

**Appendix C**  
**Fish and Aquatic Habitat Survey Data**



Salmon Creek Interchange Project Habitat Unit Survey

Stream	Unit #	Unit Type	Date	Transect	GPS Coordinates	Length (ft)	Wetted Width (ft)	Bankful Width (ft)	Bankful Height (ft)	Incised Height (ft)	Channel Width (ft)	Channel Height (ft)	Bar Width (ft)	Depth (ft)	Average Depth (ft)	Densimeter Readings	Densimeter Value (%)	Gradient Lower End (ft)	Gradient Upper End (ft)	Gradient Change (ft)	Gradient Distance (ft)	Gradient Value (%)	LB Angle (°)	RB Angle (°)	Substrate	Substrate (%)	Embeddedness (%)
Salmon Creek	1	Run	6/16/2005	A	45°42'36".682N/122°38'31".511W 45°42'35".105N/122°38'25".996W	427.00	55.90	112.90	4.00				31.20	0.71 1.06 1.33 0.83	0.98	31 14 12 33 77							34	60	CB	75	
Salmon Creek	2	Side Channel	6/16/2005	A	45°42'35".426N/122°38'26".685W 45°42'35".182N/122°38'25".196W	74.00	15.00	37.80	2.42					0.08	0.08	9 91							7	25	CB SA	60	
Salmon Creek	3	Riffle	6/16/2005	A	45°42'35".105N/122°38'25".996W 45°42'34".963N/122°38'23".786W	169.00	39.20	91.00	4.50			9.50		1.04 0.79 0.88 1.33 1.00	1.01	15 10 23 0 88		5 3.7 1.3 100 1.3				80	65	CB BL GC SA	80 5 10 5	45	
		Side Channel				63.00	20.30							0.52 0.92 1.08	0.84												
Salmon Creek	4	Pool	6/16/2005	A	45°42'34".963N/122°38'23".786W 45°42'34".807N/122°38'21".583W	166.00	38.00	48.00	14.50					1.42 2.58 5.00 7.17 3.58	3.95	2 0 8 0 97		0.00 100 0.00				90	80	CB SA	30 70	80	
Salmon Creek	5	Riffle	6/16/2005	A	45°42'34".807N/122°38'21".583W 45°42'35".235N/122°38'21".030W	66.00	33.33	55.00	8.00					1.58 1.75 1.21 0.88	1.35	16 1 13 0 92		0.08 66 0.13							CB	85	25
Salmon Creek	6	Run	6/16/2005	A	45°42'35".235N/122°38'21".030W 45°42'38".188N/122°38'19".207W	340.00	31.00	46.00	10.00					1.83 2.29 1.92 1.92	1.99	14 2 25 14 86		3.5 3.3 0.1 100 0.13				80	55	CB BL SA	65 10 25	60	
Salmon Creek	7	Riffle	6/16/2005	A	45°42'38".188N/122°38'19".207W No Reading (under I-205 Bridge)	93.00	32.20	60.20	10.00					1.08 1.29 0.75 0.83	0.99	11 3 28 2 89		4.69 3.88 0.8 93 0.9				60	60	CB BL	80 20	20	
Salmon Creek	8	Run	6/16/2005	A	No Reading (under I-205 Bridge) 45°42'35".426N/122°38'26".685W	91.33	30.90	58.90	10.00					1.75 2.17 2.00 1.21	1.78	26 13 2 0 89						60	60	BL CB SA	20 50 30	20	
Salmon Creek	9	Riffle	6/30/2005	A	45°42'41".68N/122°38'17".44W	130.00	24.42	41.42	4.58					1.08 1.67 1.75 1.67 0.83	1.40	5 7 26 13 87		1.50				23	28	BL CB GC GF SA	20 40 15 15 10	10	
Salmon Creek	10	Run	6/30/2005	A	45°42'41".55N/122°38'17".52W	90.00	27.17	43.83	3.33					1.33 2.42 2.17 1.42 0.33	1.53	15 7 18 2 89		0.00				23	35	BL CB GC GF SA	10 20 40 25 5	20	
Salmon Creek	11	Riffle	6/30/2005	A	45°42'42".37N/122°38'17".54W	37.00	30.33	43.00	4.00					0.75 1.17 1.33 1.50 1.25	1.20	8 2 13 2 94		2.00				27		BL CB GC GF SA	10 40 20 20 10	40	
Salmon Creek	12	Run	6/30/2005	A	45°42'42".93N/122°38'17".74W	132.00	29.58	39.25	3.00					1.33 2.00 1.83 2.00 1.17	1.67	11 4 5 2 94		1.00				32		CB BL SA	80 10 10	60	

Salmon Creek Interchange Project Habitat Unit Survey

Stream	Unit #	Unit Type	Date	Transect	GPS Coordinates	Length (ft)	Wetted Width (ft)	Bankful Width (ft)	Bankful Height (ft)	Incised Height (ft)	Channel Width (ft)	Channel Height (ft)	Bar Width (ft)	Depth (ft)	Average Depth (ft)	Densimeter Readings	Densimeter Value (%)	Gradient Lower End (ft)	Gradient Upper End (ft)	Gradient Change (ft)	Gradient Distance (ft)	Gradient Value (%)	LB Angle (°)	RB Angle (°)	Substrate	Substrate (%)	Embeddness (%)
Whipple Creek	1	Run	7/7/2005	A	45°44'05".95N/122°39'33".99W 45°44'05".68N/122°39'77".99W	100.00	23.17	65.67	1.00				6.58	2.00 0.67 3.08 3.00 2.83	2.32	10 12 30 29 79					0.50	15	10	FN	100		
Whipple Creek	2	Pool	7/7/2005	A	45°44'05".68N/122°39'32".73W	102.33	60.00	100.00	4.00						3.00	19 8 9 13 87					0.00				FN	100	
Whipple Creek	3	Run	7/7/2005	A	45°44'05".22N/122°39'31".86W	66.42	8.58	10.25	1.42					1.00 1.25 1.33 1.25 1.42	1.25	8 4 7 13 92					0.50	60	90	GC FN HP	70 5 25	50	
Whipple Creek	4	Pool	7/7/2005	A	45°44'04".77N/122°39'31".23W	43.42	22.75	24.83	1.42					2.00 4.25 5.50 6.00 3.75	4.30	5 0 1 3 98					0.00	80	80	FN	100		
Whipple Creek	5	Riffle	7/7/2005	A	45°44'04".87N/122°39'25".46W	42.58	7.00	12.00	1.83					0.08 0.19 0.15 0.13 0.02	0.11	7 3 12 2 94					2.00	100	30	CB GC GF FN	15 75 5 5	0 50 50 5	
Whipple Creek	6	Pool	7/7/2005	A	45°44'05".96N/122°39'25".11W	26.00	11.33	16.42	2.25					0.83 1.29 1.08 0.88 0.50	0.92	3 18 1 0 94					0.00	45	90	FN GF GC CB	10 30 50 10	20	
Whipple Creek	7	Riffle	7/7/2005	A	45°44'06".07N/122°39'24".95W	12.83	4.33	11.17	2.25					0.19 0.21 0.17 0.13 0.04	0.15	20 6 15 12 86					3.50	45	15	CB GF GC	80 2 8		
Whipple Creek	8	Pool	7/12/2005	A	45°44'06".041N/122°39'24".749W	15.58	6.83	8.67	1.83					0.40 0.50 0.54 0.42 0.48	0.47	25 22 12 19 80					0.00	65	45	CB GC GF FN SA	70 10 5 5 10	5 20 50 50 10	
Whipple Creek	9	Riffle	7/12/2005	A	45°44'05".290N/122°39'24".351W	25.58	8.75	19.75	2.08					0.06 0.25 0.29 0.23 0.21	0.21	5 4 3 1 97					2.00	40	20	CB GC FN SA	50 25 20 5	50	
Whipple Creek	10	Pool	7/12/2005	A	45°44'05".977N/122°39'24".197W	20.25	7.00	14.08	1.75					0.50 1.19 1.42 1.50 1.42	1.20	12 14 3 1 92					0.00	30	15	CB GC FN	30 5 65	20 50	
Whipple Creek	11	Riffle	7/12/2005	A	45°44'05".923N/122°39'23".342W	75.00	10.25	13.25	2.17					0.50 0.58 0.38 0.25 0.17	0.38	4 6 12 2 94					2.00	80	50	GC GF FN	30 30 40	60 60	
Whipple Creek	12	Pool	7/12/2005	A	45°44'06".074N/122°39'22".837W	18.75	6.58	13.25	1.43					0.40 0.46 0.44 0.29 0.15	0.35	16 5 8 7 91					0.00	35	50	CB GC GF FN	50 10 10 30	2 60 70	
Whipple Creek	13	Riffle	7/12/2005	A	45°44'06".256N/122°39'22".355W	78.00	5.67	33.92	1.50					0.02 0.04 0.08 0.21 0.25	0.12	12 10 5 13 90					3.00	5	45	CB	10		

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Trib. to Whipple Creek	1	Run	6/30/2005	A	45°43'48".36N/122°39'44".22W	200.00	6.25	8.00	1.67	3.67				0.67 0.96 1.04 1.31 1.17	1.03	0 0 0 0 100					0.00	80	85	FN	100		
Trib. to Whipple Creek	2	Pool	6/30/2005	A	45°43'47".79N/122°39'43".02W	22.33	17.33	18.00	2.25	6.00				3.25 4.50 2.92 2.25 1.58	2.90	0 0 0 0 100					0.00	90	90	FN	100		
Trib. to Whipple Creek	3	Riffle	6/30/2005	A	45°43'47".64N/122°39'43".22W	6.83	2.83	8.67						0.19 0.29 0.25 0.04 0.15	0.18	0 0 0 0 100					1.00	70	75	HP	100		
Trib. to Whipple Creek	4	Run	6/30/2005	A		30.25	4.42	12.00	2.50					0.58 0.63 1.08 0.92 0.75	0.79	0 0 1 0 100					0.50	70	50	HP	50		
Trib. to Whipple Creek	5	Pool	6/30/2005	A	45°43'47".18N/122°39'42".82W	12.00	4.25							0.54 0.58 0.60 0.58 0.17	0.50	0 0 0 0 100					0.00	55	60	HP	65		
Trib. to Whipple Creek	6	Pool	7/7/2005	A	45°43'47".18N/122°39'42".60W	34.00	6.33	12.25	2.17	0.83				0.75 0.92 1.00 0.92 0.46	0.81	1 0 0 2 99					0.00	65	10	CB	20	30	
Trib. to Whipple Creek	7	Run	6/30/2005	A	45°43'45".57N/122°39'40".30W	300.00	7.75	43.42	1.42					0.50 0.73 0.88 0.65 0.67	0.68	1 0 0 0 100					0.00	11		FN	100		
Trib. to Whipple Creek	8	Pool	6/16/2005	A	45°43'45".215N/122°39'38".041W		102.00	130.00	6.00					0.83 1.25 2.58 1.33 1.08 0.33 1.24		8 92					0.00	80	30	FN	100		
NF Trib. to Whipple Creek	1	Pool	7/13/2005	A	45°43'42".837N/122°39'27".149W	104.00	60.00	80.00						2.00 2.00 2.00 2.00 2.00	2.00	20 30 20 18 77					0.00	5	30	FN	100		
NF Trib. to Whipple Creek	2	Pool	7/13/2005	A	45°43'43".079N/122°39'26".490W	131.00	23.00	27.25	1.83					0.42 0.33 0.54 1.17 0.92	0.68	18 13 20 20 82					0.00	25	80	FN	100		
NF Trib. to Whipple Creek	3	Run	7/13/2005	A	45°43'43".515N/122°39'25".343W	32.00	5.42	25.00	1.92					0.17 0.31 0.33 0.31 0.17	0.26	0 1 4 1 98					1.00	45	15	CB	50	10	
NF Trib. to Whipple Creek	4	Riffle	7/13/2005	A	45°43'44".162N/122°39'24".547W	32.00	4.42	8.75	2.42					0.08 0.23 0.25 0.10 0.04	0.14	10 7 3 2 94.3					5.00	85	75	CB	50	2	
NF Trib. to Whipple Creek	5	Pool	7/13/2005	A	45°43'44".487N/122°39'24".516W	10.92	8.42	11.67	2.08					0.29 1.00 0.92 1.67 1.29	1.03	8 8 6 5 93.0					0.00	70	80	BL	90	1	
NF Trib. to Whipple Creek	6	Run	7/13/2005	A	45°43'48".947N/122°39'20".494W	74.00	2.42	10.83	2.25					0.29 0.33 0.33 0.33 0.33	0.33	4 10 10 2 93.2					1.00	30	45	GF	20	80	
NF Trib. to Whipple Creek	7	Pool	7/13/2005	A	45°43'49".212N/122°39'20".170W	16.58	10.75	19.58	1.75					0.58 1.75 2.33 1.75 0.75	1.43	5 21 17 4 87.8					0.00	55	90	BL	50		
NF Trib. to Whipple Creek	8	Run	7/20/2005	A		133.42	9.50	18.00	1.83	25.00	2.67			0.17 0.29 0.33 0.35 0.25	0.28	1 0 3 3 98					0.00	55	90	BL	50		
SF Trib. to Whipple Creek	1	Run	7/13/2005	A	45°43'42".193N/122°39'25".180W	148.00	34.00	47.42	1.75					0.50 0.38 0.58 0.58 0.75	0.56	0 0 4 2 98					0.00	45	15	FN	100		
SF Trib. to Whipple Creek	2	Pool	7/13/2005	A	45°43'41".399N/122°39'23".928W	58.00	30.33	44.00	1.58					0.58 0.58 0.33 0.58 0.50	0.52	10 6 9 8 91					0.00	50	40	FN	100		
SF Trib. to Whipple Creek	3	Run	7/13/2005	A	45°43'41".243N/122°39'23".408W	26.00	3.58	10.25	1.25					0.06 0.08 0.13 0.06 0.10	0.09	22 9 11 9 87					0.00	15	40	CB	90	20	
SF Trib. to Whipple Creek	4	Run	7/21/2005	A		71.00	3.25	20.25	1.83	0.00	31.00	3.50		0.13 0.21 0.17 0.17 0.10	0.15	4 17 7 15 89					0.3	25	25	FN	100		
SF Trib. to Whipple Creek	5	Pool	7/21/2005	A		9.42	4.25	13.63	1.71	1.33	31.00	4.04		0.48 0.92 1.17 1.08 0.67	0.86	91 92 94 94 3.5					0.00	80	45	FN	100		
SF Trib. to Whipple Creek	6	Run	7/21/2005	A		220.00	3.58	23.83	2.38	0.00	31.00	4.08		0.38 0.33 0.42 0.40 0.25	0.35	93 94 88 95 3.80					1.50	35	35	FN	100		



Salmon Creek Interchange Project Channel Riparian Cover

Stream Unit	Fish Cover /Other								Canopy			Understory			Ground Cover			Human Influence											
	Filamentous Algae	Macrophytes	Woody Debris >0.98ft (big)	Brush Woody Debris <0.98ft (small)	Overhanging Veg. <3.28ft of surface	Undercut Banks	Boulders	Artificial Structures	Vegetation Type	Big Trees	Small Trees	Vegetation Type	Woody Shrubs & Saplings	Non-Woody Herbs, Grasses & Forbs	Woody Shrubs & Seedlings	Non-Woody Herbs, Grasses & Forbs	Bare, Bare Dirt or Duff	Wall Dike Revetment RipRap Dam	Buildings	Pavement	Road Railroad	Pipes (Inlet Outlet)	Landfill Trash	Park Lawn	Row Crops	Pasture Range Hay Field	Logging Operations	Mining Activity	
Salmon Cr. Unit 1	0	2	0	1	1	0	1	0	M	0	2	M	1	2	2	2	1	B	0	0	0	0	0	0	P	0	0	0	0
LB									M	0	1	M	2	3	2	2	0	O	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 2	0	0	0	0	3	0	1	0	M	0	0	D	0	3	0	3	0	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	0	2	D	0	3	0	3	0	O	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 3	0	1	0	1	1	1	1	0	D	1	0	D	2	2	2	2	0	B	0	0	0	0	0	0	0	0	0	0	0
LB																													
RB																													
Salmon Cr. Unit 4	1	0	0	1	2	0	0	3	D	2	2	D	1	1	1	1	3	O	O	O	O	O	O	O	O	O	O	O	O
LB									D	2	2	D	2	2	2	2	1	P,C	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 5	0	1	0	0	1	0	1	0	D	0	2	D	2	2	2	1	0	P,C	O	O	O	O	O	O	O	O	O	O	O
LB									D	1	2	D	1	2	1	2	0	O	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 6	0	2	0	0	0	0	1	0	M	2	3	E	2	1	1	1	0	P,C	O	O	O	O	O	O	O	O	O	O	O
LB									D	0	1	E	1	3	0	3	0	P,C	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 7	0	1	0	1	1	0	1	0	D	2	1	D	1	1	0	1	0	P,C	O	O	O	O	O	O	O	O	O	O	O
LB									D	2	1	E	1	1	0	1	0	P,C	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 8	0	1	0	1	0	0	1	0	N	0	0	D	2	1	1	1	0	P,C	O	O	P	O	O	O	O	O	O	O	O
LB									N	0	0	D	1	1	1	1	0	P,C	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 9	0	1	0	0	1	0	1	0	D	0	1	D	1	4	2	4	0	P,B	O	P,C	O	O	O	O	O	O	O	O	O
LB									N	0	0	D	2	1	2	3	0	P,B	O	P,C	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 10	0	0	0	0	0	0	0	0	N	0	0	D	0	4	2	3	1	P,B	O	O	O	O	O	O	O	O	O	O	O
LB									N	0	0	D	2	1	1	3	0	P,B	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 11	1	0	0	0	0	0	1	0	D	0	1	D	3	2	0	1	1	P,B	O	O	O	O	O	O	O	O	O	O	O
LB									D	0	0	D	3	2	0	1	1	P,B	O	O	O	O	O	O	O	O	O	O	O
RB																													
Salmon Cr. Unit 12	0	0	0	0	1	0	1	0	D	1	0	D	2	4	0	2	0	P,B	O	O	O	O	O	O	O	O	O	O	O
LB									D	1	1	D	2	4	0	2	0	P,B	O	O	O	O	O	O	O	O	O	O	O
RB																													

Salmon Creek Interchange Project Channel Riparian Cover

Stream Unit	Fish Cover/Other								Canopy			Understory			Ground Cover			Human Influence												
	Filamentous Algae	Macrophytes	Woody Debris >0.98ft (big)	Brush Woody Debris <0.98ft (small)	Overhanging Veg. <3.28ft of surface	Undercut Banks	Boulders	Artificial Structures	Vegetation Type	Big Trees	Small Trees	Vegetation Type	Woody Shrubs & Saplings	Non-Woody Herbs, Grasses & Forbs	Woody Shrubs & Seedlings	Non-Woody Herbs, Grasses & Forbs	Bare, Bare Dirt or Duff	Wall Dike Revetment RipRap Dam	Buildings	Pavement	Road Railroad	Pipes (Inlet Outlet)	Landfill Trash	Park Lawn	Row Crops	Pasture Range Hay Field	Logging Operations	Mining Activity		
Whipple Cr. Unit 1	2	2	0	2	2	0	0	0	D	0	3	D	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
LB									D	0	3	D	0	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	0	3	D	2	3	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 2	3	3	1	3	3	0	0	0	D	0	3	D	2	3	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	0	3	D	2	3	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	0	3	D	1	4	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 3	0	2	0	2	2	0	0	0	D	0	3	D	3	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	0	3	D	1	4	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	0	3	D	1	1	0	1	1	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
Whipple Cr. Unit 4	1	0	1	3	1	0	0	0	D	1	3	D	3	4	0	3	2	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
LB									D	0	3	D	1	1	0	1	1	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
RB									D	0	3	D	1	1	0	1	1	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
Whipple Cr. Unit 5	0	0	0	0	1	2	0	0	M	2	3	D	3	3	1	4	1	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
LB									M	1	3	D	3	3	1	4	0	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
RB									M	1	3	D	3	3	1	4	0	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
Whipple Cr. Unit 6	0	2	0	1	3	2	0	0	M	2	3	D	3	3	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	1	3	D	3	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	1	3	D	3	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 7	0	1	2	3	3	0	0	0	M	1	3	D	2	4	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	1	3	D	3	3	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	1	3	D	3	3	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 8	0	2	0	1	2	0	0	0	M	1	2	D	3	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	1	2	D	3	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	1	2	D	3	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 9	0	1	1	2	2	1	0	0	M	1	2	D	3	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	1	2	D	2	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	1	2	D	2	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 10	0	0	0	0	1	2	0	0	M	1	2	D	2	3	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	1	2	D	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	1	2	D	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 11	0	0	2	3	3	0	0	2	M	1	2	D	4	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	1	2	D	4	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	1	2	D	4	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 12	0	1	0	1	2	1	0	0	M	2	2	D	2	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	2	2	D	4	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	2	2	D	4	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	
Whipple Cr. Unit 13	0	1	0	2	2	1	0	0	M	2	2	D	1	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	2	2	D	4	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	2	2	D	4	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	

**Salmon Creek Interchange Project Channel Riparian Cover**

Stream Unit	Fish Cover/Other							Canopy		Understory			Ground Cover			Human Influence														
	Filamentous Algae	Macrophytes	Woody Debris >0.98ft (big)	Brush Woody Debris <0.98ft (small)	Overhanging Veg. <3.28ft of surface	Undercut Banks	Boulders	Artificial Structures	Vegetation Type	Big Trees	Small Trees	Vegetation Type	Woody Shrubs & Saplings	Non-Woody Herbs, Grasses & Forbs	Woody Shrubs & Seedlings	Non-Woody Herbs, Grasses & Forbs	Barren, Bare Dirt or Duff	Wall Dike Revetment RipRap Dam	Buildings	Pavement	Road Railroad	Pipes (Inlet Outlet)	Landfill Trash	Park Lawn	Row Crops	Pasture Range Hay Field	Logging Operations	Mining Activity		
Trib. to Whipple Unit 1	0	0	0	0	4	1	0	0	N	0	0	D	4	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
LB									N	0	0	D	4	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	
RB									N	0	0	D	4	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	
Trib. to Whipple Unit 2	0	0	1	3	4	1	0	0	N	0	0	D	4	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	
LB									N	0	0	D	4	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	
RB									N	0	0	D	4	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	
Trib. to Whipple Unit 3	0	0	0	2	4	0	0	0	D	0	1	D	2	3	0	3	2	0	0	0	0	0	0	0	0	0	0	0		
LB									D	0	1	D	2	3	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									N	0	0	D	2	4	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	
Trib. to Whipple Unit 4	0	0	0	0	4	0	0	0	D	0	3	D	2	3	0	2	1	0	0	0	0	P,B	0	0	0	0	0	0	0	
LB									D	0	3	D	1	3	0	2	1	0	0	0	0	P,B	0	0	0	0	0	0	0	
RB									D	0	3	D	1	3	0	2	1	0	0	0	0	P,B	0	0	0	0	0	0	0	
Trib. to Whipple Unit 5	0	0	0	0	3	0	0	0	D	1	1	D	4	0	0	0	3	0	0	0	P,C	0	0	0	0	0	0	0	0	
LB									D	1	1	D	4	0	0	0	3	0	0	0	P,C	0	0	0	0	0	0	0	0	
RB									D	0	2	D	2	2	0	2	1	0	0	0	P,C	0	0	0	0	0	0	0	0	
Trib. to Whipple Unit 6	0	0	0	1	0	0	0	0	D	0	0	D	4	0	0	0	4	0	0	0	P	0	0	0	0	0	0	0	0	
LB									D	0	0	D	4	0	0	0	4	0	0	0	P	0	0	0	0	0	0	0	0	
RB									D	0	1	D	1	4	0	3	2	0	0	0	P	0	0	0	0	0	0	0	0	
Trib. to Whipple Unit 7	1	1	0	1	1	0	0	0	M	2	2	D	2	3	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	2	2	D	2	3	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	3	3	D	2	2	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
Trib. to Whipple Unit 8	2	2	2	2	3	1	0	0	M	2	2	M	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
LB									M	2	2	M	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	2	2	M	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	

Salmon Creek Interchange Project Channel Riparian Cover

Stream Unit	Fish Cover/Other								Canopy			Understory			Ground Cover				Human Influence											
	Filamentous Algae	Macrophytes	Woody Debris >0.98ft (big)	Brush Woody Debris <0.98ft (small)	Overhanging Veg. <3.28ft of surface	Undercut Banks	Boulders	Artificial Structures	Vegetation Type	Big Trees	Small Trees	Vegetation Type	Woody Shrubs & Saplings	Non-Woody Herbs, Grasses & Forbs	Woody Shrubs & Seedlings	Non-Woody Herbs, Grasses & Forbs	Barren, Bare Dirt or Duff	Wall Dike Revetment RipRap Dam	Buildings	Pavement	Road Railroad	Pipes (Inlet Outlet)	Landfill Trash	Park Lawn	Row Crops	Pasture Range Hay Field	Logging Operations	Mining Activity		
NF Trib. to Whipple Cr. Unit 1	3	4	1	1	2	0	0	1	M	2	3	D	4	3	1	3	0	O	O	O	P,C	O	O	O	O	O	O	O	O	O
LB									M	1	1	D	3	3	0	1	2	O	O	O	P,B	O	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 2	3	4	1	2	2	0	0	0	M	2	3	D	4	3	2	3	1	O	O	O	P,C	O	O	O	O	O	O	O	O	O
LB									M	1	1	D	2	2	1	2	2	O	O	O	P,B	O	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 3	0	0	0	1	1	0	0	0	D	1	2	D	3	3	1	2	2	O	O	O	P,C	O	O	O	O	O	O	O	O	O
LB									M	0	2	D	2	1	1	1	3	O	O	O	P,B	O	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 4	0	0	0	1	1	2	1	1	D	1	2	D	4	1	0	1	3	O	O	O	P,C	O	O	O	O	O	O	O	O	O
LB									M	2	1	D	4	2	1	0	2	O	O	O	P,B	O	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 5	0	0	0	3	1	2	0	3	D	1	2	D	4	2	0	0	3	O	O	O	P,C	P,B	O	O	O	O	O	O	O	O
LB									M	2	1	D	3	1	0	0	4	O	O	O	P,B	P,B	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 6	0	0	2	2	3	0	0	0	M	2	2	D	2	4	1	2	2	O	O	O	P,C	P,C	O	O	O	O	O	O	O	O
LB									M	2	2	D	3	3	1	2	2	O	O	O	P,C	P,C	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 7	0	0	0	3	4	2	0	0	M	2	3	D	2	3	1	2	3	P,B	O	O	P,C	P,B	O	O	O	O	O	O	O	O
LB									M	2	2	D	4	2	1	2	3	O	O	O	P,C	P,B	O	O	O	O	O	O	O	O
RB																														
NF Trib. to Whipple Cr. Unit 8	2	3	0	2	4	0	0	0	M	0	2	M	1	3	1	3	1	O	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	0	2	M	1	3	1	3	1	O	O	O	O	O	O	O	O	O	O	O	O	O
RB																														
SF Trib. to Whipple Cr. Unit 1	4	4	1	2	2	0	0	0	M	1	2	D	4	2	1	2	1	O	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	1	2	D	4	2	1	1	1	O	O	O	P,C	O	O	O	O	O	O	O	O	O
RB																														
SF Trib. to Whipple Cr. Unit 2	4	4	0	1	2	0	0	0	M	2	2	D	3	4	1	2	0	O	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	2	2	D	4	2	1	1	3	O	O	O	P,C	O	O	O	O	O	O	O	O	O
RB																														
SF Trib. to Whipple Cr. Unit 3	0	0	1	3	2	0	0	0	M	2	3	D	2	4	2	1	2	O	O	O	P,C	P,B	O	O	O	O	O	O	O	O
LB									D	1	3	D	3	3	1	1	2	O	O	O	P,C	P,B	O	O	O	O	O	O	O	O
RB																														
SF Trib. to Whipple Cr. Unit 4	0	0	0	1	2	0	0	0	M	1	2	M	2	1	1	2		O	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	1	2	M	2	1	2	1		O	O	O	O	O	O	O	O	O	O	O	O	O
RB																														
SF Trib. to Whipple Cr. Unit 5	0	0	2	3	1	1	0	0	M	3	2	M	1	1	1	2		O	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	3	2	M	1	1	1	2		O	O	O	O	O	O	O	O	O	O	O	O	O
RB																														
SF Trib. to Whipple Cr. Unit 6	0	0	0	1	1	0	0	0	M	3	3	M	3	2	1	3		O	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	3	3	M	3	2	1	2		O	O	O	O	O	O	O	O	O	O	O	O	O
RB																														

Salmon Creek Interchange Project Channel Riparian Cover

Stream Unit	Fish Cover/Other								Canopy			Understory			Ground Cover			Human Influence												
	Filamentous Algae	Macrophytes	Woody Debris >0.98ft (big)	Brush Woody Debris <0.98ft (small)	Overhanging Veg. <3.28ft of surface	Undercut Banks	Boulders	Artificial Structures	Vegetation Type	Big Trees	Small Trees	Vegetation Type	Woody Shrubs & Saplings	Non-Woody Herbs, Grasses & Forbs	Woody Shrubs & Seedlings	Non-Woody Herbs, Grasses & Forbs	Barren, Bare Dirt or Duff	Wall Dike Revetment RipRap Dam	Buildings	Pavement	Road Railroad	Pipes (Inlet Outlet)	Landfill Trash	Park Lawn	Row Crops	Pasture Range Hay Field	Logging Operations	Mining Activity		
Union Trib. Unit 1	0	0	0	2	0	0	0	1	D 2 2	2	2	D 3 3	3	3	1 2 3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0
LB									D	2	2	D	3	3	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	2	2	D	3	3	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 2	0	0	0	1	1	0	0	2	D 2 2	2	2	D 3 3	3	3	1 2 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	2	2	D	3	3	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	2	2	D	2	4	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 3	0	0	0	2	1	0	0	3	D 2 2	2	2	D 2 4	4	4	1 2 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	2	2	D	2	4	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	3	2	D	2	4	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 4	0	0	0	2	1	2	0	2	D 1 2	2	2	D 4 1	1	1	1 2 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	2	D	4	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	2	2	D	1	4	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 5	0	0	0	2	0	0	0	0	D 1 2	2	2	D 2 3	3	3	0 2 3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	2	D	2	3	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	1	2	D	3	2	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 6	0	0	4	3	2	3	0	0	D 1 2	2	2	D 2 3	3	3	0 3 3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	2	D	2	3	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	0	2	D	3	2	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 7	0	0	3	3	1	3	0	0	D 2 2	2	2	D 2 3	3	3	1 2 1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	2	2	D	2	3	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	1	2	D	2	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 8	0	0	3	1	3	2	0	0	D 1 2	2	2	D 3 2	2	2	1 2 1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	2	D	3	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	0	2	D	2	3	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 9	0	0	0	1	1	2	0	0	D 2 1	1	1	D 2 3	3	3	1 3 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	2	1	D	2	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	1	2	D	1	4	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 10	0	0	0	2	2	1	0	0	D 2 2	2	2	D 2 4	4	4	0 4 0	0	0	0	0	0	P,C	P,B	P,B	0	0	0	0	0	0	
LB									D	2	2	D	2	4	0	4	0	0	0	0	P,C	P,B	P,B	0	0	0	0	0	0	
RB									D	2	2	D	1	4	0	4	0	0	0	0	P,C	P,B	P,B	0	0	0	0	0	0	
Union Trib. Unit 11	0	0	0	2	4	0	0	0	D 1 1	1	1	D 4 1	1	1	0 0 3	3	3	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
LB									D	1	1	D	4	1	0	0	3	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
RB									M	1	1	D	4	1	1	0	3	0	0	0	P,C	P,C	0	0	0	0	0	0	0	
Union Trib. Unit 12	0	0	1	3	3	2	0	0	D 1 1	1	1	D 4 1	1	1	1 0 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	1	D	4	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	2	2	D	4	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 13	0	0	4	4	4	3	0	0	D 1 2	2	2	D 4 3	3	3	1 1 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	2	D	4	3	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	1	1	D	4	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 14	0	0	2	2	2	2	0	0	D 1 1	1	1	D 4 3	3	3	1 1 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	1	D	4	3	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	1	1	D	4	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 15	0	0	0	2	1	0	0	0	D 0 3	3	3	D 4 2	2	2	1 3 2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	0	3	D	4	2	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	
RB									M	0	3	D	4	3	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	
Union Trib. Unit 16	0	0	0	2	3	0	0	0	D 1 2	2	2	D 4 1	1	1	0 1 1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
LB									D	1	2	D	4	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
RB									D	1	2	D	4	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	

**Salmon Creek Interchange Project Channel Riparian Cover**

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	Filamentous Algae	Macrophytes	Woody Debris >0.98ft (big)	Brush Woody Debris <0.98ft (small)	Overhanging Veg. <3.28ft of surface	Undercut Banks	Boulders	Artificial Structures	Vegetation Type	Big Trees	Small Trees	Vegetation Type	Woody Shrubs & Saplings	Non-Woody Herbs, Grasses & Forbs	Woody Shrubs & Seedlings	Non-Woody Herbs, Grasses & Forbs	Barren, Bare Dirt or Duff	Wall Dike Revetment RipRap Dam	Buildings	Pavement	Road Railroad	Pipes (Inlet Outlet)	Landfill Trash	Park Lawn	Row Crops	Pasture Range Hay Field	Logging Operations	Mining Activity	
Rockwell Cr. Unit 1 A	0	0	1	2	2	1	0	0	D	1	2	D	4	2	1	1	2	O	O	O	O	O	O	O	O	O	O	O	O
LB									M	2	3	D	4	2	1	1	2	O	O	O	O	O	O	O	O	O	O	O	O
RB									M	2	3	M	3	3	2	2	1	P	-	-	-	-	-	-	-	-	-	-	-
Rockwell Cr. Unit 1 B	0	0	0	1	2	0	0	2	M	2	3	M	3	3	2	2	1	P	-	-	-	-	-	-	-	-	-	-	-
LB									M	2	3	M	3	3	2	2	1	P	-	-	-	-	-	-	-	-	-	-	-
RB									M	2	3	M	3	3	2	2	1	P	-	-	-	-	-	-	-	-	-	-	-
Rockwell Cr. Unit 2	0	0	0	0	3	0	2	0	D	0	2	D	0	3	0	3	0	O	-	-	-	-	-	-	-	-	-	-	-
LB									D	0	2	D	0	3	0	3	0	P	-	-	-	-	-	-	-	-	-	-	-
RB									D	0	2	D	0	3	0	3	0	P	-	-	-	-	-	-	-	-	-	-	-

Cover: 0=Absent 1=Sparse 2=Moderate 3=Heavy 4=Very Heavy

Vegetation Type: D=Deciduous C=Coniferous E=Broadleaf Evergreen M=Mixed N=None

Presence: O=Not Present P=Present B=On Bank C=Beyond Bank within 10m in Riparian Area

**Salmon Creek Interchange Project Evaluation of Habitat Parameters**

Stream	Unit	Channel Alteration	Bank Stability		Vegetative Protection		Riparian Vegetative Zone	
			LB	RB	LB	RB	LB	RB
Salmon Creek	Unit 1	13	6	8	2	5	2	7
Salmon Creek	Unit 2	19	4	7	1	7	1	8
Salmon Creek	Unit 3	12	7	8	5	8	2	9
Salmon Creek	Unit 4	14	2	5	1	5	2	7
Salmon Creek	Unit 5	3	6	8	3	6	2	6
Salmon Creek	Unit 6	8	8	8	6	3	3	4
Salmon Creek	Unit 7	6	8	8	3	4	4	5
Salmon Creek	Unit 8	-	-	-	-	-	-	-
Salmon Creek	Unit 9	9	9	9	6	6	4	5
Salmon Creek	Unit 10	11	9	9	6	6	5	5
Salmon Creek	Unit 11	13	9	9	7	7	4	4
Salmon Creek	Unit 12	9	9	9	6	6	5	4
Whipple Creek	Unit 1	20	8	8	7	5	8	8
Whipple Creek	Unit 2	20	8	8	7	7	8	8
Whipple Creek	Unit 3	20	3	7	5	7	7	7
Whipple Creek	Unit 4	14	4	6	7	7	7	7
Whipple Creek	Unit 5	14	9	9	8	8	8	8
Whipple Creek	Unit 6	16	8	6	8	7	8	8
Whipple Creek	Unit 7	17	7	6	8	7	8	8
Whipple Creek	Unit 8	13	7	4	5	6	7	8
Whipple Creek	Unit 9	14	7	5	5	3	7	8
Whipple Creek	Unit 10	14	6	6	5	3	7	8
Whipple Creek	Unit 11	15	8	7	5	6	7	8
Whipple Creek	Unit 12	15	7	6	6	6	7	8
Whipple Creek	Unit 13	15	8	8	7	7	7	8
Trib. to Whipple	Unit 1	7	0	0	1	1	4	4
Trib. to Whipple	Unit 2	6	0	0	1	1	5	6
Trib. to Whipple	Unit 3	16	5	5	4	4	9	9
Trib. to Whipple	Unit 4	13	4	4	8	8	7	7
Trib. to Whipple	Unit 5	13	3	5	1	3	6	5
Trib. to Whipple	Unit 6	13	3	6	3	5	4	4
Trib. to Whipple	Unit 7	20	10	10	10	10	7	10
Trib. to Whipple	Unit 8	18	9	9	8	5	6	6
NF Trib. to Whipple Creek	Unit 1	16	5	4	7	5	5	3
NF Trib. to Whipple Creek	Unit 2	15	6	5	7	4	5	2
NF Trib. to Whipple Creek	Unit 3	15	6	4	7	3	5	3
NF Trib. to Whipple Creek	Unit 4	13	4	5	3	3	5	3
NF Trib. to Whipple Creek	Unit 5	10	5	4	4	3	5	2
NF Trib. to Whipple Creek	Unit 6	12	7	6	7	8	5	4
NF Trib. to Whipple Creek	Unit 7	10	4	5	6	5	5	5
NF Trib. to Whipple Creek	Unit 8	15	8	8	8	8	10	10
SF Trib. to Whipple Creek	Unit 1	16	6	5	7	7	5	6
SF Trib. to Whipple Creek	Unit 2	16	6	5	7	6	5	6
SF Trib. to Whipple Creek	Unit 3	10	5	5	6	5	5	5
SF Trib. to Whipple Creek	Unit 4	9	4	4	7	7	7	7
SF Trib. to Whipple Creek	Unit 5	12	6	6	6	7	7	7
SF Trib. to Whipple Creek	Unit 6	17	8	8	7	8	5	8

**Salmon Creek Interchange Project Evaluation of Habitat Parameters**

Stream	Unit	Channel Alteration	Bank Stability		Vegetative Protection		Riparian Vegetative Zone	
			LB	RB	LB	RB	LB	RB
Union Creek	Unit 1	15	4	5	5	5	8	6
Union Creek	Unit 2	16	5	6	8	6	8	6
Union Creek	Unit 3	15	4	5	7	7	8	6
Union Creek	Unit 4	14	6	5	7	6	6	6
Union Creek	Unit 5	13	3	2	7	6	6	6
Union Creek	Unit 6	14	5	3	7	5	6	6
Union Creek	Unit 7	14	3	4	7	6	6	6
Union Creek	Unit 8	14	3	3	6	6	6	6
Union Creek	Unit 9	13	4	5	5	5	6	6
Union Creek	Unit 10	10	7	7	6	6	6	6
Union Creek	Unit 11	13	5	5	5	4	3	5
Union Creek	Unit 12	13	4	3	4	5	3	5
Union Creek	Unit 13	14	4	5	4	6	3	5
Union Creek	Unit 14	14	4	4	4	5	3	5
Union Creek	Unit 15	14	4	4	4	3	3	5
Union Creek	Unit 16	14	4	4	5	4	3	5
Rockwell Creek	Unit 1 A	13	6	5	5	6	6	7
Rockwell Creek	Unit 1 B	-	6	4	2	3	7	6
Rockwell Creek	Unit 2	7	7	7	2	2	8	8

**Habitat Parameter Description**

<b>Habitat Parameter</b>	<b>Poor</b>	<b>Marginal</b>	<b>Suboptimal</b>	<b>Optimal</b>
<b>Channel Alteration</b>	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely. (1-5)	Channelization may be extensive; embankments or shoring structures present on both banks; 40-80% of stream reach channelized and disrupted. (6-10)	Some channelized present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 years) may be present, but recent channelization is not present. (11-15)	Channelization or dredging absent of minimal; stream with normal pattern. (16-20)
<b>Bank Stability</b>	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% if bank has erosion scars. (0-2)	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods. (3-5)	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. (6-8)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. (9-10)
<b>Vegetative Protection</b>	Less than 50% of the streambank surfaces covered by native vegetation; disruption of stream bank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. (0-2)	50-70% of the streambank surfaces covered by native vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. (3-5)	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. (6-8)	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. (9-10)
<b>Riparian Vegetative Zone Width</b>	Width of riparian zone <19.69 feet; little or no riparian vegetation due to human activities. (0-2)	Width of riparian zone 19.69 - 39.37 feet; human activities have impacted zone a great deal. (3-5)	Width of riparian zone 39.97 feet - 59.06 feet; human activities have impacted zone only minimally. (6-8)	Width of riparian zone >59.06 feet; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. (9-10)

**Salmon Creek Interchange Project Pool Quality Index**

Stream	Unit #	Unit Type	Depth <.5ft=0 >.5<1.5ft=1 >1.5ft=2	Substrate ≤ Gravel=0 Cobble=1 Boulder=2	Overhead Cover <10% SA=0 10-25% SA=1 >25% SA=2	Submerged Cover <10% SA=0 10-25% SA=1 >25% SA=2	Bank Cover <25% BL=0 25-50% BL=1 >50% BL=2	Total	Inlet Depth (ft)	Max Depth (ft)	Outlet Depth (ft)	Residual Depth
Salmon Creek	4	Pool	2	0	2	0	1	5	2.08	7.00	3.04	3.96
Whipple Creek	2	Pool	2	0	2	2	2	8		4.00	0.00	4.00
Whipple Creek	4	Pool	2	0	2	1	0	5		6.58	0.00	6.58
Whipple Creek	6	Pool	1	1	1	1	2	6		1.50	0.50	1.00
Whipple Creek	8	Pool	0	0	0	1	1	2		0.63	0.25	0.38
Whipple Creek	10	Pool	1	0	2	2	2	7		1.50	0.23	1.27
Whipple Creek	12	Pool	0	1	1	0	0	2		0.54	0.17	0.38
Trib. to Whipple Creek	2	Pool	2	0	2	2	1	7		4.50	2.50	2.00
Trib. to Whipple Creek	5	Pool	1	0	2	1	1	5		1.00	0.21	0.79
Trib. to Whipple Creek	6	Pool	1	0	2	0	0	3		1.17	0.08	1.08
Trib. to Whipple Creek	8	Pool	2	0	2	2	2	8		2.58	0.17	2.42
NF Trib. to Whipple Creek	1	Pool	2	0	0	2	1	5		7.25	0.00	7.25
NF Trib. to Whipple Creek	2	Pool	2	0	0	2	1	5		2.00		2.00
NF Trib. to Whipple Creek	5	Pool	2	2	2	1	1	8		2.92	0.00	2.92
NF Trib. to Whipple Creek	7	Pool	2	2	2	0	1	7		2.33	2.00	0.33
SF Trib. to Whipple Creek	2	Pool	2	0	0	2	0	4		1.58	0.00	1.58
SF Trib. to Whipple Creek	5	Pool	1	0	1	1	1	4	0.29	1.17	0.33	0.83
Union Creek	3	Pool	1	0	2	1	0	4		0.63	0.04	0.58
Union Creek	6	Pool	0	0	2	2	2	6		0.46	0.04	0.42
Union Creek	8	Pool	2	0	2	1	2	7		1.54	0.15	1.40
Union Creek	10	Pool	2	0	2	1	2	7		1.75	0.10	1.65
Union Creek	12	Pool	1	0	0	1	1	3		1.33	0.04	1.29
Union Creek	14	Pool	2	0	0	2	2	6		1.58	0.00	1.58

**Salmon Creek Interchange Project LWD Survey**

Stream	Unit #	Unit Type	RTWD ≥0.66ft	Small Log ≥0.33ft to <0.66ft	Medium Log ≥0.66ft to <1.64ft	Large Log ≥1.64ft	Total
Salmon Creek	1	Run	4				4
Salmon Creek	2	Side Channel		12			12
Salmon Creek	3	Riffle		2	2		4
Salmon Creek	4	Pool		12	2		14
Salmon Creek	6	Run			2	5	7
Salmon Creek	7	Riffle		4			4
<b>Total</b>			4	30	6	5	45
Whipple Creek	1	Run		9			9
Whipple Creek	2	Pool		5	5		10
Whipple Creek	3	Run		4			4
Whipple Creek	4	Pool		3			3
Whipple Creek	5	Riffle		1			1
Whipple Creek	8	Pool	1	3	1		5
Whipple Creek	9	Riffle		3			3
Whipple Creek	11	Riffle		1	2		3
<b>Total</b>			1	29	8	0	38
Trib. to Whipple Creek	2	Pool		3	1		4
Trib. to Whipple Creek	7	Run		2	3	1	6
Trib. to Whipple Creek	8	Pool	2	5	2	2	11
<b>Total</b>			2	10	6	3	21
NF Trib. to Whipple Creek	1	Pool	3	7			10
NF Trib. to Whipple Creek	2	Pool	1	11	3		15
NF Trib. to Whipple Creek	3	Run	1		1		2
NF Trib. to Whipple Creek	5	Pool	2				2
NF Trib. to Whipple Creek	6	Run		2	1		3
NF Trib. to Whipple Creek	7	Pool			1		1
NF Trib. to Whipple Creek	8	Run		8			8
<b>Total</b>			7	28	6	0	41
SF Trib. to Whipple Creek	1	Run	1	9	2		12
SF Trib. to Whipple Creek	2	Pool		1	1		2
SF Trib. to Whipple Creek	3	Run			2		2
SF Trib. to Whipple Creek	4	Run	1				1
SF Trib. to Whipple Creek	5	Pool	1	2	1		4
SF Trib. to Whipple Creek	6	Run	1	4	3		8
<b>Total</b>			4	16	9	0	29
Union Creek	1	Riffle		1	2		3
Union Creek	2	Riffle		1			1
Union Creek	3	Pool		1			1
Union Creek	4	Riffle		1			1
Union Creek	5	Riffle		1			1
Union Creek	6	Pool			4		4
Union Creek	7	Riffle			1		1
Union Creek	8	Pool		1			1
Union Creek	10	Pool			1		1
Union Creek	14	Pool		1	1		2
Union Creek	15	Riffle		3	4		7
Union Creek	16	Riffle		2	2		4
<b>Total</b>			0	12	15	0	27
Rockwell Creek	1	Run	1	9	3	2	15
<b>Total</b>			1	9	3	2	15

<b>Salmon Creek Interchange Project Climate Data</b>			
<b>Stream</b>	<b>Date</b>	<b>Weather</b>	<b>Water Temp.</b>
Salmon Creek	6/15/2005	Partly Sunny	
Salmon Creek	6/16/2005	Overcast/Raining	58°F
Salmon Creek	6/30/2005	Overcast	59°F
Whipple Creek	7/7/2005	Overcast - Sunny	59°F
Whipple Creek	7/12/2005	Overcast	
Trib. to Whipple Creek	6/16/2005	Overcast/Raining	68°F
Trib. to Whipple Creek	6/30/2005	Sunny	
Trib. to Whipple Creek	7/7/2005	Overcast	
NF Trib. to Whipple Creek	7/13/2005	Overcast	
NF Trib. to Whipple Creek	7/20/2005	Sunny	63°F
SF Trib. to Whipple Creek	7/13/2005	Overcast	
SF Trib. to Whipple Creek	7/21/2005	Sunny	58°F
Union Trib.	7/12/2005	Overcast	
Rockwell Creek	7/20/2005	Sunny	60°F

**Salmon Creek Interchange Project Stream Discharge Data**

Stream	Unit #	Unit Type	Date	GPS Coordinates	Wetted Width	Section Width	Depth	Velocity (ft/s)	Stream Discharge (ft <sup>3</sup> /s)	Ave. SV (ft/s)	Cross Sec. Area (ft <sup>2</sup> )
Salmon Creek	8	Run	6/16/2005	45°42'35".426N/122°38'26".685W	30.90	6.18	1.58	0.98	9.59	9.79	
							1.67	2.18	22.45	10.30	
							1.08	1.50	10.04	6.70	
							1.75	1.43	15.47	10.82	
							1.92	0.52	6.16	11.85	
Calculations							1.60	1.32	63.71	1.29	49.44
Whipple Creek	5	Riffle	7/7/2005	45°44'05".80N/122°39'25".58W just above I-5 culvert	4.83	1.21	0.15	0.58	0.10	0.18	
							0.19	0.83	0.19	0.23	
							0.17	0.51	0.10	0.20	
							0.21	0.30	0.08	0.25	
Calculations							0.18	0.56	0.47	0.55	0.86
Trib. to Whipple Creek	7	Run	6/30/2005	just above 10th Ave. culvert	1.75	0.58	0.15	0.75	0.06	0.08	
							0.27	1.18	0.19	0.16	
							0.25	0.74	0.11	0.15	
Calculations							0.22	0.89	0.36	0.92	0.39
NF Trib. to Whipple Creek	8	Run	7/20/2005	at culvert	2.33	2.33	0.17	0.30	0.12	0.39	
Calculations							0.17	0.30	0.12	0.30	0.39
SF Trib. to Whipple Creek	4	Run	7/21/2005		1.80	0.60	0.15	1.62	0.14	0.09	
							0.17	2.20	0.22	0.10	
							0.15	0.00	0.00	0.09	
Calculations							0.15	1.27	0.36	1.32	0.28
Union Trib.	11	Riffle	7/12/2005	45°44'19".285N/122°39'35".109W	1.75	0.35	0.13	0.00	0.00	0.04	
							0.17	0.00	0.00	0.06	
							0.25	0.00	0.00	0.09	
							0.23	0.00	0.00	0.08	
							0.25	0.00	0.00	0.09	
Calculations							0.20	0.00	0.00	0.00	0.36
Rockwell Creek	2	Run	7/20/2005		3.83	3.83	0.08	0.00	0.00	0.32	
Calculations							0.08	0.00	0.00	0.00	0.32

