EXISTING AND PROPOSED REACH LEVEL STREAM FUNCTION-BASED RAPID ASSESSMENT FIELD DATA SHEET

Watershed: _____ Rater(s): _____
Stream: _____ Date: _____
Reach Length: _____ Latitude: _____
Photo(s): _____ Longitude: _____

Reach ID: _____

Function-based Rapid Reach Level Stream Assessment

Assessment Parameter	Measurement Method	Category: Functioning	Functioning-at-Risk	Not Functioning
Runoff	**Stream Function Pyramid Level 1 Hydrology**			
	1. Concentrated Flow	No potential for concentrated flow/impairments from adjacent land use	Some potential for concentrated flow/impairments to reach restoration site, however, measures are in place to protect resources	Potential for concentrated flow/impairments to reach restoration site and no treatments are in place
	Existing Condition			
	Proposed Condition			
	2. Flashiness	Non-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover less than 6%	Semi-flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover 7 - 15%	Flashy flow regime as a result of rainfall patterns, geology, and soils, impervious cover greater than 15%
	Existing Condition			
	Proposed Condition			
	If existing runoff is FAR or NF, provide description of cause(s) and stability trend and if F can not be potentially achieved, provide reason			
	Runoff Overall EXISTING Condition	F	FAR	NF
	Runoff Overall PROPOSED Condition	F	FAR	NF
	Stream Function Pyramid Level 1 Hydrology Overall EXISTING Condition	**F**	**FAR**	**NF**
	Stream Function Pyramid Level 1 Hydrology Overall PROPOSED Condition	**F**	**FAR**	**NF**
Floodplain Connectivity (Vertical Stability)	**Stream Function Pyramid Level 2 Hydraulics**			
	3. Bank Height Ratio (BHR)	≤1.0 - 1.2	1.21 - 1.5	1.51 - >1.60
	Existing Condition			
	Proposed Condition			
	4a. Entrenchment- Meandering streams in alluvial valleys or Rosgen C, E, DA Streams	2.4 - ≥5	2.0 - 2.39	<2.0
	Existing Condition			
	Proposed Condition			
	4b. Entrenchment- Non meandering streams in colluvial valleys or Rosgen B Streams	1.4 - ≥2.2	1.2 - 1.39	<1.2
	Existing Condition			
	Proposed Condition			
	5. Floodplain Drainage	No concentrated flow; runoff is primarily sheet flow; hillslopes < 10%; hillslopes >200 ft from stream; ponding or wetland areas and litter or debris jams are well represented	Runoff is equally sheet and concentrated flow (minor gully and rill erosion occurring); hillslopes 10 - 40%; hillslopes 50 - 200 ft from stream; ponding or wetland areas and litter or debris jams are minimally represented	Concentrated flows present (extensive gully and rill erosion); hillslopes >40%; hillslopes <50 ft from stream; ponding or wetland areas and litter or debris jams are not well represented or absent
	Existing Condition			
	Proposed Condition			
	6. Vertical Stability Extent	Stable: <5% of bottom affected by localized vertical channel down-cutting.	Localized Instability: 5-50% of bottom affected by localized vertical stream channel down-cutting or scouring	Widespread Instability: 50% of bottom affected by widespread vertical down-cutting; head cuts present
	Existing Condition			
	Proposed Condition			
	Provide description of cause(s) and stability trend and if F can not be potentially achieved, provide reason			

Reach ID:	

Function-based Rapid Reach Level Stream Assessment

Assessment Parameter	Measurement Method	Category		
		Functioning	Functioning-at-Risk	Not Functioning
	Floodplain Connectivity Overall EXISTING Condition	F	FAR	NF
	Floodplain Connectivity Overall PROPOSED Condition	F	FAR	NF
	Stream Function Pyramid Level 2 Hydraulics Overall EXISTING Condition	**F**	**FAR**	**NF**
	Stream Function Pyramid Level 2 Hydraulics Overall PROPOSED Condition	**F**	**FAR**	**NF**

Stream Function Pyramid Level 3 Geomorphology

Riparian Vegetation

7. Buffer Width (ft) from top of bank	>50 ft	30 - 49 ft	<30 ft
Left Bank Existing			
Left Bank Proposed			
Right Bank Existing			
Right Bank Proposed			
8. Riparian Vegetation Zone (EPA RBP Habitat Assessment)	Good vegetation community diversity and density; human activities do not impact zone (optimal score 9-10)	Human activities impacted zone minimally (sub-optimal; score 6-8); width of riparian zone 20-40 feet (6-12 meters); human activities have impacted zone a great deal (marginal score: 3-5)	Little or no riparian vegetation due to human activities (poor score 0-2)
Left Bank Existing			
Left Bank Proposed			
Right Bank Existing			
Right Bank Proposed			
9. Vegetation Protection	More than 90% of the bank covered by undisturbed vegetation. All 4 classes (mature trees, understory trees, shrubs, groundcover) are represented and allowed to grow naturally. (optimal score 9-10)	70-90% of the bank covered by undisturbed vegetation. One class may not be well represented. Disruption evident but not effecting full plant growth. (sub-optimal score 6-8); 50-70% of the bank covered by undisturbed vegetation. Two classes of vegetation may not be well represented. (marginal, score 3-5)	Less than 50% of the bank covered by undisturbed vegetation or more than 2 classes are not well represented or most vegetation has been cropped. (poor score 0-2)
Left Bank Existing			
Left Bank Proposed			
Right Bank Existing			
Right Bank Proposed			
10. Riparian Zone Invasive Species	Invasive species not present or sparse	Invasive species well represented and alter the community	Majority of vegetation is invasive
Left Bank Existing			
Left Bank Proposed			
Right Bank Existing			
Right Bank Proposed			
Provide description of cause(s) and stability trend and if F can not be potentially achieved, provide reason			
Riparian Vegetation Overall EXISTING Condition	F	FAR	NF
Riparian Vegetation Overall PROPOSED Condition	F	FAR	NF

Lateral Stability

11. Dominant BEHI/NBS Rating	L/M, M/VL, L/VL, L/L	Ex/L, VH/M, H/M, M/H, L/Ex, M/L, L/H	Ex/Ex, Ex/VH, Ex/M, VH/H, H/H, M/VH
Left Bank Existing			
Left Bank Proposed			
Right Bank Existing			
Right Bank Proposed			
12. Dominant Bank Erosion	Dominant bank erosion rate is low 10%	Dominant bank erosion rate is moderate 10-25%	Dominant bank erosion rate is high >25%
Existing Condition			
Proposed Condition			
Provide description of cause(s) and stability trend and if F can not be potentially achieved, provide reason			
Lateral Stability Overall EXISTING Condition	F	FAR	NF
Lateral Stability Overall PROPOSED Condition	F	FAR	NF

Reach ID:

Function-based Rapid Reach Level Stream Assessment

Assessment Parameter	Measurement Method	Category: Functioning	Functioning-at-Risk	Not Functioning
Bedform Diversity (Do not complete if stream is ephemeral)	13. Shelter for Fish and Macroinvertebrates (EPA 1999)	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, rubble, gravel, cobble and large rocks, or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient)	20-70% mix of stable habitat; suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale)	Less than 20% mix of stable habitat; lack of habitat availability less than desirables obvious; substrate unstable or lacking
	Existing Condition			
	Proposed Condition			
	14a. Large Woody Debris # Pieces - Ecoregion 65, 66, 74, and 73	13 - ≥30	6 - 12	0 - 5
	Existing Condition			
	Proposed Condition			
	14b. Large Woody Debris # Pieces - Ecoregion 67, 68, 69, and 71	9 - ≥16	4 - 8	0 - 3
	Existing Condition			
	Proposed Condition			
	15a. Percent Riffle Ecoregion 65, 73, and 74	14 - 36	6 - 13 or 44 - 37	0 - 5 or 45 - ≥50
	Existing Condition			
	Proposed Condition			
	15b. Percent Riffle Ecoregion 66	14 - 58	6 - 13 or 59 - 76	0 - 5 or 77 - ≥90
	Existing Condition			
	Proposed Condition			
	15c. Percent Riffle Ecoregion 67	38 - 72	28 - 37 or 73 - 82	≤20 - 27 or 83 - ≥90
	Existing Condition			
	Proposed Condition			
	15d. Percent Riffle Ecoregion 68, 69, and 71	24 - 56	16 - 23 or 57 - 64	≤10 - 15 or 65 - ≥70
	Existing Condition			
	Proposed Condition			
	16a. Pool-to-pool Spacing Ratio - Slope ≤2%	3 - 5	1.9 - 2.9 or 5.1 - 6.1	≤1 - 1.8 or 6.2 - ≥7
	Existing Condition			
	Proposed Condition			
	16b. Pool-to-pool Spacing Ratio - Slope >2%	≤2.5 - 3.5	3.6 - 4.8	4.9 - ≥5.8
	Existing Condition			
	Proposed Condition			
	17. Pool Max Depth Ratio/ Depth Variability	2 - ≥2.40	1.43 - 1.99	≤1.00 - 1.42
	Existing Condition			
	Proposed Condition			
	If existing bedform diversity is FAR or NF, provide description of cause(s) and stability trend and if F can not be potentially achieved, provide reason			
	Bedform Diversity Overall EXISTING Condition	F	FAR	NF
	Bedform Diversity Overall PROPOSED Condition	F	FAR	NF

Stream Function Pyramid Level 3 Geomorphology Overall EXISTING Condition	**F**	**FAR**	**NF**
Stream Function Pyramid Level 3 Geomorphology Overall PROPOSED Condition	**F**	**FAR**	**NF**

Reach ID:	

Function-based Rapid Reach Level Stream Assessment

Assessment Parameter	Measurement Method	Category: Functioning	Functioning-at-Risk	Not Functioning
Stream Function Pyramid Level 4 Physicochemical				
Water Quality and Nutrients (Do not complete if stream is ephemeral)	18. Water Appearance and Nutrient Enrichment (USDA 1999)	Very clear, or clear but tea-colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks. Clear water along entire reach; diverse aquatic plant community includes low quantities of many species of macrophytes; little algal growth present	Frequent cloudiness especially after storm events; objects visible to depth 0.5 to 3.0 ft; may have slight green color; no oil sheen on water surface. Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrate	Very turbid or muddy appearance most of the time; objects visible at depth <0.5 ft; slow moving water maybe bright green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface; or strong odor of chemicals, oil, sewage, or other pollutants. Pea-green, gray, or brown water along entire reach; dense stands of macrophytes clogging stream; severe algal blooms creating thick algal mats in stream
	Existing Condition			
	Proposed Condition			
	19. Detritus (Petersen 1992)	Mainly consisting of leaves and wood without sediment covering it	Leaves and wood scarce; fine organic debris without sediment	Fine organic sediment - black in color and foul odor (anaerobic) or detritus absent
	Existing Condition			
	Proposed Condition			
	Provide description of cause(s) and stability trend and if F can not be potentially achieved, provide reason			

Stream Function Pyramid Level 4 Physicochemical Overall EXISTING Condition	**F**	**FAR**	**NF**
Stream Function Pyramid Level 4 Physicochemical Overall PROPOSED Condition	**F**	**FAR**	**NF**

Assessment Parameter	Measurement Method	Functioning	Functioning-at-Risk	Not Functioning
Stream Function Pyramid Level 5 Biology				
Biology (Do not complete if stream is ephemeral)	20a. Macroinvertebrate Index Semi Quantitative Single Habitat (SQSH) Macroinvertebrate Sample - Ecoregion 73a or 73b (as defined in 2011 Tennessee State QSSOP for macroinvertebrate surveys)	26 - ≥30	13 - 25	0 - 12
	Existing Condition			
	Proposed Condition			
	20b. Macroinvertebrate Index Semi Quantitative Single Habitat (SQSH) Macroinvertebrate Sample- All other Ecoregions (as defined in 2011 Tennessee State QSSOP for macroinvertebrate surveys)	36 - ≥42	19 - 35	0 - 18
	Existing Condition			
	Proposed Condition			

Stream Function Pyramid Level 5 Biology Overall EXISTING Condition	**F**	**FAR**	**NF**
Stream Function Pyramid Level 5 Biology Overall PROPOSED Condition	**F**	**FAR**	**NF**