RECORD OF DECISION AND STATEMENT OF FINDINGS

ACTION ID: SAJ-2015-02343

APPLICANT: Florida Fish and Wildlife Conservation Commission

PROJECT: East Lake Tohopekaliga Drawdown and Habitat Enhancement Project, Deviation from Master Water Control Manual for Kissimmee River-Lake Istokpoga Basin, and Placement of Temporary Pumps on the C-31 Levee at S-59

I have reviewed and evaluated, in light of the overall public interest, the documents and factors concerning the permit application for the proposed action and the associated requests for deviation from the Master Water Control Manual for Kissimmee River-Lake Istokpoga Basin and placement of temporary pumps at S-59, as well as the stated views of interested agencies and the public. In doing so, I have considered the possible consequences of the proposed action in accordance with regulations published in 33 Code of Federal Regulations (CFR) Parts 320 through 332, 33 U.S.C. 408, 33 CFR 222.5 and 40 CFR Part 230. This Record of Decision (ROD) addresses three decisions 1) the deviation from the Master Water Control Manual primarily in Sections 1-5, 8 & 10; 2) the Section 408 authorization primarily in Sections 1-5 , 8 & 10; 3) matters relevant to the Section 10 and Section 404 regulatory permitting in Sections 1 through 10.

As described in the July 2019 *East Lake Tohopekaliga (East Lake Toho) Drawdown and Habitat Enhancement Final Environmental Impact Statement (FEIS)*, prepared by the U.S. Army Corps of Engineers, Jacksonville District (Corps or USACE) as the lead federal agency, under the National Environmental policy Act (NEPA), the proposed action is to conduct a temporary drawdown of East Lake Toho to remove vegetation and organic material for purposes of littoral zone habitat enhancement. Florida Fish and Wildlife Conservation Commission (FWC) proposes to lower East Lake Toho (beginning October 1, 2019) to elevation 53.0 feet National Geodetic Vertical Datum of 1929 (NGVD29) feet by 15 February 2020. Four pumps (with combined capacity of 400 cubic feet per second [cfs]) would be placed on the Canal 31 (C-31) levee to assist in lowering East Lake Toho stage when the water levels in East Lake Toho and downstream Lake Tohopekaliga, are nearly the same. Deviation from the East Lake Toho Regulation Schedule would be required. The proposed action includes mechanical scraping of approximately 112 acres of littoral zone (organic sediment and invasive vegetation) along the east shore and consolidation into two in-lake spoil islands (approximately 3.5 to 4 acres each). This would result in a total of approximately 115 acres of dredge/fill in waters of the United States (WOTUS). The drawdown and habitat enhancement would require a deviation from the Master Water Control Manual for Kissimmee River-Lake Istokpoga Basin, which contains the regulation schedule for East Lake Toho, a 408 permit for the temporary placement of pumps on the C-31 Levee, and a Department of the Army (DA) permit for proposed fill in WOTUS.

Based on the July 2019 *East Lake Tohopekaliga (East Lake Toho) Drawdown and Habitat Enhancement Final Environmental Impact Statement (FEIS),* the reviews by other Federal, State and local agencies, Tribes, input of the public and the review by my staff, I find Alternative B to be in accordance with environmental statutes and the public interest.

1. Background:

APPLICANT: Florida Fish and Wildlife Conservation Commission
c/o Mr. Tim Coughlin
1601 Scotty's Road
Kissimmee, Florida 34744

a. The Corps received a complete application from FWC for a DA permit on 5 July 2016. A Memorandum For Record (MFR), detailing the need for an EIS, was completed 3 August 2017. The Corps approved a third-party contractor on 8 August 2017.

(1) A Notice of Intent (NOI) to prepare an EIS for the East Lake Toho Project was published in the Federal Register (FR) 3 November 2017.

(2) On 17 November 2017, the Environmental Protection Agency (EPA) provided a letter affirming their desire to be a cooperating agency in preparation of the East Lake Toho EIS.

(3) An Agency Coordination Meeting was held 5 December 2017 at Osceola Heritage Park in Kissimmee, Florida. This meeting included a review of the proposed project components, project alternatives, NEPA process, communication protocols, the DEIS outline and critical schedule milestones.

(4) A public scoping meeting was held at Osceola Heritage Park, Kissimmee, Florida on 5 December 2017 (see FEIS Section 1.5 Public and Agency Involvement and Appendix A Scoping Summary Report).

(5) A Notice of Availability (NOA) of the Draft EIS (DEIS) was published by EPA in the FR on 12 April 2019; comment period ended 27 May 2019.

(6) During the DEIS review period, a public meeting was held in Kissimmee, Florida (2 May 2019) to inform the public and receive their input. This meeting included an overview of the proposed East Lake Toho Project, content of the DEIS, and public comment process. Following the overview presentation, the Corps invited the public to submit comments verbally via the court reporter or in writing via comment forms

provided at the meeting. A court reporter recorded all comments and statements made by the public and prepared an official transcript (see FEIS Section 1.5 Public and Agency Involvement and Appendix I Public Comment Response Table).

(7) A 21-day public notice was issued on 29 May 2019 soliciting comments on work proposed in WOTUS, pursuant to Section 404 of the Clean Water Act (33 United States Code ([U.S.C.)] § 1344).

(8) A NOA of the FEIS was published by EPA in the FR on 2 August, 2019.

b. In accordance with 40 Code of Federal Regulation (C.F.R.) § 1505.2, the Corps is preparing this ROD and Statement of Findings for DA permit application Number SAJ-2015-02343 (SP-JSC) which requests authorization for the proposed drawdown, including removal of organic spoil material from the littoral zone of the lake, redeposition and consolidation as spoil islands in WOTUS (*i.e.*, open waters of East Lake Toho). The proposed action regulated through USACE, pursuant to Section 404 of the Clean Water Act (33 United States Code (U.S.C.) § 1344), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403) and Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C § 408). Additional authority is provided by 33 C.F.R. § 222.5, Water Control Management. In addition, the USACE has decision authority over the proposed deviation to the water control manual (drawdown) and the placement of pumps on a federal project.

c. 40 C.F.R. § 1505.2(a) requires the Corps to state what the decision was. Three Corps' decisions are covered by this ROD: 1) to issue a DA permit for the placement of organic sediments removed from the littoral zone of East Lake Toho into WOTUS, in accordance with the Least Environmentally Damaging Practicable Alternative (LEDPA); 2) the granting of a deviation from the Master Water Control Manual for Kissimmee River-Lake Istokpoga Basin; and 3.) 408 permit for placement of temporary pumps on C-31 at S-59. The LEDPA is also the Applicant's preferred alternative as documented below in Section 3.

d. 40 C.F.R. § 1505.2(b) requires the Corps to "identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable." As the lead federal agency for the proposed action, the Corps completed an alternatives evaluation including a "no-action alternative" in the FEIS. *See* FEIS Chapter 2 Alternatives, for the full discussion of alternatives considered, including alternative deviations to the Master Water Control Manual. The Corps has determined the applicants' preferred alternative is both the LEDPA and the environmentally preferable alternative. The Corps' analysis of the alternatives evaluated in the FEIS are documented below in Section 3.

e. 40 C.F.R. § 1505.2(c) requires the Corps to "state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. The Corps' analysis included review of practicable alternative means of achieving project objectives and a "no action alternative." The Corps determined that the Applicants' preferred alternative is both the LEDPA and the environmentally preferable alternative. Environmental harm associated with the applicants' preferred alternative will be minimized and mitigated to the maximum extent practicable (*See* FEIS Chapter 5 Regulatory Compliance and Mitigation, and Section 7 below).

2. Project Purpose and Need:

a. Basic: aquatic habitat improvement

b. Overall: The overall purpose of the proposed activity is the improvement of littoral zone fish and wildlife habitat in East Lake Toho.

c. Water Dependency Determination: The project's basic purpose, aquatic habitat improvement, does require siting within a water of the U.S. However, the proposed discharge for spoil islands is not water dependent.

d. Need: The proposed action will allow FWC to address the degraded East Lake Toho littoral zone habitat conditions through water-level drawdown, vegetation spray and burn, soil and vegetation scraping and the creation of spoil islands within the lake.

3. Alternatives: Chapter 2 of the 2 August 2019 FEIS presents the details of the NEPA alternatives analysis for the Project. The details provided in the FEIS were used by the Corps to select the LEDPA.

a. Alternatives Fully Evaluated in the EIS

(1) No-action Alternative: The No-Action Alternative assumes that the proposed action would not be implemented. This would be the expected future condition of East Lake Toho should the requested Section 404 and Section 10 authorizations not be approved; the East Lake Toho drawdown and habitat enhancement activities were not undertaken and if there were no placement of pumps. Under the No-Action Alternative, the purpose and need of the Project would remain unmet, and degraded conditions in East Lake Toho would most likely continue and become increasingly worse.

(2) Alternative A: FWC proposes to lower the pool elevation of East Lake Toho from 57.0 feet NGVD29 (assuming this is the water level on October 1, 2019) to 53.0 feet NGVD29, which is a deviation from the East Lake Toho regulation schedule, established by the Corps Water Control Plan in the Master Water Control Manual for Kissimmee River – Lake Istokpoga Basin. This activity would expose an additional 249 acres beyond the area exposed under the existing schedule. Four pumps with a combined capacity of 400 cfs are proposed to be placed at Water Control Structure S-59 to assist in lowering East Lake Toho. Approximately 112 acres of littoral zone would be mechanically scraped along the eastern shore of East Lake Toho and consolidated into two spoil in-lake islands. Approximately seven to eight acres of wetland and open water habitat would be permanently impacted by the creation of the two in-lake spoil islands.

Other Project elements included in the FEIS but not necessarily within the Corps' regulatory authorities:

- Equipment would be staged on a one-acre site near the Chisholm Park boat launch located along the southeast corner of East Lake Toho.
- Vegetation management by herbicide application and controlled burning.
- Installation of Steel Plate to Existing Rummel Road Box Culvert

(3) Alternative B: Alternative B is a modification of Alternative A that would leave up to seven isolated patches of natural tree/shrub habitat and islands in place along the eastern shore within the area proposed to be scraped. This alternative would leave approximately 25 percent (six to eight acres) of tree/shrub habitat, totaling five to ten percent of the proposed 112-acre scrape area. Alternative B meets the original Project objectives while preserving some of the existing habitat for wildlife that utilize in-lake woody vegetation

b. Alternatives Considered but Rejected from Further Analysis

(1) Upland Disposal of Organic Sediment

The proposed action would essentially consolidate organic sediment material, originating from the in-lake scrape area, into two spoil islands. While the material would originate from within the lake, the Corps presumed, consistent with the 404(b)(1) Guidelines, that an upland alternative to redeposition as spoil islands was available. The Corps considered numerous off-site disposal options, associated costs, and public interest constraints. An upland disposal search area was defined within 3-miles of Chisholm Park (generally, up to 5-mile driving distance). Of the ten land parcels, all were dismissed for a variety of reasons including ongoing development, existence of

wooded and wetland habitat, and/or the unwillingness of land owners to accept spoil material (FEIS, Appendix E).

On 11 January 2018, FWC's Tim Coughlin and the Corps' Jeffrey Collins made a brief presentation to the St. Cloud City Council explaining the proposed Project and requested an official response in regard to the ability to stockpile material at Chisholm Park. The City of St. Cloud never responded to the request but FWC was able to reach agreement on the use of Chisholm Park for equipment staging and lake access. The site was excluded because it was not available for use *(i.e.*, City of St. Cloud did not agree to accept material).

Plaza Lakes LLC was one of the sites (northwest side of East Lake Toho) that declined to accept FWC material. The site was excluded because it was not available for use.

Stacking material on smaller lots was eliminated due to the cost of land acquisition and hauling would likely increase Project costs by approximately 50 percent. In addition, authorization of an upland disposal site in such an urban area, with material stocked 15-20 feet high, would not be in the public interest where residential parcels predominate.

On 16 May 2019, Waste Connections of Osceola County, LLC, provided the Corps with an estimate for truck hauling and disposal of 100,000 cubic yards of scraped material. Hauling 100,000 yd^3 material a distance of approximately three miles from Chisholm Park would result in an additional cost of approximately $882,000. A five mile hauling distance would have an approximate cost of $1,129,000. This would result in an almost 40 percent increase in the total cost of the $2,252,000 Project, for either Alternative A/B.

(2) Additional Structures in WOTUS

FWC had considered a sheet pile structure at the canal exiting Fells Cove. It was determined such a structure was not needed, due to a water control structure south of Lake Hart.

(3) Alternative Drawdown Schedules and Methods

The drawdown recession and refill rates were modeled by South Florida Water Management District (SFWMD), with input from the U.S. Fish and Wildlife Service (FWS), prior to application submittal by FWC. The results of the analysis are presented in Appendix C of the EIS. Other options were not considered due to impacts to the Everglade snail kite. Pumps are necessary, because gravity-fed conveyance becomes inefficient as the lower East Lake Toho stage approaches that of Lake Tohopekaliga.

c. Least environmentally damaging practicable alternative (LEDPA) and environmentally preferable alternative: Based on the analysis of alternatives in the

FEIS, the applicant's preferred alternative, which leaves approximately 5-acres of tree islands under Alternative B, is the LEDPA that would best achieve the overall Project purpose while considering cost, logistics, and existing technology. It is also the environmentally preferable alternative. It includes a deviation to the water control plan and the placement of pumps on C-31 at S-59. The result of the comparison of Project benefits and adverse impacts reveals a net benefit in terms of aquatic resource functions and services.

The no-action alternative does not meet the Project purpose and would allow continued degradation of East Lake Toho littoral zones. Alternative A, while not substantially different than Alternative B, would promote less wildlife diversity and would not be as environmentally preferable. Upland disposal was screened out of the NEPA analysis because landowners were unwilling to accept material and costs to haul material three miles would increase project costs by up to 40 percent. Such costs (including the landfill disposal cost) are unreasonable and could preclude FWC habitat enhancement projects and allow continued degradation of the littoral zone, which would not be environmentally preferable. In addition, authorization of an upland disposal site in an urban area, with material stocked 15-20 feet high, would not be environmentally preferable due to public interest considerations. Alternative drawdown schedules and methods were determined to impact endangered species more than the method proposed in Alternatives A and B and thus were eliminated from consideration.

The proposed discharge of dredge or fill material associated with the proposed action will not cause or contribute to any violations of applicable water quality standards nor will it violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean water Act.

4. Comments on the Final EIS: The Final EIS comment period concluded 3 September 2019. No public comments were received. EPA provided a letter dated 27 August 2019 indicating the agency had no further comment and recommending environmental commitments be included with the ROD; EPA requested a copy of the ROD for their administrative records. Environmental commitments would be memorialized in the permit authorization as special conditions (*See* Attachment 1).

5. Consideration of Applicable Laws and Policy:

a. National Environmental Policy Act (NEPA): The FEIS was completed to evaluate a reasonable range of Project alternatives and disclose impacts to the public. The Corps followed the NEPA process, including noticing and time-line requirements, to produce a document that discloses to the public the probable impacts of the proposed action, taking

into account mitigation. The EIS will be utilized to facilitate all three decisions related to the proposed action.

b. Section 404 of the CWA, 33 U.S. Code (U.S.C.) § 1344: The Corps has reviewed Project elements proposing fill in WOTUS. Under CWA Section 404(b)(1) Guidelines 40 C.F.R. Part 230, wetland and aquatic resource impacts are first avoided, then minimized to the maximum extent practicable. The result of the comparison of Project benefits and adverse impacts reveals a net benefit in terms of aquatic resource functions and services and, consequently, no compensatory mitigation is required (Section 5.2.4 of the FEIS). The proposed discharge complies with the Guidelines, with the inclusion of the appropriate and practicable special conditions in the regulatory permit to minimize pollution or adverse effects to the affected ecosystem (Section 7).

c. Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 403: The Corps determined the Project would have short-term effects on navigation, of moderate to high intensity, on East Lake Toho. However, lake access and navigation would still be able to occur.

d. Section 401 of the CWA (33 U.S.C. 1341): Water Quality Certification (WQC): Pursuant to CWA § 401 a federal agency cannot issue a permit or license for an activity that may result in a discharge to waters of the U.S. until the state where the discharge would originate has granted or waived WQC § 401 certification. WQC is waived by the State for the proposed action, based on Section 403.813(1) (r)(1) and (2), Florida Statutes, and is therefore exempt from Florida Department of Environmental Protection (FDEP) permit requirements.

e. Section 307(c) of the Coastal Zone Management Act: Coastal Zone Consistency: Same as above.

f. Fish and Wildlife Act of 1956, Fish and Wildlife Coordination Act, and other acts protecting fish and wildlife resources: The FEIS incorporates numerous sections identifying, reviewing, and evaluating potential effects to fauna (e.g., FEIS Sections 3.7 Fish & Wildlife Resources, 3.8 Threatened and Endangered Species). The Corps reviewed the FEIS information, the Best Management Practices (BMPs) proposed by the applicant, and the Biological Opinion (BO) authored by the FWS. The Corps concludes that the Project complies with the laws protecting fish and wildlife resources.

g. National Historic Preservation Act of 1966: The Corps coordinated an effect determination with the State Historic Preservation Office (SHPO) by letter dated 13 May 2019. The Corps determined pump placement, in the absence of excavation, would result in no adverse effect to St. Cloud Canal (#8OS2752) pursuant to Section 106 of the

National Historic Preservation Act. Because there is potential for unidentified resources to exist in the lakebed adjacent to the shoreline that could be affected by the drawdown and demucking activities, a survey of these areas is required. However, the most effective method for surveying these areas cannot be done until the lake is drawn down. Therefore, the Corps intends to issue a permit for the pumps and approve the deviation to the water control pan, and is imposing a special condition in the regulatory permit. This special condition will require that a Cultural Resource Assessment Survey (CRAS) be completed in the shoreline excavation areas prior to ground disturbing activities and that additional monitoring is undertaken during implementation of Project activities. This survey would be completed pursuant to the Draft Archaeological Plan, reporting provided to the Corps, and a final effect determination coordinated with SHPO prior to the initiation of excavation activities. The Draft Archaeological Plan, and other protective measures, are included as special conditions of the permit. SHPO provided concurrence by letter dated 2 May 2019.

h. Endangered Species Act (ESA): The ESA is addressed in the FEIS at Section 3.8 regarding Threatened and Endangered Species and in the FWS BO located in Appendix B of the FEIS. In a Biological Assessment provided to the FWS on 14 January 2019, the Corps determined that the Project may affect, but is not likely to adversely affect, the eastern indigo snake *(Drymarchon corais couperi*; indigo snake), Audubon's crested caracara (*Polyborus plancus audobonii*; caracara), and the wood stork (*Mycteria americana*). Additionally, the Corps determined the Project may affect and is likely to affect the Everglades snail kite (*Rostrhamus sociabilis plumbeus*; snail kite) and requested formal consultation. In a 21 June 2019 BO to the Corps, the FWS concurred with the Corps' determinations and concluded the proposed action, as proposed, is not likely to jeopardize the continued existence of the snail kite. All terms and conditions, conservation measures, and reasonable and prudent measures resulting from these consultations will be implemented in order to minimize take of endangered species and avoid jeopardizing the species.

i. Section 402 of the CWA: The National Pollutant Discharge Elimination System (NPDES) Stormwater Permit Program as established in Section 402 of the federal CWA is responsible for the protection of surface water quality through the State by regulating point source discharges of pollutants to surface watercourses. The FDEP is responsible for issuing and enforcing NPDES permits within the geographic limits of the Project. The FEIS (Section 3.4 Water Quality) evaluated potential effects of the Project on water quality. Compliance with the conditions of any NPDES permits would be incorporated as special conditions of any Corps authorization for the Project.

j. Magnuson-Stevens Fishery Conservation and Management Act (MSA): The Project does not have impacts to Essential Fish Habitat and is in compliance with MSA.

k. Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are not within the Corps' continuing program responsibility and cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this permit action.

l. 33 CFR 222.5, Water Control Management Engineering Regulation (ER 1110-2-240): The proposed drawdown would require a temporary deviation from the East Lake Toho Regulation Schedule, as established in the Corps' Water Control Plan in the Master Water Control Manual for the Kissimmee River – Lake Istokpoga Basin. SFWMD submitted a request to the Corps for a temporary deviation from the regulation schedule. The decision to approve the deviation was made by the Corps' South Atlantic Division, taking into consideration the environmental analysis in the FEIS for the regulatory opinion, which also included the effects from the deviation. Defined conditions where the proposed action would not occur (*e.g.*, not conducting the drawdown in extreme dry/wet conditions or if Lake Okeechobee is above 15.5 feet NGVD29), and limiting the rate of refill, would minimize potential effects of the deviation to the regulation schedule.

m. Section 14 of the Rivers and Harbors Act (33 USC 408): Temporary pumps and intake/outfall pipes located at the S-59 structure on the C-31 Canal would constitute a modification to the federal project. The SFWMD submitted a request for review to the Corps pursuant to 33 USC 408 on 28 May 2019. This decision was made by the Corps' Jacksonville District Office, Civil Works, and utilized the FEIS for the regulatory opinion as the environmental analysis.

n. Presidential Executive Orders (EO):

(1) EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians: The FEIS, Section 3.11 Cultural Resources, conveys information regarding the Corps communication with the Seminole Tribe of Florida (STOF) and the Florida State Historic Preservation Officer (SHPO). By letter dated 11 November 2016, the Corps extended the opportunity for the STOF and Miccosukee Tribe of Indians of Florida (MTIF) to be cooperating agencies on the EIS; both Tribes declined.

(a) The Corps initiated informal consultation with, and provided the NOI to, STOF and MTIF and requested comments. STOF responded by letter dated 15 December 2017, stating their concern regarding unexpected discoveries (*e.g.*, pre-historic canoe in the bottom of East Lake Toho) and requested a CRAS.

i. The Corps' cultural resource effect determination was provided to STOF by letter dated 12 May 2019. STOF concurred by letter dated 24 May 2019, with the expectation that a CRAS and report would be coordinated with STOF prior to excavation activities occurring in the littoral zone. The Corps will include a special condition in the regulatory permit to require this coordination.

(b) The Corps provided the DEIS to STOF and MTIF, by letters dated 6 May 2019. STOF and MTIF had no comments.

(2) EO 11988, Floodplain Management: The drawdown of East Lake Toho would temporarily reduce the storage volume. This is a minor effect since it occurs during the dry season, and would not occur under above-average rainfall conditions.

(3) EO 12898, Environmental Justice: The Corps has determined that the proposed Project would not use methods or practices that discriminate on the basis of race, color or national origin nor would it have a disproportionate effect on minority or low-income communities.

(4) EO 13112, Invasive Species: The Project would remove exotic/nuisance vegetation from the littoral zone and improve habitat conditions. The Corps will include a special condition to require FWC to manage vegetation on the two spoil islands, to reduce potential effects from exotic/nuisance vegetation.

(5) EO 13212 and EO 13302, Energy Supply and Availability: The proposal is not one that will increase the production, transmission, or conservation of energy, or strengthen pipeline safety.

6. Compliance with 404(b)(1) Guidelines

Practicable alternatives to the proposed discharge consistent with 40 CFR 230.5(c) are evaluated in Section 2 of the FEIS. The applicant has demonstrated there are no practicable alternatives that do not involve special aquatic sites; nor are there alternatives to the proposed discharge that would be less environmentally damaging (Subpart B, 40 CFR 230.10(a)). The Corps is required to determine in writing the potential short-term or long-term effects of a proposed discharge of dredge/fill material on the physical, chemical, and biological components of the aquatic environment. No discharge shall be permitted which would cause or contribute to significant degradation of the WOTUS.

Candidate disposal site delineation (Subpart B, 40 CFR 230.11(f)). Specified sites include the littoral zone scrape areas (approximately 112 acres) and the north and south spoil islands (combined eight acres), where scraped littoral zone material will be deposited. The effects of both the scrape area and disposal islands are assessed independently, due to temporary versus permanent effects, respectively, as described below.

a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (40 C.F.R. Part 230, Subpart C):

(1) Physical Substrate (40 C.F.R. § 230.20): (See the FEIS, Section 3.5 Soils and Geology and Section 5.2.4 Aquatic Resource Assessment)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Major short-term effect; minor beneficial long-term: Organic sediment removal and drawdown would be disruptive to sediment processes during implementation. Implementation of BMPs would reduce these effects. However, major benefits would be provided long-term (*i.e.*, to the next drawdown in 30 years) by reducing organic sediments and exposing mineral sediments. These benefits would be demonstrated with reduced water quality impacts, and improved benefits to fish, wildlife and wetland vegetation.	Minor long-term effect Consolidating organic sediments into spoil islands would largely remove physical, chemical, and biological characteristics of the substrate in the long-term. This would translate to loss of wetland functional capacity. The negative effect is minimized through improved function in the scrape area and long-term management by FWC (*See* FEIS, Section 5.2.4).

(2) Suspended Particulates / Turbidity (40 C.F.R. § 230.21): (See the FEIS, Section 3.4 Water Quality)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; minor beneficial long-term: Particulates/turbidity would increase in the Project area during construction and upon the refill, where desiccated organic sediments enter the water column. Implementation of BMPs would reduce	Minor long-term effect The spoil islands would largely remove physical, chemical, and biological characteristics of the aquatic resource in the fill area. There could be some erosion of spoil during hurricane events, which would contribute to turbidity. The

these effects. However, major benefits would be provided long-term (*i.e.*, to the next drawdown in 30 years) by reducing unconsolidated organic sediments.	negative effect is minimized through implementation of BMPs (See FEIS, Appendix F), which would be a special condition of any DA permit authorization.

(3) Water (40 C.F.R. § 230.22): (See the FEIS, Section 3.4 Water Quality)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; minor beneficial long-term: Removal of littoral zone organic sediments would reduce contact with East Lake Toho's water column. This would decrease BOD, resulting in more stable and higher levels of dissolved oxygen within the scraped areas. The removal of tussocks and resulting increased light penetration should encourage productivity, thereby further improving dissolved oxygen concentrations. Short-term negative impacts to water quality caused by increased turbidity and nutrient levels would likely occur. Long-term effects would be minor and may be beneficial. Implementation of BMPs and water quality monitoring would minimize effects.	Minor long-term effect The spoil islands would largely remove physical, chemical, and biological characteristics of the aquatic resource in the fill area. There could be some minor negative water quality effects through interaction of the organic spoil with water. The negative effect is minimized through improved water quality in the scrape area, and implementation of BMPs (See FEIS, Appendix F), which would be a special condition of any DA permit authorization.

(4) Current Patterns & Water Circulation (40 C.F.R. § 230.23): (See the FEIS, Section 5.2.4 Aquatic Resource Assessment)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; minor beneficial long-term: Water circulation in the littoral zone would be impacted short-term as a result of drawdown conditions. Current conditions are reduced water circulation in the littoral zone due to organic sediments and heavy vegetation growth. Removal of these features would allow improved water circulation. This benefit should be retained through the next drawdown with vegetation management by FWC (See FEIS, Section 5.2.4).	Minor long-term effect The spoil islands could change water circulation in the immediate area. However, the spoil islands are waterward from shore and would not block circulation.

(5) Normal Water Fluctuations (40 C.F.R. § 230.24): (See the FEIS, Section 3.3 Water Resources)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; no long-term effect: Drawing the lake down to 53 feet NGVD29 would be a short-term deviation from the current regulation schedule. However, it is within the historic range of water fluctuation on East Lake Toho. Subsequent to the refill, water would fluctuate based on the current regulation schedule.	Minor short-term effect; no long-term effect: Same short-term effect. Water fluctuations are removed in the area of the spoil island, simply because it becomes dry land. Subsequent to the refill, water would fluctuate at the edge of the spoil islands based on the current regulation schedule.

(6) Salinity Gradients: N/A

b. Potential effects on biological characteristics of the aquatic ecosystem

(1) Threatened or Endangered Species: (See the FEIS, Section 3.8 Threatened and Endangered Species)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; minor long-term effect: Overall, scrape activities would have minor potential short-term effects on caracara and indigo snake, if in the staging area. The drawdown would have greater impacts to snail kite and wood stork, due to loss of foraging habitat; and nesting habitat for snail kite. These would still be considered minor short-term effects due to the availability of other foraging and nesting habitats in the Kissimmee Chain of Lakes/watershed. Subsequent to the refill and revegetation, the proposed action would provide minor long-term benefits to foraging and nesting	Minor short-term effect ; Minor long-term effect: Same construction level effects as for the scrape area. The spoil islands would have a minor long-term effect on wood stork and snail kite due to eight acres of lost foraging and nesting habitat. Effects are minor considering availability of other foraging and nesting habitats in the Kissimmee Chain of Lakes/watershed. Effects on caracara and indigo snake would be negligible long-term since they would not be using the spoil islands.

habitat for these avian species. BMPs would minimize construction effects.	BMPs would minimize construction effects.

(2) Fish, Crustaceans, Mollusks, and Other Aquatic Organisms: (See the FEIS, Section 3.7 Fish and Wildlife Resources)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor to major short-term effects; minor long-term effect: Fish and other motile animals will move out of the scrape area with reduced water levels. Benthic organisms in the scrape area would likely be destroyed (major short-term effect). Motile animals will return to scrape areas upon the refill. Benthic and sessile animals are expected to recolonize the scrape area over the short-term. The impact of construction on fish is expected to be minor and short-term, while improved spawning substrate and vegetation conditions subsequent to refill would provide minor long-term benefits.	Minor long-term effect: All aquatic organisms would be extirpated from the spoil island footprint. Effects are minor considering availability of other foraging and nesting habitats in the Kissimmee Chain of Lakes/watershed.

(2) Other Wildlife: (See the FEIS, Section 3.7 Fish and Wildlife Resources)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; minor long-term effect: The drawdown would have a major effect on amphibians and wading birds due to loss of prey species. This would still be considered a minor short-term effect due to the availability of other foraging and nesting habitats in the Kissimmee Chain of Lakes/watershed. Subsequent to the refill and revegetation, the proposed action would provide minor long-term benefits to wading bird foraging. BMPs would minimize construction effects.	Minor short-term effect ; Minor long-term effect: Same construction level effects as for the scrape area. The spoil islands would have a minor long-term effect on amphibians and wading birds due to lost habitat. Effects are minor considering availability of other foraging and nesting habitats in the Kissimmee Chain of Lakes/watershed. BMPs would minimize construction effects.

c. Potential Effects on Special Aquatic Sites (Subpart E):

(1) Sanctuaries and Refuges: (See the FEIS, Section 2.3 Alternative A)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; no long-term effect: The Project would use one acre of Chisholm Park for staging equipment and lake access; the ramp would be closed. Subsequent to earth moving activities, Chisholm Park would be returned to normal with no long-term effect. BMPs would minimize construction effects.	Minor short-term effect; no long-term effect: Same as for the scrape area.

(2) Wetlands: (See the FEIS, Section 3.6 Vegetation and Section 5.2.4 Aquatic Resource Mitigation Assessment)

Scrape Area (112 acres)	Spoil Islands (8 acres)
Major short-term effect; minor long-term effect: The majority of the littoral zone would be removed under drawdown conditions, including organic sediments, exotic/nuisance vegetation and biota. Subsequent to the refill, native wetland plants would return and habitat conditions would be improved for fish and wildlife; FWC management would reduce exotic/nuisance vegetation. The Project would result in minor beneficial effects over the long-term. BMPs would minimize construction effects.	Minor long-term effect: Same construction level effects as for the scrape area. All aquatic resource functional capacity would be lost in the spoil island footprint. In consideration of FWC's ongoing management activities, and future recurring drawdowns on a 20-30 year rotation, net Project aquatic benefits in the scrape area would be expected to exceed spoil island losses over the long-term. BMPs would minimize construction effects.

(3) Mud Flats: Not applicable

(4) Vegetated Shallows:

Scrape Area (112 acres)	Spoil Islands (8 acres)
Negligible effect: No vegetated shallows occur within the Project area. While they could occur downstream, the relatively small volume of	Negligible effect:: Same as for the scrape area.

discharge, combined with reduced flows during the refill, would result in negligible effects. BMPs would minimize construction effects.	

(5) Coral Reefs: Not applicable

(6) Riffle and Pool Complexes: Not applicable

d. Potential effects on human use characteristics (Subpart F):

(1) Municipal and Private Water Supplies:

Scrape Area (112 acres)	Spoil Islands (8 acres)
Minor short-term effect; no long-term effect: Potable water is not expected to be utilized to construct the Project. Due to construction in the littoral zone during the drawdown, it would be difficult for lakefront property owners to extend irrigation lines waterward to reach surface water. This would not be an issue subsequent to construction.	Minor short-term effect; no long-term effect: Same as for the scrape area.

(2) Recreational and Commercial Fisheries:

Scrape Area (112 acres)	Spoil Islands (8 acres)
No effect: The scrape area could not be fished during construction due to the absence of water during the drawdown; this is unrelated to fill in WOTUS. There are no long-term effects.	No short-term effect; minor long-term effect: Same as for the scrape area. Long-term, up to eight acres of aquatic resources would be converted to dry land and would not be fishable.

(3) Water-related recreation:

Scrape Area (112 acres)	Spoil Islands (8 acres)

No effect: The scrape area could not be utilized during construction due to the absence of water during the drawdown; this is unrelated to fill in WOTUS. There are no long-term effects.	No short-term effect; minor long-term effect: Same as for the scrape area. Long-term, up to eight acres of aquatic resources would be converted to dry land and would not be available for water-related recreation.

(4) Aesthetics:

Scrape Area (112 acres)	**Spoil Islands (8 acres)**
Minor short-term effect; minor long-term effect: While aesthetics are subjective, construction in the littoral zone would likely not be aesthetically pleasing. The viewshed subsequent to the refill would be more appealing in the long-term than the current condition.	No short-term effect; minor long-term effect: Same as for the scrape area. Long-term, up to eight acres of aquatic resources would be converted to dry land. BMPs and monitoring would be required to reduce exotic/nuisance species and other vegetation which the public may find unappealing.

e. Contaminant Evaluation and Testing (40 C.F.R. Part 230, Subpart G):

(1) General Evaluation of Dredged or Fill Material (40 C.F.R. § 230.60): The following has been considered in evaluating the biological availability of possible contaminants in dredge or fill material. See Table 5 below:

Table 5 – Possible Contaminants in Dredged/Fill Material	
Physical characteristics	X
Hydrography in relation to known or anticipated sources of contaminants	
Results from previous testing of the material or similar material in the vicinity of the project	X
Known, significant sources of persistent pesticides from land runoff or percolation	

Table 5 – Possible Contaminants in Dredged/Fill Material	
Spill records for petroleum products or designated (Section 331 of CWA) hazardous substances	
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	

FEIS Section 3.16 (Hazardous Toxic and Radioactive Waste) included an evaluation for the presence of potentially contaminated sites. Potential contamination sites are not located adjacent to East Lake Toho. The Project would require excavation of *in situ* organic sediments and redeposition in two spoil islands and, accordingly, no additional potentially contaminated material would be introduced from off-site. If a DA permit is issued, it would be specifically conditioned to require use of BMPs for handling hazardous wastes.

(2) Chemical, Biological, and Physical Evaluation and Testing: In consideration of the information presented in Section 3.16 and Appendix D of the FEIS, testing listed above is not required because sediments have already been tested and no problematic concentrations of toxic chemicals were discovered.

f. Actions to minimize adverse effects (40 C.F.R. Part 230, Subpart H; 40 C.F.R. Part 230.70-230.77): Actions to be undertaken to minimize the adverse effects of discharges of dredged or fill material: A DA permit authorization would be specifically conditioned to require the implementation of BMPs that dictate: the handling of hazardous materials, turbidity and erosion controls that would be maintained during construction of the Project, scraping of the littoral zone, staging area, spoil island construction and maintenance, and the protection of federally listed species.

g. Cumulative and secondary effects on the aquatic ecosystem: The FEIS evaluates potential cumulative effects associated with the work proposed (reference the FEIS, Section 4 Cumulative Impacts and Section 5.2.4 Aquatic Resource Mitigation Assessment).

(1) Corps permits for the calendar year period 2006 to 2010 have authorized the discharge of fill in approximately 453.7 acres of wetlands in the Kissimmee watershed. Currently, the 1,875,920 acre Kissimmee watershed has approximately 595,281 acres of aquatic resources (wetlands and non-wetland waters).

(2) Based on 2006 to 2010 fill authorizations, the estimated extent of wetlands filled through the year 2040 for development totals approximately 10,900 acres. An estimated 595,281 acres of aquatic resources are currently in the watershed and approximately 584,381 acres of aquatic resources are anticipated to remain through the year 2040. A significant portion of these wetlands are currently protected as existing public conservation lands.

(3) While all aquatic resource functional capacity would be lost in the spoil island footprint, net Project aquatic benefits in the scrape area are projected to exceed spoil island losses over the long-term. Based on the mitigated impacts and future extent of wetlands in the watershed, the Corps anticipates negligible cumulative effects from the proposed action.

h. Restrictions on discharges (40 C.F.R. § 230.10):

(1) It has been demonstrated in Section 3 that there are no less environmentally-damaging practicable alternatives which could satisfy the Project's overall purpose. The activity is located in a special aquatic site (*e.g.*, wetlands).

(2) The proposed activity would not violate applicable State water quality standards or Section 307 prohibitions or effluent standards and is exempt from 401 certification by the FDEP; exemption still requires compliance with water quality standards. The issuance of a BO by the USFWS ensures the proposed activity does not jeopardize the continued existence of federally listed threatened or endangered species.

(3) The activity is a habitat enhancement Project and would not cause or contribute to significant degradation of WOTUS.

(4) Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

i. Factual determinations (40 C.F. R. Part 230, Subpart B): The determinations below are based on the determinations of effects described in detail in the preceding sections (sections 8.a-h):

Characteristic	Scrape Area (112 acres)	Spoil Islands (8 acres)
(1) Physical Substrate (40 C.F.R. § 230.11(a))	minor long-term effect	minor long-term effect
(2) Water circulation, fluctuation, and salinity (40 C.F.R. § 230.11(b))	minor long-term effect	minor long-term effect
(3) Suspended particulate/turbidity (40 C.F.R. § 230.11(c))	minor long-term effect	minor long-term effect
4) Contaminant Availability (40 C.F.R. § 230.11(d)):	negligible	negligible
(5) Aquatic Ecosystem Effects (40 C.F.R. § 230.11(e))	minor long-term effect	minor long-term effect
(6) Proposed Disposal Site (40 C.F.R. § 230.11(f)	minor long-term effect	minor long-term effect
(7) Cumulative Effects (40 C.F.R. § 230.11(g))	no effect	no effect
8) Secondary Effects (40 C.F.R. § 230.11(h))	negligible	negligible

7. Special Conditions

Special Conditions as requirements of any DA regulatory permit are incorporated by reference, as described in Attachment 1 of this Record of Decision and Statement of Findings.

8. Summary of Effects

The Corps considered both cumulative and secondary impacts on these public interest factors within the geographic scope as described in the FEIS, Section 3. A summary assessment of the potential effects of the recommended plan are listed in Table 1 with D indicating deviation from water control plan, P indicating the proposed work and T indicating the temporary placement of pumps. The FEIS supports the Corps' determination that compensatory mitigation is not required because of the net beneficial effects of the proposed action. All practicable means to avoid or minimize adverse

environmental effects were analyzed and incorporated into the recommended plan (referred to as mitigation measures in the permit special conditions).

Table 1: Summary of Potential Effects of Recommend Plan

	Significant adverse effect*	Insignificant effects due to minimization*	Insignificant effects	Resource unaffected by action
Aesthetics			D, P, T	
Air quality			P,T	D
Aquatic resources/wetlands	D,P		T	
Invasive species			D,P	T
Fish and wildlife habitat	D,P			T
Threatened/Endangered species			D,P	T
Historic properties		P		D,T
Other cultural resources		D,P		T
Floodplains			D,P	T
Hazardous, toxic & radioactive waste				D,P,T
Hydrology				D,P,T
Land use				D,P,T
Navigation	D		P	T
Noise levels		T	P	D
Public infrastructure			D,P,T	
Socio-economics				D,P,T
Environmental justice				D,P,T
Soils			P	D,T
Tribal trust resources		P	D	T
Water quality			D,P	T
Climate change				D,P,T
Water Supply and Conservation			D,P	T

* Those resources with Significant Adverse Effects or for which minimization (mitigation) measures will be accomplished are addressed below.

9. Public Interest Review (33 C.F.R. § 320.4)

The Corps considered both cumulative and secondary impacts on the relevant public interest factors within the geographic scope as described in the FEIS, Section 3.1. For the analysis of the public interest factors, the Corps has used information generated in the FEIS to the maximum extent, as appropriate. Additional information evaluated by the Corps in its determination for any of the specific public interest review factors is described below in the section for the specific factor.

a. Wetlands (33 C.F.R. § 320.4(b); Corps' Wetland Policy): Long-term beneficial as a result of Project implementation – The FEIS documents and evaluates work affecting wetlands (FEIS Section 3.6 Vegetation and 5.2.4 Aquatic Resource Mitigation Assessment). Project implementation would treat 200 acres of wetland habitat (mostly cattails) with herbicides and a controlled burn, clear 112 acres of wetland vegetation in the littoral zone of the eastern shore and convert approximately seven to eight acres of open water/wetland habitat to in-lake upland habitat. The Preferred alternative would also retain approximately five percent of area to be scraped as preserved natural habitat. Impacts to wetlands would be moderate to high intensity in the short-term, low intensity in the long-term and would not be considered significant. Overall, the drawdown is expected to provide system-wide benefits to the East Lake Toho littoral zone, promoting germination, growth and diversity of native wetland plants while reducing exotic/nuisance vegetation. The Corps has evaluated Project benefits versus adverse impacts and determined there is a net benefit in terms of aquatic resource functions and services. Therefore, no compensatory mitigation is required. The Corps has also determined that the deviation to the water control plan is necessary for the project to execute.

b. Fish and wildlife (33 C.F.R. § 320.4(c)): Beneficial in the long-term – The FEIS documents and evaluates work potentially affecting fish and wildlife (reference the FEIS Sections 3.7.1 Aquatic Resources and 3.7.2 Terrestrial Resources). The proposed Project would have short-term moderate to high impacts on fish and wildlife species within the littoral zone of East Lake Toho. Both direct impacts to species and habitat, as well as indirect impacts (primarily associated with water quality during construction) could occur both from the project actions and from the deviation to the water control plan. Long-term impacts would be of low intensity and beneficial to most species. Some species (predominantly sport fish) would experience benefits (spawning and foraging areas) after recovery of impacted areas. Once plant species reestablish in treated areas, wading bird foraging habitat would improve.

c. Water Quality: Minor detrimental effect in the short-term; beneficial long-term – The FEIS documents and evaluates work potentially affecting water quality (FEIS Section 3.4 Water Quality).

(1) The proposed action of lowering the water level in East Lake Toho during the drawdown will not adversely impact water quality over the long-term. Initially, the drawdown would increase the volume of water and associated nutrient load which is discharged to downstream water bodies (via the S-59 structure). Given the relatively low nutrient concentrations within East Lake Toho, this is not expected to have negative long-term effects on downstream water quality. Within East Lake Toho, oxidation of sediments and compaction of organic matter is anticipated to occur during the drawdown providing long-term positive benefits. Reduction of organic sediments by oxidation would lead to

lower biological oxygen demand (BOD), potentially increasing dissolved oxygen concentrations in areas around the lake with high organic sediment accumulation. This improved condition would have direct benefits to fish and invertebrate organisms and water quality, as higher dissolved oxygen levels in the water column reduces sediment nutrient flux to surface waters. Generally, the center of the lake has healthy dissolved oxygen concentrations based on data available from SFWMD. The subsequent rewetting of oxidized sediments during the refilling of East Lake Toho is expected to result in low to moderate intensity short-term increases in turbidity and nutrients, including nitrogen and phosphorus concentrations. However, high-intensity and long-term effects are not expected to occur in East Lake Toho and over time, the reestablishment of aquatic vegetation would mitigate effects within the proposed Project area. The lake refill during summer months would offset any drawdown volume and associated nutrient loading conveyed downstream, and reduce the potential for harmful algal blooms.

(2) The proposed removal of organic sediments by scraping and consolidation into two spoil islands would have low to moderate intensity short-term impacts to water quality. Consolidating organic sediments into spoil islands would partially limit bioavailability of sediment nutrients, however some degree of leaching of nutrients is anticipated. Short-term water quality impacts adjacent to the spoil islands would be low to moderate in intensity. Increased turbidity and increased nutrient loading could occur during refilling of the lake as nutrients flux from the spoil islands. Long-term water quality effects are expected to be of low intensity as the spoil islands re-vegetate and after the initial nutrient flux has occurred. Negative water quality effects from the spoil islands would be partially minimized through the use of BMPs (such as use of fabric and/or seeding to minimize erosion), which would be included as special conditions in the DA permit.

(3) Previous spoil island construction on Lake Tohopekaliga occurred just prior to a period of high tropical storm activity in 2004. Effects of spoil island construction on water quality was indiscernible due to storm activity. Declines in water quality (increased phosphorus, chlorophyll a and color, and decreased dissolved oxygen) were observed in the short-term (up to two years), after which water quality returned to pre-project conditions. There could be some risk of more intense short-term water quality impacts during tropical storm activity. As noted above, phosphorus concentrations have continued to trend down within Lake Toho since the 2004 drawdown.

(4) In the scrape zone (approximately 112 acres), most of the organic sediment and vegetative matter would be removed to form two in-lake spoil islands. This makes the associated nutrients less bioavailable and once the islands are stabilized would provide a low to moderate intensity long-term water quality benefit. In the short-term, the burning of woody material in the scrape zone would leave nutrient rich ash. Although much of the nitrogen would be volatilized, all of the associated phosphorus would remain, having the

potential to enter in the water column during refilling operations. Nutrients associated with the ash would have low to moderate intensity short-term negative effect on water quality.

(5) Areas that are proposed for spray and burn may experience short-term increases in biochemical oxygen demand (BOD) due to decomposition of any unburnt organic material. Microbial activity may lower dissolved oxygen in the short-term, but this condition should return to baseline conditions in the long-term. Long-term improvement in dissolved oxygen levels should occur in areas that currently have dense vegetation and /or high detrital accumulation. The post-project reduction in littoral vegetation (i.e., cattail loss from the spray and burn areas and complete vegetation loss in the scraped areas) would decrease the nutrient uptake capacity of vegetation within the littoral zone in the short-term and may lead to an increase in nutrient levels within the water column of East Lake Toho. Increased light penetration in the water column combined with increases in available nutrients may also result in short-term increases of chlorophyll a concentration.

d. Historic Properties (33 C.F.R. § 320.4(e)), Tribal Trust Resources, and other cultural resources: Minor (short-term) as a result of agreement to have an Archaeological monitor and none long-term – The FEIS documents and evaluates work potentially affecting historic, cultural, scenic, and recreational values (reference the FEIS, Section 3.12 Cultural Resources). Implementation of the Project would have low intensity effects for the short-term upon known cultural resources and negligible long-term effects. No known archeological or historical resources are known to exist within the Project Area. There is some concern that removal of organic sediments might disturb any prehistoric dugout canoes existing on the bottom of East Lake Toho. To mitigate this, a CRAS will be conducted as water levels are lowered and FWC archeological monitor would be present during the grading of the eastern shore littoral zone. In the unlikely event that a canoe is discovered, a mitigation plan would be negotiated with the SHPO and STOF/MTIF.

e. Effects on limits of the territorial sea (33 C.F.R. § 320.4(f)): None - The Project would not affect any territorial sea.

f. Consideration of property ownership (33 C.F.R. § 320.4(g): None – The Project would not alter any property ownership as it does not require the purchase or lease of any lands.

g. Activities affecting coastal zones (33 C.F.R. § 320.4(h): None – the Project would not affect coastal zones.

h. Activities in marine sanctuaries (33 C.F.R. § 320.4(i)): None - The Project would not affect any marine sanctuaries.

i. Safety of impoundment structures (33 C.F.R. § 320.4(k)): Negligible long-term effects – The Project does not incorporate any unsafe impoundment structures nor would the proposed action affect existing impoundment structures. The Project would require short-term operational changes to the water control structures associated with East Lake Toho (S-59) and Lake Tohopekaliga (S-61), as well as temporary pumps/pipes on the C-31 canal at the S-59 structure. When gravity feed to Lake Tohopekaliga becomes insufficient, the S-59 structure would be closed and the four pumps (100 cfs per pump; 400 cfs for the combined four pumps) would be brought online to move water from East Lake Toho (through the C-31) to Lake Tohopekaliga. Water from Lake Tohopekaliga would be discharged through the S-61 into the C-35. No changes to operations below Lake Tohopekaliga would be required. Although no structures are currently present affecting connectivity between East Lake Toho and Lake Runnymede, the Project would include the installation of a temporary steel weir-plate to separate Lake Runnymede and East Lake Toho. The weir would be installed at the Rummel Road Bridge and would be removed after the refill is complete. Although short-term impacts to navigation and minor impacts to water quality may occur due to installation of the weir, impacts to water control structures and canals are not anticipated.

j. Floodplain management (33 C.F.R. § 320.4(l)): Negligible long-term impact - All Project work conducted within the East Lake Toho littoral zone would be performed within the 100-year floodplain. East Lake Toho would be drawn down an additional two feet beyond the existing regulation schedule beginning in October 2019, which would reduce storage volume during the dry season. During the wet season, there would be additional available storage within East Lake Toho during the refill. Similarly, Lake Tohopekaliga would be lowered an additional six inches (but within the operational flexibility of the existing regulation schedule). No effect to downstream lakes within the Kissimmee Chain would be expected. Although an additional 22,000 acre-feet of water may be added to Lake Okeechobee, if no storage is available within the Kissimmee Chain of Lakes during the two months of pumping, flood control would be minimally impacted. Gravity discharge would occur during the first two months of the drawdown, which would bring East Lake Toho's stage down to nearly 55.0 feet NGVD29 which is the normal low pool stage of the Corps regulation schedule. Pumping would then occur for the next two months drawing down the lake to 53.0 feet NGVD29. In consideration of the information within the FEIS, the Corps concludes the Project would not have an adverse impact to floodplain management.

k. Water supply and conservation (33 C.F.R. § 320.4(m)): Minor in the short-term and negligible in the long-term – The FEIS documents and evaluates work affecting water

resources (FEIS, Section 3.3 Water Resources), including work that could affect water supplies and/or water conservation. A majority of the permitted water withdrawals by domestic water users in the East Lake Toho and Lake Tohopekaliga watersheds are made from the Floridan aquifer (surficial aquifer). Although much of the agriculture and irrigation withdrawals come from the same source, some users (including neighboring homeowners) rely on surface water. Depending on the elevation of the intake, some users may be temporarily affected requiring the water users to extend their pump intakes farther into the lakes or temporarily use an alternate water supply source because of the drawdown.

(1) Although impacts to water supply would be short-term and generally low to moderate in intensity under normal rainfall conditions, if drought conditions occur in the period following the drawdown, uncertainty exists regarding the timing to refill East Lake Toho. FWC has committed to delay implementation of the Project during extreme dry conditions which would partially offset this concern. Given the uncertainty regarding predicting future rainfall conditions, impacts to water supply may occur until East Lake Toho can be returned to the current condition regulation schedule.

(2) In June 2002, the Final EIS for the Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement Project Osceola County, Florida was published. Groundwater impacts were evaluated extensively for this similar project on Lake Tohopekaliga, immediately downstream from East Lake Toho. Volume II of the 2002 EIS contains a report by the Danish Hydrologic Institute titled "Integrated Surface and Groundwater Model for Lake Tohopekaliga Drawdown Project". Based upon MIKE SHE and MIKE 11 modeling they concluded: "In summary, the findings of the project are that the extent of the groundwater impact zone created by the lake drawdown is limited to a zone that extends approximately 4000 to 5000 feet from the Lake Toho shoreline. Outside this drawdown zone, the elevation of the groundwater table depends only on climatic conditions. Even for long and severe drought conditions, similar to the 1998 to 2000 situation in Florida, both during the drawdown phase and during the lake refill phase the impact zone would not extend beyond 4000 to 5000 feet from the lake shoreline."

(3) Based on the results of this analysis and given the similarity between projects, the Corps concluded that the Project would not affect groundwater users beyond 4000 to 5000 feet from the East Lake Toho shoreline. As stated in Chapter 2 of the FEIS, the Project would not move forward during a severe drought, which would likely have a greater impact on water users than the drawdown.

l. Energy conservation and development (33 C.F.R. § 320.4(n)): Negligible –The proposed action will result in short-term energy consumption during temporary weir construction and removal, organic sediment removal and disposal, and herbicide

treatment. Additionally, the four water pumps operating during the drawdown would consume petroleum-based fuels for approximately five months. However, once the Project is complete no energy from petroleum-based fuels would be consumed. The Project is not designed to conserve or serve as an energy source.

m. Navigation (33 C.F.R. § 320.4(o)): Moderate short-term effects; Beneficial minor long-term – The FEIS documents and evaluates work affecting Navigation (FEIS Section 3.3 Water Resources). The proposed Project would have moderate effects on navigation within East Lake Toho, as well as low intensity effects on navigation within Lake Tohopekaliga. Within East Lake Toho, the lower water levels would increase the dried surface area of the littoral zone by approximately 1,125 acres, precluding boat access to these areas. The drawdown may limit the use of of the two of the three boat ramps used on East Lake Toho (Fish Camp boat ramp and Chisholm Park boat ramp). Furthermore, Project staging grounds would preclude access and the ability to launch boats at Chisholm Park. Low water levels would limit navigation between Boggy Creek and East Lake Toho. The City of St. Cloud has deepened the access channel of their boat ramp and marina prior to the implementation of the Project to ensure boaters have access to the lake during the drawdown period (this was accomplished during April 2019). In addition to the effects of low water levels, the temporary mounting of a steel plate on the box culvert between Lake Runnymede and East Lake Toho will limit navigation between the two water bodies.

(1) Effects to navigation on Lake Tohopekaliga would be low intensity, particularly when compared to effects on East Lake Toho. Stages on Lake Tohopekaliga would be lowered earlier than normal but the low water level target would be the same as under the current regulation schedule (52.0 feet NGVD29); therefore, no additional lake surface area would be exposed. Low water conditions may last for a month longer than under the existing regulation schedule, due to reduced inflow from East Lake Toho during the refill.

(2) Although short-term effects would vary from moderate intensity within East Lake Toho to low intensity within Lake Tohopekaliga, long-term effects after Project completion to navigation would be negligible. Actual improvements to navigation conditions within the littoral zone may be seen on East Lake Toho for the long-term with the oxidation of organic sediments during drawdown and more directly within the proposed scrape area. Given the ongoing East Lake Toho vegetation management strategy within the 200-acre area of cattail proposed for the spray and burn, navigation conditions in these areas would also improve. If vegetation management is not conducted, the likely regrowth of cattail would limit navigation in the long-term.

n. Noise: Moderate short-term effects; The FEIS documents and evaluates the effects from noise (FEIS section 3.15). Potential sources of noise from project activities include the following: staging area equipment startup and movement, heavy equipment use to scrape the eastern shore littoral zone and disposal of organic sediments, helicopter usage to apply herbicides along the northern and western lake shores, construction of the weir between East Lake Toho and Lake Runnymede, and operation of the four water pumps during the drawdown period. The use of four water pumps to discharge up to 400 cfs of water during the latter stages of the drawdown period would also be expected to produce noise levels in the range of 89 dBA at a distance of 50 feet from the pumps. However, unlike the equipment used for organic sediment removal and disposal, the pumps may operate 24 hours a day, seven days a week, for up to two to three months. USACE investigated the availability of water pumps with noise abatement components designed to meet the noise level ordinances of the City of St. Cloud and Osceola County. Potential vendors indicated this type water pump is available for lease and FWC has agreed to their use; consequently, loud or irritating noise emanating from the water pumps is not anticipated and negligible effects are anticipated to nearby lakefront residents.

o. General Environmental Concerns (33 C.F.R. § 320.4(p)) Negligible – Multiple sections of the FEIS and this document identify, review, and evaluate potential direct, indirect/secondary, and cumulative effects to the general environment within the overall Project area. The FEIS supports the Corps' determination that the vast majority of any effects upon the general environment would be negligible or minor in degree due to the implementation of Project plans evaluated by the Corps, mitigation actions defined in the FEIS Chapter 5, and best management practices proposed by FWC (reference USFWS BO and FEIS Appendix F). Moreover, the FEIS supports the Corps' determination that compensatory mitigation is not required because of the net beneficial effects of the proposed action.

p. Economics (33 C.F.R. § 320.4(q)): Negligible - The FEIS documents and evaluates socioeconomic factors (FEIS Section 3.18 Socioeconomics). The Project cost is estimated to be approximately $2.6 million over a two-year period. This cost includes all activities (e.g., East Lake Toho drawdown, weir construction, sediment removal, littoral zone scraping, vegetation burning and spraying, and two years of post-construction monitoring). The annual average cost of these resources, expressed in annual present worth equivalents by applying a 2.750 percent discount rate over a 50-year Project life, is $97,124.

(1) The direct local Project expenditures ($2,589,800) support a total of 10.7 full-time equivalent (FTE) jobs, $539,000 in labor income, $1,090,000 in the value added, and $2,048,000 in economic output within the Orlando-Kissimmee-Sanford, Florida,

MSA. More broadly, these direct expenditures support 15.2 FTE jobs, generating $796,000 in labor income, $1,273,000 in gross regional product, and $2,476,000 in economic output to the nation.

(2) The East Lake Toho drawdown and construction phase would have a low intensity, short-term adverse impact on lakeside businesses that depend on water levels to provide boating, airboat rides and lake dependent excursions. During the construction phase, it is expected that a slight decline in traditional patterns of seasonal visitation and boat usage trips may occur. Post-construction, it is anticipated that lake access and navigation would improve and visitation patterns would return to normal steady state growth seasonal levels.

(3) Any viewshed impacts would be short-term, low in intensity, and are unlikely to have a permanent adverse impact on area property values. Over the longer term, empirical studies have demonstrated that improved lake conditions have generally been associated with appreciation in property values for shoreline accessible and vicinity residences, with greater increases observed at closer distances.

q. Mitigation (33 C.F.R. § 320.4(r)): Neutral - The primary purpose of the Project is aquatic habitat improvement within the littoral zone of East Lake Toho. As explained in FEIS Section 5.2.4 Aquatic Resource Mitigation Assessment, the result of the comparison of Project benefits and adverse impacts reveals a net benefit in terms of aquatic resource functions and services and, consequently, no compensatory mitigation is required.

r. Conservation: Minor beneficial long-term effects - In consideration of the information within the FEIS and discussed herein, the Corps expects that any impacts to adjacent conservation areas would either be negligible or beneficial in the long-term as improved nesting and roosting habitat for wading birds would be created within the littoral zone of East Lake Toho.

s. Shore erosion and accretion: Short-term water quality concerns but long-term benefits –

(1) Water level stabilization achieved through the construction of numerous water control structures within the Kissimmee Chain of Lakes has had a negative effect on the littoral zone of East Lake Toho. In places, a discontinuous strip or berm of organic sediments has formed along the eastern lakeshore, filling the water column or even rising above it. These densely vegetated berms, combined with lakeward areas of aquatic plants such as pickerelweed and cattail, can form barriers that prevent fish from utilizing shallow spawning areas. Stabilization of East Lake Toho's water levels has contributed to the rapid growth of dense vegetation in this nearshore aquatic habitat. Accumulated

organic material can break away during severe weather conditions forming tussocks or floating islands. The berms, tussocks and dense vegetation can reduce fish, wading bird, waterfowl and other wildlife access to the littoral zone.

(2) The Project would temporarily alter the timing and absolute stage of the current East Lake Toho Regulation Schedule. Water levels would be drawn down five to six months earlier than under current conditions and two-feet lower than the current schedule. The change in stage would increase the amount of exposed lake bottom within the littoral zone by approximately 48,000 acre-feet.

(3) Within East Lake Toho, oxidation of sediments and compaction of organic matter is anticipated to occur during the drawdown providing long-term positive benefits. Reduction of organic sediments by oxidation would lead to lower biological oxygen demand (BOD), potentially increasing dissolved oxygen in areas around the lake with high organic sediment accumulation. This improved condition would have direct benefits to fish and invertebrate organisms and water quality, as higher dissolved oxygen levels in the water column reduces sediment nutrient flux to surface waters.

(4) The proposed removal of organic sediments by scraping and creation of two spoil islands using the accumulated organic material would have low to moderate intensity short-term impacts. Piling the excess organic sediments unto spoil islands would reduce accumulated organic material a net total of approximately 99 acres. Negative effects from the spoil islands would be partially minimized through the use of BMPs (such as use of fabric and/or seeding to minimize erosion).

t. Food and fiber production: Negligible - The FEIS, Section 3.9 Land Use, indicates no productive farmland within the Project area would be disturbed by implementation of the East Lake Toho Project. The area is primarily urban development, with one citrus grove located approximately 1.3 miles southeast of East Lake Toho. In consideration of lake effects on freeze protection for citrus, the Corps determined:

(1) Lakes such as East Lake Toho can have an influence on atmospheric temperatures near the lakes. This is due to the high heat storage capacity of water, as compared to that of organic soils and sands. When the atmospheric temperature falls below the water temperature, heat is transferred from the water to the atmosphere. Wind also plays an important role in temperature modification because it pushes the warmed air from the surface of the lake over the surrounding area. The amount of temperature modification decreases with distance from the lake (Ingram, 1983). According to Bill et al (1977), lakes, being warmer than the air and surrounding land, release sensible and latent heat under typical cold conditions after passage of a front.

No substantial thermal effects to the surrounding lands should be expected under low wind conditions.

(2) Although the ability of lakes to modify nearby temperatures is intuitively easy to understand, quantification of this effect is difficult due to many uncertainties and complexities. According to Rogers and Rohli (1991), the relationship between air temperature and freeze severity is complicated by several factors, including the age of the citrus trees, current climatic conditions (such as periods of drought), and factors such as irrigation and measures used in combating the freeze. The cold-hardiness of the tree and the degree of dormancy at the time of the freeze are also critical factors. In addition, the duration of the freeze and the wind speed are important factors (Miller and Downton, 1993). A study of freeze protection for citrus provided by Lake Apopka was conducted for the Lake Apopka Restoration study (Bartholic and Bill, 1977). In this study it was reported that Lake Apopka had a mean depth of about 5.5 feet. Results of this study have been applied qualitatively to the East Lake Toho area, much as Ingram (1983) did for Lake Griffin. This was also done for the Alligator Chain and Lake Gentry Extreme Drawdown and Habitat Enhancement Project (USACE, 1999) and Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement Project (USACE, 2002). The Lake Apopka freeze protection study concluded that an insignificant reduction in freeze protection would occur if at least one meter (3.3 feet) of water depth was maintained over a large portion of the normal lake area. It was assumed that temperature modification occurred on the south and southeast sides of Lake Apopka or on the downwind side.

(3) The capacity (volume) of East Lake Toho (including Fells Cove) at the proposed East Lake Toho drawdown target stage of 53.0 ft NGVD in Alternatives A and B is approximately 70,000 acre-feet. The area of East Lake Toho at the proposed drawdown target stage of 53.0 ft. NGVD is approximately 10,000 acres. Thus the mean depth of East Lake Toho at the proposed drawdown target stage of 53.0 ft. NGVD is approximately 7 feet (2.1 meters). Even at the proposed drawdown water levels, there is still a sizable volume of water and surface area coverage in East Lake Toho. The proposed drawdown water levels are expected to provide a level of freeze protection similar to that which has been available under historical conditions.

(4) Although there is a potential reduction in freeze protection due to the drawdown, there is also a potential long-term impact of the drawdown on freeze protection which is positive. The project may eliminate the buildup of organics and subsequent dense plant growth in East Lake Toho adjacent to citrus groves, if any citrus groves exist in close enough proximity to the lake. This would prevent the formation over time of a vegetative buffer that could block the direct flow of air from the warm water to the groves (See Attachment 2 for references).

u. Mineral needs: minor and short-term long term - The Project would have no effect on mineral needs.

v. Needs and welfare of the people: The Corps concludes that the effects on needs and welfare of the people is minor in the short-term and negligible in the long-term. The FEIS Section 3.17 Public Health and Safety, conveys information regarding safety concerns/issues and mitigation measures associated with the Project. Only herbicides approved by the Florida Department of Agriculture and Consumer Services and EPA would be used to spray undesirable vegetation within the littoral zone. The spraying of herbicides would be conducted by helicopters. FWC would inform the public and adjacent property owners of the days scheduled for herbicide application. Extreme wind conditions (sustained winds greater than ten mph) would require the herbicide treatment to be rescheduled. There would be no restrictions on recreational activities immediately following herbicide application, but FWC would restrict public access within the designated treatment areas during the day(s) of application.

(1) Prior to herbicide application, the FWC project manager would release a news bulletin for public notification with an explanation about the herbicide application including proposed dates of treatment. A map depicting the area to be treated would be posted at all public access points, including fish camps, marinas and other businesses located on the lake. Businesses would be notified in person by FWC staff at least 48 hours prior to treatment. The public would be notified that herbicide treatment would be postponed when sustained winds exceed ten miles per hour.

(2) Fire and weather can sometimes behave in ways contrary to expectations. Lighting any fire involves a risk that the fire can escape and burn vegetation or property outside the intended area. Through FWC's long history of applying prescribed fires for land management, techniques for effective prediction and control of fires have been developed, studied, and are taught to today's fire managers. FWC has extensive experience controlling prescribed fires with many experienced fire managers. Control of fires within the littoral zone of East Lake Toho would be aided by being inside a lake, which is unlikely to catch fire.

w. Aesthetics: The Corps concludes that the effects on aesthetics would be minor but long term. The FEIS considers aesthetics in Section 3.12. The Project would result in short-term moderate intensity effects on visual resources and low intensity in the long-term. During the drawdown period, most locations around the periphery of East Lake Toho would experience an altered view as the lake water levels would be two feet below the normal low water condition, with an exposed lake bottom. This could be more noticeable where scraping and burning activities are proposed to occur. Once the Project

is complete and water levels restored, lake vistas would be improved for most lakefront residents and boaters who prefer unobstructed lake views. Improved aesthetics would be experienced for waterfront residents with removal of visually obstructive woody vegetation from the littoral zone in front of their property. Creation of the two in-lake spoil islands may have a permanent impact on the aesthetic resources, particularly for those residences along the eastern shoreline of East Lake Toho. However, the aesthetic impact could be considered less intrusive than that occurring in the current condition (*i.e.*, the No-Action Alternative).

x. Climate Change. The proposed activities within the Corps federal control and responsibility will result in a negligible release of greenhouse gases into the atmosphere when compared to global greenhouse gas emissions. Greenhouse gas emissions associated with the Corps federal action may also occur from the combustion of fossil fuels associated with the operation of construction equipment, etc. The Corps has no authority to regulate emissions that result from the combustion of fossil fuels. See FEIS Section 3.14 for discussion on Air Quality which includes greenhouse gas emissions.

y. Relative extent of the public and private need for the proposed structure or work: The Project is required to improve degraded aquatic habitat conditions in the littoral zone of East Lake Toho. These drawdowns are conducted periodically by FWC to maintain littoral zone habitat in the Kissimmee Chain of Lakes, where such habitat degrades over time due to managed water levels.

z. Practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed work where there are unresolved conflicts as to the resource use: There are no alternative locations/methods to improve degraded littoral zone conditions at this time – in-water work must occur to restore habitat conditions. In regard to the creation of spoil islands to consolidate and store material, at least one commenter supported upland disposal of excavated organic material without concern of costs. However, the Corps determined upland disposal is not practicable based on cost, consistent with regulations, and a lack of landowners willing to accept material.

10. Findings

a. The evaluation of the proposed action and alternatives was done in accordance with all applicable laws, executive orders, regulations, and agency regulations. The EIS and supporting documents are adequate and contain sufficient information to make a reasoned decision about all three decisions.

b. Compliance with NEPA: The Corps was the Lead Agency in the preparation of the FEIS for this Project; the EPA was a Cooperating Agency. All practicable means to avoid

or minimize environmental harm from the alternative selected have been adopted. The applicant agrees to implement the mitigative (minimization) measures outlined in the FEIS. This Record of Decision completes the National Environmental Policy Act process.

c. Compliance with the Section 404(b)(1) Guidelines: Having completed the evaluation in Section 6, the Corps has determined the proposed discharge complies with the Section 404(b)(1) Guidelines, with the inclusion of the appropriate and practicable special conditions to minimize pollution or adverse effects to the affected ecosystem.

d. Public interest determination: Having reviewed and considered the information above, I find that the proposed Project is not contrary to the public interest with the inclusion of special conditions in the permit, as prescribed by regulations published in 33 CFR Parts 320 to 330, and 40 CFR Part 320. I find that benefits of the recommended plan outweigh the costs and any adverse effects.

e. Effective Date: This Record of Decision shall become effective on the date executed by the District Engineer for Jacksonville District.

This Record of Decision and Statement of Findings was prepared by Jeffrey S. Collins, Senior Project Manager.

Reviewed By:

Date: 10/17/19

Irene Sadowski
Supervisory Biologist

Reviewed By:

Date: 17 Oct 2019

Clif Payne
Chief, North Permits Branch

Reviewed By:

Date: 17 OCT 2019

Shawn H. Zinszer
Chief, Regulatory Division

Approved By:

Date: 18 OCT 2019

Andrew D. Kelly, Jr
Colonel, U.S. Army
District Commander

Attachment 1
Special Conditions of the Permit

Special Conditions:

1. Reporting Address: All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address:

a. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, South Branch Enforcement Section, P. O. BOX 4970, JACKSONVILLE, FLORIDA 32232-0019.

b. For electronic mail: SAJ-RD-Enforcement@usace.army.mil (not to exceed 20 MB). The Permittee shall reference this permit number, SAJ-2015-02343 (SP-JSC), on all submittals.

2. Commencement Notification: Within 10 days from the date of initiating the authorized work, the Permittee shall provide to the Corps a written notification of the date of commencement of work authorized by this permit.

3. Mitigation Measures:

a. Best Management Practices (BMPs): The Permittee shall implement the BMPs as stipulated in **Attachment A**

(1) Spoil island sideslopes shall be covered with vegetation-permeable geofabric and seeded for stabilization. The landward sides shall also be planted with cypress to improve aesthetics.

(2) Spoil islands shall be surveyed to produce a cross-sectional drawing. Survey points shall be oriented in a north-south direction and begin/end in water where natural grade is established.

b. Monitoring: Within 60 days of signing this authorization, the Permittee submit a monitoring (vegetation, water quality) plan consistent with the BMPs. Monitoring will occur during construction and quarterly (beginning with initiation of refill) for a period of three years after East Lake Tohopekaliga is refilled.

(1) Construction Phase: Turbidity will be monitored weekly during construction to prevent violations to State Water Quality Standards (SWQS; 62-302.500/530, F.A.C.) at the "scraping" area on the east side of the lake and pumping site within the St. Cloud Canal. Turbidity control measures, such as silt fences and turbidity screens and barriers, will be used as needed if turbidity values outside the allowed 150-meter mixing zone exceed 29 NTU s above background levels.

(a.) Total nitrogen/Total phosphorous and dissolved oxygen shall be monitored monthly in the mixing zone, and at the St. Cloud Canal, during the construction phase.

(2) Post-construction and beginning with initiation of the refill (Quarterly): Water quality monitoring shall occur along a transect perpendicular to shore at each spoil island. For each island - one station will be placed 50 ft. waterward, and 50 ft./200 ft. landward, for a total of three samples at each spoil island. At a minimum, parameters include total nitrogen/total phosphorous and dissolved oxygen. One sample shall be taken at the St. Cloud Canal.

(a) Qualitative vegetation monitoring shall occur in the eastern scrape area with an estimate of exotic/nuisance species coverage. Remote sensing shall be used to support coverage estimates.

(b) Qualitative vegetation monitoring shall occur on each spoil island with an estimate of exotic/nuisance species coverage.

c. Reporting: Submit a construction monitoring report to the Corps within 60 days of completion of construction activities. Submit annual monitoring reports for post-construction monitoring within 60 days of the last quarterly event.

(1) Post-construction monitoring shall occur for a three-year period.

(2) Concurrent with the last quarterly monitoring event, spoil islands shall be surveyed to produce a cross-sectional drawing. This information shall be included in the final annual report.

d. Exotic/Nuisance Vegetation: Categories I and II invasive plant species, pursuant to the most current list established by the Florida Exotic Pest Plant Council at https://www.fleppc.org/, and the nuisance species primrose willow and cattail shall total less than 20–percent coverage on each spoil island and in the scrape area.

e. Demobilization: Upon completion of project activities, or in the event the project is cancelled prior to completion, all equipment/materials will be demobilized within 60 days.

4. Eastern Indigo Snake Protection Measures: The Permittee shall comply with U.S. Fish and Wildlife Service's "Standard Protection Measures for the Eastern Indigo Snake" (dated August 12, 2013) during project site preparation and construction (**Attachment B**).

5. Biological Opinion: This permit does not authorize the Permittee to take an endangered species, in particular the Everglades Snail Kite (*Rostrhamus sociabilis plumbeus*), Audubon's crested caracara (*Polyborus plancus audubonii*) wood stork (*Mycteria americana*), and eastern indigo snake *(Drymarchon corais couperi*). In order to legally take a listed species, the Permittee must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed FWS Biological Opinion (BO) (**Attachment C)** contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Authorization under this permit is conditional upon compliance with all of the mandatory terms and conditions associated with incidental take of the enclosed BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with this permit. The FWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

6. Cultural Resource Coordination:

a. Prior to Construction - A cultural resource assessment survey (CRAS), consistent with Chapters 1a-46, Florida Administrative Code and with Federal regulation 36 CFR 800: Protection of Historic Properties, and as detailed in the Draft Archaeological Plan (PanAmerican Consultants; **Attachment D**), must be completed prior to earth moving activities.

(1) Submit CRAS survey results to the Corps. The Corps is required to consult with the State Historic Preservation Office and Seminole Tribe of Florida Tribal Historic Preservation Office on our effect determination.

(2) No in-lake earth moving activities shall begin until this consultation is complete.

b. Construction Monitoring and Reporting – the permittee shall be required to have a professional archeologist onsite during the initial ground-disturbing activities in the eastern shore excavation area. Upon completion of the monitoring activities, an archaeological letter must be submitted to Florida's Division of Historical Resources, along with an updated Florida Master Site File form. The archaeologist shall submit notification of such action, in the form of the Cultural Resource Certification (**Attachment E**) to the Corps and Regulatory Division Archaeologist for inclusion in the administrative record.

c. When performing ground-disturbing work conducted under dewatered conditions the FFWCC would adhere to the following guidelines;

(1) The project shall be supervised by Florida Fish and Wildlife Conservation Commission project managers certified as "Archaeological Monitors" by DHR;

(2) A professional archaeologist who meets the "Archaeology and Historic Preservation: Secretary of Interior's Standards and Guidelines" will be retained to develop a plan for protection of the cultural resources within and around the water-body;

(3) The Permittee shall avoid working in culturally- sensitive areas of the waterbody;

(4) Project personnel, contractors, subcontractors, and heavy equipment operators, for a project involving ground-disturbing activity shall be required to attend an informational "Cultural /Archaeological Resources" training session explaining what might be found during project activities, including steps that must be taken if cultural resources are found;

(5) If, during mechanical treatment activities, items that may have historic or archeological value are observed, the Permittee shall follow the procedures outlined in Special Condition #7 below.

7. Cultural Resource Discoveries: No structure or work shall adversely affect impact or disturb properties listed in the National Register of Historic Places (NRHP) or those eligible for inclusion in the NRHP.

a. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics,

stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

b. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition, if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

c. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

8. Fill Material: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete block with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.

9. As-Builts: Within 60 days of completion of the authorized work or any specific phased improvement of the authorized work or at the expiration of the construction window of this permit, whichever occurs first, the Permittee shall submit as-built drawings of the authorized work and a completed As-Built Certification Form

(**Attachment F**) to the Corps. The drawings shall be signed and sealed by a registered professional engineer and include the following:

a. A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings (8 1/2-inch by II-inch). The drawing should show all "earth disturbance," including wetland impacts, water management structures, and any on-site mitigation areas.

b. List any deviations between the work authorized by this permit and the work as constructed. In the event that the completed work deviates, in any manner, from the authorized work, describe on the As-Built Certification Form the deviations between the work authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings any deviations that have been listed. Please note that the depiction and/or description of any deviations on the drawings and/or As-Built Certification Form does not constitute approval of any deviations by the U.S. Army Corps of Engineers.

c. The Department of the Army Permit number.

d. Include pre-and post-construction aerial photographs of the project site, if available.

10. Assurance of Navigation and Maintenance: The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

11. Regulatory Agency Changes: Should any other regulatory agency require changes to the work authorized or obligated by this permit, the Permittee is advised that a modification to this permit instrument is required prior to initiation of those changes. It is the Permittee's responsibility to request a modification of this permit from the Cocoa Regulatory Office.

Attachment 2
References related to Freeze Protection discussion

Bartholic, J.F. and R.J. Bill. 1977. Final Report on Freeze Study for Lake Apopka Vicinity, Phase I and II, to the Florida Department of Environmental Protection and the Environmental Protection Agency. Fruit Crops Department, Institute of Food and Agricultural Sciences (IFAS), University of Florida. Gainesville, Florida.

Bill, R.G., R.A. Sutherland, J.F. Bartholic, and E. Chen. 1977. Observations of the Convective Plume of a Lake under Cold-Air Advective Conditions. IFAS Journal Series No. 1006. University of Florida. Gainesville, Florida.

Ingram, W. 1983. Technical Report No. 20, Hydrologic and Engineering Study for Extreme Drawdown of Lake Griffin. St. Johns River Water Management District. Palatka, Florida.

Miller, K.A. and M.A. Downton. 1993. The Freeze Risk to Florida Citrus. Part I: Investment Decisions. American Meteorological Society. Journal of Climate. 6, 354-363.

Rodgers, J.C. and R.V. Rohli. 1991. Florida Citrus Freezes and Polar Anticyclones in the Great Plains. American Meteorological Society. Journal of Climate. 4, 1103-1112.

U.S. Army Corps of Engineers (USACE). 1999. Final Environmental Impact Statement Alligator Lake Chain and Lake Gentry Extreme Drawdown and Habitat Enhancement Project. Osceola County, Florida.

U.S. Army Corps of Engineers. 2002. Final Environmental Impact Statement Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement Project. Osceola County, Florida.