



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

October 2017

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Data Qualified?

Yes / No

Location/STORET Station Name: Spring Garden Creek @ Just DS of

Date: 11/27/17

STORET # G2CE0126

WBID: 2921F

Latitude: 29.13336

(mm/dd/yyyy)

County: Volusia RQ - 2017-11-27-63

ORG ID: 2IFLUN

Longitude: -81.39327

(Decimal Degrees)

(Decimal Degrees)

Receiving Body of Water:

Field ID: G2CE0126

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Lif Berman Katie Williams									

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

Equipment ID

Collection Method	
☐ Wading	☐ Canoe/Kayak
☐ From Shore	☐ Electric Motor
☐ Other	☒ Gasoline Motor

Water Level: Dry / Low / Normal / Above Normal / Flooded

Meter ID# Tally-1/AB

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	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPTH)	Secchi Disk (m)	Sp COND (umhos/cm)	Temp. (C°)
EST	1130	0.3	1.9	1.4	14	5.8	0.10	0.3	209	17.2
CEN		1.4		1.4	14	6.3	0.21		435	17.3

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

SBIO ID Numbers: SBIO-ID: 78130 HA-ID: 14944 RPS-ID: 8860 Macrophyte-ID: 10783 LIMS#: 1948603

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			☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3			☐ <2
Filtered Nutrients	☒ W-PO4 F ☒ Field Filtered 0.45 um Filter	☒ Ice			
Chlorophyll	☒ CHLSUITE W	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / ☐ W-F / ☐ W-TSS / ☐ TURBIDITY / ☐ W-CLIC / ☐ 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-SUC-AA-R ☐ W-UHERB-AA ☐ W-AHERB-AA	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-UHERB-AA ☐ W-AHERB-AA	☐ Ice			
	☐ W-PCL-SQ-R ☐ W-PYR-AA-R ☐ W-GLYPH ☐ W-SUC-AA-R	☐ Other			

Contains: 1:1 Sulfuric Acid
Lot No.: SA7275010
Expires: 10/02/18
See Safety Data Sheet (SDS)

Contains: 1:1 Sulfuric Acid
Lot No.: SA7275010
Expires: 10/02/18
See Safety Data Sheet (SDS)

Notes:

Spring Garden Creek
@ Just Upstream of
Deep Creek

RQ-2017-11-27-63

Date: 11/27/2017

G2CE0126
Field ID ↑
STORET ↓
G2CE0126

Signature: Williams

Date: 11/27/17

Field Parameters Entered into LIMS: kmw 12/6/17

Field Parameters QC in LIMS:

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 2IFUEN LATITUDE _____
COUNTY Volusia STORET # 62LE0126 LONGITUDE _____
DATE 11/27/17 TIME _____ SAMPLING AGENCY _____
SITE NAME Spring Garden Creek just DS of Deep Creek
FIELD ID/NAME _____ RECEIVING BODY OF WATER Lake Woodruff

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>65</u> m wide <u>6.01</u> m/s <u>0.01</u> m/s <u>0.01</u> m/s			
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>718</u> Right Bank: <u>718</u>				Hydrologic Modification Score (per FT 3101) _____		<u>6.01</u> m/s <u>0.01</u> m/s <u>0.01</u> m/s			
High Water Mark: <u>0.4</u> + <u>1.9</u> = <u>2.3</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No		<u>1.0</u> m deep <u>1.9</u> m deep <u>1.0</u> m deep			
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			WATER QUALITY Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M) Top: <u>0.3</u> <u>17.2</u> <u>5.8</u> <u>1.4</u> <u>14</u> <u>209</u> <u>0.10</u> <u>0.3</u> Mid: _____ Bottom: <u>1.4</u> <u>17.3</u> <u>6.3</u> <u>1.6</u> <u>14</u> <u>435</u> <u>0.21</u> <u>1.9</u> Meter ID: <u>Tally-1/AB</u>								
Woody Debris (Snags) _____ Undercut Banks / Roots _____ Leaf Packs or Mat _____ Aquatic Vegetation _____ Rock or Shell Rubble _____ Sand _____ Mud / Muck / Silt _____ Other _____ Other _____			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐			Water Surface Oils Normal ☐ Sheen ☐ Globs ☐ Slick ☐ Other ☐			Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐		
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☐ ☐ ☒ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____ Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____			Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐		
AMBIENT FIELD CONDITIONS / NOTES: ☐ The antecedent hydrologic conditions have been met to my best knowledge.											
SAMPLING TEAM <u>LGB, KMCW</u>						SIGNATURE <u>Williamis</u>			DATE: <u>11/27/17</u>		

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET																						
Waterbody: Spring Garden Creek						Date: 11/27				County: Volusia						Storet Number: G2C00067						
Analyst: KML						Signature: [Handwritten Signature]																
Comments:																						
Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m ² 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.																						
HERBACEOUS SPECIES										HERBACEOUS SPECIES												
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90		Specimen collected (check)		0-10	10-20	20-30	30-40	40-50	50-60	60-70		Specimen collected (check)	
Alternanthera philoxeroides	/	/	/	/		/	/	/	/	Micranthemum glomeratum												
Bacopa caroliniana										Micranthemum umbrosum												
Bacopa monnieri										Myriophyllum aquaticum												
Bidens mitis laevis		/	/			/		/	/	Najas guadelupensis												
Boehmeria cylindrica										Nuphar luteum								X			/	
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												
Eichornia 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										Wolkiella			/	/	/	/	/	/	/	/		/
Luziola fluitans										Amaranthus			/	/	/	/	/	/	/	/		/

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

SAMPLING AGENCY:		STORET STATION NUMBER: <u>GZCE0126</u>	DATE (MM/DD/YY): <u>11/27/17</u>	RECEIVING BODY OF WATER: <u>Lake Woodhuff</u>
REMARKS:	COUNTY: <u>Volusia</u>	LOCATION: <u>Spring Garden Creek</u>	FIELD ID/NAME: <u>GZCE0126</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>4</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>2</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>2</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>3</u> ----- Primary Score <u>11</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	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>	20 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>	10 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>	10 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>9</u> Left Bank <u>9</u> ----- Secondary Score <u>78</u>	10 9	8 7 6	5 4	3 2 1

89 TOTAL SCORE

Date: <u>11/27/17</u>	Analyst: <u>Katie Williams</u>	Signature: <u>KWilliams</u>
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DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Spring Garden Creek County: Volusia Date: 11/27/17 Investigators: KMW, LGB
 STORET Station Number: G200124

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

Secchi depth 0.3
 Estimated?

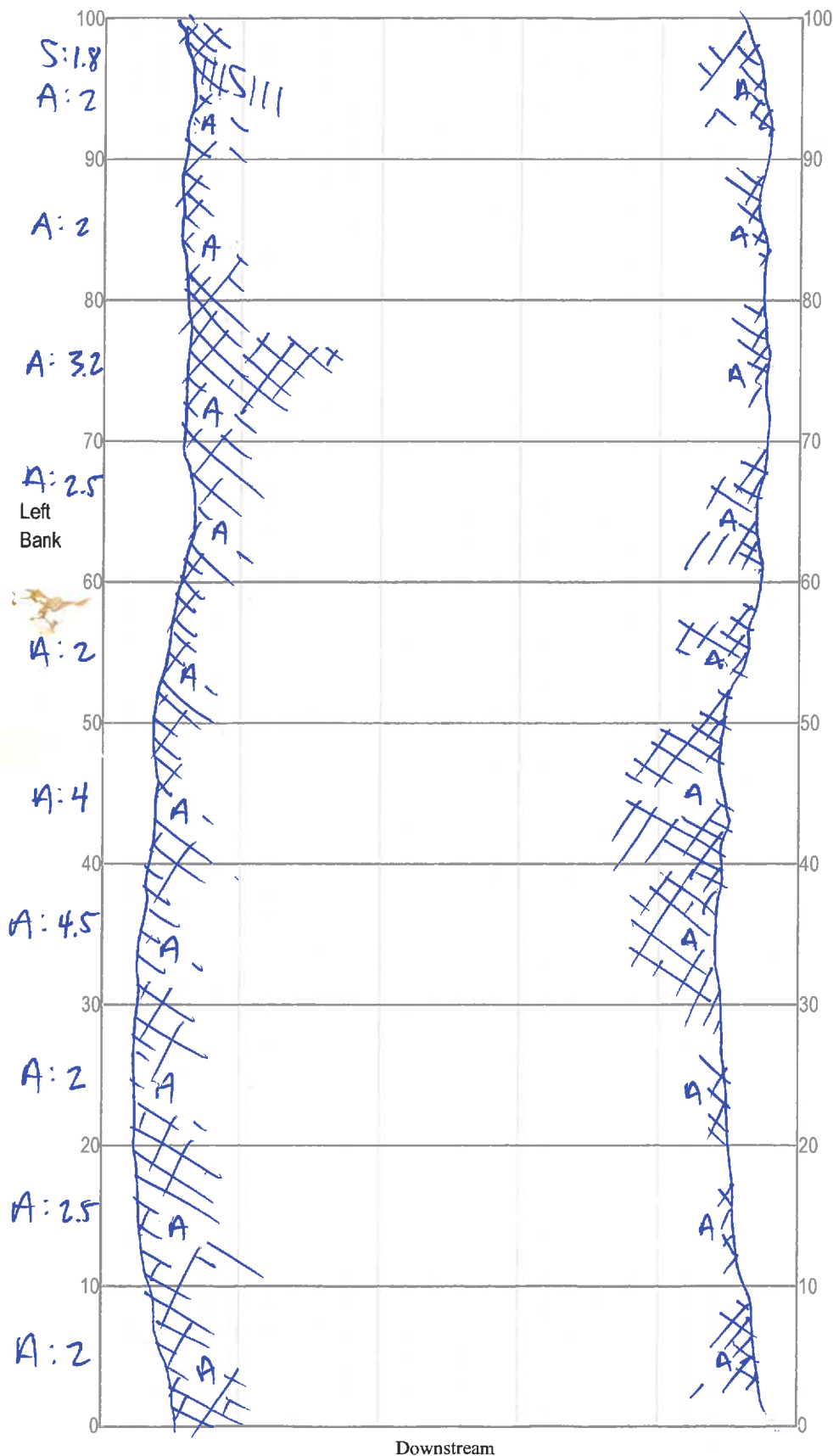
points ranked 4-6 6
 total points assessed 89
 % points ranked 4-6 6

Check accompanying data collected at same site/date.
 Algal mat sample
 Linear Veg Survey ✓
 Habitat Assessment ✓
 SCI/Biorecon
 Water sample ✓
 RQ- 2017-11-27-63

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%.

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: Spring Garden
Date: 11/27/17
Sampler: Lief Boman

100 m: Latitude _____	Longitude _____
0 m: Latitude _____	Longitude _____
Substrates: Code key, draw proportionate habitat abundance. %	
☒ 1511	Snags .03
☐	Roots/undercut banks _____
☐	Leaf Packs (or mats) _____
☒ A	Aquatic Macrophytes .44
☐	_____
☐	_____
☐	_____
☐	total # observed = _____ # range expected = _____
Average width 65 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:

A: 28.7
S: 1.8