



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

PAGE 1 OF

Data Qualified?
Yes / No

October 2016

STORET Station Name: Mormon Branch upstream of SR 19 Date: 12/7/16
(mm/dd/yyyy)
STORET Station ID: 20030920 WBID: 2905 Latitude: 29.1916
(Decimal Degrees)
County: Marion RQ - 2016-12-05-43 ORG ID: 2IFLCEN Longitude: -81.6557
(Decimal Degrees)
Receiving Body of Water: Juniper Creek Field ID: G2CE0052

Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment			
Mike Drennan				/	/	/	/	/	☒ Sample Container	☐ Van Dorn	☐ Pole	
Kalinga Warren									☐ Carboy	☒ Syringe		
Mike Linger									☐ Dipper	☐ Other		
									Equipment ID			
									Collection Method			
									☒ Wading	Via Boat		
									☐ From Shore	☐ Canoe/Kayak		
									☐ Other (note below)	☐ Electric Motor		
										☐ Gasoline Motor		
Water Level: Dry / Low / <u>Normal</u> / High / Flooded									Matrix: <u>Fresh</u> / Marine / DI			
Meter ID# <u>Boop/NON</u> Photos: Yes / <u>No</u>									Tide Falling: Yes / No / <u>NA</u>			
Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (umhos/cm)	Temp. (C°)		
<u>EST</u>	<u>13:50</u> <u>BSD</u>	<u>2</u>	<u>4</u>	<u>7.2</u>	<u>80</u>	<u>7.5</u>	<u>1</u>	<u>0.4 (s)</u>	<u>235</u>	<u>21.0</u>		
CEN												
Biological Samples Collected: None <u>HA</u> <u>SCI</u> LVS <u>RPS</u> 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		<u>6242080</u>	<u>8/29/17</u>	☒ <2		
Metals		☒ W-ICPMS ☐ W-ICP				☒ Ice ☒ HNO3		<u>6253070</u>	<u>9/9/17</u>	☒ <2		
Filtered Nutrients		☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter				☒ Ice		Contains 1:1 Sulfuric Acid SA-6242080 EXP: 08/29/17 Warning! See SDS Contains 1:1 Nitric Acid NA-6253070 EXP: 09/09/17 Warning! See SDS				
Chlorophyll		☒ CHLSUITE-W				☒ Ice						
Physical/Aggregate (Fresh)		☒ Alkalinity / ☐ W-F / ☐ W-TSS / ☐ TURBIDITY / ☐ W-CL-IC / ☐ 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 ☐ Entero ☐ 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:

Mormon Branch upstream of SR 19

G2CE0052
Field ID
STORET
20030920

Date: 12/7/2016
RQ-2016-12-05-43

Signature: [Signature]

Date: 12/7/16

Field Parameters Entered into LIMS: mmw 1/6/17
(Initials/Date)

Field Parameters QC in LIMS: _____
(Initials/Date)

Date Migrated to STORET: _____
(Initials/Date)

Field Sheets Scanned/Saved: _____
(Initials/Date)

FDEP FORM FD 9000-3: PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SAMPLE ID 77154 ORG ID 21FLCEN LATITUDE 29.1916
 COUNTY Marion STORET # 20030920 LONGITUDE -81.6557
 DATE 12/7/16 TIME 1350 SAMPLING AGENCY FDEP - CEROC
 SITE NAME Mormon Branch upstream of SR19
 FIELD ID/NAME 62CE0052 RECEIVING BODY OF WATER Juniper creek

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industry ☐ Other (Specify) ☐ 100 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐								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 4.1 m wide ☐ m/s ☐ m/s ☐ m/s ☐ m deep ☐ m deep ☐ m deep				
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: ☐ 718 Right Bank: ☐ >18 Hydrologic Modification Score (per FT 3101) ☐ 3								
High Water Mark: ☐ .2 + ☐ .24 = ☐ .44 (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No				
Artificially Channelized: ☒ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe				Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☒ Moderate Shaded (46-80%) ☐ Heavily Shaded				

SEDIMENT / SUBSTRATE

Sediment Type: Sand

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
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SUBSTRATE TYPE

Assessment Tool: ☒ SCI ☒ RPS ☐ LVS
☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	☐ 1.2	☐ 5	☐
Undercut Banks / Roots	☐ .7	☐ 5	☐
Leaf Packs or Mat	☐ 1.3	☐ 5	☐
Aquatic Vegetation	☐ .1	☐ 3	☐
Rock or Shell Rubble	☐	☐	☐
Sand	☐ —	☐ 2	☐
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:	☐ 1.2	☐ 21.0	☐ 7.5	☐ 7.2	☐ 80	☐ 233	☐ .1	☐ .4(8)
Mid:	☐	☐	☐	☐	☐	☐	☐	☒ VOB
Bottom:	☐	☐	☐	☐	☐	☐	☐	☐

Meter ID: Boop / NON

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

Water Sample Taken? ☒ Yes ☐ No
 Sample Preserved? ☒ Yes ☐ No
 Lot Number: 6242836/6253070 Exp: 8/17, 9/17

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

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

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

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:

Mid 70's, clear
☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM

Kalina Warren, Mike Linger, Mike Drennon

SIGNATURE:

[Signature]

DATE:

12/13/16 LMD

Revision Date: September 19, 2012

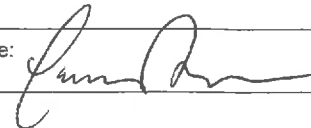
12/7/16

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

SAMPLING AGENCY: <u>FDOP - CEROC</u>		STORET STATION NUMBER: <u>20030920</u>	DATE (MM/DD/YY): <u>12/7/16</u>	RECEIVING BODY OF WATER: <u>Juniper Creek</u>
REMARKS:	COUNTY: <u>Marion</u>	LOCATION: <u>Mormon Branch upstream of SR 19</u>	FIELD ID/NAME: <u>GZCE0052</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>14</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>4</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>13</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>17</u> Primary Score <u>48</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>8</u> Left Bank <u>8</u> <u>16</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> <u>22</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> <u>18</u> Secondary Score <u>74</u>	10 9	8 7 6	5 4	3 2 1

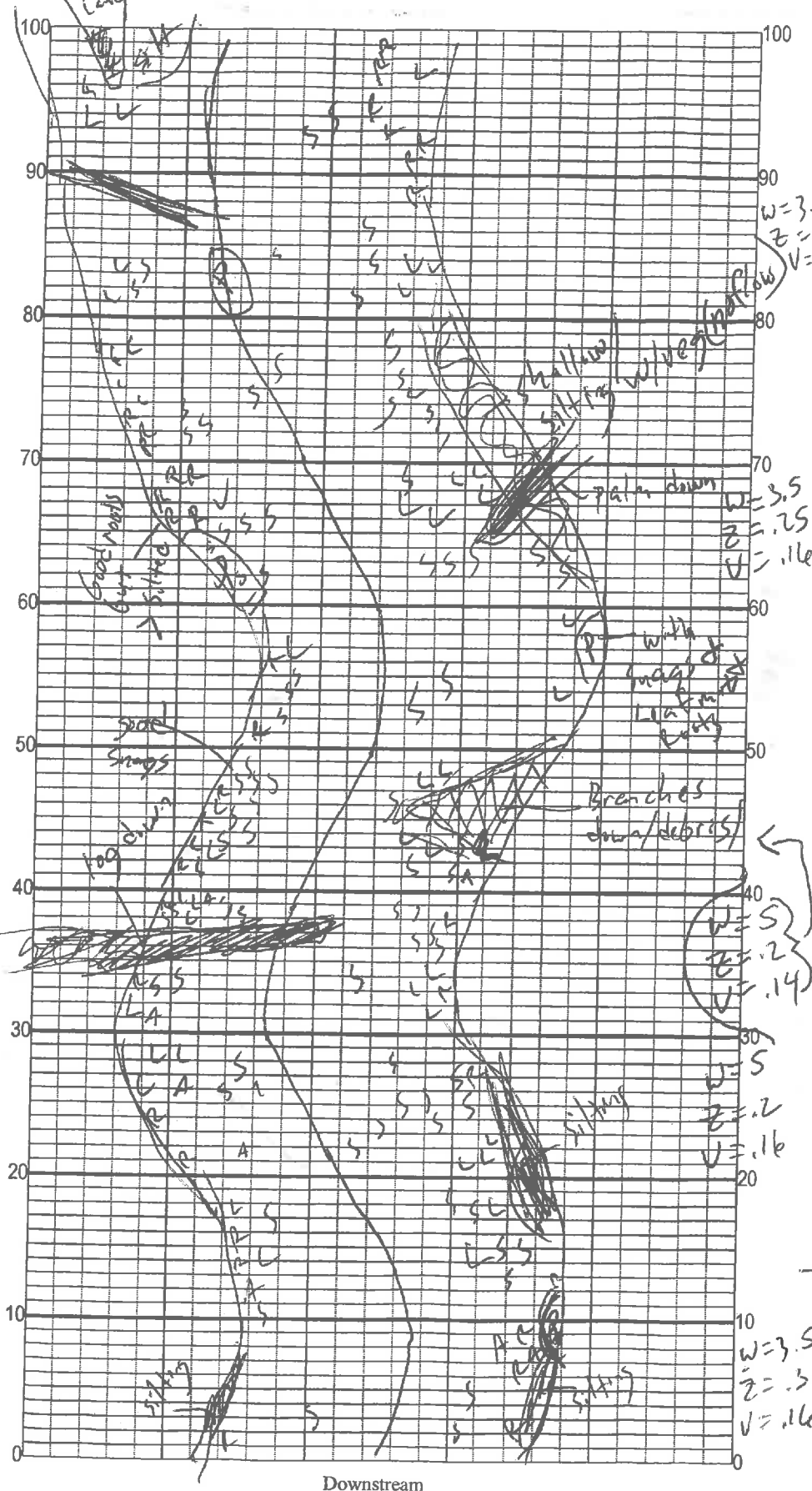
122 TOTAL SCORE

Date: <u>12/7/16</u>	Analyst: <u>Mike Drennan</u>	Signature: 
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BF = .2 above BH

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet

$S = .2$
 $R = .5$
 $L = .3$
 $A = 0$
 $S = .3$
 $R = .2$
 $L = .3$
 $A = 0$
 $S = .1$
 $R = .3$
 $L = .7$
 $A = 0$
 $S = .5$
 $R = .3$
 $L = .1$
 $A = .1$ Left Bank
 $S = .2$
 $R = .1$
 $L = .4$
 $A = 0$
 $S = .1$
 $R = .2$
 $L = .9$
 $A = .1$
 $S = .7$
 $L = .3$
 $A = .7$
 $A = .1$
 $S = .4$
 $L = .3$
 $A = .4$
 $S = .5$
 $R = .4$
 $L = .5$
 $A = .1$
 $S = .1$
 $R = .1$
 $L = .5$
 $A = .1$



Location: Mormon Branch
Upstream of SR 19

Date: 12/7/16

Sampler: K. Warren, M. Langer, M. Brennan

100 m: Latitude 29.1920
 Longitude -81.6549

0 m: Latitude 29.1915
 Longitude -81.6557

Substrates: Code key, draw proportionate habitat abundance. %

<u>S</u>	Snags	<u>1.2</u>
<u>R</u>	Roots/undercut banks	<u>.7</u>
<u>L</u>	Leaf Packs (or mats)	<u>1.3</u>
<u>A</u>	Aquatic Macrophytes	<u>.1</u>
<u>P</u>	Pools	total # observed = <u>4</u> # range expected = <u>2-4</u>

Average width 4.1 m

Average depth .24 m

Velocity measured at 35 meter mark.

WQ & chemistry taken at 5 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:

- Banks undercut through
- *Nasturtium floridanum* (2m²)

$W = 4.1$ m
 $Z = .24$ m
 $V = .15$ m/s

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

$S = 4.9$
 $R = 2.7$
 $L = 5.5$
 $A = .5$
 $13.6m^2 / 410m^2 = 3.3\% \therefore 4\%$

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Morrison Branch Upstream of SR 19</u>					County: <u>Marion</u>		Date: <u>12/7/16</u>		Investigators: <u>K. Warren, M. Linger, M. Drennon</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	STORET Station Number: <u>20030920</u>

0	1	N	N	69	60	1	3	N	70
	2	N				2	4		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	3		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
10	1	N	N	64	70	1	N	N	50
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
20	1	N	N	53	80	1	5	N	62
	2	N				2	5		
	3	N				3	3		
	4	N				4	N		
	5	3				5	3		
	6	N				6	N		
	7	N				7	N		
	8	3				8	N		
	9	3				9	N		
30	1	N	N	62	90	1	N	N	65
	2	N				2	N		
	3	3				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
40	1	N	N	44	100	1	N	N	58
	2	N				2	N		
	3	N				3	3		
	4	N				4	2		
	5	N				5	4		
	6	N				6	4		
	7	N				7	N		
	8	3				8	N		
	9	3				9	N		
50	1	N	N	70		1	N	N	
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		

Secchi depth	<u>.4</u> (3)
Estimated?	<u>No</u>

# points ranked 4-6	<u>8</u>
total points assessed	<u>99</u>
% points ranked 4-6	<u>8</u>

Check accompanying data collected at same site/date.

Algal mat sample	
Linear Veg Survey	
Habitat Assessment	☒
SCI/Biorecon	☒
Water sample	☒

RQ-2016-12-05-43

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%.

Analyst: Mike Brennan

Signature:

Comments: No LVS, $< 2m^2$ Vea

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		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	

[illegible]