



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

DEC 22 2000

Honorable Joseph Westphal
Assistant Secretary of the Army (Civil Works)
Department of the Army
108 Army Pentagon
Washington, D.C. 20310-0108

Dear Dr. Westphal:

In accordance with the provisions of the Section 404(q) Memorandum of Agreement between the Department of the Interior and the Department of Army (pursuant to the Clean Water Act at 33 U.S.C. 1344 *et seq.* and as revised on December 21, 1992), we are requesting your review of the U.S. Army Corps of Engineers, Jacksonville District Engineer's decision to issue permit No. 199900619(IP-SB) to Naples Reserve Golf Club. The Section 404 permit would authorize the development of 552 single family residences, two 18-hole golf courses, amenity/borrow pit lakes, and associated infrastructure in Collier County, Florida.

The proposed project will result in the loss of 109 acres of wetlands, 95 of which are forested. These wetlands provide valuable habitat for fish and wildlife resources. To compensate for the project impacts, the applicant proposes to create 2.1 acres of cypress marsh and to preserve and enhance 67.2 acres of existing forested wetlands and 5.2 acres of upland islands on-site through exotic vegetation management and a conservation easement. Off-site mitigation involves the creation of 9 acres of mixed forested wetlands, restoration of a 45-acre farmed wetland, and preservation of 266 acres of cypress and pine habitats with upland islands. The applicant will provide an endowment to the Florida Department of Forestry to manage this 320-acre off-site mitigation area.

On November 24, 2000, the Fish and Wildlife Service's Southeast Regional Office received a Notice of Intent to issue a permit for the proposed project. After a thorough review of the background information on the project, the Department has determined that this case warrants elevation in accordance with the criteria found in Part IV of the revised Section 404(q) MOA (Elevation of Individual Permit Decisions). Specifically, the Department has concluded that the proposed project will have substantial and unacceptable adverse impacts on aquatic resources of national importance.

The proposed permit would cause direct, indirect, and cumulative adverse impacts to wildlife and wildlife habitat, both on the project site, and in adjacent areas. The Department of the Interior, acting through the Service, is vested with the authority and obligation to protect, conserve, and enhance the Nation's fish and wildlife resources. These matters fall within our jurisdiction under the Fish and Wildlife Coordination Act (48 Stat 401; 16 U.S.C. 661 *et seq.*), Section 404(m) of the Clean Water Act (62 Stat.1155; 33 U.S.C. 1251-1376), the Fish and Wildlife Act of 1956 (70

Stat. 1119; 16 U.S.C. 742), the Migratory Bird Treaty Act (40 Stat 755; 16 U.S.C. 703-713), as amended, and the Endangered Species Act of 1973 (87 Stat. 844; 16 U.S.C. 1531-1544), as amended.

Wetlands in southwest Florida are diverse and include habitats that are rare or nonexistent in other states, such as the hydric pine flatwoods found at the project site. The south Florida ecosystem is located along one of the primary migratory routes for bird species that breed in North America and winter in the Caribbean and South America. Two-hundred and seventy-four migratory bird species occur in southwest Florida; 175 of these are found in aquatic habitats like those in the project area. In addition, the project area is part of the most important region of Florida for supporting wide-ranging wildlife species such as the Florida panther, Florida black bear, and wood stork.

Slash pine forests, which include hydric pine flatwoods, have been identified as an imperiled ecosystem due to documented losses. Wetlands on the project site are primarily hydric pine flatwoods and cypress swamps with smaller areas of wet prairie and emergent/fresh water marsh habitat. Hydric pine flatwoods are rare outside of south Florida and are of critical, regional importance as one of the dominant forest cover types. This scarce habitat type is geographically limited, subtropical, and has seasonal hydrologic variation, which results in a habitat with high biodiversity. Hydric pine flatwoods within the project area exhibit high biodiversity and support 31 mammal, 139 bird, 40 reptile, 17 amphibian, and 22 fish species, including 10 federally listed species and an additional 86 State listed species.

Cypress swamps in the project area support 8 federally listed species and another 69 State listed species. These cypress and mixed forest swamps are used extensively by birds and other animals, including mammals, reptiles, and amphibians. The wet prairie and fresh water marsh wetlands at the site provide habitat for a variety of migratory and wading birds, as well as some wide-ranging mammals, and amphibians and reptiles. In the project area, wet prairies and fresh water marsh communities are occupied by eight and nine federally listed species, respectively. In addition, a large number of State listed species rely on these habitat communities.

The location of the project site is significant as it borders the Picayune Strand State Forest and is part of one of the few remaining large, contiguous forested tracts in this region. The project site is strategically connected to other undisturbed wetland parcels and agricultural lands, and is critically located in the watershed of Henderson Creek, which discharges into the Rookery Bay National Estuarine Research Reserve. Because of their critical location and connectivity to other lands, the wetlands on the project site provide habitat value not only for the fish and wildlife resources in the project area, but also for those in wetland and estuarine communities downstream. Surface and subsurface waters from the project site combine with the flows from the Picayune Strand State Forest and other forested lands, eventually ending up in Rookery Bay. Rookery Bay provides habitat for 86 fish species and nursery grounds for 64 recreational and commercial fish, 50 species of crustaceans and numerous shellfish. Water quality in Rookery

Bay is directly affected by the quality and quantity of flows in this watershed, and the proposed project would adversely affect the existing water quality.

The construction of 552 homes and two golf courses, as proposed, will result in the direct loss of 109 acres of wetlands, including 48 acres of hydric pine flatwoods, 28 acres of cypress swamp, and 19 acres of mixed pine-cypress wetlands. Direct habitat loss will significantly affect the availability of resources required by wildlife using the site. Configuration of the development, as proposed, will fragment the habitat mosaic of wetlands remaining on the site and adversely affect species that require a variety of habitat types in spatial proximity to one another. Indirect impacts to wildlife will result from the newly created edges of the development and associated roads, which facilitate movement of exotic, invasive plant species and animals into remaining wetland habitats. In addition, human presence will create indirect impacts through increased noise, light, pollution, and traffic. Human disturbances contribute to behavioral changes in wildlife.

The project will directly and indirectly affect surface and ground water resources by changing the existing hydroperiod and lowering local groundwater tables. These drier conditions can facilitate shifts in composition of plant communities from wetland to upland species. Additional concerns involve an increase in freshwater pulses entering Rookery Bay, and possible reduction of base flows in Henderson Creek.

The south Florida ecosystem contains four of the top ten fastest growing metropolitan areas in the United States, including the Naples and the Fort Myers-Cape Coral areas. Significant loss of mesic pine forests has already occurred in southwest Florida and hydric pine flatwoods, the last remaining pinelands to be developed, are under extreme development pressure. By 1970, pine flatwoods had been reduced by 50 percent of their historic occurrences. Between 1940 and 1980, Florida's total forested area (including cypress swamps) declined by 27 percent.

Future development is being considered in the forested wetlands on the property immediately west of the project site. Twenty-four golf courses currently contribute to toxic runoff into Rookery Bay and this project represents one of four new golf course-associated projects proposed in this watershed. Watershed level habitat loss and fragmentation from urban and agricultural growth is rapidly precluding opportunities for conservation, resource management, and restoration in southwest Florida. This region is experiencing increased pressures on natural resources similar to those experienced by Florida's east coast in the remnant Everglades.

Impacts to wetlands have not been avoided and minimized to the greatest extent practicable on the project site, and the proposed compensatory mitigation will not fully compensate for the lost functions and values of these wetlands. The applicant proposes to create two acres of cypress swamps on-site and nine acres of wetlands off-site. The remainder of compensatory mitigation involves restoration, enhancement, and preservation of wetlands and uplands, on and off the project site, resulting in a net loss of 98 acres of wetlands. Although these efforts will replace some of the lost functions and values of impacted wetlands, the mitigation activities will not

fully compensate for the net loss of 98 acres of wetlands. The proposed mitigation will not replace the lost connection to adjacent forested wetlands nor will it offset fragmentation of the preserved wetlands on the project site. In addition, the mitigation activities will not offset the increase in surface and ground water withdrawals, the modification of hydrologic patterns, nor the affects of human disturbances.

The Corps did not conduct a thorough alternatives analysis to substantiate that impacting 109 acres of wetlands constitutes the least environmentally damaging practicable alternative for the construction of houses and golf courses, both non-water dependent activities. The Corps based its' determination of the least damaging practicable alternative on the consideration of compensatory mitigation and on the success of mitigation efforts that have yet to occur. The Corps did not independently evaluate the proposed project, but gave undue deference to the applicant's preferred project design. The applicants' overall project purpose is too narrowly defined, i.e., 552 dwellings with two 18-hole golf courses does not allow the Corps to thoroughly evaluate the necessity of un-related project components being constructed on a contiguous block of land. A residential community is not dependent upon being located contiguous with a golf course. A less specific overall project purpose might have resulted in less required acreage and the subsequent analysis may have identified either potential alternative sites or on-site configurations that further avoided and minimized wetland impacts. In addition, the Corps did not provide any economic justification or analysis that the project would not be financially feasible unless constructed as proposed. The Service believes that by not following the 404(b)(1) Guidelines, the Corps' decision to issue the permit will result in significant losses to an aquatic resource of national importance.

The Corps states that there would be no adverse cumulative impacts, nor significant secondary impacts, caused by the development of Naples Reserve Golf Club, because of the "extensive review of this project that resulted in a mitigation plan that addresses these concerns." It also states that every new project would receive the same review to ensure adequate avoidance, minimization, and compensation of impacts. However, the Service believes that this project was not subjected to an adequate review and, therefore, anticipates subsequent project reviews will be inadequate.

The Corps did not conduct a thorough cumulative effects assessment as required by the 404(b)(1) Guidelines, the Public Interest Review, and the National Environmental Policy Act. Southwest Florida is experiencing tremendous development pressure and has the highest growth rate in Florida for the last 10 years. This trend is expected to continue, with the largest projected population increases to occur in Lee and Collier Counties.

The Service has determined that the construction of Naples Reserve Golf Club will result, directly, indirectly, and cumulatively, in substantial and unacceptable adverse impacts to aquatic resources of national importance, which includes hydric pine flatwoods and cypress swamps, and similar wetlands types and habitat mosaics in Picayune Strand State Forest and Rookery Bay

Reserve. The Corps has not properly implemented the required 404(b)(1) alternatives analysis and has not substantiated that the proposed project is the least environmentally damaging practicable alternative.

The Service recommends that the Corps conduct a thorough alternatives analysis, based upon a properly defined project purpose, to investigate potential alternate project sites and project designs that may accommodate one or both components of the project. If it is determined that the project site is the only feasible and available site, the Service recommends that the Corps require avoidance and minimization of wetland impacts on the project site to the greatest extent practicable. This would include redesigning the project to avoid impacts to on-site wetlands, particularly in the southwest corner, elimination or reconfiguration of one or both of the golf courses, and/or reduction or reconfiguration of housing units. The Service believes that the 512 acres of uplands available at the project site can accommodate a viable development with minimal, if not total avoidance of, wetland impacts in the southwest corner of the property. The Service also recommends that the Corps consider and fully assess the indirect and cumulative affects associated with the proposed project impacts on aquatic resources.

We recommend that permit No. 199900619(IP-SB) for Naples Reserve Golf Club, be denied and that the Corps actively work with the Service and the applicant to develop a viable project that will fully comply with the 404(b)(1) Guidelines.

We look forward to meeting with the Department of the Army to discuss the Jacksonville District's proposed permit decision. Enclosed is additional information addressing these and other issues relative to the proposed action. Please do not hesitate to contact me if you have any questions.

Sincerely,

Kenneth L. Smith

Assistant Secretary for Fish
and Wildlife and Parks

Enclosures

OUTLINE ATTACHMENT

NAPLES RESERVE GOLF CLUB

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ATTACHMENT

NAPLES RESERVE GOLF CLUB 199900619(IP-SB) COLLIER COUNTY, FLORIDA

Project Description

Jacksonville District proposes to issue a Department of the Army permit [199900619(IP-SB)] to Naples Reserve Golf Club for the construction of a 552-unit residential development and two 18-hole golf courses. The project is located southeast of the City of Naples, Collier County, in southwest Florida. The project site is a 688-acre parcel with 176 acres of wetlands, 109 acres of which will be impacted by the development, and 512 acres of uplands. Additionally, a 2,000-foot by 80-foot road right-of-way will provide access to the site from U.S. Highway 41 south of the property. The wetlands are mostly located in the southwest quarter of the project site. The wetlands are primarily hydric pine (*Pinus elliotti*) flatwoods and cypress (*Taxodium distichum*) swamps, with varying degrees of exotic invasion, and provide habitat for Federal and State listed species and several migratory bird species.

The applicant proposes to mitigate for 109 acres of wetland impacts by creating 2.1 acres of cypress swamp, and preserving and enhancing 67.2 acres of wetlands and 5.2 acres of uplands on-site. Wetland enhancement includes the removal of exotic and nuisance vegetation. The 75-acre on-site mitigation area will be maintained in perpetuity to control exotic and nuisance vegetation and will be placed under a conservation easement granted to the South Florida Water Management District (SFWMD). Off-site the applicant proposes to deed 320 acres to the State of Florida, and provide an endowment of \$16,000 to the Florida Division of Forestry to manage the 320-acre tract. In this 320 acres, which is Priority One Florida panther (*Puma concolor coryi*) habitat (Logan *et al.* 1993), the applicant proposes to create 9 acres of mixed forested wetlands, restore a 45-acre farmed wetland, and preserve and enhance 266 acres of cypress and pine habitats with upland islands.

Aquatic Resources of National Importance

Site-Specific Fish and Wildlife Resources

Forested wetlands comprise 154 acres (88 percent) of the on-site wetlands and include 93 acres of hydric pine flatwoods, 36 acres of cypress swamps, and 25 acres of mixed pine-cypress, with varying degrees of exotic infestation [melaleuca (*Melaleuca quinquenervia*) and Brazilian pepper (*Schinus terebinthifolius*)]. The project site has smaller areas of wet prairie and emergent/fresh water marsh habitat located in water management areas, including a spreader swale and borrow lake. The project site borders the 75,000-acre Picayune Strand State Forest and is part of one of the few remaining large, contiguous forested tracts in this region. The project site is strategically connected to other undisturbed wetland parcels and agricultural lands, and is critically located in the flow-way to Henderson Creek, which discharges into Rookery Bay National Estuarine Research Reserve.

The Environmental Protection Agency (EPA), Region IV, conducted a functional assessment, or Advanced Identification (ADID) of Wetlands in the 93,776-acre Rookery Bay watershed between 1992 and 1995. Wetlands at the project site were designated as a Category I resource, which should be preserved to maintain the chemical, physical, and biological integrity of waters of the United States. The project site provides habitat for State listed species such as the Florida black bear (*Ursus americanus floridanus*), and federally listed species such as the Florida panther, bald eagle (*Haliaeetus leucocephalus*), wood stork (*Mycteria americana*), and red-cockaded woodpecker (*Picoides borealis*).

Wood storks have been observed numerous times foraging at the project site. Radio telemetry points for the Florida black bear and Florida panther are found immediately adjacent to the project site. Additional wildlife observations at the project site include bald eagles, Eastern kestrels (*Falco sparverius*), American alligators (*Alligator mississippiensis*), and several species of wading birds: great egrets (*Casmerodius albus*), little blue herons (*Egretta caerulea*), snowy egrets (*Egretta thula*), tricolored herons (*Egretta tricolor*), white ibises (*Eudocimus albus*), roseate spoonbills (*Ajaja ajaja*), and sandhill cranes (*Grus canadensis pratensis*). Based upon species ranges and habitat requirements, wildlife species that are normally associated with hydric pine flatwoods and cypress swamps are expected to occur at the project site year round or seasonally.

Hydric pine flatwoods are rare outside of south Florida and are of critical, regional importance as one of the principal dominant forest cover types. Hydric pine flatwoods are geographically limited, subtropical, and have seasonal hydrologic variation which results in a habitat with high biodiversity. In the project area, hydric pine flatwoods support 31 mammal, 139 bird, 40 reptile, 17 amphibian, and 22 fish species, including 10 federally listed species (Appendix A) and an additional 86 State listed species (Appendix B). Slash pine forests, including hydric pine flatwoods, have been identified as an imperiled ecosystem due to a documented loss of 88 percent from 1900 to 1989 in southwest Florida (Noss and Peters 1995).

Cypress swamps in the project area support eight federally listed species (Appendix A) and another 69 State listed species (Appendix B). Cypress and mixed forest swamps are used extensively by birds such as barred owls (*Strix varia*), swallow-tailed kites (*Elanoides forficatus*), prothonotary warblers (*Protonotaria citrea*), and other animals such as white-tailed deer (*Odocoileus virginianus*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), Florida black bear, and frogs, turtles and snakes. The wet prairie and fresh water marsh wetlands at the site provide habitat for a variety of migratory and wading birds, as well as some wide-ranging mammals, amphibians and reptiles. In the project area, wet prairies and fresh water marsh communities are occupied by eight and nine federally listed species, respectively (Appendix A). A large number of State listed species also rely on these habitat communities (Appendix B).

The location of the project site is important because its' waters connect to Henderson Creek, which flows into Rookery Bay, and it is adjacent to Picayune Strand State Forest and other

privately-owned forested wetlands. Other adjacent parcels are agricultural land; there is no residential or urban development adjacent to the project site. The wetlands to be impacted are functional and maintain habitat value to the fish and wildlife resources described above due to the landscape position of the project site, the large size of the wetland system, the site's contribution to base flows of Rookery Bay, and the proximity to large forested ecosystems, including the on-site preservation area. The on-site wetlands are important in maintaining the health of downstream wetland and estuarine communities, and constitute aquatic resources of national importance. Jacksonville District has inappropriately dismissed the value of the on-site wetlands, due to exotic plant invasion of varying degrees.

Regional Fish and Wildlife Resource Values

Wetlands in southwest Florida are diverse and include habitats that are rare in other states, such as the hydric pine flatwoods found at the project site. The south Florida ecosystem is located along one of the primary migratory routes for bird species that breed in temperate North America and winter in the tropics of the Caribbean and South America. Two-hundred and seventy-four migratory bird species occur in southwest Florida; 175 of these occur in aquatic habitat like those in the project area (Appendix C). Native habitats in the project area support 34 mammal, 274 bird, 48 reptile, 20 amphibian, and 54 freshwater fish species (Service 1999). Twenty-two federally listed species use or depend on southwest Florida's ecological communities for all or part of their life history needs including breeding, feeding, and sheltering. Another 237 State listed species also use or depend on these same ecological communities. The project area is part of the most important region of Florida for supporting wide-ranging wildlife species such as the Florida panther, Florida black bear, and wood stork (Cox *et al.* 1994).

Although there is a berm enclosing the project site, surface and subsurface waters are routed from the agricultural lands to the wetlands in the southwest corner of the property where they discharge through a culvert to a canal on the adjacent property. Flow from the project site joins flows from Picayune Strand State Forest and other forested lands, and continues south to the Highway 41 canal. At this point some flow may be diverted, but all flows eventually continue to Rookery Bay, a National Estuarine Research Reserve and Outstanding Florida Water, via Henderson Creek, which is a major tributary to the Bay. Water quality in Rookery Bay is directly affected by the quality and quantity of water from Henderson Creek, which includes discharges from Henderson Creek Canal, Eagle Creek, and the U.S. Highway 41 Canal (Delate and Haner 1994).

Rookery Bay was designated a National Estuarine Research Reserve (Reserve) in 1978. The Reserve serves as a natural field laboratory for research and education in one of the few remaining, relatively pristine mangrove estuaries of North America. Rookery Bay Reserve provides habitat for 86 fish species (FDNR 1993) and nursery grounds for 64 recreational and commercial fish, 50 species of crustaceans and numerous shellfish. It is identified as a Habitat Area of Particular Concern, a subset of Essential Fish Habitat, in the Fishery Management Plan Amendments of the Gulf of Mexico Fishery Management Councils (NMFS 1999). Rookery Bay and its tributary Henderson Creek are the two dominant water bodies in the Reserve. Migratory and resident birds make use of the open waters for feeding and resting. Migratory waterfowl, including several species of ducks, concentrate there during the winter months (FDNR 1993). The Reserve provides important habitat for many listed species such as West Indian manatee (*Trichechus manatus*), loggerhead sea turtle (*Caretta caretta*), bald eagle, least tern (*Sterna antillarum*), eastern indigo snake (*Drymarchon corais couperi*), Florida scrub-jay (*Aphelocoma coerulescens*), American crocodile (*Crocodylus acutus*), and Florida panther (FDNR 1993).

The Rookery Bay ADID was conducted in recognition of the importance of watershed protection for Rookery Bay. The results indicate that hydric soils comprise about 72,337 acres (77 percent) and wetlands remain established in about 54,786 acres (58 percent) of the watershed. It is estimated that 17,551 acres of wetlands have already been lost due to drainage and conversion to agricultural land uses. Some 54,012 acres (99 percent of the remaining wetlands in this watershed) were classified as Category I wetlands, the preservation of which was recommended in order to maintain the chemical, physical and biological integrity of waters of the United States. The wetlands on the project site are Category I wetlands. Category I areas are considered to be the highest priority areas for wetlands planning within each state and are characterized by significant urban growth located within or nearby important wetland systems.

The Belle Meade Unit of Picayune Strand State Forest borders the project site on the north side and consists of mixed pine-cypress and hydric pine flatwoods intermingled with small uplands and mixed swamp forests. The Belle Meade area has been identified as important habitat for long-term persistence of the Florida panther, red-cockaded woodpecker, swallow-tailed kite, and fox squirrel (*Sciurus niger*) and is ranked second on a list of 36 priority conservation and recreation land projects being acquired by the State.

Substantial and Unacceptable Adverse Impacts

Substantial and unacceptable adverse impacts will occur to aquatic resources of national importance by the direct, indirect, and cumulative effects of the development of Naples Reserve Golf Club.

Direct Impacts

Construction of Naples Reserve Golf Club will result in the direct loss of 109 acres of wetlands,

including 48 acres of hydric pine flatwoods, 28 acres of cypress swamp, 19 acres of mixed pine-cypress wetlands, and 14 acres of wet prairie and emergent/fresh water marsh habitat located in water management areas. Direct habitat loss will reduce the availability of resources required by wildlife using the site. Construction of 552 homes and two golf courses will fragment the habitat mosaic of remaining on-site and off-site wetlands. Reducing the distribution of wetlands across the landscape will have the greatest impact on species which require various habitat types in spatially appropriate proximity to one another (SFWMD 2000). The wetland-upland connections of the project site and adjacent lands will be destroyed, severely compromising ecosystem diversity and viability (Forman and Godron 1986, Harris 1984). The access road to the project site, the entrance road, and internal roads on the project site will expose wildlife to previously non-existent hazards.

Only a portion of the project site will have municipal water and sewer provided. The other portion of the project site may need to use wells and septic tanks unless re-zoned. Jacksonville District states in their decision document that the proposed development would “further tax the water supply of the county for irrigation and personal consumption.” Wetlands and the surficial aquifer are integrally connected. Reduction in the level of the surficial aquifer at the project site can produce lowered water tables and shorter hydroperiods for considerable distances in lands adjacent and downstream (Carter *et al.* 1973, Klein *et al.* 1970, Swayze and McPherson 1977). Construction of both wells and large detention/retention lakes at the project site will intercept and directly impact subsurface flows. This direct impact was not considered by Jacksonville District, nor were the secondary impacts from hydrologic modification of adjacent and downstream wetland and estuarine habitats.

Indirect Impacts

Construction of Naples Reserve Golf Club will fragment remaining on-site and off-site wetland habitats, and wetland/upland connectivity. The newly created edges of the roads and the development will facilitate movement of exotic, invasive plant species and animals into remaining on-site and off-site wetland habitats (SFWMD 2000). There will be indirect impacts to wildlife species and habitats through human presence in and adjacent to the remaining wetlands, and through increases in noise, light, pollution, and traffic. Human disturbances contribute to behavioral changes in wildlife, such as habitat avoidance.

Naples Reserve Golf Club will be constructed adjacent to the Picayune Strand State Forest. This forest includes one of the most extensive old-growth hydric pine flatwoods in southwest Florida and high quality, undisturbed subtropical dwarf cypress savannas endemic to south Florida that are not found on any other state-owned properties (FDEP 1998). Jacksonville District did not consider that construction of a large-scale residential development at the project site may place additional burdens and limitations on management of these unique communities and the wildlife they support. Prescribed fire may cause conflicts with a residential, golf course community located adjacent to the Forest.

The project will directly and indirectly affect surface and ground water resources. Reduction in hydroperiod and the lowering of groundwater, resulting from the construction of wells and lake excavations, can accelerate the encroachment of exotic and nuisance plant species both on the project site and in surrounding wetland habitats. Drier conditions can facilitate shifts in composition of plant communities from wetland to upland species. Other water quality concerns include freshwater pulses and maintenance of base flows to Rookery Bay estuaries. The wetlands at the project site provide base flow to Rookery Bay estuaries, which are crucial to propagation of important commercial and recreational fish species. Jacksonville District did not consider the indirect impacts associated with the interception of groundwater by construction of Naples Reserve.

Jacksonville District's conclusion that there would be no secondary (indirect) impacts associated with this project is flawed because they did not thoroughly review the effects of habitat fragmentation, wildlife response to human-related disturbances, implications to long-term management and viability of wetland systems on adjacent preserved lands, and the indirect impacts associated with reduction of surficial water flows in preserved and downstream habitats.

Cumulative Impacts

Significant loss of mesic pine forest has already occurred in southwest Florida and hydric pine flatwoods, the last pinelands to be developed, are under extreme development pressure. Although not a rare habitat historically, pine flatwoods were reduced to approximately 50 percent of their historic extent by 1970 (Birnhak and Crowder 1974) as a result of urban and agricultural development. By 1989, Kautz *et al.* (1993) indicated that, for the first time, urban areas occupied more acreage in south Florida than did pine flatwoods. Between 1940 and 1980, Florida's total forested area (including cypress swamps) declined by 27 percent. This trend has not only continued, but increased since 1980.

The south Florida ecosystem contains four of the top ten fastest growing metropolitan statistical areas in the United States, including the Naples and the Fort Myers-Cape Coral areas (the first and fourth fastest-growing areas of the Country, respectively) (Service 1999). Southwest Florida is expected to experience a 68 percent increase in population growth from 1995 levels to the year 2020. The largest actual population increases will occur in Lee and Collier Counties; an increase of 166,267 people, or 91 percent of the current population, is expected in Collier County by 2020 (SFWMD 2000).

The health of Rookery Bay is dependent upon the proper mixture of saltwater from the Gulf of Mexico and freshwater inflows. The dredging and filling of wetlands, groundwater withdrawals, and freshwater diversions throughout the 93,776-acre watershed has deleterious direct, indirect, and cumulative impacts on Rookery Bay. It is estimated that 17,551 acres of wetlands in the Rookery Bay watershed have already been lost due to drainage and conversion to agricultural land uses. The number of golf courses constructed in the Rookery Bay watershed has increased from 15 in 1994 (Delate and Haner 1994) to 24 in 2000, or a 60 percent increase in six years.

These 24 golf courses contribute to the accumulation of fertilizers and pesticides used to maintain the fairways and greens, along with various forms of synthetic chemicals to control pests associated with turfgrass and the creation of large retention/detention lakes, which impact surficial water flows.

Jacksonville District deferred to the SFWMD in evaluating the direct and indirect hydrologic modifications associated with this development. Although the SFWMD issued 401 water quality certification for the project, water quality monitoring is not required for this or past permits. Neither Jacksonville District or SFWMD has confirmed that permitted storm water management systems provide water quality protection as designed, nor determined the cumulative effects of these developments on fish and wildlife species in downstream estuaries and in on-site wetland preserve areas used for water “treatment” or “retention.”

Jacksonville District has stated that the proposed residences and golf courses will further tax the local water supply. They also state: “In September 2000, the SFWMD placed Collier County on year-long, lawn-watering restrictions. Although completion of this project would not be contrary to the public interest from a water-supply perspective, the continued taxing of scarce potable water supplies will have to be addressed in the future.” This admitted “taxing” of scarce water supplies will impact project site wetlands, adjacent wetlands privately owned and in Picayune Strand State Forest, downstream wetlands managed by Rookery Bay Reserve, and will impact the Rookery Bay estuarine environment, which are all aquatic resources of national importance. Jacksonville District admitted there would be impacts to the surficial aquifer, but did not recognize, evaluate, or discuss the secondary and cumulative effects of those impacts.

Due to concerns regarding cumulative impacts that are associated with the continuing development of land-intensive golf courses, the Service conducted an informal investigation into the number of golf courses already existing in Lee and Collier Counties. There are 79 courses in Collier County and 86 courses in Lee County, for a total of 165 golf courses in these two southwest Florida counties alone. Forty-three courses are semi-private and 33 are public, and could be easily reached by future residents of the proposed Naples Reserve Golf Club community. According to the National Golf Foundation, there were 915 holes for every 100,000 people between Naples and Fort Myers in 1999, which ranks it number one in the world. The Myrtle Beach area of South Carolina, long regarded as a Golfer’s Mecca, ranks second with 694 holes per 100,000 people (The Fort Myers News-Press 2000). Jacksonville District did not evaluate the cumulative impacts associated with existing golf courses and the two proposed at Naples Reserve Golf Club.

Recent and significant increases in urbanization have occurred along the County Road 951 corridor and now eastward along U.S. Highway 41. Watershed level habitat loss and fragmentation from urban and agricultural growth is rapidly precluding opportunities for conservation, resource management, and restoration in southwest Florida. This region is experiencing increased pressures on natural resources similar to those experienced by Florida’s east coast in the remnant Everglades. Jacksonville District admits in their decision document

that this project would contribute to the eastern expansion of the urban boundary, yet they did not consider the cumulative impacts of direct and indirect effects of Naples Reserve Golf Club and similar developments on fish and wildlife habitats, and aquatic resources of national importance.

Adequacy of Mitigation Measures

The Service has determined that impacts to wetlands have not been avoided and minimized to the greatest extent practicable, and that the compensatory mitigation proposed by Naples Reserve Golf Club will not fully compensate for the lost functions and values in aquatic resources of national importance. As compensatory mitigation for the loss of 109 acres of wetlands, the applicant has proposed to create two acres of cypress swamps on-site and nine acres of wetlands off-site. The remainder of compensatory mitigation involves restoration, enhancement, and preservation of wetlands and uplands, on and off the project site, resulting in a net loss of 98 acres of wetlands. Although the Service supports the restoration, enhancement, and preservation activities, as these efforts will replace some of the lost functions and values of impacted wetlands, the mitigation activities will not fully compensate for the net loss of 98 acres of aquatic resources on a spatial and landscape scale. Additionally, the proposed mitigation will not replace the lost connections to adjacent forested wetlands and uplands habitat necessary for wildlife, nor will it offset fragmentation of the preserved wetlands on the project site.

It is the Service's opinion that the mitigation activities will not offset the increase in surface and ground water withdrawals, which will have exacerbated effects during the dry season on the on-site and surrounding aquatic habitat vegetation, the modification of hydrologic patterns on-site and downstream, nor the secondary affects of human disturbances such as noise, light, and traffic on fish and wildlife usage of remaining on-site and surrounding habitats. The mitigation activities do not offset the continued incremental and cumulative loss of wetland acreage, habitat fragmentation, hydrologic modifications, and human disturbances in rural Collier County.

The Wetland Rapid Assessment Procedure (WRAP) conducted by the applicant emphasized the use of project site wetlands by select Federal and State threatened and endangered species and erroneously de-valued wetlands with exotic invasion for many fish and wildlife species, particularly migratory birds, small mammals, amphibians, reptiles, and macroinvertebrates, which form the forage base for higher level organisms. The WRAP is only a tool; Jacksonville District has the responsibility to assure that all functions and values of aquatic habitats are considered and properly mitigated for, particularly if they are not considered at all, or considered inadequately, by the WRAP.

Jacksonville District did not require or evaluate modification of the project design to reduce wetland impacts, such as reconfiguring or eliminating one or both golf courses or reducing the number of housing units. The Service is concerned about the lack of proper mitigation sequencing by Jacksonville District in their review of the Naples Reserve Golf Club permit. The applicant did not avoid and minimize wetland impacts to the maximum extent practicable prior to using the results of WRAP in determining compensatory mitigation requirements.

Related Concerns

Compliance with the 404(b)(1) Guidelines

Jacksonville District is proposing to issue a permit to Naples Reserve Golf Club without adequate information to refute the presumption that alternatives exist which would not impact wetlands. Jacksonville District did not conduct a thorough alternatives analysis to substantiate that impacting 109 acres of wetlands constitutes the least environmentally damaging practicable alternative for construction of houses and golf courses.

Jacksonville District determined that the overall project purpose for Naples Reserve Golf Club is to provide a “residential community of approximately 552 dwelling units along with two 18-hole golf courses, lakes for stormwater management purposes and aesthetics, and natural preserves.” Based on Corps guidance the overall project purpose is too narrowly defined and should not include a specific number of dwelling units and golf courses, sub-components of the project (stormwater management), amenities, and preservation areas. Jacksonville District did not independently determine the project purpose and gave undue deference to the applicant’s wishes. A more accurate overall project purpose is: “to construct a residential development and golf course.” A less specific overall project purpose might have resulted in less required acreage and the subsequent analysis may have identified either potential alternatives sites or on-site configurations which further avoided and minimized wetland impacts.

By stating that the applicant required a section of land (640 acres) to achieve the overall project purpose, Jacksonville District did not thoroughly evaluate the necessity of un-related project components being constructed on a contiguous block of land. A residential community is not dependent upon being located contiguous with a golf course. Jacksonville District does not provide any economic justification or analysis of the applicant’s statement that the project would not be financially feasible without 36-holes of golf. It did not determine if all the separate and non-related component parts of the project, as proposed by the applicant, are necessary to meet the overall project purpose. That the applicant prefers a mixed-use project is not adequate reason to preclude evaluation of non-related project components separately.

Jacksonville District states that the applicant indicated that the “proposed 552 units is required to financially support development of this site. Reducing the number of units would increase sales costs and undermine the project’s market position.” Jacksonville District does not provide any economic justification or analysis of the applicant’s statement that the project would not be financially feasible with less housing units. The applicant’s concern over market position does not prove that a smaller-scale project would not be viable. Additionally, Jacksonville District did not consider reconfiguration of residential lots, such as allowing back to back home-sites, to minimize impacts to wetlands. During review of the project, proposed wetland impacts were reduced by five acres as a result of re-calculation of jurisdictional acreage; no modifications to the project design to reduce wetland impacts were evaluated.

Jacksonville District improperly utilized compensatory mitigation in their determination of the least environmentally damaging practicable alternative and compliance with the 404(b)(1) Guidelines. Jacksonville District states, “provided the on-site and off-site mitigation is successful, the project, as proposed, can be considered to be the least environmentally damaging practicable alternative.” Jacksonville District predicated their determination of the least damaging practicable alternative not only on consideration of compensatory mitigation, but also on the success of the mitigation efforts, which will not be known until well after wetlands at the project site have been destroyed by development. Significant and unacceptable impacts will occur on this project and can be expected to occur on other permit submittals as a result of similar implementation of the 404(b)(1) Guidelines.

Cumulative Impacts Assessments

The assessment of the cumulative impacts of permitted activities is a central tenet of the Corps regulatory program and the 404(b)(1) Guidelines. Jacksonville District states that there would be no adverse cumulative impacts, nor significant secondary impacts, caused by the development of Naples Reserve Golf Club, because of the “extensive review of this project that resulted in a mitigation plan that addresses these concerns.” Furthermore, Jacksonville District states that every new project which requires a 404 Permit would receive the same review to ensure adequate avoidance, minimization and compensation of impacts. However, since this project was not subjected to an adequate review, we can anticipate subsequent project reviews will also be lacking.

Based upon the logic used by Jacksonville District, Naples Reserve Golf Club and all other projects requiring a 404 Permit, would not have adverse impacts nor contribute to cumulative adverse impacts, because mitigation is being required. Yet, Jacksonville District has admitted that there is concern over their adequate review of cumulative impacts, as stated in the Environmental Impact Statement (EIS) prepared by Jacksonville District on improving the regulatory process in this region (Corps 2000): “The Corps initiated the EIS out of concern whether the incremental (permit-by-permit) reviews were adequately addressing cumulative and secondary effects of the wetland fill in the rapidly growing Southwest Florida area.” Jacksonville District did not fully consider past, as well as present and future, impacts on the aquatic ecosystem when reviewing Naples Reserve Golf Club, as discussed previously in the substantial and unacceptable adverse impacts section.

The compensatory mitigation proposed for Naples Reserve Golf Club is inadequate, for reasons stated previously. Jacksonville District’s determination that there would be no adverse cumulative or secondary (indirect) impacts associated with Naples Reserve Golf Club is flawed, because they did not review all potential indirect and cumulative impacts and they rely on the success of mitigation measures to offset all adverse impacts. The development of this large-scale residential community and two golf courses on the project site will result in the loss of over 100 acres of primarily forested wetlands, fragmentation of forested habitat, disturbance to wildlife in the on-site preservation area and off-site habitats, and further hydrologic modification of

remaining on-site and off-site wetlands and Rookery Bay Reserve. None of these indirect and cumulative effects were considered by Jacksonville District, nor will they be mitigated for by on-site and off-site wetland creation, enhancement, and preservation actions. Additionally, Jacksonville District did not recognize that the project will impact the natural and human environment in the project vicinity with changes in noise, light, pollution, and traffic volume and patterns.

Conclusions and Recommendations

The Service has determined that the construction of Naples Reserve Golf Club will result, directly, indirectly, and cumulatively, in substantial and unacceptable adverse impacts to aquatic resources of national importance, including on-site hydric pine flatwoods and cypress swamps, similar off-site wetlands and habitat mosaics in Picayune Strand State Forest and Rookery Bay National Estuarine Research Reserve. The Corps has not properly implemented the required 404(b)(1) alternatives analysis and has not substantiated that the proposed project is the least environmentally damaging practicable alternative.

The Service recommends that the permit for Naples Reserve Golf Club, as proposed, be denied. If the permit is still pursued, the Service recommends that Jacksonville District conduct a thorough alternatives analysis, based upon a properly defined project purpose, to investigate potential alternate project sites that may accommodate one or both components of the project. Additionally, if it is determined that the project site is the only feasible and available site, the Service recommends that Jacksonville District require avoidance and minimization of wetland impacts on the project site to the greatest extent practicable. This could include redesign of the project to avoid impacts to on-site wetlands, particularly in the southwest corner, by elimination or reconfiguration of one or both of the golf courses, and/or reduction or reconfiguration of housing units. The Service believes that the 512 acres of uplands available at the project site can accommodate a viable development with minimal, if not total avoidance of, wetland impacts in the southwest corner of the property. The Service also recommends that Jacksonville District consider and fully assess the indirect and cumulative affects associated with the proposed project impacts on aquatic resources.

Watershed level habitat loss and fragmentation from urban and agricultural growth is rapidly precluding opportunities for conservation, resource management, and restoration in southwest Florida. The Federal government is now spending billions of dollars to re-examine the operation and needs of the Central and Southern Florida Project under the Comprehensive Everglades Restoration Plan (CERP), in order to better balance the needs of natural areas with the needs of agriculture and the increased population in south Florida. Objectives of the CERP include enhancing ecological values by increasing the spatial extent of natural areas, improving habitat and functional quality, and improving plant and animal species abundance and diversity (Service 1999). The Service supports these objectives and recommends that Jacksonville District pursue such goals in southwest Florida, while the opportunities remain to maintain and restore the ecological integrity of the aquatic resources of the region.

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