 21, 1981

Dear Sir:

Regarding the construction of a dike in the Prime Hook Wildlife Refuge.

My husband and I strongly object to any project of this sort without the benefit of a public hearing. We feel such a move could endanger our lives and property here at Prime Hook Beach.

If your department is ready to accept and legal obligations concerning our investment here, any damages as a result of this project, and you will so state in writing, we would possibly consider backing you. If not, we will certainly seek legal assistance to prevent any tampering with the Ecology as it now stands. It seems to be working just fine as is, why spend millions with the economy in the condition it is now. Yours truly,

Mr. & Mrs. Chas. Kelly

MANAGER
ASST. MGR.-B.H.
ASST. MGR.-B.H.
ASST. MGR.-P.H.
CLERK
BIO. TECH
FORE. MAN
STAFF
FILE

April 24, 1981

Refuge Manager
Bombay Hook National
Wildlife Refuge
Smyrna, DE 19977

Dear Sir:

I read with great interest reports of the proposed water control structures at Prime Hook National Wildlife Refuge.

This has long been needed, as the entire area is drained by the tidal action to the detriment of wildlife and fish.

I fully support the proposed water control devices as do many of my friends as evidenced by the petition I helped circulate in 1978, copies of which should be on file with your office and with the Director of Fish and Wildlife, State of Delaware, Dover, Delaware.

I would appreciate any information you could supply on the project's progress, impact statements, and advance notice on any hearing which might be held by you or other agencies. As a long time user of the area, and a supporter of your efforts to aid in the maintenance and enhancement of wildlife use, I would like to add any positive input I could.

Thank you for your cooperation in this matter.

Sincerely,

Barry V. Hollingsworth

Barry V. Hollingsworth
P.O. Box 16, Lincoln, DE 19960

P.S. I would also like to add a strong note of support for efforts to control phragmites (or foxtail) in this area and urge continued efforts. The habitat values, as I am sure you are aware, are considerably lessened by this weed.

I observed with delight, the areas where "Round-up" was applied. An aerial application of this, plus water control should be of immeasurable help in controlling phragmites. I was especially astonished at the rapid regeneration of native aquatic and semi-aquatic growth.

Keep up the good work!

TO: U.S. Fish and Wildlife Service
Bombay Hook National Wildlife Refuge
R.D. #1, Box 147
Smyrna, Del.

SUBJECT: Water Control Systems on Units #2 and #3 of Prime Hook National Wildlife Refuge

Gentlemen:

This letter is in support of the proposed water control systems on Prime Hook Refuge. As a student majoring in General Resource Management at Delaware State College, I am familiar with this subject, and as an avid waterfowl hunter on Prime Hook, I am familiar with this area. This would considerably improve the muskrat and waterfowl habitat. It would help (along with a spraying program of the chemical "Roundup") greatly reduce the phragmites which are trying to turn the marsh virtually into an upland. Hence, the proper manipulation of the habitat is essential here just to maintain it. The water control systems would not only help maintain the habitat, but would improve it substantially. From a secondary standpoint, we need a water control system in the waterfowl hunting area because sediment is filling in several of the ponds. With the water ebbing and flowing, when the tide goes out these ponds become mud flats. This makes it, needless to say, extremely difficult to get in or out with a boat, pick up or lay out decoys, etc., etc. It is also hard traveling on the waterways leading to the ponds anywhere around low tide. Lower water levels also make for reduced hunting quality as these ponds are shallow ponds to begin with. Lastly, it would greatly reduce the fire hazard of the area. I am in favor of the water control systems being constructed. Thank you .

John Kirby

John Kirby

Milford, Del

April 27, 1981

RECEIVED
APR 28 REC'D
RECEIVED
BOMBAY HOOK REFUGE

THE CHRONICLE

May 6, 1981

Water Management Re-established

The U.S. Fish and Wildlife Service plans to re-establish water management in the marshes of the Prime Hook National Wildlife Refuge by constructing a low dike and water control structure at the Junction of Slaughter Canal and Slaughter Creek, it was announced this week by Refuge Manager Don R. Perkuchin. The refuge, consisting of 8,817 acres is located near Milton, Delaware.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. In 1934, Slaughter Canal was dug to channel the water flow northward and to improve upland drainage. This action served to seriously dry the marsh resulting in encroachment of giant reeds known as Phragmites. These plants, which grow up to 14 feet annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A fire in this area in 1977 threatened the community of Prime Hook Beach.

An earthen dike would be built by dragline from State Route 199 southward to the Junction of the two waterways. A wood piling water control structure would be built across Slaughter Creek to impound about 1,200 acres of marsh. The impoundment would be completed by driving wooden sheet piling from the control structure to Oak Island. The dike would not be over 2 feet above existing marsh elevation.

The purpose of the project, according to Perkuchin would be to create improved wildlife habitat. Improved habitat and increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will benefit. The increased water table would also lessen danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, The Fish and Wildlife Service is preparing an environmental assessment on this marsh project. Interested persons should comment in writing to Refuge Manager, Prime Hook National Wildlife Refuge, R.D. no.1, Box 147, Smyrna, Delaware, within thirty days. Comments will be included in drafting of the environmental assessment.

Marsh management urged

At Prime Hook Refuge

The U.S. Fish and Wildlife Service plans to re-establish water management in the marshes of the Prime Hook National Wildlife Refuge near Milton by constructing a low dike and water control structure at the Junction of Slaughter Canal and Slaughter Creek, it was announced today by Refuge Manager Don R. Perkuchin.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. In 1934, Slaughter Canal was dug to channel the water flow northward and to This action served to improve upland drainage, seriously dry the marsh resulting in encroachment of giant reeds known as Phragmites. These plants, which grow up to 14 feet annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A fire in this area in 1977 threatened the community of Prime Hook Beach.

An earthen dike would be built by dragline from State Route 199 southward to the Junction of the two waterways. A wood piling water control structure would be built across Slaughter Creek to impound about 1,200 acres of marsh. The impoundment would be completed by driving wooden sheet piling from the control structure to Oak Island. The dike would not be over 2 feet above existing marsh elevation.

The purpose of the project, according to Perkuchin would be to create improved wildlife habitat. Improved habitat and increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will benefit. The increased water table would also lessen danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, The Fish and Wildlife Service is preparing an environmental assessment on this marsh project. Interested persons should comment in writing to Refuge Manager, Prime Hook National Wildlife Refuge, R.S. no 1, Box 147, Smyrna, Delaware, within thirty days. Comments will be included in drafting of the environmental assessment.

Sussex Countian
April 8, 1981
Page 11

Water control slated for Prime Hook

The U.S. Fish and Wildlife Service plans to reestablish water management in the marshes of the Prime Hook National Wildlife Refuge by constructing a low dike and water control structure at the Junction of Slaughter Canal and Slaughter Creek. The refuge, consisting of 8,817 acres is located near Milton.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. In 1934, Slaughter Canal was dug to channel the water flow northward and to improve upland drainage. This action served to seriously dry the marsh resulting in encroachment of giant reeds known as Phragmites. These plants, which grow up to 14 feet annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A fire in this area in 1977 threatened the community of Prime Hook Beach.

The purpose of the project, according to Perkuchin would be to create improved wildlife habitat. Improved habitat and increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will benefit. The increased water table would also lessen danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, The Fish and Wildlife Service is preparing an environmental assessment on this marsh project. Interested persons should comment in writing to Refuge Manager, Prime Hook National Wildlife Refuge, R.D. 1, Box 147, Smyrna, Delaware, within thirty days. Comments will be included in drafting of the environmental assessment.

Delaware State News
April 7, 1981
Page 7

Prime Hook water control system planned to cut fire risk

WILMINGTON (AP) — The U.S. Fish and Wildlife Service is planning to construct a water control system for the Prime Hook National Wildlife Refuge marsh in order to make it less of a fire hazard.

The re-establishment of water control for the Milton-area marsh would also substantially improve the waterfowl and muskrat habitat, according to refuge manager Donald R. Perkuchin.

Fish and Wildlife officials are preparing an environmental assessment of the federally financed project, he said, adding that it is expected to cost several hundred thousand dollars.

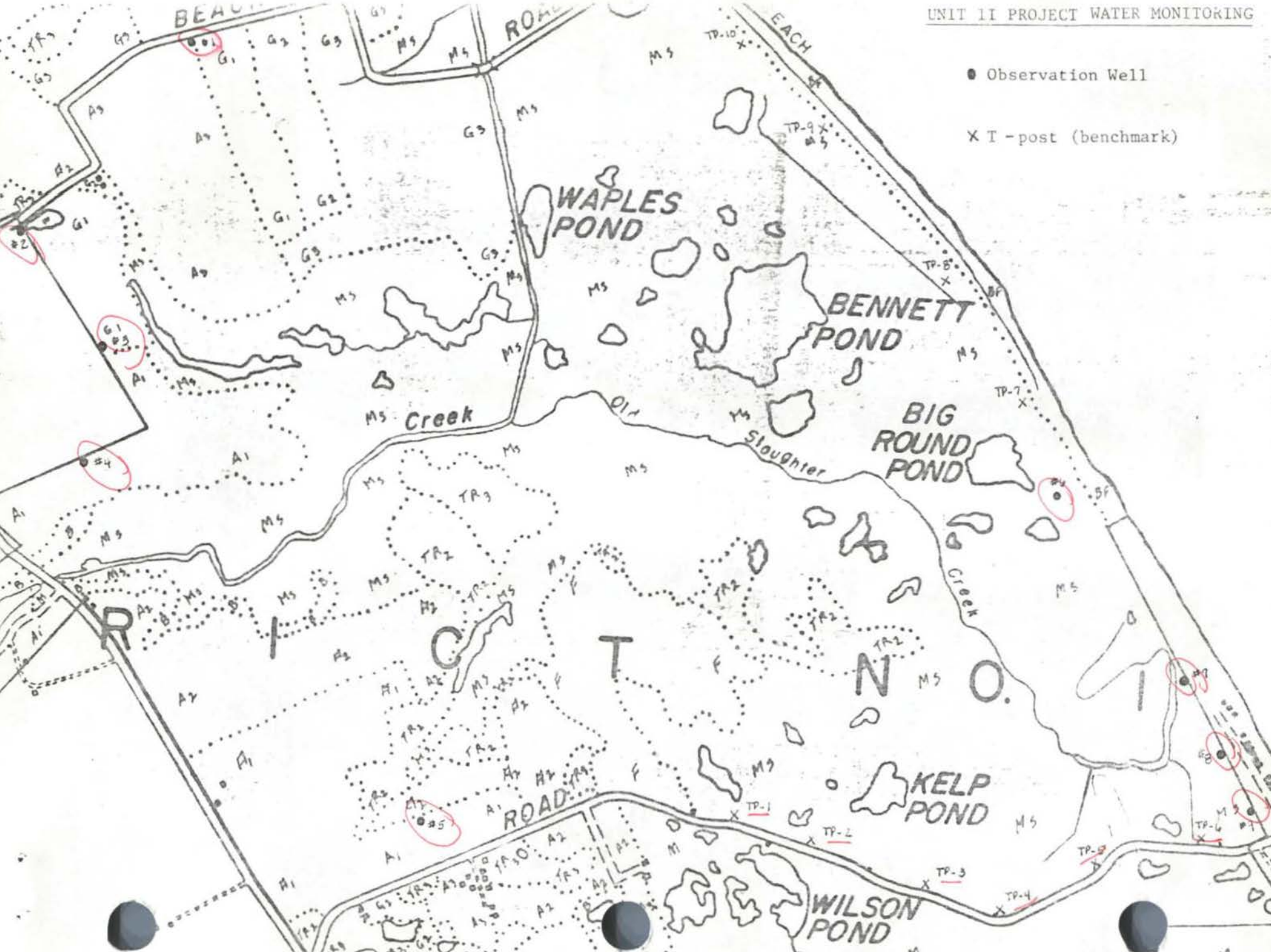
At one time, Slaughter Creek flowed south, emptying into Prime Hook Creek. It helped provide water to a complex water management system in the 8,617-acre refuge that flooded the wetlands in the fall and winter for wildlife and drained them in the spring and summer for use as pasture.

In 1934, Slaughter Canal was dug to channel the water northward to improve upland drainage.

APPENDIX 7

MONITORING WELL LOCATIONS

UNIT II PROJECT WATER MONITORING



APPENDIX 8

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
PRIME HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, BOX 195
MILTON, DELAWARE 19968

George F. O'Shea
Assistant Refuge Manager
Prime Hook NWR
(302)684-8419
OR
Frank Smith
Assistant Refuge Manager
Bombay Hook NWR
(302)653-9345

FOR IMMEDIATE RELEASE
WATER MANAGEMENT PLANNED
AT PRIME HOOK NATIONAL WILDLIFE REFUGE

The U.S. Fish and Wildlife Service plans to reestablish water management in the marshes of the Prime Hook National Wildlife Refuge by constructing a water control structure on Slaughter Canal near the fowler Beach Road (State Route 199) bridge, it was announced this week by Refuge Manager Paul D. Daly. The refuge, consisting of 8,817 acres, located near Milton, Delaware.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. Around 1906 Slaughter Canal was dug from Oak Island to Cedar Creek to channel the water flow northward and to improve upland drainage. This action and further ditching for mosquito control has served to seriously dry the marsh resulting in encroachment of giant reeds known as phragmites. These plants, which grow up to 14 feet tall annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A large fire in April 1977 threatened the community of Prime Hook Beach.

A temporary structure will be placed in the fall of 1985 to evaluate the area to be influenced by management and to provide information to establish future water management levels. The proposed water control structure will be a multi-bay concrete structure similar to those built near Route 16 in 1983. Stoplogs in the bay will provide the capability for retaining or reducing water levels within 1500 acres of marsh.

The purpose of the project, according to Mr. Daly, would be to restore and improve wildlife habitat. An increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will benefit. Black ducks especially would benefit from the project. The improved water table would also lessen the danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, the Fish and Wildlife Service has prepared an environmental assessment on this marsh project. The assessment maybe reviewed at the Prime Hook or Bombay Hook offices. Interested persons should comment in writing to: Refuge Manager, Prime Hook National Wildlife Refuge, RD #1, Box 195, Milton, Delaware within thirty days. Comments will be considered prior to finalizing the environmental assessment.

X X X X

June 19, 1985

APPENDIX 9

NEWSPAPER PUBLICATIONS
TV and Radio

Bethany Harold
Rt. 26
Ocean View, Delaware 19970

Delaware State News
Webbs Lane & New Burton Rd.
Dover, DE 19901

News Journal
Wilmington Morning News
Evening Journal
831 Orange Street
Wilmington, DE

Delaware Coast Press
Route 1
Rehoboth Beach, DE 19971

Milford Chronicle
16 S. W. Front Street
Milford, DE 19963

The Whale
P.O. Box 37
Lewes, DE 19963

Seaford Leader
616 Water Street
Seaford, Delaware 19973

The Sussex Countian
115 N. Race Street
Georgetown, DE 19947

Sussex County Post
Main & State Streets
Millsboro, DE 19966

WBOC - TV
c/o Scorchy Tawes
Salisbury, MD

WDMT - TV
Salisbury, MD

WSEA Radio
Rt. 13
Georgetown, DE 19947

WGMD Radio
RD. 288
Lewes, DE 19958

APPENDIX 10

PUBLIC COMMENTS
UNIT II PROPOSAL

1 September 1985
HAPPY HOLLOW SPRINGS
R. D. 1, BOX 207A
MAGNOLIA, DELAWARE 19962

REFUGE MANAGER
PRIME HOOK NATIONAL WILDLIFE REFUGE
RD #1, BOX 195
MILTON, DELAWARE 19968

Re: Comments for consideration in environmental assessment.

I would like to make the following comments in regards to the Water Management planned at the Prime Hook National Wildlife Refuge. I am in favor of the construction of a water control structure on Slaughter Canal near the Fowler Beach Road(State Route 199)bridge.

I firmly beleive the proposed structure will greatly improve the present Refuge and return it to the great duck and goose marsh it once was. All waterfowl and other wildlife will benefit. There is no doubt in my mind that phragmites has ruined this marsh. In addition I can see the high potential for fire damage which could result from leaving this marsh in it's present condition.

In conclusion let me say that I am in complete agreement with the program as planned by the Fish and Wildlife Service. Thank you.

Sincerely,

Howard R. Carey

Howard R. Carey

PRIME HOOK REFUGE
SEP 23 1985
RECEIVED

PRIME HOOK REFUGE
AUG 27 1985
RECEIVED

Refuge Management:

I believe that the water management plan is a necessity for that area.

Familiar with the area and seeing first hand that the phragmites creates a serious fire hazard to Prime Hook residences.

Plus its a waste to let that many acres of prime wildlife producing acres set there dormant.

Projects like this are needed for us and future generations.

I'm for the project for community protection and wildlife benefit.

James B. Watson

To Whom It May Concern:

I think a Water Control Structure is a good idea and would be beneficial to reduce phragmitious growth, to upgrade marsh habitat for all wildlife involved, plus reduce the hazard of a major marsh fire.

7/20/85

George J. West

XXXX

June 19, 1985

United States
Department of
Agriculture

Soil
Conservation
Service

Agricultural Service Center
408 N. DuPont Highway
Georgetown, DE 19947

August 19, 1985

Representative V. George Carey
R.D. #1, Box 161
Milford, DE 19963

Dear Mr. Carey:

Our surveys show that parts of the field will be flooded when the water elevation is at 2.8 feet above MSL. The soils will show an effect of the flooding up to an appropriate elevation of 4.3 feet above MSL. When the marsh is flooded there will not be an outlet for surface drainage from the field. The intrusion of brackish water in the field would also have a detrimental affect on crops. It could conceivably leave you with a choice of two crops, corn and barley.

I would recommend that you ask the Department of Interior to survey and designate the areas affected.

Very truly,

Richard P. Bennett

RICHARD P. BENNETT
District Conservationist

BRIGANTINE HOOK REFUGE
AUG 21 1985
RECEIVED

PRIME HOOK REFUGE
AUG 2 1985
RECEIVED

HOUSE OF REPRESENTATIVES
STATE OF DELAWARE
LEGISLATIVE HALL
DOVER, DELAWARE 19901

V. GEORGE CAREY
R.D. 1, BOX 161
MILFORD, DELAWARE 19963
HOME: 302-684-8358
OFFICE: 302-422-4191
HOUSE OFFICE: 302-736-1031

COMMITTEES
NATURAL RESOURCES, CHAIRMAN
AGRICULTURE

July 31, 1985

Refuge Manager
Prime Hook National Wildlife Refuge
R.D.#1-Box 195
Milton, Delaware 19968

Dear Sir:

It has come to my attention that the U.S. Fish and Wildlife Service plans to build a dam on Slaughter Canal near Fowler Beach Road to allow more water to flow into the marshes of the Refuge.

I am concerned about several points which have been questioned by those of us who have been long-time residents of this area:

1. Giant reeds, known as phragmites, seem to grow even in 2 or 3 feet of water in irrigation ponds, so will the water retard their growth in the marsh?

2. There is a definite possibility that at high water times the fringe areas of agricultural land can be flooded.

3. Will the Draper-Bennett Ditch Co. tax Ditches be caused to flow less freely than at present?

4. Will a wetter marsh cause a greater beach erosion at Fowler's Beach during high tides?

5. Will the excess water affect either the septic systems or the drinking water supply of the residents of Prime Hook Beach?

6. Will this project be providing massive mosquito breeding areas?

Fulton HCSCS Office

AUG 2 1985

RECEIVED

Not only as a legislator, but also as a resident and farmer, of the 36th District, I feel that all of the above questions must be answered before this proposed project should be carried out.

I will be glad to discuss these concerns with you, at your convenience.

Sincerely,

V. George Carey

V. George Carey
State Representative
36th District

VGC:ral

HOUSE OF REPRESENTATIVES
STATE OF DELAWARE
LEGISLATIVE HALL
DOVER, DELAWARE 19901

V. GEORGE CAREY
R.D. 1, BOX 161
MILFORD, DELAWARE 19963
HOME: 302 684-8358
OFFICE: 302 422-4191
HOUSE OFFICE: 302-736-4034

COMMITTEES
NATURAL RESOURCES, CHAIRMAN
AGRICULTURE

Mr. George O'Shea
R.D. #1, Box 195
Milton, Delaware
19968

Dear Sir :

When the Soil Conservation Service surveyed the flooding of the marsh at 2.8 above MSL, it seems to prove that I will stand to lose a great deal of farmland. It will also be detrimental to my crops due to salt deposits..

I suggest maybe trying a lower level of 1.5 MSL. Perhaps an experiment of that level would not flood my areas of farmland.

Very truly,

V. George Carey

VGC/jmc

BRIME HOOK REFUGE
AUG 21 1985
RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, Box 147
Smyrna, Delaware 19977

September 26, 1985

Honorable V. George Carey
R.D. #1, Box 161
Milford, DE 19963

Dear Mr. Carey:

This letter is in response to your letter of July 31, 1985, and your subsequent letter received in our office on August 21, 1985. It will also serve as a follow up to your meeting of August 29, 1985 with Frank Smith of my staff.

The Service understands your concern regarding water management at Prime Hook National Wildlife Refuge. We have planned our management of the marsh to minimize the impacts to privately owned lands. As a long-time resident of this area, I'm sure you can appreciate the needs of the Service to restore and rehabilitate the Prime Hook marshes. The current situation in Unit II is not in the best interest of wildlife or your constituents living on Prime Hook Beach. As you will recall, a marsh fire in April, 1977 seriously threatened homes on the beach. If present conditions were to continue the threat of a serious fire would be present on an annual basis.

In our planning process, we have considered many of the points that you discussed in your letters and our subsequent meetings. This is why we prefer to go forward with a two phase project for Prime Hook Unit II. Phase I will be a temporary, steel, sheet pile water control structure (wcs) that would be installed across Slaughter Canal later this year. The purpose of the temporary structure is to determine the limits of flow of impounded water at the maximum impoundment elevation of 2.8 feet NGVD (National Geodetic Verticle Data). Our surveyor contacted Mr. Bennett of SCS to discuss the variations in the NGVD data with those used by the SCS. The temporary structure will remain in place only long enough to enable us to map (through special aerial photographs) the limits of the flow, or until April 1, 1986, whichever comes first. If problems arise, the structure would be removed sooner. After the data collection is completed, we can better determine the scope of the project, complete our plans for the permanent structure, and ensure that private lands will not be negatively affected.

The second phase of the project involves construction of the permanent structure and reclamation of Unit II as a viable marsh ecosystem. Conceivably, actual planned management elevations might never reach the 2.8 foot NGVD level. You can be assured that if serious problems are noted during the data collection phase (Phase I), then our maximum planned elevations for the permanent management program will be altered accordingly.

The additional concerns which you expressed in your letter are also concerns that we have addressed in our planning process. Following is a point by point discussion of those concerns. The numbers preceding each topic correspond to the points raised in your letter of July 31.

(1) Phragmites will grow in two to three feet of water in irrigation ponds only if a portion of the rhizome is in shallow water or on dry ground. Water of that depth during the growing season will certainly stress regrowth of Phragmites. Our planned management however, will be to reduce water within the marsh at that time to minimize impact on upland farms. In September of this year, we will treat over 1,000 acres of Phragmites in Unit II with the herbicide Rodeo. This chemic has effectively reduced Phragmites growth in other areas of the refug State Fish and Wildlife personnel have also used the herbicide successfully on a number of State areas. After treatment, any remaining Phragmites or new growth will be stressed by minimum water levels and competition from other, more desirable marsh species of plants.

The chemical Rodeo is similar to the Round-up that you use for Johnso grass control. This systemic chemical is used in the fall when tasseling of Phragmites is complete. As with Johnsongrass, follow-up sp spraying may be necessary each year to maintain control.

(2) Floodings will not occur on fringe agricultural lands. As outlined above, the temporary water control structure we plan to install in the fall of 1985, will provide the opportunity to evaluate the influence of future management at the maximum proposed fall/winter level of 2.8 feet. In Unit III - south of Prime Hook Beach Road - where similar management now occurs, no adverse effect has been noted.

Again, the final management levels will be determined from data obtained from installation of the temporary structure.

As with Unit III, let me emphasize that our management planning is and will be designed to avoid adverse impacts on your lands. We all must realize, however, that wet times do occur - such as the spring 1984. At these times management will mainly involve water discharge. In the wet years, low-lying fields may experience surface water which is unrelated to our management strategies.

The final control structure we plan to build will be a stoplog type structure similar to the ones built in Unit III. Stoplogs can easily be removed in the event of a storm to reduce water levels within the impoundment area.

(3) The Draper/Bennett Ditch in Unit I north of Fowler Beach Road has its connection to Slaughter Canal over one mile downstream from the proposed control structure and will not be impacted by this project.

(4) Increased water in the marsh will have no effect on beach erosion. Peak impoundment at the 2.8 foot level will provide 4-6 inches of water in the marsh, an insignificant level to cause erosion of the sand dike. Storm tides in the Bay will continue to erode the beach. However, there is no connection between our management program and beach erosion. Off-road vehicular traffic along the fragile dunes presents a more serious erosion threat.

(5) The drinking water supply on Prime Hook Beach will not be affected by this project. Observation wells placed along the beach, similar to those on Broadkill Beach, will monitor ground water levels to determine if any problems occur with septic systems. As with Broadkill Beach, septic systems for houses on the beach will be covered by a written policy covering replacement of systems which fail due to our water management. This policy will be a condition of the permit issued by the State for construction of the permanent water control structure. A copy of the procedures for Unit II is available for review at the Refuge Office and has been recorded in the office of the Sussex County Recorder of Deeds.

(6) Breeding mosquito populations are expected to be reduced as a result of this project. At present the area is barely accessible to mosquito control personnel who monitor breeding populations. Following management, the summer water level will maintain water within the ditches in the marsh allowing mosquito eating minnows to survive; providing natural mosquito control. This will reduce the amount of toxic pesticides used in the marsh each year. This project has been planned with the input of the State's Mosquito Control Section.

In regards to the concerns expressed regarding saline deposits on crop fields, the water source for Unit II adjacent to these fields will be freshwater runoff and will not cause any increased salinity.

We appreciate your comments and input into the planning process. I can assure you that we share your concerns and are planning a project which will benefit both wildlife and the public, and restore vital marsh habitat. The installation of a temporary water control structure this fall will provide us with valuable data for final managemen planning within Unit II. Your comments will be considered in the preparation of the final environmental assessment for the Prime Hook Unit II project.

Any time you have additional concerns or questions please feel free to contact me.

Sincerely,

Paul D. Daly

Paul D. Daly
Refuge Manager
Bombay Hook/Prime Hook
National Wildlife Refuges

Prime Hook Refuge Water Management Project Set

The U.S. Fish and Wildlife Service plans to re-establish water management in the marshes of the Prime Hook National Wildlife Refuge by constructing a water control structure on Slaughter Canal near Fowler Beach Road (State Route 199) bridge, it was announced by Refuge Manager Paul D. Daly. The refuge, consisting of 8,817 acres, is located near Milton.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. Around 1906 Slaughter Canal was dug from Oak Island to Cedar Creek to channel the water flow northward and to improve upland drainage. This action and further ditching for mosquito control has served to seriously dry the marsh resulting in encroachment of giant reeds known as phragmites.

These plants, which grow up to 14 feet tall annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A large fire in April, 1977 threatened the community of Prime Hook Beach.

A temporary structure will be placed in the fall of 1985 to evaluate the area to be influenced by management and to provide information to establish future water management levels. The proposed water control structure will be a multi-bay concrete structure similar to those built near Route 16 in 1983. Stoplogs in the bay will provide the capability for retaining and reducing water levels within 1,600 acres of marsh.

THE PURPOSE OF THE project, according to Daly, would be to restore and improve wildlife habitat. An increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will benefit. Black ducks especially would benefit from the project.

The improved water table would also lessen the danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, the Fish and Wildlife Service has prepared an environmental assessment on this marsh project. The assessment may be reviewed at the Prime Hook or Bombay Hook offices. Interested persons should comment in writing to: Refuge Manager, Prime Hook National Wildlife Refuge, RD #1, Box 195, Milton, within thirty days. Comments will be considered prior to finalizing the environmental assessment.

Water management planned for Prime Hook Refuge

MILTON — The U.S. Fish and Wildlife Service plans to re-establish water management in the marshes of the Prime Hook National Wildlife Refuge by constructing a water control structure on Slaughter Canal near the Fowler Beach Road (State Route 199) bridge, it was announced this week by Refuge Manager Paul D. Daly. The refuge, consisting of 8,817 acres, is located near Milton.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. Around 1906, Slaughter Canal was dug from Oak Island to Cedar Creek to channel the water flow northward and to improve upland drainage. This action and further ditching for mosquito control has served to seriously dry the marsh, resulting in encroachment of giant reeds known as phragmites. These plants, which grow up ot 14 feet tall annually, have now taken over most of the marsh. Dead stalks from this plant present a serious fire danger during the spring. A large fire in April 1977 threatened the community of Prime Hook Beach.

A temporary structure will be placed in the fall of 1985 to evaluate the area to be influenced by management and to provide information to establish future water management levels. The proposed water control facility will be a multi-bay concrete structure similar to those built near Rt. 16 in 1983. Stoplogs in the bay will provide the capability for retaining or reducing water levels within 1500 acres of marsh.

The propose of the project, according to Daly, would be to restore and improve wildlife habitat. An increased water table would most benefit waterfowl and muskrats, however all water-oriented wildlife will be aided especially black ducks. The improved water table would also lessen the danger of fire crossing the marsh and threatening private homes.

In compliance with the National Environmental Policy Act, the Fish and Wildlife Service has prepared an environmental assessment on this marsh project. The assessment may be reviewed at the Prime Hook or Bombay Hook offices. Interested persons should comment in writing to: Refuge Manager, Prime Hook National Wildlife Refuge, RD 1, Box 195, Milton, DE 19968 within 30 days. Comments will be considered prior to finalizing the enviromental assessment.

Delmarva

State News

Wednesday, July 31, 1985 - 9

Briefly/Delmarva

SUSSEX COUNTY

Slaughter dam to increase water flow

MILTON — The U.S. Fish and Wildlife Service plans to build a dam on Slaughter Canal near Fowler Beach Road to allow more water to flow into the marshes of the Prime Hook National Wildlife Refuge.

The 8,817-acre refuge is located near Milton.

Slaughter Creek used to flow south and emptied into Prime Hook Creek. In 1906, Slaughter Canal was dug from Oak Island to Cedar Creek to channel the water flow northward and to improve upland drainage. This action, and further ditching for mosquito control, has served to seriously dry the marsh, resulting in encroachment of giant reeds known as phragmites.

These plants, which grow up to 14 feet tall annually, have now taken over most of the marsh, said refuge manager Paul D. Daly. Dead stalks from this plant present a serious fire danger during the spring. A large fire in April 1977 threatened the community of Prime Hook Beach.

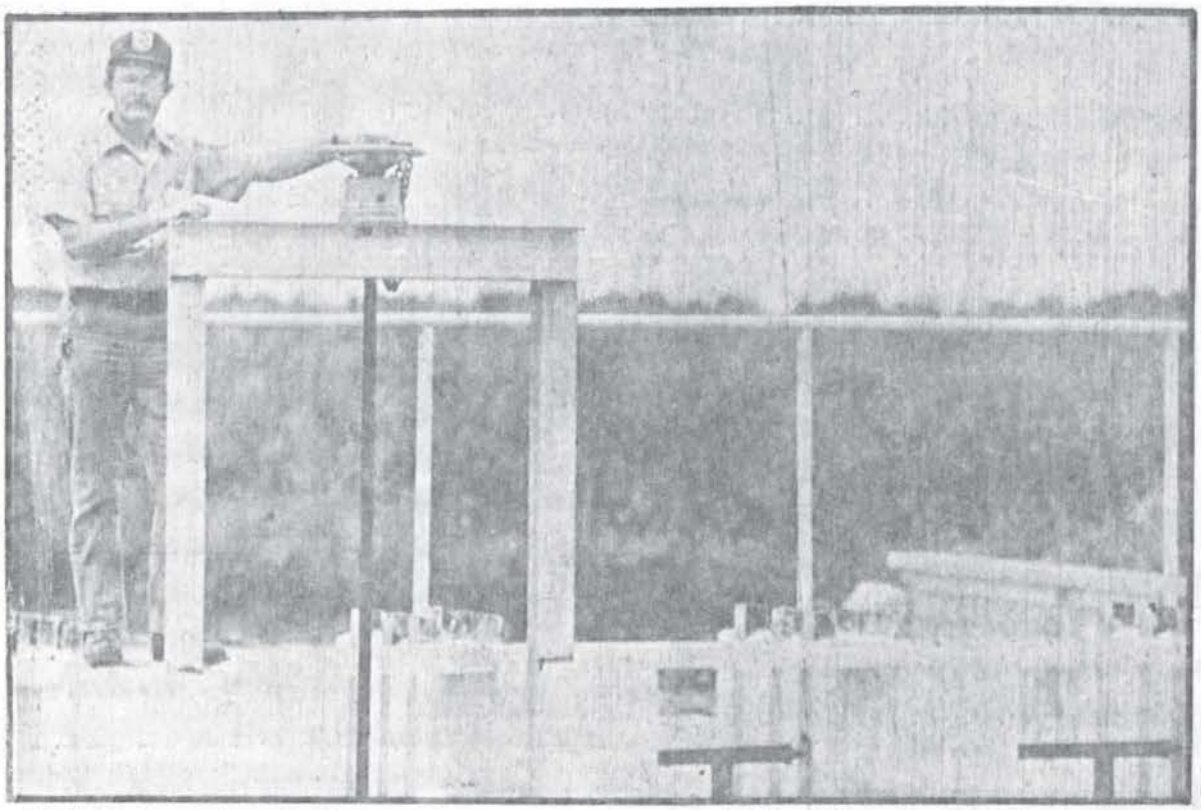
A temporary water control-structure will be constructed this fall to evaluate the affected area, and provide information to establish future water management levels. The proposed structure will be a multi-bay concrete structure similar to those built near Del. 16 in 1983. Stoplogs in the bay will provide the capability for retaining or reducing water levels within 1,500 acres of marsh.

Daly said the purpose of the project is to restore and improve wildlife habitat, and to lessen the danger of fire crossing the marsh and threatening private homes.

An environmental assessment on this marsh project may be viewed at the Prime Hook or Bombay Hook offices. Interested persons should comment in writing to: Refuge Manager, Prime Hook National Wildlife Refuge, R.D. 1, Box 195, Milton, within 30 days.

The Cronicle
Wed Aug 14, 1985 Pg 1

Refuge battles giant reeds to protect area wildlife and neighbors



Watching water levels. George F. O'Shea, assistant manager of the Prime Hook Wildlife Refuge, stands atop a water control structure which helps maintain the water table of the marshes. The water table is important in the control of phragmites, giant reeds which are proving troublesome to both wildlife and neighbors of the refuge.

PRIME HOOK - It is a somewhat unusual battle that the U.S. Fish and Wildlife Service has declared at the Prime Hook National Wildlife Refuge near Milton.

The enemy is the phragmites, giant reeds that inhabit the marsh. And the best defense, they say, is water.

Although they stand up to 14-feet high, the phragmites appear to be innocent enough; so innocent that some neighboring homeowners hardly bother to keep them at bay. Most residents even find their rustle to be a soothing backdrop.

But the reeds, according to Assistant Refuge Manager George O'Shea, have not only taken up land base that would otherwise be occupied by wildlife, they have proved to be a hearty fuel for fire.

The community of Prime Hook Beach was reminded when threatened by a large marsh fire in April of 1977. Approximately 2,000 man-hours were spent fighting the fire, O'Shea recalls, and the government reimbursed $6,000 to area fire companies for the food and fuel that was required during that time.

The attack on the phragmites has actually been on the drawing board for a number of years, but it was only recently that the U.S. Fish and Wildlife Service announced plans to reestablish water management in the marshes at the refuge.

O'Shea explains that the last five years have been spent planning and convincing various groups that water management is needed. There have furthermore been at least 10 different state and federal agencies involved in the process.

At just under 9,000 acres, Prime Hook is actually a small federal refuge. Last year, however, O'Shea estimates that there was a visitor for every one of the 20,000 snow geese that stopped by. And less than 10 percent of them were hunters, he says.

The refuge was established in 1963, purchased entirely from the proceeds of duck stamp sales. Water management was a concern then, O'Shea explains, but in order to do anything about it, federal authorities realized that the government would have to have all of the land. It

See REFUGE—page 12.

Refuge—

(continued from page 1)

was obtained through an act of condemnation in 1972, he says.

Over the course of the next five years, water management was further postponed because federal monies had dried up. The marshes, meanwhile, were doing likewise.

Before 1906, Slaughter Creek flowed southward and emptied into Prime Hook Creek. After that, Slaughter Canal was dug from Oak Island to Cedar Creek to channel the water flow northward and improve upland drainage. This and further ditching for mosquito control has dried the marshes and resulted in phragmites.

Restoring the water table in the marsh is no little project. Since 1983 alone, $1 million has been spent in maintenance and management of the marsh, O'Shea reports.

The money has been used for a water control structure near Rt. 16 and a herbicide which is being used to kill the phragmite. The reeds will not grow back into the marsh once water is restored, O'Shea says, and the birds will once again be able to enjoy food such as millet and wild rice.

He also points out that since the first structure was erected in 1983, the duck population at Prime Hook has tripled.

Spraying for phragmite will begin again in September, this time in an area of marshland running from Prime Hook to Fowlers Beach. It is the second major area in the refuge for birds.

The U.S. Fish and Wildlife Service also has plans to place another temporary water control structure on Slaughter Canal near the Fowlers Beach road bridge.

With the second project, authorities hope to evaluate the area and get information for future water management levels. They are now accepting public comment for an environmental assessment of the plan at the refuge.

Water management proposals in the past have not gone without criticism, particularly from those who believe that an increased water table will affect area septic tanks.

But O'Shea claims that the water table will not be increased to what it was before and, furthermore, that nothing will be proposed that would have an adverse reaction on the public.

The refuge contends, on the contrary, that an improved water table will lessen the danger of fire crossing the marsh and threatening private homes. It would also benefit all water-oriented wildlife.

The battle against phragmite is just a part of the overall strategy, O'Shea adds. Future goals include a visitor's center and trails through the refuge with interpretative guideposts. Meeting with and educating the public is also being stressed.

But even these efforts could be lost on some visitors. No one will see more wildlife at Prime Hook, says O'Shea, than those with some time and patience.

The Cronicle
Wed. Nov 27, 1985
Pg 1

Prime Hook project concerns farmers

PRIME HOOK - A temporary water control structure in Slaughter Canal has Slaughter Neck residents, particularly farmers concerned.

Farmers are afraid that salt water will encroach upon their farmland, leaving residue to damage crops.

But the impact on farmers will be nil, says George O'Shea, manager of the Prime Hook National Wildlife Center.

The structure, designed to raise the water level on the marsh, is sort of a test model for a permanent structure.

While in place for a month, the structure will be closely monitored by the U.S. Army Corps of Engineers. Field representatives will be gathering data for a final project.

In addition, the structure will raise the water level in the marsh 4-6 inches, making it a better habitat for waterfowl.

The additional water on the marsh will also slow the growth and spread of phragmites, the tall marsh grass. The number of birds living on the marsh should double, predicts O'Shea.

In addition to making the marsh less hospitable for the waterfowl, the phragmites present a fire hazard. Depending on wind conditions, explained O'Shea, a large fire, such as the one last month, could take out the whole beach.

Bids for the project will be let Dec. 2, O'Shea said. The structure will take about one day to install. Weather permitting, he said, it will be in and out of the canal within a month.

O'Shea called the project an expensive proposition. Because of the bidding time frame, he could not comment on the construction cost.

A similar, but not as extensive a project planned for 1981, cost $500-600,000.

A 1,500 acre area would be flooded with 4-6 inches of water when the structure is in place.

"It's not a lake," said O'Shea. The structure would hold the water at 2.8 mean sea level (msl.)

One of the farmers who objects most strenuously is George V. Carey, state representative.

Some Prime Hook residents also fear it will disrupt their septic systems.

"I hate to disturb what is working now," Carey said.

Twenty-four people met at Carey's farm last week to discuss the structure with Richard Hassel, representative from the U.S. Army Corps of Engineers.

"They say they'll pull it out if there is significant damage. Significant to me might not be significant to them," Carey said.

APPENDIX 11

LITERATURE CITED

LITERATURE CITED

Britton, Edward E. and George F. O'Shea, March 21, 1983, Environmental Assessment, Marsh Vegetation Rehabilitation - Chemical Control of Phragmites, Prime Hook National Wildlife Refuge. U.S. Fish and Wildlife Service.

Hoyt, William H., 1980, Subsurface Sedimentary Units and Late Holecene Paleography of the Eastern Slaughter Creek Area, Southeastern Delaware Bay, Unpublished, Department of Geology, University of Delaware.

O'Shea, George F., May 14, 1981, Environmental Assessment for Proposed Establishment of Dike and Water Control Structure - Unit II at Prime Hook National Wildlife Refuge, U.S. Fish and Wildlife Service.

O'Shea, George F. and Charles W. Blair, October 14, 1981, Environmental Assessment Rehabilitation, Management and Maintenance of Wetlands, Unit III, Prime Hook National Wildlife Refuge, U.S. Fish and Wildlife Service.

Thomas, Roland A. November 1981, A Cultural Resource Survey, Additional Work, Prime Hook National Wildlife Refuge, Sussex County, Delaware, Mid-Atlantic Archaeological Research Inc., Newark, Delaware

APPENDIX 12

DELAWARE SUBAQUEOUS LANDS PERMIT

APPENDIX 13

DEPARTMENT OF THE ARMY PERMIT

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE--2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

REPLY TO
ATTENTION OF

Regulatory Branch

SUBJECT: NAPOP-R-85-0711(NP 5)

OCT 21 1985

Mr. Paul D. Daly
Refuge Manager
Prime Hook National Wildlife Refuge
RD1, Box 195
Milton, Delaware 19968

Dear Mr. Daly:

This is in regard to your application, on behalf of the U.S. Department of Interior's Fish and Wildlife Service, for Department of the Army approval to install a temporary water control service in Slaughter Canal at Unit II of the Prime Hook Refuge, approximately 80 feet south of Fowler Beach Road, Sussex County, Delaware. According to your application, the structure would temporarily impound water within Unit II of the Prime Hook Refuge to determine the exact limits of water management and to allow accurate mapping of the impounded area. The purpose of the work is to rehabilitate a deteriorated wetlands habitat and enhance its' benefit to waterfowl and other marsh-oriented birds and mammals. Your application also states that the structure would be removed by the spring of 1986.

Under current Federal regulations, a Department of the Army permit is required for work or structures in navigable waters of the United States and/or the discharge of dredged or fill material into waters of the United States including their adjacent wetlands. Therefore, the proposed work is subject to the jurisdiction of this office. Based on the information you provided, it has been determined that the installation of the temporary water control structure is approved by Department of the Army Nationwide permit (33 CFR 330.5 (a)(5)) which authorizes structures for purposes of scientific/environmental study provided the attached special conditions (33 CFR 330.5) and management practices (33 CFR 330.6) are observed where applicable. In addition, this approval is subject to the following special conditions:

1. That the permittee shall notify this office of the date the temporary structure is installed and the date it is removed.

2. That the temporary structure shall be removed at the request of this office if its removal is deemed necessary by the District Engineer.

3. That no fill material or construction debris shall be placed in Slaughter Canal or its adjacent wetlands.

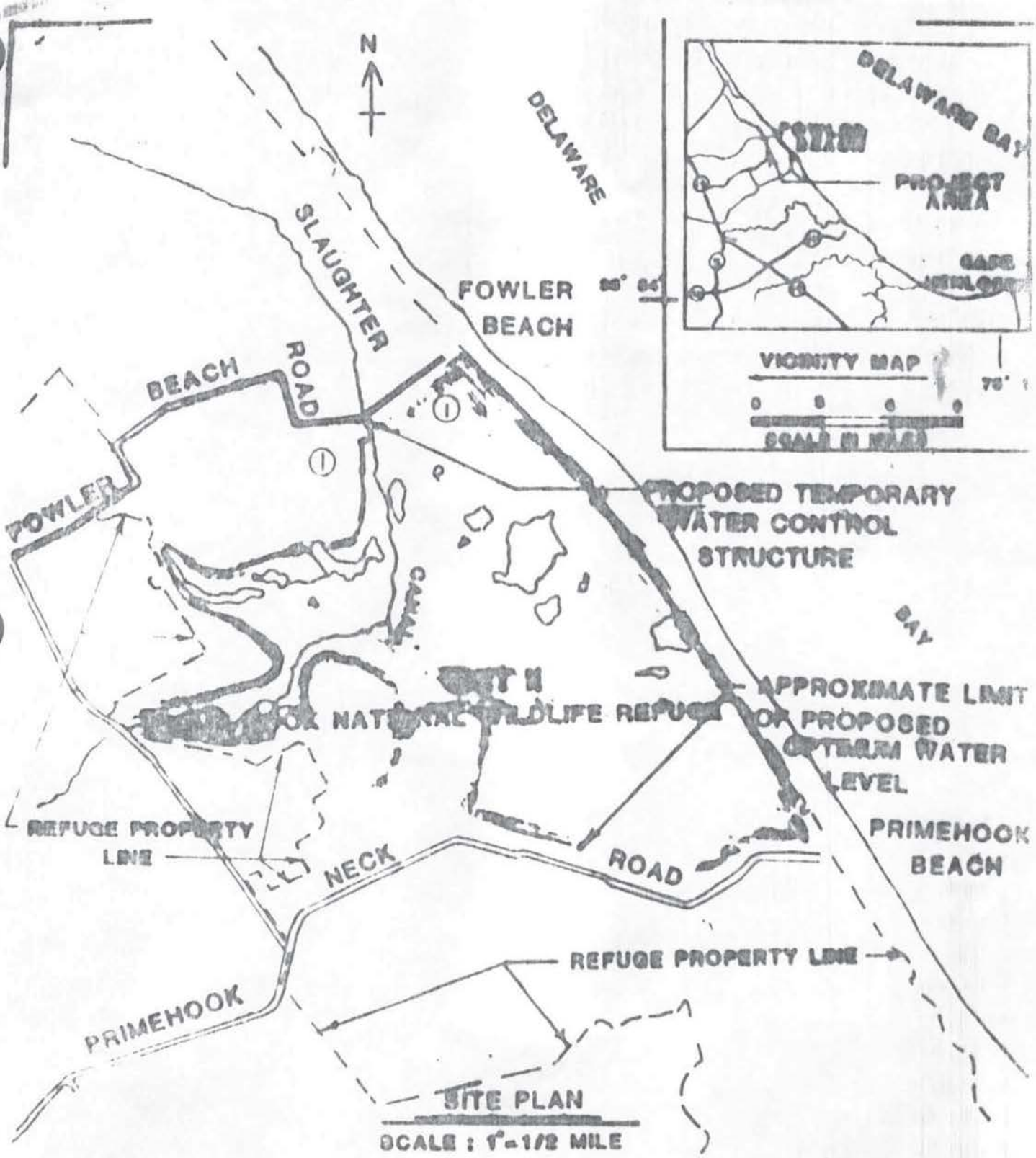
This nationwide permit does not relieve you of your responsibility to obtain any other Federal, State or local approvals required for the proposed work. If you have any further questions regarding this matter, please contact Mr. James F. Drumm of this office at (215) 597-4723.

Sincerely,

James F. Drumm

for Frank J. Cianfrani
Chief, Regulatory Branch

Enclosures



PURPOSE: DETERMINE OPTIMUM WATER SURFACE FOR WATERFOWL IMPOUNDMENT

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

(1) U.S. DEPT. OF INTERIOR

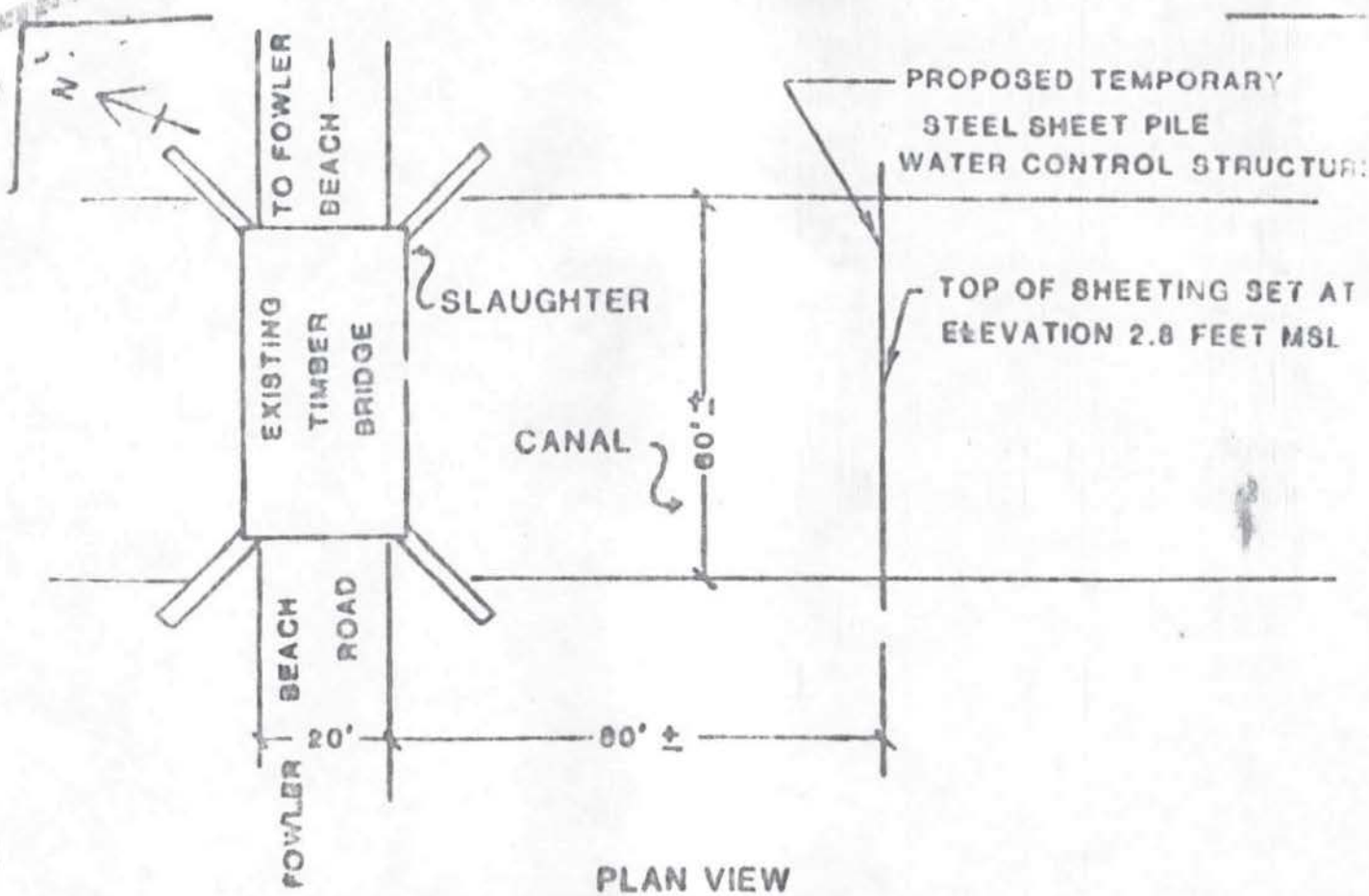
IN: PRIME HOOK N.W.R.

NEAR: LEWES, DELAWARE

COUNTY OF SUSSEX

APPLICATION BY: U.S. FISH & WILDLIFE SERVICE

SHEET 1 OF 2 DATE: 6/1/87



PLAN VIEW

PROPOSED TEMPORARY WATER CONTROL
STRUCTURE ACROSS SLAUGHTER CANAL
NOT TO SCALE

MEAN HIGH WATER=ELEV. 2.2 FEET
MEAN SEA LEVEL= ELEV. 0.0 FEET
MEAN LOW WATER=ELEV. -2.2 FEET

NOTE: A TEMPORARY STEEL SHEET PILE WATER CONTROL STRUCTURE IS PROPOSED TO BE INSTALLED ACROSS SLAUGHTER CANAL. THIS STRUCTURE WILL TEMPORARILY IMPOUND WATER WITHIN UNIT II OF PRIME HOOK N.W.R. TO ELEVATION 2.8 FEET MSL. AS A RESULT, THE EXACT LIMITS OF WATER MANAGEMENT AT ELEVATION 2.3 FEET MSL WILL BE DETERMINED. THE TEMPORARY STRUCTURE WILL REMAIN IN PLACE UNTIL THE OPTIMUM WATER LEVEL HAS BEEN ATTAINED AND WORK COMPLETED TO ACCURATELY MAP THE AREA IMPOUNDED. THE TEMPORARY STRUCTURE WILL BE REMOVED IMMEDIATELY IF SIGNIFICANT PROBLEMS OCCUR.

Special Conditions for Department of the Army Nationwide Permits (33 CFR 330.5)

1. That any discharge of dredged or fill material will not occur in the proximity of a public water supply intake.

2. That the discharge of any dredged or fill material will not occur in areas of concentrated shellfish production unless the discharge is directly related to a shellfish harvesting activity authorized by a Department of the Army nationwide permit for fish and wildlife harvesting devices.

3. That the activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act, or destroy or adversely modify the critical habitat of such species.

4. That the activity will not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water).

5. That any discharge of dredged or fill material will consist of suitable material free from toxic pollutants.

6. That any structure or fill authorized will be properly maintained.

7. That the activity will not occur in a component of the National Wild and Scenic River System.

8. That the activity will not cause an unacceptable interference with navigation.

9. That the best management practices listed on the following page should be followed to the maximum extent practicable.

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

REPLY TO
ATTENTION OF

Regulatory Branch

DEC 0 4 1985

SUBJECT: NAPOP-R-85-0711-3

Mr. Paul D. Daly, Refuge Manager
Prime Hook National Wildlife Refuge
RD 1, Box 195
Milton, Delaware 19968

Dear Mr. Daly:

This is in further regard to your application, on behalf of the U.S. Fish and Wildlife Service, for a Department of the Army permit to install a temporary water control structure in Slaughter Canal at Unit II of the Prime Hook Refuge.

After further review of your application and the comments received in response to our public notice, it has been determined that the nationwide permit (NAPOP-R-85-0711(NP5)) issued to you on October 21, 1985 is inappropriate for the type of work proposed. Therefore, the nationwide permit is hereby rescinded. We have continued to review your application for approval of the proposed temporary structure by an individual Department of the Army permit and we are close to reaching our final decision in this matter. Prior to concluding the processing of your application, we would appreciate your response to the enclosed letters received in response to our meeting at Mr. Carey's residence on November 14, 1985. An early reply would be appreciated. We regret the inconvenience and delay this procedure has caused you and we will make every effort to conclude the processing of your application in an expeditious manner.

Sincerely,

Richard A. Hansen

for Frank J. Cianfrani
Chief, Regulatory Branch

[illegible]TION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
NAPOP-R-81-0767-3	Department of the Army permit application

FROM		DATE	CMT 1
Chief, Engineering Division	Chief, Operations Div.	1 February 1982 BORNER/cp/4722	

. Reference is made to Public Notice NAPOP-R 81-0767-[illegible] concerning an application by the .S. Fish and Wildlife Service to construct water control structures on Prime Hook National [illegible]ildlife Refuge.

. Your comments concerning the proposed activi[illegible] in particular its potential flood hazard, [illegible]e requested as soon as possible so that a decision can [illegible] on the issuance of a permit [illegible]r this application.

Attached for your information is a copy of the Public Notice and a copy of a report [illegible]mitted by the applicant.
(Report by Edward H. Richardson Assoc. 6 Aug. 81)

Incl
[illegible] stated

H. RONALD KREH
Chief, Operations Division

[illegible]AGER DRP
[illegible] MGR.-B.H.
[illegible] MGR.-B.H.
[illegible] MGR.-P.H.
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
FILE PH-Permits (Unit III)

[Copies sent to RD (EN) + AO (ARW)]

[illegible] 1

[illegible]
BOMBAY HOOK REFUGE

APPENDIX 14

INTERIM WATER MANAGEMENT PLAN UNIT II

PRIME HOOK NATIONAL WILDLIFE REFUGE

MILTON, DELAWARE

INTERIM WATER MANAGEMENT PLAN - UNIT II

August 1986

Submitted by: Paul Daly Date: August 18, 1986
Refuge Manager

Reviewed by: Anthony D. Lega Date: 8/19/86
Assistant Supervisor - South

Reviewed by: Edward S. Moss Date: 8/19/86
Refuge Supervisor - South

Approved: [illegible] (ACTING) Date: 8-19-86
Assistant Regional Director
Refuges and Wildlife Resources

PRIME HOOK NATIONAL WILDLIFE REFUGE

INTERIM WATER MANAGEMENT PLAN UNIT II

A plan to manage water levels in the Unit II area of the Prime Hook National Wildlife Refuge is presented below. Although discussed as if the preferred action of the environmental assessment had been implemented, the general concept of this plan would be applicable to all of the alternatives discussed in the environmental assessment which would involve active water level management. The plan generally outlines management intentions as initially perceived. It should not be interpreted as an unalterable commitment, but a flexible plan which can change as conditions, objectives and needs change.

Unit II is that area of the Prime Hook National Wildlife Refuge lying between Prime Hook Beach Road on the south and Fowler Beach Road on the north. The barrier beach on the east is partly developed as the community of Prime Hook Beach. On the west lie upland areas of trees and agricultural lands.

Major waterways within the unit are Slaughter Creek and Slaughter Canal. The creek enters the unit from the west and flows east to Oak Island. At Oak Island, the old creek flows southeasterly across the marsh toward Prime Hook Beach. Much of this waterway has now closed due to poor circulation and Phragmites. Slaughter Canal was dug around 1906 to drain uplands and the marsh for farming. The canal starts at Oak Island at the junction of the creek and flows northerly crossing under Fowler Beach Road. The canal continues northward to Cedar Creek, thence emptying into the Mispillion River.

Within the Unit II marsh are found several large and small ponds and remnants of a series of ditches west of Prime Hook Beach. Much of the area was ditched for mosquito control purposes. Plans for rehabilitation of the Unit II marsh are aimed at:

1. Rehabilitation of a once high quality marsh for the benefit of migrating waterfowl and other marsh-oriented birds and mammals, and

2. Reduction of the severe fire hazard to the community of Prime Hook Beach.

Rehabilitation would be accomplished by construction of a single, multi-bay stoplog type water control structure across Slaughter Canal, south of the Fowler Beach Road Bridge (County Route 199). The structure would permit water management on about 1500 acres of marshlands.

Water for impoundment will come from several sources:

(1) Slaughter Canal - tidal water

(2) Slaughter Creek - upland runoff - freshwater

(3) Runoff from upland fields - fresh water

(4) Precipitation

(5) Excess water flowing northward from Unit III through culverts underneath Prime Hook Beach Road - fresh water

Drainage/Drawdown will be by:

(1) Slaughter Canal

(2) Southward through Slaughter Creek, under Prime Hook Road into Unit III and Prime Hook Creek

(3) Evaporation

Proposed Management Plans

This proposal is based upon survey data taken around the perimeter of the marsh in 1986. Benchmark datum (elevation) is from recently revised USGS datum.

Active water management would begin in June with Stabilization of water levels at an elevation of 1.7 feet msl (NGVD). Water would be retained at this level for the duration of the summer and into early fall. At 1.7 feet msl, the marsh surface will be moist throughout much of the unit, with open water primarily in ditches and ponds, thus avoiding drying of the marsh, and the accompanied detrimental effects to fish and wildlife populations. Waterfowl feeding and brood habitat will be enhanced and habitat will be provided for mosquito eating fish species to allow for maximum biological control of mosquitoes.

Management would enhance desirable marsh vegetation which will provide waterfowl food during the fall migration and throughout the winter. Management at the 1.7 foot msl level would begin prior to June if habitat conditions are such that the marsh water table drops below that level. Conversely, management would be delayed if above normal water levels occur.

During this period of management, tidal levels in Slaughter Canal higher than 1.7 feet msl would flow over the stoplogs into the impounded area providing exchange of tidal and fresh waters and providing passage of fish, crabs and benthic organism. Likewise, water levels within the impounded area in excess of 1.7 feet msl will flow over the stoplogs and out of the area.

On or about October 1, fall/winter management would begin. The exact date for initiating management would be dependent on habitat conditions, rainfall and crops in adjacent fields. Management would raise the marsh water level to 2.3 feet msl by adding stoplogs to the water control structure.

At the 2.3 foot msl level, up to six inches of water would be available within the marsh to provide waterfowl feeding and resting habitat. This level would be maintained until late winter.

Drawdown to naturally occurring water levels would begin around mid-February. The time of drawdown would be dependent on the amount of precipitation in the local area. Drawdown will be gradual until the system has been returned to naturally occurring conditions allowing normal drainage of agricultural fields and passage of such anadromous fishes as white perch. This natural system will remain the management scheme until summer management again resumes in June.

As a contingency, in the event of a severely dry spring, management will be commenced when the water level in Slaughter Canal drops to or below 1.7' msl (NGVD) to prevent drying of the marsh.

Summary

June 1 - 1.7 feet msl

October 1 - 2.3 feet msl

March 1 - naturally occurring elevation not to be lower than 1.7 feet msl

APPENDIX 15

Nov. 21, 1985

PRIME HOOK REFUGE

NOV 25 1985

RECEIVED

Dear Sirs:

I wish to comment on the proposed water control structure at Prime Hook Refuge, Milton, Delaware.

It is my firm belief that this structure and subsequent water control is essential. The marsh as it currently exists only supports a fraction of the migratory waterfowl that could use it as wintering habitat when appropriate water control is possible.

This control would benefit, particularly, ducks, notably black ducks, mallards and pintails all species which are experiencing difficulty. Other species as well as muskrats and some upland species will benefit. There is also on Primehook marsh a fire hazard problem, dramatically demonstrated recently, which will be reduced by the implementation of the planned structure.

Speaking both as an individual and as president of Delawareans United for Conservation and Sport (DUCS), a local organization with

over 200 members, it is our belief that the proposed water control device is essential for the maintenance and management of Pemaquid Wildlife Refuge. It will permit maximization of benefit to wildlife, particularly migrating waterfowl.

Thank you for your attention to this matter.

Sincerely,

Barry V. Hallgrimson

President, DICS.

November 18, 1985

Mr. Richard A. Hassel
Chief, Applications Section
Regulatory Branch
Corps of Engineers
Philadelphia District
2nd & Chestnut Streets
Philadelphia, PA 19106

Subject: Wildlife/Environmental/Government

Dear Mr. Hassel:

In accordance with the above subject meeting held at Mr. George Carey's residence on Thursday, November 14, I am writing to reaffirm great concern on the following issues:

1) Water level on both sides of the road leading into Prime Hook Beach (causing the base of road to be wet at all times).

2) Possible functioning of the septic system for residents at Prime Hook Beach.

3) I would not think that the Government will be able to lease land for farming purposes due to water level on both sides of the road in Wildlife area.

Thank you for taking interest and attending the meeting.

Very truly yours,

Lewis W. Bishop

Lewis W. Bishop

Address:

Prime Hook Beach
Rt. 1, Box 224
Milford, DE 19963

CLIFTON CANNING COMPANY

R.D. 1, BOX 149, MILTON, DELAWARE 19968

Home Office & Plant 1
Milton, DE
(302) 684-8332

Plant 2
Queen Anne, MD
(301) 364-5522 or (301) 820-2188

GROWERS AND CANNERS OF QUALITY VEGETABLES SINCE 1948

November 18, 1985

Richard A. Hassel
Chief, Applications Section
Regulatory Branch
Custom House
2nd & Chestnut Streets
Philadelphia, PA 19106

RE: Temporary Watergate & Permanent Watergate in Slaughter Can

Dear Mr. Hassel:

I am writing in response to the meeting held on Nov. 14, 1985, at Rep. George Cary's house. I have lived in this area all my life and before condemnation by the Federal government the Clifton's owned 700 acres of the Prime Hook marsh. I was involved in trapping and hunting, for many years, in what was then a great marsh. We personally, with others in this area, maintained the water gates which were located in Slaughter Creek and also the two at Broadkiln. The location of these gates worked well, the one in Slaughter Creek was not in the Canal as now proposed. It was located at the North Point of Oak Island, this location allowed for flooding of a good portion of Prime Hook marsh and still allowed good drainage via way of Slaughter Canal. Prime Hook Creek provided the water for the marsh. I have seen water gates put in Slaughter Canal before, they were grievious to the adjoining land owners' and were taken out by the land owners'. We have approximately 700 acres adjoining Slaughter Branch and Slaughter Creek and from past experience I feel the water backing up Slaughter Creek and Branch would cause us to loose valuable farm land. I would like you to consider the following proposals:

1. relocate the proposed water gate in Slaughter Canal to the North Point of Oak Island in old Slaughter Creek. This would allow, as mentioned before, the flooding of Prime Hook marsh yet still have good drainage via Slaughter Canal which is vital to adjoining landowners'. This canal was dug years ago by our forefathers for the very purpose to drain this area. This relocation would

Member of:

National Food Processors Association

"WE CONTROL THE QUALITY FROM THE BEGINNING"

not change the status of the salt portion of marsh at Fowlers Beach and Slaughter area nor would it change the mosquito situation as mentioned by Dr. Drury.

2. if more water is needed to maintain the level needed, I suggest installing a well and pumping station, located on Northwest side of the Prime Hook Beach road, to supplement the Prime Hook Creek flow rather than using water from the Slaughter Creek source, this would give excellent control.

3. run a bank of dirt from the bridge at Fowlers to the water gates in Old Slaughter Creek, on the beach side of the Slaughter Canal. There should be overflow pipes installed in this bank to save the Fowlers Beach road. This bank could also be used as a road to maintain the water gates.

It is my opinion that these proposals would do the job for all concerned and keep everyone satisfied. We can once again have a great marsh and still not worry the landowners'.

Thank you for your consideration.

Sincerely yours,

Donald

W. Donald Clifton

WDC/blw
CC: Rep. George Cary
Francis Clifton Drury, M.D.
George Oshea, Prime Hook Refuge

November 15, 1985

Richard A. Hassel
Chief, Applications Section
Regulatory Branch
Custom House
2nd and Chestnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Hassel:

This letter is written in response to your request for input at the meeting that was held on November 14, 1985 at Representative Carey's house. I would like to thank you at this time for an opportunity to express concern about the proposed dam on the Slaughter Creek ditch in Prime Hook Refuge. This letter is composed of three parts: (1) Description of the area in question, (2) the potential drawbacks of which they are four, and (3) possible alternative solution.

(1) The area in question is Slaughter Neck and Prime Hook Neck in Sussex County, Delaware. It basically is an area of agriculture with the predominant crops being vegetables, soy beans, corn, small grain, dairy cows, poultry and standard bred horses. Slaughter Neck, which is the area my farm is located, has almost a majority of its families in their mid 30's with children from infancy to teenage years.

(2) The potential drawbacks from this dam which would raise the mean sea level approximately 2.8 feet are the following: (1) There would be an increase in the water table which would lead to a moistening of some of the tillable land and increased amount of water on the land and wooded areas. The potential loss of tillable land could be significant. I would defer on this point to Representative George Carey and Mr. Donald Clifton who have been life long farmers in the area and I'm sure could represent this loss of land in a much more graphic manner. (2) Thirty (30) days is not enough to determine the effects on Slaughter and Prime Hook Necks by this dam. I think especially ground water effects might take very much longer than thirty (30) days to be evident. (3) Building of the dam on the Slaughter Creek ditch might very well cause the re-opening of the old Slaughter Creek channel which runs right behind Prime Hook Beach. This may take a period of months or years, but I would expect that eventually the bay would cut through the Prime Hook Beach area with possible loss of houses with instrusion of the bay into the marsh. As the Corps is well aware, the barrier dunes and islands on the East Coast are under attack from the rising sea water. The marshes do have some natural ability to raise their level and compete against this. Any mechanical intervention to retard the marshes ability to increase its height would certainly increase the westward movement of the dune line and marsh line. This would directly effect the adjacent land owners. This effect would take a number of years to become evident. (4) This point is really the most worrisome to me as a biologist and physician, is also from the permanent structure. It would decrease the marsh mosquito in the area and lead to an increase in the wood mosquito by loss of marsh mosquito competition and increase in the habitat for the wood mosquito. The marsh mosquito is not a vector for eastern equine encephalitis, however, the wood mosquito is a vector. It has been shown by blood samples that the neck areas population has been free of eastern equine encephalitis antibodies. Thus, this dam would put this population at risk, where no risk had previously existed as demonstrated by prior studies. It would therefore be medically probable that any new case of eastern equine encephalitis in this area was direct result of the change in the mosquitoes which would result from a change in salt water to fresh water and water

level. Since the population includes many young children, this would be of particular concern to me as a physician and as a father. I had reasearched this particular point before purchasing land in the area because of the high number of mosquitoes and was somewhat relieved when the data showed that there was protection against eastern equine encephalitis by the proximity to salt marsh.

(3) Not to be one to leave things in a negative note, perhaps what should be done is what the old timers, who wander into my office, have told me that they had done. Frequent burnings of the marsh to control both woody plants and phragmitis had been the standard of marsh control before these lands were purchased by the federal government. One can still see the fence post where the marsh was used for salt pasture in the winter by cows. Perhaps one could then scoop out the filled in ponds that have filled in with phragmitis over the last twenty (20) years and perhaps even create new ones, and then starting with chemical means and progressing to frequent burnings, perhaps yearly or every other year, one could over a period of time regain the marsh to its pre-1960 appearance. This approach would not change the mosquito population nor any other possible species change, of either plant or animal by converting a salt water marsh to a fresh water marsh and allow for waterfowl and an approach that was used historically in this area. It would take time, as it took twenty (20) years for the situation to get this bad in the marsh.

Thank you again for your consideration of these topics.

Sincerely yours,

Francis Clifton Drury MD

Francis C. Drury, M.D.

FCD/nhw

cc: Representative George Carey
Mr. Donald Clifton

R. D. 1, Box 207A
Magnolia, Delaware 19962

U. S. CORPS OF ENGINEERS
Attn: Mr. Dick Hassel
2nd & Chestnut Street
Philadelphia, Penna. 19106

PRIME HOOK REFUGE
NOV 22 1985
RECEIVED

Re: Water Management Project Planned at Prime Hook National Wildlife Re
Milton, Delaware

Dear Mr. Hassel,

I would like the following comments included in your engineering assessment of subject project.

Having lived in the Milton area for some twenty five years and having been associated with the Prime Hook National Wildlife area long before it was a National Refuge I am well aware of the steady deteration of the marsh area there. The present drainage of that marsh area and the spread of phragmites as built up to the point that there is the ever present danger of a major fire breaking out there. A large fire there in 1977 threatened the area and just recently another fire raged out of control for two days.

The ability to control the water level in this area would be of great benefit both to this area and to the area around it. It would restore this area to the great wildlife area it once was. Waterfowl, especially the black duck would use this area in great numbers. As would the Bald Eagle once the water level could be raised.

All one has to do is look at the Bombay Hook Nat. Wildlife Refuge where their impoundments provide host to many more ducks that does Prime Hook. In addition a pair of Bald Eagles nest there right on the pond.

I am definately in favor of the construction of a water control structure on Slaughter Canal near the Fowler Beach Road (State Route 199) bridge. I firmly beleive the proposed structure will greatly improve the present marsh area and return it to the great wildlife area it once was. In addition it would provide the means to prevent or control fire damage in this area from threatening homes and wildlife.

Since the water level can be strictly controlled I can see no reason what-so-ever that any water back up would occur in surronding areas. Water levels would remain the same except the level on the refuge would be maintained at a constant level. Thank you for your consideration of my comments on this matter. I would appreciate receiving a copy of your engineering assessment and final recommendations on this matter.

Sincerely,

Howard R. Carey

Howard R. Carey

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D.#1, Box 147
Smyrna, Delaware 19977

December 12, 1985

Frank J. Cianfrani, Chief - Regulatory Branch
Corps of Engineers, Custom House
2nd and Chestnut Streets
Philadelphia, PA 19106

Attn: Mr. Richard A. Hassel

Gentlemen:

We are providing the following in response to your letter of December 4, 1985 and the telephone conversation which I had with Mr. Hassel on December 2, 1985.

In reply to the letter of Mr. Lewis W. Bishop, the temporary structure will only be in place long enough to gather data at 2.80' water elevation. This level (and higher) now occurs at irregular intervals due to storms producing heavy rains and higher than normal tides. A water management plan to be prepared for Unit II, similar to that in place for Unit III, would call for highest levels only during the fall and winter period. It is quite possible that our data gathering phase of the project will show that a water elevation of less than 2.80' will suffice for these peak levels. In any case, we would not manage the water levels so as to damage the roadbed in any way. The septic systems of residents at Prime Hook Beach would be covered under the same conditions that exist for those at Broadkill Beach; i.e., if any fail due to active water management by the Service they would be repaired or replaced. The Service will monitor observation wells in the area to determine groundwater fluctuations. No complaints have been received to date from residents on Broadkill Beach adjacent to Unit III where water management has taken place for almost two years. The concern regarding leasing our land for farming is not relevant to this project; however we do not intend to manage water levels to adversely affect any farmland including our own; and we own the lowest elevation farmland in the area.

In reply to Mr. W. Donald Clifton, the alternative proposal which he denotes is essentially the same as alternative #2 as described in our environmental assessment on the project. It was not chosen as the proposed action because it would rehabilitate less marsh at a much higher cost. Also, no access would be available for a construction site except across private land. Although Mr. Clifton's concerns relate mostly to the permanent structure rather than the temporary one, the following comments should be made:

1. Our water management would call for spring drawdown; retaining only a moist soil condition in our marsh with water in the creeks and ditches. This type of water management has been practiced in Unit III with no adverse effects on adjacent farmland.

2. The acreage of salt marsh within Unit II is very limited. Please refer to Figure 7 of the environmental assessment on the Unit II project. Most of the unit is already former freshwater marsh now dominated by Phragmites through excessive drainage because there has been no water control. A small area of freshwater marsh is also located on the west end of the unit adjoining Slaughter Creek.

Summarizing our response to Mr. Clifton; we considered his alternative in our environmental assessment and did not choose it due to cost effectiveness and difficulties in construction.

In reply to Dr. Drury we offer the following:

1. This project will definitely not "raise the mean sea level approximately 2.8 feet". Mean high water is now 2.2 feet; therefore at our maximum elevation of 2.8 feet the water surface would be only .6 feet higher than a normal high tide.

2. We believe 30 days is a sufficient time to take the necessary aerial photos and stake the perimeter of the pool. It should also be enough time to measure effects on the groundwater, although we had originally hoped to have the structure in earlier in the season so that we would have a bit more time for this phase of data collection. The observation wells recently installed on the unit will provide an on-going record of groundwater fluctuations.

3. Dr. Drury's other points do not relate to the temporary structure; however, it should be noted that the refuge has always worked very closely with the Mosquito Control Section of the Delaware Department of Natural Resources and Environmental Control and will continue to do so in the future.

If you have any further questions which we might answer to expedite the permit, please let us know.

Sincerely,

Paul D. Daly

PAUL D. DALY
Refuge Manager
Bombay Hook and Prime Hook
National Wildlife Refuges

PDD:veb

APPENDIX 16

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
PRIME HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, Box 195
Milton, Delaware 19968

George F. O'Shea
Assistant Refuge Manager
(302) 684-8419

FOR IMMEDIATE RELEASE

WATER MANAGEMENT PLANNED AT PRIME HOOK NATIONAL WILDLIFE REFUGE

The U.S. Fish and Wildlife Service plans to reestablish water management in a portion of the Prime Hook National Wildlife Refuge marsh by constructing a water control structure on Slaughter Canal near the Fowler Beach Road (State Route 199) bridge, it was announced by Refuge Manager Paul D. Daly. The Refuge, consisting of 8,817 acres, is located near Milton, Delaware.

Formerly, Slaughter Creek flowed southward and emptied into Prime Hook Creek. Around 1906 Slaughter Canal was dug to channel the water flow northward from Oak Island to Cedar Creek and to improve upland drainage. This action and subsequent marsh ditching has served to seriously dry out the marsh soils resulting in encroachment of giant reeds known as Phragmites. These plants, which grow up to 14 feet tall, have now taken over most of the marsh. Dead stalks from these plants present a serious fire danger during certain seasons. A large fire in April, 1977 threatened the community of Prime Hook Beach.

The proposed water control structure will be a multi-bay concrete structure similar to those built in 1983 near Route 16. Stoplogs in the bay will provide the capability for retaining or reducing water levels within 1500 acres of marsh. The 1983 project, in Unit III of the refuge, resulted in rehabilitation of 2500 marsh acres, a three-fold increase in duck use on the marshes, and tremendous increases in other water birds and muskrats. Contrary to some concerns expressed at that time by some beach residents, no adverse effects have been noted to septic systems.

more

The main purpose of this project, according to Mr. Daly, would be to restore and improve wildlife habitat. A controlled water surface would most benefit waterfowl (especially black ducks) and muskrats; however, all water-oriented wildlife will also benefit. The controlled water level and resultant control of Phragmites would also lessen the danger of fire crossing the marsh and threatening private homes.

In order to comply with the National Environmental Policy Act, the Fish and Wildlife Service prepared an environmental assessment in 1985 on this marsh restoration project. This assessment has been revised, and may be reviewed at the Prime Hook or Bombay Hook Refuge Offices. Interested persons should comment in writing to: Refuge Manager Prime Hook National Wildlife Refuge, R.D. #1, Box 195 Milton, Delaware 19968 within thirty days of the date of this release.

X X X

July 3, 1986

John T.Landon,Jr.
727 Union St. Ext.
Milton,Delaware 19968

July 16,1986

George F. O'Shea
Assistant Refuge Manager
Prime Hook National Wildlife Refuge
R.D. #1, Box 195
Milton,Delaware 19968

Dear Mr. O'Shea;

I am interested in the U.S. Fish & Wildlife Service proposed project (Constructing a water control structure on Slaughter Canal near Fowler's Beach on State Route 199). The proposed project will rehabilitate approximately 1500 acres of the North Area of Prime Hook Refuge.

A similar structure at Peterfield Ditch on State Route 16 near Broadkill Beach was successful in improving wildlife habitat in that area. I am not sure if control of water level had any bearing on fish spawning or not, however while fishing Peterfield Ditch north of the control structure (2) of my Son's caught (2) citation perch well over the 1 lb. citation weight limit. Also control of water level's has returned much of the 2500 acres of marsh acres by reducing or eleminating the Phragmites a trublesome plant that chokes out most forms of wildlife, and a fire hazzard during winter months when the plant is in the dry stage.

By installing a water control structure along Route 199 and recovering 1500 acres will make the marsh area more suitable for waterfowl and hopefully increase the Black Duck population which has been on the decline for many year's.

Good luck with your project and may it be as successful as the one installed on State Route 16.

Sincerely,

John Landon Jr.

John Landon,Jr.

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Hollingsworth Associates
Post Office Box 862
South Governor's Avenue
Dover, Delaware 19901

July 17, 1986

Mr.George O'Shea
Asst. Refuge Manager
Prime Hook National Wildlife Refuge
Milton, Delaware 19968

Dear Mr. O"Shea:

I have received a news release concerning the reestablishment of water management by construction of a water control structure. I would wholeheartedly endorse and support such a project, especially in view of the success of the 1983 project in rehabilition of the marsh. I feel these projects are of particularly vital import considering the black duck problem that we have been experiencing.

If there are to be public meetings or information disseminated, please include me on the list of mailing. I appreciate your excellent work in the area and the effort made to keep notifications timely.

Sincerely,

Barry V. Hollingsworth

Barry V. Hollingsworth

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION MEMORANDUM

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of Re-establishment of Water Control - Unit II at Prime Hook National Wildlife Refuge:

-is a categorical exclusion as provided by 516 DM 6 Appendix 1. No further documentation will be made (see instructions on back)

✓-is found not to have significant environmental effects as determined by the Environmental Assessment prepared in November, 1985 and by the attached Supplemental Assessment.

-is found to have special environmental conditions as described in the attached Environmental Assessment. The attached Finding of No Significant Impact will not be final on any actions taken pending a 30-day period for public review (40 CFR 1501.4 (e) (2)).

-is found to have significant effects, and therefore a "Notice of Intent" will be published in the Federal Register to prepare an Environmental Impact Statement before the project is considered further.

-is denied because of environmental damage, Service policy, or mandate

-is an emergency situation. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

		Regional Director	Date
(1) Craig D. Daly Initiator	5/5/86 Date	(3) ARD- Wildlife Resources	Date
(2) Refuge Supervisor	Date	(4) Regional Environmental Coordinator	Date

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

REESTABLISHMENT OF WATER CONTROL - UNIT II

PRIME HOOK NATIONAL WILDLIFE REFUGE

Contacts: Paul Daly
Bombay Hook NWR
R.D. #1, Box 147
Smyrna, Delaware 19977
(302) 653-9345

OR

George O'Shea
Prime Hook NWR
R.D. #1, Box 195
Milton, Delaware 19968
(302) 684-8419

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
REESTABLISHMENT OF WATER CONTROL - UNIT II
PRIME HOOK NATIONAL WILDLIFE REFUGE

ABSTRACT:

An environmental assessment for reestablishment of water control in Unit II of the Prime Hook National Wildlife Refuge was prepared in November, 1985. The Fish and Wildlife Service determined at that time that the project would not have a significant environmental effect and issued a Finding of No Significant Impact. Since that time new information has become available which bears upon the proposed action and its impacts. This supplemental assessment has been prepared to address these recent occurences. Information in this supplement has been recorded in the same format as the original assessment in order that the reader may refer to the same sections in that original document. Only those sections which require additional discussion are included in this supplement.

II. ALTERNATIVES

B. Phase I of the proposed action, the temporary steel sheet piling dam across Slaughter Canal, will not be constructed. Factors in this decision included the cost of the temporary structure installation as well as timely receipt of the permit necessary for installation, data gathering, and removal of the structure prior to agricultural operations on refuge-owned as well as private farmlands to the west of the unit. Data gathering was accomplished instead by a survey of the Unit II marsh perimeter conducted by Fish and Wildlife Service surveyors during January, 1986. The results of the survey are available for public review at either the Prime Hook or Bombay Hook Refuge offices.

IV. ENVIRONMENTAL CONSEQUENCES

An Interim Water Management Plan has been prepared which outlines Management intentions throughout an annual cycle. The general concepts of the plan would be applicable to each alternative discussed with the exception of the "no action" alternative (A). The plan is appended to this document.

Appendix 7 of the orginal assessment has been revised to show the final location of other benchmarks used to monitor marsh water levels (appended).

V. CONSULTATION AND COORDINATION

Elevations cited in the original environmental assessment (2.8' MSL for the temporary water control structure and proposed peak management level) were based on data available to the Fish and Wildlife Service at the time of the assessment preparation. The U.S. Soil Conservation Service advised that more recently revised vertical datum was currently available. Fish and Wildlife Service surveyors, using this revised USGS NGVD datum, reestablished vertical control points adjacent to Unit II prior to their

perimeter survey of the marsh. All Service proposals were subsequently revised to reflect this new datum. Peak proposed management levels in Unit II, therefore, are now 2.3 MSL (NGVD).

At the request of State Representative V. George Carey the U.S. Army Corps of Engineers held a public meeting at Mr. Carey's residence on November 14, 1985 to discuss the project. Approximately twenty five individuals were in attnedance. Following the meeting the Corps extended the public comment period for 10 days. Copies of letters submitted to the Corps as a result of this meeting, as well as the Refuge Manager's replies to concerns expressed in the letters are also appended.

As noted in the environmental assessment (page 16) permits were received from both the U.S. Corps of Engineers and the Delaware Department of Natural Resources and Environmental Control for construction of the temporary sheet pile structure. The Corps permit was withdrawn by letter on December 4, 1985 (appended) stating that the nationwide permit was inappropriate for the work proposed.

In effort to further inform the public of the Unit II project proposal, Assistant Refuge Manager O'Shea gave a presentation to the Milford Rotary Club, Milford, Delaware on February 6, 1986. This was followed by a question and answer session.

One additional news article pertaining to the proposed action is appended to this document.

APPENDICES

PH COPY
original to BMH

file - UNIT II

STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
OLD STATE HOUSE • THE GREEN • DOVER • 19901
(302) 736-5685

BUREAU OF ARCHAEOLOGY AND
HISTORIC PRESERVATION

November 12, 1986

Mr. John Wilson
Archaeologist
Region 5
U. S. Fish & Wildlife Service
1 Gateway Centre
Suite 700
Newton Corner, MA 02158

Dear John:

As per our lengthly phone conversation of November 10, please find the following enclosures pertaining to the Prime Hook Wildlife Refuge permit project: a copy of my comments to the Corps; a copy of Cara Wise's draft survey report; and, a copy of our archaeological consultants/contractors list.

Please do not hesitate to contact me to discuss any of this information. I look forward to meeting with you to review the project area and to discuss/devise an appropriate procedure to carry out the compliance for this project.

Sincerely,

Faye L. Stocum

Faye L. Stocum, Archaeologist/
Environmental Review Coordinator

Enclosures
cc: George O'Shea

STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
OLD STATE HOUSE • THE GREEN • DOVER • 19901
(302) 736-5685

BUREAU OF ARCHAEOLOGY AND
HISTORIC PRESERVATION

November 12, 1986

Mr. Frank J. Cianfrani
Chief, Regulatory Branch
Philadelphia District
Corps of Engineers
Custom House
2nd & Chestnut Sts.
Philadelphia, PA 19106-2991

Dear Frank:

This letter is in reference to our review of the U. S. Fish and Wildlife Service, Prime Hook National Wildlife Refuge permit (NAPOP-R-86-1254-1) to construct a water control structure on Slaughter Canal within Unit II of the Refuge. Our concerns regarding this permit focus on the fact that there may indeed be significant archaeological resources in the project area and these resources may be adversely affected as a direct result of the inundation that will occur upon the installation of the water control structure. Compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, has not carried out for this proposed undertaking.

We were not consulted during to the development of, nor provided a copy of the Environmental Assessment: Establishment of Water Control-Unit II, Prime Hook National Wildlife Refuge by that agency. Upon receiving a copy of this document from your office, I reviewed it and find it to be inadequate as it pertains to cultural resources. The August 1981 cultural resources survey referenced in that document is inappropriate. That survey, which was construction-site-specific, did not include most upland perimeter areas or possible submerged resources. Only a few selected areas within Unit II were surveyed; particularly, the areas of Oak Hill (Island), First and Second Hill. The discovery of these sites further affirms the resource sensitivity of the area. Additionally, this survey was only a reconnaissance level survey which by its nature only provides presence/absence data on sites and does not determine their National Register eligibility. The Oak Hill (Island) site, in particular, requires additional testing for that purpose.

The Environmental Assessment does not address possible adverse effects which the proposed inundation of Unit II may have the Oak Hill (Island) site and any others that may be present. This must be done in consultation with this office and cannot be adequately pursued until a survey of the area is completed. In addition to possible site inundation, there exists the possibility of adversely affecting sites by periodically elevating ground water which, in conjuction with winter freeze/thaw action destroys ceramics and culturally meaningful organics

which were deposited by Native Americans who occupied the area. Problems of bank erosion, which may be a result of the inundation, may have to be considered as well. Clearly, possible adverse effects resulting from the proposed action have not been considered.

It will be necessary for the Fish and Wildlife Service to consult with this office in their effort to comply with Section 106. I have been in communication with the Service's archaeologist and will certainly make myself available to anyone who wishes to pursue this matter. Please do not hesitate to contact me at the above address.

Sincerely,

Faye L. Stocum

Faye L. Stocum, Archaeologist/
Environmental Review Coordiantor

cc: Ed Bonner, ACE
Dick Hassel, ACE
John Wilson, F&W
Bill Moyer, DNREC
George O'Shea, F&W
Druscilla Null, ACHP

8P

UNITED STATES GOVERNMENT

memorandum

DATE: September 3, 1987

REPLY TO ATTN OF: Refuge Manager, Bombay Hook/Prime Hook NWR

SUBJECT: Unit II State Wetlands Permit - Prime Hook

TO: Refuge Files

Call from Tom Draper - 8/31/87

Tom told me he has been working on George Carey re Unit II structure. He thinks there is one beach owner (Bennett) who may never sign the permission for dune work. However, after talking to Bob Henry at Department of Natural Resources and Environmental Control, they seem to feel that they can do the work on "other than his property" and satisfy the Unit II permit condition.

I thanked him profusely and asked him to keep after George Carey.

Paula W. Daly

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114
☆ U.S. GPO: 1988—491-248/40042

UNITED STATES GOVERNMENT

memorandum

DATE: September 21, 1987

REPLY TO ATTN OF: Assistant Refuge Manager

SUBJECT: Unit II
Dune Restoration

TO: Files

I met with Tony Pratt and Bob Henry of the State's Beach Preservation Unit on the afternoon of September 15, regarding the dune restoration between Fowler Beach Road and Prime Hook Beach Road.

Pratt will be in charge of the crew working on the dunes, He wanted to locate the boundary of each property. To date Jones, Carey and Bennett have not agreed to have the dunes rebuilt on their property.

Henry called September 18, 1987. Dune work will start on Monday, September 21. He indicated that this should forfill the wetlands permit condition but that we should contact Bill Moyer. Moyer will be contacted.

Regarding the signed "standing warrent"; several landowners, including Bennett, Carey and Jones, have not signed the warrent.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

UNITED STATES GOVERNMENT

2-Way Memo

INSTRUCTIONS

Use routing symbols whenever possible.

SENDER (*Originator of message*):
Use brief, informal language.
Conserve space.
Forward original and one copy.

RECEIVER (*Replier to message*):
Reply below the message, keep one copy, return one copy.

Subject: PRIME HOOK UNIT II
EA

To : Assistant Manager
Prime Hook NWR

DATE OF MESSAGE	ROUTING SYMBOL
9-23-86	R/W RF-S

SIGNATURE OF ORIGINATOR: Anthony D. Segler

TITLE OF ORIGINATOR: Ass't Refuge Supervisor-South

FOLD FOLD

INITIAL MESSAGE

Attached are two copies of approved EA on Unit II. I would suggest that you toss all other copies (except the approved EA for the temporary structure). This will avoid confusions/mixups. Please forward one copy to Bombay Hook NWR.

Tony

REPLY MESSAGE

Received 9/24/86
Express mail

COPY sent to BBH
9-24-86

From :

DATE OF REPLY	ROUTING SYMBOL

SIGNATURE OF REPLIER

TITLE OF REPLIER

★U.S.GPO:1983-0-424-395

UNITED STATES GOVERNMENT

2-Way Memo

INSTRUCTIONS

Use routing symbols whenever possible.

SENDER (*Originator of message*):
Use brief, informal language.
Conserve space.
Forward original and one copy.

RECEIVER (*Replier to message*):
Reply below the message, keep one copy, return one copy.

Subject: NAPOP-R-85-0711-3

To : Paul D. Daly, Refuge Manager
Bombay Hook Wildlife Refuge
R.D. #1, Box 147
Smyrna, Delaware 19977

DATE OF MESSAGE	ROUTING SYMBOL
9-20-85	

SIGNATURE OF ORIGINATOR: James F. Drumm

TITLE OF ORIGINATOR: Env. Prot. Asst.

FOLD MESSAGE FOLD

Dear Mr. Daly:

We have been processing you application for the water control structure and acce road at Prime Hook, Slaughter Creek.

Prior to completing our review, we will require that you indicate, in scale, the roadwa length, width & cross section on a plan. Als state whether the road would remain after installat of a permanent control structure. Please call me if you have any questions.

REPLY

Jim Drumm

called Drumm 9/25/85 and explained that we would not be requiring a road to the temporary structure He said he would have his office "type the permit up".

DDD

Fts 597-4722

From :

DATE OF REPLY	ROUTING SYMBOL

SIGNATURE OF REPLIER

TITLE OF REPLIER

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

Not you received a copy of the COE letter of intent

File unit II

REPLY TO
ATTENTION OF
Regulatory Branch

OCT 1 5 1986

SUBJECT: NAPOP-R-86-1254-1

Mr. Paul Daly, Refuge Manager
Prime Hook National Wildlife Refuge
RD 1, Box 147
Smyrna, Delaware 19977

Dear Mr. Daly:

This is in regard to your application for a Department of the Army permit to construct a water control structure on Slaughter Canal within Unit II of Prime Hook National Wildlife Refuge near Milton, Sussex County, Delaware.

A copy of a public notice of your application is enclosed for your information. You are reminded of your responsibility to obtain State approval and a Water Quality Certificate from the Delaware Department of Natural Resources and Environmental Control. It is suggested that you contact the Delaware Department of Natural Resources and Environmental Control, P.O. Box 1401, Dover, Delaware 19901 (302) 736-4691 concerning the State permit(s) and Water Quality Certificate. When you receive your State permit(s) and Water Quality Certificate, it is requested that copies be furnished to this office.

Sincerely,

Frank J. Cianfrani
Chief, Regulatory Branch

Enclosure

PRIME HOOK REFUGE
OCT 21 1986
RECEIVED

STATE OF DELAWARE
DEPARTMENT OF STATE
DIVISION OF HISTORICAL AND CULTURAL AFFAIRS
OLD STATE HOUSE • THE GREEN • DOVER • 19901
(302) 736-5685

BUREAU OF ARCHAEOLOGY AND
HISTORIC PRESERVATION

March 3, 1987

Mr. Frank J. Cianfrani
Chief, Regulatory Branch
Philadelphia District
Corps of Engineers
Custom House
2nd & Chestnut Streets
Philadelphia, PA 19106-2991

Dear Mr. Frank:

This letter is pursuant to a March 2 field review of Unit II Prime Hook Wildlife Refuge, wherein the installation of a water control structure is proposed, attended by Paul Daly, George O'Shea, John Wilson (USFWS), Daniel Griffith and myself. Upon the conclusion of this inspection of the project area, it has been determined that the concerns which we expressed in our November 17, 1986 letter to you, regarding possible adverse effect on archaeological resources have been thoroughly addressed by the U.S. Fish and Wildlife Service. It is our opinion that the proposed project will not affect any significant archaeological resources.

Please do not hesitate to contact me if you require any additional information. Thank you.

Sincerely,

Faye L. Stocum

Faye L. Stocum, Archaeologist/
Environmental Review Coordinator

cc: Paul Daly
John Wilson
William Moyer
Druscilla Null

UNITED STATES GOVERNMENT

memorandum

DATE: 11/5/85

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Unit II Permit
Telephone Conversation with Dick Hassel (COE)

TO: Files

Received phone call at 2:45pm this date from Dick Hassel, permit section Corps of Engineers, reference our Unit II permit for placement of a temporary water control structure.

Hassel started by reminding me that at our July 18, 1985 meeting with the Joint Processing Committee that he had indicated that we should hold a meeting with the adjacent landowners. Now, the Corps would have to hold the meeting and further delay the permit. The reason for the meeting is George Carey's letter to COE dated October 30, 1985 requesting a public hearing.

I reminded Hassel that the permit has been issued (he was not aware of that); that Carey's letter was sent after the deadline (due October 26,1985), and that we had met with Carey twice and had responded to his complaints in writing.

Hassel indicated that all that really did not matter, what mattered is that a State Representative has asked for a hearing and they must comply. He stated that Carey had 15 farmers who were opposed to the project. He (Hassel) has scheduled the meeting for Thursday, November 14, at 7:00pm at Carey's residence, apparently only Carey and his people will be invited to attend (and us).

I discussed with Hassel that the intended purpose of the temporary structure was to gather information for planning for a permanent structure, that the data gained will show whether or not Carey will be affected. Our plans are to install the structure as soon as a contract may be let now that all farming is finished for the year. We would remove the structure as soon as we have obtained the information we need. Again our plans are to get it out well before farming season begins again so as to avoid conflict with Carey.

I also noted that we have had extreme tides for over 7 days. At 2pm this date the tide level at Slaughter Canal Bridge was 2.80'msl due to the tides. I also mentioned that a delay could cause us to impound later into the spring or cause us to wait one year to install the structure.

Following the call I talked with Paul Daly at his residence. He suggested that I call the RO Leger or Moses and report the same. Called RO - both Leger and Moses were out. Called again in the morning for Leger. (11/6/85 9:10am called Leger, he will call back. He was not at his desk.)

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY, P.O. BOX 1401
DOVER, DELAWARE 19903

SURFACE WATER MANAGEMENT SECTION

TELEPHONE: (302) 736 - 5731

March 2, 1987

PRIME HOOK REFUGE

MAR 12 1987

RECEIVED

Mr. Paul D. Daly, Refuge Manager
Bombay Hook National Wildlife Refuge
R.D. 1, Box 147
Smyrna, Delaware 19977

RE: Unit II water control structures

Dear Mr. Daly:

This office is in receipt of your application dated September 24, 1986 for a Subaqueous Land Project. A preliminary review of the application indicates the following items are needed:

X Application is complete. Thank you.

____ appropriate application fee _____

____ property deed

____ survey drawing or plot plan

____ plans for project _____

____ environmental assessment pursuant to the Wetlands Regulations (See attached regulations) _____

X approval is required from the U.S. Corps of Engineers. Contact:
Mr. Richard Hassel, Chief
Permits Branch
U.S. Army Corps of Engineers Telephone: (215) 597-4723
Custom House
2nd & Chestnut Streets
Philadelphia, PA 19106

____ Corps of Engineers approval is granted under the enclosed General Permit. Please review to assure there will be full compliance with the stated conditions. The General Permit is not valid until a State Permit is issued.

____ Other _____

Please provide any information requested as soon as possible so your application may be processed. If you have any questions, please contact our office.

Sincerely,

Charles McNally

Charles McNally
Environmental Scientist
Wetlands and Underwater Lands Branch
Telephone (302) 736-4691

George –

Copy of Unit II Corps permit for your information and enjoyment.

PRIME HOOK REFUGE

APR 17 1987

RECEIVED

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

REPLY TO
ATTENTION OF
Regulatory Branch

APR 15 1987

SUBJECT: NAPOP-R-87-0353-1
formerly NAPOP-R-86-1254-1

Mr. Paul Daly, Refuge Manager
Prime Hook National Wildlife Refuge
RD 1, Box 147
Smyrna, Delaware 19977

Dear Mr. Daly:

Enclosed is a Department of the Army permit (Enclosure 1) authorizing you to install a water control structure with associated rip-rap in Slaughter Canal within Unit II of Prime Hook National Wildlife Refuge near Milton, Sussex County, Delaware and a notice of authorization (ENG Form 4336-Enclosure 2) to be conspicuously displayed at the site of work.

Carefully review all the terms and conditions of the Department of the Army permit and understand them fully. Performing any work not specifically authorized by the permit or failing to comply with its conditions may subject you and/or your contractor to the enforcement provisions of our regulations. If a contractor performs the work for you, both you and the contractor are responsible for assuring the work is done in conformance with the conditions and limitations of this permit. Please be sure the person who will do the work has read and understands the conditions of the permit.

Your attention is directed to Condition (n) of the permit which concerns notification of the District Engineer of the commencement and completion of the permitted work. To assist you in meeting this requirement, attached is a notification form (Enclosure 3) for you to fill out and return to us as soon as you are aware of when you intend to begin work. Similar notification is required each time any maintenance work is to be done under this permit. If you should have any questions in this regard, please contact this office at 215-597-3626.

If any material changes in the location or plans of the permitted work are found necessary on account of unforeseen or altered conditions or otherwise, revised plans should be submitted promptly to the District Engineer to the end that the revised plans, if found unobjectionable, may receive the approval required by law before operations on the permitted work are commenced.

Sincerely,

for Frank J. Cianfrani
Chief, Regulatory Branch

Enclosures

DEPARTMENT OF THE ARMY PERMIT

Permittee Prime Hook National Wildlife Refuge

Permit No. NAPOP-R-87-0353-1 formerly NAPOP-R-86-1254-1

Issuing Office Philadelphia District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

install a water control structure and place rip-rap for erosion control in Slaughter Canal

Project Location: within Unit II of Prime Hook National Wildlife Refuge near Milton, Sussex County, Delaware

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 1990. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See Attached Sheet

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Prime Hook National Wildlife Refuge

by Paul D. Daly Refuge Mgr. 4-9-87

(PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) (DATE)

Frank J. Cianfrani
Chief, Regulatory Branch
for Ralph V. Locurcio
Lieutenant Colonel (P), CE

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (DATE)

☆U.S. GOVERNMENT PRINTING OFFICE: 1986 — 717-425

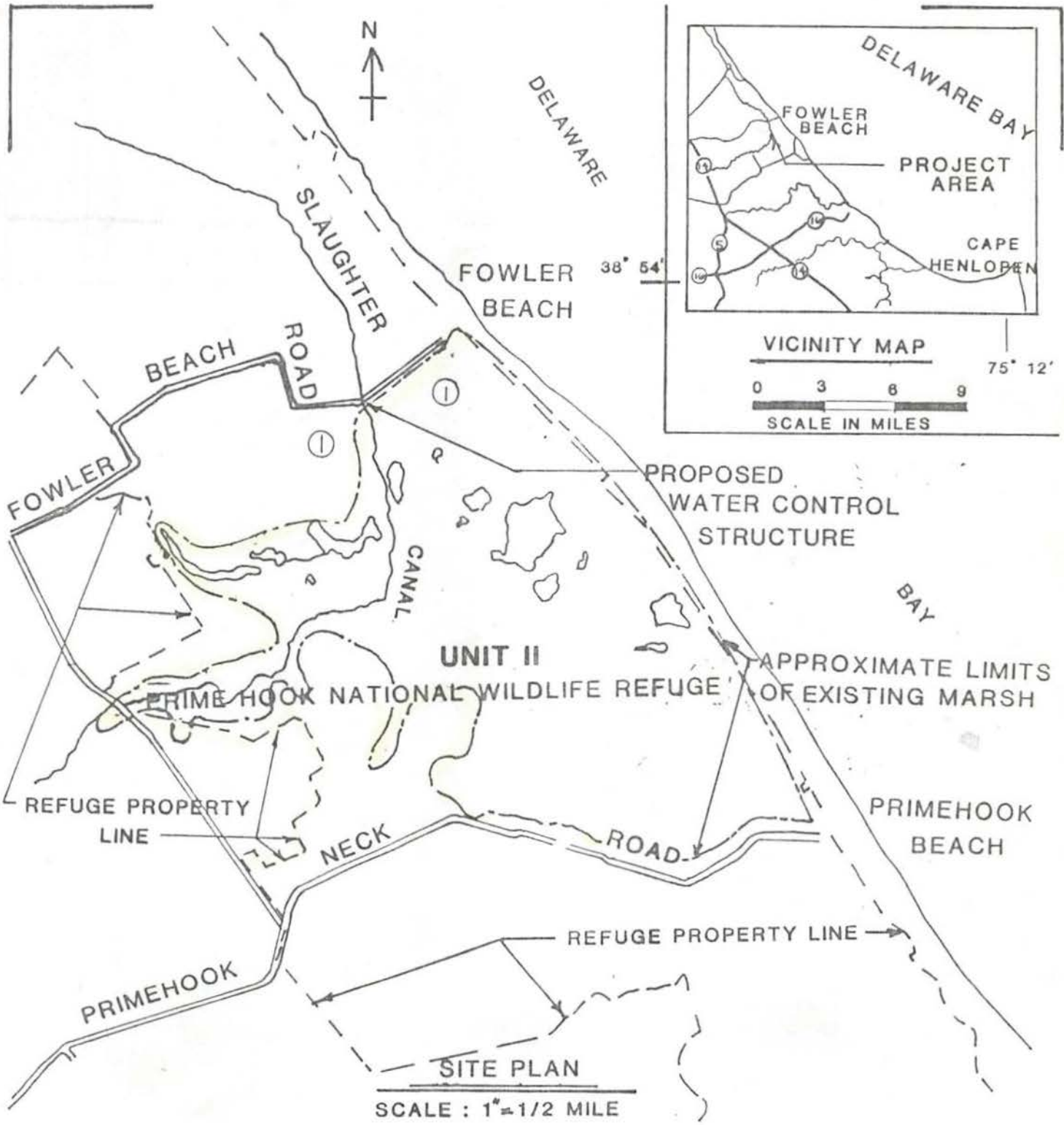
SPECIAL CONDITIONS

a. There shall be no stockpiling or double handling of construction materials or of excavated material within the existing wetlands.

b. All fill material shall be clean and free of toxic pollutants.

c. All shoreline areas disturbed during construction shall be stabilized by rip-rapping, seeding and mulching, or other appropriate erosion control methods.

d. Effort shall be made to keep construction debris from entering the waterway. Debris in the waterway shall be removed immediately.



PURPOSE: MAINTAIN WATER SURFACE IN EXISTING MARSH FOR WATERFOWL

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

(1) U.S. DEPT. OF INTERIOR

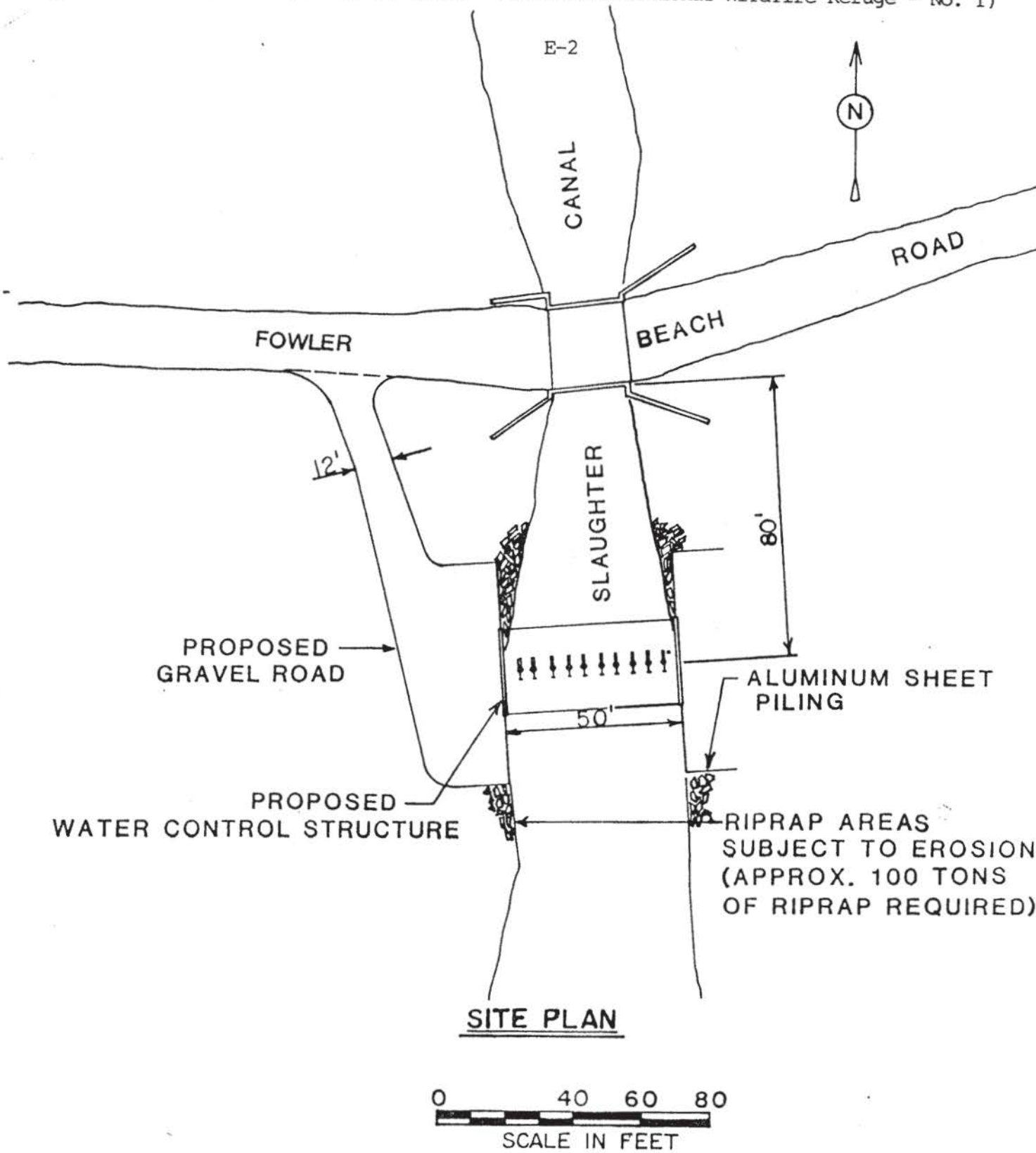
IN: PRIME HOOK N.W.R.

NEAR: LEWES, DELAWARE

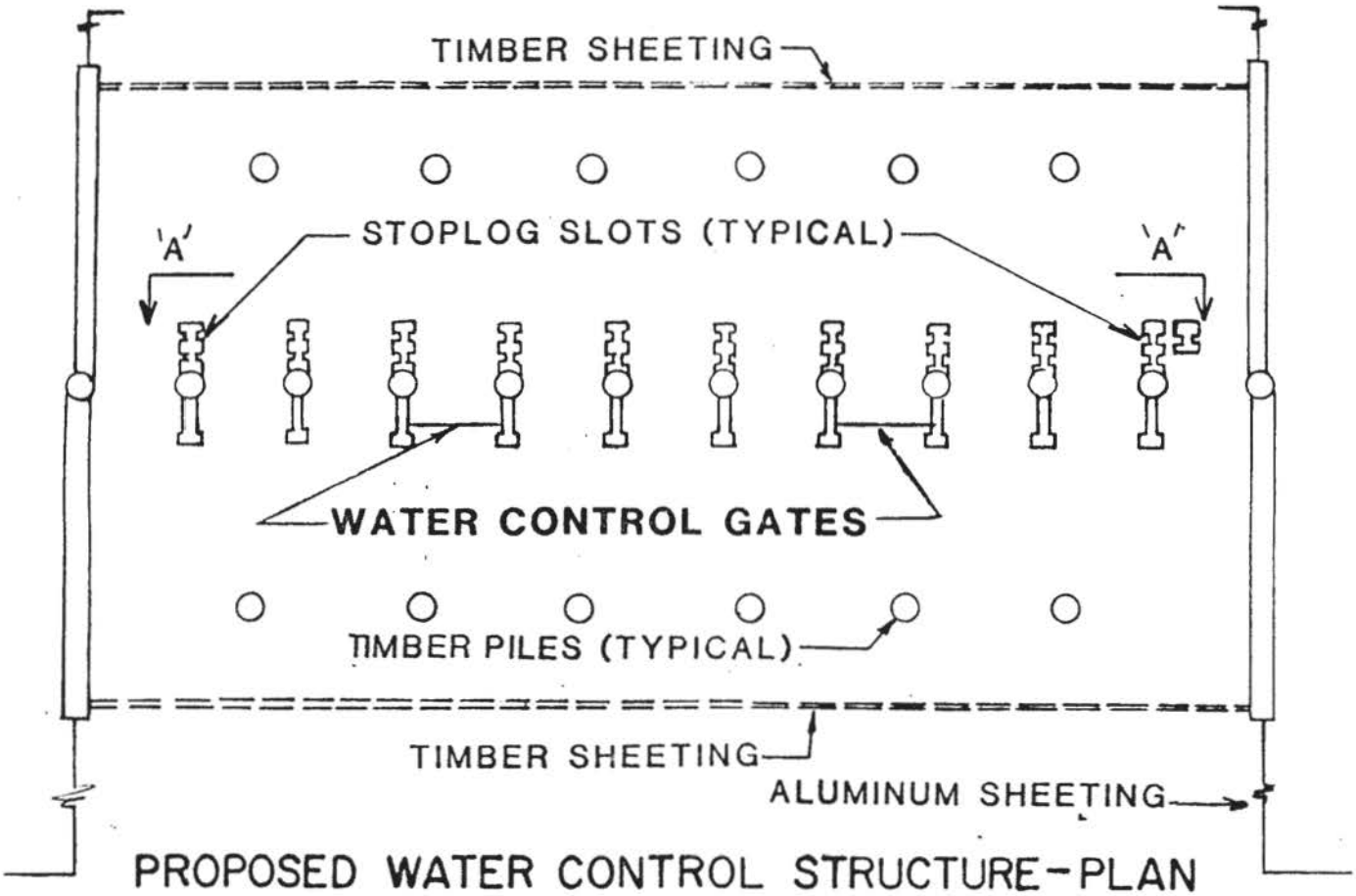
COUNTY OF SUSSEX

APPLICATION BY: U.S. FISH & WILDLIFE SERVICE

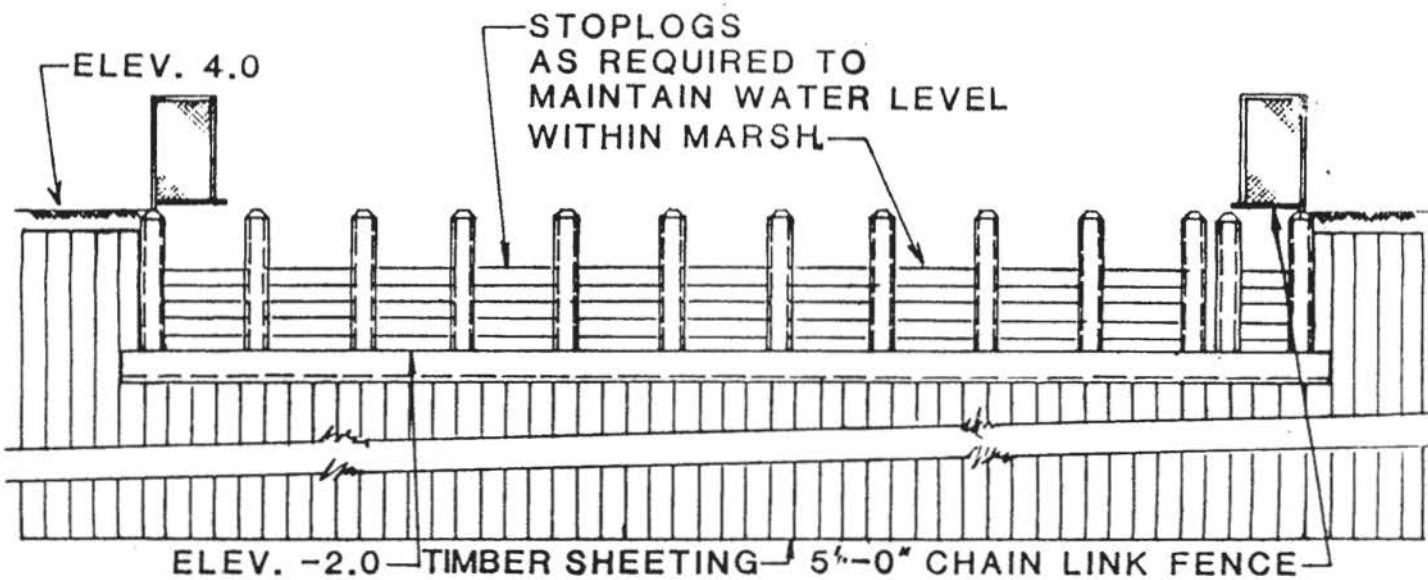
SHEET 1 OF 4 DATE: 5/5/86


E-2
N
CANAL
ROAD
FOWLER
BEACH
12'
SLAUGHTER
80'
PROPOSED
GRAVEL ROAD
ALUMINUM SHEET
PILING
50'
PROPOSED
WATER CONTROL STRUCTURE
RIPRAP AREAS
SUBJECT TO EROSION
(APPROX. 100 TONS
OF RIPRAP REQUIRED)
0 40 60 80
SCALE IN FEET

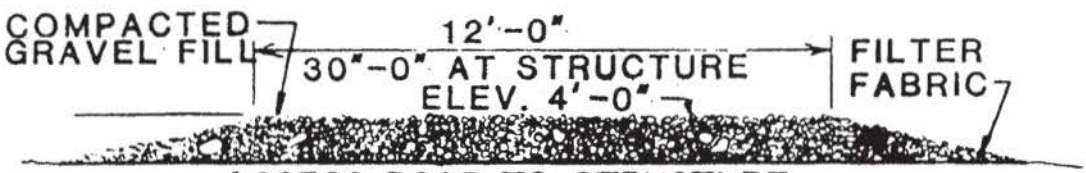
SITE PLAN



PROPOSED WATER CONTROL STRUCTURE-PLAN



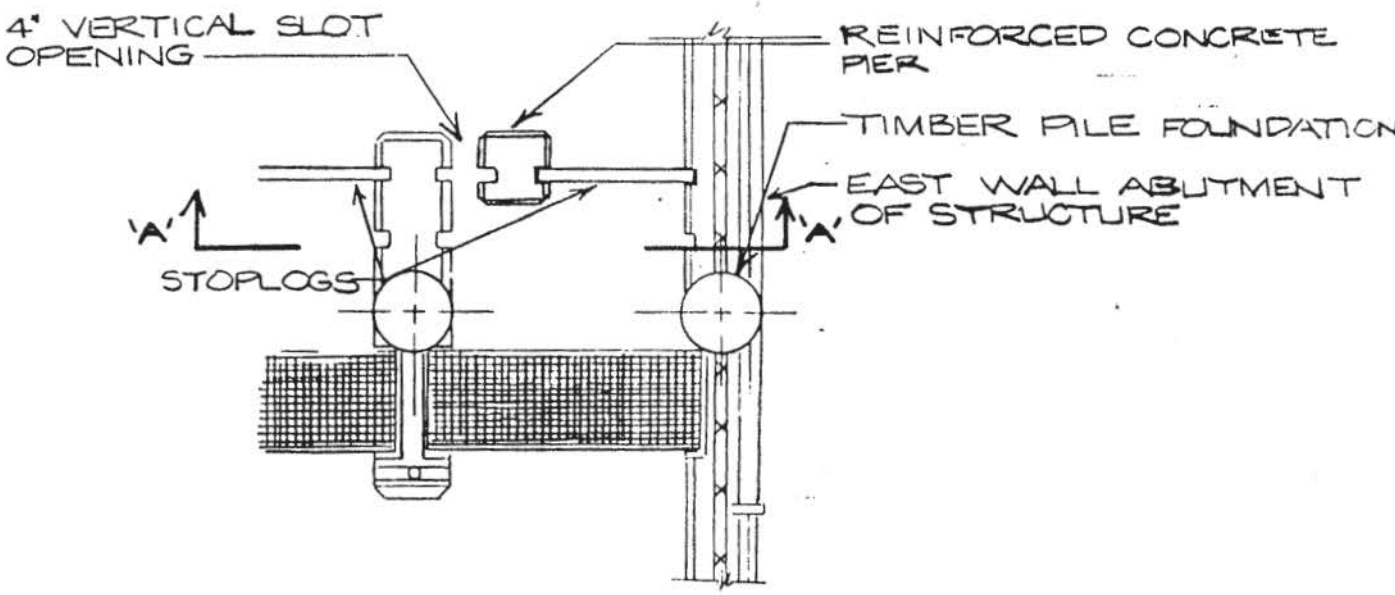
PROPOSED WATER CONTROL STRUCTURE-CROSS SECTION 'A-A'



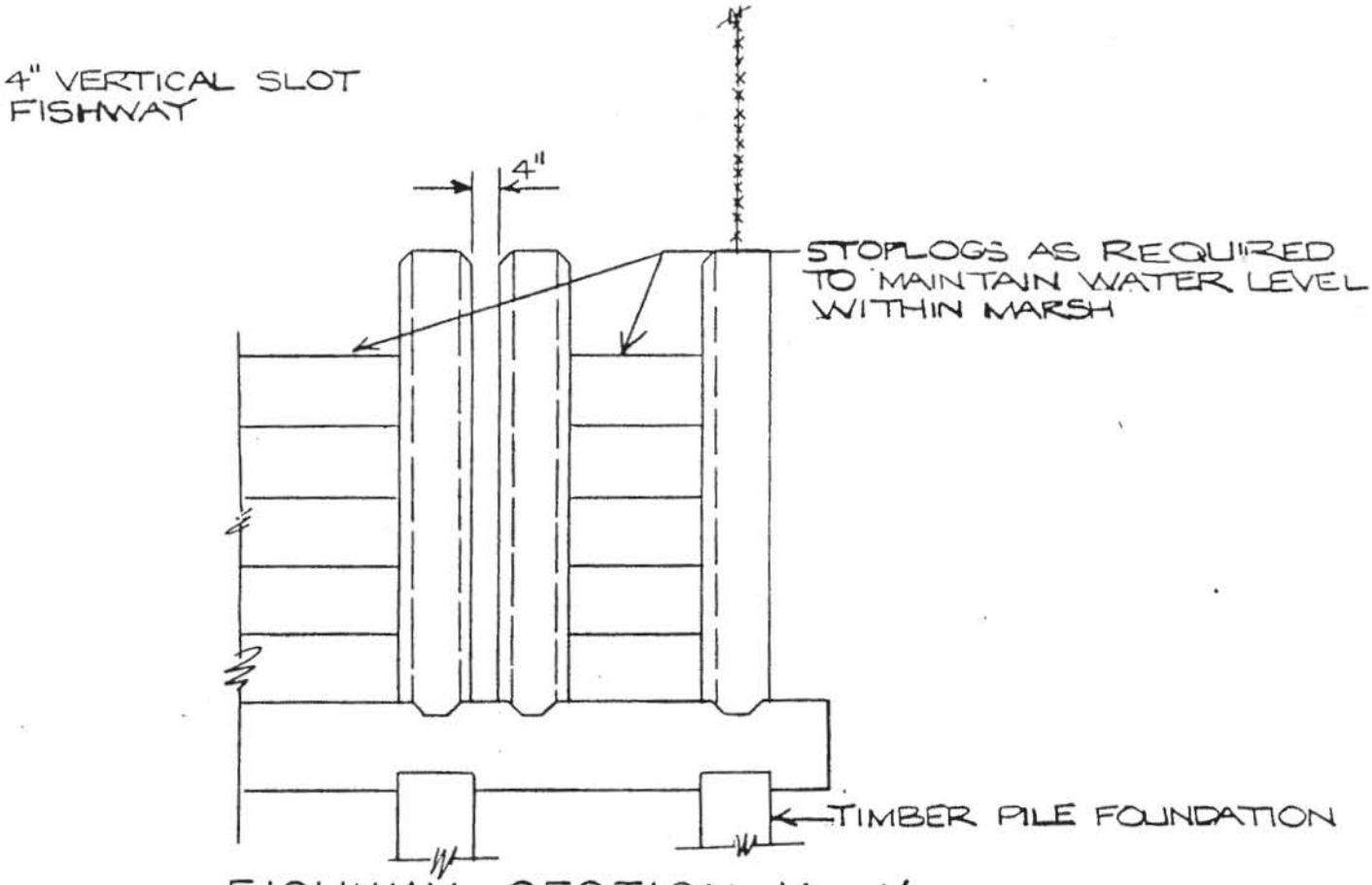
ACCESS ROAD TO STRUCTURE
TYPICAL CROSS SECTION

SCALE: 1/8": 1'-0"

SHEET 3 OF 4 5/5/86



FISHWAY PLAN



FISHWAY SECTION 'A-A'

SHEET 4 OF 4
11/20/86

9/0 SR

File unit II

UNITED STATES GOVERNMENT

memorandum

DATE: June 3, 1986

REPLY TO ATTN OF: Refuge Manager, Bombay Hook/Prime Hook Refuges

SUBJECT: Interim Water Management Plan - Prime Hook Unit II

TO: Regional Director, Region 5 (AWR, Attn: Refuge Supervisor - South)

As a followup to one of the subjects discussed during Mr. Moses' recent meeting at Bombay Hook with Richard Hassel (COE), we have prepared a revised Interim Water Management Plan for Unit II at Prime Hook Refuge. This revision incorporates an explanation of the procedures and monitoring during initial pool fill-up.

Please incorporate this Interim Plan as a part of the recently submitted Supplemental Environmental Assessment.

Paul D. Daly

Paul D. Daly

PRIME HOOK NATIONAL WILDLIFE REFUGE

INTERIM WATER MANAGEMENT PLAN - UNIT II

A plan to manage water levels in the Unit II area of the Prime Hook National Wildlife Refuge is presented below. Although discussed as if the preferred action of the environmental assessment had been implemented, the general concept of this plan would be applicable to all of the alternatives discussed in the environmental assessment which would involve active water level management. The plan generally outlines management intentions as initially perceived. It should not be interpreted as an unalterable commitment, but a flexible plan which can change as conditions, objectives and needs change.

Unit II is that area of the Prime Hook National Wildlife Refuge lying between Prime Hook Beach Road on the south and Fowler Beach Road on the north. The barrier beach on the east is partly developed as the community of Prime Hook Beach. On the west lie upland areas of trees and agricultural lands.

Major waterways within the unit are Slaughter Creek and Slaughter Canal. The creek enters the unit from the west and flows east to Oak Island. At Oak Island, the old creek flows southeasterly across the marsh toward Prime Hook Beach. Much of this waterway has now closed due to poor circulation and Phragmites. Slaughter Canal was dug around 1906 to drain uplands and the marsh for farming. The canal starts at Oak Island at the junction of the creek and flows northerly crossing under Fowler Beach Road. The canal continues northward to Cedar Creek, thence emptying into the Mispillion River.

Within the Unit II marsh are found several large and small ponds and remnants of a series of ditches west of Prime Hook Beach. Much of the area was ditched for mosquito control purposes. Plans for rehabilitation of the Unit II marsh are aimed at:

1. Rehabilitation of a once high quality marsh for the benefit of migrating waterfowl and other marsh-oriented birds and mamals, and

2. Reduction of the severe fire hazard to the community of Prime Hook Beach.

Rehabilitation would be accomplished by construction of a single, multi-bay stoplog type water control structure across Slaughter Canal, south of the Fowler Beach Road Bridge (County Route 199). The structure would permit water management on about 1500 acres of marshlands.

Water for impoundment will come from several sources:

(1) Slaughter Canal - tidal water

(2) Slaughter Creek - upland runoff - freshwater

(3) Runoff from upland fields - freshwater

(4) Precitpitation

(5) Excess water flowing northward from Unit III through culverts underneath Prime Hook Beach Road - freshwater

Drainage/Drawdown will be by:

(1) Slaughter Canal

(2) Southward through Slaughter Creek, under Prime Hook Road into Unit III and Prime Hook Creek

(3) Evaporation

Proposed Management Plans

This proposal is based upon survey data taken around the perimeter of the marsh in 1986. Benchmark datum (elevation) is from recently revised USGS datum.

Active water management would begin in June with stabilization of water levels at an elevation of 1.7 feet NGVD. Water would be retained at this level for the duration of the summer and into early fall. At 1.7 feet NGVD the marsh survace will be moist throughout much of the unit with open water primarily in ditches and ponds, thus avoiding drying of the marsh and the accompanied detrimental effects to fish and wildlife populations. Waterfowl feeding and brood habitat will be enhanced and habitat will be provided for mosquito eating fish species to allow for maximum biological control of mosquitoes.

Management would enhance desirable marsh vegetation which will provide waterfowl food during the fall migration and throughout the winter. Management at the 1.7 foot NGVD level would begin prior to Junt if habitat conditions are such that the marsh water table drops below that level. Conversely, management would be delayed if above normal water levels occur.

During this period of management, tidal levels in Slaughter Canal higher than 1.7 feet NGVD would flow over the stoplogs into the impounded area providing exhcange of tidal and freshwaters and providing passage of fish, crabs and benthic organisms. Likewise, water levels within the impounded area in excess of 1.7 feet msl will flow over the stoplogs and out of the area.

On or about October 1, fall/winter management would begin. The exact date for initiating management would be dependent on habitat conditions, rainfall and crops in adjacent fields. Management would gradually raise the marsh water level to 2.3 feet NGVD by adding stoplogs to the water control structure. One stoplog will be added at a time to gradually raise the marsh water level. This process will be closely monitored.

At the 2.3 foot NGVD level, up to six inches of water would be abailable within the marsh to provide waterfowl feeding and resting habitat. This level would be maintained until late winter.

Drawdow to naturally occurring water levels would begin around mid-February. The time of drawdown would be dependent on the amount of precipitation in the local area. Drawdown will be gradual until the system has been returned to naturally occurring conditions allowing normal drainage of agricultural fields and passage of such anadromous fishes as white perch. This natural system will remain the management regime until summer management again resumes in June.

As a contingency, in the event of a severely dry spring, management will be commenced when the water level in Slaughter Canal drops to or below 1.7 feet NGVD to prevent drying of the marsh.

Summary

June 1 - 1.7 feet NGVD

October 1 - 2.3 feet NGVD

March 1 - naturally occurring elevation not to be lower than 1.7 feet NGVD

A series of observation wells has been installed along the perimeter of Unit II. These wells consist of a 1½ inch steel casing and a standard well point. The point has been set at a depth of about 9 feet below ground surface. The wells will be monitored on a regular basis to map ground water levels. When active water management is initiated (e.g. adding of stoplogs to the water control structure), the wells will be read for ten consecutive days to monitor any changes in the ground water levels. A similar procedure is followed in Unit III.

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0702-0036
Expires 30 June 1986

The Department of the Army permit program is authorized by Section 10 of the River and Harbor Act of 1899, Section 404 of the Clean Water Act and Section 103 of the Marine, Protection, Research and Sanctuaries Act. These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application *(see sample drawings and instructions)* and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

APPLICATION NUMBER *(To be assigned by Corps)*

NAME AND ADDRESS OF APPLICANT

U.S. Department of the Interior
Fish and Wildlife Service
Prime Hook National Wildlife Refuge
RD1, Box 195
Milton, Delaware 19968

Telephone no. during business hours

A/C (302) 653-9345 ~~(Residence)~~ Bombay Hook
A/C (302) 684-8419 ~~(Office)~~ Prime Hook

3. NAME, ADDRESS, AND TITLE OF AUTHORIZED AGENT

Paul D. Daly
Refuge Manager
Prime Hook National Wildlife Refuge
RD1, Box 147, Smyrna, DE 19977

Telephone no. during business hours

A/C (302) 653-9345 ~~(Residence)~~ Bombay Hook
A/C (302) 684-8419 ~~(Office)~~ Prime Hook

Statement of Authorization: I hereby designate and authorize _____ to act in my behalf as my agent in the processing of this permit application and to furnish, upon request, supplemental information in support of the application.

SIGNATURE OF APPLICANT

DATE

DETAILED DESCRIPTION OF PROPOSED ACTIVITY

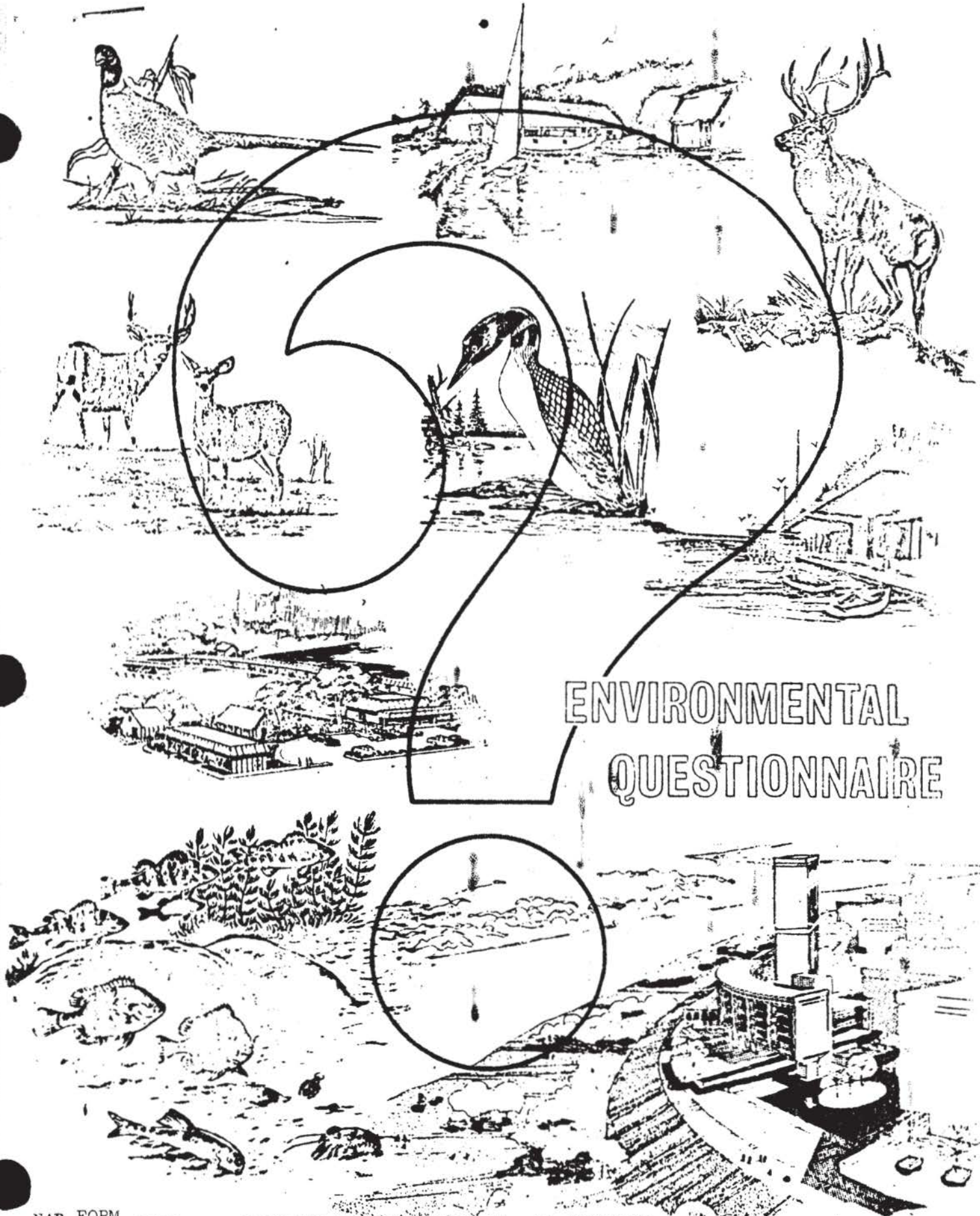
ACTIVITY Construct permanent concrete stoplog type water control structure on driven pilings Slaughter Canal, approximately 80 feet south of the bridge over County Route 199 (Fowler Beach Road) near the site of a former timber sheeting structure. The control structure will consist of eleven (11) stoplog bays. Two bays will be fitted with screw gates, and two bays will also be fitted with flap gates for more rapid dewatering of the impoundment if necessary.

b. PURPOSE

The purpose of the control structure is to restore the water level in approximately 1500 acres of marsh. The marsh today largely consists of Phragmites. Formerly, the marsh contained an abundant variety of plant species such as millet, pondweed, smartweed and salt hay. Uncontrolled drainage of the unit has resulted in loss of desirable vegetation and domination by Phragmites. Restoration of the water table will significantly enhance the marsh for waterfowl and other marsh-oriented birds and mammals. Restoration of the water table will also have significant benefits to the public by reducing the severe fire threat to the community of Prime Hook Beach caused by the present condition of the marsh. Another benefit will be reduction of breeding habitat for the salt marsh mosquito which is both a nuisance and possible disease vector.

c. DISCHARGE OF DREDGED OR FILL MATERIAL

Not applicable



NAF FORM 1653
OCT 81

PREVIOUS EDITION OF OCT 75, IS OBSOLETE.

PART I

I. PROJECT DESCRIPTION.

A. General site location: Accurately locate the project site with respect to state, county or other subdivision and in relation to streams and rivers. Sussex County, Delaware. Unit II of the Prime Hook National Wildlife Refuge, Northeast of Milton, DE. Construction would be approximately 80 feet south of County Route 199(Fowler Beach Road) and across Slaughter Canal. The canal empties northward into Cedar Creek. Slaughter

(SEE PAGE 2A - I.A. - Continued)

B. Specific site location: Completely locate the project site with respect to cove, creek, property owner, plot number, etc.
Unit II of the Prime Hook National Wildlife Refuge - approximately 80 feet south of the County Route 199 (Fowler Beach Road).

C. Description of proposed action: Carefully describe the action proposed, including the method of construction and equipment and materials to be used. Detail in your description is important. (Use the back of this page to complete your description). Construct a multi-bay, concrete water control structure across Slaughter Canal. The structure will be built on driven salt treated pilings. The structure will consist of eleven stoplog bays, two of which will be fitted with screw gates and two of which will be fitted with flap gates.

D. Purpose of proposed action: Define the purpose of the proposed structure or work. For example the purpose of bulkheading may be to stabilize an eroding bank, whereas the purpose for a pier may be for the mooring of a private boat, for access to a public or private facility, for a marina or for other purpose.

See Page 2A - I.D.

E. Submit color photographs of the site, with explanations of the views shown (prints only). Photographs help us to better understand your project. The more you provide the easier it is to understand and process your application.

I.A. - Continued

Creek flows into the canal at the canals point of origin approximately 0.75 miles south of Route 199.

I.D.

The purpose of the control structure is to restore a controlled water surface in approximately 1500 acres of marsh. The marsh today largely consists of Phragmites. Formerly, the marsh contained abundant plant species such as millet, pondweed, smartweed and salt hay. Uncontrolled drainage of the unit has resulted in loss of desirable vegetation and domination by Phragmites. Restoration of the water table will significantly enhance the marsh for waterfowl and other marsh-oriented birds and mammals. Restoration of the water table will also have significant benefits to the public by reducing the severe fire threat to the community of Prime Hook Beach. Due to the present marsh condition, another benefit will be reduction of breeding habitat for the salt marsh mosquito which is both a nuisance ans possible disease vector.

An Interim Water Management Plan has been prepared for Unit II which describes planned water surface manipulations through an annual cycle. It is attached to this application.

PART II - ENVIRONMENTAL IMPACT CHECKLIST			
ENVIRONMENTAL IMPACT	YES	NO	QUALIFYING REMARKS
A. PHYSICAL			
1. TOPOGRAPHY	X		Sight change due to construction of roadway in non-wetland area.
2. GEOLOGICAL ELEMENTS AND LEACHING		X	
3. AIR		X	
4. TRANSPORTATION	X		Will improve waterborn transportation
5. HANDLING OF HAZARDOUS MATERIALS		X	
6. SPOIL DISPOSAL		X	
7. SEWAGE AND SOLID WASTES		X	
8. WATER RESOURCES			
a. WATER QUALITY		X	
b. HYDROGRAPHY, CIRCULATION, LITTORAL DRIFT	X		Will improve water table in 1500 acres of Unit II
c. GROUND WATER	X		Same as above
B. BIOLOGICAL			
1. VEGETATION			
a. TERRESTRIAL		X	See Page 3A - B.1.a.
b. AQUATIC	X		See Page 3A - B.1.b.
2. FISH AND WILDLIFE			
a. MAMMALS	X		Will enhance habitat for muskrats and otter.
b. BIRDS	X		Will enhance habitat for waterfowl and other marsh-oriented birds.
c. AMPHIBIANS		X	
d. REPTILES		X	
e. FISH	X		Will improve summer habitat through retention of water in creeks & ditches
f. SHELLFISH	X		Structure will create minor blockage to crabs.
g. INVERTEBRATES	X		May influence invertebrate populations below the structure.
3. RARE OR ENDANGERED SPECIES	X		May benefit eagles and peregrine falcons by increasing prey species.

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B.1.a. TERRESTRIAL

Water will not reach areas not historically classified as wetlands. Could have positive effect on croplands in summer due to retention of water table.

B.1.b. AQUATIC

Will help improve growth of desirable emergent marsh species and stress *Phragmites*.

ENVIRONMENTAL IMPACT	YES	NO	QUALIFYING REMARKS
C. CULTURAL			
1. LAND USE	X		Will improve public access for fishing boating and wildlife observation.
2. POPULATION DENSITY & TRENDS		X	
3. RECIONAL DEVELOPMENT		X	
4. HISTORIC PLACES		X	
5. ARCHAEOLOGICAL SITES		X	Archeological reconnaissance has been completed.
6. AESTHETICS	X		Restoration of the marsh will significantly improve aesthetics.
7. UTILITIES		X	
8. TRANSPORTATION SYSTEMS		X	
9. RECREATION	X		Increase wildlife-oriented recreation
10. PUBLIC HEALTH	X		See Below
D. OTHER FACTORS			
1. SECONDARY EFFECTS	X		Increased fecal matter from waterfowl
2. CONTROVERSIALITY	X		See Below
3. IS SIGNIFICANT DREDGING INVOLVED?		X	
4. IS SIGNIFICANT FILLING INVOLVED?		X	

C.10 Public Health

Significantly reduce fire hazard to Prime Hook Beach through control of Phragmites.

D.2. Controversiality

Some public concerns were voiced regarding septic systems, fire threat, mosquito and impact on farmlands adjacent to Unit II at a public meeting during November, 1985. An environmental assessment has been prepared on the project which included public involvement. No adverse comments were received as a result of circulation of news release on the project in July,1986.

NAP FORM 1653
OCT 81

PART III

CONSIDERATIONS OF A DREDGING PROPOSAL

A. Describe characteristics and locations of the proposed dredged material disposal site. (Provide Photographs).

Not applicable

B. Is there a comprehensive plan for disposal sites which takes into account the accumulative effect over time and the decreasing amount of suitable sites for disposal?

C. Describe the present land use of the disposal site.

D. Describe characteristics of the material to be disposed including:

1. Physical nature of material (i.e. sand, silt, clay, etc.). Give percentages of the various fractions if available.

2. Chemical composition of material - Many areas, especially marinas, highly industrialized areas, etc. have sediments with high concentrations of pollutants (chemicals, organic material etc.). These materials may be resuspended or reintroduced into the water and result in serious environmental damage. If your proposed dredging is in an area such as described above, a chemical analysis of the material to be dredged should be provided.

3. Dewatering properties of material to be disposed.

4. Compactability of material and settling rates of material to be disposed.

5. Dredging and disposal schedule-to insure that operations do not degrade water quality during times of anadromous fish migration.

E. When the project involves land disposal discuss the following:

1. Method of disposal to be utilized, i.e., pipeline discharge, barge, hopper (underway or stationary).

2. Describe method of dredged material containment (i.e. embankment, behind bulkhead etc.).

3. What type of leachates will be produced from the spoil material and what is planned for protection of the groundwater?

4. Methods to insure that spoil water does not adversely affect water quality both during construction and after completion of the project.

5. Provisions for monitoring during discharge - water quality, sediment transport, precautions to prevent "short" circuiting dumping.

F. Consider and discuss the following for water disposal:

1. Describe methods to be used for water disposal, including volumes and site selection.

2. Describe the existing water characteristics at the site, including chemical analysis for water quality.

G. Discuss the frequency and amount of maintenance dredging which will be required; discuss the resulting impacts.

H. Alternatives

1. Discuss all alternatives to the project including the no action alternative.

2. Discuss alternative types and methods of dredging and disposal, such as pipeline discharge, barging, or hopper method.

3. Discuss alternatives to dredging.

4. Discuss alternative areas of sites for spoil disposal.

5. Discuss impact of port docking patterns upon the demand for dredging. Can alternative patterns reduce the amount of dredging required to support port operations?

6. Suggest alternative means of construction which would prevent or minimize water quality degradation using EPA standards for guidance.

7. State in detail impacts resulting in alternative locations for the proposed project.

PART IV

CONSIDERATIONS OF A FILLING PROPOSAL:

A. Describe in detail the existing characteristics of the area proposed for filling (i.e., aquatic area, marsh, mudflat, swamp etc.). In your description be sure to include the types of vegetation present and the types of animals, that use the area. (Provide photographs).

Not applicable

B. Give the following information in regard to the project size:

1. Total area to be filled.

2. Size of underwater area to be filled.

3. Area of intertidal zone to be filled.

4. Area of wetlands to be filled.

5. Proposed height of fill.

6. Volume of material that will be used in filling.

C. Describe in detail the material to be used as fill including as follows:

1. Type of fill to be used (sand, stone, rubble, etc.). If the material is a composite (i.e. rubble) list the types of materials it will contain.

2. Give the specific location of the source of this material.

3. What types of leachates will be produced from the fill material and what is planned for protection of surface and groundwater?

D. Carefully describe the method of fill including the following:

1. Method of fill placement including equipment used in deposition and grading.

2. Method of stabilization of banks from erosion, sloughing, wave action, boat wakes etc.

3. Method of stabilization of the surface of the fill.

4. Length of time needed for completion of the project. State if filling will be continuous, intermittent etc.

5. Method of controlling turbidity when filling an underwater area.

E. Purpose of the project -

1. What is the intended use of the filled area?

2. What structures, if any, will be constructed on the fill?

3. What benefits would you gain from the proposed fill?

F. Alternatives

1. Discuss the "no action" alternative and how this would affect your present and future plans for the development of the area.

2. Discuss alternative locations for the proposed fill.

3. Discuss the use of elevated structures (i.e. causeways, elevated platforms etc.) in place of the proposed fill

4. Discuss any other alternatives you have considered prior to formulating the presently submitted proposal.

5. Method of controlling turbidity when filling an underwater area.

E. Purpose of the project -

1. What is the intended use of the filled area?

2. What structures, if any, will be constructed on the fill?

3. What benefits would you gain from the proposed fill?

F. Alternatives

1. Discuss the "no action" alternative and how this would affect your present and future plans for the development of the area.

2. Discuss alternative locations for the proposed fill.

3. Discuss the use of elevated structures (i.e. causeways, elevated platforms etc.) in place of the proposed fill

4. Discuss any other alternatives you have considered prior to formulating the presently submitted proposal.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, Box 147
Smyrna, Delaware 19977

December 30, 1986

Mr. William F. Moyer, Supervisor
Wetlands and Underwater Lands Branch
Delaware Department of Natural Resources
and Environmental Control
P.O. Box 1401
Dover, Delaware 19903

Dear Mr. Moyer:

Enclosed are two copies of revised drawings for the Unit II water control structures at Prime Hook National Wildlife Refuge. The new drawings reflect the provision for passage of fish at all tidal levels through a fishway in one of the stop log bays.

Please advise if there is anything further which our office can provide to assist you with processing our permit application.

Sincerely,

Paul D. Daly
Refuge Manager
Bombay Hook/Prime Hook
National Wildlife Refuges

PDD:trh
Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, Box 147
Smyrna, Delaware 19977

December 30, 1986

Mr. Frank J. Cianfrani
Chief, Regulatory Branch
Philadelphia District Corps of Engineers
Custom House, 2nd and Chestnut Sts.
Philadelphia, PA 19106-2991

ATTN: Ed Bonner (Re: NAPOP-R-86-1254-1)

Gentlemen:

Enclosed are two copies of revised drawings for the Unit II water control structure at Prime Hook National Wildlife Refuge. The new drawings reflect provision for passage of fish at all tide levels through the fishway in one of the stoplog bays.

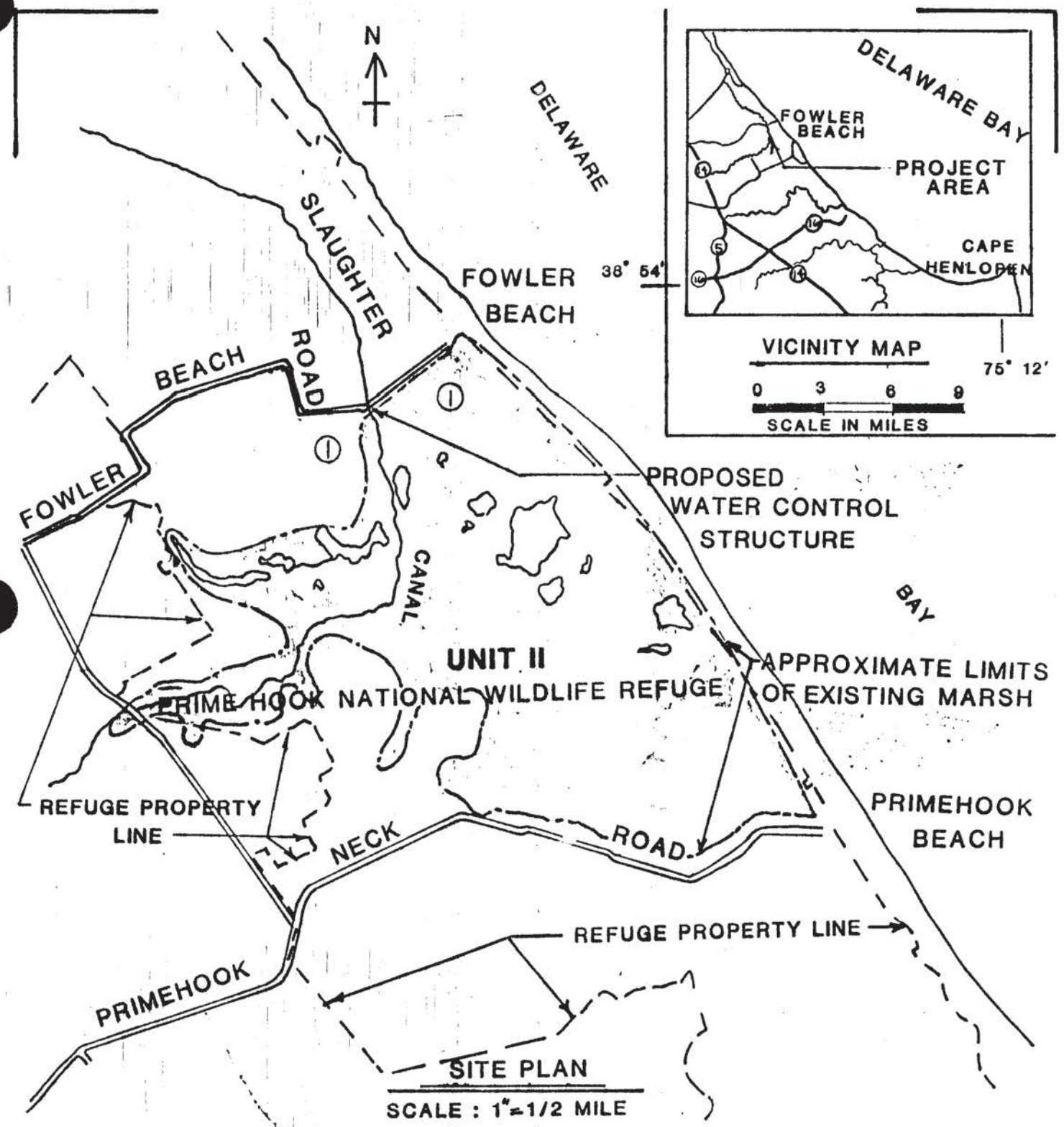
Our Regional Archaeological Coordinator, Mr. John Wilson, has been in contact with the Delaware Bureau of Archaeology and Historic Preservation and will work with them to resolve their concerns with the Unit II project.

If other information is needed from this office regarding the permit application please let us know.

Sincerely,

Paul D. Daly
Refuge Manager
Bombay Hook/Prime Hook
National Wildlife Refuges

PDD:trh
Enclosures



PURPOSE: MAINTAIN WATER SURFACE IN EXISTING MARSH FOR WATERFOWL

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

(1) U.S. DEPT. OF INTERIOR

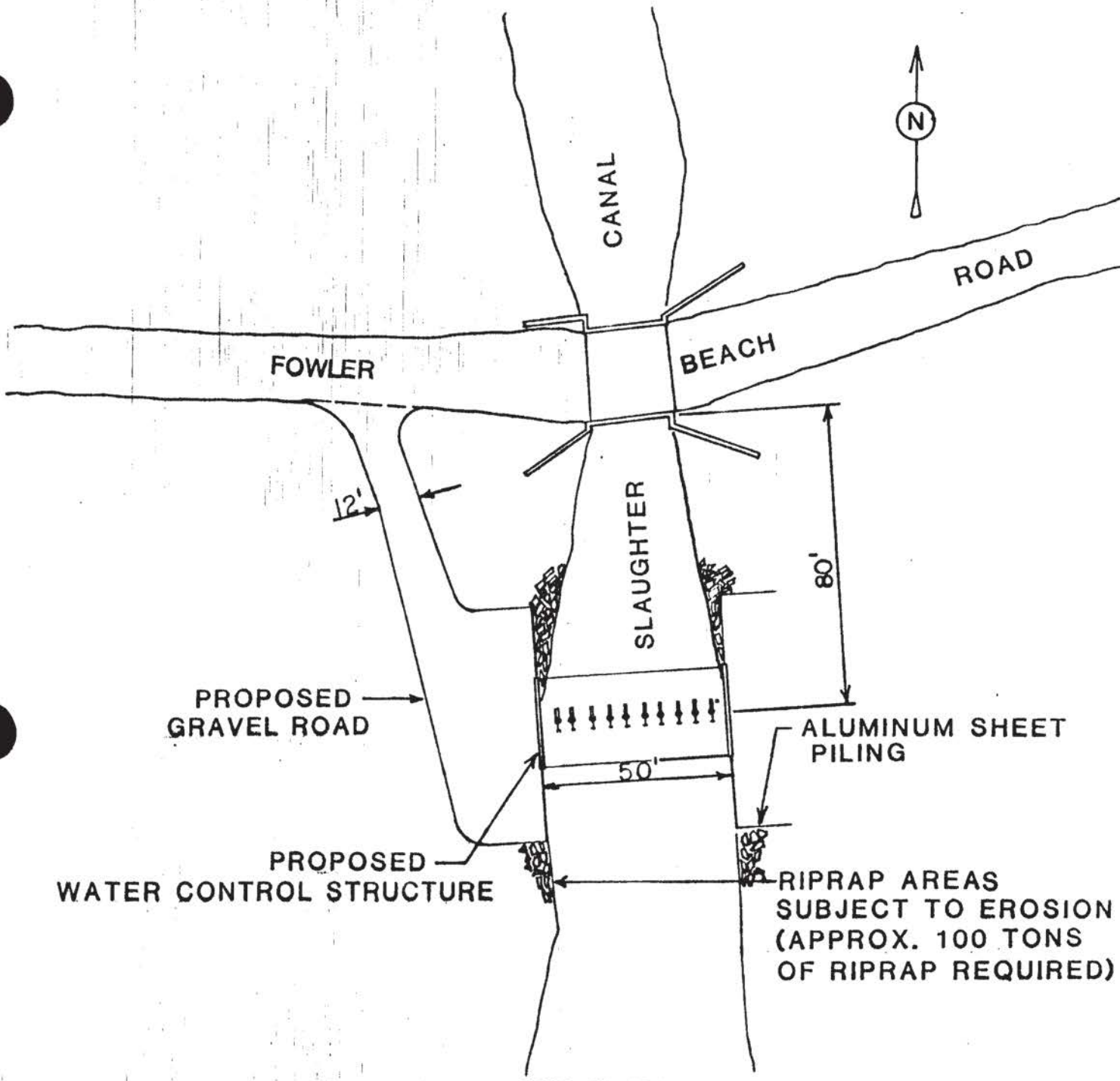
IN: PRIME HOOK N.W.R.

NEAR: LEWES , DELAWARE

COUNTY OF SUSSEX

APPLICATION BY: U.S. FISH & WILDLIFE SERVICE

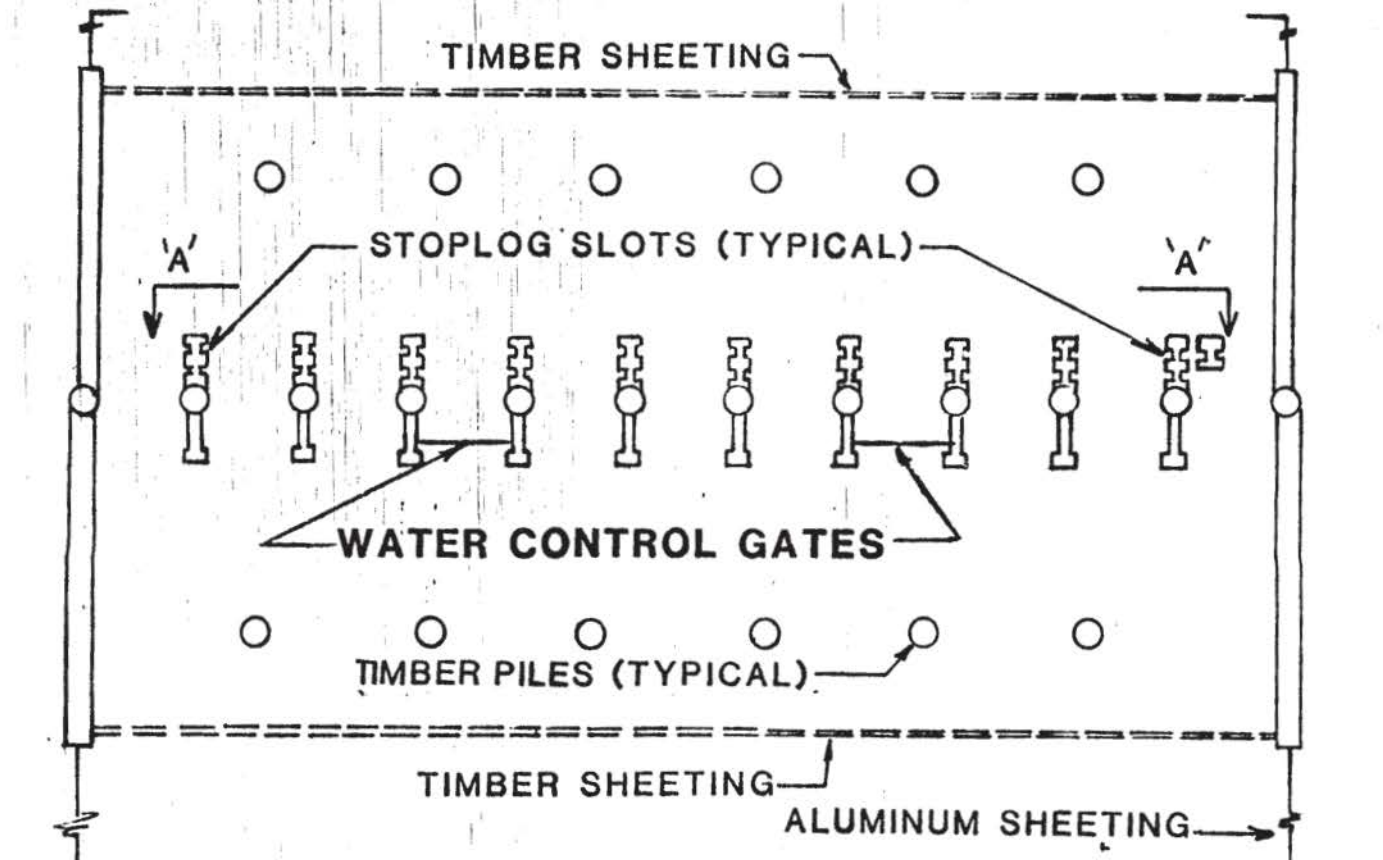
SHEET 1 OF 4 DATE: 5/5/88



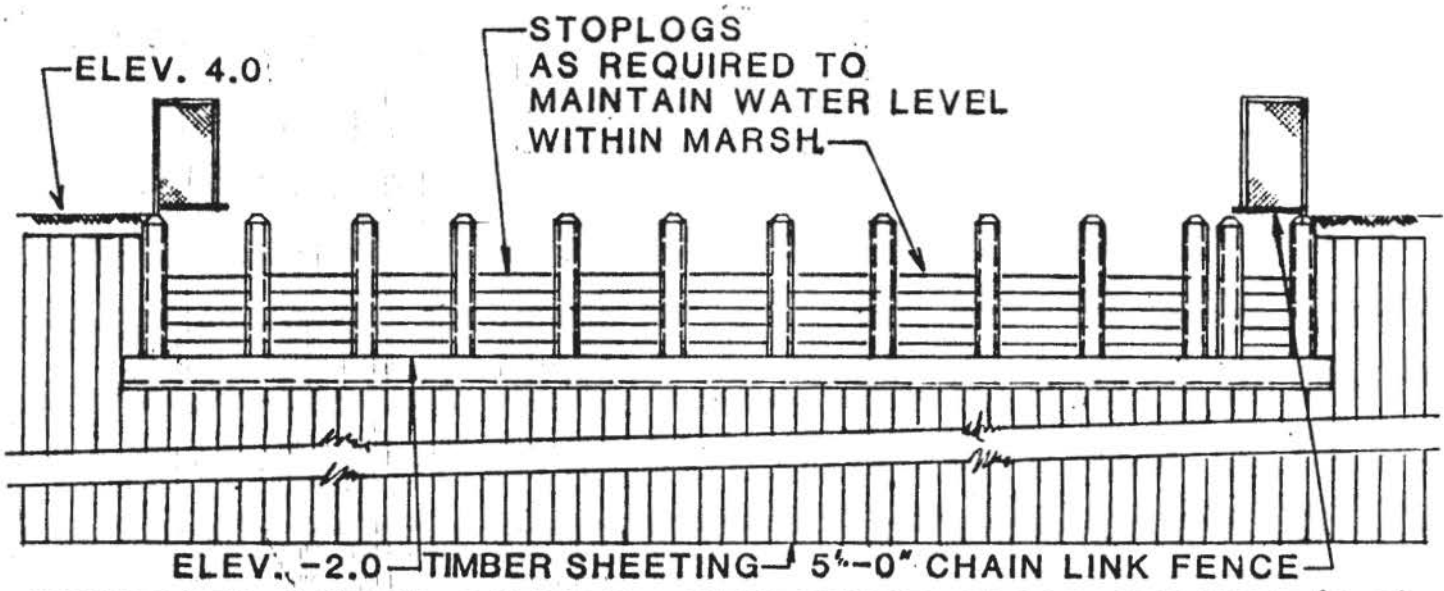
SITE PLAN

0 40 60 80

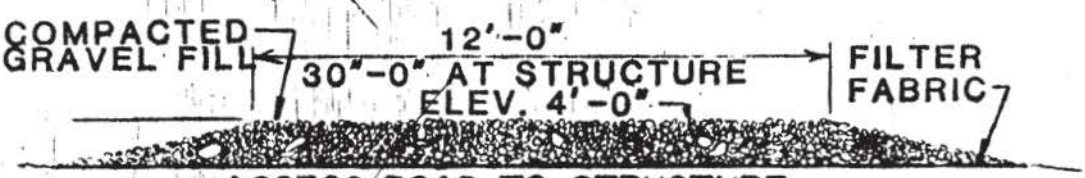
SCALE IN FEET



PROPOSED WATER CONTROL STRUCTURE-PLAN



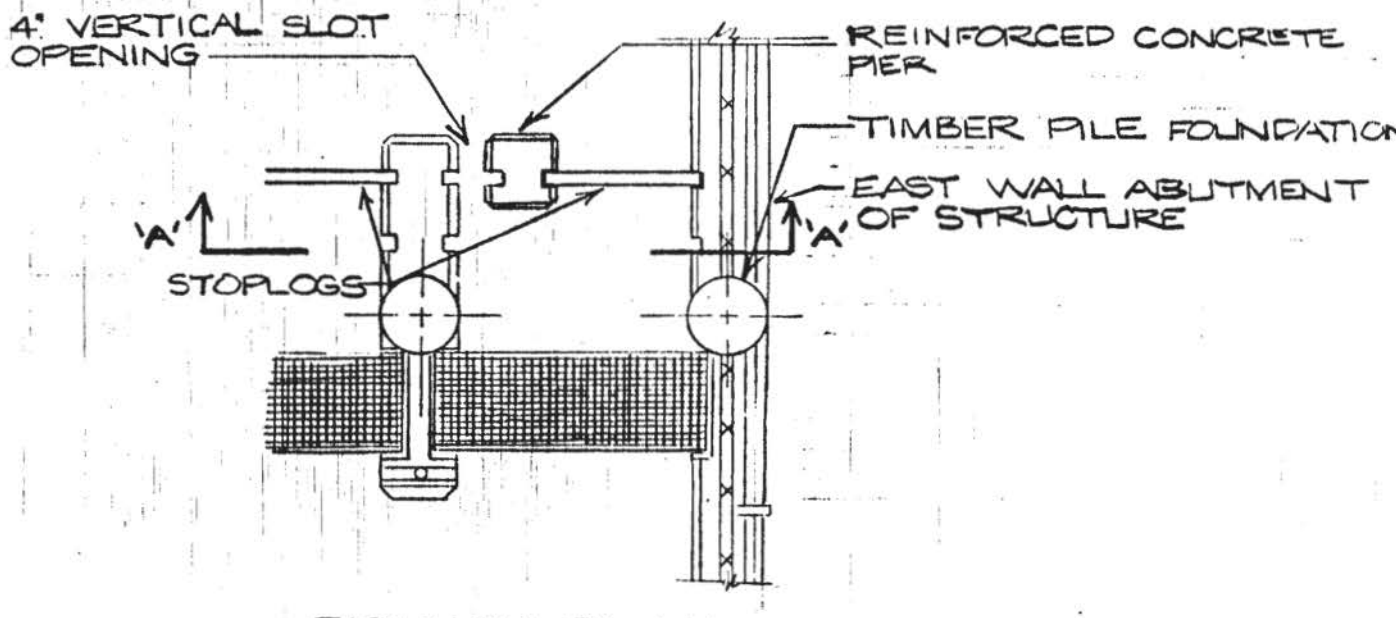
PROPOSED WATER CONTROL STRUCTURE-CROSS SECTION 'A-A'



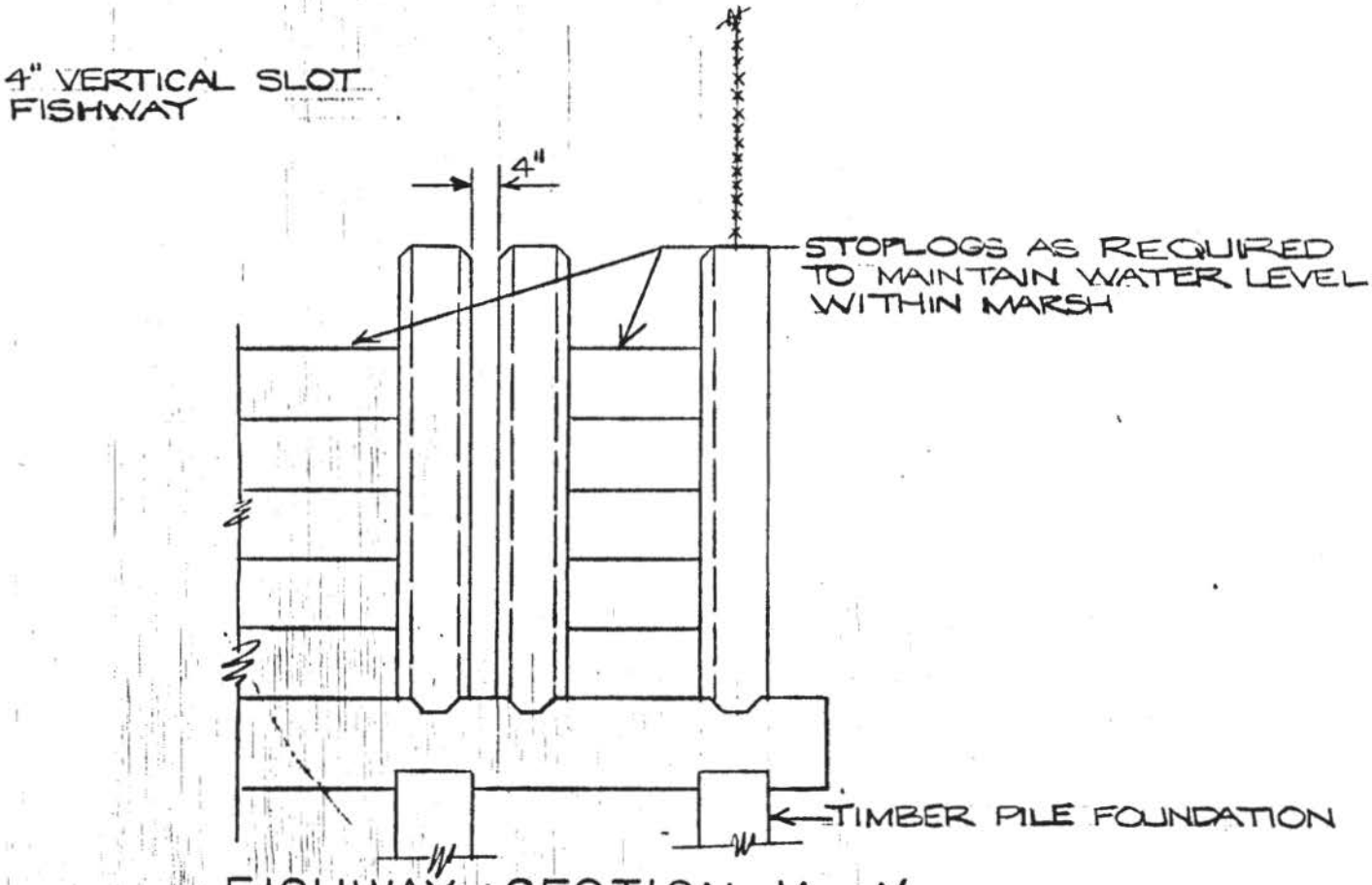
ACCESS ROAD TO STRUCTURE
TYPICAL CROSS SECTION

SCALE: 1/8": 1"-0"

SHEET 3 OF 4 5/5/86



FISHWAY PLAN



FISHWAY SECTION 'A-A'

SHEET 4 OF 4
11/20/86

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
PRIME HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, BOX 195
MILTON, DELAWARE 19968

Dear Editor;

Attached is a news release regarding a water management project proposal for the Prime Hook National Wildlife Refuge. The National Environmental Policy Act (NEPA) requires that we provide the public with the opportunity to comment and make suggestions to us on such projects.

The proposed project will have a significant impact on improvement of marsh conditions for waterfowl and other marsh-oriented birds and animals. In addition the project will have a significant impact on reducing the threat of fire to the Prime Hook Beach Development.

Your cooperation in making this information available to the public is greatly appreciated.

If I can be of further assistance do not hesitate to contact me - tel (302) 684-8419.

Sincerely,

George F. O'Shea
Assistant Refuge Manager
Prime Hook National Wildlife Refuge

attachment (1)

DEPARTMENT OF NATURAL RESOURCES
AND
ENVIRONMENTAL CONTROL

NOTICE OF AUTHORIZATION

ERMIT/LEASE NO. AND DESCRIPTION: SP-0403/87 Construct a water control structure in Slaughter Canal and place rip-rap along the canal

SSUED TO: DEPARTMENT OF INTERIOR

OCATION OF WORK: 80 feet south of the Fowler Beach Road near Fowler's Beach, Sussex County

ATE OF EXPIRATION: April 14, 1990

SPLAY THIS CERTIFICATE IN A
LY VISIBLE LOCATION ON THE
SITE.

William F. Moyer

WILLIAM F. MOYER, MANAGER
WETLANDS SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY, P.O. BOX 1401
DOVER, DELAWARE 19903

SURFACE WATER MANAGEMENT
SECTION

TELEPHONE (302) 736-5731

April 14, 1987

Mr. Paul D. Daly, Refuge Manager
Bombay Hook National Wildlife Refuge
R.D. 1, Box 147
Smyrna, Delaware 19977

RE: Permit SP-0403/87 Water control structure Slaughter Canal

Dear Mr. Daly:

Enclosed is the subaqueous lands permit granted by the State of Delaware.

A copy of this permit will be forwarded to the Corps of Engineers.

If you have any questions regarding this approval, feel free to contact this office.

Sincerely,

William F. Moyer
Supervisor
Wetlands and Underwater
Lands Branch
Telephone (302) 736-4691

cc: Frank Cianfrani
Charles McNally
Bennett Anderson

Enclosure

SP-0403/87

SUBAQUEOUS LANDS PERMIT

GRANTED TO

DEPARTMENT OF INTERIOR

TO

CONSTRUCT A WATER CONTROL STRUCTURE IN SLAUGHTER CANAL AND PLACE RIP-RAP ALONG THE CANAL 80 FEET SOUTH OF THE FOWLER BEACH ROAD NEAR FOWLER'S BEACH, SUSSEX COUNTY, DELAWARE

AND NOW, to-wit this 14th day of April, A. D. 1987, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative approves the application of Department of Interior, submitted to the Department of Natural Resources and Environmental Control and dated September 24, 1986, copy of which is attached hereto and made a part hereof.

WHEREAS, the State of Delaware is the owner of ungranted subaqueous lands lying beneath the waters of Slaughter Canal; and

WHEREAS, Department of Interior, owner of certain adjoining lands to Slaughter Canal, has applied for permission to construct a water control structure and place rip-rap; and

WHEREAS, the State of Delaware, by and through the Department of Natural Resources and Environmental Control, certifies that the permitted activity will be conducted in a manner which will not violate the applicable water quality standards of the State of Delaware; and

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

NOW, therefore, the State of Delaware hereby permits Department of Interior to construct a water control structure in Slaughter Canal and place rip-rap along the canal 80 feet south of the Fowler Beach Road near Fowler's Beach, Sussex County, Delaware.

THIS permit shall be subject to the following conditions:

1. Sediment and erosion controls shall be implemented so as not to violate the State of Delaware Department of Natural Resources and Environmental Control, "Water Quality Standards for Streams" dated December 23, 1985.

2. The construction schedule for this project shall be arranged so as to minimize the impact on anadromous fish passage.

3. The water level management plan shall be maintained at natural high tide level from March - October and be held at not less than 1.7 mean sea level during low tides (3 1/2" to 8 1/2" above current low tide). Management from October - February shall be at 2.3 mean sea level (9 1/2" - 15 1/2") above current low tide and (1 1/4" - 3 1/2" above high tide).

4. This permit shall not be effective until such time as the beach erosion problem at Fowler Beach has been corrected by the Division of Soil and Water.

5. A copy of this permit must be available on-site during all phases of construction activity, and the Department's Notice of Authorization displayed in a highly visible location at all times.

6. The project is to be undertaken in accordance with the plans submitted. If changes are necessary, revised plans must be submitted and a supplemental approval issued prior to actual construction.

7. Representatives of the Department of Natural Resources and Environmental Control may inspect such work during any phase of the construction and may collect any samples or conduct any tests that are deemed necessary.

8. This permit does not cover the structural stability of the project units.

9. All construction debris, excavated material, brush, rocks and refuse incidental to such work shall be placed either on shore above the influence of flood waters or on some suitable dumping ground.

10. Any actions, operations or installations which are considered by the Department to be contrary to the best interests of the public shall constitute reason for the discontinuance and/or removal of said action, operation or installation.

11. The permittee shall notify the Department of Natural Resources and Environmental Control as to the date work will be commenced, as far in advance of the time of commencement as the Department may specify, and the completion date.

12. The permittee shall at all times comply with such rules and regulations relating to navigation as may from time to time be promulgated by the United States Corps of Engineers as the same may affect such structures.

13. The issuance of this permit does not imply approval of any other part, phase, or portion of any overall project the permittee may be contemplating.

14. This permit shall not be construed to grant or confer any right, title, easement, or interest in, to, or over any land belonging to the State of Delaware other than that of a tenant.

15. This permit is subject to the terms and conditions contained in any easement, license or lease that may have been granted by the State or any political subdivision, board, commission or agency of the State in the vicinity of the leased premises.

16. Nothing contained herein shall in any manner affect the rights of any riparian land owner now existing under the laws of the State of Delaware.

Bids opened 12/2/85
Two bids - R.A.M. Construction $23,227.
(other Frederick Contractor) $19,380.

Options: 1. Go with temporary at the $19,380. bid
★ 2. Roger Tornstrom bring survey team and do both east + west perimeter surveys.

★ choice concurred with by Ed. Moses and myself.

Tasks prior to Tornstrom visit (probably early January):
1. locate all corners, flag corner posts
2. If opportunity presents itself, have Goldsberry fly + take aerial pictures of water bodies
3. read wells regularly.

Tornstrom would also tie in observation wells to known elevations when his team visits.

UNITED STATES GOVERNMENT

memorandum

U.S. FISH AND WILDLIFE SERVICE

ONE GATEWAY CENTER
SUITE 700
NEWTON CORNER, MASSACHUSETTS 02158

TO: Refuge Manager, Bombay Hook NWR

FROM: Refuge Supervisor

DATE: JUN 11 1985

SUBJECT: Unit II Temporary Water Control Structure-Corps and State Permits

Attached are project drawings and application for a Corps of Engineers Permit. Please complete the application and draft a transmittal letter to the Corps. The letter should identify specifically what our objective is with the installation of a temporary structure.

Send us your draft letter and application for review prior to your sending it to the Corps. The project drawings will be used for the state permit request also.

The file on the permit process for the Unit III project should be reviewed prior to commencing work on the permit requests for Unit II.

If you have any questions on this, give me a call.

Ed Moses

Manager
Asst.Mgr. -B.H.
Asst.Mgr. -P.H.
Clerk

R.6-Unit II-1985

PRIME HOOK REFUGE
JUN 20 1985
RECEIVED

R-5-38

APPLICATION FOR STATE APPROVAL OF A SUBAQUEOUS LANDS PROJECT

Instructions

Please complete the attached form as accurately as possible. In cases where the applicant is not the owner of the land on which the project is to take place, please submit a copy of the appropriate lease or easement. In cases where the applicant has neither a lease nor an easement, please submit the appropriate document from the owner of the property in question stating that the applicant has permission to carry out the project. Be sure to sign and date the application submitting with the application the appropriate plans (in accordance with Section C of the application) and the appropriate fee.

Charges for subaqueous lands projects are:

1. $50.00 application fee to accompany this application.

2. $0.75 per cubic yard for material dredged or excavated from public subaqueous lands.

3. $1.50 per square foot of public subaqueous lands filled in or acquired by bulkheading calculated from the mean high water mark, or, if designated on the applicant's deed, from the mean low water mark. This charge is for a ten-year lease.

4. $1.50 per square foot per ten-year period for boat launching or docking facilities where the owner charges directly or indirectly for such use. There is no fee for launching or docking facilities where the owner does not charge for this use and the facilities are open for use by the general public.

5. $1.50 per square foot per year for industrial docks or piers.

6. Costs of public hearings, etc., which are incurred during project review.

Schedule WL-1

DEPARTMENT OF NATURAL RESOURCES
AND
ENVIRONMENTAL CONTROL

Wetlands and Underwater Lands Branch
Division of Water Resources
89 Kings Highway, P. O. Box 1401
Dover, Delaware 19903

APPLICATION FOR STATE APPROVAL OF A SUBAQUEOUS LAND PROJECT

A. Name and Address of applicant:

1. Title owner(s) of land and/or water where project is contemplated.

U.S. Department of the Interior, Fish and Wildlife Service

Prime Hook National Wildlife Refuge

R.D. # 1, Box 195
Milton, DE 19968

Telephone # (Home)(302)684-8419(Prime Hook) (Business)(302)653-9345(Bombay Hook)

2. Leaseholder (if any) of land and/or water where project is contemplated.

NONE

3. Address of project site. (Lot number and house number if different)

Refuge Unit II, approximately 80 feet south of Fowler Beach Road (County Route 199), on Slaughter Canal.

B. Name(s) and Address(es) of adjoining property owners.

Attached

NOTE: In the event the answer to any of the above is a corporation, also supply the name and address of the registered agent. In the event that any of the above

persons are not residents of the State of Delaware, supply the name and address of a person within the State authorized to accept legal service of process in his behalf.

C. Enclose four (4) copies of a neat, scaled drawing of the proposed project on 8½" by 11" paper. The plans should show the shoreline (both high and low water line), any existing structures in the immediate vicinity and typical cross section of the structure. Be sure to include a map showing the exact location with respect to roads or streets. If projects requires dredging, show on the diagram the dredge area and dredge spoil disposal site with dimensions and volumes. See attached "Drawing Requirements" for further instructions.

D. Type of applications:

1. Dredging _____ Total estimated volume: _____ cubic yards.

2. Filling _____ Total volume of fill: _____ cubic yards.
and area taken in: _____ square feet.

3. Bulkheading _____ Total length: _____ ft.

4. Dock _____ Total dimensions: _____ ft. by _____ ft.

5. Pier _____ Total dimensions: _____ ft. by _____ ft.

6. Jetty _____ Total dimensions: _____ ft. by _____ ft.

7. Other X Total dimensions: _____ ft. by _____ ft.

Item 7. Multi-bay water control structure. Approximate width of canal is 60 feet. Structure will be similar to one constructed in Unit III of the Refuge.

E. Is this a new project or rework or expansion or repair of an existing installation?

New project. Former water control structure is non-functional.

F. Does the applicant intend to charge, directly or indirectly, for the usage of the proposed installation? NO

G. Is the applicant the owner of the lands adjacent to the water on which the project is to take place? YES

H. Submit a copy of the deed with this application. If this application is for the construction of a bulkhead, a copy of the plot plan must also be submitted. The exact location of the bulkhead with respect to existing property markers or other objects from which measurements can be made must be included in the drawing.

I. State the purpose(s) of the project and all intended uses.
The purpose of the water control structure is to permit restoration of the water table within 1500 acres of wetlands in Unit II of the Prime Hook National Wildlife Refuge. Restoration will benefit waterfowl,(particularly the black duck) and other marsh-oriented birds and mammals. The public will also benefit from an increased enjoyment of the wildlife resource and from a greatly reduced fire danger to the community of Prime Hook Beach.

(continued)

Subaqueous Lands Application- Prime Hook National Wildlife Refuge

Part I. (Continued)

The site of the water control structure will be approximately 80 feet south of County Route 199 (Fowler Beach Road), near the site of a former water control structure. The proposed structure will be an eleven bay, concrete water control structure constructed on driven piles, similar to the structure built in Unit III (Broadkill Beach Road) of the Refuge in 1983. Management would be accomplished with stoplogs, screw gates and flap gates. Stoplogs will provide the ability to control the water surface within the impoundment and permit exchange of fresh and tidal waters. Screw gates will permit partial opening of the structure to permit passage of fish. Flap gates will permit a more rapid drawdown of water, if necessary, following a severe storm. Observation wells wells along the perimeter of the unit will monitor the ground water table in the unit .

Water for the impoundment will come from tidal water in Slaughter Canal, rainfall, upland runoff, Slaughter Creek and excess water from the Unit III impoundment to the south.

An interim water management plan is attached.

The former water control structure has been non-functional for several years. The excellent drainage provided by Slaughter Canal has served to dry out the marsh with the resultant takeover of the marsh by Phragmites. This takeover has crowded out plant species desirable for waterfolw feeding, reduced muskrat habitat and has resulted in the loss of several ponds which have been overrun by Phragmites. In addition, the dead stalks of Phragmites create a severe fire danger to the adjacent community of Prime Hook Beach each fall and winter. The most recent fire occurred on November 4, 1985 (960 acres). During the past two years, the Refuge has been using the herbicide Rodeo™ to control Phragmites within the unit, with excellent results.

J. Is the sale of all or part of this project contemplated?

NO

K. If this project is to be joined to or connected with an existing project, describe how it is to be done, why, and last ownership and control of the existing project.

NOT APPLICABLE

L. Are any additions or extensions contemplated to this project? NO If yes, describe in detail.

M. If this application is for the bulkheading of a shoreline other than an artificial lagoon where the bulkhead is more than 100 feet long or there are no bulkheads within 100 feet of the property lines, submit a written estimate for using rip-rap or vegetation for the stabilization from a qualified installer. Justification for not using either of these alternatives must be given below. This is in accordance with revised Subaqueous Lands Regulations that became effective July 30, 1985.

NOT APPLICABLE

This application must be complete and correct in all aspects. Applicant is responsible to maintain this application in a current state and to notify the Department of any changes in the answers.

I hereby swear/affirm that the above information is true and correct.

Please print legible applicant's name and if applicable agent's name with present mailing addresses.
U.S. Department of the Interior
Fish and Wildlife Service
Prime Hook National Wildlife Refuge

First, Middle Initial, Last Name (PROPERTY OWNER)

R.D. # 1, Box 195
Street

Milton, Delaware 19968
City **State** **Zip**

Phone Number ~~HOME~~ (302) 684-8419 Prime Hook
~~BUSINESS~~ (302) 653-9345 Bombay Hook

Applicant's Signature
Paul D. Daly, Refuge Manager

Date

First, Middle Initial, Last Name **(AGENT)**

Street

City State Zip

Business Phone

Agent's Signature

State License Number (Contractor)

Date

UNITED STATES GOVERNMENT

memorandum

DATE: 3/15/85

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Unit II Marsh Restoration

TO: Files

Meeting yesterday with Ed Moses(RF-S), Paul DAly and Dave Washburn(RO-EN) re: Unit II Project.

Agreed that Unit II proposal will be for a single WCS on Slaughter Canal. Two alternatives - first close to road; second 2-300' up stream from bridge. Vandalism could be a real problem due to relative isolation of roadway. A structure far off the road would reduce vandalism as person would be less likely to traverse the distance involved risking being seen. Much of the vandalism would be from gunfire. Ed theorized that a structure further down will present a challenge with a rifle. He suggests the WCS be nearer the road and metal plates be added to deflect or reduce the impact of the bullet. The fence and stoplogs however, will be available for shotguns, small bore rifle and rifle targets.

We discussed a need for water easements along the eastern and western boundary. On the west- Clifton Canning Co., E.G. Adams and Jimmey Wells- will be potential impact on farmland. On the east - Joseph Penuel, George Carey, Draper Foods, Henry C. Bennett and Doris Jones.

Tracts on the east are currently in wetlands - entirely Phragmites. Due to a leeve effect from Slaughter Canal, water along that portion has nowhere to drain to. It is already wet. Washouts over the dunes provide water during floods also pushing sand into the refuge.

The RO will look into the need for easements. Similar situations in Unit II were resolved without easements.

A survey of some sort is needed to give us an indication of where the water will fall or at what level to operate the WCS. A perimeter survey would involve work in Phragmites which will be 6-8' high by the end of May. Dave Washburn suggested installing a temporary sheetpile structure to monitor where water would be backed up to.

The possibility of our washing in observation wells was also discussed. It was felt that if we could wash the wells in we could save money for the project for construction. We need to determine how many wells and their location. EN estimates 1½ years ago were $500/well installed.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

Ed suggested that I contact Ralph Abel in Habitat Resources for ideas in preparing the EA. In essence we are changing from the initially selected alternative, to another alternative discussed in the original EA. We need to know if we have to circulate the new EA completely or if the prior review and public comments are enough.

UNITED STATES GOVERNMENT

memorandum

DATE: February 27, 1986

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Unit II Water Management

TO: Files

Although we have received nothing in writing, it is my understanding that Realty feels that we cannot hold water in Unit II, on wetlands, without first obtaining easements on ±40 acres that we do not own. Survey data along our eastern boundary shows that privately-owned land eastward from our boundary to the barrier dune lies below the level of 2.3'msl (or it is NGVD) - the maximum level we would hold from November - March.

The ±40 acres are owned by Joseph Penuel, V. George Carey, Bennett Family, Draper Foods, Jones Family and Doris Jones. It is the pre-vervial water over the dam or 20-20 hindsight, but the boundary of each of these tracts is the result of previous realty actions. (In most cases condemnation). It's mute to argue now that serious errors may have occurred during acquisition. The point is that irregardless of past actions we currently do not own, control or possess a flowage easement over these 40± acres.

The Unit II proposal was made for the primary purpose of restoration of valuable waterfowl habitat particularly to benefit the black duck. We all recognize the fact that the secondary purpose may well be the primary reason for needed action in Unit II - that of reduction of the severe fire hazard to the community of Prime Hook Beach. We can easily justify the project for the primary purpose. The value of Unit II to waterfowl has deteriorated substantially since Service acquisition. Nesting and feeding habitat, flyway - wide, for the black duck has also decreased, resulting in sharp drops in populations for this species. We have an opportunity, in Unit II, of making a contribution to aiding this species.

The April 1977 marsh fire in Unit II brought instant media attention and focused attention to the serious fire problem on Prime Hook. We certainly were lucky that the fire did not damage or destroy homes or cause serious injuries. The November 1985 fire refocused, for a brief time, attention to the fire problem. Although the fire at no time threatened homes, persons living on the beach were fearful once again. The community consists of upward to 100 houses, probably averaging

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

$50,000 and upward, exclusive of furnishings and other property.

The point is, we could easily have, on an annual basis, the potential for damage up to a million dollars or more, not to mention the possibility of serious injury or loss of life. The Interior Inspector General, on a fire audit several years ago indicated that a fire occurring on refuge lands which also causes damage to privately-owned lands would be the responsibility of the Interior Department. It also ~~states~~ stands that any such fire will cause, perhaps, irreversible damage to refuge - community public relations.

Obviously, we must act to correct the problem. Mr. Miller's visit to the effected landowners is a start, however, we can't remain too optimistic on the results of such meetings based on the history of past negotiations. We must be prepared for a failure in negotiations.

The land we need to purchase or to obtain a easement on is wetland. Several State and Federal laws prohibit development of these lands. The only potential use of this land then would be waterfowl hunting, however, this is remote due to dense Phragmites, It is hard to picture how we would adversely affect these wetlands by maintaining the water table.

The decision requiring easements and/or ownership prior to managing water levels in Unit II has far reaching potentials. The potentials include the effect of management in Unit III as it effects both Unit III and Unit II, and what or who defines the limit of what is effected.

In Unit III, we acquired easements from Howard Thompson (Layton estate) and the State of Delaware. We did not get an easement for a small portions of land belonging to Doris Jones. Nor did we consider the impact (if any) on properties along the creek adjacent to the Clifton Cannery.

We must seriously consider also, the effects that Unit III management has on Unit II, including most, even perhaps to some extent all properties now in question. We have shown with water readings that water from Unit III passes under Prime Hook Beach Road into Unit II and stabilizes at approximately the same level as in Unit II. Does the decision not to manage Unit II extend to not influencing Unit III to the extent not to push water into Unit II?, or do we block culverts and prevent water from entering Unit II? The latter is a poor choice because the same culverts that pass Unit III water into Unit II, also drains Unit II water through Unit III to drain the southern end of Unit II. Until Prime Hook Beach Road was built up, in effect forming a dike or levee, Units II and III were essentially one unit.

Once we decide to acquire easements, how do we define the area effected, thus requiring an easement? Does an increase of water under farmland require an easement in farmland?

Finally, what are our contingencies if we are unable to reach an agreement with one or more landowners? Is the RO (RD) prepared to proceed with condemnation or to at least propose it, based on the overwhelming potential for tort claims, adverse publicity, poor neighbor relations not to mention failure to meet the goals and objectives of the Service and Refuge?

We are investing thousands of dollars to spray Phragmites in Unit II. If we do not change the conditions that favor Phragmites growth we can expect to see a return of this noxious weed and a waste of lots of money. We have invested $81,000 on a tractor to mow a firebreak in the marsh adjacent to Prime Hook Beach. Will we have sufficient funding to effect immediate repairs as needed to keep the machine running and; will the firebreak be effective in a fast moving marsh fire? (For that matter a slow moving fire).

I don't believe that the RO has a complete picture of the implications of a "No Management" decision in Unit II. The impacts on wildlife, habitat and the public, of this project, are tremendous. We have invested over 5 years in planning water management in Unit II. We have now come so close that we should not now drop the ball. The serious public implications must be reinforced up the chain of command. Somewhere we must find the courage, to take the action necessary to restore the Unit II water table before our lack of action results in permanent, irreversible negative impacts on the public. I still cannot comprehend that a decision with such far reaching potential impacts were made without refuge imput and/or participation, and without a written opinion from the Solicitor.

Based on the RO's decision on Unit II, we need a legal opinion on the ±0.5 acres belonging to Mrs. Jones in Unit III that we are now flooding. Also, we need a legal opinion on the need for an easement if Unit III management is flooding the properties adjacent to Unit II. I fear that once this easement business is opened that we will find ourselves in a serious catch 22 situation. Personally, I cannot justify holding water from Unit III, in Unit II without easements but to impound Unit II I need easements. This appears to be a fatal flaw in our thinking.

Temp wcs

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WETLANDS SECTION
89 KINGS HIGHWAY
P.O. BOX 1401
DOVER, DELAWARE 19903

TELEPHONE: (302) 736 - 4691

September 30, 1985

Mr. Paul Doly, Refuge Manager
Prime Hook National Wildlife Refuge
RD 1, Box 195
Milton, Delaware 19968

Dear Mr. Doly:

Enclosed is the subaqueous lands permit granted by the State of Delaware.

A copy of this permit will be forwarded to the Corps of Engineers.

If you have any questions regarding this approval, feel free to contact this office.

Sincerely,

William F. Moyer

William F. Moyer
Manager

cc: Frank Cianfrani
Charles McNally
Bennett Anderson

Enclosure

Manager
st.Mgr. -B.H.
st.Mgr. -P.H.
rk
man
f

PRIME HOOK REFUGE
3 1985
RECEIVED

SUBAQUEOUS LANDS PERMIT

GRANTED TO

UNITED STATES DEPARTMENT OF THE INTERIOR

TO

PLACE A TEMPORARY STEEL SHEETING WATER CONTROL STRUCTURE IN SLAUGHTERS CREEK 80 FEET SOUTH OF THE RT. 199 FOWLER BEACH ROAD BRIDGE, SUSSEX COUNTY, DELAWARE

AND NOW, to-wit this 30th day of September, A. D. 1985, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative approves the application of United States Department of the Interior, submitted to Department of Natural Resources and Environmental Control and dated July 9, 1985, copy of which is attached hereto and made a part hereof.

WHEREAS, the State of Delaware is the owner of ungranted subaqueous lands lying beneath the waters of Slaughters Creek; and

WHEREAS, United States Department of the Interior, owner of certain adjoining lands to Slaughters Creek, has applied for permission to place a temporary steel sheeting water control structure; and

WHEREAS, the State of Delaware, by and through the Department of Natural Resources and Environmental Control, certifies that the permitted activity will be conducted in a manner which will not violate the applicable water quality standards of the State of Delaware; and

WHEREAS, pursuant to the provisions of Title 7, Section 6151, Delaware Code, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

NOW, therefore, the State of Delaware hereby permits United States Department of the Interior to place a temporary steel sheeting water control structure in Slaughters Creek 80 feet south of the Rt. 199 Fowler Beach Road Bridge, Sussex County, Delaware.

THIS permit shall be subject to the following conditions:

1. Sediment and erosion controls shall be implemented so as not to violate the State of Delaware Department of Natural Resources and Environmental Control, "Water Quality Standards for Streams" dated August 27, 1982.

2. The structure shall be removed immediately if any significant problems arise, or by March 1, 1986 whichever comes first.

3. Any wetlands impact as a result of construction shall be restored.

4. A copy of this permit must be available on-site during all phases of construction activity, and the Department's Notice of Authorization displayed in a highly visible location at all times.

5. The project is to be undertaken in accordance with the plans submitted. If changes are necessary, revised plans must be submitted and a supplemental approval issued prior to actual construction.

6. Representatives of the Department of Natural Resources and Environmental Control may inspect such work during any phase of the construction and may collect any samples or conduct any tests that are deemed necessary.

7. This permit does not cover the structural stability of the project units.

8. All construction debris, excavated material, brush, rocks and refuse incidental to such work shall be placed either on shore above the influence of flood waters or on some suitable dumping ground.

9. Any actions, operations or installations which are considered by the Department to be contrary to the best interests of the public shall constitute reason for the

discontinuance and/or removal of said action, operation or installation.

10. The permittee shall notify the Department of Natural Resources and Environmental Control as to the date work will be commenced, as far in advance of the time of commencement as the Department may specify, and the completion date.

11. The permittee shall at all times comply with such rules and regulations relating to navigation as may from time to time be promulgated by the United States Corps of Engineers as the same may affect such structures.

12. The issuance of this permit does not imply approval of any other part, phase, or portion of any overall project the permittee may be contemplating.

13. This permit shall not be construed to grant or confer any right, title, easement, or interest in, to, or over any land belonging to the State of Delaware other than that of a tenant.

14. This permit is subject to the terms and conditions contained in any easement, license or lease that may have been granted by the State or any political subdivision, board, commission or agency of the State in the vicinity of the leased premises.

15. Nothing contained herein shall in any manner affect the rights of any riparian land owner now existing under the laws of the State of Delaware.

16. This permit and authorization are granted for the purposes as stated herein. Any other use without prior approval shall constitute reason for this permit being revoked.

17. This permit is void within three (3) years from the date of issuance.

18. If the permittee considers three (3) years insufficient for completion of the project, the permittee may submit a project time schedule for consideration by the Department. If the time schedule is approved it shall be attached hereto and made a part hereof.

19. This permit will be revoked upon violation of any of the above conditions.

IN WITNESS WHEREOF, I, William F. Moyer, the duly authorized representative of John E. Wilson, III, Secretary, Department of Natural Resources and Environmental Control, have hereunto set my hand and seal this 30th day of September, 1985.

William F. Moyer

By William F. Moyer, the duly authorized representative of the Secretary of the Department of Natural Resources and Environmental Control

Schedule WL-1

DEPARTMENT OF NATURAL RESOURCES
AND
ENVIRONMENTAL CONTROL

RECEIVED
JUL 1985
WETLAND SECTION

Wetlands Section
Division of Environmental Control
89 Kings Highway, P.O. Box 1401
Dover, Delaware 19903

APPLICATION FOR STATE APPROVAL OF A SUBAQUEOUS LAND PROJECT

A. Name and Address of applicant:

1. Title owner(s) of land and/or water where project is contemplated.

U.S. Department of the Interior
Fish and Wildlife Service
Prime Hook National Wildlife Refuge
R.D. 1, Box 195
Milton, Delaware 19968

Telephone # (302) 684-8419 Prime Hook
(302) 653-9345 Bombay Hook

2. Leaseholder (if any) of land and/or water where project is contemplated.

None

3. Address of project site. Unit II. South of Fowler Beach Road (CR 199) west of Fowler Beach - Slaughter Canal

B. Name(s) and Address(es) of adjoining property owners.

See attached list

NOTE: In the event the answer to any of the above is a corporation, also supply the name and address of the registered agent. In the event that any of the above persons are not residents of

the State of Delaware, supply the name and address of a person within the State authorized to accept legal service of process in his behalf.

C. Enclose four (4) copies of a neat, scaled drawing of the proposed project. Use a scale of 1" to 50' for bulkheads, piers, and docks on 8½" by 11" paper, use a scale of 1" to 100' for larger size projects on paper large enough to accommodate the project. The plans should show the shoreline (both high and low water line), any existing structures in the immediate vicinity and a typical cross section of the structure. Be sure to include a map showing the exact location with respect to roads or streets.
(attached)

D. Type of applications:

1. Dredging _____ Total estimated volume: _____ cubic yds.

2. Filling X Total volume of fill: 133 cubic yds.
and area taken in: 1200 square ft.
(access road)

3. Bulkheading _____ Total length: _____ ft.

4. Dock _____ Total dimensions: _____ ft. by _____ ft.

5. Pier _____ Total dimensions: _____ ft. by _____ ft.

6. Jetty _____ Total dimensions: _____ ft. by _____ ft.

7. Other X Total dimensions: 60 ft. by _____ ft.

install temporary steel sheet pile water control structure, ± 60 feet, across Slaughter Canal south of Fowler Beach Road.

E. Is this a new project or rework or expansion or repair of an existing installation? Replacement of non-functioning wooden sheet pile structure built in 1930's. Essentially new construction.

F. Does the applicant intend to charge, directly or indirectly, for the usage of the proposed installation? No

If so, how? _____

G. Is the applicant the owner of the lands adjacent to the water on which the project is to take place? Yes, the Department of the Interior owns all lands adjacent to the structure. Private owners do, however, own

H. Submit a copy of the deed with this application. If this application is for the construction of a bulkhead, a copy of the plot plan must also be submitted.

I. State the purpose (s) of the project and all intended uses.

This structure will temporarily impound water within Unit II of the Prime Hook National Wildlife Refuge to elevation 2.8 feet msl. As a result, the

(cont

continuation. DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Part G.

property adjacent to marsh to be impounded.

Part I.

permanent water control structure at this location to rehabilitate wetlands habitat for the benefit of waterfowl and other marsh-oriented birds and mammals. It would also reduce the annual fire threat to the community of Prime Hook Beach. The public will benefit from reduced fire danger and increased presence of wildlife for viewing.

exact limits of water management of elevation 2.8 feet msl will be determined. The temporary structure will remain in place until optimum water level has been attained and work completed to accurately map the area impounded. The temporary structure will be removed immediately if significant problems occur. Information obtained will be used for final planning for construction of (cont.)

J. Is the sale of all or part of this project contemplated?

No

K. If this project is to be joined to or connected with an existing project, describe how it is to be done, why, and last ownership and control of the existing project.

Not Applicable

L. Are any additions or extensions contemplated to this project? Yes . If yes, describe in detail.

See Part I. temporary water control structure will provide information for final planning for construction of a permanent water control structure at this location for benefit of wetlands habitat, for the benefit of waterfowl and other water-oriented birds and mammals and to reduce the annual fire threat to the community of Prime Hook Beach.

This application must be complete and correct in all aspects. Applicant is responsible to maintain this application in a current state and to notify the Department of any changes in the answers.

I hereby swear/affirm that the above information is true and correct.

Please print legibly applicant's name and present mailing address:

Prime Hook National Wildlife Refuge
First, Middle Initial, Last Name

RD 1, Box 195
Street

Milton	Delaware	19968
City	State	Zip

by: Paul D. Doty Refuge Manager
Applicant's Signature

7-9-85
Date

Application for Department of the Army Permit
Prime Hook National Wildlife Refuge 7/8/85

Part 6. NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS

All lands immediately adjacent to proposed temporary steel sheet pile water control structure is owned by the U.S. Fish and Wildlife Service.

The following landowners lie adjacent to the marshlands which will be affected by the proposal:

1. Joseph Penuel
   R.D. 1, Box 234
   Milford, DE 19963

2. George Carey
   Carey Farms
   RD 1, Box 161
   Milford, DE 19963

3. Mary B. Hill
   Barbara Walls
   Charles B. Bennett
   Confort A. Spicer
   c/o Box 103
   Rehoboth, DE 19971

4. Draper Foods
   P.O. Box 387
   Milford, DE 19963

5. Daniel Ciabottoni Sr. and Jr.
   401 SE Market St.
   Lewes, DE 19958

6. Doris F. Jones
   R.D. 1, Box 173
   Milford, DE 19963

7. Estate of William Carlton Clifton
   RD 1, Box 133
   Milford, DE 19963

8. Lewis W. Bishop
   RD 1, Box 224
   Milford, DE 19963

9. John H. Price, Jr.
   7210 Sindall Rd.
   Baltimore, MD 21234

10. Maura A. Wyatt
    RD 1, Box 223A
    Milford, DE 19963

Application for Department of the Army Permit
Prime Hook National Wildlife Refuge 7/8/85

continuation NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS

11. Dana D. McClung
    Rt. Box 54
    Jane Lew, WV 26378

12. Anna-Belle S. Bradley Weidmar
    104 Surrel Drive
    Survey Park
    Wilmington, DE 19803

13. David W. Donavan
    Rt 5, Box 136
    Dover, DE 19901

14. Geraldine C. Johnson
    R.D. 1, Box 222
    Milford. DE 19963

15. Joseph C. Wright
    Rt 1, Box 221
    Prime Hook Beach
    Milford, DE 19963

16. Ida Clifton Faucett
    Georgetown, DE 19947

17. Gladys C. Carmine
    Cedar Village Trailer Park
    Lot 16
    Lincoln, DE 19960

18. Otis J. Clifton
    R.D. 1, Box 196
    Milton, DE 19968

19. John W. Parks
    Prime Hook Beach
    R.D. 1, Box 226
    Milford, DE 19963

20. E.G. Adams
    R.D. 1, Box 14
    Bridgeville, DE 19933

21. James C. Wells
    RD 1
    Milford, DE 19963

22. J.H. Wilkerson and Sons
    Box 78
    Milford, DE 19963

Application for Department of the Army Permit
Prime Hook National Wildlife Refuge 7/8/85

(Continuation)NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS

23. Doris F. Jones
    RD1, Box 173
    Milford, DE 19963

24. John W. Walls, Jr.
    Box 243
    Ellendale, DE

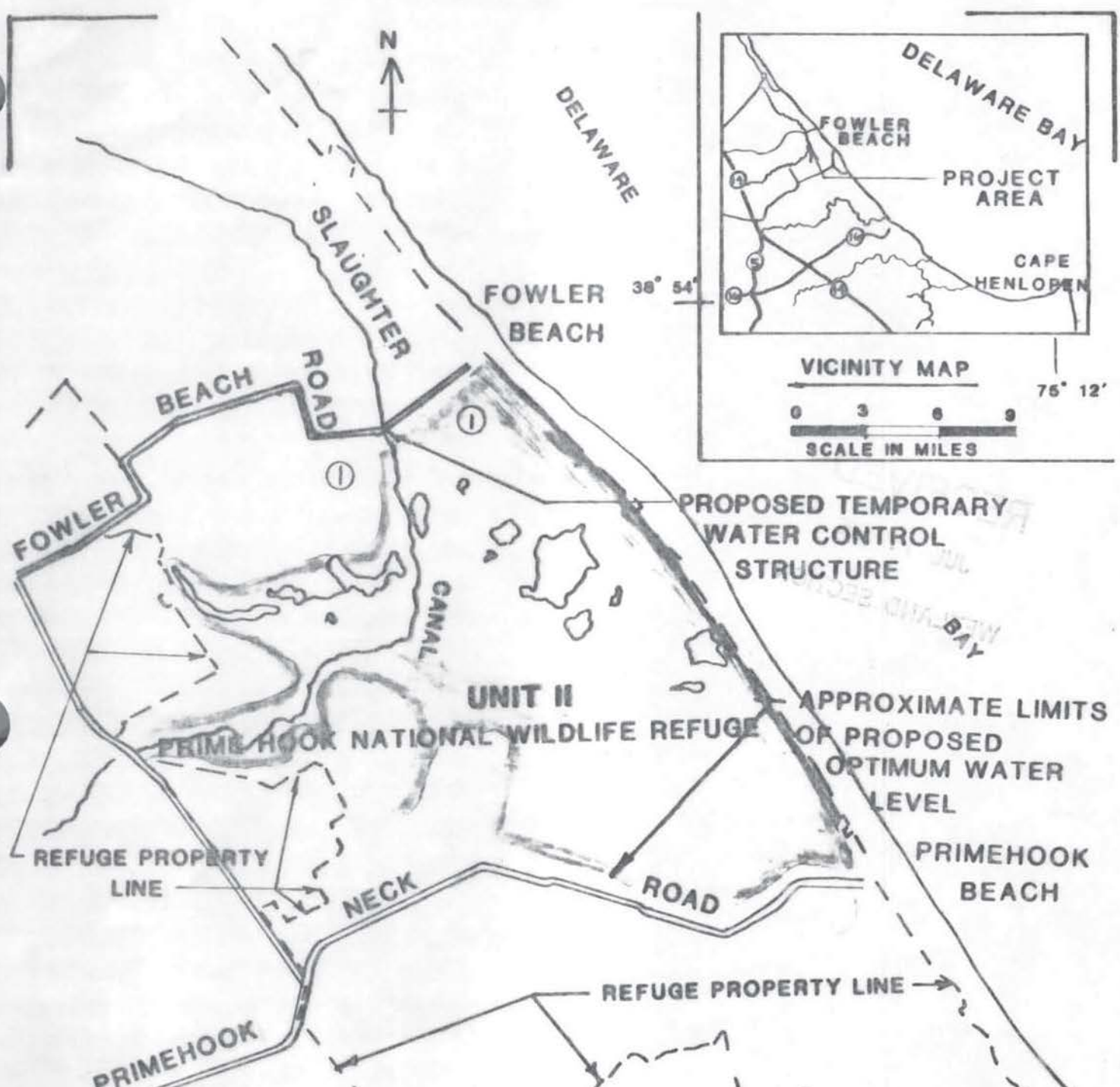
25. Elizabeth A. Shultze
    RD 3, Box 221 A
    Harrington, DE

26. Albert Cazalieri
    325 Sweetbrier Rd.
    King of Prussia, PA 19506

27. Barham F. Kennedy
    529 Country Club Drive
    Wilmington, DE

28. Joseph H. McFaul
    100 Lakelong Dr.
    Milford, DE 19963

29. Anthony Ruszowski
    RD 1, Box 264
    Prime Hook Beach
    Milford, DE 19963



PURPOSE: DETERMINE OPTIMUM WATER SURFACE FOR WATERFOWL IMPOUNDMENT

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

(1) U.S. DEPT. OF INTERIOR

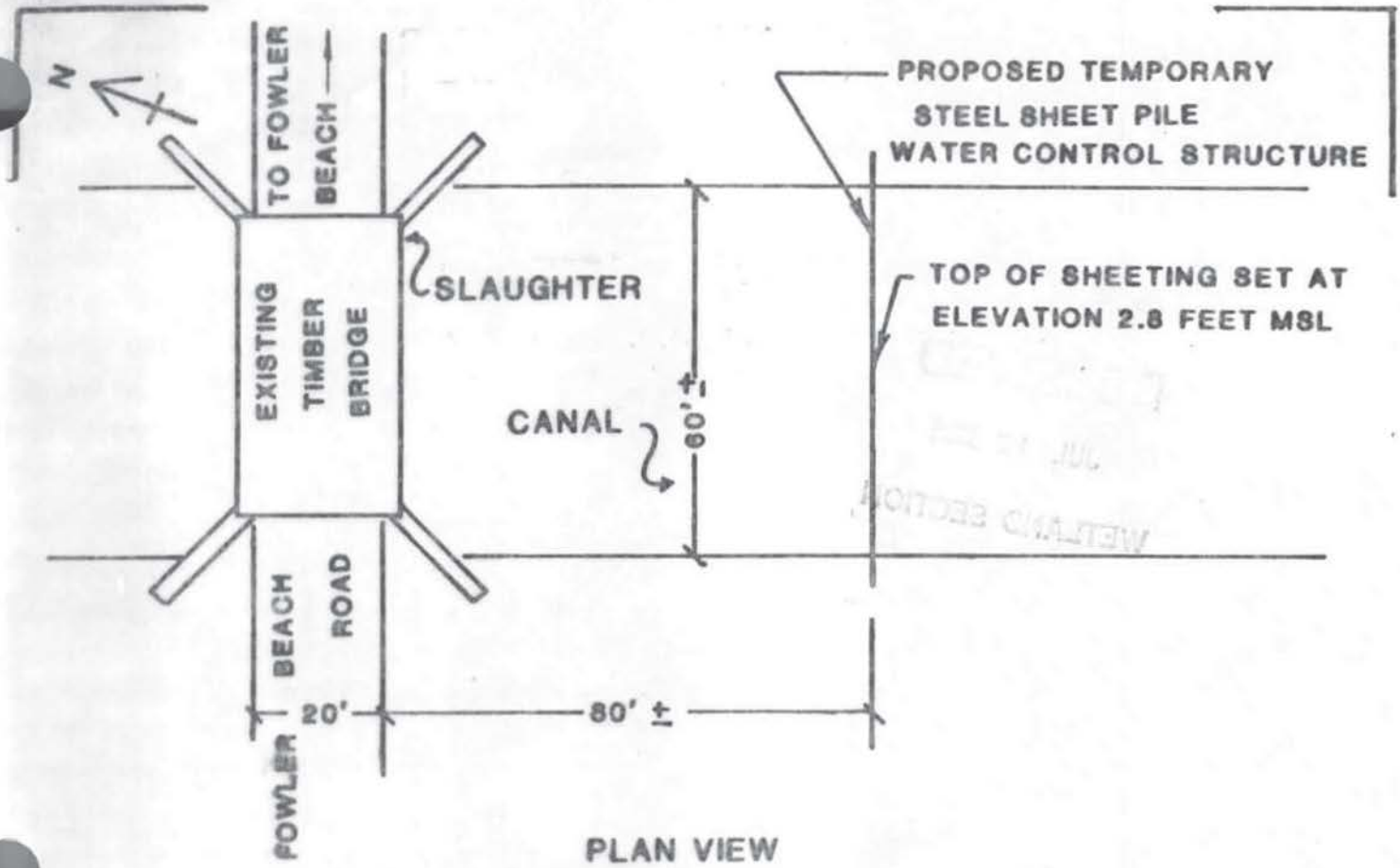
IN: PRIME HOOK N.W.R.

NEAR: LEWES , DELAWARE

COUNTY OF SUSSEX

APPLICATION BY: U.S. FISH & WILDLIFE SERVICE

SHEET 1 OF 2 DATE: 4/15/85



PLAN VIEW

PROPOSED TEMPORARY WATER CONTROL
STRUCTURE ACROSS SLAUGHTER CANAL
NOT TO SCALE

MEAN HIGH WATER=ELEV. 2.2 FEET
MEAN SEA LEVEL= ELEV. 0.0 FEET
MEAN LOW WATER=ELEV. -2.2 FEET

NOTE: A TEMPORARY STEEL SHEET PILE WATER CONTROL STRUCTURE IS PROPOSED TO BE INSTALLED ACROSS SLAUGHTER CANAL . THIS STRUCTURE WILL TEMPORARILY IMPOUND WATER WITHIN UNIT II OF PRIME HOOK N.W.R. TO ELEVATION 2.8 FEET MSL . AS A RESULT, THE EXACT LIMITS OF WATER MANAGEMENT AT ELEVATION 2.8 FEET MSL WILL BE DETERMINED . THE TEMPORARY STRUCTURE WILL REMAIN IN PLACE UNTIL THE OPTIMUM WATER LEVEL HAS BEEN ATTAINED AND WORK COMPLETED TO ACCURATELY MAP THE AREA IMPOUNDED. THE TEMPORARY STRUCTURE WILL BE REMOVED IMMEDIATELY IF SIGNIFICANT PROBLEMS OCCUR.

UNITED STATES GOVERNMENT

2-Way Memo

Subject: Prime Hook Unit II
COE Permit - Temporary Structure

DATE OF MESSAGE 12-2-85
DATE OF REPLY

INSTRUCTIONS
Use routing symbols whenever possible.
SENDER:
Forward original and one copy. Conserve space.
RECEIVER:
Reply below the message, keep one copy, return one copy.

To ~~From:~~ Ed Moses, Refuge Supervisor - South
R.O. (AWR)
Newton Corner, Ma.

—FOLD— USE BRIEF, INFORMAL LANGUAGE —FOLD—

I called the Corps Permit Branch this date to inquire as to status of the subject permit and the letters from the public regarding concerns from the meeting 11-14-85 at Rep. Carey's home. I spoke with Dick Hassel. He said that they had received 4-5 letters and that they would be mailed to us today. Of those there were one or two in support of the project.

I asked him in what format they would like our response. He said they wanted it in one memo and that they would reply individually to the citizens.

He said that the concern which seemed of most importance which had not been addressed previously was the length of time given the contractor to remove the structure if we receive a large storm. I told him that the invitation to bid stated seven days and that it had been mentioned at the meeting. He said he did remember.

I asked him when they would issue the permit after receipt of our response. He replied "within one week."

From To: Paul Daly, Refuge Manager
Bombay Hook / Prime Hook Refuges
Smyrna, De.

UNITED STATES GOVERNMENT

2-Way Memo

Subject: Crum Hook Unit II
COE Permit - Temporary trestle

To: Ed Moses, Refuge Supervisor South
RO (AWR)
Newton Corner, MA

DATE OF MESSAGE
1-15-86
DATE OF REPLY

INSTRUCTIONS
Use routing symbols whenever possible.
SENDER:
Forward original and one copy. Conserve space.
RECEIVER:
Reply below the message, keep one copy, return one copy.

—FOLD— USE BRIEF, INFORMAL LANGUAGE —FOLD—

I again called the Corps Permit Branch this date to inquire as to status of the subject permit. I spoke to Dick Hassel. He said that we will have the permit by January 24. I told him we were concerned about freeze-up and getting too far into the season to allow sufficient data gathering and removal prior to Corp season. He said there was no problem with the permit issuance, but that it was going to take until 1-24 to get it processed. I asked him to get it to us as soon as he possibly could.

From: Paul Daly, Refuge Manager
Bombay Hook / Crum Hook Refuge
Smyrna, De.

OPTIONAL FORM 27
OCTOBER 1962

estimate lands on east side unit II needed for easement to permit Unit II Project.

maximum needed.

Tract 21 (Penvel) — maximum

±450' — 2.1 ac

Tract 25 b (Carey)

± 5346 (8.1 ch) — 3.1 ac

Tract 19a (Bennetts)

corner 2-3 22.33 ch ±1473.78' — 8.6 ac

15 F (Draper)

ch 3-4 17.37 ch 1146.42'

ch 5-6 17.23 ch 1137.18 — 13.1 ac

5 (Jones)

44.13 ch 2912.58 — 16.7 ac

42 e (Jones)

19.9 ch 1313.4 — 7.6 ac

estimate at 250' wide — 50.9

2/4/86 drove beach with PDD to show him area. much currently with maximum distances much less than 250.'

UNITED STATES GOVERNMENT

memorandum

DATE: November 20, 1985

REPLY TO ATTN OF: Refuge Manager, Bombay Hook/Prime Hook Refuges

SUBJECT: Request for Survey - Prime Hook Unit II

TO: Regional Director, Region 5 (AWR-RE), Newton Corner, MA
THRU: Refuge Supervisor - South

I would like to request that a survey crew from the Regional Office run a survey which ties in our observation wells placed at strategic points in the Unit II project area at Prime Hook Refuge with known benchmark elevations.

The comments made by various citizens attending the meeting at Mr. George Carey's home on November 14, 1985 make it imperative that we have the best data possible on this project. This means that the data collected should be accomplished by professional surveyors, and for other portions of the project, our engineers or a private engineering firm.

Paul D. Daly

Paul D. Daly

PDD:veb

Manager
Asst.Mgr. -B.H.
✓Asst.Mgr. -P.H. PD
Clerk
Foreman
Staff
Biol.
✓ Sylvia SR
✓File unit II

PRIME HOOK REFUGE
NOV 22 1985
RECEIVED

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

Manager
Asst.Mgr. -B.H.
✓ Asst.Mgr. -P.H. PO
Clerk
Foreman
Staff
Biol.
✓ Sylvia SR
UNIT II
File

UNITED STATES GOVERNMENT

memorandum

PRIME HOOK REFUGE

NOV 22 1985

RECEIVED

DATE: November 15, 1985

REPLY TO ATTN OF: Refuge Manager, Bombay Hook/Prime Hook NWR

SUBJECT: Meeting Regarding Prime Hook Unit II Structure - 11/14/85

TO: Regional Director, Region 5 (AWR, Attn: Refuge Supervisor - South)

A meeting was set up by the Corps of Engineers Philadelphia District at the home of Mr. V. George Carey on 11-14-85 at Mr. Carey's request. He had stated that many local people wished to hear about the Prime Hook Unit II project.

A total of approximately 30 people were in attendance. Representing the COE were Mr. Richard Hassel and Mr. James Drumm. The others, except for refuge staff, were personally invited by Mr. Carey, who is a State Representative.

Mr. Carey opened the meeting by welcoming everyone and stating his concerns about the project, which are essentially that the project not impact upon any of his agricultural lands.

Mr. Hassel, who was the Corps spokesperson and meeting coordinator, then emphasized that the topic was to be limited to discussion of the temporary structure only. This limitation definitely did not hold throughout the evening.

I was then given the opportunity to describe the objectives of the project and how we proposed to implement it, after which the forum was opened for questions from the attendees.

Almost all present made at least one comment during the meeting which lasted about 2 hours. All comments from the hand-picked audience were either negative or neutral toward the project.

There were only two major concerns with the temporary structure that surfaced; these being:

1. Possibility (however remote) of a major rainstorm while the fixed elevation structure was in place; and the possibility in such a case of water being prevented from discharging as rapidly as possible. I stated that the bid invitations for the structure stipulated removal within 7 days of notification; however several people commented that we should have equipment "at the scene" for immediate structure removal if necessary.

2. Differences in elevation data at the Slaughter Canal bridge between the SCS and FWS. I stated that our measurements showed that the last northeast storm placed water at the elevation (2.80') of the structure; but Mr. Carey said that SCS data showed considerably less water during that same storm. Mr. Hassel suggested that COE, SCS, and the Service meet to coordinate the data.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6

All other comments actually related to management of the permanent structure when it is in place. They ranged from planned water levels during the growing season (I stated we would have a written water management plan) and effects on the water table under the croplands to effects on septic systems at Prime Hook Beach. To the latter we stated that observation wells would be in place and that the landowners would have the same rights as those at Broadkill Beach (Unit III) regarding claims. One person (a physician) even expressed a concern that a new mosquito species would begin using the marsh which would be a vector for EEE. We told him that would be dealt with under effects of the permanent structure.

Mr. Hassel made the statement that based on the number of people who came to the meeting and voiced their concern, the COE would "almost certainly" require a formal public hearing on the permanent structure application. He complemented the Service, however, on planning the temporary structure to show the pool perimeter at the maximum planned management level.

Mr. Hassel then told the group that he would "hold the record open" for ten days for them to send in written comments about the temporary structure. He said that the Nationwide Permit Letter of Authorization which they issued us on 10-21-85 was not applicable (we would be receiving a letter to that effect) and that an actual permit would have to be issued. He admitted after the meeting to us that Mr. Drumm had made an error in the manner in which he had handled our permit application. I reminded him that based upon their letter of authorization we had invitations to bid issued which would be opened December 2. He said he knew we had a tight time frame and would process the permit quickly. I also reminded him of the date of our application and that there had been plenty of time to act on it. Overall, however, Mr. Hassel was supportive of the Service project during the meeting. This can be attributed in some measure to not wanting too much to be made of their procedural errors.

Prior to closure of the meeting we emphasized the success of our Unit III project and the lack of complaints regarding it. Mr. Hassel echoed these comments. We stated that we wished to be good neighbors and would not adversely affect any adjacent land. It was evident, however, that the vast majority of attendees were very suspicious of our proposed water management and I doubt that we changed many minds. One person even brought up the promises of "no management" made twenty or more years ago when the area was acquired.

The Corps will contact Mr. Richard Bennet of the local SCS office to inquire into the data they are using on elevations at Slaughter Canal bridge. I am sure we will be asked to attend and we should, preferably with one of our surveyors.

Mr. Carey closed the meeting at 9:30 p.m.

Paul W. Daly

Nov. 21, 1985

PRIME HOOK REFUGE

NOV 25 1985

RECEIVED

Dear Sirs:

I wish to comment on the proposed water control structure at Prime Hook Refuge, Milton, Delaware.

It is my firm belief that this structure and subsequent water control is essential. The marsh as it currently exists only supports a fraction of the migratory waterfowl that could use it as wintering habitat when appropriate water control is possible.

This control would benefit, particularly, ducks, notably black ducks, mallards and pintails all species which are experiencing difficulty. Other species as well as muskrats and some upland species will benefit. There is also on Primehook marsh a fire hazard problem, dramatically demonstrated recently, which will be reduced by the implementation of the planned structure.

Speaking both as an individual and as president of Delawareans United for Conservation and Sport (DUCS), a local organization with

over 200 members, it is our belief that the proposed water control device is essential for the maintenance and management of Premeloock Wildlife Refuge. It will permit maximization of benefit to wildlife, particularly migrating waterfowl.

Thank you for your attention to this matter.

Sincerely,

Barry V. Hallingsworth

President, DICS.

Vnir #

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, Box 147
Smyrna, Delaware 19977

PRIME HOOK REFUGE
NOV 18 1985
RECEIVED

November 8, 1985

Frank J. Cianfrani, Chief Engineer
U. S. Army Corps of Engineers, Custom House
2nd and Chestnut Streets
Philadelphia, PA 19106-2991

Dear Mr. Cianfrani:

I have been notified through Mr. George O'Shea, Assistant Manager at Prime Hook Refuge, that your office has arranged a meeting at the home of Mr. V. George Carey on November 14, 1985 to discuss our project covered by application NAPOP-5-85-0711-3 and your letter of authorization dated October 21, 1985. The project covers a temporary sheet pile structure across Slaughter Canal on the refuge for the purpose of accurate mapping of maximum water to be impounded under future water management.

Because of the efforts which we expended to inform the public about this project, and the meetings and correspondence which have already taken place with Mr. Carey, we are somewhat puzzled by the necessity of this meeting. The chronology of events which have transpired to date is as follows:

7/09/85 Applications were filed for permits from both the Corps of Engineers and Delaware Department of Natural Resources and Environmental Control.

7/18/85 Messrs. Smith and O'Shea of the refuge staff attended the joint processing meeting of permitting agencies in Dover, Delaware to review our project plans and answer questions.

7/26/85 A news release on the proposed project was sent to the media asking for public comments and offering review of the draft environmental assessment.

7/30/85 Copies of the draft environmental assessment were sent to your office as well as the Delaware DNREC Wetlands Section. In the cover letter we advised both agencies that we would not require an access roadway to the temporary structure.

8/02/85 and 8/21/85 The refuge received letters from Mr. Carey with questions regarding the project.

8/02/85 Assistant Manager O'Shea met with Mr. James Downham of Prime Hook Beach, who is the leader of the Homeowner's Association. He explained the project and offered to meet with the entire group.

8/29/85 Assistant Manager Smith met with Mr. Carey at his home and traveled to the areas of farm fields which concerned Mr. Carey. Following this meeting Mr. Tornstrom, surveyor with our Boston Regional Office, contacted Mr. Richard Bennett, SCS District Conservationist in Georgetown, Delaware to discuss proposed water elevations to be caused by the temporary structure.

9/26/85 I wrote a letter to Mr. Carey with detailed answers to the questions posed in his letters.

9/30/85 Delaware DNREC Wetlands Section issued the refuge a subaqueous lands permit for the structure.

10/11/85 The Corps of Engineers issued a public notice covering the project with a 15-day comment period.

10/21/85 Your office issued a letter of authorization for the project.

10/30/85 Mr. Carey sent a letter to your office requesting a public hearing on the temporary structure.

Based on our receipt of permits from both the Corps and Delaware DNREC our contracting office in Boston issued a request for bids on installing and removing the temporary structure. The solicitation was issued 11-01-85 and sealed bids will be opened 12-02-85. The contractor receiving the award must begin installation within 10 days and complete it within 14 days after receiving the notice to proceed.

A total of four individuals have written us with comments concerning this proposal. Three of these letters were in favor of the project and one (Mr. Carey) expressed concerns. All letters have been made a part of the final environmental assessment (copies attached).

We are greatly concerned that the time period for installing the structure acquiring the necessary data through aerial photos, and removing the structure not be delayed. We must have the structure removed prior to March 1 as stipulated in the State permit.

Although we feel that we have complied with all reasonable public involvement measures; and that now the public comment period has passed, members of the refuge staff will attend the November 14 meeting as your requested in order to attempt to answer further concerns of adjacent landowners.

Sincerely,

PAUL D. DALY
Refuge Manager
Bombay Hook and Prime Hook
National Wildlife Refuges

Atchs.
PDD:veb

ROUTING AND TRANSMITTAL SLIP

Date Oct 21, 1985

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Paul Daly		
2.		
3.		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Dear Mr Daly:

Enclosed is the authorization for the temporary water control structure. You will also be receiving a public notice to cover a permit for a permanent structure at this location.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
Jim Dunn	Phone No.

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

☆ GPO : 1981 O - 361-529 (134)

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

REPLY TO
ATTENTION OF

Regulatory Branch

SUBJECT: NAPOP-R-85-0711(NP 5)

OCT 21 1985

Mr. Paul D. Daly
Refuge Manager
Prime Hook National Wildlife Refuge
RD1, Box 195
Milton, Delaware 19968

Dear Mr. Daly:

This is in regard to your application, on behalf of the U.S. Department of Interior's Fish and Wildlife Service, for Department of the Army approval to install a temporary water control service in Slaughter Canal at Unit II of the Prime Hook Refuge, approximately 80 feet south of Fowler Beach Road, Sussex County, Delaware. According to your application, the structure would temporarily impound water within Unit II of the Prime Hook Refuge to determine the exact limits of water management and to allow accurate mapping of the impounded area. The purpose of the work is to rehabilitate a deteriorated wetlands habitat and enhance its' benefit to waterfowl and other marsh-oriented birds and mammals. Your application also states that the structure would be removed by the spring of 1986.

Under current Federal regulations, a Department of the Army permit is required for work or structures in navigable waters of the United States and/or the discharge of dredged or fill material into waters of the United States including their adjacent wetlands. Therefore, the proposed work is subject to the jurisdiction of this office. Based on the information you provided, it has been determined that the installation of the temporary water control structure is approved by Department of the Army Nationwide permit (33 CFR 330.5 (a)(5)) which authorizes structures for purposes of scientific/environmental study provided the attached special conditions (33 CFR 330.5) and management practices (33 CFR 330.6) are observed where applicable. In addition, this approval is subject to the following special conditions:

1. That the permittee shall notify this office of the date the temporary structure is installed and the date it is removed.

2. That the temporary structure shall be removed at the request of this office if its removal is deemed necessary by the District Engineer.

3. That no fill material or construction debris shall be placed in Slaughter Canal or its adjacent wetlands.

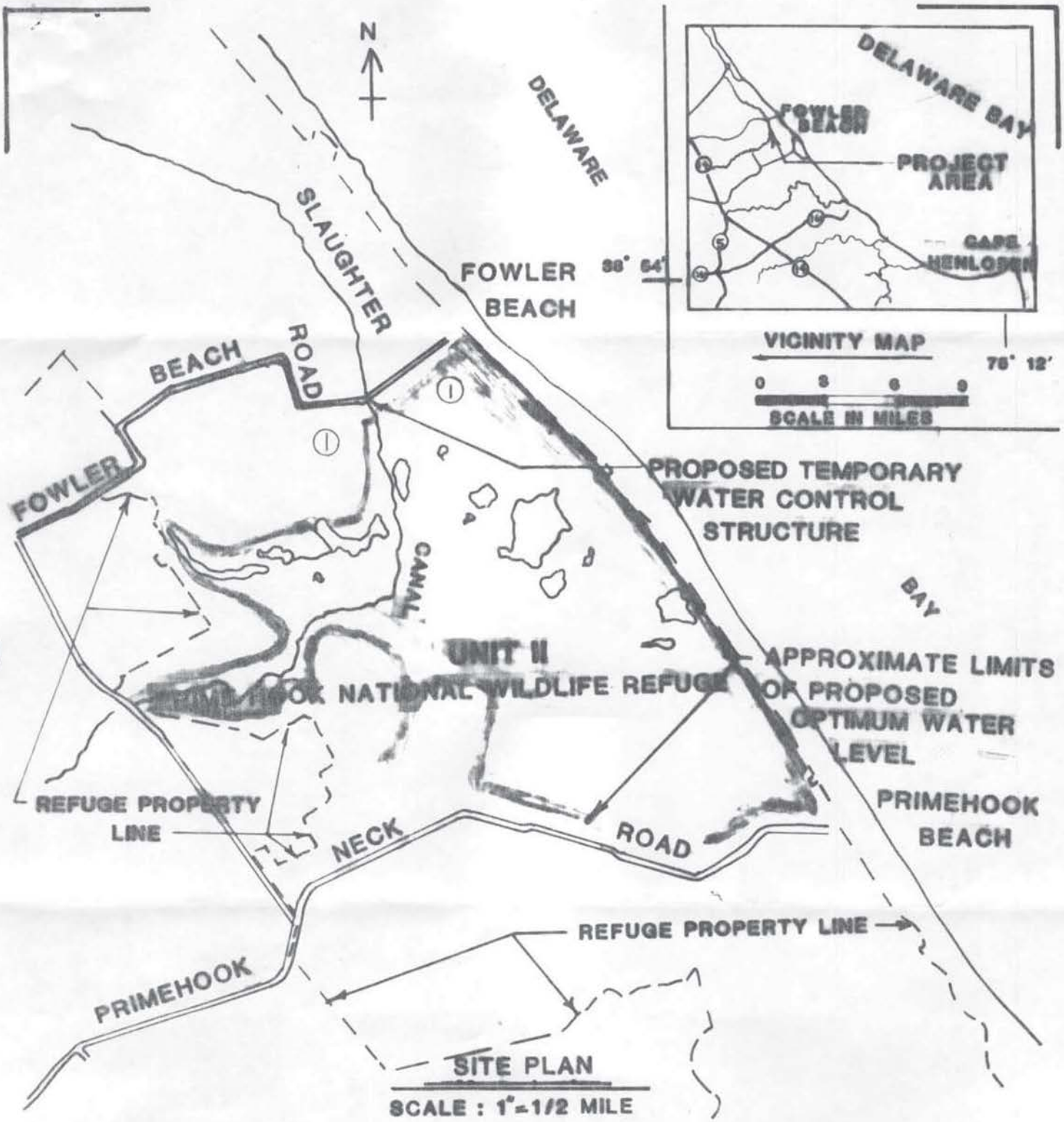
This nationwide permit does not relieve you of your responsibility to obtain any other Federal, State or local approvals required for the proposed work. If you have any further questions regarding this matter, please contact Mr. James F. Drumm of this office at (215) 597-4723.

Sincerely,

James F. Drumm

for Frank J. Cianfrani
Chief, Regulatory Branch

Enclosures



PURPOSE: DETERMINE OPTIMUM WATER SURFACE FOR WATERFOWL IMPOUNDMENT

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

(1) U.S. DEPT. OF INTERIOR

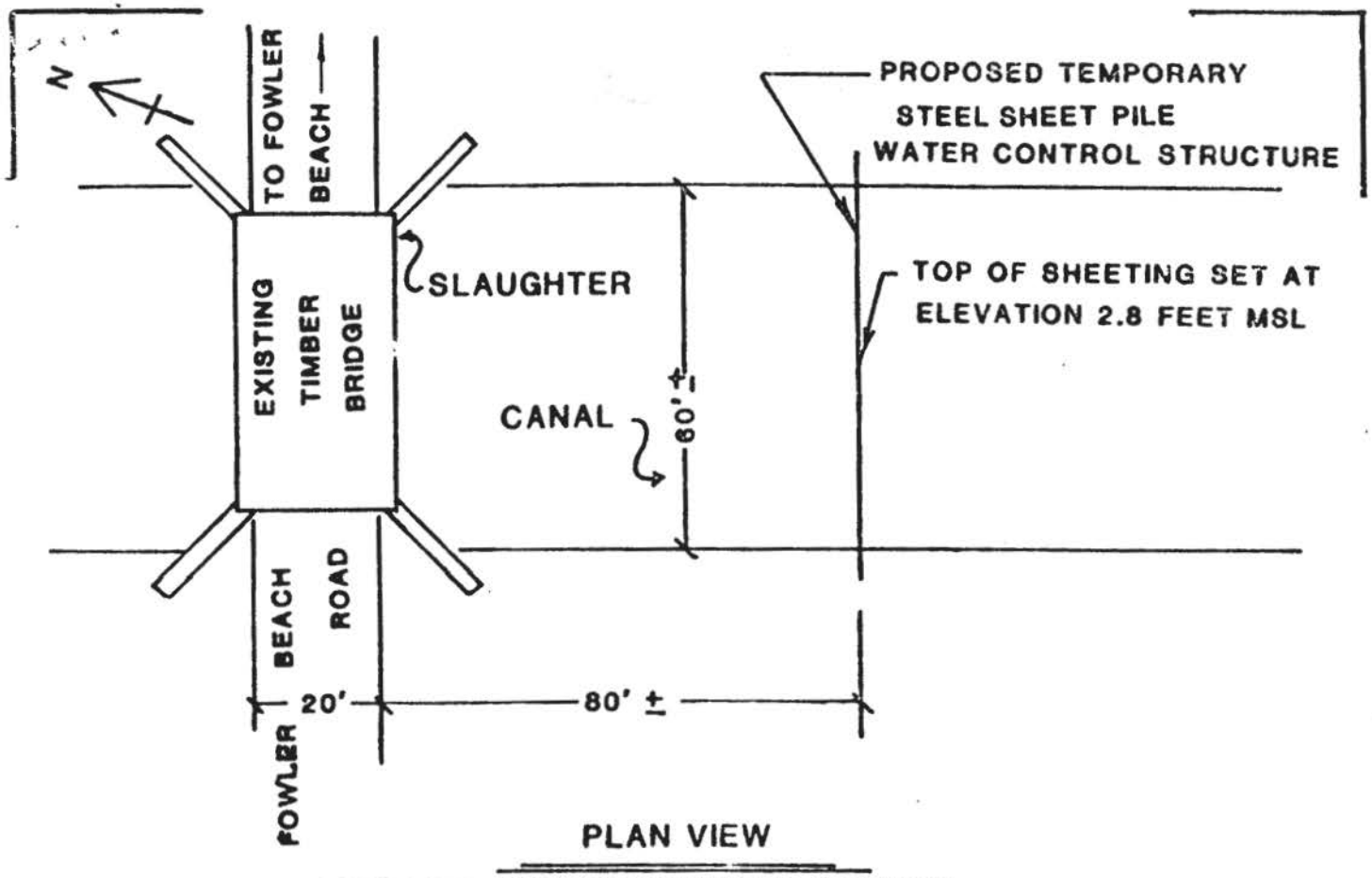
IN: PRIME HOOK N.W.R.

NEAR: LEWES , DELAWARE

COUNTY OF SUSSEX

APPLICATION BY: U.S. FISH & WILDLIFE SERVICE

SHEET 1 OF 2 DATE: 4/15/88



PLAN VIEW

PROPOSED TEMPORARY WATER CONTROL STRUCTURE ACROSS SLAUGHTER CANAL

NOT TO SCALE

MEAN HIGH WATER=ELEV. 2.2 FEET
MEAN SEA LEVEL= ELEV. 0.0 FEET
MEAN LOW WATER=ELEV. -2.2 FEET

NOTE: A TEMPORARY STEEL SHEET PILE WATER CONTROL STRUCTURE IS PROPOSED TO BE INSTALLED ACROSS SLAUGHTER CANAL . THIS STRUCTURE WILL TEMPORARILY IMPOUND WATER WITHIN UNIT II OF PRIME HOOK N.W.R. TO ELEVATION 2.8 FEET MSL . AS A RESULT, THE EXACT LIMITS OF WATER MANAGEMENT AT ELEVATION 2.8 FEET MSL WILL BE DETERMINED . THE TEMPORARY STRUCTURE WILL REMAIN IN PLACE UNTIL THE OPTIMUM WATER LEVEL HAS BEEN ATTAINED AND WORK COMPLETED TO ACCURATELY MAP THE AREA IMPOUNDED. THE TEMPORARY STRUCTURE WILL BE REMOVED IMMEDIATELY IF SIGNIFICANT PROBLEMS OCCUR.

Special Conditions for Department of the Army Nationwide Permits (33 CFR 330.5)

1. That any discharge of dredged or fill material will not occur in the proximity of a public water supply intake.

2. That the discharge of any dredged or fill material will not occur in areas of concentrated shellfish production unless the discharge is directly related to a shellfish harvesting activity authorized by a Department of the Army nationwide permit for fish and wildlife harvesting devices.

3. That the activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act, or destroy or adversely modify the critical habitat of such species.

4. That the activity will not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water).

5. That any discharge of dredged or fill material will consist of suitable material free from toxic pollutants.

6. That any structure or fill authorized will be properly maintained.

7. That the activity will not occur in a component of the National Wild and Scenic River System.

8. That the activity will not cause an unacceptable interference with navigation.

9. That the best management practices listed on the following page should be followed to the maximum extent practicable.

Management Practices for Department of the Army Nationwide Permits (33 FR 330.6)

1. Discharges of dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practical alternatives.

2. Discharges in spawning areas during spawning seasons shall be avoided.

3. Discharges shall not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the waters (unless the primary purpose of the fill is to impound waters).

4. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized.

5. Discharges in wetland areas shall be avoided.

6. Heavy equipment working in wetlands shall be placed on mats.

7. Discharges into breeding areas for migratory waterfowl shall be avoided.

8. All temporary fills shall be removed in their entirety.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D. #1, BOX 147
SMYRNA, DELAWARE 19977

Permits Section
U.S. Army Corps of Engineers
Philadelphia District
Custom House 2D & Chestnut Streets
Philadelphia, PA 19101
ATTN: Jim Drumm
RE-NAPOP-R-850711

July 30, 1985

Dear Mr. Drumm:

Attached is a copy of the draft environmental assessment for the proposed marsh rehabilitation project for Unit II of the Prime Hook National Wildlife Refuge as requested during our meeting in Dover on July 19, 1985. Also, please be advised that based on discussions with our Division of Engineering, we will not need to place fill in wetlands to build a roadway for construction of the temporary control structure, thus section IV of the "Environmental questionare" will not be applicable. The temporary structure would be removed not later than April 1, 1986.

You will note that the environmental assessment was prepared for construction of a permanent water control structure. Data gathered from placement of the temporary structure will be included in the final environmental assessment.

If you have any questions or require additional information do not hesitate to contact me at the Bombay Hook Refuge (302) 653-9345 or FTS 487-9131, or Mr. O'Shea at Prime Hook Refuge (302) 684-8419.

Sincerely,

E. Franklin Smith
Acting Refuge Manager
Prime Hook & Bombay Hook
National Wildlife Refuges

attachment(1)

Public Notice - (1) news release in July; resulted in several articles in local papers
(2) State Wetlands Permit Notice
(3) COE Notice
Three individuals wrote supporting our project
one individual wrote opposing the project

Survey around Mr. Carey's field - we suggested such a survey to regional office in August after meeting between Smith + Carey. They did not see need since their data shows no influence on adjacent landowners. Mr. Tornstrom did call Mr. Bennett and discussed situation with him. We can only suggest to engineering personnel - not direct them.

Salinity readings in area of ~~the~~ Slaughter Creek and behind fields have been 0. Water for the Unit II will come primarily from Unit III and freshwater runoff; not tidal.

Recent storms have placed water at, and in one case slightly above the level of the temporary structure at a known elevation at Slaughter Canal. Tropical storm in the last 2 weeks had water slightly over 2.8' while Gloria had water at 2.66'

Meeting 11/14/85 V. George Carey's home - about 25 in attendance

Corps personnel - Richard Hassel and James Drumm

Lasted about 2 hours

Corps basically supported our temporary structure - complimented us for doing it.

Corps said they would "hold the record open" for 10 days in order for people to send written comments.

After meeting Hassel told me that
1. Should have actual permit. Not letter of authorization as issued (by Drumm)
2. That Drumm did not follow procedures and got in trouble for it.

I told Hassel that based on their letter of authorization we had issued Invitations for Bids which would be opened 12/2/85. He understands we are under ~~tight~~ time frame.

Almost all comments were either negative or neutral

Emphasis at start of meeting was that it only was regarding temporary structure. However most concerns voiced were regarding effects of a permanent structure (flooding of floodplains, septic ~~tanks~~ etc.)

Only real concerns of temporary structure were:
1. Possibility of a major rainstorm while structure was in place which would prohibit water from draining (discharging) as rapidly as normal
2. Differences in elevation between SCS data and

our measurements at Slaughter Creek benchmarks.

Hassel made statement that based on number of people concerned who showed up they would require a formal public hearing for the permanent structure.

He also said that he wanted to get ~~[illegible]~~ everyone's opinion as to what information they thought we should obtain from the temporary structure

He also recommended that COE, FWS, and SCS meet to coordinate survey data for 2.8 msl.

Draft letter to Mr. Carey

Statement #2 re flooding: Has our surveyor contacted Mr. Bennett of SCS regarding their data and letter to Carey of 8-19-85. May I answer his questions by referring to this contact

I would take out the third paragraph telling him about wet times occurring - I am sure he is aware of that.

Statement #3: Draper/Bennett Ditch in Unit I north of Fowler Beach Road is over 1 mile downstream from the proposed control structure and will not be impacted by this project.

Could we make some statement in the letter relative to his being covered for damages to the same extent as the beach property owners (without getting specific).

O.K. Comment re salinity in field

ask Tony | Clearinghouse - sent to Del. Fish + Wildlife

ask Tony how quickly can we put in contract for temporary structure to be removed in case of flooding problems?

also see if we can order CG before permits are received.

THIS IS NOT A PAID ADVERTISEMENT

Public Notice

US Army Corps of Engineers
Philadelphia District

Public Notice No. NAPOP-R-85-0711-3
Date October 11, 1985
Application No.
File No.

In Reply Refer to: Regulatory Branch

Notice is given that the U.S. Department of Interior, Fish and Wildlife Service, Prime Hook National Wildlife Refuge, RD 1, Box 195, Milton, Delaware 19968 has applied for a Department of the Army permit to install a temporary water control structure at Unit II of the Prime Hook Refuge, approximately 80 feet south of Fowler Beach Road, Sussex County, Delaware.

The applicant's plans provide for the installation of a temporary steel sheet pile water control structure which would extend 60 feet across Slaughter Canal at the above referenced location. The structure would temporarily impound water within Unit II of the Prime Hook Refuge to an elevation of 2.8 feet above mean seal level (msl) to determine the exact limits of water management and to allow accurate mapping of the impounded area. The purpose of the work is to rehabilitate a deteriorated wetlands habitat and thus enhance its' benefit to waterfowl and other marsh-oriented birds and mammals. Information obtained from evaluation of the temporary structure would be utilized for final planning and construction of a permanent water control structure at this location. The temporary structure is expected to be removed by Spring of 1986. The location of the proposed work is shown on the attached plans.

There are no known sites eligible for or included in the National Historic Register within the permit area of this project.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property rights and, in general, the needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

Jim Drumm 597-4722(FTS)
I called Jim 10-28-85 to thank him for permit issuance and to inquire as to comments received during the Public Notice comment period. He said there were no comments received. I phoned Tony Leger with the information.

PRIME HOOK R...
RECEIVED

TELEPHONE CONVERSATION RECORD

Department of the Interior
U.S. Fish and Wildlife Service

ROUTING				DATE
1	Kris LaMontagne	4	Moses	10/17/85
2	Bill Pelton / Dave Wa	5	Mun. EC Bowdoin Hook	FILE REFERENCE 9:00 A.M.
3	Jo Williams	6		

RECORD

RECEIVED FROM (NAME) Ed Moses	RECEIVED BY (NAME) Jim Drummond
ORGANIZATION Corps of Eng - Phila	TELEPHONE NO. 8-597-4122

SUBJECT Prime Hook Unit II permit

CONVERSATION

He inquired as to the status of the Prime Hook Unit II permit and if there was any problem with the application. There was no problem and Drummond said he would get it right out. He commented that on 9/6, 9/25 and 10/10 that he had advised our refuge folks that he'd have it in the mail. I explained that we have a construction bid to get out and that there is a tight time constraint as written into the E.A. because of farming concerns. Drummond re-iterated that he'd get to it as soon as he could. I pressed him for a date so I could advise contracting and he said October 21. (Why do I feel that it will never reach here on time?)

Obviously the Corps is not [illegible] way to accomodate FWS - [illegible] who cause them so much grief.

WHITE: ROUTING COPY
YELLOW: SUBJECT FILE COPY
PINK: CHRON FILE COPY

3-370 (5/75)

☆ U. S. GOVT. PRINTING OFFICE 1980 700-438 #176

U.S. FISH AND WILDLIFE SERVICE

INTER-OFFICE TRANSMITTAL

30930

- [ ] Director,
- [ ] Regional Director,
- [x] Project Leader, Bombay Hook
- [ ]

- [ ] Regular Mail
- [ ] Air Mail
- [ ] Action
- [x] Information

From: Ed Moses | Office: RFS | Date: 10/17/85

Subject: Paul: After talking with Drumm I feel more frustrated. I don't believe he will do what he says. Please advise the date that the permit application was given to them. I suspect he will be using up all the time he's allowed to use on an application, at least we'll be able to predict time to expect permit decision.

3-1908 (Rev. 6/63) (Attach securely to material to be transmitted & mail through regular channels)

☆ U. S. GOVERNMENT PRINTING OFFICE 1980—600-499—116

no problem and Drumm said he would get it right out. I commented that on 9/6, 9/25 and 10/10 that he had advised our refuge folks that he'd have it in the mail. I explained that we have a construction bid to get out and that there is a tight time constraint as written into the E.A. because of farming concerns. Drumm re-iterated that he'd get to it as soon as he could. I pressed him for a date so I could advise contracting and he hoped around October 21. (Why do I feel that we will never see his word?)

WHITE: ROUTING COPY
YELLOW: SUBJECT FILE COPY
PINK: CHRON FILE COPY

3-370 (5/75)

☆ U. S. GOVT. PRINTING OFFICE 1980 700-438 #176

Obviously the Corps is not going to go out of its way to accomodate FWS -- I don't feel for (unintelligible) to have them so much grief.

UNITED STATES GOVERNMENT

2-Way Memo

INSTRUCTIONS

Use routing symbols whenever possible.

SENDER (*Originator of message*):
Use brief, informal language.
Conserve space.
Forward original and one copy.

RECEIVER (*Replier to message*):
Reply below the message, keep one copy, return one copy.

Subject: PRIME HOOK UNIT II - EA

To: • Refuge Manager •
BOMBAY HOOK NWR
R.D 1, BOX 147
SMYRNA, DELAWARE 19977

DATE OF MESSAGE	ROUTING SYMBOL
10-1-85	RFS

SIGNATURE OF ORIGINATOR: Anthony D. Fogg

TITLE OF ORIGINATOR: Refuge Assistant

FOLD — INITIAL MESSAGE — FOLD

Paul -

As we discussed yesterday enclosed are:

- A disc with EA file on it.
- Sample EAM form
- Sample FONSI
- Appendix "H" Literature cited (not included previously with EA)
- Public comment summary.

You should use these materials to finalize the EA.

REPLY MESSAGE

Hopefully the State has reviewed draft and will comment prior to your finalization.

I checked with Ed and Joe (Williams) and they said to hope for EA and CGS to proceed without permits. So the ball is in your court.

Call if you have questions or problems

Tony

RECEIVED OCT 1985 BOMBAY HOOK REFUGE

From:

DATE OF REPLY	ROUTING SYMBOL

SIGNATURE OF REPLIER

TITLE OF REPLIER

5027-106

1. TO BE RETAINED BY ADDRESSEE (*Receiver*)

OPTIONAL FORM 27 (Rev. 7-77)
GSA FPMR (41 CFR) 101-11.6

November 7, 1985

Called Ed Moses this date and discussed with him the upcoming meeting at George Carey's home 11-14-85 at 7 P.M.

Ed said that they would not be sending anyone for the meeting, but that we should attend and answer questions from the group as best we could. I told him my biggest concern was the apparent conflicting data between SCS surveys and our R.O. survey data. He said that we should get with Roger Torrston and the R.O. engineers by phone prior to the meeting to discuss all possible questions and appropriate answers.

I called George O'Shea and asked him to contact Roger Torrston ASAP — discussing in detail his survey data and phone conversation he had last summer with Richard Bennett of the SCS in Georgetown, Del.

Prime Hook Beach - We will have observation wells to monitor groundwater. Beach residents would have same rights as those on Broadkill for unit III; to make claim against Govt. if structure damages septic tanks. No claims on Unit III

Dates for temporary structure are deliberately to avoid planting & growing season. Structure will be out well before March 1; and as soon as data is obtained.

PHONE CONVERSATION RECORD

U.S. Fish and Wildlife Service

ROUTING			
1	Files	4	
2		5	
3		6	

DATE: 12/3/85

FILE REFERENCE

RECORD

RECEIVED FROM (NAME): Ed Moses

RECEIVED BY (NAME): Paul Daly

ORGANIZATION:

TELEPHONE NO.:

SUBJECT: Prime Hook - Pool 4 Temp. Structure

CONVERSATION: I called Paul to advise him of the result of the 12/2 bid opening on the above contract. Lowest bid $19,380 next $23,227 (RAM CONST) - Engineers estimate $10,000. Advised him that due to fact that lowest bid was almost double engs. est. that we wouldn't award. Pause & re-gory time!! Prior to my call to Paul I met with Dave Washburn & Rog Tornstrom. We decided to secure the elevation information using Rog's crew. However, due to the Corps permit situation and State Cong. Carey's efforts we felt (Paul & I) that the best strategy would be to secure Corps permit before we notify bidders that we weren't going to make an award. We would send letters announcing scrapping the temp structure project for land levels. I said person who commented to us on EA and Corps permit comment was wrong and also sent a letter to the newspaper. We don't need Cong. Carey feeling that his efforts caused us to scrap the temp. structure project.

WHITE: ROUTING COPY
YELLOW: SUBJECT FILE COPY
PINK: CHRON FILE COPY

3-370
(8/75)

U.S. GOVT. PRINTING OFFICE 1976-[illegible]

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106-2991

REPLY TO
ATTENTION OF

Regulatory Branch

DEC 0 4 1985

SUBJECT: NAPOP-R-85-0711-3

Mr. Paul D. Daly, Refuge Manager
Prime Hook National Wildlife Refuge
RD 1, Box 195
Milton, Delaware 19968

Dear Mr. Daly:

This is in further regard to your application, on behalf of the U.S. Fish and Wildlife Service, for a Department of the Army permit to install a temporary water control structure in Slaughter Canal at Unit II of the Prime Hook Refuge.

After further review of your application and the comments received in response to our public notice, it has been determined that the nationwide permit (NAPOP-R-85-0711(NP5)) issued to you on October 21, 1985 is inappropriate for the type of work proposed. Therefore, the nationwide permit is hereby rescinded. We have continued to review your application for approval of the proposed temporary structure by an individual Department of the Army permit and we are close to reaching our final decision in this matter. Prior to concluding the processing of your application, we would appreciate your response to the enclosed letters received in response to our meeting at Mr. Carey's residence on November 14, 1985. An early reply would be appreciated. We regret the inconvenience and delay this procedure has caused you and we will make every effort to conclude the processing of your application in an expeditious manner.

Sincerely,

Richard A. Fraser

for Frank J. Cianfrani
Chief, Regulatory Branch

UNITED STATES GOVERNMENT

memorandum

DATE: July 27, 1987

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook National Wildlife Refuge

SUBJECT: Beach Preservation
Unit II

TO: Files

State Representative V. George Carey called this afternoon regarding the beach adjacent to Unit II. He has set up a meeting for Thursday July 30, 1987, at State Police Troop 7, Lewes regarding the problem of ATV's and ORV's on the beach. He is concerned that efforts to rebuild the beach as Per Condition 4 of our Unit II Permit, will be wasted if the ATV's and ORV's are not stopped. He requested that we have someone attend the meeting as we have a small tract - Tract 98 on the beach.

The meeting will include Lt. Cunningham, Troop Commander, Rep. Carey, John Hughes - DNREC Soil and Water Director and the Attorney Generals Office.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

Unit II

UNITED STATES GOVERNMENT

memorandum

DATE: June 18, 1987

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Unit II Project
Beach Restoration

TO: Files

Assistant Managers O'Shea and Sylvia Pelizza met this morning with Robert Henry of the Beach Preservation Unit of the State Soil and Water- DNREC at Fowler Beach to identify washout areas where restoration is needed and to identify the Refuge boundary. The state permit for Unit II mandates that the beach work is to be completed prior to our construction.

We drove along the beach south of Fowler Beach Road to the boundary of FWS Tracts 15f and 35. The largest washout lies just south of that boundary on property owned by the Jones family.

Henry indicated that he still had received permission forms from only one landowner- Ciabottone(his land lies immediately east of our Tract 15f).Henry did not know what the hold-up was on the other forms, including George Carey. He will recontact the landowners involved. Initially, his office had felt that the Jones property was not involved in the work, partially due to the fact that the property owners could not be identified from the ground. This problem is resolved by use of a Refuge tract map. Our boundary corner of each tract is marked by two double-10 foot steel posts and signs.

We also noted other washout areas that will require work. Henry indicated that the work may not be done for some time. He was not aware of the permit condition restricting our construction prior to the dunes being repaired. He will look into seeing if that restriction can be lifted so that we might put the contract onto the street and get started.

The Refuge ownes one small tract along the beach which may require restoration, (Tract 98). Henry wanted to know what paperwork we need to send to them, if any, to give them the permission to build on the refuge. I mentioned that I would check with the Refuge Manager, that perhaps only a Special Use Permit would be required. Tract 98 probably will not require any work as it is one of the highest portions of the dunes.

The state erected signs on Fowler Beach on Thursday afternoon indicating that ATVs and off road vehicles were prohibited from operating on the beach. If the signs are ignored or torn down the state will erect a gate, providing a key to landowners or others who need to get onto the beach.

I indicated to Henry that we would like to have the dune situation resolved as soon as possible in order to get on with our marsh rehabilitation. He indicated that he would see what he could do.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

UNITED STATES GOVERNMENT

memorandum

DATE: October 6 , 1986

TO
N OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Unit II Permit

TO: Files

Talked with Ed Bonner (COE Philadelphia) this afternoon. He was preparing the Corps public announcemnet on our Unit II application and had a question concerning peak water levels we plan to hold. He felt that to lesson confusion to the public that we should state the mean high water level for the canal (estimated at 2.2' as per our application for the temporary WCS). He felt that the public could best understand this approach, that 2.3 NGVD may give them the impression that we want to hold 2.3 feet of water over the marsh surface.

I told him that we would not have a problem with stating a reference to mean high water.

Bonner also stated that the application has been put on the agenda for a future meeting of the joint processing committee. He stated that he would notify us of the date and time of the meeting.

cc Refuge Manager Bombay Hook NWR

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BOMBAY HOOK NATIONAL WILDLIFE REFUGE
R.D.#1, Box 147
Smyrna, Delaware 19977

December 12, 1985

Frank J. Cianfrani, Chief - Regulatory Branch
Corps of Engineers, Custom House
2nd and Chestnut Streets
Philadelphia, PA 19106

Attn: Mr. Richard A. Hassel

Gentlemen:

We are providing the following in response to your letter of December 4, 1985 and the telephone conversation which I had with Mr. Hassel on December 2, 1985.

In reply to the letter of Mr. Lewis W. Bishop, the temporary structure will only be in place long enough to gather data at 2.80' water elevation. This level (and higher) now occurs at irregular intervals due to storms producing heavy rains and higher than normal tides. A water management plan to be prepared for Unit II, similar to that in place for Unit III, would call for highest levels only during the fall and winter period. It is quite possible that our data gathering phase of the project will show that a water elevation of less than 2.80' will suffice for these peak levels. In any case, we would not manage the water levels so as to damage the roadbed in any way. The septic systems of residents at Prime Hook Beach would be covered under the same conditions that exist for those at Broadkill Beach; i.e., if any fail due to active water management by the Service they would be repaired or replaced. The Service will monitor observation wells in the area to determine groundwater fluctuations. No complaints have been received to date from residents on Broadkill Beach adjacent to Unit III where water management has taken place for almost two years. The concern regarding leasing our land for farming is not relevant to this project; however we do not intend to manage water levels to adversely affect any farmland including our own; and we own the lowest elevation farmland in the area.

In reply to Mr. W. Donald Clifton, the alternative proposal which he denotes is essentially the same as alternative #2 as described in our environmental assessment on the project. It was not chosen as the proposed action because it would rehabilitate less marsh at a much higher cost. Also, no access would be available for a construction site except across private land. Although Mr. Clifton's concerns relate mostly to the permanent structure rather than the temporary one, the following comments should be made:

1. Our water management would call for spring drawdown; retaining only a moist soil condition in our marsh with water in the creeks and ditches. This type of water management has been practiced in Unit III with no adverse effects on adjacent farmland.

2. The acreage of salt marsh within Unit II is very limited. Please refer to Figure 7 of the environmental assessment on the Unit II project. Most of the unit is already former freshwater marsh now dominated by Phragmites through excessive drainage because there has been no water control. A small area of freshwater marsh is also located on the west end of the unit adjoining Slaughter Creek.

Summarizing our response to Mr. Clifton; we considered his alternative in our environmental assessment and did not choose it due to cost effectiveness and difficulties in construction.

In reply to Dr. Drury we offer the following:

1. This project will definitely not "raise the mean sea level approximately 2.8 feet". Mean high water is now 2.2 feet; therefore at our maximum elevation of 2.8 feet the water surface would be only .6 feet higher than a normal high tide.

2. We believe 30 days is a sufficient time to take the necessary aerial photos and stake the perimeter of the pool. It should also be enough time to measure effects on the groundwater, although we had originally hoped to have the structure in earlier in the season so that we would have a bit more time for this phase of data collection. The observation wells recently installed on the unit will provide an on-going record of groundwater fluctuations.

3. Dr. Drury's other points do not relate to the temporary structure; however, it should be noted that the refuge has always worked very closely with the Mosquito Control Section of the Delaware Department of Natural Resources and Environmental Control and will continue to do so in the future.

If you have any further questions which we might answer to expedite the permit, please let us know.

Sincerely,

Paul D. Daly

PAUL D. DALY
Refuge Manager
Bombay Hook and Prime Hook
National Wildlife Refuges

PDD:veb

THIS IS NOT A PAID ADVERTISEMENT

Public Notice

US Army Corps of Engineers
Philadelphia District

Public Notice No. NAPOP-R-85-0711-3
Date October 11, 1985
Application No.
File No.

In Reply Refer to: Regulatory Branch

Notice is given that the U.S. Department of Interior, Fish and Wildlife Service, Prime Hook National Wildlife Refuge, RD 1, Box 195, Milton, Delaware 19968 has applied for a Department of the Army permit to install a temporary water control structure at Unit II of the Prime Hook Refuge, approximately 80 feet south of Fowler Beach Road, Sussex County, Delaware.

The applicant's plans provide for the installation of a temporary steel sheet pile water control structure which would extend 60 feet across Slaughter Canal at the above referenced location. The structure would temporarily impound water within Unit II of the Prime Hook Refuge to an elevation of 2.8 feet above mean seal level (msl) to determine the exact limits of water management and to allow accurate mapping of the impounded area. The purpose of the work is to rehabilitate a deteriorated wetlands habitat and thus enhance its' benefit to waterfowl and other marsh-oriented birds and mammals. Information obtained from evaluation of the temporary structure would be utilized for final planning and construction of a permanent water control structure at this location. The temporary structure is expected to be removed by Spring of 1986. The location of the proposed work is shown on the attached plans.

There are no known sites eligible for or included in the National Historic Register within the permit area of this project.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property rights and, in general, the needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

Comments on the work described above should be submitted, in writing, within 15 days to the District Engineer, U.S. Army Corps of Engineers, Custom House, 2nd and Chestnut Streets, Philadelphia, Pennsylvania 19106-2991.

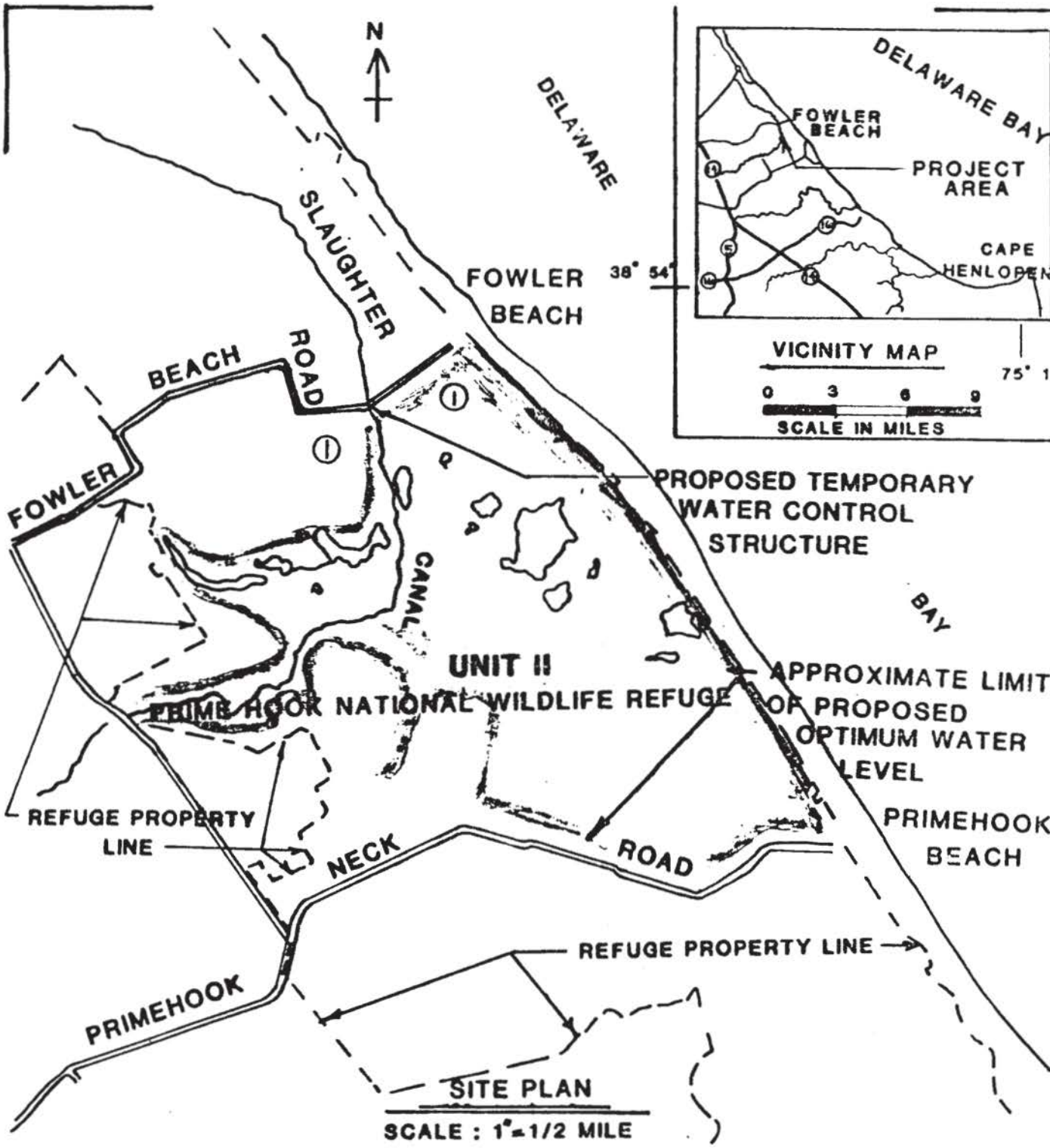
Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this appletion of excavation activities there.

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

The processing of this Department of the Army permit application is under the statutory authority of Section 10 of the Rivers and Harbors Act of 1899.Additional information concerning this permit application may be obtained by contacting Mr. James Drumm of this office at 215-597-4722.

FOR THE DISTRICT ENGINEER:

Frank J. Cianfrani
Chief, Regulatory Branch



PURPOSE: DETERMINE OPTIMUM WATER SURFACE FOR WATERFOWL IMPOUNDMENT

DATUM: MEAN SEA LEVEL

ADJACENT PROPERTY OWNERS:

(1) U.S. DEPT. OF INTERIOR

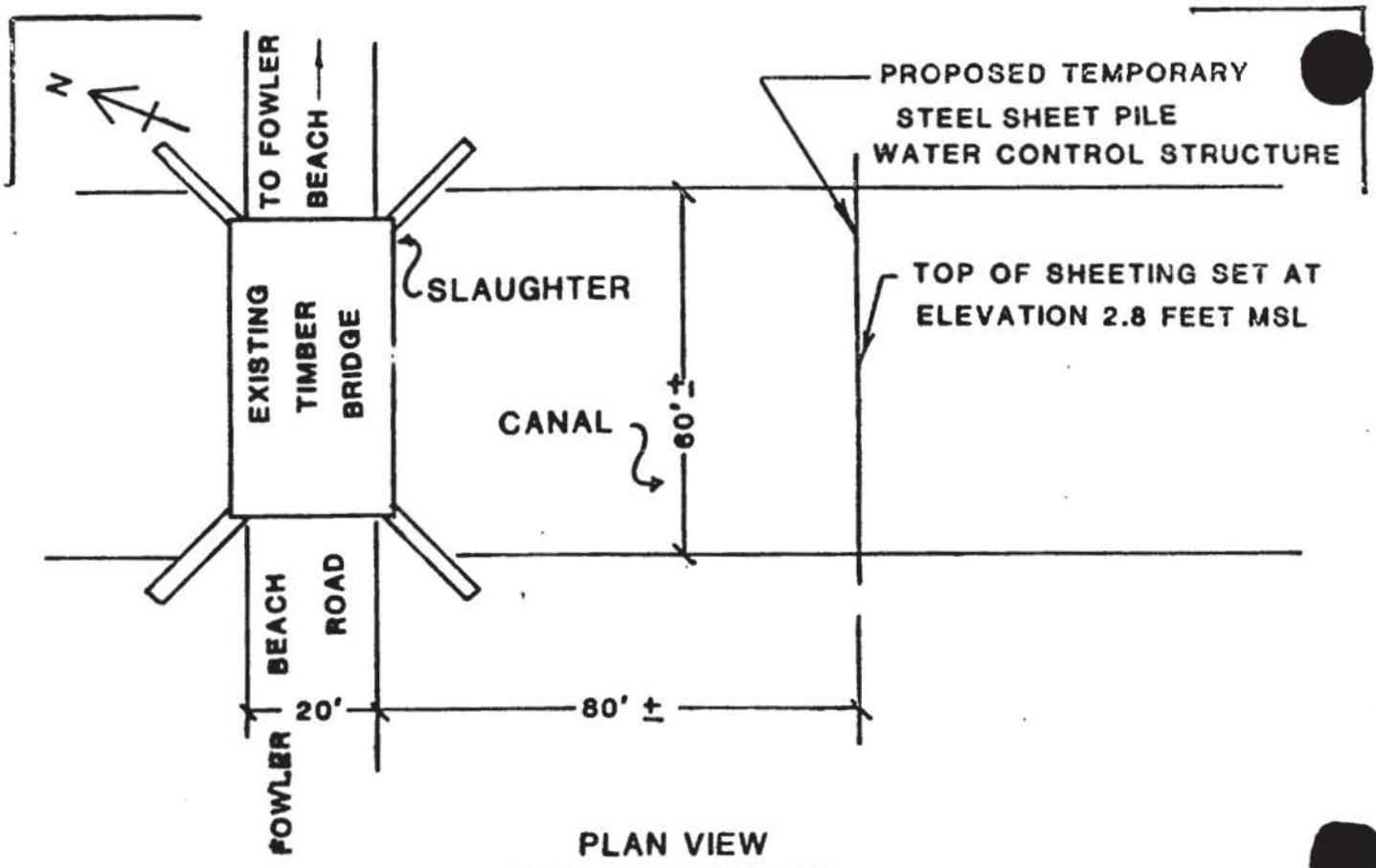
IN: PRIME HOOK N.W.R.

NEAR: LEWES , DELAWARE

COUNTY OF SUSSEX

APPLICATION BY: U.S. FISH & WILDLIFE SERVI

SHEET 1 OF 2 DATE: 4/15/8



PLAN VIEW

PROPOSED TEMPORARY WATER CONTROL
STRUCTURE ACROSS SLAUGHTER CANAL
NOT TO SCALE

MEAN HIGH WATER=ELEV. 2.2 FEET
MEAN SEA LEVEL= ELEV. 0.0 FEET
MEAN LOW WATER=ELEV. -2.2 FEET

NOTE: A TEMPORARY STEEL SHEET PILE WATER CONTROL STRUCTURE IS PROPOSED TO BE INSTALLED ACROSS SLAUGHTER CANAL. THIS STRUCTURE WILL TEMPORARILY IMPOUND WATER WITHIN UNIT II OF PRIME HOOK N.W.R. TO ELEVATION 2.8 FEET MSL. AS A RESULT, THE EXACT LIMITS OF WATER MANAGEMENT AT ELEVATION 2.8 FEET MSL WILL BE DETERMINED. THE TEMPORARY STRUCTURE WILL REMAIN IN PLACE UNTIL THE OPTIMUM WATER LEVEL HAS BEEN ATTAINED AND WORK COMPLETED TO ACCURATELY MAP THE AREA IMPOUNDED. THE TEMPORARY STRUCTURE WILL BE REMOVED IMMEDIATELY IF SIGNIFICANT PROBLEMS OCCUR.

SHEET 2 OF 2

UNITED STATES GOVERNMENT

memorandum

DATE: 7-1-85

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Unit II Project Permit

TO: Refuge Manager
Bombay Hook NWR

As we discussed this date, Dave Hardin in Wetlands Section suggested that before Permit application for Unit II is sent to them that we attend the Joint Processing Meeting at his office on July 18. They feel that a pre-application meeting will help to insure that the proper permit is submitted and that the reviewing agencies will have an opportunity to make suggestions for inclusion on the application.

I will attend the meeting on July 18 in the Fish and Game Conference Room in the Robbins Building(I&G Office). If Frank is available he may also want to attend to help expedite any information to RO if changes to permit are necessary.

Hugh L Ohlen

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OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

unit # WS

UNITED STATES GOVERNMENT

memorandum

DATE: March 14, 1988

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook NWR

SUBJECT: Meeting re: dunes along eastern refuge boundary

TO: Files

At 1:00 pm this date I met with State Senator Ruth Ann Minner, State Representative V. George Carey, Robert Hughes (Delaware DNREC, Director of Soil and Water Conservation Section); Robert Henry and Anthony Pratt (DNREC - Beach Preservation) and Joseph Penuel - landowner, regarding the State's plans to restore the dunes along Delaware.

Mr. Carey, upon the request of landowners north of Fowler Beach Road, wanted the State to rebuild the dunes in that area, similar to work done south of Fowler Beach Road.

Tony Pratt mentioned that to rebuild the dunes would not be a good idea, that the sand pushed off the beach would leave the beach exposed to erosion. He could see no problem, however, with rebuilding the washed out areas.

The State will begin the rebuilding probably next week, in doing so they will create an opening in the blockage on Fowler Beach, permitting access for emergency vehicles as we had requested.

Mr. Hughes and Mr. Carey wanted the Fish and Wildlife Service to patrol and enforce the vehicle closure along the beach. I mentioned that we could not do this as we lacked jurisdiction; we are empowered to enforce only specific Federal laws and regulations. In answer to their question on our building the gate, I mentioned that we did not have the funds to do so and that we could not build a gate on privately-owned lands. Mr. Carey stated that if the Federal Refuge wanted access they should pay for it and enforce keeping vehicles off. I explained that our need for access was only for enforcement, however emergency vehicles - fire, police, marine police also need access especially during this critical part of the fire season, also mentioning that a number of dolphins had washed ashore last summer. It was also pointed out that this access was discussed in the August meeting at Delaware State Police Troop7.

We left it that the State Police would be responsible for enforcement (DNREC officers do not have authority either). When the access was created, the State will post "No Vehicles on the Beach" and publicize the closure once again. Pratt indicated that they could not possibly construct a gate until the end of April due to work schedules. We will be provided a copy of the regulation.

Gary L Obber

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OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112

UNITED STATES GOVERNMENT

memorandum

DATE: July 23, 1987

REPLY TO ATTN OF: Assistant Refuge Manager
Prime Hook Manager

SUBJECT: Unit II
Beach Restoration

TO: Files

Called Bob Henry (DNREC - Beach Preservation) this date re progress on landowner permission for dune restoration south of Fowler Beach Road, a condition of our permit for Unit II Marsh restoration. Henry now has two signed permission slips - Draper Foods and Daniel Ciabotton: George Carey has not signed his authorization slip but has indicated to Henry it's "as good as signed".

Henry has had problems contacting Joseph Penuel, due to farming, he has indicated to Henry he could get with him in the fall when farming is finished. Theodore Jones also indicated that he was busy farming and is not available to discuss the matter unit late August or beyond.

Charles Bennett indicated to Henry that he is reluctant to sign the authorization unless the problem with ATV's and ORV's is resolved.

Henry asked what we thought the penalty would be if we went ahead with the work prior to dune restoration. I indicated that this would not be desirable for FWS and that we would not go that route.

Henry also mentioned that Draper was reluctant to sign as he did not know how much water would be held on his property. He did however sign.

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