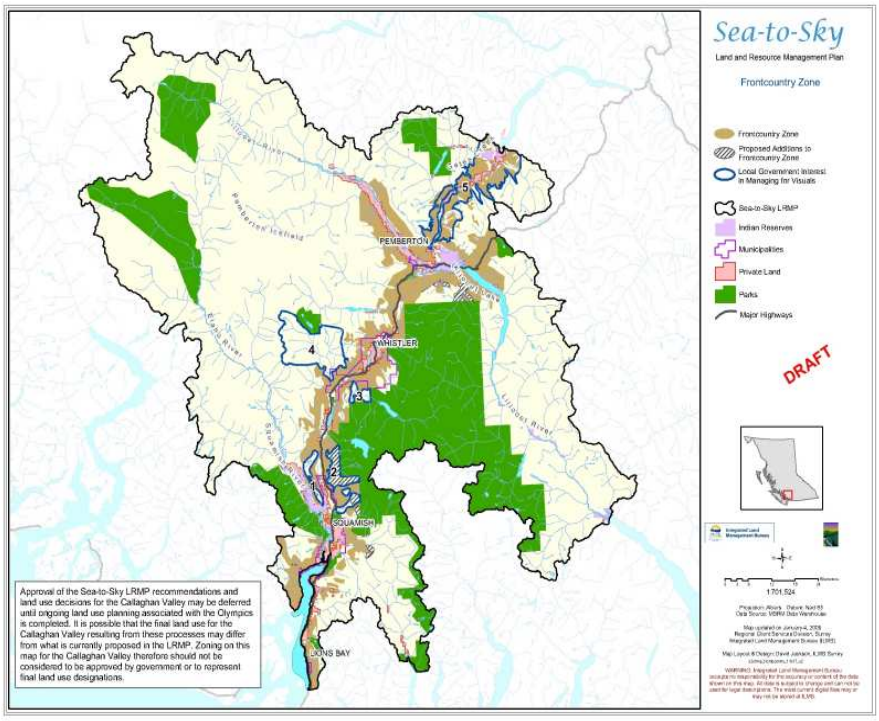
Sea-to-Sky Land and Resource Management Plan
Frontcountry Zone Visual Landscape Inventory
Contract # 1005 – 40/FS DSQ 2006-02 VQO



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Contents

1. Summary, Recommendations, and Conclusions

A visual landscape inventory for the S2S Frontcountry zone was conducted by Kenneth B. Fairhurst, RDI Resource Design Inc., over the months of January to March, 2006. Current (1997) Ministry of Forests and Range Standards were applied. Most of the area was already covered by past inventories. A composite GIS map of inventoried areas provided by the ILMB was used as baseline guidance for the location of the Visual Sensitivity Units (VSUs). A comprehensive process of refinement and reconfiguration of the VSUs took place during successive field observations, examination of video coverage taken along the corridors, and in reference to ArcGIS 9 3D Analyst viewsheds. An ArcGIS 9 mapbase containing terrain, water features and cultural features was prepared for the project area and loaded into a laptop computer to serve as a mobile field office.

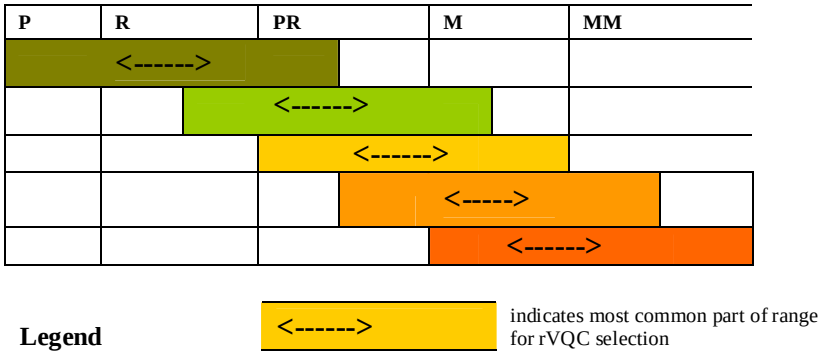
The VSUs were digitized on screen, and assigned a complete new set of attributes (ratings) from the classification forms. A geo-referenced video collection of over 300 clips of the visible terrain seen from fixed and moving viewing locations provided a record of all VSUs, with some VSUs receiving multiple coverage and many recorded from a variety of viewpoints. Additional panoramic photography of Howe Sound landscapes was provided by Lloyd Davies, Landscape Specialist, Cost Forest Region, and Tom Cole, Forester, Richmond Plywood Corp. provided Whistler Mountain panoramas. Brohm Ridge and Whistler Mountain viewsheds were recorded photographically and derived through viewshed analysis. These viewsheds were excluded from the Frontcountry zone VLI so as to maintain the integrity of the VLI as seen from the main travel routes, but are available as GIS map layers.

The process of rating each VSU used the standard classification form which RDI converted into Microsoft “Excel” to provide a clear, updatable record with automated elements where useful. VSUs were numbered based on a hierarchy of geographic location. This system was constructed by RDI to facilitate the tracking and recognition of individual VSUs as well as for future planning and management considerations. At the top of hierarchy is the Visual Sensitivity Area (VSA). Five VSAs were defined, based on their general location in the project area. Within them, 23 Visual Sensitivity Groups (VSGs) were defined based on more local geographic location. The name was defined by RDI for comparable terminology with VSUs and the higher level VSA. It is synonymous with the conventional term Visual Management Unit (VMU). In all 177 VSUs were defined and classified. The approach taken by RDI was to delineate VSUs based on major landform breaks rather than by conditions within a given landform, or by the often many separate views of that landform as seen while travelling along a corridor. As such, the VSUs have a visual integrity or completeness that would be identifiable by the average viewer. The VSU is also then capable of becoming a management unit in itself, amongst its neighbours in a Visual Sensitivity Group and within an entire Visual Sensitivity Area. RDI considered this approach to be advantageous also when considering visual zonation and management options.

RDI sought public input through advertisements in Squamish and Whistler newspapers. One indvidual responded with a concern about a logging operation proposed in a

mountain biking trail area near Squamish which was outside of the VLI area. Three forest industry individuals responded, two at the stakeholders' meeting January 4 and one by telephone. A more formal public participation process took place during the original S2S LRUP planning process in 1991 with public meetings in Squamish, Whistler and Pemberton. With the rising understanding of Sense of Place, more effort should be taken to determine these values from public involvement in the S2S Frontcountry planning process.

Recommended Visual Quality Classes (rVQCs) were assigned to the VSUs by RDI as part of the project. As the VLI standard procedures did not specify the exact process for deriving the rVQCs, RDI constructed a matrix for this, shown on page two of the RDI electronic classification form.



Legend <------> indicates most common part of range for rVQC selection

Existing Visual Quality

The S2S Frontcountry Zone is dominated by mountain landforms, and also by cultural change along their base. There is a high degree of diversity within each landform resulting from topographic variations, exposed rock, vegetative patterns, including past and present timber harvesting, recreation development including ski runs and facilities, electrical power transmission, railway and highways, and residential, commercial, and industrial development. Vegetative patterns were particularly noticeable at the time of inventory with snow cover emphasizing open areas and regenerating forest patches. While over 80% of the VSUs have been altered to some extent, there remains a generally favourable and impressive visual condition throughout the S2S Frontcountry Zone.

The Forest Planning and Practices Regulation (B.C. Reg. 14/2004, consolidated to March 18, 2005 1 provides definitions for visually altered forest landscape. The Existing Visual Conditions (EVC) determined in the inventory are summarized by extent and number of VSU:

EVC	By Area (%)	By # of Units (%)
Preservation	7	13.6
Retention	12.4	14.1
Partial Retention	39.6	40.1

[1] http://www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/forplanprac/fppr.htm#section1-1

Modification	36.4	27.7
Maximum Modification	3.0	2.8
Excessive Modification	1.9	1.7

Recommended Visual Quality
The rVQC was selected for each Visual Sensitivity Class (VSC). A rationale is entered on the classification form for the final rVQC. The results were:

rVQC	By Area (%)	By # of Units (%)
Preservation	0	0
Retention	7.8	9.1
Partial Retention	54.9	52.5
Modification	37.3	38.4
Maximum Modification	N/A	N/A
Excessive Modification	N/A	N/A

Each of these 3 VQC classes require a high degree of visual design to be implemented for land-use activities to achieve that class with the given VSU. This is achievable given the moderately high capacity for the Frontcountry landscape to visually absorb land-use alteration while providing a high-quality viewing experience. As such, the recommended Visual Quality Classes offer cautious continuance of these visual qualities. Excellent visual landscape design applications are required in all recommended classes, including Modification. So doing, land-use alteration can contribute positively to the scenic experiences. To do so, however, requires coordination and top-down planning.

Visual Management RDI was asked to discuss the advantages, challenges and issues of different visual management options, and make recommendations as to a future visual zonation system. One system in particular was identified for assessment - the CCLRMP Visual Management Agreement Area Specific Direction Proposal of the Visuals Subcommittee. RDI examined several major systems (the USFS Scenery Management System and US BLI Visual Resource Management System in the USA, The Visual Management System of the Forestry Commission in Tasmania and the Visual Management System of the Forestry Commission in the United Kingdom. As well a new regional approach in Alberta produced by RDI for the Oil Sands area of Alberta - the Cumulative Visual Landscape System (CVLS) was looked at. Also, brief look was made of Ken Fairhurst's Ph. D. Dissertation research called GEOptics. The major systems all are "expert" driven processes, with recent adaptations being made to be more inclusive of public values such as "sense of place" concerns (eg. the USFS Scenery Management System). Except for the UK approach, there are similarities in the origins of these systems. The BCMOFR VLI system compares favourably and is therefore supported as a credible and familiar approach. Some fine-tuning is recommended, as the current VLI tends to generate mid-value ratings as VAC cancels or negates other ratings in the process. Each of the major systems sets objectives for visual quality or integrity based on existing conditions (a "bottom-up" approach). An exception is the UK system which provides a total design for each landscape but avoids setting objectives visual quality except that things must fit. The UK system heavily influenced the BCMOF Visual

Landscape Design approach(BCMoF 1995). The Alberta CVLS also sets targets for landscape integrity with a bottom up approach, but also uniquely introduces a "top-down" planning approach which allows a determination of the desired supply of each level of landscape integrity (visual quality). RDI considers a top-down approach to be useful in a S2S Frontcountry visual management strategy. The Geoptics approach being developed and tested by Ken Fairhurst is a complementary system that will be useful in strategic and operational planning by providing a mapping layer that has predetermined the cumulative visual angle of incidence thoughout the landscape, and provides for stratification of the landscape based on visual absorption capability or its converse, visual risk. The S2S database has been very generously made available to Ken Fairhurst for academic purposes for his GEOptics research.

The conclusions are that CCLRMP Visual Management Agreement proposal could be given some consideration for application in the S2S Frontcountry. The Wild, Natural Variability, Landscape Forestry, and tourism facility-specific Special Viewscape zones which have descriptions and prescriptions that are comparable to present rVQCs, but which are more broadly applied. There are maximum alteration limits assigned or determined by agreement but the measurement method is not defined (i.e., perspective or planimetric measure, percent of what?). A zonation approach could be applied to the S2S Frontcountry. The question is how broad might the zones be? The RDI-built hierarchy of VSA-VSG-VSU classification in the 2006 S2S VLI provides the basic units that lend themselves to zonation. That is not to say that the current system of managing by VSU should be abandoned. In fact, the generous scale of VSUs defined by RDI could be considered, by some, to be a zonal management system.

At the VMG scale, there are opportunities for top-down objective setting (as does the Alberta CVLS) that could provide guidance, and some flexibility, both temporally and spatially, so that visual conditions in one zone (or VMG) may be altered to an assigned limit, in another to be left to recover, while in another to be protected, then, over time, emphasis may shift according to a plan. With public and stakeholder participation to identify operational needs and sense of place values and with the addition of a GEOptics-generated map layer of cumulative AOI to assist planning stratification and design decisions, the zonal approach will potentially allow a maximal benefit from each VMG and VSU in perpetuity.

The findings are to be presented at the International Symposium on Society and Resource Management (ISSRM) in Vancouver June 4, 2006 in an academic paper presented by Ken Fairhurst. This type of process and other aspects of VRM will be a part of the discussions at the Visual Resource Management Practices and the Practitioner Forum chaired by Ken Fairhurst, RDI, on June 5, also at the same conference. Ken Fairhurst will also present his GEOptics research findings at the IUFRO Conference on Forest Patterns and Process in September in Bari, Italy

2. Introduction

The Forest Service is responsible for completing Visual Landscape Inventory (VLI) and establishing visual quality objectives (VQOs). These objectives serve to guide visual management. Presently, visual landscape management in the Soo Timber Supply Area is based on inventories completed in 1990, 1994 and 1997. One recommendation in the October 18, 2004 "Recommendations Package" was to bring the proposed front-country zone (FZ) under one visual management strategy. The Forest Service retained RDI Resource Design Inc. (RDI) to:

> complete a visual landscape inventory (VLI) - detailed assessment for the proposed FZ, and
> develop options for managing the visual quality in the FZ, (e.g. consider new methodologies for visual management such as the "scenic zones" system suggested by the tourism sector, proposed Central Coast visual management strategy (visual zonation model), and other options).

Before RDI commenced this project, the Forest Service began a process of dialogue with the different stakeholder groups, especially the planning forum sector representatives that participated on the S2S LRMP process. A meeting was scheduled for 7:00 pm on Wednesday January 4, 2006 in the Cedar Boardroom at the Ministry of Forests office in Squamish. Ken Fairhurst of RDI attended the meeting that evening to address technical questions and receive input. The purpose of this meeting was to solicit public input into the process and explain the standards and how visual landscape inventory data will be captured. The Forest service was particularly interested in determining values of interest to the public, identifying concerns and issues, and whether or not participants would have time to be involved in the process, and understanding how the process would work. Two representatives from the forest industry attended the meeting, no other public, local government or other stakeholders were in attendance. Subsequently, advertisements requesting public contribution and comment were placed in the Whistler Question and Squamish Chief newspapers, and on RDI's website on the VLI page (www.1rdi.com).

Public Notice

Under contract with the BC Ministry of Forests and Range, Squamish Forest District, RDI Resource Design Inc. is conducting an amalgamation and update of Visual Landscape Inventory. The procedures manual can be downloaded by clicking in the VLI link.

An important aspect of this process is soliciting input directly from the public. This information will assist in understanding the level of public concern for the identified landscapes. Comments are solicited up to February 15, 2006.

The project covers the Front-country Zone of the Sea-to-Sky LRMP plan area seen from currently paved highways, Howe Sound, and selected elevated recreational viewpoints (Whistler-Blackcomb and Brohm Ridge). It includes Highway 99 from Lions Bay through to where it exits the Squamish Forest District at Joffre Creek; the Pemberton Meadows Road to the forestry bridge over the Lillooet River; and the road from Mt. Currie to D'Arcy. A map of the inventory area will be e-mailed to you on request, or click here to download the PDF. Please call Ken Fairhurst at 604-689-3195 (Vancouver), toll-free at 1-888-338-5676, or e-mail us at rdi@1rdi.com.

An article on the project was published in the Whistler Question following an interview of Ken Fairhurst by their reporter. Only one response was received, from a person expressing interest in a mountain biking area near Squamish subject to timber harvesting development. This area was outside of the Frontcountry viewshed.

Existing Visual Landscape Inventories

Within the Soo Timber Supply Area, visuals have been previously been managed under the following Plans:

FOREST RECREATION PLAN: WHISTLER LOCAL RESOURCE PLAN (LRUP), June 1995:

The Whistler LRUP was developed in response to public concerns over logging effects on the visual quality of landscapes and recreation uses for the land in and near the Resort Municipality of Whistler (RMOW). The primary purpose of the plan was to include input from the RMOW when formulating logging plans within the LRUP boundaries, and to protect and promote recreation and scenic beauty. The first recreation plan was completed in 1989 and served for five years. The 1995 plan is an update and addresses issues identified in the original plan.

SEA-TO-SKY LOCAL RESOURCE USE PLAN (LRUP), AUGUST 1991:

The Sea-to-Sky LRUP was prepared to ensure visual resources (forest landscapes) are fully recognized and addressed in forest harvesting and management plans along the Highway 99 corridor. The corridor studied includes areas viewed along Highway 99 from Horseshoe Bay to Duffey Lake (north and south of the Whistler LRUP), and Howe Sound. The VLI component was conducted by Ken Fairhurst who was the regional landscape specialist at that time.

LANDSCAPE INVENTORY AND ANALYSIS OF THREE TRAVEL CORRIDORS IN THE SQUAMISH FOREST DISTRICT, March 1994:

This report describes the main landscape features, significant viewing locations, viewer statistics and the visual quality objectives for the three corridors situated northwest, north and east of Pemberton.

SQUAMISH FOREST DISTRICT VISUAL LANDSCAPE INVENTORY: SELECTED AREAS, March 1997:

This visual landscape inventory project identified visual sensitivity classifications for the visual sensitivity units (VSUs) in areas with no prior inventories as well as sections of the previously inventoried Sea-to-Sky Highway. The areas were grouped into the following 12 VSUs:

Whistler & selected VP of the Sea-to-Sky Hwy.

Squamish River Road (to the TFL boundary)
Brandywine FSR
Callaghan / Madeley FSR
Whistler Interpretive Forest
6 Mile Creek Road: Showh Lake and Cougar Mountain
Soo River
Whistler and Blackcomb Mountains (selected viewpoints)
Upper Lillooet River FSR
Meager Creek (beginning at 24 Mile junction)
Fire Lake FSR
Glacier Lake FSR

HARRISON – LILLOOET GOLDRUSH TRAIL MANAGEMENT PLAN, April 1997:

Visual quality or landscape values as viewed from the In-SHUCH-ch Forest Service Road were inventoried as part of the Three Corridors Landscape Inventory. For purposes of this management plan, designated portions of the trail were re-inventoried in 1995. Under the management plan, visual resources within the trail corridor (100 metres on either side of the trail centre line, designated as a heritage trail by the *Heritage Conservation Act*), are managed to a Visual Quality Objective (VQO) of retention. Views from along the trail are managed according to the proposed VQO in the Three Corridors Inventory.

Bridging Existing VLI and 2006 VLI

Given the variety of standards at the times the previous inventories were conducted, RDI decided to "start afresh" with the 2006 VLI. Existing VLI was used as a starting point only. A map file of current VSUs was loaded into the GIS mapbase. It provided a useful field guide as to overall viewability from the corridors, tentative VSU delineation in the new inventory, for identifying existing visual conditions. Some VSUs were accepted as provided, others were re-drawn to respond to enhanced information provided by GIS viewshed analysis, detailed viewing assessment, and RDI's rationale/approach for VSU configuration. VSU ratings from past inventories were not consulted, so as to provide a fully comprehensive, and unimpeded, new set of inventory ratings according to 1997 standards and RDI's 2006 interpretation/application of those standards by RDI. As the inventory was to cover only the FZ, remote "floaters", visible pieces of landscape removed from the main contiguous viewsheds, were eliminated from the inventory. The GIS viewsheds produced by RDI reveal those areas. Some of those areas fell within other corridor inventories which were not part of the FZ. The current inventory areas outside the FZ were:

Squamish River Road (to the TFL 38 boundary)
TFL 38
Brandywine FSR
Callaghan / Madeley FSR
Whistler Interpretive Forest
6 Mile Creek Road: Showh Lake and Cougar Mountain

Soo River
Whistler and Blackcomb Mountains (see Special Viewsheds section in 2006 VLI)
Upper Lillooet River FSR beyond Forest Service Bridge
Lower Lillooet River, Lillooet Lake south of Joffre Crk (Highway 99).
Meager Creek (beginning at 24 Mile junction)
Fire Lake FSR
Glacier Lake FSR
16 Mile Ck. Rd.
Birkenhead River Road west of junction with Anderson Lake Road
Blackwater Ck. Rd. west of junction with Anderson Lake Road

The S2S LRMP FZ visual landscape inventory occasionally overlaps these secondary corridor visual landscapes. Where VSUs overlap, the more restrictive rating should take precedence. Consultation with the District Manager is recommended.

Government Regulations

The *Forest and Range Practices Act* (FRPA) and related regulations, including the *Government Actions Regulation* (GAR), came into force January 31, 2004 and will replace the Forest Practices Code (FPC) over time. Direction for managing visual resources under FRPA s provided in:

FRPA GENERAL BULLETIN Number 9, October 3, 2005.

Under the FPC, scenic areas were defined as visually sensitive areas and scenic landscapes identified through a visual landscape inventory or operational planning process approved by the District Manager. Under section 9.2 of the FRPA, established scenic areas are areas previously designated under the FPC and continued under section 180 of FRPA. Therefore, VQOs established under the Sea-to-Sky LRUP were grand parented via FRPA section 181.

The 3 corridors scenic areas have FRPA GAR section 17 objectives. In other words, the old recommended VQOs (analogous to rVQCs) in the 1993/94 VLI inventory map are continued into FRPA as established VQOs.

The Forest Planning and Practices Regulation (B.C. Reg. 14/2004, consolidated to March 18, 2005 [2] provides definitions for visually altered forest landscape.

> **1.1** For the purposes of paragraph (c) of the definition of "altered forest landscape" in section 1, the following categories are prescribed, each according to the extent of alteration resulting from the size, shape and location of cutblocks and roads:
>
> (a) *preservation*: consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is
>
> (i) very small in scale, and
>
> (ii) not easily distinguishable from the pre-harvest landscape;

[2] http://www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/forplanprac/fppr.htm#section1-1

(b) *retention*: consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is

(i) difficult to see,

(ii) small in scale, and

(iii) natural in appearance;

(c) *partial retention*: consisting of an altered forest landscape in which the alteration, when assessed from a significant viewpoint, is

(i) easy to see,

(ii) small to medium in scale, and

(iii) natural and not rectilinear or geometric in shape;

(d) *modification*: consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint,

(i) is very easy to see, and

(ii) is

(A) large in scale and natural in its appearance, or

(B) small to medium in scale but with some angular characteristics;

(e) *maximum modification*: consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint,

(i) is very easy to see, and

(ii) is

(A) very large in scale,

(B) rectilinear and geometric in shape, or

(C) both.

Request for Proposal

The RFP came from the October 18, 2004 recommendations package that was developed as part of Sea-to-Sky LRMP process. The recommendations document was a summary of recommendations agreed to by most, but not all, sectors that participated in the Sea-to-Sky LRMP process and submitted to government for its consideration.

The LRMP planning forum also recommended a number of General Management Directions (GMDs) for the plan area. GMDs define where and how resource activities may occur. A number of these GMDs were approved for use by resource managers on a range of activities including wildlife management, recreation, tourism, energy development, visual management, access management and protection of First Nation's cultural areas. These GMDs provide an interim management strategy that remains in place until completion of consultation with First Nations and until Cabinet has given final approval to the Sea-to-Sky LRMP.

Accordingly, Treasury Board approved funding for government to government negotiation and LRMP implementation. These funds included a budget to review visual management in the Front-country Zone (FZ) of the draft Sea-to-Sky LRMP.

The FZ equates to the viewshed of the currently paved highways within the plan area. It includes Highway 99 from Lions Bay through to where it exits the Squamish Forest District at Joffre Creek, the Pemberton Meadows Road up to the forestry bridge over the Lillooet River, and the road from Mt. Currie to D'Arcy. The FZ is the major transportation corridor for the Sea-to-Sky plan area and the vast majority of residents live within this zone. Perhaps most importantly, The FZ is the gateway through which all visitors to the region must pass and it is the part of the plan area that hosts the majority of tourism infrastructure. Consequently, the maintenance of the visual experience in the FZ is essential to the region's ability to attract tourists and to the visual experience of residents and visitors alike.

Project funding and digital map products were provided through the Integrated Land Management Bureau, Ministry of Agriculture and Lands. Project coordination was provided by Norbert Greinacher, Stewardship Officer, Squamish Forest District. Additional project guidance and suggestions were provided by Lloyd Davies, Landscape Specialist, Coast Forest Region.

3. Procedures

Field reconnaissance was conducted along the routes in winter conditions in the months of February and March, 2006. Sunny conditions were sought, which eliminated the entire month of January from the field process due to inclement weather.

Digital Video and Still Photography

The visual landscape character and condition was recorded primarily with a Sony digital video camera recorder linked to a Garmin Geko geographic positioning system (GPS). Camera position (latitude and longitude) and direction (azimuth) were recorded on the DVD simultaneously with the video records using Red Hen Systems' "Geovideo" software. Acting as an extension of ArcGIS9, the software created shapefile records of every video point and placed the points in the project maps. An "xml" features file of location and direction was created for video point and for each point along each video track. In all, 333 videos were recorded. There were a range of coverage types, from the vehicle while travelling the highway, some recording long drives, others recording just glimpse views through the trees. Videos were also taken from stationary viewpoints where it was useful as well as safe to stop. Full 360° panoramas were recorded where appropriate. Videos were recorded on successive trips, resulting in repeat coverage in some instances. All VSUs in the inventory have at least one video record, some have many recorded from different perspectives. Viewpoints were "wherever and whenever" to capture as much of the landscape and viewing experience as possible. Where there was a formal pull-out or if the views were from within communities viewpoints were called "V1" type. Long duration views from Howe Sound were also called "V1" type. Other viewpoints, where videos were taken "on the move" at the roadside were generally marked as "V2" type on the classification forms. In all, 333 videos were recorded. Additional photographic panoramic coverage was provided by Lloyd Davies, Landscape Specialist, Coast Forest Region, who attended the boat trip along Howe Sound and the

helicopter trip to Brohm Ridge. Whistler Mountain photographic panoramas were generously provided by Tom Cole, Richmond Plywood Corp.

Photo by Lloyd Davies Britannia Beach Viewpoint Looking West

Photo by Tom Cole Crystal Hut Panorama - Whistler Looking West

Viewpoints

A "Viewpoints" file of 149 points, called "videopoints" and denoted by a pushpin symbol in the GIS file, was digitized and added as a map layer in GIS. Viewpoint numbering started at the northwest corner of the project area near Pemberton, and trended eastward and southward. The viewpoints are representative of either individual video points or video location point clusters, required for locating moving videos and repeat video coverage. As the points were also used to create the cumulative viewshed in GIS, several extra points were added to smooth out the coverage. Videos were saved as "mpg" files and were numbered as loaded from the camcorder. The numbers contain a residual prefix "London050" from an earlier project that remained in the present filenames. The video number used in the files ignored the prefix and used the last three numbers following the prefix. Video numbers are referenced with a preceding "v" to distinguish them from the "Viewpoints" in the classification sheets. The full list of viewpoints/videos is presented in Appendix 5. The video collection is found in the "Capture" folder of the S2SVLI database, and video points are in the "Index Layers" file.

Special Viewsheds

The contract also required the identification of the Whistler-Blackcomb mountain viewshed and the Brohm Ridge viewshed. Panoramic photography from Whistler-Blackcomb was taken by Tom Cole, Richmond Plywood Corp. Video capture from Brohm Ridge was acquired by Ken Fairhurst during a helicopter flight for that purpose attended by Norbert Greinacher and Lloyd Davies. Composite viewsheds from each of the alpine recreation areas were produced in ArcScene based ion digital terrain files (TRIM). The elevated viewsheds were not integrated into the S2S VLI, but are accessible as a map layer in ArcGIS and also as image documents. The points were digitized and entered in the GIS map as "MainVPs" showing as red 8-point stars on the map.

Digital TRIM contours and planimetric information (roads, rails, hydro-lines, culture, hydrology). Installed on a laptop computer, the GIS mapbase became the field map for orientation and verification purposes. VSUs were either digitized following existing VLI polygons or were newly configured. The complete VSU files is presented in the GIS mapbase as "RDIVLI2006-1". The legend on the map is based on the following format: VSU-EVC-VSR-rVQC.

Delineation of VSUs

Existing FZ VLI VSU boundaries were checked to determine if they were adequately delineated based on field checking, photo and video coverage interpretation, GIS viewshed guidance (discussed in the following paragraph), and RDI's 2006 rationale and interpretation of the 1997 procedures. RDI's rationale was for VSUs to be delineated by contiguous (or cumulative) visibility and major landscape breaks as experienced, and understood, by the average viewer, while travelling through the corridors, or as seen from fixed viewpoints. Individual VSUs may have a range of bio-physical attributes, existing visual conditions, and viewing conditions. If a landform was visible from top to bottom, it generally was placed into one unit, regardless of the variability within. Similarly, if a landform was seen continuously along a corridor without major topographic breaks, it was generally defined as one VSU. As RDI considers VSUs to be current and future management units, breaking landforms into smaller and smaller units tends to restrict and complicate future management options. As such, the size of the unit should be large enough to afford some latitude as to management options. Actual design decisions within it will require detailed examination from the series of viewpoints that bring it into greater or lesser prominence. The intensity of visual landscape design required in each unit is suggested by the rVQC assigned to the unit. Much of RDI's Visual Impact Assessment work involves rationalization of VSUs into "scenes" that provide an overall influence on the development's visual impact. It is this experience, plus the secondary consideration of preparing for a possibility of a zonal approach to visual management that led to the final configuration of VSUs.

Identification and verification of the FZ visible (or visually sensitive) landbase was assisted by the additional production of GIS viewshed maps. These are presented in the GIS map under the "Viewsheds" feature group:

Southern: S-viewshed
Central: C-viewshed
Northeast: n-eviewshed
Northwest: n-wviewshed
Whistler Mountain: Whistler
Brohm Ridge: brohm2

These were produced in ArcScene which is an extension of ArcGIS 9. Viewshed "viewpoints" were for the most part points along the corridors from which videos or still photographs were taken. Several more points were added for the viewshed analysis to ensure a full viewshed was produced. Doing so increased the extent of visibility

determined in viewshed analysis, and, being based on bare land assessment only, was further exaggerated by not accounting for intervening tree screening. However, the greater extent of openness indicated in viewshed analysis does provide a comprehensive viewshed that would be either currently or potentially visible given changes in landcover and intervening screening.

In all, 177 VSUs were created to cover the entire S2S Front-country visual landbase of 156,287 ha. The size of individual units ranged from 31 ha. (VSU 473 – along Hwy 99-Duffy Lake Road) to 4203 ha.(VSU 367 – the combined Whistler-Blackcomb VSU). The average size was 882 ha.

Classification of VSUs

The standard procedures provided in the Visual Landscape Inventory Procedures Manual were applied in the inventory update. Classification of VSUs followed the standards described in Section 5 of the VLI Standards and Procedures Manual (1997). A summary of the classification system ratings is found in Appendix 1. An electronic "Microsoft Excel" version of the VSU classification was developed by RDI exclusively for the project. The electronic form permitted easy selection of ratings with spinners and drop downs, and automatically tabulated summary ratings and label completion. The RDI electronic version provides an easily updatable database for each VSU. In all, 177 VSU Classification forms, 4 pages in extent (letter format) were completed. These are presented in Appendix 4.

Categorization and Numbering System

Visual Sensitivity Areas (VSAs)

A categorization and numbering system was developed for the inventory. The entire VLI project area was placed into 5 Visual Sensitivity Areas. VSAs are broad areas within visual corridors that are differentiated by geographic location, character, and viewing opportunity. VSAs were numbered from south to north. They can potentially be considered as general, or strategic management units. These were:

VSA 1 **Eastside Howe Sound - Squamish -Tantalus Lookout - Cheakamus Canyon**
VSA 2 ***Westside Howe Sound Squamish - Tantalus Range***
VSA 3 ***Cheakamus-Whistler-Green River Area***
VSA 4 ***Pemberton Valley - Joffre***
VSA 5 ***Mt. Currie - Gates River - D'Arcy - Anderson Lake***

Visual Sensitivity Groups (VSGs)

Within each VSA are Visual Sensitivity Groups (VSGs), numbered consecutively as decimals under the VSA number for ease of tracking them. This is a new term created by RDI which is synonymous with **Visual Management Unit** (VMU) in the standards, but

provides a similarity of nomenclature (i.e., the 1st 2 words in each level of the hierarchy is "Visual Sensitivity"). The word "group" is used in the term as the VSG serves to "group" individual Visual Sensitivity Units (VSUs). This approach provides an easily identifiable, geographically recognizable, hierarchy within the visual landscape inventory. For example, VSA 1 covers the entire eastside of Howe Sound and eastside Squamish area units up to and including the Cheakamus Canyon. VSA 1 is separated into 4 VSGs, each representing a more distinct part of the VSA, such as Howe Sound (VSG 1.1). There was a total of 23 VSGs identified within the 5 VSAs in the inventory:

VSA 1 **Eastside Howe Sound - Squamish -Tantalus Lookout - Cheakamus Canyon**
VSG 1.1 ***South Howe Sound Eastside to Watts Point 100-113***
VSG 1.2 ***Northeast Howe Sound - Southeast Squamish 115-124***
VSG 1.3 ***Northeast Squamish - Brohm Ridge 125-140***
VSG 1.4 ***Tantalus Lookout - Cheakamus Canyon - Eastside - Cloudburst Mt. South 141-146***

VSA 2 ***Westside Howe Sound Squamish - Tantalus Range***
VSG 2.1 ***Westside Howe Sound - Tantalus Range - Woodfibre 200-206***
VSG 2.2 ***Westside Squamish - Tantalus Range Mt. Murchison 207-213***

VSA 3 ***Cheakamus-Whistler-Green River Area***
VSG 3.1 ***Cloudburst Mtn.Northeast - Garibaldi - Daisy Lake - Callaghan Creek Westside 300-309***
VSG 3.2 ***Westside Cheakamus - Whistler - Green Lake 310-319***
VSG 3.3 ***Soo River - Rutherford Creek - Green River 320-324***
VSG 3.4 ***Garibaldi - Daisy Lake - Callaghan Creek Eastside 351-359***
VSG 3.5 ***Eastside Cheakamus - Whistler - Green Lake 360-362***
VSG 3.6 ***Eastside Nineteen Mile Creek - Soo River - Rutherford Creek - Green River 363-369***

VSA 4 ***Pemberton Valley - Joffre***
VSG 4.1 ***Pemberton Meadows Southside - Forestry Bridge - Ryan River - Miller Creek 400-410; 440***
VSG 4.2 ***Pemberton Valley Southside - Pemberton - Mt. Currie - Lillooet Lake 411-422; 441-442***
VSG 4.3 ***Pemberton Meadows Northside - Forestry Bridge - Ryan River - Miller Creek 450-456***
VSG 4.4 ***Pemberton Valley Northside - Pemberton - Mt. Currie - Lillooet Lake - Joffre Eastside 457-474***
VSG 4.5 ***Duffy Lake Road Westside (Highway 99) - Joffre Area 464-468***
VSG 4.6 ***Duffy Lake Road Eastside (Highway 99) - Joffre Area (rev. dir.) 469-470***

VSA 5 ***Mt. Currie - Gates River - D'Arcy - Anderson Lake***
VSG 5.1 ***Mt. Currie - Birkenhead Turnoff Westside 500-504***
VSG 5.2 ***Birkenhead Turnoff - Gates Lake - Divine - Blackwater Creek Westside 505-509***
VSG 5.3 ***Blackwater Creek - D'Arcy - Anderson Lake Westside 510-515***
VSG 5.4 ***Blackwater Creek - D'Arcy - Anderson Lake Eastside (rev. direction) 520-521***
VSG 5.5 ***Birkenhead Turnoff - Gates Lake - Divine - Blackwater Creek Eastside (rev. dir) 522-526***
VSG 5.6 ***Mt. Currie - Birkenhead Turnoff Eastside (rev. Dir)527-530***

Visual Sensitivity Units (VSUs)

The Visual Sensitivity Unit is the basic unit of the VLI. There were a total of 177 VSUs identified in the inventory. Each VSG has a number of Visual Sensitivity Units. For example, VSG 1.1 contains 14 VSUs located along the eastside of Howe Sound. As with the VSG, the VSU number contains the VSA number for ease of tracking and familiarization. (VSA **1** – VSG **1**.1 - VSU **1**00). VSUs were numbered generally from south to north; east to west over the entire inventory landbase. To provide some

flexibility for future additions or subdivisions of VSUs, breaks in the consecutive numbers were provided. Each VSU was given a geographic descriptor for ease of identification and recollection. For example, VSU 100 includes Strachan Ck., Montezambert Ck., Charles Ck. and Turpin Ck. The full list of VSUs follows is provided in Appendix 3.

The VSU Classification Forms (Appendix 4) provide the full results of classification. The GIS file (RDIVLI2006-1) provides a summary of ratings. The ratings (attributes), presenting in Appendix 3, are as follows:

Attribute	**Description**
RDI_VSU	2006 Front-country VLI VSU #
EVC_06	Existing Visual Condition
VAC_06	Visual Absorption Capability
BR_06	Biophysical Rating
VC_06	Viewing Condition
VR_06	Viewer Rating
VSC_06	Visual Sensitivity Class
rVQC06	Recommended Visual Quality Class
AREA	Area of VSU (square metres)

4. Findings

Ratings for the 177 VSUs were summarized for each of the major attributes that were added to the GIS file for the VSUs (RDIVLI2006-1):

Existing Visual Condition (EVC_06)

The EVC is a measure of present condition using the same terminology as is used for recommended Visual Quality Class (rVQC). The EVC identifies if, how much, and to what quality, a particular VSU appears to be altered. As the 2006 VLI was conducted in the wintertime, with snow covering open and revegetating areas, and showing through less dense forest, the EVC tended to be rated look altered if land-use patterns were obvious. Summer conditions would provide for more even textures, less colour contrast, and greater effect of forest regeneration. Over three-quarters of the total FZ area and nearly seven-tenths of VSUs have Partial Retention or Modification EVC.

EVC_06	**AREA (HA)**	**% Total Area**	**# VSUs**	**% # VSUs**
P	10395.65	6.65%	24	13.56%
R	19436.72	12.44%	25	14.12%
PR	61886.24	39.60%	71	40.11%
M	56842.24	36.37%	49	27.68%
MM	4757.46	3.04%	5	2.82%
EM	2968.98	1.90%	3	1.69%

Visual Absorption Capability (VAC_06)

Although the terrain is often steep and mountainous throughout the S2S FZ, VAC is generally moderate. This is attributed most often to the vegetation and rock pattern diversity, particularly in winter conditions, which provided colour contrasts and greater detail. The north-facing slopes along the south side of the Pemberton Valley are frequently in deep shape, adding to the VAC.

VAC_06

VAC	AREA (HA)	% Total Area	# VSUs	% # VSUs
L	4427	2.83%	11	6.21%
M	140478	89.88%	159	89.83%
H	11382	7.28%	7	3.95%
Total	156287	100.00%	177	100.00%

Biophysical Rating (BR_06)

The Biophysical Rating is quite high throughout the FZ, with the mountainous terrain providing the main features, steep and high relief, and skyline edges. The influence of water adds edge attraction along Howe Sound, by the lakes in Whistler, First Lake in Pemberton, and at Lillooet Lake.

BR_06	AREA (HA)	% Total Area	# VSUs	% # VSUs
L	11176.64	7.15%	8	4.52%
M	63636.98	40.72%	95	53.67%
H	81473.68	52.13%	74	41.81%

Viewing Condition (VC_06)

Viewing Conditions are mainly quite high along the corridors, particularly along Howe Sound, Viewing duration is long from communities (Lions Bay, Fury Creek, Squamish, Whistler, Pemberton, Mt. Currie, and D'Arcy). Duration is also long from Howe Sound and in Pemberton Meadows. Intervening screening lowers the viewing condition along parts of Highway 99, more-so in summer than winter when deciduous foliage adds additional screening.

VC_06	AREA (HA)	% Total Area	# VSUs	% # VSUs
L	21344.1	13.66%	37	20.90%
M	52916.7	33.86%	57	32.20%
H	82026.4	52.48%	83	46.89%

Viewer Rating (VR_06)

Viewer Rating varies from high in the south to lower in the north of the FZ. The principal difference is the number of viewers as determined by BC Ministry of Transportation

highway annual average daily two-way traffic volumes (AADTs).[3] Highway 99 has a high rating (in excess of 5000 vehicles per day / 500, 000 vehicles per year) between Horseshoe Bay and Whistler, including Squamish and Whistler, then drops to a medium rating (500-5,000 vehicles per day / 50,000-500,000 vehicles per year north of Green Lake to Pemberton / Mt. Currie and along the Joffre River section of the highway (Duffy Lake Road). Although traffic numbers were not accessed for these areas, the road west of Pemberton (past Miller Creek) and along the Anderson Lake road use was assumed to be low (200 vehicles per day / 20,000 vehicles per year). Viewer Expectations are considered high in the south, dropping to moderate and sometimes low in the north of the area. The VR is moderate to high in three-quarters of the FZ total area and number of VSUs.

VR_06	AREA (HA)	% Total Area	# VSUs	% # VSUs
L	39958.99	25.57%	47	26.55%
M	66832.64	42.76%	80	45.20%
H	49495.67	31.67%	50	28.25%

Note: Addressing viewer expectation can be considered controversial. However, as expectation is measured only as a 3-class rating (high-medium-low), and is just one of two factors in VR, a shift of one point plus or minus often leaves the VR the same. The VR itself has only partial influence when entered with the other 4 factors that contribute to the Visual Sensitivity Class scores. This measure should be further substantiated by examining "sense of place" considerations directly with residents and visitors.

Visual Sensitivity Class (VSC_06)

Visual Sensitivity Class is the culmination of baseline inventory ratings, resulting from the addition of Biophysical Rating, Viewing Condition, Viewer Rating and the subtraction of Visual Absorption Capability.

VSC_06	AREA (HA)	% Total Area	# VSUs	% # VSUs
1	166.23	0.11%	1	0.56%
2	68034.65	43.53%	61	34.46%
3	78885.33	50.47%	104	58.76%
4	9201.08	5.89%	11	6.21%
5	0	0.00%	0	0.00%

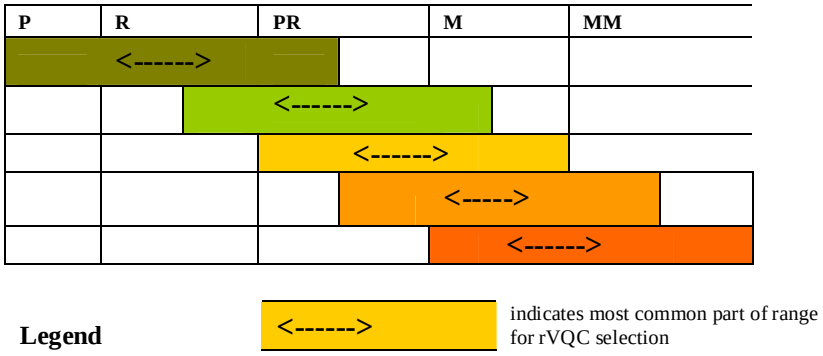
In the S2S FZ inventory, 60% of the VSUs and 50% of the FZ area was assigned Class 3, and the remainder predominantly Class 2. The moderate to high ratings are not surprising, given the prominence of the landscape, and viewer interest and number

[3] Source - Ministry of Transportation, 2000 and 1997 reports:
http://www.th.gov.bc.ca/Publications/planning/Trafficvolumes/index-trafficvolumes.htm
http://www.seatoskyimprovements.ca/safety/Safety_Planning_Review_1999-10.pdf

through the corridors. The nature of the process of deriving VSC tends to draw highs and lows somewhat towards middle ratings. For example, measures of VAC (e.g. slope and aspect) are repeated in the determination of BR, but with an exactly opposite interpretation, except for moderate values. The raw VSC component scores are further merged into categories for final VSC that may also cause lessened distinction being assigned to particular landscapes. The potential significance of this artifact of the process is left for pending reviews of procedures to consider.

Recommended Visual Quality Class (rVQC_06)

The rVQC is a planning and management objective derived from the base inventory. The recommendations were requested of RDI as part of the project. A matrix was prepared by RDI to assist the decision process. The matrix uses VSC to place a VSU in an approximate range of rVQC. Class 2, for example, could range from mid-range Retention to mid-range Modification, but would mostly commonly fall in between, centred on Partial Retention. Similarly, Class 3 could range from the restrictive end of Partial Retention to the least restrictive end of Modification, but would most commonly fall in between, centred somewhere in the least restrictive end of Partial Retention and the more restrictive end of Modification.



Legend <------> indicates most common part of range for rVQC selection

The process required the selection of a single rVQC for each VSU. By default, in the electronic classification form developed by RDI, RVQCs were assigned as follows:

VSC 1	VSC 2	VSC 3	VSC 4	VSC 5
P-R	PR	PR-M	M	M-MM

The final rVQC that was entered into the label would be determined using the rationale for the unit. VSC 3 often received PR rVQC, but it would not be illogical to assign M rVQC in some circumstances, which was done in the S2S FZ VLI.

rVQC	AREA (HA)	% Total Area	# VSUs	% # VSUs
P	0	0.00%	0	0.00%
R	12165.23	7.78%	16	9.04%

PR	85825.67	54.92%	93	52.54%
M	58296.39	37.30%	68	38.42%
MM	0	0.00%	0	0.00%

RDI considers Partial Retention and Modification to be appropriate rVQCs for much of the FZ provided excellent visual landscape design techniques, and an overall plan which potentially includes a zonation process, are implemented. These rVQCs are comparable to current visual conditions which include highways, a railway, multiple high tension electrical transmission lines, residential-recreational-tourism-industrial development.

The complete list of attributes for VSUs is provided in Appendix 3.

5. Review of Visual Landscape Management Systems

Visual resource management systems are used to guide resource development and protection in various jurisdictions in Canada (BC Ministry of Forests and Range, Alberta's Cumulative Visual Management System) and in other countries such as the USA (US Forest Service, US Bureau of Land Management), Great Britain (Forestry Commission), Australia (Forestry Commission, Tasmania). Current initiatives are underway to expand on these approaches (CCLRMP Visual Zonation Process; GEOptics). These systems were examined by RDI in order to make recommendations on options for visual management in the S2S FZ.

BC Ministry of Forests and Range

The BC Ministry of Forests and Range (BCMOFR) developed an "expert" approach for visual landscape inventory in the 1980's and 1990's that leads to the establishment of visual quality objectives(British Columbia. Ministry of Forests. 1997). The original BCMOFR process was based strongly on the US Forest Service Visual Management System (VMS). The use of VQOs as a guide to public policy in British Columbia was supported by a research study conducted by the BCMOF indicating a willingness to tolerate a degree of change in the landscape after which public acceptance rapidly diminished (British Columbia. Ministry of Forests. 1996). This research finding is perhaps more lenient than traditional landscape assessment research findings (Craik and Zube 1976, p. 53), where naturalness is preferred. The process defines and rates Visual Sensitivity Units with Visually Sensitive Areas – which can be considered "scenery management" zones. Visual design procedures (BCMoF 1995) are implemented to achieve the rVQC's in each VSU. Planimetric equivalents of Visual Quality Objectives are entered as constraints in timber supply calculations as a top-down planning influence, although there is no formal procedure for establishing supply targets for each VQO relative existing conditions prior to conducting the timber supply calculations.

US Department of the Interior - Forest Service

The long-standing VMS was introduced by the US Forest Service in 1973 as Volume 1, Agric. Handbook 434 (United States. Forest Service. 1973) and in subsequent chapters (Agric. Handbooks 462, 478, 483-484, 559, 608, and 666) after that date. The Visual

Management System had as its foundation the concept of visual quality, and made popular the term Visual Quality Objective (VQO). Visual quality, as used in this sense, is the relative degree of visible change in the "characteristic" landscape, where the characteristic landscape would be natural, or natural-appearing in the most restrictive categories, and would include cultural modification in the less restrictive categories.
In 1995, the US Forest Service introduced its Scenery Management System (SMS) with its handbook, *Landscape Aesthetics – A Handbook for Scenery Management* (United States. Forest Service. 1995). The SMS uses "scenic integrity" as a measure of the degree to which a landscape is visually perceived to be "complete" or whole. "In its purest definition, 'integrity' means perfect condition." (United States. Forest Service. 1995). It is also used to describe the extent of "deviations from or alterations of the existing landscape character that is valued for its aesthetic appeal." Scenic integrity classes range from Very High (unaltered) to Very Low (heavily altered) and Unacceptably Low (extremely altered). The highest categories of scenic integrity are "limited to natural or natural appearing vegetative patterns and features, water, rock, and landforms." and lower categories can well include cultural modifications that have aesthetic appeal. (United States. Forest Service. 1995).The USFS SMS approach was introduced as an integrated part of ecosystem management, the current framework for all levels of assessment and planning. The newer system, with its ties to ecosystem management (Smardon, Palmer et al. 1986), was built with the expectation that greater integration of scenic integrity with ecological integrity would provide the "critical links" between the "cultural/social dimension of ecosystem management" and "the biological and physical dimensions…"(United States. Forest Service. 1973). By bringing the viewers and their expectations together with biophysical dimensions as functioning parts of the same ecosystem, the SMS was advanced as more supportable and less subjective than the Visual Management System (VMS) that it replaced. Recent updates of the process have the SMS addressing broad-scale landscape character, existing scenic condition, and desired scenic condition, co-ordinated with recreation, wilderness, riparian management objectives. Key elements ("attributes" or meanings) of sub-regional areas are identified across all land ownerships, with the areas identified by participants as socially meaningful units which, together with statements of management issues and "deviations" from valued conditions can lead to constituent information that can be included in Strategic planning and operational decision efforts. An ArcMap Geospatial Modelling tool was developed, comprised of 485 "Place Based" working polygons (Hall, Slider et al. 2006). As the process is identifying desired scenic condition across large management units, it is considered a "top-down" target-setting approach that is informed from the bottom-up valuation.

US Bureau of Land Management

The US Bureau of Land Management applies the term scenic quality as a measure of the visual appeal of a tract of land, yet the end application becomes simply visual resource management classes (United States. Bureau of Land Management. 2003). The planning process establishes the objective classes which range from Class 1 Preservation through to Class 4 Modification with definitions similar to the SMS Scenic Integrity descriptors, and old VMS and current (BCMOFR) VQOs. Inventory classes are informational in

nature and provide the basis for considering visual values in the Resource Management Planning process (RMP). The RMP considers all values in a holistic approach "top-down" approach in which visual values are but one element which may take precedence where appropriate.

Alberta Oil Sands Region Cumulative Visual Landscape System (CVLS)

In 2003, RDI produced the Cumulative Visual Landscape System (CVLS) that would guide resource development in the oil sands region of northern Alberta. The CVLS assigns a measure of scenic quality called *landscape integrity*. Landscape integrity, by CVLS definition, is *the visual condition of the landscape compared to the natural or natural-appearing landscape* and *the state of naturalness, or the state of disturbance caused by human activities or alteration*. Integrity is assigned as the common element throughout the CVLS, when identifying current conditions, setting management objectives, designing land-use that meets the objectives, predicting and measuring visual impacts, and monitoring the implementation of land-use activities over the short- and longer- term. Landscape integrity ranges from Very High to Very Low as described in the following table (Fig. 1):

Figure 1. Landscape Integrity Classes

Class 1 (very high)	No alteration/development evident; very subordinate; or present and very minor with very high conformity in landscape; very well-designed to fit detailed Landscape Risk factors such as texture, colour and pattern; completely natural (preserved scenic quality) or natural-appearing (retained scenic quality).
Class 2 (high)	Minimal alteration/development evident; subordinate; minor and well-designed to fit detailed Landscape Risk factors such as texture, colour and pattern; high conformity in landscape; partially retained scenic quality.
Class 3 (moderate)	Moderate alteration/development evident; dominant, well designed to fit bolder Landscape Risk factors such as shape and scale, moderate conformity in landscape; modified scenic quality.
Class 4 (low)	Intensive alteration/development evident, very dominant in all views, very low conformity in landscape; designed to somewhat fit bolder Landscape Risk factors such as shape and scale; highly modified scenic quality.
Class 5 (very low)	Very intensive alteration/development evident; extremely dominant in all views, very low conformity in landscape; cannot not fit even bolder Landscape Risk factors such as shape and scale; very highly modified scenic quality.

The CVLS term "integrity" is closely allied with the Scenic Integrity Levels used by the US Forest Service in *Landscape Aesthetics – A Handbook for Scenery Management* (United States. Forest Service. 1995). The distinction that sets the CVLS apart from the SMS is that the CVLS benchmark for the term "integrity" is, at all times, the natural or natural appearing landscape (similar to the BLM VRM). While this benchmark can potentially downgrade the rating of positive cultural modifications, it provides a necessary and consistent baseline measure for all aspects of change.

The CVLS establishes Objective Landscape Integrity targets (OLIs). These are established in two ways in the CVLS. The "default" OLI is a "bottom-up" method that

assigns OLIs based on present landscape values identified in the landscape inventory using Risk and Significance in a matrix to derive the OLI (Fig. 13). The bottom-up CVLS method is similar to the BCMOFR approach which derives recommended Visual Quality Class ratings for each VSU during a visual landscape inventory process. The hazard of this approach is that the existing levels (supply) of scenic conditions drive the demand levels for scenic conditions. For example, in an area of little current resource development and highly retained scenic conditions, the supply of visually retained or preserved landscapes becomes the default objective (demand) target.

By comparison, the CVLS top down approach sets targets for overall visual integrity in an area (in hectares) and derives a plan to achieve and sustain that objective over time (Fig. 2). The top down approach has not been applied in BCMOFR jurisdictions in British Columbia.

Figure 2. CVLS Objective Landscape Integrity Default Matrix

	R: Risk		
S: Significance	**1 High**	**2 Moderate**	**3 Low**
1 High	OLI Class 1 Very High	OLI Class 2 High	OLI Class 3 Moderate
2 Moderate	OLI Class 2 High	OLI Class 3 Moderate	OLI Class 4 Low
3 Low	OLI Class 3 Moderate	OLI Class 4 Low	OLI Class 5 Very Low

The bottom-up approach for selecting management objectives must be used cautiously, as it is influenced by the naturalness of current conditions. These qualities add value to the Significance rating in the Inventory and therefore tend to influence the OLI outcome in the matrix presented earlier. No determination will have been made at that point as to the appropriateness of a particular development, the costs or benefits of achieving the OLI-d (conducted in the Trade-off Phase), or the public support for the specific levels of landscape quality inferred by the OLI-d's in the sub-region or region overall or within a particular Landscape Unit (conducted in the Consultation Phase).

The "top-down" method provides for overall regional expectations for landscape quality. The initial targets are built "top-down" for the entire landbase first, then are applied by individual Landscape Units. The top-down initial planning target method can also be used to set area percent targets by Integrity Class for specific sections of the Sub-region. Target options might range from a prevailing "natural" appearance or a dominant "altered" appearance. Prior to final selection, the implications of the OLI-p's on resource development economics, engineering logistics, environmental considerations are examined in the Trade-off Phase, and public expectations are brought forward in the Consultation Phase.

UK Forestry Commission

In the United Kingdom, the Forestry Commission develops detailed plans for each forest landscape under its jurisdiction. It doesn't set visual quality objectives. Instead, general design guidelines are applied which frequently the result of public input and often follow the "Golden Rule", or "Rule of Thirds" - 1/3 develop; 2/3 retain. The Forestry

Commission in the United Kingdom produces mainly hand-drawn simulations, usually on photographs to emphasize their verbal description of design (1994). Lucas (1991) provides an excellent account of that manual design process. Recent development of a desk-top planning and visualization system that incorporates vegetation inventory, growth forecasting and economic data to produced fully integrated visual design of forest establishment and eventual felling was presented to the author during a visit to Edinburgh in 2000 (Ditchburn 2000). Some of the hand-drawn techniques of the Forestry Commission were directly adopted by the BC Ministry of Forests in the preparation of the Visual Landscape Design Training Manual (1995) which was largely the work of Simon Bell, Chief Landscape Architect of the Forestry Commission at that time.

Australia (Forestry Commission, Tasmania)

The State of Tasmania introduced a Visual Management System in 1983 (Forestry Commission of Tasmania 1983)which adapted the approach of the Forests Commission in the State of Victoria, and which originated form the system developed by the US Forest Service from 1968 to 1974. The systems uses distance-composite visual sensitivity zones to establish landscape priority zones which then are assigned recommended Landscape Priority at the Planning Level and Adopted Landscape Management Objectives at the Planning and Project Levels:

A Inevident Objective
B. Apparent Objective
C. Dominant Objective

Two additional objectives are provided: Reserve and Rehabilitation. Project Guidelines are developed for specific areas.

CCLRMP Visual Zonation

A draft zonation process was developed by the Tourism/Major Forestry Sector that would move away from polygon specific VQOs towards zones where visual management objectives and management standards would be achieved. The zonation plan has descriptors that equate quite easily with Visual Quality Class descriptions of the VLI. The zones along mid-coast inlets are quite large whereas the S2S is closer and more detailed. The zonation system could be considered in relation to the VSGs set out in the 2006 VLI Some details of the CCLRMP is presented in Appendix 6.

GEOptics

GEOptics, Ken Fairhurst's current Ph. D. dissertation research, offers another approach to landscape planning. Its aim is to map the cumulative viewing interaction (cumulative angle of visual incidence) to identify the variation in visual prominence of each piece of the landscape attributed to changing viewing perspectives of the stationary landscape. It

is thought that GEOptics approach may be more helpful to strategic and operational planning than VSU ratings alone. For example, topographic slope is a defining factor in BCMOFR VLI, whereas in GEOptics, it is how the slope is seen. Views which diagonally cross steep slopes which are deemed to have low visual absorption capability in the BCMOFR VLI may have a high degree of intervening screening capability due to the low angle of visual incidence and therefore are of low inherent risk of visual exposure or impact. As GEOptics is strongly tied to screening capacity, its greater resolution of the visual landbase will be tested for its utility and accuracy for guiding resource allocation, intensity and design, which may result in greater choice and flexibility in the visual landbase while meeting, or possibly replacing, visual quality objectives. The approach is currently being readied for testing with VRM experts and resource management professionals. It is anticipated (and hoped) that the pre-resolution of landscape surfaces will be an effective means for guiding resource development and protection with greater accuracy and efficiency than is currently afforded by standard VLI and subsequent visual impact assessment procedures.

The S2S database has been very generously made available to Ken Fairhurst for academic purposes for his GEOptics research.

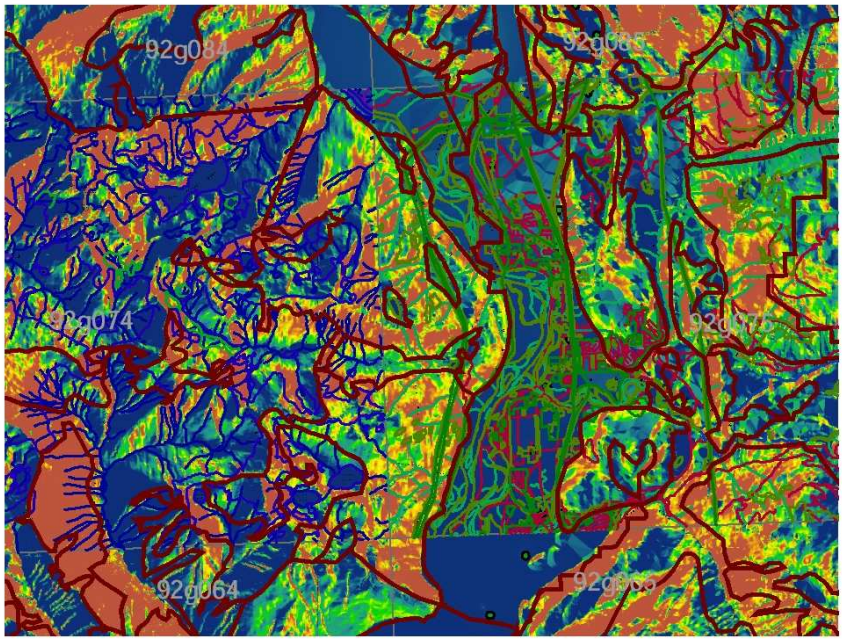


Fig. 3 GEOptics Output – Howe Sound Squamish Area - RDI2006 VLI overlay

Appendix 1 – Standards

STANDARDS FOR CLASSIFYING VISUAL SENSITIVITY UNITS – Summary of Tables
From VLI Manual
5.3 Existing Visual Condition (EVC)
11. Scale of Existing Alteration

Preserved	**P**	No visible human-caused alterations	**0%**
Retained	**R**	Human-caused alterations are visible but not evident	**0 - 1.5 %**
Partially Retained	**PR**	Human-caused alterations are evident but subordinate and therefore not dominant	**1.5 - 7 %**
Modified	**M**	Human-caused alterations are dominant but have natural appearing characteristics	**7 - 20 %**
Maximally Modified	**MM**	Human-caused alterations are dominant and out of scale	**20 - 30 %**
Excessively Modified	**EM**	Human-caused alterations are excessive and greatly out of scale	**>30%**

12. Influence of Visual Landscape Design

High	**Moderate**	**Low**	**N/A**
High (greater)	**Moderate**	**Low (lesser)**	**N/A**
square or angular in shape, contradicts or breaks natural lines of force causing tension, stark contrasting boundaries	some natural character reflected in design, major lines of force recognized some effort to mitigate contrast evident.	shape borrows from natural character of landscape, utilizes natural lines of force, boundaries are feathered and stratified to reduce contrast	no human-made alterations visible.

12. Types of Alteration (TA)

TA Code:	**Type:**
1	timber harvesting openings
2	road, rail transportation routes, airfields, etc.
3	power, seismic or pipeline corridors, etc.
4	mining, quarries, gravel pits, dumps, etc.
5	structural (bridges, dams, buildings, docks, floats, etc.)
6	agricultural
7	settlement
8	recreational use areas (ski hills, sites, trails, etc.)
9	aquaculture
10	other types of alteration (record type in the statement of rationale)

13. Influence of Site Disturbance

High (dominant)	Moderate	Low (Subordinate)	N/A
site disturbances dominate unit, with evidence of side-casting, may have erosion; high contrast cuts or fills, may contain a distinct 'zig zag' pattern or many parallel roads; and high visual contrast.	site disturbances begin to dominate unit, little or no evidence of side-casting or erosion.	site disturbances are subordinate to Visual Sensitivity Unit, no side-casting, landing or erosion evident.	no visible site disturbances

14. Influence of Vegetative Color and Texture

High (Strong)	Moderate	Low (Weak)	N/A
A. some ground may still be visible	**A.** roads and logging debris are still visible	**A.** new clearcuts, roads and/or mass wasting are still clearly visible	**A.** no existing alterations
B. regenerating forest is well advanced	**B.** cutblocks have a green hue	**B.** cutblocks have little new vegetation	**B.** no partial VEG of existing alterations
C. distinctions in height, color and texture remain between cutblocks and adjacent forest but cutblocks are no longer seen as recently cut over	**C.** vegetation plays a moderate rehabilitating role and may ameliorate effects of harvesting in a VSU within a Visual Quality Class	**C.** vegetation plays a small rehabilitating role in ameliorating effects of harvesting in a VSU	
D. vegetation plays a strong role and may ameliorate effects of harvesting in a VSU by at least one Visual Quality Class			

5.4 Visual Absorption Capability (VAC)

High	**H**	Landscape has high ability to absorb alteration and maintain its visual integrity
Moderate	**M**	Landscape has moderate ability to absorb alteration and maintain its visual integrity
Low	**L**	Landscape has low ability to absorb alteration and maintain its visual integrity

16. Slope

High (gentle)	(2) Moderate	(1) Low (steep)
less than 30%	30 – 60%	greater than 60%

17. Aspect

High (3)	Moderate (2)	Low (1)
north, northwest or northeast facing landscape slopes or flat topography for which aspect is not applicable.	Due east or due west facing landscape slopes.	` south, southwest or southeast facing landscape slopes.

18. Surface Variation

High (3)	Moderate (2)	Low (1)
high level of variety in topography (e.g. many hollows, knobs, benches and breaks in topography)	some variety in topography (e.g. some hollows, knobs, benches and breaks in topography)	little or no variety in topography (e.g. steep, uniform slopes

19. Rock/Soil/Vegetative Variety

High (3)	Moderate (2)	Low (1)
A. diverse variations in vegetation patterns	**A.** some variations in vegetation patterns	**A.** uniform, continuous vegetation cover
B. numerous natural or human-made openings in the tree canopy	**B.** some natural or human-made openings in the tree canopy	**B.** few natural or human-made openings in the tree canopy
C. weak or very little visual contrast between exposed rock/soil and vegetation	**C.** some visual contrast between exposed rock/soil and vegetation	**C.** strong visual contrast between exposed rock/soil and vegetation
D. diverse color/texture variations in vegetation, rock and/or soil	**D.** some color/texture variations in vegetation, rock and/or soil	**D.** little or no color/texture variations in vegetation, rock and/or soil
E. other	**E.** other	**E.** other

5.5 Biophysical Rating (BR)

High	**H**	Biophysical attributes have high visual interest and a high ability to attract viewer attention
Moderate	**M**	Biophysical attributes have moderate visual interest and a moderate ability to attract viewer attention
Low	**L**	Biophysical attributes have low visual interest and a low ability to attract viewer attention

21. Slope

High (3)	Moderate (2)	Low (1)
steep slopes (>60%)	moderate slopes (30-60%)	gentle slope (0-30%)

22. Aspect

High (3)	Moderate (2)	Low (1)
south, southwest or southeast facing slopes	due east or due west facing slopes	north, northwest or northeast facing slopes or flat topography

23. Edge

High (3)	Moderate (2)	Low (1)
edge is obvious, strong and is a major attraction; the viewers eye spends considerable time following the edge (e.g. complex, striking or dominant shore feature or skyline)	edge is less obvious and is a minor attraction; the viewer spends a moderate amount of time following the edge (features are not as complex or striking)	edge is weak, indistinct and provides minimal attraction; the viewers eye moves beyond the edge to other features

23. Type of Edge (TE)

A water/landform	E. land use/vegetation	I. rock/soil/vegetation
B. water/vegetation	F. land use/land use	J. landform/landform
C. water/land use	G. vegetation/vegetation	
D. land use/landform	H. skylines	

24. Topographic Variety

High (3)	Moderate (2)	Low (1)
A. single very distinctive feature (e.g. Hope slide a spectacular incised ravine)	**A.** single moderately distinctive feature (e.g. avalanche track broad shallow gully)	**A.** single non distinctive (subtle) feature (e.g. a small localized slide sweeping midslope bowl)
B. many features of the same type. (e.g. 4 or more topographic breaks/benches hierarchy of ridges)	**B.** some features of the same type (e.g. 2-3 topographic breaks/benches)	**B.** few features of the same type (e.g. 1 or no topographic breaks)
C. many features of different types (e.g. many hollows, knobs, benches, or breaks in topography)	**C.** some features of different types	**C.** few features of any type

25. Vertical Relief

High (3)	Moderate (2)	Low (1)
high vertical relief - over 800 meters	some vertical relief - rolling or inclined terrain - 200 - 800 meters	little vertical relief - under 200 meters

26. Vegetative Variety

High (3)	Moderate (2)	Low (1)
A. high level of variety in vegetative pattern	**A.** some variety in vegetative pattern, color and texture (e.g. mixture of conifers and deciduous)	**A.** vegetative cover that because of its absence of either continuity or variety has low visual interest
B. very uniform color texture and pattern	**B.** some uniformity in color and texture, makes the unit moderately sensitive to alteration	

27. Influence of Rock/Soil

High	Moderate	Low	N/A
Prominence **A.** unusual, outstanding or dominant natural rock or soil features; such as basalt columns or hoodoos	**A.** natural rock or soil features present, but not outstanding or dominant	**A.** natural rock or soil features are only slightly apparent	**A.** no rock or soil visible in the VSU
Pattern	**B.** rock or soil intermingled with	**B.** rock or soil intermingled with	

B. rock or soil intermingled with vegetation, in proportions that provide great variety in pattern, texture and color, and invoking high viewer interest	vegetation, in proportions that provide some variety in pattern, texture and color, and invoking moderate viewer interest	vegetation, in proportions that provide low variety in pattern, texture and color, and invoking low viewer interest. VSU is homogeneous in appearance	

28. Influence of Water

High	Moderate	Low	N/A
A. water has a high influence	**A.** water has moderate influence	**A.** water has low influence	**A.** no water present in, or adjacent to, the VSU
B. water features are dominant	**B.** water features are present but subordinate	**B.** water features are present but insignificant	
C. water is clear, clean or colorful	**C.** water is not clear or is somewhat turbid	**C.** water appears murky or is very turbid	

29. Influence of Adjacent Scenery **Note:** Water features are excluded from this rating

High	Moderate	Low	N/A
adjacent scenery and/or VSU has a strong influence on the assessed VSU. (i.e. may increase or decrease the overall scenic value or sensitivity of the unit)	adjacent scenery and/or VSU has some influence on the assessed VSU (i.e. may somewhat increase or decrease the overall scenic value or sensitivity of the unit)	adjacent scenery and/or VSU has little influence on the assessed VSU (i.e. does not increase or decrease the overall scenic value or sensitivity of unit)	no adjacent VSUs

5.6 Viewing Condition (VC)

High	**H**	Viewing condition has high influence on VSU sensitivity
Moderate	**M**	Viewing condition has moderate influence on VSU sensitivity
Low	**L**	Viewing condition has low influence on VSU sensitivity

31. Viewing Distance

3) High (foreground)	(2) Moderate (midground)	(1) Low (background)
0 to 1.0 km from viewer; maximum discernment of detail, texture and contrast	1.0 to 8.0 km from viewer; emergence of overall shapes and patterns, with some texture and color still evident	more than 8.0 km from viewer; outlines of general shapes and patterns, with little discernible texture and color, and strong sense of overall perspective

32. Viewing Frequency

(3) High (many)	(2) Moderate (some)	(1) Low (few)
five or more viewpoints or continuous viewing opportunity	three or four viewpoints or intermittent viewing opportunities	one or two viewpoints, glimpses or no specific viewing opportunities

33. Viewing Duration

(3) High (long)	(2) Moderate	(1) Low (short)
Land **A.** opportunity to travel towards or view a VSU for > 1 minute (e.g., communities, campgrounds etc.)	**Land** **A.** opportunity to view a VSU from a static viewpoint of a temporary nature for 10 seconds to 1 minute (e.g., highways rest stops)	**Land** **A.** opportunity to view a VSU is limited to glimpses of < 10 seconds
Water **B.** viewpoints on still waterbodies where people can stop/slow down to view scenic features or participate in recreation activities	**Water** **B.** viewpoints on slow moving waterbodies where people cannot stop without anchoring but have the time to scrutinize the VSU	**Water** **B.** viewpoints on fast moving waterbodies providing only passing, short view of the

34. Viewing Angle

(3) High	(2) Moderate	(1) Low
VSU immediately or directly in front of observer (focal)	VSU parallels travel corridor or is at right angles to observer (oblique/tangent)	VSU is at the periphery of observers vision

5.7 Viewer Rating (VR)

High	**H**	Numbers of viewers and expectations have a high influence on visual sensitivity
Moderate	**M**	Numbers of viewers and expectations have a moderate influence on visual sensitivity
Low	**L**	Numbers of viewers and expectations have a low influence on visual sensitivity

36. Number of Viewers

High (3)	Moderate (2)	Low (1)
A. large numbers of viewers relative to type of activity being pursued	**A.** moderate numbers of viewers relative to the activities being pursued	**A.** low numbers of viewers relative to the type of activity being pursued
B. 5,000 vehicles per day or 500,000 vehicles per year over a given highway e.g. Highway 99 Horseshoe Bay to Whistler	**B.** 1,000 vehicles per day or 100,000 vehicles per year. e.g. Highway 99 Whistler to Pemberton / Mt. Currie	**B.** 200 vehicles per day or 20,000 vehicles per year. e.g. Pemberton Meadow; Hwy 99 East of Mt. Currie; Anderson Lake Road
C. >5,000 users per year at a BCFS recreation site	**C.** 500 - 5000 users per year at a BCFS recreation site	**C.** 0 - 500 users per year at a BCFS recreation site
D. 1,000 kayakers per year	**D.** 200 kayakers per year	**D.** 50 kayakers per year
E. 1,000 hikers per year on a given trail	**E.** 200 hikers per year	**E.** 50 hikers per year
F. other	**F.** other	**F.** other

37. Viewer Expectations/Concerns

High (3)	Moderate (2)	Low (1)
A. scenic quality is of primary importance to the activity or experience pursued (e.g. kayaking, cruise ships, commercial tourism operations)	**A.** scenic quality is of secondary importance to the activity or experience pursued (e.g. sport fishing, BC Ferry passenger, highway traveler)	**A.** scenic quality is of little interest or importance to the activity or experience pursued (e.g. resource development activities such as logging, mining, fish-farming
B. majority of viewers have high expectations/concerns for visual quality	**B.** majority of viewers have moderate expectations/concerns for visual quality	**B.** majority of viewers have low or no expectations/concerns

5.8 **Visual Sensitivity Class (VSC)**

VSC is initially derived as a composite score of BR+VC+VR-VAC. The scoring system is provided and used on each VSU Classification Form

VSC Class	Description
1	**Very high sensitivity to human-made visual alteration. The area is extremely important to viewers. There is a very high probability that the public would be concerned if the Visual Sensitivity Unit was visually altered in any way or to any scale.**
2	**High sensitivity to human-made visual alteration. The area is very important to viewers. There is a high probability that the public would be concerned if the Visual Sensitivity Unit was visually altered.**
3	**Moderate sensitivity to human-made visual alteration. The area is important to viewers. There is a probability that the public would be concerned if the Visual Sensitivity Unit was visually altered.**
4	**Low sensitivity to human-made visual alteration. The area is moderately important to viewers. There is a risk that the public would be concerned if the Visual Sensitivity Unit was visually altered.**
5	**Very low sensitivity to human-made visual alteration. The area may be somewhat important to viewers. There is a small risk that the public would be concerned if the Visual Sensitivity Unit was visually altered.**

5.9 Additional parameters *(Optional)*

40. Years to VEG

5 years or less	**5 to 10 years**	**10 + years**	**N/A**

41. Visual Recovery

High	Moderate	Low
A. high site class	**A.** medium site class	**A.** poor or low site class.
B. evidence of deep, well-drained soils with adequate soil moisture, and/or vigorous vegetative growth	**B.** evidence of soils with some moisture deficient or poor drainage, and/or moderate vegetative growth	**B.** evidence of shallow soils with numerous bedrock outcrops, or boggy, poorly drained soils, and/or slow or chlorotic vegetative growth

42. Rehabilitation/Enhancement Opportunity (RH/EH)

Opportunity for Rehabilitation (RH)	Opportunity for Enhancement (EH)	N/A

Appendix 2: List of VSUs

VSA 1	**Eastside Howe Sound - Squamish -Tantalus Lookout - Cheakamus Canyon**	
VSG 1.1	***South Howe Sound Eastside to Watts Point***	
	100	***Strachan Creek -Montezambert-Charles-Turpin Cks. (St. Marks Peak excluded)***
	101	***Lions Bay - Mt Harvey - Brunswick Mtn. Southside - Shore and Highway Unit***
	102	***Brunswick Beach - Brunswick Point Shore and Highway Unit - Hat -Brunswick Mts.***
	103	***Brunswick Point Porteau Cove Furry Creek Southside - Shore and Highway Unit***
	104	***Furry Creek - Phyllis Creek Back Unit - north and west***
	105	***Phyllis Ceek Eastside - Capilano Mt. Westside***
	106	***Furry Ck. - Downing Ck. Backend west unit.***
	107	***Furry Creek Northside - Shore and Highway Unit. Shore to height of land.***
	108	***Minaty Beach Britannia Beach - Watts Point - Highway - Shore Unit***
	109	***Daisy-Thistle-Mineral Cks. - Britannia Ck. Southside***
	110	***Britannia Creek Southside***
	111	***Britannia Ck. Southside Backend***
	112	***Britannia Ck. at Marmot Ck. Backend***
	113	***Britannia Ck. - Mt. Sheep Backend***
VSG 1.2	***Northeast Howe Sound - Southeast Squamish***	
	115	***Goat Ridge Northside - Gonzales Ck. - Petgill Lake***
	116	***Highway Lookout to Diamond Head - Darrell Bay -Base of Chief***
	117	***Shannon Creek Southside - Copilot - Sky Pilot - Ledge Mts.***
	118	***Goat Ridge Northside - shannon Creek Southside***
	120	***main Squamish Valley to Base of Stawamus Chief (Chief excluded)***
	121	***Mt. Habrich -above Stawamus Chief (excluded) - north side Shannon Creek***
	122	***Stawamus-Mamquam Valleycliff (private lands not excluded)***
	123	***Stawamus east unit south of Mamquam***
	124	***Raffuse Creek Eastside south of Mamquam***
VSG 1.3	***Northeast Squamish - Brohm Ridge***	
	125	***Mamquam Eastside-Martin Creek***
	126	***Skookum-Mamquam Divide lower unit***
	127	***Skookum-Mamquam Divide upper unit***
	128	***Lower Mashiter Cr. Eastside***
	129	***Below Round Mtn. - Paul Ridge Westside-Southside below Park Bdry.***
	130	***Ranch Creek-Garibaldi Highland (private lands not excluded)***
	131	***Cheekeye-Brohm River-Brohm Lake highway unit***
	132	***Cheekye-Alice Ridge***
	133	***Upper Mashiter Ck. Northside (park area in upper landform excluded)***
	134	***Brohm Ridge South***
	135	***Cheekye River northside***
	136	***Diamond Head westside small unit (park area in upper landform to east excluded)***
	137	***Upper Brohm Ridge - Mt. Garibaldi (park area in upper landform excluded)***
	138	***Brohm River - Ridge North***
	139	***Lower Brohm Ridge Westside***
	140	***Brohm Lake - Brohm River West Hills***
VSG 1.4	***Tantalus Lookout - Cheakamus Canyon - Eastside - Cloudburst Mt. South***	
	141	***Hut-Evans Ridge (Tantalus VP Foreground)***
	142	***Hut-Evans Ridge (Tantalus VP Foreground)***
	143	***Highway -Tantalus Viewpoint - Swift Creek***
	144	***Highway - Culliton-Conroy Creeks***
	145	***Clinker Ridge - Culliton Creek northside***
	146	***Cloudburst South***

VSA 2 *Westside Howe Sound Squamish - Tantalus Range*

VSG 2.1 *Westside Howe Sound - Tantalus Range - Woodfibre*

200	*Ellesmere*
201	*Woodfibre Creek - Folger Creek*
202	*Upper Woodfibre Creek Westside*
203	*Roderick Eastside*
204	*Conybeare-Sedgwick*
205	*Woodfibre-Squamish landform*
206	*Mill Creek Eastside*

VSG 2.2 *Westside Squamish - Tantalus Range Mt. Murchison*

207	*Lapworth/Murchison - Monmouth Creek*
208	*Thyestes/Omega/Pelops*
209	*Squamish Valley*
210	*Alpha/ Lake Lovely Water Exclusion (Red Tusk, Pandaeus, Ionia)*
211	*Serratus Glacier/Tantalus/Dione/*
212	*Zenith*
213	*Pelion*

VSA 3 *Cheakamus-Whistler-Green River Area*

VSG 3.1 *Cloudburst Mtn.Northeast - Garibaldi - Daisy Lake - Callaghan Creek Westside*

300	*Cloudburst Mtn. Northeast, east-facing, mod-slopes, reaching to highway. G094-095.*
301	*Garibaldi, Lucille- Freeman Lks. East-facing hills behind Garibaldi. G095. 640-360m*
302	*Tricouni Peak, East-facing steep to mod. Slopes. Ridge unit. 092G094-J004. 2060-740m*
303	*East-facing Mt. Brew, upper Brew Creek. J004-G094-095. 2060m-460m. Focal from N.*
304	*Highway unit - Garibaldi - Pinecrest - Daisy Lake Westside - Brew Ck. 092G095-J005.*
305	*Pinecrest Backdrop. East-facing. G095-J005. 840-400m.*
306	*SW of upper Brandywine Ck. Ridges and e-facing bowl. J004. 1850m-1400*
307	*Mt. Fee, upper Brandywine Ck. Ridges, E-facing bowl. J004-5. 1960m-1000m.*
308	*Metal Dome - Dority Ck., west of Callaghan Ck. J005-015. 2000-960m.*
309	*Confluence of Brandywine and Callaghan Cks. J005. 980-540m.*

VSG 3.2 *Westside Cheakamus - Whistler - Green Lake*

310	*S- and W-facing focal northeast Callaghan-Cheakamus confluence unit. J005-015. 1640-520.*
311	*SW-facing mid-Callaghan Ck. Eastside - J015. 1640-780m.*
312	*North of Cheakamus River, west of Sproatt Ck. S-facing, above Tamarisk. 092J015.*
313	*Mt. Sprott -behind Alta Lake, east of Sprott Ck. Focal from Whistler village. 092J015.*
314	*W-side of Twentyone Mile Ck. Rainbow Falls. View from Nesters . J015-16.*
315	*Between Twentyone Mile Ck. and Nineteen Mile Ck. Above Alpine Meadows. J015-16.*
316	*Rainbow Mtn. s-facing 092J015, n. of Twenty-one Mile Ck. 2040-1280m.*
317	*Nineteen Mile Ck. Northeast 092J016. S-facing above (behind) Green Lake.1620m-860m.*
318	*Sixteen Mile Ck. Westside. NW-facing oblique J016. 1620m-720m*
319	*Sixteen Mile Ck. Eastside. S-facing focal above Hwy trav. N. J016. 1500m-660m*

VSG 3.3 *Soo River - Rutherford Creek - Green River*

320	*Green River Westside-Soo River Southside. J016-26. NE-E-facing. 1460-640m.*
321	*Soo River eastside. Upper S-facing ridges. J026. 1640m-760m.*
322	*Soo River northwest SE- and S-facing unit., parallels highway. J026. Rock feat.*
323	*Rutherford River southside. NE-facing focal trav. From north, and from Mt. Currie. J26-36.*
324	*Rutherford River north, Green River westside. J026-036.*

VSG 3.4 *Garibaldi - Daisy Lake - Callaghan Creek Eastside*

351	*South of Rubble Ck. (Ck. outside of landbase), Garibaldi Ck. 780-380=400m*
352	*Above VSU 351, South of Rubble Ck., Garibaldi Ck. 1380-780=800m*
354	*Daisy Lake eastside unit. South boundary at Rubble Ck. 092G095-J005*
355	*W-, NW-facing, below the Tusk which is an important feature in the area.N. of Rubble Ck.*

	356	*Hills unit E. of Cheakamus R. at confluence with Callaghan Ck., Daisy Lake eastside. 092J005.*
	357	*West-facing rolling-hills upper fringe unit east of VSU 356. 092J005.*
	358	*N-facing backslopes of Cheakamus R. Below Empetrum Ridge. J005-006.*
	359	*N.-facing unit south and west of Cheakamus R. at its bend, and highway. 1060-560. 092J005.*
VSG 3.5	*Eastside Cheakamus - Whistler - Green Lake*	
	360	*Whistler resort base area. Cheakamus R., Function Junction, to Nineteen Mile Ck. J005, 6, 016.*
	361	*North and west facing, east of Cheakamus R., above Tamarisk and Alpha Lake J005-006.*
	362	*Key visual, Whistler-Blackcomb ski areas. North and NW-facing; some NE facing. J006-16.*
VSG 3.6	*Eastside Nineteen Mile Creek - Soo River - Rutherford Creek - Green River*	
	363	*West-facing lower slopes of Wedge, and some e-facing. Green River to Nineteen Mile Ck.*
	364	*Wedge below park bdry. Wedge Ck. To Mystery Ck. Parkhurst and Rethel Mts. J016-026.*
	365	*Valley bottom highway unit, J016-26, Soo R. To confluence with Rutherford R. Knoll at Soo.*
	366	*Green River valley bottom unit, 520-380. Largely obscured by intervening veg. and topo. J026*
	367	*West face of Mt. Currie, South to Mystery Ck. S. portion excluded from Garibaldi Prov. Park*
	368	*NW-facing with Green River Canyon, Nairn Falls Prov. Park, J26-36.*
	369	*Westside of hill backdrop to One Mile Lk. J26-36. West-facing with some SE. 400m-240m.*
VSA 4	*Pemberton Valley - Joffre*	
VSG 4.1	*Pemberton Meadows Southside - Forestry Bridge - Ryan River - Miller Creek*	
	400	*isolated N. facing valley wall unit oblique view -J055*
	401	*isolated N. facing unit oblique view above valley J055*
	402	*isolated N. facing valley wall unit oblique view J055-45*
	403	*Upper unit N. of Ryan Ck. S and E facing - The Camel Back J035-45*
	404	*Valley wall unit NE and E facing N. of Ryan River - The Camel Back - J046*
	405	*Mt. Ross upper unit, ENE facing S. of Ryan Ck.- J046*
	406	*NE facing valley wall unit beyond switchbacks - oblique view -J046-36*
	407	*isolated small upper N-facing unit n. of Miller ck. - J036*
	408	*N. of Miller Ck. NE-E facing - valley wall- J036*
	409	*N. of south Miller Ck. Upland. Mt. Miller- J036*
	410	*between Miller-Pemberton Ck. Upland - N,E,S facing- J036*
	440	*Pemberton Meadows - flat- J036-46-55*
VSG 4.2	*Pemberton Valley Southside - Pemberton - Mt. Currie - Lillooet Lake*	
	441	*Valley Unit - Pemberton-Mt. Currie flat - J036-37*
	442	*Valley Unit - E. of Mt. Currie to Lillooet Lake flat*
	411	*S. of Miller Ck. Valley wall unit - NE facing - J036*
	412	*Pemberton Ck. NE-E-facing Valleywall unit above Pemberton- J036*
	413	*upper n. facing unit S. of Pemberton Ck- J036*
	414	*isolated upper n. facing unit S. of Pemberton Ck- J036*
	415	*Valley edge e. of one mile lake - hydo -Pemberton - n-facing- J037*
	416	*Mt. Currie W. & S. of Gravell Ck Valley edge to alpine - north facing - J027*
	417	*upper isolated north-facing unit E. of Gravell Ck. - J037*
	418	*NE facing Valley wall unit E. of Gravell Ck. (J027)*
	419	*NE-facing Valley wall unit NW. of Ure Ck. (J027)*
	421	*N-NW-facingValley wall to alpine unit E. of Ure Ck. Bastion Range(J028)*
	422	*Isolated NW-facing alpine unit E. of Ure Ck. Bastion Range(J027)*
VSG 4.3	*Pemberton Meadows Northside - Forestry Bridge - Ryan River - Miller Creek*	
	450	*isolated S. facing unit W. of Sampson Creek- J055*
	451	*mainly upper oblique S. facing unit W. of Railroad Ck., Handcar-Tender Mts.- J055*
	452	*Valley wall unit W. of Wolverine Ck. - S, SE facing- J055-56*
	453	*S-facing isolated upper unit- J056*
	454	*Copper Mound Thomson Ck.-Gingerbread Ck. (above forestry Bridge) - SW facing - J046-56*
	455	*Gamelin Ck.- Fraser Mt/ -SW facing valley wall to alpine - J036-46*
	456	*E. of Mackenzie Ck. SW-facing low unit - J036*

VSG 4.4	*Pemberton Valley Northside - Pemberton - Mt. Currie - Lillooet Lake - Joffre Eastside*	
	457	*SW-facing valley wall "Pemberton" unit - J036-37*
	458	*S-facing valley wall "Pemberton" unit - J037*
	459	*SE-facing upper unit above IVEY-Mosquito Lks.- J037*
	460	*E-facing unit W. of road to D'Arcy- J037*
	461	*S and E-facing valley wall unit W of Mt. Currie- J037*
	462	*S and N-facing combining South facing valley wall unit and Mt. Currie IR area- J037*
	463	*SW-facing valley wall unit and upper unit above NewSite - E of Birkenhead R. (J037)*
	471	*isolated S-SW-facing Lillooet Lake wall - alpine unit Twin Goat Mts. - J028*
	472	*isolated S-SW-facing Lillooet Lake wall - alpine unit Twin Two Pks.- J028*
	473	*Small Highway unit - W-facing - J038*
	474	*Highway to D'arcy unit N of Mt Currie variable visibility S-sloping- J037*
VSG 4.5	*Duffy Lake Road Westside (Highway 99) - Joffre Area*	
	464	*SE-facing unit along westside of Joffre Ck. - J038*
	465	*Mainly E-facing upper unit- Cassiope-Saxifrage Pks. Southside North Joffre Ck. J038-37*
	466	*isolated mainly E-facing upper unit- North Joffre Ck. back end- J038-48*
	467	*isolated S and E-facing upper unit- northside North Joffre Ck. back end- J038-48*
	468	*SE-facing unit along westside of Joffre Ck.at Cayoosh Pass - Joffre Lake Park - J038*
VSG 4.6	*Duffy Lake Road Eastside (Highway 99) - Joffre Area (rev. dir.)*	
	469	*Eastside Highway 99 Unit - Eastside Joffre Ck. - Mt. Taylor W-facing J038*
	470	*SW-facing east side Joffre Ck - Duffey Peak - Highway 99 switchbacks J028-38*
VSA 5	*Mt. Currie - Gates River - D'Arcy - Anderson Lake*	
VSG 5.1	*Mt. Currie - Birkenhead Turnoff Westside*	
	500	*NE-facing unit S of Owl Creek - J037 W of Highway to D'Arcy*
	501	*SE-facing Unit westside Birkenhead Riv. with S-facing part up Owl Creek northside - J037-47*
	502	*Highway unit, Birkenhead River - Poole Ck.Pemberton Pass SW of Gates Lk.- J047*
	503	*Westside Birkenhead Riv. E-facing opp. Spetch Ck. Some N-facing at N-end. - J047*
	504	*E-facing south of Birkenhead turnoff - J047*
VSG 5.2	*Birkenhead Turnoff - Gates Lake - Divine - Blackwater Creek Westside*	
	505	*SE-facing with some SW along Birkenhead River - Poole Ck.divide focal unit to Gates Lake.*
	506	*SE-facing Birkenhead Peak - Landsborough Ck. J047-57*
	507	*Highway Unit Gates River - lower SE-facing slopes below 506-508 to Halymore Ck.*
	508	*upper SE-facing dominant in view - J058*
	509	*upper small unit - J058 E-facing above 507 - J058*
VSG 5.3	*Blackwater Creek - D'Arcy - Anderson Lake Westside*	
	510	*E-facing D'arcy unit - J058*
	511	*E and S-facing unit above 510 and oblique along N-side of Blackwater Ck*
	512	*Isolated upper S-facing unit - N of Blackwater lk. Cadwallader Range J057-58*
	513	*SE-to-SW bowl -D'Arcy Ck. Above D'arcy - Cadwallader Range - J058*
	514	*Isolated oblique upper - J057 Birkenhead Valley Unit E of B-Lk*
	515	*Highway - D'Arcy valley bottom unit - to Anderson Lk. - J058 - much screening*
VSG 5.4	*Blackwater Creek - D'Arcy - Anderson Lake Eastside (rev. direction)*	
	520	*W-facing upper unit - Cayoosh Range - J058*
	521	*NW-facing unit S of Halymore Ck. J058-48*
VSG 5.5	*Birkenhead Turnoff - Gates Lake - Divine - Blackwater Creek Eastside (rev. dir)*	
	522	*NW-facing unit above Divine, S. of Spruce Ck. J058-48*
	523	*SW and W-facing unit Nequaque Pk E and Mt. Marrott of Seven Mile Ck - J048*
	524	*E. side of Eight Mile Ck. W-facing oblique view - J048*
	525	*Gates Lake - N-facing - J047*
	526	*Large upper NE-facing unit Place Glacier - Gates Peak W. of Eight Mile Ck.*
VSG 5.6	*Mt. Currie - Birkenhead Turnoff Eastside (rev. Dir)*	
	527	*Lower eastside unit Birkenhead Valley W-facing*
	528	*Eastside Birkenhead River valley W-Facing upper unit N of Spetch Ck. - J047*
	529	*W-facing unit eastside Birkenhead River S. of Spetch Ck. J037*
	530	*Birkenhead River - E-W-facing roadside unit - J037*

Appendix 3 VSU Attributes

VSU_RDI	EVC_06	VAC_06	BR_06	VC_06	VR_06	VSC_06	rVQC	Area
100	PR	M	H	H	H	2	PR	801.71382
101	PR	M	H	H	H	2	PR	1112.5418
102	R	M	H	H	H	2	PR	1253.2269
103	PR	M	H	H	H	2	PR	2198.2532
104	M	M	H	M	M	3	PR	427.80481
105	R	M	H	M	M	3	PR	33.232212
106	P	L	M	M	M	3	PR	38.901629
107	PR	M	H	H	H	2	PR	698.1514
108	M	M	M	H	H	2	PR	545.63923
109	PR	M	M	H	H	2	PR	1035.6597
110	PR	L	M	H	H	2	PR	918.76719
111	P	M	M	L	M	3	PR	105.80175
112	P	L	M	L	M	3	PR	37.403168
113	P	M	M	L	M	3	PR	42.153917
115	PR	M	M	M	M	3	M	482.13598
116	PR	L	M	H	H	2	PR	355.05408
117	PR	M	M	M	L	3	M	454.37997
118	PR	M	M	M	L	3	M	256.19532
120	M	M	M	H	H	2	PR	3879.0139
121	PR	M	M	M	H	3	PR	800.60097
122	PR	M	M	H	H	2	PR	526.84963
123	PR	M	M	M	H	3	PR	1294.0394
124	M	M	M	M	M	3	M	698.40383
125	M	M	M	M	M	3	M	222.71927
126	MM	M	M	M	M	3	M	424.29545
127	M	M	M	M	M	3	M	292.61678
128	R	M	M	M	M	3	PR	439.79549
129	M	M	M	M	M	3	PR	1184.9883
130	PR	M	M	M	H	3	R	776.04836
131	M	M	M	H	M	3	PR	496.31155
132	M	M	M	H	M	3	PR	591.83024
133	M	M	M	H	M	3	PR	289.08917
134	M	M	M	H	H	2	PR	1028.3817
135	P	L	H	H	H	1	R	166.2329
136	R	M	M	H	H	2	PR	36.470969
137	P	L	M	H	H	2	R	281.91871
138	M	M	M	H	H	2	PR	706.37335
139	PR	M	M	M	M	2	PR	210.15076
140	PR	M	M	H	M	3	PR	206.48149
141	R	M	M	H	H	2	R	1023.0588
142	R	M	M	H	H	2	R	751.75331
143	PR	M	M	H	H	2	PR	541.74704
144	PR	M	M	H	H	2	PR	552.42423

VSU_RDI	EVC_06	VAC_06	BR_06	VC_06	VR_06	VSC_06	rVQC	Area
145	R	M	M	M	M	3	PR	631.38621
146	MM	M	H	M	M	3	M	1170.3916
200	PR	M	H	H	M	2	PR	1668.3823
201	M	M	H	H	M	2	PR	2000.7705
202	P	M	M	L	M	3	PR	245.94442
203	PR	M	H	M	M	3	PR	542.25446
204	P	M	M	M	M	3	PR	522.88389
205	EM	M	H	H	H	2	PR	952.18109
206	PR	M	M	M	H	3	PR	448.3089
207	EM	M	H	H	H	2	PR	1709.314
208	PR	M	H	H	H	2	PR	2391.0058
209	PR	H	L	L	M	4	M	1147.0272
210	R	M	H	H	H	2	R	1161.939
211	R	M	H	H	H	2	R	1632.6986
212	R	M	H	H	H	2	R	895.41069
213	R	M	H	H	H	2	R	329.27497
300	PR	M	M	H	M	3	PR	1627.3174
301	PR	M	M	M	M	3	PR	317.97195
302	PR	M	H	M	M	3	M	620.11393
303	MM	M	H	M	M	3	PR	2081.4465
304	PR	M	M	H	M	3	PR	2181.9302
305	PR	M	M	H	M	3	PR	302.27201
306	P	M	H	L	L	3	M	413.57867
307	R	M	H	L	L	3	M	497.23915
308	M	M	H	M	H	2	PR	805.77192
309	M	M	H	H	H	2	PR	328.5484
310	M	M	H	H	H	2	PR	912.92853
311	M	M	H	M	M	3	PR	358.51264
312	PR	M	H	H	H	2	PR	710.74275
313	PR	M	H	H	H	2	R	865.02784
314	PR	M	H	H	H	2	PR	231.99859
315	PR	M	H	H	H	2	R	896.72312
316	P	M	H	H	H	2	PR	459.26034
317	M	M	H	H	H	2	R	666.73522
318	M	M	M	L	M	3	M	304.0826
319	PR	M	M	H	H	2	R	728.07692
320	PR	M	M	H	M	3	PR	786.24986
321	P	M	H	L	M	3	M	263.99501
322	R	M	M	H	M	3	PR	518.82432
323	R	M	M	H	M	3	PR	777.47265
324	M	M	H	H	M	2	PR	1337.063
351	M	M	M	H	H	2	PR	568.89219
352	EM	M	M	H	H	2	PR	307.48478
354	M	M	M	H	H	2	R	544.2595
355	M	M	M	M	H	3	PR	1248.9173
356	M	M	M	M	M	3	PR	1261.1989
357	P	M	M	L	M	3	PR	98.557236

VSU_RDI	EVC_06	VAC_06	BR_06	VC_06	VR_06	VSC_06	rVQC	Area
358	P	M	M	M	M	3	PR	284.50933
359	PR	M	M	H	H	2	PR	650.6735
360	M	M	M	H	H	2	PR	3115.7378
361	M	M	M	H	H	2	R	982.15428
362	M	M	H	H	H	2	PR	4203.766
363	PR	M	M	H	M	3	PR	577.55746
364	M	M	M	H	M	3	PR	1280.7227
365	PR	M	M	H	M	3	PR	880.60793
366	R	H	M	L	M	4	M	441.56467
367	PR	M	H	H	M	2	PR	2043.3253
368	PR	M	M	H	M	3	PR	187.49076
369	R	M	M	H	M	3	PR	103.59719
400	PR	M	H	L	L	3	M	557.72463
401	PR	M	H	L	L	3	M	292.9319
402	M	M	H	L	L	3	M	667.04079
403	R	M	M	L	L	3	M	999.63548
404	M	M	H	L	L	2	M	763.25268
405	M	M	H	L	L	2	M	1331.0788
406	M	M	M	M	L	3	M	1913.5108
407	M	L	H	L	L	3	M	58.113171
408	PR	M	M	M	L	3	M	1137.0457
409	M	L	M	L	L	3	M	435.96351
410	P	L	M	L	L	3	M	1334.9458
411	R	M	M	H	M	2	PR	614.0183
412	R	M	M	H	H	2	R	463.92094
413	M	L	M	L	L	3	M	414.26898
414	P	L	M	L	L	3	M	385.6593
415	PR	M	M	H	M	3	PR	133.67422
416	PR	M	H	H	M	2	PR	3345.056
417	P	M	H	H	M	2	PR	634.00943
418	PR	M	H	H	M	2	PR	1749.79
419	PR	M	H	H	M	2	PR	760.40404
421	PR	M	H	L	L	3	M	1774.4103
422	P	M	L	L	L	4	M	74.15417
440	M	H	L	M	M	4	M	3751.3083
441	M	H	L	M	M	3	M	3139.2576
442	R	H	L	M	M	4	M	1056.0727
450	PR	M	H	L	L	3	M	545.00515
451	M	M	H	L	L	3	M	2282.4137
452	P	M	H	M	L	3	M	854.31039
453	P	M	M	L	L	4	M	149.91959
454	R	M	H	M	L	3	M	2246.9007
455	PR	M	H	M	L	3	M	3409.7965
456	PR	M	M	L	L	4	M	237.27026
457	PR	M	H	H	M	2	M	786.86603
458	PR	M	M	H	M	3	PR	194.16037
459	PR	M	M	H	M	3	PR	415.6819
460	PR	M	M	M	L	3	M	211.90808

VSU_RDI	EVC_06	VAC_06	BR_06	VC_06	VR_06	VSC_06	rVQC	Area
461	PR	M	M	H	M	3	PR	377.75726
462	PR	M	M	H	M	3	PR	1894.848
463	P	M	H	H	M	2	PR	2248.4282
464	M	M	M	L	M	3	M	1521.1681
465	P	M	H	L	M	3	M	690.74265
466	P	M	H	L	M	3	M	203.33855
467	P	M	H	L	M	3	M	198.14141
468	P	M	H	M	M	3	PR	660.85785
469	M	M	M	M	M	3	M	821.6947
470	PR	M	H	M	M	3	PR	1872.7623
471	PR	M	H	L	L	3	M	489.32013
472	PR	M	H	L	L	3	M	1178.2049
473	PR	M	L	L	M	4	M	30.91569
474	PR	M	M	M	L	3	M	268.69119
500	PR	M	M	M	L	3	M	470.61558
501	PR	M	H	M	L	3	M	1524.6576
502	MM	M	M	M	L	3	M	832.0562
503	PR	M	H	M	L	3	M	859.90291
504	PR	M	M	M	L	3	M	405.37055
505	M	M	M	M	L	3	M	1253.4738
506	PR	M	H	M	L	3	M	1062.4733
507	M	M	L	M	L	4	M	1181.6816
508	PR	M	H	M	L	3	M	814.23973
509	PR	M	M	L	L	4	M	280.2791
510	M	M	M	H	M	3	PR	263.52979
511	PR	M	M	M	M	3	M	426.17424
512	R	M	H	H	M	2	PR	649.91176
513	M	M	L	M	M	3	PR	796.22368
520	M	M	H	H	M	2	PR	1502.8696
521	M	M	M	H	M	3	PR	963.75657
522	M	M	H	M	L	3	M	1969.3811
523	M	M	H	H	L	3	M	817.09154
524	PR	M	H	H	L	3	PR	355.61942
525	M	M	M	H	M	3	PR	711.92814
526	R	M	H	H	M	2	PR	1627.7493
527	R	M	M	M	L	3	M	400.67482
528	R	H	H	L	L	4	M	850.89158
529	PR	H	H	M	L	3	M	996.43287
530	MM	M	M	M	L	3	M	249.27429

Appendix 4 VSU Classification Forms (under separate cover)

Appendix 5 Viewpoints – Video Records

VP	Video	Type	Value	VSUs	Comment
1	191	w pan		406 407 408 440 455	nonVEG
2	190	w pan		408 455 456	nonVEG
3	192	w pan		455	good
4	188	w pan		412 411 410, 407, 414	
4	258	p	*	457, 458, 461 , 416, 418	near Mt. currie
4	660	se			Pemberton valley
4	661	s		410, 411, 412, 413	
5	183	wn		412, 415	Pemberton northside
5	185	ws		412, 415, 416	
5	260	e-moving-s	*	408, 411	Mt. Currie. 415 (p-line)
6	189	w pan	*	455, 457, 416, 411, 410, 408. 409?	McEwan's Farm
7	182	n same as 181		457, 458, 461, 463 One Mile Lake	
7	320	s		374, 416	
7	321	s-moving-e	*	416, 369?	7, 8, similar
8	181	n-moving-ne		457, 458, 461, 463 One Mile Lake	
8	321	s-moving-e		416, 368, 369	see also vp 48
9	396	s-moving-sw			
9	440	n-moving-new		462, 463, 418, 460, 501	Mt. Currie - Gates
9	441	e		463, 474	
9	443	n-moving-nw?			
9	666	s		416, 418 high alt. detail in both units	
10	316	w-moving		461	Owl Creek
11	317	w-moving-n		457, 458, 459, 461	
11	318	s		416	
11	319	w-moving-ns		412, 410, 408, 457, 458 461	
11	435	e-moving-ns		461, 416	west of Pemberton
11	438	e-moving-ns			west of Pemberton
12	313	s		418, 416 off highway	Mt Currie Blocks
12	400	e-moving-s		418	
12	401	e-moving-s		418	
12	404	s		418 close	
13	193	w pan	G	403, 404, 405, 406, 454, 455	
13	664	P	G	403, 404, 405, 406, 454, 455	
14	194	w		454-455 moving	
14	195	w pan		404, 405, 406, 455	
15	196	w pan	VG-N	451, 452, 453, 454	
16	197	w-still	P	404 obscured	
16	665				
17	311	n		462, 463, 470	IR unit
17	407	e-moving-n		462, 463, 470	
17	408	e-moving-n		463, 470, 471	north landforms, incl. IR
18	410	e-moving-n		463, 470, 471	
18	411	w-moving-n		463	up to Newsite
18	418	delete as 410 e-m-n			
18	420	delete as 410 e-m-n			Rodeo Grounds
19	262	e-moving-ns	*	470, 421	Lillooet Lake
19	307	w-moving-s		419, 418	At Lillooet Lake - long
19	308	w-moving-n		463	causeway
19	421	e-moving-n		463, 470	
20	263	w-moving-n		463, 464	Duffy Lake Road

VP	Video	Type	Value	VSUs	Comment
	20 303	delete		463, 418	
	20 304	delete			
	20 305	e		462 Newsite close-up	
	20 306				
	21				
	22 275	w	*		464 Duffy Lake Road
	22 277	n-moving-e	*		469 Duffy Lake Road-e
	22 297	delete as 275			
	22 300	s-moving-w			464
	23 280	p		464, 468, 469	upper Joffre
	23 281	e			469 upper Joffre
	23 294	e			469
	23 295	s-moving-e	*		469
	23 296	s-moving-w		464 alt	south and west view Duffy
	24 282	n-moving-w			468 upper Joffre
	24 293				south and west view down Duffy
	25 283	n-moving-w	*		468 upper Joffre
	25 285	dir?			east unit out of district
	25 291	s-moving-w	*	464, 465, 468 BASE	upper Joffre
	25 292	S	*		469 eastblocks Joffre
	26 286	n-moving-ew			Joffre west - not needed
	26 287	w			Joffre Park parking lot
	26 288	still			top of Joffre
	26 289	sw			top of Joffre
	26 290	s-moving-w		464, 465, 466, 467, 468	upper Joffre
	27 412	w-moving-n	*	463, 462 Newsite	
	27 414	e-moving-nes		463, 462	
	28 395	s-moving-s		460, 416	approaching Mt. Currie
	28 447	p	*	459, 500, 501, 504, 403	Owl Creek Pan
	28 448	n-moving-w	*	501 grav. Pit	
	29 393	s-moving-s		530, 500	
	29 394	s-moving-w		500, 501, 530 grav. Pit, p-line	near Owl Ck.
	29 449	w		501, 530 grav. Pit	Gravel Pit
	30 451	p-e		530, 529	by tracks
	30 452	n-moving-we		501, 530	focal
	30 453	p	*+	500, 501, 529	open west view, east
	30 454	n-moving-we		530 (p-lines), 529, 528, 501	rock feat in 501; p-lines in 530
	30 455	n-moving-e			529 p-lines
	31 389	s-moving-e		529 - p-lines	
	31 390	s-moving-w	*		501
	31 456	n-moving-w			501 westview
	31 457	p		501, 502, 529	hydro both sides in 502
	31 459	n-moving-we		501, 502, 503, 529	529 rock feat.
	31 460	n-moving-we			529 rock feat. and hydro
	32 388	w	*	503, 504, 505(cut?)	river
	32 462	w			503
	32 463	n-moving-w		503, 504, 505(cut), 506	feature cut
	33 386	s-moving-w			503 ^ cut
	33 387	s-moving-w			503
	33 465	w	**	501, 503, 504, 505(cut)	
	34 385	s-moving-w	*	503, 504	
	34 468	p	*	503, 504, 505, 506, 527	tracks focal big patch on 505
	34 469	n-moving-w		505, 506, 527, 526	focal big patch on 505

VP	Video	Type	Value	VSUs	Comment
	34 470	n-moving-ew		505, 506, 526	
	35 382	s-moving-we		502, 526	
	35 383	s-moving-w		504, 503	
	35 471	p		505, 526	505 bare face by road
	35 473	n-moving-w		505, 506 Birkenhead Pk. feature mtn.?	
	36 380	w		505 brief	brief at tracks
	36 474	n-moving-w		506	
	36 475	p		505	modif
	37 379	s-moving-w		505	longterm view w
	37 477	n-moving-w		505	modif
	37 478	p		523, 524, 525, 526	Gates VP
	37 669	e	**	523, 524, 525, 526	Gates VP p-line
	38 375	s-moving-w		505	screen
	38 376	w		505	
	38 378	s-moving-w	*	507, 505	Gates Lake-west
	38 479	n-moving-e	*	523, 524, 525, 526	
	38 484	e		525, 526	tracks
	38 485	w			screen
	39 374	s-moving-w		506	screen
	39 487	p			tracks
	40 371	w		508	red trees
	40 372	p		522, 523, 508 red trees on mtn.w	tracks Mt. Currie in dist?
	40 670	p			Gates
	41 493	n-moving-en	g	522, 520	
	42 335	n-moving-e	g	522	Gates - Farm
	42 367	s-moving-we	g	506, 508, 522	Birkenhead Mt. view
	43 336	p		522, 506, 508, 509 (glimpse)	at tracks
	43 337	n-moving-w		507	screen; small w. knoll
	43 363	del.			
	43 366	s-moving-ew	g	522, 508, 506	(Birkenhead Mt)
	44 338	e		520, 521, 522	Birkenhead turnoff
	44 339	n-moving e	g	520, 521	
	44 671	e	g	520,521,522	D'Arcy definitive cuts
	45 342	p		510	tracks
	45 351	s-moving-w		510	brief
	45 358	s-moving-E		521?	glimpse - cut
	45 359	s-moving-E		521-522	cut in distance
	46 346	p	g	520, 521, 522, 510	IR
	46 348	p		dup 346	IR
	46 675	s-moving-e		513, 520, 521, 522	cuts D'Arcy
	47 345	p	g	520, 513, 510, 512	Anderson Lake VR
	47 674	w		510, 511, 512	Anderson Lake
	48 321	s-moving-e		368, 367, 416	leaving Pemberton -s
	49 434	n		368, 457	approaching Pemberton
	50 198	sw		324, 368	Rutherford - rock feature
	50 199	se		368, 367	Rutherford
	51 200	s-mov-w		324, 365, 323	Rutherford 323 MM
	51 433	n		368,369,324	towards Pemberton
	52				
	53 173	pan		324, 367, 323	Rutherford 324 looks M
	53 174	pan		324, 367, 323	same
	53 201	se		365, 367	at transformer - nonVeg
	53 323	s-moving-e		367	

VP	Video	Type	Value	VSUs	Comment
	53 324	s-moving-e			367
	54 172	new		367, 322, 324	
	54 203	se	*	367, 365	sunny, focal, "R"
	54 325	se	*	366, 367, Park	good shot
	55 170	nw		322, 367, 324	Rutherford in dist.
	55 171	n-move wen		322, 324, 367	Rutherford hill in dist.
	55 204	sw		322, 365	focal, "R"
	55 430	n-mov-enw		367, 322, 324	focal to Rutherford Hill
	56 169	n-mov-w		322, 321	Soo rock
	56 426	ne			focal
	57 167	n		361, 365	focal E
	57 168	n-mov-enw		361, 322, 324	focal 361
	57 206	w	*	320, 322, 365	focal, long view down hill
	57 427	n-mov-en		322, 367	good to 324
	58 166	p		320, 365	Soo, screened
	58 207	se			364 glimpse
	60 210	se	**	363-364, Park	long character scene, focal - nonVEG
	60 328	se	*	363-364, Park	eastside "R" elevated
	61 329	se		363-364, Park	nonVEG
	62 253	n-mov-e	*	363, 364, Park	easide moving view - VEG
	62 423	n-mov-e?		370, 317, 316	north of Whistler
	63 211	sw			318 Sixteen Mile 318-long view
	63 250	ne		363, 364, Park	Wedge - focal, nveg
	63 251	new		363, 364, 319	Wedge - focal, nveg. Plus westside
	63 330	sw		318, 317, 315	long drive, alt.
	64 212	s-mov-e		360; Wedge	Green Lake, "PR"
	64 213	se			Green Lake, "PR", glimpses of "M"
	64 249	nw		360, 319	Alpine, focal hill
	65 242	ne			Green Lake
	65 243	ne			Green Lake
	65 331	sw		317, 315	long drive, screening, patches
	66 215	se			Blackcomb-Whistler
	66 332	se			pre-Whistler
	66 592	w-side n		360, 362, Wedge	westside of lake
	66 594				
	67 217	s-mov-e	**		362 Blackcomb-Whistler
	67 333	se			362 Whistler
	68 238	new		315, 317, 319	Nesters - long scene
	68 334			362, Wedge	Whister Village
	68 566	w from subdiv	*		whistler west
	68 568	w			whistler west
	68 569	w			whistler west
	69 570	s			poor shot
	70				
	71 234	w			Whistler village
	72 580	n			Whistler westside trav. N
72N	577	pan	*	313, 360, 361, 362	Northside VP above Nita Lake
	72 581	wn			Alta Lake Park
	72 584	pan		313, 362, 361	Alta Lake Park
	73 589	westside - n	*		westside
	73 590	w			313 rainbow trail
	74 233	w			313 Whistler village
	75 230	n-mov-e		360, 361, 362	Whistler approach

VP	Video	Type	Value	VSUs	Comment
	75 596	sw		313, 360	Alpha Lk/ w; 313 p-line
	76 228	w		310, 312, 313	Spring Creek Subdivision/School
	76 597	sw		310, 312, 313, 303	screened views w. Function Junction
	77 598	sw		310, 303, 306, 307, 300	focal to Mt. Brew.
	78 223	ne	*	356, 359, 362	nonVEG, to Whistler (first sighting)
	78 600	sew		359, 356, 357, Tusk, 308-309	eastside - jumpy
	79 218	nw		310, 311	Cheakamus-Callaghan
	79 603	sw		303, 304, 309, 308, screen	Metal Dome and Mt. Brew; patches 304
	80 604	se		355, Tusk	Tusk; MM cut
	82 161	ne			356 Daisy Lk. glimpses
	83 158	w-still		305, 303,	Pinecrest
	83 160	ne			356 focal - non veg in winter
	83 496	pan	*	305, 304, 354, 355	Pinecrest-Black Tusk
	84 156	pan		354, 355, 351, 352	Pinecrest - e
	84 157	nw	*	305, 303	long character scene by river
	84 497	s-mov-w		305, 303	Pinecrest
	85 151	ne		354, 356	Daisy Lk.
	85 152	new		303, 305, 354, 356	north focal and Daisy
	85 153	ne		354, 356	Daisy Lake, glimpses of "M"
	85 154	pan		354, 355, 303, 305	Pinecrest
	85 498	s		300, 301, 304	Cloudburst Mtn.
	85 499	se		354, 351, 352	Daisy. M in 351-2
	86 148	nw		303, 302?	glimpse near bridge
	86 149	nw			354 focal burn near Daisy Lake
	86 150	ne			354 glimpse to Daisy
	86 500	s		300, 304, 351, 352	Cloudburst Mtn.
	87 146	ne			354 focal, PR and burn
	87 501	sw	*	300, 301, 304	Cloudburst Mtn.
	88 144	n			304 screening, near Garibaldi
	88 145	nw		302, 303, 304	glimpse through trees
	88 502	s			Cheakamus
	89 142	n			Cheakamus River
	89 143	nw			Cheakamus River
	89 503	s-mov-w	*		300 Cheakamus
	90 140	n			
	90 141	nw			Cheakamus Canyon
	90 504	s-e			144 Cheakamus
	90 505		360 **	300, 144, 145	Viewpoint, P-line R
	91 137	n			Cheakamus Canyon
	91 138	n			Cheakamus Canyon
	92 136	n			Cheakamus Canyon
	93 135	ne			Cheakamus Canyon
	94 134	ne			lodge
	94 507	sew			144 lodge
	95 133	ne			Culliton Br.
	95 508	s-mov ew		144, 143	Culliton Br.
	96 132	ne			eastside and Cloudburst
	97 129	w			Upper Tantalus viewpoint
	97 131	nw			moving near Tantalus VP
	97 509	ew		141, 142, 143	Evans-Tantalus
	97 510		360 **	141, 142, 210, 211, 212	main VP "Evans-Tantalus"
	97 511	n			300 Cloudburst close-up
	97 512	s-mov-e			143 main VP "Evans-Tantalus", p-line; s

VP	Video	Type	Value	VSUs	Comment
98	128	ne		139	Cheakamus Sidehill
99	127	ne	*		Cheakamus Sidehill
99	513	w		131	approaching Brohm Lake
100	126	n			Brohm Lake, Cloudburst
100	514	s-mov-ew		131, 134	Brohm Lake
101	125	n-mov-e	*	131, 134	Brohm Lake
102	100	nw			focal
102	102	ne			Britannia
103	518	s-mov-e		131	park turnoff, Brackendale
104	609		360	8 208, 210, 211, 212, 213, 214, 215, 216, 217, 147,	Airport - west views
105					
106					
107	519	s-mov-ew	**	130, 120, 122, 208	Squamish view
108	117	n-mov-e		130, 128, 129, 124, 123, 124, 125, 126, 127	S2S Hotel
108	119	n-w			Squamish
109	520	s			Squamish
109	522	s			Squamish
110	114	w			Squamish high detail - pinnacle
110	523	s			Squamish
111	525		360 **		Smoke Bluffs
111	527		360		Smoke Bluffs - east views
112	524		360		Starbucks
113	636	p			Docks
114	637	s-mov-ew		open Brohm views	Howe Sound
115	110	w	*		Darrell Bay dock
116					
117	656	p			Howe Sound
118	532	s			Murrin (Browning) Lake
118	533	s			west to Woodfibre
119	638	p			Howe Sound
120	639	p			Sound
120	640	p			Howe Sound
120	641	p			Howe Sound
121	534	s			approaching Britannia from N
122	102	ne			Britannia-e
122	103	nw			Britannia to west
122	105	nw - mov			Britannia to west
122	535	s-e			Britannia
122	535	s-e			Britannia
122	608	s			Britannia - west
123	642	p			Howe Sound
123	655	p			Howe Sound
124	100	nw			focal w. units
124	101	ne			approaching Britannia
125	653	p			Howe Sound
127					
128	644	p			Howe Sound
129	645	p			Howe Sound
130	98	ne			Furry Ck.
131					
132	96	nw	**		Porteau
133	646	p			Howe Sound
134	94	n-e			descent to Porteau

VP	Video	Type	Value	VSUs	Comment
134	95	n			hill before Porteau
134	539	s			s of Porteau
135	647	p			Howe Sound
136	91	n-w			focal to w-side
136	540	s			s of Porteau
137	648	p			Howe Sound
138					
139	649	p			Howe Sound
140					
141	86	n-e			Lions Bay - east
142	87	n-e			Lions Bay - east
143	88	n-e			Lions Bay - east
143	544	s-still			stopped -close-up
143	547	s-still			east detail
143	556	n-still			n at stoppage
143	557	s			character
143	558	w			silhouettes
143	560	w - pan			on arbutus point off highway
143	562	w			sunset
144	650	p			Howe Sound
144	651	p			Howe Sound
144	652	p			Howe Sound
145					
146					
147	85	n			Lions Bay
148					
149	84	n			Horsehoe Bay

Appendix 6 Conference Exposure

Ken Fairhurst is presenting a paper of the findings of the S2S VLI at the International Symposium on Society and Resource Management June 4 in Vancouver BC.

Visual landscape strategy options for the Vancouver to Whistler corridor in advance of the 2010 Olympic winter games

Kenneth B Fairhurst (University of British Columbia, Forest Resources Management, Canada)

Presented in:
Aesthetic Quality, Preferences and Benefits
Monday June 5th at 4:00pm - 5:30pm, Room: Buchanan A104

The 2010 Winter Olympics will bring world-wide attention to Vancouver and Whistler, and heightened scrutiny of the scenic, mountainous, forested landscapes along the highway that links these two main Olympic venues. Visual landscape inventories have been used to guide resource development along the route since as early as 1991. The author is currently updating and amalgamating those inventories, following current (1997) British Columbia Ministry of Forests and Range standards and procedures. The author is also examining and advising the Ministry on visual landscape strategy options. Forest industry representatives, feeling the tightening influence of the Olympics, are concerned that there may be increasingly restrictive visual quality objectives applied which may severely curtail economic operations. They argue, instead, that a new approach is warranted to provide increased flexibility in response to their implementation of best practices for visual management, such as integrated visual design and variable retention silvicultural systems. These procedures have effectively reduced the visual impacts of commercial-scale timber harvesting compared with conventional forest practices when the inventories were originally conducted. Visual landscape strategy options are briefly examined, including those of the US Bureau of Land Management, US Forest Service, UK Forestry Commission, and the author's Visual Landscape System developed for the oil sands mining area of Alberta. The author's Ph.D. dissertation research on a refinement of conventional landscape inventory will also be discussed. Termed GEOptics, the approach is used to map a derivative of the cumulative angle of visual incidence using digital terrain modelling. The findings of the analysis of options will be presented.

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Session: Forum on Visual Resource Management Practices and the Practitioner

Session Abstract: Visual resource decisions have an important impact on widespread social, economic and environmental values. These "visual" values are highly integrated with community values, generally. VRM practitioners have many opportunities to develop and conduct management and planning activities for resource protection, addition of value, and/or loss mitigation. Inadequate or misplaced VRM practitioner effort may result in deterioration of visual values that has direct and negative effects on local economies, the environment, and public trust in the natural resource administration process. Existing landscape assessment and evaluation methods were reviewed in 2005 by the Macaulay Land Use Research Institute (http://www.macaulay.ac.uk/ccw/task-two/evaluate.html), providing a good foundation for discussion, including the enduring debate regarding descriptive inventories vs. public preference methods vs. quantitative holistic techniques. To focus the discussions, the panel will consider: 1) if current practices and regulatory mechanisms are on track, relevant, and satisfactorily integrated at the decision and implementation tables; 2) if the right people and organizations are at the table; 3) if participants with new skills, education, and professional credentials are needed; 4) a blueprint for future initiatives for managing visual resources that ensures an effective role for the VRM practitioner; 5) opportunities for dialogue, cross-pollination, and processes between academics and practitioners; and 6) opportunities for systematic objective research and post project evaluation.

Format: Panel and Roundtable Discussion

Organizers: Kenneth B. Fairhurst, RPF, President, RDI Resource Design Inc / Ph.D. Candidate, Department of Forest Resources Management, University of British Columbia

Session Discussants: (If applicable)
Oliver Lucas, Planning Manager, Peninsula Forest District, the Forestry Commission of Great Britain
Stephen R. J. Sheppard, PH.D., ASLA, Associate Professor, Dept. of Forest Resources Management/Landscape Architecture Program Management, University of British Columbia, Vancouver
Brent Ingram, Ph.D., Associate Dean for Campus Development, Ras Al Khaimah, UAR, and Assoc. Professor of Environmental Science and Policy, Office of the Provost, George Mason University, Washington, DC; Principal, side stream environmental design, Vancouver
Brad Cownover, Chief Landscape Architect (to be confirmed), "National Visual Resource Mgt. Lead/ National BLM Byways Lead, U.S. Dept. of Interior Bureau of Land Management National Recreation Group (WO250)"
Terry Slider, Regional Landscape Architect, U.S. Dept. of Interior, Forest Service
Pat Caughey, FASLA, ASLA President-Elect; Principal, ASLA; Wimmer Yamada Caughey, San Diego, USA
David Miller, Ph.D., Professor, The Macaulay Institute, Landscape Change Programme, Aberdeen United Kingdom

Time and Location: Tuesday Ju at 1:45pm - 3:15pm session, Room 32

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Appendix 7 CCLRMP Visual Zonation Process

Table 6-1: Visual Management Zone Descriptions and Prescriptions

Visual Zone	General Objective	Alteration Guideline	Max Alteration	Management Standards
Wild Zone	The intention of this zone is to ensure the perception of wilderness. This means that a wild scenic experience is sought whereby visually unaltered landscapes predominate.	* Very high proportion of landscape continuum in a wild appearance condition. * Low proportion of landscape continuum in very carefully altered visual state. * Innovative, visually sensitive harvesting techniques are encouraged.	2%	• Visual design assessment using digital terrain modeling to be completed for developments proposed in visible areas. • Maintain continuous and effective shoreline buffer (while still permitting careful installation of shoreline facilities and access infrastructure like log dumps that are designed to minimize visual impacts). Low impact, not visually apparent selection hand logging permitted along shoreline. • Intention is to maintain the visual experience over time. To ensure this, visually effective greenup periods will be implemented and monitored to achieve the General Objective of the zone. Agreement between the forestry and tourism operators will be established for logging operations between June 15 – September 15.
Natural Variability Zone	Visual alterations in keeping with natural visual experience where activities blend with landscape and do not readily alter visual experience.	* High proportion of landscape continuum in naturally appearing condition. * Low proportion of landscape continuum in carefully altered visual state.	5%	• Visual design assessment to be completed for developments proposed in visible areas. • Continuous shoreline buffer with minor gaps maintained. Low impact selection hand logging and limited, water based highlead logging permitted along shoreline. • Practical timing windows for active logging operations may be established in consultation with tourism operators.
Landscaped Forestry Zone	Aesthetically pleasing scenic experience where activities are evident but subordinate. Design of alterations to create impression of careful and respectful land use.	* Majority of landscape continuum in naturally appearing condition. * Low proportion of landscape continuum in readily visible but carefully altered visual state. * Development evident throughout zone but subordinate.	8%	• Visual design assessments to be completed for developments proposed in visible areas. • Continuous shoreline buffer with minor gaps maintained. Low impact selection hand logging and limited, water based highlead logging permitted along shoreline.
Special Viewscape	Manage specified facility based viewscape to maintain or improve visual quality.	* Maintain or improve visual quality through time. * Establishment of specific activities within viewscape to be done collaboratively with the agreement of operators.	By agreement based on existing level of disturbance of the forest in the facility's viewscape.	• Visual design assessment using digital terrain modelling to be completed for developments proposed in visible areas. • Involve the interested stakeholder in the development of the visual design prescription. • Agreement between the forestry and tourism operators will be established for logging operations between June 15 -September 15.

Appendix 6 - 4

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