

**BC Timber Sales
Tracy Creek Visual Assessment
RDI Resource Design Inc 2022**

- Landform1_2022
- TRIM_CONTOUR_LINES
- C1-C2_Trails
- May_24_2022_Proposed_Roads
- TrimRd-L1
- Tracy_2016_rds
- tk7zr_road
- TracyVLI2_PR
- Lake
- VQO
- A18693_Talyor_2010
- 2010_A18963_VEG
- May_25_2022_A87699_TRA001
- Genus_Reserves
- March_2_2022_Preliminary_WTRA's_for_Proposed_Blocks
- March_2_2022_Proposed_Tracy_Creek_Blocks

HARVEST_YE

- 2011 - 2012
- 2017 - 2020

- TRIM_WATER_LINES
- TK7ZR-1718
- TRACY_VLI3-M
- Tracy_VQO_Main_PR
- Tracy_VQO_Main_M
- TRACY_VLI2
- Tracy Viewpoints
- Adams_Lake_North
- VLI3
- VQO_2
- 20kbcgrid
- TRIM_WATER_LINES
- TRIM_TRANSPORTATION_LINES

VSU 1183 M and all other M VSUS North of Break constitute Landform 1
VSU 1183 M South of Break not in analysis



Contents	
1	Key Map
2	Contents
3	Summary and Conclusions
4	Viewpoint 1 Simulations
5	Viewpoint 2 Simulations and VP C11 Photos
6	Viewpoint 3 Simulations
7	Viewpoint 3 Percent Alteration
8	Viewpoint 4 Simulations
9	Viewpoint 4 and VP C12 Photos
10	Viewpoint 4 Percent Alteration
11	Viewpoint 5 Simulations
12	Viewpoint 5 and VP C13 Photos
13	Commercial Thinning - C1 & C2

Tracy Creek 2022 Visual Impact Assessment Summary

RDI was requested to conduct the 2022 Tracy Creek VIA by Ches Clem, Contract Administrator, under contract #PD23TEB097. The data link was received on May 19, 2022. The files included 16 cutblocks plus 37 existing cutblocks harvested variously between 2011 and 2020. All cutblocks, WTRA's, and roads are depicted on the key map (page 1). The key map also includes the landforms as delineated by RDI, the constituent Visual Sensitivity Units and related Visual Quality Objectives. Table 1 lists the landforms, VSUs and VQOs. Only Landform 1 contained cutblocks requiring assessment. It has a Modification VQO which was common to each of the 5 VSUs within it. The justification for merging the VSUs in Landform 1 is that they are perceived as a single unit, with no breaks in the skyline across its entirety. VSU 1153 was truncated by RDI along a line meeting Landform 2 in the south end of the operating area to avoid the steep terrain which is identifiably distinct from the main area and which did not contain any new cutblocks.

The 16 cutblocks harvested in 2011-2012 were considered by RDI to exhibit sufficient visual green-up and not tracked further. The remaining 21 cutblocks were tracked and added to percent alteration calculations if they could be visible from five established viewpoints along Adams Lake, as shown on the key map (page 1). Tracy Creek cutblocks will be located on the broadly rounded landform exhibiting a significant pattern and history of forest development and regeneration.

Procedures

RDI placed the terrain, forest, and cutblock information into Visual Nature Studio from 3-D Nature, LLC., and produced 40-degree field of view (50mm lens) individual simulations linked together into panoramas automatically by VNS. Treed renderings utilized current Vegetation Resources Inventory stand height data as well as regeneration height in the existing cutblocks where not updated in the VRI. As well, bare ground versions were produced showing the location of the Modification and Partial Retention landforms. A unique treatment was developed by RDI to portray commercial thinning in two of the cutblocks, TK-2021-C1 and TK-2021-C2. The details of that approach are presented on page 13 of this report. RDI was provided photography taken by Ches Clem in May of this year and placed into panoramas by RDI. The photography was added to the closest main viewpoint sheets (Vp's 2, 4, and 5) and their location were noted on the key map (Vps C11, C12, and C13).

Each cutblock was tracked in real time in VNS for identification. Full panoramic renderings were placed into a CorelDraw document and labelled by cutblock, nonVEG existing openings, and landform. Roads were simulated and may be seen in the renderings where they are apparent. The key map was produced by RDI using ArcGIS.

Results

Table 2 summarizes the visibility of each of the new cutblocks as seen from the five viewpoints. All cutblocks have at least some visibility with the exception of TKAG6 and TKAGC which remain unseen according to the visual simulations. RDI calculated percent alteration in perspective (camera) view from Vp 3 and Vp 4 as both were considered to be the best viewing opportunities (most direct, "worst case"). In consideration of both the new cutblocks and existing nonVEG cutblocks, both viewpoints easily meet the verbal definition of the Modification Visual Quality Class (very easy to see, large in scale and natural in appearance, or small in scale with some angular characteristics. The results for Vp3 are presented on page 7 indicating 9.19% alteration, and on page 10 for Vp4 at 7.0% alteration. They are summarized in Table 3. The Modification Visual Quality Class is easily met by the prescribed definitions and measures from both viewpoints. Visibility and percent alteration calculations will be considerably reduced for cutblocks C1 and C2 which are to be commercially thinned with 4-5m trails every 20m (page 13).

Conclusion

The VQO of Modification can be easily met with the present plan, and allows for inclusion of any earlier harvesting considered still to be nonVEG.



Ken B. Fairhurst, PhD, RPF
RDI Resource Design Inc
June 10, 2022

Table 1

Tracy Landforms - VSUs			
Landform	VSU	VQO	Notes
1	1081	M	
1	1153	M	north portion only
1	1084	M	
1	1088	M	
1	1094	M	
2	1147	PR	
2	1148	PR	
2	1245	PR	
3	1080	PR	
3	1078	PR	
n/a	1150	M	

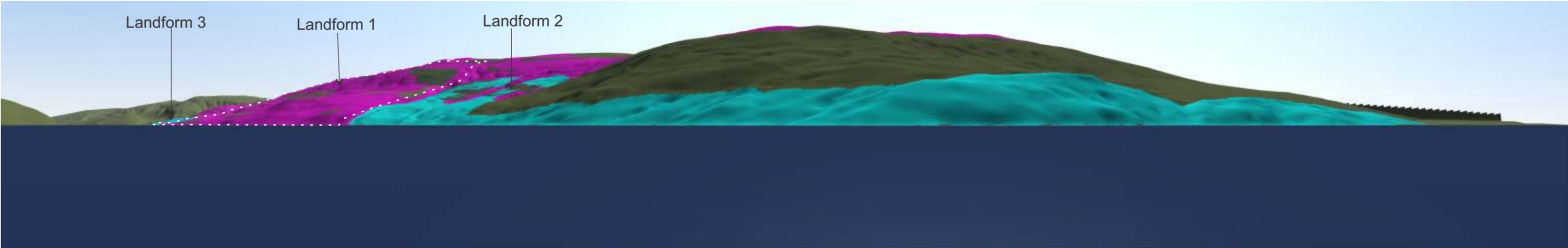
Table 2

Tracy 2022 Cutblock Visibility					
Cutblock	VP5	VP4	VP3	VP2	VP1
TKAF4	VS	VS			
TK948	V	VS			
TK-2021-09	VL	VL	VS		
TK-2021-06	VL	VL	VS		
TKAFG	VL	VL	V		
TKAFE	VL	VL	V	VS	VS
TK7Z3	V	V	V		VS
TKAGE	V	V	V	VS	VS
TK-2021-C2	VL*	VL*	VL*	VS	
TKAG0	V	V	V		
TK-2021-C1	VL*	VL*	VL*	VS	
TKAFS	V	V	V		
TKAFA				V	V
TKAG6					
TKAGC					
TKAFC				VS	VS
TK7ZR-L20				VL	VL

VISIBLE Cutblocks: VS is very small, VL is very large, V is midsize
VL* Cutblocks C1 and C2 are to be commercially thinned and will mainly be self-screened - see page 13 for details.

Table 3 Percent Alteration

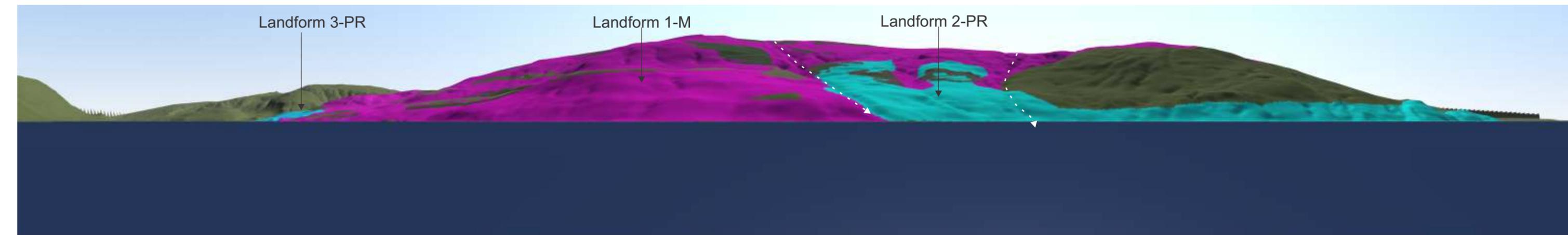
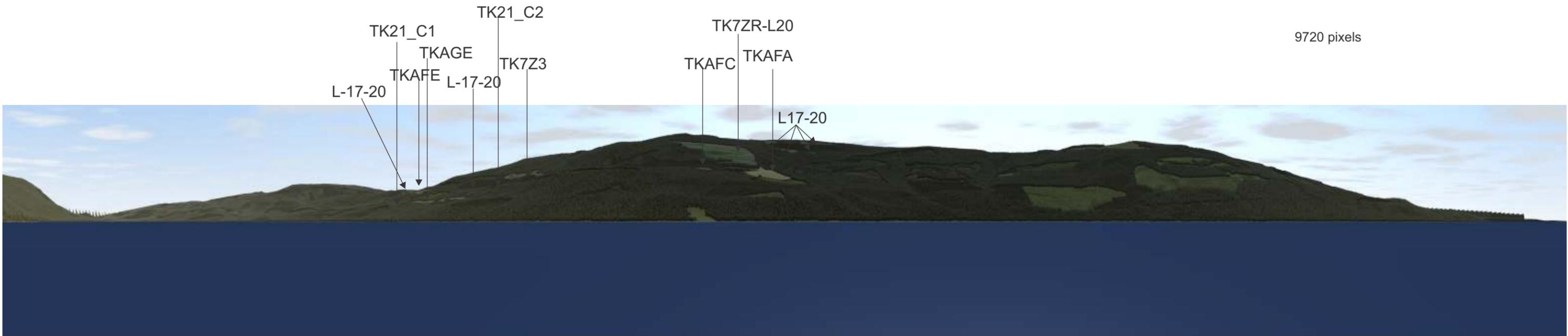
Vp 3 (9.19%)
Vp 4 (7.0%)



- Landforms with Modification VQO
- Landforms with Partial Retention VQO

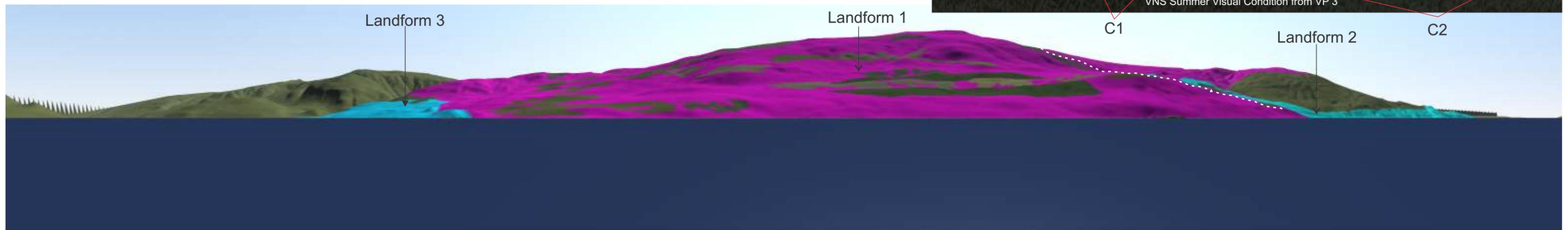
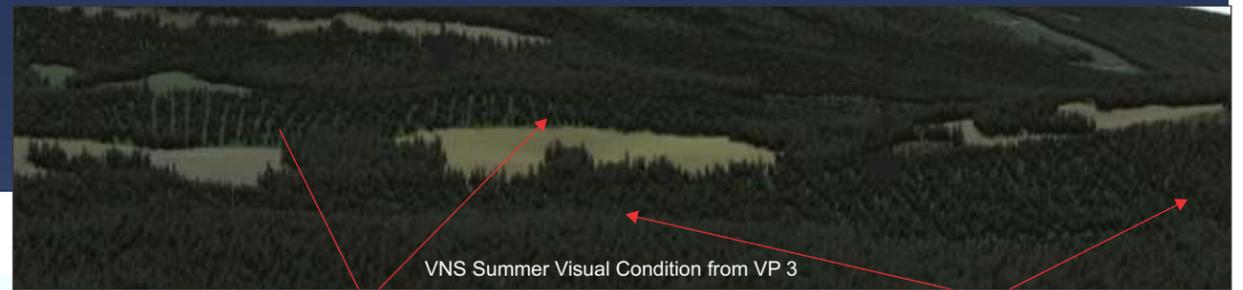
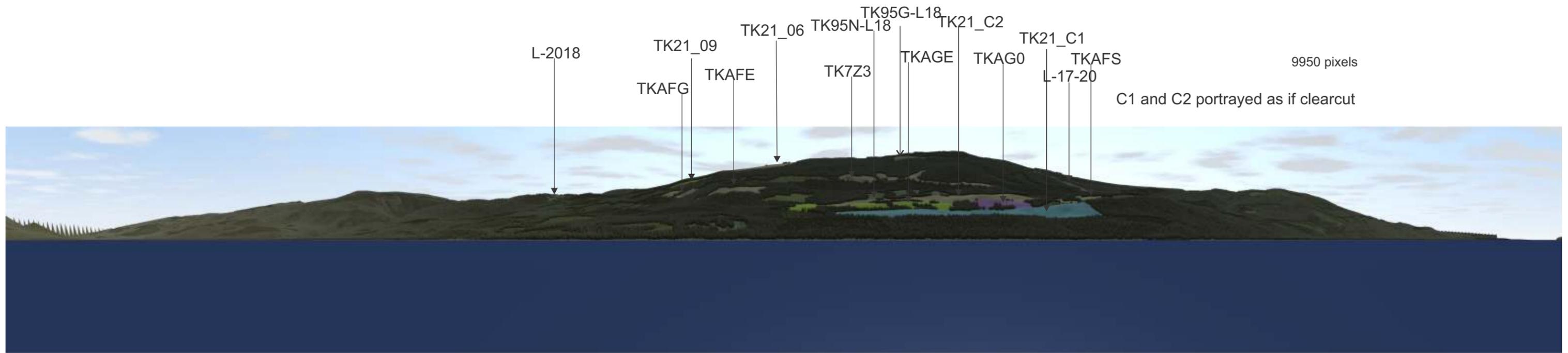


Ches Clem Photo VP C11 May 16, 2022 8:40 AM / 51.263222N / 119.51319W / RDI Color Autopano Giga 4.2 Panorama - 1160m SW of VP 2



- Landforms with Modification VQO
- Landforms with Partial Retention VQO

Viewpoint 2



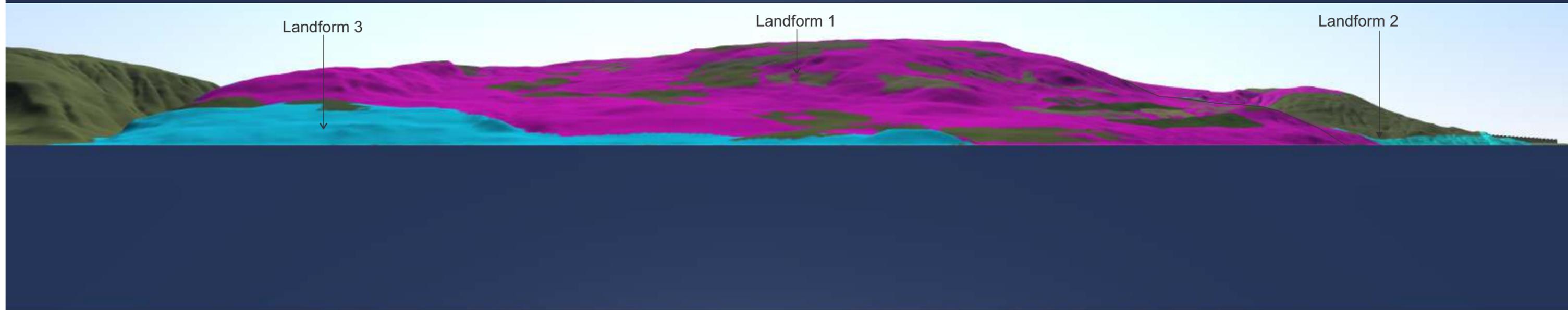
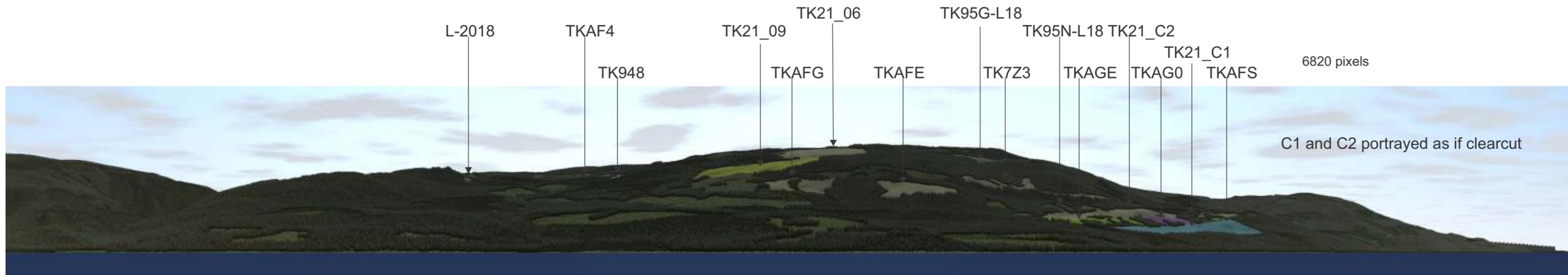
- Landforms with Modification VQO
- Landforms with Partial Retention VQO



Tracy VP3 Percent Alteration		
NAME	AREA2	% Alt
Landform 1-M	483660.60	
L-2018	575.52	0.12%
TKAFG-1	635.79	0.13%
TKAFG-2	785.43	0.16%
TK21_09	455.52	0.09%
TKAFE	2459.37	0.51%
TK21_06	903.48	0.19%
TK7Z3-7	1972.18	0.41%
TK7Z3-6	711.53	0.15%
TK7Z3-5	829.94	0.17%
TK7Z3-4	310.03	0.06%
TK7Z3-3	69.48	0.01%
TK7Z3-2	192.56	0.04%
TK7Z3-1	568.62	0.12%
TK95G-L18	671.79	0.14%
TK95N-L18-4	902.31	0.19%
TK95N-L18-3	624.89	0.13%
TK95N-L18-2	173.90	0.04%
TK95N-L18-1	413.45	0.09%
TKAGE-3	1176.73	0.24%
TKAGE-2	1598.03	0.33%
TKAGE-1	2173.53	0.45%
TK21_C2	7728.43	1.60%
TK21_C1	13382.18	2.77%
TKAG0	2939.10	0.61%
TKAFS-1	608.82	0.13%
L17-20	1317.29	0.27%
TKAFS-2	288.33	0.06%
Sum Alt L1 - M	44468.21	9.19%
C1 and C2 calculated as if clearcut; 40% BAR and 20% of total area as trail clearing reduce the percent alteration. Branching along trails further reduces visibility.		

C1 and C2 Commercial Thinning Percent Alteration as if Clearcut
(see page13 for details)

Viewpoint 3 Percent Alteration



- Landforms with Modification VQO
- Landforms with Partial Retention VQO

Viewpoint 4



Ches Clem Photo VP C12 May 16, 2022 8:17 AM / 51.3260445N / 119.4742W / RDI Color Autopano Giga 4.2 Panorama - 890m W of VP 4



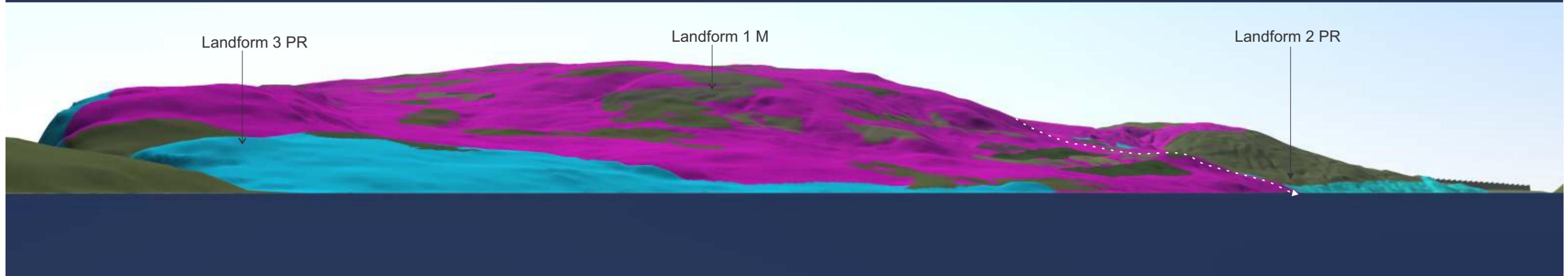
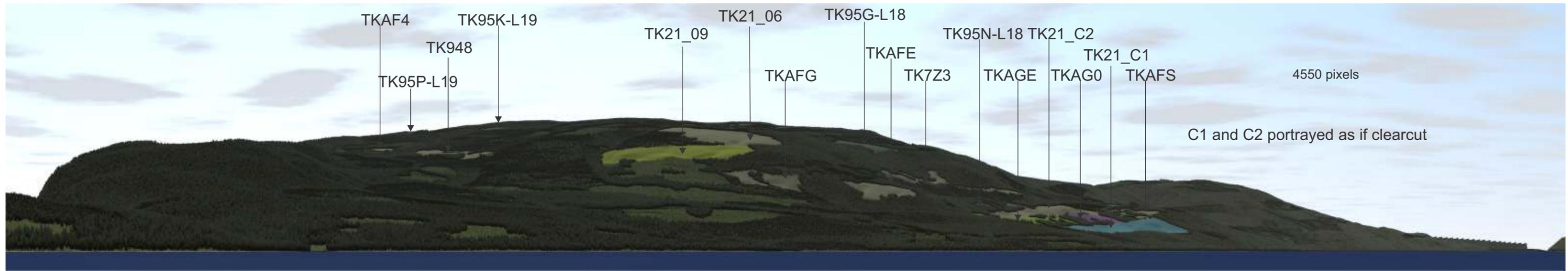


Landform 1 has Modification VQO

Tracy Creek Percent Alteration Viewpoint 4		
NAME	AREA2	% Alt
Landform 1-M	735461.26	
L-2018	199.19	0.03%
L-2018	232.14	0.03%
L-2018	49.10	0.01%
TKAF4	75.93	0.01%
TKAF4	49.94	0.01%
TK948	66.46	0.01%
TK948	222.77	0.03%
TK948	25.99	0.00%
TK21_09	8283.59	1.13%
TK21_06	5897.33	0.80%
TKAFG	2088.71	0.28%
TKAFG	3645.57	0.50%
TKAFE	6906.14	0.94%
TK723	4124.42	0.56%
TKAGE	141.41	0.02%
TKAGE	1826.98	0.25%
TKAGE	340.96	0.05%
TKAG0	1736.54	0.24%
TKAFS	24.88	0.00%
TKAFS	44.72	0.01%
TKAFS	124.89	0.02%
TKAFS	546.83	0.07%
TKAFS	131.77	0.02%
TK21_C2	4253.55	0.58%
TK21_C1	8416.40	1.14%
TK95N-L18	352.08	0.05%
TK95N-L18	188.90	0.03%
TK95N-L18	420.54	0.06%
TK95G-L18	1155.32	0.16%
Sum Alt Landform 1 - M	51573.07	7.01%

C1 and C2 Commercial Thinning Percent Alteration as if Clearcut
(see page13 for details)

Viewpoint 4 Percent Alteration



- Landforms with Modification VQO
- Landforms with Partial Retention VQO



Ches Clem Photo VP C13 May 16, 2022 7:59 AM / 51.292639N / 119.474139W / RDI Color Autopano Giga 4.2 Panorama - 740m SW of VP 5



TK21_C2 Commercial Thinning

TK21_C1 Commercial Thinning

(see page13 for details)

Tracy Creek Commercial Thinning - Demonstration Concept and Visuals

Email from Ches Clem June 2, 2022:

Proposed blocks TK_2021_C1 and TK_2021_C2 are commercial thinning candidate blocks where we would only be removing 40% of the basal area and leaving a stocked stand. With only 4-5 meter wide access trails I am not sure if there would be any visual impact at all? Have you modeled a treatment like this before?

Here is a Google Earth image of commercial thinning interior Douglas-fir near Quesnel, 2019.



Google Earth image of commercial thinning interior Douglas-fir near Quesnel, 2019

KF Email to Ches June 6: Results for C1-C2 indicate 20% of stand area will be cleared for the access trails though visibility will be narrowed by tree branches along edges, and where view is not directly aligned with a given trail.

Email from Ches June 6:

The Stand Modelling Research Scientist indicated that the total basal area removal should be 40% for the whole block, this includes the access trails. So if the access trails comprise 20% of the block and we are removing 100% of the basal area for the trails, then we would be removing quite a bit less than 40% of the basal area between the trails.

Example using easy math:

Basal Area = 40 m²/ha average for the block

Block area= 100 ha's

Basal Area of 40 m²/ha X 100 ha's = 4000 m² total

4000 m² x 0.4 = 1600 m² we can remove (40% of the blocks basal area)

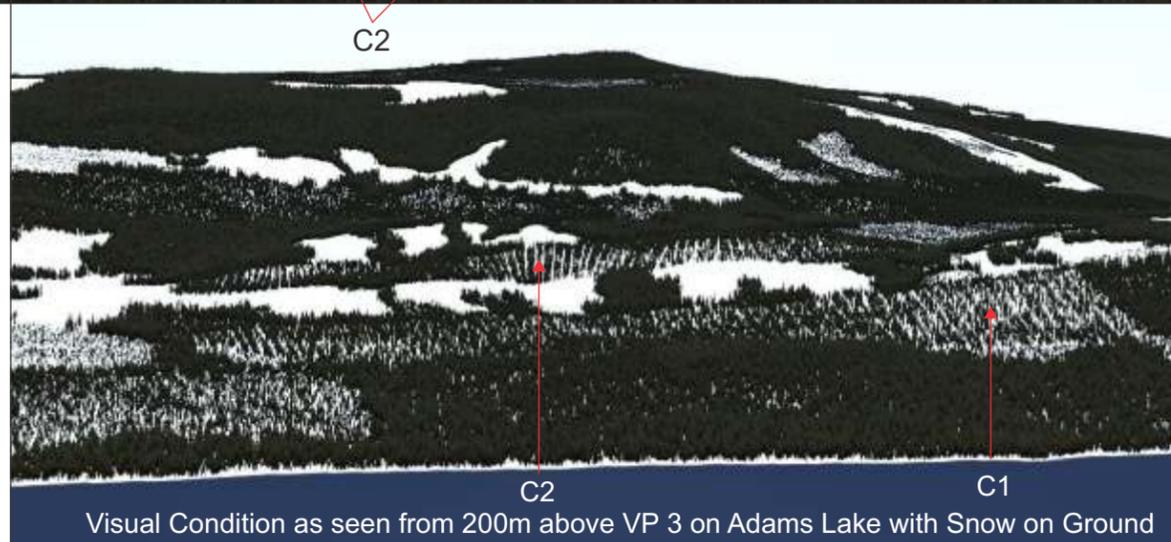
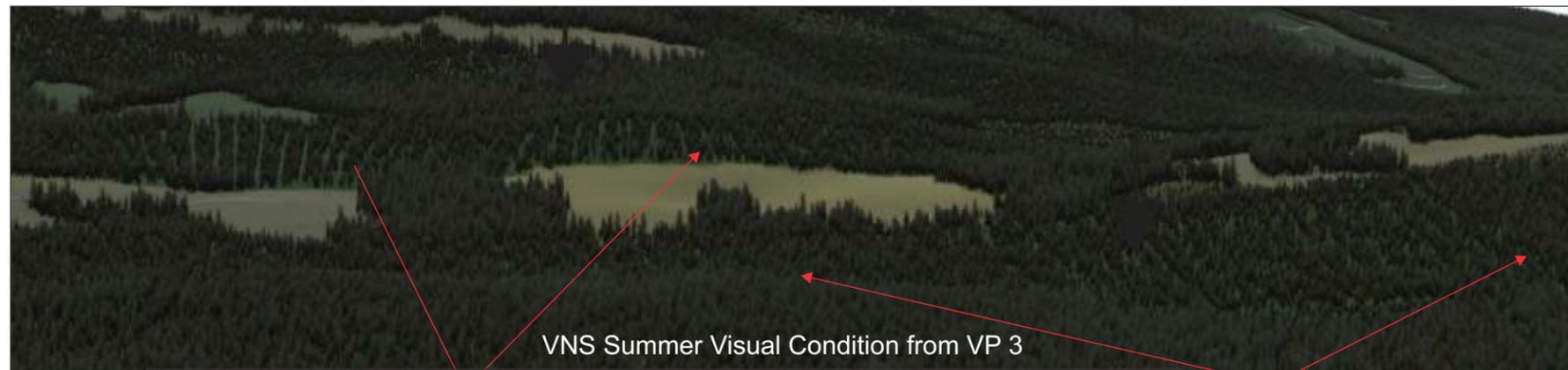
If in your example there is 20 ha's for trails... 20 ha's x 40 m²/ha (removing 100% of the basal area of the trails) = 800 m² of basal area.

That leaves an additional 800 m² of basal area that can be removed between the trails.

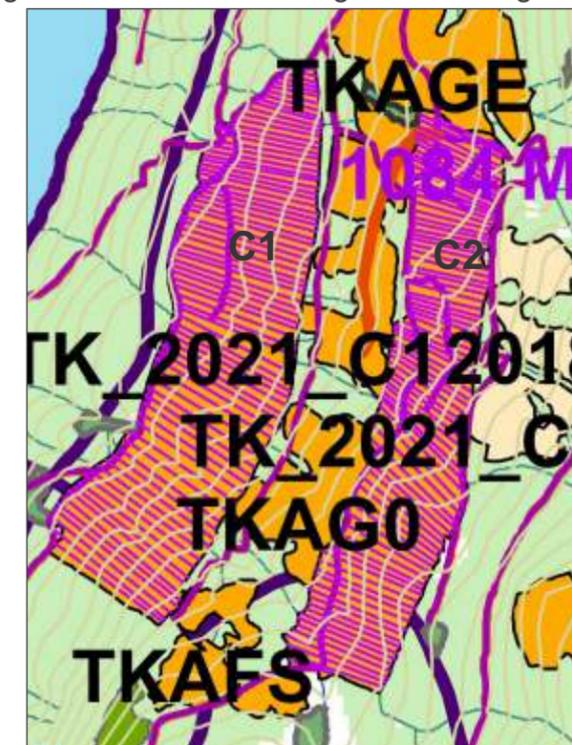
There are 80 ha's that are left to be treated

80 ha's x 10m²/ha = 800 m²

So we can remove 10 m²/ha or 25% of the Basal area per hectare between the trails.



Viewpoint 3



ArcGIS Tracy Creek Cutblocks C1 and C2 with RDI's Access Trails pattern.