

SCI

Site Name Unnamed Drain Sample Date 10/31/2018

WBID 3037 WIN ID G2CE0168 RQ -2018-10-29-38

	Initial/Date	QC Initial/Date
Water chemistry data to LIMS	LMD 11/29/18	MKL 12/5/18
Create SBIO station visit 79031	MKL 11/15/18	n/a
Phys/Chem entry	LMD 11/29/18	MKL 12/5/18
Habitat Assessment entry	LMD 11/29/18	MKL 12/5/18
Vascular entry (add LIMS ID to entry)	N/A	n/a
RPS entry	LMD 11/29/18	MKL 12/5/18
Authorize SBIO data	MKL 12/5/18	n/a
Scan all sheets to 21FLCEN folder	LMD 11/29/18	n/a
LIMS/WIN migration	LMD 2/4/19	n/a
File in cabinet		n/a

Comments/notes:

Includes WQ at G2CE0169 (Unnamed Drain @ Avalon)

no LVS, < 2m²



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

April 2018

Data Qualified?

Yes ☒ No ☐

WIN Station Name: Unnamed Drain @ Lake Live Oak Rd

Date: 10/31/2018
(mm/dd/yyyy)

WIN/ Field ID: G2CE0168

WBID: 3037 Latitude: 28.503514
(Decimal Degrees)

County: Orange

ORG ID: 21 FL CEN Longitude: -81.14955
(Decimal Degrees)

Receiving Body of Water: _____

RQ-2018- 10-29-38

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Mike Linger					/	/	/	/	/
Mike Drennan					/	/	/	/	/

Sampling Equipment		
☒ Sample Container	☐ Van Dorn	☐ Pole
☐ Carboy	☒ Syringe	
☐ Dipper	☐ Other	
Depth Measured with <u>SECCHI DISK / LINE / METER</u>		
Equipment ID (KNOTHEAD/67, LEADFOOT/NON, CRUSTY/SCUD)		
Collection Method		
☒ Wading	☐ Canoe/Kayak	
☐ From Shore	☐ Electric Motor	
☐ Other	☐ Gasoline Motor	

Water Level: Dry/ Pooled/ Low / Normal / High / Flooded Meter ID# Boop / Non Matrix: Fresh / Marine / DI

Photos: Yes / No Flow: No Flow / Intestinal / Flowing / NA Tide: Rising/ Falling/ Slack/ NA Tide Times: High Low

Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPTth)	Sp COND (µmhos/cm)	Temp. (C°)
<u>EST</u>	<u>1212</u>	<u>0.5</u>	<u>0.3</u>	<u>0.5 (s)</u>	<u>8.52</u>	<u>93.8</u>	<u>7.86</u>	<u>0.39</u>	<u>790</u>	<u>19.94</u>
CEN										

Biological Samples Collected: None HA SC RPS Algae ID LVS LVI Other:

SBIO ID Numbers: SBIO-ID: 74031 HA-ID: 15492 RPS-ID: 9143 Macrophyte-ID: _____ LIMS#: 2038362

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / ☒ W-NO2NO3 / ☒ W-TKN / ☒ W-TOC / ☒ W-S-A-TP	☒ Ice ☒ H2SO4	<u>SA8101020</u>	<u>4/11/19</u>	☒ <2
Metals	☒ W-ICPMS ☒ W-JCP	☒ Ice ☒ HNO3	<u>NA7341010</u>	<u>12/7/18</u>	☒ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice	<u>13615055</u>		
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / ☒ W-F / ☒ W-TSS / ☒ TURBIDITY / ☒ W-CH-JC / ☒ W-COLOR / ☒ W-SO4-IC / ☒ W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / ☐ W-F / ☐ W-TSS / ☐ TURBIDITY	☐ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☒ E Coli ☐ F Coli ☐ Enterococci	☒ Ice			
Molecular	☐ PCR-FILTER ☐ PCR-HF183 ☐ PCR-BacR ☐ PCR-GULL2 ☐ PCR-GFD	☐ Ice			
Tracers	☐ W-E8321-DI ☐ W-E8321-MS	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-CT-CL-R ☐ W-E8321-DI ☐ W-PCL-SQ-R ☐ WE8321-MS ☐ W-CARB-AA	☐ Ice ☐ Other			

H2SO4
LOT# SA8101020
EXP: 04/11/2019

Place Preservative Sticker(s) Here
(If Available)

HNO3
Lot # NA7341010
EXP: 12/7/18

Notes:

WIN ID / Field ID →

Unnamed Drain @ Lake
Live Oak Rd (3037)



G2CE0168

Signature: [Signature]

Date: 10/31/2018

Enter Field Parameters, Verify Station ID In LIMS DMT: LMD 11/29/18

QC Station ID, Field Parameters In LIMS DMT: MKL 12/5/18

Scan/Save Field Sheets LMD 11/29/18 Migrate Data to WIN: LMD 2/4/19

Verify Data In WIN: _____

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID 79031 ORG ID 21FLCEN LATITUDE 28.503514
 COUNTY Orange STORET # G2CE0168 LONGITUDE -81.14955
 DATE 10/31/18 TIME 1212 SAMPLING AGENCY FDEP CE-ROC
 SITE NAME Unnamed Drain
 FIELD ID/NAME G2CE0168 RECEIVING BODY OF WATER Econ

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>20.75</u> Silviculture <u>5</u> Field/Pasture <u>20</u> Agricultural <u>20</u> Residential <u>20</u> Commercial <u>20</u> Industry <u>20</u> Other (Specify) <u>20</u>							Landscape Development Intensity Index (LDI) <u> </u>
Local Watershed Erosion (select one): ☒ None ☐ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy							
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18</u> Right Bank: <u>>18</u>				Hydrologic Modification Score (per FT 3101) <u> </u>			Typical Width (m) Depth (m)/Velocity (m/sec) Transect <u>2.4</u> m wide <u> </u> m/s <u>0.18</u> m/s <u> </u> m/s <u> </u> m deep <u>0.5</u> m deep <u> </u> m deep
High Water Mark: <u>0.7</u> + <u>0.5</u> = <u>1.3</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☒ Yes ☐ No			
Artificially ☒ No ☐ Mostly recovered, more sinuous Channelized: ☐ Some recovery ☐ Recent, severe				Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☒ Heavily Shaded ☐ Moderate Shaded (46-80%)			

SEDIMENT / SUBSTRATE

Sediment Type: Sand, Shell/rock

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse		Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): <u> </u>		Smothering of Substrates Sand Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐ Silt Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Algae Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐																																	
SUBSTRATE TYPE Assessment Tool: ☒ SCI ☐ RPS ☐ LVS ☐ LCI ☐ BioRecon			WATER QUALITY <table border="1"> <thead> <tr> <th>Depth (M)</th> <th>Temp. (°C)</th> <th>pH (SU)</th> <th>D.O. (MG/L)</th> <th>D.O. Sat (%)</th> <th>Cond. (UMHO/CM)</th> <th>Salinity (PPT)</th> <th>SECCHI (M)</th> </tr> </thead> <tbody> <tr> <td>Top: <u>0.3</u></td> <td><u>14.94</u></td> <td><u>7.86</u></td> <td><u>8.52</u></td> <td><u>93.8</u></td> <td><u>790</u></td> <td><u>0.39</u></td> <td><u>0.5</u></td> </tr> <tr> <td>Mid: <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td>☒ VOB</td> </tr> <tr> <td>Bottom: <u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td>TOTAL DEPTH <u>0.5</u></td> </tr> </tbody> </table> Meter ID: <u>Boop / von</u>			Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	Top: <u>0.3</u>	<u>14.94</u>	<u>7.86</u>	<u>8.52</u>	<u>93.8</u>	<u>790</u>	<u>0.39</u>	<u>0.5</u>	Mid: <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	☒ VOB	Bottom: <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	TOTAL DEPTH <u>0.5</u>
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Woody Debris (Snags) <u>1.5</u> <u>7</u> Undercut Banks / Roots <u>2.1</u> <u>7</u> Leaf Packs or Mat <u>0.75</u> <u>3</u> Aquatic Vegetation <u>0.1</u> <u> </u> Rock or Shell Rubble <u> </u> <u>3</u> Sand <u> </u> <u> </u> Mud / Muck / Silt <u> </u> <u> </u> Other <u> </u> <u> </u> Other <u> </u> <u> </u>			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: <u> </u> Exp: <u> </u> Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: <u> </u> Exp: <u> </u>																																		
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☒ ☐ ☐ Fish: ☐ ☐ ☐ ☒ Aquatic Plants: ☐ ☒ ☐ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐ Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐																																		
System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐			AMBIENT FIELD CONDITIONS / NOTES: <u>70's clear</u> ☒ The antecedent hydrologic conditions have been met to my best knowledge.																																		

SAMPLING TEAM

Mike Linger / Mike Drennen

SIGNATURE:

[Signature]

DATE:

10/31/18

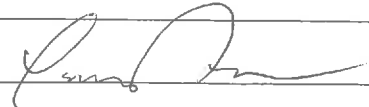
DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: <u>FL DEP - CEROC</u>		STORET STATION NUMBER: <u>G2CE0168</u>	DATE (MM/DD/YY): <u>10/31/18</u>	RECEIVING BODY OF WATER: <u>Econ River</u>
REMARKS:	COUNTY: <u>Orange</u>	LOCATION: <u>Unnamed Drain @ Lake L. in Oak Rd</u>	FIELD ID/NAME: <u>G2CE0168</u>	

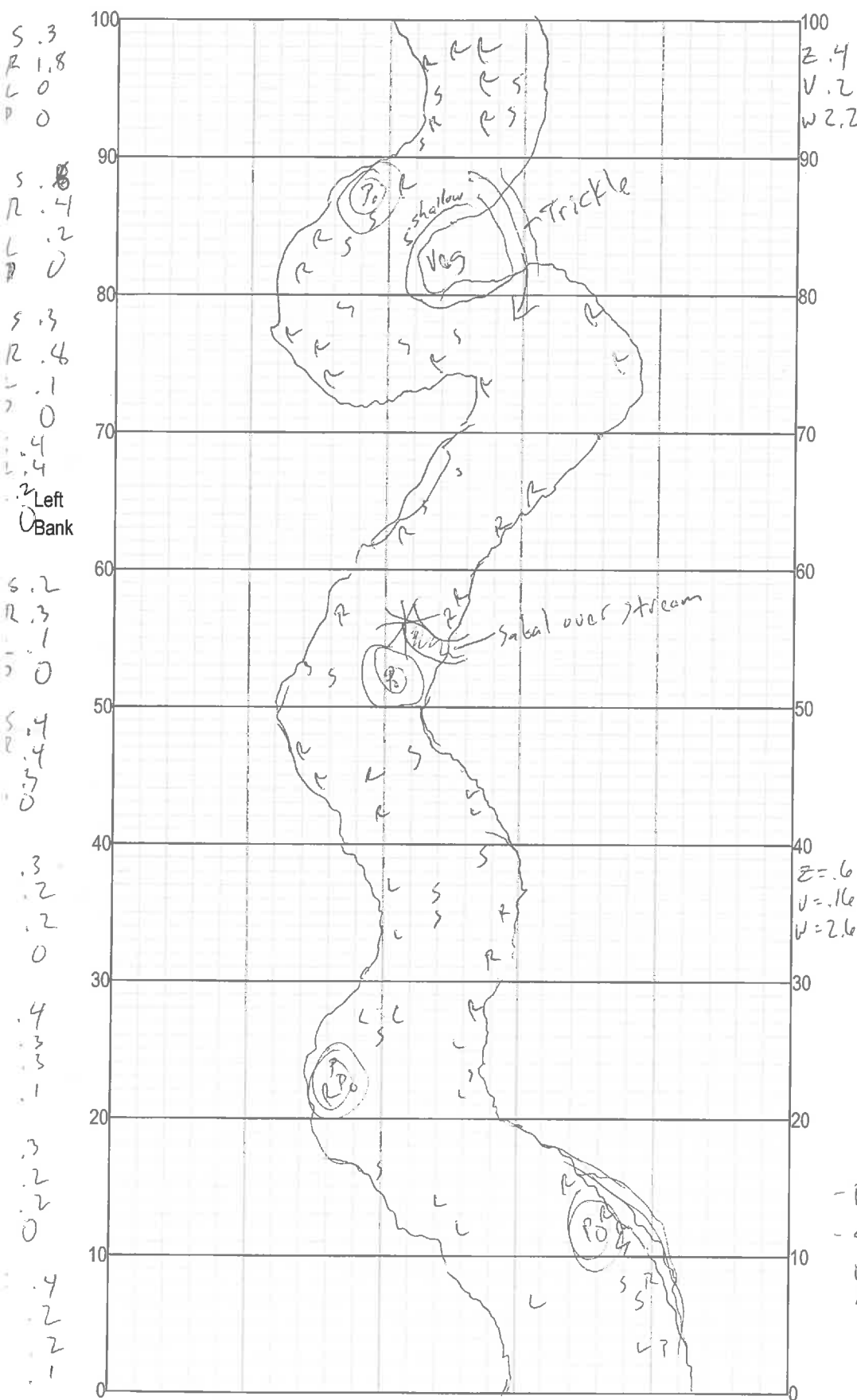
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity <u>10</u>	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability <u>5</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>14</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering <u>15</u> ----- Primary Score <u>44</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components Artificial Channelization <u>20</u>	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging or straightening in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank <u>8</u> Left Bank <u>8</u> <u>16</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the woody root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the woody root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>10</u> Left Bank <u>10</u> <u>20</u>	Width of vegetation greater than 18 m 10 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>8</u> Left Bank <u>8</u> <u>16</u> ----- Secondary Score <u>72</u>	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

116

TOTAL SCORE

Date: <u>10/31/18</u>	Analyst: <u>Mike Brennan, Mike Linger</u>	Signature: 
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Unnamed Drain @ Lake Live Oak Rd.
 Date: 10/31/18
 Sampler: Mike Linger, Mike Drennon

100 m: Latitude 28.503699
 Longitude -81.149130
 0 m: Latitude 28.504245
 Longitude -81.148390

Substrates: Code key, draw proportionate habitat abundance.		%
☒ S	Snags	<u>1.5</u>
☒ R	Roots/undercut banks	<u>2.1</u>
☒ L	Leaf Packs (or mats)	<u>.75</u>
☒ P	Aquatic Macrophytes	<u>.1</u>
☐		
☐		
☒ P.O.	Pools	total # observed = <u>4</u> # range expected = <u>3-6</u>

Average width 35, 95 m
 Average depth 35, 95 m

Velocity measured at 35, 95 meter mark.

WQ & chemistry taken at 90 meter mark.

Habitat Smothering:
 Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
 Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
 Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:
 - Floodplain is wetland
 - cypress, sabal, quercus, wild coffee, sarracenia, Acer, hydrocotyl, Fraxinus

Length of grid represents 100 m of stream (not linear meters).
 (Horizontal scale is double vertical scale, draw proportionately).

$\bar{E} = .5m$
 $\bar{V} = .18m/s$
 $\bar{W} = 2.4m$

$$BF = WL + .7$$

$$BH = BF + .3$$

$$\left. \begin{array}{l} S \ 3.6 \\ R \ 5.0 \\ L \ 1.8 \\ P \ .2 \end{array} \right\} 10.6 / 240m^2 = 4.4\%$$

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Unnamed Drain</u>					County: <u>Orange</u>		Date: <u>10/31/18</u>		Investigators: <u>Mike Linger</u>	
					STORET Station Number: <u>62CE0168</u>					

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N			60	1	N		
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N		88		5	N		82 90
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
10	1	N			70	1	N		
	2	N				2	N		
	3	N				3	N		
	4	3				4	N		
	5	N		80		5	N		84
	6	3				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
20	1	N			80	1	N		
	2	N				2	N		
	3	N				3	N		
	4	X				4	N		
	5	X		72		5	N		88
	6	X				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
30	1	N			90	1	N		
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N		88		5	N		92
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
40	1	N			100	1	N		
	2	N				2	N		
	3	N				3	N		
	4	X				4	N		
	5	X		84		5	N		84
	6	X				6	N		
	7	X				7	N		
	8	N				8	N		
	9	N				9	N		
50	1	N				1	N		
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N		76 76		5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		

Secchi depth	<u>0.50</u>
Estimated?	

# points ranked 4-6	<u>0</u>
total points assessed	<u>94</u>
% points ranked 4-6	<u>0</u>

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	
Habitat Assessment	☒
SC/Biorecon	☒
Water sample	☒
RQ-2018-10-229-38	

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

Waterbody: <u>Unnamed Drain</u>	Date: <u>10/30/18</u>	County: <u>Orange</u>	Storet Number: <u>47CE0168</u>
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Date: 10/31/18

County: Orange

Storet Number: 42 LE0168

Analyst: Mike Liner

Signature: Dickson

Comments: No LVS; $< 2m^2$ vegetation

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

Revision Date: March 1, 2014