

### REGULAR MEETING OF MUNICIPAL COUNCIL AGENDA

Tuesday, April 7, 2020, 5:30 p.m.

### **Remote Meeting**

https://www.whistler.ca/municipal-gov/council/watch-council-meetings

- 1. CALL TO ORDER
- 2. ADOPTION OF AGENDA

That Council adopt the Regular Council Meeting Agenda of April 7, 2020.

3. ADOPTION OF MINUTES

That Council adopt the Regular Council Meeting Minutes of March 3, 2020.

### 4. PRESENTATIONS AND DELEGATIONS

### 4.1 Emergency Operations Centre, COVID-19 Update

A presentation by Chief Administrative Officer Mike Furey, regarding the Emergency Operations Centre, COVID-19 Update.

### a. New Provincial Council Meeting Procedures

A presentation by General Manager of Corporate and Community Services Ted Battiston, regarding the New Provincial Council Meeting Procedures

### b. Overview of Federal and Provincial COVID-19 Support Programs

A presentation by Interim General Manager of Resort Experience Toni Metcalf, regarding the Overview of Federal and Provincial COVID-19 Support Programs.

### c. Community Communication During COVID-19

A presentation by Communications Manger Michele Comeau and Senior Communications Officer Gillian Robinson, regarding Community Communication During COVID-19.

### d. Municipal Finance Forecast - COVID-19 Emergency

A presentation by Director of Finance Carlee Price, regarding the Municipal Finance Forecast - COVID-19 Emergency.

### 5. PUBLIC QUESTION AND ANSWER PERIOD

- 6. MAYOR'S REPORT
- 7. INFORMATION REPORTS

### 7.1 Fourth Quarter Financial Report - 2019 Report No. 20-037 File No. 4530

A presentation by municipal staff.

That Council receive Information Report No. 20-037 Quarterly Financial Report for the year ended December 31, 2019.

### 8. ADMINISTRATIVE REPORTS

### 8.1 DP1731 - 4365 Northlands Blvd. - Pool Area and Office Renovations Report No. 20-032 File No. DP1731

A presentation by municipal staff.

**That** Council approve the issuance of Development Permit 1731 for the proposed Twin Peaks Resort exterior renovations at 4365 Northlands Blvd. as illustrated on Architectural Plans Revision J A001, A002, A101, A102, A103, A104, A201, A701, A901, A902, A903 dated March 3, 2020 prepared by DVAD Inc. and attached as Appendix "B" to Administrative Report No. 20-032.

### 8.2 Human-Grizzly Bear Conflict Mitigation Strategy Report No. 20-035 File No. 8396

A presentation by municipal staff.

That Council endorse the Human-Grizzly Bear Conflict Mitigation Strategy.

### 8.3 Alta Vista Services Upgrade Project - Phase 1 Contract Award Report No. 20-036 File No. E32004-E20507-T001

### A presentation by municipal staff.

**That** Council award the contract for the first phase of the Alta Vista Services Upgrade Project in the amount of \$2,719,093.00 (exclusive of GST) to Capilano Highway Services in accordance with their tender proposal dated February 13, 2020.

### 9. MINUTES OF COMMITTEES AND COMMISSIONS

### 9.1 Recreation and Leisure Advisory Committee

Regular Meeting Minutes of the Recreation and Leisure Advisory Committee of December 12, 2019.

### 10. OTHER BUSINESS

### 11. CORRESPONDENCE

### 11.1 Alpine Trails Grizzly Bear Conflict Mitigation Strategy File No. 8396

Correspondence from Johnny Mikes regarding the Alpine Trails Grizzly Bear Conflict Mitigation Strategy.

### 11.2 Bylaws for Snow Removal in Whistler File No. 3009

Correspondence from Jay Gray, regarding Bylaws for Snow Removal in Whistler.

### 11.3 Overnight Parking Bylaws File No. 3009

Correspondence from Jay Gray, regarding overnight parking bylaws.

### 11.4 Parking Fee Increase File No. 3009

Correspondence from Georges Payrastre, regarding the parking fee increase.

### 11.5 Family Après Thank You File No. 3009

Correspondence from Patrick Smyth thanking the RMOW for the Family Après.

### 11.6 Outdoor Chin Up Bar at Meadow Park

Correspondence from Flynn Trotter regarding and outdoor chin up bar at Meadow Park.

### 11.7 Annual Conference on Circular Economy File No. 3009

Correspondence from Brock Macdonald, Chief Executive Officer, Recycling Council of British Columbia, regarding the Annual Conference on Circular Economy.

### 11.8 Forest Enhancement Society of BC Accomplishments Update File No. 3009

Correspondence from Wayne Clogg, Board Chair, Forest Enhancement Society of BC regarding an accomplishments update.

### 11.9 Pique Newsmagazine Communication Plan File No. 3009

Correspondence from Sarah Strother, President and Publisher, Pique Newsmagazine, regarding the Pique Newsmagazine Communication Plan.

### 11.10 UBCM Resolutions Process File No. 2014

Correspondence from Maja Tait, UBCM President and Claur Moglove, Chair, Resolutions Committee, regarding the UBCM Resolutions Process.

### 11.11 Request for support for a National Pharmacare Program File No. 2014

Correspondence from Gillian Day, Agenda Secretary, City of New Westminster, regarding a request for support for a National Pharmacare Program.

### 11.12 Proclamation Request - Melanoma Awareness Month File No. 3009.1

Correspondence from Kathleen Barnard, Founder and President, Save Your Skin Foundation, requesting that May 2020 be proclaimed Melanoma Awareness Month in Whistler.

### 11.13 Light Up Requests

### a. PMDD Awareness File No. 3009.1

Correspondence from Brett Buchert, Peer Support Coordinator, International Association for Premenstrual Disorders, requesting that on April 26, 2020 the Fitzsimmons Bridge be lit teal in support of PMDD Awareness Month.

### b. Food Allergy Awareness File No. 3009.1

Correspondence from Michelle DeFacendis, Food Allergy Canada, requesting that on May 1, 2020 the Fitzsimmons Bridge be lit teal in support of Food Allergy Awareness.

### c. International Recovery Day File No. 3009.1

Correspondence from Alex Bond, International Recovery Day Inc., requesting that on September 30, 2020 the Fitzsimmons Bridge be lit purple in support of International Recovery Day.

### d. World Diabetes Day File No. 3009.1

Correspondence from Glenda Morin, Diabetes Canada, BC and Yukon and Sarah Kinsman, JDRF, BC and Yukon Chapter requesting that on November 14, 2020 the Fitzsimmons Bridge be lit blue in support of World Diabetes Day.

### e. National Children's Grief Awareness Day File No. 3009.1

Correspondence from Kimberly Thomson, National Director, Rainbows for All Children Canada Inc., requesting that on November 19, 2020 the Fitzsimmons Bridge be lit blue in support of Children's Grief Awareness Day.

### 12. TERMINATION

That the Regular Council Meeting of April 7, 2020 be terminated.



### **REGULAR MEETING OF MUNICIPAL COUNCIL**

### AND PUBLIC HEARING

### MINUTES

Tuesday, March 3, 2020, 5:30 p.m. Franz Wilhelmsen Theatre at Maury Young Arts Centre 4335 Blackcomb Way, Whistler, BC V8E 0X5

- PRESENT: Mayor J. Crompton Councillor A. De Jong Councillor R. Forsyth Councillor J. Ford Councillor J. Grills Councillor D. Jackson Councillor C. Jewett
- STAFF PRESENT: Chief Administrative Officer, M. Furey General Manager of Corporate and Community Services, T. Battiston General Manager of Infrastructure Services, J. Hallisey Interim General Manager of Resort Experience, T. Metcalf Director of Planning, M. Kirkegaard Municipal Clerk, A. Banman Manager of Cultural Planning and Development, J. Rae Manager of Village Animation and Events, B. Andrea Manager of Resort Parks Planning, M. Pardoe Acting Manager of Communications, C. Piech Acting Senior Planner, R. Licko Planner, S. Johnson Council Coordinator, N. Cooper
- OTHERS: Sue Adams, Chair and Member at Large, Festivals, Event and Animation Oversight Committee

### 1. CALL TO ORDER

Mayor J. Crompton recognized that the Meeting is being held on the traditional territories of the Lil'wat Nation and the Squamish Nation.

Mayor J. Crompton acknowledged the attendance of Freedom of the Municipality Holder Sue Adams.

### 2. ADOPTION OF AGENDA

Moved By Councillor J. Ford

Seconded By Councillor J. Grills

That Council adopt the Regular Council Meeting Agenda of March 3, 2020.

CARRIED

Page 1

Minutes - Regular Council Meeting and Public Hearing - Resort Municipality of Whistler March 3, 2020

### 3. ADOPTION OF MINUTES

Moved By Councillor R. Forsyth

Seconded By Councillor C. Jewett

That Council adopt the Regular Council Meeting Minutes of February 18, 2020.

CARRIED

### 4. PRESENTATIONS AND DELEGATIONS

### 4.1 Festivals, Events and Animation Oversight Committee Program and Budget Update

A presentation was given by Festivals, Events and Animation Oversight Committee Member at Large and Chair Sue Adams, and Manager of Festivals, Events and Animation Bob Andrea regarding a Program and Budget Update.

### 5. PUBLIC QUESTION AND ANSWER PERIOD

There were no questions from the public.

### 6. MAYOR'S REPORT

Interim General Manager of Resort Experience

Mayor J. Crompton welcomed Interim General Manager of Resort Experience Toni Metcalf to her first Council Meeting in her new position.

### UBCM Meetings

Mayor J. Crompton noted that he and Councillor Ford met some of their provincial counterparts last week in Victoria for UBCM meetings. He noted that they met with the Premier, the Minister of Municipal Affairs and Housing, Minister of Tourism and the CEO of BC Transit among others.

### 2010 Olympics 10th Anniversary Celebration

Mayor J. Crompton attended the 2010 Olympics 10th Anniversary Celebration in Vancouver. He added that he has enjoyed remembering the Olympics over the last two weeks.

Mayor J. Crompton noted that, as part of the two-month long celebrations for the tenth anniversary of the twenty ten Games, he recently attended a surprise pop-up event at the GLC. The event featured two Canadian icons: the Honourable Nancy Greene Raine and Ashleigh McIvor DeMerit. He noted that both guests spoke about their experiences at the Games: Nancy as an Olympic Ambassador and Ashleigh on winning gold in Women's Ski Cross. Mayor J. Crompton noted that Whistler will be celebrating the anniversary of the Paralympic Games starting on March 12, 2020. More information can be found online at whistler.ca/2010anniversary.

### Meadow Park Sports Centre Expansion

Mayor J. Crompton announced that the Meadow Park Sports Centre expansion project is now finished. He and Council cut the ribbon at the official opening on February 25, 2020 and handed out cake to the public. He noted that the expansion adds 138 sq. m. of

space to the facility, expanding the cardio room and adding a new space dedicated to stretching. He thanked the Emerald Foundation, through the Community Foundation of Whistler, for their donation that ultimately made the work possible at this time.

### Whistler Transportation Survey

Mayor J. Crompton reminded the community to complete the Whistler Transportation Survey. He noted that the survey is an opportunity to share feedback about the proposed 2020 Transportation Action Plan, including free summer transit days, parking revenue and regional transit. The survey follows the Transportation Advisory Group's information session on February 18, 2020 about recent transportation successes and recommended changes for transit, parking and Highway 99. He advised that the survey is open until March 12, 2020 and can be found at whistler.ca/movingwhistler.

### Whistler Podcast

Mayor J. Crompton noted that the the latest episode of The Whistler Podcast is now online. He added that this week will feature the five-time Paralympic medalist and RMOW staff member Lindsay Debou as well as Whistler's Britt Janyk.

### Council's Cross Country Skiing and Snowshoeing Tour

Mayor J. Crompton noted that he and Council recently checked out the cross-country skiing and snowshoeing at the Lost Lake Nordic Trails. He noted that the trails are open from 8 a.m. until 8 p.m. daily, and are scheduled to stay operating until the end of March.

### Whistler Youth Centre

Mayor J. Crompton advised that Whistler's Youth Centre has new operating hours for the rest of the school year, and is now open Wednesday evenings. To view the centre's activity schedule, as well as their programs in partnership with other local organizations, visit whistleryouthcentre.com or visit their Facebook and Instagram pages.

### Poet's Pause competition

Mayor J. Crompton noted that the deadline for the Poet's Pause competition is March 9, 2020. He added that the winning poems will be read at the Council meeting on April 7, 2020 as part of National Poetry Month and displayed at the Poet's Pause sculpture sites in Alta Lake Park. He noted that the winning poets will also receive \$200 each. More information can be found on line at whistler.ca/poetrycompetition.

### International Women's Day

Mayor J. Crompton noted that Sunday, March 8, 2020 is International Women's Day. He noted that it is a global celebration of the social, economic, cultural and political achievements of women. The 2020 campaign theme is #EachforEqual. He added that Whistler is proud of its diverse community, and he encourages everyone to think and be inclusive every day.

### **Condolences**

On behalf of Council and the Resort Municipality of Whistler, Mayor J. Crompton shared condolences with the Lil'wat Nation and the Anderson family following the passing of the son of former Lil'wat Nation Councillor Josh Anderson.

### Councillor C. Jewett

Councillor C. Jewett noted that Arts whistler has a new exhibition called 'Bear Everything' at MYAC, and added that the next show will be the Anonymous Art Show. Councillor C. Jewett noted that the Extended Moment Exhibition is continuing at the Audain Museum, and she noted that she attended their AGM where a new Chair was appointed. Councillor C. Jewett noted that there are events at MYAC for International Women's Day from 2 p.m. on March 8 with proceeds going to the Howe Sound Women's Centre. Councillor C. Jewett attended Building the Spirit, the opening of the Olympic Volunteer exhibit. Councillor C. Jewett encouraged the community to support the Whistler Blackcomb Foundation fundraising events this weekend.

### Councillor A. De Jong

Councillor A. De Jong noted that Whistler Blackcomb's POWDER women's leadership group hosted Dragon's Den Michele Romanow, and some of the members of WILD (the RMOW's women's leadership group) were in attendance.

### 7. PUBLIC HEARING - 6:00 p.m.

Mayor J. Crompton declared a recess of the Meeting for the Public Hearing at 6:00 p.m.

Mayor J. Crompton called the Public Hearing to order at 6:00 p.m.

### 7.1 Zoning Amendment Bylaw (Whistler Mountain Ski Club) No. 2256, 2020 File No. RZ1152

### a. Call to Order

This Public Hearing is convened pursuant to section 464 of the *Local Government Act* to allow the public to make representations to Council respecting matters contained in "Zoning Amendment Bylaw (Whistler Mountain Ski Club) No. 2256, 2020" (the "proposed Bylaw").

Everyone present shall be given a reasonable opportunity to be heard or to present written submissions respecting matters contained in the proposed Bylaw. No one will be discouraged or prevented from making their views known. However, it is important that remarks be restricted to matters contained in the proposed Bylaw.

When speaking, please commence your remarks by clearly stating your name and address.

Members of Council may ask questions following presentations; however, the function of Council at a Public Hearing is to listen rather than to debate the merits of the proposed Bylaw.

b.

### Purpose of "Zoning Amendment Bylaw (Whistler Mountain Ski Club) No. 2256, 2020"

As stated in the Notice of Public Hearing, the purpose of the "Zoning Amendment Bylaw (Whistler Mountain Ski Club) No. 2256, 2020" is to rezone the lands from CC2 (Commercial Core Two) to LR11 (Leisure Recreation Eleven) to enable development of a proposed new residential building containing four units and utilizing approximately 380 square metres gross floor area. Minutes - Regular Council Meeting and Public Hearing - Resort Municipality of Whistler March 3, 2020

### c. Presentation

A presentation was given regarding the proposed Bylaw.

### d. Submissions from the Public

Mayor J. Crompton called for submissions from the public.

### Eric Baumann, Whiski Jack

Mr. Baumann noted that there is a trail through the forest that connects Whistler Road with the Valley Trail that goes along Whistler Creek and the Whistler Ski Club Property. He wanted to make sure the trail access is maintained. He noted that he is not opposed to the development, but is concerned about the trail access being taken away.

Chief Administrative Officer M. Furey noted that there is no reason that the trail would be considered as part of the development, but comments will be noted.

Mayor J. Crompton called again for a second and third time for submissions by the public and none were made.

### e. Correspondence

Municipal Clerk A. Banman indicated that four pieces of correspondence have been received regarding the proposed Bylaw.

### f. Motion to Close the Public Hearing

Moved By Councillor R. Forsyth

Seconded By Councillor C. Jewett

**That** the Public Hearing for "Zoning Amendment Bylaw (Whistler Mountain Ski Club) No. 2256, 2020" be closed.

CARRIED

### 8. INFORMATION REPORT

The Meeting was reconvened at 6:08 p.m.

### 8.1 Strategic Planning Committee Update and 2020 Work Plan Report No. 20-030 File No. 0540

Moved By Councillor J. Ford

Seconded By Councillor A. De Jong

**That** Council receive Information Report No. 20-030 regarding the Strategic Planning Committee 2020 Update and Work Plan.

Minutes - Regular Council Meeting and Public Hearing - Resort Municipality of Whistler March 3, 2020

### 9. ADMINISTRATIVE REPORTS

9.1 DP1670 – 4334 Main Street and 4365 Blackcomb Way – New Public Washroom Pavilion Report No. 20-023 File No. DP1670

Moved By Councillor C. Jewett

Seconded By Councillor D. Jackson

**That** Council approve the issuance of Development Permit DP1670 for the proposed Public Washroom Pavilion at 4334 Main Street and 4365 Blackcomb Way, as illustrated on the architectural drawings labelled A 2.1, A A3.1, A3.2, A5.1, A6.1, A6.2 including rendering and materials, dated January 23, 2020, prepared by Johnston Davidson Architecture & Planning Inc. attached as Appendix "B" to Administrative Report No. 20-023.

CARRIED

### 9.2 DP1671 – Gateway Drive – New Public Washroom Pavilion Report No. 20-024 File No. DP1671

Moved By Councillor R. Forsyth

Seconded By Councillor C. Jewett

**That** Council approve the issuance of Development Permit DP1671 for the proposed Public Washroom Pavilion at 4190 Gateway Drive, as illustrated on the architectural drawings labelled A2.1, A2.2 A3.1, A3.2, A5.1, A6.1, A6.2 including rendering and materials, dated January 23, 2020, prepared by Johnston Davidson Architecture & Planning Inc. attached as Appendix "B" to Administrative Report No. 20-024.

CARRIED

9.3 Community Emergency Preparedness Fund – Emergency Operations Centre Capacity Building Project 2020; Emergency Support Services Modernization Project 2020 Report No. 20-026 File No. 854

Moved By Councillor J. Ford

Seconded By Councillor A. De Jong

**That** Council endorse the submission of two grant applications to the Union of B.C Municipalities' Community Emergency Preparedness Fund (CEMP), under the following funding streams to a maximum of \$25,000 per stream:

- Emergency Support Services
- Emergency Operations Centre and Training; and

**That** Council support the proposed activities in each grant application; and further

**That** Council supports the RMOW Emergency Program providing overall grant management for the successfully funding projects.

### 9.4 Grant application for UBCM Poverty Reduction Planning and Action Program Report No. 20-027 File No. 655.11

Moved By Councillor J. Ford

Seconded By Councillor C. Jewett

**That** Council endorse the Poverty Reduction Planning and Action Program Grant Application, and if successful, direct staff to provide overall grant management in accordance with the Union of British Columbia Municipalities' grant requirements.

CARRIED

### 9.5 Tourdex.com Systems Inc. 2019 Annual Filing Report No. 20-028 File No. Vault

Moved By Councillor C. Jewett

Seconded By Councillor J. Ford

**That** the Council of the Resort Municipality of Whistler in open meeting assembled, hereby resolve that the Municipality, as one of the shareholders of Tourdex.com Systems Inc. (Tourdex.com), pass the Consent Resolutions of the shareholders of Tourdex.com, copies of which are attached to this Administrative Report No. 20-028 as Appendix "A", and that the Mayor and Municipal Clerk execute and deliver the attached resolutions on behalf of the Municipality.

CARRIED

### 9.6 Whistler.com Systems Inc. 2019 Annual Filing Report No. 20-029 File No. Vault

Moved By Councillor J. Grills

Seconded By Councillor J. Ford

**That** the Council of the Resort Municipality of Whistler (Municipality) in open meeting assembled, hereby resolve that the Municipality, as one of the shareholders of Whistler.com Systems Inc. (Whistler.com), pass the Consent Resolutions of the shareholders of Whistler.com, copies of which are attached to Administrative Report to Council No. 20-029 as Appendix "A", and that the Mayor and Municipal Clerk execute and deliver the attached resolutions on behalf of the Municipality.

Minutes - Regular Council Meeting and Public Hearing - Resort Municipality of Whistler March 3, 2020

### 10. MINUTES OF COMMITTEES AND COMMISSIONS

### **10.1 Board of Variance**

**That** Council receive the Regular Meeting Minutes of the Board Of Variance of May 27, 2019.

Moved By Councillor J. Ford

Seconded By Councillor J. Grills

CARRIED

### 10.2 Forest and Wildland Advisory Committee

**That** Council received the Regular Meeting Minutes of the Forest and Wildland Advisory Committee of January 8, 2020.

Moved By Councillor J. Ford

Seconded By Councillor A. De Jong

CARRIED

### 10.3 Whistler Bear Advisory Committee

**That** Council receive the Regular Meeting Minutes of the Whistler Bear Advisory Committee of January 8, 2020.

Moved By Councillor A. De Jong

Seconded By

CARRIED

### 11. BYLAW FOR THIRD READING

### 11.1 Zoning Amendment Bylaw (Whistler Mountain Ski Club) No. 2256, 2019

Councillor J. Ford

No action was taken on this item.

### 12. BYLAWS FOR ADOPTION

### 12.1 Parking and Traffic Amendment Bylaw (Bicycle and Skateboard Uses) No. 2264, 2020

Moved By Councillor J. Ford

Seconded By Councillor J. Grills

**That** "Parking and Traffic Amendment Bylaw (Bicycle and Skateboard Uses) No. 2264, 2020" be adopted.

CARRIED

Page 8

Minutes - Regular Council Meeting and Public Hearing - Resort Municipality of Whistler March 3, 2020

### 12.2 Bylaw Notice Enforcement Amendment Bylaw No. 2269, 2020

Moved By Councillor R. Forsyth

Seconded By Councillor C. Jewett

**That** "Bylaw Notice Enforcement Amendment Bylaw No. 2269, 2020" be adopted.

CARRIED

### 13. OTHER BUSINESS

There was none.

### 14. CORRESPONDENCE

### 14.1 Consideration of Free Parking Policy for Veterans File No. 3009

Moved By Councillor J. Ford

Seconded By Councillor A. De Jong

**That** correspondence from R. Craig Westcott regarding the consideration of free parking policy for veterans be received and referred to the Transportation Advisory Group.

CARRIED

### 14.2 CECAP Update File No. 3009

Moved By Councillor C. Jewett

Seconded By Councillor R. Forsyth

**That** correspondence from Randi Kruse regarding the CECAP update be received and referred to staff.

CARRIED

### 14.3 RZ1152 2028 Rob Boyd Way File No. RZ1152

Moved By Councillor R. Forsyth

Seconded By Councillor C. Jewett

**That** correspondence from PJ O'Heaney regarding RZ1152 2028 Rob Boyd Way be received and referred to staff.

### 14.4 Light Up and Proclamation Requests

a. Proclamation and Light Up Request International Women's Day File No. 3009.1

Moved By Councillor C. Jewett

Seconded By Councillor D. Jackson

**That** correspondence from Women Inspiring Leadership Development (WILD), requesting that March 8, 2020 be proclaimed International Women's Day in Whistler, and that the Fitzsimmons Bridge be lit purple be received, proclaimed and the bridge lit.

CARRIED

### b. Proclamation and Light Up Request - Down Syndrome Awareness File No. 3009.1

Moved By Councillor J. Ford

Seconded By Councillor A. De Jong

**That** correspondence from Theresa Preston, Executive Director, Lower Mainland Down Syndrome Society, requesting that March 21, 2020 be proclaimed Down Syndrome Day in Whistler and that the Fitzsimmons Bridge be lit yellow and blue be received, proclaimed and the bridge lit.

CARRIED

c. Lightup Request Cystic Fibrosis Awareness File No. 3009.1

Moved By Councillor R. Forsyth

Seconded By Councillor C. Jewett

**That** correspondence from Sandra Niven, Associate, Fund Development, Cystic Fibrosis Canada, requesting that the Fitzsimmons Bridge be lit blue and green on May 2, 2020 in support of Cystic Fibrosis Awareness be received and the bridge lit.

CARRIED

d.

### Light Up Request Trigeminal Neuralgia Day File No. 3009.1

Moved By Councillor J. Ford

Seconded By Councillor D. Jackson

**That** correspondence from Kathy Somers, Canadian Trigeminal Neuralgia Association, requesting that the Fitzsimmons Bridge be lit blue on October 7, 2020 in support of Trigeminal Neuralgia Day be received and the bridge lit.

CARRIED

Page 10

Minutes - Regular Council Meeting and Public Hearing - Resort Municipality of Whistler March 3, 2020

### 15. TERMINATION

Moved By	Councillor C. Jewett

Seconded By Councillor R. Forsyth

That the Regular Council Meeting of March 3, 2020 be terminated at 6:54 p.m.

CARRIED

Mayor, J. Crompton

Municipal Clerk, A. Banman



PRESENTED:	April 7, 2020	REPORT:	20-037
FROM:	Corporate and Community Services	FILE:	4530
SUBJECT:	FOURTH QUARTER FINANCIAL REPORT – 2019		

### COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Corporate and Community Services be endorsed.

### RECOMMENDATION

That Council receive Information Report No. 20-037 Quarterly Financial Report for the year ended December 31, 2019.

### REFERENCES

Appendix "A" – Quarterly Financial Report for the year ended December 31, 2019.

### PURPOSE

The purpose of this Quarterly Report is to provide Council with a comparison of the annual budget amounts with actual annual revenues and expenditures for operating departments and projects, and to advise Council of the investment holdings as of December 31, 2019.

### DISCUSSION

At the end of the 2019 fiscal year overall operating revenues were at 102 per cent, and expenditures 98 per cent of their annual budgeted amounts. This compares to 108 per cent and 97 per cent respectively in the prior fiscal year.

Investment income, including changes in market values, for the nine months ended December 31, 2019 was \$3,230,404 (unaudited). This is 146 per cent of the total budgeted investment income for the year. Future investment income is dependent upon the market conditions at that time. Most investment income is allocated to reserves in order to fund future expenditures, with some allocated to operations throughout the year. Additional commentary and financial information is provided in the report attached as Appendix "A".

### WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Finance	The resort community effectively and efficiently balances its costs and expenditures	Quarterly financial reporting provides Council and the community with transparent access to current revenue and expense information throughout the fiscal reporting year.

### **OTHER POLICY CONSIDERATIONS**

*Council Policy A-3: Investments Policy* requires reporting of investment holdings, and investment performance on an annual basis.

### **BUDGET CONSIDERATIONS**

There are no direct external costs to prepare the quarterly financial report. All internal costs are accommodated within the annual operating budget of the municipality.

### COMMUNITY ENGAGEMENT AND CONSULTATION

Financial information continues to be reported publicly on a regular basis.

### SUMMARY

Municipal operating and project revenues and expenditures are reported with comparison to annual budget. Investment holdings and performance are reported as required by the investment policy.

Respectfully submitted,

Carlee Price DIRECTOR OF FINANCE

for

Ted Battiston GENERAL MANAGER OF CORPORATE AND COMMUNITY SERVICES

## FOURTH QUARTER FINANCIAL REPORT

### FOR THE 12 MONTHS ENDED DECEMBER 31, 2019

The Resort Municipality of Whistler | April 07, 2020

THE PREMIER MOUNTAIN RESORT COMMUNITY MOVING TOWARD A SUSTAINABLE FUTURE



### **INTRODUCTION**

Quarterly financial reporting is prepared by the Resort Municipality of Whistler as a means of providing the community and council with a regular overview of financial information. Financial reporting is a priority identified by council in the focus area of Governance.

This report includes four sections.

1 Revenue & Expenditures	presents a review of consolidated revenues and expenditures for the organization. Revenues here are grouped by category and expenses grouped by operating division or functional service area. (pp 2-3)
2 Department Results	breaks expenditures down further, from operating division to the component departments. The organizational chart below shows departments grouped into their associated divisions. (pp 4-8)
3 Projects	discusses project spending, both in aggregate and at the individual project level. (pp 9-15)
4 Investments	reviews the RMOW's investment portfolio and associated income for the period. (pp $16$ )

All financial information is based on preliminary, unaudited information reported from the municipal financial system as of the report date. Seasonal variations in municipal operations may affect the proportion of revenues achieved or expenditures incurred to date. This is particularly evident with projects as the project activity may not have commenced or may have incurred few actual expenditures at the end of the reporting period.

All amounts are presented on a non-consolidated basis which may give rise to some variations from amounts included in the actual Five-Year Financial Plan Bylaw. Non-consolidated means that subsidiary companies of the municipality (Whistler Housing Authority for example) are not included and, interdepartmental sales and purchases have not been removed. The Statements of Operational Results and, Net Project Expenditure are supplementary information and provide additional detail for readers. Quarterly financial reporting follows the fiscal year of the municipality which is January 1 through December 31.

Questions or comments about this report can be made by:

Email – <u>budget@whistler.ca</u> Phone – 604-932-5535 (Toll free 1-866-932-5535)

### **REVENUE & EXPENDITURES OVERVIEW**

#### Revenue

2019 fiscal year overall operating revenues were at 102% and divisional operating expenditures 98% of their annual budgeted amounts. This compares to 108% and 97% respectively in the prior fiscal year. Revenues in 2019 were 4.1% greater than in 2018 and surpassed \$100Mm for the first time.

Both RMI and MRDT revenue amounts are higher than 2018. User Fees were also up in the year. 2018 numbers were affected by accounting adjustments related to linear assets. Interest Income is higher, due primarily to changes in the interest rate environment. Programs and Admissions (primarily at Meadow Park Sport Centre) were strong throughout the year, and finished 7% above expectations. Some of this followed a change in the accounting methodology for multi-visit passes; a one-time change that will not recur in 2020.

#### **Expenditures**

Total divisional operating expenditures at the end of the fourth quarter were 98% of annual budget compared to 97% in the prior year. Operating expenditures to the end of the year were \$3.1 million more than the comparable period one year ago. Expense inflation is primarily a function of changes in cost of goods and services purchased by the community in its normal course of operation. Prices for everything from tracks for cross-country grooming equipment to garbage collection services to chemicals for the wastewater treatment plant tend to move higher over time. Also this year the municipality enjoyed an increase in the MRDT revenues received, as a result of a change in the tax rate applied to tourist accommodation spending in the community. These funds must necessarily be spent on tourist-facing activities and projects, which appear as expenses.

Expenditures in Corporate Accounts were up in 2019. These include partner contributions which primarily reflect the sharing of MRDT with Tourism Whistler. These payment amounts change with the amount of MRDT received. Also included in partner contributions are transfers of RMOW's share of OAP revenues to WDC for the purposes of building employee housing.

### **REVENUE & EXPENDITURES TABLE**

### Resort Municipality of Whistler Summary of Operational Results

For the Year ended December 31, 2019 (Unaudited)

	2019 Budget	Actual	%	Prior Year	
	Annual	Year to Date	Budget	Year to Date	
Revenues					
Property Tax	48,122,022	48,230,287	100%	46,878,105	
User Fees	12,867,319	13,007,378	101%	10,755,619	1
Programs & Admissions	2,194,846	2,340,546	107%	2,155,385	
Permits and Fees	5,127,471	4,915,814	96%	5,132,963	2
Grants Revenue	1,169,906	2,606,519	223%	4,272,997	
Transit Fares, Leases and Rent	3,657,536	3,953,883	108%	3,820,634	
Works and Service Revenue	1,602,377	558,793	35%	909,733	
RMI and MRDT	18,240,000	18,508,591	101%	14,100,230	3
Investment Revenue	2,634,632	3,685,661	140%	2,682,514	
Other Revenue	2,262,762	2,305,973	102%	5,481,560	
	97,878,871	100,113,444	102%	96,189,740	
Divisional Operating Expenditures					
Mayor and Council	472,233	458,785	97%	440,871	
CAO Office	2,272,160	2,291,699	101%	2,148,648	
Resort Experience	15,788,147	15,218,875	96%	14,808,936	
Infrastructure Services	25,929,289	25,733,100	99%	24,349,099	
Corporate and Community Services	24,167,318	23,575,051	98%	22,441,270	
	68,629,147	67,277,509	98.0%	64,188,824	
Corporate Expenditures, Debt, Reserves and Transfers					
Wages and Benefits	-	126,979	0%	89,723	
Miscellaneous	808,916	482,496	60%	7,906,280	
External Partner Contributions	6,925,650	5,325,819	77%	5,176,722	4
Long Term Debt	1,394,363	1,394,363	100%	(967,434)	
Debt Interest	687,644	828,422	120%	1,279,733	
Transfers to Other Funds	19,959,454	17,602,478	88%	18,198,563	
	29,776,027	25,760,556	86.5%	31,683,587	
Future Expenditures, Transfers, Reserve Contributions	(526,303)	7,075,379		317,329	

Notes:

- 1. User Fees in 1Q18 included the recorded loss on asset disposal related to the reassignment of assets previously recorded as municipal to their appropriate (private) ownership.
- 2. Permits and Fees Revenue has slowed, reflecting a slower pace of renovation and building in the community.
- 3. MRDT Benefits from a change in rate from 2% in 2018 to 3% in 2019, and the addition of OAP revenues. RMI is paid annually and was not yet received in either 1Q18 or 1Q19.
- 4. Partner Contributions increase with MRDT and as a function of WDC contribution agreement.

### DEPARTMENT RESULTS

#### Revenue

As noted previously, revenues were up 4.1% in the year, and exceeded budget expectations by 2.3%. Looking within departments, there were some notable revenue vairances behind these figures. In Building Department Services, a slowdown in build activity impacted permit revenue particularly in the latter portion of the year. Facilities also fell short of its revenue goals; as a department that serves the organization itself this simply means that a greater number of necessary maintenance services were provided by outside parties rather than internal staff (i.e. a reduction in inter-department revenues). Solid Waste reported unusually strong revenue for the year. Solid Waste revenues include tipping fees, which are in part are a function of build activity, which has slowed. A one-time bonus payment from the Federal Community Works Fund brought nearly \$500,000 to the Sewer Fund that was not expected at the time the budget was set.

2019 was a year of strong revenues in Protective Services, where parking and other bylaw violation fines, as well as dayskier parking revenues, reside

#### **Expenditures**

Facilities expenditures were notably below budget for the year, for reasons detailed above. Also well below budget (and the associated reasons) were:

- Planning (primarily related to lower payroll)
- Transit (Final BC Transit contract expense was below expectations)
- Fire Rescue Service (Lower than expected payroll as well as fleet rental and maintenance costs which followed the delayed delivery of the new rescue engine)

Transportation also reported favourable expenditure variance, in a year where favourable snowfall reduced the number of labour hours required to serve the community, and lowered the value of contract services. Together, Recreation and Meadow Park expenditures were in line with budgeted amount, although some reclassifications between programs affected the reported volumes of expenditure for each.

Acutal expenditures exceeded budget in Human Resources and Resort Operations primarily for reasons related to payroll. Sewer Fund expenditures were higher than expected due primarily to unexpected equipment and contract services expenses.

### Resort Municipality Of Whistler Comparative Summary of Department Operations

REVENUES

Last 12 months Actual, 2019 & 2020 Budget (unaudited)

Mayor and Council	Budget 2020	Budget 2019	2019 Actual Jan 1 - Dec 31	% Budget
Mayor & Council	0	0	4,600	0%
Mayor and Council Total		<u>0</u>	4,600	
-				
CAO Office				
Human Resources	0	0	0	0%
CAO Office Total	0	0	0	
Resort Experience				
Village Events and Animation	3,544,407	3,529,756	3,585,695	102%
Division Administration	40,000	40,000	27,501	69%
Resort Operations	2,880,619	2,755,968	2,766,617	100%
Facilities	959,271	901,328	433,114	48%
Environment Stewardship	123,039	43,235	51,696	120%
Planning	64,040	69,350	60,601	87%
Building Department Services	977,000	1,454,221	1,132,739	78%
Resort Experience Total	8,588,376	8,793,858	8,057,964	
Infrastructure Services				
Development Services/Energy Mgmt	13,500	13,500	10,485	78%
Transportation	1,750	0	6,943	0%
Central Services	2,734,222	2,711,194	2,762,926	102%
Solid Waste	7,446,939	7,262,919	7,741,637	107%
Transit	4,058,000	3,894,500	4,012,016	103%
Water Fund	7,123,940	6,984,727	7,234,230	104%
Sewer Fund	8,835,831	8,394,800	8,495,639	101%
Infrastructure Services Total	30,214,182	29,261,640	30,263,876	

### **Resort Municipality Of Whistler**

### **Comparative Summary of Department Operations**

### REVENUES

Last 12 months Actual, 2019 & 2020 Budget (unaudited)

Corporate and Community Services	Budget 2020	Budget 2019	Actuals 12 months to Dec 31	% Budget
Finance	102,550	102,000	115,599	113%
Legislative Services	3,500	7,000	3,006	43%
Information Technology	65,000	65,558	64,800	99%
Protective Services	5,439,342	4,486,356	4,878,899	109%
Fire Rescue Service	49,700	50,000	103,295	207%
Whistler Public Library	182,700	161,400	178,955	111%
Recreation	1,422,263	1,429,631	1,397,466	98%
Meadow Park Sports Centre	1,989,500	1,988,406	2,083,259	105%
Corporate and Community Services Total	9,254,555	8,290,351	8,825,279	

#### **Corporate Accounts**

General Fund	52,269,385	45,262,615	47,901,613	106%
Corporate Accounts Total	52,269,385	45,262,615	47,901,613	

### **Resort Municipality Of Whistler**

**Comparative Summary of Department Operations** 

### **EXPENDITURES**

Last 12 months Actual, 2019 & 2020 Budget (unaudited)

Mayor and Council	Budget 2020	Budget 2019	2019 Actual Jan 1 - Dec 31	% Budget
Mayor & Council	511,553	472,233	458,785	97%
Mayor and Council Total	511,553	472,233	458,785	
CAO Office				
Administrator	1,029,317	721,210	726,038	101%
Communications	622,861	592,461	544,453	92%
Human Resources	979,880	958,490	1,021,209	107%
CAO Office Total	2,632,058	2,272,160	2,291,699	
Resort Experience				
Cultural Planning and Development	159,661	160,090	169,700	106%
Village Events and Animation	3,717,672	3,701,591	3,655,559	99%
Division Administration	340,690	340,813	365,238	107%
Resort Operations	5,574,104	5,466,900	5,559,134	102%
Facilities	2,590,233	2,557,982	2,167,010	85%
Environment Stewardship	645,191	495,453	463,359	94%
Planning	1,884,648	1,782,497	1,629,188	91%
Building Department Services	1,093,220	1,159,321	1,094,905	94%
Resort Experience Total	16,005,420	15,664,647	15,104,093	
Infrastructure Services				
Division Administration	326,717	327,908	349,211	106%
Development Services/Energy Mgmt	639,118	621,358	601,594	97%
Transportation	2,503,714	2,562,021	2,435,941	95%
Central Services	2,705,669	2,660,570	2,596,221	98%
Solid Waste	5,922,939	6,102,774	6,121,181	100%
Transit	7,361,383	7,266,400	7,078,530	97%
Water Fund	3,370,591	3,198,408	3,172,414	99%
Sewer Fund	5,111,191	5,006,101	5,258,345	105%
Infrastructure Services Total	27,941,322	27,745,539	27,613,438	

### **Resort Municipality Of Whistler**

**Comparative Summary of Department Operations** 

### **EXPENDITURES**

Last 12 months Actual, 2019 & 2020 Budget (unaudited)

Corporate and Community Services	Budget 2020	Budget 2019	2019 Actual Jan 1 - Dec 31	% Budget
Finance	2,137,904	2,079,750	2,090,746	101%
Legislative Services	825,131	928,499	795,895	86%
Information Technology	1,793,490	1,642,033	1,611,991	98%
Protective Services	7,469,063	6,905,455	6,767,960	98%
Fire Rescue Service	4,562,905	4,739,395	4,486,532	95%
Whistler Public Library	1,356,011	1,307,002	1,303,495	100%
Recreation	2,559,521	2,494,933	2,286,372	92%
Meadow Park Sports Centre	3,824,198	3,794,050	3,954,471	104%
Division Administration	289,051	276,199	277,588	101%
Corporate and Community Services Total	24,817,275	24,167,318	23,575,051	
Corporate Accounts				
General Fund	10,246,896	4,071,960	5,879,744	144%
Corporate Accounts Total	10,246,896	4,071,960	5,879,744	

### PROJECTS

Projects aim to deliver specific unique and non-recurring things (often but not always capital in nature) to the community. Because these works can be significant in size, particularly in aggregate, they are funded from municipal reserves. Each year, projects and the planned spending associated with each are presented for consideration with the Budget Guidelines. Individual project budget may be revised throughout the year via amendment. This report considers actual spending associated with each project relative to its then-current budget allocation.

As of December 31, 2019, actual net project expenditures were 55.9% of total budgeted expenditure for the year. This number is slightly ahead of the average proportionate spend from the preceding 5 years of 54.4%.

Not all budgeted project spending will necessarily take place during the fiscal year due to unplanned or unforeseen factors. As projects are usually funded from municipal reserves, financial resources not used during the year will remain in the reserves until required. This does not directly impact the operating surplus or deficit for future fiscal planning purposes.

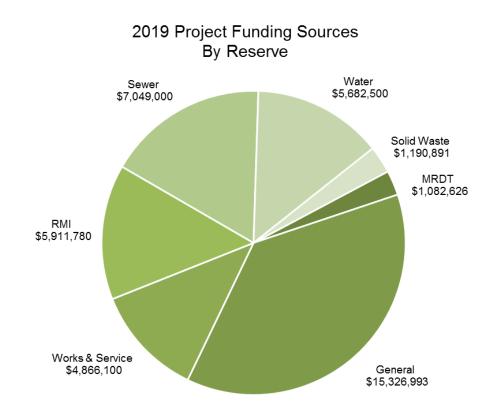
Between Mayor & Council and the CAO Office, six projects with total combined budget of \$87,500 remained unspent or had only nominal spending by the end of the fiscal year. Two of these have been eliminated in 2020 budget, and two consolidated into bigger projects. Overall, CAO Office projects achieved 50.4% of their budgeted spending this year, and Mayor & Council 23.7%.

Several significant REX projects were completed this year, including Cultural Connector (2019 was its sixth year of budget allocation), and the Valley Trail Cycling Review (five years). As with all projects, there may be opportunity or need for additional spending in years to come, but at this time no funding for these projects has been budgeted over the five-year planning horizon. Several projects were subject to delayed implementation including th MPSC Natatorium HVAC Replacement (see Bylaw 2266, 2020 for additional detail) and the WAG Kennel Upgrades. In total REX project spending finished the year having spent 51.3% of the allocated budget.

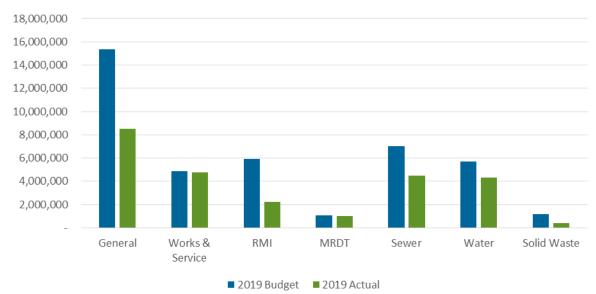
Two Infrastructure Services projects received grant funding this year for works completed in previous year. One of these (Composter Wood Chip Storage Building) was a million dollar project which was accompanied by significant grant funding, such that the year 2019 ended in a net-credit position. Four infrastructure projects got off to a slow start, with nominal or zero spending during the fiscal year. One of these (Alta Lake Sewer) is expected to represent a meaningful amount of work in the coming years. Fleet Replacement completed just 54% of its planned spending this year, following the delayed delivery of three new snowplows. In total, 59.2% of Infrastructure's project budget allocation was spent in 2019.

In Corporate and Community Services, three projects (total budget allocation \$45,000) remained unspent at the end of the fiscal year. One of these has become a subproject under a different umbrella and two are expected to proceed in 2020. In total, 75.7% of the project budget for CCS was dispatched this year.

For 2019 the budgeted amount to be funded from reserves and external sources was \$41.1 million. The pie chart below provides a breakdown of funding sources for projects in 2019 and the amount that each contributed. Actual spending, as noted, varies from budgeted amounts and appears in the bar chart below.







## Summary of Project Expenditures For the Year ended December 31, 2019 (Unaudited)

For the Year ended December 31, 2019 (Unaudited)			
	2019	2019	% of
	Budget	Expenditures	Budget
Mayor and Council			
Mayor & Council			
Sister City Anniversary	25,000	12,367	49.5%
Les Deux Alpes	30,000	680	2.3%
Department Total: Mayor & Council	55,000	13,047	23.7%
Division Total: Mayor and Council	55,000	13,047	
CAO Office			
Administrator			
Audain Art Museum-Founders Program	25,000	25,000	100.0%
Website	20,000	9,513	47.6%
Home Energy Assessment Rebate	18,000	4,550	25.3%
Corporate Communications	40,000	33,764	84.4%
Project Managers Working Group Support	5,000	-	-
Mayors Task Force on Resident Housing	68,500	33,963	49.6%
Legacy lands fiscal/legal planning	20,000	-	-
Economic Development - Social Venture Challenge	2,500	-	-
EPI Initiatives	34,480	17,893	51.9%
Department Total: Administrator	233,480	124,683	
Communications	,	)	
Visitor Awareness Guides	50,000	33,417	66.8%
Department Total: Communications, 1202	50,000	33,417	
Human Resources	,	,	
Collective Bargaining	20,000	-	-
Attendance Management Program	10,000	-	-
Department Total: Human Resources	30,000	_	
Division Total: CAO Office	313,480	158,100	50.4%
Resort Experience	0.0,.00	,	0011/0
Cultural Planning and Development			
Learning and Education Initiatives	177,500	150,527	84.8%
Department Total: Cultural Planning and Developm	177,500	150,527	04.070
Division Administration	177,000	100,027	
UNESCO Geopark	125,000	5,788	4.6%
Interpretive Panels	120,000	90,274	90.3%
Heritage Initiatives	75,000	25,376	33.8%
Conference Centre Annual Building Reinvestment	150,000	150,000	100%
Building Department File Scanning	20,000	8,195	41.0%
Seismic and emergency power review	117,920	97,405	82.6%
Cheakamus Crossing Light Replacment Program	28,000	28,034	100%
Department Total: Division Administration	615,920	405,072	
Resort Operations	15 000	40 440	00.00/
Parks Accessibility Program	15,000	12,416	82.8%
Valley Trail Reconstruction	160,000	189,510	118.4%
Building General Improvement	50,000	50,430	100.9%
Recreation Trail Program	110,000	116,188	105.6%
Park Operations General Improvement	250,000	232,013	92.8%

	2019	2019	% of
	Budget	Expenditures	Budget
Resort Experience (con't)	Ū		0
Alpine Trail Program	350,000	322,047	92.0%
Municipal Hall Continuing Improvements	57,000	-	-
Building Asset Replacement Program	190,000	184,717	97.2%
WVLC Parkade Rehabilitation Program	2,300,000	1,880,263	81.8%
Annual Electrical Maintenance	65,000	61,969	95.3%
Tennis Court Reconstruction	75,000	73,372	97.8%
Park and Trail Asbuilt Surveys	15,000	14,624	97.5%
Access Control Upgrades	39,000	-	-
PWY worker safety and yard configuration planning	80,000	-	-
PWY Utilities Storage Enclosure	220,000	226,670	103.0%
Meadow Park Rejuvenation	100,000	-	-
Valley Trail Access & Safety Improvement	125,000	54,517	43.6%
WAG Kennel upgrades	140,000	541	0.4%
Recreational Trailheads	310,000	181,422	58.5%
Municipal Hall Air Conditioning	166,000	71,073	42.8%
Electric Vehicle Charging Station	15,000	7,082	47.2%
PWY Office upgrades and EOC overlay	25,000	15,843	63.4%
Park Washroom - Counter Top Rejuvenation	40,000	-	-
Alta Vista Works Yard - training room upgrades	20,000	22,119	110.6%
Recreation BCA Building Upgrades	46,446	6,989	15.0%
REX - BCA report Building Upgrades	830,385	196,842	23.7%
Rainbow to Scotia Creek VT	100,000	71,201	71.2%
VT Millar Creek to Function	1,266,500	328,362	25.9%
Village Stroll light replacement	240,000	236,470	98.5%
CECAP Trail Hardening	50,000	49,913	99.8%
Cardio Room Expansion	1,661,221	1,017,239	61.2%
MPSC Building Envelope Repairs	67,100	3,750	5.6%
MPSC – Natorium HVAC Replacement	1,200,000	72,569	6.0%
Lupin Lane Valley Trail Lighting	253,700	226,928	89.4%
Rainbow Park Rejuvenation	-	-	n/a
Alta Vista to Nita Lake Valley Trail Lighting	-	-	n/a
Department Total: Resort Operations	10,632,352	5,927,079	
Planning (ALL)			
Village Enhancement	170,000	164,748	96.9%
Village Square & Mall Rejuvenation - Way-finding	115,000	90,694	78.9%
Cultural Connector	75,000	78,283	104.4%
Valley Trail Cycling Review	30,000	30,000	100%
Artificial Turf Field	630,000	640,124	101.6%
Park Master Planning	140,000	130,878	93.5%
Maury Young Arts Centre External Signage Upgrade	35,000	21,128	60.4%
Planning Initiatives	170,000	168,297	99.0%
Bayly Park Improvments	14,000	(16,498)	n/a
Lost Lake Gateway Improvements	-	-	n/a
Village Washroom Buildings	3,052,000	265,691	8.7%
Subdivision Sign Rejuvenation	70,000	15,298	21.9%
Department Total: Planning (ALL)	4,501,000	1,588,643	35.3%
Division Total: Resort Experience	15,926,772	8,071,321	51%

	2019	2019	% of
	Budget	Expenditures	Budget
Infrastructure Services	-	·	-
General Manager			
Civic platform, Infrastructure Services set up	240,000	42,296	17.6%
Utility BCA Building Upgrades	-	-	n/a
Department Total: General Manager	240,000	42,296	
Transportation			
Upgrade Roads	1,211,000	978,584	80.8%
Fitz Creek Gravel Removal	400,000	433,991	108.5%
Bridge Reconstruction Program	35,000	15,905	45.4%
Fitz Creek Debris Barrier & Sediment Basin	45,000	52,269	116.2%
Flood Plain Mapping	375,000	(28,441)	n/a
Air Quality Monitoring Cheakamus Crossing	30,000	27,446	91.5%
LED Streetlight Replacement	25,000	21,937	87.7%
Tapley's Flood Protection Improvements	20,000	700	3.5%
Traffic Studies and Initiatives to support TAG	75,000	70,934	94.6%
Traffic Light Replacement	25,000	21,114	84.5%
Daylot Storm water Monitoring	20,000	4,550	22.8%
Upgrade Day Lot 5	50,000	51,074	102.1%
Upgrades - Storm Water Infrastructure Annual	65,000	48,698	74.9%
Fitz Gravel Compensation Channel Feasibility Hydrau	50,000	27,605	55.2%
Pedestrian VT along Hwy 99 from Whistler Cay to Vil	25,000	3,150	12.6%
Blackcomb Way Travel Optimization Study	-	-	n/a
Highway Intersection Upgrades	35,000	1,887	5.4%
Nesters Crossing Impound Yard	400,000	228,505	57.1%
Department Total: Transportation	2,886,000	1,959,908	
Central Services			
Fleet Replacement	3,264,813	1,747,110	53.5%
Central Services Annual Reconstruct	255,000	37,006	14.5%
Rebuild PWY Stores/Reception Area	2,000	105	5.3%
Central Services Maintenance	25,000	17,772	71.1%
Department Total: Central Services	3,546,813	1,801,993	
Solid Waste			
Solid Waste Annual Reconstruction	250,000	164,456	65.8%
Solid Waste Outreach Program	105,000	57,190	54.5%
Solid Waste - Streetscape bin improvements	30,000	345	1.2%
Solid Waste BCA Building Upgrades	55,891	345	0.6%
Department Total: Solid Waste	440,891	222,336	
Transit			
Bus Shelter Replacement or Major Upgades	110,000	14,868	13.5%
Gondola Transit Exchange	80,000	10,249	12.8%
Department Total: Transit	190,000	25,117	
Water Fund (con't)			
Upgrade - Emerald Water System	325,000	309,036	95.1%
Water Annual Upgrades	250,000	203,730	81.5%
Reservoirs and Intakes	1,334,000	1,092,893	81.9%
Water Wells	20,000	3,313	16.6%
Water Pump Station	20,000	15,939	79.7%
Pressure Reducing Valve Station	80,000	-	-
Watermains	2,500,000	2,358,040	94.3%
Water SCADA	80,000	55,088	68.9%

	2019	2019	% of
	Budget	Expenditures	Budget
Infrastructure Services (con't)	0		Ū
Water Metering Program	535,000	28,275	5.3%
Decommission - Water Infrastructure	-	-	n/a
Water Operating Capital	358,500	212,220	59.2%
Department Total: Water Fund	5,502,500	4,278,534	77.8%
Sewer Fund			
West Side Alta Lake Sewers	100,000	130	0.1%
Compost Facility-Annual Reconstruct	150,000	108,583	72.4%
Replacement - Function Junction Sewer Access Brid	450,000	159,680	35.5%
Composter Wood Chip Storage Building Construction	1,100,000	(37,832)	n/a
Composter PLC replacement	-	-	n/a
Compost Heating System	600,000	104,580	17.4%
Sewer Annual Upgrades	150,000	122,740	81.8%
Sewer Lift Station	1,325,000	1,323,367	99.9%
Sewer Trunk	50,000	35,936	71.9%
Sewer SCADA	30,000	15,742	52.5%
Decommission - Sewer Infrastructure	-	-	n/a
Sewer Operating Capital	590,000	408,896	69.3%
Sewer Mains	2,930,000	1,631,535	55.7%
WWTP Annual Upgrades	100,000	88,789	88.8%
WWTP Primary Treatment Upgrades	200,000	200,183	100.1%
WWTP Fermenter Upgrades	-	-	n/a
WWTP Biological Reactor Upgrades	-	-	n/a
WWTP Solids Handling Upgrades	100,000	20,896	20.9%
WWTP Secondary Treatment Upgrades	58,000	21,485	37.0%
WWTP SCADA Upgrades	10,000	4,739	47.4%
WWTP General Buildings	31,000	3,000	9.7%
WWTP Operating Capital	195,000	163,789	84.0%
Department Total: Sewer Fund	8,169,000	4,376,238	53.6%
Division Total: Infrastructure Services	20,975,204	12,706,422	60.6%
Corporate and Community Services			
Finance			
Reserve Policy Planning	20,000	11,800	59.0%
Department Total: Finance	20,000	11,800	
Legislative Services			,
Municipal Elections	-	-	n/a
Information Governance Project	84,710	10,635	12.6%
Council Governance	15,000	-	-
UBCM Conventions	-	-	n/a
Comprehensive Fees and Charges Bylaw	-	-	n/a
Council Meeting Management Software	30,000	19,528	65.1%
First Nations Relations	32,000	-	-
Department Total: Legislative Services	161,710	30,163	
Environment Stewardship	20.000	06 706	90 10/
General Improvements - Environment	30,000	26,726	89.1% 15.1%
GIS Layer Update Project Invasive Species Management	30,000 31,000	4,541 31,000	15.1% 100.0%
Efficiency BC Initiatives	31,000 35,000	2,777	7.9%
Eniciency DO Initialives	33,000	2,111	1.3%

	2019	2019	% of
	Budget	Expenditures	Budget
Corporate and Community Services (con't)	5	·	U
Community Wildfire Protection	899,450	899,110	100.0%
Bear Management Program	75,200	56,456	75.1%
Ecosystem Monitoring Program	30,000	30,000	100.0%
Department Total: Environment Stewarship	,	,	
Information Technology			
Computer Systems Replacement	176,000	140,608	79.9%
Local Infrastructure & Server Room	272,000	261,801	96.3%
Corporate Software	354,750	250,470	70.6%
Payroll and Benefits Optimization	10,000	-	-
RMOW Geographic Information System (GIS)	116,000	95,237	82.1%
RMOW Civic Platform	30,000	(451)	-1.5%
Department Total: Information Technology	958,750	747,665	1.070
Corporate and Community Services General	000,100	111,000	
Sea to Sky Corridor Evacuation Transportation Plan	40,000	34,828	87.1%
Protective Services events and communication	18,000	18,195	101.1%
Department Total: Corporate and Community Serv		53,023	101.170
Whistler Public Library	50,000	55,025	
Library Furniture and Equipment	62,000	19,406	31.3%
Library Collection	134,600	129,548	96.2%
Library Infrastructure & Improvements	191,500	31,742	16.6%
Department Total: Whistler Public Library	388,100	180,696	10.070
Recreation	500,100	100,000	
Recreation Accessibility Upgrades	20,000	_	_
Whistler Olympic Plaza Ice Rink	20,000	- 11,683	58.4%
Department Total: Recreation	40,000	11,683	50.47
Meadow Park Sports Centre	40,000	11,005	
Recreation Equipment	163,535	39,112	23.9%
Recreation Infrastructure Replacement	783,614	321,941	23.9 <i>%</i> 41.1%
•	70,000	20,734	41.1% 29.6%
MPSC Parking Lot Upgrades Department Total: Meadow Park Sports Centre	1,017,149	381,787	29.076
Protective Services	1,017,149	301,707	
	16.000	15 470	06 7%
Bylaw Revisions	16,000 48,500	15,479	96.7% 89.4%
Parking Meter upgrades		43,379	
Emergency Program	55,000	34,366	62.5%
Fire Smart Neighbourhood Program	235,375	61,352	26.1%
RCMP Building/Protective Services Renovation	60,000 414,875	15,118 169,694	25.2%
Department Total: Protective Services, 4100	414,075	109,094	
Fire Rescue Service	07 700	05.000	00.10/
Firefighting Equipment Replacement	97,720	95,868	98.1%
Project Fires Record Management System	24,500	11,267	46.0%
Technical Rescue Program	26,000	20,227	77.8%
Live Fire training prop	7,200	6,126	85.1%
Employee Professional Development	10,400	6,701	64.4%
Wildfire Protection	85,000	75,609	89.0%
Fire Hall 1 Spatial Needs Analysis	40,000	13,344	33.4%
Department Total: Fire Rescue Service	290,820	229,142	78.8%
Division Total: Corporate and Community Services	3,349,404	1,815,653	54.2%
Total	40,251,380	22,593,396	56.1%

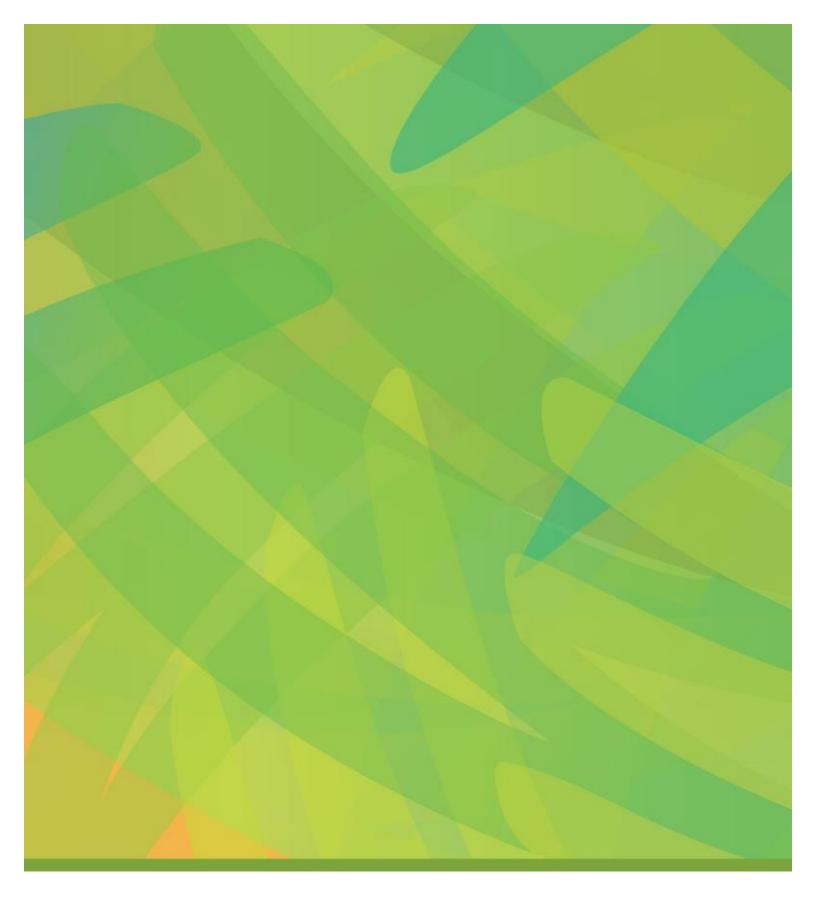
### **INVESTMENTS**

Investment holdings of the Municipality at December 31, 2019, had a market value of \$68,565,580. A list of investment holdings and yields is provided below. These amounts exclude short term investments designated for working capital, as these will normally be liquidated to fund operations within 12 months.

The Municipality holds investment balances in order to earn investment income on funds that are not currently required for operations, projects or capital purposes. Funds held for capital purposes often makes up the largest portion of the investment holdings; these amounts represent savings accumulated over time that will typically not be expended until years in the future. Operating cash balances also exist, particularly in 3Q when most property tax payments are received by the Municipality. Conversely investment holdings are often at their lowest in the months just prior to the property tax collection date.

Investment income, including changes in market values, for the year ended December 31, 2019 was \$3,685,661 (unaudited). This wa 140% of the total budgeted investment income for the year, and was due primarily to market value changes. Future investment income is dependent upon the market conditions at the time. Most investment income is allocated to reserves to fund future expenditures with some allocated to operations throughout the year.

<u>lssuer</u>	<u>Custodian</u>	<u>Par Value</u>	<u>Yield</u>	<u>Maturity</u>
Blue Shore	BS	4,000,000	2.65%	4/17/2020
HSBC	RBC DS	2,000,000	2.15%	7/23/2020
Nat'l Bank of Canada	RBC DS	3,000,000	2.20%	7/23/2020
Tangerine Bank	RBC DS	3,000,000	2.20%	7/23/2020
TD Bank	RBC DS	3,000,000	3.16%	9/30/2020
Bank of Nova Scotia	RBC DS	3,000,000	3.25%	12/8/2020
Canadian Western Bank	RJ	4,000,000	3.27%	12/18/2020
BlueShore Credit Union	BS	2,500,000	2.90%	3/15/2021
Bank of Montreal	RBC DS	2,150,000	3.32%	6/1/2021
Bank of Nova Scotia	RBC DS	3,000,000	1.90%	12/2/2021
Nat'l Bank of Canada	RBC DS	2,000,000	2.11%	3/18/2022
Royal Bank of Canada	RBC DS	3,000,000	2.00%	3/21/2022
Province of Nova Scotia	RBC DS	3,000,000	2.80%	6/1/2022
Canadian Western Bank	CWB	3,000,000	2.73%	2/16/2023
Province of Manitoba	RBC DS	2,700,000	3.00%	3/5/2024
Kootenay Credit Union	RJ	3,000,000	2.65%	7/24/2024
Canadian Western Bank	CWB	5,000,000	2.88%	7/26/2024
Royal Bank of Canada	RBC DS	1,000,000	2.15%	12/4/2024
Wells Fargo Corporation	RBC DS	1,500,000	2.98%	5/19/2026
		53,850,000		
MFA Short Term Bond Fund	MFA	14,715,580		
Total Investments		68,565,580		



### THE RESORT MUNICIPALITY OF WHISTLER

Host Mountain Resort 2010 Olympic and Paralympic Winter Games

 
 4325 Blackcomb Way
 TEL
 604 932 5535

 Whistler, BC Canada VON 1B4
 TF
 1 866 932 5535
 www.whistler.ca

FAX 604 935 8109



# WHISTLER

### **REPORT** ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	April 7, 2020	<b>REPORT:</b>	20-032
FROM:	Resort Experience	FILE:	DP1731
SUBJECT:	DP1731 – 4365 NORTHLANDS BLVD. – POOL AREA AND OFFICE		
	RENOVATIONS		

### COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Resort Experience be endorsed.

### RECOMMENDATION

**That** Council approve the issuance of Development Permit 1731 for the proposed Twin Peaks Resort exterior renovations at 4365 Northlands Blvd. as illustrated on Architectural Plans Revision J A001, A002, A101, A102, A103, A104, A201, A701, A901, A902, A903 dated March 3, 2020 prepared by DVAD Inc. and attached as Appendix "B" to Administrative Report No. 20-032.

### REFERENCES

Location:	4365 Northlands Blvd.
Legal Description:	Lot 1, D.L. 7310 Plan LMS 2027
Applicant:	Derek Venter Architectural Design (DVAD) Inc.
Zoning:	LNR (Lands North Residential)
Appendices:	"A" – Location map
	"B" – Architectural Drawings
	"C" – Previously Approved Development Permit DP1678 Diagrams

### PURPOSE OF REPORT

This report seeks Council's approval of the issuance of Development Permit DP1731, an application for pool area and office renovations at Twin Peaks Resort to upgrade the appearance and amenities of the building and to add second floor deck space at 4365 Northlands Blvd.

The proposed development is located in Development Permit Area #1: Whistler Village and is subject to development permit guidelines for form and character, protection of the development from hazardous conditions and protection of the natural environment.

This development permit is subject to Council approval as the proposal involves the alteration of more than one elevation of a building within the Whistler Village Development Permit Area.

#### DISCUSSION

#### Background

The subject property is located in Whistler Village and the majority of the renovations take place along a rear access road at the rear building entrance with a minor alteration along Lorimer Road to accommodate the new office space. This proposal (Development Permit DP1731) is similar to the concept previously approved through Development Permit DP 1678 in 2019. DP 1678 approved the bbq area, the addition of a second storey deck on the pool side, and changes to the windows and doors for the pool area. This current application includes minor revisions to the pool and bbq area, changes to the second storey deck on the pool side, replacement of all windows and sliding doors for the entire building to match existing, and the addition of an office space on the second floor. Since the office space addition requires removal and replacement of the roof structure and infill of a window the project is now changing form and character at more than one building elevation and is subject to Council approval. The current proposal is shown on Appendix "B" – Architectural Drawings.

Staff note that under Provincial direction construction continues to be permitted at this time. RMOW staff will recommend to the applicant that any construction use appropriate Covid-19 protocols, as may be applicable.

#### **Proposed Development**

This proposal affects two sides of the existing building: the Lorimer Road elevation and the rear/pool elevation on the opposite side of the building.

#### Pool Area

The pool area is accessed from the laneway that Twin Peaks shares with the neighbouring Valhalla and Northstar projects. The proposed alterations are a further refinement to the previously approved development permit DP1678 that are intended to improve the outdoor amenities on the pool side with expanded pool decks and barbeque areas and renovated washrooms. The further revisions for the current proposal include a small waterfall feature and a small extension of the barbeque area.

#### Glazing

The renovation project now also includes replacing all windows and sliding doors on all building elevations with aluminum clad timber framed, triple glazed units that will replicate the existing size and style, and improve energy efficiency.

#### Second Storey - New Office

The current application also proposes the addition of a new office space located on the second floor on the Lorimer Road side of the building as shown in Appendix "B". The new area comprises 28 square metres of gross floor area; staff have confirmed that the revised building continues to comply with the density provisions of the LNR (Lands North Residential) zone. The changes to this elevation include removal of an existing window, replaced by stone cladding to match the existing façade, and to replace existing windows on the second floor to better match adjacent window openings.

All colours and materials will match existing, which are in accordance with the Whistler Village Design Guidelines.

#### WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Built Environment	The built environment is attractive and vibrant, reflecting the resort community's character and evoking a dynamic sense of place.	The design of the exterior upgrades to the Twin
Built Environment	Building design, construction and operation is characterized by efficiency, durability and flexibility for changing and long-term uses.	Peaks Resort building utilize durable materials that meet the Whistler Village Design Guidelines and is consistent with colour and materials used in other buildings in the village.
Visitor Experience	The resort is comfortable, functional, safe, clean and well-maintained.	

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
Energy	The energy systems is continuously moving towards a state whereby a build- up of emissions and waste into air, land and water is eliminated.	Energy is required for new building materials and construction. The project includes replacement of glazing for all windows and sliding doors with timber-framed triple-glazed units.

#### **OTHER POLICY CONSIDERATIONS**

#### **Zoning Analysis**

The property is zoned LNR (Lands North Residential). The proposed renovations meet the development and density standards of this zone. No variances are requested for the proposed renovations.

#### **OCP Development Permit Area Guidelines**

The property is subject to the Whistler Village development permit area (DP Area No. 1) guidelines for the protection of development from hazardous conditions, protection of the natural environment and form and character guidelines for commercial and multi-residential development.

The form and character, materials and colours of the proposed alterations conform with development guidelines for DP Area No. 1 and the applicable Whistler Village Design Guidelines.

Guidelines regarding protection of development from hazardous conditions and protection of the environment were satisfied at the time of the original development.

#### **BUDGET CONSIDERATIONS**

Direct costs of processing and reviewing this application are covered through the development permit application fees.

#### COMMUNITY ENGAGEMENT AND CONSULTATION

An information sign has been posted on the property per development permit application requirements.

DP1731 – 4365 Northlands Blvd. – Pool Area and Office Renovations April 7, 2020 Page 4

#### SUMMARY

This report seeks Council's approval of the issuance of Development Permit DP1731, an application for building renovations at 4365 Northlands Blvd. Staff review indicates that this proposal is consistent with applicable zoning and OCP criteria.

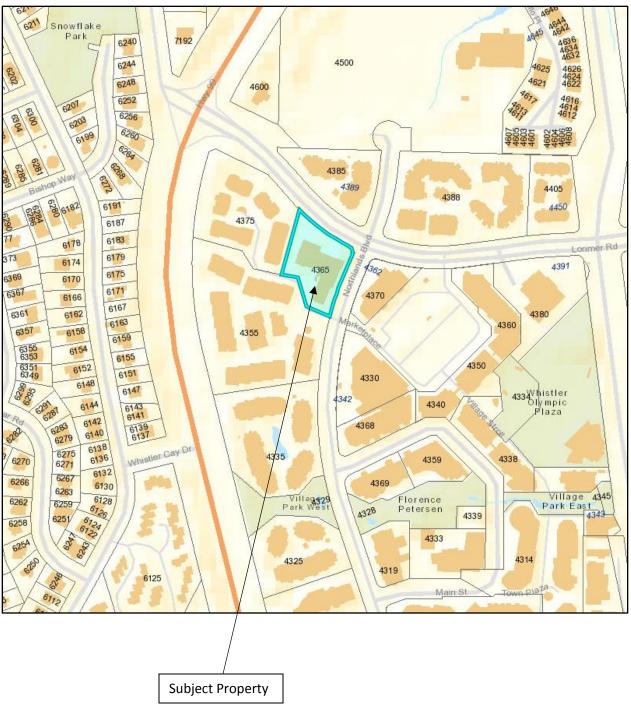
Respectfully submitted,

Brook McCrady PLANNING ANALYST

for

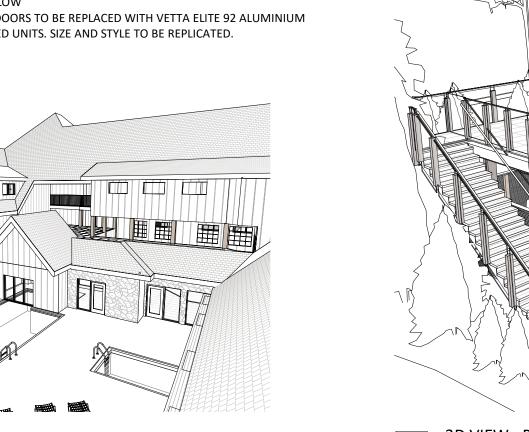
Toni Metcalf INTERIM GENERAL MANAGER OF RESORT EXPERIENCE

#### APPENDIX A



#### TWIN PEAKS RESORT - POOL AREA + L2 OFFICE SPACE

P.I.D: 023-109-904 - 023-11	0-171	
PLAN: LMS2027, LOT 1-28		
CALCULATIONS		
LOT AREA	= 4906m <sup>2</sup> (AS PER DOUG BUSH SURVEY SERVICES)	n ma
MAX F.S.R ALLOWED	= 0.65	
PROPOSED F.S.R		
MAX G.F.A ALLOWED	$= 3189m^2 (34,325 \text{ SF})$	
PROPOSED G.F.A	= 3076.31m <sup>2</sup> (33,113 SF)	12
MAX SITE COVERAGE ALLOWED	= 35%	Z
PROPOSED SITE COVERAGE		$\prec$
SETBACKS	= 15M MIN. FROM CONTROLLED ACCESS HIGHWAY (UNCHANGED)	<
	= 15M MIN. FROM LORIMER ROAD (UNCHANGED)	ζ
	= 7.6M FROM ANY PARCEL BOUNDARY (UNCHANGED)	
PARKING REQUIREMENTS	= UNCHANGED	
		ALL AN
DP APPLICATION - PROPOSED ITEM 1. DOUBLE EXIT DOORS REPLACED V		SIL, A
	OORS. WALLS AROUND POOL REMOVED, COLUMNS INSTALLED.	La Lal
3. POOL WASHROOMS RENOVATED		ZW .)
	T L2, NEW ACCESS STAIR FROM LOBBY.	X
	LISHED. REPLACED WITH GLASS RAILING	33
6. L2 DECK SPACE INCREASED OVER		24 A
	RY TO BE REPLICATED TO MATCH EXISTING.	5 8
8. WATERFALL FEATURE INTO POOL		ZNY
	NG DOORS TO BE REPLACED WITH VETTA ELITE 92 ALUMINIUM	he
	LAZED UNITS. SIZE AND STYLE TO BE REPLICATED.	7
· //		4
NV M		, 5
L'a de la companya de		
And the second s		
244		



En la \*-

#### 3D VIEW - Proposed Phase B 2

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

- CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

mu L



### 1933 **TWIN PEAKS RESORT** architecture | interiors | energy consulting DEREK VENTER ARCHITECTURAL DESIGN T.604 962 1177 | 10-1040 LEGACY WAY info@dvad.org www.dvad.ca | CANADA, V8E 0J8

**3D VIEW - Existing** 

VVD

1

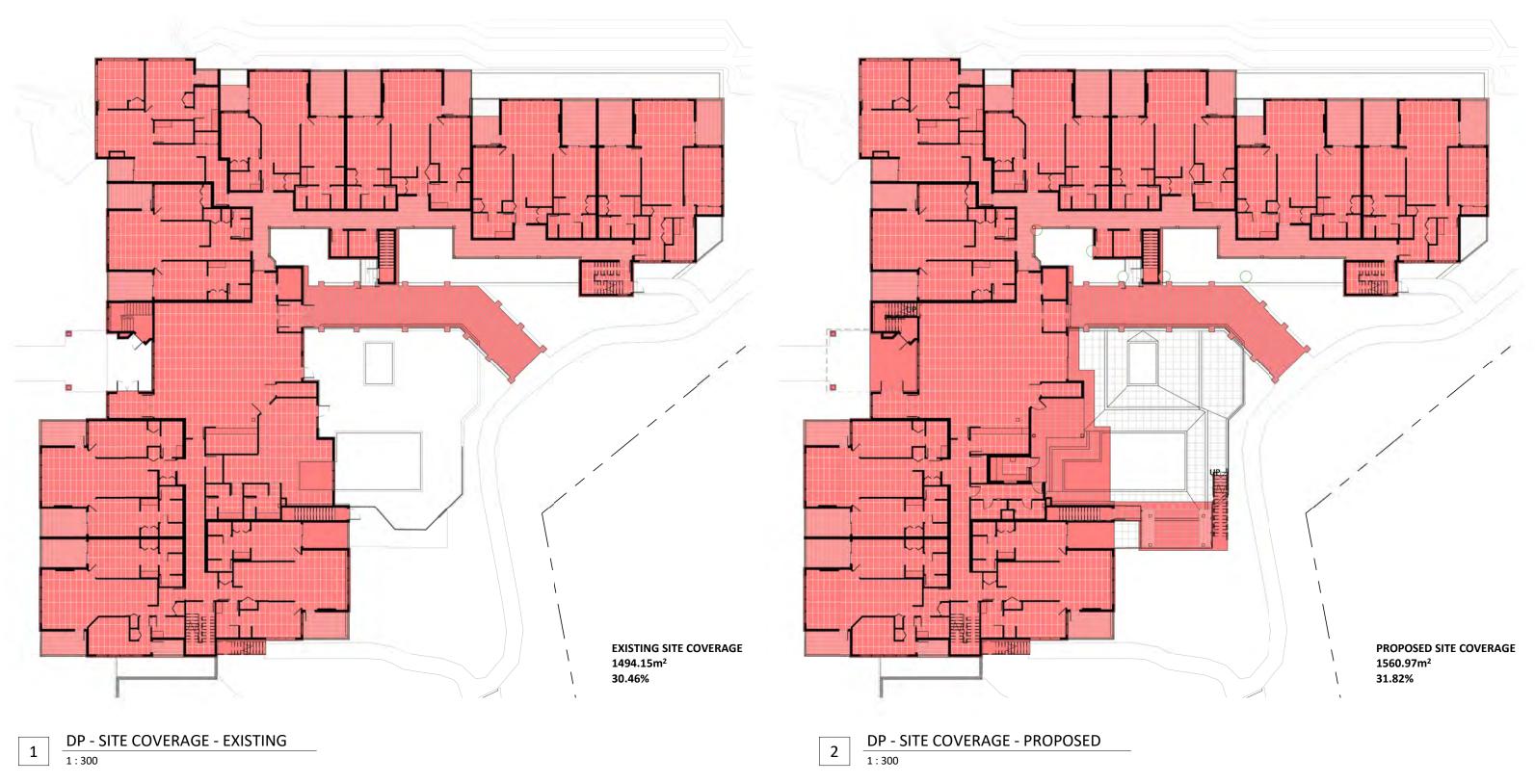
4365 NORTHLANDS BOULEVARD, WHISTLER

**DEVELOPMENT PERMIT** 

### APPENDIX B



	No.	Revision	Date	Ву
OP A001	E	DP REVISION	2020-01-27	DV
	J	DP REVISION	2020-03-03	DV
R PAGE				
a. @ 11v17				
e: @ 11x17			Dage 41 of 2	10
2019-12-23			Page 41 of 2	15
			2020-03-03 3:21	:24 PM





### 1933

**TWIN PEAKS RESORT** 

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

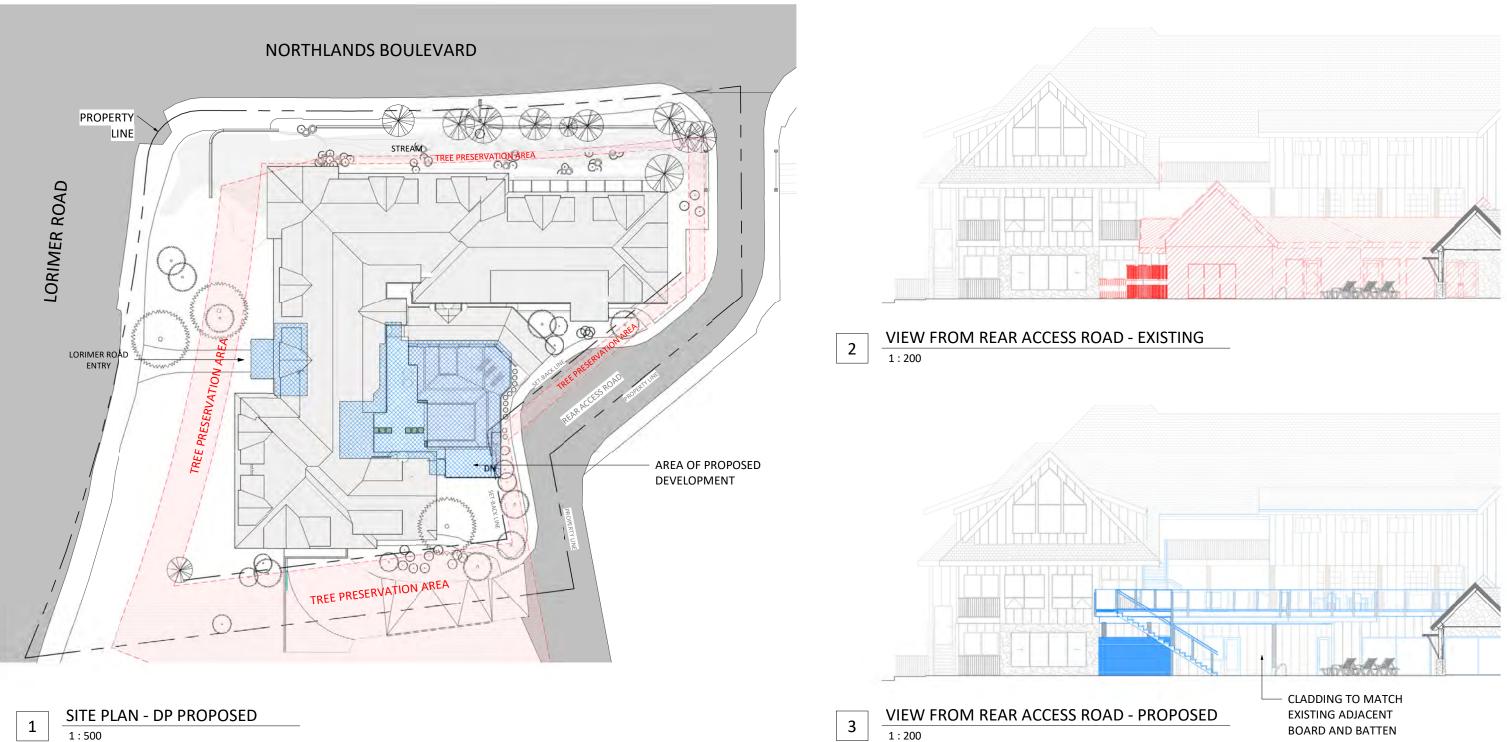
#### - DO NOT SCALE DRAWING

- CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

#### SITE COVER Scale: 1 : 300@

	No.	Revision	Date	Ву
DP A002	J	DP REVISION	2020-03-03	DV
OVERAGE				
: 300@ 11x17				
			Page 42 of 2	13
2019-12-23			1 age 42 01 2	15
			2020-03-03 3:21	:41 PM





### 1933

#### **TWIN PEAKS RESORT**

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

Sľ Scale: As indica

### APPERMAN XEBEND



	No.	Revision	Date	By
DP A101	J	DP REVISION	2020-03-03	DV
TE PLAN				
ated@ 11x17				
•			Page 43 of 2	13
2019-12-23			T age 40 of 2	10
			2020-03-03 3:22	:01 PM

#### **GFA CALCULATIONS - L1**

1:300

info@dvad.org www.dvad.ca

architecture | interiors | energy consulting

DEREK VENTER ARCHITECTURAL DESIGN T.604 962 1177 | 10 - 1040 LEGACY WAY

WHISTLER, BC CANADA, V8E 018

1933

**TWIN PEAKS RESORT** 

**DEVELOPMENT PERMIT** 

4365 NORTHLANDS BOULEVARD, WHISTLER

1140.59m<sup>2</sup>

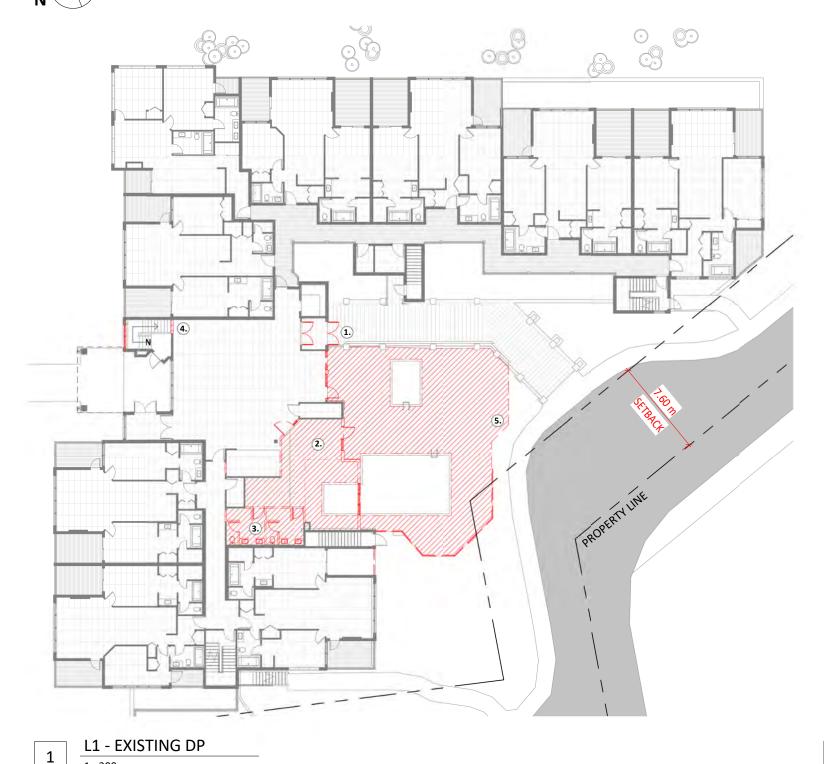
1104.81m<sup>2</sup>

EXISTING GFA TOTAL PROPOSED GFA

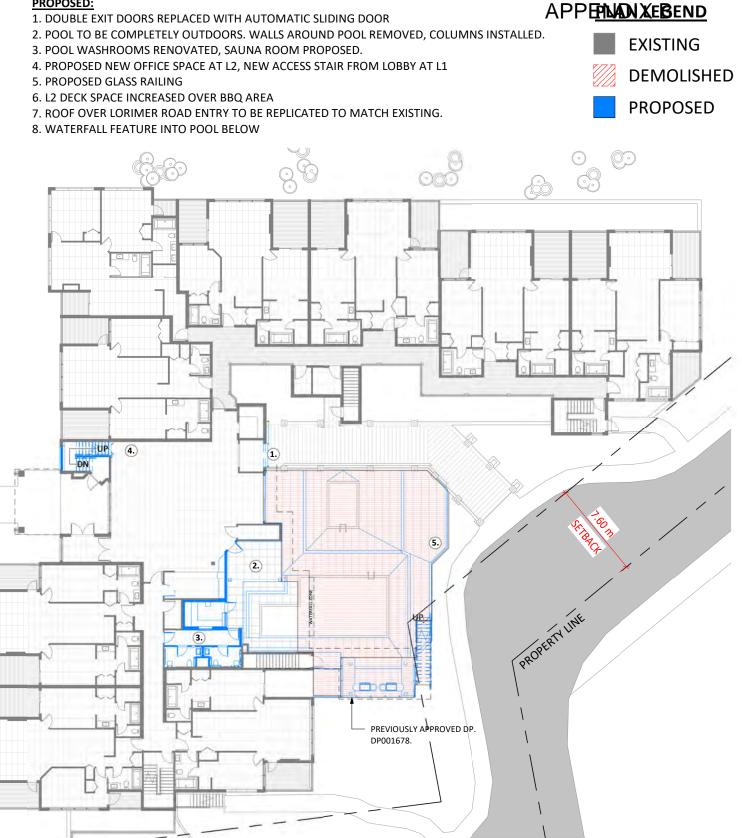
#### FOR DEMOLITION:

1. DOUBLE EXIT DOORS

- 2. WALLS AROUND POOL REMOVED TO MAKE POOL COMPLETELY OUTDOORS.
- **3. POOL WASHROOMS**
- 4. WALL OPENING CUT IN EXISTING AT L1 LOCATION ONLY.
- 5. METAL RAILING DEMOLISHED
- 6. L2 ROOF TO BE DEMOLISHED.
- 7. ROOF AT LORIMER ROAD ENTRY DEMOLISHED. STRUCTURE TO REMAIN.



#### **PROPOSED:**



L1 - PROPOSED DP 2 1:300

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

Scale: As indicat

	No.	Revision	Date	Ву
DP A102	E	DP REVISION	2020-01-27	DV
	J	DP REVISION	2020-03-03	DV
L1 PLAN				
ated@ 11x17				
2019-12-23			Page 44 of 2	13
2013-12-23			2020-03-03 3:22	:16 PM

#### **GFA CALCULATIONS - L2**

EXISTING GFA TOTAL PROPOSED GFA

L2 - EXISTING DP

architecture | interiors | energy consulting

DEREK VENTER ARCHITECTURAL DESIGN T.604 962 1177 | 10 - 1040 LEGACY WAY

WHISTLER, BC

CANADA, V8E 018

1933

**TWIN PEAKS RESORT** 

**DEVELOPMENT PERMIT** 

4365 NORTHLANDS BOULEVARD, WHISTLER

1:300

info@dvad.org

www.dvad.ca

1

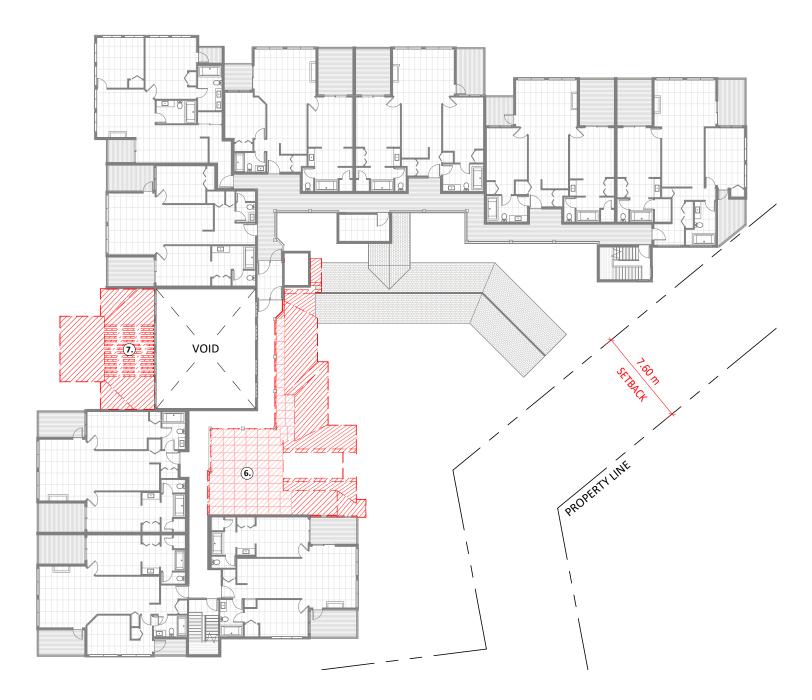
912.93m<sup>2</sup>

949.48m<sup>2</sup>

#### FOR DEMOLITION:

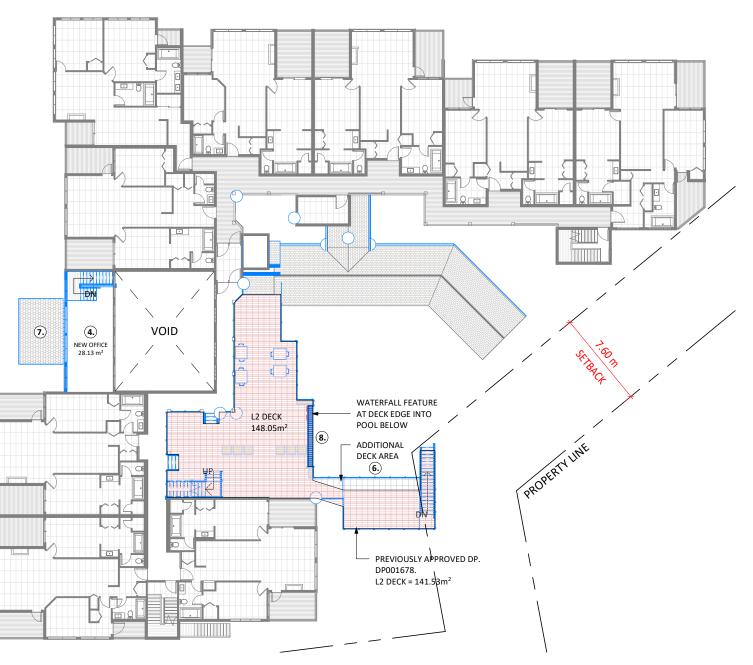
1. DOUBLE EXIT DOORS

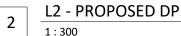
- 2. WALLS AROUND POOL REMOVED TO MAKE POOL COMPLETELY OUTDOORS. **3. POOL WASHROOMS**
- 4. WALL OPENING CUT IN EXISTING AT L1 LOCATION ONLY.
- 5. METAL RAILING DEMOLISHED
- 6. L2 ROOF TO BE DEMOLISHED.
- 7. ROOF AT LORIMER ROAD ENTRY DEMOLISHED. STRUCTURE TO REMAIN.



#### **PROPOSED:**

- 1. DOUBLE EXIT DOORS REPLACED WITH AUTOMATIC SLIDING DOOR
- 2. POOL TO BE COMPLETELY OUTDOORS. WALLS AROUND POOL REMOVED, COLUMNS INSTALLED.
- 3. POOL WASHROOMS RENOVATED, SAUNA ROOM PROPOSED.
- 4. PROPOSED NEW OFFICE SPACE AT L2, NEW ACCESS STAIR FROM LOBBY AT L1
- 5. PROPOSED GLASS RAILING
- 6. L2 DECK SPACE INCREASED OVER BBQ AREA
- 7. ROOF OVER LORIMER ROAD ENTRY TO BE REPLICATED TO MATCH EXISTING.
- 8. WATERFALL FEATURE INTO POOL BELOW





- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY

#### WORK - DO NOT SCALE DRAWING

CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE

THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD



APPENAN XEBEND EXISTING DEMOLISHED

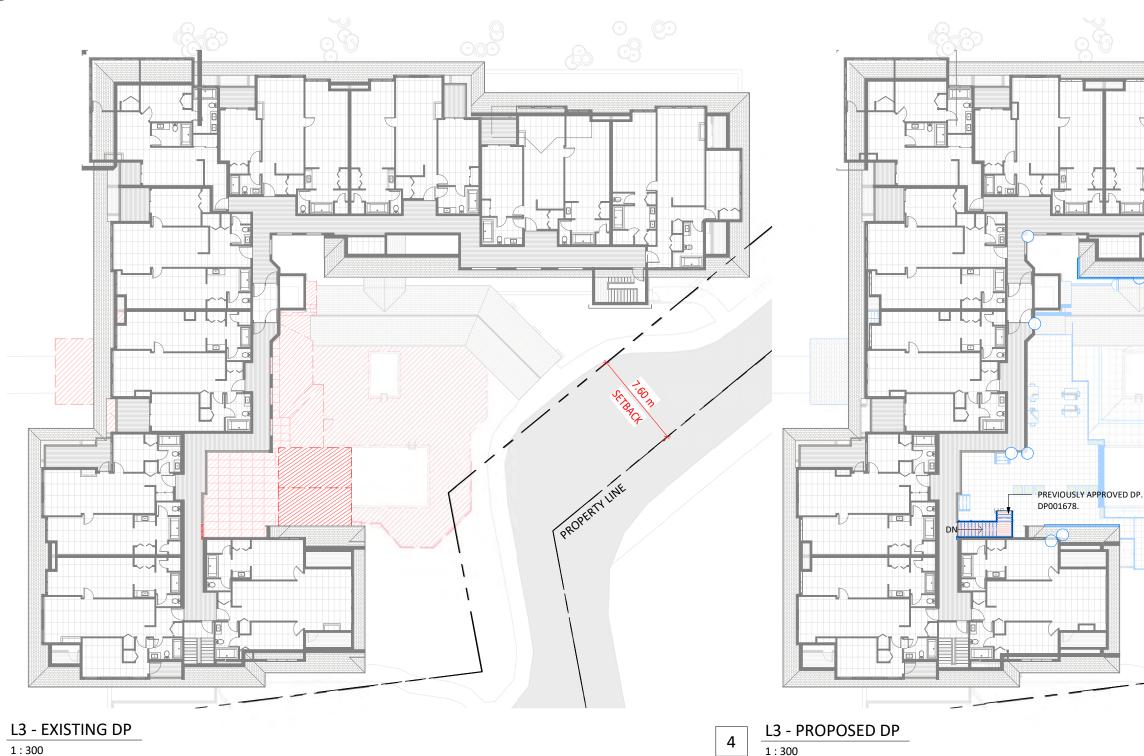
PROPOSED

	No.	Revision	Date	Ву
DP A103	J	DP REVISION	2020-03-03	DV
L2 PLAN				
1.10.11.17				
ited@ 11x17				4.0
2019-12-23			Page 45 of 2	13
			2020-03-03 3:22	:25 PM

**GFA CALCULATIONS - L3** EXISTING GFA

1011.04m<sup>2</sup> TOTAL PROPOSED GFA 1011.04m<sup>2</sup>







6

### 1933

**TWIN PEAKS RESORT** 

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

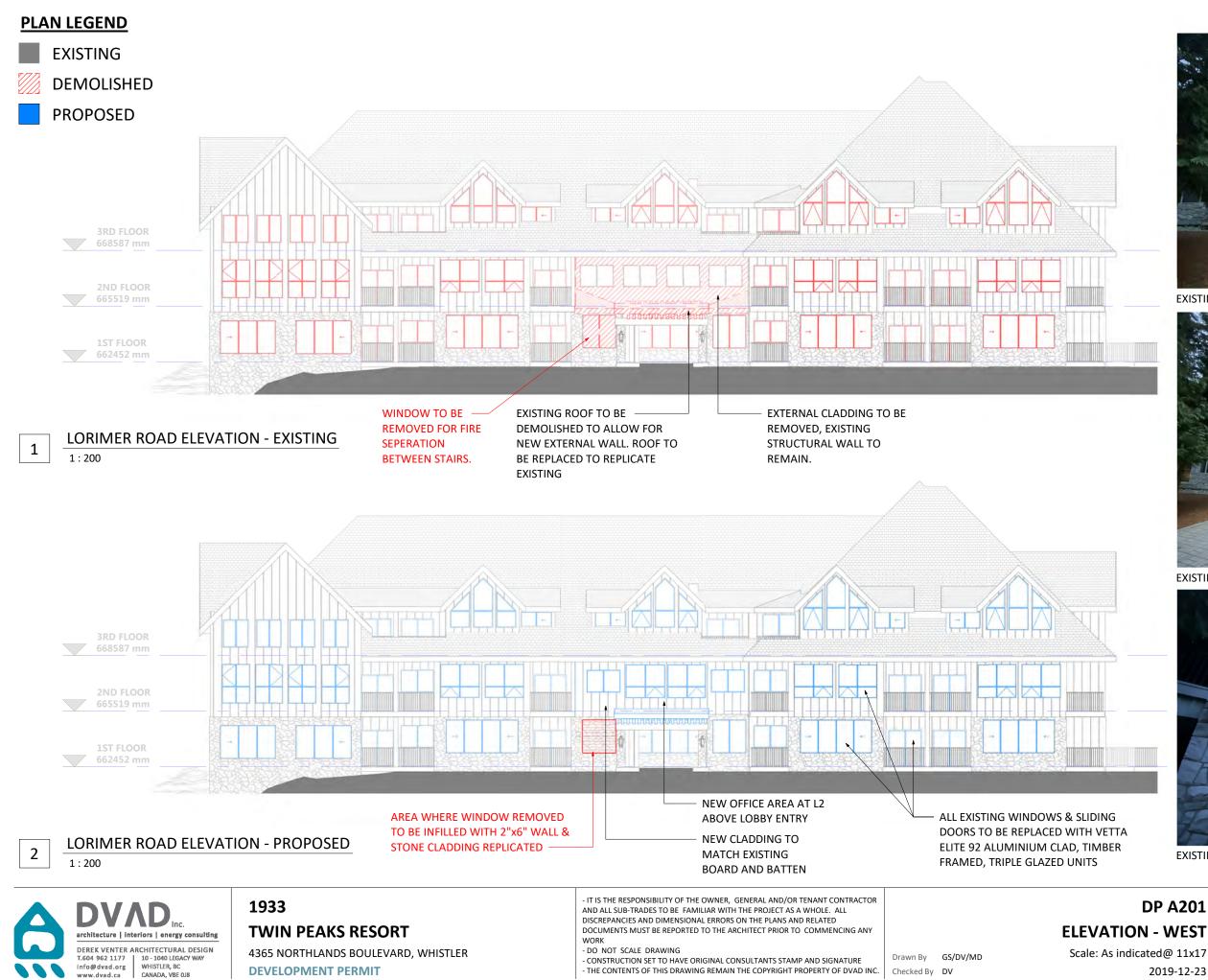
- CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

Scale: As indica

# APPENAN XEBEND EXISTING DEMOLISHED PROPOSED PROPERTYLINE

	No.	Revision	Date	Ву
DP A104	J	DP REVISION	2020-03-03	DV
L3 PLAN				
ated@ 11x17				
-			Page 46 of 2	13
2019-12-23			r ugo ro or z	
			2020-03-03 3:22	:51 PM



### **APPENDIX B**



EXISTING ENTRY FROM LORIMER ROAD



EXISTING ENTRY FROM LORIMER ROAD



EXISTING ENTRY FROM LORIMER ROAD

DP A201 2019-12-23

No.	Revision	Date	Ву
E	DP REVISION	2020-01-27	DV
G	DP REVISION	2020-02-03	DV
J	DP REVISION	2020-03-03	DV
		Dama 47 of 0	10
		Page 47 of 2	13
		2020-03-03 3:23	:11 PM





# architecture | interiors | energy consulting DEREK VENTER ARCHITECTURAL DESIGN T.604 962 1177 | 10 - 1040 LEGACY WAY info@dvad.org WHISTLER, BC www.dvad.ca CANADA, V8E 0J8

### 1933

**TWIN PEAKS RESORT** 

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

- DO NOT SCALE DRAWING

Drawn By Author - CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By Checker

ELEVATION Scale: As indica

	No.	Revision	Date	Ву
DP A202	G	DP REVISION	2020-02-03	DV
	J	DP REVISION	2020-03-03	DV
- NORTH				
ated@ 11x17				
			Dege 49 of 2	10
02/02/20			Page 48 of 2	13
			2020-03-03 3:23	:24 PM



# architecture | interiors | energy consulting DEREK VENTER ARCHITECTURAL DESIGN T.604 962 1177 10-1040 LEGACY WAY info@dvad.org www.dvad.ca CANADA, V8E 0J8

### 1933

**TWIN PEAKS RESORT** 

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

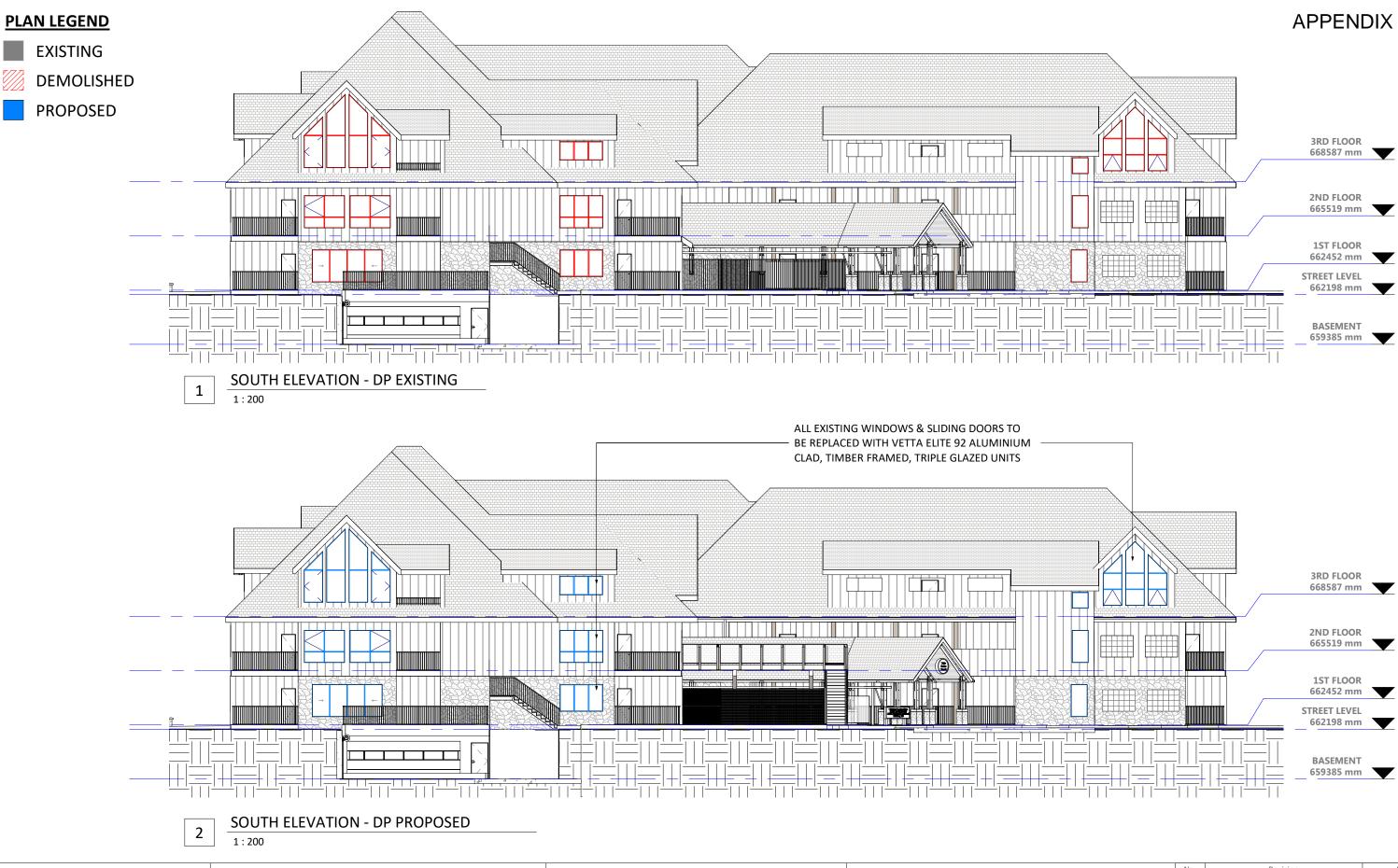
- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK - DO NOT SCALE DRAWING

- CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By Checker

Drawn By Author

**ELEVATIO** Scale: As indic

	No.	Revision	Date	Ву
DP A203	G	DP REVISION	2020-02-03	DV
	J	DP REVISION	2020-03-03	DV
DN - EAST				
cated@ 11x17				
•			Page 49 of 2	13
02/03/20			0	
			2020-03-03 3:23	:33 PM



### 1933

architecture | interiors | energy consulting

DEREK VENTER ARCHITECTURAL DESIGN T.604 962 1177 10-1040 LEGACY WAY info@dvad.org www.dvad.ca CANADA, V8E 0J8

### **TWIN PEAKS RESORT**

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

Drawn By Author - CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By Checker

#### **ELEVATION - SOU** Scale: As indicated@ 12

	No.	Revision	Date	Ву	6
DP A204	G	DP REVISION	2020-02-03	DV	10
	J	DP REVISION	2020-03-03	DV	
I - SOUTH					
icated@ 11x17					9
02/02/20			Page 50 of 2	13	10
			2020-03-03 3.23	·//3 PM	·

#### **MATERIALS LEGEND:**

#### 1. 18"x18" Tiles on pedestals

To allow water drainage through space between tiles.

#### 2. Timber posts on exposed steel connectors

To match and reflect new walkway steel details. All metal painted black.

3. Glass Railing with wood posts. To be min. 5' tall to allow for pool protection.

4. Steel structure stairs with trex decking treads. Stainless steel with Trex finish ontop.

5. Siding to match existing. Painted the same color as existing.

#### 6. New sliding door.

(Beam above door to allow for bigger opening to accommodate the new sliding door.





### 1933

#### **TWIN PEAKS RESORT**

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

### **MATERIAL FINISHES**

Scale: 1 : 96@ 11x17

DP A701

12/15/19

7///		
7//////////////////////////////////////		
MALLALL		
	I	
Revision	Date	By
DP REVISION	2020-03-03	DV
	Page 51 of 2	13
	2020-03-03 3:23	3:49 P





POOL AREA PERSPECTIVE - EXISTING 1

POOL AREA PERSPECTIVE - PROPOSED 2



### 1933

#### **TWIN PEAKS RESORT**

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

- CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

Drawn By GS/DV/MD

3D Scale:

	No.	Revision	Date	By	ļ
DP A901	J	DP REVISION	2020-03-03	DV	1
					Ċ
3D VIEWS					
cale: @ 11x17					
-			Page 52 of 2	13	-
2019-12-23			1 age 52 61 2	10	] '
			2020-03-03 3:24	:04 PM	





L2 DECK PERSPECTIVE - EXISTING

#### L2 DECK PERSPECTIVE - PROPOSED 2



1

### 1933

#### **TWIN PEAKS RESORT**

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

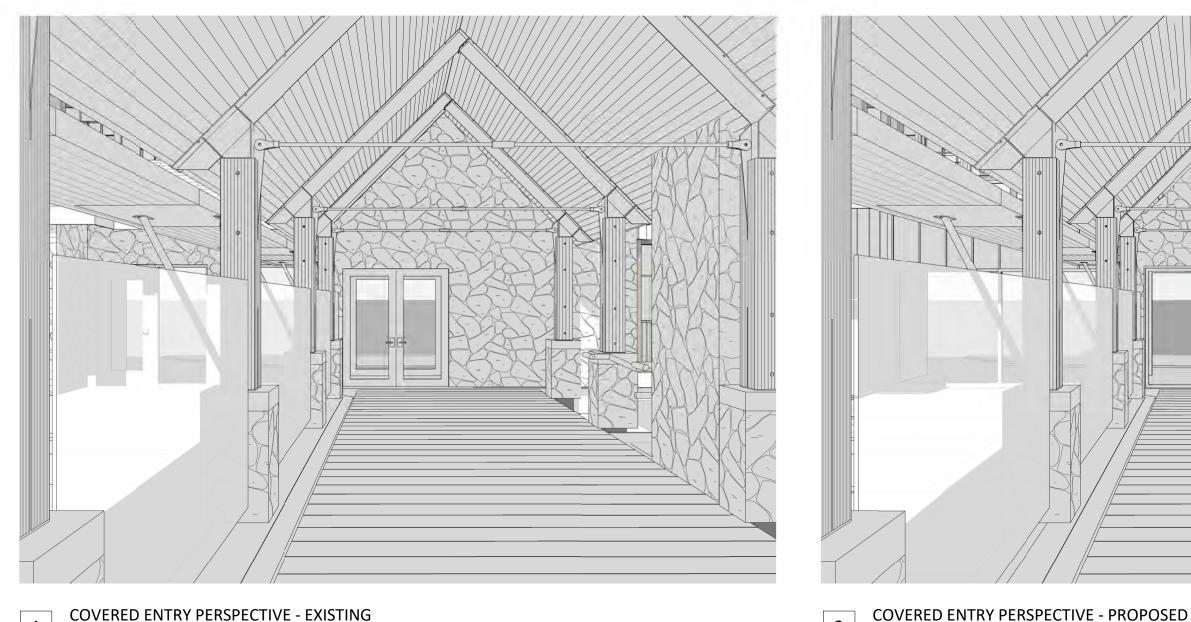
#### - DO NOT SCALE DRAWING

CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE
 THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC.
 Checked By DV

Drawn By GS/DV/MD

3D VII Scale: @

	No.	Revision	Date	Ву
DP A902	J	DP REVISION	2020-03-03	DV
3D VIEWS				
Scale: @ 11x17				
-			Page 53 of 2	13
2019-12-23			T age 55 of 2	13
			2020-03-03 3:24	:19 PM



**COVERED ENTRY PERSPECTIVE - EXISTING** 



1

### 1933

#### **TWIN PEAKS RESORT**

4365 NORTHLANDS BOULEVARD, WHISTLER **DEVELOPMENT PERMIT** 

- IT IS THE RESPONSIBILITY OF THE OWNER, GENERAL AND/OR TENANT CONTRACTOR AND ALL SUB-TRADES TO BE FAMILIAR WITH THE PROJECT AS A WHOLE. ALL DISCREPANCIES AND DIMENSIONAL ERRORS ON THE PLANS AND RELATED DOCUMENTS MUST BE REPORTED TO THE ARCHITECT PRIOR TO COMMENCING ANY WORK

#### - DO NOT SCALE DRAWING

- CONSTRUCTION SET TO HAVE ORIGINAL CONSULTANTS STAMP AND SIGNATURE - THE CONTENTS OF THIS DRAWING REMAIN THE COPYRIGHT PROPERTY OF DVAD INC. Checked By DV

2

Drawn By GS/DV/MD

DP A9 **3D VIEV** Scale: @ 11



	No.	Revision	Date	By
DP A903	J	DP REVISION	2020-03-03	DV
D VIEWS				
ale: @ 11x17				
2019-12-23			Page 54 of 2	213
	L		2020-03-03 3:2	4:35 PM



**3D VIEW - Existing** 

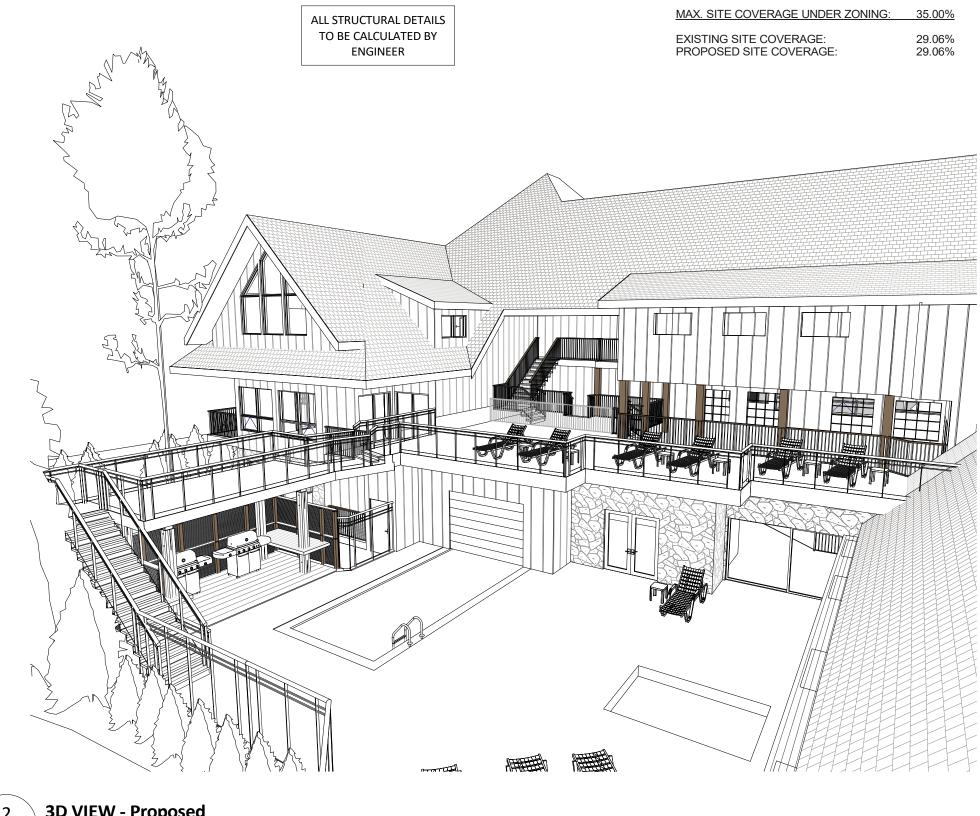
DP A000

1

TWIN PEAKS RESORT

4365 NORTHLAND BOULEVARD, WHISTLER Plan: LMS2027, LOT 1-28 PID# 023-109-904 -> 023-110-171 **ZONING: LNR** 

### **PROPOSED BBQ AREA + FLAT ROOF DECK &** CHANGE IN EXISTING DOORS / WINDOWS **TO EXISTING POOL AREA**





DVAD Inc. DEREK VENTER ARCHITECTURAL DESIGN P: +1.604.962.1177 | info@dvad.org P.O BOX 794, Whistler, BC, Canada, VON 1B0

**DEVELOPMENT PERMIT** 000 02/19/19

ons must be reported to the architect before construction i d. Any work started or completed based on these drawings are the sole responsibility

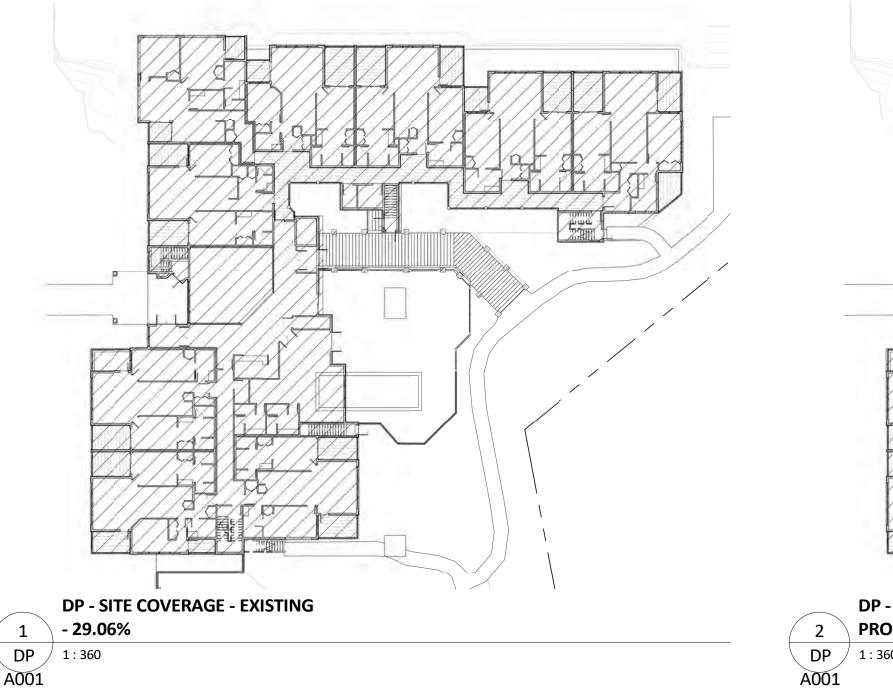
A000

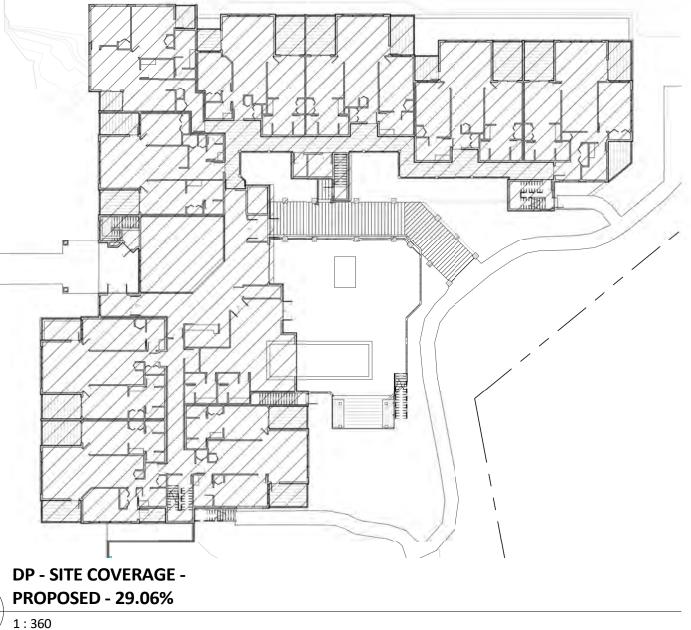
TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

### **APPENDIX C**

MAX. SITE COVERAGE UNDER ZONING:	35.00%

**DP A000** COVER Scale: 1: 1 age 55 of 213





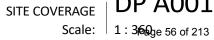
DVAD Inc. DEREK VENTER ARCHITECTURAL DESIGN P: +1.604.962.1177 | info@dvad.org P.O BOX 794, Whistler, BC, Canada, VON 1B0



to familiarize themselves with the project as a whole. All discrepancies, errors and sions including dimensions must be reported to the architect before construction is arted. Any work started or completed based on these drawings are the sole responsibility

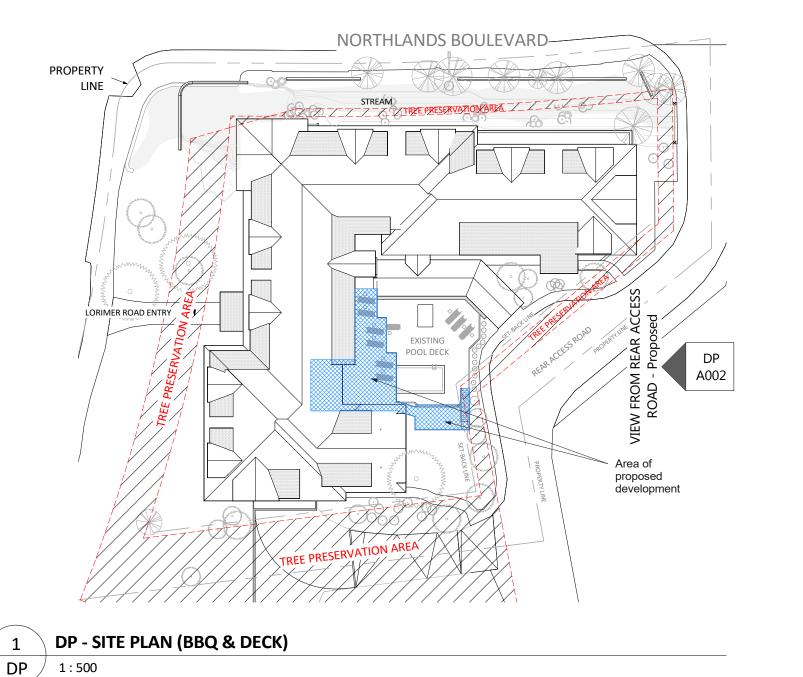
TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

### APPENDIX C

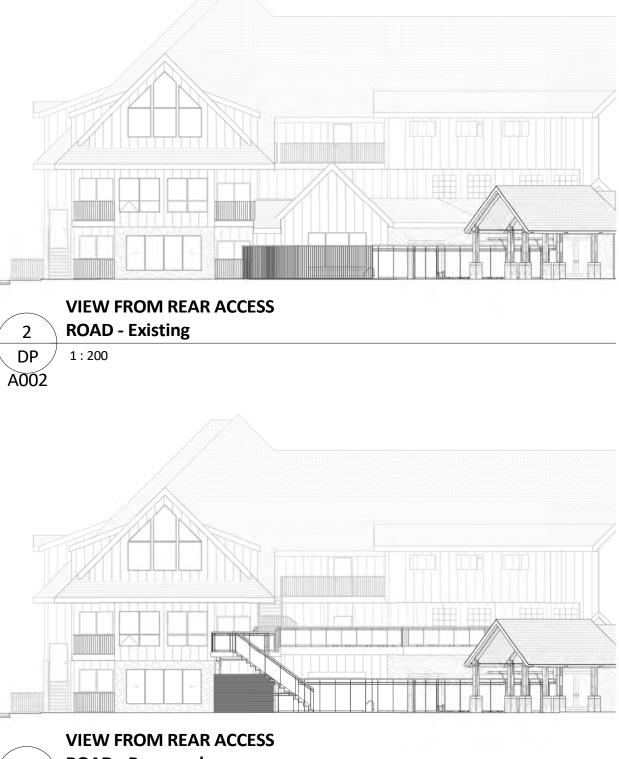


**DP A001** 









**ROAD - Proposed** 3 DP 1:200 A002

#### DVAD Inc. DEREK VENTER ARCHITECTURAL DESIGN P: +1.604.962.1177 | info@dvad.org P.O BOX 794, Whistler, BC, Canada, VON 1B0

A002

**DEVELOPMENT PERMIT** A 000

02/19/19

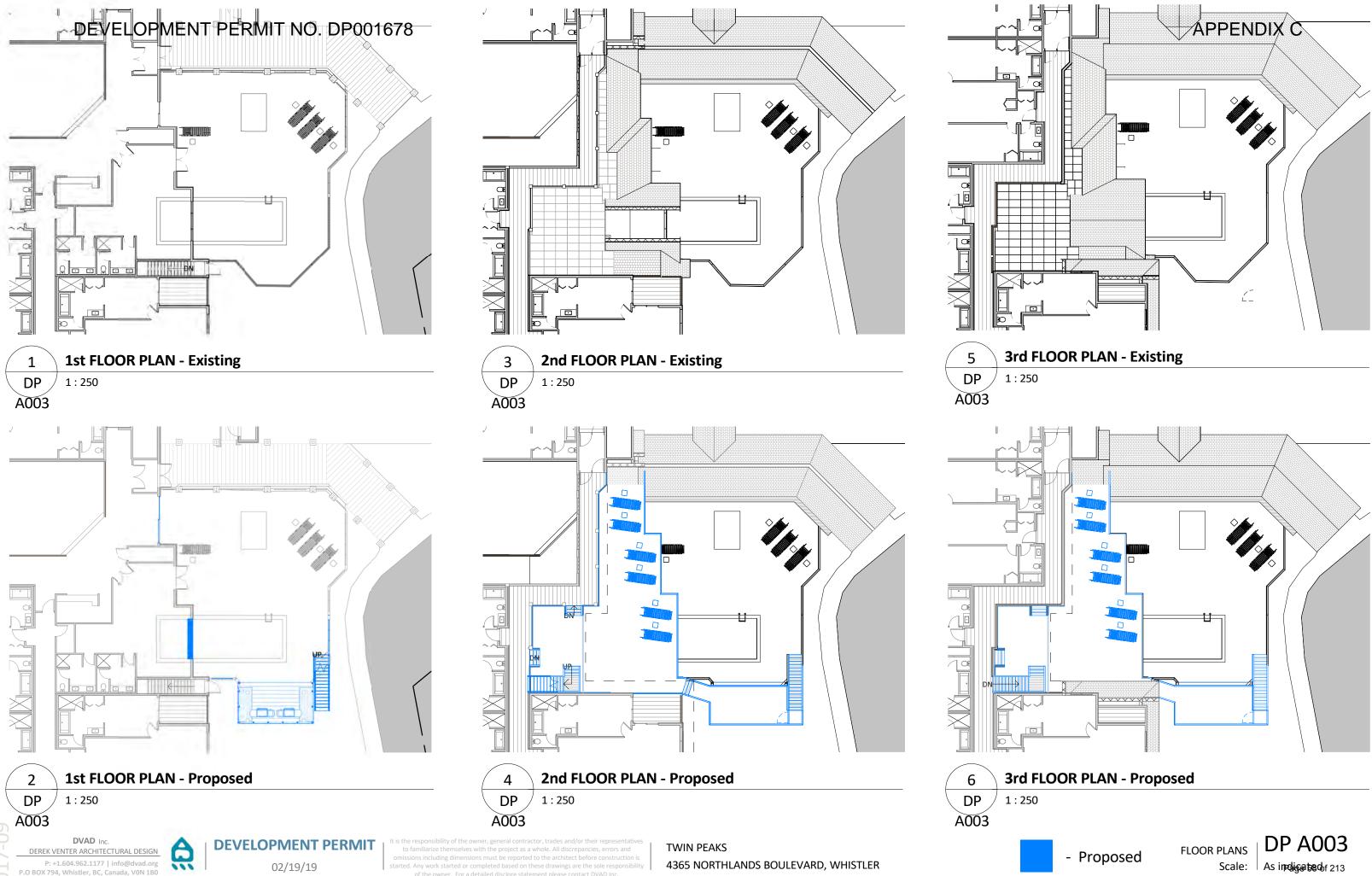


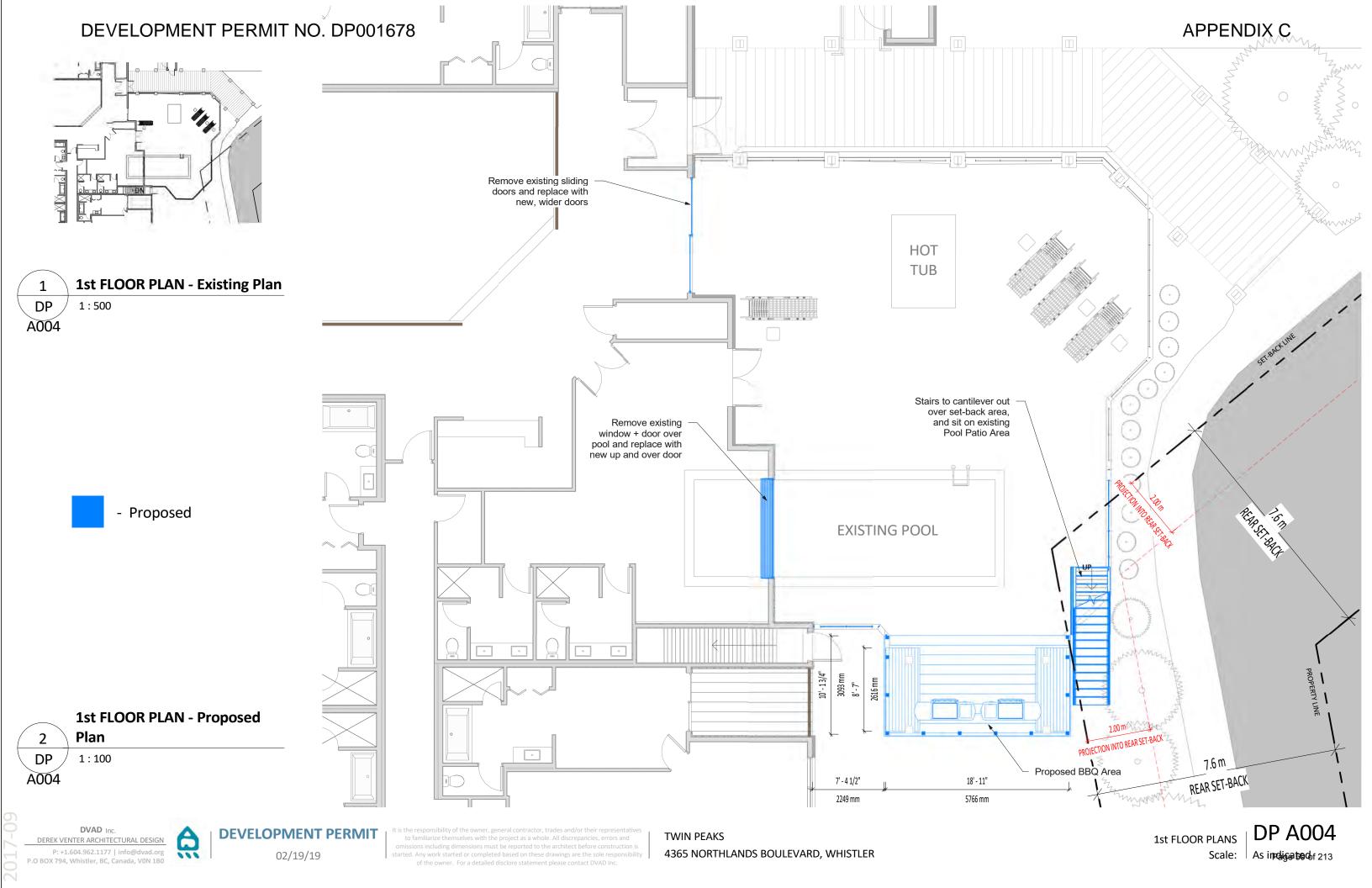
TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

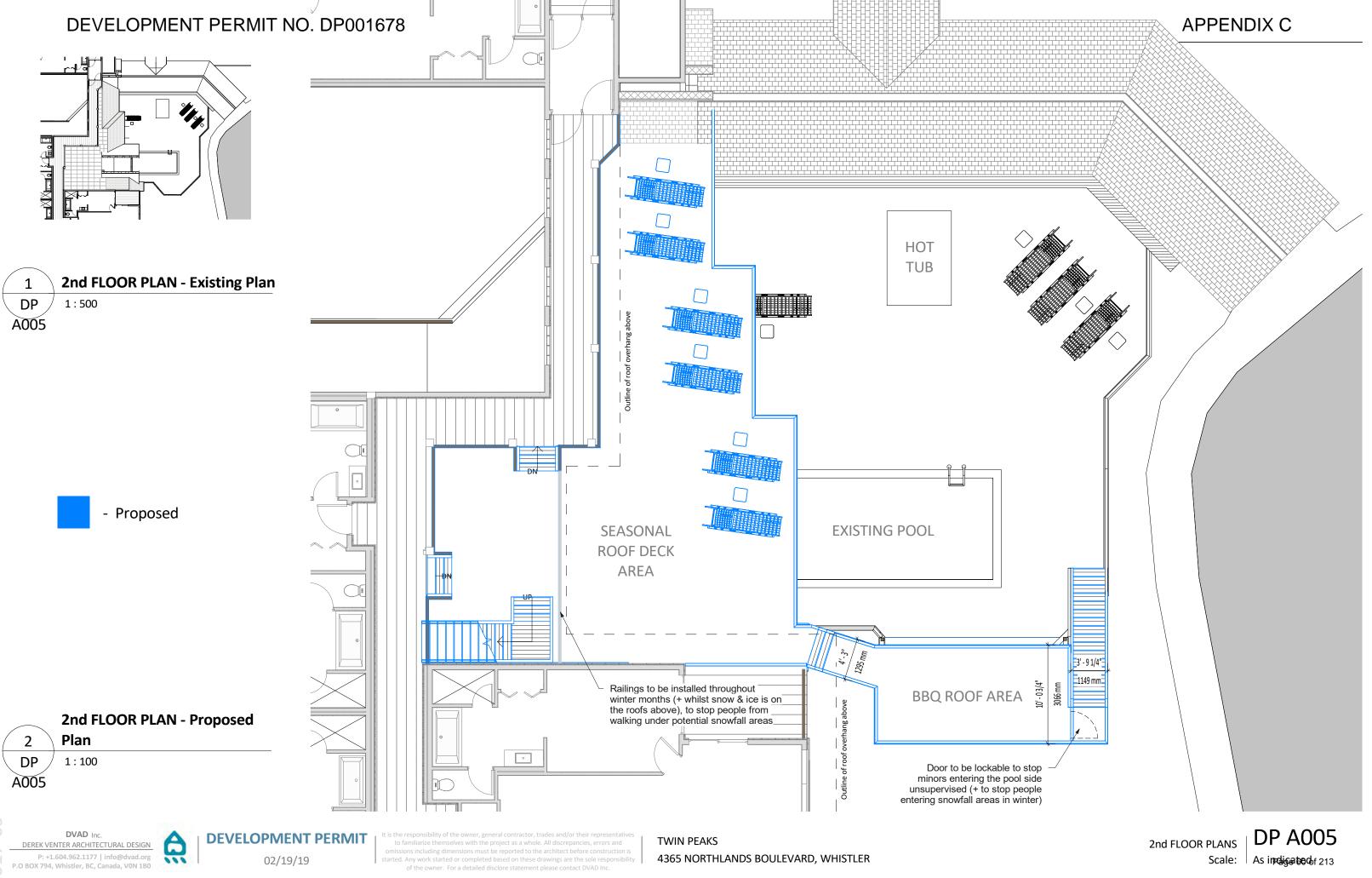
### APPENDIX C

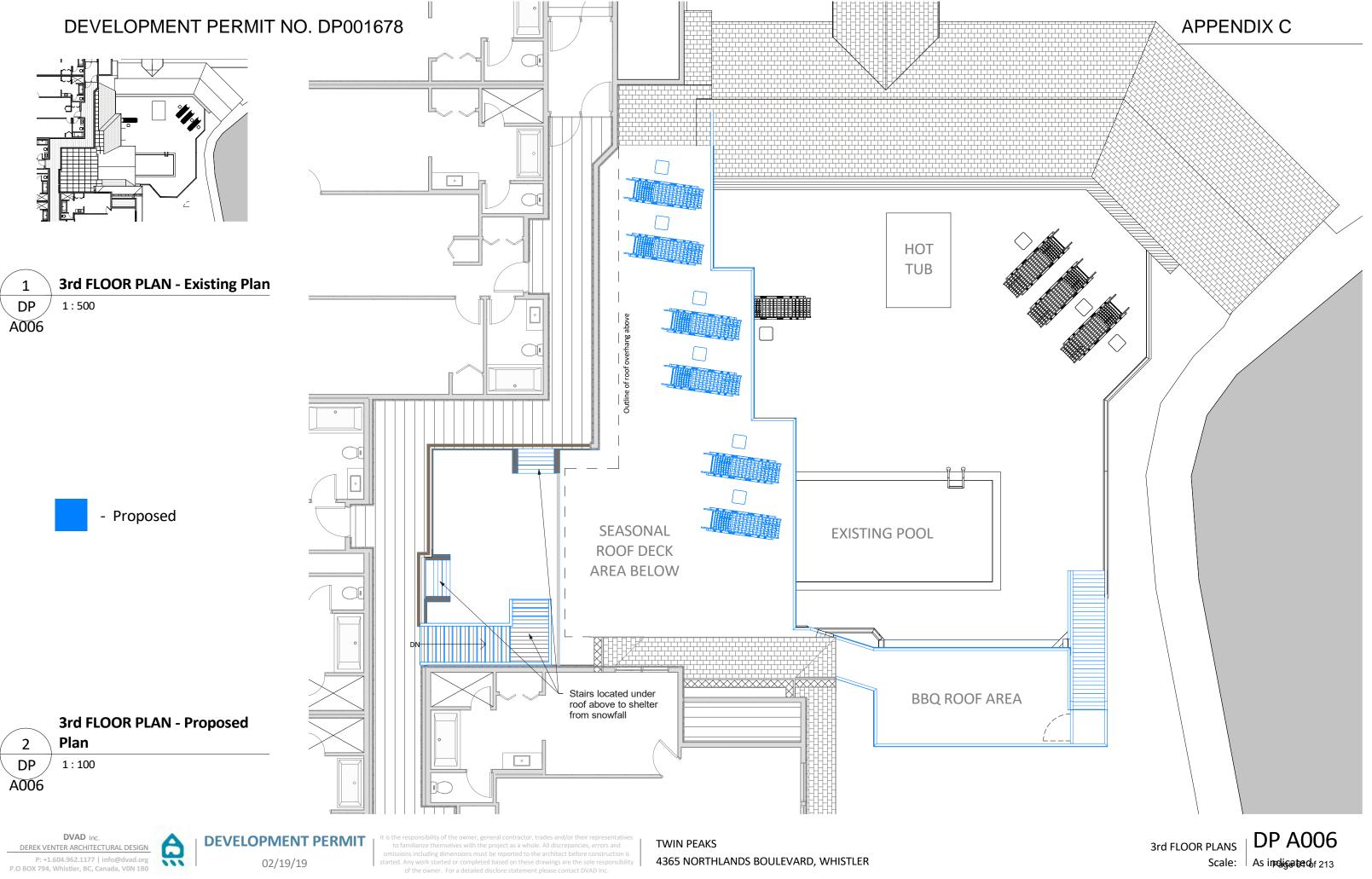
SITE PLAN & ELEVATIONS

**DP A002** Scale: As investigate of 213









1. Cross-laminated Timber (CLT) roof

2. Timber posts on steel connectors to match entry

- 3. CLT bench seating
- 4. CLT worktop
- 5. Stained cedar fence (4"x4" posts + 1"x1" slats)
- 6. New concrete piles and ring beam
- 7. 2" x 12" FIR Decking
- 8. Stainless steel glass railing
- 9. Timber stairs
- 10. Torch-on membrane
- 11. Timber railings
- 12. Patio Doors to match style of existing
- 13. Up-and-over door



#### **3D VIEW - MATERIALS** 1



02/19/19

DVAD Inc. DEREK VENTER ARCHITECTURAL DESIGN P: +1.604.962.1177 | info@dvad.org P.O BOX 794, Whistler, BC, Canada, VON 1B0



orted to the architect before Any work started or completed based on these drawings are the sole responsibilit

TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

### APPENDIX C



EXISTING ELEVATION TO REAR



5. STAINED CEDAR FENCE



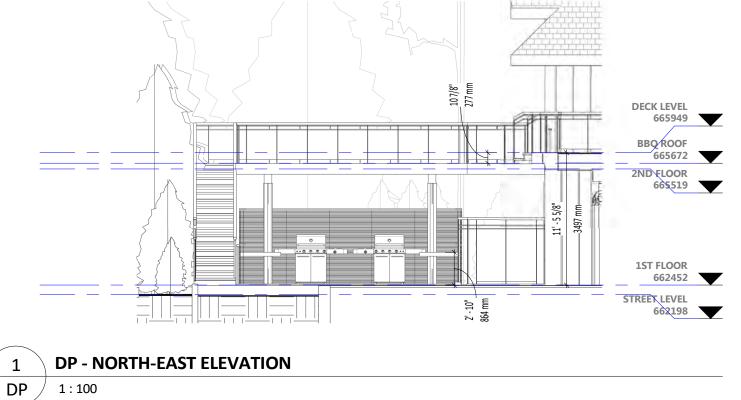
1. CROSS LAMINATED TIMBER (CLT) ROOF

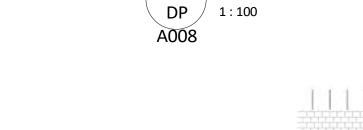


2. TIMBER POST TO MATCH ENTRY

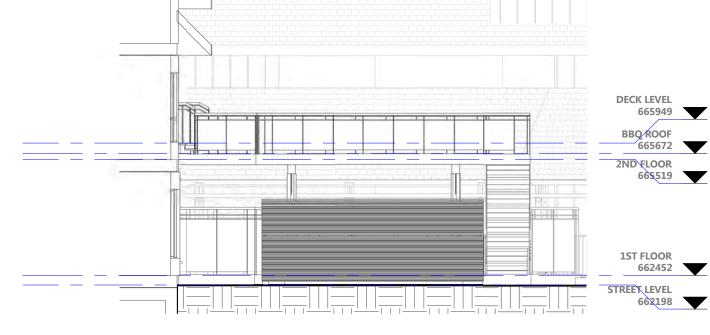


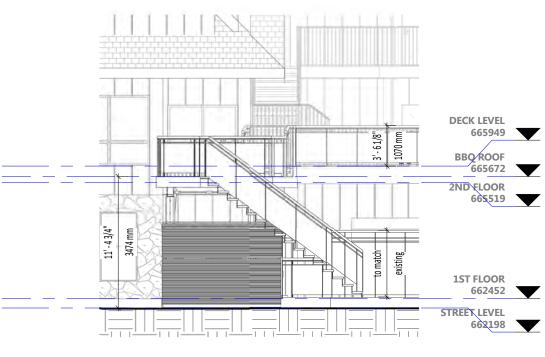
MATERIAL FINISHES Scale:





2





**DP - NORTH-WEST ELEVATION** 



DP 1:100 A008

**DP - SOUTH-WEST ELEVATION** 

02/19/19

A

000

DVAD Inc. DEREK VENTER ARCHITECTURAL DESIGN P: +1.604.962.1177 | info@dvad.org P.O BOX 794, Whistler, BC, Canada, VON 1B0

3

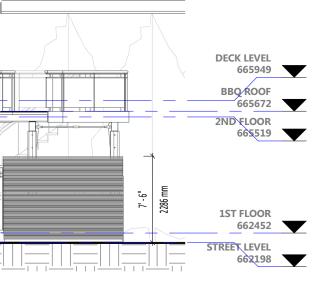
A008

**DEVELOPMENT PERMIT** to familiarize themselves with the project as a whole. All discrepancies, errors and issions including dimensions must be reported to the architect before construction i arted. Any work started or completed based on these drawings are the sole responsibility

TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

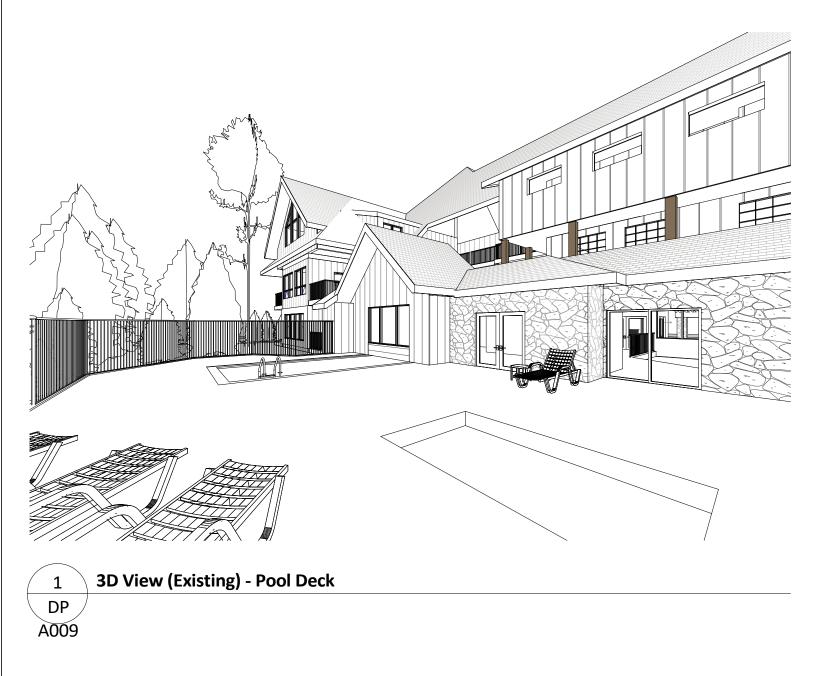
### APPENDIX C



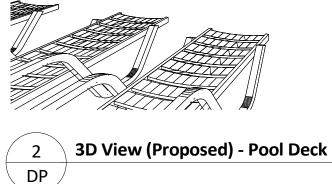


PROPOSED BBQ ELEVATIONS

**DP A008** 













ons must be reported to the architect before construction is ed. Any work started or completed based on these drawings are the sole responsibility

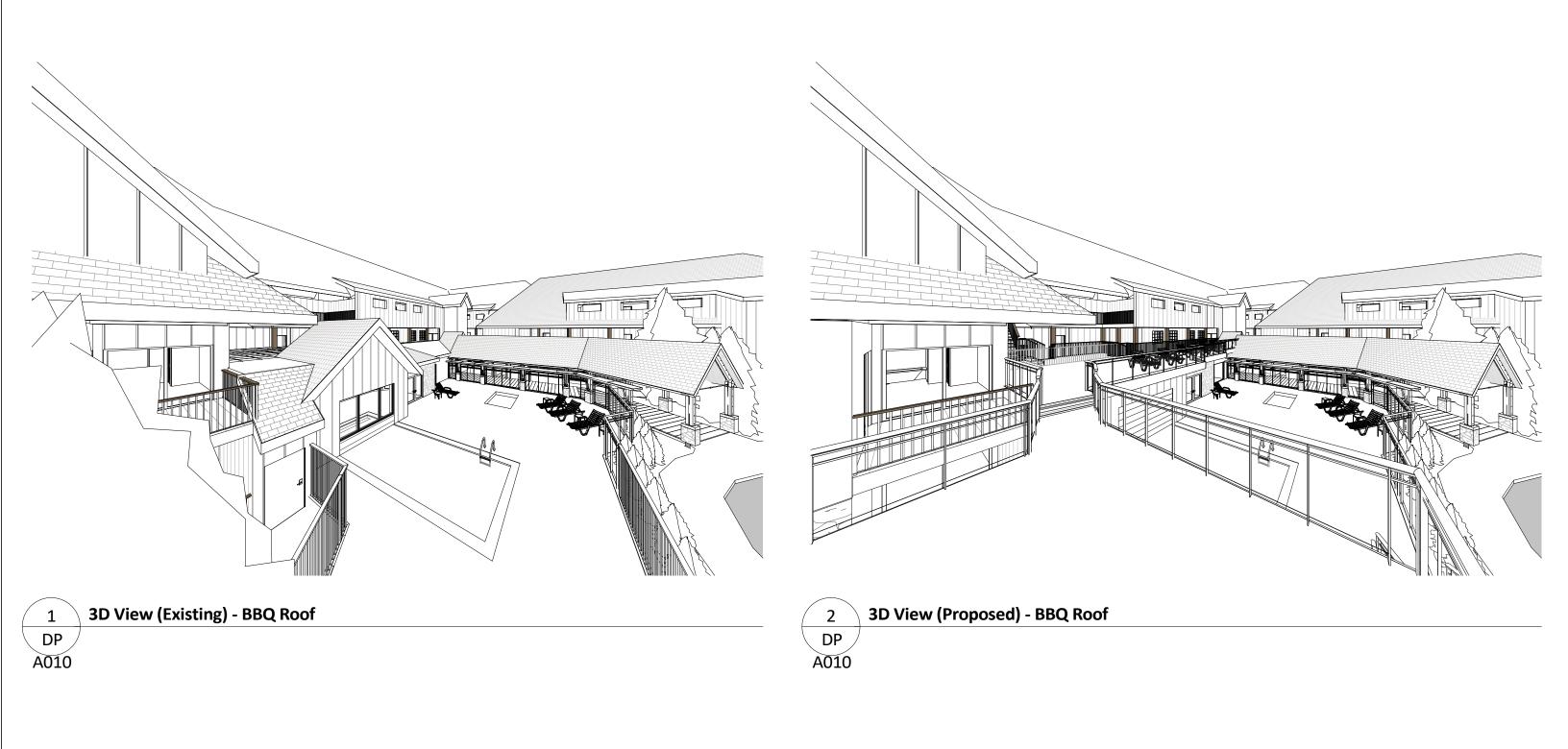
TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

A009

### APPENDIX C



3D VIEW (POOL DECK) Scale:







It is the responsibility of the owner, general contractor, trades and/or their representatives to familiarize themselves with the project as a whole. All discrepancies, errors and omissions including dimensions must be reported to the architect before construction is started. Any work started or completed based on these drawings are the sole responsibility of the owner. For a detailed disclore statement please contact DVAD Inc.

TWIN PEAKS 4365 NORTHLANDS BOULEVARD, WHISTLER

### APPENDIX C



3D VIEW (BBQ ROOF) Scale:



# WHISTLER

## **REPORT** ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	April 7, 2020	<b>REPORT:</b>	20-035
FROM:	Resort Experience	FILE:	8396
SUBJECT:	HUMAN-GRIZZLY BEAR CONFLICT MITIG	ATION STRA	ATEGY

#### COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Resort Experience be endorsed.

#### RECOMMENDATION

That Council endorse the Human-Grizzly Bear Conflict Mitigation Strategy.

#### REFERENCES

Appendix "A" – Human-Grizzly Bear Conflict Mitigation Strategy

Appendix "B" - Vegetation and Habitat Mapping Report

#### **PURPOSE OF REPORT**

The purpose of this Report is to provide Council with information regarding the strategy developed by RMOW and Provincial staff to minimize human-grizzly bear conflict on the Rainbow and Sproatt Mountain alpine trails.

#### DISCUSSION

#### Background

Grizzly bears in the Mount Sproatt and Rainbow Mountain area are part of the Squamish-Lillooet Grizzly Bear Population Unit (GBPU). Currently listed as threatened, they are being managed for recovery by the Province of BC. Recent studies within this area reveal that grizzly bears are starting to recover in the Squamish-Lillooet GBPU.

A series of provincially authorized recreational hiking and mountain biking trails were opened on Mount Sproatt and Rainbow Mountain in mid-summer 2017 to offer an exceptional backcountry alpine experience. The subject trails were developed and are managed by local trail user groups (Whistler Off-Road Cycling Association, Alpine Club of Canada Whistler Chapter) as well as the provincial government (Recreation Sites and Trails BC, a division of the Ministry of Forest Lands and Natural Resource Operations) and the Resort Municipality of Whistler (RMOW). Recreation Sites and Trails BC (RSTBC) approved trail development through an inclusive referral process.

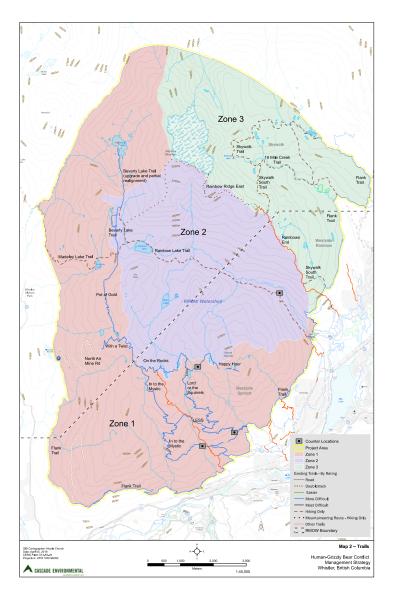
The Human-Grizzly Bear Conflict Mitigation Strategy (CMS) was developed in response to grizzly bear incidents on the alpine trail system that resulted in trail closures from mid-September to mid-November 2018. The strategy was prepared by the Planning Team, consisting of the Recreation Sites and Trails BC (RSTBC) Recreation Officer, the Ministry of Forests, Lands, Natural Resource Operations (FLNR)

#### Human-Grizzly Bear Conflict Mitigation Strategy April 7, 2020 Page 2

Sea to Sky District Biologist, the Conservation Officer Service (COS) and Resort Municipality of Whistler (RMOW) staff, with early stage research and report writing by Grey Owl Consulting.

The entire combined RMOW/RSTBC/WORCA/ACC network now totals 67 kilometers of trails above the Flank Trail including the new Sproatt-Rainbow multi-use trails, the historic Rainbow-Madeley hiking trail, and the new Skywalk hiking trails. In the 2018 season, trail counters recorded 24,500 counts representing roughly 16,500 users throughout the entire network. In 2019, there were approximately 22,500 counts representing roughly 17,000 users throughout the entire network. The reason that counts differ from users is that loop trails will record one user with one count, but counts on trails that are in and out, like the Rainbow Trail, need to be adjusted so that users are not double counted. In 2019 there were two unconfirmed grizzly bear sightings and two confirmed grizzly bear sightings with bear in area notices posted for each, plus one aggressive owl notice yet no trail closures were necessary as a result of implementing the draft CMS grizzly bear response plan and other recommendations.

Map 1: Sproatt - Rainbow Alpine Trail System



The CMS strategy identifies the following objectives and key recommendations:

Strategy Objectives	Key Recommendations	Status
Identify actions to minimize impacts of recreation trail use on grizzly bear habitat and use patterns	Complete a vegetation and habitat mapping analysis to determine areas of high value grizzly bear habitat and 'hot spots' used by bears	Completed, attached as Appendix "B".
	Future trails, campsites and other amenities must avoid high value habitat and forage	Accepted
	Conduct annual monitoring programs and modify trails as required.	Alpine Ranger and monitoring program expanded on Sproatt- Rainbow alpine trail system in 2019 and further in 2020. Beverley Lake Trail and future work on Flank Trail south re-routed to avoid grizzly bear habitat.
Identify actions to minimize human interactions with grizzly bears on alpine trail system	Develop a comprehensive and consistent public education and communication strategy	Trail signs already installed and future signs will continue to include grizzly bear information. More signs planned for en-route along trails. A communications specialist engaged in 2020 to develop messaging and sign locations.
	Develop a trail counter and remote camera plan ensuring locations are suitable for maintenance and data collection.	Completed and will be implemented in 2020.
	Continue to prohibit dogs, commercial events, and e-bikes above the Flank Trail year round.	Accepted and in effect for 2020.
Create a response and communications plan to guide decision-making in the event of grizzly bear presence in the alpine trails area	Ensure all relevant agencies receive the response plan and train their staff.	CMS including the response plan has been shared with relevant agencies.

The full CMS is attached as Appendix "A". All actions to minimize impacts of recreation trail use on grizzly bears and their habitat, and to minimize human interactions with grizzly bears are described in Section 4. The Planning Team also developed a grizzly bear response plan and communication

#### Human-Grizzly Bear Conflict Mitigation Strategy April 7, 2020 Page 4

response protocol included in Sections 5 and 6 to effectively respond when grizzlies are sighted or an incident occurs.

During the development of the CMS, a need to better understand how grizzly bears were actually using the landscape was identified as a key recommendation (see CMS Section 4.1.1). To be ready for the 2020 season staff engaged Wildlife Biologist, Grant MacHutchon, in autumn 2019 to complete a study on grizzly bear use of vegetation and habitat in the Rainbow and Sproatt alpine areas and to make recommendations. Mr. MacHutchon has extensive experience conducting similar studies throughout British Columbia, particularly in areas with backcountry recreation amenities and activities. The Vegetation and Habitat Mapping report is attached as Appendix B. All recommendations from the MacHutchon report have been accepted by RMOW staff and are incorporated into the 2020 work plan. RMOW staff will discuss the report recommendations further with WORCA and the Alpine Club of Canada Whistler Chapter to ensure all are managing trails with the same objectives and to determine how all parties can work together most effectively.

It should be noted that enforcement of the recommendations and policies applicable to Crown Lands resides with provincial enforcement staff, not RMOW Bylaw Services. RMOW and provincial staff will continue to work closely together to find ways to effectively manage the trails as per the CMS.

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Natural Areas	Backcountry areas are protected from overuse and degradation	The trail system manages the public use that was already occurring in the alpine, and the CMS directs the RMOW and province how to effectively manage the area to avoid wildlife conflict and habitat degradation.
	Community members and visitors act as stewards of the natural environment	Alpine Rangers and interpretive signs offer many opportunities to educate the public on bear smart behaviour and back country safety and etiquette.
	Continual learning about natural areas and species informs appropriate restoration and protection efforts	The information learned compiling the CMS and vegetation/habitat study directly inform appropriate management efforts.
Recreation and Leisure	Local and regional stakeholders use a collaborative and comprehensive approach to developing amenities and offerings, and to resolving user conflicts	This exercise was a good example of working with provincial counterparts and local groups to share ideas and find the best solutions.
Partnership	Partners participate in policy making and other decisions at various levels of government where relevant	RMOW and provincial staff worked closely on this project which will make it more successful.

#### WHISTLER 2020 ANALYSIS

The Human-Grizzly Bear Conflict Mitigation Strategy does not move our community away from any of the adopted Whistler2020 Descriptions of Success.

#### OTHER POLICY CONSIDERATIONS

The CMS aligns with the Recreation and Leisure Master Plan, Black Bear Conflict Mitigation Plan, and draft OCP policies regarding reducing wildlife conflict and impacts on wildlife habitat.

#### **BUDGET CONSIDERATIONS**

Resort Operations has the following 2020 budget items in the Alpine Trail Program (Project X055) in relation to the CMS recommendations:

Alpine Cameras and Counters (includes additions for ACC on Skywalk)	\$15,000
Alpine Sign and Communication Planning Consultant	\$15,000
Signs and Installations, education and awareness days	\$10,000
Ranger Training and Uniforms	\$10,000
TOTAL	\$50,000

#### COMMUNITY ENGAGEMENT AND CONSULTATION

The draft CMS was shared for input in the early stages and/or in final draft form with a variety of stakeholders including:

- Whistler Bear Advisory Committee (twice in 2019 and again on March 11, 2020)
- Forest and Wildland Advisory Committee (twice in 2019 and again on March 11, 2020)
- Coast to Cascades Grizzly Bear Initiative (May 2019 and February 2020)
- Trail Planning Working Group in its November 2019 newsletter
- AWARE and WORCA through its WBAC, FWAC and TPWG membership and directly
- Alpine Club of Canada Whistler Chapter
- SLRD Board March 18, 2020
- Canadian Wilderness Adventures (commercial recreation tenure operator on west side of Sproatt Mountain)
- Lil'wat Nation and Squamish Nation (information sharing only)

#### SUMMARY

Thoughtful planning, public education, enforcement and closures when necessary are key strategies for minimizing human interactions with grizzly bears on the alpine trail system. It is also imperative to minimize impacts to grizzly bear habitat and use patterns, and strategies were identified to achieve that objective. Continued collaboration with provincial agencies and stakeholder groups will be critical to achieving these objectives. In addition, the RMOW will conduct further monitoring and ongoing consultation with the public, First Nations and major stakeholders as needed. Periodic reviews will be conducted as the plan is implemented to assess if objectives and strategies are being achieved.

Using the strategies outlined in this plan, the RMOW, Conservation Officer Service and Recreation Sites and Trails BC are committed to managing the Sproatt-Rainbow alpine trails using high standards in trail and recreational use management, mitigating the risk of conflict, and providing an exceptional recreational experience.

Respectfully submitted, Heather Beresford ENVIRONMENTAL STEWARDSHIP MANAGER

for Toni Metcalf INTERIM GENERAL MANAGER OF RESORT EXPERIENCE

# Human-Grizzly Bear Conflict Mitigation Strategy

for the Mount Sproatt/Rainbow Mountain Alpine Trails

Prepared for: Resort Municipality of Whistler

Prepared by:







September 23, 2019



### Version 8

### 1.0 Table of Contents

2.0	Executive Summary	5
2.0	Background	6
3.0	Grizzly Bears	7
4.0	Strategy Vision	8
2.1	Objectives	9
2.3	Project Scope	9
2.4	Project Area: Mount Sproatt and Rainbow Mountain Alpine Trails	9
2.5	Roles and Responsibilities	
2.	5.1 First Nations	
	5.2 Province of British Columbia	
2.	5.3 Resort Municipality of Whistler	15
3.0	Existing Conditions	16
3.1	Biogeoclimatic Zones and Wildlife Habitat	16
3.2	Project Area Grizzly Bear Population	
3.3	Bear Risk Assessment	18
3.4	Overview of Current Users in Project Area	18
3.5	Alpine Trail Management Zones	
3.	5.1 Zone 1 -Mount Sproatt	
	3.5.1.1 Public Use	
	3.5.1.2 Commercial Use	-
	3.5.1.3 Industrial Use	
3.	5.2 Zone 2: Rainbow - 21 Mile Creek Watershed	
	3.5.2.1 Public Use	
2	3.5.2.2 Commercial Use	
3.	<ul><li>5.3 Zone 3: Rainbow-19 Mile Creek/Skywalk</li><li>3.5.3.1 Public Use</li></ul>	
	3.5.3.1 Public Use	
3.	5.4 Public Use Summary	
3.6	Current Mitigation and Response Plans	
5.0	Human-Grizzly Bear Conflict Mitigation Strategies	23
4.1	Objective 1: Actions to Minimize Impacts of Recreation Trail Use on Grizzly Bear H	
	Patterns	
	1.1 Planning and Trail Modifications	
	1.2 Existing Trail and Amenity Relocations	
	1.3 Sightline maintenance	
	1.4 Future Potential Infrastructure	

4.2	(	Dbjective 2: Actions to Minimize Human Interactions with Grizzly Bears	25
4.	2.1	Public Education and Communication	25
4.	2.2	Bear Awareness	26
4.	2.3	Signage	
	2.4	Social Media Campaign	
	2.5	Attractant Management	
	2.6	Improve Data Collection and Trail Counter Plan	
	2.7	Enforcement	
	2.8	Dog Restrictions	
	2.9	Seasonal Restrictions and Closures	
	2.10 2.11	Area Restrictions and Closures Limit User Numbers	
	2.11	Alpine Trail Ranger Program	
4.			
5.0	Gri	zzly Bear Response Plan	32
5.1	I	Responding to Conflicts with Grizzly Bears	32
6.0	Со	mmunication Response Protocol	33
6.1		Grizzly Bear Response Communication Plan	
6.2	(	Grizzly Bear Response Plan Contact List	36
7.0		nclusion	
8.0		ferences	
0.0			
9.0		pendices	
Арр	endi	x A: Non-Compliant Tracking Table	39
Арр	endi	x B: Summary of Recommendations	40
Арр	endi	x C: Bear Conflict Response Matrix	53
Арр	endi	x D: Trail Planning Working Group (TPWG) Members	54
		x E: Acronyms	

# List of Maps and Figures

Map 1: Project Area	. 11
Map 2: Trail Maps and Zones	. 12
Map 3: Commercial Recreation Tenure Map	

# **Planning Team**

Heather Beresford, Environmental Stewardship Manager (RMOW) - Lead Martin Pardoe, Manager Resort Parks Planning (RMOW) Annie Oja, Resort Parks Planner (RMOW) Lorne Russell, Parks and Trails Supervisor (RMOW) Paul Beswetherick, Resort Operations Manager (RMOW) Alistair McCrone, Recreation Officer, (Sea to Sky Recreation District, FLNR/Recreation Sites and Trails BC) Steve Rochetta, Wildlife Biologist (FLNR) Sgt. Simon Gravel, Conservation Office Service (Surrey)

Technical Writing and Research - Liz Scroggins, Grey Owl Consulting

## 2.0 Executive Summary

Grizzly bears in the Mount Sproatt and Rainbow Mountain area near Whistler, BC are part of the Squamish-Lillooet Grizzly Bear Population Unit (GBPU). Currently listed as threatened, they are being managed for recovery by the Province of BC. Recent studies within this area reveal that grizzly bears are starting to recover in the Squamish-Lillooet GBPU.

A series of authorized hiking and mountain biking trails were opened on Mount Sproatt and Rainbow Mountain in mid-summer 2017 to offer an exceptional backcountry alpine experience. The network includes almost 40 kilometers of alpine trails and in the summer of 2018 there were approximately 2,500 users to the area each month for a total of approximately 14,000 users throughout the summer-fall season.

This strategy was developed in response to grizzly bear incidents on the alpine trail system that resulted in trail closures from mid-September to mid-November 2018. The strategy was prepared by the Planning Team, consisting of the Recreation Sites and Trails (RSTBC) Recreation Officer, the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR) Sea to Sky District Biologist, the Conservation Officer Service (COS) and Resort Municipality of Whistler (RMOW) staff, with early stage research and report writing by Grey Owl Consulting.

Strategy Objectives	Key Recommendations
Identify actions to minimize impacts of	Complete a vegetation and habitat
recreation trail use on grizzly bear habitat	mapping analysis to determine areas of
and use patterns	high value grizzly bear habitat and 'hot
	spots' used by bears
	Future trails, campsites and other
	amenities must avoid high value habitat
	and forage
	Conduct annual monitoring programs and
	modify trails as required.
Identify actions to minimize human	Develop a comprehensive and consistent
interactions with grizzly bears on alpine	public education and communication
trail system	strategy
	Develop a trail counter and remote
	camera plan ensuring locations are
	suitable for maintenance and data
	collection.
	Continue to prohibit dogs above the Flank
	trail year round.

The strategy identifies the following objectives and key recommendations:

Create a response and communications	Ensure all relevant agencies receive the
cicate a response and communications	Linsuite all relevant agencies receive the
plan to guide decision-making in the	response plan and train their staff.
plan to guide decision-making in the	response plan and train their stan.
event of grizzly bear presence in the	
event of grizzly bear presence in the	
alpine trails area	

In Section 4, the strategy identifies actions to minimize impacts of recreation trail use on grizzly bears and their habitat, and to minimize human interactions with grizzly bears. A grizzly bear response plan and communication response protocol was also developed and included in Sections 5 and 6. A summary of all recommendations is included as Appendix B.

# 2.0 Background

Whistler B.C. is a summer and winter destination. Summer alpine activities include hiking, mountain biking, backpacking and trail running. From 2010 to 2013, the RMOW worked with trail partners and agencies to develop an alpine trail network on Sproatt and Rainbow Mountains. The rationale to provide an alpine trail experience for the resort community was based upon the following items:

- Emerging public use of the Mount Sproatt area, the ensuing potential unmanaged impacts to alpine environments and the municipal water supply, and the desire to be proactive rather than reactive about managing use;
- Whistler Recreational Cycling Plan and Cycling Trails Masterplan endorsed by Council in 2006;
- Recommendations to Council from the Report on Whistler Area Hiking Trails (2010-2012) prepared by a subcommittee of the municipal Forest and Wildland Advisory Committee (FWAC), with a proposal to build a significant alpine hiking system in the Whistler area which resulted in significant funding from Council;
- The Garibaldi Park Management Plan Amendment for the Spearhead Area (2012-2014);
- Concerns regarding existing and further recreational use of the 21 Mile Creek municipal watershed, which led to an assessment in 2014 and the 21 Mile Source Water Protection Plan in 2015; and
- Development of an Adventure Tourism Tenure Management Plan Replacement (2014asf2016) for Canadian Wilderness Adventures including expanded trail networks and associated commercial tenure services on Mount Sproatt, which would result in increased unmanaged public access in the adjacent alpine area.

Through the municipally-led Trails Planning Working Group (TPWG), a series of new trails were planned and several existing trails were proposed to be enhanced. As required under Section 57 of the Forest and Range Practices Act (FRPA), the RMOW, and on behalf of the Alpine Club of Canada-Whistler Chapter (ACC-W) and Whistler Off-Road Cycling Association (WORCA), completed an application to RSTBC. RSTBC reviewed the application and through its referral process circulated the application to the District and Regional wildlife biologists, the regional water quality biologist, the Squamish and Lil'wat Nations, the COS, the Squamish Lillooet

Regional District (SLRD), the Cheakamus Community Forest, commercial recreation tenure holders, relevant industries, and others.

A Section 57 Authorization to construct the new trails was awarded by RSTBC in 2014 and trail construction began shortly thereafter. Significant improvements were made to the existing Rainbow-Madeley hiking trail by RSTBC and RMOW, in particular, the segment within the municipal watershed. A new hiking-only trail network on Rainbow Mountain was developed (collectively referred to as the Skywalk network) by ACC-W and a new network of non-motorized multi-use trails on Mount Sproatt were developed by the RMOW and WORCA. The Mount Sproatt trails are particularly well used by the mountain bike community. Like many other recreational assets in the Sea to Sky corridor the trails have become very popular, thus increasing the public use of these areas. All trails developed under the Section 57 authorization now have Section 56 authorization as well.

In late summer 2018, three separate bear encounters occurred in these alpine areas. The first bear encounter occurred on the Skywalk Trail where the bear species was not confirmed. The second encounter was a confirmed grizzly bear and occurred when an off leash dog instigated the encounter, leading the bear back toward the human owner. The local area was closed resulting from this situation. A third confirmed grizzly bear encounter occurred in the Rainbow Lake area outside of the area closed from the previous grizzly bear encounter, where visitors were illegally camping within the municipal watershed. The COS responded immediately to the area but the bear had left before the COS arrived. The COS recommended that the entire Rainbow and Sproatt trail networks above the Rainbow-Sproatt Flank trail (referred to as the Flank trail) be closed until further notice. The RMOW and relevant partners worked closely with COS by installing area closed signs, providing ongoing monitoring of all access points, and increasing public communication. The area re-opened in mid-November for winter recreational activities when it was confirmed that collared grizzly bears in the area had denned for the winter.

Due to the human-bear conflicts and subsequent trail closures in 2018, the RMOW, RSTBC, FLNR and the COS determined that a grizzly bear conflict mitigation strategy and response plan was needed for the Sproatt-Rainbow alpine trails. As a key alpine trail manager, the RMOW took the lead to develop the strategy with support, input and review from COS, RSTBC, other provincial agencies, the TPWG and through the provincial referral system, First Nations. The strategy provides several mitigation strategies to minimize conflicts between humans and bears in the Sproatt-Rainbow area and also provides a communication response protocol for local and regional land managers if and when grizzly bears are present in this area.

# 3.0 Grizzly Bears

There are approximately 15,000 grizzly bears in British Columbia which is about a quarter of the North American population. Of the fifty six extant grizzly bear population units in BC, nine are classified as threatened.

Grizzly bears are a significant part of the BC landscape. They are an important umbrella species as landscapes that support healthy grizzly bear populations will be able to sustain many other species. They play a key role in maintaining healthy ecosystems, for example, by distributing salmon nutrients into forests and transporting seeds through their feces. They are also an important part of First Nations' cultures.

Habitat quality and population density vary widely across the province. The cumulative effects of human development are the greatest threat to grizzly bears in BC. These effects impact the bears in overlapping ways:

- Conflicts between bears and humans increase in frequency, often resulting in bears being killed or relocated;
- Bear populations become isolated because of human settlements, agriculture, and utility corridors in major valley bottoms;
- Habitat may be lost or degraded by development, alienated through bears' avoidance of humans and human activities, or fragments – for example, by high density road networks with high traffic volumes.<sup>1</sup>

# 4.0 Strategy Vision

The recovery and long-term viability of this area's threatened grizzly bear population is a goal of the Province of British Columbia's Sea-to-Sky Land and Resource Management Plan (LRMP) which is supported by both the Lil'wat and Squamish Nations. In 2014, the RMOW Council passed a resolution supporting grizzly bear recovery as well as encouraging the Province to develop grizzly bear recovery plans as soon as possible. The SLRD passed a similar resolution as it also plays a role in approving and managing commercial recreation and other development in the area. While grizzly bear management and recovery is a provincial responsibility, this strategy focuses on reducing grizzly bear-human conflicts on the approved alpine recreation trails. The vision of the strategy is that:

- Grizzly bears in the Sproatt-Rainbow alpine area are able to effectively utilize their natural habitats without conflict.
- Recreational users are able to enjoy their recreational activities and also understand their roles and responsibilities to minimize disturbance and avoid encounters with grizzly bears and other wildlife.
- Recreational users will comply with necessary recommendations stemming from this strategy, if and when they are needed.

<sup>&</sup>lt;sup>1</sup> Plant and Animals, Environmental Reporting BC - <u>http://www.env.gov.bc.ca/soe/indicators/plants-and-animals/grizzly-bears.html</u>

• The strategy is supported and implemented by municipal and provincial authorities and the public understands and supports these efforts.

## 2.1 Objectives

The strategy will guide decision-making for reducing impacts on grizzly bears and their habitat, managing recreation use of the trails, and communicating with the public in the event of grizzly bear presence in the alpine trail area. It is not intended to manage grizzly bears or their recovery. The strategy objectives are to:

- 1. Identify actions to minimize impacts of recreation on grizzly bear habitat and use patterns;
- 2. Identify actions to minimize human interactions with grizzly bears on alpine trails; and
- 3. Develop a response and communications plan.

## 2.3 Project Scope

The planning team met in December 2018 to review and discuss the 2018 Sproatt and Rainbow wildlife encounters.

The COS, RSTBC and FLNR provided their support for the RMOW to develop a local strategy that would address the areas where the RMOW and local clubs have invested considerable resources in the construction of alpine trails.

This conflict mitigation strategy will provide key mitigation strategies for minimizing humangrizzly bear conflict, provide and a grizzly bear response plan if and when grizzly bears are present in the area and outline a communication response protocol.

## 2.4 Project Area: Mount Sproatt and Rainbow Mountain Alpine Trails

The project area lies partially within and mostly outside of the RMOW boundary, within the Squamish Lillooet Regional District, and within the traditional territories of the Lil'wat Nation and Squamish Nation (Figure 1). Both First Nations have developed management direction for the land in their respective land use plans. According to the Lil'wat Nation's Land Use Plan the project area sits within the Sú7a (Lower Soo) Conditional Economic Development Area.<sup>2</sup> Management direction states that environmental and cultural interests exist throughout Sú7a but tourism development may be suitable if Lil'wat environmental, cultural and economic interests are met.<sup>3</sup> The Squamish Nation lands are governed by their Xay Temixw (Sacred Land) Land Use Plan and this area lies within a Restoration Area Land Use Zone.<sup>4</sup>

<sup>&</sup>lt;sup>2</sup> Lil'wat Land Use Plan: Phase 1, August 1, 2006

<sup>&</sup>lt;sup>3</sup> Lil'wat Land Use Plan, p.74

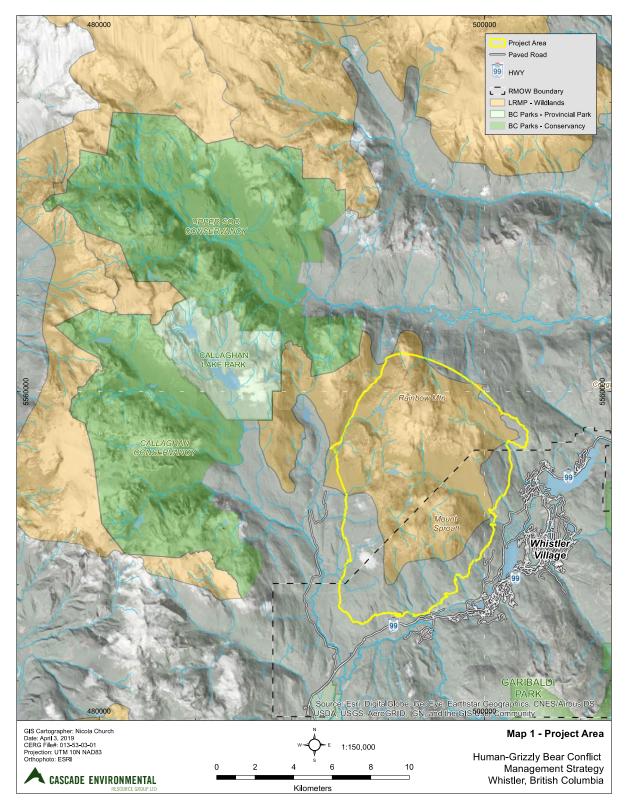
<sup>&</sup>lt;sup>4</sup> www.squamish.net

The project area is defined as the Sproatt/Rainbow Alpine Trails and encompasses all trails on Mount Sproatt above the Flank trail and as far west as the Northair Mine and Madeley Lake, all of the 21 Mile Creek watershed trails above the Flank trail, and the 19 Mile Creek Skywalk trails above the Flank trail, including Iceberg and Screaming Cat Lake (Figure 2). For the purposes of this report, three distinct zones have been established within this large area:

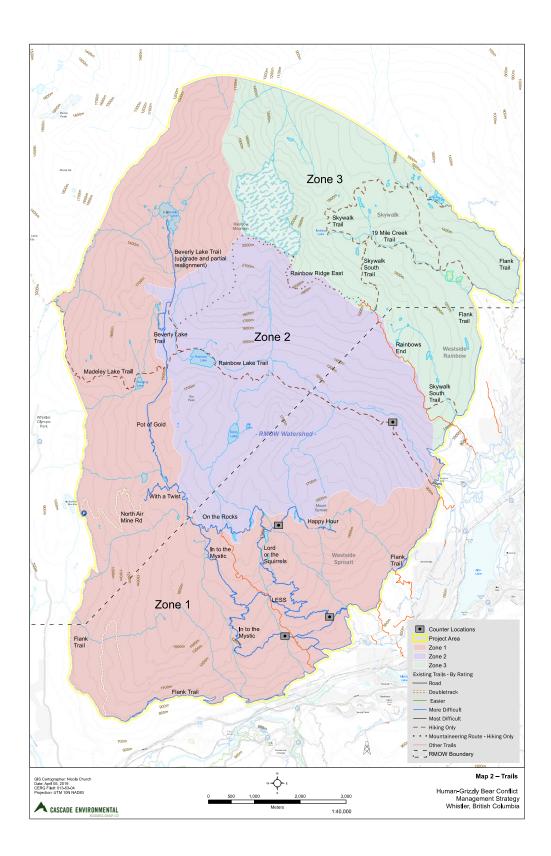
Zone 1: Mount Sproatt Zone 2: Rainbow - 21 Mile Creek watershed Zone 3: Rainbow - 19 Mile Creek/Skywalk

## 2.5 Roles and Responsibilities

The Sproatt/Rainbow area is jurisdictionally comprised of the following First Nation, provincial, and municipal government agencies working closely together to ensure public safety and the protection of wildlife and deliver recreational opportunities: Lil'wat Nation, Squamish Nation, Province of British Columbia (FLNR, RSTBC and COS) and the RMOW. Other partners/stakeholders include WORCA, ACC-W, Coast to Cascades Grizzly Bear Initiative, SLRD and commercial recreation tenure holders.



Map 1: Project Area



Map 2: Alpine Trails and Project Area Zones

### 2.5.1 First Nations

Both the Lil'wat and Squamish Nations have an established process for reviewing activities that take place on Crown land within their traditional territory. Both Nations reviewed the initial alpine trail plan through the provincial referral process. They also reviewed this strategy.

During the Section 57 application and Provincial referral process, the Lil'wat Nation conducted a cultural and archaeological assessment of the area and provided no objections to the construction of the trails.

## 2.5.2 Province of British Columbia

The Province of British Columbia is responsible for Crown land management, including wildlife management, recreation and trails, conservation and public safety through various ministries and agencies. FLNR and the Ministry of Environment (MOE) are jointly responsible for managing wildlife including grizzly bears. The overall strategic direction for grizzly bear management is described in the government's' Wildlife Program Plan (2010) and the Grizzly Bear Conservation Strategy (1995). The Province can use various tools through different pieces of legislation to protect and conserve important wildlife and sensitive habitats.

The *Forest and Range Practices* Act provides FLNR the ability to establish Wildlife Habitat Areas (WHA) which designate critical wildlife habitats. WHAs regulate and manage particular activities (primarily forestry related activities) to limit impacts on identified wildlife and their habitats. <sup>5</sup> Through the establishment of Ungulate Winter Ranges (UWRs) areas are established to meet the habitat requirements of the ungulate species and maintain mountain goat winter ranges to provide high quality suitability habitat.<sup>6</sup> The wildlife biologists for the area provide advice and guidance on wildlife management issues.

FLNR is also responsible for adjudicating and approving Adventure Tourism and Commercial Recreation tenures under the *Land Act*. As part of this review process, referrals are sent to First Nations, other agencies and stakeholders by the Authorization staff. Commercial recreation tenures are required to follow all applicable legislation and adhere to specific Provincial wildlife guidelines. Operations found in non-compliance can be subject to fines under the *Land Act* or *Wildlife Act*.

In 2008, the Province of BC completed the Sea to Sky LRMP which provided strategic direction for the management and use of provincially administered (Crown) lands and resources within the Sea to Sky area. The overall area of the plan encompasses approximately 1.1 million hectares of land. The Rainbow-Sproatt project area overlaps with an area that has been

<sup>&</sup>lt;sup>5</sup> Ministry of Environment (2006)

<sup>&</sup>lt;sup>6</sup> Ministry of Environment (2003)

designated as a Wildland Zone within the LRMP (WL #23-19 and 21 Mile Creeks - Upper Madeley). <sup>7</sup> Wildland #23 has been designated with a recreation emphasis to reflect the non-commercial (public) recreational activity value. Specific management direction includes:

- No public motorized access or horse/pack animals permitted in 21-Mile watershed;
- Use of helicopters beyond the existing helicopter tenure is discouraged;
- No further expansion of motorized access in the area;
- Overnight camping is discouraged in the watershed, future recreational development will focus on minimizing the potential for water contamination;
- Exploration and development of minerals, aggregates, dimension stone, oil and gas, and geothermal resources is permitted; and
- Increase opportunities for First Nations to participate in commercial recreation and tourism.

The LRMP also outlines management direction for specific wildlife species within the Sea to Sky, of which the grizzly bears are included. The LRMP goals for grizzly bears are to:

- Achieve and maintain a Viable status for each of the four population units;
- Conserve critical bear habitat, including movement corridors;
- Reduce mortality of bears due to bear-human interaction;
- Reduce incidence of grizzly bear mortality within, and displacement from, critical habitats; and
- Reduce incidence of displacement and habituation of grizzly bears due to recreational activities.<sup>8</sup>

Grizzly bear recovery is mandated by the Provincial government and a strategy for provincial grizzly bear management is in progress. Work is currently underway within the Sea to Sky District to develop a regional framework for the Squamish-Lillooet GBPU and surrounding GBPUs.

The Sea to Sky District RSTBC Recreation Officer works with communities, First Nations, and stakeholder groups to balance the various values in land management decisions. The Recreation Officer approves trails and related infrastructure under Section 56 of FRPA and maintenance agreements/responsibility under Section 57. The authority to close any legally established trail rests with RSTBC under FRPA although the FLNR District Manager also has the authority to close an entire area of Crown land including tenured Commercial Adventure Tourism sites.

The COS is tasked with ensuring conservation of wildlife and public safety and may make recommendations to FLNR and RSTBC for trail and area closures. It has the authority to issue tickets to members of the public and/or commercial tenure operators for violations under the *Wildlife Act*. The COS has worked closely with the RMOW for many years to reduce the risk of human-black bear conflict in the Whistler Valley and through partnership funding, delivers a

<sup>&</sup>lt;sup>7</sup> Sea-to-Sky LRMP pg. 108.

<sup>&</sup>lt;sup>8</sup> Sea-to-Sky LRMP pg. 73

higher level of response to help Whistler maintain its Bear Smart Community status and meet community expectations.

## 2.5.3 Resort Municipality of Whistler

The RMOW-led Trail Planning Working Group (TPWG) was formed in 2012 in recognition of emerging community-wide alpine trail issues, and the desire of various stakeholders to develop an alpine trail network. The mandate of the TPWG is to provide a forum to coordinate and prioritize recreational alpine trail maintenance and development issues amongst land managers and stakeholders. The TPWG includes representatives from stakeholder community groups, agencies and governments (see Appendix D).

It was through the TPWG that the RMOW, WORCA and ACC-W successfully applied to RSTBC for the development of the alpine trail network on Sproatt and Rainbow Mountains. The RMOW Resort Experience Department is responsible for the management and maintenance of trails it has built under a *Forest and Range Practices Act* (FRPA) Section 57 authorization within RMOW boundaries and is developing a partnership agreement with RSTBC. WORCA and ACC-W are responsible for the trails they have built under the same authorization. The Province is responsible for trail management decisions outside of the municipal boundary, and solely responsible for grizzly bear management and recovery.

The RMOW recognizes that grizzly bears are present in the Sproatt and Rainbow alpine trail area and is taking the steps identified in this strategy to reduce the risk of human- grizzly bear conflict. At this time, the RMOW commits to supporting the following:

- No new trail construction until further information is gathered to indicate if and how the recreational amenities could be further developed safely. For clarity, the following work will be completed in 2019:
  - Completion of Pot of Gold trail above Sproatt Lake
  - Completion of the short loop trail at half way point of Beverley Trail
  - Completion of Last Call from Sproatt sub peak
  - Improvements to trail and existing camp sites at Hanging Lake including addition of two bear proof food storage bins
  - Proceed with process and approvals for installation of a research/education/ranger station and outhouse at the top of Into the Mystic
  - Installation of educational and regulation signage throughout network
- The RMOW draft e-bike policy adopted by Council on July 9, 2019 states that e-bikes should not be permitted on all hiking-only designated recreational trails and all recreational non-motorized trails located above the Flank Trail on Sproatt and Rainbow Mountains. In alignment and under its authority, RSTBC designated the trails with a no e-bike designation. Staff will monitor e-bike use over the next one to two years to understand changes, trends and issues, and then adapt or re-evaluate the proposed policy with public input where required
- Dogs are not currently permitted on the Rainbow Trail within the RMOW's watershed and no dogs will be permitted anywhere on the alpine trail system in 2019

- Alpine Ranger program doubled to operate 7 days a week on Sproatt and all weekends on Rainbow in 2019
- In 2019, the RMOW did not approve commercial and event use that accesses the Alpine Trail Network through municipal lands. Further input will be sought to determine if this position should be continued in the future and supported through a Provincial *Land Act* decision.
- Commitment to vegetation/habitat mapping for an area up to 200 km<sup>2</sup> in 2019 that will identify grizzly bear food sources, and aim to identify bear forage by season of use, use existing den site selection to model denning habitat, and develop seasonal habitat ratings
- South Flank Trail improvements put on hold until vegetation and habitat mapping completed

Management of the community's watershed is governed by the RMOW Twenty-One Mile Creek Watershed Source Water Protection Plan.9 The plan contains measures designed to minimize the impact to the source water quality. To this end, dogs, bikes, camping, fishing, motorized vehicles, horse or pack animals are prohibited within the watershed, and recreational trail use within the watershed area is monitored by the RMOW Infrastructure Services department.

# 3.0 Existing Conditions

## 3.1 Biogeoclimatic Zones and Wildlife Habitat

The Sproatt/Rainbow area is located in the Coast Mountain Range and occurs within the Coastal Western Hemlock (CWH), Mountain Hemlock (MH) and Alpine Tundra (AT) Biogeoclimatic zones. The Sproatt/Rainbow trail network extends through these three zones where there are short cool summers and long, wet and cool winters with 70% of the precipitation falling as snow.<sup>10</sup> Four mountain goat Ungulate Winter Ranges (UWRs) exist within the project area and several mountain goat and moose UWR occur to the north in the Soo Valley. Two grizzly bear specific Wildlife Habitat Areas (WHAs) exist to the west of the project area in the Soo River and Callaghan Valley areas. The entire project area is suitable grizzly bear habitat as it provides food sources, security cover and travel corridors.

## 3.2 Project Area Grizzly Bear Population

There are 56 Grizzly bear population units (GBPUs) within the Province of BC, nine of which are threatened. The project area is within the Squamish-Lillooet GBPU, one of the five threatened GBPUs within the South Coast region. The government's primary objective for these threatened GBPUs is to recover them to a sustainable level. Recent studies suggest that grizzly bears are starting to recover in the Squamish-Lillooet Unit which is bordered to the east by the Squamish and Cheakamus Rivers and the Sea-to-Sky Highway. Sitting astride the southern end of the

<sup>&</sup>lt;sup>9</sup> RMOW (2015)

<sup>&</sup>lt;sup>10</sup> Homstol and Edwards (2018)

Coast Range, the Squamish-Lillooet grizzly bears have survived primarily in the headwaters of more remote valleys where the habitat is more secure. These include the Ryan River and the undeveloped headwaters of Callaghan Creek, the Soo, Elaho, Ashlu and Tzoonie River<sup>11</sup>.



Figure 1: Squamish-Lillooet Grizzly Bear Unit (source: Coast to Cascades Grizzly Bear Initiative website)

In 2018 there were two (2) collared bears in the project area. In 2004 there was one female and four male grizzly bears in the Callaghan area, and in 2018 there were 16 grizzly bears. <sup>12</sup>

Threats to Squamish-Lillooet grizzly bears include:

- Impacts to core grizzly bear habitats and linkage habitats by existing and/or potential hydro-electric projects and their associated infrastructure and road improvements (e.g. the Upper Lillooet, Ashlu and Ryan River valleys);
- Poaching and human conflict-related grizzly bear deaths;
- Expanding commercial and public recreation particularly motorized recreation into important grizzly bear habitat;
- Declines in wild salmon.<sup>13</sup>

It is important to note that grizzly bears require a large home range and can be displaced easily from important foraging habitat. The Ryan River Watershed to the northeast of Whistler provides important grizzly bear habitat and supports GB recovery due to its high value habitat characteristics and limited human presence. Sampling of the grizzly bear population from 2004 onwards has shown an increase in population and new bears are expanding their occupied

<sup>&</sup>lt;sup>11</sup> Coast to Cascades Grizzly Bear Initiative (https://www.coasttocascades.org/populations)

<sup>12</sup> Rochetta, S. (2019)

<sup>&</sup>lt;sup>13</sup> Coast to Cascades Grizzly Bear Initiative (https://www.coasttocascades.org/squamish-lillooet)

range. Both male and female grizzly bears are dispersing from the Ryan River to adjacent drainages, including the Sproatt/Rainbow area. <sup>14</sup> The Sunshine Coast region, which is part of the Squamish Lillooet GBPU, is believed to be far below carrying capacity at this time. There is a chance that the grizzly bears from this area may migrate into the lesser utilized Sunshine Coast region. <sup>15</sup>

Provincial wildlife biologists believe that additional collaring of bears the Squamish Lillooet GBPU, and specifically the project area, would help determine how GBs are using some of the important alpine areas. Some prime habitat areas are experiencing increases in bear populations while at the same time, public recreation is also increasing.

## 3.3 Bear Risk Assessment

During the summer of 2018, the RMOW commissioned a bear risk assessment for the Mount Sproatt (Zone 1) and Rainbow-21 Mile Creek (Zone 2) trails and trail amenities by Wind River Bear Institute Canada (Homstol and Edwards, 2018). A bear risk assessment is conducted to identify risks to human safety, and to support bear conservation. The assessment considers habitat quality, attractant management and other factors such as trail alignments to identify risks and recommend mitigations. This can enable managers and recreational planners to mitigate or prevent human-bear conflict in a proactive manner. <sup>16</sup> An additional grizzly bear habitat mapping exercise was undertaken in 2019 to provide further insight into the amount and types of vegetation that could be used by grizzly bear and seasonal uses. The information will be used to determine what, if any, changes are required to the existing trail system and to inform any plans that may move ahead in the future.

## 3.4 Overview of Current Users in Project Area

The RMOW Alpine Trail Program is a multi-year initiative focusing on Rainbow Mountain and Mount Sproatt. The goal is to restore popular hiking trails, provide new hiking and mountain biking trails, while managing use with respect to alpine environments and the municipal water supply area. A new priority is to manage use with respect to minimizing human-grizzly bear conflict. This popular alpine multi-use trail network is suitable for hiking, backpacking, trail running, and mountain biking and once complete in 2021 may include approximately 40 kilometers of alpine trails.

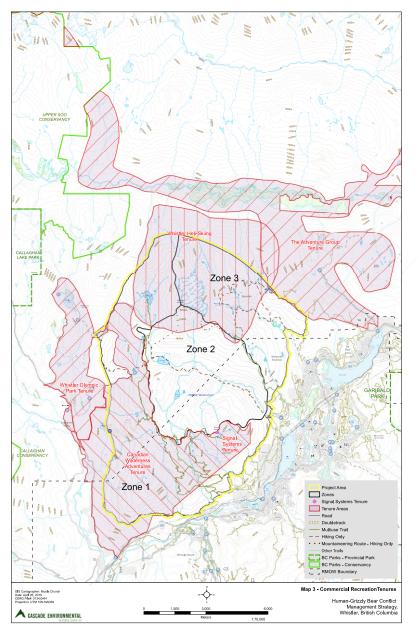
Public and tenured commercial recreational activities take place in the project area year round. This report focuses on non-motorized public use during the spring/summer/fall seasons but it should be noted that there is extensive public and commercial motorized use inside and adjacent to the project area, and ski touring use in all areas during the winter that is outside RMOW management jurisdiction. There are also two older motorized trials bike trails that have

<sup>14</sup> Rochetta, S. (2019)

<sup>&</sup>lt;sup>15</sup> Rochetta, S. (2019)

<sup>&</sup>lt;sup>16</sup> Homstol and Edwards (2018)

historical use into the Sproatt and Rainbow alpine areas. While both of these have a historical use that has been unofficially accepted there is a recognition from the TPWG and RSTBC that proper authorization or a prohibition is required and are communicating with the local Trials Club.



Map 3: Commercial Recreation Tenure Map

Currently, the RMOW has the authority to deny permissions to hold special events or commercial operations on trails that are located on municipal lands. However the province holds authority for approving commercial recreation tenures on the crown land.

The emerging use of e-bikes is also occurring in alpine zones and policies and recommendations about their permitted use is underway. Currently, RSTBC and the RMOW have developed policies for the use of e-bikes in the province and for Whistler. Bikes of any kind are not allowed in the Rainbow-21 Mile Creek watershed (Zone 2) as per the 21 Mile Creek Source Water Protection Plan or the Rainbow-19 Mile Creek/Skywalk (Zone 3). It should be noted that an existing unauthorized mountain bike trail, Rainbow's End, is located within Zone 3 and accessed by helicopter as a downhill descent. The future of this trail is being considered by RSTBC. As per the RMOW's July 2019 policy and concurrence by RSTBC, e-bikes are not permitted above the Flank Trail and monitoring will determine if an alternate e-bike management strategy is warranted.

This conflict mitigation strategy addresses the RMOW's commitment and due diligence to managing the public, non-motorized recreation activities and maintenance associated with the trails for which it is authorized within the project area. Addressing the primary risks associated with grizzly bear disturbance in the form of motorized activity occurring on adjacent provincially-approved commercial recreation tenures is a responsibility of provincial land managers.

## 3.5 Alpine Trail Management Zones

To aid in managing activities and responses to issues in the alpine trail area, the project area is divided into three zones based on varying terrain, recreational uses and existing management direction for the 21 Mile Creek watershed. Mitigation strategies and closures may be implemented to the project area in entirety or to individual zones as needed.

## 3.5.1 Zone 1 - Mount Sproatt

This area encompasses all of the trails on Mount Sproatt above the Flank trail as far west as the Northair Mine and Madeley Lake and east to the 21 Mile Creek watershed boundary.

## 3.5.1.1 Public Use

A total of 25 kilometers of non-motorized, multi-use trails opened in August 2017 as the first phase of the Sproatt Alpine Trail Network. The trails typically open in later July/early August and are subject to snow melt and weather conditions. The trail network is largely utilized by mountain bikers, but hikers and trail runners use the area as well. Winter motorized use (snowmobile) also takes place in Zone 1. There are also two older motorized trials bike trails into the Sproatt and Rainbow alpine areas. While both of these have a historical use that has been unofficially accepted there is a recognition from the TPWG and RSTBC that proper authorization or a prohibition is required and are communicating with the local Trials Club.

## 3.5.1.2 Commercial Use

Canadian Wilderness Adventures (CWA) provides summer and winter motorized and nonmotorized recreational opportunities in the Callaghan/Mount Sproatt area. All motorized activities take place outside the 21 Mile Creek watershed. A backcountry cabin exists at 1525 metres close to Mount Sproatt and is used in both winter and summer. CWA has proposed further trail developments within its tenure which are currently being reviewed by the Province. The Whistler Olympic Park (WOP) tenure provides winter recreational activities that were first developed for the 2010 Winter Olympics and now provides summer activities such as biking, hiking, roller skiing and sightseeing on its trail network.

## 3.5.1.3 Industrial Use

A small land tenure for a communication tower is held by Signal Systems and is located near the peak of Mount Sproatt. Access for maintenance and repairs is by helicopter.

## 3.5.2 Zone 2: Rainbow - 21 Mile Creek Watershed

This zone encompasses all of the 21 Mile Creek watershed above the Flank trail.

## 3.5.2.1 Public Use

The Rainbow Lake Trail has been in existence for approximately 30 years and is a very popular hiking-only trail. Significant upgrades to the trail system were completed in 2014 and 2015 by RSTBC and the RMOW. The trail is approximately 8 km long, rising close to 850 metres (2,800 feet) to Rainbow Lake in the 21 Mile Creek watershed. Public motorized access into the watershed is prohibited. Dogs, biking, camping and fishing are also prohibited within the watershed.

## 3.5.2.2 Commercial Use

Whistler Heli-Ski holds a long standing heli-skiing tenure in the Rainbow Mountain (Zone 2) area. There is some non-tenured summer use which includes helicopter access for mountain biking to the top of a descent trail called "Jaws" (aka Rainbows End). The trail starts in Zone 3 and traverses into sections of Zone 2 (see Figure 2). The trail is being accessed regularly by helicopter for mountain bike descents in the snow-free months. This activity is not an authorized tenure and runs counter to the LRMP's management direction to discourage the use of helicopters beyond the existing helicopter tenure held by Whistler Heli-Skiing. Neither Zone 2 or 3 support mountain biking and this use is currently under review by the Province.

## 3.5.3 Zone 3: Rainbow-19 Mile Creek/Skywalk

This zone includes the 19-Mile/Skywalk Trail network above the Flank Trail including Iceberg and Screaming Cat Lakes and west to the 21 Mile Creek watershed boundary.

### 3.5.3.1 Public Use

This zone includes a hiking-only trail network. The Alpine Club of Canada-Whistler Chapter (ACC-W) upgraded an existing hiking trail route and added new sections to complete the Skywalk Trail. This work was authorized by RSTBC and completed in August 2017 by the ACC-W who are responsible for trail maintenance and oversight.

### 3.5.3.2 Commercial Use

The Adventure Group (TAG) has a tenure on the eastern boundary of Zone 3. Motorized summer use and winter activities are offered. Whistler Heli-Skiing has tenure in the upper portions of Zone 3 for winter use only.

As described in the Zone 2 Commercial Use section, the start of Rainbow's End trail is in Zone 3.

The tenured commercial activities utilizing motorized recreation, increasing helicopter use, public snowmobile activity and unsanctioned motorized use within Zone 3 are additional activities that pose a well-documented risk to grizzly bears. All untenured activities should be reported to the Province though the Natural Resource Violation Line.

## 3.5.4 Public Use Summary

The following table is a summary of visitor use in the area which is obtained from counters at the start of each trail network. This data is collected by the RMOW and provided to the RSTBC Recreation Officer on an annual basis. The counter does not distinguish between user types but the summary numbers account for users returning on the same trail.

Year	Trail Count	Zone 1	Zone 2	Zone 3	TOTAL
	Time Period	Mount Sproatt	Rainbow-21	Rainbow-19	
			Mile Creek	Mile Creek	
				/Skywalk	
2017	August 4-	6274	N/A <sup>1</sup>	N/A <sup>2</sup>	6274
Summer	October 12				
Operating					
Season					
2018	July 19-	5556			
Summer	September 14				11,501 <sup>3</sup>
Operating	July 1-		5945		
Season	September 14				
2018 Closure	September	256 <sup>4</sup>	86		342
Period	15-October 15				
2019					
Summer					

Operation			
Period			

NOTES: <sup>1</sup> Rainbow counter failed- no data

<sup>2</sup> There is no counter on the Skywalk Trail

<sup>3</sup> Total for Sproatt Alpine and Rainbow

<sup>4</sup> During the first 30 days of the bear closures for the Rainbow/Sproatt area, 256 users accessed the area.

## 3.6 Current Mitigation and Response Plans

Since 1995, the RMOW has actively tried to manage bear attractants and educate the public in an effort to reduce the risk of human-black bear conflicts in the community. The Whistler Bear Advisory Committee (a select committee of RMOW council) was established in late 2015 from the long-standing Bear Working Group to promote black bear conservation, and the minimization and management of human-bear conflicts in the RMOW. The committee provides ongoing public education to reduce human-bear conflicts. In 2009, the Human-Bear Conflict Management Plan was developed and in October 2011 the BC Ministry of Environment officially named the RMOW a "Bear Smart Community."

The Human-Bear Conflict Management Plan (<u>https://www.whistler.ca/services/environmental-stewardship/bears-and-wildlife/bears/bear-smart-community</u>) was updated in October 2016 and the RMOW Bear Response Plan was developed collaboratively between the RMOW and the COS in 2017. The Bear Response Plan provides several non-lethal options for managing bear conflicts. To date the Bear Response Plan and other efforts have focused primarily on black bears. The RMOW's Environmental Stewardship Department maintains bear-related information on the RMOW website which is noted in 4.2 below.

Many websites also post information about bear awareness including Get Bear Smart Society, WORCA and the Coast to Cascades Grizzly Bear Initiative, as well as the RMOW's alpine trail webpages.

# 5.0 Human-Grizzly Bear Conflict Mitigation Strategies

The following mitigation strategies and recommendations were developed based on input from RSTBC, the COS, provincial wildlife biologists, local groups, the RMOW Forest and Wildland Advisory Committee, and current research. This section addresses two of the three objectives of the strategy:

- 1. Actions to minimize impacts of recreation trail use on grizzly bear habitat and use patterns; and
- 2. Actions to minimize human interactions with grizzly bears on alpine trail system.

4.1 Objective 1: Actions to Minimize Impacts of Recreation Trail Use on Grizzly Bear Habitat and Use Patterns

## 4.1.1 Planning and Trail Modifications

It is important when alpine trails and related amenities are being planned to ensure that grizzly bear habitat be assessed in order to avoid prime habitat areas. Modifying trail locations and trail corridors may be required to minimize human-bear encounters.

To be proactive there needs to be pre-planning of the placement of facilities to avoid high quality grizzly bear forage items such as huckleberries and other important habitat features (marked trees, security cover and/or water features). Choices should be made in the following order: avoid critical habitats and well-used wildlife corridors; relocate trails that run through critical habitats; manage trails with closures and restrictions; and manage by removal of trail foods.

### **Recommendations:**

- Complete a vegetation and habitat mapping analysis to determine areas of high value grizzly bear habitat and 'hot spots' used by bears
- Secure funding to continue grizzly bear collaring program, DNA sampling or other method that will assist in identifying priority grizzly bear habitat and seasonal use patterns
- Future trails, campsites and other amenities must avoid high value habitat and forage
- Require proponents to develop plans using bear risk assessments and ecosystem/forage mapping to avoid high value habitat.
- Conduct annual monitoring programs and modify trails as required.

## 4.1.2 Existing Trail and Amenity Relocations

#### **Recommendations:**

- Existing trails and related amenities should be routed around and or away from high value habitat areas, forage etc.
- Re-route the proposed trail (Beverly Lake Trail) to avoid large meadow areas with low sightlines.<sup>17</sup>
- Direct trail use away from wet, spring grizzly bear habitat.
- Ground truth the results from the Bear Risk Assessment and habitat/vegetation mapping exercise and implement recommendations
- When practicable, relocate trails and facilities into lower value habitat areas, and/or thin the vegetation. Remove food sources adjacent to trails only if no other viable option exists.

<sup>&</sup>lt;sup>17</sup> Homstol and Edwards (2018)

### 4.1.3 Sightline maintenance

In order to avoid or minimize surprise encounters between human and bears, it is important to design human-use areas that make human activity predictable for bears and help to make it easy for humans and bears to detect each other. <sup>18</sup>

#### **Recommendations:**

- In areas where dense vegetation reduces sightlines below 50m, no alternative route is available and habitat quality is high, thinning shrubs and trees may be required.
- Install signage for users when approaching low sightline area. Signage should warn users to yell and/or make noise and/or indicate a "no stopping zone."

## 4.1.4 Future Potential Infrastructure

Additional trails and small camping sites were previously considered in the Sproatt and Rainbow alpine areas but were deferred in the original Section 57 application process. At the time it was felt that understanding the outcomes of the approved trails and their use patterns was necessary prior to considering other elements. Since then the Province and the RMOW have becoming increasingly aware of the movement patterns of grizzly bears and are reassessing future initiatives in its alpine trail program.

#### **Recommendations:**

- Review the *Bear Risk Assessment for Sproatt Mountain Trails & Trail Amenities (2018)* report in detail and ground truth all trail and infrastructure locations that intersect with identified prime bear habitat.
- Consider an Alpine Ranger/Research/Emergency Shelter/Public Information Centre be installed in the Alpine to further long term management objectives for the area.
- Ensure any new campsites or other trail amenities avoid high value habitat

## 4.2 Objective 2: Actions to Minimize Human Interactions with Grizzly Bears

## 4.2.1 Public Education and Communication

Informing the public that they are entering bear country and that the presence of grizzly bears may occur in the area is an important step to reduce conflicts between humans and bears. Bear awareness information, improved signage, proper bear attractant management and a robust social media program will aid in the reduction of human-bear conflicts.

#### **Recommendations:**

• Develop user profiles to help target educational messaging

<sup>&</sup>lt;sup>18</sup> Homstol and Edwards (2018)

- Develop a comprehensive and consistent public education and communication strategy based on input and approval from the Planning Team, in conjunction with the TPWG and other committees, as well as best management practices from other relevant jurisdictions.
- Provide public education workshops about grizzly bears and their habitats.
- Disseminate pertinent information from this strategy in public service announcements or "Did You Know" factoids, such as the status of the grizzly bear population, the various roles of provincial and local governments, etc.
- Distribute general information and trail status update alerts to local bike shops, outdoor stores, Trailforks and other online forums, ACC-W, other known guiding outfits operating in Whistler, and WORCA to share with their clients and members
- Update the Planning Team contact list on an annual basis.

## 4.2.2 Bear Awareness

Several bear awareness strategies are widely accepted for promoting appropriate human behaviour while recreating in bear country. There are many websites which offer information and advice to reduce chances of humans encountering bears in their natural setting. Some examples of bear awareness information is provided on the following websites:

Organization	Website		
RMOW	https://www.whistler.ca/services/environmental-		
	stewardship/bears		
Coast to Cascades Grizzly bear	https://www.coasttocascades.org/		
Initiative			
Get Bear Smart Society	http://www.bearsmart.com/		
Province of British Columbia	https://www2.gov.bc.ca/gov/content/environment/plants-		
	animals-ecosystems/wildlife/human-wildlife-		
	conflict/staying-safe-around-wildlife/bears		

#### **Recommendations:**

- The RMOW, TPWG and other committees should review best management practices (see bullet below for examples) and decide on key messages and communication tactics for the Sproatt/Rainbow Alpine Trail Network.
- Develop a messaging strategy, that includes items such as always carry bear spray, never hike/bike alone, be alert to bear signs (scat, prints, tree markings etc.), know the difference between black bears and grizzly bears, stay on designated trails, make noise in areas of low visibility, pack out what you pack in, etc.
- Target high use areas (picnic areas, campsites etc)

### 4.2.3 Signage

#### **Recommendations:**

- Review all current signage and check for consistent messaging throughout.
- Post messaging and any new rules or restrictions developed regarding trail use at trailhead kiosks.
- Develop a series of "on-trail" reminders based on other recommendations in this plan.
- Install interpretive and bear awareness information at rest spots, viewpoints and trailheads.

### 4.2.4 Social Media Campaign

### **Recommendations:**

- Review websites and social media sites to ensure consistent messaging regarding the use and restrictions of the alpine trail network.
- Ensure there is a wide distribution of bear awareness information throughout the RMOW for both residents and visitors.
- Encourage the public to use the RAPP line to report bear sightings. CALL 1-877-952-7277 or 604 905 BEAR to reach the provincial call centre.
- Provide an avenue for public to assist with data collection and link with Ranger Program.

## 4.2.5 Attractant Management

Common human-induced bear attractants are food-related items (food, food waste), personal care items with odour such as soap, toothpaste, deodorant and bug repellent. Some or all of these items may be introduced into the alpine areas from recreational users.

Natural bear attractants in the area include bear foods such as spring or pre-berry season foods like *Equesetum* (horsetails) and *Erythronium* (glacier lily), summer or berry season foods such as *Vaccinium membranaceum* (black huckleberry), and fall foods such as grasses and marmot colonies.<sup>19</sup>

#### **Recommendations for food and personal care items:**

- Ensure proper signage is located at all trailhead kiosks, rest areas and campsites.
- Install signage to let users know where or how far it is to a designated rest area or campground to control food items coming out of packs at appropriate areas.<sup>20</sup>
- Ensure approved campgrounds have bear-resistant food lockers or caches that are regularly inspected for proper functionality.<sup>21</sup>

<sup>&</sup>lt;sup>19</sup> Homstol and Edwards (2018)

<sup>&</sup>lt;sup>20</sup> Homstol and Edwards (2018)

<sup>&</sup>lt;sup>21</sup> Homstol and Edwards (2018)

• Pack it in/Pack it out policy.

### Recommendations for bear foods (specifically huckleberries):

- Monitoring berry patches throughout the season for berry ripening, quality and quantity (e.g. Alpine Rangers to monitor).
- Encourage people to stay on trails in prime huckleberry areas when berries are ripe.
- Install trail signs to inform users of "no stopping" in bear food zones (e.g. similar to "no stopping" In avalanche zones along mountain roads.)

## 4.2.6 Improve Data Collection and Trail Counter Plan

The Alpine Trail Ranger Program is a great option for trained staff to collect data on the public use, compliance and overall conditions of the trails and surrounding environment. Increased research and monitoring of the grizzly bear population and human use patterns in the area is critical to all future decision making.

### **Recommendations:**

- Develop a trail counter and remote camera plan ensuring locations are suitable for maintenance and data collection.
- Install counters for the Skywalk network (above the Flank trail), Into the Mystic, With a Twist, and Rainbow Lake.
- Ensure counters capture data from all access routes into trail networks.
- Explore options to utilize magnetic and optical counters to differentiate between cyclists and hikers.
- Encourage public users to report aggressive or threatening bears through the RAPP line.
- Review existing data collection forms and consider an electronic data collection process such as iPad or ARC/GIS app in order to add geospatial information and photos.
- Add additional check boxes to Alpine Ranger data collection forms indicating if signs of bear activity are present and if dogs accompany trail users.
- Consider developing a consolidated reporting system for internal use based on RAPP line, Alpine Ranger, and other incidental data that is regularly updated by RMOW and provincial staff, and is available to the public on a platform such as Google Earth
- Work with senior levels of government to support and increase funding for research to further shared grizzly bear recovery objectives
- Conduct effectiveness monitoring to determine if strategies are working
- Provide opportunity for public to provide feedback on the trails

## 4.2.7 Enforcement

Currently the COS, FLNR Natural Resource Officers (NRO) and RCMP can issue tickets on Crown land within BC. The COS have the authority to ticket the public for any offence under the *Wildlife Act* and can enforce other provincial and federal legislation. The Recreation Officer (RSTBC) can enforce regulations for non-compliant behaviour on established trails. The RMOW Alpine Rangers do not have authority to issue tickets but can provide warnings for noncompliant behaviour. RMOW bylaw officers can ticket for offences occurring inside the RMOW boundaries.

Commercial and public motorized recreation occur on the south flanks of Sproatt Mountain and the north side of Rainbow Mountain in the summer. The commercial activities operate under provincial tenures and are monitored by the provincial agencies for adherence to the approved management plans. Summer public motorized activities typically do not extend into the alpine to a significant degree and e-bikes are not permitted above the Flank Trail. While motorized activities adjacent to the project area may have an influence on grizzly bear use patterns, ongoing monitoring and improved understanding of habitat use patterns through mapping exercises will help inform management decisions. The provincial agency staff will enforce regulations as required.

### **Recommendations:**

- Secure additional provincial funding for COS and NRO staff to assist with enforcement and/or ticketing.
- Track all tickets/warnings throughout all zones and review annually to identify patterns and develop mitigation strategies (see Appendix A).

## 4.2.8 Dog Restrictions

In a review of North American bear attacks between 2010 and 2014, it was reported that over 50% of black bear attacks on humans involved dogs whether on or off leash.<sup>22</sup> People assume that dogs will protect them but the review found that a dog and bear may begin an interaction which then shifts to the humans nearby when the dog returns to its owner. The COS reports that in Whistler over the last few years, there have been a number of conflicts involving black bears provoked by dogs, including the destruction of a sow and two cubs in 2016 after repeated aggravation by dogs over a period of time resulted in bluff charges and other aggressive behaviour. Given this information, dogs are not currently permitted on the alpine trail system in 2019 while the Planning Team collects information to determine what the long term strategy should be regarding dog presence.

## **Recommendations:**

- Enhance public education program to include information about the risks that dogs pose when in bear country, specifically grizzly bears.
- Continue to prohibit dogs above the Flank trail year round.
- Review monitoring data and if appropriate consider development of a longer term alpine trail dog strategy
- Ensure any new changes to dog use in the area are consistently messaged through signs, social media and all relevant websites.

<sup>&</sup>lt;sup>22</sup> Hrisienki and Herrero (2014)

## 4.2.9 Seasonal Restrictions and Closures

Human use restrictions such as seasonal, time of day or zonal closures are a proactive way to increase habitat availability and reduce the risk of conflict for wildlife by providing security at key times of day (sunset and sunrise) or during certain seasons (prime berry season and/or extreme wildfire periods).

#### **Recommendations:**

- Research options and develop steps for implementing and communicating different types of closures
- Determine what triggers a closure and identify what steps to take to close the area
- Ensure all permanent signage is designed to allow for quick and easy conversion from "open" to "bear in area" to "partial closure" to "full closure"
- Analyse closure data based on grizzly bear monitoring and site conditions.
- Identify ways to control trail access to reduce negative encounters for the most sensitive areas or seasons
- Minimize public from stopping in prime huckleberry patches

## 4.2.10 Area Restrictions and Closures

Seasonal closures, as described above, will provide habitat security for grizzly bears during key feeding and life cycle phases. Reactive area closures will remain necessary when human-bear interactions occur.

## **Recommendations:**

- When area closures are necessary due to grizzly bear presence, limit the duration and closure area based on presence/absence.
- Where wildlife concerns or priorities have dissipated due to season, conditions, or absence of ongoing wildlife presence for multiple days, all parties will aim to reopen trails or areas when mutually agreed.
- Reopening trails to be coordinated between RMOW, COS, RSTBC and FLNRO Biologists using information provided by all parties including Alpine Rangers monitoring ongoing wildlife activity.
- If area closures occur in a zone, implement and communicate strict regulations on adjacent zones that may remain open such as users only allowed on trails in a group of 4 or more people, carrying bear spray, etc.

## 4.2.11 Limit User Numbers

Limiting user numbers on a Crown land recreational trail system like the Sproatt/Rainbow Alpine Trail System would be a new concept for the Sea to Sky corridor. It does occur in various provincial and national parks, and with rising visitor numbersis a trend that is occurring in more places across North America. There are many examples within provincial and national parks in both Canada and the United States where quota systems to limit user numbers are in place. The majority of parks that limit use are based on a well-managed reservation system and involve remote, wilderness adventures with a singular or limited number of access points.

The difference between provincial parks and the alpine trail system is the designation of the land. Parks designation carries the authority to regulate and enforce use within its boundaries far beyond what is available to the alpine trail system. Limiting user numbers is not something that should be done without careful consideration and research but based on increasing user numbers, increased grizzly bear presence, relative ease of access from the Whistler village and multiple trail access points it may be a necessary future step in order to reach the vision of this strategy.

### **Recommendations:**

- Continue to monitor visitor use and trends in the alpine environment.
- Work with provincial biologists to monitor health of the habitat and grizzly bear populations.
- Assign RMOW staff to research the possibility of limiting user numbers, and develop a system for how this will be done, including a budget, if deemed necessary by the Planning Team.
- Review of commercial activities and special events in the alpine area in regards to trail and wildlife impacts.

## 4.2.11 Alpine Trail Ranger Program

The RMOW has operated an Alpine Trail Ranger Program on Mount Sproatt since 2018 and Rainbow-21 Mile Creek (Zone 1 and 2) since 2016 between July and October annually since 2018 and 2016 respectively. The Alpine Rangers conduct trail monitoring and maintenance, outhouse stocking/cleaning, litter pick up, provide public education on safe alpine recreation and administer first aid if necessary. They are also equipped with data collection forms and record wildlife and wildfire observations as well as trail user information. They report to the RMOW Parks and Trails Department and regularly communicate with Search and Rescue, COS, and the Sea to Sky District Recreation Officer. Observation and data collection is an important part of the Alpine Rangers' responsibility and the information gathered informs management and decision making.

#### **Recommendations:**

- ACC-W to regularly monitor and share reports with RMOW and provincial staff.
- Investigate potential for the RMOW Bylaw Services to enforce recommended restrictions.
- Assess primary bear habitat/food sources throughout the key seasons (pre-berry and berry season) based on *Bear Risk Assessment Report* (2018 and 2019) and vegetation/habitat mapping report (MacHutchon).

- Consider using non-compliance form in Appendix A to track enforcement and provide input for future planning.
- Permanently embed Alpine Ranger Program funding in annual RMOW operation budgets.

## 5.0 Grizzly Bear Response Plan

The grizzly bear response plan address Objective 3 of the strategy. In British Columbia, the response to conflicts between grizzly bears and people that threaten human health, safety or property is guided by the FLNR Procedure Manual 4-7-04.04.1, Prevention and Responding to Conflicts with Large Carnivores.<sup>23</sup> Multiple branches of provincial government, FLNR Resource Management and the Fish and Wildlife Branch (F&W) and the MOE Ecosystems Branch, provide science-based direction regarding wildlife management to prevent or reduce negative effects of human-wildlife encounters including risks to public safety. In addition, the Conservation Officer Service (COS) takes actions to minimize the risks that conflicts with large carnivores (e.g. grizzly bears) pose to public safety through conflict prevention, enforcement and both non-lethal and lethal responses (FLNR, 2016 Section 1.1, 1.2).

The RMOW has been actively engaged in proactive initiatives to reduce and prevent human – bear conflicts since 1995, although the focus has been primarily on black bears within the RMOW boundaries since there has been limited potential of human interactions with GBs. In October 2011, the BC Ministry of Environment officially named the RMOW a Bear Smart Community and as such the RMOW is required to complete six specific components to maintain this status. The RMOW has a Bear Response Plan which has been developed using the Provincial Procedure Manual described above and applies to all lands within the municipal boundaries. The RMOW's current Human-Bear Conflict Management Plan (2016) focuses on black bears within the municipality and surrounding environments but does makes reference to grizzly bears within the region as well.

## 5.1 Responding to Conflicts with Grizzly Bears

The addition of the Alpine Trail network has increased the potential for human-GB interactions. The purpose of this locally developed grizzly bear mitigation strategy is to outline measures to avoid conflicts between humans and grizzly bears altogether. The prevention of conflicts is the desired outcome and vision for this area. However, if there is a conflict between humans and grizzly bears in the project area, a response plan is required to direct and manage efforts to maintain public safety and grizzly bear well-being.

First responses should be non-lethal if possible, carried out by the COS as outlined in the provincial policy.<sup>24</sup> These include:

• Restricting access and/or closing areas and/or trails

<sup>&</sup>lt;sup>23</sup> Ministry of Forests, Lands and Natural Resource Operations (2016)

<sup>&</sup>lt;sup>24</sup> Ministry of Forests, Lands and Natural Resource Operations (2016)

- Hazing
- Aversive Conditioning
- Relocation
- Translocation

These non-lethal responses will be coordinated with the COS and FLNR biologists. Depending on the circumstances, the COS may resort to the use of lethal control as per the Provincial Bear Conflict Response Matrix (Appendix C).

## 6.0 Communication Response Protocol

Communication between the RMOW, the COS, FLNR, RSTBC, RCMP and non-governmental organizations will be key to addressing human-grizzly bear encounters in the alpine trail system. The following table provides an overview of various grizzly bear encounter scenarios, the response from lead and supporting agencies and the appropriate actions. The Grizzly Bear Response Plan and Communication Response Protocol will be reviewed every three (3) years and updated as necessary.

Situation	Lead Agency	Supporting Agency	Action
Grizzly bear sighting, call RAPP	COS	<ul> <li>FLNR Wildlife Biologist</li> </ul>	<ul> <li>COS assess call report and determine level of risk</li> <li>COS and FLNR biologist confirm bear species</li> </ul>
IF NO Public Safety Issue- Initial Sighting (i.e. bear not displaying aggressive behaviour)	COS	<ul> <li>RSTBC Recreation Officer</li> <li>RMOW Parks and Trails Supervisor</li> <li>RMOW Alpine Rangers</li> </ul>	<ul> <li>Alert RSTBC and RMOW Parks and Trails</li> <li>Work with RMOW Alpine Rangers to assist in gathering additional information on species, location etc.</li> </ul>
IF NO Public Safety Issue- Multiple Sightings – no immediate threat to bear or human	COS	<ul> <li>RSTBC Recreation Officer</li> <li>FLNR Wildlife Biologist</li> <li>RMOW Environmental Stewardship Manager</li> </ul>	<ul> <li>Discuss sightings with RSTBC and provincial biologist and RMOW</li> </ul>

## 6.1 Grizzly Bear Response Communication Plan

	COS	<ul> <li>RMOW Parks and Trails Supervisor</li> <li>RSTBC Recreation Officer</li> <li>RMOW Parks</li> </ul>	<ul> <li>Post wildlife alert/bulletin at all trailheads</li> <li>Alpine Rangers, RMOW Parks</li> </ul>
		and Trails Supervisor	Staff assess current habitat conditions of area around bear sighting
		<ul> <li>WORCA &amp; ACC- W representatives</li> </ul>	<ul> <li>Post bear sighting on website – stress importance of bear awareness in alpine</li> </ul>
		<ul> <li>RMOW- Bear</li> <li>Smart Program</li> <li>Assistant</li> </ul>	<ul> <li>Post bear sighting on website – stress importance of bear awareness in alpine</li> </ul>
IF NO Public Safety Issue- Multiple Sightings BUT potential for	COS	<ul> <li>RSTBC Recreation Officer</li> <li>FLNR Wildlife Biologist</li> </ul>	<ul> <li>Provincial agencies to discuss and recommend area closures.</li> <li>Monitor area for bear activity.</li> <li>Temporary area closure if deemed necessary.</li> </ul>
threat to bears or humans (i.e. sow with cubs in trail corridor)		<ul> <li>RMOW Parks and Trails Manager</li> <li>RMOW Alpine Rangers</li> </ul>	<ul> <li>Monitor area for bear activity. Closures could be expanded or reduced based on monitoring information.</li> <li>Update closure based on new information</li> </ul>
,			<ul> <li>Re-open trails when provincial agencies agree it is safe to do so.</li> </ul>
		<ul> <li>RMOW Parks and Trails Manager</li> <li>RMOW Alpine Rangers</li> </ul>	<ul> <li>Post closure signs and monitor for compliance</li> <li>Assist provincial agencies to monitor area for bear activity</li> <li>Share information through municipal communications streams</li> </ul>
IF Public Safety Issue (aggressive,	COS	<ul> <li>RSTBC Recreation Officer</li> </ul>	<ul> <li>Dispatched to scene</li> <li>Use non-lethal response options if applicable.</li> </ul>

injured or orphaned bear)		<ul> <li>FLNR Wildlife Biologist</li> <li>RSTBC Recreation Officer</li> </ul>	<ul> <li>Contact RSTBC if trail or area closures deemed necessary</li> <li>Response follows recommendations of COS</li> <li>Close trails</li> <li>Contact RMOW Parks &amp; Trails Supervisor, Bear Smart Program Assistant and Communications team to share information through media streams</li> </ul>
	COS/RSTBC	<ul> <li>RMOW Parks and Trails Supervisor</li> <li>RMOW Alpine Rangers</li> </ul>	<ul> <li>Post closure signs and monitor for compliance Monitor area for bear activity</li> <li>Re-open trails when provincial agencies agree it is safe to do so.</li> </ul>
BEAR ATTACK CALL 911	COS	<ul> <li>FLNR Wildlife Biologist</li> <li>RSTBC</li> <li>RSTBC/RMOW</li> <li>RMOW- Environmental Stewardship Manager</li> </ul>	<ul> <li>Respond to all bear attacks resulting in injury or death</li> <li>Assess use of non-lethal or lethal response as appropriate</li> <li>Close trails</li> <li>Collaborate with COS and RMOW Communications teams on messaging</li> </ul>
REOPENING TRAILS	COS/RSTBC/FLNR Wildlife Biologist	◆ RMOW Parks	<ul> <li>Communicate decision to reopen with public</li> <li>Remove closure signs</li> </ul>

## 6.2 Grizzly Bear Response Plan Contact List

The following contact list will be circulated to all COS, RSTBC and RMOW staff and updated each spring by the RMOW Environmental Stewardship department.

Agency/Person	Phone	Email	After Hours
COS – RAPP line	1-877-952-7277		
	OR		
	CELLULAR *7277		
RCMP Emergency	911		
Field Conservation	604-898-3678 Ext	Simon.Gravel@gov.bc.ca	
Officer Services (COS)	2228		
LEAD- Simon Gravel		/	
Recreation Sites and	604 898-2125	Alistair.McCrone@gov.bc.ca	
Trails BC Recreation			
Officer			
Alistair McCrone			
FLNR-Wildlife Biologist	604 898-2100	Steve.Rochetta@gov.bc.ca	
Steve Rochetta			
RMOW Environmental	604-935-8374	hberesford@whistler.ca	
Stewardship Manager			
Heather Beresford		/	
RMOW Parks and	604-935-8325	lrussell@whistler.ca	
Trails Supervisor			
Lorne Russell			
RMOW Resort	604-935-8306	pbeswetherick@whistler.ca	
<b>Operations Manager</b>			
Paul Beswetherick			
RMOW Bear Smart		bearaware@whistler.ca	
Program Coordinator			

\*Current as of September 23, 2019

# 7.0 Conclusion

The recovery of grizzly bears in the threatened Squamish Lillooet GBPU is the goal and vision of the Province of B.C. This has been supported by First Nations, the Resort Municipality of Whistler, the SLRD and the Coast to Cascades Grizzly Bear Initiative. The Grizzly Bear-Human Conflict Mitigation Strategy was developed to minimize human interactions with grizzly bears on the Mount Sproatt/Rainbow alpine trail network while maintaining a public non-motorized recreational opportunity.

Careful consideration of the Province of BC's grizzly bear population objectives for the Mount Sproatt/Rainbow Mountain area must be balanced with the recognition that the RMOW's primary economic activity is tourism. In order to achieve successful protection of grizzly bears and their habitat within the threatened Squamish Lillooet Grizzly Bear Population Unit (GBPU), the holistic management approach recommended in the 2017 Auditor General's Report including the creation and implementation of grizzly bear management and recovery plans, and adequate resourcing to develop an inventory and monitoring strategy for grizzly bears is recommended.<sup>25</sup>

Thoughtful planning, public education, enforcement and closures when necessary are key strategies for minimizing human interactions with grizzly bears on the alpine trail system. It is also imperative to minimize impacts to grizzly bear habitat and use patterns, and strategies were identified to achieve that objective. Continued collaboration with provincial agencies and stakeholder groups will be critical to achieving these objectives. In addition, the RMOW will conduct further monitoring and ongoing consultation with the public, First Nations and major stakeholders as needed. Periodic reviews will be conducted as the plan is implemented to assess if objectives and strategies are being achieved.

Using the strategies outlined in this plan, the RMOW, Conservation Officer Service and Recreation Sites and Trails BC are committed to managing the Sproatt-Rainbow alpine trails using high standards in trail and recreational use management, mitigating the risk of conflict, and providing an exceptional recreational experience.

<sup>&</sup>lt;sup>25</sup> Office of the Auditor General of British Columbia (2017)

## 8.0 References

Gravel S. (2019). Personal communication.

Holmstol, L., and Edwards, C. (2018). *Bear Risk Assessment for Mount Sproatt and Rainbow Mountain Trails & Trail Amenities.* Wind River Bear Institute Canada.

Hrisitneko, H. and Herrero, S. (2014). *Are dogs "saviours" or are they contributing factors in black bear attacks on people*?. International Bear News, Spring 2014, vol 23, no 1. <u>https://www.documentcloud.org/documents/1183504-ibn-2014-spring-med-res.html</u>

Lil'wat Nation (2006). Lil'wat Land Use Plan: Phase 1. The Vision and Plan for the Land and Resources of Lil'wat Nation Traditional Territory. Mt. Currie, BC

Ministry of Environment (2016). *Policy, Preventing and Responding to Conflict with Large Carnivores*: Bear Conflict Response Matrix.

Ministry of Environment (2006), *Approved Wildlife Habitat Areas, Order- Wildlife Habitat Areas.* <u>http://www.env.gov.bc.ca/wld/frpa/iwms/wha.html</u>

Ministry of Environment (2003): *Order – Ungulate Winter Range # U2-002*. http://www.env.gov.bc.ca/wld/documents/uwr/uwr\_u2\_002.pdf

Ministry of Forests, Lands and Natural Resource Operations (2016). *Preventing and Responding to Conflict with Large Carnivores- Procedure Manual 4-7-04.01.1* <u>https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/fish-and-wildlife-policy/4-7-04011 preventing and responding to conflicts with large carnivores - procedures.pdf</u>

Office of the Auditor General of British Columbia (2017). *An Independent Audit of Grizzly bear Management.* www.bcauditor.com

Resort Municipality of Whistler (2015) *Twenty-One Mile Creek Watershed: Source Water Protection Plan.* Whistler.

www.whistler.ca/services/water-and-wastewater/water/source-water-protection-plan-swwp-21-mile-creek

Resort Municipality of Whistler (August 2018): *Environment and safety initiative on Mount Sproatt and Rainbow Mountain trail networks.* 

www.whistler.ca/media/news/environment-and-safety-initiatives-mount-sproatt-and-rainbowmountain-trail-networks

Rochetta, S (2019): Personal communication.

# 9.0 Appendices

#### Appendix A: Non-Compliant Tracking Table

Example of Tracking Table for warnings issued by RMOW Alpine Rangers and tickets and/or charges issued by Bylaw Officers, COS, NRO's and RSTBC Recreation Officer.

Non-Compliant	Zone 1	Zone 2	Zone 3
Behaviour	Mount Sproatt	Rainbow – 21 Mile	Rainbow- 19
			Mile/Skywalk
Dogs	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:
Wildlife Attractants	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:
Wildlife Harassment	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:
Feeding Wildlife	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:
Garbage Violation	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:
Camping	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:
Campsite Condition	Warnings:	Warnings:	Warnings:
Violation	Tickets:	Tickets:	Tickets:
Other Violations	Warnings:	Warnings:	Warnings:
	Tickets:	Tickets:	Tickets:

# Appendix B: Summary of Recommendations

Mitigation Strategy	ACTION	Lead	Support Agencies	Timing
4.1.1 Planning and Trail Modifications	Complete a vegetation and habitat mapping analysis to determine areas of high value grizzly bear habitat and 'hot spots' used by bears	RMOW	FLNR	2019
	Secure funding to continue grizzly bear collaring program, DNA sampling or other method that will assist in identifying priority grizzly bear habitat and seasonal use patterns	FLNR	RMOW	2020
	Future trails, campsites and other amenities must avoid high value habitat and forage	RMOW	RSTBC	Ongoing
	Require proponents to develop plans using bear risk assessments and ecosystem/forage mapping to avoid high value habitat.	RSTBC	RMOW	Ongoing
	Conduct annual monitoring programs and modify trails as required.	RMOW	RSTBC	Ongoing

				,
4.1.2	Existing trails and	RMOW	RSTBC	
Existing Trail and	related amenities			
Amenity	should be routed			
Relocations	around and or away			
	from high value			
	habitat areas,			
	forage etc			
	Re-route the	RMOW		2019
	proposed trail			
	(Beverly Lake Trail)			
	to avoid large			
	meadow areas with			
	low sightlines. <sup>26</sup>			
	Direct trail use away	RMOW	RSTBC	
	from wet, spring		NSTDC	
	grizzly bear habitat. Ground truth the			
		RMOW		
	results from the	/		
	Bear Risk			
	Assessment and			
	habitat/vegetation			
	mapping exercise			
	and implement			
	recommendations			
	When practicable,	RMOW		
	relocate trails and			
	facilities into lower			
	value habitat areas,			
	and/or thin the			
	vegetation. Remove			
	food sources			
	adjacent to trails			
	only if no other			
	•			
412	viable option exists. In areas where dense			Ongoing
4.1.3		RMOW		Ongoing
Sightline	vegetation reduces			
Maintenance	sightlines below			
	50m, no alternative			
	route is available and			
	habitat quality is			
	high, thinning shrubs			

<sup>&</sup>lt;sup>26</sup> Homstol and Edwards (2018)

		<u> </u>	<u> </u>	
	and trees may be			
	required.	ļ		
	Install signage for	RMOW		Ongoing
	users when			
	approaching low			
	sightline area.			
	Signage should warn			
	users to yell and/or			
	make noise and/or			
	indicate a "no			
	stopping zone."			
4.1.4	Review the <i>Bear Risk</i>	RMOW		2019
Future Potential				2019
	Assessment for			
Infrastructure	Sproatt Mountain Trails & Trail			
	Amenities (2018) and			
	the 2019 habitat and			
	vegetation mapping			
	report in detail and	/		
	ground truth all trail			
	and infrastructure			
	locations that			
	intersect with			
	identified prime bear			
	habitat.			
	Consider an Alpine	Planning		2019
	Ranger/Research/E	Team		
	mergency			
	Shelter/Public			
	Information Centre			
	be installed in the			
	Alpine to further			
	•			
	long term			
	management			
	objectives for the			
	area.			
	Ensure any new	RMOW	RSTBC	Ongoing
	campsites or other			
	trail amenities avoid			
	high value habitat	ļ		
4.2.1				
	Develop user profiles to help			

Public Education	target educational			
and	messaging			2010
Communication	Develop a	RMOW	Planning Team	2019
	comprehensive and			
	consistent public			
	education and			
	communication			
	strategy based on			
	input and approval			
	from the Planning			
	Team, in			
	conjunction with			
	the TPWG and other			
	committees, as well			
	as best			
	management			
	practices from other			
	relevant			
	jurisdictions.			
	Provide public	RMOW	COS/FLNR	Annual
	education	-	,	
	workshops about			
	grizzly bears and			
	their habitats.			
	Disseminate	RMOW	FLNR/COS	Annually
	pertinent			, and any
	information from			
	this strategy in			
	public service			
	announcements or			
	"Did You Know"			
	factoids, such as the			
	status of the grizzly			
	bear population, the			
	various roles of provincial and local			
	•			
	governments, etc.			Acrossia
	Distribute general	RMOW		As needed
	information and			
	trail status update			
	alerts to local bike			
	shops, outdoor			
	stores, Trailforks			
	and other online			

	forums ACC M	1	<u> </u>	]
	forums, ACC-W,			
	other known			
	guiding outfits			
	operating in			
	Whistler, and			
	WORCA to share			
	with their clients			
	and members			
	Update the Planning	RMOW		Annually
	Team contact list on			
	an annual basis.			
4.2.2	The RMOW, TPWG	RMOW	TPWG, Planning	
Bear Awareness	and other		Team	
	committees should			
	review best			
	management			
	practices and decide			
	on key messages			
	and communication			
	tactics for the			
	Sproatt/Rainbow			
	Alpine Trail			
	Network.			
				2010
	Develop a	RMOW	FLNR	2019
	messaging strategy,			
	that includes items			
	such as always carry			
	bear spray, never			
	hike/bike alone, be			
	alert to bear signs			
	(scat, prints, tree			
	markings etc.),			
	know the difference			
	between black bears			
	and grizzly bears,			
	stay on designated			
	trails, make noise in			
	areas of low			
	visibility, pack out			
	what you pack in,			
	etc.			
	Target high use	-		+
	areas (picnic areas,			
	campsites etc)			

4.2.3	Install interpretive	RMOW	FLNR	2020
Signs	and bear awareness			
	information at rest			
	spots, viewpoints			
	and trailheads.			
	Post messaging and	RMOW	FLNR	2020
	any new rules or			
	restrictions			
	developed regarding			
	trail use at trailhead			
	kiosks.			
	Review all current	RMOW	FLNR	2020
	signage and check			
	for consistent			
	messaging			
	throughout.			
	Develop a series of	RMOW	FLNR	2020
	"on-trail" reminders			
	based on other	/		
	recommendations in			
	this plan.	/		
4.2.4	Review websites and	RMOW		
Social Media	social media sites to			
Campaign	ensure consistent			
	messaging regarding			
	the use and			
	restrictions of the			
	alpine trail network.			
	Ensure there is a	RMOW		
	wide distribution of			
	bear awareness			
	information			
	throughout the			
	RMOW for both			
	residents and			
	visitors.			
	Encourage the public	RMOW	COS/FLRN	Ongoing
	to use the RAPP line			
	to report bear			
	sightings.			
	CALL 1-877-952-7277			
	or 604 905 BEAR to			

			1	1
	reach the provincial			
	call centre.			
	Provide an avenue	RMOW		
	for public to assist			
	with data collection			
	and link with Alpine			
	Ranger Program.			
4.2.5	For food and			
Attractant	personal care items:			
Management	Ensure proper	RMOW	RSTBC	
	signage is located at			
	all trailhead kiosks.			
	Install signage to let	RMOW	RSTBC	
	users know where or			
	how far it is to a			
	designated rest area			
	or campground to			
	control food items			
	coming out of packs			
	at appropriate areas.			
	Ensure approved	RMOW		
	campgrounds have			
	bear-resistant food			
	lockers or caches			
	that are regularly			
	inspected for proper			
	functionality.			
	Pack it in/Pack it out	RMOW		
	policy.			
	Recommendations			
	for bear foods			
	(specifically			
	huckleberries):			
	Monitoring berry	RMOW		
	patches throughout			
	the season for berry			
	ripening, quality and			
	quantity (e.g. Alpine			
	Rangers to monitor).			
	Where known berry	RMOW	Planning Team	As needed
	patches intersect			, is needed
	with trails, Hanging			
	Lake campground or			

				1
	other built			
	infrastructure that			
	cannot be relocated,			
	request Alpine			
	Rangers to remove			
	huckleberries in the			
	vicinity and leave all			
	other huckleberries			
	for bear food			
	sources.			
	Encourage people to	RMOW		
	stay on trails in prime			
	huckleberry areas			
	when berries are			
	ripe.			
	Install trail signs to	RMOW		
	inform users of "no			
	stopping" in bear			
	food zones (e.g.			
	similar to "no			
	stopping" in			
	avalanche zones			
	along mountain			
	roads.)			
4.2.6	Develop a trail	RMOW		2019
Improve Trail	counter and remote			
Monitoring and	camera plan			
Trail Counter	ensuring locations			
Program	are suitable for			
110810111	maintenance and			
	data collection.			
	Install counters for	RMOW	ACC-W	2019
	the Skywalk			2015
	network (above the			
	Flank trail), Into the			
	Mystic, With a			
	Twist, and Rainbow			
	Lake.			
	Ensure counters	RMOW		2019
				2013
	capture data from			
	all access routes			
	into trail networks.			

I	E 1	514014		I
	Explore options to	RMOW		
	utilize magnetic and			
	optical counters to			
	differentiate			
	between cyclists			
	, and hikers.			
	Encourage public	RMOW	COS/RSTBC	Ongoing
			COSTINUE	Ongoing
	users to report			
	aggressive or			
	threatening bears			
	through the RAPP			
	line.			
	Review existing data	RMOW		
	collection forms and			
	consider an			
	electronic data			
	collection process			
	such as iPad in order			
	to add geospatial	/		
	information and			
	photos.			
	Add additional	RMOW		
	check boxes to			
	Alpine Ranger data			
	collection forms			
	indicating if signs of			
	bear activity are			
	present and if dogs			
	•			
	accompany trail			
	users.	<b>D 1 C 1</b>		
	Consider developing	RMOW		
	a consolidated			
	reporting system for			
	internal use based			
	on RAPP line, Alpine			
	Ranger, and other			
	incidental data that			
	is regularly updated			
	by RMOW and			
	•			
	provincial staff, and			
	is available to the			
	public on a platform			
	such as Google			
	Earth			

	Work with senior levels of government to support and increase funding for research to further shared grizzly bear recovery objectives	RMOW	FLNR	
	Conduct effectiveness monitoring to determine if strategies are working	RMOW	Planning Team	Ongoing
	Provide opportunity for public to provide feedback on the trails	RMOW		
4.2.7 Enforcement	Secure additional provincial funding for COS and NRO staff to assist with enforcement and/or ticketing	FLNR/RSTBC/ COS		
	Track all tickets/warnings throughout all zones and review annually to identify patterns and develop mitigation strategies (see Appendix A)	Planning Team		Ongoing
4.2.8 Dog Restrictions	Enhance public education program to include information about the risks that dogs pose when in bear country, specifically grizzly bears.	RMOW	COS	Ongoing
	Continue to prohibit dogs above the	RMOW	Planning Team	2019

	Flamb trail trains			1
	Flank trail year			
	round.			
	Review monitoring			
	data and if			
	appropriate			
	consider			
	development of a			
	longer term alpine			
	trail dog strategy			
	Ensure any new	RMOW	Planning Team	2019
	changes to dog use			
	in the area are			
	consistently			
	messaged			
	throughout social			
	media and all			
	relevant websites.			
4.2.9	Research options and	RSTBC	COS, RMOW	2019
Seasonal	develop steps for			2010
Restrictions and	implementing and			
Closures	communicating			
closures	different types of			
	closures			
	Determine what	RSTBC, COS	RMOW	2019
	triggers a closure and	13160, 005		2015
	identify what steps			
	to take to close the			
	area.			
	Ensure all permanent			
	· · ·			
	signage is designed			
	to allow for quick			
	and easy conversion			
	from "open" to "bear			
	in area" to "partial			
	closure" to "full			
	closure"			
	Analyse closure data	COS	Planning Team	As needed
	based on grizzly bear			
	monitoring and site			
	conditions.			
	Identify ways to	RMOW	Planning Team	
	control trail access to			
	reduce negative			

<b></b>				]
	encounters for the			
	most sensitive areas			
	or seasons			
	Minimize public from	RMOW		Ongoing
	stopping in prime			
	huckleberry patches.			
4.2.10	When area closures	RSTBC	COS	As needed
Area Closures and	are necessary due			
Restrictions	to grizzly bear			
	presence, limit the			
	duration and			
	closure area based			
	on			
	presence/absence.			
	If area closures	RMOW	COS, RSTBC	As needed
			CO3, N31DC	As needed
	occur in a zone,			
	implement and			
	communicate strict			
	regulations on	/		
	adjacent zones that			
	may remain open			
	such as users only			
	allowed on trails in a			
	group of 4 or more			
	people, carrying			
	bear spray, etc.			
4.2.11	Continue to monitor	RMOW		
Limit Users	visitor use and trends			
	in the alpine			
	environment.			
	Work with provincial	RMOW	FLNR	
	biologists to monitor			
	health of the habitat			
	and grizzly bear			
	populations.			
	Assign RMOW staff	RMOW	Planning Team	
	to research the			
	possibility of limiting			
	user numbers, and			
	develop a system for			
	how this will be			
	done, including a			
	budget, if deemed			

				]
	necessary by the			
	Planning Team.			
	Review of	RSTBC,		
	commercial activities	RMOW		
	and special events in			
	the alpine area in			
	regards to trail and			
	wildlife impacts.			
4.2.12	Add Zone 3	RMOW		
Alpine Trail Ranger	(Rainbow/Skywalk)			
Program	to the Alpine Ranger			
	program on a			
	temporary basis until			
	adequate data is			
	collected for this			
	zone.			
	Investigate potential	RMOW	COS, RSTBC	2020
	for the RMOW Bylaw			
	Services to enforce	/		
	recommended			
	restriction			
	Assess primary bear	RMOW		
	habitat/food sources			
	throughout the key			
	seasons (pre-berry			
	and berry season)			
	based on Bear Risk			
	Assessment Report			
	(2018) and			
	vegetation and			
	habitat mapping			
	Consider using non-	RMOW		2019
	compliance form in			
	Appendix A to track			
	enforcement and			
	provide input for			
	future planning.			
	Permanently embed	RMOW		2020
	Alpine Ranger			
	Program funding in			
	annual RMOW			
	operation budgets.			

# Appendix C: Bear Conflict Response Matrix<sup>27</sup>

		Level of Conflict/ Bear Behavior					
		Level 1 Wary of human (leaves on approach)	Level 2 Habituated (indifferent to presence of humans)	Level 3 Assertive behavior or causes property damage (including livestock and pets)	Level 4 Follows/ bluff charges humans (threatening behavior) or is fed by humans	Level 5 Causes human injury (defensive/ surprise attack) or enters unoccupied building	Level 6 Predatory or non- defensive attack or enters occupied buildings
	Level A Bear is feeding on natural foods in natural area or continuous bear habitat	Monitor	Monitor	Manage	Manage	Manage	Destroy
Irce	Level B Bear is feeding on natural foods in area adjacent to continuous bear habitat	Monitor	Monitor	Manage	Remove	Remove	Destroy
Habitat Type and Feeding Source	Level C Bear is feeding on natural foods in sub-urban or residential area with immediate escape route	Monitor	Monitor	Manage	Remove	Remove	Destroy
pe and Fe	Level D Bear is occasionally feeding on non- natural foods in remote area (camps, etc.)	Monitor	Manage	Manage	Remove	Remove	Destroy
Habitat Ty	Level E Bear is frequently feeding on non- natural foods in residential area with immediate escape route	Manage	Manage	Remove	Remove	Destroy	Destroy
	Level F Bear is frequently feeding on non- natural foods in confined/urban areas with no immediate escape route or enters an occupied building	Manage	Remove	Destroy	Destroy	Destroy	Destroy

<sup>&</sup>lt;sup>27</sup> MOE Policy, Preventing and Responding to Conflict with Large Carnivores: Bear Conflict Response Matrix (April 2016)

# Appendix D: Trail Planning Working Group (TPWG) Members (As of September 23, 2019)

Organization	Representative
RMOW Parks and Trails	Lorne Russell, Supervisor
RMOW Parks Operations	Paul Beswetherick, Manager
RMOW Resort Parks Planning	Martin Pardoe, Manager
	Annie Oja, Planner
Whistler Off Road Cycling Association (WORCA)	Dale Mikkelsen
	Trevor Ferrao
	Ryan Murfitt
	Jerome David
99 Trials Association	Andrew DeBoer
Association of Whistler Area Residents for the Environment (AWARE) (as of 2017)	Claire Ruddy
Whistler Blackcomb	Brian Finestone
Alpine Club of Canada- Whistler Section (ACCW)	Kurt Mueller
Recreation Sites and Trails	Alistair McCrone
Cheakamus Community Forest (CCF)	Heather Beresford

# Appendix E: Acronyms

ACC-W	Alpine Club of Canada - Whistler
AWARE	Association of Whistler Area Residents for the Environment
COS	Conservation Officer Service
GBPU	Grizzly Bear Population Unit
FRPA	Forest and Range Practices Act
FWAC	Forest and Wildland Advisory Committee
LRMP	Sea to Sky Land and Resources Management Plan
FLNR	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
MOE	Ministry of Environment
NRO	Natural Resource Officer
RLAC	Recreation Leisure Advisory Committee
RMOW	Resort Municipality of Whistler
RSTBC	Recreation Sites and Trails BC
SLRD	Squamish Lillooet Regional District
TPWG	Trails Planning Working Group
UWR	Ungulate Winter Range
WBAC	Whistler Bear Advisory Committee
WHA	Wildlife Habitat Area
WORCA	Whistler Off-Road Cycling Association

# Grizzly Bear Habitat Mapping around the Mount Sproatt/ Rainbow Mountain Trail Network and Implications for Trail Management

**Heather Beresford** 

Manager, Environmental Stewardship Resort Municipality of Whistler 4325 Blackcomb Way Whistler, BC V8E 0X5 Telephone: 604-935-8374 Email: <u>hberesford@whistler.ca</u>

A. Grant MacHutchon Wildlife Biologist, M.Sc., R.P.Bio. 484 817 Mill Street Nelson, BC V1L 4S8 Office: 250-505-5083; Mobile: 250-354-3008 Email: machutchon@uniserve.com

January 20, 2020

# **Table of Contents**

Τa	ble of	F Con	tents	i
Li	st of Fi	igure	2S	ii
Li	st of Ta	ables	S	ii
A	cronyn	ns		.iii
G	ossary	y of ٦	۲erms	.iv
1	Inti	rodu	ction	. 1
2	Stu	idy A	reas	. 1
3	Me	ethoo	ds	. 3
	3.1	Gri	zzly Bear Food Habits and Habitat Use	. 4
	3.2	Arc	GIS Mapping	. 6
	3.3	Hab	pitat Polygon Delineation	. 7
	3.4	Eco	system Units	. 7
	3.5		d Assessments	
	3.6	Gri	zzly Bear Habitat Ratings	. 8
4	Res	sults	and Discussion	10
	4.1		zzly Bear Habitat Use	
	4.2		d Assessments	
	4.1	Rat	ings Assumptions and Data Limitations	12
	4.2	Pol	ygon Delineation and Grizzly Bear Habitat Ratings	13
	4.2	.1	RMOW Focal Management Area	
	4.2		Habitat Mapping beyond the RMOW Focal Area	
	4.3	Tra	il Management Context	20
	4.3	.1	Sea-to-Sky Land and Resource Management Plan	20
	4.3	.1	Mount Sproatt/ Rainbow Mountain Bear Risk Assessment	20
	4.3	.2	Human-Grizzly Bear Conflict Mitigation Strategy	22
	4.4	Hat	pitat and Trail Management	23
	4.4	.1	Management Challenges	23
	4.4	.2	Trail Management Recommendations	
	4.4	.3	Trail Use and Education Recommendations	25
5	Lite	eratu	ire Cited	27
6	Ар	pend	lices	31
	6.1	Pla	nt, tree, and bear sign codes used during field assessments	31
	6.2	Gri	zzly Bear Habitat Ecology – Coast and Mountains Ecoprovince	32
	6.3	Pro	minence values for grizzly bear food plants within forested site series in	
	three	Biog	geoclimatic Ecosystem Classification variants that occur in the habitat	
	mapp	•	area	38
	6.4		e stand-alone ratings of the foraging potential of mapped ecosystem units	
	-		bears for each of Apps et al (2016) spring, summer, and fall active seasons	
	as we	ell as,	, winter denning	40

## **List of Figures**

Figure 1. The Resort Municipality of Whistler (RMOW) focal management area around
Mount Sproatt and Rainbow Mountain and the area of grizzly bear habitat mapping,
using underlying Terrestrial Ecosystem Mapping (TEM) polygons, that included the
Callaghan and Soo river watersheds to Highway 99
Figure 2. The Resort Municipality of Whistler (RMOW) focal management area around
the Mount Sproatt/ Rainbow Mountain trail network
Figure 3. Routes I followed by hiking, vehicle, or helicopter to do ground or aerial visual
assessments of ecosystem units within the grizzly bear habitat mapping area and
RMOW focal management area
Figure 4. The best rating among all active seasons for high (class 1) and moderately high
(class 2) rated grizzly bear habitat polygons14
Figure 5. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons
for spring foraging 15
Figure 6. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons
for summer foraging 15
Figure 7. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons
for fall foraging
Figure 8. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons
for winter denning
Figure 9. Grizzly bear recovery and excluded areas in the Sea-to-Sky Land and Resource
Management Plan area (Map 8 in Province of British Columbia 2008)
Figure 10. Trail "red zones" identified by Holmstol and Edwards (2018) overlaid on high
and moderately high rated grizzly bear habitat polygons
Figure 11. Ecoprovinces (blue lines) within the 2012 range of grizzly bears (orange line)
in British Columbia

# List of Tables

Table 1. Relative grizzly bear rating classes assigned to TEM polygons (RISC 1999) for Apps et al. (2016) spring, summer, fall active seasons, as well as winter denning..... 8
Table 2. GPS-collared grizzly bears monitored by Apps et al. (2016) between 2008 and 2013 that had a portion of the habitat mapping area within their home range. ..... 10

ii

#### Acronyms

- BEC Biogeoclimatic Ecosystem Classification
- CMA Coastal Mountain-Heather Alpine
- CWH Coastal Western Hemlock
- CO Conservation Officer
- COS Conservation Officer Service
- FLNRO Ministry of Forests, Lands, Natural Resource Operations and Rural Development
- GPS Global Positioning System
- LIDAR Light Detection and Ranging
- LRMP Land and Resource Management Plan
- LU Landscape Unit
- MH Mountain Hemlock
- RMOW Resort Municipality of Whistler
- RSTBC Recreation Sites and Trails BC
- TEM Terrestrial Ecosystem Mapping
- TRIM Terrain Resource Inventory Management
- TSA Timber Supply Area
- UTM Universal Transverse Mercator

#### **Glossary of Terms**

- Anthropogenic foods Any artificial human-created food source that may attract bears to an area, including human food, food waste, garbage, compost, barbeques, grey water, sewage, petroleum-based products, or animal feed.
- Attractant Natural or anthropogenic food attractants to bears. See anthropogenic foods above for more detail.
- **Carnivore or bear attack** When a carnivore or bear makes physical contact with a person.
- **Displacement** When a bear temporarily leaves an area of human disturbance or activity, such as an encounter with humans, or when a bear quits using an area of long-term human activity.
- **Food-conditioning** When a bear has fed on human food or garbage or other anthropogenic foods and learns to associate humans and/or human activity with a potential source of food.
- Habitat 1 Those parts of the environment (aquatic, terrestrial, atmospheric), often typified by a dominant plant form or physical characteristic, on which an organism depends, directly or indirectly, in order to carry out its life processes.
   2 The specific environmental conditions in which organisms thrive in the wild (Dunster and Dunster 1996).
- Habitat capability The ability of habitat, under the optimal natural (seral) conditions to provide the life requisites of a species, irrespective of the current condition of the habitat (RISC 1999).
- Habitat suitability The ability of habitat, under its current conditions to provide the life requisites of a species, irrespective of human impacts aside from those that directly alter the habitat itself (RISC 1999).
- Human-bear conflict When bears take human food or other reward from people, bears charge people, people have to take extreme evasive action in response to a bear, people have to use a deterrent on a bear, there is damage or loss of property or food, or a bear makes physical contact with a person.
- Human-bear encounter When an animal is aware of human presence, regardless of whether humans are aware of the animal or not.
- **Human-bear interaction** Any of the various activities and effects involving bears and humans, including sightings, encounters and conflicts.
- **Human-habituation** A reduction in the frequency of a response when no consequence is perceived by a bear, that is, a loss of a flight response to human presence.

# 1 Introduction

A series of new hiking and mountain biking trails were approved by the B.C. Government and opened on Mount Sproatt and Rainbow Mountain near Whistler, British Columbia in mid-summer 2017 that added to an existing trail network. In summer 2018 there were an estimated 2,500 users to the trail network each month for a total of approximately 14,000 users throughout the summer to fall season. Around the same time, there were some trail closures in response to grizzly bear incidents or observations from mid-September to mid-November 2018.

As a consequence of increased awareness of grizzly bear activity within the trail network, a draft human-grizzly bear conflict mitigation strategy was developed in winter 2019 by a planning team made up of Resort Municipality of Whistler (RMOW) staff, the Recreation Sites and Trails BC (RSTBC) Recreation Officer, the Sea to Sky District Biologist of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRO), and Conservation Officers (CO; RMOW 2019). The initial draft has subsequently gone through several revisions.

One outcome of this planning effort was a commitment by the RMOW to complete grizzly bear habitat mapping to better understand the types and distribution of grizzly bear habitat in the area, and how and when grizzly bears were likely to be using that habitat. The main purpose of the mapping was to have relevant information to assist with trail planning and management to reduce the risk of human-grizzly bear conflict. RMOW's project objectives were:

- To map important grizzly bear habitat at two scales, an about 200 km<sup>2</sup> study area and a focal area around the Rainbow and Sproatt mountains trail network.
- To rate mapped habitats for their value to grizzly bears for their three active seasons (i.e., spring, summer and fall) as well as winter denning.
- To prepare a report with maps describing project methodology and findings with recommendations on how to minimize human-grizzly bear interactions through trail system management relative to the habitat polygons.

This report outlines the methods I used and results I obtained to meet RMOW's project objectives above.

# 2 Study Areas

RMOW staff proposed an approximately 200 km<sup>2</sup> area for habitat mapping that represented the approximate home range of a female grizzly bear and surrounded a focal management area around the Mount Sproatt/ Rainbow Mountain recreational trail network (Figure 1). The boundary of this proposed area was arbitrary and existing TEM

1

polygon data existed for a broader area that included the Callaghan and Soo River watersheds, so I delineated a wider habitat mapping area that I felt better represented relative grizzly bear habitat distribution around RMOW's focal management area and would provide information for management beyond this area.

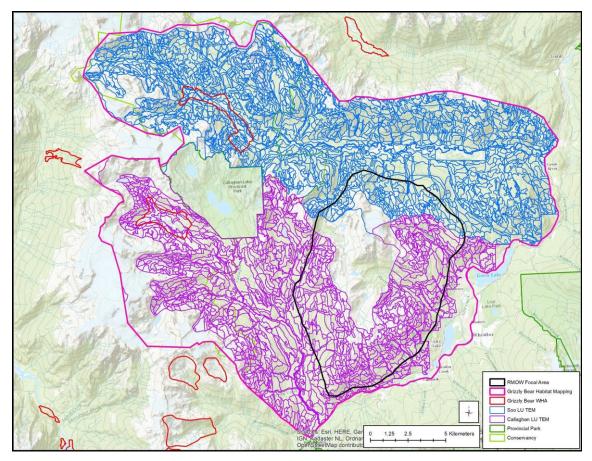


Figure 1. The Resort Municipality of Whistler (RMOW) focal management area around Mount Sproatt and Rainbow Mountain and the area of grizzly bear habitat mapping, using underlying Terrestrial Ecosystem Mapping (TEM) polygons, that included the Callaghan and Soo river watersheds to Highway 99.

The habitat mapping area is within the Eastern Pacific Ranges (EPR) Ecosection of the Coast and Mountains Ecoprovince (Demarchi 2011). It includes the Provincial Biogeoclimatic Ecosystem Classification (BEC) Coastal Western Hemlock zone, Moist Submaritime subzone, Southern variant (CWHms1) and CWH zone, Dry Submaritime subzone, Southern variant (CWHds1) at lower elevations, the Mountain Hemlock zone, Moist Maritime subzone, Leeward variant (MHmm2) and parkland variant (MHmmp) at mid to higher elevations, and the Coastal Mountain-Heather Alpine zone, Undifferentiated and Parkland subzone (CMAunp) at the highest elevations. The mapping area is partially within but mostly outside of the RMOW boundary and within the traditional territory of the Lílwat Nation and Squamish Nation (S<u>k</u>w<u>x</u>wú7mesh Úxwumixw). Both First Nations have developed management direction in land use plans that cover their respective traditional territories. The mapped area also is within the Squamish-Lillooet Regional District and the Sea-to-Sky Land and Resource Management Plan (S2S LRMP) area (Province of British Columbia 2008). The S2S LRMP contains five overarching goals for grizzly bears and six objectives with associated implementation directions to achieve the plan goals.

FLNRO and the B.C. Ministry of Environment and Climate Change Strategy (MoE) are jointly responsible for managing wildlife, including grizzly bears. FLNRO have previously established a number of Wildlife Habitat Areas (WHA) within the Squamish-Lillooet GBPU that legally protect grizzly bear habitat within and near the mapping area (see Figure 1). The mapping area is within the provincial Squamish-Lillooet Grizzly Bear Population Unit (GBPU). The boundary between the Squamish-Lillooet GBPU and the Garibaldi-Pitt GBPU to the east is Highway 99. Both the Squamish-Lillooet and Garibaldi-Pitt GBPUs are considered threatened by the B.C. Government, however, the status of these two population units is currently under revision. Squamish-Lillooet grizzly bears historically survived human-caused mortality and habitat change primarily in more remote valleys or the headwaters of otherwise developed valleys. The Squamish-Lillooet grizzly bear population currently appears to be growing and expanding their range in some areas (Apps et al. 2014).

RMOW's focal management area around the Mount Sproatt/ Rainbow Mountain trail network was largely above adjoining sections of the mid-mountain elevation Rainbow-Flank (aka Flank) trail to the west of Highway 99 (Figure 2). It includes Twenty-One Mile Creek, which is the RMOW municipal water supply area. No motorized use, biking, camping, or dogs are allowed in the RMOW watershed, but there is a hiking trail to Rainbow Lake and up to the height-of-land west of the lake. The only camping area currently on the trail network is at Hanging Lake just below this height of land, but outside the RMOW watershed. The trail network includes hiking only trails and multiuse trails that are primarily used by mountain bikers and hikers.

# 3 Methods

The following sections outline the methods I used for grizzly bear habitat mapping and how I used that mapping to make recommendations toward trail management. I used some of the same habitat mapping methods as I've used in other areas of coastal B.C. (MacHutchon 2000, 2001, 2007a&b, 2008, 2009, 2010, 2011, 2015a, 2018), however those methods were modified to better meet project objectives.

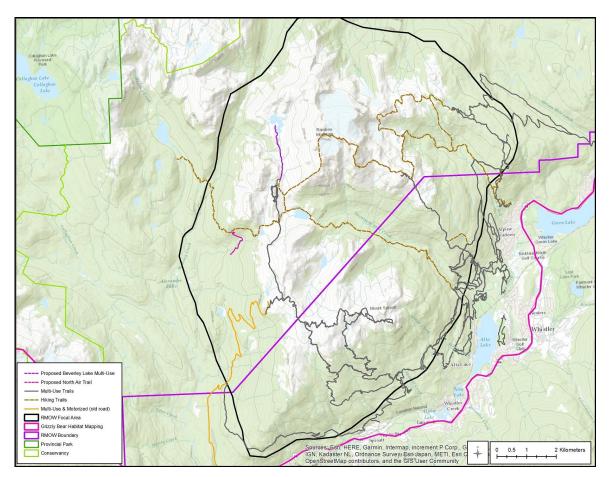


Figure 2. The Resort Municipality of Whistler (RMOW) focal management area around the Mount Sproatt/ Rainbow Mountain trail network.

# 3.1 Grizzly Bear Food Habits and Habitat Use

Since the mid 2000's there has been considerable research and management planning work focused on grizzly bears in southwest B.C., which has variously included areas within or adjacent to the study areas (e.g., Apps et al. 2014, 2016; McLellan 2012; McLellan and McLellan 2015; McLellan et al. 2019; Hobbs et al. 2013).

I previously developed a grizzly bear species account for B.C.'s Coast and Mountains Ecoprovince that reviewed relevant research and management work and I've updated this account over the years as new information became available (MacHutchon 2015b). I modified my grizzly bear species account to incorporate more of the regional information above. This species account helped me better understand grizzly bear food habits and habitat ecology within the region and the relative seasonal importance of different ecosystem units to grizzly bears.

4

Within the S2S LRMP area, Apps et al. (2016) based grizzly bear seasonal break dates on variation in habitat selection across active season with data pooled among years, as well as, known seasonality and phenology of grizzly bear foods. Their active seasons were:

- Spring den emergence to 14 June
- Summer 15 June to 14 August
- Fall 15 August to 19 October
- Late Fall 20 October to 31 December

Most bears in Apps et al. (2016) study denned in late October or early November, but some bears were active into December, particularly where salmon were available. Consequently, Apps et al. (2016) had a "late fall" season to differentiate habitat use by these few bears prior to denning. I used Apps et al. (2016) season dates for my assignment of grizzly bear habitat ratings.

I previously summarized seasonal grizzly bear food habits from research projects throughout B.C. I substantially edited and updated those lists in 2015 (MacHutchon 2015c) and the food habit lists were again updated in spring 2019 such that they now cover 19 different study areas. Of those 19 study areas, two include the CWHms subzone and four include the MHmm subzone.

I previously compiled grizzly bear food plant data for all BEC zones, subzones, and variants in the province based on data from the BEC master database of ecosystem unit plots (MacHutchon 2015d). Consequently, I had lists of the prominence value for grizzly bear food plants within the forested site series of the CWHms1, CWHds1, and MHmm2 BEC variants that occur in the mapping area. Food plant prominence was the value summarized as it is the best relative measure of plant availability since it takes into account abundance (mean cover) and distribution (frequency or presence). Prominence is calculated by multiplying mean percent cover by the square root of percent presence.

FLNRO provided the location data of five GPS-collared grizzly bears monitored by Apps et al. (2016) between 2008 and 2013 whose home ranges overlapped the Callaghan or Soo River watersheds. I used this location data to assess whether the generic seasonal habitat ratings I assigned to TEM polygons were generally reflecting seasonal use by collared bears. I did not do a quantitative analysis of the correlation between the two, rather did a more general review of the overlap between grizzly bear locations and TEM polygons I rated class 1 or 2. I also used the location data to look for inconsistencies between the generic ratings and where there were seasonal concentrations of grizzly bear use, which suggested the generic ratings were missing important local habitat values. If this was the case, I modified the ratings I assigned to the TEM polygons and looked to see where there might have been errors in the TEM line-work or assigned

ecosystem units. I primarily focussed on RMOW's focal management area for this assessment, but also looked for inconsistencies in the broader mapping area.

## 3.2 ArcGIS Mapping

I used ESRI ArcGIS<sup>™</sup> to compile relevant data layers and for rating and adjusting or mapping new TEM polygons within the study areas. ArcGIS spatial data was essential for habitat mapping, but also helped me with field site investigation planning, post-field use of field information, preparation of relevant maps for this report, and understanding the distribution of grizzly bear habitat in relation to recreation trails.

I used the following ArcGIS layers:

- Polygon line work and attribute databases for Terrestrial Ecosystem Mapping (TEM) done in the Callaghan and Soo Landscape Units by Timberline (2007a&b).
- RMOW contour data at 10 m intervals and Light Detection and Ranging (LIDAR) data interpreted for canopy openness for the area covered by the orthophoto imagery.
- RMOW line-work for existing or proposed trails.
- Terrain Resource Inventory Management (TRIM) raster maps at 1:20,000 and 1:250,000 scale.
- BC Government 1:20,000 scale Freshwater Atlas data for streams, rivers, lakes, wetlands, and glaciers.
- SC Government 1:20,000 scale Digital Road Atlas data.
- 2014 and 2018 orthophoto imagery provided by RMOW that covered about 3/4 of the RMOW focal area and 1/3 of the mapping area.
- ESRI Basemap world imagery and world topographic maps
- GPS-collared grizzly bear locations for the mapped area obtained by Apps et al. (2016) from 2008 to 2013.

There was a database table attached to the habitat mapping spatial layer with the ecological attributes of mapped polygons. Most fields in the database were carried over from the TEM, which were all made compatible with the provincial Terrestrial Ecosystem Inventory data submission standards (RISC 2015) by the BC Government in 2016. I added the following four data columns to the database:

- MURAR\_PFD Spring rating for grizzly bear foraging
- MURAR\_SFD Summer rating for grizzly bear foraging
- MURAR\_FFD Fall rating for grizzly bear foraging
- MURAR\_FD\_H The highest rating for Spring, Summer, or Fall foraging
- MURAR\_WHI Winter rating for grizzly bear hibernation

I provided my final ArcGIS habitat mapping polygon geodatabase and associated database table to the RMOW to be used in their trail system planning and management.

### 3.3 Habitat Polygon Delineation

Four Terrestrial Ecosystem Mapping (TEM) projects were previously done for areas that overlapped or were adjacent to the grizzly bear habitat mapping area, however two were within the mapping area (Figure 1). The Callaghan Landscape Unit (LU), which is now part of the Whistler LU, was mapped in 2007 at a scale of 1:20,000 (Timberline NRG 2007a) as was the Soo LU to the north (Timberline NRG 2007b).

Adjacent to the mapping area to the east in the old Whistler LU, RMOW had TEM done at a scale of 1:15,000. In addition, Green (2010) mapped portions of the old Whistler LU in the Soo Timber Supply Area (TSA) east of the mapping area that partially overlapped the RMOW TEM.

Timberline NRG (2007 a&b) mapped the CWH and MH zones for the Callaghan and Soo LUs, but they did not map the upper portion of Twenty-One Mile Creek, Callaghan Lake Provincial Park, some of the CMA (alpine) zone, and a few smaller areas. As a result, I delineated polygons within these areas that emulated the existing TEM polygons.

# 3.4 Ecosystem Units

I identified local ecological communities, typically referred to as ecosystem units, based on the existing TEM. Some work was required to reconcile differences among a few ecosystem units identified differently among the four local TEM projects. I compiled a worksheet list of ecosystem units for the following categories:

- forested site series within the Coastal Western Hemlock (CWH) and Mountain Hemlock (MH) Biogeoclimatic zones (Green and Klinka 1994);
- open forest or non-forested MH parkland (MHmmp);
- ✤ non-forested CMA alpine units; and
- non-vegetated or sparsely vegetated and anthropogenic units that could occur in any of the categories above.

### 3.5 Field Assessments

I did ground and aerial visual assessments to gather more information on the characteristics of ecosystem units within the study area and their relative suitability for grizzly bears. Visual assessments consisted of taking notes, photos or both at sites throughout the study area. Bear sign of use, whether fresh or older, also was recorded. Appendix 6.1 is a table of the plant, tree, and bear sign codes I used in the field to make my note-taking more efficient.

I determined the Universal Transverse Mercator (UTM) coordinates for locations of my notes and digital photos and other points of interest using a Global Positioning System (GPS) within an Apple Ipad<sup>™</sup>. I took digital photographs of relevant features, habitats,

and bear foods to refer to in the office. I tracked my field routes whether hiking or by vehicle or helicopter using a hand-held Garmin GPSmap 62s.

## 3.6 Grizzly Bear Habitat Ratings

I rated the stand-alone foraging potential of identified ecosystem units for grizzly bears for Apps et al. (2016) spring, summer, fall active seasons, as well as winter denning. I rated each using the provincial 6-class rating scheme (Table 1, RISC 1999).

	Suitability/	Lower Limit	Upper Limit	
Class	Capability	(%)	(%)	Relative Quality
1	High	>75	≤100	Equivalent
2	Moderately High	>50	≤75	Slightly less
3	Moderate	>25	≤50	Moderately less
4	Low	>5	≤25	Substantially less
5	Very Low	>0	≤5	Much less
6	Nil	0	0	Habitat or attribute is absent

# Table 1. Relative grizzly bear rating classes assigned to TEM polygons (RISC 1999) forApps et al. (2016) spring, summer, fall active seasons, as well as winter denning.

Individual ecosystem units were rated for their seasonal potential for grizzly bear foraging or denning based on several sources of information, including:

- My food habit and habitat use species account (Appendix 6.2).
- The prominence of known grizzly bear food plants within forested site series in the CWHms1, CWHds1, and MHmm2 BEC variants (see above and Appendix 6.3).
- Descriptions and keys of forested BEC zones, subzones, variants, and site series (typically in climax condition) in the BEC field guide (Green and Klinka 1994).
- Site characteristics of forested site series, such as soil moisture and nutrient regime and slope position and steepness, from edatopic grids in Green and Klinka (1994).
- Descriptions that accompany each ecosystem unit outlined in the BC Government map codes database (updated to March 2006) or Timberline NRG (2007 a&b). These descriptions included unit name, an assumed situation description (e.g., slope, soil depth and texture, soil moisture, disturbance), possible site modifiers, typical soil moisture regime, and structural stage range. These descriptions were most helpful for non-forested units not in Green and Klinka (1994).
- Information on known grizzly bear food plant species diversity and abundance within wetland ecosystem units as described in MacKenzie and Moran (2004).
- Grizzly bear ecosystem unit ratings from previous TEM Wildlife Habitat Rating (WHR) and other grizzly bear habitat mapping projects on the coast were reviewed to assist this project's ratings.

I then applied individual ecosystem unit ratings to TEM polygons in the mapping area. Each polygon was given a generic rating based on the highest rated unit within that polygon, even if it was only 20% of the polygon, which was the lowest amount assigned by Timberline NRG (2007 a&b). This provided the highest possible rating to each polygon, but helped ensure that potentially valuable polygons were not overlooked.

The focus of my grizzly bear habitat mapping were polygons considered high (class 1) or moderately high (class 2) potential for grizzly bear foraging or winter denning. However, I rated all polygons even if their highest rating was moderate to nil (class 3 to 6) to provide more complete information on relative grizzly bear habitat distribution.

Structural stage was not assigned in the Callaghan and Soo LU mapping projects (Timberline NRG 2007 a&b). Structural stage is a reflection of the successional state of an ecological community therefore can provide valuable information on habitat value, particularly for forested units, as it has bearing on how open the canopy is, therefore how much plant food likely is available to grizzly bears in the understory. In the absence of structural stage information, the generic ratings I assigned to polygons were, in effect, "capability" ratings as they were based on the best value an ecosystem unit could have. RISC (1999) defines capability as "the ability of the habitat, under the optimal natural (seral) conditions to provide its life requisites, irrespective of the current condition of the habitat".

However, I individually evaluated most polygons within the RMOW focal area and modified the generic ratings, if necessary, to give polygons more of a "suitability" rating. RISC (1999) defines suitability as "the ability of a habitat in its current condition to provide the life requisites of a species". These evaluations were based on the following:

- My field assessment results.
- GPS-collared grizzly bear locations from Apps et al. (2016) and the seasonal distribution of grizzly bear locations within or around individual polygons.
- The structural stage or canopy openness of a polygon as identified from orthophoto imagery aided by LIDAR data.
- Water features and contours. Water features provided detail on wetlands and riparian ecosystems. Contours provided detail on aspect (warm versus cool) and slope, including steepness and the location of slope breaks that can create nutrient and moisture receiving sites.
- A polygon's position on the landscape and proximity to other habitat polygons.
- Local human influences, such as power-lines, roads, and sub-divisions.

I evaluated many polygons beyond the RMOW focal area within the mapping area to look for consistency or inconsistency between the generic ratings and seasonal concentrations of grizzly bear location data. Where necessary, I modified the ratings. In some cases, I modified the assigned ecosystem units within the TEM polygons if that was the apparent cause of the inconsistency. In areas where there was no grizzly bear location data, I looked for issues with the ratings or the TEM data that were associated with significant human influence. For example, previous logging that led to large areas of closed canopy second growth forest with reduced habitat value or significant habitat change through the development of Whistler or clearing for infrastructure to support the 2010 Winter Olympics.

# 4 Results and Discussion

# 4.1 Grizzly Bear Habitat Use

Appendix 6.2 outlines the habitat ecology of grizzly bears within the Coast and Mountains Ecoprovince of B.C. including modifications to incorporate regional grizzly bear research information. Appendix 6.3 are the prominence values for grizzly bear food plants within the forested site series of the CWHms1, CWHds1, and MHmm2 BEC variants compiled from the provincial BEC master database of site series plots (MacHutchon 2015d).

The five grizzly bears GPS-collared and monitored by Apps et al. (2016) between 2008 and 2013 had various percentages of their home range within the Callaghan or Soo River watershed habitat mapping area (Table 2). My data-sharing agreement with FLNRO allowed me to assess the collared bear locations in relation to mapped polygons, but I could not provide maps showing the locations.

						RMOW	RMOW
				Mapping	Mapping	Focal	Focal
Bear			Total	Area	Area	Area	Area
ID	Sex	Monitoring Period	Locations	Locations	Percent	Locations	Percent
2	F	June 12, 2010 to Nov 3, 2013	10,844	2,644	24.4	0	0.0
5	F	June 23, 2008 to Oct 26, 2009	6,103	4,078	66.8	2,338	38.3
10	F	June 12, 2010 to July 7 2012	7,603	3,988	52.5	2,106	27.7
14	Μ	July 28. 2010 to July 23, 2013	5,413	1,188	21.9	143	2.6
22	М	July 24, 2012 to Aug 6, 2013	3,201	177	5.5	14	0.4
All			33,164	12,075	36.4	4,601	13.9

# Table 2. GPS-collared grizzly bears monitored by Apps et al. (2016) between 2008 and2013 that had a portion of the habitat mapping area within their home range.

Two grizzly bear locations in the mapping area were in late April, but most began in May. The latest location was November 27, but most locations were before mid-November. Two of five collared bears had more than half of their activity within the mapping area and these same two bears were quite active in portions of RMOW's focal area. Two other bears spent some of their active season in the focal area and one bear did not venture there at all. She was primarily active on the west side of the mapping area and adjacent watersheds further west. Of the 4,601 locations in the focal area, 26.3% were in spring, 30.1% in summer, 38.9% in fall, and 4.7% in late fall.

# 4.2 Field Assessments

I conducted field assessments during three days, September 17 to 19, 2019. Ground assessments were done from trails or by hiking away from a vehicle (Figure 3). Aerial assessments were done from a helicopter over a wider proportion of the habitat mapping area. I took notes and/ or photos at 180 locations within the study area of which 171 were related to habitat type and quality. My evaluation of grizzly bear habitat potential in the field was largely based on the availability of bear foods therefore the habitat's apparent suitability for foraging among different seasons.

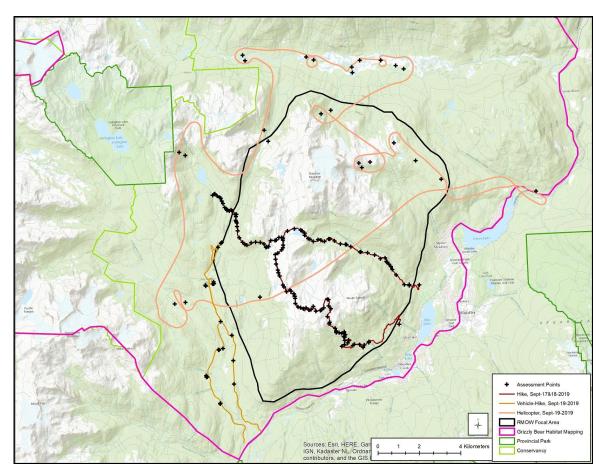


Figure 3. Routes I followed by hiking, vehicle, or helicopter to do ground or aerial visual assessments of ecosystem units within the grizzly bear habitat mapping area and RMOW focal management area.

### 4.1 Ratings Assumptions and Data Limitations

As outlined in the methods, structural stage was not assigned in the Callaghan and Soo LU mapping projects (Timberline NRG 2007 a&b). Consequently, the generic ratings I initially assigned to polygons were, in effect, "capability" ratings as they were based on the best rating an ecosystem unit could have regardless of structural stage. However, I individually evaluated most polygons within the RMOW focal area and a number in the broader mapping area and modified the generic ratings, if necessary, to give polygons more of a "suitability" rating based on their current structural stage.

At the outset of this project, I assumed the underlying TEM polygon line-work and associated ecosystem unit designations done by Timberline NRG (2007 a&b) would be spatially and ecologically accurate. However, the polygon line-work boundaries did not always line up with actual ecosystem boundaries on orthophoto imagery. This partly may have been because the line-work was drawn relatively quickly, but likely primarily due to translation errors when the line-work was spatially captured by monorestitution from the original line-work done on colour air photos. It would have been too time consuming to try and correct all line-work that appeared inaccurate, but I did correct some line-work that I felt was important for trail management in the RMOW focal area. The TEM ecosystem unit designations assigned by Timberline NRG (2007 a&b) seemed generally okay. If I found the ecosystem unit interpretations were obviously inaccurate, I most often modified the grizzly bear seasonal habitat ratings rather than modify the ecosystem unit designations as the ratings were the most important for management. However, on some occasions I also changed the ecosystem unit designations, especially in the RMOW focal management area.

I generally assumed that forested ecosystem units with a rich or very rich nutrient regime had a greater diversity and abundance of grizzly bear food plants than nutrient poor or very poor units. Nevertheless, some locally important food plants could be found on sites with poor or very poor nutrient regimes, particularly some Vaccinium species. The BEC data on food plant prominence within forested site series helped with assessing the relative availability of Vaccinium species as well as other food plants.

If an ecosystem unit was known to have any grizzly bear food plants, then the lowest seasonal rating I gave was very low (5) rather than nil (6). The exceptions were ecosystem units expected to be covered in snow in spring, which were units at higher elevations in the MH parkland subzone or CMA alpine zone. I rated them lower during spring, but may have elevated their ratings in summer and fall because of the late phenology of specific food plants.

Shrub dominated avalanche tracks generally have an abundance of fruit-bearing shrubs, but may also be dominated by alder which can inhibit growth of fruit-bearing shrubs. However, I assumed that alder openings were common enough such that fruit-bearing shrubs were plentiful on most avalanche tracks, consequently they were usually rated high. I generally assumed that shrub dominated avalanche tracks at higher elevations on cool aspects had later phenology so that most fruit was not available to bears until late summer or fall. Shrub dominated avalanche tracks also were assumed to have an abundance of forbs and graminoids in their run-out zone, so ratings for spring or summer were generally high or moderately high depending on what BEC zone or subzone they were in.

I assumed most non-vegetated or anthropogenic ecosystem units had no grizzly bear foods available, therefore I rated their foraging potential nil (class 6) in all active seasons. I also rated most of them nil for winter denning. Generally, there is no food associated with a Road Surface even though the adjacent right-of-way (ROW) may have a number of well-used bear foods, so I gave road surface a nil rating for foraging and assumed the ROW was mapped in an adjacent vegetated polygon. Road surfaces can have value for bear travel depending on human activity (traffic) and behaviour, but this was not rated. Nevertheless, Road Surface only occurred in three polygons and was always part of a complex polygon. Rubble and Talus often can have some grizzly bear food plants mixed in with the rock. I rated Rubble low (class 4) and Talus very low (class 5) for foraging. Ciarniello et al. (2005) found 25% of dens used for hibernation in the Rocky Mountains of central B.C. were in natural caves in the alpine or Engelmann Spruce - Subalpine Fir (ESSF) zone. Consequently I rated rock outcrops very low rather than nil for winter denning as some may contain suitable natural caves.

# 4.2 Polygon Delineation and Grizzly Bear Habitat Ratings

Initially, there were 3,727 TEM polygons in the mapped area. I added 116 new polygons, primarily in the Twenty-One Mile drainage and around Hanging Lake and Beverley Lake. I mapped all areas missing TEM except Callaghan Lake Park as finishing the park would have taken longer than the project time and budget allowed. I did not have sufficient time to add ecological units to all new polygons, so I primarily focussed on assigning seasonal habitat ratings.

I removed a number of small sliver polygons along the edges of the mapping area and added to several polygons that overlapped previously blank areas. In the end, there were 3,817 polygons for the grizzly bear habitat mapping area. Appendix 6.4 are the stand-alone ratings I assigned each ecosystem unit that occurred in the mapping area.

### 4.2.1 RMOW Focal Management Area

I individually assessed the habitat ratings of most polygons in the RMOW focal management area, as well as some inaccurate ecosystem unit designations. Figures 4 to 8 illustrate the high (class 1) and moderately high (class 2) rated grizzly bear habitat polygons for the highest rating among all active seasons, spring, summer, fall, and winter denning. There were a number of areas with concentrations of higher rated grizzly bear habitat polygons, grizzly bear location data, or both. Several of those will have bearing on management of the trail network, so are discussed below.

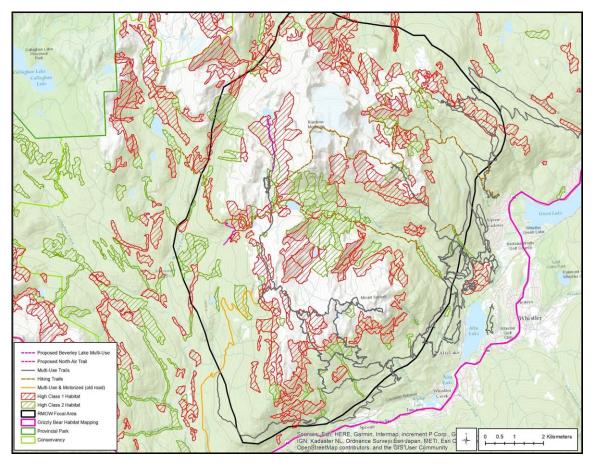


Figure 4. The best rating among all active seasons for high (class 1) and moderately high (class 2) rated grizzly bear habitat polygons.

There are several high or moderately high rated polygons around both Rainbow and Hanging Lakes that provide summer, fall, and late fall grizzly bear foraging. The area around Rainbow Lake was well used by one GPS-collared grizzly bear in particular, but two others as well. The area around Hanging Lake was used by two of the bears that used the Rainbow Lake area, although less so. Grizzly bears have periodically being seen near Rainbow and Hanging Lakes in recent years, including sightings in 2018 and 2019.

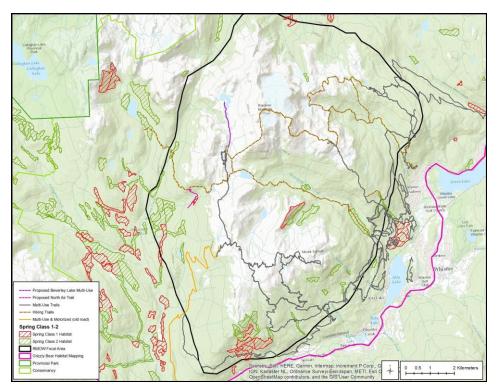


Figure 5. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons for spring foraging.

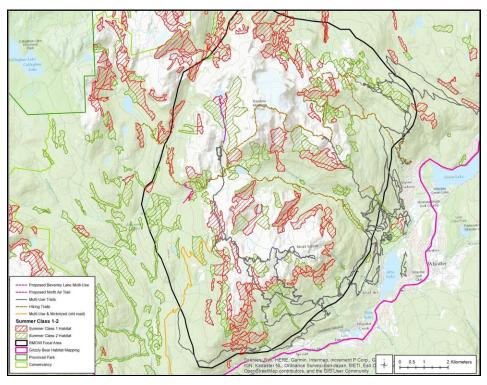


Figure 6. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons for summer foraging.

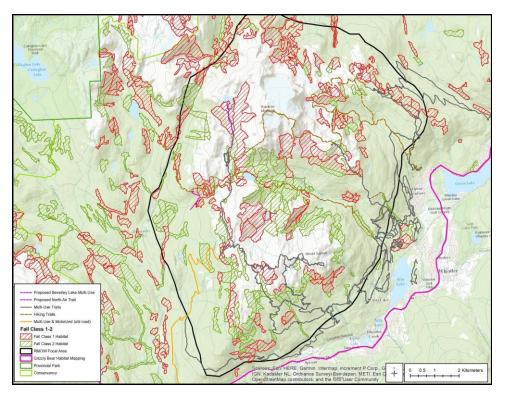


Figure 7. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons for fall foraging.

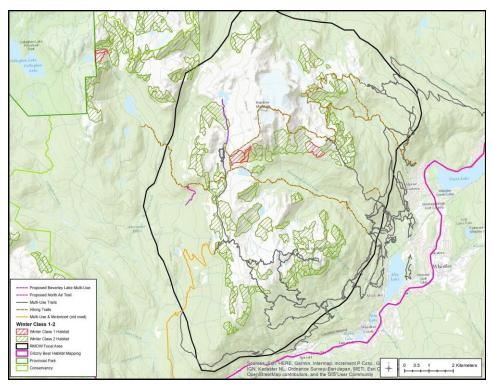


Figure 8. High (class 1) and moderately high (class 2) rated grizzly bear habitat polygons for winter denning.

The primary grizzly bear foraging attraction on slopes north of Rainbow Lake that come down to the lake edge appears to be black huckleberry (*Vaccinium membranaceum*) and blue-leaved or Cascade huckleberry (*Vaccinium deliciosum*) fruits. The slope at the head of Twenty-One Mile Creek west of Rainbow Lake appears to be used primarily for digging yellow glacier lily (*Erythronium grandiflorum*) roots as well as feeding on a variety of forbs. Feeding on the wet flats west of Rainbow Lake appears to be for sedges, grasses, and a variety of forbs. There also is apparently Hoary marmot (*Marmota caligata*) digging on the slopes just southwest of Rainbow Lake (M. Sulkers, personal communication).

The best grizzly bear habitats around both Rainbow and Hanging lakes are on the north side and this also is where the trail around each lake is located. This juxtaposition increases the probability of hikers displacing bears from habitats near the trail as well as for meeting a bear along the trail. For example, I met a black bear on the trail on the north side of Rainbow Lake during my field work who appeared to be feeding on blue-leaved huckleberries that were relatively abundant along the edge of the trail. The campsite on the east end of Hanging Lake is in a polygon rated high because of the abundance of black huckleberry and blue-leaved huckleberry throughout the forest in this polygon. The habitat where the actual camping area is located is lower value because the ground cover is largely mountain heathers. Nevertheless, the abundance of higher quality habitat around the lake increases the probability of grizzly bears being active in the area, therefore potentially being displaced from habitats around the camp site and associated trails or venturing through the camping area.

Downstream of Rainbow Lake the forest is quite open such that there are abundant patches of black huckleberry and blue-leaved huckleberry scattered all through the area. Consequently most polygons in this area were rated at least class 2 if not class 1. It appears that bears have a fair amount of choice about where to feed on fruit through this area, but they may choose to feed near the trail as it provides an easy travel route through the area. Black bears are commonly seen along this section of the Rainbow Lake trail during the late summer and fall (M. Sulkers, personal communication).

There are a number of high or moderately high rated polygons throughout the Gin and Tonic lakes basin and some of these are known to be used by grizzly bears. This basin is a tributary drainage to Twenty-One Mile Creek and also within the RMOW's municipal water supply area. There currently are no trails or other infrastructure in this drainage. Grizzly bear activity in Twenty-One Mile Creek likely will increase as more bears move into the area from the Gin and Tonics Lakes or other nearby drainages.

There is currently a multi-use trail that runs north of the Hanging Lake to Rainbow Lake height-of-land to a loop trail named Ninja Lakes. There is a hiking trail that continues on

past this loop trail to Beverley Lake and there is a proposal to convert it into a multi-use trail and build a camp site at Beverley Lake. I did not walk the trail to Beverley Lake, but there are high to moderately high rated polygons along this trail, especially beyond the Ninja Lakes Loop. These polygons were well used by GPS-collared bears. Holmstol and Edwards (2018) identified three red zones along this trail that corresponded to these higher rated polygons and they also suggested the proposed Beverley Lake camp site had a combination of seasonally important bear food and low visibility.

There is a concentration of high rated spring and summer grizzly bear foraging polygons on the south-facing slope above the Cheakamus River on the ridge nose between the Cheakamus River and Callaghan Creek. This area was very well used by one GPScollared grizzly bear in particular, but two others as well. The South Flank Trail currently cuts through one of the high rated polygons along this slope. There is a proposal to rebuild or improve the South Flank trail through this area.

There are a number of high or moderately high rated polygons that, basically, rim the edge of Nineteen Mile Creek drainage and are used for summer and fall grizzly bear foraging. Three GPS-collared grizzly bears used habitats in this area, although one more than the other two. The crew that originally built the hiking trails in the Skywalk area years ago tried to avoid what they thought were higher value habitats as at least one grizzly bear was known to be active in the area and periodically seen (M. Sulkers, personal communication). I did not walk the trails in this area, but did a review of the placement of the trails in relation to higher value habitats using GIS and orthophotos. The trails generally appear to avoid the highest rated polygons. If they run along or across a higher rated polygon they appear to mostly avoid the highest value habitats within those polygons.

I had confidence about the ecosystem units most likely to have grizzly bear winter denning through descriptions in Apps et al. (2016), the locations for several dens of GPScollared grizzly bears within the mapping area, and my previous experience. However, the actual selection of a den site within an appropriate habitat polygon depends considerably on appropriate site characteristics. Consequently, I was only confident to assign class 1 ratings to those polygons with actual dens. For those ecosystem units that I felt could support denning, the highest rating I gave was class 2.

### 4.2.1 Habitat Mapping beyond the RMOW Focal Area

There was insufficient time to individually evaluate all polygons in the habitat mapping area beyond the RMOW focal area. Nevertheless, there were a few areas where I more closely evaluated the generic ratings, especially where habitat ratings reflected or did not reflect seasonal concentrations of grizzly bear location data or the habitat ratings did not appear to reflect the habitat values that I could see on orthophotos.

The road, trail, parking, and infrastructure clearing done within the Callaghan Valley to support the cross-country and ski jumping events of the 2010 Winter Olympics created significant changes to grizzly bear habitat. These venues are on the west edge of the focal area defined for this mapping project, but are outside the management zones defined in the human-grizzly bear conflict mitigation strategy (RMOW 2019). This development was completed after the 2007 TEM was done. Some of the cleared area associated with these venues were in polygons with the BaCw – Devil's club (CWHms2 AD, site series 06) unit as they were in a moisture receiving area off the adjacent mountain slopes. I gave these polygons a generic class 2 rating because of the presence of this unit. Some of the subsequent clearing would have negatively affected grizzly bear habitat availability by removing habitat through road and parking paving. However, the habitat suitability of some of the cleared area would have been maintained or improved with the increased availability of early seral vegetation. Apps et al. (2016) generally found that human accessibility was strongly related to habitat selection at a broader scale. Human influence was positive at low levels of human access shifting to strongly negative at higher levels of access. Human access to the cross-country and ski jumping areas is restricted with a gate on the road. During winter it is open and staffed to collect fees and allow the paying public into the venues. During the snow-free period, which generally corresponds to the grizzly bear active seasons, the gate is shut and locked. Consequently, I left the class 2 ratings as is for several polygons in this area despite the significant human footprint.

There are extensive areas of previously logged polygons within the lower Callaghan River valley and west of Highway 99, particularly within the CWH BEC zone. Polygons with the BaCw – Devil's club (CWHms2 AD, site series 06) unit typically have good spring through fall grizzly bear food plant availability. Consequently polygons with these units were initially given a class 2 rating for all three active seasons. However, I found some of these logged polygons were rated too high because they were currently in a closedcanopy second growth forest state, therefore they did not have the same foraging value as they typically would. Consequently, I down-graded the ratings of polygons that obviously had a dense forest canopy and did not have other ecosystem units within them that would increase their overall value.

There were concentrations of GPS-collared grizzly bear locations in the upper end of Callaghan Creek and tributary creeks and in the upper end of the Soo River and tributary creeks. These concentrations were largely because of extensive areas of avalanche-created habitat and associated richer habitats on lower mountain slopes and the valley bottom. I adjusted the habitat ratings and/ or ecosystem unit designations for some polygons in these areas because of inaccurate ecosystem unit assignment during TEM. Otherwise, the generic ratings assigned did a good job of reflecting seasonal grizzly bear use in these areas.

There was a spring and summer concentration of GPS-collared grizzly bear locations in the wetlands and lower slopes of the lower Soo River. The generic ratings assigned to this area generally did a good job of reflecting seasonal grizzly bear use, but I made a few adjustments to the ratings. I also had to modify the boundaries of several polygons because there was a large blank area in the original TEM corresponding to private land.

### 4.3 Trail Management Context

### 4.3.1 Sea-to-Sky Land and Resource Management Plan

The S2S LRMP (Province of British Columbia 2008) contains five goals for grizzly bear:

- 1. Achieve and maintain a viable status for each of the four Grizzly Bear Population Units that overlap the Plan Area.
- 2. Conserve critical bear habitat, including movement corridors.
- 3. Reduce mortality of bears due to bear-human interaction.
- 4. Reduce incidence of grizzly bear mortality within, and displacement from, critical habitats.
- 5. Reduce incidence of displacement of grizzly bears due to recreational activities.

Most of the S2S LRMP area is considered a grizzly bear recovery area except for areas with high levels of human development and activity, such as around Whistler, Squamish, and Pemberton, some private land, and the Highway 99 corridor between Squamish and Whistler (Figure 9). Much of the RMOW area was considered excluded area in the S2S LRMP, but about 2/3 of the RMOW focal management area for this project is outside this excluded area around Whistler (see Figure 2). Nevertheless, the RMOW accepted the LRMP and support grizzly bear recovery in the S2S LRMP area and beyond. In 2014 the RMOW Council passed a resolution supporting grizzly bear recovery as well as encouraging the Province to develop grizzly bear recovery plans as soon as possible.

The RMOW focal area consists of either wildland or frontcountry land use zones within the S2S LRMP (Province of British Columbia 2008). Section 2.5.2 of the human-grizzly bear conflict mitigation strategy (RMOW 2019) reviews the recreational emphasis for Wildland zone #23 around Rainbow Mountain and its specific management direction.

### 4.3.1 Mount Sproatt/ Rainbow Mountain Bear Risk Assessment

Holmstol and Edwards (2018) conducted a bear risk assessment of eight trails and 17 features (one existing and three proposed campgrounds, 10 rest areas, and three viewpoints) on Sproatt Mountain and in Twenty-One Mile Creek to identify potential risks to human safety from bears. Their assessments considered habitat quality, visibility (sightlines), human use, attractant management, presence of bear sign, and probability of bear activity to identify risks and recommend mitigation action.

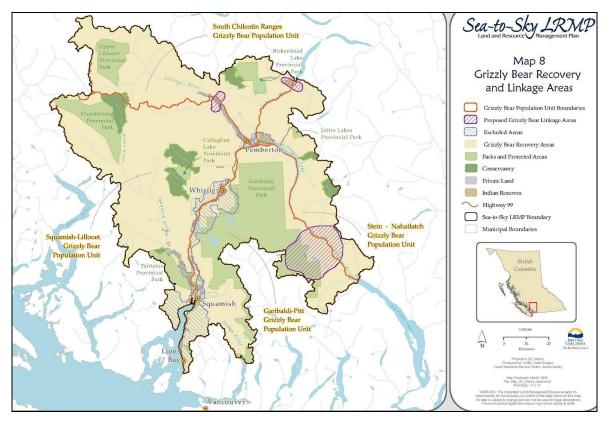


Figure 9. Grizzly bear recovery and excluded areas in the Sea-to-Sky Land and Resource Management Plan area (Map 8 in Province of British Columbia 2008).

Ciarniello (2019a) independently reviewed Holmstol and Edwards (2018) methods and results and raised a number of concerns. It was beyond the scope of this project to further evaluate Holmstol and Edwards (2018) results or to try and extract all of the relevant data that might be useful to trail management. However, there appears to be some site specific or area specific information that Holmstol and Edwards (2018) collected that would be useful toward trail management.

I recommend RMOW further investigate the information collected by Holmstol and Edwards (2018) to see how it might complement the results of this mapping project and assist with trail management decisions. For example, one of Holmstol and Edwards (2018) results were identified "red zones" along trails that were areas with both higher quality bear food along the trail and low sightlines (under 10 m). Their identified red zones often occurred in polygons that I mapped as higher value bear habitat (Figure 10). The bear food and sightline information they collected may only be specific to certain sections of a trail, but these results suggest that the red zones also correlate reasonably well with the general availability of bear food within a polygon.

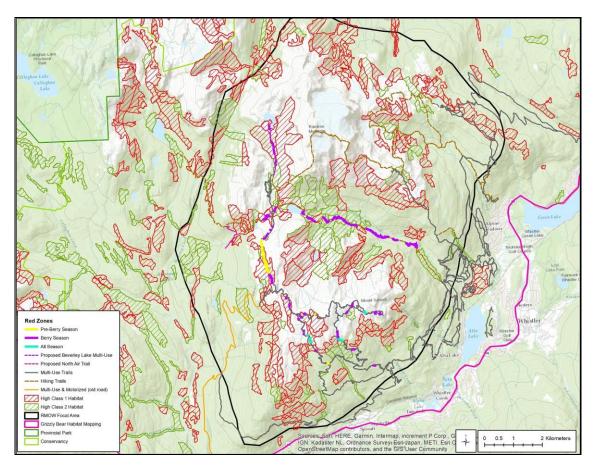


Figure 10. Trail "red zones" identified by Holmstol and Edwards (2018) overlaid on high and moderately high rated grizzly bear habitat polygons.

### 4.3.2 Human-Grizzly Bear Conflict Mitigation Strategy

RMOW staff and planning team members are in the last stages of completing their human-grizzly bear conflict mitigation strategy for the Mount Sproatt/ Rainbow Mountain trail network (RMOW 2019). The vision of the strategy is:

- Grizzly bears in the Sproatt-Rainbow alpine area are able to effectively utilize their natural habitats without conflict.
- Recreational users are able to enjoy their recreational activities and also understand their roles and responsibilities to minimize disturbance and avoid encounters with grizzly bears and other wildlife.
- Recreational users will comply with necessary recommendations stemming from the strategy, if and when they are needed.
- The strategy is supported and implemented by municipal and provincial authorities and the public understands and supports these efforts.

Ciarniello (2019b) independently reviewed an earlier draft of RMOW's human-grizzly bear conflict mitigation strategy and made a number of recommendations for improvement, which were addressed in subsequent drafts. Draft version 8 of the strategy includes actions to meet three main objectives, (1) Minimize impacts of recreation trail use on grizzly bear habitat and use patterns, (2) Minimize human interactions with grizzly bears, and (3) Develop a response and communication plan. To meet objective 1, there are actions outlined in four sections and to meet objective 2 there are actions outlined in 11 sections.

### 4.4 Habitat and Trail Management

### 4.4.1 Management Challenges

The grizzly bears with GPS-collars between 2008 and 2013 were active throughout the Mount Sproatt/ Rainbow Mountain focal management area, although there were distinct areas of seasonal concentration. It is unknown how many other grizzly bears were using the area during that same time or where they were primarily distributed. The Squamish-Lillooet grizzly bear population currently appears to be growing and expanding their range in some areas (Apps et al. 2014). I expect grizzly bear use of the trail network area will continue to increase as there are seasonally high value habitats available to grizzly bears throughout. At the same time, expansion of the existing trail network will bring more recreational users to the area, which I expect will continue to increase as the search for backcountry recreation opportunities continues to grow, especially in southwest B.C. Increased use by both grizzly bears and people will mean more grizzly bears potentially displaced from habitats around the trails where there is consistent human use and increasing interactions between people and bears, which could have negative consequences for both. Land managers will face some management challenges moving forward in meeting their commitments to the S2S LRMP objectives (Province of British Columbia 2008) and their objectives for the humangrizzly bear conflict mitigation strategy (RMOW 2019).

My grizzly bear habitat mapping should help land managers with implementation of their human-grizzly bear conflict mitigation strategy (RMOW 2019). This primarily will be through Planning and Trail Modifications (section 4.1.1) and Existing Trail and Amenity Relocations (4.1.2). However, my results also can support actions on Sightline Maintenance (4.1.3), Future Potential Infrastructure (4.1.4), location of Signage (4.2.3), Seasonal Restrictions and Closures (4.2.9), or Area Restrictions and Closures (4.2.10).

### 4.4.2 Trail Management Recommendations

I reviewed issues with the spatial accuracy of the original TEM polygon line-work done by Timberline NRG (2007 a&b) in section 4.3. The boundaries of polygons drawn specifically for this project should be spatially accurate. During trail system planning, particularly when evaluating options to re-route a trail, I recommend TEM polygon boundaries be examined against obvious ecological breaks on orthophoto imagery to see where there are discrepancies.

I reviewed the location of existing and proposed trails in relation to higher value grizzly bear habitat polygons in section 4.4.1. I had experience with several of these polygons through my field work. However, there was insufficient time to walk all the trails and ground truth all habitat polygons bisected by the trail network or to do any more than a cursory evaluation of polygons that were assessed. Nevertheless, I have made some recommendations about trail management below based on my mapping and field work.

The Gin and Tonic Lakes basin has abundant higher value grizzly bear habitat throughout. Consequently, I do not recommend trails or any other infrastructure be developed in this tributary drainage to Twenty-One Mile Creek.

All of the available information suggests to me that there be serious re-consideration of converting the Beverley Lake trail beyond the Ninja Lake Loop to multi-use and building a camp site at Beverley Lake.

Trail 21, which is now called "Pot of Gold" was to be completed in 2019 (RMOW 2019). Holmstol and Edwards (2018) identified the trail through this polygon and beyond as a pre-berry season red zone because of the abundance of pre-berry season bear foods. They suggested keeping the trail closed until mid-July to provide early season habitat for bears. However, GPS-collared bears used this slope from early July to late September, so this strategy would not work to avoid all grizzly bears use of the area. The collared bears may have been foraging on the abundance of forbs and graminoids on this mountain slope as well as black or blue-leaved huckleberry fruit associated with tree clumps within the polygon and adjacent polygons.

Recreation activity on the southern portion of the Flank Trail has the potential to displace grizzly bears foraging in the concentration of high value spring and summer habitats on the south-facing slope above the Cheakamus River, which is on the ridge nose between the Cheakamus River and Callaghan Creek. Consequently, I do not recommend trail improvements be completed in this area or an alternate re-build route be assessed lower down on the slope.

It would be valuable to walk the trails in the Skywalk area of Nineteen Mile creek and assess their placement in relation to higher rated polygons or high value habitats to see if any improvement can be made with trail re-alignment or other mitigation management strategies.

### 4.4.3 Trail Use and Education Recommendations

I was not contracted to review or make recommendations about trail use and education, however I made a number of observations during my habitat mapping work that I feel could be valuable toward ongoing trail network management.

While in the field I observed that a number of trail users appeared to be ill prepared for:

- being in bear country,
- being in the alpine where weather changes can happen quickly,
- dealing with an accident, flat tire, or mechanical issue that would delay their trip,
- the physical challenges of riding in the mountains, which puts them at higher risk of having an accident and/ or being stranded in the mountains after dark.

The RMOW has operated an Alpine Trail Ranger program on the Mount Sproatt/ Rainbow Mountain trail network annually between July and October since 2017 (section 4.2.11 in RMOW 2019). Additional hours were invested in the program in 2019. The rangers travel on both multi-use and hiking-only trails and they have a range of duties, including enhancing safe recreation through public education and wildlife observation data collection. The Alpine Trail Ranger program is an important initiative and I recommend it continue to operate every year. I also recommend that the Ranger program increase their educational efforts regarding bear awareness and human safety around bears, as well as, mountain weather hazard awareness and safety principles.

I recommend RMOW staff and planning partners continue to investigate additional ways to educate the public and reinforce both bear safety and mountain safety principles and practices. This could be through additional signs, one-on-one communication, brochures, interpretive talks, training sessions, and web sites.

I felt that the information white boards at trail heads for Alpine Rangers or users to record wildlife sightings and current hazards, closures, etc. was a good idea. It will be important to ensure information on these sign boards is regularly updated such that it is current and relevant to users.

I saw a number of permanent informational sign boards about bear ecology and safety that seemed to have good information on them. It will be important to investigate novel ways of ensuring trail users read and understand this type of educational material or receive it in other ways.

If it is not possible to implement other measures, such as trail relocation or seasonal or permanent trail closures to avoid higher value grizzly bear habitat, it may be worth discussing the placement of warning signs to users when they are about to transition to

good habitat. For example, "High value grizzly bear habitat ahead, stay alert, look ahead, make noise". That said, there will be issues in some sections with the seasonal relevance of that information. Consequently, it may be necessary for these types of signs to be temporary and only set up for the relevant season of bear use.

The number of people that routinely carry bear spray in the backcountry has increased in recent years, but there needs to be further concerted effort to encourage more people to carry it, particularly mountain bikers. In addition, an ongoing and increasing challenge is to also train people how and when to use bear spray. Some people assume they are immune from bear encounters simply because they carry bear spray and if they did have a bear encounter, don't necessarily know when or even how to use it.

In order to reduce the amount of displacement of grizzly bears from habitats along the trails and to reduce the chance of a close human-bear encounter on the trails, I recommend there be a ban on nighttime access to the trails and that people be discouraged from using the trails at dawn and dusk when wildlife are often most active.

Electric or e-bikes are currently prohibited on the Mount Sproatt/ Rainbow Mountain trail network (RMOW 2019). E-bikes could provide recreational access for users with physical challenges who cannot use their own power to access sub-alpine or alpine trails. Providing equal access is a potentially desirable social goal and there likely will be more and more user pressure to allow e-bikes on the trail system. However, e-bikes will increase the number of users, the range of types of users, and the distance that these users could potentially travel. All of this will add to existing impacts on grizzly bears and other wildlife. Consequently, I recommend the ban on e-bikes continue to be maintained on the Mount Sproatt/ Rainbow Mountain trail network.

Dogs are not currently permitted on the Rainbow Trail within the RMOW's water supply drainage and no dogs were to be permitted anywhere on the alpine trail system in 2019 (RMOW 2019). Dogs are problematic in the backcountry, particularly if they are off-leash, as they can displace wildlife, including bears, and lead to negative human-carnivore encounters. For example, Penteriani et al. (2016) found that the second most common risk-enhancing human behaviour that led to large carnivore attacks on humans was walking an unleashed dog. Miller et al. (2001) measured the response of mule deer (*Odocoileus hemionus*) exposed to a pedestrian, a pedestrian accompanied by a dog on leash and both were done on and away from recreational trails. The area of influence, flush distance, distance moved, and alert distance was greater when activities occurred off-trail versus on-trail. The presence of a dog resulted in a greater area of influence, alert and flush distance, and distance moved than when a pedestrian was alone. As a result, I recommend the ban on dogs continue to be maintained on the entire Mount Sproatt/ Rainbow Mountain trail network.

### 5 Literature Cited

- Apps, C., D. Paetkau, S. Rochetta, B. McLellan, T. Hamilton, and B. Bateman. 2014.
   Grizzly bear population abundance, distribution and connectivity across British
   Columbia's southern Coast Ranges. Version 2.3. Habitat Conservation Trust
   Foundation, B.C. Ministries of Environment & Forests, Lands, and Natural Resource
   Operations, and BC Hydro Fish and Wildlife Compensation Program, Victoria, B.C.
   125 pp.
- Apps, C., S. Rochetta, B. McLellan, and T. Hamilton. 2016. Grizzly bear space-use and movements relative to habitat and human influence in the southern Coast Ranges.
  B.C. Ministry of Forests, Lands, and Natural Resource Operations and Habitat Conservation Trust Foundation, Squamish, B.C. 85 pp.
- Ciarniello, L.M. 2019a. Independent review of the bear risk assessment for the Mount Sproatt/ Rainbow Mountain trails and trail amenities. Coast to Cascades Grizzly Bear Initiative, Whistler and Grizzly Bear Foundation, Vancouver, B.C. 10 pp.
- Ciarniello, L.M. 2019b. Independent review of the human-grizzly bear conflict mitigation strategy for the Mount Sproatt/ Rainbow Mountain area. Coast to Cascades Grizzly Bear Initiative, Whistler and Grizzly Bear Foundation, Vancouver, B.C. 9 pp.
- Ciarniello, L.M., M.S. Boyce, D.C. Heard, and D.R. Seip. 2005. Denning behavior and den site selection of grizzly bears along the Parsnip River, British Columbia, Canada. Ursus 16: 47-58.
- Demarchi, D.A. 2011. The British Columbia Ecoregion classification, third edition. B.C. Ministry of Environment. Victoria, B.C.
- Dibb, A. 1984. Seasonal variations in food habits of grizzly bears in the Kimsquit Valley, B.C.; a comparison of bear nutrition in several areas of British Columbia and Alberta. Forestry 495 paper, University of B.C., Vancouver, B.C. 43 pp.
- Dunster, J.A., and K. Dunster. 1996. Dictionary of natural resource management. UBC Press, Vancouver, B.C. 363 pp.
- Green, R.N. 2010. Terrestrial Ecosystem Mapping of the Whistler Landscape Unit, Soo TSA. B.A. Blackwell and Associates, North Vancouver, B.C. 24 pp.
- Green, R.N., and K. Klinka. 1994. A field guide to site identification and interpretation for the Vancouver Forest Region. B.C. Ministry of Forests, Victoria, B.C. 285 pp.
- Hamilton, A.N. 1987. Classification of coastal grizzly bear habitat for forestry interpretations and the role of food in habitat use by coastal grizzly bears. M.Sc. Thesis, University of British Columbia, Vancouver, B.C. 86 pp.
- Hamilton, A.N., W.R. Archibald, and E. Lofroth. 1986. Coastal Grizzly Research Project.
   Progress report Year 4 1985, Working plan Year 5 1986. B.C. Ministry of
   Environment, Wildlife Working Report No. WR-22, B.C. Ministry of Forests, Wildlife
   Habitat Research Report No. WHR-26, Victoria, B.C. 30 pp.

- Hilderbrand, G.V., T.A. Hanley, C.T. Robbins, and C.C. Schwartz. 1999. Role of brown bears (*Ursus arctos*) in the flow of marine nitrogen into a terrestrial ecosystem. Oecologia 121:546-550.
- Himmer, S., and M. Gallagher. 1996. Tweedsmuir/ Atnarko grizzly bear study final report. B.C. Ministry of Environment, Lands and Parks, Victoria, Williams Lake, and Prince George, B.C. 108 pp.
- Himmer, S., and D. Power. 2003. A guidebook for grizzly bear wildlife habitat features in coastal British Columbia. B.C. Ministry of Water, Land, and Air Protection and Ministry of Sustainable Resource Management, Hagensborg and Williams Lake, B.C. 37 pp.
- Hobbs, J., F. Iredale, and S. Keightley. 2013. Grizzly bear habitat management in the Bridge River Restoration Area, 2011 & 2012 final report. Ministry of Forests, Lands and Natural Resource Operations and Ministry of Environment, Victoria, B.C. 65 pp.
- Holmstol, L., and Edwards, C. 2018. Bear risk assessment for Mount Sproatt and Rainbow Mountain trails and trail amenities. Resort Municipality of Whistler, Whistler, B.C. 33 pp.
- Horn, H.L., P. Arcese, K. Brunt, A.E. Burger, H. Davis, F. Doyle, K. Dunsworth, P. Friele, S. Gordon, A.N. Hamilton, G. MacHutchon, T. Mahon, E. McClaren, V. Michelfelder, B. Pollard, G. Sutherland, S. Taylor, F.L. Waterhouse. 2009. Part 3: Knowledge base for focal species and their habitats in coastal B.C. Report 3 of the EBM Working Group Focal Species Project. Integrated Land Management Bureau, Nanaimo, B.C. 100 pp.
- Lloyd, K.A. 1979. Aspects of the ecology of black and grizzly bears in coastal British Columbia. M.Sc. thesis, University of B.C., Vancouver. 150 pp.
- MacHutchon, A.G. 2000. Grizzly bear habitat mapping, Central Coast, B.C. B.C. Ministry of Environment, Lands and Parks, Nanaimo, B.C. 94 pp.
- MacHutchon, A.G. 2001. Grizzly bear habitat mapping, Central Coast, B.C. 2000. B.C. Ministry of Environment, Lands and Parks, Nanaimo, B.C. 100 pp.
- MacHutchon, A.G. 2007a. Coastal grizzly bear habitat mapping methods. B.C. Ministry of Environment, Victoria and Black Creek, B.C. 35 pp.
- MacHutchon, A.G. 2007b. South Central Coast grizzly bear habitat mapping 2007. B.C. Ministry of Environment, Black Creek & B.C. Ministry of Agriculture and Lands, Nanaimo, B.C. 32 pp.
- MacHutchon, A.G. 2008. North Coast, B.C. grizzly bear habitat mapping. B.C. Ministry of Environment, Smithers and Ecosystem Based Management Working Group. 28 pp.
- MacHutchon, A.G. 2009. Phillips & Fulmore Landscape Units, grizzly bear habitat mapping. B.C. Ministry of Environment, Victoria, B.C. 11 pp.
- MacHutchon, A.G. 2010. Coastal grizzly bear habitat mapping and review methods. Grizzly Bear Habitat Mapping Technical Review Team, B.C. Ministry of Environment, Victoria and B.C. Ministry of Forests and Range, Nanaimo, B.C. 29 pp.

MacHutchon, A.G. 2011. Kitsault Mine Project grizzly bear habitat mapping. AMEC, Burnaby, B.C. 13 pp.

- MacHutchon, A.G. 2015a. Assessment of grizzly bear habitat in the Cougar Bay area of Princess Royal Island. Kitasoo/ Xai'xais First Nation, Klemtu, B.C. 6 pp.
- MacHutchon, A.G. 2015b. Toward a British Columbia grizzly bear species account. B.C. Ministry of Environment, Victoria, B.C. 49 pp.

MacHutchon, A.G. 2015c. Compilation of grizzly bear food habit information for British Columbia. B.C. Ministry of Environment, Victoria, B.C., Excel workbook.

MacHutchon, A.G. 2015d. Compilation of grizzly bear food plant data from the British Columbia BEC master database. B.C. Ministry of Environment, Victoria, B.C., Excel workbooks.

- MacHutchon, A.G. 2018. Grizzly bear habitat mapping on Princess Royal, Swindle, and Sarah Islands of the British Columbia central coast. Kitasoo/ Xai'xais First Nation, Klemtu & Ministry of Forests, Lands, Natural Resource Operations & Rural Development, Nanaimo, B.C. 24 pp.
- MacHutchon, A.G., S. Himmer, and C.A. Bryden. 1993. Khutzeymateen Valley grizzly bear study: final report. B.C. Ministry of Forests, Wildlife Habitat Research Report WHR-31 and B.C. Ministry of Environment, Lands and Parks, Wildlife Report R-25, Victoria, B.C. 107 pp.
- MacKenzie, W.H., and J.R. Moran. 2004. Wetlands of British Columbia: a guide to identification. Research Branch, B.C. Ministry of Forests, Land Management Handbook 52, Victoria, B.C.
- McLellan, B.N., and D.M. Shackleton. 1989. Immediate reactions of grizzly bears to human activities. Wildlife Society Bulletin 17:269-274.
- McLellan, M. 2012. Grizzly bear habitat mapping in the Lillooet TSA expert based assignment of priorities for field confirmation and final mapping. 9pp. Lillooet Grizzly Bear Working Group, Lillooet, B.C.
- McLellan, M.L., and B.N. McLellan. 2015. Effect of season and high ambient temperature on activity levels and patterns of grizzly bears (Ursus arctos). PLoS One 10:e0117734.
- McLellan, M.L., B.N. McLellan, R. Sollmann, C.T. Lamb, C.D. Apps, and H.U. Wittmer.
   2019. Divergent population trends following the cessation of legal grizzly bear hunting in southwestern British Columbia, Canada. Biological Conservation 233:247-254.
- Province of British Columbia. 2008. Sea-to-Sky Land and Resource Management Plan. Province of British Columbia, Victoria, B.C. 185 pp.
- Reimchen, T.E. 1994. Further studies of predator and scavenger use of chum salmon in stream and estuarine habitats at Bag Harbour, Gwaii Haanas. Canadian Parks Service, Queen Charlotte City, B.C. 58 pp.

Reimchen, T.E. 2000. Some ecological and evolutionary aspects of bear-salmon interactions in coastal British Columbia. Canadian Journal of Zoology 78:448-457.

- RMOW, Resort Municipality of Whistler. 2019. Human-grizzly bear conflict mitigation strategy for the Mount Sproatt/ Rainbow Mountain alpine trails. Resort Municipality of Whistler, Whistler, B.C. Draft version 8. 55 pp.
- RISC, Resources Inventory Standards Committee. 1999. British Columbia wildlife habitat rating standards. Version 2.0. Resources Inventory Standards Committee, Terrestrial Ecosystems Task Force, Victoria, B.C. 97 pp.
- RISC, Resources Inventory Standards Committee. 2015. Terrestrial ecosystem information digital data submission standard – draft for field testing. Database and GIS standards. Version 2.2. B.C. Ministry of Environment, Knowledge Management Branch for the Terrestrial Ecosystems, Resources Inventory Standards Committee, Victoria, B.C. 261 pp.
- Russell, D. 1974. Grizzly bear mountain goat investigations in Knight Inlet, B.C.; Project report. B.C. Ministry of Environment, Nanaimo, B.C. 93 pp.
- Smith, T.S., and S.T. Partridge. 2004. Dynamics of intertidal foraging by coastal brown bears in southwestern Alaska. Journal of Wildlife Management 68:233-240.
- Timberline NRG. 2007a. Terrestrial Ecosystem Mapping: Callaghan Landscape Unit. Timberline Natural Resource Group Ltd. for Soo Licensee Group, Vancouver, B.C. 23 pp.
- Timberline NRG. 2007b. Terrestrial Ecosystem Mapping: Soo Landscape Unit. Timberline Natural Resource Group Ltd. for Soo Licensee Group, Vancouver, B.C. 25 pp.

### 6 Appendices

### 6.1 Plant, tree, and bear sign codes used during field assessments

	Plant		Plant		Bear Sign
AB	Alaskan blueberry	SA	salal	В	Bed
AN	Angelica spp.	SB	salmonberry	Bf	Berry feeding
BB	buckbean	SC	skunk cabbage	Di	Digging
BG	bear-grass	SFB	small-flowered bulrush	D	Disturbance
CA	Carex spp.	SK	stink currant	Gr	Grazing
CI	sweet-cicely	SN	stinging nettle	Н	Hair
CL	Canby's lovage	SV	Sitka valerian	Mtr	Mark Trail
СР	cow parsnip	ТВ	thimbleberry	MT	Mark Tree
DC	devil's club	TS	twisted-stock	М	Movement
EB	red elderberry	TW	twinberry	0	Other
FB	falsebox	WFR	white-flowered rhododendron	So	Scat old
FI	fireweed	WH	water hemlock	Sr	Scat recent
FS	false Solomon's-seal			Т	Tracks
GL	glacier lily		Trees	V	Visual
GO	Gooseberry	Ac	black cottonwood	W	Wallow
GR	grasses	At	trembling aspen		
HB	black huckleberry	Ва	amabilis fir		Bear Activity
HC	highbush-cranberry	Bl	subalpine fir	В	Bedding
HT	common horsetail	Cw	western redcedar	F	Feeding
IH	Indian hellebore	Dr	red alder	М	Marking
KI	kinnikinnick	Fd	Douglas-fir	0	Other
LB	Low bilberry	Hm	mountain hemlock	Т	Traveling
LF	lady fern	Hw	western hemlock	U	Unknown
LS	Lyngby's sedge	La	alpine larch		
MA	mountain-ash	Lw	western larch		
OB	oval-leaved blueberry	Ра	Whitebark pine		
OS	ocean spray	PI	lodgepole pine		
РС	Pacific crab apple	Ру	Ponderosa pine		
PP	Pacific water-parsley	Se	Englemann spruce		
RD	red osier-dogwood	Ss	Sitka spruce		
RA	raspberry	Sw	white spruce		
RH	red huckleberry	Sb	black spruce		
RI	Ribes spp.	Yc	yellow cedar		
RO	Rosa spp.				

### 6.2 Grizzly Bear Habitat Ecology – Coast and Mountains Ecoprovince

An Ecoprovince is an area with consistent climatic processes, oceanography, topography, and geological history (Figure 11, Demarchi 2011). The size and broad internal uniformity of Ecoprovinces make them a good ecological framework for describing regional differences in grizzly bear habitat ecology.



Figure 11. Ecoprovinces (blue lines) within the 2012 range of grizzly bears (orange line) in British Columbia.

The Coast and Mountains Ecoprovince extends from southeastern Alaska to the northern Cascade Mountains in Washington. In British Columbia it includes the windward side of the Coast Mountains and Vancouver Island, all of Haida Gwaii and the Continental Shelf. The Coast and Mountains Ecoprovince consists of the large coast mountains, a broad coastal trough and the associated lowlands, islands and the continental shelf, as well as the insular mountains on Vancouver Island and the Haida Gwaii archipelago (Demarchi 2011).

### 6.2.1 Seasonal Habitat Use

Grizzly bears use a variety of habitats through the year from valley bottoms to alpine meadows. Table 3 summarizes the general life requisites of grizzly bears for each month of the year for the Coast and Mountains Ecoprovince. The following sections summarize grizzly bear food habits and habitat use within the Coast and Mountains based on diet information from the CWH submaritime subzones (Dibb 1984, Hamilton et al. 1986, Hamilton 1987, Hamilton unpublished data, Himmer and Gallagher 1996, Himmer unpublished data) and CWH maritime subzones (Russell 1974, Lloyd 1979, MacHutchon et al. 1993, Himmer unpublished data, MacHutchon unpublished data) portions of the Ecoprovince. The habitat mapping area is within CWH submaritime subzones, but there are foods available in this region that are not found in other submaritime areas.

Table 3. Monthly life requisit	es and seasons for grizzly bears in the Coast and
Mountains Ecoprovince	(RISC 1999).

Month	Season	Life Requisite	Grizzly Bear Activity
January	Winter	Hibernating (HI)	Hibernating in den
February	Winter	Hibernating (HI)	Hibernating in den
March	Winter	Hibernating (HI)	Hibernating in den
	Early	Hibernating (HI), Food (FD)	Hibernation to den emergence to valley floor
April	Spring	& Security/ Thermal (ST)	leaf flush; graminoid & forb foraging
	Late	Food (FD) & Security/	Valley floor leaf flush to avalanche chute
May	Spring	Thermal (ST)	green-up; graminoid & forb foraging
		Food (FD) & Security/	
June	Summer	Thermal (ST)	Graminoid, forb, & early fruit foraging
		Food (FD) & Security/	Late graminoid and forb, fruit, & salmon
July	Summer	Thermal (ST)	foraging
		Food (FD) & Security/	
August	Summer	Thermal (ST)	Fruit & salmon foraging
		Food (FD) & Security/	
September	Fall	Thermal (ST)	Fruit & salmon foraging
		Food (FD) & Security/	
October	Fall	Thermal (ST)	Salmon & late fruit foraging to den entrance
November	Winter	Hibernating (HI)	Den entrance to hibernating in den
December	Winter	Hibernating (HI)	Hibernating in den

Much of the coast of B.C. is characterized by deeply incised fjords and valleys with steep granite-walled mountain slopes capped by non-vegetated or sparsely vegetated alpine areas. Consequently, the majority of grizzly bear activity in the non-denning period in these valleys is below treeline and concentrated in valley-bottom ecosystems, particularly those near salmon-bearing and spawning streams (Hamilton 1987, MacHutchon et al. 1993, Horn et al. 2009). For example, in the Kimsquit River valley, approximately 75% of radio-collared grizzly bears active season was spent below 500 m elevation, nevertheless bears denned under deep snow at higher elevations to maximize insulation and minimize humidity and water seepage (Hamilton 1987). In the Khutzeymateen River valley on the north coast, over 85% of aerial locations of radiocollared grizzly bears in all active seasons were in the Costal Western Hemlock (CWH) Biogeoclimatic zone even though it comprised only 26% of the study area. The Coastal Mountain Heather Alpine (CMA) zone was almost half the Khutzeymateen study area, but radio-collared grizzly bears were never located there (MacHutchon et al. 1993).

Some major river valleys in coastal B.C. and areas on the south coast have broader valley bottoms and lower angle mountain slopes with better developed soils, therefore more productive sub-alpine forested and non-forested habitats. Major coastal river valleys in the south coast also typically have a significant human footprint, such as roads, towns, and logging and recreation activity that have influenced grizzly bear distribution and habitat use. Based on grizzly bear location data, Apps et al. (2016) evaluated and described associations of grizzly bear habitat selection against measured covariates and considered variation across four seasons and three hierarchically nested spatial scales. Human accessibility was modelled as a function of human population and various factors influencing human travel and dispersion. Human accessibility was strongly related to habitat selection at a broader scale. Human influence was positive at low levels of human access shifting to strongly negative at higher levels of access. Road density was more relevant at finer scales and grizzly bear response was negative at high levels of road density. The positive relationship that Apps et al. (2016) found at low levels of human access was consistent with a finer-scale benefit of road features to bears in terms of forage value and ease of movement.

### 6.2.1.1 Spring Foraging

Grizzly bears primarily feed on emerging green vegetation in spring, which can be found in estuaries, ocean foreshores, wetlands, forested swamps, wet seepage sites, riparian areas, and avalanche chute run-out zones.

The main sedge eaten by grizzly bears in estuaries in the spring and early summer is Lyngby's sedge (*Carex lyngbyei*). Lyngby's sedge is often grazed near or in tidal channels where it can be very dense. Shoreline areas, particularly salt marshes, provide early season foraging opportunities on herbaceous vegetation, such as other sedges (*Carex* sp.), grasses (family Poaceae), and forbs (e.g., *Triglochin* sp.). This vegetation provides bears with a relatively abundant source of highly digestible protein that can help replace body mass lost during hibernation (Smith and Partridge 2004).

Other emerging vegetation in the spring well-used by grizzly bears, include various umbels in the family Apiaceae (e.g., wild celery (*Angelica* sp.), cow parsnip (*Heracleum maximum*), common horsetail (*Equisetum arvense*), meadow horsetail (*Equisetum pratense*), small-flowered bulrush (*Scirpus microcarpus*), and stinging nettle (*Urtica*)

*dioica*). In forested and non-forested swamp areas, the corms of skunk cabbage (*Lysichiton americanum*) are a well-used spring food, where they occur.

Some non-native plants attract bears to forage near or travel through human occupied areas in spring and early summer. For example, red clover (*Trifolium pratense*), white clover (*Trifolium repens*), common dandelion (*Taraxacum officinale*), and a variety of non-native grasses. These non-native plants grow particularly well in human disturbed, cultivated, or waste ground and in some cases have been deliberated seeded, so they can be common along transportation route right-of-ways, such as highways, secondary roads, and logging roads, as well as, near human developments.

The current year's growth of several fruiting shrubs often is eaten before fruit become ripe. The shoots of salmonberry (*Rubus spectabilis*) and thimbleberry (*Rubus parviflorus*), the leaf buds and petioles of devil's club (*Oplopanax horridus*) and the leaf petioles of red elderberry (*Sambucus racemosa*) are commonly eaten.

Generally, grizzly bears follow receding snow up valleys and avalanche chutes to feed on emerging vegetation there, such as cow-parsnip, lady fern (*Athyrium filix-femina*), fireweed (*Chamerion angustifolium*), and grasses. Within higher elevation seepage areas, grizzly bears will dig yellow glacier lily (*Erythronium grandiflorum*) roots, particularly in late spring and fall.

Grizzly bears feed on colonial insect larva and adults, particularly ants (family Formicidae) and wasps (family Vespidae) during spring through fall. Rotting logs or stumps are torn apart to feed on adult and larval ants and the larvae of ground-nesting wasps are also dug up and eaten.

### 6.2.1.2 Summer Foraging

As fruit ripens in summer, coastal grizzly bears move to valley bottoms and valley side slopes where they feed on a number of shrub fruits, including salmonberry, red elderberry, black twinberry (*Lonicera involucrata*), thimbleberry, devil's club, blueberry or huckleberry (*Vaccinium* spp.), stink currant (*Ribes bracteosum*), highbush-cranberry (*Viburnum edule*), red-osier dogwood (*Cornus stolonifera*), and Pacific crab apple (*Malus fusca*). When and how much each fruit is eaten depends on local and annual abundance as well as relative availability. The timing of use usually corresponds to the dates of ripening, which varies from year to year and among species, but the general chronological order of use roughly correspond to the above order.

Many bears move to higher elevation mountain hemlock forests, subalpine areas, or avalanche chutes to feed on black huckleberry (*Vaccinium membranaceum*) in late

summer through fall. Blue-leaved or Cascade huckleberry (*Vaccinium deliciosum*) is only found in B.C. in the southwest, but is a well-used grizzly bear food (Ciarniello 2019a).

Fruiting shrubs are most abundant and concentrated in open canopy floodplain and alluvial fan forests as well as avalanche chutes and other natural openings, such as subalpine habitats. Fruit also may be abundant in early seral clearcuts or other openings associated with logging if the canopy openings have not closed in.

### 6.2.1.3 Fall Foraging

Grizzly bears will feed on live and, eventually, dead salmon from mid-summer through late fall where they are available. In some coastal valleys, bears can acquire about 70% of their annual protein consumption from salmon during this period (Reimchen 1994, 2000, Hilderbrand et al. 1999). Grizzly bears may travel considerable distances to access salmon and will congregate at salmon-bearing streams during spawning. While feeding on salmon, grizzly bears also will forage on shrub fruit. Once salmon availability declines, grizzly bears return to feeding on skunk cabbage, late fruit, and other vegetation (MacHutchon et al. 1993).

In some ecosystems or during productive fruit years, some grizzly bears may rarely or never travel to salmon spawning streams to feed. Grizzly bears in the Mount Sproatt/ Rainbow Mountain area, particularly females, are not believed to be salmon-feeding bears (Ciarniello 2019a; S. Rochetta personal communication). It is thought that several bears remain at high elevations in fall to feed on black and blue-leaved huckleberries. Consequently, habitats with huckleberry fruit are particularly important to grizzly bears in the habitat mapping area, especially during fall and late fall (Ciarniello 2019a). There also is some Hoary marmot (*Marmota caligata*) digging within the Mount Sproatt/ Rainbow Mountain area in fall (M. Sulkers, personal communication).

### 6.2.1.4 Security and Thermal Habitat

Security habitat for grizzly bears is variable, but is used to avoid intra-specific (bear to bear) and inter-specific (primarily bear to human) contact. Forest habitat may be used as security from other bears; therefore, forest adjacent to foraging areas are important. Females with cubs tend to use forest habitat older than pole-sapling with diverse understory, and isolated rugged habitats, to avoid adult males. Higher quality habitats adjacent to roads or other areas of human disturbance may not be used if adequate forest security cover is not available (McLellan and Shackleton 1989).

For thermal cover, grizzly bears will seek shelter from precipitation in forested habitats. During hot weather, bears will bed in shady areas, such as forests with coarse woody debris, under rock overhangs, or tall shrubs. Areas of dense cover (e.g., alder thickets, riparian vegetation and dense coniferous forest) are used for bedding. Water sources, such as ponds, streams, and wetlands are important for cooling.

Many important feeding habitats for grizzly bears are open or non-forest. In order for these habitats to retain their value to grizzly bears, as well as their ecological integrity, it is important that they have adjacent forest habitat for security and thermal cover and travel. Forests adjacent to well-used feeding sites will often contain a number of grizzly bear habitat features, such as beds, trails, mark trees, or wallows (Himmer and Power 2003), escape trees (i.e., trees for cubs to climb), and provide important microclimatic conditions (e.g., cover from rain, reduced local temperature and shade in hot weather).

### 6.2.1.5 Winter Denning and Hibernation

Denning has been characterized as the physical act of reducing mobility and conserving energy by entering a constructed or natural cavity whereas hibernation is the physiological changes and adaptations that allow bears to survive for several months in their den without food and water. The most important reason bears enter dens and hibernate is that food is scarce during winter so if they did not hibernate they would lose more energy than they could take in. This energy loss is exacerbated outside the den in winter by severe weather and deep snow that reduces mobility. In addition, dens are safe and secure environments for pregnant females to have cubs.

On the central and north coast, dens were typically in older forest and were dug under large trees as the tree's root mass created a stable den roof (Hamilton 1987, MacHutchon et al. 1993). These dens were located on steep, well-drained slopes in the transition between the Coastal Western Hemlock and Mountain Hemlock BEC zones (approximately 600-1000 m elevation, depending on latitude and aspect) and often were in the stringers of trees at the edge of avalanche tracks or steep-walled gullies. It has been speculated that snow cover is likely less important for insulation on the coast where temperatures rarely fell below -20°C, but that dens need to be located at dry, cold sites where temperatures generally remain below freezing and melt-water seepage is rare. Grizzly bear dens that have been found at lower elevations on the coast typically have been associated with late spawning salmon runs and these dens were more likely to be in tree cavities then dug (T. Hamilton, personal communication).

On the south coast, Apps et al. (2016) found den sites were relatively consistent in terms of landscape attributes. They occurred at relatively high elevations, broadly on upper slopes of mountains and on moderately steep slopes. Den sites were very near treeline, either in the upper subalpine or lower alpine, with canopy closure that was lower at successively finer scales. Forest composition within the larger landscape was primarily old spruce and subalpine fir.

## 6.3 Prominence values for grizzly bear food plants within forested site series in three Biogeoclimatic Ecosystem Classification variants that occur in the habitat mapping area.

	BEC Variant:				CWHds1	L						CWHms	s1					MHmm2	2	
	No. of Plots:	27	1	11	8	2	13	1	39	15	17	7	4	7	5	63	9	9	20	10
											DK/									
	Map Code:	HM	DK	FF	RS	HQ	RD	SS	AM	DF	DF	AO	HQ	AD	RC	MB	MM	MO	AB	MT
Scientific & Common Name	Site Series:	01	02	03	05	06	07	08	01	03	032	04	05	06	11	01	02	03	04	05
Amelanchier alnifolia	saskatoon	0.3	10.0	1.7		0.4			0.7	10.9	0.2		0.1							<u> </u>
Aralia nudicaulis	wild sarsaparilla	0.1				3.5								1.1						L
Arctostaphylos uva-ursi	kinnikinnick		100.0	0.8						0.1	11.8						0.9			
Athyrium filix-femina	lady fern	0.1					14.2	20.0	0.1	0.4		23.0		25.3	100.2	0.1		27.9	0.5	2.1
Calamagrostis canadensis	bluejoint reedgrass																	0.4		
Carex disperma	soft-leaved sedge														0.6					
Carex rossii	Ross' sedge	0.1								0.1										
Chamerion angustifolium	fireweed								0.1	0.6				0.1	0.2			0.8	0.1	0.2
Cornus canadensis	bunchberry	5.3		0.2	0.2	70.0	9.1	10.0	34.3	4.7	0.4	5.0	26.3	56.1	15.5	3.1	12.5	3.7	5.0	2.5
Cornus stolonifera	red-osier dogwood	0.2		0.5			0.2			0.1				4.3	8.9					
Corylus cornuta	beaked hazelnut	2.3							0.1	0.1										
Deschampsia cespitosa	tufted hairgrass															0.1				
Dryopteris expansa	spiny wood fern	0.1			64.5		51.9	50.0	0.6			6.6		4.6	3.6	0.1	0.2	5.1	0.2	3.8
Equisetum arvense	common horsetail						0.1							1.1	37.6					
Equisetum pratense	meadow horsetail									0.3					0.2			0.2		
Fragaria virginiana	wild strawberry	0.1		0.1					0.4	2.4		0.1								
Gaultheria shallon	salal	8.8		190.3	0.1				0.2		2.9									
Heracleum maximum	cow-parsnip													0.1				0.2		
Lonicera involucrata	black twinberry								0.1											
Lupinus arcticus	arctic lupine															0.1			0.3	0.9
Lupinus nootkatensis	Nootka lupine								0.1	0.1										
Lysichiton americanus	skunk cabbage														114.5	0.1				
Maianthemum racemosum	false Solomon's-seal	0.1					0.8	2.0	0.1	0.7		4.0		1.1						
	star-flowered false																			
Maianthemum stellatum	Solomon's-seal	2.8		2.2			2.4	50.0	3.7	2.9		29.1		9.2	1.8					<u> </u>
Malus fusca	Pacific crab apple						2.1		0.1											L
Oplopanax horridus	devil's club	0.1		0.1	4.4	0.4	159.3	150.0	0.2			24.4		55.4	71.9	0.1		36.5		22.4
Osmorhiza berteroi	mountain sweet-cicely	0.2		0.1	0.1	0.4	1.9	10.0	0.1	0.3		1.1		6.7	1.8					0.1
Osmorhiza purpurea	purple sweet-cicely																	1.3	0.3	0.9
Pedicularis bracteosa	bracted lousewort									0.1										
Petasites frigidus	sweet coltsfoot													0.3						i –

	BEC Variant:				CWHds1	L						CWHms	51				I	VHmm2	2	
	No. of Plots:	27	1	11	8	2	13	1	39	15	17	7	4	7	5	63	9	9	20	10
											DK/									
	Map Code:	HM	DK	FF	RS	HQ	RD	SS	AM	DF	DF	AO	HQ	AD	RC	MB	MM	MO	AB	MT
Scientific & Common Name	Site Series:	01	02	03	05	06	07	08	01	03	032	04	05	06	11	01	02	03	04	05
Prosartes hookeri	Hooker's fairybells					0.4	0.9			0.3	0.1	1.7		19.6						ļ!
Rhamnus purshiana	cascara				0.5		2.6		0.1					7.7						ļ!
Ribes bracteosum	stink currant						5.2								7.2			0.2		ļ!
Ribes glandulosum	skunk currant																		0.1	ļ!
Ribes lacustre	black gooseberry	1.4	1.0	0.1		0.4	1.2		0.1	2.4		3.3		8.3				0.6		ļ'
Ribes laxiflorum	trailing black currant															0.1	0.9	0.9		ļ!
Rosa acicularis	prickly rose						0.1			0.1				2.1						ļ!
Rubus idaeus	red raspberry									0.5										ļ!
Rubus parviflorus	thimbleberry	0.1		0.2			0.9		0.3	3.6	0.1	11.8		18.3						
Rubus pedatus	five-leaved bramble	0.1					0.4	20.0	15.5			0.9	10.0	13.1	15.6	72.3	51.3	25.9	145.5	93.0
Rubus pubescens	dwarf red raspberry																	5.5		
Rubus spectabilis	salmonberry				0.9		88.9	5.0	0.1			3.6	0.1	18.8	128.6	0.1		3.0	0.3	2.2
Rubus ursinus	trailing blackberry	2.6		0.4	13.2		5.2													
Sambucus racemosa	red elderberry				2.0		18.7			0.9		0.1	0.1	0.5	0.6			2.6		0.2
Scirpus microcarpus	small-flowered bulrush														0.4					
Senecio triangularis	arrow-leaved groundsel																	0.2	0.3	
Shepherdia canadensis	soopolallie		50.0							1.4										
Sorbus scopulina	western mountain-ash	0.4	1.0			0.4	0.1		0.1	3.0				3.6		0.1		0.7	0.4	0.2
Sorbus sitchensis	Sitka mountain-ash	0.1							0.3	0.2		0.1	3.6	2.1		6.6	6.4	0.8	5.6	5.0
Streptopus amplexifolius	clasping twistedstalk				14.2		2.8		0.1			0.4		6.5	10.8	0.1		2.9	0.1	0.1
Streptopus lanceolatus	rosy twistedstalk	0.1				3.0	13.1		0.1	0.1		11.4	0.1	56.3	13.9	1.3	0.2	13.7	13.5	153.9
Streptopus lanceolatus var.	rosy twistedstalk															4.2		4.4		26.8
curvipes Streptopus streptopoides	small twistedstalk	0.1							0.5				0.1			0.9		0.8	0.6	20.8
Vaccinium alaskaense	Alaskan blueberry	11.9		15.7		14.1	1.8	10.0	48.7	2.6		0.1	36.8	61.7	155.1	125.0	131.4	72.4	231.4	152.7
Vaccinium membranaceum	black huckleberry	21.9		0.8		10.6	0.1	10.0	33.7	33.7	11.6	14.9	79.2	19.5	3.6	141.7	87.3	25.4	79.8	121.9
Vaccinium ovalifolium	oval-leaved blueberry			0.8		10.0	0.1	40.0	32.6	5.7	11.0	14.9	39.2	39.3	93.4	54.1		87.5	106.9	41.0
Vaccinium parvifolium	red huckleberry	1.2 41.1		125.2	0.2	12.5	2.9	1.0	23.3	5.7 15.2	3.1	3.0	39.2	39.3 11.4	93.4 0.6	1.0	30.6	07.5	0.2	41.0
Vaccinium parvironum Vaccinium caespitosum	dwarf blueberry	41.1		123.2	0.2	12.5	2.9	1.0	23.3	15.2	5.1	5.0		11.4	0.0	0.2			0.2	<sup> </sup>
Valeriana sitchensis	Sitka valerian											4.3		3.4		0.2	0.3	43.5	2.4	24.7
Veratrum viride	Indian hellebore						0.1					4.5		0.1	5.7	1.6	0.3	43.5 21.5	3.7	37.7
Viburnum edule	highbush-cranberry						1.2	5.0		0.1				11.6	22.8	1.0	0.1	21.3	5.7	57.7
	/				0.1		2.3	5.0						3.2	37.9			6.2	0.2	6.9
Viola glabella	stream violet				0.1		2.3			0.1				3.Z	37.9			6.2	0.2	6.8

6.4 The stand-alone ratings of the foraging potential of mapped ecosystem units for grizzly bears for each of Apps et al (2016) spring, summer, and fall active seasons, as well as, winter denning.

Spring	Summer	Fall	Winter	BEC Unit	Site_S	SiteMC_S	Ecosystem Unit Name	Assumed Situation	Typical Soil Moisture Regime
							Dr - Vine maple avalanche	moderately to steeply sloping colluvial parent materials subject to	
4	3	2	5	CWHds1	00	AV	track	regular snow avalanching	mesic - subhygric
2	1	1	6	CWHds1	09	CD	Act - Red-osier dogwood	active floodplain, middle fluvial bench, deep medium - textured soil	subhygric - hygric
5	4	4	4	CWHds1	04	DF	Fd - Fairybells	gentle slope, mid slope position, deep medium - textured soils, richer nutrient regime	xeric - subxeric
5	4	4	4	CWHds1	02	DK	FdPl - Kinnikinnick	gentle slope, crest position, shallow soil	xeric
2	2	3	6	CWHds1	00	FE	Organic sedge fen	sedge dominated fen on organic soils	subhydric - hydric
5	4	4	4	CWHds1	03	FF	FdHw - Falsebox	gentle slope, upper to middle slope position, deep medium - textured soils	xeric - subxeric
4	5	5	4	CWHds1	01	HM	HwFd - Cat's-tail moss	gentle slope, mid slope position, deep medium - textured soils	submesic - mesic
5	4	4	5	CWHds1	06	HQ	Hw - Queen's cup	gentle slope, lower slope position, receiving position, deep medium - textured soils	subhydric-hygric
3	3	4	6	CWHds1	00	OS	Organic shrub fen	shrub dominated fen on organic soils	subhydric - hydric
1	3	1	6	CWHds1	12	RC	CwSs - Skunk cabbage	depression to flat, treed swamp, poorly drained, deep, medium - textured mineral soil	subhydric
2	2	2	5	CWHds1	07	RD	Cw - Devil's club	gentle slope, lower slope position, receiving position, deep medium - textured soil, richer nutrient regime	subhydric-hygric
5	5	5	4	CWHds1	05	RS	Cw - Solomon's seal	gentle slope, mid slope position, deep medium - textured soils, richer nutrient regime	submesic - mesic
2	1	1	6	CWHds1	08	SS	Ss - Salmonberry	active floodplain, high fluvial bench, deep medium - textured soil	subhygric - hygric
4	3	2	5	CWHms1	00	AA	Ba - Alaskan blueberry	stunted edaphic forests; shallow soil	submesic - mesic
2	2	2	5	CWHms1	06	AD	BaCw - Devil's club	gentle slope; lower slope position, deep medium - textured soil, richer nutrient regime; receiving moisture	subhygric - hygric
1	1	1	5	CWHms1	00	AH	Sitka alder - Black huckleberry/ Alder-hellebore avalanche track	avalanche chute; mid slopes >35%; coarse soils	mesic – subhygric
4	4	4	4	CWHms1	01	AM	HwBa - Step moss	significant slopes; middle slope position; deep medium - textured soils (use aspect modifiers)	mesic
4	4	4	4	CWHms1	04	AO	BaCw - Oak fern	significant slopes; deep medium - textured soils (use aspect modifiers)	
2	1	1	6	CWHms1	08	CD	Act - Red-osier dogwood	active floodplain; middle fluvial bench, deep medium - textured soil	subhygric - hygric

Spring	Summer	Fall	Winter		Site_S	SiteMC_S			Tuning Coll
SI	Su		3	BEC Unit	Si	Site	Ecosystem Unit Name	Assumed Situation	Typical Soil Moisture Regime
3	3	3	5	CWHms1	09	CW	Act - Willow	active floodplain, low bench, deep coarse - textured soil	subhygric - hygric
_								significant slope, upper to middle slope position, warm aspect; deep	
5	4	4	4	CWHms1	03	DF	FdHw - Falsebox	medium - textured soils	xeric - subxeric
5	4	4	4	CWHms1	02	DK	FdPl - Kinnikinnick	gentle slope; crest position; shallow soil	very xeric
2	2	3	6	CWHms1	00	FE	Sedge Fen	non-forested sedge fen; organic soils	subhygric - hygric
1	1	2	5	CWHms1	00	GT	Graminoid/ forb avalanche track	disturbed sites; moist soils	mesic - subhygric
	-	_	0	0111102		•••		gentle slope; lower slope receiving position, deep medium - textured	
4	3	3	5	CWHms1	05	HQ	HwBa - Queen's cup	soil	subhygric - hygric
							Lowbench sedge/herb		subhygric -
2	2	4	6	CWHms1	00	LO	floodplain	Sedge/herb dominated ecosystem on low bench floodplains	subhydric
3	3	3	6	CWHms1	10	LS	Pl - Sphagnum	treed bog; organic wetland	subhydric
									subhygric -
3	3	4	6	CWHms1	00	LU	Lowbench shrub floodplain	shrub dominated ecosystem on low bench floodplains	subhydric
3	3	4	6	CWHms1	00	OF	Organic treed fen	treed fen on organic soils (tree canopy cover greater than 10%)	subhydric - hydric
3	3	4	6	CWHms1	00	OS	Organic shrub fen	shrub dominated; organic soils	subhygric - hygric
4	2	4	6	C) 1/1 has a 1		D.C.		treed swamp, poorly drained, level to depression, deep medium -	and descended a
1	2	1	6	CWHms1	11	RC	CwSs - Skunk cabbage	textured soil	subhydric
2	1	1	5	CWHms1	07	SS	Ss - Salmonberry	active floodplain, high fluvial bench, deep, medium - textured soil	subhygric - hygric
1	1	2	6	CWHms1	00	SU	Shrub swamp	shrub swamp; organic soils	subhydric
								infrequent AV unit; stunted, edaphic forest (generally >2m tall); includes	
								areas of significant slope below barriers on gentle, mid-slope terraces,	
4	3	2	5	MHmm2	00	AA	Ba - Alaskan blueberry	and/or just beyond the toe of traditional AV accumulation zones. Shallow soils.	submesic - mesic
	5	2	5	IVII IIIIIIZ	00	701	Bu Musical Blueberry	significant slopes; deep medium - textured soils; seepage (use aspect	Submester meste
4	3	3	3	MHmm2	04	AB	HmBa - Bramble	modifiers)	subhygric
	-	-	-				Sitka alder - Black	moderate to steeply sloping colluvial parent material subject to regular	
3	1	1	5	MHmm2	00	AH	huckleberry avalanche track	snow avalanching	mesic - subhygric
4	4	3	3	MHmm2	00	AK	, HmYc - alpine krummholz	mid and upper slopes	xeric
3	1	2	5	MHmm2	00	AM	Herbaceous meadow	gentle slopes; deep, medium-textured soil; lush	mesic - subhygric
							Alaskan blueberry - Sitka		
3	2	1	5	MHmm2	00	AS	valerian		
								deep, medium-textured soils; forested parkland unit, typically on gentle,	
3	1	2	5	MHmm2	00	BA	Ba - Valerian	lower slopes in receiving positions.	subhygric - hygric

Spring	Summer	Fall	Winter	BEC Unit	Site_S	SiteMC_S	Ecosystem Unit Name	Assumed Situation	Typical Soil Moisture Regime
							Blue-leaved huckleberry -		
3	1	1	4	MHmm2	00	BV	Sitka valerian	steep, upper slopes; cool aspects	subxeric - submesic
3	2	2	6	MHmm2	00	FE	Sedge Fen	organic sedge fen; organic soils	subhygric - hygric
4	4	4	3	MHmm2	00	FH	BaBl - Mountain heather	Typically on gently sloping Mb in cirque basins; soil textures are sandy clays and sandy clay loams with 40-60% coarse fragments. Open Bl	
3	3	4	6	MHmm2	00	LU	Lowbench shrub floodplain	shrub dominated ecosystem on low bench floodplains	subhygric - subhydric
4	3	3	3	MHmm2	01	MB	HmBa - Blueberry	significant slopes; deep medium - textured soil (use aspect modifiers)	mesic
4	3	4	5	MHmm2	06	MD	HmYc - Deer cabbage	lower slope receiving position; gentle slope; deep medium - textured soil	hygric
4	4	3	4	MHmm2	02	ММ	HmBa - Mountain-heather	gentle slopes; crest position; shallow soils	very xeric - xeric
4	3	3	3	MHmm2	03	мо	BaHm - Oak fern	significant slopes; deep medium - textured soils; richer nutrient regime (use aspect modifiers)	subxeric - mesic
							Mountain-heather -		
4	4	4	5	MHmm2	00	MP	partridgefoot scrub	hallow soils, upper slopes, ridge crests	subxeric
4	4	3	4	MHmm2	00	MR	Mountain-heather - Racomitrium scrub	Mountain heather dominated ecosystems on gentle slopes of Cv/Cx and/or R. The shrub layer is typically dominated by pink and white mountain heather, blue-leaved huckleberry, and oval-leaved blueberry; often scattered krum (Ba, Bl, Hm and Yc).	xeric - subxeric
4	3	3	4	MHmm2	05	MT	BaHm - Twistedstalk	significant slopes; deep medium textured soils; middle to lower slope position, seepage site; richer nutrient regime (use aspect modifiers)	subhygric
4	3	3	6	MHmm2	00	OS	Organic shrub fen	non-treed unit, shrub dominated fen on organic soils	subhydric - hydric
4	2	3	5	MHmm2	00	SM	Sedge - Mountain hairgrass meadow	Typically occurs on gently sloping Mb and LGb. Soils are generally silty or silty clay loams with 5-30% coarse fragments.	mesic - subhygric
3	3	4	5	MHmm2	00	WP	Willow plain	Salix-dominated on level to gentle plains	mesic - subhygric
2	3	2	5	MHmm2	09	YC	YcHm - Skunk cabbage	treed swamp, deep, medium - textured soil, poorly drained	subhydric
4	3	3	5	MHmm2	07	YH	YcHm - Hellebore	lower slope receiving position; gentle slopes; deep, medium - textured soil, wet, richer nutrient regime	hygric
4	3	3	5	MHmm2	08	YS	HmYc - Sphagnum	treed bog; organic	subhydric
4	3	2	5	MHmmp	00	AA	Ba - Alaskan blueberry	Infrequent avalanche unit; stunted, edaphic forest (generally >2m tall); includes areas of significant slope below barriers on gentle, mid-slope terraces, and/or just beyond the toe of traditional accumulation zones.	submesic - mesic

Spring	Summer	Fall	Winter		e_S	AC_S			
Spr	Sum	Ä	Wir		Site	SiteMC			Typical Soil
				BEC Unit		0)	Ecosystem Unit Name Sitka alder - Black	Assumed Situation	Moisture Regime
							huckleberry avalanche track/		
							Alder - hellebore avalanche		
3	1	1	5	MHmmp	00	AH	track	alder dominated; steep colluvium, fans and cones	subhygric - hygric
-			-						
4	4	3	2	MHmmp	00	AK	HmYc - alpine krummholz	mid and upper slopes	xeric
3	1	2	5	MHmmp	00	AM	Herbaceous meadow	moist alpine meadows dominated by herbaceous species; lush	mesic
							Alaskan blueberry - Sitka	moderate to steeply sloping colluvial parent materials subject to regular	
3	2	1	5	MHmmp	00	AS	valerian	snow avalanching	mesic - subhygric
								forested parkland unit; typically on gentle, lower slopes in receiving	10
3	1	2	5	MHmmp	00	BA	Ba - Valerian	position; deep, medium-textured soils	subhygric - hygric
								this parkland unit typically occurs on steep, exposed, wind-swept ridges.	
								Soils are typically very shallow on colluvial parent materials (typically	
4	4	4	4	MHmmp	00	BJ	BaBl - Juniper	thin veeners over rock).	xeric
							Blue-leaved huckleberry -	shallow soil on colluvial parent materials with steep, cool aspects in	
3	1	1	4	MHmmp	00	BV	Sitka valerian	upper slope positions.	subxeric - submesic
								sedge-dominated fen on organic soils/ Poorly drained sites with peaty	
3	2	2	6	MHmmp	00	FE	organic sedge fen	organic soils	subhydric - hydric
								typically on gently sloping Mb in cirque basins; soil textures are sandy	
								clays and sandy clay loams with 40-60% coarse fragments. Open Bl	
4	4	4	2	MHmmp	00	FH	BaBl - Mountain heather	canopy and Ba forests with dense mats of mountain heather.	mesic - submesic
							Common juniper -	steep, upper slope positions with shallow colluvial parent materials on	
4	4	4	4	MHmmp	00	JK	Kinnikinnick	warm aspects. May also occur on gently sloping ridge tops.	xeric - subxeric
4	3	3	2	MHmmp	00	MB	HmBa - Blueberry	meadow over shallow colluvium	mesic
4	4	4	5		00	MP	Mountain-heather -	meadow over shallow colluvium	waria
4	4	4	Э	MHmmp	00	IVIP	partridgefoot scrub		xeric
								Mountain heather dominated ecosystems on gentle slopes of Cv/Cx	
							Mountain-heather -	and/or R. The shrub layer is typically dominated by pink and white mountain heather, blue-leaved huckleberry, and oval-leaved blueberry;	
4	4	2	4	MHmmp	00	MR	Racomitrium scrub	often scattered krum (Ba, Bl, Hm and Yc).	xeric - subxeric
5	4 5	5	4 5	MHmmp	00	PL	partridgefoot-lichen rock	wind-exposed rock ridges and slopes	very xeric
6	6	6	6	MHmmp	00	PN			
	0	Ŭ	0		00		Sedge - Mountain hairgrass	Gently sloping morainal and glaciolacustrine blankets. Sites are typified	
4	2	3	5	MHmmp	00	SM	meadow	by extensive open meadows with a dominance of parkland plants.	mesic - subhygric
4	4	3	3	CMA	00	AK	HmYc - alpine krummholz	upper and mid slope; morainal or colluvial	xeric - subxeric

Spring	Summer	Fall	Winter		Site_S	SiteMC_S			Typical Soil
5	5	5	5	BEC Unit CMA	00	KC	Ecosystem Unit Name Krummholz cliffs	Assumed Situation scrubby krummholz on cliffs and hypersteep rock	Moisture Regime
4	4	4	5	CMA	00	MM	Mountain heather meadow	gentle slope; deep soils	submesic - mesic
4	4	4	5	CIVIA	00		Mountain-heather -		Submesic - mesic
4	4	4	5	СМА	00	MP	partridgefoot scrub	meadow over shallow colluvium	xeric
4	4	2	4	СМА	00	MR	Mountain-heather - Racomitrium scrub	Wind-swept alpine ridges of colluvial veneer and rock. Sprawling scrub is dominated by mountain hemlock, yellow-cedar, blue-leaved huckleberry and oval-leaved blueberry; pink/white mountain heathers.	
6	6	6	6	All	00	ES	Exposed Soil	Any area of exposed soil that is not included in any of the other definitions. It includes areas of recent disturbance, such as mud slides, debris torrents, avalanches, & human-made disturbances where vegetation cover is I	
6	6	6	6	All	00	GB	Gravel Bar	An elongated landform generated by waves & currents & usually running parallel to the shore. It is composed of unconsolidated small rounded cobbles, pebbles, stones, & sand.	
6	6	6	6	All	00	GL	Glacier	A mass of perennial snow & ice with definite lateral limits. It typically flows in a particular direction.	
6	6	6	6	All	00	GP	Gravel Pit	An area exposed through the removal of soil & gravel	
6	6	6	6	All	00	LA	Lake	A naturally occurring static body of water, greater than 2 m deep in some portion. The boundary for the lake is the natural high water mark.	
6	6	6	6	All	00	MN	Moraine	A non-vegetated landform consisting of unstratified glacial drift that is usually till & taking a variety of shapes.	
6	6	6	6	All	00	ow	Shallow Open Water	A wetland composed of permanent shallow open water & lacking extensive emergent plant cover. The water is less than 2 m deep.	
6	6	6	6	All	00	PD	Pond	A small body of water greater than 2 m deep, but not large enough to be classified as a lake (e.g., less than 50 ha).	
6	6	6	6	All	00	RI	River	A watercourse formed when water flows between continuous, definable banks.	
6	6	6	5	All	00	RO	Rock Outcrop	A gentle to steep, bedrock escarpment or outcropping, with little soil development & sparse vegetative cover.	
4	4	4	6	All	00	RU	Rubble	Rubble is common on the ground surface in & adjacent to alpine areas, on ridgetops, gentle slopes & flat areas due to frost heaving.	
6	6	6	6	All	00	RZ	Road Surface	An area cleared & compacted for the purpose of transporting goods & services by vehicles	
5	5	5	6	All	00	ТА	Talus	Angular rock fragments of any size accumulated at the foot of steep rock slopes as a result of successive rock falls. It is a type of colluvium.	



# WHISTLER

## **REPORT** ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	April 7, 2020	<b>REPORT:</b>	20-036
FROM:	Infrastructure Services	FILE:	E32004-E20507-T001
SUBJECT:	ALTA VISTA SERVICES UPGRADE PROJ	ECT – PHAS	E 1 CONTRACT AWARD

### COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Infrastructure Services be endorsed.

### RECOMMENDATION

**That** Council award the contract for the first phase of the Alta Vista Services Upgrade Project in the amount of \$2,719,093.00 (exclusive of GST) to Capilano Highway Services in accordance with their tender proposal dated February 13, 2020.

### PURPOSE OF REPORT

The purpose of this Report is to inform Council of the process and outcomes of the 2020 Alta Vista Services Upgrade Project - Phase 1 tender process, and to request approval to proceed with the construction work for the Alta Vista Services Upgrade Project – Phase 1 totalling the amount of \$2,719,093.00 (exclusive of GST).

### DISCUSSION

This project includes replacing water mains, sanitary sewers and storm water drainage infrastructure in the Alta Vista neighbourhood. Affected roads will be resurfaced along with those roads identified as requiring rehabilitation. Upgrades will be also made to the Valley Trail. This project will replace some of the oldest water and sewer infrastructure in Whistler.

The implementation of this work is currently planned to take place over three phases in three years from 2020 – 2022. Each year, the work is planned to take place from April to November. The following streets will be impacted by the project: Alpine Crescent, Alta Vista Road, Archibald Way, Carleton Way, Lakeside Road, Tyrol Crescent and St. Anton Way.

The work is necessary is to minimize the risk of failure of aging pipes, reduce water loss from leakage, minimize ongoing odour issues, improve pedestrian safety, and reduce maintenance costs in the area.

This recommendation for contract award is for Phase 1 of a three year project. Phase 1 works will be implemented in 2020.

### **TENDER RESULTS**

The Invitation to Tender for the Alta Vista Services Upgrade Project was publicly advertised from January 16 to February 13, 2020. A non-mandatory site meeting was held for this project on November 15, 2019 with six contractor representatives in attendance.

Note: All costs stated in this discussion and subsequent sections are exclusive of GST.

Five tenders were received as follows:

т	ENDERER AND ENGINEERS ESTIMATE	TOTAL PRICE (EXCLUDING GST)
1	Capilano Highway Services	\$2,719,093.00
2	Pedre Underground Utility Contractors Ltd.	\$2,799,000.00
3	Coastal Mountain Excavations Ltd.	\$2,916,110.50
4	Hazelwood Construction Services	\$2,964,630.62
5	Ponte Brothers Ltd.	\$3,367,513.93
	Engineer's Estimate (Binnie.)	\$2,553,885.00

### WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Finance	<ul> <li>Whistler lives within its financial means</li> <li>The resort community effectively and efficiently balances its costs and expenditures</li> <li>The long-term consequences of decisions are carefully considered</li> </ul>	The tendering process was competitive due to the large scope of work and number of responses: five bids were received, all from qualified bidders. Lessons learned from previous water main projects in Alpine Meadows and White Gold were applied to the design of this project.
Water	Whistler's potable water supply system delivers water of excellent quality, which meets or exceeds all relevant health standards, and meets benchmark aesthetic standards whenever possible.	Completion of this project will include improvements to water flow and replacement of fire hydrants.
Water	<ul> <li>Effective storm water management and flood control measures are in place, and replicate natural hydrological systems and functions as much as possible.</li> <li>Flood control systems are maintained at a high level of emergency preparedness, where risks are managed proactively, effectively, and efficiently.</li> </ul>	Upgrades to storm water infrastructure will effectively manage increased flows attributed to climate change
Water	With respect to water resources, capital and long-term costs are managed in a financially prudent and fiscally responsible manner.	This project provides a more affordable approach to the RMOW's asset management rather than responding to emergency repairs and replacement call-outs that are often many times more expensive.

### OTHER POLICY CONSIDERATIONS

None.

### **BUDGET CONSIDERATIONS**

The current budget is as follows for the Alta Vista Services Upgrade Project – Phase 1 that draws from these three budget codes in 2020: E205, E320, and T001.

BUDGET CODE NUMBER & NAME	BUDGET AMOUNT	TENDER PRICE
E205_07 – Water Main Upgrades	\$1,700,000	\$1,639,615
E320_04 – Sewer Main Upgrades	\$750,000	\$666,368
T001_04 – Road and Storm Upgrades	\$600,000	\$413,110
Total 2020 Phase 1 Budget	\$3,050,000	\$2,719,093

### SAFETY CONSIDERATIONS

Under Provincial direction, construction of critical infrastructure continues to be permitted. Capilano Highway Services, in addition to all RMOW vendors, will be following the recommended safety guidelines with respect to COVID-19 as set forth by the BC Provincial Health Officer and the BC Construction Safety Alliance for the Alta Vista project. Their safe work procedures will be reviewed, approved and adjusted daily (as required) prior to starting work.

### COMMUNITY ENGAGEMENT AND CONSULTATION

RMOW staff are actively engaged with the neighbourhood residents and general public with regards to this project and its impact to the community via a number of communication forums:

- Letter to residents, website, Pique Newspaper advertisement.
- If possible, a public information session will be held in 2020 to introduce the design details to residents at a date TBD. If a public session is not possible due to restrictions on public gatherings, the RMOW will try to have an online public information session.
- Residents have been actively engaged in the development of this project and have provided constructive feedback that has been included in the design.

### SUMMARY

Staff recommend Council award the contract for the Alta Vista Services Upgrade Project – Phase 1 in the amount of \$2,719,093.00 (exclusive of GST) to Capilano Highway Services in accordance with their tender proposal dated February 13, 2020. This project will replace some of the oldest water and sewer infrastructure in Whistler, and is an important part of our on-going long-term asset management plan.

Respectfully submitted,

Tammy Shore, P. Eng. CAPITAL PROJECTS MANAGER

for

James Hallisey, P. Eng. GENERAL MANAGER OF INFRASTRUCTURE SERVICES



# WHISTLER

## MINUTES

REGULAR MEETING OF RECREATION LEISURE ADVISORY COMMITTEE THURSDAY, DECEMBER 12, 2019, STARTING AT 4 P.M. In the Flute Room 4325 Blackcomb Way, Whistler, BC V8E 0X5

### PRESENT:

Member at Large, Chair, J. Chuback Member at Large, A. Ross Member at Large, L. Harnish Member at Large, D. Ziff Member at Large, K. Paterson Tourism Whistler representative, L. Everest Whistler Sports Legacies representative, Co-Chair, R. Soane Councillor, R. Forsyth Recreation Manager, RMOW, R. Weetman Manager, Resort Parks Planning, RMOW, M. Pardoe

### **REGRETS**:

Member at Large, D. Clark Member at Large, M. Lunn Sea to Sky School District 48 representative, I. Currie Parks Planner, Resort Parks Planning, RMOW, A. Oja Recording Secretary, S. Perry/M. Talaro

Meeting called to order at 4:02 pm

### **ADOPTION OF AGENDA**

Moved by R. Soane Seconded by A. Ross

Add discussion regarding recently announced operational changes to Whistler Racquet Club, moved.

**That** Recreation Leisure Advisory Committee adopt the regular Recreation Leisure Advisory Committee agenda of December 12, 2019.

CARRIED

### **ADOPTION OF MINUTES**

Moved by D. Ziff Second by K. Patterson November minutes incorrectly read June not October. Meeting started at 4pm not 3pm. MINUTES Regular Recreation Leisure Advisory Committee Meeting December 12, 2019 Page 2

**That** Recreation Leisure Advisory Committee adopt the Regular Recreation Leisure Advisory Committee minutes of November 14, 2019.

CARRIED

### PRESENTATIONS/DELEGATIONS

None

#### OTHER BUSINESS

Whistler Racquet Club

The Committee shared and discussed recently released public information regarding operational and management changes coming to the Whistler Racquet Club facility on January 1, 2020. The Committee requested that the new management team be invited to a future Committee meeting to provide an introduction as well as a brief overview of the changes and any potential longer term facility plans.

### NEXT MEETING

Starting at 4 pm January 9, 2020

#### TERMINATION

Moved by L. Harnish Second by A. Ross

**That** Recreation Leisure Advisory Committee terminated the December 12, 2019 Recreation Leisure Advisory Committee meeting at 4:20 pm

Chair, J. Chuback

CARRIED



March 11, 2017

### Re: Alpine Trails Grizzly Bear Conflict Mitigation Strategy document and study

Dear Mayor and Council,

Heather Beresford kindly provided us with copies of the latest iteration of the Grizzly Bear Conflict Mitigation Strategy and the MacHutchon habitat/vegetation study. We understand that both documents are expected to be going before Council on March 17.

We appreciate the RMOW's receptivity to the input Coast to Cascades, the Grizzly Bear Foundation, AWARE, and Dr. Lana Ciarniello provided Council last year, and thank you for the commitment and leadership you have shown in commissioning the habitat/vegetation study. Although ideally this study would have been done several years ago before the alpine trails were laid out and substantially built, it is a good product overall and an important piece of work that provides better information for trail management and planning, and it fills in a number of gaps in the earlier assessment the RMOW commissioned. We understand that staff will support and implement MacHutchon's recommendations and we agree with that position.

However, we are concerned that, given the Grizzly Bear Conflict Mitigation Strategy is likely to be the go-to document for RMOW managers and other staff in the future, not having MacHutchon's recommendations explicitly noted in the Grizzly Bear Conflict Mitigation Strategy could result in those recommendations being "lost" over time if they remain housed in a separate document.

Accordingly, we request that Council ask staff to do the following:

### 1- Ensure all actions/recommendations from the MacHutchon report are explicitly captured in the Grizzly Bear Conflict Mitigation Strategy

MacHutchon's report lacks a summary table of the various good recommendations that he makes. His document contains recommendations that may not be explicitly prefaced as recommendations. It is therefore important that:

a) There is clarity and agreement as to what the recommendations actually are – regardless of whether they are more explicit or less explicit – and that they are captured and adopted. An example of this we feel compelled to point out is on page 24 where MacHutchon states: "*All of the available information suggests to me that there be serious re-consideration of converting the Beverley Lake trail beyond the Ninja Lake Loop to multi-use and building a camp site at Beverley Lake.*" Although the word "recommendation" is not specifically used, we feel that the statement and its intent carries the weight of a recommendation and it is important that it be recognized as such and included in the list of recommendations.

b) At minimum, the full range of MacHutchon's recommendations (primarily found on pages 21, 24, 25 and 26) should appear in Appendix B (Summary of Recommendations) of the Conflict Mitigation Strategy. That will ensure that future managers and staff have a single go-to place regarding recommendations.

2 - Reconcile recommendations from the MacHutchon report with the Conflict Mitigation Strategy:

There are some cases where the MacHutchon's recommendations do not align with the current wording in the Conflict Mitigation Strategy document. These discrepancies should be reconciled. Two examples:

- Section 4.1.2 of the Conflict Mitigation Strategy currently states: "*Re-route the proposed trail* (*Beverly Lake Trail*) to avoid large meadow areas with low sightlines." As noted in the example given in 1a above, MacHutcheon recommends more stringent measures regarding the Beverley Lake Trail.
- Section 2.5.3 of the Conflict Mitigation Strategy currently states that staff will revaluate the e-bike policy over 1-2 years. MacHutchon's report recommends the ban on e-bikes continue to be maintained.

Again, we appreciate Council's leadership and commitment to employing science and best practices going forward with trail planning and development in and around the RMOW in order that other values such as wildlife have full consideration alongside recreational interests.

Sincerely,

Johnny Mikes Field Director Coast to Cascades Grizzly Bear Initiative johnny@coasttocascades.org 9571 Emerald Drive Whistler, BC













From: Jay Gray Sent: Tuesday, March 10, 2020 10:14 AM To: corporate <corporate@whistler.ca> Subject: Bylaws question re: snow on road.

# **Proposed Two new Bylaws. Re:** Winter snow removal & overnight parking.

Attention mayor and council,

I Edward JohnJay Gray, of 9291 Emerald Dr. in Whistler BC Would like to propose to new bylaws for your consideration.

The first of which would be a restating of the provincial law that the RCMP currently do not wish to enforce that all snow from your property must remain on your property and not be placed in the road or road allowance. This would apply to private plough operators. Currently the only byelaw which deals with snow piled on the road Is the one which states no shattle she'll be left on the road. If this was a municipal bylaw, then it would be enforceable.

The second by bylaw Would be that no overnight parking would be allowed in the subdivisions between the hours of 10 PM to 7 AM. This Would allow the municipal ploughs to remove snow from both sides of the road during the night. The reasons for these are listed below.

- 1. Are there any specifically snow plough and removal bylaws other than not allowing placement of Chattle on road?
- 2. Are private snow removal companies required to place the snow they remove from driveways onto the clients property? If not why not?
- 3. Long term snow plough operators in this valley always seem to place snow from driveways on customers property. Small bobcat operators do not seem to follow this procedure. Instead they move the snow from the driveway across the street and dump it on the road. Some effort is used to place the snow off the road however due to the limited lift of this equipment, snow results on the road and thus accumulates. This then requires the municipality to clean up after these private contractors.
- 4. As I drive a transit bus early in the morning, I seem to witness a lot of this. Rainbow subdivision turnaround seems to be a common place to store all the driveway snow, making the turnaround smaller and smaller as time goes on. This can also be seen at the turn around at the top of painted cliff In the Blackcomb bench lands, leaving the Muni to have to clean up once again after private contractors.
- 5. Another common trick snow plough operators use is to drag the snow onto the road and then sort of flatten it out which results in washboard road conditions and extra work for the Muni plow.
- 6. This seems to be an extra expense that is being transferred to the municipality for which we pay our taxes.
- 7. Problems including fire hydrant clearing seem to be a result of private contractors thus they should be held accountable.
- 8. Some houses seem to have the entire road allowance in front of their property as a driveway. If this is allowed then half of that Area should be designated snow dump.

- 9. The fence in our front yard at 9291 Emerald Dr. has had to be replaced at the Muni's expense in the past due to the fact that all snow plough operators pile snow from many homes on our road and then when the Muni comes to push them back they flatten our fence. Fence replacement is expensive for the Muni and it doesn't help my Virginia creeper which grows on the fence.
- 10. If their are no bylaws for these problems, perhaps it is time some were made.
- 11. If snow removal requires no vehicles too be park on the road perhaps no parking on the road in subdivisions should be allowed during winter months. If This were done we would not have subdivisions with single lane roads during snowy months. Also the municipality would not have to pick up the expense of fixing cars that were accidentally crushed by snow removal.
- 12. Please feel free to contact me at **Example 1** or my home number at **Example 1**. Thanks for your attention in this matter and I will see you on March 17 at the council meeting.

Sent from my iPhone

From: Jay Gray Sent: Tuesday, March 31, 2020 9:54 AM To: corporate <<u>corporate@whistler.ca</u>> Subject: Re: Questions for mayor and council.

Due to the fact that the council meeting was cancelled in March I have submitted the questions I was going to ask counsel prior to the meeting to you. My name is Edward John Gray and I live at 9291 Emerald Dr. in Whistler. Contact information cell number

Sent from my iPhone

On Mar 31, 2020, at 9:05 AM, corporate <<u>corporate@whistler.ca</u>> wrote:

From: Jay Gray Sent: Monday, March 30, 2020 6:37 PM To: corporate <<u>corporate@whistler.ca</u>> Subject: Questions for mayor and council.

# Questions for mayor and council.

- 1. If the no overnight parking by law is in acted by counsel could the signage be made and installed prior to October 31, 2020?
- 2. If the no overnight parking by law is in acted by counsel could A mail out campaign be initiated to all homeowners as soon as possible to allow them time to prepare parking and snow dump areas on their property

Sent from my iPhone

From: Georges Payrastre Sent: Tuesday, March 03, 2020 6:02 PM To: corporate <<u>corporate@whistler.ca</u>> Cc: \*\*\*\*\*GEORGES PAYRASTRE Subject: increase in parking fees and year round pay parking in lots 4 and 5

Dear Mr Mayor and Council

I am writing to express my strong disagreement to the recommandation to:

1. Apply year round pay parking to Lots 4 and 5

2. Increase parking in lots 4 and 5 to \$ 6 per day.

We have a property in Alpine Meadows, in Whistler, where we spent several days every week throughout the year with my family, a second home if you will. I understand that pay parking in peak summer and winter seasons do bring important additional revenue. However, having to pay all the time to go into the village will discourage me from spending time and shopping in that area. That is why I am strongly against it. It has been very clear in past elections that pay parking has not be very popular with Whistler voters.

While on the topic of parking, I would like to bring to your attention that it has almost become impossible to park in lots 4 and 5 during winter. Several times recently, I try to park there to go cross-country skiing but had to cancel my plans as I could not find any space. I think Council should look into providing more parking so that we can enjoy these great local facilities.

Many thanks

Sincerely

Georges Payrastre 3657 West 1st. avenue Vancouver, B.C. V6R1H1 From: Patrick Smyth Sent: Thursday, March 05, 2020 10:08 AM To: corporate <<u>corporate@whistler.ca</u>> Subject: letter to council

Dear Mayor and Council,

Thank you for this winter's Family Apres, a favorite with my daughter and everyone I know. And thank you for the Christmas-time play area in the conference center. Another hit out of the park.

Do we have anything planned for the summer that is similar to family apres? IE: Apres bike park?

Regards,

Patrick Smyth Whistler BC. "Exceeding Nature"

1200 Alta Lake Rd., Whistler BC

From: Flynn Nixon Sent: Monday, March 30, 2020 7:22 PM To: corporate <<u>corporate@whistler.ca</u>> Subject: Outdoor chin up bar Meadow Park

To Mayor & Council,

Good morning,

I am reaching out to you guys to see if it would be possible to make an addition to the outdoor gym situated at Meadow Park.

The only thing missing which is I believe to imperative in an outdoor gym is a chin up/pull up bar.

I know this is an uncertain time for the municipality but would appreciate the consideration of this addition.

Kindest of Regards,

Flynn Trotter

A402 8200 Bear Paw Trail, Whistler



Suite 10 119 West Pender St Vancouver, BC V6B 1S5 Canada

> phone: (604) 683-6009

fax: (604) 683-7255

email: rcbc@rcbc.ca

web: www.rcbc.ca March 2, 2020

Mayor Jack Crompton and Council Resort Municipality of Whistler 4325 Blackcomb Way Whistler, BC VON 1B4 Canada

Dear Mayor Jack Crompton and Council:

#### Re: Recycling Council of British Columbia's (RCBC) 46<sup>th</sup> Annual Conference on Circular Economy

Established in 1974 as Canada's first non-profit waste prevention organization, RCBC is at the forefront of collaborating with businesses and local governments to promote both a sustainable environment and economy throughout the regions of our province.

This year's conference theme - **2020 Foresight: Transforming Tomorrow** – is set to run June 10 - 12, 2020 in Whistler, B.C. Of particular note is our keynote speaker, Vancouver Economic Commission (VEC) Director Bryan Buggey. With the knowledge that the transition to a low-carbon circular economy is a massive economic opportunity, Bryan shares his thoughts on the progressive municipal, provincial and federal priorities related to climate change and regional economic development. You'll hear how Vancouver's integrated Greenest City Action Plan, Renewable City 2050, and Zero Waste 2040, fit within Vancouver's business community and how similar initiatives can be applied to other regions. Bryan outlines how the VEC is accelerating the transition by supporting innovation, trade, investment and the move to a circular economy.

Programming for RCBC 2020, www.rcbcconference.ca, will also include:

- extended producer responsibility
- compostable plastics
- provincial & federal plastics initiatives
- compostable plastics
- youth-led sustainability initiatives

As well, we plan to address a variety of waste, recycling, and diversion-related issues your council may be facing now or in the near future. We provide a three-day experience of policy development workshops, presentations, and opportunities to network with professionals and area experts to become better informed. Representatives from BC's industry stewards (eg. RecycleBC and Return-It), are attending, as well as the BC Ministry of Environment.

Our public policy work includes a Government Caucus Round Table to identify areas of policy priority on the Wednesday afternoon of June 10. So please join us at Canada's longest running sustainability event, the annual RCBC Conference on Circular Economy, now in its 46<sup>th</sup> year.

Thank you for your continued support. Let us keep working together to make a waste-free province through the application of sustainable circular economy principles. If you have any questions, you can reach me at 604-683-6009 ext. 307 or at <a href="mailto:brock@ccbc.ca">brock@ccbc.ca</a>.

Sincerely,

Black Macdonald

Brock Macdonald Chief Executive Officer



Forest Enhancement Society of British Columbia

March 2, 2020

#### **Re: Forest Enhancement Society of BC Accomplishments Update**

Dear Mayor and Council of Whistler (Resort Municipality),

British Columbians are concerned about climate change along with other environmental, social, and economic concerns. We want to know what our governments are doing to protect communities from wildfire risk, improve wildlife habitat, reduce greenhouse gases, expand the bio-economy, and enhance B.C.'s forests. The enclosed Forest Enhancement Society of BC (FESBC) Accomplishments Update provides a snapshot of the huge amount of work underway in a vast number of communities across British Columbia to address some of these concerns. We hope that you will find this update informative and will share this with your constituents, who we hope are pleased to see real-life projects happening around the province and often close to where they live.

Our forests are a heritage that defines our province. Managed properly, our forests provide important social, economic, and environmental benefits to all British Columbians, in both rural and urban areas. Investing in our forests can enhance the benefits they provide and help to protect them for future generations. As an example, FESBC recently announced \$30 million in grants for 42 new forest fibre utilization projects where First Nations, community forests, and B.C. companies will be using debris piles of wood fibre that would otherwise be slash burned. These piles will instead be chipped and converted to electricity, heat energy, and a variety of pulp products, adding value to this fibre and helping to achieve B.C.'s and Canada's climate change targets.

We can achieve social, environmental, and economic aspirations of British Columbians by investing in forests to reduce our carbon footprint, reduce wildfire risks, enhance habitat, and create jobs. This is a win-win-win on all fronts.

FESBC will be sending you a more comprehensive Accomplishments Report later this year. If you are interested in further information, please visit our website <u>www.fesbc.ca</u> or connect with our Executive Director Steve Kozuki at <u>skozuki@fesbc.ca</u> or 1.778.765.0938.

Wayne Clogg, RPF Board Chair, Forest Enhancement Society of BC

085- MC



"Assisting the Province to reduce greenhouse gases, add value to forest fibre, and maintain jobs for workers and communities are some of our key objectives."

-Wayne Clogg, Board Chair of the Forest Enhancement Society of BC (FESBC)



Taan Forest HAIDA GWAII West Chilcotin Forest Products ANAHIM LAKE

Cowichan Tribes DUNCAN



Barkerville Historic Town & Park BARKERVILLE

Agur Lake Camp SUMMERLAND

# **250 REASONS WHY B.C.'S FORESTS ARE BETTER TODAY**

Work done to enhance and protect B.C.'s forests is critical. **Environmentally** for wildlife, greenhouse gas reduction, and responsible land stewardship for future generations; **economically** for workers and communities to thrive; and **socially** for people to enjoy and explore this important asset. The Forest Enhancement Society of BC (FESBC) was established to advance environmental and resource stewardship of the province's forests. Since 2016, the Society has worked with Community Forests, First Nations, Regional Districts, municipalities, Provincial Government agencies, and the forest industry to enhance and protect B.C.'s forests. There are 250 FESBC projects across the province and we invite you to learn more about what's happening, not only in your province, but in your own backyard, too.



Forest Enhancement Society of British Columbia Read more about FESBC funded projects across the province inside.



## About FESBC

The B.C. government has invested \$235 million in FESBC with \$233 million allocated as of January 2020 for 250 projects related to greenhouse gas reduction, wildfire risk reduction, reforestation, forest rehabilitation, wildlife habitat restoration, and for raising awareness of the FireSmart program. FESBC's work improves forests while at the same time supports forestry workers, communities, and First Nations throughout the province. The economic benefits generated by FESBC programs greatly exceed the costs of running them and the projects funded so far will create over \$357 million in economic activity and over 2,100 full-time-equivalent jobs in B.C. See five highlighted projects here and learn more about all 250 projects at www.fesbc.ca.

#### LOCATION: HAIDA GWAII

**PURPOSE:** Forest Rehabilitation & Wildlife Habitat Enhancement

**THE CHALLENGE:** the Yakoun River drainage required rehabilitation work to restore habitat for salmon, black bear, and raptors.

#### FESBC FUNDING: \$1,364,972

**THE OUTCOME:** spacing of trees was performed by Haida forest workers to improve the area for wildlife, especially Northern Goshawks and Black Bears. The work also promoted the growth of economically and culturally important cedar trees.

#### LOCATION: ANAHIM LAKE

**PURPOSE:** Enhanced Forest Fibre Recovery/Utilization

2

3

**THE CHALLENGE:** Ulkatcho First Nation-owned WCFP was required to slash burn large piles of wood waste because they were unable to use the low quality uneconomic wood.

FESBC FUNDING: \$1,847,370

**THE OUTCOME:** funding enabled thousands of cubic metres of pulp wood to be transported to the Harmac Pacific Pulp mill in Nanaimo to be made into pulp instead of left in piles along forestry roads and burned.

#### LOCATION: DUNCAN

**PURPOSE:** Forest Rehabilitation & Wildlife Habitat Enhancement

**THE CHALLENGE:** an area near Skutz Falls Valley required forest restoration as an overpopulation of alder trees lowered cultural values and ecosystem functionality.

#### FESBC FUNDING: \$300,983

**THE OUTCOME:** alder trees were removed by hand and replaced with higher value cedar and spruce species. The project is expected to provide carbon benefits as well as to enhance wildlife habitat.

## FESBC by the numbers



Reducing B.C.'s Carbon Footprint **Planting trees to absorb carbon:** 4.5 million tonnes of CO2e (carbon dioxide equivalency) cumulatively by 2050. Average cost is \$20/tonne.

**Fertilizing trees to absorb carbon faster:** 800,000 tonnes of CO2e. Average cost is \$11/tonne.

**Utilization of wood fibre to avoid carbon emissions:** 1.8 million tonnes CO2e. Average cost is \$30/tonne.

Did you Know? 7.1 million tonnes of CO2e is roughly comparable to taking 1.5 million cars off thමණයිව ෯දි1ින් year.



#### PURPOSE: Wildfire Risk Mitigation

**THE CHALLENGE:** in 2017, a wildfire travelling 4.5 kms per day came within 12 kms of this irreplaceable historic Canadian asset. A fuel mitigation strategy had to be developed and treatments implemented.

#### FESBC FUNDING: \$403,000

**THE OUTCOME**: thinning and tree removal of 52 hectares was completed and a fire access road built. Residual piles of forest fibre were then chipped and trucked to Cariboo Pulp and Paper for hog fuel to make green energy.

#### LOCATION: AGUR LAKE NEAR SUMMERLAND

PURPOSE: Wildfire Risk Reduction

**THE CHALLENGE:** Agur Lake Camp, B.C.'s only fully accessible campground for people with disabilities and their families and caregivers, was in an area of high to extreme fire threat.

FESBC FUNDING: \$59,409

y

5

**THE OUTCOME:** removal of 85% of hazardous fuels from over six hectares to protect campers and critical infrastructure.

\$233 million in grants approved.

\$2 million remains of the original investment.

# 2100<sup>+</sup>FTES

#### **Economic Benefits**

Projects funded so far will have created over \$357 million in economic activity and over 2,100 full-time-equivalent jobs in British Columbia.



#### **First Nations Involvement**

Approximately 31% of FESBC funded projects to date have been led by First Nations proponents or have had significant First Nations participation. That's 67 projects valued at \$72 million. \$233 MILLION DOLLARS

# Approved Funding for Projects

Of the \$235 million provided by the B.C. government, FESBC has approved \$233 million to fund projects throughout the province. Page 192 of 213



## Message from FESBC

We are privileged to work in partnership with the B.C. government and the Government of Canada to fund important projects throughout B.C. In a challenging time for the forestry sector, there are companies, community forests, First Nations organizations, and others working to innovate their processes to greater utilize available forest fibre. Our Society recently funded 42 projects valued at over \$30 million to projects that are making a difference right now. As a result, many cubic metres of woody debris/forest fibre will not be burned in slash piles this winter season but used to fuel a greener economy. This is expected to exceed 1.6 million cubic metres by March 2020. Funding has been committed to continue some of these projects to 2022 to help forest workers and communities who are most in need.

-Wayne Clogg, FESBC Board Chair

## \$30 Million 42 Projects

In our most recent intake, FESBC allocated over \$30 million in grants for 42 projects throughout B.C. that will help increase utilization of wood fibre that otherwise would have been openly burned in slash piles. Instead, this wood fibre will now be turned into electricity, heat energy, and a variety of pulp products to help achieve B.C.'s and Canada's climate change targets.

#### **Utilized Forest** Nearest FESBC **Project Partner** Fibre Estimates Community Funding (cubic metres = m<sup>3</sup>) Pinnacle Renewable **Burns Lake** 87,000 m<sup>3</sup> \$929,314 Energy Inc. Sasuchan Development 59.000 m<sup>3</sup> Fort St. James \$435,235 Corporation Mackenzie Pulp Mackenzie 143,000 m<sup>3</sup> \$1,000,000 Mill Corporation Strategic Natural Resource Port McNeill 19.000 m<sup>3</sup> \$278,938 Consultants Inc. Terrace Terrace Community Forest 30,000 m<sup>3</sup> \$443,400 Nakusp and Area 1,600 m<sup>3</sup> \$19,909 Nakusp **Community Forest Barkerville Historic** \$160,000 Barkerville 9.000 m<sup>3</sup> Town & Park

Here are a few project highlights:



#### Learn More

If you'd like to learn more about the Forest Enhancement Society of BC and how the forest industry is helping to fight climate change, reduce wildfire risk, and keep workers employed through our funded projects, connect with us!

Steve Kozuki, FESBC Executive Director skozuki@fesbc.ca or 1.877.225.2010

www.fesbc.ca | Follow us on: 💼 😏

From: Sarah Strother <<u>sstrother@wplpmedia.com</u>>
Sent: Sunday, March 22, 2020 10:28 AM
To: Jack Crompton; Arthur De Jong; Cathy Jewett; Duane Jackson; Jen Ford; John Grills; Ralph Forsyth; corporate
Cc: Clare Ogilvie
Subject: Pique Newsmagazine letter to Mayor and Council, March 22, 2020

Dear Jack, Arthur, Cathy, Duane, Jen, John and Ralph,

Thank for your hard work to keep our community safe and informed during these difficult times.

As always, *Pique* is here to work with you. Clare and her newsroom team – Alyssa, Braden, Brandon, Dan, Joel and Megan – are working around the clock to report the news and make sure the community stays informed. Susan and her advertising team – Tessa, Amy, Andy and Amela – are doing everything they can to ensure we remain viable.

Please do not hesitate to reach any one of us at any time.

Attached please find a letter to mayor and council for your consideration. I've also attached a second letter I wrote on Friday to the Premier and MLAs on behalf of the BC & Yukon Newsmedia Association for your information.

Thank you and stay well.

Sarah

Sarah Strother President & Publisher Pique Newsmagazine Whistler Publishing LP P: 604.938.0202 x44223 C: 604.306.4144 sstrother@wplpmedia.com



March 22, 2020

Mayor and Council

Resort Municipality of Whistler

Dear Mayor Crompton and Council,

The Canadian media industry – along with all Canadian industries and businesses – is faced with an unprecedented crisis. The critical importance of domestic media and specifically the local news media in keeping our citizens informed has never been more important, yet we are facing a dire revenue crisis. *Pique Newsmagazine* is no exception.

In the strongest possible terms, we implore the Resort Municipality of Whistler to immediately redirect all allocated advertising/communications budgets away from international platforms/media companies to Canadian-owned and operated local media organizations.

Our journalists are reporting from the front lines of this crisis. We have put in place Covid-19 pages on our website to provide unfettered access to the most information in one place for our audiences. We are committed to serving our community together with you. We are fully capable of supporting all your communications needs at this critical time, both in print and online. Our audience metrics are at all time highs and the citizens of our community are demanding more and more from us continuously.

These advertising revenues will be crucial to ensuring stability in our revenue streams through this crisis as we continue to provide a critical service for all Whistler residents at this unprecedented time. Our citizens would expect that spending by our governments, especially during these times, would be put back into the local economy and not delivered to massive foreign-owned media giants who do not pay their share of taxes and do not need any help.

We ask that you send a formal message to all levels of local government and its agencies to ensure all advertising dollars are redirected to local news media companies, like *Pique Newsmagazine*. Please call me if you would like to discuss, or contact Susan Hutchinson, Advertising Manager, <a href="mailto:shutchinson@wplpmedia.com">shutchinson@wplpmedia.com</a> or your long-term account representative, Tessa Sweeney, <a href="mailto:tsweeney@wplpmedia.com">tsweeney@wplpmedia.com</a>.

Time is of the essence. Deadline for Thursday's edition is noon on Tuesday and we can assist your online needs immediately.

Yours sincerely,

Sarah Strother

Publisher

Attn: BC Premier Honourable John Horgan



cc: Honourable Adrian Dix, Stephen Brown, Honourable Carole James, Lori Wanamaker, Donna Evans, Geoff Meggs, and all BC MLAs

Friday, March 20, 2020

### Newspapers must be part of British Columbia's Communication Plan at this critical time

It is imperative that British Columbians are properly informed. This need to be informed has intensified with the declaration of a worldwide pandemic. Other provinces have included newspapers as an important part of their communication plan.

Despite the fact that 90% of Canadians read newspapers in print and online, governing bodies in Canada repeatedly choose to spend ad dollars with Facebook and Google to get their message out. As we all work to limit the spread of a potential crisis in our province, the hope now is that the government of British Columbia will turn to a local, trusted news source to provide accurate information to our citizens about COVID-19.

To truly reach British Columbians in a trusted form, the province must include newspapers in their communication strategy. No media, online, electronic or otherwise is more trusted in our communities than the printed and digital versions of our newspapers. While newspapers are strong provincially, their impact is vital in many of our rural communities.

The government has a choice: contribute to the noise on social media by purchasing advertising from foreign companies or work with the newspapers that engage in regular conversations with our communities as trusted sources of information and champions of community. In many communities, community newspaper websites have unique digital readership that far exceeds their strong and growing print-based readership.

The BC and Yukon Community Newsmedia Association (BCYCNA) can assist the Province of British Columbia with their communication at this very important time. Please choose the effective, locally owned and operated, community news media and protect British Columbians during this crisis.

Sincerely,

Sarah Strother President, BC and Yukon Community Newsmedia Association e: <u>sstrother@wplpmedia.com</u> p: 604-938-0202 ext 44223



March 4, 2020



To: Chair and Board Chief and Council Mayor and Council

#### **Re: UBCM Resolutions Process**

In response to member feedback, the UBCM Executive is undertaking a review of the resolutions process. This will include consultation with members at Area Association spring conferences, and a subsequent report to the membership at the 2020 Annual Convention. While the review progresses, the Executive has committed to exercise their existing authority more fully, and apply greater rigour to the screening and vetting of resolutions submitted to UBCM for 2020.

With the understanding that a resolutions process review is already underway, the Resolutions Committee of the UBCM Executive has identified measures that UBCM can implement in the immediate term to streamline the process and address the number and repetitiveness of resolutions. In 2020, the Committee will seek to:

- Identify more directly the resolutions that address issues of priority to the membership, and ensure that debate of these priority issues takes place early on.
- Be more firm in sending resolutions back to the sponsor if resolutions do not meet UBCM criteria for format, clear writing, factual information, or relevance to local government administration or operations.
- Standardize language to be gender neutral and, where applicable, refer to local governments or First Nations rather than municipalities or regional districts. The goal is to avoid using debate time to make such amendments.
- · Combine similar resolutions, without losing or changing their intent.
- Offer further education and support to members on writing clear, effective resolutions.
- Work more closely with Area Associations to improve the quality of resolutions debated at their spring conventions.

These streamlining measures could affect resolutions that your community submits to Area Associations or to UBCM this year.

Please feel free to contact Reiko Tagami, Policy Analyst (rtagami@ubcm.ca or 604 270 8226 ext. 115), with questions about resolutions streamlining, or the resolutions process review.

Sincerely,

Maja <sup>4</sup>ait UBCM President

Claire Moy

Claire Moglove Chair, Resolutions Committee

From: Gillian Day <<u>gday@newwestcity.ca</u>>
Sent: Monday, March 9, 2020 12:34 PM
To: External-Clerks
Subject: Requesting support for a National Pharmacare Program

To all Mayors and Councillors in BC,

At a meeting on February 24, 2020, New Westminster City Council resolved:

THAT the City of New Westminster write a letter calling on the Federal Government to work with the provinces and territories to develop and implement a Universal Public National Pharmacare program as a top priority; and

THAT this letter be forwarded to all BC municipalities asking to write expressing their support for a National Pharmacare Program.

Please find the letter attached.

Thank you,

Gillian Day | Agenda Secretary T 604.527.4612 | E gday@newwestcity.ca

City of New Westminster | Legislative Services 511 Royal Avenue, New Westminster, BC V3L 1H9 www.newwestcity.ca

This message including attachments, transmitted herein is confidential and may contain privileged information. It is intended solely for the person or entity to which it is addressed. Any review, retransmission, dissemination, taking of any action in reliance upon, or other use of this information by persons or entities other than the intended recipient is prohibited. If you received this in error, please notify the sender and delete or destroy all copies.



Jonathan X. Coté Mayor

March 9, 2020

The Right Honourable Justin Trudeau, P.C., M.P. Prime Minister of Canada Langevin Block Ottawa, ON K1A 0A2

Dear Prime Minister:

#### **Re: National Pharmacare Program**

At a meeting of New Westminster City Council held on February 24, 2020, Council passed the following motion regarding a National Pharmacare Program:

WHEREAS the City of New Westminster recognizes the importance of healthy citizens as the foundation of a healthy, engaged and economically vibrant community;

AND WHEREAS over 3 million Canadians, including many in our local communities, don't take medicines prescribed by their doctors because they can't afford them;

AND WHEREAS Canada is currently the only country with a National Medicare Program that does not have a National Pharmacare Program;

AND WHEREAS the risk of having no insurance for medicines is high among lower income Canadians which includes the service industry, as well as precarious and seasonal workers;

AND WHEREAS studies show that adding a National Pharmacare Program to our National Health Care System would lower costs to businesses by over \$8 billion per year; AND WHEREAS recent research confirms that these gains can be achieved with little or no increase in public investment;

AND WHEREAS municipal government expenses for employee benefits would be significantly reduced by a National Pharmacare Program;

AND WHEREAS a national prescription drug formulary would support better quality prescribing, including reducing dangerous and inappropriate prescribing, especially to Canadian seniors;

AND WHEREAS a National Pharmacare plan is a sound policy, both economically and socially:

THEREFORE BE IT RESOLVED

THAT the City of New Westminster write a letter calling on the Federal Government to work with the provinces and territories to develop and implement a Universal Public National Pharmacare program as a top priority.

We appreciate your consideration of this important matter.

Yours truly,

Jonathan X. Cote Mayor

Cc: The Honourable Patty Hajdu, Minister of Health All BC Municipalities



Municipal Hall 4325 Blackcomb Way, Whistler, B.C. V8E 0X5

Dear Mayor Crompton and Council,

As May marks both Melanoma Awareness Month and the beginning of summer, it is imperative that communities across Canada be reminded of the importance of sun safety at this time of the year. In order to keep your citizens aware, informed, and vigilant about the potential risks of over-exposure to UV radiation, we ask that you, as a mayoral body, **publicly proclaim May as Melanoma Awareness Month in your municipality**.

Over-exposure to UV radiation is one of the major causes of melanoma and non-melanoma skin cancers. Though skin cancers should be largely preventable, their diagnosis rates are increasing. Skin cancer is the most common of all cancers. **1 in 6 Canadians born in the 1990s will get skin cancer in their lifetimes.** There are more new cases of skin cancer each year than the number of breast, prostate, lung and colon cancers COMBINED. While most forms of non-melanoma skin cancer can be surgically removed, melanoma is an aggressive form of cancer. The five-year relative survival rate of melanoma that has metastasized is 18%.

Despite these figures, many people seek sun without taking the advisable precautionary measures, or believe that only severe burns contribute to one's risk of skin cancer. In fact, **any darkening of skin colour, including a tan, is indicative of UV damage.** 

Mayor of New Westminster, Jonathan Coté, has committed to proclaim May 2020 as Melanoma Awareness Month, and **challenges other BC municipalities to follow his example** and promote sun safety, skin cancer awareness, and early detection information among their populations. *"Skin cancers are largely preventable, and yet there are more cases now than ever. This is why as Mayor of New Westminster, I'm happy to support this important initiative and challenge all BC municipalities to do the same."* 

If you choose to do so, Save Your Skin Foundation will provide you with an online resource package providing information on these matters and a certificate recognizing your municipality's efforts.

Save Your Skin Foundation is a Canadian non-profit registered charity founded by North Vancouver resident and melanoma survivor Kathleen Barnard. It is dedicated to the fight against non-melanoma skin cancers, melanoma and ocular melanoma through nationwide education, advocacy, and awareness initiatives like this one.

Thank you for your consideration. We look forward to working with you.

Sincerely,

Kathleen Barnard

Kathleen Barnard, Founder and President Save Your Skin Foundation

"MELANOMA AWARENESS MONTH"

WHEREAS It is imperative that communities across Canada be reminded of the importance of sun safety;

AND WHEREAS Over-exposure to UV radiation is one of the major causes of melanoma and non-melanoma skin cancers;

AND WHEREAS Skin cancer is the most common of all cancers. 1 in 6 Canadians born in the 1990s will get skin cancer in their lifetimes;

AND WHEREAS Many people seek sun without taking the advisable precautionary measures and are unaware that any darkening of skin colour, including a tan, is indicative of UV damage;

AND WHEREAS Skin self-examinations should be performed on a monthly basis because skin cancers are highly treatable when detected early;

AND WHEREAS Save Your Skin Foundation is dedicated to the fight against nonmelanoma skin cancers, melanoma and ocular melanoma through nationwide education, advocacy, and awareness initiatives:

NOW, THEREFORE the month of May 2020 will hereby be proclaimed as

MELANOMA AWARENESS MONTH



Friday, March 6, 2020

Dear Mayor and Council,

I would love to request that the Fitzsimmons Creek Bridge be lit TEAL for PMDD Awareness Month on April 26th.

This internationally celebrated event is in its sixth year, with the goal to raise awareness and build advocacy for Premenstrual Dysphoric Disorder (PMDD). PMDD is a much under-diagnosed reproductive mood disorder affecting 1 in 20 women of reproductive age, 30% of whom attempt suicide. We at the International Association for Premenstrual Disorders (IAPMD), would be grateful to see the bridge light up TEAL for us on April 26th. With this year's theme of "igniting" the fight against PMDD more visible, we believe lighting up landmarks around the world will be a powerful symbol of hope and community.

Thank you for your consideration.

Best,

Butt Buchert

Brett Buchert Peer Support Coordinator International Association for Premenstrual Disorders



#### Landmark Lighting Request Form

Please complete the form and scan/email to <u>corporate@whistler.ca</u> along with your cover letter addressed "To Mayor and Council" with information regarding your campaign or cause. We will contact you to confirm the status of your request.

Contact Name	Brett Buchert
Organization	International Association for Premenstrual Disorders
Business Address	6 Liberty Square #2077
City/Province/Postal Code	Boston, MA 02109
Business Phone Number	1-800-609-7633
Business Email	brett@iapmd.org
Website Address	https://iapmd.org
Brief description of the event associated with your request - 75 words or less (Information here will be used for communications and the sign on the bridge. RMOW will edit copy if necessary.)	The event is PMDD Awareness Month. This internationally celebrated event is in its sixth year, with the goal to raise awareness and build advocacy for Premenstrual Dysphoric Disorder (PMDD). PMDD is a much under-diagnosed reproductive mood disorder affecting 1 in 20 women of reproductive age. With this year's theme of "igniting" the fight against PMDD more visible, we believe lighting up landmarks around the world will be a powerful symbol of hope and community.
Optional: Social Media Campaign Title (include hashtags)	#ignitethefightpmdd #pmddawarenessmonth2020
Landmark Choice	X Fitzsimmons Covered Bridge
Date of Event	April 26, 2020
Colour Request	Teal

Signature: Brett Buchert Digitally signed by Brett Buchert Date: 2020.03.05 20:06:04 -05'00'

Date: March 5, 2020

This application does not guarantee that your event lighting request will be approved or your date is available.



March 20, 2020

To Mayor and Council,

Food Allergy Canada would like to submit an illumination request to light the Fitzsimmons Covered Bridge <u>teal</u> for Food Allergy Awareness Month – a nationally recognized event that is <u>recognized by</u> <u>Parliament</u>. This is an annual event, occurring every May.

Food allergy affects more than 2 million Canadians. Lighting will help to create awareness of food allergy on a national scale, and will draw attention and interest from outside the community.

We will be promoting lightings via email to our members (36k) + through social media (almost 20k) + on our website (20k impressions per month).

Illumination request date: May 1, 2020 or any date available in May

Colour selection: Teal

Website: www.foodallergycanada.ca

Thank you in advance for your support.

Sincerely, Food Allergy Canada



#### Landmark Lighting Request Form

Please complete the form and scan/email to <u>corporate@whistler.ca</u> along with your cover letter addressed "To Mayor and Council" with information regarding your campaign or cause. We will contact you to confirm the status of your request.

Contact Name	Michelle DeFacendis
Organization	Food Allergy Canada
Business Address	505 Consumers Road, Suite 507
City/Province/Postal Code	Toronto, ON
Business Phone Number	416 785 5666
Business Email	mdefacendis@foodallergycanada.ca
Website Address	foodallergycanada.ca
Brief description of the event associated with your request - 75 words or less (Information here will be used for communications and the sign on the bridge. RMOW will edit copy if necessary.)	Food Allergy Awareness Month is a nationally recognized event that occurs annually, every May. The event brings awareness to food allergy, and the more than 2 million Canadians who are affected. The colour associated with food allergy is teal.
Optional: Social Media Campaign Title (include hashtags)	#ShineATealLight #TurnItTeal #FAAM Twitter @foodallergycan / IG @food_allergy_canada / FB@foodallergycanada
Landmark Choice	X Fitzsimmons Covered Bridge
Date of Event	May 1, 2020 or any date available in May
Colour Request	Teal

tend Signature: March 20. 2020 Date:

This application does not guarantee that your event lighting request will be approved or your date is available.



International Recovery Day, Inc. 4315 45th Ave. West, Unit 203, Bradenton Florida 34210 - 443 880-2094 ph.

March 6, 2020

To Mayor and Council,

My name is Alex Bond and I am writing on behalf of International Recovery Day, Inc. to request the lighting of Fitzsimmons Bridge in Whistler. We wish to have the bridge illuminated in purple lights on September 30, 2020 to celebrate International Recovery Day. We hope to spread awareness about the multiple pathways to recovery from substance use disorder, as well as celebrate individuals in recovery and their friends and family. Our overarching goal is to globally connect recovering individuals, families, and communities in order to provide worldwide hope to overcome addiction. For more information about the non-profit organization and the global event, visit our website at internationalrecoveryday.org. If you have any questions or comments I can be reached by phone at the or by email at the provide. Thank you for your time and I look forward to hearing from you.

Sincerely,

Alex Bond



#### Landmark Lighting Request Form

Please complete the form and scan/email to <u>corporate@whistler.ca</u> along with your cover letter addressed "To Mayor and Council" with information regarding your campaign or cause. We will contact you to confirm the status of your request.

Contact Name	Alex Bond	
Organization	International Recovery Day, Inc.	
Business Address	4315 45th Avenue West Unit 203	
City/Province/Postal Code	Bradenton, Florida 34210	
<b>Business Phone Number</b>		
Business Email		
Website Address	internationalrecoveryday.org	
Brief description of the event associated with your request - 75 words or less (Information here will be used for communications and the sign on the bridge. RMOW will edit copy if necessary.)	International Recovery Day is a global event to spread awareness of the multiple pathways to recovery from substance use disorder, and celebrate people in recovery from substance use disorder. Our overarching goal is to globally connect recovering individuals, families, and communities in order to provide worldwide hope to overcome addiction.	
Optional: Social Media Campaign Title (include hashtags) Landmark Choice	Recovery Lights Facebook: (facebook.com/internationalrecoveryday) Twitter: (@Recovery_2020) ; (#RecoveryLights #Wedorecover)	
Date of Event	September 30, 2020	
Colour Request	Purple	

U/ Signature: \_\_\_ 6/202 Date: \_ >

This application does not guarantee that your event lighting request will be approved or your date is available.

Dear Mayor and Council,

More than 11 million Canadians live with diabetes or prediabetes and 20 Canadians are diagnosed with diabetes every hour. Almost **1.6 million British Columbians, or 31% of the population**, are living with diabetes or prediabetes. That's why **Diabetes Canada** and **JDRF** join the international community in recognizing **World Diabetes Day on November 14**, an official United Nations day.

**November 14** is also a day to acknowledge the incredible contribution of Canadian Sir Frederick Banting, the codiscoverer of insulin. Held on his birthday, World Diabetes Day is an opportunity to look at his legacy.

Throughout Canada, monuments will be lit up in **Blue** to recognize World Diabetes Day and community events will happen throughout the country. Last year, Science World, BC Place, Bloedel Conservatory, Whistler Creekside, Sails at Canada Place, Olympic Cauldron (VCC) and several other popular landmarks participated. We are going into our third year and looking forward to building on the previous years' engagement and success.

We would love it if we could light up Fitzsimmons Bridge in order to raise awareness for Diabetes and to celebrate the birthday of one of Canada's greatest scientists.

We look forward to hearing back from you at your convenience or, we will reach out to you in the next few weeks.

Kind regards,

Glenda Moren

Glenda Morin Program Development Coordinator Diabetes Canada, BC & Yukon D: 604.732.2311 E: Glenda.morin@diabetes.ca www.Diabetes.ca



Diabetes Canada is the registered national charitable organization that is making the invisible epidemic of diabetes visible and urgent. Diabetes Canada partners with Canadians to End Diabetes through:

- Resources for health care professionals on best practices to care for people with diabetes;
- Advocacy to governments, schools and workplaces; and
- Funding world-leading Canadian research to improve treatments and find a cure.

Lauch Kinsman

Sarah Kinsman Administrative Assistant JDRF, BC & Yukon Chapter D: 604-320-1937 E: skinsman@jdrf.ca www.jdrf.ca



For over 40 years, JDRF has been a global leader in the search for an end to type 1 diabetes (T1D), through both research funding and advocacy. During that time, we have always talked about a cure as a singular destination: a return to normal physiology.

But today, we realize that we are engaged in a process of curing T1D – that a cure is not just a destination but also a journey along a path. And we recognize that a part of our mission must be to help those living with T1D today to live healthier, easier, and safer lives until we arrive at the end of that path.



#### Landmark Lighting Request Form

Please complete the form and scan/email to <u>corporate@whistler.ca</u> along with your cover letter addressed "To Mayor and Council" with information regarding your campaign or cause. We will contact you to confirm the status of your request.

Contact Name	Sarah Kinsman
Organization	JDRF
<b>Business Address</b>	502-4180 Lougheed Highway
City/Province/Postal Code	Vancouver, BC V5C 6A7
<b>Business Phone Number</b>	604-320-1937
Business Email	skinsman@jdrf.ca
Website Address	jdrf.ca
Brief description of the event associated with your request - 75 words or less (Information here will be used for communications and the sign on the bridge. RMOW will edit copy if necessary.)	More than 11 million Canadians live with diabetes or prediabetes and 20 Canadians are diagnosed with diabetes every hour. Almost 1.6 million British Columbians, or 31% of the population, are living with diabetes or prediabetes. That's why Diabetes Canada and JDRF join the international community in recognizing World Diabetes Day on November 14, an official United Nations day.
Optional: Social Media Campaign Title (include hashtags)	
Landmark Choice	Fitzsimmons Covered Bridge
Date of Event	November 14, 2020
Colour Request	Blue

mamon Signature: 3 2020 Date:

This application does not guarantee that your event lighting request will be approved or your date is available.



February 26, 2020

Dear Mr. Mayor Crompton and Council,

**On Thursday November 19, 2020**, Rainbows for All Children Canada Inc. and other children's mental health and grief organizations across Canada will join together to recognize **National Children's Grief Awareness Day**. We would love to have Whistler's support again this year.

Please accept this email as a request to join Rainbows for All Children Canada Inc. in the National Children's Grief Awareness Day, by lighting up the Fitzsimmons Creek Bridge in blue for the day and evening.

Grief is often a topic of taboo, and even more so with children. Children can face an abundance of events that could cause feelings of grief, and when it is overlooked, they become at a higher risk of self-harm, destructive behaviours, substance abuse, anxiety, depression or suicide. **Children's Grief Awareness Day** is designed to help us all become more aware of the needs of grieving children — and of the **long term impacts it can have on mental health**.

Consider this:

- **1 in 20 children** will experience the loss of a loved one by the time they graduate high school
- **25,000** Canadian children under 17 years of age have a mother in prison
- Almost **64,100** Canadian children are growing up in military families
- In 2013, an estimated 62,428 children were placed in the out-of-home care
- It is estimated that **83% of the 73,000 children** who die each year have a surviving sibling
- 1.2 million children and youth are living with separated or divorced parents in Canada
- 203,000 Canadian children will be affected by the loss of a relative each year

**Thursday November 19, 2020** is an opportunity to let grieving children know that they're not forgotten, or alone during their grief, loss, and/or bereavement. **We ask that Canadians show their support by wearing blue,** while lighting up landmarks in blue, as we come together to show our support for these children.

This year will mark the 7<sup>th</sup> year of recognizing Children's Grief Awareness Day in Canada. In the past 7 years we have had the support of the public and private sector at the Federal, Provincial, Regional and local levels including formal recognition and proclamations from the Prime Minister's office and 6 provinces acknowledging the third Thursday of November as National Children's Grief Awareness Day. In the past we have lit up many popular and recognizable Canadian landmarks across the country including, Niagara Falls, CN Tower, the Calgary Tower, the Peace Bridge, High Level Bridge, the Alberta Legislature and BC Place and our goal is to top

that number this year! This year we hope that we can also include Fitzsimmons Creek Bridge the lighting again.

Along with the proclamations we will be repeating our **blue butterfly sock campaign** through social media involving various Canadian personalities, which three Premiers had participated last year. Supporters can post pictures, through their social media feeds, wearing our **blue butterfly socks that will be available through our website (www.rainbows.ca)**.

We hope to hear that the Fitzsimmons Creek Bridge will be re-joining the Children's Grief awareness Day and look forward to hearing from you soon.

Yours sincerely,

Kimberly Thomson National Director

80 Bradford St, Suite 239 Barrie, Ontario L4N 6S7 Tel: 705 726 7407 Fax: 705 726 5805 E-mail: admin@rainbows.ca www.rainbows.ca

"Rainbows" or "Rainbows Canada" shall mean the charitable Corporation "Rainbows For All Children of Canada, Inc."



#### Landmark Lighting Request Form

Please complete the form and scan/email to <u>corporate@whistler.ca</u> along with your cover letter addressed "To Mayor and Council" with information regarding your campaign or cause. We will contact you to confirm the status of your request.

Contact Name	Kimberly Thomson
Organization	Rainbows for All Children Canada
Business Address	80 Bradford Street, Suite 239
City/Province/Postal Code	Barrie, ON L4N 6S7
<b>Business Phone Number</b>	1-705-726-7407
Business Email	Kimberly@rainbows.ca
Website Address	www.rainbows.ca
Brief description of the event associated with	On November 19th, 2020, we will be bringing awareness through landmarks and social media for Children's Grief Awareness Day.
your request - 75 words or less	Children face grief through many different walks of life, whether it is from death, divorce, separation, abandonment, being put in foster care, or deployment.
(Information here will be used for communications and the sign on the bridge. RMOW will edit copy if necessary.)	Rainbows would like Canada to show their support for these children to show they are not alone, and that there are people who care about what they're going through.
Optional: Social Media Campaign Title (include hashtags)	#CGADHOPE #childrensgriefawarenessday
Landmark Choice	Fitzsimmons Covered Bridge
Date of Event	November 19th, 2020
Colour Request	Blue

Signature: Date: February 27th, 2020

This application does not guarantee that your event lighting request will be approved or your date is available.