



**Growth and Resource Management Department  
Environmental Management**

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Dear Applicant:

As you may be aware, the County has imposed additional protective requirements for property in the Mosquito Lagoon area. These requirements are contained in the Indian River Lagoon Surface Water Improvements & Management Overlay Zone Division 16, Section 72-1096 through 72-1103 of the Volusia County Land Development Regulations. These are the County's only Class II waters eligible for shellfish harvesting and Mosquito Lagoon is one of forty (40) State Aquatic Preserves. With your help, we can preserve this unique area of Volusia County for future generations.

Because your property lies within the Indian River Lagoon Surface Water Improvements & Management Overlay Zone, your completed Storm Water Retention Permit Application must be submitted along with your building permit application for single-family or two-family dwellings, or accessory structure. The building permit application must contain three plot plans indicating how you intend to comply with the 35% native vegetation and storm water retention requirements. The vegetated area(s) must either consist of existing native vegetation or planted native species. These plot plans must either indicate the area and type of vegetation to be preserved on site or show the number, type and proposed location of the native landscaping materials to be used. Storm water retention areas must be drawn to scale on the plans, with appropriate illustration of water flow toward the retention areas; if using gutters on the dwelling, indicate this on the plan. Prior to receiving a Certificate of Occupancy, an Environmental Specialist must certify that your landscaping and storm water retention is in place in accordance with your approved plot plan.

Attached you will find a copy of the regulations, the Storm Water Retention Permit Application, an example of a workable site plan, habitat planting guidelines, and a planting worksheet. If you have further questions as to your requirements, you may contact any of our offices by phone at one of the numbers listed above.

## DIVISION 16. INDIAN RIVER LAGOON SURFACE WATER IMPROVEMENTS AND MANAGEMENT OVERLAY ZONE

### Sec. 72-1096. Purpose and intent.

(a) The purpose of this division is to provide regulations to protect and improve the water quality of the Indian River Lagoon. This water body contains waters designated as class II by the Florida Department of Environmental Protection in accordance with Rule 62-302.400, Florida Administrative Code, and the only waters in Volusia County designated for special protection by Florida legislation pursuant to the Surface Water Improvement and Management Act (SWIM). Additionally, these waters have been designated as an "estuary of national significance" by the U.S. Environmental Protection Agency. Said class II designation authorizes shellfish propagation and harvesting. Said water quality criteria applicable to this class are designed to maintain the minimum conditions necessary to assure the suitability of water for the designated use of the classification. The regulations in this section are designed to reduce the negative impacts of development adjacent to the Indian River Lagoon and to protect this vital natural resource and the shellfish harvesting industry in that area.

(b) Notwithstanding any other provisions of the Land Development Code, Ordinance 88-3, and as amended, to the contrary, these regulations are supplementary thereto.

(c) An overlay zone is hereby established and the regulations hereinafter provided shall apply in said zone and all zoning classifications established in division 7 of the Zoning Ordinance, Ordinance No. 80-8, as amended. The official zoning map shall identify the overlay zone by adding the letter "W" as a suffix to the zoning classifications within the boundaries of said overlay zone.

(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

### Sec. 72-1097. Boundaries.

Said boundaries of the zone are as follows: That portion of the unincorporated area of Volusia County, Florida, bounded on the north by the southern city limits of the City of New Smyrna Beach; on the east by the Atlantic Ocean; on the west by U.S. Highway #1; and on the south by the Brevard County line.

(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

### Sec. 72-1098. Wetlands preservation.

All wetlands occurring within this overlay zone shall be regulated in accordance with division 11 of this article.

(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

### Sec. 72-1099. Shoreline protection.

(a) The construction of vertical seawalls and bulkheads shall be allowed adjacent to artificial waterways in existence prior to June 18, 1987, provided that the design of said seawalls and bulkheads prevents the runoff of stormwater into the artificial waterway. A stormwater management plan is required.

(b) Vertical seawalls and bulkheads are prohibited adjacent to all other watercourses or water bodies except as may be waived by the county council. Hardening of the estuarine shoreline shall be allowed only when erosion is causing a serious threat to life or property.

(c) Other shoreline stabilization methods may be used in lieu of vertical seawalls and bulkheads when hardening of the shorelines is approved.

(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

### Sec. 72-1100. Landscaping.

Notwithstanding any other provision of the Zoning Ordinance, Ordinance No. 80-8, as amended, to the contrary, all development shall contain a minimum of 35 percent open space within property

boundaries, landscaped with existing native vegetation which is indigenous to this area or planted native species, in accordance to a list of acceptable species available in the zoning office.  
(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

Sec. 72-1101. Stormwater controls.

Notwithstanding any other provisions of division 8 of this article, individual single-family and duplex residential dwellings or additions thereto and/or accessory structures containing a total of 250 square feet in size or more, not previously included in a stormwater management plan, shall provide a volume of retention equivalent to one-half-inch of depth over the entire site or lot. Prior to the issuance of a building permit, an application shall be submitted to the environmental management division (EDM) for review. The EDM may approve, modify, or deny the application.  
(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

Sec. 72-1102. Wastewater treatment plants and on-site waste disposal systems.

(a) Package wastewater treatment plants may be permitted if the plant is designed to be transformed into a pump station when public central wastewater facilities become available in the area, provided that said availability is to be not more than ten years distant from issuance of a development order. Said package plants are to be dedicated to the entity to be responsible for providing central regional service and are to be constructed to the requirements specified by said entity.

(b) Septic tanks, if permitted for new single-family lots shall be located in compliance with chapters 64E-6 and 62-600 of the Florida Administrative Code. The septic tank system shall be designed to connect to central sewer line when central sewer services become available. The septic tank system and drainfield shall be as far removed as possible from the shoreline of a class II water body or its tributaries.

(c) For that portion of the barrier island falling within the overlay zone, aerobic wastewater treatment units or alternative systems approved by the health department shall be required, until such time as central sewer service becomes available, on lots that are either within 200 feet of the shoreline of Mosquito Lagoon or consist of one of the following soils:

Canaveral sand

Cassia fine sand

Hydraquents

(d) For that portion of the mainland, east of U.S. Highway #1, which is within the overlay zone, aerobic wastewater treatment units or alternative systems approved by the health department shall be required on lots that are located within 200 feet of the shoreline of Mosquito Lagoon.

(1) These systems are also required for lots which are in excess of 200 feet from the shoreline of Mosquito Lagoon, provided that said lots have less than 10,000 square feet of area and consist of any one or more of the following soils:

Canaveral sand

Cassia fine sand

Hydraquents

Myakka fine sand

Quartzippamments

Turnbull muck

Pompano-Placid complex

Myakka variant fine sand

Placid fine sand, depressional

Basinger fine sand, depressional

Immokalee sand

Myakka-St. Johns complex

Immokalee sand, depressional

Tuscawilla sand

Pompano fine sand

Riviera fine sand

Wabasso fine sand

Chobee fine sand

(2) Any transitional soil with a seasonal high-water table within 12 inches of the soil surface.

(e) On-site waste disposal systems are not permitted where connection to a central system of wastewater collection and treatment is available.

(f) A municipal, county-owned, or investor-owned sewage system shall be deemed available for connection if all of the following criteria are met:

(1) The system is not under a Florida Department of Environmental Regulation moratorium; and

(2) The sewerage system has adequate hydraulic capacity (i.e., complies with the county's adopted level of service standard) to accept the quantity of sewage to be generated by the proposed development; and

(3) For estimated sewage flows of 600 gallons or less per day:

a. A sewer line exists in a public easement or right-of-way which abuts the property; and

b. Gravity flow can be maintained from the building drain to the sewer line.

(4) For estimated sewage flows exceeding 600 gallons per day:

a. A sewer line, force main, or lift station exists in a public easement or right-of-way which abuts the property or is within 100 feet of the property.

(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

Sec. 72-1103. Removal of vegetation.

The removal or stripping of native vegetative cover from a vacant lot is prohibited unless said action is performed in conjunction with the development of the building premises in a manner consistent with an approved development order or building permit; or upon authorization of the zoning enforcement official for minor landscaping projects.

(Ord. No. 2004-21, 11-4-04; Ord. No. 2008-25, § III, 12-4-08)

Secs. 72-1104--72-1135. Reserved.

**STORM WATER RETENTION PERMIT APPLICATION**

**For use in conjunction with a single-family or two family building permit application only**

PERMIT # : \_\_\_\_\_ SHORT PARCEL # \_\_\_\_\_

PROPERTY ADDRESS: \_\_\_\_\_

OWNERS NAME: \_\_\_\_\_

CONTRACTOR'S NAME: \_\_\_\_\_

CONTRACTOR'S TELEPHONE: \_\_\_\_\_

Size of lot: \_\_\_\_\_ sq. ft.

Size of proposed improvements: \_\_\_\_\_ sq. ft.

Amount of stormwater retention required: \_\_\_\_\_ sq. ft.

Amount of native vegetation required: \_\_\_\_\_ sq. ft.

Cleared prior to 1987? \_\_\_\_\_ No \_\_\_\_\_ Yes (if yes, must provide documentation)

**Three (3) copies of stormwater and natural vegetation plan, to surveyor's scale, (no greater than 8-1/2" x 14" in size) must be included with this application. The site plans must contain the following information:**

- Required square footage of each type of retention, proposed location(s) for retention, directional flow of stormwater, and location of downspouts and guttering
- Existing topography
- Existing vegetation, setbacks, and buffers
- Limits of cut or fill
- Septic tank and drain field must be located on the site plan at least 15' from any proposed Retention Area (RA). Septic and drain field area may not be used toward natural vegetation requirement.

\_\_\_\_\_  
Contractor/Owner

\_\_\_\_\_  
Date

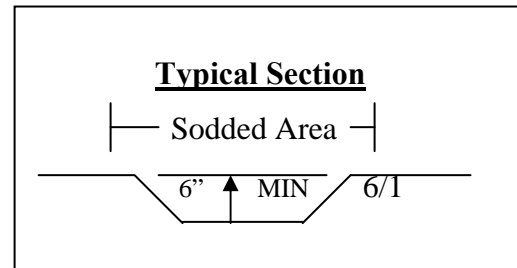
**DISCLAIMER:** Finished floor levels (elevations) are not reviewed or approved on this plan. Separate review and regulation of floor levels is a part of the building permit process.

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## REQUIREMENTS FOR STORM WATER AND VEGETATION RETENTION AREAS

For Storm Water Retention:

- 1) The first ½” of runoff must be retained on the lot.
- 2) The total square footage area for storm water retention area(s) (RA) is calculated as total lot square footage divided by 12. For example if the lot is 5,000 square feet, required retention is equal to 417 square feet ( $5000 \div 12 = 417$ ).
- 3) The depth of the RA is to be a minimum of 6”.
- 4) Side slopes must be 6:1 slope (or flatter) and stabilized.
- 5) All storm water run-off is to be directed to the retention area(s) through use of rain gutters, sloping of driveways, or site grading. This MUST be shown on the submitted plot plan or survey. The use of arrows for the run-off is sufficient.
- 6) All storm water retention areas are to be located within the property boundaries.
- 7) No storm water run-off is to be directed to rights of way, bodies of water, or any jurisdictional wetlands. The storm water must be “retained” on site.



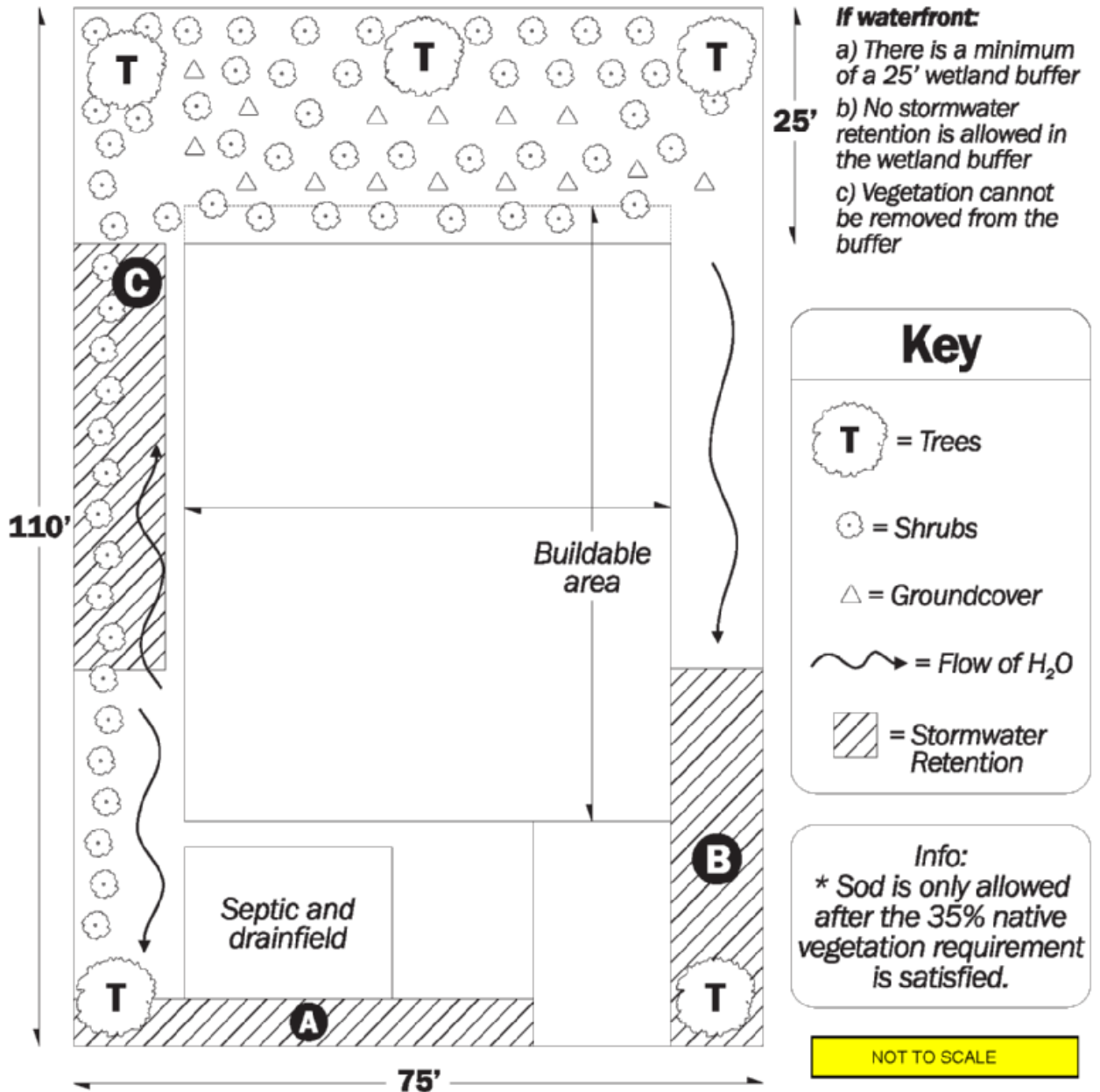
For 35% Native Vegetation Requirement:

- 1) The 35% native vegetation retention is calculated as total lot size times 35%. For example, if the lot is 5,000 square feet, total natural vegetation required is 1,750 square feet ( $5000 \times 0.35 = 1750$ ).
- 2) The required vegetation area(s) may be located anywhere on site. The physical square footage must be filled with at least the minimum number of plants as determined with the attached planting worksheet.
- 3) Native vegetation area(s) may consist of existing plants or may be replanted from the attached list of approved plants entitled “Volusia County Habitat Planting Guidelines”. If you are unsure of the habitat type to use, please call 386-736-5927.
- 4) A planting plan must be submitted with this application. A permit WILL NOT be issued until this is received. The planting/landscape plan must illustrate areas of stormwater retention, and either the areas of existing natural vegetation or the number, species, and placement of plants to be planted.
- 5) Storm water and 35% native vegetation retention areas may be combined if feasible and approved.



Environmental Management

# Example of Storm Water/ Native Vegetation Retention Plan



Stm/Ret. Req. = 688  $\phi$   
 Veg. Ret. Req. = 2,888  $\phi$

**A** = 5' x 50' = 250  $\phi$   
**C** = 10' x 45' = 450  $\phi$

**B** = 10' x 40' = 400  $\phi$   
 1,100  $\phi$  total proposed stormwater retention

**VOLUSIA COUNTY  
HABITAT PLANTING GUIDELINES**

**1) BEACH & DUNE**

<b>Trees</b>			
<i>Sabal palmetto</i>	Cabbage palm		
<b>Shrubs</b>			
<i>Chrysobalanus icaco</i>	Green cocoplum	<i>Myrcianthes fragrans</i>	Simpson stopper
<i>Croton punctatus</i>	Beach croton	<i>Serenoa repens</i>	Saw palmetto
<i>Dodonaea viscosa</i>	Varnish leaf	<i>Sophora tomentosa</i>	Necklace pod
<i>Erythrina herbacea</i>	Coral bean	<i>Suriana maritima</i>	Bay cedar
<i>Forestiera segregata</i>	Florida privet	<i>Yucca aloifolia</i>	Spanish bayonet
<b>Groundcovers</b>			
<i>Alternanthera flavescens</i>	Yellow joyweed	<i>Licania michauxii</i>	Gopher apple
<i>Alternanthera maritima</i>	Beach chaff-flower	<i>Muhlenbergia capillaris</i>	Muhly grass
<i>Ambrosia hispida</i>	Coastal ragweed	<i>Opuntia humifusa</i>	Prickly-pear cactus
<i>Blutaparon vermiculare</i>	Samphire	<i>Opuntia stricta</i>	Prickly-pear cactus
<i>Chamaesyce spp.</i>	Dune spurge	<i>Panicum amarum</i>	Bitter panic grass
<i>Distichlis spicata</i>	Saltgrass	<i>Paspalum vaginatum</i>	Seashore paspalum
<i>Ernodia littoralis</i>	Golden creeper	<i>Salicornia spp.</i>	Glasswort
<i>Hymenocallis latifolia</i>	Spider lily	<i>Sesuvium portulacastrum</i>	Sea purslane
<i>Ipomoea imperati</i>	Beach morning glory	<i>Spartina patens</i>	Saltmeadow cordgrass
<i>Ipomoea pes-caprae</i>	Railroad vine	<i>Sporobolus virginicus</i>	Seashore dropseed
<i>Iva imbricata</i>	Beach elder	<i>Uniola paniculata</i>	Sea oats
<b>Vines</b>			
<i>Canavalia rosea</i>	Beach bean	<i>Passiflora incarnata</i>	Purple passionflower
<i>Echites umbellata</i>	Devil's potato	<i>Passiflora suberosa</i>	Corkstem passionflower
<i>Ipomoea spp.</i>	Morning glory	<i>Pentalinon luteum</i>	Wild allamanda
<b>Wildflowers</b>			
<i>Borrichia spp.</i>	Sea oxeye daisy	<i>Helianthus debilis</i>	Dune sunflower
<i>Chamaecrista spp.</i>	Partridge pea	<i>Ipomopsis rubra</i>	Standing cypress
<i>Eustoma exaltatum</i>	Seaside gentian	<i>Monarda punctata</i>	Dotted horsemint
<i>Gaillardia pulchella</i>	Blanket flower	<i>Oenothera humifusa</i>	Seaside evening primrose
<i>Glandularia maritima</i>	Beach verbena	<i>Salvia coccinea</i>	Tropical sage

**1) Beach & Dune**  
Planting Worksheet

<b>Table 1</b>	% of Total Area	
	Minimum	Maximum
Shrubs	10	20
Groundcovers	40	60
Vines	10	20
Wildflowers	20	40

	Total Area to be Planted (sq. ft.)		% from Table 1 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Shrubs		X		=		÷	30	=	
Groundcovers		X		=		÷	10	=	
Vines		X		=		÷	10	=	
Wildflowers		X		=		÷	10	=	

## 2) MARITIME FOREST

Trees			
<i>Celtis laevigata</i>	Sugarberry	<i>Persea borbonia</i>	Redbay
<i>Diospyros virginiana</i>	Persimmon	<i>Quercus geminata</i>	Sand live oak
<i>Forestiera segregata</i>	Florida privet	<i>Quercus myrtifolia</i>	Myrtle oak
<i>Ilex opaca</i>	American holly	<i>Quercus virginiana</i>	Live oak
<i>Juniperus silicicola</i>	Southern redcedar	<i>Sabal palmetto</i>	Cabbage palm
<i>Magnolia grandiflora</i>	Southern magnolia	<i>Zanthoxylum clava-herculis</i>	Hercules club
<i>Osmanthus americanus</i>	Devilwood	<i>Zanthoxylum fagara</i>	Wild lime
Shrubs			
<i>Ardisia escallonioides</i>	Marlberry	<i>Myrcianthes fragrans</i>	Simpson stopper
<i>Callicarpa americana</i>	Beautyberry	<i>Myrica cerifera</i>	Wax myrtle
<i>Capparis cynophallophora</i>	Jamaica caper	<i>Myrsine guianensis</i>	Myrsine
<i>Eugenia axillaris</i>	White stopper	<i>Psychotria nervosa</i>	Wild coffee
<i>Eugenia foetida</i>	Spanish stopper	<i>Serenoa repens</i>	Saw palmetto
<i>Forestiera segregata</i>	Florida privet	<i>Sideroxylon tenax</i>	Tough buckthorn
<i>Ilex vomitoria</i>	Yaupon holly	<i>Vaccinium arboreum</i>	Sparkleberry
Groundcovers			
<i>Zamia pumila</i>	Coontie		
Vines			
<i>Echites umbellata</i>	Devil's potato	<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Ipomoea spp.</i>	Morning glory	<i>Vitis spp.</i>	Wild grape

**2) Maritime Forest**  
Planting Worksheet

<b>Table 2</b>	% of Total Area	
	Minimum	Maximum
Trees	40	60
Shrubs	40	50
Groundcovers	0	20
Vines	0	20

	Total Area to be Planted (sq. ft.)		% from Table 2 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X		=		÷	100	=	
Shrubs		X		=		÷	30	=	
Groundcovers		X		=		÷	10	=	
Vines		X		=		÷	10	=	

### 3) PINE FLATWOODS

Trees			
<i>Diospyros virginiana</i>	Persimmon	<i>Pinus serotina</i>	Pond pine
<i>Gordonia lasianthus</i>	Loblolly bay	<i>Quercus geminata</i>	Sand live oak
<i>Ilex cassine</i>	Dahoon holly	<i>Quercus nigra</i>	Water oak
<i>Persea palustris</i>	Redbay	<i>Quercus virginiana</i>	Live oak
<i>Pinus elliottii</i> var. <i>densa</i>	North Florida slash pine	<i>Sabal palmetto</i>	Cabbage palm
<i>Pinus palustris</i>	Longleaf pine		
Shrubs			
<i>Asimina reticulata</i>	Pawpaw	<i>Lyonia fruticosa</i>	Staggerbush
<i>Befaria racemosa</i>	Tarflower	<i>Lyonia lucida</i>	Shiny lyonia
<i>Callicarpa americana</i>	Beautyberry	<i>Myrica cerifera</i>	Wax myrtle
<i>Hypericum galioides</i>	St. John's wort	<i>Rhus copallinum</i>	Winged sumac
<i>Hypericum hypericoides</i>	St. John's wort	<i>Serenoa repens</i>	Saw palmetto
<i>Ilex glabra</i>	Gallberry	<i>Viburnum nudum</i>	Possum haw
<i>Lyonia ferruginea</i>	Rusty lyonia		
Groundcovers			
<i>Andropogon virginicus</i>	Broomsedge	<i>Sorghastrum secundum</i>	Lopsided Indian grass
<i>Aristida</i> spp.	Wiregrass	<i>Spartina bakeri</i>	Sand cordgrass
<i>Lachnanthes caroliana</i>	Redroot	<i>Vaccinium darrowi</i>	Blueberry
<i>Licania michauxii</i>	Gopher apple	<i>Vaccinium myrsinites</i>	Shiny blueberry
<i>Muhlenbergia capillaris</i>	Muhly grass	<i>Woodwardia virginica</i>	Virginia chain fern
Vines			
<i>Gelsemium sempervirens</i>	Yellow jessamine	<i>Parthenocissus quinquefolia</i>	Virginia creeper
Wildflowers			
<i>Asclepias tuberosa</i>	Butterfly weed	<i>Lobelia</i> spp.	Lobelia
<i>Aster concolor</i>	Eastern silver aster	<i>Monarda punctata</i>	Dotted horsemint
<i>Aster walteri</i>	Walter's aster	<i>Palafoxia integrifolia</i>	Coastalplain palafox
<i>Carphephorus carnosus</i>	Star clusters	<i>Phoebanthus grandiflorus</i>	Phoebanthus
<i>Carphephorus corymbosus</i>	Florida paintbrush	<i>Piloblephis rigida</i>	Florida pennyroyal
<i>Carphephorus odoratissimus</i>	Vanilla plant	<i>Piriqueta caroliniana</i>	Pitted stripeseed
<i>Chrysopsis scabrella</i>	Golden asters	<i>Pityopsis graminifolia</i>	Golden aster
<i>Dichromena</i> spp.	White-top sedge	<i>Rhexia</i> spp.	Meadow beauty
<i>Dyschoriste</i> spp.	Twinflower	<i>Rudbeckia hirta</i>	Black-eyed Susan
<i>Elephantopus</i> spp.	Elephant's foot	<i>Salvia azurea</i>	Azure blue sage
<i>Flaveria</i> spp.	Yellowtop	<i>Salvia lyrata</i>	Lyre-leaved sage
<i>Helianthus angustifolius</i>	Narrow-leaf sunflower	<i>Sisyrinchium atlanticum</i>	Blue-eyed grass
<i>Helianthus radula</i>	Rayless sunflower	<i>Solidago</i> spp.	Goldenrod
<i>Justicia angusta</i>	Pineland waterwillow	<i>Vernonia angustifolia</i>	Ironweed
<i>Liatis</i> spp.	Blazing star	<i>Xyris</i> spp.	Yellow-eyed grass
<i>Lilium catesbaei</i>	Pine lily	<i>Zephyranthes atamasco</i>	Rain lily

**3) Pine Flatwoods**  
Planting Worksheet

<b>Table 3</b>	% of Total Area	
	Minimum	Maximum
Trees	10	40
Shrubs	20	40
Groundcovers	30	50
Vines	0	10
Wildflowers	40	60

	Total Area to be Planted (sq. ft.)		% from Table 3 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

#### 4) SCRUB

Trees			
<i>Carya floridana</i>	Scrub hickory	<i>Persea humilis</i>	Silkbay
<i>Ilex arenicola</i>	Scrub holly	<i>Pinus clausa</i>	Sand pine
<i>Lyonia ferruginea</i>	Rusty Lyonia	<i>Quercus chapmanii</i>	Chapman's oak
<i>Lyonia fruticosa</i>	Staggerbush	<i>Quercus geminata</i>	Sand live oak
<i>Osmanthus megacarpus</i>	Scrub devilwood	<i>Quercus myrtifolia</i>	Myrtle oak
Shrubs			
<i>Asimina obovata</i>	Flag pawpaw	<i>Sabal etonia</i>	Scrub palmetto
<i>Asimina pygmaea</i>	Dwarf pawpaw	<i>Serenoa repens</i>	Saw palmetto
<i>Befaria recemosa</i>	Tarflower	<i>Sideroxylon tenax</i>	Tough buckthorn
<i>Garberia heterophylla</i>	Garberia	<i>Vaccinium darrowi</i>	Blueberry
<i>Opuntia spp.</i>	Prickly-pear cactus	<i>Vaccinium myrsinites</i>	Shiny blueberry
<i>Palafoxia feayi</i>	Palafoxia	<i>Ximenia americana</i>	Hog plum
Groundcovers			
<i>Calamintha spp.</i>	Calamintha	<i>Piloblephis rigida</i>	Florida pennyroyal
<i>Conradina spp.</i>	Scrub mint	<i>Sideroxylon rufohirtum</i>	Dwarf buckthorn
<i>Hypericum reductum</i>	Scrub wort	<i>Yucca filamentosa</i>	Adam's needle
<i>Licania michauxii</i>	Gopher apple	<i>Zamia pumila</i>	Coontie
<i>Nolina brittoniana</i>	Britton's beargrass		
Vines			
<i>Bonamia grandiflora</i>	Florida bonamia	<i>Galactia spp.</i>	Milk pea
<i>Centrosema spp.</i>	Butterfly pea		
Wildflowers			
<i>Asclepias tuberosa</i>	Butterfly weed	<i>Liatris spp.</i>	Blazing star
<i>Balduina angustifolia</i>	Yellow buttons	<i>Pityopsis graminifolia</i>	Golden aster
<i>Chrysopsis floridana</i>	Florida aster	<i>Polygonella spp.</i>	Wireweed
<i>Heterotheca subaxillaris</i>	Camphor weed	<i>Sisyrinchium xerophyllum</i>	Jeweled blue-eyed grass

**4) Scrub**  
Planting Worksheet

<b>Table 4</b>	% of Total Area	
	Minimum	Maximum
Trees	20	50
Shrubs	40	60
Groundcovers	20	40
Vines	0	10
Wildflowers	10	20

	Total Area to be Planted (sq. ft.)		% from Table 4 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

### 5) SANDHILL

Trees			
<i>Crataegus flava</i>	Summer haw	<i>Pinus palustris</i>	Longleaf pine
<i>Diospyros virginiana</i>	Persimmon	<i>Quercus geminata</i>	Sand live oak
<i>Pinus elliottii</i>	Slash pine	<i>Quercus laevis</i>	Turkey oak
Shrubs			
<i>Asimina obovata</i>	Flag pawpaw	<i>Prunus angustifolia</i>	Chickasaw plum
<i>Callicarpa americana</i>	Beautyberry	<i>Prunus geniculata</i>	Scrub plum
<i>Garberia heterophylla</i>	Garberia	<i>Serenoa repens</i>	Saw palmetto
<i>Lyonia ferruginea</i>	Rusty Lyonia		
Groundcover			
<i>Aristida beyrichiana</i>	Wiregrass	<i>Sorghastrum secundum</i>	Lopsided Indian grass
<i>Licania michauxii</i>	Gopher apple	<i>Sporobolus junceus</i>	Pineland dropseed
<i>Nolina brittoniana</i>	Britton's beargrass	<i>Yucca filamentosa</i>	Adam's needle
Vines			
<i>Gelsemium sempervirens</i>	Yellow jessamine	<i>Passiflora incarnata</i>	Purple passionflower
<i>Lonicera sempervirens</i>	Coral honeysuckle		
Wildflowers			
<i>Asclepias tuberosa</i>	Butterfly weed	<i>Phoebanthus grandiflorus</i>	Phoebanthus
<i>Carphephorus corymbosus</i>	Florida paintbrush	<i>Piriqueta caroliniana</i>	Pitted stripeseed
<i>Chrysopsis scabrella</i>	Golden aster	<i>Pityopsis graminifolia</i>	Golden aster
<i>Commelina erecta</i>	Dayflower	<i>Polygonella fimbriata</i>	Sandhill wireweed
<i>Dyschoriste spp.</i>	Twinflower	<i>Ruellia caroliniensis</i>	Wild petunia
<i>Elephantopus spp.</i>	Elephant's foot	<i>Sisyrinchium xerophyllum</i>	Jeweled blue-eyed grass
<i>Liatris spp.</i>	Blazing star	<i>Solidago chapmanii</i>	Chapman's goldenrod
<i>Penstemon australis</i>	Pink beardtongue	<i>Vernonia angustifolia</i>	Ironweed
<i>Penstemon multiflorus</i>	White beardtongue		

**5) Sandhill**  
Planting Worksheet

<b>Table 5</b>	% of Total Area	
	Minimum	Maximum
Trees	40	50
Shrubs	20	40
Groundcovers	10	30
Vines	0	20
Wildflowers	20	30

	Total Area to be Planted (sq. ft.)		% from Table 5 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X		=		÷	100	=	
Shrubs		X		=		÷	30	=	
Groundcovers		X		=		÷	10	=	
Vines		X		=		÷	10	=	
Wildflowers		X		=		÷	10	=	

### 6) CYPRESS SWAMP

Trees			
<i>Acer rubrum</i>	Red maple	<i>Nyssa sylvatica</i> var. <i>biflora</i>	Swamp tupelo
<i>Fraxinus caroliniana</i>	Pop ash	<i>Persea palustris</i>	Redbay
<i>Gleditsia aquatica</i>	Water-locust	<i>Taxodium ascendens</i>	Pond cypress
<i>Ilex cassine</i>	Dahoon holly	<i>Taxodium distichum</i>	Bald cypress
Shrubs			
<i>Cephalanthus occidentalis</i>	Buttonbush	<i>Itea virginica</i>	Virginia willow
Groundcovers			
<i>Blechnum serrulatum</i>	Swamp fern	<i>Peltandra</i> spp.	Spoonflower
<i>Ludwigia repens</i>	Water primrose	<i>Polygonum hydropiperoides</i>	Smartweed
<i>Orontium aquaticum</i>	Golden club	<i>Saururus cernuus</i>	Lizard's tail
<i>Osmunda regalis</i>	Royal fern	<i>Thelypteris</i> spp.	Shield fern
Vines			
<i>Ampelopsis arborea</i>	Peppervine	<i>Rosa palustris</i>	Swamp rose
<i>Aster carolinianus</i>	Climbing aster		
Wildflowers			
<i>Crinum americanum</i>	String lily	<i>Hymenocallis</i> spp.	Spider lily
<i>Hydrolea corymbosa</i>	Skyflower		

**6) Cypress Swamps**  
Planting Worksheet

<b>Table 6</b>	% of Total Area	
	Minimum	Maximum
Trees	60	100
Shrubs	0	30
Groundcovers	30	60
Vines	0	20
Wildflowers	0	20

	Total Area to be Planted (sq. ft.)		% from Table 6 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

**7) HARDWOOD SWAMP**

<b>Trees</b>			
<i>Acer rubrum</i>	Red maple	<i>Ilex cassine</i>	Dahoon holly
<i>Carya aquatica</i>	Water hickory	<i>Nyssa sylvatica var. biflora</i>	Swamp tupelo
<i>Cornus foemina</i>	Swamp dogwood	<i>Persea palustris</i>	Redbay
<i>Fraxinus caroliniana</i>	Pop ash	<i>Salix caroliniana</i>	Coastal plain willow
<i>Gleditsia aquatica</i>	Water-locust	<i>Taxodium ascendens</i>	Pond cypress
<i>Magnolia virginiana</i>	Sweetbay magnolia	<i>Taxodium distichum</i>	Bald cypress
<b>Shrubs</b>			
<i>Cephalanthus occidentalis</i>	Buttonbush	<i>Itea virginica</i>	Virginia willow
<i>Hibiscus coccineus</i>	Scarlet hibiscus		
<b>Groundcovers</b>			
<i>Blechnum serrulatum</i>	Swamp fern	<i>Osmunda regalis</i>	Royal fern
<i>Canna flaccida</i>	Yellow canna	<i>Peltandra spp.</i>	Spoonflower
<i>Iris hexagona</i>	Prairie iris	<i>Polygonum hydropiperoides</i>	Smartweed
<i>Ludwigia repens</i>	Water primrose	<i>Saururus cernuus</i>	Lizard's tail
<i>Orontium aquaticum</i>	Golden club	<i>Thelypteris spp.</i>	Shield fern
<b>Vines</b>			
<i>Aster carolinianus</i>	Climbing aster	<i>Rosa palustris</i>	Swamp rose
<i>Ipomoea spp.</i>	Morning glory		
<b>Wildflowers</b>			
<i>Crinum americanum</i>	String lily	<i>Hymenocallis spp.</i>	Spider lily
<i>Hydrolea corymbosa</i>	Skyflower		

**7) Hardwood Swamps**  
Planting Worksheet

<b>Table 7</b>	% of Total Area	
	Minimum	Maximum
Trees	60	100
Shrubs	0	30
Groundcovers	30	60
Vines	0	20
Wildflowers	0	20

	Total Area to be Planted (sq. ft.)		% from Table 7 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

### 8) HYDRIC HAMMOCKS

Trees			
<i>Acer negundo</i>	Boxelder	<i>Liquidambar styraciflua</i>	Sweet gum
<i>Acer rubrum</i>	Red maple	<i>Liriodendron tulipifera</i>	Tulip tree
<i>Aesculus pavia</i>	Red buckeye	<i>Magnolia grandiflora</i>	Southern magnolia
<i>Agarista populifolia</i>	Pipestem	<i>Magnolia virginiana</i>	Sweetbay magnolia
<i>Carpinus caroliniana</i>	Hornbeam	<i>Morus rubra</i>	Red mulberry
<i>Carya aquatica</i>	Water hickory	<i>Persea palustris</i>	Redbay
<i>Carya glabra</i>	Pignut hickory	<i>Pinus taeda</i>	Loblolly pine
<i>Celtis laevigata</i>	Sugarberry	<i>Quercus laurifolia</i>	Laurel oak
<i>Chamaecyparis thyoides</i>	Atlantic white cedar	<i>Quercus michauxii</i>	Chestnut oak
<i>Chionanthus virginicus</i>	Fringe tree	<i>Quercus nigra</i>	Water oak
<i>Cornus foemina</i>	Swamp dogwood	<i>Sabal palmetto</i>	Cabbage palm
<i>Crataegus marshallii</i>	Parsley haw	<i>Styrax americanus</i>	Snowbell
<i>Fraxinus pennsylvanica</i>	Green ash	<i>Tilia caroliniana</i>	Basswood
<i>Gordonia lasianthus</i>	Loblolly bay	<i>Ulmus alata</i>	Winged elm
<i>Ilex cassine</i>	Dahoon holly	<i>Ulmus americana</i>	Florida elm
Shrubs			
<i>Amorpha fruticosa</i>	Wild indigo	<i>Myrica cerifera</i>	Wax myrtle
<i>Aronia arbutifolia</i>	Red chokeberry	<i>Rhapidophyllum hystrix</i>	Needle palm
<i>Cephalanthus occidentalis</i>	Buttonbush	<i>Sabal minor</i>	Bluestem palmetto
<i>Euonymus americanus</i>	Hearts-a-burstin'	<i>Salix floridana</i>	Florida willow
<i>Illicium parviflorum</i>	Yellow anise	<i>Sideroxylon reclinatum</i>	Florida bully
<i>Leucothoe axillaris</i>	Dog-hobble	<i>Tripsacum dactyloides</i>	Gamagrass
<i>Lyonia ligustrina</i>	Maleberry	<i>Vaccinium corymbosum</i>	Highbush blueberry
<i>Lyonia lucida</i>	Shiny lyonia	<i>Viburnum dentatum</i>	Arrowwood viburnum
<i>Myrcianthes fragrans</i>	Simpson stopper	<i>Viburnum obovatum</i>	Walter's viburnum
Groundcovers			
<i>Blechnum serrulatum</i>	Swamp fern	<i>Osmunda regalis</i>	Royal fern
<i>Dryopteris ludoviciana</i>	Southern shield fern	<i>Thelypteris spp.</i>	Shield fern
<i>Osmunda cinnamomea</i>	Cinnamon fern	<i>Woodwardia areolata</i>	Netted chain fern
Vines			
<i>Ampelopsis arborea</i>	Peppervine	<i>Campsis radicans</i>	Trumpet creeper
<i>Aster carolinianus</i>	Climbing aster	<i>Decumaria barbara</i>	Climbing hydrangea
<i>Berchemia scandens</i>	Alabama supplejack	<i>Pieris phillyreifolia</i>	Pieris
<i>Bignonia capreolata</i>	Cross vine		
Wildflowers			
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	<i>Lobelia cardinalis</i>	Cardinal flower
<i>Conoclinium coelestinum</i>	Blue mist flower	<i>Vernonia gigantea</i>	Giant ironweed
<i>Crinum americanum</i>	String lily	<i>Viola affinis</i>	Florida violet

**8) Hydric Hammocks**  
Planting Worksheet

<b>Table 8</b>	% of Total Area	
	Minimum	Maximum
Trees	50	100
Shrubs	20	40
Groundcovers	10	30
Vines	0	20
Wildflowers	10	30

	Total Area to be Planted (sq. ft.)		% from Table 8 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

**9) MANGROVE SWAMP**

<b>Trees</b>			
<i>Avicennia germinans</i>	Black mangrove	<i>Laguncularia racemosa</i>	White mangrove
<i>Conocarpus erectus</i>	Buttonwood	<i>Rhizophora mangle</i>	Red mangrove
<b>Shrubs</b>			
<i>Acrostichum danaeifolium</i>	Leather fern	<i>Lycium carolinianum</i>	Christmas berry
<i>Baccharis halimifolia</i>	Saltbush		
<b>Groundcovers</b>			
<i>Batis maritima</i>	Saltwort	<i>Limonium carolinianum</i>	Sea-lavender
<i>Borrchia frutescens</i>	Sea oxeye daisy	<i>Salicornia spp.</i>	Glasswort

**9) Mangrove Swamps**  
Planting Worksheet

<b>Table 9</b>	% of Total Area	
	Minimum	Maximum
Trees	30	50
Shrubs	30	40
Groundcovers	30	50

	Total Area to be Planted (sq. ft.)		% from Table 9 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X		=		÷	100	=	
Shrubs		X		=		÷	30	=	
Groundcovers		X		=		÷	10	=	

### 10) SALTWATER MARSHES

<b>Shrubs</b>			
<i>Acrostichum danaeifolium</i>	Leather fern	<i>Iva frutescens</i>	Marsh elder
<i>Baccharis halimifolia</i>	Saltbush	<i>Lycium carolinianum</i>	Christmas berry
<b>Groundcovers</b>			
<i>Bacopa monnieri</i>	Water hyssop	<i>Monanthochloe littoralis</i>	Key grass
<i>Batis maritima</i>	Saltwort	<i>Paspalum vaginatum</i>	Knotgrass
<i>Cladium jamaicense</i>	Sawgrass	<i>Salicornia spp.</i>	Glasswort
<i>Cyperus odoratus</i>	Flat sedge	<i>Scirpus validus</i>	Soft-stem bulrush
<i>Distichlis spicata</i>	Saltgrass	<i>Sesuvium portulacastrum</i>	Sea purslane
<i>Eragrostis elliotii</i>	Elliott lovegrass	<i>Spartina alterniflora</i>	Smooth cordgrass
<i>Fuirena scirpoidea</i>	Rush fuirena	<i>Spartina bakeri</i>	Sand cordgrass
<i>Juncus roemerianus</i>	Black rush	<i>Spartina patens</i>	Saltmeadow cordgrass
<i>Limonium carolinianum</i>	Sea-lavender	<i>Sporobolus virginicus</i>	Seashore dropseed
<b>Wildflowers</b>			
<i>Aster tenuifolius</i>	Saltmarsh aster	<i>Solidago sempervirens</i>	Seaside goldenrod

**10) Saltwater Marshes**  
Planting Worksheet

<b>Table 10</b>	% of Total Area	
	Minimum	Maximum
Shrubs	20	40
Groundcovers	70	80
Wildflowers	0	10

	Total Area to be Planted (sq. ft.)		% from Table 10 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Shrubs		X		=		÷	30	=	
Groundcovers		X		=		÷	10	=	
Wildflowers		X		=		÷	10	=	

**11) MESIC HARDWOOD FOREST**

<b>Trees</b>			
<i>Aesculus pavia</i>	Red buckeye	<i>Magnolia grandiflora</i>	Southern magnolia
<i>Aralia spinosa</i>	Devil's walking stick	<i>Morus rubra</i>	Red mulberry
<i>Carpinus caroliniana</i>	Hornbeam	<i>Ostrya virginiana</i>	Hophornbeam
<i>Carya glabra</i>	Pignut hickory	<i>Persea borbonia</i>	Redbay
<i>Celtis laevigata</i>	Sugarberry	<i>Prunus caroliniana</i>	Cherry laurel
<i>Cercis canadensis</i>	Redbud	<i>Prunus umbellata</i>	Flatwoods plum
<i>Chionanthus virginicus</i>	Fringe tree	<i>Quercus laurifolia</i>	Laurel oak
<i>Cornus florida</i>	Dogwood	<i>Quercus nigra</i>	Water oak
<i>Diospyros virginiana</i>	Persimmon	<i>Quercus virginiana</i>	Live oak
<i>Fraxinus americana</i>	White ash	<i>Sabal palmetto</i>	Cabbage palm
<i>Ilex opaca</i>	American holly	<i>Sapindus saponaria</i>	Soapberry
<i>Juniperus silicicola</i>	Southern redcedar	<i>Tilia caroliniana</i>	Basswood
<i>Liquidambar styraciflua</i>	Sweet gum	<i>Ulmus alata</i>	Winged elm
<b>Shrubs</b>			
<i>Callicarpa americana</i>	Beautyberry	<i>Ilex vomitoria</i>	Yaupon holly
<i>Erythrina herbacea</i>	Coralbean	<i>Rhapidophyllum hystrix</i>	Needle palm
<i>Forestiera ligustrina</i>	Upland swampprivet	<i>Rhododendron canescens</i>	Wild azalea
<i>Hamamelis virginiana</i>	Witch hazel	<i>Sabal minor</i>	Bluestem palmetto
<b>Groundcovers</b>			
<i>Dichanthelium spp.</i>	none	<i>Thelypteris spp.</i>	Shield fern
<i>Mitchella repens</i>	Partridge berry	<i>Zamia pumila</i>	Coontie
<i>Oplismenus setarius</i>	Basketgrass		
<b>Vines</b>			
<i>Bignonia capreolata</i>	Cross vine	<i>Lonicera sempervirens</i>	Coral honeysuckle
<i>Gelsemium sempervirens</i>	Yellow jessamine	<i>Parthenocissus quinquefolia</i>	Virginia creeper
<b>Wildflowers</b>			
<i>Justicia cooleyi</i>	none	<i>Salvia lyrata</i>	Lyre-leaved sage
<i>Phlox floridana</i>	Florida phlox	<i>Vernonia gigantea</i>	Giant ironweed
<i>Ruellia caroliniensis</i>	Wild petunia	<i>Viola affinis</i>	Florida violet

**11) Mesic Hardwood Hammocks**  
Planting Worksheet

<b>Table 11</b>	% of Total Area	
	Minimum	Maximum
Trees	50	100
Shrubs	20	40
Groundcovers	10	30
Vines	0	20
Wildflowers	10	30

	Total Area to be Planted (sq. ft.)		% from Table 11 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

### 12) CABBAGE PALM HAMMOCK

Trees			
<i>Sabal palmetto</i>	Cabbage palm	<i>Quercus virginiana</i>	Live oak
Shrubs			
<i>Callicarpa americana</i>	Beautyberry		

**12) Cabbage Palm Hammock**  
Planting Worksheet

<b>Table 12</b>	% of Total Area	
	Minimum	Maximum
Trees	70	80
Shrubs	20	30

	Total Area to be Planted (sq. ft.)		% from Table 12 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X		=		÷	100	=	
Shrubs		X		=		÷	30	=	

### 13) FRESHWATER MARSH

Trees			
<i>Acer rubrum</i>	Red maple	<i>Salix caroliniana</i>	Coastal plain willow
<i>Liquidambar styraciflua</i>	Sweet gum	<i>Taxodium distichum</i>	Bald cypress
<i>Nyssa aquatica</i>	Water tupelo	<i>Taxodium ascendens</i>	Pond cypress
Shrubs			
<i>Baccharis halimifolia</i>	Saltbush	<i>Hibiscus grandiflorus</i>	Swamp hibiscus
<i>Cephalanthus occidentalis</i>	Buttonbush	<i>Sambucus canadensis</i>	Elderberry
<i>Hibiscus coccineus</i>	Scarlet hibiscus		
Groundcovers			
<i>Bacopa spp.</i>	Water hyssop	<i>Panicum hemitomon</i>	Maidencane
<i>Canna flaccida</i>	Yellow canna	<i>Peltandra spp.</i>	Spoonflower
<i>Cladium jamaicense</i>	Sawgrass	<i>Polygonum hydropiperoides</i>	Smartweed
<i>Eleocharis spp.</i>	Spikerush	<i>Pontederia cordata</i>	Pickereel weed
<i>Equisetum hyemale</i>	Horsetail	<i>Sagittaria spp.</i>	Arrowhead
<i>Juncus spp.</i>	Rush	<i>Scirpus spp.</i>	Bulrush
<i>Lachnanthes caroliana</i>	Redroot	<i>Spartina bakeri</i>	Sand cordgrass
<i>Ludwigia repens</i>	Water primrose	<i>Thalia geniculata</i>	Alligator flag
<i>Osmunda cinnamomea</i>	Cinnamon fern	<i>Zizania aquatica</i>	Wild rice
<i>Osmunda regalis</i>	Royal fern		
Vines			
<i>Ipomoea spp.</i>	Morning glory		
Wildflowers			
<i>Bidens mitis</i>	Marsh beggar-ticks	<i>Hymenocallis palmeri</i>	Alligator lily
<i>Canna flaccida</i>	Yellow canna	<i>Iris hexagona</i>	Prairie iris
<i>Crinum americanum</i>	String lily	<i>Pluchea rosea</i>	Rosy camphorweed
<i>Hydrolea corymbosa</i>	Skyflower	<i>Xyris spp.</i>	Yellow-eyed grass
Aquatics			
<i>Nelumbo lutea</i>	American lotus	<i>Nymphaea odorata</i>	White water lily
<i>Nuphar luteum</i>	Spatterdock	<i>Nymphoides aquatica</i>	Floating hearts
<i>Nymphaea mexicana</i>	Yellow water lily	<i>Vallisneria americana</i>	Tapegrass

**13) Freshwater Marsh**  
Planting Worksheet

<b>Table 13</b>	% of Total Area	
	Minimum	Maximum
Trees	10	40
Shrubs	0	30
Groundcovers	50	60
Vines	0	10
Wildflowers	20	40
Aquatics	10	30

	Total Area to be Planted (sq. ft.)		% from Table 13 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X		=		÷	100	=	
Shrubs		X		=		÷	30	=	
Groundcovers		X		=		÷	10	=	
Vines		X		=		÷	10	=	
Wildflowers		X		=		÷	10	=	
Aquatics		X		=		÷	10	=	

**14) COASTAL SCRUB**

<b>Trees</b>			
<i>Celtis laevigata</i>	Sugarberry	<i>Quercus geminata</i>	Sand live oak
<i>Diospyros virginiana</i>	Persimmon	<i>Quercus myrtifolia</i>	Myrtle oak
<i>Ilex opaca</i>	American holly	<i>Quercus virginiana</i>	Live oak
<i>Juniperus silicicola</i>	Southern redcedar	<i>Sabal palmetto</i>	Cabbage palm
<i>Magnolia grandiflora</i>	Southern magnolia	<i>Zanthoxylum clava-herculis</i>	Hercules club
<i>Osmanthus americanus</i>	Devilwood	<i>Zanthoxylum fagara</i>	Wild lime
<i>Persea borbonia</i>	Redbay		
<b>Shrubs</b>			
<i>Ardisia escallonioides</i>	Marlberry	<i>Ilex vomitoria</i>	Yaupon holly
<i>Baccharis halimifolia</i>	Saltbush	<i>Myrcianthes fragrans</i>	Simpson stopper
<i>Callicarpa americana</i>	Beautyberry	<i>Myrica cerifera</i>	Wax myrtle
<i>Capparis cynophallophora</i>	Jamaica caper	<i>Myrsine guianensis</i>	Myrsine
<i>Coccoloba uvifera</i>	Sea grape	<i>Psychotria nervosa</i>	Wild coffee
<i>Eugenia axillaris</i>	White stopper	<i>Serenoa repens</i>	Saw palmetto
<i>Eugenia foetida</i>	Spanish stopper	<i>Sideroxylon tenax</i>	Tough buckthorn
<i>Forestiera segregata</i>	Florida privet	<i>Vaccinium arboreum</i>	Sparkeberry
<b>Groundcovers</b>			
<i>Distichlis spicata</i>	Saltgrass	<i>Opuntia humifusa</i>	Prickly pear cactus
<i>Ipomoea pes-caprae</i>	Railroad vine	<i>Spartina bakeri</i>	Sand cordgrass
<i>Ipomoea stolonifera</i>	Beach morning glory	<i>Sporobolus virginicus</i>	Seashore dropseed
<i>Licania michauxii</i>	Gopher apple	<i>Zamia pumila</i>	Coontie
<i>Muhlenbergia capillaris</i>	Muhly grass		
<b>Vines</b>			
<i>Echites umbellata</i>	Devil's potato	<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Ipomoea spp.</i>	Morning glory	<i>Vitis spp.</i>	Wild grape
<b>Wildflowers</b>			
<i>Borrichia spp.</i>	Sea oxeye daisy	<i>Helianthus debilis</i>	Dune sunflower
<i>Gaillardia pulchella</i>	Blanket flower	<i>Monarda punctata</i>	Dotted horsemint
<i>Glandularia maritima</i>	Beach verbena		

**14) Coastal Scrub**  
Planting Worksheet

<b>Table 14</b>	% of Total Area	
	Minimum	Maximum
Trees	10	80
Shrubs	20	70
Groundcovers	10	40
Vines	0	20
Wildflowers	0	30

	Total Area to be Planted (sq. ft.)		% from Table 14 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		

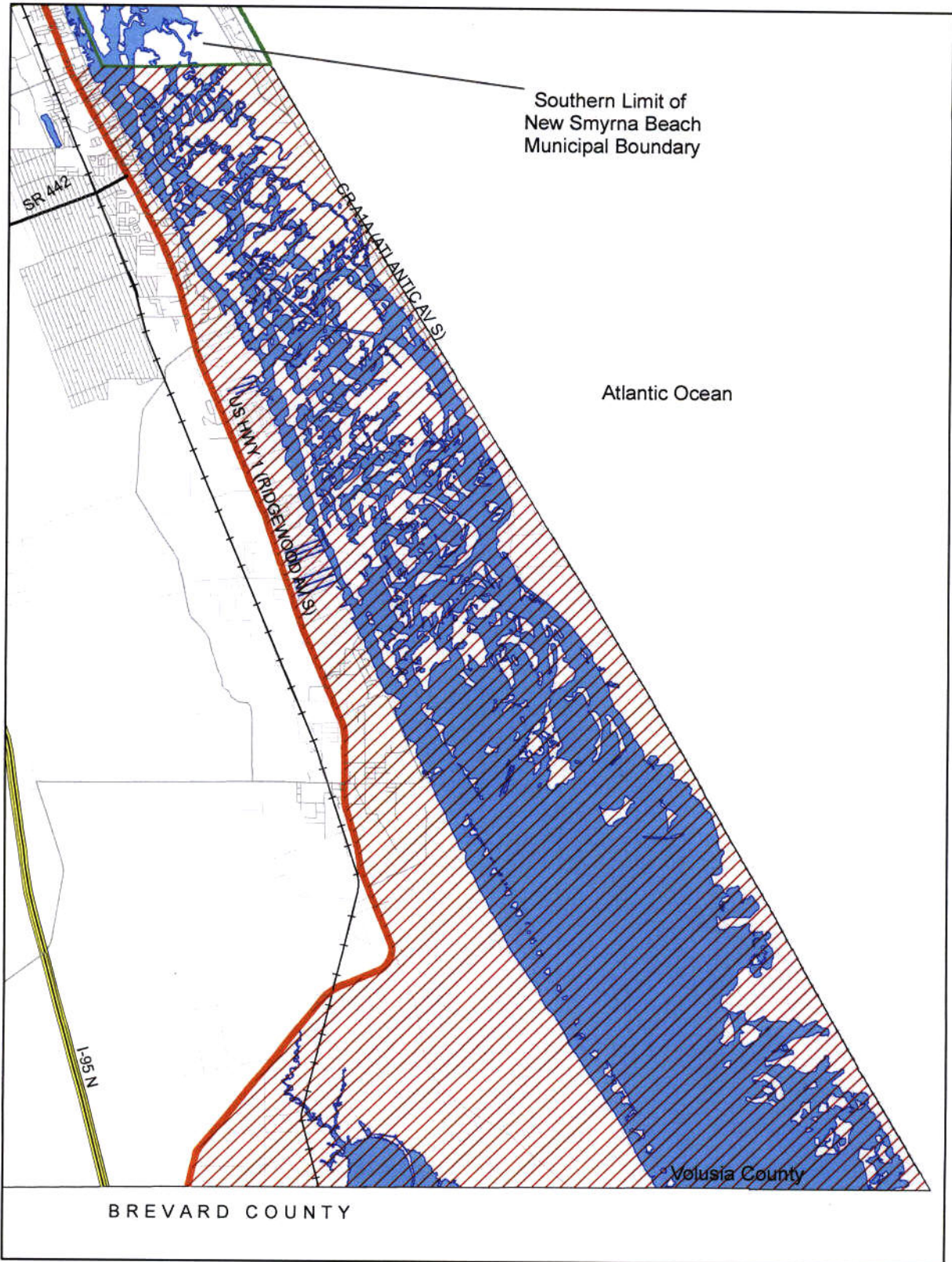
**15) BAY SWAMP**

<b>Trees</b>			
<i>Acer rubrum</i>	Red maple	<i>Magnolia virginiana</i>	Sweet bay
<i>Gordonia lasianthus</i>	Loblolly bay	<i>Persea palustris</i>	Redbay
<i>Ilex cassine</i>	Dahoon holly	<i>Pinus serotina</i>	Pond pine
<b>Shrubs</b>			
<i>Cephalanthus occidentalis</i>	Buttonbush	<i>Itea virginica</i>	Virginia willow
<b>Groundcovers</b>			
<i>Blechnum serrulatum</i>	Swamp fern	<i>Peltandra spp.</i>	Spoonflower
<i>Ludwigia repens</i>	Water primrose	<i>Polygonum hydropiperoides</i>	Smartweed
<i>Orontium aquaticum</i>	Golden club	<i>Saururus cernuus</i>	Lizard's tail
<i>Osmunda regalis</i>	Royal fern	<i>Woodwardia areolata</i>	Dimorphic chain fern
<b>Vines</b>			
<i>Ampelopsis arborea</i>	Peppervine	<i>Rosa palustris</i>	Swamp rose
<i>Aster carolinianus</i>	Climbing aster		
<b>Wildflowers</b>			
<i>Crinum americanum</i>	String lily	<i>Hymenocallis spp.</i>	Spider lily
<i>Hydrolea corymbosa</i>	Skyflower		


**15) Bay Swamp**  
Planting Worksheet

<b>Table 15</b>	% of Total Area	
	Minimum	Maximum
Trees	40	60
Shrubs	20	30
Groundcovers	20	30
Vines	0	10
Wildflowers	0	10

	Total Area to be Planted (sq. ft.)		% from Table 15 Must equal or exceed 100%		Area to be Planted (sq. ft.)		Spacing Requirements (sq. ft.)		Total Number of Plants Required
Trees		X	=		÷	100	=		
Shrubs		X	=		÷	30	=		
Groundcovers		X	=		÷	10	=		
Vines		X	=		÷	10	=		
Wildflowers		X	=		÷	10	=		



**Legend**

 Class II Area