SJR 2003-389

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

IN RE:

ORANGE LAKE SINKHOLE PLUG
AT HEAGY – BURRY PARK,
Application No. 4-001-85187-1
Alachua, Florida

SJRWMD F.O.R. No. 2003-98

FINAL ORDER

THIS MATTER came before the Governing Board of the St. Johns River Water Management District (District) on November 11, 2003. The Governing Board, having been fully advised, hereby finds the following facts and conclusions of law and enters the following Order:

FINDINGS OF FACTS

Project Site Description and Background

1. On August 22, 2002, the permit applicant, Marion County (the applicant), applied for a consolidated environmental resource permit (ERP) and sovereign submerged lands (SSL) authorization (consolidated permit application no. 4-001-85187-1), pursuant to Chapters 40C-4, F.A.C., and 18-21, F.A.C., to authorize the construction and operation of a surface water management system (system) consisting of a proposed sinkhole plug in Orange Lake, Alachua County, Florida.

2. The project site is located in Section 21, Township 12 South, Range 21 East, in Alachua County, Florida. More particularly, the site is located in the southwestern corner of Orange Lake near the Heagy-Burry Park. The park is in Marion County.

3. Orange Lake is designated an Outstanding Florida Water. It is a shallow approximately 12,900-acre lake with a median water level of 57.8 feet NGVD. The lake is underlain by fractured karst limestone that comprises the surface of the Floridan Aquifer. Orange Lake and the proposed project are located in the Northern Ocklawaha River drainage basin.

4. Surface inflows to the lake are from Newnan's Lake via Camp's Canal and from Lochloosa Lake via Cross Creek. Outflow from the lake is to Orange Creek and to the Floridan Aquifer via sinkholes, such as the sinkhole complex near Heagy-Burry Park located on the southwestern shore of the lake.

5. Orange Creek flows east from Orange Lake to the Ocklawaha River. Flow from Orange Creek has been altered by construction of the U.S. Highway 301 causeway and bridge, and a notched weir located just downstream of the U.S. Highway 301 bridge. Surface discharge occurs via the notched weir, draining to Orange Creek when the lake is higher than 57.1 NGVD.

6. Most of the lake bottom is covered by organic sediments (peat and flocculent organics) often mixed with sand and clay. Flocculent sediments average 4.4 feet deep across the lake, with 8 to 12 feet deep flocculent sediments along some lake edges.

7. Beneath the surficial sediments, the bottom of Orange Lake consists of clay and sandy clay soils overlying fractured karst limestone, the confining layer of the Floridan Aquifer. Sinkholes in the lake are active and can be seen at the Heagy-Burry Park. The U.S. Geologic Survey (USGS) in 1994 surveyed and mapped sinkholes and other karst depressions throughout Orange Lake using high-resolution seismic tools.

Four large sinkholes were located in the southwest quadrant of the lake in the immediate vicinity of Heagy-Burry Park. The USGS report indicates that flow of water into these sinkholes is intermittent, and depends on accumulation of sediments in the sinkholes as well as the head difference between the lake and the underlying Floridan aquifer.

8. In 1993, following a period of low water levels, the District Governing Board, at the request of Governor Chiles, established the Orange Creek Basin Advisory Council in response to public concern regarding the low water levels in Orange Lake. The Council included representatives from Newnans, Lochloosa, and Orange Lake property owners; the recreational fishing industry; the business community; environmental organizations; Alachua and Marion County Commissions, Gainesville Regional Utilities; Florida Department of Environmental Protection; Florida Fish and Wildlife Conservation Commission; and St. Johns River Water Management District.

9. The Council established the Orange Creek Basin Scientific Advisory Committee composed of academic and agency scientists to provide technical advice to the Council on basin issues, and particularly in regards to Orange Lake sinkhole intervention issues. District staff conducted comprehensive assessments of the Orange Lake sinkhole issue in close coordination with the Orange Creek Basin Scientific Advisory Committee. Findings were compiled in a report entitled, "Analysis of Sinkhole Intervention Alternatives for Orange Lake, Synopsis Report, June 1999" (the 1999 Report). Based on this report, in June 2000 the Orange Creek Advisory Council voted 7-3 against any sinkhole intervention in Orange Lake.

10. Although the applicant did not explicitly state its purpose for the proposed project from the documentation provided by the applicant as part of its permit application, it appears that the purpose for proposing to plug the sinkhole is to improve public access to the lake by staging the lake at a higher level than would normally occur during drought conditions and to improve game fisheries.

11. Public access to the lake during the recent past drought conditions was not eliminated. Airboats, canoes and kayaks, and potentially even motorboats, were used in the lake throughout most of the drought conditions. At its lowest point during the drought, the lake continued to have large acreages of deep open water. Access to the lake by law enforcement in airboats occurred throughout all of the drought conditions. Even during very low lake level conditions, law enforcement motorboats can access Orange Lake from Mike's Fish Camp in Boardman on the west side of the lake and law enforcement airboats can access the lake from two public ramps and several private ramps around the lake.

Proposed Project Description

12. The sinkhole that the applicant proposed to plug is located about 30 feet into Orange Lake from the shoreline at Heagy-Burry Park, which is in the Marion County town of Orange Lake on the southwest shore of the lake. The sinkhole proposed to be plugged is one of four large sinkholes mapped by the U.S. Geological Survey near Heagy-Burry Park. The applicant proposed to excavate muck from around the sinkhole, backfill the sinkhole with rubble, stones, and soil, and install a 30-inch diameter cast iron standpipe.

13. The proposed sinkhole plug would consist of a foundation, a core structure, and a 30-inch diameter cast iron standpipe. The foundation would be a layer of rubble, 3 feet thick, placed at the bottom of the sinkhole. Above the foundation, one layer of bedding stones, two layers of finer stones, and one layer of soil backfill would form a 10-foot deep core structure. The base of the foundation would be located at the bottom of the sinkhole at approximately elevation 33 feet NGVD. A pipe would stand on the foundation at the center of the core structure. The standpipe would rise above the existing lake bottom and the invert at the top of the standpipe would be set at elevation 56 feet NGVD.

14. A skimmer and a grate would be installed at the top of the standpipe to prevent floating vegetation and debris from entering the standpipe. The proposed cast iron standpipe would be 20 feet in length. The standpipe would be 30 inches in diameter in the upper 16 feet of length. The pipe diameter would expand to 48 inches in diameter at the lower end. A 30-inch diameter sluice gate with an invert elevation of 48.75 feet NGVD would be installed on the side of the standpipe. A white flashing light would be installed on the top of the grate for navigational safety since the structure would be located in the vicinity of boat ramps, docks and a public fishing pier.

15. The applicant provided an Operational Protocol for the proposed sluice gate. When the lake level is lower than elevation 55.5 feet NGVD, the applicant would open the sluice gate for three months to discharge lake water to the Floridan Aquifer via the standpipe, after which the sluice gate would be closed and not opened again until after lake level reaches elevation 58 feet NGVD and then recedes to elevation 55.5 feet

NGVD again. The applicant did not propose any contingency provisions for deviations from this protocol in cases of unanticipated circumstances or flooding emergencies.

Engineering Matters

Water Quantity

16. The applicant proposed to excavate muck from around the sinkhole and replace it with layers of various fill materials. Because the topsoil layer is the least permeable layer in the backfill material, the soil layer controls the downward flow rate in the core structure. The applicant proposed a soil layer that has a permeability rate of 3 to 8 inch/hour. As such, the soil layer would provide a flow rate of 0.158 to 0.395 ft^3/sec to the sinkhole when the lake level is at elevation 56 feet NGVD and the potentiometric surface elevation of ground water is 44 feet NGVD.

17. A documented field observation shows that the flow rate to the sinkhole complex, which includes the sinkhole where the standpipe will be constructed, is about 37.6 ft^3/sec. A hydrologic model of the Orange Creek Basin published by the District in 1997 (1997 hydrologic model) simulated the seepage rate through the complex. This model includes an empirical relationship between the seepage rate, lake level, and potentiometric surface elevation of the Floridan Aquifer. Based on this empirical relationship, for example, the flow rate is about 90 ft^3/sec when the lake level is at elevation 56 feet NGVD and the potentiometric surface elevation is 44 feet NGVD. It appears that the proposed sinkhole plug would provide 0.2 to 0.4 percent of the existing seepage rate of the sinkhole complex.

18. The standpipe would allow lake water to discharge to the sinkhole through the foundation when lake level is above 56 feet NGVD. However, the flow rate in the

standpipe depends on the head difference between the lake level and the Floridan Aquifer potentiometric surface at the project site and the head loss in the proposed system. The applicant assumed that the flow rate to the sinkhole through the standpipe depends only on the head difference between lake water level and the invert of the standpipe and is independent of the potentiometric surface elevation of Floridan Aquifer. The applicant calculated, for example, the flow rate to be 73.30 ft^3/sec when the lake level is at elevation 58 feet NGVD. However, based on the Orange Creek Basin hydrologic model, the seepage rate through the sinkhole complex is about 145 ft^3/sec when the lake level is at elevation 58 feet NGVD and the potentiometric surface elevation is 44 feet NGVD.

19. Although the applicant has not done any hydrologic or hydro-geological study of Orange Lake and its sinkhole complex, the applicant recognized that "some downward seepage will continue under this project" because "normal conditions are seepage through the sinkhole complex rather than direct discharge," and because "other less severe leakage sites in the proposed work area exist in Orange Lake." However, it is the applicant's expressed intention to have the sinkhole plug function as, and be evaluated as, "a partial implementation of the alternative Fixed crest weir around Orange Lake Sinkholes, 56 feet, Appendix S," documented in the 1999 Report on the analysis of Orange Lake sinkhole intervention alternatives. For evaluation purposes, the District utilized the analysis of the alternative of "fixed-crest weir at elevation 56 feet" because no other information was provided by the applicant.

20. In the 1999 Report, the "fixed crest weir at elevation 56 feet" is described as a fixed-crest weir with an invert elevation of 56 feet NGVD that surrounds the

sinkhole complex, isolating it from the lake. Under this alternative, the sinkhole complex would have the capacity to discharge lake water to the Floridan Aquifer at the existing seepage rate, except when water levels in the lake are below 56 feet NGVD.

21. The 1997 hydrologic model, using hydrologic records and historic hydrologic conditions, developed an "Existing Conditions" model that was calibrated to hydrologic data for the period 1942 to 1991. Based on the calibrated "Existing Conditions" model, model parameters corresponding to the physical parameters of various water management alternatives were adjusted accordingly. The impacts of each alternative were evaluated with the model.

22. In the 1999 Report, simulated results of the proposed alternative were compared with the simulated results of the "Existing Conditions" model. Based upon these simulations, it appears that the fixed-crest weir at elevation 56 feet NGVD alternative would not cause a significant increase in lake stages of Orange Lake and Lochloosa Lake. However, during high water periods the proposed project with the 30 inch stand pipe would have a much lower discharge capability than the fixed-crest weir alternative, and the filling of the sinkhole with rubble, rock and soil would decrease the seepage to the sinkhole by as much as 99%. The applicant has relied on the analysis of the fixed crest weir at elevation 56 to show that the proposed project will not result in flooding impacts to the properties around Orange Lake. However, due to the lower discharge capacity during high water level events, this analysis is not representative of the proposed condition. It is anticipated that reducing flows to the sinkhole will result in higher flood levels in and around Orange Lake.

Water Quality

23. The applicant provided a construction plan in which installation of a silt fence and floating turbidity barrier were proposed at the perimeter of the work area of the project site. The proposed dredge and fill will be conducted in Orange Lake. Turbidity in the water will exceed 29 nephelometric turbidity units (NTUs) above natural background within the perimeter of the proposed project site during construction. State water quality standards require that turbidity shall be less than 29 NTUs above natural background conditions for Class III Waters.

24. In addition, Orange Lake is an Outstanding Florida Water and as such activities in or discharges to Orange Lake cannot degrade the ambient water quality. It is expected that turbidity at the work site, within Orange Lake, will result in turbidity that exceeds ambient water quality.

25. The applicant has not applied for any variance from state water quality standards or for any mixing zone.

26. The County did not provide any evidence to show that water quality would be improved by the proposed project.

Environmental Matters

27. At the median water level of 58.7 feet, NGVD, Orange Lake contains various types of wetlands that occupy more than 6,000 acres along the broad shallow margins of the lake. These wetlands include deep marsh and shallow marsh which are rooted in the lake bottom, floating islands which are surrounded by open water or deep marsh, floating marshes which are adjacent to or intermixed with rooted marsh vegetation shrub swamp, tree islands and hardwood swamps. The wetlands in and

around Orange Lake currently are of high quality. The emergent and shallow marsh wetlands consist of a diverse assemblage of annual and perennial plant species.

28. The diverse wetland communities of Orange Lake provide habitat for numerous fish and wildlife species including listed species such as American alligator (threatened), Florida Sandhill Crane (threatened), Wood stork (endangered), bald eagle (threatened), and limpkin, snowy egret, white ibis and little blue heron (all species of special concern).

29. In the analysis of Orange Lake sinkhole intervention alternatives, biologic and hydrologic criteria were developed to assess the effect of water management alternatives on the hydroperiods needed to sustain wetland plant communities in Orange Lake. Wide fluctuation in water level is essential to long-term maintenance of healthy lake and wetlands habitats for fish and wildlife. Low water levels allow for desiccation and compaction of loose organic sediments. Exposure and compaction of loose organic sediments along the lake edges during drought provide critical opportunities for germination of seedling plants in thousands of acres of wetlands within Orange Lake and reduces turbidity upon refill, thereby improving water quality. These low water events contribute significantly to the species diversity of the shallow marshes found in Orange Lake, as well as allowing seed germination by species such as cypress in the forested wetlands.

Wetland Impacts

30. The proposed construction activities will occur in 0.45 acres of lake bottom.

31. The effects of the operation of the proposed structure were evaluated based on the analysis and results of the fixed weir at 56 feet NGVD alternative in the Orange Creek Basin Study. The model results described in the analysis of a fixed crest weir at 56 feet NGVD indicate that the proposed sinkhole intervention alternative would reduce the frequency and duration of low water periods and consequently would adversely impact 1,899 acres of wetlands. The proposed project would have a similar adverse affect on approximately 1,899 acres of these wetlands. The District requested that the applicant provide a detailed analysis of the affect the proposed project would have on wetlands in the lake. The applicant did not conduct or submit such an analysis, but instead indicated that it was relying on the District's 1997 hydrologic model. The applicant stated that the approximately 1899 acres of wetlands that the model showed would be adversely affected would not be significant.

32. The wetlands that would be most affected by the lake stabilization resulting from the proposed project are shallow marsh and forested wetlands. This consists of 931 acres of shallow marsh and 40 acres of forested wetlands that would not experience sediment exposure during infrequent low water levels (low water conditions that occur on average once every 50 years for a duration of 360 consecutive days), and 859 acres of shallow marsh and 69 acres of forested wetlands that would not experience sediment exposure during frequent low water levels (low water conditions that occur on average once every 5 years for a duration of 180 consecutive days).

33. When extensive low water periods and frequent and infrequent low water levels are reduced or eliminated in Orange Lake under the proposed project, organic sediments on the lake bottom in the shallower portions of the littoral zone would not

desiccate, compact, and/or burn. As such, organic sediment thickness on the lake bottom would increase cumulatively through time, and needed seed germination and growth of wetland plant species, consolidation and compaction of organic sediments in fish spawning habitat, and rejuvenation of floodplain wetlands would not occur in shallow emergent marsh.

34. Shallow marsh would be negatively impacted by reduction or loss of low-water periods because some shallow marsh plants require occasional sediment exposure for germination. Without sediment exposure, the species diversity would disappear from shallow marshes, which would then convert to floating wetlands or deep marshes. Forested wetlands would likewise be negatively impacted by reduction or loss of low-water periods because they too rely on occasional sediment exposure for seedling germination of species such as cypress. Loss of shallow marsh would reduce spawning and feeding habitat for fish and wildlife that use these habitats.

35. Pursuant to Section 12.2.2, A.H., District staff solicited comments from the Florida Fish and Wildlife Commission (Commission). The Commission commented that they believe that the operational protocol that Marion County has described will not negatively impact fish and wildlife resources of Orange Lake, and may enhance fisheries resources.

36. Although the District requested that the applicant provide a detailed analysis of the affects the proposed project would have on wetlands, neither the applicant nor the Commission, however, provided any analysis that contradicted the District's analysis and findings that the predicted change to the hydroperiod of the lake and the subsequent alteration of the wetlands would adversely affect wildlife.

37. Although requested by the District, the applicant did not quantify the effect of the proposed project on wetlands stating in summary that the information was not provided due to the " . . . analysis already conducted by the District . . .." for the Orange Creek Basin Advisory Committee. It is the position of the applicant that the proposed structure would have less impact then a fixed crest weir at 56 feet NGVD because " . . . other less severe leakage . . .." at the site of the work is anticipated since only the primary sinkhole will be sealed. The applicant further stated that ". . . if the fixed crest weir . . . would result in a decrease of 1900 acres of emergent wetlands at Orange and Lochloosa Lake, [that] out of 9,000+ acres of wetlands (calculated by SJRWMD), this would leave over 7,000 acres of wetlands at Orange Lake. The Florida Fish and Wildlife Commission does not believe this loss, if it were to happen, would be significant." The District does not agree with this statement and finds that the adverse effect to 1899 acres of wetlands in Orange Lake would significantly impact habitat for fish and wildlife. IN addition, this statement totally fails to consider the cumulative impacts to the wetland resources from this proposed project in conjunction with other past, present, and reasonably expected future development in the Northern Ocklawaha River Basin.

38. The operational protocol submitted by the applicant indicates that when the lake level is lower than 55.5 feet NGVD, the proposed 30-inch diameter sluice gate would be opened to conduct a drawdown of the lake. The sluice gate would be opened for three months. No predictions were provided as to the lake elevation that might be reached by a 3-month opening of the sluice gate or of the expected duration of said lower water level. No evidence was provided by the applicant as to whether three

months of flow through a 30-inch wide opening is sufficient to lower the lake level by the three feet needed to achieve the historic infrequent low of 52.49 feet NGVD necessary to maintain necessary seed germination and prevent harmful buildup of sediments in the lake so as to prevent adverse effects on approximately 1,899 acres of shallow emergent marsh and forested wetlands associated with Orange Lake.

Elimination and Reduction of Impacts

39. As an alternative to the proposed cast iron standpipe, the applicant considered isolating of the sinkhole with an earthen dike and isolation of the sinkhole with a sheet pile structure. Both options were abandoned due to engineering and stability concerns. Both designs would be unstable because the muck at the lake bottom is too soft to support these structures. Portions of the sandbag and earthen dike that was partially built in 1957 have collapsed into the sinkhole. Additionally, a sheet pile structure may fracture the limestone during construction and cause additional sinkholes to open. As such, the applicant considered these structures inappropriate for the site conditions.

40. Although requested by District staff to do so, the applicant did not explore the alternative of improving motorboat access to the deep-water pool of the lake during droughts by dredging boat channels through the shallow lake shorelines to the deep-water pool of the lake. The dredging of boat channels in lakes with broad littoral zones historically has been a common practice in Florida, and has been planned for other lakes such as Lake Griffin. This alternative would have significantly less adverse wetland impact than the proposed project. The applicant failed to provide any analysis to demonstrate that this alternative was not a practicable modification of the project.

Mitigation

41. The applicant has not proposed any mitigation for the adverse impacts to wetlands that would result from this project. No mitigation is proposed based on the applicant's position that the adverse impacts to the 1,899 acres of wetlands will be less than with the analyzed alternative of a fixed crest weir at 56 feet NGVD, and, that if wetlands are adversely impacted, loss of these habitats would not be significant relative to the amount of wetlands that would remain in Orange Lake.

Alternative Permittable Options

42. The District suggested to the applicant several permittable alternatives to the proposed project. One option is dredging channels to improve access to the deep pool of the lake during extreme low water conditions, along with mitigation necessary to offset any impacts resulting from the dredging. Alternatively, the applicant can propose mitigation with regional ecological value that provides greater long-term ecological value than the area of wetland impacted by the proposed project; apply for appropriate mixing zones to address water quality violations for work that is occurring in Orange Lake; and provide an analysis of the proposed structure (or a revised structure with additional discharge capacity as necessary) demonstrating that the project will not result in flooding impacts to the properties around Orange Lake.

Procedural Matters

43. On August 21, 2003, individual Notices of Intent to Deny the proposed permit application, along with Notices outlining legal rights, including the right to file a petition for an administrative hearing, were mailed to all persons on the District's interested parties list for this project.

44. On August 22, 2003, a Notice of Intent to Deny the proposed project, along with a Notice outlining legal rights, including the right to file a petition for an administrative hearing, was mailed to Marion County.

45. On August 25, 2003, a Notice of Intent to Deny the proposed project was published in the Gainesville Sun.

46. On August 26, 2003, a Notice of Intent to Deny the proposed project was published in the Ocala Star Banner.

47. On October 30, 2003, a Second Notice of Intent to Deny the proposed permit application and Notice of Rights was sent to Marion County. This notice advised Marion County that the Governing Board would be taking up this matter at its meeting on November 11, 2003 and provided the time and place of such meeting. The notice stated that anyone wishing to address the Governing Board on any regulatory item could do so at such meeting.

48. Marion County did not file a petition requesting an administrative hearing. No other person has filed a petition for an administrative hearing.

49. At the November 11, 2003 Governing Board meeting, District staff made a presentation regarding the proposed project and their recommendation for denial of the project.

50. At the November 11, 2003 Governing Board meeting, five members of the public made appearances. Richard Hamann of the University of Florida and the former Chairman of the Orange Creek Basin Advisory Council, spoke in support of the staff's recommendation for denial of the permit application. Mr. Hamann stated that the Orange Creek Basin Advisory Council, as well as the Scientific Advisory Council, had

both evaluated the option of plugging the sinkhole and had both voted against it. Mr. James Higman, representing the Florida Wildlife Federation, also spoke in support of staff's recommendation for denial of the permit application. Mr. Jerry Harris, owner of the Sportsman Cove Fish Camp on Orange Lake, Mr. Wayne Simon, a property owner on Orange Lake, and Daniel Canfield, Jr. of the University of Florida, spoke against the staff recommendation and in support of the permit application. Marion County did not attend or present any testimony at the November 11, 2003 Governing Board meeting.

51. The Governing Board considered all of the information provided by staff and the other speakers who provided testimony at the November 11, 2003 Governing Board meeting. Based on the consideration of all the information provided, the Governing Board has made the findings of fact and conclusions of law that are outlined in this Final Order.

CONCLUSIONS OF LAW

52. The District has jurisdiction over Marion County's proposed system. Sections 373.069(2)(c), 373.413, 373.419, F.S., Chapter 40C-4, F.A.C.

Environmental Resource Permit

53. The District's ERP requirements applicable to Marion County's application are found in Rule 40C-4.301, F.A.C., and Rules 40C-302(1)(a) and (b), F.A.C. The provisions of these rules at issue in this case provide in relevant part as follows:

40C-4.301: Conditions for Issuance of Permits

(1) In order to obtain a . . . permit under this chapter . . . an applicant must provide reasonable assurance that the construction, [and] operation, . . . of a surface water management system:

(a) Will not cause adverse quantity impacts to receiving waters and adjacent lands;
(b) Will not cause adverse flooding to on-site or off-site property;
(c) Will not cause adverse impacts to existing surface water storage and conveyance capabilities;
(d) Will not adversely impact the value of functions provided to fish and wildlife and listed species by wetlands and other surface waters;
(e) Will not adversely affect the quality of receiving waters such that the water quality standards set forth in chapters 62-3, 62-4, 62-302, 62-520, 62-522 and 62-550, F.A.C., including any antidegradation provisions of sections 624.242.(1)(a) and (b), 62-424(2) and (3), and 62.300, F.A.C., and any special standards for Outstanding Florida Waters and Outstanding National Resource Waters set forth in 62-4.24(2) and (3), F.A.C., will be violated;
(f) Will not cause secondary impacts to water resources;
(g) Will not adversely impact the maintenance of surface or ground water levels or surface water flows established in 40C-8, F.A.C.;

...

(i) Will be capable, based on generally accepted engineering and scientific principles of being performed and of functioning as proposed;
(j) Will be conducted by an entity with the financial, legal and administrative capability of ensuring that the activity will be undertaken in accordance with the terms and conditions of the permit, if issued;

...

(3) The standards and criteria, including the mitigation provisions and the provisions for elimination or reduction of impacts, contained in the Applicant's Handbook: Management and Storage of Surface Waters adopted by reference in section 40C-4.091, F.A.C., shall determine whether the reasonable assurances required by subsection 40C-4.301(1) and 40C-4.302, F.A.C., have been provided.

40C-4.302: Additional Conditions for the Issuance of Permits

(1) In addition to the conditions set forth in section 40C-4.301, F.A.C., in order to obtain a . . . permit under this chapter . . . , an applicant must provide reasonable assurance that the construction, operation, . . . of a system:

(a) located in, on, or over wetlands or other surface waters will not be contrary to the public interest, or if such activity . . . is within an Outstanding Florida Water, the activity will be clearly in the public interest, as determined by balancing the following criteria as set forth in subsections 12.2.3 through 12.2.3.7 of the Applicant's Handbook: Management and Storage of Surface Waters: [emphasis provided]

1. Whether the activity will adversely affect the public health, safety, or welfare or the property of others;

2. Whether the activity will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;
3. Whether the activity will adversely affect . . . the flow of water or cause harmful erosion or shoaling
4. Whether the activity will adversely affect the fishing or recreational values . . . in the vicinity of the activity
5. Whether the activity will be of a temporary or permanent nature
6. Whether the activity will adversely affect or will enhance significant historical and archeological resources under the provisions of section 267.061, F.S.; and
7. The current condition and relative value of functions being performed by areas affected by the proposed activity.

(b) Will not cause unacceptable cumulative impacts upon wetlands and other surface waters as set forth in subsections 12.2.8 through 12.2.8.2 of the Applicant's Handbook: Management and Storage of Surface Waters adopted by reference in section 40C-4.091, F.A.C.

54. The County has failed to provide reasonable assurances that the project will not cause adverse water quantity impacts to receiving waters and adjacent lands pursuant to Rule 40C-4.301(1)(a), F.A.C. The County also has not provided reasonable assurances that the project will not cause adverse flooding to offsite property pursuant to Rule 40C-4.301(1)(b), F.A.C. As described in the findings of fact section of this order, the County's reliance on the District's 1999 analysis of the fixed crest weir alternative at elevation 56 in the 1999 Report is technically inappropriate. The reduction of flows to the sinkhole that will occur under the proposed project will result in higher flood levels in and around Orange Lake and as such the applicant has not provided reasonable assurance that the proposed project will not result in flooding or adverse water quantity impacts to Orange Lake, adjacent properties, and other off-site properties in the vicinity of Orange Lake.

55. Moreover, although the applicant has provided an Operational Protocol for the proposed sluice gate, the applicant has failed to propose any contingency provisions for deviations from this protocol in cases of unanticipated circumstances or flooding emergencies. Accordingly, the applicant has not met the rule criteria in 40C-4.301(1)(a) and (b), F.A.C.

56. The applicant has not provided reasonable assurance that the project will not adversely impact the value of functions provided to fish and wildlife and listed species by wetlands and other surface waters, pursuant to Rule 40C-4.301(1)(d), F.A.C. To determine whether this subsection has been met, the applicant is required to demonstrate compliance with Sections 12.2.2 and 12.2.2.4 of the Applicant's Handbook. Section 12.2.2 of the Applicant's handbook requires consideration of whether the project will impact the values of wetlands and surface waters so as to cause adverse impacts to the abundance, diversity, and habitat of fish, wildlife, and listed species. Section 12.2.2.4, A.H., provides that an applicant must provide reasonable assurance that the regulated activity will not change the hydroperiod of a wetland or other surface water, so as to adversely affect wetland functions or other surface water functions.

57. As described in detail in the findings of fact section of this order, the proposed project will result in a direct impact to .45 acres of lake bottom and adverse impacts to approximately 1,899 acres of wetlands. The District has conducted modeling that demonstrates that keeping the lake elevation at approximately 56 feet NGVD, as proposed by the applicant, will reduce the frequency and duration of low water periods, which would adversely impact approximately 1,899 acres of primarily shallow marsh and forested wetlands.

58. Moreover, as described in the findings of fact section of this order, the proposed project would result in approximately 859 acres of shallow marsh and 69 acres of forested wetlands that would not experience sediment exposure during frequent low water levels. Without sediment exposure, species diversity would disappear from the shallow marsh, and forested wetland seedlings, such as cypress, would not be able to germinate. In addition, the loss of shallow marsh would reduce spawning and feeding habitat for fish and wildlife that use these habitats. Finally, the applicant has not proposed any mitigation, whatsoever, to offset these impacts. Thus, the project will adversely impact the values of wetlands so as to cause adverse impacts to the abundance, diversity and habitat of fish, wildlife and listed species pursuant to Rule 12.2.2, A.H., and will change the hydroperiod of wetlands and surface waters so as to adversely affect wetland and other surface water functions pursuant to Rule 12.2.4, A.H.

59. Further, because the project will result in adverse impacts to wetlands and other surface waters, Rule 12.2.1, A.H., requires that the applicant implement practicable design alternatives to reduce or eliminate these adverse impacts. As described in the findings of fact section of this order, the applicant did consider and reject the alternative of isolation of the sinkhole with an earthen dike and isolation of the sinkhole with a sheet pile structure. However, although requested by the District to do so, the applicant did not explore the alternative of improving motorboat access to the deep-water pool of the lake during droughts by dredging boat channels through the shallow shoreline to the deep-water pool of the late. This alternative to the proposed sinkhole plug would provide increased motor boat access to the deeper water areas of

Orange Lake with significantly less wetland impacts. The applicant did not provide any information or analysis to demonstrate that this alternative was not a practicable design modification. Thus, the applicant failed to comply with Rule 12.2.1, A.H. For all of the reasons stated above, the applicant has not met the rule criterion in 40C-4.301(1)(d), F.A.C.

60. The County has not provided reasonable assurance that the project will not cause a violation of state water quality standards pursuant to Rule 40C-4.301(1)(e), F.A.C. As described in the findings of fact section of this order, the proposed project will cause the turbidity in the water to exceed 29 NTU above natural background within the perimeter of the proposed project site during construction. State water quality standards as set forth in subsection 62-302.530(70), F.A.C., require that turbidity shall be less than 29 NTUs above natural background conditions for Class III waters.

61. In accordance with section 12.2.4.4, A.H., the applicant may request a mixing zone for such water quality violations and the District will review such a request in accordance with rules 62-4.242 and 62-4.244(5), F.A.C. The applicant has not applied for a variance and therefore the project as proposed would cause a violation of state water quality standards and District rule 40C-4.301(1)(e), F.A.C.

62. Orange Lake has been designated an Outstanding Florida Water. Rule 62-302.700(9)(i)25., F.A.C. Thus, to demonstrate compliance with Rule 40C-4.302(1)(a), F.A.C., the applicant must provide reasonable assurance that the proposed activity is clearly in the public interest. See also, Section 373.414(1)(a), F.S. In addition, because Orange Lake is an Outstanding Florida Water, activities in or discharges to Orange Lake cannot degrade the ambient water quality.

63. Turbidity at the work site, within Orange Lake, will degrade ambient water quality. Applicants may apply for and the District may grant a temporary mixing zone up to 150 meters from the point of discharge for a construction period of up to 30 days to address such water quality problems. The applicant has not applied for a mixing zone and therefore the project as proposed would cause a violation of state water quality standards. Thus, the proposed project fails to comply with section 40C-4.301(1)(e), F.A.C.

Public Interest Test

64. Orange Lake is an Outstanding Florida Water and, therefore, the proposed activity must be clearly in the public interest as determined by balancing the following criteria as set forth in subsections 12.2.3 through 12.2.3.7 of the Applicant's Handbook: Management and Storage of Surface Waters:

1) Whether the activity will adversely affect the public health, safety, or welfare or the property of others;

The applicant asserts that the sinkhole plug would improve and enhance public safety through maintained law enforcement access to the lake. However, even during infrequent low water events law enforcement motorboats can access Orange Lake from Mike's Fish Camp in Boardman on the west side of the lake. Additionally, law enforcement airboats can access Orange Lake at infrequent low water levels from two public ramps and several private ramps around the lake.

Because the proposed sinkhole plug would be an obstruction in one of the Orange Lake outflows to the Floridan Aquifer, it is anticipated that higher flood levels will occur as a result of the obstruction. Because the proposed Operational Protocol of the proposed sinkhole plug has no contingency provision

for emergency drawdown so that off-site property owners can request relief when there are public health, welfare, or safety concerns, the proposed activity would adversely affect the public health, safety, or welfare or the property of others. Therefore, this factor is a negative consideration in the public interest test.

2) Whether the activity will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;

The anticipated alteration of lake level fluctuation is expected to adversely impact approximately 1,899 acres of shallow marsh and forested wetlands. The shallow marsh and forested wetlands provide habitat for a diversity of fish and wildlife, including listed species such as wood stork, American alligator, Florida Sandhill crane, bald eagle, limpkin, snowy egret, white ibis, and little blue heron. The applicant has not offered any mitigation to offset these adverse effects of the project on the conservation of fish and wildlife, including endangered or threatened species, or their habitats. Therefore, this factor is a negative consideration in the public interest test.

3) Whether the activity will adversely affect navigation or the flow of water or cause harmful erosion or shoaling;

Navigation for motorboats from the shallow lake edges to the deep-water pool of Orange Lake is reduced at lake elevations under 56 feet NGVD. In the recent drought, however, when lake level was at elevation 50 feet NGVD or 8 feet below the median lake level, motorboats were able to access Orange Lake from a fish camp at Boardman. The hydrologic model showed that Orange Lake

was at or above 56 feet NGVD 79% of the time over the past 55 years. The hydrologic model predicted that a fixed-crest weir at elevation 56 feet NGVD would increase lake access for motorboats by about 10%, so that motorboats could access the lake 87% of the time instead of the 79% predicted for existing conditions. Airboats operators were able to access the deep-water pool of the lake during the recent drought from fish camps and the two public boat ramps. As the project would result in an increase in navigation for recreational boats, this factor is a positive consideration in the public interest test.

4) Whether the activity will adversely affect the fishing or recreational values or marine productivity in the vicinity of the activity;

The proposed project would negatively impact the long-term diversity and abundance of fish and wildlife, by adversely affecting approximately 1,899 acres of shoreline wetland habitat that provide habitat for feeding and spawning. A decline in diversity and abundance in fish and wildlife populations would negatively impact fishing, hunting of alligators, frogs, and ducks, and wildlife viewing on Orange Lake. Therefore, this factor is a negative consideration in the public interest test.

5) Whether the activity will be of a temporary or permanent nature;

The proposed sinkhole plug would be considered permanent. The maintenance and operational protocol provided by the applicant would be considered perpetual. As the adverse effects of the project would be permanent

rather than temporary, this factor is a negative consideration in the public interest test.

6) Whether the activity will adversely affect or will enhance significant historical and archaeological resources under the provisions of section 267.061, F.S.;

The Division of Historical Resources has indicated that the project is unlikely to affect significant historical and archaeological resources. Therefore, this factor is a neutral consideration in the public interest test.

7) The current condition and relative value of functions being performed by areas affected by the proposed activity.

The current condition and relative value of functions provided by Orange Lake and the potentially affected 1,899 acres of wetlands is high. The potential adverse impacts of the project on 1,899 acres of wetlands in Orange Lake would affect adversely Orange Lake's current condition and the relative value of functions it provides. Therefore this would be a negative consideration in the public interest test.

65. The "clearly in the public interest" standard which applies to proposed project in Outstanding Florida Waters is more stringent than the "not contrary to the public interest standard" which applies to proposed projects not in Outstanding Florida Waters. State, Dep't of Transp. v. St. Johns River Water Management District, Case No. 94-1501 (SJRWMD 1996) [applying prior 403.918]; McGinnis v. Dep't of Envtl. Protection, 20 F.A.L.R. 2023, 2049 (DEP 1998)[applying 373.414].

66. The District must deny a permit application for a project proposed in an Outstanding Florida Water unless the applicant demonstrates that it is clearly in the

public interest. Hunter v. Dep't of Envtl. Protection, 16 F.A.L.R. 2544, 2553 (DEP 1994)(project had 5 negatives of the seven criteria of 373.414(1)(a), Florida Statutes); State, Dep't of Transp. v. St. Johns River Water Management District, Case No. 94-1501 (SJRWMD 1996); Alden Pond v. Dep't of Envtl. Protection, 16 F.A.L.R. 4263 (DEP 1994).

67. Based upon the potential of the proposed project to adversely impact as much as 1,899 acres of wetlands at Orange Lake and considering the analysis provided above, the applicant has not provided reasonable assurance that the proposed project is clearly in the public interest, pursuant to Rule 40C-4.302(a), F.A.C.

68. When a project fails to meet the public interest test, the applicant may offer mitigation to offset the adverse impacts. See paragraph 373.414(1)(b), F.S., sections 12.2.1 and 12.3, A.H. In this case no mitigation has been proposed. Accordingly, the applicant has not met this rule criterion.

69. The applicant has not provided reasonable assurance that the project will not cause unacceptable cumulative impacts upon wetlands and other surface waters pursuant to Rule 40C-4.302(b), F.A.C. The proposed project would result in adverse impacts to approximately 1,899 acres of wetlands, which in itself is an unacceptable cumulative impact. However, the rule requires the District to assume that reasonably expected future applications with like impacts will be sought within the same drainage basin, i.e., impacts to shallow marsh and forested wetlands with no offsetting mitigation. For example, if the District approved this application, landowners around the lakes in this basin (Northern Ocklawaha River drainage basin) could propose to undertake similarly impactive actions such as to dike off wetlands from the lake and drain these

wetlands for agricultural or other land uses with no mitigation. It would not take many such applications to totally deplete the wetlands associated with Orange, Lochloosa and Newnans Lakes. Pursuant to section 373.414(8)(b), F.S., if any applicant proposes mitigation within the same drainage basin as the adverse impacts to be mitigated, and if the mitigation offsets these adverse impacts, the regulated activity is considered to meet the cumulative impact requirement. However, in this case, no mitigation whatsoever is proposed to offset the unacceptable cumulative impacts of the project. Accordingly, the cumulative impacts criterion in Rule 40C-4.302(b), F.A.C., has not been met.

70. Section 373.427, F.S., provides that when an ERP and a state land authorization are concurrently reviewed, if the applicant does not qualify for the state land authorization then the ERP application must also be denied.

71. As described below, we have determined that the proposed project does not qualify for a sovereign submerged lands authorization. Pursuant to section 373.427, F.S., this is an additional basis upon which we must deny this application for an ERP.

State Lands Authorization

72. Because the proposed project is proposed to occur in Orange Lake, the bottom of which is sovereignty submerged lands, a state lands authorization pursuant to Rule 18-21, F.A.C., is required.

73. Pursuant to Rule18-21.00401(1) and (2), F.A.C., the proprietary authorization to use sovereignty submerged lands and the associated Individual Environmental Resource Permit must be issued concurrently.

74. Pursuant to Rule 18-21.0051, F.A.C, the District's Governing Board has been delegated the authority to review and take final agency action on applications to

use sovereign submerged lands when the application involves an activity for which the District has permitting responsibility under the "Operating Agreement Concerning Regulation Under Part IV, Chapter 373, F.S., and Aquaculture General Permits Under Section 403.814, F.S., between St. Johns River Water Management District and Department of Environmental Protection, October 27, 1998" (Operating Agreement).

75. Because the District has permitting responsibility for the proposed project under the Operating Agreement, the District has the delegated authority to review and make a final decision on the application to use sovereign submerged lands.

76. To obtain a state lands authorization, the proposed project must meet management policies, standards, and criteria of sovereignty submerged lands use authorization pursuant to Rules 18-21.004(1)(a) through (l), 18-21.004(2)(a) through (l), and 18-21.004(3)(a) through (e), F.A.C.

77. Pursuant to Rule 18-21.004(1)(a), F.A.C., for approval, all activities on sovereignty lands must not be contrary to the public interest. Rule 18-20.004(2) describes the types of costs and benefits to be considered in the public interest balancing analysis under Rule 18-21.004(1)(a), F.A.C.

78. Pursuant to Rule 18-20.004(2)(b), F.A.C., the potential benefits of the proposed project are improved public access to the deep water parts of Orange Lake and a potentially improved game fishery. However, as described in the findings of fact section of this order, even during the extreme drought, public access to the lake existed. Thus, the public access benefit improvement of the proposed project is not compelling. Moreover, although there is a potential for certain game fish populations to improve as a result of the proposed project, the project would adversely affect approximately 1899

acres of wetlands, thereby reducing the overall abundance and diversity of fish and wildlife.

79. Pursuant to Rule 18-20.004(2)(c), F.A.C., the following costs would result from the proposed project: 1) reduced/degraded natural habitat and function; 2) harm to listed species; and, 3) adverse cumulative impacts. In balancing, these costs and benefits, it is determined that the adverse impact of the project on approximately 1,899 acres of shallow marsh and forested wetlands, the harm to listed species, and the unacceptable adverse cumulative impact to the basin due to the loss of these wetland functions outweigh any benefits that may result from the proposed project. Accordingly, we conclude that the applicant has not demonstrated that the proposed project is not is contrary to the public interest in accordance with Rule 18-21.004(1)(a), F.A.C.

80. Because the proposed system will alter the existing natural condition to a man-made condition, the applicant will not manage the sovereignty submerged lands of Orange Lake primarily for the maintenance of essentially natural conditions, as required by Rule 18-21.004(2)(a), F.A.C. Thus, the proposed project does not meet the criterion in this rule.

81. Rule 18-21.004(2)(b), F.A.C., provides that activities which would result in significant adverse impacts to sovereignty lands and associated resources shall not be approved unless there is no reasonable alternative and adequate mitigation is provided. As described elsewhere in this order, the proposed project will result in adverse impacts to approximately 1899 acres of wetlands and to the associated fish and wildlife that utilize such wetlands. The applicant has not demonstrated that there is no reasonable alternative to the proposed project. Nor has the applicant proposed any mitigation to

offset the adverse impacts. Accordingly, the proposed project does not comply with Rule 18-21.004(2)(b), F.A.C.

82. Rule 18-21.004(2)(d), F.A.C., provides that activities shall be designed to minimize or eliminate any destruction of wetland vegetation on sovereignty lands. As described above, the proposed project will result in substantial loss of wetland vegetation on sovereignty lands. The proposed project has not been designed to minimize or eliminate destruction of wetland vegetation on sovereignty submerged lands of Orange Lake. As such, the proposed project does not comply with Rule 18-21.004(2)(d), F.A.C.

83. Rule 18-21.004(2)(i), F.A.C., provides that activities shall be designed to minimize or eliminate adverse impacts on fish and wildlife habitat, and that special consideration should be given to endangered and threatened species habitat. As described above, the proposed project will result in adverse impact to fish and wildlife feeding and spawning habitat. Of particular concern, the proposed project will adversely affect bald eagles, alligators, sandhill cranes, and wood storks, listed species, that nest adjacent to Orange Lake and feed in the wetlands and open water of the lake. The proposed project is not designed to minimize or eliminate these adverse impacts. Thus, the proposed project does not comply with Rule 18-21.004(2)(i), F.A.C.

84. Section 253.77(2), F.S., provides that the District shall not issue a sovereign submerged land authorization unless the requirements for issuance of any ERP applications, which are concurrently reviewed, are also met.

85. Because the application does not meet the requirements for ERP issuance, as described above, the sovereignty submerged lands authorization must be denied as a matter of law.

86. The Board finds that there are such substantial impacts to wetlands that will result from the proposed project and that the proposed project deviates so substantially from the District's permitting criterion that the Board must deny the permit application.

87. The County did not attend the November 11, 2003 Governing Board meeting and not did provide any testimony or other information at that meeting to dispute any of the findings or analysis contained in the District staff's recommendation to the Governing Board.

88. The County has waived its right to seek a section 120.57, F.S., administrative hearing by failure to timely a petition pursuant to the Notice of Rights.

89. The County has waived its right to section 70.51, F.S., special master proceeding by failure to timely apply for such proceeding pursuant to subsection 70.51(3), F.S.

WHEREFORE, upon consideration, it is ORDERED that permit application number 4-001-85187-1 is DENIED.

DONE AND ORDERED this 22nd day of December, 2003, in Palatka, Florida.

ST. JOHNS RIVER WATER
MANAGEMENT DISTRICT

BY: _____
Ometrias D. Long, Chairman

RENDERED this 23rd day of December, 2003.

BY: Debi Edwards for Sandra Bertram
Sandra Bertram, District Clerk

NOTICE OF RIGHTS

1. Any substantially affected person who claims that final action of the District constitutes an unconstitutional taking of property without just compensation may seek review of the action in circuit court pursuant to Section 373.617, Florida Statutes, and the Florida Rules of Civil Procedures, by filing an action within 90 days of rendering of the final District action.

2. Pursuant to Section 120.68, Florida Statutes, a party who is adversely affected by final District action may seek review of the action in the district court of appeal by filing a notice of appeal pursuant to Fla.R.App. 9.110 within 30 days of the rendering of the final District action.

3. A party to the proceeding who claims that a District order is inconsistent with the provisions and purposes of Chapter 373, Florida Statutes, may seek review of the order pursuant to Section 373.114, Florida Statutes, by the Land and Water Adjudicatory Commission (Commission) by filing a request for review with the Commission and serving a copy on the Department of Environmental Protection and any person named in the order within 20 days of adoption of a rule or the rendering of the District order.

4. A District action or order is considered "rendered" after it is signed by the Chairman of the Governing Board on behalf of the District and is filed by the District Clerk.

5. Failure to observe the relevant time frames for filing a petition for judicial review as described in paragraphs #1 or #2 or for Commission review as described in paragraph #3 will result in waiver of that right to review.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Notice of Rights was furnished to the following parties by U. S. Certified Mail, on this 23rd of December, 2003.

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