



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

PAGE ____ OF ____

February 2016

Data Qualified?
Yes / No

STORET Station Name: Holly Hill Ditch @ Alta Road Date: 9/12/16
(mm/dd/yyyy)

STORET Station ID: 27010074 Latitude: 29.2430611
(Decimal Degrees)

WBID: 2647 RQ: 2016-09-12-83 ORG ID: 2IFLCE Longitude: -81.0478722
(Decimal Degrees)

Receiving Body of Water: Halifax River Field ID: G5CE0028 County: Volusia

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Leif Roman									
Katie Williams									

Sampling Equipment		
☒ Sample Container	☐ Van Dorn	☒ Pole
☐ Carboy	☒ Syringe	
☐ Dipper	☐ Other	
Equipment ID		

Collection Method		
☐ Wading	Via Boat	
☒ From Shore	☐ Canoe/Kayak	
☐ Other (note below)	☐ Electric Motor	
	☐ Gasoline Motor	

Water Level: Dry / Low / Normal / High / Flooded						Matrix: Fresh / Marine / DI				
Meter ID# <u>Betty II</u>			Photos: Yes / No			Tide Falling: Yes / No / NA				
Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (µmhos/cm)	Temp. (C°)
EST	10:45	.3	.5	1.9	24	7.4	.3	.5	682	27.1
CEN										

Biological Samples Collected: None HA SCI LVS RPS LVI Other										
Parameter Suite	Parameter Methods				Preservation	Acid Lot#	Expiration	pH Check		
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP				☒ Ice ☒ H2SO4			☐ <2		
Metals	☐ W-ICPMS ☐ W-ICP				☐ Ice ☐ HNO3			☐ <2		
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter				☒ Ice					
Chlorophyll	☒ CHLSUITE-W				☒ Ice					
Physical/Aggregate (Kit A/C)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS				☒ Ice					
Physical/Aggregate (Kit B/D)	☐ Alkalinity / W-F / W-TSS / TURBIDITY				☐ Ice					
Macroinvertebrates	☐ MI-FW-QLDC				☐ Formalin					
Microbiology	☐ E Coli ☐ F Coli ☐ Entero ☐ QPCR				☐ Ice					
Periphyton	☐ ALGAE-ID				☐ Ice					
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH				☐ Ice ☐ Other					

Notes:	Holly Hill Ditch @ Alta Road RQ-2016-09-12-83 Date: 9/12/16	G5CE0028 Field ID STORET 27010074
Signature: <u>K Williams</u>	Date: <u>9/12/16</u>	

Field Parameters Entered into LIMS: _____ (Initials/Date) Field Parameters QC in LIMS: _____ (Initials/Date)
Date Migrated to STORET: _____ (Initials/Date) Field Sheets Scanned/Saved: _____ (Initials/Date)

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

SAMPLE ID _____ ORG ID 2IFLUCN LATITUDE _____
 COUNTY Volusia STORET # 27010074 LONGITUDE _____
 DATE 9/12/16 TIME _____ SAMPLING AGENCY _____
 SITE NAME Holly Hill Ditch
 FIELD ID/NAME G5CE0028 RECEIVING BODY OF WATER Halifax River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential <u>90</u> Commercial ☐ Industry <u>10</u> Other (Specify) ☐								Landscape Development Intensity Index (LDI) ☐
Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect 4 m wide m/s 0.2 m/s m/s m deep 0.5 m deep m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>2</u> Right Bank: <u>0</u>				Hydrologic Modification Score (per FT 3101) ☐				
High Water Mark: <u>0.2</u> + <u>0.5</u> = <u>0.7</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 Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse <u>n/a</u>	Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): <u>n/a</u>	Smothering of Substrates Sand Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐ Silt Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐ Algae Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐
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SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	0.3	27.1	7.4	1.9	24	682	0.3	
Mid:								
Bottom:								
Meter ID:	<u>Betty 67</u>							0.5

Water Odors Normal ☒ Petroleum ☐
 Sewage ☐ Chemical ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No
 Sample Preserved? ☒ Yes ☐ No
 Lot Number: _____ Exp: _____

Algae Sample Taken? ☐ Yes ☒ No
 Sample Preserved? ☐ Yes ☐ No
 Lot Number: _____ Exp: _____

Water Surface Oils Normal ☒ Sheen ☐
 Globbs ☐ Slick ☐ Other ☐

Color Tannic ☒ Green (Algae) ☐
 Clear ☐ Other (Specify) ☐

Clarity Clear ☐ Slightly Turbid ☒
 Turbid ☐ Opaque ☐

System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☒ canal

AMBIENT FIELD CONDITIONS / NOTES:

canal assessed from bank, substrate too soft to walk in

☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM

KMW/LGB

SIGNATURE:

KWilliams

DATE:

9/12/16

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

SAMPLING AGENCY: DEP - CEKOL		STORET STATION NUMBER: 27010074	DATE (MM/DD/YY): 09/12/14	RECEIVING BODY OF WATER: Halifax River
REMARKS:	COUNTY: Volusia	LOCATION: HOLLY HILL DITCH @ ALTA RD.	FIELD ID/NAME: C5CE0028	

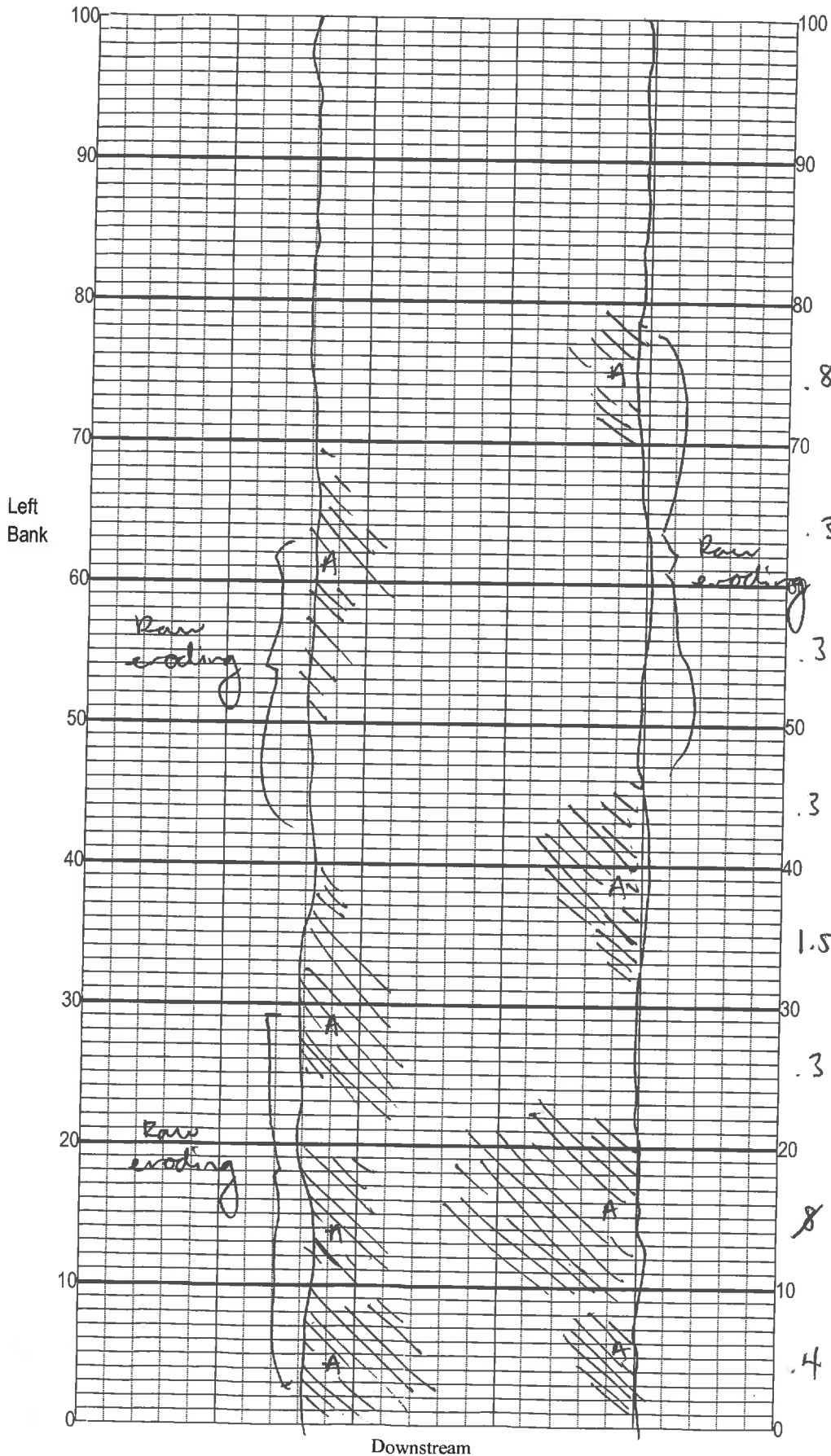
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability 2	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 14 5 sec	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 3 Primary Score 21	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	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 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	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the 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 root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width	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	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
Secondary Score 14				

35

TOTAL SCORE

Date: 9/12/14	Analyst: KMW	Signature: K. Williams
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



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

Location: Holly Hill Ditch
Date: 09/12/16 Atta Road

Sampler: _____

100 m: Latitude _____
Longitude _____

0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance. %

☐	Snags	_____
☐	Roots/undercut banks	_____
☐	Leaf Packs (or mats)	_____
☒	Aquatic Macrophytes	<u>2.7</u>
☐		_____
☐		_____
☐	Pools	total # observed = _____ # range expected = _____

Average width 4 m

Average depth _____ m

Velocity measured at _____ meter mark.

WQ & chemistry taken at _____ 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:

87 LB

A = 10.9

Silt smothering throughout

Waterbody: <u>Holly Hill Ditch</u>	Date: <u>9/12</u>	County: <u>Volusia</u>	Storet Number: <u>27010074</u>
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Analyst: KMW Signature: Kullanis

Comments: looks to be sprayed w/ herbicides

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

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Holly Hill Ditch</u>					County: <u>Volusia</u>		Date: <u>9/12/14</u>		Investigators: <u>KMW</u>		
Transect (m)					Transect (m)					STORET Station Number: <u>27010074</u>	
Point 1=right 9=left					Point 1=right 9=left						
Algal Thickness Rank (N-6, X)					Algal Thickness Rank (N-6, X)						
Estimated					Estimated						
Canopy Cover					Canopy Cover						

0	1	2			60	1	2		
	2	3	✓			2	3	✓	
	3	X				3	X		
	4	X				4	X		
	5	X		0		5	X		
	6	X				6	X		
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
10	1	3	✓		70	1	3	✓	
	2	3	✓			2	3	✓	
	3	X				3	X		
	4	X		0		4	X		
	5	X				5	X		
	6	X				6	X		
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
20	1	2	✓		80	1	2		
	2	3				2	3		
	3	X				3	X		
	4	X				4	X		
	5	X				5	X		
	6	X				6	X		
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
30	1	2			90	1	2	✓	
	2	3				2	3		
	3	X				3	X		
	4	X				4	X		
	5	X				5	X		
	6	X				6	X		
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
40	1	3	✓		100	1	3	✓	
	2	X				2	X		
	3	X				3	X		
	4	X				4	X		
	5	X				5	X		
	6	X				6	X		
	7	X				7	X		
	8	X				8	X		
	9	X				9	X		
50	1	2	✓		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%.				
	2	3							
	3	X							
	4	X							
	5	X							
	6	X							
	7	X							
	8	X							
	9	X							

Secchi depth	0.5 (s)
Estimated?	

# points ranked 4-6	
total points assessed	
% points ranked 4-6	

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	
Water sample	✓
RQ- <u>2014-09-12-83</u>	

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

Cannot take densiometer readings, substrate in canal too soft to stand in.

Cannot accurately visually estimate algae in most of canal.