

GRAND HAVEN COST- BENEFIT ANALYSIS STORMWATER DETENTION POND

MAINTENANCE CONTROLS DEMONSTRATION PROJECT

UPDATE 8/09

In cooperation with GHMA, published rules for New Plantings and Ground Cover for Detention Pond Banks

Analyzed results of 168 soil sampling sites: 77% of soils had high to very high levels of available phosphorus indicating no need for phosphorus fertilization in most areas. Elevated phosphorus in fill soils of undeveloped lots suggest elevated levels of phosphorus in native soils under ponds- core sampling of pond bottoms recommended.

Supporting scientific/technical information regarding Littoral Shelf Plan submitted to SJRWMD. Permitting approved. LSP installed ponds #6, 7, 17.

Aeration treatments designed (equipment specification, sizing and placement) and installed by Keeton Industries ponds #2, 19, 20.. Microbes later added to treatment modality.

No carp/SAV treatment implemented by non restocking of older carp in ponds #1,3,4.

Copper Sulfate/ no aquatic herbicide control instituted ponds #5, 8, 37.

Volunteer Pond Observer/Monitor Training completed, monitoring program instituted.

Monthly Lakewatch sampling ponds #1,5,37,28,W6

GHCCD Website Pond Observer Survey developed, posted to website, active.

Preliminary assessment of irrigation rates in common areas indicates almost three times more irrigation volume is being applied than UF/IFAS suggest is necessary for a healthy landscape. Since this water is reclaimed water coming from a treatment plant with only secondary levels of treatment there is also a large amount of nutrient being applied (nearly 2 lbs of nitrogen and 1 lb of phosphorus per 1000 sq ft). Reducing irrigation rates will reduce irrigation cost as well as nutrient loads to ponds.

N-control added to reclaimed water as well as rid-o-rust and other anti stain additives to irrigation water are likely contributing additional nitrogen and phosphorous loads to stormwater ponds.

First volunteer sampling of ponds with water quality sampling conducted August 13

Field observations 8/09:

LSP Ponds 7, 17 ok, some algae noted 6. Continue protocol.

SAV overgrowth unacceptable ponds 1, 3, ok 4. Ponds 1, 3 to be treated in stages with herbicide, algaecide, carp to be restocked.

Aeration/microbes: pond 2: UF water quality sampling 8/13, results t.b.d., SAV overgrowth to be treated with herbicide.
pond 19: UF water sampling 8/13, no other tx rx'd,
pond 20: UF water sampling 8/13, no other tx rx'd
Keeton Industries requested to assume further implementation of modality, water quality sampling and labor no additional charge, microbes at reduced cost

Other treatment modalities under consideration:

- Triploid Carp to be restocked all ponds prn

- Aquatic weed harvesting

- Algae harvesting

- Replacement of Copper Sulfate with H₂O₂ as algaecide

- Core sampling all pond bottoms

- Bathymetric survey of all ponds (CPCSD)

- Grants for water quality studies

- Continued discussions with other CDDs re aquatic txs:

 - Clear Water - Sea Colony

 - Lake Masters- Bonita Springs (150 ponds, \$300K/yr. maint.)