SM10-64075

2010 Stream Assessment
for Select Areas and Road Crossings within Nadina Forest District

Prepared for:

Ministry of Forests
British Columbia Timber Sales Office
Babine Business Area
185 Yellowhead Highway
Burns Lake, BC
V0J 1E0

Prepared by:

Mac Jedrzejczyk, M.Sc., R.P.Bio.
FINS Consulting Ltd.
4809 Hamer Ave.
Terrace, BC
V8G 2E5

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1. Introduction

On July 26, 2010, FINS Consulting Ltd. was retained by the Burns Lake British Columbia Timber Sales Office (BCTS) in the Nadina Forest District to conduct operational level stream assessments for several areas of interest undergoing and/or proposed multi-phase layout in the Babine Business Area.

This report summarizes the results of the stream assessments, which were completed between September 6 - 26, 2010. All evaluated drainages are within the Babine Lake (BABL), Babine River (BABR), and Bulkley River (BULK) high level watershed groups in the Nadina Forest District.

Fish habitat and fish presence/absence was evaluated in drainages within or adjacent to 6 selected areas and 6 proposed and existing road crossings, and appropriate riparian classifications were subsequently assigned to alleviate planned timber resource management.

1.1 Location and Access

The project area is located approximately 350 km west of Prince George. The location map (Figure 1) on the following page provides the general location of the study area. The specific areas were reached by 4x4 vehicle and individual streams were accessed on foot.

2. Historical Information

An abundance of historic fish information was generally available for the entire project area. Numerous operational and reconnaissance fish and fish habitat inventories had been conducted in the past 14 years by Triton Environmental Consultants Ltd. and FINS Consulting Ltd. within Babine Lake, Babine River, and Bulkley River tributaries.

However, due to the different purposes of these inventories, stream assessments at these times were conducted to various degrees of intensity and standards in order to satisfy particular needs of the clients. Nevertheless, the data obtained during those surveys provided invaluable information and helped with current stream assessments. All historic information relevant to the study area has been incorporated into this report.

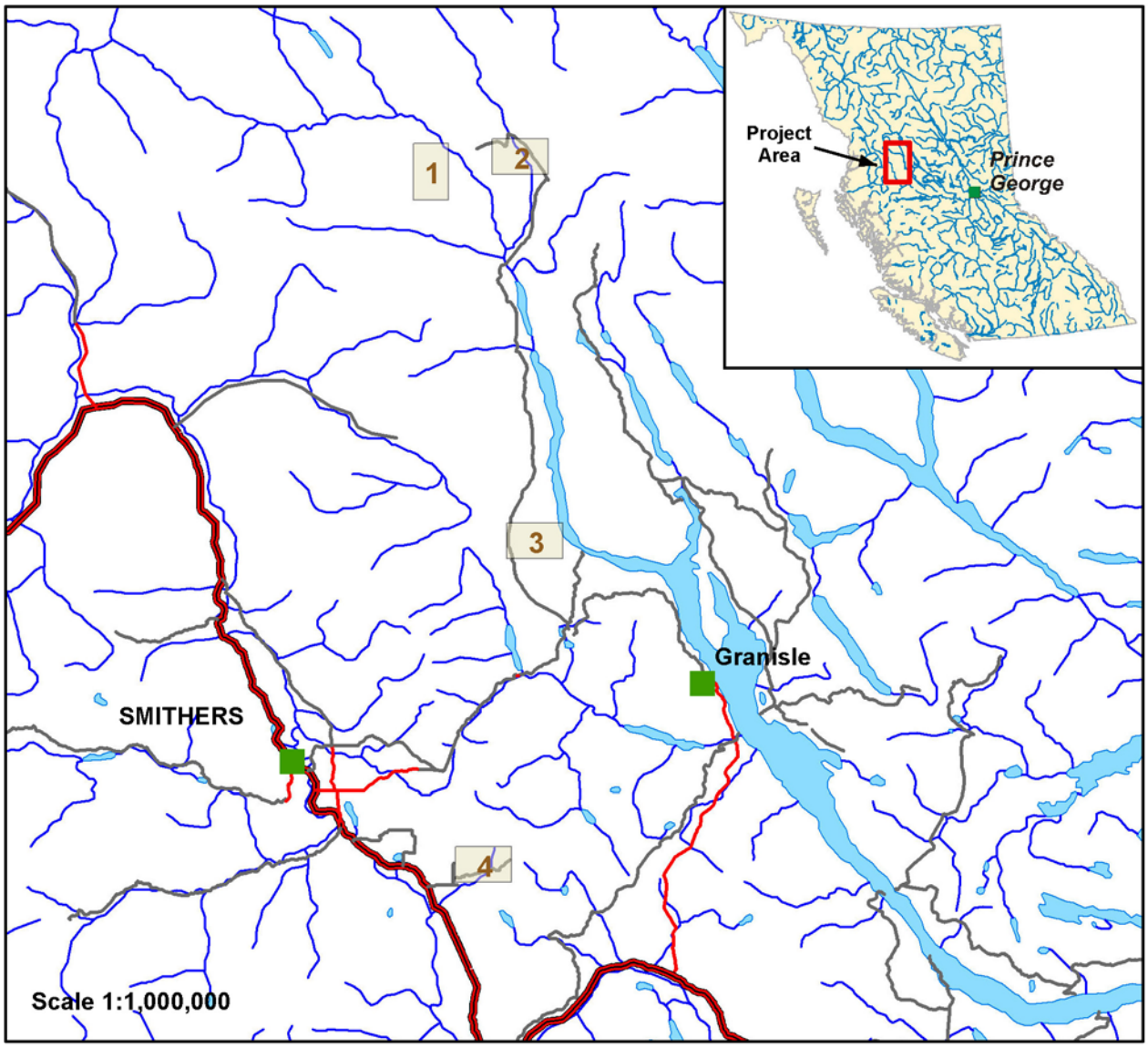

Figure 1: Location of Project Area.

3. Methods

Methodology used throughout this project was consistent with the Forest and Range Practices Act (FRPA) (former Forest Practices Code (FPC)) standards and methods outlined in the following publications:

- Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures. Version 2.0. (RIC, 2001)
- Fish-stream Identification Guidebook, Second Edition (FSID) (FPC, 1998)
- Riparian Management Area Guidebook (FPC, 1995)

Areas of interest requiring stream assessments were identified and named by BCTS personnel prior to the field trips and were marked on hard copy or digital maps.

3.1 Air Photo Interpretation

Air photo/ortho photo interpretation was completed to:

- delineate stream reaches for all drainages where reaches were missing,
- identify relevant barriers to fish migration, which would be later verified in field,
- assess if potential overwintering habitat is present above these obstructions.

3.2 Field Data Collection

Field data were collected on Site Cards and Fish Collection Forms, which are the current accepted method of collecting data for fish sampling and stream classification. Supporting documentation regarding terminology and use of these forms is available in publications listed in the Bibliography section. Collected field data are provided in the Field Forms arranged by site number and which are available in Appendix I.

3.3 Fish Sampling

Electrofishing, minnow traps and dip netting, supplemented by visual observation, were the methods used for fish sampling for this project.

3.4 Measurements and Calculations

Stream channel and wetted widths were determined using a meter tape. A minimum of six channel width measurements were made along each site at a distance of approximately 15-20m apart. For crossings assessments additional channel measurements were taken on downstream and upstream side of the crossing. Residual pool and bankfull depth measurements were determined using a meter stick. Stream gradient was measured using Abney level along several sections of the site. Site lengths were determined by ground estimate, hip chain or by GPS unit. Stream water temperatures were measured using an alcohol thermometer while conductivity and pH measurements were made using LaMotte Tracer portable multi-meter, which was calibrated using standardized solutions.

Measurements of falls were based on ground estimates or calculated using the following formula:

$$H = Ho * (\text{gradient (\%) to top of falls}) / (\text{gradient (\%) to bottom of falls}) + Ho$$

H = Height of falls (in m) Ho = Eye height of observer (in m)

The above formula is accurate provided the observer is at the same elevation as the base of the falls (i.e., standing at the edge of the plunge pool).

Heights and lengths of linear obstructions (cascades, velocity barriers, etc.) were determined using a hip chain and Abney level and then applying slope/distance tables to verify the vertical height.

100 years flood discharge (Q100) was calculated using modified California method and the Manning formula (www.culvertbc.com). Roughness coefficients were derived from Manning's and Cowan's coefficients (McCuen, R. H., 1989), which were modified through the analysis of stream morphology data collected by FINS during the past 15 years.

3.5 Stream and Site Referencing

Drainages without a gazetted name or watershed code were assigned unique five digit stream ID (also known as Interim Location Points (ILP) - as recommended in the FSID) in each proposed development area to provide reference for other interested parties working within the same area. Otherwise, gazetted, local or already existing BCTS identifiers were used or watershed codes were attached to the relevant stream, if available.

Site numbers for this project have been assigned in an ascending order based on the sequence of survey.

As per request by Smithers office staff, site locations were marked in the field by yellow ribbon with written information containing site and stream ID, riparian classification, fish species present and date of visit. Additionally, ribbons with relevant information were also placed at the transitions of riparian classifications.

3.6 Mapping

Mapping convention for this project generally follows the standards as are recommended in the FSID. Using GIS software 1:20,000 scale maps have been produced for this project, and are included in Appendix III at the end of this report.

Each map depicts the stream network; base coordinates from the UTM grid and mapping symbols, as recommended in the standards. The fish presence/absence in specific streams is represented on the maps using colour line work. Solid red lines indicate confirmed fish presence while dashed red lines indicate that fish presence is inferred, but has not been confirmed. Solid blue lines show confirmed fish absence, solid green lines indicate presence of non classified drainage (NCD) reaches and dashed blue lines depict streams with suspected fish absence.

Unmapped or mismapped streams on TRIM coverage, which were encountered during survey, were also mapped with the aid of professional GPS unit, ortho photos and GIS software.

Current sites locations on the map are depicted by a black site symbol with attached black site summary label (sampling results, gradient, channel width, and riparian classification). Site ID is represented by a red label placed beside the site symbol.

Historic sampling sites are indicated by a purple site symbol with attached purple site summary label (sampling results, gradient, channel width and riparian classification, if was available) and information by whom and when the stream was visited. Historic site ID is represented by a purple label placed beside the site symbol.

All additional fisheries features which were encountered during assessment or found during historic data review, and that provide significant information for the final assessment, were also depicted on the maps using appropriate symbols as indicated in the standards.

3.7 Photographs

Representative photographs of sites and any significant features are presented in Appendix II. Photos have been reduced in size so that multiple photos can be presented with relevant site cards. Each photo is labeled with the site number, and direction in which the photo was taken.

Some sites do not have any photographs as they would not have provided any useful information due to the lack of good visibility (dense vegetation), or because there was no drainage present at all.

3.8 Field Equipment

All sampling equipment specifications are listed below:

- 1 Smith-Root model 12B P.O.W. Backpack Electrofisher
- 1 Pentax Optio W80 digital camera
- 1 Professional GPS (Ashtech MM100) unit with differential correction
- assorted other equipment including meter tape, hip chain, magnifying lens, meter stick, dip net, LaMotte Tracer portable multi-meter, Abney level, alcohol thermometer, Silva compass and oil spill kit
- 2 personal First Aid kits, as per WorkSafe BC requirements

4. Determining Fish-bearing Status

The following section summarizes the information collected and conclusions reached for each sample site within the general project area. This has been based both on interpretations and conclusions from the synthesis of data collected during previous inventories (Lakes/Nadina Forest District 1996 through 2009 Reconnaissance and Operational Inventories) and from new information collected as part of this project.

Determining whether or not any fish use occurs in a specific reach is a complex process, involving much more than applying fish sampling results on a site-specific basis. Specifically, in applying a non fish-bearing status to a reach when fish are not captured in a sampling event, a more systematic process is required in order to provide an adequate rationale to support a conclusion of fish absence. Biological evaluation is used which factors in such considerations as historical sampling information, known fish distributions and behavior, barriers, gradients, invertebrate presence, habitat quality, and presence/absence of headwater lakes.

As a general rule, two conditions must usually exist in order for fish to inhabit a specific stream reach; 1) presence of fish habitat and 2) accessibility to that habitat. There are exceptions to this, such as presence of resident or adfluvial populations above barriers which otherwise block access, but these situations are considered on an individual basis when appropriate sampling can be undertaken to accurately determine fish presence under these circumstances.

Determining presence of fish habitat requires biological judgment that is based on many tangible factors. A "snapshot" method is used to determine presence of fish habitat at the time of sampling, but this is not sufficient when lack of water limits available habitat. Under these circumstances, a temporal approach is required which factors in the potential for fish habitat presence during a different flow period. In this manner, different habitat requirements for suspected fish species are also considered, such as potential seasonal use for rearing (i.e., higher flow rearing or refuge habitat) or spawning (i.e., suitable gravels, gradient and potential flow). Again, biological judgment is required to recognize this potential habitat, bearing in mind how the different flow regimes may affect the availability of this habitat. Moreover, the presence of potential overwintering or perennial habitat upstream in the watershed (i.e., lakes, wetlands, pools >0.5m deep) is also taken into account and has influence on the fish-bearing status of a specific reach. Existence of habitat or potential habitat, if present, is noted and described in the comments on the site cards.

Once presence of fish habitat has been established, it must be determined whether the fish are capable of accessing this habitat. The presence of obstructions to fish in the form of falls, cascades, impassable gradients and lack of connectivity within a watershed may limit fish distribution within a watershed and must be evaluated. When questionable obstructions or soft barriers (i.e., beaver dams, wetlands, and NVC reaches) are present, the process for determining the presence of fish habitat upstream must be undertaken and combined with adequate sampling in order to determine fish use.

The fish-bearing status of a specific reach is dependent on the presence of fish habitat, the accessibility to that habitat and is supported by the results of fish sampling. The above process for determining fish presence is an overview of the variables evaluated before fish-bearing status can be accurately ascertained. This entire process is always supplemented by existing fisheries information and interpretations from map and air photo analysis.

Once a non-fish bearing conclusion has been established for a sampled reach, all reaches located upstream from that location are considered to be non fish-bearing and no further sampling is required to confirm this conclusion. This is inherent in the process used to determine the non fish-bearing status.

5. Fish Habitat Value Rating

Habitat value rating was introduced in 2002 in order to protect fish and fish habitat and provide proper fish passage. The decision making process in selecting an appropriate stream crossing installation was simplified and depended on the fish habitat evaluation.

In the Fish-stream Crossing Guidebook habitat value was distinguished in three ratings:

- **Critical** (CR) – where extremely abundant or important fish and/or fish habitat are present, habitat is critical in sustaining a subsistence, commercial, or recreational fishery, or species at risk.

- **Important** (IM) – where moderately abundant fish and/or fish habitat are present, but deemed to be not critical; contains similar habitat readily available to the stock elsewhere within a particular watershed.
- **Marginal** (MG) – where sparse fish and/or fish habitat are present (i.e. low value habitat or under/non utilized habitat); habitat that marginally contributes to fish production.

These ratings were applied to assessed stream reaches and are provided in the "Stream summary tables" in Section 6 below.

Confirmed non-fish bearing drainages have no ratings (NA), regardless of potential fish habitat quality. However, any possible introduction of harmful substances to such watercourses during in-stream work may negatively affect existing fish habitat downstream of non-fish bearing waters.

6. Results

The following tables within sections 6.1 and 6.2 provide the fish-bearing status for all surveyed drainage reaches and present information for all non fish-bearing reaches, however these tables do not include data for the Granisle Connector Road.

The first, “Stream summary table”, provides basic physical information and brief comments for all surveyed reaches and incorporates historic site data pertinent to this project.

The second, “Non-fish bearing stream table”, provides justifications for all non fish-bearing reaches and includes pertinent physical site-specific data, sampling method and effort, relevant historical information and comments that provide a rationale to support derived riparian classification for non-fish bearing drainages.

Two reaches of stream WSC 480-525800-41873 were identified for follow-up sampling during this assessment. These were indicated and commented in the respective columns of the “Stream summary table”.

Abbreviations used in all tables are located at the end of the report.

Site details can be found in the field forms provided in the Appendix I.

6.1 Summary of all Surveyed Reaches

Table 1: Summary of data of all surveyed drainages.

AREA	BCTS Stream ID	Stream ILP or WSC	Map	Reach #	Site #	UTM zone	Easting	Northing	Rip Class	Habitat Value Rating	Grad (%)	Cw (m)	Wb (m)	Q100 (m^3)	Samp. Res.	Site Length (m)	Follow-up Sampl.	Comments
A58048-1 and BAB-1		480-280900	1	3	1	9	634237	6160947	NA	UNK	*	*	*	*	RB	2	N	Sampled to establish fish status. RB present in stream.
BAB-1	BAB1-B-R1	480-280900-59517	1	1	2	9	633740	6158660	S6	NA	4.38	2.60	0.47	4.54	NFC	400	N	Confirmed non-fish bearing. Existing 600mm CMP barely accomodates high flows.
					xing	9	634050	6158450										
A58048-1	048-A-R1	480-280900	1	4.1 & 4.2	3	9	633940	6160830	S2/ S5	MG/NA	7.67	7.38	1.13	62.75	RB/ NFC	2500	N	Overall fish habitat in R4.1 is negatively affected by the frequent land slides occuring within steep gully and consequently resulting debris torrents. 2m falls at UTM 9.633773.6160448 mark EFU and riparian class transition from S2 to S5.
BAB-1	BAB1-A-R1	480-280900	1	5	4	9	634343	6157244	S5/ S6	NA	4.50	2.40	0.53	3.55	NS	200	N	Confirmed non-fish bearing. Riparian class transition from S5 to S6 at UTM 9.634347.6157214.
BAB-1	BAB1-B-R1	480-280900-59517	1	4	5	9	635142	6156647	S6	NA	0.53	1.88	0.65	1.50	NS	150	N	Confirmed non-fish bearing.
BAB-1	BAB1-G-R1	56001	1	1	6	9	635361	6156376	S6	NA	9.25	0.83	0.20	0.58	NS	200	N	Confirmed non-fish bearing.
BAB-1	BAB1-B-R2	480-280900-59517	1	5	7	9	635202	6156215	S6	NA	2.00	1.67	0.30	0.47	NS	200	N	Confirmed non-fish bearing.
BAB-9	B09-A-R2	57001	2	2	8	9	647000	6160822	NCD	NA	*	*	*	*	NS	100	N	Not a stream.
BAB-9	B09-A-R1	57001	2	3	9	9	646840	6160758	NCD	NA	*	*	*	*	NS	100	N	Not a stream.

Table 1: Summary of data of all surveyed drainages.

AREA	BCTS Stream ID	Stream ILP or WSC	Map	Reach #	Site #	UTM zone	Easting	Northing	Rip Class	Habitat Value Rating	Grad (%)	Cw (m)	Wb (m)	Q100 (m^3)	Samp. Res.	Site Length (m)	Follow-up Sampl.	Comments
TORK11	T11-A-R1	480-525800-41873	3	1 & 2	10	9	653040	6104510	UND	UNK	3.50	2.10	0.38	3.47	NS	1250	Y	Stream is seasonal and may contain only very poor rearing habitat. It was dry from the mouth up to the crossing during assessment. Reach 1 has not preferable RB habitat. Stream bed contains mixed organics and fines with cobbles - not suitable for spawning. Slow flows and decaying organic matter may cause oxygen deficiency when watered, further inhibiting access and seasonal use of stream. Within 100m section from mouth channel is not well defined - shallow ponds (dry now) which are passable only at high flows during freshet or soon after. Very few pools were noted further upstream. Reach 2 has fast flows during watered periods due to insignificant in-stream cover (scarce LWD and boulders); no pools were observed over the entire (700m) length of reach, therefore there is very little resting places for fish. Bed is composed almost entirely of cobbles, compacted hard and with no aggraded deposits. It is suggested that stream will be re-sampled next season shortly after freshet (second half of June) to determine fish use or defaulted as a fish bearing with S3 riparian classification without second visit.
SFU2008-DK11		67001	4	1 &2	11	9	647292	6056810	S6	NA	17.7	0.68	0.12	0.14	NS	640	N	Confirmed non-fish bearing. Riparian class transition from S6 to NCD at UTM 9.647580.6056916.
				2	xing	9	647650	6057025	NCD	NA	*	*	*	*	NS			
		460-496100-69000	4	3.1	12	9	647162	6057151	S5	NA	9.3	3.17	0.38	4.33	NFC	670	N	Confirmed non-fish bearing upstream of 1.5m high falls at UTM 9.647159.6057128 followed by numerous chutes, falls and cascades. This falls marks EFU and riparian class transition from S3 to S5. Riparian class transition from S5 to S6 at UTM 9.647386.6057234.
				3.2					S6	NA	8.5	2.52	0.38	3.17	NFC			
		460-496100-69000-07900	4	1, 2, 3	13	9	647356	6057207	S6/ NCD	NA	8.1	1.01	0.23	0.30	NS	820	N	Confirmed non-fish bearing. UTM 9.647947.6057392 - marks riparian class transition from S6 to NCD.
				2	xing	9	647685	6057302	S6	NA	3.8	0.93	0.28	0.26	NS			

Table 1: Summary of data of all surveyed drainages.

AREA	BCTS Stream ID	Stream ILP or WSC	Map	Reach #	Site #	UTM zone	Easting	Northing	Rip Class	Habitat Value Rating	Grad (%)	Cw (m)	Wb (m)	Q100 (m^3)	Samp. Res.	Site Length (m)	Follow-up Sampl.	Comments
SFU2008-DK4		67005	4	1 & 2	14	9	644753	6059266	S4/ NCD	MG/ NA	6.7	0.70	0.35	0.31	NS (DV)	140	N	Moderately steep, tiny and seasonal stream with accessible rearing habitat for DV only within 80m from mouth. At UTM 9.644768.6059330 channel becomes discontinuous and drainage becomes a seepage - marks riparian class transition from S4 to NCD. DV is a Blue listed species - sensitive to sedimentation and water temperatue increase.
		460-496100-59500	4	3	15	9	644347	6058814	S3	MG	5.7	2.88	0.50	5.45	DV	530	N	Overall good rearing habitat during low to moderate flows. No spawning or overwintering habitat noted. DV is a Blue listed species - sensitive to sedimentation and water temperatue increase.
		67002	4	1	16	9	644488	6058713	NCD	NA	*	*	*	*	NS	460	N	Not a stream as per definition. Lower 50m long section is mismapped on TRIM.
					xing	9	644568	6058899										
		67006	4	3	17	9	644341	6058972	NCD	NA	*	*	*	*	NS	230	N	Not a stream. Unmapped drainage on TRIM.
		67003	4	1.1	18 @ xing	9	644456	6059055	S3	MG	4.8	1.82	0.33	1.34	NFC (DV)	970	N	Overall excellent rearing habitat present for DV and RB. Suitable spawning habitat for RB. Too shallow for overwintering. Stream easily accessible from the parent stream and likely populated during summer months. Riparian class transition from S3 to S4 at UTM 9.644621.6059160. DV is a Blue listed species - sensitive to sedimentation and water temperatue increase.
				1.2					S4	MG	7.9	1.47	*	*	NFC (DV)			
		67004	4	1	19	9	644466	6059103	NCD	NA	*	*	*	*	NS	270	N	Not a stream.
					xing	9	644521	6059252										

6.2 Non-fish Bearing Reaches

Table 2: Summary of data of non-fish bearing drainages.

Area	Map	Stream Name (BCTS ID, ILP or WSC)	Reach #	Site #	Date	Rip Class	Grad (%)	CW (m)	Wb (m)	Flow Stage	Water Temp (°C)	Cond. (µS/cm)	Turb.	Samp. Meth.	Samp. Res.	Effort (EF - sec/ dist.)	EF Specs (V/ Hz/ µs)	Comments
BAB-1	1	BAB1-B-R1 480-280900-59517	R1	2	4-Sep-10	S6	4.38	2.60	0.47	L	9	133	C	EF	NFC	137/400	400/70/4	No fish habitat - flows into confirmed this year NFB stream. No any isolated fish population in stream.
A58048-1	1	048-A-R1 480-280900	R4.2	3	4-Sep-10	S5	7.67	7.38	1.13	L	9	134	C	EF	NFC	599/2000	400/80/4	No fish habitat. No isolated fish population present. Second sampling. Stream was extensively sampled by Triton in 1996 and no fish was captured 2m falls at UTM 9.633773.6160448 mark EFU and riparian class transition from S2 to S5.
BAB-1	1	BAB1-A-R1 480-280900	R5	4	5-Sep-10	S6	4.50	2.40	0.53	L	9	111	C	*	NS	*	*	No fish habitat - stream is inaccessible to fish d/t falls barrier in R4.1. No isolated fish population present. Stream was extensively sampled by Triton in 1996 and no fish was captured. Riparian class transition from S5 to S6 at UTM 9.634347.6157214.
BAB-1	1	BAB1-B-R1 480-280900-59517	R4	5	6-Sep-10	S6	0.53	1.88	0.65	L	8	126	L	*	NS	*	*	No fish habitat - stream is inaccessible to fish d/t falls barrier in R4.1 of parent stream No isolated fish population present. Stream was extensively sampled by Triton in 1996 and no fish was captured.
BAB-1	1	BAB1-G-R1 56001	R1	6	6-Sep-10	S6	9.25	0.83	0.20	DRY	*	*	*	*	NS	*	*	No fish habitat - seasonal trickle, flows into confirmed this year NFB stream.
BAB-1	1	480-280900-59517	R5	7	6-Sep-10	S6	2.00	1.67	0.30	L	8	121	C	*	NS	*	*	No fish habitat - stream is inaccessible to fish d/t falls barrier in R4.1 of parent stream No isolated fish population present. Stream was extensively sampled by Triton in 1996 and no fish was captured.
BAB-9	2	B09-A-R2 57001	R2	8	6-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	No fish habitat - ~10m long channelized sections, otherwise isolated puddles within swampy corridor; no continuous scoured channel bed, no fluvium - not a stream.
BAB-9	2	B09-A-R1 57001	R3	9	6-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	No fish habitat - tiny drainage isolated from FB waters. At crossing vicinity 10-30m long scoured sections alternate with overland flows/seepage. No continuous scoured channel bed, no fluvium - not a stream.

Table 2: Summary of data of non-fish bearing drainages.

Area	Map	Stream Name (BCTS ID, ILP or WSC)	Reach #	Site #	Date	Rip Class	Grad (%)	CW (m)	Wb (m)	Flow Stage	Water Temp (°C)	Cond. (µS/cm)	Turb.	Samp. Meth.	Samp. Res.	Effort (EF - sec/ dist.)	EF Specs (V/ Hz/ µs)	Comments
SFU2008-DK11	4	67001	R1	11	25-Sep-10	S6	17.70	0.68	0.12	L	6	121	C	*	NS	*	*	No fish habitat - seasonal stream, which disperses 10m from mouth - the only habitable section near mouth during freshet, however is too steep and contains no instream cover to be inhabited beyond valley. Riparian class transition from S6 to NCD at UTM 9.647580.6056916.
			R2	11 at xing	25-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	
	4	460-496100-69000	R3.1	12	25-Sep-10	S5	9.30	3.17	0.38	M	6	162	C	EF	NFC	440/400	500/80/4	No fish habitat - stream inaccessible to fish due to the presence of 1.5m high falls at UTM 9.647159.6057128 followed by numerous chutes, falls and cascades. This falls marks EFU and riparian class transition from S3 to S5. Overall the stream contains suitable perennial habitat to support fish use, however no isolated fish population is present upstream of the first barrier. Second visit - stream sampled in 1997 by Triton in R4 and no fish was captured at that time. Riparian class transition from S5 to S6 at UTM 9.647386.6057234.
			R3.2			S6	8.50	2.52	0.38									
	4	460-496100-69000-07900	R1	13	25-Sep-10	S6	8.10	1.01	0.23	M	7	112	C	*	NS	*	*	No fish habitat - stream flows into the confirmed non-fish bearing stream. Channel becomes discontinuous with no alluvial deposits at UTM 9.647947.6057392 - marks riparian class transition from S6 to NCD.
			R2	13 at xing	25-Sep-10	S6	3.80	0.93	0.28									
			R3	13	25-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	

Table 2: Summary of data of non-fish bearing drainages.

Area	Map	Stream Name (BCTS ID, ILP or WSC)	Reach #	Site #	Date	Rip Class	Grad (%)	CW (m)	Wb (m)	Flow Stage	Water Temp (°C)	Cond. (µS/cm)	Turb.	Samp. Meth.	Samp. Res.	Effort (EF - sec/ dist.)	EF Specs (V/ Hz/ µs)	Comments
SFU2008-DK4	4	67005	R2	14	26-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	No fish habitat - at UTM 9.644768.6059330 channel becomes discontinuous and drainage becomes a seepage - marks riparian class transition from S4 to NCD.
	4	67002	R1	16	26-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	No fish habitat - mostly seepage in lower 50m, than some isolated and 5-10m long scoured sections with alluvial deposits. Lower 50m long section is mismapped on TRIM. Not a stream as per definition.
	4	67006	R3	17	26-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	No fish habitat - discontinuously scoured channel segments <5m in lengths with some fluvial material, drains small alder patch - not a stream. Unmapped drainage on TRIM.
	4	67004	R1	19	26-Sep-10	NCD	*	*	*	*	*	*	*	*	NS	*	*	No fish habitat - alternating sections of seepage and scoured channel ~20m in lengths, no continuous fluvial deposits - not a stream.

7. List of Abbreviations

Avg	Average	LSU	Longnose sucker (*Catostomus catostomus*)
BCTS	British Columbia Timber Sales	m	Meter
C	Clear (not turbid)	M	Moderate flow or moderate turbid
BR	Bridge	min	Minutes
C.	Creek	mm	Millimeter
CCG	Slimy sculpin (*Cottus cognatus*)	MG	Marginal (habitat value rating)
cm	Centimeter	MT	Minnow trap
CMP	Corrugated Metal Pipe	MW	Mountain whitefish (*Prosopium williamsonii*)
Confl.	Confluence	N	No
CR	Critical (habitat value rating)	NA	Not applicable
CT	Cutthroat trout (*Oncorhynchus clarki*)	NCD	Not classified drainage
CV	Culvert(s)	ND	No drainage present
CW	Channel width	NFC	No fish captured
DFO	Department of Fisheries and Oceans	NS	Not sampled
DN	Dip net	NSC	Northern pike minnow (*Ptychocheilus oregonensis*)
d/s	Downstream	NTS	National Topographic Survey
DV	Dolly Varden char (*Salvelinus malma*)	NVC	No visible channel
Ecofor	Ecofor Consulting Ltd.	OLF	Overland flow
EF	Electrofishing	PVCP	Polyvinyl Chloride Pipe
EFU	End of Fish Use	R.	River
FB	Fish-bearing	Rd	Road
FINS	FINS Consulting Ltd.	Rip.	Riparian
FISS	Fisheries Information Summary System	RIC	Resource Information Committee
FPC	Forest Practices Code	sec	Seconds
FSID	Fish-stream Identification Guidebook	SKR	SKR Consultants Ltd.
FSR	Forest Service Road	S1 - S6	Riparian classes (streams)
FSZ	Fisheries Sensitive Zone	T	Turbid
GF	Ground flow	Temp	Temperature
Grad	Slope gradient	TRIM	Terrain Resource Information Management
GPS	Global Positioning System	Triton	Triton Environmental Consultants Ltd.
h	Hours	UGF	Undrground flow
H	High flow	u/s	Upstream
HF	High flows	UTM	Universal Transverse Mercator coordinates
Hz	Hertz	V	Volt
HIST	Historic	W1 - W5	Riparian classes (wetlands)
ID	Identifier	Wb	Bankfull depth
ILP	Interim Locatinal Point (Stream ID)	WSBC	Work Safe BC
IM	Important (habitat value rating)	WSC	Watershed code
infer	Inferred	X-ing	Crossing
INT	Intermittent	Y	Yes
km	Kilometer	µsec	Microseconds
L	Low flow or lightly turbid	µS	Microsiemens
L.	Lake	°C	Temperature
LKC	Lake chub (*Couesius plumbeus*)	%	Slope gradient
LNC	Longnose dace (*Rhinichthys cataractae*)		

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9. List of Appendices

Appendix I: Site Forms

Appendix II: Photographs

Appendix III: Maps

Appendix I: Site Forms

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 1**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-280900 **Map:** 093M.056

Local Name: **ILP:** **Reach:** 3 **Site Lg:** 2 **Access:** FT

UTM Z.E.N: 9 | 634237 | 6160947 **Method:** GIS **Survey Date:** 04/09/201 **Time:** 12:55 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):													
Wetted Width (m):	2												2
Res. Pool Dp (cm):													
Bankfull Depth (m):													
Chan. Gradient (%):													

WATER

Temp: 9
pH:
Cond: 141
Turbidity: C

Flow Stage: **Channel Conditions:** **Flood Signs:**

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV

Canopy: **LWD Function & Distr:** **IV Type:**

LB Shape: **LB Texture:** **LB Riparian Vegetation:** **LB Riparian Vegetation Stage:**

RB Shape: **RB Texture:** **RB Riparian Vegetation:** **RB Riparian Vegetation Stage:**

CHANNEL MORPHOLOGY

Dom Substrate: **D95 (cm):** **Morphology:** **Strm Patt:** **Confnmnt:** **Coupling:** **Islands:**

Subdom Substr: **D (cm):** **Bars:** **Disturbance Indicators:**

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
EF	8	2	400	70	4					

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments
RB	J	2	88	101	R	

COMMENTS

Comm 1	Sampled to establish fish status. RB present in stream.
Comm 2	
Comm 3	
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: UNK

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 2**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-280900-59517 **Map:** 093M.056

Local Name: BAB1-B-R1 **ILP:** **Reach:** 1 **Site Lg:** 400 **Access:** FT

UTM Z.E.N: 9 | 633740 | 6158660 **Method:** GIS **Survey Date:** 04/09/201 **Time:** 13:40 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	2.9	2.8	2.9	2.5	2.4	2.1							2.6
Wetted Width (m):	0.4	0.6	0.3	0.7	0	1.1							0.52
Res. Pool Dp (cm):	0.08	0.12	0.07										0.09
Bankfull Depth (m):	0.5	0.5	0.5	0.4	0.4	0.5							0.47
Chan. Gradient (%):	3.5	3	5	6									4.38

WATER

Temp: 9
pH: 7.9
Cond: 133
Turbidity: C

Flow Stage: L **Channel Conditions:** INT **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
T	T	T	D	T	T	S	N

Canopy: 41-70% **LWD Function & Distr:** F/E **IV Type:** M

LB Shape: V **LB Texture:** FGCB **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: V **RB Texture:** FGCB **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: C **D95 (cm):** 60 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** N

Subdom Substr: G **D (cm):** 12 **Bars:** SIDE DIAG **Disturbance Indicators:** B2 D2 S3

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
EF	137	400	400	70	4					

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments
NFC		0				Not many places for fish to rear. V. shallow within watered sections or water trickles between substrate.

COMMENTS

Comm 1	No fish habitat - flows into confirmed this year NFB stream. No any isolated fish population in stream.
Comm 2	Existing 600mm CMP barely accomodates high flows.
Comm 3	Very shallow with DW sections
Comm 4	Rhab - very shallow, only B provide some ISC. Very turbulent during M to H flows.
Comm 5	Shab - none - no suitable substrate.
Comm 6	Ohab - none - too shallow
Comm 7	
Comm 8	

Riparian Class: S6

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 3**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-280900 **Map:** 093M.056

Local Name: 048-A-R1 **ILP:** **Reach:** 4.1&4.2 **Site Lg:** 2500 **Access:** FT

UTM Z.E.N: 9 | 633946 | 6160835 **Method:** GIS **Survey Date:** 04/09/201 **Time:** 14:30 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	8.1	6.1	7.1	7.5	6.9	8.6							7.38
Wetted Width (m):	1.4	1.5	0.7	0.3	0	0							0.65
Res. Pool Dp (cm):	0.73	0.71	0.49	0.64									0.64
Bankfull Depth (m):	1.5	0.8	1.1										1.13
Chan. Gradient (%):	6	8	9										7.67

WATER

Temp: 9
pH: 7.9
Cond: 134
Turbidity: C

Flow Stage: L **Channel Conditions:** DW **Flood Signs:** Levees, suspended debris, debris piles

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
M	N	S	D	N	S	T	N

Canopy: 21-40% **LWD Function & Distr:** F/C **IV Type:** N

LB Shape: V **LB Texture:** CBR **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: V **RB Texture:** CBR **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: C **D95 (cm):** 400 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** O

Subdom Substr: B **D (cm):** 50 **Bars:** MID SPAN BR **Disturbance Indicators:** B1 B2 B3 D2 S3 S4

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		
DW			Impedes fish passage seasonally	9	633820	6160681
F	2		Impassable to fish, 90m u/s from the last fish capture.	9	633773	6160448

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
EF1/EF2	47/599	400/2000	400/400	70/80	4/4					

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments
RB	J	4	77	127	R	EF1 - spot EF, sampled pools only; EF2 - sampled only deep pools
NFC		0				

COMMENTS

Comm 1	Overall fish habitat in R4.1 is negatively affected by the frequent land slides occuring within steep gully and consequently resulting debris torrents.
Comm 2	2m falls mark EFU and riparian class transition from S2 to S5.
Comm 3	Rhab - overall good during L to M flows.
Comm 4	Shab - none.
Comm 5	Ohab - excellent in several pools.
Comm 6	Landslides occur between 1st and second falls (1.5m high, UTM 9.633421.6159530) - three occurred this year.
Comm 7	Stream surveyed by Silvicon in Sept 26, 2006 but no official reference found.
Comm 8	

Riparian Class: S2/S5

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 4**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-280900 **Map:** 093M.056

Local Name: BAB1-A-R1 **ILP:** **Reach:** 5 **Site Lg:** 200 **Access:** FT

UTM Z.E.N: 9 | 634343 | 6157244 **Method:** GIS **Survey Date:** 05/09/201 **Time:** 15:30 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	2.2	2.2	2.6	2.7	2.3								2.4
Wetted Width (m):	1.8	1.8	1.1	1	1.1	1	1.2						1.29
Res. Pool Dp (cm):	0.31	0.22	0.17										0.23
Bankfull Depth (m):	0.6	0.8	0.5	0.6	0.5	0.5							0.58
Chan. Gradient (%):	6.5	5	4	3	4								4.5

WATER

Temp: 9
pH: 7.9
Cond: 111
Turbidity: C

Flow Stage: L **Channel Conditions:** **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	T	T	D	S	T	S	N

Canopy: 41-70% **LWD Function & Distr:** F/E **IV Type:** M

LB Shape: U **LB Texture:** GCB **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: V **RB Texture:** GCB **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: G **D95 (cm):** 60 **Morphology:** CP_B **Strm Patt:** SI **Confnmnt:** OC **Coupling:** DC **Islands:** N

Subdom Substr: B **D (cm):** 14 **Bars:** N **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	Overall usable fish habitat but inaccessible d/t falls barrier present at the end of reach 4.1.
Comm 2	Stream lacks perennial habitat to support an isolated fish population.
Comm 3	Extensively sampled in 1996 by Triton - NFC in all sites.
Comm 4	Riparian class transition from S5 to S6 at UTM 9.634347.6157214.
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S5/S6

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 5**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-280900-59517 **Map:** 093M.056

Local Name: BAB1-B-R1 **ILP:** **Reach:** 4 **Site Lg:** 150 **Access:** FT

UTM Z.E.N: 9 | 635142 | 6156647 **Method:** GIS **Survey Date:** 06/09/201 **Time:** 10:20 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	1.8	2	2	1.6	2	1.9							1.88
Wetted Width (m):	0.9	1.7	1.2	0.6	0.6	0.5							0.92
Res. Pool Dp (cm):	0.44	0.21											0.33
Bankfull Depth (m):	0.5	0.7	0.7	0.7									0.65
Chan. Gradient (%):	1	0.2	0.4										0.53

WATER

Temp: 8
pH: 7.8
Cond: 126
Turbidity: L

Flow Stage: L **Channel Conditions:** **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	T	N	N	D	T	S	N

Canopy: 1-20% **LWD Function & Distr:** N **IV Type:** N

LB Shape: U **LB Texture:** F **LB Riparian Vegetation:** W **LB Riparian Vegetation Stage:** NA

RB Shape: V **RB Texture:** F **RB Riparian Vegetation:** W **RB Riparian Vegetation Stage:** NA

CHANNEL MORPHOLOGY

Dom Substrate: F **D95 (cm):** 25 **Morphology:** RP **Strm Patt:** SI **Confnmnt:** UN **Coupling:** DC **Islands:** N

Subdom Substr: C **D (cm):** 1 **Bars:** N **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	Rhab - potential in incised channel, mostly run type with fines and occasional cobbles in channel bed.
Comm 2	Shab - none - no suitable substrate.
Comm 3	Ohab - none - too stagnant and too shallow.
Comm 4	No fish habitat - habitat isolated d/t falls barrier in parent stream in R4.1.
Comm 5	Sampled in 1996 by Triton with NFC.
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S6

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 6**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093M.056

Local Name: BAB1-G-R1 **ILP:** 56001 **Reach:** 1 **Site Lg:** 200 **Access:** FT

UTM Z.E.N: 9 | 635361 | 6156376 **Method:** GIS **Survey Date:** 06/09/201 **Time:** 11:20 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	0.8	1.1	0.7	0.9	0.8	0.7							0.83
Wetted Width (m):	0	0	0	0	0	0							0
Res. Pool Dp (cm):	0												0
Bankfull Depth (m):	0.2	0.2	0.2	0.3	0.1								0.2
Chan. Gradient (%):	10.5	13	7.5	6									9.25

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: L **Channel Conditions:** DRY **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
N(T)	(S)	(T)	N	(D)	(T)	(S)	N

Canopy: 21-40% **LWD Function & Distr:** F/E **IV Type:** N

LB Shape: V **LB Texture:** FGC **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: U **RB Texture:** FGC **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: G **D95 (cm):** 15 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** N

Subdom Substr: F **D (cm):** 8 **Bars:** N **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - tiny and seasonal trickle, flows into confirmed this year NFB stream.
Comm 2	
Comm 3	
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S6

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 7**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-280900-59517 **Map:** 093M.056

Local Name: BAB1-G-R1 **ILP:** **Reach:** 5 **Site Lg:** 200 **Access:** FT

UTM Z.E.N: 9 | 635202 | 6156215 **Method:** GIS **Survey Date:** 06/09/201 **Time:** 12:10 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	1.5	1.7	1.6	1.6	1.8	1.8							1.67
Wetted Width (m):	0.3	0.3	0	0	0.8	0.6							0.33
Res. Pool Dp (cm):	0.11	0.26	0.19	0.14									0.18
Bankfull Depth (m):	0.3	0.3	0.3										0.3
Chan. Gradient (%):	1	2	2	3									2

WATER

Temp: 8
pH: 7.6
Cond: 121
Turbidity: C

Flow Stage: L **Channel Conditions:** INT **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	T	T	N	D	S	S	N

Canopy: 21-40% **LWD Function & Distr:** F/E **IV Type:** M

LB Shape: U **LB Texture:** FG **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: U **RB Texture:** FG **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: G **D95 (cm):** 5 **Morphology:** RP **Strm Patt:** IR **Confnmnt:** UN **Coupling:** DC **Islands:** N

Subdom Substr: NA **D (cm):** 5 **Bars:** SIDE DIAG **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	Shab - good potential.
Comm 2	Ohab - none - too shallow.
Comm 3	Rhab - good potential
Comm 4	No fish habitat - stream is inaccessible to fish d/t falls barrier in R4.1 of parent stream No isolated fish population present. Stream was extensively sampled by Triton in 1996 and no fish was captured.
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S6

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 8**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093M.057

Local Name: B09-A-R2 **ILP:** 57001 **Reach:** 2 **Site Lg:** 100 **Access:** FT

UTM Z.E.N: 9 | 647000 | 6160822 **Method:** GIS **Survey Date:** 06/09/201 **Time:** 15:50 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):													
Wetted Width (m):													
Res. Pool Dp (cm):													
Bankfull Depth (m):													
Chan. Gradient (%):													

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: **Channel Conditions:** NVC **Flood Signs:**

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV

Canopy: **LWD Function & Distr:** **IV Type:**

LB Shape: **LB Texture:** **LB Riparian Vegetation:** **LB Riparian Vegetation Stage:** W

RB Shape: **RB Texture:** **RB Riparian Vegetation:** **RB Riparian Vegetation Stage:** W

CHANNEL MORPHOLOGY

Dom Substrate: **D95 (cm):** **Morphology:** **Strm Patt:** **Confnmnt:** **Coupling:** **Islands:**

Subdom Substr: **D (cm):** **Bars:** **Disturbance Indicators:**

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - ~10m long channelized sections, otherwise isolated puddles within swampy corridor; no continuous scoured channel bed, no fluvium - not a stream.
Comm 2	
Comm 3	
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 9**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093M.057

Local Name: B09-A-R1 **ILP:** 57001 **Reach:** 3 **Site Lg:** 100 **Access:** FT

UTM Z.E.N: 9 | 646840 | 6160758 **Method:** GIS **Survey Date:** 06/09/201 **Time:** 16:15 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):													
Wetted Width (m):													
Res. Pool Dp (cm):													
Bankfull Depth (m):													
Chan. Gradient (%):													

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: **Channel Conditions:** NVC **Flood Signs:**

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV

Canopy: **LWD Function & Distr:** **IV Type:**

LB Shape: **LB Texture:** **LB Riparian Vegetation:** **LB Riparian Vegetation Stage:**

RB Shape: **RB Texture:** **RB Riparian Vegetation:** **RB Riparian Vegetation Stage:**

CHANNEL MORPHOLOGY

Dom Substrate: **D95 (cm):** **Morphology:** **Strm Patt:** **Confnmnt:** **Coupling:** **Islands:**

Subdom Substr: **D (cm):** **Bars:** **Disturbance Indicators:**

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - tiny drainage isolated from FB waters. At crossing vicinity 10-30m long scoured sections alternate with overland flows/seepage. No continuous scoured channel bed, no fluvium - not a stream.
Comm 2	
Comm 3	
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 10**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 480-525800-41873 **Map:** 093M.007

Local Name: T11-A-R1 **ILP:** **Reach:** 1&2 **Site Lg:** 1250 **Access:** FT

UTM Z.E.N: 9 | 653040 | 6104510 **Method:** GIS **Survey Date:** 06/09/201 **Time:** 16:15 **Agency:** C016 **Crew:** MJ/DJ

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	2.3	2.1	2.1	1.8	2.1	2.2							2.1
Wetted Width (m):	0	0	0	0	0	0							0
Res. Pool Dp (cm):	0												0
Bankfull Depth (m):	0.5	0.4	0.4	0.3	0.3								0.38
Chan. Gradient (%):	3	4	2	5									3.5

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: L **Channel Conditions:** DRY **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
N(A)	(S)	(T)	(T)	(T)	N	(D)	N

Canopy: 41-70% **LWD Function & Distr:** F/E **IV Type:** N

LB Shape: V **LB Texture:** GC **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: V **RB Texture:** GC **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: C **D95 (cm):** 20 **Morphology:** RP **Strm Patt:** SI **Confnmnt:** OC **Coupling:** PC **Islands:** N

Subdom Substr: G **D (cm):** 10 **Bars:** N **Disturbance Indicators:** C2

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	Stream contains v. poor Rhab, mostly riffles over compacted cobbles with insignificant ISC. Dewaters soon after freshet and unlikely is being populated by RB from parent stream.
Comm 2	No Shab - large substrate, dewaters; No Ohab - dry.
Comm 3	Stream dry up to the mouth - no pools observed in R2and only few in R1 (1200 m surveyed).
Comm 4	Not preferable habitat for RB in R1 - slow, mucky with cobbles alternating with muddy ponds near mouth. No Shab and Ohab observed.
Comm 5	Needs to be resampled in the first half of July to determine fish status.
Comm 6	Xing UTM 9.652063.6104828 at prop rd stn=0+526
Comm 7	
Comm 8	

Riparian Class: UND

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 11**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093L.067

Local Name: **ILP:** 67001 **Reach:** 1&2 **Site Lg:** 640 **Access:** FT

UTM Z.E.N: 9 | 647292 | 6056810 **Method:** GIS **Survey Date:** 25/09/201 **Time:** 10:18 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	0.52	0.59	1.21	0.78	0.53	0.62	0.49						0.68
Wetted Width (m):	0.52	0.59	1.21	0.78	0.53	0.62	0.49						0.68
Res. Pool Dp (cm):	0.03												0.03
Bankfull Depth (m):	0.13	0.11	0.11										0.12
Chan. Gradient (%):	18	19	16										17.67

WATER

Temp: 6
pH: 7.8
Cond: 121
Turbidity: C

Flow Stage: L **Channel Conditions:** **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	T	T	N	D	T	S	N

Canopy: 21-40% **LWD Function & Distr:** F/E **IV Type:** N

LB Shape: U **LB Texture:** FG **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: U **RB Texture:** FG **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: C **D95 (cm):** 17 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** N

Subdom Substr: G **D (cm):** 12 **Bars:** N **Disturbance Indicators:** C1

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		
FSB		10	Located near mouth	9	647292	6056810

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - seasonal stream, which disperses 10m from mouth - the only habitable section near mouth during freshet, however is too steep and contains no instream cover to be inhabited beyond valley.
Comm 2	Riparian class transition from S6 to NCD at UTM 9.647580.6056916.
Comm 3	Proposed xing at UTM 9.647650.6057025.
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S6/NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 12**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 460-496100-69000 **Map:** 093L.067

Local Name: **ILP:** **Reach:** 3.1&3.2 **Site Lg:** 670 **Access:** FT

UTM Z.E.N: 9 | 647162 | 6057151 **Method:** GIS **Survey Date:** 25/09/201 **Time:** 13:03 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	4.4	3.1	2.7	2.9	3.8	2.1							3.17
Wetted Width (m):	1.9	3.1	2.5	2.9	1.3	2.1							2.3
Res. Pool Dp (cm):	0.35	0.33	0.35	0.6	0.59								0.44
Bankfull Depth (m):	0.31	0.45	0.39										0.38
Chan. Gradient (%):	7	11	14	5									9.25

WATER

Temp: 6
pH: 8.1
Cond: 162
Turbidity: C

Flow Stage: M **Channel Conditions:** **Flood Signs:** Debris piles

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	T	S	D	N	S	T	N

Canopy: 21-40% **LWD Function & Distr:** A/C **IV Type:** M

LB Shape: V **LB Texture:** FGCBR **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: V **RB Texture:** FGCBR **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: G **D95 (cm):** 400 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** EN **Coupling:** CO **Islands:** O

Subdom Substr: B **D (cm):** 33 **Bars:** SIDE DIAG **Disturbance Indicators:** B2 D2 C4 S3

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		
F	1.5		Barrier - plunge pool 0.3 m	9	647159	6057128
C	5	20	2 consecutive falls and bedrock chute	9	647444	6057171

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
EF	440	400	500	80	4					

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments
NFC		0				

COMMENTS

Comm 1	Moderately steep stream with many cascades, chytes and falls. Overall sufficient habitat to support perennial fish use.
Comm 2	Due to many obstructions stream is inaccessible to fish from Deep Creek. First falls mark EFU and riparian class transition from S3 to S5.
Comm 3	No isolated fish u/s of 1st falls. Stream sampled u/s in 1997 by Triton at the existing xing with NFC.
Comm 4	Riparian class transition from S5 to S6 at UTM 9.647386.6057234. CW=2.6; 2.9; 2.1; 2.3; 2.7m; Gradient = 9, 7, 6, and 12%.
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S3/S5/S6

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 13**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 460-496100-69000-07900 **Map:** 093L.067

Local Name: **ILP:** **Reach:** 1÷3 **Site Lg:** 820 **Access:** FT

UTM Z.E.N: 9 | 647356 | 6057207 **Method:** GIS **Survey Date:** 25/09/201 **Time:** 14:21 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	1.2	1	0.9	1.1	0.7	1	1.2						1.01
Wetted Width (m):	0.9	0.9	0.9	1.1	0.7	1	1.1						0.94
Res. Pool Dp (cm):	0.18	0.24	0.34	0.21	0.17	0.24	0.27						0.24
Bankfull Depth (m):	0.2	0.3	0.2										0.23
Chan. Gradient (%):	12	8	6	6.5									8.13

WATER

Temp: 6.5
pH: 8
Cond: 112
Turbidity: C

Flow Stage: M **Channel Conditions:** **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	S	S	S	S	D	T	N

Canopy: 21-40% **LWD Function & Distr:** A/E **IV Type:** M

LB Shape: U **LB Texture:** FG **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: U **RB Texture:** FG **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: G **D95 (cm):** 7 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** N

Subdom Substr: C **D (cm):** 2 **Bars:** N **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - stream with nice potential Rhab but isolated from FB waters - drains to confirmed NFB parent stream.
Comm 2	Rd xing at UTM 9.647685.6057302.
Comm 3	Reach 2: CW=0.9; 0.8; 1.0; 1.0m; Wb=0.2;0.3;0.3;0.3m; Grad=6; 5; 3%; Subst G/F; Cover=A=C/P/OV; patt:SIOC; no disturbances.
Comm 4	Reach 3: channel becomes discontinuous with no alluvial deposits at UTM 9.647947.6057392 - marks riparian class transition from S6 to NCD. Drains small bog u/s.
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S6/S6/NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 14**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093L.067

Local Name: **ILP:** 67005 **Reach:** 1&2 **Site Lg:** 140 **Access:** FT

UTM Z.E.N: 9 | 644753 | 6059266 **Method:** GIS **Survey Date:** 26/09/201 **Time:** 9:13 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	0.9	0.6	0.8	0.6	0.6								0.7
Wetted Width (m):	0.3	0	0	0.1	0.4								0.16
Res. Pool Dp (cm):	0												0
Bankfull Depth (m):	0.4	0.3											0.35
Chan. Gradient (%):	9	7	4										6.67

WATER

Temp:

pH:

Cond:

Turbidity: C

Flow Stage: L **Channel Conditions:** INT **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
T(A)	T	T	S	D	T	N	N

Canopy: 21-40% **LWD Function & Distr:** F/E **IV Type:** N

LB Shape: U **LB Texture:** FC **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: U **RB Texture:** FC **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: C **D95 (cm):** 20 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** N

Subdom Substr: F **D (cm):** 6 **Bars:** N **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	Very poor seasonal habitat, maybe utilized for 80 m, no barrierrs noted.
Comm 2	At UTM 9.644768.6059330 channel becomes discontinuous and drainage becomes a seepage - marks riparian class transition from S4 to NCD.
Comm 3	Accessible length for fish use 80m.
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S4/NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 15**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** 460-496100-59500 **Map:** 093L.067

Local Name: **ILP:** **Reach:** 3 **Site Lg:** 530 **Access:** FT

UTM Z.E.N: 9 | 644347 | 6058814 **Method:** GIS **Survey Date:** 26/09/201 **Time:** 10:44 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	2.9	3.8	3	2.8	2.4	2.4							2.88
Wetted Width (m):	1.6	1.8	2.6	1.4	1.2	1.6							1.7
Res. Pool Dp (cm):	0.09	0.32											0.21
Bankfull Depth (m):	0.5	0.5	0.5										0.5
Chan. Gradient (%):	6	5	6										5.67

WATER

Temp: 6.2
pH: 8.2
Cond: 200
Turbidity: C

Flow Stage: L **Channel Conditions:** **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	T	S	D	S	T	T	N

Canopy: 21-40% **LWD Function & Distr:** F/E **IV Type:** T

LB Shape: V **LB Texture:** GCB **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: V **RB Texture:** GCB **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: C **D95 (cm):** 30 **Morphology:** CP_B **Strm Patt:** SI **Confnmnt:** FC **Coupling:** PC **Islands:** N

Subdom Substr: G **D (cm):** 16 **Bars:** SIDE DIAG **Disturbance Indicators:** C1

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
EF	5	1	400	80	4					

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments
DV	J	1	56	56	R	

COMMENTS

Comm 1	Rhab - good at low to moderate flows.
Comm 2	Shab - none - substrate too large.
Comm 3	Ohab - none - too shallow.
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S3

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 16**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093L.067

Local Name: **ILP:** 67002 **Reach:** 1 **Site Lg:** 460 **Access:** FT

UTM Z.E.N: 9 | 644488 | 6058713 **Method:** GIS **Survey Date:** 26/09/201 **Time:** 11:33 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):													
Wetted Width (m):													
Res. Pool Dp (cm):													
Bankfull Depth (m):													
Chan. Gradient (%):													

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: **Channel Conditions:** NVC **Flood Signs:**

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV

Canopy: **LWD Function & Distr:** **IV Type:**

LB Shape: **LB Texture:** **LB Riparian Vegetation:** **LB Riparian Vegetation Stage:**

RB Shape: **RB Texture:** **RB Riparian Vegetation:** **RB Riparian Vegetation Stage:**

CHANNEL MORPHOLOGY

Dom Substrate: **D95 (cm):** **Morphology:** **Strm Patt:** **Confnmnt:** **Coupling:** **Islands:**

Subdom Substr: **D (cm):** **Bars:** **Disturbance Indicators:**

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - mostly seepage; 50m u/s from site start of discontinuous alluvium.
Comm 2	Proposed xing at UTM 9.644568.6058899
Comm 3	Lower 50m long section is mismapped on TRIM.
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 17**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093L.067

Local Name: **ILP:** 67006 **Reach:** 3 **Site Lg:** 230 **Access:** FT

UTM Z.E.N: 9 | 644341 | 6058972 **Method:** GIS **Survey Date:** 26/09/201 **Time:** 12:57 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):													
Wetted Width (m):													
Res. Pool Dp (cm):													
Bankfull Depth (m):													
Chan. Gradient (%):													

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: **Channel Conditions:** NVC **Flood Signs:**

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV

Canopy: **LWD Function & Distr:** **IV Type:**

LB Shape: **LB Texture:** **LB Riparian Vegetation:** **LB Riparian Vegetation Stage:**

RB Shape: **RB Texture:** **RB Riparian Vegetation:** **RB Riparian Vegetation Stage:**

CHANNEL MORPHOLOGY

Dom Substrate: **D95 (cm):** **Morphology:** **Strm Patt:** **Confnmnt:** **Coupling:** **Islands:**

Subdom Substr: **D (cm):** **Bars:** **Disturbance Indicators:**

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - discontinuously scoured channel segments <5m in lengths with some fluvial material, drains small alder patch - not a stream.
Comm 2	Unmapped drainage on TRIM.
Comm 3	
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: NCD

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 18**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093L.067

Local Name: **ILP:** 67003 **Reach:** 1.1&1.2 **Site Lg:** 970 **Access:** FT

UTM Z.E.N: 9 | 644456 | 6059055 **Method:** GIS **Survey Date:** 26/09/201 **Time:** 13:17 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):	1.6	1.9	2	1.8	1.8	1.8							1.82
Wetted Width (m):	1.5	1.4	1	1.6	1.3	0.6							1.23
Res. Pool Dp (cm):	0.15	0.12	0.16										0.14
Bankfull Depth (m):	0.3	0.3	0.4										0.33
Chan. Gradient (%):	5	5	3	6									4.75

WATER

Temp: 5
pH: 8.8
Cond: 241
Turbidity: C

Flow Stage: L **Channel Conditions:** **Flood Signs:** None

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV
A	S	S	D	T	S	T	N

Canopy: 1-20% **LWD Function & Distr:** F/E **IV Type:** N

LB Shape: V **LB Texture:** GCB **LB Riparian Vegetation:** C **LB Riparian Vegetation Stage:** MF

RB Shape: U **RB Texture:** GCB **RB Riparian Vegetation:** C **RB Riparian Vegetation Stage:** MF

CHANNEL MORPHOLOGY

Dom Substrate: G **D95 (cm):** 31 **Morphology:** CP **Strm Patt:** SI **Confnmnt:** CO **Coupling:** CO **Islands:** N

Subdom Substr: C **D (cm):** 14 **Bars:** SIDE DIAG **Disturbance Indicators:** None

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
EF	299	970	400	80	4					

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments
NFC		0				

COMMENTS

Comm 1	Rhab - good - very diverse and abundant cover
Comm 2	Shab - for RB: plenty of small gravel patches and good holding overall; for DV: poor - water temp too cold.
Comm 3	Ohab - none - too shallow.
Comm 4	Riparian class transition from S3 to S4 at UTM 9.644621.6059160. Channel consistently <1.5m: 1.45; 1.56; 1.41; 1.47; 1.39; 1.49m.
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: S3/S4

SITE DATA

2010 Stream Assessment in Nadina Forest District **Site: 19**

SITE REFERENCE

Gazetted Name: Unnamed **WSC:** **Map:** 093L.067

Local Name: **ILP:** 67004 **Reach:** 1 **Site Lg:** 270 **Access:** FT

UTM Z.E.N: 9 | 644466 | 6059103 **Method:** GIS **Survey Date:** 26/09/201 **Time:** 13:52 **Agency:** C016 **Crew:** MJ/RC

CHANNEL

Measurement	1	2	3	4	5	6	7	8	9	10	11	12	Avg:
Channel Width (m):													
Wetted Width (m):													
Res. Pool Dp (cm):													
Bankfull Depth (m):													
Chan. Gradient (%):													

WATER

Temp:

pH:

Cond:

Turbidity:

Flow Stage: **Channel Conditions:** NVC **Flood Signs:**

COVER

CoverTotal:	SWD	LWD	B	CB	DP	OV	IV

Canopy: **LWD Function & Distr:** **IV Type:**

LB Shape: **LB Texture:** **LB Riparian Vegetation:** **LB Riparian Vegetation Stage:**

RB Shape: **RB Texture:** **RB Riparian Vegetation:** **RB Riparian Vegetation Stage:**

CHANNEL MORPHOLOGY

Dom Substrate: **D95 (cm):** **Morphology:** **Strm Patt:** **Confnmnt:** **Coupling:** **Islands:**

Subdom Substr: **D (cm):** **Bars:** **Disturbance Indicators:**

FEATURES

Feature	H (m)	L (m)	Comment	UTM Z.E.N		

SAMPLING

Method	EF sec	EF Lg (m)	EF Volt	EF freq	EF pulse	Traps	Nets	Duration	Net/Trap Depth (m)	Hab
NS										

Species	Stage	Total #	Min L	Max L	Act	Sampling Comments

COMMENTS

Comm 1	No fish habitat - alternating sections of seepage and scoured channel ~20m in lengths, no continuous fluvial deposits - not a stream.
Comm 2	Proposed xing at UTM 9.644521.6058899
Comm 3	
Comm 4	
Comm 5	
Comm 6	
Comm 7	
Comm 8	

Riparian Class: NCD

Appendix II: Photographs

Appendix III: Maps