

MEMORANDUM THRU Chief, Monitoring and Enforcement Section

FOR District Commander

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

1. This document constitutes the Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1) by Mr. Robert Barnes, President of Barnes Nursery Incorporated. This document is in accordance with the requirements set forth in the Final Rule for the Regulatory Programs of the Corps of Engineers (33 CFR 320 et. seq.), the policies and procedures for implementation of the National Environmental Policy Act (33 CFR 230), where applicable the Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR 230), and other pertinent regulations and guidelines.

2. A Public Notice describing the proposed project, its purpose, and location was distributed to the appropriate Federal, State and local agencies, and the general public in accordance with the requirements of 33 CFR 325.3. A copy of the Notice and its mailing list are in the file for this application.

a. Prior to publication of this Public Notice the project was reviewed with regard to the following laws: Section 106 of the National Historic Preservation Act of 1966; Section 7 of the Endangered Species Act; The National Environmental Policy Act of 1969; Section 7(a) of the Wild and Scenic Rivers Act; The National Fishing Enhancement Act of 1984; and, Section 302 of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended. The Notice notes any potential involvement of the project with these laws.

b. This proposed project requires Department of the Army authorization pursuant to:

Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (33 U.S.C. 1344).

c. Background information for this project:

In April 2000, Mr. Robert Barnes president of Barnes Nursery Incorporated, requested authorization for a project along a portion of the south shoreline of East Sandusky Bay, adjacent to Sheldon Marsh State Nature Preserve (SMSNP).

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Mr. Barnes initially proposed to construct the following:

A channel and an earthen berm, 3,000 feet in length, by dredging and side-casting the dredged material parallel to the channel. The project was to start at Mr. Barnes' existing intake channel and run parallel to the shoreline approximately 1,600 feet in a northwest direction. At this point it was to run parallel with the Cedar Point Chaussee and extend approximately 1,400 feet in a northeast direction.

The channel was to be 20 feet wide and 10 feet deep. The berm segments were proposed to be 44 feet wide and 4 feet in height and shaped into multiple nesting islands.

The total footprint for the initially proposed project was approximately 4.4 acres.

In June 2000, members of my Regulatory staff determined that the enhancement of wetlands was the primary purpose of the proposed project. My staff affirmed the use of Nationwide Permit 27 (NWP 27) for the construction of deep-water habitat and nesting islands. The affirmation authorized the construction of the initially proposed project.

In July 2000, after construction had commenced, it was discovered that the specifications of the channel and berm did not match those authorized by the NWP 27. Mr. Barnes was instructed to stop work while the Corps evaluated the non-compliance with the terms and conditions of the NWP 27 affirmation.

At the time that construction stopped, the project consisted of the following:

A channel and berm constructed of dredged and sidecasted materials along the southern shoreline of the bay. The channel was estimated to be approximately 1,500 feet in length, 50 feet in width, and 5 feet in depth. The berm was estimated to be approximately 1,500 feet long, 55 feet wide, and averaging 6 feet in height.

The total footprint of the constructed project was approximately 3.6 acres.

After reviewing the project file, I exerted my discretionary authority in November 2000 and officially suspended the

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

project specific NWP 27 affirmation. I determined in January 2001 that the primary purpose of the project was to construct an irrigation channel to supply a constant source of water to support nursery operations. Therefore, NWP 27 was inapplicable for this type of project since NWP 27 cannot authorize the construction of irrigation channels. I informed Mr. Barnes that the NWP 27 was affirmed in error and I presented him with two options: apply for after-the-fact authorization for the constructed project or restore the site to pre-construction conditions. Mr. Barnes submitted his application in March 2001, requesting authorization to maintain his partially constructed project with newly proposed modifications and additions.

In April 2001, my staff coordinated interim corrective measures with the applicant and the appropriate agencies. These measures were designed to restore the functions and values of the known Federal wetlands impacted by the construction of this project, and to reduce erosion and sedimentation. My staff directed Mr. Barnes to implement the agreed upon restoration after reviewing all comments received from the agencies. On April 18, 2001, Mr. Barnes completed the restoration of approximately 200 feet of channel and berm to former topography where wetland encroachment occurred.

The total footprint of the constructed project after the completion of the restoration activity was approximately 3.1 acres.

The purpose and details for the constructed portion of the project, the completed interim corrective measures, and the newly proposed modifications, were detailed in Public Notice No. 2000-02170(1) published on May 11, 2001. The Public Notice requested public comments. I also held a Public Hearing in Sandusky, Ohio on June 12, 2001 to obtain additional comments regarding this project.

Mr. Barnes has requested after-the-fact authorization to maintain the constructed and restored portion of his channel with modifications (see APPENDIX A). This request will be considered the applicant's PREFERRED ALTERNATIVE and is as follows:

Maintain the constructed irrigation channel (with a portion of it being restored) at a length of 1300 feet, a width of 50 feet and a depth of 5 feet.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Grade the earthen berm to a height of approximately 6 feet

Divide the earthen berm into five separate islands by cutting circulation channels. Proposed islands are 300 feet in length and 55 feet in width. Proposed circulation channels would create a distance of 30 feet between the islands.

Grade the bayside banks of the islands to a 4:1 (run to rise) slope to foster wetland plant zonation.

Excavate a narrow feeder channel, 3 feet wide, 500 feet long, and 1.5 feet deep by dragging a steel plow from the deep water channel in the northwest corner of the bay to the western limits of the main channel.

The total footprint of the constructed project with proposed modifications is approximately 3.0 acres.

Mr. Barnes stated the purpose for his project as follows:

To restore the former hydrologic circulation to a portion of East Sandusky Bay that was lost as a result of sedimentation and degradation to the area caused by human activities over the past century and provide irrigation water for operation of Barnes Nursery.

To establish new avifauna habitat on a series of islands

To provide deep-water habitat for fish and aquatic vegetation.

And to promote the conversion of approximately 5 acres of barren mudflat habitat to coastal wetlands.

I have determined that the primary purpose of the proposed project is to construct an irrigation channel to supply a constant source of water to support nursery operations with the secondary benefit of establishing vegetated shallows.

Throughout the evaluation process my staff has coordinated their review with other Federal and State agencies. These agencies include the United States Department of Agriculture Wildlife Services and Natural Resources Conservation Service, the United States Coast Guard, the United States Environmental Protection Agency, the United States Fish and Wildlife Service, the Ohio Department of Natural Resources, the Ohio Environmental Protection Agency, and the Ohio State Historic

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Preservation Office. My staff also consulted with a local
Soil and Water Conservation District, Ducks Unlimited, and
Cornell University. All comments received from the public
agencies (and the applicant's response to these comments) are
contained in the administrative record. All comments and
responses were considered during my evaluation.

For purposes of this Environmental Analysis, I will refer to
all areas encompassed by the political boundaries of Sheldon
Marsh State Nature Preserve as SMSNP. Only areas of marsh
habitat within the boundaries of SMSNP will be referred to as
Sheldon Marsh. Both Sheldon Marsh and SMSNP are situated in
East Sandusky Bay.

d. Comments received from Federal, state and local
agencies in response to the Public Notice were considered and
are summarized below:

USFWS	RECOMMENDED DENIAL
USEPA	RECOMMENDED DENIAL
USCG	NO ACTION
SHPO	OTHER
OEPA	NO ACTION
ODNR	RECOMMENDED DENIAL

Agency Codes (used above and elsewhere in this document

USFWS	-	U.S. Fish and Wildlife Service
USEPA	-	U.S. Environmental Protection Agency
USCG	-	U.S. Coast Guard
SHPO	-	Ohio State Historic Preservation Office
OEPA	-	Ohio Environmental Protection Agency
ODNR	-	Ohio Department of Natural Resources

Comments provided by the above referenced agencies of specific
importance to this project:

ODNR

ODNR has submitted multiple formal and informal comments to my
staff and me regarding this project. I have considered all of
their comments. For the purposes of this Environmental
Assessment, I have chosen to summarize the main points in
their 8-page letter dated June 11, 2001 and signed by Mr.
Wayne Warren, Chief of Division of Real Estate and Land
Management. This comment letter was in response to our Public
Notice No. 2000-02170(1) published on May 11, 2001.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Mr. Warren stated "ODNR, through its Division of Natural Areas and Preserves (DNAP) seeks to protect and maintain the Sheldon Marsh complex in as natural a state as possible without manipulation or designs of "improvement" to compensate for what some might view as negative changes in the system. For this reason alone, ODNR is opposed to any manipulation of the Sheldon Marsh ecosystem that significantly alters the structure or character of this important complex."

These statements appear contrary to a previous letter written to me, dated January 17, 2001, in which ODNR supported manipulating the Sheldon Marsh complex to compensate for negative changes in this system. In this letter, Mr. Samuel Speck, Director of ODNR requested that I initiate studies to determine the feasibility of an ecosystem restoration project at Sheldon Marsh State Nature Preserve (SMSNP). Mr. Speck stated that the Huron River jetty built by the Corps of Engineers has caused sand starvation and has led to the erosion of the barrier beach at SMSNP. Mr. Speck further stated that continued erosion of the barrier beach will cause a breach into the marsh, which will cause severe problems of natural and economic value.

Mr. Barnes has also stated that the Huron River jetty built by the Corps of Engineers has caused sand starvation, which led to the erosion of the barrier beach at SMSNP, and that this was ultimately a factor in the barrier beach being breached. Mr. Barnes has stated that his proposed project will provide private lands with protection from erosion by wave action that has increased in the project area since the barrier island at SMSNP was breached.

Erosion control is not the primary purpose for this project, rather, it is an effect that is reasonable to expect based on the project design. However, this design will not significantly alter the structure or character of this important complex. Therefore, the effect may be similar to the erosion control goals presented by Mr. Speck.

In the remainder of the letter, Mr. Warren addressed the 7 policies of the Ohio Coastal Management Program that ODNR believes the project is inconsistent with.

Mr. Warren stated that the water level of Lake Erie is the primary influence on the hydrology of this area. Mr. Warren further stated his concern that this project will

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

adversely alter the hydrology of this system, stating that
"this project has affected and will affect the hydrological
regime of this rare coastal wetland setting."

I have consulted with my Engineering Division regarding the
effects of this project on the hydrology of East Sandusky Bay.
Engineers on my staff have reviewed materials submitted by
ODNR, the applicant, and Mr. L. Scot Duncan (a private citizen
who submitted technical comments) regarding the effects of
this project on the hydrology of the bay. Based on this
consultation, I have concluded that the channel will have no
appreciable effect on the water levels of East Sandusky Bay.

Mr. Warren stated that the project as constructed
will continue to adversely affect the quality of coastal
wetlands, the associated fish and wildlife habitat, and the
beneficial functions of the waters in this area. Mr. Warren
states that this is due to the physical alteration of category
three wetlands as defined by OEPA and the alteration of
hydrology and movement of aquatic organisms in this area.

All known wetlands impacted by the discharge of dredged
materials have been restored as closely to pre-construction
contours as possible. The applicant accomplished this
restoration on April 18, 2001. Future monitoring will assist
in ensuring the successful restoration of the physical
characteristics (i.e. soil, hydrology and vegetation
components) that defined the impacted wetlands.

The proposed feeder channel will directly connect the
constructed channel with Lake Erie providing a continuous
water supply so that aquatic organisms may freely move. This
will also result in the creation of a continuous hydrologic
connection between Lake Erie and a portion of East Sandusky
Bay. The applicant and the State have provided me with
information with regard to State regulations that prohibit
construction activities in State Nature Preserves. There may
be exceptions to this regulation, which will permit the
construction of the feeder channel, and Mr. Barnes has
requested authorization for the proposed feeder channel as
part of his application. Federal regulations direct me to
make a permit decision based upon impacts to the aquatic
environment and the associated wildlife and cultural
resources, not on individual property rights or local laws
governing land use. Any authorization I grant is provisional
upon the applicant receiving the appropriate authorization
from State and local officials and property owners.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Mr. Warren stated that the proposed project will alter hydrology to the marsh "in terms of nutrient depletion, interference with water runoff feeding the marsh and negative effects upon the plant community composition."

The channel and berm as constructed will impact water flow and exchange between the land and the lake along the length of this project. However, the applicant has proposed dividing this berm into islands (spaced 30 feet apart) and connecting the channel to the Lake by a feeder channel. These modifications will help minimize the impacts to water flow and nutrient exchange between the land and the lake. Dividing the berm into islands will allow water and nutrients to be exchanged between the shoreline south of the islands and the bay when the bay is flooded. The proposed feeder channel will allow for a continuous exchange between the channel and the lake.

The applicant has submitted evidence (photographs) that the constructed portion of the project has beneficially impacted the plant community of the near shore habitat south of the channel. Biologists on my staff inspected the site on November 15, 2001. They observed that the previously barren mudflats south of the channel were vegetated during the site inspection. I have concluded that this is a direct effect of the berm, which reduced the wave action in this area.

Mr. Warren questioned the value of the channel as fish habitat. Mr. Warren states that the creation of deeper water habitat without aquatic vegetation is of little value to spawning habitat. Mr. Warren also stated that submersed aquatic vegetation previously existed in the location of the channel.

In general, the creation of deeper water habitat without submergent vegetation in an area that was previously shallow and barren will not improve fish spawning habitat. I have reviewed photographs from the project site taken during and after construction. This evidence suggests that prior to construction, the habitat of the project site was open water or barren mudflats, depending on the water levels and wind direction. The constant fluctuation in water levels resulted in a lack of submerged aquatic vegetation in the surrounding habitat. Prior to construction, this habitat was likely of little value to spawning fish. Therefore, I conclude that fish habitat was not a function of the open water and barren

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

mudflat habitat that the applicant proposes to permanently impact and not a function I expect the constructed channel to provide. However, general fish habitat could be improved if submerged structures such as trees or root balls are added to the channel.

The main channel will function as an isolated reservoir during low water conditions if the main channel is not connected to Lake Erie. These conditions will restrict fish to the main channel. Negative impacts are certain if these conditions persist and the channel is pumped dry. An impermeable weir structure will minimize this potential detriment if installed within the intake channel leading to the existing pump house.

The top elevation of the weir should be 2 feet above the bottom elevation of the main channel. This should allow for some permanence to the water regime in the channel.

Mr. Warren stated that the project, as proposed, will likely require regular maintenance dredging.

The applicant has not requested authorization for maintenance dredging, therefore that activity was not evaluated. Annual monitoring of erosion and sedimentation will help predict the need for maintenance dredging.

Mr. Warren stated that the proposed islands will likely be eroded during storm events by high lake levels and wave action. Mr. Warren stated that the islands would likely need to be armored with riprap, citing other dikes on Lake Erie.

My staff consulted with Mr. David Burgdorf of the NRCS Plant Materials Facility in Lansing, Michigan. Mr. Burgdorf conducted a site visit in November 2001, and advised my staff and representatives from ODNR and OEPA that soil bioengineering techniques can be used to stabilize the proposed islands and will obviate the need for riprap. The rapid growth and extensive root systems of live plantings (i.e. brush mattresses and fascines - bundles of live plant cuttings) will increase the stability of the islands. Brush mattresses composed of willows, common elderberry, and gray dogwood should be installed along the crest of the islands. Fascines composed of willows, red-osier dogwood, silky dogwood, and buttonbush should be installed along the side slopes of the islands. Another fascine should be installed lakeward of the toe of the islands which will act as a temporary protection buffer and will eventually be washed

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

away

Mr. Warren stated that if the proposed islands were created, they may provide good nesting habitat for Canada geese, herring gulls, and ring-billed gulls. Mr. Warren stated that Canada goose grazing behavior threatened rare plants and that gull predation threatened the establishment of breeding piping plovers and common terns on the nearby barrier island habitat.

Preferred nesting habitat for Canada geese include freshwater marshes and islands (Ehrlich et al. 1988). This preference is consistent with the proposed islands and the surrounding habitat. Canada geese were known to nest in Sandusky Bay before this project commenced. Therefore, it is important to restrict the use of the proposed islands by geese and minimize the negative effects of goose grazing with management practices.

One such method for accomplishing this goal is to establish tall, dense vegetation on the islands. Tall, dense vegetation such as saplings and shrubs will discourage nesting by geese and gulls. Some shrubs (such as elderberry and buttonbush) have the additional benefit of providing forage opportunities for songbirds.

Grid wires and ground fencing techniques can also be used to interfere with flight and discourage geese from landing on the islands (Forbes et al. 1994). These techniques can be used until the established vegetative criteria are met.

My staff consulted with Mr. Richard Dolbeer, a wildlife biologist with the USDA Wildlife Services in August 2001. Mr. Dolbeer informed my staff that there are no known ring-billed gulls nesting in Erie County, Ohio; however, herring gulls are known to nest in Sandusky Bay. Large colonies of herring gulls existed prior to this project near Cedar Point. Herring gulls prefer bare ground, boulders, riprap and break walls for nesting sites. The proposed islands are not consistent with nesting preferences and will not provide suitable nesting habitat for herring gulls.

I agree with Mr. Warren that the barrier beach habitat is consistent with the preferred nesting habitat of plovers and terns. This project will not physically impact the nesting

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

habitat of the barrier beach. This project is approximately 0.2 miles south of the barrier beach (nesting habitat for plovers and terns) and is outside of USFWS designated critical habitat for the federally endangered piping plover.

Mr. Warren stated that desirable waterfowl species that occur in Lake Erie marshes such as blue-winged teal, American widgeon, and redhead will not use the created islands because suitable marsh plant associations are not present.

The plant associations of East Sandusky Bay are subject to the dynamic water levels and wave action. This was evident by the re-emergence of aquatic vegetation on once barren mudflats landward of the constructed berm. If Lake levels continue to fall and East Sandusky Bay is without water for an entire growing season, other areas of barren mudflat may experience similar bursts in vegetation. However, if Lake levels should rise, the exposed, vegetated areas may be inundated, eliminating the vegetation. It is difficult to predict the makeup of plant communities under these dynamic conditions. The proposed project design may not currently provide preferred nesting habitat for desirable waterfowl species, however, this does not rule out the future possibility of preferred plant communities.

American widgeon food preferences include algae, pondweeds, and seeds of rice-cut grass, wild millet, smartweed and buttonbush (Bellrose 1976). Millet, smartweed and buttonbush are present in the area. Blue-winged teal food preferences include the vegetative parts of aquatic plants, as well as the seeds of sedges (Bellrose 1976). There are 11 species of the sedge family (Cyperaceae) present in the area. However, since blue-winged teals are known to select a site up to 2.25 miles from their nesting site to raise their young, it is not critical for nesting sites to contain their food preferences. Redhead food preferences include pondweed seeds, aquatic plants, algae, bulrush seeds, wild celery, duckweeds, water lily seeds and coontail (Bellrose 1976). Aquatic plants, algae, and bulrush are present in the area.

Mr. Warren stated that even if suitable nesting habitat existed, it is unlikely that nesting attempts would be successful because the islands are too close to shore.

Distance from shore, vegetative cover, and number and size of islands can influence nesting success on artificial nesting islands (Baldassarre and Bolen 1994). As spatial

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

heterogeneity increases, predators must expend more time searching for nests (Bowman and Harris 1980). Reshaping the berm into five islands will increase spatial heterogeneity.

Ideal nesting islands should be located at least 100 feet from shore, isolated by 2 feet of water, and be at least 0.05 acres in area (Jones 1975). In this case, the main channel is the largest feature separating the proposed islands from the shoreline. The channel was estimated to be approximately 5 feet deep and 50 feet wide in September 2000. This is 50 feet less than the recommended minimum (100 feet) distance. Additional losses to the existing habitat would result if the width of the channel was increased by 50 feet to obtain this recommended minimum distance. It is more practical to maintain a minimum water level of 2 feet in the channel and increase the distance between islands. Currently, the proposed distance between islands is 30 feet. Ideally, this distance should be closer to 100 feet however, in this case, increasing the distance between islands to 100 feet may result in increased erosion and a higher frequency of dredging to maintain channel depth. Increasing the distance between islands to a width of 50 feet should increase protection from predators and still offer erosion protection to the main channel. It is important to note that in times of low water when East Sandusky Bay is dry or near dry, the proposed islands will not function as islands at all. In addition, if construction of the feeder channel is prohibited, or Lake levels drop below the elevation of the feeder channel for sustained periods of time, the main channel may be pumped dry. In this case, the impermeable weir structure could be most important to maintain a minimum water depth of 2 feet in the main channel.

Mr. Warren stated that "to permit any activities that has the strong potential to cause ecological changes that could be harmful to one of the best migrant shorebird staging areas on Lake Erie would be irresponsible."

Construction for this project commenced in July 2000. Since that date, there has been no information submitted to me that shows evidence of this project affecting migrant shorebird habitat. General shorebird habitat (foraging and loafing) for East Sandusky Bay is generally determined by depth of water and available mudflats. Lake Erie water levels have the greatest influence on the water levels of East Sandusky Bay and wind direction can influence the area of exposed mudflats

I have previously concluded that this project has no effect

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

on the water levels of East Sandusky Bay.

I have also reviewed material posted on the Ohio Shorebird Habitat WebPages. This website serves as an electronic bulletin board for amateur birders to post their observations and assessment of the conditions of shorebird habitat. Archived reports are generally available for the months of April to September and the years 1999-2001. I have reviewed the archived reports for this area from 1999 to 2001, and there was no apparent change in the observations recorded at Sheldon Marsh and the Cedar Point Chaussee (directly east and west of project site). Some reports also refer to conditions of this area being directly affected by Lake water levels. Shorebird habitat was consistently reported as good or excellent when Lake Erie water levels were down (drought-like conditions) or during periods of sustained winds from the southwest, which emptied the bay and exposed mudflats. Observations were reported as "poor" when Lake levels were high or during periods of sustained winds from the northeast, which inundated the bay and flooded the mudflats.

Mr. Warren stated his concerns with regard to invasive plant species. Mr. Warren was specific in regard to Phragmites and the potential for this project to offer migration corridors for this invasive plant to enter into areas currently free from Phragmites.

The proposed construction of the islands is likely to create conditions that favor colonization of invasive plant species.

It is reasonable to expect some establishment of invasive species in the project area since invasive plant species existed in East Sandusky Bay pre-project (see APPENDIX B). My staff determined that the area directly south of the project site has remained largely undisturbed by this project, yet it has areas that are largely dominated by Phragmites (see field notes for November 15, 2001). The applicant has agreed to place the project site and additional wetlands to the south of the project into a conservation easement and improve the habitat conditions of this area with long term management aimed at removing and replacing invasive plant species such as Phragmites. The on-site presence of a large labor force and the nursery expertise of the applicant present a unique situation that could help the success of an intensive management effort. The applicant has also demonstrated a desire to work in partnership with ODNR to control Phragmites on a larger scale with the goal of improving the overall condition of East Sandusky Bay and SMSNP.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

My staff consulted with Dr. Bernd Blossey of Cornell University in November 2001. Dr. Blossey conducts research with the Biological Control of Non-Indigenous Plant Species Program. Currently there are no known biological agents to control Phragmites. However, Dr. Blossey recommended applying herbicide (Rodeo or another generic equivalent glyphosate-based herbicide) in early fall (mid August through mid September) and controlled burning of treated Phragmites in the spring. Burning should only take place on large monotypic stands of Phragmites after they have received an application of herbicide. Dr. Blossey recommended first targeting small pockets of Phragmites and areas where Phragmites are interspersed with preferred plant species. This strategy is aimed at producing small strongholds of native vegetation to help establish the remaining areas. In areas where Phragmites is interspersed with native vegetation, herbicide should be applied manually to Phragmites leaves. Dr. Blossey recommended against applying herbicide in the spring or manually pulling Phragmites.

Pizzo and Schroeder (2001) used a similar strategy to reduce the dominance of Phragmites in northern Illinois. They also reported that removal by hand is "virtually impossible" due to the extensive root system of Phragmites and recommended controlled burning to remove dead plant matter. Pizzo and Schroeder (2001) used herbicide from May to September to control large infestations of Phragmites, but generally recommended using herbicide in early spring or fall when preferred native species were dormant. They stated that this management strategy was tailored to Northern Illinois and may need to be altered for site specific conditions.

Either management strategy, or a combination of both tailored to site specific conditions will likely be labor intensive and take 5 to 10 years before results are measurable. If this proposed plan is authorized, selection of an appropriate herbicide and a specific management plan aimed at reducing the dominance of Phragmites should be coordinated with adjacent property owners, ODNR, OEPA, USFWS, and my staff.

Typical permit conditions require that established vegetative criteria be established within 5 to 10 years. This type of condition can further reduce the negative impacts associated with exotic or invasive plant species.

Mr. Warren stated that approval of this project

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

would not be consistent with two measures of the Ohio Coastal Nonpoint Pollution Control Program. These measures discuss protecting and restoring wetland systems that serve a significant nonpoint source (NPS) pollution abatement function. Mr. Warren provided no information on why the proposed project is not consistent with these measures.

I have reviewed materials submitted by Mr. Barnes and the observations recorded by my staff. This information documented the establishment of vegetation that occurred landward (south) of the constructed channel and berm. The noted changes have been facilitated by the reduced wave action resulting from the constructed berm. Prior to construction, barren mudflats or open water promoted exchange between the land and the bay in this area. After construction, exchange in this area has become aided by vegetated wetlands. Therefore, an effect of this project is an increase in NPS pollution abatement function.

Mr. Warren stated that the project will apparently damage a known archeological site. This and other comments regarding potential impacts to archeological sites were considered and addressed in agency comments under the SHPO section.

Mr. Warren stated that "based on ODNR's consistency denial of the project, the Corps may not authorize an individual permit for this project". However, Federal regulations allow me to issue a Provisional permit. This type of authorization is contingent upon the applicant ultimately receiving CZM consistency and 401-water quality certification.

OEPA

OEPA submitted a memo via e-mail, addressed to my staff, and dated June 11, 2001. This memo was in response to our Public Notice No. 2000-02170(1) published on May 11, 2001. OEPA had no official comment on our Public Notice or the currently proposed project. OEPA is currently reviewing the 401 water quality certification application submitted by Mr. Barnes and their comments will likely come after they conclude their review process.

OEPA submitted comments to my staff prior to the publication of our Public Notice. These comments were submitted during the coordination of our administrative review, dating back to July 2000. These formal comment letters and the informal

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

comments submitted by OEPA representatives have been fully considered in this Environmental Assessment.

Past comments did not specifically address the details of the applicant's current request for authorization. Therefore, in lieu of an official comment letter in response to our Public Notice, I have summarized and addressed the main points in the 6 official position letters submitted by OEPA. These letters were submitted during the course of our administrative review (July 2000 to October 2001). The subject, date, and author of each letter are italicized. Comments addressed the following:

The proposed interim corrective measure (April 12, 2001, Mr. John Mack). Mr. Mack recommended that construction activities be completed by mid-April; these measures were completed on April 18, 2001. This comment will be considered for future permitting actions on this site. I agree that construction activities should be carefully planned with regard to the seasons and water levels to minimize impacts on wildlife and take full advantage of the growing season.

The Proposed Compliance and Management Plan for the Constructed Project Under NWP 27 (October 13, 2000, Mr. John Mack). This plan was abandoned when the NWP 27 was suspended and ultimately found to be invalid. These comments are not relevant to the current permit application.

Options for Resolution and Interim Controls for Barnes Nursery Project (September 19, 2000, Ms. Lisa Morris). Ms. Morris provided three recommendations for interim control measures to facilitate the over-wintering of the channel and berm. These included plant management, backfilling the western end of the channel, and restoring the natural hydrologic interchange. I have considered similar recommendations in the previous sections with regard to comments made by ODNR.

Technical Comments on September 12, 2000 Site Inspection (September 14, 2000, Mr. John Mack). This letter describes the findings by OEPA in regard to their wetland classification system. Mr. Mack documented the presence of normal coverage of invasive marsh species along the south side of East Sandusky Bay (privately owned). Mr. Mack commented that "the hydrology of the entire marsh complex is controlled by long term Lake Erie water levels and short term wind-and-seiche-caused fluctuations in water levels." Mr. Mack also submitted a list of invasive/exotic plant species with the

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

materials used to document his site visit. Proposed management plans for the project area should restrict the presence of the exotic and invasive plant species he listed

Agreements Reached at the July 26, 2000 Meeting Regarding NWP 27 for Barnes Nursery Project (August 7, 2000, Ms. Lisa Morris). Ms. Morris outlined three points of actions that OEPA understood were going to be taken by my staff. Two of the three steps (issue a Public Notice and implement interim corrective measure) were taken, and one step (exercising my authority to issue a cease and desist order) was not necessary because Mr. Barnes agreed to stop working.

Compliance with State of Ohio Section 401 Certification and NWP Conditions of NWP 27 (July 21, 2000, Ms. Lisa Morris). Ms. Morris requested that the NWP 27 originally affirming this project be revoked and that all work stop on this site until individual 401 and 404 applications have been reviewed and approved. The NWP 27 originally affirming this project was found to be non-applicable in January 2001 and Mr. Barnes has applied for 401 water quality certification and a section 10/404 permit.

In addition to these specific letter summaries, a common theme exists throughout the comments submitted by OEPA. OEPA has repeatedly stated the following:

The project area is part of a category three barrier beach-lagoon coastal wetland complex and this habitat is rare in Ohio.

I agree that East Sandusky Bay meets this habitat description and is rare habitat in Ohio.

This area harbors endangered species and is a significant waterfowl and neotropical songbird stopover and breeding location.

I agree that the habitat of the East Sandusky Bay area includes stopover and breeding habitat for migrating birds. My staff has coordinated our review with the USFWS per section 7 of the Endangered Species Act, which is meant to preclude any permit actions that may adversely affect an endangered species (see USFWS comments).

Project activities have occurred within vegetated and barren mudflat areas of the marsh complex.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

I agree that the project as originally constructed occurred within vegetated and barren mudflats and open water. These impacts have been documented. As of April 18, 2001, all identified wetland areas that were impacted by the discharge of fill materials were restored to pre-construction contours

SHPO

Mr. Barnes submitted a preliminary archaeology report to SHPO. The report detailed the location and drawing of a single "banner stone" that was discovered and removed (circa 1986) from a nearby farm field by an amateur archaeologist. SHPO requested a professional report and a Phase One Archeological Survey. At the request of SHPO and recommendation of a Corps archeologist (Detroit District), my staff required the applicant to complete a Phase One study. The study results were coordinated with SHPO.

Gray and Pape Incorporated (GPI) completed a Phase 1 cultural resource survey report for the applicant on October 5, 2001. GPI is a cultural resources consultant that meets the professional requirements as published in the United States *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*.

In summary, the report identified two previously unidentified sites, 33ER497 and 33ER498. These sites were characterized as areas where prehistoric artifacts were scattered on the surface of the berm. A total of 14 artifacts were discovered. Artifacts were chipped stone byproducts of the process of manufacturing raw materials into a finished tool. Based on this report, I have concluded that these two sites do not meet the criteria for listing in the National Register of Historic Places. SHPO has concurred with my determination.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

USEPA

Mr. Kevin Pierard has submitted two letters to my staff regarding this project dated October 12, 2000 and June 7, 2001. The latter letter was a formal response to our Public Notice No. 2000-02170(1) published on May 11, 2001.

Mr. Pierard stated "in our opinion the proposal and continued presence of the remaining fill will cause and (sic) irreversible loss of the ecological factors for which the area was designated as a (state nature preserve) SNP. Photos clearly show the effect the berm placement has had on siltation patterns in the East Bay."

Mr. Pierard did not provide a list or discussion of the ecological factors for which the area was designated as a SNP.

I have also not been presented with evidence of an irreversible loss of ecological factors within the SNP or project area. I agree that aerial photographs taken shortly after construction of the berm depict a siltation plume originating from the western limits of the berm. Siltation is commonly associated with construction activities. Interim corrective measures (vegetating the islands) were ordered to reduce this detriment. Utilizing best management practices (i.e. grading the proposed islands to a 4:1 slope, conducting construction activities during low water periods, installing siltation curtains, and establishing vegetation on the proposed islands) will reduce erosion and sedimentation concerns.

Mr. Pierard stated "the State will likely deny water quality certification. Therefore, we recommend that a permit be denied for this work and that fill be removed in its entirety. This should be followed by any additional restorative measures prescribed by the State."

Federal regulations allow me to issue a Provisional permit. This type of authorization is contingent upon the applicant ultimately receiving CZM consistency and 401-water quality certification.

USFWS

The USFWS has submitted multiple formal and informal comments to my staff and me regarding this project. My staff has also consulted with the USFWS with regard to potential effects to the bald eagle, the piping plover, and piping plover critical

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

habitat. I have considered all comments submitted by the USFWS. For the purpose of this Environmental Analysis I will address those comments in the letters dated June 11, 2001 and September 28, 2001 and signed by Mr. Kenneth Lammers. The June comment letter responded to our Public Notice No. 2000-02170(1) published on May 11, 2001. This Public Notice initiated consultation. The September letter served as follow up consultation.

Section 7 of the Endangered Species Act (ESA) requires consultation with the USFWS when a permitting action "may affect" an endangered or threatened species or a designated critical habitat. This project lies within the range of the bald eagle (threatened), the piping plover (endangered), Indiana bat (endangered), eastern massasauga (candidate), Lake Erie water snake (threatened), and lakeside daisy (threatened). This project area is also adjacent to critical habitat for the piping plover.

Mr. Lammers stated in his September letter that the proposed project would have no effect on the Indiana bat, the eastern massasauga (rattlesnake), the Lake Erie water snake, and the lakeside daisy. Mr. Lammers also stated that the project area does not contain the constituent elements of piping plover Critical Habitat and is not protected under this designation. With regard to endangered species impacts, Mr. Lammers concluded that the proposed project is likely to adversely modify the area used for foraging by both the bald eagle and the piping plover, reducing the value of the habitat for these species.

My staff coordinated follow up discussions regarding impacts to endangered species in response to these comments. These discussions were aimed at identifying the construction techniques or impacted ecological functions that would reduce the value of the surrounding habitat to the bald eagle and piping plover. Staff members of COE and USFWS discussed modifications to the project design or construction techniques to reduce or eliminate any potential negative effects. Mr. Lammers' follow-up consultation letter dated September 28, 2001 addresses these issues with recommended modifications.

Sedimentation and Water Quality:

Mr. Lammers requested that efforts be taken to limit erosion and sedimentation in the project area since sedimentation decreases the habitat value for fish and aquatic

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170 (1)

invertebrates and therefore the birds that prey on them.

Soil bioengineering techniques will reduce erosion and sedimentation in the project area. Corps permits typically require best management practices to limit erosion and sedimentation during construction. Corps permits also typically prohibit in-water work during periods of time when native fish species are spawning.

Mr. Lammers commented that the establishment of vegetation on the berm has and will continue to slow erosion and reduce sedimentation and follow up planting of prairie grasses will support this effort.

I agree with these statements and a permit may be conditioned to require vegetative components aimed at stabilizing the proposed islands and reducing erosion and sedimentation. I can also require a monitoring period to ensure that adequate vegetation is successfully established.

Mr. Lammers stated that the project proposal does not include dredging.

A portion of this project does include "plowing" a feeder channel and removing dredge material in order to shape the berm into islands. Both of these activities have the potential to introduce sediments into the water column by disturbing the substrate and spoil material. Limiting construction activities to periods of time when the water levels of East Sandusky Bay are below the surface will significantly reduce or eliminate the potential for introducing sediments into the water column.

Mr. Lammers requested that water quality monitoring be performed regularly during a five year monitoring period to ensure that the project is not causing a decrease in water quality.

There are many pre-existing factors contributing to water quality in East Sandusky Bay such as water levels, surface water runoff, carp behavior, natural erosion and sedimentation, and storm events. The applicant does not have control over these factors and changes to any of these factors could affect water quality seasonally or annually. Therefore, designing an experiment or scientific study to isolate the cause and effect relationship of this project on the water quality of East Sandusky Bay would be complex, difficult, and

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

not practicable.

Invasive Species:

Mr. Lammers requested that the applicant control invasive species such as cattail, common reed, and purple loosestrife.

I agree with this request and have previously addressed similar comments by OEPA. Mr. Barnes has agreed to preserve the project area and additional wetlands to the south of the project area in a conservation easement and to improve the habitat in this area with management techniques aimed at reducing the presence of invasive plant species.

Human Disturbance:

Mr. Lammers requested that human disturbance of the project site be limited by discouraging use of the area for walking or boating and prohibiting fishing and heavy machinery in the project area. Mr. Lammers identified eagle fledglings as the main concern regarding these comments. Mr. Lammers cites a personal communication with Mr. Mark Shieldcastle of ODNR as evidence that eagle fledglings are most sensitive to human disturbance.

My staff contacted Mr. Shieldcastle for additional information. Mr. Shieldcastle indicated that eagles can fledge as early as June 1, and the peak dates for fledgling activity are between June 15 and August 15. Typical post-fledgling dependency periods for eagles are several months (Newton 1979). Post-fledgling dependency period for Florida bald eagles is 4 - 11 weeks (Wood et al. 1998). Therefore, mechanized work should be prohibited within the project area between June 15 and October 31 to minimize the potential detrimental impacts to fledgling bald eagles. In addition, before work commences, a visual survey of East Sandusky Bay should be conducted (and coordinated with USFWS) to check for the presence of fledgling bald eagles.

Nuisance Species:

Mr. Lammers recommended that a five-year monitoring period include a fish study to determine the effect of this project on the fish community.

There are many factors that influence the existing fish

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

community in East Sandusky Bay. The primary factor is habitat availability. Storm events during the early 1970's caused the barrier islands protecting East Sandusky Bay to breach. As a result of the new opening, marsh vegetation and sediments were eroded. Subsequent storm events and short term fluctuating water levels (seiche events), continue to reduce water clarity and wash sediments out of East Sandusky Bay. This limits the growth of aquatic vegetation. Lack of aquatic vegetation decreases habitat suitability for aquatic organisms that can provide a forage base for fish. Most fish also require submerged vegetation to successfully spawn. Another factor contributing to existing habitat conditions is the presence of carp. Members from USFWS and my staff have observed carp thrashing and foraging in waters adjacent to the project site. Thrashing behavior contributes to sedimentation and the foraging behavior results in the uprooting of any aquatic vegetation that might have begun to establish.

There are no known Federally threatened or endangered fish species that occur in this area. Furthermore, in a modified system as large as East Sandusky Bay it would be difficult to isolate any effects of the Barnes Nursery Project on the fish community. Therefore, designing an experiment or scientific study to isolate the cause and effect relationship of this project on the fish community of East Sandusky Bay would be complex, difficult, and impracticable.

Mr. Lammers stated that established prairie grasses will help discourage gulls and geese from nesting in the project area.

I agree that prairie grasses can be used to discourage gulls and geese from nesting in the project area. This was one alternative that was discussed with Mr. David Burgdorf of the NRCS. Mr. Burgdorf recommended that soil bioengineering techniques utilizing vegetation more consistent with the project area (i.e. willows, dogwoods, buttonbush) be used. The establishment of willows and shrubs will also discourage geese from using the area.

Mr. Lammers also recommended that the cutting or removal of vegetation on these islands be restricted.

I agree that the cutting or removal of non-invasive and non-exotic vegetation should be limited.

Further Actions:

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Mr. Lammers agreed that a conservation easement held by a third party would be an acceptable means for maintaining the project site if the third party agrees to their recommended guidelines stated above.

The applicant has agreed to establish a conservation easement as a form of mitigation and assurance of further avoidance. The details of the conservation easement and selection of a third party to hold the conservation easement must be approved by me.

Mr. Lammers concluded his letter by stating that the USFWS is opposed to the project as proposed because it will negatively affect the surrounding environment and SMSNP. Mr. Lammers believes that additional alternatives exist that were not explored, but did not give examples for me to review. Mr. Lammers requested that the applicant restore the area to pre-construction conditions and develop a less environmentally damaging alternative to obtain water.

I will consider the six project alternatives the applicant has submitted in the Project Alternatives section of this Environmental Assessment.

I have concluded that the action proposed by the applicant is not expected to directly or indirectly appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing reproduction, numbers, or distribution of that species. I have also concluded that the project as proposed will have no direct or indirect alteration that appreciably diminishes the value of the critical habitat for the survival and recovery of a species. These conclusions are based on consultation with the USFWS and the best available information.

e. Comments received from the public in response to the Public Notice were considered and are summarized below:

I have received approximately 1,300 comments from the public during the review period for this application (July 2000 to October 2001). I received comments via form letters, individual letters, post cards, e-mails, and verbal testimonies. Initial public comments were received after Mr. Barnes commenced construction in July 2000, although a majority of the comments received were in response to the public notice and hearing. All public comments received

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

during this time were considered during the environmental analysis and are contained in the administrative record. Consideration of comments was weighted with respect to my jurisdiction. I gave full consideration to comments that addressed issues within my authority.

The largest single source of public comments was a form letter titled "Preserve the Preserve!" This mass mailing was generated by Friends of Sheldon Marsh (FOSM), a special committee of the Firelands Chapter of the National Audubon Society. This form letter was signed and submitted by approximately 550 people. Approximately 60 of these letters had additional hand written comments, which further stated opposition to the project, and a few letters were crossed out and comments in support of this project were hand written on them.

Overall, the "Preserve the Preserve!" letter expressed opposition to this project. The letter stated an objection to any digging, dredging, and diking in the Sheldon Marsh State Nature Preserve wetland system and asked the Corps to deny this permit request. The letter expressed an interest in the immediate restoration of the project area to pre-construction conditions. The letter provided two reasons for this request:

- 1) The Sheldon Marsh wetland system was determined to be a category three wetland by the Ohio EPA.
- 2) The present channel and dike are a threat to the remaining barrier beach and wetland complex.

Federal regulations do not preclude me from issuing a permit to impact waters of the United States based upon a State categorization. This letter did not provide evidence to support the claim that the current project is a threat to the surrounding area.

The remainder of the public comments are summarized in the following paragraphs and consolidated into a spreadsheet (see APPENDIX C) that follows the public interest factor outline. The number of comments received was documented to illustrate the repetition of comment content. It is important to note that regulations do not allow me to make my decision based on number of comments received, rather they dictate that I must consider the content of all comments received related to the effects of the project on the aquatic environment. Therefore, comments were not weighted based on abundance.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Conservation of Natural Resources: A large number of public comments focused on Sheldon Marsh. Comments were submitted requesting that Sheldon Marsh be preserved for future generations because it is a unique coastal resource.

This project is not located within Sheldon Marsh. Any permitting actions will be limited to private property adjacent to Sheldon Marsh. The applicant has agreed to place a conservation easement on the project site and additional wetlands south of the project area, ensuring future preservation of this private land, and a land use more consistent to that of the adjacent Sheldon Marsh State Nature Preserve.

Economics: Public comments were submitted stating that this project would result in a decrease to local eco-tourism, due to the negative impact on local birding.

I have not found evidence supporting this claim. My staff has monitored web sites that collect and post observations from birders. One site, Ohio shorebird Habitat (<http://www.jjhammond.com/kestrel/shorbrds/>), archives shorebird reports from 1999 to 2001. Reports are available for the months of July-October 1999, March-September 2000, and April and June- September 2001. A sampling of reports was downloaded and placed in the administrative record. Reports were given for Sheldon Marsh State Nature Preserve and Cedar Point Chaussee. These areas are adjacent to the project site.

There was no apparent difference in bird reports when comparing data from 1999, 2000, or 2001. Those submitting reports often commented that shorebird habitat was directly related to the water levels in East Sandusky Bay and regional wind patterns. According to reports, south winds were needed to blow water out of the bay, exposing mudflats and shorebird foraging habitat. Conversely, north winds would blow water into the bay, inundating the mudflats and eliminating shorebird foraging habitat. This project will have no appreciable effect on wind patterns or water levels in East Sandusky Bay. This project will not affect the potential for people to observe shorebirds (eco-tourism) adjacent to the project site.

If authorized, this project will provide a constant source of irrigation water for the applicant. Mr. Barnes has stated that this is one factor that contributes to the success of his business. Mr. Barnes relies on water from the bay to provide

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

irrigation water to his nursery stock. During periods when water levels are below the surface of the bay, the nursery is without a dependable supply of irrigation water. Mr. Barnes has the potential of losing his nursery stock if this condition persists during the growing season. Long term Lake Erie water levels and seiche events influence water levels in the bay. While these factors display trends, they are impossible to forecast with certainty. Therefore, there is always a possibility that long term low water levels in Lake Erie could result in lack of water in the bay, reducing or eliminating the applicant's ability to run his business. According to Mrs. Sharon Barnes, Barnes Nursery employs between 60 and 150 employees throughout the year. A loss of business will have a detrimental impact on the employees of Barnes Nursery, their families, and the economics of the area.

Aesthetics: I have received public comments opposed to the project claiming this project will eliminate or reduce the opportunity to view pristine wetlands.

The project site is situated on private property, closed to public use. The project area itself is viewable from one public road (Cedar Point East Access Road) that prohibits parking, and from some private residences (Point Retreat Condominiums) across East Sandusky Bay, along the northwest corner. The shortest viewing distance along the public roadway is approximately 0.25 miles (from the road to the western limits of the project) and from the private residences approximately 0.5 miles. The applicant has proposed disturbing the project area in order to reshape the berm into smaller islands. During construction and until vegetation is established on the islands, changes in the landscape will be noticeable from these distances. Once vegetation is established, the changed landscape will appear similar to the existing landscape from these public-viewing distances. Mr. Barnes has agreed to place a conservation easement on the project area and adjacent lands and enhancing this area by removing and replacing invasive plant species. A conservation easement will assure that the area will remain undeveloped in perpetuity. This is a level of assurance that did not exist before the project. Furthermore, SMSNP provides public access to view wetlands in the immediate area. I have walked the trails at SMSNP and the project site is not within the line of site of these public access trails.

General Environment: I have received comments from the public opposed to the project, stating that the project

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

has:

encroached upon wildlife habitat, will negatively impacted
flora by introducing invasive plant species, will increase
unwanted boat traffic, has caused erosion, and that the
quality of the (wetlands and Black Channel) restoration is
over-estimated.

I have previously addressed invasive plant species and erosion
and sedimentation concerns in the agency comment sections.

Prior to the project, the project area fluctuated between open
water and mudflat habitat. Fish likely used this habitat
during high water times and shorebirds likely foraged for
aquatic insects and small invertebrates during low water
times. The currently constructed project covers an area
approximately
3.1 acres in area. The proposed project would occupy
approximately 3.0 acres of this habitat. The project area is
adjacent to SMSNP, approximately 386 acres in area, with a
large portion of that area being similar in habitat.
Therefore, the project by itself represents a small percentage
of the total open water and mudflat habitat available. In
addition, approximately 5 acres of open water and mudflat
habitat is expected to be permanently converted to vegetated
shallows as a secondary impact of this project. The
conversion will increase habitat diversity for this area.
Therefore this impact could be considered a beneficial impact.

The applicant has restored approximately 200 linear feet of
the channel and berm to pre-construction contours. This area
is approximately 0.5 acres in area. These activities were
performed to re-establish the known Federal wetlands impacted
by the construction of the channel and berm. As partial
mitigation for these impacts, the applicant has agreed to
monitor the establishment of vegetation in this area. The
applicant also proposes to create new avifauna habit by
shaping the berm into islands. The creation of upland islands
that transition into shoreline wetlands will increase habitat
diversity. The applicant has also agreed to place a
conservation easement on the project site and additional
wetlands to the south. The placement of a conservation
easement will guarantee the protection of additional habitat.
Therefore, this project will result in the creation of new
habitat and the preservation of existing habitat that
outweighs the loss of existing habitat.

I received five comments from the public that

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

opposed the project because they believe it will increase unwanted boat traffic. I have also received 101 comments that state this project is a precursor to a marina.

Boat navigation in East Sandusky Bay is limited by water levels in the bay. This project will not have an appreciable effect on the water levels of the bay and therefore not increase boat traffic. Furthermore, this project does not provide any additional access for boats to use the project area as a marina and the applicant has agreed to place a conservation easement on the project area, which will prohibit a marina in this location.

I have received comments from the public in support of this project stating that canals are good for marshes, that the project represents a positive change for the marsh, that it has not been clearly demonstrated how the project will harm the marsh, that the project will be good for the marsh, and that the project will create habitat.

Most of these comments lacked evidence to support their claims. I agree that material has not been presented that clearly demonstrates how the project will result in an overall detriment to the marsh. I also agree that the proposed project will create more diverse habitat.

Historic Properties: One public comment was made with regard to the possible presence of cultural artifacts near or on site. A Phase One archeological survey was conducted to assess the impact of this project on cultural resources.

I concluded this project will not impact any site(s) either listed or eligible for listing in the National Register of Historic Places.

Fish and Wildlife Values: I have received approximately 181 general comments regarding the concern for this project negatively affecting wildlife, but without supporting evidence.

I have previously considered this comment with regard to agency comments and wildlife habitat.

I received five comments stating the project will negatively affect reptiles.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

The project is constructed in open water and mudflat habitat. As considered above in the General Environment section, this project will not result in an appreciable loss of this habitat type. Open water and mudflat habitat is marginal habitat for reptiles. Furthermore, the project may benefit snakes and turtles by creating foraging and basking habitat for snakes and nesting and basking habitat for turtles.

I have received one public comment stating that this project will jeopardize a state-threatened tiger beetle that was reported to reside at SMSNP. The commentator provided information that concludes the tiger beetle is restricted to sandy beaches and that flood control, road construction, irrigation and development led to the decline of this beetle.

While the primary purpose of this project is irrigation, this project will not impact the sandy beaches of SMSNP. Furthermore, additional sandy beaches may be created on the proposed islands as the result of wave action.

I have received 11 comments stating that this project will negatively impact fish habitat and spawning areas.

Open water and mudflat habitat is marginal fish habitat and prior to construction the project area lacked aquatic vegetation and gravel/stone beds, both are general requirements for many spawning fish. The protected channel may create conditions conducive to plant growth. There is a potential for fish to use the created channel to spawn if the channel develops aquatic vegetation. Use of this area by fish is limited by water levels of the bay and this project will not have an appreciable effect on water levels.

I have received multiple comments from the public stating that the project will reduce bird habitat, result in the loss of migration stopover habitat, and that mudflat habitat is excellent habitat for invertebrates.

I have concluded that this project will not appreciably reduce bird habitat or the remaining open water and mudflat habitat.

I have received 15 comments from the public stating that this project will negatively impact piping plover habitat.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

I have considered and addressed these comments in the agency
comment sections.

I have received multiple comments from the public
stating that this project will attract more birds and
wildlife, and be good for migratory birds and the aquatic
environment.

I have considered and addressed these comments in the agency
comment sections.

Flood Hazards and Flood Plain Values: I have
received three comments from the public stating that this
project will alter the floodplain and reduce the ability of
the marsh to minimize flooding. This project will have no
appreciable effect on the floodplain or the ability of the
marsh to minimize flooding.

Land Use: One public comment stated that this
project conflicts with the "Lake Erie Protection and
Restoration Plan" administered by Ohio Lake Erie Commission.

The rules and regulations of this state commission may be
considered, but are not binding on the Corps program.
Furthermore, Federal authorization does not supersede state or
local regulations. The applicant is responsible for ensuring
that they are in compliance with all local and state
regulations.

Navigation: No comments

Shore Erosion and Accretion: One public comment
claimed that loss of marsh habitat would lead to an increased
loss of mainland.

The construction of the channel and berm has resulted in the
establishment of vegetation on approximately 5 acres of barren
mudflat and open water habitat, directly landward (south) of
the channel. This project has and should continue to decrease
erosion to the shoreline directly landward of the channel by
decreasing wave action.

Recreation: I received 85 comments from the public
stating that this project will have a negative effect on
birding, hiking, walking, and general wildlife viewing.

I have considered and addressed similar comments in the above

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

sections. This project will have no appreciable effect on
SMSNP or public access to SMSNP.

I received one comment that stated that this project would
improve hunting and fishing.

This project will not have an appreciable effect on the
availability of legal game species.

Water Supply and Conservation: I received 124
comments stating that the proposed and existing channel will
alter the hydrology of the area in a way that will negatively
impact the inhabitants of the marsh.

I have received multiple technical comments supporting this
claim from one individual, Mr. Scot Duncan of Sandusky, Ohio.
My staff engineers have reviewed materials provided by the
applicant, the agencies and the public concerning this issue
(see ODNR comments). After considering all of the comments I
have concluded the proposed project will have no appreciable
effect on the water levels or hydrology of the marsh.

I received 11 comments stating that the Black Channel was not
located where the constructed channel is located and
therefore, that statements made by the applicant claiming that
he is restoring a historic connection are invalid.

The applicant has stated that he proposes to restore the
natural circulation to a portion of East Sandusky Bay. This
proposal replaced an earlier statement by the applicant that
the channel would restore the hydrology of the historic Black
Channel. ODNR has submitted evidence that the Black Channel
was likely eliminated by the receding barrier island. I agree
that the location of the constructed channel and the historic
Black Channel are not congruent. The constructed channel will
receive hydrology from the shoreline directly landward of the
project and convey this water to the Lake via the feeder
channel and vice versa. This path is likely more restricted
than the path or function of the historic Black Channel. The
constructed channel and proposed feeder channel were clearly
proposed for irrigation purposes. Therefore, I will not
consider restoration of former hydrology as a project purpose.

However, I have considered and addressed the effects that
this project will have on the existing hydrology of the area
in agency and public comment sections.

I received multiple comments stating that the project will

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

restore natural water flow. I also received a comment stating that the project will not affect the water level in Sheldon Marsh.

I have addressed these issues in the above sections and I agree that the proposed project will have no appreciable effect on water levels in Sheldon Marsh.

Water Quality: I received multiple comments stating that this project would negatively affect water quality of the marsh by allowing passage of fertilizers or chemicals from the nursery to the marsh, increasing turbidity, impairing the ability of the marsh to filter upland runoff entering Lake Erie, and re-suspending contaminants in the sediment.

There is a ground tile system that collects storm water from the nursery grounds and discharges into the bay via a settling pond and water intake channel. These structures existed and were operating prior to this project. There is no evidence to suggest that this project will increase the availability of fertilizers or chemicals to the bay. I do not regulate the discharge of liquid materials such as chemicals or fertilizers. Turbidity (erosion and sedimentation) and NPS pollution abatement concerns were addressed in the agency comments. No evidence is available suggesting that sediments in the project area are contaminated.

Energy Needs: No comments

Safety: No comments

Food and Fiber Production: No comments

Wetland Values: I received multiple comments claiming the project will negatively impact wetland values. Over 800 members of the public requested that the marsh be protected because it is designated as a class 3 wetland by OEPA.

This comment was addressed above in the agency section.

I received comments stating that property of the applicant is part of a wetland complex that directly impacts Sheldon Marsh and should be preserved in a natural state and free of man made structures. I also received one comment stating that coastal marshes are very productive and serve many functions, and should be preserved.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

I have considered and addressed wetland impacts and conservation easements in the agency section. A conservation easement can be used to preserve natural resources.

I received a comment claiming that the deep-water channel can restore productive wetlands and nesting islands.

The construction of the channel and berm has resulted in the establishment of vegetation to approximately 5 acres of barren mudflat and open-water habitat, directly landward of the channel.

Mineral Needs: No comments

Consideration of Property Ownership: I received one comment that this project has or will impact conservation easements of adjacent properties. No evidence was submitted that supported this claim.

I received multiple comments stating that Mr. Barnes should be able to use his property to support his nursery operations. I have considered the effect of this project on nursery operations.

General Comments: I have received multiple comments from the public that do not address details of the applicant's current request for authorization that are within my purview. These comments were summarized in the spreadsheet (see APPENDIX C) and were considered.

f. The project has been reviewed for the need for the following certifications:

(1) Water Quality Certification pursuant to Section 401 of the Clean Water Act was: **PENDING**, with a public hearing scheduled for December 10, 2001.

(2) Certification of Consistency pursuant to Section 307(c) of the Coastal Zone Management Act of 1972, as amended was: **DENIED** on June 11, 2001, Notice of **APPEAL** filed by applicant on July 10, 2001, **APPEAL PENDING**.

3. Individual and Cumulative Impacts of the Proposed Action on the Public Interest:

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

In November 2001, a wetland delineation was verified to document wetland acreage and upland buffers that would be preserved for mitigation (the proposed conservation easement)

This delineation report also contained new data concerning the dimensions of the channel and berm.

Prior to receiving this report my staff estimated the length, width and depth of the channel in September 2000 using a measuring wheel, tape, and staff gauge. At this time the berm and channel were estimated to be 1500 feet in length. The channel was also estimated to average 50 feet in width and 5 feet in depth.

This new report used a Global Positioning System (GPS) to estimate measurements and to document acreage. GPS is a more accurate method to obtain dimensions than the previously used manual devices. Therefore, as a result of this report, four additional pieces of information were documented and must be considered.

First, the length of both the channel and berm, as of November 2001, was approximately 1800 feet. This means that the original construction was 2000 feet (prior to the restoration of approximately 200 feet of channel and berm in April 2001) not 1500 feet as originally believed.

Second, the wetland delineation report identified another small area of Federal wetland that was previously considered to be open water and mudflat habitat. This portion of wetland was excavated during the channel construction. The portion of the wetland that was excavated was crescent shaped, approximately 100 feet in length with an average width of approximately 10 feet, or 0.02 acres in area. The vegetation of this area was dominated by Phragmites. This area has not been restored.

Third, the average channel width is approximately 60 feet and not 50 feet, and the average width of the berm is 40 feet not 55 feet (see APPENDIX D for graphical representation of these changes).

Fourth, as of November 2001, areas that existed as open water and mudflat habitat prior to the project, and are now vegetated shallows as a result of this project, total approximately 6 acres in area and not 5 acres.

Based on this new information, the total footprint for the

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

constructed project is approximately 4.1 acres and not 3.1
acres.

Based on this information, and new drawings submitted by the applicant (see APPENDIX E), it is reasonable to expect that the project can be modified so that both the width of the channel and proposed islands are approximately 55 feet. Additional fill removed from the berm may be discharged in the channel to stabilize the side slopes of the channel to a 2:1 slope.

Therefore, the total footprint of the proposed project (with
feeder channel) once completed would be approximately 4.2
acres.

The total area of open water and mudflat habitat impacted by this project still represents a small fraction of the available open water and mudflat habitat available in the immediate area.

The project as presented to the agencies and public was based on the information obtained in September 2000. Comments were submitted based on the project as it existed. The project as it was presented and viewed by the agencies and the public has not changed, only the actual measured dimensions changed. These dimensions existed during the public interest review, however, they were just recently refined with GPS. Therefore, the only change is how the project is described, not the project itself. Impact analysis and comments addressed to this point were based on the Public Notice Document. The final evaluation will consider this new information.

This project will result in the construction of a channel, 1800 feet in length, 55 feet in width, and 5 feet in depth; a chain of 5 islands, each approximately 300 feet in length, 55 feet in width, and 6 feet in height; a feeder channel, approximately 500 feet in length, 3 feet in width 1.5 feet in depth.

The impact to waters of the United States that will result from this project are: the permanent loss of approximately 0.02 acres of Federal wetlands; the temporary loss of approximately 0.5 acres of Federal wetlands; the permanent loss of approximately 4.2 acres of open water and mudflat habitat; the conversion of approximately 6 acres of open water and barren mudflat habitat to vegetated shallows.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

The applicant originally proposed to mitigate for these impacts by creating island habitat for nesting waterfowl, deep water habitat for fish, and by establishing vegetation on previously barren mudflats. In August 2001, my staff initiated discussions aimed at securing additional mitigation in the form of a conservation easement. Mr. Barnes agreed to this concept, but details of a conservation easement were not agreed upon.

Based on the new information from the November 2001 wetland delineation report, my staff requested additional acreage to be preserved in a conservation easement. Mr. Barnes agreed to preserve approximately 25 acres of Federal wetlands, approximately 4.9 acres of associated upland buffer, and approximately 4.1 acres of the project site in a Conservation Easement to be held by a third party (see APPENDIX F). Terms of the Conservation Easement and the selection of a third party must be approved by me. The total area of the Conservation Easement is approximately 34 acres and Mr. Barnes has agreed to enhance the habitat of this entire area with management techniques aimed at reducing the dominance of Phragmites, an invasive plant species. This represents a preservation and enhancement to impact ratio of approximately 8:1.

The decision on this permit application is based upon the advantages and disadvantages of the proposed action in terms of its individual and cumulative impacts on the following public interest review factors: conservation of natural resources, economics, aesthetics, general environmental concerns, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, wetland values, mineral needs, considerations of property ownership, and in general, the needs and welfare of the public.

I have considered the extent and permanence of the beneficial and/or detrimental effects which the proposed activity is likely to have on the public and private uses to which the area is suited; the extent of the public and private need for the activity; and the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed project.

The following is my summary of the probable individual

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

and cumulative impacts of the project on public interest
factors relevant to this particular permit application. This
impact analysis reflects any modifications and special permit
conditions noted above in Item 2 and attached.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

Public Interest Factor	Impact							
	NA	+++	++	+	O	-	--	---
Conservation of Natural Resources			P					
Economics				P				
Aesthetics				P		T		
General Environmental Concerns			P					
Historic Properties					P			
Fish and Wildlife Values				P				
Flood Hazards					P			
Flood Plain Values					P			
Land Use				P		P		
Navigation					P			
Shore Erosion and Accretion				P		T		
Recreation					P			
Water Supply and Conservation					P			
Water Quality				P	P			
Energy Needs	X							
Safety	X							
Food and Fiber Production	X							
Wetland Values			P					
Mineral Needs	X							
Consideration of Property Ownership			P				P	

KEY

+++	Significant Beneficial Impact	---	Significant Detrimental Impact
++	Substantial Beneficial Impact	--	Substantial Detrimental Impact
+	Minor Beneficial Impact	-	Minor Detrimental Impact
O	No Appreciable Impact	T	Temporary Impact
NA	Factor is not Applicable	P	Permanent Impact

Information of particular relevance to this project and the public interest review is as follows:

Conservation of Natural Resources: The applicant has agreed to

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

place the entire project area and approximately 25 acres of Federal wetlands and associated upland buffer into a conservation easement to be held by a third party. This mitigation is a result of the greater impacts determined by the November 2001 wetland delineation report. This will ensure that this area is left undeveloped in perpetuity. The conservation easement will be held and monitored by a third party approved by the Buffalo District. This represents a substantial increase in the commitment to conserve privately held lands adjacent to SMSNP. This is a substantial and beneficial impact that will be permanent.

Economics: There is no evidence that this project will negatively affect local economics. This project will support continuous nursery operations and offer the applicant business growth opportunities. This in turn will directly benefit the employees of Barnes Nursery, their families, and the clients of Barnes Nursery. This minor and beneficial impact will likely be permanent.

Aesthetics: Aesthetics appreciation is a subjective value. A majority of the public comments regarding this value remarked about the permanent loss of viewing pristine wetlands. During construction, and until vegetation is established on the project site, barren islands will replace the view of undisturbed shoreline. This is a minor detrimental impact that will be temporary.

SMSNP is approximately 380 acres in area and is directly adjacent to the project site. This area will not be appreciably altered by this project and will continue to offer viewing opportunities to the public. In addition, once vegetation is established on the project area the islands will mimic or enhance the shoreline aesthetics. Furthermore, the applicant has agreed to a conservation easement guaranteeing the project area and adjacent lands will remain undeveloped in perpetuity. Overall, there will be a minor and permanent positive impact to aesthetics.

General Environmental Concerns: Project modifications and permit conditions will minimize the potential negative effects of this proposed project. Thus far, this project has resulted in the temporary negative impacts to the project area during construction and while the project has remained idle during the review process. Members of my staff estimated the width of the main channel with a tape measure in September 2000. At this time, the channel was estimated to be approximately 50

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

feet in width. GPS was used to estimate the width of the main channel in November 2001. At this time, the channel was estimated to be approximately 60 feet in width. A site visit conducted by my staff in November 2001 documented that the channel sides had begun to slough on both sides. This resulted in the erosion of the vegetated mudflats and the berm. Channel sides were constructed at a 1:1 slope. Channel side slopes should be rehabilitated to a 2:1 (run to rise) slope to minimize erosion.

The construction of this project has also resulted in the conversion of once barren mudflats and open water habitat to vegetated shallows. This conversion is considered to be a positive impact and will not be counted in the total acres of detrimental impacts to waters of the United States. Therefore, mitigation will not be required.

The loss of approximately 4.2 acres of open water and mudflat habitat will be compensated for with the creation of approximately 0.5 acres of (island) shoreline wetlands, and the preservation and enhancement of approximately 25 acres of coastal marsh and forested wetlands complex (Federal wetlands). The applicant will be held responsible for permit conditions established to monitor the progress of the enhancement and creation efforts. This beneficial impact will be substantial and permanent.

Historic Properties: This project will not result in any appreciable impacts to properties eligible for listing in the National Register for Historic Places.

Fish and Wildlife Values: This project will impact approximately 4.2 acres of open water and mudflat habitat. This represents a small fraction of similar habitat available in East Sandusky Bay. This loss of habitat will be compensated for with the creation, preservation, and enhancement of additional habitat. This beneficial impact to wildlife will be minor and permanent. There will be no appreciable impacts to spawning fish unless submergent vegetation establishes in the channel. However, submerged structures in the main channel may provide additional habitat for fish that immigrate to the main channel. The project will have no appreciable impacts on shorebird habitat. The project will likely create additional habitat for basking or foraging reptiles such as turtles or snakes.

Flood Hazards: This project will not result in any appreciable

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

impacts to flood hazards.

Flood Plain Values: This project will not result in any appreciable impacts to the flood plain.

Land Use: This project will result in approximately 34 acres of wetlands and associated upland buffer being placed into a conservation easement. A conservation easement will guarantee that the shoreline and associated wetlands on private lands remain undeveloped in this area. This is a substantial, beneficial, and permanent impact for property owners who have stated their wishes that the area be preserved for future generations. This is a minor, detrimental, and permanent impact to present or future property owners who wish to develop the area. This will result in a minor, beneficial impact to property owners who are opposed to future development of the area.

Navigation: This project will not result in any appreciable impacts to navigation.

Shore Erosion and Accretion: Construction activities have caused minor, detrimental and temporary impacts by increasing the sedimentation of adjacent waters as the ground was disturbed and the barren berm was eroded by waves and precipitation. This is a normal impact associated with construction activities that can be minimized by using best management practices. The applicant used siltation fencing during the restoration of wetlands and should use siltation fencing during any future construction activities to minimize erosion and sedimentation. Construction activities should be conducted when minimal water levels exist within the project area to further minimize erosion and sedimentation. Islands should also be stabilized appropriately with soil bioengineering techniques.

The construction of islands will offer protection to the shoreline from wave action. This was evident by the construction of the berm. Reducing the wave action will restore the barren mudflats landward of the islands and channel to wetland conditions. Circulation channels between the constructed islands will minimize impacts to water circulation and sediment transport. Vegetated islands and wetlands offer increased protection over barren mudflats against erosion and sedimentation.

Recording depth of the channel and profiles of the channel and

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

islands on a bi-annual basis will help to monitor accretion and erosion rates and predict the need for additional corrective measures.

The project area prior to construction was unstable. Constant wave action was eroding the shoreline and the associated wetlands. This project will have a minor beneficial impact by stabilizing the area by reducing shoreline erosion and increasing shore accretion that will likely be permanent.

Recreation: This project will not result in any appreciable impacts to recreational uses of the project area.

Water Supply and Conservation: This project will substantially increase the water supply for the applicant but it will have no appreciable impact on the public water supply.

Water Quality: This project will increase the NPS pollution abatement function of the area landward of the channel and islands. This will have a minor beneficial impact to water quality that will likely be permanent. This project will also result in constant circulation of water between the lake and the land via the main and feeder channels. Due to the small area draining into the channel and the immense area of Lake Erie, this project will have no appreciable impact on the water quality of Lake Erie.

Energy Needs: Not applicable.

Safety: Not applicable.

Food and Fiber Production: Not applicable.

Wetland Values: As discussed above, this project will result in minor beneficial impacts to the general environment, wildlife habitat, NPS pollution abatement, and erosion control. There will be no appreciable impact on water quality or the ability of the area to store flood waters. The project will stabilize an unstable area. The applicant has agreed to place approximately 34 acres of wetlands and associated upland buffer into a conservation easement and enhance the area with intensive management aimed at removing and replacing invasive plant species. A conservation easement held by a third party and monitoring requirements imposed by the Corps will ensure that these values are protected and maintained to offset the permanent loss of approximately 0.02 acres of Federal wetlands, the temporary loss of 0.5 acres of Federal wetlands,

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

and the permanent loss of 4.2 acres of open water and mudflat
habitat.

Together, this represents a substantial beneficial impact to
wetland values that is permanent.

Mineral Needs: Not applicable

Consideration of Property Ownership: The applicant will not be
able to impact the lands of other property owners including
the state of Ohio unless he receives permission from them. A
conservation easement will guarantee that the shoreline and
associated wetlands on private lands remain undeveloped in
this area. This is a substantial, beneficial, and permanent
impact for property owners who have stated their wishes that
the area be preserved for future generations. This is a
substantial, detrimental, and permanent impact to present or
future property owners who wish to develop the area.

4. Section 404(b)(1) Evaluation: I have evaluated the
proposal with regard to the Guidelines promulgated by the U.S.
Environmental Protection Agency (40 CFR 230) for the
specification of disposal sites for the discharge of dredged
or fill material into waters of the United States. I have
determined the following with regard to the project (this
finding reflects any modifications and special conditions
noted above in Item 2 and attached):

a. The discharge represents the least environmentally
damaging practicable alternative, and if located in a special
aquatic site (40 CFR Part 230, Subpart E) the activity
associated with the discharge requires direct access or
proximity to, or must be located in, the special aquatic site
to fulfill its basic purpose. This finding is based on the
following study of practicable alternatives and my
determination that this project is water dependent:

The applicant has applied for the preferred alternative.
This has been detailed in the Project Background section.
The applicant estimated the cost and potential for each
alternative to meet the primary purpose of providing adequate
water to sustain irrigation operations. These materials were
submitted as evidence to support his claim that no practicable
alternatives exist.

The impacts associated with this alternative are minor and can

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

be offset with mitigation so that the overall impact to the aquatic environment is beneficial. The preferred alternative would cost approximately \$12,000, in addition to the estimated cost of \$50,000 for construction already completed. Thus, the total cost of the preferred alternative is estimated at \$62,000 with annual operating and maintenance (O&M) costs estimated at \$17,200.

A public water supply was proposed as an alternative. The applicant's main objection to this alternative is cost. Cost estimates were cited in a letter written to Mrs. Barnes, dated May 23, 2001, and signed by Mr. Jack Meyers, Sanitary Engineer, Department of Environmental Services, Erie County, Ohio. Mr. Meyers estimated that a \$400,000 connection fee would be necessary to establish service that would meet Mr. Barnes needs. Operating costs were estimated at \$282,000 and there is no known maintenance cost associated with this alternative.

There are no impacts to waters of the United States associated with this alternative. However, this alternative is approximately six times more expensive to construct and approximately 16 times more expensive to operate. Considering the financial burden and a substantial use of public drinking water for irrigation purposes, this alternative is not practicable.

Utilizing the existing NASA water intake and pumping system was proposed as an alternative. According to information provided by the applicant, managers at NASA doubt if the pumps are operable or could be made operable at a reasonable cost. The applicant estimated it would cost \$500,000 to repair the intake pipeline, make pump renovations, and provide a connection to Barnes Nursery. The applicant also estimated annual O&M cost at \$30,000. The applicant also stated that operation of the pump would be loud and disruptive to Sheldon Marsh. OEPA has submitted materials stating that (based on their discussions with NASA) this alternative is not an option because NASA may resume using this pumping system in the future. Therefore, this alternative is not practicable.

Installing an underground pipeline (along the existing project footprint) to Lake Erie was proposed as an alternative. This alternative would utilize the already constructed channel as the bed for a buried pipeline that would continue from the end of the channel until open water was reached. The applicant has two options for the placement

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

of such a pipeline. The first route could run west to Willow Road and then north along Willow Road until Lake Erie is reached. The second route could run diagonally across Sheldon Marsh State Nature Preserve. The applicant has stated that at least one property owner along the first route has rejected this plan and will not allow access to the property. The applicant has stated that the second route was precluded by State laws, which prohibit impacts to dedicated lands. The applicant stated that this alternative was cost prohibitive regardless of the route and did not provide a cost estimate. However, I have used pipeline material (\$82,000), engineering and labor (\$260,000), and operating (\$10,000) estimates provided by the applicant for the Upland Pipe and Pump alternative to estimate the cost of this alternative. I have concluded that this alternative would cost at least \$352,000.

This alternative would result in additional temporary impacts to the bay associated with dredging and the installation of a pipeline. Once the pipeline is installed, the bay bottom could be restored to pre-existing conditions. Future impacts may be necessary for pipeline maintenance. This alternative is approximately 5.5 times more expensive to construct and approximately 60% less expensive to operate than the preferred alternative. Considering the financial burden, this alternative is not practicable.

Directionally boring under the State Nature Preserve was proposed as an alternative. The applicant estimates that construction cost would be in excess of 1 million dollars and O&M costs would be \$30,000. The applicant stated that this option is not technically or economically practicable.

Impacts associated with this alternative may be limited to the intake structure placed on the bottom of Lake Erie. This alternative is approximately 16 times more expensive to construct and twice as expensive to maintain. Considering the financial burden, this alternative is not practicable.

An upland pipeline and pump was proposed as an alternative. This pipeline route would travel west across private property to the west side of the Cedar Point Chaussee, then along the Chaussee to deeper water near the Point Retreat marina. The applicant cited engineering difficulties and prohibitive cost as reasons why this alternative was not practicable. The applicant estimated it would cost \$540,000 to construct the pipeline, install the intake and additional

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

upland pump, and acquire upland easements. The applicant estimates annual O&M costs of \$30,000.

This alternative would result in additional temporary impacts to the bay on the west side of the Chaussee associated with dredging and the installation of a pipeline. Once the pipeline is installed, the bay bottom could be restored to pre-existing conditions. Future impacts may only be necessary for pipeline maintenance. This alternative is approximately 8.5 times more expensive to construct and approximately twice as expensive to operate. Considering the financial burden, this alternative is not practicable.

A groundwater well and pond system was proposed as an alternative. The applicant stated that this option would not provide adequate water for the primary purpose of irrigation. The applicant reported that in 1983 three wells were drilled, each, only producing trace amounts of water and sulfur gas from the shale bedrock. The applicant stated that wells in the area only yield modest amounts of hard, mineral laden water that is of lower quality than Lake water and suggested that discharging this water back into Lake Erie would violate the Anti-degradation Rule. The applicant did not estimate the cost of this alternative.

Assuming ponds and wells were placed in upland positions on the landscape, this option would not impact any waters of the United States. However, this alternative is not a practicable alternative because it will not satisfy the project purpose.

In addition to the alternatives proposed, the applicant has provided materials documenting the existing water conservation practices utilized by the nursery. The applicant has reported that water conservation practices have been in place since 1999 as a result of upgrading their irrigation system with a new pumping system. The new system included the installation of a tile drain network that recovers and recycles up to 60% of the water pumped from East Sandusky Bay and the installation of 46 different irrigation zones to monitor and control water consumption. The new system was installed at a cost of \$175,000. The applicant reported that additional water conservation techniques included experimenting and using growing mediums that require less water to grow plants. Water conservation efforts may reduce the need for water, but these efforts alone do not satisfy the project purpose and therefore are not a practicable alternative.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

The \$175,000 pumping system and associated water conservation practices represent a substantial investment. The applicant's preferred alternative builds upon and utilizes this existing system. Without a project to deliver a constant source of irrigation, the applicant has stated that his nursery will not continue as the multifaceted company that exists today.

b. The activity will not violate applicable State water quality standards or effluent standards promulgated under Section 307 of the Clean Water Act. The activity will not jeopardize the existence of a Federally listed threatened or endangered species or its habitat, nor will it violate the requirements of any Federally designated marine sanctuary.

c. The activity will not cause or contribute to significant degradation of waters of the United States, including adverse effects on human health, life stages of aquatic life and other wildlife dependent on aquatic ecosystems, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values.

d. Appropriate and practicable steps have been taken to minimize the potential adverse impact of the discharge on the aquatic ecosystem. These actions include the following:

The applicant has proposed or agreed to minimize the permanent loss of waters of the United States by:

1) decreasing the length of the main channel by 1,200 feet, from 3,000 feet to 1,800 feet. This will eliminate the need for 1200 feet of islands to protect the integrity of the initially proposed channel. This reduced the proposed permanent loss of open water and mudflat habitat by approximately 2.9 acres.

2) rehabilitating the berm into islands utilizing soil bioengineering techniques. This will minimize the negative effects to the hydrology of the area by facilitating the exchange of water and nutrients between the bay and the shoreline.

3) establishing tall, dense vegetation on the islands and utilizing best management practices to reduce erosion and sedimentation, which can degrade water quality. Tall, dense vegetation will also help to discourage the use of the proposed islands by Canada geese.

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

- 4) restoring the functions and values of approximately 0.5 acres of Federal wetlands impacted by this project.
- 5) mitigate for the permanent loss of approximately 0.02 acres of Federal wetlands, the temporary loss of approximately 0.5 acres of Federal wetlands, and the permanent loss of approximately 4.2 acres of open water and mudflat habitat by creating approximately 0.5 acres of shoreline wetlands (islands), restoring approximately 0.5 acres of Federal wetlands impacted by this project, and preserving and enhancing (by invasive plant management) approximately 34 acres of Federal wetlands and the associated upland buffer (see APPENDIX F).

I have considered the Corps Regulatory Guidance Letter No. 01-1 with regard to compensatory mitigation. Mr. Barnes has taken steps to avoid and minimize the impacts of his project. The mitigation he has agreed to will offset and compensate for the remaining impacts to water of the United States that will result from his project.

e. There is minimal potential for the discharge to have any significant short-term or long-term effects on the physical substrate at the disposal site; on water current patterns, water circulation, and normal water fluctuations; on the kinds and concentrations of suspended particulate in the vicinity of the disposal site; on the level and availability of contaminants; on the structure and function of the aquatic ecosystem and organisms, both individually and cumulatively; and, on the disposal site. There is further a minimal potential for the discharge to have any significant short-term or long-term cumulative or secondary effects on the aquatic ecosystem.

5. I have reviewed the administrative record for this permit application and determined the following with regard to the proposed activity subject to any modifications and special conditions noted above in Item 2 and attached:

a. The act of granting a permit for this work does not constitute a major Federal action significantly affecting the quality of the human environment. A Finding of No Significant Impact is appropriate for this project. Accordingly, an Environmental Impact Statement is not required.

b. I have determined that the discharges of dredged or fill material comply with the USEPA Guidelines at 40 CFR 230

SUBJECT: Environmental Assessment and Statement of Findings
for Department of the Army Permit Application No. 2000-
02170(1)

with the inclusion of appropriate conditions.

c. I have carefully considered and balanced all of the beneficial and detrimental effects relating to the final proposal and find that it will not have a significant individual or cumulative impact on the environment nor will it contravene the public interest. There are no unresolved conflicts as to resource use.

6. The proposal has been analyzed for conformity pursuant to regulations implementing Section 176(c) of the Clean Air Act.

It has been determined that the activities proposed under this permit will not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempt by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons a conformity finding is not required for this action.

Prepared By:

Michael G. Montone
Biologist

Date: November 29, 2001

Reviewed By

Philip D. Frapwell
Chief, Monitoring and Enforcement

Date: November 30, 2001

7. In view of the above findings, I have decided to issue a Department of the Army permit for this work and to include where appropriate certain conditions which will safeguard the environment. This decision is not contrary to any state or local decisions as specified in 33 CFR 320.4(j)(2) and (4). Special Conditions to which the project will be subject are attached to this document.

Approved By:

Glen R. DeWillie
Lieutenant Colonel, U.S Army
District Engineer

Date: _____

SUBJECT: Environmental Assessment and Statement of Findings for
Department of the Army Permit Application No. 2000-02170(1)

LITERATURE CITED

Baldassarre, G.A and E.G. Bolen. 1994 Waterfowl Ecology and
Management. John Wiley and Sons. Inc., New York, NY.

Bellrose, F.C. 1976. Ducks, Geese and Swans of North America,
Second edition. Stackpole Books, Harrisburgh, PA.

Bowman, G.B. and L.D. Harris. 1980. Effect of spatial
heterogeneity on ground-nest depredation. J. Wildl. Manage
44:806-813.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The Birders
Handbook. Simon and Schuster Inc., New York, NY.

Forbes, J.E., W.W. Beck, B.V. Archuleta, and M.W. Bedford. 1994
Dispersal of ring-billed gull nesting colonies in New York
State. Unpublished.

Jones, J.D. 1975. Waterfowl nesting islands development US
Department of the Interior Bureau of Land Management
Technical Note 260. 17pp.

Newton, I. 1979. Population Ecology of Raptors. Buteo Books
Vermillion, SD

Pizzo, J and N. Schroeder. 2001. Using a Plant's Lifecycle
Against Itself: A Timeline for Controlling Reed Canary Grass and
Common Reed (Illinois). Ecol. Restor. 19:184-185.

Wood, P.B., M.W. Collopy, and C.M. Sekerak. 1998. Postfledgling
nest dependence period for bald eagles in Florida. J. Wildl.
Manage. 62:333-339.

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

SPECIAL CONDITIONS

1. The permittee shall assume all responsibility for complying with all Special Conditions.
2. That prior to commencing the authorized work you must notify the District Commander of the dates you intend to commence the project. You must also provide notification of the date of completion.
3. That you are responsible for ensuring that the contractor and/or workers executing the activity(s) authorized by this permit have knowledge of the terms and conditions of the authorization and that a copy of the permit document is at the project site throughout the period the work is underway.
4. That this permit does not authorize the discharge of dredged or fill material into East Sandusky Bay, for the purpose of creating temporary structures that include but are not limited to groins, cofferdams, work pads, laydown areas, and access roads.
5. That no in-water work will be performed between April 15 and August 15 to preclude adverse impacts on the spawning, nursery, and feeding activities of indigenous fish species without first obtaining Department of the Army authorization.
6. That no mechanized work will be performed between June 15 and October 31 to preclude adverse impacts on the activities of fledgling bald eagles (*Haliaeetus leucocephalus*). A visual survey for fledgling eagles shall be performed prior to any mechanized operations. Mr. Charles Herdendorf (or a qualified designated agent) will conduct these surveys daily while mechanized operations are ongoing. All activities shall immediately be halted if any fledgling eagles are observed and you should contact Ms. Megan Sullivan of the U.S. Fish and Wildlife Service at 614-469-6923 for further direction.
7. Sheldon Marsh has been proposed as critical habitat for the piping plover (*Charadrius melodus*), a federally listed endangered species. Activities disturbing the natural behavior of piping plovers may constitute a "take" under the Endangered Species Act. Therefore, a visual survey for piping plovers shall be performed prior to any excavating and grading operations. Mr. Charles Herdendorf (or a qualified designated agent) will conduct these surveys daily while excavating and grading operations are ongoing. All activities shall immediately be halted if any piping plovers are observed and you should contact Ms. Megan Sullivan of the U.S. Fish and Wildlife Service at 614-469-6923 for further direction.
8. That any dredged or excavated material (not used as backfill

SUBJECT: Environmental Assessment and Statement of Findings for
Department of the Army Permit Application No. 2000-02170(1)

removed from East Sandusky Bay shall be properly disposed of on an
upland site and maintained to prevent erosion and other non-point
sources of pollution. All excess dredged or excavated material
shall be disposed of at an upland disposal site approved by the
Corps of Engineers.

SUBJECT: Environmental Assessment and Statement of Findings
Department of the Army Permit Application No. 2000-02170(1)

9. That prior to any excavating, grading, or plowing in waters of the United States as authorized by this permit, you shall install and maintain erosion and sedimentation controls between the project area and the undisturbed areas of mudflat and/or open water habitat to prevent sedimentation into the mudflat and/or open water habitat.

10. All erosion and sediment control practices shall be checked daily to ensure they are not damaged and that they are functioning properly. If damaged, repairs will be completed by the next day. All sediment and erosion control practices shall remain in place until construction is completed and the area is stabilized.

11. Disturbance to the bed and banks of the channel shall be kept to the minimum necessary to complete the project.

12. Dredging operations shall be strictly controlled to minimize spillage and re-suspension of bottom sediment.

13. That as partial mitigation for the loss of waters of the United States including the permanent loss of approximately 0.02 acres of wetlands, the temporary loss of approximately 0.5 acres of wetlands, and the permanent loss of approximately 4.2 acres of open water and mudflat habitat, you have agreed to create approximately 0.5 acres of wetland fringe habitat on 5 islands (as shown on the attached drawings). This area is designated as the Creation Area. You have agreed to use soil bioengineering techniques to stabilize the Creation Area. A soil bioengineering plan must be submitted and approved by the Corps prior to commencement of any construction activities.

14. That as partial mitigation for the loss of waters of the United States including the permanent loss of approximately 0.02 acres of wetlands, the temporary loss of approximately 0.5 acres of wetlands, and the permanent loss of approximately 4.2 acres of open water and mudflat habitat, you have agreed to preserve approximately 34 acres of Federal wetlands and associated upland buffer in a Conservation Easement to be held by a third party (as shown on the attached drawings). This area is designated as the Preservation Area. The conservation easement shall be subject to the following conditions:

a. The conservation easement shall contain language that specifies the acreage of the Conservation Area, and protects and preserves the Conservation Area as perpetual, undeveloped wetlands and upland buffer. The easement shall specifically state that neither the wetland areas nor any upland buffer areas within the easement may be encroached upon by residential or other buildings, roadways, bridges or other structures.

b. The permittee shall designate a third party to hold and enforce the Conservation Easement, subject to written approval

SUBJECT: Environmental Assessment and Statement of Findings for
Department of the Army Permit Application No. 2000-02170(1)

from the U.S. Army Corps of Engineers

c. A draft copy of the Conservation Easement must be submitted to this office within 180 days after validation of this permit. A copy of the executed conservation easement must be submitted within 180 days of commencing construction activities.

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

15. That as partial mitigation for the loss of waters of the United States including the permanent loss of approximately 0.02 acres of wetlands, the temporary loss of approximately 0.5 acres of wetlands, and the permanent loss of approximately 4.2 acres of open water and mudflat habitat, you have agreed to enhance all habitat within the Preservation Area by substantially reducing the presence of *Phragmites spp.* to established criteria over a ten year period.

16. That as partial mitigation for the loss of waters of the United States including the permanent loss of approximately 0.02 acres of wetlands, the temporary loss of approximately 0.5 acres of wetlands, and the permanent loss of approximately 4.2 acres of open water and mudflat habitat, you have agreed to restore approximately 0.5 acres of Federal wetlands that were impacted by the placement of fill and achieve the performance criteria described below (Special Conditions No. 26-28). You completed activities to return this area to pre-construction grade on April 18, 2001. This area is designated as the Restoration Area.

17. That the Creation, Restoration and Preservation Areas are collectively designated as the Mitigation Area.

18. There shall be no construction or placing of buildings, camping accommodations or mobile homes, fences, signs, billboards or other advertising material, or other structures within the limits of the designated Mitigation Area without first obtaining Department of the Army authorization.

19. The permittee shall take all appropriate and reasonable measures to ensure that there shall be no filling, excavating, dredging, mining or drilling, removal of topsoil, sand, gravel, rock, minerals, or other materials, nor any building of roads or change in the topography of the land in any manner within the designated Mitigation Area without first obtaining Department of the Army authorization.

20. The permittee shall take all appropriate and reasonable measures to ensure that there shall be no removal, destruction or cutting of non-invasive, native vegetation, spraying with herbicides, grazing of domestic animals, or disturbance or manipulation of the designated Mitigation Area without first obtaining Department of the Army authorization.

21. That at the request of an authorized representative of the Buffalo District, U.S. Army Corps of Engineers, you shall ensure access to the project site and the mitigation parcels to determine compliance with the conditions of this permit.

22. That you shall monitor the success of plant management within the designated Mitigation Area twice annually (April 15 - May 15 and September 1 - September 30), so as to characterize the

SUBJECT: Environmental Assessment and Statement of Findings for
Department of the Army Permit Application No. 2000-02170(1)

dominant vegetation in the designated Mitigation Area at different
times, and under different hydrological conditions, during the
growing season.

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

23. That you shall monitor the sedimentation and erosion of the project site (islands and channels) once annually, with at least 6 months in between each sampling, so as to characterize the erosion and sedimentation in these areas. Monitoring reports shall plan view drawings of the islands and channels drawn to scale, and a series of photographs showing all islands and the area landward (south) of the channel. Photographs must be taken from the same location each year. Monitoring reports shall also include typical profile drawings of:

- a) the islands and channel taken at the midpoint of each island.
- b) the channel taken between the islands
- c) the feeder channel taken near each end point and the midpoint.

24. That Monitoring Reports for the creation, restoration and project areas shall be forwarded to the Buffalo District, U.S. Army Corps of Engineers according to the following protocol:

a. Baseline Report: Due on or before December 31 in the year of completion of all construction activities. The Baseline report must include an "as-built" topographic and hydrographic survey of the project area (feeder channel, main channel, and islands). [Note: for purposes of special condition No. 24, "all construction activities" means all activities associated with site preparation, excavation, plowing, grading, soil bioengineering, and the removal of any existing structures and/or fills.]

b. First Year Report: Due on or before December 31 in the year of the first anniversary of completion of all construction activities. The first year report must include the data collected from annual monitoring required in Special Conditions No. 22 and 23, and a report documenting the plant management techniques used to reduce the presence of Phragmites within the designated Mitigation Area.

c. Mid-term Reports: Due on or before December 31 in the year of the third, fifth, and seventh anniversary of completion of all mitigation construction activities. The Mid-term Reports must include the data collected from annual monitoring required in Special Conditions No. 22 and 23, and a report documenting the plant management techniques used to reduce the presence of Phragmites within the designated Mitigation Area. The mid-term reports must also describe any potential problems with achieving the performance criteria described below (Special Conditions No. 26-28), and any and all corrective actions taken. Corrective actions may include, but are not limited to: re-grading to achieve necessary hydrology or slope, planting of hydrophytic vegetation, and control of invasive plant species.

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

d. Final Report: Due on or before December 31 in the year of the tenth anniversary of completion of all construction activities. The Final Report must include the data collected from annual monitoring required in Special Conditions No. 22 and 23, and a report documenting the plant management techniques used to reduce the presence of Phragmites within the designated Mitigation Area. The Final Report must include a discussion of whether the performance criteria were achieved and any further recommendations for remedial measures, if necessary.

25. If the mitigation monitoring reports and/or Conservation Easement draft and/or copy of the executed conservation easement required under these conditions are not submitted by the specified dates, unless a time extension is approved in writing by the Corps of Engineers, the permittee shall pay stipulated penalties in the amount of \$100.00 per day for each day past the submittal date. Such funds shall be submitted by check made payable to "The Finance and Accounting Officer," and forwarded directly to the Office of Counsel, U.S. Army Corps of Engineers, Buffalo District, 1776 Niagara Street, Buffalo, New York 14207-3199.

26. That the following species shall be excluded from all project planting and landscaping within 100 feet of the project area and preservation area:

Herbs:

Alliaria petiolata
Glyceria maxima
Lythrum salicaria
Phalaris arundinacea
Phragmites spp.
Polygonum cuspidatum
Typha latifolia, T. angustifolia, T. x glauca
Echinochloa crusgalli

-Woody Plants:

Eleagnus angustifolia
Lonicera tatarica, L. morrowii, L. xylosteum
Populus alba
Rhamnus cathartica, R. frangula
Rosa multiflora
Solanum dulcamera

27. That corrective measures shall be implemented to preclude the growth of the following invasive plant species should they appear within the wetland mitigation areas: *Alliaria petiolata*, *Phalaris arundinacea*, *Phragmites spp.*, *Solanum dulcamera*, *Rhamnus spp.*, *Rosa multiflora*, *Polygonum cuspidatum*, *Lythrum salicaria*, *Typha angustifolia* and *Typha x glauca*.

28 That at the end of the tenth year post completion of all

SUBJECT: Environmental Assessment and Statement of Findings for Department of the Army Permit Application No. 2000-02170(1)

construction activities, the designated Mitigation Area shall be vegetated with a minimum of 80% areal cover of hydrophytic vegetation, excluding *Myriophyllum spicatum*. In addition, less than 15% areal cover of the mitigation area shall be vegetated with the following invasive species: *Lythrum salicaria*, *Phragmites spp.*, *Phalaris arundinacea*, *Solanum dulcamera*, *Rhamnus frangula*, *Typha angustifolia*, and *Typha x glauca*. In the event that these criteria are not met, the applicant shall undertake remedial actions identified by the District Commander. These actions may include, but are not limited to, corrective actions described above, or an alternative wetland mitigation plan to be implemented on the same or an alternate site.

SUBJECT: Environmental Assessment and Statement of Findings for
Department of the Army Permit Application No. 2000-02170(1)

29. That you shall install an impermeable weir structure or an alternative device to ensure that a minimal water level of 2 feet is maintained in the main channel. Placement of a weir structure or design of an alternative device is subject to written approval from the U.S. Army Corps of Engineers. The weir structure or alternative device must be installed prior to any excavating and grading activities.

