Alberni Valley Community Forest

Recce Report

Weiner Creek
&
Taylor Block

Sproat & Taylor FDU
May 2012

Prepared by:

Len Apedaile, RPF

ECON consulting
PO Box 329
Merville, BC, V0R 2M0
Phone250-337-5588
Fax 250-337-2063
e-mail mail@econ.ca
www.econ.ca

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Introduction

The following report describes the results of additional recce work completed by Econ Consulting at the request of the Community Forest Manager. The purpose of this work was to:

1. review existing information and assess relative timber development opportunities in the Taylor Forest Development Unit (FDU),
2. assess additional timber development potential on the west side of Weiner Creek in the Sproat FDU to support the new bridge installation over Weiner Creek

Early snowfall in November prevented a ground survey of the Taylor Block in 2011 and early 2012. Instead a review of existing information, engineering data and satellite/ortho imagery (Google Earth. Mapview) was used to assess current status and discuss development options. Recommendations for further ground recce and development work are proposed.

A short ground recce of areas west of Weiner Creek identified up to 42 ha of potential development in five areas and up to 33 ha of future second pass timber. These are described with recommendations for further engineering work.

Taylor FDU

The following overview assessment of development opportunities in the Taylor FDU was conducted by an office review of existing information. It is based on the 2007 viability assessment data and report, correspondence on file, as well as a review of the terrain, forest cover and existing road systems using Google earth, existing orthophotos and mapview. Appendix 1 contains an annotated map of the Taylor FDU.

A ground recce was precluded by early snowfall in November 2011 and will require follow-up during the summer of 2012. The ground recce should focus on an assessment of all existing roads and of the previously engineered and projected viability assessment blocks (11, 12, 13, 14, 15, 16; 17, 22 and 27).

The following summary describes potential development opportunities and constraints based on the available information:

Overview:

- The Taylor FDU is a rugged mountainous block of which a minority of the land area contributes to the total harvesting landbase (THLB).
- Existing operable timber is almost exclusively old growth timber located at mid and upper elevations on upper slopes and side valleys that include significant areas of class IV and V terrain. The existing timber is interspersed within an extensive network of legally designated old growth management areas (OGMAs).
- The operable timber includes a mix of conventional and helicopter logging. The majority (~86%) of the conventional is cable logging. Some of the identified conventional timber (blocks 13, 14, 15) were formerly identified for heli blocks but currently have projected road access in upper slope areas that has yet to be proven on the ground.
- The balance of the THLB is located on lower slopes and the valley bottom and consists of second growth timber logged following the Tay Fire during the 1970's. These areas while productive and contributing to the AAC are at least 20-40 years away from harvest.
- One exception is an area of 40-year-old alder stands along Taylor flats, which may present current harvest opportunity.
- All projected blocks specified retention system – VILUP SMZ requirements limit retention/selection/shelterwood system blocks to 40ha NAR and clear-cut/clear-cut with reserves/seed tree silvicultural system blocks to 5ha NAR.
- Two independent power projects occur within the Taylor FDU and have implications for timber harvesting and access that will need to be considered and monitored. The Sutton Creek project is in place and operating while the Klitsa Creek project remains under development.

2007 Viability Assessment:

The 2007 viability assessment included a total chance plan of the Taylor area based on remaining (projected) operable timber base. This included 11 first pass and 6 second pass areas involving a combination of heli and conventional (cable/hoechuck) blocks. These projected blocks also include 6 Weyerhauser engineered blocks for which AVCF have partial data (see appendix 2). This information was considered as part of this review of development opportunities.

The 2007 assessment identified 68000m3 of first pass and 88000m3 second pass volume[1] in the Taylor from variety of block sizes. (See appendix 3 for an updated version of the Total Chance Plan Harvest Summary Table for the Taylor Area). Assuming that the blocks identified in 2007 remain operationally viable as projected the revised 2007 volume breakdowns suggest the following:

Table 1: Revised 2007 volume projections[2] by harvest system

Cubic metres	**Ground**	**Cable**	**Heli**	**total**
First pass	9555	50770		60325
Second pass	6235	48005	33975	88305
total	15880	98775	33975	148630
%	*11*	*66*	*23*	

The 2007 viability assessment included margin analyses for five of the Taylor blocks (11, 13, 15, 17, 22). These analyses were updated for reference purposes using adjusted volumes and current prices and stumpage rates. The results are shown in table 2 and indicate negative margins for all but one block.

Table 2: Updated margin analyses for 2007 Taylor blocks.

Block	**11**	**13**	**15**	**17**	**22**	**Total/avg**
Volume	4350	8250	8100	7830	6300	34830
Margin	$5.53	($12.16)	($19.73)	($11.06)	($0.41)	$(9.34)

It should be noted that these estimates have not been fully re-worked and require further analysis following ground recce and using updated assumptions and cost information. The values indicated above should not be considered definitive and need to be interpreted in the context of the 2007 assessment.

[1] Did not include blocks 26 & 27

[2] Includes blocks 26 & 27

Opportunities and Priorities:

Based on the review of the existing information and to facilitate further identification and planning of potential harvest opportunities we have highlighted seven (7) potential development headings. These are highlighted with circles (A-G) on the attached FDU map (Appendix 1). The following table contains a brief overview description of each of these areas along with a summary of known information for the respective blocks as described in the 2007 viability assessment and Weyco legacy information. Block attributes and operating assumptions can be found in the 2007 viability assessment and related documentation.

Area A

This development heading is located in the centre of the Taylor FDU and includes a series of projected old growth blocks (11,12,13,14,15,16,18). These are located on upper slopes across the face above T552C and the ridge east of South Sutton Creek. All of the blocks are located on steep slopes and within or adjacent to class IV terrain and class V terrain. The 2007 viability assessment identified all of these blocks for conventional cable harvest with minor amounts of ground based hoe chuck. It also identified block 11 as the first potential development block in the Taylor FDU and the best current harvest opportunity. Weyerhaueser previously engineered portions of blocks 11 (2422), 13(4309), and 15(2424) as roaded blocks then changed them to heli blocks. AVCF has some basic information for these blocks including visual impact assessments. (see appendix 2). Terrain stability field assessments were completed for blocks 2422, 2424 by Del Ferguson but AVCF does not currently own copies of these.

Access to this area is via Taylor Br 552 C, which will require road reactivation including reconstruction of some washed out stream crossings. The 2007 viability assessment identifies two road headings that extend off of T552C120 through Weyco block 2427, which was logged in 2000. (This block was surveyed in 2011 and is not FTG and so will present adjacency considerations). The upper road system extends from the end of Br 552C120 into block 11 before continuing up the ridge to block 12, 16 and then into the upper portions of blocks 13, 14, 15. The lower road system comes off 552C2 and extends through block 18 and on in through the lower portions of blocks 13,14,15.

The Gibson-Klitsa (Brigade Lake) Trail runs up along the ridgeline east of South Sutton Creek and occurs largely within the OGMA located on the west side and top of the ridgeline above Sutton Creek and includes a thin buffer between block 11&12 through which road development is projected to cross three times. Blocks 11, 12, and 16 are all adjacent to OGMA.

According to the 2007 viability assessment, timber types range from HB100 to HB80 C20 with volumes ranging from 450m3 to 750m3 per hectare. Road costs are projected from $95,000 to $110,000/km. All blocks are projected as retention blocks with gross areas ranging from 16-35ha and net areas of 8-25ha.

Portions of this unit appears to present a reasonable initial development opportunity for the Taylor FDU and should be further investigated during the summer of 2012. Summer field recce of these areas should review timber and grade values and confirm the viability of the projected road access, stream crossings and harvest systems for these areas along

with logical development configurations. The gross area of all blocks together in this area is 147ha. Development is projected to occur over at least two passes for adjacency. The VILUP SMZ requirements restrict clearcut silviculture systems to 5ha and retention silviculture systems to 40ha.

Area B

This development heading involves one old growth (Block 26) and is located at lower elevations below former Weyco block 2427 where adjacency constraints will apply. The block abuts OGMA to the west (above Sutton Creek and the Gibson-Klitsa (Brigade Lake Trail) and is located above class IV terrain. It is projected as a conventional block with 100% grapple yarding. Timber type is indicated as HB60 F40 with an average volume of 725m3/ha.

Access is projected from Br552C3 and projects 900m of new road construction at a cost of $100,000/km and will need to be carefully evaluated with respect to viability, as the gross block size is small at only 8.4ha.

Along with the Area A unit this block appears to present a reasonable initial development opportunity for the Taylor FDU and should be further investigated during the summer of 2012.

Area C

This development heading is located at the western end of the Taylor FDU and includes a series of projected old growth blocks (21, 22, 23) located within the upper portions of a small watershed that drains north into Sutton Creek. Blocks 22 is located above a FTG block (logged 1996) while block 23 is adjacent to 2002 harvesting (Weyco 2430) that is not yet free to grow. Block 23 is projected as second pass. Block 21 is located in the upper headwaters of the valley. All blocks include areas of class VI terrain. AVCF has a series of block files for Weyco 2430 (appendix 2).

Access to this area is from Br 568D via Sutton Pass. Road status is unknown but is anticipated to require road reactivation. The 2007 viability assessment projects that road access will extend up along the ridgetop above Weyco 2430 (through block 23) and stay on the east side of the creek up into block 21. A spur is projected to cross the creek into the upper portions of block 22. Terrain is rough through this area with areas of class IV terrain therefore road projections beyond block 23 will require thorough recce and evaluation. The lower portions of block 22 should be accessible from the FTG block below.

According to the 2007 viability assessment, timber types range from HB100 @ 700m3/ha for Block 21 to HB56F37CCY6 for blocks 22 (700m3/ha) & 23 (930m3/ha). Road costs are projected from $95,000 to $100,000/km. All blocks are projected as retention blocks with conventional GY & HC harvest systems. The harvest opportunity is listed as average to good. The total gross projected area is 66ha however it is unclear from the projections how the western half of block 22 would be harvested and this requires further investigation.

Overall, these blocks appear to present a reasonable initial development opportunity for the Taylor FDU and should be further recced during the summer of 2012.

Area D

This area includes one old growth Block 17 and is located at the east end of the Taylor block. There is no other timber to be developed other than this one block making the block somewhat isolated from other development within the FDU.

Block 17 is a mid elevation block located on steep mid and lower slopes above Klitsa Creek. According to the 2007 viability assessment timber type is HB80F10C10 with 725m3/ha. Gross area is 30.4 ha with a net area of 18ha. Portions of block Block 17 were included in past Weyerhaeuser helicopter layout of block 2426 and for which AVCF has a variety of data (see appendix 2). Portions of the block occur within class IV terrain. A TSFA has been completed by Del Ferguson but AVCF does not currently own a copy. Two active stream/slide systems transect the block. The lower boundary and AVCF tenure boundary is represented by Klitsa Creek.

The Mt Klitsa recreational trail traverses through the lower part of the block. It begins off the end of TA552E. Past comments have indicated that driveable access to this point would be well received by local recreation users. Currently they have hike Br 552 from Taylor Main.

The 2007 viability assessment projects that access to this block would require 3.6km of road reconstruction and new construction of which 1.4 km is projected outside of the community forest and would require two bridge crossings across Klitsa Creek (17m wide).

A ground recce by Kevin Hunter in October 2007 took pictures and recommended against crossing Klitsa Creek. He also indicated that the Klitsa Creek Hydro company had rebuilt 90% of T552 and T552E in association with the planned IPP in Klitsa Creek. The project has been on hold since 2007 but is currently going through final authorizations. Development of the Klitsa IPP provides an associated development opportunity for the AVCF if the Klitsa project reactivates the road system. Keith Hunter also suggested that in lieu of crossing Klitsa Creek that some of the timber could be possibly be developed via skid extraction down the steep IPP access trail off the end of T552E once it is built. If this approach were considered it would limit yarding possibilities and reduce the harvest chance considerably. The IPP will eventually become an operational constraint to logging once the penstock is installed so the best option may be a coordinated entry.

Due to the potential IPP development this area should be further investigated for development opportunity during the summer of 2012.

Area E

Area E involves projected block 27 which is a second growth deciduous (alder) block located on the Taylor flats adjacent to the Taylor River. The 2007 viability assessment indicates a gross area of 30ha and a net harvest area of 7ha. Forest type is DR100 at an estimated 325m3/ha. Due to its location in the flats adjacent to the river the primary constraints to logging in this area is expect to be fish habitat in old back channels and a tributary stream system that parallels the river. No other information is available for this block therefore a ground recce is required to further assess timber and riparian values, critical site factors and viability. This block should be investigated during summer of 2012 .

Area F

Area F includes projected blocks 19 and 20 which are both located in the mid/upper reaches of South Sutton Creek. Both of these blocks were projected for helicopter logging that would target scattered pockets of old growth cedar from within an overall area of 146ha. The volume projection was up to 11,000m3 from ~ 15 ha in small patches. Operational constraints include patchy timber, long flight distances (avg 0.8km) and steep, class IV and V terrain including slides and avalanche chutes. Currently two heli landings have been projected, one at the top of ridge at the end of a road extension through from

Current access into this narrow valley is via a steep access road/trail constructed for the Sutton Creek hydro project. This trail is located on the east side of the valley and transects the lower sections of block 19. The road also includes the penstock for the project which limits the potential of using this road/trail for logging access or extraction. The status of this road and immediately adjacent timber should be reviewed to update current knowledge of the area, otherwise the future helicopter development of the top end of the valley is likely a longer term initiative and is not an initial priority for recce work.

Area G

Area G includes three units that have been partially heli-logged shelterwoods (Weyco 2431 &3413) and likely contain future second pass timber. (The 2007 viability assessment projected 27ha of logging chance and 28,000m3 all by helicopter). The blocks are located on lower and mid slopes in the west end of the Taylor FDU. They include projected blocks 24 and 25 above TA563 as well as the area above TA562. The areas include class IV terrain and are also constrained by visual impact considerations from Hwy 4 on the descent from Sutton Pass. There is no current road access projected into these areas although they are close to several existing roads and potential road access to portions should be further investigated. Due to the second pass nature these areas ground recce of these areas is lower priority at this time, however will be required in the future to confirm operability.

Taylor Summary:

With the exception of one alder block current development opportunities in the Taylor FDU are restricted to old growth timber until existing second growth stands (most circa 1968-1976) come on line in the next 20+ years. Priorities for field recce in 2012 include:

- Existing road systems: Taylor Main, TA552C, TA552E, TA561, TA 560/TA568
- Area A& B: blocks 11-15, 18, 26
- Area C: blocks 23,22
- Area D: block 17 (Klitsa IPP)
- Area E: alder flats

Updated margin analysis for these areas will also need to be completed to confirm viability.

Weiner Creek Area (Sproat FDU)

A brief walkthrough recce assessment was conducted to investigate further potential harvest opportunities and access considerations in the area immediately west of Weiner Creek. The purpose was to identify readily available volume in the area to support the installation of a new bridge across Weiner Creek.

In addition to a review of existing information on resource values in the area, the following information was collected:

- ocular assessment of general timber value, operability and access
- sample plots using prism sweeps to determine tree counts by species and ocular estimates of average tree diameters and heights as the basis for volume estimates
- gps traverse of existing (old) road grades and unmapped hiking trail
- identification and notation of unmapped streams

Five general first pass polygons (W5-W9) on three separate headings (WC4, WC5, WC6) off WC (Weiner Creek) Main (formerly TF31E) were identified for potential block development including and expansion of units previously identified in May 2011 to reflect operable timber. The three areas of interest visited were all within a 2km radius of the new bridge site. Boundaries and road locations shown are approximate projections only and are not based on actual layout or location work and consequently will require further detailed engineering and assessment prior to development. No ribbons were hung.

An overview of the remaining operable area indicates approximately 33ha of additional second pass timber development potential in the area north of WC Main and between the height of land to the west and Weiner Creek to the north and east.

Area Descriptions

Area W5

Attributes	Description
Gross Area	13 ha
Forest Cover (Species Comp)	Fd (Hw,Cw,Dr,Mb) Second Growth
Average Age / Stand Height	65 (1947) / 27-35m
Estimated volume / ha	500 -700m3/ha
General Terrain (Position / Slope)	Lower & mid slopes / 10-50%
Forest Health	Phellinus Root Rot
Proposed Silviculture System	Partial Cut, Patch Cut or Retention System
Proposed Harvest Method	Ground Based and Cable
Harvest Considerations	Recreation trail located within area
Estimated (gross) Harvest Volume	**1500-7500m3 depending on size/scope of development**

W5 is located adjacent to the west side of Weiner Creek and is accessed from an old logging grade (WC 4) off the WC mainline 800m from the Weiner Creek Bridge. The old grade is in good condition along this section and would require light to moderate reconstruction. There are no drainage structures of note. WC Main will require light reactivation between the bridge and WC4.

W5 contains most Fd leading stands with minor component of Cw, Hw and pockets of Mb & Dr. This area contains some of the oldest second growth in the Community Forest and contains good timber values close to existing road, including poles although quality, density and volume varies by site. Density is lower than optimal resulting in larger crowns and knot size. Root rot pockets are present.

The south boundary of WC 4 is adjacent to previously logged second growth stands (FTG status unknown – not in database).

The east boundary runs along the RMZ along Weiner Creek (S3 or S2 – to be determined) and gets progressively steeper (and inoperable) towards the north. There is a bench between previously harvested area and Weiner Creek in the southern portion. This area is also covered by gravel/quarry tenure. Mid sections of the area between Weiner Creek and WC 4 are variable. Portions should be operable using ground based equipment but cable may also be required. A short spur shown in the vicinity of WC4-1 may be required to facilitate development.

The north boundary is shown along a timber type boundary and runs below a prominent rock outcrop area that separates W5 & W6.

The west boundary runs along the terrain break above WC4. The portion of the block west of WC4 rises steeply to this break. Lower portions are accessible by ground based machinery but mid and upper slopes will require cable logging.

Timber located above the break along the west boundary will most likely be accessed from above via future road development the west (via WC5).

A portion of the Teodore trail is located in the southern portion of this area and should be considered in terms of development scope and approach. This portion of the trail is readily accessible via the new entrance to the Community Forest. The trail climbs up from the bench along Weiner Creek through nice, open second growth timber to join WC4 for ~ 250 metres before continuing to climb west through the northwest corner of the area to towards the height of land. Trail maps show that the beginning of this upper section of the trail is also accessed directly via the road.

Area W6

Attributes	Description
Gross Area	12 ha
Forest Cover (Species Comp)	Fd (Hw,Cw) Second Growth
Average Age / Stand Height	60 (1950-52) / 25-33m
Estimated volume / ha	300 - 500m3/ha
General Terrain (Position / Slope)	Mid slopes, bench / 10-60%
Forest Health	Phellinus Root Rot
Proposed Silviculture System	Partial Cut, Patch Cut or Retention System
Proposed Harvest Method	Ground Based and Cable
Harvest Considerations	Recreation trail located within area
Estimated (gross) Harvest Volume	**1200-5000m3 depending on size/scope of development**

W6 is a continuation of the timber development opportunity up WC4 and is located adjacent to the top end section of the old grade. The old road is narrow and climbs steeply after W5 before ending in a large open old landing. This section of road will require moderate to full reconstruction. There are no drainage structures of note however a short section of favorable grade exceeding 18% exists. Two

W6 contains decent Fd leading stands with minor components of Hw and Cw. Density is lower than optimum resulting in larger crowns/knots. Minor incidence of phelinus root rot and windthrow were noted.

The south boundary east of WC 4 runs above an area of rock outcrops that separates this area from W5.

The east and north boundaries are located at the top of a steep canyon break down into Weiner Creek. This section occurs above Weiner Falls, which is a popular hiking destination. It is anticipated that most of the steep banks shown outside W6 will be retained as long term WTRA. These areas are also mapped as class IV terrain.

The east boundary occurs along the top of a long sloping bowl that occurs to the west of the end of WC4. The perimeter of this bowl is bounded by terrain breaks that includes

rock outcrops. A portion of the east boundary abuts OGMA # 3107, a small patch of old growth timber located on the ridgetop height of land.

A small stream (S4 by CWS definition) runs through the bowl comprising the west half of W6. The hiking trail " Florencia's Folly" also runs from the end landing along the edge and through the northern portion of this unit and connects up to the High Level Road and lookout trail system. It provides views into the Weiner Creek canyon area and potential harvest units below the high level road identified during the May 2011 recce. Development planning should consider the trail in this area.

The portion of W6 east of WC4 and lower parts of the western portion are operable using ground based equipment while upper sections of the western will likely require cable logging. Two short spurs are projected WC4-2 is optional. WC4-3 is required to climb onto a bench above WC4 into the bowl and may require rock blasting.

Area W7

Attributes	Description
Gross Area	3.6 ha
Forest Cover (Species Comp)	Fd Hw (Cw, Mb,Dr) Old Growth
Average Age / Stand Height	200+ / 35+m
Estimated volume / ha	~650m3/ha
General Terrain (Position / Slope)	Upper mid and lower slopes / 10-70%
Forest Health	Decadent old growth, stem and heart rots. Hw mistletoe
Proposed Silviculture System	Clearcut or retention
Proposed Harvest Method	Cable
Harvest Considerations	Steep upper slopes – class IV terrain polygon.
Estimated (gross) Harvest Volume	**2300m3 (note decay and waste may be higher than 15%)**

W7 is a portion of a remnant old growth stand that continues to the west over a terrain break. It occurs on steep east facing colluvial slopes below a class IV terrain polygon. Old road recce ribbon was noted in the block suggesting past recce of a switchback up into central/upper portions of the block (up to 70% sideslopes).

Access is from WC Main via WC5, an existing grade, in good condition. The grade runs parallel and within the RMZ of the valley bottom stream however the stream appears discontinuous through this area and requires further mapping and assessment. The existing part of WC5 extends approximately 575m up the valley but would require 375m of reconstruction for access to W7. WC Main will require reactivation between WC4 and WC5 – this section climbs steeply from WC4 and is moderately eroded.

Forest cover is decadent with large Fd and Hw vets and moderate to high levels of coarse woody debris.

The east boundary is located adjacent to WC5 and includes pockets of alder established since original development. The north and south boundaries are projected along ill-

defined timber type boundaries with adjacent second growth. The west boundary is located on upper slope breaks within the class IV terrain polygon. Detailed engineering and layout including deflection lines will be required to define the upper boundary.

This area of old growth is part of a larger polygon that wraps over the height of land to onto the SW aspect and was identified as block 8 in the viability assessment. The remainder of this stand if developed would be accessed from the west. Harvesting this portion would allow a portion of this area to contribute to the cut while improving the productivity of the site by replacing decadent stands with young thrifty stands. The size and volume however may not make it viable as a stand-alone cable block.

Area W8

Attributes	Description
Gross Area	10 ha
Forest Cover (Species Comp)	Fd (Hw)
Average Age / Stand Height	61 (1951) / 24-30m
Estimated volume / ha	300 – 500m3
General Terrain (Position / Slope)	Mid slopes / 10-40%
Forest Health	Phellinus Root Rot
Proposed Silviculture System	Clearcut, Patch Cut
Proposed Harvest Method	Ground Based and Cable
Harvest Considerations	none
Estimated (gross) Harvest Volume	**4000m3**

W8 is located on SW facing slopes in a gentle bowl at the top of the valley beyond W7. Access will involve 400m of new construction extension of WC5 in addition to the 225m of reconstruction beyond W7.

Forest cover is dominated by Fd with minor components of Hw & Cw and is relatively uniform throughout the projected area with minor site quality/moisture variations due to shallower soils over bedrock. Stand density is medium resulting in the lower volumes per hectare. Minor incidence of phellinus rot rot was noted.

Operability is good with the majority of the block accessible by ground based equipment although steeper areas over 35% exist with shallow soils and rock outcrops.

Projected boundaries generally follow natural terrain and stand features. The south boundary is an arbitrary location placed along a gentle terrain feature descending from rock outcrops above and featuring a transition between drier open stands to the south and more consistent stands within the block.

The east boundary is located along the S3/S4 stream that drains the general block area. Timber also exists on the east side of this stream and portions of this could be included

within the block to avoid isolation. The east side of the stream is generally steeper with a series of rock outcrops leading up to OGMA 3107.

The west and northern boundaries are defined by natural terrain breaks and outcropping rock with more open and lower productivity stands along the western ridge. This includes and extension of the class IV terrain along the ridge from the south. The former Western Sproat Unit forest management values map identifies a polygon with rl2 (red listed species) inventory notation on the height of land in forest cover polygon 103. This will require further assessment / investigation and is shown excluded from this projection.

In addition to the valley bottom stream, one side tributary was identified in the southern part of the projected block area.

Future development (second pass):

Timber between W7 & W8 on the west side of the drainage (~ 5ha) would also be operable and is proposed for a second pass. The Teodore trail currently passes through this intermediate area.

Timber development opportunities also exist to the east of and along the SE portion of the upper drainage where the timber type and stand age is the same. Additional road development is anticipated for these areas including a potential extension to the east to access the timber above W5. These areas were not looked at on the ground during this recce and encompass approximately 28ha of gross additional timber development opportunity.

Similar timber to the north of W8 and NW of W6 is accessible via existing old grades from the high level road. Further investigation is required to assess to what degree timber along the height of land to the west of W8 is accessible as this area appears to be more broken with frequent rock outcrops. In general access to south and west facing slopes will come from the connector road between the upper and mid level road systems.

Area W9

Attributes	Description
Gross Area	3.5 ha
Forest Cover (Species Comp)	Fd (Hw,Cw) (Mb)
Average Age / Stand Height	OG 120-240+ / 27-40m
Estimated volume / ha	550 -800m3
General Terrain (Position / Slope)	mid to upper slopes & crest 20-70%
Forest Health	Minor windthrow
Proposed Silviculture System	Patch Cut or Retention System
Proposed Harvest Method	Ground Based and Cable
Harvest Considerations	Steep slopes above creek
Estimated (gross) Harvest Volume	**2400m3**

W9 is a small 3.5ha area between WC Main and the NW corner W1479 along the break between the Weiner Creek and Sproat Lake watersheds. It includes an area of good quality Fd leading old growth timber and incorporates a range of stand and site characteristics from lower slope deep productive soils with large veteran trees to drier, shallower upper slope ridge top sites.

Access will be directly off of WC main. A short adverse spur is projected along the edge of the RMA to access a narrow bench above the creek and steep mid slopes leading up to the ridge. It may also be possible to get this wood by yarding up from a landing in the vicinity of the old ROW opening. The southern half of the block which occurs on the upper ridge should be accessible by ground based equipment. Two incursions that appear to be old sections of cleared road right of way already occur in this area.

The west boundary is defined by WC main and the two ROW incursions. The north boundary is defined by the RMA above the incised S3 creek below. The east boundary extends up from the creek on steep operational limits to the corner of W1479 and thence along the woodlot boundary. A planned harvest area within W1479 has been laid out adjacent to the woodlot boundaries and therefore adjacent to this area and therefore the implications of developing this area will need to be considered in light of the planned development in W1479. A GPS point was taken at the field marked NW corner of W1479 and is shown on the recce map approximately 30m west of the map representation of this point.

Summary of Weiner Creek Development

Area / Volume Summary:

Block	Area (ha)	Volume (m3)
W5	13ha	1500-7500
W6	12ha	1200-5000
W7	3.6ha	2300
W8	10ha	4000
W9	3.5ha	2400
Total first pass	42ha	11400 - 21200
Second pass	*~33ha*	*~16000*

Additional Timber / Adjacency – Overall timber types are relatively uniform and so a variety of development options exist including areas identified as second pass. All projected areas are smaller than maximum cutblock size in consideration of community and other resource values. Even smaller blocks or partial cutting systems may be warranted for W5 & W6. Consideration and decision making on the desired approach to harvesting in these area will need to be made prior to engineering layout.

Internal Retention – No internal retention has been projected at this point but should be considered during engineering layout stage in consideration of visuals and recreational values.

Cultural Heritage Resources – No features were located. The scattered cedar within the area could be marked as leave trees to add to the cedar recruitment and minimize visual concerns.

Wildlife– Black Bears, Cougars and Black-tailed Deer are known to use the area although only deer sign was noted during recce work. No bear dens were found, but if one is found during final layout it should reserved from the harvest area.

Legal Line – Legal lines between AVCF and W1479 have been previously marked in the field by W1479 in association with cutblock engineering inside the woodlot. A GPS point average was taken at the marked NW corner of the woodlot but this does not line up with the map projection of the woodlot boundary. The GPS point of the marked corner in the field is 30m west of the map projection of the NW corner of the woodlot. Further review to confirm status of the boundary in the field and on the map will be required.

Mineral Claims – A gravel/quarry tenure exists next to Weiner Creek in the southern portion of W5. No other mineral claims were noted within the projected areas.

Assessments Required

Visual Impact Assessment: Portions of projected blocks W7, W9 and W6 fall within VQO polygon #80 which is Partial Retention. Maintenance of VQO's should be achievable given the relatively small size of the blocks and can be further managed by placement of internal retention. A VIA will be required. Photos from a viewpoints in Sproat Lake including West Bay were taken in March 2012.

Terrain Stability/Gully: A terrain stability review should be completed post layout to determine possible concerns in the class 4 terrain above W7 and W8 and along Weiner Creek below W6.

Windthrow Assessement: General windthrow risk is within normal ranges. A windthrow assessment for each area should be completed as part of the final layout stage. Internal retention should be located in areas with low windthrow potential.

Riparian Assessment: Riparian assessment of all streams within or adjacent to development areas is required and must be completed as part of the final layout stage. None of the in block streams are anticipated to be fish bearing based on topography, however Weiner Creek is fish bearing and has been the subject of much community interest and input regarding the community forest. The extent of fish passage in Weiner Creek needs to be determined and mapped.

Root Rot Disease: Incidence of Phellinus root disease was noted throughout the area. Areas of infection should be mapped during the layout stage.

Cave/Karst: No features or limestone were located.

Recreation: Several established recreation trails occur within the proposed development area and are shown on the recce maps. These include portions of the Teodore Trail and Florencia's Folly Trail and the trail to Weiner Falls is also located in the vicinity. These trails are actively used and are among the most accessible trails in the Community Forest and most proximate to community settlement. Interest in these trails was expressed during public input into the FSP and the Community Forest Management Plan and significant effort has been expended by local groups in recent years to further develop this trail system. Trail maps are posted at various key locations throughout this portion of the community forest. Consultation with trail user groups should be conducted prior to further development work.

Species at Risk: A polygon above W8 is labeled rl2 (presence of red listed species) on the Sproat unit forest values map. Further investigation is required to determine the nature of the

Appendices

Appendix 1: Annotated Viability Assessment Map – Taylor FDU

Prepared by:
DRH Forestry Consulting
3483 3rd Ave
Port Alberni BC V9Y 4E4
Phone: 250.723.9466

Map Date: May 1st 2007
Revised :

Port Alberni Community Forest Total Chance Plan

Alberni West Map

Legend

- Heli drop zone.
- Peaks.
- Bridge.
- Stand boundaries.
- Hiking Trail.
- Projected roads.
- Stream.
- Roads.
- Sutton Creek Power.
- Klitsa power.
- PA Community Forest.
- Sproat cutblocks logged.
- Woodlot.
- Alberni west ogma.shp
- Alder.
- Parks.

Forest Cover.

- Rock/Scrub
- Immature
- Mature 141 +
- Lakes
- Swamp
- Industry
- Slide
- Recent Harvest

Scale 1:10000

Appendix 2: Existing data from previously engineered Taylor Blocks

Weyco Block # / AVCF VA # / Data	2422 **11**	..2423 *logged*	2424 **15**	2426 **17**	..2429 *logged*	..2430 *logged adj 23*	..2431 **25**	..3413 **24** *logged*	..4309 **13**
Arc View Data			X	X		X	X	X	X
Corel Maps					X	X	X		
Assessments									X
TSFA					X Br562	X Br562			
VIA			X	X	X	X	X	X	
CP Data									X
Cruising							X		
Cut Permit						X amend		X	
EMS Files				Rec info	X	X		X	
Eng Activities				corresp	X	X	X	X	
FDP								X	
GPS Data			X					X	
Images								X	
Legends			X	X			X	X	X
Maps									
LP	X		X			X		X	
SP	X		X					X	
VR			X					X	
Other Information					X	X	X	X	
Photos				X				X	
Q100			template	template	X	X		X	template
Recreation Trails			X						
Release Maps							X	X	
Results		X							
RMP / RP			template	X	X	X	X		X
Road Design			X	X					X
Road_Eng Files			X	X	X	X	X	X	X
Roads						X		X	
Salvage		X			X		X		
Silv Activities		X (surv)			X (surv)	X (surv)	X (surv)	X (surv)	
Site Plan					X	X	X	X	
SP Files			templates	X		X amend			X
Spatial Data									
Valuation Activities								X residue	
VIA						X	X	X	X

Ryka Industries Limited,
123 Denman Drive, Qualicum Beach, BC, V9K 1R6
250.752.3523 cell 250.731.6210 fax 250.752.1668
ray.bartram@shaw.ca

August 23rd, 2007

PACF file note:

Re: BCTS engineering files for 2422, 244309, 2424, 2426

Reviewed the files held by BCTS for these settings on August 2nd.

2422

- originally roaded but changed to heli
- cruise is done 6300/6302
- road C410 at 517m crosses Brigade lake trail
- spur comes off of S/B at end of C410
- Brigade a lake trail is traversed
- WFP originally chose not to cross trail. Previous setting 2423 relocated trail post harvest
- TSFA in file, covers proposed roads with heli below. 06/2003
- suitable for backspar trail around block
- 12ha, 3 is heli
- No VIA in the file

244309

- cut up by streams buffers on streams that have to be classified as S3 due to CWS designation
- lots of bluffs
- no TSFA in file
- no road recce present in the work maps, not enough work to prove heli costs to DM if appraised
- VIA in file, by Olak Visual, cutblock meets VQO

2424

- originally laid out as 10.5ha CC
- FC 2 to FC 15 can connect
- wood above FC 10 connects with 7/8/9/10
- machine trails identified between
- no road recce or work to prove inability to road area
- no TSFA in file

2426

- trail is mapped
- WFP had concerns with trail impacts, buffered trail (Mike D/K. Willis)
- VIA done, cutblock isn't visible
- Block was in Weyerhaeuser Habitat Zone, may be chopped up because of that small block commitment.
- BCTS is doing layout to the east, need to see if we can access from their system

With the TSFAs missing, I checked with Del Ferguson P. Eng to see if he had the work. He has copies of the TSFAs for 2424 and 2426. He did not do a TSFA for 244309

All four blocks are close to being complete, but still need work to bring them up to standard.

I recommend that we determine if 2422 can be logged conventionally, impacting the trail. The Brigade Lake Trail was not given standing as a "known recreational feature" by the DM.

We may want to purchase 2422, however the other cutblocks require field work to determine if they can be roaded. If they can be roaded, the layout, VIAs and TSFAs will all change.

A possible strategy may be to wait until Klitsa Power has repaired Br552 up to the Junction to Klitsa, then open the road past there, to get to 2422.

Ray Bartram August 23rd, 2007

Appendix 3: Updated Total Chance Plan Harvest Summary Table for the Taylor Area

Cutblock #	Forest Type	Gross Size (ha)	Net Size (ha)	Volume/ha (m3/ha)	Harvest Volume	Silviculture System	Harvest System %	Species %	Harvesting Opportunity	New Road Const	Road Cost $/km	Road Cost $/m3	Comments
11	OG	16.1	10.0	725	7,250	Retention System	GY90 HC10	HB80 C20	Good	1.1 km new	$95,000	$14.41	
12	OG	18.5	17.0	550	9,350	Retention System	GY90 HC10	HB80 C20	Average	0.5 km new	$95,000	$5.08	Second Pass
13	OG	32.4	25.0	550	13,750	Retention System	GY100	HB80 C20	Average	2.9 km new	$95,000	$20.04	Partially develops blocks 12 and 18
14	OG	11.7	11.0	450	4,950	Retention System	GY80 H20	HB80 C20	Average				Second Pass
15	OG	35.1	18.0	750	13,500	Retention System	GY100	HB100	Average	1.8km new	$110,000	$14.67	Develops block 14
16	OG	11.8	8.0	550	4,400	Retention System	GY70 HC30	HB80 C20	Average	1.3 km new	$110,000	$32.50	
17	OG	30.4	18.0	725	13,050	Retention System	GY90 HC10	HB80 F10 C10	Average	3.6 km new	$100,000	$27.59	
18	OG	21.2	18.0	725	13,050	Retention System	GY100	HB80 C20	Average				Second Pass
19	OG	68.4	7.0	725	5,075	90% Retention	H100	C100	Poor	0.7 km new Plus drop zone	$95,000	$14.98	Long Flight average 0.8km Isolated patches
20	OG	77.3	8.0	725	5,800	90% Retention	H100	C100	Poor	0.35km new Plus drop zone	$95,000	$7.37	Long Flight average 0.8km Isolated patches
21	OG	12.8	11.0	700	7,700	Retention System	GY60 H40	HB100	Average	0.75 km new	$100,000	$9.74	
22	OG	34.3	30.0	700	10,500	Retention System	GY50 H50	HB90 F10	Average	1.0 km new	$100,000	$9.52	reduce vol by 50% for retention and inoperable SW of creek
23	OG	19.3	16.0	930	14,880	Retention System	GY100	HB56 F37 CCy6	Good	0.4 km new	$95,000	$2.55	Second Pass
24	OG	17.5	15.0	900	13,500	Retention System	H100	HB56 F37 CCy6	Good				Second Pass
25	OG	28	12.0	800	9,600	Retention System	H100	F50 HB42 C8	Good				Weyerhaeuser 2431 Shelterwood 2nd Pass
26	OG	8.4	8.0	725	5,800	Retention System	GY100	HB60 F40	Average	0.9 km new	$100,000	$15.52	
27	ALDER	30.1	7.0	325	2,275		HC100	DR100	Poor				Fish streams in Taylor River flats

Note Vancouver Island Land Use Plan Higher Level Plan order for SMZ 17 apply to Taylor and limits shelterwood, selection or retention NAR to 40ha or for clearcut, clearcut with reserves or seedtree systems to 5ha NAR

Vol m3/ha

	Hoe	Cable	Heli	total
	725	6525		
	935	8415		
		13,750		
	990	3960		
		13,500		
	1320	3080		
	1305	11745		
		13,050		
			5075	
			5800	
	3080	4620		
	5250	5250		
		14,880		
			13500	
			9600	
		5,800		
	2,275			
first pass	9555	50770	0	60325
second pass	6325	48005	33975	88305
	15880	98775	33975	148630

Appendix 4: Recce Map Lower Weiner Creek Area – Sproat FDU

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	April 20, 2012
By:	econ

Alberni Valley Community Forest K2D

Sproat FDU

Recce Map
Block W5, W6, W7, W8 & W9

N

1:5,000

0 50 100 Meters

Weiner Creek
Florencia's Folly
Teodore Trail
W8
W7
W6
W5
W9
WC5
WC4-3
WC4-2
WC4
WC4-1
WC6
WC
PR
NP
W1479
3107 5207 FH 22 253
3219 FHC33 56
3896 FHD27 58
103 F 30 335
1306 FD 37 61
1307 FC 21 109
1309 F 37 64
1306 F 34 62
73304 FCH34 6
102 F 30 335
2035 F 24 34
1001 F 18 118
1002 F 18 44
1308 F 34 62
1357

Recce Feature
- Road, recced
- Road, to be re-activated
- Block, recced

Roads & Trails
- Highway / FSR
- Road, existing
- Road, engineered
- Trail, temp
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

Stream Classification
- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Non Classified

Block Feature
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive
- Non Productive, Wetland

Other Feature
- Park
- Community Forest
- OGMA
- Travel Corridor
- Scenic Area
- Recreation Inventory
- Old Blocks
- Crown Land Reserve

Appendix 5: Sproat Unit Forest Values Map


Port Alberni Community Forest
Total Chance Plan
Alberni East Map
Prepared by:
DRH Forestry Consulting
3483 3rd Ave
Port Alberni BC V9Y 4E4
Phone: 250.723.9466
Map Date: May 1st 2007
Revised :
Great Central Lake
Sproat Lake
Taylor Arm Provincial Park.
PRIVATE
CROWN
DL503 Private Property
DL 950
DL 91
Woodlot Licence W1479 Stamp River
Second Bridge
HYDRO
TRANSMISSION
Clutesi Creek
Whiner Creek
Rebuild
High Level
HWY4 West
Legend
Heli drop zone.
Peaks.
Bridge.
Stand boundaries.
Hiking Trail.
Projected roads.
Stream.
Roads.
Sutton Creek Power.
Klitsa power.
PA Community Forest.
Woodlot.
OGMA
Alder.
Parks.
Forest Cover.
Rock/Scrub
Immature
Mature 141 +
Lakes
Swamp
Industry
Slide
Recent Harvest
Scale 1:10000