Orange County
Orlando, Florida

Interoffice Memo

April 11, 1991

TO: George W. Cole, P.E., Director, Public Works Division

FROM: M. Krishnamurthy, Ph.D., P. E., Manager, Stormwater Management Department MK

SUBJ: Normal High Water for Lake Serene

As requested by the Highway Construction Department, the Normal High Water Elevation for Lake Serene had to be established for the completion of the improvements to Apopka-Vineland Road. Lake Serene is a landlocked lake located just west of Big Sand Lake, in Section 34, Township 23, Range 28, on Orange County's District 1. Personnel from Orange County Planning, Environmental Protection, and Stormwater Management Departments, as well as personnel from the U.S. Soil Conservation Service met at this site in an attempt to determine botanical, geomorphological and physical indicators that would define the Normal High Water Mark for this lake. No records of lake elevation were found for this study.

Six (6) flags were placed around this lake in what was assumed to be the most likely locations to determine this Normal High Water Elevation. The 6 flags were surveyed and these elevations averaged to obtain a Normal High Water Elevation of 94.25 fmsl. Therefore, it is our recommendation that **the Normal High Water Elevation for Lake Serene be established at 94.3 fmsl.**

ACTION REQUESTED: **ESTABLISHMENT OF NORMAL HIGH WATER ELEVATION FOR LAKE SERENE AT 94.3 - DISTRICT 1**

MK/EA/ll

CN CALCULATION

BASIN AREA : 199 ACRES

DESC	SOIL	AREA	A/TA	CN	WEIGHTED CN
LAKE	–	33	.17	100	17
1/4 AC. RES.	A	30.9	.16	61	9.76
1/8 AC. RES.	A	34.2	.17	77	13.09
WOODS (FAIR)	A	84.9	.43	43	18.49
BRUSH (FAIR)	D	16.0	.08	35	2.80

$\Sigma CN = 61.14$

USE $CN = 61$ ←

TIME OF CONCENTRATION CALCULATIONS

– KINEMATIC WAVE METHOD

$L = 300'$
$n = 0.4$
$S = .01$

$$t = \frac{.93 L^{.6} n^{.6}}{i^{.4} S^{.3}}$$

ASSUMED t_c	i (in/hr)	CALC. t_c
29	6.6	31.17
31	6.4	31.45
32	6.3	31.6
33	6.2	31.8

t_c OF = 32 min

– TRSS METHOD

$S = .01$
$L = 1350'$

$V = 16.1345 (V)^{1/2} \Rightarrow V = 1.61$ ft/sec

$$\frac{1350 \text{ ft}}{1.61 \text{ ft/sec}} \times \frac{1}{60} \text{ min/hr} = 14 \text{ min}$$

$t_c = 46$ min ←

Normal High Water = 94.25 (Approved by County Engineer)

Stage	Area	Storage (ac-ft)
94.25	44.7	0
103	62	466.8

Based on attached hydrograph, runoff volume = 5.53 inches

Therefore,

$$V = \frac{5.53 \text{ in}}{12 \text{ in/ft}} \times 199 \text{ ac} = 91.7 \text{ ac-ft}$$

Interpolating on Stage-Storage table:

$$\boxed{y_{peak} = 96.4 \text{ fmsl}} \longleftarrow$$

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.31)
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LAKE SERENE HYDROGRAPH 100 year STORM
04/02/91

BASIN NAME	100
NODE NAME	10
TIME INCREMENT (min)	5.00
RAINFALL FILE	ORANGE24
RAIN AMOUNT (in)	10.60
STORM DURATION (hrs)	24.00
AREA (ac)	199.00
CURVE NUMBER	61.00
DCIA (%)	.00
TC (mins)	46.00
LAG TIME (hrs)	.00
BASIN STATUS	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
100	230.58	9.00	5.53	100 YR. STORM

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.31)
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LAKE SERENE HYDROGRAPH
04/02/91

BASIN	MAX FLOW (cfs)	MAX TIME (hrs)	VOLUME (ins)
100	230.58	9.00	5.53

100 YR

NORMAL HIGH WATER DETERMINATION
LAKE SERENE

The Highway Construction Department requested that our department establish the Normal High Water (NHW) and 100 Year Elevation for Lake Serene for the final design of the improvements to Apopka-Vineland Road. Lake Serene is a landlocked lake located southeast of Apopka-Vineland Road and northwest of Big Sand Lake in Section 34, Township 23, Range 28. Staff personnel from Orange County Planning, Environmental Protection and Stormwater Management Departments, and U.S. Soil Conservation Service met at this site to flag botanical, geomorphological, and physical indicators that could define the normal high water mark for this lake. No record of elevations for this lake could be found. A total of six flags were placed around this lake, and a survey of these flags was performed to determine this NHW elevation. An average of these six flags was computed and determined at elevation 94.25. Therefore, it is the recommendation of this report that **the Normal High Water for Lake Serene be established at elevation 94.25 feet above mean sea level.**

NORMAL HIGH WATER ELEVATION

Normal High Water for Lake Serene

Has been Established at Elev. 94.25

Prepared by: SA Date: 3/28/91

Reviewed by: RAL Date: 3/28/91

Approved by: William L. Boyles
County Engineer

Date 3-29-91

Orange County
Orlando, Florida

Interoffice Memo

RECEIVED
MAR 18 1991
Stormwater Management

March 15, 1991

TO: Eduardo Avellaneda, Staff Engineer, Water Management Department

FROM: Christopher K. Crowe, Staff Engineer, Highway Construction Department CKC

SUBJ: Request for Normal High Water Elevation and 100 Year Flood Elevation for Lake Shereen - Sec 34/Twp 23/Rng 28

Lake ~~Shereen~~ SERENE is adjacent to our Apopka-Vineland Road project. As part of our design and review of this project the normal high water elevation and 100 year flood elevation is needed.

Please review your files to see if we have a normal high and 100 year flood elevation established for Lake Shereen. If so, please transmit this information to me. If not, please take this as a request to have them established.

CKC/prb

RECYCLED PAPER

100 YEAR ELEVATION
LAKE SERENE

The Highway Construction Department requested that our department determine the 100 year flood elevation for Lake Serene for the completion of the plans to improve Apopka-Vineland Road. Lake Serene is a landlocked lake located just west of Big Sand Lake in Section 34, Township 23, Range 28. The Normal High Water for Lake Serene was already established and approved by the County Engineer at elevation 94.25. The basin for this lake consists of 199 acres of mostly residential developments, with mainly Type A soils. The runoff volume for the 100 year - 24 hour storm was calculated and interpolated in the Stage-Storage table to determine this 100 year flood elevation at 96.4. Therefore, it is the recommendation of this study that **the 100 Year Flood Elevation for Lake Serene be established at 96.4.**

100 YR
~~NORMAL HIGH~~ WATER ELEVATION
100 YEAR
~~Normal High Water~~ for Lake SERENE
Has been Established at Elev. 96.4
Prepared by: SA **Date:** 4/4/91
Reviewed by: RJL **Date:** 4/4/91
Approved by: William P. Bost
County Engineer
Date: 4-11-91

91-14/1

LAKE SHEREEN OHWM

6000-2972

SECTION 34-23-28

PKV III, π

6KW 9

3/19/91 ;

X-SECT 91-14

NOTE 1/3 STADIA ZEISS Ni-2

BM's DESTROYED MRB-002 TP6909

MRB-003 TP6912

BM RUN FROM SAND LAKE ROAD @ APOPKA-VINELAND ROAD INTERSECTION RUN WESTERLY ALONG GRUNDON BLVD TO CALABRIA CT; THEN SOUTH TO THE NORTH SIDE OF LAKE SHEREEN (SP?) THEN BACK TO TP 6846

LAKE SHERRED OHWM PKH 3/25/91

126.05

0.72	126.77 ✓		
		6.39	120.38 ✓
3.42	123.80 ✓		
		8.59	115.21 ✓
0.97	116.18 ✓		
		12.75	103.43 ✓

ROW BACK

16.73	120.16 ✓		
		1.46	118.70 ✓
6.04	124.74 ✓		
		3.40	121.34 ✓
5.95	127.29 ✓		
		1.25	126.04 ✓ OCD 126.05

91-14/5

TP 6846 SEE PG 3

TP 1 PAINT MARK ON WALK

TP 2 SCREWDRIVER

TP 3 SET CMS III ON CUSTER OF CONC. HEADWALL 120' ± S E OF INT OF APOPKA-VINELAND ROAD AND MINUTE MAID ROAD. HEADWALL IS ON NW BANK OF SMALL RETN. POND

TP 4 PAINT MARK ON WALK

TP 5 PAINT ON WALK

TP 6846

LAKE SHEREEN OHWM PKV 3/25/91

103.43 TP 3 PG 5

2.02 105.45

13.72 91.73 WATER ELEV

H_2O + 5.61 97.34

4.78 92.56 FLAG # 4

15.52 107.25
H_2O

10.40 96.85 FLAG # 1

13.80 93.45 FLAG # 2

9.08 98.17 BASE OF POLE

6.30 100.95 FLAG OF PH 1 (TOP)

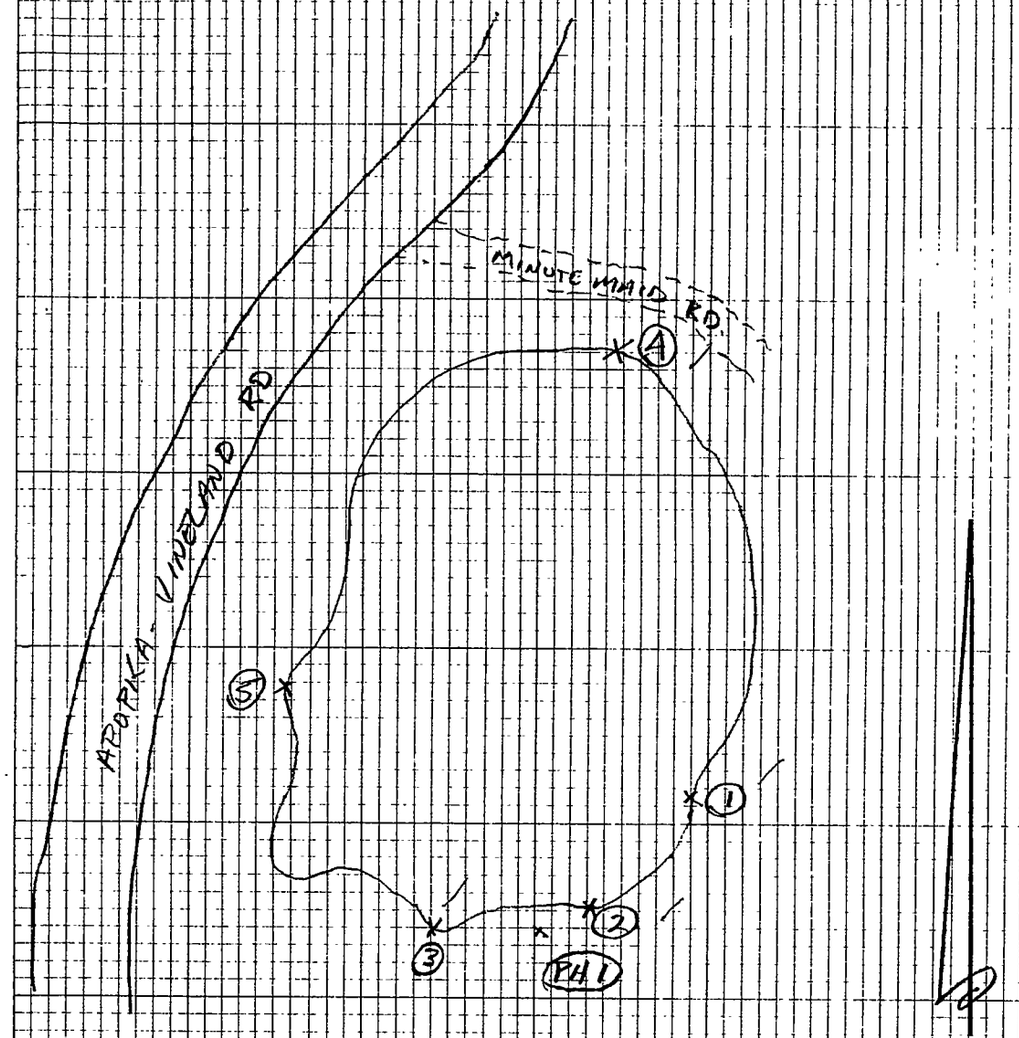
14.72 92.53 FLAG 3

13.40 105.13
H_2O

13.25 91.88 FLAG 5

AVG 94.25

91-14/6



LAKE

Sherman

PREPARED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION
FOR THE FLORIDA DEPARTMENT OF REVENUE

FOR ASSESSMENT PURPOSES ONLY

ORANGE COUNTY
FLORIDA

SCALE	1" = 300'	SECTION	TWP.	RANGE	SHEET NO.	MAP
PHOTO DATE	FEB. 1990	34	23 S	28 E	266	
PHOTO NO.	PD-3888					

SEC	TWP	RNG	1/4	SUPPL
34	23	28		

9000 8000

27-23-28

SAND LAKE RD.

2648.73 1037.87 1551.35 2178.0 1949.96 2689.96 233.11 906.31 200 1454.38 1220 376.2 LAKE SLOAT 10.8 Ac 750 623.55 SEE SUPP. B SEE SUPP. A A/K/A GRANADA VILLAS-PHASE ONE PB 13/81 1604.54 800 276.91 212.68 1594.1 1211.7 LITTLE SAND LAKE 974.06 17 3.7 Ac 735 725 336.07 396.13 458.46 20 56 AC OR 3819/4059 636.18 923.99 698.71 S 174 AC OR 3027/326 LAKE 168 Ac 128 Ac 334.46 907.07 351.32 649.75 72 Ac 1880 35-23-28 33-23-28 S.C.L. R/W OR 3027/322 APOPKA-VINELAND RD. 12 5.06 Ac 654 700.6 SEE SUPP. C 1 122.2 Ac 15 1.64 Ac 14 5.6 Ac 13 3.79 Ac 442.82 KILGORE RD. VAC. 1736/473 2068 2 20.22 AC 1994.27 95.94 Ac 1985.43 3-24-28

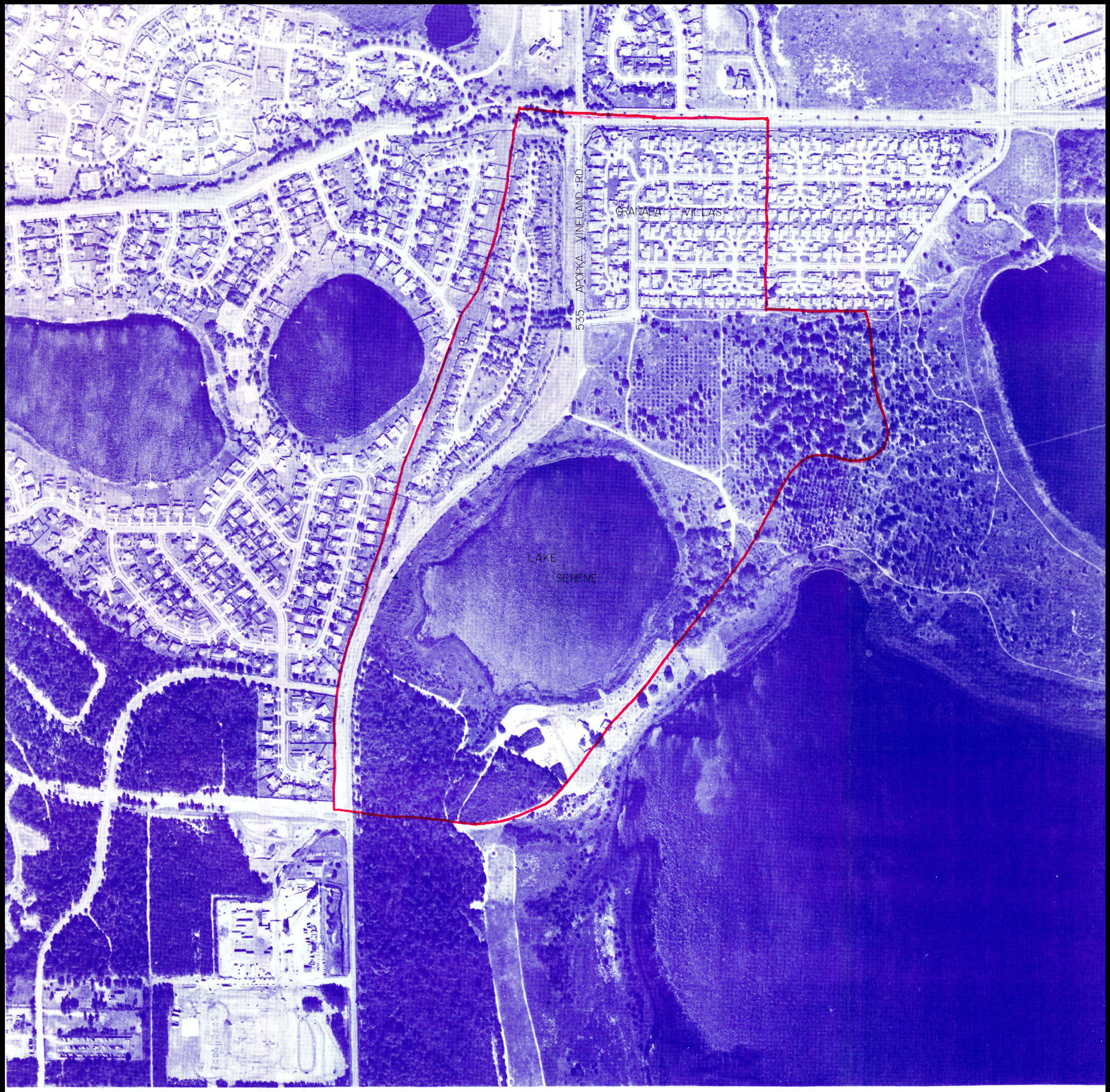
9000

DATE	SEC	TWP	RNG	1/4	SUPPL
9/17/86	34	23	28		

SCALE 1" = 300'

N

ASSESSMENT MAP
PREPARED BY
FORD S. HAUSMAN
TAX ASSESSOR
ORANGE COUNTY, FLORIDA



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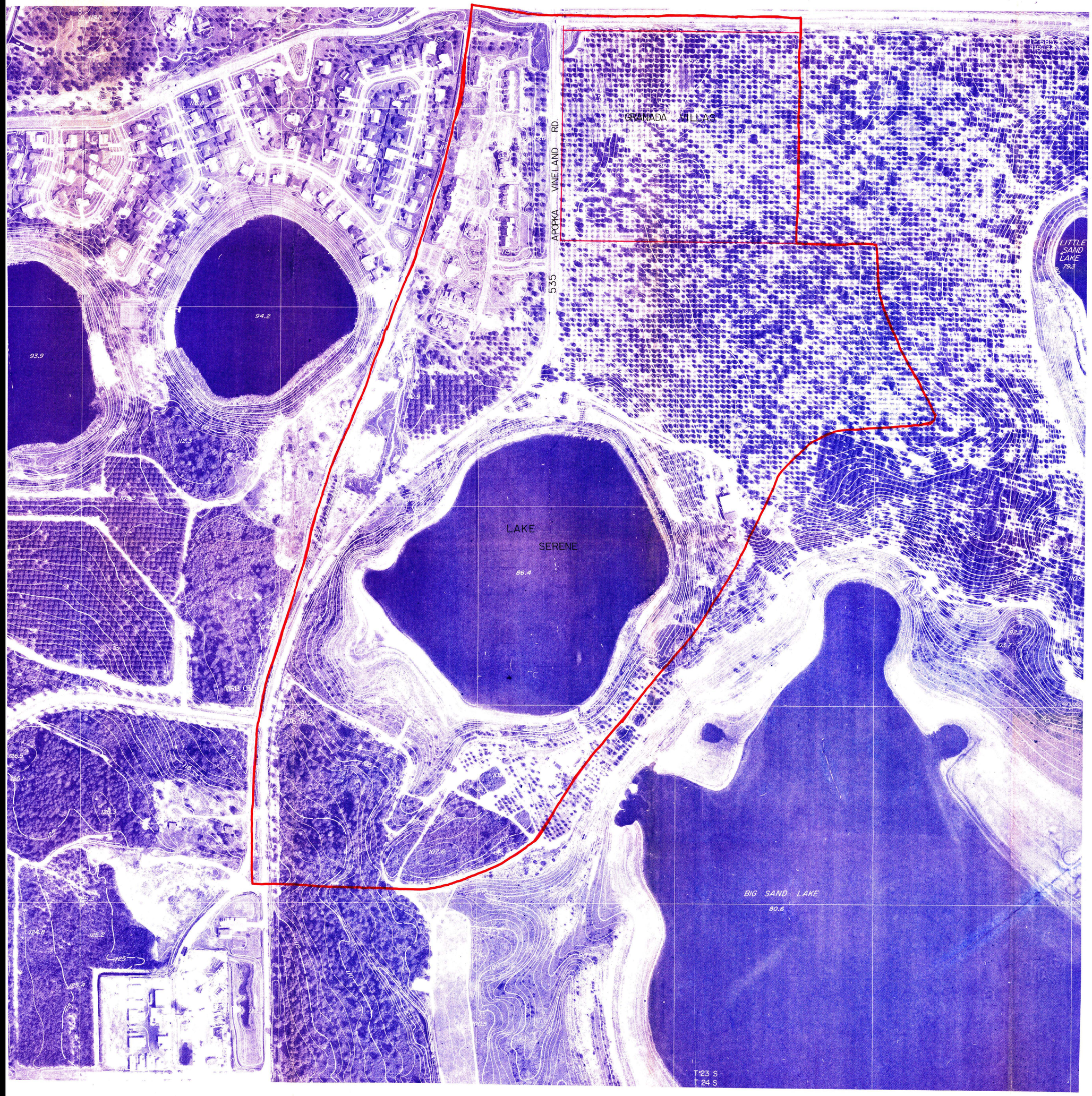
FOR THE FLORIDA DEPARTMENT OF REVENUE

FOR ASSESSMENT PURPOSES ONLY

ORANGE COUNTY
FLORIDA

SCALE	1" = 500'	SECTION	TWP.	RANGE	SHEET NO.	MAP
PHOTO DATE	FEB. 1990	34	23 S	28 E	266	
PHOTO NO.	PD 3888					



PREPARED BY: **ABRAMS AERIAL SURVEY CORPORATION**
ST. PETERSBURG, FLORIDA — LANSING, MICHIGAN

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 / 90
DEPRESSION CONTOURS	50
SPOT ELEVATIONS	50.4

GRIDS BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE.

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

HORIZONTAL & VERTICAL ACCURACIES COMPLY WITH U.S. NATIONAL MAP ACCURACY STANDARDS

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

KEY MAP

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

DATE OF PHOTOGRAPHY MARCH 1982
DATE OF MAPPING JULY 1982

ORANGE COUNTY FLORIDA
WATER MANAGEMENT DEPARTMENT

BIG SAND LAKE DRAINAGE BASIN

AERIAL PHOTOGRAPHY WITH CONTOURS

SEC. 34	TWP. 23 S	RGE. 28 E.

DRAWING NUMBER | SHEET

Orange County
Orlando, Florida

Interoffice Memo

April 15, 1991

TO: Christopher K. Crowe, Staff Engineer, Highway Construction Department

FROM: Eduardo Avellaneda, P.E., Staff Engineer, Stormwater Management Department

SUBJ: Normal High and 100 year elevation for Lake ~~Shereen~~ SERENE

In response to your memo dated March 15, 1991, the following are the Normal High Water and 100 Year Flood Elevation for Lake Serene:

Normal High Water Elevation	94.25
100 Year Flood Elevation	96.4

Both elevations have been approved by the County Engineer. However, the Normal High Water has been sent to the Board of County Commissioners for final approval.

If we can be of any further assistance, please contact me.

EA/ll

cc: M. Krishnamurthy, P.E., Manager, Stormwater Management Department
Rodney J. Lynn, P.E., Senior Engineer, Stormwater Management Department
William E. Wythe, P.E., Manager, Highway Construction

NORMAL HIGH WATER ELEVATION
FOR LAKE SHEREEN
(S34/T23/R28)

Inspection date: March 22, 1991

Attendees : Eduardo Avellaneda; Stormwater Management
Mindy Teegarden; Planning Department
Rick Baird; Environmental Protection Department
David Kriz; Soil Conservation Service

Findings :
1. Salix spp., Typha spp.
2. L. peruviana, Pontederia cordata, Typha spp., Panicum repens
3. Myrica cerifera, Hypericum fasciculatum, Lachnanthes caroliniana
4. M. cerifera, L. peruviana, L. caroliniana, Osmunda cinnamomea, P. repens
5. L. peruviana, P. cordata, H. fasciculatum, Eriocaulon spp.