

Compliance with Golf Course Nutrient and Lake Management Guidelines

Adopted by Sanibel City Council - October 2007

Staff Recommendation	Beachview Golf Course	Dunes Golf Course	Sanctuary Golf Course
Education			
Require that each superintendent ensure that all course employees are trained in the <i>Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses</i> (FDEP 2007), including water quality related issues and environmentally sensitive areas around the golf course.	No formal training. See attached sheet for more detail.	No formal training. See attached sheet for more detail.	No formal training. See attached sheet for more detail.
Lake Management			
Within 5 years of Ordinance adoption, a minimum of 30% of the littoral zone of each golf course lake must be planted and maintained with submerged or emergent aquatic vegetation on a minimum of 3' centers.	Not in full compliance. See attached sheet for more details.	Not in compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Require that golf courses monitor the water quality in their lakes 2x/year (wet season/dry season) and provide the data to the City's Natural Resources Department. Minimum parameters should include dissolved oxygen (DO), total nitrogen (TN), total phosphorus (TP), chlorophyll a (chl-a), and copper (Cu). If nutrient or heavy metal concentrations are excessive, City staff will meet with golf course management staff to review and determine a mitigation plan.	Not in compliance. No monitoring of course lakes. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Require that all fish kills and algae blooms are reported to the City's Natural Resources Department.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Fertilizer Management			
Limit soluble nitrogen applications to ½ lb/1000ft ²	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Identify and map environmentally sensitive areas within the golf course and identify no fertilizer buffer zones around all of the waterbodies and map drainage patterns.	No formal mapping. See attached sheet for more details.	Not in compliance. See attached sheet for more details.	No formal mapping. See attached sheet for more details.
Require 25-foot native plant or unfertilized grass buffers around environmentally sensitive areas such as lakes and wetlands, where practical. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Partially in compliance. See attached sheet for more details.	Not in compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Require that grass buffers around environmentally sensitive areas such as lakes and wetlands be mowed 2" higher than the other grass to slow and filter overland flow to waterbodies.	Not in compliance. See attached sheet for more details.	Not in compliance. See attached sheet for more details.	Partially in compliance. See attached sheet for more details.
Require that all washdown facilities have runoff properly treated prior to discharge off of the site.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Require periodic inspections of fertilizer storage areas and washdown facilities by DNR staff.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Require that all golf courses on the island maintain annual fertilizer and copper sulfate logs and make them available to the City's Natural Resources Department.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Irrigation and Fertigation			
Require that all reuse water be setback 25-feet from all waterbodies and that all irrigation heads using reuse water or fertigation (application of fertilizer through an irrigation system) be setback 25-feet from a waterbody. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	In compliance. See attached sheet for more details.	Not in compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.
Require that golf courses quantify their water use and differentiate between reuse and potable water supplies. This information can be used to account for the nutrients in reuse water when making fertilizer calculations.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.	In compliance. See attached sheet for more details.

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Staff Recommendation	Beachview Golf Course
Education	
Require that each superintendent ensure that all course employees are trained in the <i>Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses</i> (FDEP 2007), including water quality related issues and environmentally sensitive areas around the golf course.	Staff is aware of BMPs, but no formal training for golf course employees on BMPs.
Lake Management	
Within 5 years of Ordinance adoption, a minimum of 30% of the littoral zone of each golf course lake must be planted and maintained with submerged or emergent aquatic vegetation on a minimum of 3' centers.	Shoreline along Sanibel River in compliance as condition of their SFWMD permit. Other lakes on course do not meet 30% requirement. Staff indicated that due to economic hardship they have not been able to comply, as they do not have extra money to spend on plantings. Staff will be working with the Sanctuary Golf Course to get plugs and cuttings at no cost.
Require that golf courses monitor the water quality in their lakes 2x/year (wet season/dry season) and provide the data to the City's Natural Resources Department. Minimum parameters should include dissolved oxygen (DO), total nitrogen (TN), total phosphorus (TP), chlorophyll a (chl-a), and copper (Cu). If nutrient or heavy metal concentrations are excessive, City staff will meet with golf course management staff to review and determine a mitigation plan.	No water quality monitoring taking place, other than water quality in the Sanibel River conducted by City. They have no plans to conduct water quality monitoring in golf course lakes due to lack of funding.
Require that all fish kills and algae blooms are reported to the City's Natural Resources Department.	No fish kills or algae blooms reported. During onsite meeting and inspection staff indicated that no fish kills have occurred. Macroalgae bloom present in lake along hole # 7 during inspection, which was recently treated by their lake management company.
Fertilizer Management	
Limit soluble nitrogen applications to ½ lb/1000ft ²	Staff indicated that due to lack of funding they are not applying any soluble nitrogen. Turf along course very brown during most recent inspection. Staff indicated that they have not fertilized the course since October 2010.
Identify and map environmentally sensitive areas within the golf course and identify no fertilizer buffer zones around all of the waterbodies and map drainage patterns.	Environmentally sensitive areas not formally mapped.
Require 25-foot native plant or unfertilized grass buffers around environmentally sensitive areas such as lakes and wetlands, where practical. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Staff indicated that this has been done and that they do not fertilize near sensitive areas. During inspection it does not appear that buffers were established on lakes located in the central portion of the course.
Require that grass buffers around environmentally sensitive areas such as lakes and wetlands be mowed 2" higher than the other grass to slow and filter overland flow to waterbodies.	Staff indicated that was being done; however it appeared during most recent staff inspection that turf mowed same height to lake edge.
Require that all washdown facilities have runoff properly treated prior to discharge off of the site.	Washdown facility in compliance and washdown water treated prior to discharge.
Require periodic inspections of fertilizer storage areas and washdown facilities by DNR staff.	Natural Resources staff provided access to facility for inspections and compliance checks.
Require that all golf courses on the island maintain annual fertilizer and copper sulfate logs and make them available to the City's Natural Resources Department.	Fertilizer records logs available. Staff indicated that they do not use copper sulfate to treat lakes for algae blooms.
Irrigation and Fertigation	
Require that all reuse water be setback 25-feet from all waterbodies and that all irrigation heads using reuse water or fertigation (application of fertilizer through an irrigation system) be setback 25-feet from a waterbody. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Irrigation inspected frequently and no fertigation is used. Reuse water provided by City is used to irrigate golf course. Reuse water holding pond should be lined to prevent infiltration into the Sanibel River.
Require that golf courses quantify their water use and differentiate between reuse and potable water supplies. This information can be used to account for the nutrients in reuse water when making fertilizer calculations.	All water used on golf course is reuse water and records kept.

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Education	
Require that each superintendent ensure that all course employees are trained in the <i>Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses</i> (FDEP 2007), including water quality related issues and environmentally sensitive areas around the golf course.	No formal training for golf course employees on BMPS.
Lake Management	
Within 5 years of Ordinance adoption, a minimum of 30% of the littoral zone of each golf course lake must be planted and maintained with submerged or emergent aquatic vegetation on a minimum of 3' centers.	Not currently compliance with staff recommendation. Several thousand linear feet of spike rush and bull rush were planted in 2009, but very few have survived. The lake management company has sprayed herbicide on littoral zone plants in the past. Golf course staff is currently working on a plan to replant using plugs and cuttings provided by the Sanctuary Golf Course. The Dunes HOA is also developing a plan plant thier lakes and address no fertilizer zones near storm drains.
Require that golf courses monitor the water quality in their lakes 2x/year (wet season/dry season) and provide the data to the City's Natural Resources Department. Minimum parameters should include dissolved oxygen (DO), total nitrogen (TN), total phosphorus (TP), chlorophyll a (chl-a), and copper (Cu). If nutrient or heavy metal concentrations are excessive, City staff will meet with golf course management staff to review and determine a mitigation plan.	Data provided twice a year to the City's Natural Resources Department. Dunes staff reviews water quality with Natural Resources Department staff annually.
Require that all fish kills and algae blooms are reported to the City's Natural Resources Department.	All fish kills have been reported. Aerators have been installed in response to fish kills.
Fertilizer Management	
Limit soluble nitrogen applications to ½ lb/1000ft ²	Currently limit soluble nitrogen applications to 1/2 lb/1000 ft2 since 2009
Identify and map environmentally sensitive areas within the golf course and identify no fertilizer buffer zones around all of the waterbodies and map drainage patterns.	Not in compliance. There are very few areas with buffer zones around waterbodies. "No fertilizer zones" have not been established.
Require 25-foot native plant or unfertilized grass buffers around environmentally sensitive areas such as lakes and wetlands, where practical. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Not in compliance. Minimum buffer zones of 10' not established. New Golf Course Superintendent currently working on establishing buffers and "no fertilizer zones".
Require that grass buffers around environmentally sensitive areas such as lakes and wetlands be mowed 2" higher than the other grass to slow and filter overland flow to waterbodies.	Not in compliance. Currently mowing most areas to the edge of lake.
Require that all washdown facilities have runoff properly treated prior to discharge off of the site.	In compliance and inspected by the Natural Resources Department Annually.
Require periodic inspections of fertilizer storage areas and washdown facilities by DNR staff.	In compliance and inspected by the Natural Resources Department Annually.
Require that all golf courses on the island maintain annual fertilizer and copper sulfate logs and make them available to the City's Natural Resources Department.	Logs maintained by Lake Management Company Aquagenix. Logs need more detail of application rates.
Irrigation and Fertigation	
Require that all reuse water be setback 25-feet from all waterbodies and that all irrigation heads using reuse water or fertigation (application of fertilizer through an irrigation system) be setback 25-feet from a waterbody. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Irrigation system heads need updated. Heads applying reuse water and/or fertigation occasionally malfunction and may be contributing to poor lake water quality. Need to fix heads and install buffers to redirect water from malfunctioning heads.
Require that golf courses quantify their water use and differentiate between reuse and potable water supplies. This information can be used to account for the nutrients in reuse water when making fertilizer calculations.	All water used is reuse water.

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Staff Recommendation	Sanctuary Golf Course
Education	
Require that each superintendent ensure that all course employees are trained in the <i>Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses</i> (FDEP 2007), including water quality related issues and environmentally sensitive areas around the golf course.	Staff is aware of BMPs, but no formal training has been accomplished with all staff.
Lake Management	
Within 5 years of Ordinance adoption, a minimum of 30% of the littoral zone of each golf course lake must be planted and maintained with submerged or emergent aquatic vegetation on a minimum of 3' centers.	Nearly all lakes meet requirements. Most lakes exceed 30% requirement. Lakes #6 and 7 need emergent plants. During staff inspection lakes look very well maintained and have the greatest coverage of emergent and submerged plants of all of the golf courses surveyed.
Require that golf courses monitor the water quality in their lakes 2x/year (wet season/dry season) and provide the data to the City's Natural Resources Department. Minimum parameters should include dissolved oxygen (DO), total nitrogen (TN), total phosphorus (TP), chlorophyll a (chl-a), and copper (Cu). If nutrient or heavy metal concentrations are excessive, City staff will meet with golf course management staff to review and determine a mitigation plan.	Has been accomplished and results have been provided to Natural Resources Department staff biannually.
Require that all fish kills and algae blooms are reported to the City's Natural Resources Department.	All fish kills and algae blooms have been reported
Fertilizer Management	
Limit soluble nitrogen applications to ½ lb/1000ft ²	Currently limiting soluble nitrogen to 1/2 lb/1000 ft2.
Identify and map environmentally sensitive areas within the golf course and identify no fertilizer buffer zones around all of the waterbodies and map drainage patterns.	No formal mapping has been conducted, but buffer zones have been established where practical.
Require 25-foot native plant or unfertilized grass buffers around environmentally sensitive areas such as lakes and wetlands, where practical. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Buffer zones around lakes and wetland course edges are rough grass and carefully managed.
Require that grass buffers around environmentally sensitive areas such as lakes and wetlands be mowed 2" higher than the other grass to slow and filter overland flow to waterbodies.	Grass height of roughs along sensitive areas is currently maintained at 1.5".
Require that all washdown facilities have runoff properly treated prior to discharge off of the site.	Equipment washdown facility is self-contained and inspected by Natural Resources staff annually.
Require periodic inspections of fertilizer storage areas and washdown facilities by DNR staff.	All facilities inspected by Natural Resources staff annually.
Require that all golf courses on the island maintain annual fertilizer and copper sulfate logs and make them available to the City's Natural Resources Department.	Fertilizer and copper sulfate logs are maintained and provided to Natural Resources staff annually in report.
Irrigation and Fertigation	
Require that all reuse water be setback 25-feet from all waterbodies and that all irrigation heads using reuse water or fertigation (application of fertilizer through an irrigation system) be setback 25-feet from a waterbody. When a 25-foot buffer is impractical, a minimum 10-foot buffer is required.	Irrigation design addresses this requirement and periodic inspections are conducted.
Require that golf courses quantify their water use and differentiate between reuse and potable water supplies. This information can be used to account for the nutrients in reuse water when making fertilizer calculations.	All watering of the course with reuse water is recorded and available to Natural Resources Department staff.