

SMP, reference, benchmark sample



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

PAGE ____ OF ____

February 2016

Data Qualified?
Yes ☒ No ☐

STORET Station Name: Fort Drum Creek @ US 441

Date: 11/30/16
(mm/dd/yyyy)

STORET Station ID: 26010430

Latitude: 27.512614
(Decimal Degrees)

WBID: 3154 RQ- 2016-05-23-24 ORG ID: 21FLWPB

Longitude: -80.807828
(Decimal Degrees)

Receiving Body of Water: _____ Field ID: _____ County: Okeechobee

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
<u>Jordan Skaggs</u>									
<u>Jimmy P. H.</u>									
<u>Nathan Serel</u>									
<u>Ashley Hurley</u>									

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
 Meter ID# 1.165 Photos: Yes / No
 Matrix: Fresh / Marine / DI
 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	<u>1130</u>	<u>0.1</u>	<u>0.2</u>	<u>6.0</u>	<u>67</u>	<u>4.65</u>	<u>0.06</u>	<u>6.25</u>	<u>124</u>	<u>21.0</u>
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 ☒ H ₂ SO ₄	<u>6209120</u>	<u>7/17</u>	☐ <2
Metals	☒ W-ICPMS ☒ W-ICP	☒ Ice ☒ HNO ₃	<u>6218060</u>	<u>7/17</u>	☒ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☐ Ice	Place Preservative Sticker(s) Here (If Available)		
Chlorophyll	☒ CHLSUITE-W	☐ Ice			
BOD	☐ BOD-UNIN	☐ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CHC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☒ MI-FW-QLDC	☒ Formalin			
Microbiology	☐ E Coli ☒ F Coli ☐ Enterococcus ☒ QPCR	☒ Ice			
Periphyton	☐ ALGAE-ID	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☒ W-PYR-AA-R	☒ Ice			
	☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH	☐ Other			

Notes: email JW about adding Silver analysis to this RQ

Signature: [Signature] Date: 11/30/16

SBID TTJ/K

Place Label Here (If Available)

Field Parameters Entered into LIMS: p 12/21/16 (Initials/Date)
 Date Migrated to STORET: _____ (Initials/Date)
 Field Parameters QC in LIMS: no 2/08 (Initials/Date)
 Field Sheets Scanned/Saved: _____ (Initials/Date)

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

SAMPLING AGENCY: <u>21FLWPR</u>		STORET STATION NUMBER: <u>26010430</u>	DATE (MM/DD/YY): <u>11/30/16</u>	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: <u>Okeechobee</u>	LOCATION: <u>Fort Drum Creek @ US 411</u>	FIELD ID/NAME: <u>26010430</u>	

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 <u>13</u>	20 19 18 17 16	15 14 <u>13</u> 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>8</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 <u>8</u> 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>12</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 <u>12</u> 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>13</u> ----- Primary Score <u>46</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 <u>13</u> 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.	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>20</u>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	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.	Only meets 2 of the 3 requirements for optimal bank stability.	Only meets 1 of the 3 requirements for optimal bank stability.	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas.
Right Bank <u>10</u> Left Bank <u>10</u>	<u>10</u> 9	8 7 6	5 4	3 2 1
Riparian Buffer Zone Width	Width of vegetation greater than 18 m	Width of vegetation >12 to 18m	Width of vegetation 6 to 12 m. human activities close to system	Less than 6 m of buffer zone due to intensive human activities
Right Bank <u>10</u> Left Bank <u>10</u>	<u>10</u> 9	8 7 6	5 4	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.	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed.	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious.	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions).
Right Bank <u>8</u> Left Bank <u>8</u> ----- Secondary Score <u>76</u>	10 9	<u>8</u> 7 6 <u>9</u>	5 4	3 2 1

122

TOTAL SCORE

Frogs/Hogs

Date: <u>11/30/16</u>	Analyst: <u>SKAGGS</u>	Signature: <u>[Signature]</u>
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SP10 77313

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Fort Drum Creek @ US441

Date: 11/30/16

County: Okla

Storet Number: 26010430

Analyst: Jordan Scales

Signature: Jordan K...

Comments: $< 2 \text{ m}^2$ vegetation

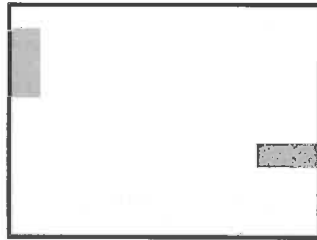
Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed,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

Species for additional taxa names.																							
HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)	HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
Alternanthera philoxeroides												Micranthemum glomeratum											
Bacopa caroliniana												Micranthemum umbrosum											
Bacopa monneri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica												Nuphar luteum											
Centella asiatica												Orontium aquaticum											
Ceratophyllum demersum												Panicum hemitomon											
Chara												Panicum repens											
Cicuta maculata												Panicum rigidulum											
Cladium jamaicense												Pistia stratioides											
Colocasia esculenta												Polygonum glabra											
Commelina diffusa												Polygonum hydropiperoides											
Commelina virginica												Polygonum punctatum											
Crinum americanum												Pontedaria cordata											
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes												Ruellia simplex											
Eleocharis (wispy viviparous)												Sacciolepis striata											
Hydrilla verticillata												Sagittaria kurziana											
Hydrocotyle												Sagittaria lancifolia											
Hygrophila polysperma												Sagittaria latifolia											
Hymenocallis												Salvinia minima											
Lachnanthes caroliniana												Samolus parviflora											
Landoltia punctata												Saururus cernuus											
Lemna												Sparganium americanum											
Limnophila sessiflora												Typha											
Ludwigia leptocarpa												Vallisneria americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana																							
Ludwigia repens																							
Luziola fluitans																							
				</																			

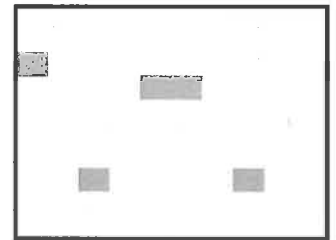
FDEP FORM FD 9000-32 LINEAR VEGETATION SURVEY FIELD SHEET

Percent Cover Categories for macrophytes in a 10 m segment of a stream 5 m wide

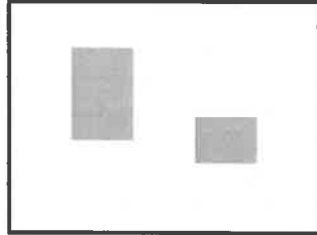
5% Macrophyte Coverage



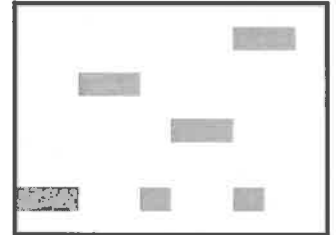
5% Macrophyte Coverage



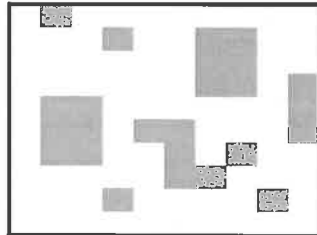
10% Macrophyte Coverage



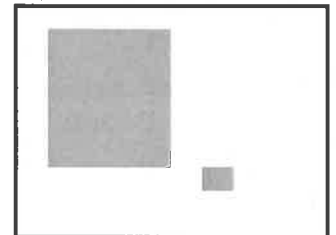
10% Macrophyte Coverage



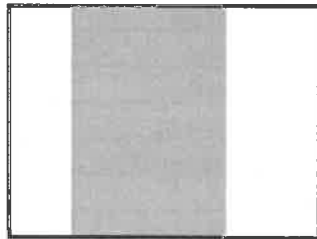
25% Macrophyte Coverage



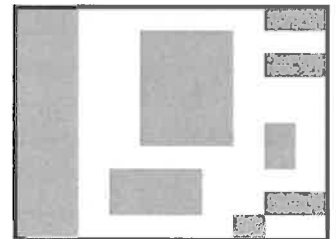
25% Macrophyte Coverage



50% Macrophyte Coverage



50% Macrophyte Coverage



DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Fort Drum Creek @ US441 County: Okeechobee Date: 11/30/16 Investigators: Z6010430JS

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 STORET Station Number: Z6010430

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		92		5	N		96
	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	N				4	N		
	5	N		90		5	N		92
	6	N				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	N				4	N		
	5	N		90		5	N		90
	6	N				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		96		5	N		80
	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	N				4	N		
	5	N		93		5	N		96
	6	N				6	N		
	7	N				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		79		5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		

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.

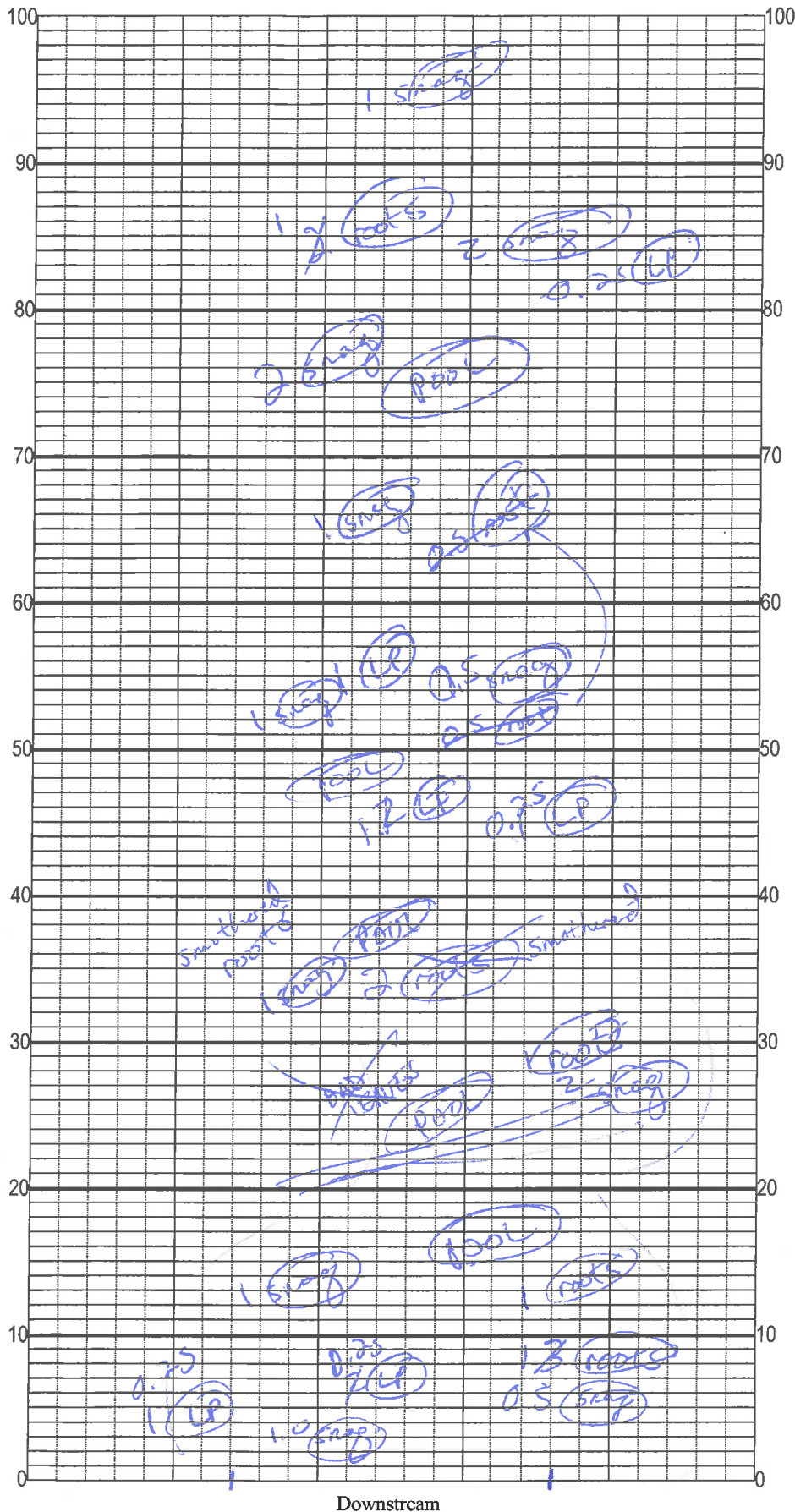
Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

Secchi depth 0.7
Estimated?

points ranked 4-6 0
total points assessed 99
% points ranked 4-6 0

Check accompanying data collected at same site/date.
Algal mat sample
Linear Veg Survey ✓
Habitat Assessment ✓
SCI/Biorecon ✓
Water sample ✓
RQ 2016-05-23-24

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

Left
Bank

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

Location: Fort Drum Creek @ US441Date: 11/30/16Sampler: SWAGGS100 m: Latitude _____
Longitude _____0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance. %

snag	Snags	6.5	X
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rocks	Roots/undercut banks	2	
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LP	Leaf Packs (or mats)	1.5	
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	Aquatic Macrophytes		
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5	Pools	total # observed =	
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		# range expected =	
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Average width 2 m
Average depth 0.2 mVelocity measured at 100 meter mark.WQ & chemistry taken at 100 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:

rocks = 84 = 0.02

snag = 13 = 0.065

LP = 3 = 0.015

4	13	3
400	400	400

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

SAMPLE ID _____ ORG ID 21FLWPB LATITUDE 27.51264
 COUNTY Okeechobee STORET # 26010430 LONGITUDE -80.807828
 DATE 11/30/16 TIME _____ SAMPLING AGENCY 21FLWPB
 SITE NAME Fort Drum Creek @ US41
 FIELD ID/NAME _____ RECEIVING BODY OF WATER _____

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ <u>100</u> Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industry ☐ 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 <u>2</u> m wide <u>0.13</u> m/s <u>0.2</u> m deep	
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>185</u> Right Bank: <u>185</u>				Hydrologic Modification Score (per FT 3101) ☐				
High Water Mark: <u>0.5</u> + <u>0.2</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			Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): _____			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 Invert PERI % # Times # Times Coverage Sampled Sampled Woody Debris (Snags) <u>7</u> <u>6</u> Undercut Banks / Roots <u>2</u> <u>5</u> Leaf Packs or Mat <u>2</u> <u>5</u> Aquatic Vegetation Rock or Shell Rubble..... Sand..... <u>4</u> 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: <u>0.1</u> <u>21.0</u> <u>6.5</u> <u>6.0</u> <u>67</u> <u>124</u> <u>0.06</u> <u>0.2</u> Mid: _____ Bottom: _____ Meter ID: <u>1.1 GVS</u>					
Water Odors Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐			Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐			Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐		
Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: <u>6209120</u> Exp: <u>9/18</u>			Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____			Clarity Clear ☐ Slightly Turbid ☒ Turbid ☐ Opaque ☐		
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☒ ☐ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☐ ☒ ☐ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐					
AMBIENT FIELD CONDITIONS / NOTES: <u>discarded frog carcasses upstream</u> ☒ The antecedent hydrologic conditions have been met to my best knowledge.								
SAMPLING TEAM <u>Spencer / Huber / Skaggs</u>			SIGNATURE: <u>Huber</u>			DATE: <u>11/30/16</u>		

