| | | | |
|---|---|---|---|
| Geometry Type: | Rectangular | | |
| Invert: | 9.54 ft | Default: | 0.00 ft |
| Control Elevation: | 9.54 ft | Op Table: | |
| Max Depth: | 3.00 ft | Ref Node: | |
| Max Width: | 4.50 ft | **Discharge Coefficients** | |
| Fillet: | 0.00 ft | Weir Default: | 3.200 |
| | | Weir Table: | |
| | | Orifice Default: | 0.600 |
| | | Orifice Table: | |

Weir Comment:

Drop Structure Comment:

| Drop Structure Link: E1 | | Upstream Pipe | | Downstream Pipe | |
|---|---|---|---|---|---|
| Scenario: | Icpr3 | Invert: | 0.29 ft | Invert: | 0.29 ft |
| From Node: | E1 | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| To Node: | ST.LUCIE RIVER | Geometry: Circular | | Geometry: Circular | |
| Link Count: | 1 | Max Depth: | 2.00 ft | Max Depth: | 2.00 ft |
| Flow Direction: | Both | Bottom Clip | | | |
| Solution: | Combine | Default: | 0.00 ft | Default: | 0.00 ft |
| Increments: | 10 | Op Table: | | Op Table: | |
| Pipe Count: | 1 | Ref Node: | | Ref Node: | |
| Damping: | 0.0000 ft | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| Length: | 115.00 ft | Top Clip | | | |
| FHWA Code: | 1 | Default: | 0.00 ft | Default: | 0.00 ft |
| Entr Loss Coef: | 0.00 | Op Table: | | Op Table: | |
| Exit Loss Coef: | 0.00 | Ref Node: | | Ref Node: | |
| Bend Loss Coef: | 0.00 | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| Bend Location: | 0.00 ft | | | | |
| Energy Switch: | Energy | | | | |

Pipe Comment:

| Weir Component | | | |
|---|---|---|---|
| Weir: | 1 | **Bottom Clip** | |
| Weir Count: | 1 | Default: | 0.00 ft |
| Weir Flow Direction: | Both | Op Table: | |
| Damping: | 0.0000 ft | Ref Node: | |
| Weir Type: | Sharp Crested Vertical | **Top Clip** | |
| Geometry Type: | Circular | Default: | 0.00 ft |
| Invert: | 5.54 ft | Op Table: | |
| Control Elevation: | 5.54 ft | Ref Node: | |
| Max Depth: | 0.38 ft | **Discharge Coefficients** | |
| | | Weir Default: | 3.200 |
| | | Weir Table: | |
| | | Orifice Default: | 0.600 |
| | | Orifice Table: | |

Weir Comment:

Weir Component

| | |
|---|---|
| Weir: | 2 |
| Weir Count: | 1 |
| Weir Flow Direction: | Both |
| Damping: | 0.0000 ft |
| Weir Type: | Sharp Crested Vertical |
| Geometry Type: | Rectangular |
| Invert: | 6.61 ft |
| Control Elevation: | 6.61 ft |
| Max Depth: | 83.25 ft |
| Max Width: | 0.77 ft |
| Fillet: | 0.00 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Discharge Coefficients**

| | |
|---|---|
| Weir Default: | 3.200 |
| Weir Table: | |
| Orifice Default: | 0.600 |
| Orifice Table: | |

Weir Comment:

**Weir Component**

| | |
|---|---|
| Weir: | 3 |
| Weir Count: | 1 |
| Weir Flow Direction: | Both |
| Damping: | 0.0000 ft |
| Weir Type: | Horizontal |
| Geometry Type: | Rectangular |
| Invert: | 8.50 ft |
| Control Elevation: | 8.50 ft |
| Max Depth: | 3.00 ft |
| Max Width: | 4.50 ft |
| Fillet: | 0.00 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Discharge Coefficients**

| | |
|---|---|
| Weir Default: | 3.200 |
| Weir Table: | |
| Orifice Default: | 0.600 |
| Orifice Table: | |

Weir Comment:

Drop Structure Comment:

---

**Drop Structure Link: E2**

| | |
|---|---|
| Scenario: | Icpr3 |
| From Node: | E2 |
| To Node: | Manhole |
| Link Count: | 1 |
| Flow Direction: | Both |
| Solution: | Combine |
| Increments: | 10 |
| Pipe Count: | 1 |
| Damping: | 0.0000 ft |
| Length: | 178.00 ft |
| FHWA Code: | 1 |
| Entr Loss Coef: | 0.00 |
| Exit Loss Coef: | 0.00 |
| Bend Loss Coef: | 0.00 |

**Upstream Pipe**

| | |
|---|---|
| Invert: | 2.24 ft |
| Manning's N: | 0.0120 |

**Geometry: Circular**

| | |
|---|---|
| Max Depth: | 2.50 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |
| Manning's N: | 0.0120 |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |
| Manning's N: | 0.0120 |

**Downstream Pipe**

| | |
|---|---|
| Invert: | 2.24 ft |
| Manning's N: | 0.0120 |

**Geometry: Circular**

| | |
|---|---|
| Max Depth: | 2.50 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |
| Manning's N: | 0.0120 |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |
| Manning's N: | 0.0120 |

Bend Location: 0.00 ft
Energy Switch: Energy

Pipe Comment:

**Weir Component**

| | |
|---|---|
| Weir: | 1 |
| Weir Count: | 1 |
| Weir Flow Direction: | Both |
| Damping: | 0.0000 ft |
| Weir Type: | Sharp Crested Vertical |
| Geometry Type: | Circular |
| Invert: | 7.74 ft |
| Control Elevation: | 7.74 ft |
| Max Depth: | 0.25 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Discharge Coefficients**

| | |
|---|---|
| Weir Default: | 3.200 |
| Weir Table: | |
| Orifice Default: | 0.600 |
| Orifice Table: | |

Weir Comment:

**Weir Component**

| | |
|---|---|
| Weir: | 2 |
| Weir Count: | 1 |
| Weir Flow Direction: | Both |
| Damping: | 0.0000 ft |
| Weir Type: | Sharp Crested Vertical |
| Geometry Type: | Rectangular |
| Invert: | 8.54 ft |
| Control Elevation: | 8.54 ft |
| Max Depth: | 83.25 ft |
| Max Width: | 3.00 ft |
| Fillet: | 0.00 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Discharge Coefficients**

| | |
|---|---|
| Weir Default: | 3.200 |
| Weir Table: | |
| Orifice Default: | 0.600 |
| Orifice Table: | |

Weir Comment:

**Weir Component**

| | |
|---|---|
| Weir: | 3 |
| Weir Count: | 1 |
| Weir Flow Direction: | Both |
| Damping: | 0.0000 ft |
| Weir Type: | Horizontal |
| Geometry Type: | Rectangular |
| Invert: | 9.29 ft |
| Control Elevation: | 9.29 ft |
| Max Depth: | 4.50 ft |
| Max Width: | 3.00 ft |
| Fillet: | 0.00 ft |

**Bottom Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Top Clip**

| | |
|---|---|
| Default: | 0.00 ft |
| Op Table: | |
| Ref Node: | |

**Discharge Coefficients**

| | |
|---|---|
| Weir Default: | 3.200 |
| Weir Table: | |
| Orifice Default: | 0.600 |
| Orifice Table: | |

Weir Comment:

Drop Structure Comment:

| Drop Structure Link: E3/S-2-33 | | Upstream Pipe | | Downstream Pipe | |
|---|---|---|---|---|---|
| Scenario: | Icpr3 | Invert: | 0.54 ft | Invert: | 0.54 ft |
| From Node: | E3 | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| To Node: | Manhole | Geometry: Circular | | Geometry: Circular | |
| Link Count: | 1 | Max Depth: | 3.50 ft | Max Depth: | 3.50 ft |
| Flow Direction: | Both | Bottom Clip | | | |
| Solution: | Combine | Default: | 0.00 ft | Default: | 0.00 ft |
| Increments: | 10 | Op Table: | | Op Table: | |
| Pipe Count: | 1 | Ref Node: | | Ref Node: | |
| Damping: | 0.0000 ft | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| Length: | 650.00 ft | Top Clip | | | |
| FHWA Code: | 1 | Default: | 0.00 ft | Default: | 0.00 ft |
| Entr Loss Coef: | 0.00 | Op Table: | | Op Table: | |
| Exit Loss Coef: | 0.00 | Ref Node: | | Ref Node: | |
| Bend Loss Coef: | 0.00 | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| Bend Location: | 0.00 ft | | | | |
| Energy Switch: | Energy | | | | |

Pipe Comment:

| Weir Component | | Bottom Clip | |
|---|---|---|---|
| Weir: | 1 | Default: | 0.00 ft |
| Weir Count: | 1 | Op Table: | |
| Weir Flow Direction: | Both | Ref Node: | |
| Damping: | 0.0000 ft | Top Clip | |
| Weir Type: | Horizontal | Default: | 0.00 ft |
| Geometry Type: | Rectangular | Op Table: | |
| Invert: | 5.54 ft | Ref Node: | |
| Control Elevation: | 5.54 ft | Discharge Coefficients | |
| Max Depth: | 3.00 ft | Weir Default: | 3.200 |
| Max Width: | 4.50 ft | Weir Table: | |
| Fillet: | 0.00 ft | Orifice Default: | 0.600 |
| | | Orifice Table: | |

Weir Comment:

Drop Structure Comment:

| Weir Link: IQ Overflow | | Bottom Clip | |
|---|---|---|---|
| Scenario: | Icpr3 | Default: | 0.00 ft |
| From Node: | IQ LAKE | Op Table: | |
| To Node: | ST.LUCIE RIVER | Ref Node: | |
| Link Count: | 1 | Top Clip | |
| Flow Direction: | Both | | |

| | | | |
|---|---|---|---|
| Damping: | 0.0000 ft | | |
| Weir Type: | Sharp Crested Vertical | Default: | 0.00 ft |
| Geometry Type: | Rectangular | Op Table: | |
| Invert: | 8.54 ft | Ref Node: | |
| Control Elevation: | 8.54 ft | **Discharge Coefficients** | |
| Max Depth: | 8333.25 ft | Weir Default: | 3.200 |
| Max Width: | 250.00 ft | Weir Table: | |
| Fillet: | 0.00 ft | Orifice Default: | 0.600 |
| | | Orifice Table: | |

Comment:

| Pipe Link: P1 | | Upstream | | Downstream | |
|---|---|---|---|---|---|
| Scenario: | Icpr3 | Invert: | 1.94 ft | Invert: | -1.46 ft |
| From Node: | Manhole | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| To Node: | E1 | Geometry: Circular | | Geometry: Circular | |
| Link Count: | 1 | Max Depth: | 3.50 ft | Max Depth: | 3.50 ft |
| Flow Direction: | Both | Bottom Clip | | | |
| Damping: | 0.0000 ft | Default: | 0.00 ft | Default: | 0.00 ft |
| Length: | 498.00 ft | Op Table: | | Op Table: | |
| FHWA Code: | 1 | Ref Node: | | Ref Node: | |
| Entr Loss Coef: | 0.00 | Manning's N: | 0.0120 | Manning's N: | 0.0120 |
| Exit Loss Coef: | 0.00 | Top Clip | | | |
| Bend Loss Coef: | 0.00 | Default: | 0.00 ft | Default: | 0.00 ft |
| Bend Location: | 0.00 ft | Op Table: | | Op Table: | |
| Energy Switch: | Energy | Ref Node: | | Ref Node: | |
| | | Manning's N: | 0.0120 | Manning's N: | 0.0120 |

Comment:

**Simulation: 100YR**

| | |
|---|---|
| Scenario: | Icpr3 |
| Run Date/Time: | 7/24/2019 9:43:17 AM |
| Program Version: | ICPR4 4.04.00 |

**General**

Run Mode: Normal

| | Year | Month | Day | Hour [hr] |
|---|---|---|---|---|
| Start Time: | 0 | 0 | 0 | 0.0000 |
| End Time: | 0 | 0 | 0 | 80.0000 |

| | Hydrology [sec] | Surface Hydraulics [sec] | Groundwater [sec] |
|---|---|---|---|
| Min Calculation Time: | 60.0000 | 0.1000 | 900.0000 |
| Max Calculation Time: | | 60.0000 | |

**Output Time Increments**

## Hydrology

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 60.0000 |
| 0 | 0 | 0 | 30.0000 | 30.0000 |
| 0 | 0 | 0 | 50.0000 | 15.0000 |
| 0 | 0 | 0 | 70.0000 | 30.0000 |

## Surface Hydraulics

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 60.0000 |
| 0 | 0 | 0 | 30.0000 | 30.0000 |
| 0 | 0 | 0 | 50.0000 | 15.0000 |
| 0 | 0 | 0 | 70.0000 | 30.0000 |

## Groundwater

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 360.0000 |

## Restart File

Save Restart: False

## Resources & Lookup Tables

### Resources

Rainfall Folder: ICPR3
Reference ET Folder:
Unit Hydrograph Folder: ICPR3

### Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: ICPR3

Green-Ampt Set: ICPR3
Vertical Layers Set:
Impervious Set: ICPR3
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

## Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

Manual Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: Sfwmd72
Rainfall Amount: 14.00 in

| | | | |
|---|---|---|---|
| Edge Length Option: | Automatic | Storm Duration: | 72.0000 hr |
| Dflt Damping (2D): | 0.0050 ft | Dflt Damping (1D): | 0.0050 ft |
| Min Node Srf Area (2D): | 1 ft2 | Min Node Srf Area (1D): | 113 ft2 |
| Energy Switch (2D): | Energy | Energy Switch (1D): | Energy |

Comment: MINIMUM CRITERIA FOR FINISHED FLOORS

100 YR, 72 HR STORM SETS MIMIMUM FINISHED FLOOR ELEVATIONS

## Simulation: 10YR

Scenario: Icpr3
Run Date/Time: 7/24/2019 9:44:37 AM
Program Version: ICPR4 4.04.00

## General

Run Mode: Normal

| | Year | Month | Day | Hour [hr] |
|---|---|---|---|---|
| Start Time: | 0 | 0 | 0 | 0.0000 |
| End Time: | 0 | 0 | 0 | 30.0000 |

| | Hydrology [sec] | Surface Hydraulics [sec] | Groundwater [sec] |
|---|---|---|---|
| Min Calculation Time: | 60.0000 | 0.1000 | 900.0000 |
| Max Calculation Time: | | 60.0000 | |

## Output Time Increments

### Hydrology

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 30.0000 |
| 0 | 0 | 0 | 5.0000 | 15.0000 |
| 0 | 0 | 0 | 15.0000 | 30.0000 |

### Surface Hydraulics

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 30.0000 |
| 0 | 0 | 0 | 5.0000 | 15.0000 |
| 0 | 0 | 0 | 15.0000 | 30.0000 |

### Groundwater

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 360.0000 |

## Restart File

Save Restart: False

## Resources & Lookup Tables

### Resources

Rainfall Folder: ICPR3
Reference ET Folder:
Unit Hydrograph Folder: ICPR3

### Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: ICPR3
Green-Ampt Set: ICPR3
Vertical Layers Set:
Impervious Set: ICPR3
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

## Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic
Dflt Damping (2D): 0.0050 ft
Min Node Srf Area (2D): 1 ft2
Energy Switch (2D): Energy

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Manual Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: Flmod
Rainfall Amount: 6.80 in
Storm Duration: 24.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 113 ft2
Energy Switch (1D): Energy

Comment: MINIMUM CRITERIA FOR ROAD CROWN

10-YR, 24-HR DESIGN STORM SETS THE MINIMUM ELEVATION FOR ROADWAY

## Simulation: 25YR

Scenario: Icpr3
Run Date/Time: 7/24/2019 9:45:32 AM
Program Version: ICPR4 4.04.00

## General

Run Mode: Normal

| Year | Month | Day | Hour [hr] |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Start Time: | 0 | 0 | 0 | 0.0000 |
| End Time: | 0 | 0 | 0 | 360.0000 |

| | Hydrology [sec] | Surface Hydraulics [sec] | Groundwater [sec] |
|---|---|---|---|
| Min Calculation Time: | 60.0000 | 0.1000 | 900.0000 |
| Max Calculation Time: | | 60.0000 | |

## Output Time Increments

### Hydrology

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 60.0000 |
| 0 | 0 | 0 | 30.0000 | 30.0000 |
| 0 | 0 | 0 | 50.0000 | 15.0000 |
| 0 | 0 | 0 | 70.0000 | 60.0000 |

### Surface Hydraulics

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 60.0000 |
| 0 | 0 | 0 | 30.0000 | 30.0000 |
| 0 | 0 | 0 | 50.0000 | 15.0000 |
| 0 | 0 | 0 | 70.0000 | 60.0000 |

### Groundwater

| Year | Month | Day | Hour [hr] | Time Increment [min] |
|---|---|---|---|---|
| 0 | 0 | 0 | 0.0000 | 360.0000 |

### Restart File

Save Restart: False

## Resources & Lookup Tables

### Resources

Rainfall Folder: ICPR3
Reference ET Folder:
Unit Hydrograph Folder: ICPR3

### Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: ICPR3
Green-Ampt Set: ICPR3
Vertical Layers Set:
Impervious Set: ICPR3
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

## Tolerances & Options

| | | | |
|---|---|---|---|
| Time Marching: | SAOR | IA Recovery Time: | 24.0000 hr |
| Max Iterations: | 6 | ET for Manual Basins: | False |
| Over-Relax Weight Fact: | 0.5 dec | | |
| dZ Tolerance: | 0.0010 ft | Manual Basin Rain Opt: | Global |
| Max dZ: | 1.0000 ft | OF Region Rain Opt: | Global |
| Link Optimizer Tol: | 0.0001 ft | Rainfall Name: | Sfwmd72 |
| | | Rainfall Amount: | 11.20 in |
| Edge Length Option: | Automatic | Storm Duration: | 72.0000 hr |
| Dflt Damping (2D): | 0.0050 ft | Dflt Damping (1D): | 0.0050 ft |
| Min Node Srf Area (2D): | 1 ft2 | Min Node Srf Area (1D): | 113 ft2 |
| Energy Switch (2D): | Energy | Energy Switch (1D): | Energy |

Comment: MINIMUM CRITERIA FOR SITE PERIMETER BERM

25 YR, 72-HR DESIGN STORM SETS MINIMUM CRITERIA FOR SITE PERIMETER BERM

Manual Basin Runoff Summary [Icpr3]

| Basin Name | Sim Name | Max Flow [cfs] | Time to Max Flow [hrs] | Total Rainfall [in] | Total Runoff [in] | Area [ac] | Equivalent Curve Number | % Imperv | % DCIA |
|---|---|---|---|---|---|---|---|---|---|
| A | 100YR | 78.59 | 60.0000 | 14.00 | 11.95 | 17.5800 | 84.0 | 0.00 | 0.00 |
| B | 100YR | 47.70 | 60.0000 | 14.00 | 12.49 | 10.5000 | 88.0 | 0.00 | 0.00 |
| C1 | 100YR | 21.70 | 60.0000 | 14.00 | 12.62 | 4.0000 | 89.0 | 0.00 | 0.00 |
| C2 | 100YR | 104.42 | 60.0000 | 14.00 | 12.35 | 21.2000 | 87.0 | 0.00 | 0.00 |
| D | 100YR | 34.82 | 60.0000 | 14.00 | 12.62 | 6.9000 | 89.0 | 0.00 | 0.00 |
| E1 | 100YR | 154.35 | 60.0000 | 14.00 | 12.49 | 27.0000 | 88.0 | 0.00 | 0.00 |
| E2 | 100YR | 16.58 | 60.0000 | 14.00 | 12.62 | 3.0000 | 89.0 | 0.00 | 0.00 |
| E3 | 100YR | 30.76 | 60.0000 | 14.00 | 13.51 | 5.8000 | 96.0 | 0.00 | 0.00 |
| IQ BASIN | 100YR | 19.73 | 60.0000 | 14.00 | 12.62 | 3.0000 | 89.0 | 0.00 | 0.00 |
| NE-WL | 100YR | 204.16 | 60.0000 | 14.00 | 12.22 | 44.5400 | 86.0 | 0.00 | 0.00 |
| SE-WL | 100YR | 179.97 | 60.0000 | 14.00 | 11.95 | 39.6000 | 84.0 | 0.00 | 0.00 |
| A | 10YR | 42.12 | 12.0167 | 6.80 | 4.95 | 17.5800 | 84.0 | 0.00 | 0.00 |
| B | 10YR | 27.14 | 12.0167 | 6.80 | 5.40 | 10.5000 | 88.0 | 0.00 | 0.00 |
| C1 | 10YR | 12.79 | 12.0167 | 6.80 | 5.51 | 4.0000 | 89.0 | 0.00 | 0.00 |
| C2 | 10YR | 59.18 | 12.0167 | 6.80 | 5.29 | 21.2000 | 87.0 | 0.00 | 0.00 |
| D | 10YR | 20.31 | 12.0167 | 6.80 | 5.51 | 6.9000 | 89.0 | 0.00 | 0.00 |
| E1 | 10YR | 90.79 | 12.0167 | 6.80 | 5.40 | 27.0000 | 88.0 | 0.00 | 0.00 |
| E2 | 10YR | 9.80 | 12.0167 | 6.80 | 5.51 | 3.0000 | 89.0 | 0.00 | 0.00 |
| E3 | 10YR | 19.29 | 12.0167 | 6.80 | 6.32 | 5.8000 | 96.0 | 0.00 | 0.00 |
| IQ BASIN | 10YR | 12.50 | 12.0000 | 6.80 | 5.51 | 3.0000 | 89.0 | 0.00 | 0.00 |
| NE-WL | 10YR | 113.10 | 12.0167 | 6.80 | 5.17 | 44.5400 | 86.0 | 0.00 | 0.00 |
| SE-WL | 10YR | 96.64 | 12.0167 | 6.80 | 4.95 | 39.6000 | 84.0 | 0.00 | 0.00 |
| A | 25YR | 61.84 | 60.0000 | 11.20 | 9.20 | 17.5800 | 84.0 | 0.00 | 0.00 |
| B | 25YR | 37.79 | 60.0000 | 11.20 | 9.71 | 10.5000 | 88.0 | 0.00 | 0.00 |
| C1 | 25YR | 17.22 | 60.0000 | 11.20 | 9.84 | 4.0000 | 89.0 | 0.00 | 0.00 |
| C2 | 25YR | 82.61 | 60.0000 | 11.20 | 9.59 | 21.2000 | 87.0 | 0.00 | 0.00 |
| D | 25YR | 27.63 | 60.0000 | 11.20 | 9.84 | 6.9000 | 89.0 | 0.00 | 0.00 |
| E1 | 25YR | 122.36 | 60.0000 | 11.20 | 9.71 | 27.0000 | 88.0 | 0.00 | 0.00 |
| E2 | 25YR | 13.16 | 60.0000 | 11.20 | 9.84 | 3.0000 | 89.0 | 0.00 | 0.00 |
| E3 | 25YR | 24.58 | 60.0000 | 11.20 | 10.72 | 5.8000 | 96.0 | 0.00 | 0.00 |
| IQ BASIN | 25YR | 15.67 | 60.0000 | 11.20 | 9.84 | 3.0000 | 89.0 | 0.00 | 0.00 |
| NE-WL | 25YR | 161.24 | 60.0000 | 11.20 | 9.46 | 44.5400 | 86.0 | 0.00 | 0.00 |
| SE-WL | 25YR | 141.61 | 60.0000 | 11.20 | 9.20 | 39.6000 | 84.0 | 0.00 | 0.00 |

Node Max Conditions [Icpr3]

| Node Name | Sim Name | Warning Stage [ft] | Max Stage [ft] | Min/Max Delta Stage [ft] | Max Total Inflow [cfs] | Max Total Outflow [cfs] | Max Surface Area [ft2] |
|---|---|---|---|---|---|---|---|
| A | 100YR | 0.00 | 11.23 | 0.0008 | 78.59 | 4.72 | 325657 |
| B | 100YR | 0.00 | 10.59 | 0.0007 | 47.70 | 2.88 | 202307 |
| C1 | 100YR | 0.00 | 11.32 | 0.0009 | 21.70 | 6.61 | 78642 |
| C2 | 100YR | 0.00 | 11.31 | 0.0008 | 110.99 | 6.53 | 447359 |
| D | 100YR | 0.00 | 9.71 | 0.0008 | 34.82 | 5.19 | 133999 |
| E1 | 100YR | 0.00 | 8.85 | 0.0009 | 169.57 | 19.29 | 455823 |
| E2 | 100YR | 0.00 | 9.41 | 0.0007 | 16.58 | 9.81 | 33709 |
| E3 | 100YR | 0.00 | 8.88 | 0.0010 | 30.76 | 9.34 | 75963 |
| IQ LAKE | 100YR | 10.00 | 7.18 | 0.0005 | 19.72 | 0.00 | 87120 |
| Manhole | 100YR | 8.54 | 8.87 | 0.0015 | 16.30 | 16.26 | 113 |
| NE-WL | 100YR | 0.00 | 6.08 | 0.0005 | 209.28 | 45.88 | 1014761 |
| SE-WL | 100YR | 0.00 | 7.68 | 0.0002 | 183.42 | 128.54 | 797851 |
| ST.LUCIE RIVER | 100YR | 0.00 | -0.36 | 0.0000 | 171.02 | 0.00 | 0 |
| A | 10YR | 0.00 | 9.86 | 0.0009 | 42.11 | 1.38 | 161170 |
| B | 10YR | 0.00 | 9.53 | 0.0005 | 27.14 | 0.78 | 187308 |
| C1 | 10YR | 0.00 | 10.09 | 0.0010 | 12.79 | 7.47 | 21780 |
| C2 | 10YR | 0.00 | 10.09 | 0.0008 | 65.72 | 2.15 | 260502 |
| D | 10YR | 0.00 | 8.69 | 0.0009 | 20.31 | 0.71 | 73590 |
| E1 | 10YR | 0.00 | 7.49 | 0.0010 | 103.80 | 2.73 | 307937 |
| E2 | 10YR | 0.00 | 8.93 | 0.0009 | 9.80 | 2.58 | 30492 |
| E3 | 10YR | 0.00 | 7.49 | 0.0010 | 19.28 | 13.50 | 21780 |
| IQ LAKE | 10YR | 10.00 | 6.29 | 0.0003 | 12.49 | 0.00 | 84929 |
| Manhole | 10YR | 8.54 | 7.49 | 0.0014 | 13.72 | 13.68 | 113 |
| NE-WL | 10YR | 0.00 | 5.53 | 0.0005 | 113.45 | 15.34 | 911161 |
| SE-WL | 10YR | 0.00 | 7.57 | 0.0002 | 97.04 | 69.31 | 694993 |
| ST.LUCIE RIVER | 10YR | 0.00 | -0.36 | 0.0000 | 79.63 | 0.00 | 0 |
| A | 25YR | 0.00 | 10.80 | 0.0010 | 61.83 | 3.53 | 258490 |
| B | 25YR | 0.00 | 10.20 | 0.0007 | 37.79 | 2.00 | 187308 |
| C1 | 25YR | 0.00 | 10.93 | 0.0009 | 17.22 | 7.48 | 50147 |
| C2 | 25YR | 0.00 | 10.93 | 0.0009 | 89.62 | 4.98 | 362670 |
| D | 25YR | 0.00 | 9.47 | 0.0009 | 27.63 | 1.47 | 116481 |
| E1 | 25YR | 0.00 | 8.48 | 0.0010 | 138.63 | 7.20 | 402426 |
| E2 | 25YR | 0.00 | 9.29 | 0.0006 | 13.15 | 6.44 | 32643 |
| E3 | 25YR | 0.00 | 8.49 | 0.0010 | 24.58 | 11.71 | 58438 |
| IQ LAKE | 25YR | 10.00 | 6.83 | 0.0004 | 15.67 | 0.00 | 87120 |
| Manhole | 25YR | 8.54 | 8.49 | 0.0025 | 16.76 | 16.72 | 113 |
| NE-WL | 25YR | 0.00 | 5.88 | 0.0004 | 164.38 | 32.55 | 977264 |
| SE-WL | 25YR | 0.00 | 7.63 | 0.0002 | 143.88 | 99.76 | 750468 |
| ST.LUCIE RIVER | 25YR | 0.00 | -0.36 | 0.0000 | 128.68 | 0.00 | 0 |

Link Min/Max Conditions [Icpr3]

| Link Name | Sim Name | Max Flow [cfs] | Min Flow [cfs] | Min/Max Delta Flow [cfs] | Max Us Velocity [fps] | Max Ds Velocity [fps] | Max Avg Velocity [fps] |
|---|---|---|---|---|---|---|---|
| 1-SLR | 100YR | 45.88 | 0.00 | 0.08 | 2.48 | 4.52 | 3.50 |
| 2-SLR | 100YR | 128.54 | 0.00 | 0.12 | 1.87 | 1.87 | 1.87 |
| A - Pipe | 100YR | 4.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| A - Weir: 1 | 100YR | 0.48 | 0.00 | 0.00 | 8.41 | 8.41 | 8.41 |
| A - Weir: 2 | 100YR | 4.24 | 0.00 | 0.00 | 4.79 | 4.79 | 4.79 |
| B1-1 | 100YR | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| B1-2 | 100YR | 2.55 | 0.00 | 0.00 | 4.11 | 4.11 | 4.11 |
| C1 - Pipe | 100YR | 6.61 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| C1 - Weir: 1 | 100YR | 6.61 | 0.00 | -0.01 | 0.20 | 0.20 | 0.20 |
| C2 - Pipe | 100YR | 3.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C2 - Weir: 1 | 100YR | 0.76 | 0.00 | 0.00 | 7.75 | 7.75 | 7.75 |
| C2 - Weir: 2 | 100YR | 2.89 | 0.00 | 0.00 | 4.66 | 4.66 | 4.66 |
| C2-3 | 100YR | 2.89 | 0.00 | 0.00 | 4.66 | 4.66 | 4.66 |
| D - Pipe | 100YR | 5.19 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| D - Weir: 1 | 100YR | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D - Weir: 2 | 100YR | 1.37 | 0.00 | 0.00 | 4.38 | 4.38 | 4.38 |
| D - Weir: 3 | 100YR | 3.44 | 0.00 | 0.01 | 1.33 | 1.33 | 1.33 |
| E1 - Pipe | 100YR | 19.28 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| E1 - Weir: 1 | 100YR | 0.94 | 0.00 | 0.00 | 8.51 | 8.51 | 8.51 |
| E1 - Weir: 2 | 100YR | 8.29 | 0.00 | 0.00 | 4.79 | 4.79 | 4.79 |
| E1 - Weir: 3 | 100YR | 10.06 | 0.00 | 0.01 | 1.90 | 1.90 | 1.90 |
| E2 - Pipe | 100YR | 9.81 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| E2 - Weir: 1 | 100YR | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E2 - Weir: 2 | 100YR | 7.66 | 0.00 | 0.02 | 2.96 | 2.96 | 2.96 |
| E2 - Weir: 3 | 100YR | 1.98 | 0.00 | 0.01 | 1.10 | 1.10 | 1.10 |
| E3/S-2-33 - Pipe | 100YR | 9.34 | 0.00 | 1.51 | 0.00 | 0.00 | 0.00 |
| E3/S-2-33 - Weir: 1 | 100YR | 9.34 | 0.00 | 1.27 | 0.69 | 0.69 | 0.69 |
| IQ Overflow | 100YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| P1 | 100YR | 16.26 | -0.17 | 2.60 | 1.69 | 1.69 | 1.69 |
| 1-SLR | 10YR | 15.34 | 0.00 | 0.04 | 1.73 | 3.34 | 2.54 |
| 2-SLR | 10YR | 69.31 | 0.00 | 0.08 | 1.53 | 1.53 | 1.53 |
| A - Pipe | 10YR | 1.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| A - Weir: 1 | 10YR | 0.36 | 0.00 | 0.00 | 6.24 | 6.24 | 6.24 |
| A - Weir: 2 | 10YR | 1.02 | 0.00 | 0.00 | 2.98 | 2.98 | 2.98 |
| B1-1 | 10YR | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| B1-2 | 10YR | 0.54 | 0.00 | 0.00 | 2.46 | 2.46 | 2.46 |
| C1 - Pipe | 10YR | 7.47 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| C1 - Weir: 1 | 10YR | 7.47 | 0.00 | 0.02 | 0.55 | 0.55 | 0.55 |
| C2 - Pipe | 10YR | 1.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C2 - Weir: 1 | 10YR | 0.56 | 0.00 | 0.00 | 5.64 | 5.64 | 5.64 |
| C2 - Weir: 2 | 10YR | 0.80 | 0.00 | 0.00 | 3.04 | 3.04 | 3.04 |
| C2-3 | 10YR | 0.80 | 0.00 | 0.00 | 3.04 | 3.04 | 3.04 |
| D - Pipe | 10YR | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D - Weir: 1 | 10YR | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D - Weir: 2 | 10YR | 0.42 | 0.00 | 0.00 | 2.95 | 2.95 | 2.95 |

| Link Name | Sim Name | Max Flow [cfs] | Min Flow [cfs] | Min/Max Delta Flow [cfs] | Max Us Velocity [fps] | Max Ds Velocity [fps] | Max Avg Velocity [fps] |
|---|---|---|---|---|---|---|---|
| D - Weir: 3 | 10YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E1 - Pipe | 10YR | 2.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E1 - Weir: 1 | 10YR | 0.71 | 0.00 | 0.00 | 6.38 | 6.38 | 6.38 |
| E1 - Weir: 2 | 10YR | 2.03 | 0.00 | 0.00 | 3.00 | 3.00 | 3.00 |
| E1 - Weir: 3 | 10YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E2 - Pipe | 10YR | 2.58 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| E2 - Weir: 1 | 10YR | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E2 - Weir: 2 | 10YR | 2.34 | 0.00 | 0.01 | 2.00 | 2.00 | 2.00 |
| E2 - Weir: 3 | 10YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E3/S-2-33 - Pipe | 10YR | 13.50 | 0.00 | 1.18 | 0.00 | 0.00 | 0.00 |
| E3/S-2-33 - Weir: 1 | 10YR | 13.50 | 0.00 | 1.06 | 0.88 | 0.88 | 0.88 |
| IQ Overflow | 10YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| P1 | 10YR | 13.68 | -0.11 | 2.26 | 1.42 | 1.42 | 1.42 |
| 1-SLR | 25YR | 32.55 | 0.00 | 0.05 | 2.22 | 4.11 | 3.16 |
| 2-SLR | 25YR | 99.76 | 0.00 | 0.09 | 1.72 | 1.72 | 1.72 |
| A - Pipe | 25YR | 3.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| A - Weir: 1 | 25YR | 0.45 | 0.00 | 0.00 | 7.79 | 7.79 | 7.79 |
| A - Weir: 2 | 25YR | 3.08 | 0.00 | 0.00 | 4.30 | 4.30 | 4.30 |
| B1-1 | 25YR | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| B1-2 | 25YR | 1.70 | 0.00 | 0.00 | 3.59 | 3.59 | 3.59 |
| C1 - Pipe | 25YR | 7.48 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| C1 - Weir: 1 | 25YR | 7.48 | 0.00 | -0.03 | 0.25 | 0.25 | 0.25 |
| C2 - Pipe | 25YR | 2.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C2 - Weir: 1 | 25YR | 0.70 | 0.00 | 0.00 | 7.15 | 7.15 | 7.15 |
| C2 - Weir: 2 | 25YR | 2.14 | 0.00 | 0.00 | 4.22 | 4.22 | 4.22 |
| C2-3 | 25YR | 2.14 | 0.00 | 0.00 | 4.22 | 4.22 | 4.22 |
| D - Pipe | 25YR | 1.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D - Weir: 1 | 25YR | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| D - Weir: 2 | 25YR | 1.11 | 0.00 | 0.00 | 4.09 | 4.09 | 4.09 |
| D - Weir: 3 | 25YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E1 - Pipe | 25YR | 7.20 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| E1 - Weir: 1 | 25YR | 0.88 | 0.00 | 0.00 | 7.99 | 7.99 | 7.99 |
| E1 - Weir: 2 | 25YR | 6.32 | 0.00 | 0.00 | 4.38 | 4.38 | 4.38 |
| E1 - Weir: 3 | 25YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E2 - Pipe | 25YR | 6.44 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| E2 - Weir: 1 | 25YR | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E2 - Weir: 2 | 25YR | 6.20 | 0.00 | 0.01 | 2.77 | 2.77 | 2.77 |
| E2 - Weir: 3 | 25YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| E3/S-2-33 - Pipe | 25YR | 11.71 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 |
| E3/S-2-33 - Weir: 1 | 25YR | 11.71 | 0.00 | -1.25 | 0.87 | 0.87 | 0.87 |
| IQ Overflow | 25YR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| P1 | 25YR | 16.72 | -0.14 | 2.37 | 1.74 | 1.74 | 1.74 |

# APPENDIX M
# Stage Storage

# BASIN A
# STAGE STORAGE DATA

| Name | Site | Lake Bank | Roadway | Offsite S.R 76 | Lake A1 | Lake A2 | Wetland 19 | | |
|---|---|---|---|---|---|---|---|---|---|
| Area | 7.5 | 0.5 | 2.7 | 0.5 | 2.3 | 0.9 | 0.6 | | |
| S. Elev | 10.14 | 8.04 | 10.14 | 11.54 | 8.04 | 8.04 | 10.04 | | |
| E. Elev | 13.54 | 11.04 | 13.04 | 12.54 | | | | | |
| Stage NAVD | Linear Storage ac-ft | Linear Storage ac-ft | Linear Storage ac-ft | Linear Storage ac-ft | Vert. Storage ac-ft | Vert. Storage ac-ft | Vert. Storage ac-ft | WQ* Storage ac-ft | Attenuation Storage ac-ft |
| 7.54 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 8.04 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 8.54 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.5 | 0.0 | 1.6 | 1.6 |
| **8.99** | **0.0** | **0.1** | **0.0** | **0.0** | **2.2** | **0.9** | **0.0** | **3.1** | 3.1 |
| 9.04 | 0.0 | 0.1 | 0.0 | 0.0 | 2.3 | 0.9 | 0.0 | 3.3 | 3.3 |
| 9.54 | 0.0 | 0.2 | 0.0 | 0.0 | 3.5 | 1.4 | 0.0 | 5.0 | 5.0 |
| 10.04 | 0.0 | 0.3 | 0.0 | 0.0 | 4.6 | 1.8 | 0.0 | 6.7 | 6.7 |
| 10.54 | 0.2 | 0.5 | 0.1 | 0.0 | 5.8 | 2.3 | 0.3 | 8.8 | 9.1 |
| 11.04 | 0.9 | 0.8 | 0.4 | 0.0 | 6.9 | 2.7 | 0.6 | 11.6 | 12.2 |
| 11.54 | 2.2 | 1.0 | 0.9 | 0.0 | 8.1 | 3.2 | 0.9 | 15.3 | 16.2 |
| 12.04 | 4.0 | 1.3 | 1.7 | 0.1 | 9.2 | 3.6 | 1.2 | 19.8 | 21.0 |
| 12.54 | 6.3 | 1.5 | 2.7 | 0.3 | 10.4 | 4.1 | 1.5 | 25.2 | 26.7 |
| 13.04 | 9.2 | 1.8 | 3.9 | 0.5 | 11.5 | 4.5 | 1.8 | 31.4 | 33.2 |
| 13.54 | 12.7 | 2.0 | 5.3 | 0.8 | 12.7 | 5.0 | 2.1 | 38.3 | 40.4 |

**Wetland areas are not included within water quality volume calculations.**

# CONSTRUCTION DRAWINGS FOR

# *BANYAN BAY*

## *PHASE 2C*

### MARTIN COUNTY, FLORIDA

STATE OF FLORIDA

LOCATION MAP

### SHEET INDEX

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2 KEY SHEET & PHASING PLAN
3 CLEARING AND EROSION CONTROL PH1-A
4 CLEARING AND EROSION CONTROL PH1-B
5 CLEARING AND EROSION CONTROL PH2-A
6 CLEARING AND EROSION CONTROL PH2-B
7 PAVING, DRAINAGE AND GRADING PLAN-A
8 PAVING DRAINAGE AND GRADING PLAN-B
9 DETAILS- PAVING, GRADING AND DRAINAGE
10 UTILITY PLANS-A
11 UTILITY PLANS -B
12 SEWER PROFILES
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14 DETAILS- WATER AND SANITARY
15 PROJECT SPECIFICATIONS
16 PROJECT SPECIFICATIONS
17 PROJECT SPECIFICATIONS

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|---|---|---|---|

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598
SEAL

COVER SHEET

BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR
FILE 1 COVER SHEET.dwg

Kimley»Horn
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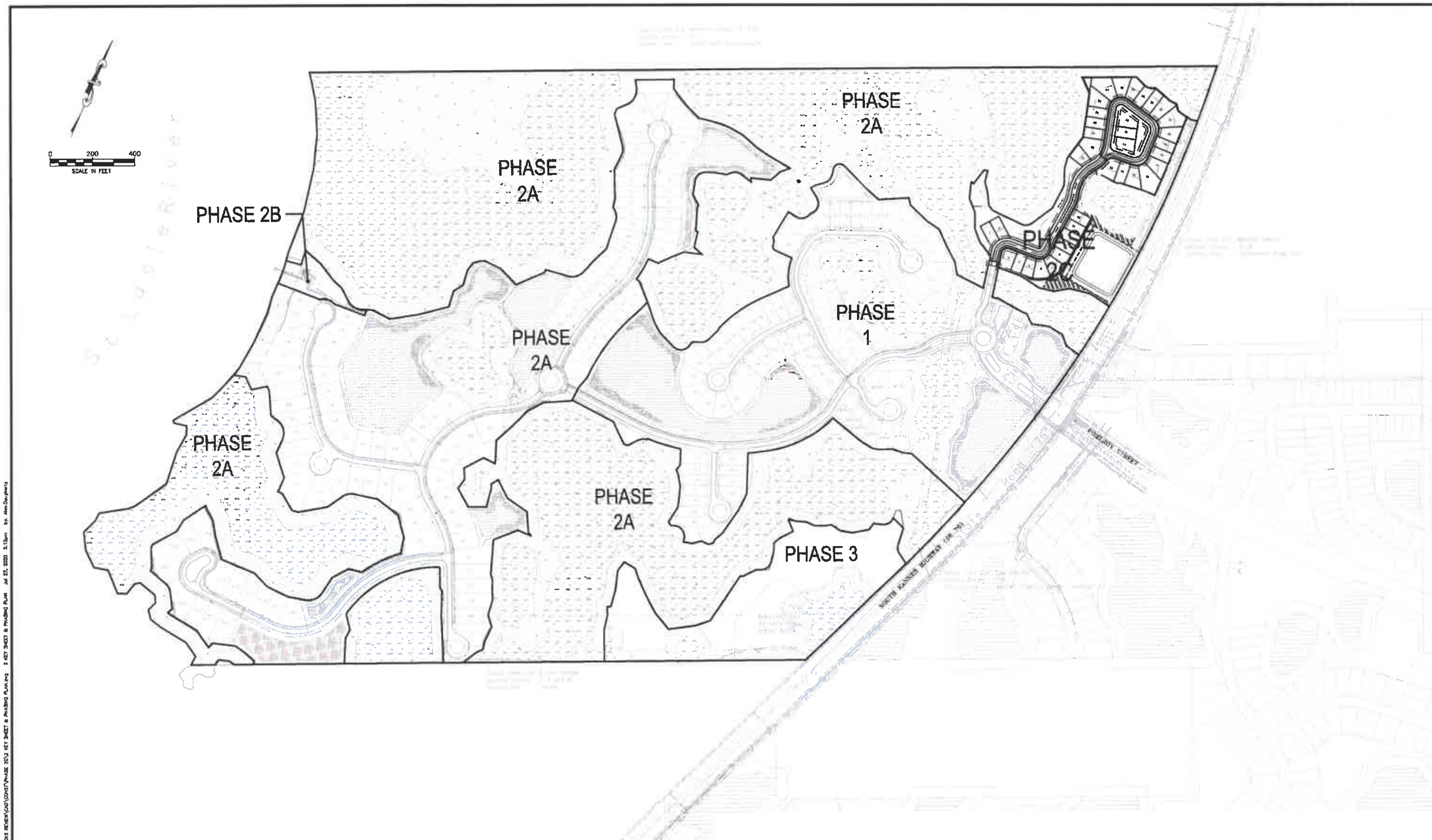


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PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
64598

SEAL

## KEY SHEET + PHASING PLAN

### BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

| | |
|---|---|
| SCALE | AS SHOWN |
| DESIGNED BY | SDS |
| DRAWN BY | SDS |
| CHECKED BY | PVR |

**Kimley»Horn**
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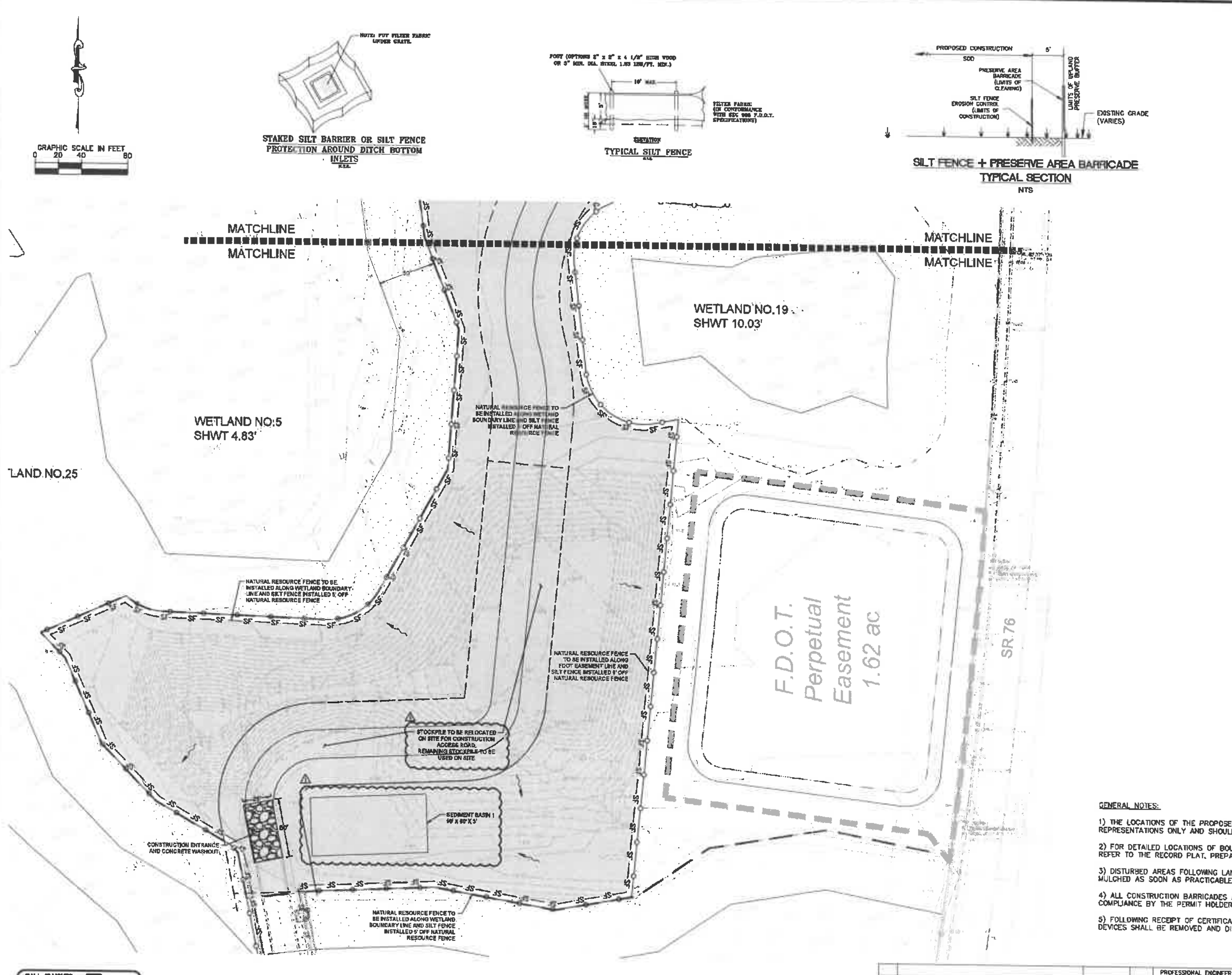
FILE 2 KEY SHEET & PHASING PLAN.dwg

DATE JUNE 2017
FILE & DRAWING NO. 041052000
SHEET 2 OF 17

Drawing name: K:\VRB_LDEV\041\041052 Banyan Bay\2015 REVIEW\CAD\CONST\PHASE 2C\2 KEY SHEET & PHASING PLAN.dwg 2 KEY SHEET & PHASING PLAN Jul 27, 2020 2:10pm by: Alex.Dougherty




## LEGEND

| | |
|---|---|
| —SF—SF—SF— | SILT FENCE |
| —o—o—o— | PRESERVE AREA BARRICADE |
| | PROPOSED LAKE |
| | EXISTING WETLAND |
| | 50' WETLAND UPLAND BUFFER |
| | LIMITS OF CLEARING |
| | CONSTRUCTION ENTRANCE AND TRUCK WASH DOWN AREA |
| | CONCRETE WASHOUT |

## B.M.P.'s (BEST MANAGEMENT PRACTICES)

The plan addresses the following areas:

1. General erosion control.
2. Protection of surface water quality during and after construction
3. Control of wind erosion.

The various techniques or actions identified under each section indicate the appropriate situation when the techniques should be employed. It should be noted that the measures identified on this plan are only suggested BMP(s). The contractor shall provide pollution prevention and erosion control measures as specified in FDOT Index #104 and as necessary for each specific application.

SECTION 1 GENERAL EROSION CONTROL

1.1 General erosion control BMPs shall be employed to minimize soil erosion and potential lake slope cave-ins. While the various techniques required will be site and plan specific, they should be employed as soon as possible during construction activities.

1.2 Cleared site development areas not continually scheduled for construction activities shall be covered with hay or overseeded and periodically watered sufficient to stabilize the temporary groundcover.

1.3 Slopes of banks of wet detention ponds shall be constructed not steeper than 4H:1V from top of bank to three feet below normal water level.

1.4 All grass slopes constructed steeper than 4H:1V shall be sodded as soon as practical after their construction.

1.5 Sod shall be placed for a 3-foot wide strip adjoining all curbing and around all inlets as required by plan. Sod shall be placed before silt barriers are removed.

1.6 Where required to prevent erosion from sheet flow across bare ground from entering a lake or swale, a temporary sediment sump shall be constructed. The temporary sediment sump shall remain in place until vegetation is established on the ground draining to the sump.

SECTION 2 PROTECTION OF SURFACE WATER QUALITY DURING & AFTER CONSTRUCTION

2.1 Surface water quality shall be maintained by employing the following BMPs in the construction planning and construction of all improvements.

2.2 Where practical, stormwater shall be conveyed by swales.

2.3 Erosion control measures shall be employed to minimize turbidity of surface waters located downstream of any construction activity. While the various measures required will be site specific, they shall be employed as needed in accordance with the following:

a) In general, erosion shall be controlled at the furthest practical upstream location.
b) Stormwater inlets shall be protected during construction as shown. Protection measures shall be employed as soon as practical during the various stages of inlet construction. Silt barriers shall remain in place until sodding around inlets is complete.

2.4 Heavy construction equipment parking and maintenance areas shall be designed to prevent oil, grease, and lubricants from entering site drainage features including stormwater collection and treatment systems. Contractors shall provide broad dikes, hay bales or silt screens around, and sediment sumps within, such areas as required to contain spills of oil, grease or lubricants. Contractors shall have available, and shall use, absorbent filter pads to clean up spills as soon as possible after occurrence.

2.5 Silt barriers, any silt which accumulates behind the barriers, and any fill used to anchor the barriers shall be removed promptly after the end of the maintenance period specified for the barriers.

SECTION 3 CONTROL OF WIND EROSION

3.1 Wind erosion shall be controlled by employing the following methods as necessary and appropriate:

a) Bare earth areas shall be watered during construction as necessary to minimize the transport of fugitive dust. It may be necessary to limit construction vehicle speed if bare earth has not been effectively watered. In no case shall fugitive dust be allowed to leave the site under construction.

b) As soon as practical after completion of construction, bare earth areas shall be vegetated.

c) At any time both during and after site construction that watering and/or vegetation are not effective in controlling wind erosion and/or transport of fugitive dust, other methods as are necessary for such control shall
be employed. These methods may include erection of dust control fences. If required, dust control fences shall be constructed in accordance with the detail for a silt fence, as shown, except the minimum height shall be 4 feet.

## GENERAL NOTES:

1) THE LOCATIONS OF THE PROPOSED SILT FENCE AND PRESERVE AREA BARRICADE(S) AS SHOWN HEREON ARE GRAPHICAL REPRESENTATIONS ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION.

2) FOR DETAILED LOCATIONS OF BOUNDARY LINES, RIGHT-OF-WAYS, EASEMENTS, LOT LINES, PRESERVE AREAS, BUFFERS, ETC. REFER TO THE RECORD PLAT, PREPARED BY GCY, INC., PROFESSIONAL SURVEYORS AND MAPPERS.

3) DISTURBED AREAS FOLLOWING LAND CLEARING AND/OR EARTHWORK OPERATIONS ARE TO BE SODDED OR SEEDED AND MULCHED AS SOON AS PRACTICABLE, BUT NOT LATER THAN 30 DAYS AFTER COMPLETION OF THE CONSTRUCTION ACTIVITY.

4) ALL CONSTRUCTION BARRICADES AND/OR SILT FENCES SHALL REMAIN IN PLACE AND BE MONITORED AND MAINTAINED FOR COMPLIANCE BY THE PERMIT HOLDER, DURING THE PERMITTED DEVELOPMENT ACTIVITIES.

5) FOLLOWING RECEIPT OF CERTIFICATE OF OCCUPANCY (C.O.) FOR THE PHASE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

TEMPORARY SEDIMENT BASIN SIZE AND CALCULATIONS
SIZE REQUIRED: (3,630 CU FT. PER DISTURBED ACRE)
TOTAL DISTURBED AREA: 8.21 ACRES
3,630 CU. FT. (x 8.21 ACRES) = 29,802 CU FT.
SIZE PROVIDED: 32,400 CU FT.

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| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | PER COUNTY COMMENTS | 2020-04-27 | AMD |

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84596
SEAL

# CLEARING AND EROSION CONTROL PH1-A

## BANYAN BAY - PHASE 2C
## MARTIN COUNTY, FLORIDA

SCALE: AS SHOWN
DESIGNED BY: SDS
DRAWN BY: SDS
CHECKED BY: PVR
FILE: 3 CLEARING AND EROSION CONTROL PH1-A.dwg

Kimley»Horn
445 24TH STREET, SUITE 200, VERO BEACH, FL 32960
PHONE (772) 794-4100 FAX (772) 794-4130
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CA 00000696

DATE: JUNE 2017
FILE & DRAWING NO.: 041052000
SHEET: 3 OF 17

GRAPHIC SCALE IN FEET
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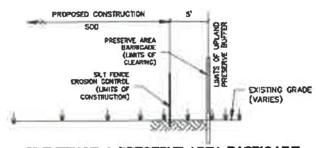
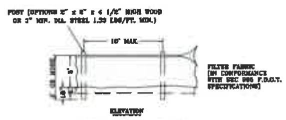
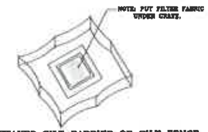



**SILT FENCE + PRESERVE AREA BARRICADE TYPICAL SECTION**
NTS

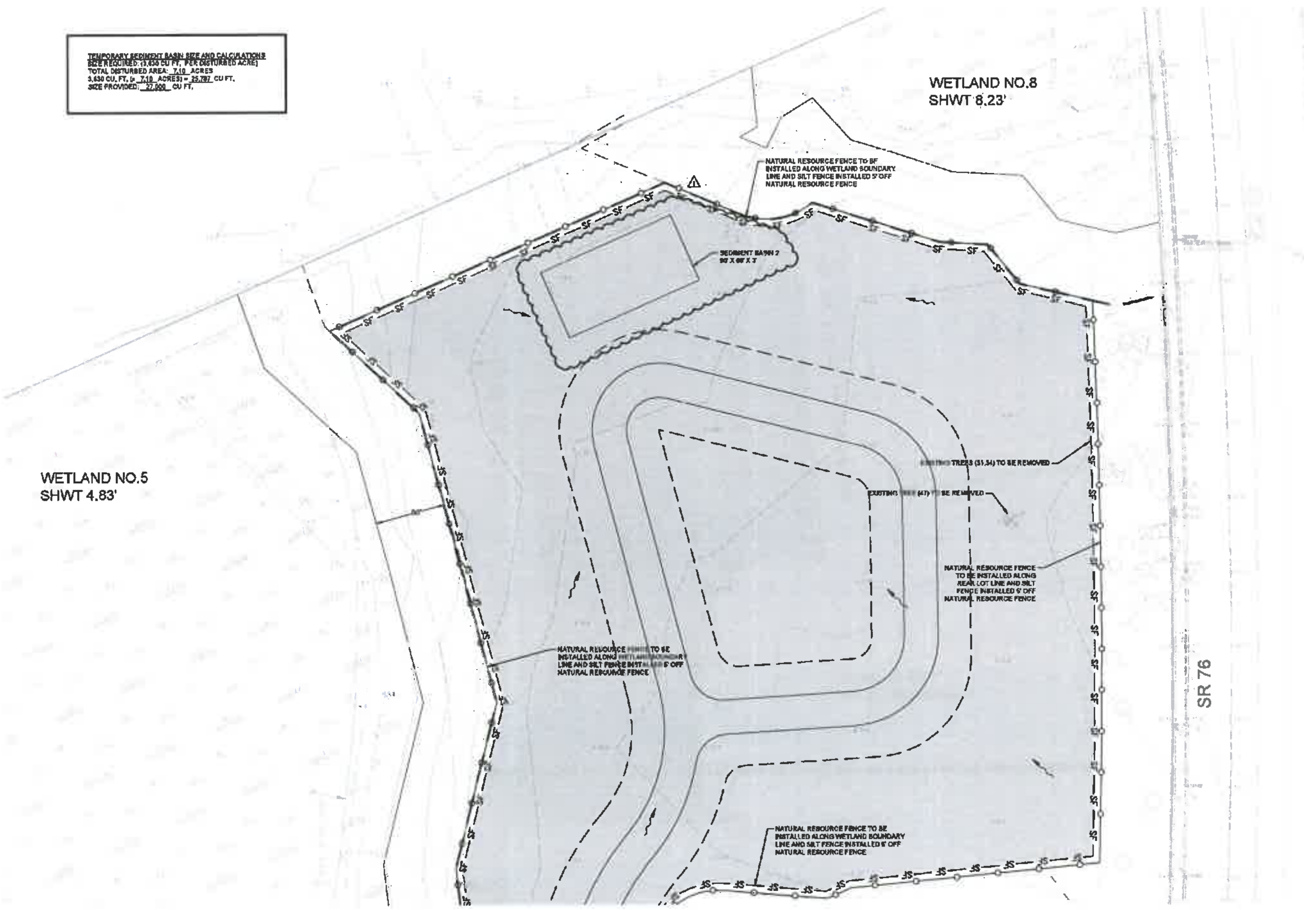



**TYPICAL SILT FENCE**
NTS




**STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS**
NTS

**TEMPORARY SEDIMENT BASIN: SIZE AND CALCULATIONS**
SIZE REQUIRED: (3,630 CU FT. PER DISTURBED ACRE)
TOTAL DISTURBED AREA: 7.10 ACRES
3,630 CU. FT. (x 7.10 ACRES) = 25,797 CU FT.
SIZE PROVIDED: 27,000 CU FT.




## LEGEND.

| | |
|---|---|
| —SF—SF—SF— | SILT FENCE |
| —o—o—o— | PRESERVE AREA BARRICADE |
| | PROPOSED LAKE |
| | EXISTING WETLAND |
| | 50' WETLAND UPLAND BUFFER |
| | LIMITS OF CLEARING |
| | CONSTRUCTION ENTRANCE AND TRUCK WASH DOWN AREA |
| | CONCRETE WASHOUT |

## B.M.P.'s (BEST MANAGEMENT PRACTICES)

The plan addresses the following areas:

1. General erosion control.
2. Protection of surface water quality during and after construction
3. Control of wind erosion.

The various techniques or actions identified under each section indicate the appropriate situation when the techniques should be employed. It should be noted that the measures identified on this plan are only suggested BMP(s). The contractor shall provide pollution prevention and erosion control measures as specified in FDOT index #104 and as necessary for each specific application.

SECTION 1 GENERAL EROSION CONTROL

1.1 General erosion control BMPs shall be employed to minimize soil erosion and potential lake slope cave-ins. While the various techniques required will be site and plan specific, they should be employed as soon as possible during construction activities.

1.2 Cleared site development areas not continually scheduled for construction activities shall be covered with hay or overseeded and periodically watered sufficient to stabilize the temporary groundcover.

1.3 Slopes of banks of wet detention ponds shall be constructed not steeper than 4H:1V from top of bank to three feet below normal water level.

1.4 All grass slopes constructed steeper than 4H:1V shall be sodded as soon as practical after their construction.

1.5 Sod shall be placed for a 3-foot wide strip adjoining all curbing and around all inlets as required by plan. Sod shall be placed before silt barriers are removed.

1.6 Where required to prevent erosion from sheet flow across bare ground from entering a lake or swale, a temporary sediment sump shall be constructed. The temporary sediment sump shall remain in place until vegetation is established on the ground draining to the sump.

SECTION 2 PROTECTION OF SURFACE WATER QUALITY DURING & AFTER CONSTRUCTION

2.1 Surface water quality shall be maintained by employing the following BMPs in the construction planning and construction of all improvements.

2.2 Where practical, stormwater shall be conveyed by swales.

2.3 Erosion control measures shall be employed to minimize turbidity of surface waters located downstream of any construction activity. While the various measures required will be site specific, they shall be employed as needed in accordance with the following:

a) In general, erosion shall be controlled at the furthest practical upstream location.
b) Stormwater inlets shall be protected during construction as shown. Protection measures shall be employed as soon as practical during the various stages of inlet construction. Silt barriers shall remain in place until sodding around inlets is complete.

2.4 Heavy construction equipment parking and maintenance areas shall be designed to prevent oil, grease, and lubricants from entering site drainage features including stormwater collection and treatment systems. Contractors shall provide broad dikes, hay bales or silt screens around, and sediment sumps within, such areas as required to contain spills of oil, grease or lubricants. Contractors shall have available, and shall use, absorbent filter pads to clean up spills as soon as possible after occurrence.

2.5 Silt barriers, any silt which accumulates behind the barriers, and any fill used to anchor the barriers shall be removed promptly after the end of the maintenance period specified for the barriers.

SECTION 3 CONTROL OF WIND EROSION

3.1 Wind erosion shall be controlled by employing the following methods as necessary and appropriate:

a) Bare earth areas shall be watered during construction as necessary to minimize the transport of fugitive dust. It may be necessary to limit construction vehicle speed if bare earth has not been effectively watered. In no case shall fugitive dust be allowed to leave the site under construction.

b) As soon as practical after completion of construction, bare earth areas shall be vegetated.

c) At any time both during and after site construction that watering and/or vegetation are not effective in controlling wind erosion and/or transport of fugitive dust, other methods as are necessary for such control shall
be employed. These methods may include erection of dust control fences. If required, dust control fences shall be constructed in accordance with the detail for a silt fence, as shown, except the minimum height shall be 4 feet.

GENERAL NOTES:

1) THE LOCATIONS OF THE PROPOSED SILT FENCE AND PRESERVE AREA BARRICADE(S) AS SHOWN HEREON ARE GRAPHICAL REPRESENTATIONS ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION.

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4) ALL CONSTRUCTION BARRICADES AND/OR SILT FENCES SHALL REMAIN IN PLACE AND BE MONITORED AND MAINTAINED FOR COMPLIANCE BY THE PERMIT HOLDER, DURING THE PERMITTED DEVELOPMENT ACTIVITIES.

5) FOLLOWING RECEIPT OF CERTIFICATE OF OCCUPANCY (C.O.) FOR THE PHASE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

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| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| ⚠ | PER COUNTY COMMENTS | 2020-04-27 | AMD |

PROFESSIONAL ENGINEER
DIANE BERGSTRESSER, P.E.
84586
SEAL

## CLEARING AND EROSION CONTROL PH1-B

## BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

| | |
|---|---|
| SCALE | AS SHOWN |
| DESIGNED BY | SDS |
| DRAWN BY | SDS |
| CHECKED BY | PVR |

Kimley»Horn
445 24TH STREET, SUITE 200, VERO BEACH, FL 32960
PHONE (772) 794-4100 FAX (772) 794-4130
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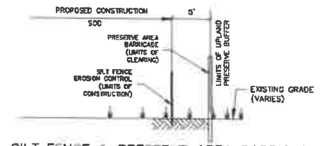
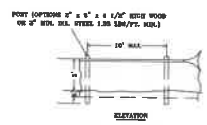
FILE 3 CLEARING AND EROSION CONTROL PH1-A.dwg

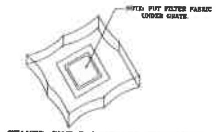
DATE JUNE 2017
FILE & DRAWING NO. 041052000
SHEET 4 OF 17




SILT FENCE & PRESERVE AREA BARRICADE
TYPICAL SECTION
NTS




TYPICAL SILT FENCE



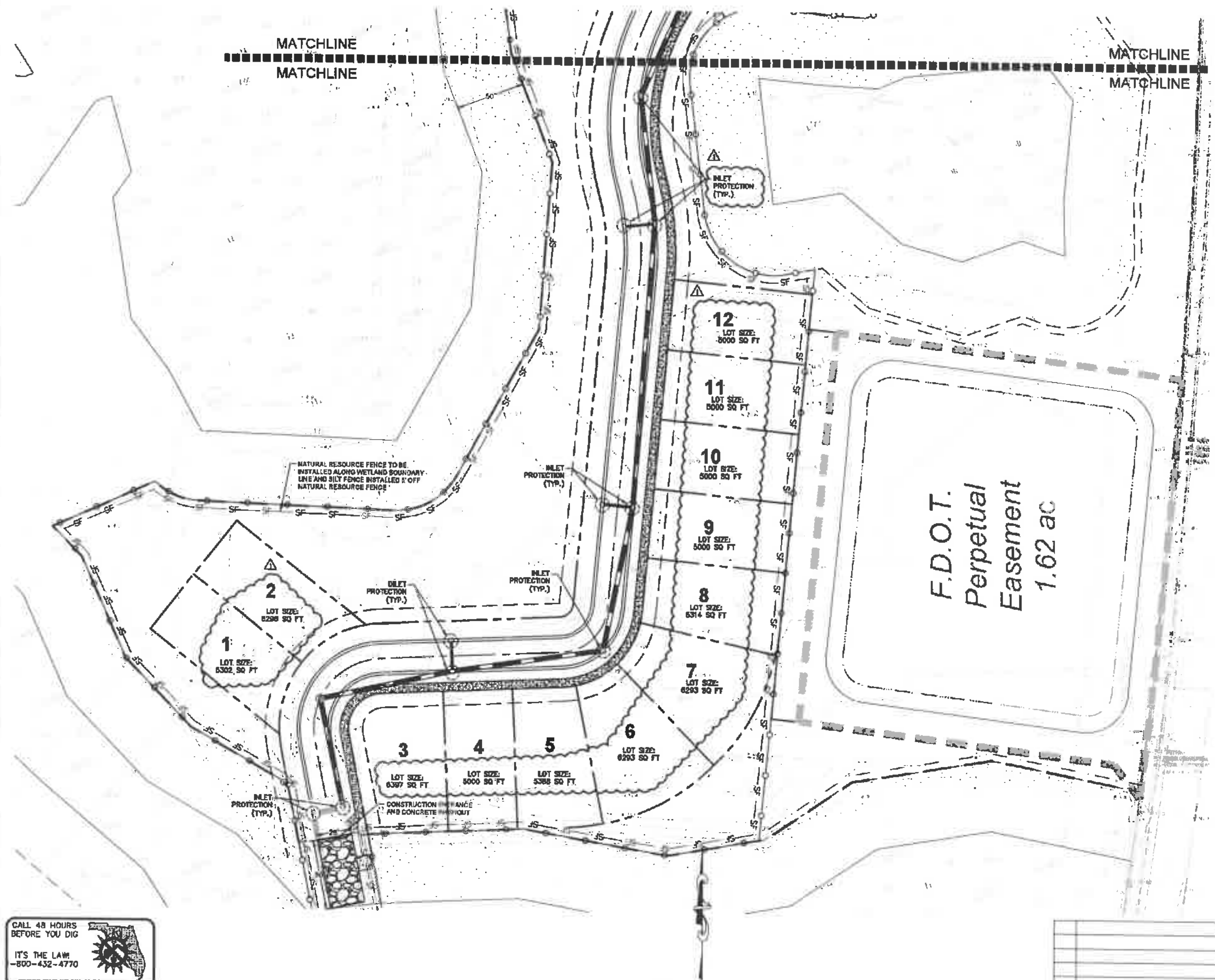
STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

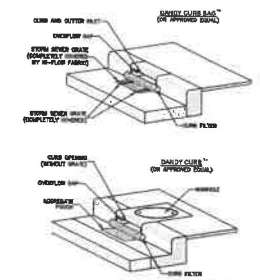
NOTES:

1. PROPERTY CORNERS SHALL BE LOCATED BY A LICENSED LAND SURVEYOR AND CLEARLY MARKED IN THE FIELD PRIOR TO THE ENGINEERING DEPARTMENT'S PRE-CONSTRUCTION MEETING FOR SITE DEVELOPMENT.
2. AUTHORIZATION TO INSTALL EROSION CONTROL DEVICES AND PRESERVE BARRICADES WILL BE GRANTED AT THE PRE-CONSTRUCTION MEETING. THIS AUTHORIZATION SHALL BE POSTED ON THE SITE, IN THE PERMIT BOX, ITS LOCATION SHOWN ELSEWHERE ON THIS PAGE.
3. NO ADDITIONAL LAND CLEARING SHALL COMMENCE UNTIL A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL BARRICADES HAS BEEN OBTAINED.
4. ALL CONSTRUCTION BARRICADES AND SILT FENCES WILL REMAIN IN PLACE AND BE MONITORED FOR COMPLIANCE BY THE PERMIT HOLDER DURING THE PERMITTED DEVELOPMENT ACTIVITIES.
5. PRIOR TO SCHEDULING A FINAL ENVIRONMENTAL INSPECTION FOR THE INFRASTRUCTURE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

## LEGEND

- SF — SF — SF: SILT FENCE
- PRESERVE AREA BARRICADE
- PROPOSED INLET PROTECTION
- EXISTING WETLAND
- 50' WETLAND UPLAND BUFFER
- CONSTRUCTION ENTRANCE AND TRUCK WASH DOWN AREA
- CONCRETE WASHOUT
- PROP. DRAINAGE INLET WITH PIPE
- PROP. DRAINAGE MANHOLE WITH PIPE




CURB INLET SEDIMENT CONTROL

## B.M.P.'s (BEST MANAGEMENT PRACTICES)

The plan addresses the following areas:

1. General erosion control.
2. Protection of surface water quality during and after construction
3. Control of wind erosion.

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SECTION 1 GENERAL EROSION CONTROL

1.1 General erosion control BMPs shall be employed to minimize soil erosion and potential lake slope cave-ins. While the various techniques required will be site and plan specific, they should be employed as soon as possible during construction activities.

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PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598
SEAL

# CLEARING AND EROSION CONTROL PH2-A

## BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

Kimley»Horn
445 24TH STREET, SUITE 200, VERO BEACH, FL 32960
PHONE (772) 794-4100 FAX (772) 794-4130
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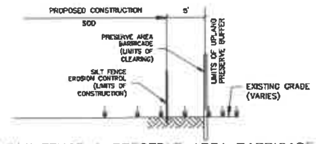
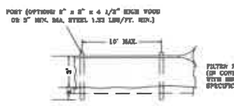
CA 00000696

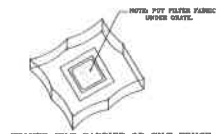
| | |
|---|---|
| SCALE | AS SHOWN |
| DESIGNED BY | SDS |
| DRAWN BY | SDS |
| CHECKED BY | PVR |
| FILE | & CLEARING AND EROSION CONTROL PH2.dwg |
| DATE | JUNE 2017 |
| FILE & DRAWING NO. | 041052000 |
| SHEET | 5 of 17 |




SILT FENCE & PRESERVE AREA BARRICADE TYPICAL SECTION
NTS




TYPICAL SILT FENCE



STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS

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- SF — SF — SF: SILT FENCE
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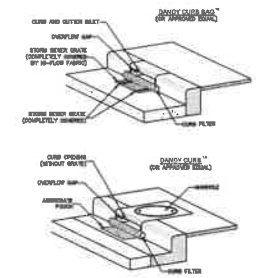


CURB INLET SEDIMENT CONTROL

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SECTION 3 CONTROL OF WIND EROSION

3.1 Wind erosion shall be controlled by employing the following methods as necessary and appropriate:

a) Bare earth areas shall be watered during construction as necessary to minimize the transport of fugitive dust. It may be necessary to limit construction vehicle speed if bare earth has not been effectively watered. In no case shall fugitive dust be allowed to leave the site under construction.

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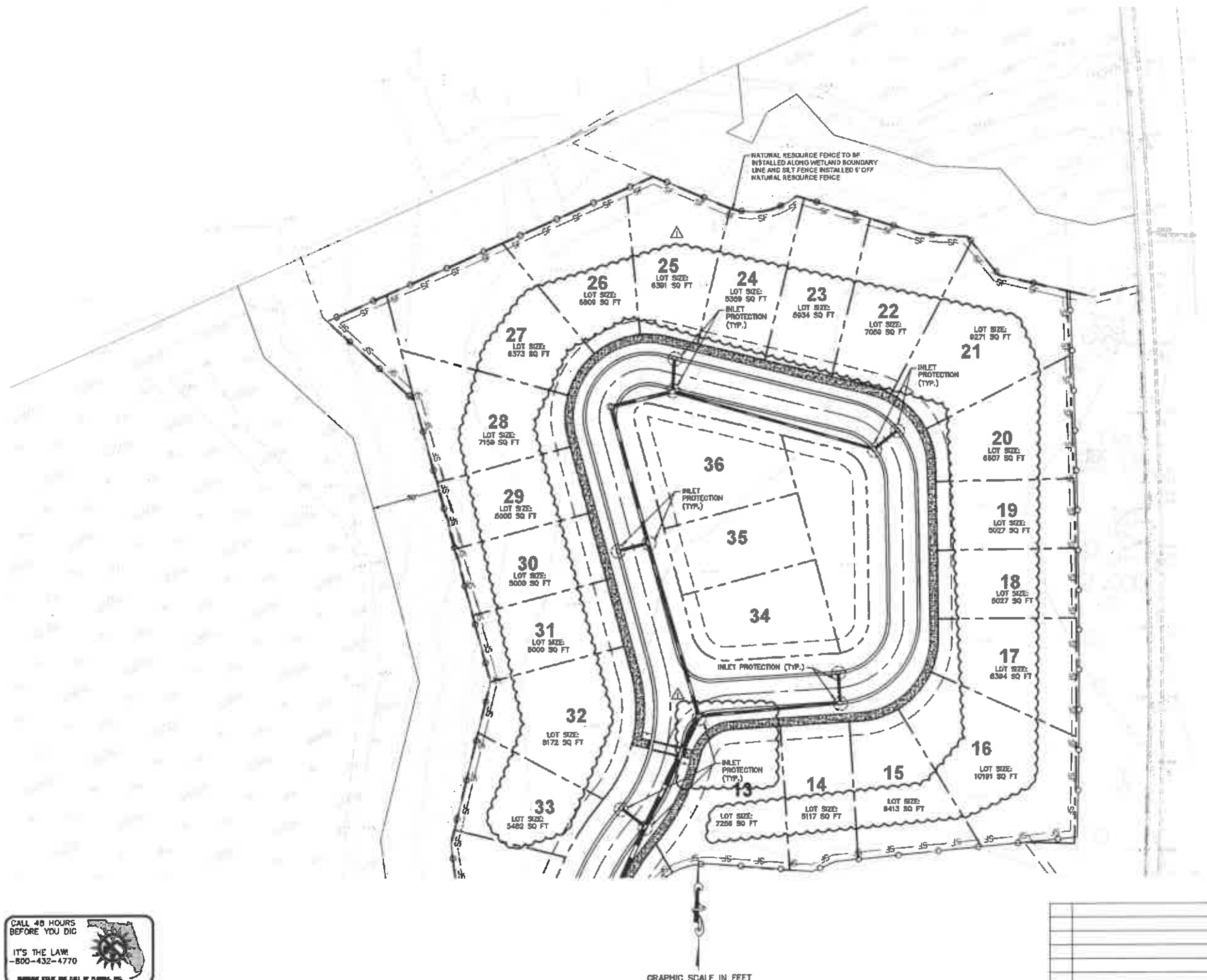


## GENERAL NOTES:

1) THE LOCATIONS OF THE PROPOSED SILT FENCE AND PRESERVE AREA BARRICADE(S) AS SHOWN HEREON ARE GRAPHICAL REPRESENTATIONS ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION.

2) FOR DETAILED LOCATIONS OF BOUNDARY LINES, RIGHT-OF-WAYS, EASEMENTS, LOT LINES, PRESERVE AREAS, BUFFERS, ETC. REFER TO THE RECORD PLAT, PREPARED BY GCY, INC., PROFESSIONAL SURVEYORS AND MAPPERS.

3) DISTURBED AREAS FOLLOWING LAND CLEARING AND/OR EARTHWORK OPERATIONS ARE TO BE SODDED OR SEEDED AND MULCHED AS SOON AS PRACTICABLE, BUT NOT LATER THAN 30 DAYS AFTER COMPLETION OF THE CONSTRUCTION ACTIVITY.

4) ALL CONSTRUCTION BARRICADES AND/OR SILT FENCES SHALL REMAIN IN PLACE AND BE MONITORED AND MAINTAINED FOR COMPLIANCE BY THE PERMIT HOLDER, DURING THE PERMITTED DEVELOPMENT ACTIVITIES.

5) FOLLOWING RECEIPT OF CERTIFICATE OF OCCUPANCY (C.O.) FOR THE PHASE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

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| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | PER COUNTY COMMENTS | 2020-04-27 | AMD |

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598
SEAL

# CLEARING AND EROSION CONTROL PH2-B

## BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

| | | | |
|---|---|---|---|
| SCALE | AS SHOWN | DATE | JUNE 2017 |
| DESIGNED BY | SDS | FILE & DRAWING NO. | 041052000 |
| DRAWN BY | SDS | SHEET | 6 OF 17 |
| CHECKED BY | PVR | | |

Kimley»Horn
445 24TH STREET, SUITE 200, VERO BEACH, FL 32960
PHONE (772) 794-4100 FAX (772) 794-4130
CA 00000696

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FILE 6 CLEARING AND EROSION CONTROL PH2.dwg

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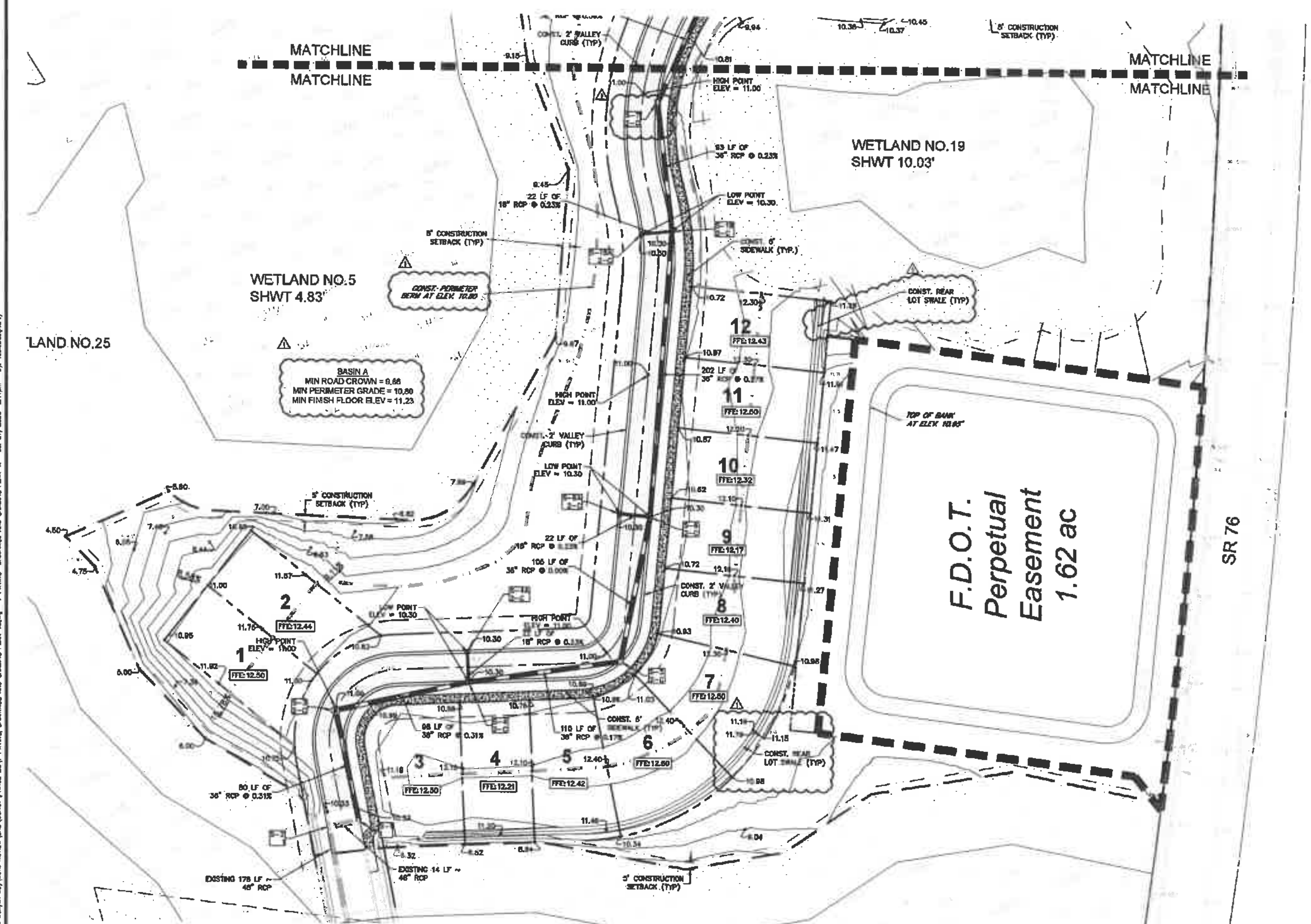
Drawing name: K:\VRB_LDEV\041\041002 Banyan Bay\2019 REVIEW\CAD\CONST\PHASE 2C\6 CLEARING AND EROSION CONTROL PH2.dwg 6 CLEARING AND EROSION CONTROL PH2-B Jul 27, 2020 2:10pm by: Alex.Daugherty




## LEGEND

- x 0.0 — EXIST. GRADE
- 11.32 — PROP. GRADE
- PROP. BASIN LINE
- PROP. BERM PERIMETER
- RIGHT-OF-WAY LINE
- LOT LINE
- LOT DIVISION RIGHT-OF-WAY LINE
- ROAD CENTER LINE
- 100' @ 0.4% — FLOW DIRECTION W/SLOPE
- PROP. ASPHALT
- PROP. CONC. SIDEWALK
- EXISTING WETLAND
- 50' WETLAND UPLAND BUFFER
- S-01 / 2C — STRUCTURE NUMBER / PHASE

GRAPHIC SCALE IN FEET
0 20 40 80

### DRAINAGE STRUCTURE TABLE

| NO. | STATION/OFFSET | STRUCTURE TYPE | RIM | INVERT |
|---|---|---|---|---|
| S-1 | 99+69.90 (10.58 RT) | EXISTING INLET USF 5106-6149 | 10.23 | 1.00(N) 0.93(W) |
| S-2 | 99+90.10 (-11.44 LT) | EXISTING INLET USF 5106-6149 | 10.21 | 0.92(E) |
| S-3 | 100+71.49 (0.00) | MANHOLE USF 420-C | 11.00 | 1.25(S) 1.25(E) |
| S-4 | 101+78.14 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(N) 1.54(W) 1.54(E) |
| S-4A | 101+78.14 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(S) |
| S-5 | 102+82.26 (11.00 RT) | STORM INLET USF 5106-6149 | 10.79 | 1.74(W) 1.74(N) |
| S-6 | 103+81.66 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(W) 1.74(S) 2.22(N) |
| S-6A | 103+81.66 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(E) |
| S-7 | 106+77.40 (11.00 RT) | STORM INLET USF 5106-6149 | 10.77 | 3.08(S) 3.08(NE) |
| S-8 | 107+83.95 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 3.47(SW) 3.47(NE) 5.95(NW) |
| S-8A | 107+83.95 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(SE) |
| S-9 | 108+74.93 (7.23 RT) | STORM INLET USF 5106-6149 | 10.85 | 3.63(SW) 4.63(E) 4.63(N) |
| S-10 | 109+83.07 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(N) 5.95(W) |
| S-10A | 109+83.07 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(S) |
| S-12 | 111+98.32 (7.13 RT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(SW) |
| S-12A | 111+98.30 (-14.87 LT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(NE) 5.95(W) |
| S-13 | 201+49.84 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(W) 4.87(E) 4.87(N) |

### DRAINAGE STRUCTURE TABLE

| NO. | STATION/OFFSET | STRUCTURE TYPE | RIM | INVERT |
|---|---|---|---|---|
| S-13A | 201+49.84 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(E) |
| S-14 | 202+57.18 (7.05 RT) | MANHOLE USF 420-C | 10.85 | 5.50(S) 5.52(E) |
| S-15 | 113+60.56 (-13.05 LT) | STORM INLET USF 5106-6149 | 11.10 | 5.95(N) 5.75(E) 5.95(W) |
| S-15A | 113+64.99 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(S) |
| S-16 | 105+81.85 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(W) 2.77(S) 2.87(N) |
| S-16A | 105+81.85 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(E) |

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PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598
SEAL

## PAVING, DRAINAGE AND GRADING PLAN-A

# BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR
FILE 7 PAVING, DRAINAGE AND GRADING PLAN-A.dwg

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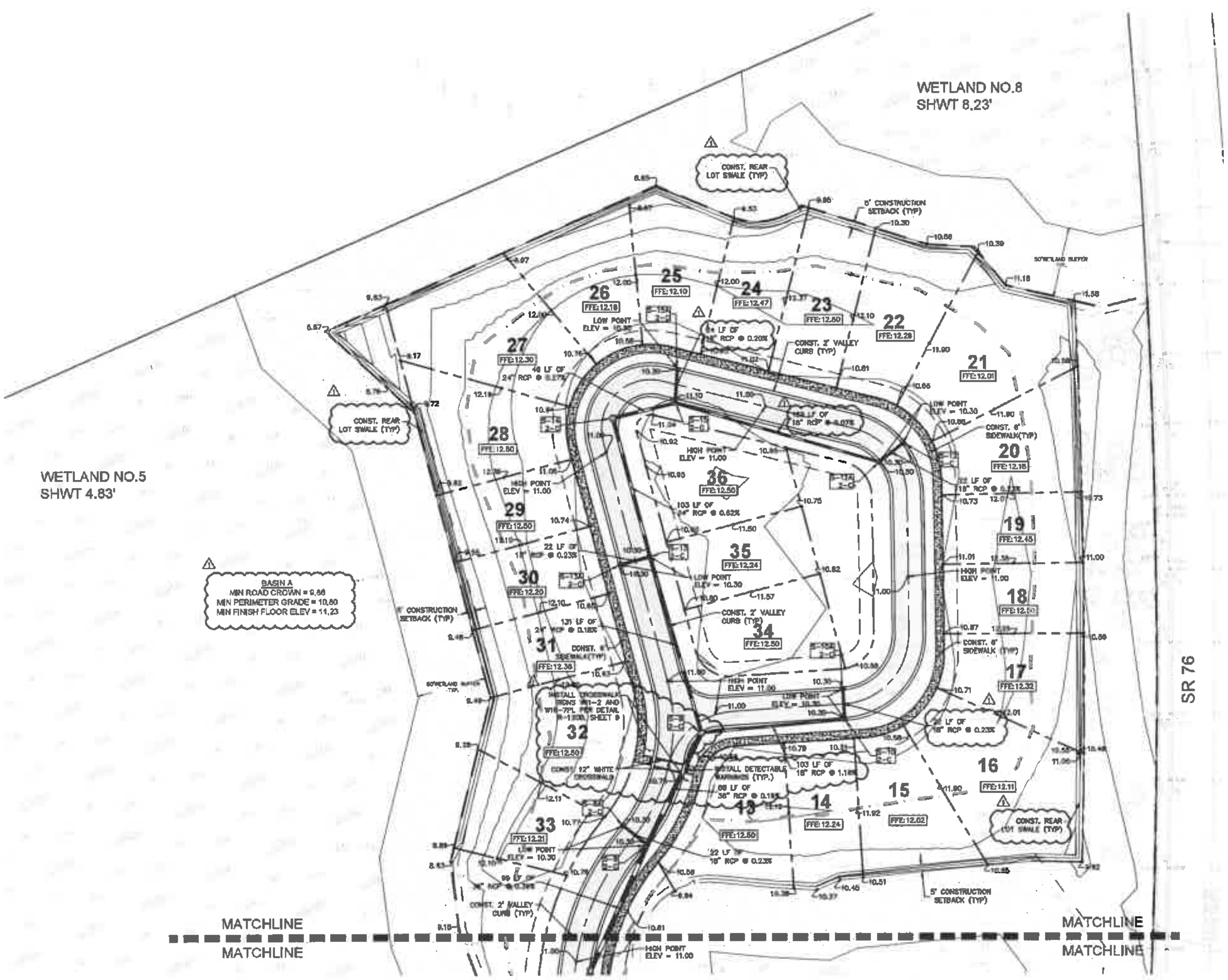
SHEET 7 OF 17




## LEGEND

| Symbol | Description |
|---|---|
| x 0.0 | EXIST. GRADE |
| 11.32 | PROP. GRADE |
| | PROP. BASIN LINE |
| | PROP. BERM PERIMETER |
| | RIGHT-OF-WAY LINE |
| | LOT LINE |
| | LOT DIVISION RIGHT-OF-WAY LINE |
| | ROAD CENTER LINE |
| 100' @ 0.4% | FLOW DIRECTION W/SLOPE |
| | PROP. ASPHALT |
| | PROP. CONC. SIDEWALK |
| | EXISTING WETLAND |
| | 50' WETLAND UPLAND BUFFER |
| S-01 / 2C | STRUCTURE NUMBER / PHASE |

GRAPHIC SCALE IN FEET
0 20 40 80

### DRAINAGE STRUCTURE TABLE

| NO. | STATION/OFFSET | STRUCTURE TYPE | RIM | INVERT |
|---|---|---|---|---|
| S-1 | 99+85.90 (10.50 RT) | EXISTING INLET USF 5106-6149 | 10.23 | 1.00(N) 0.93(W) |
| S-2 | 99+90.19 (-11.44 LT) | EXISTING INLET USF 5106-6149 | 10.21 | 0.92(E) |
| S-3 | 100+71.49 (0.00 ) | MANHOLE USF 420-C | 11.00 | 1.25(S) 1.25(E) |
| S-4 | 101+78.14 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(N) 1.54(W) 1.54(E) |
| S-4A | 101+78.14 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(S) |
| S-5 | 102+82.26 (11.00 RT) | STORM INLET USF 5106-6149 | 10.79 | 1.74(W) 1.74(N) |
| S-6 | 103+81.00 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(W) 1.74(S) 2.22(N) |
| S-6A | 103+81.00 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(E) |
| S-7 | 105+77.40 (11.00 RT) | STORM INLET USF 5106-6149 | 10.77 | 3.06([illegible]) 3.06(NE) |
| S-8 | 107+83.95 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 3.47(SW) 3.47(NE) 5.95(NW) |
| S-8A | 107+83.95 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(SE) |
| S-9 | 108+74.93 (7.23 RT) | STORM INLET USF 5106-6149 | 10.65 | 3.83(SW) 4.53(E) 4.53(N) |
| S-10 | 109+83.07 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(N) 5.95(W) |
| S-10A | 109+83.07 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(S) |
| S-12 | 111+98.32 (7.13 RT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(SW) |
| S-12A | 111+98.20 (-14.87 LT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(NE) 5.95(W) |
| S-13 | 201+49.84 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(W) 4.87(S) 4.87(N) |

### DRAINAGE STRUCTURE TABLE

| NO. | STATION/OFFSET | STRUCTURE TYPE | RIM | INVERT |
|---|---|---|---|---|
| S-13A | 201+49.84 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(E) |
| S-14 | 202+57.18 (7.05 RT) | MANHOLE USF 420-C | 10.95 | 5.50(S) 5.52(E) |
| S-15 | 113+60.98 (-13.05 LT) | STORM INLET USF 5106-6149 | 11.15 | 5.96(N) 5.75(E) 5.95(W) |
| S-15A | 113+64.99 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(S) |
| S-19 | 105+81.85 (11.00 RT) | STORM INLET USF 5106-6149 | 10.30 | 5.95(W) 2.77(S) 2.87(N) |
| S-19A | 105+81.85 (-11.00 LT) | STORM INLET USF 5106-6149 | 10.30 | 6.00(E) |

# PAVING DRAINAGE AND GRADING PLAN-B

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84598

## BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR
FILE 7 PAVING, DRAINAGE AND GRADING PLAN-A.dwg

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DATE JUNE 2017
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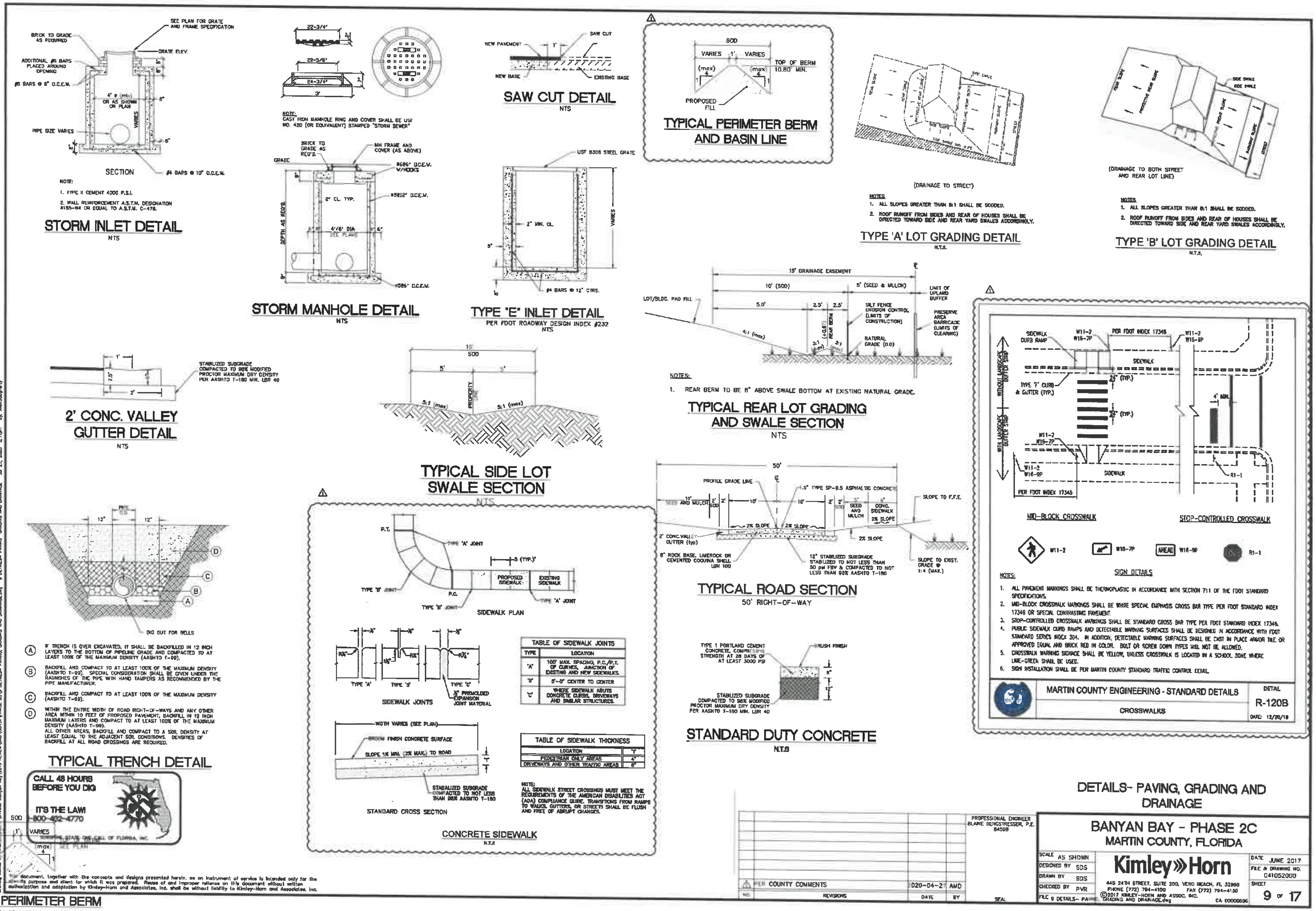
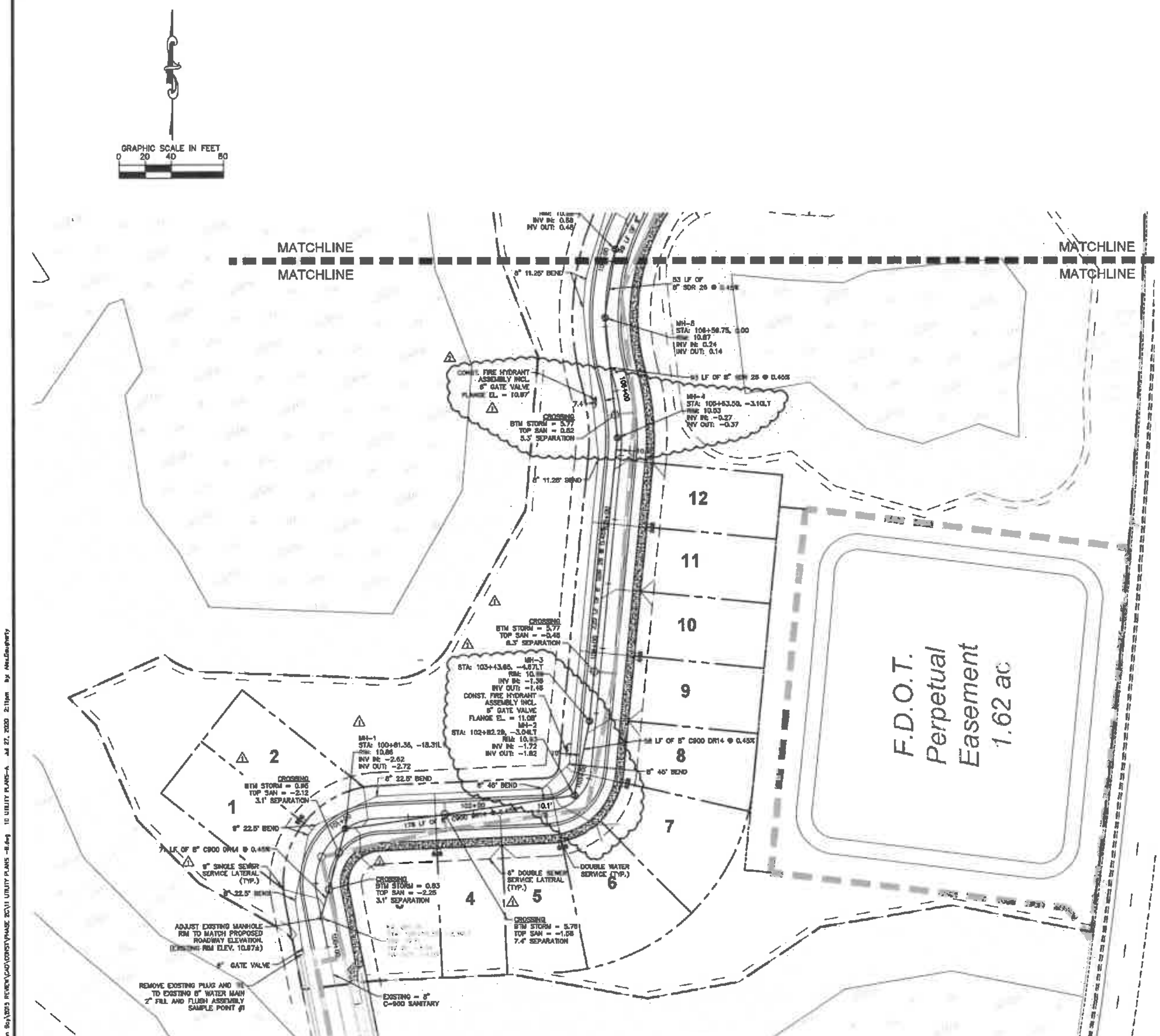



TYPICAL PERIMETER BERM AND BASIN LINE




## LEGEND

- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- FIRE HYDRANT
- FLUSHING HYDRANT
- SAMPLE POINT
- GATE VALVE
- 6" SANITARY LATERAL AT 1.0% SLOPE Min.

SANITARY SEWER STRUCTURE TABLE

| NO. | STATION/OFFSET | RIM | INVERT IN | INVERT OUT |
|---|---|---|---|---|
| EX. MH-16 | 100+18.35 (2.38 LT) | 10.71 | -3.04 (N) | -4.03 (S) |
| MH-1 | 100+81.36 (18.31 LT) | 10.86 | -2.62 (E) | -2.72 (S) |
| MH-2 | 102+82.29 (3.04 LT) | 10.93 | -1.72 (N) | -1.82 (W) |
| MH-3 | 103+43.65 (4.67 LT) | 10.56 | -1.36 (N) | -1.46 (S) |
| MH-4 | 105+63.50 (3.10 LT) | 10.53 | -0.27 (N) | -0.37 (S) |
| MH-5 | 106+58.75 (0.00) | 10.87 | 0.24 (N) | 0.14 (S) |
| MH-6 | 107+09.75 (0.00) | 10.86 | 0.58 (NE) | 0.48 (S) |
| MH-7 | 109+09.71 (3.72 LT) | 10.54 | 1.13 (N) | 1.03 (SW) |
| MH-8 | 200+38.02 (2.58 RT) | 10.83 | 1.52 (E)<br>1.52 (N) | 1.42 (S) |
| MH-9 | 109+87.18 (0.00) | 10.52 | 2.22 (NE) | 2.12 (W) |
| MH-10 | 110+49.82 (0.00) | 10.72 | 2.54 (N) | 2.44 (SW) |
| MH-11 | 111+75.57 (0.00) | 10.60 | 3.20 (NW) | 3.10 (S) |
| MH-12 | 112+21.16 (0.00) | 10.58 | 3.40 (W) | 3.30 (SE) |
| MH-13 | 113+85.19 (0.00) | 10.55 | | 4.23 (E) |
| MH-14 | 202+38.46 (0.00) | 10.94 | | 3.43 (S) |

UTILITY PLANS-A

| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | PER COUNTY COMMENTS | 2020-04-2? | AMD |
| 2 | PER COUNTY COMMENTS | 2020-05-3? | AMD |

PROFESSIONAL ENGINEER BLAINE BERGSTRESSER, P.E. 64566

# BANYAN BAY - PHASE 2C

MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR

Kimley»Horn

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DATE JUNE 2017
FILE & DRAWING NO. 041052000
SHEET 10 OF 17

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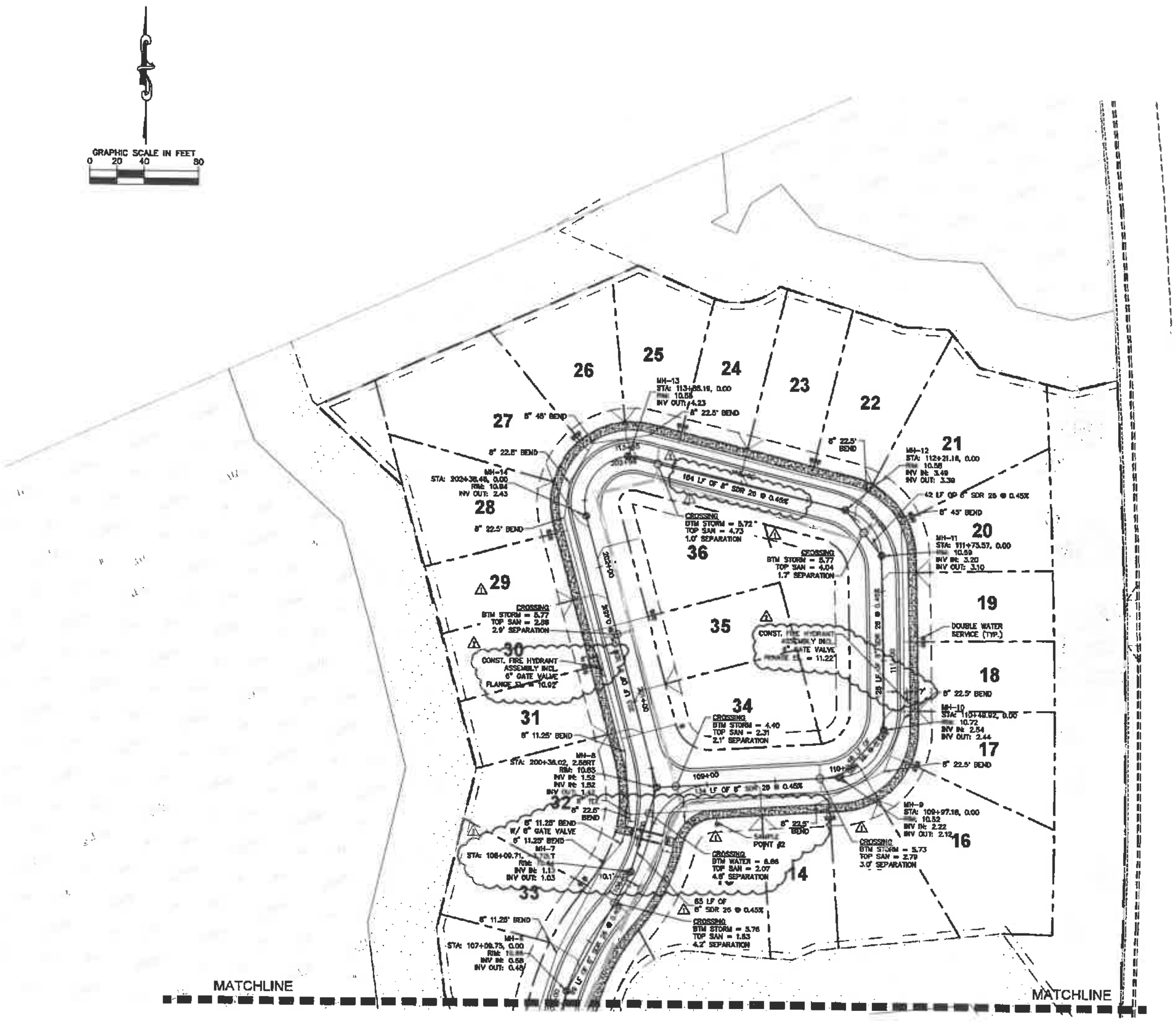


## LEGEND

- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- FIRE HYDRANT
- FLUSHING HYDRANT
- SAMPLE POINT
- GATE VALVE
- 6" SANITARY LATERAL AT 1.0% SLOPE Min.

△1

**SANITARY SEWER STRUCTURE TABLE**

| NO. | STATION/OFFSET | RIM | INVERT IN | INVERT OUT |
|---|---|---|---|---|
| EX. MH-18 | 100+18.35 (2.39 LT) | 10.71 | -3.94 (N) | -4.03 (S) |
| MH-1 | 100+81.39 (10.31 LT) | 10.96 | -2.62 (E) | -2.72 (S) |
| MH-2 | 102+82.29 (3.04 LT) | 10.93 | -1.72 (N) | -1.82 (W) |
| MH-3 | 103+43.65 (4.67 LT) | 10.59 | -1.36 (N) | -1.46 (S) |
| MH-4 | 105+63.50 (3.10 LT) | 10.53 | -0.27 (N) | -0.37 (S) |
| MH-5 | 106+56.75 (0.00) | 10.87 | 0.24 (N) | 0.14 (S) |
| MH-6 | 107+09.75 (0.00) | 10.86 | 0.58 (NE) | 0.48 (S) |
| MH-7 | 108+09.71 (3.72 LT) | 10.54 | 1.13 (N) | 1.03 (SW) |
| MH-8 | 200+38.02 (2.58 RT) | 10.83 | 1.52 (E) 1.52 (N) | 1.42 (S) |
| MH-9 | 109+97.18 (0.00) | 10.52 | 2.22 (NE) | 2.12 (W) |
| MH-10 | 110+48.92 (0.00) | 10.72 | 2.54 (N) | 2.44 (SW) |
| MH-11 | 111+75.57 (0.00) | 10.59 | 3.20 (NW) | 3.10 (S) |
| MH-12 | 112+21.18 (0.00) | 10.58 | 3.49 (W) | 3.39 (SE) |
| MH-13 | 113+85.19 (0.00) | 10.55 | | 4.23 (E) |
| MH-14 | 202+38.46 (0.00) | 10.94 | | 2.43 (S) |

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| △1 | PER COUNTY COMMENTS | 2020-04-27 | AMD |

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
64598

SEAL

# UTILITY PLANS -B

## BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR
FILE 11 UTILITY PLANS -B.dwg

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DATE JUNE 2017
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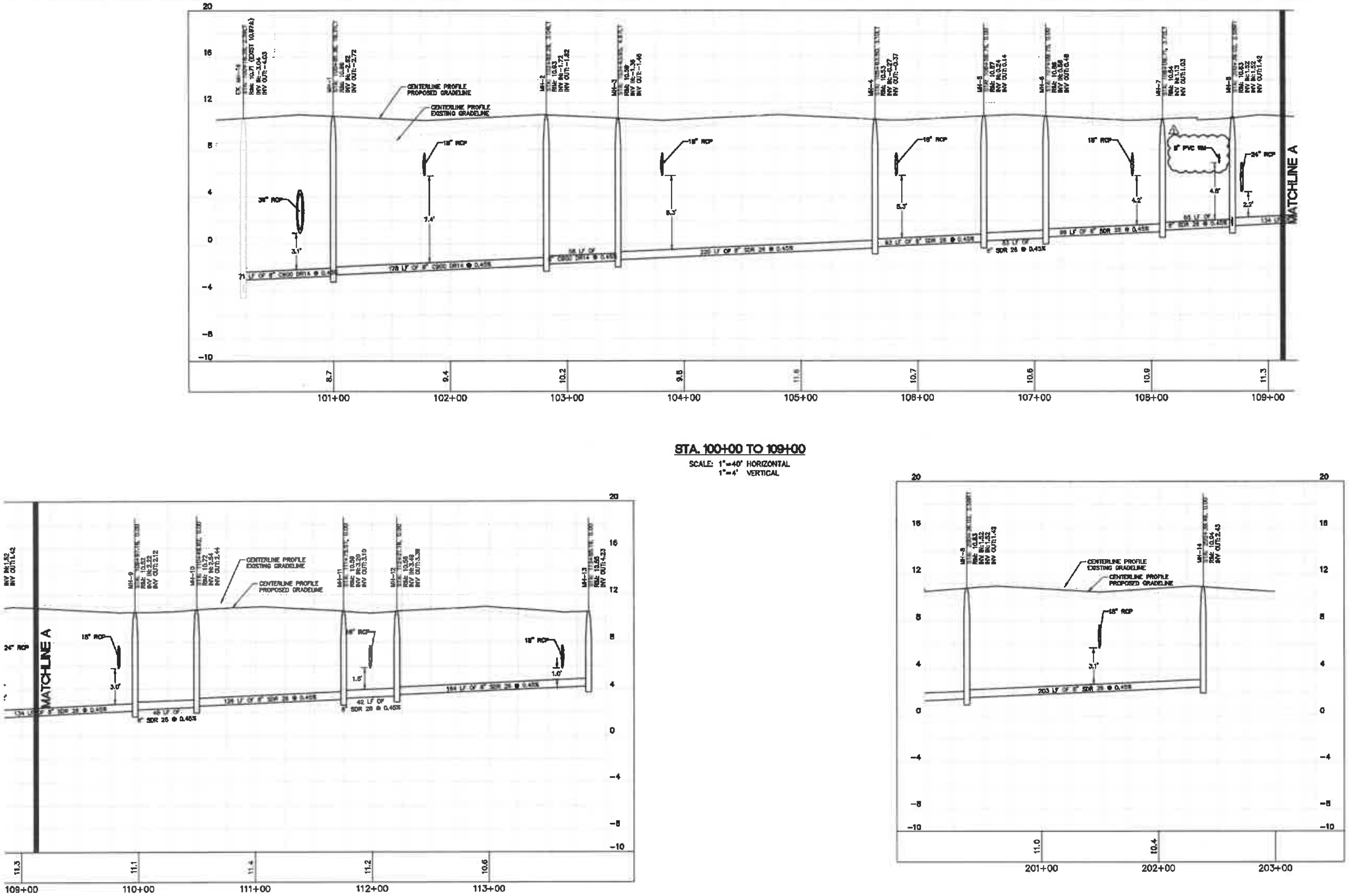
SHEET 11 OF 17




**STA. 100+00 TO 109+00**
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL

**STA. 109+00 TO 114+00**
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL

**STA. 200+00 TO 203+00**
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL

## SEWER PROFILES

| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| 2 | PER COUNTY COMMENTS | 2020-06-30 | AMD |
| 1 | PER COUNTY COMMENTS | 2020-04-2 | AMD |

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84563

SEAL

# BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR
FILE 12 SEWER PROFILES.dwg

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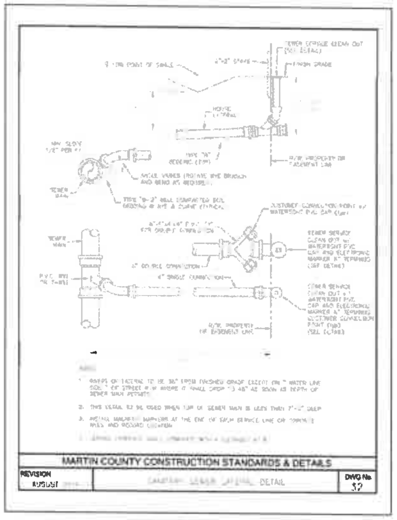


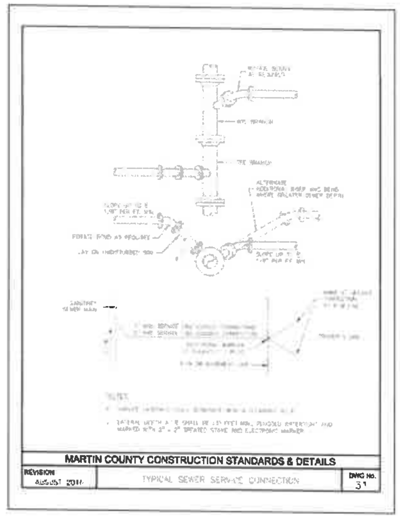


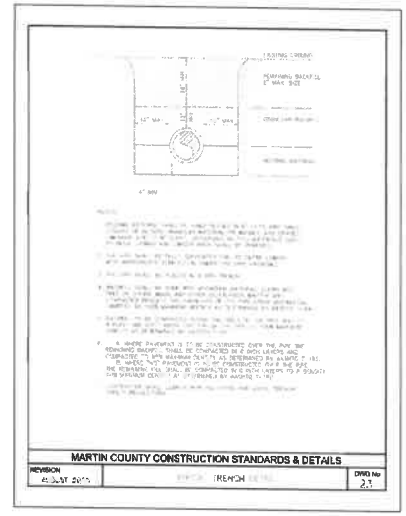


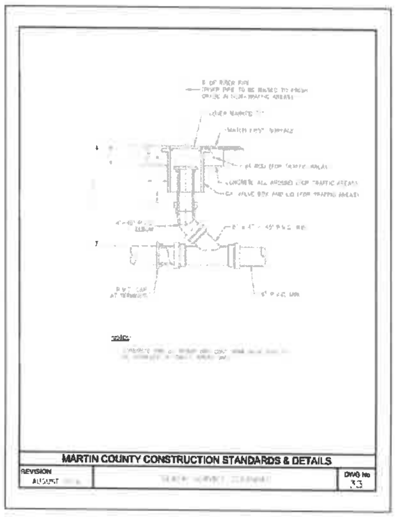


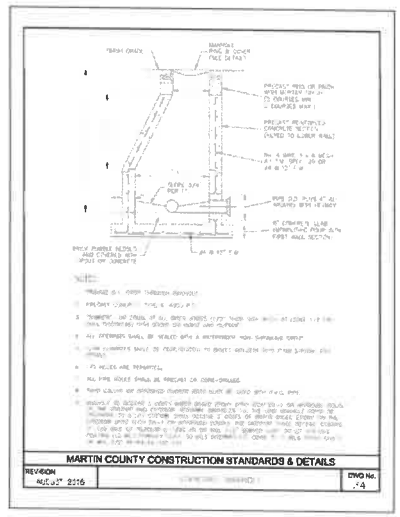


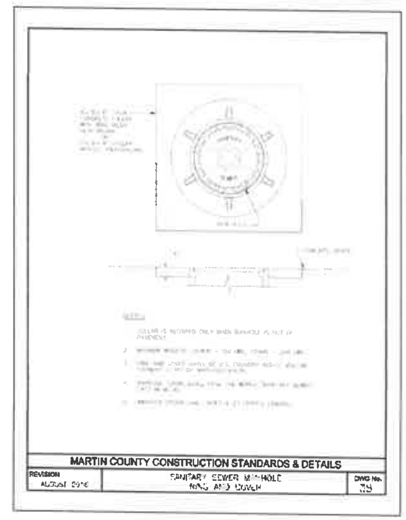


# DETAILS- WATER AND SANITARY

| NO. | REVISIONS | DATE | BY |
|---|---|---|---|

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598

SEAL

## BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR
FILE 13 DETAILS- WATER AND SANITARY.dwg

Kimley»Horn
445 24TH STREET, SUITE 200, VERO BEACH, FL 32960
PHONE (772) 794-4100 FAX (772) 794-4130
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CA 00000696

DATE JUNE 2017
FILE & DRAWING NO. 041052000
SHEET 13 OF 17

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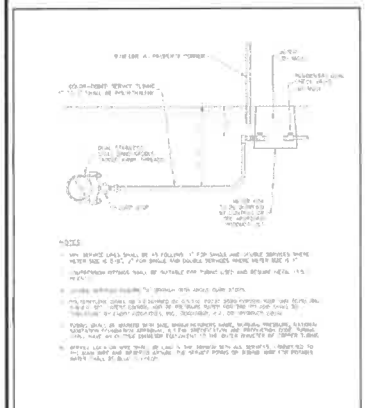
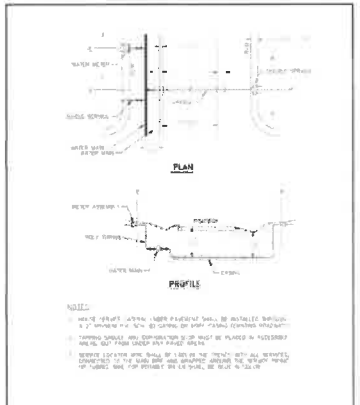
Drawing name: K:\VRB_LDEV\341\041052 Banyan Bay\2018 REVIEW\CAD\CONST\PHASE 2C\13 DETAILS- WATER AND SANTARY.dwg 13 DETAILS- WATER AND SANITARY Jul 27, 2020 2:11pm by: Alex.Dougherty



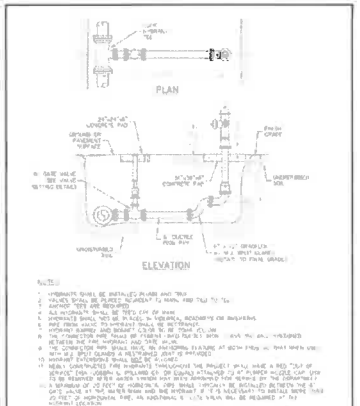
MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
| AUGUST 2016 | SERVICE CONNECTION DETAIL 1" OR 1½" METER | 1 |



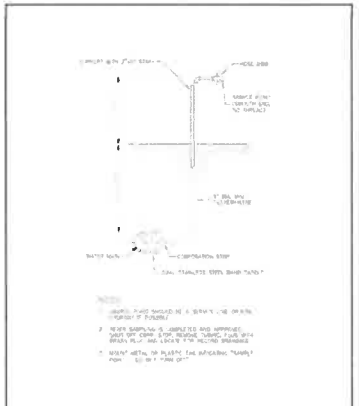

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
| AUGUST 2016 | WATER SERVICE CONNECTIONS (SINGLE OR DOUBLE) PLAN / PROFILE | 2 |




MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
| AUGUST 2016 | FIRE HYDRANT INSTALLATION DETAIL AND NOTES | 3 |



MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
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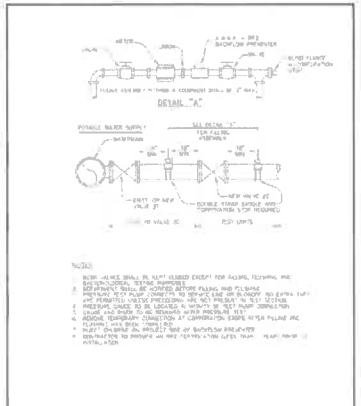
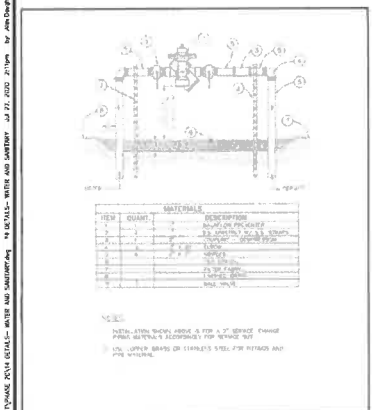



MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
| AUGUST 2016 | DOUBLE VALVE DETAIL AND [illegible] | 5-1 |



MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
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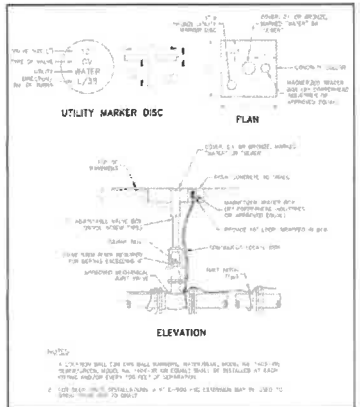
| AUGUST 2016 | [illegible] | 5-2 |




MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

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|---|---|---|
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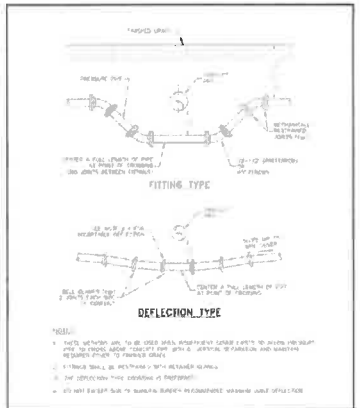
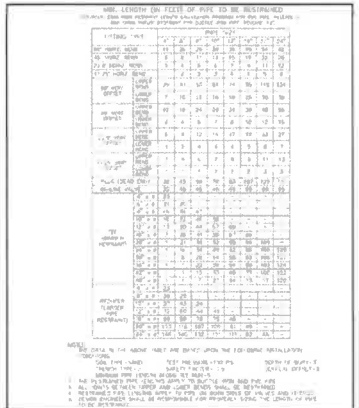


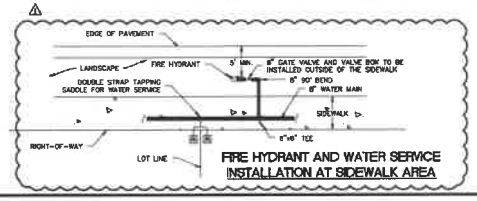

MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
| AUGUST 2016 | PRESSURE PIPE CONFLICT DETAIL | [illegible] |



MARTIN COUNTY CONSTRUCTION STANDARDS & DETAILS

| REVISION | | DWG No. |
|---|---|---|
| AUGUST 2016 | MECHANICAL JOINT RESTRAINT DEFLECTION TABLES | [illegible] |




FIRE HYDRANT AND WATER SERVICE INSTALLATION AT SIDEWALK AREA

| | | | |
|---|---|---|---|
| 1 | PER COUNTY COMMENTS | 02-04-2 | AMD |
| NO. | REVISIONS | DATE | BY |

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598
SEAL

# BANYAN BAY - PHASE 2C
## MARTIN COUNTY, FLORIDA

| | | | |
|---|---|---|---|
| SCALE | AS SHOWN | DATE | JUNE 2017 |
| DESIGNED BY | SDS | FILE & DRAWING NO. | 041052000 |
| DRAWN BY | SDS | SHEET | 14 OF 17 |
| CHECKED BY | PVR | | |
| FILE | 14 DETAILS- WATER AND SANITARY.dwg | | |

Kimley»Horn
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Drawing name: K:\VRO_LDEV\041052000 Banyan Bay\2015 REPAIR\CIVIL\CONT\PHASE 2C\14 DETAILS- WATER AND SANITARY.dwg 14 DETAILS- WATER AND SANITARY Jul 27, 2020 2:17pm by: Alex Dougherty

# PROJECT SPECIFICATIONS

Scope of Work:
The Contractor shall furnish all materials, labor, equipment, tools, supervision, transportation and incidentals necessary to construct grading, paving, drainage, roadway, water and sewer improvements in accordance with the provisions of these Supplementary Conditions, Specifications and Drawings, entitled, "BANYAN BAY – PHASE 2A" consisting of 37 sheets, issued January 2017, and prepared by Kimley-Horn and Associates, Inc.

It is the objective of these documents to assure the total completion of the work required to provide functional, operable and efficient drainage, roadway, water and sewer improvements for the "BANYAN BAY – PHASE 2A".

Location:
The work is located in Martin County, Florida consisting of approximately 56 acres.

Permits and Licenses:
Construction permits for certain elements of the project work have been obtained by the Owner, and the design and construction requirements of the project reflect constraints and conditions imposed by these permits. These include construction permits from Martin County, ACOE, FDOT, FDEP and the South Florida Water Management District. The Contractor shall perform all work and shall construct the project in accordance with the requirements of these permits and approvals, copies of which are available for his review and use from the Engineer, upon request. Additionally, the Contractor shall secure all other work permits, approvals or licenses required to perform the work, and he shall perform the work in strict accordance with these permits, approvals, or licenses.

Reference to Other Documents:
For brevity, reference may be made to other specifications or documents which will be used to specify or control the materials placed in the work, the construction methods to be used, the tolerances that will be acceptable, and contractual or legal obligations. The specifications shall include:

1. "Standard General Conditions of the Construction Contract," 1996 Edition, prepared by the Engineer's Joint Contract Documents Committee and published by the National Society of Professional Engineers. Reference shall be made: "General Conditions."
2. "Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 2000 edition," published by the Florida Department of Transportation and any Supplemental Specifications thereto. Reference shall be made: "FDOT Specifications."
3. "Florida Department of Transportation Roadway and Traffic Design Standards, January 2004 edition," published by the Florida Department of Transportation. Reference shall be made: "FDOT Index."
4. "American Society for Testing and Materials Specifications," latest edition. Reference shall be made: "ASTM."
5. "American Association of State Highway and Transportation Officials," latest edition. Reference shall be made: "AASHTO."

By reference, the documents cited above are made part of these Supplementary Conditions and Specifications. The Contractor shall have copies of each in his possession for use throughout this project work.

Additionally, the work shall be performed in accordance with all other applicable local, regional, state and Federal laws, regulations and codes including, but not limited to, the Federal Occupational Safety and Health Act.

General Conditions:
Unless otherwise stated in these Supplementary Conditions, the provisions of the "Standard General Conditions of the Construction Contract," referenced above, shall be used to govern all issues addressed in those General Conditions for this project.

Owner–Engineer Relationship:
Any agreement between Owner and Engineer shall not be construed to provide any obligation from the Engineer to any third parties including, but not limited to, any contractors (general or sub), nor to any successors in title to the Owner. The rights under any agreement between Owner and Engineer inure only to those two parties.

Partial Payments:
Partial payments shall be calculated from quantities of work in place. These payments shall be based on the Agreement unit prices and will be made on or about the 15th of each month for the previous month's progress. The Contractor shall, after the first of each month, submit invoices for materials used and work performed for the previous month. The Engineer will review all invoices before presenting them to the owner for payment. Ten percent (10%) of the amount due and payable to the Contractor will be retained from each partial payment. Final payments will be accomplished as prescribed in the Agreement.

Errors or Omissions in the Drawings or Specifications:
Prior to initiation of the work, the Contractor shall check dimensions, grades and elevations shown on the Drawings and summary of estimated quantities to assure himself that they are correct and that the work can be accomplished as intended. The Contractor shall take no advantage of any apparent error or omission which he might discover, but will immediately notify the Engineer who will then make such corrections and interpretations as he deems necessary for reflecting the actual spirit and intent of the Drawings and Specifications.

Soil and Subsoil Conditions:
It is the sole and exclusive responsibility of the Contractor to:

1. Place his own interpretation on any and all soil and subsoil data portrayed on the Drawings;
2. Perform his own soil and subsoil investigation to determine the nature, character, location and extent of all soil and subsoil conditions that may affect his work; and
3. Include in his contract price considerations for all work necessary to assure that the soil and subsoil conditions will meet the requirements of the Specifications and the applicable regulations of Martin County.

Pre-Construction Conference:
Immediately after the Agreement has been awarded, the Engineer shall call a pre-construction conference prior to initiation of the work at a place designated by him to review the construction aspects of the project. The meeting will be between the Engineer and the Contractor. The Contractor shall present his tentative detailed working schedule for the project so that it may be reviewed by the Engineer. Additionally, it will afford the Contractor an opportunity to have any questions he may have on the work clarified by the Engineer. No work under the Agreement shall be commenced until after the Notice to Proceed has been issued.

Estimated Quantities:
The quantities estimated for various items of work are only estimates, and may not reflect all the items of work or the final quantities needed to complete the project. These quantities are subject to increase or decrease by the Owner to make them conform to the program of work selected and the responsibility of the Contractor to do all work and to furnish and install all improvements shown on the Drawings, whether they are shown in the estimated quantities, or whether the final quantities are more or less than those estimated. Payment of all unit price work shall be on the basis stated in Paragraph 11.9.1 of the General Conditions.

Horizontal and Vertical Control:
The Contractor shall construct the required improvements in the location shown on the Drawings, and shall use as horizontal control points the parcel corners and benchmarks at the site for use in establishing the necessary elevations and grades. The topographic survey and control points for this project provided by GCY, Inc.

Coordination of Work with Others:
The Contractor shall coordinate his work with the work or improvements of others with regard to new construction, or for the need of removal, relocation or alteration of existing facilities. This includes, but is not limited to, Martin County Utilities, Florida Power & Light Company, Bell South, Cable and Gas Companies, and their contractors, subcontractors, or agents.

Standards for Quality and Workmanship:
All materials, equipment and supplies furnished by the Contractor for permanent incorporation in the work shall be new and of quality standards specified. Workmanship shall be first-class and the finished product equal to the best accepted standards of the trade for the category of work performed.

Power and Water:
All arrangements and costs for temporary power and water during construction shall be the responsibility of the Contractor.

Existing Utilities and Structures:
Existing utilities, structures and facilities shown on the Drawings were located as accurately as possible from the records examined. No guarantee is made that all existing facilities are shown or that those shown are entirely accurate. The Contractor shall assure himself of the actual location of the utilities, structures or facilities prior to performance of any work in the vicinity. The utility companies or utility agencies will cooperate with the Contractor in locating underground utilities that may be subject to damage or interruption of services during the Contractor's operations. Prior to start of the work, the Contractor shall request each utility agency to advise him of the location of their facilities in the vicinity. The Owner will assume no liability for damages sustained or costs incurred because of the Contractor's operation in the vicinity of existing utilities or structures, or to the temporary bracing and shoring of same. In the event that it is necessary to shore, brace or swing a utility, the utility company or department affected should be contacted and their permission secured as to the method used for any such work.

Restoration of Damaged Structures or Utilities:
It shall be the responsibility of the Contractor to repair, rebuild or restore to its former condition, any and all portions of existing utilities, structures, equipment, appurtenances or facilities, other than those to be paid for under this Contract, which may be disturbed or damaged due to this construction operation, at no cost to the Owner.

Final Cleanup:
Upon completion of the work but before final payment will be made, the Contractor shall clear and remove from the project area, all falsework, equipment, surplus and discarded materials, rubbish and temporary structures which result from the work under this Agreement, and shall restore in an acceptable manner all property which has been damaged during the prosecution of the work.

Guarantee:
All materials and the installation thereof which are furnished and installed by the Contractor, under the terms of the Agreement, shall be guaranteed by the Contractor against defective workmanship, mechanical and physical defects, leakage, breakage, and other damages and failure under normal operation for a period of one (1) year from the date of final payment, said date to constitute the commencement of the one (1) year warranty period. All materials and installations proving to be defective within the specified period of the guarantee shall be replaced, without cost to the Owner, by the manufacturer or the Contractor. The period of guarantee of each such replacement shall be from and after the date of installation thereof.

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1. The Contractor shall be responsible for protecting all existing above-ground, underground, and on the surface structures and utilities against the construction operation that may cause damage to said facility.
2. The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the Owner or its representative. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
3. The Contractor shall give adequate notification to all affected utility owners for removal, relocation, and alteration of their existing facilities.
4. Where encountered, unsuitable material shall be removed to a depth and area determined by the Engineer and backfilled with clean granular sand or select material approved by the Engineer. Backfilling shall be in layers not greater than 8" thickness and compacted to 100 percent of the maximum density as determined by AASHTO T-99-C.
5. Contractor is responsible for checking actual site conditions before starting construction.
6. Street or highway restoration work is to be done as per local or state agency having jurisdiction.
7. The Contractor shall comply with all rules and regulations of the State, County and City authorities regarding closing or restricting the use of public streets or highways.
8. Traffic control on all county and state highway rights-of-way shall meet the requirements of the Manual of Uniform Traffic Control Devices (U.S. DOT/FHA) and the requirements of the state and any local agency having jurisdiction.
9. Contractor to maintain positive drainage outfall during construction.
10. Contractor shall not use any public right-of-way for any staging loading/ unloading and/or staging of equipment or supplies without proper permits from the appropriate regulatory agency.

# ROADWAY PAVING, GRADING + DRAINAGE

## CLEARING AND GRUBBING
All trees, brush, stumps, roots, grass, weeds, rubbish, and other obstructions resting on or lying within 12" below finished grade or subgrade shall be completely removed for the full width of all road right- of-way and easements, swales, utility easements and drainage easements. All work shall be performed in accordance with Section 110 of the Standard Specifications.

## BURNING
Prior to burning any material on site, Contractor shall obtain permit from proper authority and submit to Engineer.

## DISTURBED AREAS
All areas disturbed by construction shall be seeded and mulched or sodded as specified below:

Seeding and Mulching:
Unless otherwise noted, the Contractor shall, after final grading and cleanup of all disturbed areas, establish a stand of grass by seeding and mulching in accordance with Section 570 of the FDOT Specifications. The Contractor shall water the seeded area to maintain moisture levels for optimum growth for at least 2 weeks or until the grass is established.

Sodding: Within the limits delineated in the plans, the Contractor shall, after final grading and cleanup, establish a stand of grass by furnishing and placing sod in accordance with Section 575 of the FDOT Specifications. The Contractor shall water the sodded area to maintain moisture levels for optimum growth to assure a healthy stand of grass. Sod shall be Bahia grass sod.

## GRADING
Contractor shall perform all necessary grading to achieve the typical sections as per plan. All workmanship shall be in accordance with the FDOT Specifications.

## CONSTRUCTION STAKING
Construction staking is performed by the Contractor, loss or disturbance of control points due to negligence by the Contractor will be replaced at the Contractor's expense. Construction staking of property corners is to be maintained by the contractor until project completion.

## STABILIZING
Stabilized subgrade shall be constructed to the Florida bearing value as per plan for the depth and limits shown on the plan, and in accordance with Section 160 of the FDOT Specifications.

Type C Stabilization:
All stabilized areas shall be compacted to at least 98% of the maximum density as determined by AASHTO T-180.

## ROCK BASE
Rock base shall be constructed of cemented coquina shell material in accordance with Section 915 of the FDOT Specifications.

Cemented coquina shell base shall be constructed in accordance with Section 250 of the FDOT Specifications. Contractor shall provide rock pit certification for cemented coquina shell material.

Rock base shall be constructed to the depth and limits as shown on the plan. The rock base shall be compacted to at least 98% of the maximum density as determined by AASHTO T-180 and shall be primed.

## PRIME AND TACK COAT
Prime and tack coats for the base course shall be in accordance with Section 300 of the FDOT Specifications.

## ASPHALTIC CONCRETE SURFACE COURSE (ACSC)
ACSC shall be constructed for the depth and limits shown on the plan in accordance with sections 320, 330, and 331 of the FDOT Specifications unless otherwise specified.

## TESTING
The Contractor shall retain the services of an Owner approved independent testing laboratory to conduct all required tests on subgrade, base and surface course materials. Test results must be submitted prior to any request for payment on the above items.

The schedule for testing the pavement shall be as follows:

1. Subgrade:
   a. Florida bearing value test shall be taken at intervals of not more than 200 feet, or closer as may be necessary in the event of variations in subsoil conditions.
   b. Density tests shall be taken at intervals of not more than 200 feet or closer as may be necessary.
2. Base:
   a. Density tests shall be taken at intervals of not more than 500 feet or closer as may be necessary.

All testing shall be taken in a staggered sampling pattern from a point 12 inches inside the left edge, to the center, to a point 12 inches inside the right edge of the item tested.

If any test indicates that the work does not meet the specifications, the substandard item shall be reworked or corrected and retested, at the Contractor's expense, until the provisions of these specifications are met.

All required testing to meet project specifications shall be paid for by the Contractor.

## SIGNING AND MARKING
Signing shall be in accordance with Section 700 and traffic paint shall be in accordance with Section 710 of the FDOT Specifications.

## CLEAN-UP
The Contractor must provide clean-up of excess construction material upon completion of the project. The site must be left in a neat, clean, graded condition.

## DRAINAGE SPECIFICATIONS
Storm inlets and manholes shall be constructed in general accordance with Section 425 of the FDOT Specifications.

All reinforcing steel to be ASTM A 615 (latest revision) Grade 40 Fyp=40,000 PSI, and shall be handled and placed in accordance with ACI 318 (latest revision).

Precast concrete manholes and storm inlets are to be used (only after the Engineer's review of the manufacturer's shop drawings).

Storm sewer construction shall be in accordance with Section 430 and related sections of the FDOT Specifications.

## CONCRETE
Unless otherwise specified or indicated, all concrete shall have a minimum compressive strength at 28 days of 3000 psi. All work shall comply with the current edition of the American Concrete Institute (ACI) building code and the applicable building codes having jurisdiction in the area.

## PRECAST INLETS
All storm inlets shall be precast reinforced concrete in accordance with the details shown herein. Type II Portland Cement shall be used in the concrete mix. Concrete shall have a minimum compressive strength of 28 days of 4000 psi.

Bituminous coated corrugated steel pipe (BCCSP) shall be in accordance with Section 943 of the FDOT Specifications.

Reinforced concrete pipe (RCP) shall be in accordance with Section 941 of the FDOT Specifications.

Corrugated polyethylene pipe shall be in accordance with Section 430-11 of the FDOT Specifications.

All drainage pipe joints, including round concrete pipes, shall have a filter fabric jacket in accordance with FDOT Roadway and Traffic Design Standards.

## CONSTRUCTION OBSERVATION
The Contractor shall notify the Engineer 48 hours prior to periods of the following construction activities so that the Engineer can notify the City, County or State to be present for construction observations and shall supply all equipment necessary to properly observe the completed work.

I. Erosion Control/ Preserve Barricading
   A. Upon completion of silt fence/ preserve barricading but prior to clearing
II. Drainage
   A. Laying of Pipe (before backfill)
   B. All drainage structures and pipe laying completed
   C. Construction and stabilization of retention areas and swales
   D. Seeding, mulch, and sodding in areas where erosion is evident or where plans so identify
III. Utilities (U-2 permits or development order)
   A. Pipe laying within County or State rights-of-way
   B. Jack and boring in County or State rights-of-way
   C. Restoration of all rights-of-way
IV. Concrete
   A. Completion of forming for curbing, sidewalk, and retaining walls before placement of concrete
V. Pavement
   A. Line and grade (Certification)
   B. Sub-base (prior to adding base material)
   C. Base (prior to priming and sand seal)
   D. Base (after priming, sand seal, and before placing asphalt)
   E. Asphalt or concrete (while paving is in progress)
   F. Turn out construction on to County or State road (above inspections apply)
   G. Test results on sub-base
   H. Final project observation

# CLOSEOUT

Contractor shall submit record drawings prepared by a Florida Registered surveyor documenting all information shown on the paving and grading and drainage plans and details.

Contractor shall also include the location and depth of the lines and retaining walls and wall details.

Contractor shall submit lake as-builts with cross sections prepared by a Florida Registered surveyor to demonstrate compliance with the lake and littoral requirements.

| NO. | REVISIONS | DATE | BY |
|---|---|---|---|

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
84598

SEAL

PROJECT SPECIFICATIONS

BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

| | |
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| SCALE | AS SHOWN |
| DESIGNED BY | SDS |
| DRAWN BY | SDS |
| CHECKED BY | PVR |
| FILE | 15 PROJECT SPECIFICATIONS.dwg |

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CA 00000696

DATE JUNE 2017
FILE & DRAWING NO. 041052000
SHEET 15 of 17

Drawing name: K:\VRB_LDEV\041\041002 Banyan Bay\2018 REVIEW\CAD\CONST\PHASE 2C\15 PROJECT SPECIFICATIONS.dwg 15 PROJECT SPECIFICATIONS Jul 27, 2020 2:12pm by: Alex.Daugherty

# UTILITY SPECIFICATIONS

All wastewater system construction shall be installed, inspected, and tested in accordance with Martin County Utilities (MCU) "Minimum Design & Construction Standards", latest edition, in case of discrepancies between the construction plans and MCU specifications, the most restrictive shall apply.

## SCOPE

Furnish all labor, materials, equipment and perform all operations required to complete the construction of a wastewater collection system and water distribution system as shown on the plans, specified herein, or both.

It is the intent to provide a complete and operating facility in accordance with the engineering drawings. The material and equipment shown or specified shall not be taken to exclude any other incidentals necessary to complete the work. All construction materials shall be first quality, not previously used. All construction shall meet with the requirements of MCU (hereafter termed "The Department").

## GENERAL NOTES

For the purpose of the general notes below, the term department shall mean the Martin County Utilities and Solid Waste Department.

1. All connections to existing mains shall be observed by the department. Valves on existing mains shall be operated by department personnel or under their direct supervision. Tapping sleeve and valve shall be pressure tested prior to tapping. If service must be cut off to existing customers, the department must have three days notice to make necessary notifications. The contractor may be required to assist in notifications. In this event, contractor shall be ready to proceed with as much material premeasured as possible at the site to minimize the length of service interruption. The department will postpone a service cut off if the contractor is not ready to proceed on schedule. Such connections shall be made at night to minimize effects unless otherwise authorized by the department. No customer should be without service for more than four hours.

Local chlorination will be required for all pipe and fittings used to complete connections with potable water.

2. The contractor shall have available at the job site at all times one copy of Martin County Utilities "Minimum Design and Construction Standards", one copy of the contract documents, including plans, specifications and special provisions, and copies of any required construction permits.

3. The contractor shall contact all concerned utilities at least 48 hours in advance of construction operations.

4. The location and size of all existing utilities shown on the plans are approximate and are based on the best available information. The contractor shall be responsible for the location of all existing utilities. The contractor shall verify all utilities by electronic method and by hand excavation in coordination with all utility companies prior to beginning any construction operations. Any and all conflicts of existing utilities with proposed improvements shall be resolved by the engineer and department prior to beginning any construction operations. The work by the contractor shall be considered incidental to the contract and no additional compensation shall be allowed.

5. Location of proposed facilities will be staked by contractor, contractor must give 48 hours notice to the department in advance of layout.

6. Project superintendent: The contractor shall provide a qualified superintendent to remain on the job site at all times when work is being performed. The superintendent shall be present at the pre-construction meeting. The contractor shall notify the department by letter prior to the pre-construction meeting appointing the superintendent for this project including a resume showing qualifications. In the event the superintendent will not be present for any period of time during contract work the contractor shall provide 48 hours notice in writing to the department, including the appointment of a qualified replacement superintendent who will be present during the construction. Work shall not be allowed to proceed unless the assigned superintendent is present.

7. It is the contractor's responsibility to ensure his complete familiarity with the project site and components to include subsurface conditions of soil and groundwater table.

Warning: Exact location of underground utilities is not known nor is this drawing to be construed as depicting the location of all underground utilities or structures. The contractor is responsible for determination of location prior to commencement of work. The contractor is responsible, therefore, for all damage and repair costs.

8. Density tests of trench backfill material should be required at intervals of not more than 500 feet. Density tests of pavement open-cut areas including roads, turnlanes, and drives shall be required at each approach at intervals of not more than 50 feet. All tests shall commence at the top of conduit and every 12 inches to the finish grade. Compaction shall be in accordance with Martin County Utilities construction standards "typical trench detail" and "flexible pavement replacement detail". Florida Bearing Tests for the stability of existing subsoil shall be taken at intervals of not more than 500 feet, and closer as might be necessary in the event of variations in the strata. A certified copy of the tests shall be provided to the department and the Florida department of transportation or Martin County Engineering department depending on jurisdiction. contractors bid price shall include payment for all tests conducted by an independent testing lab.

9. Any landscaping disturbed, unless otherwise shown on the plans, shall be replaced by the contractor to the satisfaction of the department at the contractors expense.

10. Any walk, curb and gutter or pavement disturbed, unless otherwise shown on plans, shall be restored by the contractor at the contractor's expense. All construction shall meet ADA requirements.

11. All sod is to be placed for the full width disturbed at the per linear foot unit price for sod. Sod shall be replaced to match existing kind unless otherwise shown on plans.

12. Contractor shall provide proper bends to maintain required depth and alignment of pipe. Cost of bends not designated on plans shall be included with the unit price for pipe.

13. Any trees and/or scrub or other vegetation not to be replaced shall be removed from the project at the contractor's expense.

14. All rubble and unsuitable material must be removed from the project and disposed of properly by the contractor at the contractor's expense.

15. Mailboxes must be maintained to be capable of receiving mail at all times.

16. Deflect pipe as necessary to obtain the required alignment. Use appropriate fittings when deflection exceeds 75% of manufacturer's recommended maximum deflection.

17. All fittings shall be mechanically restrained. Refer to Martin County Utilities and Solid Waste Department, "Minimum Design & Construction Standards." (latest edition).

18. All construction developing (wall points, sumps, etc.) will require a developing permit from South Florida Water Management District. This shall be obtained by the contractor at the contractor's expense prior to beginning of construction.

19. "Trench Safety Act" shall be incorporated into this contract as enacted by the legislature of the State of Florida to be in effect as of October 1, 1990.

20. A U-2 permit is required for all work within County right-of-way. This permit must be obtained by the contractor from the Martin County Engineering Department. All costs payable by the contractor. A copy of this permit must be maintained on the project site at all times during construction.

21. All connects and asphalt drives must be replaced from saw cut to edge of pavement.

22. Locations of fire hydrants and air release valves are approximate only. Final locations will be determined by department personnel in field.

23. Maximum length of water main and force main pressure test shall be 1500 feet. Water source for flushing, filling and pressure testing the water main shall be from a tested source approved by the department.

24. The contractor is responsible for the protection and restoration (if damaged) of all existing structures within the construction limits of the project, including but not limited to walls, fences, power poles, mail boxes, drainage pipes and structures, etc.

25. The contractor shall verify the location of existing water services prior to construction. The contractor shall protect the existing water services from damage and repair any breaks immediately.

26. "Record Drawings" shall include furnishing Martin County Utilities Department with all information necessary for a complete set of record drawings as stipulated in the Martin County Utilities and Solid Waste Department "Minimum Design and Construction Standards," (latest edition).

27. Mechanically restrain three (3) full lengths each side of all bends and as stipulated in the Martin County Utilities and Solid Waste Department "Minimum Design and Construction Standards," (latest edition). Mechanical restraints shall be either mega-a-lug, tyler or uniflange. The contractors bid price for pipe, gate valves and fittings shall include mechanical restraint.

28. The contractor shall protect existing utilities from damage during construction operations. The contractor shall support utilities and share trench as required to protect and maintain existing utilities. The contractor shall notify each utility prior to attempting to support their facilities. If the utility requires that only their crews shall be allowed to support their facilities, then it shall be the contractors responsibility to coordinate work and pay the utility for their expenses if required. All costs for this work shall be at the contractors expense and included in the contractors bid price

29. All pressure tests shall be in accordance with AWWA standards.

30. Air release valve vault covers shall be constructed per detail "standard aluminum cover" as shown in the departments "Minimum Design and Construction Standards". Minimum cover size to match vault inside vult dimensions.

31. All water services shall be horizontal directional drilled under existing pavement.

## GENERAL NOTES (cont.)

32. Valve stem riser shall be required where operating nut depth exceeds 4 feet. The riser shall be bolted to the valve nut. Method and materials shall be approved by the department. Cost for this work shall be included in the contractors bid unit price for gate valves.

33. The contractor shall clean mains using approved polyurethane pig(s). Temporary cleaning stations shall be constructed by the contractor. This contractor shall provide a cleaning plan showing method of filling and cleaning mains prior to start of construction. The cleaning plan shall be approved by the department prior to construction. All costs for filling and cleaning shall be at the contractors expense.

34. A Florida Department of Transportation permit is required for all work within the State right-of-way. A copy of this permit must be maintained on the project site at all times during construction.

35. The contractor shall install testing points for pressure testing mains. The contractor shall install and remove end plug corp stops per Martin County Utilities & Solid Waste dept. Standards "sample point detail". The location of test points shall be approved by the department.

36. Water main disinfection shall be in accordance with current AWWA, bulletin C-651.

37. Water mains and appurtenances shall be in accordance with current AWWA and NSF standards.

38. Minimum cover to finished grade over water mains shall be 30 inches up to 8" diameter; 10" or larger shall have 36" cover or greater to provide a minimum 18" cover over operating nut of gate valves.

39. All mains shall be tested for leakage. Water shall be supplied to the main and pumped to the required 150 psi pressure. The main tested shall either be isolated from existing potable lines or protected from leakage by a double valve arrangement.

40. Newly constructed fire hydrants throughout the project shall have a red "out of service" cap (Joseph C. Pollard Co. or equal) attached to 4" pumper nozzle cap. Cap to be removed after water system has been approved for service by the department.

The department shall be notified at least 48 hours in advance of any testing procedures. After flushing is completed, the pressure shall be applied to the water system to determine if any major defects are present. The complete water system shall then be tested at a pressure of 150 psi for a period of not less than two hours. The department may at its discretion, increase the period to four hours. Maximum length of line to be tested at one time shall not exceed 1500 linear feet. An oil filled pressure gauge up to 200 psi at 2 pound increments shall be used for all pressure tests. No visible movement of the system shall occur and leakage shall not exceed:

L = ND times the square root of P divided by 7,400

where:
L = leakage in gallons
N = number of joints in test section
P = test pressure in psi.
D = diameter of pipe in inches

## STANDARD WATER/SEWER SEPARATION STATEMENT

62-555.314 Location of Public Water System Mains.
For the purpose of this section, the phrase "water mains" shall mean mains, including treatment plant process piping, conveying either raw, partially treated, or finished drinking water, fire hydrant leads; and service lines that are under the control of a public water system and that have an inside diameter of three inches or greater.
(1) Horizontal Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, Reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems.
(a) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three feet between the outside of the water main and the outside of any existing or proposed storm sewer, stormwater force main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(b) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed vacuum-type sanitary sewer.
(c) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least six feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C. The minimum horizontal separation distance between water mains and gravity-type sanitary sewers shall be reduced to three feet where the bottom of the water main is laid at least six inches above the top of the sewer.
(d) New or relocated, underground water mains shall be laid to provide a horizontal distance of at least ten feet between the outside of the water main and all parts of any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S., and Rule 64E-6.002, F.A.C.
(2) Vertical Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, and Reclaimed Water Pipelines.
(a) New or relocated, underground water mains crossing any existing or proposed gravity- or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the water main is at least six inches, and preferably 12 inches, above or at least 12 inches below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.
(b) New or relocated, underground water mains crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater force main, or pipeline conveying reclaimed water shall be laid so the outside of the water main is at least 12 inches above or below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.
(c) At the utility crossings described in paragraphs (a) and (b) above, one full length of water main pipe shall be centered above or below the other pipeline so the water main joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all water main joints are at least three feet from all joints in vacuum-type sanitary sewers, storm sewers, stormwater force mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least six feet from all joints in gravity- or pressure-type sanitary sewers, wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.
(3) Separation Between Water Mains and Sanitary or Storm Sewer Manholes.
(a) No water main shall pass through, or come into contact with, any part of a sanitary sewer manhole.
(b) Effective August 28, 2003, water mains shall not be constructed or altered to pass through, or come into contact with, any part of a storm sewer manhole or inlet structure. Where it is not technically feasible or economically sensible to comply with this requirement (i.e., where there is a conflict in the resulting alignment of a storm sewer and where alternatives routing of the water main or the storm sewer is not technically feasible or is not economically sensible), the Department shall allow exceptions to this requirement (i.e., the Department shall allow construction of conflict manholes), but suppliers of water or persons proposing to construct conflict manholes must test obtain a specific permit from the Department in accordance with Part V of this chapter and must provide in the preliminary design report or drawings, specifications, and design data accompanying their permit application the following information:
1. Technical or economic justification for each conflict manhole.
2. A statement identifying the party responsible for maintaining each conflict manhole.
3. Assurance of compliance with the design and construction requirements in sub-subparagraphs a. through d. below.
a. Each water main passing through a conflict manhole shall have a flexible, watertight joint on each side of the manhole to accommodate differential settling between the main and the manhole.
b. Within each conflict manhole, the water main passing through the manhole shall be installed in a watertight casing pipe having high impact strength (i.e., having an impact strength at least equal to that of 0.25-inch-thick ductile iron pipe).
c. Each conflict manhole shall have an access opening, and shall be sized, to allow for easy cleaning of the manhole.
d. Gratings shall be installed at all storm sewer inlets upstream of each conflict manhole to prevent large objects from entering the manhole.
(4) Separation Between Fire Hydrant Drains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, Reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems. New or relocated fire hydrants with underground drains shall be located so that the drains are at least three feet from any existing or proposed storm sewer, stormwater force main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.; at least three feet, and preferably ten feet, from any existing or proposed vacuum-type sanitary sewer; at least six feet, and preferably ten feet, from any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.; and at least ten feet from any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S., and Rule 64E-6.002, F.A.C.
(5) Exceptions. Where it is not technically feasible or economically sensible to comply with the requirements in subsection (1) or (2) above, the Department (MCU) shall allow exceptions to these requirements if suppliers of water or construction permit applicants provide technical or economic justification for each exception and provide alternative construction features that afford a similar level of reliability and public health protection. Acceptable alternative construction features include the following:
(a) Where an underground water main is being laid less than the required minimum horizontal distance from another pipeline and where an underground water main is crossing another pipeline and joints in the water main are being located less than the required minimum distance from joints in the other pipeline:
1. Use of pressure-rated pipe conforming to the American Water Works Association standards incorporated into Rule 62-555.330, F.A.C., for the other pipeline if it is a gravity- or vacuum-type pipeline;
2. Use of welded, fused, or otherwise restrained joints for either the water main or the other pipeline; or
3. Use of watertight casing pipe or concrete encasement at least four inches thick for either the water main or the other pipeline.
(b) Where an underground water main is being laid less than three feet horizontally from another pipeline and where an underground water main is crossing another pipeline and is being laid less than the required minimum vertical distance from the other pipeline:
1. Use of pipe, or casing pipe, having high impact strength (i.e., having an impact strength at least equal to that of 0.25-inch-thick ductile iron pipe) or concrete encasement at least four inches thick for the water main; and
2. Use of pipe, or casing pipe, having high impact strength (i.e., having an impact strength at least equal to that of 0.25-inch-thick ductile iron pipe) or concrete encasement at least four inches thick for the other pipeline if it is new and is conveying wastewater or reclaimed water.

# WATER DISTRIBUTION SYSTEM

## INSTALLATION

A) Installation and testing of water system pipe and fittings shall be in accordance with AWWA Specification C-600 Latest Revision and Department's Construction Standards and Specifications.

B) Any permanent cut shall be replaced in accordance with requirements of the agency of jurisdiction.

C) All loading or unloading of pipe, fittings, valves and accessories shall be done in such a manner so as to avoid damage. The pipe shall not be skidded or rolled against pipe already unloaded. Special precautions should be taken to avoid damage to cement lined fittings and pipe. The interior of all pipe, fittings and other appurtenances shall be kept free of dirt and foreign matter at all times.

D) All valves, bends, tees, crosses, and dead ends shall be restrained with an approved mechanical restrained joint system. Where proprietary restrained joints are not used, the rods and megalugs are the recommended system. (See Section XIV for approved product list.)

E) Tie rods used as a method of joint restraint shall be by means of steel tie back bolts, nuts, washers and all thread rods meeting ASTM A-242 requirements (Cor-Ten steel or equal) and painted in accordance with the procedures described herein. Tie rods and nuts shall be equal in diameter to the tee bolts and nuts which were supplied with the applicable fittings. Two tie rods per joint are required for sizes 4" diameter through 10" diameter, four tie rods per joint for sizes 12" diameter through 16" and 6 tie rods per joint for sizes 18" through 24".

F) Air relief valves shall be at the design high points. Installation of air release valves to correct high points caused by improper installation of pipe (not at design grade) will not be permitted. (See Section XIV for approved product list.)

G) All pipe shall be laid to line in a clean dry trench on time and grade with valves and hydrant stems plumb. All pipe shall have a minimum cover of 30 inches and a maximum cover of 48 inches unless otherwise noted on the plans or required by permit.

H) The trench at the top of the pipe shall be kept to a maximum width of 24 inches plus the pipe diameter. The trench shall have a flat bottom, cut true and even, so that the barrel of the pipe shall bear its full length. Pipe bells will be placed in small pockets specifically excavated to receive the bell. All excavations must be in compliance with OSHA regulations.

I) No rocks larger than 2 inches in diameter or other items that may damage the pipe will be permitted over the pipe. In the event pipe is installed in rock excavation, 6 inches of granular material will be provided for bedding under the pipe. All pipe joints, controls and service connections shall be left exposed until thoroughly inspected and approved by a Department representative.

J) All tapping assemblies installed on existing water mains shall be pressure tested and witnessed by a Department's representative prior to the actual tap of the main. The pipe coupon shall be carefully preserved and submitted to the Authority's representative. All tapping sleeves shall be installed a minimum of 18 inches from pipe joints.

K) All field cuts on pipe shall require careful repair of the particular lining damaged in strict accordance with the manufacturer's recommendations.

L) Fire hydrants shall be installed free and plumb. Hydrant extensions shall not be permitted in new construction.

## MINIMUM COVER

Minimum cover to finished grade over water mains shall be 30 inches up to 8" diameter; 10" or larger shall have 36" cover or greater to provide a minimum 18" cover over operating nut of gate valves.

## WATER MAIN MATERIAL

PVC Water Main 4 inch to 12 inch in diameter (4" – 12") shall be DR-18 manufactured to ductile iron pipe outside dimensions and in compliance with AWWA Standard C900. The pipe shall have an integral bell and end gasket seal with the joint in compliance with the requirements of ASTM D3139. The pipe shall be approved by the National Sanitation Foundation for use as a potable water main. The pipe color shall be blue.

PVC Water Main 14 inch to 20 inch in diameter (14" – 20") shall be DR-18 manufactured to ductile iron pipe outside dimensions and in compliance with AWWA C905. The pipe shall have an internal bell and end gasket seal with the joint in compliance with the requirements of ASTM D3139. The pipe shall be approved by the National Sanitation Foundation for use as a potable water main. The pipe color shall be blue.

HDPE water main 4 inch to 18 inch in diameter (4" – 18") shall be DR-11 manufactured to ductile iron pipe outside dimensions and in compliance with AWWA C901 and C906, latest revision and ASTM F714. The pipe will be extruded from resin meeting specifications of ASTM D-3350 with a cell classification of type III, class C, category 5, grade P34 polyethylene compound. The pipe shall be approved by the National Sanitation Foundation for use as a potable water main. The pipe color shall be blue or co-extruded blue color stripes. For all pipe connections, fused mechanical joint adaptors shall be used. S.S. inserts will not be allowed.

Ductile iron pipe shall be a minimum of Pressure Class 350. The Department reserves the right to require a different thickness class for unusual or non-standard laying conditions.

Ductile iron pipe shall conform to latest standards of ANSI/AWWA C150/A21.50 for the thickness design of ductile iron pipe and ANSI/AWWA C151/A21.51 for ductile iron pipe centrifugally cast in metal molds or sand-lined molds.

Joints for ductile iron pipe shall conform to the latest standard of ANSI/AWWA C111/A21.11 for rubber gasket joints and ANSI/AWWA C115/A21.15 for threaded flanges.

Cement-lined ductile iron pipe shall conform to the latest standards of ANSI/AWWA C104/A21.4

## VALVES AND FITTINGS

Gate valves shall be ductile iron, resilient seat type with mechanical joints conforming to AWWA C-500, latest revision. Valves shall be designed for a working pressure of not less that 200 psi. Each valve shall have the pressure rating cast into the body and manufacturer's name or initial cast into the body or bonnet.

Valving of all systems shall be designed to facilitate the isolation of each section of pipeline between intersections of the grid system. Generally, the number of valves at an intersection shall be one less than the number of pipes forming the intersection.

Valves shall generally be installed at intervals of not more than 1,500 LF. In high density areas, valves shall be installed as necessary to minimize the number of persons affected by a break.

In all instances, effectiveness of placement shall be primary criteria in determining valve locations. Valves shall not be placed in swales or ditches.

All pressure pipe fittings of size 4" and larger shall be ductile iron fittings, with mechanical joints, unless plans call specifically for flanged, restrained joint fittings. Mechanical joints fittings shall be used for buried installations; flanged fittings shall be used for above ground installations. Compact mechanical joint fittings shall conform to ANSI/AWWA C-153/A21.53.

All valves, bends, tees, crosses and dead ends shall be mechanically restrained. Clearance of 18 inches shall be maintained between all fittings (bells, valves, flanges, etc.), unless otherwise specified. Temporary dead ends shall be terminated with a gate valve with a mechanical joint plug and flushing hydrant.

All valve boxes on 4" valves or larger, shall be 3 piece cast iron construction with screw type riser section. The valve box lid shall carry the word "WATER" and be the deep skirt type. Valve boxes must have a minimum inside diameter of 5-1/4". A square concrete collar that is 24"x24"x6" thick shall be poured at the top of each valve box at finished grade.

Height adjustments to valve boxes will require a screw type, cast iron extension. A Tyler series 8850 (3 piece c.i.) valve box or equal will be used. No. 58 and No. 56 high extensions will be used, if necessary. No substitutions with PVC will be allowed.

When the gate valve is deeper than 36" an extension will be required to bring the operating nut within 24" of finished grade. A 3/4" x 3' 316 stainless steel rod pin will be inserted through the valve operating nut to secure the extension stem.

## FIRE HYDRANTS/FIRE SERVICE MAINS

Fire Hydrants shall conform to latest AWWA Specifications C502, and shall be of the traffic-model type. Inlet connection shall be for a 6 inch pipe and main valve opening shall be a minimum of 5 1/2 inches. Hydrant bonnet shall have two 2 1/2 inch hose connections and one 4 1/2 inch pumper connection. Working pressure for hydrant shall be a minimum of 150 psi. Hydrants shall be installed so that the pumper connection is perpendicular to the street. Hydrants shall be installed not more than 15 feet from the pavement (except as required by F.D.O.T.) nor in a ditch area. Hydrants shall be placed in line with the lot side lines unless otherwise approved by the Department.

All working parts shall be of cast iron and high grade bronze. All hose threads shall be AWS B26 Standard threads. The 2 1/2 inch nozzles shall have 60 degree V-threads. 7 1/2 threads per inch and a 3 1/8 inch outside diameter male thread. The 4 1/2 inch nozzle shall have four threads per inch outside diameter male thread.

NOZZLE CAPS WITH GASKETS SHALL BE PROVIDED FOR ALL OUTLETS TO PROVIDE TIGHT CLOSURE FOR NOZZLES. CAPS SHALL BE SECURELY CHAINED TO BARREL OF HYDRANT. CAP NUTS SHALL HAVE SAME DIMENSIONS AS OPERATING NUT OF HYDRANT.

HYDRANT SHALL BE TRAFFIC MODEL, 3-WAY. ALL HYDRANTS TO BE INSTALLED WITH HYDRANT TEES, GATE VALVE, THE REQUIRED LENGTHS OF 8 INCH DIAMETER DUCTILE IRON PIPE (HYDRANT NIPPLE), RESTRAINER GLANDS, 8" ANCHOR FITTINGS, A 8" X 36" X 36" CONCRETE PAD AT BURY LINE.

## FIRE HYDRANTS/FIRE SERVICE MAINS (cont.)

Fire hydrants shall be installed with the center of the streamer nozzle 18 to 24 inches above finished grade. Hydrants shall not be placed in sidewalks. It will be the responsibility of the Developer and Contractor to move hydrants placed in the sidewalk.

Hydrant barrel color to be OSHA Yellow and bonnet to be OSHA White. Drain holes shall be deleted or plugged with appropriate brass set screws.

Fire hydrants shall be provided in all water mains, transmission, and distribution systems. Fire hydrants shall be spaced as required. A Fire Hydrant Location Plan is required with all preliminary plan submissions.

Fire hydrant branches (from main to hydrant) shall be not less than 6 inches inside diameter. Each branch shall be provided with a gate valve located as close as possible to the main. Valve box top shall be set in grade. Hydrants shall be located near road flows with pumper discharge nozzle facing the roadway. Hydrants shall be held as to minimize their vulnerability to traffic.

Fire hydrant extensions shall not be allowed.

Hydrants shall be placed within 15 feet of the street of paved area when possible, and shall be no closer than 5 feet from the edge of the street or paved area. The height of the hydrant above grade shall be acceptable to the Fire Marshall and DepartmentUtility.

A detector check valve and other appurtenances as may be required will be specified on fire sprinkler lines and privately owned and maintained fire hydrant lines.

## THRUST BLOCKS

Mechanical joint anchoring shall be required at each fitting involving a change of direction & as specified in plan details. Where concrete thrust blocks, encasements &/or protective slabs are specifically called for, they shall be ready-mixed concrete and shall have a minimum 28-day compressive strength of 2000 psi.

## LOCATOR FOR WATER PIPE

On all pipe construction 8 gauge, THWN insulated, stranded copper wire shall be laid and secured on top of pipe. Wire shall be continuous from valve box to valve box, wrapped two times around each joint of pipe and extended inside each wire box to enable location devices to be attached without digging up the valve box (see StandardDrawing Details).

Service wire shall be laid in the trench with all services, connected to the main wire and wrapped around the service piping or tubing. Wire for potable water shall be blue in color.

All wire connections shall be made with Dri-Splice wire connectors, Imperial Snip-Snap fittings filled with waterproof silicone sealant or approved equal. All splices shall be inspected by the Department before burial.

## CONNECTION TO EXISTING SYSTEM

a) Tapping Tees and Valves

Tapping sleeves shall be #304 stainless steel with flanged outlets. Tapping valves shall be resilient seat type with a flanged inlet and the inlet side and a mechanical joint on the discharged side of the valves. Tapping valves shall have a 2 inch operating nut. Working pressure rating shall not be less than 200 psi. Gaskets between the flange faces of the tapping sleeve and tapping valve shall be 1/8" minimum thickness of BUNA N gasket material.

b) Size on size taps

Taps may be made on the same size main only when the main to be tapped is AWWA C900, C905 or DIP.

c) Installation

A Department representative shall approve each tapping location before the tapping sleeve is installed. Tapping sleeves shall not be installed within 18 inches of any joint or fitting. Before installation of tapping tees, the area to be tapped and the tapping tee shall be cleaned with potable water. After all sand, dirt and debris have been removed from the main, the tapping tee, the tapping valve and the area where the tapping tee is to be installed on the existing main shall be swabbed with a chlorine or bleach solution with at least 100 ppm of chlorine.

After the tapping tee is attached to the main, the gate valve shall be closed and tapping tee and gate valve assembly shall be pressured tested at 150 psi for a minimum of 15 minutes with water. A Department representative shall witness the pressure test. No visible leaks or loss of pressure shall be evident. After pressure testing, the main may be tapped. Only shall type cutters shall be used. The coupon from the hole that is cut shall be delivered to the Department.

## METERS/BACKFLOW PREVENTION DEVICES

Construction plans shall include a typical meter installation for each size meter to be installed (see attached Standard Details). Dual metering of a single building service (i.e., two 1 inch meters instead of one 2 inch meter) shall not be permitted. The proper sizing of meters and service lines is the responsibility of the Developer's Engineer, subject to the Department's approval at the sizing. Meters will be available in the following sizes only: 5/8", 1", 1 1/2", 2", 3", 4" inch, and larger sizes as necessary. Meter boxes for 2 inch and smaller meters are standard and must be installed to finished grade by utility contractor.

Meters 3 inches (3") and larger shall be installed above ground. The backflow prevention device shall be installed above ground close to the meter on the customer side. No tees or connections are allowed between the meter and the backflow prevention device. All meters must be in accordance with the approved product list. Meters 2 inches and smaller will be installed by the Department.

All above ground piping and meters shall be coated with blue paint as follows:

Sandblast and remove all paint and any loose material in accordance with SSPC SP-10. Sandblasting shall be performed using non-silica media. Do not paint or coat any nameplates, brass or stainless steel surfaces. Contractor shall use the following paint system or approved equal.

1) Primer: TNEMEC-ALUMINUM MASTIC #135-TNEMEC (3.0 to 5.0 mils DFT)

2) Intermediate Coat: Series 66 Epoxoline-TNEMEC Hi-Build Epoxy (4.0 to 8.0 mils DFT)

3) Finish Coat: Series 73 Endura-Shield Hi-TNEMEC (2.0 to 3.0 mils DFT)

Water boxes shall be kept out of pedestrian walkways and out of driveway areas. For shopping centers, Developer's Engineer shall give special consideration to meter layout so as to satisfy these requirements. Final approval of meter location will be by the Department.

Once a service connection is made to Martin County Utilities' water system, disconnection from the water system is prohibited.

## DISINFECTION AND BACTERIOLOGICAL TESTING

After pressure testing, the complete water system shall be chlorinated to achieve a minimum combined chlorine residual of at least 75 parts per million. The chlorine solution shall remain in the water system for at least 24 hours. The complete water system shall then be flushed to remove the strong chlorine solution.

Test samples for bacterial analysis shall be taken by the Department or an approved testing laboratory. If testing is required to be done through the Department a fee of $25.00 will be charged for testing of each sample, and all required repeat sample tests. All disinfection work shall meet of requirements of the latest version of AWWA C651 standard.

PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
54598

| NO. | REVISIONS | DATE | BY |
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| 1 | UPDATED MCU DETAILS TO JULY 2006 | 04-09-07 | RS |

SEAL

PROJECT SPECIFICATIONS

BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

Kimley»Horn
445 24TH STREET, SUITE 200, VERO BEACH, FL 32960
PHONE (772) 794-4100 FAX (772) 794-4130
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| SCALE | AS SHOWN |
| DESIGNED BY | SDS |
| DRAWN BY | SDS |
| CHECKED BY | PVR |
| FILE | 16 PROJECT SPECIFICATIONS.dwg |
| DATE | JUNE 2017 |
| FILE & DRAWING NO. | 041052000 |
| SHEET | 16 OF 17 |

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# WASTEWATER COLLECTION SYSTEM

A color videotape (VCR tape, VHS format) of all new gravity sewer lines must be made by the contractor or the developer. Video taping of the complete sewer system all occur after completion of the backfilling operation and the placement and compaction of the roadway base (just prior to laying of asphalt). The video taping will determine that the lines have been laid to accurate line and grade. At time of video taping the lines shall be clean with sufficient water having been introduced into each segment of line to show any sags or dips present. The video camera shall have a depth gauge attached to the camera skid and in front of the camera that will show depth of water in the line at dips. Video shot be narrated. A final taping with a Department Representative present will be performed after the roadway is completed to verify that the system has not been damaged. All lines and appurtenances not meeting specifications and these MINIMUM STANDARDS shall be repaired or replaced.

The original video tape report and a set of "as-built" record drawings will be submitted to and become the property of the Department. The tape, report and record drawings must clearly show:

a. Project name, date & time of video tapping, segment of line being taped (i.e., MH #1 to MH #2) including street - name, and direction of taping process (i.e., with the flow or against the flow). Linear foot indicator on videotape.

b. All lateral sizes, locations and orientation.

c. Depth of any sags/dips found in the line. No more than 1/2" of sag will be allowed.

d. Entire length of line between manholes.

e. Video Pauses at problem areas with clear audible sound voice report describing deficiency.

f. A manhole video inspection and report shot be required for all manholes.

Any sand, rock, dirt or debris found in the lines shall be removed by the Contractor. All leaking joints or fittings shall be replaced or sealed from the inside with grout as determined by the Department. All cracked or defective pipe shall be replaced by the Contractor. Any cleaning, repair or replacement of lines must be video taped again. The Contractor and/or Developer will be responsible for all inspection costs.

Department personnel must be notified at least 48 hours in advance and be present for all video taping inspections.

The sewer main, house laterals and manholes shall be subjected to infiltration and exfiltration tests (method to be agreed upon by Engineer and Department). The allowable leakage shall not exceed 50 gallons/day/inch of diameter/mile.

Magnetic markers shall be placed at the end of and each sewer lateral. See approved product list for markers.

Once a service connection is made to Martin County Utilities' sewage system, disconnection from the sewage system is prohibited.

# LIFT STATIONS

Sewage pumping stations shall be of below ground design with submersible pumps. All stations shall be designed for not less than 230 volt, 3 phase, 60 cycle electric service.

Station structures, including the wet well and the box containing the valves, shall be of pre-cast concrete (Class II, 28 day compressive strength of 3500 psi. minimum) and meet the requirements of ASTM C-76. Joints shall be assembled with "Non-Neck" gasket or equal and overlaid with grout on the inside and outside of the wet well. Grout shall be non-shrinking waterproof cement mortar. Bottom and lower wall section shall be cast as one unit. Wet well structures shall have a minimum inside diameter of 8 feet. Wall thickness shall be a minimum of 6-inches. Rebar shall meet the requirements of ASTM A-185. Wet well structures shall be lined with two coats of a heavy bituminous coating.

Tremie installations will be approved by the Department on a case-by-case basis. Buoyancy calculations for all wet well installations shall be submitted to the Department for approval.

Covers for the wet well and the valve box shall be of diamond plate aluminum with a minimum thickness of 1/4 inch. The covers shall have hinges, frames, locking hasps, a flush lifting handle, and a hold-open bracket all constructed of aluminum or stainless steel. Wet well aluminum cover shall be hinged on side closest to electrical panel. Valve box hinges will be placed on side furthest from electrical panel. Covers must be positioned to allow easy removal of the pumps and to allow easy access to the valve wheels. All covers shall be traffic bearing to handle a minimum H-20 truck loading.

Pumping stations shall be located so that they will be accessible by maintenance vehicles. All stations shall be provided with asphalt or concrete driveways suitable for truck access and designed for H-40 truck loading.

At least two pumps with alternating controls shall be provided. They shall be of the same type and capacity and shall each be capable of handling the peak hourly flow unless a tri-plex station is approved by the Department. The peak hourly flow shall be determined by multiplying the average daily flow by a minimum factor of 2.5 or as determined by 10 State Standards. Pumps shall be capable of passing a minimum of 3-inch solids. Complete pump curves and pump specifications shall be submitted to the Department before installation of the pumps. The pumps shall be non-overloading at any point on the pressure, volume, characteristic curve. All submersible pump motors shall be explosion proof rated.

In projects constructed by phase, master lift stations that will have minimal flows for a considerable time shall be equipped with temporary pumps with reduced capacity, though not less than 50% of a permanent pump capacity.

Only pump brands approved by the Department are acceptable. Approved pumps are listed in the Approved Material List in these MINIMUM STANDARDS.

Submersible pumps shall be installed with guide rails, discharge connections, and lifting chains or lifting cables. Guide bars or rails shall be Schedule 40, 316 stainless steel pipe. The discharge connection shall be firmly attached to the bottom of the wet well with 316 stainless steel bolts. Lifting chains or cables shall be 316 stainless steel. All nuts, bolts, washers and other hardware inside the wet well shall be 316 stainless steel.

Each pump shall have a gate valve and a check valve which shall be installed in a concrete valve pit structure adjacent to the wet well. Piping and fittings shall meet force main standards in these MINIMUM STANDARDS with AISI stainless steel bolts, nuts and hardware inside the wet well. Piping shall be a minimum of 4 inches in diameter and all piping and valves shall be flanged. Check valves shall be cast iron, swing check type with levers and weights. A valved emergency pump connection with a gate valve shall be installed downstream of the valves. A male aluminum cam-lock fitting shall be provided on the emergency pump connection with a female cap. Piping shall be adequately restrained to prevent pipe movement through the wall of the wet well. All piping and fittings inside the wet well shall be coated with the Department approved wetwell coating systems. The concrete structure containing the valves shall have a 2-inch minimum size PVC drain with a "T" trap in the wet well. Two 4 inch, 0 to 60 p.s.i. oil filled pressure gauges with brass piping, diaphragm, fittes and petcocks, two 45-degree ells and two brass valves shall be installed downstream of the check valves with the gauge inside the valve structure. The tap on the piping shall be through the use of a tapping saddle only.

All above ground piping shall be coated with green paint as follows:

Sandblast and remove all paint and any loose material in accordance with SSPC SP-10. Sandblasting shall be performed using non-silica media. Do not paint or coat any nonmetallics, brass or stainless steel surfaces. Contractor shall use the following paint system or approved equal. Primer shall be applied no later than 2 hours after sand blasting.

TNEMEC

1) Primer: TNEMEC-ALUMINUM MASTIC #135 (3.0 to 5.0 mils DFT)

2) Intermediate Coat: Series 66 Epoxoline Hi-Build Epoxy (4.0 to 6.0 mils DFT)

3) Finish Coat: Series 73 Endura-Shield II Urethane or equal (2.0 to 3.0 mils DFT)

a) Float Switches

Float switches shall be weighted non-mercury float switch type and should be installed as approved by the Department. All float switches shall be rated for a minimum of 10 amps at 250 volts.

b) Level Transducers

Any lift stations with a design capacity exceeding 250 gpm shall be fitted with a level transducer. Level transducers shall be submersible pressure transducers. Level transducers shall be loop-powered devices operating on 24 VDC and providing an analog 4-20 mA signal to the pump controller and installed as approved by the Department.

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c) Control Panel

Pump control panel shall respond to wet well float switches to automatically start and stop pumps. The pump control panel shall be fabricated by a qualified controls manufacturer. Electrical power to be furnished to the panel shall be 120/240 volt, 1-phase, 4-wire or 208/240 volt 1-phase, 3-wire as indicated in the contract drawings. When available higher voltages may be required for larger stations.

Single phase shall be allowed only on a case-by-case basis as approved by the Department. Single phase installations shall utilize a VFD for each motor to enable the use of standard 3-phase motors. VFDs shall be Schneider Electric Model ATV71 series.

Control panel wiring and parts shall conform to Department standard drawing for LIFT Station Control panels, drawing number MCULSC1P pages 1-6 and MCULSC2P pages 1-6.

The control panel shall be designed so that electrical systems and components in raw wastewater wells comply with National Electric Code requirements for Class I Group D Division I locations. This shall be achieved through the use of explosion proof equipment, intrinsically safe circuitry or other approved method. Ground Fault interruption protection shall be used to de-energize the pump motors in the event of any failure in the electrical integrity of motor power conductors.

Each control panel shall have a Main and Emergency circuit breaker. A mechanical interlock between the Main and Generator circuit breakers shall be provided. The interlock shall not allow one breaker to be turned on without the other being in the off position. The interlock mechanism shall be professionally machined from aluminum plate and securely fastened to the interior door of the control panel. The control panel will be UL listed as a complete unit. All nuts, bolts, washers and mounting hardware related to mounting the panel shall be 316 stainless steel.

b) Generator Power Receptacle, Convenience Receptacle and Breakers

To insure continuous operation of lift stations during disaster events, a mobile engine generator will be provided for every five lift stations in the inventory of the Department. To insure the purchase of these generators developer shall pay to Martin County at the execution of the standard water and wastewater service agreement, an amount of 1/5 of the cost of one 60 kw emergency engine generator per lift station dedicated to Martin County for perpetual maintenance. This fee is currently $8,000.00 per lift station.

A generator power receptacle shall be provided on the exterior of the pump control panel, mounted on the lower right side with a downward facing 45° angle adapter. The power receptacle shall be wired to the generator circuit breaker. Each pump motor shall be protected and controlled by a thermal-magnetic circuit breaker, melting alloy overload relay and motor starter contractor. Two (2) 15-ampere circuit breakers for control power and convenience outlet power shall be provided. A GFI type 15-ampere convenience outlet shall be provided on the exterior of the control panel utilizing a weatherproof box and cover.

c) Alarms and Shut-off

High level alarm and pump shut-off and turn-on shall be accomplished by float type liquid level switches or a liquid level transducer in conjunction with the control components of the pump control system. The liquid level control system shall include a pump monitor set well liquid level in and conjunction with the pump control system, shall control the operation of the pumps.

d) Seal Leak Detection

Seal leak detection shall be provided using high sensitivity relays, on pick-up, shall cause a "Seal Leak" indicator on the interior door to light and send a signal to the RTU. Normally closed thermal switches in submersible pump motors shall, through the pump control panel's control circuitry, shut down the affected pump and send a signal to the RTU.

e) Pump Control Panel Housing

The pump control panel housing shall be a NEMA Type 12/3R with rain-shield and 3-point padlockable latch, dead front enclosure, constructed of not less than 14 gauge 316 stainless steel. The minimum panel housing shall be 12" deep x 30" wide x 36" high. The enclosure shall be equipped with an exterior door, interior "dead front" door and shall incorporate a removable 1/8 inch thick aluminum back panel on which control components shall be mounted. The front door shall be secured to the enclosure with a continuous stainless steel piano hinge and be equipped with a padlocking three point latching mechanism. The handle of the three point latching mechanism shall be fabricated of heavy gauge stainless steel. The back panel shall be secured to the enclosure with collar studs.

f) Fastenings and duct work

All motor branch circuit breakers, motor starter contactors, overload relays, control transformer and control relays shall be securely fastened to the removable back panel with cadmium plated steel screws and lock washers. The back panel shall be tapped to accept the component mounting screws. Self-tapping screws shall not be used to mount any components.

g) Contactors and Switches

An open frame, arcless-the-line, NEMA rated, magnetic motor contactors with 120 volt, 60 Hz coils shall be furnished for each pump motor (Schneider Model CP-10 VFDs shall be supplied in approved single phase installations). Contacts and coil shall be easily replaceable without removing the contactor from its mounted position. All operating controls and instruments shall be securely mounted on the control compartment interior door. All controls and instruments shall be clearly labeled using engraved plastic plates to indicate function. Trouble light switch shall be NEMA 4.

h) Primary Disconnect

The primary disconnect shall be a re-settable primary circuit breaker located in the circuit prior to the control panel. Amperage rating and stainless steel enclosure type to be specified by Engineer. Lightning arresters and surge protectors shall be installed.

i) Interior

The following components shall be mounted on the interior door:

Access to Primary and Generator circuit breaker and interlock mechanism
Access to Pump and secondary breakers.
Trouble light On-Off switch.
"Run in Backup" indicator light.

Two (2) each of the following:

1. Hand-Off-Auto (HOA) switches
2. Green Pump Run indicator lights
3. Amber "Seal Fail" indicator lights
4. Green "Power On" indicator light
5. Red "Running in Backup" indicator light
6. Overload reset buttons

Wire markers shall be machine printed heat-shrink tubing or slip-on, chevron cut, type. Wire markers shall be manufactured by Panduit, Brady, or approved equal.

Cable ties shall be type PRT as manufactured by Panduit, Thomas & Betts, Hayco, Tyco or approved equal.

4-Way adhesive back mounts shall be made of heat stabilized nylon with an adhesive backing protected with a peel back paper covering. This mounts shall be type ABM2S as manufactured by Panduit.

Engraved plastic plates shall be of laminated plastic with black surface and white 1/8 inch high letters secured with stainless steel screws.

Plastic wiring duct shall be PVC with restricted slot openings and slotted mounting holes. Wiring duct shall be complete with a matching solid PVC cover. Plastic wiring duct shall be type E as manufactured by Panduit.

The wire number shall be installed as designated on the submitted schematic at each termination end of every control wire using wire markers. If minor changes need to be made during panel fabrication, these changes shall be made to the schematic for the O & M manual. Panel wiring shall be done in a neat and professional manner using cable ties, adhesive back mounts, and plastic wiring ducts as required. Wiring bundles and duct shall be run horizontal or vertical only. Diagonal runs shall not be allowed.

Wires shall be carefully stripped of insulation when making terminations using a wire stripper which does not cut off wiring strands during the stripping process. Wiring terminations shall be made to lift or barrel type terminal or compression applied spade lugs. Wires shall not be wrapped under screw terminals when making an electrical termination.

Control panel wiring shall be with 18 AWG, 600 volt rated, tinned, stranded copper conductor UL 1007 and UL 1569 type Hook-up wire.

j) Stand-by Power

Standby power receptacles and phase monitors shall be provided at all pumping stations. Lift stations shall be equipped for auxiliary generator power supply. The following plug and receptacle shall be used as manufactured by Russell and Stall.

100 amp service, JRSB 1044, FR Receptacle
200 amp service, JRSB 2044, FR Receptacle

k) Enclosures

All lift stations shall be enclosed by vinyl coated posts and wire mesh fencing (chain link, 6 feet high) with a 12 foot wide gate centered on the wet well. Decorative fencing may be used at the Developer's expense in addition to the chain link fencing. The high water light shall be enclosed above the decorative fencing. Direct vehicle access will be provided for maintenance purposes. An 8" thick concrete slab shall be placed over the entire area within the fenced portion of the station.

l) Access

Easements of sufficient size or right-of-way is necessary for access. An easement or deed will be required for the lift station property. The exterior top of the wet well shall generally not be more than 1 foot above the road grade adjacent to the station but in all cases shall be above the 100-year flood zone elevation. The layout of the station should be such to provide easy access without interference. The fenced area shall be laid with six inch thick concrete.

Access road from paved street to the lift station shall be 10 feet wide with a minimum curve radius of 75 feet, maximum incline of ten (10) percent and maximum cross-section incline of fifteen (15) per cent. Swale crossings require culverts of proper design.

Access road shall be constructed in accordance with FDOT specifications. For materials and thickness refer to typical lift station layout detail.

Developer or Engineer shall provide the following items on pump station start-up.

a. Deed to property or plant showing easement.

b. Operation and Maintenance Manuals (3 sets required).

c. Pump data and technical information concerning pump operation, maintenance and repair shall be supplied at the time of completion of lift station construction. Parts lists, warranties, and all other pertinent information is also required. All equipment shall be warranted by the manufacturer for one year from the date of start-up.

d. Individual schematic wiring diagrams and information concerning Control Panel operation and parts replacement.

e. Verification of operational approval by Manufacturer's Representative and Engineer in writing to include actual operating conditions (total g.p.m. at t.d.h., impeller size, hp., r.p.m., voltage, discharge size).

A certified factory trained representative shall be provided by the contractor for the start-up.

No start-up can begin without the Department representative on site. Submersible pumps shall be pulled to the surface and put on the ground, then reinstalled on the guide rails and lowered in place by the manufacturer's representative prior to testing of the pumps.

Backflow assemblies shall be certified complete by a technician certified by TREED of the University of Florida or by an equivalent certified 40 hour program.

Telemetry is required for all lift stations maintained by the Department. Construction plans shall include the typical remote telemetry unit (RTU) Motorola Acc 3800 for each lift station to be constructed. Reference current Martin County Details 59-50.

The Developer and/or Contractor shall provide and install a RTU which will communicate with an existing telemetry system by radio. The existing system is provided by DCR Engineering Services, Inc: 502 County Road 640 East Mulberry, FL 33860. Phone: 863-428-8080.

The new RTU equipment shall be housed in a 24"H X 20"W X 12"D stainless steel enclosure, acid dipped and painted white, equipped with lightning protection, RTU with radio, and battery back-up. See Martin County Details for wiring diagram, enclosure, and parts list.

Each of the main components of the RTU shall be as specified below:

a) Remote Terminal Unit (RTU). The RTU module shall be a microprocessor-based controller designed for use with the existing telemetry systems. The RTU shall control up to three (3) pumps and interface with up to six (6) floats, 4 analog signals and up to 15 other discrete inputs. As a minimum the RTU module shall have the following features:

1. Local automatic control from floats and level transducer.
2. Local manual control provided by HOA switches on the pump control panel. The HOA switches shall function with the floats to provide extra operational flexibility (one pump can be taken out of service for repair by the HOA switch and the floats will control the remaining pump(s).
3. Remote control from the central site computer shall provide individual pump overrides, station and alarm disables, if programmed at the central site.
4. Triplex/Duplex/Simplex configurable.
5. Triplex configuration shall use emergency high, lag 2, lag 1, lead, and all off float.
6. Duplex configuration shall use emergency high, lag, lead, and all off float.
7. The alternator function shall alternate ground pumps that don't run when called. The alternator shall allow the operator to exercise a pump on or off with the HOA switches and the alternator will still provide alternator control over the remaining pump(s).
8. Remote alarm bell/horn disable from central site computer.
9. Float alarm reporting back to central site computer when floats are operating out of sequence.
10. Pumps/Starter/Breaker Fault alarms shall be reported back to central site computer. The alarms shall be activated when a pump is called to run, but fails to run, or if the pump is turned off by the RTU module, but continues to run.
11. HOA Switch Alarms shall be reported back to central site computer. Alarms shall indicate that an HOA switch has been left in the HAND or OFF position.
12. Pump run status shall be reported back to central site computer. Pump run times shall be recorded with 2-second accuracy.
13. RTU Power Status shall be reported back to central site computer.

b) Radio.

Trunked 800 MHZ, 3 watt adjustable
Manufacturer: Motorola
Model MTS2000

The Contractor shall supply all necessary components for a fully functional RTU per Martin County Details. Any appurtenance not specifically detailed above, but required for proper operation shall be provided.

The Contractor shall be responsible for all installation and start-up and testing of the RTU, including mounting of the panel, wiring, supports, etc

c. Grease Traps. Restaurants and other food service businesses, service stations and vehicle repair garages.

1. Grease, oil, and sand interceptors shall be provided on drains leading to sewer pipes when, in the opinion of the Director, they are necessary for the proper handling of wastewater containing excessive amounts of grease and oil, or sand, except that such interceptors shall not be required for residential users. All interception units shall be of type and capacity, and constructed based upon the standards set forth in Chapter 64-E6 FAC, as well as, the latest version of the Martin County Utilities Minimum Design and Construction Standards.

d. Lint Traps. Lint screens are required on drains leading to sewer pipes from commercial laundries. Filtering apparatus should be sized to handle flow rate of laundry discharge through a minimum of three screens --two, 1/4" mesh size and one, 1/8" mesh size. Metal fabric must be used for filtering. No lint metal fabrics will be allowed.

# RECORD DRAWINGS

DESCRIPTION: The Work covered under this section shall include furnishing the Department all information necessary for a complete set of Record Drawings.

APPLICABLE CODES, STANDARDS AND SPECIFICATIONS: The Record Drawings information shall be in strict accordance with the following codes and standards:

A. Local County and Municipal Codes.

B. Department of Environmental Protection.

C. State of Florida Department of Health and Rehabilitative Services.

RESPONSIBILITY: The Contractor and or Developer shall be required to provide Record Drawings as outlined in this section.

RECORD DRAWINGS: The record drawings shall correctly and accurately show all changes from the Contract Documents made during construction and shall reflect surveyed information which shall be performed by a professional engineer and land surveyor registered in the State of Florida and shall include any and all necessary dedicated utility easements (noted with O.R. book/Plat book and Page Numbers). The drawings shall be neat and legible. Show all elevations and horizontal control of all lift stations, gravity sewers including laterals, force mains, water mains including services, reclaimed water mains and raw water mains. Locations shall be made by reference to the baseline stationing with offsets or by other means acceptable to the Department. Elevations shall be according to National Geodetic Vertical Datum (NGVD). Surface elevations (in NGVD) shall also be provided.

The contractor shall furnish one set of copies of all as-built surveyors field notes. A minimum of two pipe center line locations near the project limits shall be tied by a closed field traverse to the nearest approved Martin County geodetic control station and azimuth mark or approved pair of Martin County adjusted traverse points or to other control points established by Global Positioning System (GPS) which meet or exceed Third Order Class I Accuracy Standards according to current publication of the Federal Geodetic Control Committee (FGCC) procedures. Field traverse from "project center line locates" to geodetic control shall meet Third Order Class II traverse closure standards when possible; however, at a minimum, traverse closure must meet the minimum technical standards set forth in Chapter 61G17-6. A signed copy of geodetic tie in field notes and traverse closure data is required with final record submittal for review by Martin County Utilities along with final record drawings.

A. A. Water, Force, and Reclaimed Water Mains: Record drawings shall show the following field information:

1. Show size, type of material, used to construct mains.
2. Show location and elevation of all tees, crosses, bends, terminal ends, valves, fire hydrants, air release valves, and sampling points, etc. by distances from known reference points.
3. Show location, size and type of material of all sleeves and casing pipes.
4. Elevation and horizontal location of all storm sewers, gravity sewers including laterals, force mains, water mains, etc. which are crossed; including clearance dimension at all conflicts or crossings.
5. Top of pipe elevation and horizontal location of all water and force main stub-outs.
6. Horizontal location of all services at the property lines.
7. Top of pipe vertical and horizontal location and size of all mains and ground elevation at 100' intervals. Contractor shall construct temporary tail-late pipes at each of the 100' intervals at every fitting, and every conflict/crossing to facilitate the record drawing survey. The tail-late pipes shall be constructed of 2-inch PVC pipe, shall be placed on the top of the pipes to be surveyed, and shall be removed by the Contractor after completion of the field survey by the "As-Built" professional Surveyor.
8. Location of fire lines.
9. Dedicated easement locations, identified by O.R. Book and Page Number.

B. Gravity Sewer: Record drawings shall show the following surveyed information:

1. Manholes: Elevation at top rim and invert of each inflowt and effluent line.
2. Show distance between manholes center-to-center and horizontal location.
3. Show material type used to construct sewer mains.
4. Show length (center of manhole to end of slub) distance from known reference points or baseline offsets, and elevation of slub-outs.
5. Show which services have 20 ft length of DIP at water main crossings.
6. Show station and offset location of sanitary services at property line. Particular care in dimensioning needed in special situations, i.e., cul-de-sacs and locations where services are not perpendicular to eye.
7. Show invert elevation of sanitary service at property line.
8. Any and all necessary dedicated easement locations, identified by O.R. Book and Page Number.

C. Pump/Lift Station: Record drawings shall show elevations for top and bottom and diameter of wet well along with invert of influent line. Record drawings should also indicate the make, model number, horsepower, impeller and condition point of pumps selected and installed, shape of wet well, location of control panel, location of pump out connection, float level settings, any deviation from the plans, and serial number of the pumps.

RECORDS: Daily records of changes in location of piping, fixtures and other items shall be kept and recorded on the record drawings. The contractor, developer or developers engineer shall submit monthly progress reports containing the record information including copies of the signed and sealed surveyor's field notes.

The contractor, or developers engineer shall review the completed record drawings and ascertain that all data furnished is accurate and truly represents the work actually installed. No Record Drawing information will be accepted by the Department from subcontractors.

SUBMITTAL: Upon completion of the work, but prior to submittal of request for final payment or final acceptance, the contractor or developers engineer shall obtain and submit record information certified by a Florida Professional Land Surveyor. The reproducible and three paper prints of the plan sheets, profiles, details and lift station shall be provided. The reproducible set shall be mylar. The three prints shall be signed and sealed by the Florida Professional Land Surveyor and the Florida Professional Engineer responsible for certifying the project. Also, two (2) copies of the electronic record drawing files on disc, if available, shall be submitted in AutoCAD 2000 format.

For horizontal directionally drilled segments of pipe mains, a pre-drill survey shall be performed by a Professional Surveyor and Mapper to obtain reference measurements as required to tie the H.D.D. tracking information from the entry to the project survey control. As a minimum this will include vertical (NGVD) and horizontal location at the point of entry for the borehole. This shall include the alignment vector for the drill rig relative to the project control baseline survey.

Once all required documentation is received by the Department, 10 days must pass for processing. After the 10 day period, meters may be issued.

NOTE: MARTIN COUNTY UTILITIES DEPARTMENT'S MINIMUM DESIGN AND CONSTRUCTION STANDARDS (LATEST EDITION, JUNE 2014), ARE TO BE ADHERED TO AND WILL BE ENFORCED TO AT LEAST THESE MINIMUM STANDARDS.

CALL 48 HOURS BEFORE YOU DIG
IT'S THE LAW!
800-432-4770
SUNSHINE STATE ONE CALL OF FLORIDA, INC.

| NO | REVISIONS | DATE | BY |
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| 1 | UPDATED MCU DETAILS TO JULY 2006 | 04-09-07 | RS |

PROFESSIONAL ENGINEER
BLAINE BORGSTROSSER, P.E.
64598

SEAL

PROJECT SPECIFICATIONS

BANYAN BAY - PHASE 2C
MARTIN COUNTY, FLORIDA

SCALE AS SHOWN
DESIGNED BY SDS
DRAWN BY SDS
CHECKED BY PVR

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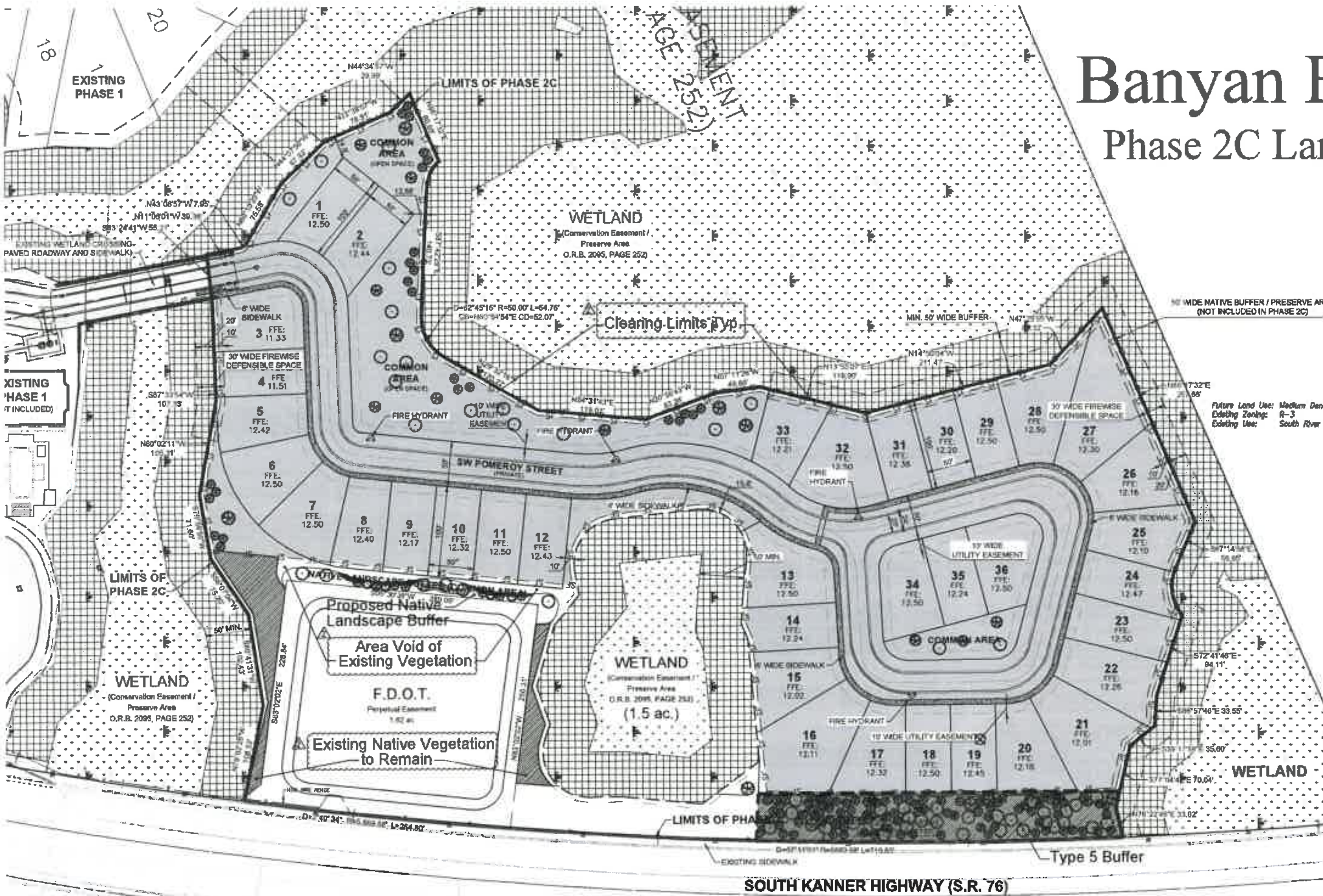
DATE JUNE 2017
FILE & DRAWING NO. 041052000
SHEET 17 OF 17

FILE 17 PROJECT SPECIFICATIONS.dwg

# Banyan Bay PUD

## Phase 2C Landscape Plans




**Lucido & Associates**
Land Planning / Landscape Architecture
701 S.E. Ocean Blvd., Stuart, Florida 34994 (772) 220-2100, Fax (772) 223-0220

| TREES | CODE | QTY | BOTANICAL NAME | COMMON NAME | CONTAINER |
|---|---|---|---|---|---|
| ✓ | AR | 10 | Acer rubrum | Red Maple | 30 G, 10' HT x 5' SPR, 2.5" D |
| ✓ | CE | 9 | Conocarpus erectus | Buttonwood Standard | 45G, 12'X6', SP |
| ✓ | PE | 129 | Pinus elliottii 'Densa' | South Florida Slash Pine | FG, 14'-16' HT X 7' SPR, 3"C |
| ✓ | QV | 53 | Quercus virginiana | Southern Live Oak | 65G, 14'X8', 3"C, SP |
| **PALM TREES** | **CODE** | **QTY** | **BOTANICAL NAME** | **COMMON NAME** | **CONTAINER** |
| ✓ | SP | 4 | Sabal palmetto | Sabal Palm | FG, 10'-20' CT, SLK TR, SP |
| **SHRUBS** | **CODE** | **QTY** | **BOTANICAL NAME** | **COMMON NAME** | **CONTAINER** |
| ✓ | CHR | 344 | Chrysobalanus icaco 'Horizontal' | Horizontal Cocoplum | 3G, 24" SPR, F |
| ✓ | CER | 90 | Conocarpus erectus | Green Buttonwood | 3G, 24" OA, F |
| ✓ | HAP | 162 | Hamelia patens | Fire Bush | 3G, 24" OA, F. |
| ✓ | MYF | 264 | Myrcianthes fragrans | Simpson's Stopper | 3G, 24" OA, F |
| ✓ | MMC | 57 | Myrica cerifera | Wax Myrtle | 3G, 24" OA, F |
| ✓ | SCP | 140 | Serenoa repens 'Cinerea' | Silver Saw Palmetto | 3G, 24" OA, F. |
| **GRASSES** | **CODE** | **QTY** | **BOTANICAL NAME** | **COMMON NAME** | **CONTAINER** |
| ✓ | MUH | 81 | Muhlenbergia capillaris | Pink Muhly | 1G, 18" HT x 12" SPR, F |
| ✓ | TRD | 21 | Tripsacum dactyloides | Fakahatchee Grass | 3G, 24" OA, F, 48" OC |
| **SOD/SEED** | **CODE** | **QTY** | **BOTANICAL NAME** | **COMMON NAME** | **CONTAINER** |
|  | BAHIA | 62,344sf | Paspalum notatum | Un-Irrigated Bahia Grass | SOD |
|  | SOD | 38,053sf | Stenotaphrum secundatum 'Floratam' | Floratam St. Augustine Sod | SOD |

100 %

- MITIGATION NOTE: (3) 3" Cal. Live Oak trees have been proposed to satisfy the 8 mitigation credits required for tree removed. (See Tree Inventory Plan, LA-3 for details)
- Pine Straw Mulch to be used in all Planting Beds Including Required Buffer
- Tree & Shrub quantity within buffer may vary depending on site conditions at time of install

## Index of Drawings:

| | |
|---|---|
| Cover Sheet/Landscape Data & Plant List | LA-1 |
| Landscape Plan | LA-2 |
| Tree Inventory Plan | LA-3 |
| Details | LA-4 |
| Specifications | LA-5 |

Scale: 1"=60'-0"
SCALE
0 30' 60' 120'

## General Notes:

-All prohibited species shall be removed from the entire site prior to the issuance of a certificate of occupancy (Section 4.664, LDR)
-Mulch material to a minimum compacted depth of three inches is provided for all planting areas when used to supplement ground covers. Cypress mulch may not be used as a mulching material. (Section 4.663.C., LDR)
[illegible]

-Alternative plant species and enhanced landscaping beyond minimum requirements may be permitted subject to review and approval by the Martin County Growth Management Department prior to installation.
-All required landscape improvements must be inspected and approved by Martin County prior to the issuance of a Certificate of Occupancy.
-Adequate irrigation of landscaped areas shall be provided for the first full required growing season and continue thereafter only as necessary to maintain vegetation in good and healthy condition.
-Irrigation systems shall be designed not to overlap water zones or to water.
-Irrigation systems shall be continuously maintained in working order.
-Irrigation Water Source: Temporary Water Use Permit and IQ lake with reuse from Martin County.

### XERISCAPE LANDSCAPE PLAN:

| | |
|---|---|
| 51% or more of drought tolerant grasses used. | 10 pts. |
| 51% or more of drought tolerant shrubs used. | 10 pts. |
| 51% or more of drought tolerant trees used. | 10 pts. |
| Utilization of mulch. | 5 pts. |
| Sod area less than 50% of landscape area. | 5 pts. |
| Utilization of compacted mulch beds at least three inches deep in all planted areas, except groundcovers. | 10 pts. |
| | 50 pts. |

## Site Data:

| | | | |
|---|---|---|---|
| Total Site Area: | 563,183 sf | 12.93 ac. | (100%) |
| Product Type: | Single Family Units | | |
| Total Units: | 36 Units | | |
| Gross Density (Overall PUD): | 1.17 DU/Ac. | | |
| Net Density (Phase 2C): | 2.78 DU/Ac. | | |
| Existing Zoning: | PUD | | |
| Future Land Use Designation: | Medium & Low Density Residential | | |

## Site Area Calculations:

| | | | |
|---|---|---|---|
| Impervious Area: | 236,966 sf | 6.84 ac. | (53%) |
| Right of Way: | 51,836 sf | 1.19 ac. | |
| Lot Area: | 116,047 sf | 4.11 ac. | |
| F.D.O.T. Easement (Open Water): | 43,124 sf | 0.99 ac. | |
| Wetland Preserve: | 23,959 sf | 0.55 ac. | |
| Pervious Area: | 326,217 sf | 6.09 ac. | (47%) |
| Right of Way: | 32,234 sf | 0.74 ac. | |
| Lot Area: | 105,850 sf | 1.03 ac. | |
| F.D.O.T. Easement (Upland): | 27,469 sf | 0.63 ac. | |
| Landscape Buffers: | 33,106 sf | 0.76 ac. | |
| Upland Preserve (Wetland Buffer): | 41,309 sf | 0.95 ac. | |
| Other Common Areas: | 86,249 sf | 1.98 ac. | |

## Landscape Material Requirements:

**Trees:**
Total Site Developed Including ROW, Buffers, & Common Area: 203,425 sf
203,425 sf /3,000 = 68 Trees
Type 5 Buffer Yard: 400 lf. x 50' = 20,000 sf
20,000/300 = 67(3) = 201 Trees

**Shrubs:**
Type 5 Buffer Yard:
20,000/300 = 67(34) = 2,278 Shrubs

## Landscape Material Provided:

**Trees:**
Total Site Developed Including ROW, Buffers, & Common Area: 71 Trees
Type 5 Buffer Yard: 201 Trees (including 70 Preserve Tree Credits)

**Shrubs:**
Type 5 Buffer Yard: 2,278 Shrubs

**Banyan Bay PUD**
**Phase 2C**
Landscape Plan
Martin County, Florida

NORTH

| | |
|---|---|
| Scale | 1"= 60' |
| Drawn by | PG |
| Checked By | MC |
| Computer File | 2C Landscape Plan |
| Computer Station | Server |
| Project Number | 16-561 |
| Date | 8.03.17 |

Revisions 12.18.19
1. 4.28.20 REV PER MC COMMENTS
2. 7.23.20 REV PER MC COMMENTS

Sheet
**LA-1**

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Scale: 1"=40'-0"

SCALE 0 20' 40' 80'

# Banyan Bay PUD Phase 2C

## Landscape Plan

Martin County, Florida

NORTH

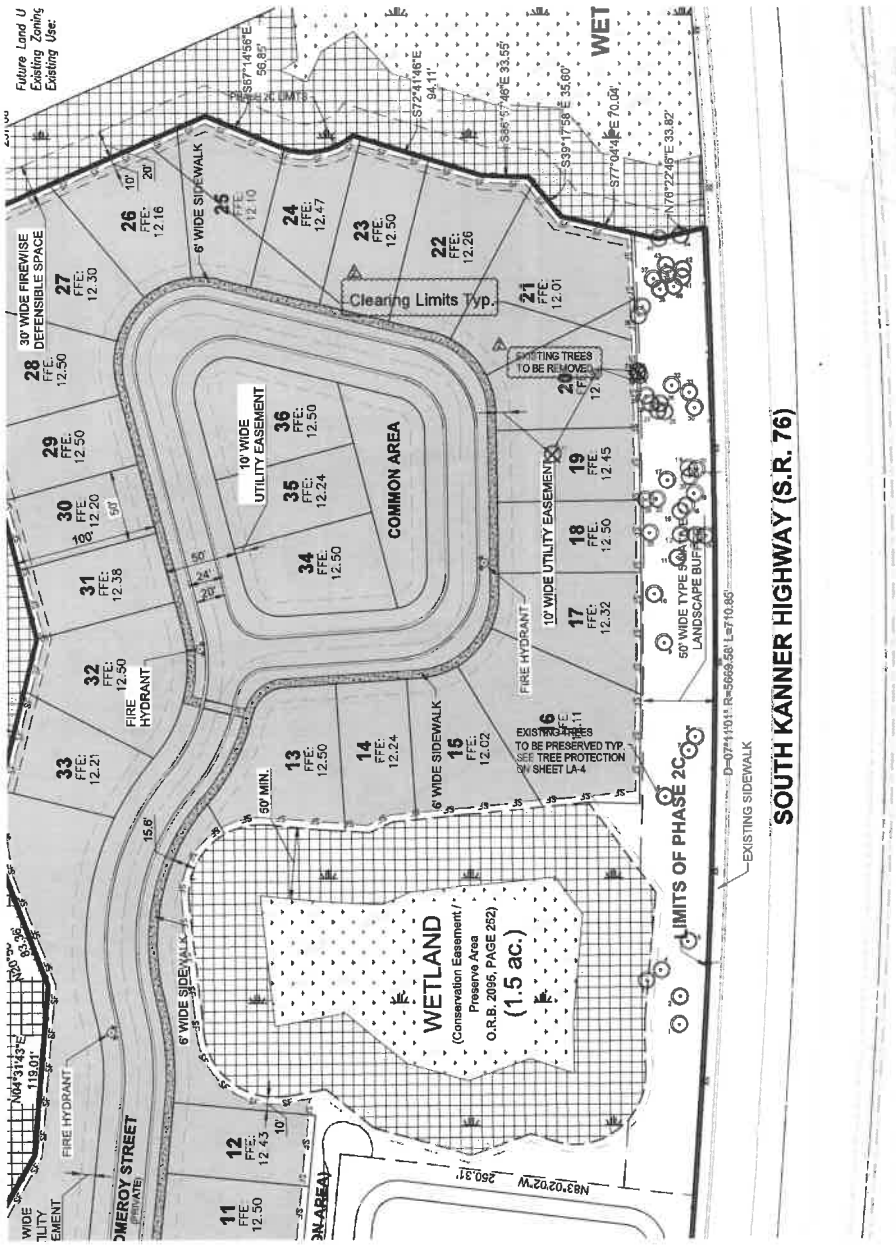
| | |
|---|---|
| Scale | 1"= 40' |
| Drawn by | PG |
| Checked By | MC |
| Computer File | 2C Landscape Plan |
| Computer Station | Server |
| Project Number | 16-591 |
| Date | 8.03.17 |

Revisions 12.18.19

4.28.20 REV PER MC COMMENTS

7.23.20 REV PER MC COMMENTS

Sheet **LA-2**




| Tree # | Common Name | Scientific Name | DBH | Replacement Credit | Preserve Credits |
|---|---|---|---|---|---|
| 1 | Slash pine | Pinus elliottii | 9.5 | | 2 |
| 2 | Slash pine | Pinus elliottii | 11 | | 2 |
| 3 | Slash pine | Pinus elliottii | 11.5 | | *** 0 |
| 4 | Slash pine | Pinus elliottii | 8.5 | | 2 |
| 5 | Slash pine | Pinus elliottii | 12 | | 2 |
| 6 | Water oak | Quercus nigra | 9.5 | | 2 |
| 7 | Slash pine | Pinus elliottii | 10 | | 2 |
| 8 | Slash pine | Pinus elliottii | 11 | | 2 |
| 9 | Slash pine | Pinus elliottii | 10.5 | | 2 |
| 10 | Slash pine | Pinus elliottii | 14.5 | | 3 |
| 11 | Slash pine | Pinus elliottii | 12 | | 2 |
| 12 | Myrtle oak | Quercus myrtifolia | 5.5 | | — |
| 13 | Live oak | Quercus virginiana | 4.5 | | — |
| 14 | Live oak | Quercus virginiana | 4.5 | | — |
| 15 | Live oak | Quercus virginiana | 9 | | 2 |
| 16 | Live oak | Quercus virginiana | 5.5 | | — |
| 17 | Live oak | Quercus virginiana | 4.5 | | — |
| 18 | Live oak | Quercus virginiana | 6 | | — |
| 19 | Live oak | Quercus virginiana | 4 | | — |
| 20 | Live oak | Quercus virginiana | 4 | | — |
| 21 | Live oak | Quercus virginiana | 5.5 | | — |
| 22 | Live oak | Quercus virginiana | 5.5 | | — |
| 23 | Slash pine | Pinus elliottii | 8 | | 2 |
| 24 | Slash pine | Pinus elliottii | 10.5 | | 2 |
| 25 | Live oak | Quercus virginiana | 4 | | — |
| 26 | Live oak | Quercus virginiana | 6.5 | | — |
| 27 | Live oak | Quercus virginiana | 7.5 | | 2 |
| 28 | Live oak | Quercus virginiana | 7 | | 2 |
| 29 | Live oak | Quercus virginiana | 5 | | — |
| 30 | Live oak | Quercus virginiana | 7.5 | | 2 |
| 31 | Live oak | Quercus virginiana | 5 | 2 | |
| 32 | Slash pine | Pinus elliottii | 15 | | 3 |
| 33 | Slash pine | Pinus elliottii | 16 | | 3 |
| 34 | Live oak | Quercus virginiana | 9 | 3 | |
| 35 | Water oak | Quercus nigra | 5 | | — |
| 36 | Slash pine | Pinus elliottii | 12 | | 2 |
| 37 | Live oak | Quercus virginiana | 4 | | — |
| 38 | Live oak | Quercus virginiana | 6.5 | | — |
| 39 | Live oak | Quercus virginiana | 5 | | — |
| 40 | Live oak | Quercus virginiana | 10.5 | | 2 |
| 41 | Live oak | Quercus virginiana | 10 | | 2 |
| 42 | Live oak | Quercus virginiana | 8.5 | | 2 |
| 43 | Slash pine | Pinus elliottii | 11 | | 2 |
| 44 | Slash pine | Pinus elliottii | 15.5 | | *** 0 |
| 45 | Slash pine | Pinus elliottii | 14.5 | | *** 0 |
| 46 | Loblolly bay | Gordonia lasianthus | 8 | | 2 |
| 47 | Live oak | Quercus virginiana | 8 | 3 | |
| TOTAL CREDITS | | | | 8 | 70 |

*70 Preserve Credits have been applied to Type 5 Buffer requirements
**Mitigation Note: (3) 3" tree has been proposed in the Type 5 Buffer to satisfy the 8 Mitigation Credits required for tree removal.
(See Landscape Plans for details)
***Located in Preserve Areas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1"=40'-0"
SCALE
0 20' 40' 80'

# Banyan Bay PUD Phase 2C

## Tree Inventory Plan

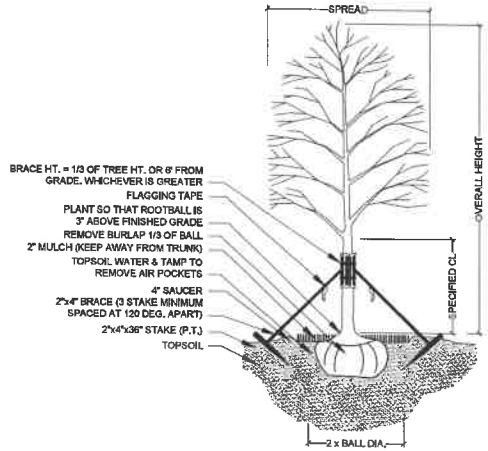
Martin County, Florida

NORTH

| | |
|---|---|
| Scale | 1" = 40' |
| Drawn by | PG |
| Checked By | MC |
| Computer File | 2C Landscape Plan |
| Computer Station | Server |
| Project Number | 16-581 |
| Date | 8.03.17 |

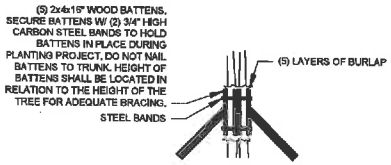
Revisions 12.18.19
4.28.20 REV PER MC COMMENTS
7.23.20 REV PER MC COMMENTS

Sheet **LA-3**



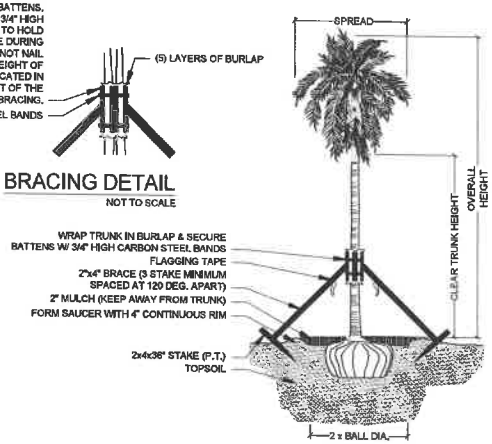

## TREE PLANTING & STAKING

NOT TO SCALE



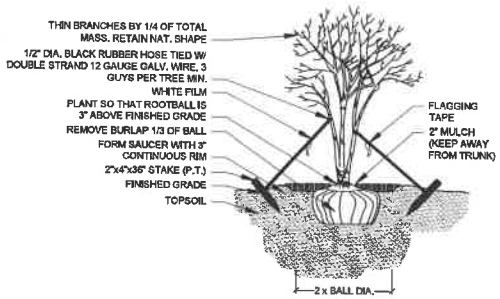

## BRACING DETAIL

NOT TO SCALE



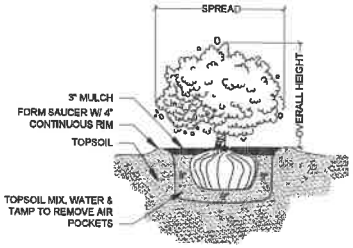

## PALM PLANTING - ANGLE STAKE

NOT TO SCALE



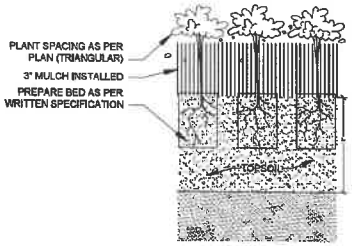

## MULTI-TRUNK PLANTING & GUYING

NOT TO SCALE



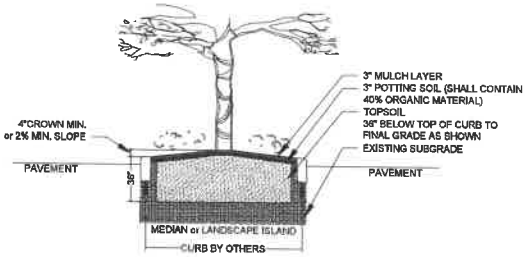

## SHRUB PLANTING

NOT TO SCALE




## GROUNDCOVER PLANTING DETAIL

NOT TO SCALE

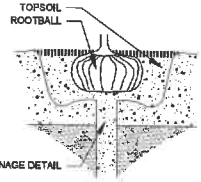



THIS DETAIL SHOWN DEPICTS A MEDIAN AND/OR LANDSCAPE ISLAND AND IS FOR GRAPHIC PURPOSES ONLY; SOIL PREPARATION SHALL APPLY TO ALL TREE, SHRUB, & GROUND COVER AREAS. THIS DOES NOT INCLUDE SOD AREAS

## LANDSCAPE AREA PREPARATION DETAIL

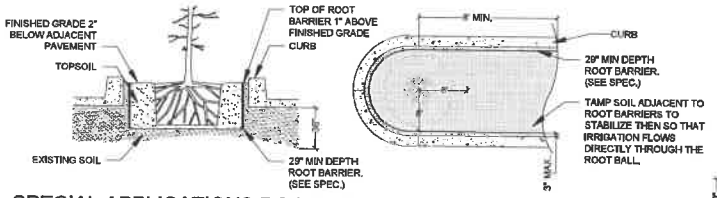
NOT TO SCALE

- TOPSOIL SHALL BE NATURAL, FRIABLE, FINE LOAMY SOIL POSSESSING CHARACTERISTICS OF REPRESENTATIVE TOPSOIL IN THE VICINITY OF THE PROJECT SITE THAT PRODUCES HEAVY GROWTH.
- TOPSOIL SHALL HAVE A PH RANGE OF 5.5-7.4, FREE FROM SUMMER, WEEDS, LITTER, ROOTS, CLAY, STONES, STUMPS, ROOTS, TRASH, HERBICIDES, TOXIC SUBSTANCES, OR ANY OTHER MATERIAL WHICH MAY BE HARMFUL TO PLANT GROWTH, OR HINDER PLANTING OPERATIONS.
- TOPSOIL SHALL CONTAIN A MINIMUM OF 3% ORGANIC MATERIAL.
- TOPSOIL MUST PERCOLATE WATER AT A RATE OF 1" PER HOUR (SEE ALSO DRAINAGE TESTING DETAIL FOR TREES)
- LANDSCAPE AREA SOILS SHALL BE APPROVED BY LANDSCAPE ARCHITECT/OWNER PRIOR TO PLANTING




## DRAINAGE TESTING DETAIL

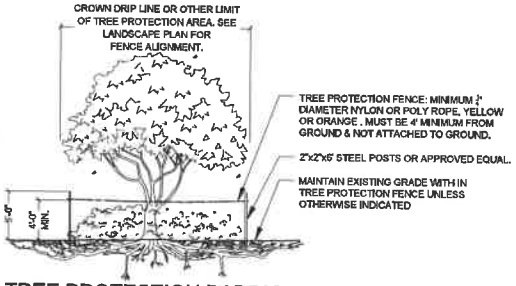
NOT TO SCALE




## SPECIAL APPLICATIONS ROOT BARRIER DETAIL

NOT TO SCALE

NOTES:
1- ROOT BARRIER SHALL BE INSTALLED WHEN ROOT BALL IS LOCATED WITHIN 8' OF PAVEMENT AND OR CURB.
2- ROOT BARRIER SHALL BE "BIO-BARRIER 29" DEPTH OR APPROVED EQUAL.
3- ROOT BARRIER SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS AND RECOMMENDATIONS.




## TREE PROTECTION BARRICADE

NOT TO SCALE

NOTES:
1- SEE LANDSCAPE PLAN FOR FENCE ALIGNMENT.
3- NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4- NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.

## DRAINAGE TESTING/DRAINAGE CHANNEL REQUIREMENTS.

PRIOR TO PLANTING, ALL PLANTING PITS SELECTED FOR TESTING SHALL BE TESTED IN THE FOLLOWING MANNER.

A. DIG EACH PLANTING PIT TO THE MINIMUM SPECIFIED SIZE.

B. FILL PLANTING PIT WITH TWELVE INCHES (12") OF WATER. IF THE WATER LEVEL DROPS FOUR (4") OR MORE WITHIN FOUR (4) HOURS, THE DRAINAGE IS SUFFICIENT AND A DRAINAGE CHANNEL IS NOT REQUIRED. IF THE WATER LEVEL DROPS LESS THAN FOUR INCHES (4") WITHIN THE FOUR (4) HOUR PERIOD, A DRAINAGE CHANNEL IS REQUIRED.

C. WHERE REQUIRED, THE DRAINAGE CHANNEL MUST EXTEND DOWN THROUGH THE NON POROUS SOIL AND INTO POROUS SOIL. (SEE DETAIL)

D. ALL MATERIAL REMOVED FROM THE DRAINAGE CHANNEL SHALL BE DISCARDED.

E. WHEN BACKFILLING PLANTING PITS WITH NATIVE TOPSOIL, CARE MUST BE TAKEN TO KEEP THE CONSISTENCY OF THE SOIL MIX THE SAME THROUGHOUT THE PLANTING PIT AND DRAINAGE CHANNEL.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SCALE
0 0 0 0

# Banyan Bay PUD Phase 2C

## Detail Sheet

Martin County, Florida

| | |
|---|---|
| Scale | 1"=N/A |
| Drawn by | PC |
| Checked By | MC |
| Computer File | 2C Landscape Plan |
| Computer Station | Server |
| Project Number | 16-581 |
| Date | 6.03.17 |

Revisions 12.18.19
1 4.28.20 REV PER MC COMMENTS
2 7.23.20 REV PER MC COMMENTS

Sheet **LA-4**

1173

LANDSCAPE SPECIFICATIONS

PART 1: GENERAL CONDITIONS

1.01 SCOPE:
A. The landscape contract includes the supplying and planting of all trees, shrubs, vines, and ground cover together with all necessary labor, equipment, tools and materials needed for the successful completion, execution and maintenance of the landscape plans.

1.02 AGENCY STANDARDS:
A. Grades and standards of plant materials to be used shall be true to name, size, condition and graded Florida #1 or better as stated in: Grades and Standards of Florida Plant Materials published by the State of Florida Department of Agriculture, Tallahassee, Florida.

1.03 SITE EXAMINATION:
A. The Landscape Contractor shall personally examine the site and fully acquaint himfherself with all of the existing conditions in order that no mis-understanding may afterwards arise as to the character or extent of the work to be performed, and, additionally, in order to acquaint himfherself with all precautions to be taken in order to avoid injury to property or persons. No additional compensation will be granted because of any unusual difficulties which may be encountered in the execution or maintenance of any portion of the work.

1.04 ERRORS AND OMISSIONS:
A. The plant list is a part of the drawings and is furnished as a convenience. The plant list indicates the name, size and quantities of specific plant materials as called for and is located on the drawings. The Landscape Contractor is responsible for his/her own quantity count, and any discrepancy between drawings and plant list shall be considered as correct on the drawings.

B. The Landscape Contractor shall not take advantage of errors or omissions in the specifications or contract drawings. Full instruction will be given if such errors are discovered. Upon the discovery of any discrepancies in, or omissions from the drawings or documents, or should the Landscape Contractor be in doubt as to their meaning, the Landscape Architect shall be notified and will determine the actions necessary to each query.

C. If plans and specifications are found to disagree after the contract is awarded, the Landscape Architect shall be the judge as to which was intended.

1.05 EXECUTION OF THE WORK:
A. The Landscape Contractor shall have his labor crews controlled and directed by a Foreman well versed in plant materials, planting methods, reading plans, and coordination between job and nursery in order to execute installation correctly and in a timely manner.

B. The Landscape Contractor shall provide a competent English-speaking Foreman on the project at all times, who shall be fully authorized as the Contractor's agent on the work. The Foreman shall be capable of reading and thoroughly understanding the Plans, Specifications and other Contract Documents. If the Superintendent is deemed incompetent by the Landscape Architect, he (the superintendent) shall be immediately replaced.

C. The Landscape Contractor shall be available for any meetings with the Owner and/or Landscape Architect during implementation of the job. Any additional work or changes required as a result of failure to communicate with the Owner or Landscape Architect during implementation will be the responsibility of the Landscape Contractor.

1.06 PROTECTION OF PUBLIC AND PROPERTY:
A. The Landscape Contractor shall protect all materials and work against injury from any cause and shall provide and maintain all necessary safeguards for the protection of the public. He shall be held responsible for any damage or injury to persons or property which may occur as a result of his fault or negligence in the execution of the work, i.e. damage to underground pipes or cables.

1.07 CHANGES AND EXTRAS:
A. The Contractor shall not start work on any changes or "extras" in the project until a written agreement setting forth the adjusted prices has been executed by the Owner and the Contractor. Any work performed on changes or "extras" prior to execution of a written agreement may or may not be compensated for by the Owner at his discretion.

1.08 GUARANTEE:
The Landscape Contractor shall furnish a written guarantee warranting all materials, workmanship and plant materials, except sod, for a period of 18 MONTHS from the time of completion and acceptance by the Landscape Architect and Owner. Sod shall be guaranteed to 90 calendar days after acceptance by the Landscape Architect and Owner. All plant material shall be alive and in satisfactory condition and growth for each specific kind of plant at the end of the guarantee period. The guaranteeing of plant material shall be construed to mean complete and immediate replacement with plant material of the same variety, type, size, quality and grade as that of the originally specified material. During the guarantee period it shall be the Landscape Contractor's responsibility to immediately replace any dead or unhealthy material as determined by the Landscape Architect. The guarantee will be null and void if plant material is damaged by lightning, hurricane force winds, or any other acts of God, as well as vandalism or lack of proper maintenance.

B. At the end of the specified guarantee period, any plant required under this contract that is dead or not in satisfactory condition, as determined by the Landscape Architect, shall be replaced. The Landscape Contractor shall be responsible for the full replacement cost of plant materials for the first replacement and share subsequent replacement (s) costs equally with the Owner, should the replacement plant fail to survive.

1.09 CARE AND MAINTENANCE:
A. The Landscape Contractor shall be responsible for the care and maintenance of all plant materials and irrigation when applicable until final acceptance by the Owner or Landscape Architect.

B. The Owner agrees to execute the instructions for such care and maintenance.

1.10 SAFETY:
A. It shall be the responsibility of the Landscape Contractor to protect all persons from injury and to avoid property damage. Adequate warning devices shall be placed and maintained during the progress of the work.

B. It shall be the contractor's responsibility in conform to all local, state, and federal safety laws and codes including the Federal Occupational Safety And Health Act (O.S.H.A.).

1.11 CONTRACTOR QUALIFICATION:
A. The Owner may require the apparent contractor (s) to qualify himfherself to be a responsible entity by furnishing any or all of the following documentary data:
1. A financial statement showing assets and liabilities of the company current to date.
2. A listing of not less than (3) completed projects of similar scope and nature.
3. Permanent name and address of place of business.
4. The number of regular employees of the organization and length of time the organization has been in business under the present name.

1.12 INSURANCE AND BONDING:
A. The contractor (s) shall submit proof of insurance for this job for the time period that the work is done. The minimum amount of insurance shall be $300,000.00 per person and $300,000.00 per aggregate or as required by owner and agreed to in the contract. The successful bidder shall be required to have this coverage in effect before beginning work on the site.

B. The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

1.13 PERMITS AND CERTIFICATES:
A. All contractors shall secure and pay for all permits and certificates required for his/her class of work.

PART 2: MARTERIALS

2.01 PLANT MATERIALS:
A. A complete list of plants is shown on the drawings, including a schedule of quantities, sizes, and such other requirements deemed necessary. In the event discrepancies occur, the specifications on the drawings shall govern.

B. Substitutions: Substitutions of plant materials or changes in size or spacing of materials will be permitted ONLY upon written authorization by the Owner or the Landscape Architect. If plant material is not of sufficient size to meet applicable codes, a letter of variance from the appropriate agency must be obtained by the Contractor prior to issuance of any change order. If material of smaller size is to be accepted, the quantity of material shall be increased, at no additional cost to the Owner, to meet the intent of the drawings.

C. All plant materials shall have a habit of growth that is normal for the species and shall be healthy, vigorous and equal to or exceed the measurements specified in the plant list, which are the minimum acceptable sizes. Plants shall be measured before pruning with branches in normal position. Any necessary pruning shall be done at the time of planting.

D. All plant materials shall be nursery grown, unless otherwise noted, Florida #1 or better and shall comply with all required inspections, grading standards and plant regulations as set forth by the Florida Department of Agriculture's Grades and Standards for Nursery Plants, most current addition and Grades and Standards for Nursery Plants, most current addition.

E. Plants that do not have the normal balance of height and spread typical for the respective plant shall not be acceptable.

F. The Landscape Contractor shall install each plant to display its best side. Adjustments may be required if plants are not installed properly and/or approved by the Landscape Architect at no additional cost to owner.

2.02 INSPECTION
A. The Landscape Architect and Owner may inspect trees and shrubs at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. The Landscape Architect and Owner retain the right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Rejected plant materials shall be immediately removed from project site.

2.03 PROTECTION OF PLANT MATERIALS:
A. Balled and burlapped plants (B & B) shall be dug with firm natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Balls shall be firmly wrapped with burlap similar materials and bound with cord, rope, or wire mesh. All collected plants shall be balled and burlapped.

B. Plants with broken, damaged or insufficient rootballs will be rejected.

C. All plant material shall be protected from possible bark injury or breakage of branches. All plants transported by open trucks shall be adequately covered to prevent windburn, drying or damage to plants.

D. Plants which cannot be planted immediately on delivery to the site shall be covered with moist soil, mulch or other protection from the drying of wind and sun. All plants shall be watered as necessary by the Landscape Contractor until planted.

2.04 STORAGE
A. All plant materials shall be stored on the site in designated areas, specified by the Landscape Architect or Owner's agent.

B. No plant material shall be stored longer than seventy-two (72) hours unless approved by Landscape Architect and/or owner.

C. The Landscape Architect reserves the right to reject any plant materials not in conformance with these specifications.

D. All rejected material shall be immediately removed from the site and replaced with acceptable material at no cost to the Owner.

2.05 PROTECTION DURING PLANTING:
A. Trees moved by winch or crane shall be thoroughly protected from chain marks, girdling or bark slippage by means of burlap, wood battens or other approved methods. Batters shall NOT be attached to the tree with nails

2.06 TOP SOIL:
A. Planting soil for all plantings shall consist of topsoil and be natural, friable, fertile, fine loamy soil possessing characteristics of representative topsoil in the vicinity of the project site that produces heavy growth. Topsoil shall have a PH range of 5.5-7.4, free from subsoil, weeds, litter, sods, clay, stones, stumps, roots, trash, herbicides, toxic substances, or any other material which may be harmful to plant growth, or hinder planting operations. Topsoil shall contain a minimum of 3% organic material. Topsoil must percolate water at a rate of 1" per hour (See also drainage testing detail for trees)

B Landscape Area Preparation. The intent of this section is to ensure a healthy growing environment for all planting material in all landscaped areas. Landscape Contractor to examine existing soils prior to planting to ensure conformance to all definitions of "Topsoil" (see Landscape Area Preparation Detail); In addition, a 3" layer of high organic (min 40%) potting soil shall be added to the topsoil and mixed in at time of planting. *East Coast Recycling Inc.* is a recommended source for imported Topsoil (if needed) as well as the top 3" layer of potting soil.

Existing soils must meet all definitions of "Topsoil" as described above in all planting areas throughout the site. If existing soils do not meet all definitions of Topsoil, please refer to the 'Landscape Area Preparation' detail. Examination may require existing soils to be tested by an accredited testing laboratory. Should a soil test be necessary, Contractor shall contact soil testing lab directly to confirm such lab's soil collection and transmittal protocol; all costs if any shall be borne by the Contractor. Contractor shall provide to Landscape Architect for review the results of the soil test if conducted. Contractor shall schedule an on-site meeting with Landscape Architect to review existing and/or imported soils prior to planting. The Landscape Area Preparation is the responsibility of the Landscape Contractor. He/she shall accept all responsibility of planting soils and shall honor all guarantee items in section 1.08.

2.07 FERTILIZER:
A. Commercial fertilizer shall comply with the state and local fertilizer laws. Nitrogen shall not be less than 40% from organic source. Inorganic chemical nitrogen shall not be derived from the sodium form of nitrate. Fertilizers shall be delivered to the site in unopened original containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer that becomes caked or otherwise damaged shall be rejected.

B. Thoroughly mixed 3 lbs. of commercial fertilizer to each cubic yard of planting soil.

C. Tablet/zed fertilizer shall be Agriform planting tablets 20-10-5 formula, 21 gram or equal. All trees and shrubs shall be fertilized with tablet/zed fertilizer as follows. While backfilling plant holes, fertilizer tablets shall be equally spaced and placed adjacent to the ball mid-way in depth in accordance with the following rates:

1 gallon container 1 tablet
3 gallon container 2 tablets
5 gallon container 3 tablets
7 gallon container 5 tablets

Large tubs, wire baskets, grow bags, and balled and burlapped material shall have 1 tablet for each 1/2 inch of trunk diameter (measured 3 feet from ground) or for each foot of height or spread of larger shrub material. The Landscape Architect reserves the right to inspect and review the application of fertilizer.

2.08 MULCH:
A. Mulch material shall be clean, dry, free of weeds, seeds and pests, maintained at the time of application to prevent wind displacement. Cypress &/or Red mulch is prohibited.

B. All trees and shrub beds shall receive 3" mulch immediately after planting and thoroughly watered. Apply 2" mulc on tree & palm rootballs, keep 6" away from tree & palm trunks or as required by local jurisdiction.

PART 3 EXECUTION
3.01 DIGGING:
A. The Landscape Contractor shall exercise care in digging and other work so as not to damage existing work, including overhead wires, underground pipes and cables and the pipes and hydrants of watering systems. Should such overhead or underground obstructions be encountered which interfere with planting, the Owner shall be consulted and contractor will adjust the location of plants to clear such obstruction. The Contractor shall be responsible for the immediate repair of any damage caused by his work.

3.02 GRADING:
A. Grading for drainage, swales, etc. to within 4 inches of the finished grade to be provided by others.

B. It shall be the responsibility of the Landscape Contractor to provide the final grading during the course of landscape installation so as to bring sod and planting areas to their proper elevations in relation to walks, paving, drain structures, and other site conditions. The site grading plan must be checked prior to installation of sod to insure that drainage and other conditions will NOT be modified.

3.03 PLANTING:
A. Planting shall take place during favorable weather conditions.

B. The Contractor shall call for utility locates and ascertain the location of all utilities and easements so proper precautions can be taken not to damage or encroach on them.

C. Tree Planting shall be located where it is shown on the plan. No planting holes shall be dug until the proposed locations have been staked on the ground by the Contractor.

D. Excavation of holes shall extend to the required subgrades as specified on the planting diagrams located in the landscape plans. Plant pits shall be circular in outline and shall have a profile which conforms to the aforementioned "Tree and Shrub Planting Diagrams".

E. A representative number of planting pits (a minimum of one in every 25 feet throughout the entire site) shall be tested for proper drainage. See Landscape Details for complete testing methods and requirements.

F. Planting pits shall be excavated to the following dimensions and backfilled with Topsoil- see Landscape Area Preparation Detail:
1 Gallon material (1 gal.): 12" x 12" x 12" min.
3 Gallon material (3 gal.): 20" x 20" x 18" min.
Larger material (7 gal.): 30" x 30" x 24" min.
Field grown material and trees: 1-1/2 times width of ball and depth of ball plus 12" min.

G. No planting or laying of sod shall be initiated until the area has been cleaned of existing sod or other plant materials, rough grass, weeds, debris, stones etc. and the ground has been brought to an even grade, with positive drainage away from buildings and towards drain inlets and swales and approved by Landscape Architect or owner's rep.

H. Each plant shall be planted in an individual hole as specified for trees, shrubs, and vines.

I. All plants shall be set to ultimate finished grade. No filling will be permitted around trunks or stems. All ropes, wire, stakes, etc., shall be removed from sides and top of the ball and removed from hole before filling in.

J. All flagging ribbon shall be removed from trees and shrubs before planting.

K. Excess excavation (fill) from all holes shall be removed from the site, at no additional expense to Owner.

L. All palms shall be backfilled with sand, thoroughly washed in during planting operations and with a shallow saucer depression left at the soil line for future watering's. Saucer areas shall be top-dressed two (2") inches deep with topsoil raked and left in a neat, clean manner.

3.04 PRUNING:
A. Remove dead and broken branches from all plant material. Prune to retain typical growth habit of individual plants with as much height and spread as possible in a manner which will preserve the plant's natural character.

B. Make all cuts with sharp instruments flush with trunk or adjacent branch, in such a manner as to insure elimination of stubs. Cuts made at right angles to line of growth will not be permitted.

C. Trees shall not be poled or topped.

D. Remove all trimming from site.

3.05 GUYING:
A. All trees over six (6') feet in height shall, immediately after setting to proper grade, be guyed with three sets of two strands, No. 12 gauge malleable galvanized iron, in tripod fashion. See Detail.

B. Wires shall not come in direct contact with the tree but shall be covered with an approved protection device at all contact points. Wires shall be fastened in such a manner as to avoid pulling crotches apart.

C. Stake & Brace all trees larger than 12' ca. See detail. Stakes shall be 2" x 2" lumber of sufficient length to satisfactorily support each tree.

D. Turnbuckles for guying trees shall be galvanized or cadmium plated and shall be of adequate size and strength to properly maintain tight guy wires.

3.06 WATER:
A. Each plant or tree shall be thoroughly watered in after planting. Watering of all newly installed plant materials shall be the responsibility of the Landscape Contractor until final acceptance by the Landscape Architect.

B. Prior to installing any irrigation system components, the contractor shall obtain a water sample from the proposed water supply and conduct a particle size and count analysis on the sample using the services of a reputable lab certified in such analysis. Submit the test results to the owner/owner's representative for review and approval. Do not proceed further with system installation until given written approval to do so.

3.07 SOD:
A. The Landscape Contractor shall sod all areas indicated on the drawings.

B. It shall be the responsibility of the Landscape Contractor to fine grade all landscape areas, eliminating all bumps, depressions, sticks, stones, and other debris.

C. The sod shall be firm, tough texture, having a compacted growth of grass with good root development. It shall contain no noxious weeds, or any other objectionable vegetation, fungus, insects, or disease. The sod embedded in the sod shall be good clean earth, free from stones and debris.

D. Before being cut and lifted, the sod shall have been mowed at least three times with a lawn mower, with the final mowing not more than seven days before the sod is cut. The sod shall be carefully cut into uniform dimensions.

E. 6-6-6 fertilizer with all trace elements is to be applied at the rate of 40 lbs. per 1,000 sq. ft. prior to laying sod.

F. Solid sod shall be laid with closely abutting, staggered joints with a tamped or rolled, even surface.

G. The finished level of all sod areas after settlement shall be one (1") inch below the top of abutting curbs, walks, paving and wood borders to allow for bulking turf.

H. If in the opinion of the Landscape Architect, top dressing is necessary after rolling, clean yellow sand will be evenly applied over the entire surface and thoroughly washed in.

3.08 SEEDING:
A. The Landscape Contractor shall remove all vegetation and rocks larger than (1") in diameter from areas to be seeded, scarify the area, then apply fertilizer at a rate of 500 lbs. per acre.

B. Application: Argentine Bahia Grass seed- 200 Pounds per acre mixed with common hulled Bermuda seed- 30 lbs. per acre. All other seed mixtures shall be applied per the manufacturer's instructions.

C. Roll immediately after seeding with a minimum 500 pound roller, then apply straw mulch at the rate of 2,500 pounds per acre.

D. Apply fertilizer at the rate of 150 lbs. per acre 45-60 days after seeding.

3.09 CLEANING UP:
A. The contractor shall at all times keep the premises free from accumulations of waste materials or rubbish caused by his employees or work. He shall leave all paved areas "broom clean" when completed with his work.

3.10 MAINTENANCE:
A. Maintenance shall begin immediately after each plant is installed and shall continue until all planting has been accepted by the Owner or Landscape Architect. Maintenance shall include watering, weeding, removal of dead materials, resetting plants to proper grades or upright positions, spraying, restoration of planting saucer and/or any other necessary operations.

B. Proper protection to lawn areas shall be provided and any damage resulting from planting operations shall be repaired promptly.

C. Replacement of plants during the maintenance period shall be the responsibility of the Contractor, excluding vandalism or damage on the part of others, lighting, or hurricane force winds, until final acceptance.

D. In the event that weeds or other undesirable vegetation become prevalent, it shall be the Contractor's responsibility to remove them.

E. Trees or other plant material which fall or are blown over during the maintenance period will be reset by the Contractor at no additional expense to the Owner, the only exception being hurricane force winds.

3.11 COMPLETION, INSPECTION AND ACCEPTANCE:
A. Completion of the work shall mean the full and exact compliance and conformity with the provisions expressed or implied in the Drawings and in the Specifications, including the complete removal of all trash, debris, soil or other waste created by the Landscape Contractor.

B. Inspection of work to determine completion of contract, exclusive of the possible replacement of plants, will be made by the Owner and/or Landscape Architect at the conclusion of all planting and at the request of the Landscape Contractor.

C. All plant material shall be alive and in good growing condition for each specified kind of plant at the time of acceptance. The rating of each plant according to Florida Grades and Standards shall be equal to or better than that called for on the plans and in these Specifications at the time of final inspection and acceptance.

D. After inspection, the Landscape Contractor will be notified by the Owner of the acceptance of all plant material and workmanship, exclusive of the possible replacement of plants subject to guarantee.

E. All trees & shrubs shall be straight and in correct position per the landscape plans, details and specifications. All nursery, shipping and identification tags & ribbons shall be removed from trees & shrubs immediately after planting.


Lucido & Associates
Land Planning / Landscape Architecture
701 S.E. Ocean Blvd., Stuart, Florida 34994 (772) 220-2100, Fax (772) 223-0220


SCALE
0 0 0 0

# Banyan Bay PUD Phase 2C

## Specification Sheet

Martin County, Florida

| | |
|---|---|
| Scale | 1"=0 |
| Drawn by | PG |
| Checked By | MC |
| Computer File | 2C Landscape Plan |
| Computer Station | Server |
| Project Number | 16-581 |
| Date | 8.03.17 |

Revisions 12.18.19
1 4.28.20 REV PER MC COMMENTS
2 7.23.20 REV PER MC COMMENTS
Sheet

LA-5

11774

Doug Fitzwater
220 Hibiscus Avenue
Stuart, FL 34996

Mr. Morris Crady
Lucido & Associates
701 SE Ocean Blvd.
Stuart, FL 34994

Notice Development Application
Banyan Bay Revised Master and Phasing Plan 9th PUD Amendment PH2C Final
File Number B082-039

Dear Mr. Crady:

This is to certify that the above referenced sign was installed per Martin County requirements and complies with the standards of the notice provisions of Article 10, Section 10.6: Development Review Procedures.

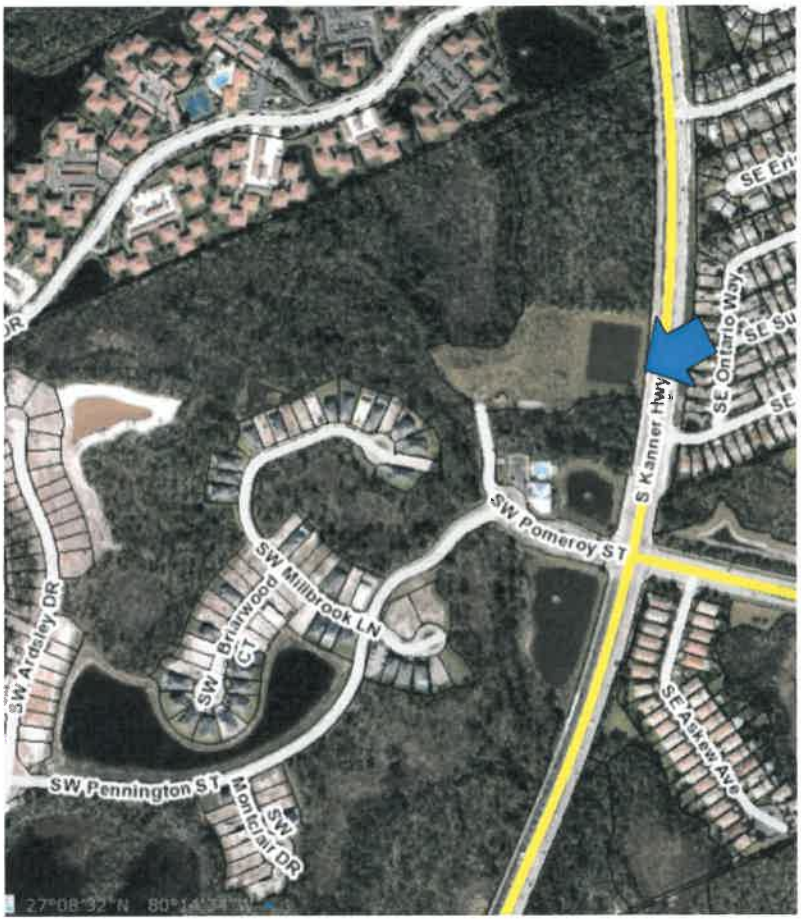
Doug Fitzwater

State of Florida
County of Martin

Doug Fitzwater, who is personally known to me, acknowledged the forgoing instrument before me on Jan. 20, 2020.

Notary Public, State of Florida

KATHLEEN ANDERSON
MY COMMISSION # GG 173271
EXPIRES: January 31, 2022
Bonded Thru Notary Public Underwriters




# Sign Location

Sign Photograph

Prepared By:
Martin County Growth Management Department
2401 S.E. Monterey Road
Stuart, FL 34996

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**BEFORE THE BOARD OF COUNTY COMMISSIONERS**
**MARTIN COUNTY, FLORIDA**
**DEVELOPMENT ORDER**

**RESOLUTION NUMBER _____**

**[REGARDING DENIAL OF THE PHASE 2C FINAL SITE PLAN FOR THE BANYAN BAY PUD]**

**WHEREAS,** this Board has made the following determinations of fact:

1. Banyan Bay Macks, LLC, submitted an application for a Phase 2C final site plan approval for the Banyan Bay PUD project, located on lands legally described in Exhibit A, attached hereto.
2. This Board considered such application at a public meeting on September 29, 2020.
3. At the public meeting, all interested parties were given an opportunity to be heard.

**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MARTIN COUNTY, FLORIDA, THAT:**

A. The request for the Phase 2C final site plan approval for the Banyan Bay PUD project is hereby denied, for the following XXXX.

B. This resolution shall be recorded in the public records of Martin County. A copy of this resolution shall be forwarded to the applicant(s) by the Growth Management Department subsequent to recording.

**DULY PASSED AND ADOPTED THIS 29th DAY OF JUNE 2020.**

ATTEST:

BY:_____
CAROLYN TIMMANN
CLERK OF THE CIRCUIT COURT
AND COMPTROLLER

BOARD OF COUNTY COMMISSIONERS
MARTIN COUNTY, FLORIDA

BY: _____
HAROLD E. JENKINS II, CHAIR

APPROVED AS TO FORM AND LEGAL
SUFFICIENCY:

BY:_____
KRISTA A. STOREY
SENIOR ASSISTANT COUNTY ATTORNEY

ATTACHMENTS:

Exhibit A, Legal Description

***BCC MEETING DATE:*** September 29, 2020
***AGENDA ITEM:*** DPQJ-2

**MARTIN COUNTY, FLORIDA**
**SUPPLEMENTAL MEMORANDUM**

**TO:** Honorable Members of the Board of County Commissioners **DATE:** September 22, 2020

**VIA:** Taryn Kryzda
County Administrator

**FROM:** Peter Walden, AICP, Principal Planner

**REF:** 20-1066
**SUBJECT:** **BANYAN BAY PUD, REQUEST APPROVAL OF THE 9TH PUD AMENDMENT INCLUDING A REVISED MASTER AND PHASING PLAN, AND PHASE 2C FINAL SITE PLAN**

The following item is attached:

Ninth Amendment to Banyan Bay Planned Unit Development Zoning Agreement

Reviewed by County Attorney's Office

This document may be reproduced upon request in an alternative format by contacting the County ADA Coordinator (772) 320-3131, the County Administration Office (772) 288-5400, Florida Relay 711, or by completing our accessibility feedback form at www.martin.fl.us/accessibility-feedback.

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**NINTH AMENDMENT TO BANYAN BAY**

**PLANNED UNIT DEVELOPMENT ZONING AGREEMENT**

THIS AGREEMENT made and entered into this _____ day of _____, 2020, by and between **BANYAN BAY MACKS, LLC**, a Delaware limited liability company, hereinafter referred to as **OWNER**, and **MARTIN COUNTY**, a political subdivision of the State of Florida, hereinafter referred to as **COUNTY**.

WITNESSETH:

**WHEREAS**, after appropriate notice, public hearing and approval, Banyan Bay Development Corporation, a Florida corporation, and COUNTY on or about the 9th day of November 2004, entered into a Planned Unit Development Zoning Agreement for the development of a project in Martin County, Florida, known as "Banyan Bay" ("**Project**"), which Planned Unit Development Zoning Agreement ("**Original Agreement**") is recorded in Official Records Book 1979, beginning at Page 2199 of the Public Records of Martin County, Florida ("**Public Records**") which has been amended through and including that certain Eighth Amendment to Banyan Bay Planned Unit Development Zoning Agreement, dated November 30, 2018, ("**Eighth Amendment,**" and collectively with the Original Agreement and all amendments thereto being referred to in this Amendment as the "**PUD Agreement**"); and

**WHEREAS**, OWNER, acquired all right, title and interest to the property subject to the PUD Agreement, as reflected in the Special Warranty Deed between Banyan Bay Venture I,

LLC, Banyan Bay Venture II, LLC and OWNER, as recorded in Official Records Book 2898, Page 2065 of the Public Records; and

**WHEREAS**, OWNER desires to amend the PUD Agreement for purposes of revising, **Revised Exhibit "D"**, Revised Master Plan, **Exhibit "D-1"**, Revised Phasing Plan, and **Exhibit "E"**, Revised Timetable of Development.

**NOW, THEREFORE**, the parties do hereby agree as follows:

1. The above recitations are true and correct and incorporated herein by reference.

2. The previously approved Revised Master Site Plan, and the previously approved Revised Phasing Plan, are hereby amended and replaced by **Revised Exhibit "D"**, Revised Master Plan, and **Revised Exhibit "D-1"**, Revised Phasing Plan, which are attached hereto and made a part hereof.

3. The previously approved **Revised Exhibit "D"** and **Revised Exhibit "D-1"** have been amended to reduce the density and change the product type in Phase 2C from 48 duplex units to 36 single family units, thereby reducing the overall units in the Banyan Bay PUD from 305 units to 293 units.

4. The Timetable of Development, originaly attached as **Exhibit "E"** is hereby replaced by **Revised Exhibit "E"**, Revised Timetable of Development, and attached hereto and made a part hereof, to reflect the extension of time to obtain final site plan approvals for Phases 2C and 3, based on the extensions exercised by OWNER and its predecessor in interest as to the Project, by notification to the COUNTY pursuant to Section 252.636, Florida Statutes, of the Governor's various declarations of emergencies.

5. All of the terms and conditions of the PUD Agreement which are not specifically amended or revised by this Amendment shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this PUD Agreement to be made and entered into the day and year first written. The date of this PUD Agreement shall be the date on which this PUD Agreement was approved by the Board of County Commissioners.

***** NO FURTHER TEXT ON THIS PAGE*****

**OWNER**

WITNESSES:

**BANYAN BAY MACKS, LLC,**
a Delaware limited liability company

_____
Name:_____

By:_____
Jonathan C. Mayers, Manager

_____
Name:_____

STATE OF _____

COUNTY OF _____

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State aforesaid and in the County aforesaid to take acknowledgments, by means of ☒ physical presence or ☐ online notarization on _____, 2020, by Jonathan C. Mayers, Manager of Banyan Bay Macks, LLC, a Delaware limited liability company, on behalf of the company, who ☐ is personally known to me or ☐ has proved to me on the basis of a driver's license or other satisfactory evidence consisting of _____, to be the person whose name is subscribed to the foregoing instrument, and acknowledged before me that he executed same.

WITNESS my hand and official seal in the County and State last aforesaid this _____ day of _____, 2020.

(NOTARIAL STAMP)

_____
Notary Public

Print Name: _____
My commission expires: _____
Affix official seal below:

**COUNTY**

ATTEST:

BOARD OF COUNTY COMMISSIONERS
MARTIN COUNTY, FLORIDA

_____
Carolyn Timmann
Clerk of the Circuit Court and Comptroller

By:_____
Harold E. Jenkins II, Chairman

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

(COMMISSION SEAL)

_____
Krista A. Storey
Senior Assistant County Attorney

*Pursuant to Sec. 695.26, F.S.*
Prepared by:
Robert S. Raynes, Jr., Esquire
Gunster, Yoakley & Stewart, P.A.
800 SE Monterey Commons Blvd., Suite 200
Stuart, Florida 34996

**REVISED EXHIBIT D**
**BANYAN BAY – REVISED MASTER PLAN**

**REVISED EXHIBIT D-1**
**BANYAN BAY – REVISED PHASING PLAN**

## REVISED EXHIBIT E
## REVISED TIMETABLE FOR DEVELOPMENT

A. This development shall be constructed in phases in accordance with this timetable of development and the master site plan and phasing plan.

B. Construction must commence within one (1) year of each final site plan approval.

C. All infrastructure improvements for the Banyan Bay development shall be completed by November 17, 2023 (Executive Order 16-230), as set forth below.

D. Infrastructure improvements for the applicable phase must be substantially completed before issuance of building permits. All required infrastructure improvements identified on the final site plan for the applicable phase, must be completed prior to the issuance of any certificate of occupancy.

E. The recreation area shown on the master site plan at the project's entrance, including supporting infrastructure improvements, must be permitted with the building permit for the first unit in Phase 1 and completed within twelve (12) months of the issuance of the first certificate of occupancy for a unit in Phase 1.

The phases to be constructed and the time period within which final site plan and plat approval (plat approval is not required for multi-family phases) of each phase must be obtained are as follows:

| Final Site Plan and/or Plat Approval (on or before) | Completion (on or before) | Elements of Phases to be constructed |
|---|---|---|
| Phase 1<br><br>Obtained Final Site Plan Approval 09/06/05<br><br>Obtained Revised Final Site Plan Approval 08/25/06<br><br>Obtained Plat Approval 05/20/08<br><br>Obtained Revised Final Site Plan Approval 05/10/16 | Completed | 74 single family lots including 8 model units (Lots 1–8), main project entrance, entrance lakes, recreation area at project's entrance, reduction of temporary stockpile areas and supporting infrastructure (substantially completed pursuant to the Third Amendment to the Commitment to Complete and Maintain the Required Improvements and Infrastructure for Banyan Bay PUD – Phase 1.<br><br>Clearing of native vegetation in accordance with Special Condition 13 of Exhibit F (completed).<br><br>Construct one through lane |

| | | |
|---|---|---|
| | | and left and right turn lanes and modify traffic signal at the entrance of the project in accordance with Special Condition 20A of Exhibit F (completed). |

| Final Site Plan and/or Plat Approval (on or before) | Completion (on or before) | Elements of Phases to be constructed |
|---|---|---|
| Final Site Plan and Plat Approval | | |
| **Phase 1 (cont.)** | | Phase to be Constructed<br><br>Payment of $100,000.00 to Martin County for new fire station in accordance with Special Condition 7B of Exhibit F (completed).<br><br>Payment of $25,000.00 to Martin County for new community swimming pool in accordance with Special Condition 2 of Exhibit F (completed). |

| Final Site Plan and/or Plat Approval (on or before) | Completion (on or before) | Elements of Phases to be constructed |
|---|---|---|
| Phase 2A<br>Completed | August 14, 2027 | 111 single family lots and supporting infrastructure.<br><br>Design traffic signal at Willoughby Boulevard and Market Place and donate $30,000.00 towards signal in accordance with Special Condition 20B of Exhibit F (completed).<br><br>Extend water and force mains along Kanner Highway to the southernmost property boundary |

| | | |
|---|---|---|
| | | in accordance with Special Condition 23B of Exhibit F.<br><br>Install Phase 3 landscape buffer – except for the entrance drive and line of sight, existing vegetation along SR 76 will be retained and supplemented as necessary to provide a 100% opaque screen a minimum of six feet in height. |

| Final Site Plan and/or Plat Approval (on or before) | Completion (on or before) | Elements of Phases to be constructed |
|---|---|---|
| Phase 2B<br>Completed | August 14, 2027 | Waterfront recreation area including gazebo, boat ramp, slips (maximum 6 wet slips), parking and supporting infrastructure. |

| Final Site Plan and/or Plat Approval (on or before) | Completion (on or before) | Elements of Phases to be constructed |
|---|---|---|
| Phase 2C<br>June 5, 2028 | June 4, 2030 | 24 duplex buildings for a total of 48 units and supporting infrastructure including native landscape buffer along SR 76 and FDOT Pond; and two (2.00) acres of pervious pavers or an equivalent water quality treatment volume; or an updated drainage basin analysis showing Martin County's water quality requriements have been met for Basin "A". |

| Final Site Plan and/or Plat Approval (on or before) | Completion (on or before) | Elements of Phases to be constructed |
|---|---|---|
| Phase 3<br>June 5, 2028 | June 4, 2030 | 72 multi-family units, recreation area and supporting infrastructure, and landscape buffer along SR 76 to be installed with Phase 2A infrastructure. |

Note: The following is provided as a non-binding timetable for vertical construction of the single-family units within Banyan Bay for purposes of ARDP:

62 units 2017
62 units 2018
62 units 2019
47 units 2020

DPQJ-2


# Peter W. Walden
## Principal Planner
## Martin County Growth Management Department

pwalden@martin.fl.us Office772-219-4923
2401 SE Monterey Road Stuart, FL 34996


COUNTY EXHIBIT # 2

## *Experience*

***Public Sector Work History***

***Principal Planner, AICP*** Martin County, FL 2018- present

- Project Coordinator- development application and land development regulation review
- Project Coordinator for all County projects for development review.
- Manage and process all zoning variances.
- Provide assistance with building permitting and zoning inquires.
- Draft Land Development Regulation amendments.

***Senior Planner***, Martin County, Fl. 2015- 2018

- **Development Review**: Project coordinator for development and zoning applications.
- Provide review of development applications for consistency with the Comprehensive Growth Management Plan and the Land Development Regulations.

***Development Compliance Planner,*** City of Palm Beach Gardens, Palm Beach Gardens, Fl. 2014- 2015

- **Development Review:** Review development and permit applications for compliance with land development code. Monitor development construction for compliance with development orders and environmental compliance. Provide related documents; draft time extensions, build out determinations, administrative amendments.

***Zoning Compliance***, Village of North Palm Beach, NPB, Fl. 2012- 2014

- **Plan Review**: Member of the DRC, participate in all development review, focus on zoning regulations and land development policy and compliance. Review building permits for code compliance. Prepare and present projects to the Planning Commission, and maintain all corresponding files.

***Private Sector Work History***

- Over 20 years' experience in community development and home construction including landscape design and construction, infrastructure development and vertical construction.

## Education & Certifications

**Florida Atlantic University,** Boca Raton, FL
B.P.M. **Bachelor of Public Management** (Administration), minor in Geography, Magna Cum Laude
**Course work in**; Urban Planning, GIS, Emergency Management, Program Evaluation, Transportation

**Indian River State College,** Stuart, FL
A.A, **Environmental Science**, Magna Cum Laude

**Government Internship**, Town of Jupiter, Fl. 2011 Planning and Zoning, Business Development

**Member of the American Institute of Certified Planners, AICP**


FILED FOR RECORD
COMMISSION RECORDS
MARTIN COUNTY, FL
Date 9/29/2020
CAROLYN TIMMANN
CLERK OF CIRCUIT COURT
By MKV D.C.