SR 52 PD&E STUDY REEVALUATION

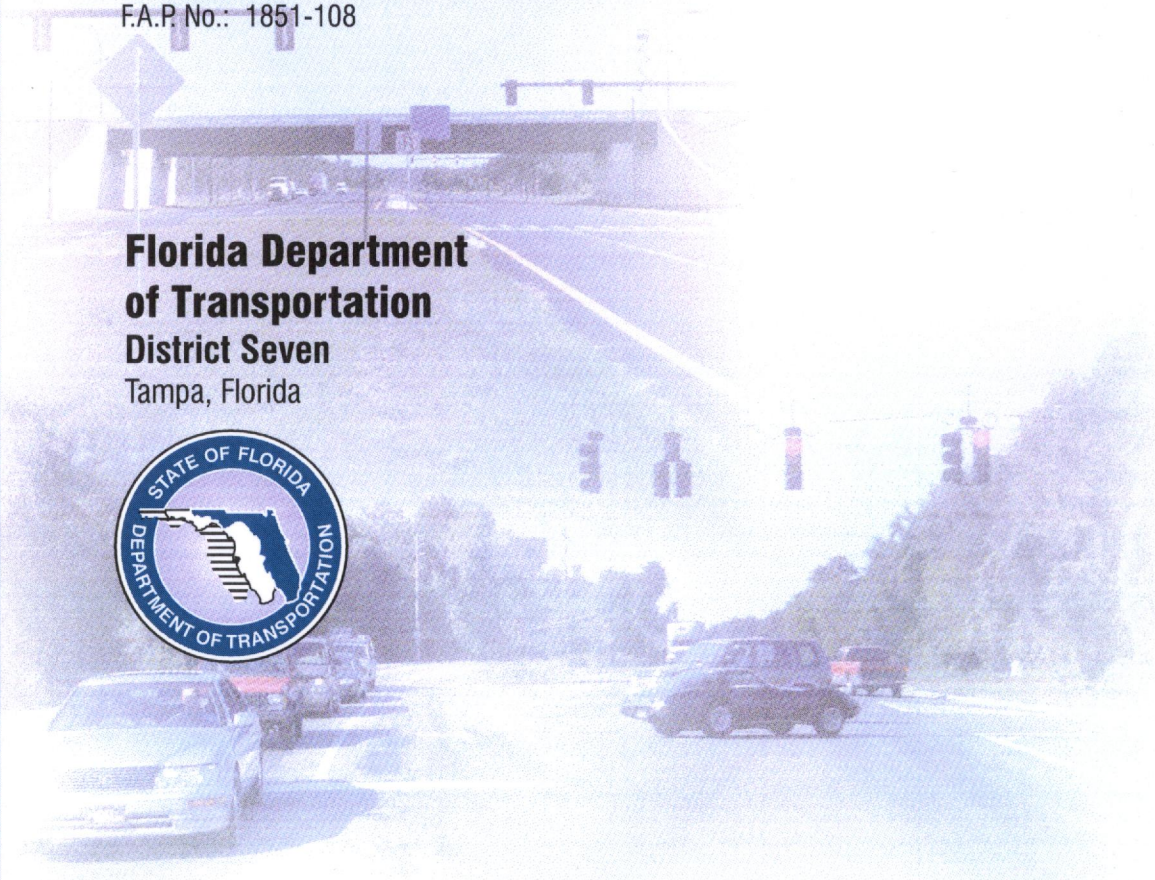
Florida Department of Transportation
Project Development and Environment (PD&E) Study Reevaluation

FINAL
Pond Siting Report

SR 52 PD&E STUDY REEVALUATION

From Moon Lake Road to US 41 (SR 45)
Pasco County, Florida

W.P.I. Segment No.: 256243 1
F.A.P. No.: 1851-108



Florida Department of Transportation
District Seven
Tampa, Florida

March 2002

(1) Pond Site Alternative
(2) Treatment Type : The treatment type is determined by the soil type and the depth of the water table obtained from the SCS / USDA Soils Survey for Hernando County
(3) Total Pond Site Area
(4) Estimated SHWT Elevation: This parameter is determined from the SCS/ USDA Soils Survey for Hernando County
(5) Design Highwater Elevation (DHW) : DHW is based on the 100-year / 24-hour storm which is the most critical event
(5A) Estimated Low Edge of Pavement
(6) Top Of Bank Elevation (TOB) : This is the elevation of the top of bank of the pond.
(7) Average Ground Elevation: This elevation was estimated using SWFWMD contour aerials
(8) Area at the TOB: This is the area of the top of bank of the pond.
(9) Area at DHW: Pond area at DHW is determined by assuming 1ft. distance between the berm and DHW elevation.
(10) Area at the SHWT Elevation: Represents the area at the SHWT elevation.
(11) Weir Crest Elevation: Represents the elevation of the control structure (weir structure) which is necessary to obtain the required treatment volume in the pond
(12) Area at Weir Crest: Represents the area at the elevation noted in column (11).
(13) Vt1: Represents the treatment volume provided between the SHWT and the control structure elevation.
(14) Treatment volume required
(15) Vt2: Represents the attenuation volume provided between the control structure elevation and the DHW elevation.
(16) Attenuation volume required
(17) Total Volume Provided (Vt1 + Vt2): The total treatment and attenuation volume provided is determined by adding columns 13 and 15 (Vt1 and Vt2).

Parsons Brinckerhoff **Computation Sheet**

Subject SR 52

Page 1 of 1

Made by SDF

Date 2/01

Checked by J.L.L.

Date 8/27/01

Calculations for Basin 100

- Since adding two lanes, one alternative would be to modify the two ponds 6A + 6B that currently treats & attenuates the Suncoast Parkway & SR 52 in that area. Those ponds should accomodate the additional impervious area, since it is being routed there now.

As an alternative, a separate stormwater management facility was sized to treat & attenuate the additional impervious area for the basin from Sta. 157+00 to 213+40 (Shady Hills Rd.)

Length = 5640 ft x 36' additional impervious
= 203,040 ft²

203,040/98 (proposed typ.) = 2,072 ft

Since this basin drains from the east to the west, the pond alternatives will treat & attenuate the ultimate typical section from Shady Hills @ 213+40 back ≈ 2,072 ' @ Sta. 192+68.

Basin 100 (From Sta. 157+00 to Sta. 213+40)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 1.52 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Roadway length = 2,072 ft (From Sta. 192+68 to Sta. 213+40)
  Area = (32 x 2,072)/43,560 = 1.52 ac

- **Proposed Impervious Area = 4.66 ac**
- R*oadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- Area = (98 x *2,072*)/43,560 = 3.82 ac

Additional Impervious Area = 4.66 ac – 1.52 ac = **3.14 ac**
Total Impervious Area = 4.66 ac
Basin Area (for 100A and 100B) = (2,072 ft x 156 ft)/43,560 = **7.42 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 80 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/80 - 10) = 2.5 in

$CN_{post\text{-}development}$ = 89 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/89 - 10) = 1.24 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 12.96 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.5)]^2}{[12.96 + (0.8)*(2.5)]} = 10.38 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(1.24)]^2}{[12.96 + (0.8)*(1.24)]} = 11.59 \text{ in}$$

$V_{required\ Attenuation} = (Q_{post\text{-}development} - Q_{pre\text{-}development}) * \text{Basin Area (A)}$
= ((11.59 – 10.38)/12)*7.42 ac = **0.75 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area or DCIA (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (4.66 ac)(1"/12) + (0.925 ac)(1"/12) = **0.47 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.47 ac-ft + 0.75 ac-ft = 1.22 ac-ft

Basin 200 (From Sta. 213+40 to Sta. 230+40)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 1.25 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Roadway length = 1700 ft (From Sta. 213+40 to Sta. 230+40)
  Area =(32 x 1700)/43,560 = 1.25 ac

- **Proposed Impervious Area = 3.82 ac**
- R*oadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- Area = (98 x 1700)/43,560 = 3.82 ac

Additional Impervious Area = 3.82 ac – 1.25 ac = **2.57 ac**
Total Impervious Area = 3.82 ac
Basin Area= (1,700 ft x 156 ft)/43,560 = **6.09 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 80 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/80 - 10) = 2.5 in

$CN_{post\text{-}development}$ = 89 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/89 - 10) = 1.24 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 12.96 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.5)]^2}{[12.96 + (0.8)*(2.5)]} = 10.38 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(1.24)]^2}{[12.96 + (0.8)*(1.24)]} = 11.59 \text{ in}$$

$V_{required\ Attenuation} = (Q_{post\text{-}development} - Q_{pre\text{-}development}) * \text{Basin Area (A)}$
= ((11.59 – 10.38)/12)*6.09 ac = **0.61 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area or DCIA (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (3.82 ac)(1"/12) + (1.125 ac)(1"/12) = **0.41 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.41 ac-ft + 0.61 ac-ft = 1.02 ac-ft

Basin 300 (Sta. 230+40 to Sta. 260+60)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 2.22 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Roadway length = 3020 ft (From Sta. 230+40 to 260+60)
  Area =(32 x 3020)/43,560 = 2.22 ac

- **Proposed/Total Impervious Area = 6.79 ac**
- R*oadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- Area = (98 x 3020)/43,560 = 6.79 ac

Additional Impervious Area = 6.79 ac – 2.22 ac = **4.57 ac**
Total Impervious Area = 6.79 ac
Basin Area= (3,020 ft x 156 ft)/43,560 = **10.82 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 82 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/82 - 10) = 2.20 in

$CN_{post\text{-}development}$ = 91 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/91 - 10) = 0.99 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 10.56 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.20)]^2}{[12.96 + (0.8)*(2.20)]} = 10.65 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(0.99)]^2}{[12.96 + (0.8)*(0.99)]} = 11.84 \text{ in}$$

$V_{required\ Attenuation} = (Q_{post\text{-}development} - Q_{pre\text{-}development}) * \text{Basin Area (A)}$
$= ((11.84 - 10.65)/12)*10.82 \text{ ac} =$ **1.07 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (6.79 ac)(1"/12) + (1.40 ac)(1"/12) = **0.68 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.68 ac-ft + 1.07 ac-ft = 1.75 ac-ft

Basin 400 (Sta. 260+60 to Sta. 302+30)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 3.06 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Roadway length = 4170 ft (From Sta. 260+60 to 302+30)
  Area =(32 x 4170)/43,560 = 3.06 ac

- **Proposed/Total Impervious Area = 9.38 ac**
- *Roadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- Area = (98 x 4170)/43,560 = 9.38 ac

Additional Impervious Area = 9.38 ac – 3.06 ac = **6.32 ac**
Total Impervious Area = 9.38 ac
Basin Area= (4,170 ft x 156 ft)/43,560 = **14.93 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 81 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/81 - 10) = 2.35 in

$CN_{post\text{-}development}$ = 90 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/90 - 10) = 1.11 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 12.96 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.35)]^2}{[12.96 + (0.8)*(2.35)]} = 10.51 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(1.11)]^2}{[12.96 + (0.8)*(1.11)]} = 11.72 \text{ in}$$

$V_{required\ Attenuation}$ = ($Q_{post\text{-}development}$ - $Q_{pre\text{-}development}$) * A Basin Area (A)
= ((11.72 – 10.51)/12)*14.93 ac = **1.51 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (9.38 ac)(1"/12) + (2.10 ac)(1"/12) = **0.96 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.96 ac-ft + 1.51 ac-ft = 2.47 ac-ft

Basin 500 (Sta. 302+30 to Sta. 329+40)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 1.99 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Roadway length = 2710 ft (From Sta. 302+30 to Sta. 329+40)
  Area =(32 x 2710)/43,560 = 1.99 ac

- **Proposed/Total Impervious Area = 6.10 ac**
- R*oadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- Area = (98 x 2710)/43,560 = 6.10 ac

Additional Impervious Area = 6.10 ac – 1.99 ac = **4.11 ac**
Total Impervious Area = 6.10 ac
Basin Area= (2,710 ft x 156 ft)/43,560 = **9.71 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 79 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/79 - 10) = 2.66 in

$CN_{post\text{-}development}$ = 89 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/89 - 10) = 1.24 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 12.96 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.66)]^2}{[12.96 + (0.8)*(2.66)]} = 10.24 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(1.24)]^2}{[12.96 + (0.8)*(1.24)]} = 11.58 \text{ in}$$

$V_{required\ Attenuation}$ = ($Q_{post\text{-}development}$ - $Q_{pre\text{-}development}$) * Basin Area (A)
= ((11.58 – 10.24)/12)* 9.71 ac = **1.08 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative. Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (6.10 ac)(1"/12) + (2.0 ac)(1"/12) = **0.68 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.68 ac-ft + 1.08 ac-ft = 1.76 ac-ft

Basin 600 (Sta. 329+40 to Sta. 342+80)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 0.98 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Roadway length = 1340 ft (From Sta. 329+40 to Sta. 342+80)
  Area =(32 x 1340)/43,560 = 0.98 ac

- **Proposed/Total Impervious Area = 3.01 ac**
- R*oadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- Area = (98 x 1340)/43,560 = 6.10 ac

Additional Impervious Area = 3.01 ac – 0.98 ac = **2.03 ac**
Total Impervious Area = 3.01 ac
Basin Area= (1,340 ft x 156 ft)/43,560 = **4.80 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 81 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/81 - 10) = 2.35 in

$CN_{post\text{-}development}$ = 89 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/89 - 10) = 1.24 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 12.96 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.35)]^2}{[12.96 + (0.8)*(2.35)]} = 10.51 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(1.24)]^2}{[12.96 + (0.8)*(1.24)]} = 11.58 \text{ in}$$

$V_{required\ Attenuation} = (Q_{post\text{-}development} - Q_{pre\text{-}development}) * \text{Basin Area (A)}$
= ((11.58 – 10.51)/12)* 4.80 ac = **0.43 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative. Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (3.01 ac)(1"/12) + (1.3 ac)(1"/12) = **0.36 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.36 ac-ft + 0.43 ac-ft = 0.79 ac-ft

Basin 700 (US 41 to Sta. 47+80)

(1) Additional Impervious Area Calculation:

- **Existing Impervious Area = 1.44 ac**
  Roadway typical section: 2-lane roadway (12 ft wide lanes) with two-4 ft outside shoulders = 32 ft
  Area (Measured in CADD) =1.44 ac

- **Proposed/Total Impervious Area = 3.36 ac**
- R*oadway typical section:* 6-lane roadway (12 ft wide lanes) with two - 4 ft bike lanes, two – 5 ft sidewalks, four – 2 ft curb and gutter = 98 ft
- *Area (Measured in CADD) = 3.36 ac*

Additional Impervious Area (Based on a 6-lane urban typical section transitioning to a 4-lane rural typical section) = 3.36 ac – 1.44 ac = **1.92 ac**
Total Impervious Area = 3.36 ac
Basin Area= (1,675 ft x 156 ft)/43,560 = **6.00 ac**

(2) Attenuation Volume Required:

$CN_{pre\text{-}development}$ = 81 (weighted, see attached)

$S_{pre\text{-}development}$ = (1000/CN - 10) = (1000/81 - 10) = 2.35 in

$CN_{post\text{-}development}$ = 89 (weighted, see attached)

$S_{post\text{-}development}$ = (1000/CN - 10) = (1000/89 - 10) = 1.24 in

From Figure 5- 7 FDOT Drainage Manual Vol. 2A

$P_{100\text{-}year/24\text{-}hour}$ = 12.96 inches **Zone 6 IDF FDOT criteria**

$$Q_{pre\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(2.35)]^2}{[12.96 + (0.8)*(2.35)]} = 10.51 \text{ in}$$

$$Q_{post\text{-}development} = \frac{(P - 0.2S)^2}{(P+0.8S)} = \frac{[12.96 - (0.2)*(1.24)]^2}{[12.96 + (0.8)*(1.24)]} = 11.58 \text{ in}$$

$V_{required\ Attenuation} = (Q_{post\text{-}development} - Q_{pre\text{-}development}) * \text{Basin Area (A)}$
$= ((11.58 - 10.51)/12)* 6.00 \text{ ac} =$ **0.54 ac-ft**

(3) Treatment Volume Required: 1.0 in of the total impervious area (Assume wet pond design). Note: The treatment volume includes the area of the average pond alternative. Note: The treatment volume includes the area of the average pond alternative.

$V_{required}$ = (3.66 ac)(1"/12) + (0.75 ac)(1"/12) = **0.34 ac-ft**

(4) Total Volume Required (Treatment + Attenuation):

Total Volume Required = 0.34 ac-ft + 0.54 ac-ft = 0.88 ac-ft

Parsons Brinckerhoff **Computation Sheet**

Subject SR52, CN Calculations

Page 1 of 5

Made by SDF

Date 11/29/01

Checked by J.L.L.

Date 8/27/01

Basin 100: (Sta. 157+00 to Sta. 213+40)

Soil

42	C	(2-3.5')	Approx. 82% type C soil & 18% type A/D
21	A/D	(0-1')	
11	C	(2-3.5')	

$$CN_{pre} = 0.82(74) + 0.18(80) = 75$$

$$\text{Weighted } CN_{pre} = \frac{(36')(98) + (120')75}{156}$$

$$\approx 80$$

$$\text{Weighted } CN_{post} \quad \frac{(98')(98) + (58')(75)}{156'}$$

$$= 89.4 \approx 89$$

Basin 200: (Sta. 213+40 to Sta. 230+40)

Soil	Hydrologic Group
11	C
22	A/D
5	B/D
2	B/D

≈90% is Soil Group 11

$$CN_{pre} = 0.90(74) + 0.10(80) = 74.6 \approx 75$$

Based on 156' Min. Typical Section

$$\text{Weighted } CN_{pre} = \frac{(32')(98) + (124')(75)}{156'}$$

$$= 79.7 \approx 80$$

$$\text{Weighted } CN_{post} = \frac{(98')(98) + (58')(75)}{156'}$$

$$= 89.4 \approx 89$$

Basin 300: (Sta. 230+40 to 260+60)

3,020 ft

Approx. 1/3 of Basin 200 comprised of soil group C
2/3 of Basin 200 comprised of soil group B/D

$$CN_{pre} = 0.333(74) + 0.666(80) = 77.9 \approx 78$$

$$\text{Weighted } CN_{pre} = \frac{(32')(98) + (124')(78)}{156'}$$

$$\approx 82$$

$$\text{Weighted } CN_{post} = [(98')(98) + (58')(78)] / 156'$$

$$\approx 91$$

Basin 400 (Sta. 260+60 to Sta. 302+30

(≈850' east of RR)

Basin length = 4170'

Soil Information: Basin 300 is comprised of:

50 % Soil 11 ~(Soil group C)
50 % Soil 21 (Soil group A/D)

$CN_{pre} = 0.5(74) + 0.5(80) = 77$

Weighted $CN_{pre} = \frac{(32')(98) + (124')(77)}{156'}$

$CN_{pre} = 81.3 \approx 81$

Weighted $CN_{post} = \frac{(98')(98) + (58')(77)}{156'}$

$CN_{post} \approx 90$

Basin 500 (Sta. 302+30 to Sta. 329+40)

Basin length 2710'

Basin 400 is comprised of soil group C (100%)

$CN_{pre} = 74$

Weighted $CN_{pre} = \frac{(32')(98) + (124')(74)}{156'}$

$CN_{pre} = 79$

Weighted $CN_{post} = \frac{(98')(98) + (58')(74)}{156'}$

$CN_{post} = 89$

Basin 600 (Sta 329+40 to Sta. 342+80)

Basin length = 1340'

Basin 600 is comprised of

≈ 55% of soil group C
≈ 45% of soil group A/D

$CN_{pre} = 0.55(74) + 0.45(80) = 76.7 \approx 77$

Weighted $CN_{pre} = \frac{(32')98 + (124')77}{156'} \approx 81$

Weighted $CN_{post} = \frac{(98')(98) + 56(77)}{156'} = 89$

Basin 700 (US41 to Sta. 47+80)

Basin 700 is comprised of

≈ 55% of soil group C
≈ 45% of soil group A/D

$CN_{pre} = 0.55(74) + 0.45(80) = 76.7 \approx 77$

Weighted $CN_{pre} = \frac{(32')(98) + (124')(77}{156'} \approx 81$

Weighted $CN_{post} = \frac{(98')(98) + (56')(77)}{156'} \approx 89$

Estimated 100-year Floodplain Impact Calculations

Parsons Brinckerhoff **Computation Sheet**

Page 1 of 4

Subject Revised 100-year Floodplain Impacts wrt Pithtachascotee River

Made by SDF

Date 8/14/01

Checked by J.L.L.

Date 8/27/01

Basin 200

100-year floodplain elevation
North of SR52 58.9

South of SR52 57.7

Since alignment shifted to the north (56') ∴ no impacts to the south

length of impact = 625'

(625')(56') = 35000 sf / 43560 = 0.80

If assume 2' depth in FPC site

w/ a 4' depth of impact site ≈ 1.60ac

Basin 300

100 year Floodplain Elevation (per node C650E) for the north side of SR52 at the Pithlachascotee River = 58.9 ft

$\text{Impact}_{①}$ = (450ft in length) × (56 ft in width) / 43560 $\frac{ft^2}{acre}$

= 0.6 ac

Average depth of impact = [58.9 ft (100-yr Floodplain) − 51 ft (Lowest depth of impact)] / 2

= 4 ft

$\text{Volume Impact}_{①}$ = (450)(56')(4') = 100,800 ft^3

Assume depth of site for impact ① at 1.75 ft

∴ Area ≈ 1.3 ac

$\text{Impact}_{②}$ (Btwn Sta. 240+00 & Sta. 250+00) = 1,000 ft

56 ft width

100-year floodplain impact elevation = 61.9 ft (per node C640040)

depth = 61.9 ft − 59.5 ft = 2.4 ft

$\text{Volume Impact}_{②}$ = (1,000')(56')(2.4') = 134,400 ft^3

Assume depth of site for impact ② at 1.0 ft

∴ Area ≈ 3.00 ac

Total Area ≈ 4.3 ac

Total Volume = 100,800 ft^3 + 134,400 ft^3 = 235,200 ft^3

Parsons Brinckerhoff **Computation Sheet**

Subject: Revised 100-year Floodplain Impacts

Page 1 of 2
Made by SDF
Date 10/29/01
Checked by JLL
Date 10/30/01

Revised 100-year Floodplain Impacts

Basin 200 & Basin 300 (Node 650E & 650W)

100 year floodplain elevation → 58.9' at the Pithlachascotee River

625 ft in length (Basin 200) + 450 ft in length (Basin 300) = 1,075'

(1,075' × 56' width) = 60,200 sf

Average depth of impact = [58.9 ft (100-yr floodplain) − 51 ft (lowest depth of impact)]/2
= 4 ft

Volume = (60,200 sf)(4 ft)/43,560 ft²/acre

= 5.53 ac ft / 2.75' (depth to seasonal high water table)

≈ 2.0 acres

Parsons Brinckerhoff **Computation Sheet**

Subject Revised 100-year Floodplain Impacts

Page 2 of 2

Made by SDF

Date 10/29/01

Checked by JLL

Date 10/30/01

Basin 300; Node 640 040

Impact between Sta. 240+00 + Sta. 250+00 = 1,000 ft
56 ft width

100-year floodplain elevation @ 61.9 ft per Pithlachascotee River Watershed Study

depth of impact = 61.9 ft − 59.5 ft = 2.4 ft

Volume Impact = (1,000 ft)(56 ft)(2.4 ft) = 134,400 ft^3

Depth to season high water table = 1.0 ft

Volume 134,400 ft^3 / 43560 ft^3/acre = 3.1 acre ft

(3.1 ac ft)(1.0 ft depth to SHWT) = 3.1 ac

Subject Revised 100-year Floodplain Impacts

Basin 400

Node (Panel 106) C640 050 62.7

(625)(56)(1') = 35,000

Assuming 1' depth 35,000 ft³/43560 = 0.8 ac ft

Basin 500

No impacts to the 100-year floodplain

Basin 600

For the north side of SR52, Node (Panel 107) C670 090
100-year floodplain elevation 72.2'

Area measured in CADD = 35,755 sf (0.2' depth) = 7151 cf

For the south side of SR52, Node C620 080, Panel 107
100-year floodplain elevation = 74.0'

Area measured in CADD 40,765 sf (1' depth) = 40,765

Total impacts = 7151 + 40,765 = 47,916 cf/43560
= 1.10 ac-ft

Parsons Brinckerhoff **Computation Sheet**

Subject: Revised 100-year Floodplain Impacts

Page 4 of 4

Made by SDF

Date 8/15/01

Checked by J.L.L.

Date 8/27/01

Basin 700

100yr Floodplain Elevation for the North side of SR52 = 72.8'

100yr Floodplain Elevation for south of SR52 = 73.4'

0.41 ac (south of SR52) btw exist. and proposed ROW @ 1 ft depth

= 0.41 acft

0.53 ac @ 1.4 ft depth = 0.74 acft (north of SR52)

Total Impacts = 0.41 + 0.74 = 1.15 acft

(Assume 1' depth in FPC site; ∴ 1.15 ac)

The Pithlachascotee River Watershed Flood Plain Analysis

Volume 2

Prepared for

The Board of County Commissioners
Pasco County, Florida
and
The Southwest Florida Water Management District

by

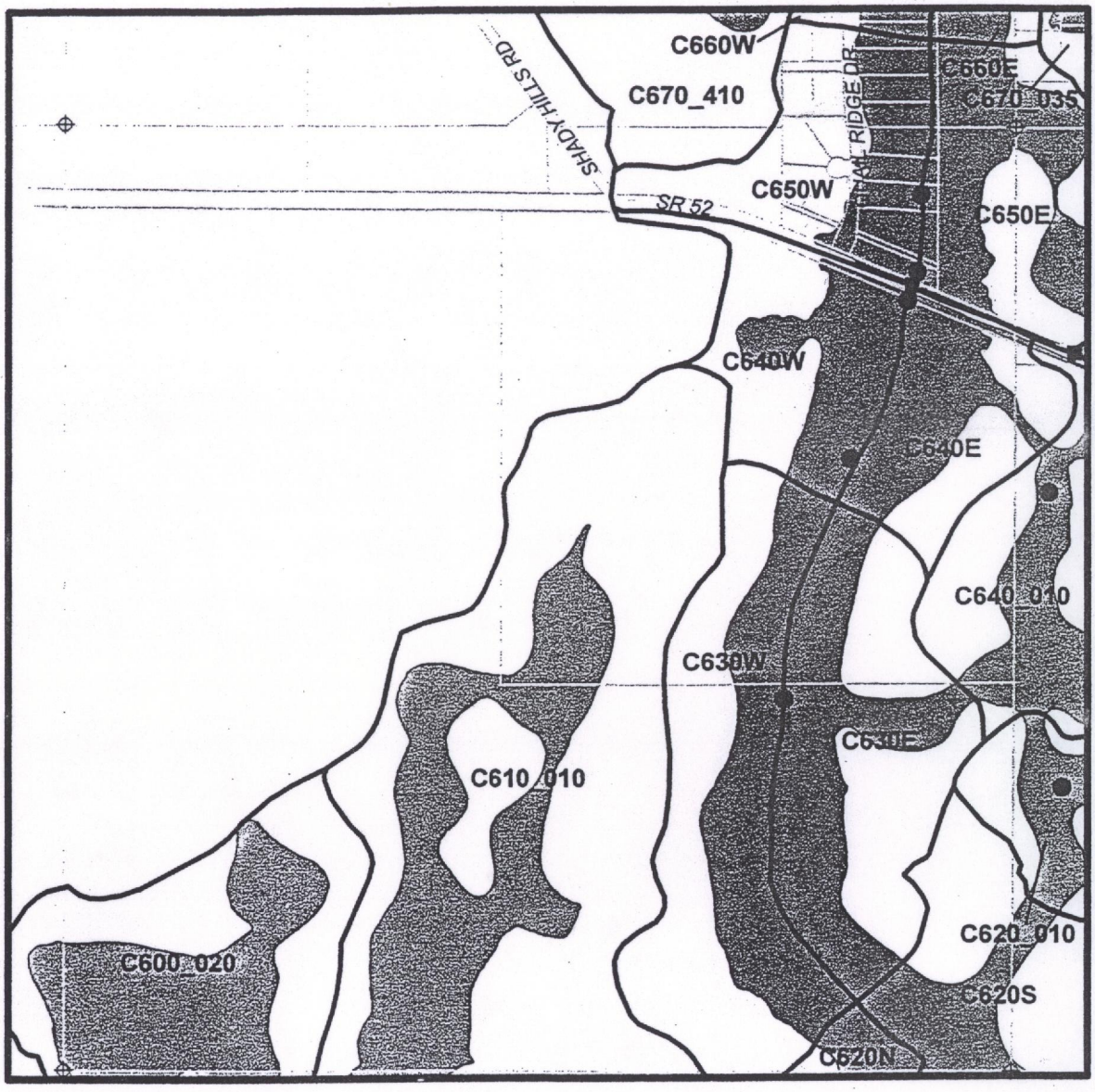
Ghioto & Associates
Water Resources and Civil Engineering

October, 1996

printed on
recycled paper

100 Year Floodplain Delineation

Section 7 Township 25 Range 18



The Pithlachascotee River Watershed
Pasco County, Florida

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Prepared by :
Ghioto & Associates
Water Resources & Civil Engineering

Panel 105

The Pithlachascotee River Watershed Flood Plain Analysis

Summary Report for Section 7 Township 25 Range 18
Pasco County, Florida

PEAK RUNOFF RATE IN CFS

Basin ID	Destination Node	Tc (minutes)	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C630E	C630	29.2	25.5	37.4	53.4	73.7	84.3	91.3	43.2	78.5	111.7	173.6
C630W	C630	40.3	20.5	32.0	48.1	69.0	80.2	87.6	28.2	58.5	88.2	144.0
C640E	C645	25.7	15.3	21.7	30.3	41.2	46.8	50.5	28.9	50.4	70.1	105.5
C640W	C645	16.8	18.0	25.8	36.2	49.3	56.1	60.6	37.1	64.5	89.6	136.6
C650E	C650	43.9	25.9	36.2	49.9	67.0	75.9	81.7	43.9	73.3	99.8	147.0
C650W	C650	31.1	19.1	27.0	37.5	50.6	57.5	62.0	34.3	58.3	80.3	119.4

RUNOFF VOLUME IN INCHES

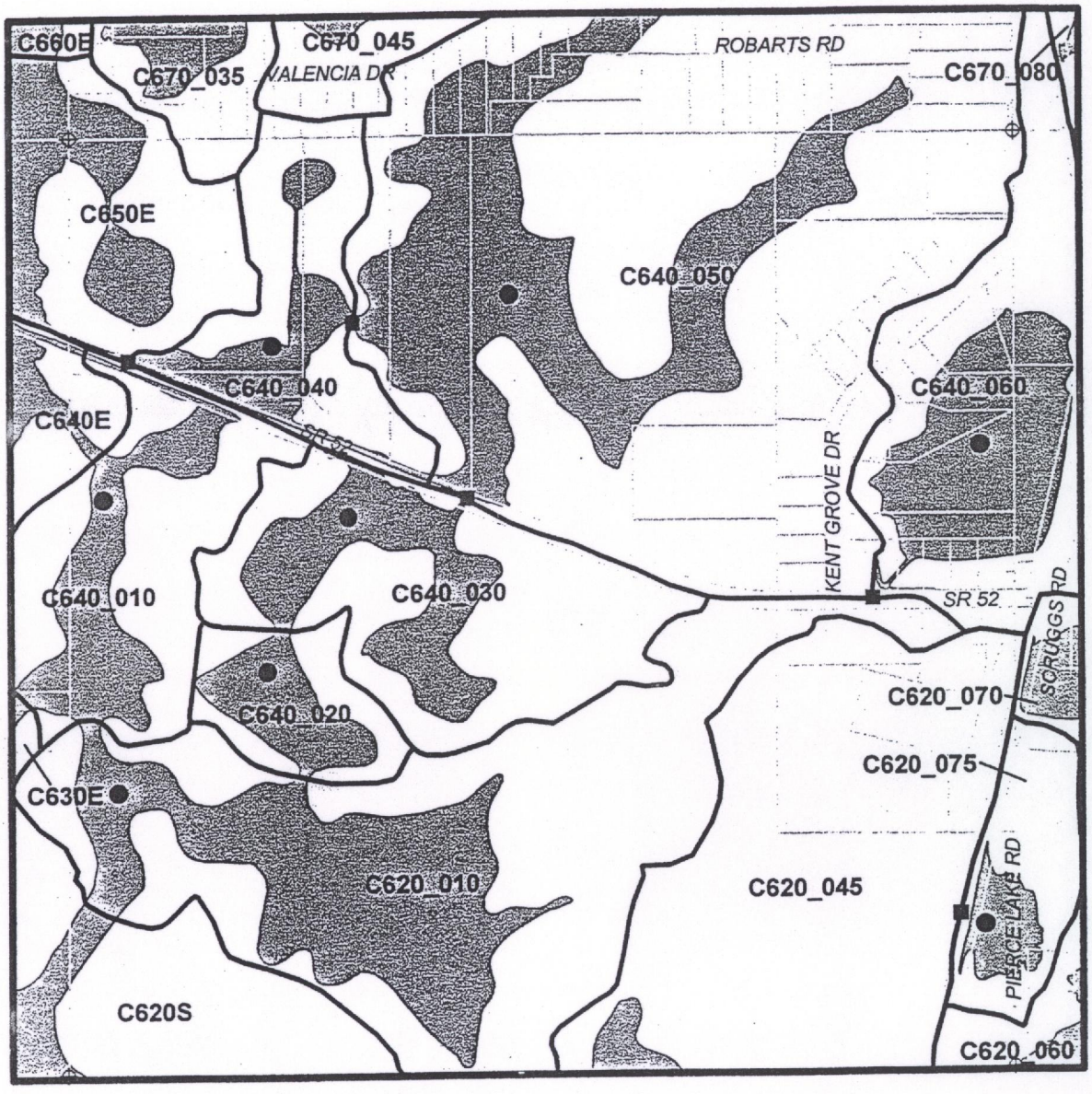
Basin ID	Area (acres)	Curve Number	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C630E	48.6	68.6	3.20	4.75	6.92	9.75	11.27	12.28	2.14	3.79	5.36	8.28
C630W	55.2	60.8	2.44	3.83	5.82	8.49	9.94	10.91	1.53	2.96	4.38	7.09
C640E	25.3	73.1	3.85	5.29	7.54	10.45	11.99	13.02	2.52	4.28	5.93	8.94
C640W	29.0	71.6	3.50	5.11	7.33	10.22	11.75	12.78	2.39	4.11	5.74	8.71
C650E	45.3	75.9	3.95	5.63	7.92	10.86	12.43	13.46	2.77	4.59	6.28	9.33
C650W	31.8	74.1	3.75	5.41	7.67	10.59	12.14	13.17	2.60	4.38	6.04	9.07

MAXIMUM STAGE IN FEET NGVD

Node ID	Invert Elevation	100 Year Max Stage	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C630 E	48.4	56.0	51.7	52.4	53.3	54.3	55.4	56.0	51.5	52.4	53.1	54.5
C630 W	48.4	56.0	51.7	52.4	53.3	54.3	55.4	56.0	51.5	52.4	53.1	54.5
C645	48.8	57.7	53.8	54.2	54.8	56.2	57.2	57.7	53.7	54.2	54.8	55.7
C645	48.8	57.7	53.8	54.2	54.8	56.2	57.2	57.7	53.7	54.2	54.8	55.7
C650 E	48.8	58.9	53.8	54.3	55.0	56.6	58.0	58.9	53.7	54.3	54.9	56.0
C650 W	48.8	58.9	53.8	54.3	55.0	56.6	58.0	58.9	53.7	54.3	54.9	56.0

100 Year Floodplain Delineation

Section 8 Township 25 Range 18



The Pithlachascotee River Watershed
Pasco County, Florida

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Prepared by :
Ghioto & Associates
Water Resources & Civil Engineering

Panel 106

The Pithlachascotee River Watershed Flood Plain Analysis

Summary Report for Section 8 Township 25 Range 18
Pasco County, Florida

PEAK RUNOFF RATE IN CFS

Basin ID	Destination Node	Tc (minutes)	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C620_010	C620_010	155.7	28.1	44.6	67.7	98.0	114.1	124.8	23.6	49.8	76.7	128.9
C620_075	C620_075	40.6	10.4	15.1	21.3	29.2	33.3	36.0	17.0	30.0	41.9	63.4
C640_010	C640_010	37.9	21.7	32.8	48.0	67.4	77.7	84.5	33.2	63.1	91.6	144.6
C640_020	C640_020	58.7	6.1	9.5	14.3	20.5	23.8	26.0	7.2	15.1	23.0	37.9
C640_030	C640_030	70.8	15.6	25.8	40.4	59.8	70.1	77.0	14.7	34.6	56.0	97.8
C640_040	C640_040	78.1	15.4	21.9	30.6	41.6	47.3	51.1	10.9	35.0	48.9	74.0
C640_050	C640_050	117.8	100.2	146.3	208.5	287.8	329.4	356.8	108.1	197.7	283.0	439.1
C640_060	C640_060	30.3	51.5	71.8	98.6	132.1	149.5	161.0	95.7	158.8	216.1	319.9

RUNOFF VOLUME IN INCHES

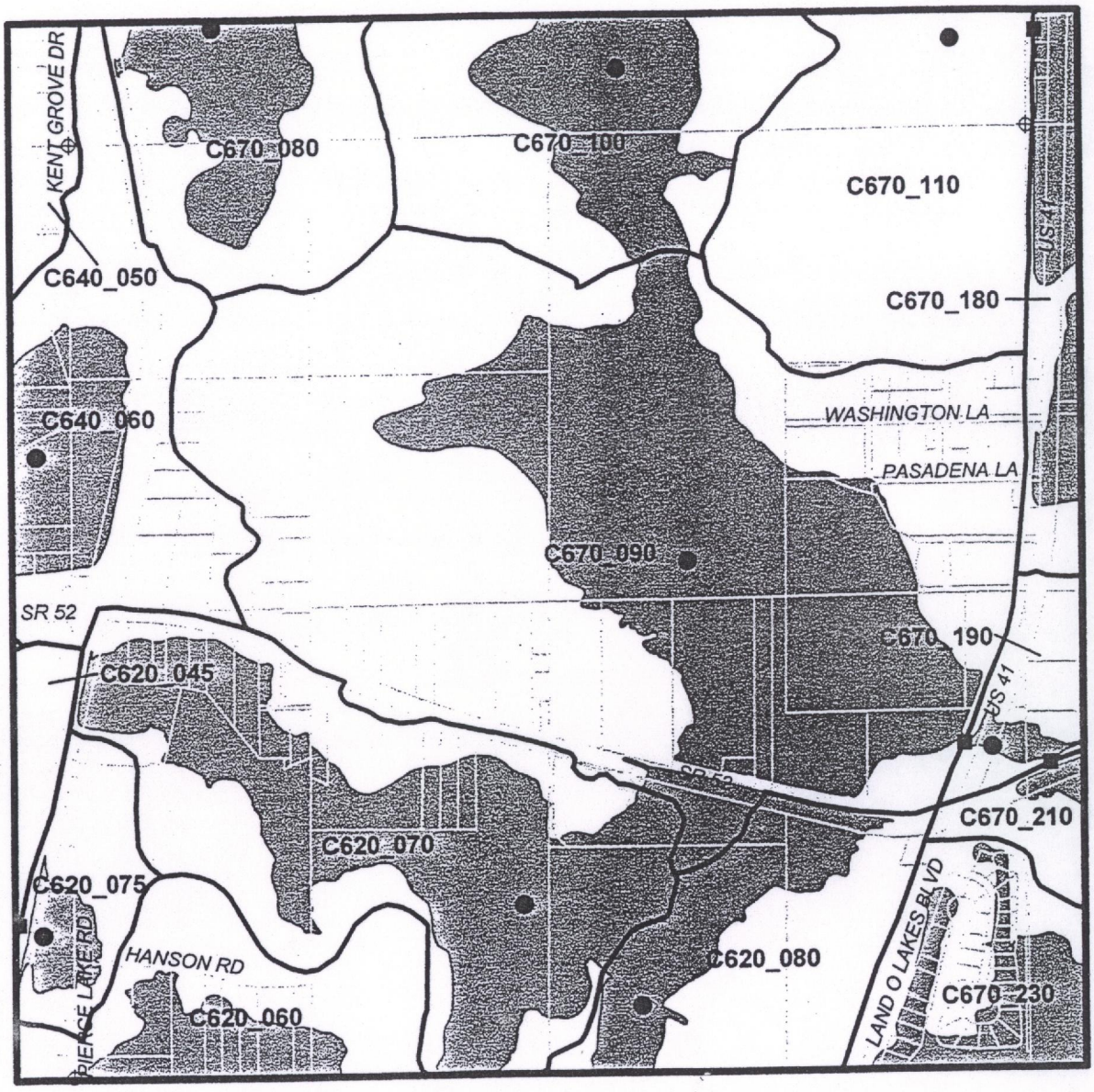
Basin ID	Area (acres)	Curve Number	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C620_010	130.2	59.1	2.28	3.63	5.57	8.20	9.63	10.59	1.40	2.78	4.16	6.81
C620_075	20.3	71.0	3.44	5.04	7.25	10.12	11.66	12.68	2.34	4.05	5.66	8.63
C640_010	49.3	65.1	2.86	4.34	6.44	9.21	10.70	11.69	1.88	3.42	4.93	7.76
C640_020	18.3	60.3	2.40	3.77	5.75	8.41	9.86	10.83	1.50	2.91	4.32	7.02
C640_030	61.9	54.9	1.90	3.14	4.97	7.48	8.86	9.79	1.12	2.36	3.64	6.15
C640_040	34.4	72.3	3.58	5.20	7.43	10.33	11.87	12.90	2.45	4.19	5.82	8.82
C640_050	290.1	68.9	3.23	4.79	6.96	9.80	11.32	12.34	2.16	3.81	5.39	8.30
C640_060	81.1	76.3	3.99	5.67	7.97	10.92	12.48	13.52	2.80	4.63	6.32	9.38

MAXIMUM STAGE IN FEET NGVD

Node ID	Invert Elevation	100 Year Max Stage	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C620_010	57.0	59.6	58.6	59.1	59.3	59.5	59.6	59.6	58.4	59.0	59.2	59.5
C620_075	67.0	71.2	69.7	70.0	70.4	70.8	71.0	71.1	69.5	70.1	70.6	71.2
C640_010	57.0	59.3	58.8	59.0	59.1	59.2	59.3	59.3	58.7	59.0	59.1	59.3
C640_020	58.5	60.0	59.5	59.6	59.8	59.9	59.9	60.0	59.4	59.6	59.7	59.9
C640_030	58.5	60.4	59.8	60.0	60.2	60.3	60.4	60.4	59.7	60.0	60.1	60.4
C640_040	58.5	61.9	61.0	61.4	61.6	61.7	61.8	61.9	60.9	61.4	61.6	61.8
C640_050	60.0	62.7	61.1	61.5	62.0	62.5	62.7	62.7	61.0	61.5	62.0	62.6
C640_060	66.0	71.8	69.9	70.3	70.8	71.3	71.6	71.8	69.8	70.3	70.7	71.4

100 Year Floodplain Delineation

Section 9 Township 25 Range 18



The Pithlachascotee River Watershed
Pasco County, Florida

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Prepared by :
Ghioto & Associates
Water Resources & Civil Engineering

Panel 107

The Pithlachascotee River Watershed Flood Plain Analysis

Summary Report for Section 9 Township 25 Range 18
Pasco County, Florida

PEAK RUNOFF RATE IN CFS

Basin ID	Destination Node	Tc (minutes)	5 Day Event						24 Hour Event			
			2.33	5	10	25	50	100	2.33	10	25	100
C620_070	C620_070	47.1	57.4	81.9	114.5	155.5	177.0	191.1	91.5	158.6	220.4	331.0
C620_080	C620_080	118.3	20.7	31.1	45.3	63.4	73.0	79.3	21.0	40.3	59.2	94.3
C670_090	C670_090	100.2	103.8	149.9	212.0	290.3	331.3	358.4	120.5	216.0	305.3	467.4
C670_190	C670_190	39.4	13.2	19.1	27.2	37.4	42.7	46.2	21.5	38.1	53.5	81.4

RUNOFF VOLUME IN INCHES

Basin ID	Area (acres)	Curve Number	5 Day Event						24 Hour Event			
			2.33	5	10	25	50	100	2.33	10	25	100
C620_070	110.3	72.9	3.63	5.26	7.51	10.41	11.96	12.98	2.50	4.26	5.90	8.90
C620_080	67.1	65.3	2.87	4.36	6.46	9.23	10.73	11.72	1.87	3.43	4.95	7.78
C670_090	268.0	70.5	3.39	4.98	7.19	10.06	11.59	12.61	2.30	4.00	5.61	8.57
C670_190	26.0	70.1	3.35	4.94	7.13	9.99	11.52	12.54	2.26	3.95	5.55	8.50

MAXIMUM STAGE IN FEET NGVD

Node ID	Invert Elevation	100 Year Max Stage	5 Day Event						24 Hour Event			
			2.33	5	10	25	50	100	2.33	10	25	100
C620_070	67.5	73.6	71.7	72.3	72.9	73.6	73.6	73.6	71.4	71.9	72.5	73.3
C620_080	67.5	74.0	73.5	73.5	73.7	73.9	73.9	74.0	73.2	73.5	73.7	73.9
C670_090	63.0	72.2	69.7	70.2	70.7	71.8	72.0	72.2	69.6	70.3	70.8	71.9
C670_190	69.0	72.8	70.1	70.4	71.0	72.2	72.6	72.8	70.0	70.4	70.9	72.3

The Pithlachascotee River Watershed Flood Plain Analysis

Summary Report for Section 10 Township 25 Range 18
Pasco County, Florida

PEAK RUNOFF RATE IN CFS

Basin ID	Destination Node	Tc (minutes)	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C670_180	C670_180	71.9	115.4	165.3	231.8	316.0	360.1	389.2	152.7	270.0	378.8	575.2
C670_200	C670_200	102.2	39.7	56.9	79.9	108.9	124.0	134.0	46.7	82.5	115.7	175.7
C670_210	C670_210	80.9	29.9	50.1	79.1	118.2	139.2	153.2	26.1	63.1	103.1	182.0

RUNOFF VOLUME IN INCHES

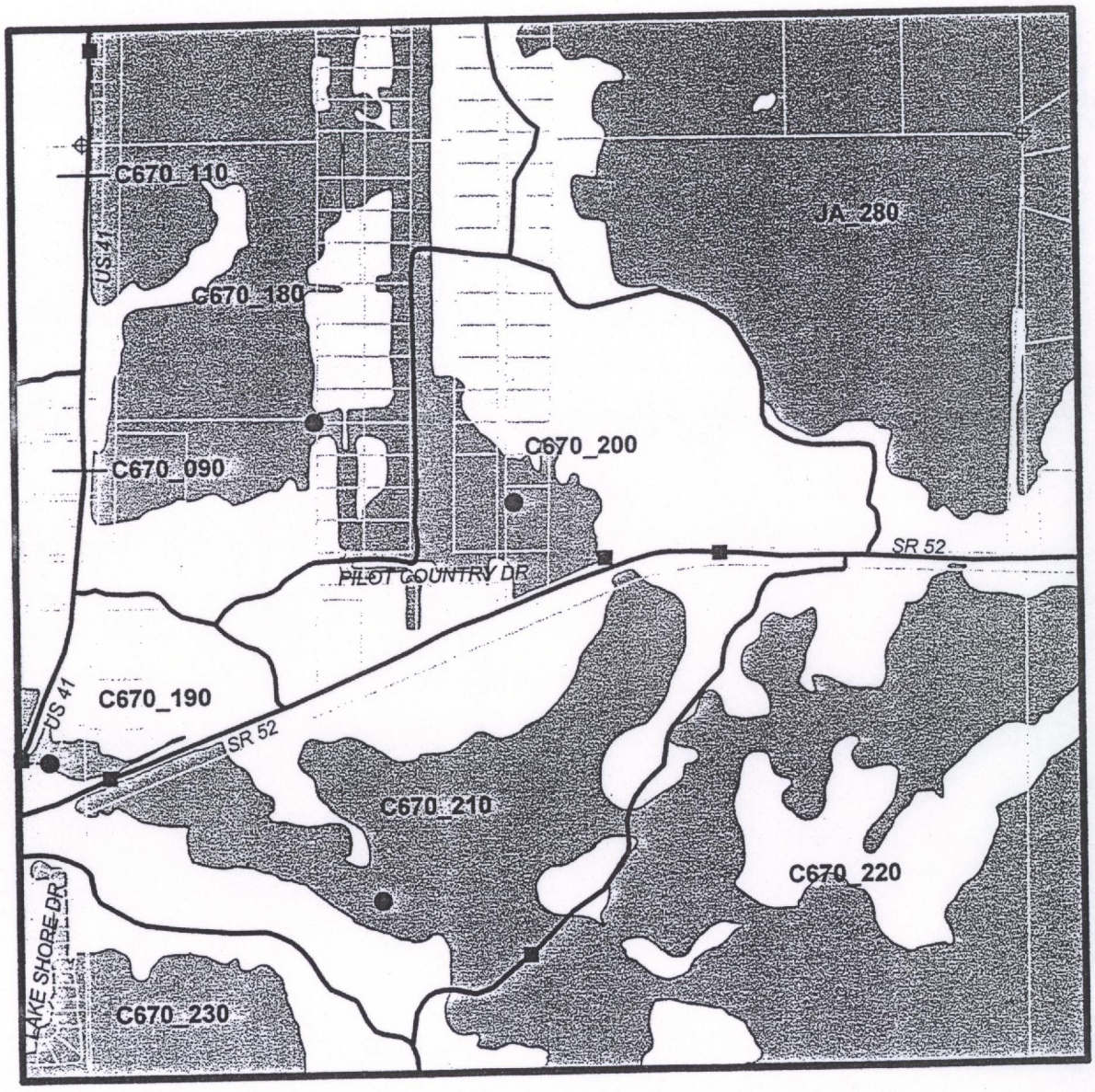
Basin ID	Area (acres)	Curve Number	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C670_180	257.8	71.4	3.48	5.08	7.30	10.18	11.72	12.74	2.37	4.09	5.70	8.68
C670_200	99.9	71.8	3.52	5.14	7.36	10.25	11.79	12.81	2.40	4.13	5.75	8.73
C670_210	130.5	54.0	1.82	3.03	4.83	7.31	8.68	9.60	1.06	2.26	3.52	6.00

MAXIMUM STAGE IN FEET NGVD

Node ID	Invert Elevation	100 Year Max Stage	5 Day Event 2.33	5	10	25	50	100	24 Hour Event 2.33	10	25	100
C670_180	67.0	74.2	72.5	72.9	73.4	73.9	74.1	74.2	72.5	73.0	73.4	74.1
C670_200	67.0	74.5	73.2	73.7	74.1	74.3	74.4	74.4	73.2	73.9	74.2	74.5
C670_210	69.0	73.4	72.8	72.9	73.0	73.2	73.3	73.4	72.8	72.8	72.9	73.2

100 Year Floodplain Delineation

Section 10 Township 25 Range 18



The Pithlachascotee River Watershed
Pasco County, Florida

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Prepared by :
Ghioto & Associates
Water Resources & Civil Engineering

Panel 108

Appendix D
SWFWMD Aerials

Appendix E
Preliminary Calculations for the Existing Suncoast Parkway SMFs 6A and 6B

Summary of Preliminary Calculations

Preliminary Calculations for the Existing Suncoast Parkway SMFs 6A and 6B

The preferred pond sites for Basin 100 are the existing Suncoast Parkway SMFs 6A and 6B which are 6.0 and 3.7 ac respectively. These existing SMFs are located south of SR 52 at Station166+00 and approximately 600 feet south of SR 52 adjacent to the west side of the Suncoast Parkway. Basin 100 extends from Sta. 157+00 to Sta. 213+40, a distance of 5,640 ft. The additional impervious width is 18 ft for the westbound lane, which is routed to SMF 6A and an additional 18 ft of impervious for the eastbound lane, which is routed to SMF 6B; an area of 2.33 acres to each pond. SMFs 6A and 6B were designed by the FDOT Turnpike District to treat and attenuate the runoff from the Suncoast Parkway/SR 52 interchange and the associated improvements with SR 52. The existing typical section of SR 52 at the Suncoast Parkway/SR 52 interchange is a four-lane rural typical section and would be widened to a six-lane urban typical section.

AdICPR was used to model Basin 100 using the parameters from the Deleu, Cather Engineers and Planners Drainage Design Documentation (which include the Suncoast Parkway Interchange improvements and the associated SR 52 modifications) including the additional lane in each direction to demonstrate that the existing SMFs are a feasible alternative. The existing model results are listed in the summary provided and are titled Pre-Suncoast, Post Suncoast and Post SR 52. The Deleu Cather model included treatment for 1-in over the entire contributing basin area, therefore treatment for the additional improvements to SR 52 is already being provided. Attenuation and increase in stage elevation (DHW) was evaluated for this exercise.

The Post SR 52 results summarize the model output after revising the weighted CN and increasing the impervious area to accommodate the additional impervious area. The parameters of the existing weir structures for SMFs 6A and 6B were not altered for this analysis. The time of concentration was assumed the same since the change in time of concentration would be minimal. The back-up calculations for both models are also included in this appendix.

The following tables summarize the results of the preliminary calculations and conclude that the existing SMFs 6A and 6B can accommodate the additional lane in each direction. In the subsequent design phase, the existing ponds will need to be remodeled with more detailed information.

Parsons Brinckerhoff

Computation Sheet

Subject: SMF 6A & 6B Preliminary Calculations
Basin 100
SR 52 D&E Study Reevaluation Study
Pasco County

Page: 1 of 1
Made by: JLL
Date: 01/02/02
Checked by: SDF
Date: 01/03/02

The following preliminary calculations demonstrate that the existing SMFs 6A and 6B can accommodate the improvements to SR 52 with a minimal increase in stage (DHW) elevations while maintaining a lesser discharge rate in the Post SR 52 condition versus the Pre-Suncoast condition.

POND 6A CALCULATION SUMMARY

STORM EVENT	DISCHARGE RATE (CFS)				DHW ELEVATIONS (FT)		
	PRE-SUNCOAST	POST-SUNCOAST	POST SR 52	Δ CFS*	POST-SUNCOAST	POST SR 52	Δ STAGE ELEV**
SWFWMD 24HR/25YR	65.41	35.33	36.02	29.39	53.65	53.68	0.03
FDOT 8-HR/10-YR	38.89	26.33	27.25	11.64	53.29	53.33	0.04
FDOT 8-HR/100-YR	68.13	44.01	45.05	23.08	53.99	54.03	0.04

* The difference in discharge rates between Pre-Suncoast and Post SR 52 provides additional attenuation available.
** Minimal increase in stage. Berm elevation is at 55.5 ft.

POND 6B CALCULATION SUMMARY

STORM EVENT	DISCHARGE RATE (CFS)				DHW ELEVATIONS (FT)		
	PRE-SUNCOAST	POST-SUNCOAST	POST SR 52***	Δ CFS	POST-SUNCOAST	POST SR 52	Δ STAGE ELEV****
SWFWMD 24HR/25YR	46.93	35.76	36.32	10.61	53.09	53.12	0.03
FDOT 8-HR/10-YR	30.52	29.51	30.49	0.03	52.8	52.82	0.02
FDOT 8-HR/100-YR	49.65	41.61	42.44	7.21	53.26	53.31	0.05

*** The Post SR 52 discharge rate is less than the Pre-Suncoast discharge rate.
**** Minimal increase in stage. Berm elevation is at 55.0 ft.

Pond 6A Calculations

DE LEUW, CATHER
ENGINEERS AND PLANNERS

SUBJECT:	SUNCOAST PARKWAY SECTION 3 Basin # 6A Pre-Developed Basin Calc.	JOB #	660525
MADE BY:	EJK	DATE:	08/07/96
CHECKED BY:		DATE:	

SUNPRE6A.WK4

Basin # 6A

TOTAL AREA (A) = 39.34 Acres (includes 6.03 acres of water detention area #6A)
NDCIA = 0.00 Acres
DCIA = 2.42 Acres
% DCIA = ((DCIA/A)*100%) = 6.15
PERVIOUS = 36.92 Acres

CURVE NUMBER (CN)

Note: Software requires CN based on NDCIA and pervious area only.
therefore, CN calculated area => Total area - DCIA = 36.92 ac.

Soil Type - A	Pasture, good condition	CN1 =	39	1.64 ac. (A1)
Soil Type - C	Woods, good condition	CN2 =	70	6.65 ac. (A2)
Soil Type - C	Pasture, good condition	CN3 =	74	11.48 ac. (A3)
Soil Type - D	Woods, good condition	CN4 =	77	2.42 ac. (A4)
Soil Type - D	Pasture, good condition	CN5 =	80	11.48 ac. (A5)
Soil Type - D	Wetland	CN6 =	100	3.25 ac. (A6)

Composite CN = ((A1 * CN1) + (A2 * CN2) + (A3 * CN3))/A
CN = 76.08

TIME OF CONCENTRATION (Tc)

From WDA #6A, meandering east.
(see attached sheet)

1) KINEMATIC WAVE (TR-55)

n = 0.4 (woods, light)
L = 300 ft
P2 = 5.0 in
Change in elevation = 2.12 ft
S = 0.0071 ft/ft

T(1) = ((.007(nL)^.8)/(P2^.5*S^.4)) * (60 min/hour)
T(1) = 62.72 minutes

2) SHALLOW CONCENTRATED FLOW (TR-55)

L = 300 ft
Change in elevation = 5.41 ft
S = 0.0180 ft/ft

From Appendix F: V(unpaved) = 16.1345 (S)^0.5
V(unpaved) = 2.17 ft/sec

T(2) = L/(V(unpaved)*60)
T(2) = 2.31 minutes

T(c) = T(1) + T(2)
T(c) = 65.03 minutes

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SUNCOAST PARKWAY WDA #6A PRE-DEV
SWFWMD 24HR-25YR STORM EVENT

********** Basin Summary - SWFWMD **********

Basin Name:	BASIN6A
Group Name:	BASE
Node Name:	WDA#6A
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	8.67
Comp Time Inc (min):	8.67
Rainfall File:	FLMOD
Rainfall Amount (in):	9.20
Storm Duration (hr):	24.00
Status:	ONSITE
Time of Conc. (min):	65.03
Lag Time (hr):	0.00
Area (acres):	39.34
Vol of Unit Hyd (in):	1.00
Curve Number:	76.08
DCIA (%):	6.15
Time Max (hrs):	12.72
Flow Max (cfs):	**65.41**
Runoff Volume (in):	6.44
Runoff Volume (cf):	919911

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SUNCOAST PARKWAY WDA #6A PRE-DEV
FDOT 8HR-10YR STORM EVENT

********** Basin Summary - FDOT 8HR-10YR**********

Basin Name:	BASIN6A
Group Name:	BASE
Node Name:	WDA#6A
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	8.67
Comp Time Inc (min):	8.67
Rainfall File:	FDOT-8
Rainfall Amount (in):	6.20
Storm Duration (hr):	8.00
Status:	ONSITE
Time of Conc. (min):	65.03
Lag Time (hr):	0.00
Area (acres):	39.34
Vol of Unit Hyd (in):	1.00
Curve Number:	76.08
DCIA (%):	6.15
Time Max (hrs):	4.48
Flow Max (cfs):	**38.89**
Runoff Volume (in):	3.71
Runoff Volume (cf):	529483

SUNCOAST PARKWAY WDA #6A PRE-DEV
FDOT 8HR-100YR STORM EVENT

********** Basin Summary - FDOT 8HR-100YR **********

Basin Name:	BASIN6A
Group Name:	BASE
Node Name:	WDA#6A
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	8.67
Comp Time Inc (min):	8.67
Rainfall File:	FDOT-8
Rainfall Amount (in):	9.20
Storm Duration (hr):	8.00
Status:	ONSITE
Time of Conc. (min):	65.03
Lag Time (hr):	0.00
Area (acres):	39.34
Vol of Unit Hyd (in):	1.00
Curve Number:	76.08
DCIA (%):	6.15
Time Max (hrs):	4.48
Flow Max (cfs):	**68.13**
Runoff Volume (in):	6.43
Runoff Volume (cf):	918141

SEASONAL HIGH WATER ELEVATION (SHW)

From the " Seasonal High Water Estimate Summary " table
the SHW for Wetland 3-19 => **51.39**

SHW WDA#6A = elev. 51.39 => Control elevation

WDA # 6A STAGE / STORAGE RELATIONSHIP => NODE WDA#6A

Stage	Area (ac.)	Storage (ac-ft)
40.00	1.32	0.00
42.00	1.58	0.00
49.50	4.56	0.00
51.39	4.87	0.00
52.05	4.99	3.25
53.00	5.15	8.07
55.50	6.03	22.05

WATER QUALITY VOLUME (P.A.V.)

Use SJRWMD criteria, therefore treat the greater of: 1 inch of runoff from the entire contributing area or 2.5 inches of runoff from the impervious area.

P.A.V. = 1 in. *A * (1 ft/12 in) = 3.28 ac-ft

or

P.A.V. = 2.5 in. *DCIA * (1 ft/12 in) = 2.54 ac-ft

therefore, **P.A.V. = 3.28 ac-ft**

WATER QUALITY ELEVATION

Stage	Area (ac.)	Storage (ac-ft)
51.39	4.87	0.00
53.00	5.15	8.07
55.50	6.03	22.05

Therefore, from linear interpolation, water quality elevation = **52.07 ' NGVD**

Set weir overflow elevation at 52.07 to provide 3.33 ac-ft of Water Quality Volume

Note: Treatment volume shall not cause the pond level to rise more than 18 inches above the control elevation. 0.68' < 1.5 ', therefore it is O.K.

SIZING AN ORIFICE

The Orifice Equation is given by:

$$Q = C * A * (2 * g * h)^{0.5}$$

Where:

Q = Rate of Discharge (cfs)
A = Orifice Area (ft^2)
g = Gravitational Constant (32.2 ft/sec^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = Orifice coefficient (assumed to = 0.6)

The average discharge rate (Qa) required to draw down half the treatment volume (TV) in a desired *amount of time (t) is:*

$$Qa = TV / (2* t* CF)$$

Where:

TV = Treatment Volume (cu. ft.)
t = Recovery time (60 hrs minimum per SWFWMD)
CF = Conversion Factor = 3600 sec/hr

The depth of water (h) should be set to the average depth above the flow line between the top of the treatment volume and the stage at which half the treatment volume has been released.

$$h = (h1 + h2) / 2$$

Where:

h1 = Depth of water between the top of the treatment volume and the flow line

h2 = Depth of water between the stage when half the treatment volume has been released and the flow line of the orifice (ft).

Solving for the Area (A) =

$$A = Qa / (C * (2*g*h)^{0.5})$$

The Diameter of the Orifice is calculated by:

$$D = (4 * A / pi)^{0.5}$$

CALCULATING THE MAXIMUM ORIFICE DIAMETER ALLOWABLE

Input:			**Output:**		
TV =	145054.80	ft^3	**h =**	0.51	ft
t =	60.00	hours	**Qa =**	0.34	cfs
CF =	3600.00	sec/hr	**A =**	0.10	ft^2
h1 =	0.68	ft			
h2 =	0.34	ft	**D =**	0.35	ft

Therefore, any Orifice with a diameter less than or equal to **4.2** inches will meet or surpass the criteria set forth in chapter 5.2.4 of the SWFWMD ERP Information Manual
We will use a 4.2" diameter orifice. (See adICPR run for staging elevations).

36 HOUR WATER QUANTITY STAGE ADJUSTMENT

The 36 hour Water Quantity Stage Adjustment will be handled by setting the initial pond routing stage at the overflow elevation.

LITTORAL ZONE

Manmade wet detention system requires as a minimum a 35% littoral zone, concentrated at the outfall for biological assimilation of pollutants.

The percentage of the littoral zone is based on the ratio of the vegetated littoral zone to the surface area of the pond at the control elevation.

The littoral zone will be no deeper than 3.5 feet below the design overflow elevation.

The surface area of the pond at the control elevation 51.39' NGVD is 4.87 ac., therefore, the required littoral zone = 4.87 * 0.35 ac = **1.70 ac.**

Littoral zone area at 49.50' NGVD is 2.03 ac., which is greater than the 1.70 ac. required.

% littoral zone gone to surface area of pond at control elevation.

Area at control elevation of	51.39 =	**4.87**	ac.
Area of littoral zone at elevation	49.50=	**2.03**	ac.
(2.03 ac. / 4.87 ac.) * 100 =		**41.7**	%

Design overflow elevation = 52.07' NGVD, therefore the maximum littoral zone depth is
= 52.07 - 3.5 = 48.57 ' NGVD

Set littoral zone bottom elevation at 49.5' NGVD which is greater than 48.57'
therefore, it is O.K.

CHECK MINIMUM PERMANENT WET POOL VOLUME

From TP/SWP - 022, Suncoast / Permit manual, July 1994
Check minimum permanent wet pool volume.

Vr = 14 day residence volume
Vmin = minimum permanent wet pool volume

Vr = ACPR(1/12)

A = 39.34 acres
C = Runoff coefficient = 0.53
P = Historic average wet season rainfall = 31.04 in/122 day
R = 14 day residence time

Composite C comp

Impervious =	12.19	ac (A1); c1=	0.95
Pervious =	22.28	ac (A2); c2=	0.20
Water =	4.87	ac (A3); c3=	1.00

Composite c =((A1 * c1) + (A2 * c2) + (A3 * c3))/ A
c = 0.53

therefore, Vr =A * (c) * (31.04/122) *14 *(1/12) = 6.21 ac-ft

Vmin = A * 0.667 in *(1/12) = 2.19 ac-ft

Since Vr > Vmin, use Vr

Also, since the proposed volume below elevation 51.39 is 34.84 ac-ft; which is greater than Vr the proposed design exceeds SWFWMD criteria.

EFFECTIVE FLOW AREA CALCULATIONS

CONTROL STRUCTURE: *OCS No. 6A*

Weir Overflow Elevation =	**52.07**	**NGVD**
Overflow Weir Length =	**9.00**	**Ft.**
25 year / 24 hour Stage Elevation =	**53.53**	**NGVD**
Effective Overflow Weir Flow Area =	**13.14**	**Sq. Ft.**

SKIMMER: *OCS No. 6A*

Control Structure Outside Dimensions =	**11.08**	**(Type 'K' DBI)**
Total Length of Fron Face of Skimmer =	**14.08**	**Ft.**
Skimmer Distance From Control Structure =	**1.50**	**Ft.**
Effective Flow Area for Skimmer =	**21.12**	**Sq. Ft.**

The "Skimmer Flow Area > the Control Structure Flow Control Area"
therefore the "Control Structure" Controls

Post Development Computer Model

DE LEUW, CATHER
ENGINEERS AND PLANNERS

SUBJECT:	SUNCOAST PARKWAY SECTION 3 Basin #6A Post-Developed Basin Calc.	**JOB #**	660525
MADE BY:	EJK	**DATE:**	08/07/96
CHECKED BY:		**DATE:**	

SUNPRE6A.WK4

Basin #6A

TOTAL AREA (A) =	39.34 Acres		
NDCIA =	0.00 Acres		
DCIA =	12.19 Acres		
% DCIA =	((DCIA/A)*100%) =	30.99	%
PERVIOUS =	21.12 Acres		
POND AREA=	6.03 Acres		

CURVE NUMBER

Note: Software requires CN based on NDCIA and pervious area only.
therefore, CN calculated area => Total area - DCIA = 27.15 ac.

Soil Type - A	Open space, good condition	CN1 = 39	0.91 ac. (A1)
Soil Type - C	Woods, good condition	CN2 = 70	1.41 ac. (A2)
Soil Type - C	Open space, good condition	CN3 = 74	10.36 ac. (A3)
Soil Type - D	Open space, good condition	CN4 = 80	9.60 ac. (A4)
Pond Area @ NWL		CN5 = 100	4.87 ac. (A5)

Composite CN = ((A1 * CN1) + ... + (A5+CN5))/A
CN = 79.40

TIME OF CONCENTRATION (Tc)

From offsite area north of baseline survey SR 52 Station 205+00 to left side conveyance ditch. Ditch conveyance to DBI S-63 at centerline of construction SR 52 @ Station 24+50. Pipe flow to WDA # 6A.

See Ditch Calculations and Storm Sewer Tabulation Form for Tc data.

T(c) = 71.94 minutes

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SUNCOAST PARKWAY WDA 6A POST DEVELOPMENT CONDITION

********** Node Maximum Comparisons **********

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
Node Name: WDA#6A	Group: BASE								
SWFWMD	14.42	53.65	55.50	0.0050	234336.03	13.00	74.22	14.42	35.33
FDOT8-10	6.47	53.29	55.50	-0.0050	228854.23	5.00	47.08	6.50	26.33
FDOT8-100	6.34	53.99	55.50	0.0050	239538.79	5.00	75.59	6.34	44.01

BASIN # 6A ADJUSTED FOR PSR

DE LEUW, CATHER
ENGINEERS AND PLANNERS

SUBJECT:	SUNCOAST PARKWAY SECTION 3 Basin #6A Post-Developed Basin Calc.	JOB #	660525
MADE BY:	EJK	DATE:	08/07/96
CHECKED BY:		DATE:	

SUNPRE6A.WK4

Basin #6A

* ADDITIONAL 2.33 ac. OF IMPERVIOUS AREA GOING TO THIS POND.

TOTAL AREA (A) =	39.34 Acres	
NDCIA =	0.00 Acres	
DCIA =	~~12.19~~ Acres	(14.52 AC.) ← ADJUSTED
% DCIA =	((DCIA/A)*100%) = ~~30.99~~ %	36.91 %
PERVIOUS =	~~21.12~~ Acres	(18.79 ac.)
POND AREA=	6.03 Acres	

CURVE NUMBER

Note: Software requires CN based on NDCIA and pervious area only. 24.82 ac.
therefore, CN calculated area => Total area - DCIA = ~~27.15~~ ac.

Soil Type - A	Open space, good condition	CN1 = 39		0.91 ac. (A1)
Soil Type - C	Woods, good condition	CN2 = 70		1.41 ac. (A2)
Soil Type - C	Open space, good condition	CN3 = 74	~~8.45~~ ~~10.36~~	ac. (A3) ← ADJUSTED
Soil Type - D	Open space, good condition	CN4 = 80	9.18 ~~9.60~~	ac. (A4) ← ADJUSTED
Pond Area @ NWL		CN5 = 100		4.87 ac. (A5)

Composite CN = ((A1 * CN1) + ... + (A5+CN5))/A

CN = ~~79.40~~ 79.81 ← ADJUSTED

TIME OF CONCENTRATION (Tc)

From offsite area north of baseline survey SR 52 Station 205+00 to left side conveyance ditch. Ditch conveyance to DBI S-63 at centerline of construction SR 52 @ Station 24+50. Pipe flow to WDA # 6A.

See Ditch Calculations and Storm Sewer Tabulation Form for Tc data.

T(c) = 71.94 minutes ≃ ASSUME SIMULAR Tc (OFFSITE AREA CONTROLS)

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SUNCOAST PARKWAY POND 6A ADJUSTED FOR PROPOSED SR 52 IMPROVEMENTS

********** Node Maximum Comparisons **********

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
Node Name: POND6A		Group: BASE							
SWFWMD	14.42	53.68	55.50	-0.0050	234748.86	13.00	75.29	14.42	36.02
FDOT8-10	6.45	53.33	55.50	-0.0050	229449.23	4.99	48.27	6.45	27.25
FDOT8-100	6.31	54.03	55.50	-0.0050	240139.07	5.00	76.80	6.33	45.05

Pond 6B Calculations

DE LEUW, CATHER
ENGINEERS AND PLANNERS

SUBJECT:	SUNCOAST PARKWAY SECT. 3 BASIN # 6B· Pre-Developed Calc.	JOB #	660525
MADE BY:	EJK	DATE:	08/07/96
CHECKED BY:		DATE:	

SUNPRE6B.WK4

BASIN # 6B

TOTAL AREA (A) =	26.79 Acres	(Includes 3.68 Acre WDA Site)	
NDCIA =	0.20 Acres		
DCIA =	1.77 Acres		
% DCIA =	((DCIA/A)*100%) =	6.61 %	
PERVIOUS =	24.82 Acres		

CURVE NUMBER

Note: Software requires CN based on NDCIA and pervious area only.
therefore, CN calculated area => Total area - DCIA = 25.02 ac.

Soil Type - D	Range, good condition	CN1 =	80	8.24	ac. (A1)
Soil Type - D	Woods, good condition	CN2 =	77	5.12	ac. (A2)
Soil Type - C	Range, good condition	CN3 =	74	3.75	ac. (A3)
Soil Type - D	Wetlands	CN4 =	100	7.71	ac. (A4)
NDCIA	Existing Pavement	CN5 =	98	0.20	ac. (A5)

Composite CN = ((A1*CN1)+ ... +(A5*CN5))/A

CN = 84.79

TIME OF CONCENTRATION (Tc)

1) OVERLAND FLOW

Overland flow northeast from high point near Station 1981+00

Kinematic Wave (TR-55)

n =	0.40	(Woods,light)
L =	300	ft
P2 =	5.00	inches
Change in Elev. =	1.53	54.43-52.9
Slope =	0.0051	ft/ft

T(1) = ((0.007*(n*L)^0.80)/(P2^0.50*S^0.40))*(60)

T(1) = 71.46 minutes

2) SHALLOW CONCENTRATED FLOW

T(2) =	(L/(V*60)	Shallow concentrated flow to wetland 3-17B
L=	290 ft	
Change in Elev. =	2.9	(52.9'-50.08')
Slope(S) =	0.01 ft/ft	

V = 16.1345*S^0.50
V = 1.61 ft/sec

T(2) = 3.00 minutes

TOTAL TIME OF CONCENTRATION (Tc)

T(c) = T(1) + T(2)
T(c) = 74.46 minutes

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SUNCOSAT PARKWAY WDA #6B PRE-DEV
SWFWMD 24HR25YR STORM EVENT

********** Basin Summary - SWFWMD **********

Basin Name:	BASIN6B
Group Name:	BASE
Node Name:	WDA#6B
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	9.93
Comp Time Inc (min):	9.93
Rainfall File:	FLMOD
Rainfall Amount (in):	9.20
Storm Duration (hr):	24.00
Status:	ONSITE
Time of Conc. (min):	74.46
Lag Time (hr):	0.00
Area (acres):	26.79
Vol of Unit Hyd (in):	1.00
Curve Number:	84.79
DCIA (%):	6.61
Time Max (hrs):	12.74
Flow Max (cfs):	**46.93**
Runoff Volume (in):	7.46
Runoff Volume (cf):	725707

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SUNCOSAT PARKWAY WDA #6B PRE-DEV
FDOT 8HR-10YR STORM EVENT

********** Basin Summary - FDOT 8HR-10YR **********

Basin Name:	BASIN6B
Group Name:	BASE
Node Name:	WDA#6B
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	9.93
Comp Time Inc (min):	9.93
Rainfall File:	FDOT-8
Rainfall Amount (in):	6.20
Storm Duration (hr):	8.00
Status:	ONSITE
Time of Conc. (min):	74.46
Lag Time (hr):	0.00
Area (acres):	26.79
Vol of Unit Hyd (in):	1.00
Curve Number:	84.79
DCIA (%):	6.61
Time Max (hrs):	4.63
Flow Max (cfs):	**30.52**
Runoff Volume (in):	4.56
Runoff Volume (cf):	443932

SUNCOSAT PARKWAY WDA #6B PRE-DEV
FDOT 8HR-100YR STORM EVENT

********** Basin Summary - FDOT 8HR-100YR **********

Basin Name:	BASIN6B
Group Name:	BASE
Node Name:	WDA#6B
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	9.93
Comp Time Inc (min):	9.93
Rainfall File:	FDOT-8
Rainfall Amount (in):	9.20
Storm Duration (hr):	8.00
Status:	ONSITE
Time of Conc. (min):	74.46
Lag Time (hr):	0.00
Area (acres):	26.79
Vol of Unit Hyd (in):	1.00
Curve Number:	84.79
DCIA (%):	6.61
Time Max (hrs):	4.47
Flow Max (cfs):	**49.65**
Runoff Volume (in):	7.45
Runoff Volume (cf):	724267

WDA # 6B

SEASONAL HIGH WATER ELEVATION (SHW)

From the " Seasonal High Water Estimate Summary " table
the SHW for Wetland 3-19 => **51.39**

SHW WDA#6B = elev. 51.39 => Control elevation

WDA # 6B STAGE / STORAGE RELATIONSHIP => NODE WDA#6B

Stage	Area (ac.)	Storage (ac-ft)
51.39	2.77	0.00
52.18	2.91	2.25
52.50	2.93	3.18
55.00	3.68	11.44

WATER QUALITY VOLUME (P.A.V.)

Use SJRWMD criteria, therefore treat the greater of: 1 inch of runoff from the entire contributing area or 2.5 inches of runoff from the impervious area.

P.A.V. = 1 in. *A * (1 ft/12 in) = 2.23 ac-ft

or

P.A.V. = 2.5 in. *DCIA * (1 ft/12 in) = 1.99 ac-ft

therefore, **P.A.V. = 2.23 ac-ft**

WATER QUALITY ELEVATION

Stage	Area (ac.)	Storage (ac-ft)
51.39	2.77	0.00
52.18	2.91	2.25
52.50	2.93	3.18

Therefore, from linear interpolation, water quality elevation = **52.18 ' NGVD**

Set weir overflow elevation at 52.18 to provide 2.25 ac-ft of Water Quality Volume

Note: Treatment volume shall not cause the pond level to rise more than 18 inches above the control elevation. 0.79' < 1.5 ', therefore it is O.K.

36 HOUR WATER QUANTITY STAGE ADJUSTMENT

The 36 hour Water Quantity Stage Adjustment will be handled by setting the initial pond routing stage at the overflow elevation.

LITTORAL ZONE

Manmade wet detention system requires as a minimum a 35% littoral zone, concentrated at the outfall for biological assimilation of pollutants.

The percentage of the littoral zone is based on the ratio of the vegetated littoral zone to the surface area of the pond at the control elevation.

The littoral zone will be no deeper than 3.5 feet below the design overflow elevation.

The surface area of the pond at the control elevation 51.39' NGVD is 2.77 ac., therefore, the required littoral zone = 2.77 * 0.35 ac = 0.97 ac.

Littoral zone area at 50.00' NGVD is 0.98 ac., which is greater than the 0.97 ac. required.

% littoral zone gone to surface area of pond at control elevation.

Area at control elevation of 2.77 ac.
Area of littoral zone at elevation 0.98 ac.
(0.98 ac. / 2.77 ac.) * 100 = 35.4 %

Design overflow elevation = 52.18' NGVD, therefore the maximum littoral zone depth is
= 52.18 - 3.5 = 48.68 ' NGVD

Set littoral zone bottom elevation at 50.00' NGVD which is greater than 48.68' therefore, it is O.K.

CHECK MINIMUM PERMANENT WET POOL VOLUME

From TP/SWP - 022, Suncoast / Permit manual, July 1994
Check minimum permanent wet pool volume.

Vr = 14 day residence volume
Vmin = minimum permanent wet pool volume

Vr = ACPR(1/12)

A = 26.79 acres
C = Runoff coefficient = 0.56
P = Historic average wet season rainfall = 31.04 in/122 day
R = 14 day residence time

	Composite C comp		
Impervious =	9.76	ac (A1); c1=	0.95
Pervious =	14.26	ac (A2); c2=	0.20
Water =	2.77	ac (A3); c3=	1.00

Composite c =((A1 * c1) + (A2 * c2) + (A3 * c3))/ A
c = 0.56

therefore, Vr =A * (c) * (31.04/122) *14 *(1/12) 4.42 ac-ft

Vmin = A * 0.667 in *(1/12) = 1.49 ac-ft

Since Vr > Vmin, use Vr

Also, since the proposed volume below elevation 51.39 is 14.11 ac-ft; which is greater than Vr the proposed design exceeds SWFWMD criteria.

EFFECTIVE FLOW AREA CALCULATIONS

CONTROL STRUCTURE: *OCS No. 6B*

Weir Overflow Elevation =	**52.18**	**NGVD**
Overflow Weir Length =	**10.00**	**Ft.**
25 year / 24 hour Stage Elevation =	**53.38**	**NGVD**
Effective Overflow Weir Flow Area =	**12.00**	**Sq. Ft.**

SKIMMER: *OCS No. 6B*

The Effective flow area for the Skimmer is based on the cross sectional area between the front face of the Skimmer and the Control Structure.

Front Face of Control Structure Length =	**9.00**	**(Type 'H' DBI)**
Total Length of Front Face of Skimmer =	**12.00**	**Ft.**
Skimmer Distance From Control Structure =	**1.50**	**Ft.**
Effective Flow Area for Skimmer =	**18.00**	**Sq. Ft.**

The "Effective Skimmer Flow Area > the Effective Control Structure Flow Control Area" therefore the "Control Structure" Controls.

SIZING AN ORIFICE

The Orifice Equation is given by:

$$Q = C * A * (2 * g * h)^{0.5}$$

Where:

Q = Rate of Discharge (cfs)
A = Orifice Area (ft^2)
g = Gravitational Constant (32.2 ft/sec^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = Orifice coefficient (assumed to = 0.6)

The average discharge rate (Qa) required to draw down half the treatment volume (TV) in a desired amount of time (t) is:

$$Qa = TV / (2* t* CF)$$

Where:

TV = Treatment Volume (cu. ft.)
t = Recovery time (60 hrs minimum per SWFWMD)
CF = Conversion Factor = 3600 sec/hr

The depth of water (h) should be set to the average depth above the flow line between the top of the treatment volume and the stage at which half the treatment volume has been released.

$$h = (h1 + h2) / 2$$

Where:

h1 = Depth of water between the top of the treatment volume and the flow line

h2 = Depth of water between the stage when half the treatment volume has been released and the flow line of the orifice (ft).

Solving for the Area (A) =

$$A = Qa / (C * (2*g*h)^{0.5})$$

The Diameter of the Orifice is calculated by:

$$D = (4 * A / pi)^{0.5}$$

CALCULATING THE MAXIMUM ORIFICE DIAMETER ALLOWABLE

Input:

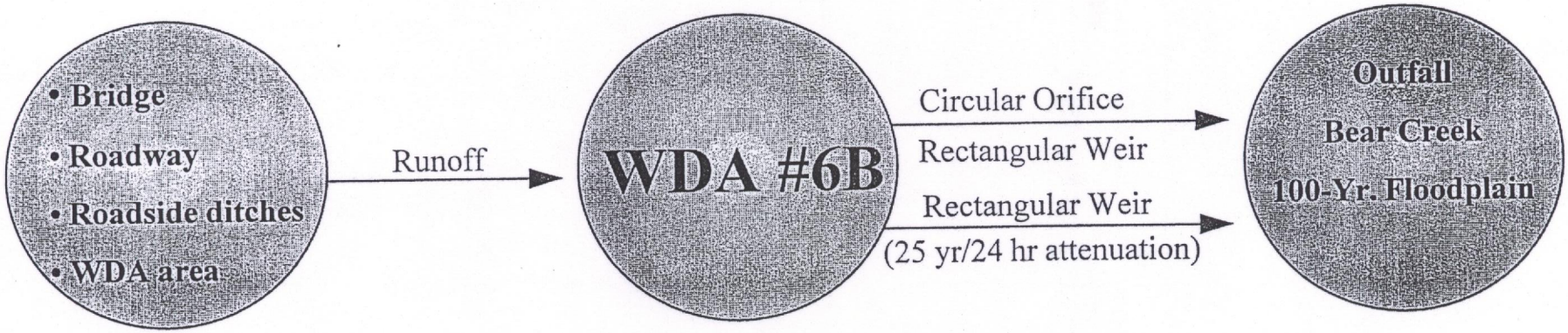
TV =	97138.8	ft^3
t =	60.00	hours
CF =	3600.00	sec/hr
h1 =	0.79	ft
h2 =	0.39	ft

Output:

h =	**0.59**	**ft**
Q =	**0.22**	**cfs**
A =	**0.06**	**ft^2**
D =	**0.28**	**ft**

Therefore, any Orifice with a diameter less than or equal to **3.3** inches will meet or surpass the criteria set forth in chapter 5.2.4 of the SWFWMD ERP Information Manual.

Post Development Computer Model



DE LEUW, CATHER
ENGINEERS AND PLANNERS

SUBJECT: SUNCOAST PARKWAY SECT. 3 JOB # 660525
WDA # 6B Post-Developed Basin Calc.
MADE BY: EJK DATE: 08/07/96
CHECKED BY: DATE:

SUN6B52.WK4

WDA # 6B

TOTAL AREA (A) =	26.79 Acres	
NDCIA =	2.97 Acres	
DCIA =	9.56 Acres	
% DCIA =	((DCIA/A)*100%) =	35.68 %
PERVIOUS =	14.26 Acres	

CURVE NUMBER

Note: Software requires CN based on NDCIA and pervious area only.
therefore, CN calculated area => Total area - DCIA = 17.23 ac.

Soil Type - D	Grass, good condition	CN1 =	80	9.90 ac. (A1)
Soil Type - C	Grass, good condition	CN2 =	74	4.36 ac. (A2)
Soil Type - A	NDCIA	CN3 =	98	0.2 ac. (A3)
Soil Type - D	Pond area @ NWL	CN4 =	100	2.77 ac. (A4)

Composite CN = ((A1*CN1)+ ... +(A4*CN4))/A
CN = 81.91

TIME OF CONCENTRATION (Tc)

OVERLAND FLOW Overland flow to ditch @ Baseline Survey S.R. 52, Sta 197+00.

T(1) = 41.33 minutes (See Ditch calculations - Sta 197+50 to 186+90 (BL SR 52) Right)

DITCH FLOW Ditch flow from Sta 197+00 to Side Drain @ Sta 187+40 (BL SR 52) Right)

T(2) = 19.51 minutes (See Ditch Calculations - Sta 197+50 to 186+90 (BL SR 52) Right)

PIPE FLOW Side Drain from Sta 187+40 to Sta 186+40 (BL SR 52) Right

T(3) = 0.44 minutes (See Ditch Calculations - Sta 186+90 (BL SR 52) to 419+00 (BL Ramp E4) Right)

DITCH FLOW Ditch flow from Sta 186+40 to DBI @ Sta 419+00 (BL Ramp E4) Right

T(4) = 11.40 minutes (See Ditch Calculations - Sta 186+90 (BL SR 52) to DBI at Sta 419+00 (BL Ramp E4) Right)

PIPE FLOW Pipe flow from DBI @ Sta 419+00 (BL Ramp E4) to WDA No. 6B

T(5) = 7.27 minutes (See Storm Tabs and OPSEW run)

T(c) = T(1) + T(2) + T(3) + T(4) + T(5)

T(c) = 79.95 minutes (See Storm Tabs and OPSEW run)

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SUNCOAST PARKWAY WDA 6B POST DEVELOPMENT

********** Node Maximum Comparisons **********

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
Node Name: WDA#6B		Group: BASE							
SWFWMD	13.67	53.09	55.00	-0.0050	135390.82	13.00	51.38	13.72	35.76
FDOT8-10	5.38	52.80	55.00	0.0050	131518.62	5.00	33.35	5.33	29.51
FDOT8-100	5.67	53.26	55.00	0.0050	137574.51	5.00	52.72	5.61	41.61

BASIN "6B" ADJUSTED FOR FDOT

DE LEUW, CATHER
ENGINEERS AND PLANNERS

SUBJECT: SUNCOAST PARKWAY SECT. 3 JOB # 660525
WDA # 6B Post-Developed Basin Calc.
MADE BY: EJK DATE: 08/07/96
CHECKED BY: DATE:

SUN6B52.WK4

WDA # 6B

* ADDITIONAL 2.33 ac. OF IMPERVIOUS AREA GOING TO THIS POND.

TOTAL AREA (A) = 26.79 Acres
NDCIA = 2.97 Acres
DCIA = ~~9.56~~ Acres (11.89 ac) ← ADJUSTED
% DCIA = ((DCIA/A)*100%) = ~~35.68 %~~ → 44.38%
PERVIOUS = ~~14.26~~ Acres = (11.93 ac.)

CURVE NUMBER

Note: Software requires CN based on NDCIA and pervious area only. 14.90 AC.
therefore, CN calculated area => Total area - DCIA = ~~17.23~~ ac.

Soil Type - D	Grass, good condition	CN1 =	80	9.48 ~~9.00~~ ac. (A1)	← ADJUSTED
Soil Type - C	Grass, good condition	CN2 =	74	2.45 ~~4.36~~ ac. (A2)	← ADJUSTED
Soil Type - A	NDCIA	CN3 =	98	0.2 ac. (A3)	
Soil Type - D	Pond area @ NWL	CN4 =	100	2.77 ac. (A4)	

Composite CN = ((A1*CN1)+ ... +(A4*CN4))/A
CN = ~~81.9~~ 82.97

TIME OF CONCENTRATION (Tc)

OVERLAND FLOW Overland flow to ditch @ Baseline Survey S.R. 52, Sta 197+00.

T(1) = 41.33 minutes (See Ditch calculations - Sta 197+50 to 186+90 (BL SR 52) Right)

DITCH FLOW Ditch flow from Sta 197+00 to Side Drain @ Sta 187+40 (BL SR 52) Right)

T(2) = 19.51 minutes (See Ditch Calculations - Sta 197+50 to 186+90 (BL SR 52) Right)

PIPE FLOW Side Drain from Sta 187+40 to Sta 186+40 (BL SR 52) Right

T(3) = 0.44 minutes (See Ditch Calculations - Sta 186+90 (BL SR 52) to 419+00 (BL Ramp E4) Right)

DITCH FLOW Ditch flow from Sta 186+40 to DBI @ Sta 419+00 (BL Ramp E4) Right

T(4) = 11.40 minutes (See Ditch Calculations - Sta 186+90 (BL SR 52) to DBI at Sta 419+00 (BL Ramp E4) Right)

PIPE FLOW Pipe flow from DBI @ Sta 419+00 (BL Ramp E4) to WDA No. 6B

T(5) = 7.27 minutes (See Storm Tabs and OPSEW run)

T(c) = T(1) + T(2) + T(3) + T(4) + T(5)

T(c) = 79.95 minutes (See Storm Tabs and OPSEW run)

ASSUME SAME Tc

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SUNCOAST PARKWAY POND 6B ADJUSTED FOR PROPOSED SR 52 IMPROVEMENTS

********** Node Maximum Comparisons **********

(Time units - hours)

Sim Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
Node Name: POND6B		Group: BASE							
SWFWMD	13.68	53.12	55.00	-0.0050	135738.21	13.00	52.50	13.73	36.32
FDOT8-10	5.38	52.82	55.00	0.0050	131856.78	5.00	34.57	5.34	30.49
FDOT8-100	5.67	53.31	55.00	0.0050	138161.11	5.00	53.98	5.60	42.44

Appendix B
Correspondence

CN 91949

FOLLOWING IS A SUPPLEMENTAL "PROMPT LIST" OF ITEMS THAT MAY FACILITATE DISCUSSION AND UNDERSTANDING DURING A PRE-APPLICATION MEETING. SUCH ITEMS SHOULD BE EXAMINED BY THE APPLICANT PARTIES PRIOR TO THE MEETING TO IDENTIFY TOPICS OF SITE SPECIFIC INTEREST. THE ITEMS ARE NOT REQUIREMENTS FOR DISCUSSION OR INFORMATION SUBMITTAL.**

Southwest Florida Water Management District
Resource Regulation Division
ERP Pre-application Meeting SUPPLEMENTAL PROMPT LIST

Meeting Date: 8.8.01

MEETING INFORMATION

Service Office/Meeting Location: ☐ Bartow ☒ Brooksville ☐ Tampa ☐ Venice

☐ Other Location: _____

Meeting Time: 12:00 PM

Meeting Date and Attendees Confirmed:

	Name	Affiliation	Mailing Address	Phone Number
1.	DAVE URBAN	SWFWMD		796-7211
2.	SHELLIE FLARTY	PARSONS BRINKERHOFF		813-207-2919
3.				

Types of documents to be reviewed during the meeting:

☐ Aerial Maps ☐ Soil Surveys ☐ Wildlife Surveys ☐ FEMA Maps ☐ Drainage Calculations ☐ Title/Lease/Ownership ☐ Geotechnical Reports/Models ☐ Topographic Maps ☐ Const. Drawings/Site Plans ☐ Land Surveys ☐ Wetland Surveys ☐ Other/ No Documents

PROJECT BACKGROUND AND HISTORICAL INFORMATION

Project Name: SR 52 - Suncoast to US 41

Project Location:

County	Section	Twnshp	Range
PASCO	1, 12 6, 10	25 25	17 18

Other Agency Involvement (circle all that apply)

ACOE EPA DEP DCA FGFWFC Dept of State Local Other

WUCA, MFL, MIA, or other area of resource concern (identify)

Prior Onsite and Adjacent Property Permit Activity:

Onsite Permit/Activity	Permit, CT, or FI	#Prior Eng/ES
☐ WUP		
☐ Prior Surface Permit		
☐ Dredge and Fill		
☐ Enforcement Action		

Adjacent Property Permit #s

☐ WUP _____

☐ Surface _____

☐ Eng/ES/Hydro _____

Ownership/Perpetual Control: ☐ Ownership ☐ Eminent Domain ☐ Specific use easements ☐ Environmental/Conservation easements ☐ Right-of-way easements ☐ Ingress/egress easements ☐ Transmission easements ☐ Drainage easements

Project Overview:

☐ Total Land acreage:_____ ☐ Project acreage:_____ ☐ Impervious acreage: _____

☐ Wetlands acreage:_____ ☐ Wetlands identified? (yes or no)

☐ Wetlands delineated/surveyed? (yes or no)

Notes/Comments:

The meeting was for the PD&E preliminary study for the above ref. Project. Pond & flood plain comp. areas. They propose to locate these areas near the river. Will utilize exist. DRA's near Suncoast.

Southwest Florida Water Management District
Resource Regulation Division
ERP Pre-application Meeting SUPPLEMENTAL PROMPT LIST

Meeting Date:

WATER QUALITY DISCUSSION

Type of Water Quality Treatment: ☐ Wet Detention ☐ Wetland Treatment ☐ Dry Retention ☐ Effluent Filtration ☐ Other

Technical Characteristics:

37. ☐ Contributing area
38. ☐ Required volume
39. ☐ Provided volume
40. ☐ Fluctuation (hydroperiod elevations) ☐ Different from 18"? ☐ Yes ☐ No
41. ☐ Drawdown; OR residence time for "Conservation" design alternative
42. ☐ 35% Littoral & 1' Pool depth; OR "Conservation" design alternatives
43. ☐ Separate inflow/outflow
44. ☐ Mounding analysis
45. ☐ Filter drain calculations
46. ☐ Impacts to wetland hydroperiods
47. ☐ 2' Minimum filter material
48. ☐ Skimmers
49. ☐ Erosion controls
50. ☐ Special criteria (Outstanding Florida Waters)
51. ☐ Public road requirements
52. ☐ Equivalent treatment
53. ☐ Discussion of reporting cycles requires for treatment types

Non-Presumptive Treatment Alternatives (a.k.a., "Rule Alternative Equivalent Criteria[1]")

Notes/Comments: Directly connected impervious.

[1] Sections 1.1, 1.3 and 5.1 of the "Basis of Review" (BOR) for Environmental Resource Permitting applications refer to "criteria flexibility," "other methods of meeting overall objectives," and "equivalent treatment" as alternative ways to demonstrate reasonable assurance of compliance with the ERP Conditions for Issuance of Permits. This introduces a concept of "Rule Alternative Equivalent Criteria," which means dimensional design and performance standards that are technically, scientifically and functionally equivalent to, and may be voluntarily substituted for, specific criteria already in District BOR Rules for determining compliance with the Conditions for Issuance of Permits. Using this concept, alternative criteria can be voluntarily used in the application IF the criteria: 1) are proven to be technically, scientifically and functionally equivalent to criteria already in the BOR, 2) are appropriate for the site conditions, and 3) are agreed to by the District on a case by case basis and prior to permitting.

Southwest Florida Water Management District
Resource Regulation Division
ERP Pre-application Meeting SUPPLEMENTAL PROMPT LIST

Meeting Date:

ERP APPLICATION/REVIEW/APPROVAL DISCUSSIONS

Future Pre-application Meeting:

80. ☐ Will there be another pre-application meeting? ☐ Yes ☐ No
81. ☐ Field or Office Meeting: _____
82. ☐ Tentative Date: _____
83. ☐ Tentative Attendees: _____

Anticipated Permit Type and Fee Required:

☐ Conceptual ☐ Individual ☐ Standard General ☐ Standard General (minor) ☐ Noticed General
☐ Formal Modification ☐ Letter Modification ☐ Site Condition Assessment ☐ None ☐ Other

84. ☐ Estimated Fee $ [ ] ☐ ERP ☐ MSSW ☐ W.O.D. ☐ Exemption

Fast Track:

85. ☐ Is Fast Track appropriate? ☐ Yes ☐ No
86. ☐ Are applicant and consultant committed to the Fast Track process? ☐ Yes ☐ No

Some necessary conditions for Fast Track:

_____

_____

_____

Anticipated Permit Submittal Date:

When is permit needed?

87. ☑ ERP Pre-application Meeting record and/or associated notes completed by: _____
88. ☒ Copies provided to Attendees on this date: 8.10.01

** **DISCLOSURE:** The District ERP pre-application meeting process is a service made available to the public to assist interested parties in preparing for submittal of a complete permit application. Information shared at pre-application meetings is superseded by the actual permit application submittal. District permit decisions are based upon information submitted during the application process and Rules in effect at the time the application is complete.

Romero, John

From: Michael Seifert [Michael.Seifert@DOT.STATE.FL.US]
Sent: Thursday, April 05, 2001 6:19 AM
To: Romero, John
Subject: SR 52 PD&E Reevaluation @ Suncoast Parkway FPID: 2562431 (D

John, tell jeff sawyer to ignor this. I sent it to him by mistake. Here is the response from the turnpike and a note from Don Skelton.

Mike
----- Forwarded by Michael J Seifert/D7/FDOT on 04/05/01 07:17 AM -----

Donald J Skelton
04/04/01 03:47 PM

To: Dwayne D Kile/D7/FDOT@FDOT, Jeraldo J Comellas/D7/FDOT@FDOT, Michael J Seifert/D7/FDOT@FDOT
cc:
Subject: SR 52 PD&E Reevaluation @ Suncoast Parkway FPID: 2562431 (D7) FPID: 258956-1 (Tpk)

It is essential that the Turnpike be involved in meetings with SWFWMD. Please see me for details.

Don
----- Forwarded by Donald J Skelton/D7/FDOT on 04/04/01 03:49 PM -----

Raymond Ashe
04/04/01 02:28 PM

To: Donald J Skelton/D7/FDOT@FDOT, Jeraldo J Comellas/D7/FDOT@FDOT
cc:
Subject: SR 52 PD&E Reevaluation @ Suncoast Parkway FPID: 2562431 (D7) FPID: 258956-1 (Tpk)

FYI

Raymond A. Ashe Jr., Manager
Turnpike District, Environmental Management Office
P.O. Box 613069
(Building 5315)
Ocoee, Florida 34761
Tel 407.532.3999 x 3013 SunCom 335.3013
Fax 407.822.5821 SunCom Fax 335.3155
raymond.ashe@dot.state.fl.us
----- Forwarded by Raymond Ashe/TP/FDOT on 04/04/01 02:27 PM -----

Douglas McBriarty
04/04/01 02:12 PM

To: Michael J Seifert/D7/FDOT@FDOT
cc: Kevin J Thibault/TP/FDOT@FDOT, Raymond Ashe/TP/FDOT@FDOT, Michael Stewart/TP/FDOT@FDOT, Richard Wawrzyniak, John Post
Subject: SR 52 PD&E Reevaluation @ Suncoast Parkway FPID: 2562431 (D7) FPID: 258956-1 (Tpk)

This email is in response to your request for Turnpike District concurrence on District Seven's request to utilize Ponds 6A & 6B as alternatives in the study analysis. Your request has been discussed with Mr. Kevin Thibault, District Production Director, and the Turnpike District concurs.

These ponds have been designed, permitted and constructed to accommodate a future, Suncoast Parkway widening. This concurrence is based upon maintaining the pond capacities for this widening. Any necessary pond modifications for the SR 52 improvements should be accomplished with the SR 52 project, such that the Turnpike District's permit remains unchanged with respect to future

Suncoast Parkway improvements. In the Design phase, a Turnpike review of the SR 52 permit package may be necessary since the current permit is issued to the Turnpike District.

The Turnpike District would like to attend any future meetings with Southwest Florida Water Management District regarding this issue. Your coordination at this early phase is appreciated. If you have any questions, please contact me.

Doug McBriarty, P.E.
EMO Program Manager

Phone: 407-532-3999 x 3406 Fax: 407-822-5821
SunCom: 335-3406 Pager: 407-261-6346

Email: douglas.mcbriarty@dot.state.fl.us

US Mail Address:

Doug McBriarty, EMO Dept.
Florida's Turnpike Headquarters
P.O. Box 613069
Ocoee, Florida 34761

Overnite Address

Doug McBriarty, EMO Dept.
Florida's Turnpike Headquarters
Mile Post 263, Bldg. 5315
Ocoee, Florida 34761

Parsons
Brinckerhoff

Austin Center West II
1408 North Westshore Blvd.
Suite 300
Tampa, FL 33607
Tel: (813) 289-5300
Fax: (813) 289-4405

PHONE CONVERSATION MEMORANDUM

DATE:	February 5, 2001	TIME:	3:00 pm
SUBJECT:	Project Name:	SR 52 from the Suncoast Parkway to US 41	
	County:	Pasco	
	Federal Aid Project No:	256243 1 21 01	
	State Project No:		
	W.P.I. No:		
RECORDED	Shelly Flaherty	TALKED TO:	Jerry Sanford
COMPANY:	PB	COMPANY:	FDOT Maintenance

Regarding any existing flooding problems along the project corridor for SR 52 from the Suncoast Parkway to US 41 in Pasco County:

Shelly Flaherty inquired if there were any existing flooding problems that Mr. Sanford was aware of along the project corridor.

Mr. Sanford said that he is not aware of SR 52 ever over-topping. The only problem he could recall is the that the existing roadside ditches fill up along the south side of SR 52 east of the R/R and flows into Lake Pierce.

No other flooding problems associated with existing drainage conditions was identified for the length of this project.

Florida Department of Transportation
11201 N. McKINLEY DRIVE * TAMPA, FL 33612-6456 * (813)975-6000 * 1-800-226-7220
JEB BUSH
GOVERNOR
ENIVORNMENTAL MANAGEMENT OFFICE * 7-500 * 813-975-6922
THOMAS F. BARRY, JR.
SECRETARY

RECEIVED
FEB - 5 2

DATE: February 2, 2001

TO: Doug McBriaty

FROM: Michael Seifert, E.I., PSM, FDOT Project Manager

COPIES: John Romero, Parsons, Brinckerhoff
File

SUBJECT: PD&E Reevaluation on S.R. 52
FPN: 2562431

District 7 EMO is currently conducting a Project Development and Environment (PD&E) Reevaluation to document the preliminary engineering concept of S.R. 52 from the Suncoast Parkway to U.S. 41 in Pasco County, Florida. As part of this project, a Pond Siting Alternative Analysis is being evaluated to identify pond site alternatives for each basin within this project.

Per your conversation with Shelly Flaherty from Parsons Brinckerhoff on Monday, January 29, 2001, the western portion of the S.R. 52 PD&E Reevaluation currently drains into two pond sites, 6A and 6B, which were designed by the Turnpike to treat and attenuate the runoff from the Suncoast Parkway/S.R. 52 interchange and the associated improvements with S.R. 52. The basin limits for S.R. 52 extend from approximately Sta. 157+00 to Sta. 213+00 (Shady Hills Road). The existing typical section is a four lane rural and would be widened to a six lane urban typical section. Therefore, in the subsequent design phase, the existing ponds, if selected as preferred pond sites for this basin, would need to be remodeled with a revised CN to accommodate the additional impervious area equivalent to two lanes. Based on a preliminary inspection of the design of these two ponds and the criteria used for the sizing, we feel that the ponds would need little modification to function with the proposed typical section.

This PD&E Reevaluation will be including the utilization of the existing ponds (6A and 6B) as alternatives in this analysis. District 7 EMO wishes to coordinate this effort and ask for concurrence that any slight modifications would be acceptable.

Attached is a plan view of the basin (minus the interchange details) at a 1" = 200' scale for your review along with the proposed typical section from the S.R. 52 PD&E Reevaluation. If you have any questions, feel free to contact myself at (813) 975-6922/SC 512-8011or Shelly Flaherty at (813) 207-2919. Please respond with any comments on this issue at your earliest convenience.

Appendix C
Pond Sizing and Estimated 100-year Floodplain Impact Calculations

Pond Sizing Calculations

Volume Provided in Stormwater Facilities

(1) Pond Site Alternative	(2) Treat. Type	(3) Pond Area (ac)	(4) Estimated SHWT El. (ft)	(5) DHW El. (ft)	(5A) Est. LEP (ft)	(6) T.O.B. El. (ft)	(7) Avg. Grd. El. (ft)	(8) Area at T.O.B. (ac)	(9) Area at DHW (ac)	(10) Area at SHWT El. (ac)	(11) Weir Crest El. (ft)	(12) Area at Weir Crest (ac)	(13) Treatment Provided Vt1 (ac-ft)	(14) Treatment Required (ac-ft)	(15) Attenuation Provided Vt2 (ac-ft)	(16) Attenuation Required (ac-ft)	(17) Total Volume Provided (ac-ft)
Pond 100A	Wet	0.90	55.25	59.10	60.50	60.10	58.00	0.83	0.58	0.38	56.75	0.46	0.63	0.47	1.22	0.75	1.85
Pond 100B	Wet	0.95	54.70	59.10	60.50	60.10	57.50	0.86	0.61	0.38	56.20	0.45	0.62	0.47	1.54	0.75	2.16
Pond 200A	Wet	1.35	57.25	58.40	59.20	59.40	58.00	1.29	0.98	0.90	57.70	0.93	0.41	0.41	0.67	0.61	1.08
Pond 200B	Wet	0.90	56.25	58.40	59.20	59.40	57.00	0.81	0.58	0.46	57.25	0.51	0.48	0.41	0.63	0.61	1.11
Pond 300A	Wet	1.00	54.45	58.40	59.20	59.40	57.50	0.93	0.67	0.45	55.95	0.53	0.73	0.68	1.47	1.07	2.20
Pond 300B	Wet	1.00	54.45	58.40	59.20	59.40	57.45	0.93	0.67	0.45	55.95	0.53	0.73	0.68	1.47	1.07	2.20
Pond 300C	Wet	2.15	57.45	58.50	59.20	59.50	60.25	2.19	1.79	1.68	57.88	1.72	0.73	0.68	1.09	1.07	1.82
Pond 400A	Wet	2.00	62.00	63.80	64.50	64.80	62.75	1.89	1.52	1.35	62.70	1.41	0.97	0.96	1.61	1.51	2.58
Pond 400B	Wet	2.00	62.00	63.80	64.50	64.80	62.75	1.89	1.52	1.35	62.70	1.41	0.97	0.96	1.61	1.51	2.58
Pond 400C	Wet	2.40	62.00	63.50	64.50	64.50	62.75	2.30	1.88	1.73	62.68	1.80	1.20	0.96	1.51	1.51	2.71
Pond 500A	Wet	2.50	72.25	73.19	74.20	74.19	73.00	2.43	2.00	1.90	72.63	1.94	0.73	0.68	1.10	1.08	1.83
Pond 500B	Wet	1.40	69.75	73.59	74.20	74.59	72.50	1.31	1.00	0.73	71.25	0.83	1.17	0.68	2.14	1.08	3.31
Pond 500C	Wet	2.00	72.55	73.80	74.20	74.80	73.30	1.92	1.54	1.43	73.08	1.47	0.77	0.68	1.09	1.08	1.86
Pond 600A	Wet	0.65	71.00	73.80	74.20	74.80	71.50	0.55	0.36	0.24	72.50	0.30	0.41	0.36	0.43	0.43	0.84
Pond 600B	Wet	0.85	72.25	73.80	74.20	74.80	73.00	0.79	0.55	0.47	72.99	0.51	0.36	0.36	0.43	0.43	0.79
Pond 600C	Wet	2.50	73.25	73.80	74.20	74.80	74.00	2.45	2.02	1.96	73.55	2.00	0.59	0.36	0.50	0.43	1.09
Pond 700A	Wet	0.75	71.25	76.29	76.90	77.29	74.00	0.64	0.43	0.22	72.75	0.27	0.37	0.34	1.25	0.54	1.62
Pond 700B	Wet	0.75	73.20	76.50	76.90	77.50	76.00	0.70	0.48	0.32	74.70	0.39	0.53	0.34	0.78	0.54	1.31
Pond 700C	Wet	0.75	73.50	76.15	76.90	77.15	74.50	0.66	0.45	0.32	74.85	0.39	0.48	0.34	0.54	0.54	1.02

(1) Pond Site Alternative
(2) Treatment Type : The treatment type is determined by the soil type and the depth of the water table obtained from the SCS / USDA Soils Survey for Hernando County
(3) Total Pond Site Area
(4) Estimated SHWT Elevation: This parameter is determined from the SCS/ USDA Soils Survey for Hernando County
(5) Design Highwater Elevation (DHW) : DHW is based on the 100-year / 24-hour storm which is the most critical event
(5A) Estimated Low Edge of Pavement
(6) Top Of Bank Elevation (TOB) : This is the elevation of the top of bank of the pond.
(7) Average Ground Elevation: This elevation was estimated using SWFWMD contour aerials
(8) Area at the TOB: This is the area of the top of bank of the pond.
(9) Area at DHW: Pond area at DHW is determined by assuming 1ft. distance between the berm and DHW elevation.
(10) Area at the SHWT Elevation: Represents the area at the SHWT elevation.
(11) Weir Crest Elevation: Represents the elevation of the control structure (weir structure) which is necessary to obtain the required treatment volume in the pond
(12) Area at Weir Crest: Represents the area at the elevation noted in column (11).
(13) Vt1: Represents the treatment volume provided between the SHWT and the control structure elevation.
(14) Treatment volume required
(15) Vt2: Represents the attenuation volume provided between the control structure elevation and the DHW elevation.
(16) Attenuation volume required
(17) Total Volume Provided (Vt1 + Vt2): The total treatment and attenuation volume provided is determined by adding columns 13 and 15 (Vt1 and Vt2).

FINAL
POND SITING REPORT

SR 52 Project Development & Environment Reevaluation Study

FROM WEST OF THE SUNCOAST PARKWAY TO EAST OF US 41
(SR 45)
PASCO COUNTY, FLORIDA

W.P.I. Segment Number: 256243 1

The proposed action consists of upgrading SR 52 from a two-lane to a six-lane divided highway for approximately 3.8 miles.

Florida Department of Transportation
District Seven
Tampa, Florida

Prepared By:
Parsons Brinckerhoff Quade & Douglas, Inc.
Tampa, FL

March 2002

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Reevaluation Study to document the preliminary engineering concept of the SR 52 project corridor from Moon Lake Road to US 41, Pasco County. The purposes of the PD&E Reevaluation Study are to develop engineering and environmental data and document information which will aid the FDOT and the Federal Highway Administration in determining the type, design, and location of the proposed improvements, and the impacts, if any, associated with the recommended alignment.

The Pond Siting Report identifies pond site alternatives and floodplain compensation (FPC) sites and includes an alternative analysis for selection of a preferred alternative for a portion of the PD&E Reevaluation Study. The project study area for this Pond Siting Report is from west of the Suncoast Parkway to east of US 41, Pasco County, a distance of about 3.8 miles. The Pond Siting Report for the western portion (from Moon Lake Road to west of the Suncoast Parkway) of this Reevaluation has been prepared in conjunction with the design phase being done separately. This study analyzes pond site alternatives that are hydraulically feasible and environmentally permittable based on the best available information. These alternatives were then compared based on Section 4(f) involvement; cultural resources; environmental impacts including wetlands, upland habitat and protected species involvement; petroleum and hazardous materials contamination; and economic factors including right-of-way costs.

The preferred pond and FPC sites are listed in the table below.

Preferred Pond / FPC Sites	Station - Location	Area (ac)
Exist. Suncoast Pkwy Stormwater Management Facilities (SMF) 6A and 6B	166+00 RT and South of SR 52 (west of the Suncoast Parkway)	6.0 & 3.7
Pond Site 200B	227+40; RT	1.32
Pond Site 300C	235+00; LT	2.45
FPC 300-1	235+00; LT	2.00
FPC 300-2A	245+00; LT	3.35
Pond Site 400A	265+80; RT	2.00
FPC 400-2	268+75; RT	0.80
Pond Site 500C	326+80; RT	2.25
Pond Site 600A	330+60; LT	0.65
FPC 600-1	338+50; RT	1.10
Pond Site 700C	49+30; RT	0.75
FPC 700-3	48+70; RT	1.15

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Reevaluation Study to document the preliminary engineering concept of the SR 52 project corridor from Moon Lake Road to US 41, Pasco County. The purposes of the PD&E Reevaluation Study are to develop engineering and environmental data and document information which will aid the FDOT and the Federal Highway Administration (FHWA) in determining the type, design, and location of the proposed improvements, and the impacts, if any, associated with the recommended alignment.

The Pond Siting Report identifies pond site alternatives and floodplain compensation (FPC) sites and includes an alternative analysis for selection of a preferred alternative for a portion of the PD&E Reevaluation Study. The project study area for this Pond Siting Report is from west of the Suncoast Parkway to east of US 41, Pasco County, a distance of about 3.8 miles. The Pond Siting Report for the western portion (from Moon Lake Road to west of the Suncoast Parkway) of this Reevaluation has been prepared in conjunction with the design phase being done separately. This study analyzes pond site alternatives that are hydraulically feasible and environmentally permittable based on the best available information. These alternatives were then compared based on Section 4(f) involvement; cultural resources; environmental impacts including wetlands, upland habitat and protected species involvement; petroleum and hazardous materials contamination; and economic factors including right-of-way costs. An alternatives evaluation matrix that summarizes the comparative analysis was developed and is shown in Tables 5 through 11 of Section 8.0. The process of defining and developing the information base included the following:

- Federal Emergency Management Agency (FEMA), Flood Insurance Study (FIS) for Pasco County, Florida, September 30, 1982.
- FEMA Flood Insurance Rate Maps (FIRM) for Pasco County, September 30, 1982.
- The Pithlachascotee River Watershed Flood Plain Analysis, October 1996.
- United States Department of Agriculture, Soil Conservation Service (now Natural Resource Conservation Service), Soil Survey of Pasco County, Florida, June 1982.
- United States Geological Survey (USGS) Quadrangle Maps, Scale 1:24,000: Fivay Junction, FLA, 1954 (Photo revised 1988).
- Southwest Florida Water Management District (SWFWMD), Aerial Photography With Contours, Scale 1"=200', 1-foot contour interval, December 1977.
- Pasco County Comprehensive Plan, July 3, 1989, Revised April 5, 1995.
- Pasco County Stormwater Management Master Plan, March 1992.
- Straight Line Diagram (SLD) for SR 52, FDOT District Seven, Planning and Statistics Office, January 29, 1999.
- FDOT Drainage Manual, October 2000.

2.0 PROJECT DESCRIPTION

The FDOT is proposing improvements to SR 52 from the Suncoast Parkway to US 41 (SR 45) in Pasco County, Florida, a distance of about 3.8 miles. The proposed improvements consist of widening the existing two-lane rural roadway to a six-lane divided urban highway to accommodate present and future traffic demands.

SR 52 is an east-west arterial highway in Pasco County beginning at US 19 and terminating at the US 98 Dade City Bypass. The existing SR 52 roadway is a two-lane rural roadway through the project area. Turn lanes have been added at select intersections. The existing right-of-way varies in width with a minimum of 100 feet.

The project location is shown in Figure 1.

3.0 EXISTING CONDITIONS

3.1 Existing Roadway Conditions

The existing roadway is typically a two-lane rural facility with one 12-foot lane in each direction and 12-foot shoulders (4 feet paved). The roadway cross section varies throughout the length of the project. The existing roadway typical section for SR 52 is shown in Figure 2.

3.2 Existing Drainage Conditions

3.2.1 Topography and Hydrologic Features

The topography of this section of Pasco County consists of low rolling hills interspersed with many lakes and low, wet areas. Pasco County is in the central or mid-peninsular physiographic zone of the Florida Peninsula. The area that contains the proposed improvements lies in the Gulf Coastal Lowlands. The county is characterized by discontinuous highlands in the form of ridges separated by broad valleys. The ridges are above the static level of the water in the aquifer, but the broad valleys are below it. Broad shallow lakes are common on the valley floors, and smaller deep lakes are on the ridges.

The Pithlachascotee and Anclote Rivers drain the area west of US 41 and south of SR 52.

Elevations throughout the project corridor range from about 60 feet National Geodetic Vertical Datum (NGVD) of 1929 at the western end of the project to about 75 feet at the eastern end.

The soils are predominantly nearly level, wet and sandy. Some areas have deep, well-drained and excessively drained sands. Table 1 describes the boundaries of the regional drainage basins including the existing cross drains. See Figure 3 for the drainage basin map.

Figure 1
Project Location Map

Figure 2
Existing Typical Section

Figure 3
Drainage Basin Map

Table 1
Regional Drainage Boundaries

Regional Drainage Basin	Regional Sub-Basins	Basin Boundaries	Draining to Cross Drain No.
Coastal River Basin	100	From West of the Suncoast Parkway Interchange to Shady Hills Road	N/A
	200	From Shady Hills Road to Sta. 230+50	1
	300	From Sta. 230+50 to Sta. 260+60	1
	400	From Sta. 260+60 to Sta. 302+20	2
	500	From Sta. 302+20 to Sta. 329+40	3
	600	From Sta. 329+40 to US 41	3
	700	From US 41 to End of Project at Sta. 37+50	4

3.2.2 Existing Drainage Patterns and Stormwater Management Facilities

Stormwater runoff from SR 52 in Basin 100 (at the beginning of the project) drains to existing ditches and into existing stormwater management facilities (SMFs) 6A and 6B. These SMFs provide treatment and attenuation for a portion of the Suncoast Parkway and SR 52 interchange and SR 52 from west of the Suncoast Parkway interchange with SR 52 to Shady Hills Road.

The remaining basins (Basins 200 through 700) drain toward the existing cross drains listed in Table 1 via shallow ditch flow.

3.2.3 Existing Cross Drains

A review of the FDOT construction plans and SLDs indicates that there are four existing cross drains within the limits of the SR 52 PD&E Reevaluation project. The locations of these drainage structures were verified by field inspection.

Hydraulic equivalency for replacement or modification of the existing cross drains will be determined in subsequent design phases of this project.

There is an existing storm sewer system located at the western end of the project (in Basin 100) at the Suncoast Parkway and SR 52 interchange. This system collects roadway runoff through a series of ditch bottom inlets and laterals, which drain to two existing SMFs 6A and 6B.

The existing cross drains are listed in Table 2. The locations of the existing cross drains are shown on Figure 3 and on the Concept Plans in Appendix A.

Table 2
Existing Cross Drains

Cross Drain No.	Station	Approximate Location	Pipe Size and Material
1	230+50	Pithlachascotee River	Triple 10' x 7' CBC
2	260+60	East of the Pithlachascotee River	Double – 6' x 4' CBC
3	329+40	West of US 41	36" RCP
4	37+50	Gower Corner Creek (East of US 41)	Triple 10' x 4' CBC

Notes:

- CBC - Concrete Box Culvert
- RCP - Reinforced Concrete Pipe

4.0 PROPOSED IMPROVEMENTS

4.1 Proposed Typical Section

The improvement proposed for SR 52 is a six-lane divided urban typical section. This typical section would contain a 22-foot wide raised median, six 12-foot lanes (three in each direction), 4-foot bike lanes in each direction, and 12-foot borders (containing a 2-foot curb and gutter, a 3-foot utility strip, a 5-foot sidewalk, and a minimum 2-foot back-of-sidewalk buffer) in both directions. This would require a minimum typical section width of 156 feet. Left turn lanes would be accommodated within the median. The proposed six-lane typical section is shown in Figure 4.

4.2 Recommended Alignment

The recommended alignment for the SR 52 project corridor was reevaluated from a previous PD&E Study of SR 52 from SR 55 to SR 93 (I-75) in Pasco, County, Florida of which the FHWA approved a Finding of No Significant Impact in July of 1988. Subsequent to the previous study, the current recommended alignment was adjusted or shifted to the north for a portion of the project to avoid the gas transmission easement, which is located south of SR 52.

The recommended alignment is shown on the Concept Plans in Appendix A.

Figure 4
Proposed Roadway Typical Section

4.3 Proposed Drainage

The roadway will primarily be drained by a closed drainage system with treatment and attenuation provided within wet or dry detention ponds. There will be one preferred pond site for each basin. Floodplain compensation will be provided in each basin that contains impacts to the 100-year floodplain. See Section 6.4 of this report for more information regarding floodplain compensation.

The post-development peak discharge for the 25-year/24-hour rainfall event will not exceed the pre-development peak discharge, in order to comply with SWFWMD regulations. The ponds will also comply with FDOT Regulation 14.86 to meet critical duration requirements. A pre-application meeting to discuss drainage and floodplain compensation methodology was held with SWFWMD on August 8, 2001. The minutes from this meeting are included in Appendix B. See Section 8.1 for pond sizing methodology and criteria.

5.0 ENVIRONMENTAL EVALUATION

5.1 Jurisdictional Wetland Involvement

Wetlands within the project limits were initially identified through review of mapping resources including the Soil Survey of Pasco County, United States Fish and Wildlife Service (USFWS) National Wetlands Inventory mapping, and project aerial photography. Wetlands were identified in the field utilizing the United States Army Corps of Engineers (USACOE), Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987), classified according to the USFWS methodology (Cowardin, *et.al.*, 1979), and characterized using Florida Land Use Cover and Forms Classification System.

No wetlands that would be affected by pond or FPC site alternatives were identified within the project study area.

5.2 Cultural Features

5.2.1 Section 4(f) Involvement

No pond or FPC site alternatives have any Section 4(f) involvement.

5.2.2 Archaeological and Historic

A Cultural Resource Assessment Survey Update Technical Memorandum, December 2001, was prepared for the SR 52 PD&E Reevaluation Study. The memorandum included the 29 pond and floodplain compensation site alternatives.

The archaeological probability analysis conducted for the project area including the 29 pond and FPC site alternatives concluded that no known sites considered potentially eligible for listing in the National Register of Historic Places (NRHP) are contained within the SR 52 PD&E Reevaluation Study project area of potential effect.

The study methodology entailed a review of the available data, including Florida Site File (FSF) records, NRHP listings, relevant cultural resource assessment reports (ACI 1989; Ballo 1988; Deming 1993; 1994a, 1994b; Wharton 1990), US Department of Agriculture (USDA) soil survey maps (Stankey 1982), USGS quadrangle maps, as well as a reconnaissance-level historic structures field survey. Background research indicated an absence of NRHP listed, eligible, or potentially eligible archaeological sites and historic structures within or adjacent to the pond or FP site alternatives.

The SR 52 improvement project will have no involvement with any archaeological sites or historic structures, which are listed, determined eligible, or considered potentially eligible for listing in the NRHP.

5.3 Threatened and Endangered Species

Pursuant to Section 7(c) of the Endangered Species Act of 1973, as amended, the study area was evaluated for the potential occurrence of threatened and endangered species. Literature reviews were conducted and data were requested from the USFWS, Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Natural Areas Inventory (FNAI).

The threatened and endangered species analysis conducted for this project did not identify any listed species or critical habitat that would be affected by the proposed improvements, pond site alternatives or FPC sites. Presently, coordination with the FFWCC anticipates that there are no known bald eagle nests within 1 mile of the SR 52 project site. No occurrence records of listed species or critical habitat are contained within the FFWCC database for the project area.

Presently, coordination with the USFWS anticipates that the proposed action is not likely to adversely affect the resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et. Seq.).

5.4 Hazardous Materials and Petroleum Site Data

A Level I Contamination Screening of the SR 52 project corridor was conducted to determine the potential for contamination for the pond site alternatives and FPC sites.

A contamination screening evaluation was prepared pursuant to the FHWA's Technical Advisory T 6640.8A, dated October 30, 1987, and in accordance with the FDOT's PD&E Manual, Part 2, Chapter 22, dated February 8, 1994. The purpose of the evaluation was to present the preliminary findings of a literature and file review of the potential for finding hazardous materials and petroleum contamination on parcels along the proposed alignment, which may affect the proposed improvements.

Twenty-nine properties were evaluated for pond site alternatives and FPC sites. The alternatives have been assigned a hazardous materials potential rating and are summarized in Tables 5 through 11 in Section 9.0. The FDOT's hazardous materials rating system was used and include NO, LOW, MEDIUM, and HIGH.

Of the 29 alternative pond and FPC sites, all but the following five sites had a No rating: Pond Sites 500B and 600B were rated LOW; Pond Sites 600A and 600C were rated MEDIUM; and FPC 600-1 was rated HIGH. These sites are discussed below.

Pond Site 500B is located on the south side of SR 52 at Station 326+35. This pond site alternative is located on a parcel, which is currently the property of Crossroads Sawmill Lumber/Hardware. This site was ranked **LOW** since this parcel is currently being used as a storage area for untreated and treated lumber.

Pond Site 600A is located on the north side of SR 52 at Station 330+60 which is approximately 200 feet to the east of the Crossroads Sawmill Hardware property. It was reported that heating fuel was discharged on the Crossroads Sawmill Hardware property in March 1995, which resulted in on-site monitoring well contamination. Site assessment is currently in progress; however, no remediation has been conducted. In addition to the above referenced spill, the Crossroads Sawmill Hardware property has had five unleaded gas underground storage tanks removed and currently has two above ground storage tanks in service. Based on the surface topography, the direction of the groundwater flow is assumed to be to the northeast generally away from this pond site alternative and separated from the Crossroads parcel by a low-lying wetland and drainage way and therefore was ranked **MEDIUM**.

Pond Site 600B is located on the south side of SR 52 at Station 330+75. This site is ranked **LOW** due to its location downstream of a fuel tanker crash/spill site on the southwest corner of the US41 and SR 52 intersection. See FPC 600-1 description for more information.

Pond Site 600C is located on the south side of SR 52 at Station 331+85. This site is also located to the west of the fuel tanker crash/spill site on the southwest corner of the US41 and SR 52 intersection and is separated from the spill site by a low-lying wetland and drainage way. However, this site was ranked **MEDIUM** due to the surface topography and the location of the site adjacent to a wetland system that drains in a southwesterly direction.

FPC 600-1 is located on the southwest quadrant of the intersection of SR 52 and US 41 at Station 338+50. One incident of contamination occurred at this FPC site in November 2000, resulting in soil and ground water contamination. According to the Florida Department of Environmental Protection Emergency Response Team, a fuel tanker truck overturned at the southwest corner of the intersection of SR 52 and US 41. The accident caused the release of approximately 1,000 gallons of unleaded fuel. A limited remedial action was conducted at the time of the spill. Site assessment was initiated by FDEP on January 2001. The extent of ground water contamination is not known at this time. Based on this information, FPC 600-1 was given a rating of **HIGH**.

6.0 FLOODPLAINS/FLOODWAYS

6.1 Flooding History

FDOT drainage maps, USGS Quadrangle maps, SWFWMD topographic maps, and FEMA FIRMs were used to identify flood-prone areas within the SR 52 project corridor. Field inspections were conducted in October 2000 to identify obvious drainage problems. Additionally, people knowledgeable about local drainage conditions (FDOT maintenance personnel) were interviewed in February 2001. This information is provided in Appendix B and summarized below.

It was noted that the existing roadside ditches fill up along the south side of SR 52 east of the railroad and flow into Lake Pierce.

No other flooding problems associated with existing drainage conditions have been identified for the length of this project.

6.2 Flood Insurance Rate Maps

FEMA has prepared a Flood Insurance Study (FIS) for Pasco County dated September 30, 1992. The accompanying FIRMs are also dated September 30, 1992. A portion of Community-Panel Number 120230 0225 C covers the project area.

Coordination with local FEMA representatives conducted in July 2001 confirmed that the above referenced FIS and FIRMs include the latest revisions for the project limits.

6.3 Flood Zone Description

FEMA has designated 100-year base floodplain areas in five locations along the SR 52 project corridor. One location is designated as Zone AE at the Pithlachascotee River. Zone AE is described as special flood hazard area inundated by 100-year flood with base flood elevations determined. The other four areas of encroachment to the 100-year floodplain are designated as Zone A. Zone A is defined as special flood hazard area inundated by 100-year flood with no base flood elevations determined. The remainder of the project is designated as Zone X. Zone X is described as areas determined to be outside the 500-year floodplain.

6.4 Floodplain Compensation

Coordination with SWFWMD indicates that The Pithlachascotee River Watershed Flood Plain Analysis report dated October 1996 represents the best available information, which defines the 100-year flood elevations along the project corridor from Shady Hills Road to east of US 41. This study was divided by section, township and range of which each section is a separate panel. These panels are included in Appendix C. The 100-year floodplain elevations in this study were used to determine the estimated floodplain encroachment for floodplain compensation site sizing. The 100-year floodplain delineation and the recommended alignment were delineated on 1977 SWFWMD 1" = 200' aerial topographic maps to estimate encroachment volume for the proposed project. The 100-year floodplain elevations for Basins 200 through 700 and respective estimated floodplain encroachment volumes are summarized in Table 3. The refined encroachment volumes will be determined during the subsequent design phase when more detailed survey and pond sizing information are available.

Table 3
Floodplain Encroachment Summary

Basin Number	Pithlachascotee River Watershed 100-Year Floodplain Elevation (ft)	Estimated Floodplain Encroachment Volume (ft^3)
100	N/A	N/A
200 North	58.9	70,000
300 North (Pithlachascotee River)	58.9	235,200
300 North (Btwn Sta. 240+00 & 250+00)	61.9	
400 North	62.7	35,000
500 South	73.6	0
600 North	72.2	51,450
600 South	74.0	
700 North	72.8	50,100
700 South	73.4	

6.5 Regulatory Floodways

There are no regulatory floodways within the SR 52 project corridor.

7.0 GEOTECHNICAL DATA

The geotechnical data reviewed for this study include the United States Department of Agriculture, Soil Conservation Service (now Natural Resource Conservation Service (NRCS)), Soil Survey of Pasco County, June 1982; the USGS, Quadrangle Map "Fivay Junction, Florida," 1954, for the respective sections of this project; and 1977 SWFWMD aerial photographs.

The Soil Survey of Pasco County was reviewed with respect to near-surface soil conditions along the project. The soil survey indicates that there are ten mapping units within the project area. The predominant soil groups are Adamsville and Smyrna. The geology of Pasco County can briefly be described as surficial sands and clay, sandy clays and clayey sands overlying limestone. The soils with respect to the project area are nearly level, wet and sandy. Some areas have deep, well-drained and excessively drained sands, which are relict sand dunes. Much of the urban development in the county has occurred on the better-drained parts of the lowlands.

The hydrologic soil groups C, A/D and B/D exist throughout the project length. Group A soils have a high infiltration rate (low runoff potential) when thoroughly wet. They are mainly deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. Group D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet. They consist chiefly of clays having a high shrink-swell potential, a permanent high water table, a claypan or clay layer at or near the surface, and

are shallow over nearly impervious material. These soils have a very slow rate of water transmission. The soil groups are summarized in Table 4.

Table 4
Summary of Soil Groups

Soil Name (Map Unit No.)	Depth (inches)	Classification		Permeability (in/hour)	Seasonal High Water Table Depth (ft)	Hydrologic Group
		AASHTO[1] Group	USCS[2] Group			
Pomona (2)	0 - 60	A-3 to A-6; A-2-4	SP[3], SP-SM[4], SM, SC, SC-SM	6 - 20	0 – 1.0	B/D
Myakka (5)	0 - 80	A-3; A-2-4	SP, SP-SM, SM	6 - 20	0 – 1.0	B/D
Sellers (8)	0 - 80	A-3; A-2-4	SP, SP-SM	6 - 20	+2.0 - 0	B/D
Adamsvillle (11)	0 - 80	A-3; A-2-4	SP, SP-SM	6 - 20	2.0 – 3.5	C
Smyrna (21)	0 - 80	A-3; A-2-4	SP, SP-SM, SM	6 - 20	0 – 1.0	A/D
Basinger (22)	0 - 80	A-3; A-2-4	SP, SP-SM	>20	0 – 1.0	A/D
Basinger (23)	0 - 80	A-3; A-2-4	SP, SP-SM	>20	+2.0 – 1.0	B/D
Narcoossee (26)	0 - 75	A-3; A-2-4	SP, SP-SM, SM	6 – 20	2.0 – 3.5	C
Chobee (39)	0 - 80	A-2-4, A-2-6, A-2-7, A-6, A-7	SP-SM, SM, SC, SM-SC	6 - 20	0 – 1.0	B/D
Pomello (42)	0 - 80	A-3; A-2-4	SP, SP-SM, SM[5]	>20	2.0 – 3.5	C

Source: Soil Survey of Pasco County, June 1982
Notes: [1]American Association of State Highway and Transportation Officials
[2]Unified Soil Classification System
[3]SP - Poorly graded sand (with gravel)
[4]SP-SM - Poorly graded sand (with sand and gravel)
[5] SM - Silty sand (with gravel)

A copy of the soil survey map for the SR 52 project corridor is shown in Figure 5.

Figure 5
Soils Map

8.0 ALTERNATIVE POND SITE INFORMATION

8.1 Stormwater Management Methodology and Criteria

A review of the best available information listed in Section 1.0 of this report in addition to field reconnaissance was conducted to assess the potential pond and FPC site locations. The following parameters of each site were analyzed in the selection process:

- The "Available Area" for each alternative was obtained from the Pasco County Property Appraiser's Tax Maps.
- The "Existing Average Ground Elevation" was obtained from the SWFWMD Aerials (1"=200'), as shown in Appendix D.
- The "Soil Type" information was obtained for each of the alternatives from the SCS Soil Survey of Pasco County, Florida. The seasonal high water table (SHWT) elevation was estimated by subtracting the average depth to the SHWT from the average existing ground elevation.
- The maximum allowable stage in the pond for a 100-year storm event (DHW_{100}) was estimated using the following procedure. DHW_{100} = (elevation of the lowest edge of pavement of the basin draining to the respective pond)-(1 foot of freeboard)-(estimated friction loss in pipe between lowest edge of pavement and pond). The estimated DHW was used in the "Volume Provided in Stormwater Facilities" table in Appendix C to estimate the pond sizes.
- The "Impact on Wetlands, Cultural Resources, Threatened or Endangered Species" and "Contamination Impact" is based on the information included in Section 5.0 of this report.
- The "Right-of-Way Cost Estimate" information was approved by the FDOT Right-of-Way Department.

8.2 Pond Siting Alternative Analysis

The project has been divided into seven roadway drainage basins, as shown in the Drainage Basin Map in Figure 3.

Based on the methodology and criteria stated in Section 8.1, the following alternative pond and floodplain compensation sites were evaluated for each basin. Floodplain compensation sites are designated by FPC 200-1, for example, and the pond site alternatives are labeled Pond Site 100A, for example.

1) Basin 100: Pond Sites 100A and 100B, and the existing Suncoast Parkway Pond Sites 6A and 6B

2) Basin 200: Pond Sites 200A and 200B

3) Basin 300: Pond Sites 300A, 300B and 300C, and FPC Sites 300-1, 300-2A and 300-2-B

4) Basin 400: Pond Sites 400A, 400B and 400C; and FPC 400-1 and 400-2

4) Basin 500: Pond Sites 500A, 500B and 500C

5) Basin 600: Pond Sites 600A, 600B and 600C; and FPC Site 600-1

6) Basin 700: Pond Sites 700A, 700B and 700C; and FPC Sites 700-1, 700-2 and 700-3

Each alternative is summarized in the Alternative Matrix Analyses in Tables 5 through 11. The locations of the alternative pond and FPC sites are shown on the Concept Plans in Appendix A. The ponds are sized to accommodate the required treatment and attenuation per basin. The treatment volume was calculated for 1 inch over the directly connected impervious area (DCIA). Attenuation volumes were calculated using the SCS 100-year/24-hour post minus pre volumes per basin. Weighted curve numbers (CNs) were calculated using the proposed right-of-way width of 156 feet. The calculations used to estimate the size of the ponds are included in Appendix C.

The resulting information in Tables 5 through 11 was used to analyze each pond and FPC site for selection of a preferred alternative for each basin. The preferred alternatives per basin are highlighted in the tables and the recommendations are summarized in Section 9.0.

Table 5
Alternative Matrix Analyses
Basin 100

Alternative	100A	100B	Existing (Suncoast Parkway) SMFs 6A & 6B
Location (Station)	192+55	192+30	166+00 & South of SR 52 west of Suncoast
Side (LT, RT)	RT	LT	RT
Pond Area (acres)	0.90	0.95	6.0 & 3.7
Soils Names & Hydrologic Groups	Adamsville (C)	Adamsville (C)	Pomello (C) & Sellers & Bassinger (B/D)
Proximity to Outfall (feet)	0	0	0
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$0	$0	$0
Recorded Archaeological Sites	None	None	N/A
Wetlands (acres)	0	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None	None
Contamination Risk Rating	No	No	No
Right-of-Way Cost Estimate	$372,100	$382,700	$0
Total Estimated Cost	$372,100	$382,700	$0

Notes:

- **Total Treatment and Attenuation Volume Required for Basin 100: 0.79 ac-ft**
- **No floodplain compensation is required for Basin 100**
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**
- **Coordination must be maintained with the Turnpike District throughout the design phase in order to ensure the existing permit is not jeopardized.**

Table 6
Alternative Matrix Analyses
Basin 200

	Pond Site Alternatives	
Alternative	**200A**	**200B**
Location	225+75	227+40
Side (LT, RT)	RT	RT
Pond Area (acres)	1.35	1.32
Soils Names & Hydrologic Groups	Myakka (B/D)	Myakka (B/D)
Proximity to Outfall (feet)	150	550
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$7,050	$25,850
Recorded Archaeological Sites	None	None
Wetlands (acres)	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None
Contamination Risk Rating	No	No
Right-of-Way Cost Estimate	$558,400	$309,600
Total Estimated Cost	$565,450	$335,450

Notes:

- **Basin 200 requires floodplain compensation, which will be provided for in FPC Site 300-1.**
- **Total Treatment and Attenuation Volume Required for Basin 200: 0.67 ac-ft**
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**

Table 7
Alternative Matrix Analyses
Basin 300

	Pond Site Alternatives			Floodplain Compensation Site Alternatives		
Alternative	**300A**	**300B**	**300C[1]**	**FPC 300-1**	**FPC 300-2A**	**FPC 300-2B**
Location (Station)	236+60	237+00	235+00	233+55	245+00	250+00
Side (LT, RT)	RT	RT	LT	LT	LT	LT
Pond Area (acres)	1.10	1.35	2.45	2.00	3.35	3.25
Soils Names & Hydrologic Groups	Adamsville (C)	Adamsville (C)	Narcoossee (C)	Narcoossee (C)	Symrna (A/D)	Symrna (A/D)
Proximity to Outfall (feet)	150	450	400	N/A	N/A	N/A
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$7,050	$21,150	$18,800	N/A	N/A	N/A
Recorded Archaeological Sites	None	None	None	None	None	None
Wetlands	0	0	0	0	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0	$0	$0	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None	None	None	None	None
Contamination Risk Rating	No	No	No	No	No	No
Right-of-Way Cost Estimate	$434,400	$616,400	$410,600	$996,500	$1,324,900	$6,615,100
Total Estimated Cost	$441,450	$637,550	$429,400	$996,500	$1,324,900	$6,615,100
Total for Preferred Pond and FPC Sites	$429,400 + $996,500 + $1,324,900 = $2,750,800					

Notes:

- **Floodplain compensation for Basins 200 and a portion of Basin 300 requires floodplain compensation, which is provided in FPC Site 300-1. Basin 300 also contains additional floodplain encroachments at a higher 100-year floodplain elevation and is compensated for in either FPC Sites 300-2A or 300-2B. This requires two preferred FPC Sites in Basin 300.**
- **Total Treatment and Attenuation Volume Required for Basin 300: 1.13 ac-ft**
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**

[1] **Based on coordination with the property owner, the selection of the preferred pond site (300C) will be reevaluated during final design.**

Table 8
Alternative Matrix Analyses
Basin 400

	Pond Site Alternatives			Floodplain Compensation Site Alternatives	
Alternative	**400A**	**400B**	**400C**	**FPC 400-1**	**FPC 400-2**
Location (Station) / Side (LT,RT)	265+80/RT	265+00/LT	266+35/RT	265+00/LT	268+75/RT
Pond Area (acres)	2.0	2.0	2.0	0.80	0.80
Soils Names & Hydrologic Groups	Smyrna (A/D)	Adamsville (C) & Smyrna (A/D)	Smyrna (A/D)	Adamsville (C) & Smyrna (A/D)	Smyrna (A/D)
Proximity to Outfall (feet)	0	0	250	0	0
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$0	$0	$11,750	$0	$0
Recorded Archaeological Sites	None	None	None	None	None
Wetlands	0	0	0	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0	$0	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None	None	None	None
Contamination Risk Rating	No	No	No	No	No
Right-of-Way Cost Estimate	$525,300	$1,008,500	$518,200	$268,200	$270,400
Total Estimated Cost	$525,300	$1,008,500	$529,950	$268,200	$270,400
Total for Preferred Pond and FPC Sites	$525,300 + $270,400 = $795,700				

Notes:

- Each of the pond site alternatives requires floodplain compensation in a separate parcel, which can be provided for in any of the floodplain compensation site alternatives.
- Total Treatment and Attenuation Volume Required for Basin 400: 1.60 ac-ft
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**

Table 9
Alternative Matrix Analyses
Basin 500

Alternative	500A	500B	500C
Location (Station)	318+40	326+35	326+80
Side (LT, RT)	RT	RT	RT
Pond Area (acres)	2.50	1.75	2.25
Soils Names & Hydrologic Groups	Adamsville (C) & Smyrna (A/D)	Adamsville (C)	Adamsville (C)
Proximity to Outfall (feet)	940	100	250
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$44,180	$4,700	$11,750
Recorded Archaeological Sites	None	None	None
Wetlands	0	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None	None
Contamination Risk Rating	No	Low	No
Right-of-Way Cost Estimate	$1,748,900	$718,000	$685,100
Total Estimated Cost	$1,793,080	$722,700	$696,850

Notes:

- **No floodplain compensation is required for Basin 500**
- **Total Treatment and Attenuation Volume Required: 1.14 ac-ft**
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**

Table 10
Alternative Matrix Analyses
Basin 600

	Pond Site Alternatives			Floodplain Compensation Site Alternative
Alternative	**600A**	**600B**	**600C**	**FPC 600-1**
Location (Station)	330+60	330+75	331+85	338+50
Side (LT, RT)	LT	RT	RT	RT
Pond Area (acres)	0.65	1.0	1.3	1.10
Soils Names & Hydrologic Groups	Adamsville (C)	Adamsville (C)	Adamsville (C)	Smyrna (A/D) & Narcoossee (C)
Proximity to Outfall (feet)	0	0	200	N/A
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$0	$0	$9,400	$0
Recorded Archaeological Sites	None	None	None	None
Wetlands	0	0	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None	None	None
Contamination Risk Rating	Medium	Low	Medium	High
Right-of-Way Cost Estimate	$338,600	$654,100	$759,100	$0
Total Estimated Cost	$338,600	$654,100	$768,500	$0
Total for Preferred Pond and FPC Sites	$338,600			

Notes:

- **Total Treatment and Attenuation Volume Required for Basin 600: 0.54 ac-ft**
- **All pond site alternatives in Basin 600 require floodplain compensation, which is provided in FPC Site 600-1.**
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**

Table 11
Alternative Matrix Analyses
Basin 700

	Pond Site Alternatives			Floodplain Compensation Site Alternatives		
Alternative	**700A**	**700B**	**700C**	**FPC 700-1**	**FPC 700-2**	**FPC 700-3**
Location (Station) / Side (LT, RT)	36+75/RT	39+85/LT	49+30/RT	38+30/RT	38+20/LT	48+70/RT
Pond Area (acres)	0.95	0.85	0.75	1.15	1.15	1.15
Soils Names & Hydrologic Groups	Narcoossee (C)	Narcoossee (C)	Smyrna (A/D)	Narcoossee (C)	Narcoossee (C)	Smyrna (A/D)
Proximity to Outfall (feet)	250	200	0	N/A	N/A	N/A
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$11,750	$9,400	$0	$0	$0	$0
Recorded Archaeological Sites	None	None	None	None	None	None
Wetlands	0	0	0	0	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	$0	$0	$0	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	None	None	None	None	None
Contamination Risk Rating	No	No	No	No	No	No
Right-of-Way Cost Estimate	$280,800	$244,700	$208,000	$347,600	$673,300	$340,900
Total Estimated Cost	$292,550	$254,100	$208,000	$347,600	$673,300	$340,900
Total for Preferred Pond and FPC Sites			$208,000 + $340,900 = $548,900			

Notes:

- **Each of the pond site alternatives requires floodplain compensation, which can be provided for in any of the floodplain compensation site alternatives.**
- **Total Treatment and Attenuation Volume Required for Basin 700: 0.51 ac-ft**
- **Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.**

9.0 RECOMMENDATIONS

Table 12 summarizes the preferred pond and FPC sites for the proposed project.

Table 12
Preferred Pond and FPC Sites

Preferred Pond / FPC Sites	Station - Location	Area (ac)
Exist. Suncoast Pkwy SMFs 6A and 6B	166+00 RT and South of SR 52 (west of the Suncoast Parkway)	6.0 & 3.7
Pond Site 200B	227+40; RT	1.32
Pond Site 300C	235+00; LT	2.45
FPC 300-1	235+00; LT	2.00
FPC 300-2A	245+00; LT	3.35
Pond Site 400A	265+80; RT	2.00
FPC 400-2	268+75; RT	0.80
Pond Site 500C	326+80; RT	2.25
Pond Site 600A	330+60; LT	0.65
FPC 600-1	338+50; RT	1.10
Pond Site 700C	49+30; RT	0.75
FPC 700-3	48+70; RT	1.15

BASIN 100

The preferred pond sites for Basin 100 are the existing Suncoast Parkway SMFs 6A and 6B which are 6.0 and 3.7 ac respectively. These existing SMFs are located south of SR 52 at Station166+00 and approximately 600 feet south of SR 52 adjacent to the west side of the Suncoast Parkway. SMFs 6A and 6B were designed by the FDOT Turnpike District to treat and attenuate the runoff from the Suncoast Parkway/SR 52 interchange and the associated improvements with SR 52. The existing typical section of SR 52 at the Suncoast Parkway/SR 52 interchange is a four-lane rural typical section and would be widened to a six-lane urban typical section. Therefore, in the subsequent design phase, the existing ponds will need to be remodeled with a revised CN to accommodate the additional impervious area equivalent to two lanes.

Preliminary calculations have been included in Appendix E to ensure that the existing Suncoast Parkway SMFs 6A and 6B can be modified without increasing the stage elevations while maintaining a lesser discharge rate in the post condition versus the pre condition.

Coordination with representatives from the Turnpike District has occurred requesting concurrence to utilize existing ponds for SR 52 improvements for Basin 100. The Turnpike District granted concurrence with the stipulation that since the existing ponds have been designed, permitted and constructed to accommodate a future Suncoast widening, any modifications to the ponds with respect to SR 52 improvements be accomplished so that the Turnpike's permit remains unchanged. Correspondence has been included in Appendix B.

BASIN 200

Pond Site 200B is 1.32 ac and is located on a vacant parcel near Cross Drain No. 1. The total estimated cost for this site is $335,450. Basin 200 requires floodplain compensation, which will be provided for in FPC Site 300-1. The total estimated cost for Basin 200 for Pond Site 200B would be $335,450. Based on land use, proximity to outfall, and lowest cost, Pond Site 200B was selected as the preferred alternative.

BASIN 300

The preferred pond site is approximately 2.45 ac with an estimated cost of $429,400. This pond is located on an adjacent parcel near Cross Drain No. 1. In order to meet the required floodplain compensation for Basin 300, it is necessary to also acquire two floodplain compensation sites. Floodplain compensation for Basins 200 and a portion of Basin 300 requires floodplain compensation, which is provided in FPC Site 300-1. Basin 300 also contains additional floodplain encroachments at a higher 100-year floodplain elevation and is compensated for in FPC Site 300-2A. The total estimated cost for Basin 300 for Pond Site 300C, FPC Site 300-1 and FPC Site 300-2A is $2,750,800. Based on land use, proximity to outfall, and lowest cost, the preferred alternatives for Basin 300 is Pond Site 300C, FPC Site 300-1 and FPC Site 300-2A.

BASIN 400

The preferred pond site is approximately 2.0 ac with an estimated cost of $525,300. This pond is located on an adjacent parcel near Cross Drain No. 2. In order to meet the required floodplain compensation for Basin 400, it is necessary to also acquire FPC Site 400-2. The total estimated cost for Basin 400 for Pond Site 400C and FPC 400-2 would be $795,700. Based on land use, proximity to outfall, and lowest cost, the preferred alternative for Basin 400 is Pond Site 400A and FPC Site 400-2.

BASIN 500

The preferred pond site is approximately 2.25 ac with an estimated cost of $696,850. This pond site is adjacent to Cross Drain No. 3. Basin 500 does not encroach into the 100-year floodplain and therefore, does not require a FPC site. Based on proximity to outfall, and a Contamination Risk Rating of LOW, the preferred alternative for Basin 500 is Pond Site 500C.

BASIN 600

The preferred pond site is approximately 0.7 ac with an estimated cost of $338,600. This pond is located on an adjacent parcel near Cross Drain No. 3. In order to meet the required floodplain compensation for Basin 600, it is necessary to also utilize the existing right-of-way in the southwest quadrant of the intersection of SR 52 and US 41 for floodplain compensation (FPC 600-1). The total estimated cost for Basin 600 is $338,600 since no additional right-of-way costs would be incurred for FPC 600-1. Based on proximity to outfall, and lowest cost, the preferred alternative for Basin 600 is Pond Site 600A and FPC Site 600-1.

BASIN 700

The preferred pond site is approximately 0.75 ac with an estimated cost of $208,000. This pond is located on a vacant parcel approximately 1,200 feet from Gower Corner Creek. In order to meet the required floodplain compensation for Basin 700, it is necessary to also acquire FPC Site 700-3. The total estimated cost for Basin 700 for Pond Site 700C and FPC 700-3 would be $548,900. Based on the lowest cost, the preferred alternative for Basin 700 is Pond Site 700C and FPC 700-3.

Appendix A
Concept Plans

BASIN 100

BEGIN
POND SITING REPORT
STUDY AREA

BASIN 100

PROP R/W

EXIST. R/W

155

160

165

170

EXIST. LA R/W

175

180

185

SUNCOAST PARKWAY

200'

S.R. 52

EXIST. R/W

D - 0° 21' 37"
L - 755.46'
V - 45 MPH
e - NC

D - 0° 54' 23"
L - 751.03'
V - 45 MPH
e - NC

SUNCOAST PARKWAY SMF 6A (6.0 AC)

EXIST. LA R/W

℄ SURVEY

GAS LINE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES COMMISION

DIVISION OF FORESTRY GOWERS FORESTRY STATION

SUNCOAST PARKWAY

SUNCOAST PARKWAY SMF 6B (3.7 AC)

LEGEND

- Existing Right of Way
- Proposed Right of Way
- Limited Access Right of Way
- Property Lines
- Wetland Boundary
- Proposed Pavement/ Sidewalk
- Proposed Median/Infield
- Pond and Floodplain Compensation Site
- Traffic Signal
- R — Residential Relocation
- B — Business Relocation
- C — Contamination Site

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PLOT DATE: 12/10/01

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

PB 100 YEARS

Parsons Brinckerhoff Quade & Douglas, Inc.
5405 West Cypress St., Suite 300
Tampa, Florida 33607

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	W.P.I.
S.R. 52	PASCO	256243 1

CONCEPT PLANS
S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

SHEET NO. 6

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CONCEPT PLANS
S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

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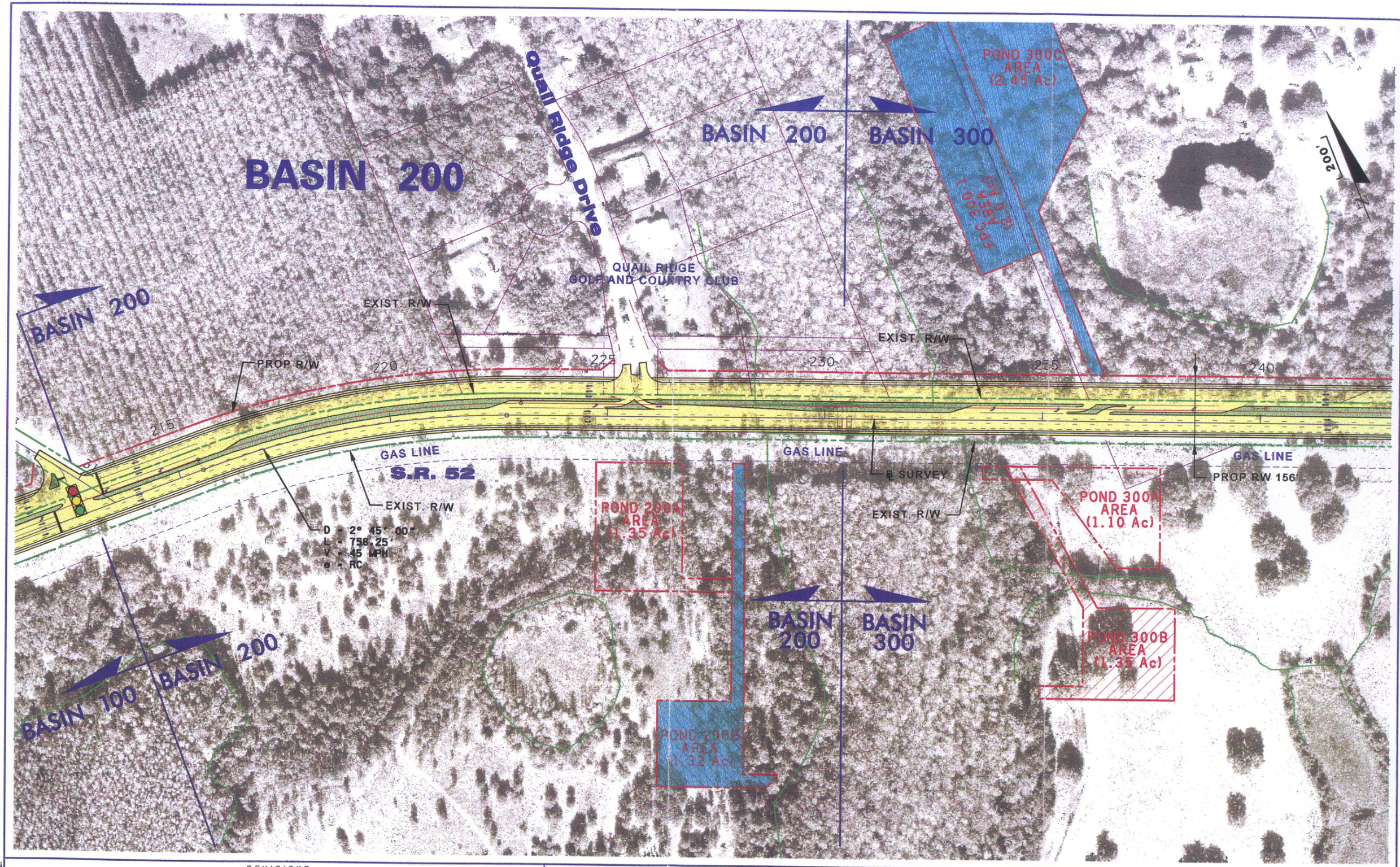

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CONCEPT PLANS
S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

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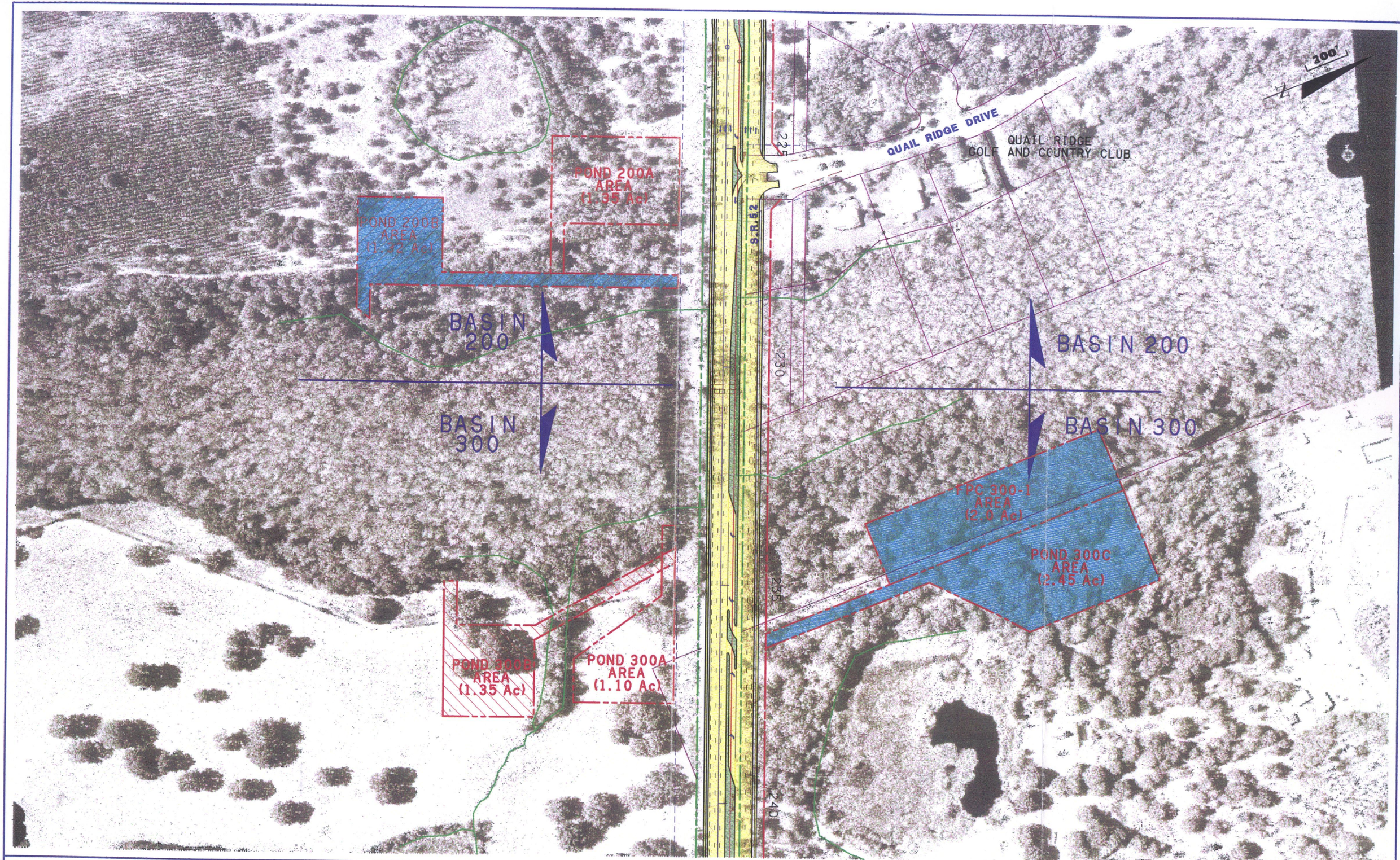

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S.R. 52 PD&E REEVALUATION
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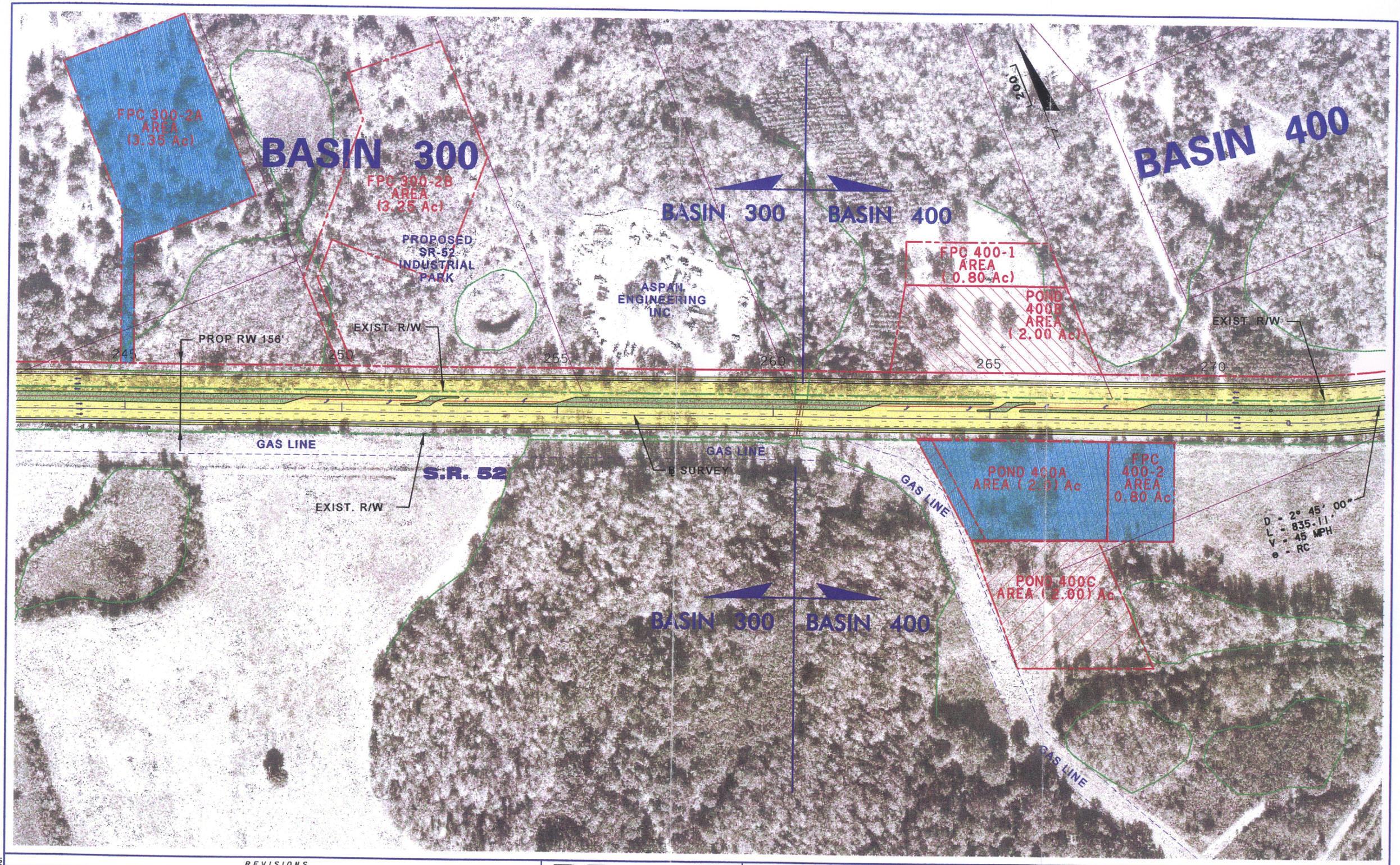

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CONCEPT PLANS
S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

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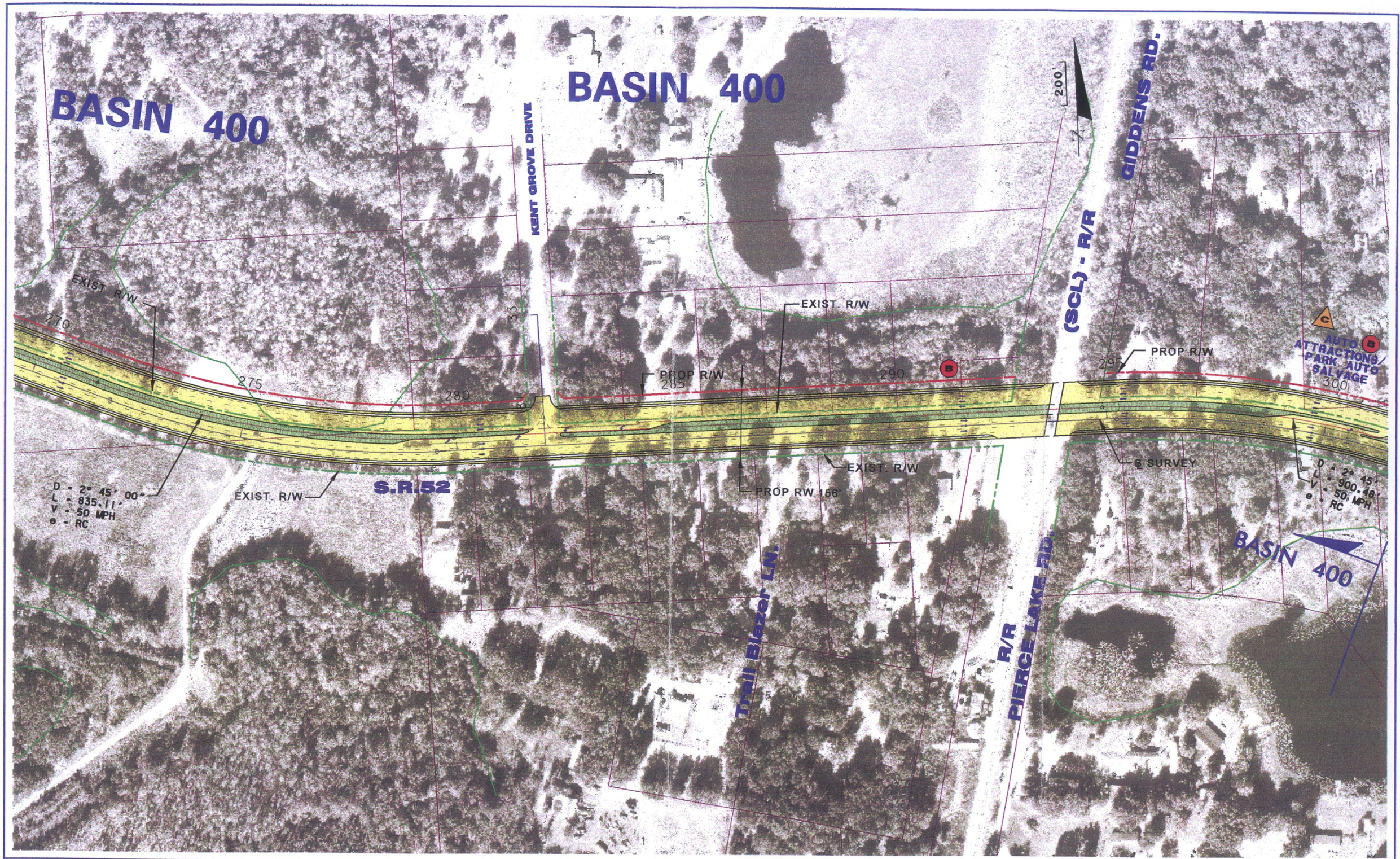

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S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

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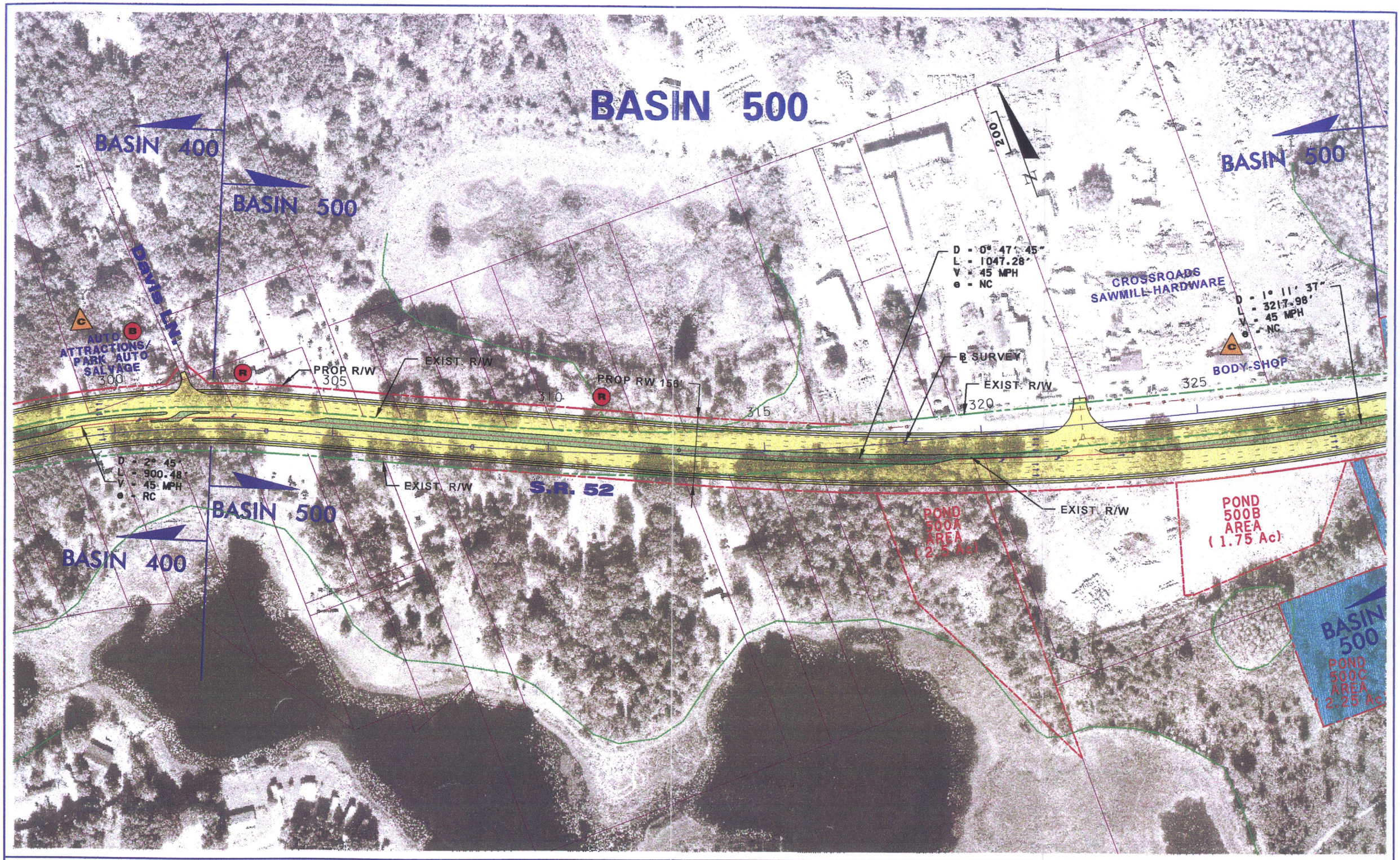

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(Moon Lake Road to U.S. 41)

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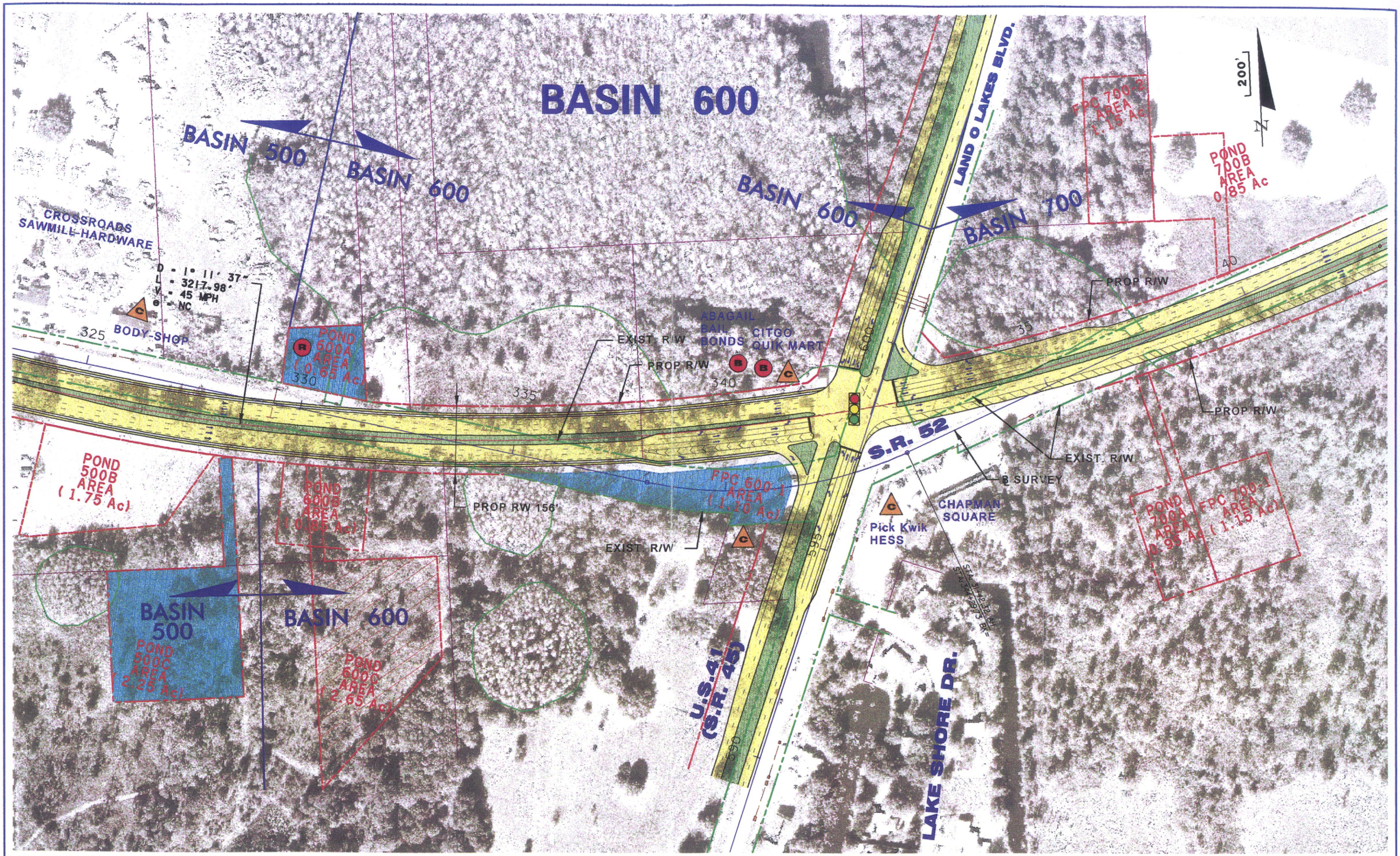

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PB 100 YEARS

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CONCEPT PLANS
S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

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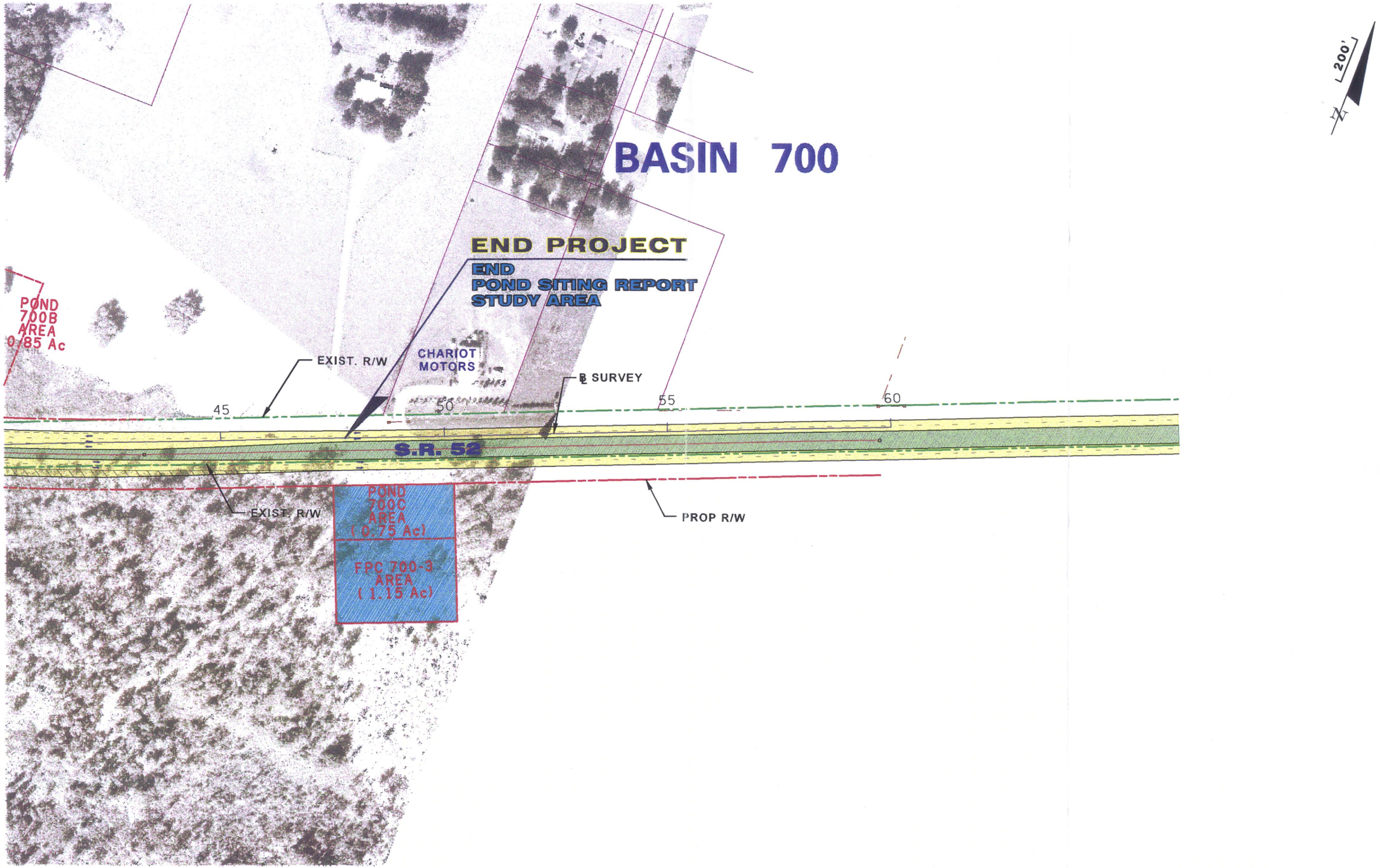

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Tampa, Florida 33607

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	W.P.I.
S.R. 52	PASCO	256243 1

CONCEPT PLANS
S.R. 52 PD&E REEVALUATION
(Moon Lake Road to U.S. 41)

SHEET NO. 13

COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS
AERIAL SURVEY CORPORATION OF FLORIDA
ST. PETERSBURG, FLORIDA

LEGEND

HORIZONTAL CONTROL U.S.C.&G.S.	△
FLORIDA STATE DEPT OF TRANSPORTATION	⊙
TRAVERSE STATIONS	FFQ 6 ⊙
VERTICAL CONTROLS	FFQ-7 97.61 x
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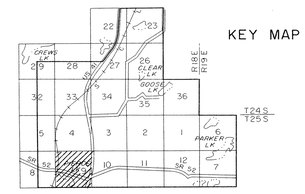
CONTOURS	45 / 40
DEPRESSION CONTOURS	50
SPOT ELEVATIONS	50.4

KEY MAP



NOTE : ACCURACY IT IS INTENDED THAT THIS MAPPING COMPLY WITH U.S. NATIONAL MAP ACCURACY STANDARDS. HOWEVER, SUCH ACCURACY, OR ANY OTHER LEVEL OF ACCURACY, IS NOT GUARANTEED BY THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

THE LAND LINE INFORMATION SHOWN HEREON IS COMPILED FROM THE BEST AVAILABLE DATA AND DOES NOT NECESSARILY REPRESENT TRUE LAND LINE LOCATION

DASHED CONTOURS AND UNDERLINED ELEVATIONS INDICATE STANDARD VERTICAL ACCURACY REDUCED BY TREE COVER

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GRIDS BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE

ELEVATIONS BASED ON U.S.C.&G.S. DATUM

200 0 200 400 600
SCALE 1" = 200' CONTOUR INTERVAL 1'

DATE OF PHOTOGRAPHY DECEMBER 1977
DATE OF MAPPING APRIL 1978

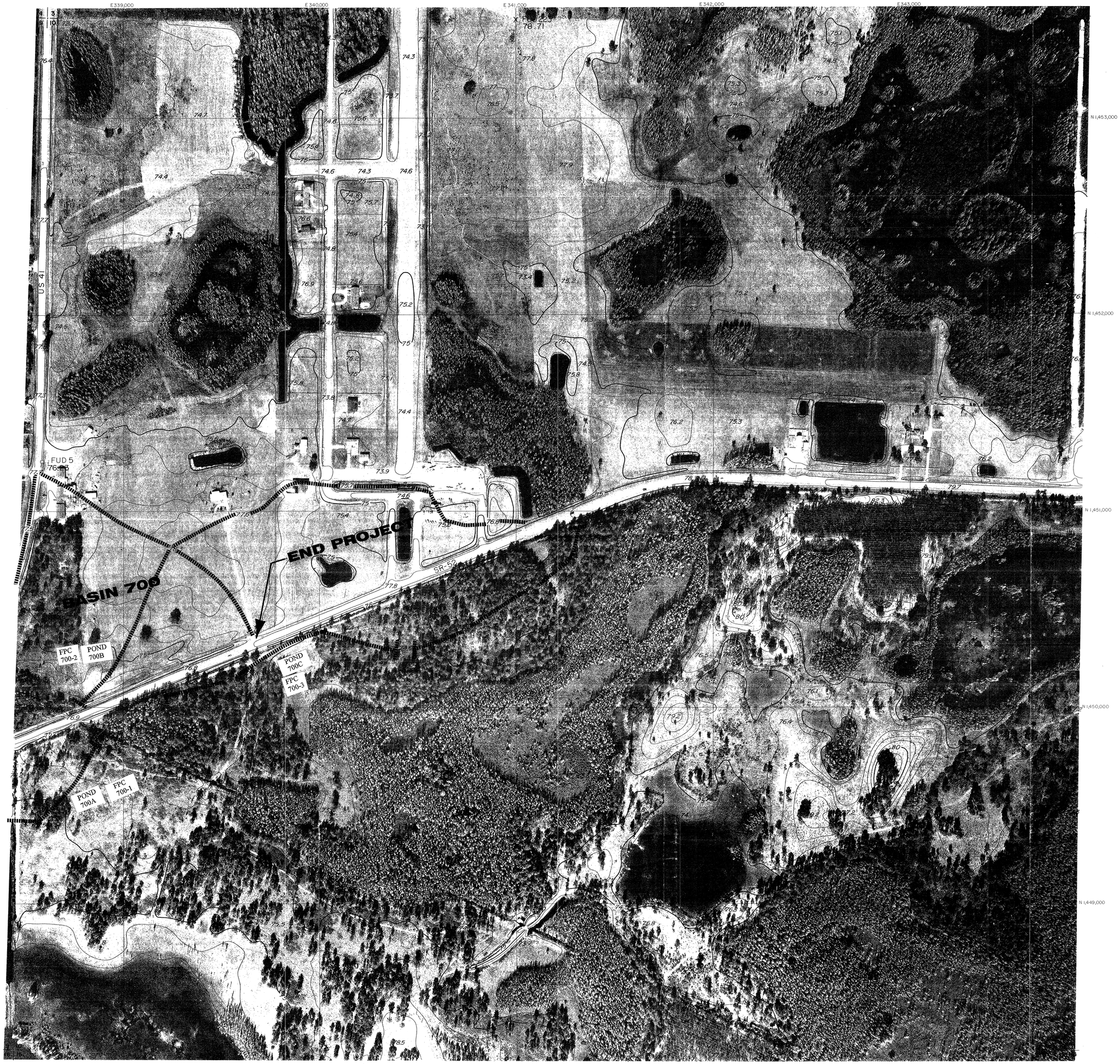
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

PITHLACHASCOTEE RIVER BASIN
GOWERS CORNERS

AERIAL PHOTOGRAPHY WITH CONTOURS

SWFWMD PROPERTY NO. 105.17

SHEET NO. 09-25

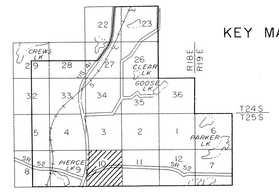


COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS
AERIAL SURVEY CORPORATION OF FLORIDA
ST. PETERSBURG, FLORIDA

LEGEND

HORIZONTAL CONTROL U.S.C.&G.S.	△
FLORIDA STATE DEPT OF TRANSPORTATION	⊙
TRAVERSE STATIONS	FFQ 6 ⊙
VERTICAL CONTROLS	FFQ-7 97.61 x
SECTION CORNERS	10 | 11 / 15 | 14
CONTOURS	45 / 40
DEPRESSION CONTOURS	50
SPOT ELEVATIONS	50.4

KEY MAP



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ELEVATIONS BASED ON U.S.C.&G.S. DATUM

200 0 200 400 600
SCALE 1" = 200' CONTOUR INTERVAL 1'

DATE OF PHOTOGRAPHY DECEMBER 1977
DATE OF MAPPING APRIL 1978

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

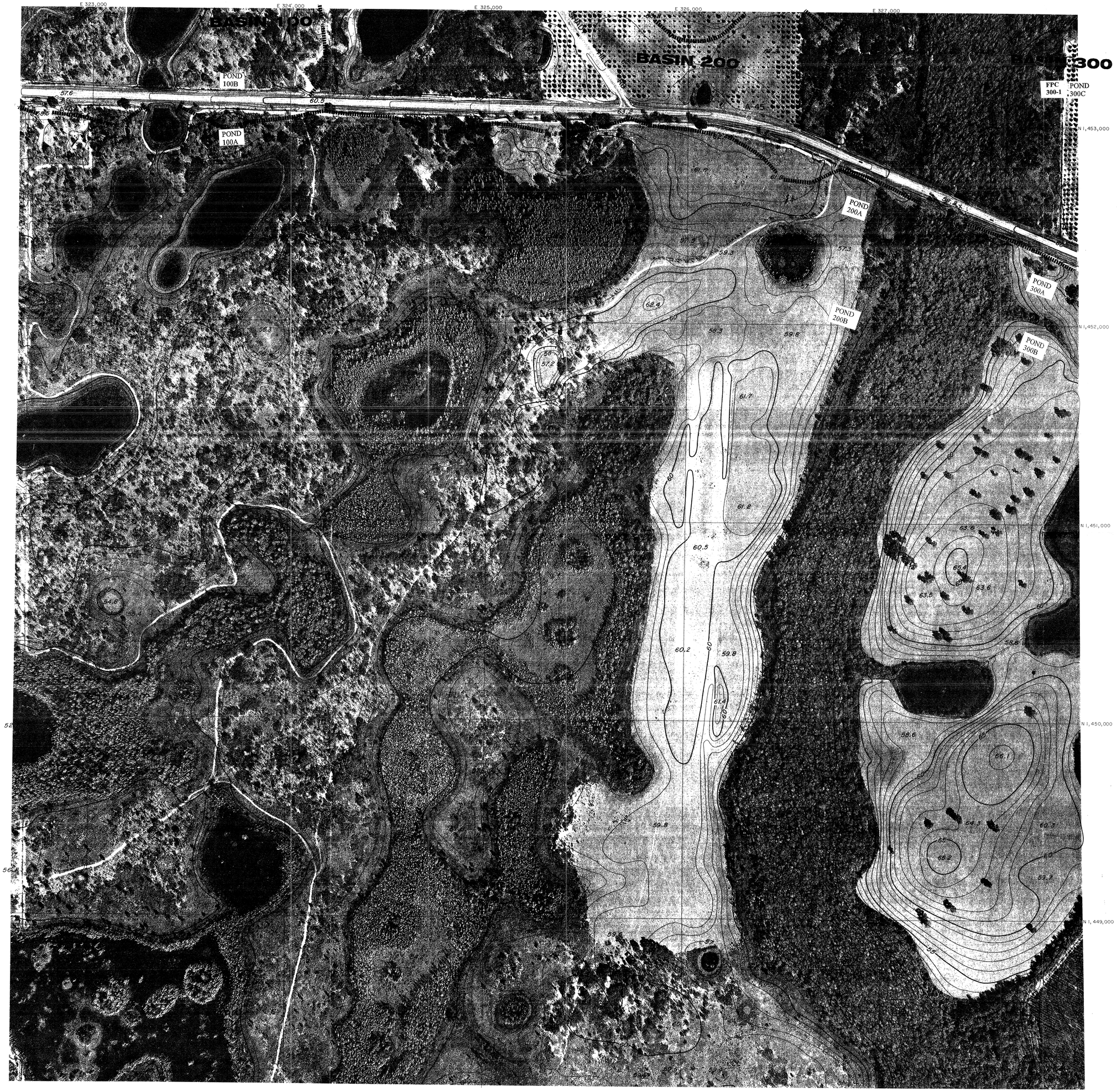
PITHLACHASCOTEE RIVER BASIN

GOWERS CORNERS

AERIAL PHOTOGRAPHY WITH CONTOURS

SWFWMD PROPERTY NO. 105.17

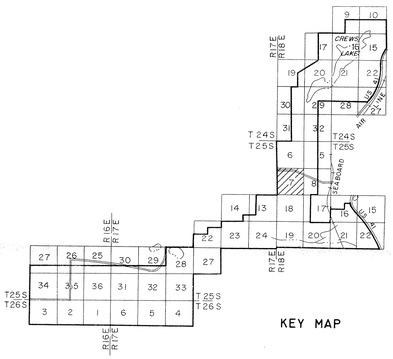
SHEET NO. 10-25-18



COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

LEGEND

HORIZONTAL CONTROL U.S.C.&G.S.	△
TRAVERSE STATIONS	TTA ⊙
VERTICAL CONTROLS	BM-5 59.1 X
SECTION CORNERS	10 | 11 / 15 | 14
CONTOURS	45 / 40 / 50
DEPRESSION CONTOURS	
SPOT ELEVATIONS	50.4



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ELEVATIONS BASED ON U.S.C.&G.S. DATUM.

200 0 200 400 600

SCALE 1" = 200' CONTOUR INTERVAL 1'

DATE OF PHOTOGRAPHY FEBRUARY 1973

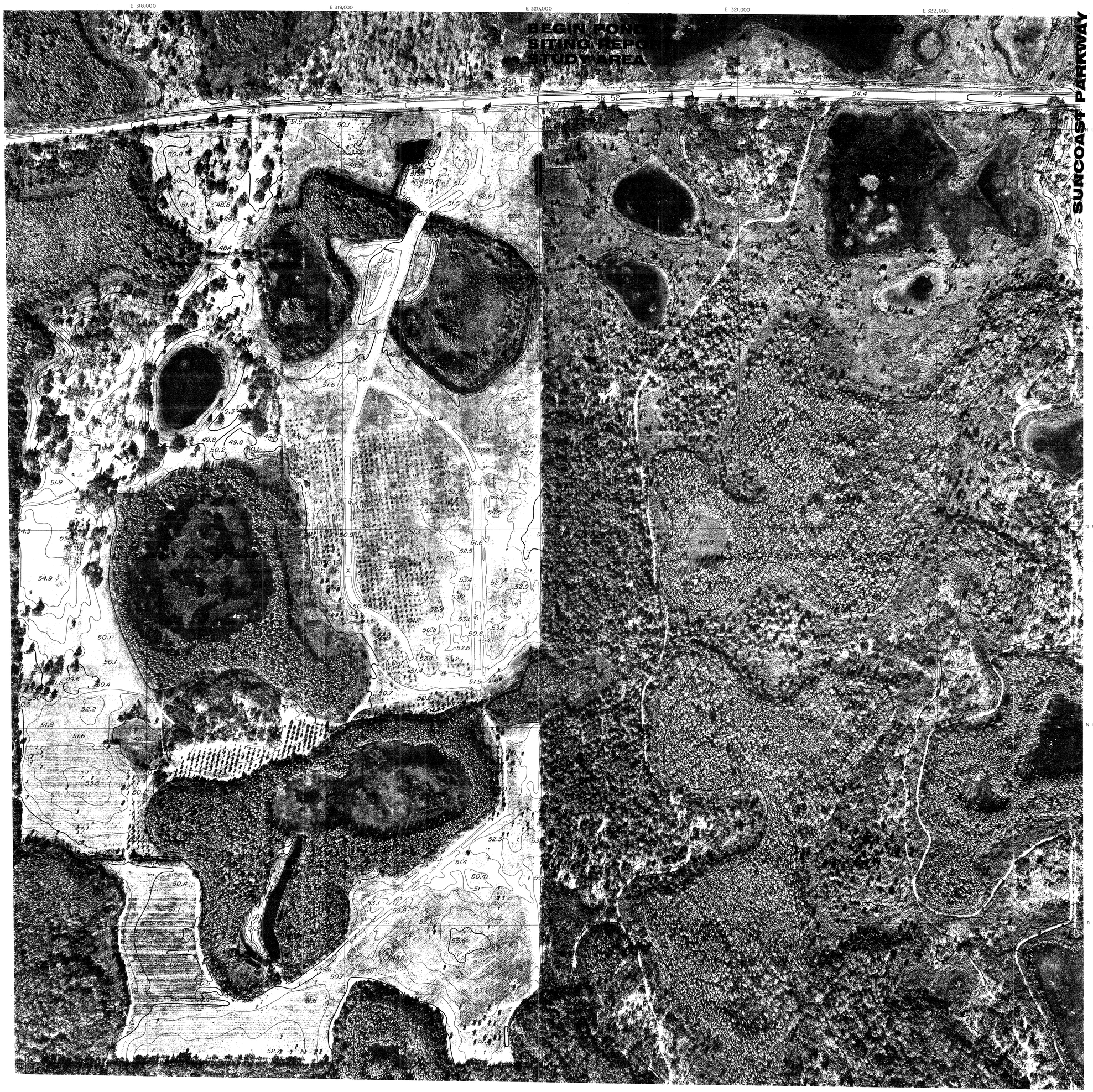
DATE OF MAPPING APRIL 1974

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

PITHLACHASCOTEE RIVER BASIN
PITHLACHASCOTEE RIVER

AERIAL PHOTOGRAPHY WITH CONTOURS

SHEET NO. 07·25·18



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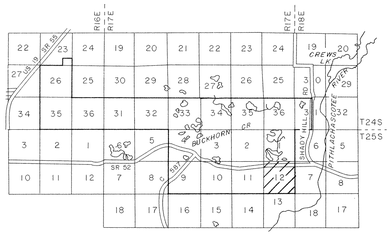
ST. PETERSBURG, FLORIDA

LEGEND

HORIZONTAL CONTROL U.S.C.&G.S.	△
FLORIDA STATE DEPT OF TRANSPORTATION	⊙
TRAVERSE STATIONS	FFQ 6 ⊙
VERTICAL CONTROLS	FFQ-7 97.61 x
SECTION CORNERS	10 | 11 / 15 | 14
CONTOURS	45 / 40
DEPRESSION CONTOURS	50
SPOT ELEVATIONS	50.4



KEY MAP

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ELEVATIONS BASED ON U.S.C. & G.S. DATUM.

N

200 0 200 400 600

SCALE 1" = 200' CONTOUR INTERVAL 1'

DATE OF PHOTOGRAPHY JANUARY 1980
DATE OF MAPPING MAY 1980

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

PITHLACHASCOTEE RIVER BASIN
BUCKHORN CREEK

AERIAL PHOTOGRAPHY WITH CONTOURS

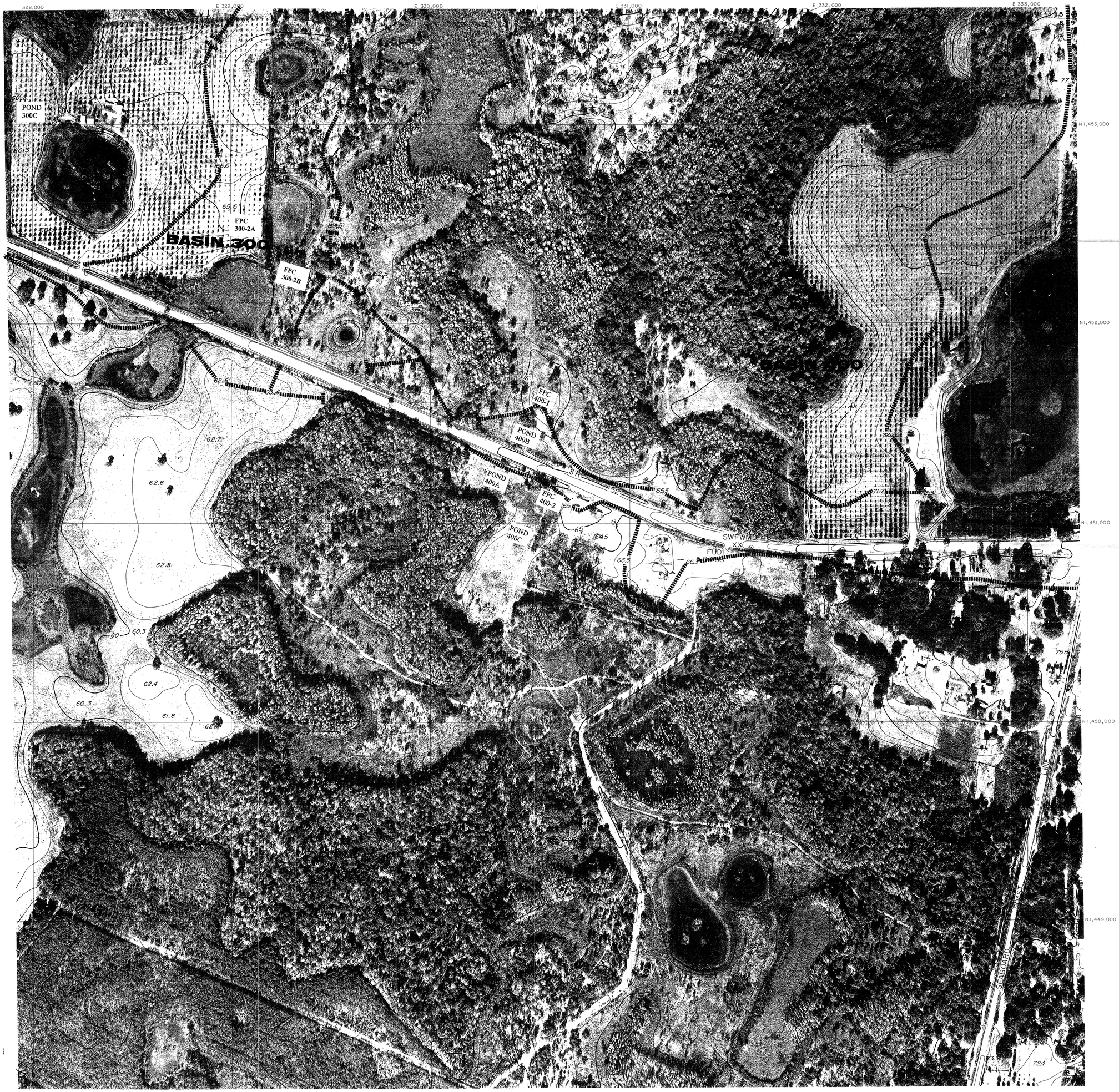
SWFWMD PROPERTY NO. 140.17

SHEET NO. 12·25·17

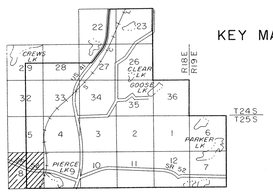
COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS
AERIAL SURVEY CORPORATION OF FLORIDA
ST. PETERSBURG, FLORIDA

LEGEND

HORIZONTAL CONTROL U.S.C.&G.S.	△
FLORIDA STATE DEPT OF TRANSPORTATION	○
TRAVERSE STATIONS	FFQ 6 ⊙
VERTICAL CONTROLS	FFQ-7 97.61 x
SECTION CORNERS	10 | 11 / 15 | 14
CONTOURS	45 / 40
DEPRESSION CONTOURS	50
SPOT ELEVATIONS	50.4



KEY MAP



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200 0 200 400 600
SCALE 1" = 200' CONTOUR INTERVAL 1'

DATE OF PHOTOGRAPHY DECEMBER 1977
DATE OF MAPPING APRIL 1978

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

PITHLACHASCOTEE RIVER BASIN
GOWERS CORNERS

AERIAL PHOTOGRAPHY WITH CONTOURS

SWFWMD PROPERTY NO. 105.17

SHEET NO. 08-25-18