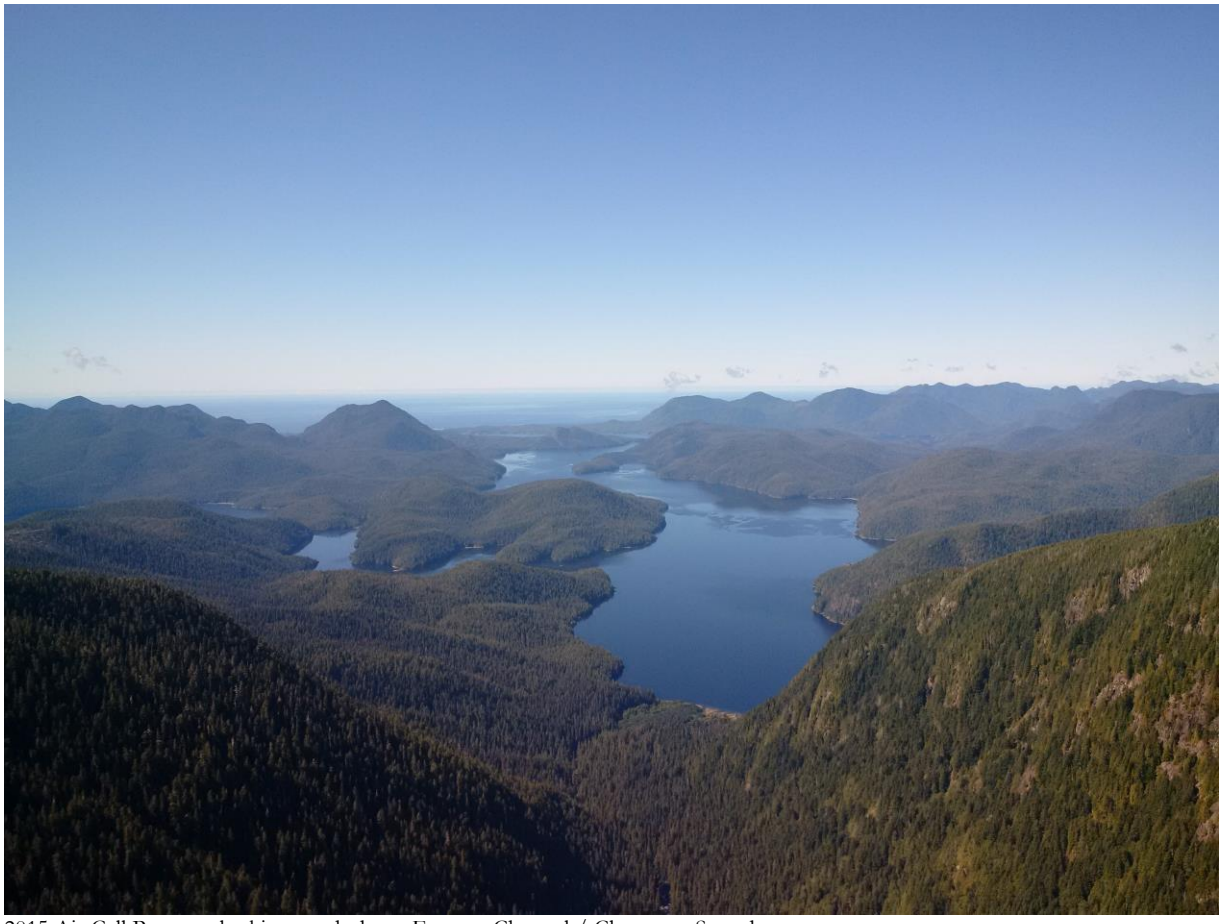
PROJECT COMPLETION REPORT

PHASE 1 – VEGETATION RESOURCES INVENTORY (VRI)
PHOTO INTERPRETATION and DIGITAL MAP PRODUCTION
of
SOUTH VANCOUVER ISLAND
2015-2018



2015 Air Call Program looking south down Fortune Channel / Clayoquot Sound

for

The Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Prepared by: Mike Sandvoss RFT
Timberline Forest Inventory Consultants

Timberline
Forest Inventory Consultants

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1. Introduction

1.1 Purpose

The purpose of this project completion report is to document and provide a historical reference of the area of interest, project personnel and activities associated with the completion of the South Island Vegetation Resources Inventory (VRI). For the South Island VRI, the inventory project area encompassed portions the Arrowsmith Timber Supply Area (TSA), Tree Farm Licences (TFL) 19, 46, 44, 54, 57, and 61, the private land of Island Timberlands and TimberWest, the Capital Regional District (CRD) encompassing the southern tip of Vancouver Island, the Gulf Islands, Maa-Nulth treaty lands (TSL), as well as the cities of Nanaimo, Port Alberni, Parksville, the District of Tofino, the District Municipality of Ucluelet, Pacific Rim National Park, the southern edge of Strathcona Provincial Park, Carmanah-Walbran National Park, Gulf Islands National Park Reserve, and all smaller provincial and regional parks located within the South Island Natural Resource District.

1.2 Timeframe

Work on the South Island VRI commenced in mid-July, 2015 and was completed in March, 2018, in accordance with the project timelines in the VPIP.

1.3 Project Administrators

Mike Sandvoss, RFT of Timberline Forest Inventory Consultants was the consultant lead for this VRI project. Roman Bilek, RFT was the Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (MoFLNRORD) VRI Project Manager.

1.4 Planning Documents (Background)

1.4.1 VPIP

The inventory project area encompasses roughly the southern 30% of Vancouver Island, approximately 1.6 million hectares. The project started off covering 1,338,185 ha. (82.4 FME). This area was expanded to 1,466,519 ha. (90.2 FME) in 2016 with the addition of the originally excluded CRD area, as well as other municipal lands within the project area, and TFL 61. Figure 1 (Figure 3 from the VPIP) shows the South Island VRI project area tenures and ownership.

The existing forest cover inventories covering South Vancouver Island were from numerous forest cover and vegetation resources inventories of varying dates and standards, all of which were out of date and didn't meet current VRI standards. Figure 2 (Figure 2 from the VPIP) shows the inventory vintages as of 2013. For more detail on the old forest cover inventories, see the section titled 'State of the Current Inventory' in the South Island Natural Resource District VPIP attached as Appendix 1.

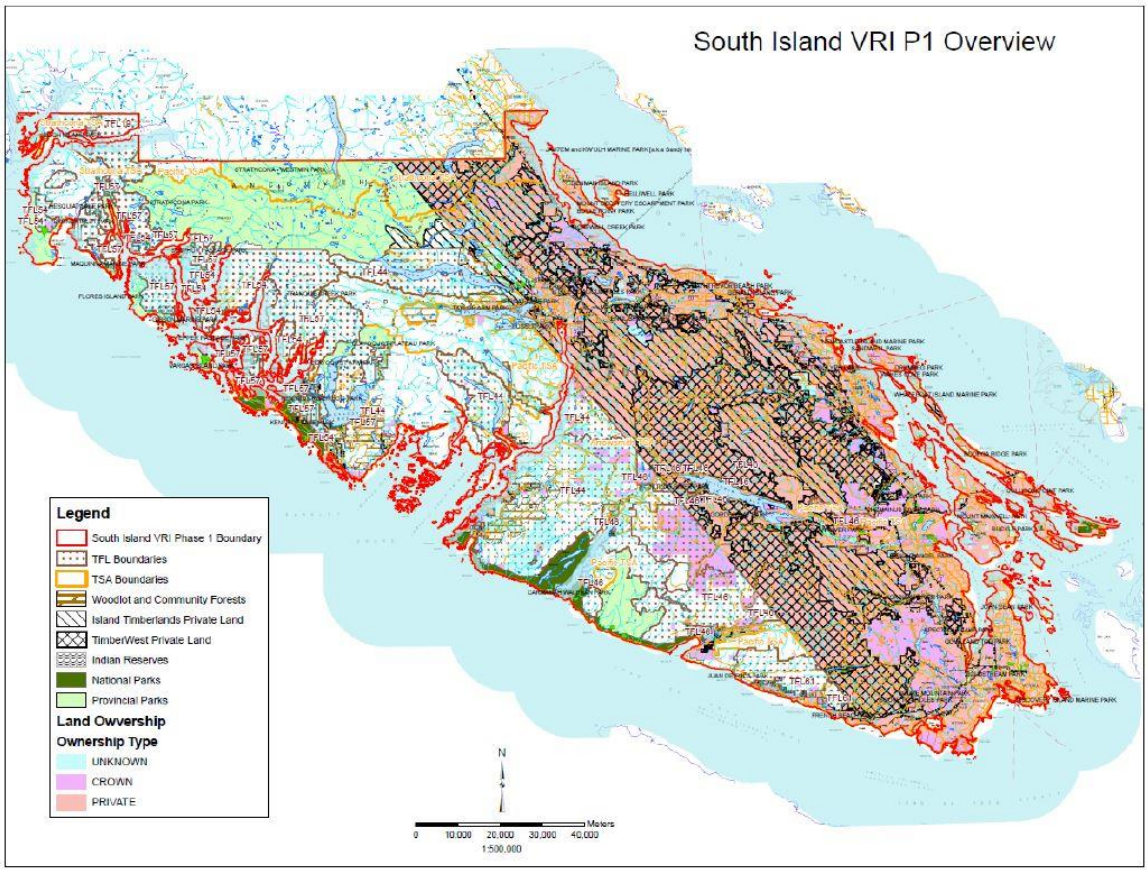

Figure 1. Excerpted from the South Island VPIP – Figure 3, showing the South Island Project Area Tenures and Ownership.

The South Island VRI Phase 1 was implemented by the MoFLNRO with the intent to produce a seamless Phase 1 VRI for all of the South Island Natural Resources District. This new inventory would support land use plan implementation, timber supply analysis, and other specific needs that were not being fully met by the various existing forest cover and vegetation inventories.

1.4.2 Digital Aerial Imagery

A new set of 4 band, RGBIR digital frame camera aerial imagery, captured at 25cm GSD (ground scale distance), was acquired for all of the South Island project area by GeoBC, on behalf of the Forest Analysis and Inventory Branch (FAIB), in the summer of 2014. The total number of digital images acquired was 5192. The images were provided in .TIF format with ZI model setups (South Island VPIP, Mar. 30). The only landmass within the project area that wasn't completely covered by the digital imagery was West Ballenas Island on 092F040.

With very few exceptions the images had good colour rendition, and were bright enough except along steep north facing slopes, and that being due to significant shadow. Image brightening and image enhancement within the Summit Dat/EM softcopy environment were used to mitigate most of the heavily shadowed areas.

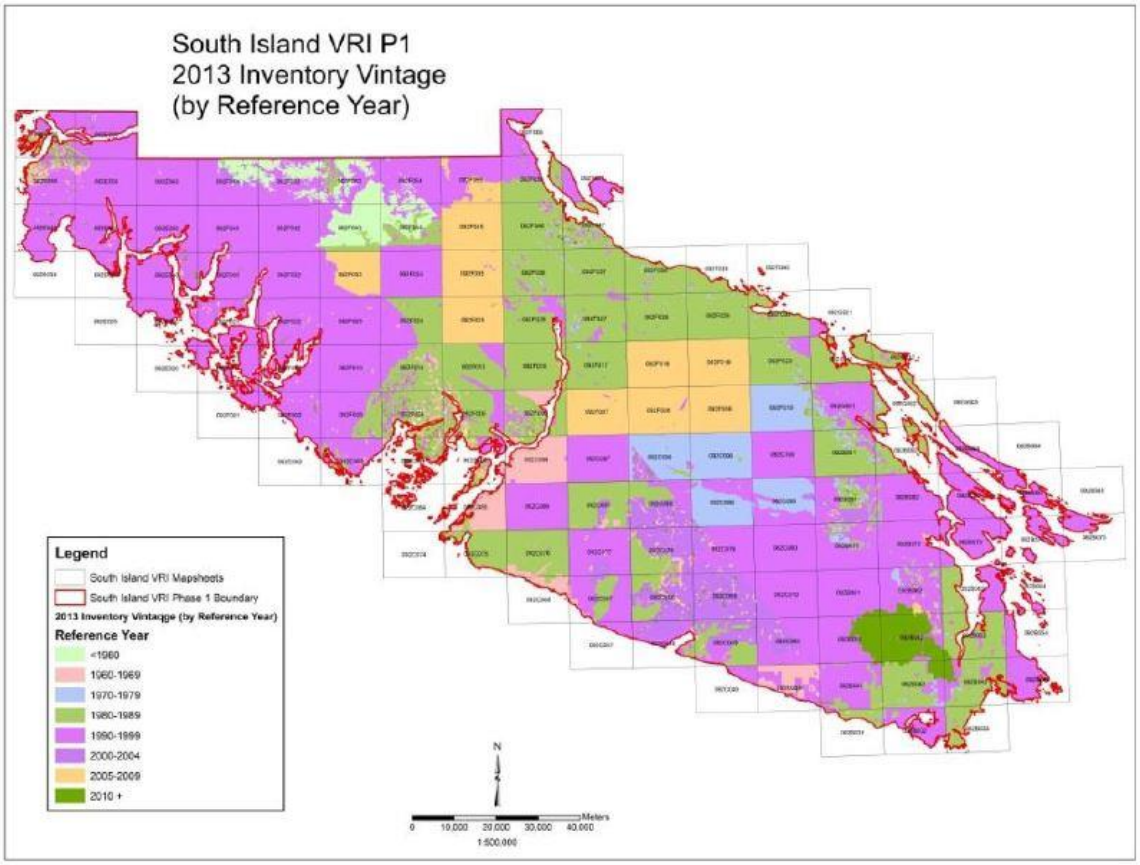

Figure 2. Excerpted from the South Island VPIP – Figure 2, showing the South Island Unit, Inventory Vintage as of 2013 under the BCGS map sheet grid.

1.4.3 Base Maps

North American Datum (NAD) 83, TRIM I base maps, predominantly from between initial mapping in 1985/86 and updated in 1995/96, were available for the entire project area. The usual spatial 'deficiencies' were encountered as the VRI progressed. Most of these could be attributed to stream dynamics and anthropomorphic modifications to waterbodies in the years between TRIM updates and the VRI imagery. Figure 3 shows the TRIM update years for the province and the project area.

No adjustments to lakes, shorelines, or double line streams were made during either the delineation and attribution phases of the Phase I VRI as requested during the pre-work.

1.4.4 Existing Calibration Data Sources

There were a significant number (1783) of historical air calls, ground calls, and permanent sample plots (PSP's) available as supplementary calibration information, located exclusively within the previously VRI'd Clayoquot Sound area. The attribute information for these were recorded, from available document aerial photographs, to the standard MoFLNRO VRI attribute spreadsheet, and digitally captured to a historical data source geodatabase as project deliverables. Historical data sources outside of the Clayoquot area were unavailable.

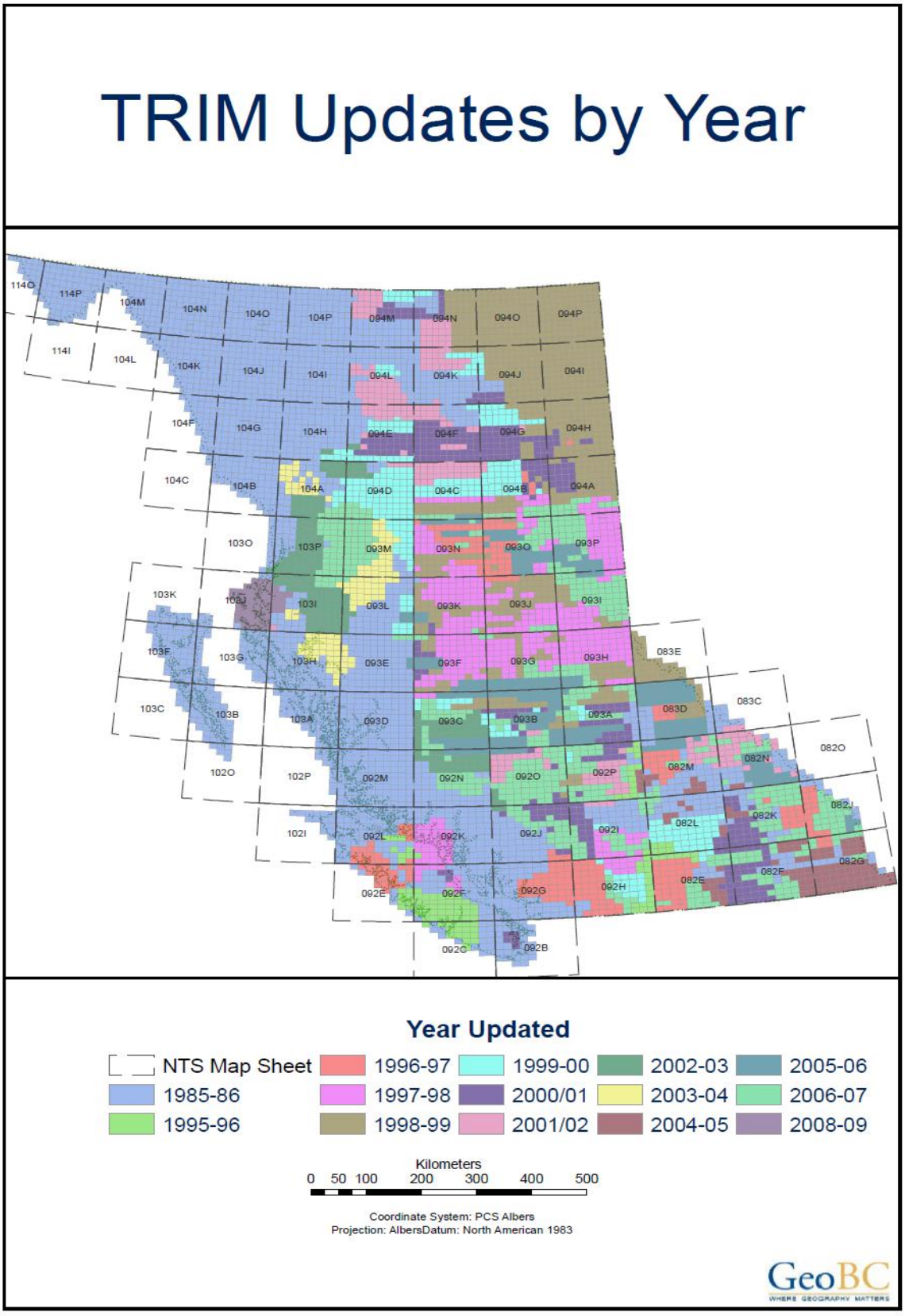

Figure 3. TRIM Updates by Year (from GeoBC)

The location and distribution of the available historic data sources factored in the layout of the new VRI calibration plots.

1.4.5 RESULTS Information

RESULTS spatial and attribute data were made available for the project area and to a lesser degree within the TFL's. No silviculture data was available for the Island Timberlands and TimberWest private lands. Spatial data was referenced during the delineation to address the different internal polygon rules for non free to grow and free to grow blocks. Aspatial data was incorporated according to RESULTS integration rules, which can be found in: ***Appendix A – Photo Interpretation Guidelines for Integrating RESULTS Information, Version 3, March 2013*** for the entire project area. Delineation within openings allowed for minimum polygon sizes down to ~0.5 ha to account for variable retention patches of timber. Special consideration was given to describing both dispersed residual tree 'layers' (example in Figure 4) and small variable retention (VR) polygons within openings.

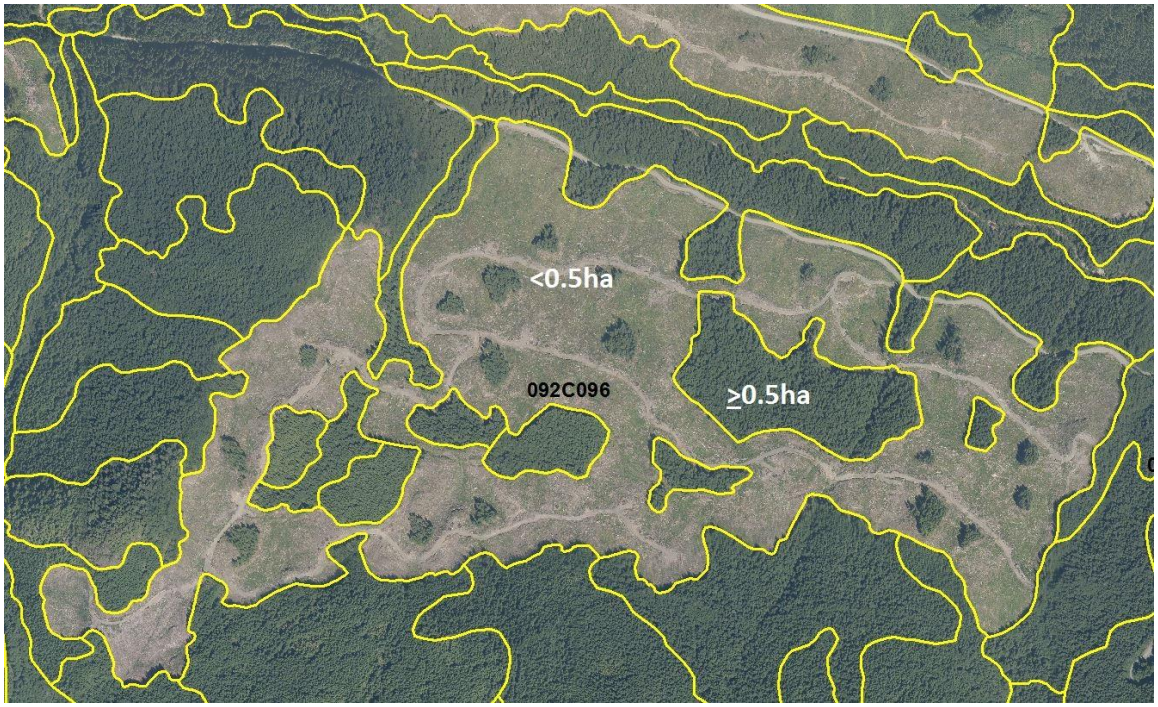

Figure 4. Example of a variable retention 'layer' described within an opening (Mapsheet 092C096 Opening 1443654). Retention patches <0.5ha were described as part of the opening tree attributes in the VRI layer 1. Retention patches ≥0.5ha were delineated and attributed to VRI standards. The regeneration treed component is described in the VRI layer 2.

2. Project Area Description

Vancouver Island is located in the southwestern corner of British Columbia. It is separated from the mainland by the Strait of Juan de Fuca along the south, Georgia Strait along the southeast, and Johnstone and Queen Charlotte straits along the north and northeast.

The climate differs dramatically from the very wet west coast to the much drier east coast and gulf islands. The Vancouver Island ranges bisect the west coasts wet, rugged, and steep topography, from the east coasts drier rolling hills.

The tree species present on southern Vancouver Island are Douglas-fir, western redcedar, western hemlock, Sitka spruce, yellow cedar, shore pine, amabilis fir, grand fir, red alder, big leaf maple, western white pine, some mountain hemlock in the higher elevation stands, and some noble fir plantations within the private timber lands.

The South Vancouver Island Natural Resource District covers numerous administrative units including the Arrowsmith TSA, TFL's 19, 46, 44, 54, 57, and 61, the private land of Island Timberlands and TimberWest, the CRD encompassing the southern tip of Vancouver Island, the Gulf Islands, Maa-Nulth treaty lands (TSL), as well as the cities of Nanaimo, Port Alberni, Parksville, the District of Tofino, the District Municipality of Ucluelet, Pacific Rim National Park, the southern portion of Strathcona Provincial Park, Carmanah-Walbran National Park, Gulf Islands National Park Reserve, as well as numerous smaller provincial and regional parks located within the South Island Natural Resource District.

Tenure / Administrative Unit	Tenure Holder	Area (ha)
TSA		462,081.27
TFL's 19*, 46*, 44, 54, 57, and 61	Teal Jones, Western Forest Products, Iisaak Forest Resources, Pacheedaht Anderson Timber Holdings	381,556.80
TSL		26,237.91
Island Timberlands Area (private)	Island Timberlands	211,989.96
TimberWest Area (private)	TimberWest	228,188.61
Provincial Park Area		197,442.75
National Park Area	Pacific Rim Nat. Park, Carmanah-Walbran Nat. Park, etc.	55,250.78
Woodlot and Community Forest Area		44,365.88
Indian Reserves / Federal Lands		13,134.99
Protected Areas and Reserves		8,740.49
CRD and Urban Areas (excluding the CRD watershed)		103,973
Total Area		**1,628,989.44**

Table 1. Ownership, Tenure, and Administrative Units of the South Island project area (from the South Island VRI Phase 1 VPIP)
*Recently completed VRI areas excluded from the South Island VRI

3.0 The 2015-2018 VRI

3.1 Project Personnel

The South Island VRI was completed between July 2015 and March 2018. The inventory was completed by Timberline Forest Inventory Consultants.

VRI Project Admin - Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Roman Bilek RFT - VRI Contract Manager

Timberline Forest Inventory Consultants

Mike Sandvoss RFT – Project Manager and VRI Certified Photo Interpreter
Andy Ferguson RFT - VRI Certified Photo Interpreter
Francois Rosa - VRI Certified Photo Interpreter
Rob Oran RPF - VRI Certified Photo Interpreter
Jouni Tanskanen - VRI Certified Photo Interpreter
Mitchell Grant - VRI Certified Photo Interpreter

3rd Party QA Personnel

Frank Scheithauer RPF - VRI Certified Photo Interpreter

3.2 Annual VRI Project Completion

3.2.1 Fiscal Year 2015 / 2016

The VRI started in mid July 2015 with a first of a total of four field programs across the majority of the Clayoquot. This was planned for early to mid September 2015. This required the completion and QA of 32 map sheets (26.88 FME) or ~297,235.8 ha of delineation and associated field plan prep for ground call and air call programs, by the last week of August 2015. At the request of the South Island Forest District, the delineation from the 1996 Clayoquot Sound VRI was imported and adjusted / updated as required using the 2014 imagery. Average polygon size remained at approximately 6 ha. The delineation adjustments, new delineation, and field planning was completed by late August 2015 and a field program was almost successfully completed by mid-September, 2015, before autumn storms curtailed further helicopter access into the project area.

Field calibration plans were submitted digitally (as .shp files) to the MoFLNRO (Roman Bilek) for review and approval by the MoFLNRO to ensure plot distribution. A pre-determined set of air call locations was provided by the MoFLNRO to act as an 'audit' of the Clayoquot VRI, to determine if additional ground calls were required. No field work was planned or completed in private, municipal, or national park lands. An MoFLNRO supplied digital excel spreadsheet was produced and submitted as a 2015 project deliverable, along with a .gdb showing the final location and call type of all newly established VRI calibration points. Fiscal year 2015/16 saw the completion of 71 1-pt

ground calls, 78 3-pt ground calls, 236 air calibration points in the Clayoquot Sound VRI area, and 272 air calibration points in the surrounding new VRI area. All field data was collected as per the MoFLNRO standards for ***VRI Field Calibration Procedures for Photo Interpretation, Version 1.5 June, 2015.***

Attribution of this area, with the exclusion of several map sheets moved to the following fiscal year, was completed and QA'd by fiscal year end. Attribution was completed as per the ***VRI Photo Interpretation Procedures, Version 3.1 June 2015*** and quality assurance checked according to the ***VRI Photo Interpretation Quality Assurance Procedures and Standards, Version 3.8 June 2015***.

The 236 air calibration points in the Clayoquot Sound VRI area were located within randomly selected polygons to assess the accuracy of the 1996 Clayoquot Sound VRI. The assessment of those air calibration points, determined that the existing VRI was 70% correct for leading species and 77% correct for heights.

Figure 5 shows completion status at fiscal year end 2015 / 2016.

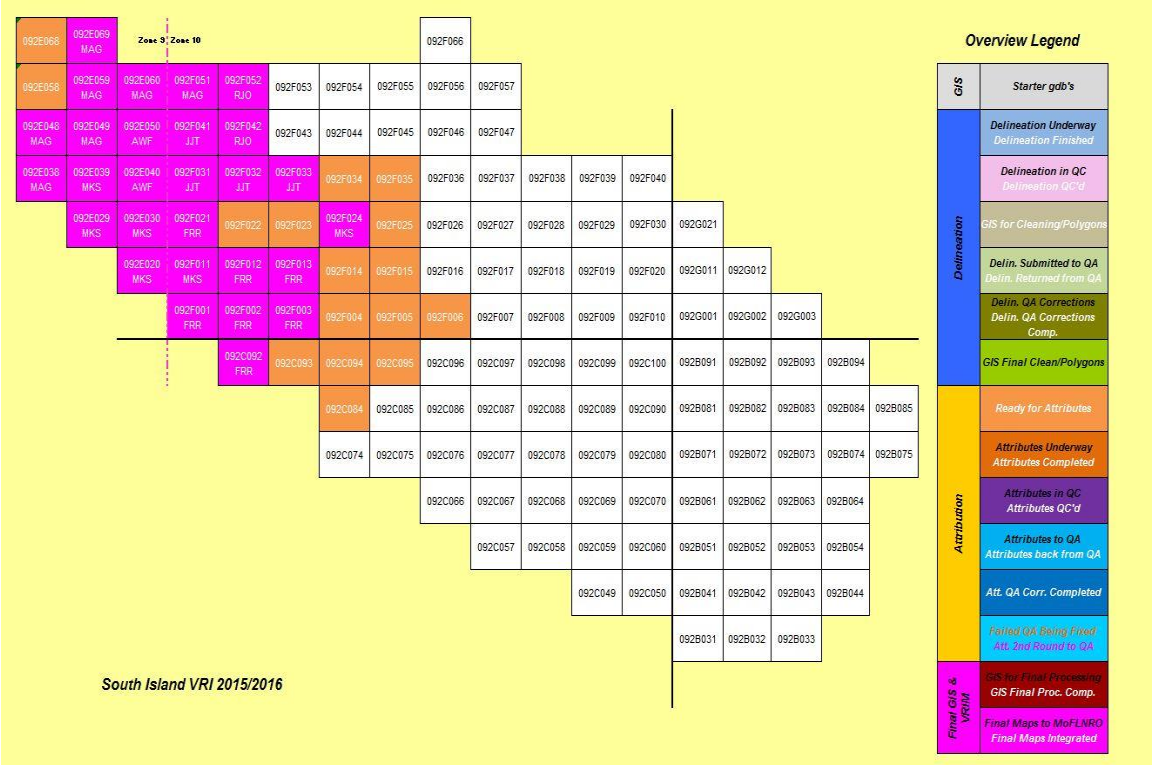

Figure 5 Fiscal Year 2015 / 2016 project completion status.

3.2.2 Fiscal Year 2016 / 2017

Year two of the South Island VRI started in early April 2016 with attribution of six of the delineated and field calibrated maps deferred from 2015/2016. Delineation of the 2016 / 2017 map sheets extending from Strathcona Provincial Park and down the west half of the island, was completed in preparation for the second and third field programs scheduled for May/June 2016 and August/September 2016. At this stage the contract

was amended to include all municipal lands within the South Island Natural Resource District, including Tofino, Ucluelet, Port Alberni, the CRD (excluding the 2010 VRI'd watershed, see Figure 6), Duncan, Nanaimo, and Parksville.

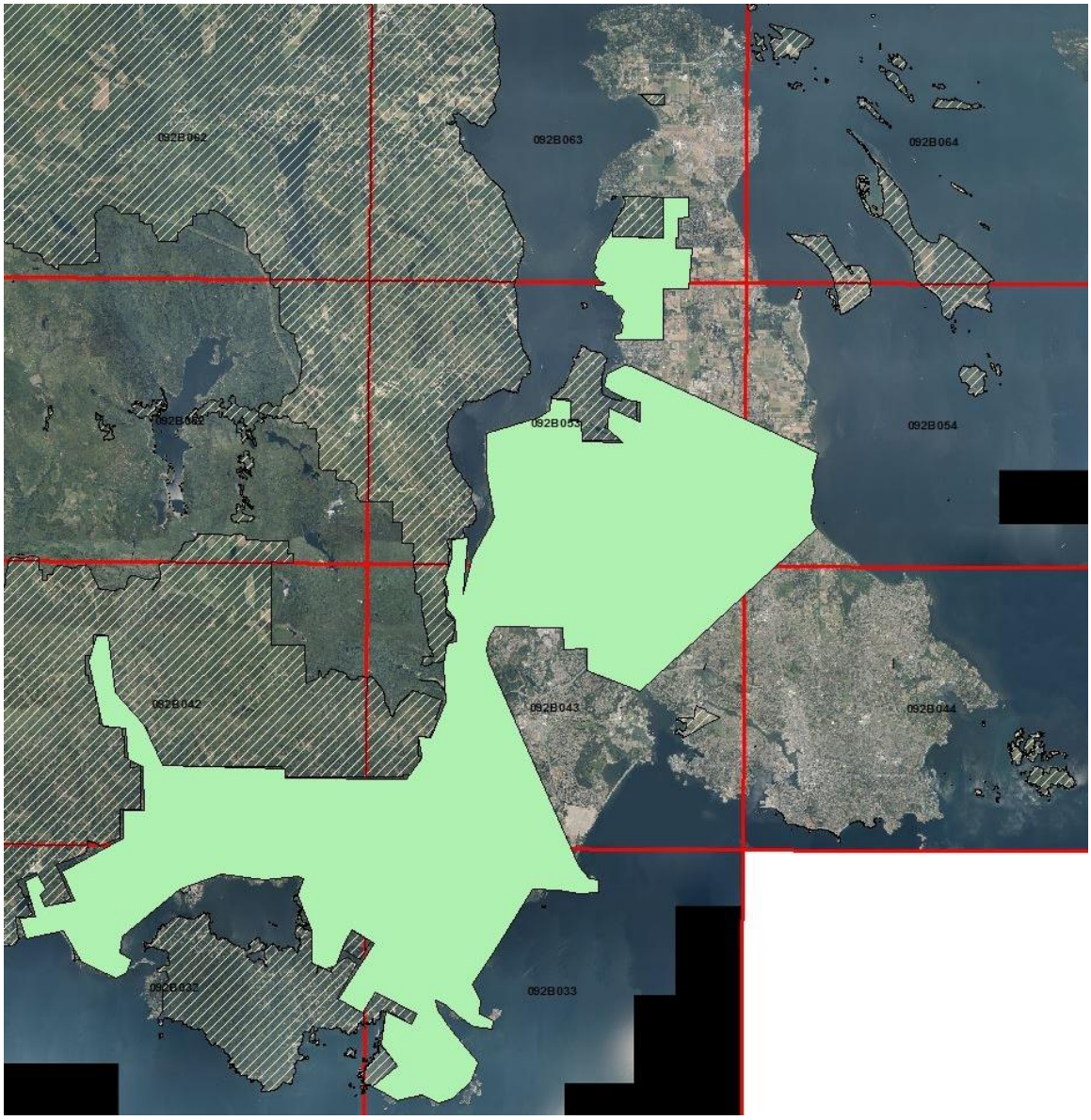

Figure 6 Originally excluded CRD area added into the project area in fiscal year 2016 / 2017.

A few of the delineated maps from 2015 / 2016 required additional ground calibration work to be completed during the second project field calibration program scheduled for late May 2016. Field planning for the second of four field programs, planned for late May / early June out of Port Alberni and Nitinat, was completed in early May and submitted for ministry review and approval.

The third of four field programs, to complete the southwest map sheets down to and including the CRD area, was based out of Sidney and Port Renfrew, and was completed in mid-September 2016. The field plan for this field program was submitted in August

2016. Field calibration plans were submitted digitally (as .shp files) to the MoFLNRO (Roman Bilek) for review. No ground calls were planned or completed within the limited area of private lands in 2016. An MoFLNRO supplied digital excel spreadsheet was produced and submitted as a 2016 / 2017 project deliverable, along with a .gdb showing the final location and call type of all VRI calibration points. Fiscal year 2016 / 2017 saw the completion of 258 ground calibration plots (38 x 1-pt and 220 x 3-pt) and 478 air calibration points. All field data was collected as per the MoFLNRO standards for ***VRI Field Calibration Procedures for Photo Interpretation, Version 1.5 June, 2015.***

Attribution of the 2016 / 2017 fiscal year area commenced in early April (starting with the field calibrated maps deferred from 2015 / 2016) and was completed and QA'd by fiscal year end. Attribution was completed as per the ***VRI Photo Interpretation Procedures, Version 3.1 June 2015*** and quality assurance checked according to the ***VRI Photo Interpretation Quality Assurance Procedures and Standards, Version 3.8 June 2015***. The VRI attribution completed on private lands in 2016/2017, was based on air calibration estimates and photo interpretation only.

Figure 7 shows completion status at fiscal year end 2016 / 2017.

3.2.3 Fiscal Year 2017 / 2018

Year three of the South Island VRI started in early April 2017 with delineation of the remaining map sheets on the east coast, from the Gulf Islands up to Courtenay. This area is almost predominantly private woodlands, private, and municipal lands. During the delineation phase it was identified that no images were available for map sheet 092F066 and it subsequently was dropped from the project.

The fourth of four field programs was planned and submitted to the MoFLNRO in May, for a planned field program in June. No ground calls were planned or completed in private lands, but the remaining accessible crown land and woodlots were ground calibrated. To offset this reduction of calibration points available to the interpreters, the ministry increased the number of planned air calls per FME from 20 to 30. Fiscal year 2017 / 2018 saw the completion of 109 ground calibration plots (30 x 1-pt and 79 x 3-pt) and 1079 air calibration points. An MoFLNRORD supplied digital excel spreadsheet was produced and submitted as a 2017 project deliverable, along with a .gdb showing the

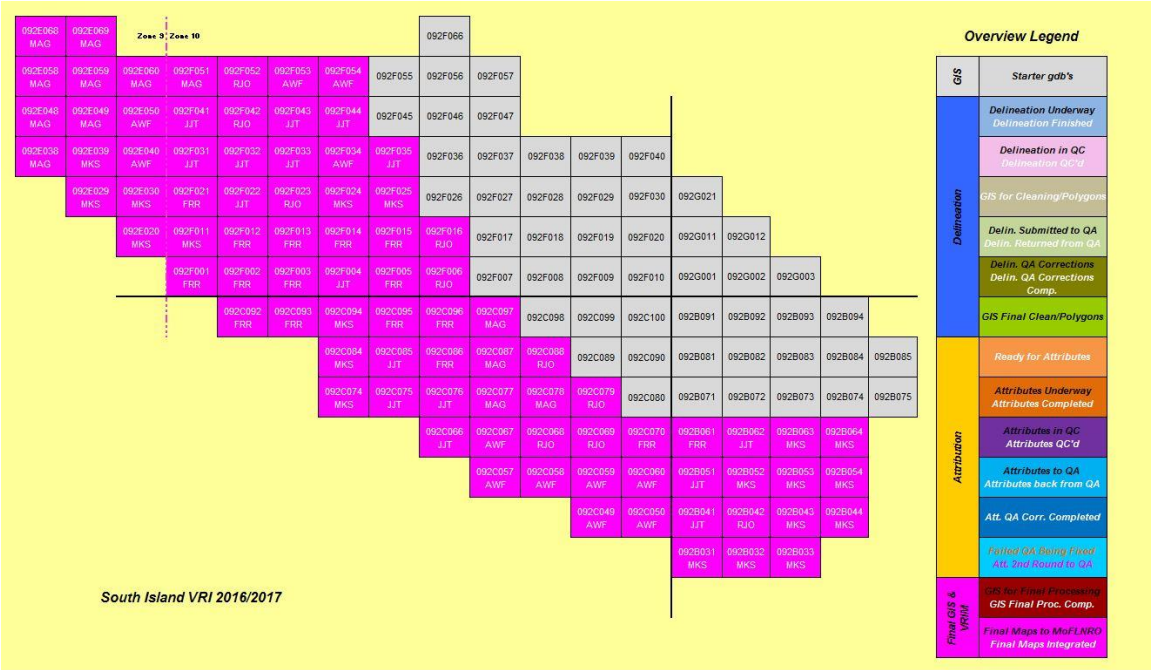

Figure 7 Fiscal Year 2016 / 2017 project completion status.

final location and call type of all 2017 completed VRI calibration points. A final all inclusive .gdb showing all ground and air call locations (2015-2017) was a final project deliverable. All field data was collected as per the MoFLNRO standards for ***VRI Field Calibration Procedures for Photo Interpretation, Version 1.5 June, 2015.***

Attribution of the 2017 / 2018 fiscal year area (50 map sheets) commenced in early July and was completed and QA'd by March 23rd, 2018. Attribution was completed as per the ***VRI Photo Interpretation Procedures, Version 3.1 June 2015*** and quality assurance checked according to the ***VRI Photo Interpretation Quality Assurance Procedures and Standards, Version 3.8 June 2015***. The VRI attribution completed on private lands in 2017/2018, was based on air calibration estimates and photo interpretation only.

In October 2017 the contract was amended again to include the delineation and attribution of TFL 61. The amendment was made after the completion of the final field program. A total of 126 TFL 61 1998 Phase II samples were made available to assist with attribution.

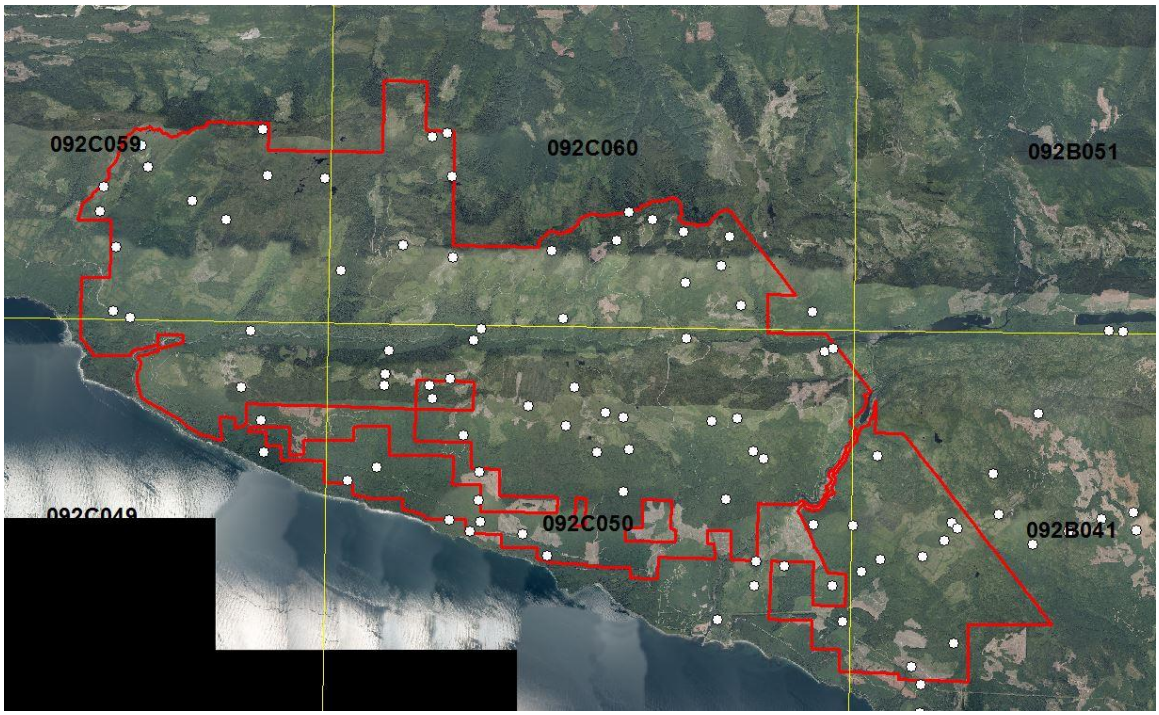

Figure 8 Shows TFL 61 and the location of the Phase II samples used to assist with the Phase I VRI interpretation.

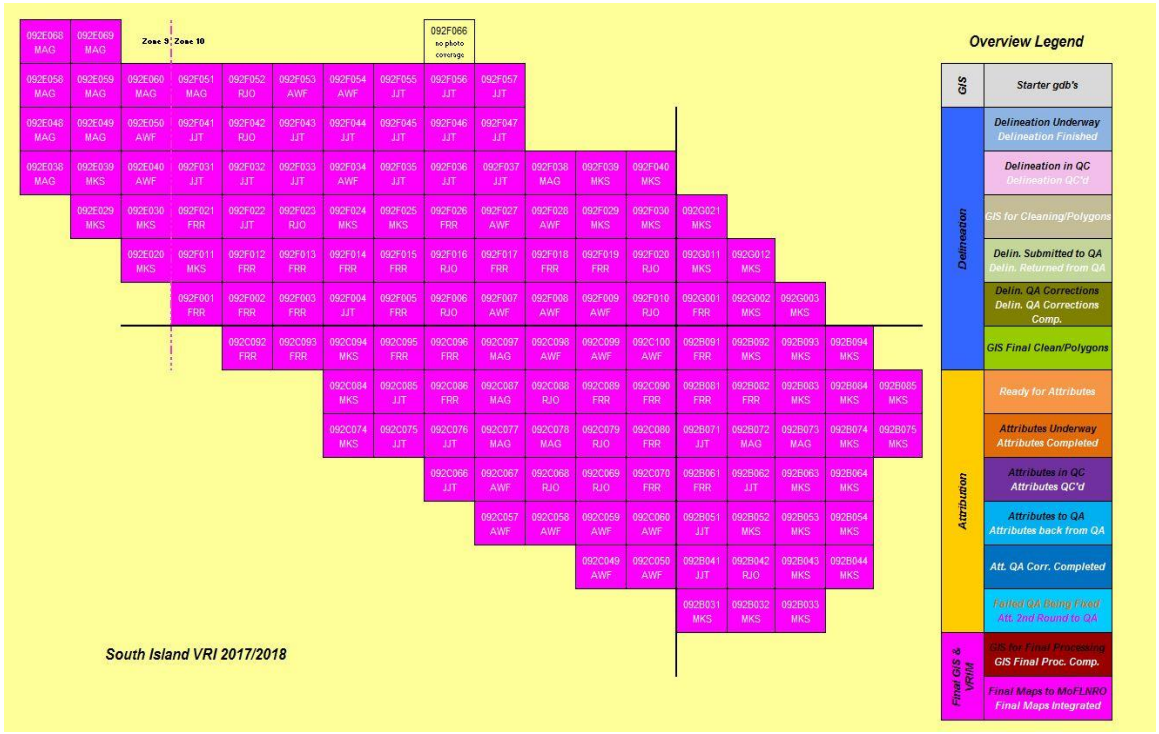

Figure 9 Shows completion status at project end date 2018. Appendix 3 shows a tabular record by map sheet (by fiscal year) of the major work phases and assigned interpreter.

4.0 Deliverables

VRI deliverables for each map sheet, each project year included the following:

- Original hard copy field forms for all field calibration data (ground call and air call tally sheets)
- Hardcopies of orthophoto map plots used for fieldwork.
- A digital copy of all field calibration data in MS Excel spreadsheet format (template provided by MoFLNRO – FAIB)
- A geodatabase (.gdb) with location of all established calibration points from 2015-2017
- Each map sheet in Arc personal geodatabase (.mdb) MoFLNRO VRIMs file format
- All 3rd party quality assurance documentation for each phase (by submission batch) of the project.

5.0 Quality Assurance

Project quality assurance was provided by Scheithauer Forest Consultants Ltd. throughout the duration of the project according to the 2015 VRI quality assurance procedures. Major work phases that underwent quality assurance were delineation, field calibration, and attribution. Historical data source capture was also quality assurance checked.

All quality assurance batch reports and comparison table documentation was provided to the MoFLNRO monthly.

6.0 Conclusions and Recommendations

The VRI is the provincial forest inventory, but each land base introduces a unique set of parameters, from the local geography, geology, and accessibility of the area being inventoried, to the variety of tenure / ownership (i.e. strictly a TSA or a mixture of TSA, TFL, private land, parks, etc…). As far as South Vancouver Island was concerned, the landscape variability was extreme. From the heavily fjorded, wet, and thickly forested west coast, to the rocky Vancouver Island Range running down the spine of Vancouver Island, to the drier, gently rolling hills of the east coast, and gulf islands. The mountainous areas and dense stands with few natural openings provided extremely limited access to mid-slope types. Only where recent harvesting activities provided road cuts and landings could these locations be ground calibrated, a phenomenon that carried forward from all previous ground calibration programs. Contract amendments were issued to capture more forest cover within urban areas or as part of the urban-forest interface and to provide current information in some of the rare CDF biogeoclimatic stands. All project work was completed within the amended budget and on time.

The road accessibility of South Vancouver Island was extremely limited within the Clayoquot Sound area. The west central area of the island offered the greatest road accessibility. The remainder of the island was limited by private land (gates) barring road access.

The South Vancouver Island project area is made up of the Arrowsmith TSA, numerous TFL's, a world renowned national park, the oldest provincial park in BC (Strathcona), numerous smaller national, provincial, and regional parks and ecological reserves, a significant tract of private timberlands, woodlots and community forests, municipal lands, and Indian reserves. Each tenure / ownership provided varying objectives for the VRI, which were expressed in the delineation within each tenure / ownership category.

Appendices

Appendix 1 - South Island VRI Project Implementation Plan (VPIP)

Vegetation Resources Inventory

South Island Natural Resource District - Project Implementation Plan for Photo Interpretation

Prepared by
Ministry of Forests, Lands and Natural Resource Operations
Forest Analysis and Inventory Branch

March 30, 2015

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Section 1 – Introduction and Background Information

Background Information

Stakeholders for this unit include:

- South Island Natural Resource District staff
- Ministry of Environment and other government agencies
- B.C. Timber Sales
- Local licensees including woodlot owners and community forests groups.

Additionally and crucially, there are 36 First Nations for engagement within the project area described in this plan (see Appendix B for a full list). Consultation is paramount during the development of this inventory plan and during subsequent Phase 1 fieldwork planning and ongoing project activities. Consultation follows the protocol as described in http://www.for.gov.bc.ca/haa/Docs/MOF_Consultation_guidelines_final.pdf

The present inventory consists of a complex mix of varying currencies, standards and formats and is obviously now in need of a re-inventory (for details please see State of the Current Inventory below). A re-inventory of southern Vancouver Island would provide up-to-date information on land cover types, and stand age, height, species composition, volume, and stocking - together with a seamless spatial coverage of the entire project area. The re-inventory process starts by acquiring new imagery. The new digital air photos acquired during the 2014 field season will provide full coverage of the South Island Natural Resource District and adjoining area. This new imagery will be used for photo interpretation of the inventory in concert with air and ground calls for calibration purposes.

Overview of the VRI Process

The Vegetation Resources Inventory (VRI) provides a 'strategic' level planning inventory at the management unit level (TSA or TFL) designed to answer two basic questions: where is the resource and how much is there. The VRI inventory standard consists of two phases that may be undertaken in combination or, in certain situations, individually. In phase I of the inventory, air photos are acquired, and polygons are delineated within an inventory unit in order to provide full 'wall-to-wall' coverage at the management unit level. Vegetation attributes of these polygons are estimated by photo interpreters. In phase II of the inventory, a subset of the polygons is randomly selected for ground sampling and Net Volume Adjustment Factor (NVAF) sampling. The purpose of Phase II ground sampling is to verify our level of confidence in the Phase 1 inventory and to provide supplementary information on stand characteristics (such as tree size distribution) that are not captured in Phase 1. Phase II sampling is carried out using documented statistical procedures and standards. More details regarding the VRI process and the VRI standards and procedures are available at the MFLNRO Forest Analysis and Inventory Branch (FAIB) website: http://www.for.gov.bc.ca/hts/vri/index.html

State of the Current Inventory

Approximately 300,000 hectares or 20% of the South Island Natural Resource District has a Phase 1 VRI dating between 1997 and 2006. VRI Phase 1 projects were completed for the entire Clayoquot Sound Decision Area, TSA 44 Block 27 (Sproat Lake), TFLs 46 and 25 Block 1 (now TFL 61).

The Clayoquot Sound VRI Phase 1 project covered approximately 270,000 ha and included the following areas:

- All of TFLs 54 and 57
- Approximately 10% of the Arrowsmith TSA

- Portions of Pacific Rim National Park
- A number of smaller protected areas including an addition to Strathcona Provincial Park

The Clayoquot VRI Phase 1 data was not loaded to the provincial data warehouse until 2009 due to problems with non-standard content and format, and there is no associated Phase 2 ground sampling to assess the accuracy of the inventory in this area as part of the standard inventory audit process.

There have been two new inventories recently completed for Capital Regional District (CRD) watershed area near Victoria and for BCTS in the Sproat Lake area. TFL 46 (Teal-Jones) has completed Phase 1 and Phase 2 inventories which were done between 2005 and 2007. This project is complete with completion of an NVAF in 2011 and subsequent data processing. TFL 61 (formerly WFP TFL 25 Block 1) was a VRI pilot project completed in 1999 and significant changes to the land area of this TFL have occurred in the past five years. TFL 44 is significantly reduced in size from its last re-inventory in 1979 under MacMillan Bloedel, and its inventory differs from Ministry standards and content. Discussion with the licensee may determine if there are opportunities for any information sharing such as historic ground call data. Take-back areas of this TFL are now a major component of BCTS's operating area as well as form part of various community and First Nations tenures.

Outside of the Clayoquot Sound planning area and the above noted TFLs, Crown (TSA) land has forest inventory data which is between 20 and 35 years old. Most of the TSA land is in larger tracts west of the E&N boundary. TSA lands on the east side of the E&N boundary, on the east side of the island, are fragmented into many small parcels which are surrounded by large areas of municipal and private lands. More than a third of the project area is private land. Most of the South Island consists of older FIP format inventory files with some incomplete areas in the northwestern edge (see Figure 1 below). When older FIP standard TSA inventories were done between 1988 and 1990 numerous small and medium sized parcels of TSA land were not included. Some other Crown land areas such as provincial parks were also excluded (see Figure 1 and 2 below).

Inventory audits of the Arrowsmith TSA are now relatively old, being completed in 1996 and 1999, with the 1999 audit focussing on plantations on the eastern side of the district, and the key findings of these audits are summarized as follows:

Arrowsmith TSA (1996 audit)
Mature (60+ years)

- Inventory volumes overestimated on average 4% and 6% for operable only stands
- Mean stand heights overestimated by 3%
- Mean stand ages were underestimated by 2%
- Leading species correct for 72% of the samples

Immature (free growing up to 60 years)

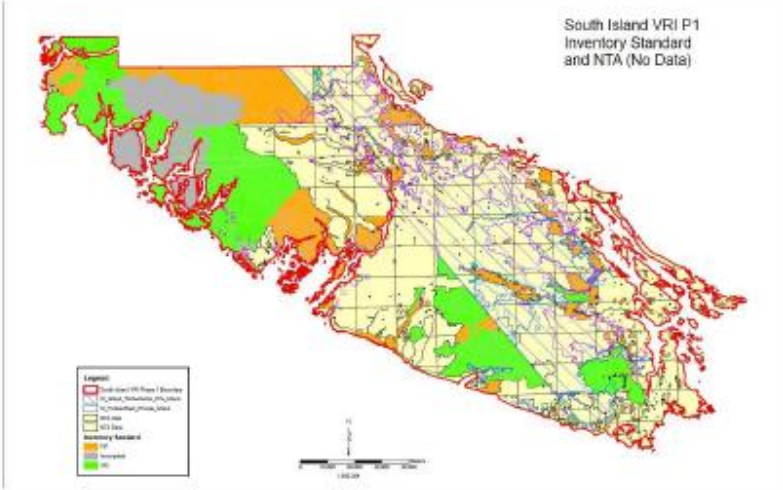
- Leading species correct in 70% of the samples
- Site index underestimated by more than 5 meters in 45% of the samples

Vancouver Island Plantation Forest (1999 audit)

- Inventory volumes overestimated on average by 3%
- Leading species correct in 84% of the samples

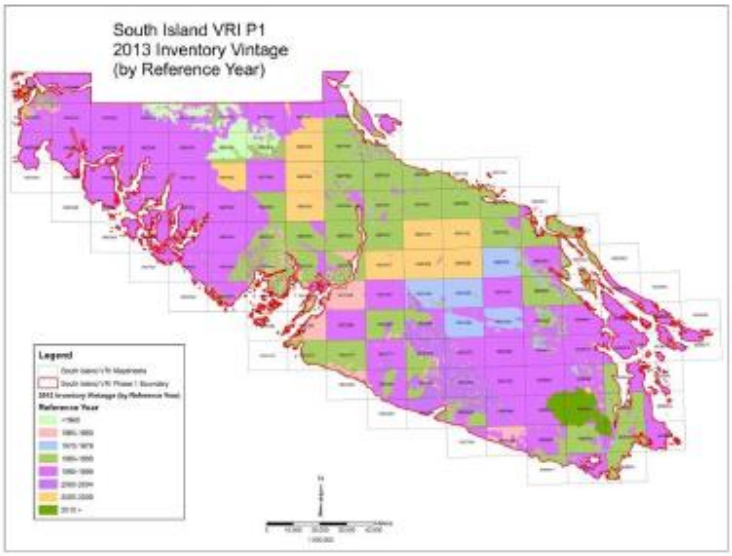
No Ministry audits have been conducted on the inventories in TFLs 44, 54 and 57. The Phase 2 ground sampling of TFLs 46 and 61 was done to meet the objective of database adjustment related to TSR.

Fig. 1 – South Island Inventory File Standard



Note: Where inventory data has been captured in the corporate database it is captured to either F – FIP, I – Incomplete VRI, or V – VRI standard. When the database was converted from INCOSADA to VRIMS there were a number of maps that contained NO INVENTORYDATA, they were blank; at conversion all these blank maps were given a default inventory standard code of F. The attached map shows in yellow all the NTA areas (No Typing Available in the corporate database) for the south Island. Even though there is no typing these areas are still either a V or F record in the corporate database.

Fig. 2 – South Island Inventory Dates



A number of inventory data related concerns were raised in the July 22, 2009 Arrowsmith TSA Rationale (http://www.for.gov.bc.ca/hts/tsa/tsa38/tsr3/38ts09ra.pdf), as follows:

The information on cedar is not current in terms of location and the volume of cedar in the inventory is subject to uncertainty as it may have been underestimated. The harvest profile has exceeded the cedar profile and this situation has raised concern regarding the long-term availability of this species. This new inventory will not collect cedar information at the individual tree level however the overall information on this species could be improved at the stand/polygon level which should significantly assist locating this species at the operational level.

A new phase 1 inventory will provide more current information on critical stand attributes such as species composition, volume, stocking, age and height as well as identifying location. A new inventory will also provide more accurate and current information on depletions from harvesting, wildfire and other disturbances. Concurrent with this re-inventory, a new digital elevation model (DEM) will be delivered with 2 and 10 meter resolution and new digital surface model (DSM) that maps the canopy surface may assist with vegetation height mapping, which will benefit a wide range of stakeholders. This new height source is to be used as a reference only for this VRI project. If there is a significant difference between the photo-estimated stand height (supported with photogrammetric heights) and the average DSM stand height, the onus will be on the interpreter to rationalize the difference and assign the final attribute stand height. If FAIB determines that the DSM heights are reliable then these values may be assigned directly after this preliminary testing stage.

Development of south-eastern Vancouver Island has resulted in a high degree of fragmentation of the provincial forest in biogeoclimatic zones that are under intense pressure ecologically and for provision of a wide range of non-timber values in the rural/urban interface. In particular, some vegetation communities in the Coastal Douglas-fir (CDFmm) biogeoclimatic zone are considered endangered and completing a more current inventory of these types may assist in their conservation and management.

Information on First Nations traditional use studies are not generally made available to government agencies and any information such as location of cultural heritage resources or archeological sites is held in confidence. A new Phase 1 VRI will not record location or any other associated details regarding this sensitive information as it is completely outside the scope of inventory data collecting activities.

Document Objectives

This inventory planning document is a working document that states the critical reasons and objectives for carrying out a phase 1 VRI in the South Island Natural Resource District together with details on the area to be inventoried and key steps during the implementation of this phase 1 inventory project.

This plan identifies the target project area for new photo interpretation within the boundaries of the South Island Natural Resource District, and includes at least portions of TFLs 19, 44, 46, 54, 57, and 61 and where the adjoining areas overlap with square edge map blocks. The area bounded by Strathcona Provincial Park that is within the inventory project area is included and will be done to the same VRI standard being applied to TSA and TFL lands. This plan also covers the stages required to be carried out for the successful completion of a photo interpretation project. LiDAR will be used in several small areas of crown land based on the need to identify potential goshawk nesting areas as defined locally. This imagery will be acquired in parallel to VRI based inventory work, with details as to scope and location(s) still being determined. FAIB will work with District staff and BCTS to confirm where and when LiDAR work is to be carried out and confirm any data sharing.

Project Area Overview

The inventory project area encompasses all of the South Island Natural Resource District is just over 1.6 million hectares and occupies the southernmost 30% of Vancouver Island and most of the

southern Gulf Islands (see Figure 3 below), as well as a small portion of the adjoining Campbell River District to the north where there are overlapping square edge mapsheets. This area occupies all or part of 138 map sheets or approximately 100 full map sheet equivalents (FMEs). Major population centres are Greater Victoria, Duncan, Nanaimo, Port Alberni and smaller communities include Sooke, Lake Cowichan, Chemainus, Ladysmith, Parksville, Qualicum Beach and Tofino/Ucluelet. The District land base is comprised of Crown lands within the Arrowsmith TSA, five TFLs, thousands of private land holdings of various sizes including large blocks within the E&N belt owned by two large forest companies, municipal lands, First Nations treaty lands, Provincial and Federal Parks, and other protected areas such as the Clayoquot Sound area. Significant changes in land tenure and ownership have occurred during the past 20 years and the existing inventories are mostly older than this, therefore reflecting tenure boundaries which existed pre-1990.

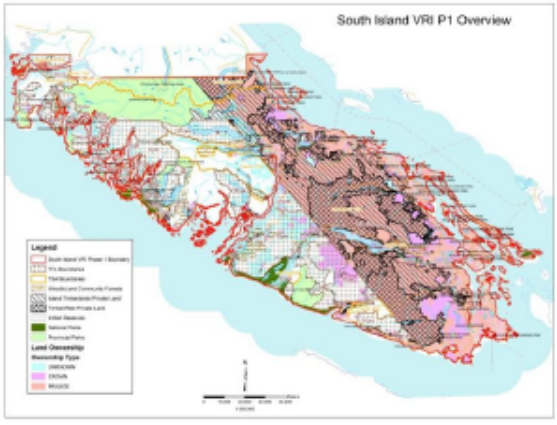
The South Island Natural Resource District presents a complex and dynamic situation with significant challenges in planning a new inventory. Many changes to tenure and ownership have occurred in the past 20 years and this trend continues. Treaties are being finalized which will result in the transfer of land from the Province to First Nations.

Currently the project area consists of the following:

- The Arrowsmith TSA (including woodlots and Community Forests)
- TFL 46 (Teal Jones)
- TFL 44 (Western Forest Products)
- Clayoquot Sound area including TFL 54 and 57 (Iisaak Forest Resources), TSA lands and Parks
- TFL 61 (Pacheedaht Andersen Timber Holdings)
- Various municipal and private lands parcels (except Capital Regional District lands)
- Various woodlots and community forests within the project area boundary
- Maa-Nulth treaty lands (TSL)
- Strathcona Provincial Park (southern portion where it is included within the project area)
- Pacific Rim National Park
- Other Regional and Provincial Parks
- Southern portion of Campbell River District where there is some overlap with adjoining square edge mapsheets

The Pacific TSA (B.C. Timber Sales) and the Capital Regional District (CRD) lands within South Island have recently completed VRIs so these areas do not form part of this project.

Figure 3: Overview Map of South Island Natural Resource District



It is important to note that VRI phase 1 inventory projects are based on completion by square edge map sheets, therefore the South Island inventory project area is not exactly the same as the actual Arrowsmith TSA/South Island area (see Target Area under Section 2 for further details). Each FME is approximately 16,200 ha in size so the total area including adjoining portions of square edge map sheets is approximately 1.63 million hectares. Thus for planning purposes the following summaries are based on the total South Island inventory project area based on square edge mapsheets, exclusive of off-shore area and ocean inlets but including inland lakes and rivers, and not the actual area defined by administrative boundaries (see Tables 1 and 2 below).

Table 1 South Island Project Area Land Base Summary

Land Classification*	
Total Project Area	1,628,989.44
Total Provincial Park Area	197,442.75
Total National Park Area	55,250.78
Total Protected Areas and Reserves	8,740.49
Total TFL Area	381,556.80
Total TSA Area	462,081.27
Total TSL Area	26,237.91
Total Woodlot and Community Forest Area	44,365.88
Total Island Timberlands Area (Private)	211,989.96
Total TimberWest Area (Private)	228,188.61
Total I.R.s Area	13,134.99

***Note: More detailed area breakdowns of TFLs, TSAs, Parks, Woodlots and Community Forests can be found in Appendix A.**

Table 2: South Island Project Area Ownership Class

Cadastre (Ownership Class)	
Total Crown Federal	19,163.56
Crown Municipal	43,571.93
Crown Provincial	114,629.04
Private	632,043.97
Unknown	205,334.20
Total	1,014,742.70

The summary of area by leading species is provided in Table 3 below and is limited based on the fragmented nature of the Ministry's FIP and VRI format inventory coverage across the current project area.

Table 3: South Island Area by Leading Species Summary

Leading Species*	
Aspen (AC, ACT,AT)	65.55
Fir (B, BA, BG, BL)	28,701.00
Cedar (CW, YC)	160,699.58

Douglas Fir (FD, FDC)	97,306.74
Hardwoods (DR, MB, W)	12,854.83
Hemlock (H, HM, HW)	130,612.22
Pine (PL, PLC, PW, PY)	5,887.18
Spruce (S, SS)	2,874.18
*Total Area	439,001.28

*Note – Total area by leading species is based on current available inventory data MFLNRO has and does not reflect actual area by leading species across the entire project area land base.

The biogeoclimatic (BEC) summary is based on current information across the current project area and is a complete coverage (see Figure 4 and Table 4 below)

Figure 4. South Island Project Area BEC

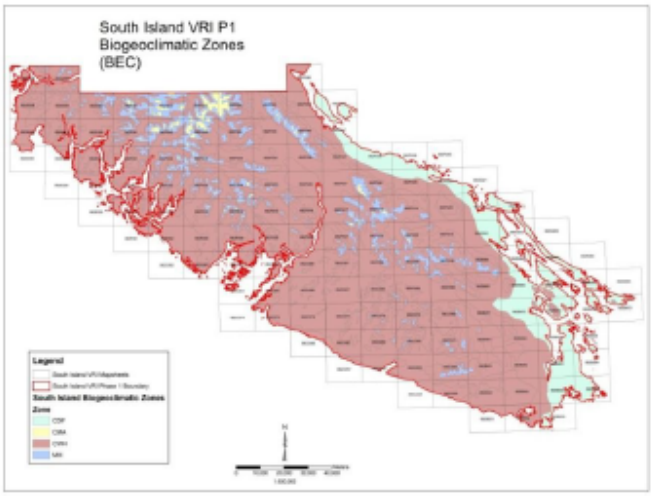


Table 4 Summary of Project Area by BEC Zone

Biogeoclimatic Zones	
Coastal Douglas-fir (CDF)	178,513.73
Coastal Mountain-heather Alpine (CMA)	17,935.96
Coastal Western Hemlock (CWH)	1,317,348.53
Mountain Hemlock (MH)	115,186.96
Total BEC	1,628,985.18

Private Land, Woodlots, First Nations TSLs and Community Forests

As long as the associated air photos are available, the new inventory will include any woodlots and the four community forests lying within the project area: Alberni Valley, Barkley, Bamfield Huu-ay-aht and Cowichan Tribes. Any photo interpretation calibration points established in these projects would be made available as part of any historical data source for use in the new inventory project. Private and municipal lands and woodlots are included in this project however ground calls will not

be established on private lands. A full listing of woodlots and community forests can be found in Appendix A. Forest Analysis and Inventory Branch recognizes the special sensitivity of inventory information on some tenure and ownership types. FAIB is working with stakeholders to resolve concerns.

Section 2 - Photo Interpretation Plan

Project Objectives

The overriding objective of this photo interpretation project is to update the inventory for the South Island to one standard, format and currency across the entire South Island inventory project area to account for what is presently a complicated and fragmented inventory consisting of various standards, formats and currencies and with known gaps in forest cover information. Producing one consistent and seamless inventory across this entire project area will provide all local stakeholders with accurate and up-to-date forest resource information (delineation and attribution) that will be available in a single dataset using published standards and format. The information from this re-inventory will be used to inform future resource management decisions by industry, BCTS, local woodlot owners and community forest managers, First Nations, MFLNRO and other government agencies. The re-inventory information will also be available as a crucial dataset for the next Arrowsmith TSA AAC determination scheduled for 2016 in accordance with Section 8 of the Forest Act.

Target Area

The entire South Island Natural Resource District will be photo interpreted inclusive of Strathcona Park, all woodlots, private land, small parks and community forests and exclusive of those areas listed as having a recent and available VRI as noted in the Project Area Overview (see Fig. 5 VRI Project Overview and Table 5: VRI Projects Area Excluded below). VRI inventory for all parks will be to the same standard as the TSA and TFL lands in order to determine seral stage distribution, potential wildlife habitat, etc. The linework from the 1997 Clayoquot Sound inventory, covering approximately 268,000 ha will be used for a retrofitted VRI which will include a focus on updating young dynamic stands which cover about 25% of the area.

A detailed map sheet and area summary is provided in the attached Appendix A.

Figure 5: South Island Natural Resource District VRI Project Overview (showing excluded areas)

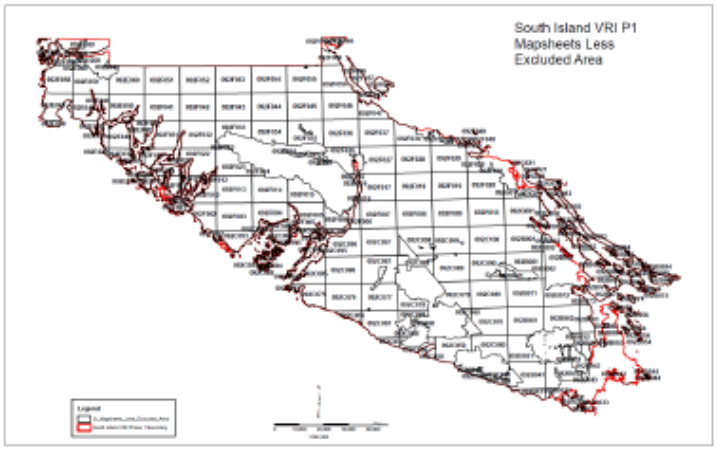


Table 5: VRI Projects Area Excluded

VRI Projects Already Completed	Area (ha)
TFL 19	19,051.63
TFL 61	20,240.22
TFL 46	62,932.45
Sproat Lake VRI (Includes Pacific TSA (TSA 44))	73,162.99
Victoria CRD VRI	24,458.86
Sub-total area	199,846.15
Urban Areas*	103,973
Estimated Total VRI Projects Area Excluded	303,819.15

*Note: Urban areas tally is based on municipal boundaries derived from Tantalis system

Historical Data Sources

An estimate of 1698 FIP (historic) air and ground calls and 1983 VRI air and ground calls were established in the South Island Natural Resource District since the first forest inventory project in the early 1970's (see Table 6 Inventory Calibration Points below). An unknown number of the established data sources were destroyed over the years through harvesting and other disturbances. FAIB is still assembling historic data and the actual number of data sources ultimately available will be determined at the data source transfer stage which may or may not be completed prior to the award of the VRI photo interpretation contract.

All data sources that were available in the last re-inventory project are documented on the earlier document photos. A digital spatial location of these points will be made available in ESRI shape file. **Where the document photos are available**, data sources available on the document photos will be reviewed by photo interpreters and data sources that are still relevant to a new inventory on the 2014 imagery will be transferred to a digital format provided by the Ministry. A full list of currently known FIP historic and VRI can be found in Appendix D.

Table 6: Inventory Calibration Points Established in South Island Project Area

Data Source Origin	Type	Number
VRI	Ground Call (cd 17)	654
VRI	Air Call (cd 18)	1329
FIP	XG (cd 04)	883
FIP	X (cd 01)	757
FIP	XGO	24
FIP	XGC	34

Situations that would justify removal of existing data sources include a major disturbance (such as a large fire, harvesting or insect/disease damage), large stand structure changes, or as defined in the contract document.

New Data Sources

The contractor will establish a minimum of 15 ground calls and 20 air calls per map FME with the exact ratio of ground to air calls per FME still to be determined pending confirmation of the number of historic data sources available.

The type of ground call established in each polygon is based on the stand structure complexity as described in the VRI Photo Interpretation Field Calibration Procedures. The ratio of 3-pt versus 1-pt ground call will be confirmed after a review of a sample of the 2014 photo images. Any deviation from these numbers must be agreed upon by the Ministry Project Manager and will be reflected in the field calibration plan. **Note: ground calibration data will NOT be collected on private land (this includes the establishment of any type of ground plots).**

Prior to the initiation of a field calibration program, a Field Calibration Plan (see Guidelines in Appendix D) is to be submitted to the Ministry Project Manager for approval.

As part of the deliverables, the Ministry requires a complete set of any new data sources be provided in a suitable digital format (as determined by the Ministry), including the geographical locations (UTM coordinates) of these data sources as well as the complete set of field attribute data collected.

Other Data Sources

The origin and estimated number **of other** historic data sources is still to be determined as of the date of this first draft (See Table 7 Other Data Sources below).

Table 7: Other Data Sources

Data Source Origin	Type	Number of Data Sources
Growth and Yield Permanent Sample Plots (PSP)	PSP	TBD
Community Forest- Ground Calls	XGV	TBD
Community Forest - Air Calls	XV	TBD
TFL Historic Air and ground Call Data	**TBD**	**TBD**
Clayoquot Sound Inventory – ground calibration points		251
Clayoquot Sound Inventory – air calibration points		1201
Site productivity – Approved TEM*		
Other TBD		

*The VRI Phase 1 contractor will use the provincial site productivity layer information as a reference for site index (SI) where SI is not available in the RESULTS and where photo interpreters are responsible for estimating SI values as described in Section 6 of the Photo Interpretation Procedures. This GIS database contains the latest TEM and SIBEC information for the South Island Natural Resource District by species for the 33 recorded TEM datasets collected within the project area (See Appendix C for details). The provincial site productivity layer data and supporting information is available at:

http://www.for.gov.bc.ca/hts/siteprod/provlayer.html

ftp://ftp.for.gov.bc.ca/HTS/external/!publish/Provincial_Site_Productivity_Layer_June_2013/

Polygon Delineation

Polygon delineation is to be completed to VRI standards. Any deviation from these standards must be agreed to by the Ministry Project Manager.

Integrating RESULTS Information

The integration of the RESULTS (Reporting Silviculture Updates and Land status Tracking System) spatial files and tree attribute data will be completed at the delineation and attribution stages of the project. The RESULTS database in the Arrowsmith TSA indicates there are 6074 openings for a total area of 137,116 ha (see Figure 6 and Table 8 below), and of these:

- 4,287 openings are Depletion/Regenerations for an area of 93,341 ha
- 1,787 openings are Free Growing for an area of 43,775 ha

Fig. 6 Southern Vancouver Island project area RESULTS Spatial File Coverage

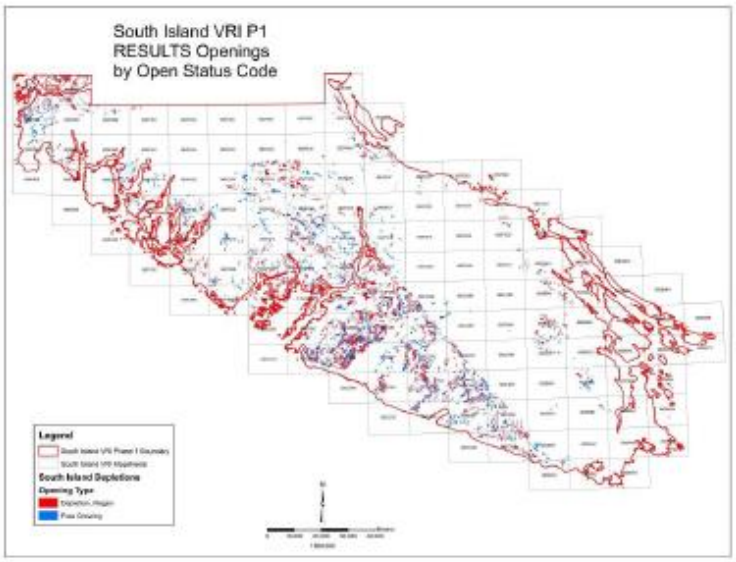


Table 8: RESULTS Summary for South Island

RESULTS Data Summary	# of Openings	Area (Ha)
RESULTS Free Growing (# of Openings)	1,787	43,775.04
RESULTS Depletion/Regen (# of Openings)	4,287	93,341.40
Totals	6074	137,116.44

The FAIB Kamloops Update Team is presently running a depletions and update process for South Island and an updated ESRI shape file for the RESULTS openings and tree attributes will be provided to the bidders attending a mandatory project viewing session in spring, 2015. A significant portion of

the RESULTS depletions have been updated in the current Forest Inventory, however there may still be some missing spatial and attribute data and some more recent openings in the 2014 air photos may not be found in the RESULTS data cut. Attribution of harvested areas that are not identified in the RESULTS spatial files will be completed in accordance with the procedures for Photo Interpretation Guidelines for Integrating RESULTS Information. Reserves will be captured down to 0.5 ha resolution for this project.

Attribute Estimation

This project will be undertaken in softcopy (digital photogrammetric) format.

Forest stand height estimates will be taken where suitable at the discretion of the photo interpreter. There will be no quality assurance carried out on the photogrammetric heights as QA will involve digital height comparisons.

Variable retention harvesting systems have been used throughout BC coastal operations since the early 90s. Retention of tree patches and individual trees from the former stand are now also being assessed as part of stocking standards in silviculture stocking surveys.

All residual tree patches and trees that are uniformly and non-uniformly dispersed throughout the openings must be described as a separate VRI layer and assigned a full suite of tree attributes. The use of multi-layers in the silvicultural openings is not subject to the VRI multi-layer criteria outlined in the VRI photo interpretation procedures.

Examples of tree retention to be described in silviculture openings:

1. Dispersed Retention of residual stems

   Layer 1: Fd100 95yrs - 23m
   Layer 2: Fd100 2yrs - 0.3m

2. Clearcut with Reserves - patches below 0.5ha (patches >0.5ha must be delineated)

   Layer 1: Fd600Hw30Cw10 95yrs - 22m

   Layer 2: Fd100 2yrs - 0.3m

Mapping

The Ministry has developed a format and database standards for the submission and storage of spatial and attribute data for VRI Photo interpretation. All new projects must be completed to this standard and submitted to the Ministry Project Manager following successful QA.

The Contractor will adhere to the most current version of the *VRIMS Personal Geodatabase Structure and Use and VRIMS Vegetation Cover Polygon Validation Rules* published by the Forest Analysis and Inventory Branch.

TRIM Base

A TRIM (NAD 83) format base files will be made available to the contractor at the project pre-work meeting.

There will be no changes made to the TRIM feature unless significant changes occurred to the polygonal features such as lakes and double-line rivers. The contractor must maintain a record of any TRIM changes and submit all changes to the Project Manager in ESRI shape file format. The changes will be passed on to GeoBC for TRIM update.

Section 3 - Project Implementation

Project Pre-work meeting

A project pre-work meeting is mandatory. The purpose of a project pre-work meeting is to bring together the Ministry Project Manager, VRI Phase 1 contractor, MFLNRO representatives and quality assurance personnel prior to project start-up. This meeting will ensure that an efficient communication network is established, identify individuals responsible for all aspects of the project, allow discussion of any issues before project work commences and establish timelines for deliverables and data flow. Minor changes to the contract to complete the Phase 1 activities may be identified at this meeting.

A project pre-work checklist, signed off by all parties attending, will be used to organize and guide the meeting.

Scheduling

The project will progress over three fiscal years commencing in the spring or early summer of 2015 - 2016 fiscal. A total of 20 FMEs is expected to be completed in the first year with the remainder being completed in Year 2 and 3. Three field seasons will be required for collection of photo interpretation field calibration data (air and ground calls). Field calibration is to coincide with subsequent attribution of blocks as scheduled in the approved work plan. The delivery schedule of specific maps will drive the stages of work throughout this project, with the Arrowsmith TSA maps likely to be the priority for Year 1. The remaining fieldwork, photo estimation and map production will be completed in the 2017/18 fiscal year (Year 3)

A delivery schedule outlining progressive delivery of products will be submitted by the contractor for each fiscal. The format of the delivery schedule and the order of map completion will be finalized and agreed to at the project pre-work meeting.

Aerial Photography and Photo Scale

The present 2014 digital air photo acquisition is being administered by GeoBC on behalf of FAIB and therefore meets all standards and specifications as summarized below.

Digital frame camera imagery of the project area was acquired to GeoBC photo standards and specifications in the summer of 2014.

Flight lines were oriented in an East-West direction and captured at 25cm GSD (ground scale distance). The digital copy image sets will be available in 4 band RGBIR imagery in TIF (compressed tiled jpeg) format with ZI model setups.

Project Manager

The Ministry Project Manager for the South Island Natural Resource District Phase 1 VRI project is Roman Bilek, FAIB. Responsibilities include the following: coordinating the project; monitoring and communicating project progress with the local stakeholders; ensuring all contractors are qualified and certified; overseeing photo-interpretation activities; ensuring quality assurance is complete and delivered at each stage, and assisting in coordinating technical expertise where required.

Personnel

All VRI photo interpretation work must be completed by or directly supervised by a VRI Certified Photo Interpreter. All uncertified photo interpreters are to be directly supervised by a Certified Photo Interpreter working on that project.

At least 50% of the photo interpreters working on the project must be certified for VRI photo interpretation. A ratio of one certified interpreter to two uncertified interpreters is acceptable

provided the delineation and attribution work of the uncertified interpreters is carried out in the same physical work location of the supervising certified interpreter.

Quality Assurance

An independent third-party quality assurance (QA) will be completed on all stages of the project in accordance with the VRI Photo Interpretation Quality Assurance Procedures and Standards.

Quality assurance intensity for each stage of the project is to be completed as follows:

Historical Data Source Transfer	5%
Delineation	5%
Field Calibration	5%
Attribution	5%

Quality assurance for digital map production will be conducted by the Province. Contractors will utilize "VEGCAP for Contractors" validation software to perform quality assurance on data files.

All QA findings and re-work instructions are communicated to the VRI contractor by the Ministry Project Manager.

Deliverables

The VRI photo interpretation project deliverables for each stage of the photo interpretation project are outlined in the VRI Photo Interpretation Procedures and VRI Field Calibration Procedures for Photo Interpretation.

For a multi-year project, deliverables are required at the end of each year fiscal. To provide sufficient time for completion of independent third-party quality assurance and Ministry in-house mapping quality assurance, the final deliverables will be submitted at the end of February of each fiscal.

The most current VRI Phase I standards documentation can be accessed from the following MFLNRO web site:

http://www.for.gov.bc.ca/hts/vri/standards/photo.html

Submission of all final deliverables will be signed-off by a qualified ABCFP registered Forest Professional.

Roles and Responsibilities

MFLNRO

Project Manager is the point of contact for the Ministry and provides overall communication of project activities with contractors and South Island Natural Resource District staff and stakeholders via the Ministry SharePoint site.

VRI Contractor

Works with the Ministry Project Manager to ensure the planning, coordination and execution of project activities is consistent with the VPIP and contract requirements.

VRI QA Contractor

Works with the VRI Contractor and Ministry Project Manager to ensure that Quality Assurance reporting meet the VRI prescribed standards.

References for Inventory Standards and Procedures

All work will be carried out in accordance with the following British Columbia Government specifications, current at the time of contract signing.

- *Vegetation Resources Inventory Photo Interpretation Procedures*
- *Vegetation Resources Inventory Photo Interpretation Standards and Quality Assurance Procedures*
- *Vegetation Resources Inventory Field Calibration Procedures for Photo Interpretation*
- *Guideline for Integrating RESULTS Information* (currently contained within the VRI photo interpretation procedures)
- *Vegetation Resources Inventory – The B.C. Land Cover Classification Scheme and addendums*
- *VRIMS Personal Geodatabase Structure and Use*
- *VRIMS Vegetation Cover Polygon Validation Rules*
- *Vegetation Resources Inventory Preparing a Project Implementation Plan for Photo interpretation – Appendix D*

Costs

The estimated cost for completing the project to VRI standard, excluding photo acquisition, but including quality assurance, data capture and field costs based on the level of field calibration is $1.85m based on an estimated average of $1.40/ha over an estimated 1.2 m ha project area including 10% estimated QA cost. For Year 1 of the project the estimated cost of completed VRI for 20 FME at 16,200ha per FME is approximately 500K. This first cost is also based on $1.40/ha plus 10% QA cost estimate of the overall photo interpretation project cost for this unit since QA is performed throughout the project. The remaining project cost would be incurred in Year 2 and 3 for completion of this inventory. **Note, these estimates are used for project budgeting purposes only, based on current average costs for similar projects, and should not be used for the purpose of submitting bids on any work that may be tendered.**

Project Sign-off Sheet

South Island Natural Resource District Vegetation Resources Inventory Photo Interpretation Project Implementation Plan

I have reviewed and approved the South Island Natural Resource District Vegetation Resources Inventory Photo Interpretation Project Implementation Plan.

Pat Martin
Manager, Forest Inventory Section
Forest Analysis and Inventory Branch
Ministry of Forests, Lands and Natural Resource Operations

March 10, 2015
Date

Appendix A: Project Map Sheet Area and Other Summaries with Accompanying Overview Maps

Map	Map Area (Ha)	NP Area (FIP) (Ha)	VRI Vegetated/Non Tree Area (Ha)	VRI Non Forest Descriptor Area (Ha)	Map Net Area Less Excluded (Ha)
092B031	3,178.73	2,852.42	40.70		3,178.73
092B032	7,926.85	7,594.87			4,254.44
092B033	4,970.07	4,956.91			260.78
092B041	16,390.33	14,964.40	248.02		13,811.70
092B042	16,451.69	13,741.46	92.82	3.91	11,382.31
092B043	14,262.83	12,934.60	31.84		1,250.28
092B044	7,640.41	7,395.21			234.77
092B051	16,419.65	10,900.48	161.77		10,900.53
092B052	16,419.65	2,458.37	503.33	1.24	3,092.43
092B053	14,092.80	13,626.30	16.66		5,250.43
092B054	3,232.33	3,229.30			443.52
092B061	16,387.56	15,966.91	23.41		15,966.91
092B062	16,387.56	11,174.15	225.35	17.90	14,645.68
092B063	10,691.78	10,611.16			5,759.73
092B064	1,384.93	1,307.75			1,240.94
092B071	16,355.41	12,926.79	428.52	25.85	16,343.34
092B072	15,726.18	14,985.92	31.66	1.50	11,806.96
092B073	10,269.45	9,485.17	0.15	108.81	9,442.25
092B074	4,408.38	4,389.95			4,408.38
092B075	3,142.21	2,801.47			3,142.21
092B081	16,323.22	8,103.90	506.82	12.43	13,183.00
092B082	14,420.56	13,657.75	77.01	2.87	1,511.23
092B083	8,920.02	8,900.34			8,558.39
092B084	6,008.70	5,974.89			6,008.70
092B085	339.24	337.57			339.24
092B091	16,146.72	12,914.92	295.79		15,478.78
092B092	6,192.24	4,893.67	152.05	11.77	3,391.65
092B093	4,801.07	4,788.90			4,801.07
092B094	475.29	474.71			475.29
092C049	2,272.67	2,242.79			674.84
092C050	10,910.72	10,423.35	35.68		2,609.49
092C057	2,014.47	2,013.20			2,014.48

092C058	8,031.63	4,252.53	940.62		4,492.66
092C059	15,719.47	7,323.33	1,117.65	2.90	11,725.81
092C060	16,419.65	10,632.56	957.68		11,913.15
092C066	3,109.26	936.40	30.66	25.33	3,109.26
092C067	14,969.75	13,608.42	55.80		14,800.41
092C068	16,387.56	4,712.08	1,579.51	18.82	6,483.41
092C069	16,387.56	946.04	2,670.34		1,022.35
092C070	16,387.56	14,845.75	234.14		15,188.82
092C074	160.12	139.49			160.12
092C075	9,123.46	9,035.80			9,123.46
092C076	16,246.90	15,383.34	28.59	28.59	16,246.90
092C077	16,355.41	14,179.37	147.26		15,937.69
092C078	16,355.41	5,158.59	548.86	17.75	6,895.55
092C079	16,355.41	9,377.47	504.72	32.46	12,363.63
092C080	16,355.41	16,355.41			16,355.41
092C084	794.55	200.36	9.27	3.18	794.55
092C085	9,992.16	7,860.71	252.86	66.27	9,992.17
092C086	16,323.22	16,279.79	43.44	25.79	16,323.22
092C087	16,323.22	14,265.90	76.80		14,690.84
092C088	16,323.22	6,774.66	572.41		6,836.18
092C089	16,323.22	15,635.08	4.62		15,923.68
092C090	16,323.22	15,353.59	54.03	23.91	15,000.88
092C092	529.92	336.10	2.09		529.92
092C093	9,178.01	7,325.12	374.66	1.47	8,533.12
092C094	5,162.39	632.92	166.23	19.19	5,162.39
092C095	5,545.98	2,200.93	277.11	39.59	5,545.98
092C096	14,544.27	13,564.76	208.77	104.99	14,544.28
092C097	16,290.97	16,279.94	8.24		16,290.97
092C098	16,290.97	13,262.65	356.42		13,310.80
092C099	16,290.97	15,889.21	51.45		16,017.17
092C100	16,290.97	16,291.14			16,290.97
092E020	706.68		14.08		706.68
092E029	434.93		2.81		434.92
092E030	5,508.96		184.23		5,508.97
092E038	1,256.93		23.49		1,256.93
092E039	4,579.61		60.43		4,579.66
092E040	12,633.87		503.42		12,633.89
092E048	9,769.13		116.11	4.01	9,769.13
092E049	13,879.55		341.39		13,879.56
092E050	14,360.38		25.52		14,360.41

092E058	12,581.03	1,119.75	1,762.49	169.68	12,581.04
092E059	16,009.86	323.21	277.27	32.24	13,112.51
092E060	16,096.42	1,391.83	636.03		14,972.41
092E068	8,514.52	101.93	738.14	39.55	5,560.28
092E069	13,960.40	125.42	242.02	12.67	1,884.58
092F001	1,652.04		5.59		1,577.83
092F002	10,139.83		370.30		10,139.86
092F003	16,258.67	3,817.36	937.26	29.58	16,258.67
092F004	14,502.29	2,295.60	1,770.79	99.35	14,502.30
092F005	14,690.81	10,673.61	577.89	9.90	14,690.85
092F006	14,443.44	5,994.32	1,237.17	180.68	10,133.11
092F007	16,258.67		130.68		16,258.67
092F008	16,258.67	222.27			16,258.67
092F009	16,258.67				16,258.67
092F010	16,258.67	15,160.08	40.80	1.11	16,258.67
092F011	7,886.22		124.96		6,878.66
092F012	10,046.59		1,124.86		10,046.60
092F013	16,226.32	15.86	1,225.30		16,226.32
092F014	16,226.32	5,563.52	1,142.95	37.84	15,343.45
092F015	16,226.32	15,622.73	26.60		10,333.77
092F016	15,082.30	14,925.99	41.34		1,251.70
092F017	16,053.45	15,724.48	209.79		16,053.45
092F018	16,226.33				16,226.33
092F019	16,226.33				16,226.33
092F020	16,226.33	13,658.30	86.83	10.60	15,634.26
092F021	9,696.05		567.77		9,696.05
092F022	14,189.38		1,051.21		14,189.40
092F023	16,144.11		2,060.69		12,545.00
092F024	16,193.92	9,591.07	936.79		1,689.30
092F025	16,193.93		58.97		2,584.37
092F026	15,429.66	14,799.28	59.20	3.24	10,170.55
092F027	16,193.92	15,148.18	128.98		15,204.71
092F028	16,193.92	15,662.68	40.59	5.88	16,193.92
092F029	16,146.54	15,544.03	45.88	10.62	16,121.56
092F030	10,165.30	8,959.72	38.64	15.90	5,372.43
092F031	12,803.48		1,158.71		12,803.49
092F032	15,785.25		840.63		15,771.88
092F033	16,161.47		948.09		9,495.82
092F034	16,161.47	16,068.37	85.36		13,018.78
092F035	16,161.47		166.36		13,706.19

092F036	16,161.47	13,924.42	249.40	12.20	16,148.18
092F037	16,127.65	14,292.14	117.03	36.89	16,127.65
092F038	11,100.93	9,904.10	32.33	6.04	9,656.38
092F039	4,578.87	4,304.36	14.81	6.47	2,971.75
092F040	257.84	237.13			257.84
092F041	15,831.70		1,326.39		15,831.70
092F042	16,128.97	139.42	3,052.37		16,128.97
092F043	16,128.97	11,102.09	402.86		16,128.97
092F044	16,128.97	7,527.38	2,077.10	1,818.78	16,128.97
092F045	16,128.97	232.23			16,128.97
092F046	16,102.63	12,498.88	411.52	29.81	16,102.63
092F047	7,918.65	3,522.79	272.56	27.74	7,918.64
092F051	16,096.42	3,894.37	1,379.25		16,096.42
092F052	16,096.42	11,436.59	737.73	5.96	16,096.42
092F053	16,096.42	10,814.47	1,207.79		16,096.42
092F054	16,096.42	15,788.98	13.82	10.66	16,096.42
092F055	16,096.42	10,715.97			16,016.10
092F056	13,032.46	12,163.29	112.97	17.70	13,032.47
092F057	5,191.85	4,761.03	5.96		5,191.85
092F066*	6,927.22	6,023.90	124.46	17.69	4,732.35
092G001	15,893.80	13,030.65	248.19	18.85	15,806.32
092G002	4,711.43	4,523.68	5.47		4,711.43
092G003	270.55				270.55
092G011	12,155.03	12,073.44			6,849.30
092G012	3,800.64	3,451.27	0.91		3,800.64
092G021	1,408.47	1,402.75			26.68
TOTAL AREA	**1,628,985.18**	**932,343.94**	**48,107.11**	**3,268.16**	**1,338,184.86**

***Note: There is no full photo coverage for mapsheet 092F066**

TSA Summary	
Arrowsmith TSA (TSA 38)	279,247.78
Pacific TSA (TSA 44)	84,766.13
Strathcona TSA (TSA37)	98,067.36
Total TSA	462,081.27

TFL Summary	
TFL19	19,051.63
TFL44	139,800.00
TFL46	62,932.45
TFL54	52,387.79
TFL57	87,144.72
TFL61	20,240.22
Total TFL	381,556.80

Provincial Park Area Summary	
Park Name	
ARBUTUS GROVE PARK	22.42
BAMBERTON PARK	26.66
BEAVER POINT PARK	16.67
BELLHOUSE PARK	3.11
BLIGH ISLAND PARK	4,679.94
BODEGA RIDGE PARK	233.40
BOYLE POINT PARK	187.97
BRIGHT ANGEL PARK	12.05
BURGOYNE BAY PARK	501.25
CARMANAH WALBRAN PARK	16,361.13
CHEMAINUS RIVER PARK	118.72
CLAYOQUOT ARM PARK	3,555.89
CLAYOQUOT PLATEAU PARK	3,131.59
COLLISON POINT PARK	22.65
COWICHAN RIVER PARK	1,404.52
DAWLEY PASSAGE PARK	157.60
DENMAN ISLAND PARK	552.36
DIONISIO POINT PARK	140.69
DISCOVERY ISLAND MARINE PARK	67.52
DRUMBEG PARK	55.07
ENGLISHMAN RIVER FALLS PARK	97.11
EPPER PASSAGE PARK	328.08
EVES PARK	19.22
FILLONGLEY PARK	26.48
FLORES ISLAND PARK	6,906.46
FOSSLI PARK	52.41

FRENCH BEACH PARK	54.57
GABRIOLA SANDS PARK	5.97
GERALD ISLAND PARK	11.98
GIBSON MARINE PARK	142.67
GOLDSTREAM PARK	478.87
GORDON BAY PARK	103.81
GOWLLAND TOD PARK	1,281.32
HELLIWELL PARK	1,327.11
HEMER PARK	109.68
HESQUIAT LAKE PARK	57.39
HESQUIAT PENINSULA PARK	7,790.45
HITCHIE CREEK PARK	235.17
HORNE LAKE CAVES PARK	157.77
JAJI7EM and KW'ULH MARINE PARK [a.k.a Sandy Island	30.24
JOHN DEAN PARK	174.97
JUAN DE FUCA PARK	1,584.84
KENNEDY LAKE PARK	240.61
KENNEDY RIVER BOG PARK	35.98
KOKSILAH RIVER PARK	207.63
LITTLE QUALICUM FALLS PARK	463.90
MACMILLAN PARK	302.22
MAQUINNA MARINE PARK	2,559.98
MEMORY ISLAND PARK	1.10
MONTAGUE HARBOUR MARINE PARK	101.98
MORDEN COLLIERY PARK	4.41
MOUNT ERSKINE PARK	107.62
MOUNT GEOFFERY ESCARPMENT PARK	188.97
MOUNT MAXWELL PARK	234.14
NEWCASTLE ISLAND MARINE PARK	363.60
NITINAT RIVER PARK	159.95
PETROGLYPH PARK	1.70
PIRATES COVE MARINE PARK	31.67
RATHTREVOR BEACH PARK	349.14
ROBERTS MEMORIAL PARK	13.93
ROSEWALL CREEK PARK	65.52
RUCKLE PARK	533.67
SANDWELL PARK	16.99
SOOKE MOUNTAIN PARK	451.12
SOOKE POTHOLES PARK	6.26
SPECTACLE LAKE PARK	67.11

SPIDER LAKE PARK	57.79
SPROAT LAKE PARK	40.26
STAMP RIVER PARK	346.38
STRATHCONA - WESTMIN PARK	2,697.98
STRATHCONA PARK	124,079.75
SULPHUR PASSAGE PARK	2,191.97
SYDNEY INLET PARK	2,709.11
TAYLOR ARM PARK	72.79
TRANQUIL CREEK PARK	297.61
TRIBUNE BAY PARK	94.87
VARGAS ISLAND PARK	5,804.16
WAKES COVE PARK	204.26
WALLACE ISLAND MARINE PARK	88.67
WEST SHAWNIGAN LAKE PARK	9.66
WHALEBOAT ISLAND MARINE PARK	10.52
Total Provincial Park	197,442.75

Community Forest Summary	
K1E	353.70
K1K	1,672.80
K2D	6,390.87
K3N	2,420.27
K3S	6,751.28
N1A	9,541.57
Total Community Forest	27,130.50

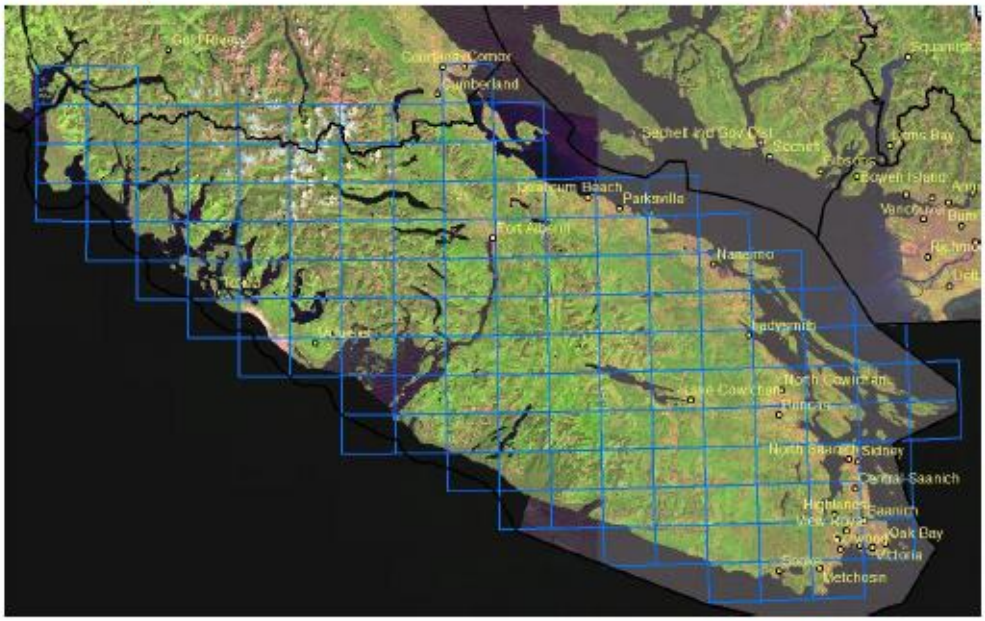
Woodlot Summary	
W0011	384.60
W0012	221.11
W0013	229.12
W0014	33.01
W0019	231.91
W0020	1,711.28
W0021	96.56
W0022	281.25
W0024	654.69

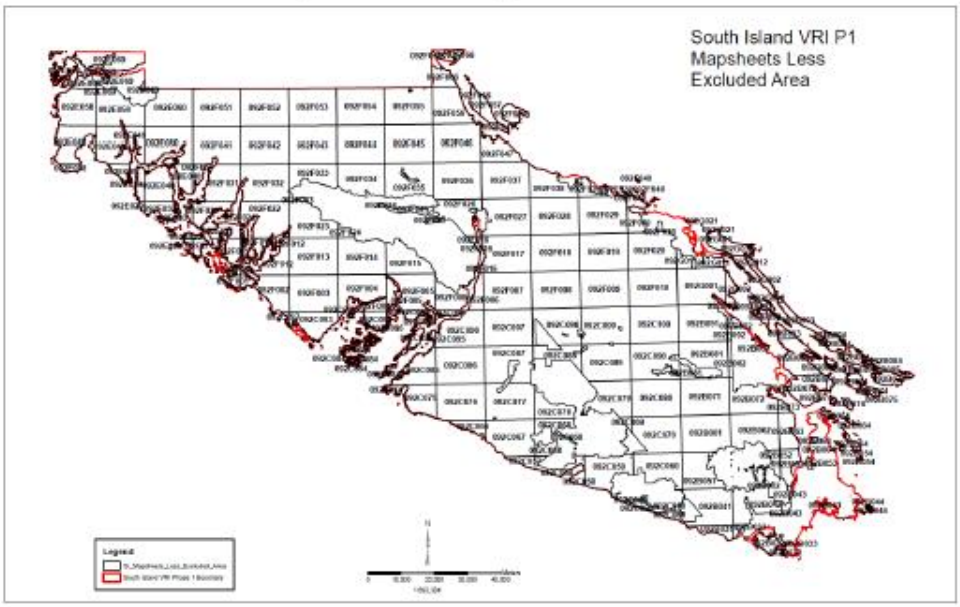
W0026	485.92
W0030	558.97
W0031	389.95
W0032	337.04
W0033	801.98
W0085	702.54
W0097	370.70
W1440	339.13
W1464	412.45
W1474	153.22
W1475	256.55
W1476	1,025.75
W1479	417.84
W1526	673.23
W1557	328.57
W1614	363.45
W1632	431.99
W1713	782.39
W1831	319.56
W1902	877.20
W1903	294.99
W1906	791.19
W1957	397.76
W1968	695.84
W2036	505.94
W2043	299.04
W2096	374.65
Total Woodlot	17,231.35

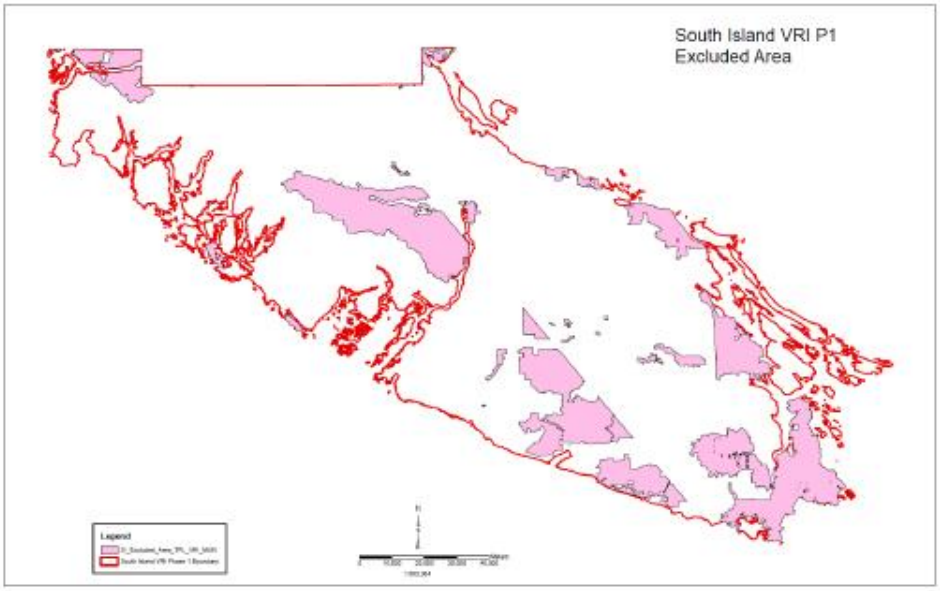
Municipality Summary	Area
CENTRAL SAANICH	5176
COLWOOD	2116
COMOX	1259
COURTENAY	1229
CUMBERLAND	152
DISTRICT OF HIGHLANDS	4119
DUNCAN	208
ESQUIMALT	1104
LADYSMITH	1486
LAKE COWICHAN	974

LANGFORD	4154
LANTZVILLE	2986
METCHOSIN	7909
NANAIMO	12219
NORTH COWICHAN	21372
NORTH SAANICH	4711
OAK BAY	1502
PARKSVILLE	1717
PORT ALBERNI	2110
QUALICUM BEACH	1831
SAANICH	11414
SIDNEY	731
SOOKE	6686
TOFINO	1909
UCLUELET	1078
VICTORIA	2129
VIEW ROYAL	1692
TOTAL URBAN AREA	103973

Overview Maps




South Island VRI P1
Mapsheets Less
Excluded Area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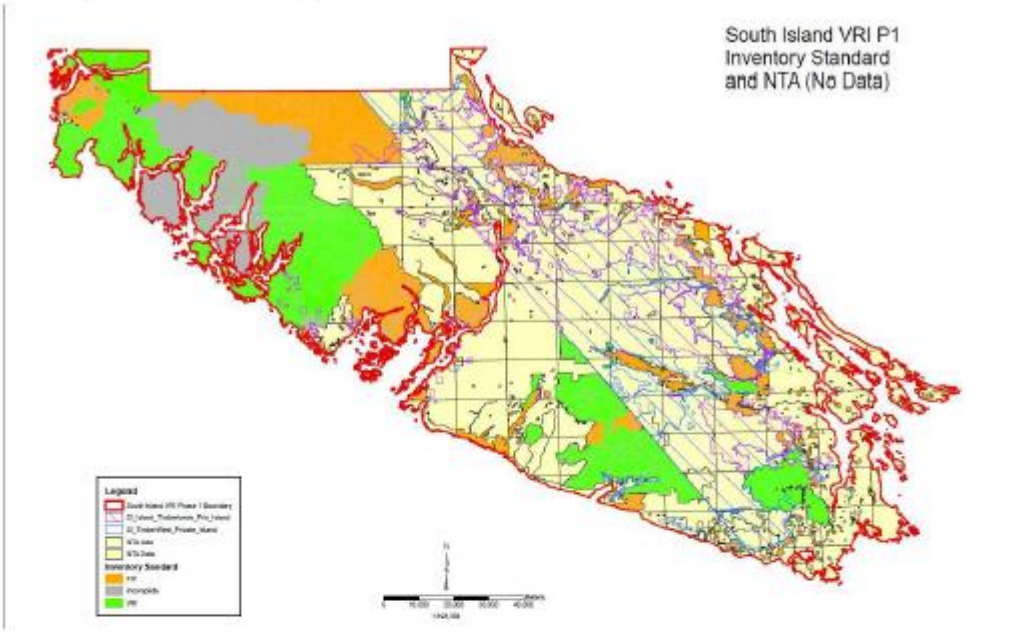
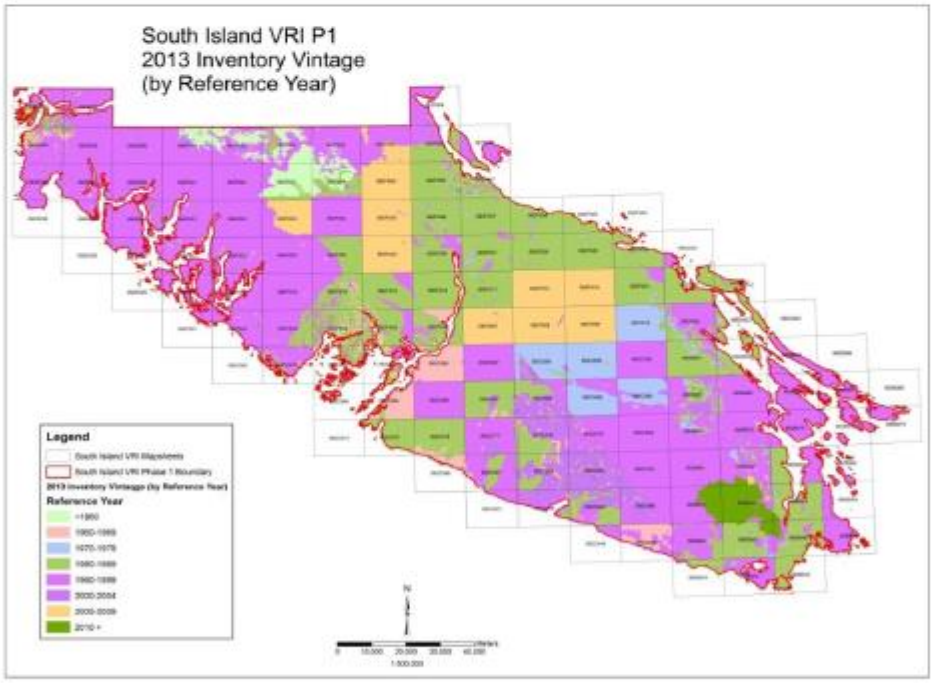
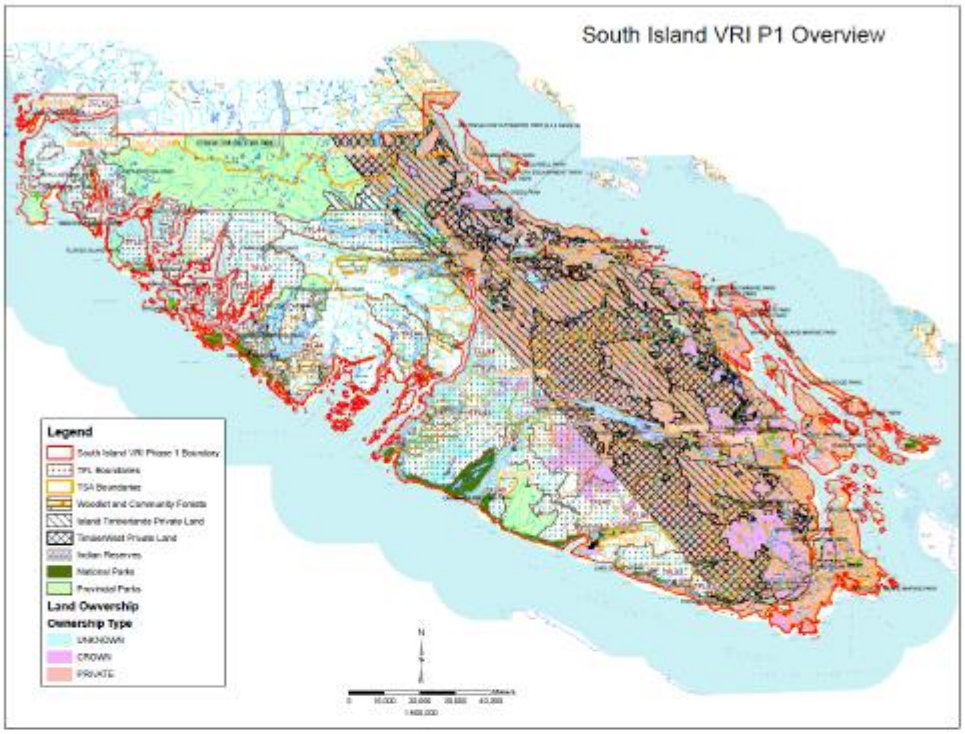
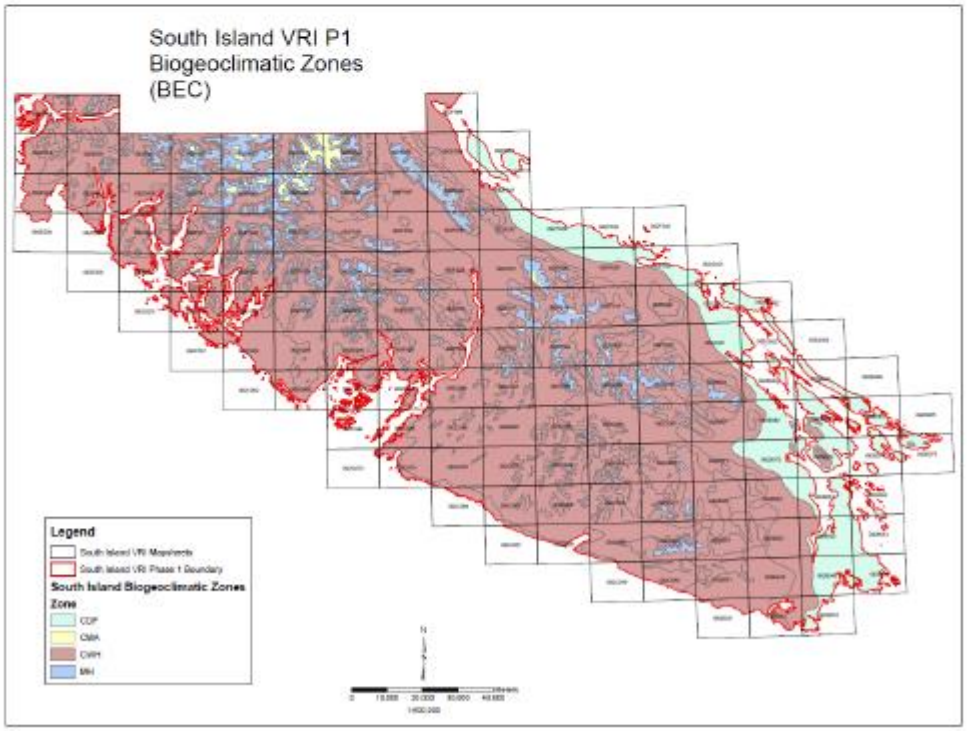
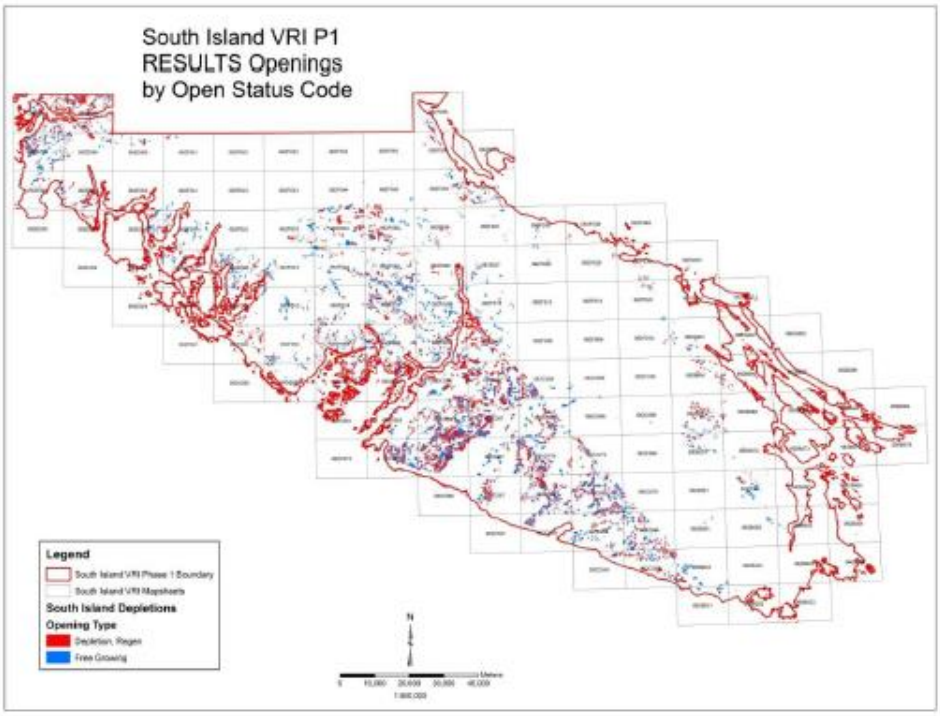
Excluded Area


South Island VRI P1
Inventory Standard
and NTA (No Data)
Legend


South Island VRI P1
2013 Inventory Vintage
(by Reference Year)
Legend
Reference Year


South Island VRI P1 Overview
Legend
Land Ownership
Ownership Type


South Island VRI P1
Biogeoclimatic Zones
(BEC)
Legend
South Island Biogeoclimatic Zones
Zone


South Island VRI P1
RESULTS Openings
by Open Status Code
Legend
South Island VRI Phase 1 Boundary
South Island VRI Mapsheets
South Island Depletions
Opening Type
Depletion, Regen
Free Growing
N

APPENDIX B - List of First Nations

Thirty six First Nations have traditional territories located within the geographical area of the South Island Natural Resource District (SINRD). Four treaty associations and two tribal council represent all but three of the First Nations: **Ahousaht First Nation, Beecher Bay First Nation, Campbell River First Nation, Cape Mudge First Nation, Chemainus First Nation, Comox First Nation, Cowichan Tribes, Ditidaht First Nation, Esquimalt First Nation, Halalt First Nation, Hesquiaht First Nation, Homalco First Nation, Hul'qumi'num Treaty Group** *(Chemainus, Cowichan, Halalt, Lake Cowichan, Lyackson, Penelakut),* **Hupacasath First Nation, Huu-ay-aht First Nation, Hamatla Treaty Society** *(Kwiakah, Cape Mudge, Campbell River),* **Lake Cowichan First Nation, Lyackson First Nation, Malahat Band, Mowachaht / Muchalaht First Nation, Nanoose (Snaw-naw-as) First Nation, Nuu-chah-nulth Tribal Council, Pacheedaht First Nation, Pauquachin First Nation, Penelakut First Nation, Qualicum First Nation, Sliammon First Nation, Snuneymuxw (Nanaimo) First Nation, Songhees First Nation, Tsawwassen First Nation, T'Sou-ke First Nation, Te'Mexw Treaty Association** *(Beecher Bay, Malahat, Nanoose, Songhees, T'Sou-ke),* **Tla-o-qui-aht First Nation, Tsartlip First Nation, Tseshaht First Nation, Tseycum First Nation, Uchucklesaht First Nation, Ucluelet First Nation, Tsawout First Nation, Toquaht First Nation.**

APPENDIX C - List of Approved TEM for South Island

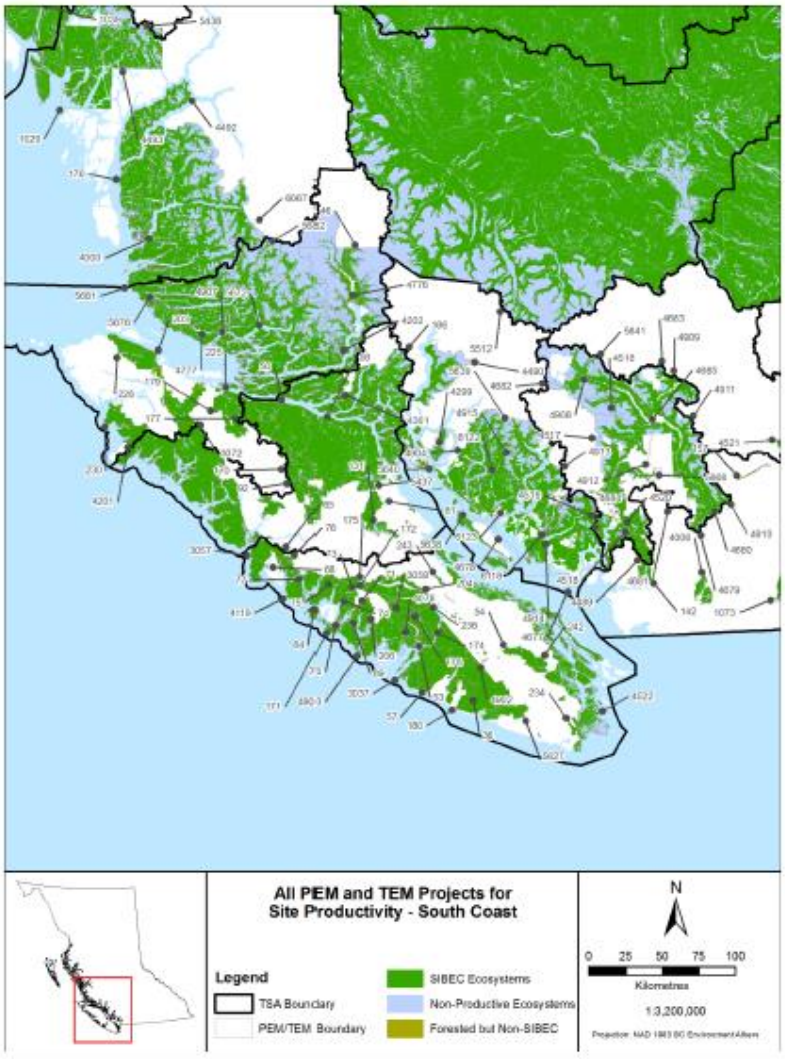
The provincial site productivity layer data and supporting information is available at:

http://www.for.gov.bc.ca/hts/siteprod/provlayer.html

ftp://ftp.for.gov.bc.ca/HTS/external/!publish/Provincial_Site_Productivity_Layer_June_2013/

Summary information on the 33 completed TEM projects and datasets can be found in the accompanying technical report at: http://www.for.gov.bc.ca/hts/siteprod/download/FLNR_provincial_site_product_layer_pem-tem-sibec_biophysical_analysisv43.pdf

(Table 7, pg. 33 – 39)



Appendix D: Historic Data Sources

VRI Air Calls and Ground Calls		
Mapsheet	Air Call (18)/ Ground Call (17)	Number of Calls
092B041	18	2
092B042	17	13
092B042	18	2
092B043	17	15
092B051	17	20
092B051	18	45
092B052	17	68
092B052	18	25
092B053	17	1
092B061	18	6
092B062	17	20
092B062	18	2
092B071	17	1
092B081	17	5
092C058	17	4
092C058	18	1
092C059	17	11
092C059	18	4
092C060	17	11
092C060	18	4
092C067	18	1
092C068	17	12
092C068	18	14
092C069	17	17
092C069	18	15
092C070	17	4
092C070	18	4
092C077	18	5
092C078	17	7
092C078	18	17
092C079	17	7
092C079	18	6
092C087	17	5
092C087	18	6
092C088	17	12

092C088	18	14
092C089	17	1
092C089	18	1
092C092	18	5
092C093	17	4
092C093	18	5
092C098	17	3
092C098	18	4
092E020	17	6
092E020	18	4
092E029	18	7
092E030	17	10
092E030	18	40
092E038	17	2
092E038	18	11
092E039	17	13
092E039	18	44
092E040	17	33
092E040	18	72
092E048	17	25
092E048	18	32
092E049	17	16
092E049	18	62
092E050	17	8
092E050	18	61
092E058	17	7
092E058	18	2
092E059	17	8
092E059	18	88
092E060	17	8
092E060	18	53
092F001	17	5
092F001	18	10
092F002	17	32
092F002	18	35
092F003	17	19
092F003	18	48
092F011	17	3
092F011	18	44
092F012	17	33
092F012	18	56
092F013	17	48

092F013	18	68
092F014	17	4
092F014	18	18
092F021	17	16
092F021	18	44
092F022	17	15
092F022	18	30
092F023	17	29
092F023	18	75
092F024	17	6
092F024	18	17
092F031	17	19
092F032	17	14
092F032	18	49
092F033	17	3
092F033	18	12
092F041	17	5
092F041	18	70
092F042	17	12
092F042	18	39
092F043	17	7
092F043	18	9
092F051	17	7
092F051	18	41
Total Air and Ground Calls		1983

FIP Air Calls/Ground Calls (Historical)		
Mapsheet	Sample Type	Number of Calls
092B031	XG	3
092B032	XG	11
092B042	XG	12
092B043	XG	1
092B052	XG	11
092B053	XG	4
092B062	XG	71
092B071	XG	51
092B072	XG	15
092B081	XG	107
092B082	XG	6
092B091	XG	29

092B092	XG	12
092C059	X	8
092C059	XG	1
092C059	XGO	7
092C066	X	5
092C068	XG	6
092C078	XG	8
092C079	X	14
092C079	XG	6
092C088	XG	6
092C089	XG	14
092C090	XG	15
092C093	XG	2
092C094	X	21
092C094	XG	8
092C095	X	13
092C095	XG	8
092C099	XG	10
092E040	X	5
092E048	X	14
092E049	X	2
092E058	X	21
092E059	X	55
092E068	X	86
092E068	XG	7
092E069	X	304
092E069	XG	2
092F003	XGC	1
092F004	X	46
092F004	XG	41
092F004	XGC	28
092F005	X	16
092F005	XG	3
092F006	X	17
092F006	XG	4
092F010	XG	22
092F011	X	5
092F011	XG	4
092F012	X	11
092F013	X	6

092F013	XG	1
092F014	X	52
092F014	XG	9
092F014	XGC	5
092F015	X	3
092F020	XG	37
092F021	X	5
092F021	XG	1
092F022	X	3
092F023	X	1
092F024	X	6
092F024	XG	3
092F026	XG	15
092F027	X	3
092F027	XG	20
092F028	X	7
092F028	XG	7
092F029	XG	18
092F030	XG	27
092F036	XG	58
092F037	X	5
092F037	XG	21
092F038	XG	31
092F039	XG	8
092F044	X	14
092F045	X	2
092F047	XG	39
092F056	X	2
092F056	XG	8
092F056	XGO	7
092F057	XG	12
092F066	X	5
092F066	XGO	10
092G001	XG	60
092G012	XG	8
Total Historic (FIP) Air and Ground Calls		1698

Appendix 2 - South Island VRI Quality Assurance Summary Report

Scheithauer Forest Consultants Ltd.
704-327 Maitland Street
Victoria, B.C. V9A 7G7

April 20, 2018

Mr. Roman Bilek
Ministry of Forests, Lands and Natural Resource Operations
Forest Analysis and Inventory Branch
PO Box 9512, Stn Prov Govt
7'th Floor 727 Fisgard Street
Victoria, B.C. V8W 9C2

South Island Phase 1 VRI Quality Assurance Summary Report- Project #1070-20/OT16FHQ109

1. INTRODUCTION

The Quality Assurance (QA) review of all of the major work phases of the South Island Phase 1 Vegetation Resource Inventory (VRI) project has been completed and the results are summarized in this report.

The project covered a total area of approximately 1.3 million hectares on portions of 137 BC Geographic System map sheets (89 full map sheet equivalents) and was completed from June 2015 to March 2018.

The VRI contractor completing the VRI work was Timberline Forest Inventory Consultants (Timberline). The photo-interpreters completing this work for Timberline were:

- Mike Sandvoss (Certified VRI Photo-interpreter);
- Andy Ferguson (Certified VRI Photo-interpreter);
- Francois Rosa (Certified VRI Photo-interpreter);
- Jouni Tanskanen (Certified VRI Photo-interpreter);
- Rob Oran R.P.F. (Certified VRI Photo-interpreter);
- Mitchell Grant (Certified VRI Photo-interpreter).

The QA review were completed by Frank Scheithauer R.P.F.

2. QUALITY ASSURANCE DATA PACKAGE

The final QA data package for the South Island Phase 1 VRI consists of:

- This summary report;
- Individual QA Reports for each major work phase;
- All supporting documentation including records, tables and ArcMap shapefiles;
- The project tracking ledger.

3. METHODOLOGY

All Quality Assurance methodology used to conduct the QA reviews of the major work phases conformed to the Ministry of Forests, Lands and Natural Resource Operations' *Vegetation Resources Inventory Photo Interpretation Quality Assurance Procedures and Standards* document.

4. RESULTS

4.1 Polygon Delineation

The polygon delineation Quality Assurance review of 116 of the 137 project map sheets was completed in 11 batches and QA reports were produced from August 2015 to June 2017. (Note: the polygon delineation of 21 map sheets in the Clayoquot Sound area was not reviewed).

One of the 116 reviewed map sheets did not meet Ministry standards after the initial QA review (a failure rate of 0.8%).

4.1.1 Issues

Map	Interpreter	Pass or Fail	Comments
092C092	Rosa	Pass	Does not edge tie to 092C093
092C093	Rosa	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters); Does not edge-tie to map sheet 092C093.
092C094	Rosa	Pass	VRI polygons less than 0.5 hectares in size should be removed; Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);

Map	Interpreter	Pass or Fail	Comments
092C095	Rosa	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters); VRI polygons less than 0.5 hectares in size should be removed.
092E058	Grant	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092E068	Grant	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092E059	Grant	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092F051	Grant	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092F014	Tanskanen	Pass	TRIM water feature on model 118175 should be redelineated.
092F015	Rosa	**Fail**	Delineation is too broad in places. Several large meandering polygons require refinement; VRI polygons less than 0.5 hectares in size should be removed; Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092F034	Tanskanen	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters); VRI polygons less than 0.5 hectares in size should be removed.
092F035	Tanskanen	Pass	Should avoid delineating road rights-of-way on minor logging roads less than average of 40 meters in width; Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters); VRI polygons less than 0.5 hectares in size should be removed;
092F015 Rework	Rosa	Pass	This map sheet meets Ministry standards. However, VRI polygons less than 0.5 hectares in size have not been removed (see QA Report PD01). Remedial work is recommended.

Map	Interpreter	Pass or Fail	Comments
092C088	Rosa	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092C086	Rosa	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092B051	Rosa	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092C068	Tanskanen	Pass	VRI polygons less than 0.5 hectares in size should be removed; Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092C079	Oran	Pass	Distance between type lines should be greater than 40 meters (absolute minimum of 15 meters);
092B081	Rosa	Pass	Interior NFTG RESULTS polygons should not be delineated.
092F027	Ferguson	Pass	RESULTS polygons require further review/refinement

4.2 Field Data Collection

The field data collection Quality Assurance review was completed in six batches and QA reports were produced from September 2015 to July 2017. A total of four one-plot ground calibration points, 25 multi-plot ground calibration points and 82 air calibration points were reviewed (approximately five percent of all field data collected).

The failure rate of the ground call calibration points was 3%. The failure rate of the air call calibration points was 2%.

4.2.1 Summary by Batch

Report	Conclusions	XGV	XGV Fail	XV	XV Fail
2015 Ground Call Calibration (Batch FDC01)	All individual ground calibration points and all individual categories met Ministry standards.	3	0	-	-
2015 Air Call Calibration (Batch FDC01)	All air call calibration points met minimum Ministry standards except for point XV 277.	-	-	22	1
2015 Ground Call Calibration (Batch FDC02)	All individual ground calibration points and all individual categories met Ministry standards except XGV 359.	6	1	-	-
2016 Ground Call Calibration (Batch FDC03)	All individual ground calibration points and all individual categories met Ministry standards except XGV 74 (unsiutable sample tree) and "Measured DBH" category (83.3%).	3	0	-	-
2016 Air Call Calibration (Batch FDC04)	All air call calibration points met minimum Ministry standards.	-	-	12	0
2016 Ground Call Calibration (Batch FDC04)	All individual ground calibration points and all individual categories met Ministry standards.	6	0	-	-
2016 Air Call Calibration (Batch FDC05)	All air call calibration points met minimum Ministry standards except for point XV 622.	-	-	11	1
2016 Ground Call Calibration (Batch FDC05)	All individual ground calibration points and all individual categories met Ministry standards except for the "Density" category (66.7%) .	3	0	-	-
2017 Ground Call Calibration (Batch FDC06)	All individual ground calibration points and all individual categories met Ministry standards.	8	0	-	-
2017 Air Call Calibration (Batch FDC06)	All air call calibration points met minimum Ministry standards.	-	-	37	0
TOTALS		**29**	**1**	**82**	**2**

4.3 Data Source Transfer- Historic Field Information

One data source transfer Quality Assurance review was completed and a QA report was produced in October 2015. Forty historic data sources were reviewed and received an acceptance rating of 98%.

4.4 Polygon Attribute Descriptions

The polygon attribute description Quality Assurance review of the 138 map sheets was completed in 24 batches and reports were produced from December 2015 to April 2018.

One of the 137 project map sheets did not meet Ministry standards after the initial QA review (a failure rate of 0.7%). In addition, 332 of the remaining 136 maps (23%) were considered to meet Ministry standards but require remedial work.

4.4.1 Issues

Map	Interpreter	Pass or Fail	Comments
092E048	Mitchell Grant	Pass	This map sheet meets Ministry standards in all graded categories. However, there are issues with inconsistent Project Name entries, incorrect default Data Capture Method Codes, incorrect default FTG indicator codes, incorrect Disturbance Types (DL instead of L), incorrect Reference Years using 2015 field data, some incorrect Data Source Codes and incorrect descriptions of some RESULTS openings. **Remedial work is recommended.**
092C092 and 092F001	Francois Rosa	Pass	These map sheets meet Ministry standards in all graded categories.However, there are some issues with inconsistent Project Name entries, incorrect default Data Capture Method Codes, incorrect default FTG indicator codes, correct use of Data Source Codes and a few polygons are less than 0.5 hectares. **Remedial work is recommended.**
092F033	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories except Site Index Species (however, only one polygon with Site Index was reviewed). There are issues with inconsistent Project Name entries, polygon delineation errors not corrected as per QA Report PD01, incorrect default Data Capture Method Codes, incorrect default FTG indicator codes, incorrect Reference Years using 2015 field data, some incorrect Data Source Codes and incorrect descriptions of some RESULTS openings. **Remedial work is recommended.**
092E059 and 092E069	Mitchell Grant	Pass	These map sheets meet Ministry standards in all graded categories.However, there are issues with inconsistent Project Name entries, invalid Data Capture Method Codes, missing Disturbance Years, incorrect FTG indicator/status, incorrect Reference Years, incorrect recording of NFTG RESULTS data and a few polygons are less than 0.5 hectares. **Remedial work is recommended.**

092F002	Francois Rosa	Pass	This map sheet meets Ministry standards in all graded categories.However, there are issues with inconsistent Project Name entries, invalid Data Capture Method Codes, missing Disturbance Years, incorrect FTG indicator/status, incorrect Reference Years, and some RESULTS polygons have miscopied Opening ID numbers. **Remedial work is recommended.**
092F003	Francois Rosa	Pass	This map sheet meets Ministry standards in all graded categories. However, there are issues with inconsistent Project Name entries, incorrect FTG indicator status codes, incorrect Reference Years for some NFTG polygons, incorrect data source codes for VRI field data and the map sheet does not edge-tie to 092F002. **Remedial work is recommended.**
092F031	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, several polygons are less than 0.5 hectares in size, several RESULTS/disturbed polygons have incorrect Data Capture Method Codes and several polygons with VRI field work have incorrect data source codes. **Remedial work is recommended.**
092F051	Mitchell Grant	Pass	This map sheet meets Ministry standards in all graded categories. However, polygon delineation errors noted in QA Report PD01 have not been reviewed/corrected. **Remedial work is recommended.**
092F022	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, there are several polygons less than 0.5 hectares in size and there are issues with several RESULTS polygons (incorrect Data Capture Method codes, incorrect Reference Years, incorrect Free Growing Status and incorrect Opening ID's). **Remedial work is recommended.**
092F023	Rob Oran	Pass	This map sheet meets Ministry standards in all graded categories. However, there are several polygons with VRI field data that have incorrect Data Source Codes assigned. **Remedial work is recommended.**
092C084, 092C094 and 092F025	Mike Sandvoss	Pass	These map sheets meet Ministry standards in all graded categories. However, Polygon Delineation errors identified in QA Report PD01 have not been corrected on map sheet 092C084. **Remedial work is recommended.**
092C093	Francois Rosa	Pass	This map sheet meets Ministry standards in all graded categories. However, Polygon Delineation errors identified in QA Report PD01 have not been corrected. **Remedial work is recommended.**
092F034	Andy Ferguson	Pass	This map sheet meets Ministry standards in all graded categories. However, Polygon Delineation errors identified in QA Report PD01 have not been corrected. **Remedial work is recommended.**
092F035	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, some Polygon Delineation errors identified in QA Report PD01 have not been corrected, several polygons are less than 0.5 hectares in size and several polygons referenced to 2015 fieldwork have incorrect Reference Years. **Remedial work is recommended.**

092F044	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, Polygon Delineation errors identified in QA Report PD03 have not been corrected, some polygons with 2016 data sources have incorrect Reference Years and a few polygons are less than 0.5 hectares in size. **Remedial work is recommended.**
092F014	Francois Rosa	Pass	This map sheet meets Ministry standards in all graded categories. However, more than 400 polygons have been assigned incorrect Reference Years. **Remedial work is recommended**.
092F043	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, polygon delineation errors identified in QA Report PD03 have not been corrected. **Remedial work is recommended**.
092F015	Francois Rosa	Pass	This map sheet meets Ministry standards in all graded categories. However, numerous FTG polygons have been assigned incorrect Reference Years. **Remedial work is recommended.**
092C085	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, several polygons referenced to recent field work have been assigned incorrect Reference Years. **Remedial work is recommended.**
092F054	Andy Ferguson	Pass	This map sheet meets Ministry standards in all graded categories. However, several polygons are less than 0.5 hectares in size and several polygons referenced to recent field work have been assigned incorrect Data Source codes. **Remedial work is recommended.**
092C049 and 092C067	Andy Ferguson	Pass	These map sheets meet Ministry standards in all graded categories. However, there are two "holes" in map 092C067 (areas without polygon numbers and descriptions). **Remedial work is recommended**.
092C066 and 092C076	Jouni Tanskanen	Pass	These map sheets meet Ministry standards in all graded categories. However, several polygons on map 092C076 are less than minimum size and several polygons have been assigned incorrect Reference Years. **Remedial work is recommended**.
092C096	Francois Rosa	Pass	This map sheet meets Ministry standards in all graded categories. However, polygon delineation errors identified in QA Report PD03 have not been corrected and several polygons have inconsistent relative ages and/or heights. **Remedial work is recommended.**
092B041	Jouni Tanskanen	Fail	This map sheet does not meet Ministry standards in the Site Index category. In addition, polygon delineation errors identified in QA Report PD07 have not been corrected. **Rework is recommended.**
092C059	Andy Ferguson	Pass	This map sheet meets Ministry standards in all graded categories. However, several descriptions based on 2016 field data have been assigned incorrect Reference Years. **Remedial work is recommended.**

092C077	Mitchell Grant	Pass	This map sheet meets Ministry standards in all graded categories. However, polygon delineation errors identified in QA Report PD03 have not been corrected and several polygons have been assigned incorrect Reference Years. **Remedial work is recommended.**
092F037	Jouni Tanskanen	Pass	This map sheet meets Ministry standards in all graded categories. However, several disturbed polygons are missing overstory/Residual layer descriptions and several polygons have inconsistent relative ages and heights. **Remedial work is recommended.**

5. CONCLUSIONS

All reviewed work for all major work phases for the South Island Phase 1 VRI should be accepted by the Ministry after it has confirmed that all the deficiencies noted in the attached QA reports have been rectified.

Frank Scheithauer R.P.F
Inventory Forester
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250-216-7693

APPENDICES

Attachments

- 01 South Island VRI QA- All Polygon Delineation.zip
- 02 South Island VRI QA- All Field Data Collection.zip
- 03 South Island VRI QA- All Data Source Transfer.zip
- 04 South Island VRI QA- All Polygon Attribution.zip
- 05 South Island VRI QA- Final Ledger.zip

Appendix 3 - Major Work Phases and Interpreter Assignments

Map Sheet Major Work Phases and Assigned Interpreter 2015/2016

Mapsheet Info			Delineation				Attribution				GIS for 1:1 Cleaning		QA - 3rd Party		GIS for Final Processing		Maps Finalized	
Year	Mapsheet	Name	Total Project Area ha.	Clayoquot Excluded ha.	FME	Int. QC Y/N	Name	# polys on SI map (initial)	# polys on Clay. map (initial)	QC	Name	Date Cleaned mm/dd/yyyy	Date QA'd mm/dd/yyyy	QA edited Pass/Fail	Name	Date Processed mm/dd/yyyy	Name	Date Sent mm/dd/yyyy
2015-16	092E069	mag	1,885.60	1,793.29	0.12	mks	mag	234	22	mks	jit	1/11/2016	1/12/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092E059	mag	13,120.51	1,912.63	0.81	mks	mag	215	1679	mks	jit	1/11/2016	1/12/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092E060	mag	14,978.87	4,170.19	0.92	mks	mag	327	1417	mks	jit	2/24/2016	2/26/2016	Pass	jit	3/8/2016	Walter H.	3/11/2016
2015-16	092E048	mks	9,776.75	26.61	0.60	awf	mag	5	1102	mks	jit	11/27/2015	12/4/2015	Pass	jit	1/15/2016	Walter H.	1/11/2016
2015-16	092E049	mks	13,888.02	0.00	0.86	n/a	mag	0	1859	mks	jit	4/11/2016	4/11/2016	Pass	jit	5/4/2016	Walter H.	5/5/2016
2015-16	092E050	mks	14,366.74	0.00	0.89	n/a	awf	0	1810	mks	jit	3/17/2016	3/18/2016	Pass	jit	4/8/2016	Walter H.	5/5/2016
2015-16	092E038	mks	1,257.92	0.00	0.08	n/a	mag	0	185	mks	jit	1/28/2016	2/26/2016	Pass	jit	3/8/2016	Walter H.	3/11/2016
2015-16	092E039	mks	4,582.29	0.00	0.28	n/a	mks	0	823	jit	jit	1/28/2016	2/2/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092E040	mks	12,639.57	0.00	0.78	n/a	awf	0	1913	mks	jit	4/7/2016	4/7/2016	Pass	jit	5/4/2016	Walter H.	5/5/2016
2015-16	092E029	mks	435.16	0.00	0.03	n/a	mks	0	61	jit	jit	1/11/2016	1/12/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092E030	mks	5,511.45	0.00	0.34	n/a	mks	0	952	jit	jit	2/24/2016	2/26/2016	Pass	jit	3/8/2016	Walter H.	3/11/2016
2015-16	092E020	mks	706.96	0.00	0.04	n/a	mks	0	185	jit	jit	1/28/2016	2/2/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092F051	mag	16,100.94	6,699.62	0.99	mks	mag	367	1434	mks	jit	3/29/2016	3/29/2016	Pass	jit	5/4/2016	Walter H.	5/5/2016
2015-16	092F052	mag	16,098.63	13,540.52	0.99	mks	gp	500	454	mks	jit	4/7/2016	4/7/2016	Pass	jit	5/4/2016	Walter H.	5/5/2016
2015-16	092F041	mks	15,836.22	0.00	0.98	n/a	jit	0	2439	mks	jit	3/29/2016	3/29/2016	Pass	jit	5/4/2016	Walter H.	5/5/2016
2015-16	092F042	mks	16,131.25	139.43	1.00	awf	gp	9	2405	mks	jit	3/17/2016	3/18/2016	Pass	jit	4/8/2016	Walter H.	5/5/2016
2015-16	092F031	mks	12,807.10	0.00	0.79	n/a	jit	0	1967	mks	jit	2/24/2016	2/26/2016	Pass	jit	3/8/2016	Walter H.	3/11/2016
2015-16	092F032	mks	15,774.14	0.00	0.97	n/a	jit	0	2836	mks	jit	1/28/2016	2/2/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092F033	jit	9,495.93	6,776.77	0.59	mks	jit	579	515	mks	jit	11/27/2015	12/4/2015	Pass	jit	1/15/2016	Walter H.	1/11/2016
2015-16	092F021	mks	9,698.95	0.00	0.60	n/a	frr	0	1741	mks	jit	4/7/2016	4/7/2016	Pass	jit	5/4/2016	Walter H.	5/5/2016
2015-16	092F022	mks	7,281.00	0.00	0.45	n/a	jit	0	1503	mks	jit	5/6/2016	5/11/2016	Pass	jit	5/14/2016	Walter H.	5/20/2016
2015-16	092F022	mks	8,915.00	0.00	0.55	awf	jit	0	1505	mks	jit	5/6/2016	5/11/2016	Pass	jit	5/14/2016	Walter H.	5/20/2016
2015-16	092F023	mks	6,275.00	0.00	0.39	n/a	gp	0	1312	mks	jit	5/6/2016	5/11/2016	Pass	jit	5/14/2016	Walter H.	5/20/2016
2015-16	092F023	mks	6,319.00	0.00	0.39	awf	gp	0	1312	mks	jit	5/6/2016	5/11/2016	Pass	jit	5/14/2016	Walter H.	5/20/2016
2015-16	092F024	mks	1,689.16	218.64	0.10	awf	mks	43	351	jit	jit	1/11/2016	1/12/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092F011	mks	6,880.60	0.00	0.42	n/a	mks	0	1290	jit	jit	3/17/2016	3/18/2016	Pass	jit	4/8/2016	Walter H.	5/5/2016
2015-16	092F012	mks	10,048.02	0.00	0.62	n/a	frr	0	1456	mks	jit	3/17/2016	3/18/2016	Pass	jit	4/8/2016	Walter H.	5/5/2016
2015-16	092F013	mks	16,226.60	94.25	1.00	awf	frr	13	2080	mks	jit	2/24/2016	2/26/2016	Pass	jit	3/8/2016	Walter H.	3/11/2016
2015-16	092F001	mks	1,578.23	0.00	0.10	n/a	frr	0	314	mks	jit	11/27/2015	12/4/2015	Pass	jit	1/15/2016	Walter H.	1/11/2016
2015-16	092F002	mks	10,141.26	0.00	0.63	n/a	frr	0	1887	mks	jit	11/11/2016	1/12/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092F003	mks	16,259.00	5,345.63	1.00	awf	frr	380	1077	mks	jit	1/28/2016	2/2/2016	Pass	jit	2/12/2016	Walter H.	2/12/2016
2015-16	092C092	frr	529.98	347.24	0.03	mks	frr	71	74	mks	jit	11/27/2015	12/4/2015	Pass	jit	1/15/2016	Walter H.	1/11/2016
Totals 2015-16			297,235.9	41,064.8	18.35			2,743	39,960									
	FME	16,200																

Map Sheet Major Work Phases and Assigned Interpreter 2016 / 2017

Map Sheets	Delineation				Descriptions			GIS for 1:1 Cleaning		QA – 3rd party		GIS for VRIM2		Maps Finalized	
Mapsheet	Name	ha	FME	Internal QC Y/N	Name	# polys on SI map (initial)	# polys on Clay. map (initial)	QC Name	Name	Date Cleaned	Date QA'd mm/dd/yyyy	QA edited Pass/Fail	Name	Date Processed mm/dd/yyyy	Name	Date Sent mm/dd/yyyy
092E068	mag	5,564.43	0.34	mks	mag	650	0	mks	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092E058	mag	12,530.57	0.78	mks	mag	578	212	mks	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092F053	mag	16,096.00	0.99	mks	awf	981	23	mks	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092F054	mag	16,096.00	0.99	mks	awf	1305	0	mks	jit	12/15/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092F043	awf	16,123.00	1.00	mks	jit	523	305	mks	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
092F044	awf	16,123.00	1.00	mks	jit	729	0	mks	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092F034	jit	13,017.26	0.80	mks	awf	1023	0	mks	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092F035	jit	13,703.07	0.85	mks	jit	1066	0	mks	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092F025	mks	2,563.75	0.16	awf	mks	37	0	mks	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092F014	jit	15,341.80	0.95	mks	frr	1091	735	mks	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
092F015	frr	10,331.58	0.64	mks	frr	923	0	mks	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092F016	mks	1,251.00	0.08	awf	rjo	163	0	mks	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
092F004	mks	14,500.73	0.90	awf	jit	1311	0	mks	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092F005	mks	14,667.58	0.91	mks	frr	1026	0	mks	jit	12/15/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092F006	frr	10,129.79	0.63	mks	rjo	1015	0	mks	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
092C093	frr	8,533.29	0.53	mks	frr	716	198	mks	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092C094	frr	5,161.76	0.32	mks	mks	745	0	awf	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092C095	frr	5,544.69	0.34	mks	frr	804	0	mks	jit	12/22/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092C096	mag	14,544.00	0.90	mks	frr	1195	0	mks	jit	2/18/2017	2/23/2017	Pass	jit	3/9/2017	Mt. DC	3/14/2017
092C097	mag	16,291.00	1.01	mks	mag	1295	0	mks	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092C084	frr	794.47	0.05	mks	mks	222	0	jit	jit	3/14/2016	9/26/2016	Pass	jit	10/25/2016	Mt. DC	11/3/2016
092C085	mks	9,992.00	0.62	awf	jit	783	0	mks	jit	12/15/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092C086	frr	16,323.00	1.01	mks	frr	1224	0	mks	jit	3/9/2017	3/15/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092C087	mag	15,396.19	0.95	mks	mag	1342	0	mks	jit	2/18/2017	2/23/2017	Pass	jit	3/9/2017	Mt. DC	3/14/2017
092C088	frr	7,367.51	0.43	mks	rjo	915	0	mks	jit	12/22/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092C074	mks	160.00	0.01	awf	mks	47	0	awf	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
092C075	mks	9,123.00	0.56	awf	jit	556	0	mks	jit	12/22/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092C076	mks	16,247.00	1.00	awf	jit	1135	0	mks	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092C077	mks	16,163.85	1.00	awf	mag	840	0	mks	jit	3/17/2017	3/22/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092C078	jit	7,736.60	0.48	mks	mag	1034	0	mks	jit	4/17/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092C079	rjo	13,021.28	0.80	mks	rjo	806	0	mks	jit	2/18/2017	2/23/2017	Pass	jit	3/9/2017	Mt. DC	3/14/2017
092C066	mks	3,109.00	0.19	awf	jit	187	0	mks	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092C067	mks	14,915.06	0.92	awf	awf	527	0	mks	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092C068	jit	8,608.67	0.53	mks	rjo	910	0	mks	jit	3/17/2017	3/22/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092C069	mag	1,327.24	0.08	mks	rjo	128	0	mks	jit	2/18/2017	2/23/2017	Pass	jit	3/9/2017	Mt. DC	3/14/2017
092C070	mag	15,264.67	0.94	mks	frr	1349	0	mks	jit	3/28/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092C057	mks	2,014.00	0.12	awf	awf	55	0	mks	jit	12/22/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092C058	frr	5,549.59	0.34	mks	awf	348	0	mks	jit	12/22/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092C059	frr	15,043.34	0.93	mks	awf	1103	0	mks	jit	3/9/2017	3/15/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092C060	jit	16,409.18	1.01	mks	awf	1387	0	mks	jit	3/28/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092C049	frr	2,271.32	0.14	mks	awf	215	0	mks	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092C050	frr	10,303.73	0.67	mks	awf	598	0	mks	jit	2/18/2017	2/23/2017	Pass	jit	3/9/2017	Mt. DC	3/14/2017
092B061	mag	16,060.78	0.99	mks	frr	1153	0	mks	jit	4/17/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092B062	mag	15,015.14	0.93	mks	jit	1408	0	mks	jit	4/17/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092B063	mks	16,452.00	1.02	awf	mks	404	0	awf	jit	12/15/2016	12/28/2016	Pass	jit	1/9/2017	Mt. DC	1/23/2017
092B064	mks	2,626.00	0.16	awf	jit	156	0	awf	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092B051	frr	11,419.71	0.70	mks	jit	858	0	mks	jit	3/17/2017	3/22/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092B052	mks	3,897.21	0.24	mag	mks	364	0	awf	jit	3/28/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092B053	mks	13,874.40	0.86	awf	mks	595	0	awf	jit	3/9/2017	3/15/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092B054	mks	3,676.00	0.23	awf	mks	128	0	awf	jit	11/18/2016	11/24/2016	Pass	jit	12/13/2016	Mt. DC	12/20/2016
092B041	mks	16,318.66	1.01	awf	jit	965	0	mks	jit	3/9/2017	3/15/2017	Pass	jit	3/29/2017	Mt. DC	4/10/2017
092B042	mks	15,039.87	0.93	awf	rjo	661	0	mks	jit	4/17/2017	4/26/2017	Pass	jit	4/28/2017	Mt. DC	5/5/2017
092B043	mks	13,500.63	0.83	awf	mks	453	0	awf	jit	2/18/2017	2/23/2017	Pass	jit	3/9/2017	Mt. DC	3/14/2017
092B044	mks	7,875.00	0.49	awf	mks	165	0	awf	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
092B031	mks	3,179.00	0.20	awf	mks	230	0	awf	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092B032	mks	12,181.00	0.75	awf	mks	451	0	awf	jit	1/30/2017	2/3/2017	Pass	jit	2/16/2017	Mt. DC	2/23/2017
092B033	mks	5,231.00	0.32	awf	mks	278	0	awf	jit	10/14/2016	10/20/2016	Pass	jit	11/16/2016	Mt. DC	12/5/2016
Totals 2016–17		532,913.5	36.60			41,562	1,473									

Map Sheet Major Work Phases and Assigned Interpreter 2017/2018

Map Sheets			Delineation			Descriptions			GIS for 1:1 Cleaning		QA - 3rd party		GIS for VRIM2		Maps Finalized	
Year	Map Sheet	Name	ha	FME	Internal QC Y/N	Name	# polys on SI map (initial)	QC Name	Name	Date Cleaned mm/dd/yyyy	Date QA'd mm/dd/yyyy	QA edited Pass/Fail	Name	Date Processed mm/dd/yyyy	Name	Date Sent mm/dd/yyyy
2017-18	092B071	mag	16,343.00	1.00	mks	jit	1417	mks	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092B072	mag	15,726.00	0.96	mks	mag	1234	mks	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092B073	mks	10,269.00	0.63	awf	mag	488	mks	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092B074	mks	4,408.00	0.27	awf	mks	281	awf	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092B075	mks	3,142.00	0.19	awf	mks	162	awf	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092B081	frr	13,183.00	0.81	mks	frr	1109	mks	jit	11/4/2017	11/15/2017	Pass	jit	11/21/2017	Mr. DC	11/30/2017
2017-18	092B082	mag	15,932.00	0.98	mks	frr	1321	mks	jit	11/4/2017	11/15/2017	Pass	jit	11/21/2017	Mr. DC	11/30/2017
2017-18	092B083	mks	8,920.00	0.55	awf	mks	464	awf	jit	11/4/2017	11/15/2017	Pass	jit	11/21/2017	Mr. DC	11/30/2017
2017-18	092B084	mks	6,009.00	0.37	awf	mks	383	awf	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092B085	mks	339.00	0.02	awf	mks	36	awf	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092B091	mag	16,148.00	0.99	mks	frr	1124	mks	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092B092	mks	9,584.00	0.59	awf	mks	388	awf	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092B093	mks	4,801.00	0.29	awf	mks	186	awf	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092B094	mks	475.00	0.03	awf	mks	29	awf	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092C080	frr	16,355.00	1.00	mks	frr	1222	mks	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092C089	frr	15,924.00	0.98	mks	frr	1058	mks	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092C090	frr	15,001.00	0.92	mks	frr	1294	mks	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092C098	awf	13,311.00	0.82	mks	awf	756	mks	jit	8/28/2017	9/15/2017	Pass	jit	9/21/2017	Mr. DC	10/13/2017
2017-18	092C099	awf	16,017.00	0.98	mks	awf	835	mks	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092C100	awf	16,291.00	1.00	mks	awf	874	mks	jit	11/4/2017	11/15/2017	Pass	jit	11/21/2017	Mr. DC	11/30/2017
2017-18	092G001	mag	15,893.00	0.98	mks	frr	1095	mks	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092G002	mks	4,771.00	0.29	awf	mks	293	awf	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092G003	mks	271.00	0.02	awf	mks	23	mks	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092G011	mks	12,155.00	0.75	awf	mks	520	awf	jit	2/9/2018	2/17/2018	Pass	jit	3/1/2018	Mr. DC	3/1/2018
2017-18	092G012	mks	3,801.00	0.23	awf	mks	176	awf	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092G021	mks	1,435.00	0.09	awf	mks	70	awf	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092F007	frr	16,259.00	1.00	mks	awf	1145	mks	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092F008	frr	16,259.00	1.00	mks	awf	939	mks	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092F009	frr	16,259.00	1.00	mks	awf	1115	mks	jit	2/9/2018	2/17/2018	Pass	jit	3/1/2018	Mr. DC	3/1/2018
2017-18	092F010	frr	16,259.00	1.00	mks	rio	1168	mks	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092F017	frr	16,053.00	0.99	mks	frr	1128	mks	jit	2/9/2018	2/17/2018	Pass	jit	3/1/2018	Mr. DC	3/1/2018
2017-18	092F018	frr	16,226.00	1.00	mks	frr	1227	mks	jit	3/6/2018	3/20/2018	Pass	jit	3/21/2018		
2017-18	092F019	mag	16,226.00	1.00	mks	frr	1150	mks	jit	3/20/2018		p				
2017-18	092F020	rio	16,226.00	1.00	mks	rio	1433	mks	jit	3/6/2018	3/20/2018	Pass	jit	3/21/2018		
2017-18	092F026	awf	10,171.00	0.63	mks	awf	532	mks	jit	2/9/2018	2/17/2018	Pass	jit	3/1/2018	Mr. DC	3/1/2018
2017-18	092F027	awf	15,205.00	0.94	mks	frr	914	mks	jit	3/6/2018	3/20/2018	Pass	jit	3/21/2018		
2017-18	092F028	awf	16,194.00	1.00	mks	awf	1141	mks	jit	3/20/2018		p				
2017-18	092F029	mks	16,122.00	1.00	awf	mks	801	awf	jit	3/20/2018		p				
2017-18	092F030	mks	15,538.00	0.96	awf	mks	738	awf	jit	3/6/2018	3/20/2018	Pass	jit	3/21/2018		
2017-18	092F036	jit	16,148.00	1.00	mks	jit	1354	mks	jit	3/6/2018	3/20/2018	Pass	jit	3/21/2018		
2017-18	092F037	mks	16,128.00	1.00	awf	mag	970	mks	jit	3/20/2018		p				
2017-18	093F038	mks	9,656.00	0.60	awf	mag	588	mks	jit	3/6/2018	3/20/2018	Pass	jit	3/21/2018		
2017-18	093F039	mks	2,972.00	0.18	awf	mks	298	awf	jit	2/9/2018	2/17/2018	Pass	jit	3/1/2018	Mr. DC	3/1/2018
2017-18	093F040	mks	258.00	0.02	awf	mks	35	awf	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092F045	jit	16,129.00	1.00	mks	jit	1187	mks	jit	12/11/2017	12/21/2017	Pass	jit	1/9/2018	Mr. DC	1/9/2018
2017-18	092F046	jit	16,103.00	1.00	mks	jit	1313	mks	jit	1/17/2018	1/26/2018	Pass	jit	2/26/2018	Mr. DC	2/26/2018
2017-18	092F047	jit	7,919.00	0.49	mks	jit	684	mks	jit	2/9/2018	2/17/2018	Pass	jit	3/1/2018	Mr. DC	3/1/2018
2017-18	092F055	jit	16,016.00	1.00	mks	jit	1252	mks	jit	10/5/2017	10/14/2017	Pass	jit	10/23/2017	Mr. DC	11/7/2017
2017-18	092F056	jit	13,032.00	0.81	mks	jit	1072	mks	jit	11/4/2017	11/15/2017	Pass	jit	11/21/2017	Mr. DC	11/30/2017
2017-18	093F057	jit	5,192.00	0.32	mks	jit	379	mks	jit	11/4/2017	11/15/2017	Pass	jit	11/21/2017	Mr. DC	11/30/2017
Totals 2017-18			578,994.0	35.68			39,401									