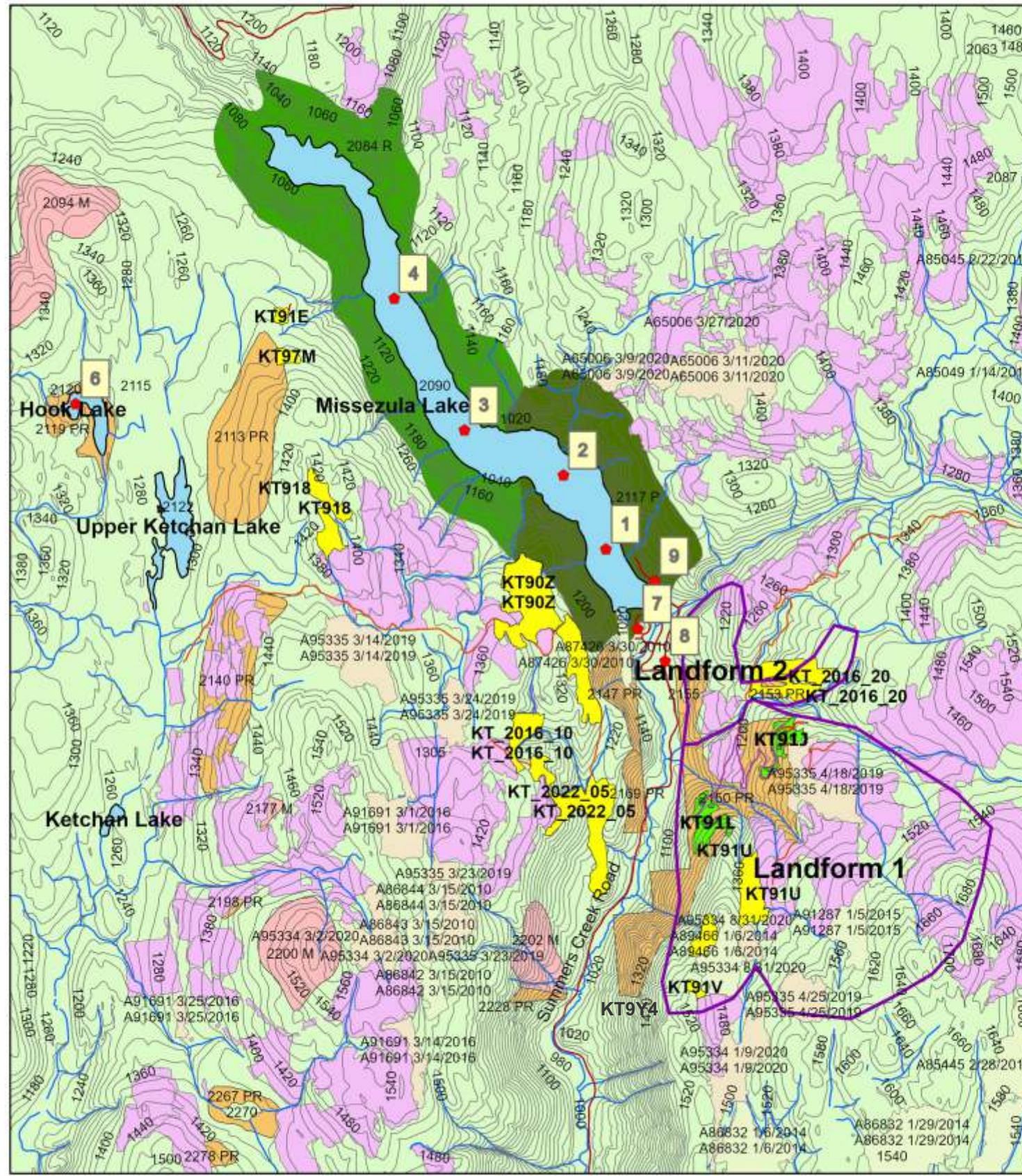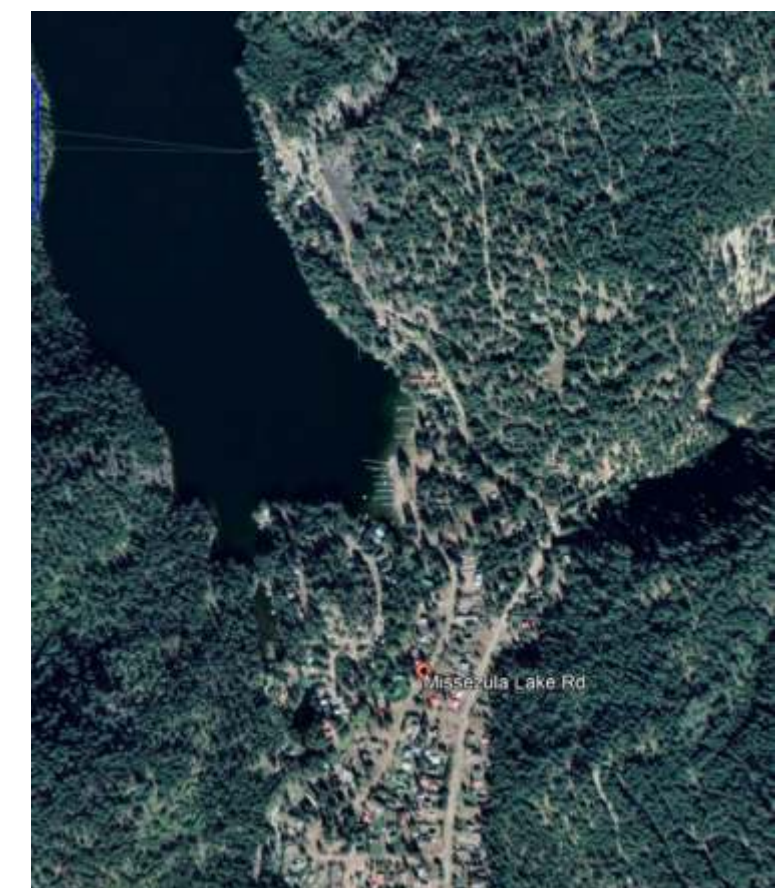Ketchan Visual Assessment
RDI Resource Design Inc
May, 2023

- ● Ketchan_Viewpoints
- ● landmark_feature_0
- — road_segment_1
- — road_segment_1
- — road_segment_1
- — road_segment_1
- — TRIM_Contours_20m
- — Proposed_Roads
- — Existing_Roads
- — watercourse_1
- — water_linear_flow_1
- — watercourse_1
- ▢ Harvested_2010-2015
- ▢ Harvested_2016-2020
- ▢ Ketchan_Block
- ▢ Ketchan_Harvested_Blocks
- ▢ WTRA
- ▢ Missezula_Lake
- ▢ Hook Lake
- ▢ Upper_Ketchan_Lake
- ▢ Ketchan_Lake
- ▢ Export_Output

EVQO_CD

- ▢ M
- ▢ P
- ▢ PR
- ▢ R
- ▢ KetchanGRD
- ▢ waterbody_2
- — Ketchan_Roads_KT91J_KT91L
- ▢ Ketchan_UpdatedBlocks_KT91J_KT91L
- ▢ Ketchan_UpdatedInternals_KT91J_KT91L
- ▢ Ketchan_Block_2021_ExportFeatures
- ▢ Harvested_2016_ExportFeature
- ▢ Harvested_2010_2015_ExportFeature
- ▢ Ketchan_Landfo_ExportFeature

Google Earth Image 2021

N

Kilometers
0 0.5 1   2   3   4

Visual Impact Assessment - TSL TA2081 - Ketchan 2023
Cut Blocks KT91J, KT91L, KT91U, KT91V, KT9Y4, KT_2016_20 (NVS)

1

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3	Summary Report
4	VIA Summary Tables
5	Viewpoint 1 Simulations; Visual Force Analysis
6	Viewpoint 1 Percent Alteration
7	Viewpoint 2 Simulations
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Contents

Background

Bradley White, RPF, Planning Forester, BCTS, Kamloops Business Area, requested that RDI conduct a visual impact assessment under contract number PD23TEB097 for TSL A2018 on February 10, 2021 for Mathieu Charbonneau, Practices Forester, Merrit Field Unit. Mathieu assembled the visuals project files for the Ketchan chart in the Merritt TSA. The Mathieu files also contained scattered existing FTEN openings, proposed roads, existing alteration, and WTRA's. There were no recent non-greened-up openings, subject to on-site inspection. A80199 (2009) and A68078 (2002) are assumed to have visually effective greenup (VEG) given the extensive period for regrowth.

A total of 6 cutblocks were included for the assessment on the east side of Summers Creek near the south end of Missezula Lake: **Cut Blocks KT91J, KT91L, KT91U, KT91V, KT9Y4, KT_2016_20 (NVS)** . A 2021 VIA prepared by RDI also looked at 6 cutblocks on the west side of Missezula Lake and Summers Creek. These had no influence on the east-side landscape and were not further addressed herein.

RDI created an ArcGIS Pro project file with blocks, roads, existing cutblocks, etc. RDI acquired a 3-D digital elevation model (DEM), hydrology, and additional roads from Maps Canada Convec site. Roads and road names were also acquired from Convec. RDI used the Visual Landscape Inventory area and the current forest VRI from our archive. No photography was available for interpretation, but would be added to the report and assessed if provided.

The 20m DEM was entered into Visual Nature Studio along with the cutblock data and viewpoints for simulation. RDI established 7 viewpoints from which generate visual simulations using Visual Nature Studio. Four viewpoints were placed along the lake from the south end northward (Vp's 1-4), and three potential viewpoints were placed on roads within the community of Missezula Lake (Vp's 7-9). Preliminary simulations were produced from each viewpoint, noting which cutblocks were visible, if any, and the degree of visual apparency. Two landforms were identified with the help of viewshed analysis for the landscape influenced by the cutblocks on the east side only. Visual Landscape Inventory was imported from RDI's archive and portrayed along with all other data in the ArcMap key map presented on page 1 of this document. Both landforms contained a single visual sensitivity unit - VSU 475 (VLI # 2150) which has an established Visual Quality Objective (VQO) of Partial Retention. The VSU provides incomplete visual coverage of the landscape seen from the viewpoints. RDI extended the VQO assigned in the VLI to the remaining area of the visible landforms. Only Landform 1 contained visible cutblocks. Landform 2 has no visible openings. KT_2016_20 is Landform 2 but is not seen (NVS).

The results from the 2021 analysis indicated that KT_2016_23 would be dominant in the views. BCTS responded with a much-reduced opening size and much reduced apparency with varied boundaries and internal WTRA's. The block was renamed KT91L.

Results

RDI produced simulations using Visual Nature Studio from each of the viewpoints. Viewpoint 7 and 8 required double width views to encompass the landforms with 45 degree field of view (42mm) lens. RDI didn't have the benefit of photography to assist in the analysis. Percent alteration calculations were produced from 2 viewpoints: VP1 at the south end of Missezula Lake (7.42% perspective alteration - 0.42% above the PR limit), and VP7 at the top end of Prospect Drive (4.51% alteration - 1.49% below the upper limit for PR). The detailed percent alteration calculations are presented on the respective pages in this report. All other viewpoint provided less open viewing but are presented on their respective viewpoint pages in the report for ease of comparison. The adjacent table indicates the visibility of each cutblock from each viewpoint.

The 2022 VIA Handbook includes procedures for numerical adjustment factors to initial VQC category of alteration as per FPPR Sec 1.1 Categories of Altered Forest to determine if "Well met, Met, Inconclusive, Not Met, or Clearly Not Met". The same numerical adjustment is also used in the FREP Visual Quality Effectiveness Rating procedure. RDI has been applying the FPPR/FREP approach in many of its VIAs since 2015 and is pleased to see this addition to the formal VIA process. The table on page 45 (Appendix 1) placed the numerical ranges of the 2001 VIA Guidebook alongside FPPR Scale definitions "to help put parameters around the notion of scale". They are described on page 23 as "a reasonable predictor" but subordinate to the ocular estimate, and "Most Probable Percent Landform Alteration in Table 2, p. 25. See next page for RDI's application of the procedure for viewpoints 1 and 7, referencing pages 23 to 37 of the Handbook.

The 2022 VIA Handbook includes procedures for numerical adjustment factors to initial VQC category of alteration as per FPPR Sec 1.1 Categories of Altered Forest to determine if "Well met, Met, Inconclusive, Not Met, or Clearly Not Met". The same numerical adjustment is also used in the FREP Visual Quality Effectiveness Rating procedure. RDI has been applying the FPPR/FREP approach in many of its VIAs since 2015 and is pleased to see this addition to the formal VIA process. The table on page 45 (Appendix 1) placed the numerical ranges of the 2001 VIA Guidebook alongside FPPR Scale definitions "to help put parameters around the notion of scale". They are described on page 23 as "a reasonable predictor" but subordinate to the ocular estimate, and "Most Probable Percent Landform Alteration in Table 2, p. 25. See next page for RDI's application of the procedure for viewpoints 1 and 7, referencing pages 23 to 37 of the Handbook.

The Partial Retention Visual Quality Class consists of 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.

Application of the adjustment factors resulted in the final percent alteration from Viewpoint 7 of 4.08% (well within the PR limit) and 6.98% from Viewpoint 1 (at upper PR limit). Considering the two measures for VQO achievement of 1) the verbal definition (the primary determining factor) and 2) the adjusted percent alteration, the VQO of PR is "well met" from Viewpoint 7 and "met" from Viewpoint 1. The key achievement in meeting the VQO is the design of KT91L with reduced scale, highly varied boundaries and very substantial WTRA's.

Ken B. Fairhurst, PhD, RPF
RDI Resource Design Inc
May 18, 2023

Cutblock Visibility, by Viewpoint							
	VP 1	**VP 2**	**VP 3**	**VP 4**	**VP 7**	**VP 8**	**VP 9**
KT91J	V	V	V	V	V	nvs	V
KT91L	V	V	nvs	nvs	V	V	V
KT91U	V	V	nvs	nvs	V	nvs	V
KP9Y4	V	V	nvs	nvs	V	V	V
KT91V	V	V	nvs	nvs	V	nvs	V
KT_2016_20	nvs	nvs	nvs	nvs	nvs	nvs	nvs

V = visible from viewpoint; nvs = not visually sensitive (i.e., not seen from viewpoint)

APPENDIX 1: VISUAL IMPACT ASSESSMENT SUMMARY FORM

(To be completed from each viewpoint analyzed)
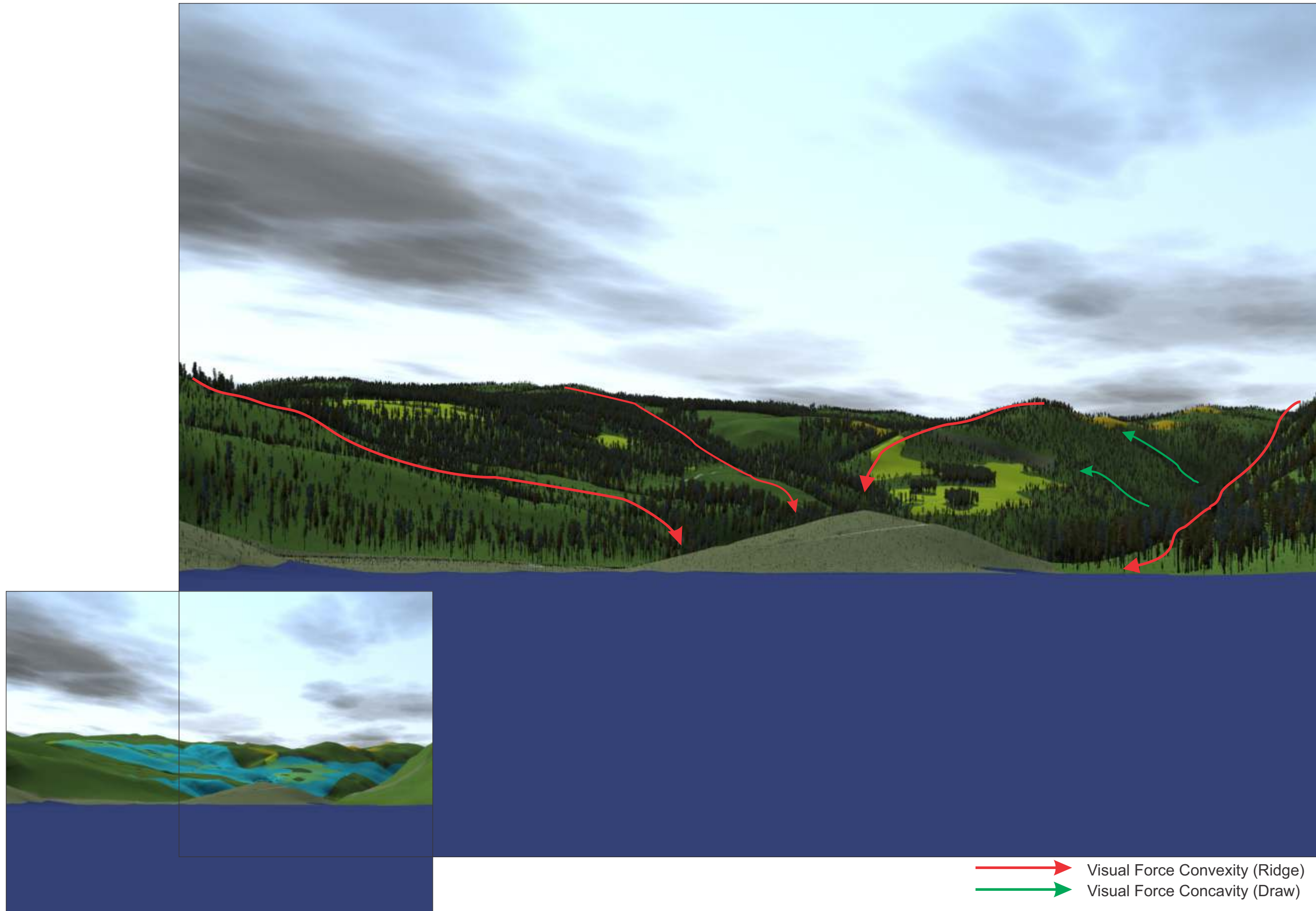
Viewpoint Number **VP1** of _____

3.1.1 Site Information (Office)	
Natural Resource District _____	Licensee _____
General Location __Ketchan__	Licence No. _____ CP No. _____ Block _____

3.1.3 FSP & Objective Information (Office)	
VLI Polygon No. __2150__ EVC____ VAC____ VSC____ EVQO __PR__	Date Est. _____ Source Document _____

3.2.1 Viewpoint (Field)	3.2.2 Photography (Field)
GPS Longitude _____	Camera Make & Model _____ Lens Focal Length _____
GPS Latitude _____	Sensor Crop Factor _____ Adjusted Focal Length _____
Elevation (m) _____	Digital Photo ID No's: _____
Viewing Direction _____ Viewing Distance __2890m__	Viewpoint Description __Missezula Lake__
Viewpoint Importance: (1) (2) 3 4 5	

3.4.1 Assess Basic VQC (Ocular)

Alterations meet which VQC definition? Mark location on the scale:

Basic VQC: P R   PR   M   MM

|-+-|---|--X--|------|------→

Category of Alteration Criteria

1. not easily distinguishable, difficult to see, easy to see or very easy to see
2. very small, small, medium, large, or very large in scale
3. natural in appearance angular in appearance, rectilinear or geometric.

3.4.2 Numerical Assessment Initial VQO (Simulation)   VLH P23

a) % of landform altered by proposed openings	7.4%	
b) % of landform in access roads (outside openings)	n/a	
c) % non-VEG contribution of existing openings	n/a	
X = (a+b+c) __7.4%__ % alteration	**Initial VQO:**	__PR+__

3.4.4 Partial Cut Alterations

Proposed Partial Cutting % removal	N/A
Average tree height (m)	_____
Clearcut equivalent %	_____
Enter or add this value on line 3.4.2(a)	

3.4.3 Assess Adjusted VQO (Simulation)   VLH P26-29

Design Elements:	G (-1)	M (0)	P (+1)
Response to visual force lines	-1		
Borrows from natural character	-1		
Edge treatments incorporated		0	
Distance from the viewpoint		0	
Position on the landform		0	
Number, Size and Spacing of Alterations	-1		
a) Design	Adj. Factor	-3	
b) Impact of roads, sidecast, etc. (within openings)			
[X] none ☐ subordinate ☐ significant ☐ dominant	Adj. Factor	0	
c) Tree retention: ☐ Good ☐ Moderate ☐ Poor	Adj. Factor	0	
Total adjustment: Y = (a+b+c) WTRA Netted Out of %Alt	Adj. Total	-3	
Calculate Adjusted % alteration:	X*(1 + 0.14*Y) =	6.98%	

Adjusted VQC: P R   PR   M   MM

|-+-|---|--X--|------|------→

%alt: 0   1.5   4   7   12   18   24   30+

3.5.1 Determine VQO rating on landform
(**Note:** The definition is the primary determining factor.)

☐ **Well met** — Definition achieved; % alteration well within VQO range

[X] **Met** — Definition *achieved*; % alteration may be near boundary or in excess of VQO range

☐ **In-conclusive** — Definition on class boundary, % alt. may be in excess of VQO range.

☐ **Not met** — Definition *not achieved*; % alteration may be near boundary or within VQO range

☐ **Clearly not met** — Definition *not achieved*; % alt. in excess of VQO range

3.5.2 Rationale

Evaluated By: __K. B. Fairhurst__ Signature: _____	Date: __May 18, 2023__

Viewpoint Number **VP7** of _____

3.1.1 Site Information (Office)	
Natural Resource District _____	Licensee _____
General Location __Ketchan__	Licence No. _____ CP No. _____ Block _____

3.1.3 FSP & Objective Information (Office)	
VLI Polygon No. __2150__ EVC____ VAC____ VSC____ EVQO __PR__	Date Est. _____ Source Document _____

3.2.1 Viewpoint (Field)	3.2.2 Photography (Field)
GPS Longitude _____	Camera Make & Model _____ Lens Focal Length _____
GPS Latitude _____	Sensor Crop Factor _____ Adjusted Focal Length _____
Elevation (m) _____	Digital Photo ID No's: _____
Viewing Direction _____ Viewing Distance __1960m__	Viewpoint Description __Top End of Prospect Drive__
Viewpoint Importance: 1 (2) 3 4 5	

3.4.1 Assess Basic VQC (Ocular)   VLH P23

Alterations meet which VQC definition? Mark location on the scale:

Basic VQC: P R   PR   M   MM

|-+-|--X--|------|------|------→

Category of Alteration Criteria

1. not easily distinguishable, difficult to see, easy to see or very easy to see
2. very small, small, medium, large, or very large in scale
3. natural in appearance angular in appearance, rectilinear or geometric.

3.4.2 Numerical Assessment Initial VQO (Simulation)   VLH P26-28

a) % of landform altered by proposed openings	4.51%	
b) % of landform in access roads (outside openings)	n/a	
c) % non-VEG contribution of existing openings	n/a	
X = (a+b+c) __4.51%__ alteration	**Initial VQO:**	__PR__

3.4.4 Partial Cut Alterations

Proposed Partial Cutting % removal	N/A
Average tree height (m)	_____
Clearcut equivalent %	_____
Enter or add this value on line 3.4.2(a)	

3.4.3 Assess Adjusted VQO (Simulation)   VLH P26-29

Design Elements:	G (-1)	M (0)	P (+1)
Response to visual force lines	-1		
Borrows from natural character	-1		
Edge treatments incorporated		0	
Distance from the viewpoint		0	
Position on the landform		0	
Number, Size and Spacing of Alterations	-1		
a) Design	Adj. Factor	-3	
b) Impact of roads, sidecast, etc. (within openings)			
[X] none ☐ subordinate ☐ significant ☐ dominant	Adj. Factor	0	
c) Tree retention: ☐ Good ☐ Moderate ☐ Poor	Adj. Factor	0	
Total adjustment: Y = (a+b+c) WTRA Netted Out of %Alt	Adj. Total	-3	
Calculate Adjusted % alteration:	X*(1 + 0.14*Y) =	4.08%	

Adjusted VQC: P R   PR   M   MM

|-+-|-->|------|------|------→

%alt: 0   1.5   4   7   12   18   24   30+

3.5.1 Determine VQO rating on landform
(**Note:** The definition is the primary determining factor.)   P37

[X] **Well met** — Definition achieved; % alteration well within VQO range

☐ **Met** — Definition *achieved*; % alteration may be near boundary or in excess of VQO range

☐ **In-conclusive** — Definition on class boundary, % alt. may be in excess of VQO range.

☐ **Not met** — Definition *not achieved*; % alteration may be near boundary or within VQO range

☐ **Clearly not met** — Definition *not achieved*; % alt. in excess of VQO range

3.5.2 Rationale

Evaluated By: __K. B. Fairhurst__ Signature: _____	Date: __May 18, 2023__

VIA Summary Forms

RDi Resource Design Inc

Visual Force Convexity (Ridge)
Visual Force Concavity (Draw)

Viewpoint 1 Simulation (Missezula Lake)

Percent Alteration Viewpoint 1 (Missezula Lake)		
Name	AREA2	% Alt
Landform 1	263319.34	
KT91L	3721.06	1.41%
KT91L	9962.16	3.78%
WTRA (deduct)	1448.78	-0.57%
KT9Y4	762.23	0.29%
KT9Y4	471.21	0.18%
KT91V	285.61	0.11%
KT91J	3029.10	1.15%
KT91J	778.45	0.30%
KT91U	532.48	0.20%
Sum Alt	19542.31	7.42%

VSU 475 - VLI # 2150 - Partial Retention VQO

Viewpoint 1 Percent Alteration - (Missezula Lake)
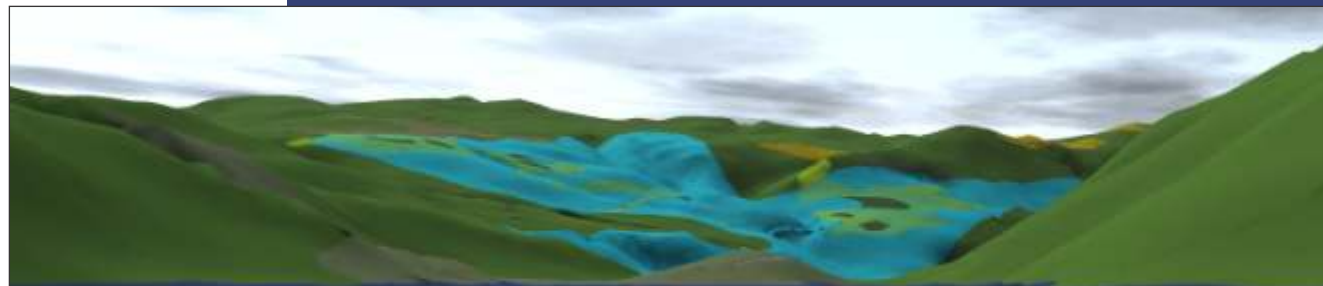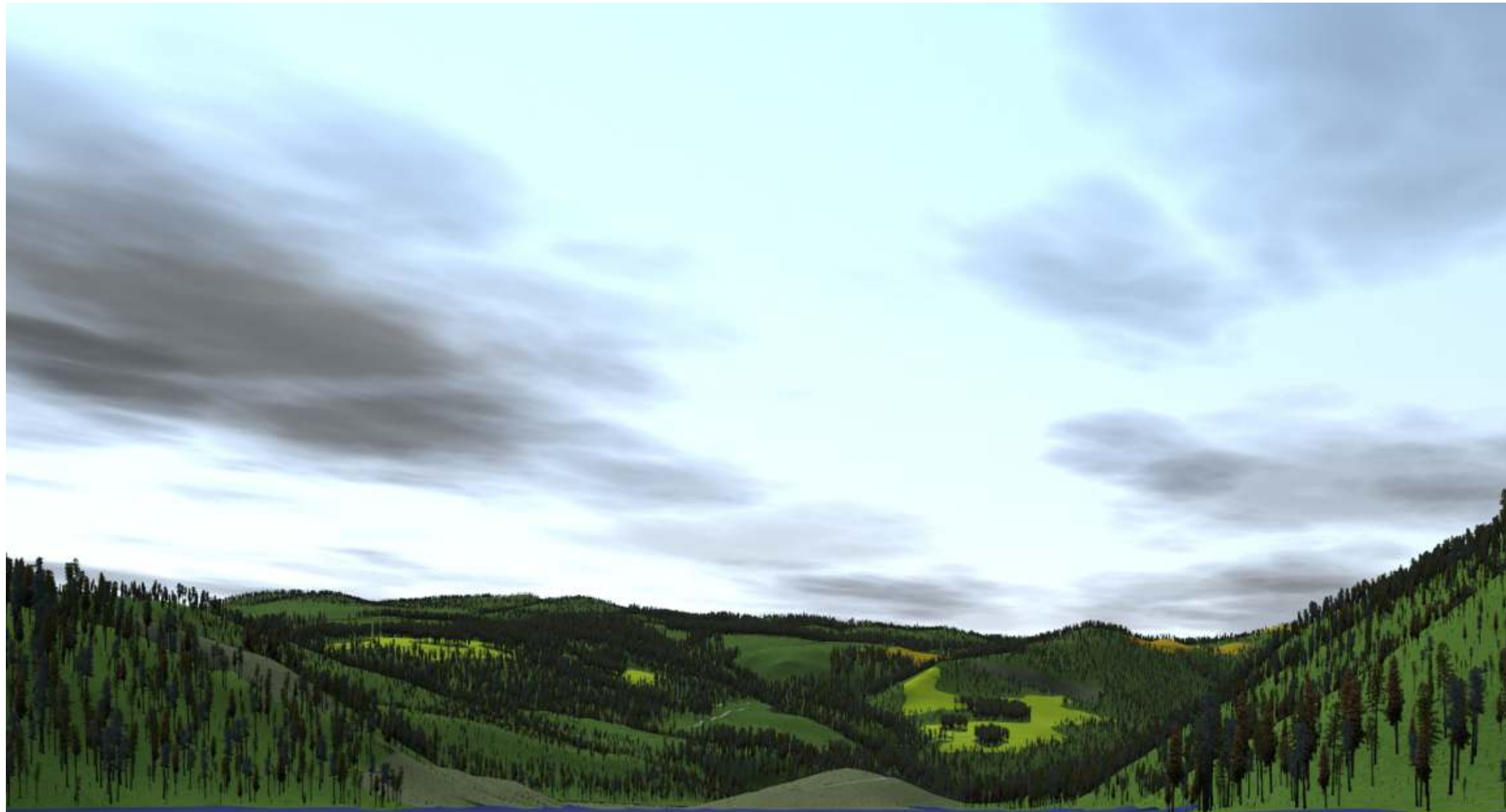
VSU 475 - VLI # 2150 - Partial Retention VQO

Viewpoint 2 Simulation (Missezula Lake)
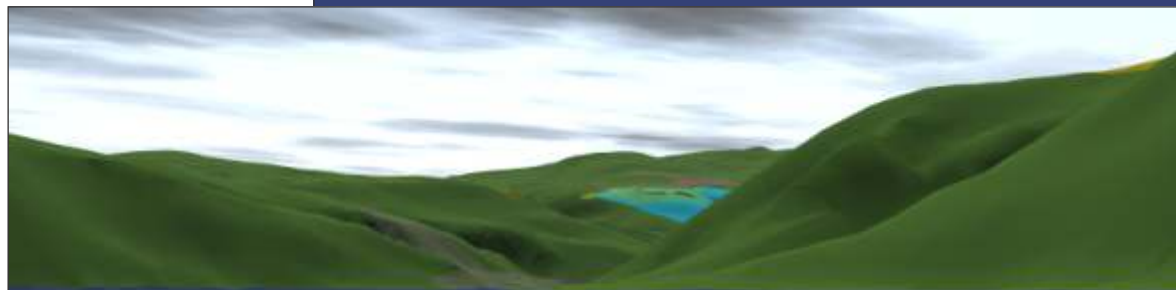
VSU 475 - VLI # 2150 - Partial Retention VQO

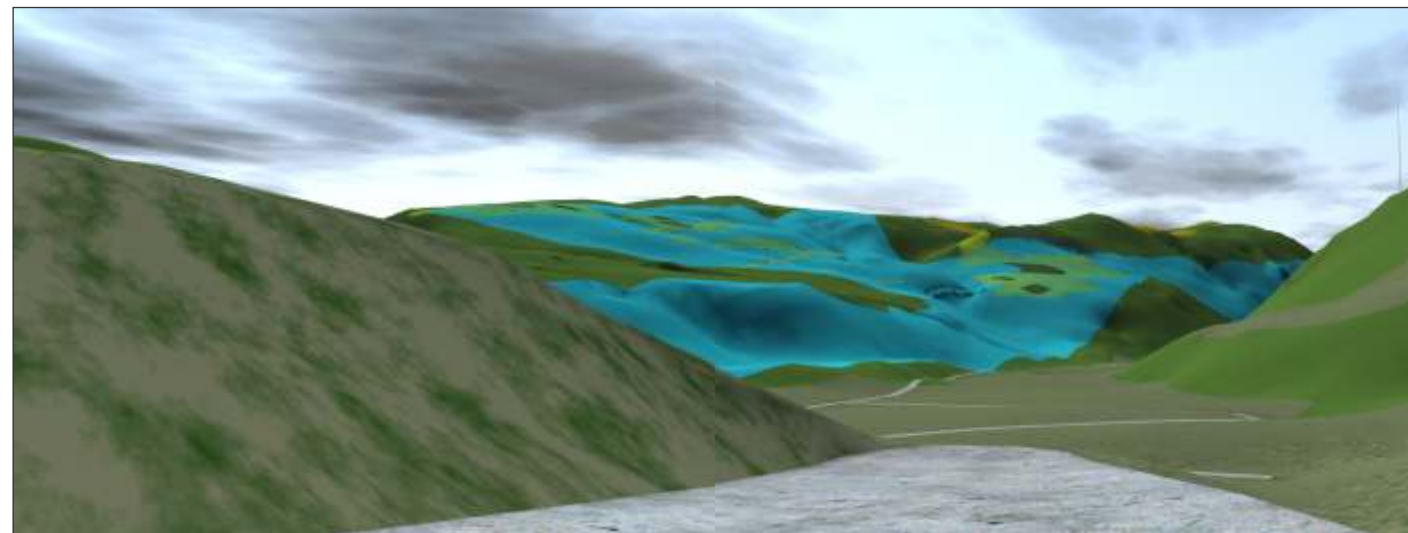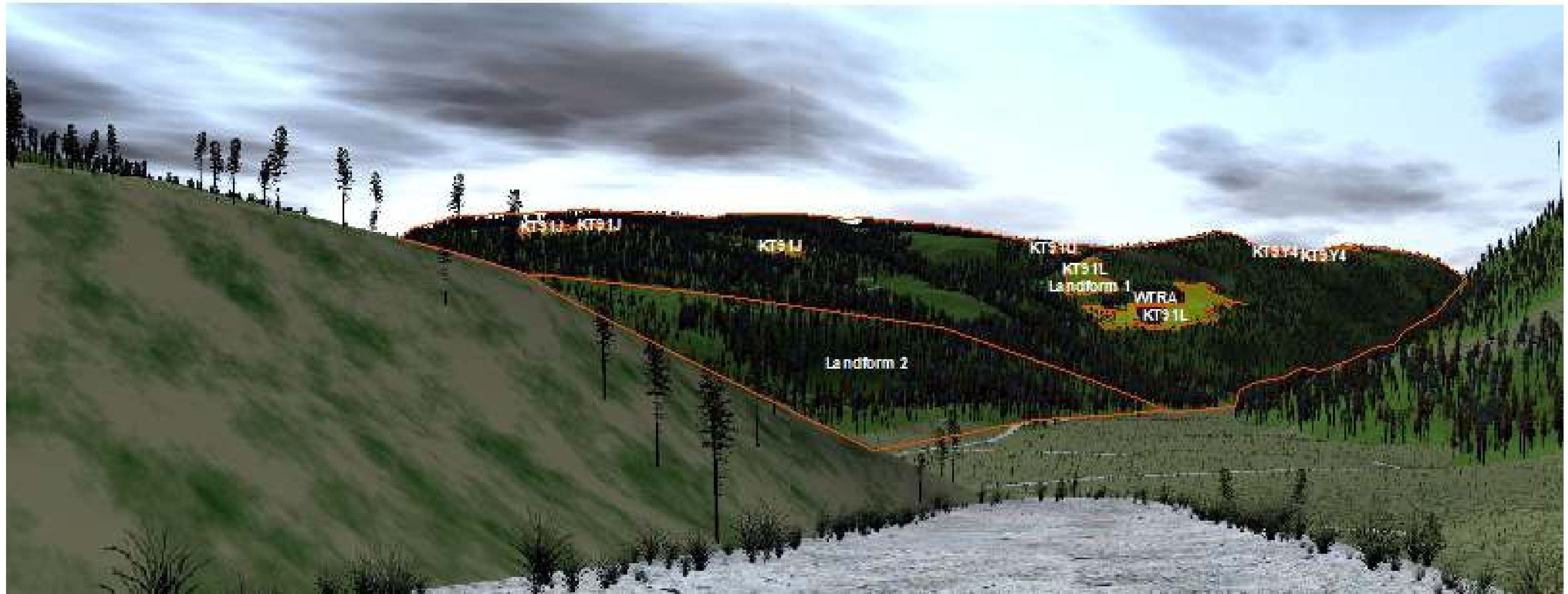**Viewpoint 3 Simulation (Missezula Lake)**
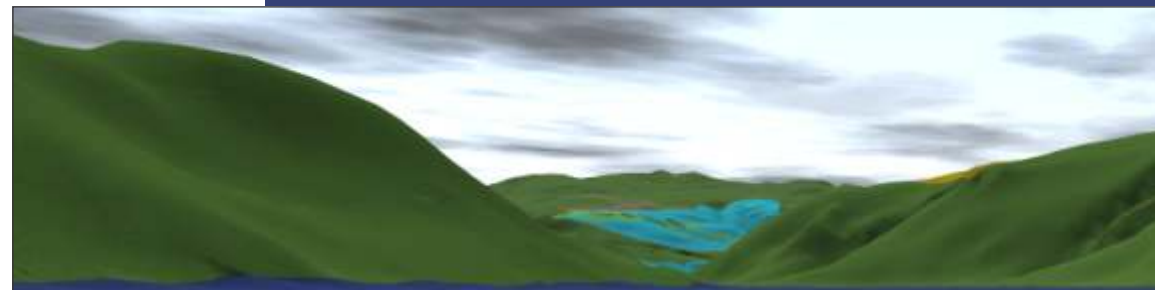
VSU 475 - VLI # 2150 - Partial Retention VQO

**Viewpoint 4 Simulation (Missezula Lake)**
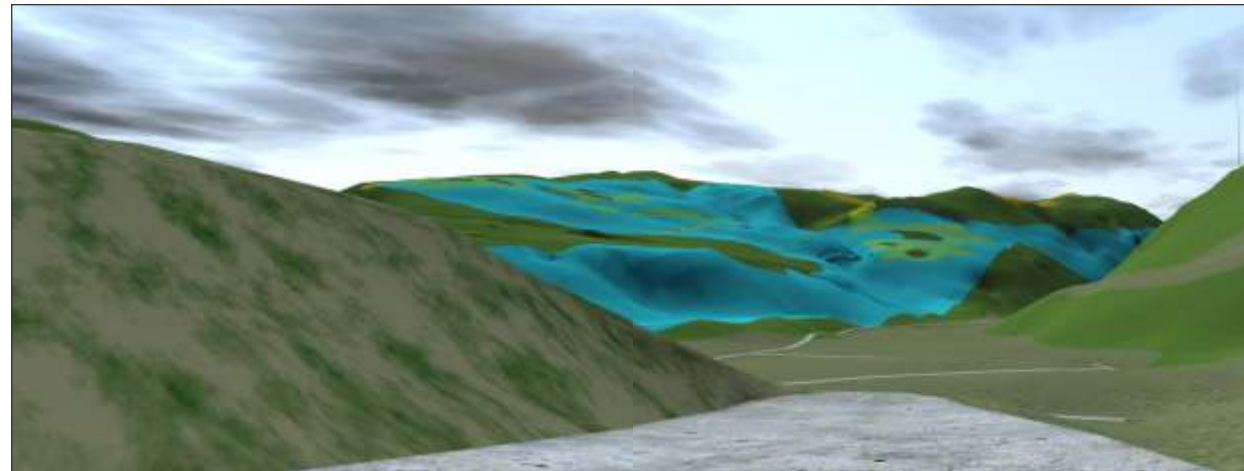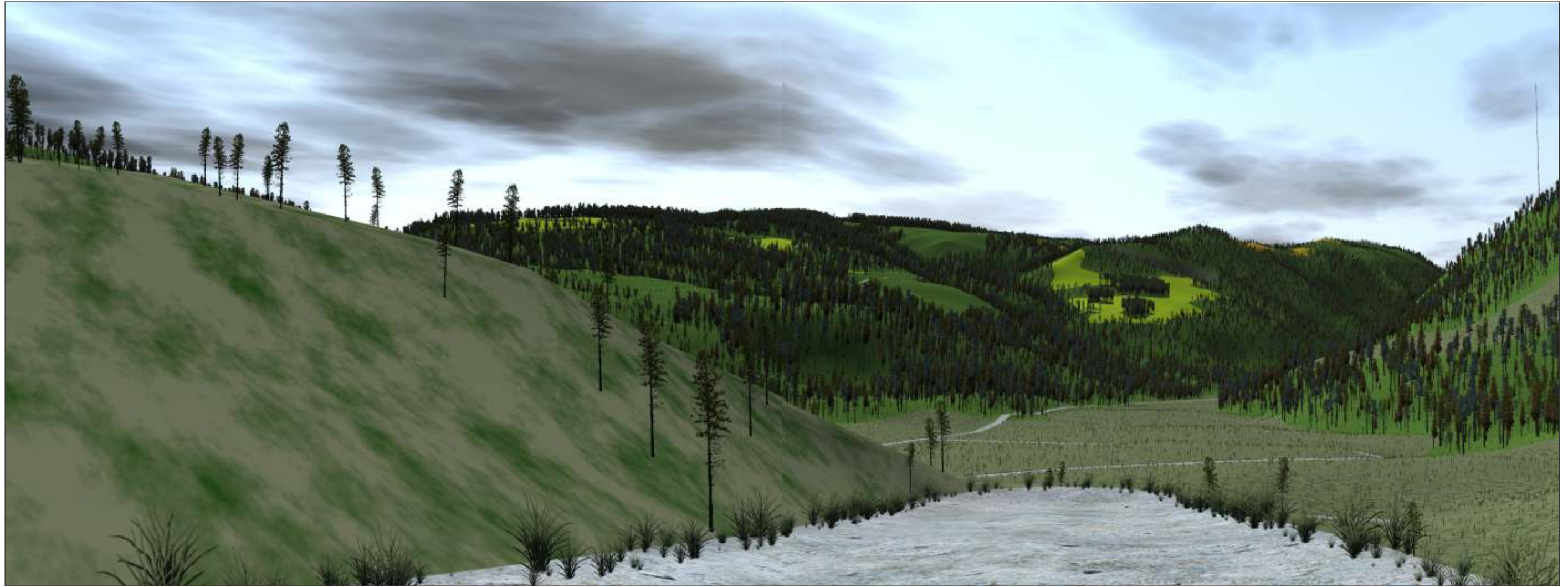
VSU 475 - VLI # 2150 - Partial Retention VQO

**Viewpoint 7 Simulation (top-end of Prospect Drive)**

VSU 475 - VLI # 2150 - Partial Retention VQO

Percent Alteration Landform 1 - Ketchan 2023		
Name	**AREA2**	**% Alt**
Landform 1	12992826406.00	
KT91L	148355149.91	1.14%
KT91L	375630694.28	2.89%
WTRA (deduct)	68056986.05	-0.52%
KT91U	8255858.01	0.06%
KT9Y4	13352952.96	0.10%
KT9Y4	10804405.49	0.08%
KT91V	9027601.26	0.07%
KT91J	31318417.90	0.24%
KT91J	56450216.79	0.43%
Sum Alt	721252282.65	**4.51%**
Landform 2	5673437264.09	
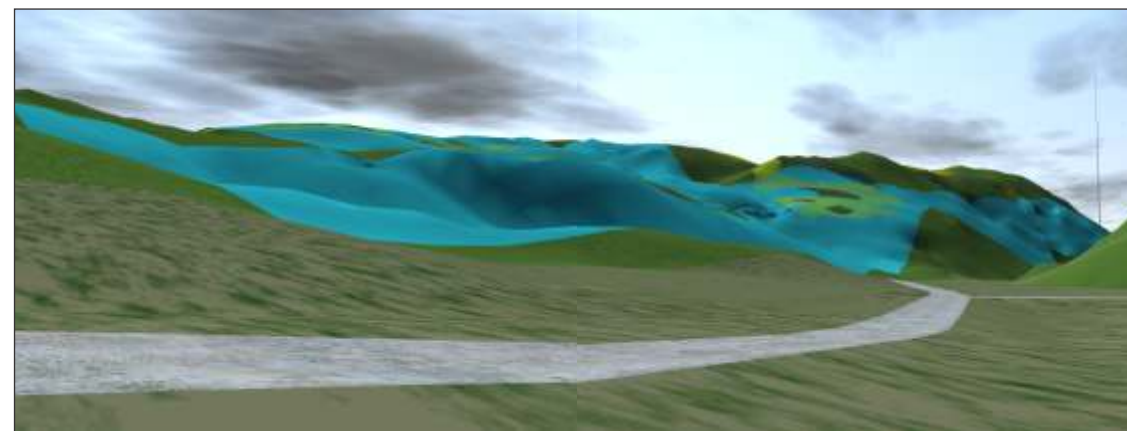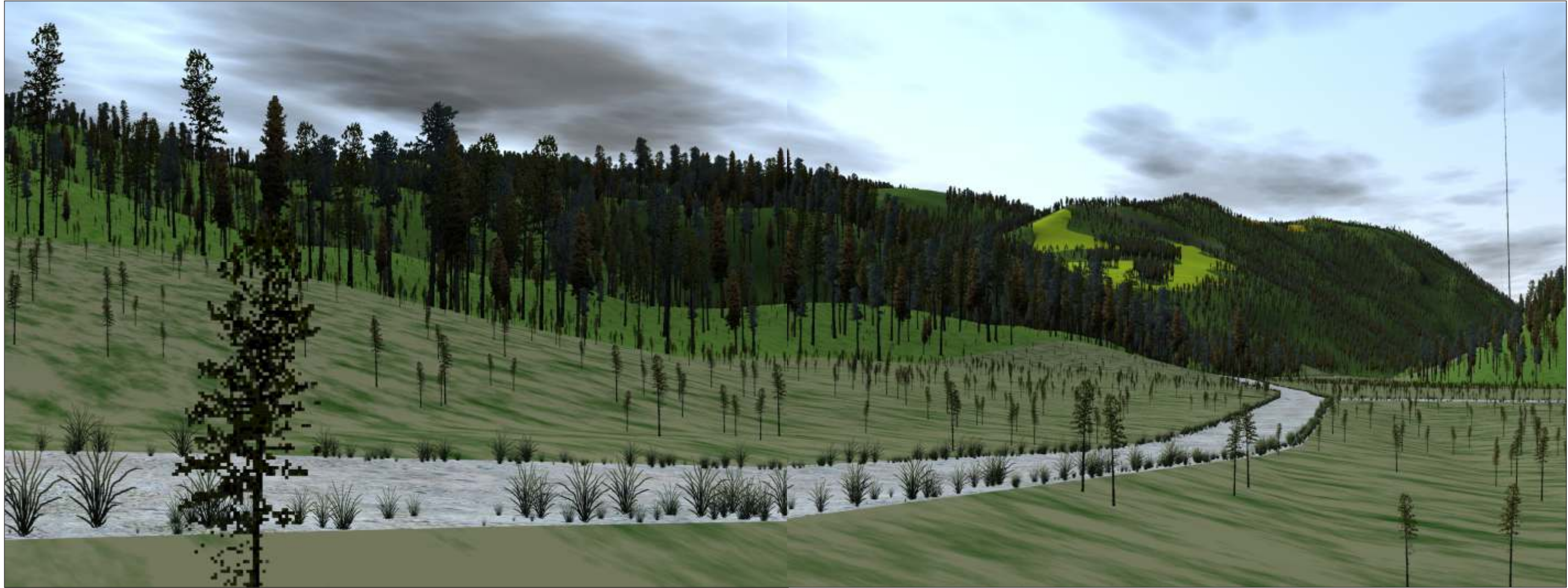
VSU 475 - VLI # 2150 - Partial Retention VQO

Viewpoint 8 Simulation (Summers Creek Road)
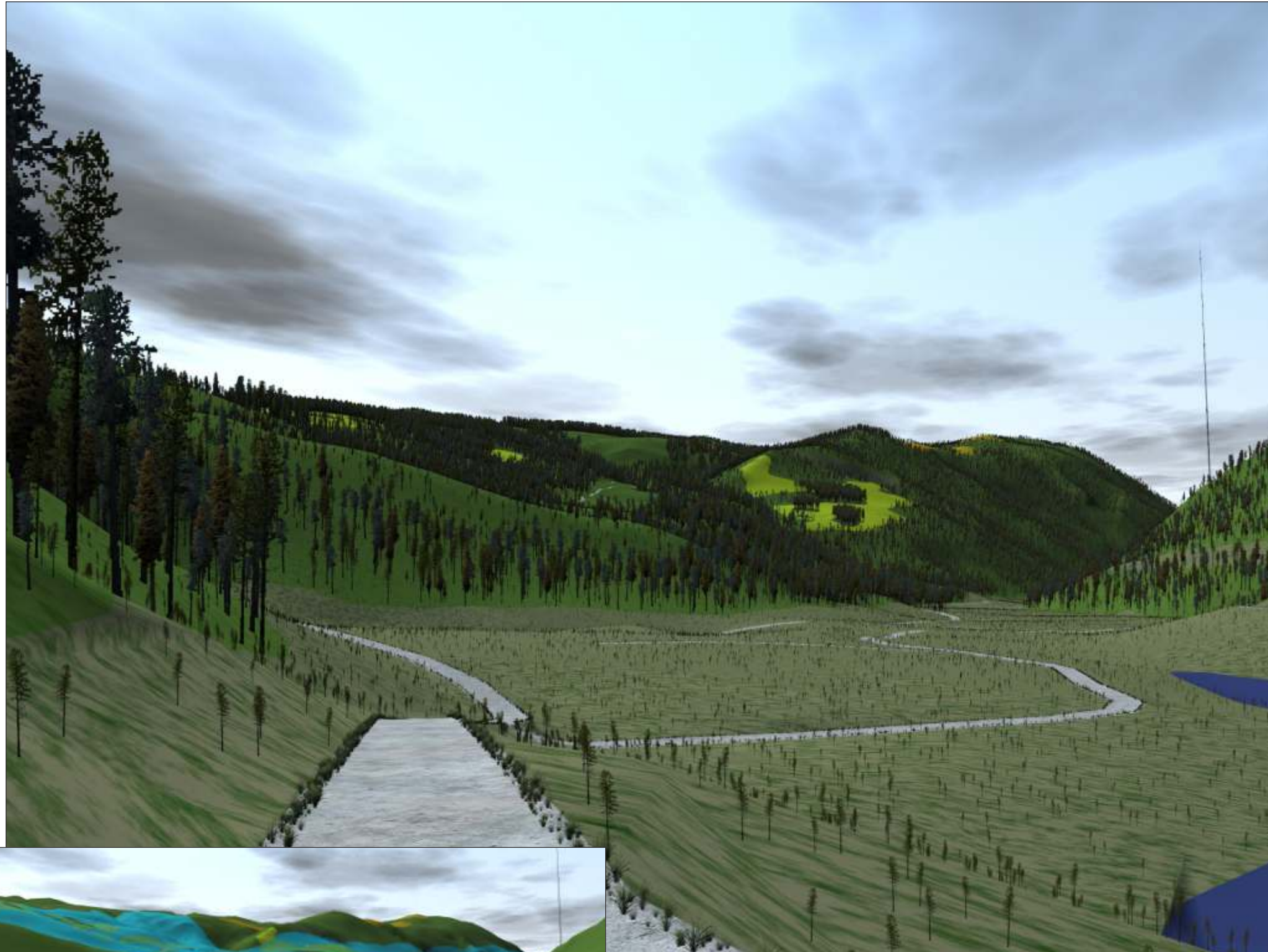
VSU 475 - VLI # 2150 - Partial Retention VQO

Viewpoint 9 Simulation (North end of Summers Creek Road)