



REFERENCE SCI * BENCHMARK SCI

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2018

Data Qualified?

Yes / No

WIN Station Name: Mormon Branch Upstream of SR 19(2905)

Date: 2/15/2018

WIN/ Field ID: G2CE0052

WBID: 2905

Latitude: 29.1916

(mm/dd/yyyy)

County: MARION

ORG ID: 21 FL CEN

Longitude: -81.6557

(Decimal Degrees)

Receiving Body of Water:

RQ-2017-02-12-59-25-11

(Decimal Degrees)

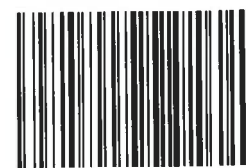
Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment			
TERRY RIORDAN									☒ Sample Container	☒ Van Dorn	☐ Pole	
LEIF BOMAN									☐ Carboy	☒ Syringe		
KATIE WILLIAMS									☐ Dipper	☐ Other		
									Depth Measured with <u>SECCHI DISK LINE</u>			
									Equipment ID			
									Collection Method			
									☒ Wading	☐ Canoe/Kayak		
									☐ From Shore	☐ Electric Motor		
									☐ Other	☐ Gasoline Motor		
Water Level: Dry/ Pooled/ Low / <u>Normal</u> / High / Flooded				Meter ID# BETTY / 67				Matrix: <u>Fresh</u> Marine / DI				
Photos: <u>Yes</u> / No				Flow: No Flow / Intestinal / <u>Flowing</u> / NA				Tide: Rising/ Falling/ Slack/ <u>NA</u>				
Tide Times: High Low												
Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPT)	Sp COND (µmhos/cm)	Temp. (C°)		
EST	1045	0.3	0.15	0.3(s)	7.24	79.3	7.10	0.09	195	19.76		
CEN												
Biological Samples Collected: None <u>HA</u> <u>SCI</u> <u>RPS</u> Algae ID <u>LVS</u> LVI Other:												
SBIO ID Numbers: SBIO-ID: <u>74235</u> HA-ID: <u>15033</u> RPS-ID: <u>6918</u> Macrophyte-ID: <u>10824</u> LIMS#: <u>1968546</u>												
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	SA7341020	12/07/18	☒ <2				
Metals	☐ W-ICPMS ☒ W-ICP				☒ Ice ☒ HNO3	NA7341010	12/07/18	☒ <2				
Filtered Nutrients	☐ W-PO4-F ☐ Field Filtered 0.45 µm Filter				☐ Ice	13615055						
Chlorophyll	☒ CHLSUITE-W				☒ Ice							
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CI-IC / 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 ☐ W-CARB-AA				☐ Ice							
	☐ W-PCL-SQ-R ☐ W-PYR-AA-R ☐ W-GLYPH ☐ W-SUC-AA-R				☐ Other							

Notes:

Bottle Groups
A = K₁ + A/Trac/Mol
B = macro/AL
C = E. Coli

Signature: K. Williams

WIN ID / Field ID →

Mormon Branch Upstream of
SR 19 (2905)

G2CE0052

Date: 2/15/18

Enter Field Parameters, Verify Station ID In LIMS DMT: KMW 2/20/18

QC Station ID, Field Parameters In LIMS DMT:

Scan/Save Field Sheets

Migrate Data to WIN:

Verify Data In WIN:

(Initials/Date)

(Initials/Date)

(Initials/Date)

(Initials/Date)

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Mamon Branch</u>					County: <u>Mason</u>		Date: <u>2/15/19</u>		Investigators: <u>Terry Riordan</u> <u>Leif Boman</u> <u>Katie Williams</u>	
STORET Station Number: <u>62E0052</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	N		60	1	N	N	
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N		40		5	N		64
	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		44		5	N		80
	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		44		5	N		72
	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		60		5	N		48
	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		48		5	N		62
	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		84		5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		

Secchi depth	0.3
Estimated?	N

# points ranked 4-6	8
total points assessed	99
% points ranked 4-6	8

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	
Habitat Assessment	✓
SCI/Biorecon	✓
Water sample	✓
RQ-2017-02-12-59	

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 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID _____ ORG ID 21FLEN LATITUDE _____
 COUNTY Marion STORET # 02CE0052 LONGITUDE _____
 DATE 2/15/18 TIME _____ SAMPLING AGENCY _____
 SITE NAME Momon Branch upstream of SR19
 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 _____ m wide _____ m/s _____ m/s _____ m/s			
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>14</u> Right Bank: <u>>14</u>				Hydrologic Modification Score (per FT 3101) _____			
High Water Mark: <u>0.2</u> + <u>0.3</u> = <u>0.5</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			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>0.15</u></td> <td><u>19.7</u></td> <td><u>7.10</u></td> <td><u>7.24</u></td> <td><u>79.3</u></td> <td><u>195</u></td> <td><u>0.09</u></td> <td>☐</td> </tr> <tr> <td>Mid: _____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>☒ VOB</td> </tr> <tr> <td>Bottom: _____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>TOTAL DEPTH <u>0.3</u></td> </tr> </tbody> </table>						Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	Top: <u>0.15</u>	<u>19.7</u>	<u>7.10</u>	<u>7.24</u>	<u>79.3</u>	<u>195</u>	<u>0.09</u>	☐	Mid: _____	_____	_____	_____	_____	_____	_____	☒ VOB	Bottom: _____	_____	_____	_____	_____	_____	_____	TOTAL DEPTH <u>0.3</u>
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Other	_____	_____																																						
Other	_____	_____																																						
			Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____			Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐																																		
			Algae Sample Taken? ☐ Yes ☐ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____			Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐																																		
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AMBIENT FIELD CONDITIONS / NOTES: <u>SCI sweeps seem less productive than past SCIs</u> ☒ The antecedent hydrologic conditions have been met to my best knowledge.																																								
SAMPLING TEAM <u>KMW, LGB, JR</u>				SIGNATURE: <u>KWilliams</u>			DATE: <u>2/15/18</u>																																	

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

SAMPLING AGENCY:		STORET STATION NUMBER: <u>62080052</u>	DATE (MM/DD/YY): <u>2/15/18</u>	RECEIVING BODY OF WATER: <u>Juniper Creek</u>
REMARKS:	COUNTY: <u>Mason</u>	LOCATION: <u>Mormon Branch</u>	FIELD ID/NAME:	

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>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 <u>.2</u> 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>12</u> Primary Score <u>47</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>18</u> <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 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>9</u> Left Bank <u>8</u>	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 Right Bank <u>9</u> Left Bank <u>10</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>9</u> Left Bank <u>9</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

119 TOTAL SCORE

Date: <u>2/15/18</u>	Analyst: <u>Katie Williams</u>	Signature: <u>KWilliams</u>
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DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Mormon Branch Date: 2/15/18 County: Marion Storet Number: 62CE0052

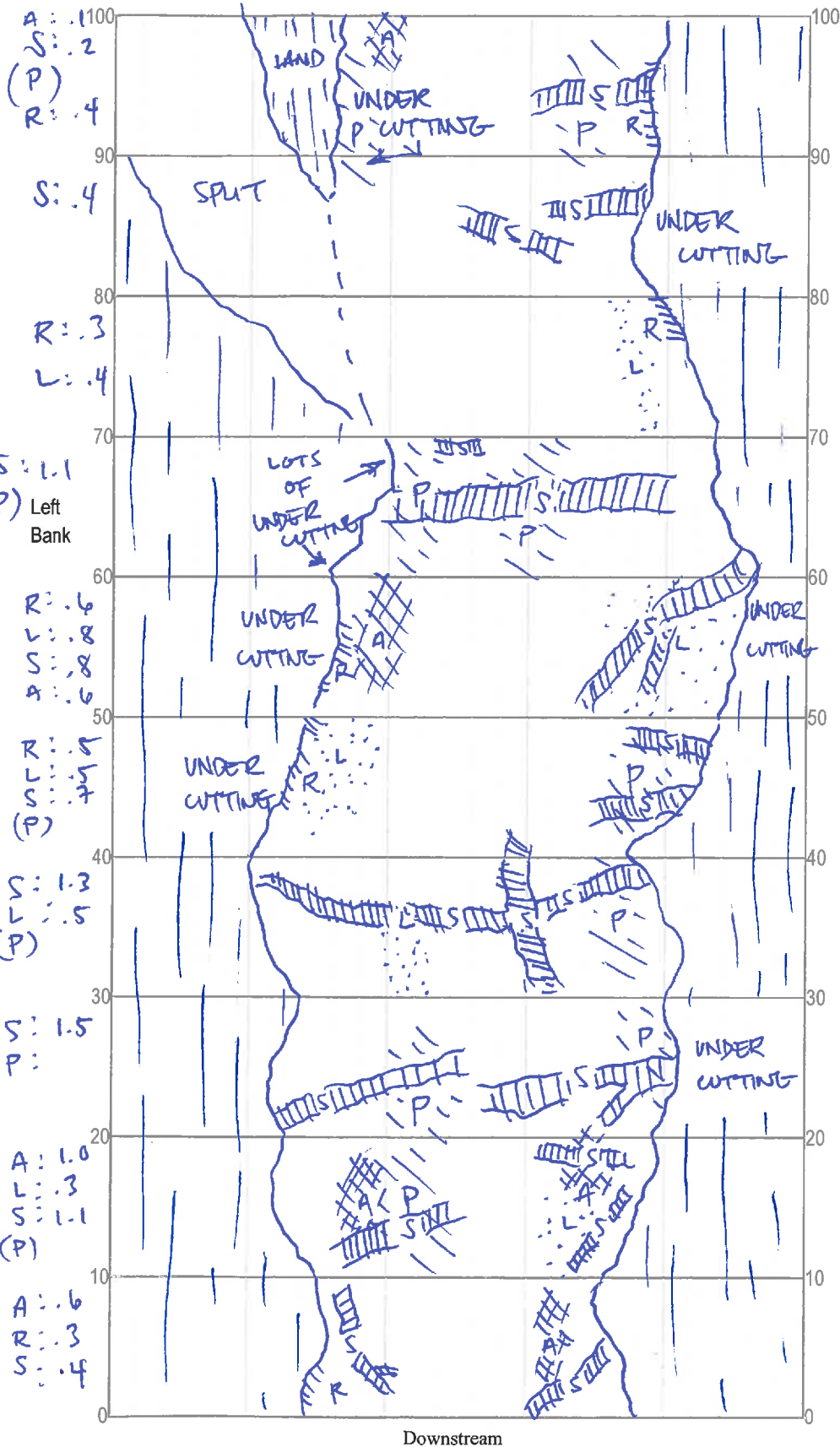
Analyst: Katie Williams Signature: K Williams

Comments: usually < 2m² here in past assessments

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.

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 monnieri												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		✓		✓	✓	✓	✓	✓	✓	✓		Watercress	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Luziola fluitans																							
If no Dominant or Co-Dominant were selected, Indicate with "X"	✓	✓	✓	✓			✓	✓	✓	✓													
Indicate % cover macrophytes per section																							
0-5% Macrophyte Coverage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓													
>5 and ≤10% Macrophyte Coverage																							
>10 and ≤25% Macrophyte Coverage																							
>25 and ≤50% Macrophyte Coverage																							
> 50% Macrophyte Coverage																							

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



Location: Mormon Branch

Date: 2/15/16

Sampler: KMN, TR, LGB

100 m: Latitude		
Longitude		
0 m: Latitude		
Longitude		
Substrates: Code key, draw proportionate habitat abundance. %		
☐ S	Snags	<u>1.88</u>
☐ R	Roots/undercut banks	<u>.53</u>
☐ L	Leaf Packs (or mats)	<u>.63</u>
☐ A	Aquatic Macrophytes	<u>.58</u>
☐		
☐		
☐ P	Pools	total # observed = <u>7</u> # range expected = <u>2-4</u>
Average width <u>4</u> m		
Average depth <u>3</u> m		
Velocity measured at <u>50</u> meter mark.		
WQ & chemistry taken at <u>0</u> 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:

L = 2.5
A = 2.3
S = 7.5
R = 2.1

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