Second Branch Corridor Plan 2019-2021 Appendices

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Phase II Reach/Segment:
Rapid Geomorphic Assessment (RGA) Scores,
Channel Geometry Data, and
Rapid Habitat Assessment (RHA) Scores



Agency of Natural Resouces

VT DEC Vermont.gov March, 18 2021

Phase 2 - Rapid Geomorphic Assessment

White River - Second Branch

				Degradat	ion	<i>-</i>	Aggradat	ion	Wic	lening	Plan	form]						
Reach		Sub Rch?	Score	STD	Historic	Score	STD	Historic	Score	Historic	Score	Historic	Geo Score	Geo Condition	Evol. Stage	Confin. Type	Sensitivity	QC Staff	QC Auto
M01	0	No	5	None	Yes	15	None	No	13	No	11	Yes	0.55	Fair	IV	VB	Very High	F	F
M02	0	No	9	None	Yes	12	None	No	10	No	12	Yes	0.54	Fair	Ш	NC	Very High	F	F
M03	0	No	10	EToC	Yes	10	EToC	No	10	No	11	No	0.51	Fair	Ш	VB	Very High	F	F
M04	0	No	9	None	No	8	None	No	9	No	10	Yes	0.45	Fair	Ш	BD	Extreme	F	F
M05	0	No	12	None	No	7	None	No	10	No	5	No	0.43	Fair	Ш	VB	Very High	F	F
M06	0	No	11	None	No	7	None	No	5	No	6	No	0.36	Fair	Ш	BD	Extreme	F	F
M07	0	No	9	EToC	Yes	10	EToC	No	8	No	6	No	0.41	Fair	Ш	VB	Very High	F	F
M08	0	No	8	None	Yes	11	None	No	13	No	8	No	0.50	Fair	Ш	NW	Very High	F	F
M09	0	No	7	None	Yes	8	None	No	9	No	7	No	0.39	Fair	Ш	BD	Very High	F	F
M10	0	No	10	None	Yes	10	None	No	8	No	6	No	0.43	Fair	Ш	BD	Very High	F	F
M11	Α	No	5	C to F	Yes	9	None	No	9	No	8	No	0.39	Fair	Ш	SC	Extreme	F	F
M11	В	No	6	None	Yes	6	None	No	4	No	4	No	0.25	Poor	Ш	NW	Extreme	F	F
M11	С	No	5	C to B	Yes	6	None	No	9	No	10	No	0.38	Fair	Ш	SC	Extreme	F	F
M12	0	No	13	EToC	Yes	9	None	No	10	No	10	No	0.53	Fair	IV	VB	Very High	F	F
M13	0	No	15	None	No	10	None	No	13	No	7	No	0.56	Fair	IV	VB	Very High	F	F
M14	0	No	11	None	No	12	None	No	13	No	11	No	0.59	Fair	Ш	VB	Very High	F	F
M15	0	No	9	None	No	11	None	No	12	No	7	No	0.49	Fair	Ш	VB	Very High	F	F
M16	Α	No	11	None	No	11	None	No	13	No	10	No	0.56	Fair	IV	VB	Very High	F	F
M16	В	No											0.00					F	F
M17	Α	Yes	6	None	No	8	None	No	10	No	9	No	0.41	Fair	Ш	BD	Extreme	F	F
M17	В	No	11	None	Yes	11	None	No	13	No	10	No	0.56	Fair	IV	NW	Very High	F	F
M17	С	No											0.00			VB		F	F



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Phase 2 - Stream Geometry Data

White River - Second Branch

			Phase	2 Stream	Гуре		Pha	ase 1 Da	ata					ı	Phase 2	Channe	el Data					
Reach	Seg- ment	Stream Type	Bed Material	Bedform	Subcl. Slope		Channel Slope	Channel Width	Bankfull Width			Floodpr Width	Recnt Abandn Fldpin	Depth	Entrench- ment Ratio	Incision Ratio	Channel Evolution Stage	Channel Evolution Model	Geo Assess Condition	Hab Assess Condition	QC Staff	QC Auto
M01	0	С	Gravel	Riffle-Pool	None	No	0.13		62.6	6	4.43	678	13.3	14.13	10.83	2.22	IV	F	Fair		F	F
M02	0	В	Sand	Dune- Ripple	С	No	0.11		68.8	5.8	4.84	118.2	7	14.21	1.72	1.21	III	F	Fair		F	F
M03	0	С	Gravel	Riffle-Pool	None	No	0.16		61.1	5.8	4.39	798.1	8.6	13.92	13.06	1.48	III	F	Fair		F	F
M04	0	С	Sand	Dune- Ripple	None	No	0.19		53	5.6	4.31	740	7.8	12.30	13.96	1.39	III	F	Fair		F	F
M05	0	Ε	Sand	Dune- Ripple	None	No	0.04		54	5.6	4.33	1419	6.4	12.47	26.28	1.14	III	F	Fair		F	F
M06	0	С	Sand	Dune- Ripple	None	No	0.28		68.6	4.6	2.39	696.8	5.7	28.70	10.16	1.24	III	F	Fair		F	F
M07	0	С	Gravel	Riffle-Pool	None	No	0.09		54.8	5.7	4.2	711.8	8.8	13.05	12.99	1.54	III	F	Fair		F	F
M08	0	С	Gravel	Riffle-Pool	None	No	0.38		55.4	6.1	4.81	291.9	8.2	11.52	5.27	1.34	III	F	Fair		F	F
M09	0	С	Sand	Riffle-Pool	None	No	0.30		69.3	5.4	3.17	419.3	8.6	21.86	6.05	1.59	III	F	Fair		F	F
M10	0	С	Gravel	Riffle-Pool	None	No	0.04		55.5	5.1	3.04	333.5	6.4	18.26	6.01	1.25	III	F	Fair		F	F
M11	Α	F	Gravel	Riffle-Pool	None	No	0.58		60.5	3.4	2.61	67.5	8.3	23.18	1.12	2.44	III	F	Fair		F	F
M11	С	В	Sand	Dune- Ripple	С	No	0.58		63.8	4.2	1.98	86.4	8.4	32.22	1.35	2.00	III	F	Fair		F	F
M11	В	С	Gravel	Riffle-Pool	None	No	0.58		79.2	3.2	1.59	554.2	5.1	49.81	7.00	1.59	III	F	Poor		F	F
M12	0	С	Sand	Dune- Ripple	None	No	0.07		46.4	5	2.2	1535	6	21.09	33.08	1.20	IV	None	Fair		F	F
M13	0	С	Gravel	Riffle-Pool	None	No	0.13		40.9	4	2.52	1568	4	16.23	38.34	1.00	IV	F	Fair		F	F
M14	0	С	Gravel	Riffle-Pool	None	No	0.33		37.3	3.1	2.13	793	3.8	17.51	21.26	1.23	III	F	Fair		F	F
M15	0	E	Sand	Dune- Ripple	None	No	0.11		20	3.7	2.53	795	3.7	7.91	39.75	1.00	Ш	F	Fair		F	F
M16	В					No	1.33							0.00	0.00	0.00					F	F
M16	Α	С	Gravel	Riffle-Pool	None	No	1.33		23	3.2	2.28	803	3.2	10.09	34.91	1.00	IV	F	Fair		F	F
M17	Α	E	Sand	Dune- Ripple	None	Yes	0.73		20.5	2.6	1.36	155.5	2.6	15.07	7.59	1.00	III	F	Fair		F	F
M17	В	С	Gravel	Riffle-Pool	None	No	0.73		26.3	1.7	0.97	136.4	1.7	27.11	5.19	1.00	IV	None	Fair		F	F
M17	С					No	0.73							0.00	0.00	0.00					F	F



Agency of Natural Resouces



Phase 2 - Rapid Habitat Assessment Scores

White River - Second Branch

Explanation of codes used in table header

6.1	Woody Debris Cover	6.5	Hydrologic Characteristics
6.2	Bed Substrate Cover	6.6	Connectivity
6.3	Scour and Deposition Features	6.7	River Banks
6.4	Channel Morphology	6.8	Riparian Area

Danak	Reference	Bed-	Habitat	Reach				0.4	٥.5		_	5.7		5.8 Dialet	Total	Percent-	Habitat
Reach	Stream Type	form	Departure	Length	6.1	6.2	6.3	6.4	6.5	6.6	Left	Right	Left	Right	Score	age	Condition
M01-0	Riffle-Pool	Riffle-Pool	None	3,779	13	11	10	8	12	15	4	5	4	4	86	54	Fair (Major Departure)
M02-0	Riffle-Pool	Dune-Ripple	None	9,245	15	9	10	8	11	9	8	8	6	7	91	57	Fair (Major Departure)
M03-0	Dune-Ripple	Riffle-Pool	Dune-Ripple	8,939	12	8	6	10	13	10	4	6	4	4	77	48	Fair (Major Departure)
M04-0	Dune-Ripple	Dune-Ripple	Dune-Ripple	10,807	13	8	5	9	11	5	4	4	5	6	70	44	Fair (Major Departure)
M05-0	Dune-Ripple	Dune-Ripple	None	11,266	9	9	10	9	8	10	4	4	4	4	71	44	Fair (Major Departure)
M06-0	Dune-Ripple	Dune-Ripple	None	9,815	9	10	10	8	7	11	5	5	4	4	73	46	Fair (Major Departure)
M07-0	Riffle-Pool	Riffle-Pool	None	14,323	15	9	11	7	11	10	4	4	7	3	81	51	Fair (Major Departure)
M08-0	Riffle-Pool	Riffle-Pool	None	3,162	17	11	9	11	11	11	4	5	8	9	96	60	Fair (Major Departure)
M09-0	Riffle-Pool	Dune-Ripple	None	6,067	11	6	7	7	9	5	4	3	4	1	57	36	Fair (Major Departure)
M10-0	Riffle-Pool	Riffle-Pool	None	7,595	11	7	11	10	8	9	2	2	3	2	65	41	Fair (Major Departure)
M11-A	Riffle-Pool	Riffle-Pool	None	3,158	13	8	10	5	11	11	7	6	6	6	83	52	Fair (Major Departure)
M11-B	Riffle-Pool	Riffle-Pool	None	2,491	3	9	8	4	8	9	3	3	4	2	53	33	Poor (Severe Departure)
M11-C	Riffle-Pool	Riffle-Pool	None	2,396	14	10	10	5	12	12	8	7	8	4	90	56	Fair (Major Departure)
M12-0	Dune-Ripple	Dune-Ripple	None	13,706	15	13	13	11	12	12	8	7	6	6	103	64	Fair (Major Departure)
M13-0	Riffle-Pool	Dune-Ripple	None	7,421	7	7	13	12	8	10	5	5	3	3	73	46	Fair (Major Departure)
M14-0	Riffle-Pool	Riffle-Pool	None	9,611	11	13	13	10	12	12	4	4	3	3	85	53	Fair (Major Departure)
M15-0	Riffle-Pool	Dune-Ripple	None	6,398	5	7	8	10	10	10	5	4	3	1	63	39	Fair (Major Departure)
M16-A	Riffle-Pool	Dune-Ripple	Riffle-Pool	3,218	16	11	11	14	13	13	7	6	5	4	100	63	Fair (Major Departure)
M16-B		Dune-Ripple	None	5,001											0	0	Poor (Severe Departure)
M17-A	Dune-Ripple	Riffle-Pool	None	6,303	13	13	13	12	12		4	6	5	7	85	53	Fair (Major Departure)
M17-B	Riffle-Pool	Riffle-Pool	None	3,823	17	14	13	12	13	8	4	4	8	7	100	63	Fair (Major Departure)
M17-C		Riffle-Pool	None	4,065											0	0	Poor (Severe Departure)

– Appendix 2 –

Phase 1 Reach: Summary Reports

White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: March, 12 2021 Watershed: White River QA Status: Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: #Error Step 1. Reach Location Begins at confluence with the White River (Intersection of Rt 107 and Rt 14). Ends .5 mi N on Rt 14 from intersection with Rt 107. 1.1 Reach Description: 1.2 Towns: Royalton Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 43.82505 4.1 Watershed 1.3 Downstream Longitude: -72.56665 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 75.8 % 490 Current Sub-Dominant Land Cover: Field 2.1 Elevation Upstream: 2.1 Elevation Downstream: 485 4.2 Corridor 2.1 Is Gradient Gentle?: #Error Historic Land Cover:: Field 2.2 Valley Length: 3,379.0 ft. 0.64 Miles **Current Dominant Land Cover: Forest** 33.8 % 2.3 Valley Slope: 0.1 Current Sub-Dominant Land Cover: Urban 3,779.0 ft. 2.4 Channel Length: 0.72 Miles 4.3 Riparian Buffer Right Bank Left Bank 2.5 Channel Slope: 0.13 % >100 Dominant: 0-25 2.6 Sinuosity: 1.12 0-25 Sub-dominant: >100 2.7 Watershed Area: 74.3 Square Miles Length w / less than 25 ft.: 1,227.0 ft. 1,014.0 ft. 2.8 Channel Width: 87.2 feet 4.4 Ground Water Inputs: Minimal 2.9 Valley Width: **680.0** feet Step 5. Instream Channel Modifications 7.8 2.10 Confinement Ratio: 5.1 Flow Regulation - (old): Broad 2.10 Confinement Type: None Type: С 2.11 Reference Stream Type: Use: Bedform: Riffle-Pool 5.2 Bridges and Culverts: 3 52.9 % Sub-Class Slope: None 5.3 Bank Armoring: 72 7 1.9 % Bed Material: Gravel Left: 53.9 ft. Right: 18.8 ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 769.5 20.4 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data None 3.2 Grade Control: Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: **Ice-Contact** 62.5 % 6.1 Berms & Roads - old: 2,035.4 ft. 53.9 3.3 Sub-dom. Geological Mat.: **Alluvial** One Side **Both Sides** 3.4 Valley Slope Left: **Very Steep** 893.1 ft. 0.0 ft. Road: 3.4 Valley Slope Right: Steep Railroad: 0.0 ft. 0 0 ft 3.5 Soils Berm: 0.0 ft. 0.0 ft. Hydrologic Group: Α 50.8 % Improved Path: 2,035.4 ft. 0.0 ft. None/Rare 63.6 % Flooding: 6.2 Development: 633.4 ft. 0.0 ft. Water Table Deep: 6.0 66.3 % 6.3 Channel Bars: None Water Table Shallow: 6.0 66.3 % 6.4 Meander Migration: None Erodibility: Moderate 49.0 % 6.5 Meander Width: ft. Rato: 0.0 7.4 Comments: 6.6 Wavelength: ft. Ratio: 0.0 Step 7. Windshield Survey 7.1 Bank Erosion: 228.1347351 ft 7.2 Bank Height: 3 ft 7.3 Ice/Debris Jam Potential: Shallow 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.1 7.3 Total 2 1 2 2 2 0 2 0 0 2 1 0 0 0 0 1 15 N.S. High High High N.S. High N.S. High N.S. High N.S. N.D. N.D. Low Low Low

White Rive	r - Se	con	d B	rar	ıch					Pha	ase	1 - I	Rea	ach	Sum	mary	Repor	t
Basin:	White									Reach	ID:			M02		_	-	
Stream Name:		d Bran	ch of	the V	/hite F	River				SGAT	Version	on:		4.56				
Topo Maps: Watershed:	Brook White	field, R River	ando	lph C	enter,	S Ro	yalton			Date I		dited:			ary, 14 2 7 done	021		
Sub-watershed:		d Bran	ch W	hite R	iver							Impau	- d	•	#Err			
Sub-watersned. Step 1. Reach Loca						4 fron	n inter	eacti				Impou					terman rd.	
.1 Reach Descript		Degiii	3 .5 11			7 11 011	ii iiitoi	30011	OII WIL		O7. LI	ius at	iiitoi.	SCOLIO		Tana Wa	terman ra.	
•	alton									ç	Sten 4	I and (-over	- Rea	ch Hydro	logy		
l.3 Downstream La		4	3.831	70								tershed		rtca	CITTIYGIO	<u>logy</u>		
.3 Downstream Lo			72.57 <i>2</i>	-						4		ric Lar					Forest	
Step 2. Stream Typ	Ū	-	12.312	201											l Cover:		Forest	75.7 %
•				-	00													75.7 %
2.1 Elevation Upstrop. 2.1 Elevation Down					00 90								o-Don	nınant	Land Cov	ver:	Field	
2.1 Is Gradient Ger	ntle?:			#Err	or					4	.2 Cor	ridor oric Lar	od Co	vor			-	
2.2 Valley Length:			8,6	614.0	ft.		1.63	Mile	es								Forest	40.00
2.3 Valley Slope:				0	.1										Cover:		Forest	46.8 %
2.4 Channel Length	1:		9,2	245.0	ft.		1.75	Mile	es					nınant	Land Cov		Urban	.
2.5 Channel Slope:			ŕ	0.	11 %			.*****			•	an Buff	er		<u>l</u>	Left Bank	Right	
2.6 Sinuosity:				1.0							omina					>100	0-2	
2.7 Watershed Area	а:			72	. 6 Squ	are M	liles					minant				0-25	>1	
2.8 Channel Width:				86	.3 feet						•	w / les				3,279.0 ft.	. 1,83	9.0 ft.
2.9 Valley Width:					feet					4.4	Ground	d Wate	r Inpu	ıts:	Mini	mal		
2.10 Confinement F	Ratio:			0	.0										odificatio	 '		
2.10 Confinement T	Type:	N	larrov	viv Co	onfine	d				5.1	Flow F	Regulat	tion -	(old):	No [
2.11 Reference Str				,						Т	ype:				Non	е		
Bedform:			oune-F	Ripple	9						Jse:							
Sub-Class Slo	ne:	c									•	es and		erts:		1	7.8 %	
Bed Material:	ρο.		Sand							5.3	Bank /	Armorii	ng:		6	39.8	6.9 %	6
tep 3. Basin Chara	teristicts										Left:			421.	5 ft. Rig	ght:	218.2 ft	
3.1 Alluvial Fan:		N	lone							5.4	Chanr	nel Stra	ighte	ning:	2,44	2.8	26.4 %	6
3.2 Grade Control:			lone							5.5	Dredg	ing His	tory:		No I	Data		
3.3 Dominant Geol	ogical Mat		ce-Co	ntact			50.6 °	%		Ste	p 6. Fl	oodpla	<u>in Mo</u>	dificati	<u>ons</u>			
3.3 Sub-dom. Geol	Ū	-	ill					, 0		6.1	Berms	& Roa	ads - (old:	6,	555.2 ft.	70.9	9
3.4 Valley Slope Le	•		 /ery S	teen											<u>On</u>	e Side	Both Sides	<u>3</u>
3.4 Valley Slope Ri			Steep	toop							Road	d:			6,2	224.0 ft.	331.2 ft	
3.5 Soils	9111.		cp								Railr	oad:				0.0 ft.	0.0 ft	
Hydrologic Group	·	Е	2				49.5	0/6			Bern	ո։				0.0 ft.	0.0 ft	
Flooding:	J.		o None/F	Rare			87.5°				Impr	oved P	ath:			0.0 ft.	0.0 ft	
Water Table Dee	n.		6.0	.uı €			74.9 °			6.2	Devel	opmen	t:		;	304.7 ft.	0.0 ft	
Water Table Sha	•		5.0				74.9			6.3	Chanr	nel Bar	s:		Non	е		
Erodibility:	movv.		.u /ery S	overs			87.5°			6.4	Mean	der Mig	ratior	า:	Non	е		
7.4 Comments:		v	ery 3	CVCIC	•		01.3	/0				der Wid	•			ft. R	ato: 0.0	
7.4 Comments.										6.6	Wavel	ength:				ft. R	atio: 0.0	
												indshie		ırvev				
												nk Eros			1333	3.8891602	<u>!</u>	£4
												nk Eros nk Heig						ft
												Ū		_	4	_		ft
										7	.3 Ice/	Debris	Jam	Potent	ial: Deb	ris		
4.1	4.2 4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.3	Total]		
2	2 2	0	1	1	2	0	2	0	0	0	0	0	1	1	14	1		
	 High High		Low	Low									Low					

White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: April, 30 2020 White River Watershed: QA Status: Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: #Error Step 1. Reach Location Begins at intersection of Rt 14 and Waterman rd. Ends .15 mi S of intersection of Rt 14 and Russ Hill Rd. 1.1 Reach Description: Bethel, Royalton 1.2 Towns: Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 43.84871 4.1 Watershed 1.3 Downstream Longitude: -72.58758 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 75.7 % 514 Current Sub-Dominant Land Cover: Field 2.1 Elevation Upstream: 2.1 Elevation Downstream: 500 4.2 Corridor 2.1 Is Gradient Gentle?: #Error Historic Land Cover:: Field 2.2 Valley Length: 5,875.0 ft. 1.11 Miles **Current Dominant Land Cover: Forest** 45.5 % 2.3 Valley Slope: 0.2 Current Sub-Dominant Land Cover: Field 8,939.0 ft. 2.4 Channel Length: 1.69 Miles 4.3 Riparian Buffer Right Bank Left Bank 2.5 Channel Slope: 0.16 % 0-25 Dominant: >100 2.6 Sinuosity: 1.52 >100 Sub-dominant: 0-25 2.7 Watershed Area: 69.4 Square Miles Length w / less than 25 ft.: 4,262.0 ft. 4,237.0 ft. 2.8 Channel Width: 84.6 feet 4.4 Ground Water Inputs: Minimal 2.9 Valley Width: **777.0** feet Step 5. Instream Channel Modifications 9.2 2.10 Confinement Ratio: 5.1 Flow Regulation - (old): Impoundment Broad 2.10 Confinement Type: None Type: Ε 2.11 Reference Stream Type: Use: Bedform: Riffle-Pool 5.2 Bridges and Culverts: 1 9.2 % Sub-Class Slope: None 5.3 Bank Armoring: 162.7 1.8 % Bed Material: Sand Left: 162.7 ft. Right: **0.0** ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 2.239.9 25.1 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data 3.2 Grade Control: Waterfall Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: Alluvial 60.9 % 6.1 Berms & Roads - old: 388.2 ft. 4.3 3.3 Sub-dom. Geological Mat.: **Ice-Contact Both Sides** One Side 3.4 Valley Slope Left: Ext. Steep 0.0 ft. 388.2 ft. Road: 3.4 Valley Slope Right: **Very Steep** Railroad: 0.0 ft. 0 0 ft 3.5 Soils Berm: 0.0 ft. **0.0** ft. Hydrologic Group: R 68.6 % Improved Path: 0.0 ft. 0.0 ft. None/Rare 39.1 % Flooding: 6.2 Development: 0.0 ft. 0.0 ft. Water Table Deep: 6.0 43.5 % 6.3 Channel Bars: None Water Table Shallow: 6.0 43.5 % 6.4 Meander Migration: **Avulsion** Erodibility: Moderate 31.6 % 6.5 Meander Width: 430 ft. Rato: 5.1 7.4 Comments: 6.6 Wavelength: 495 ft. Ratio: 5.8 Step 7. Windshield Survey 7.1 Bank Erosion: 3812.4118652 ft 7.2 Bank Height: ft 7.3 Ice/Debris Jam Potential: Debris 7.1 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.3 Total 2 0 2 0 2 2 2 1 0 0 0 0 2 0 2 1 16 High High High N.S. N.S. High N.S. N.S. N.S. N.S. High N.S. High High Low Low

White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: March, 13 2021 White River Watershed: **QA Status:** Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: Step 1. Reach Location Begins .15 mi S on Rt 14 from intersection with Russ Hill rd. Ends .1 mi S of Kingsbury Covered bridge. 1.1 Reach Description: Bethel, Randolph, Royalton 1.2 Towns: Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 43.86073 4.1 Watershed 1.3 Downstream Longitude: -72.58201 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 75.7 % Current Sub-Dominant Land Cover: Field 2.1 Elevation Upstream: 535 2.1 Elevation Downstream: 514 4.2 Corridor 2.1 Is Gradient Gentle?: #Error Historic Land Cover:: Field 2.2 Valley Length: 8,366.0 ft. 1.58 Miles **Current Dominant Land Cover: Forest** 36.2 % 2.3 Valley Slope: 0.3 Current Sub-Dominant Land Cover: Urban 10,807.0 ft. 2.4 Channel Length: 2.05 Miles 4.3 Riparian Buffer Left Bank Right Bank 2.5 Channel Slope: 0.19 % 0-25 Dominant: 0-25 2.6 Sinuosity: 1.29 51-100 Sub-dominant: >100 2.7 Watershed Area: 66.8 Square Miles Length w / less than 25 ft.: 5,189.0 ft. 5,640.0 ft. 2.8 Channel Width: 83.2 feet 4.4 Ground Water Inputs: Minimal 2.9 Valley Width: **508.0** feet Step 5. Instream Channel Modifications 6.1 2.10 Confinement Ratio: 5.1 Flow Regulation - (old): Impoundment Broad 2.10 Confinement Type: None Type: Ε 2.11 Reference Stream Type: Use: Bedform: **Dune-Ripple** 5.2 Bridges and Culverts: 2 7.6% Sub-Class Slope: None 5.3 Bank Armoring: 1.382.9 12.8 % Bed Material: Sand Left: 1,231.1 ft. Right: 151.7 ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 3.477.8 32.2 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data 3.2 Grade Control: Multiple Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: **Alluvial** 37.8 % 6.1 Berms & Roads - old: 4,018.6 ft. 37.2 3.3 Sub-dom. Geological Mat.: **Ice-Contact** One Side **Both Sides** 3.4 Valley Slope Left: **Very Steep** 4,018.6 ft. 0.0 ft. Road: 3.4 Valley Slope Right: Ext. Steep Railroad: 0.0 ft. 0 0 ft 3.5 Soils Berm: 278.4 ft. 0.0 ft. Hydrologic Group: В 45.5 % Improved Path: 0.0 ft. 0.0 ft. None/Rare 62.2 % Flooding: 6.2 Development: 371.0 ft. 539.7 ft. Water Table Deep: 6.0 60.6 % 6.3 Channel Bars: None Water Table Shallow: 6.0 60.6 % None 6.4 Meander Migration: **Erodibility:** Severe 50.9 % 6.5 Meander Width: 83 ft. Rato: 1.0 7.4 Comments: 6.6 Wavelength: 83 ft. Ratio: 1.0 Sandy Banks - Steep - Mass Failure Potential. Step 7. Windshield Survey 7.1 Bank Erosion: 1879.3582764 ft 7.2 Bank Height: ft 7.3 Ice/Debris Jam Potential: Shallow 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.1 7.3 Total 0 2 0 2 1 2 2 2 1 1 0 2 1 0 2 1 19 N.S. High High High N.S. High N.S. High N.S. High High Low Low Low Low Low

White River -	Sec	conc	d B	ran	ıch					Pha	se	1 -	Rea	ach	Sun	nmary	Rep	ort	
Basin: V	Vhite									Reach				M05		-	-		
Stream Name: S	econd	Branc	h of t	the W	/hite F	River				SGAT	Versi	on:		4.56					
. opo mapo.	Brookfi Vhite R	eld, Ra liver	andol	ph C	enter,	S Ro	yalton			Date L		dited:			ary, 20 2 7 done	2021			
Sub-watershed: S	econd	Branc	h Wh	nite R	iver					Is Rea	ch An	Impo	oundme	ent?:	#Eı	ror			
Step 1. Reach Location	ı	Begins	.1 m	i S of	f King	sbury	Bridg	je. Er							Rando	ph Rd.			
1.1 Reach Description:					_														
1.2 Towns: Randolp	h									<u>s</u>	tep 4.	Land	d Cove	r - Rea	ch Hydro	ology			
1.3 Downstream Latitud	e:	43	3.8800	05						4	.1 Wa	tersh	ed						
1.3 Downstream Longitu	ıde:	-72	2.582	211							Histo	oric La	and Co	ver:			Forest		
Step 2. Stream Type											Curr	ent D	ominar	nt Land	Cover:		Forest	7	'5.9 %
2.1 Elevation Upstream:				54	40						Curr	ent S	ub-Dor	minant	Land Co	over:	Field		
2.1 Elevation Downstrea				53						4	.2 Cor	ridor							
2.1 Is Gradient Gentle?:				#Err							Histo	oric L	and Co	ver::			Shrub)	
2.2 Valley Length:			7,3	306.0			1.38	Mile	es		Curr	ent D	ominar	nt Land	Cover:		Forest	6	7.6 %
2.3 Valley Slope:				_	.1						Curr	ent S	ub-Dor	minant	Land Co	over:	Crop		
2.4 Channel Length:			11,2	266.0			2.13	Mile	es	4.3	Ripari	an Bı	uffer			Left Bank	<u>R</u>	ight Bar	<u>ık</u>
2.5 Channel Slope:					04 %						Omina					>100		0-25	
2.6 Sinuosity:				1.5						S	ub-do	mina	nt:			51-100		51-100	
2.7 Watershed Area:					. 7 Squ		liles			L	ength	w / le	ess tha	n 25 ft.	:	3,715.0 ft.	. (6,221.0	ft.
2.8 Channel Width:				81	.5 feet					4.4 (Groun	d Wa	ter Inpi	uts:	Abı	ındant			
2.9 Valley Width:					fee	t				Ster	o 5 In	strea	m Chai	nnel M	odification	nns			
2.10 Confinement Ration				0	.0								lation -		oamoan	<u> </u>			
2.10 Confinement Type:			road								уре:	Ū		` ,	No	ne			
2.11 Reference Stream	Type:	Е									lse:								
Bedform:		Dι	une-R	Ripple)					_		es an	d Culve	erts:		3	15	i.3 %	
Sub-Class Slope:		No	one								Bank					796.9		'. 1 %	
Bed Material:		Sa	and								Left:		3	582.	1 ft. R	ight:	214	.8 ft.	
Step 3. Basin Charateris	ticts									5.4		nel St	raighte		939	•		3.3 %	
3.1 Alluvial Fan:		No	one										listory:	•	No	Data			
3.2 Grade Control:			one								_	•	•	dificati	one				
3.3 Dominant Geologica	l Mat.:	Al	lluvia	ıl			73.3	%					oads -			.200.2 ft.		19.5	
3.3 Sub-dom. Geologica	ıl Mat.:	_	lacial		•					0.1	Dennis	X IX	uaus -	oiu.		ne Side	Both S		
3.4 Valley Slope Left:		Ex	ct. Ste	eep							Road	4٠				,200.2 ft.		0.0 ft.	
3.4 Valley Slope Right:		Ex	ct. Ste	еер							Railr				2	0.0 ft.).0 ft.	
3.5 Soils											Bern					0.0 ft.).0 ft.	
Hydrologic Group:		В					51.8						Path:			818.0 ft.).0 ft.	
Flooding:			eque	nt			73.3			62	Devel					0.0 ft.).0 ft.	
Water Table Deep:		1.5					40.0				Chanr	•			No		U	. II.	
Water Table Shallow:		1.5					42.1							n.					
Erodibility:		sli	ight				23.3	%					ligratio	n:	AVI	ulsion	oto: F		
7.4 Comments:											Mean					470 ft. R			
Bank Failure!											Wave	U				280 ft. R	atio: 3.4	4	
													<u>nield Su</u>	<u>ırvey</u>					
													osion:		257	3.0871582		ft	
										7	.2 Bar	nk He	ight:		3			ft	
										7	.3 Ice/	'Debr	is Jam	Potent	tial: Del	oris			
4.1 4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.3	Total	7			
2 2	2	0	1	1	1	0	1	0	0	2	0	2	2	1	17	1			
	High			Low	-	_		_			-		⊢ ∠ n High		17				

White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: January, 16 2021 White River Watershed: QA Status: Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: #Error Step 1. Reach Location Begins S of intersection of Rt 14 and s Randolph Rd. Ends .25 mi N of intersection between Rt 14 and Dugout Rd. 1.1 Reach Description: Randolph 1.2 Towns: Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 43.89251 4.1 Watershed 1.3 Downstream Longitude: -72.57602 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 77.3 % Current Sub-Dominant Land Cover: Field 2.1 Elevation Upstream: 567 2.1 Elevation Downstream: 540 4.2 Corridor 2.1 Is Gradient Gentle?: #Error Historic Land Cover:: Field 2.2 Valley Length: 6,284.0 ft. 1.19 Miles **Current Dominant Land Cover: Forest** 48.4 % 2.3 Valley Slope: 0.4 Current Sub-Dominant Land Cover: Field 9,815.0 ft. 2.4 Channel Length: 1.86 Miles 4.3 Riparian Buffer Left Bank Right Bank 2.5 Channel Slope: 0.28 % 0-25 Dominant: 0-25 2.6 Sinuosity: 1.56 >100 >100 Sub-dominant: 2.7 Watershed Area: 55.5 Square Miles Length w / less than 25 ft.: 1,221.0 ft. 4,932.0 ft. 2.8 Channel Width: **76.7** feet 4.4 Ground Water Inputs: Abundant 2.9 Valley Width: **541.0** feet Step 5. Instream Channel Modifications 7.1 2.10 Confinement Ratio: 5.1 Flow Regulation - (old): No Data Broad 2.10 Confinement Type: None Type: Ε 2.11 Reference Stream Type: Use: Bedform: **Dune-Ripple** 5.2 Bridges and Culverts: 4 10.4 % Sub-Class Slope: None 5.3 Bank Armoring: 382.2 3.9 % Bed Material: Sand Left: 139.9 ft. Right: 242.2 ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 0.0 0.0 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data None 3.2 Grade Control: Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: Alluvial 74.2 % 6.1 Berms & Roads - old: 1,754.4 ft. 17.9 3.3 Sub-dom. Geological Mat.: **Glacial Lake** One Side **Both Sides** 3.4 Valley Slope Left: Ext. Steep 1,754.4 ft. 0.0 ft. Road: 3.4 Valley Slope Right: Ext. Steep Railroad: 0.0 ft. 0 0 ft 3.5 Soils Berm: 338.7 ft. 0.0 ft. Hydrologic Group: В 84.1 % Improved Path: 273.4 ft. 0.0 ft. Frequent 74.2 % Flooding: 6.2 Development: 183.1 ft. 0.0 ft. Water Table Deep: 3.0 71.6 % 6.3 Channel Bars: None Water Table Shallow: 1.5 77.9 % 6.4 Meander Migration: **Avulsion** Erodibility: Moderate 25.1 % 6.5 Meander Width: 410 ft. Rato: 5.3 7.4 Comments: 6.6 Wavelength: 585 ft. Ratio: 7.6 Step 7. Windshield Survey 7.1 Bank Erosion: 5818.4497070 ft 7.2 Bank Height: ft 7.3 Ice/Debris Jam Potential: Bend 7.1 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.3 Total 0 0 2 2 2 2 1 0 0 0 1 0 2 0 1 1 14 High High High N.S. N.S. N.S. N.S. N.S. N.S. High N.S. High Low Low Low Low

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Basin:	Whi	te								Reach	ı ID:				M07						
Stream Name:	Sec	ond Br	anch c	f the V	Vhite I	River				SGAT	Versi	ion	:		4.56						
Topo Maps:	Bro	okfield	, Rand	olph C	enter,	S Ro	yalton			Date I	ast E	dite	ed:		Janu	ıary,	16 20)21			
Watershed:	Whi	te Rive	er							QA St	atus:				Step	7 do	ne				
Sub-watershed:			anch V							Is Rea			•				#Erre				
Step 1. Reach Lo		Beg	gins .2	mi N	of inte	ersect	ion be	twee	n Rt 14	4 and	Dugo	ut	Rd.	Ends	at G	ittord	Brid	ge.			
1.1 Reach Descri	'									_											
1.2 Towns: Ra	andolph									<u>S</u>	Step 4.	. Lá	and C	cover	- Rea	ach H	<u>ydrol</u>	<u>ogy</u>			
1.3 Downstream I	_atitude:		43.90	402						4	.1 Wa	ate	shed								
1.3 Downstream I	_ongitude		-72.5	6084							Histo	orio	: Lan	d Co	ver:				For	est	
Step 2. Stream Ty	<u>/pe</u>										Curr	ren	t Don	ninar	it Land	d Cov	er:		For	est	77.2 %
2.1 Elevation Ups					80 67						Curr	ren	t Sub	-Don	ninant	Land	d Cov	er:	Fie	eld	
2.1 Elevation Dov 2.1 Is Gradient G				#Err						4	.2 Co										
2.1 is Gradient Go 2.2 Valley Length			10	#⊑rr 850.0,			2.05	Mile			Histo	orio	Lan	d Co	ver::				F	ield	
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2.3 Valley Slope:	ıth.		4.4				2.71				Curr	ren	t Sub	-Don	ninant	Land	l Cov	er:	Cr	ор	
2.4 Channel Leng			14	,323.0	π. 09 %		2.17	Mile	es	4.3	Ripari	ian	Buff	er			L	eft Bank		Right	Bank
2.5 Channel Slop	e:			-							Oomina	ant	:					0-25		>1	00
2.6 Sinuosity: 2.7 Watershed Ar	00:			1.3		ioro M	liloc			5	Sub-do	omi	nant:					51-100		26	-50
					5.5 Squ		iiies			L	.ength	ı w	/ less	thar	n 25 ft	:	;	3,162.0 ft	t.	5,72	22.0 ft.
2.8 Channel Widt	n:				.4 fee					4.4	Groun	nd V	Vate	· Inpu	ıts:	1	Minin	nal			
2.9 Valley Width:	D-1				3.0 fee	l				Ste	p 5. In	<u>ns</u> tr	<u>ea</u> m	<u>Ch</u> ar	nnel M	10difid	ation	<u>is</u>			
2.10 Confinement			_		'.1						Flow I							_			
2.10 Confinement			Broa	d							уре:						None	9			
2.11 Reference S	tream Typ	e:	C	_							Jse:										
Bedform:				-Pool							Bridge	es	and (Culve	erts:			5		12.2 9	%
Sub-Class S			None								Bank						1,6	31.9		11.4 9	%
Bed Materia			Grav	el							Left:			3	506	.4 ft.	•		1	125.4 f	
Step 3. Basin Cha	rateristict	<u> </u>								5.4	Chanı		Stra	ighte			0.0		-	0.0 %	
3.1 Alluvial Fan:			None								Dredo			•				el Minin	a		
3.2 Grade Contro	l:		None									•	•	•	dificat				J		
3.3 Dominant Geo	ological M	at.:	Alluv	ial			64.4	%			<u>p 6. Fl</u>					uons	4 ^	197 4 #		00	2
3.3 Sub-dom. Ge	ological M	at.:	Till							0.1	Berms	აბ	r Koa	us - (Jiu.		,	37.1 ft.	р.	28.	
3.4 Valley Slope I	_eft:		Ext. S	Steep							D	. ایم						e Side	<u>BC</u>	th Side	
3.4 Valley Slope I	Right:		Ext. S	Steep							Road		۵.				2	263.5 ft.		0.0 f	
3.5 Soils											Railr		d:					0.0 ft.		0.0 f	
Hydrologic Gro	up:		В				77.5	%			Bern			- 11				0.0 ft.		0.0 f	
Flooding:			Frequ	ient			64.4	%					ed Pa					37.1 ft.		0.0 f	
Water Table De	еер:		3.0				62.5	%			Devel						•	48.3 ft.		0.0 f	t.
Water Table Sh	nallow:		1.5				67.2	%			Chanı						None				
Erodibility:			Mode	rate			31.5	%			Mean		U		า:		Multi	•			
7.4 Comments	•									6.5	Mean	ıde	r Wid	th:				405 ft. F	Rato:	5.4	
Cows in Stream!										6.6	Wave	eler	ngth:					682 ft. F	Ratio:	9.0	
										Ste	p 7. W	Vin	dshie	ld Su	ırvey						
										7	'.1 Baı	nk	Erosi	on:			4051	.2985840)		ft
										7	'.2 Bar	nk	Heial	nt:			2				
											.3 Ice		Ŭ		Poten	ntial·		9			ft
4.1	4.2 4.	3 5.	1 5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5		3.6	7.1	7.3		tal	-			
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White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: January, 14 2021 White River Watershed: QA Status: Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: #Error Step 1. Reach Location Begins at Gifford Bridge. Ends just W of Tunbridge Rd and Rt 14 intersection. 1.1 Reach Description: Randolph 1.2 Towns: Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 43.92862 4.1 Watershed 1.3 Downstream Longitude: -72.55535 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 78.4 % 592 Current Sub-Dominant Land Cover: Field 2.1 Elevation Upstream: 2.1 Elevation Downstream: 580 4.2 Corridor 2.1 Is Gradient Gentle?: #Error Historic Land Cover:: **Forest** 2.2 Valley Length: 2,406.0 ft. 0.46 Miles **Current Dominant Land Cover: Forest** 51.9 % 2.3 Valley Slope: 0.5 Current Sub-Dominant Land Cover: Field 3,162.0 ft. 2.4 Channel Length: 0.60 Miles Right Bank 4.3 Riparian Buffer Left Bank 2.5 Channel Slope: 0.38 % >100 Dominant: >100 2.6 Sinuosity: 1.31 0-25 Sub-dominant: 0-25 2.7 Watershed Area: 47.0 Square Miles Length w / less than 25 ft.: 989.0 ft. 239.0 ft. 2.8 Channel Width: **71.3** feet 4.4 Ground Water Inputs: Minimal 2.9 Valley Width: 305.0 feet Step 5. Instream Channel Modifications 4.3 2.10 Confinement Ratio: 5.1 Flow Regulation - (old): No Data Narrow 2.10 Confinement Type: None Type: С 2.11 Reference Stream Type: Use: Bedform: Riffle-Pool 5.2 Bridges and Culverts: 0 0.0 % Sub-Class Slope: None 5.3 Bank Armoring: 256.1 8.1 % Bed Material: Gravel Left: 31.3 ft. Right: 224.8 ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 0.0 0.0 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data None 3.2 Grade Control: Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: **Ice-Contact** 46.5 % 6.1 Berms & Roads - old: 324.5 ft. 10.3 3.3 Sub-dom. Geological Mat.: **Alluvial Both Sides** One Side 3.4 Valley Slope Left: Steep 0.0 ft. 0.0 ft. Road: 3.4 Valley Slope Right: Ext. Steep Railroad: 0.0 ft. 0 0 ft 3.5 Soils Berm: 0.0 ft. 0.0 ft. 46.5 % Hydrologic Group: Α Improved Path: 324.5 ft. 0.0 ft. None/Rare 64.2 % Flooding: 6.2 Development: 221.8 ft. 0.0 ft. Water Table Deep: 6.0 56.9 % 6.3 Channel Bars: None Water Table Shallow: 6.0 56.9 % None 6.4 Meander Migration: **Erodibility:** Severe 64.2 % 6.5 Meander Width: ft. Rato: 0.0 7.4 Comments: 6.6 Wavelength: ft. Ratio: 0.0 Scour at bridge crossing. Step 7. Windshield Survey 7.1 Bank Erosion: 809.2888184 ft 7.2 Bank Height: ft 7.3 Ice/Debris Jam Potential: Debris 7.1 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.3 Total 2 2 2 0 0 1 0 0 1 1 0 0 0 0 2 1 12 N.S. N.D. High High High N.S. N.S. N.S. N.S. N.S. N.D. High Low Low Low Low

White River -	Second B	ranc	h					Pha	se	1 - I	Rea	ach	Su	mmary	/ Re	port	1
Basin: W	hite							Reach	ID:			M09		_			
Stream Name: Se	econd Branch of	the Whi	ite R	iver				SGAT	Versio	n:		4.56					
ropo mapo.	ookfield, Rando hite River	lph Cen	ter, S	S Ro	yalton			Date La		lited:		Janua Step	•	6 2021 e			
	cond Branch W	hite Riv	er					Is Read		Impou	ndme	•		Error			
Step 1. Reach Location	Begins just			inters	section	n witl									with F	Rt 66.	
1.1 Reach Description:	2090 ,0		• • • •						-		•						
1.2 Towns: Randolpl	1							St	ep 4.	Land (Cover	- Read	ch Hv	drology			
1.3 Downstream Latitude		14								ershed				3 ,			
1.3 Downstream Longitu										ric Lan		ver			Fore	est	
Step 2. Stream Type	12.000											t Land	Cove	er:	Fore		78.5 %
2.1 Elevation Upstream:		610										ninant l			Fiel		70.0
2.1 Elevation Downstrea	n:	592						4.5	2 Cor		, 50	in idire	Lana	00101.			
2.1 Is Gradient Gentle?:		#Error								ric Lan	nd Co	ver::			Fi	eld	
2.2 Valley Length:	4,6	620.0 ft.			0.88	Mile	es		Curre	ent Dor	minan	ıt Land	Cove	er:	Fore		29.7 %
2.3 Valley Slope:		0.4										ninant l			Fiel		/0
2.4 Channel Length:	6,0	067.0 ft.			1.15	Mile	es	4.3 F		an Buff				Left Banl		Right E	Bank
2.5 Channel Slope:		0.30	%						omina		٥.			0-25	=	>10	
2.6 Sinuosity:		1.31								minant	:			>100		51-1	
2.7 Watershed Area:		46.3	Squa	are M	liles							n 25 ft.:		2.827.0	ft.	3,900	
2.8 Channel Width:		70.8							•	d Wate				inimal		-,	
2.9 Valley Width:		544.0	feet								•	nnel Mo					
2.10 Confinement Ratio:		7.7						-		Regulat				npoundme	nt		
2.10 Confinement Type:	Broad								/pe:	3.		(,		lone			
2.11 Reference Stream 1	ype: C							-	se:				_				
Bedform:	Dune-l	Ripple								s and	Culve	erts:		2		10.7 %	
Sub-Class Slope:	None								-	Armorir				1,561.1		25.7 %	
Bed Material:	Sand							-	Left:		.9.	374.7	7 ft.	Right:	1.1	186.4 ft.	
tep 3. Basin Charaterist	<u>cts</u>							5.4 0		el Stra	iahte			34.2	-,	13.7 %	
3.1 Alluvial Fan:	None									ing His	-	9.		lo Data			
3.2 Grade Control:	Dam								Ū	Ū	•	dification					
3.3 Dominant Geological	Mat.: Alluvia	al			83.6	%				& Roa			<u> </u>	1,837.5 ft.		30.3	
3.3 Sub-dom. Geological								0.1 L	Jenns	o a roc	ius - (Jiu.		One Side	Rot	th Sides	
3.4 Valley Slope Left:	Ext. St	-							Road	1.				1,837.5 ft.	<u> </u>	0.0 ft.	
3.4 Valley Slope Right:	Ext. St	еер							Railre					0.0 ft.		0.0 ft.	
3.5 Soils									Berm					0.0 ft.		0.0 ft.	
Hydrologic Group:	В				71.3 9					oved P	ath:			863.4 ft.		0.0 ft.	
Flooding:	Freque	ent			83.6					opmen				302.0 ft.	-	7 57.6 ft.	
Water Table Deep:	3.0				67.8 9					el Bar			N	lone			
Water Table Shallow:	1.5				69.0 9					der Mig		١٠		vulsion			
Erodibility:	slight				14.2 9	%				der Wic				430 ft.	Rato.	6.1	
7.4 Comments:										ength:				510 ft.			
										engın. indshie		irvev		31016.	. valio.	1.4	
								-		ık Eros		<u>v u y</u>	1	917.201538	11		£ı.
															•		ft
										ık Heig			3				ft
_								7.:	3 Ice/	Debris	Jam	Potent	ial: N	lone			
4.1 4.2	4.3 5.1 5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.3	Tota	al			
2 2	2 0 1	2	1	0	2	1	0	1	0	1	2	0	17				
				N.S.		-	1 -		N.S.		- High	- 1	.,	- 1			

White R	iver - S	ec	on	d B	Brar	ıch					Pha	ase	1	- F	Re	ac	h S	Sur	nm	ary	Re	por	t
Basin:	Whi	te									Reach	ı ID:				М1	0						
Stream Name:	Sec	ond	Bran	ch of	the V	/hite F	River				SGAT	Versi	on:			4.5	6						
Topo Maps: Watershed:		okfie te Ri	•	Rando	lph C	enter,	S Ro	yalton			Date I		dite	d:			_	t, 27 : done					
Sub-watershed	_			ch W	hite R	iver							. Im-	2011	ad~		•		rror				
Sub-watersned Step 1. Reach	u.						1 <i>1</i> fro	m inte	reac	tion w	Is Rea									orsacti	ion w	ith Rt (86
1.1 Reach Des		_	Jegiii	.45		JII IXL	14 110	,,,,,) 3CC			00. L	iius	1	7	ир		- 1101		C1 300ti	1011 W	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1.2 Towns:	Randolph											Step 4.	رد ا	nd C	` 0\/0	r ₋ D	oack	Hvd	rolog	.,			
	•			0.40	.00							•				I - K	eaci	<u>г пуц</u>	lolog	<u>y</u>			
.3 Downstrea		_	_	3.946							4	.1 Wa									-	4	
.3 Downstrea	Ū	:	-	72.55	246							Histo						.	_		For		70.0 0/
Step 2. Stream					0.													Cover			For		78.9 %
2.1 Elevation l 2.1 Elevation [13 10					,				-Doi	mına	nt La	and C	over:		Fie	eia	
2.1 Is Gradien	t Gentle?:				#Err	or					4	.2 Co Histo			4 Cc	war.	_				_		
2.2 Valley Len	gth:			5,	460.0	ft.		1.03	Mile	es								.	_			ield	20.4.27
2.3 Valley Slop	•				0	.1												Cover			For		36.1 %
2.4 Channel Lo				7,	595.0	ft.		1.44	Mile	es						mına	nt La	and C			Fie		D !
2.5 Channel S	lope:			ĺ	0.0	04 %				-		Ripari		Buffe	er					Bank		Right	
2.6 Sinuosity:	•				1.3	39						Oomina								-25			00
2.7 Watershed	d Area:				38	.9 Squ	are M	1iles				Sub-do								-100		0-:	-
2.8 Channel W	/idth:				65	.6 fee	t					.ength					ft.:		,	26.0 ft	•	3,77	'9.0 ft.
2.9 Valley Wid	lth:				659	.0 fee	t				4.4	Groun	d W	ater	r Inp	uts:		Mii	nima	I			
2.10 Confinem					10	.0						p 5. In						dificat	<u>ions</u>				
2.10 Confinem			V	/ery E	_						5.1	Flow	Reg	ulati	ion -	(old):						
2.11 Reference	• • •	oe:		-							7	уре:						No	one				
Bedform:		- • .		, Riffle-l	Pool							Jse:											
Sub-Clas				lone							5.2	Bridge	es a	nd C	Culve	erts:			4			10.2 %	6
Bed Mate	•		_	rave							5.3	Bank	Arm	norin	ıg:				1,641	1.4		21.6 %	6
tep 3. Basin C		s	•	J. a v C	•							Left:				20)4.4	ft. F	Right:		1,	437.0 ft	t.
3.1 Alluvial Fa		<u>~</u>		lone							5.4	Chan	nel S	Strai	ighte	ening	J:	2,	522.0)		33.2 %	6
3.2 Grade Cor				lone							5.5	Dredg	ging	Hist	tory:			No	Dat	а			
3.2 Orade Cor 3.3 Dominant		lat ·		Alluvia	al			78.6	0/_		Ste	p 6. F	lood	lplaiı	n Mo	odific	atio	ns					
	•				ntact			70.0	70		6.1	Berm	s &	Roa	ds -	old:		:	2,943	3.7 ft.		38.	8
3.3 Sub-dom. 3.4 Valley Slor	ŭ	ıaı																<u>C</u>	One S	<u>Side</u>	Во	th Side	<u>s</u>
				Ext. St	-							Roa	d:						2,943			0.0 ft	t.
3.4 Valley Slop	be Right:		-	Ext. St	reeb							Railı	road	l:					0).0 ft.		0.0 ft	t.
3.5 Soils	Oracina		_	,				77.0	1/			Berr	n:).0 ft.		0.0 ft	t.
Hydrologic (Group:		E		ont			77.9				Impr	ove	d Pa	ath:).0 ft.		0.0 ft	
Flooding:	Doct			reque	FIIT			78.6			6.2	Devel								7.7 ft.		0.0 ft	
Water Table	•			3.0				72.9				Chan	•					No	one				
Water Table	e Snallow:			.5				73.7				Mean				n:			ultipl	e			
Erodibility:			S	light				20.5	%			Mean		·				141	•	45 ft. R	ato:	5.3	
7.4 Comme	nts:											Wave								35 ft. R			
												vvave p 7. W	•	•	וע כי	ırve	,		J	r	auu.	0.2	
																urvey	<u>Y</u>	42	56 O	กกสออจ	,		4.
												'.1 Baı							JO.U	004883	,		ft
											7	'.2 Baı	nk H	leigh	ht:			4					ft
											7	'.3 Ice	/Del	bris .	Jam	Pote	entia	ıl: No	one				
4	1.1 4.2 4	.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.	6	7.1	7.3	3	Total	П				
	2 2 2	<u>+</u>	0	1	2	2	0	2	1	0	1	0		+	2	<u> </u>	+	17	\dashv				
1	- - -	- 1	9		∠ High		_			N.S.	l '	N.S.	ı۷	' [~	ı	- 1	1/	- 1				

White River -	Seco	ond E	3rar	nch					Pha	se	1 -	Rea	ach	Sum	mary	Repor	t
Basin: W	hite								Reach	ID:			M11				
Stream Name: S	econd E	Branch o	f the V	Vhite F	River				SGAT	Version	on:		4.56				
Topo Mapo.	rookfiel hite Riv	d, Rando ⁄er	olph C	enter,	S Ro	yalton			Date L		dited:			ary, 16 2 7 done	2021		
Sub-watershed: S	econd E	Branch W	/hite R	liver					Is Rea	ch An	Impoi	ındme	ent?:	#Er	ror		
Step 1. Reach Location	Ве	egins 1.4	4 mi N	l on R	t 14 fr	om in	tersed								m N Rand	olph.	
1.1 Reach Description:																•	
1.2 Towns: Randolp	n								<u>s</u>	tep 4.	Land	Cover	· - Read	ch Hydro	ology		
1.3 Downstream Latitude):	43.96	021							.1 Wa				•			
1.3 Downstream Longitu		-72.55	5134							Histo	ric La	nd Co	ver:			Forest	
Step 2. Stream Type										Curre	ent Do	minar	nt Land	Cover:		Forest	76.7 %
2.1 Elevation Upstream:			6	60										Land Co	ver:	Field	
2.1 Elevation Downstrea	m:		-	13					4	.2 Cor							
2.1 Is Gradient Gentle?:			#Err	or					•		ric La	nd Co	ver::			Forest	
2.2 Valley Length:		6	,815.0	ft.		1.29	Mile	es						Cover:		Forest	45.3 %
2.3 Valley Slope:			0	.7										Land Co	ver	Urban	-1 0.0 /
2.4 Channel Length:		8	,046.0	ft.		1.52	Mile	es	12	Riparia			miant		Left Bank		: Bank
2.5 Channel Slope:			0.	58 %						Kipari Omina		101			>100		. <u>Бапк</u> 1 00
2.6 Sinuosity:			1.1	18						omina Sub-do					>100 0-25		100
2.7 Watershed Area:			31	.0 Squ	uare M	liles			_				. OF #				
2.8 Channel Width:			59	.4 fee	t					•			า 25 ft.:		3,642.0 ft.	. 2,9	54.0 ft.
2.9 Valley Width:			344	.0 fee	t					Ground		•		Mini			
2.10 Confinement Ratio:			5	8.8										odificatio •			
2.10 Confinement Type:		Narro	w						5.1	Flow F	Regula	ition -	(old):	•	oundmen	t	
2.11 Reference Stream	Type:	С							Т	ype:				Nor	ne		
Bedform:	,,	Riffle-	-Pool						_	lse:							
Sub-Class Slope:		None							5.2	Bridge	s and	Culve	erts:		4	15.9 °	
Bed Material:		Grave							5.3	Bank /	Armori	ng:			62.2	7.0 °	%
Step 3. Basin Charaterist	icts	0	•							Left:			141.0	t. Ri	ght:	421.21	t.
3.1 Alluvial Fan:		None							5.4	Chanr	nel Stra	aighte	ning:	2,39	93.5	29.7	%
3.2 Grade Control:		Multip							5.5	Dredg	ing His	story:		No	Data		
3.3 Dominant Geological	Mat ·		ontact			44.0	2/6		Ster	6. Fl	oodpla	in Mo	dificati	<u>ons</u>			
3.3 Sub-dom. Geological		Alluvi				77.0	70		6.1	Berms	& Ro	ads -	old:	1,	124.0 ft.	14.	0
3.4 Valley Slope Left:	ıvıaı													<u>Or</u>	ne Side	Both Side	<u>s</u>
		Ext. S	_							Road	d:				124.0 ft.	0.0 f	t.
3.4 Valley Slope Right: 3.5 Soils		Ext. S	пеер							Railr	oad:				0.0 ft.	0.0	t.
						40.4	2/			Berm	1:				0.0 ft.	0.0 f	t.
Hydrologic Group:		A	/D c = -			42.1					oved F	ath:			653.9 ft.	0.0 f	
Flooding:		None/	rare			70.5			6.2	Develo					078.8 ft.	196.2	
Water Table Deep:		6.0				47.2				Chanr	•			•	-channel		
Water Table Shallow:		6.0				47.2				Meano			٦.		tiple		
Erodibility:		Sever	e			63.3 °	%			Meano	•	•	••	inui	•	ato: 1.0	
7.4 Comments:										Wavel						atio: 1.0	
											٥		ırı (C) (Ji it. K	auo. 1.0	
										2 7. W			<u>ıı vey</u>	404	0 5257000		
										.1 Bar					9.5357666		ft
									7	.2 Bar	ık Heiç	ght:		3			ft
									7	.3 Ice/	Debris	Jam	Potent	ial: No r	ne		
4.1 4.2	4.3 5	5.1 5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.3	Total	1		
2 2	2	0 1	1	2	0	1	1	1	2	2	2	2	0	21	1		
	High N		1		_								· •	-1			

White River	- Se	con	d E	Brar	nch					Pha	ase	1 -	- R	ea	ch	Sı	ımr	nary	Re	port	
Basin:	White									Reach	ı ID:				M12						
Stream Name:	Secon	d Braı	nch of	the V	Vhite F	River				SGAT	Versi	on:			4.56						
Topo Maps: Watershed:	Brooki White		Rando	lph C	enter,	S Ro	yalton			Date I		dited	l:		Janu Step	-	16 20: ne	21			
Sub-watershed:	Secon		nch W	hite R	liver					Is Rea		ı Imp	oun		•		#Erro	r			
Step 1. Reach Location		Begir	าร .21	mi N	on Rt	14 fro	m N F	lando	olph.	Ends 1	.8 mi	N or	n Rt	14 fr	om N	l Rar	idolpl	h.			
1.1 Reach Description	:																				
1.2 Towns: Brook	field, Ra	andolp	oh							<u> </u>	Step 4.	. Lan	d Co	over	- Rea	ıch H	<u>ydrolo</u>	<u>gy</u>			
1.3 Downstream Latitu	ıde:		43.976	58						4	l.1 Wa	tersh	ned								
1.3 Downstream Long	itude:		-72.55	540							Histo	oric L	and	Cov	er:				Fore	est	
Step 2. Stream Type											Curr	ent [Dom	inant	Land	d Cov	er:		Fore	est	78.9 %
2.1 Elevation Upstream 2.1 Elevation Downstr				-	70 60					,	Curr L2 Co			Dom	inant	Land	l Cove	er:	Cro	р	
2.1 Is Gradient Gentle	?:			#Err	or					-	Histo			Cov	er				e h	rub	
2.2 Valley Length:			8,	173.0	ft.		1.55	Mile	es						Land	1 Ca	or:		Fore		11 C 0/
2.3 Valley Slope:				0).1													\r·			41.6 %
2.4 Channel Length:			13,	706.0	ft.		2.60	Mile	es	4.0					mant	∟ano	l Cove		Cro	•) onle
2.5 Channel Slope:				0.0	07 %						Ripari		uite	I			<u>L6</u>	eft Bank		Right E	
2.6 Sinuosity:				1.0	68					_	Domina		- n-t-					>100		>10	-
2.7 Watershed Area:				26	.1 Squ	uare M	liles				Sub-do			41	or 4	_		51-100		51-1	
2.8 Channel Width:				55	.1 fee	t					ength.							, 210.0 fi	ι.	8,765	.υ π.
2.9 Valley Width:				850	.0 fee	t					Groun			•			Abund				
2.10 Confinement Rat	io:			15	.4						p 5. In										
2.10 Confinement Typ	e:	,	Very E	Broad						5.1	Flow	Regu	ulatio	on - (old):		•	undmer	1t		
2.11 Reference Stream			E							7	уре:						None				
Bedform:	,,		Dune-	Ripple	Э						Jse:							_			
Sub-Class Slope		ı	None	• •							Bridge				ts:			3		5.5 %	
Bed Material:		;	Sand							5.3	Bank		oring	j:				1.9		2.1 %	
Step 3. Basin Charate	isticts										Left:						Righ	nt:	2	281.9 ft.	
3.1 Alluvial Fan:		ı	None								Chan		_		ning:		0.0			0.0 %	
3.2 Grade Control:		ı	None							5.5	Dredo	ging I	Histo	ory:			No Da	ata			
3.3 Dominant Geologi	cal Mat.	: 1	Alluvi	al			82.6	%		<u>Ste</u>	p 6. F	lood	olain	Mod	dificat	<u>ions</u>					
3.3 Sub-dom. Geologi			ce-Co	ntact						6.1	Berm	s & F	Road	ls - o	ld:		33	30.7 ft.		2.4	
3.4 Valley Slope Left:			Ext. S														<u>One</u>	<u>Side</u>	Bot	h Sides	
3.4 Valley Slope Right	•		Ext. S	-							Roa	d:					33	30.7 ft.		0.0 ft.	
3.5 Soils											Railı	road:	:					0.0 ft.		0.0 ft.	
Hydrologic Group:			С				73.1	%			Berr	n:						57.9 ft.		0.0 ft.	
Flooding:			- Frequ	ent			81.7				Impr	ove	d Pat	th:				0.0 ft.		0.0 ft.	
Water Table Deep:			1.5				69.2			6.2	Devel	lopm	ent:				1	57.6 ft.		0.0 ft.	
Water Table Shallo	w:		0.0				75.9			6.3	Chan	nel B	ars:				None				
Erodibility:	-		slight				6.1			6.4	Mean	der N	Migra	ation	:		Multij	ple			
7.4 Comments:							J			6.5	Mean	der \	Nidtl	n:				469 ft. F	Rato:	8.5	
Beaver Dams. Lots	of LWD	- Long	g culv	ert!						6.6	Wave	leng	th:					300 ft. F	Ratio:	5.4	
										Ste	p 7. W	/inds	hield	d Sur	<u>vey</u>						
										7	′.1 Baı	nk Eı	rosic	n:	-		2677.	628662 ⁻	1		ft
										7	'.2 Baı	nk H	eiah	t:			2				
											.2 Dai		Ū		Poten			s			ft
4.1 4.2	2 4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	3 7	7.1	7.3	То	tal				
	_		1	0	0	0	0	0	0	2	1	2	+	\dashv			5				
2 2		I 0												1	2						

White Rive	r - Se	con	d B	ran	ıch					Pha	ase	1	- F	Rea	ach	Su	mn	nary	Rep	ort	
Basin:	White									Reach	ı ID:				M13			-	_		
Stream Name:		nd Brand	ch of	the W	/hite F	River				SGAT	Versi	on:			4.56						
Topo Maps: Watershed:		field, R	ando	lph C	enter,	S Ro	yalton			Date L		dite	d:			h, 13 7 doi					
		nd Brane	ob \//	hita D	ivor										•						
Sub-watershed:						445	N 5		lala F	Is Rea						_	#Error				
Step 1. Reach Loca		Begins	5 1.8	mi N (on Rt	14 Tro	mnĸ	ando	ipn. i	=nas z	./2 m	IN	on K	tt 14	irom	N Ка	naoip	n.			
1.1 Reach Description										_					_						
	okfield													<u>over</u>	- Rea	ach Hy	/drolog	<u>JV</u>			
1.3 Downstream Lat			3.997							4	.1 Wa										
1.3 Downstream Lo	Ū	-7	72.56 1	166							Histo								Fores	st	
Step 2. Stream Type	<u> </u>										Curr	ent	Dom	ninan	t Land	d Cov	er:		Fores	st	78.7 %
2.1 Elevation Upstre 2.1 Elevation Downs				_	30 70						Curr	ent	Sub-	-Don	ninant	Land	Cove	r:	Field	I	
2.1 Is Gradient Gen				#Err	-					4	.2 Cor										
2.2 Valley Length:	ue:.		4 5	#LII! 812.0			0.91	Mile			Histo	oric	Lanc	d Co	ver::				Fiel	ld	
2.3 Valley Slope:			4,0		.2		0.31	Mile	75		Curr	ent	Dom	ninan	t Land	d Cov	er:		Fores	st	33.6 %
			7	υ 421.0			1 11				Curr	ent	Sub-	-Don	ninant	Land	Cove	r:	Crop)	
2.4 Channel Length2.5 Channel Slope:	-		1,4				1.41	Mile	es	4.3	Ripari	ian I	3uffe	er			Le	ft Bank	j	Right E	ank
•				0. ²	13 % = 4						Oomina	ant:						0-25		0-2	5
2.6 Sinuosity:2.7 Watershed Area	ē					ioro M	liloo			S	Sub-do	min	ant:				2	26-50		26-5	0
	l.				.9 Squ .0 fee		illes			L	.ength	w/	less	thar	25 ft	.:	6,	303.0 ft		6,704	.0 ft.
2.8 Channel Width:						-				4.4 (Groun	d W	ater	Inpu	ıts:	A	bund	ant			
2.9 Valley Width:				1,450		Į.				Ste	p 5. In	stre	am (Char	nel M	lodific	ations				
2.10 Confinement R			_	27	.4						Flow F										
2.10 Confinement T			ery B	road						т	уре:					ı	None				
2.11 Reference Stre	am Type	: E									Jse:										
Bedform:		D	une-F	Ripple	•						Bridge	es a	nd C	Culve	rts:		4		1	16.8 %	
Sub-Class Slop	oe:	N	one								Bank						264	L2		3.6 %	
Bed Material:		S	and							0.0	Left:			9.	59	.3 ft.			20	0.0 70 0.4.8 ft.	
Step 3. Basin Chara	teristicts									5.4	Chanr		Strai	ahta			1,132.			15.3 %	
3.1 Alluvial Fan:		N	one								Dredg			-	illig.		No Da			13.3 /0	
3.2 Grade Control:		N	one								·			•	-1°C 1		10 Da	ta			
3.3 Dominant Geolo	gical Mat	.: A	lluvia	al			78.0 °	%			<u>p 6. Fl</u>					lons		- - 0			
3.3 Sub-dom. Geolo	gical Mat	i.: Ic	e-Co	ntact						6.1	Berms	s &	Road	ds - d	old:			5.6 ft.		4.3	
3.4 Valley Slope Lef	ft:	Е	xt. St	еер													One :		<u>Both</u>	Sides	
3.4 Valley Slope Rig	ght:	Е	xt. St	еер							Road							0.0 ft.		0.0 ft.	
3.5 Soils											Railr		:					0.0 ft.		0.0 ft.	
Hydrologic Group):	С	;				79.9 °	%			Bern							0.0 ft.		0.0 ft.	
Flooding:		F	reque	ent			74.3				Impr						31	5.6 ft.		0.0 ft.	
Water Table Deep	p:		.5				75.4 °	%			Devel	•						0.0 ft.		0.0 ft.	
Water Table Shal			.0				78.9			6.3	Chanr	nel I	3ars:	:		ı	None				
Erodibility:			light				12.9			6.4	Mean	der	Migr	atior	1:	ı	Multip	le			
7.4 Comments:			-					-		6.5	Mean	der	Widt	h:			2	87 ft. R	ato: 5	5.4	
										6.6	Wave	lenç	gth:				3	02 ft. R	atio: 5	5.7	
										Ste	p 7. W	/ind	shiel	d Su	rvey						
											.1 Bar				_		1544.0	627441			ft
											'.2 Bar						2	-			
													Ŭ		D						ft
										7 	'.3 Ice/	/Del	oris .	Jam	Poten	itial: I	Bend				
4.1	4.2 4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.	6	7.1	7.3	Tot	tal				
2	2 2	0	1	0	1	0	0	0	0	2	0	2		2	2	16	6				
High H		1 1		N.S.	Low	N.S.		_							- High	ı					

White River -	Sec	ond	Br	ran	ıch					Pha	se	1 -	Rea	ach	Sun	nmary	Re	port	
Basin: V	/hite									Reach	ID:			M14					
Stream Name: S	econd	Branch	h of t	he W	/hite F	River				SGAT	Version	on:		4.56					
торо таро.	rookfie /hite R	eld, Raı iver	ndolp	oh Ce	enter,	S Ro	yalton			Date L		dited:		• ′	, 30 202 7 done	0			
Sub-watershed: S	econd	Branch	h Whi	ite R	iver					Is Rea		Impo	ındme	ent?	#Fı	ror			
Step 1. Reach Location	Е	Beains	2.72	mi N	alon	a Rt 1	4 from	n N Ra	ndolp			•				າ of Rt 65 ຄ	and Rt	14).	
1.1 Reach Description:		3				•								,				,	
1.2 Towns: Brookfie	ld									S	tep 4.	Land	Cove	· - Rea	ch Hydr	ology			
1.3 Downstream Latitude	÷.	44.	.0105	6							.1 Wa								
1.3 Downstream Longitu			2.5683	-									nd Co	ver:			Fores	st	
Step 2. Stream Type															Cover:		Fores		79.8 %
2.1 Elevation Upstream:				71	12										Land Co	ver:	Crop		
2.1 Elevation Downstrea	m:			68						4	.2 Cor		D D01	illiant	Lana Ot	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.01	•	
2.1 Is Gradient Gentle?:			7	#Erre	or					,			nd Co	ver::			Fie	Id	
2.2 Valley Length:			7,84	41.0	ft.		1.49	Mile	es						l Cover:		Fores		44.6 %
2.3 Valley Slope:				0	.4										Land Co	wer.	Field		TT.U %
2.4 Channel Length:			9,6	11.0	ft.		1.82	Mile	es	4.9				ııııaııl	Lanu C				ank
2.5 Channel Slope:				0.3	33 %						Ripari		iiel			Left Bank		Right B	
2.6 Sinuosity:				1.2	23						omina		4.			>100		0-25	
2.7 Watershed Area:				20	.1 Squ	uare M	liles			_	sub-do			. OF #		51-100		>100	
2.8 Channel Width:				49	.0 fee	t					•			n 25 ft.		8,707.0 ft		7,413	. u it.
2.9 Valley Width:				699	.0 fee	t					Ground		•			ındant			
2.10 Confinement Ration				14	.3										odification				
2.10 Confinement Type:		Ve	ry Br	oad							Flow F	kegula	ation -	(old):		Data			
2.11 Reference Stream	Type:	С								Т	ype:				No	ne			
Bedform:) i	_	fle-P	ool						_	lse:								
Sub-Class Slope:		No								5.2	Bridge	es and	Culve	erts:		6	•	10.8 %	
Bed Material:			avel							5.3	Bank /	Armor	ing:			645.4		6.7 %	
Step 3. Basin Charateris	icts	O 10									Left:			463.	5 ft. R	ight:	18	81.9 ft.	
3.1 Alluvial Fan:		No	ne							5.4	Chanr	nel Str	aighte	ning:	0.0			0.0 %	
3.2 Grade Control:		No								5.5	Dredg	ing Hi	story:		No	Data			
3.2 Grade Control. 3.3 Dominant Geologica	l Mat ·		ne uvial	l			79.7 °	2/2		Ste	6. FI	oodpla	ain Mo	dificati	<u>ons</u>				
_							13.1	/0		6.1	Berms	& Rc	ads -	old:		654.7 ft.		6.8	
3.3 Sub-dom. Geologica 3.4 Valley Slope Left:	ı ıvıdl		-Con												0	ne Side	<u>Bot</u> h	Sides	
			t. Ste								Road	d:				0.0 ft.		27.7 ft.	
3.4 Valley Slope Right:		EX	t. Ste	ep							Railr	oad:				0.0 ft.		0.0 ft.	
3.5 Soils		_					47.4	.,			Berm					514.8 ft.		0.0 ft.	
Hydrologic Group:		В		4			47.4					oved I	Path:			654.7 ft.		0.0 ft.	
Flooding:			equer	nt			72.5			6.2	Devel					0.0 ft.		0.0 ft.	
Water Table Deep:		3.0					39.9				Chanr	•			No				
Water Table Shallow:		1.5					39.9				Mean			٠.		ration			
Erodibility:		slig	ght				13.7	%			Mean		•	1.	IVIIÇ	ration 46 ft. R	ato: 4	n	
7.4 Comments:																			
											Wavel	•				46 ft. R	.สแด: (u. y	
											o 7. W			<u>ırvey</u>					
										7	.1 Bar	nk Ero	sion:		159	3.6336670)		ft
										7	.2 Bar	ık Hei	ght:		2				ft
										7	.3 Ice/	Debri	s Jam	Potent	ial: Be i	nd			
4.1 4.2	4.3	5.1 5	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.3	Total	٦			
2 2	2	0	1	1	0	0	1	0	0	1	2	2	1	1	16	1			
	High I			l Low	_	N.S.		_			∠ High				10				

White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: January, 17 2021 White River Watershed: QA Status: Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: #Error Step 1. Reach Location Begins at intersection of Rt 14 and Rt 65. Ends .33 mi N of intersection of Rt 14 and Twin Pond brook Rd. 1.1 Reach Description: **Brookfield** 1.2 Towns: Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 44.02942 4.1 Watershed 1.3 Downstream Longitude: -72.56820 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 82.4 % 719 Current Sub-Dominant Land Cover: 2.1 Elevation Upstream: Crop 2.1 Elevation Downstream: 712 4.2 Corridor 2.1 Is Gradient Gentle?: #Frror Historic Land Cover:: Field 2.2 Valley Length: 5,164.0 ft. 0.98 Miles **Current Dominant Land Cover: Forest** 39.2 % 2.3 Valley Slope: 0.1 Current Sub-Dominant Land Cover: Field 6,394.0 ft. 2.4 Channel Length: 1.21 Miles 4.3 Riparian Buffer Left Bank Right Bank 2.5 Channel Slope: 0.11 % 0-25 Dominant: 0-25 2.6 Sinuosity: 1.24 >100 >100 Sub-dominant: 2.7 Watershed Area: 11.9 Square Miles Length w / less than 25 ft.: 5,536.0 ft. 6,393.0 ft. 2.8 Channel Width: 39.0 feet 4.4 Ground Water Inputs: Abundant 2.9 Valley Width: 1.014.0 feet Step 5. Instream Channel Modifications 2.10 Confinement Ratio: 26.0 5.1 Flow Regulation - (old): No Data Very Broad 2.10 Confinement Type: None Type: 2.11 Reference Stream Type: Ε Use: Bedform: **Dune-Ripple** 5.2 Bridges and Culverts: 6 43.8 % Sub-Class Slope: None 5.3 Bank Armoring: 741 2 11.6 % Bed Material: Sand Left: 336.7 ft. Right: 404.5 ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 2.901.1 45.4 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data None 3.2 Grade Control: Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: **Alluvial** 85.4 % 6.1 Berms & Roads - old: 640.8 ft. 10.0 3.3 Sub-dom. Geological Mat.: Other **Both Sides** One Side 3.4 Valley Slope Left: Ext. Steep 0.0 ft. 0.0 ft. Road: 3.4 Valley Slope Right: Ext. Steep Railroad: 0.0 ft. 0.0 ft. 3.5 Soils Berm: 390.8 ft. 249.9 ft. С 74.8 % Hydrologic Group: Improved Path: 476.9 ft. 0.0 ft. Frequent 81.0 % Flooding: 6.2 Development: 218.9 ft. 0.0 ft. Water Table Deep: 1.5 71.5 % 6.3 Channel Bars: None Water Table Shallow: 0.0 77.9 % 6.4 Meander Migration: Migration Erodibility: slight 7.1 % 6.5 Meander Width: 35 ft. Rato: 0.9 7.4 Comments: 6.6 Wavelength: 35 ft. Ratio: 0.9 Step 7. Windshield Survey 7.1 Bank Erosion: 667.5035400 ft 7.2 Bank Height: ft 7.3 Ice/Debris Jam Potential: No Data 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.1 7.3 Total 2 0 0 0 2 1 2 2 2 0 2 1 1 1 2 0 18 High High High N.S. High High N.S. N.S. N.S. High High N.S. Low Low Low Low

White I	Rive	er -	Se	con	d B	3rar	nch					Pha	ase	1	- R	ea	ch	Su	mı	mary	Re	por	t
Basin:		V	Vhite									Reach					V116			_		-	
Stream Nam	ne:	_		d Brar	nch of	f the V	White F	River				SGAT	Versi	on:		4	4.56						
Topo Maps:				•	≀ando	olph C	enter,	S Ro	yalton			Date I		ditec	d:			ary, 17		21			
Watershed:			Vhite									QA St	atus:			S	Step	7 don	е				
Sub-watersh			econ	d Brar								Is Rea							Erro				
Step 1. Rea 1.1 Reach D				Begir	າຣ .33	mi N	of inte	rsect	ion of	Rt 14	and T	win P	ond E	iroo	k Rd.	End	ds 1.	7 mi N	N of	intersec	tion.		
1.2 Towns:	Bro	ookfie	eld									5	Step 4.	. Lar	nd Co	ver -	Reac	ch Hyd	drolo	<u>oqv</u>			
1.3 Downstr	eam I	atitud	e:		44.044	472							.1 Wa					•					
1.3 Downstr					72.56							,			Land (Cove	۵r۰				For	est	
Step 2. Stre		Ū	iuo.		. 2.00	020												Cove	r.		For		85.1 %
	-						20																03.1 /0
2.1 Elevation 2.1 Elevation							28 19					,				JOMIL	nant i	Land (COVE	er:	Urb	an	
2.1 Is Gradie	ent Ge	entle?:				#Err	or					4	.2 Co			Cava							
2.2 Valley L	enath:				6.	,855.0	ft.		1.30	Mile	es				Land (_				tland	
2.3 Valley S	•				-,	•	1.6				-							Cove			For		30.1 %
2.4 Channel	•	th:			я	219.0	-		1.56	N #:1:	00		Curr	ent S	Sub-D)omir	nant I	Land (Cove	er:	Urb		
2.4 Channel 2.5 Channel	Ū				o,	•	33 %		00	Mile	2 8	4.3	Ripari	an E	3uffer				L	eft Bank		Right	<u>Bank</u>
	•	.											Oomina	ant:						>100		>1	00
2.6 Sinuosity	•						20	ioro N	1:loo			5	Sub-do	min	ant:					51-100		51-	100
2.7 Watersh							9.1 Squ		illes			L	ength.	w /	less ti	han 2	25 ft.:			405.0 ft.		75	55.0 ft.
2.8 Channel		1:					1.6 feet					4.4	Groun	d W	ater Ir	nputs	3:	Al	bun	dant			
2.9 Valley W	√idth:					601	1.0 feet	t					p 5. In			•		odifica	tion				
2.10 Confine	ement	Ratio:				17	7.4						Flow I						lo D				
2.10 Confine	ement	Type:		,	Very E	3road								.og.	uiutioi	. (0	na).		lone				
2.11 Refere	nce St	tream	Туре:	ľ	E								ype:					14	10116	,			
Bedfori	m:			ſ	Dune-	Ripple	е						Jse:				_			•		40.50	
Sub-Cl	ass SI	ope:		ſ	None								Bridge				S:			2		19.5 %	
Bed Ma	aterial:	:		!	Sand							5.3	Bank		oring:					22.3		3.9 %	
Step 3. Basir			ticts										Left:				99.2	2 ft.	Rigl	nt:		223.0 f	t.
3.1 Alluvial I					None							5.4	Chani	nel S	3traigh	ntenir	ng:	2	,737	'.2		33.3 %	%
3.2 Grade C					None							5.5	Dredg	jing	Histor	ry:		N	lo D	ata			
3.3 Dominar			l Mat		Alluvia	al			95.1	0/.		Ste	p 6. Fl	ood	plain l	<u>Modi</u>	fication	<u>ons</u>					
		•		-		aı			95.1	/0		6.1	Berms	s&F	Roads	s - old	d:		4,3	31.5 ft.		52.	7
3.3 Sub-don		·	ıl Mat.		Till														-	e Side	Во	th Side	s
3.4 Valley S					Ext. S	-							Roa	q.				•		31.5 ft.		0.0 f	
3.4 Valley S	lope R	Right:		ı	Ext. S	teep							Railr						-,5	0.0 ft.		0.0 f	
3.5 Soils																							
Hydrologi	ic Grou	up:		ŀ	D				62.2 °	%			Bern		4 D-4					0.0 ft.		0.0 f	
Flooding:				ľ	Frequ	ent			94.6	%			•		d Path	1:				0.0 ft.		0.0 f	
Water Tal	ble De	ер:		(0.5				62.2	%			Devel	•						0.0 ft.		0.0 f	t.
Water Ta	ble Sh	allow:		(0.0				94.4	%		6.3	Chanı	nel E	3ars:			N	lone	*			
Erodibility	<i>/</i> :				slight				4.9			6.4	Mean	der I	Migra	tion:		M	ligra	ation			
7.4 Comn					5					-		6.5	Mean	der ۱	Width	:				31 ft. R	ato:	0.9	
Wetlands												6.6	Wave	leng	jth:					31 ft. R	atio:	0.9	
												<u>Ste</u>	p 7. W	/inds	<u>shield</u>	Surv	<u>/ev</u>						
													'.1 Bar					4	87.8	3862915			f+
																							ft
													'.2 Baı		Ū			2					ft
												7	'.3 Ice	/Deb	oris Ja	ım Po	otenti	ial: N	lone	;			
ſ	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	6 7.	1	7.3	Tota	al				
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	2 I	'																10					

White River - Second Branch **Phase 1 - Reach Summary Report** Reach ID: SGAT Version: Stream Name: Second Branch of the White River 4.56 Brookfield, Randolph Center, S Royalton Topo Maps: Date Last Edited: March, 13 2021 White River Watershed: **QA Status:** Step 7 done Second Branch White River Sub-watershed: Is Reach An Impoundment?: #Error Step 1. Reach Location Begins .17 mi N of Rt 14 and Twin Pond Brook Rd intersection. Ends 3.51 mi N of intersection along Rt 14. 1.1 Reach Description: Brookfield, Williamstown 1.2 Towns: Step 4. Land Cover - Reach Hydrology 1.3 Downstream Latitude: 4.1 Watershed 1.3 Downstream Longitude: -72.56522 Historic Land Cover: **Forest** Step 2. Stream Type **Current Dominant Land Cover: Forest** 82.4 % Urban 902 Current Sub-Dominant Land Cover: 2.1 Elevation Upstream: 2.1 Elevation Downstream: 828 4.2 Corridor 2.1 Is Gradient Gentle?: #Error Historic Land Cover:: **Forest** 2.2 Valley Length: 9,309.0 ft. 1.76 Miles **Current Dominant Land Cover: Forest** 44.6 % 2.3 Valley Slope: 0.8 Current Sub-Dominant Land Cover: Urban 10,080.0 ft. 2.4 Channel Length: 1.91 Miles 4.3 Riparian Buffer Right Bank Left Bank 2.5 Channel Slope: 0.73 % 0-25 Dominant: >100 2.6 Sinuosity: 1.08 >100 Sub-dominant: 0-25 2.7 Watershed Area: 4.7 Square Miles Length w / less than 25 ft.: 4,914.0 ft. 2,048.0 ft. 2.8 Channel Width: 25.9 feet 4.4 Ground Water Inputs: Abundant 2.9 Valley Width: 150.0 feet Step 5. Instream Channel Modifications 5.8 2.10 Confinement Ratio: 5.1 Flow Regulation - (old): No Data 2.10 Confinement Type: Narrow None Type: С 2.11 Reference Stream Type: Use: Bedform: Riffle-Pool 5.2 Bridges and Culverts: 5 52.1 % Sub-Class Slope: 5.3 Bank Armoring: 4.651.5 46.1 % Bed Material: Cobble Left: 3,808.0 ft. Right: 843.6 ft. Step 3. Basin Charateristicts 5.4 Channel Straightening: 6.148.6 61.0 % 3.1 Alluvial Fan: None 5.5 Dredging History: No Data 3.2 Grade Control: Ledge Step 6. Floodplain Modifications 3.3 Dominant Geological Mat.: Till 49.8 % 6.1 Berms & Roads - old: 8,611.0 ft. 85.4 3.3 Sub-dom. Geological Mat.: **Alluvial** One Side **Both Sides** 3.4 Valley Slope Left: Ext. Steep 8,611.0 ft. 0.0 ft. Road: 3.4 Valley Slope Right: Ext. Steep Railroad: 0.0 ft. 0 0 ft 3.5 Soils Berm: 0.0 ft. 0.0 ft. Hydrologic Group: С 53.9 % Improved Path: 0.0 ft. 0.0 ft. None/Rare 54.8 % Flooding: 6.2 Development: 0.0 ft. 0.0 ft. Water Table Deep: 0.5 45.2 % 6.3 Channel Bars: None Water Table Shallow: 50.2 % 0.0 No Data 6.4 Meander Migration: Erodibility: Moderate 49.8 % 6.5 Meander Width: ft. Rato: 0.0 7.4 Comments: 6.6 Wavelength: ft. Ratio: 0.0 Alternating Cobble Stream/Wetland Silt areas with interspersed ledge drops; valley width and stream type updated by field observation thru Step 7. Windshield Survey reach 7.1 Bank Erosion: 319.8169250 ft 7.2 Bank Height: ft 7.3 Ice/Debris Jam Potential: Debris 4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.1 7.3 Total 2 2 2 2 0 2 2 0 2 0 0 0 0 0 0 1 15 N.S. High High High N.S. High High High N.S. High N.S. N.S. N.D. N.D. N.S. Low

– Appendix 3 –

Phase 2 Reach/Segment: Summary Reports



Agency of Natural Resouces Vermont.gov March, 18 2021

Page 1

Stream: Second Branch of the White

Phase 2 Segment Summary Report

River

Reach: M01-0

Segment Length(ft): 3.779

Yes Rain:

SGAT Version: 4.56

Organization: White River Partnership

CP, DR Observers: Completion Date: 7/8/2019

Qualtiy Control Status - Consultant: **Provisional** Qualtiy Control Status - Staff: **Provisional**

White River - Second Branch

Step 0 - Location: Mouth of 2nd Branch US to more confined valley beginning near jct Russ Hill Rd/VT Rte 14

Step 5 - Notes: Not classic alluvial fan, but reach was likely deltaic formation on a 'finger lake' of glacial Lake Hitchcock, now deeply incised

in portions and hemmed in by roads and railroad, highly straightened and cut off from large majority of historic floodplain once shared with mainstem. Mid-reach RB may have had a berm, but obscured by mature trees in diminished buffer and cultivation of cornfields - could just be plow headlands; regardless, helps channel stream toward LVW and through bridges

despite cropland in RFPA being FEMA-mapped regulatory floodway.

Step 7 - Narrative: Loss of planform and access to RFPA due to channel straightening and long-standing maintenance against LVW; relative

stability due to fact that LFPA is still accessible despite significant historic incision. Rte. 107 and RR bridges now cut off

access to significant portion of floodplain historically shared with White mainstem.

Step 1. Valley and Floodplain

1.4 Adjacent Side 1.1 Segmentation: None Right 1.5 Valley Features Left

650 1.2 Alluvial Fan: None Hillside Slope: Hilly Flat Valley Width (ft):

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes **Always** Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes **Always** Confinement Type: **VB**

Silt/Clay Berm: 0 Texture: Sand In Rock Gorge: No

Human Caused Change in Valley Width?: Yes 893 Road: 13

Railroad: 0

Imp. Path: 2,035 3

Dev.: 633

1.6 Grade Controls: None



Agency of Natural Resouces

Vermont.gov March, 18 2021

Phase 2 Segment Summary Report White River - Second Branch Page 2

Stream: River

Second Branch of the White

Reach:

M01-0

		Otop 2. Oticam o	<u>Hariffor</u>					
2.1Bankfull Width (ft.):	62.60	2.11 Riffle/Step Spacing:	335 ft.	2.13 Average Large	est Parti	icle on		
2.2 Max Depth (ft.):	6.00	2.12 Substrate Composition			Bed:	8.7	inches	
2.3 Mean Depth (tf):	4.43	Bedrock:	0.0 %		Bar:	5.7	inches	
2.4 Floodprone Width (ft.):	678.00	Boulder:	3.0 %	2.14 Stream Type				
2.5 Aband. Floodpn (ft.):	13.30	Cobble:	44.0 %	Stream Type:		С		
Human Elev FloodPln (ft.):		Coarse Gravel:	34.0 %	Bed Material:		Gravel		
2.6 Width/Depth Ratio:	14.13	Fine Gravel:	8.0 %	Subclass Slope:		None		
2.7 Entrenchment Ratio:	10.83	Sand:	3.0 %	Bed Form:		Riffle-Po	ool	
2.8 Incision Ratio:	2.22	Silt and Smaller:	8.0 %	Field Measured S	Slope:			
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stre	eam Ty	ре		
2.9 Sinuosity:	Low	Detritus:	2.0 %	Reference Stream	m Type	:		
2.10 Riffles Type:	Eroded	# Large Woody Debris:	76	Reference Bed M	1aterial:			
				Reference Subcl	ass Slo	pe:		

Reference Subclass Slope:

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Bank	s				Typical Ba	nk Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	Right I	Near Bank Vegetation	Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	101.2	126.9	Dominant:	Deciduous	Deciduous
Material Type:	Sand	Silt	Erosion Height (ft.):	3.2	3.2	Sub-dominant:	Herbaceous	Shrubs/Sapling
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	53.9	18.8	Canopy %:	76-100	76-100
Material Type:	Sand	Silt				Mid-Channel Canop	y: Op	en

Consistency: Non-cohesive Non-cohesive

3.2 Riparian Buffer 3.3 Riparian Corridor

_						_		
Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u> Ric	<u>ght</u>
Dominant	26-50	26-50	Dominant	Нау	Crop	Mass Failures	124.80 29	
Sub-Dominant	>100	>100	Sub-dominant	Forest	Forest	Height	25.0	
W less than 25	1,227	1,014	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Ty	/pe		Failures	One	25.0	Gullies Length	0	
Dominant	Deciduous	Deciduous	Gullies	None				

Sub-Dominant Herbaceous Herbaceous



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream:

Second Branch of the White River

Reach:

M01-0

Step 4. Flow & Flow Modifiers

4.5 Flow Regulation Type None 4.7 Stormwater Inputs None 4.1 Springs / Seeps: None 4.2 Adjacent Wetlands: Flow Reg. Use: Field Ditch: Road Ditch: None 4.3 Flow Status: Other: Tile Drain: Moderate Impoundments: None

4.4 # of Debris Jams: **0** Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: **None** 4.9 # of Beaver Dams: **0**

(old) Upstrm Flow Reg.: None Affected Length (ft): 0

4.8 Channel Constrictions:

Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Problems** Bridge 87 Yes Yes Yes No Deposition Below **Bridge** 70 Scour Below Yes Yes Yes No **Bridge** 85 Yes Yes Yes No None

Step 5. Channel Bed and Planform Changes

5.1 Bar Types Diagonal: 5.2 Other Features Neck Cutoff: 5.4 Stream Ford or Animal Crossing: No Mid: 0 Delta: 1 Flood chutes: 0 Avulsion: 5.5 Straightening: Straightening Point: Island: 0 5.3 Steep Riffles and Head Cuts Head Cuts: Straightening Length (ft.): 770 0 Side: 3 Braiding: 0 Steep Riffles: Trib Rejuv.: No 5.5 Dredging: None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	5	None	Yes	Geomorphic Rating	0.55
7.2 Channel Aggradation	15	None	No	Channel Evolution Model	F
7.3 Widening Channel	13	None	No	Channel Evolution Stage	IV
7.4 Change in Planforml	11	None	Yes	Geomorphic Condition	Fair
Total Score	44			Stream Sensitivity	Very High



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M17-C

Segment Length(ft): 4,065

Rain: Yes

Organization:
Observers:

Observers:

White River Partnership

dr, CP

4.56

Completion Date:

SGAT Version:

Quality Control Status - Consultant: Provisional
Qualty Control Status - Staff: Provisional
Why Not Assessed: impounded

Step 0 - Location: headwaters Second Branch, by Tripp Rd, DS to outlet of Staples Pond

Step 5 - Notes: Wetland complex of mixed human and beaver dams with interspersed residential camps; pasture encroaches on wetlands

along RVW, VT Route 14 runs along LVW (appears to have been re-routed here in 1950s after previously running along what is now Tripp Rd; see USGS topoview project, https://ngmdb.usgs.gov/topoview/viewer/#14/44.0803/-72.5675). Staples Pond dam is mostly breached, some of base and abutments still present; Goyette Dam is active further upstream. Staples Pond is

not busy but appears to have steady use for fishing due to easy access esp. along Tripp Rd.

Step 7 - Narrative: Prominent human and beaver impoundments, no geomorphic assessment possible per protocols.

Step 1. Valley and Floodplain

1.1 Segmentation: Flow Status 1.4 Adjacent Side 1.5 Valley Features Left Right 1.2 Alluvial Fan: 650 Hillside Slope: Very Steep Flat Valley Width (ft): 1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Always Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Always Confinement Type: VB

Berm: Silt/Clay Silt/Clay In Rock Gorge: No

Road: Human Caused Change in Valley Width?: Yes

Railroad: Imp. Path: Dev.:

1.6 Grade Controls: None



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M02-0

Segment Length(ft): 9,245

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 6/26/2019

Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: confined valley from jct of Russ Hill Rd./VT Rte 14 US to former dam site at Waterman and Morse Rds

Step 5 - Notes: Narrow to Semi-confined valley with alternating pockets of floodplain accessible mostly at high flows. Road constricts valley

intermittently, reducing to narrowly confined (sometimes naturally narrowly confined as well, particularly at DS end). Terrace/RAF may be historic, but is abetted by road fill as well. Landfill present US of gullies; no red flags, but presence

noted from aerials.

Step 7 - Narrative: Active widening, moderate planform adjustments following historic incision. FPA has been established at a lower elevation

in many areas, but large wood plays a prominent role in both contributing to and moderating widening and planform

adjustments.

Step 1. Valley and Floodplain

1.1 Segmen	itation:	None			1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features	
1.2 Alluvial I	Fan:	None			Hillside Slope:	Extr.Steep	Extr.Steep	Valley Width (ft):	110
1.3 Corridor	Encroa	chments	s:		Continuous w/ Bank:	Sometimes	Sometimes	Width Determination:	Estimated
Length (ft)	<u>One</u>	<u>Height</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Sometimes	Sometimes	Confinement Type:	NC
Berm:	0		0		Texture:	Gravel	Gravel	In Rock Gorge:	No
Road:	6,224	6	331	10		Hui	man Caused C	change in Valley Width?	∵Yes
Railroad:	0		0						
Imp. Path:	0		0						
Dev.:	305		0						
1.6 Grade C	ontrols:	No	ne						





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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Second Branch of the White Stream: Reach:

River

Step	<u>2.</u>	Strea	<u>m C</u>	<u>han</u>	<u>nel</u>

M02-0

2.1Bankfull Width (ft.):	68.80	2.11 Riffle/Step Spacing:	640 ft.	2.13 Average Largest Pa	article on	
2.2 Max Depth (ft.):	5.80	2.12 Substrate Composition		Bed	: 0.92	inches
2.3 Mean Depth (tf):	4.84	Bedrock:	0.0 %	Bar	: 1.14	inches
2.4 Floodprone Width (ft.):	118.20	Boulder:	0.0 %	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	7.00	Cobble:	0.0 %	Stream Type:	В	
Human Elev FloodPln (ft.):		Coarse Gravel:	4.0 %	Bed Material:	Sand	
2.6 Width/Depth Ratio:	14.21	Fine Gravel:	34.0 %	Subclass Slope:	С	
2.7 Entrenchment Ratio:	1.72	Sand:	62.0 %	Bed Form:	Dune-F	Ripple
2.8 Incision Ratio:	1.21	Silt and Smaller:	0.0 %	Field Measured Slope	1	
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stream	Гуре	
2.9 Sinuosity:	Low	Detritus:	0.0 %	Reference Stream Ty	pe:	
2.10 Riffles Type:	Eroded	# Large Woody Debris:	153	Reference Bed Mater	al:	
				Reference Subclass S	Slope:	

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Bank	s				Typical Ba	ank Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegetation	Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	1,015.0	318.9	Dominant:	Deciduous	Deciduous
Material Type:	Sand	Sand	Erosion Height (ft.):	4.2	4.0	Sub-dominant:	Herbaceous	Herbaceous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	421.5	218.2	Canopy %:	76-100	76-100
Material Type:	Sand	Sand				Mid-Channel Canop	y: Oper	1
O	Non achasiva	Non achasiva						

Consistency: Non-cohesive Non-cohesive

3.3 Riparian Corridor 3.2 Riparian Buffer

Burrer wiath	<u>Len</u>	Right	Corridor Land	<u>Lett</u>	Right		<u>Len</u>	Right
Dominant	>100	>100	Dominant	Forest	Forest	Mass Failures	734.94 94	110.71 08
Sub-Dominant	26-50	26-50	Sub-dominant	Hay	Pasture	Height	26.6	10.0
W less than 25	3,279	1,839	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	2	
Buffer Vegitation Type			Failures	Multiple	28.3	Gullies Length		
Dominant	Deciduous	Deciduous	Gullies	Multiple	10.0			
Sub-Dominant	Herhaceous	Herbaceous						



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Urb Strm Wtr Pipe:

Stream:

Second Branch of the White River

Reach:

M02-0

Sten	4.	Flow	ጼ	Flow	Modifiers
	т.	1 10 11	u	1 10 11	WICHING

Minimal 4.5 Flow Regulation Type 4.7 Stormwater Inputs None 4.1 Springs / Seeps: None 4.2 Adjacent Wetlands: Flow Reg. Use: Field Ditch: Road Ditch: Minimal 4.3 Flow Status: Tile Drain: Moderate Impoundments: None Other:

4.4 # of Debris Jams: 5 Impoundment Loc.: Overland Flow:

4.6 Up/Down Strm flow reg.:None4.9 # of Beaver Dams:0(old) Upstrm Flow Reg.:NoneAffected Length (ft):0

4.8 Channel Constrictions:

Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Problems** Bridge 85 Yes Yes Yes No **Deposition Above**

Step 5. Channel Bed and Planform Changes

5.2 Other Features Neck Cutoff: 5.1 Bar Types Diagonal: 0 5.4 Stream Ford or Animal Crossing: No Mid: Delta: 0 Flood chutes: 0 Avulsion: 5.5 Straightening: Straightening Point: Island: 0 5.3 Steep Riffles and Head Cuts Head Cuts: Straightening Length (ft.): 2,443 Side: Braiding: 0 Steep Riffles: 0 Trib Rejuv.: No 5.5 Dredging: None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Confined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	9	None	Yes	Geomorphic Rating	0.54
7.2 Channel Aggradation	12	None	No	Channel Evolution Model	F
7.3 Widening Channel	10	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	12	None	Yes	Geomorphic Condition	Fair
Total Score	43			Stream Sensitivity	Very High



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M03-0

Segment Length(ft): 8,939

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/3/2019

Quality Control Status - Consultant: Provisional Quality Control Status - Staff: Provisional

Step 0 - Location: Trib. south of Post Farm Rd. to Morse Rd. dam

Step 5 - Notes: Straightening may be underestimated, no obvious signs but indications that stream has been maintained against valley wall

in part through ag practices and plow headlands. Meander scars and old oxbows evident on aerials but rarely evident in field due to intensive ag use. Royalton-5 dam (electric; former Stoughton's Mills, grist and saw) at base of reach was removed, leaving waterfalls with large scour pool beneath; angle of bridge and VT-14 here is almost perpendicular to flow of river,

cutting off LFP access and reducing effective width of bridge though not an apparent channel constriction now.

Step 7 - Narrative: Aggradation, widening, and planform adjustments following incision. Fine gravel substrate due to erosion of pebbly sands

in upstream portion of the reach.

Step 1. Valley and Floodplain

1.1 Segmentation: None	1.4 Adjacent Side	<u>Lett</u>	<u>Right</u>	1.5 Valley Features	
1.2 Alluvial Fan: None	Hillside Slope:	Hilly	Hilly	Valley Width (ft):	800
1.3 Corridor Encroachments:	Continuous w/ Bank:	Sometimes	Sometimes	Width Determination:	Estimated
Length (ft) One Height Both F	leight Within 1 Bankfull W:	Sometimes	Always	Confinement Type:	VB

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Always Confinement Type: VB

Berm: 0 Texture: Silt/Clay Silt/Clay In Rock Gorge: No

Road: 388 10 Human Caused Change in Valley Width?: Yes

Railroad: 0
Imp. Path: 0

Dev.:

1.6 Grade Controls:

Waterfall	Mid-seament	15.0	0.0	Yes	No.
Туре	Location	Height	Above Water	Taken?	Taken?
		Total	Total Height	Photo	GPS



Stream:

Stream Geomorphic Assessment

VT DEC

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Reach:

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Phase 2 Segment Summary Report

Second Branch of the White

White River - Second Branch

Reference Bedform:

M03-0

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River						
		Step 2. Stream C	<u>hannel</u>			
2.1Bankfull Width (ft.):	61.10	2.11 Riffle/Step Spacing:	570 ft.	2.13 Average Largest Pa	rticle on	
2.2 Max Depth (ft.):	5.80	2.12 Substrate Composition		Bed:	2.1	mm
2.3 Mean Depth (tf):	4.39	Bedrock:	0.0 %	Bar:	1	mm
2.4 Floodprone Width (ft.):	798.10	Boulder:	0.0 %	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	8.60	Cobble:	0.0 %	Stream Type:	С	
Human Elev FloodPln (ft.):		Coarse Gravel:	8.0 %	Bed Material:	Gravel	
2.6 Width/Depth Ratio:	13.92	Fine Gravel:	49.0 %	Subclass Slope:	None	
2.7 Entrenchment Ratio:	13.06	Sand:	34.0 %	Bed Form:	Riffle-F	Pool
2.8 Incision Ratio:	1.48	Silt and Smaller:	9.0 %	Field Measured Slope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stream T	уре	
2.9 Sinuosity:	Moderate	Detritus:	1.0 %	Reference Stream Typ	e:	
2.10 Riffles Type:	Not Evaluated	# Large Woody Debris:	157	Reference Bed Materia	al:	
				Reference Subclass S	ope:	

Step 3. Riparian Features

			3	<u>step 3. Ripari</u>	an Featu	<u>res</u>				
3.1 Stream Banks	5					Typical Ba	ink Slope: Steep			
Bank Texture			Bank	Erosion	<u>Left</u>	Right I	Near Bank Vegetati	on Type <u>Left</u>	Rig	<u>ht</u>
Upper	<u>Left</u>	<u>Right</u>	Erosic	on Length (ft.):	1,760.3	2,052.1	Dominant:	Herbaceous	Decid	uous
Material Type:	Sand	Sand	Erosic	on Height (ft.):	3.5	3.9	Sub-dominant:	Deciduous	Herbad	eous
Consistency:	Non-cohesive	Non-cohesive	Revet	ment Type:	Rip-Rap	None	Bank Canopy			
Lower			Revet	ment Length:	162.7	0.0	Canopy %:	51-75	51	-75
Material Type:	Sand	Sand					Mid-Channel Car	пору: Оре	n	
Consistency:	Non-cohesive	Non-cohesive								
	3.2 Riparian Buffer 3.3 Riparian Corridor									
Buffer Width	<u>Left</u>	Rig	<u>aht</u>	Corridor Land		<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	26-5	0 0-2	25	Dominant	F	Pasture	Pasture	Mass Failures	53.595 58	141.33 72
Sub-Dominant	0-25	5 26-	50	Sub-dominant	Shru	bs/Sapling	Shrubs/Sapling	Height	20.0	20.0
W less than 25	4,26	2 4,2	37	(Legacy)		<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation	Туре			Failures		Multiple	20.0	Gullies Length	0	
Dominant	Herbace	eous Herba	ceous	Gullies		None				
Sub-Dominant	Decidu	ous Decid	uous							



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream: Sec

Second Branch of the White River

Reach:

M03-0

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs
----------------------	---------	--------------------------	------	-----------------------

4.2 Adjacent Wetlands:MinimalFlow Reg. Use:Field Ditch:0Road Ditch:14.3 Flow Status:HighImpoundments:Other:0Tile Drain:04.4 # of Debris Jams:1Impoundment Loc.:Overland Flow:0Urb Strm Wtr Pipe:0

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0 (old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Problems** Bridge 80 Yes Yes No Yes Scour Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Types		Diagonal:	0	5.2 Other Features	Neck Cutoff: 1		5.4 Stream Ford or Animal Crossing:		
	Mid:	1	Delta:	0	Flood chutes: 0	Avulsion:	0	5.5 Straightening:	Straightening
	Point:	12	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	2,240
	Side:	11	Braiding:	1	Steep Riffles: 0	Trib Rejuv.: No	0	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection
Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	10	E To C	Yes	Geomorphic Rating	0.51
7.2 Channel Aggradation	10	E To C	No	Channel Evolution Model	F
7.3 Widening Channel	10	Other	No	Channel Evolution Stage	III
7.4 Change in Planforml	11	Other	No	Geomorphic Condition	Fair
Total Score	41			Stream Sensitivity	Very High



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M04-0

Segment Length(ft): 10,807

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership
Observers: CP, DR

Observers: CP, DR Completion Date: 7/3/2019

Quality Control Status - Consultant: Provisional Quality Control Status - Staff: Provisional

Step 0 - Location: East Bethel Village - Hyde Dam to Post Rd. Trib.

Step 5 - Notes: Long-standing berm along Store Hill Rd not very evident in field but significantly restricts RFPA access. Deltaic alluvium

from trib along Gage Rd likely contributes to fan at edge of glacial Lake Hitchcock - sediments highly erodible. Borderline E

stream, but classed as C due to reduced sinuosity - straightening appears long-standing.

Step 7 - Narrative: 'Other' STD for planform is E to C due to reduced sinuosity, appears long-standing; sediments are highly erodible. Cyclical

rapid localized incision offset by aggradation and widening. Downcutting limited by grade controls, planform adjustments limited by road encroachment and placement of vegetated berms pinning stream to VW. Progressive fining exacerbated by impoundment, lack of sediment transport continuity. At time of field assessment, flood chutes obscured by vegetation and ag practices, depositional features obscured by water levels, but gravel apparent in some areas may be post-glacial relic...

Step 1. Valley and Floodplain

1.1 Segmentation: None					1.4 Adjacent Side <u>Left</u> <u>Right</u> 1.5 Valley Features				
1.2 Alluvial Fan: None		Hillside Slope:	Hilly	Hilly	Valley Width (ft):	600			
1.3 Corrido	r Encro	achment	s:		Continuous w/ Bank:	Sometimes	Sometimes	Width Determination:	Estimated
Length (ft)	One	<u>Height</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Sometimes	Sometimes	Confinement Type:	BD
Berm:	278	15	0		Texture:	Silt/Clay	Silt/Clay	In Rock Gorge:	No
Road:	4,019	8	0			Hu	man Caused C	Change in Valley Width?	∶Yes
Railroad:	0		0						
Imp. Path: 0 0									
Dev.:	371		540						

1.6 Grade Controls:

Dam	Mid-seament	16.0	13.0	Yes	No
Type	Location	Height	Above Water	Taken?	Taken?
		Total	Total Height	Photo	GPS



Stream:

Stream Geomorphic Assessment

VT DEC

Agency of Natural Resouces

Reach:

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Phase 2 Segment Summary Report

River

Second Branch of the White

White River - Second Branch

Reference Subclass Slope: Reference Bedform:

M04-0

Page 2

Step 2. Stream Channel							
2.1Bankfull Width (ft.):	53.00	2.11 Riffle/Step Spacing: 620 ft. 2.13 Average Largest Particle on					
2.2 Max Depth (ft.):	5.60	2.12 Substrate Composition		Bed:	0.98	inches	
2.3 Mean Depth (tf):	4.31	Bedrock:	0.0 %	Bar:	0.08	inches	
2.4 Floodprone Width (ft.):	740.00	Boulder:	0.0 %	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	7.80	Cobble:	0.0 %	Stream Type:	С		
Human Elev FloodPln (ft.):		Coarse Gravel:	5.0 %	Bed Material:	Sand		
2.6 Width/Depth Ratio:	12.30	Fine Gravel:	44.0 %	Subclass Slope:	None		
2.7 Entrenchment Ratio:	13.96	Sand:	31.0 %	Bed Form: Dune-		Ripple	
2.8 Incision Ratio:	1.39	Silt and Smaller:	20.0 %	Field Measured Slope:			
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stream Type			
2.9 Sinuosity:	Moderate	Detritus:	1.0 %	Reference Stream Type:			
2.10 Riffles Type:	Eroded	# Large Woody Debris:	65	Reference Bed Materia	al:		

Step 3. Riparian Features

3.1 Stream Banks	s				Typical Ba	ank Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegetation	Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	1,072.9	806.4	Dominant:	Herbaceous	Herbaceous
Material Type:	Silt	Silt	Erosion Height (ft.):	4.7	4.1	Sub-dominant:	Deciduous	Deciduous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Multiple	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	1,231.1	151.7	Canopy %:	51-75	51-75
Material Type:	Silt	Silt				Mid-Channel Canop	oy: Open	
Consistency:	Non-cohesive	Non-cohesive						

<u>3.2 Riparian Buffer</u>				3.3 Riparian Corridor						
	Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right	
	Dominant	26-50	26-50	Dominant	Hay	Hay	Mass Failures		553.62 81	
	Sub-Dominant	51-100	>100	Sub-dominant	Shrubs/Sapling	Shrubs/Sapling	Height		31.1	
	W less than 25	5,189	5,640	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0		
	Buffer Vegitation Type			Failures	Multiple	33.8	Gullies Length	0		
	Dominant	Herbaceous	Herbaceous	Gullies	None					
	Sub-Dominant	Deciduous	Deciduous							



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Phase 2 Segment Summary Report

White River - Second Branch

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Stream:

Second Branch of the White River

Reach:

M04-0

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:Minimal4.5 Flow Regulation TypeNone4.7 Stormwater Inputs None4.2 Adjacent Wetlands:MinimalFlow Reg. Use:Field Ditch:Road Ditch:4.3 Flow Status:ModerateImpoundments:Other:Tile Drain:

4.4 # of Debris Jams: 2 Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0

(old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	48	Yes	Yes	Yes	No	Deposition Below
Bridge	68	Yes	Yes	Yes	No	Deposition Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Ty	pes	Diagonal:	0	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	ssing: Yes
Mid:	3	Delta:	2	Flood chutes: 0	Avulsion:	0	5.5 Straightening:	Straightening
Point:	10	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	3,478
Side:	5	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: No)	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: **0.00**

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	9	None	No	Geomorphic Rating	0.45
7.2 Channel Aggradation	8	None	No	Channel Evolution Model	F
7.3 Widening Channel	9	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	10	Other	Yes	Geomorphic Condition	Fair
Total Score	36			Stream Sensitivity	Extreme



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M05-0

Segment Length(ft): 11,266

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/2/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: Peak Brook mouth DS to trib mouth S of Kingsbury Covered Bridge

Step 5 - Notes: Largest particles observed were clay concretions. Strong predominance of very fine sediments overall, extremely dynamic

system, bordering on E to C stream type departure due to reduced sinuosity (especially when neck cut-offs or channel avulsions occur, evident from mapped location of VHD streamline and on Google Earth historic imagery), widening and aggradation. Channel adjustments and evolution are rapid however. Upstream end of reach, short distance DS of mouth of Peak Brook, is location of Brickyard Farm; suspect river may have been dredged for brick production historically but no luck finding documentation; incision and vertical banks upstream of here in reach M06 not dramatic but were unexpectedly

pronounced.

Step 7 - Narrative: Extreme planform change with major widening and aggradation. Multiple neck cuttoffs (recent and impending). Extremely

dynamic system. Scoring for Step 7.4 planform adjustments: Extreme adjustments due to extensive lateral bank erosion, impending neck cutoff, evidence of recent avulsions and multiple thread channels. Though no STD noted, borders on E to C

STD due to reduced sinuosity and high degree of aggradation and widening.

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side <u>Left</u> Right 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Hilly Hilly Valley Width (ft): 1,400

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: VB

Berm: 0 Texture: Silt/Clay Silt/Clay In Rock Gorge: No

Road: 2,200 8 Human Caused Change in Valley Width?: Yes

Railroad: 0

Imp. Path: **818 3**

Dev.: 0

1.6 Grade Controls: None



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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Stream: Second Branch of the White Reach: M05-0 River

|--|

2.1Bankfull Width (ft.):	54.00	2.11 Riffle/Step Spacing:	450 ft.	2.13 Average Largest Pa	rticle on	
2.2 Max Depth (ft.):	5.60	2.12 Substrate Composition		Bed	1.4	inches
2.3 Mean Depth (tf):	4.33	Bedrock:	%	Bar	1.5	inches
2.4 Floodprone Width (ft.):	1,419.00	Boulder:	%	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	6.40	Cobble:	%	Stream Type:	E	
Human Elev FloodPln (ft.):		Coarse Gravel:	5.0 %	Bed Material:	Sand	
2.6 Width/Depth Ratio:	12.47	Fine Gravel:	36.0 %	Subclass Slope:	None	
2.7 Entrenchment Ratio:	26.28	Sand:	45.0 %	Bed Form:	Dune-R	lipple
2.8 Incision Ratio:	1.14	Silt and Smaller:	14.0 %	Field Measured Slope	:	
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stream 7	ype	
2.9 Sinuosity:	Moderate	Detritus:	0.0 %	Reference Stream Typ	e:	
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	73	Reference Bed Materi	al:	
				Reference Subclass S	lope:	

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks	S				Typical Bar	nk Slope: Undercut	:	
Bank Texture			Bank Erosion	<u>Left</u>	Right N	lear Bank Vegetation	Type <u>Left</u>	Right
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	1,165.2	1,407.9	Dominant:	Herbaceous	Deciduous
Material Type:	Sand	Sand	Erosion Height (ft.):	3.4	3.5	Sub-dominant:	Deciduous	Deciduous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	582.1	214.8	Canopy %:	26-50	26-50
Material Type:	Silt	Silt				Mid-Channel Canop	y: Open	

Consistency: Non-cohesive Non-cohesive

3.2 Riparian Buffer 3.3 Riparian Corridor

Buffer Width	<u>Left</u>	Right	Corridor Land	<u>Left</u>	Right		<u>Lett Right</u>	
Dominant	26-50	0-25	Dominant	Hay	Hay	Mass Failures	135.46 49	
Sub-Dominant	0-25	>100	Sub-dominant	Shrubs/Sapling	Forest	Height	20.0	
W less than 25	3,715	6,221	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	One	20.0	Gullies Length	0	
Dominant	Herbaceous	Herbaceous	Gullies	None				
Sub-Dominant	Deciduous	Deciduous						



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream: Secon River

Second Branch of the White

Reach:

M05-0

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs	None
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	Moderate	Impoundments:		Other:	Tile Drain:

4.4 # of Debris Jams: 4 Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.:None4.9 # of Beaver Dams:0(old) Upstrm Flow Reg.:Affected Length (ft):0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width 7	Taken? 1	Γaken?	Constriction?	Constriction?	Problems
Bridge	50	Yes	Yes	Yes	No	None
Bridge	50	Yes	Yes	Yes	No	Deposition Below
Bridge	70	Yes	Yes	Yes	No	Scour Below
Bridge	24	Yes	Yes	Yes	No	Deposition Below
Bridge	28	Yes	Yes	Yes	No	Deposition Above

Step 5. Channel Bed and Planform Changes

5.1 Bar Ty	pes	Diagonal:	0	5.2 Other Features	Neck Cutoff:	3	5.4 Stream Ford or Animal Cros	ssing: No
Mid:	1	Delta:	2	Flood chutes: 0	Avulsion:	0	5.5 Straightening:	Straightening
Point:	27	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	940
Side:	6	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	0	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability:
6.6 Channel Alteration:
6.9 Bank Vegetation Protection
Total Score:
6.7 Channel Sinuosity:
6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	12	None	No	Geomorphic Rating	0.43
7.2 Channel Aggradation	7	None	No	Channel Evolution Model	F
7.3 Widening Channel	10	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	5	None	No	Geomorphic Condition	Fair
Total Score	34			Stream Sensitivity	Very High



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M06-0

Segment Length(ft):

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/5/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: 0.25 miles N of Dugout Rd. to mouth of Peak Brook

9,815

Step 5 - Notes: Extremely dynamic system with fine sediments and extensive erosion, E to C STD due to overwidening and reduced

sinuosity. Old oxbows in surrounding fields were not easily observable during fieldwork but are apparent on aerials,

particularly 1996 vintage. Reach includes site of WRP's highest long-term bacteria readings.

Step 7 - Narrative: Extreme widening with major planform adjustments (primarily meander extensions) and aggradation. E to C STD due to

overwidening and reduced sinuosity.

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side <u>Left</u> <u>Right</u> 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Hilly Valley Width (ft): 500

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

<u>Length (ft)</u> <u>One Height Both Height</u> Within 1 Bankfull W: **Sometimes Sometimes** Confinement Type: **BD** Berm: **339 7** Texture: **Sand Sand** In Rock Gorge: **No**

Road: 1,754 9 Human Caused Change in Valley Width?: No

Railroad: 0

Imp. Path: 273 3

Dev.: **183**

1.6 Grade Controls: None



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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Second Branch of the White M06-0 Stream: Reach: River

|--|

2.1Bankfull Width (ft.):	68.60	2.11 Riffle/Step Spacing:	565 ft.	2.13 Average Larges	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	4.60	2.12 Substrate Composition		E	Bed:	1.56	inches
2.3 Mean Depth (tf):	2.39	Bedrock:	%	1	Bar:	1.24	inches
2.4 Floodprone Width (ft.):	696.80	Boulder:	%	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	5.70	Cobble:	%	Stream Type:		С	
Human Elev FloodPln (ft.):		Coarse Gravel:	3.0 %	Bed Material:		Sand	
2.6 Width/Depth Ratio:	28.70	Fine Gravel:	31.0 %	Subclass Slope:		None	
2.7 Entrenchment Ratio:	10.16	Sand:	54.0 %	Bed Form:		Dune-R	ipple
2.8 Incision Ratio:	1.24	Silt and Smaller:	12.0 %	Field Measured Slo	ope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Strea	am Typ	ре	
2.9 Sinuosity:	Moderate	Detritus:	0.0 %	Reference Stream	Туре:		
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	32	Reference Bed Ma	aterial:		
				Reference Subclas	ss Slop	oe:	

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks Typical Bank Slope: Undercut									
Bank Texture			Bank Erosion	<u>Left</u>	Right N	Near Bank Vegetation	Type <u>Left</u>	Right	
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	2,209.8	3,608.6	Dominant:	Herbaceous	Herbaceous	
Material Type:	Silt	Silt	Erosion Height (ft.):	3.9	3.8	Sub-dominant:	Deciduous	Deciduous	
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy			
Lower			Revetment Length:	139.9	242.2	Canopy %:	51-75	51-75	
Material Type:	Silt	Silt				Mid-Channel Canop	y: Open		

Consistency: Non-cohesive Non-cohesive

Deciduous

Deciduous

Sub-Dominant

3.3 Riparian Corridor 3.2 Riparian Buffer

Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u> Right
Dominant	26-50	0-25	Dominant	Hay	Hay	Mass Failures	121.86 04
Sub-Dominant	0-25	26-50	Sub-dominant	Forest	Residential	Height	50.0
W less than 25	1,221	4,932	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0
Buffer Vegitation Type			Failures	One	50.0	Gullies Length	0
Dominant	Herbaceous	Herbaceous	Gullies	None			



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Phase 2 Segment Summary Report

White River - Second Branch

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Stream: Se

Second Branch of the White River

Reach:

M06-0

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	Flow Regulation Type None			4.7 Stormwater Inputs				
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch:	1	Road Ditch:	0			
4.3 Flow Status:	Moderate	Impoundments:		Other:	0	Tile Drain:	0			
4.4 # of Debris Jams:	8	Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0			

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0 (old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	28	Yes	Yes	Yes	No	Deposition Above
Bridge	38	Yes	Yes	Yes	No	Deposition Above, Scour Below
Bridge	28	Yes	Yes	Yes	No	None
Bridge	45	Yes	Yes	Yes	No	Deposition Above, Scour Below
Bridge	60	Yes	Yes	Yes	No	Deposition Above, Deposition Below
Bridge	50	Yes	Yes	Yes	No	Scour Below
Other		No	No	No	No	None

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	es	Diagonal:	1	5.2 Other Features	Neck Cutoff: 1	1	5.4 Stream Ford or Animal Cros	sing:	No
Mid:	7	Delta:	0	Flood chutes: 0	Avulsion: 0	0	5.5 Straightening:	None	
Point:	4	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts: 0	0	Straightening Length (ft.):	0	
Side:	0	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: No)	5.5 Dredging:	None	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability:
6.6 Channel Alteration:
6.9 Bank Vegetation Protection
Total Score:
6.7 Channel Sinuosity:
6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined So	core S	STD <u>I</u>	<u> listoric</u>		
7.1 Channel Degradation	•	11 N	one	No	Geomorphic Rating	0.36
7.2 Channel Aggradation		7 N	one	No	Channel Evolution Model	F
7.3 Widening Channel		5 O	ther	No	Channel Evolution Stage	Ш
7.4 Change in Planforml		6 N	one	No	Geomorphic Condition	Fair
Total Score	2	29			Stream Sensitivity	Extreme



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: **M07-0**

Segment Length(ft): 14,323

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/5/2019

Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: Braley Covered Bridge to .35 miles N. of Dugout Rd.

Step 5 - Notes: Gifford covered bridge at Hyde Rd will not convey farm machinery; ford just DS of bridge has led to channel avulsion capture

of LB cropland, chewing significantly into extremely fine, dark silt. Penny Brook enters off RB immediately US of bridge as well, with indications of sediment slug US of bridge. I-beams under bridge replaced around 2010-2011, Google Earth historic imagery appears to show bridge staged in field along RB of mouth of Penny Brook. Further DS, localized dredging noted streamside in a couple locations. Sand and gravel pit along this stretch is not visible from stream or Rte 14, located at lower

elevation than terraces comprising roadside fields.

Step 7 - Narrative: Major to extreme planform adjustments with major widening and aggradation following historic degradation. E to C STD due

to widening. Fine sediments mean cyclical channel adjustments wash out quickly, and current reduced sensitivity means

long-standing straightening is still extensive; channel manipulations quickly undo channel adjustments.

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side <u>Left</u> Right 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Hilly Valley Width (ft): 700

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: VB

Berm: 0 Texture: Gravel Gravel In Rock Gorge: No

Human Caused Change in Valley Width?: Yes

Railroad: 0

Road:

Imp. Path: 4,037 4

Dev.: **1,748**

1.6 Grade Controls: None

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Phase 2 Segment Summary Report

White River - Second Branch

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Stream: Second Brar River		Branch of the V	Vhite Reach:	M07-0	
			Step 2. Str	eam Channel	
2.1Bankfull W	idth (ft.):	54.80	2.11 Riffle/Step Spaci	ng: 420 ft.	

2.1Bankfull Width (ft.):	54.80	2.11 Riffle/Step Spacing:	420 ft.	2.13 Average Largest Particle on		le on	
2.2 Max Depth (ft.):	5.70	2.12 Substrate Composition			Bed:	4.9	inches
2.3 Mean Depth (tf):	4.20	Bedrock:	%		Bar:	6.2	inches
2.4 Floodprone Width (ft.):	711.80	Boulder:	%	2.14 Stream Type			

2.5 Aband. Floodpn (ft.): 8.80 Cobble: 11.0 % Stream Type: С Coarse Gravel: 46.0 % Human Elev FloodPln (ft.): Bed Material: Gravel 2.6 Width/Depth Ratio: Fine Gravel: Subclass Slope: 13.05 20.0 % None 2.7 Entrenchment Ratio: 12.99 Sand: 23.0 % Bed Form: Riffle-Pool Silt and Smaller: 2.8 Incision Ratio: 1.54 % Field Measured Slope:

Human Elevated Inc. Rat.: 0.00 Silt/Clay Present: No 2.15 Sub-reach Stream Type 2.9 Sinuosity: Moderate Detritus: 0.0 % Reference Stream Type: 2.10 Riffles Type: Sedimented # Large Woody Debris: 247 Reference Bed Material:

Reference Subclass Slope: Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks	S		Typical Ba	/pical Bank Slope: Steep				
Bank Texture			Bank Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegetation	on Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	2,376.4	1,674.9	Dominant:	Herbaceous	Herbaceous
Material Type:	Sand	Sand	Erosion Height (ft.):	2.5	3.4	Sub-dominant:	Deciduous	Deciduous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	506.4	1,125.4	Canopy %:	51-75	51-75

Material Type: Sand Gravel Mid-Channel Canopy: Open

Consistency: Non-cohesive Non-cohesive

Deciduous

Deciduous

Sub-Dominant

3.2	<u>Riparian Buffer</u>		3.3 Riparian Corridor					
Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	>100	0-25	Dominant	Forest	Hay	Mass Failures		86.583 43
Sub-Dominant	26-50	26-50	Sub-dominant	Hay	Shrubs/Sapling	Height		20.0
W less than 25	3,162	5,722	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	One	20.0	Gullies Length	0	
Dominant	Herbaceous	Herbaceous	Gullies	None				



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream: Secon River

Second Branch of the White

Reach:

M07-0

4.1 Springs / Seeps: 4.5 Flow Regulation Type **None** 4.7 Stormwater Inputs

4.2 Adjacent Wetlands:MinimalFlow Reg. Use:Field Ditch:0Road Ditch:14.3 Flow Status:ModerateImpoundments:Other:0Tile Drain:04.4 # of Debris Jams:9Impoundment Loc.:Overland Flow:0Urb Strm Wtr Pipe:0

Impoundment Loc.:

Overland Flow: 0 Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: None

4.9 # of Beaver Dams: 0

(old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Problems** Bridge 34.5 Yes Yes Yes No Deposition Above, Scour Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Types Diagonal: 5.2 Other Features Neck Cutoff: 0 5.4 Stream Ford or Animal Crossing: Yes

Mid: 6 Delta: 1 Flood chutes: 2 Avulsion: 0 5.5 Straightening: None

Point: 26 Island: 5.3 Steep Riffles and Head Cuts Head Cuts: 0 Straightening Length (ft.): 0

Side: 10 Braiding: 0 Steep Riffles: 0 Trib Rejuv.: No 5.5 Dredging: Gravel Mining

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection
Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	9	E To C	Yes	Geomorphic Rating	0.41
7.2 Channel Aggradation	10	E To C	No	Channel Evolution Model	F
7.3 Widening Channel	8	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	6	None	No	Geomorphic Condition	Fair
Total Score	33			Stream Sensitivity	Very High



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M08-0

Segment Length(ft): 3,162

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership
Observers: CP, DR

Completion Date: 7/5/2019

Quality Control Status - Consultant: Provisional Quality Control Status - Staff: Provisional

Step 0 - Location: W of Tunbridge Mtn. Road/Rte 14 JCT 25 to Braley Covered Bridge

Step 5 - Notes: Coarser sediments from kame terrace in US half of reach have influenced and contribute to riffle/bar formation, but lake

bottom sediments in DS half lend to elevated channel incision due to fines: alluvium on terrace off RB indicative of historic FP abandonment, now well elevated above current channel. Braley covered bridge technically in M07, but long-standing

effects of undersized structure influence planform in M08 (this reach).

Step 7 - Narrative: Major planform change following primarily historic incision; rate of aggradation and widening moderated by decent buffers

and sediment transport discontinuity at Gulf Rd dam (US in M09). Strongly suspect ford or bridge at M09 reach break is now gone (see 1998 aerials), affecting US end of M08; Braley Bridge affects DS end. Good buffers limit rate of widening, but

tipped trees tend to take large sections of bank and are primary drivers of planform change.

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side <u>Left</u> <u>Right</u> 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Very Steep Very Steep Valley Width (ft): 300

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: NW

Berm: 0 Texture: Gravel Gravel In Rock Gorge: No

Road: 0 Human Caused Change in Valley Width?: Yes

Railroad: 0

Imp. Path: 324 8

iiiip. Patii. **324 C**

Dev.:

1.6 Grade Controls: None

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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Stream:	Second Branch of the White River	Reach:	M08-0
		Step 2. St	ream Channel

2.1Bankfull Width (ft.):	55.40	2.11 Riffle/Step Spacing:	260 ft.	2.13 Average Large	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	6.10	2.12 Substrate Composition			Bed:	6.6	inches
2.3 Mean Depth (tf):	4.81	Bedrock:	%		Bar:	7	inches
2.4 Floodprone Width (ft.):	291.90	Boulder:	2.0 %	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	8.20	Cobble:	28.0 %	Stream Type:		С	
Human Elev FloodPln (ft.):		Coarse Gravel:	42.0 %	Bed Material:		Gravel	
2.6 Width/Depth Ratio:	11.52	Fine Gravel:	7.0 %	Subclass Slope:		None	
2.7 Entrenchment Ratio:	5.27	Sand:	21.0 %	Bed Form:		Riffle-Po	ol
2.8 Incision Ratio:	1.34	Silt and Smaller:	%	Field Measured S	Slope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	No	2.15 Sub-reach Stre	am Ty	ре	
2.9 Sinuosity:	Low	Detritus:	0.0 %	Reference Stream	n Type	:	
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	76	Reference Bed M	laterial:		

Reference Subclass Slope:

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks	S				Typical Ba	nk Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	Right N	Near Bank Vegetation	Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	463.1	346.2	Dominant:	Herbaceous	Herbaceous
Material Type:	Sand	Sand	Erosion Height (ft.):	2.8	5.1	Sub-dominant:	Deciduous	Deciduous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	31.3	224.8	Canopy %:	51-75	76-100
Material Type:	Gravel	Gravel				Mid-Channel Canop	oy: Open	
Consistency:	Non-cohesive	Non-cohesive						

3.2 Riparian Buffer 3.3 Riparian Corridor

<u>0.£ 1</u>	<u> (ipanan bano)</u>	<u> </u>		<u>0.0 i t</u>	<u>ipanan comaoi</u>			
Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	<u>Right</u>
Dominant	>100	>100	Dominant	Forest	Forest	Mass Failures	29.177 59	
Sub-Dominant	0-25	None	Sub-dominant	Hay	Shrubs/Sapling	Height	20.0	
W less than 25	989	239	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	One	20.0	Gullies Length	0	
Dominant	Herbaceous	Deciduous	Gullies	None				
Sub-Dominant	Deciduous	Herbaceous						



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Phase 2 Segment Summary Report White River - Second Branch

Page3

Stream: Second Branch of the White

Reach: M08-0

River

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs	s None
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	Moderate	Impoundments:		Other:	Tile Drain:
	_	lana a con alan a a til a a c			Link Cture Mita Dire

4.4 # of Debris Jams: 7 Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: Up Stream 4.9 # of Beaver Dams: 0 (old) Upstrm Flow Reg.: Run-of-river Dam Affected Length (ft): 0

4.8 Channel Constrictions: None

Step 5. Channel Bed and Planform Changes

5.1 Bar Ty	pes	Diagonal:		5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cro	ssing:	No
Mid:	1	Delta:		Flood chutes: 2	Avulsion:	0	5.5 Straightening:	None	
Point:	3	Island:		5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	0	
Side:	4	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	lo	5.5 Dredging:	None	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection
Total Score: **0** 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Step 7. Rapid Geomorphic Assessment Data

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Confinement Type	Unconfined Score	<u> 510</u>	HISTORIC		
7.1 Channel Degradation	8	None	Yes	Geomorphic Rating	0.50
7.2 Channel Aggradation	11	None	No	Channel Evolution Model	F
7.3 Widening Channel	13	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	8	None	No	Geomorphic Condition	Fair
Total Score	40			Stream Sensitivity	Very High



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Agency of Natural Resouces

Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M09-0

Segment Length(ft): 6,067

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership Observers: CP, DR

Observers: CP, DR Completion Date: 8/6/2019

Quality Control Status - Consultant: Provisional Quality Control Status - Staff: Provisional

Step 0 - Location: East Randolph: Mouth of Blaisdell Brook DS to W of Tunbridge Mtn. Road

Step 5 - Notes: Gulf Rd dam (under Rte 14/Rte 66 bridge) constricts what might otherwise be a VB valley. Originally anticipated

segmentation due to this, but US/DS of this dam are remarkably similar, likely due to glacial Lake Hitchcock influence on

surficial geology - dominated by fines above and below.

Step 7 - Narrative: Major planform adjustments thru aggradation and widening following primarily historic incision.

Step 1. Valley and Floodplain

1.1 Segmer	ntation:	None			1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features	
1.2 Alluvial	Fan:	None			Hillside Slope:	Steep	Steep	Valley Width (ft):	600
1.3 Corridor Encroachments:		Continuous w/ Bank:	Sometimes	Sometimes	Width Determination:	Estimated			
Length (ft)	<u>One</u>	<u>Height</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Sometimes	Sometimes	Confinement Type:	BD
Berm:	0		0		Texture:	Sand	Sand	In Rock Gorge:	No
Road:	1,837	8	0			Hui	man Caused C	change in Valley Width?	:Yes
Railroad:	0		0						
Imp. Path:	863	3	0						
Dev.:	302		758						
1 6 Crada C	`ontrolo								

1.6 Grade Controls:

Dam	Mid-seament	0.0	0.0	Yes	No
Type	Location	Height	Above Water	Taken?	Taken?
		Total	Total Height	Photo	GPS



Stream Geomorphic Assessment

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Phase 2 Segment Summary Report

White River - Second Branch

Reference Bedform:

Page 2

Stream: Second Branch of the White River		hite Reach:	Reach: M09-0					
			Step 2	. Stream Channel				
2.1Bankfull Width (ft.):	69.30	2.11 Riffle/Step S	pacing: 290 ft.	2.13 Average Large	est Part	icle on	
2.2 Max Depth (ft.):	:	5.40	2.12 Substrate Co	omposition		Bed:	1.9	inches
2.3 Mean Depth (tf)):	3.17	Bedrock:	%		Bar:	2.5	inches
2.4 Floodprone Wid	dth (ft.):	419.30	Boulder:	%	2.14 Stream Type			
2.5 Aband. Floodpr	ո (ft.):	8.60	Cobble:	5.0 %	Stream Type:		С	
Human Elev Floor	dPIn (ft.):		Coarse Gravel	10.0 %	Bed Material:		Sand	
2.6 Width/Depth Ra	atio:	21.86	Fine Gravel:	35.0 %	Subclass Slope:		None	
2.7 Entrenchment F	Ratio:	6.05	Sand:	50.0 %	Bed Form:		Riffle-F	Pool
2.8 Incision Ratio:		1.59	Silt and Smalle	er: %	Field Measured	Slope:		
Human Elevated I	nc. Rat.:	0.00	Silt/Clay Prese	nt: No	2.15 Sub-reach Str	eam Ty	ре	
2.9 Sinuosity:		Low	Detritus:	0.0 %	Reference Strea	т Туре	:	
2.10 Riffles Type:		Sedimented	# Large Woody D	ebris: 55	Reference Bed I	Material		
					Reference Subc	lass Slo	pe:	

Step 3. Riparian Features

			-							
3.1 Stream Banks	S					Typical Ba	ank Slope: Steep			
Bank Texture			Bank	Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegetati	ion Type <u>Left</u>	<u> </u>	Right
Upper	<u>Left</u>	<u>Right</u>	Erosio	on Length (ft.):	903.6	1,013.6	Dominant:	Herbaceous	Herb	aceous
Material Type:	Sand	Sand	Erosio	on Height (ft.):	4.0	3.4	Sub-dominant:	Deciduous	Dec	iduous
Consistency:	Non-cohesive	Non-cohesive	Revet	ment Type:	Multiple	Multiple	Bank Canopy			
Lower			Revet	ment Length:	374.7	1,186.4	Canopy %:	26-50		1-25
Material Type:	Gravel	Sand					Mid-Channel Car	nopy: Op	en	
Consistency:	Non-cohesive	Non-cohesive								
	3.2 Riparian	<u>Buffer</u>				3.3 R	iparian Corridor			
Buffer Width	<u>Left</u>	Rig	<u>ght</u>	Corridor Land		<u>Left</u>	Right		Le	t <u>Right</u>
Dominant	0-25	0-	25	Dominant		Hay	Hay	Mass Failures		
Sub-Dominant	>100	26	·50	Sub-dominant	Shr	ubs/Sapling	Shrubs/Sapling	Height		
W less than 25	2,827	7 3,9	00	(Legacy)		<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation	Туре			Failures		None		Gullies Length	0	
Dominant	Herbace	ous Herba	ceous	Gullies		None				
Sub-Dominant	Shrubs/Sa	apling Decid	luous							



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream:

Second Branch of the White River

Reach:

M09-0

Step 4. Flow &	Flow Modifiers
----------------	----------------

4.1 Springs / Seeps: Mir	nimal 4	4.5 Flow Regulation Type	None	4.7 Stormwater In	nputs		
4.2 Adjacent Wetlands: Mir	nimal	Flow Reg. Use:		Field Ditch:	1	Road Ditch:	0
4.3 Flow Status: Mo	oderate	Impoundments:		Other:	0	Tile Drain:	0
4.4 # of Debris Jams: 5		Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0
	4	4.6 Up/Down Strm flow reg.:	None	4.9 # of Beaver D)ams:	: 0	

(old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	54	Yes	Yes	Yes	No	Deposition Above,Scour Below
Bridge	44	Yes	Yes	Yes	No	Deposition Above, Scour Below
Bridge	32	Yes	Yes	Yes	No	Deposition Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Ty	pes	Diagonal:		5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	ssing: No
Mid:	5	Delta:	1	Flood chutes: 1	Avulsion:	0	5.5 Straightening:	Straightening
Point:	16	Island:		5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	834
Side:	4	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	lo	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability:
6.6 Channel Alteration:
6.9 Bank Vegetation Protection
Total Score:
6.7 Channel Sinuosity:
6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	7	None	Yes	Geomorphic Rating	0.39
7.2 Channel Aggradation	8	None	No	Channel Evolution Model	F
7.3 Widening Channel	9	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	7	None	No	Geomorphic Condition	Fair
Total Score	31			Stream Sensitivity	Very High



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M10-0

Segment Length(ft): 7,595

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 6/17/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: Mouth of Halfway Brook to mouth of Blaisdell Brook.

Step 5 - Notes: Reduced sinuosity due to several stretches of revetments and bank armoring (Rte 14 cuts access to large portion of historic

RFPA), including mid-reach section of failed tire revetments (outflanked by erosion) that has left numerous tires in channel, plus several undersized bridges. Apparent successive floodplain abandonment, possibly offset by aggradation in Irene and

other flood events.

Step 7 - Narrative: Major widening and planform adjustments following primarily historic incision. Apparent successive floodplain

abandonment (likely older, higher abandoned floodplain noted on RB at x-sec) probably offset by aggradation in Irene and

other flash flood events - widening appears as more evident adjustment due to fine sediments and lack of stability in

deposits (lends to frequent cycling of widening-aggradation offsetting localized incision).

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side <u>Left</u> Right 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Extr.Steep Extr.Steep Valley Width (ft): 550

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: BD

Berm: 0 Texture: Sand Sand In Rock Gorge: No

Road: 2.944 7 Human Caused Change in Valley Width?: Yes

Railroad: 0
Imp. Path: 0
Dev.: 498

1.6 Grade Controls: None



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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Stream: Second Branch of the White Reach: M10-0 River

2.1Bankfull Width (ft.):	55.50	2.11 Riffle/Step Spacing:	335 ft.	2.13 Average Largest Particle on			
2.2 Max Depth (ft.):	5.10	2.12 Substrate Composition			Bed:	2.7	inches
2.3 Mean Depth (tf):	3.04	Bedrock:	%		Bar:	2.4	inches
2.4 Floodprone Width (ft.):	333.50	Boulder:	%	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	6.40	Cobble:	5.0 %	Stream Type:		С	
Human Elev FloodPln (ft.):		Coarse Gravel:	35.0 %	Bed Material:		Gravel	
2.6 Width/Depth Ratio:	18.26	Fine Gravel:	30.0 %	Subclass Slope: None		None	
2.7 Entrenchment Ratio:	6.01	Sand:	28.0 %	Bed Form:		Riffle-Po	ool
2.8 Incision Ratio:	1.25	Silt and Smaller:	2.0 %	Field Measured S	Slope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	No	2.15 Sub-reach Stre	eam Ty	ре	
2.9 Sinuosity:	Moderate	Detritus:	2.0 %	Reference Stream	n Type		
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	ris: 88 Reference Bed Mater		laterial:		
				5 (٠.		

Reference Subclass Slope:

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks	s				Typical Ba	nk Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	Right I	Near Bank Vegetation	Type <u>Left</u>	Right
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	2,199.7	2,156.3	Dominant:	Deciduous	Deciduous
Material Type:	Sand	Sand	Erosion Height (ft.):	4.4	4.5	Sub-dominant:	Invasives	Invasives
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Multiple	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	204.4	1,437.0	Canopy %:	26-50	1-25
Material Type:	Sand	Mix				Mid-Channel Canop	y: Open	
0	Nan aabaaba	Nam aabaaina						

Consistency: Non-cohesive Non-cohesive

Herbaceous

Deciduous

Sub-Dominant

3.2 Riparian Buffer 3.3 Riparian Corridor

Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	0-25	0-25	Dominant	Crop	Crop	Mass Failures	385.51 15	79.585 02
Sub-Dominant	>100	26-50	Sub-dominant	Forest	Residential	Height	65.0	15.0
W less than 25	2,226	3,779	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	Multiple	40.0	Gullies Length	0	
Dominant	Deciduous	Herbaceous	Gullies	None				



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

0

Affected Length (ft):

Stream: Secon River

Second Branch of the White

Reach:

(old) Upstrm Flow Reg.:

M10-0

4.1 Springs / Seeps:	Abundant	4.5 Flow Regulation Type	None	4.7 Stormwater In	puts		
4.2 Adjacent Wetlands:	Abundant	Flow Reg. Use:		Field Ditch:	3	Road Ditch:	0
4.3 Flow Status:	Moderate	Impoundments:	None	Other:	0	Tile Drain:	0
4.4 # of Debris Jams:	3	Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0
		4.6 Up/Down Strm flow reg.:	None	4.9 # of Beaver D	ams:	. 0	

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	34	Yes	Yes	Yes	No	Deposition Above,Scour Below
Bridge	55	Yes	Yes	Yes	No	Deposition Above, Scour Below
Bridge	50	Yes	No	Yes	No	Deposition Below
Bridge	55	Yes	Yes	Yes	No	Deposition Above

None

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	es	Diagonal:	3	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	sing: No
Mid:	3	Delta:	0	Flood chutes: 11	Avulsion:	0	5.5 Straightening:	Straightening
Point:	14	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	2,522
Side:	8	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: No	0	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection
Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	10	None	Yes	Geomorphic Rating	0.43
7.2 Channel Aggradation	10	None	No	Channel Evolution Model	F
7.3 Widening Channel	8	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	6	None	No	Geomorphic Condition	Fair
Total Score	34			Stream Sensitivity	Very High



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Agency of Natural Resouces

Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M11-A

Segment Length(ft): 3,158

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership
Observers: CP, DR

Completion Date: 6/13/2019

Quality Control Status - Consultant: Provisional Quality Control Status - Staff: Provisional

Step 0 - Location: Rt. 14 bridge at Ferrid Rd. DS to Rt. 14 at old creamery building

Step 5 - Notes: Historic dam presence (since 1799, no longer present) profoundly influences segment dynamics. Suspect log crib dam was

replaced by concrete after 1921 (based on Special Report of Water Resource Commission to VT Legislature, 1921, and presence of ransome bar remnants on-site), then destroyed in 1927 flood and not rebuilt. Stream very entrenched but fine sediments cyclically deposit/wash out and decent buffers actually limit rate of channel evolution – floodplain access likely to

remain very limited.

Step 7 - Narrative: Stream entrenched following destruction of historic dam, incised through formerly impounded sediments; FP now restricted

by degree of incision and remnants of former dam infrastructure.

Step 1. Valley and Floodplain

1.1 Segmen	tation:	Valley ^v	Width		1.4 Adjacent Side	<u>Left</u>	Right	1.5 Valley Features	
1.2 Alluvial F	an:	None			Hillside Slope:	Very Steep	Extr.Steep	Valley Width (ft):	200
1.3 Corridor Encroachments:			Continuous w/ Bank:	Sometimes	Sometimes	Width Determination:	Estimated		
Length (ft)	<u>One</u>	<u>Height</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Sometimes	Sometimes	Confinement Type:	SC
Berm:	0		0		Texture:	Sand	Sand	In Rock Gorge:	No
Road:	248	15	0			Hui	man Caused C	Change in Valley Width?	∶Yes
Railroad:	0		0						
Imp. Path:	654	15	0						
Dev.:	376		196						
400 10									

1.6 Grade Controls:

_	Dam	Mid-segment	3.0	0.2	Yes	No
	Туре	Location	Height	Above Water	Taken?	Taken?
			ıotaı	i otai Height	Pnoto	GPS



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Reach:

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Phase 2 Segment Summary Report

Second Branch of the White

White River - Second Branch

Reference Bedform:

M11-A

Page 2

River							
		Step 2. Stream C	<u>hannel</u>				
2.1Bankfull Width (ft.):	60.50	2.11 Riffle/Step Spacing:	190 ft.	2.13 Average Larges	st Part	icle on	
2.2 Max Depth (ft.):	3.40	2.12 Substrate Composition		1	Bed:	3.7	inches
2.3 Mean Depth (tf):	2.61	Bedrock:	%		Bar:	2.7	inches
2.4 Floodprone Width (ft.):	67.50	Boulder:	2.0 %	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	8.30	Cobble:	12.0 %	Stream Type:		F	
Human Elev FloodPln (ft.):		Coarse Gravel:	42.0 %	Bed Material:		Gravel	
2.6 Width/Depth Ratio:	23.18	Fine Gravel:	20.0 %	Subclass Slope:		None	
2.7 Entrenchment Ratio:	1.12	Sand:	24.0 %	Bed Form:		Riffle-P	ool
2.8 Incision Ratio:	2.44	Silt and Smaller:	%	Field Measured SI	lope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	No	2.15 Sub-reach Stream	am Ty	pe	
2.9 Sinuosity:	Low	Detritus:	0.0 %	Reference Stream	туре	:	
2.10 Riffles Type:	Eroded	# Large Woody Debris:	20	Reference Bed Ma	aterial		
				Reference Subcla	ss Slo	pe:	

Step 3. Riparian Features

			Step 3. Mpan	aii i C alu	<u>163</u>			
3.1 Stream Banks	S				Typical Ba	ank Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegetation	Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	305.0	103.4	Dominant:	Deciduous	Deciduous
Material Type:	Silt	Sand	Erosion Height (ft.):	4.7	6.0	Sub-dominant:	Herbaceous	Herbaceous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	69.8	174.0	Canopy %:	26-50	51-75
Material Type:	Silt	Sand				Mid-Channel Canop	y: Open	
Consistency:	Non-cohesive	Non-cohesive						
	3.2 Riparian	<u>Buffer</u>			3.3 R	iparian Corridor		
Buffer Width	<u>Left</u>	<u>Ric</u>	ght Corridor Land		<u>Left</u>	<u>Right</u>		<u>Left</u> Righ

<u> </u>	upanan pane	•		<u> </u>	Juliuli Golliuol			
Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	51-100	>100	Dominant	Shrubs/Sapling	Forest	Mass Failures		163.17 27
Sub-Dominant	0-25	0-25	Sub-dominant	Hay	Shrubs/Sapling	Height		13.5
W less than 25	1,342	162	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	Multiple	15.0	Gullies Length	0	
Dominant	Deciduous	Deciduous	Gullies	None				
Sub-Dominant	Herbaceous	Herbaceous						



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Phase 2 Segment Summary Report

White River - Second Branch

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Stream:

Second Branch of the White River

Reach:

M11-A

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs	None
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	Moderate	Impoundments:		Other:	Tile Drain:

4.4 # of Debris Jams: 2 Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0 (old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	36	Yes	Yes	Yes	No	None
Bridge	45	Yes	No	Yes	No	None
Bridge	50	Yes	Yes	Yes	No	Deposition Below
Bridge	45	Yes	No	Yes	No	None

Step 5. Channel Bed and Planform Changes

5.1	Bar Typ	es	Diagonal:	2	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	ssing:	No
ľ	Mid:	1	Delta:	1	Flood chutes: 4	Avulsion:	0	5.5 Straightening:	None	
F	Point:	3	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	0	
5	Side:	0	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	0	5.5 Dredging:	None	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection
Total Score: **0** 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	5	C to F	Yes	Geomorphic Rating	0.39
7.2 Channel Aggradation	9	None	No	Channel Evolution Model	F
7.3 Widening Channel	9	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	8	None	No	Geomorphic Condition	Fair
Total Score	31			Stream Sensitivity	Extreme



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M11-B

Segment Length(ft): 2,491

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 6/14/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: DS Mouth of Snows Brook where valley widens, DS to Rt. 14 bridge at Ferris Rd.

Step 5 - Notes: Significant coarser sediment inputs at mouth of Snows Brook off RB contributes to higher sinuosity and elevated planform

adjustments. Second Branch may have shared floodplain with alluvial fan/delta at base of Halfway Brook off LB but has been historically routed under Rte 14, toward RVW and cut off from former floodplain by Ferris Rd.. Large headcut present in alluvial deposits off LB (accounted here as trib rejuvenation) may be due to stormwater inputs from further up LVW along

Ferris Rd, not followed to source.

Step 7 - Narrative: Extreme aggradation and planform adjustments following historic incision downstream of former dam (likely not replaced

after 1927 flood). Neck cut-off at upstream end of segment plugged with coarser sediments discharged from Snow's Brook in April 15, 2019 flooding (and conceivably in other recent floods as well - 2007, 2011, 2013). Historical aerials show rapid meander extensions and multiple neck cut-offs in this segment since 1990s; likely through aggraded sediments upstream of

another former dam behind the Creamery (~0.9 mi DS).

Step 1. Valley and Floodplain

1.1 Segmentation: Planform and Scope 1.4 Adjacent Side <u>Left</u> Right 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Flat Steep Valley Width (ft): 400

1.3 Corridor Encroachments: Continuous w/ Bank: Always Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Always Sometimes Confinement Type: NW

Berm: 0 Texture: Sand Gravel In Rock Gorge: No

Road: 876 12 Human Caused Change in Valley Width?: Yes

Railroad: 0
Imp. Path: 0
Dev.: 0

1.6 Grade Controls: None



Stream:

Buffer Width

Dominant

Dominant

Sub-Dominant

W less than 25

Sub-Dominant

Buffer Vegitation Type

Stream Geomorphic Assessment

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Agency of Natural Resouces

Reach:

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3.2 Riparian Buffer

Left

0-25

>100

2,299

Herbaceous

Shrubs/Sapling

Right

0-25

None

2,435

Herbaceous

Shrubs/Sapling

Corridor Land

Sub-dominant

Dominant

(Legacy)

Failures

Gullies

River

Second Branch of the White

White River - Second Branch

3.3 Riparian Corridor

Shrubs/Sapling

Forest

Amount

None

None

Right

None

Mean Hieght

Shrubs/Sapling Mass Failures

Height

Gullies Number

Gullies Length

M11-B

Page 2

<u>Left</u>

0

0

Right

	LINEI								
			Step 2. Strea	m Chann	<u>iel</u>				
2.1Bankfull Widt	h (ft.):	79.20	2.11 Riffle/Step Spacing:	205	ift. 2.	13 Average	Largest Part	ticle on	
2.2 Max Depth (f	ft.):	3.20	2.12 Substrate Composit	ion			Bed:	4.8 i	nches
2.3 Mean Depth	(tf):	1.59	Bedrock:	%			Bar:	3.2 i	nches
2.4 Floodprone V	Nidth (ft.):	554.20	Boulder:	%	2.	14 Stream T	уре		
2.5 Aband. Floor	dpn (ft.):	5.10	Cobble:	12.	0 %	Stream Typ	e:	С	
Human Elev Flo	oodPln (ft.):		Coarse Gravel:	33.	0 %	Bed Materia	al:	Gravel	
2.6 Width/Depth	Ratio:	49.81	Fine Gravel:	19.	0 %	Subclass SI	ope:	None	
2.7 Entrenchmer	nt Ratio:	7.00	Sand:	30.	0 %	Bed Form:		Riffle-Poo	I
2.8 Incision Ratio	o:	1.59	Silt and Smaller:	9.0	%	Field Measu	red Slope:		
Human Elevate	ed Inc. Rat.:	0.00	Silt/Clay Present:	No	2.	15 Sub-reac	h Stream Ty	<i>у</i> ре	
2.9 Sinuosity:		High	Detritus:	0.0	%	Reference S	Stream Type) :	
2.10 Riffles Type	e: Se	dimented	# Large Woody Debris:	24		Reference E	Bed Material	:	
						Reference S	Subclass Slo	pe:	
						Reference E	Bedform:		
			Step 3. Ripari	an Featu	<u>res</u>				
3.1 Stream Bank	(S				Typical B	ank Slope:	Moderate		
Bank Texture			Bank Erosion	<u>Left</u>	Right	Near Bank \	Vegetation T	ype <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	Right	Erosion Length (ft.):	722.8	540.3	Dominan	t: F	lerbaceous	Herbaceous
Material Type:	Sand	Sand	Erosion Height (ft.):	3.3	2.2	Sub-dom	inant: Sh	rubs/Saplin	g Shrubs/Sapling
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Car	пору		
Lower			Revetment Length:	23.6	107.3	Canop	y %:	1-25	1-25
Material Type:	Gravel	Gravel				Mid-Char	nnel Canopy	: Op	en
Consistency:	Non-cohesive	Non-cohesive							



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Phase 2 Segment Summary Report White River - Second Branch

Page3

Stream: Secon River

Second Branch of the White Reach:

M11-B

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Abundant	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch:	1	Road Ditch:	0
4.3 Flow Status:	Moderate	Impoundments:		Other:	0	Tile Drain:	0
4.4 # of Debris Jams:	0	Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0
		4.6 Up/Down Strm flow reg.:	None	4.9 # of Beaver D	Dams	: 0	

(old) Upstrm Flow Reg.: Affected Length (ft): **0**

4.8 Channel Constrictions: None

Step 5. Channel Bed and Planform Changes

5.1 Bar Ty	pes	Diagonal:	0	5.2 Other Features	Neck Cutoff:	1	5.4 Stream Ford or Animal Cros	sing: No
Mid:	3	Delta:	0	Flood chutes: 4	Avulsion:	0	5.5 Straightening:	Straightening
Point:	5	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	123
Side:	1	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: Y	es	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	6	None	Yes	Geomorphic Rating	0.25
7.2 Channel Aggradation	6	None	No	Channel Evolution Model	F
7.3 Widening Channel	4	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	4	None	No	Geomorphic Condition	Poor
Total Score	20			Stream Sensitivity	Extreme



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M11-C

Segment Length(ft): 2,396

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership Observers: CP, DR

Completion Date: CP, DR 6/14/2019

Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: N. end of N. Randolph village DS to where valley widens DS of Snows Brook Mouth

Step 5 - Notes: Special Report of Water Resource Commission to VT Legislature, 1921: "At North Randolph village a head of about 9 feet is

obtained and a 40 horsepower water wheel is used for operating a saw mill, shingle mill, and grist mill." Upstream portion of segment is tail end of mill pond, and most of segment is dominated by very fine silts; former dam remains are now covered by a log bridge and infrastructure from mill buildings and raceway still present DS, esp. on LB. Beers Atlas (1877) indicates grist mill on RB, carriage factory on LB just DS; much of remaining infrastructure would likely have been associated with the

carriage factory. High kame terrace on RB is primarily sand and may be susceptible to mass failure.

Step 7 - Narrative: Major aggradation cycles with localized scour (highly mobile sediments); active widening and planform adjustments limited

by constraints.

Entrenched former dam location, high sandy kame terrace off RB and LB FP now occupied by remains of former mill-related infrastructure. Ledge grade control gives some vertical stability, substantial stone remains off LB constrain lateral adjustments but RB may be susceptible to mass failures. Upstream portion of segment is tail end of former mill pond (and

adjustments but RB may be susceptible to mass failures. Upstream portion of segment is fail end of former mill pond (and pluvial lake formation with high silt content) contributing to aggradation.

Assigned Extreme sensitivity due to STD.

Step 1. Valley and Floodplain

1.1 Segmentation:	Valley Width	1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features
-------------------	--------------	-------------------	-------------	--------------	---------------------

1.2 Alluvial Fan: None Hillside Slope: Very Steep Very Steep Valley Width (ft): 160

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: SC Berm: 0 Texture: Gravel Silt/Clay In Rock Gorge: No

Road: 0 Human Caused Change in Valley Width?: No

Railroad: **0**Imp. Path: **0**Dev.: **703**

1.6 Grade Controls:

Ledge	Mid-segment	4.0	0.5	Yes	No
Туре	Location	Height	Above Water	Taken?	Taken?
		Total	Total Height	Photo	GPS



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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Stream:	Second River	Branch of the V	Vhite Reach:	M11-C
			Step 2. S	Stream Channel
2.1Bankfull Wi	idth (ft.):	63.80	2.11 Riffle/Step Spa	cing: 245 ft.

2.2 Max Depth (ft.):	4.20	2.12 Substrate Composition			Bed:	N/A
2.3 Mean Depth (tf):	1.98	Bedrock:	%		Bar:	
2.4 Floodprone Width (ft.):	86.40	Boulder:	%	2 14 Stream Type		

2.4 Floodprone Width (ft.):

86.40

Boulder:

% 2.14 Stream Type

2.5 Aband Floodpr (ft.):

840

Cobble:

% Stream Type:

2.5 Aband. Floodpn (ft.): 8.40 Cobble: % Stream Type: В Human Elev FloodPln (ft.): Coarse Gravel: % Bed Material: Sand 2.6 Width/Depth Ratio: Fine Gravel: 32.22 5.0 % Subclass Slope:

2.7 Entrenchment Ratio: 1.35 Sand: 75.0 % Bed Form: Dune-Ripple

2.8 Incision Ratio: 2.00 Silt and Smaller: 20.0 % Field Measured Slope: Human Elevated Inc. Rat.: 0.00 Silt/Clay Present: No 2.15 Sub-reach Stream Type 0.0 % 2.9 Sinuosity: Low Detritus: Reference Stream Type: 2.10 Riffles Type: Sedimented # Large Woody Debris: 27 Reference Bed Material:

Reference Subclass Slope:

2.13 Average Largest Particle on

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks	S				Typical Ba	nk Slope: Moderate	е	
Bank Texture			Bank Erosion	<u>Left</u>	Right 1	Near Bank Vegetation	Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	39.2	208.8	Dominant:	Deciduous	Deciduous
Material Type:	Silt	Mix	Erosion Height (ft.):	6.0	3.5	Sub-dominant:	Herbaceous	Herbaceous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	47.7	139.9	Canopy %:	76-100	76-100
Material Type:	Silt	Silt				Mid-Channel Canor	ov. Onen	

Material Type: Silt Silt Mid-Channel Canopy: Open

Consistency: Cohesive Non-cohesive

3.2 Riparian Buffer

Left Right Corridor Land Left Right

Buffer Width Left Right 76.453 **Dominant** >100 26-50 **Dominant Forest** Shrubs/Sapling Mass Failures 75 Sub-Dominant 51-100 Shrubs/Sapling 12.0 None Sub-dominant None Height 0 W less than 25 356 (Legacy) **Amount** Mean Hieght **Gullies Number** 0 0 **Buffer Vegitation Type Failures** One 12.0 Gullies Length

Dominant Deciduous Deciduous Gullies None

Sub-Dominant Herbaceous Herbaceous



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Phase 2 Segment Summary Report White River - Second Branch

Page3

Stream: Secor River

Second Branch of the White

Reach:

M11-C

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Abundant	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs	s None
4.2 Adjacent Wetlands:	Abundant	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	Moderate	Impoundments:		Other:	Tile Drain:
	_	lana a con alan a a til a a c			Link Cture Mits Dire

4.4 # of Debris Jams: 2 Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0
(old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions: None

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	es	Diagonal:	1	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	sing: No
Mid:	3	Delta:	1	Flood chutes: 0	Avulsion:	0	5.5 Straightening:	Straightening
Point:	3	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	2,271
Side:	5	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	lo	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability:
6.6 Channel Alteration:
6.9 Bank Vegetation Protection
Total Score:
6.7 Channel Sinuosity:
6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	5	C to B	Yes	Geomorphic Rating	0.38
7.2 Channel Aggradation	6	None	No	Channel Evolution Model	F
7.3 Widening Channel	9	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	10	None	No	Geomorphic Condition	Fair
Total Score	30			Stream Sensitivity	Extreme



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M12-0

Segment Length(ft): 13,706

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/2/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: Across Rte. 14 from Wheatley Farm (2 min from Randolph Village) DS to N. end of Randolph Village

Step 5 - Notes: Rte 14 bisects valley in this reach, cutting historic floodplain in half, but still leaves stream minimally entrenched due to

overall valley width and stream frequently distant from road. Extensive straightening may have involved historic ditching but regardless is maintained by multiple bridges and culvert that direct flow toward valley perimeter. Downstream of large Rte 14 culvert is more intact wetland and likely closer to reference for reach, but was not segmented during assessment.

Step 7 - Narrative: Major reducing to minor aggradation, widening, and planform change in response to recent flash floods in headwaters.

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side <u>Left</u> Right 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Flat Steep Valley Width (ft): 1,500

1.3 Corridor Encroachments: Continuous w/ Bank: Always Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Always Sometimes Confinement Type: VB Berm: 58 8 Texture: Silt/Clay Sand In Rock Gorge: No

Road: 331 10 Human Caused Change in Valley Width?: Yes

Railroad: 0
Imp. Path: 0
Dev.: 158

1.6 Grade Controls: None



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Phase 2 Segment Summary Report White River - Second Branch Page 2

Second Branch of the White Stream: River

Reach:

M12-0

Step	<u>2.</u>	Stream	Char	າnel

2.1Bankfull Width (ft.):	46.40	2.11 Riffle/Step Spacing:	270 ft.	2.13 Average Largest P	article on	
2.2 Max Depth (ft.):	5.00	2.12 Substrate Composition		Bed	d: 1.3	inches
2.3 Mean Depth (tf):	2.20	Bedrock:	%	Ва	r: 0.8	inches
2.4 Floodprone Width (ft.):	1,535.00	Boulder:	%	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	6.00	Cobble:	%	Stream Type:	С	
Human Elev FloodPln (ft.):		Coarse Gravel:	7.0 %	Bed Material:	Sand	
2.6 Width/Depth Ratio:	21.09	Fine Gravel:	25.0 %	Subclass Slope:	None	
2.7 Entrenchment Ratio:	33.08	Sand:	56.0 %	Bed Form:	Dune-	Ripple
2.8 Incision Ratio:	1.20	Silt and Smaller:	12.0 %	Field Measured Slope	e:	
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	No	2.15 Sub-reach Stream	Туре	
2.9 Sinuosity:	High	Detritus:	0.0 %	Reference Stream Ty	/pe:	
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	275	Reference Bed Mater	rial:	

Reference Subclass Slope:

Reference Bedform:

3.3 Riparian Corridor

Step 3. Riparian Features

								
3.1 Stream Bank	s				Typical Bar	nk Slope: Modera	ate	
Bank Texture			Bank Erosion	<u>Left</u>	Right N	Near Bank Vegetation	on Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	1,323.5	1,354.1	Dominant:	Shrubs/Sapling	Shrubs/Sapling
Material Type:	Sand	Sand	Erosion Height (ft.):	2.4	2.2	Sub-dominant:	Herbaceous	Herbaceous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	None	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	0.0	281.9	Canopy %:	1-25	1-25
Material Type:	Sand	Sand				Mid-Channel Can	ору: Оре	n
Canaiatanau	Non achaeire	Non achaeira						

Consistency: Non-cohesive Non-cohesive

3.2 Riparian Buffer

Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	<u>Right</u>
Dominant	0-25	0-25	Dominant	Hay	Hay	Mass Failures		
Sub-Dominant	26-50	26-50	Sub-dominant	Shrubs/Sapling	Shrubs/Sapling	Height		
W less than 25	10,210	8,765	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	None		Gullies Length	0	
Dominant	Shrubs/Sapling	Shrubs/Sapling	Gullies	None				

Sub-Dominant Herbaceous Herbaceous



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White River - Second Branch

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Stream: Se

Second Branch of the White River

Reach:

M12-0

Step 4. Flow & Flow Modif	<u>fiers</u>
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4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch: 0 Road

4.2 Adjacent Wetlands:MinimalFlow Reg. Use:Field Ditch:0Road Ditch:24.3 Flow Status:ModerateImpoundments:Other:0Tile Drain:04.4 # of Debris Jams:11Impoundment Loc.:Overland Flow:0Urb Strm Wtr Pipe:0

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0
(old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	25	Yes	Yes	Yes	No	Deposition Above,Scour Below
Instream Culvert	17	Yes	Yes	Yes	No	None
Bridge	21	Yes	Yes	Yes	No	Scour Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	oes	Diagonal:	0	5.2 Other Features	Neck Cutoff:	6	5.4 Stream Ford or Animal Cros	sing:	No
Mid:	1	Delta:	1	Flood chutes: 6	Avulsion:	0	5.5 Straightening:	None	
Point:	34	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	0	
Side:	10	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	lo	5.5 Dredging:	None	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: **0** 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	13	E To C	Yes	Geomorphic Rating	0.52
7.2 Channel Aggradation	9	None	No	Channel Evolution Model	None
7.3 Widening Channel	10	None	No	Channel Evolution Stage	IV
7.4 Change in Planforml	10	None	No	Geomorphic Condition	Fair
Total Score	42			Stream Sensitivity	Very High



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M13-0

Segment Length(ft): 7,421

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: MR, GR Completion Date: 6/10/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: US of McKeage Rd Bridge, DS to approx. 2 mi N. of Randolph Village (valley floor W of Wheatley Farm Rd)

Step 5 - Notes: Likely E type stream under reference conditions, but long-term straightening via presence of multiple bridges as well as

ditching of valley sidewall tribs and seeps contributes to widened stream with reduced sinuosity in a primarily agricultural

setting along the floodplain areas.

Step 7 - Narrative: Largely stable, but altered planform - reduced sinuosity with multiple bridges contributing to straightening. Accessible

floodplain, low gradient; unplowed, unmowed or scrub-shrub buffers through much of reach keep adjustments at a relatively

low level but erosion evident where buffers diminished.

Step 1. Valley and Floodplain

1.1 Segmentation: None 1.4 Adjacent Side Left Right 1.5 Valley Features

1.2 Alluvial Fan: None Hillside Slope: Hilly Hilly Valley Width (ft): 1,500
 1.3 Corridor Encroachments: Continuous w/ Bank: Never Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: VB

Berm: 0 Texture: Sand Sand In Rock Gorge: No

Road: 10 Human Caused Change in Valley Width?: Yes

Railroad: 0

Imp. Path: 316 3

Dev.: **0**

1.6 Grade Controls: None



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White River - Second Branch

Stream:	Second Branch of the White	Reach:	M13-0

River

Step 2. Stream Channel

2.1Bankfull Width (ft.):	40.90	2.11 Riffle/Step Spacing:	260 ft.	2.13 Average Large	st Parti	cle on	
2.2 Max Depth (ft.):	4.00	2.12 Substrate Composition			Bed:	3.5	inches
2.3 Mean Depth (tf):	2.52	Bedrock:	%		Bar:	1.3	inches
2.4 Floodprone Width (ft.):	1,568.00	Boulder:	%	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	4.00	Cobble:	21.0 %	Stream Type:		С	
Human Elev FloodPln (ft.):		Coarse Gravel:	21.0 %	Bed Material:		Gravel	
2.6 Width/Depth Ratio:	16.23	Fine Gravel:	18.0 %	Subclass Slope:		None	
2.7 Entrenchment Ratio:	38.34	Sand:	23.0 %	Bed Form:		Riffle-Po	ool
2.8 Incision Ratio:	1.00	Silt and Smaller:	17.0 %	Field Measured S	Slope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stre	eam Ty	ре	
2.9 Sinuosity:	Moderate	Detritus:	1.0 %	Reference Stream	n Type	:	
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	67	Reference Bed M	laterial:		
				Reference Subcla	ass Slo	ne.	

Reference Subclass Slope:

Reference Bedform:

Step 3. Riparian Features

3.1 Stream Bank	s				Typical Ba	ink Slope: Steep		
Bank Texture			Bank Erosion	<u>Left</u>	Right I	Near Bank Vegetatio	n Type <u>Left</u>	<u>Right</u>
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	729.0	815.1	Dominant:	Shrubs/Sapling	Shrubs/Sapling
Material Type:	Silt	Silt	Erosion Height (ft.):	3.1	2.6	Sub-dominant:	Herbaceous	Herbaceous
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower			Revetment Length:	59.3	204.8	Canopy %:	1-25	1-25
Material Type:	Silt	Silt				Mid-Channel Can	ору: Оре	n
Consistency:	Non-cohesive	Non-cohesive						

3.2 Riparian Buffer 3.3 Riparian Corridor

Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	<u>Right</u>
Dominant	0-25	0-25	Dominant	Hay	Hay	Mass Failures		
Sub-Dominant	None	None	Sub-dominant	Shrubs/Sapling	Shrubs/Sapling	Height		
W less than 25	6,303	6,704	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	None		Gullies Length	0	
Dominant	Herbaceous	Herbaceous	Gullies	None				

Sub-Dominant Shrubs/Sapling Shrubs/Sapling



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Stream: Secon River

Second Branch of the White

Reach:

M13-0

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater I	nputs	;	
4.2 Adjacent Wetlands:	Minimal	Flow Reg. Use:		Field Ditch:	4	Road Ditch:	0
4.3 Flow Status:	Moderate	Impoundments:		Other:	0	Tile Drain:	0
4.4 # of Debris Jams:	1	Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0 (old) Upstrm Flow Reg.: Affected Length (ft): 0

4.8 Channel Constrictions:

			Photo	GPS	Channel	Floodprone	
	Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
•	Bridge	18	Yes	Yes	Yes	Yes	Deposition Above, Deposition Below, Scour Above, Alignment
	Bridge	16	Yes	Yes	Yes	No	Deposition Above, Scour Below
	Bridge	17	Yes	Yes	Yes	No	Deposition Above, Scour Below
	Bridge	18	Yes	Yes	Yes	No	Deposition Above

Step 5. Channel Bed and Planform Changes

5.1 Bar Types		Diagonal:		5.2 Other Features	Neck Cutoff: 3		5.4 Stream Ford or Animal Crossing:		
Mid:	8	Delta:		Flood chutes: 1	Avulsion:	0	5.5 Straightening:	Straightening	
Point:	16	Island:		5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	1,132	
Side:	3	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: N	lo ol	5.5 Dredging:	None	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	15	None	No	Geomorphic Rating	0.56
7.2 Channel Aggradation	10	None	No	Channel Evolution Model	F
7.3 Widening Channel	13	None	No	Channel Evolution Stage	IV
7.4 Change in Planforml	7	None	No	Geomorphic Condition	Fair
Total Score	45			Stream Sensitivity	Very High



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M14-0

Segment Length(ft): 9,611

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 6/24/2019

Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: McKeage Rd., US to mouth of Sunset Brook

0

Step 5 - Notes: Multiple localized constrictions (elevated manure pit near US end of reach, plus 6 bridges) are primary floodplain constraints

in what still functions as an otherwise Very Broad valley. Nice design on footbridge in US portions of reach has waste block

footers outside scour zone, elevated and set back on banks.

Step 7 - Narrative: Straightened planform (6 bridges in reach) lends to cyclic scour/deposition in response to flash flood events, which occur

with some frequency due to combination of topographic setting and intermittent encroachments, both here and in upstream

reaches, limiting floodplain access by design.

Step 1. Valley and Floodplain

					•	•			
1.1 Segment	tation:	None			1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features	
1.2 Alluvial F	an:	None			Hillside Slope:	Flat	Flat	Valley Width (ft):	700
1.3 Corridor Encroachments:			Continuous w/ Bank:	Sometimes	Sometimes	Width Determination:	Estimated		
Length (ft)	<u>One</u>	<u>Height</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Sometimes	Sometimes	Confinement Type:	VB
Berm:	515	6	0		Texture:	Sand	Sand	In Rock Gorge:	No
Road:	0		528	8		Hui	man Caused C	Change in Valley Width?	:Yes
Railroad:	0		0						
Imp. Path:	655	3	0						

1.6 Grade Controls: None

0

Dev.:



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Phase 2 Segment Summary Report White River - Second Branch Page 2

Second Branch of the White Stream: Reach: River

Step 2. Stream Channel

M14-0

2.1Bankfull Width (ft.):	37.30	2.11 Riffle/Step Spacing: 145 ft. 2.13 Average Largest Par		Partic	cle on		
2.2 Max Depth (ft.):	3.10	2.12 Substrate Composition		В	Bed:	6.3	inches
2.3 Mean Depth (tf):	2.13	Bedrock:	%	E	3ar:	2.7	inches
2.4 Floodprone Width (ft.):	793.00	Boulder:	1.0 %	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	3.80	Cobble:	29.0 %	Stream Type:		С	
Human Elev FloodPln (ft.):		Coarse Gravel:	37.0 %	Bed Material:		Gravel	
2.6 Width/Depth Ratio:	17.51	Fine Gravel:	27.0 %	Subclass Slope:		None	
2.7 Entrenchment Ratio:	21.26	Sand:	2.0 %	Bed Form:		Riffle-Po	ol
2.8 Incision Ratio:	1.23	Silt and Smaller:	4.0 %	Field Measured Slo	ppe:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	2.15 Sub-reach Stream	т Тур	е	
2.9 Sinuosity:	Moderate	Detritus:	1.0 %	Reference Stream	Туре:		
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	66	Reference Bed Mat	terial:		
				Reference Subclas	s Slop	e:	

Step 3. Riparian Features

Reference Bedform:

3.1 Stream Banks	Typical Bank Slope:	Steep

Bank Texture			Bank Erosion	<u>Left</u>	Right P	Near Bank Vegetat	ion Type <u>Lett</u>	Right
Upper	<u>Left</u>	<u>Right</u>	Erosion Length (ft.):	871.2	722.4	Dominant:	Herbaceous	Herbaceous
Material Type:	Mix	Mix	Erosion Height (ft.):	2.6	2.8	Sub-dominant:	Shrubs/Sapling	Shrubs/Sapling
Consistency:	Non-cohesive	Non-cohesive	Revetment Type:	Multiple	Multiple	Bank Canony		

Revetment Length: 463.5 181.9 1-25 26-50 Lower Canopy %:

Material Type: Silt Silt Mid-Channel Canopy: Open

Consistency: Cohesive Cohesive

3.3 Riparian Corridor 3.2 Riparian Buffer

Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	0-25	0-25	Dominant	Crop	Crop	Mass Failures		
Sub-Dominant	26-50	>100	Sub-dominant	Shrubs/Sapling	Shrubs/Sapling	Height		
W less than 25	8,707	7,413	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	None		Gullies Length	0	

Herbaceous Dominant Herbaceous Gullies None

Sub-Dominant **Deciduous Deciduous**



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White River - Second Branch

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Stream: Secon River

Second Branch of the White

Reach:

M14-0

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Minimal	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs
----------------------	---------	--------------------------	------	-----------------------

4.2 Adjacent Wetlands:MinimalFlow Reg. Use:Field Ditch:0Road Ditch:14.3 Flow Status:ModerateImpoundments:Other:0Tile Drain:04.4 # of Debris Jams:3Impoundment Loc.:Overland Flow:0Urb Strm Wtr Pipe:0

4.6 Up/Down Strm flow reg.:None4.9 # of Beaver Dams:0(old) Upstrm Flow Reg.:Affected Length (ft):0

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	18	Yes	Yes	Yes	Yes	Deposition Above,Scour Below
Bridge	12	Yes	Yes	Yes	No	None
Bridge	20	Yes	Yes	Yes	No	None
Bridge	8	Yes	Yes	Yes	Yes	Deposition Above
Bridge	25	Yes	Yes	Yes	Yes	None
Bridge	20	Yes	Yes	Yes	Yes	Scour Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	oes	Diagonal:	2	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	sing:	No
Mid:	5	Delta:		Flood chutes: 4	Avulsion:	0	5.5 Straightening:	None	
Point:	13	Island:	1	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	0	
Side:	8	Braiding:	2	Steep Riffles: 0	Trib Rejuv.: N	lo	5.5 Dredging:	None	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	<u>STD</u>	<u>Historic</u>		
7.1 Channel Degradation	11	None	No	Geomorphic Rating	0.59
7.2 Channel Aggradation	12	None	No	Channel Evolution Model	F
7.3 Widening Channel	13	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	11	None	No	Geomorphic Condition	Fair
Total Score	47			Stream Sensitivity	Very High



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M15-0

Segment Length(ft): 6,398

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/8/2019

Quality Control Status - Consultant: Provisional Quality Control Status - Staff: Provisional

Step 0 - Location: East Brookfield - US Sunset Brook; Sprague Ranch

Step 5 - Notes: Likely entire reach has been ditched historically, currently entirely occupied by 'home farm' of large dairy farming much of

the northern portions of Second Branch valley and surrounding uplands. Extensive altered wetlands, multiple drainage ditches, evidence of windrowing possibly obscured by ag use and tall, uncut hay at time of assessment. Reach is on likely

post-glacial alluvial fan or deltaic formation at base of multiple tribs.

Step 7 - Narrative: Planform altered by straightening/ditching, adjustments limited by decent floodplain access dissipating energy of flood

events. Frequent scour noted around stream x-ings (constrictions) and by several riffles comprised of failed former bank

revetments. Beavers active in reach but impacts appear transient.

Step 1. Valley and Floodplain

	1.1 Segment	ation:	None			1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features	
	1.2 Alluvial F	an:	None			Hillside Slope:	Flat	Flat	Valley Width (ft):	1,000
1.3 Corridor Encroachments:			Continuous w/ Bank:	Always	Always	Width Determination:	Estimated			
	Length (ft)	<u>One</u>	<u>Height</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Always	Always	Confinement Type:	VB
	Berm:	391	10	250	5	Texture:	Sand	Sand	In Rock Gorge:	No
	Road:	0		0			Hu	man Caused	Change in Valley Width?	'∶No

Railroad: 0 0 lmp. Path: 477 3 0 Dev.: 219 0

1.6 Grade Controls: None



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Reach:

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Phase 2 Segment Summary Report

White River - Second Branch

Reference Bedform:

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Second Branch of the White Stream: River

M15-0

Step	2.	<u>Stream</u>	<u>Cl</u>	nar	<u>nnel</u>

2.1Bankfull Width (ft.):	20.00	2.11 Riffle/Step Spacing:		2.13 Average Largest Pa	rticle on	
2.2 Max Depth (ft.):	3.70	2.12 Substrate Composition		Bed:	0.84	inches
2.3 Mean Depth (tf):	2.53	Bedrock:	%	Bar:	0.56	inches
2.4 Floodprone Width (ft.):	795.00	Boulder:	%	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	3.70	Cobble:	%	Stream Type:	E	
Human Elev FloodPln (ft.):		Coarse Gravel:	5.0 %	Bed Material:	Sand	
2.6 Width/Depth Ratio:	7.91	Fine Gravel:	45.0 %	Subclass Slope:	None	
2.7 Entrenchment Ratio:	39.75	Sand:	43.0 %	Bed Form:	Dune-R	ipple
2.8 Incision Ratio:	1.00	Silt and Smaller:	7.0 %	Field Measured Slope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	No	2.15 Sub-reach Stream T	уре	
2.9 Sinuosity:	Low	Detritus:	0.0 %	Reference Stream Typ	e:	
2.10 Riffles Type:	Not Applicable	# Large Woody Debris:	21	Reference Bed Materia	al:	
				Reference Subclass S	ope:	

Step 3. Riparian Features

3.1 Stream Banks			Typical I	Bank Slope: Shallow
Bank Texture	Bank Erosion	<u>Left</u>	Right	Near Bank Vegetation Type Left

Right Bank Texture <u>Right</u> Left Upper <u>Left</u> Right Erosion Length (ft.): 381.0 286.5 Dominant: Herbaceous Herbaceous Material Type: Sand Sand Erosion Height (ft.): 2.4 2.4 Sub-dominant: Shrubs/Sapling Shrubs/Sapling

Consistency: Non-cohesive Non-cohesive Revetment Type: Rip-Rap Rip-Rap Bank Canopy

Lower Revetment Length: 336.7 404.5 Canopy %: 1-25 1-25

Material Type: Sand Sand Mid-Channel Canopy: Open

Consistency: Non-cohesive Non-cohesive

3.3 Riparian Corridor 3.2 Riparian Buffer

Buffer Width	<u>Left</u>	<u>Right</u>	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	0-25	0-25	Dominant	Hay	Crop	Mass Failures		
Sub-Dominant	None	None	Sub-dominant	Shrubs/Sapling	Hay	Height		
W less than 25	5,536	6,393	(Legacy)	<u>Amount</u>	Mean Hieght	Gullies Number	0	
Buffer Vegitation Type			Failures	None		Gullies Length	0	

Gullies **Dominant** Herbaceous Herbaceous None

Sub-Dominant Shrubs/Sapling Shrubs/Sapling



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White River - Second Branch

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Stream: Secon River

Second Branch of the White

Reach:

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Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Minimal 4	4.5 Flow Regulation Type	None	4.7 Stormwater Ir	nputs	;	
4.2 Adjacent Wetlands:	Abundant	Flow Reg. Use:		Field Ditch:	7	Road Ditch:	0
4.3 Flow Status:	Moderate	Impoundments:		Other:	0	Tile Drain:	0
4.4 # of Debris Jams:	1	Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0

Impoundment Loc.:

Overland Flow: 0 Urb Strm Wtr Pipe: 0

4.6 Up/Down Strm flow reg.:

None

4.9 # of Beaver Dams:

Outerland Flow: 0 Urb Strm Wtr Pipe: 0

Affected Length (ft): 0

4.8 Channel Constrictions:

	Photo	GPS	Channel	Floodprone	
Width	Taken?	Taken?	Constriction?	Constriction?	Problems
8	Yes	Yes	Yes	No	None
8	Yes	Yes	Yes	No	Deposition Above
15	Yes	Yes	Yes	No	Scour Below
7	Yes	Yes	Yes	No	None
13	Yes	Yes	Yes	No	None
15	Yes	Yes	Yes	No	None
	8 8 15 7 13	Width Taken? 8 Yes 8 Yes 15 Yes 7 Yes 13 Yes	WidthTaken?Taken?8YesYes8YesYes15YesYes7YesYes13YesYes	WidthTaken?Taken?Constriction?8YesYesYes8YesYesYes15YesYesYes7YesYesYes13YesYesYes	WidthTaken?Taken?Constriction?Constriction?8YesYesYesNo8YesYesYesNo15YesYesYesNo7YesYesYesNo13YesYesYesNo

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	oes	Diagonal:	4	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	sing: No
Mid:	4	Delta:		Flood chutes: 3	Avulsion:	0	5.5 Straightening:	Straightening
Point:	15	Island:		5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	2,901
Side:	2	Braiding:	1	Steep Riffles: 0	Trib Rejuv.: N	lo	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection
Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	9	None	No	Geomorphic Rating	0.49
7.2 Channel Aggradation	11	None	No	Channel Evolution Model	F
7.3 Widening Channel	12	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	7	None	No	Geomorphic Condition	Fair
Total Score	39			Stream Sensitivity	Very High



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M16-A

Segment Length(ft): 3,218

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/9/2019

Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Human Caused Change in Valley Width?: Yes

Step 0 - Location: Brookfield, VT: beaver-influenced single thread channel US and DS of Taylor Hill Rd

Step 5 - Notes: Stream pinned against RVW (now also occupied by VT Rte 14), probably ditched historically and now maintained in

straightened planform by Taylor Hill Rd culvert (large scour pool beneath culvert used as swimming hole, deepened by beaver activity). LVW: heavy sedimentation from flash flood impacts along Taylor Hill Rd, probably in Irene (2011), 2013, July 2017, and again in April 2019; sediments much coarser than those present along mainstem. Significant headcut through

these sediments observed on trib not far off LB of mainstem.

Step 7 - Narrative: E to C STD due to major straightening, stream pinned against RVW. SW corner of Taylor Hill Rd being undercut, but good

buffer vegetation limits other channel adjustments. Headwater streams extremely sensitive (and steep), headcut (trib rejuv) off LB from trib south of Taylor Hill Rd – clearcut for pasture or houselot conversion US on trib may have contributed to

greater flows that overwhelmed a small dam at ledges on sharp corner of Taylor Hill Rd. (in Irene?)

Step 1. Valley and Floodplain

1.1 Segmentation: Channel Dimensions		1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features				
1.2 Alluvial Fan: None		Hillside Slope:	Flat Very Steep		Valley Width (ft):	800			
1.3 Corridor E	Encroad	chments	s:		Continuous w/ Bank:	Always	Sometimes	Width Determination:	Estimated
Length (ft)	One I	<u>leight</u>	<u>Both</u>	<u>Height</u>	Within 1 Bankfull W:	Always	Sometimes	Confinement Type:	VB
Berm:	0				Texture:	Sand	Sand	In Rock Gorge:	No

Railroad: 0 lmp. Path: 0

Road:

Dev.: **0**

1.6 Grade Controls: None

1.718

15



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Phase 2 Segment Summary Report

White River - Second Branch

Page 2

Second Branch of the White Stream:

River

Reach: M16-A

Step 2. Stream Channel

2.1Bankfull Width (ft.):	23.00	2.11 Riffle/Step Spacing:	47 ft.	2.13 Average Largest Particle on			
2.2 Max Depth (ft.):	3.20	2.12 Substrate Composition			Bed:	3.5	inches
2.3 Mean Depth (tf):	2.28	Bedrock:	%		Bar:	1.94	inches
2.4 Floodprone Width (ft.):	803.00	Boulder:	1.0 %	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	3.20	Cobble:	14.0 %	Stream Type:		С	
Human Elev FloodPln (ft.):		Coarse Gravel:	59.0 %	Bed Material:		Gravel	
2.6 Width/Depth Ratio:	10.09	Fine Gravel:	7.0 %	Subclass Slope:		None	
2.7 Entrenchment Ratio:	34.91	Sand:	19.0 %	Bed Form:		Riffle-Po	ool
2.8 Incision Ratio:	1.00	Silt and Smaller:	%	Field Measured S	Slope:		
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	No	2.15 Sub-reach Stre	eam Ty	ре	
2.9 Sinuosity:	Moderate	Detritus:	0.0 %	Reference Stream	m Type	<u>.</u>	
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	65	Reference Bed N	/laterial:		

Reference Subclass Slope: Reference Bedform:

Step 3. Riparian Features

3.1 Stream Banks			Typical I	Bank Slope: Shallow
Bank Texture	Bank Erosion	<u>Left</u>	Right	Near Bank Vegetation Type Left

Right Shrubs/Sapling Shrubs/Sapling Upper <u>Left</u> Right Erosion Length (ft.): 142.5 345.3 Dominant: Material Type: Sand Sand Erosion Height (ft.): 2.8 2.8 Sub-dominant: Herbaceous Herbaceous Consistency: Non-cohesive Non-cohesive Revetment Type: Rip-Rap Rip-Rap Bank Canopy

Lower Revetment Length: 99.2 223.0 Canopy %: 76-100 76-100

Material Type: Silt Silt Mid-Channel Canopy: Open

Consistency: Non-cohesive Non-cohesive

3.2 Riparian Buffer 3.3 Riparian Corridor

Buffer Width	<u>Left</u>	Right	Corridor Land	<u>Left</u>	<u>Right</u>		<u>Left</u>	Right
Dominant	26-50	26-50	Dominant	Hay	Forest	Mass Failures		
Sub-Dominant	0-25	0-25	Sub-dominant	Shrubs/Sapling	Shrubs/Sapling	Height		

W less than 25 405 755 **Gullies Number** (Legacy) <u>Amount</u> Mean Hieght 0 **Buffer Vegitation Type** Failures None **Gullies Length** 0

Dominant Shrubs/Sapling Gullies None Herbaceous

Sub-Dominant Herbaceous Shrubs/Sapling



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream: Second Branch of the White River

Step 4. Flow & Flow Modifiers

M16-A

4.1 Springs / Seeps:	Abundant	4.5 Flow Regulation Type	None	4.7 Stormwater Inputs	None
4.2 Adjacent Wetlands:	Abundant	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	Moderate	Impoundments:		Other:	Tile Drain:

4.4 # of Debris Jams: 2 Impoundment Loc.: Overland Flow: Urb Strm Wtr Pipe:

4.6 Up/Down Strm flow reg.: None 4.9 # of Beaver Dams: 0

(old) Upstrm Flow Reg.: Affected Length (ft): **0**

4.8 Channel Constrictions:

			Photo	GPS	Channel	Floodprone	
	Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Instre	eam Culvert	6	Yes	Yes	Yes	No	Scour Below
Instre	eam Culvert	8	Yes	Yes	Yes	No	None

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	3	5.2 Other Features	Neck Cutoff: 0	5.4 Stream Ford or Animal Cro	ssing: No
Mid: 1	Delta:	1	Flood chutes: 0	Avulsion: 0	5.5 Straightening:	Straightening
Point: 8	Island:	0	5.3 Steep Riffles and Head Cuts	Head Cuts: 0	Straightening Length (ft.):	1,048
Side: 2	Braiding:	0	Steep Riffles: 0	Trib Rejuv.: Yes	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability:
 6.6 Channel Alteration:
 6.9 Bank Vegetation Protection
 Total Score:
 6.7 Channel Sinuosity:
 6.10 Riparian Veg. Zone Width:

Habitat Rating: **0.00**

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	11	None	No	Geomorphic Rating	0.56
7.2 Channel Aggradation	11	None	No	Channel Evolution Model	F
7.3 Widening Channel	13	None	No	Channel Evolution Stage	IV
7.4 Change in Planforml	10	Other	No	Geomorphic Condition	Fair
Total Score	45			Stream Sensitivity	Very High



Agency of Natural Resouces



Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M16-B

Segment Length(ft): 5,001

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership
Observers: CP, dr

Completion Date: 7/2/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional Why Not Assessed: Provisional beaver dam

Human Caused Change in Valley Width?:

Step 0 - Location: US end of beaver dominated wetland complex just south of Brookfield-Williamstown Gulf, DS to start of single-thread

channel US of Taylor Hill Rd

Step 5 - Notes: Segment is likely alluvial fan historically (glacially?), extensively controlled by beavers but somewhat maintained against

RVW by presence of driveway and culvert at Brown Dr. Beaver dams in this area were heavily impacted by July 1, 2017 flash flood (this was a 100-year storm in Rochester on West Branch of White, don't have data for Second Branch) when multiple dams broke and heavy sediment discharge was observed all the way to the mouth of the Second Branch (not solely due to beaver dam discharge). Reach excluded from full geomorphic assessment, no x-section data or stream type assigned.

Step 7 - Narrative: Extensive beaver impoundment, no geomorphic assessment made

Step 1. Valley and Floodplain

1.1 Segmentation: 1.4 Adjacent Side Left Right 1.5 Valley Features 1.2 Alluvial Fan: None Hillside Slope: Valley Width (ft): 1.3 Corridor Encroachments: Continuous w/ Bank: Width Determination: Within 1 Bankfull W: Confinement Type: Length (ft) One Height Both Height Berm: 0 Texture: In Rock Gorge:

Road: 2.614 13

Road: 2,014 13

Railroad: 0 lmp. Path: 0 Dev.: 0

1.6 Grade Controls:



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M17-A

Segment Length(ft): 6,303

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/2/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: mouth of Brookfield-Williamstown Gulf (US Brown Dr), US to N end of beaver meadows by 6274 VT Rte 14

Step 5 - Notes: Subreach includes beaver meadows US and DS of a long mid-segment ledge drop, pinned between VT Rte 14 and valley wall

continuous with opposite bank, that comprises most of the elevation change (repeat damage area with nowhere to go). Presence of road, bridges, and strategic post-flood windrowing encourage a single-thread channel in what would more likely be a series of connected beaver impoundments and multi-thread channels under reference conditions. Rte 14 cut from VW,

may have diminished original FP slightly but FP still largely accessible in intermittent meadows.

Step 7 - Narrative: Mid-segment ledge drop and continuous roadside riprap locks channel in beside road, limiting further channel adjustments

to cyclic scour/deposition/redistribution in high flows, amplified by the straightening and combined bed and bank armoring. Beaver meadows US and DS of this section moderate these impacts to some extent but bear the brunt of them as well;

majority of beaver dams appear quite transitory, and fine sediments are easily moved.

Step 1. Valley and Floodplain

1.1 Segmentation: P	Planform and Scope	1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features
---------------------	--------------------	-------------------	-------------	--------------	---------------------

1.2 Alluvial Fan: Hillside Slope: Steep Very Steep Valley Width (ft): 170

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: BD

Berm: Texture: Sand Bedrock In Rock Gorge: No

Road: 5.074 5 Human Caused Change in Valley Width?: Yes

Railroad: Imp. Path:

Dev.:

1.6 Grade Controls:

-	Ledge	Mid-segment	10.0	0.1	Nο	No.
	Type	Location	Height	Above Water	Taken?	Taken?
			Total	Total Height	Photo	GPS



Stream:

Buffer Width

Dominant

Dominant

Sub-Dominant

W less than 25

Sub-Dominant

Buffer Vegitation Type

Stream Geomorphic Assessment

Reach:

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Phase 2 Segment Summary Report

3.2 Riparian Buffer

Left

>100

0-25

4,580

Herbaceous

Shrubs/Sapling

Right

>100

0-25

1,795

Herbaceous

Shrubs/Sapling

Corridor Land

Sub-dominant

Dominant

(Legacy)

Failures

Gullies

River

Second Branch of the White

White River - Second Branch

3.3 Riparian Corridor

Forest

None

Amount

One

Right

Forest

None

Mean Hieght

15.0

Mass Failures

Gullies Number

Gullies Length

Height

Page 2

Left Right

		Step 2. Strear	<u>n Chann</u>	<u>el</u>			
2.1Bankfull Width (ft.):	20.50	2.11 Riffle/Step Spacing:	50 f	ft. 2.	13 Average Larges	t Particle on	
2.2 Max Depth (ft.):	2.60	2.12 Substrate Composition	on		I	Bed: N/A	
2.3 Mean Depth (tf):	1.36	Bedrock:	%			Bar:	
2.4 Floodprone Width (ft.):	155.50	Boulder:	%	2.	14 Stream Type		
2.5 Aband. Floodpn (ft.):	2.60	Cobble:	%		Stream Type:	E	
Human Elev FloodPln (ft.):		Coarse Gravel:	%		Bed Material:	Sand	
2.6 Width/Depth Ratio:	15.07	Fine Gravel:	32.	0 %	Subclass Slope:	None	
2.7 Entrenchment Ratio:	7.59	Sand:	55.0	0 %	Bed Form:	Dune-Ri	pple
2.8 Incision Ratio:	1.00	Silt and Smaller:	13.0	0 %	Field Measured SI	ope:	
Human Elevated Inc. Rat.:	0.00	Silt/Clay Present:	Yes	3 2.	15 Sub-reach Strea	am Type	
2.9 Sinuosity:	Moderate	Detritus:	5.0	%	Reference Stream	Type:	E
2.10 Riffles Type:	Sedimented	# Large Woody Debris:	42		Reference Bed Ma	aterial:	Sand
					Reference Subclas	ss Slope:	None
					Reference Bedform	m:	Dune-Ripple
		Step 3. Riparia	n Featu	<u>'es</u>			
3.1 Stream Banks				Typical Ba	ank Slope: Shall	ow	
Bank Texture		Bank Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegeta	tion Type <u>Left</u>	<u>Right</u>
Upper <u>Left</u>	<u>Right</u>	Erosion Length (ft.):	37.4	25.4	Dominant:	Herbaceou	s Shrubs/Sapling
Material Type: Sand	Silt	Erosion Height (ft.):	8.0	2.0	Sub-dominant:	Shrubs/Sapl	ing Herbaceous
Consistency: Non-cohe	esive Non-cohesive	Revetment Type:	Rip-Rap	Rip-Rap	Bank Canopy		
Lower		Revetment Length:	2,927.4	171.9	Canopy %:	26-50	26-50
Material Type: Sand	Silt				Mid-Channel Ca	anopy:	Open
Consistency: Non-cohe	sive Non-cohesive						



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Phase 2 Segment Summary Report

White River - Second Branch

Page3

Stream: Secon River

Second Branch of the White

Reach:

M17-A

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps: Abundant 4.5 Flow Regulation Type None 4.7 Stormwater Inputs

4.2 Adjacent Wetlands: Flow Reg. Use: Field Ditch: 0 Abundant Road Ditch: 4 4.3 Flow Status: Moderate Other: Tile Drain: Impoundments: Impoundment Loc.: Urb Strm Wtr Pipe: 0 4.4 # of Debris Jams: 2 Overland Flow: 0

4.6 Up/Down Strm flow reg.: **None** 4.9 # of Beaver Dams: (old) Upstrm Flow Reg.: Affected Length (ft):

4.8 Channel Constrictions:

		Photo	GPS	Channel	Floodprone	
Туре	Width	Taken?	Taken?	Constriction?	Constriction?	Problems
Bridge	11	Yes	Yes	Yes	No	None
Bridge	8	Yes	Yes	Yes	No	None
Bridge	10	Yes	Yes	Yes	No	None
Bridge	11	Yes	Yes	Yes	No	Deposition Above
Bridge	6	Yes	Yes	Yes	No	Deposition Above

Step 5. Channel Bed and Planform Changes

5.1 Bar Types Diagonal: **0** 5.2 Other Features Neck Cutoff: 5.4 Stream Ford or Animal Crossing:

Mid: 1 Delta: 0 Flood chutes: 8 Avulsion: 5.5 Straightening: Straightening

Point: 4 Island: 0 5.3 Steep Riffles and Head Cuts Head Cuts: Straightening Length (ft.): 3,780

Side: 1 Braiding: 5 Steep Riffles: Trib Rejuv.: No 5.5 Dredging:

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability:
6.6 Channel Alteration:
6.9 Bank Vegetation Protection
Total Score:
6.7 Channel Sinuosity:
6.10 Riparian Veg. Zone Width:

Habitat Rating: 0.00

Habitat Stream Condition:

Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	6	None	No	Geomorphic Rating	0.41
7.2 Channel Aggradation	8	None	No	Channel Evolution Model	F
7.3 Widening Channel	10	None	No	Channel Evolution Stage	III
7.4 Change in Planforml	9	None	No	Geomorphic Condition	Fair
Total Score	33			Stream Sensitivity	Extreme



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Phase 2 Segment Summary Report White River - Second Branch

Page 1

Stream: Second Branch of the White

River

Reach: M17-B

Segment Length(ft): 3,823

Rain: Yes

SGAT Version: 4.56

Organization: White River Partnership

Observers: CP, DR Completion Date: 7/1/2019

Qualtiy Control Status - Consultant: Provisional Qualtiy Control Status - Staff: Provisional

Step 0 - Location: US end beaver meadows by 6274 VT Rte 14, US to breached remains of former dam at outlet of Staples Pond

Step 5 - Notes: Slope accounted mostly in a couple of ledge runs, one below the outlet of Staples Pond (former 10 ft dam is now breached

and mostly gone), and a very steep (bordering on waterfalls) run now covered by a concrete culvert underneath VT Rte 14; majority of reach is < 2pct slope. Beers Atlas (1877) indicates sawmill at base of ledges under Rte 14, which may have also

been fed by trib from Rood Pond.

Step 7 - Narrative: Cyclic scour and deposition following primarily historic incision ("hungry water" effect downstream of dam at Staples Pond,

and former mill site along Rte 14). Reference conditions would likely be more extensive beaver complex; instead maintained

in a more straightened and constricted setting (single-thread channel) at a lower elevation.

Step 1. Valley and Floodplain

1.1 Segmentation: Planform and Scope 1.4 Adjacent Side <u>Left</u> Right 1.5 Valley Feat	1.1 Segmentation:	n: Planform and Scope	1.4 Adjacent Side	<u>Left</u>	<u>Right</u>	1.5 Valley Features
--	-------------------	-----------------------	-------------------	-------------	--------------	---------------------

1.2 Alluvial Fan: None Hillside Slope: Very Steep Hilly Valley Width (ft): 140

1.3 Corridor Encroachments: Continuous w/ Bank: Sometimes Sometimes Width Determination: Estimated

Length (ft) One Height Both Height Within 1 Bankfull W: Sometimes Sometimes Confinement Type: NW

Berm: 0 Texture: Mixed Bedrock In Rock Gorge: No

Road: 3,537 8 Human Caused Change in Valley Width?: Yes

Railroad: 0 Imp. Path: 0

Dev.: **0**

1.6 Grade Controls:

Ledg	<u>e</u>	Mid-segment	22.0	0.1	Yes	No
Тур	oe .	Location	Height	Above Water	Taken?	Taken?
			I otal	l otal Height	Photo	GPS



Stream:

Stream Geomorphic Assessment

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Reach:

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Phase 2 Segment Summary Report

Divor

Second Branch of the White

White River - Second Branch

M17-B

Page 2

	Step 2. Strear	n Chann	<u>el</u>						
26.30	2.11 Riffle/Step Spacing:	40 f	t. 2.	13 Average Largest F	Particle on				
1.70	2.12 Substrate Composition	on		Ве	ed: 7.2	inches			
0.97	Bedrock:	%		Ва	ar: 4.4	inches			
136.40	Boulder:	4.0	% 2.	2.14 Stream Type					
1.70	Cobble:	42.0) %	Stream Type:	С				
	Coarse Gravel:	37.0) %	Bed Material:	Gravel				
27.11	Fine Gravel:	11.0	11.0 % Subclass Slop		None				
5.19	Sand: 6.0 %		%	Bed Form:	Riffle-P	Pool			
1.00	Silt and Smaller:	aller: %		Field Measured Slop					
0.00	Silt/Clay Present:	No	2.	15 Sub-reach Stream	п Туре				
Moderate	Detritus:	0.0	%	Reference Stream T	уре:				
Sedimented	# Large Woody Debris:	74		Reference Bed Mate	erial:				
				Reference Subclass	Slope:				
				Reference Bedform:					
	Step 3. Riparia	n Featur	<u>es</u>						
			Typical Ba	ank Slope: Steep					
	Bank Erosion	<u>Left</u>	<u>Right</u>	Near Bank Vegetation	on Type <u>Left</u>	<u>Right</u>			
<u>Right</u>	Erosion Length (ft.):	35.8	221.3	Dominant:	Herbaceo	us Deciduous			
Mix	Erosion Height (ft.):	3.0	3.3	Sub-dominant:	Deciduou	ıs Herbaceous			
Consistency: Non-cohesive Non-cohesive Revetment Type: Mi		Multiple	Rip-Rap	Bank Canopy					
	Revetment Length:	880.6	671.7	Canopy %:	26-50	0 51-75			
Mix				Mid-Channel Can	ору:	Open			
	1.70 0.97 136.40 1.70 27.11 5.19 1.00 0.00 Moderate Sedimented Right Mix esive Non-cohesive	26.30 2.11 Riffle/Step Spacing: 1.70 2.12 Substrate Composition 0.97 Bedrock: 136.40 Boulder: 1.70 Cobble: Coarse Gravel: 27.11 Fine Gravel: 5.19 Sand: 1.00 Silt and Smaller: 0.00 Silt/Clay Present: Detritus: Sedimented # Large Woody Debris: Step 3. Riparia Bank Erosion Right Frosion Length (ft.): Revetment Type: Revetment Length:	26.30 2.11 Riffle/Step Spacing: 40 ft 1.70 2.12 Substrate Composition 0.97 Bedrock: % 136.40 Boulder: 4.0 1.70 Cobble: 42.0 Coarse Gravel: 37.0 27.11 Fine Gravel: 11.0 5.19 Sand: 6.0 1.00 Silt and Smaller: % 0.00 Silt/Clay Present: No Moderate Detritus: 0.0 Sedimented # Large Woody Debris: 74 Step 3. Riparian Featur Bank Erosion Left Step 3. Riparian Featur Bank Erosion Left Step 3. Riparian Featur Bank Erosion Left Step 3. Riparian Featur Bank Erosion Length (ft.): 35.8 Mix Erosion Height (ft.): 3.0 Multiple Revetment Type: Multiple Revetment Length: 880.6	1.70	26.30 2.11 Riffle/Step Spacing: 40 ft. 2.13 Average Largest I 1.70 2.12 Substrate Composition Be 0.97 Bedrock: % Bi 136.40 Boulder: 4.0 % 2.14 Stream Type 1.70 Cobble: 42.0 % Stream Type: Coarse Gravel: 37.0 % Bed Material: 27.11 Fine Gravel: 11.0 % Subclass Slope: 5.19 Sand: 6.0 % Bed Form: 1.00 Silt and Smaller: % Field Measured Slope 0.00 Silt/Clay Present: No 2.15 Sub-reach Stream T Moderate Detritus: 0.0 % Reference Stream T Sedimented # Large Woody Debris: 74 Reference Bed Material: Reference Bedform: Step 3. Riparian Features Typical Bank Slope: Steep Bank Erosion Length (ft.): 35.8 221.3 Dominant: Mix Erosion Height (ft.): 3.0 3.3 Sub-dominant: esive Non-cohesive Revetment Type: Multiple Rip-Rap Bank Canopy Revetment Length: 880.6 671.7 Canopy %:	26.30 2.11 Riffle/Step Spacing: 40 ft. 2.13 Average Largest Particle on 1.70 2.12 Substrate Composition Bed: 7.2 0.97 Bedrock: % Bar: 4.4 136.40 Boulder: 4.0 % 2.14 Stream Type Coarse Gravel: 37.0 % Bed Material: Gravel 27.11 Fine Gravel: 11.0 % Subclass Slope: None 5.19 Sand: 6.0 % Bed Form: Riffle-Fine Gravel: No 2.15 Sub-reach Stream Type O.00 Silt and Smaller: % Field Measured Slope: Noderate Detritus: 0.0 % Reference Stream Type Sedimented # Large Woody Debris: 74 Reference Bed Material: Reference Be			

3.3 Riparian Corridor

Sub-Dominant Herbaceous Herbaceous

3.2 Riparian Buffer



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Phase 2 Segment Summary Report

White River - Second Branch

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0

Affected Length (ft):

Stream: Secon River

Second Branch of the White

Reach:

(old) Upstrm Flow Reg.:

M17-B

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	Abundant	4.5 Flow Regulation Type	None	4.7 Stormwater Ir	nputs	;	
4.2 Adjacent Wetlands:	Abundant	Flow Reg. Use:		Field Ditch:	0	Road Ditch:	1
4.3 Flow Status:	Moderate	Impoundments:		Other:	0	Tile Drain:	0
4.4 # of Debris Jams:	9	Impoundment Loc.:		Overland Flow:	0	Urb Strm Wtr Pipe:	0
		4.6 Up/Down Strm flow reg.:	None	4.9 # of Beaver D	ams	:: 0	

4.8 Channel Constrictions:

Step 5. Channel Bed and Planform Changes

5.1 Bar Typ	es	Diagonal:	1	5.2 Other Features	Neck Cutoff:	0	5.4 Stream Ford or Animal Cros	sing: Yes
Mid:	1	Delta:	1	Flood chutes: 6	Avulsion:	0	5.5 Straightening:	With Windrowing
Point:	7	Island:	1	5.3 Steep Riffles and Head Cuts	Head Cuts:	0	Straightening Length (ft.):	2,369
Side:	7	Braiding:	1	Steep Riffles: 0	Trib Rejuv.: Y	es	5.5 Dredging:	None

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.: 6.4 Sediment Deposition: Stream Gradiant Type <u>Left</u> <u>Right</u>

6.2 Pool Substrate: 6.5 Channel Flow Status: 6.8 Bank Stability:

6.3 Pool Variability: 6.6 Channel Alteration: 6.9 Bank Vegetation Protection

Total Score: 6.7 Channel Sinuosity: 6.10 Riparian Veg. Zone Width:

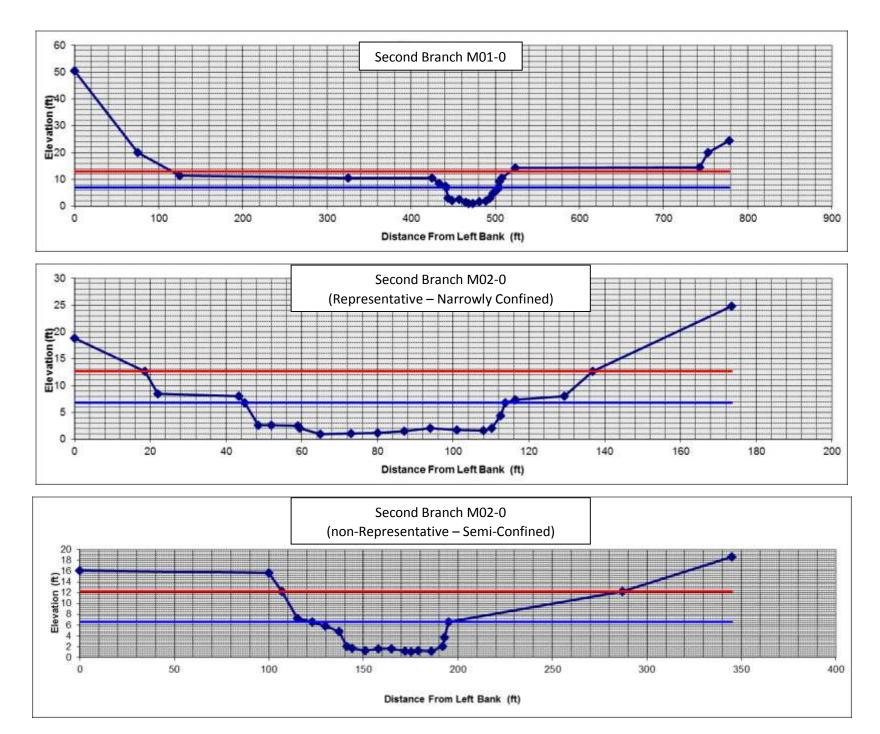
Habitat Rating: 0.00

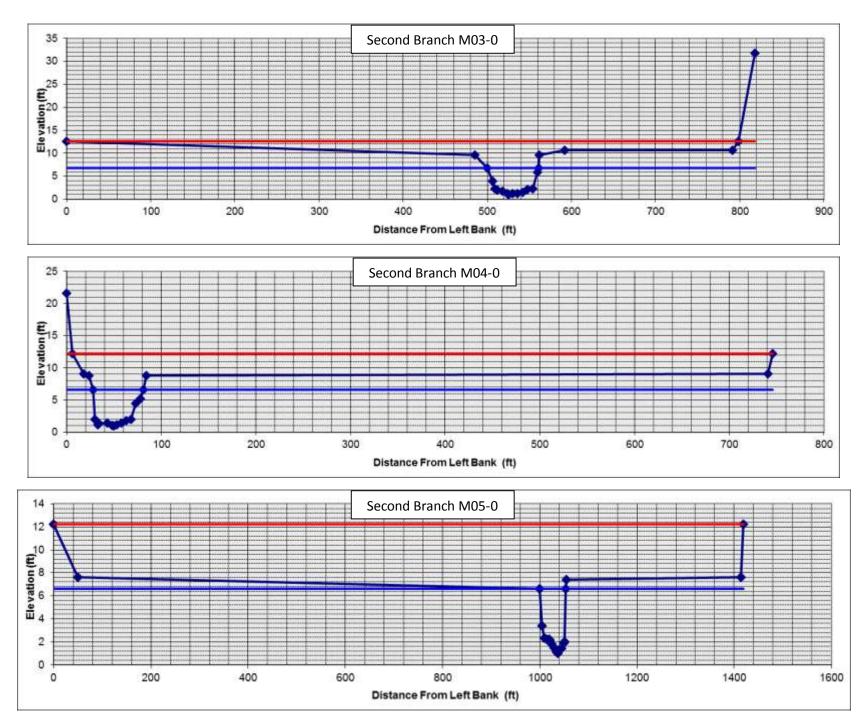
Habitat Stream Condition:

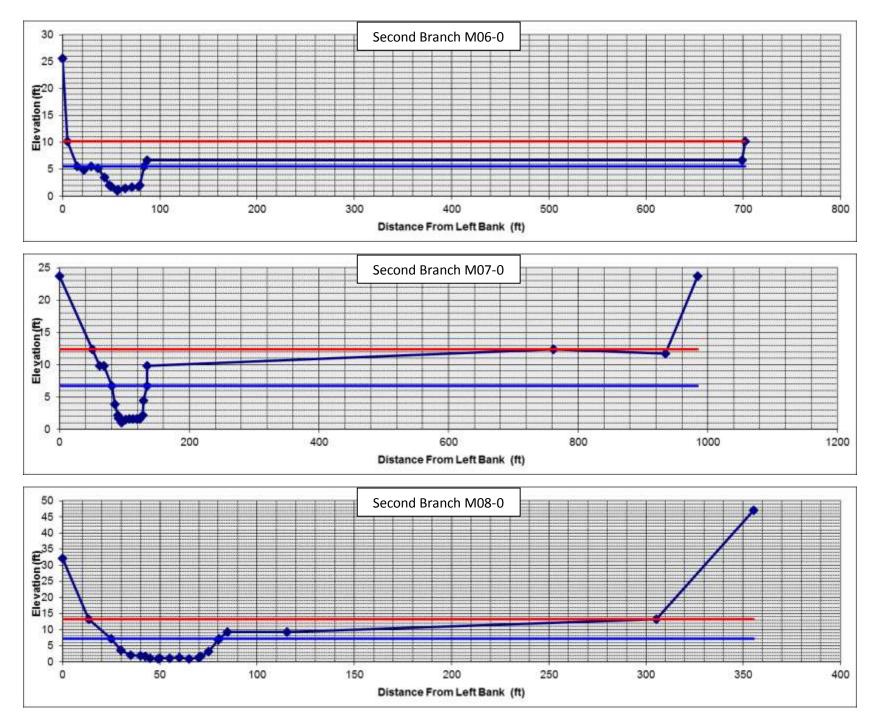
Confinement Type	Unconfined Score	STD	<u>Historic</u>		
7.1 Channel Degradation	11	None	Yes	Geomorphic Rating	0.56
7.2 Channel Aggradation	11	None	No	Channel Evolution Model	None
7.3 Widening Channel	13	None	No	Channel Evolution Stage	IV
7.4 Change in Planforml	10	None	No	Geomorphic Condition	Fair
Total Score	45			Stream Sensitivity	Verv High

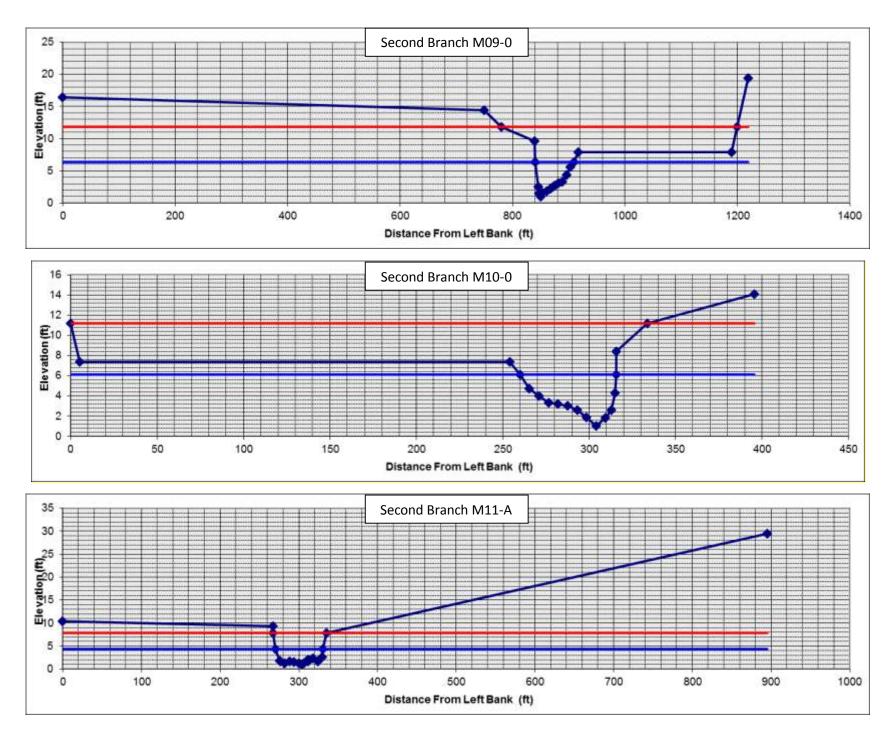
– Appendix 4 –

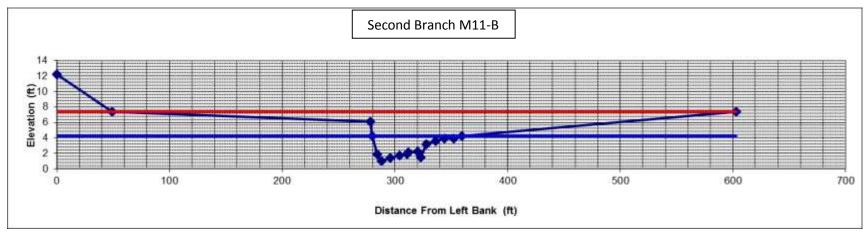
Plots of Channel Cross Sections

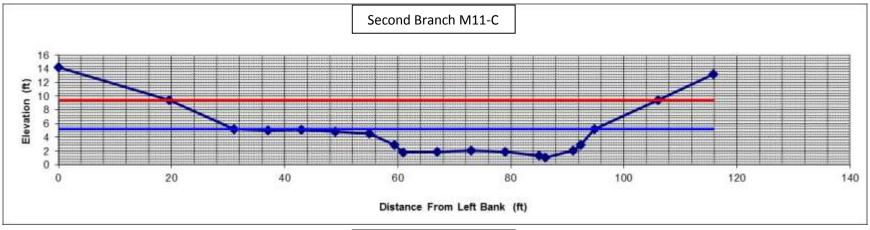


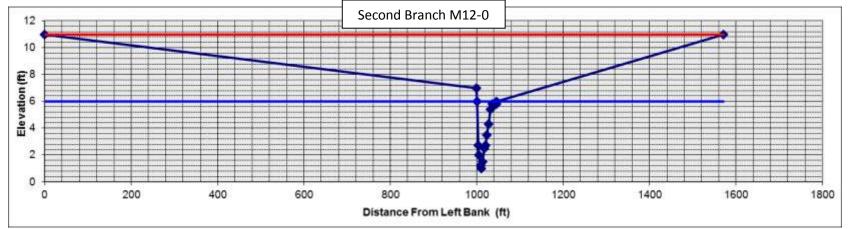


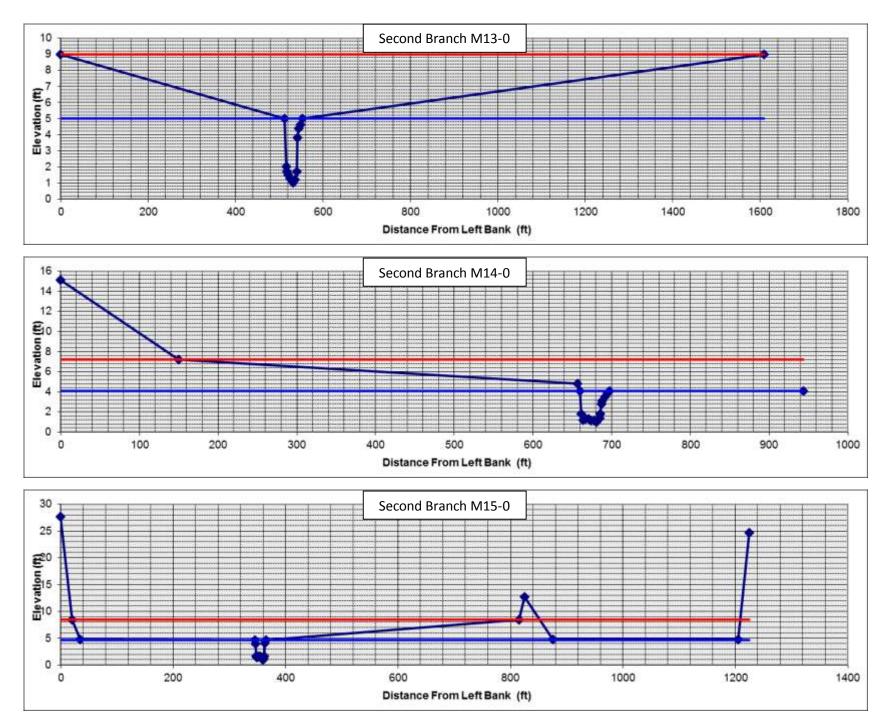


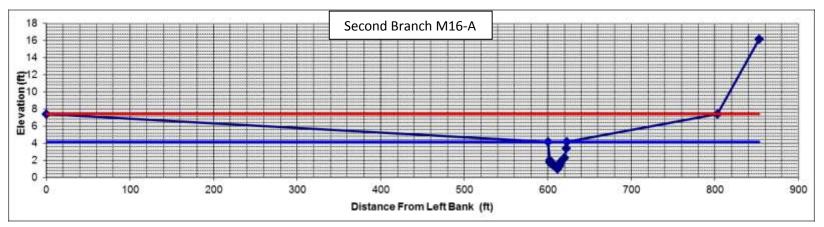




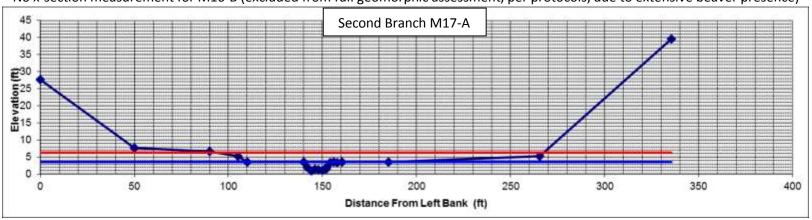


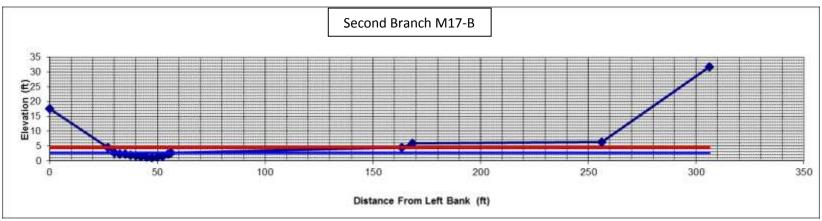






No x-section measurement for M16-B (excluded from full geomorphic assessment, per protocols, due to extensive beaver presence)





No x-section measurement for M17-C (excluded from full geomorphic assessment, per protocols, due to ponds and beaver presence)

– Appendix 5 –

QA/QC Reports and documentation



VT DEC Vermont.gov March, 18 2021

Agency of Natural Resouces

Phase 2 - Quality Control - X.1 Null Fields

White River - Second Branch

Step Number	Step Number 0 1.3 1.6 2.11 2.13		2.14	4 3.1			3.3		4.5	4.8	4.9	5.1			
Description -> Reach	Assessed		Grade Controls	Riffle Spacing	Largest Particle	Stream Type	Texture	Erosion	Revet- ment	Failure Height	Gully Height	Impound- ment	Constricti ons	Beaver Dams	Bar Type
M01-0	Yes				Х							X	Χ		
M02-0	Yes			Χ											
M03-0	Yes	Χ		Χ									X		
M04-0	Yes			Χ											
M05-0	Yes	X		Χ											
M06-0	Yes	Χ		Χ									X		
M07-0	Yes	Χ		Х									Χ		X
M08-0	Yes	Χ		Х											X
M09-0	Yes			Χ									Χ		X
M10-0	Yes	Χ		Х									Χ		
M11-A	Yes			Х									Χ		
M11-B	Yes	Χ		Х											
M11-C	Yes	Χ		Χ	Χ										
M12-0	Yes	Χ		Х									Χ		
M13-0	Yes	Χ		Χ											X
M14-0	Yes		Χ	Х	Х							Х			X
M15-0	Yes														X
M16-A	Yes	Χ		Χ											
M16-B	No	Χ	Χ	Χ	Χ	Χ							Χ		
M17-A	Yes	Χ	Χ	Χ	Χ							X			X
M17-B	Yes	Χ		Χ									Χ		
M17-C	No	Х		Х	X	Χ							Χ	Χ	

x = Failed Test, blank = Passed Test



VT DEC

Agency of Natural Resouces

Vermont.gov March, 18 2021

Phase 2 - Quality Control

White River - Second Branch

X.2 Null Field Check and X.4 Conflicting Phase 1 vs Phase 2 Data

X.2 Null Fields Ch	neck		Sta	itus Prov	visional		X.4 Conflicting Phase 1 - Phase 2 data Status Provisional								
Reach v Step >	0	1	2	3	4	5	Reach v	Step >	P1 2.4 P2 0	P1 2.9 P2 1.5	P1 2.10 P2 1.5	P1 3.1 P2 1.2	P1 5.1 P2 4.5	P1 5.5 P2 5.5	P1 7.1 P2 2.14
M01-0	X	X	X				M01-0		120	1 2 1.5	1 2 1.5	2 1.2	1 2 4.5	X	2.17
M02-0			X				M02-0							X	
M03-0			X				M03-0							X	
M04-0			Х												
M05-0			X		X		M04-0							X	
M06-0			Χ				M05-0							X	
M07-0			Х		Х		M06-0			X				X	
M08-0			Х				M07-0								
M09-0			Х				M08-0							X	
M10-0			Х		Х		M09-0							X	X
M11-A			Х				M10-0							X	
M11-B			Х				M11-A							X	
M11-C			Х				M11-B							X	
M12-0			Х				M11-C							X	
M13-0			Х				M12-0							X	
M14-0	Х		X				M13-0							X	X
M15-0	, ,		,				M14-0							X	
M16-A			Х				M15-0				X			X	
M16-B		Х	X			Х	M16-A							X	
M17-A	Х	X	X			X	M16-B							X	
M17-B	,	7.	X				M17-A		X					X	
M17-C	Х	Х	X	Х	Х	Х	M17-B		X					X	
, 0	, ,	7.	, ,	, ,	7.	,	M17-C		X				X	X	

x = Failed Test, blank = Passed Test



Agency of Natural Resouces



Phase 2 - Quality Control - X.3 Conflicting Phase 2 data

White River - Second Branch

Passed X.3 Test: Provisional

Step Num	bers	1.3 - 3.3	1.3 - 1.5	1.5 - 2.1	2.14 - 2.11	2.10 - 5.3	2.10 - 5.3	5.3 - 5.3	2.14 - 2.14	3.2 - 3.3	4.1 - 5.3
Reach v	Description >	Encroachments Industriall Land Use	Encroachments Human Caused Change	Valley Width Bankfull Width	Riffle Spacing Plane Bed	Riffle Type Steep Riffles	Riffle Type Head Cutts	Steep Riffles Head Cuts	Dune Ripple Bed Material	Buffer Type Industrial Land Use	Springs/Seeps Tributary Rejuvenation
M07-0			_								
M08-0											
M01-0											
M02-0					X				X		
M03-0											
M04-0					X				X		
M12-0					X				X		
M13-0											
M14-0											
M15-0									X		
M05-0					X				X		
M09-0											
M06-0		X			X				X		
M10-0		X									
M11-A											X
M16-A											
M17-A					X						
M11-B											
M16-B		X		Χ	X				X		
M17-B											
M11-C					X				X		
M17-C		X	X	X	X	Χ	X	X	X		

x = Failed QC Test, blank = passed QC Test

– Appendix 6 –

Consolidated Project Identification Tables (sorted by priority)

			I	Completed	
River	Duningt	Reach	Watershed	Independent of	Next Stane and Other Duciest Notes
Segment	Project	Priority	Priority	Other	Next Steps and Other Project Notes
				Practices	
M04-0	Protect River Corridors	Very High	Very High	Y	Explore easement status or possibilities - vital step for reach-scale restoration (Hyde Dam removal), ensuing rapid geomorphic adjustments; attenuation asset US of transport reaches with limited attenuation assets; buffer establishment subject to lateral and vertical instability
M04-0	Stream Buffers	Very High	Very High	N	Create/protect buffer, in conjunction with reach-scale restoration; low-cost stock due to vertical and lateral instability; may need fencing also
M04-0	Remove/Replace Structures	Very High	Very High	Y	Remove Hyde Dam; assess possibilities for ridge or large wood bank stabilization or other to address stream ford impacts at Post Farm
M04-0	Watershed Strategies	Very High	Very High	N	Reach-scale restoration in conjunction with Hyde Dam removal: sediment removal, assess need for additional grade controls (one ledge exists US); monitor changes to contiguous wetland, adaptive management for restoration/protection of wetland functions
M09-0	Protect River Corridors	Very High	Very High	Y	Explore easement status or possibilities - vital step for reach-scale restoration (Gulf Dam removal), particular attention to buildings in close proximity to channel as well as dry hydrant above dam; ensuing rapid geomorphic adjustments; attenuation asset US of transport reach with limited attenuation assets; buffer establishment subject to lateral and vertical instability
M09-0	Stream Buffers	Very High	Very High	Y	Create/protect buffer, preferably in conjunction with reach-scale restoration (dam removal); low-cost stock due to vertical and lateral instability; may need fencing also
M09-0	Remove/Replace Structures	Very High	Very High	Y	Explore possibilities for removal of Gulf Road Dam reach
M09-0	Watershed Strategies	Very High	Very High	N	Reach-scale restoration in conjunction with Gulf Road Dam removal: sediment removal, assess need for grade controls (Fire Dept dry hydrant US, buildigs in close proximity to channel)
M10-0	Protect River Corridors	Very High	Very High	Y	Explore easement status or possibilities - vital step for passive reach-scale restoration, tire and brush revetments have failed previously; attenuation asset US of pinch point in valley, may be subject to rapid geomorphic adjustments if Gulf Road Dam removed; buffer establishment subject to lateral and vertical instability
M10-0	Stream Buffers	Very High	Very High	N	Create/protect buffer, in conjunction with reach-scale restoration; low-cost stock and corridor protections due to vertical and lateral instability; may need fencing also
M10-0	Watershed Strategies	Very High	Very High	N	Reach-scale passive restoration may be affected by Gulf Road Dam removal, ensuing channel adjustments; restoration to include tire removal
M11-B	Protect River Corridors	Very High	Very High	Y	Explore easement possibilities - vital step for passive or active reach-scale restoration; high priority buffer establishment subject to high lateral and vertical instability, use low cost stock. Attenuation asset US of transport segment with limited attenuation assets, potential mass failures. Headcuts at trib (and extra stormwater?) on LVW, unclear why sedimets are so deep - glacial influences or sedimentation between historic dams - affects consideration of possible active restoration (lowering FP thru sediment removal)
M11-B	Stream Buffers	Very High	Very High	Y	Create/protect buffer; best as part of corridor protection and reach-scale restoration, recommend low-cost stock due to vertical and lateral instability; clarify stable planform accomodation (FEH zone) is wide due to incision thru formerly impounded sediments; may need fencing also
M11-B	Watershed Strategies	Very High	Very High	N	investigate tributary and possible stormwater influences on Ferris Rd to better understand headcuts on LVW; investigate sediment discharge from Snow's Brook and whether this is an alluvial fan; both factors influence possibilities for active restoration in M11-B (lowering FP thru sediment removal)
M17-A	Protect River Corridors	Very High	Very High	N	Evaluate easement needs/possibilities, particularly in conjunction with berm removal mid-segment, bridge replacement and buffer plantings at US end (leverage likelihood of eventual VT Rte 14 replacement at US end); important attenuation assets for intermittent highly constricted portions along VT Rte 14 (repeat conflict areas now heavily armored)
M17-A	Remove Berms	Very High	Very High	Y	Remove windrow/berm at Brookfield-Willliamstown line, beneath ledge run-constriction point along VT Rte 14; was partially broken in April 2019 flooding, but tries to funnel stream against RVW instead of allowing anabranching planform through beaver meadow
M16-A	Protect River Corridors	Very High	Very High	N	Explore easement possibilities, particularly in conjunction with bridge replacements/removal and buffer plantings (leverage necessity of Tayor Hill Rd replacement); previous easements in place on some DS portions; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has VSWI Class 2 wetlands
M16-A	Remove/Replace Structures	Very High	Very High	Y	Taylor Hill Rd culvert undercutting VT Rte 14, should likely be bridge replacement; opportunity for combo with passive reach-scale protection-restoration; DS bridge duplicative but has social constraints
M16-A	Watershed Strategies	Very High	Very High	N	Explore easement possibilities, particularly in conjunction with bridge replacements/removal and buffer plantings (leverage necessity of Tayor Hill Rd replacement); previous easements in place on some DS portions; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has VSWI Class 2 wetlands
M11-A	Watershed Strategies	Very High	Very High	N	Reach-scale restoration (passive or potential active) in M11-B, as well as further US, to restore/maintain FP access and limit incision, establish/protect buffers will reduce streampower funneled into this segment; develop funding options and design recommendations for private bridges: significant impacts to river dynamics and similar geomorphic conditions along much of 2nd Branch
M03-0	Protect River Corridors	Very High	Next Highest	Y	Explore easement status or possibilities - Attenuation asset US of transport reaches with limited attenuation assets; previous project implementations; explore small wetland restoration/protection mosaic for waterfowl flyway; buffer establishment subject to high lateral and vertical instability

River Segment	Project	Reach Priority	Watershed Priority	Completed Independent of Other	Next Steps and Other Project Notes
Segment		1 1101119	17107119	Practices	
M03-0	Watershed Strategies	Very High	Next Highest	N	reach-scale restoration results: removal of Hyde Dam in M04 will affect hydrologic and sediment inputs; re-assess need for addressing impounded sediments US of former Stoughton Mills-Royalton-5 dam based on equilibirium conditions following that, as well as results of buffer establishment in interim; explore small wetland restoration/protection mosaic for waterfowl flyway
M16-A	Stream Buffers	Very High	Next Highest	Y	Augment buffers, particularly DS RB; scrub-shrub buffers best and may be different from RAPs; best with corridor protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also
M17-A	Stream Buffers	Very High	Next Highest	Y	Augment buffers at US end; best with corridor protection and culvert replacement
M17-A	Remove/Replace Structures	Next Highest	Medium	Y	VT Rte 14 culvert is very undersized and low clearance, subject to plugging but overtopping probably doesn't incur much road damage; but erosion DS of culvert advancing, fabric and plantings damaged in 2019 flooding, and above culvert US RB armoring is gardually failing
M16-B	Watershed Strategies	Medium	Medium	N	Segment EXCLUDED from geomorphic assessment due to extensive beaver-controlled wetlands. Consider bridge if issues with culvert replacement, Ainsworth interpretive center/access if property ever sells, but reach is mostly VSWI Class 2 wetlands. Important area for small wetland restoration/protection mosaic for waterfowl flyway.
M16-B	Remove/Replace Structures	Low	Low	Y	Segment EXCLUDED from geommorphic assessment, but culvert was assessed. Brown Dr culvert undersized, slight deformation but in overall decent shape and has integrated stonework; ideally would be bridge replacement for better geomorphic compatibility, but low priority (AOP currently OK)
M14-0	Watershed Strategies	Very High	Very High	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; invasives info re bankside gardening
M15-0	Watershed Strategies	Very High	Very High	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem
M14-0	Remove/Replace Structures	Very High	Next Highest	N	Six bridges in reach; VT Rte 14 structure substantial concrete abutments but showing signs of significant scour, undersized and effective width reduced by angle of alignment; farm and pvt bridges also significantly undersized with geomorphic impacts (scour, erosion) heightened when lacking buffers; one example of pvt bridge in US portion of reach with waste block above scour zone, but primarily a footbridge
M06-0	Remove/Replace Structures	Next Highest	Next Highest	Y	watershed-wide issue with private structures, buffers important near structures; straightened planform and bank armoring increase erosion, lock channel in cyclical adjustments, but getting abutments out of scour zone presents costly engineering challenges; Dugout Rd concrete abutments resilient but structure is undersized and angle of alignement reduces effective width, amplifyng erosion
M07-0	Remove/Replace Structures	Next Highest	Next Highest	Y	Develop long-term plan for covered bridges along 2nd Branch (two in this reach): significant impacts to river dynamics as well as implications for farm and highway equipment access; newer structures in reach (state and town) are sized according to updated standards, much better geomorphic compatibility
M07-0	Watershed Strategies	Next Highest	Next Highest	Y	Develop long-term plan for covered bridges along 2nd Branch; prioritize Penny Brook for future Phase 2 or otherwise identify dynamics contributing to significant sediment discharge that may affect mitigation efforts at ford; support for RAP implementation, particularly buffers
M12-0	Watershed Strategies	Next Highest	Next Highest	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; opportunities for potential small wetland restoration mosaic for waterfowl flyway
M13-0	Remove/Replace Structures	Next Highest	Next Highest	N	Farm and pvt bridges significantly undersized with pronounced geomorphic impacts (scour, erosion) heightened with lack of buffers
M13-0	Watershed Strategies	Next Highest	Next Highest	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; opportunities for potential small wetland restoration mosaic for waterfowl flyway
M05-0	Watershed Strategies	Medium	Next Highest	Y	Develop long-term plan for covered bridges along 2nd Branch: significant impacts to river dynamics as well as implications for farm and highway equipment access; may see significant adjustments following Hyde Dam removal; important attenuation asset (with likely pressure to mitigate Rte 14 overtopping) and area for potential small wetland restoration/protection mosaic for waterfowl flyway
M11-A	Remove/Replace Structures	Next Highest	Medium	Y	VAST bridge elevations at US and DS ends of segment tied to extended bank armoring DS of Rte 14 bridges, vastly restrict LB FP access and contribute to elevated erosion (esp in areas with diminished buffers); old dam remains behind Creamery diminish valley/FP width but may also be limiting mass failure potential and bed incision (not clear if concrete apron is on natural ledge)
M12-0	Remove/Replace Structures	Next Highest	Medium	N	VT Rte 14 culvert is undersized but it does not appear that AOP is impacted, geomorphic impacts buffered by extensive SS wetland veg; farm bridges US more significantly undersized and geomorphic impacts more pronounced (scour, erosion) likely due to lack of buffers
M15-0	Remove/Replace Structures	Next Highest	Medium	Y	3 bridges, 3 culverts in reach-some in disrepair and not currently in use, plus old remains; primarily are channel constrictions (FP still accessible), significantly undersized with geomorphic impacts (scour, erosion) heightened by lack of buffers; bridge at head of reach duplicative with another in next segment US but appears to have social issues

				Completed	
River	Project	Reach	Watershed	Independent of	Nort Stone and Other Project Notes
Segment	Тюјесі	Priority	Priority	Other	Next Steps and Other Project Notes
				Practices	
		Very	Next		Explore easement status or possibilities - may see significant adjustments following Hyde Dam removal; likely pressure to mitigate overtopping of Rte 14 (which would likely be detrimental to river
M05-0	Protect River Corridors	High	Highest	Y	dynamics, further restrict floodplain access); important area for potential small wetland
		8	0		restoration/protection mosaic for waterfowl flyway
M05-0	Stream Buffers	Very	Next	Y	Create/protect buffer; best as part of corridor protection/passive restoration of incised reach,
14103-0	Sucam Buriers	High	Highest	1	recommend low-cost stock due to vertical and lateral instability; may need fencing also
		Very	Next		Explore easement status or possibilities - be clear about likelihood of lateral adjustments (banks surprisingly high in this reach, unclear if missing documentation of a historic dam, or incision US of
M06-0	Protect River Corridors	High	Highest	Y	possible dredging at old brickyard in US portion of M05); potential small wetland
		Ü	Ŭ		restoration/protection in DS end of reach as part of mosaic for waterfowl flyway
		Very	Next		Explore easement status or possibilities; best as part of corridor protection/passive restoration of
M07-0	Protect River Corridors	High	Highest	Y	incised reach, including mitigation of ford impacts; LB field has been captured by floodwaters due to
					combined impacts of undersized bridge, stream ford and lack of buffers Create/protect buffer, along much of reach but particularly DS of Gifford Covered bridge; best as part
M07-0	Stream Buffers	Very	Next	Y	of corridor protection/passive restoration of incised reach; recommend low-cost stock due to vertical
		High	Highest		and lateral instability; may need fencing also
		Next	Next		Develop funding options and design recommendations for private bridges along 2nd Branch:
M06-0	Watershed Strategies	Highest	Highest	Y	significant impacts to river dynamics and similar geomorphic conditions along much of mainstem;
—			 		opportunities for potential small wetland restoration/protection mosaic for waterfowl flyway Explore easement status or possibilities, particularly in conjunction with bridge replacements and
M14-0	Protect River Corridors	Medium	Next	Y	buffer plantings; explore small wetland restoration/protection mosaic for waterfowl flyway, valley has
			Highest		VSWI Class 2 wetlands; buffer establishment may be subject to high lateral instability
M10-0	Remove/Replace	Very	Very High	N	Explore possibilities for removal or replacement of minimally used bridge at DS end of reach, likely
	Structures	High	Next		accesses a camp (deeded ROW?)
M09-0	Remove/Replace Structures	Very High	Highest	Y	Explore possibilities for removal of minimally used farm bridge at US end of reach
M02.0		Very		V	of the state of th
M02-0	Watershed Strategies	High	Very High	Y	periodic testing at gullies entering RB below Bethel-Royalton landfill
M11-C	Watershed Strategies	Very High	Very High	N	Municipal level corridor protections would increase ERAF match and discourage development in
		rigii			proximity to banks prone to mass failure Reach-scale corridor protection: intermittent wetlands are important attenuation assets for alternating
		Very			highly constricted portions along VT Rte 14 (repeat conflict areas); also important area for small
M17-A	Watershed Strategies	High	Very High	N	wetland restoration/protection mosaic for waterfowl flyway, significant VSWI Class 2 wetlands US
					and DS; US has increasing encroachment, ag and development pressure around ponds
		Very			Buffers are good but are important to keep intact - impacts would be felt quickly in terms of stream stability; well vegetated floodplain in this segment also attenuates impacts US (segment M17-C was
M17-B	Watershed Strategies	High	Very High	N	EXCLUDED from geomorphic assessment due to ponds, but appears to be under increasing pressure
		Ů			from encroachment, ag and development)
		Very	Next		Create/protect buffer; best as part of corridor protection, recommend low-cost stock due to vertical and
M03-0	Stream Buffers	High	Highest	Y	lateral instability; clarify stable planform accomodation (FEH zone) is wide due to incision thru formerly impounded sediments; may need fencing also
		Very	Next		Create/protect buffer; best as part of corridor protection/passive restoration of incised reach,
M06-0	Stream Buffers	High	Highest	Y	recommend low-cost stock due to vertical and lateral instability; may need fencing also
					Explore easement status or possibilities, particularly US of Rte 14 culvert - Attenuation assets US of
M12-0	Protect River Corridors	Very	Next	Y	transport segment with limited attenuation assets; explore small wetland restoration/protection mosaic
		High	Highest		for waterfowl flyway, reach has multiple VSWI Class 2 wetlands; buffer establishment subject to high lateral and vertical instability
M12.0	Cturana D. CC	Very	Next	77	Create/protect buffer, woody buffers best and may be different from RAPs; best as part of corridor
M12-0	Stream Buffers	High	Highest	Y	protection, low-cost stock due to vertical and lateral instability; may need fencing also
M12.0	Ct D. CC	Very	Next	7.7	Create/protect buffer, woody buffers best and may be different from RAPs; best with corridor
M13-0	Stream Buffers	High	Highest	Y	protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also
	1				Create/protect buffer, woody buffers best and may be different from RAPs; best with corridor
M14-0	Stream Buffers	Very High	Next Highest	Y	protection, particularly important near bridges; low-cost stock due to lateral instability; may need
		111811	Highest		fencing also; invasives info re bankside gardening
M15-0	Stream Buffers	Very	Next	Y	Create/protect buffer, likely scrub-shrub buffers best, may be different from RAPs; best with corridor
W113-U	Stream Buffers	High	Highest	1	protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also
		NT .	NT.		Explore easement possibilities, particularly in conjunction with bridge/culvert replacements/removal
M15-0	Protect River Corridors	Next Highest	Next Highest	Y	and buffer plantings; explore small wetland restoration/protection mosaic for waterfowl flyway, reach
 					has VSWI Class 2 wetlands
M13-0	Protect River Corridors	Medium	Next	Y	Explore easement status or possibilities, particularly in conjunction with bridge replacements and buffer plantings; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has
14113-0	1 TORCE KIVEL COLLINOIS	ivicululil	Highest	1	VSWI Class 2 wetlands; buffer establishment may be subject to high lateral instability
	1				Needs further investigation at Store Hill Rd; not clear there is actually a berm, mature trees in place;
M04-0	Remove Berms	Next	Medium	Y	could open significantly better floodplain off RB in area where Rte 14 locks LB and is at risk for
	1	Highest			continued undercuttning. May require too much disturbance, but priority increased due to Rte 14 as
	I				primary travel corridor.

				Completed	
River Segment	Project	Reach Priority	Watershed Priority	Independent of Other Practices	Next Steps and Other Project Notes
M08-0	Watershed Strategies	Medium	Medium	Y	likelihood of adjustments if Gulf Road Dam is ever removed, increases importance of buffers and corridor protections (recommend municipal corridor overlay adoption or similar); sediment continuity would greatly benefit from proper sizing of Braley Covered Bridge abutments
M11-A	Stream Buffers	Medium	Medium	Y	limited opportunities to augment buffers along ag fields in US portion of segment; primary benefits would be limiting erosion rates and shading stream
M11-C	Stream Buffers	Medium	Medium	Y	very limited opportunity to augment buffers along US RB terrace; protection of existing buffers important however, as setting makes VWs prone to mass failure
M17-B	Remove/Replace Structures	Medium	Medium	Y	4 culverts in segment are all undersized (two have multiple inlet/outlets with at least one plugged by sediment), but all are substantial concrete structures that do not appear likely to fail anytime soon (other than plugging) - road more likely to be damaged. Concrete block wingwalls appear to have been replaced at ledge/waterfall above tributary confluence from Rood Pond.
M01-0	Watershed Strategies	Low	Medium	N	M01 largely in Floodway; FEMA maps already updated for Windsor County (North Royalton, East Bethel); include encroachments in Pre-disaster Mitigation Planning, consider FEH overlay; drainage and stormwater management in US reaches
M08-0	Stream Buffers	Next Highest	Low	Y	Create/protect buffer, focused opportunities along ag fields in US portions of reach especially; woody buffers best, may not be same as RAP specs
M01-0	Stream Buffers	Medium	Low	Y	Buffers exist, but wider would increase flood and erosion mitigation, habitat
M01-0	Remove Berms	Medium	Low	Y	Needs further investigation; not clear there is actually a berm, may be cumulative plow headlands; LB still has better floodplain access. May require too much disturbance, reach is close to mouth and armored at multiple structures DS.
M05-0	Remove/Replace Structures	Medium	Low	Y	Rte 14 structure aging; carefully review design considerations as likely pressure to mitigate overtopping of Rte 14 (which would likely be detrimental to river dynamics, further restrict floodplain access); covered bridges along 2nd Br replaced or renovated sortly before changes to Stream Alt permit changes requiring 100 pct bankfull or better; problematic for river dynamics, significant social constraints to address
M08-0	Protect River Corridors	Medium	Low	Y	Municipal level corridor protections would increase ERAF match; ensure RAP compliance
M01-0	Remove/Replace Structures	Low	Low	Y	Railroad and Rte 107 bridges are constrictions but high above river, snowmobile bridge is heavily riparapped but eaily overtopped; none block AOP, would have limited geomorphic advantages this close to mouth
M02-0	Stream Buffers	Low	Low	Y	Some limited-extent opportunities to augment or establish buffers along agricultural fields
M11-C	Remove/Replace Structures	Low	Low	N	Old dam and infrastructure remains restrict some FP access, but gains would be limited and disturbance would likely increase potential for mass failures; does not appear that AOP is impacted

- Appendix 7 -

Bridge and Culvert Survey Reports

COMPARISON SUMMARY REPORTS:

Failure modes: Geomorphic incompatibility
Failure modes: Problem causes
Wildlife passage
Aquatic organism passage (AOP) ratings (*Culverts only,no bridges*):
Passage, geomorphic compatibility, retrofit potential

Individual Structure Summary Reports



Agency of Natural Resouces

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Structure Failure Modes

White River

Explanation of codes used in table header

Failure	Modes	Existing Problems								
F1	Concern for structure due to fluvial condition or process	P1	Upstream sediment deposit							
F2	Potential failure due to out-flanking	P2	Upstream Scour and/or erosion present							
F3	Potential failure due to scour	P3	Downstream Scour and/or erosion present							
F4	Potential failure due to ice or debris jam	P4	Inlet obstruction present							
F5	Structure related damage due to flooding of adjacent property	P5	Poor location or alignment							
F6	Structure related damage due to erosion of adjacent property	P6	Beaver activity							
Width	Structure width divided by channel width as a percent (% bankfull width)	P7	Floodplain filled entirely or partially by roadway approaches							

					X = meets criteria						MD =							
Town	Road	Stream Name	SgaID / struct_num	Туре	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Bethel	RANDOLP H CENTER RD	Second Branch White River	100000002014041	Bridge	-	X	-	Х	X	X	-	Х	Х	Х	X	-	X	84 %
Bethel	STORE HILL RD	Second Branch White River	100000001914041	Bridge	-	X	X	Х	X	X	-	Х	Х	X	X	-	X	58 %
Brookfield	Locke Lane	Second Branch White River	100000000809031	Bridge	-	X	Х	X	X	X	-	-	-	X	-	-	X	42 %
Brookfield	PVT	Second Branch White River	700000000009031	Bridge	-	X	Х	Х	X	X	-	Х	Х	-	-	-	X	35 %
Brookfield	PVT	Second Branch White River	70000000109031	Bridge	-	X	Х	X	X	X	-	X	Х	X	-	-	X	33 %
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	-	X	-	Х	-	-	-	-	-	-	-	-	Х	31 %



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_	_	_		_	_	_	_		_	_	_		_		_			18 2021
Town	Road	Stream Name	SgaID / struct_num	Туре	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Brookfield	PVT	Second Branch White River	700000000209033	Bridge	MD	48 %												
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	-	X	Χ	X	-	X	-	Χ	Χ	-	-	-	X	40 %
Brookfield	PVT	Second Branch White River	700000000309033	Bridge	-	X	-	X	MD	-	-	-	-	-	X	MD	X	40 %
Brookfield	PVT	Second Branch White River	700000000409031	Culvert	-	X	Χ	X	X	X	-	Χ	Χ	Х	-	-	X	19 %
Brookfield	PVT	Second Branch White River	700000000409033	Bridge	-	X	Χ	X	-	X	-	X	Χ	-	X	-	X	30 %
Brookfield	PVT	Second Branch White River	700000000509031	Bridge	-	X	Χ	X	X	X	-	X	Χ	Х	-	-	X	32 %
Brookfield	PVT	Second Branch White River	700000000509033	Bridge	-	Х	Х	X	MD	Х	-	-	-	Х	-	MD	Х	37 %
Brookfield	PVT	Second Branch White River	700000000609031	Bridge	-	X	Χ	X	X	Х	-	-	-	Х	-	-	Х	48 %
Brookfield	PVT	Second Branch White River	700000000609033	Bridge	-	Х	Χ	X	-	Х	-	X	X	Х	-	-	-	28 %
Brookfield	PVT	Second Branch White River	700000000709031	Bridge	-	X	Χ	X	X	Х	-	-	-	X	-	-	X	67 %
Brookfield	PVT	Second Branch White River	700000000709033	Bridge	-	-	-	-	-	Х	-	-	-	X	-	-	-	84 %
Brookfield	PVT	Second Branch White River	700000000809033	Bridge	-	X	X	Χ	-	X	-	-	-	Х	-	-	-	63 %



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																		10 2021
Town	Road	Stream Name	SgaID / struct_num	Type	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Brookfield	BROWN DR	Second Branch White River	700000000909031	Culvert	-	Х	X	Χ	Х	Х	-	X	-	Х	-	X	X	30 %
Brookfield	MCKEAGE RD	Second Branch White River	40000000009031	Bridge	-	X	X	Х	X	Х	-	X	Х	Х	Х	-	X	35 %
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Culvert	-	Х	X	X	Х	Х	-	X	Х	Х	-	-	X	31 %
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	-	Х	X	Х	Х	Х	-	X	Х	Х	Х	-	X	42 %
Brookfield	ROUTE 14	Second Branch White River	200014000209031	Bridge	-	-	-	Х	-	Х	Х	-	-	-	Х	-	X	138 %
Randolph	PVT	Second Branch White River	700000000309093	Bridge	-	Х	X	Х	-	Х	-	X	Х	-	-	-	X	63 %
Randolph	PVT	Second Branch White River	700000000409093	Bridge	-	Х	Х	Х	-	Х	-	Х	Х	-	-	-	X	31 %
Randolph	PVT	Second Branch White River	700000000509093	Bridge	-	-	-	-	-	Х	-	X	Х	Х	-	-	-	84 %
Randolph	PVT	Second Branch White River	700000000609093	Bridge	-	-	-	-	-	X	-	Х	Х	Х	-	-	-	76 %
Randolph	PVT	Second Branch White River	700000000709093	Bridge	-	Χ	X	X	-	X	-	X	Χ	-	-	-	Х	82 %
Randolph	KINGSBU RY RD	Second Branch White River	100000000709091	Bridge	-	Х	Х	Х	Х	Х	-	Х	Х	Х	-	-	Χ	64 %
Randolph	ROUTE 14 N	Second Branch White River	200014000009091	Bridge	-	X	X	Х	-	X	Х	X	X	-	X	-	X	88 %



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Town	Road	Stream Name	SgaID / struct_num	Туре	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Randolph	ROUTE 14 N	Second Branch White River	200014000009092	Bridge	-	X	Х	Х	X	Х	-	X	Х	X	Х	-	Х	61 %
Randolph	ROUTE 14 N	Second Branch White River	990014000009091	Bridge	-	-	-	-	-	Х	-	X	Х	X	-	-	X	136 %
Royalton	VRL03	Second Branch White River	70000000114163	Bridge	-	-	-	-	-	X	-	X	Х	X	-	-	X	120 %
Royalton	VAST Trail 12	Second Branch White River	70000000214163	Bridge	-	-	-	-	Х	X	-	-	-	X	-	-	X	80 %
Royalton	ROUTE 107	Second Branch White River	200107000014162	Bridge	-	-	-	X	-	X	-	X	Х	-	-	-	X	172 %
Royalton	ROUTE 14	Second Branch White River	200014000014161	Bridge	-	-	-	-	-	X	Х	-	-	Χ	X	-	X	143 %
Royalton	ROUTE 14	Second Branch White River	200014000114162	Bridge	-	-	-	-	-	X	Х	-	-	X	-	-	X	156 %
Williamstow n	ROUTE 14	Second Branch White River	200014000009171	Bridge	-	-	-	Х	-	X	-	-	-	-	X	-	X	157 %
Williamstow n	ROUTE 14	Second Branch White River	200014000109171	Bridge	MD	438 %												
Williamstow n	ROUTE 14	Second Branch White River	200014000209171	Bridge	-	-	-	X	-	-	-	-	-	-	-	-	X	522 %
Williamstow n	ROUTE 14	Second Branch White River	990014000009171	Bridge	-	-	-	X	-	X	Х	Х	Х	-	Х	-	X	169 %



Agency of Natural Resouces

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Failure Modes - Problems and Causes

White River

Explanation of codes used in table header

Upstr	eam Sediment Deposition	Upstr	eam Scour and Erosion	Down	stream Scour and Erosion	Poor	Locacation or Aligment
C1	Opening obstructed by sediment	C4	Bank armoring failing	C7	Bank armoring failing	C12	Stream approach angle is sharp bend
C2	Sediment deposits >= half bankfull	C5	Bank erosion high	C8	Bank erosion high	C13	Located at significant valley break
C3	Steep riffle upstream	C6	Scour under structure	C9	Scour under structure	C14	Avulsion follow road
					Banks higher downstream than upstream		
				C11	Culvert outlet is cascade or freefall		

						Ye	s = Co	ondtior	n exis	ts N	10 = C	onditi	on do	es not	t exist	MD	= mis	ssing (data
						ι	Jpstrea	am	ι	Jpstrea	am		Do	wnstre	eam			Poor	
					Bankfull		Sedime	ent	S	cour a	ınd		S	cour a	ınd		Lo	ocation	n or
					Width	D	eposit	ion		Erosio	n			Erosio	n		Α	dignme	ent
Town	Road	Stream Name	SgaID / struct_num	Type	Percent	C1	C2	СЗ	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Bethel		Second Branch White River	100000002014041	Bridge	84 %	No	No	No	Yes	No	No	Yes	No	No	No		Yes	No	No
Bethel	STORE HILL RD	Second Branch White River	100000001914041	Bridge	58 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	Locke Lane	Second Branch White River	100000000809031	Bridge	42 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000009031	Bridge	35 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	70000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No



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						ι	Jpstrea	am	ι	Jpstrea	am		Do	ownstr	eam			Poor	
					Bankfull		Sedimo	ent	S	Scour a	ınd		8	Scour a	and		L	ocation	ı or
					Width		Deposit	tion		Erosio	n			Erosio	n		<i>P</i>	Alignme	ent
Town	Road	Stream Name	SgaID / struct_num	Type	Percent	C1	C2		C4	C5	C6	C7	C8	C9	C10	C11		•	C14
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	70000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	70000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	31 %	No	No	No	No	No	No	No	No	No	Yes		No	No	No
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	31 %	No	No	No	No	No	No	No	No	No	Yes		No	No	No
Brookfield	PVT	Second Branch White River	700000000209033	Bridge	48 %	MD	No	No	Yes	Yes	No	No	Yes	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	40 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	40 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000309033	Bridge	40 %	No	No	No	No	No	No	No	No	No	No		Yes	No	No
Brookfield	PVT	Second Branch White River	700000000409031	Culvert	19 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No	No
Brookfield	PVT	Second Branch White River	700000000409033	Bridge	30 %	No	No	No	Yes	Yes	Yes	Yes	No	No	No		Yes	No	No





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						l	Jpstrea	am	ι	Jpstrea	am		Do	ownstre	eam			Poor	•
					Bankfull	;	Sedime	ent	S	cour a	nd		5	cour a	nd		Le	ocatio	n or
					Width		eposit	tion		Erosio	n			Erosio	n		Δ	lignm	ent
Town	Road	Stream Name	SgaID / struct_num	Туре	Percent	C1	C2	СЗ	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Brookfield	PVT	Second Branch White River	700000000509031	Bridge	32 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	70000000509033	Bridge	37 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000609031	Bridge	48 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000609033	Bridge	28 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	70000000709031	Bridge	67 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	70000000709033	Bridge	84 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000809033	Bridge	63 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	BROWN DR	Second Branch White River	700000000909031	Culvert	30 %	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No



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						ι	Jpstrea	am	ι	Jpstrea	am		Do	ownstr	eam			Poor	
					Bankfull		Sedimo	ent	S	Scour a	ınd		8	Scour a	ınd		Le	ocatior	ı or
					Width		Deposit	tion		Erosio	n			Erosio	n		_ A	lignme	ent
Town	Road	Stream Name	SgaID / struct_num	Type	Percent	C1	C2		C4	C5	C6	C7	C8	C9	C10	C11		_	C14
Brookfield	MCKEAGE RD		40000000009031		35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Culvert	31 %	No	No	No	Yes	No	No	Yes	No	No	No	No	No	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	42 %	No	No	No	Yes	No	Yes	Yes	No	Yes	Yes		Yes	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	42 %	No	No	No	Yes	No	Yes	Yes	No	Yes	Yes		Yes	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000209031	Bridge	138 %	Yes	No	No	No	No	No	No	No	No	Yes		Yes	No	Yes
Randolph	PVT	Second Branch White River	70000000309093	Bridge	63 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Randolph	PVT	Second Branch White River	700000000409093	Bridge	31 %	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	No
Randolph	PVT	Second Branch White River	70000000509093	Bridge	84 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Randolph	PVT	Second Branch White River	700000000609093	Bridge	76 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Randolph	PVT	Second Branch White River	700000000709093	Bridge	82 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Randolph	KINGSBU RY RD	Second Branch White River	100000000709091	Bridge	64 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No



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						l	Jpstrea	am	ι	Jpstrea	am		Do	ownstr	eam			Poor	
					Bankfull		Sedime	ent	8	Scour a	nd		S	cour a	ınd		Lo	ocation	or
					Width		eposit	ion		Erosio	n			Erosio	n		A	dignme	ent
Town	Road	Stream Name	SgaID / struct_num	Туре	Percent	C1	C2	СЗ	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Randolph	ROUTE 14 N	Second Branch White River	200014000009091	Bridge	88 %	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		Yes	No	Yes
Randolph	ROUTE 14 N	Second Branch White River	200014000009092	Bridge	61 %	No	No	No	Yes	No	No	Yes	No	No	No		Yes	No	No
Randolph	ROUTE 14 N	Second Branch White River	990014000009091	Bridge	136 %	No	No	No	Yes	Yes	No	Yes	No	No	Yes		No	No	No
Royalton	VRL03	Second Branch White River	70000000114163	Bridge	120 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Royalton	VAST Trail 12	Second Branch White River	70000000214163	Bridge	80 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Royalton	ROUTE 107	Second Branch White River	200107000014162	Bridge	172 %	No	No	No	Yes	No	No	Yes	Yes	No	No		No	No	No
Royalton	ROUTE 14	Second Branch White River	200014000014161	Bridge	143 %	No	No	Yes	No	No	No	No	No	No	No		Yes	No	No
Royalton	ROUTE 14	Second Branch White River	200014000114162	Bridge	156 %	No	No	Yes	No	No	No	No	No	No	No		No	No	No
Williamstov n	v ROUTE 14	Second Branch White River	200014000009171	Bridge	157 %	No	No	No	No	No	No	No	No	No	No		Yes	No	Yes
Williamstov n	v ROUTE 14	Second Branch White River	200014000109171	Bridge	438 %	MD	No	Yes	No	No	No	No	No	No	No		Yes	Yes	No
Williamstov n	v ROUTE 14	Second Branch White River	200014000209171	Bridge	522 %	No	No	No	No	No	No	No	No	No	No		No	No	No





Agency of Natural Resouces

						ι	pstrea	ım	ι	Jpstrea	am		Do	wnstr	eam			Poor	•
					Bankfull		Sedime			cour a				cour a				ocatior 	
					Width		eposit	ion		Erosio	n			Erosio	n		P	dignme	ent
Town	Road	Stream Name	SgaID / struct_num	Type	Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Williamstow n	ROUTE 14	Branch White	990014000009171	Bridge	169 %	Yes	No	No	Yes	No	No	No	No	No	No		Yes	No	No
		River																	



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Wildlife Passage White River

Structures Potentially Suitable for Terrestrial Wildlife Movement

Large Wildlife = deer, moose, bear

Medium Wildlife = fisher, otter, coyote, fox

Small Wildlife = her	rps, small mammals		X = mee	ets criteria	MD = miss	sing data		Wildlife	Species O	bserved
Town	Road	Stream Name	SgaID / struct_num	Туре	Small Wildlife	Medium Wildlife	Large Wildlife	Roadkill	Outside Structure	Inside Structure
Bethel	RANDOLPH CENTER RD	Second Branch White River	100000002014041	Bridge	-	-	MD			
Bethel	STORE HILL RD	Second Branch White River	100000001914041	Bridge	-	-	MD		Deer - Tracks	
Brookfield	Locke Lane	Second Branch White River	100000000809031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000009031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	70000000109031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000209033	Bridge	-	-	MD		Beaver - Lodge	
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000309033	Bridge	-	-	MD		Beaver - Feeding Signs	Beaver - Lodge
Brookfield	PVT	Second Branch White River	700000000409031	Culvert	-	-	-			
Brookfield	PVT	Second Branch White River	700000000409033	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000509031	Bridge	-	-	MD			



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Town	Road	Stream Name	SgaID / struct_num	Type	Small Wildlife	Medium Wildlife	Large Wildlife	Roadkill	Outside Structure	Inside Structure
Brookfield	PVT	Second Branch White River	700000000509033	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000609031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000609033	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000709031	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000709033	Bridge	-	-	MD			
Brookfield	PVT	Second Branch White River	700000000809033	Bridge	-	-	MD			
Brookfield	BROWN DR	Second Branch White River	700000000909031	Culvert	-	-	-			
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	-	-	MD		Deer - Tracks	
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Culvert	-	-	-			
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	-	-	MD			
Brookfield	ROUTE 14	Second Branch White River	200014000209031	Bridge	X	-	MD		Beaver - Sighting	
Randolph	PVT	Second Branch White River	700000000309093	Bridge	-	-	MD			
Randolph	PVT	Second Branch White River	700000000409093	Bridge	-	-	MD			
Randolph	PVT	Second Branch White River	700000000509093	Bridge	X	-	MD			
Randolph	PVT	Second Branch White River	700000000609093	Bridge	-	-	MD			
Randolph	PVT	Second Branch White River	700000000709093	Bridge	-	-	MD			
Randolph	KINGSBURY RD	Second Branch White River	10000000709091	Bridge	-	-	MD			



VT DEC

Agency of Natural Resouces

_				_			_			,
Town	Road	Stream Name	SgaID / struct_num	Туре	Small Wildlife	Medium Wildlife	Large Wildlife	Roadkill	Outside Structure	Inside Structure
Randolph	ROUTE 14 N	Second Branch White River	200014000009091	Bridge	-	-	MD			
Randolph	ROUTE 14 N	Second Branch White River	200014000009092	Bridge	-	-	MD			
Randolph	ROUTE 14 N	Second Branch White River	990014000009091	Bridge	-	-	MD			
Royalton	VRL03	Second Branch White River	70000000114163	Bridge	X	-	MD			
Royalton	VAST Trail 12	Second Branch White River	700000000214163	Bridge	X	-	MD			
Royalton	ROUTE 107	Second Branch White River	200107000014162	Bridge	X	-	MD			
Royalton	ROUTE 14	Second Branch White River	200014000014161	Bridge	X	-	MD	Turtle		
Royalton	ROUTE 14	Second Branch White River	200014000114162	Bridge	X	-	MD			
Williamstown	ROUTE 14	Second Branch White River	200014000009171	Bridge	-	-	MD			
Williamstown	ROUTE 14	Second Branch White River	200014000109171	Bridge	X	-	MD			
Williamstown	ROUTE 14	Second Branch White River	200014000209171	Bridge	X	-	MD			
Williamstown	ROUTE 14	Second Branch White River	990014000009171	Bridge	X	-	MD			



Agency of Natural Resouces

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Aquatic Organism Passage

White River

Geomorphic Compatibility

Retrofit Potential

Explanation of codes used in table header

Explanation of data acquisition (link)

AOP Coa	arse Screen	AOP Geomor	phic Compatibility	AOP Retrofit F	Potential
Green	Full AOP for all aquatic organisms	Green	Structure is fully compatable geomorphically 20 < GC < 25	Н	High probablity the existing culvert can be retrofited
Gray	Reduced AOP for all aquatic organisms	Light Green	Structure is mostly compatable geomorphically 15 < GC < 20	М	Medium probablity the existing culvert can be retrofited
Orange	No AOP for all aquatic organisms except adult salmonids	Yellow	Structure is partially compatable geomorphically 10 < GC < 15	L	Low probablity the existing culvert can be retrofited
Red	No AOP for all aquatic organisms including adult salmonids	Orange	Structure is mostly incompatable geomorphically 5 < GC < 10	Pos 1 (left)	For strong swimmers
		Red	Structure is fully incompatable geomorphically 0 < GC < 5	Pos2 (Center)	For moderate swimmers
		-	•	Pos 3 (right)	For weak swimmers

Town	Road	Stream Name	SgaID / struct_num	AOP Coarse Screen	AOP Geomorphic Compatibility	AOP Retrofit Potential	Percent Bankfull Width
Brookfield	PVT	Second Branch White River	700000000409031		Partially Compatable	LLL	19 %
Brookfield	BROWN DR	Second Branch White River	700000000909031	Reduced AOP	Mostly Compatable	MLL	30 %
Brookfield	ROUTE 14	Second Branch White River	200014000009031		Partially Compatable	MLL	31 %



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White River

Bridge Summary Report

General Information

		<u>Gene</u>	<u>erai information</u>			
SgalD	70000000114163	Local SgalD		VOBCIT		
Observers	WRP-cp,dr	Assessment Date	7/16/2019	struct_num Project Name	White River	- Second
Town	Royalton	Latitude	43.82534	Longitude	Branch -72.56660	
Location	RR bridge near mouth o			Reach VTID	M01	
Road Name	ŭ	Road Type	Railroad	Stream Name	Second Bra	nch White
High Flow Stage	No		Channel Width		River	87.2
5		<u> </u>	Bridge Information			
Bridge Width	20		Material		Steel	
Bridge Clearance Bridge/Arch Spar			Number of brid	ge piers/arches	0	
3			Skewed to road	dway?	Yes	
		Geomo	orphic Information			
Floodplain filled by	General roadway approaches	Entirely	Structure is locat	ed at significant break in v	alley slope	No
Obstructions at the	<u>Upstream</u> opening of the structure	None	Estimated distan	ce avulsion would follow ro	oad	
Steep riffle present	immediately upstream of	No		flow approaching structure		Naturally
structure If channel avulses,	stream will	Cross Road				Straight
n onamor avaloco,	<u>Downstream</u>	Croop rioda				
	diately downstream of structu		No No			
heights	heights are substantially high	ier than upstream bani	< No			
- 0 -	t of streamflow entry		No			0
		Upst	0 ft.	Downstream		In Structure
Daminant Dad	Matarial			<u> </u>		·
Dominant Bed		C	obble	Cobble		Cobble
Bedrock Presei		_	Yes	Yes		No
Type of Sedime	ent Deposits		None	Delta		None
Elevation of sec	diment deposits >= 1/2		No	No		No
bankfull						
Bank Erosion			None	None		
Hard Bank Arm	oring	F	ailing	Failing		
Stream bed sco			None	None		
•	ound or under structure)				
Beaver Dam ne			No	No		
Beaver Dam di	stance (ft.)		0	0		
		<u>, </u>	<u>Vegetation</u>			
		<u>Upst</u>	<u>ream</u>	<u>Downstream</u>		In Structure
Dominant Vegeta	ation Type - Left	Deciduous F	orest	Shrub/Sapling		
Dominant Vegeta Right		Herbaceous/0	Grass	Shrub/Sapling		
	hrub/forest vegetation 50	ft. wide start within 2	25 ft. of the structure	and extend at least 500	ft. up/downstr	eam?
Vegitation Band	-		Yes	Yes	эр. зооп	

Vegitation Band - LeftYesYesVegitation Band -RightNoNo

Wildlife Wildlife

RoadkillOutside StructureInside StructureSpeciesNoneNoneNone

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes



Vegitation Band -Right

Species

Stream Geomorphic Assessment



Agency of Natural Resouces

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Comments New England Central RR line, active. Creosoted timbers on steel I-beams. Last bridge before confluence with mainstem

E	Bridge Summai			White	River	
		Gene	eral Information			
SgalD	100000000709091	Local SgaID		VOBCIT		
Observers	WRP - cp,dr	Assessment Date	7/15/2019	struct_num Project Name	White Rive Branch	r - Second
Town Location	Randolph Kingsbury Covered Bri		43.88087 les north of the VT-100	Longitude Reach VTID	-72.58202 M05	
Road Name	and VT-14 junction on KINGSBURY RD	Kingsbury Road. Road Type	Paved	Stream Name	Second Bra	anch White
High Flow Stage	No		Channel Width		LIACI	79.5
D : 1	15	<u> </u>	Bridge Information		Timb	
Bridge Width Bridge Clearance	15 9 7.8		Material Number of bridg	e niers/arches	0	ei
Bridge/Arch Spar			_	•		
		Goome	Skewed to road	way?	No	
	General	Geomo	orphic Information			
Floodplain filled by	roadway approaches <u>Upstream</u>	Entirely	Structure is locate	ed at significant break in va	alley slope	No
	opening of the structure immediately upstream of	None No		e avulsion would follow ro ow approaching structure	ad	Channelized Straight
If channel avulses,		Cross Road				Suaigni
Downstream bank	<u>Downstream</u> diately downstream of strud heights are substantially hig		No No			
heights Pool Depth at point	t of streamflow entry		No 0 ft.			0
		<u>Upst</u>	<u>ream</u>	<u>Downstream</u>		In Structure
Dominant Bed	Material	;	Sand	Sand		Sand
Bedrock Presei	nt		No	No		No
Type of Sedime	ent Deposits	I	None	None		None
Elevation of sec	diment deposits >= 1/2	2	No	No		No
Bank Erosion		ļ	None	None		
Hard Bank Arm	oring	Fa	ailing	Failing		
Stream bed sco	our causing ound or under structu		None	None		
Beaver Dam ne			No	No		
Beaver Dam di	stance (ft.)		0	0		
		<u>, </u>	<u>Vegetation</u>			
		<u>Upst</u>	<u>ream</u>	<u>Downstream</u>		In Structure
Dominant Vegeta	ation Type - Left	Road Embank	rment R	oad Embankment		
Dominant Vegeta Right	ation Type -	Herbaceous/0	Grass	Deciduous Forest		
	hrub/forest vegetation 5	0 ft. wide start within 2	25 ft. of the structure a	and extend at least 500	ft. up/downst	ream?
Vegitation Band	- Left		No	No		

No

None

Inside Structure

None

Outside Structure

No

Roadkill

None

Wildlife



Vegitation Band -Right

Stream Geomorphic Assessment

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Yes

Agency of Natural Resouces

Other Information

Spatial location data collected with GPS? Yes Photos taken?

Comments Covered Bridge - wood deck appears to be in good shape. Has a dry hydrant underneath bridge in moderately deep run.

de	ep run.	cck appears to be	iii gool	а опарс. Пао а а	ny nyarant anac	medar bridge	iii iiioderateiy
E	Bridge Summar	y Report				White	River
		•	eral Inf	ormation			
SgalD	200014000009091	Local SgalD			VOBCIT		
Observers	WRP - cp,dr	Assessment Date	7/15/2	2019	struct_num Project Name	White Rive	r - Second
Town Location	Randolph Bridge is along VT-14,	Latitude it is located approxim	43.89 nately 2		Longitude Reach VTID	-72.58020 M05	
Road Name	the VT-14 and South R ROUTE 14 N	Road Type	ection. Paved	d	Stream Name	Second Bra River	anch White
High Flow Stage	e No	_		Channel Width			79.16
Duid a a 10/idth	21	<u> </u>		nformation Naterial		Cond	oroto
Bridge Width Bridge Clearance				lumber of bridge p	iers/arches	1	Jele
Bridge/Arch Spa			.,	turnber of bridge p	1010/4101100	•	
		Coom		kewed to roadway	?	No	
	General	Geomo	<u>orpriic i</u>	<u>nformation</u>			
Floodplain filled by	roadway approaches <u>Upstream</u>	Entirely	S	tructure is located at	significant break in	valley slope	No
Steep riffle present	e opening of the structure t immediately upstream of	Sediment Yes		stimated distance av ingle of stream flow a			500 Sharp Bend
structure If channel avulses,	, stream will	Follow Road					
	<u>Downstream</u> ediately downstream of struc heights are substantially hig			es lo			
	t of streamflow entry			lo ft.			0
		<u>Upst</u>	<u>ream</u>		<u>Downstream</u>		In Structure
Dominant Bed	Material		Sand		Sand		Sand
Bedrock Prese	nt		No		No		No
Type of Sedime	ent Deposits		Point		Side		Side
Elevation of se	ediment deposits >= 1/2	2	No		No		No
Bank Erosion			High		High		
Hard Bank Arm	noring	Fa	ailing		Failing		
Stream bed so	<u> </u>	Abutn	_		Abutments		
Beaver Dam no		·	No		No		
Beaver Dam di			0		0		
	()	,	_	ation	•		
			<u>Vegeta</u> ream		<u>Downstream</u>		In Structure
Dominant Veget	ation Type - Left	Upsi Herbaceous/			aceous/Grass		in Suuciale
Dominant Veget	* *	Road Embani			aceous/Grass		
Right	ation Type - shrub/forest vegetation 50					∩ft un/downst	ream?
Vegitation Band		o it. wide start within a	23 it. 0i No	and structure and	No	o it. up/downst	Cairi:
v egitation ballu	- LGIL		INO		INU		

No

No

Wildlife



Species

Stream Geomorphic Assessment

Agency of Natural Resouces

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Roadkill Outside Structure None

Other Information

Spatial location data collected with GPS? Yes

Photos taken? Yes

None

Comments Bridge with 1 pier. Right bank side of bridge (right side pier opening) is almost completely full of sediment. At

low	flow, all water is flowir	ng through left pier	opening.				
В	Bridge Summary Report					White	River
		Gene	eral Informati	<u>ion</u>			
SgalD	700000000609093	Local SgaID			VOBCIT		
Observers	WRP - cp,dr	Assessment Date	7/11/2019		struct_num Project Name	White River Branch	- Second
Town Location	Randolph VAST Bridge that is local			Γ. 14 state	Longitude Reach VTID	-72.55533 M11	
Road Name	bridge that is approxima	Road Type	Trail		Stream Name	Second Bra River	nch White
High Flow Stage	No		Channe	el Width		111101	58.9
5	0.5	<u>B</u>	ridge Informa			7 1	
Bridge Width	6.5 5.5		Material		ioro/oroboo	Timbe 0	er
Bridge Clearance Bridge/Arch Spar			Number	of bridge pi	iers/arches	U	
go				I to roadway	?	No	
	0 1	<u>Geoma</u>	orphic Informa	<u>ation</u>			
Floodplain filled by	<u>General</u> roadway approaches Upstream	Not Significant	Structure	e is located at	significant break in va	lley slope	No
	opening of the structure immediately upstream of	None No			rulsion would follow roa approaching structure	ad	Naturally Straight
If channel avulses,		Cross Road					-
Pool present immed	<u>Downstream</u> diately downstream of structu	ıre	No				
	neights are substantially high						
Pool Depth at point	of streamflow entry		No 0 ft.				0
		Upsti			<u>Downstream</u>		In Structure
Dominant Bed I	Material	Co	bble		Cobble		Cobble
Bedrock Preser	nt		No		No		No
Type of Sedime	ent Deposits	1	None		None		None
Elevation of sec	diment deposits >= 1/2		No		No		No
Bank Erosion		1	None		None		
Hard Bank Arm	oring	Fa	ailing		Failing		
Stream bed sco	our causing	1	None		None		
undermining are	ound or under structure	•					
Beaver Dam ne	ar Structure		No		No		
Beaver Dam dis	stance (ft.)		0		0		
		<u> </u>	/egetation				
					- .		

In Structure **Upstream Downstream**

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type -Shrub/Sapling Shrub/Sapling

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No



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Vegitation Band -Right

Species

Road Name

No

No

Wildlife

Roadkill Outside Structure None None

Inside Structure None

Other Information

Spatial location data collected with GPS? No

Photos taken?

Comments VAST bridge

Bridge Summary Report

White River

General Information

100000000809031 Local SgalD **VOBCIT** SgalD

struct_num

WRP - cp,dr Assessment Date Observers 7/11/2019 **Project Name**

White River - Second Branch

Town **Brookfield** Latitude 44.01862 Lonaitude Location This bridge is located on Locke Ln. in Brookfield, VT. The bridge is

-72.57398 Reach VTID M14

about .2 miles down Locke Lane from the RT-14 intersection. Road Type

Second Branch White Stream Name

River

No

Gravel Channel Width 47.9 High Flow Stage Nο

Bridge Information

14 Material Timber Bridge Width **Bridge Clearance** 5 Number of bridge piers/arches 0

20 Bridge/Arch Span

> Skewed to roadway? **Geomorphic Information**

General

Upstream

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope Nο

Obstructions at the opening of the structure None Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure Channelized Nο Straight

structure Cross Road If channel avulses, stream will

<u>Downstream</u>

Pool present immediately downstream of structure No

Downstream bank heights are substantially higher than upstream bank No

Pool Depth at point of streamflow entry

No

Upstream Downstream In Structure **Dominant Bed Material** Gravel Gravel Gravel Bedrock Present No No Nο Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion None None

Intact Hard Bank Armoring Intact

Stream bed scour causing None None

undermining around or under structure

Beaver Dam near Structure No No 0

Beaver Dam distance (ft.) 0

Vegetation

Upstream In Structure Downstream

Dominant Vegetation Type - Left Herbaceous/Grass Shrub/Sapling Dominant Vegetation Type -Shrub/Sapling Herbaceous/Grass

Right





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38.9

Gravel

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Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No Vegitation Band -Right Yes Yes

Wildlife

Roadkill Outside Structure Inside Structure

struct num

Species None None None

Other Information

Photos taken? Spatial location data collected with GPS? Yes Yes

Comments Stacked stone abutment with timber bridge.

White River **Bridge Summary Report**

General Information

700000000209031 SgalD Local SgalD VOBCIT

WRP - cp,dr Assessment Date 7/9/2019 **Project Name** White River - Second Observers

Branch Town **Brookfield** 44.03134 Longitude -72.56850

M15 Location This bridge is located approximately 800 feet northeast of the RT 65 Reach VTID

and RT 14 intersection.

Stream Name Road Name Road Type Second Branch White Trail

River High Flow Stage No Channel Width

Bridge Information

8 Material Timber Bridge Width **Bridge Clearance** 1.5 Number of bridge piers/arches

Bridge/Arch Span 12 Skewed to roadway? Yes

Geomorphic Information

<u>General</u>

Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No

Upstream Obstructions at the opening of the structure Wood debris.

Estimated distance avulsion would follow road Deformation

Steep riffle present immediately upstream of No Angle of stream flow approaching structure Channelized

Straight structure

If channel avulses, stream will Cross Road

Downstream

Pool present immediately downstream of structure No

Downstream bank heights are substantially higher than upstream bank Yes

Pool Depth at point of streamflow entry

No 0

0 ft. **Upstream Downstream** In Structure

Sand

Bedrock Present No No No Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Dominant Bed Material

Bank Erosion Low Low Hard Bank Armoring None None

Stream bed scour causing None undermining around or under structure

Beaver Dam near Structure No No

0 0 Beaver Dam distance (ft.)

Vegetation

Downstream In Structure Upstream

Sand

None



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Dominant Vegetation Type - Left Herbaceous/Grass Dominant Vegetation Type -Herbaceous/Grass Herbaceous/Grass Herbaceous/Grass

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments This timber bridge has a crushed tank culvert underneath it. The culvert no longer functions as intended as water can out flank the structure. Culvert in this state manly acts as an obstruction to the bridge.

Bridge Summary Report

White River

700000000509031 SgaID Local SgalD VOBCIT struct num

WRP - cp.dr Assessment Date 7/9/2019 White River - Second Observers **Project Name Branch**

44.03874 -72.56609 Town **Brookfield** Latitude Longitude Location Farm Bridge located on Sprague Farm behind their large barns. Reach VTID M15

Road Name Road Type Trail Stream Name Second Branch White

River

37.7 High Flow Stage No Channel Width

Bridge Information 8 Bridge Width

Material Timber

Bridge Clearance 5 Number of bridge piers/arches 0 Bridge/Arch Span 12

Skewed to roadway? No

Geomorphic Information

General **Partially** Structure is located at significant break in valley slope Floodplain filled by roadway approaches No

> Upstream Estimated distance avulsion would follow road None

Obstructions at the opening of the structure Steep riffle present immediately upstream of Angle of stream flow approaching structure Mild Bend No

structure If channel avulses, stream will Cross Road

Downstream

Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank Nο

Pool Depth at point of streamflow entry No 0

Upstream Downstream In Structure **Dominant Bed Material** Cobble Cobble Cobble **Bedrock Present** No No No Type of Sediment Deposits None **Point** None

Elevation of sediment deposits >= 1/2 No No No

bankfull

None **Bank Erosion** None Failing Failing Hard Bank Armoring **Footers Footers** Stream bed scour causing

undermining around or under structure

Beaver Dam near Structure No No 0 0 Beaver Dam distance (ft.)



VT DEC

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<u>Vegetation</u>

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass

Dominant Vegetation Type - Herbaceous/Grass Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftNoNoVegitation Band -RightNoNo

Wildlife Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Timber farm bridge with wood deck and a metal frame gate/siding on the bridge. Looks to be a cattle bridge.

Bridge Summary Report White River

General Information

SgalD **70000000109031** Local SgalD VOBCIT

struct_num

Observers WRP - cp,dr Assessment Date 8/23/2019 Project Name White River - Second

Town Brookfield Latitude 44.00422 Longitude -72.56567
Location This private bridge is along the trail road that is directly across RT. 14 Reach VTID M13

from Willow Grove Ln. in Brookfield VT.

Road Name Road Type **Trail** Stream Name **Second Branch White**

River

High Flow Stage No Channel Width 51.9

Bridge Information

Bridge Width 14.5 Material Steel
Bridge Clearance 6 Number of bridge piers/arches 0

Bridge/Arch Span 17.2 Skewed to roadway? No

Geomorphic Information

General
Floodplain filled by roadway approaches
Entirely
Structure is located at significant break in valley slope
No

<u>Upstream</u>

Obstructions at the opening of the structure Steep riffle present immediately upstream of No Estimated distance avulsion would follow road Angle of stream flow approaching structure Mild Bend

structure

If channel avulses, stream will Cross Road

<u>Downstream</u>
Pool present immediately downstream of structure

Downstream bank heights are substantially higher than upstream bank heights

Pool Depth at point of streamflow entry

Yes

0

UpstreamDownstreamIn StructureDominant Bed MaterialGravelGravelSandBedrock PresentNoNoNoType of Sediment DepositsPointPointNone

Yes

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank ErosionLowHighHard Bank ArmoringFailingFailingStream bed scour causingAbutments, FootersAbutments, Footers

undermining around or under structure

Beaver Dam near Structure No No



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Beaver Dam distance (ft.)

Vegetation

In Structure **Upstream Downstream**

0

Dominant Vegetation Type - Left Shrub/Sapling Shrub/Sapling

Dominant Vegetation Type -Shrub/Sapling Shrub/Sapling

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Concrete waste blocks on top of old timbers, then 4 I-beams with a wood deck.

White River **Bridge Summary Report**

General Information

700000000214163 SgalD Local SgalD VOBCIT

struct num

WRP-cp,dr 7/16/2019 White River - Second Observers Assessment Date **Project Name Branch**

Town Latitude 43.82587 Longitude -72.56650 Rovalton

Location VAST Bridge in between Route 107 and Railroad Bridge. 2nd to last Reach VTID M01

bridge before confluence of second branch and main stem.

Road Name Second Branch White Road Type Trail Stream Name

River

No Channel Width 87.2 High Flow Stage **Bridge Information**

9.5 Material Steel Bridge Width **Bridge Clearance** 11.5 Number of bridge piers/arches 0

Bridge/Arch Span 70 Skewed to roadway? No

Geomorphic Information

<u>General</u>

Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No **Upstream**

Obstructions at the opening of the structure Estimated distance avulsion would follow road None

Steep riffle present immediately upstream of Angle of stream flow approaching structure Mild Bend No

structure If channel avulses, stream will **Cross Road**

Downstream

Pool present immediately downstream of structure Yes No

Downstream bank heights are substantially higher than upstream bank

No 0 Pool Depth at point of streamflow entry 0 ft.

Upstream Downstream In Structure Cobble Cobble **Dominant Bed Material** Gravel Bedrock Present Yes Yes Yes Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion Low None Hard Bank Armoring None None None None



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Stream bed scour causing

undermining around or under structure

Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Deciduous Forest Shrub/Sapling

Dominant Vegetation Type - Herbaceous/Grass Shrub/Sapling

Right

SgalD

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftYesYesVegitation Band -RightNoNo

Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments I-Beams sitting on large waist-blocks. Timber decking is failing. Saw rainbow trout in pool under bridge.

Bridge Summary Report

White River

70000000709093 Local SgalD VOBCIT struct_num

Observers WRP - cp,dr Assessment Date 7/29/2019 Project Name White River - Second

Branch

Town Randolph Latitude 43.97502 Longitude -72.55441 Location Located on private property that is adjacent to RT. 14. The river Reach VTID M11

follows along the right side of RT. 14 (when heading North). The

bridge is approximately 350 feet to the left of Rt. 14 and it is located

about 500 feet north of N. Randolph Rd.

Road Name Road Type **Trail** Stream Name **Second Branch White**

River

High Flow Stage No Channel Width 55.17

Bridge Information

Bridge Width 6.5 Material Timber
Bridge Clearance 3 Number of bridge piers/arches 1
Bridge/Arch Span 45

Skewed to roadway? No

Geomorphic Information

General
Floodplain filled by roadway approaches
Partially
Structure is located at significant break in valley slope
No

Upstream
Obstructions at the opening of the structure
Wood debris
Estimated distance avulsion would follow road

Steep riffle present immediately upstream of No Angle of stream flow approaching structure Naturally structure Straight

If channel avulses, stream will Cross Road

Downstream

Pool present immediately downstream of structure

Downstream bank heights are substantially higher than upstream bank

No

No

Pool Depth at point of streamflow entry

No
0

UpstreamDownstreamIn StructureDominant Bed MaterialSandBoulderBedrockBedrock PresentNoYesYesType of Sediment DepositsNoneNoneNone

No No No



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Elevation of sediment deposits >= 1/2

bankfull

Bank Erosion Low Low **Failing** Hard Bank Armoring **Failing** Stream bed scour causing **Abutments Abutments** undermining around or under structure Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

In Structure Upstream **Downstream**

Deciduous Forest Deciduous Forest Dominant Vegetation Type - Left Dominant Vegetation Type -**Deciduous Forest Deciduous Forest**

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Yes No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure Inside Structure None None Species None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Log stringer bridge. Has a stacked stone pier that is about 20 ft. from river left and 10 ft. from river right. Left abutment is higher than the right abutment. 3 ft. clearance river left, double the clearance on river right.

Bridge Summary Report

White River

No

<u>General</u>	<u>Informa</u>	<u>tion</u>

400000000009031 SgalD Local SgalD VOBCIT struct num

Project Name WRP - cp,dr Assessment Date 7/11/2019 White River - Second Observers **Branch**

Brookfield 44.00956 Longitude -72.56774 Town Latitude Location Bridge along McKeage Rd. in Brookfield, VT. Reach VTID M13

Road Name MCKEAGE RD Road Type Gravel Stream Name Second Branch White

River

High Flow Stage Nο Channel Width 51.49

Bridge Information 16 Material

Steel Bridge Width Bridge Clearance 5.3 Number of bridge piers/arches 0

Bridge/Arch Span 18

> Skewed to roadway? No

> > Geomorphic Information

General **Partially** Floodplain filled by roadway approaches Structure is located at significant break in valley slope

Upstream Obstructions at the opening of the structure None Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure **Sharp Bend** No structure

Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure No Downstream bank heights are substantially higher than upstream bank No

heights

Pool Depth at point of streamflow entry No 0 0 ft.

Upstream Downstream In Structure **Dominant Bed Material** Gravel Gravel Gravel

Bedrock Present No No No



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Type of Sediment Deposits Side Side None Elevation of sediment deposits >= 1/2 No No No bankfull **Bank Erosion** Low Low Hard Bank Armoring Failing Failing Wing walls, Wing walls, Abutments Stream bed scour causing undermining around or under structure **Abutments** Beaver Dam near Structure No No 0 Beaver Dam distance (ft.) 0 **Vegetation Upstream Downstream** In Structure Herbaceous/Grass Shrub/Sapling Dominant Vegetation Type - Left Shrub/Sapling Dominant Vegetation Type -Herbaceous/Grass Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream? Vegitation Band - Left No No Vegitation Band -Right No No Wildlife Roadkill Outside Structure Inside Structure **Species** None Deer - Tracks None Other Information Spatial location data collected with GPS? Yes Photos taken? Yes Comments River is littered with old stone upstream, under, and downstream of the bridge. Bridge sits on concrete

abutment with steel I-beams and a wood deck.

Bridge Summary Report

White River

		<u>Gene</u>	eral Information			
SgalD	990014000009091	Local SgalD		VOBCIT		
			= //4/0040	struct_num		
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White Rive Branch	r - Second
Town	Randolph	Latitude	43.96565	Longitude	-72.55494	
Location	Bridge is along RT-14 a			Reach VTID	M11	
Road Name	ROŬTE 14 N	Road Type	Paved	Stream Name	Second Bra	anch White
					River	
High Flow Stage	No	-	Channel Width			58.85
D : 1 140 to	22	_	Bridge Information		Ct	
Bridge Width	33		Material	. , .	Stee	!
Bridge Clearance			Number of bridge	e piers/arches	0	
Bridge/Arch Spar	n 80		01 11 1	0	V	
		0	Skewed to roadv	vay?	Yes	
	6	Geome	orphic Information			
Eloodoloin filled by	<u>General</u> roadway approaches	Entirely	Ctructure is lesster	d at significant break in v	allov alono	No
Floouplain filled by	Upstream	Entirely	Structure is located	a at Significant break in v	alley slope	NO
Obstructions at the	opening of the structure	None	Estimated distance	avulsion would follow re	oad	
	immediately upstream of	No	Angle of stream flo	w approaching structure	:	Mild Bend
structure	-t	O D				
If channel avulses,		Cross Road				
Pool present immer	<u>Downstream</u> diately downstream of struct	turo	Yes			
	neights are substantially hig					
heights	.o.go a.o oazotaa,g	aponod ba				
	of streamflow entry		No 0 ft.			0
		<u>Upst</u>	<u>ream</u>	<u>Downstream</u>		In Structure



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Dominant Bed Material	Gravel	Cobble	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	None	None
Elevation of sediment deposits >= 1/2	No	No	No

bankfull **Bank Erosion** High None Hard Bank Armoring **Failing Failing**

None Stream bed scour causing None undermining around or under structure Beaver Dam near Structure No No

0 0 Beaver Dam distance (ft.)

Vegetation

In Structure Upstream **Downstream**

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass Shrub/Sapling Shrub/Sapling Dominant Vegetation Type -

Right Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure Inside Structure Species None None None

Other Information

Photos taken? Spatial location data collected with GPS? Yes Yes

Comments

White River **Bridge Summary Report**

General Information

SgalD 700000000309033 Local SgalD VOBCIT struct num WRP - cp,dr Assessment Date 8/23/2019 **Project Name** White River - Second Observers

Branch Town **Brookfield** Latitude 43.99492 Longitude -72.55965 Bridge is located behind auto yard along Rt. 14 that is located just Location Reach VTID M12

north of Willis Rd. in Brookfield.

Road Name Road Type Trail Stream Name Second Branch White River

Channel Width 52.59 High Flow Stage No **Bridge Information**

12 Material Steel Bridge Width **Bridge Clearance** 5.1 Number of bridge piers/arches 0 Bridge/Arch Span 21 Skewed to roadway? No

Geomorphic Information

General Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No

<u>Upstream</u> Wood debris Obstructions at the opening of the structure Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure **Sharp Bend** No

structure Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No

Pool Depth at point of streamflow entry 0 No



Vegitation Band - Left

Vegitation Band -Right

Road Name

Stream Geomorphic Assessment

VT DEC

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0 ft.

	<u>Upstream</u>	<u>Downstream</u>	In Structure		
Dominant Bed Material	Cobble	Cobble	Sand		
Bedrock Present	No	No	No		
Type of Sediment Deposits	None	None	None		
Elevation of sediment deposits >= 1/2 bankfull	No	No	No		
Bank Erosion	None	None			
Hard Bank Armoring	Intact	Intact			
Stream bed scour causing undermining around or under structure	None	None			
Beaver Dam near Structure	Yes				
Beaver Dam distance (ft.)	1	0			
	<u>Vegetation</u>				
	<u>Upstream</u>	<u>Downstream</u>	In Structure		
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass			
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass			
Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?					

<u>Wildlife</u>

 Roadkill
 Outside Structure
 Inside Structure

 Species
 None
 Beaver - Feeding Signs
 Beaver - Lodge

No

No

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Beaver dam at inlet of bridge. Bridge sits on concrete waste blocks with steel I-beams and a wood/grate metal deck. Long timbers span each side of the bridge deck.

Bridge Summary Report

Road Type

White River

Second Branch White

Mild Bend

No

No

Stream Name

		<u>Gene</u>	<u>erai information</u>		
SgalD	700000000709033	Local SgalD		VOBCIT struct num	
Observers	WRP - cp,dr	Assessment Date	7/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.02465	Longitude	-72.57287
Location	have the following addre	oridge sits behind the houses (west of the houses) that owing address range: lain St, Brookfield, VT 05036.			M14

High Flow Stage No Channel Width 47.5

Bridge Information

Trail

Bridge Width 8 Material Steel
Bridge Clearance 3.7 Number of bridge piers/arches 0
Bridge/Arch Span 40
Skewed to roadway? No

Geomorphic Information

General
Floodplain filled by roadway approaches
Upstream

Not Significant
Structure is located at significant break in valley slope
No

Obstructions at the opening of the structure Steep riffle present immediately upstream of No Estimated distance avulsion would follow road Angle of stream flow approaching structure

structure
If channel avulses, stream will

Cross Road

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Downstream

Pool present immediately downstream of structure

Downstream bank heights are substantially higher than upstream bank
heights

No

Pool Depth at point of streamflow entry

No
0 ft.

0

Upstream Downstream In Structure Cobble **Dominant Bed Material** Cobble Cobble No **Bedrock Present** No No Side None None Type of Sediment Deposits Elevation of sediment deposits >= 1/2 No No No

bankfull **Bank Erosion** Low Low None None Hard Bank Armoring Stream bed scour causing None None undermining around or under structure Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Deciduous Forest Shrub/Sapling
Dominant Vegetation Type - Deciduous Forest Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftNoNoVegitation Band -RightNoNo

Wildlife

RoadkillOutside StructureInside StructureSpeciesNoneNoneNone

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Footbridge. Appears to be a pinch point in the river, the bridge does not sit on abutments but instead the banks of each side of the river. Bridge is made of steel I-beams with a deck and railings made of wood.

Culvert Summary Report White River

General Information

SgalD 70000000409031 Local SgalD VOBCIT struct num

Observers WRP - cp,dr Assessment Date 7/8/2019 Project Name White River - Second Branch

Town Brookfield Latitude 44.03699 Longitude -72.56611 Location Culvert on the Sprague Farm property. Reach VTID M15

Road Name Road Type **Trail** Stream Name **Second Branch White**

River

High Flow Stage No Channel Width 37.8

Culvert Information

Culvert Length 20 Material Steel Corrugated

Culvert Height 6.5 Number of culverts 1
Culvert Width 7 Culvert Overflow Pipe No
Skewed to roadway? No

Geomorphic Information

<u>General</u>

Floodplain filled by roadway approaches Partially Structure is located at significant break in valley slope No

<u>Upstream</u> Culvert slope as compared with channel slope is significantly **Same**

Obstructions at the opening of the structure

None

Estimated distance avulsion would follow road

Angle of stream flow approaching structure

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March. 18 2021 Channelized Straight

Steep riffle present immediately upstream of structure

If channel avulses, stream will

Cross Road

Downstream

Pool present immediately downstream of structure Yes Water depth in culvert (at outlet) 1.5 At Grade Downstream bank heights are substantially higher than upstream bank No Culvert outlet invert 1.5 ft.

Stepped Footers Backwater Length (measured from outlet) Maximum pool depth 3.5 ft. Backwater Length (measured from outlet) n Upstream Downstream

In Structure Gravel Cobble Cobble **Dominant Bed Material**

Bedrock Present No No

Type of Sediment Deposits None Mid-channel None Yes

Material Present throughout

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion Low Low Failing Failing Hard Bank Armoring

Stream bed scour causing Culvert Culvert undermining around or under structure

Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

Upstream Downstream In Structure

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type -Herbaceous/Grass Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure Inside Structure

None None None Species

Other Information

Photos taken? Spatial location data collected with GPS? Yes Yes

Comments Farm culvert placed on Sprague Farm property. Appears to be no active road over culvert structure.

White River **Bridge Summary Report**

General Information

200014000114162 SgalD Local SgalD **VOBCIT** struct num

White River - Second Observers WRP - cp,dr Assessment Date 7/15/2019 **Project Name**

Branch Town Rovalton Latitude 43.84209 Longitude -72.58583 Bridge located along VT-14 about 1.5 miles north of VT-14 and VT-Reach VTID M02 Location

107 intersection.

Second Branch White Road Name **ROUTE 14** Road Type Paved Stream Name

River

85.02 High Flow Stage No Channel Width

Bridge Information Bridge Width 30 Material Steel

Bridge Clearance 0 11.5 Number of bridge piers/arches Bridge/Arch Span 133 Skewed to roadway? Yes

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No



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Naturally

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road
Steep riffle present immediately upstream of	Yes	Angle of stream flow approaching structure
structure If channel avulses, stream will	Cross Road	

Straight

Downstream Pool present immediately downstream of structure

No Downstream bank heights are substantially higher than upstream bank No heiahts

l Instraam

No Pool Depth at point of streamflow entry

0 0 ft. **Upstream Downstream** In Structure

Dominant Bed Material Sand Sand Sand Bedrock Present No No No Type of Sediment Deposits Side None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion None Low Hard Bank Armoring Intact Intact Stream bed scour causing None None

undermining around or under structure Beaver Dam near Structure No No

0 0 Beaver Dam distance (ft.)

Vegetation

Upstream In Structure Downstream

Deciduous Forest Herbaceous/Grass Dominant Vegetation Type - Left Herbaceous/Grass **Deciduous Forest** Dominant Vegetation Type -

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Yes No Vegitation Band -Right No Yes

Wildlife

Roadkill **Outside Structure** Inside Structure None None **Species** None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Bridge Number: VT-27. Stamps on bridge indicate it was constructed/redone in 2015. Rusty crayfish spotted underneath structure.

> White River **Bridge Summary Report**

> > **General Information**

SgalD 700000000509093 Local SgalD **VOBCIT** struct num

Observers WRP - cp.dr Assessment Date 7/11/2019 **Project Name** White River - Second

Branch 43.96021 -72.55133 Longitude Town Randolph Latitude This bridge is located 50 feet downstream of the VT-14 bridge that is Reach VTID Location M11

about 1,500 feet south of Ferris Rd.

Road Name Stream Name Second Branch White Road Type Trail

High Flow Stage No Channel Width 59.2 **Bridge Information**

12.5 Timber Bridge Width Material 7.5 **Bridge Clearance** Number of bridge piers/arches Bridge/Arch Span 50

Skewed to roadway? No



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Geomorphic Information

<u>General</u> Floodplain filled by roadway approaches	Not Significant	Structure is loc	cated at significant break i	in vallev slope	No	
Upstream	rtot olgrinioant		satou at organicant broak	iii valley olope		
Obstructions at the opening of the structure Steep riffle present immediately upstream of structure	None No		ance avulsion would follow flow approaching struct		Naturally Straight	
If channel avulses, stream will	Cross Road				Suaigni	
<u>Downstream</u>						
Pool present immediately downstream of structure Downstream bank heights are substantially higher theights	han upstream bank	No No				
Pool Depth at point of streamflow entry		No 0 ft.			0	
	<u>Upstream</u>	<u>1</u>	<u>Downstream</u>		In Structure	
Dominant Bed Material	Cobble	•	Cobble		Cobble	
Bedrock Present	No		No		No	
Type of Sediment Deposits	None	e	Side		None	
Elevation of sediment deposits >= 1/2 bankfull	No)	No		No	
Bank Erosion	None	•	None			
Hard Bank Armoring	Failing	3	Failing			
Stream bed scour causing undermining around or under structure	None	•	None			
Beaver Dam near Structure	No)	No			
Beaver Dam distance (ft.)	()	0			
	<u>Vege</u>	etation				
	Upstream	<u>1</u>	<u>Downstream</u>		In Structure	
Dominant Vegetation Type - Left	Deciduous Fores	t	Deciduous Forest			
Dominant Vegetation Type - Right	Deciduous Fores	t	Shrub/Sapling			
Does a band of shrub/forest vegetation 50 ft. v	vide start within 25 ft.	of the structur	re and extend at least 5	500 ft. up/downs	stream?	
Vegitation Band - Left	Yes	S	Yes			
Vegitation Band -Right	Yes	3	No			
	Wi	ldlife				
	Roadkil		Outside Structure	ı	nside Structure	
Species	None	_	None	-	None	
Other Information						
Spatial location data collected with GPS? Yes		Photos taken?	Y	es		
Comments Wood deck of bridge is deteriorating, appears that deck may be unsafe for crossing.						
Bridge Summary Report White River						

Bridge Summary Report			wnite River		
		Gene	eral Information		
SgalD	200014000014161	Local SgalD		VOBCIT struct num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town Location Road Name	Royalton This bridge is along VT- ROUTE 14	Latitude 14 directly north of N Road Type	43.84885 Morse Road. Paved	Longitude Reach VTID Stream Name	-72.58811 M03 Second Branch White River
High Flow Stage	No	Е	Channel Width Bridge Information		84.66
Bridge Width	32	_	Material		Steel
Bridge Clearance Bridge/Arch Span			Number of bridge	piers/arches	0



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Skewed to roadway?

Geomor	<u>ohic In</u>	<u>format</u>	<u>ion</u>

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No <u>Upstream</u> Obstructions at the opening of the structure None Estimated distance avulsion would follow road Steep riffle present immediately upstream of Angle of stream flow approaching structure Sharp Bend Yes structure If channel avulses, stream will Unsure **Downstream** Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No 0 Pool Depth at point of streamflow entry No 0 ft. Upstream Downstream In Structure **Dominant Bed Material Bedrock Bedrock** Gravel **Bedrock Present** Yes Yes Yes Type of Sediment Deposits None Side None Elevation of sediment deposits >= 1/2 No No No bankfull **Bank Erosion** Low None Hard Bank Armoring Intact Intact Stream bed scour causing None None undermining around or under structure Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0 **Vegetation** Upstream Downstream In Structure Dominant Vegetation Type - Left Herbaceous/Grass **Deciduous Forest Deciduous Forest**

Dominant Vegetation Type -Herbaceous/Grass

General

Riaht Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Vegitation Band -Right

Bridge Width

No Yes

Yes

Wildlife

Roadkill

Outside Structure **Inside Structure**

No

Yes

Turtle Species None None

Other Information

Spatial location data collected with GPS? Yes

Photos taken?

Comments Bridge sits over location of a removed dam. Step ledge slide from start of bridge down to a deep scour pool at bridge outlet. Popular fishing location.

Bridge Summary Report

White River

White River - Second

Concrete

General Information

200014000009092 SgalD Local SgalD **VOBCIT**

struct num WRP - cp,dr Observers Assessment Date 7/11/2019 **Project Name**

Branch -72.55162 Town Randolph Latitude 43.96022 Longitude

Bridge is along Rt. 14 approximately 1,500 feet south of Ferris Rd. Reach VTID Location M11

Paved Road Name **ROUTE 14 N** Road Type Stream Name Second Branch White

River

No Channel Width 59.2 High Flow Stage

Bridge Information 18 Material



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No

0

Sharp Bend

Yes

Bridge Clearance 15 Bridge/Arch Span 36

Skewed to roadway?

Number of bridge piers/arches

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope

Obstructions at the opening of the structure

None Estimated distance avulsion would follow road Steep riffle present immediately upstream of Angle of stream flow approaching structure No

structure

Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure No Downstream bank heights are substantially higher than upstream bank Nο

Pool Depth at point of streamflow entry No 0 ft.

Upstream Downstream In Structure **Dominant Bed Material** Cobble Cobble Cobble Bedrock Present No No No Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion None None Hard Bank Armoring Failing Failing Stream bed scour causing None None undermining around or under structure

Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

Upstream Downstream In Structure

Dominant Vegetation Type - Left **Deciduous Forest Deciduous Forest Deciduous Forest** Shrub/Sapling Dominant Vegetation Type -

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Yes Yes Vegitation Band -Right Yes No

Wildlife

Roadkill Outside Structure **Inside Structure** None None None Species

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Concrete on bridge (side walls) is crumbling in places.

White River **Bridge Summary Report**

General Information

SgalD 200107000014162 Local SgalD **VOBCIT** struct num

WRP - cp,dr Assessment Date 7/15/2019 White River - Second Observers **Project Name**

Branch Town Royalton Latitude 43.82713 Longitude -72.56698 VT-107 bridge. At intersection of VT -14 and VT-107. Reach VTID M01 Location

Road Name **ROUTE 107** Second Branch White Road Type Stream Name Paved

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River High Flow Stage No

Bridge Information

87.2

Channel Width



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Steel

2

No

Bridge Width Bridge Clearance Bridge/Arch Span 30 35 150

Number of bridge piers/arches

Skewed to roadway?

Geomorphic Information

General

Floodplain filled by roadway approaches **Upstream** **Entirely**

Structure is located at significant break in valley slope

No

Obstructions at the opening of the structure

Steep riffle present immediately upstream of

Deformation

Cross Road

Estimated distance avulsion would follow road Angle of stream flow approaching structure

Mild Bend

structure

If channel avulses, stream will

Downstream

Pool present immediately downstream of structure Downstream bank heights are substantially higher than upstream bank

heights

Pool Depth at point of streamflow entry

No No Nο

0

0 ft.

Upstream Downstream In Structure Cobble Cobble Cobble **Dominant Bed Material Bedrock Present** Yes No No Side Type of Sediment Deposits None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion None High Hard Bank Armoring Failing Failing Stream bed scour causing None None

undermining around or under structure

Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

Upstream Downstream In Structure

Dominant Vegetation Type - Left **Deciduous Forest Deciduous Forest**

Dominant Vegetation Type -

Deciduous Forest

Shrub/Sapling

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream? Vegitation Band - Left Yes Yes

Vegitation Band -Right

No

Wildlife

No

Inside Structure

Species

Roadkill Outside Structure None None

None

Other Information

Spatial location data collected with GPS? Yes

Photos taken?

Yes

Comments Due to size of bridge and traffic while taking measurements, the span of the bridge and the clearance of the bridge were measured using laser distance measure.

Culvert Summary Report

White River

General Information

200014000009031 **VOBCIT** SgaID Local SgalD struct num

Observers WRP - cp,dr Assessment Date 7/11/2019 **Project Name**

White River - Second Branch

-72.55705 **Brookfield** Town 43.98673 Longitude Latitude Location This culvert crosses RT-14 in Brookfield, VT at approximately 1 mile Reach VTID M12

north of the RT. 14 and N. Randolph Rd. intersection.

Road Name **ROUTE 14** Road Type Paved Stream Name

VT DEC • 103 South Main Street • Waterbury, VT 05671





Agency of Natural Resouces

Vermont.gov

March, 18 2021 Second Branch White River

High Flow Stage	No	Channel Width	54.4
		Culvert Information	

150 Material Steel Corrugated Culvert Length

Culvert Height 11.2 Number of culverts Culvert Width Culvert Overflow Pipe No 17 Skewed to roadway? Yes

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No Culvert slope as compared with channel slope is significantly Same

Upstream Estimated distance avulsion would follow road

Obstructions at the opening of the structure None

Steep riffle present immediately upstream of Mild Bend Angle of stream flow approaching structure No structure

If channel avulses, stream will

Cross Road

Downstream

1.2 Pool present immediately downstream of structure No Water depth in culvert (at outlet) Downstream bank heights are substantially higher than upstream bank Culvert outlet invert At Grade No heights

0 ft. 0 Stepped Footers Backwater Length (measured from outlet) Maximum pool depth 0 ft. Backwater Length (measured from outlet)

In Structure **Upstream Downstream** Gravel Cobble Dominant Bed Material Gravel

Bedrock Present No No

Type of Sediment Deposits None None None Material Present throughout Yes

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion Low Low Hard Bank Armoring **Failing Failing** Stream bed scour causing None None

undermining around or under structure

No No Beaver Dam near Structure Beaver Dam distance (ft.) 0 0

Vegetation

Upstream Downstream In Structure

Shrub/Sapling Shrub/Sapling Dominant Vegetation Type - Left

Shrub/Sapling Dominant Vegetation Type -Shrub/Sapling

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No Yes Vegitation Band -Right Yes No

Wildlife

Roadkill Outside Structure Inside Structure

None None None Species

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Upstream bed material in culvert was cobble, transitioned to sand in downstream section of culvert. Culvert width is undersized for stream size.

> White River **Bridge Summary Report**

> > **General Information**

700000000809033 Local SgalD **VOBCIT** SgalD struct_num

Observers WRP - cp,dr Assessment Date 7/11/2019 **Project Name** White River - Second

Branch





Agency of Natural Resouces

Vermont.gov

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0

Town Brookfield Latitude 44.02603 Longitude -72.57191 Location This farm bridge is set about 200 feet to the west of Rt. 14. The Reach VTID M14

bridge is about 200 feet south of the intersection between Rt. 14 and

East Hill Rd.

Road Name Road Type **Trail** Stream Name **Second Branch White**

River

High Flow Stage No Channel Width 47.46
Bridge Information

Bridge Width 5 Material Timber

Bridge Clearance 4 Number of bridge piers/arches 0
Bridge/Arch Span 30

Bridge/Arch Span 30 Skewed to roadway? No

Geomorphic Information

General
Floodplain filled by roadway approaches
Not Significant
Structure is located at significant break in valley slope
No

Upstream
Obstructions at the opening of the structure
None
Estimated distance avulsion would follow road

Steep riffle present immediately upstream of No Angle of stream flow approaching structure Channelized Structure Straight

If channel avulses, stream will Cross Road

<u>Downstream</u>

Pool present immediately downstream of structure

No
Downstream bank heights are substantially higher than upstream bank

No

heights

Pool Depth at point of streamflow entry

No
0 ft.

UpstreamDownstreamIn StructureDominant Bed MaterialCobbleCobbleCobbleBedrock PresentNoNoNoType of Sediment DepositsNoneNoneNone

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank ErosionNoneNoneHard Bank ArmoringNoneNoneStream bed scour causingNoneNone

undermining around or under structure

Beaver Dam near Structure No No

Beaver Dam distance (ft.) 0

Vegetation

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass

Dominant Vegetation Type - Herbaceous/Grass Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftNoNoVegitation Band -RightNoNo

Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Farm bridge with concrete blocks as abutments and timbers for the deck. Waste block abutments are placed up out of the stream above the banks (similar to designs seen on GMNF). No established buffer along river stretch but local farmer is trying to reestablish butternut population.

Bridge Summary Report

White River



Agency of Natural Resouces

Vermont.gov March, 18 2021

General Information

VOBCIT 200014000109031 Local SgalD SgalD struct num

Observers WRP - cp,dr Assessment Date 7/11/2019 **Project Name** White River - Second **Branch**

Brookfield Latitude 44.02673 -72.57104 Town Longitude Location Bridge is along Rt-14, right near the intersection of Rt-14 and East Reach VTID M14

Hill Rd.

ROUTE 14 Road Name Road Type Stream Name Second Branch White Paved

River

47.16 High Flow Stage No Channel Width

Bridge Information

31 Material Concrete Bridge Width

Bridge Clearance 5.2 Number of bridge piers/arches Bridge/Arch Span 20

Skewed to roadway? Yes

Geomorphic Information

General Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No

None

Obstructions at the opening of the structure Estimated distance avulsion would follow road Steep riffle present immediately upstream of Angle of stream flow approaching structure **Sharp Bend** No

structure If channel avulses, stream will Unsure

Downstream

Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank Yes

heights

Pool Depth at point of streamflow entry No

0 ft.

Upstream Downstream In Structure **Dominant Bed Material** Cobble Cobble Cobble Bedrock Present No No No Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No Nο

bankfull

Bank Erosion Low Low Hard Bank Armoring **Failing Failing** Stream bed scour causing Footers, Wing walls **Footers**

undermining around or under structure

Beaver Dam near Structure No No 0

Beaver Dam distance (ft.) 0

Vegetation

In Structure Upstream Downstream

Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type - Left Herbaceous/Grass

Shrub/Sapling Dominant Vegetation Type -

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure **Inside Structure**

None None Species None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Concrete bridge with large wing walls. Opening is only 20 feet, appears to be very undersized.



VT DEC

Agency of Natural Resouces

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White River

0

Bridge Summary Report

General Information

SgalD	70000000409033	Local SgalD	VOBCIT
			struct num

Observers WRP - cp,dr Assessment Date 8/23/2019 Project Name White River - Second

Town Brookfield Latitude 43.99969 Longitude -72.56357
Location This farm bridge is set approximately 500 ft. west of the house block Reach VTID M13

of 111-181 Main St Brookfield, VT 05036.

Road Name Road Type **Trail** Stream Name **Second Branch White**

River

High Flow Stage No Channel Width 53.13

Bridge Information

Bridge Width 15.5 Material Steel
Bridge Clearance 4.4 Number of bridge piers/arches 0
Bridge/Arch Span 16

Bridge/Arch Span 16
Skewed to roadway? Yes

Geomorphic Information

<u>General</u>

Floodplain filled by roadway approaches

Partially

Structure is located at significant break in valley slope

No

<u>Upstream</u>
the structure **Wood debris** Estimated distance avulsion would follow road

Obstructions at the opening of the structure Steep riffle present immediately upstream of No Estimated distance avulsion would follow road Angle of stream flow approaching structure

Steep riffle present immediately upstream of structure Angle of stream flow approaching structure Sharp Bend structure

If channel avulses, stream will Cross Road

<u>Downstream</u>

Pool present immediately downstream of structure

Yes

Powertream bank beights are substantially higher than unstream bank

No.

Downstream bank heights are substantially higher than upstream bank
No

Pool Depth at point of streamflow entry

oor Deput at point of streamliow entry 0 ft.

UpstreamDownstreamIn StructureDominant Bed MaterialSandSandSandBedrock PresentNoNoNoType of Sediment DepositsPointPointNone

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank ErosionHighLowHard Bank ArmoringFailingFailingStream bed scour causingAbutmentsNone

undermining around or under structure

Beaver Dam near Structure No No No Beaver Dam distance (ft.) 0 0

Vegetation

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass

Dominant Vegetation Type - Herbaceous/Grass Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftNoNoVegitation Band -RightNoNo

Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes



VT DEC

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Comments Bed scour upstream, downstream. and in structure. Bridge sits on concrete abutments with steel I-beams and a wood deck.

a w	ood deck.						
В	Bridge Summar	y Report				White	River
General Information							
SgalD	100000002014041	Local SgalD			VOBCIT		
Observers	WRP - cp,dr	Assessment Date	7/15	5/2019	struct_num Project Name	White River Branch	- Second
Town Location	Bethel Bridge runs along Rand		t is loc		Longitude Reach VTID	-72.58837 M04	
Road Name	.5 miles upstream of the RANDOLPH CENTER RD		is nea Pave		Stream Name	Second Brai River	nch White
High Flow Stage	No			Channel Width		111701	81.9
Duid or a Middle	20.5	<u> </u>		<u>Information</u> Material		Steel	
Bridge Width Bridge Clearance				Number of bridge pi	iers/arches	0	
Bridge/Arch Spar						_	
		Coom		Skewed to roadway	?	No	
	General	Geome	orpnic	Information			
Floodplain filled by	roadway approaches <u>Upstream</u>	Entirely		Structure is located at	significant break in	valley slope	No
	opening of the structure immediately upstream of	None No		Estimated distance av Angle of stream flow a			Sharp Bend
If channel avulses,	stream will	Cross Road					
Dool procent immed	<u>Downstream</u>			Ne			
	diately downstream of struct heights are substantially high			No No			
heights		·		Na			•
Pool Depth at point	of streamflow entry			No 0 ft.			0
		<u>Upst</u>	ream		<u>Downstream</u>		In Structure
Dominant Bed I	Material	;	Sand		Sand		Sand
Bedrock Preser	nt		No		No		No
Type of Sedime	ent Deposits		None		Side		None
	·						
Elevation of sec	diment deposits >= 1/2		No		No		No
Bank Erosion		1	None		None		
Hard Bank Arm	oring	F	ailing		Failing		
Stream bed sco	J		None		None		
	ound or under structure						
Beaver Dam ne	ear Structure		No		No		
Beaver Dam dis	stance (ft.)		0		0		
Vegetation							
<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>							
Dominant Vegeta	ation Type - Left	Deciduous F			Shrub/Sapling		
Dominant Vegeta	* *	Herbaceous/			Shrub/Sapling		
Right	hrub/forest vegetation 50					0 ft. up/downstre	eam?
Vegitation Band -	-		Yes		No		
Vegitation Band -			No		No		
vegitation band -	i ugin				INU		
		_	Wild	<u>aiire</u>		,	

Outside Structure

Inside Structure

Roadkill



VT DEC Vermont.gov

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0

Agency of Natural Resouces

Other Information

Spatial location data collected with GPS? Yes Photos taken?

Comments Not many features near bridge. Flat and sandy run. No active erosion at location but can see signs of passed

Yes

failed rip-rap.

Bridge Summary Report

White River

General Information

SgalD 70000000309093 Local SgalD VOBCIT struct num

Observers WRP - cp,dr Assessment Date 8/1/2019 Project Name White River - Second

Town Randolph Latitude 43.88578 Longitude -72.58478

Location Farm Bridge located approximately 600 meters upstream of the Reach VTID M05

Kingsbury Covered Bridge.

Road Name Road Type Trail Stream Name Second Branch White

River

High Flow Stage No Channel Width 79.3

Bridge Information

Bridge Width 13.5 Material Steel
Bridge Clearance 5.4 Number of bridge piers/arches 0

Bridge/Arch Span 50

Skewed to roadway? No

Geomorphic Information

General
Floodplain filled by roadway approaches

Partially
Structure is located at significant break in valley slope
No

Upstream
Obstructions at the opening of the structure
Wood debris
Estimated distance avulsion would follow road

Steep riffle present immediately upstream of structure Angle of stream flow approaching structure Structure Structure

If channel avulses, stream will Cross Road

<u>Downstream</u>

Pool present immediately downstream of structure

No
Downstream bank heights are substantially higher than upstream bank

No

Downstream bank heights are substantially higher than upstream bank **No** heights

Pool Depth at point of streamflow entry

0 ft.

UpstreamDownstreamIn StructureDominant Bed MaterialSandSandSandBedrock PresentNoNoNoType of Sediment DepositsPointPointNone

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank ErosionLowLowHard Bank ArmoringFailingFailingStream bed scour causingAbutmentsAbutments

undermining around or under structure

Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Deciduous Forest Deciduous Forest

Dominant Vegetation Type - **Deciduous Forest Deciduous Forest**

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftNoNoVegitation Band -RightYesYes

<u>Wildlife</u>



Species

Stream Geomorphic Assessment

Agency of Natural Resouces

Vermont.gov March, 18 2021 Inside Structure None

0

Roadkill Outside Structure None

Spatial location data collected with GPS? Yes

Photos taken? Yes

None

Comments Farm bridge that is along a private trail. As of 8/1/2019 an excavator was sitting next to the bridge. Steel Ibeams with wood deck.

Other Information

Bridge Summary Report					White River		
		Gene	eral Information				
SgalD	70000000509033	Local SgalD		VOBCIT struct num			
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch		
Town Location	Brookfield Latitude 44.02148 Longitude Bridge is along private road that is approximately .2 miles north of Locke Lane in Brookfield, VT.				-72.57315 M14		
Road Name		Road Type	Gravel	Stream Name	Second Branch White River		
High Flow Stage	No		Channel Width		48.	.1	
		<u>E</u>	Bridge Information				
Bridge Width	14		Material		Steel		
Bridge Clearance	ge Clearance 6.2 Number of bridge piers/arches		piers/arches	0			
Bridge/Arch Span	n 18						
		Skewed to roadway?		No			
		<u>Geoma</u>	orphic Information				
Floodplain filled by	<u>General</u> roadway approaches Upstream	Partially	Structure is located a	at significant break in v	valley slope No		
Obstructions at the	onening of the structure	None	Estimated distance a	Estimated distance avulsion would follow road			

Obstructions at the opening of the structure None Estimated distance avulsion would follow road Steep riffle present immediately upstream of Angle of stream flow approaching structure Channelized No structure Straight Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No

Pool Depth at point of streamflow entry No 0 ft.

Upstream Downstream In Structure **Dominant Bed Material** Gravel Gravel Gravel **Bedrock Present** No No No Type of Sediment Deposits **Point** Side None

Elevation of sediment deposits >= 1/2 No No No bankfull None **Bank Erosion** None

Hard Bank Armoring Intact Intact Stream bed scour causing None None undermining around or under structure Beaver Dam near Structure No

Vegetation

Upstream Downstream In Structure

0

Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type - Left Dominant Vegetation Type -Herbaceous/Grass Herbaceous/Grass

Right

Beaver Dam distance (ft.)

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No



Species

Stream Geomorphic Assessment

Vermont.gov

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Agency of Natural Resouces

Vegitation Band -Right No

Wildlife

Roadkill Outside Structure None None

No

Inside Structure None

37.9

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Concrete abutments with wing wall, steel I-beams and a wood deck. Pins still in concrete - appears to be relatively new.

White River **Bridge Summary Report**

General Information

700000000309031 Local SgalD VOBCIT SgalD struct num

Observers WRP - cp,dr Assessment Date 7/9/2019 **Project Name** White River - Second Branch

44.03597 -72.56666 Town Brookfield Latitude Longitude

Bridge is on private farm road that runs through the Sprague Farm Reach VTID M15 Location property.

Road Name Road Type Trail Stream Name Second Branch White

River High Flow Stage No Channel Width

Bridge Information

3 Material Timber Bridge Width **Bridge Clearance** 5 Number of bridge piers/arches

Bridge/Arch Span 15 Skewed to roadway? No

Geomorphic Information

General Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No

<u>Upstream</u>

Obstructions at the opening of the structure Wood debris, Estimated distance avulsion would follow road Deformation

Steep riffle present immediately upstream of Angle of stream flow approaching structure No

Channelized structure Straight

Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No

Pool Depth at point of streamflow entry

No 0 ft.

Upstream Downstream In Structure **Dominant Bed Material** Gravel Gravel Gravel **Bedrock Present** No No No Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No Nο

bankfull **Bank Erosion** Low

Failing Failing Hard Bank Armoring

Stream bed scour causing None None

undermining around or under structure Beaver Dam near Structure No No

Beaver Dam distance (ft.) 0 0

Vegetation

Upstream Downstream In Structure

Low

Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type - Left



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Dominant Vegetation Type -Herbaceous/Grass Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure **Inside Structure**

None Species None None

Other Information

Photos taken? Spatial location data collected with GPS? Yes Yes

Comments Farm bridge with crushed culvert underneath. Culvert is not functioning correctly - it is acting like an obstruction to the bridge.

White River **Bridge Summary Report**

General Information

700000000709031 **VOBCIT** SgalD Local SgalD struct num

White River - Second Observers WRP - cp,dr Assessment Date 7/9/2019 **Project Name**

Branch 44.04404 -72.56556 Town Brookfield Latitude Longitude Farm bridge is located east of RT. 14 along Second Branch of White. Reach VTID M15 Location

The bridge is used for a farm road on the property of 499 Main

Street, Brookfield VT.

Road Name Road Type Gravel Stream Name Second Branch White

River

High Flow Stage No Channel Width 37.14 **Bridge Information**

15 Material Steel Bridge Width Number of bridge piers/arches 0 **Bridge Clearance** 5

Bridge/Arch Span 25

Skewed to roadway? No

Geomorphic Information

Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No

Upstream

General

Obstructions at the opening of the structure None Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure Channelized No

Straight structure

If channel avulses, stream will Cross Road

Downstream

Pool present immediately downstream of structure No Downstream bank heights are substantially higher than upstream bank No

No Pool Depth at point of streamflow entry

0 Oft. **Upstream Downstream** In Structure

Dominant Bed Material Cobble Cobble Cobble Bedrock Present No No No Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

None None **Bank Erosion** Hard Bank Armoring Intact Intact Stream bed scour causing None None undermining around or under structure

Beaver Dam near Structure No No 0 0 Beaver Dam distance (ft.)



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No

None

Vegetation

Upstream Downstream In Structure

Herbaceous/Grass Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type -Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No Vegitation Band -Right No No

Wildlife

Outside Structure Roadkill **Inside Structure** Species

None None None

None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Bridge sits on steel beams with a wood deck. The bridge appears to lead to a sand/gravel pit on the property.

White River **Bridge Summary Report**

General Information

SgalD 990014000009171 Local SgalD **VOBCIT**

struct num WRP - cp,dr Assessment Date 7/2/2019 **Project Name**

White River - Second Observers **Branch**

44.07987 -72.57208 Town Williamstown Latitude Longitude Reach VTID Location Bridge is north of residence at the address 6274 Main St M17

Williamstown, VT 05679.

Road Name **ROUTE 14** Road Type **Paved** Stream Name Second Branch White

River

Yes Channel Width 22.5 High Flow Stage

Bridge Information 10 Concrete Bridge Width Material

Bridge Clearance Number of bridge piers/arches Bridge/Arch Span 38

Skewed to roadway? Yes

> **Geomorphic Information** General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No

<u>Upstream</u> Obstructions at the opening of the structure Sediment Estimated distance avulsion would follow road

Angle of stream flow approaching structure Steep riffle present immediately upstream of Sharp Bend

structure

Type of Sediment Deposits

Cross Road If channel avulses, stream will

Downstream Pool present immediately downstream of structure No

Downstream bank heights are substantially higher than upstream bank No heights

0 Pool Depth at point of streamflow entry No 0 ft.

Upstream **Downstream** In Structure **Dominant Bed Material** Cobble Gravel Cobble Bedrock Present No No

None

Elevation of sediment deposits >= 1/2 No No No

bankfull Bank Erosion Low

Low Hard Bank Armoring **Failing** Intact None

Stream bed scour causing None undermining around or under structure

Beaver Dam near Structure No No



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No

No

Beaver Dam distance (ft.)

0

Vegetation

Upstream Downstream In Structure

Dominant Vegetation Type - Left Road Embankment **Deciduous Forest** Dominant Vegetation Type -**Deciduous Forest** Road Embankment

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Yes Yes Vegitation Band -Right No

Wildlife

Roadkill Outside Structure Inside Structure

Species None None None

Other Information

Photos taken? Spatial location data collected with GPS? Yes Yes

Comments Bridge with two overflow pipes that are 4 feet and 4.5 feet in width respectively. Overflow culverts are

completely blocked by sediment and currently now flow is going through the culverts. White River Culvert Summary Report

General Information

700000000909031 VOBCIT SgaID Local SgalD struct_num

White River - Second Observers WRP - cp,dr Assessment Date 7/11/2019 **Project Name**

Branch 44.06078 Town Brookfield Latitude Longitude -72.56280 Culvert runs under Brown Drive, a private road that intersects with Location Reach VTID M16

RT. 14 in Brookfield VT.

Road Name **BROWN DR** Stream Name Second Branch White Road Type Gravel

River

No

Channel Width High Flow Stage No 28.8

Culvert Information

20 Steel Corrugated Material Culvert Lenath

Culvert Height 6.8 Number of culverts Culvert Width Culvert Overflow Pipe 8.7 No Skewed to roadway? No

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope

Culvert slope as compared with channel slope is significantly Same Upstream

Estimated distance avulsion would follow road Obstructions at the opening of the structure None

Steep riffle present immediately upstream of Angle of stream flow approaching structure Mild Bend

structure Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure Yes Water depth in culvert (at outlet) 1.5 Downstream bank heights are substantially higher than upstream bank Culvert outlet invert At Grade No

heights

Stepped Footers 1.5 ft. Backwater Length (measured from outlet) 4 ft. Backwater Length (measured from outlet) Maximum pool depth

In Structure **Upstream Downstream** None

Dominant Bed Material Gravel Cobble **Bedrock Present** No No

Type of Sediment Deposits None None None

Material Present throughout Elevation of sediment deposits >= 1/2 No

bankfull

Bank Erosion None None Hard Bank Armoring Intact Intact



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In Structure

Stream bed scour causing Culvert None undermining around or under structure Beaver Dam near Structure Yes Yes 15 15 Beaver Dam distance (ft.)

Vegetation

Upstream Downstream In Structure

Dominant Vegetation Type - Left

Dominant Vegetation Type -

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left

Vegitation Band -Right

Wildlife

Roadkill Outside Structure Inside Structure

Downstream

Species

Other Information

Spatial location data collected with GPS? Photos taken?

Comments

White River **Bridge Summary Report**

General Information

200014000209171 **VOBCIT** SgalD Local SgalD struct num

WRP - cp,dr Observers Assessment Date 7/1/2019 **Project Name** White River - Second

Branch -72.56654 Williamstown 44.08488 Longitude Town Latitude

Along VT-14 at the intersection of Tripp Rd. Reach VTID M17 Location

ROUTE 14 Paved Stream Name Second Branch White Road Name Road Type

River

Channel Width 13.4 High Flow Stage No

Bridge Information

6 Material Concrete Bridge Width

Bridge Clearance Number of bridge piers/arches

Bridge/Arch Span 70 Skewed to roadway? Yes

Geomorphic Information

General Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No

Upstream

Wood debris Obstructions at the opening of the structure Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure Mild Bend structure

Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure No

Downstream bank heights are substantially higher than upstream bank No heights

Pool Depth at point of streamflow entry

No 0 Oft. Upstream

Dominant Bed Material Gravel Gravel Gravel Bedrock Present No No No

Type of Sediment Deposits Mid-channel None None

Elevation of sediment deposits >= 1/2 No No No

bankfull

Bank Erosion None None



Agency of Natural Resouces

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37.2

No

Hard Bank Armoring Intact Intact Stream bed scour causing None None undermining around or under structure Yes Beaver Dam near Structure No Beaver Dam distance (ft.) 500 0

Vegetation

Upstream Downstream In Structure

Dominant Vegetation Type - Left **Mixed Forest** Shrub/Sapling **Deciduous Forest** Shrub/Sapling Dominant Vegetation Type -

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Yes Yes Vegitation Band -Right No No

Wildlife

Outside Structure Roadkill Inside Structure Species None None None

Other Information

Photos taken? Spatial location data collected with GPS? Yes Yes

Comments

Bridge Summary Report White River

General Information

700000000609031 **VOBCIT** SgaID Local SgalD struct num

7/8/2019 White River - Second Observers WRP - cp,dr Assessment Date **Project Name** Branch

Brookfield 44.04384 -72.56561 Town Latitude Longitude Location Bridge is for farm/trail roads that are on the property of 499 Main Reach VTID M15

Street, Brookfield VT. Bridges are on the east side of Rt. 14.

Road Name Road Type Stream Name Second Branch White

River

High Flow Stage Channel Width No

Bridge Information

13 Material Steel Bridge Width Bridge Clearance 4.5 Number of bridge piers/arches 0

Bridge/Arch Span Skewed to roadway? No

Geomorphic Information

General

Floodplain filled by roadway approaches **Partially** Structure is located at significant break in valley slope No

Upstream

Obstructions at the opening of the structure None Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure Channelized Nο Straight structure

Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure No No

Downstream bank heights are substantially higher than upstream bank

Pool Depth at point of streamflow entry No 0

0 ft. Upstream Downstream In Structure

Dominant Bed Material Gravel Gravel Cobble Bedrock Present No No No

Type of Sediment Deposits None None None

No

No



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Elevation of sediment deposits >= 1/2

bankfull

Bank ErosionNoneNoneHard Bank ArmoringNoneNoneStream bed scour causing
undermining around or under structureNoneNoneBeaver Dam near StructureNoNoBeaver Dam distance (ft.)00

Vegetation

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass

Dominant Vegetation Type - Herbaceous/Grass Herbaceous/Grass

Right

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - LeftNoNoVegitation Band -RightNoNo

Wildlife

RoadkillOutside StructureInside StructureSpeciesNoneNoneNone

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Farm bridge. Steel Beams with a wood deck.

Bridge Summary Report White River

General Information

SgalD 10000001914041 Local SgalD VOBCIT struct num

Observers WRP - cp,dr Assessment Date 7/15/2019 Project Name White River - Second Branch

Town Bethel Latitude 43.87215 Longitude -72.58675
Location Located in the village of East Bethel, Vermont, The bridge runs Reach VTID M04

Location Located in the village of East Bethel, Vermont. The bridge runs across Store Hill Road and is directly upstream of the Hyde Dam.

Road Name STORE HILL RD Road Type Paved Stream Name Second Branch White

River

High Flow Stage No Channel Width 82.1

Bridge Information

Bridge Width 23 Material Concrete

Bridge Clearance 12.8 Number of bridge piers/arches 0

Bridge/Arch Span 48
Skewed to roadway? No

Geomorphic Information

General
Floodplain filled by roadway approaches
Entirely
Structure is located at significant break in valley slope
No

Upstream
Obstructions at the opening of the structure
None
Estimated distance avulsion would follow road

Steep riffle present immediately upstream of No Angle of stream flow approaching structure Sharp Bend structure

If channel avulses, stream will Cross Road

Downstream

Pool present immediately downstream of structure

Yes

Downstream bank heights are substantially higher than upstream bank

No

Downstream bank heights are substantially higher than upstream bank heights **No**

Pool Depth at point of streamflow entry

No

0

0 ft.

<u>Upstream</u> <u>Downstream</u> <u>In Structure</u>

Dominant Bed Material Sand Sand Sand Sand Bedrock Present Yes No No



Agency of Natural Resouces

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0

Type of Sediment Deposits **Point** Side Mid-channel Elevation of sediment deposits >= 1/2 No No No bankfull **Bank Erosion** None None Hard Bank Armoring Failing Failing Stream bed scour causing **Abutments Abutments** undermining around or under structure Beaver Dam near Structure No No 0 0 Beaver Dam distance (ft.) **Vegetation Upstream Downstream** In Structure Shrub/Sapling Shrub/Sapling Dominant Vegetation Type - Left Dominant Vegetation Type -Herbaceous/Grass Shrub/Sapling Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream? Vegitation Band - Left Yes No Vegitation Band -Right No No Wildlife Roadkill Outside Structure Inside Structure None Deer - Tracks **Species** Other Information Spatial location data collected with GPS? Yes Photos taken? Yes Comments Bridge deck has crumbling concrete. Dry Hydrant located upstream of bridge. Large sediment buildup from dam runs under bridge and continues around the sharp bend. **Bridge Summary Report** White River

Bridge Summary Report					wille Kive	
		<u>Gene</u>	eral Information			
SgalD	700000000409093	Local SgalD		VOBCIT		
				struct_num		
Observers	WRP - cp,dr	Assessment Date	8/1/2019	Project Name	White River - Second	i
					Branch	
Town	Randolph	Latitude	43.89474	Longitude	-72.57273	
Location			e River moves away from	Reach VTID	M05	
	VT-14 at the location of	f this bridge, the bridg	ge is approximately 600			
	feet east of the VT-14	and South Randolph	Rd. intersection.			
Road Name		Road Type	Trail	Stream Name	Second Branch White	е
					River	
High Flow Stage	No		Channel Width			76.6
		<u> </u>	Bridge Information			
Bridge Width	12		Material		Timber	
Bridge Clearance	e 5.3		Number of bridge pi	iers/arches	0	
Bridge/Arch Spar	n 24					
			Skewed to roadway?		No	
		<u>Geome</u>	orphic Information			
	<u>General</u>					
Floodplain filled by roadway approaches Partially		Structure is located at	significant break in v	valley slope No		

<u>Upstream</u> Obstructions at the opening of the structure Wood debris Estimated distance avulsion would follow road

Angle of stream flow approaching structure Mild Bend Steep riffle present immediately upstream of

structure

Cross Road If channel avulses, stream will

Downstream

Pool present immediately downstream of structure No Downstream bank heights are substantially higher than upstream bank No

Pool Depth at point of streamflow entry 0 ft.



Agency of Natural Resouces

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In Structure
Sand

	<u>Upstream</u>	<u>Downstream</u>	In Structure
Dominant Bed Material	Gravel	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Side	Point	None

Elevation of sediment deposits >= 1/2 No No Nο

bankfull

Bank Erosion High High Hard Bank Armoring Failing Failing Stream bed scour causing **Abutments Abutments** undermining around or under structure

Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0

Vegetation

Upstream Downstream In Structure

Deciduous Forest Herbaceous/Grass Dominant Vegetation Type - Left Dominant Vegetation Type -Herbaceous/Grass Shrub/Sapling

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No Vegitation Band -Right No No

Wildlife

Roadkill Outside Structure Inside Structure Species None None None

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Right abutment made of stacked stone. left abutment made of concrete. Farm bridge appears to be out of

Bridge Summary Report White River

General Information

SgalD 200014000209031 Local SgalD **VOBCIT** struct num WRP - cp,dr Assessment Date 7/2/2019 **Project Name** White River - Second Observers **Branch** -72.56647 **Brookfield** 44.06442 Latitude Longitude Town

Location Located along VT-14 at ~1500 ft. north of Browns Dr. Reach VTID M17 Road Name **ROUTE 14** Road Type Paved Stream Name Second Branch White

River

26 High Flow Stage Channel Width No **Bridge Information**

11.5 Material Concrete Bridge Width 0.5 **Bridge Clearance** Number of bridge piers/arches 0

Bridge/Arch Span 36

Skewed to roadway? Yes

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No Upstream

Obstructions at the opening of the structure Sediment Estimated distance avulsion would follow road 1500 Steep riffle present immediately upstream of Angle of stream flow approaching structure Sharp Bend structure

If channel avulses, stream will Follow Road

Downstream

Pool present immediately downstream of structure No Downstream bank heights are substantially higher than upstream bank Yes

heights



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Pool Depth at point of streamflow entry 0 ft.

Upstream **Downstream** In Structure **Dominant Bed Material** Gravel Sand Sand Bedrock Present No No No Type of Sediment Deposits None None None

Elevation of sediment deposits $\geq 1/2$ No No No

bankfull

Bank Erosion None None Intact Intact Hard Bank Armoring Stream bed scour causing None None

undermining around or under structure

Yes Yes Beaver Dam near Structure 100 100 Beaver Dam distance (ft.)

Vegetation

<u>Upstream</u> **Downstream** In Structure

Deciduous Forest Shrub/Sapling Dominant Vegetation Type - Left Herbaceous/Grass **Deciduous Forest** Dominant Vegetation Type -

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left Yes Yes Vegitation Band -Right No Yes

Wildlife

Roadkill Outside Structure Inside Structure None

None Beaver - Sighting Species

Other Information

Spatial location data collected with GPS? Yes Photos taken? No

Comments Incredibly sharp bend into bridge. Sediment fills bridge so there is a very small clearance. Sharp turn into the bridge has back watered about 150 feet of water. Bridge is almost acting like an undersized culvert.

White River **Bridge Summary Report**

General Information

200014000009171 SgaID Local SgalD VOBCIT struct num

Observers WRP - cp,dr Assessment Date 7/2/2019 **Project Name** White River - Second Branch

Williamstown 44.07796 -72.57290 Town Latitude Longitude Location Bridge along VT-14 just North of the Brookfield and Williamstown Reach VTID M17

town border. Road Name **ROUTE 14** Road Type Stream Name Second Branch White **Paved**

River

Nο Channel Width 21 High Flow Stage **Bridge Information**

11.5 Concrete Material Bridge Width

Bridge Clearance 0.7 Number of bridge piers/arches

Bridge/Arch Span 33 Skewed to roadway? Yes

> **Geomorphic Information** General

Floodplain filled by roadway approaches **Entirely** Structure is located at significant break in valley slope No

Upstream Wood debris 1500 Obstructions at the opening of the structure Estimated distance avulsion would follow road

Steep riffle present immediately upstream of Angle of stream flow approaching structure Sharp Bend Nο structure

If channel avulses, stream will Follow Road

Downstream



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0

Low

Pool present immediately downstream of structure Downstream bank heights are substantially higher than upstream bank No

Pool Depth at point of streamflow entry No

0 ft.

Upstream Downstream In Structure **Dominant Bed Material** Cobble Gravel Gravel **Bedrock Present** No No No Type of Sediment Deposits None None None

Elevation of sediment deposits >= 1/2 No No Nο

None

bankfull

Bank Erosion

Hard Bank Armoring None None Stream bed scour causing None None undermining around or under structure

Beaver Dam near Structure No Yes Beaver Dam distance (ft.) 500 n

Vegetation

Downstream In Structure <u>Upstream</u>

Herbaceous/Grass Dominant Vegetation Type - Left Road Embankment Dominant Vegetation Type -**Deciduous Forest** Road Embankment

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No Vegitation Band -Right Yes No

Wildlife

Outside Structure Roadkill Inside Structure None None

None Species

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments

White River **Bridge Summary Report**

General Information

SgaID 700000000609033 Local SgalD **VOBCIT** struct_num

WRP - cp,dr Assessment Date Observers 7/23/2019 **Project Name** White River - Second **Branch**

Town **Brookfield** Latitude 44.02400 Longitude -72.57301 Farm bridge located on trail road out behind the barn located at 6027 Reach VTID M14 Location

Main St, Brookfield, VT 05036.

Road Name Trail Stream Name Second Branch White Road Type

River

No

High Flow Stage No Channel Width 47.5 **Bridge Information**

12.5 Material Steel Bridge Width Bridge Clearance 4.6 Number of bridge piers/arches 0 Bridge/Arch Span 13.5

Geomorphic Information

Skewed to roadway?

<u>General</u> Floodplain filled by roadway approaches Not Significant Structure is located at significant break in valley slope No

Upstream Obstructions at the opening of the structure None Estimated distance avulsion would follow road

Steep riffle present immediately upstream of No Angle of stream flow approaching structure Naturally Straight structure



Obstructions at the opening of the structure

Stream Geomorphic Assessment

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Cross Road If channel avulses, stream will **Downstream** Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No heights 0 Pool Depth at point of streamflow entry No 0 ft. **Upstream Downstream** In Structure **Dominant Bed Material** Gravel Cobble Cobble **Bedrock Present** No No No Type of Sediment Deposits None Mid-channel None Elevation of sediment deposits >= 1/2 No No No bankfull Bank Erosion Low Low **Failing** Hard Bank Armoring **Failing** Stream bed scour causing **Footers Footers** undermining around or under structure No Beaver Dam near Structure No 0 0 Beaver Dam distance (ft.) **Vegetation** Upstream Downstream In Structure Shrub/Sapling Shrub/Sapling Dominant Vegetation Type - Left Dominant Vegetation Type -Shrub/Sapling Shrub/Sapling Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream? Vegitation Band - Left No No Vegitation Band -Right No No Wildlife Roadkill Outside Structure Inside Structure None None None Species Other Information Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Old farm fence caught on the top of the bridge. Stacked stone abutments with steel I-beams and wood deck.

Bridge Summary Report

White River

Bridge Summary Report					white River		
General Information							
SgalD	700000000009031	Local SgalD		VOBCIT			
				struct_num			
Observers	WRP - cp,dr	Assessment Date	8/23/2019	Project Name	White River - Second		
_					Branch		
Town	Brookfield	Latitude	44.00261	Longitude	-72.56493		
Location	Bridge is private farm I	bridge that runs along	trail road that is behind	Reach VTID	M13		
	the residence at the ad	ddress: 4587 Main St,	Brookfield, VT 05036.				
Road Name		Road Type	Trail	Stream Name	Second Branch White		
					River		
High Flow Stage	No No		Channel Width		52.59		
		<u> </u>	Bridge Information				
Bridge Width	14.5		Material		Timber		
Bridge Clearance 8.5		Number of bridge piers/arches			0		
Bridge/Arch Spar	n 18.5		· .				
-		Skewed to roadway?		y?	No		
Geomorphic Information							
General							
Floodplain filled by roadway approaches Entirely Structure is located at significant break in valley slope No							
_	<u>Upstream</u>	-					

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Estimated distance avulsion would follow road

Wood debris



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Steel

0

No

Steep riffle present immediately upstream of Angle of stream flow approaching structure Mild Bend No structure **Cross Road** If channel avulses, stream will **Downstream** Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No Pool Depth at point of streamflow entry No 0 0 ft. Upstream Downstream In Structure **Dominant Bed Material** Gravel Sand Sand **Bedrock Present** No No No Type of Sediment Deposits **Point** Mid-channel None Elevation of sediment deposits >= 1/2 No No No bankfull Bank Erosion Low None Hard Bank Armoring Failing Failing Stream bed scour causing None None undermining around or under structure Beaver Dam near Structure No No Beaver Dam distance (ft.) 0 0 **Vegetation** Upstream Downstream In Structure Dominant Vegetation Type - Left Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type -Herbaceous/Grass Herbaceous/Grass Right Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream? Vegitation Band - Left No No Vegitation Band -Right No No Wildlife Roadkill Outside Structure Inside Structure None None None Species Other Information Photos taken? Spatial location data collected with GPS? Yes Yes Comments Relatively new concrete abutments. Primary scour is in structure. Bridge sits on concrete abutments with 1 foot steel I-beams, and a wood deck. White River **Bridge Summary Report General Information** SgalD 700000000209033 Local SgalD **VOBCIT** struct num White River - Second Observers WRP - cp,dr Assessment Date 8/23/2019 **Project Name Branch** 43.99082 -72.55920 Town **Brookfield** Latitude Longitude This private bridge is approximately 800 ft west of the property Location Reach VTID M12 address 3633 VT-14 Brookfield, VT 05036. Road Name Road Type Gravel Stream Name Second Branch White River Channel Width 51.94 High Flow Stage No **Bridge Information**

Geomorphic Information

15

6.2

25

General

Bridge Width Bridge Clearance

Bridge/Arch Span

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Material

Number of bridge piers/arches

Skewed to roadway?





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March, 18 2021 **Entirely** Structure is located at significant break in valley slope Floodplain filled by roadway approaches **Upstream** Obstructions at the opening of the structure Estimated distance avulsion would follow road Mild Bend Steep riffle present immediately upstream of No Angle of stream flow approaching structure structure If channel avulses, stream will Cross Road **Downstream** Pool present immediately downstream of structure Yes Downstream bank heights are substantially higher than upstream bank No Pool Depth at point of streamflow entry No 0 0 ft. In Structure Upstream Downstream **Dominant Bed Material** Sand Sand Sand Bedrock Present No No No Type of Sediment Deposits **Point Point** None Elevation of sediment deposits >= 1/2 No No No bankfull

Beaver Dam near Structure Yes 10 Beaver Dam distance (ft.)

Vegetation

High

Failing

None

Upstream Downstream In Structure

High

Intact

None

No

0

White River - Second

Herbaceous/Grass Herbaceous/Grass Dominant Vegetation Type - Left

Dominant Vegetation Type -**Deciduous Forest Deciduous Forest**

Bank Erosion

Hard Bank Armoring

Stream bed scour causing

undermining around or under structure

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left No No Vegitation Band -Right No No

Wildlife

Outside Structure Inside Structure Roadkill None

Species None Beaver - Lodge

Other Information

Spatial location data collected with GPS? Yes Photos taken? Yes

Comments Bridge may have been newly replaced. Waste block abutments, 18 in. steel beams, and a wood deck.

White River **Bridge Summary Report**

General Information

200014000109171 **VOBCIT** SgalD Local SgalD struct num Observers WRP - cp,dr Assessment Date 7/2/2019 **Project Name**

Branch

-72.57067 Latitude 44.08307 Longitude Town Williamstown Location Along Rt 14 approximately 1000 feet south of Tripp Rd. Reach VTID M17

Road Name **ROUTE 14** Road Type Stream Name Second Branch White

River

High Flow Stage No Channel Width 13.7 **Bridge Information**

8 Concrete Bridge Width Material **Bridge Clearance** Number of bridge piers/arches

Bridge/Arch Span 60

Skewed to roadway? Yes

Geomorphic Information



VT DEC

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Camanal				Ma	arch, 18 2021		
<u>General</u> Floodplain filled by roadway approaches Upstream	Entirely	Structure is loc	cated at significant break ir	n valley slope	Yes		
Obstructions at the opening of the structure Steep riffle present immediately upstream of structure	Yes		ance avulsion would follow n flow approaching structu		Sharp Bend		
If channel avulses, stream will Downstream	Cross Road						
Pool present immediately downstream of structure Downstream bank heights are substantially higher t	han upstream bank	Yes No					
heights Pool Depth at point of streamflow entry		No 0 ft.			0		
	Upstream		<u>Downstream</u>		In Structure		
Dominant Bed Material	Cobble	-)	Cobble		Bedrock		
Bedrock Present	No)	Yes		Yes		
Type of Sediment Deposits	None	•	None		None		
Elevation of sediment deposits >= 1/2 bankfull	No)	No		No		
Bank Erosion	Low	ı	Low				
Hard Bank Armoring	Intac	t	None				
Stream bed scour causing	None)	None				
undermining around or under structure	No	_	No				
Beaver Dam near Structure	INC		NO 0				
Beaver Dam distance (ft.)	·		U				
	•	etation					
	<u>Upstream</u>	="	<u>Downstream</u>		In Structure		
Dominant Vegetation Type - Left	Deciduous Fores	-	Deciduous Forest				
Dominant Vegetation Type - Right	Deciduous Fores	t	Road Embankment				
Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?							
Vegitation Band - Left	Yes	8	Yes				
Vegitation Band -Right	Yes	3	No				
<u>Wildlife</u>							
	<u>Roadkil</u>	<u>l</u>	Outside Structure		Inside Structure		
Species	None		None		None		
	Other In	<u>formation</u>					
Spatial location data collected with GPS? Yes		Photos taken?	Ye	es			

Comments Poured concrete apron at inlet. Waterfall at outlet. Very steep outlet.