

**A95986 Visual Impact Assessment
Mahood Lake Operating Area
RDI Resource Design Inc
January 3, 2023
Legend**

- Mahood_Lake_Viewpoints
- LandformLines
- A95986_Roads
- Contours
- FC2014missing
- For2020_near
- VQO_Mahood
- A95986reserves
- A95986
- Aug_8_2020_Operating_Area's
- MahoodLake



Mahood Lake - A95986 Visual Impact Assessment

Contents

1	Key Map
2	Contents; Table 1 Percent Alteration Summary
3	Summary Report
4	Ches Clem Canoe Points Map; Existing VEG Cutblock Photos 2021
5	Viewpoint 1 Simulations, Photography, Visual Force Analysis
6	Viewpoint 2 Simulations, Visual Force Analysis
7	Viewpoint 3 Simulations, Visual Force Analysis
8	Viewpoint 4 Simulations
9	Viewpoint 5 Simulations, Photography, Visual Force Analysis
10	Viewpoint 5 Percent Alteration
11	Viewpoint 6 Simulations and Photography
12	Viewpoint 6 Percent Alteration, Visual Force Analysis
13	Viewpoint 7 Simulations and Photography
14	Viewpoint 7 Percent Alteration
15	Viewpoint 8 Simulations and Photography
16	Viewpoint 8 Percent Alteration
17	Viewpoint 9 Simulations, Photography

Table 1

Percent Alteration, By Landform and Viewpoint				
Landform	VP5	VP6	VP7	VP8
L1A				
A95986-2	1.03%	2.09%	5.98%	11.96%
A95986-3	0.80%	0.27%		
NonVEG				0.97%
L1A Totals	1.83%	2.36%	5.98%	12.93%
L2				
A95986-1			0.36%	0.77%
NonVEG				0.71%
L2 Totals			0.36%	1.48%
L1A-L2 Combined				
				3.45%
L1A is Perspective Foreshortened from VP 8+. Ignore as inappropriate as an analysis VP or Use Merged L1A-L2 result.				

Summary

RDI was requested by email of November 2, 2022 from Bradley White, RPF, Planning Forester, BC Timber Sales, Kamloops Business Area, to conduct a Visual Impact Assessment of the Mahood Lake TSL A95986. The email provided a link to the shapefile data which included the cutblocks, WTRAs, and roads. The database was downloaded and entered into the existing ArcGIS Pro and Visual Nature Studio project previously prepared by RDI for earlier projects. RDI had examined an adjacent area in 2018 (Mahood Lake Beetle Blocks) in which large openings of 2004 to 2008 harvesting were considered to still exhibit non-visually effective green-up (nonVEG) by Tyson Leudtke in photos taken by him in 2016 and provided in his e-mail of May 1, 2018. Ches Clem, the previous Contract Manager for RDI visuals, collected photography from 10 “canoe point” stops along the lake in 2021. His photo stops are presented on Map 2. Ches provided the photos to RDI with the request to assess VEG achievement in the large openings. RDI placed the photos into panoramas and submitted the results to BCTS on July 28, 2021. Both reports can be downloaded from the RDI website under the Visual Impact Assessment tab. The beetle report is found in Set 4, #8 of BCTS VIAs, and the panoramas are located in Set 6, #11 at <https://rdi3d.ca/visual-impact-assessment>. RDI utilized several of the panoramas of Ches’ photos (Stops 1-4) in assessing the current state of visual green-up surrounding the proposed A95986 cutblock(s), and has presented them along with visual simulations for the appropriate viewpoints in this report. The more easterly stops were beneficial to the 2021-06 Mahood “West” VIA further east from the current area of assessment. This document is found in the rdi3d.ca BCTS VIAs in Set 6, #2.

RDI proceeded with 4 procedures: 1) produced a key map in ArcGIS PRO, 2) produced visual simulations to portray A95986 from each of 10 viewpoints along the lake, 3) produced percent alteration calculations from 4 key viewpoints (VPs 5-8), and 4) evaluated the visual attributes of the proposed cutblock(s) together with the current visual conditions of earlier cutblocks as indicated in the 2021 photography to determine if they have achieved VEG. As the cutblock data was presented as a single entity of 81.5 ha, RDI used ArcGIS Pro to explode the entity into three separate openings. The largest opening, named A95986-1 by RDI is furthest east and has an area of 44.0 ha. The central opening, A95986-2 has an area of 30.9 ha. A95986-3 is the small, 6.6 ha opening to the west.

The key map on page 1 indicates the 3 openings within TSL A95986, together with Visual Landscape Inventory (VLI) polygons, and the Mahood Operating Area outline. RDI also added the 2020 Vegetation Resources Inventory (VRI) both required for populating the tree heights in Visual Nature Studio (VNS) and for locating the presence of recent alteration likely exhibiting nonVEG adjacent to A95986.

Several Visual Sensitivity Units (VSUs) were found to have influence in the VIA:

- VLI_Polygon 1216 / VSU 142 (PR) - a separate band along the southern shore of Mahood Lake, incorporating a portion of A95986-2 and touching the north edge of A95986-3,
- VLI_Polygon 928 / VSU 162 (PR) - incorporating the major portions A95986-2 and 3, and,
- VLI_Polygon 912 / VSU 152 (PR) - incorporating A95986-1.

The shoreline VSU has varying prominence and topographic distinction from the upland VSUs, depending on how and where it is seen from the viewpoints. The simulations exhibit a continuity of the slope rising from the lake shore to the heights of visible land in the areas to be occupied by A95986. As such, RDI merged the lakeshore VSU with the respective upper VSUs to delineate three landforms. All VSUs had the same VQO (Partial Retention). RDI tested visual apparency, shape, scale, and conspicuousness along with bare land views to detect surface features and assist in the delineation of the landforms.

Landform 1A runs from the prominent east ridge, the dividing line between VSUs 152 and 162, westward to capture the steep northwest-facing slope to the visible height of land, reaching the major drainage opposite VP 5 and separating the two main peaks of Landform 1A and 1B. Landform 1A contains all of A95986-2 and 3, and is most prominent when seen from VPs 1 through 7. Landform 1B is the western flank of the mountain-form comprising all 3 landforms identified by RDI. It contains the major portion of the large opening Polygon_ID 37927856; Feature_ID 17856303 considered VEG by RDI by ocular estimate of the photography (see close-ups on P. 4). No further analysis was conducted for this landform. Landform 2 is to the east, containing A95986-1, and runs from the major drainage forming its eastern edge, westward to the prominent ridge which comes down the slope, passing just east of A95986-2, and capturing the steep northeast-facing slope of the unnamed visible height of land. Landform 2, with A95986-1, is only seen from VPs 7 through 10. This ridge is also the dividing line between VSUs 152 and 162 and is nearly aligned with VPs 6 and 7.

The Visual Nature Studio visual simulations applied tree cover from “Stand_Height attribute of the VRI polygon, and refined rendered according to stand heights were produced from each of the ten viewpoints along the lake, spanning 14.8 km. The bare-land renderings assisted in differentiating the landforms. Percent Alteration was calculated as seen from 4 viewpoints: VPs 5-8. RDI measured each visible portion of A95986, together with recent nonVEG alteration. RDI determined that re-growth of 3.1m or greater, as reported in the 2020 VRI, was considered to exhibit VEG by ocular estimate of the 2021 photography, and would no longer contribute to the altered portion within each landform. The openings now have an additional year’s growth past the picture-taking event. The licence is not scheduled for sale until late 2023 according to Brad White, and the TSL holder will have 21 months following the award to complete the harvesting, virtually assuring excellent green-up will be achieved by that time.

Landform 1A when seen from VP 8 is severely truncated and would not be normally be used as a measure of percent alteration analysis. Landforms 1A and 2 merge from this viewpoint. As such RDI combined the alteration within the two landforms.

Results and Recommendation

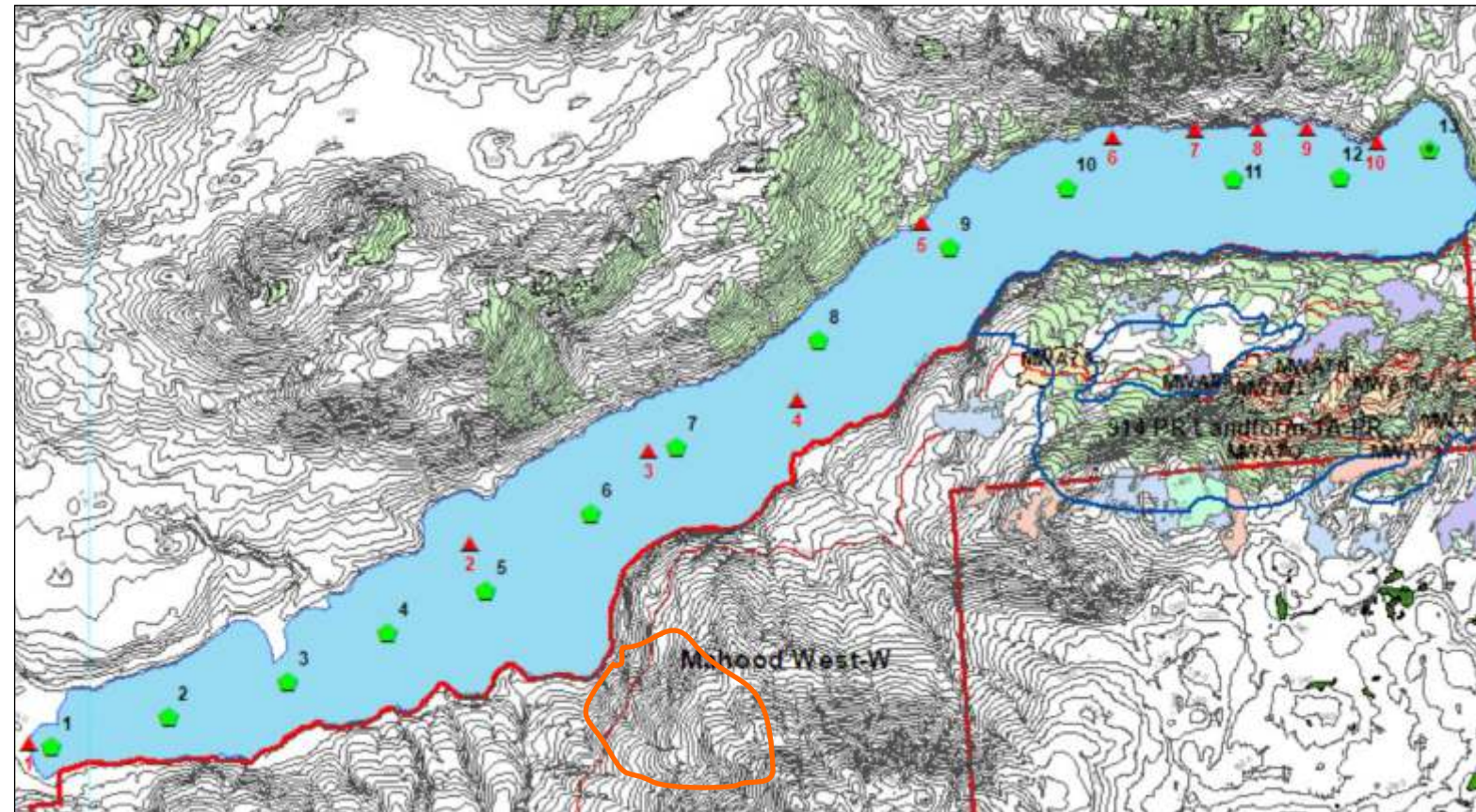
RDI predicts the proposed TSL A95986 is capable of achieving the established VQO of Partial Retention within Landform 1A (containing A95986-2 and 3) and Landform 2 (containing A95986-1), based on the verbal descriptors of the categories of visual alteration, namely, “easy to see, small in scale, and natural and not rectilinear in shape”, with percent alteration in the range of 1.5% to 7.0% in perspective view from a publicly accessible viewpoint (along Mahood Lake). A95981-1 in Landform 2 is very small but has some angularity as seen from VPs 7 and 8, but fits in amongst the regeneration forest patches. Overall the combined patterns in Landform 2 work well with visual forces.

Landform 1A contains A95981-2 and 3 and visually altered forest will be easy to see, small in scale, and not rectilinear in shape as seen from Viewpoints 2-7. A95981-2 is long and sinuous, and horizontally aligned along the bench above VLI_Polygon 1216 / VSU 142 (PR). A95981-3 is a small, well-shape patch respectful of visual forces, and is seen from VPs 2 through 6.

When A95981-2 is viewed from VPs 8-10, Landform 1A becomes perspective forshortened, causing the alteration to dominate the severely diminished landform as seen from these viewpoints. RDI recommends merging L1A and L2 when considering the visual effects of A95981-2 with the results as indicated for VP8 Percent Alteration page (3.45%). The merging approach is supported by the L1A-L2 landform break that is strongly apparent from more south-westerly viewpoints but is no longer evident from the north-easterly viewpoints. The WTRAs in A95981-2 are visually effective, particularly from VPs 7-10. Percent Alteration results are summarized in Table 1, page 2.



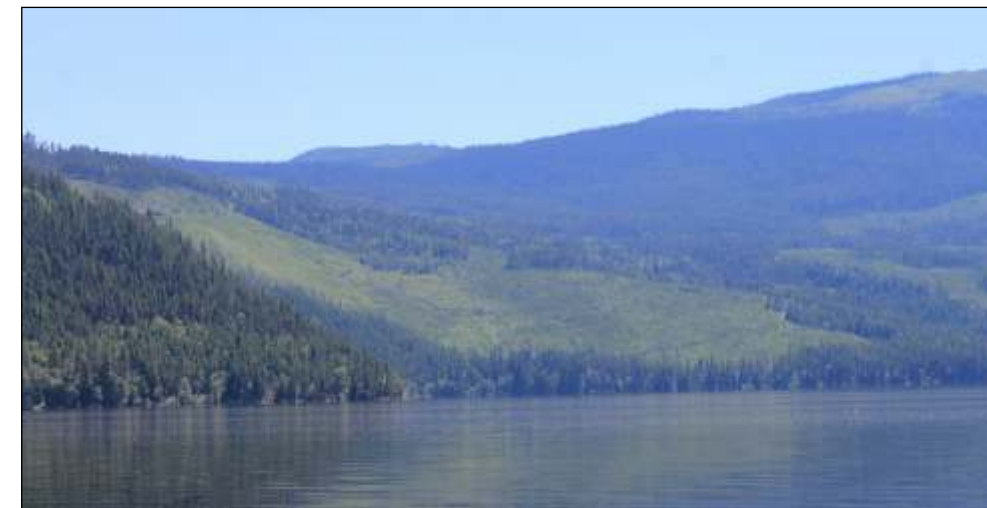
Ken B. Fairhurst, PhD, RPF
RDI Resource Design Inc
January 3, 2023



Cutblock Location

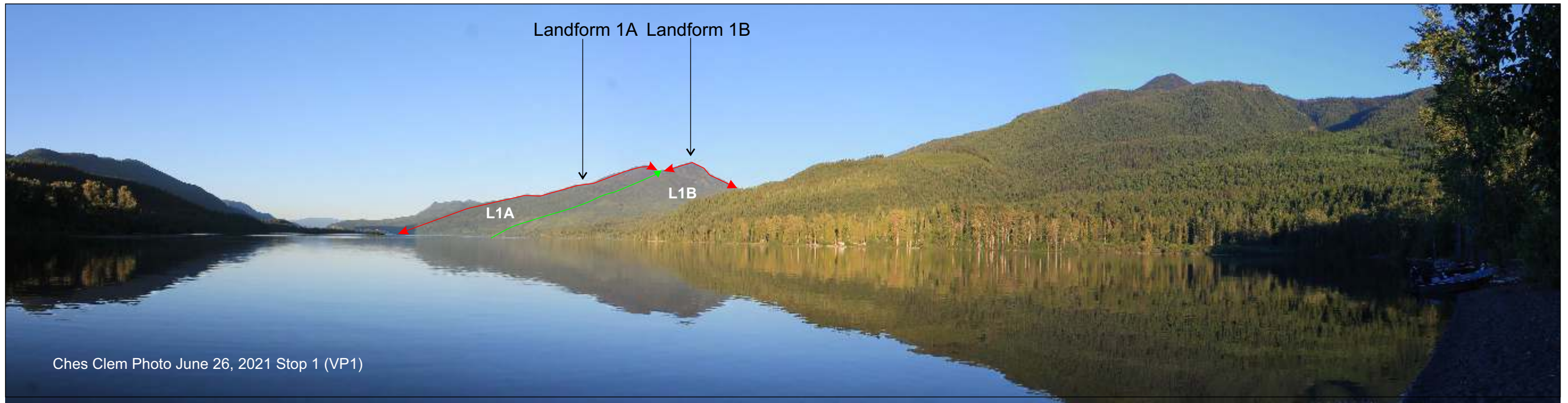




Ches Clem June 29, 2021 Canoe Points Photo CP3Z-9966-9967

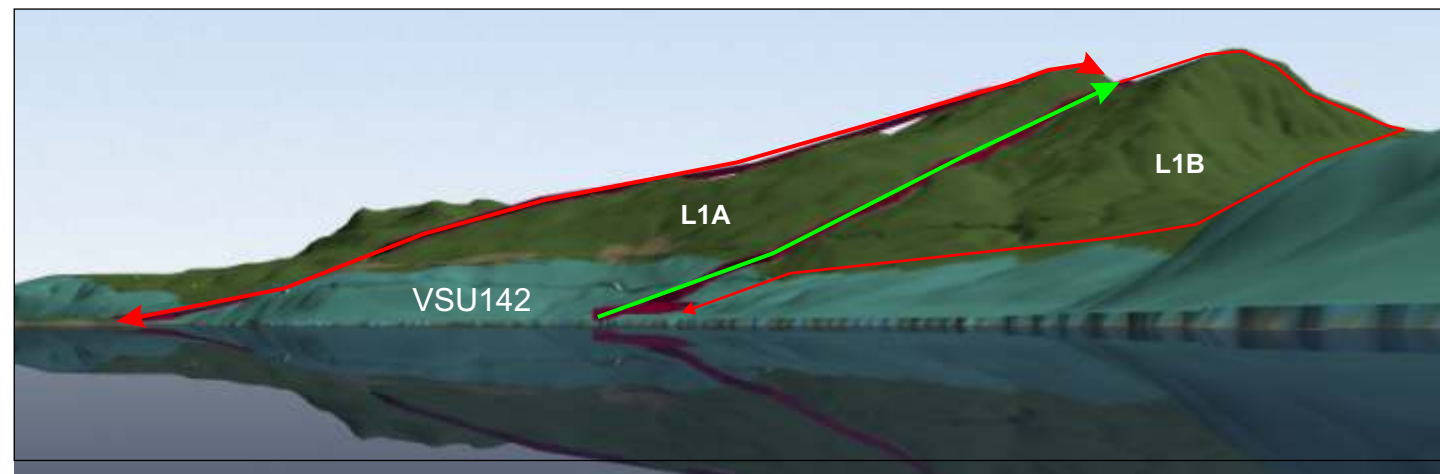
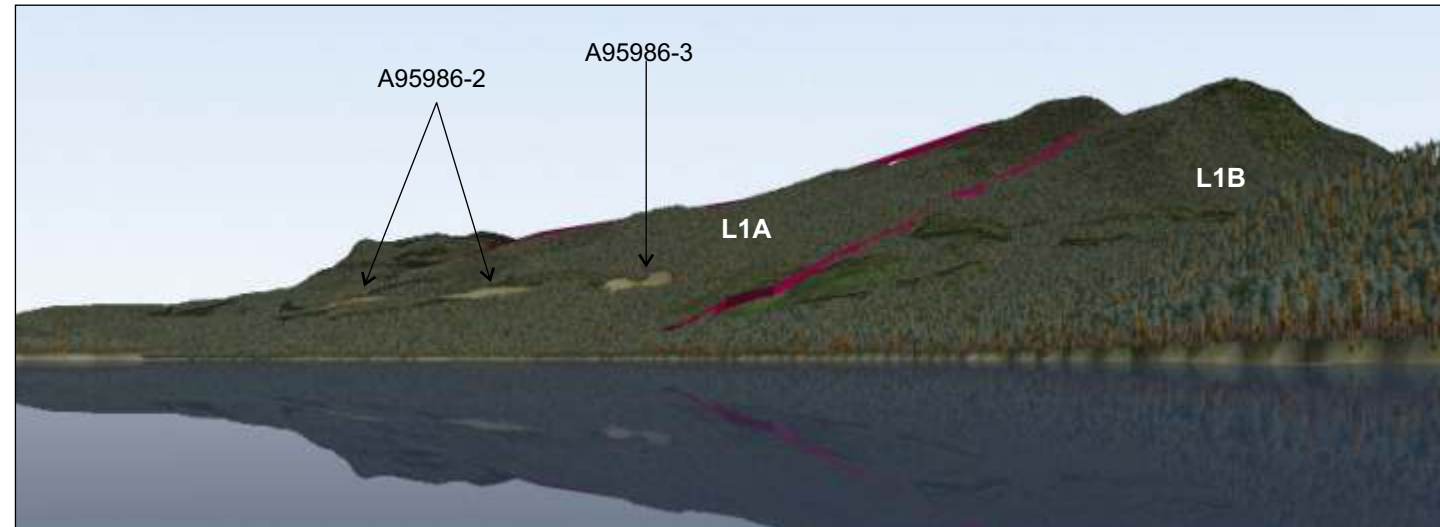


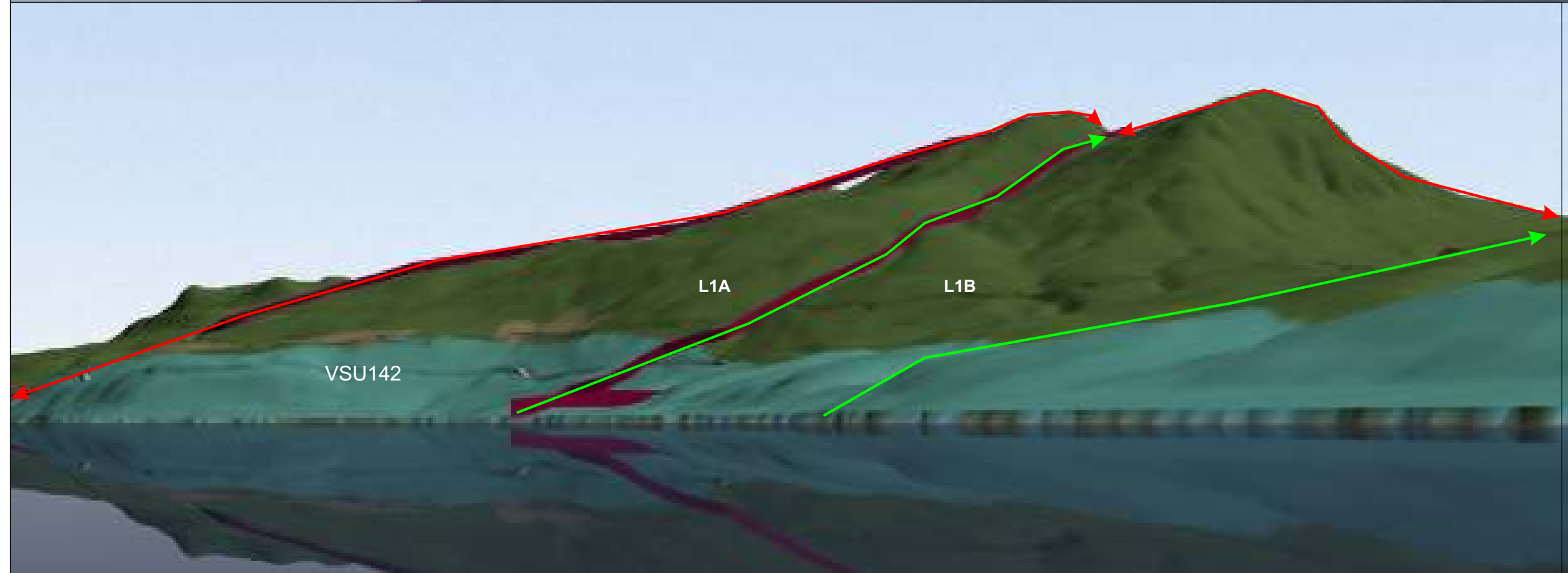
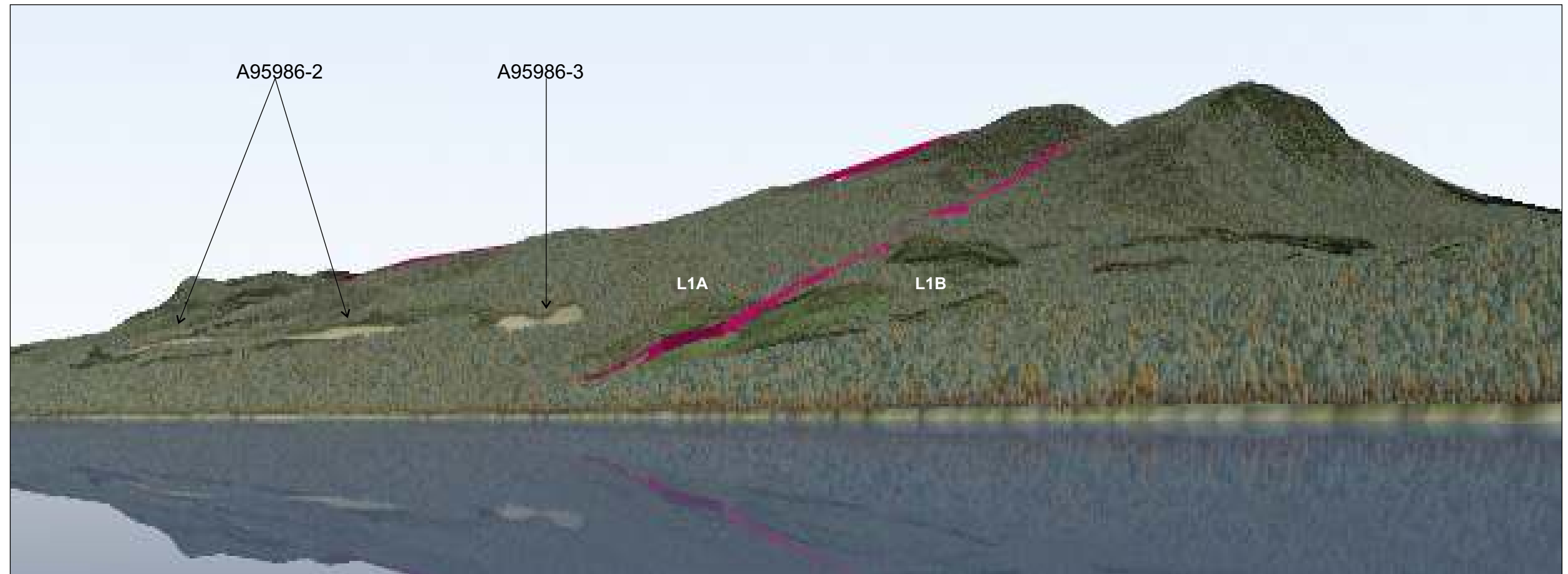
Ches Clem June 29, 2021 Canoe Points Photo CP2Z-9969-9970

The large opening exhibits Visually Effective Green-up (VEG) by RDI's ocular estimate of the photos. The opening (Polygon_ID 37927856; Feature_ID 17856303) was harvested in 2008. It has had an additional year's growth since the photo was taken, and will have a further year's growth before the planned late 2023 sale date of TSL A95986. The TSL holder will have 21 months to harvest the block, according to Brad White (e-mail November 7, 2022).



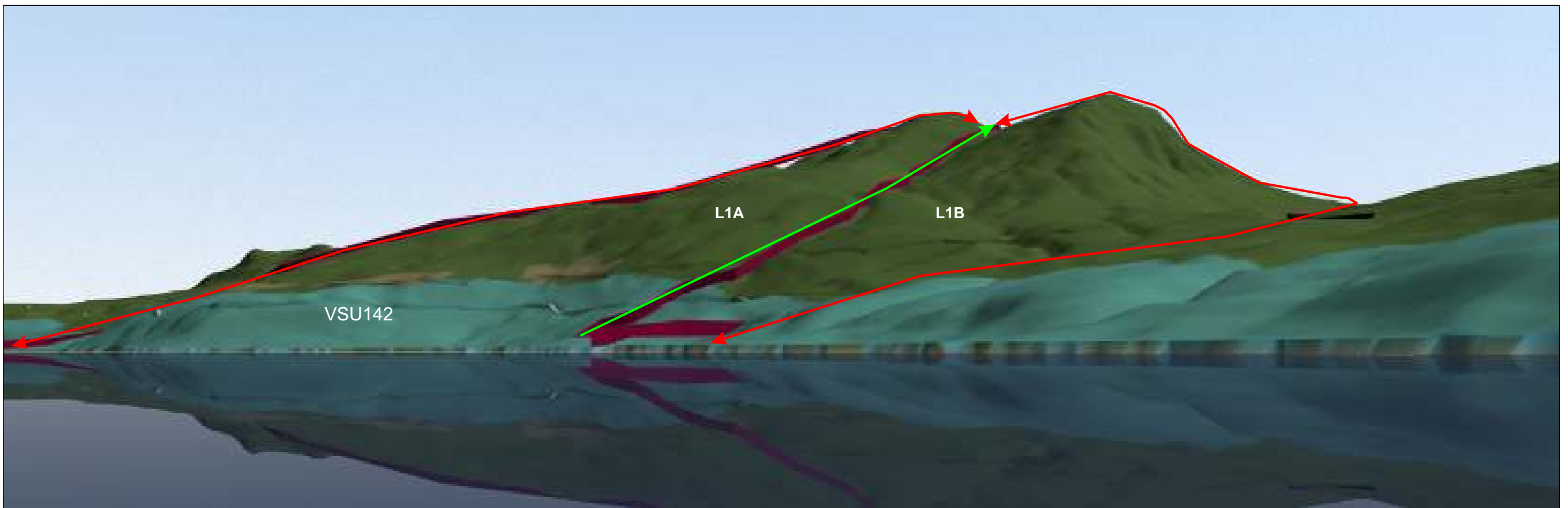
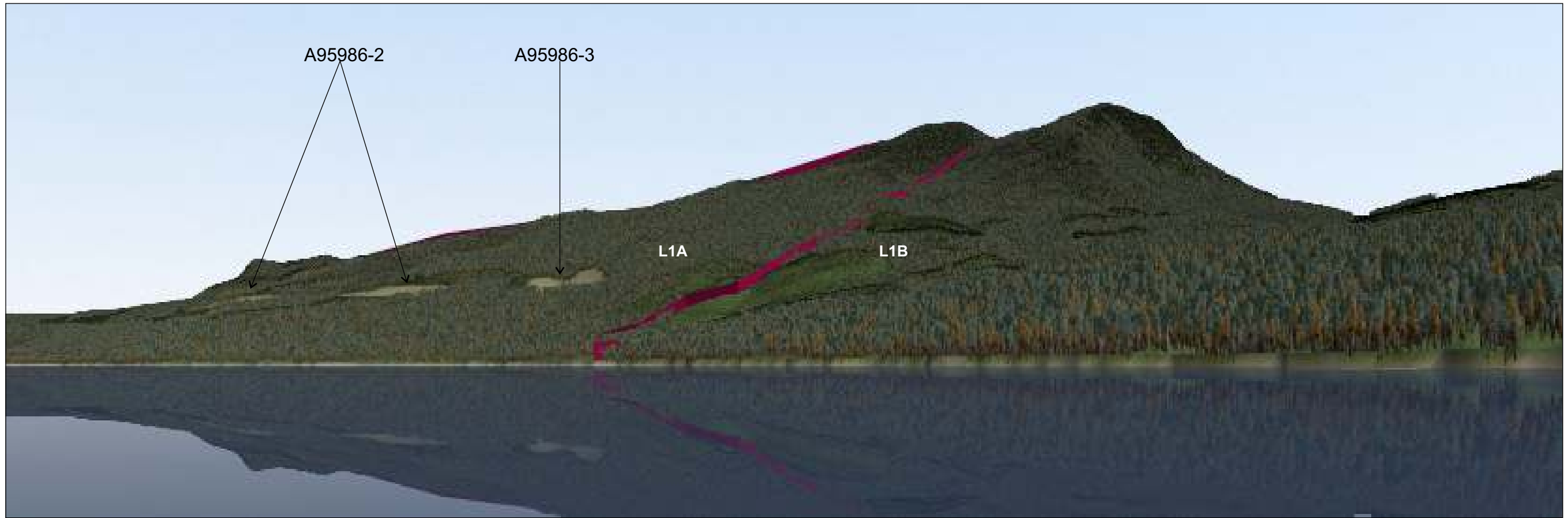
 Visual Force Convexity
 Visual Force Concavity







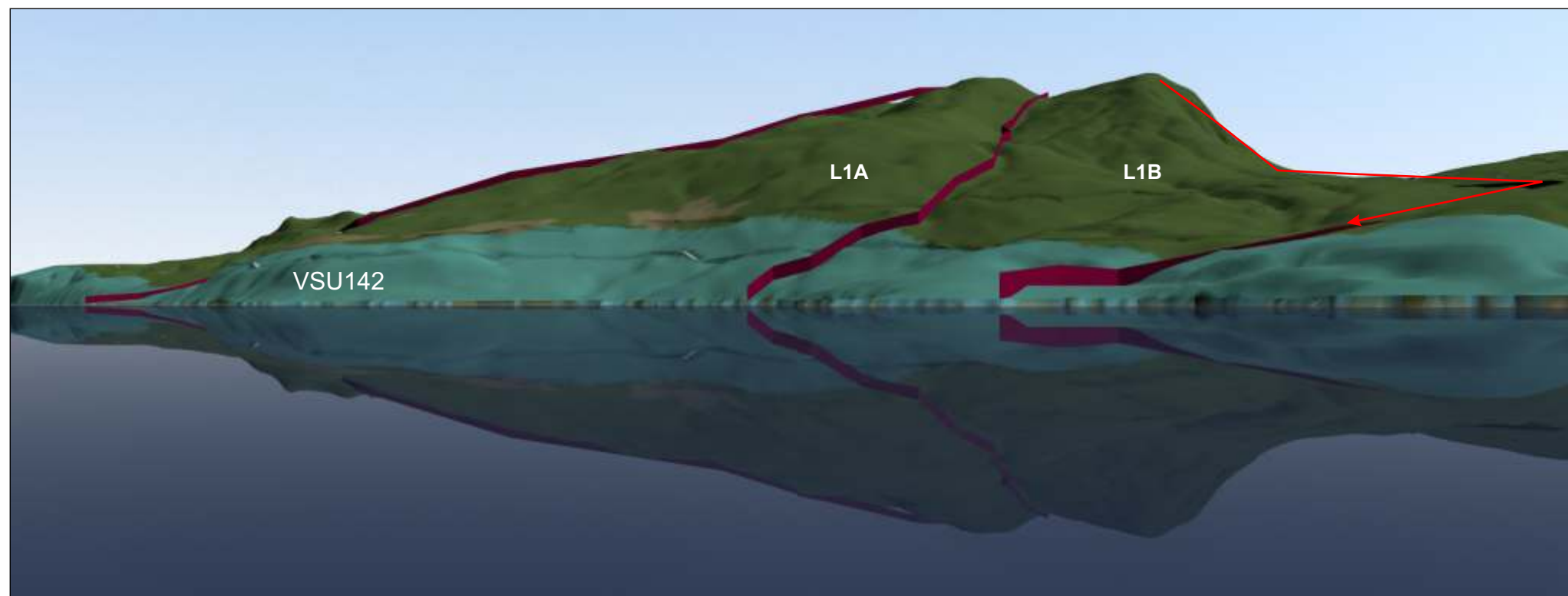
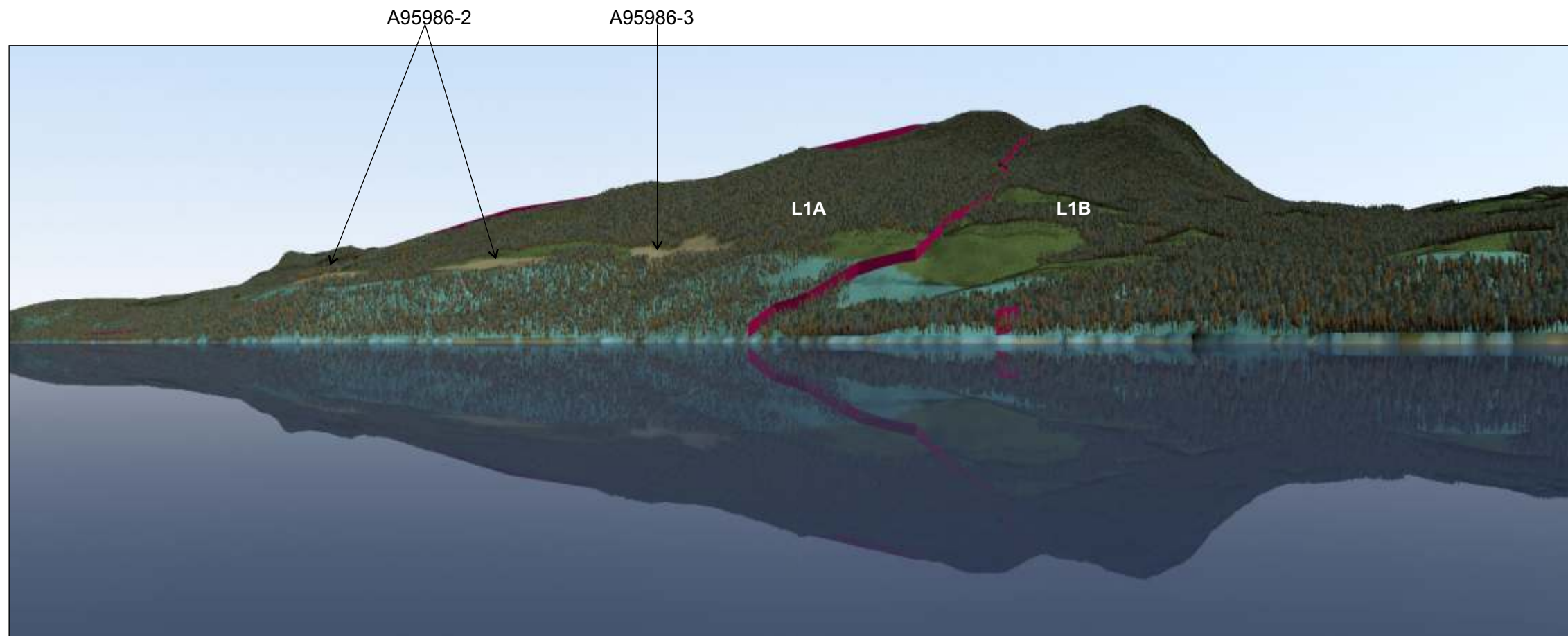
- Visual Force Convexity
- Visual Force Concavity

Mahood Lake Viewpoint 2



 Visual Force Convexity
 Visual Force Concavity

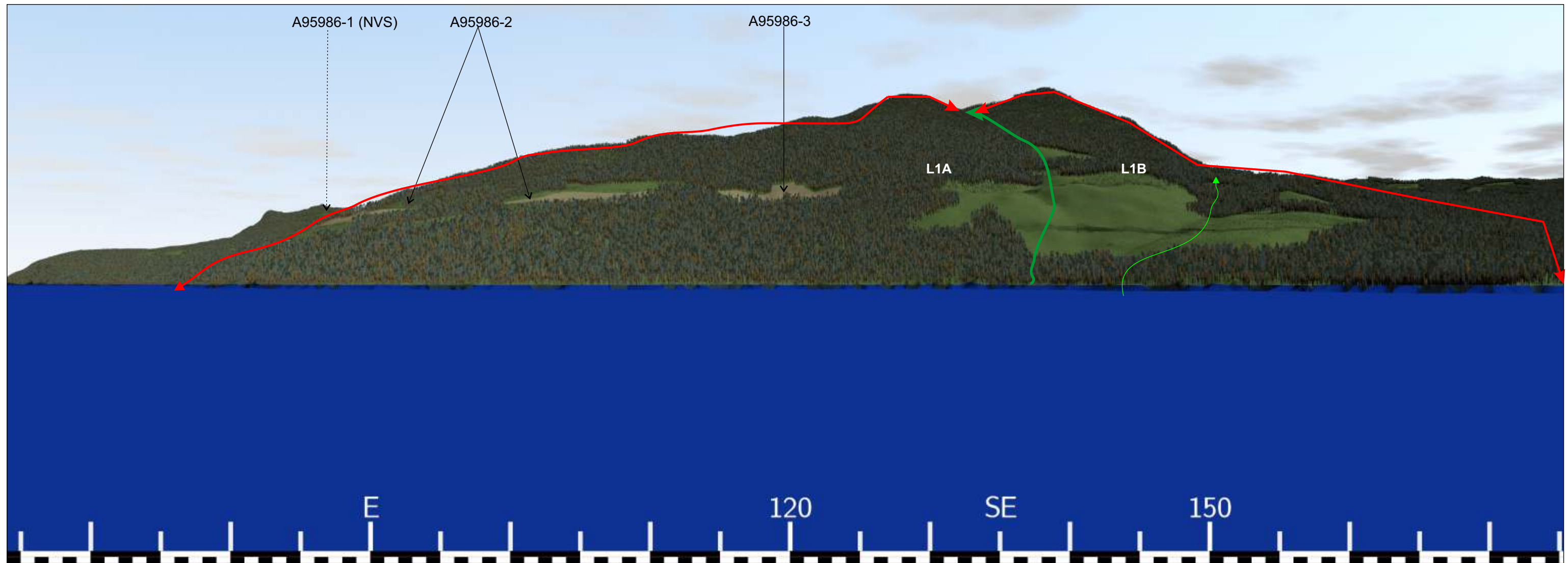
Mahood Lake Viewpoint 3



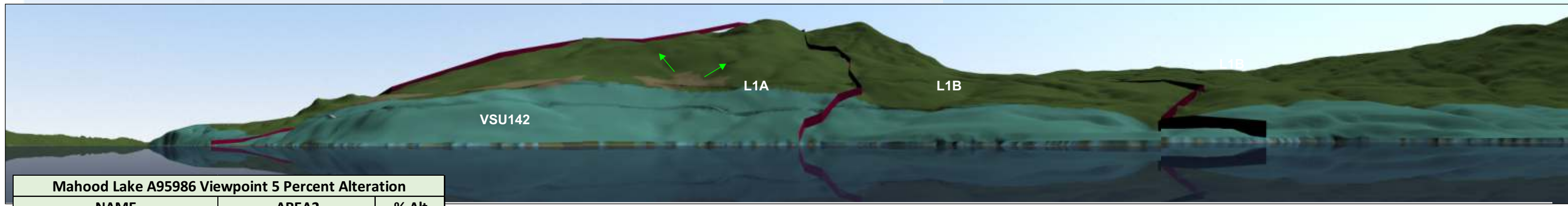
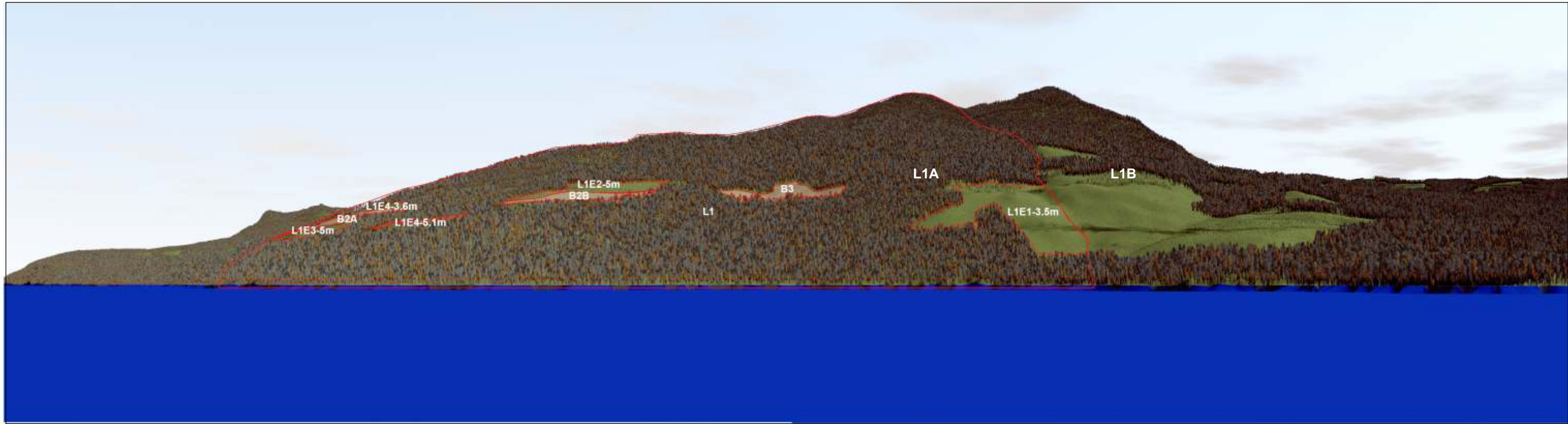
Mahood Lake Viewpoint 4



Regrowth of 3.1m height and greater achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo.



- Visual Force Convexity
- Visual Force Concavity

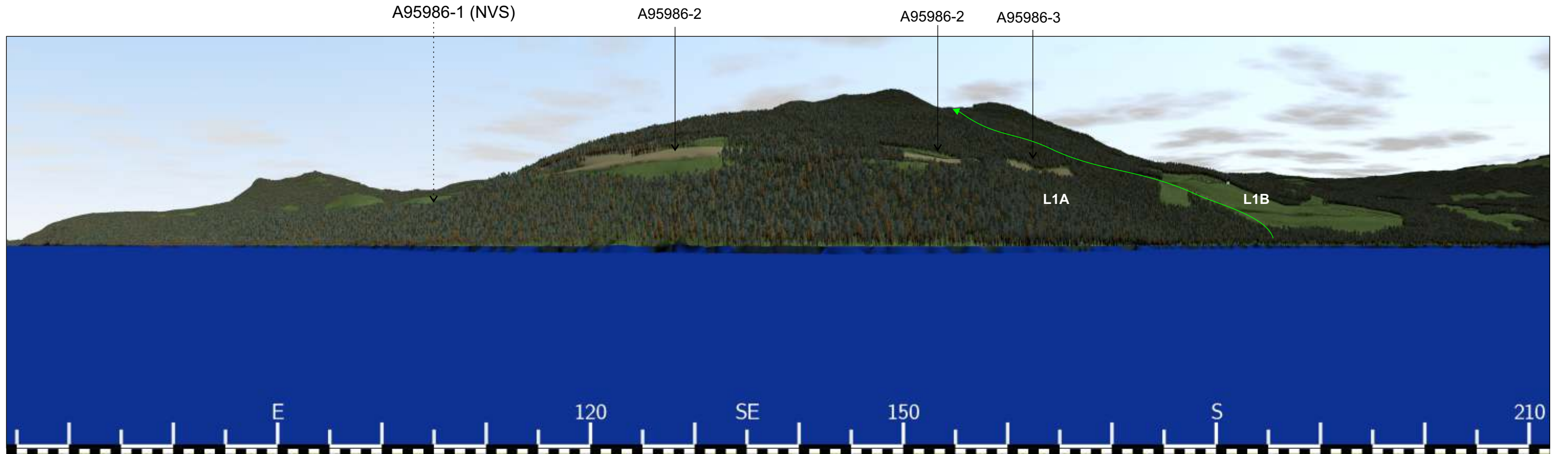


Mahood Lake A95986 Viewpoint 5 Percent Alteration		
NAME	AREA2	% Alt
L1	1042778.28	
B2A	3791.60	0.36%
B2B	6957.33	0.67%
B3	8377.15	0.80%
L1E1-3.5m - VEG	53614.25	5.14%
L1E2-5m - VEG	9977.00	0.96%
L1E4-5.1m - VEG	1767.95	0.17%
L1E4-3.6m - VEG	1164.11	0.11%
L1E3-5m - VEG	3008.34	0.29%
Sum Alt	88657.72	8.50%
VEG 3.5m or greater		6.67%
Sum Alt Excluding VEG		1.83%
New Cutblock Only		1.83%

Regrowth of 3.1m height and greater (2020 VRI) achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo on previous page.

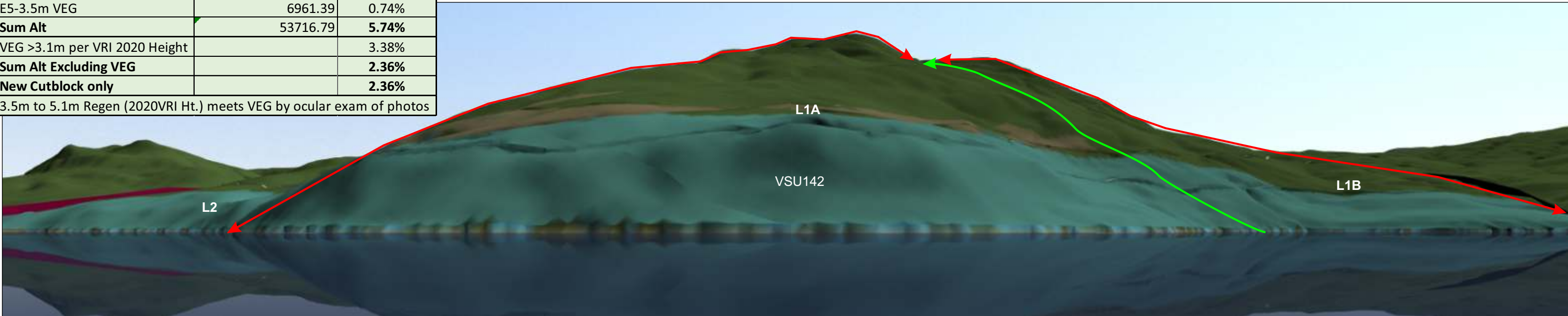


Regrowth of 3.1m height and greater achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo.



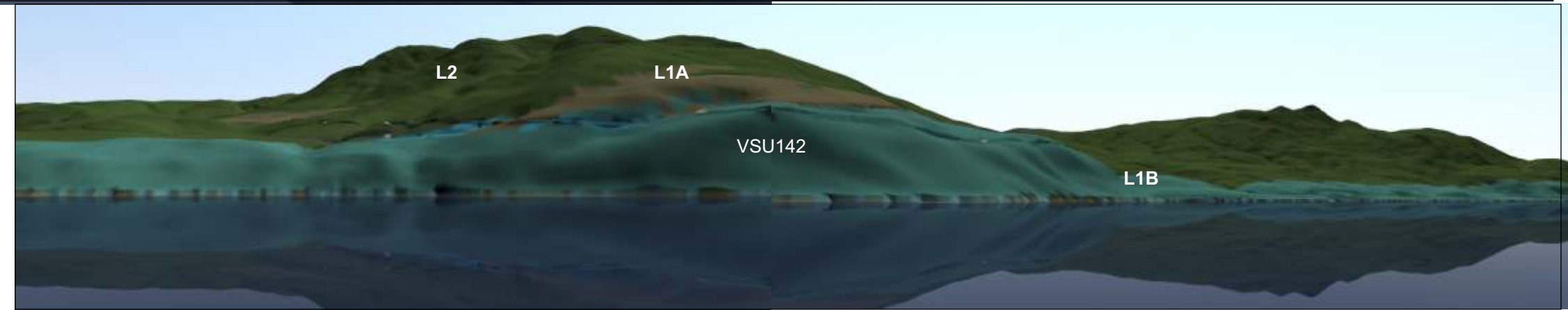
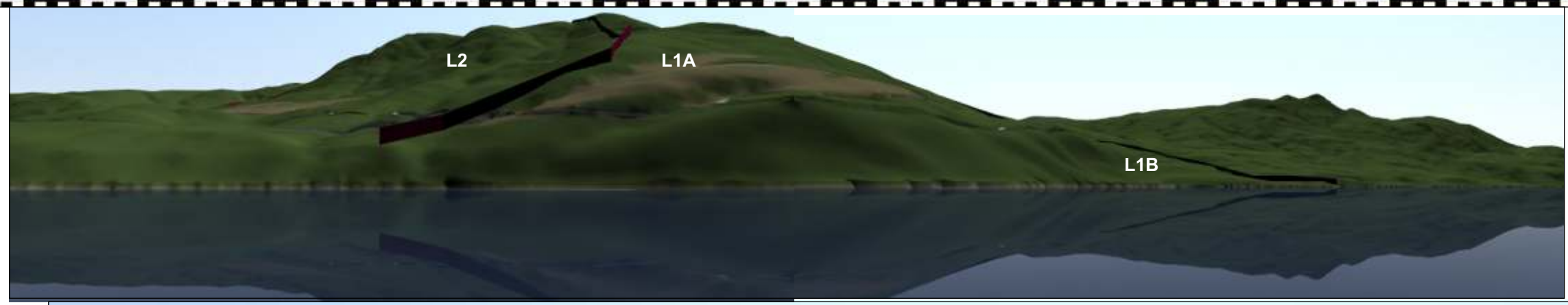
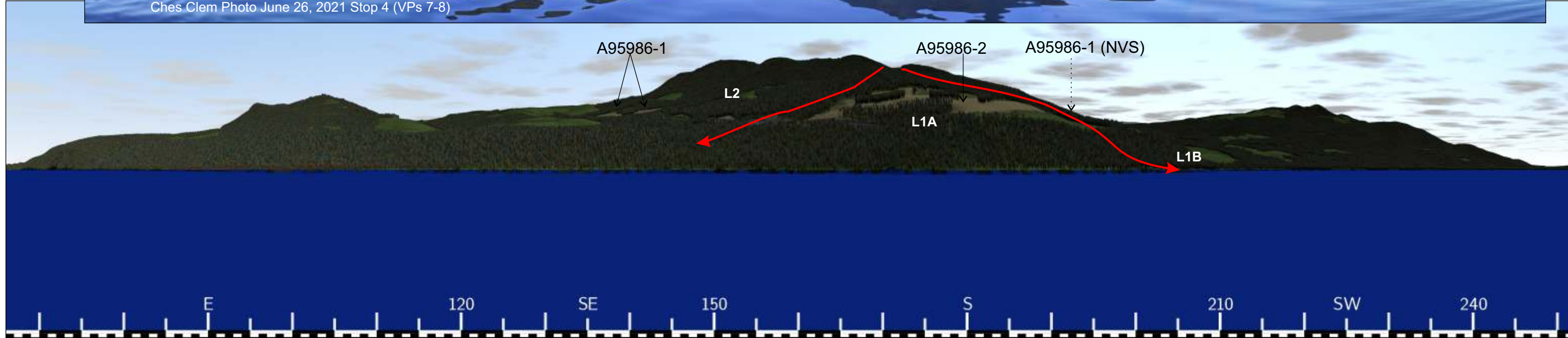
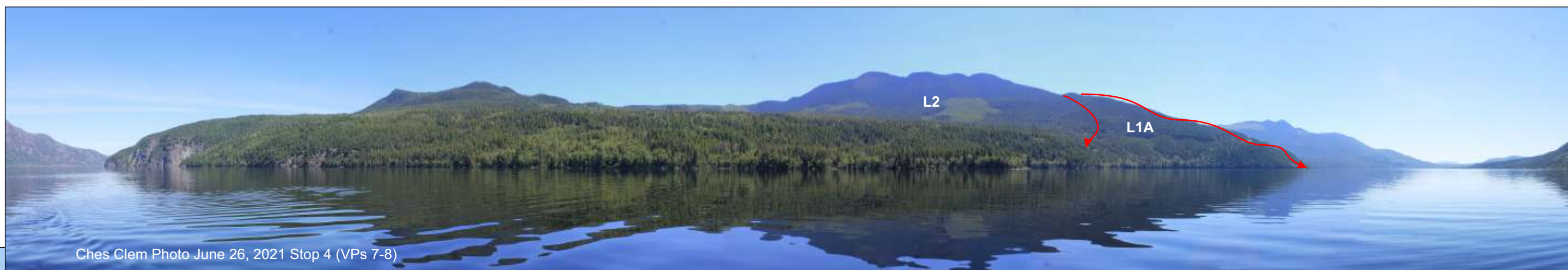


Mahood Lake A95986 Viewpoint 6 Percent Alteration		
NAME	AREA2	% Alt
L1A	936497.95	
B2A	17844.13	1.91%
B2B	1688.21	0.18%
B3	2574.58	0.27%
E1-3.6m VEG	2264.32	0.24%
E2-5.1m VEG	18788.28	2.01%
E3-5.1m VEG	2287.36	0.24%
E4-5.1m VEG	1308.52	0.14%
E5-3.5m VEG	6961.39	0.74%
Sum Alt	53716.79	5.74%
VEG >3.1m per VRI 2020 Height		3.38%
Sum Alt Excluding VEG		2.36%
New Cutblock only		2.36%
3.5m to 5.1m Regen (2020VRI Ht.) meets VEG by ocular exam of photos		

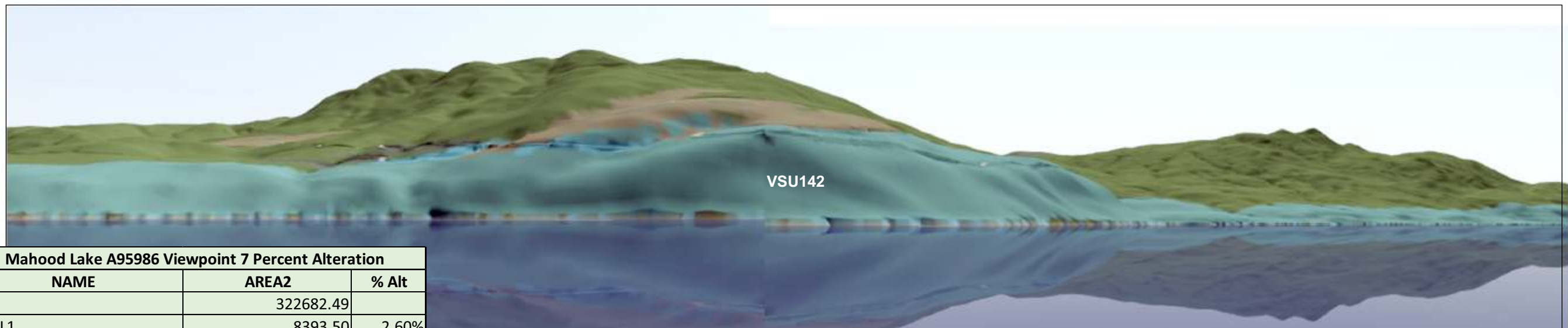
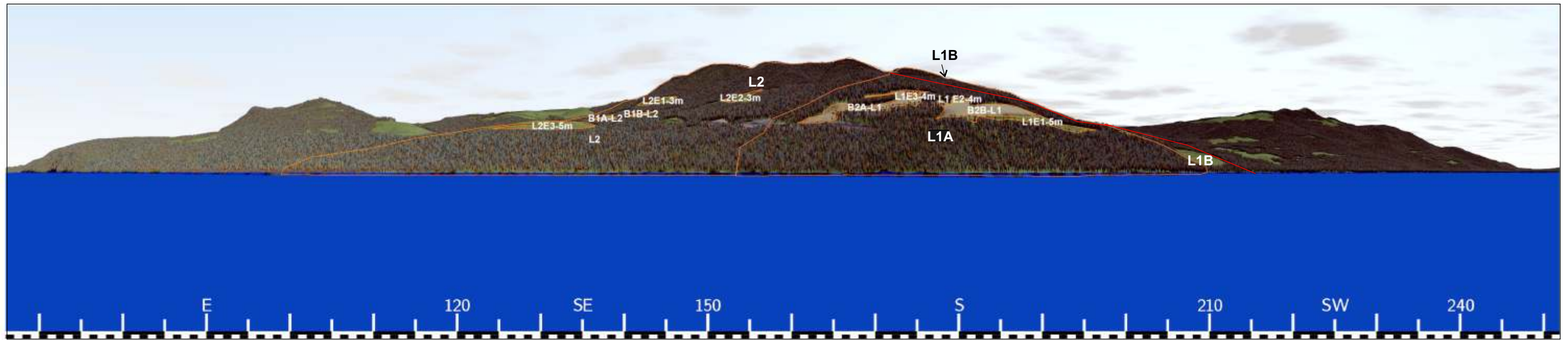


→ Visual Force Convexity
→ Visual Force Concavity

Regrowth of 3.1m height and greater (2020 VRI) achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo on previous page.



Mahood Lake Viewpoint 7

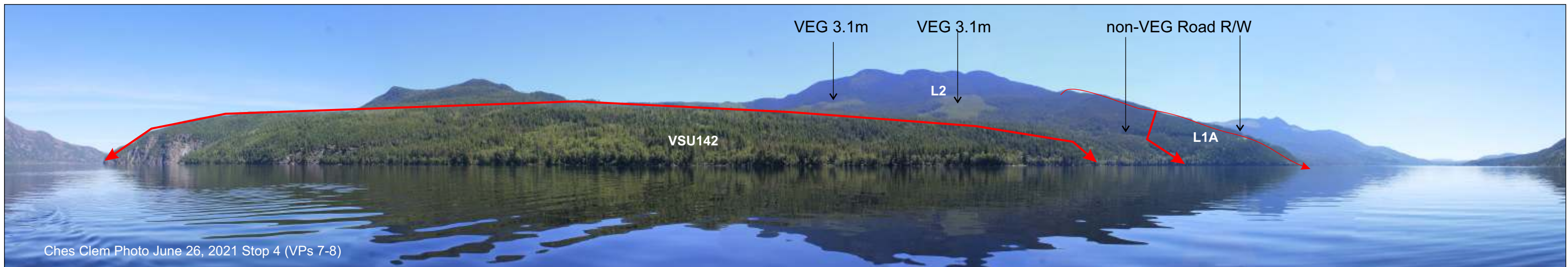
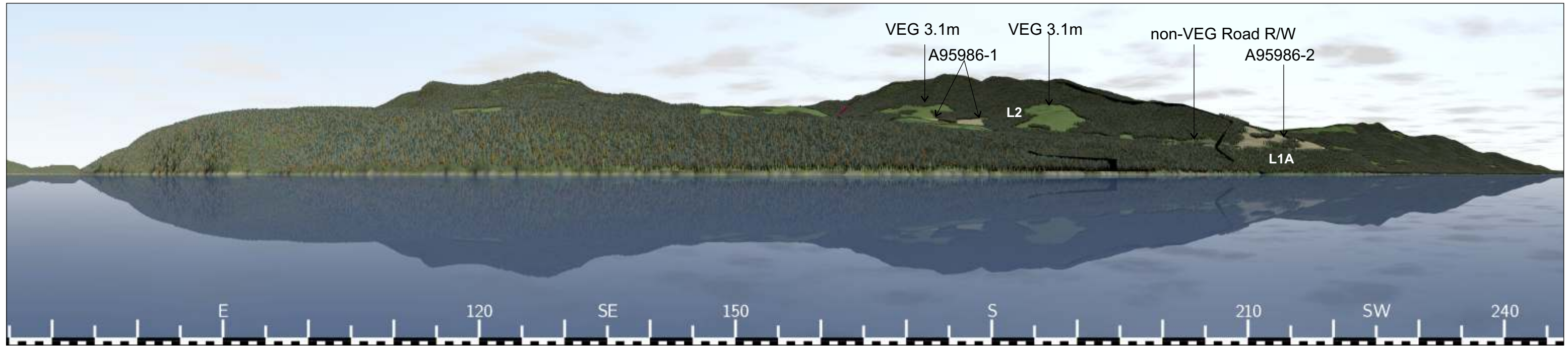


Mahood Lake A95986 Viewpoint 7 Percent Alteration		
NAME	AREA2	% Alt
L1A	322682.49	
B2A-L1	8393.50	2.60%
B2B-L1	10893.59	3.38%
L1E1-5m	5228.59	1.62%
L1 E2-4m	658.64	0.20%
L1E3-4m	245.83	0.08%
Sum Alt	25420.14	7.88%
VEG >3.1m		1.90%
Sum Alt L1A Excluding VEG		5.98%
New Cutblock Only L1A		5.98%
L2	313463.50	
B1A-L2	660.18	0.21%
B1B'L2	482.90	0.15%
L2E1-3.1m	1440.96	0.46%
L2E2-3.1m	1610.00	0.51%
L2E3-5m	4556.60	1.45%
Sum Alt	8750.65	2.79%
VEG >3.1m		2.43%
Sum Alt Excluding VEG		0.36%
New Cutblock Only		0.36%

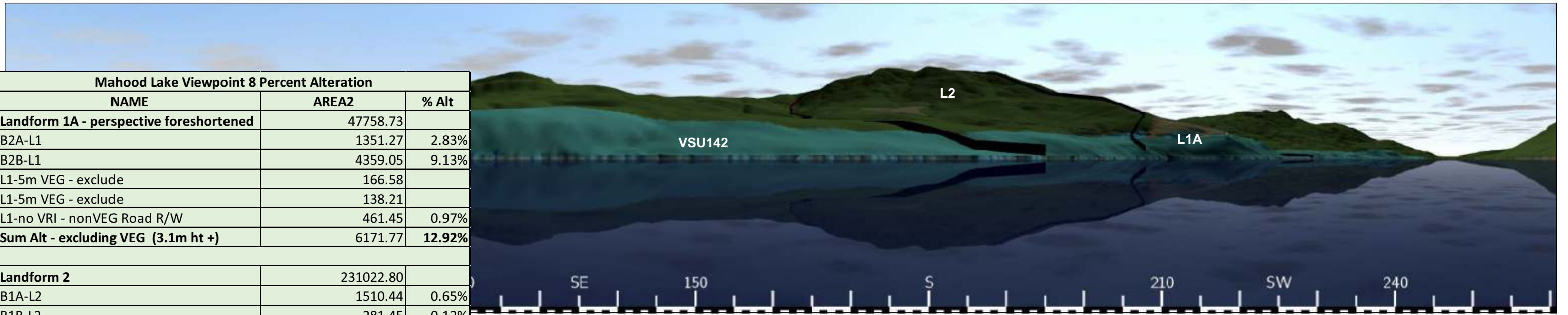
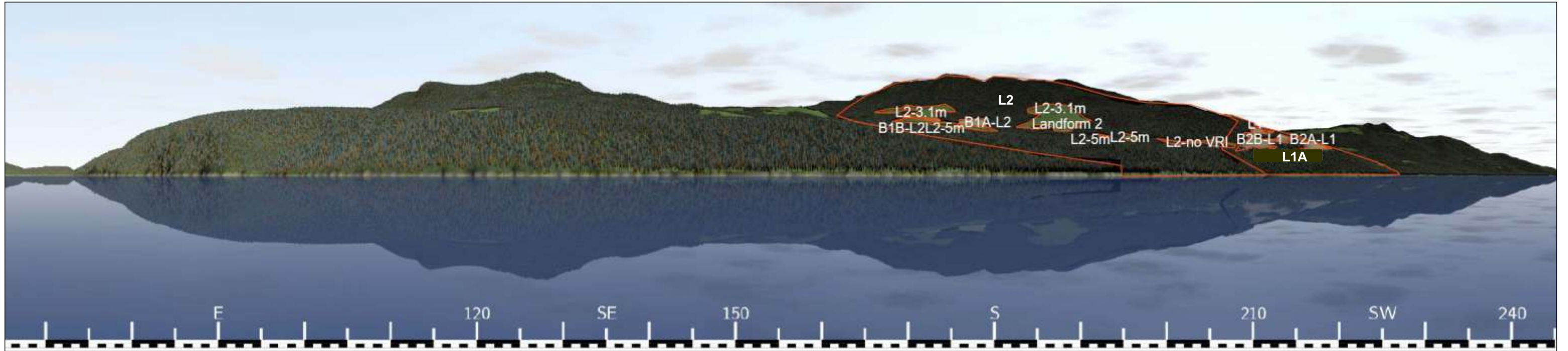
Regrowth in areas with 3.1m height (2020 VRI heights) and greater achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo on previous page.



Mahood Lake Viewpoint 7 Percent Alteration

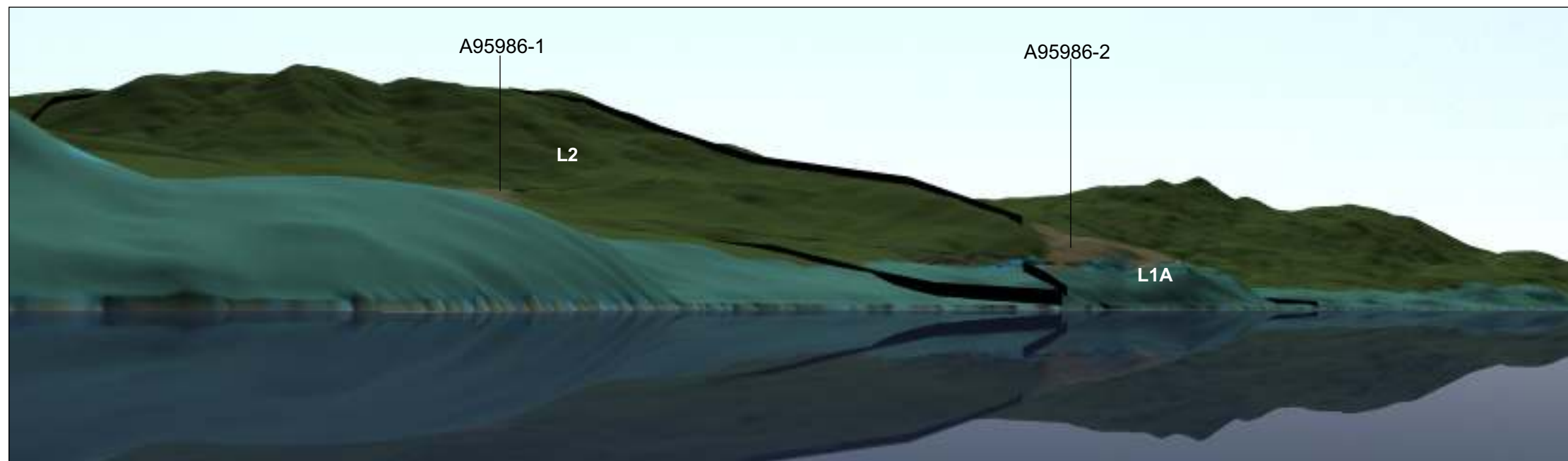
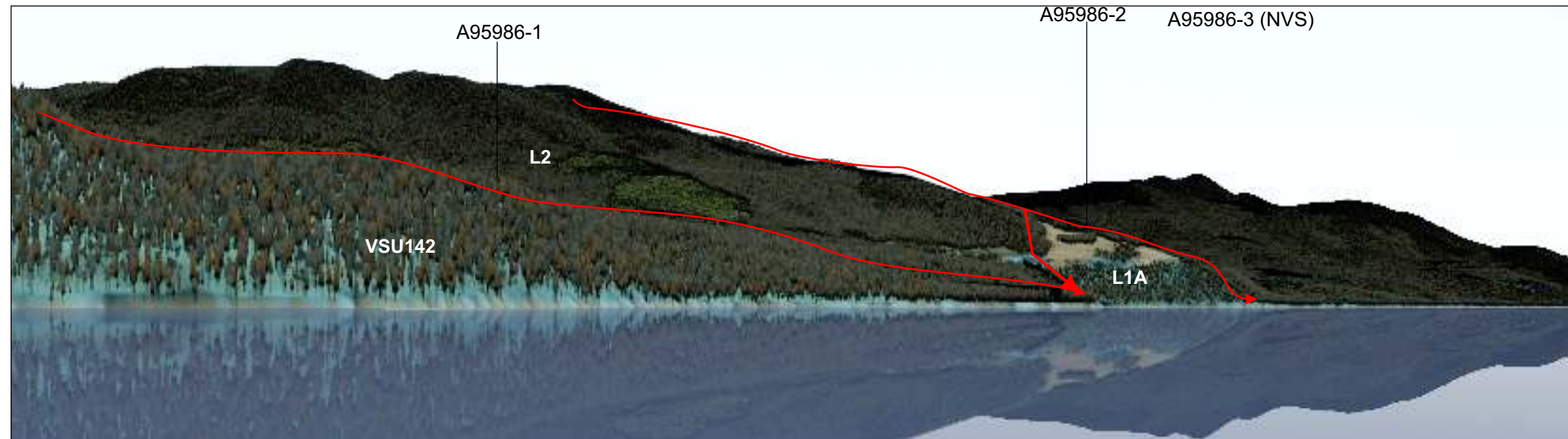


Regrowth of 3.1m height and greater achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo.

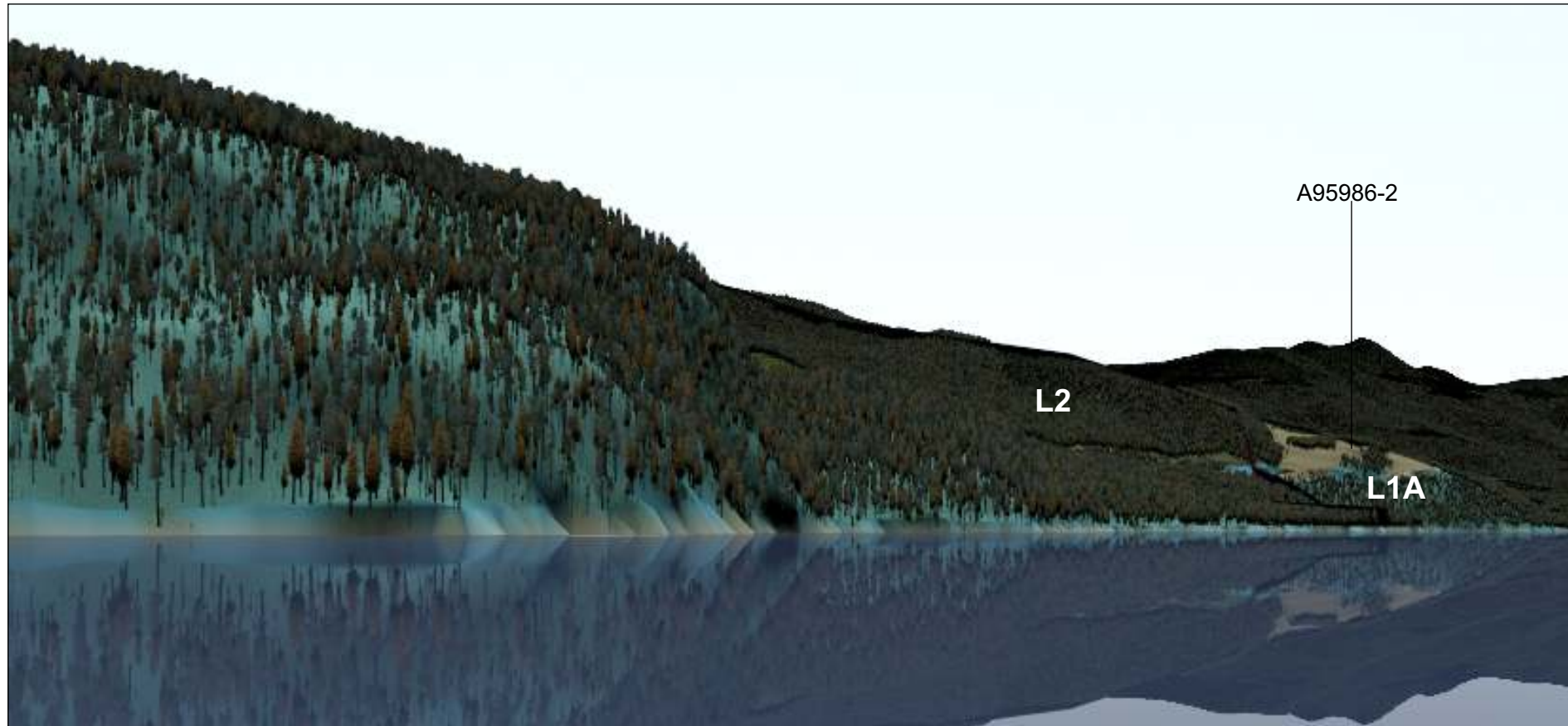


Mahood Lake Viewpoint 8 Percent Alteration		
NAME	AREA2	% Alt
Landform 1A - perspective foreshortened	47758.73	
B2A-L1	1351.27	2.83%
B2B-L1	4359.05	9.13%
L1-5m VEG - exclude	166.58	
L1-5m VEG - exclude	138.21	
L1-no VRI - nonVEG Road R/W	461.45	0.97%
Sum Alt - excluding VEG (3.1m ht +)	6171.77	12.92%
Landform 2	231022.80	
B1A-L2	1510.44	0.65%
B1B-L2	281.45	0.12%
L2-3.1m - exclude	4778.98	
L2-5m - exclude	3486.59	
L2-3.1m - exclude	10746.02	
L2-5m - exclude	98.72	
L2-5m - exclude	613.70	
L2-no VRI - nonVEG Road R/W	1651.48	0.71%
Sum Alt - excluding VEG (3.1m ht +)	3443.38	1.48%
L1A-L2 Combined	278781.53	
Sum Alt	9615.15	3.45%
L1A-L2 Combined - excluding VEG	9615.15	3.45%

Regrowth of 3.1m height and greater achieves Visually Effective Green-up by Ocular Estimate as seen in 2021 Photo on previous page. Severe perspective foreshortening in L1A suggests L1A should be either eliminated from analysis from this viewpoint, or merged with L2 for analysis (RDI's preferred option as no strong division is evident between the landforms). Overall form, line, scale, pattern, and conspicuousness meet Partial Retention.



Mahood Lake Viewpoint 9



Mahood Lake Viewpoint 10