



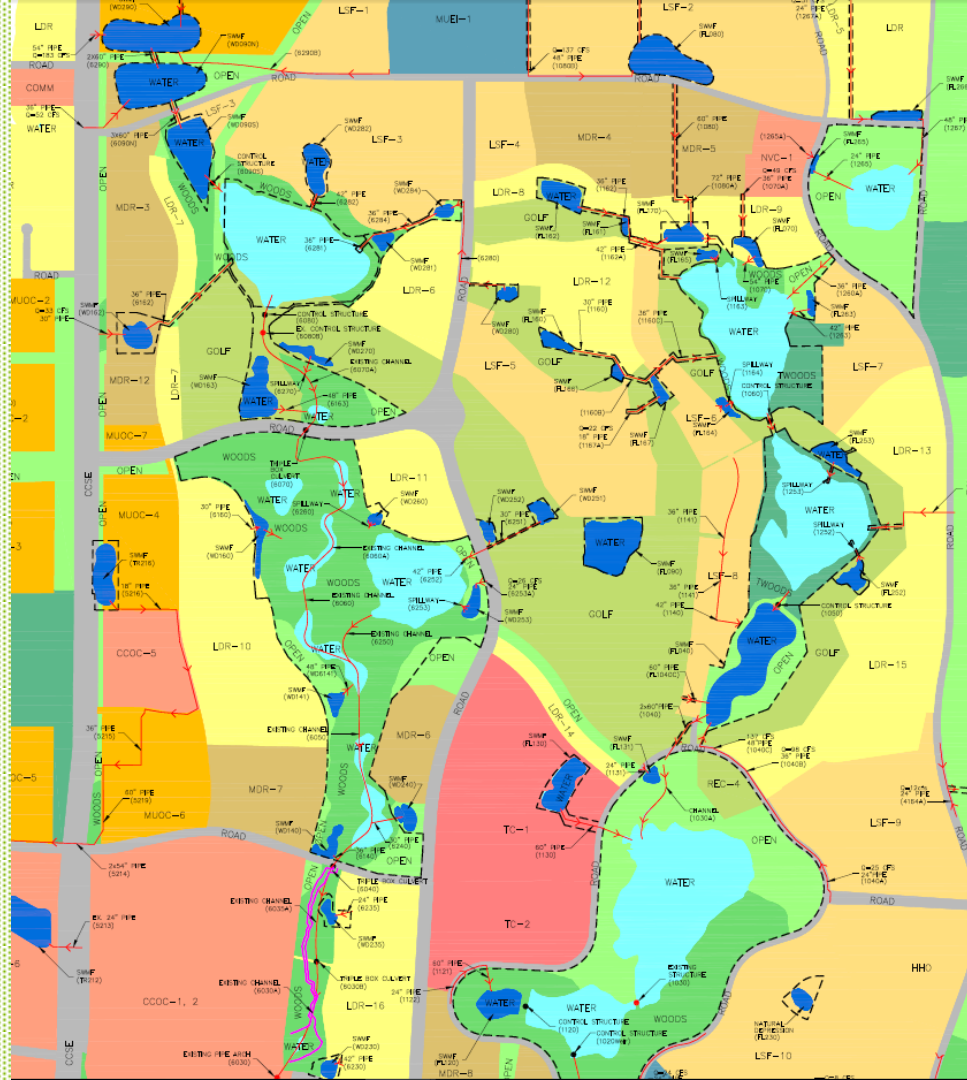
Monthly Meeting
July 28, 2016

SouthWood Lakes & Ponds



Common Sense Reforms to Improve
Water Quality and Save Money





Algae Outbreak: “Catfish Pond”



Stormwater Pond Management at Southwood - - Two Case Studies

By Jess Van Dyke

Van Dyke Environmental Services

For the Southwood Community Development District

July 26, 2016



Idealized portrayal of the pond at the Verandas-at-Southwood.

Van Dyke Environmental Services



PROFESSIONAL EXPERIENCE

Sole Proprietor- Van Dyke Environmental Services, 2008 to Present

Provides innovative, environmentally sensitive solutions to problems related to aquatic ecosystems with an emphasis on the control of invasive, exotic species.

Environmental Specialist III - Florida Department of Environmental Protection,
Bureau of Aquatic Plant Management, Tallahassee, Florida, 1982 to 2008.

Conducted annual surveys of aquatic plant communities in the public waterbodies of Northwest Florida; Supervised and monitored aquatic plant control work performed by private contractors; Provided education, extension, and permitting services; Investigated violations; Participated on lake management committees and wrote lake management plans.

Biological Scientist III - Florida Department of Natural Resources,
Bureau of Aquatic Plant Research and Control, Tallahassee, Florida, 1974 to 1982.

Conducted research on the biological control of aquatic plants; duties included study design, data collection and analysis, and report writing; Major thrust of research was the impact of grass carp on aquatic plants, invertebrates, fisheries, and water quality.

“Catfish Pond”

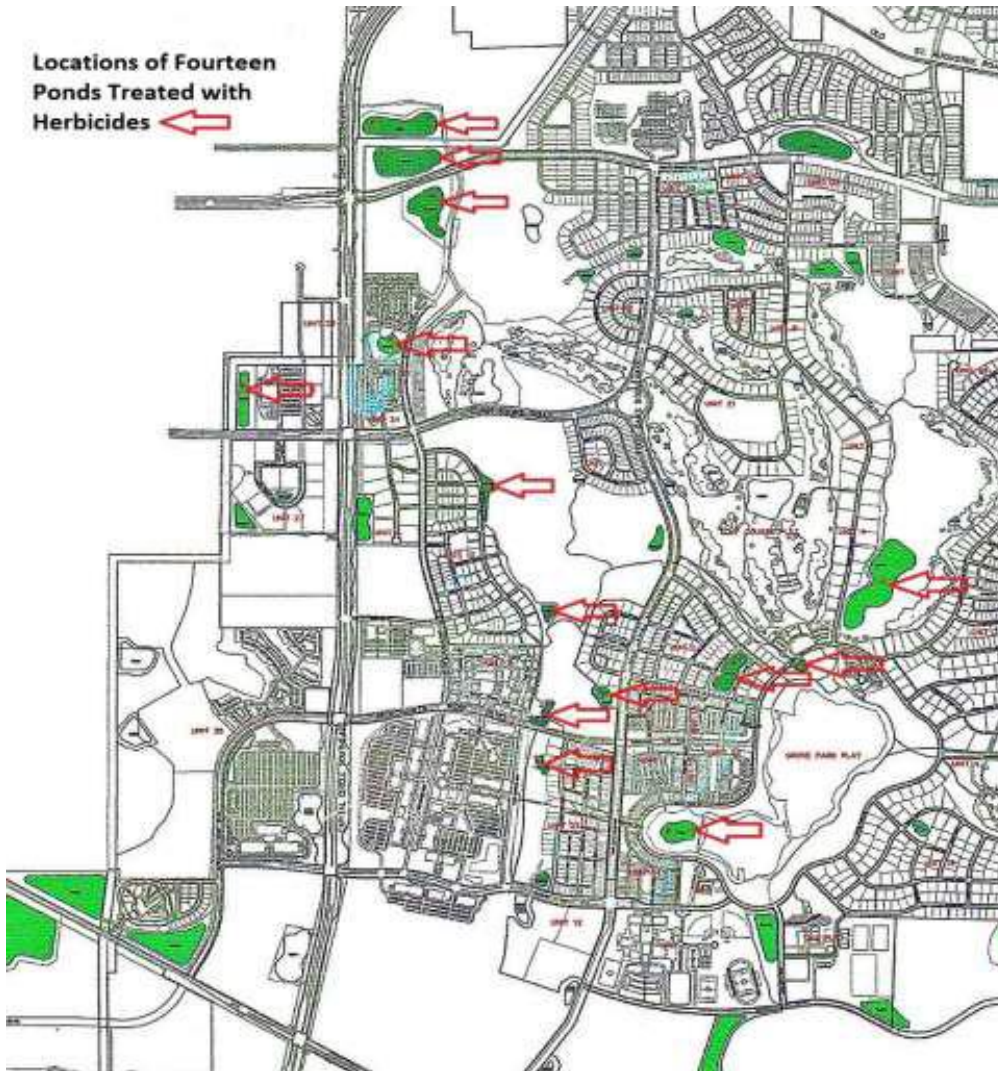


- Heavy Nutrient Load
(Source: Lake Doctors)
- Ammonia Nitrate = .4ppm
- Phosphorus = 0.2ppm
- pH = 9.2 – Very High

Stormwater Pond: WD090N



Locations of Fourteen
Ponds Treated with
Herbicides



SouthWood Ponds are treated aggressively and pre-emptively, on a monthly basis, with aquatic herbicides.

AQUATIC HERBICIDES APPLIED TO SOUTHWOOD'S STORMWATER PONDS IN 2015

AQUA STAR (53.8% glyphosate)	2.19 gal.
ARGOS (27.9% chelated copper)	20.5 gal.
COPPER SULFATE (100% CuSO4)	32 lbs.
CLIPPER (51% flumioxazin)	7.5 lbs.
ECOMAZAPYR (27.8% imazapyr)	2 gal.
KOMEEN (22.9% chelated copper)	2.75 gal.
NAVIGATE GRANULES (27.6% 2,4-D)	51 lbs.
ROUND UP CUSTOM (53.8% Glyphosate)	0.5 gal.
TRIBUNE (37.3% diquat)	15 gal.
SONAR AS (41.7% fluridone)	44 oz.

DATE	HERBICIDE	AMOUNT	POND TREATED	WEEDS TREATED
1/27/2015	KOMEEN (22.9% chelated copper)	2.5GAL	PERIMETER TREATMENT ON ALL PONDS	FILAMENTOUS ALGAE
2/18/2015	COPPER SULFATE CRYSTALS	20LBS	PERIMETER TREATMENT ON ALL PONDS	FILAMENTOUS ALGAE
2/18/2015	CLIPPER (51% flumioxazin)	.5LB	MIXED WITH COPPER SULFATE	FILAMENTOUS ALGAE, SLENDER SPIKE RUSH
3/31/2015	TRIBUNE (37.3% diquat)	2GAL	PERIMETER TREATMENT ON ALL PONDS	BLADDERWORT, SLENDER SPIKE RUSH, AND FILAMENTOUS ALGAE
3/31/2015	CLIPPER (51% flumioxazin)	1LB	MIXED WITH TRIBUNE	BLADDERWORT, SLENDER SPIKE RUSH, AND FILAMENTOUS ALGAE
4/22/2015	AQUA STAR (53.8% glyphosate)	1GAL	SHORELINE OF EACH POND	TORPEDO GRASS, CATTAILS
4/22/2015	ECOMAZAPYR (27.8% imazapyr)	1GAL	SHORELINE OF EACH POND	BROADLEAF
4/22/2015	GROUNDED	.5GAL	SURFACTANT	
5/27/2015	ARGOS (27.9% chelated copper)	2GAL	PERIMETER TREATMENT ON ALL PONDS	FILAMENTOUS ALGAE
5/27/2015	AQUASTICKER	10LB	SURFACTANT	
5/27/2015	AQUA STAR (53.8% glyphosate)	.5GAL	SPOT TREAT ALL SHORELINES	TORPEDO GRASS, CATTAILS, VARIOUS OTHER GRASSES
5/27/2015	ECOMAZAPYR (27.8% imazapyr)	.5GAL	SPOT TREAT ALL SHORELINES	BROADLEAF
5/27/2015	GROUNDED	25GAL	SURFACTANT	
5/27/2015	CLIPPER (51% flumioxazin)	1.5LB	WD090S, WD090N, TR230	SOUTHERN NAIAD, SLENDER SPIKE RUSH
6/24/2015	ROUND UP CUSTOM (53.8% Glyphosate)	.5GAL	LOW WATER LINES OF ALL PONDS	VARIOUS GRASSES
6/24/2015	ECOMAZAPYR (27.8% imazapyr)	25GAL	LOW WATER LINES OF ALL PONDS	BROADLEAF
6/24/2015	GROUNDED	25GAL	SURFACTANT	
6/24/2015	SONAR AS (41.7% fluridone)	4 OZ	WD090S, WD090N,	SOUTHERN NAIAD, SLENDER SPIKE RUSH
6/24/2015	CLIPPER (51% flumioxazin)	2LB	MIXED WITH SONAR	SOUTHERN NAIAD, SLENDER SPIKE RUSH
7/29/2015	SONAR AS (41.7% fluridone)	12 OZ	TREATED PERIMETER OF ALL PONDS	BLADDERWORT, SLENDER SPIKE RUSH
8/18/2015	NAVIGATE GRANULES (27.6% 2,4-D)	50LB	PERIMETER OF ALL PONDS	SLENDER SPIKE RUSH
8/18/2015	SONAR AS (41.7% fluridone)	10 OZ	PERIMETER OF ALL PONDS	SLENDER SPIKE RUSH
9/23/2015	ARGOS (27.9% chelated copper)	2.5GAL	PERIMETER TREATMENT ON ALL PONDS	FILAMENTOUS ALGAE
9/23/2015	TRIBUNE (37.3% diquat)	2GAL	MIXED WITH ARGOS	FOR FILAMENTOUS ALGAE, SLENDER SPIKE RUSH, AND BLADDERWORT
9/23/2015	SONAR AS (41.7% fluridone)	16OZ	MIXED WITH ARGOS	FOR FILAMENTOUS ALGAE, SLENDER SPIKE RUSH, AND BLADDERWORT
10/21/2015	ARGOS (27.9% chelated copper)	3GAL	FL130, WD140	CHARA, FILAMENTOUS ALGAE
10/21/2015	TRIBUNE (37.3% diquat)	.75GAL	MIXED WITH ARGOS	CHARA, FILAMENTOUS ALGAE
10/21/2015	CLIPPER (51% flumioxazin)	.25LB	MIXED WITH ARGOS	CHARA, FILAMENTOUS ALGAE
10/21/2015	AQUA STAR (53.8% glyphosate)	25GAL	SHORELINES OF ALL PONDS	SPOT TREAT TORPEDO GRASS AND CATTAILS
10/21/2015	ECOMAZAPYR (27.8% imazapyr)	25GAL	SHORELINES OF ALL PONDS	SPOT TREAT BROADLEAF PLANTS
10/21/2015	GROUNDED	.12GAL	SURFACTANT	
10/21/2015	OPTIMA	.12GAL	SURFACTANT	
11/11/2015	AQUA STAR (53.8% glyphosate)	25GAL	SHORELINE OF ALL PONDS	SPOT TREAT TORPEDO GRASS AND CATTAILS
11/11/2015	ECOMAZAPYR (27.8% imazapyr)	25GAL	SHORELINE OF ALL PONDS	SPOT TREAT BROADLEAF
11/11/2015	GROUNDED	.12GAL	SURFACTANT	
11/11/2015	OPTIMA	.12GAL	SURFACTANT	
11/11/2015	COPPER SULFATE CRYSTALS	4LB	FL130	FILAMENTOUS ALGAE
11/11/2015	NAVIGATE GRANULES	1LB	WD141	SLENDER SPIKE RUSH
11/11/2015	SONAR AS (41.7% fluridone)	2 OZ	WD162	SLENDER SPIKE RUSH
12/16/2015	ARGOS (27.9% chelated copper)	4.5GAL	PERIMETER TREATMENT ON ALL PONDS	FILAMENTOUS ALGAE
12/16/2015	TRIBUNE (37.3% diquat)	1.5GAL	FL130, FL040, WD141, WD162	SLENDER SPIKE RUSH
12/16/2015	AQUA STAR (53.8% glyphosate)	.19GAL	ALL SHORELINES	SPOT TREAT TORPEDO GRASS, CATTAILS
12/16/2015	AQUASTICKER	5LB	SURFACTANT	
1/20/2016	ARGOS (27.9% chelated copper)	3GAL	FL 130, FL040, FL131, WD160, WD162, TR230,	FILAMENTOUS ALGAE
1/20/2016	COPPER SULFATE CRYSTALS	8LB	FL130	FILAMENTOUS ALGAE

Recs: Aquatic Plant Control



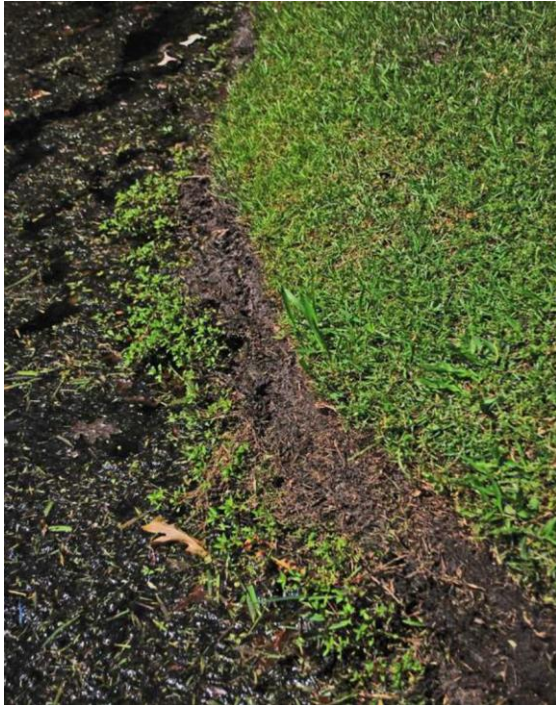
Minimize use of aquatic herbicides

- Deploy on an as-needed basis, not on a monthly basis – even during winter!

STOP using cooper-based herbicides

- Ultimately toxic to invertebrates & fish
- Symptomatic approach – algae comes back stronger each time.

Recs: Native Vegetation



Establish native shoreline vegetation

- Recommended in COT stormwater facilities design standards

Create and maintain a vegetated buffer

- 3-5 feet around perimeter
- Traps and filters pollutants

Recs: Use Nutrient Inactivation



Deploy aluminum sulfate (“Alum”) treatment

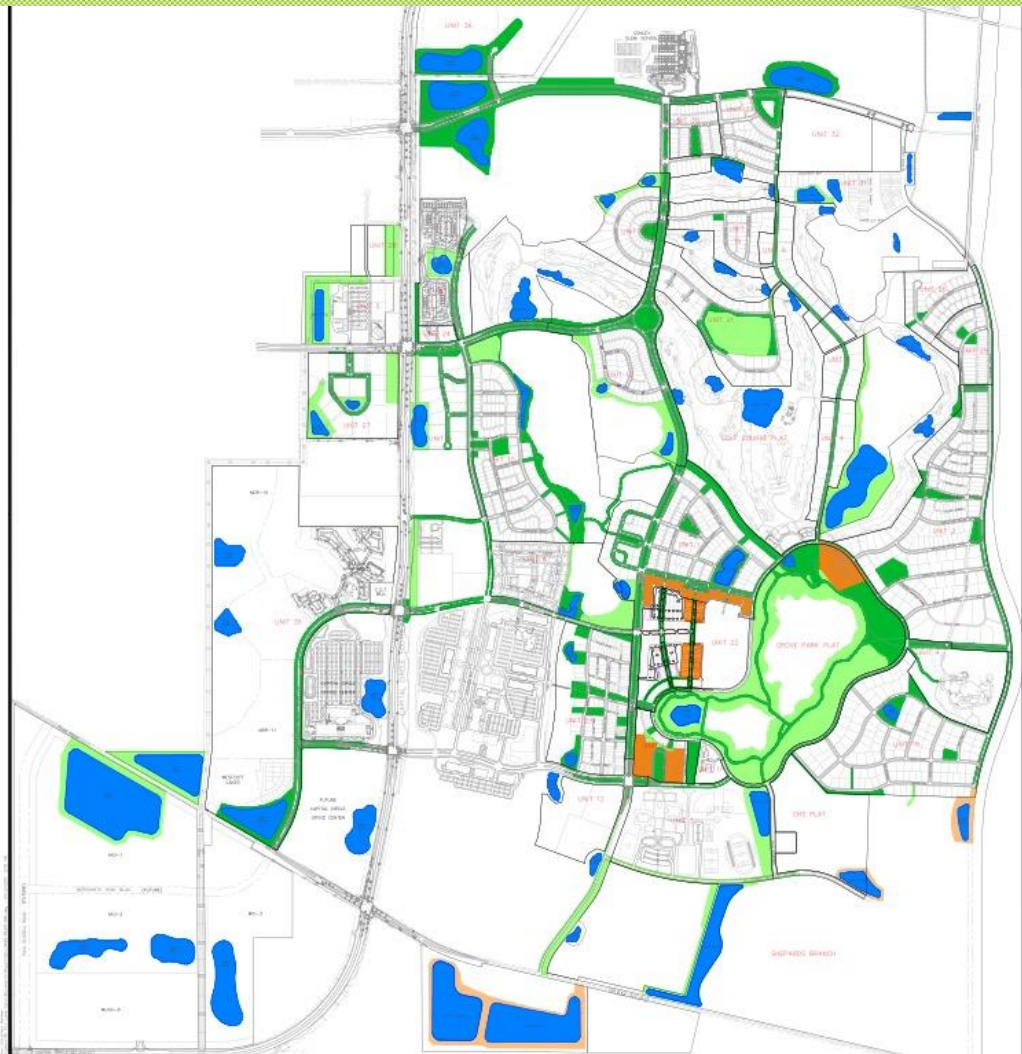
- Chemical reaction absorbs nutrients and creates a thin film on bottom, limiting phosphorus recycling
- Catfish Pond is good candidate for this treatment

Recs: Reduce Fertilizer Use



Minimize use of fertilizers and insecticides on surrounding turf and landscape

- Should be applied as-needed only
- SouthWood heavily fertilizes many pond areas on a routine basis



“High Frequency” Ponds

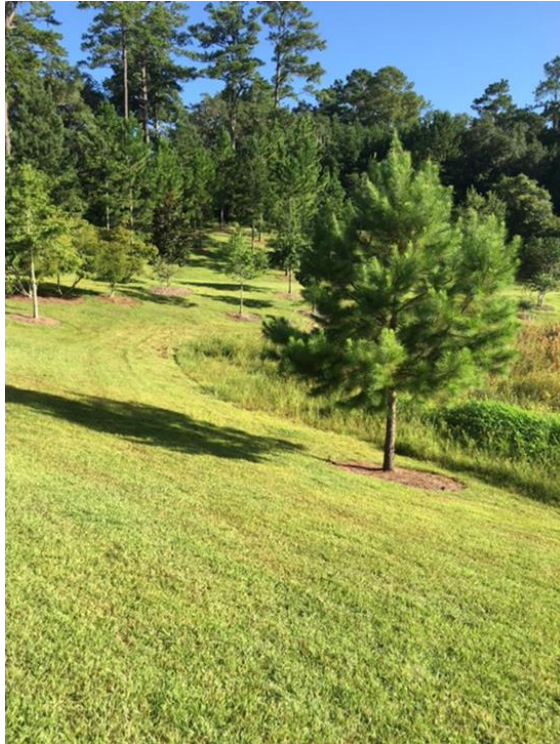


- 11 SouthWood Ponds
- Mowed 11 or 26 times yearly
- 4 applications of fertilizer per year: 2 for turf and 2 for trees/shrubs
- “IPM” – opportunistic use of insecticides
- Pre-emergent herbicide treatment to turf
- Heavy “Round-Up” use

Tale of Two Turfs



Recs: Pond Turf



- Significantly reduce fertilizer applications; eliminate it in many areas
- Reduce mowing frequency and edging aligned with stormwater maintenance plans
- Reduce insecticide and herbicide use