



**Community Development District**

## **Best Management Practices for Storm Water Detention Pond Bank Plantings**

### **General Principles:**

The “lakes” behind Grand Haven homes are in reality storm water detention ponds, a very important component of the District’s storm water management system. This system has been developed to reduce the possibility of Grand Haven homes and roads being flooded during tropical storms/hurricanes. The storm water detention ponds have been designed, constructed and maintenance obligations have been developed, under the authority of the Saint Johns River Water Management District (SJRWMD). The SJRWMD has the statutory authority to issue fines of up to \$10,000 per day for violations of their rules, regulations and requirements.

Runoff from normal rain, tropical storm and hurricane precipitation, originating from impervious surfaces such as roofs, gutters, downspouts, driveways, sidewalks and roadways flows into street drains which are connected through large underground pipes to the storm water detention ponds. Run off containing nutrients (largely nitrogen and phosphorus) from fertilizer used on lot owners’ turf grass surrounding the storm water detention ponds banks is intended to be absorbed by a vegetative buffer of plantings between the turf grass and the water’s edge. These storm water detention ponds bank plants act as a “nutrient sink”, absorbing the fertilizer run off which would otherwise stimulate the overgrowth of submerged aquatic vegetation (pond weeds) and stimulate the overgrowth of algal blooms (pond scum.)

These bank planting species, planted as required in staggered rows approximately four feet on center, beginning at the water’s edge, retain the designed and permitted pond bank slope angles (specific to every pond) by reducing erosion and siltification (the filling in of the pond by soils carried in the erosion process.)

Undesirable components of the storm water flow drop (precipitate) to the storm water detention pond bottom allowing the upper level and higher quality water to move on when tropical storms and/or hurricanes raise the water levels to overtop control structures (weirs, dams, flat grates,) with the higher quality water eventually finding its way either to defined and regulated wetland buffer areas and then eventually into the Intracoastal Waterway, or directly to the Intracoastal Waterway through very large underground pipes from a few District Ponds located parallel to and adjacent to the Intracoastal Waterway. The storm water outflow from the District’s storm water detention ponds may be closely monitored by Florida and United States Departments of Environmental Protection, agencies which are currently developing Maximum Daily Load Limits for substances contained in the outflows. Very large fines are being developed for communities which exceed these MDL Limits.

It is the responsibility of the Grand Haven CDD to maintain the hydraulics (water flow) in and through the storm water detention ponds, and control any over growth of submerged aquatic vegetation (by stocking of grass eating triploid [sterile] grass carp and aquatic herbicide application) and algal overgrowth (by reduction of nutrient load into the water and algacide applications.)

The Grand Haven CDD and Master Association, after consultation with, and in *consideration of the recommendations of the University of Florida Soil and Water Science Department*, the University of Florida Cooperative Extension Service, the Water and Environmental Program

Coordinator for the City of Palm Coast, and in compliance with the SJRWMD, have approved the following allowable detention pond bank new planting scheme:

### **Plantings for Detention Pond Banks**

#### ***Spartina bakeri* - Sand Cordgrass**

This grass is the only plant permitted on the pond banks.

**Location:** First row of *Spartina bakeri* (cordgrass) must be consistent with the lowest existing row of healthy *Spartina bakeri*, which may be on another property around the pond perimeter, progressing in rows approximately four feet apart up the bank for a minimum of two rows. Rows of *Spartina bakeri* previously planted by the developer, builder, or previous lot owner which exceed this two row minimum should not be removed by the new lot owner. The goal is to create a minimum ten foot "Zero Maintenance Zone" from the Normal High Water Line to the last row of *Spartina* going up the bank closest to rear of the adjacent property. The term, Normal High Water Line is defined as the average (mean) or normal (customary) water level existing in any given detention pond under ordinary and non-exceptional weather conditions. The rows of *Spartina* will act as a sink to absorb fertilizer, pesticide, and herbicide run-off from the sod further up the bank, and act as a barrier to prevent mowed sod clippings from being blown into the pond. If the bank soil surface is exposed (bare) further up the bank, additional rows of *Spartina* should be planted to hold the exposed soil portion of the pond bank. Total number of rows will be different for every pond, based on distance from water's edge to level, horizontal surface (usually lot owner turf grass) surrounding the pond. Some ponds may require just two rows, others three, four or more.

**Spacing:** To control erosion and reduce siltification, grasses must be planted in rows paralleling the shoreline, plants approximately 4 feet apart, planted in staggered rows

**Maintenance:** For safety of GHCCD maintenance crews, the storm water detention pond bank surface between rows and columns of grasses must be kept clear to prevent dangerous wildlife from being hidden from view. Invading weeds, vines, shrubs and brush between the plants must be removed immediately. Grasses should not be trimmed below 30 inches and no more often than 2x (twice) per year, or may die.

**Replacement:** Dying/dead grasses must be replaced immediately. Death may occur due to intolerance to cold, drought, flooding due the grass being submerged under water after hurricanes/tropical storms, salinity of the pond water, improper soil selection, over trimming, and/or any other cause. *Spartina bakeri* is the preferred and recommended grass species, as it is the hardiest, most self-sustaining grass for pond bank planting, requiring the least frequent replacement.

**Irrigation:** hand watering only, best to plant during rainy season (summer), then no further irrigation, once established

**Fertilization:** None, ever.

### **Ground Cover for Detention Pond Banks**

**Groundcover:** nothing or pine straw

The only approved ground cover for detention pond banks is pine straw. Pine straw shall be placed short of the high water line so as not to float into the pond during a high water event. Pine straw forms a mat when wet, helping to suppress weeds, and is acidic, also helping to suppress weeds. The pine straw mat stays in place on the bank, and does not float into the water during rain/runoff, which would cause an undesirable increase in nutrient loading in the pond water, promoting algal blooms.

Ground cover in the form of plants is not permitted.

New installations of lawn turf (sod) and irrigation systems down to the water line are not to be permitted on the detention pond banks

Pine bark mulch should not be used, as it will float into ponds, causing increased nutrient loading.

Stone should not be used as it does not control siltification, and the stone may wash into the pond altering the permitted design of pond contours.

### **Exception for GHCDD Pond Outfall Structures**

In order to better control pond bank erosion adjacent to community stormwater outfall structures, and in accordance with DOT specifications, a three foot wide border of Bahia Grass has been installed adjacent to the concrete storm water outfall structures (mitered end sections) and running contiguous with the coquina rock/riprap in the outfall sluiceway down to the waterline. Responsibility for maintenance of the outfall structure border Bahia Grass will rest with the GHCDD. As stated above, no other sod/turf is permitted anywhere on the pond banks.