

# CALIBRATION AND VERIFICATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

Boldly "X" this box if there are qualified data on this page.

Meter ID: YSI 5700 RQ- 2019-07-22-05 Project: LVI estella

- Notes: (1) Always wait for meter to stabilize before recording any readings.  
 (2) Report all digits displayed. Do not round before reporting measurements. (See special instructions for depth).  
 (3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

## Temperature (Quarterly) FT 1400

Date of Last Temperature Verification 7/19

| DO DEP SOP FT 1500 | Name           | Date   | Time CT-ET | Temp °C | Baro-meter mmHg | D.O. Chart mg/L | Meter D.O. mg/L | % DO  | Probe Charge | Probe Gain | Pass / Fail                           | Lab / Field                           |
|--------------------|----------------|--------|------------|---------|-----------------|-----------------|-----------------|-------|--------------|------------|---------------------------------------|---------------------------------------|
| Calibr.            | J. P. Smith    | 8/8/19 | 715        | 23.2    | 755             | 8.5             | 8.5             | 99.4  | -            | -          | <input checked="" type="checkbox"/> F | L / F                                 |
| ICV                | J              | 7      | 716        | 23.2    | 755             | 8.5             | 8.5             | 99.5  | -            | -          | <input checked="" type="checkbox"/> F | L / F                                 |
| CCV                | A. K. Imbacher | 8-8-19 | 1410       | 25.5    | 75.5            | 8.1             | 8.19            | 100.0 | -            | -          | <input checked="" type="checkbox"/> F | <input checked="" type="checkbox"/> F |
| CCV                |                |        |            |         |                 |                 |                 |       |              |            | P / F                                 | L / F                                 |

DO Acceptance criteria from Table  $\pm 0.3$  mg/L.

Rapid-Pulse Sensors: DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.

Optical: DO gain range 0.85 to 1.15 (Pro DSS 0.75 to 1.50); DO charge N/A. Steady-state & Galvanic Sensors: DO Gain & Charge N/A.

| Spec. Cond. FT 1200 | Name           | Date   | Time CT-ET | Lot #   | Expir. Date | Standard $\mu$ mhos/cm | Meter Reading $\mu$ mhos/cm | Pass / Fail                           | Lab / Field                           |
|---------------------|----------------|--------|------------|---------|-------------|------------------------|-----------------------------|---------------------------------------|---------------------------------------|
| Calibr.             | J. P. Smith    | 8/8/19 | 717        | 190430A | 3/20        | 1000                   | 1000                        | <input checked="" type="checkbox"/> F | L / F                                 |
| ICV                 | J              | 7      | 719        | 190319B | 3/20        | 100                    | 103.2                       | <input checked="" type="checkbox"/> F | L / F                                 |
| CCV                 | A. K. Imbacher | 8-8-19 | 1415       | 190430A | 5/2020      | 1000                   | 1002                        | <input checked="" type="checkbox"/> F | <input checked="" type="checkbox"/> F |
| CCV                 |                |        |            |         |             |                        |                             | P / F                                 | L / F                                 |

Conductivity Acceptance criteria  $\pm 5\%$

| pH DEP SOP FT 1100 | Name           | Date   | Time CT-ET | Lot #   | Expir. Date | pH Buffer SU | Temp °C | Meter reading SU | mV    | Pass / Fail                           | Lab / Field                           |
|--------------------|----------------|--------|------------|---------|-------------|--------------|---------|------------------|-------|---------------------------------------|---------------------------------------|
| Calibr.            | J. P. Smith    | 8/8/19 | 720        | 2904C54 | 3/21        | 7.           | 24.3    | 7.1              | 74.4  | <input checked="" type="checkbox"/> F | L / F                                 |
| Calibr.            | J              |        |            | 2904B00 | 3/21        | 4.           | 24.5    | 4.00             | 105.9 | <input checked="" type="checkbox"/> F | L / F                                 |
| Calibr.            | J              |        |            | 2901B51 | 7/20        | 10.          | 24.5    | 10.01            | 244.4 | <input checked="" type="checkbox"/> F | L / F                                 |
| ICV                | J              |        |            | 2904B00 | 3/21        | 4.           | 24.2    | 4.07             | 100.9 | <input checked="" type="checkbox"/> F | L / F                                 |
| CCV                | A. K. Imbacher | 8-8-19 | 1420       | 2904C54 | 3/2021      | 7.0          | 24.1    | 7.16             | -79.7 | <input checked="" type="checkbox"/> F | <input checked="" type="checkbox"/> F |
| CCV                |                |        |            |         |             |              |         |                  |       | P / F                                 | L / F                                 |

pH Acceptance criteria  $\pm 0.2$  SU; mV pH 7 Range  $0 \pm 50$ ; mV pH 4 Range  $+180 \pm 50$ ; mV pH 10 Range  $-180 \pm 50$ ;  
 If mV are recorded: slope from 7 to 10 \_\_\_\_\_, slope from 4 to 7 \_\_\_\_\_ (both must be between 165 and 180 mV)

Does meter have a depth sensor that will be used to measure total depth & sample depth? YES / NO / NA (not surf. water project)

If YES, complete daily Calibr. & ICV below and list date of last quarterly depth verification: \_\_\_\_\_

If NO, what will be used? (circle one) Secchi Disk Line / Sonar Unique ID: \_\_\_\_\_; Date of last verification: \_\_\_\_\_

| Depth Sensor (Daily Calibration & ICV) | Name | Date | Time CT-ET | Calibrated Value (0.00 or Offset), meters | ICV Value, meters | Pass / Fail | Lab / Field |
|----------------------------------------|------|------|------------|-------------------------------------------|-------------------|-------------|-------------|
| Pressure mode in air                   |      |      |            |                                           |                   | P / F       | L / F       |

Report two decimal places. Round numbers  $\leq 4$  down,  $\geq 5$  up. ICV acceptance criteria  $\pm 5\%$  or  $\pm 0.05$ m, whichever is greater.

COMMENTS:

Scan/Save Field Sheets \_\_\_\_\_ Migrate Data to WIN: \_\_\_\_\_ Verify Data in WIN: \_\_\_\_\_  
(Initials/Date) (Initials/Date) (Initials/Date)

## DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

| Waterbody: <u>Lake Estella</u>                                                                                                                                                                                                                                                                                          |   | County: <u>Putnam</u>         |   | Date: <u>8-8-2019</u>                                                                     |                |                                                            |   |   |   |    |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------|---|-------------------------------------------------------------------------------------------|----------------|------------------------------------------------------------|---|---|---|----|----------------|
| Analyst: <u>J. Parrish / A. Kalmbacher</u>                                                                                                                                                                                                                                                                              |   | Signature: <u>[Signature]</u> |   | STORET: <u>G2NE1203</u>                                                                   |                |                                                            |   |   |   |    |                |
| Except where noted as "sp." species level identification required. *Genera that may require lab verification*<br>Plants in bold = FLEPPC invasive exotic.<br>It is important to note dominant or co-dominant taxa (by areal extent) for each unit. Use "D" to denote dominant taxon, or "C" for the 2 co-dominant taxa. |   |                               |   | Lake units sampled (circle one group):<br>1, 4, 7, 10 <u>(2, 5, 8, 11)</u><br>3, 6, 9, 12 |                |                                                            |   |   |   |    |                |
| SPECIES                                                                                                                                                                                                                                                                                                                 | 2 | 5                             | 8 | 11                                                                                        | Collected? (✓) | SPECIES                                                    | 2 | 5 | 8 | 11 | Collected? (✓) |
| <i>Acer rubrum</i>                                                                                                                                                                                                                                                                                                      | P | P                             |   | P                                                                                         |                | <i>Habenaria repens</i>                                    |   |   |   |    |                |
| <i>Alternanthera philoxeroides</i>                                                                                                                                                                                                                                                                                      | P | P                             |   |                                                                                           |                | <i>Hydrilla verticillata</i>                               |   |   |   |    |                |
| <i>Andropogon</i> sp.                                                                                                                                                                                                                                                                                                   |   |                               |   |                                                                                           |                | <i>Hydrocotyle</i> sp.                                     | P | P | P | P  |                |
| <i>Azolla filiculoides</i> (A. caroliniana)                                                                                                                                                                                                                                                                             |   |                               |   |                                                                                           |                | <i>Hygrophila polysperma</i>                               |   |   |   |    |                |
| <i>Baccharis</i> sp.                                                                                                                                                                                                                                                                                                    |   |                               |   |                                                                                           |                | * <i>Hypericum fasciculatum</i>                            |   | P |   |    |                |
| <i>Bacopa caroliniana</i>                                                                                                                                                                                                                                                                                               |   |                               |   |                                                                                           |                | * <i>Hypericum hypericoides</i>                            |   |   |   |    |                |
| <i>Bacopa monnieri</i>                                                                                                                                                                                                                                                                                                  |   |                               |   |                                                                                           |                | * <i>Hypericum myrtifolium</i>                             |   |   |   |    |                |
| <i>Bidens laevis</i>                                                                                                                                                                                                                                                                                                    |   |                               |   |                                                                                           |                | <i>Ilex cassine</i>                                        |   |   |   |    |                |
| <i>Bidens mitis</i>                                                                                                                                                                                                                                                                                                     |   |                               |   |                                                                                           |                | <i>Ipomoea aquatica</i>                                    |   |   |   |    |                |
| <i>Blechnum serrulatum</i>                                                                                                                                                                                                                                                                                              |   |                               |   |                                                                                           |                | <i>Ipomoea sagittata</i>                                   |   |   |   |    |                |
| <i>Boehmeria cylindrica</i>                                                                                                                                                                                                                                                                                             |   |                               |   |                                                                                           |                | <i>Itea virginica</i>                                      |   |   |   |    |                |
| <i>Brasenia schreberi</i>                                                                                                                                                                                                                                                                                               |   |                               | P | P                                                                                         | C              | <i>Juncus effusus</i>                                      |   |   |   |    |                |
| <i>Cabomba caroliniana</i>                                                                                                                                                                                                                                                                                              |   |                               |   |                                                                                           |                | * <i>Juncus marginatus</i>                                 |   |   |   |    |                |
| <i>Casuarina equisetifolia</i>                                                                                                                                                                                                                                                                                          |   |                               |   |                                                                                           |                | * <i>Juncus megacephalus</i>                               |   |   |   |    |                |
| <i>Centella asiatica</i>                                                                                                                                                                                                                                                                                                |   |                               |   |                                                                                           |                | <i>Juncus repens</i>                                       |   |   |   |    |                |
| <i>Cephalanthus occidentalis</i>                                                                                                                                                                                                                                                                                        |   |                               | P | P                                                                                         | P              | * <i>Juncus scirpoides</i>                                 |   |   |   |    |                |
| <i>Ceratophyllum demersum</i>                                                                                                                                                                                                                                                                                           |   |                               |   |                                                                                           |                | <i>Lachnanthes caroliniana</i>                             |   |   | P |    |                |
| <i>Chara</i> sp.                                                                                                                                                                                                                                                                                                        |   |                               |   |                                                                                           |                | <i>Leersia hexandra</i>                                    |   | P | P | P  |                |
| <i>Cladium jamaicense</i>                                                                                                                                                                                                                                                                                               |   |                               |   |                                                                                           |                | <i>Landoltia punctata</i> ( <i>Spirodela punctata</i> )    |   |   |   |    |                |
| <i>Cliftonia monophylla</i>                                                                                                                                                                                                                                                                                             |   |                               |   |                                                                                           |                | <i>Lemna</i> sp.                                           |   |   |   |    |                |
| <i>Colocasia esculenta</i>                                                                                                                                                                                                                                                                                              |   |                               |   |                                                                                           |                | <i>Leucothoe racemosa</i> ( <i>Eubotrys racemosa</i> )     |   |   |   |    |                |
| * <i>Commelina</i>                                                                                                                                                                                                                                                                                                      |   |                               |   |                                                                                           |                | <i>Limnium spongia</i>                                     |   |   |   |    |                |
| <i>Crinum americanum</i>                                                                                                                                                                                                                                                                                                |   |                               |   |                                                                                           |                | <i>Limnophila sessiliflora</i>                             |   |   |   |    |                |
| * <i>Cyperus alternifolius</i> (C. involucreatus)                                                                                                                                                                                                                                                                       |   |                               |   |                                                                                           |                | <i>Liquidambar styraciflua</i>                             | P |   |   |    |                |
| <i>Cyperus articulatus</i>                                                                                                                                                                                                                                                                                              |   |                               |   |                                                                                           |                | * <i>Ludwigia arcuata</i>                                  |   |   |   |    |                |
| <i>Cyperus haspan</i>                                                                                                                                                                                                                                                                                                   |   |                               |   |                                                                                           |                | * <i>Ludwigia leptocarpa</i>                               |   |   |   |    |                |
| * <i>Cyperus lecontei</i>                                                                                                                                                                                                                                                                                               |   |                               |   |                                                                                           |                | * <i>Ludwigia linearis</i>                                 |   |   |   |    |                |
| * <i>Cyperus polystachyos</i>                                                                                                                                                                                                                                                                                           |   |                               |   |                                                                                           |                | * <i>Ludwigia octovalvis</i>                               | P |   |   |    |                |
| * <i>Cyperus odoratus</i>                                                                                                                                                                                                                                                                                               | P |                               | P |                                                                                           |                | * <i>Ludwigia peruviana</i>                                | P | P |   | P  |                |
| * <i>Cyperus surinamensis</i>                                                                                                                                                                                                                                                                                           |   |                               |   |                                                                                           |                | * <i>Ludwigia repens</i>                                   |   |   |   |    |                |
| <i>Cyrilla racemiflora</i>                                                                                                                                                                                                                                                                                              |   |                               |   |                                                                                           |                | * <i>Ludwigia suffruticosa</i>                             | P | P | P | P  |                |
| <i>Decodon verticillatus</i>                                                                                                                                                                                                                                                                                            |   |                               |   |                                                                                           |                | <i>Luziola fluitans</i> ( <i>Hydrochloa carolinensis</i> ) | P |   |   |    |                |
| <i>Diodia virginiana</i>                                                                                                                                                                                                                                                                                                |   |                               |   |                                                                                           |                | <i>Lyonia lucida</i>                                       |   |   |   |    |                |
| * <i>Echinochloa crus-galli</i>                                                                                                                                                                                                                                                                                         |   |                               |   |                                                                                           |                | <i>Magnolia virginiana</i>                                 |   |   |   | P  |                |
| * <i>Echinochloa muricatum</i>                                                                                                                                                                                                                                                                                          |   |                               |   |                                                                                           |                | <i>Mayaca fluviatilis</i>                                  |   |   |   |    |                |
| <i>Echinochloa walteri</i>                                                                                                                                                                                                                                                                                              |   |                               |   |                                                                                           |                | <i>Melaleuca quinquenervia</i>                             |   |   |   |    |                |
| <i>Eclipta prostrata</i> (E. alba)                                                                                                                                                                                                                                                                                      |   |                               |   |                                                                                           |                | <i>Micranthemum glomeratum</i>                             |   |   |   |    |                |
| <i>Egeria densa</i>                                                                                                                                                                                                                                                                                                     |   |                               |   |                                                                                           |                | <i>Micranthemum umbrosum</i>                               |   |   |   |    |                |
| <i>Eichhornia crassipes</i>                                                                                                                                                                                                                                                                                             |   |                               |   | P                                                                                         |                | <i>Mikania scandens</i>                                    | P | P |   |    |                |
| * <i>Eleocharis baldwinii</i>                                                                                                                                                                                                                                                                                           |   |                               |   |                                                                                           |                | <i>Mimosa pigra</i>                                        |   |   |   | P  |                |
| * <i>Eleocharis elongatus</i>                                                                                                                                                                                                                                                                                           |   |                               | P | P                                                                                         | P              | <i>Myrica cerifera</i>                                     |   |   |   |    |                |
| <i>Eleocharis cellulosa</i>                                                                                                                                                                                                                                                                                             |   |                               |   |                                                                                           |                | <i>Oldenlandia uniflora</i>                                | P |   |   |    |                |
| <i>Eleocharis equisetoides</i>                                                                                                                                                                                                                                                                                          |   |                               |   |                                                                                           |                |                                                            |   |   |   |    |                |
| <i>Eleocharis interstincta</i>                                                                                                                                                                                                                                                                                          |   |                               |   |                                                                                           |                |                                                            |   |   |   |    |                |
| * <i>Eriocaulon compressum</i>                                                                                                                                                                                                                                                                                          |   |                               |   |                                                                                           |                |                                                            |   |   |   |    |                |
| * <i>Eriocaulon decangulare</i>                                                                                                                                                                                                                                                                                         |   |                               |   |                                                                                           |                |                                                            |   |   |   |    |                |
| <i>Eupatorium capillifolium</i>                                                                                                                                                                                                                                                                                         | P |                               |   | P                                                                                         |                |                                                            |   |   |   |    |                |
| * <i>Fuirena</i>                                                                                                                                                                                                                                                                                                        |   |                               |   |                                                                                           |                |                                                            |   |   |   |    |                |
| <i>Fuirena scirpoidea</i>                                                                                                                                                                                                                                                                                               | P | P                             | P | P                                                                                         |                |                                                            |   |   |   |    |                |
| <i>Gordonia lasianthus</i>                                                                                                                                                                                                                                                                                              |   |                               | P | P                                                                                         |                |                                                            |   |   |   |    |                |

[illegible]

# DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: \_\_\_\_\_ MACROPHYTE ID: \_\_\_\_\_ LATITUDE: \_\_\_\_\_  
COUNTY: Potnam STORET #: G2NE1203 LONGITUDE: \_\_\_\_\_  
DATE: 8-8-2019 TIME: 1040 SAMPLING AGENCY: \_\_\_\_\_  
SITE NAME: Lake Estrella WBID: 2892C  
FIELD ID/NAME: \_\_\_\_\_ LAKE SIZE: \_\_\_\_\_ RQ: 2019-07-22-09

## WATERSHED / LAKESIDE FEATURES

|                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                             |  |  |  |  |                                                                                                                      |  |  |                                                                                                      |  |                                                                                                                                 |  |  |                         |  |                                                                                                                                |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------|--|--|--|--|----------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------|--|--|-------------------------|--|--------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| <b>PREDOMINANT LAND-USE IN WATERSHED</b> (specify relative percent in each category – from GIS) :<br>Forest/Natural <input type="checkbox"/> Silviculture <input type="checkbox"/> Field/Pasture <input type="checkbox"/> Agricultural <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other (Specify) <input type="checkbox"/> |  |                                                                                                                             |  |  |  |  |                                                                                                                      |  |  | <b>LANDSCAPE DEVELOPMENT INTENSITY</b> (100 m buffer)<br>LDI: <input type="text"/>                   |  |                                                                                                                                 |  |  |                         |  |                                                                                                                                |  |  |  |  |
| Local Watershed Erosion (select one) : <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Heavy                                                                                                                                                                                                                                                 |  |                                                                                                                             |  |  |  |  |                                                                                                                      |  |  | <b>Artificially Impounded</b><br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |  |                                                                                                                                 |  |  | Land Use Source & Year: |  |                                                                                                                                |  |  |  |  |
| Local Watershed NPS Pollution : <input type="checkbox"/> No evidence <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Heavy                                                                                                                                                                                                                                                 |  |                                                                                                                             |  |  |  |  |                                                                                                                      |  |  |                                                                                                      |  |                                                                                                                                 |  |  |                         |  |                                                                                                                                |  |  |  |  |
| <b>STORMWATER INPUTS</b><br><u>10</u>                                                                                                                                                                                                                                                                                                                                                                                 |  | Stormwater enters system via sheet flow over non-cultivated and/or natural vegetation<br>20 19 18 17 16                     |  |  |  |  | Some direct stormwater inputs (ditches, pipes, cultivated vegetation < 10%) but good BMPs in place<br>15 14 13 12 11 |  |  |                                                                                                      |  | Moderate direct inputs of stormwater (ditches, pipes, cultivated vegetation 11%-50%) but few BMPs in place<br><u>10</u> 9 8 7 6 |  |  |                         |  | Much direct input of stormwater (ditches, pipes, cultivated vegetation > 51%) and no or ineffective BMPs in place<br>5 4 3 2 1 |  |  |  |  |
| <b>LAKESIDE ALTERATIONS</b><br><u>10</u>                                                                                                                                                                                                                                                                                                                                                                              |  | Very few man-made structures, roads, or other disturbance adjacent to lake (<10% lakeside affected)<br>20 19 18 17 16       |  |  |  |  | Moderate disturbance visible - structures, roads or other (10%-49% lakeside affected)<br>15 14 13 12 11              |  |  |                                                                                                      |  | Many structures, roads or other human disturbance visible (50%-70% lakeside affected)<br>10 9 8 7 6                             |  |  |                         |  | Highly developed or disturbed (>70% of lakeside affected)<br>5 4 3 2 1                                                         |  |  |  |  |
| <b>BUFFER ZONE</b><br><u>13</u>                                                                                                                                                                                                                                                                                                                                                                                       |  | Expected native vegetation between uplands and littoral zone, greater than 90% of shore with >18 m buffer<br>20 19 18 17 16 |  |  |  |  | 89%-51% of shoreline with >18m buffer or >75% with 10m to 18m buffer<br>15 14 13 12 11                               |  |  |                                                                                                      |  | 50%-30% of shoreline with >18m buffer or 50%-74% with 10m to 18m buffer<br>10 9 8 7 6                                           |  |  |                         |  | < 29% of shoreline with >18m buffer<br>5 4 3 2 1                                                                               |  |  |  |  |

## WATER / SUBSTRATE / BIOLOGICAL: SAMPLES AND OBSERVATIONS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |  |                              |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|------------------------------|--|--|--|--|
| <b>Water:</b><br>Nutrient Sample Taken? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Preserved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No pH<2 <input type="checkbox"/> No<br>Color Sample Taken? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Lot # _____ Exp. Date: _____<br>Alkalinity Sample Taken? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Water Level <input type="checkbox"/> Low <input type="checkbox"/> Normal <input type="checkbox"/> High |  |  |  |  |  |  |  |  |  | <b>Water Odors:</b> <input checked="" type="checkbox"/> Normal<br><input type="checkbox"/> Sewage <input type="checkbox"/> Petroleum <input type="checkbox"/> Other _____                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  |                              |  |  |  |  |
| <b>Meter Readings:</b><br>Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat. (%) Cond. (UMHO/CM) Salinity (PPT)<br>Top: <u>0.3</u> <u>29.7</u> <u>6.36</u> <u>6.3</u> <u>83</u> <u>90.5</u> <u>0.04</u><br>Mid-Depth: _____<br>Bottom: <u>5.1</u>                                                                                                                                                                                                                                                                                                             |  |  |  |  |  |  |  |  |  | <b>Water Surface Oils:</b> <input checked="" type="checkbox"/> None<br><input type="checkbox"/> Sheen/Slick <input type="checkbox"/> Glob <input type="checkbox"/> Other _____                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |  |                              |  |  |  |  |
| <b>Sediment Type:</b> (may check more than one)<br><input type="checkbox"/> Sandy <input type="checkbox"/> Organic fibrous (peaty, CPOM) <input type="checkbox"/> Vegetated<br><input checked="" type="checkbox"/> Sand/Silt <input type="checkbox"/> Organic smooth (muck) <input type="checkbox"/> Other (Specify): _____                                                                                                                                                                                                                                   |  |  |  |  |  |  |  |  |  | <b>Clarity:</b> <input checked="" type="checkbox"/> Clear<br><input type="checkbox"/> Opaque <input type="checkbox"/> Turbid <input type="checkbox"/> Slightly Turbid<br><b>Color:</b> <input checked="" type="checkbox"/> Clear<br><input type="checkbox"/> Tannic <input type="checkbox"/> Green                                                                                                                                                                                                                                                                                       |  |  |  |  |                              |  |  |  |  |
| <b>Biological Communities:</b><br>LVI Conducted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Phytoplankton Sample Taken? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Sample Preserved? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Lot #: _____ Exp Date: _____<br>Algal Bloom/Algal ID Sample Taken? Yes No<br>Active Vegetation Mgmt? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know                                                    |  |  |  |  |  |  |  |  |  | <b>Abundance:</b><br>Absent Rare Common Abundant<br>Periphyton <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/><br>Nuisance Plants <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/><br>Submersed Plants <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/><br>Exotic Apple Snails <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> |  |  |  |  |                              |  |  |  |  |
| <b>Sediment Odors:</b><br><input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other (Specify): _____<br><input type="checkbox"/> Anaerobic                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |  |  |  |  |  |  | <b>SECCHI (M)</b> <u>2.0</u> <b>Total Station Depth (M)</b> <u>5.1</u><br><b>VOB</b> <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |  |                              |  |  |  |  |
| <b>Weather Conditions:</b> <u>Hot, overcast, humid</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |  |                              |  |  |  |  |
| <b>SAMPLING TEAM:</b> <u>J. Parrish / A. Kalmbacher</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |  |  |  |  |  | <b>SIGNATURE:</b> <u>[Signature]</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  | <b>DATE:</b> <u>8-8-2019</u> |  |  |  |  |

**DEP Form FD 9000-6: Lake Habitat Assessment Field Sheet**

|                                                     |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                     |                                                                                                                                                 |                                                                                                                                                         |  |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| STORET STATION NUMBER:<br><b>G2N21203</b>           | DATE (M/D/Y)<br><b>8-8-2019</b>                                                                                                                                                                                                                                                                                                                        | LAKE NAME<br><b>Lake Estella</b>                                                                                                                                    |                                                                                                                                                 | FIELD ID / NAME:                                                                                                                                        |  |
| ECO-REGION:                                         | COUNTY:<br><b>Putnam</b>                                                                                                                                                                                                                                                                                                                               | SAMPLING LOCATION/DESCRIPTION:                                                                                                                                      |                                                                                                                                                 | LAKE SIZE:                                                                                                                                              |  |
| <b>PARAMETER</b>                                    | No surface inflow or outflow present, very long water residence time, groundwater seepage dominates<br><input checked="" type="checkbox"/>                                                                                                                                                                                                             | Surface water inflow present, but flow is rare, moderate to long water residence time<br><input type="checkbox"/>                                                   | Surface water inflow and outflow present (or outflow only), sometimes with visible flow, short water residence time<br><input type="checkbox"/> | Impounded, hydrology of system artificially controlled<br><input type="checkbox"/>                                                                      |  |
| <b>HYDROLOGY</b>                                    |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                     |                                                                                                                                                 |                                                                                                                                                         |  |
| <b>Color</b>                                        | Very clear, uncolored water (benthic sampling appropriate)<br><input type="checkbox"/>                                                                                                                                                                                                                                                                 | Water somewhat tannin stained (benthic sampling appropriate)<br><input checked="" type="checkbox"/>                                                                 | Dark, discolored water (water color 20 PCU or higher)<br><input type="checkbox"/>                                                               | Visibility extremely reduced due to high color<br><input type="checkbox"/>                                                                              |  |
|                                                     | <b>Optimal</b>                                                                                                                                                                                                                                                                                                                                         | <b>Suboptimal</b>                                                                                                                                                   | <b>Marginal</b>                                                                                                                                 | <b>Poor</b>                                                                                                                                             |  |
| <b>Secchi</b> <b>13</b>                             | Secchi >3 m<br>Or VOB<br>20 19 18 17 16                                                                                                                                                                                                                                                                                                                | 3 2.6 2.2 1.8 1.4<br>15 14 13 12 11                                                                                                                                 | 1.0 0.9 0.8 0.7 0.6<br>10 9 8 7 6                                                                                                               | 0.5 0.4 0.3 0.2 0.1<br>5 4 3 2 1                                                                                                                        |  |
| <b>Vegetation Quality</b> <b>15</b>                 | Diverse, expected native vegetation (emergent or submersed), less than 5% nuisance taxa<br>20 19 18 17 16                                                                                                                                                                                                                                              | Mostly expected native plants, but moderate growths (6%-20% of lake) of nuisance macrophytes, or more than 50% of lake covered with plants<br><b>15</b> 14 13 12 11 | Large masses (21%-40%) of nuisance macrophytes (e.g., Hydrilla, hyacinth, cattail, etc.) or algal mats<br>10 9 8 7 6                            | Lake choked (>40%) with nuisance macrophytes (duckweed, hyacinth, etc.) or algal mats, or few plants present at all (e.g., plants removed)<br>5 4 3 2 1 |  |
| <b>Stormwater Inputs</b> <b>10</b>                  | Stormwater enters system via sheet flow over non-cultivated and/or natural vegetation<br>20 19 18 17 16                                                                                                                                                                                                                                                | Some direct stormwater inputs (ditches, pipes, cultivated vegetation < 10%) but good BMPs in place<br>15 14 13 12 11                                                | Moderate direct inputs of stormwater (ditches, pipes, cultivated vegetation 11%-50%) but few BMPs in place<br><b>10</b> 9 8 7 6                 | Much direct input of stormwater (ditches, pipes, cultivated vegetation > 51%) and no or ineffective BMPs in place<br>5 4 3 2 1                          |  |
| <b>Bottom Substrate Quality</b> <b>17</b>           | Diverse mixture of sand, detritus, with small amounts of CPOM/mud/muck. SAV may be present<br>20 19 18 <b>17</b> 16                                                                                                                                                                                                                                    | Mixture of sand or clay and detritus with higher % CPOM/mud/muck content. SAV may be present<br>15 14 13 12 11                                                      | Moderate layer of CPOM/mud/muck, or hardpacked sand only, or moderate algal growth (mats or Chara) on bottom<br><b>10</b> 9 8 7 6               | Thick deposits of CPOM, or fine detritus and anaerobic muck/mud/silt, or algal growth or nuisance plants (Hydrilla) cover bottom<br>5 4 3 2 1           |  |
| <b>Lakeside Adverse Human Alterations</b> <b>10</b> | Very few man-made structures, roads, or other disturbance adjacent to lake (<10%)<br>20 19 18 17 16                                                                                                                                                                                                                                                    | Moderate disturbance visible (structures, roads or other), 10%-49% lakeside affected<br>15 14 13 12 11                                                              | Many structures, roads or other human disturbance visible (50%-70%) lakeside affected<br><b>10</b> 9 8 7 6                                      | Highly developed or disturbed (>70% of lakeside affected)<br>5 4 3 2 1                                                                                  |  |
| <b>Upland Buffer Zone</b> <b>13</b>                 | Expected native vegetation between uplands and littoral zone, greater than 90% of shore with >18 m buffer<br>20 19 18 17 16                                                                                                                                                                                                                            | 89%-51% of shoreline with >18m buffer or >75% with 10m to 18m buffer<br>15 14 <b>13</b> 12 11                                                                       | 50%-30% of shoreline with >18m buffer or 50%-74% with 10m to 18m buffer<br>10 9 8 7 6                                                           | < 29% of shoreline with >18m buffer<br>5 4 3 2 1                                                                                                        |  |
| <b>Adverse Watershed Land Use</b> <b>14</b>         | Score the potential effects from adverse human land uses, based on a continuum of amount and type, with least to most adverse as follows: Native vegetation, Silviculture, Pasture or Citrus, Low Density Residential, Row Crops, Commercial, High Density Residential, Urban, Industrial<br>20 19 18 17 16 15 <b>14</b> 13 12 11 10 9 8 7 6 5 4 3 2 1 |                                                                                                                                                                     |                                                                                                                                                 |                                                                                                                                                         |  |
| TOTAL SCORE<br><b>92</b>                            | COMMENTS:                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                     |                                                                                                                                                 |                                                                                                                                                         |  |
| ANALYSIS DATE:<br><b>8-8-2019</b>                   | ANALYST:<br><i>J. Parrish / J. K. Bach</i>                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                     | SIGNATURE:<br><i>J. K. Bach</i>                                                                                                                 |                                                                                                                                                         |  |



# Florida Department of Environmental Protection

## Central Laboratory Submittal Form

Lake LVI Stella, Asbury, Estella

last revised Jan 25, 2018

Customer: NE-DIST

Requester: Jeremy M. ParrishField Report Prepared By: A. Kalmbacher

Project ID: SMP

Collected By: J. ParrishSampling Agency: FDEP/NE ROC

WIN / Field ID:



G2NE1203

Lake Estella - center

|                                                                           |  |                                                                          |  |                                                                                 |  |                                                                            |  |                                          |  |
|---------------------------------------------------------------------------|--|--------------------------------------------------------------------------|--|---------------------------------------------------------------------------------|--|----------------------------------------------------------------------------|--|------------------------------------------|--|
| <input type="checkbox"/> Comp<br><input checked="" type="checkbox"/> Grab |  | Collection (comp begin or grab)<br>Date <u>8-8-2019</u> Time <u>1040</u> |  | <input checked="" type="checkbox"/> Eastern<br><input type="checkbox"/> Central |  | Composite end<br>Date _____ Time _____                                     |  | Bottle Group(s)<br>(See pg 2)            |  |
| Matrix (type, e.g., Salt, Fresh, etc)                                     |  |                                                                          |  | Diss. Oxygen<br><u>6.3</u>                                                      |  | <input checked="" type="checkbox"/> mg/L<br><input type="checkbox"/> % sat |  | Total Res. Chlorine<br>(mg/L)            |  |
| Temp<br>(C) <u>29.7</u>                                                   |  | pH <u>6.36</u>                                                           |  | Sample Depth<br><u>0.3</u>                                                      |  | <input type="checkbox"/> ft<br><input checked="" type="checkbox"/> m       |  | Sp. Conductance<br>(umho/cm) <u>90.5</u> |  |
| Latitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms   |  | Longitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms |  | Salinity<br>(ppt) <u>0.04</u>                                                   |  | Comments                                                                   |  |                                          |  |
| <input type="checkbox"/> Comp<br><input type="checkbox"/> Grab            |  | Collection (comp begin or grab)<br>Date _____ Time _____                 |  | <input type="checkbox"/> Eastern<br><input type="checkbox"/> Central            |  | Composite end<br>Date _____ Time _____                                     |  | Bottle Group(s)                          |  |
| Matrix (type, e.g., Salt, Fresh, etc)                                     |  |                                                                          |  | Diss. Oxygen<br><input type="checkbox"/> mg/L<br><input type="checkbox"/> % sat |  | Total Res. Chlorine<br>(mg/L)                                              |  |                                          |  |
| Temp<br>(C)                                                               |  | pH                                                                       |  | Sample Depth<br><input type="checkbox"/> ft<br><input type="checkbox"/> m       |  | Sp. Conductance<br>(umho/cm)                                               |  |                                          |  |
| Latitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms   |  | Longitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms |  | Salinity<br>(ppt)                                                               |  | Comments                                                                   |  |                                          |  |
| <input type="checkbox"/> Comp<br><input type="checkbox"/> Grab            |  | Collection (comp begin or grab)<br>Date _____ Time _____                 |  | <input type="checkbox"/> Eastern<br><input type="checkbox"/> Central            |  | Composite end<br>Date _____ Time _____                                     |  | Bottle Group(s)                          |  |
| Matrix (type, e.g., Salt, Fresh, etc)                                     |  |                                                                          |  | Diss. Oxygen<br><input type="checkbox"/> mg/L<br><input type="checkbox"/> % sat |  | Total Res. Chlorine<br>(mg/L)                                              |  |                                          |  |
| Temp<br>(C)                                                               |  | pH                                                                       |  | Sample Depth<br><input type="checkbox"/> ft<br><input type="checkbox"/> m       |  | Sp. Conductance<br>(umho/cm)                                               |  |                                          |  |
| Latitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms   |  | Longitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms |  | Salinity<br>(ppt)                                                               |  | Comments                                                                   |  |                                          |  |
| <input type="checkbox"/> Comp<br><input type="checkbox"/> Grab            |  | Collection (comp begin or grab)<br>Date _____ Time _____                 |  | <input type="checkbox"/> Eastern<br><input type="checkbox"/> Central            |  | Composite end<br>Date _____ Time _____                                     |  | Bottle Group(s)                          |  |
| Matrix (type, e.g., Salt, Fresh, etc)                                     |  |                                                                          |  | Diss. Oxygen<br><input type="checkbox"/> mg/L<br><input type="checkbox"/> % sat |  | Total Res. Chlorine<br>(mg/L)                                              |  |                                          |  |
| Temp<br>(C)                                                               |  | pH                                                                       |  | Sample Depth<br><input type="checkbox"/> ft<br><input type="checkbox"/> m       |  | Sp. Conductance<br>(umho/cm)                                               |  |                                          |  |
| Latitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms   |  | Longitude<br><input type="checkbox"/> dd<br><input type="checkbox"/> dms |  | Salinity<br>(ppt)                                                               |  | Comments                                                                   |  |                                          |  |

|                                       |                            |                               |                                     |              |            |
|---------------------------------------|----------------------------|-------------------------------|-------------------------------------|--------------|------------|
| Relinquished By: <u>A. Kalmbacher</u> | Date/Time: <u>8-8-2019</u> | Shipping Method: <u>FEDEX</u> | Number of Coolers Shipped: <u>1</u> | Received By: | Date/Time: |
|---------------------------------------|----------------------------|-------------------------------|-------------------------------------|--------------|------------|

|          |              |      |                 |               |     |                                     |   |
|----------|--------------|------|-----------------|---------------|-----|-------------------------------------|---|
| Group: A | Bottle Type: | P-1L | # of Bottles: 2 | Preservative: | ICE | Enter Number of Bottles Sent to Lab | 1 |
|          | ALKALINITY   |      |                 |               |     |                                     |   |
|          | TURBIDITY    |      |                 |               |     |                                     |   |
|          | W-CL-IC      |      |                 |               |     |                                     |   |
|          | W-COLOR      |      |                 |               |     |                                     |   |
|          | W-F          |      |                 |               |     |                                     |   |
|          | W-SO4-IC     |      |                 |               |     |                                     |   |
|          | W-TDS        |      |                 |               |     |                                     |   |
|          | W-TSS        |      |                 |               |     |                                     |   |

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|          |              |       |                 |               |     |                                     |   |
|----------|--------------|-------|-----------------|---------------|-----|-------------------------------------|---|
| Group: A | Bottle Type: | BP-1L | # of Bottles: 2 | Preservative: | ICE | Enter Number of Bottles Sent to Lab | 1 |
|          | CHLSUITE-W   |       |                 |               |     |                                     |   |

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|          |              |         |                 |               |               |                                     |   |
|----------|--------------|---------|-----------------|---------------|---------------|-------------------------------------|---|
| Group: A | Bottle Type: | P-500ML | # of Bottles: 2 | Preservative: | ICE And H2SO4 | Enter Number of Bottles Sent to Lab | 1 |
|          | W-NH3        |         |                 |               |               |                                     |   |
|          | W-NO2NO3     |         |                 |               |               |                                     |   |
|          | W-S-A-TP     |         |                 |               |               |                                     |   |
|          | W-TKN        |         |                 |               |               |                                     |   |
|          | W-TOC        |         |                 |               |               |                                     |   |

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|          |              |         |                 |               |            |                                     |   |
|----------|--------------|---------|-----------------|---------------|------------|-------------------------------------|---|
| Group: A | Bottle Type: | P-125ML | # of Bottles: 2 | Preservative: | FILTER-ICE | Enter Number of Bottles Sent to Lab | 1 |
|          | W-PO4-F      |         |                 |               |            |                                     |   |