

ENVIRONMENTAL ASSESSMENT  
ON  
ENVIRONMENTAL RESTORATION  
SOUTHERN CREW, CRITICAL PROJECT  
LEE COUNTY, FLORIDA  
REVISED AUGUST 1999

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**ENVIRONMENTAL ASSESSMENT**  
**ON**  
**ENVIRONMENTAL RESTORATION**  
**SOUTHERN CREW, CRITICAL PROJECT**  
**LEE COUNTY, FLORIDA**

**1 PROJECT PURPOSE AND NEED**

**1.1 PROJECT AUTHORITY.**

**1.1.1 INITIAL AUTHORIZATION.**

§528 of the Water Resources Development Act of 1996 (WRDA 96) authorizes the Secretary of the Army "to develop specific water quality related projects features which are essential to Everglades restoration." The section "authorizes an appropriation of \$75 million over three fiscal years for the construction of projects determined by the Secretary to be critical to the restoration of the Everglades."

**1.1.2 LETTER REPORT.**

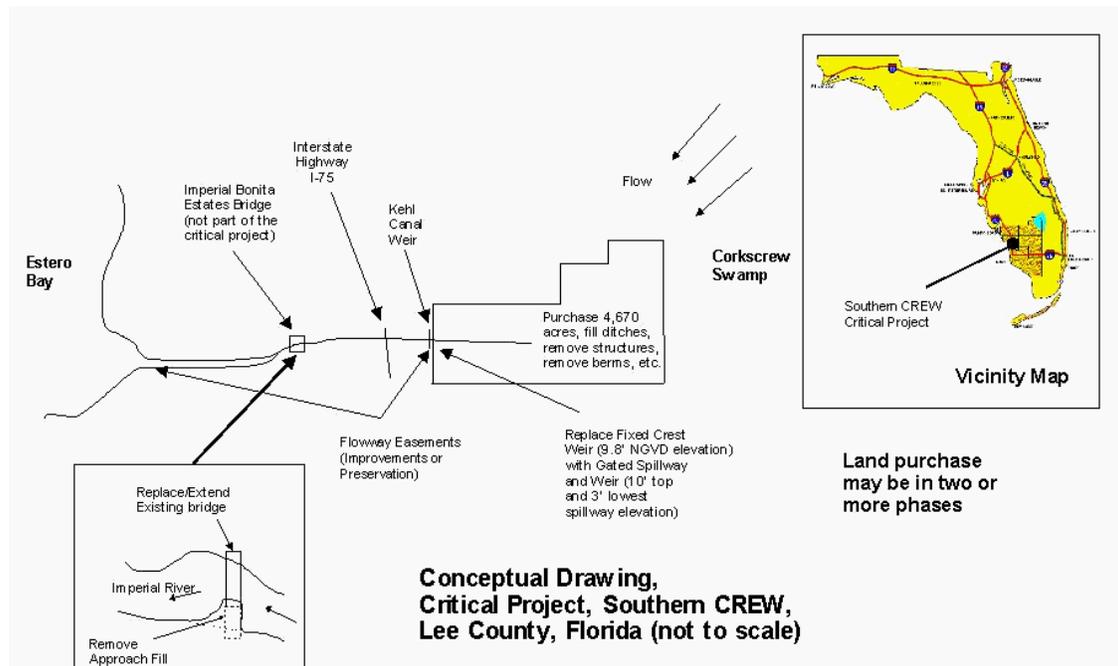
The Letter Report for the Southern CREW project was approved by Chief of Engineers by memorandum of 17 June 1998.

**1.1.3 APPROPRIATION.**

While WRDA 96 authorizes the "critical projects" it does not include appropriation of funds. Funding of the critical projects would come from annual appropriations from Congress to the Corps of Engineers.

**1.2 PROJECT LOCATION.**

The Southern CREW (Corkscrew Regional Ecosystem Watershed) critical project is located in southwest Florida, east of highway I-75 and southeast of Ft. Myers in southern Lee County, Florida (see figure 1, vicinity map and plan view and figure 2, aerial photograph and plan view).



**Figure 1: Plan View and Vicinity Map Southern CREW Critical Project**



**Southern CREW, Critical Project**  
 (Replace weir on Kehl Canal, remove other unnatural features, & do downstream flowway easements/work.)

### 1.3 PROJECT NEED OR OPPORTUNITY.

The project area is a flat and flood prone area. It is currently being developed for single-family home sites on 5 to 10 acre plots. A small portion of the area is also being used for pasture, row crops, and other agricultural activities. A mobile home park is located within the project boundaries. The ongoing development is affecting surface water storage and flow. The development is resulting in increased hazards to flooding and contamination of surface and ground waters. The proposed project is to restore the ecosystem of the project area. This restoration would benefit water supply and water quality, reduce flood hazards to private property, and improve habitat for protected species and other ecological resources.

### 1.4 AGENCY GOAL OR OBJECTIVE.

To improve or restore the hydrology and ecology of the project area (along with resulting benefits to upstream and downstream lands).

### 1.5 RELATED ENVIRONMENTAL DOCUMENTS.

#### 1.5.1 Nationwide Permits.

The proposed action has been determined to qualify for authorization by one or more Nationwide Permits under the Corps regulatory permit program. The Nationwide permits were issued for a period of 5 years in accordance with Section 404(e) of the Clean Water Act. In addition, activities requiring a permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 may be authorized by certain Nationwide permits. The Nationwide permits are issued by the Chief of Engineers for application throughout the United States. Since the Nationwide permits are valid for a period of 5 years, the Chief of Engineers must periodically reissue them. These actions are announced in the Federal Register (applicable announcement on December 13, 1996) and become part of the Code of Federal Regulations (33 CFR 330 and its Appendix A). The Nationwide permit reissuance is conducted in compliance with the National Environmental Policy Act (an Environmental Assessment is prepared by the Chief of Engineers). In addition, the nationwide permits must also comply with other applicable environmental requirements. The applicability of the Nationwide permits is further explained in correspondence between the project's non-federal proponents and the Corps Regulatory Division (see Appendix IV and Appendix D of Appendix III).

#### 1.5.2 SW Florida EIS (Improving the regulatory process).

The Southern CREW Critical Project is located within the geographic area of consideration of this EIS. The purpose of this EIS is to address impacts of the Corps' regulatory permit program and examine ways to improve the program for that area.

#### 1.5.3 C&SF Restudy Feasibility Report and EIS.

The Southern CREW Critical Project is within the region being examined under this Feasibility Report and EIS. The purpose of this EIS is to re-examine the Central and Southern Florida project and what might be done to mitigate the impacts or enhance the benefits of the project.

#### 1.5.4 FISH AND WILDLIFE COORDINATION ACT REPORT.

For this Critical Project, the Corps requested a Fish and Wildlife Coordination Act (CAR) pursuant to section 2(b) of the Act (copy in Appendix III). This report may not be legally required if the components of the project are authorized by a Department of the Army Permit (nationwide or individual permit(s)). Because FWS had some concerns over this project, we decided to obtain a "discretionary" CAR (part 7-43 of ER 1105-2-100). We did this because we "determined that continued involvement of the FWS \*\*\* would better assure public and agency acceptance" of the project.

### 1.6 DECISIONS TO BE MADE.

This Environmental Assessment will evaluate whether to improve or restore the hydrology and ecology of the project area (along with resulting benefits to upstream and downstream lands) and, if so, evaluate alternatives to accomplish that goal.

### 1.7 SCOPING AND ISSUES.

#### 1.7.1 ISSUES EVALUATED IN DETAIL.

The following issues were identified be relevant to the proposed action and appropriate for detailed evaluation: (1) impacts to protected species occurring or potentially occurring within the project and affected area (i.e., Florida Panther, Florida Black Bear, and Wood Stork); (2) impacts of hydrologic manipulation on fish, wildlife, and other ecological resources; (3) potential presence and/or release of hazardous, toxic, or radioactive waste (HTRW); (4) excessive drainage or flooding that might encourage exotic vegetation or harm desirable native vegetation; (5) potential flooding or excessive drainage of project lands as well as lands upstream and downstream of the project; (6) socio-economic impacts to individuals, families, and businesses displaced by the project; and (7) socio-economic impacts to the regions hydrology, water quality, flood control, and ecological well-being.

#### 1.7.2 IMPACT MEASUREMENT.

The following provides the means and rationale for measurement and comparison of impacts of the proposed action and alternatives. In addition to removing structures, roads, culverts, berms, ditches, etc. from the project area; the appropriate management of surface water on the site will be required to achieve ecological and hydrologic improvement or restoration. Some prediction of water depths and period of inundation over the project area and surrounding affected areas is required. Ecological resources (including protected species, native vegetation, water quality, flood plain storage, and

wildlife habitat) are sensitive to surface and ground water manipulation as addressed later in this Environmental Assessment.

### 1.7.3 ISSUES ELIMINATED FROM DETAIL ANALYSIS.

The following issues were not considered important or relevant to the proposed action: The proposed action and alternatives would not likely impact historic resources, coral reefs, energy or mineral resources, wild and scenic rivers, or native Americans. The proposed action and alternatives would have only minor impact on climate, soils, air quality, noise, economic base, housing, or population dynamics.

## 1.8 PERMITS, LICENSES, AND ENTITLEMENTS.

A portion of the project area consists of wetlands and other waters of the United States subject to Section 404 of the Clean Water Act and possibly Section 10 of the Rivers and Harbors Act of 1899. As such, certain activities require a permit from the Corps of Engineers (i.e., discharge of dredged or fill material in wetlands or other waters of the United States or work or structures conducted in navigable waters of the United States). Replacement of the Imperial Bonita Estates Bridge may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. At the state level an Environmental Resources Permit would be required for much of the proposed activity.

## 2 ALTERNATIVES

The alternatives section is the heart of this EA. This section describes in detail the no-action alternative, the proposed action, and other reasonable alternatives that were studied in detail. Then based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decisionmaker and the public.

### 2.1 DESCRIPTION OF ALTERNATIVES.

#### 2.1.1 CHANGE IN OPERATION OF WEIR

The Kehl Canal Weir is a water control structure designed to maintain water in the Kehl Canal upstream of it. This fixed crest weir was replaced with a gated structure which allows easier manipulation of flows and water levels. While it is easier to control water flow with the new weir, the operation of the weir is unchanged from that of the old weir. This is to avoid any increase in upstream or downstream flooding of private property and in order to comply with regulatory permitting requirements (see letter of July 29, 1998, from the Corps to the South Florida Water Management District in Appendix D of Appendix III). A change in operation of the weir would be difficult unless appropriate real

estate interest are acquired for private property that might be at risk for additional flooding.

#### 2.1.2 PURCHASE OF UP TO 4,670 ACRES

These lands are located upstream of the weir and are associated hydrologically with the Corkscrew Swamp located nearby and upstream. Purchase of private properties and limiting human disturbance of the land (residential and agricultural activities) would provide habitat for plants, fish, and wildlife. In addition, the purchase of this land is necessary to avoid the conflict between private land use and restoration of surface water hydrology in the area. It may become necessary to prioritize portions of this land and acquire it in phases.

#### 2.1.3 REMOVAL OF UN-NATURAL LAND FEATURES

Removal of un-natural features (such as buildings, roads, culverts, canals, and berms) would help to restore natural hydrology to the project and surrounding areas. Restoration of more natural hydrology and ecology of the project area would benefit control of water in the Corkscrew Swamp watershed and provide additional contiguous habitat.

#### 2.1.4 LESS THAN FULL BUY-OUT

In response to land owner reluctance to sell, various land purchase alternatives are examined for cost and benefit. These land acquisition alternatives include (1) willing sellers only, (2) phase I plus the willing sellers in phase II, (3) phase I and II less certain properties on Bonita Beach Road, (4) complete buy-out (phase I and II), (5) complete buy-out plus restoration of Kehl Canal and removal of weir, and (6) excavate a canal to the bay.

#### 2.1.5 NO ACTION ALTERNATIVE (STATUS QUO)

At the present time the weir has been replaced but its operation remains the same as that of the old weir. The Imperial Bonita Estates Bridge has been or is being replaced (along with removal of the approach fill which was in the flood plain of the Imperial River). This allows for better flow in the river. Without one or more of the above measures, the ability to restore or improve the hydrology and ecology is limited.

### 2.2 ISSUES AND BASIS FOR CHOICE

The underlying issues for a decision on this project is to provide project benefits (the restoration of ecosystem values and the improvement of water supply and quality) and not worsen flooding of private property. Ecosystem values would include improved water quality, more natural hydroperiod and flow patterns, habitat for protected and other native species, etc. The selected plan would be one that provides an appropriate

balance of ecological benefits with an acceptable level of costs and adverse side-effects.

### **2.3 PREFERRED ALTERNATIVE(S)**

The project would consist of the following features: (1) removal of the Imperial Bonita Estates one-way bridge (44' long), removal of the associated approach fill, and replacement with a two-way bridge (88' long); (2) replacement of the Kehl Canal Weir; (3) change in regulation schedule of the Kehl Canal Weir (the current weir with a fixed crest elevation at 9.8' would be replaced by a weir with a gated spillway adjustable from 10' maximum elevation to 3' minimum water release elevation); (4) purchase of 4,670 acres (which may be in two or more phases); (5) filling of agricultural ditches and removal of structures (buildings, septic tanks, road fills, culverts, etc.) on the 4,670 acres; and (6) obtain easements or other interest in the flood-way downstream of the Kehl Canal Weir in order to improve or preserve the flood-way. Features 1 and 2 above are considered minor activities authorized by nationwide permits. In addition, item 1 is being pursued but is no longer part of the Critical Project. Item 2 remains part of the Critical Project but is authorized by nationwide permit and therefore, has met environmental requirements through the regulatory permitting process. Items 3, 4, 5, and 6 were subsequently determined to also be authorized by nationwide permit. Alternatives considered would be (1) levels of size intensity of these items, (2) various combinations of these items, or (3) other alternatives to these items.

### **2.4 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION**

A change in operation of the weir that would subject private property to added risk of flooding was eliminated as a reasonable alternative unless proper real estate interest were obtained. Also considered was a drainage canal to the bay. This alternative would help alleviate flooding but it is costly and would likely be detrimental to water quality, water supply, and other ecological resources (see tables 1 and 2). However, some flow way improvements in the Imperial River are planned in conjunction with this project (see Section 2.3, preferred alternative).

### **2.5 ALTERNATIVES NOT WITHIN JURISDICTION OF LEAD AGENCY**

The South Florida Water Management District has regulatory responsibility for management of water resources. An Environmental Resource General Permit (No. 36-03383-P) was issued to Lee County for the replacement and operation of the weir (see copy in Appendix V). The U.S. Environmental Protection Agency has a lead Federal responsibility under the Clean Water Act. The U.S. Army Corps of Engineers has primary responsibility for evaluating permit applications under Section 404 of the act for the filling of wetlands and other waters of the United States. Requirements for other sections of the act (i.e., section 401 for certification of water quality and section 402 concerning permits for wastewater or storm water discharges under the NPDES program) may, in many cases, be satisfied through approved programs administered by

the state (i.e., Florida Department of Environmental Protection or the South Florida Water Management District). The state of Florida has several such approved programs.

## 2.6 COMPARISON OF ALTERNATIVES

Table 1 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives. The five alternatives considered include (1) no action (*status quo*); (2) alternative A with a change in the operation of the weir from the existing operation; (3) alternative B which involves the purchase of up to 4,760 acres (possibly in phases); (4) alternative C which involves the removal of structures, berms, ditches, roads, and other unnatural features from the up to 4,760 acres; and (5) a combination of alternatives A, B, and C which is the preferred plan. In addition in response to land owner reluctance to sell, various land purchase alternatives are examined for cost and benefit (see table 2).

## 2.7 MITIGATION

Management of surface waters is essential for the success of the environmental restoration project. Project monitoring and careful manipulation of water is required to avoid adverse impact to protected species and other ecological resources. In addition, the area should not be drained or flooded in a manner that encourages undesirable exotic species or damages desirable native species. The water will be managed to benefit the restoration of the environment and improve surface and ground water supplies. However, the water will also be managed in a way that avoids an increase in flood hazard to upstream and downstream property in private ownership. Upstream lands would be purchased and artificial structures and features removed. Until such time, the weir operation would not change to avoid increasing the flooding hazard to these lands while in private ownership.

Use by the Florida Panther is somewhat limited by residential and agricultural activities at the present time. Elimination of these activities may benefit the species. However, if the upstream lands to be purchased were to be excessively flooded, it would make it less than optimally desirable for the species. Changes in hydroperiod (period of inundation with surface water) along with other factors like fire could also result in changes in the character of the ecosystem (i.e., pine woods/wet prairie/cypress dome complex, cypress swamp, hardwood swamp, aquatic marsh) (Craighead 1971).

In addition, the suitability of habitat for foraging, roosting, and nesting of the Wood Stork is very sensitive to the timing and extent of flooding (U.S. Fish and Wildlife Service, 1989 and 1990). For example successful nesting is partially dependent upon inundation under nest trees to thwart predation of the nests. Also, successful feeding is partially dependent upon receding surface waters to concentrate the food source (fish and other small aquatic animals) into shallow pools.

Appropriate monitoring (species, habitat, and hydrology) would provide information necessary for the management of surface water to benefit ecological resources and water supply management (while preventing unacceptable flooding impacts of nearby private lands). A monitoring and management plan developed by the sponsor in cooperation with the Corps and other Federal and state agencies would be an appropriate component of the project's Operation and Maintenance Manual (for additional information, see the Fish and Wildlife Coordination Act Report in Appendix III). This will be required to ensure the environmental benefits of the project, to protect environmental resources, and to avoid increasing the flood hazard to private property (see also section 4.31 on environmental commitments).

The National Marine Fisheries Service expressed a concern over the blockage of fish movement as related to the operation of the new weir (see copy of letter appended to the report in Appendix III). The specifics of the impact or any specific solution to fish movement was not identified. However, there is likely little or no difference between the impact of the old weir (pre-project or without project condition) and the new weir with respect to blockage of fish movement. If detrimental blockage of fish movement by a weir is verified at some future date, there may be opportunity for ecological enhancement or restoration through modification of the weir or its operation. However, this is beyond the scope of current project plans and purposes.

Other efforts to mitigate impacts to the human environment are discussed in sections 3.15 (flood control), 4.31 (environmental commitments), and 4.32 (compliance with environmental requirements).

Table 1: Summary of Direct and Indirect Impacts

ALTERNATIVE Environmental Factor	Combined A,B, & C Preferred Alternative	Alternative A, Change Operation of Weir	Alternative B, Purchase up to 4760 Acres	Alternative C, Remove Features from Land	Drainage Canal to Bay	No Action Status Quo
PROTECTED SPECIES	Improve habitat if operated properly	Depends on operation & resulting hydrology	Reduce human interactions	Improve habitat	Continued loss of habitat	Continued loss of habitat
FISH AND WILDLIFE RESOURCES	Should improve habitat	Depends on operation & resulting hydrology	Reduce human interactions	Improve habitat for most wildlife	Continued habitat loss, Impact bay estuary	Continued loss of habitat
VEGETATION	May benefit (see A,B,&C)	Depends on operation & resulting hydrology	May allow recovery of natural vegetation	More suitable for native vegetation	Continued loss of habitat	Continued loss of natural vegetation
WATER QUALITY	Expected to benefit (see	Depends on operation & resulting	Reduce pollutant sources	Improve retention time & water qual.	Continued degradation, effect salinity	Continued degradation

	A,B,&C)	hydrology			and water quality in bay	
HISTORIC PROPERTIES	No impact expected at this time	No impact expected at this time	No impact expected at this time	No impact expected at this time	Impact unknown at this time	No impact expected at this time
RECREATION	See A,B,&C	Depends on operation & resulting hydrology	Improve wildlife observation opportunity	Improve wildlife observation opportunity	Limited recreation use	Continued limited recreational use
AESTHETICS	See A,B,&C	Depends on operation & resulting hydrology	Stay more or less the same	May improve aesthetics	Stay more or less the same	Stay more or less the same
FLOOD CONTROL	See A,B,&C	Depends on operation & resulting hydrology	Less Private Property to flood	Improve surface water management	Better drainage into the Bay	More items to flood with further development

Table 2: Comparison of features, benefits, and cost of various land acquisition alternatives\* for the Southern CREW Critical Project.

Alternative	Project Features	Benefit **	Project Cost
<b>No Action</b> <b>(Status Quo, existing land purchases)</b>	Limited restoration, very limited feature removal (1 house)	Slightly reduce intensity of further degradation	No Federal Participation \$2.2 million
<b>Excavate a canal to the bay</b>	Limited restoration, very limited feature removal	Increase flood protection, decrease water supply	No Fed \$12.7 million construction cost only
<b>Minimum Buy-Out (Willing Sellers Only)</b>	Limited restoration, limited road/feature removal	Some Initial improvement Reduce further degradation***	\$ 10 million (Federal cost shared)
<b>All Phase I + Willing sellers within Phase II</b>	Restore 2720 acres contiguous to land already in state ownership	Initial and some sustained improvement. Reduce or avoid further degradation	\$ 12 million (Federal cost shared)
<b>Phase I and II Buy-Out Less Properties on Bonita Beach Road****</b>	Restore 4030 contiguous acres (Project less 640 acres of more developed area along road)	Initial and sustained improvement.	\$ 26 million (Federal cost shared) includes the flow way
<b>Phase I and II (Complete Buy-Out)</b>	Restore entire 4670 acres (less Kehl Canal)	Greatest Initial and sustained improvement	\$ 30 million (Federal cost shared)
<b>Complete Restoration &amp; Buy-Out*****</b>	Restore 4670 acres (including Kehl Canal)	Without canal & weir, less control of hydrology	\$ 32 million (Federal cost shared)

\*Alternatives on nearby lands were considered undesirable because the adjacent and nearby lands that might present a benefit were either already in a conservation state or were already heavily developed for agriculture, residential, or commercial use.

\*\*Restoration benefits including water quality, flood control, habitat restoration, and water supply.

\*\*\* If the entire area is not to be restored the number of willing sellers will drop dramatically and infrastructure capital improvements for the area will be required. The criteria to address would be that the groundwater table for this area is between ground level and 2' above. And to improve the roadway system to a local road level that the county would maintain would be costly.

\*\*\*\*This alternative does not contain certain occupied properties on and near the public and paved portion of Bonita Beach Road in land sections 32 and 33. Section 33 would contain a golf course community.

\*\*\*\*\*This alternative would include elimination of maintenance of Kehl Canal, partial filling of the canal (complete filling would not be possible since this is a natural flow way), and removal of the weir.

### **3 AFFECTED ENVIRONMENT**

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no-action" alternative forms the base line conditions for determining the environmental impacts of the proposed action and reasonable alternatives.

#### **3.1**

#### **3.2 GENERAL ENVIRONMENTAL SETTING**

The project is located in the vicinity of Corkscrew Swamp Sanctuary, Flint Pen Strand, and Bird Rookery Swamp (See Figure 2, Map of Environmental Resources). The restoration of the project land to a more natural state would add to a continuum of habitat in conjunction with these other adjacent or nearby natural areas. The project site consist of a complex of pine woods, and cypress with grassland and scrub present in more disturbed areas. The area has experienced agricultural and residential development to some extent along with roads, ditches, berms, and other structures and features. A substantial portion of the area has been invaded by exotic vegetation,

especially Melaleuca (*Melaleuca quinquenervia*) and Brazilian Pepper (*Schinus terebinthifolius*).

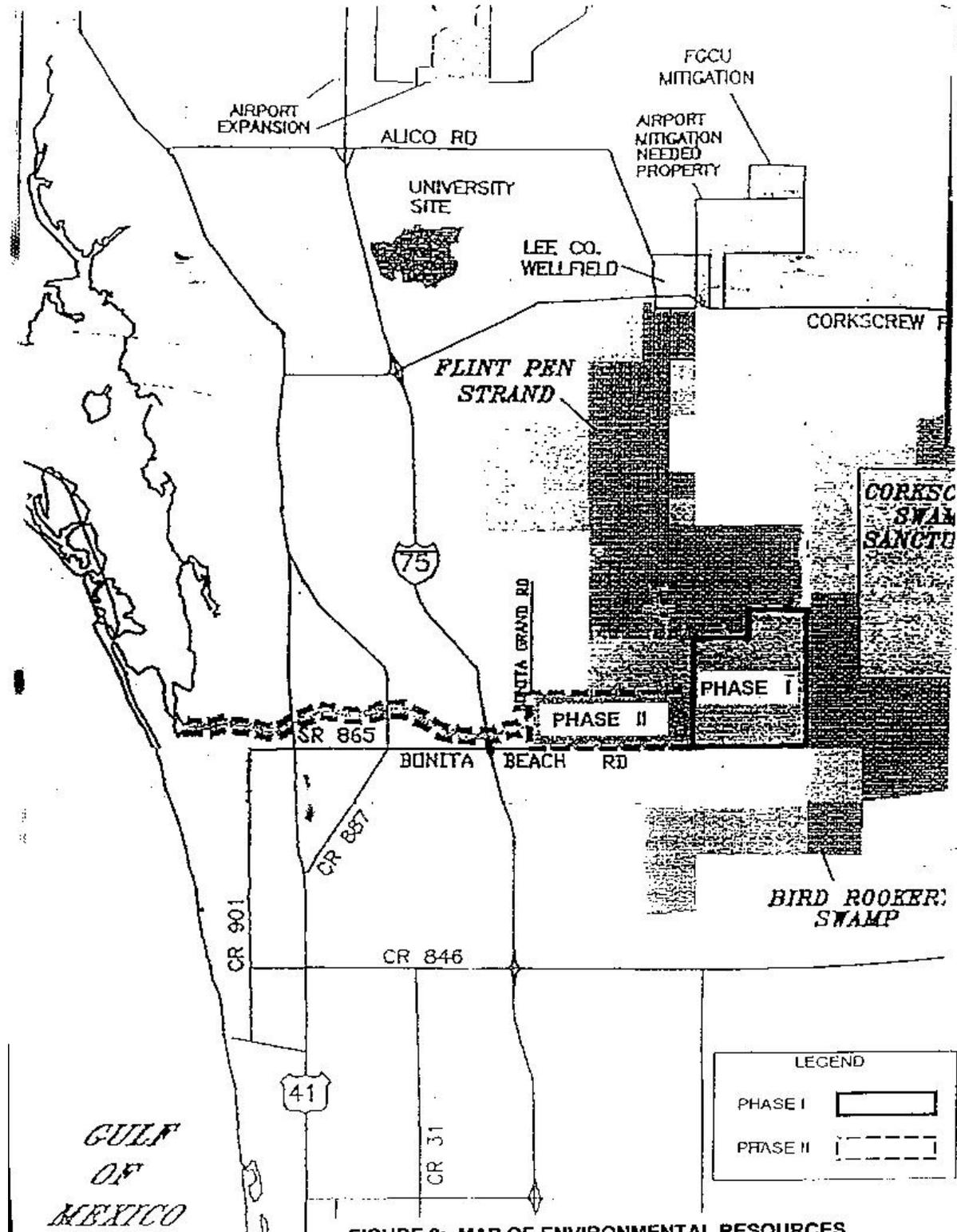


FIGURE 2: MAP OF ENVIRONMENTAL RESOURCES

## 3.2 VEGETATION

See general description in the above section.

## 3.3 THREATENED AND ENDANGERED SPECIES

### 3.3.1 Wood stork

The wood stork (*Mycteria americana*) is Federally listed as an endangered species. The species has specific habitat requirements which depend heavily on the character and hydrology of the land. Actual and potential availability of suitable habitat within or near the project are described below (see also the Fish and Wildlife Coordination Act Report in Appendix III)

#### 3.3.1.1 Nesting Habitat

The wood stork typically nests in established nesting colonies. The wood stork typically selects a wooded area with trees of sufficient height and strength to support the nests and provide protection from predators. It is also important that the ground be inundated during the nesting period. Inundation sufficient to support alligators discourages predators (such as the raccoon). The wood storks tend to establish a nesting colony and use it for many years. They may abandon the nesting site if conditions become unfavorable. They may also establish a new nesting colony site if they find a suitable area. In addition to avoiding predators, the wood stork seeks nesting sites within a suitable distance of a reliable food source to support the nesting activity. Nesting sites are located within the Corkscrew Swamp Sanctuary within a few miles of the proposed project lands. While no nesting colony is located within the project lands at this time, it is possible that conditions would become favorable for such with the removal of agricultural and residential activities and ecological restoration of the area.

#### 3.3.1.2 Feeding Habitat

It is likely that the proposed project lands are used by the wood stork for feeding. The wood stork typically feeds on fish and other small aquatic organisms. Feeding success is best following a period of receding waters with concentration of food in shallow pools.

#### 3.3.1.3 Roosting/Resting Habitat

Larger trees on the project land probably provide a roosting or resting area for a few wood storks. Use of the area would likely increase with the removal of agricultural and residential activity and ecological restoration of the site.

### 3.3.2 Florida Panther

The proposed project land is within the range of panther telemetry locations. See the Fish and Wildlife Coordination Act Report in Appendix III for more detailed discussion.

The panther would tend to avoid the agricultural and residential activity in the area. The panther tends to avoid spending much time in areas inundated with water. As such the species is also affected by the duration of the hydroperiod.

### 3.3.3 Other Protected Species

Other protected species which may occur on the project lands include the Florida black bear (candidate for federal listing) and the Big Cypress fox squirrel (state listed and under review for federal listing). See the Fish and Wildlife Coordination Act in Appendix III for more detailed discussion of these species.

## 3.4 OTHER FISH AND WILDLIFE RESOURCES

The project area supports or potentially supports a number of other species including fish, other aquatic organisms, and a variety of wading and migratory birds.

## 3.5 COASTAL BARRIER RESOURCES

Project lands are located several miles inland. No designated coastal barrier resource would be directly impacted.

## 3.6 WATER QUALITY

Current water quality in the area is affected by agricultural and residential use of the project land. These activities tend to add pollutants and decrease retention time for surface waters. The quality and amount of sub-surface waters is also affected.

## 3.7 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

There are no known sources of hazardous, toxic, or radioactive waste on the project lands. The preliminary assessment indicated no evidence of hazardous, toxic or radioactive waste (HTRW) on the project lands. During land procurement and project construction further HTRW awareness should be practiced.

A portion of the property considered for this project was agricultural land. Agricultural activities are exempt from Resource Conservation Recovery Act (RCRA) as section 40 CFR 261.4 (b)(2)(ii) provides an exclusion. Therefore, the handling, storage and reporting requirements established by RCRA are not applicable. Farm chemical storage and mixing sites are regulated by Federal Insecticide, Fungicide and Rodenticide ACT (FIFRA). The chemicals typically used by farmers are pesticides, fuels and herbicides. Spills or problems associated with farm spill sites are not documented on the HTRW database search conducted during this assessment did not reveal their existence.

## 3.8 AIR QUALITY

The project area is in compliance with ambient air standards.

### **3.9 NOISE**

There is no significant source of noise in the area. Noise associated with agricultural, residential, and other human activity may be sufficient to disturb certain wildlife in the area.

### **3.10 AESTHETIC RESOURCES**

Some of the undeveloped project areas possess moderate to good visual aesthetic qualities. The residential and agricultural development within the project area possess low to moderate visual aesthetic qualities.

### **3.11 RECREATION RESOURCES**

Recreational use of the project lands is probably limited to private residential opportunities. No public recreational facility is located on the project site. Nearby natural areas, including the Corkscrew Swamp sanctuary, are used by birdwatchers and sightseers.

### **3.12 NAVIGATION**

Project lands and waters are typically shallow providing little opportunity or potential for navigation.

### **3.13 HISTORIC PROPERTIES**

The project lands are typically flat low and flood prone. Historic use of these lands would be limited as compared to areas closer to the coast, near navigable waterways, or on less flood prone sites. However, coordination with the State Historic Preservation Officer will be conducted either through the Public Notice of the application for a permit from the Corps or by separate correspondence. This may result in additional investigations through literature research or site investigations.

### **3.14 WAY OF LIFE**

A number of individuals living (or planning to live) on lands within the project boundary object to the loss of their land to this project. Many prefer to live here for various reasons including the quiet wooded setting; relatively low cost of the land; the rural or farm-like lifestyle; opportunity for hunting, fishing, and other outdoor activities for the children and family; and other reasons (see correspondence in Appendix IV). In an area such as southwest Florida, there is a high demand for housing. This has resulted in more and more lands being used for planned developments and the gradual disappearance of the kind of less expensive, lower density, and less organized land use currently within the project boundary. We recognize the impacts of the proposed project on the way of life for many of the individuals that would be affected by the project. However, this area has experienced severe flooding and other ecological problems.

This project is part of a larger effort by the Corps, the South Florida Water Management District, and others to address these problems in the Southwest Florida Region (see the South Lee County Watershed Plan by Johnson Engineering, Inc. 1998 and other references such as U.S. Army Corps of Engineers, April 1999; and Johnson Engineering, Inc. 1996).

### **3.15 FLOOD CONTROL**

This area was a focal point of severe flooding which occurred in 1995 in the Bonita Springs Area. The causes and solutions to the flooding problem are related to the natural flatness of the landscape and a number of activities (roads, berms, ditches, fills, excavation, pumping, etc.) affecting the flow of water (especially surface water). Activities as far "upstream" as Lake Trafford and Camp Keais Strand, and other parts of Collier and Hendry Counties may impact flooding in the project area. The condition of the Imperial River flow way downstream also has an effect (refer to Johnson Engineering 1996 and 1998).

## **4 ENVIRONMENTAL EFFECTS**

This section is the scientific and analytic basis for the comparisons of the alternatives. See table 1 in section 2.0 Alternatives, for summary of impacts. The following includes anticipated changes to the existing environment including direct, indirect, and cumulative effects.

### **4.1 GENERAL ENVIRONMENTAL EFFECTS**

The overall purpose of the proposed activity is to restore the ecosystem with more natural flow and landscape. The management of surface water will also provide some flood protection and water storage and improve water quality. Water will also be managed in a manner so that flooding of nearby private property would not be increased.

### **4.2 VEGETATION**

#### **4.2.1 PROPOSED ACTION, Combined Measures a, b, and c**

See the combined discussion of the three measures below.

#### **4.2.2 Change Operation of Kehl Canal Weir (ALTERNATIVE A)**

Changing the operation of the weir would change the hydrology of the area and could substantially change the character of the vegetation (especially upstream of the weir). The composition of the vegetation in this flat and poorly drained area is very sensitive to the depth, timing, and duration of inundation (hydroperiod). Depending on the length of the hydroperiod and depth of the water, the area (or portions) could change to any of the following (from drier to wetter): (1) hardwood hammock, (2) pine woods, (3) pine

woods/wet prairie/cypress dome complex, (4) cypress/hardwood swamp, (5) aquatic marsh or (6) open water.

#### 4.2.3 Purchase up to 4,760 acres (ALTERNATIVE B)

Purchase of this land would allow greater flexibility in manipulation of the hydroperiod and water depth. At this time with this property being privately owned, the weir is to be operated in a manner that does not increase the threat of flooding these lands.

#### 4.2.4 Remove Features and Structures (ALTERNATIVE C)

The project lands contain roads, ditches, berms, and other features or structures that interrupt the natural flow of water over the land. Restoration of a more natural topography would allow for development of a more natural composition of vegetation (mostly a pine woods/wet prairie/cypress dome complex). Various methods to control exotic vegetation (especially *meleleuca* and Brazilian pepper) are (or may become) available and may be employed as part of the management of the site.

#### 4.2.5 LESS THAN FULL BUY-OUT OPTIONS.

A number of buy-out options are illustrated in Table 2. These options may reduce cost and the number of property owners who are unwilling to sell. However, the project boundary is more or less a distinct hydrologic unit (especially with respect to surface water management). Not having full ownership and control of the entire project site would reduce the amount of contiguous habitat, the flexibility to manipulate hydrology, and the overall environmental benefit of the project.

#### 4.2.6 NO ACTION ALTERNATIVE (STATUS QUO)

Without any of the measures above, the area would probably continue to be developed for residential development. It would become increasingly undesirable habitat for protected species and other wildlife. Flooding, runoff, poor water quality, and drainage would become an increasing problem.

### **4.3 THREATENED AND ENDANGERED SPECIES**

#### 4.3.1 PROPOSED ACTION, Combined Measures a, b, and c

See the combined discussion of the three measures below.

#### 4.3.2 Change Operation of Kehl Canal Weir (ALTERNATIVE A)

As with vegetation, changing the operation of the weir would change the hydrology of the area and could substantially change the desirability of the area for protected species (see discussion in the existing conditions section and the Fish and Wildlife Coordination Act Report in Appendix III).

#### 4.3.3 Purchase up to 4,760 acres (ALTERNATIVE B)

Purchase of this land would allow greater flexibility in manipulation of the hydroperiod and water depth. With this property being privately owned, the weir is to be operated in a manner that does not increase the threat of flooding these lands. Elimination of agricultural and residential activity from the land would tend to benefit protected species and other wildlife resources. Proper management of the surface waters on this land could enhance the habitat. Excessive flooding or drainage or inappropriate timing of the hydroperiod or water levels could be detrimental to protected species and other wildlife resources (see discussion in the existing conditions section and the Fish and Wildlife Coordination Act Report in Appendix III).

#### 4.3.4 Remove Features and Structures (ALTERNATIVE C)

The project lands contain roads, ditches, berms, and other features or structures that interrupt the natural flow of water over the land. Restoration of a more natural topography would allow for development of a more natural composition of vegetation (mostly a pine woods/wet prairie/cypress dome complex). In general, this would benefit the overall suitability of the area for native species.

#### 4.3.5 LESS THAN FULL BUY-OUT OPTIONS.

A number of buy-out options are illustrated in Table 2. These options may reduce cost and the number of property owners who are unwilling to sell. However, the project boundary is more or less a distinct hydrologic unit (especially with respect to surface water management). Not having full ownership and control of the entire project site would reduce the amount of contiguous habitat, the flexibility to manipulate hydrology, and the overall environmental benefit of the project.

#### 4.3.6 NO ACTION ALTERNATIVE (STATUS QUO)

Without any of the measures above, the area would probably continue to be developed for residential development. It would become increasingly undesirable habitat for protected species and other wildlife.

### 4.4 FISH AND WILDLIFE RESOURCES

Generally, the impact of the various alternatives on fish and wildlife resources would be similar to that for threatened and endangered species (see discussion above).

### 4.5 HISTORIC PROPERTIES

Given the project site's marginal suitability for human habitation, there is little likelihood for the presence of any historic resource eligible for the National Register of Historic Properties. However, coordination with the State Historic Preservation Officer will be conducted. Additional investigations (if required) may indicate some impact.

#### **4.6 SOCIO-ECONOMIC**

The purchase of the up to 4,760 acres would displace residential and agricultural development (see also section 3.14 on "way of life"). However, the area is not heavily or intensely developed at this time. The property owners would be compensated for purchase of their property at a fair market value in accordance with Public Law, P.L. 91-646 (see letter of April 14, 1999 from Jacksonville District, U.S. Army Corps of Engineers, to the South Florida Water Management District in Appendix IV). The activity may provide an overall economic benefit to the region with respect to water supply, water quality, flood hazard reduction, and wildlife benefits.

#### **4.7 AESTHETICS**

The purchase of agricultural and residential lands followed by the clearing of structures and succession of vegetation could improve visual aesthetic resources of these areas (Alternatives B and C). However, the natural vegetative succession could be sporadic, full of exotics, and unsightly also. The site would be monitored and managed to minimize exotics to the extent practicable.

#### **4.8 RECREATION**

Recreation is not a stated purpose of the project. However, the land purchase and removal of unnatural structures and land features may result in additional wildlife and wildlife observation opportunities on the site and nearby areas. Additional restrictions or even prohibition of hunting and fishing on the project site may be imposed to ensure appropriate environmental benefit.

#### **4.9 WATER QUALITY**

##### **4.9.1 PROPOSED ACTION, Combined Measures a, b, and c**

See the combined discussion of the three measures below.

##### **4.9.2 Change Operation of Kehl Canal Weir (ALTERNATIVE A)**

Without the measure below (purchase of upstream lands), the weir could not be operated in a manner that would increase flooding of the upstream lands. Additional drainage or drawdown of the upstream could result in an increased release of nutrients or sediments downstream. Also, an increase in peak flows could increase streambed erosion and turbidity. Conversely, a moderation of peak flows could decrease streambed erosion and turbidity.

##### **4.9.3 Purchase up to 4,760 acres (ALTERNATIVE B)**

Purchase of this land would allow greater flexibility in manipulation of the hydroperiod and water depth. Greater impoundment of surface waters could reduce release of

nutrients and sediments. This could also facilitate either greater peak flows or a moderation of peak flows depending on operation of the weir.

#### 4.9.4 Remove Features and Structures (ALTERNATIVE C)

The project lands contain roads, ditches, berms, and other features or structures that interrupt the natural flow of water over the land. Restoration of a more natural topography would provide the most even distribution of water and likely result in the greatest retention time for the water. The increased retention time in the more natural wetland should result in greater capacity for removal of sediments, nutrients, and other pollutants.

#### 4.9.5 LESS THAN FULL BUY-OUT OPTIONS.

A number of buy-out options are illustrated in Table 2. These options may reduce cost and the number of property owners who are unwilling to sell. However, the project boundary is more or less a distinct hydrologic unit (especially with respect to surface water management). Not having full ownership and control of the entire project site would reduce the amount of contiguous habitat, the flexibility to manipulate hydrology (and water quality), and the overall environmental benefit of the project.

#### 4.9.6 NO ACTION ALTERNATIVE (STATUS QUO)

Without any of the measures above, the area would probably continue to be developed for residential development. Flooding, runoff, poor water quality, and drainage would become an increasing problem.

### **4.10 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE**

The majority of the property was used for agriculture. Agricultural activities are exempt from Resource Conservation Recovery Act (RCRA) as section 40 CFR 261.4 (b)(2)(ii) provides an exclusion. Therefore, the handling, storage and reporting requirements established by RCRA are not applicable. Pesticides and herbicides used at on these farms is regulated by the Federal Insecticide, Fungicide and Rodenticide ACT (FIFRA).

These chemicals if not detected during the site assessment, may be disturbed or released by increasing the water level and hydroperiod (under alternative B or the combination alternative) or by removing unnatural structures or features from the landscape (under alternative C or the combination alternative). Since there is no evidence of large scale, intensive agricultural activity in the study area, the likelihood of significant contamination is small.

### **4.11 AIR QUALITY**

At the present time, the activities on the project site do not much contribute to air pollution. The release of automobile exhaust, road dust, smoke, and other contaminants

associated with residential and agricultural activity would likely increase with increasing development of the area. Under alternative B (land purchase) or alternative C (removal of structures and land features), release of air pollution would likely decrease. However, occasional release of smoke from burning is likely under any alternative scenario. Accidental fire (or need for controlled burning) would be the most likely under the combination scenario and hydrology scheme resulting in a large amount of vegetation and periodically dry conditions.

#### **4.12 NOISE**

Present noise levels are low and would likely remain low or even lower with purchase of lands (Alternative B). Under the no action alternative, the area would likely experience increased development and associated noise.

#### **4.13 PUBLIC SAFETY**

There is a minor potential for increased hazard for wildfire with the purchase of the project lands. There may also be an increased potential for wildlife encounters in the surrounding lands. This is a desired result for nearby preserves and sanctuaries but not necessarily desirable on developed lands. Both the Florida panther and black bear tend to avoid areas of much human activity but they (along with other wildlife) may be flushed out of the area by fire, flooding, drought, or food shortage.

#### **4.14 ENERGY REQUIREMENTS AND CONSERVATION**

Much of the cost for the proposed action is related to land purchase. Some energy consumption would be associated with removing the unnatural structures and features.

#### **4.15 NATURAL OR DEPLETABLE RESOURCES**

The project would provide additional water, cleaner water, and restore the ecosystem. No depletable resources would be used other than fossil fuels to power equipment and produce materials or equipment needed to remove un-natural structures and features.

#### **4.16 SCIENTIFIC RESOURCES**

The project would tend to enhance wildlife habitat and possibly provide additional wildlife encounters for educational purposes in the area. The restoration effort will be monitored and provide additional scientific information on wildlife and ecosystem restoration.

#### **4.17 NATIVE AMERICANS**

The project should not impact Native Americans or any tribal lands.

#### **4.18 REUSE AND CONSERVATION POTENTIAL**

Opportunity for re-cycling or use of re-cycled or re-cyclible materials is limited.

#### **4.19 URBAN QUALITY**

The project is expected to contribute to water quality and reduction of flood hazard potential for the developed areas downstream of the project.

#### **4.20 SOLID WASTE**

The removal of unnatural structures will result in demolition debris which must be transported to a land fill or otherwise disposed of in accordance with Federal, State, and local requirements. The removal of unnatural land features will probably be accomplished by pushing or scraping elevated features down and using the material to fill holes and ditches. Concrete or paving materials would have to be disposed of in accordance with Federal, State, and local requirements.

#### **4.21 DRINKING WATER AND WATER SUPPLY**

Surface waters in the project water shed are not used as a drinking water source. A well field for Lee County is located North of the project site. Smaller private wells may be located closer to the project site. If there is any impact to these sites from the project, it will likely be to improve supply and quality unless the weir is operated to cause an overall increase in drainage of the surface (and ground) waters.

The Bonita Springs Utilities has planned an aquifer storage reservoir within the boundary of Phase II of the project (see letter of April 16, 1999 in Appendix IV). This would store surface waters in the ground (aquifer) which would be used for irrigation and reduce the use of drinking quality water for irrigation. The South Florida Water Management District has not given a permit for this activity. This action would not be authorized if it would be detrimental to the project purposes (see Section 4.31).

#### **4.22 CUMULATIVE IMPACTS**

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7). Individually, the proposed action and alternatives would tend to benefit water quality and supply, wildlife, and other ecosystem values. Together with other similar actions which are existing or being considered in the area, even greater benefit could be expected. This project would be an important element of a larger on-going effort to reduce habitat fragmentation in Southwest Florida (see Fish and Wildlife Coordination Act Report in Appendix III for additional discussion).

#### **4.23 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

##### **4.23.1 IRREVERSIBLE**

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a mineral resource. The proposed action would likely enhance wildlife resources and provide for better management of surface and ground water. No irreversible commitment of resources would be involved other than use of fuel, equipment, and supplies.

#### 4.23.2 IRRETRIEVABLE

An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction. During the removal of unnatural structures and land features, there would be a temporary disturbance of vegetation. This would quickly recover and in the end additional and more natural vegetation would result.

#### 4.24 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Adverse environmental effects would only result with substantial mismanagement of surface waters. With proper monitoring and management there would no lasting or significant adverse impact. The project Operation and Maintenance Plan will insure proper management and monitoring of the project.

#### 4.25 LOCAL SHORT-TERM USES AND MAINTENANCE/ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The project would involve the utilization of minimal resources. In the long run, wildlife habitat, flood control, water quality, and water supply would benefit from the project.

#### 4.26 INDIRECT EFFECTS

Some minor impact to surrounding lands has been discussed above. The project may result in a higher concentration of development in some other area to compensate for taking the lands out of private ownership. However, the site is not heavily developed, is only marginally suitable for development. Directing development to more appropriate areas may be more desirable (less impact on natural resources and infrastructure). It has been suggested that this area would present a significant expense to local government to provide roads, flood protection, and other services while tax revenue from the area would be relatively small.

#### 4.27 COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES

The project has been identified as a priority "critical project" by a task force representing a number of agencies and other stakeholders. The project will also be coordinated with the state and area clearinghouse.

#### **4.28 CONFLICTS AND CONTROVERSY**

We have identified the following areas of conflict or controversy: possible impacts to unwilling sellers, a change in way of life for some displaced property owners, possible impacts to a low-income population, and some concern over the site being managed for flood control at the expense of ecosystem restoration. All of these items have been addressed in this document and measures to mitigate their impact have been disclosed.

#### **4.29 UNCERTAIN, UNIQUE, OR UNKNOWN RISKS**

We have identified only minimal uncertain, unique, or unknown risks (see discussions above and below in this EA). With the proposed monitoring, corrective measures can be taken to minimize risk to the environment.

#### **4.30 PRECEDENT AND PRINCIPLE FOR FUTURE ACTIONS**

While the concept of "critical projects" is somewhat new for the Corps of Engineers, the practice of land purchase, hydrologic manipulation, and removal of un-natural features and structures for ecosystem restoration is not unusual for the Corps and other land managing agencies. Examples include the "restudy" (U.S. Army Corps of Engineers, April 1999), Kissimee River Restoration, Oklawaha River, and Upper St. Johns River.

#### **4.31 ENVIRONMENTAL COMMITMENTS**

The U.S. Army Corps of Engineers and contractors commit to avoiding, minimizing or mitigating for adverse effects by taking the following actions:

1. Developing an Operation and Maintenance Manual which will include ecological and hydrological monitoring to manage the operation of the weir.
2. Operate and Maintain the project to further the goals of ecosystem restoration, water quality, water supply, and avoid unacceptable impacts to flooding of private land.
3. With respect to protected species, take the following measures: (1) to periodically monitor the nesting, foraging, and habitat conditions for the Wood Stork (*Mycteria americana*) within the project area; (2) to the extent allowable by climatic conditions, provide for hydroperiod fluctuations (which are conducive to foraging by Wood Storks); (3) except when prohibited by extreme drought conditions, avoid drainage of any wood stork nesting area that might occur in the project area (in order to minimize the potential for nest predation during nesting periods); and (4) to the extent allowable by climatic conditions, avoid extreme drainage or flooding which might be detrimental to desirable native vegetation or conducive to development of undesirable exotic vegetation.
4. Most, if not all, of the fill material would be obtained on site. Material for filling of ditches and unnatural depressions in the landscape would be suitable material from the removal of berms, house pads, and road bed. The fill material would be essentially free

of contaminants such as liquid petroleum products, heavy metals, toxic or radioactive waste, or any other active substance which might harm the environment or pose a threat to health and safety. If additional material is needed, it would come from an upland or approved commercial source similarly free from contaminants and cultural resources.

5. The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

6. Demolition debris would be transported to a land fill or otherwise disposed of in accordance with Federal, State, and local requirements. Concrete or paving materials would be disposed of in accordance with Federal, State, and local requirements.

Additional actions have been or will be taken to comply with environmental requirements as discussed in the following section.

#### **4.32 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

##### **4.32.1 National Environmental Policy Act of 1969**

Environmental information on the project has been compiled and this Environmental Assessment has been prepared. A Preliminary Finding of No Significant impact was prepared and coordinated with the public. The project is in compliance with the National Environmental Policy Act.

##### **4.32.2 Endangered Species Act of 1973**

Consultation was initiated with USFWS by letter dated October 2, 1998, and completed by letter from the USFWS dated October 16, 1998. The project will not adversely impact any listed species or designated critical habitat.

##### **4.32.3 Fish and Wildlife Coordination Act of 1958**

This project has been coordinated with the U.S. Fish and Wildlife Service (USFWS). A Coordination Act Report (CAR) dated October 16, 1998, was submitted by the USFWS. There has been no change in the project design since submittal of the CAR. This project is in full compliance with the Act.

##### **4.32.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)**

(PL 89-665, the Archeology and Historic Preservation Act (PL 93-291), and executive order 11593) In order to comply with this requirement, the project will be coordinated with the State Historic Preservation Officer either through the regulatory permit process or by separate action. If required, there may be archival research and/or field

investigations. If the activities proposed are authorized by Nationwide Permit, no further coordination with the State Historic Preservation Officer would be required (except as might be required as a condition of the particular Nationwide Permit).

#### 4.32.5 Clean Water Act of 1972

A Section 401 water quality certification will be required from the Florida Department of Environmental Protection. At the present time, the sponsor plans to build the project (with reimbursement for the Federal share from the Corps) and is responsible for obtaining the necessary state permit(s) in association with application for a Corps' regulatory permit. All State water quality standards would be met. A Preliminary Section 404(b) evaluation is included in this EA as Appendix I. The final 404(b) evaluation would be prepared by the Corps during the course of evaluating the sponsor's application for a Department of the Army permit or placed in the final EA following public review of the draft EA.

#### 4.32.6 Clean Air Act of 1972

No air quality permits would be required for this project.

#### 4.32.7 Coastal Zone Management Act of 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix II. State consistency review will be performed during the coordination of the draft EA or the Public Notice of application for a Department of the Army permit. Since the project activity is authorized by Nationwide permit #27, no further coordination under this act is required (except for any requirement as a condition to the particular Nationwide Permit).

#### 4.32.8 Farmland Protection Policy Act of 1981

We have initiated coordination with the Natural Resources Conservation Service concerning impacts to prime or unique farmland (see letters of March 18 and May 7, 1999 in Appendix IV). A portion of this project is agricultural lands (pasture, row crops, etc.). Approximately 102 acres of the project site have been determined "unique" farmlands. There are no "prime" farm lands in Lee County. The reporting and coordination requirements of this act have or are being met.

#### 4.32.9 Wild and Scenic River Act of 1968

No designated Wild and Scenic river reaches would be affected by project related activities. This act is not applicable.

#### 4.32.10 Marine Mammal Protection Act of 1972

No marine mammal would be impacted by this project.

#### 4.32.11 Estuary Protection Act of 1968

No designated estuary would be affected by project activities. This act is not applicable.

#### 4.32.12 Federal Water Project Recreation Act

The principles of the Federal Water Project Recreation Act, (Public Law 89-72) does not apply to this project.

#### 4.32.13 Fishery Conservation and Management Act of 1976

The project has been coordinated with the National Marine Fisheries Service (NMFS) and is in compliance with the act (see letter dated October 13, 1998, from NMFS appended to the Fish and Wildlife Coordination Act Report in Appendix III).

#### 4.32.14 Submerged Lands Act of 1953

The project would occur on submerged lands of the State of Florida. The sponsor would obtain the necessary real estate interests from the state in association with obtaining the necessary state and Federal permits.

#### 4.32.15 Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990

There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.

#### 4.32.16 Rivers and Harbors Act of 1899

The proposed action does not occur in or affect navigable waters of the United States and is not subject to this act. Replacement of the Imperial Bonita Estates Bridge may be subject to Section 9 of this act and require a permit from the U.S. Coast Guard. However, this activity is being pursued but is no longer part of the subject Critical Project.

#### 4.32.17 Anadromous Fish Conservation Act

Anadromous fish species would not be affected. While the weir may obstruct fish passage, this is an existing or without project condition. The project has been coordinated with the National Marine Fisheries Service and is in compliance with the act.

#### 4.32.18 Migratory Bird Treaty Act and Migratory Bird Conservation Act

No migratory birds would be affected by project activities. The project is in compliance with these acts.

#### 4.32.19 Marine Protection, Research and Sanctuaries Act

The project does not involve ocean dumping. Therefore, the Marine Protection, Research and Sanctuaries Act does not apply to this project.

#### 4.32.20 UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT OF 1970

The project would be in compliance with this law (PL 91-646). For additional information, see the letter of April 14, 1999, in Appendix IV.

#### 4.32.21 E.O. 11990, Protection of Wetlands

Wetlands would be restored or enhanced by project activities. This project is in compliance with the goals of this Executive Order.

#### 4.32.22 E.O. 11988, Flood Plain Management

The project is in the base flood plain (100-year flood) and has been evaluated in accordance with this Executive Order. The project would be operated in a manner that would not increase flooding of private property and would likely reduce flooding by increasing the flood plain storage capacity and/or the ability of the sponsor to manipulate hydrology. Project is in compliance.

#### 4.32.23 E.O. 12898, Environmental Justice

The proposed action would not result in adverse human health or environmental effects. Any impacts of the action would not be disproportionate towards any minority. However, it has been suggested that a low-income population might be impacted (see section 3.14 on "way of life", section 4.6 on Socio-Economic impacts, section 4.28 on Conflicts and Controversy, and section 4.32.20 on the Uniform Relocation Assistance and Real Property Acquisition Act of 1970). The activity does not (a) exclude persons from participation in, (b) deny persons the benefits of, or (c) subject persons to discrimination because of their race, color, or national origin. The activity would not impact "subsistence consumption of fish and wildlife".

#### 4.32.24 E.O. 13089, CORAL REEF PROTECTION

No coral reef or coral reef organism would be impacted by this project.

## 5 LIST OF PREPARERS

### 5.1 PREPARERS

Preparer	Discipline	Role
Kenneth Dugger	Biologist	Principal Author
Paul Stevenson	Landscape Architect	Aesthetics and Recreation
David McCullough	Archeologist	Historic Properties
Peter Besrutschko	Environmental Engineer	HTRW Site Visit and Report
John Zediak	Civil Engineer	Engineering & Hydrology

## 5.2 REVIEWERS

Reviewer	Discipline
Elmar Kurzbach	Biologist
John Pax	Legal Counsel
Frank Grant	Project Manager

## 6 PUBLIC INVOLVEMENT

### 6.1 SCOPING AND DRAFT EA

A Notice of Availability of a preliminary Finding of No Significant Impact and Environmental Assessment (FONSI/EA) was issued to agencies having jurisdiction or expertise, to interested or affected groups and private parties, to affected property owners, and other stakeholders on February 16 and March 22, 1999. In addition, the South Florida Water Management District held a public meeting on April 20, 1999, at the Bonita Springs Community Center (copies of these notices and the mailing list are in Appendix IV).

### 6.2 AGENCY AND PUBLIC COORDINATION

The proposed action has been coordinated pursuant to the Fish and Wildlife Coordination Act. Agencies commenting include the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Florida Game and Fresh Water Fish Commission. Additional, agency and public comments were received as a result of the public meeting and the notices referenced above.

### 6.3 LIST OF RECIPIENTS

A list of recipients of the Notice of Availability of the preliminary FONSI/EA and notice of the public meeting (see section 6.1 above) has been placed in Appendix IV.

### 6.4 COMMENTS RECEIVED and response

Comments and other information received have been incorporated into this revised EA.

**REFERENCES**

Craighead, F. C. Sr. 1971. *Trees of South Florida. Volume I, The Natural Environments and Their Succession.*

Johnson Engineering, Inc. (Revised) March 1996. *Bonita Springs – Summer 1995, Imperial River Area, Flood Reconnaissance, Evaluation and Recommendations for South Florida Water Management District*

U.S. Army Corps of Engineers. April 1999, *Integrated Feasibility Report and Programmatic Environmental Impact Statement, Central and Southern Florida Project, Comprehensive Review Study*

U.S. Army Corps of Engineers. July 1999. *Draft EIS, Southwest Florida, Regulatory Program*

U.S. Fish and Wildlife Service. 1989. *Wood Stork Recovery Plan*

U.S. Fish and Wildlife Service. 1990. *Habitat Management Guidelines for the Wood Stork in the Southeast Region*

(see also list of references in Appendix III)

**APPENDIX I - SECTION 404(B) EVALUATION****SECTION 404(b) EVALUATION****SOUTHERN CREW****CRITICAL PROJECT****LEE COUNTY, FLORIDA****I. Project Description**

- a. Location. See section 1.2 of the EA.
- b. General Description. See section 2.3 of the EA.
- c. Authority and Purpose. See sections 1.1, 1.3, and 1.4 of the EA.
- d. General Description of Dredged or Fill Material.
  - (1) General Characteristics of Material. See item (3) below.

(2) Quantity of Material. The exact quantity of fill material is yet to be determined. The amount of fill will be largely limited to no more than necessary to restore a more natural topography, hydrology, and landscape.

(3) Source of Material. Most, if not all, of the fill material would be obtained on site. Material for filling of ditches and unnatural depressions in the landscape would be suitable material from the removal of berms, house pads, and road bed. The fill material would be essentially free of contaminants such as liquid petroleum products, heavy metals, toxic or radioactive waste, or any other active substance which might harm the environment or pose a threat to health and safety. If additional material is needed, it would come from an upland or approved commercial source similarly free from contaminants and cultural resources.

e. Description of the proposed Discharge Site.

(1) Location. See section 1.2 of the EA.

(2) Size. The discharge size and location would be largely limited to no more than needed to restore a more natural topography, hydrology, and landscape for the up to 4,670 acres.

(3) Type of Site. See section 2.0 of the EA.

(4) Type of Habitat. See section 2.0 of the EA

(5) Timing and Duration of Discharge. The project may be phased-in over several years. The actual duration of the discharge event for any given phase would likely be several months.

f. Description of Disposal Method. Various types of heavy equipment would be used. This might include earth moving equipment and loaders for dump trucks.

## II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The natural topography of the area is nearly flat. Unnatural features such as berms, roadways, house pads, ditches, etc. are among the more prominent topographic features.

(2) Sediment Type. Sediments would vary from silty organic to sand to calcareous marl. While the sediment may contain nutrients and organic matter, we do not expect it to contain any significant amount of any other contaminant or harmful substance.

(3) Dredge/Fill Material Movement. Once in place, we would not expect much movement of the fill material. Some erosion may occur in some specific areas subject to heavy flow of water from time to time.

(4) Physical Effects on Benthos. The benthos in the canals, ditches, and other unnatural depressions would be buried under the fill material. These areas would be replaced with a more natural wetland.

b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. The canals, ditches and other unnatural depressions would be filled.

(2) Current Patterns and Circulation. It is expected that a more natural sheet flow of surface waters through vegetated wetlands would occur.

(3) Normal Water Level Fluctuations and Salinity Gradients. A more natural water flow may moderate downstream releases of fresh water depending on how the weir is operated.

c. Suspended Particulate/Turbidity Determinations. With more natural sheet flow and increased retention time, the waters would contain less particulate and lower turbidity.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. During construction there may a potential for increased particulate and turbidity. The in-place project should provide less particulates and turbidity to downstream waters.

(2) Effects on the Chemical and Physical Properties of the Water Column.

(a) Light Penetration. The canals, ditches, and other unnatural depressions would be filled. A more natural wetland would replace them and the overall hydrology of the area would become more natural if the weir is operated properly. The shallower waters would be more easily penetrated by light. However, an increase in emergent vegetation would tend to reduce the amount of light reaching the ground.

(b) Dissolved Oxygen. The water depths, period of inundation, and ecological character of the restored wetland would be substantially different from that of the present ditches and canals. The dissolved oxygen levels would become more like that of a natural wetland system.

(c) Toxic Metals, Organics, and Pathogens. We do not expect a release of harmful levels of toxic or organic substances or any pathogenic organisms. A preliminary assessment will be conducted (see section 4.10 of the EA).

(d) Aesthetics. To many people, the more natural wetland-upland complex would be more aesthetic.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. The open water habitat of the canals and ditches would be replaced with that of a more natural wetland system. Primary productivity would shift from that of an open water system [dominated with aquatic vegetation and simpler aquatic organisms (bacteria and algae)] towards a wetland system dominated with emergent aquatic and wetland vegetation.

(b) Suspension/Filter Feeders. The amount and kinds of suspension or filter feeders would change. The restored wetland would probably be subject to periodic drying out with only seasonal inundation which may be less favorable to suspension and filter feeders.

(c) Sight Feeders. The seasonal inundation and shallow waters of the restored wetland would be less favorable to larger fish and other aquatic macro-organisms. However, it may favor smaller seasonal organisms, wading birds, and other animals associated with a wetland system.

d. Contaminant Determinations.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton. In the restored wetland, plankton will become only a minor component of the ecosystem.

(2) Effects on Benthos. In the restored wetland, the "benthos" would be more typical for a wetland than for an open water habitats presently in the discharge sites.

(3) Effects on Nekton. The restored wetland would not contain a "nekton" (free swimming) component except during periods of sufficient inundation.

(4) Effects on the Aquatic Food Web. The food web of the restored wetland would be different than that of the present canals and ditches to be filled.

(5) Effects on Special Aquatic Sites.

(a) Hardground and Coral Reef Communities. No hardground or coral reef community would be impacted.

(b) Sanctuaries and Refuges. The project would benefit Corkscrew sanctuary and some other nearby wetland habitats.

(c) Wetlands. See item above.

(d) Mud Flats. No mud flats are involved.

(e) Vegetated Shallows. Some vegetated aquatic habitat may be filled and replaced with more natural wetland habitat. Depending on operation of the weir, some aquatic habitat may result from the project (if there is sufficient water depth and period of inundation).

(f) Riffle and Pool Complexes. No riffle pool complexes would be involved.

(6) Endangered and Threatened Species. See section 4.3 of the EA.

(7) Other Wildlife. See section 4.4 of the EA.

(8) Actions to Minimize Impacts. See sections 4.31 and 4.32 of the EA.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. During the filling operation, there would be some introduction of sediment and turbidity to nearby waters. This would be abated by good management construction practices. The effect would be temporary.

(2) Determination of Compliance with Applicable Water Quality Standards. See section 4.32.5 of the EA.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. See section 4.21 of the EA.

(b) Recreational and Commercial Fisheries. The area does not support much recreational or commercial fisheries. Improved downstream water quality may benefit such uses downstream.

(c) Water Related Recreation. See section 4.8 of the EA.

(d) Aesthetics. See section 4.7 of the EA.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. The Corkscrew Sanctuary and other similar habitats in the area would benefit from the project (see sections 4.3, 4.4, 4.8, 4.22, and 4.26 of the EA).

g. Determination of Cumulative Effects on the Aquatic Ecosystem. See section 4.22 of the EA.

h. Determination of Secondary Effects on the Aquatic Ecosystem. See section 4.26 of the EA.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

- a. No significant adaptations of the guidelines were made relative to this evaluation.
- b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.
- c. After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- d. The proposed change in operation of the Kehl Canal Weir, purchase of up to 4,670 acres, and removal of unnatural features (Southern CREW Critical Project) will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.
- e. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.
- f. On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the requirements of these guidelines.

**APPENDIX II - COASTAL ZONE MANAGEMENT CONSISTENCY****FLORIDA COASTAL ZONE MANAGEMENT PROGRAM****FEDERAL CONSISTENCY EVALUATION PROCEDURES****SOUTHERN CREW****CRITICAL PROJECT****LEE COUNTY, FLORIDA**

1. Chapter 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed action does not involve activity on the beach or any coastal shoreline.

2. Chapters 186 and 187, State and Regional Planning. These chapters establish the State Comprehensive Plan which sets goals that articulate a strategic vision of the State's future. It's purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response : The proposed project is being coordinated with various Federal, State and local agencies during the planning and/or regulatory permit process. The project would provide for ecosystem restoration and improvement in water quality, water supply, and flood control.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The proposed project would have little or no impact on disaster preparation, response or mitigation.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The proposed action would provide for ecosystem restoration and associated benefits.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: The project may involve the purchase of up to 4,670 acres of private lands for ecosystem restoration.

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed project area does not contain any state parks or aquatic preserves. There are some such areas in the vicinity which may benefit from the proposed action. The project is consistent with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: This project is being coordinated with the State Historic Preservation Officer (SHPO) through the planning or regulatory permit process. If the activity is authorized by nationwide permit, no further coordination with the SHPO is required.

8. Chapter 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed would not adversely impact beneficial development, economic diversification, or tourism.

9. Chapters 334 and 339, Public Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: No public transportation systems would be impacted by this project.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The proposed action would not adversely impact saltwater living resources. The project is consistent with the goals of this chapter.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project will have no adverse effect on freshwater aquatic life or wild animal life. Benefits to wildlife and water quality are expected.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This project may benefit the quality and quantity of surface and ground water resources as described by this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development.

Response: The proposed action does not impact any large scale development. The lands involved are poorly drained, flood prone, and marginally habitable. Therefore, the project is consistent with the goals of this chapter.

16. Chapter 388, Arthropod Control. This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The project will not further the propagation of mosquitoes or other pest arthropods.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: The project will be reviewed by the Florida Department of Environmental Protection through either the planning or regulatory permitting process. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. Water Quality Certification will be sought from the State prior to construction. The project complies with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: The proposed project is not located near or on extensive or highly productive agricultural lands; therefore, this chapter does not apply.

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**APPENDIX III – FISH AND WILDLIFE COORDINATION ACT REPORT****FISH AND WILDLIFE COORDINATION ACT REPORT****ON THE****SOUTHERN CREW PROJECT ADDITION/****IMPERIAL RIVER FLOWWAY**

Prepared by:

Betty J. Grizzle

U.S. Fish and Wildlife Service

South Florida Restoration Office

Vero Beach, Florida

October 16, 1998

**EXECUTIVE SUMMARY**

The southwest Florida region has been under tremendous growth pressure, which has intensified even further in the last five years. The human encroachment associated with this development has manifested itself in fragmentation of fish and wildlife habitat and poor resource planning for the western basin. The Big Cypress National Preserve, the Fakahatchee Strand State Preserve, the Florida Panther National Wildlife Refuge, Picayune Strand State Forest, National Audubon Society's Corkscrew Swamp Sanctuary, Ten Thousand Islands National Wildlife Refuge, and Rookery Bay National Estuarine Research Reserve represent some of the regionally significant natural areas for the western basin of south Florida. Re-establishment of pre-drainage hydroperiods and water flow is an important goal in providing ecosystem restoration for these basins and sub-basins.

The Southern Corkscrew Regional Ecosystem Watershed Project Addition/Imperial River Flowway (Southern CREW Project), located within south Lee County in southwest Florida, represents a critical restoration project to be funded under the Water Resources Development Act (WRDA) of 1996 (P.L. 104-303). The intent of these restoration projects under WRDA is to provide independent, immediate, and substantial restoration, preservation, and protection benefits for the south Florida ecosystem. The primary purpose of the Southern CREW Project is to acquire and restore 4,670 acres of land to more natural conditions and eventual inclusion into the Corkscrew Regional Ecosystem

Watershed (CREW). Other components of the project include replacement of the Kehl Canal weir and Imperial Bonita Estates bridge. The non-Federal sponsor for this project is the South Florida Water Management District (SFWMD).

It is important that the restoration benefits of the Southern CREW Project be recognized throughout the authorization process. As stated above, critical restoration projects, as recognized within the WRDA of 1996, must provide substantial restoration and protection benefits. Flood control issues should not dominate the water management of the lands to be acquired; water management should be driven by the intent to provide ecosystem restoration.

The Southern CREW Project represents, by design, primarily a land acquisition and restoration project for the enhancement of a natural flowway (Imperial River) in southern Lee County. The restoration actions should provide benefits to a disturbed cypress habitat that is currently targeted for housing development. The acquisition, restoration, and management of the lands targeted for acquisition should also benefit fish and wildlife resources.

The CREW encompasses more than 58,000 acres of primarily wetland habitat. It supports North America's largest nesting colony of the federally endangered wood stork (*Mycteria americana*) and the largest remaining stand of undisturbed cypress (*Taxodium distichum*) in south Florida. The CREW provides habitat for many federally and state listed plant and animal species, including the endangered Florida panther (*Puma (Felis) concolor coryi*).

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It is important that *watershed management practices* be defined for this project and implemented with the best available hydrological and ecological information. A detailed management plan should focus on how best to restore hydroperiods for the benefit of fish and wildlife resources. Other recommendations for the implementation of the Southern CREW Project are provided within this report.

An evaluation of project impacts indicates some concerns relative to the inherent flexibility of the operational schedule for the Kehl Canal weir. The new weir should not be used as a water management structure for flood control to the detriment of natural hydroperiods of the surrounding wetlands and upland habitat within northern CREW lands. The expanding watershed created by artificial constrictions cannot be solved entirely by creating larger flows through the Kehl Canal-Imperial River system. The re-establishment and maintenance of historic flowways should provide resolution to the flooding tendency of the Imperial River basin.

The FWS is supportive of critical restoration projects that provide ecosystem benefits, particularly for the western basin of south Florida. Successful watershed planning for

southwest Florida would reduce the threat of additional fragmentation and compartmentalization and avoid a repetition of the impoundment of the remnant Everglades that has taken place to the east.

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## IDENTIFICATION OF PURPOSE, SCOPE, AND AUTHORITY

### Introduction

Restoration activities authorized under Section 528 of the Water Resources Development Act of 1996 (P.L. 104-303) include the Draft Programmatic Environmental Impact Statement for the Central and Southern Florida Comprehensive Review Study (C&SF Restudy) and critical restoration projects.

Under this authority, the Secretary of the Army, in cooperation with the non-Federal project sponsor and the South Florida Ecosystem Restoration Task Force, provide the determination as to whether a nominated critical restoration project for the South Florida ecosystem will produce independent, immediate and substantial restoration, preservation, and protection benefits and be generally consistent with the conceptual framework specified in the Governor's Commission Conceptual Plan (1996). The Federal share of the cost of completing any one restoration project shall not be more than \$25 million dollars. The project cannot be a feature of the C&SF Project and must have a non-Federal cost-sharing sponsor. Once nominated, critical projects are evaluated and authorized for approval and funding through COE Headquarters. An abbreviated one-year feasibility study is then conducted and a National Environmental Policy Act (NEPA) review and design study is initiated. Once the NEPA process is completed, the project undergoes a detailed plan and specification phase, leading to contract award and construction.

The Southern Corkscrew Regional Ecosystem Watershed (CREW) Project Addition/Imperial River Flowways (Southern CREW Project) was ranked ninth on the critical project list compiled by the South Florida Ecosystem Restoration Working Group. Figure 1 represents a location map for this project in southwest Florida. The non-Federal sponsor for this project is the South Florida Water Management District (SFWMD). Appendix B contains the COE's critical project letter report and response to comments for the Southern CREW Project.

### Purpose and Scope of Project

The primary purpose of the Southern CREW project is to acquire and restore 4,670 acres of land to more natural conditions and eventual inclusion into the Corkscrew Regional Ecosystem Watershed. The project is expected to provide the following restoration benefits: 1) re-establishment of historic flow patterns and hydroperiods on lands proposed for acquisition as well as CREW and National Audubon Society's Corkscrew Swamp Sanctuary wetlands, 2) restoration of the historical water storage

potential of the Southern CREW lands, 3) reduction of loading of nutrients and other pollutants to the Imperial River and Estero Bay, 4) reduction of excessive freshwater discharges to Estero Bay during the wet season, and 5) decrease in saltwater intrusion during the dry season by providing aquifer recharge to the natural system.

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[insert figure 1 here] **[Not available on this document]**

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Hydrologic restoration of the land proposed for acquisition will include the following activities: removal of existing road beds, removal of single family homes, removal of junk debris, filling of ditches, and removal of agricultural canals and berms.

Other components of the project include replacement of the Kehl Canal weir and the Imperial Bonita Estates (IBE) bridge. The existing Kehl Canal weir (located near the headwaters of the Imperial River) will be removed and replaced with a control structure with three motor-operated roller gates. This will provide more storage capacity and allow for the application of water management practices and control of the Kehl Canal, which flows through the land proposed for acquisition. The IBE Bridge will be replaced by a longer spanning bridge that will allow a more direct flow path of the Imperial River, eliminating a constriction in the natural stream channel. Engineering, design, and construction of both the weir and bridge replacement will be performed by the Fort Myers Service Center of the SFWMD.

The critical project will be conducted using a phased approach since there is some uncertainty as to whether the project sponsor will be able to purchase the entire 4,760 acres proposed for acquisition. As illustrated in Figure 2, Phase I will include land acquisitions and restoration of an estimated 2,720 acres as well as the Kehl Canal weir and IBE Bridge replacement. Phase II will include land acquisitions shown in Figure 2, estimated at approximately 1,950 acres, as well as the hydrologic restoration of these acquired lands. However, the land acquisition and restoration activities of Phase II are necessary for the *optimum* function of the ecosystem within properties to be acquired in Phase I. Acquired lands will be placed under environmentally sensitive land management practices by the project sponsor similar to those currently being applied to adjacent land areas under its responsibility.

Authority

This Coordination Act Report constitutes the report of the Secretary of Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C.

661 *et seq.*), which establishes fish and wildlife conservation as a co-equal purpose or objective of federally funded or permitted water resource development projects. The FWCA allows for reports and recommendations of the FWS and the State to be integrated into COE reports seeking authorization for the federal action and it grants to the COE the authority to include fish and wildlife conservation measures within these projects.

DESCRIPTION OF STUDY AREA

A. Project Location

The Southern CREW Project is located southeast of Fort Myers, Florida in Lee County, within the southern Lee County watershed. The land proposed for acquisition (east of Bonita Springs) is east of Interstate 75, adjacent to the north side of County Road 865 (see Figures 1 and 2 for location maps). The Kehl Canal weir and the IBE Bridge are shown in Figure 3 [Note: These photographs were taken during a flood event]. Figure 4 represents a location map for these two infrastructure actions.

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[insert figure 2 here] **[Not available on this document]**

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B. Description of Study Area

1. Hydrologic Description

Water flow within the Corkscrew Regional Ecosystem Watershed is conveyed, primarily from east to west, through a series of strands, sloughs, and surface sheetflow to defined streams along the coast, ultimately passing through tidal flows into the Gulf of Mexico. Several drainage basins, as shown in Figure 5, are contained within this regional watershed. These include the Estero River, Imperial River, Cocohatchee Strand, Belle Meade Basin, and Camp Keais Strand. Sub-basin drainages include Halfway Creek, Spring Creek, Leitner Creek, Oak Creek, and Flint Pen Strand. Figure 6 provides a map of natural flowways and existing waterways within the region. In addition to the Southern CREW project, there are a several significant critical restoration projects proposed for this portion of southwest Florida. These include the Lake Trafford restoration, Southern Golden Gate Estates hydrologic restoration, and the Henderson Creek/Belle Meade Basin restoration.

The Science Sub-group Report to the South Florida Management and Coordination Working Group (1993) identified the CREW along with the Okaloacoochee Slough as important natural catchment groundwater recharge areas within the western basin of south Florida. The proposed project site is located in the southern Flint Pen Strand region of Lee County, within the historic Imperial River flowway to Estero Bay. Hydrologic characteristics within this region of south Florida include low relief, sandy soils, high permeability, and a high water table for much of the year (Johnson Engineering, Inc. 1998).

Many changes are underway to watersheds in southwest Florida to accommodate both agricultural and rapidly expanding urban land use practices. The cumulative effect of man-made diversions and alterations within the watersheds has resulted in an altered direction of flow from basin to basin within the overall watershed. The lands proposed for acquisition for the Southern CREW Project have been divided into 5- and 10-acre tracts that are being developed into single family home sites. The project area has been significantly altered by the construction of roads, house pads, agricultural berms, and ditches, which has resulted in restriction of historic sheetflow and disruption of natural wetland functions. If the current pattern of development continues, one can expect an increase in the disruption and blockage of surface water flow and additional water quality degradation within the Imperial River flowway.

## 2. Ecological Description

The CREW encompasses more than 58,000 acres of primarily wetland habitat. It supports North America’s largest nesting colony of the federally endangered wood stork (*Mycteria americana*) and the

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largest remaining stand of undisturbed cypress (*Taxodium distichum*) in south Florida. The CREW provides habitat for many federally and state listed plant and animal species. The National Audubon Society’s Corkscrew Swamp Sanctuary, located to the east of the project site, contains the most important remaining stand of large cypress in south Florida. The Sanctuary provides an important ecotourism and educational resource for southwest Florida.

Cypress swamp and pineland communities represent the dominant habitat types within the Southern CREW Project area. Grassland and scrub are also present within more disturbed sections of this project. A field visit to the project area on August 21, 1998 confirmed the dominant habitat types and the intrusion of roads, house pads, and houses in the area. Wading birds, such as the tricolored heron (*Egretta tricolor*), were observed within the project location.

The increase in development within southern Lee County has altered the sheet flow pattern in the watershed and decreased the extent of both native wetland and native upland habitat. This has also created both a shift in vegetative communities to more transitional communities such as grassland and scrub and an increase in exotic vegetation. These changes have produced undesirable impacts for wildlife resources and has resulted in a reduction of available forage areas for wading birds and other wetland-dependent fish and wildlife species.

## FISH AND WILDLIFE CONCERNS AND PLANNING OBJECTIVES

### A. Introduction

The Southern CREW project represents one piece of an important watershed in southwest Florida, a region that is currently experiencing tremendous urban growth pressures. However, the project is, to a large degree, a land acquisition restoration action for disturbed cypress wetland habitat that is currently targeted for housing development. This critical restoration project therefore would be expected to provide long-term benefits to a watershed of over 300 square miles.

### B. Fish and Wildlife Resources

#### Federal Listed and Candidate Species

1. Florida panther (*Puma concolor coryi*): The project area is contained within the CREW Ecological Unit of the Habitat Preservation Plan (Logan *et al.* 1994) and within the range of panther telemetry locations (Figure 7). These lands are composed primarily of wetland habitat adjacent to agricultural lands and have been impacted to some extent by housing development. The acquisition, restoration, and management of this land would provide benefits to the panther by: 1) providing a buffer area from urban use, 2) providing habitat on the periphery of the range that is suitable for dispersing subadult panthers, and 3) providing habitat for panthers with an established home range, such as one uncollared female and a radio-collared male that currently use the Corkscrew Swamp (A. Eller, FWS, personal communication 1998).

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2. Wood stork (*Mycteria americana*): Historically, the breeding colony of wood storks at Corkscrew Swamp supported up to 6,000 pairs. The Corkscrew colony in northern Collier County continues to occasionally produce large numbers of young in south Florida, with 1,028 fledglings from 450 nesting pairs recorded in 1998 (A. Mackie, National Audubon Society’s Corkscrew Swamp Sanctuary, personal communication 1998). As stated in the Multi-Species Recovery Plan for the Threatened and Endangered Species of South Florida prepared by the FWS, the acquisition and recovery of more natural hydro patterns within the foraging areas surrounding this colony are critical to the recovery of wood storks (FWS 1998). Inclusion of the proposed Southern CREW project lands would be an important step in this recovery effort.

3. Florida black bear (*Ursus americanus floridanus*): This subspecies of the black bear is currently a candidate for listing under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). In south Florida, bears are found on private and public lands in parts of Collier, Hendry, Lee, and Monroe counties in and near the Big Cypress Swamp, and in the vicinity of Highlands County to the north (Kasbohm and Bentzien 1998). In its 1994 report, Closing the Gap in Florida’s Wildlife Habitat Conservation System, the Florida Game and Fresh Water Fish Commission (FGC) identified the Big Cypress National Preserve and surrounding areas, including portions of the Corkscrew Swamp and CREW watershed (approximately 120 km<sup>2</sup>), as high quality habitat for the Florida black bear. Habitat surrounding Corkscrew Swamp and the forested tracts that connect this block of habitat with forested areas to the south may be among the more important tracts surrounding Big Cypress National Preserve (Cox *et al.* 1994) and should be preserved. Land acquisition projects such as the Southern CREW project, the Southern Golden Gate Estates hydrologic restoration project, and

the Henderson Creek/Belle Meade Basin restoration project will be important in fulfilling this conservation goal.

### State Listed Species

1. Big Cypress fox squirrel (*Sciurus niger avicennia*): This subspecies of the fox squirrel is restricted to the southwestern Florida peninsula. It is currently listed by the State of Florida as a threatened species. [Note: This subspecies is currently under review by the FWS for federal listing as threatened under the ESA in response to a recent petition by the Biodiversity Legal Foundation (January 5, 1998).] The Big Cypress fox squirrel uses a variety of habitat types including pine flatwoods, hardwood hammocks, cypress swamps, and mangrove forests (Humphrey and Jodice 1992). Based on food preference studies, slash pine forests appear to be important in the spring/early summer with the edges of cypress swamps important during the fall and early winter (Cox *et al.* 1994). Deuver *et al.* (1986) consider cypress habitats, especially strands with tall trees, important as foraging and nesting areas.

Habitat loss and alteration represent significant factors affecting the population of the Big Cypress fox squirrel. Although no quantitative data on habitat trends are available, it is believed that with the

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increase in human population in southwest Florida, especially Lee and Collier counties, one can expect continued losses in habitat for this species (FGC 1998). The Big Cypress fox squirrel occurs on several public conservation lands including Big Cypress National Preserve, but populations on these lands are not believed to be especially large or dense (FGC 1998). Cox *et al.* (1994) predicted that existing conservation lands were not adequate for the long-term conservation of this subspecies. Land acquisition within the western basin of south Florida should provide needed habitat for this species.

### C. Other Fish and Wildlife Concerns

Fish comprise an important element in the ecology of marsh and cypress habitats. Studies conducted in Corkscrew Swamp indicated that fish constitute a large portion of the aquatic animal biomass and function as a major link in the food chain in this region and throughout south Florida (Duever *et al.* 1986) The removal of the existing ditches and restoration of historic hydroperiods within the lands to be acquired for the Southern CREW project should be beneficial to the production of aquatic species.

Migratory birds, protected under the Migratory Birds Treaty Act (16 U.S.C. 703-712), represent another important trust resource for the CREW land area. The restoration actions proposed within this project should also provide an enhancement of natural habitat for migratory passerine birds, such as migrating warblers.

D. Summary/Status of Section 7 Consultation Process

The FWS has responded (letter dated October 16, 1998) to a request for concurrence from the COE that the Southern CREW critical restoration project is not likely to adversely affect listed or candidate species or designated critical habitat. The FWS has concurred with this determination and concluded section 7 consultation under the ESA for this project.

E. Planning Objectives

The Southern CREW critical restoration project is an important land acquisition component for the CREW watershed. Restoration actions to be included in conjunction with the land purchases include the removal of existing roadbeds, filling of ditches, and removal of agricultural canals and berms. These actions should promote the return to a more historic hydropattern for the wetland habitats contained within the project area.

It is important that the project’s goal of placing the acquired lands under environmentally sensitive land practices, that are currently in practice for those lands already purchased by SFWMD, be instituted with the best available hydrological and ecological information.

*Watershed management practices* need to be defined for this project and for other critical restoration projects for southwest Florida that include land acquisition components. For wood storks, both the initiation and the abandonment of nesting activity has been shown to be indirectly related to the

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recession rate of surface water in Everglades marshes, which is almost certainly the result of increased prey availability that results from entrapment during drying phases (Frederick and Spalding 1994). Studies within the National Audubon Society’s Corkscrew Swamp Sanctuary indicated that when water levels dropped between 18 and 50 percent of their maximum wet season depth, fish populations began to be concentrated (Duever *et al.* 1986). These authors determined, that for the Sanctuary, a wet season with water levels in excess of approximately four inches for several months followed by a pronounced drydown seemed to create conditions favorable for fish concentration within strand habitats.

The COE will be including an operational plan for the project that includes specific conditions that address protection measures for the wood stork (see letter in Appendix C). These measures include monitoring the nesting, foraging, and habitat conditions for the wood stork and provide, to the extent practicable, hydroperiod conditions conducive to foraging activities for this species.

Consultation with researchers at the National Audubon Society’s Corkscrew Swamp Sanctuary, among others, will be important in developing scientifically sound land and watershed management practices for the Southern CREW Project and providing the optimum restoration of fish and wildlife habitat.

PROJECT IMPACT EVALUATION

A. Evaluation Framework

The determination of impacts attributable to this water development project can be best evaluated by comparing future without-project conditions to future with-project conditions. This principle can be used to evaluate the effects of the Southern CREW project impacts on fish and wildlife resources including any impacts to the hydrology of fish and wildlife communities.

By design, the Southern CREW project represents primarily a land acquisition and restoration project for the enhancement of the Imperial River flowway in southern Lee County. The future with-project conditions are therefore expected to be largely beneficial to fish and wildlife resources.

B. Fish and Wildlife Resources Without the Project

The project lands identified for acquisition are currently slated for development into 5- and 10-acre single family home sites. Without the purchase and restoration of these lands, one can expect continued alteration of historical sheetflow and disruption of natural wetland functions. This proposed development would have a direct impact on habitat currently used by, among others, the endangered Florida panther and wading birds. The continued loss and fragmentation of wetland habitat in southern Lee County and northern Collier County, including a reduction in natural water storage capacity, would contribute to additional degradation of fish and wildlife habitat in the western basin of south Florida.

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C. Project Impacts

1. Construction-related Impacts: The restoration efforts defined for this critical project should include the evaluation of these activities on breeding and foraging birds. Buffer zones may be required for some restoration activities within wetland communities. Significant intrusive actions (e.g. operation of heavy equipment for filling of ditches) should be avoided during the reproductive season for wood storks and other wading birds that use the surrounding area for breeding and/or foraging.

2. Operational Impacts: The Southern CREW critical project will include the replacement of the Kehl Canal weir located within the Imperial River flowway. The current weir is designed as a fixed crest elevation weir set at eight feet. This will be replaced by a weir with a gated spillway (100 feet in length) adjustable from ten feet maximum elevation to three feet minimum water release elevation. The COE has determined that the replacement of the Kehl Canal weir and Imperial Bonita Estates bridge are authorized features of Nationwide Permits (see letter in Appendix D). The permit for the weir replacement only applies if the new weir is hydrologically operated in the same manner as the old weir (see letter in Appendix D). However, the critical project letter report (see Appendix B) states that "More storage capacity will be provided and gates will be added to allow better water management and control of the Kehl Canal..." The COE's response to comments to the letter report (see Appendix B) also state that "...there will be potential flood control effects...Approximately 1,700 residents downstream of the weir, that have been evacuated during past flood events will likely also benefit from this project *because weir operations will be controlled through the SFWMD operations center*" [emphasis added].

It is important to note that many of the downstream housing developments that have been flooded in the past, especially during the summer and fall of 1995, were built within the defined floodplain and floodway of the Imperial River as shown in Figure 8. The Kehl Canal weir operational schedule received from the COE (see Appendix E) contains considerable flexibility for water management of the canal which may or may not be beneficial to the surrounding watershed. The "Special Operating Schedule" for the weir by the SFWMD (see Appendix E) states that "[t]he gates will be opened when antecedent moisture conditions within the watershed and rainfall forecasts pose a flood threat." The FWS has expressed its concern to the non-Federal project sponsor (SFWMD) that the new weir should not be used as a water management control structure to alleviate this flooding to the detriment of natural hydroperiods of the surrounding wetlands and upland habitat within northern CREW lands.

Additionally, the National Marine Fisheries Service has expressed concerns with the design and operation of the new Kehl Canal weir relative to the movement of aquatic organisms (see letter in Appendix A). The blockage of fish movement, in particular, should be addressed within the operation of the new weir.

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EVALUATION OF THE SOUTHERN CREW CRITICAL PROJECT

## A. Introduction

As a land acquisition and restoration project, the Southern CREW Project fulfills the South Florida Ecosystem Restoration Task Force's defined requirements for a south Florida restoration project. The nomination document (contained within the critical project letter report in Appendix B) describes the original intent of this project as providing *ecosystem restoration* benefits to the southern Flint Pen Strand section of the CREW. *It is essential that this element of the Southern CREW Project be recognized throughout the authorization process being undertaken by the COE.* Critical restoration projects, as defined within the WRDA of 1996, must provide immediate and substantial restoration and protection benefits for the south Florida ecosystem. Flood control issues should not dominate the water management of the lands to be acquired; water management should be driven by the intent to provide ecosystem restoration.

While it is clear that the land acquisition portion of the proposed project will be beneficial, the FWS is not certain as to how this acquired land will be managed, particularly for trust resources. The CREW Land and Water Trust, located in Ft. Myers, Florida, does have a conceptual management plan for the CREW lands; however, this plan is more broad-based and covers issues such as exotic vegetation removal. A more detailed management plan, with a focus on how best to restore hydroperiods for the benefit of fish and wildlife resources, would most likely be the responsibility of the local sponsor of the Southern CREW Project (i.e. SFWMD) (E. Lindblad, CREW Land and Water Trust, personal communication 1998).

## B. Southern CREW Project and the South Lee County Watershed Plan

The South Lee County Watershed Plan (1998) was prepared for the SFWMD by Johnson Engineering, Inc. as a regional watershed analysis and presents an important discussion of the hydrological changes to the CREW and Lee County that have resulted from increased urban growth. The report identifies potential improvements to protect the capacity of historic outfalls and includes an analysis of improvements to re-establish historic flowways. This document is useful in understanding the context of the Southern CREW Project within the watershed and in providing an assessment of the project.

The South Lee County Watershed Plan (Watershed Plan) states that, with the exception of the Imperial River and possibly the Cocohatchee canal, the current watershed outfalls do not demonstrate flows that are close to their historic capacities. Primarily as a result of urban growth, the watershed is experiencing constriction and re-routing of streams and sheetflow areas, with the construction of Interstate 75, in particular, creating a significant barrier to sheetflow and concentrating water discharges to bridge and box culvert openings (Johnson Engineering, Inc. 1998).

As described in the Watershed Plan, the contributing area for the Imperial River has increased beyond its outfall capacity and therefore resolving the flooding tendency for the Imperial River watershed

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should focus on re-establishment and maintenance of historic flowways. Two important areas identified within the report to achieve this goal include: 1) Lake Trafford flows into the Camp Keais Strand and 2) the Estero River watershed. The blockage of flows in these two areas contributes to water within the Flint Pen Strand and then into the Kehl Canal-Imperial River system, producing flood events during periods of high rainfall. The SFWMD is currently evaluating actions that will restore the southerly flows from Lake Trafford into the Camp Keais Strand, including the removal of portions of dense strands of willow trees south of the lake (J. Rippe, SFWMD, personal communication 1998). However, this native willow habitat provides roosting, feeding, and nesting habitat for a variety of wildlife. County Road 846 may represent the primary blockage of water flow within this low gradient sheetflow area; however, other blockages to the south also require evaluation.

Improvements to the flow in the northern portion of the Estero River Basin will require either the SFWMD or Lee County to obtain adequately sized drainage rights-of-way along flowways west of Interstate 75 (Johnson Engineering, Inc. 1998).

The point of this discussion is to emphasize that the Southern CREW Project, particularly the replacement of the IBE Bridge and Kehl Canal weir, should not be perceived as solutions to the flood control problems created by larger watershed problems. The expanding watershed created by artificial constrictions cannot be solved entirely by creating larger flows through the Kehl Canal-Imperial River system. As stated earlier, the Southern CREW Project should be perceived within the context of its original intent as a ecosystem restoration project since land acquisition and restoration represent the primary purposes of the project.

## RECOMMENDATIONS

This Fish and Wildlife Coordination Act 2(b) report for the Southern CREW Project provides the following recommendations for consideration. We believe these recommendations to be important not only for this project, but for restoration of the entire Corkscrew Regional Ecosystem Watershed as well.

The process of land acquisition should be continued for environmentally sensitive areas within Lee County. The encroachment of both urban and agricultural development makes it essential that any opportunity for the purchase of land within the CREW and adjacent natural areas through willing sellers be pursued as aggressively as possible by the SFWMD and other agencies. This action will provide assurances that adequate flowways and natural or historic water storage capacities are provided for within the basins. Lee County and other appropriate agencies should protect, to the greatest extent practicable, all lands in the area zoned for groundwater recharge/density reduction.

The re-establishment of historic flowways should be actively pursued, as recommended in the South Lee County Watershed Plan (Johnson Engineering, Inc. 1998), especially within Camp Keais Strand. **However, it should be noted that the construction of a water resource berm in conjunction with the re-establishment of these flowways, as suggested as an alternative within the South Lee County Watershed Plan, is not supportable by the FWS.**

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The new Kehl Canal weir should not be operated by the SFWMD such that the weir is used as a water control structure for flood protection to the detriment of the surrounding wetland and upland habitats contained within CREW lands. Because the Southern CREW Project is being funded as a critical restoration project, water management should be driven by the intent to provide ecosystem restoration.

The SFWMD in conjunction with Lee and Collier counties should ensure through their permitting processes that land use and water storage changes adjacent to the Southern CREW Project as well as other potential CREW lands will not promote additional constriction of flowways. Housing developments should not be permitted for construction within floodplains or floodways.

The establishment of both upland habitat monitoring sites within the Upper Corkscrew Swamp and sites within the Imperial River sub-basin would be useful in gauging the success of the restoration goals of the Southern CREW Project. Vegetation transects within these areas could be used to evaluate species abundance and composition and provide a "watchdog" indicator measure for how the watershed is functioning. This would also provide assurance that the operational schedule for the Kehl Canal weir is not producing excessive drainage or storage within the watershed.

In conjunction with Lee County, the SFWMD should continue the "clean and snag" program within the Imperial and Estero Rivers to the extent that these actions continue to provide benefits by removal of exotic species and debris. Because of the human encroachment adjacent to these rivers, regular maintenance will most likely be necessary to promote a healthy basin. This should not be carried out to the extent that essential wildlife habitat is removed from these areas. Consultations with appropriate resource agencies should be considered for this program.

Restoration actions for the purchased lands should be delineated in a detailed watershed management plan by the project sponsor and should provide guidance for other land acquisitions. Of particular interest to the FWS is the need to determine the necessary hydroperiods for both wetland and adjacent habitats. The extent of the hydroperiod along with the depth of inundation are important components in determining the type of plant community that will prevail and therefore strongly influences wildlife

habitat. Removal of exotic species, both plant and animal, should be included within this management plan.

The proposed Southwest Florida Water Management Model, which will likely be developed in conjunction with the proposed Southwest Florida Feasibility Study, represents a coordinating project that will be useful for providing important design information for this critical restoration project and others proposed for southwest Florida. The proposed model and an expanded Natural System Model (developed by the SFWMD) can be used to provide a better understanding of the altered hydrologic system for this region.

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As the local sponsor for the Southern CREW Project, the SFWMD should improve coordination of proposed actions and alternatives for the western basin of south Florida with natural resource agencies who may have valuable information relating to any potential impact on hydrological functioning of the watershed and to fish and wildlife resources.

In consultation with the FGC, the SFWMD should consider developing interpretive/educational displays and recreational (fishing) facilities, located in an appropriate location, to promote resource awareness for the Imperial River sub-basin.

## SUMMARY OF POSITION

### A. General Comments

The FWS is supportive of critical restoration projects that provide ecosystem benefits, particularly for the western basin of south Florida, given the intense development pressures in this region. The Southern CREW Project land acquisition and restoration features will re-establish historic flowways and hydroperiods for 4,670 acres of the southern CREW watershed. This land is currently being developed into single family home sites and is being impacted by roads, house pads, and drainage ditches. The return to more normal sheetflow patterns on these lands will aid in the reduction of nutrient and pollutant loading in to the Imperial River and Estero Bay. Fish and wildlife resources should be benefitted by returning this area to a functioning wetland system.

### B. Reconnecting the South Florida Ecosystem

The Science Sub-group Report (1993) developed important objectives for the restoration of the south Florida ecosystem with a focus on hydrologic factors, which represent a primary driving force in this ecosystem. The report states that spatial extent is a critical component of the south Florida ecosystem. The current trends of compartmentalization and loss of habitat must be reversed. The continued

fragmentation of this environment results in the erosion of biodiversity, and connections between biotic communities must be restored. The Southern CREW Project, properly designed, executed, and implemented will assist in achieving these ecosystem restoration goals.

The persistence of many of the more widely ranging animal species of the Everglades depends as much on the linkages with areas *outside* the Everglades as it does on the changes and management strategies within the Everglades (Robertson and Frederick 1994). This is particularly relevant for the wood stork and Florida panther that inhabit Southern CREW lands. The land acquisitions proposed for the Southern CREW Project will assist in preserving fish and wildlife corridors as well as essential hydrologic linkages within the western basin of south Florida.

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**APPENDICES**

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## APPENDIX IV - PERTINENT CORRESPONDENCE

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May 10, 1999

Planning Division

Environmental Branch

Honorable Connie Mack  
United States Senate  
517 Hart Senate Building  
Washington, DC 20510-0904

Dear Senator Mack:

I am writing you concerning the letter of April 26, 1999, to your office from Mrs. Susan B. Shelly. Mrs. Shelly is asking your help to keep her home. Apparently her home is within the boundary of the proposed Critical Project called Southern CREW.

The Critical Projects are authorized by Section 528 of the Water Resources Development Act of 1996. The Critical Projects are prioritized and selected in cooperation with the non-Federal Sponsor and the South Florida Ecosystem Restoration Task Force in accordance with the act and other directives of Congress. This critical project would provide benefits toward improving water quality, flood control, water supply, habitat for fish and wildlife, and the overall effort towards ecosystem restoration, preservation, and protection of South Florida.

We have received a number of comments expressing concern over real estate issues including comments from individuals who do not wish to sell or move for various reasons. This project would provide the maximum benefit with the full restoration of the Southern CREW site which includes a complete buy-out and removal of canals, roadways, ditches, fill pads, structures, and other unnatural features. In view of the real estate issues raised, we are taking a closer look at alternatives that might not involve a complete buy-out. These alternatives probably would not provide full restoration and may not provide sufficient benefits.

We can appreciate the concerns of Mrs. Shelly and others like her on the project site. However, this and surrounding areas have experienced serious flooding and other environmental problems. This project is an important part of a number of measures being planned to address these problems in South Florida by this office, the South Florida Water Management District, and others.

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As directed in your letter I am sending the following items to your Fort Myers office: a copy of the April 26 letter from your office, a copy of this letter, and a copy of the Environmental Assessment released to the public earlier this year.

If you have any questions or need additional information, please call me or have your staff contact Mr. Joseph Burns, Congressional Liaison, at 904-232-2243.

Sincerely,

Joe R. Miller  
Colonel, U.S. Army  
District Engineer

Copies Furnished:

Honorable Connie Mack, United States Senator, Attn.: Ann Burhans  
1342 Colonial Boulevard, Suite 27, Fort Myers, Florida 33907  
Commander, U.S Army Corps of Engineers (CECW-PE)  
Commander, South Atlantic Division (CESAD-ET-PL)

April 14, 1999

Real Estate Division

Management and Disposal Branch

SUBJECT: Date of Applicability of the Uniform Relocation Assistance and Real Property Acquisition Act of 1970

(PL 91-646), as amended, to Critical Projects.

Mr. Charles R. Rinaldi  
Deputy Director, Land Construction and Land Management  
South Florida Water Management District  
3301 Gun Club Road  
P.O. Box 24680  
West Palm Beach, FL 33416-4680

Dear Mr. Rinaldi:

Reference previous correspondence and meetings concerning the issue of when PL 91-646 becomes applicable to land acquisition and relocations for the Critical Projects.

The purpose of PL 91-646 is to ensure that owners of real property to be acquired for Federal and Federally assisted projects are treated fairly and consistently and that persons displaced as a direct result of such acquisition will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. PL 91-646 is remedial legislation which is to be construed liberally in favor of the property owner or displaced person and which requires an agency to retroactively cure any failure to comply with the provisions of the Act. Acquiring agencies, including non-Federal sponsors, must comply with the requirements of PL 91-646 in the payment of benefits as well as in the practices they use to acquire real estate. The terms "project" and "program" are defined as any activity or series of activities undertaken by a Federal agency or with Federal financial assistance received or anticipated in any phase of an undertaking in accordance with the Federal funding agency guidelines. Thus, PL 91-646 applies to any acquisitions made in anticipation of a Federal project whether or not a Project Cooperation Agreement (PCA) has been executed.

In addressing when a project is anticipated the Comptroller General has held that the requirements of PL 91-646 are triggered at the time of the initial action necessary to qualify the project for Federal participation, even if it was not certain at that time whether Federal assistance would be requested or granted. Since it was Congress' intent that the Act be liberally construed, at least in some cases relocation benefits must be made available prior to the actual commitment of Federal financial assistance. Further, where

retroactive measures cannot achieve at least substantial compliance with the law, Federal financial assistance must be denied. C.G. B-180812 (1976), citing La Raza Unida v. Volpe, 488 F.2d. 559 (1973).

It is clear there is no bright line rule as to when an acquisition is made in anticipation of Federal participation. Rather such determinations must be made on a case by case basis after an analysis of the specific factual situation presented. To aid in this analysis it may be useful to ask such questions as:

- 1) Why and when was the real property acquired?
- 2) At the time of acquisition was it reasonable to anticipate Federal financial assistance/participation?
- 3) Was the acquisition part of an ongoing local/State project?
- 4) Would the land have been purchased and the project completed without any Federal assistance?

In relation to the Critical Projects, the procedure for identification, nomination and approval of candidate projects was established by Section 528 of the Water Resources and Development Act of 1996. The South Florida Ecosystem Restoration Working Group (Working Group) nominated and prioritized the candidate projects in accordance with certain pre-established criteria. Based on the recommendations of the Working Group, the U.S. Army Corps of Engineers (Corps) was directed to evaluate each project and prepare a short letter report for the Assistant Secretary of the Army for Civil Works (ASACW). These letter reports were to include a description of the project, an evaluation of the project addressing the selection criteria, environmental concerns, preliminary cost estimate, tentative letters of support from the non-Federal sponsor and all other agencies that must provide approvals or permits for the project, and a draft Project Cooperation Agreement (PCA). The report also was to request approval to expend funds for finalization and execution of the PCA, environmental documentation, detailed design, permitting, and construction.

A case by case analysis of the history of each of the Critical Projects, time lines, and other information provided by SFWMD indicates that in most cases the event triggering the requirement to pay benefits pursuant to PL 91-646 would be the execution of the letter report by the ASA(CW). The approval of the letter report is the initial action that authorizes the expenditure of Federal funds. Thus, any acquisition accomplished on a project subsequent to the execution of the letter report would necessarily be in anticipation of Federal participation, i.e., cost sharing and crediting under the PCA.

The Critical Projects and the dates PL 91-646 is applicable to each are listed below:

- 1) **Southern Golden Gate Estates – March 3, 1998**

This project commenced under State funding following a Feasibility Report by the Corps in 1986, which recommended no Federal involvement. The letter report was approved March 3, 1998.

**2) Southern Crew – June 17, 1998**

This project began more than five years ago and land acquisition proceeded with willing sellers under the Save Our Rivers program. No properties with residences or businesses have been acquired to date. Execution of the letter report was accomplished on June 17, 1998.

**3) Ten Mile Creek – All acquisition**

Although the letter report was signed in June 1998, representatives from SFWMD have indicated there would be no project without Federal funding. Accordingly, all acquisition on this project would be in anticipation of Federal participation and subject to PL 91-646.

**4) Lake Okeechobee – May 6, 1998**

No acquisitions have been made to date. Since the letter report was executed on May 6, 1998, all acquisition on this project will be subject the provisions of PL 91-646.

**5) C-4**

No residences or businesses will be acquired so no relocation benefits are involved. However, some land was acquired previously with Farm Bill funds, which means that fair market value, closing costs, etc. should have been paid by SFWMD.

**6) C-11**

SFWMD already owns the land to be used for this project so the applicability of PL 91-646 is not an issue.

If you have any questions concerning the above information or PL 91-646 in general, please call Sharon Conklin at 904-232-3872.

Sincerely,

Bart J. Wivell  
Chief, Real Estate Division

March 18, 1999

Planning Division

Environmental Branch

Mr. Tim Eckert, District Conservationist  
Natural Resource Conservation Service  
3434 Hancock Bridge Parkway, Suite 209B  
North Fort Myers, Florida 33903

Dear Mr. Eckert:

I am writing you concerning a proposed Federal project involving environmental restoration of 7¼ Sections of land in Lee County (Sections 32-36, 25, 26, and part of 24). This project is referred to as "Southern CREW" (Corkscrew Regional Ecosystem Watershed) and is authorized as a "Critical Project" under Section 528 of the Water Resources Development Act of 1996.

According to a telephone conversation between Kenneth Dugger of my staff and Howard Yamataki of your staff on March 15, 1999, there are no designated "prime farmlands" in Lee County. However, I am submitting the enclosed form AD-1006. According to the form you will provide an official determination within 45 days as to whether the project would contain "prime, unique, statewide or local important farmland." I am also enclosing a copy of the Environmental Assessment from which you may obtain the necessary project maps (figures 1 and 2 on pages 2 and 9). Additional detail can also be obtained from the "Restoration Plan" near the end of the document.

Also, please provide additional blank forms for additional projects we may have. If you have any questions, contact Kenneth Dugger at 904 232-1686.

Sincerely,

James C. Duck  
Chief, Planning Division

Enclosure

**APPENDIX V – RESTORATION PLAN AND WEIR PERMIT**  
**[Not available on this document]**

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Created: November 12, 1999