

SKI & RIDE SMITHERS

SKI AREA MASTER PLAN



April 2008

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EXECUTIVE SUMMARY

Hudson Bay Mountain Adventures Ltd (HBMA) owns and operates Ski & Ride Smithers (SRS), an existing regional destination ski area located in northwest British Columbia, adjacent to the Town of Smithers. Skiing was first introduced to this area in the early 1960's, with lift development occurring in the mid to late 1970s. Since that time, little development has occurred, although the ski area has remained popular with residents of the Bulkley Valley.

In late 2005, Hudson Bay Mountain Adventures was acquired by 20/20 Resorts, and as part of this acquisition, 20/20 Resorts has committed to a long term vision to transform the existing ski area into a multi season, regional resort. The initial step in this process is the preparation, review, approval and implementation of a new Ski Area Master Plan, which is outlined in this document.

The master plan outlines the physical capabilities and attributes of the SRS site as they relate to the development of a multi season, regional ski resort, both in terms of the mountain facilities (ski lifts, ski runs) and base area development (commercial, retail and residential opportunities). A summary of the key highlights of the master plan include:

- The master plan contemplates a three phase expansion program, which at build out, would potentially see 9 ski lifts serving over 72 ski trails on approximately 270 ha of ski terrain, plus a mountain village that will include a mixture of residential types with commercial and retail facilities. Phase 1 development is outlined in detail, with subsequent phases illustrated in conceptual form only. Additional assessments and site reviews will be required for development beyond Phase 1.*
- The intent of the master plan is seek development approval for Phase 1, which proposes a limited form of development, focusing on the regional market of the resort, by providing additional lift capacity and ski terrain, while at the same time providing an initial offering of residential properties within the future Village area on the mountain. In 2008, as part of the development proposed for Phase 1, HBMA will be installing a new lift in Terrain Pod I, along with additional ski terrain, adjacent to and slightly below the existing Skyline Chair, on the eastern slope of the mountain. Concurrently, in 2008, the resort intends to market its first residential lots in the Village area. In the event that the market response is positive, additional residential lots will be marketed in the following year(s), plus the installation of additional lift capacity and ski trail development, consistent with the development proposed for Phase 1.*
- Phase 2 and 3 of the master plan provide a continuation of the development initiated in Phase 1, with additional lift capacity and trail development, establishment of a Village Center with commercial and retail facilities, as well as development of non ski related activities, both in the winter and summer. Given the level of development contemplated in Phase 2 and beyond, HBMA is committed to undertaking additional studies and assessments to determine the potential impacts and mitigation measures necessary to support this level of development as part of the review and approval process for Phase 2 and subsequent phases.*

- *HBMA understands and appreciates that the resort area (existing and proposed) lies within the Traditional Territory of the Wet'suwet'en Nation and is committed to working with the Wet'suwet'en to develop a common vision for the long term development of the resort which will provide a level of certainty for the development, including opportunities for the Wet'suwet'en to participate in the future development of the resort, while at the same time respecting and protecting the Wet'suwet'en's traditional use and culture of this area. HBMA is currently in discussions with the Wet'suwet'en for development of a long term agreement between the two parties, and as part of that process, the Wet'suwet'en have provided written support for the master plan.*
- *The master plan outlines a proposed gondola to be built from the Town of Smithers to the Village Center. The gondola is not identified for construction in a particular Phase, however HBMA believes this facility would have a significant and positive impact on both the resort and the Town of Smithers if it were approved and installed in the near future. Further discussions between HBMA, the Wet'suwet'en Nation, Town of Smithers, Regional District of Bulkley – Nechako and the Province of BC will be required to move this project forward in a timely manner.*
- *In 2002, as part of the background work for preparation of the ski area master plan at that time, a number of environmental assessments were undertaken, including an assessment of fish and wildlife values and the impacts to those values arising from expansion of the ski resort. Those studies and assessments remain current and information in those reports concluded that no major environmental impediments existed relative to the level of development contemplated in Phase 1. HBMA is aware that Hudson Bay Mountain contains important environmental (wildlife values) and this is confirmed with information provided by the Ministry of Environment and the objectives of the Bulkley Valley LRMP. To that end, HBMA is committed to further assessments of environmental values as part of any future development beyond Phase 1.*
- *Existing utilities and services at the resort are of a limited nature, but are considered sufficient for the current level of development. In order to accommodate the proposed expansion of the resort, specifically the residential component and Village Center, HBMA is proposing to install appropriate water, sanitary sewer and related services in manner that can allow for expansion of the services as additional development occurs.*
- *The proposed development expansion of the resort will result in a number of impacts on adjacent communities, and overall, those impacts are expected to be positive. However, HBMA understands that the resort expansion will also impact other services and facilities such as policing, health services, accommodation (availability and affordability), employment, education facilities and recreation services. Although the level of development contemplated in Phase 1 will have minimal impacts on the economic and social components of the community, HBMA recognizes that the level of future development will impact these services and to that end, HBMA is committed to undertaking a formal socio – economic assessment as part of the review and approval process for development beyond Phase 1.*

- *An assessment of the winter skiing and snowboard market suggests that HBMA has the potential for significant improvements in its skier visit levels, and in the short term, the development proposed for Phase 1 will allow HBMA to reach its regional potential. The current market for HBMA is northern BC, and as the facilities at the resort, along with improvements to transportation and access, are implemented (e.g. expansion of the Smithers Airport), the company fully expects increased visitation from other markets including Calgary, Edmonton and Ontario over the next few years.*

Acknowledgements

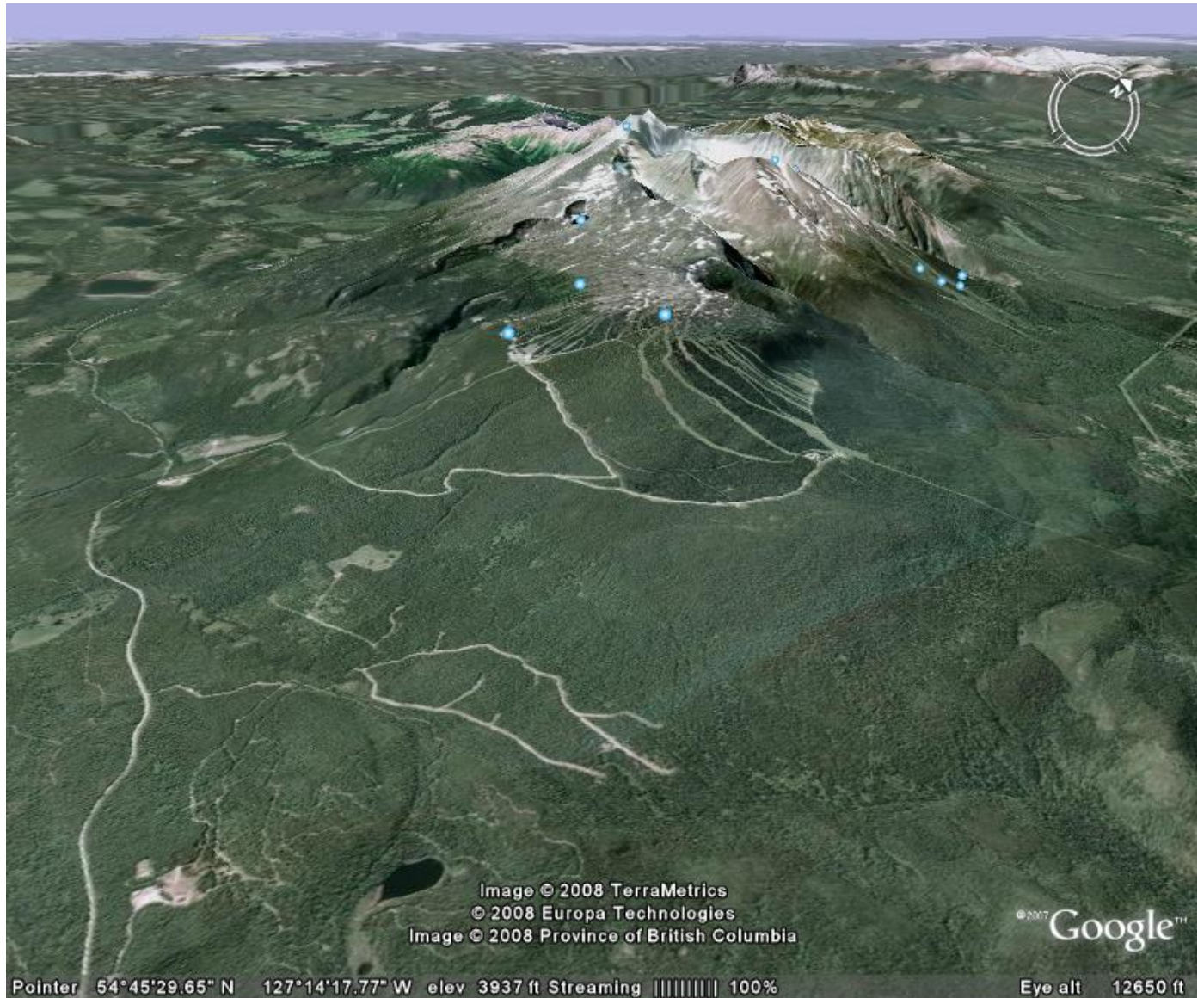
The preparation and approval of this Master Plan was the result of significant contributions by many individuals including resource agencies, local government and stakeholders. HBMA wishes to express their thanks and appreciation to several individuals who played a major role in the work leading up to submission and approval of the Ski Area Master Plan for Ski & Ride Smithers.

- Dan Matthews, DR Matthews & Associates
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- Nancy Trieber, General Manager, Ski & Ride Smithers
- Darryl Inglis, 20/20 Resorts
- Terry Pratt and Tori Meeks, Ministry of Tourism, Sport and the Arts
- David de Wit, Office of the Wet'suwet'en
- The residents of Smithers and the Bulkley Valley

On behalf of the entire team at HBMA, your contributions made a difference, and we look forward to the months and years to come as HBMA now begins the process of implementation of the Master Plan for expansion of the resort.

Lorne Borgal, President and CEO, 20/20 Resorts
April 15, 2008

Figure 1 –1 Hudson Bay Mountain – Looking North



1.0 Introduction

Hudson Bay Mountain Adventures Ltd (HBMA) owns and operates Ski & Ride Smithers (SRS), an existing regional destination ski area located in northwest British Columbia, adjacent to the Town of Smithers. The ski area currently offers approximately 116.55 ha of developed ski terrain serviced by 4 lifts.

In 2005, 20/20 Resorts acquired the resort with the intent of developing the resort into a multi season recreation facility with a mountain village incorporating residential and commercial/retail services. To assist in this process, the planning team of D.R. Matthews and Associates Inc (DRM) and Harry Measure and Associates (HMA) were commissioned to prepare and update the Ski Area Master Plan for the resort area including mountain and base area facilities.

This master plan, which has been submitted to the Province of BC – Ministry of Tourism, Sport and the Arts – MTSA, for review and approval as a basis for negotiating a long term Master Development Agreement, provides a long term vision for development at the resort and reflects the overall goals and objectives of the All Seasons Resort Policy (ASRP), which governs the form and type of resort development on Crown land within the Province of BC.

1.1. Project Location

SRS is located on Hudson Bay Mountain, a prominent and well known geographic feature in the Bulkley Valley, adjacent to the Town of Smithers in northwest British Columbia (see Figures 1 – 1, 2, 3 & 4) The ski area is accessed by a 26 kilometer, gravel road from the west side of Smithers.

The Town of Smithers has a population of approximately 6,000 people (with a similar number living in the surrounding area) and is a regional transportation, tourism and service center. The Town has an excellent airport (5km from Town), along with rail and highway access. The Bulkley Valley is known internationally for outstanding recreation activities, both winter and summer including fly fishing, mountain biking, hunting, hiking, snowmobiling, ski touring and various other summer and winter activities.

In 1984 and 2002, the Town of Smithers hosted the British Columbia Winter Games. The town has a variety of amenities, which will provide activities and services for the users of the resort.

1.2. Historical Overview

Skiing was first introduced to this area by the Smithers Ski Club in the early 1960's by means of a rope tow. Eventually a T-bar was installed in 1973, followed by construction of a day lodge and second T-bar in 1977, and finally a triple chair lift in 1980. Since that time, little development has occurred until the early 2000s when the existing operators began to seek possible purchasers for the resort. In late 2005, 20/20 Resorts successfully purchased the shares of Hudson Bay Mountain Adventures and immediately initiated improvements to the resort, including enhancements to the existing skier day lodge.

This master plan represents 20/20 Resort's proposed vision for a multi season, "regional" resort and forms the basis for a long term Master Development Agreement with the Province of British Columbia.

Figure 1 – 2

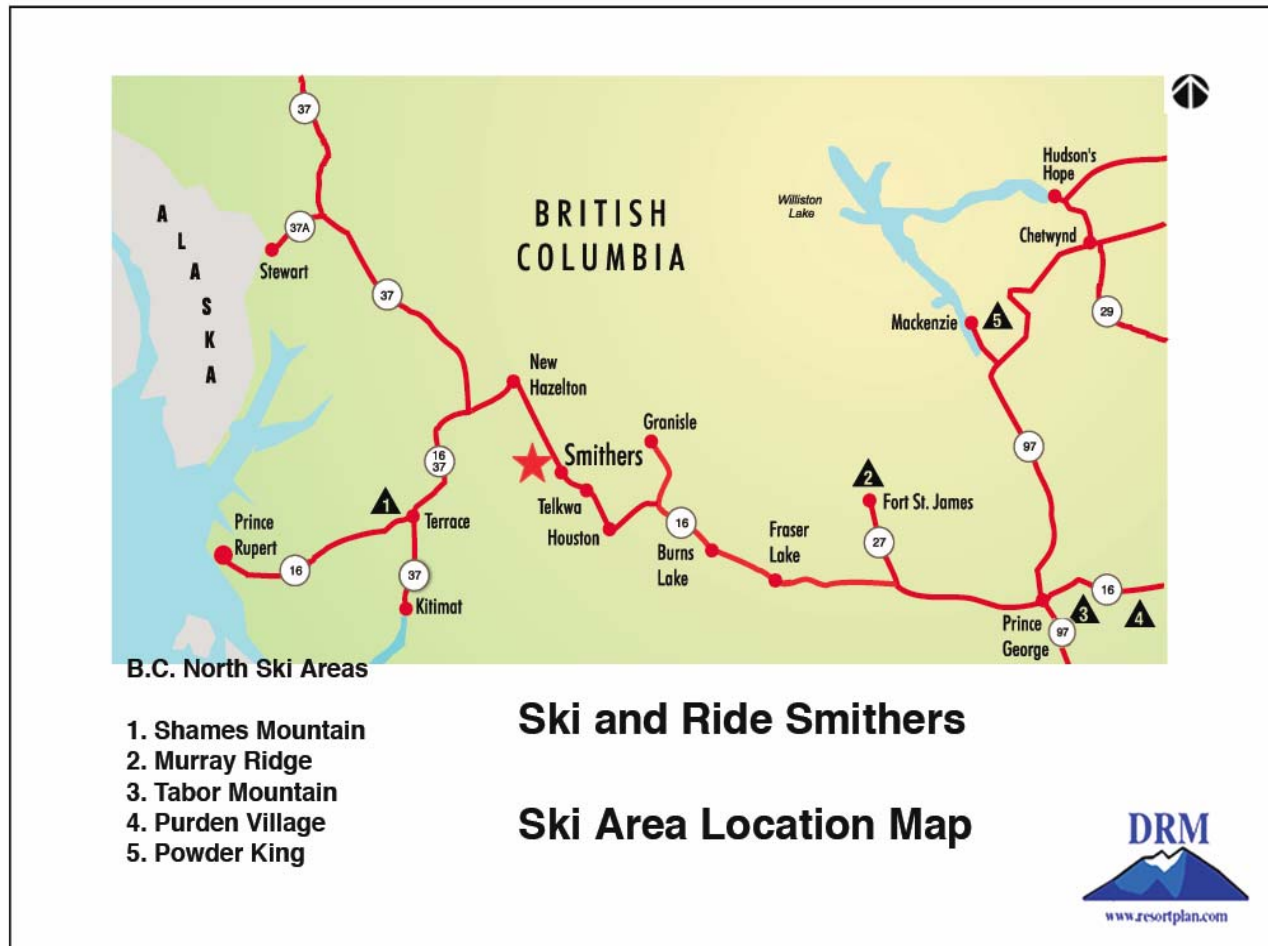


Figure 1 – 3 Hudson Bay Mountain – Looking West



Figure 1 – 4 Hudson Bay Mountain – Looking East



1.3 Wet'suwet'en Nation

The resort area (existing and proposed) lies within the Traditional Territory of the Wet'suwet'en Nation (Wah Tah Keght and Woos houses). The Office of the Wet'suwet'en provides administration, negotiation and treaty support for the Wet'suwet'en Nation, which is made of a number of clans. Specifically, the ski hill is within the boundaries of the Moricetown Band.

The resort understands the historic aboriginal rights that First Nations have with the lands within their operating area, which include, but are not limited to cultural and heritage values which represent the physical and spiritual activities that were or are still, being practiced for the purposes of ritual, ceremonial, spiritual, economic or cultural well – being of the First Nations. HBMA is interested in working with the Wet'suwet'en through a cooperative sense of sharing. The company appreciates its use of the land is not exclusive and is keen to work in a manner that benefits all parties that have an interest in using the land.

The resort recognizes the Wet'suwet'en peoples are interested in opportunities arising from tourism and recreation developments within their Traditional Territory, and to that end, it has undertaken preliminary discussions with the Wet'suwet'en regarding the proposed development on the mountain. HBMA remains open and willing to develop protocols and agreements that outline how those opportunities can be implemented in an effective and meaningful way that not only creates a quality all season mountain resort but also results in economic opportunities to be shared and a long term development plan that reflects and enhances the values of the Wet'suwet'en community as well as a recognition of the Wet'suwet'en substantial knowledge of the resort area. This commitment will provide development opportunities as a realistic alternative to existing Wet'suwet'en employment options.

The Wet'suwet'en and HBMA have initiated discussions on a common vision for the long term development of the resort which will, among other things, provide certainty (approval through the All Seasons Resort Policy) for the resort while at the same time respecting and protecting the First Nations traditional use and culture of this area.

1.4 Plan Objectives

The intent of this Master Plan is to review and define the physical capabilities of the SRS site as they relate to the development of a multi season, regional ski resort. The plan has been developed in concert with the All Seasons Resort Policy and defines potential development, both on the mountain and base area, over a twenty year period.

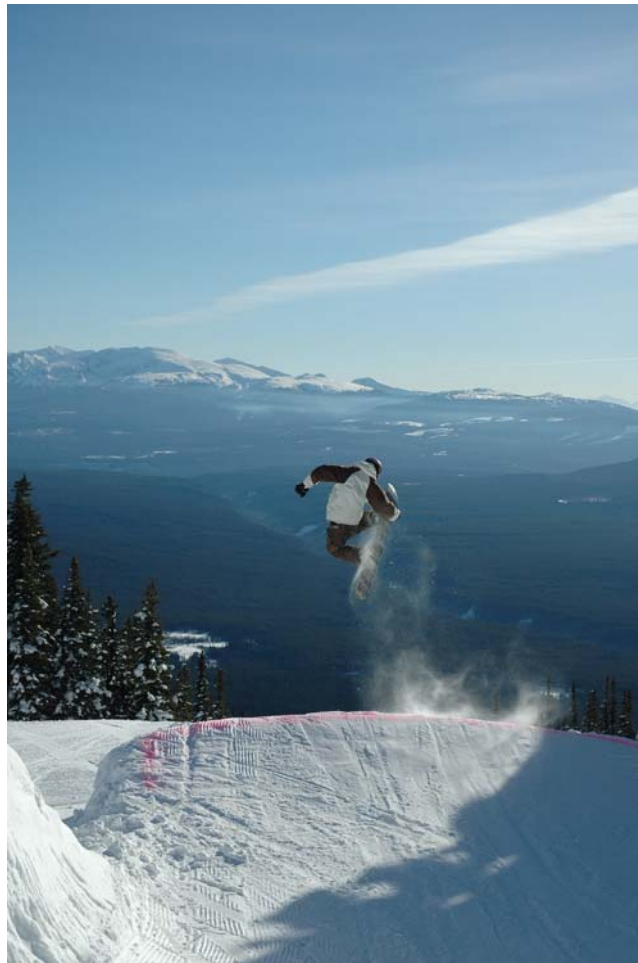
The major objectives of this plan are:

- To revise the ski lift and trail plan.
- To define the facilities associated with the trail and lift development.
- To define the base areas for commercial and residential development.
- To establish a focus for future mountain and base area development on a phased basis.
- To adjust the Controlled Recreation Area and define elements for future planning and study.

This Master Plan represents an amendment to the existing resort development currently in place. Although the proposed development at the resort is a substantial upgrade to the facilities that have been in place for nearly 25 years (last expansion occurred in 1980), the current proposal essentially builds on what has been developed to date and contemplates an expansion of the existing resort area (Controlled Recreation Area – CRA) to facilitate additional ski terrain and lifts.

In addition to a detailed assessment of the existing ski area and related facilities as well as an analysis of the proposed development, both on the mountain and in the base area, the master plan illustrates how future development will occur, on a phased basis, over the next 20 years (specific details in Phase 1 and conceptual for subsequent phases).

The master plan contemplates a three phase expansion program, with Phase 1 focusing on immediate improvements to both existing ski terrain and lift capacity as well as an initial offering of residential properties in the future Village area on the mountain. Future phases will reflect increased mountain facilities as well as the addition of base area development including a mountain village incorporating a mixture of residential housing types with commercial and retail outlets.



2.0 Existing Resort Overview

HBMA currently operates 4 days a week from opening day through to the end of January, except for the Christmas season and is then open 7 days a week from February 1st through to the end of the season, including spring break in March. On average, the resort is open 150 days/year, with skier visiting averaging approximately 41,000/yr over the last few years, including the “poor” snow year in 2005/06 experienced by many ski areas throughout the Province.

HBMA currently has 4 lifts (handle tow, two T – bars and a triple chair) on the south and east side of the mountain, serving approximately 117 ha of skiable terrain containing 30 ski trails (12 Green - Easy, 14 Blue - More Difficult and 4 Black Diamond – Most Difficult). These lifts were installed over the last 24 years beginning with the Orange T- bar (Panorama T –bar) in 1973, followed by the Green T- bar (Prairie T- bar) in 1977 and the Blue Chair (Skyline) in 1980 (see Figure 2 – 1). A handle tow was added in 1995 to service skiers in a location adjacent to the main base area and the ski rentals and ski school. The resort also has a day lodge and parking for 80 vehicles.

Adjacent to the existing day lodge facility is a small subdivision of recreational cabins, called the Cabin Colony, containing approximately 100 cabins. This development was created by the Province over 25 years ago, and has limited services. No other residential development is available on the mountain.

2.1 Existing Terrain Review

The existing ski terrain (approximately 116.55 ha) contains 30 ski trails; 12 Easier, 14 More Difficult and 4 Most Difficult (See Figure 2 – 3). The details relating to the existing ski area are noted on Figure 2 – 4.

The balance of skier distribution to the market or ideal ski terrain is higher for the Easier ski terrain and considerably less in the Most and More Difficult ski terrain. See Figure 2 – 5

Based on the aforementioned, the projected number of skiers per hectare is 30 (number of skiers divided by the amount of ski terrain), however based upon actual use, the number of skiers per hectare is estimated in the range of 19 skiers/ha.

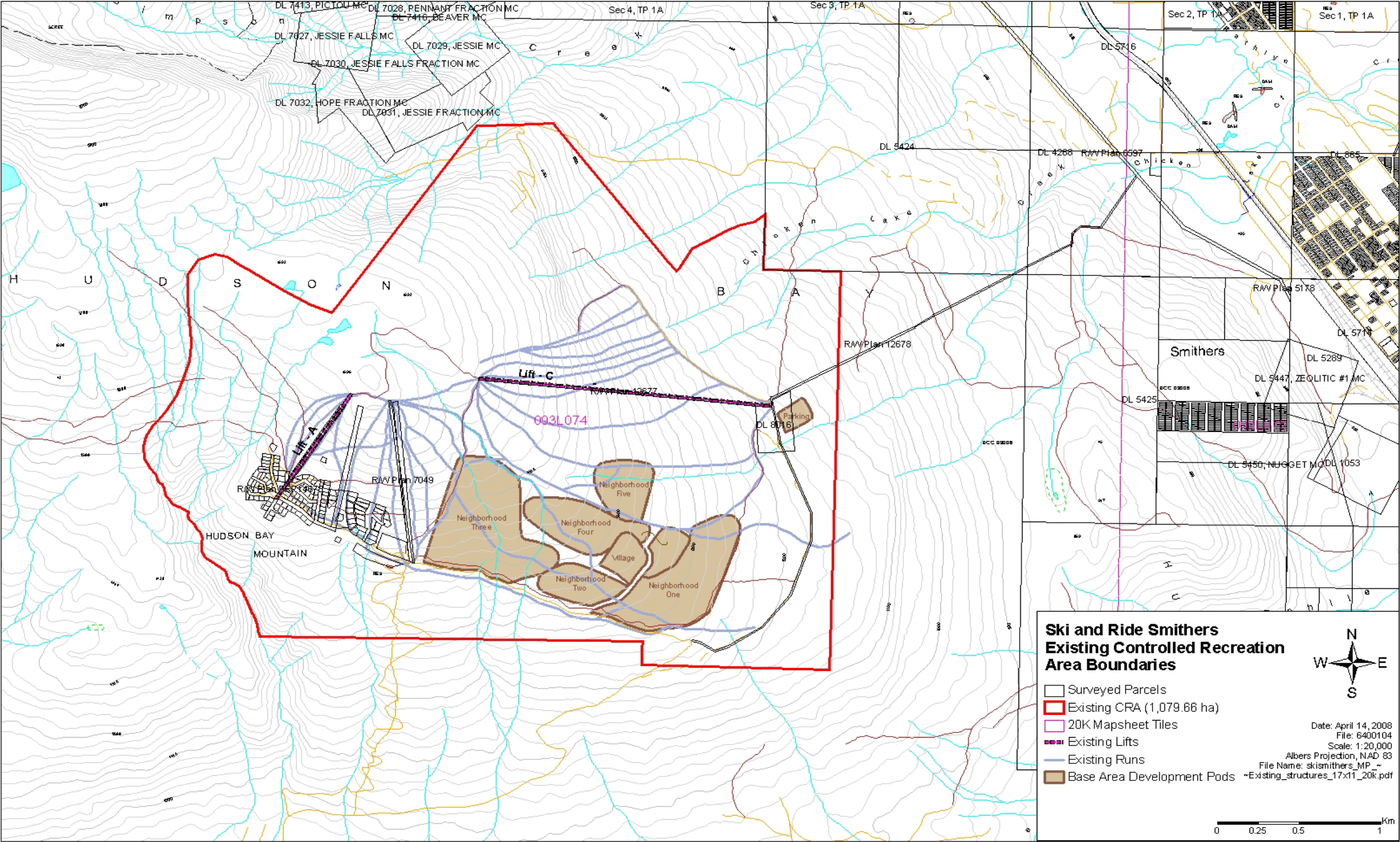
Figure 2 – 1: Existing Day Lodge



Figure 2 – 2: Skyline Chair



Figure 2 – 3: Existing Ski Area Plan



2.1.1 Existing Ski Terrain Assessment

Figure 2 – 4: Existing Ski Area Terrain Assessment

The details relating to the existing ski terrain are as follows:

SKI SMITHERS SKI AREA TERRAIN ASSESSMENT EXISTING SKI TERRAIN									
SKI TRAILS / PODS	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
LIFT F, HANDLETOW TERRAIN POD F F) LITTLE RASCAL	BEGINNER	16	25	110	15%	15%	0.28	55	15
TERRAIN POD F TOTALS							0.28		15
LIFT A PRAIRIE T-BAR TERRAIN POD A 1- ALPINE MEADOWS 2- CABIN RUN 3- MARMOT HOLLOW 4- NANCY GREENE	NOVICE NOVICE NOVICE LOW INTER	169 120 157 152	42 35 46 42	1143 641 855 716	15% 19% 19% 22%	25% 27% 30% 32%	4.78 2.23 3.96 2.32	44 44 44 33	210 98 174 77
TERRAIN POD A TOTALS							13.29		559
LIFT B PANORAMA T-BAR TERRAIN POD B 1- PARLIAMENT 2- CANNON BALL 3- CINDERLLA 4- TURKEY SHOOT 5- YODELIN 6- PITCHFORK 7- ALPINE PARK/THE FORK 8- CUT OFF 9- PANORAMA 10- TWINKLE BOWL	INTERMEDIATE INTERMEDIATE INTERMEDIATE LOW INTER LOWINTER LOWINTER LOW INTER NOVICE NOVICE INTERMEDIATE	218 223 172 253 210 65 130 100 253 55	39 31 22 37 33 44 27 30 36 66	1112 951 888 1070 880 249 590 481 1457 285	20% 23% 19% 24% 25% 27% 23% 21% 18% 20%	37% 38% 40% 37% 32% 32% 27% 22% 25% 38%	4.32 2.73 2.07 3.97 2.93 1.09 1.60 1.44 5.21 1.90	22 22 22 33 33 33 33 44 44 22	95 60 46 131 97 36 53 63 229 42
TERRAIN POD B TOTALS							27.26		852
LIFT C SKYLINE TRIPLE CHAIR TERRAIN POD C 1- TWINKLETOES 2- FOOTLOSE 3- PTARMIGAN 4- CHAPMANS 5- EXPO 6- SNOW BOUND GLADE 7- ALPENHORN 8- DHALIE DOUBLE 9- WHICHWAY GLADES 10- COLD SMOKE	NOVICE LOW INTER LOW INTER INTERMEDIATE LOW INTER ADV INTER ADVANCED ADVANCED ADVANCED EXPERT	466 400 461 455 180 395 403 300 290 343	39 44 48 40 27 66 40 30 110 45	3001 1912 1941 1861 631 1268 1329 893 790 1062	19% 19% 23% 24% 30% 33% 33% 26% 35% 24%	29% 30% 35% 47% 34% 47% 60% 65% 66% 81%	11.80 8.50 9.39 7.43 1.69 8.38 5.37 2.67 8.71 4.77	44 33 33 22 33 16 12 12 12 8	519 281 310 163 56 134 64 32 105 38
TERRAIN POD C TOTALS							68.71		1702
OTHER TRAIL AND CONNECTORS 1- HOME RUN 2- SHORT CUT 3- LOWER SIDEWINDER 4- UPPER GULLY 5- SKYLINE CONNECTOR 6- UPPER SIDEWINDER	BEGINNER BEGINNER BEGINNER NOVICE NOVICE BEGINNER	57 47 195 80 110 74	13 10 5 27 31 12	523 206 2797 585 674 913	11% 10% 10% 14% 17% 8%	11% 10% 10% 16% 25% 11%	0.66 0.21 1.40 1.59 2.07 1.08	55 55 55 44 44 55	36 12 77 70 91 59
OTHER TOTAL							7.01		345
EXISTING SKI AREA TOTAL HECTARES SKIERS PER HECTARE							116.55 30		3,473

2.1.2 Existing Ski Terrain - Compared to the Ideal Ski Area

The graph below indicates that the existing terrain is out of balance in terms of the skill categories. Future ski area expansion will strive to adjust this imbalance.

Figure 2 – 5: Terrain Compared to Ideal - Existing

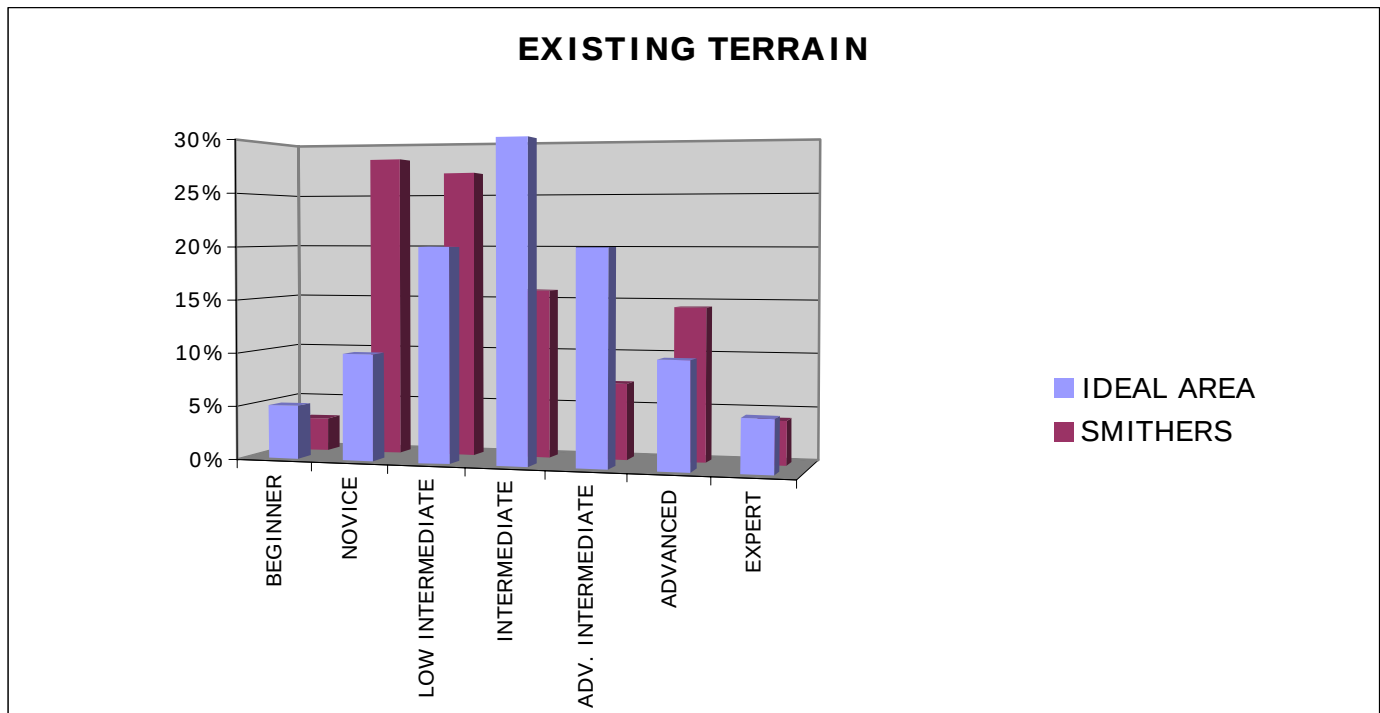


Figure 2 – 6: Terrain Balance – Existing

EXISTING SKI TERRAIN BALANCE			
SKILL LEVEL	HECTARES	IDEAL AREA	SMITHERS
BEGINNER	3.63	5%	3%
NOVICE	33.08	10%	28%
LOW INTERMEDIATE	31.49	20%	27%
INTERMEDIATE	18.45	30%	16%
ADV. INTERMEDIATE	8.38	20%	7%
ADVANCED	16.75	10%	14%
EXPERT	4.77	5%	4%
TOTAL	116.55	100%	100%

2.2 Ski Trail Density and Capacities

Skier densities vary greatly depending upon factors such as location, type of ski area and market. Typically a destination resort would offer a lower density skiing experience, whereas a local area would tend to offer higher densities. The densities for this ski area are based on a mid range of densities acceptable for a regional resort area as defined by the ASRG. These densities shown in the Design Standards chart below will be used in evaluating both the existing and proposed ski terrain at SRS.

2.2.1 Skier Vertical Demand

Vertical demand is the amount of vertical that a skier of a particular ability level will be expected to ski over the course of a day. Typically, the demand for vertical meters skied increases, as the proficiency of the skier improves. The vertical demand for each ability level is defined in the Design Standards Chart below. With the advent of high speed lifts and new equipment technology, skiers may be offered or potentially ski greater amount of vertical. However, they are still limited by their skill level and physical ability. We believe the vertical demands shown illustrate a realistic scenario for the ski area. As a comparison, the demands as outlined in the ASRG are also shown. The vertical demands used for the purpose of this study fall in the mid to low range as outlined in the ASRG.

Figure 2 – 7

For the purposes of this ski area plan, 7 ability levels were used when defining vertical demand and skier densities. The current standard in the ski industry throughout North America and Europe is 7 ability levels, although HBMA acknowledges that the ASR Guidelines suggest 6 ability levels.

SKI AND RIDE SMITHERS, DESIGN STANDARDS							
SKILL CLASSIFICATION	ACCEPTABLE	SKILL MIX	AVERAGE SKIER DEMAND VTM/PER DAY	SKI TRAIL DENSITIES PER HECTARE	CASP	ASRG	CASPI/ASRG
	TERRAIN GRADIENTS				VERTICAL DEMAND	VERTICAL DEMAND	SKIER DENSITIES
BEGINNER	10%-15%	5%	750	55	500-750	500-1000	35-75/HA
NOVICE	15%-25%	10%	1500	44	750-1500	1000-2000	30-60/HA
LOW INTERMEDIATE	25%-35%	20%	2400	33	1500-2250	2000-3500	20-40/HA
INTERMEDIATE	30%-40%	30%	3800	22	2250-3000	3500-5000	15-30/HA
ADVANCED INTERMEDIATE	35%-45%	20%	4900	16	300-5500	5000-7500	10-20/HA
ADVANCED	45%-60%	10%	6200	12			
EXPERT	60% +	5%	7500	8	5500-7500	7500-10000	5-10/HA

2.2.2 Weighted Vertical Demand

Weighted vertical demand represents the demand placed on a lift by skiers of the associated terrain pod. The skill classes of the ski trails that can be accessed from each lift influences the WVD since an advanced skier will place more demand on a lift than a beginner skier because he / she will demand a greater amount of vertical over the course of a day. The weighted vertical demand of a particular lift is determined by calculating the ratio of the different ability types that the ski trails accessing that lift will service and adding up the sum for each.

Figure 2 – 8

HUDSON BAY MOUNTAIN WEIGHTED VERTICAL DEMAND EXISTING CONDITIONS					
TERRAIN POD A	HECTARES	TRAIL CAPACITY	% OF USE	VERTICAL DEMAND	WEIGHTED DEMAND
BEGINNER				750	0
NOVICE	10.97	483	86%	1500	1295
LOW INTERMEDIATE	2.32	77	14%	2400	329
INTERMEDIATE				3800	0
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	13.29	559	100%		1623
TERRAIN POD B	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	6.65	293	34%	1500	515
LOW INTERMEDIATE	9.59	316	37%	2400	892
INTERMEDIATE	11.02	242	28%	3800	1082
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	27.26	851.51	100%		2489
TERRAIN POD C	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	11.80	519	31%	1500	458
LOW INTERMEDIATE	19.58	646	38%	2400	911
INTERMEDIATE	7.43	163	10%	3800	365
ADV. INTERMEDIATE	8.38	134	8%	4900	386
ADVANCED	16.75	201	12%	6200	732
EXPERT	4.77	38	2%	7500	168
TOTAL	68.71	1702.04	100%		3020
TERRAIN POD F	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER	0.28	15	100%	750	750
NOVICE				1500	0
LOW INTERMEDIATE				2400	0
INTERMEDIATE				3800	0
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	0.28	15	100%		750
TRAIL WAYS	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER	3.35	184	53%	750	400
NOVICE	3.66	161	47%	1500	700
LOW INTERMEDIATE				2400	0
INTERMEDIATE				3800	0
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	7.01	345	100%		1100
SKI AREA TOTAL	116.55	3473			6493

2.2.3 Existing Lift Capacity Review

When evaluating existing ski lift capacity, two figures that must be considered are the manufacturers rated lift capacity and the actual lift capacity. The manufacturer's rated lift capacity defines the figures for the lift operating at 100 percent efficiency. The actual lift capacity is an adjusted figure to provide a more realistic capacity statement.

The manufacturer's rated ski lift capacity for the existing lifts is 3,058 skiers per hour. The actual lift capacity of the ski lifts is 2,311 skiers per hour. The reason for this reduction is that there are a number of factors that affect lift capacity throughout an operating day such as skier error, lift access to other ski terrain pods or mechanical inefficiency.

It is noted that the quality of skiing will be reduced if the lift capacity exceeds the trail capacity, which is reflected by the weighted demand. The HBMA planning team is committed to providing the highest quality of skiing possible. The various capacities and the adjustments for each ski lift are defined in the Ski Lift Review below.

Figure 2 – 9: Actual Lift Capacity – Existing

SKI AND RIDE SMITHERS EXISTING SKI LIFT REVIEW					
SKI LIFT TYPE	RATED CAPACITY	ADJUSTMENTS IN CAPACITY		ACTUAL CAPACITY	WEIGHTED DEMAND
		ACCESS TO OTHER PODS	EFFICIENCY		
TERRAIN POD A GREEN T-BAR	458	0%	20%	366	1,623
TERRAIN POD B ORANGE T-BAR	900	15%	20%	585	2,489
TERRAIN POD C BLUE TRIPLE	1100	10%	10%	880	3020
TERRAIN POD F HANDLE TOW	600	0%	20%	480	750
	3058			2311	7,883

2.2.4 Existing Ski Area Comfortable Carrying Capacity

The definition of a ski area's comfortable carrying capacity (CCC) is the most important step in defining the ski area's ability to service the customer, to provide facilities that are sized properly and to assess financial capabilities. The CCC has also been called Uphill Comfortable Carrying Capacity. The CCC figure is used to evaluate the skiing demand versus the ability of the ski lift, or lifts, to meet that demand over a period of time. In reality, a skier will use the lift more than once during the one-hour period, or a number of times during a skiing day, to meet their skiing needs.

The ski area's CCC is also used to define specific requirements for ski area facilities from washrooms to parking areas. The estimated existing ski area CCC is 1,742 skiers at one time (see Figure 2 – 10).

Figure 2 – 10

SKI AND RIDE SMITHERS EXISTING COMFORTABLE CARRYING CAPACITY						
AREA	VERTICAL	HOURLY LIFT CAPACITY	HRS OF OPERATION	LIFT EFFICIENCY	WEIGHTED VERTICAL DEMAND	COMFORTABLE CAPACITY
TERRAIN POD A	175	458	7	80%	1623	277
TERRAIN POD B	256	900	7	65%	2489	421
TERRAIN POD C	468	1100	7	80%	3020	955
TERRAIN POD D	20	600	7	80%	750	90
TOTAL AREA CCC						1742

2.3 Existing Ski Area Facilities

The ski area facilities include 4 ski lifts, three grooming machines, a maintenance shop of approximately 167 sq m, with 2 vehicle bays and some office space, plus two day skier lodges including the Panorama and Footloose Lodges, as well as a rental shop, ski patrol, a warming hut and a building for the Smithers Ski Club.

2.4 Existing Parking

At this time, the existing parking area, located adjacent to the Panorama Lodge, provides approximately 400 spaces for day skier parking requirements, plus an additional 80 parking stalls adjacent to the Skyline Chair. The existing parking meets the current needs of the resort.

2.5 Existing Site Infrastructure

The existing site infrastructure includes drilled wells for water to service the day lodge, a lagoon for septic disposal and an existing 250 KV hydro electrical line from the Town of Smithers. While these services are sufficient for the current level of development, a significant upgrade will be required for Phase 1 and subsequent phases of development.

2.6 Existing Adjacent Land Uses

There are a variety of land uses that exist within and adjacent to the existing and proposed CRA (see Figures 2 – 11 and 2 – 12).

For the most part, land, in and around the existing HBMA CRA is Crown owned. Some private land exists, but is limited to the eastern edge of Hudson Bay Mountain, along the western boundary of the Town of Smithers. Adjacent land uses are limited to forestry and recreation uses as well as a proposed mining operation contemplated on Crown land to the north of the ski area. Crown land to the north and northwest of the existing CRA is within an existing Recreation Reserve.

Figure 2 – 11 Regional Overview

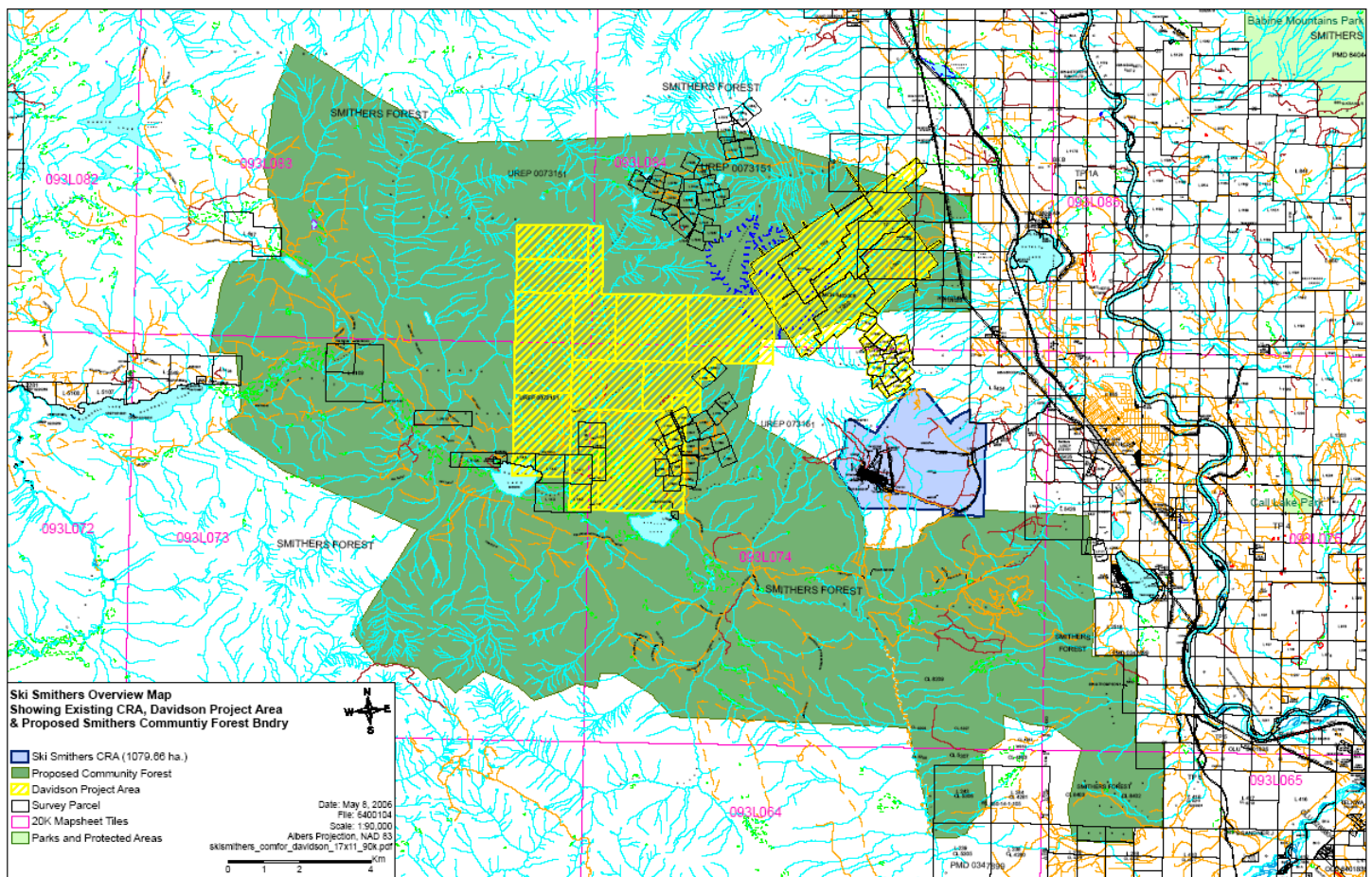
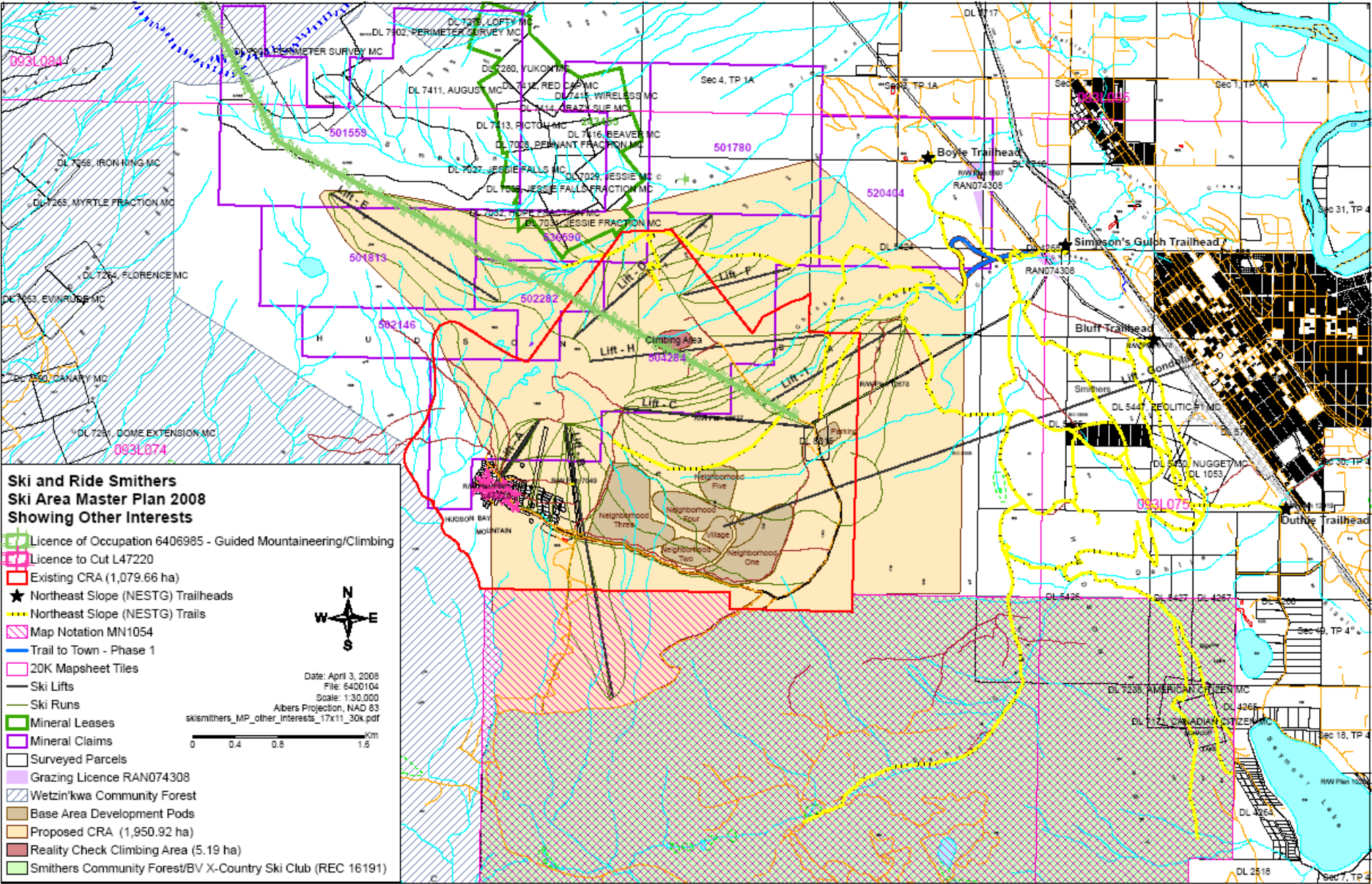


Figure 2 – 12 Overlapping and Adjacent Lands Uses



2.6.1 Mineral Tenures

The “Davidson Project”, which is being developed by Blue Pearl Mining Ltd is a proposed underground molybdenum resource. Figure 2 – 13 outlines the general location of the existing mineral tenures and the proposed CRA boundary for the ski area. For the most part, the overlap between the uses is limited to a portion along the north boundary of the proposed CRA, just north of the proposed Terrain Pod D – Simpsons and part of Terrain Pod E, which extends the CRA to the northwest. Mineral Lease # 243455 (Figure 2 – 13) was issued in 1962, and since it predates the CRA, the mineral tenure holder has specific sub surface rights that will require further discussions with Blue Pearl Mining Ltd to ensure minimal impacts for both the ski development and potential future mining activity. Development of Terrain Pods D and E still requires additional assessment, and part of that assessment will necessitate further discussions with Blue Pearl to determine how their mining activities may or may not impact the ski area development in these two terrain pod locations.

Blue Pearl Mining Ltd is also the holder of several mineral claims that were issued in 2005 (Figure 2 – 12). HBMA is aware and knowledgeable of the specific rights and responsibilities applicable to surface and subsurface tenures, as outlined in the Mineral Tenure Act, including the right of access by the mining tenure holder to their mineral claims. It is the expectation of HBMA to work with Blue Pearl Mining Ltd to ensure there is a level of understanding and cooperation between both companies as the ski area expands and Blue Pearl proceeds with development of its underground molybdenum resource.

2.6.2 Wetzin’kwa Community Forest

Immediately south and west of the CRA is the Wetzin’kwa Community Forest (Figure 2 – 12). HBMA anticipates minimal impacts arising from forestry activities contemplated within the community forest, however further discussions will be required to address potential impacts arising from logging truck use versus skier traffic on the main access road between the Town and the resort. Future discussions will also be required between the ski area and the community forest on trail linkages between the two areas.

2.6.3 Bulkley Valley Cross Country Ski Club

The Bulkley Valley Cross Country Ski Club currently operates on Crown land within the community forest, immediately south of the resort’s CRA. The club has been operating in this location for over 20 years and provides outstanding cross country ski trails and related facilities. The club has historically operated pursuant to a Special Use Permit and Management Agreement, as authorized by the Ministry of Forests and Range. However, with the responsibilities for trail management now under the jurisdiction of the Ministry of Tourism, Sport and the Arts (MTSA), the club is now in the process of renewing that agreement with MTSA. The ministry is proposing to establish the area as a Recreation Area under the Forest and Range Practices Act.

Although no direct impacts are anticipated between the resort and the ski club, HBMA anticipates that as the resort grows, there will be increasing interest by resort users for cross country trails and related activities. As a result, further discussions will be required between the ski club and HBMA in terms of how best to enhance the existing facilities, as operated by the BVCCSC and the potential demand by resort users to access this important winter recreation facility.

2.6.4 North East Slope Trails Group

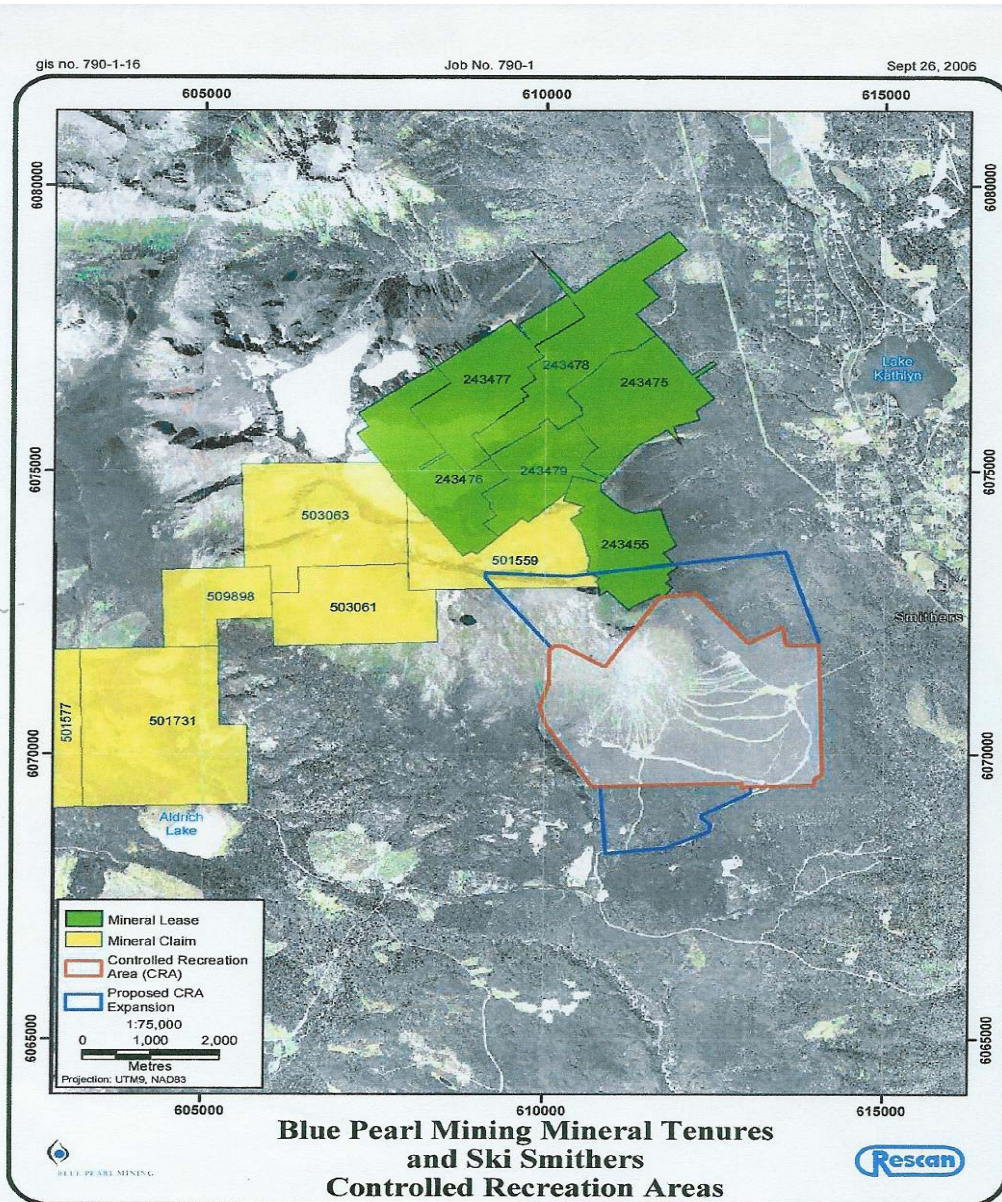
The North East Slope Trails Group (NESTG) is a community based organization, funded through donations and volunteer labour from the members. The NESTG has developed an extensive trail system, including trailheads, signage, parking areas and a trail brochure, along the east slope of Hudson Bay Mountain, with some of the trails extending into the CRA (see Figure 2 – 12).

As the resort expands along the east slope of the mountain, some overlap with the NESTG trails will likely occur, and prior to development, discussions will be required between the company and the NESTG to ensure minimal impacts to the existing trail system. Where existing NESTG trails and trailheads are impacted, the ski area will assume responsibility for ensuring the trails are properly re-established, and where appropriate, relocate, with input from the NESTG. Where existing trails extend into the CRA, the provisions of the Public Access Plan (Section 3.11) will apply.

2.6.5 Other Land Uses and Activities

Figure 2 – 12 outlines a number of other land uses and activities that are currently taking place, both within and outside of the CRA. These include trap lines, guide outfitter and guided adventure tourism activities. An existing grazing license is located underneath the hydro transmission line at the bottom of the east slope of the mountain. The final section of the proposed Trail to Town overlaps the grazing license in that location and discussions have taken place (and will continue to be followed up) with the licensee and the Ministry of Forests and Range to ensure any impacts to the grazing license are minimized. Mr. Christoph Dietzfelbinger has an existing guided adventure tourism tenure that includes an access route through the CRA. As expansion of the resort occurs in future, discussions with Mr. Dietzfelbinger will be ongoing to ensure impacts to his guided adventure tourism activities are minimized, specifically for activities occurring within the CRA.

HMBA acknowledges these ongoing uses and activities, and will continue to work with existing permit and tenure holders to ensure minimal impacts to their activities, while at the same time recognizing that some limitations, particularly for uses and activities within the CRA, may result in certain restrictions during the resort's operating period.

Figure 2 – 13 Blue Pearl Mining Ltd – Mineral Tenures

2.7 Bulkley Land and Resources Management Plan

The CRA falls within two legal planning documents. The first is the *Bulkley Valley LRMP (1998)* and the second is the *Bulkley Valley LRMP, Objectives set by Government (2006)*. Both of these plans have been signed off with Higher Level Plan Orders. A Sustainable Resource Management Plan (SRMP) was also approved in 2005. This plan is not legally binding; however it offers a greater level of detail around planning objectives for the area.

The Bulkley LRMP designates Hudson Bay Mountain as Special Management Zone 2, and references the recreational and wildlife values, along with forestry and mining activities. The Special Management Zone 2 includes the ski area and states that “no facilities or motor vehicles will be operated on the grassy tundra portion of the prairie, west of the existing ski boundary”. HMBA is cognizant of this land use designation and is fully aware that portions of its proposed development (e.g. Terrain Pod E) are in conflict with the existing land use designation (restrictions on non –motorized use in certain designated areas of the mountain). Development of these areas, including Terrain Pod E, is contemplated in a future phase, and prior to consideration of that phase of mountain expansion, HBMA will submit additional information to MTSA, who will initiate an agency and public review of the proposed development. Part of the additional assessment for development of this terrain pod will include further discussions and an application to amend the LRMP designation as part of the approval for expansion of the resort in this section of the CRA.

The land use plans also references the existing hiking trails on the mountain (Northeast Slope Trail System), and state that these trail locations are to be unobstructed, accessible and identifiable. It is the intent of HMBA to minimize impacts to these trails to the greatest extent possible, however some impact to existing trails may occur, and where that may occur, HBMA will be work closely with the community and trail users to minimize impacts and develop appropriate mitigative measures.

One of the key objectives of the Bulkley LRMP is the protection of key ungulate values, in particular mountain goats, that exist on Hudson Bay Mountain (see Figure 2 – 16). Future expansion of the resort overlaps with existing mountain goat habitat and further, more detailed assessment of these areas, which is outlined in Section 5.0 – Environmental Overview, will be required before development can be considered. Once these assessments are completed, a decision will then be made to determine the potential for a possible amendment to the LRMP wildlife objectives. HBMA is aware that at least one of its existing ski runs, originating from the top of the Skyline Chair, is currently located within existing mountain goat habitat (see Figure 5 – 3 in the Environment Overview) as outlined from the Bulkley LRMP. Although the ski run was created prior to the Bulkley LRMP, any future LRMP amendment to facilitate expansion of the resort will likely include this specific ski run as part of the overall amendment application.

The Bulkley LRMP, in addition to establishing land use designations and resource management zones, references the significant scenic resources in the area that are critical to the viability of the tourism and recreation industry, and to the quality of life of residents in the Bulkley Valley. Hudson Bay Mountain, and in particular the east slope, is highly visible from many areas within the Bulkley Valley, and the LRMP states that views of natural appearing landscapes should be retained as much as possible.

In order to protect specific viewscales within the Bulkley Valley, the LRMP has identified Visual Quality Objectives (VQO) for the plan area. In the case of Hudson Bay Mountain, the VQO for this area is “Retention” (see Figure 2 – 15). Although the only legal application of VQOs is for forestry related activities authorized under a Forest Stewardship Plan (which is not the case for the expansion of the ski area), HBMA and the MTSA recognize the significant scenic values of Hudson Bay Mountain and it is the intent of both the company and MTSA to conform to the visual quality expectations as identified in the LRMP as much as possible. The company will develop, as a condition of the Master Development Agreement and its Licenses to Cut, visual design criteria for developments that are visible from the Bulkley Valley. These criteria will address the layout and construction of the ski runs and other developments in this area of mountain to ensure minimal impacts to the visual landscape of Hudson Bay Mountain. In addition, the company will mitigate the impacts of night time light effects from the proposed base area village to the greatest extent possible.

Figure 2 – 14: Resource Management Zones - Bulkley SRMP

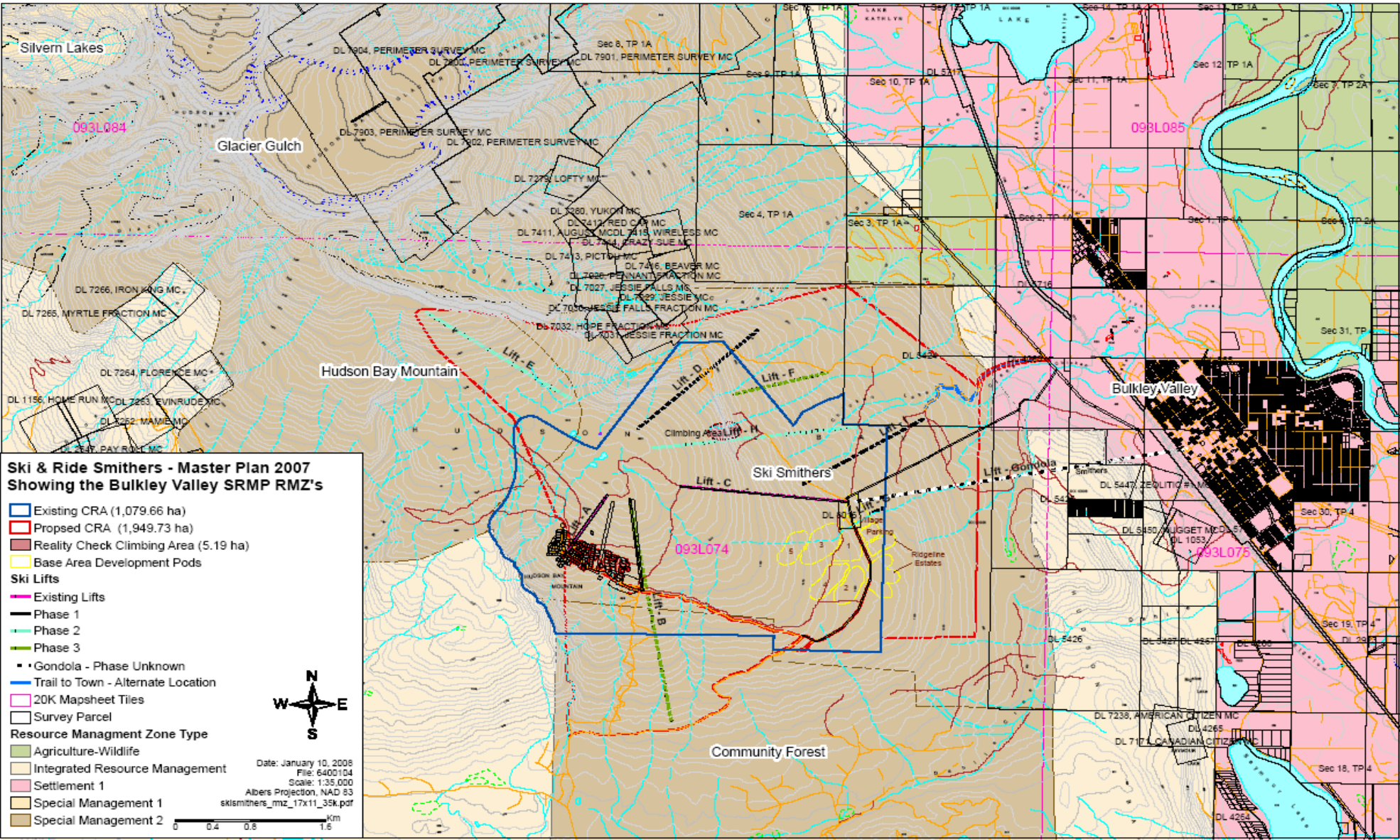


Figure 2 – 15: Visual Quality Objectives – Bulkley SRMP

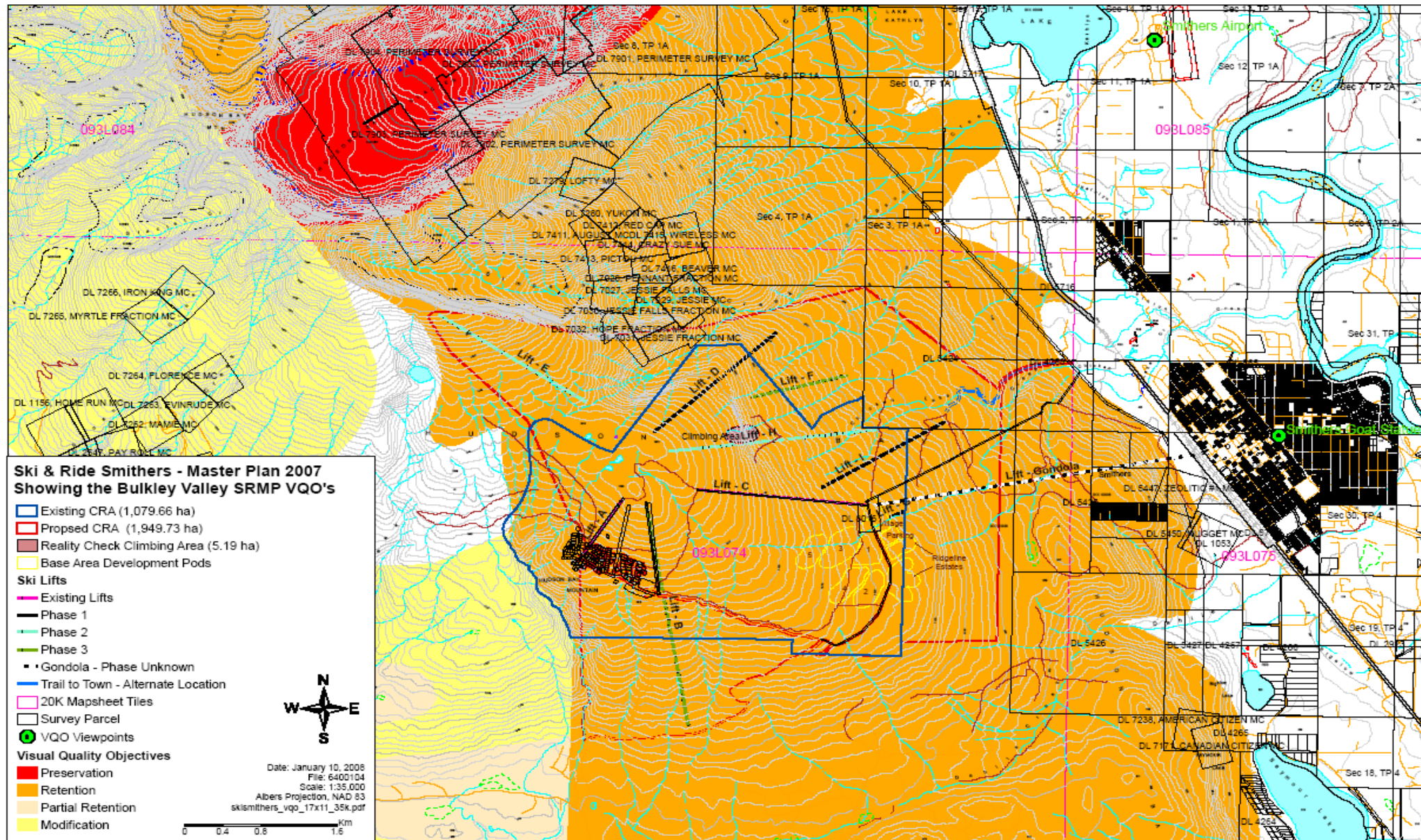
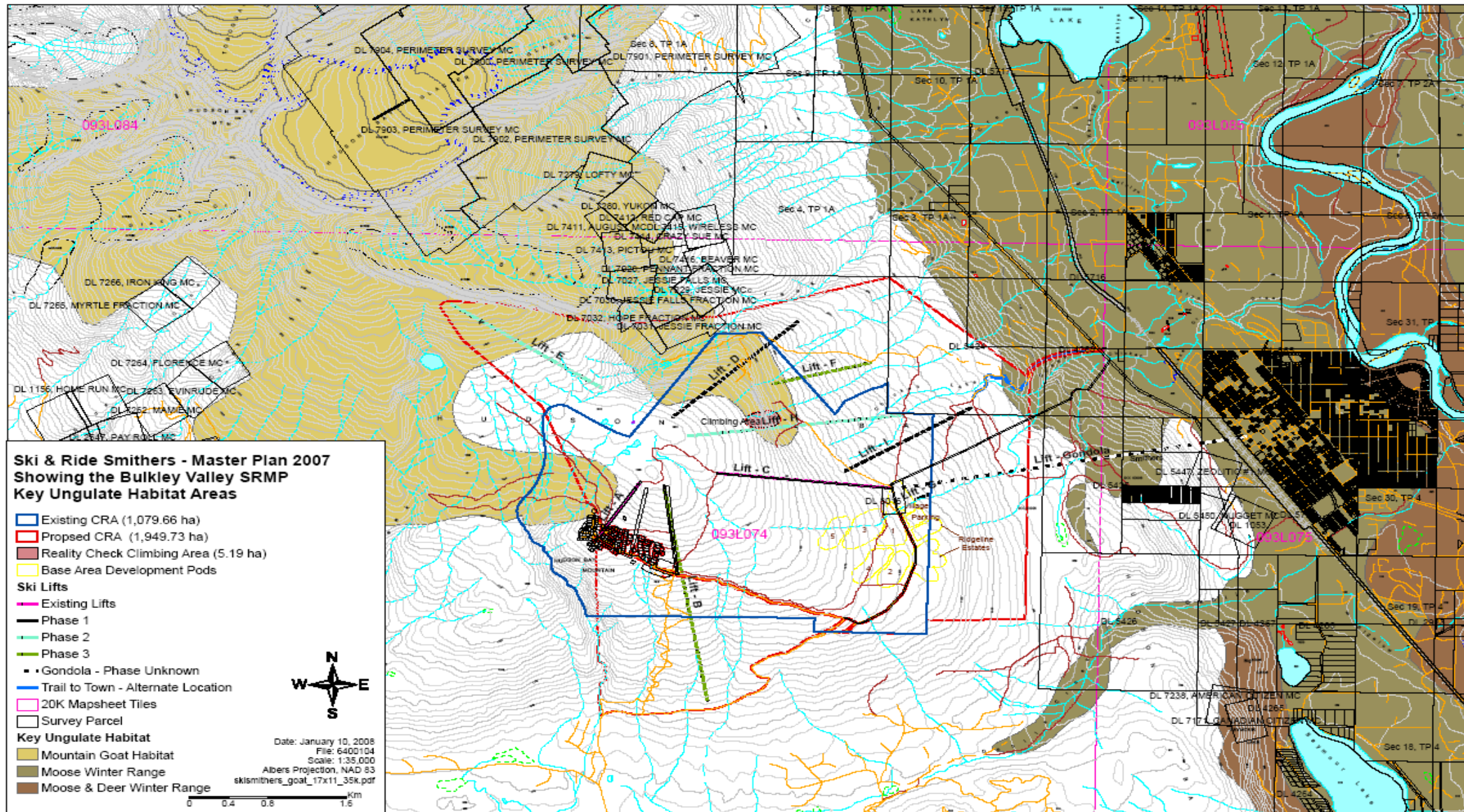


Figure 2 – 16: Key Ungulate Habitat Areas – Bulkley SRMP



3.0 Ski Area Assessment and Review

In order to meet the study objectives, a number of assessments were undertaken. These assessments created the necessary base information for defining the quality of skiing product and facilities that the resort users desire. The process for detailing the ski area inventory and analysis forms the basis for the Assessment Section.

The key objective is to design and implement a plan that provides for expansion on a phased basis and to define the size, scope and potential of the existing ski area as a Regional Resort. In addition, HBMA will be requesting that their existing CRA be adjusted to incorporate additional ski terrain (see Figure 3 – 2).

The level of design and assessment, as outlined in this section, relates to the existing ski area, which has the potential, assuming the plan and proposed improvements are approved and implemented, to become a significant mountain resort development in northwest British Columbia. The total ski area plan contemplates ski hill development over a twenty (20) year horizon.

In addition, HBMA has spent considerable time and resources to improve the existing ski area product by means of lodge improvements and additional grooming time and equipment. The focus of these improvements was on critical elements related to improving the overall guest experience (see Figure 3 – 1 below).

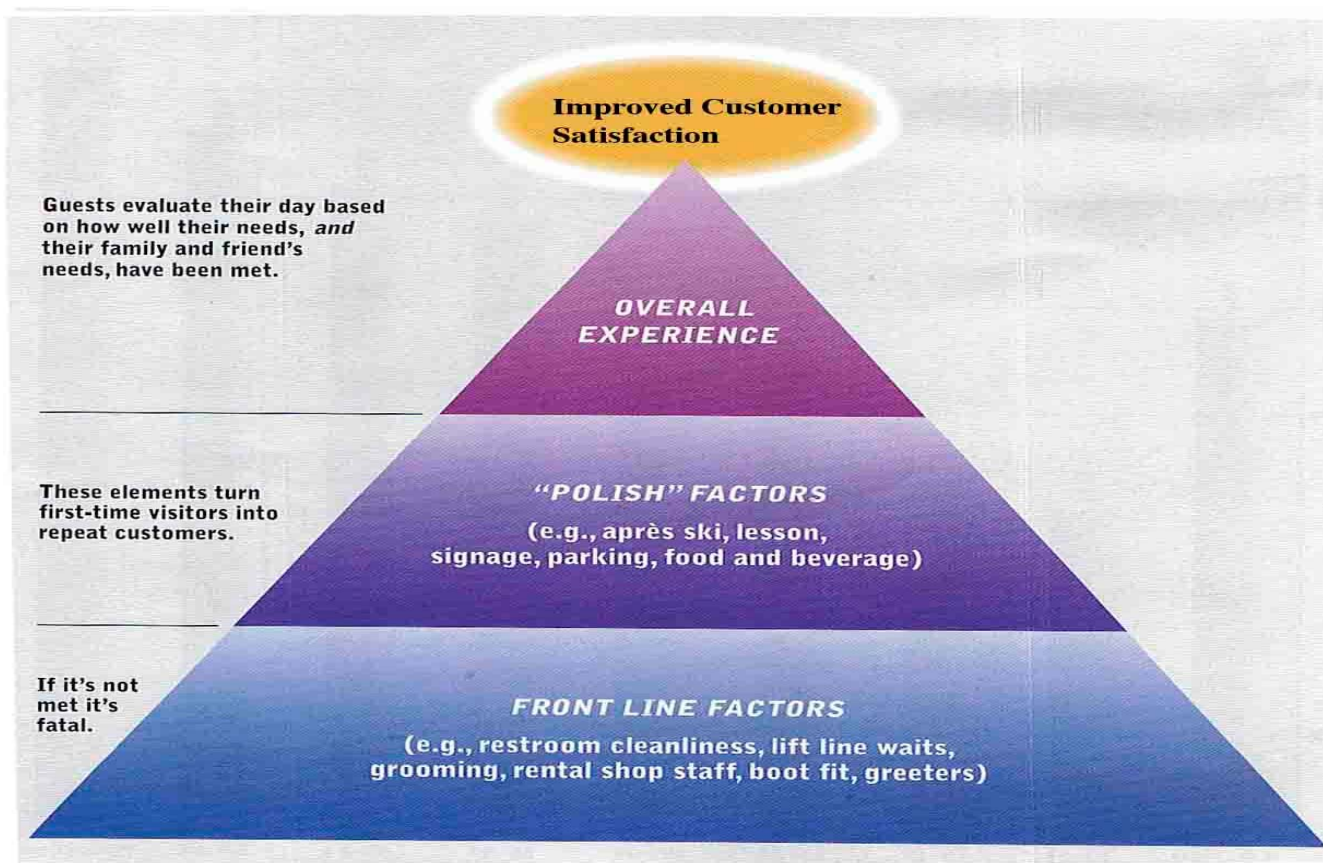


Figure 3 – 1: Customer Satisfaction

3.1 Design Objectives

Prior to initiating an assessment of the ski area, a review of the All Seasons Resort Policy (ASRP) and the accompanying All Seasons Resort Guidelines (ASRG) were undertaken to ensure the updated Ski Area Master Plan adhered to the policy and guideline requirements. In addition, HBMA conducted a public open house in the spring of 2006 to receive comments from the general public and the various user groups regarding the proposed vision for the ski resort.

In September 2006, HBMA submitted a draft Ski Area Master Plan to the Province of BC for review and consideration. That draft plan was reviewed by various resource agencies, local government, First Nations and residents of the Town of Smithers and the Bulkley Valley.

The information derived from these activities has contributed to a revised ski area plan and design objectives. The following design objectives were defined for this phase of the study.

- Assess the potential of ski terrain that was not defined in the previous planning initiatives.
- Create a ski terrain offering that is line with consumer needs.
- Define a lift development program that will improve access and efficiency.
- Define the ski area comfortable carrying capacity for existing and proposed phases.
- Define the facilities that are necessary to support the proposed trail and lift development.

3.2 Ski Area Assessment

In order to define the boundaries for future development at the resort and a long term planning horizon, a Study Area, comprised of existing and proposed ski terrain, was created. See Figure 2 – 10.

The intent of the study area is not to define the future ski terrain, but to create an area where future development can be assessed. One of the recommendations flowing out this assessment will be specific adjustments to the existing ski terrain, which upon approval of the Master Plan, will result in a change to the existing Controlled Recreation Area (CRA). See Figure 3 – 2.

An assessment of the Study Area for future ski area development was undertaken, and the proposed ski area plan, outlining future ski lifts and terrain development, from Phase 1 through to Phase 3, is outlined on Figure 3 – 3.

Figure 3 – 2: Proposed Changes to Controlled Recreation Area

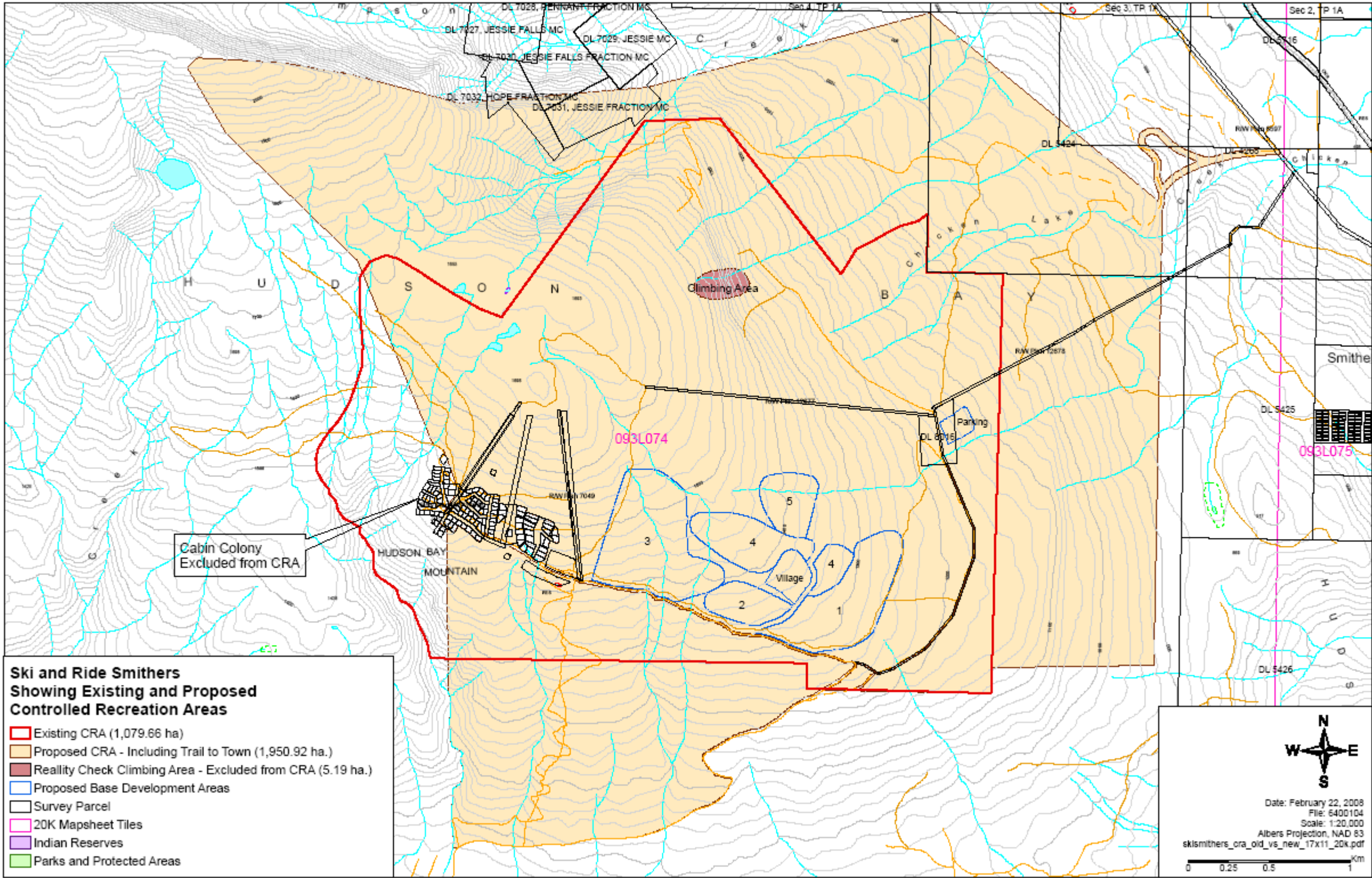
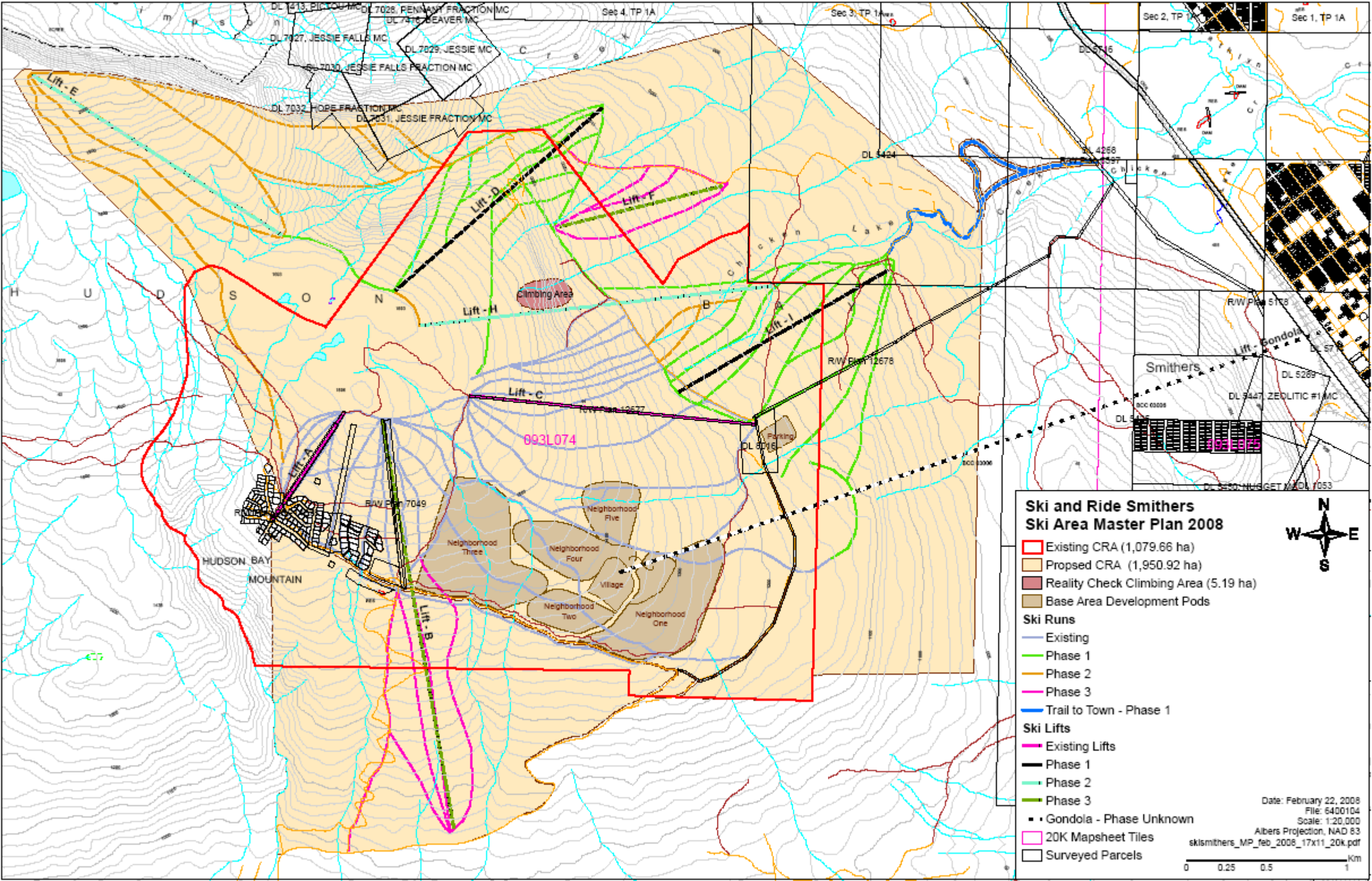


Figure 3 – 3: Ski Area Plan



3.2.1 Land Form

Hudson Bay Mountain consists of three main peaks providing a wide variety of ski terrain. At this time, SRS is located to the southeast of the main peaks. The study area interim agreement consists of 2,862.45 hectares of recreational lands and the existing CRA 1,079.66 hectares for a total of 3,942.11 hectares.

The existing and potential ski terrain provides a substantial and potential vertical:

- Existing vertical drop is 524 meters or 1,719 feet.
- Potential Lift Serviced - from 2,100 meters to 855 meters, 1,245 meters or 4,084 feet.
- Including the trail to the Town of Smithers at an elevation of 500 meters, this provides for a potential vertical of 1,600 meters or 5,249 feet.
- The existing and proposed ski terrain has been separated into ski terrain pods. Each terrain pod has designated ski trails associated with a specific ski lift. There are 9 terrain pods (see Figure 3 – 12: Terrain Gradient and Terrain Pod map).

The ski area plan defines SRS as becoming one of the top five ski areas in North America in terms of vertical and terrain serviced. The skiing consists of both upper alpine and forested terrain. Figure 3 – 4 provides a visual depiction of the existing and proposed ski lifts, as well as the tourism gondola “concept” which would link the Town of Smithers to the ski resort. Figure 3 – 5: Existing and Proposed Ski Lifts map highlights the ski lifts in plan form.

Figure 3 – 4: Ski Lift Visual

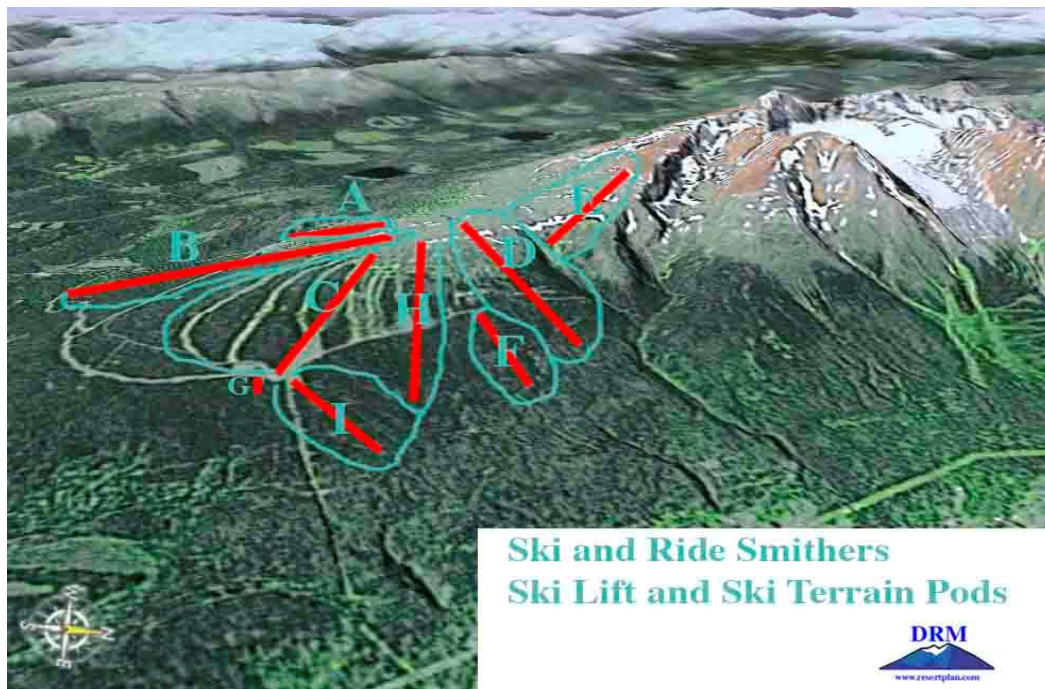
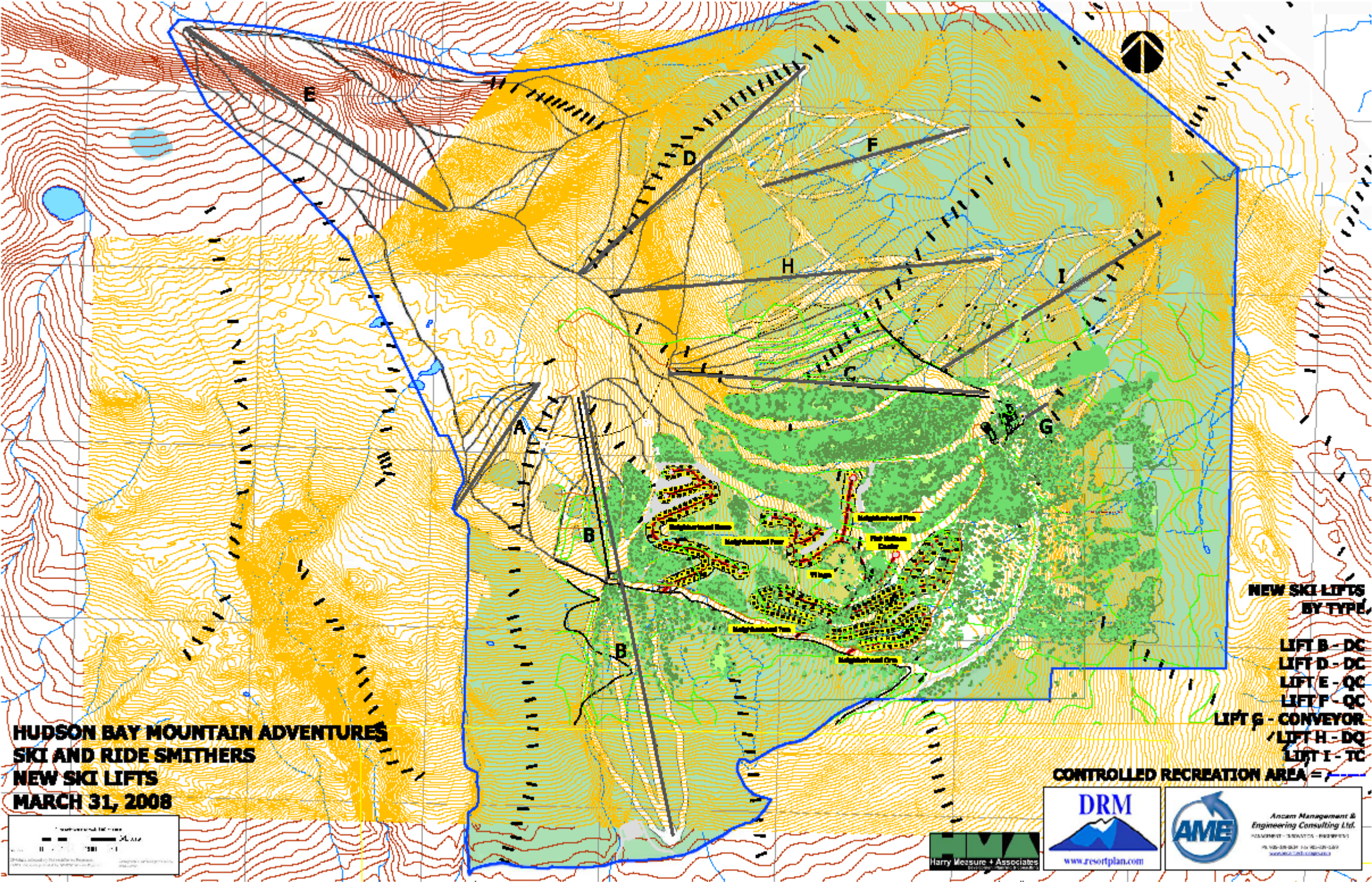


Figure 3 – 5: Existing and Proposed Ski Lifts



3.2.2 Slope Aspect

A ski area generally uses a variety of slope aspects. The slope aspects affect the quality and snow pack, and the comfort factor for the skiers and boarders. The planning team has endeavored to use a wide variety of slope aspects to enhance the on-slope experience (see Figures 3 – 6, 3 – 7 & 3 – 8) which highlight the impact of slope aspect on the existing and proposed slopes on Hudson Bay Mountain).

When considering a ski slope's aspect, both elevation and aspect are the main determinants. The impacts of a ski trail's aspect are as follows:

Slope Direction	Snow Pack	Skier Comfort
northern and northeastern	very good	Can be uncomfortable
east and northwestern	good	warmer
Southerly	first to lose snow pack	warmest

3.2.3 Altitude and Climate

Climate is an obvious major factor in a ski area's success. The concept of consistent snow supply to create skier demand is universal.

- Altitude & Climate ~ the area's consistent winter temperatures (below zero) and the beginning of a snow pack on the mountain following the end of October is sufficient for operations to open traditionally by the middle of November, even with the significant lack of summer grooming and non industry standard of run development. The area enjoys a consistent climate of -3C to -10C during day operations for the months of December through to the end of February to the middle of March, with an annual cold phase for the last week or two of February (data relating to historic climate, snowfall and snowpack was provided from existing records maintained by the resort).

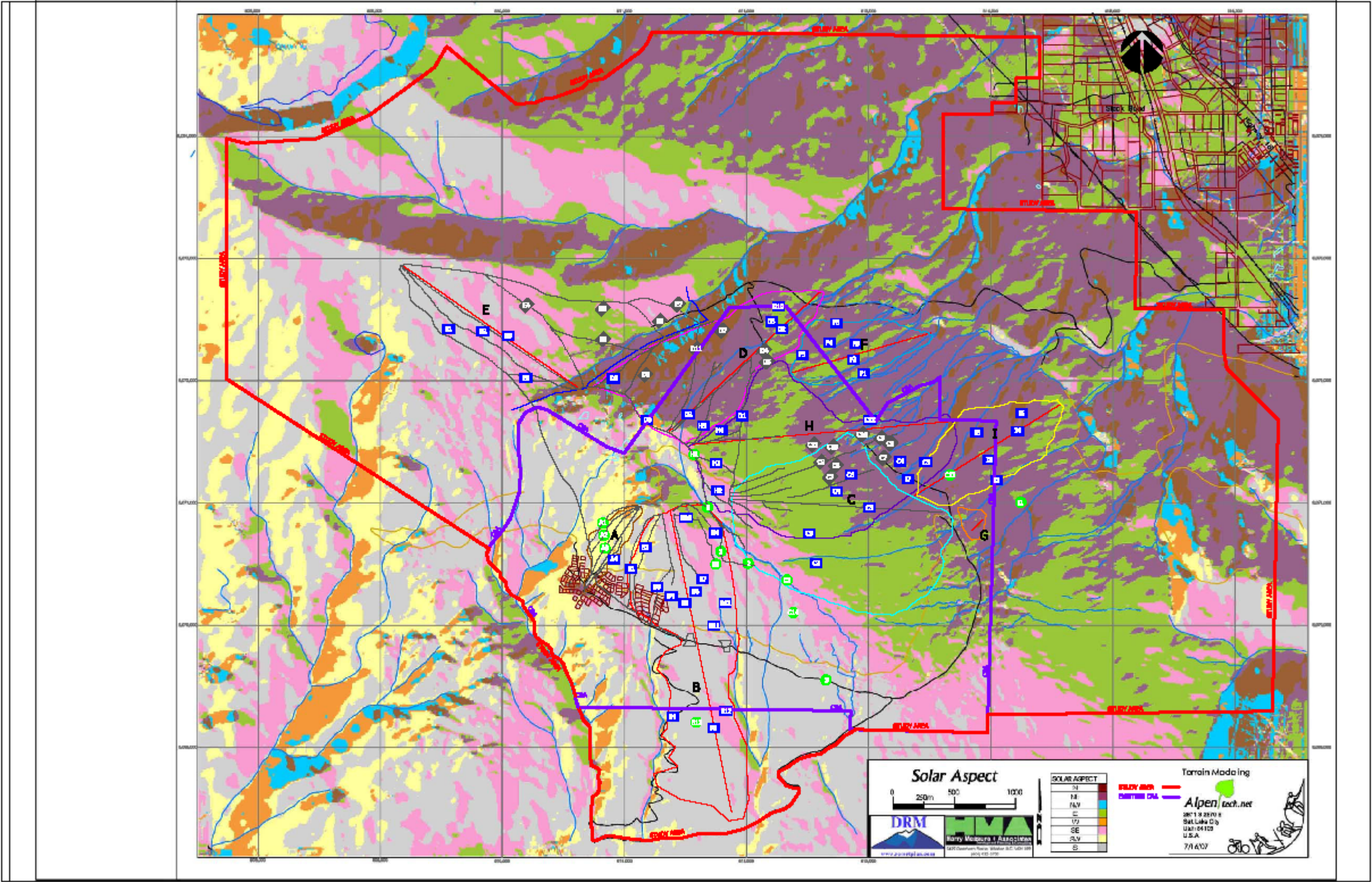
The snow quality is unusually dry, keeping in mind that the predominant weather systems come from the West and Northwest and with the Pacific Ocean only 290 to 300 km away. The consistent systems from the west are faced with climbing the nearly straight vertical of the back side of Hudson Bay Mountain. The snow proceeds through a natural stripping tower leaving the falling snow stripped of water and naturally dry. March is normally a month of snow accumulation and warmer day time operational hours and regular sunny days. The snow pack especially on the north facing slopes is enjoyed by the local community into the months of June.

- Average Annual Snowfall ~ 500 to 600 cm
- Average Annual Snow Pack ~ 250 to 300 cm
- Average Opening Day ~ Late November (as previously noted with standard summer grooming this date could be as early as the first week of November).
- Average Closing Day ~ Late April (with the ability to operate until late May).
- Quality of Snow Pack at the end of the season ~ good to excellent snow conditions as the majority of the present and proposed terrain is North Facing so the pack does not get as moist during day operations with less direct sunlit and pack heating.
- Average length of season ~ 120 days (recognizing the extension to operations with summer grooming).

Altitude, or elevation, is a critical determining factor in the feasibility and operation of a successful ski area in this area of British Columbia. Altitude can typically be linked directly with depth of snow pack. The existing ski area lies between 1150 and 1670 meters above sea level with the ski out dropping to the 500 meter elevation. Although the snow pack on the lower southeastern slopes is likely to deteriorate more quickly than that on the northern and northeastern slopes, information provided by ski area staff indicates that a consistent and reliable snow pack usually can be expected at the 1,000 meter elevation level on the southern slopes and on the eastern slopes around the 850 m level (see Figure 3 – 9: Elevations Map). This elevation was used as a criterion for ski slope development; all terrain below this point will require snowmaking, which is not contemplated by HBMA in this master plan..

At present, the operations base is 1125 m at the base of Skyline Chair, with the peak of Hudson Bay Mountain summit at 2520 meters.

Figure 3 – 6: Solar Aspect



March Shadows

0 250m 500 1000

DRM **HMA** **Alpen Tech**

March Shadows

- none
- AN
- AN/Access
- AN/Access
- AN/room A1-M
- PM
- room/PM
- room

Study Area

- Study Area
- Study Area

Terrain Modeling

Alpen Tech

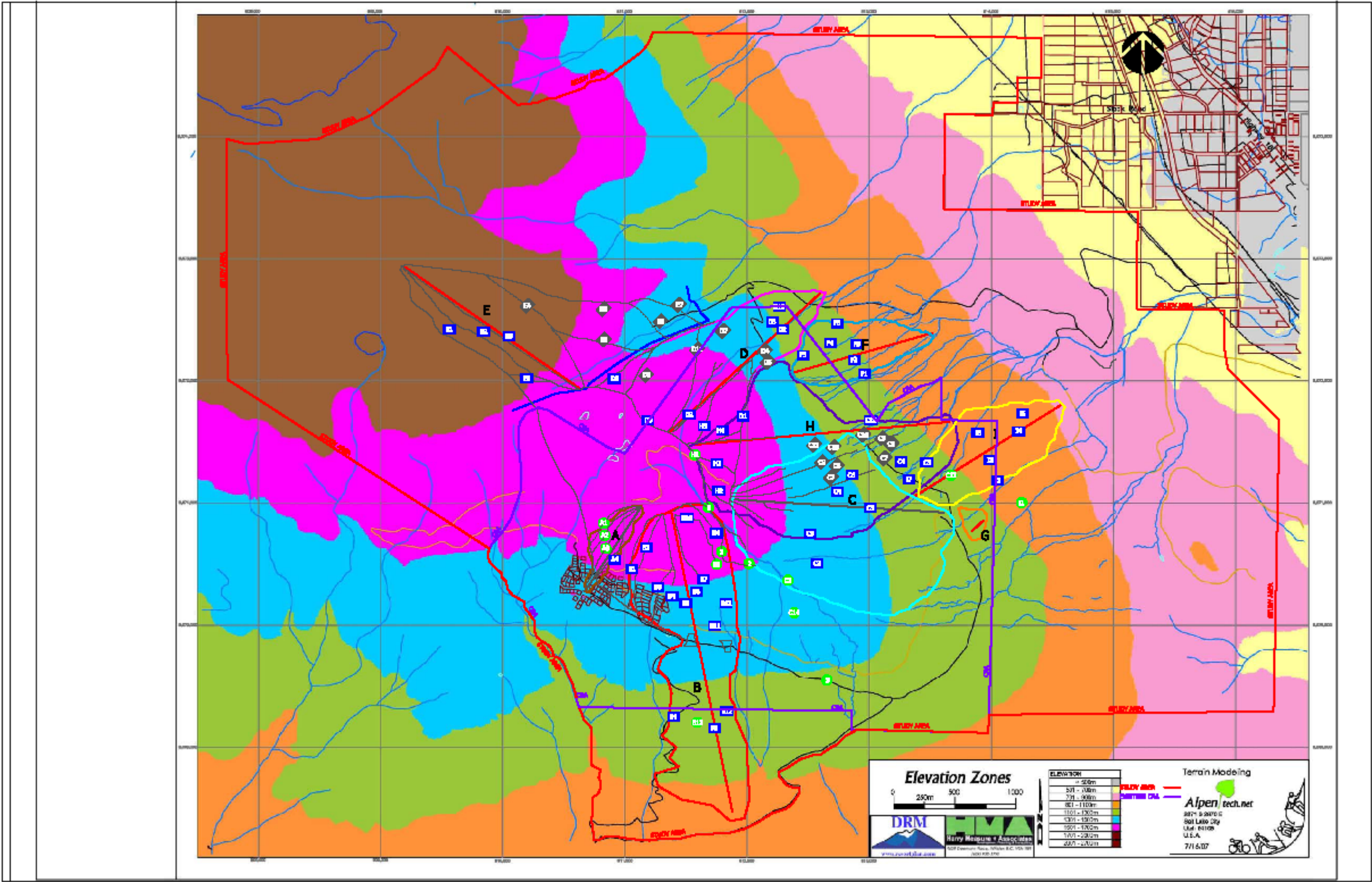
801 Lake City

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Figure 3 – 9: Elevation



3.2.4. Avalanche Potential

A qualified professional (Christoph Dietzfelbinger), along with ski area staff, conducted a review of the avalanche potential within the existing and proposed Controlled Recreation Area (see Figure 3 – 10). The results are contained in a separate report and are highlighted as follows:

- *Opening new avalanche terrain at Ski & Ride Smithers would greatly improve skiing at the resort. The resort has a lot of big north facing terrain that is almost constantly being loaded with strong winds out of the south. Some of the big gullies would make for some interesting avalanche control strategies as they contain three slide paths with multiple start zones down the pitches and a long run out. Large bombs on sleds, and various sizes of hand charges, would need to be employed, and the possibility of an avalancher will be considered. A remote weather station, tracking wind, temperature, relative humidity, and barometric pressure would also be needed. All of this equipment would ensure safe skiing and consistent operations.*

The opening of new terrain at SRS would provide world class skiing opportunities, and some of the best fall-line powder runs of anywhere in British Columbia, Canada and North America. In order to facilitate development of this new terrain, HBMA will provide an Avalanche Mitigation Plan as part of its' requirements for the Master Development Agreement.

Hudson Bay Mountain Adventures Ltd



3.3 Ski Terrain Classification

The ski terrain was classified by using an international rating system that equates percentage of slope on a ski trail with an ability level. In its simplest form the classification system uses three ability levels; Easier 10-25% - More Difficult 25-45% - Most Difficult 45-85%. This international classification system allows ski area operators to indicate the ability level of individual ski trails by use of a colour code defined as Green-Easier, Blue-More Difficult and Black-Most Difficult.

For the purpose of ski trail planning, the classification system is refined even further, utilizing seven ability levels and corresponding terrain gradients as recommended by the All Seasons Resort Guidelines (ASRG). See Ski Trail Planning Parameters chart Figure 3 – 11 located below.

Each individual ski trail was assessed, measured and classified using the average terrain gradient. As a second step the trails were reclassified taking the steepest 100 meters of that trail into consideration. If a trail's steepest 100 meters exceeds the planning parameter gradients, the trail is generally classified according to the steepest 100 meters.

One or more of the following additional considerations are taken into account before final classification of an individual trail.

- Trail length and width, average, and at steepest 100m.
- Average depth of snow pack
- Trail sidelines
- Summer and winter trail grooming standards

D.R. Matthews and Associates has been involved in the master planning at SRS for the last three decades including numerous site visits for field verification of the terrain classifications. Final trail classifications and information can be found in the Ski Area Terrain Assessment charts located in this section.

3.3.1 Ski Terrain Pods

The review of the ski terrain within the study area reveals that there are 9 ski terrain pods within the existing and proposed CRA. The existing ski area currently utilizes all or part of five of these pods, which are serviced by 2 T-Bars, a Handle tow and a Triple chair lift (see Figure 3 – 12: Terrain Gradient and Figure 3 – 13: Terrain Pod map and the Existing Ski Area map (Figure 2 – 1)).

Each terrain pod was assessed using the following criteria.

- Fall line skiing from top to bottom.
- The servicing of as many skier levels as possible for each pod.
- The location of suitable lift terminal sites.
- Establishing each terrain pod as a distinct and separate entity.
- The limiting of long, flat or uphill sections of ski terrain.
- Skier traffic flow in terms of skier safety and quality of skiing.
- Avoidance of major drainages and extreme terrain features.

It is noted that the new ski trail designs are narrower in width and all of the trails will be summer groomed. During the winter season, ski terrain located in the upper Alpine will be adjusted in terms of width and gradient due to snow pack and grooming patterns.

Figure 3 – 11: Ski Trail Planning Parameters

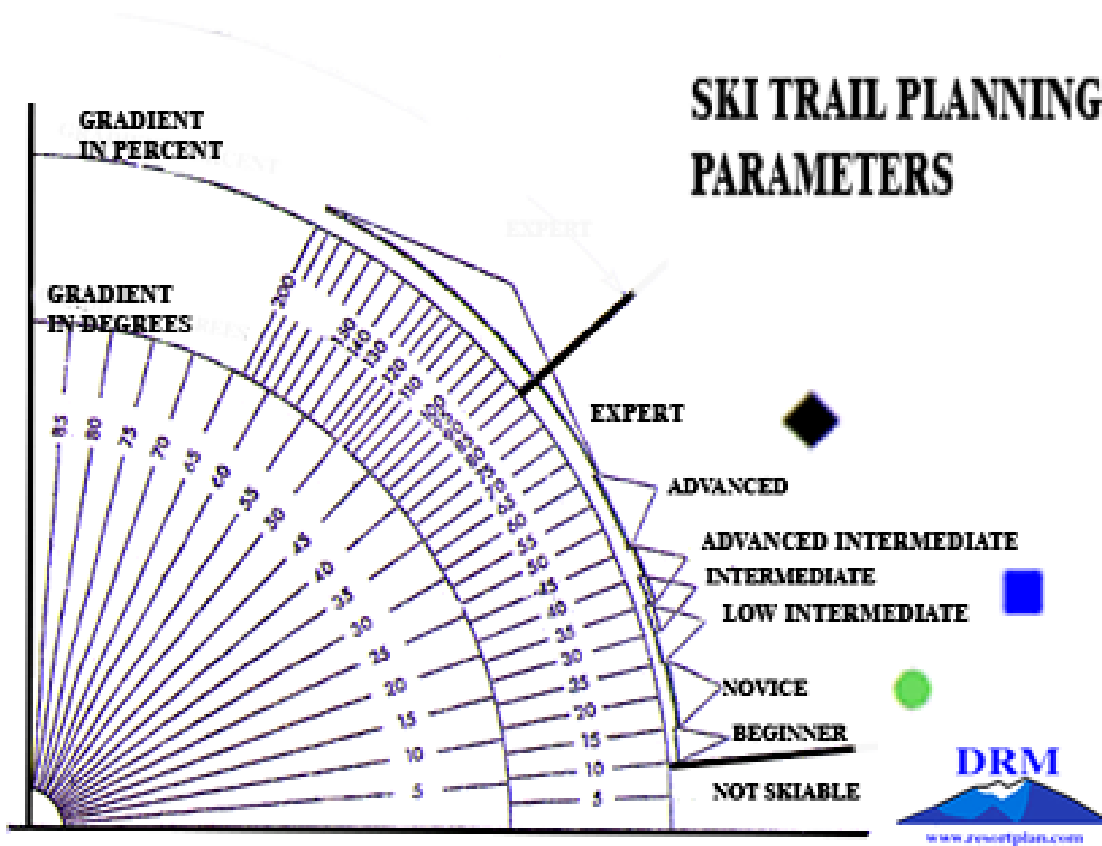


Figure 3 – 12: Terrain Gradient

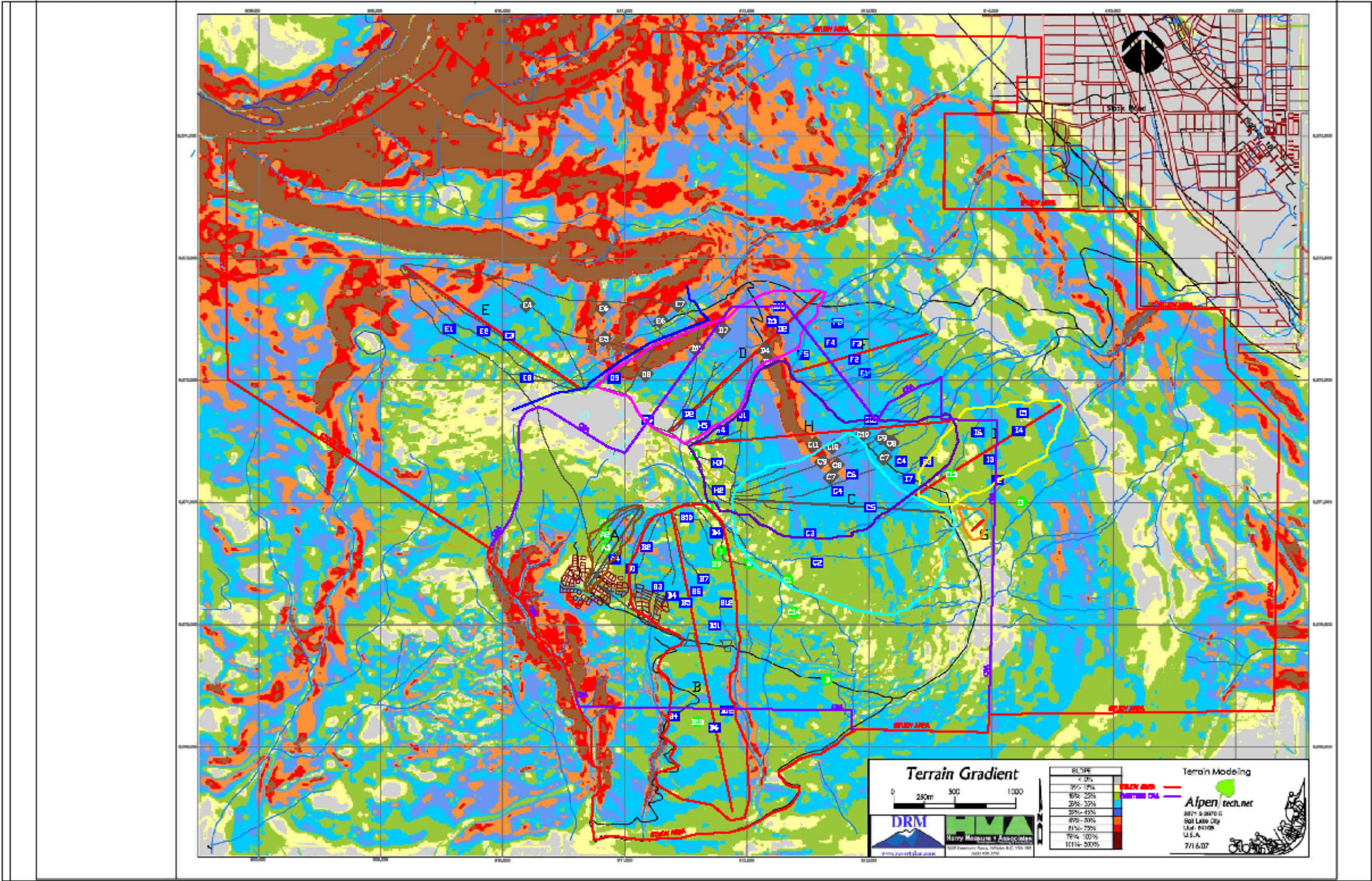
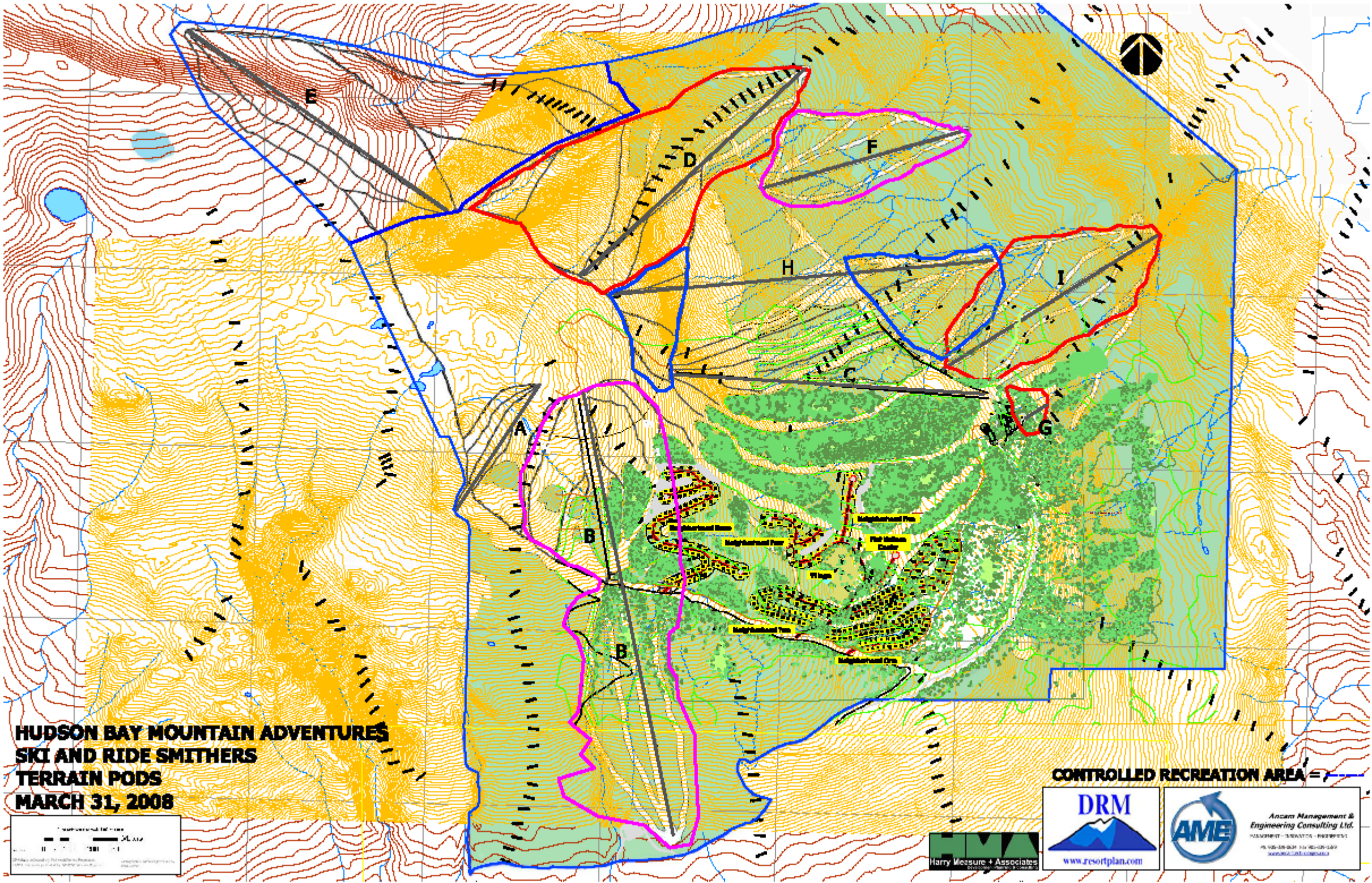


Figure 3 – 13: Terrain Pods



3.4 Phase 1 Ski Area Expansion

Phase 1 development plan involves the construction of 3 new terrain pods and associated lifts. Terrain pods D and I, along with Terrain Pod G, will allow for a separate beginner area with carpet lift. See Figures 3 – 14 and 3 – 15.

Figure 3 – 14: Ski Terrain Assessment Chart

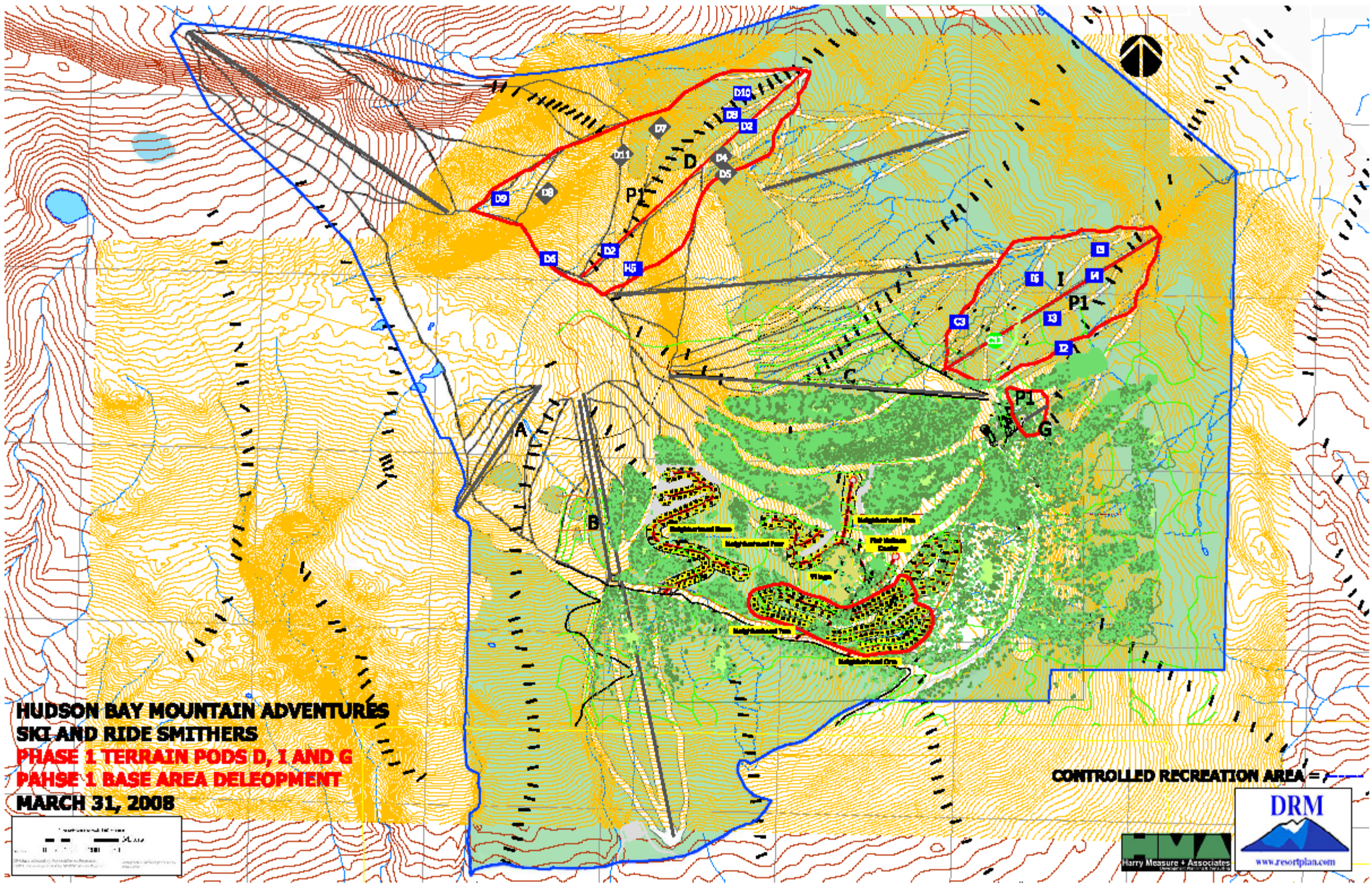
SKI SMITHERS SKI AREA TERRAIN ASSESSMENT PHASE 1 SKI TERRAIN									
TRAIL	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
LIFT G CARPET LIFT TERRAIN POD G G 1	BEGINNER	25	190	200	13%	15%	3.81	55	210
TERRAIN POD G TOTALS							3.81		210
SKIERS PER HECTARE								55	
LIFT A PRAIRIE T-BAR TERRAIN POD A									
1-ALPINE MEADOWS	NOVICE	169	42	1143	15%	25%	4.78	44	210
2-CABIN RUN	NOVICE	120	35	641	19%	27%	2.23	44	98
3- MARMOT HOLLOW	NOVICE	157	46	855	19%	30%	3.96	44	174
4- NANCY GREENE	LOW INTER	152	42	716	22%	32%	2.32	33	77
TERRAIN POD A TOTALS							13.29		559
SKIERS PER HECTARE								42	
LIFT B PANORAMA T-BAR									
1- PARLIAMENT	INTERMEDIATE	218	39	1112	20%	37%	4.32	22	95
2-CANNON BALL	INTERMEDIATE	223	31	951	23%	38%	2.73	22	60
3-CINDERLLA	INTERMEDIATE	172	22	888	19%	40%	2.07	22	46
4-TURKEY SHOOT	LOW INTER	253	37	1070	24%	37%	3.97	33	131
5-YODELIN	LOWINTER	210	33	880	25%	32%	2.93	33	97
6-PITCHFORK	LOWINTER	65	44	249	27%	32%	1.09	33	36
7-ALPINE THE FORK	LOW INTER	130	27	590	23%	27%	1.60	33	53
8-CUT OFF	NOVICE	100	30	481	21%	22%	1.44	44	63
9-PANORAMA	NOVICE	253	36	1457	18%	25%	5.21	44	229
10-TWINKLE BOWL	INTERMEDIATE	55	66	285	20%	38%	1.90	22	42
TERRAIN POD B TOTALS							27.26		852
SKIERS PER HECTARE								31	
LIFT C SKYLINE TRIPLE CHAIR TERRAIN POD C									
1-TWINKLETOES	NOVICE	466	39	3001	19%	29%	11.80	44	519
2-FOOTLOSE	LOW INTER	400	44	1912	19%	30%	8.50	33	281
3-PTARMIGAN	LOW INTER	461	48	1941	23%	35%	9.39	33	310
4-CHAPMANS	INTERMEDIATE	455	40	1861	24%	47%	7.43	22	163
5-EXPO	LOW INTER	180	27	631	30%	34%	1.69	33	56
6-SNOW BOUND GLADE @25%	ADV INTER	395	66	1268	33%	47%	8.38	16	34
7-ALPENHORN	ADVANCED	403	40	1329	33%	60%	5.37	12	64
8-DHALIE DOUBLE	ADVANCED	300	30	893	26%	65%	2.67	12	32
9-WHICHWAY GLADES @25%	ADVANCED	290	110	790	35%	66%	8.71	12	26
10-COLD SMOKE	EXPERT	343	45	1062	24%	81%	4.77	8	38
C-14, RES. ACCESSSS	NOVICE	165	20	850	19%	25%	1.70	44	75
TERRAIN POD C TOTALS							70.41		1598
SKIERS PER HECTARE								23	

Continuation of Figure 3 - 14

SKI SMITHERS SKI AREA TERRAIN ASSESSMENT PHASE 1 SKI TERRAIN									
TRAIL	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
OTHER TRAIL AND CONNECTORS									
1-HOME RUN	BEGINNER	57	13	523	11%	11%	0.66	55	36
2-SHORT CUT	BEGINNER	47	10	206	10%	10%	0.21	55	12
3-LOWER SIDEWINDER	BEGINNER	195	5	2797	10%	10%	1.40	55	77
4-UPPER GULLY	NOVICE	80	27	585	14%	16%	1.59	44	70
5-SKYLINE CONNECTOR	NOVICE	110	31	674	17%	25%	2.07	44	91
6-UPPER SIDEWINDER	BEGINNER	74	12	913	8%	11%	1.08	55	59
OTHER TOTAL							7.01		345
SKIERS PER HECTARE								49	
LIFT I, TOWN VIEW,									
I1	NOVICE	270	20	1970	13%	20	3.93	44	173
I2	INTERMEDIATE	300	30	1399	21%	26	4.20	22	92
I3	LOW INTER	210	30	1244	17%	25	3.73	33	123
I4	INTERMEDIATE	305	30	1503	20%	30	4.50	22	99
I5	INTERMEDIATE	145	30	518	28%	35	1.55	22	34
I6	LOW INTER	300	30	165	18%	22	4.97	33	164
OTHER TOTAL							22.88		686
SKIERS PER HECTARE								30	
LIFT D SIMPSON'S DETACHABLE QUAD									
TERRAIN POD D									
D1	LOW INTER	110	20	1109	10%	30%	2.22	33	73
D2	INTERMEDIATE	585	30	1759	33%	50%	5.28	22	116
D3	INTERMEDIATE	450	30	1241	36%	43%	3.72	22	82
D4	ADVANCED	200	30	699	29%	65%	2.10	12	25
D5	ADVANCED	100	30	465	22%	70%	1.39	12	17
D6	NOVICE	24	30	490	5%	15%	0.98	44	43
D7	ADVANCED	175	50	414	27%	65%	2.07	12	25
D8	EXPERT	300	30	466	64%	70%	2.30	8	18
D9	ADV INTER	500	35	2276	22%	45%	7.96	16	127
D10	ADV INTER	275	35	570	45%	45%	1.71	16	27
D11	EXPERT	360	60	832	43%	85%	4.69	8	38
TERRAIN POD D							34.42		592
SKIERS PER HECTARE								17	
TOTAL HECTARES							179.08		
PHASE 1 SKIERS PER HECTARE								27	4,841

It is noted that Terrain Pods I and G will be the first pods for development in Phase 1.

Figure 3 – 15: Ski Area Map – Phase 1



HBMA will have a total of 49 ski trails at the completion of Phase 1. They are: 16 Easier, 24 More Difficult and 9 Most Difficult. The estimated number of new hectares of ski terrain for Phase 1 is 62.85 and the total number of hectares after Phase 1 is completed is 179.40. See Figure 3 – 14: Phase 1 Ski Terrain Assessment Chart.

The balance of skier distribution to market or ideal ski terrain has improved with the substantial addition of the More Difficult – Intermediate category. The Easier terrain has also moved into line with the ideal area ratios.

Phase 1 Ski Terrain Balance Graph.

Figure 3 – 16: Terrain Compared to Ideal – Phase 1

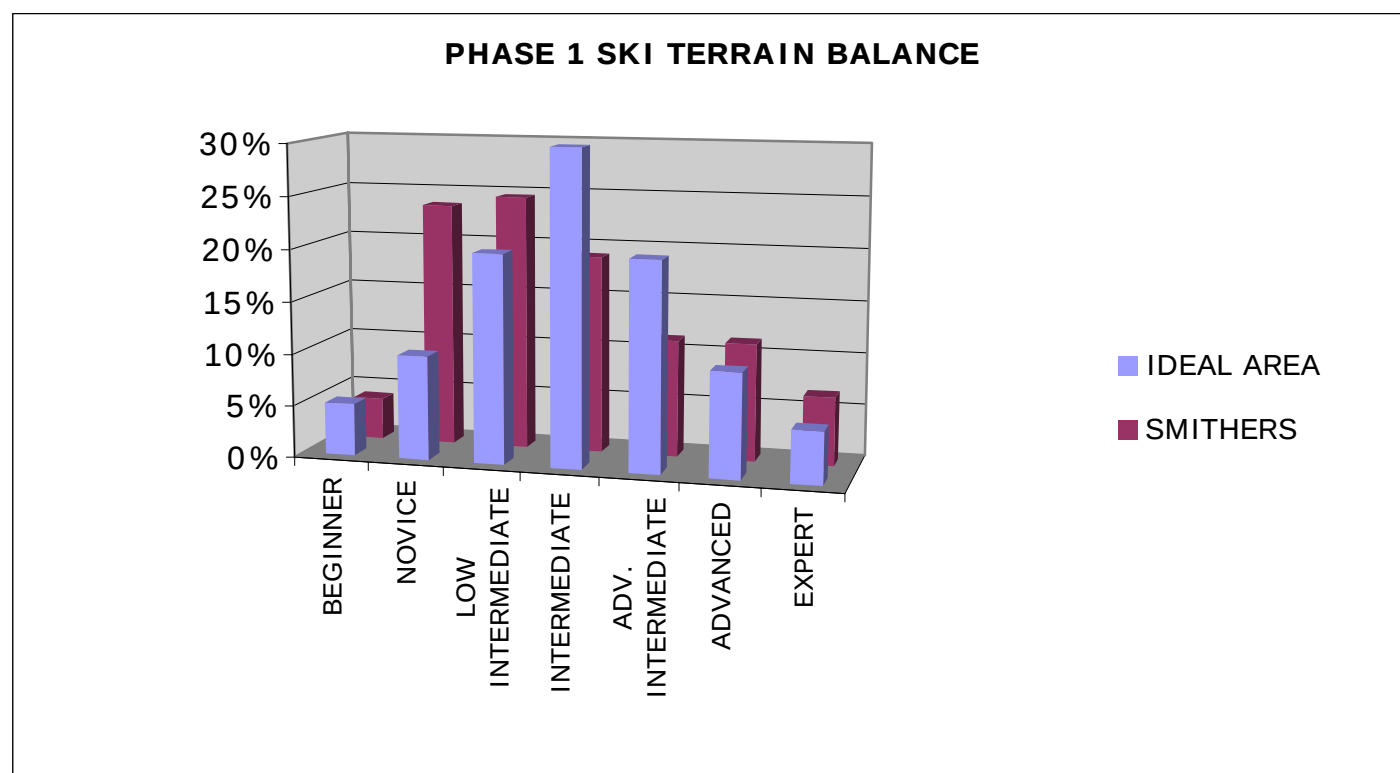


Figure 3 – 17: Terrain Balance – Phase 1

SKI LL LEVEL	HECTARES	I DEAL AREA	SMITHERS
BEGINNER	7.16	5%	4%
NOVICE	42.14	10%	23%
LOW INTERMEDIATE	43.93	20%	24%
INTERMEDIATE	34.05	30%	19%
ADV. INTERMEDIATE	20.15	20%	11%
ADVANCED	20.21	10%	11%
EXPERT	11.76	5%	7%
TOTAL	179.40	100%	100%

3.4.1 Phase 1 - Weighted Vertical Demand

The weighted vertical demand chart below shows the calculated WVD for the phase 1 expansion as well as a ski area total.

Figure 3 – 18

SKI AND RIDE SMITHERS WEIGHTED VERTICAL DEMAND PHASE 1 CONDITIONS					
TERRAIN POD A	HECTARES	TRAIL CAPACITY	% OF USE	VERTICAL DEMAND	WEIGHTED DEMAND
BEGINNER				750	0
NOVICE	10.97	483	86 %	1500	1295
LOW INTERMEDIATE	2.32	77	14 %	2400	329
INTERMEDIATE				3800	0
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	13.29	559	100 %		1623
TERRAIN POD B	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	6.65	293	34 %	1500	515
LOW INTERMEDIATE	9.59	316	37 %	2400	892
INTERMEDIATE	11.02	242	28 %	3800	1082
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	27.26	852	100 %		2489
TERRAIN POD C	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	13.50	594	37 %	1500	558
LOW INTERMEDIATE	19.58	646	40 %	2400	970
INTERMEDIATE	7.43	163	10 %	3800	389
ADV. INTERMEDIATE	8.38	34	2 %	4900	103
ADVANCED	16.75	123	8 %	6200	476
EXPERT	4.77	38	2 %	7500	179
TOTAL	70.41	1598	100 %		2674
TERRAIN POD D	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	0.98	43	7 %	1500	109
LOW INTERMEDIATE	2.22	73	12 %	2400	297
INTERMEDIATE	9.00	198	33 %	3800	1272
ADV. INTERMEDIATE	11.77	180	30 %	4900	1490
ADVANCED	3.46	42	7 %	6200	435
EXPERT	6.99	56	9 %	7500	709
TOTAL	34.42	592	100 %		4312
TERRAIN POD G	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER	3.81	210	100 %	750	750
NOVICE				1500	0
LOW INTERMEDIATE				2400	0
INTERMEDIATE				3800	0
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	3.81	210	100 %		750
TERRAIN POD I	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	3.93	173	25 %	1500	378
LOW INTERMEDIATE	8.70	287	42 %	2400	1,005
INTERMEDIATE	10.25	226	33 %	3800	1,250
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	22.88	686			2,634
SKI AREA TOTAL	179.08	4841			15582

3.4.2 Phase 1 Lift Capacity Review

The Phase 1 expansion plan involves the construction of 3 new lifts. New terrain Pod I is developed below the new base area. The cable tow, Lift F, is removed and a conveyor, Lift G, is constructed in the new base area. New terrain pod D is proposed as a detachable quad as a means to service a substantial amount of new ski terrain. It is noted that the local skiers have enjoyed this terrain and have cut an unofficial ski trail a number of years ago.

When evaluating ski lift capacity, two figures that must be considered are the manufacturers rated lift capacity and the actual lift capacity. The manufacturer's rated lift capacity defines the figures for the lift operating at 100 percent efficiency. The actual lift capacity is an adjusted figure to provide a more realistic capacity statement.

The manufacturer's rated ski lift capacity for Phase 1 is 5,258 skiers per hour. The actual lift capacity of the Phase 1 ski lifts is 4,495 skiers per hour. The reason for this reduction is that there are a number of factors that affect lift capacity throughout an operating day such as skier error, lift access to other ski terrain pods or mechanical inefficiency. The concept for the new lifts is to provide lower capacity, more efficient, detachable quad chair lifts to improve the quality of the skiing experience. For Phase 1 there are three new lifts. The various capacities and the adjustments for each ski lift are defined in Figure 3 – 19.

Figure 3 – 19: Actual Lift Capacity – Phase 1

SKI AND RIDE SMITHERS PHASE 1 SKI LIFT REVIEW					
SKI LIFT TYPE	RATED CAPACITY	ADJUSTMENTS IN CAPACITY		ACTUAL CAPACITY	WEIGHTED DEMAND
		ACCESS TO OTHER PODS	EFFICIENCY		
TERRAIN POD A GREEN T-BAR	458	0%	15%	389.3	1,623
TERRAIN POD B ORANGE T- BAR	900	15%	20%	585	2,489
TERRAIN POD C BLUE TRIPLE	1100	10%	10%	880	2674
TERRAIN POD D SIMPSONS	1200	0%	4%	1152	4,312
TERRAIN POD G CONVEYOR	600	0%	2%	588	750
TERRAIN POD I FIXED QUAD	1000	0	10%	900	2,634
TOTAL	5258			4494.3	14,482

3.4.3 Phase 1 Ski Area Comfortable Carrying Capacity

The definition of a ski area's comfortable carrying capacity (CCC) is the most important step in defining the ski area's ability to service the customer, to provide facilities that are sized properly and to assess financial capabilities. The CCC has also been called the Uphill Comfortable Carrying Capacity. The CCC figure is used to evaluate the skiing demand versus the ability of the ski lift, or lifts, to meet that demand over a period of time. In reality, a skier will use the lift more than once during the one-hour period, or a number of times during a skiing day, to meet their skiing needs.

The ski area's CCC is also used to define specific requirements for ski area facilities from washrooms to parking areas.

The estimated ski area CCC at the end of Phase 1 is 3,622 skiers at one time. See Figure 3 – 20.

Figure 3 – 20: CCC – Phase 1

SKI AND RIDE SMITHERS PHASE 1 COMFORTABLE CARRYING CAPACITY						
AREA	VERTICAL	HOURLY LIFT CAPACITY	HRS OF OPERATION	LIFT EFFICIENCY	WEIGHTED VERTICAL DEMAND	COMFORTABLE CAPACITY
TERRAIN POD A T-bar	175	458	7	85%	1623	294
TERRAIN POD B T-bar	256	900	7	65%	2489	421
TERRAIN POD C Triple Chair	468	1100	7	80%	2674	1078
TERRAIN POD D Quad	585	1200	7	96%	4312	1094
TERRAIN POD I Quad	305	1000	6	90%	2634	625
TERRAIN POD G Conveyor	20	600	7	98%	750	110
TOTAL AREA CCC		5258				3622

3.4.4 Phase 1 - Ski Area Facilities, Parking & Site Infrastructure

The ski area facilities, parking and site infrastructure have been detailed in the Base Area sections. The Base area section also defines the parking areas, the maintenance building and the ski area operations facilities.

3.5 Phase 2 Ski Area Expansion

The second phase of expansion provides additional trails and two more detachable quad chair lifts. The new trails are located in the center of the eastern facing slopes, as well as a southerly facing terrain pod, which will provide the maximum vertical for the ski area. See Figure 3 – 22: Phase 2 Ski Area Plan Map.

The Phase 2 expansion involves a new Terrain Pod E, the expansion of Terrain Pod C and the Detachable Lift H with access trails. This produces a ski area total of 18 Easier, 33 More Difficult and 14 Most Difficult ski trails. This produces a total of 65 ski trails and 231.99 ha of ski terrain. See Figure 3 – 21.

The need for more Intermediate ski terrain has been addressed, to a large degree, in Terrain Pod E. The extension of the Terrain Pod C ski trails expands the Most Difficult ski terrain. With the addition of the Phase 2 ski terrain, SRS can provide a substantial ski offering (see Figure 3 – 21).

Figure 3 – 21: Ski Area Terrain Assessment – Phase 2 (Figure 3 – 21 continues on the next page)

SKI SMITHERS SKI AREA TERRAIN ASSESSMENT PHASE 2 SKI TERRAIN									
SKI TRAILS / PODS	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
LIFT G CARPET LIFT TERRAIN POD G G 1	BEGINNER	25	190	200	13%	15%	3.81	55	210
TERRAIN POD G TOTALS							3.81		210
SKIERS PER HECTARE								55	
LIFT A PRAIRIE T-BAR TERRAIN POD A									
1-ALPINE MEADOWS	NOVICE	169	42	1143	15%	25%	4.78	44	210
2-CABIN RUN	NOVICE	120	35	641	19%	27%	2.23	44	98
3- MARMOT HOLLOW	NOVICE	157	46	855	19%	30%	3.96	44	174
4- NANCY GREENE	LOW INTER	152	42	716	22%	32%	2.32	33	77
TERRAIN POD A TOTALS							13.29		559
SKIERS PER HECTARE								42	
LIFT B PANORAMA T-BAR									
1- PARLIAMENT	INTERMEDIATE	218	39	1112	20%	37%	4.32	22	95
2-CANNON BALL	INTERMEDIATE	223	31	951	23%	38%	2.73	22	60
3-CINDERELLA	INTERMEDIATE	172	22	888	19%	40%	2.07	22	46
4-TURKEY SHOOT	LOW INTER	253	37	1070	24%	37%	3.97	33	131
5-YODELIN	LOWINTER	210	33	880	25%	32%	2.93	33	97
6-PITCHFORK	LOWINTER	65	44	249	27%	32%	1.09	33	36
7-ALPINE THE FORK	LOW INTER	130	27	590	23%	27%	1.60	33	53
8-CUT OFF	NOVICE	100	30	481	21%	22%	1.44	44	63
9-PANORAMA	NOVICE	253	36	1457	18%	25%	5.21	44	229
10-TWINKLE BOWL	INTERMEDIATE	55	66	285	20%	38%	1.90	22	42
TERRAIN POD B TOTALS							27.26		852
SKIERS PER HECTARE								31	
LIFT C SKYLINE TRIPLE CHAIR									
TERRAIN POD C - ADDITONS TO TRAILS 4,7,8,9,10. NEW TRAILS 11,12,13									
1-TWINKLETOES	NOVICE	466	39	3001	19%	29%	11.80	44	519
2-FOOTLOSE	LOW INTER	400	44	1912	19%	30%	8.50	33	281
3-PTARMIGAN	LOW INTER	461	48	1941	23%	35%	9.39	33	310
4-CHAPMANS	INTERMEDIATE	590	40	2524	24%	47%	9.75	22	215
5-EXPO	LOW INTER	180	27	631	30%	34%	1.69	33	56
6-SNOW BOUND GLADE @25%	ADV INTER	395	66	1268	33%	47%	8.38	16	34
7-ALPENHORN	ADVANCED	578	40	1909	33%	60%	7.11	12	85
8-DHALIE DOUBLE	ADVANCED	435	30	1380	26%	65%	4.37	12	52
9-WHICHWAY GLADES@25%	ADVANCED	390	110	1080	35%	66%	9.57	12	29
10-COLD SMOKE	EXPERT	393	45	1476	24%	81%	6.01	8	48
C11	EXPERT	150	30	300	50%	90%	0.89	8	7
C12	INTERMEDIATE	175	30	580	30%	37%	1.74	22	38
C13	NOVICE	125	30	777	16%	20%	2.72	44	120
C14, RES. ACCESS	NOVICE	165	20	850	19%	25%	1.70	44	75
TERRAIN POD C TOTALS							83.62		1868
SKIERS PER HECTARE								22	

SKI SMITHERS SKI AREA TERRAIN ASSESSMENT PHASE 2 SKI TERRAIN									
SKI TRAILS / PODS	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
OTHER TRAIL AND CONNECTORS									
1-HOME RUN	BEGINNER	57	13	523	11%	11%	0.66	55	36
2-SHORT CUT	BEGINNER	47	10	206	10%	10%	0.21	55	12
3-LOWER SIDEWINDER	BEGINNER	195	5	2797	10%	10%	1.40	55	77
4-UPPER GULLY	NOVICE	80	27	585	14%	16%	1.59	44	70
5-SKYLINE CONNECTOR	NOVICE	110	31	674	17%	25%	2.07	44	91
6-UPPER SIDEWINDER	BEGINNER	74	12	913	8%	11%	1.08	55	59
OTHER TOTAL							7.01		345
SKIERS PER HECTARE								49	
LIFT D SIMPSON'S DETACHABLE QUAD TERRAIN POD D									
D1	LOW INTER	110	20	1109	10%	30%	2.22	33	73
D2	INTERMEDIATE	585	30	1759	33%	50%	5.28	22	116
D3	INTERMEDIATE	450	30	1241	36%	43%	3.72	22	82
D4	ADVANCED	200	30	699	29%	65%	2.10	12	25
D5	ADVANCED	100	30	465	22%	70%	1.39	12	17
D6	NOVICE	24	30	490	5%	15%	0.98	44	43
D7	ADVANCED	175	50	414	27%	65%	2.07	12	25
D8	EXPERT	300	30	466	64%	70%	2.30	8	18
D9	ADV INTER	500	35	2276	22%	45%	7.96	16	127
D10	ADV INTER	275	35	570	45%	45%	1.71	16	27
D11	EXPERT	360	60	832	43%	85%	4.69	8	38
TERRAIN POD D							34.42		592
SKIERS PER HECTARE								17	
LIFT E, THE TENT, DETACHABLE QUAD									
E1	ADV INTER	575	30	1860	31%	50%	5.80	16	93
E2	INTERMEDIATE	450	30	1847	24%	45%	5.54	22	122
E3	ADV. INTER	450	30	1814	25%	45%	5.44	16	87
E4	ADVANCED	450	30	2022	22%	50%	6.06	12	73
E5	EXPERT	300	33	880	34%	80%	2.93	8	23
E6	EXPERT	700	30	1762	40%	75%	5.28	8	42
E7	ADVANCED	250	30	674	37%	65%	2.02	12	24
E8	INTERMEDIATE	70	20	400	18%	45%	0.80	22	18
LIFT E							33.87		482
SKIERS PER HECTARE								14	
LIFT H, HUDSON BAY DETACHABLE QUAD									
H1	NOVICE	75	30	700	11%	20%	2.09	44	92
H2	LOW INTER	35	30	200	18%	22%	0.45	33	15
H3	LOW INTER	40	30	180	22%	30%	0.45	33	15
H4	LOW INTER	125	30	500	25%	30%	1.49	33	49
H5	INTERMEDIATE	120	30	450	27%	35%	1.35	22	30
LIFT H							5.83		201
SKIERS PER HECTARE								34	
LIFT I, TOWN VIEW,									
I1	NOVICE	270	20	1970	13%	20	3.93	44	173
I2	INTERMEDIATE	300	30	1399	21%	26	4.20	22	92
I3	LOW INTER	210	30	1244	17%	25	3.73	33	123
I4	INTERMEDIATE	305	30	1503	20%	30	4.50	22	99
I5	INTERMEDIATE	145	30	518	28%	35	1.55	22	34
I6	LOW INTER	300	30	165	18%	22	4.97	33	164
LIFT I, TOWN VIEW,							22.88		686
SKIERS PER HECTARE									
TOTAL HECTARES							231.99		
PHASE 2 SKIERS PER HECTARE								25	5,793

**HUDSON BAY MOUNTAIN ADVENTURES
SKI AND RIDE SMITHERS
PHASE 2 TERRAIN PODS H AND E
PHASE 2 BASE AREA DEVELOPMENT
MARCH 31, 2008**

CONTROLLED RECREATION AREA

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PLANNING - DESIGN - CONSTRUCTION
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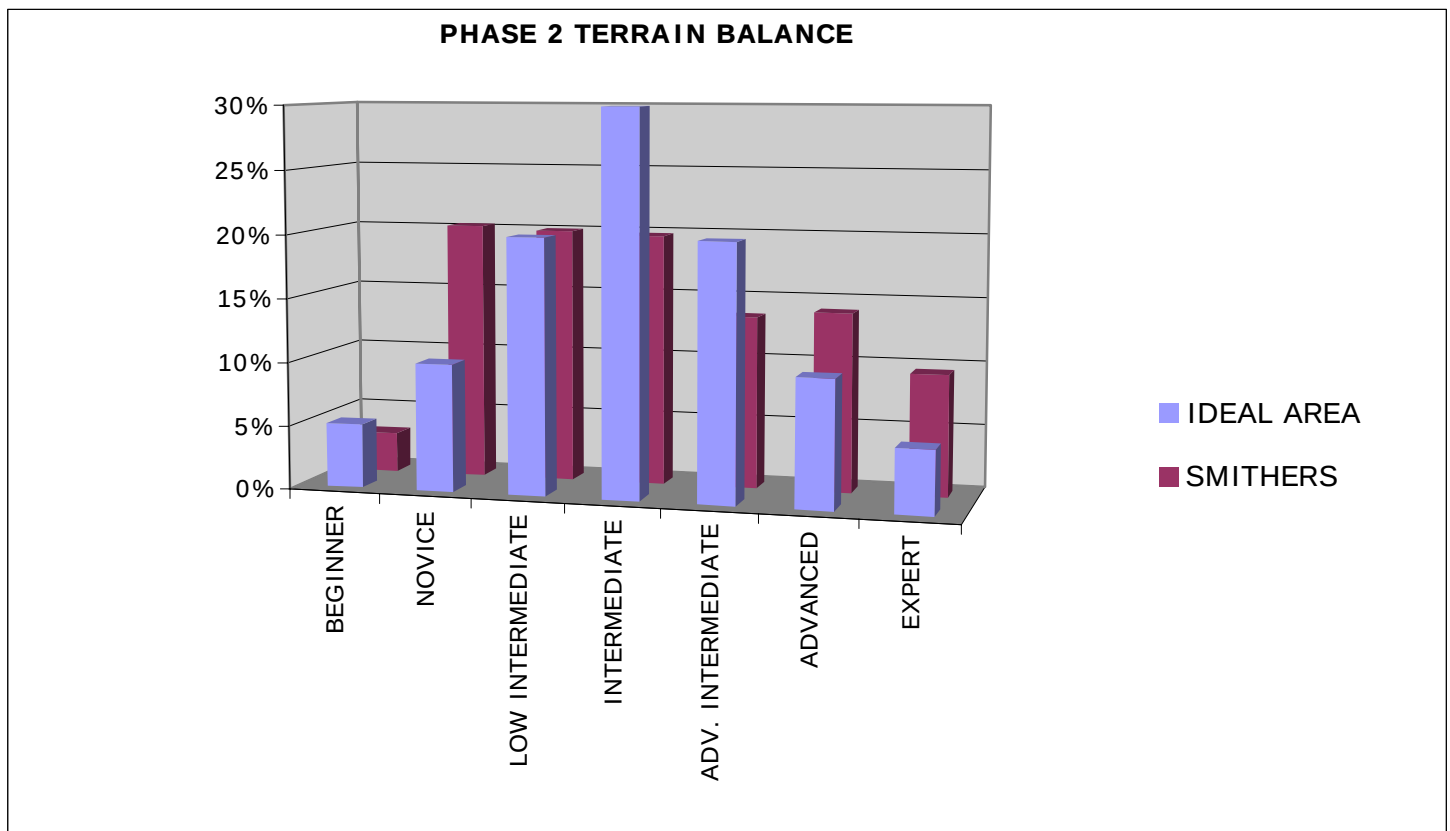
Phase 2 - Ski Terrain Balance

Figure 3 – 23: Terrain Balance – Phase 2

PHASE 2 SKI TERRAIN BALANCE			
SKILL LEVEL	HECTARES	IDEAL AREA	SMITHERS
BEGINNER	7.16	5%	3%
NOVICE	46.95	10%	20%
LOW INTERMEDIATE	46.32	20%	20%
INTERMEDIATE	45.80	30%	20%
ADV. INTERMEDIATE	31.39	20%	14%
ADVANCED	32.59	10%	14%
EXPERT	22.10	5%	10%
TOTAL	232.31	100%	100%

Phase 2 Ski Terrain Balance Graph.

Figure 3 – 24: Terrain Compared to Ideal – Phase 2



3.5.1 Phase 2 - Weighted Vertical Demand

The Phase 2 expansion involves the construction of two new terrain pods, E and H, as well as additions to trails in terrain pod C. The weighted vertical demand chart below shows the calculated WVD for the Phase 2 expansion, as well as a ski area total.

Figure 3 – 25

SKI AND RIDE SMITHERS WEIGHTED VERTICAL DEMAND PHASE 2 CONDITIONS					
TERRAIN POD C	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	16.22	714	38%	1500	573
LOW INTERMEDIATE	19.58	646	35%	2400	830
INTERMEDIATE	11.49	253	14%	3800	514
ADV. INTERMEDIATE	8.38	34	2%	4900	88
ADVANCED	21.05	166	9%	6200	553
EXPERT	6.90	55	3%	7500	222
TOTAL	83.62	1868	100%		2780
TERRAIN POD D	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	0.98	43	7%	1500	109
LOW INTERMEDIATE	2.22	73	12%	2400	297
INTERMEDIATE	9.00	198	33%	3800	1272
ADV. INTERMEDIATE	11.77	180	30%	4900	1490
ADVANCED	3.46	42	7%	6200	435
EXPERT	6.99	56	9%	7500	709
TOTAL	34.42	592	100%		4312
TERRAIN POD E	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE			0%	1500	0
LOW INTERMEDIATE			0%	2400	0
INTERMEDIATE	6.34	139	29%	3800	1100
ADV. INTERMEDIATE	11.24	180	37%	4900	1828
ADVANCED	8.08	97	20%	6200	1247
EXPERT	8.21	66	14%	7500	1022
TOTAL	33.87	482	100%		5198
TERRAIN POD H	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	2.09	92	46%	1500	688
LOW INTERMEDIATE	2.39	79	39%	2400	944
INTERMEDIATE	1.35	30	15%	3800	563
ADV. INTERMEDIATE			0%	4900	0
ADVANCED			0%	6200	0
EXPERT			0%	7500	0
TOTAL	5.83	201	100%		2,195
SKI AREA TOTAL	231.99	5793			21,131

3.5.2 Phase 2 Lift Capacity Review

The manufacturer's rated ski lift capacity for Phase 2 is 7,658 skiers per hour. The actual lift capacity of the Phase 2 ski lifts is 5,958 skiers per hour. The reason for this reduction is that there are a number of factors that affect lift capacity throughout an operating day such as skier error, lift access to other ski terrain pods or mechanical inefficiency. See Figure 3 – 26.

Phase 2 involves the addition of two new lifts, including Lift E, a fixed grip quad and Lift H, which is proposed as detachable quad. It is assumed that the majority of skiers will utilize Lift H to access the terrain currently serviced by Lift C. This lift will be used primarily to access the existing base area and cabin colony, as well as a secondary lift out of the new base area. The capacity of Lift C has been reduced to reflect this change.

Figure 3 – 26: Phase 2 Lift Capacity

SKI AND RIDE SMITHERS LIFT PHASE 2 SKI LIFT REVIEW					
SKI LIFT TYPE	RATED CAPACITY	ADJUSTMENTS IN CAPACITY		ACTUAL CAPACITY	WEIGHTED DEMAND
		ACCESS TO OTHER PODS	EFFICIENCY		
TERRAIN POD A GREEN T-BAR	458	0 %	15 %	389	1,623
TERRAIN POD B ORANGE T-BAR	900	15 %	20 %	585	2,489
TERRAIN POD C TRIPLE CHAIR	1100	60 %	20 %	220	2780
TERRAIN POD D DETACHABLE QUAD	1200	0 %	4 %	1152	4,312
TERRAIN POD E QUAD	1200	0 %	4 %	1152	5,198
TERRAIN POD H DETACHABLE QUAD	1200	15 %	4 %	972	2,195
TERRAIN POD I QUAD	1000	0	10 %	900	2,634
TERRAIN POD G CONVEYOR	600	0 %	2 %	588	750
TOTAL	7658			5958	21,980

3.5.3 Phase 2 Ski Area Comfortable Carrying Capacity

The ski area's CCC is also used to define specific requirements for ski area facilities from washrooms to parking areas. At the end of Phase 2, the estimated total ski area CCC is 5,538 (see Figure 3 – 27).

Figure 3 – 27

SKI AND RIDE SMITHERS PHASE 2 COMFORTABLE CARRYING CAPACITY						
	VERTICAL	HOURLY LIFT CAPACITY	HRS OF OPERATION	LIFT EFFICIENCY	WEIGHTED VERTICAL DEMAND	COMFORTABLE CAPACITY
TERRAIN POD A T-bar	175	458	7	85%	1623	294
TERRAIN POD B T-bar	256	900	7	65%	2489	421
TERRAIN POD C Triple Chair	468	1100	7	20%	2780	259
TERRAIN POD D Quad	585	1200	7	96%	4312	1094
TERRAIN POD E Quad	464	1200	7	96%	5198	720
TERRAIN POD G conveyor	20	600	7	98%	750	110
TERRAIN POD H Detachable Quad	650	1200	7	81%	2195	2015
TERRAIN POD I Quad	305	1000	6	90%	2634	625
TOTAL AREA CCC		7658				5538

3.5.4 Phase 2 Ski Area Facilities, Parking & Site Infrastructure

The ski area facilities, parking and site infrastructure have been detailed in the Base Area sections. The Base area section includes the parking areas, the maintenance building and the ski area operations facilities, which are part of the village development.

3.6 Phase 3 Ski Area Expansion

The Phase 3 ski area expansion includes the installation of 2 quad chairs, plus additional trails in Terrain Pods F, as well as additions to trails in Pod B and the replacement of the Pod B t- bar with a fixed grip quad chair (see Figure 3 – 32). With this addition, the ski area will have a very competitive Regional Resort skiing and boarding product.

The Phase 3 expansion produces a ski area total of 73 ski trails, including 19 Easier, 41 More Difficult and 14 Most Difficult, with an estimated 269.78 ha of ski terrain. The charts and graphs for Phase 3 reflect the addition of more Intermediate and Advanced ski terrain. See the Phase 3 Terrain Assessment Chart - Figure 3 – 28 and the Terrain Balance Chart - Figure 3 – 29.

Figure 3 – 28: Ski Area Terrain Assessment – Phase 3 (Figure 3 – 28 continues on the next page)

SKI AND RIDE SMITHERS SKI AREA TERRAIN ASSESSMENT PHASE 3 SKI TERRAIN									
SKI TRAILS / PODS	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
LIFT G CARPET LIFT									
TERRAIN POD G									
G 1	BEGINNER	25	190	200	13%	15%	3.81	55	210
TERRAIN POD G TOTALS							3.81		210
SKIERS PER HECTARE								55	
LIFT A PRAIRIE T-BAR									
TERRAIN POD A									
1-ALPINE MEADOWS	NOVICE	169	42	1143	15%	25%	4.78	44	210
2-CABIN RUN	NOVICE	120	35	641	19%	27%	2.23	44	98
3- MARMOT HOLLOW	NOVICE	157	46	855	19%	30%	3.96	44	174
4- NANCY GREENE	LOW INTER	152	42	716	22%	32%	2.32	33	77
TERRAIN POD A TOTALS							13.29		559
SKIERS PER HECTARE								42	
LIFT B DETACHABLE QUAD CHAIR LIFT REPLACING THE PANORAMA T-BAR									
TERRAIN POD B AND B EXTENDED									
1- PARLIAMENT	INTERMEDIATE	218	39	1112	20%	37%	4.32	22	95
2-CANNON BALL	INTERMEDIATE	223	31	888	25%	38%	2.73	22	60
3-CINDERLLA	INTERMEDIATE	172	22	951	18%	40%	2.07	22	46
4-TURKEY SHOOT	LOW INTER	598	37	2673	22%	37%	8.77	33	289
5-YODELIN	LOW INTER	620	33	2638	25%	36%	7.43	33	245
6-PITCHFORK	LOW INTER	65	44	249	27%	32%	1.09	33	36
7-ALPINE THE FORK	LOW INTER	130	27	590	23%	27%	1.60	33	53
8-CUT OFF	NOVICE	100	30	481	21%	22%	1.44	44	63
9-PANORAMA	NOVICE	253	36	1457	18%	25%	5.21	44	229
10-TWINKLE BOWL	INTERMEDIATE	55	66	285	20%	38%	1.90	22	42
B 11	LOW INTER	80	30	310	26%	30%	0.92	33	30
B 12	INTERMEDIATE	470	30	2128	22%	35%	6.60	22	145
B13	NOVICE	345	30	2128	16%	20%	6.38	44	281
TERRAIN POD B TOTALS							50.46		1615
SKIERS PER HECTARE								32	
LIFT C SKYLINE TRIPLE CHAIR									
TERRAIN POD C - ADDITONS TO TRAILS 4,7,8,9,10. NEW TRAILS 11,12,13									
1-TWINKLETOES	NOVICE	466	39	3001	19%	29%	11.80	44	519
2-FOOTLOSE	LOW INTER	400	44	1912	19%	30%	8.50	33	281
3-PTARMIGAN	LOW INTER	461	48	1941	23%	35%	9.39	33	310
4-CHAPMANS	INTERMEDIATE	590	40	2524	24%	47%	9.75	22	215
5-EXPO	LOW INTER	180	27	631	30%	34%	1.69	33	56
6-SNOW BOUND GLADE @25%	ADV INTER	395	66	1268	33%	47%	8.38	16	34
7-ALPENHORN	ADVANCED	578	40	1909	33%	60%	7.11	12	85
8-DHALIE DOUBLE	ADVANCED	435	30	1380	26%	65%	4.37	12	52
9-WHICHWAY GLADES @25%	ADVANCED	390	110	1080	35%	66%	9.57	12	29
10-COLD SMOKE	EXPERT	393	45	1476	24%	81%	6.01	8	48
C11	EXPERT	150	30	300	50%	90%	0.89	8	7
C12	INTERMEDIATE	175	30	580	30%	37%	1.74	22	38
C13	NOVICE	125	30	777	16%	20%	2.72	44	120
C14, RES. ACCESS	NOVICE	165	20	850	19%	25%	1.70	44	75
TERRAIN POD C TOTALS							83.62		1868
SKIERS PER HECTARE								22	

SKI AND RIDE SMITHERS SKI AREA TERRAIN ASSESSMENT									
PHASE 3 SKI TERRAIN									
SKI TRAILS / PODS	SKILL LEVEL	VERTICAL (M)	WIDTH (M)	SLOPE LENGTH (M)	AVERAGE SLOPE GRADIENT	STEEPEST 100 (M)	HECTARES	ON HILL	NUMBER OF SKIERS
OTHER TRAIL AND CONNECTORS									
1-HOME RUN	BEGINNER	57	13	523	11%	11%	0.66	55	36
2-SHORT CUT	BEGINNER	47	10	206	10%	10%	0.21	55	12
3-LOWER SIDEWINDER	BEGINNER	195	5	2797	10%	10%	1.40	55	77
4-UPPER GULLY	NOVICE	80	27	585	14%	16%	1.59	44	70
5-SKYLINE CONNECTOR	NOVICE	110	31	674	17%	25%	2.07	44	91
6-UPPER SIDEWINDER	BEGINNER	74	12	913	8%	11%	1.08	55	59
OTHER TOTAL							7.01		345
SKIERS PER HECTARE								49	
LIFT D SIMPSONS DETACHABLE QUAD									
TERRAIN POD D									
D1	LOW INTER	110	20	1109	10%	30%	2.22	33	73
D2	INTERMEDIATE	585	30	1759	33%	50%	5.28	22	116
D3	INTERMEDIATE	450	30	1241	36%	43%	3.72	22	82
D4	ADV INTER	200	30	699	29%	65%	2.10	16	34
D5	ADVANCED	100	30	465	22%	70%	1.39	12	17
D6	NOVICE	24	30	490	5%	15%	0.98	44	43
D7	ADVANCED	175	50	414	27%	65%	2.07	12	25
D8	EXPERT	300	30	466	64%	70%	2.30	8	18
D9	ADV INTER	500	35	2276	22%	45%	7.96	16	127
D10	ADV INTER	275	35	570	45%	45%	1.71	16	27
D11	EXPERT	360	60	832	43%	85%	4.69	8	38
TERRAIN POD D							34.42		600
SKIERS PER HECTARE								17	
LIFT E, THE TENT, DOUBLE CHAIR									
E1	ADV INTER	575	30	1860	31%	50%	5.80	16	93
E2	INTERMEDIATE	450	30	1847	24%	45%	5.54	22	122
E3	ADV. INTER	450	30	1814	25%	45%	5.44	16	87
E4	ADVANCED	450	30	2022	22%	50%	6.06	12	73
E5	EXPERT	300	33	880	34%	80%	2.93	8	23
E6	EXPERT	700	30	1762	40%	75%	5.28	8	42
E7	ADVANCED	250	30	674	37%	65%	2.02	12	24
E8	INTERMEDIATE	70	20	400	18%	45%	0.80	22	18
LIFT E							33.87		482
SKIERS PER HECTARE								14	
LIFT H, HUDSON BAY DETACHABLE QUAD									
H1	NOVICE	75	30	700	11%	20%	2.09	44	92
H2	LOW INTER	35	30	200	18%	22%	0.45	33	15
H3	LOWINTER	40	30	180	22%	30%	0.45	33	15
H4	LOW INTER	125	30	500	25%	30%	1.49	33	49
H5	INTERMEDIATE	120	30	450	27%	35%	1.35	22	30
LIFT H							5.83		201
SKIERS PER HECTARE								34	
LIFT I, TOWN VIEW, DETACHABLE QUAD									
TERRAIN POD I									
I1	NOVICE	270	20	1970	13%	20	3.93	44	173
I2	INTERMEDIATE	300	30	1399	21%	26	4.20	22	92
I3	LOW INTER	210	30	1244	17%	25	3.73	33	123
I4	INTERMEDIATE	305	30	1503	20%	30	4.50	22	99
I5	INTERMEDIATE	145	30	518	28%	35	1.55	22	34
I6	LOW INTER	300	30	165	18%	22	4.97	33	164
LIFT I DETACHABLE QUAD							22.88		686
SKIERS PER HECTARE								30	
LIFT F QUAD									
F1	INTERMEDIATE	326	30	1285	25%	37	3.85	22	85
F2	ADV INTER	326	30	1254	26%	40	3.76	16	60
F3	ADV INTER	326	30	1182	28%	40	3.54	16	57
F4	INTERMEDIATE	250	30	726	34%	35	2.17	33	72
F5	ADV INTER	210	35	750	28%	40	1.27	16	20
LIFT F DETACHABLE QUAD							14.59		293
SKIERS PER HECTARE								20	
TOTAL HECTARES							269.78		
PHASE 3 SKIERS PER HECTARE								25	6,858

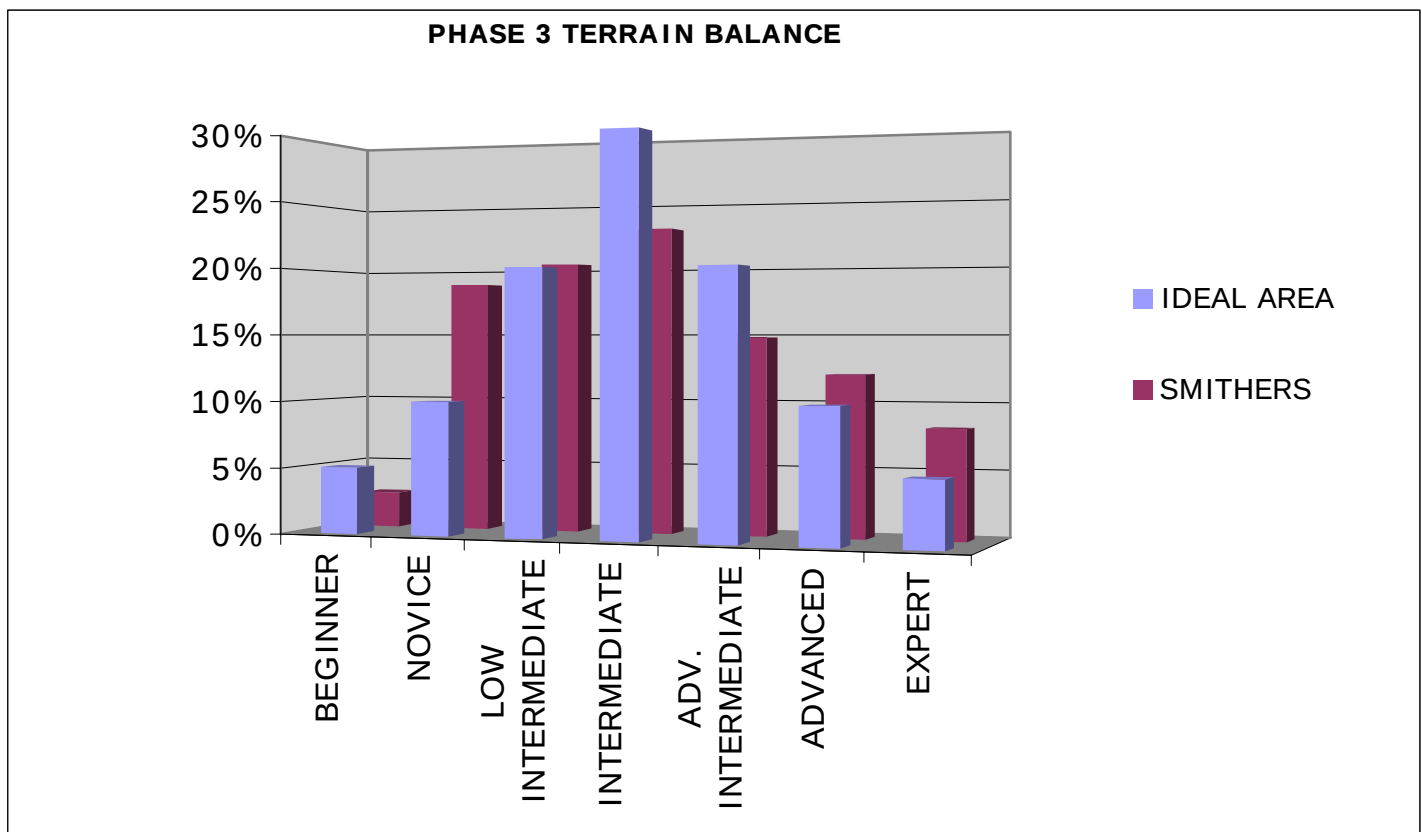
Phase 3 Ski Terrain Balance

Figure 3 – 29: Terrain Balance – Phase 3

PHASE 3 SKI TERRAIN BALANCE			
SKILL LEVEL	HECTARES	IDEAL AREA	SMITHERS
BEGINNER	7.16	5%	3%
NOVICE	50.88	10%	19%
LOW INTERMEDIATE	55.02	20%	20%
INTERMEDIATE	62.07	30%	23%
ADV. INTERMEDIATE	39.96	20%	15%
ADVANCED	32.59	10%	12%
EXPERT	22.10	5%	8%
TOTAL	269.78	100%	100%

Phase 3 Ski Terrain Balance Graph.

Figure 3 – 30: Terrain Compared to Ideal – Phase 3



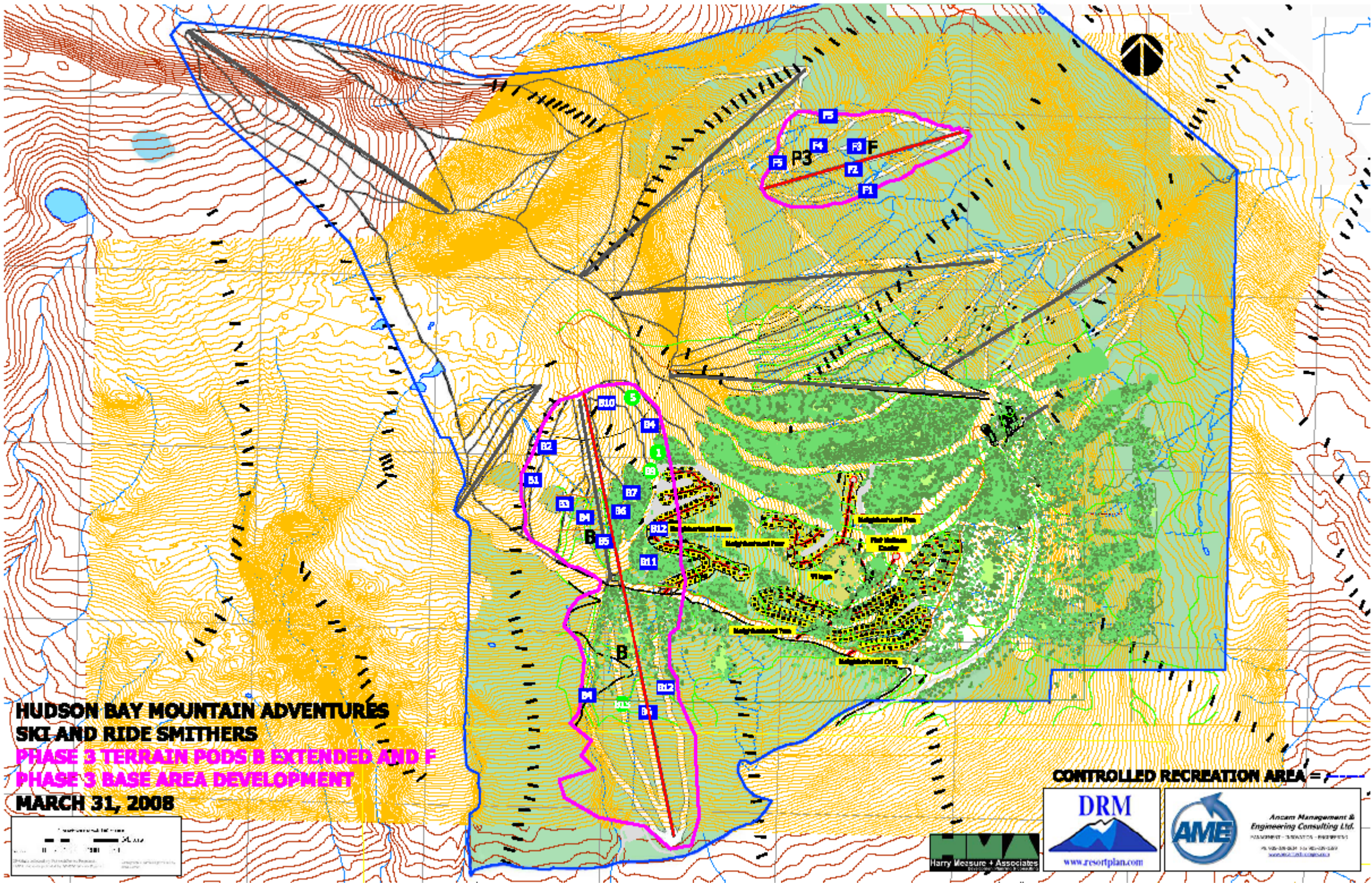
3.6.1 Phase 3 - Weighted Vertical Demand

The Phase 3 expansion involves the construction of a new Terrain Pod F as well as a new fixed grip quad and trail additions to Terrain Pod B. The weighted vertical demand chart below shows the calculated WVD for this phase, as well as a ski area total.

Figure 3 – 31

SKI AND RIDE SMITHERS WEIGHTED VERTICAL DEMAND PHASE 3 CONDITIONS					
TERRAIN POD I	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE	3.93	173	25%	1500	378
LOW INTERMEDIATE	8.70	287	42%	2400	1,005
INTERMEDIATE	10.25	226	33%	3800	1,250
ADV. INTERMEDIATE				4900	0
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	22.88	686			2,634
TERRAIN POD F	HECTARES	CAPACITY	% OF USE	VD	WVD
BEGINNER				750	0
NOVICE				1500	0
LOW INTERMEDIATE				2400	0
INTERMEDIATE	6.02	156	53%	3800	2,024
ADV. INTERMEDIATE	8.57	137	47%	4900	2,290
ADVANCED				6200	0
EXPERT				7500	0
TOTAL	14.59	293			4,314
SKI AREA TOTAL	269.78	6858			27,329

Figure 3 – 32: Ski Area Map – Phase 3



3.6.2 Phase 3 Lift Capacity Review

When evaluating Phase 3 ski lift capacity, two figures that must be considered are the manufacturers rated lift capacity and the actual lift capacity. The manufacturers rated lift capacity defines the figures for the lift operating at 100% efficiency. The actual lift capacity is an adjusted figure to provide a more realistic capacity statement. The manufacturers rated ski lift capacity for the Phase 3 lifts are 8,958 skiers per hour. The actual capacity of these ski lifts is 7,205 skiers per hour. The reason for this reduction is that there are a number of factors that impact lift capacity throughout an operating day such as skier error, lift access to other terrain pods, or mechanical inefficiency. The various capacities and the adjustments for this ski lift are defined below. It should be noted that with the addition of Lift “H”, the capacity of lift “C” had been reduced. This is also reflected in the CCC.

Figure 3 – 33: Phase 3 Lift Capacity

SKI AND RIDE SMITHER'S LIFT PHASE 3 SKI LIFT REVIEW					
SKI LIFT TYPE	RATED CAPACITY	ADJUSTMENTS IN CAPACITY		ACTUAL CAPACITY	WEIGHTED DEMAND
		ACCESS TO OTHER PODS	EFFICIENCY		
TERRAIN POD A GREEN T-BAR	458	0%	15%	389	1,623
TERRAIN POD B DETACHABLE QUAD	1200	15%	4%	972	2,417
TERRAIN POD C TRIPLE CHAIR	1100	10%	10%	880	2780
TERRAIN POD D DETACHABLE QUAD	1200	0%	4%	1152	4,320
TERRAIN POD E FIXED QUAD	1200	0%	4%	1152	5,198
TERRAIN POD H DETACHABLE QUAD	1200	15%	4%	972	2,195
TERRAIN POD G CONVEYOR	600	0%	2%	588	750
TERRAIN POD I FIXED QUAD	1000	0	10%	900	2,634
TERRAIN POD F FIXED QUAD	1000	4	10%	860	4,314
TOTAL	8958			7865	26,229

3.6.3 Phase 3 Ski Area Comfortable Carrying Capacity

The definition of a ski area's comfortable carrying capacity is the most important step in defining the ski area's ability to service the customer, provide facilities that are sized properly and to assess financial capabilities. The ski area's comfortable carrying capacity is also used to define specific requirements for ski area facilities from washrooms to parking areas.

The estimated comfortable carrying capacity at the completion of Phase 3 is 7,281

Figure 3 – 34

SKI AND RIDE SMITHERS PHASE 3 COMFORTABLE CARRYING CAPACITY						
	VERTICAL	HOURLY LIFT CAPACITY	HRS OF OPERATION	LIFT EFFICIENCY	WEIGHTED VERTICAL DEMAND	COMFORTABLE CAPACITY
TERRAIN POD A	175	458	7	85%	1623	294
TERRAIN POD B	620	1200	7	81%	2417	1746
TERRAIN POD C	468	1100	7	20%	2780	259
TERRAIN POD D	585	1200	7	96%	4320	1092
TERRAIN POD E	464	1200	7	96%	5198	720
TERRAIN POD G	20	600	7	98%	750	110
TERRAIN POD H	650	1200	7	81%	2,195	2015
TERRAIN POD I	305	1000	6	90%	2,634	625
TERRAIN POD F	351	1000	6	86%	4,314	420
TOTAL AREA CCC		8958				7281

3.6.4 Skiers at One Time (SAOT) / Downhill CCC

SAOT is a static view of the number of skiers/riders that an area's trails can accommodate at any given time. It is determined by multiplying the area of a given ski trail by the average slope density (shown in the planning parameters).

SAOT also effectively represents the downhill capacity of the ski trail. In a perfect area, this number, once adjusted to take into account site-specific issues of circulation, should closely balance with the Uphill CCC. Since no perfect area exists, we believe the balance between uphill and downhill capacities at this ski area are acceptable.

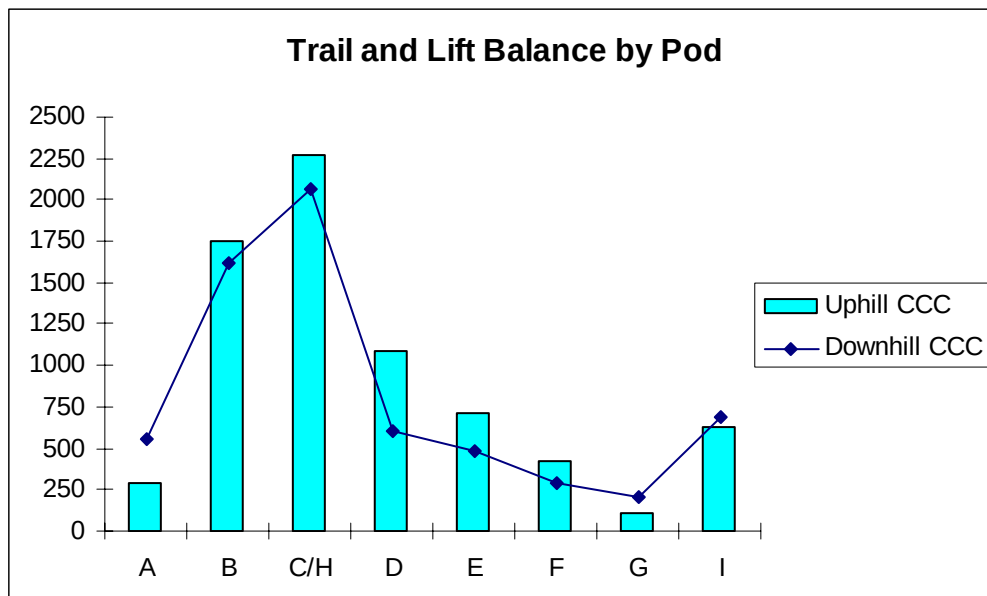
The chart and graph below show the Uphill and downhill capacity of the resort by pod or associated lift.

LIFT	A	B	C/H	D	E	F	G	I
Uphill CCC	294	1746	2274	1092	713	420	110	625
Downhill CCC	559	1615	2069	600	482	293	210	686

*Note; as described in the Phase 3 Lift Review, the addition of lift “H” will reduce demand on Lift “C”. The uphill and downhill capacities have been combined to reflect the overall pod capacities.

In the future, Terrain Pods D, E, C and H will have a significant amount of above tree line skiing terrain, which can be used to increase the number of hectares to be skied depending upon the snow conditions and grooming machines used at that time.

Figure 3 – 35



3.6.5 Phase 3 Ski Area Facilities, Parking & Site Infrastructure

The ski area facilities, parking and site infrastructure have been detailed in the Base Area sections. The Base area section includes the parking areas, the maintenance building and the ski area operations facilities, which are part of the village development.

3.7 Additional Study for Future Phases

The standard planning horizon for ski areas is generally 20 years. This allows the proponent to define the areas potential for recreation and residential development.

The initial lift and trail development, as outlined in Phase 1, is the key to the success of HBMA's expansion program. These improvements are located in areas that have been studied previously, however, in future phases, additional site assessment and related studies will be required.

In future phases, three distinct planning sectors have been identified, although no decision has been made at this point in terms of what phase these additional areas will be assessed (see Figure 2 – 10). They are:

- The sector to the North of the ski area as defined in this plan,
- The sector to the West of the ski area as defined in this plan,
- The sector to the East between the Town of Smithers and the ski area as defined in this plan.

3.8 Controlled Recreation Area

There is a need to adjust the Controlled Recreation Area (CRA) in order to allow the ski area concept to be changed to a multi season destination resort (see Figure 3 – 2).

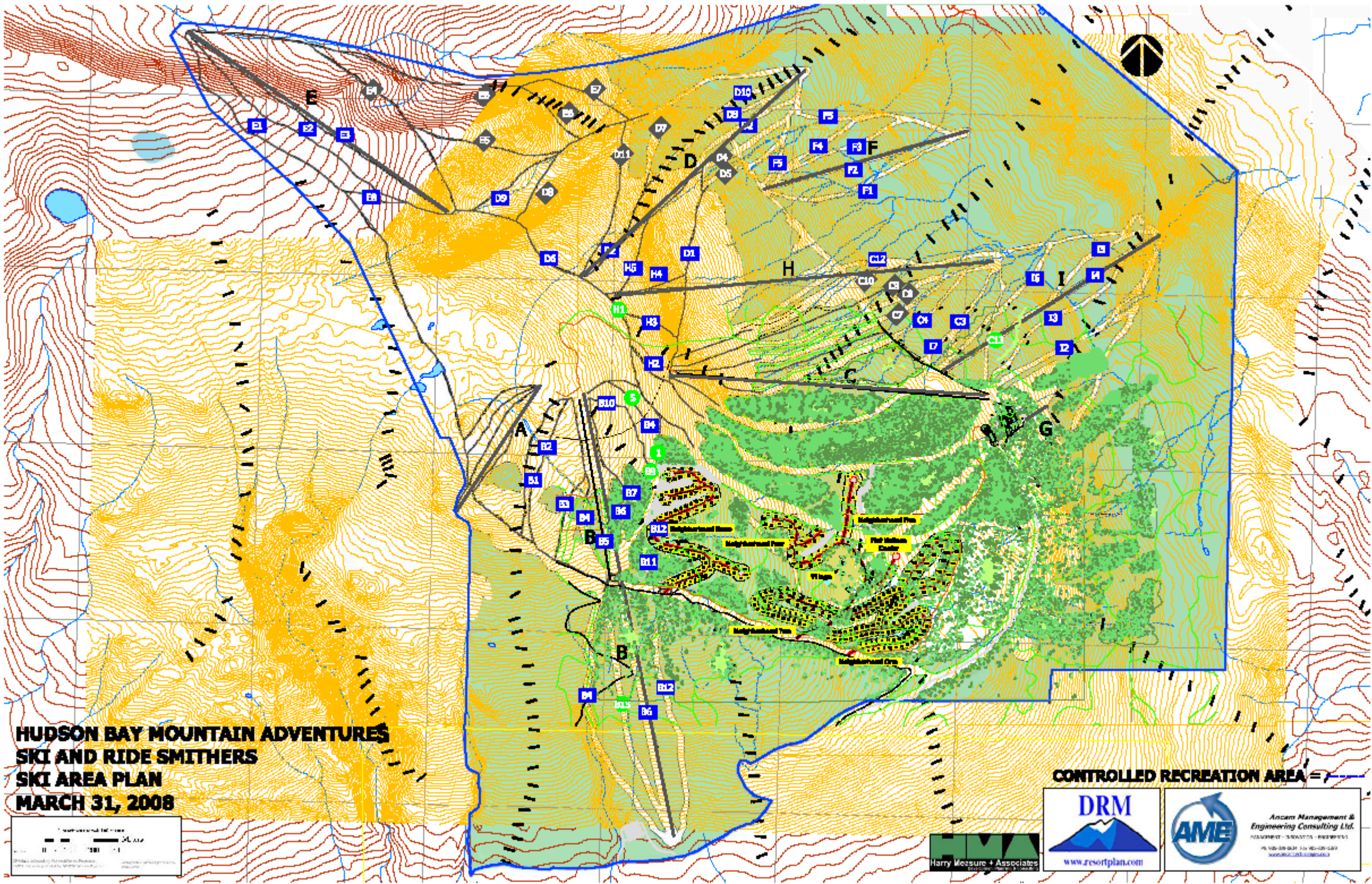
In the first phase, both Terrain Pods I and D have been thoroughly assessed, both in this master plan and previous master plans submitted to the Province. Some minor adjustments to the existing CRA boundary will be required, as both of these terrain pods are partially located outside of the existing CRA.

The northerly part of Terrain Pod D includes a section of the "Simpson's" drainage which has been included as part of the revised plan and CRA. This area is very popular with hikers and mountain touring. This drainage has an access road, which previously serviced a mining site.

In Phase 2, proposed Terrain Pod E is located outside of the current CRA. This terrain pod is located in the upper alpine, with minimal tree cover. The existing summer activities at the ski area that include use of this area, would continue, with no summer lift service into this terrain pod.

In Phase 3, the two terrain pods, Pod B (partial) and Terrain Pod F, are not within the existing CRA. However both of the terrain pods have been studied in the two previous master plans.

Figure 3 – 36: Total Ski Area Plan



3.9 Multi Season Activities

With the development of a Base Area and Village Centre, HBMA can become a hub from which those staying in the region can participate in a wide variety of activities, both in the winter and summer. Examples of additional activities that are being proposed for the resort area (both within and outside of the CRA) are outlined as follows:

3.9.1 Winter Activities and Attractions

The following activities are proposed for the resort area, although additional planning and subsequent approvals will be required to identify suitable areas within the resort's CRA

- possible development of cross country skiing that could potentially link with the existing network of trails and facility, as developed and operated by the BVCCSC, on adjacent lands
- snow shoeing on traditional routes
- winter snow play activities, such as tubing
- mountain touring on traditional routes
- ice climbing
- dog sled tours

Figure 3 – 37: Snow Tubing

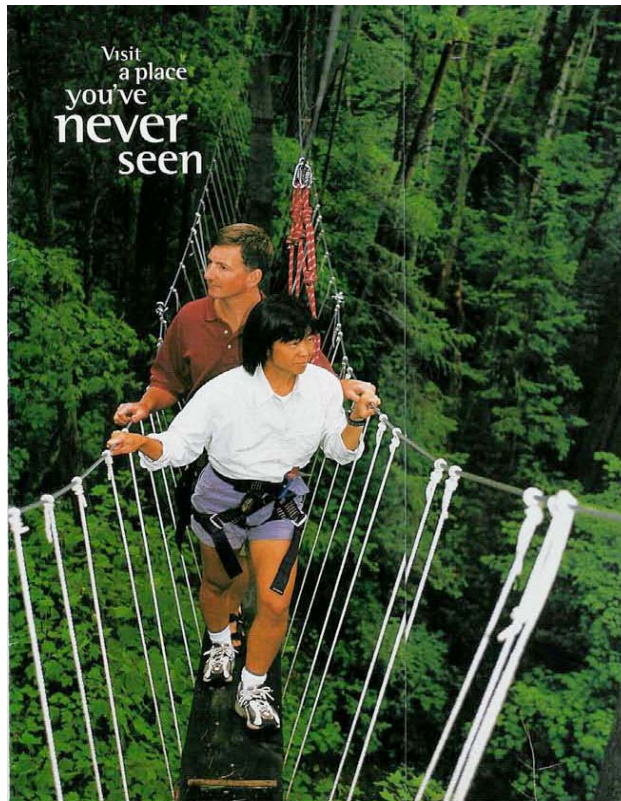


3.9.2 Summer – Fall Activities and Attractions

Additional planning and subsequent approvals will be required to identify suitable areas within the resort's CRA for these activities:

- Trail riding
- Mountain biking with link to the regional trails system
- Ski lift link for riders and hikers to regional trails
- Climbing center with excursions to other climbing zones within the region
- Back country excursions
- BMX facilities
- Canopy walks
- Other attractions

Figure 3 – 38: Canopy Walk



3.9.3 Multi Season Trails Use

HBMA is committed to improving, developing and maintaining a multi season trails network. In the upper alpine, this will include restricting access during certain time periods due to impacts to wildlife and the environment. Any restrictions that are implemented will be based on discussions with the Ministry of Environment and MTSA. The multi season access will include chair lifts C and I for special events and the proposed tourism gondola lift from Smithers.

At present there are well established trails throughout the region, including those developed on Hudson Bay Mountain by the NESTG (see Figure 2 – 12). In the future, HBMA will be working with the NESTG, and other groups to produce a trails network map.

3.9.4 Multi Season Tourism Gondola

In addition to the development, both on the mountain and in the base area, as outlined in this Master Plan, HBMA believes that the construction of a multi season tourism gondola (see Figure 3 – 39), linking the Town of Smithers to the development on the mountain, would have significant, long term and positive impacts to the Town of Smithers, the resort and tourism in general for this region.

The Town of Smithers is considered to be the multi season tourism and recreation center for northwestern BC. It is located in a region with unique geographic features and world class fishing, hunting, skiing and numerous other related outdoor recreation activities. The construction of a major facility, such as tourism gondola, linking the town with a mountain village, would substantially enhance the tourism draw for this area.

Currently there are very few tourism gondolas in BC. Examples include Grouse Mountain in North Vancouver, Kicking Horse Mountain Resort in Golden and the Village Gondola in Whistler. All three are significant tourism facilities and provide a major enhancement to the tourism activities in those communities. Other examples, outside of BC, include the gondola at Heavenly Valley, near Lake Tahoe (see Figures 40 and 41)

A similar facility in Smithers would provide the following key benefits:

1. Provide a year round tourism attraction for Smithers and a focal point for attracting tourists to this area.
2. Substantial economic benefits to commercial and retail owners in downtown Smithers, as well as hotels and other forms of tourist accommodation
3. Environmental benefits through the reduction of carbon emissions due to lower vehicle emissions arising from use of the access road to the resort as well as reduction in the cost of upgrading the main access road.

HBMA believes that a multi season gondola, if it is to be successful, will need a strategic alliance, as joint venture partners, with the main stakeholders in the Bulkley Valley, including the Wet'suwet'en, Town of Smithers, Regional District of Bulkley – Nechako and the Province of BC.

Figure 3 – 39: Proposed Gondola Location and Existing Mountain Trail System

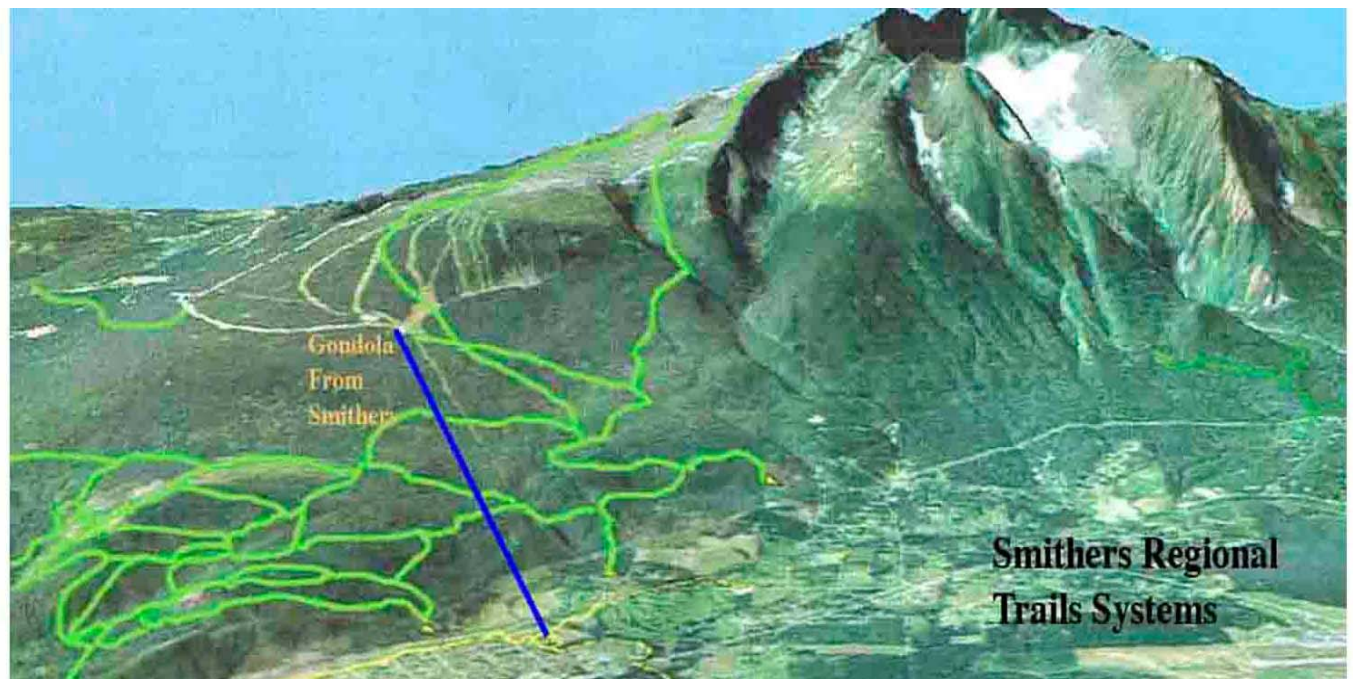


Figure 3 – 40: Example - Base Retail and Accommodation (Heavenly Valley)



Figure 3 – 41: Example - Drop off and Parking (Heavenly Valley)



3.10 Visual Quality Objectives

Hudson Bay Mountain and the resort's Controlled Recreation Area (existing and proposed) lie within the boundaries of four existing land use plans, specifically the Bulkley Valley Land and Resource Management Plan (LRMP), the Bulkley Valley Higher Level Plan (BVHLP), the Bulkley Valley Sustainable Resource Management Plan (SRMP) and the Telkwa Landscape Unit Plan (LUP). The importance of the Hudson Bay Mountain scenic viewscape, in particular the east facing slopes, to the residents of the Bulkley Valley community, is highlighted in all four of the aforementioned plans. Due to the importance of the viewscape, Visual Quality Objectives (VQO) have been established to give direction to the degree of acceptable change from the natural appearing landscape caused by land use alterations, such as forestry related activities. In the case of Hudson Bay Mountain, the VQO has been established as "Retention" (see Figure 2 – 15). Under the "Retention" VQO, resource management and land use alteration maybe discernible, but not clearly visible to the average viewer, and any land use disturbances should appear to be from natural causes.

Hudson Bay Mountain Adventures (HBMA) is proposing, as part of its expansion plans (Phase 1), further ski lift and trail development on the east slope of the mountain. The SRMP designates the resort area as a special and distinct planning unit, with an objective to encouraging commercial and public recreation, in this area, subject to visual quality constraints. Although the VQOs do not specifically apply to development of the ski area, the company recognizes the visual quality of the mountain, and will be establishing visual design criteria that will be applicable in this situation.

As part of its expansion plans, HBMA identified several different viewpoints to illustrate what the impact on visual quality would be, upon completion of the Phase 1 of the resort's Master Plan. These viewpoints are shown on Figures 3 – 42 through 3 – 48. These images illustrate the proposed location and design of the ski runs, with the intent that future ski runs are designed and located in a manner that is consistent with the existing mountain development and viewscape of the east slope of the mountain. The analysis of the viewscales, as shown on Figures 3 – 42 through 3 – 48, suggest minimal impact from most viewpoints, with the exception of the Airport, where development of Terrain Pod D (Simpsons) is clearly shown, and to a lesser extent, the viewpoints from Sunny Point, the Hospital and Goat Park, where a portion of Terrain Pod D is visible. Development of Terrain Pod I (below the base of the Skyline Chair), and the proposed Trail to Town, appear to have minimal visual impact, due to the presence of terrain features that block the views of this part of the mountain from most viewpoints in the valley.

During the Master Plan open houses in the fall of 2007, public comments were requested on the possible impacts on the viewscape as a result of the resort expansion along the east slope of the mountain. HBMA also completed a public consultation process in March 2008 to seek input and comments on the possible impacts to the existing viewscape of the mountain arising from expansion of the ski hill along the east slope of the mountain. No major concerns were expressed as a result of the public review process.

HBMA and the MTSA recognize the significant scenic values of Hudson Bay Mountain, and it is the intent of both the company and MTSA to confirm to the visual quality expectations, as identified in the SRMP, as much as possible. The company will develop, as a condition of the MDA and its Licenses to Cut, visual design criteria for developments that are visible from the Bulkley Valley. These criteria will address the layout and construction of its ski runs and related development to minimize impacts to the visual landscape of Hudson Bay Mountain. In addition, the company will mitigate the impacts of night time light effects of the base area village to the greatest extent possible.

Figure 3 – 42: View of Ski Area from the Hill Top Pub

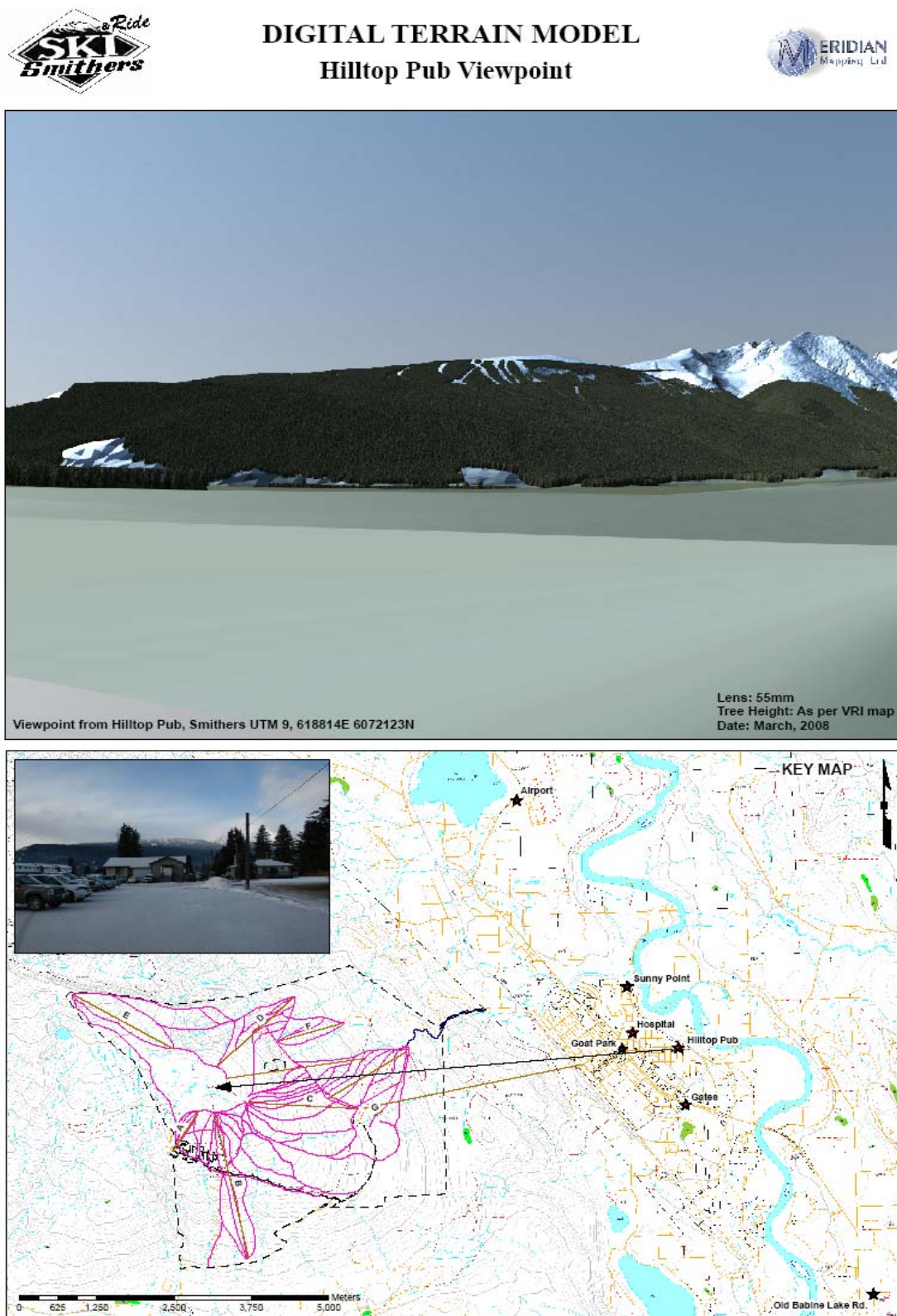


Figure 3 – 43: View of Ski Area from the Airport

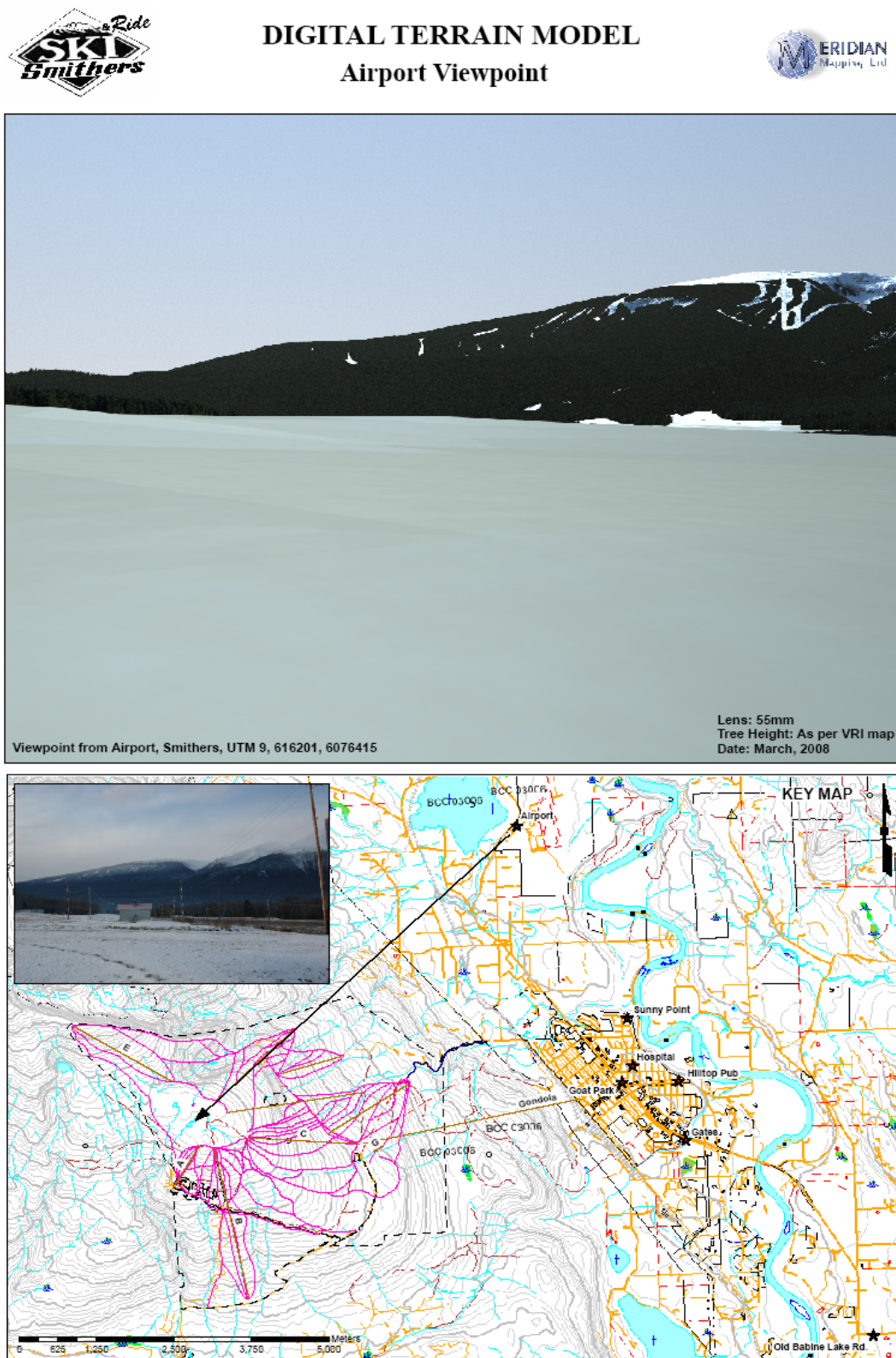


Figure 3 – 44: View of Ski Area from Babine Lake Road



DIGITAL TERRAIN MODEL **Babine Lake Road Viewpoint**

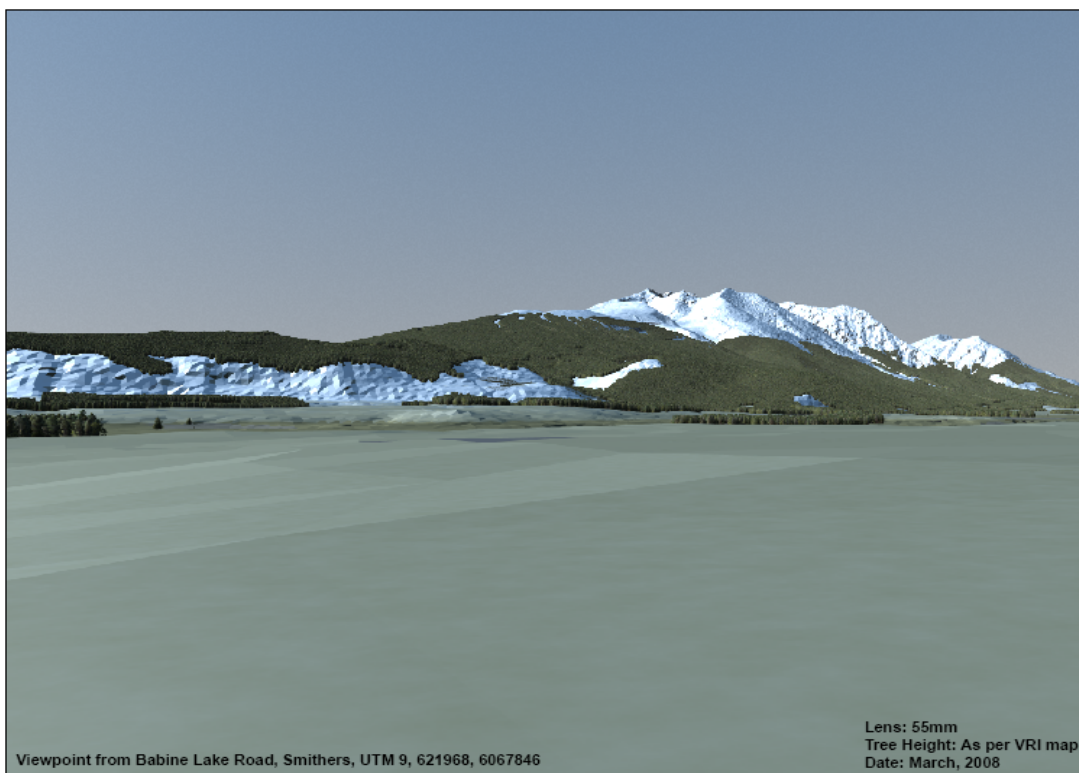
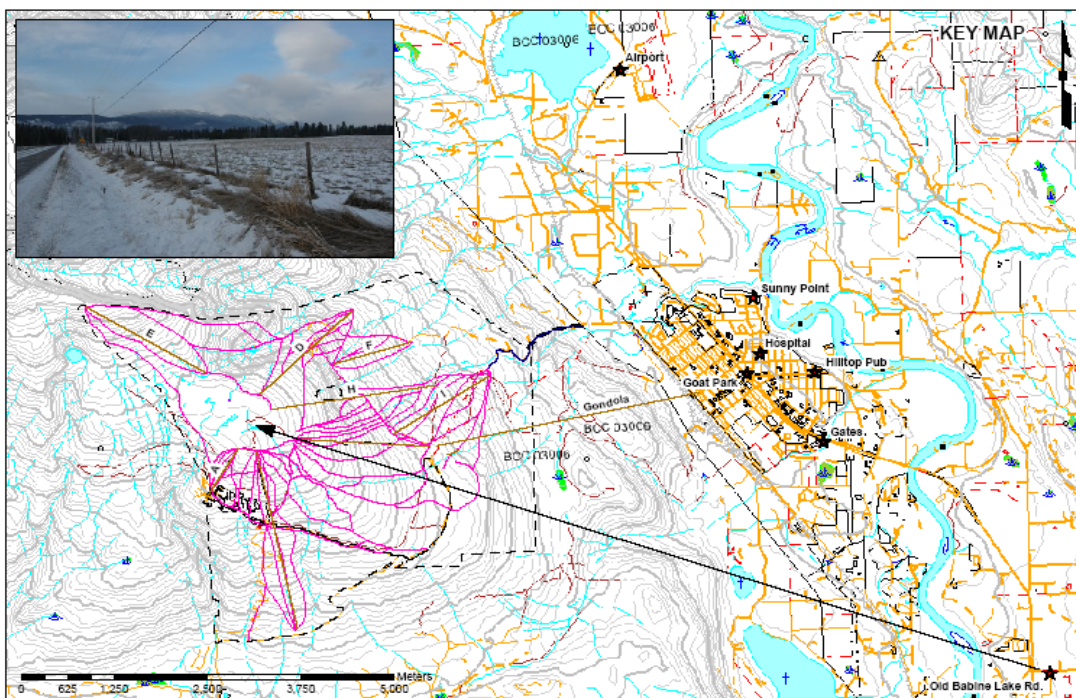


Figure 3 – 45: View of the Ski Area from Gates Park



DIGITAL TERRAIN MODEL **Gates/ Entrance Sign Viewpoint**

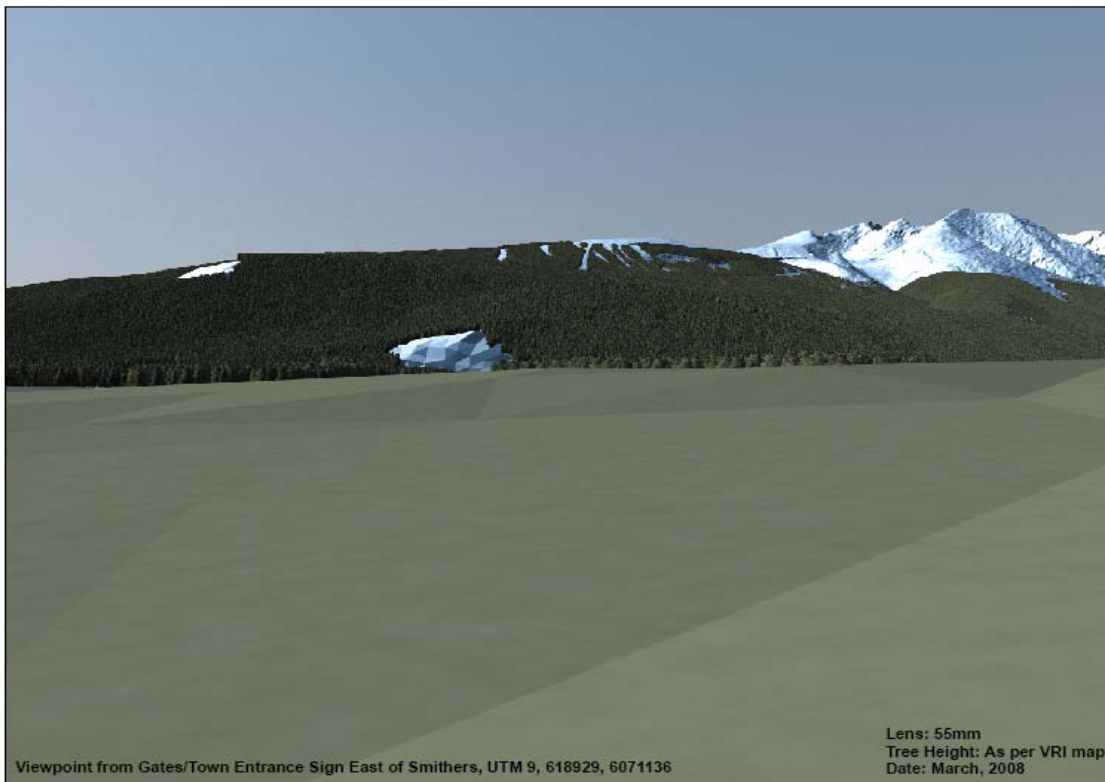
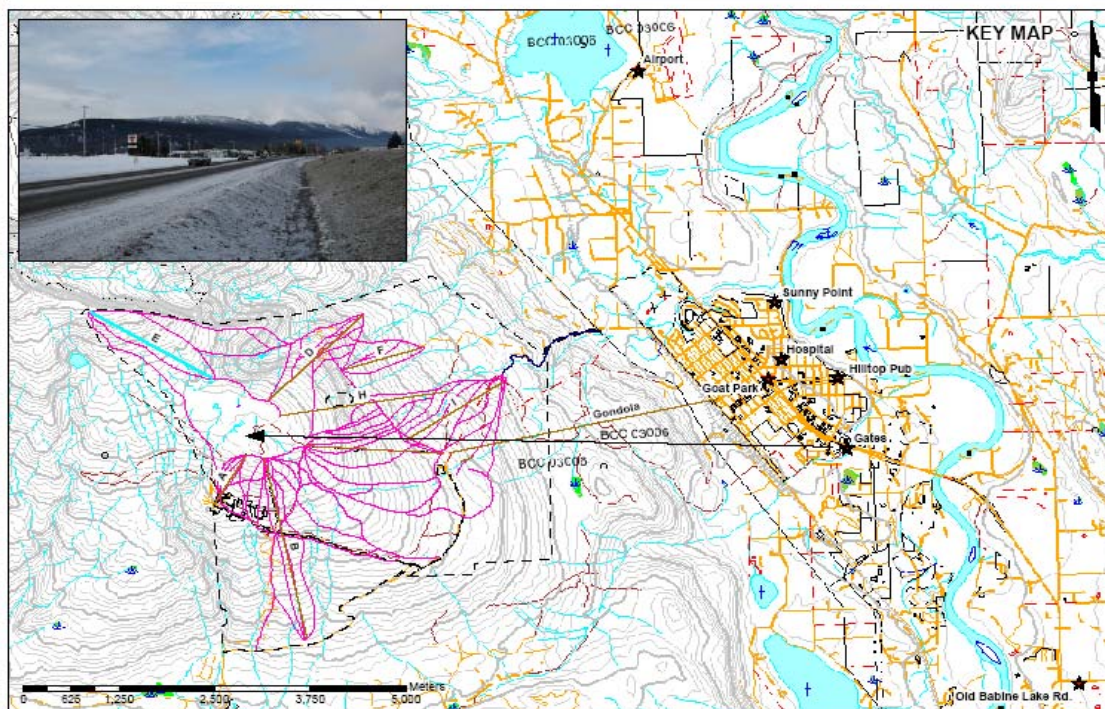


Figure 3 – 46: View of Ski Area from Goat Park



DIGITAL TERRAIN MODEL **Goat Park Viewpoint**

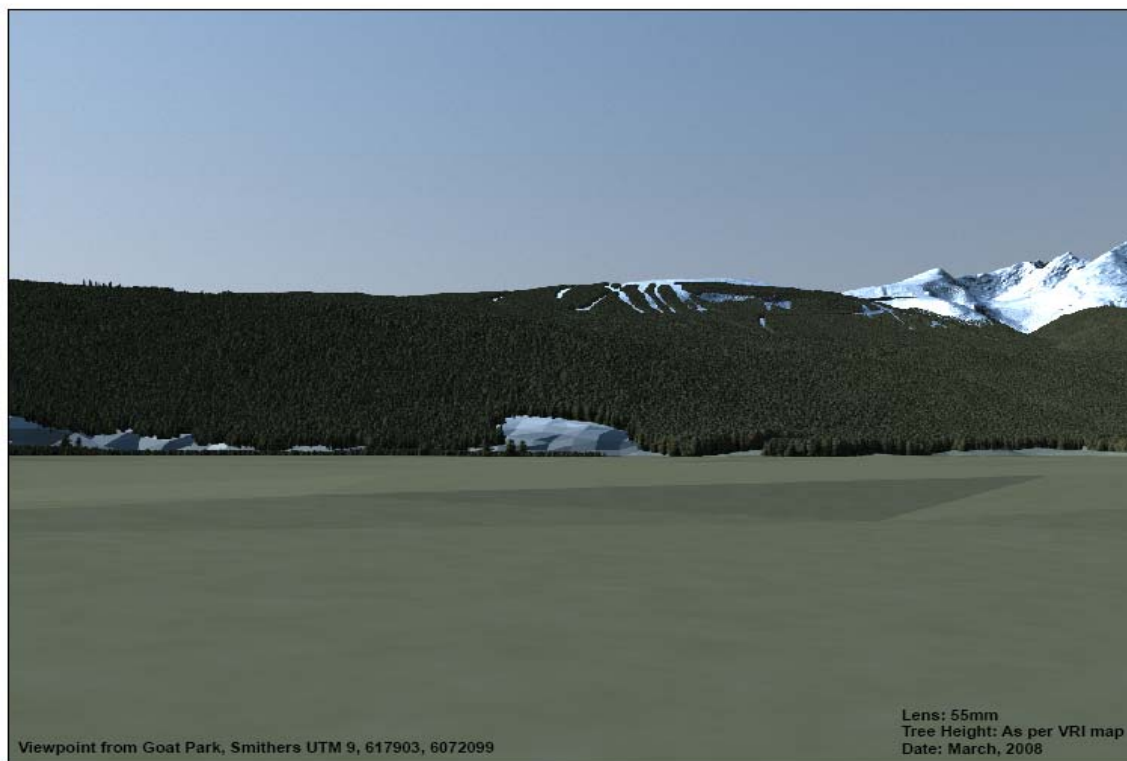
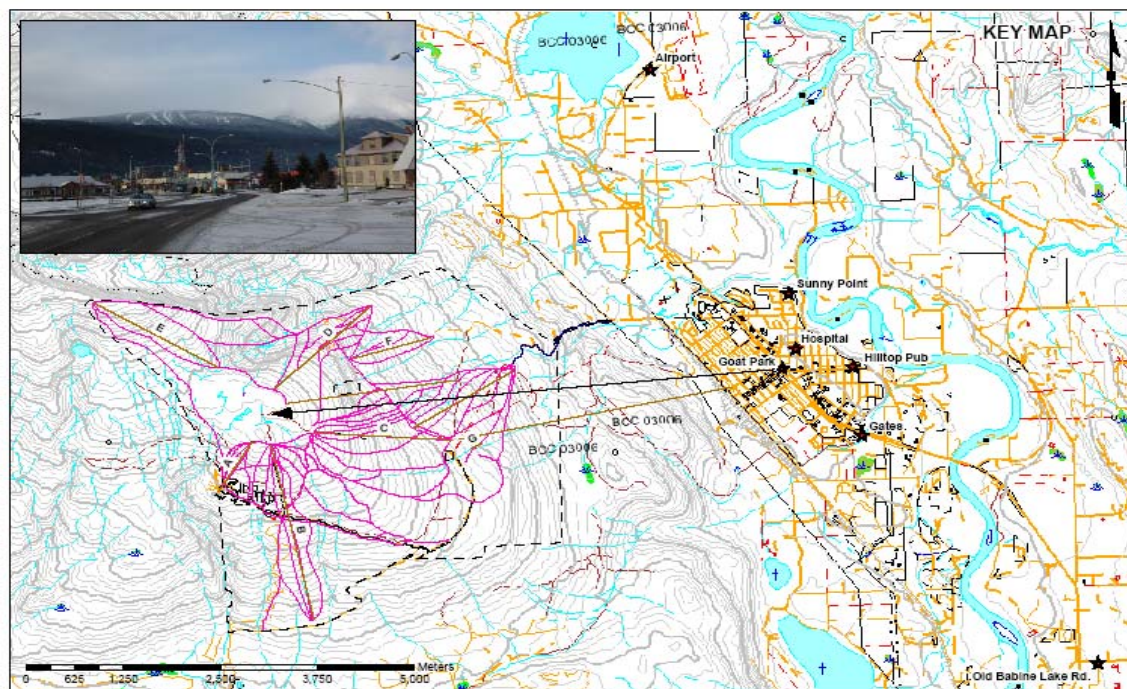


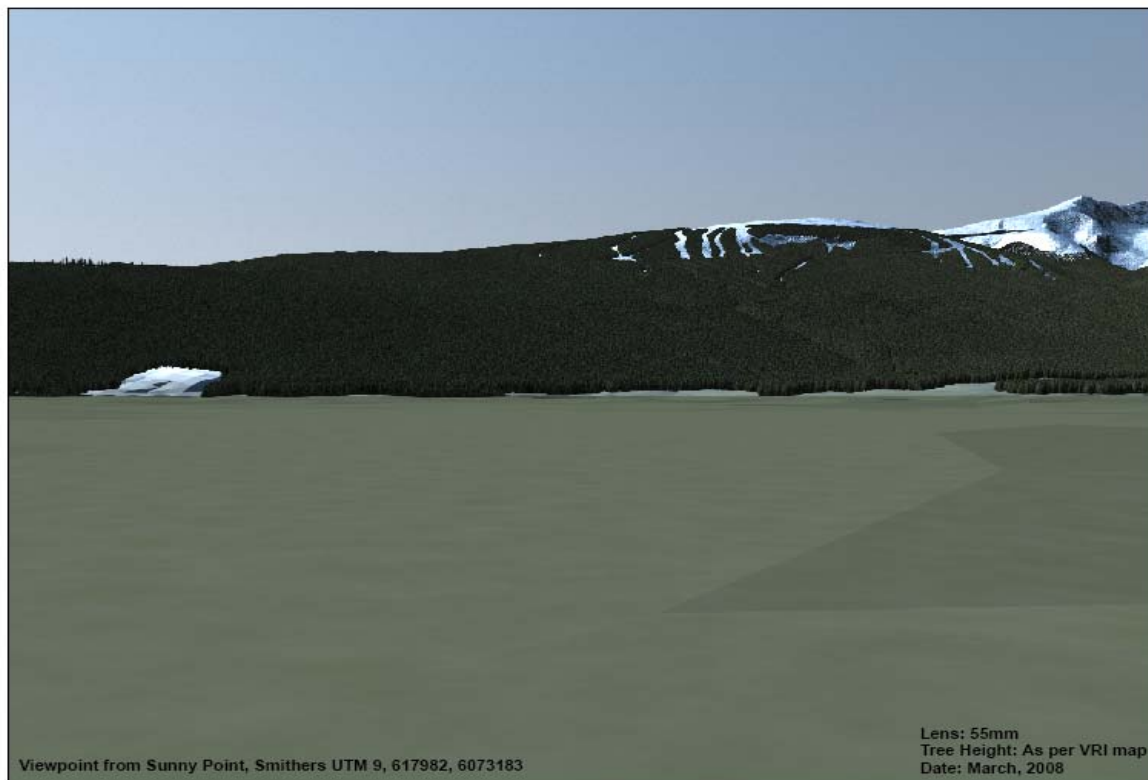
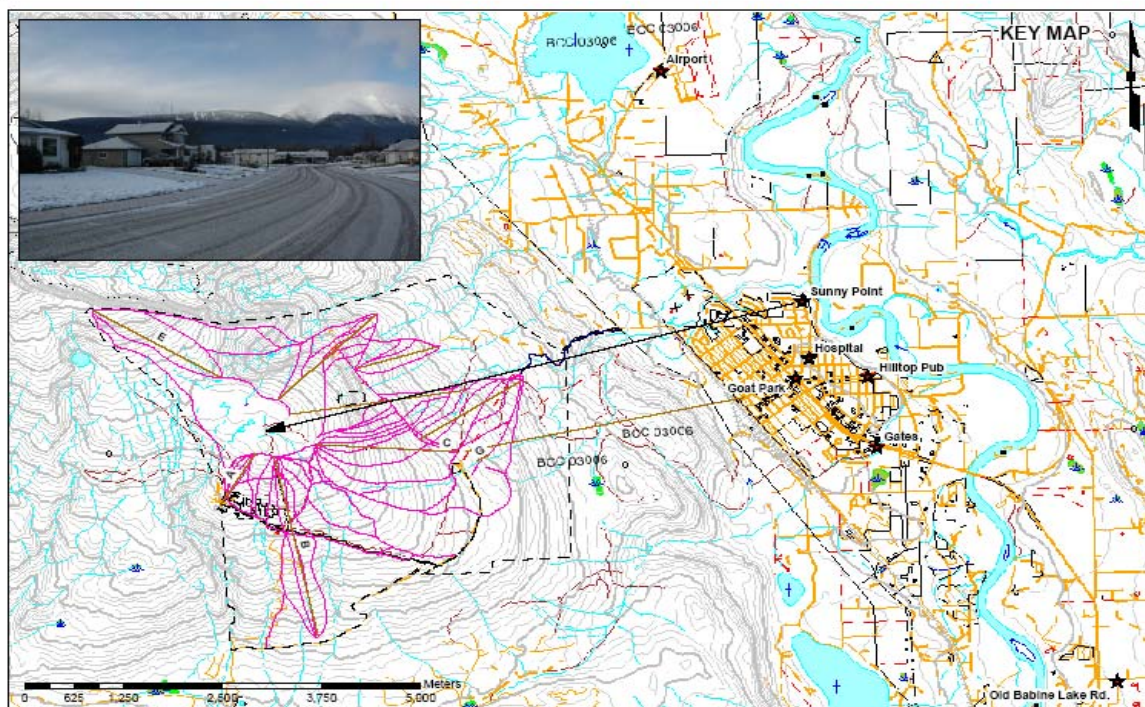
Figure 3 – 47: View of the Ski Area from the Smithers Hospital



Figure 3 – 48: View of Ski Area from Sunny Point



DIGITAL TERRAIN MODEL **Sunny Point Viewpoint**



3.11 Public Access Plan

Controlled Recreation Areas (CRA) have been created to allow resort operators the ability to manage Crown land within their operating area boundary in a manner that ensures integrity of the ski terrain while at the same time ensuring public safety and minimizing environmental damage. HBMA understands and appreciates that public access (non – mechanized) to Crown land, within and through the existing and proposed Controlled Recreation Area, is a historic and important component for recreation users in the Bulkley Valley (e.g. extensive trail network developed by the North East Slope Trails Group), and it is not the intention of the resort to restrict access for activities which the public have historical interest or are currently participating in. There is however, a need to ensure public recreation activities that occur within the CRA are compatible with the primary uses of the ski resort. Currently there are existing trails within the CRA, and in other situations, public recreation occurs on an ad hoc basis. To ensure public safety and minimize impacts on environmental values, HBMA will provide designated routes and signage to encourage public use of Crown land within the CRA, as well as continue to work with and maintain an open dialogue with the public users of the mountain.

HBMA has prepared this Public Access Plan which, among other things, directs public users to appropriate access routes (see Figure 3 – 49). The company will be implementing the Public Access Plan upon approval of the Master Plan, however, in acknowledgement of the relatively low current levels of public recreation use, those components of the Public Access Plan that deal with restrictions on where and when public users can access Crown land within the CRA (e.g. Reality Check Climbing Area, Trail to Town, Simpsons Gulch, etc) will not be implemented at this time. Nevertheless, HBMA will be encouraging the public to use the identified routes and educating users as to the locations and liability concerns of not staying on the designated routes. When the annual skier visits reach 65,000 (currently annual skier visits are approximately 45,000), the aforementioned components of the Public Access Plan that relate to restrictions on where and when users can go, will be fully implemented and enforced. The 65,000 skier visit trigger is based on the highest ever skier visits that the ski hill had (1989/1990) during which time the backcountry users enjoyed unrestricted access. The Province feels that this is an appropriate trigger at which to enforce the balance of the Public Access Plan.

The following outlines the specific comments of the Public Access Plan, based on discussions with public recreation users, stakeholder groups and the Province of BC:

1) Access outside of Operating Hours

Public recreation access (non – mechanized use) within and through the CRA, will be maintained year – round. However, in the winter season, once the 65,000 skier visit threshold is met and during the resort's standard operating hours (when the lifts are open, etc), public users will be directed to the routes as identified in Figure 3 – 49. Outside of standard operating hours, users can travel through the CRA unrestricted; however, they will need to be mindful of snowmobile and snowcat operations, by resort staff, on ski runs that may occur at any time during a 24 hour period, including during non – resort operating hours. As well, public users will need to be aware that avalanche control measures do occur within the CRA, and take place outside of the resort's operating hours.

2) Signage and Public Awareness

HBMA will implement, in Phase 1 of the Master Plan, improved signage regarding public recreation use. Hudson Bay Mountain is a non – motorized area for public recreation use, and in addition to appropriate signage within the ski area, HBMA will also place newspaper ads, in the local community, to outline the

restrictions on motorized use in this area. As well, HBMA will initiate and implement a public awareness program, in consultation with the Ministry of Environment, through signage, pamphlets and related material, to advise and educate public recreation and resort users of the potential impacts to wildlife values (particularly Mountain Goat) when accessing areas such as Simpsons Gulch.

3) Parking

Public recreation users not using the resort's lift facilities will have the right to use the existing and proposed day skier parking lots for vehicle parking.

4) Mechanized Public Use

HBMA will be enforcing a restriction on all mechanized public use within the CRA at all times, effective immediately upon approval of the Master Plan.

5) Prairie & Crater Lake Access

The Prairie area and Crater Lake have historically experienced significant public use during all seasons. To facilitate access to this area of Hudson Bay Mountain, the existing CRA will be adjusted along the west boundary of the Prairie Village subdivision (the CRA boundary will be relocated eastward) to allow unrestricted and unimpeded public access to this area, and beyond. For users wishing to access the Prairie and Crater Lake through the CRA (along the west boundary, as noted on Figure 3 – 49), this route will remain open (no restrictions) for public recreation use until development in this location is approved. At that time, further public consultation will be required before development is approved.

6) Simpson's Gulch Trail

The existing Simpson's Gulch Trail, as developed by the NESTG on the east side of the mountain, will remain open to the public for all season use. In addition, based on input from existing public recreation users, a proposed route originating from the Prairie Village to Simpsons has been identified. Until development is approved for this area, there is no requirement for users to restrict their access to Simpsons along this route. When the company reaches a future phase of its expansion plans, there may be a requirement for an alternate public access route due to the installation of lifts and associated runs, along with increased skier visits in this location. As stated previously, the company intends to work closely with the Ministry of Environment (prior to initiating its Phase 1 development) to develop a public education strategy and management objectives for reducing impacts to wildlife in the CRA. Potential impacts to mountain goats, resulting from existing and future public access on Simpson's Gulch Trail, will be given particular attention.

7) Reality Check Climbing Area

The Reality Check Climbing area is a historic public recreation site on the east slope of Hudson Bay Mountain. Accordingly, this site will be excluded from the CRA and designated as a Recreation Site pursuant to the *Forest and Range Act*. Access to this site, for public recreation users, will be permitted via two designated access routes, including one from the Prairie Village (along the top of the mountain) and a second one, originating from the base of the Skyline Chair.

Public recreation users have requested that an access route, from the bottom of Reality Check Climbing area, adjacent to one of the ski runs originating at the top of the Skyline Chair, be permitted for users wishing to return to the Prairie Village from the bottom of Reality Check Climbing area. This route presents public safety issues and the company has identified an alternate route, between the existing ski runs in this location and Reality Check Climbing Area. Public recreation users, wishing to depart the climbing area, will have three options including an access route from the top, and return along the designated route back to the Prairie Village, a second access route from the bottom of the climbing area to link with the route back to the Prairie Village or along the lower access route, back to the base of the Skyline Chair.

HBMA has designated an access and egress route for Reality Check Climbing area along a specific route originating at the base of the Skyline Chair. This route will require public recreation users to cross several existing and proposed ski runs related to access off the Skyline Chair and the proposed Lift I. When skier visits reach the 65,000 trigger, as mentioned above, public recreation users wishing to access the Reality Check Climbing area will be required to use the designated access routes and have a Backcountry Pass, including signing of a release of liability waiver, which will be issued, free of charge, to all public recreation users. Regular users of Reality Check Climbing area will be able to obtain a season's pass to avoid having to secure a day pass for each time the user wishes to access this site. The Backcountry Seasons Pass will also be free of charge.

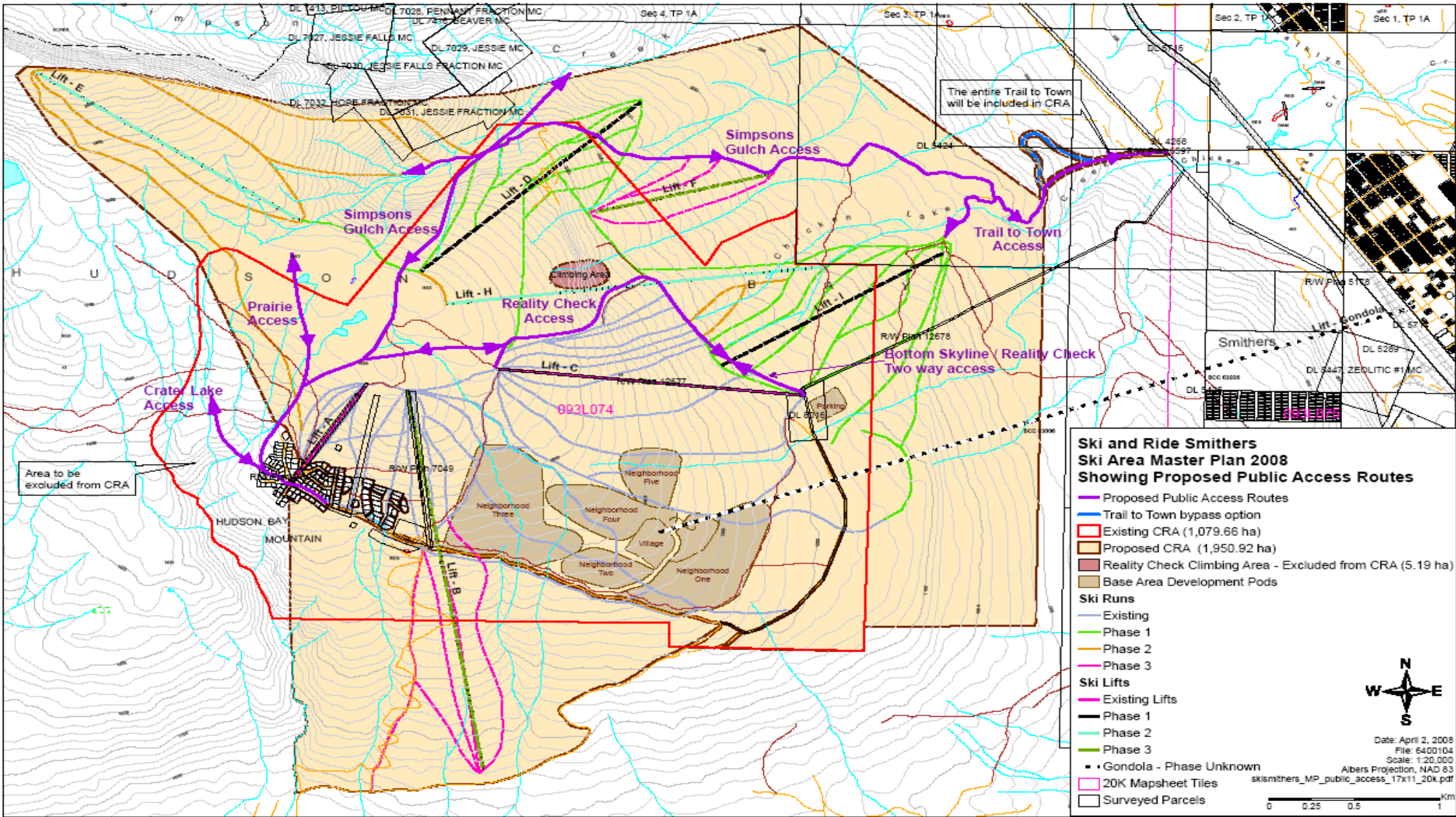
8) Alternate to Uppersidewinder

Public recreation use has historically occurred on the Uppersidewinder ski run. This ski run is winding, with many blind corners. HBMA is requesting that public recreation users go up the road, if not plowed, or travel on the other side of the road to the bottom of the Prairie T – bar. This area is straighter, and groomed wide for snowmobile traffic and cabin owners. HBMA also recognizes that ongoing public use occurs on and across ski runs that exist within the Prairie Village (ski runs separate the subdivision). HBMA is not proposing to implement access restrictions in those areas, but all non ski users will need to be mindful of ongoing, downhill ski traffic occurring on these runs during the resort's operating hours.

9) Trail to Town

HBMA, in cooperation with the Rotary Club, is proposing to develop a "Trail to Town" from the bottom of Lift I to the western edge of the Town of Smithers, along the east slope of the mountain. The proposed Trail to Town overlaps an existing public recreation trail that was created by the Northeast Slopes Trails Group (NESTG) and many volunteers. This trail begins at the west end of Zobnick Road at a point dubbed the Simpson's Gulch Trailhead. The trailhead is adjacent to private property and the owner has allowed a Trailhead sign, with cedar shingle roof, large map and map box to be erected, and also allows for approximately 6 cars to park in the gravel area adjacent to his fence. This trail is currently outside of the resort's CRA and along with the traditional uses of ski touring, snowshoeing, mountain biking and hiking, this trail has also been used by skiers to return to the Town. HBMA is proposing to formalize the trail and include it in the CRA for the resort. Uphill access by public recreation users (non – mechanized), will not be restricted at this time, but rather, the company will provide appropriate signage at the bottom of the trail, identifying the potential hazards and risk of using the trail during the resort's operating hours. Once the skier visits at the resort reach 65,000, a review of uphill access during the winter season may be required.

Figure 3 – 49 Public Access Plan



4.0 Base Area Development

4.1 Introduction

Currently, there is a limited amount of base area development at the ski area. Since the early 1980s, no base area development has occurred. Today, the resort has a day lodge and related facilities on the south side of the mountain, with a subdivision of recreational cabins located a short distance north of the day lodge. A satellite lodge with restaurant, washrooms and ski patrol facilities is also located adjacent to the Skyline Chairlift.

The “Cabin Colony” or “Prairie Village” subdivision was originally created by the Province in the 1970s as a leasehold arrangement, similar to other recreational developments established at ski areas throughout the Province during that period of time. Over the last several years, the Province has allowed for lessees to purchase their properties, and while attractive to purchasers at the time, these properties have limited services and the quality of improvements are reflective of the age of this development. The Prairie Village is currently outside of the CRA, and any required upgrades to the infrastructure requirements of this development will be the responsibility of the property owners themselves, not HBMA. Currently, HBMA provides snowclearing for road access to the Prairie Village, as well as parking areas for Prairie Village property owners and their guests. Snowmobile use to all existing ski cabin owners and their guests is permitted in this area but is controlled by the ski area. It is the expectation of the HBMA that future discussions will likely take place with the Regional District of Bulkley – Nechako to jointly examine the servicing options for the Prairie Village as the resort develops over time. It is the understanding of HBMA that the Province of BC will not be creating any further lots within the Prairie Village site.

HBMA has identified a parcel of land that it intends to develop for residential purposes, along with a proposed village concept of hotels, smaller lodge facilities, as well as commercial and retail outlets. The proposed Base Area lands are located along the southwest slope of the mountain (see Figure 4 – 3A), adjacent to the main access road to the existing day lodge and Prairie Village. The proposed base area is sited along a gently sloping bench between the elevations of 1240 and 1550 m, and is bordered to the north by the existing Twinkletoes ski run and by Sidewinder ski run to the south. The proposed Base Lands primarily consist of undisturbed forest cover other than areas cleared for ski runs. Seasonal and year round watercourses flow through the site. The site offers 360 degree panoramic views that feature long distance views to the distant peaks that form the Bulkley Valley to the east, and the peaks of the rugged Telkwa Range to the southwest. Due to the elevation and aspect, the proposed base area lands are subject to extended periods of sunlight. When developed, these lands will provide a wide range of base area facilities that will be designed to meet the needs and expectations of the HBMA’s resort clients. This will include, but not be limited to, commercial and retail services, as well as areas for possible public safety and medical services.

While the location of the base area was primarily sited in this location for attributes such as sunlight, views and easy access to current and proposed ski terrain, the location is also suitable as a possible terminus for a future gondola, connecting the Town of Smithers’ commercial core and the resort’s Base Area Lands.

4.1.1 Base Plan Objectives

There are a number of objectives that were considered in terms of developing a base area plan. They are:

- Create appropriate facilities consistent with the long term vision of HBMA that focuses on the quality of recreation activities in this area.
- Establish a base area that is primarily pedestrian oriented and provides linkages between the base area and the ski terrain, as well as establishes and protects important view corridors and viewscales.
- Ensure the level of base area development and facilities are in balance with the overall capacity of the resort, including ski terrain and lifts.
- Provide a variety of residential types and forms, including single and multi family units as well as an appropriate mixture of commercial and retail facilities on the ground floor of the village with residential units on the upper floors.
- Establish a phased implementation strategy that responds to the mountain facilities expansion. The base lands implementation strategy will also respond to the specific appeal to the local, national and international real estate markets.
- Incorporate Smart Growth principles and environmentally sustainable development practices.
- Develop a limited, resort oriented commercial and retail component that does not negatively impact commercial and retail infrastructure in the Town of Smithers.

4.1.2. The All Seasons Resort Policy

The vision of the All Seasons Resort Policy (ASRP) is to develop British Columbia as a world – class all seasons resort destination. The Province of BC recognizes the need to encourage the development of all season resorts while ensuring sustainable land use, equity and consistency of applications and receiving a fair return to the Crown.

All Seasons Resort Guidelines – Chapter II: Mountain Resorts

The All Seasons Resort Guidelines are intended to assist in the implementation of the ASRP. Of specific interest in the guidelines is the Alpine Skiing Bed Unit Calculation Model. The model is defined as follows:

“The Alpine Skiing Bed Unit Calculation Model is intended to assist in determining the number of bed units that may be warranted for application to the mountain resort that is primarily driven by lift serviced alpine skiing. Based on their perceived attributes, Regional and Destination Mountain Resorts are eligible to build a specified number of bed units within their proposed base area. Based on designed site plans, bed units can be assigned to specific sites within the base area. If the specific sites are Crown land, the resort may purchase Crown land from the Province based on the terms and conditions of CASP”.

The initial step in the Bed Unit Calculation Model is to assign point values based on the specific existing and proposed attributes of the mountain resort under consideration of its Balanced Resort Capacity (BRC) or more commonly known as the comfortable carrying capacity. This is outlined in the table below.

Figure 4 – 1: Total Points Rating

Attribute	Existing	Phase 2
Ski Terrain	2	3
Average Skier Density	3	3
Accessibility	6	6
Access Reliability	2	2
Population	2	2
Unique Qualities	2	2
All Season Facilities	3	3
Length of Season	4	4
Type of Snow	3	3
Weather (sunshine)	3	3
Express Lifts	0	1
Need for Employee Housing	0	1
Total	31	33

Based on the Total Points Rating, as noted above, HBMA would be entitled to 79% (Phase 1) and 95% (Phase 2 & 3) of its' Balanced Resort Capacity in the form of bed units.

Figure 4 – 2: Bed Unit Calculation

	Existing	Phase 1A Lifts I and G	Phase 1C Lift D	Phase 2	Phase 3	Total
CCC by Phase	1742	786	1094	1916	1743	7281
Bed Units / Phase @ 79%	1376	621	864			
Bed Units / Phase @ 95%				1820	1656	
Bed Unit Total By Phase	1376	621	864	1820	1656	6337
Less Prairie Village Bed Units (600) to Be Deducted at the end of Phase 3						-600
Total Bed Units						5737

Balanced Resort Concept				
	ccc Existing	ccc Phase 1	ccc Phase 2	ccc Phase 3
Lift Serviced Skiing	1742	3622	5538	7281
Snow Shoe	25	50	75	75
X - Country Touring	25	50	75	75
Tubing	120	120	120	120
Ice Climbers	20	30	30	30
BRC Total	1932	3872	5838	7581

4.2 Base Area Development Site

The proposed base area lands are located due west of the Town of Smithers on the south western slope of Hudson's Bay Mountain at elevations between 1240 and 1550 m (see Figure 4 – 3A).

Figure 4 – 3A: *Location of Base Area Lands*

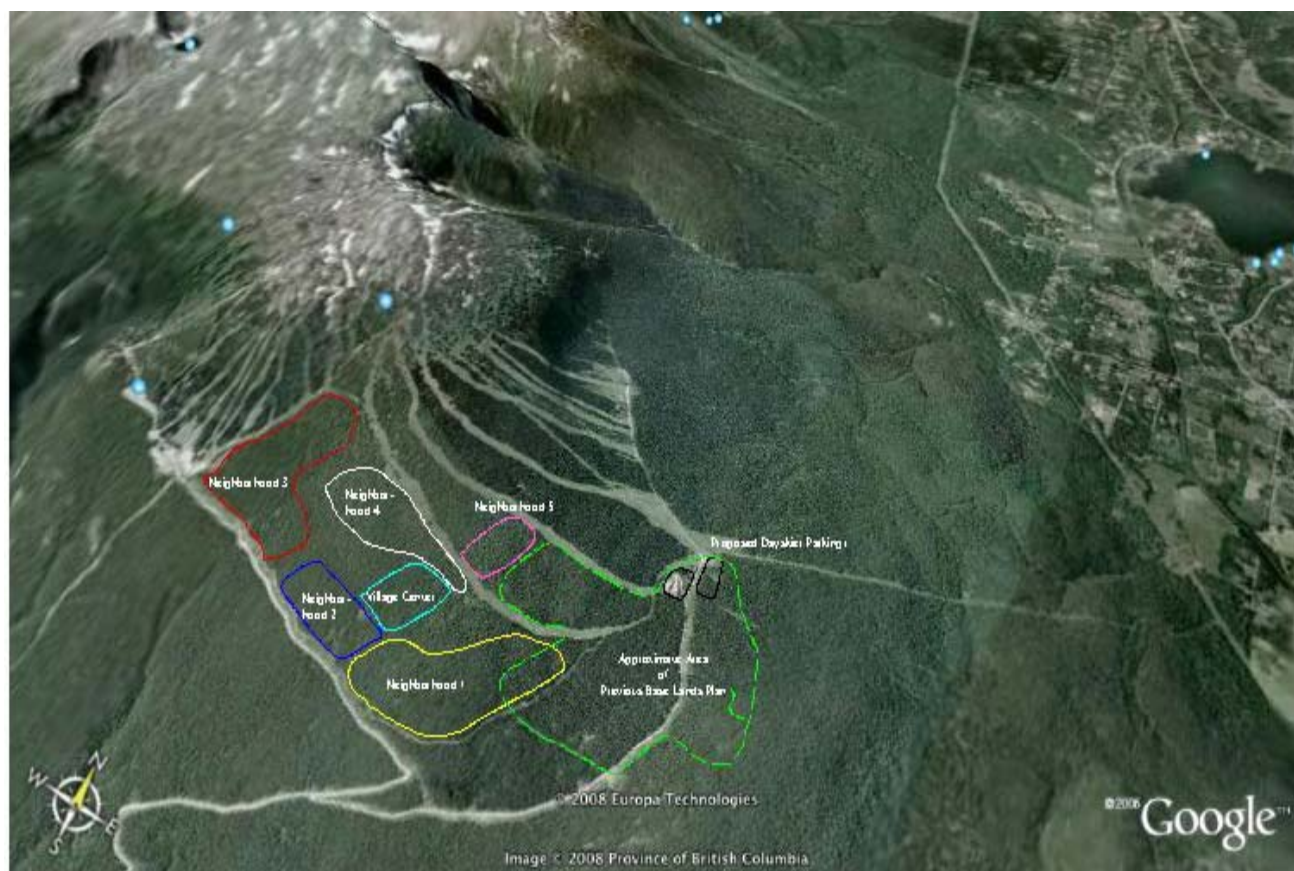
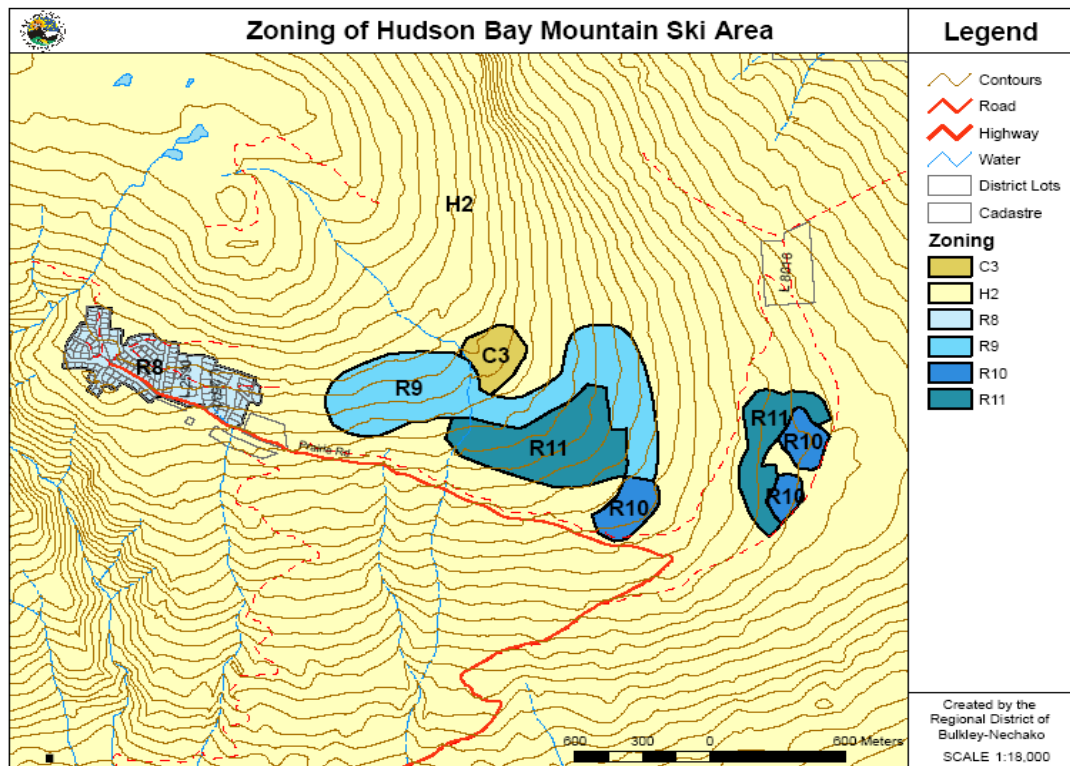
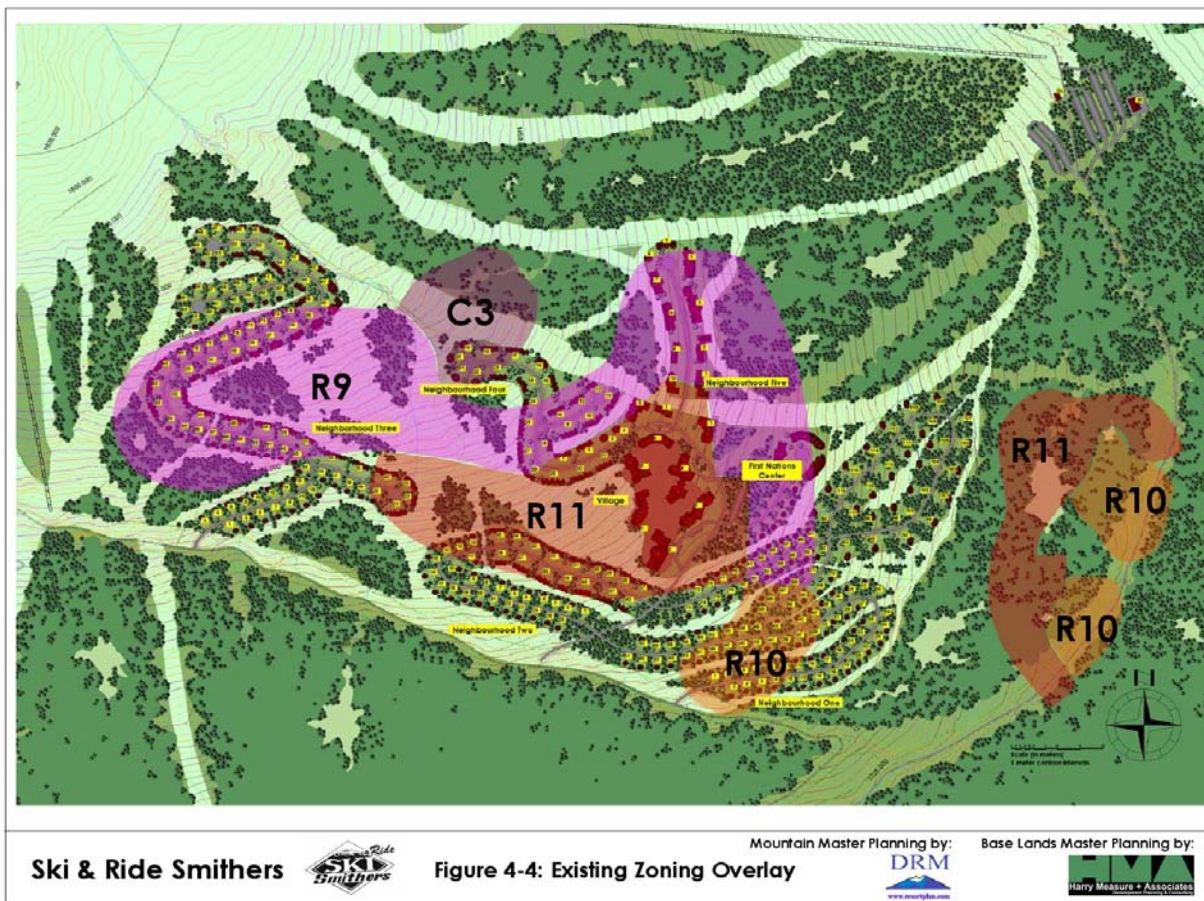


Figure 4–3: Current Zoning Designations

Although zoning, as previously approved by the Bulkley Nechako Regional District, is in place, it does not relate appropriately to the proposed development scheme. Figure 4 – 5 outlines the relationship between existing zoning and the proposed base area development.

Figure 4-4: Overlay – Proposed Development Pods in relation to Existing Zoning**Figure 4-4: Existing Zoning Overlay**

Although the existing zoning provides for a variety of housing types, including commercial development, it is the intent of HBMA to prepare and submit a formal rezoning application upon approval of the master plan that will reflect the proposed base area development scheme.

There are several components that make up the proposed base area development.

4.2.1 Access Road

Access from downtown Smithers to the proposed base lands will follow the unpaved road to the existing base area for approximately 19 kilometers. At that point, the base area lands can be entered immediately to the north of the main access road.

The Ministry of Transportation is responsible for maintenance of the access road to the resort. Improvements to the road, including paving, are part of the phased development plan for the base area lands. HBMA will work with the provincial government during future phases of the development to improve this access route.

4.2.2 Parking

With reference to Figure 4 – 5: Base Area Facilities Program, 364 stalls for automobiles (10,920 m² total area) and 7 bus stalls (336 m² total area) are located in the original base area. These stalls will be maintained to serve that operation. The proposed day skier parking lots identified in Figure 4 – 6: Base Lands Illustrative Plan, are located on disturbed lands currently used for day skier parking south of the day lodge and uphill from the main access road. The day skier parking lots will also be located east of the access road on lands that have had forest cover removed and been subject to grading activities. In total, these parking lots accommodate approximately 465 stalls, and will be built on a phased basis in response to parking demand. Additional lots will be constructed southward from the proposed lot east of the existing access road, as and when required.

Snow dump areas have been integrated into the parking lot design for maintenance efficiencies. The snow dump areas will be heavily landscaped to reduce the visual impacts of expanses of vehicles upon the surrounding areas. The landscaped snow dump areas will also serve as bio-filtration zones for snowmelt. Bus parking will also be located in these lots (see Figure 4 –7: Illustrative Key Plan- Building M). The parking area dedicated to buses will be constructed within the day skier parking lots and can be expanded in response to demand.

With reference to Figure 4 – 5: Base Area Facilities Program, no car or bus stalls need to be constructed in Phase 1A to accommodate a Comfortable Carrying Capacity (CCC) of 2528 as a surplus of stalls will remain from the existing lots. The existing parking lots in the proposed base area can be used to fulfill any requirements.

By Phase 1C, 156 car stalls and 2 bus stalls need to be constructed to meet a CCC of 3622. Phase 2 will require the addition of 578 car stalls and 2 bus stalls to achieve CCC of 5538. The CCC of 7281 at build-out in Phase 3 will require the addition of 531 car stalls and 2 bus stalls.

The proposed day skier parking lots will require approximately 8.5 hectares to accommodate approximately 2078 car stalls and 15 bus stalls. The proposed day skier parking area combined with the 364 car stalls and 7 bus stalls existing in the original base will yield 849 car stalls and 15 bus stalls. A shortfall of 1229 car stalls from the 2078 stalls is required to meet a CCC of 7281. This shortfall can be resolved in several ways, as follows.

Parking is a situation that will be assessed on a phase by phase basis to maintain the CCC associated with each phase. Ongoing assessment of parking requirements will ensure that sufficient parking locations are identified to meet the future needs of the area. A variety of options that will also be considered to reduce parking requirements may include:

- Creating additional parking lots to the east (downhill) of the day skier parking lots identified in Figure 4 – 6: Illustrative Plan, and Figure 4 –7: Illustrative Key Plan;
- Constructing a satellite parking lot adjacent the staging area of Lift B. A parking lot has been designed in this location to accommodate approximately 180 stalls. Significant expansion of this lot to provide additional stalls is possible due to the relatively low terrain gradients;
- Providing a public shuttle bus system from the Town of Smithers;

- Constructing an access lift from downtown Smithers to the Village Center;
- Recruiting attendants to direct parking operations during peak periods for maximum parking efficiency;
- Maximizing the number of ski in/ski out units to minimize the need for guests to rely upon private vehicles;
- Requiring all parking to be located off-street (beneath or adjacent any accommodation units or commercial space).

With reference to Figure 4 – 11: Village Center Development Statistics and Figure 4 – 15 (a – f): Residential Lands Development Statistics, off-street parking requirements have been calculated for the accommodation units in the base lands. Approximately 424 stalls will be provided to meet the parking requirements associated with accommodation units within the Village center. Another 2239 stalls will be provided in the adjacent (non Village core) residential neighborhoods. It is important to note that all accommodation units in all neighborhoods and the Village Centre are accessible to ski – ways that provide a ski – in / ski – out amenity. This significant aspect of the Base Lands movement system greatly reduces dependency upon the private automobile.

4.2.3 Skier Drop Off

The primary skier drop off is located between the day skier parking lot and the Skyline chair lift staging area (see Figure 4 –8: Movement Systems).

A secondary, convenience drop off area has been located in the proposed Village Centre fronting the Skier Services Building (see Figure 4- 7: Key Plan- Building 1,). This secondary drop – off area is mainly oriented to ski school customers.

Figure 4 – 5: Base Area Facilities Program

Lodge + Skier Services Facilities Requirements										
Component (m2)	Multiplier	Existing (Areas in M2)	Phase 1A CCC=2528	Area to be added (m2)	Phase 1C CCC= 3622	Additional Area (m2)	Phase 2 CCC= 5538	Additional Area (m2)	Phase 3 CCC= 7281	Additional Area (m2)
Food Service Seating	0.17	276	338.1	62.1	514.8	176.6	821.6	306.9	1103.5	281.9
Kitchen + Scramble	0.06	101	119.3	18.3	181.7	62.3	290.0	108.3	389.5	99.5
Lounge Service	0.05	157	99.5	-57.6	151.4	52.0	241.7	90.3	324.6	82.9
Toilets	0.03	34	59.7	25.7	90.8	31.2	145.0	54.2	194.7	49.7
First Aid	0.009	72	17.9	-54.1	27.3	9.4	43.5	16.2	58.4	14.9
Rentals / Retail	0.08	112	159.1	47.1	242.2	83.1	386.6	144.4	519.3	132.6
Lockers	0.03	41	59.7	18.7	90.8	31.2	145.0	54.2	194.7	49.7
Child Minding	0.01	40	19.9	-20.1	30.3	10.4	48.3	18.1	64.9	16.6
Ski School / Racing	0.02	51	39.8	-11.2	60.6	20.8	96.7	36.1	129.8	33.2
Tickets / Admin	0.023	40	45.7	5.7	69.6	23.9	111.2	41.5	149.3	38.1
Employee Lockers	0.01	17	19.9	2.9	30.3	10.4	48.3	18.1	64.9	16.6
Mech, Storage, Circ.	0.06	80	119.3	39.3	181.7	62.3	290.0	108.3	389.5	99.5
Totals:		1021	1097.9	76.9	1671.5	573.5	2667.8	996.4	3583.0	915.2
Maintenance Facilities Requirements:										
Component (m2)	Multiplier	Existing (Areas in M2)	Phase 1A CCC=2528	Area to be added (m2)	Phase 1C CCC= 3622	Additional Area (m2)	Phase 2 CCC= 5538	Additional Area (m2)	Phase 2 CCC= 7281	Additional Area (m2)
Maintenance Shop	0.15	356	298.35	-57.65	454.2	155.85	725.0	270.8	973.7	248.7
Parking: (80 % CC)										
Component (m2)	Multiplier	Existing stalls	Phase 1A CCC=2528	Stalls to be Added	Phase 1C CCC= 3622	Stalls to be Added	Phase 2 CCC= 5538	Stalls to be Added	Phase 2 CCC= 7281	Stalls to be Added
Autos @ 2.5 skiers/car Total Stall Area (32.5m2/stall)	0.32	364	636.5	272.5	969.0	332.5	1546.6	577.6	2077.1	530.6
Buses @ 40 skiers/bus Total Bus Stall Area (m2/bus)	0.01	7	8	1	10	2	12	2	15	2
	48	336	384	48	480	96	576	96	720	96
Total Parking Area Required (m2) :		12166	21069.6	8903.6	31971.2	10901.6	50839.2	18868	68226.4	17339.2
Total Parking Area Required (ha) :		1.2	2.1	0.9	3.19712	1.1	5.1	1.9	6.8	1.7

Figure 4 –6: Base Lands Illustrative Plan

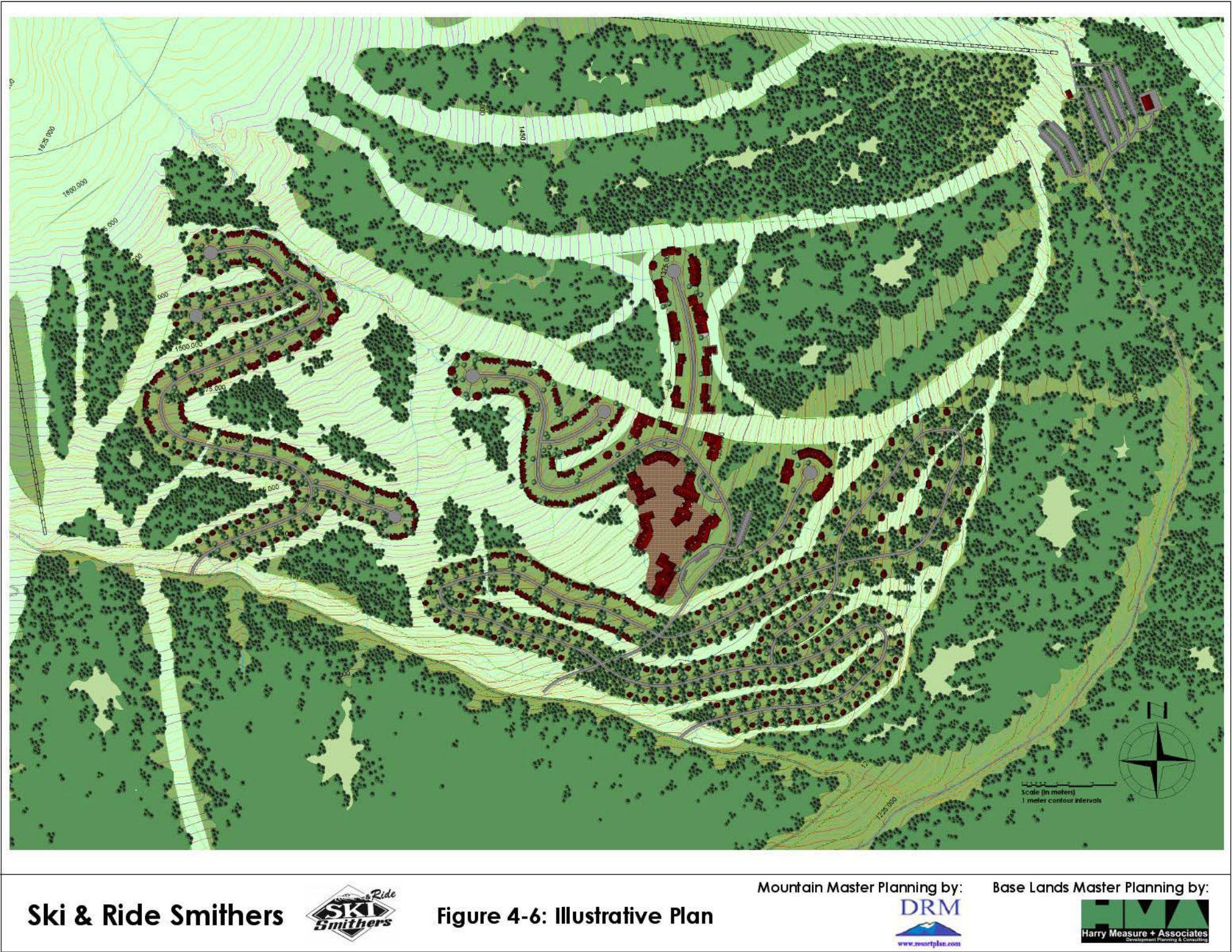


Figure 4-6: Illustrative Plan

Figure 4 –7: Illustrative Key Plan

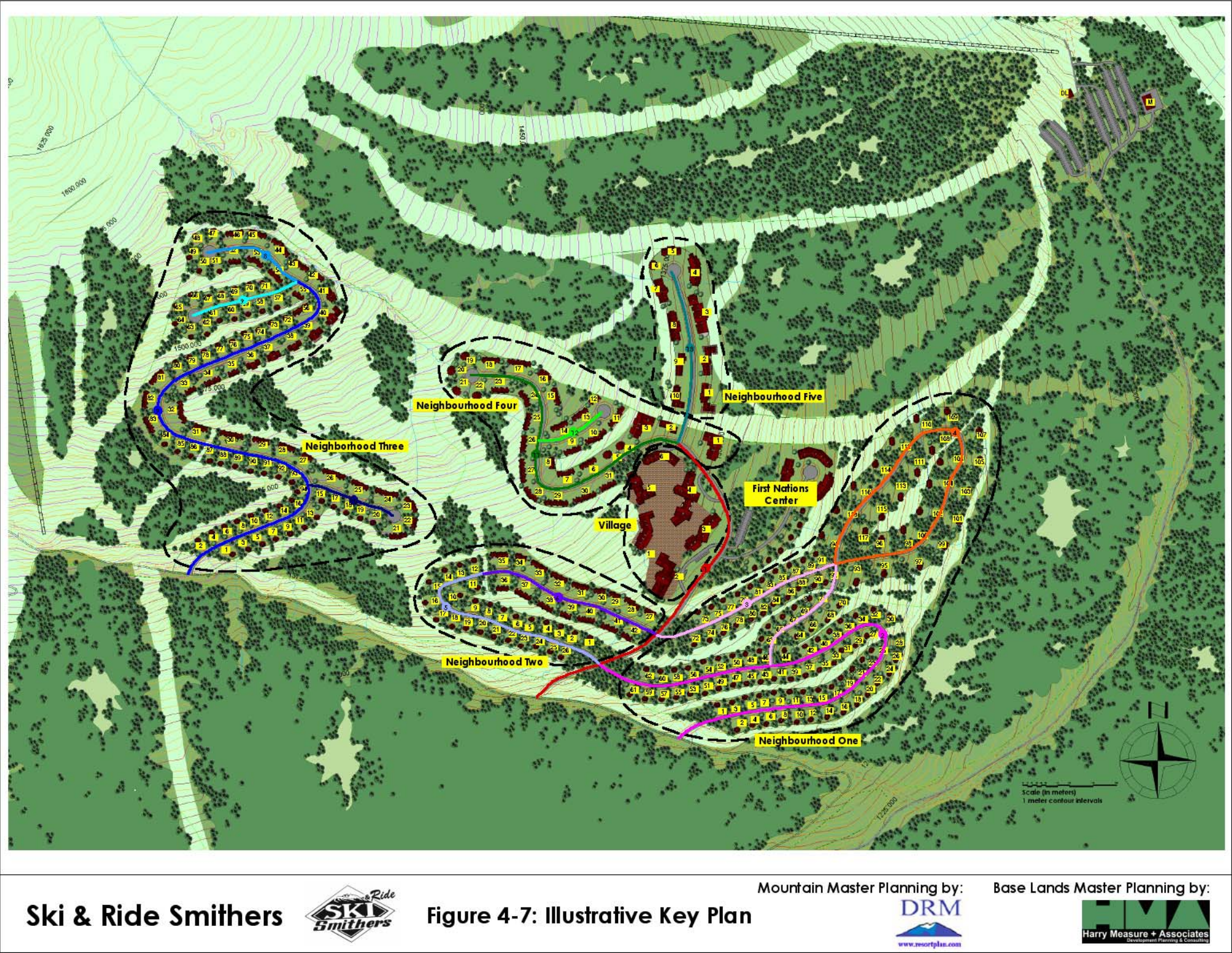


Figure 4-7: Illustrative Key Plan

Figure 4 –8: Movement Systems

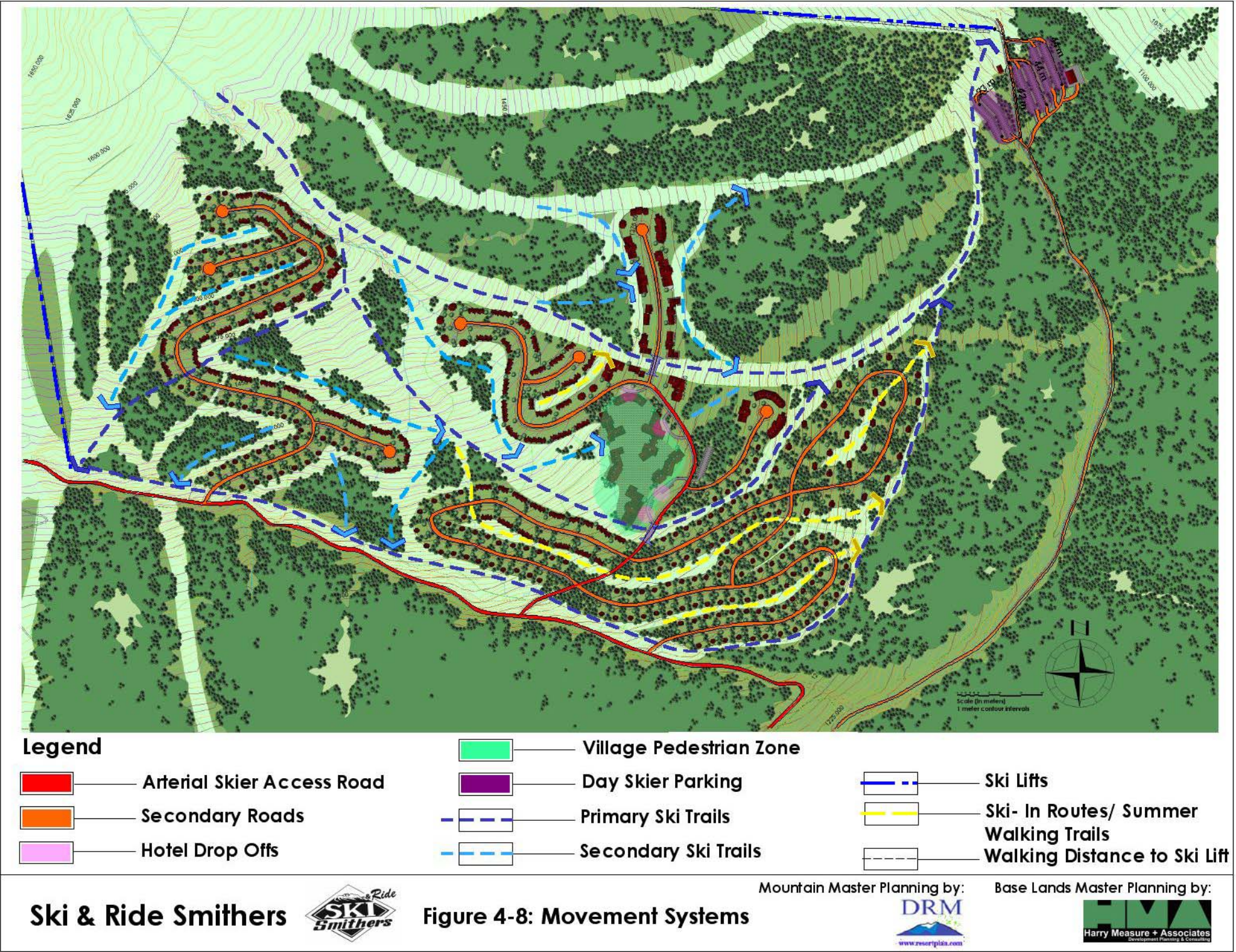


Figure 4-8: Movement Systems

4.2.4 Maintenance and Storage Buildings

The maintenance and storage buildings are currently located in the original base area and provide services for all resort maintenance and storage functions. At 356 square meters, the existing maintenance building will continue to serve this role in some capacity, even after a new maintenance facility is constructed adjacent to the proposed day skier parking lots and the Skyline chair lift staging area.

Approximately 299 square meters are required to accommodate needs associated with Phase 1A CCC of 2538. In Phase 1A, a surplus of approximately 57 square meters will remain from the existing maintenance and storage facilities.

By Phase 1C, approximately 156 square meters will be required to be constructed to service a CCC of 3622 and a new maintenance and storage facility will be constructed adjacent to the proposed day skier parking lots that will be to the east of the existing access road to the Skyline chair lift staging area. With reference to Figure 4 – 7: Illustrative Key Plan– Building M, the proposed maintenance and storage facility is located on a shelf to the east of the proposed day skier lots. This site is below the day skier parking lots with sufficient area for the building footprint, outside storage, circulation and parking needs. The heavy forest cover of the site will be maintained to provide a visual buffer to adjacent lands.

In Phase 2, an additional 271 square meters will be added to the maintenance and storage center to meet the requirements associated with a CCC of 5538. In Phase 3, 249 square meters will be added to the maintenance and storage facilities to accommodate the maximum 7281 CCC proposed at build-out.

Given the substantial area of the ski area, maintenance and storage functions may require satellite facilities to achieve efficiencies. While the proposed maintenance and storage facility will serve as the primary location for these services, satellite facilities may be constructed. The need for such satellite facilities will be assessed as the resort expands to the CCC of 7281 at build out.

4.3 Village Center Design

With reference to Figure 4 –6: Illustrative Plan, the Village Center has been planned between Neighborhood 2 and Twinkletoes ski run at an elevation between 1335 and 1365 m.

This site features gently sloping topography, and offers dramatic long distance views to the Bulkley Valley to the north, east and south. The Village Center site's topography and mature forest cover is pristine, and has seasonal water courses flowing through it (see Figure 4 – 10: Opportunities and Figure 4 – 11: Constraints).

The significant aspects of the Village Center Design consist of the following components:

4.3.1 Pedestrian Street

The Village Center has been designed as a pedestrian village that features a vehicle free, pedestrian only 'main' street. The main street will incorporate plazas and other areas that will be the stage set for outdoor entertainment and cultural events. To maintain solar exposure and important view corridors to the ski runs and to the Bulkley Valley, spaces between buildings have been established, and the massing of specific buildings will be stepped down in key locations. Key design considerations that have influenced the Village Center plan are discussed in Figure 4 – 13: Village Center Concepts.

With reference to Figure 4 – 13: Village Section, buildings within the Village Center will be designed to not exceed four stories in height, and will typically provide retail and other commercial operations on the ground floor with nightly accommodations above. Parking associated with the nightly accommodation units will be located beneath grade in an underground parking structure. With reference to Figure 4 – 11: Village Center Development Statistics and Figure 4 – 13: Land Use, some buildings fronting the skier merge zone will accommodate retail space beneath grade.

Figure 4–9: Village Center Development Statistics:

Figure 4-9: Village Center Development Statistics:							Bed Unit	Required Off
Key							Equivalent	Street Parking
Hotel= Hotel Room @ 30 m2; CT= Condo- Tel (studio): <550 m2:							2	1
CT= Condo- Tel (1bdrm = @ 68 m2; 2 bdrm= 80 m2)							4	1.5
Th= Townhome at 75m2 or 225 m2/3 storey unit							4	2
SF= Single Family Detached Residence							6	3 <3500; 4.3500
SS= Skier Services							NA	NA

Village Core Development Statistics:								
Building	Building	Floorplate	Basement	1st Floor Retail	# Units	Unit Mix	Bed Units	Required Off
Number	Type	Area (sq. m)	Area (sq. m)	Area (sq. m)				Street Parking
1	CT	2430.3	1905.2	1905.2	40	25- 1bdrm; 15- 2bdrm	160	60
2	CT	2029.9	2029.9	2029.9	48	30- 1bdrm; 18- 2bdrm	192	72
3	CT	2452.8	1874.9	1874.9	48	30- 1bdrm; 18- 2bdrm	192	72
4	Hotel	3471.4	3471.4	3471.4	163	hotel rooms	326	105.95
5	CT	1985.9	1502.9	1502.9	30	19- 1bdrm; 11- 2bdrm	120	45
6	CT	1614.4	1614.4	1614.4	40	25- 1bdrm; 15- 2bdrm	160	60
Totals:		13984.7	10784.3	10784.3	369	369	1150	414.95
		Totals:	Units in Village Core:		369	Bed Units in Village Core:	1150	415

Village Area: Gross Area= 50,219 m2; Net Area= NA								
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Figure 4 – 10: Opportunities

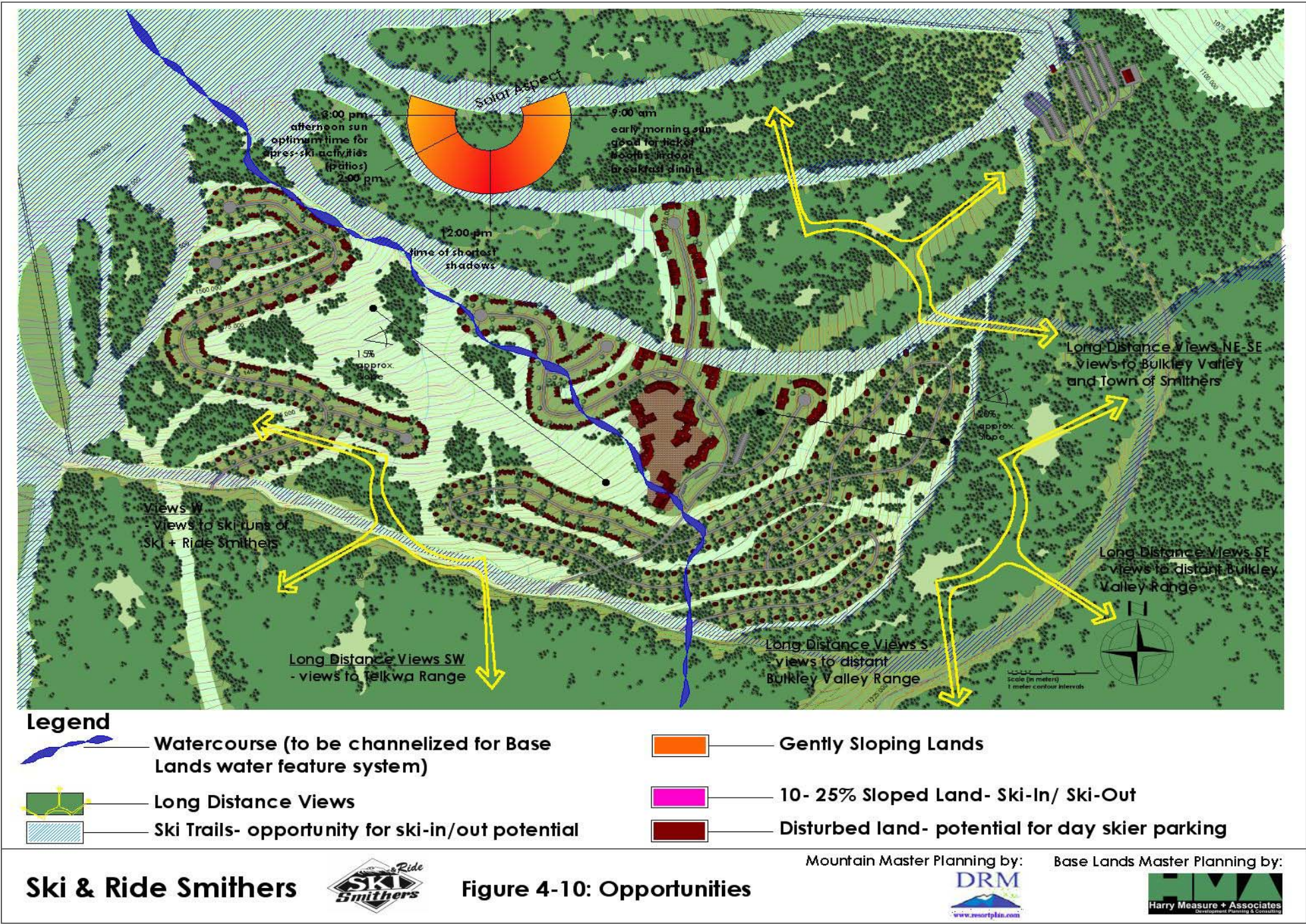


Figure 4-10: Opportunities

Figure 4 – 11: Constraints

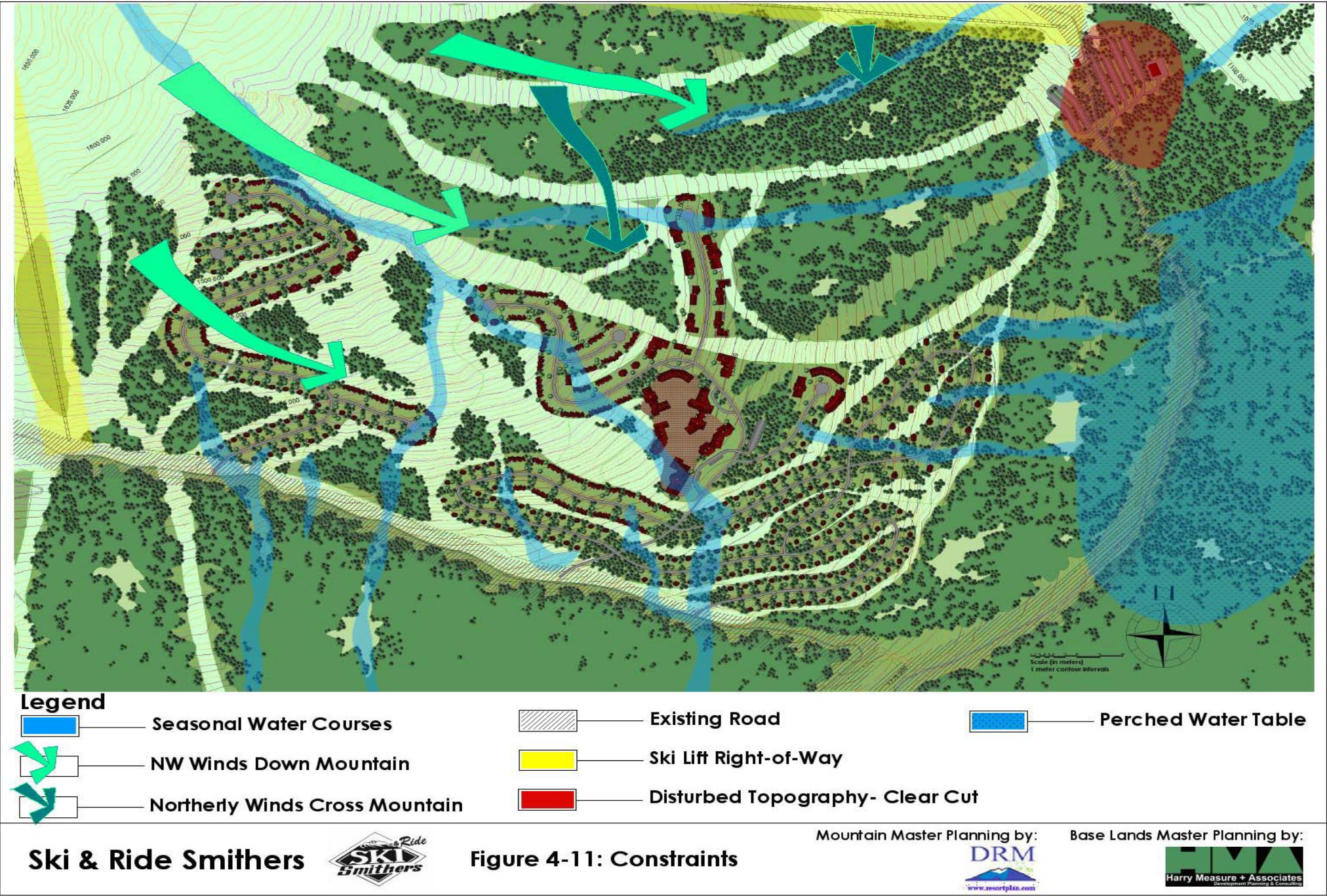


Figure 4-11: Constraints

Figure 4 – 12: Village Center Concepts

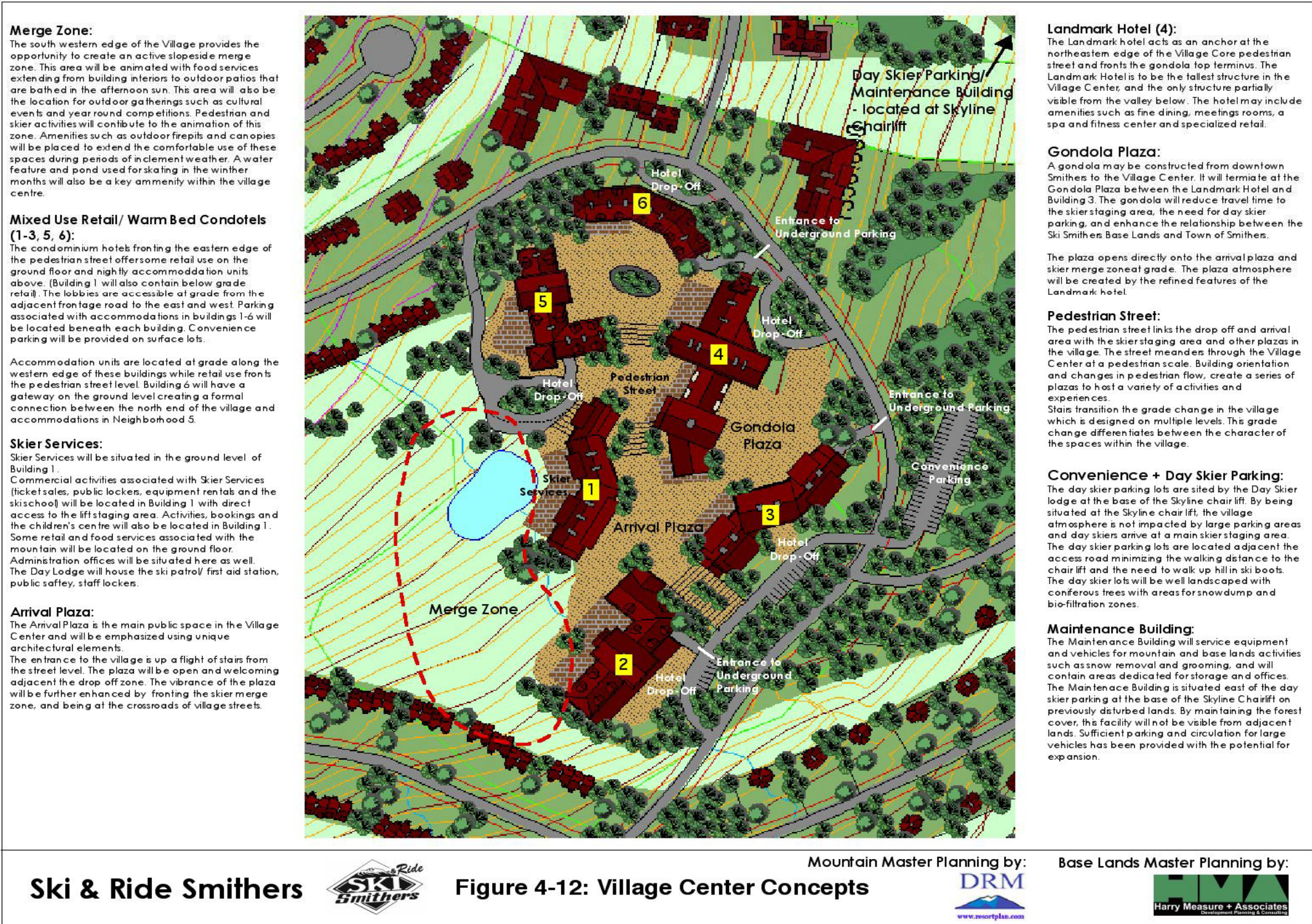


Fig 4-12: Village Center Concepts

Figure 4 – 13: Village Section

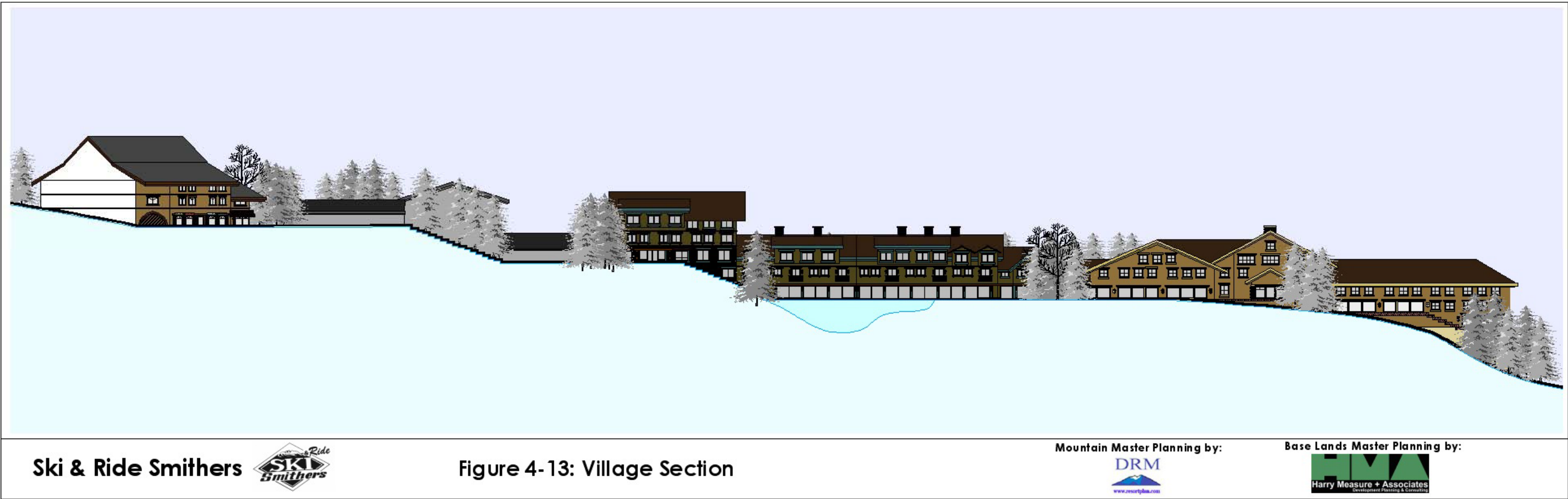


Figure 4-13: Village Section

Figure 4 – 14: Land Use

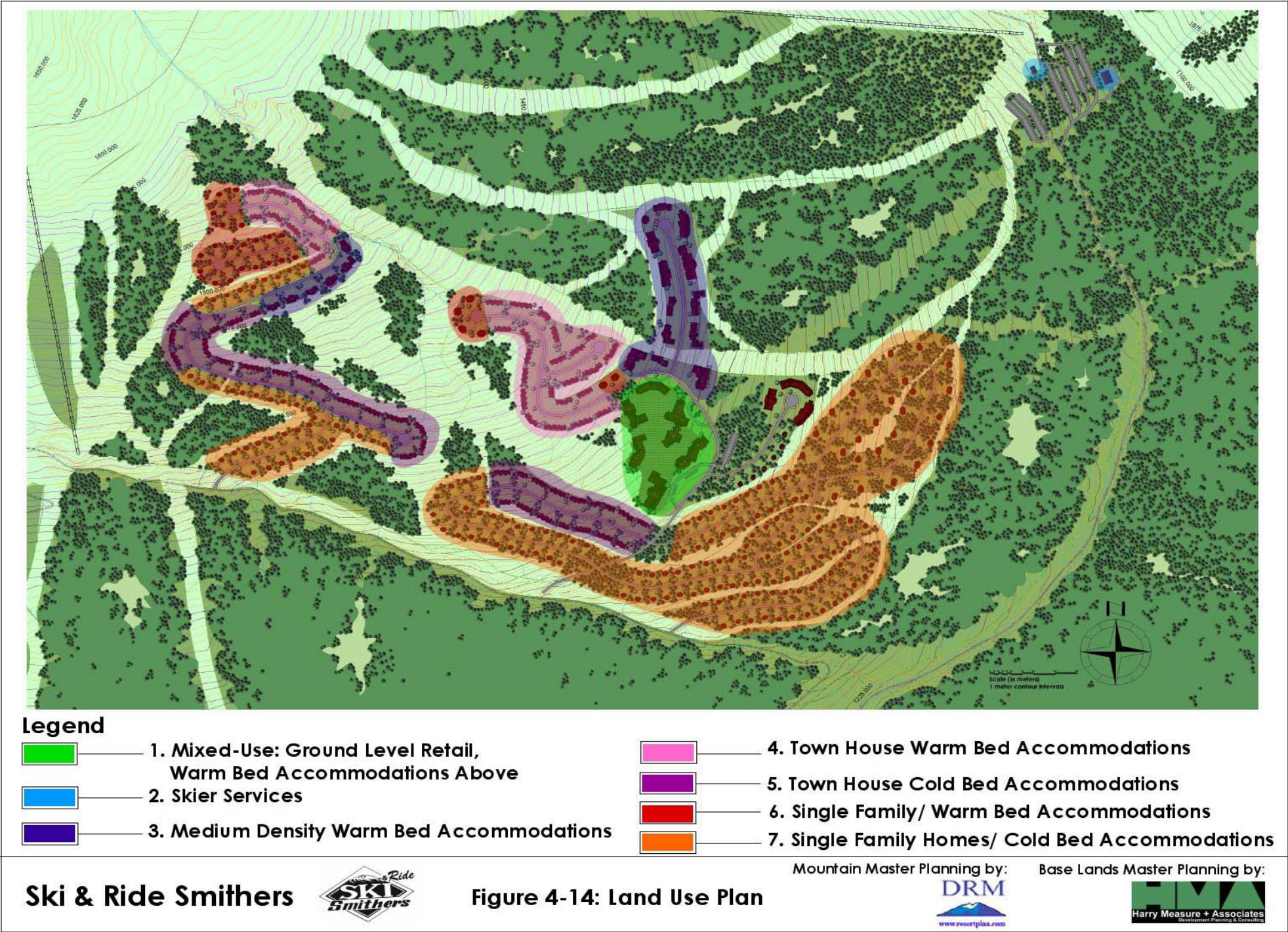


Figure 4-14: Land Use Plan

4.3.2 Base Lodge

With reference to Figure 4 – 5: Base Area Facilities Program, approximately 950 square meters of space is currently allocated to skier services (food services, lounge, washrooms, rental, retail, public lockers, child minding, ski school, ticketing and employee lockers) in several buildings in the original base area. These services will continue to operate from these buildings as satellite operations to the proposed Village.

Building 1 identified in Figure 4 – 7: Illustrative Key Plan is sited to front the primary merge zone to offer skier services to day skiers and longer-term visitors. Building 1 has a footprint of approximately 2430 square meters. Ground level will include a restaurant, lounge, ticketing and guest services. The basement level will contain additional skier services such as equipment rentals, washrooms, and day lockers. A second and third floor will provide accommodations on a nightly rental basis. With up to 4860 sq m in area available on the ground level and below grade, Building 1 provides sufficient area to accommodate the additional 2562 sq m in area required for skier services associated with a CCC of 7281 at the end of Phase 3.

Additional skier services such as retail, food and beverage, lockers and equipment rental, and retail will be dispersed throughout the ground level of other buildings in the Village Center as required.

4.3.3 Ski Patrol and First Aid Building

With reference to Figure 4 – 5: Base Area Facilities Program, approximately 72 square meters are presently allocated to ski patrol and first aid functions in the original base area. These services will continue to operate in this location.

A satellite ski patrol and first aid building exists in the satellite day lodge adjacent to the Skyline chair lift. This patrol and first aid facility includes lockers and food services totaling 60 sq m. in area. Renovation and expansion plans are in progress to upgrade this building until a larger facility is warranted in the proposed Village Center.

Ski patrol and first aid functions will be contained in Building 1. This building will front the drop off loop to the east, skier merge zone to the west and the ski way to the south that connects the Village Centre to Twinkletoes ski run. Siting of this building allows direct emergency vehicle access, high visibility to the public, a location adjacent to the Village's main pedestrian area, and will provide sufficient outdoor circulation for emergency vehicles and temporary parking.

Approximately 59 sq. m of space for ski patrol and first aid services are required to meet the CCC of 7281 skiers to be achieved at the completion of the Phase 3 expansion. Because this demand for First Aid and Ski Patrol has been met in the original base area and the satellite day lodge adjacent to the Skyline Chair, these facilities in the proposed Village will be in addition to those required to meet the CCC. Other functions related to operations of the resort that may be contained within the 2430 sq m footprint associated with Building 1 include Administration offices, a center for Public Safety, employee lockers, washrooms, and storage.

4.3.4 Village Mixed-Use (Residential / Commercial) Buildings

Hotel and Condominium-hotel buildings within the Village Center (Buildings 1 – 6, Figure 4 –7: Illustrative Key Plan) front the pedestrian street and have been sited to not impede views or solar access. Service and vehicular access for visitor drop off and parking in the Village Centre are located off the arterial road that provides access to Neighborhood 4 (see Figure 4 – 8: Movement Systems). This effectively separates the pedestrian from vehicles and improves the safety, accessibility and character of the Village Center.

With reference to Figure 4 –11: Village Centre Development Statistics, the density of the Village Centre is proposed to achieve a sufficient critical mass of accommodations and retail to create a vibrant village ambience. Accommodation unit totals, types, approximate unit mixes, and retail area associated with each building is represented in Figure 4 – 9.

Figure 4 – 12: Village Center Concepts describes key design concepts such as the design objectives for public spaces, building design considerations and massing, and potential activities to be included. The massing of individual buildings will be stepped down at strategic points along the Village pedestrian street to optimize views to the mountain to the west and Bulkley Valley to the east. Buildings are also articulated in plan to add variety to the streetscape, improve solar access to outdoor spaces, and to assist in reducing the visual impact of the Village Centre within the surrounding landscape when viewed from a distance.

Materials and architectural style will express the mountain context and respond to the design determinants of climate and geography. The proposed Village Center landscaping concept includes integration of the natural landscape with ornamental species introduced in areas of high activity such as along the main pedestrian street. Retaining walls and ground structures will further blend the overall form into the existing topography.

4.4 Base Lands Residential Neighborhoods

The Base Lands Residential development consists of 5 neighborhoods located around the Village Centre. A network of roadways, pedestrian pathways and ski ways will connect these neighborhoods to the Village Center, lift staging areas and amenities within the Base Area Lands.

The Base Lands Residential neighborhoods are situated on heavily forested, gently sloping topography that will enable ski-in / ski out access to all neighborhoods and the majority of individual lots. The sloping topography will also provide long distance views to the Bulkley Valley to the north, south and east. Retention of the forest cover during the development process will ensure privacy between lots, and buffer development from adjacent public areas. Ephemeral watercourses that occur during periods of snowmelt will be directed to create a water feature in the Village Centre.

With reference to Figure 4 – 7: Illustrative Key Plan, and Figure 4 – 15 (a – e): Residential Lands Development Statistics, the residential neighborhoods vary in area, densities, accommodation types, and land use to appeal to diverse markets during the development phasing program.

Higher density land uses (see Figure 4 – 14: Land Use- Neighborhoods: Four and Five, that will offer ‘warm bed’ accommodations available on a short term rental basis have been planned in close proximity to the Village Center and main ski trails.

Lower density land uses, such as single family and duplex residential lots, and low density townhouses have been located adjacent to the main access road, further away from the main ski runs (see Figure 4 – 7: Illustrative Key Plan- Neighborhoods: One and Two). A combination of long term rentals available to residents and employees on a monthly basis; and short term nightly rentals (warm beds) will be provided in these neighborhoods.

Due to its’ location that front Twinkletoes ski run to the Skyline chair staging area, the ski run to Lift B and the ski run to the proposed Village Centre, Neighborhood Three includes a mixture of low density single family lots and medium density townhomes. Townhomes and single family lots, that are in key locations such as having access to all three ski runs, will be designated as “warm beds” and made available for nightly rentals.

An area will be designated in close proximity to the Village Center for development by the local First Nations (see Figure 4 – 7). These lands will be allocated for the construction of six single family dwellings as well as condominium hotel units, plus a possible site for institutional uses for development as a First Nations cultural and interpretive center. The bed units allocated for this development area will be incorporated into the overall bed unit calculation for the Base Area Lands at the end of Phase 3. The development of these lands must conform to the form and character of development specified in the Design Guidelines and Development Regulations Environmental Design Code that will be prepared to govern all development of lands within the resort area.

Although the densities and lot boundaries may vary slightly at build-out from those represented in the Illustrative Master Plan, due to market demand, the overall intent of the land use and densities represented will be preserved.

With reference to Figure 4 – 16: Hillside Residential Neighborhood Section, the residential neighborhood planning reflects various approaches to hillside design and the effect of the built form on existing contours. Individual lot layout and roadway design responds to topographic conditions to minimize grading requirements, and the visual and physical impacts of development. Where possible, natural landscape features will be preserved in common areas within the Neighborhood Residential zones.

Preservation of the natural environment on private lands will be achieved through restrictive covenants that establish preservation setback areas for each property boundary. All lot improvements and building design will be required to conform to comprehensive design guidelines and development regulations, a design review and approval process, and a construction monitoring program that is based on ‘Best Practices’ criteria. Mandatory conformance to these requirements will ensure through all phases of build-out:

- Protection of the natural environment;
- Quality landscaping and building construction;
- Preserving views from residential buildings to the surrounding landscape; and
- Proper response to design and development issues associated with hillside terrain and heavy snowfall.

Figure 4 – 15 (a) - (e): Residential Lands Development Statistics

Figure 4-15: Residential Lands Development Statistics:							Bed Unit	Required
Key							Equivalent	Off Street Parking
Inn= Hotel Room @ 30 m2; CT= Condo- Tel (studio): < 550 m2:							2	1
CT= Condo- Tel (1bdrm = @ 68 m2; 2 bdrm= 80 m2)							4	1.5
Th= Townhome at 75m2 or 225 m2/3 storey unit							4	2
SF= Single Family Detached Residence							6	3 <3500; 4.3500
Figure 4-15(a): Neighborhood 1 Development Statistics:								
Building		Building	1st Floor Retail Area (sq. m)		# Units	Unit Mix	Bed Units	Off Street Parking Stalls
Number		Type						
1-117		SF	na		117	117-6 BU	702	351
Totals:				Neighborhood 1 Units:	117		Neighborhood 1 Bed Units:	702
Neighborhood 1 Area: Gross Area= 194,079 m2; Net Area= 155,280 m2								
Figure 4-15(b): Neighborhood 2 Development Statistics:								
Building		Building	1st Floor Retail Area (sq. m)		# Units	Unit Mix	Bed Units	Off Street Parking Stalls
Number		Type						
#1-26		SF	na		26	26-6 BU	156	78
#27-42		TH	na		82	82- 225m2	328	164
Totals:				Neighborhood 2 Units:	26		Neighborhood 2 Bed Units:	484
Neighborhood 2 Area: Gross Area= 61,866 m2; Net Area= 47,980 m2								
Figure 4-15(c): Neighborhood 3 Development Statistics:								
Building		Building	1st Floor Retail Area (sq. m)		# Units	Unit Mix	Bed Units	Off Street Parking Stalls
Number		Type						
#1-20		SF	na		20	20- 6 BU	120	60
21-35		TH	na		90	90- 225m2	360	180
27-30		SF	na		4	4-6 BU	24	12
36		CT	0		24	11- 1bdrm; 13- 2bdrm	96	36
37		CT	0		18	8- 1bdrm; 10- 2bdrm	72	27
38		CT	0		24	11- 1bdrm; 13- 2bdrm	96	36
39		CT	0		21	9- 1bdrm; 12- 2bdrm	84	31.5
40		CT	0		33	15- 1bdrm; 18- 2bdrm	132	49.5
41		CT	0		21	9- 1bdrm; 12- 2bdrm	84	31.5
42-46		TH	na		30	30- 225m2	120	60
47-51		SF	na		5	5-6 BU	30	15
52-56		TH	na		26	26-225 m2	104	52
57-80		SF	na		24	24- 6 BU	144	72
81-83		TH	na		18	18- 225m2	72	36
84-94		SF	na		11	11- 6BU	66	33
Totals:				Neighborhood 3 Units:	110		Neighborhood 3 Bed Units:	1604
Neighborhood 3 Area: Gross Area= 144,359 m2; Net Area= 114,304 m2								

Figure 4-15(d): Neighborhood 4 Development Statistics:									
Building Number	Building Type	1st Floor Retail Area (sq. m)		# Units	Unit Mix		Bed Units	Off Street Parking Stalls	
#1	CT	0		45	22-1bdrm; 24- 2bdrm		180	67.5	
#2	CT	0		27	12- 1bdrm; 15- 2bdrm		108	40.5	
3	CT	0		50	19- 1bdrm; 31- 2bdrm		200	75	
#4-5	CH	na		2	2-20 BU		40	20	
#6-15	TH	na		60	60- 225m2		240	120	
16	CT	0		27	12- 1bdrm; 15- 2bdrm		108	40.5	
17-18	TH	na		14	14- 225m2		56	28	
19-22	CH	na		4	4-20 BU		80	40	
23-31	TH	na		60	60- 4 BU		240	120	
Totals:			Neighborhood 4 Units:	289		Neighborhood 4 Bed Units:	1252	551.5	

Neighborhood 4 Area: Gross Area= 71,241 m2; Net Area= 54,763 m2

Figure 4-15(e): Neighborhood 5 Development Statistics:									
Building Number	Building Type	1st Floor Retail Area (sq. m)		# Units	Unit Mix		Bed Units	Off Street Parking Stalls	
1	CT	0		27	12- 1bdrm; 15- 2bdrm		108	40.5	
2	CT	0		33	15- 1bdrm; 18- 2bdrm		132	49.5	
3	CT	0		54	25- 1bdrm; 29- 2bdrm		216	81	
4	CT	0		39	18- 1bdrm; 21- 2bdrm		156	58.5	
5	CT	0		24	11- 1bdrm; 13- 2bdrm		96	36	
6	CH	na		1	1-20 BU		20	10	
7	CT	0		33	15- 1bdrm; 18- 2bdrm		132	49.5	
8	CT	0		39	18- 1bdrm; 21- 2bdrm		156	58.5	
9	CT	0		30	14- 1bdrm; 16- 2bdrm		120	45	
10	CT	0		39	18- 1bdrm; 21- 2bdrm		156	58.5	
Totals:			Neighborhood 5 Units:	27		Neighborhood 5 Bed Units:	1292	487	

Neighborhood 5 Area: Gross Area= 29,057 m2; Net Area= 23,699 m2

Totals:			Non Village Core Units:	569		Non Village Core BU's	5334	2363
			Total Gross Area:	65.2 Ha		Total Net Area:	47.4 Ha	
								Parking Stalls

Figure 4-15: Base Lands Development Statistics: Summary						
Totals:	Units in Village Core:	356		Bed Units in Village Core:	1150	415
Totals:	Non Village Core Units:	1203		Non Village Core BU's:	5334	2239
Totals:	Base Lands Units:	1559		Base Lands BU's:	6484	2654
Totals:	Gross Area:	65.2 Ha		Net Area:	47.4 Ha	

4.4.1 Ski trail network

The residential neighborhoods are integrated into existing and future trails to maximize ski-in / ski-out amenity. Ski ways through the residential neighborhoods have been designed to a minimum required gradient of 10%. Culverts will be installed beneath roads on the main ski ways within the residential neighborhoods to allow unobstructed travel. A skier bridge will be constructed over the Twinkletoes ski run to provide vehicle and pedestrian access to Neighborhood 5.

4.4.2 Pedestrian Trail Network and Greenways

In conjunction with the ski trail network, the residential neighborhood layout includes a network of seasonally-utilized trails and greenways that serve:

- To connect residents to ski trails in winter, and to walking trails and the Village Centre in summer;
- As landscape buffers between separate development clusters;
- As transitions between roadways and residential areas; and
- As safety breaks to impede the spread of wildfire.

The ski trail network, pedestrian trail network, greenways and roads through the Base Lands Residential Neighborhoods are identified in Figure 4 – 8: Movement Systems.

Figure 4 – 16: Residential Neighborhood Section

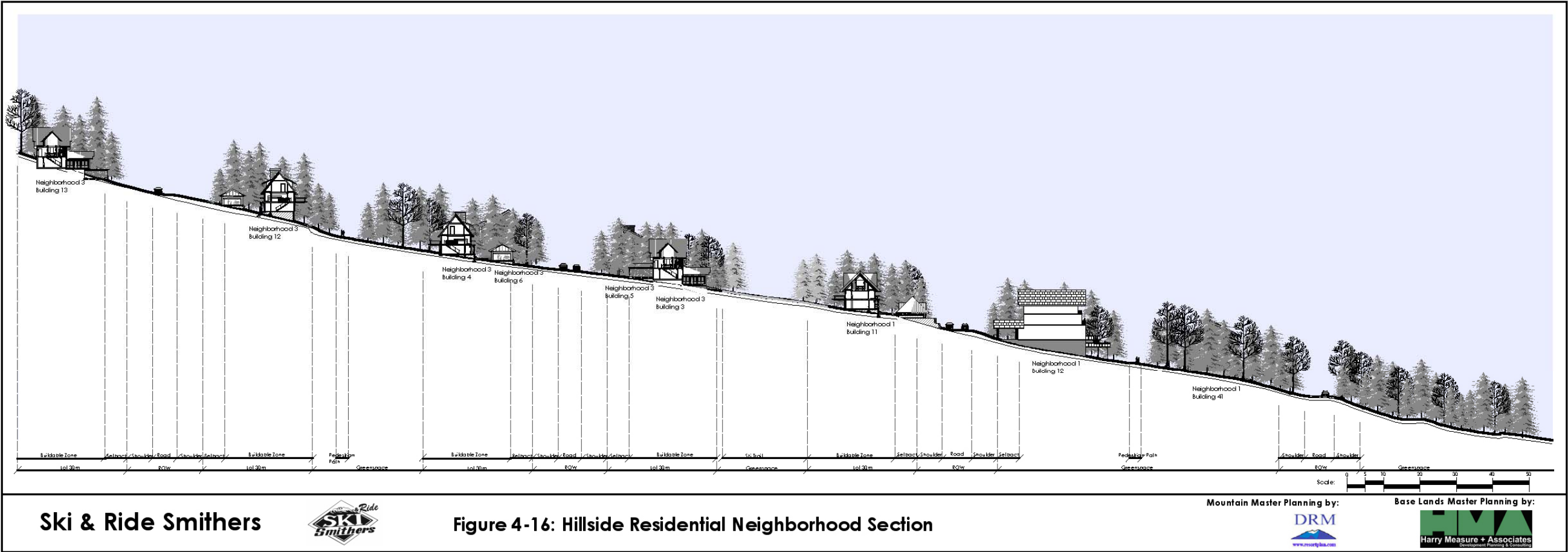
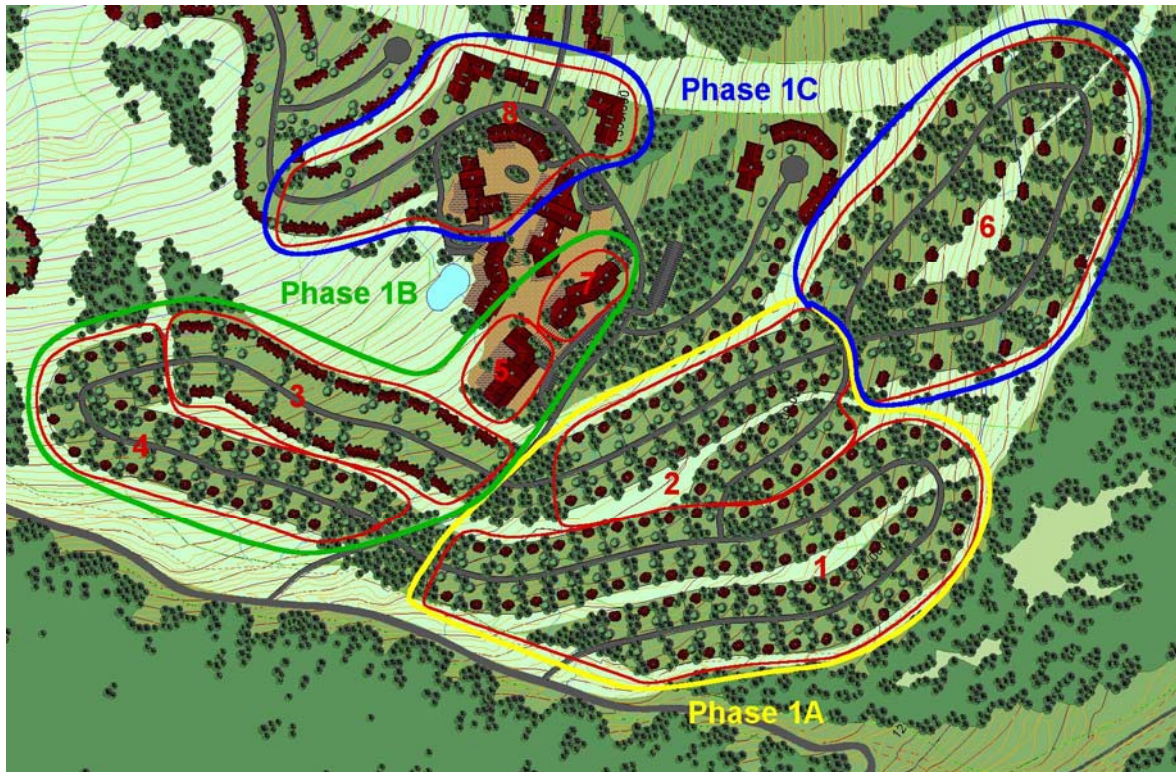


Figure 4-16: Residential Neighborhood Section

4.5 Development Phasing Strategy

The Base Area development will begin with development of approximately 100 lots in Neighborhoods One and Two. Phase 1 has been divided into three specific phases (1A, 1B & 1C), as outlined in Figure 4 – 17. Although portions of the development site are currently zoned, HBMA is currently developing a comprehensive rezoning application for the entire base area.

Figure 4 – 17: Phase 1 Key Plan



Build-out of Residential Neighborhoods One and Two (sites 1, 2, 3, 4 & 6), as outlined above, and the initial construction of buildings (sites 5 & 6) in the Village Center (see Figure 4 – 12) will provide an initial indication of the development feasibility of the Base Area Land program as well as market acceptance of the remaining lots in the proposed base area. The intent of the development phasing program will be to the market a mixture of lots and unit types in each phase that corresponds to the CCC bed unit allocation. The development phasing strategy for the remaining Base Lands is described according to the remaining residential neighborhoods and the Village Center.

Residential Neighborhoods One, Three and Five:

Residential Neighborhood Three is located fronting the main ski run served by Lift B, the primary ski run to the Village Centre as well as the Twinkletoes ski run to the Skyline chair lift staging area. Neighborhood Three will provide quality single family and multi family accommodations that may include units in key locations that are available for nightly rental.

Residential Neighborhoods Four and Five have been planned in close proximity to the Village Centre and to front “Twinkletoes”, the main ski run to the Skyline chair lift staging area. These neighborhoods will each provide condo-hotel, townhomes and single-family villas that are to be ‘warm beds’ available for nightly rental and all will offer a ski-in / ski-out amenity. Neighborhood Four will be the first to be developed and will continue through buildout. Neighborhood Five will then be developed under the same strategy.

Village Center:

Buildings in the Village Center (Figure 4 – 12) will be developed in response to sufficient market demand based on a pre-sales program of the accommodation units, and pre-leasing of the commercial space. The order of development will respond to the purchaser of each parcel’s development schedule. Building 4 is the only hotel proposed in the Village Center and maybe constructed at any time providing an appropriate developer and operator is secured, and that sufficient bed units are available at the time.

Construction of Building 1 will provide “at grade” retail, retail beneath grade, and condo-hotel units that will be available for nightly rental. Retail in Building 1 will be oriented to serving the requirements of skiing activities such as restaurant and ski school functions. Building 3 will include retail at grade and parking beneath grade, with condo – hotel units above the ground level. Development of Buildings 1 and 3 are important to complete the eastern edge of the Village that will support the activities occurring in the skier staging area and primary merge zone.

4.5.1 Employee Housing:

The ski area Base Lands are approximately fifteen minutes by car from the Town of Smithers - the region’s largest population center. The Town of Smithers provides a full range of local services including schools, health care, transportation, cultural and recreation oriented community amenities, and diverse retail offerings.

Due to the close proximity of the Town of Smithers to the resort, and the affordability of a broad range of accommodation types, employees of HBMA have historically chose to live in town. The Town of Smithers will continue to be the choice of location where the majority of HBMA employees will reside, given the full spectrum of community services and amenities available. However, as development at the resort, as well as throughout the community grows, the availability of existing housing stock and vacant land will decrease, thus increasing housing prices and affordability.

It is also beneficial and necessary to have some employees residing at the resort. In the privately held dwellings at the resort, there will be the option to include secondary suites to accommodate those full time and seasonal employees who need to, or wish to, live ‘on the mountain’. In many resort towns, secondary suites have not only met the housing requirements of staff, but the presence of seasonal and year round residences has reduced crime and contributed to public safety issues such as quick response to fire fighting.

4.6 Resort Administration and Governance

Currently, development approval within the resort area is the responsibility of both the Province of BC and the Regional District of Bulkley – Nechako (RDBN). Although zoning is provided through the regional district, subdivision approval is through the Approving Officer of the Provincial Ministry of Transportation. In addition to development controls, including, but not limited to design guidelines, building permits, etc, as the resort begins to build out, there will be a need to create an appropriate and effective structure for administration of public services, necessary development controls and management of utilities.

Design guidelines and Development Regulations for the base area will be developed to ensure appropriate character, construction quality and building standards are implemented and enforced, not only for Phase 1, but for all buildings on the mountain through to build out. HBMA will retain control of the administration, implementation and enforcement of the base area development Design Guidelines and Development Guidelines. The majority of residential development will likely be created through bare land strata.

Although the regional district has and will continue to provide direction and approval for land use designations through zoning, additional powers will need to be provided from the Province for the ability to enter and register covenants and statutory rights of ways as well as the ability to levy assessments for the provision of public services until the completion of infrastructure services. One possible option, which currently exists in legislation, is the establishment and creation of a Mountain Resort Association to assume long term control, administration and powers of assessment for property owners at the resort. As well, specific and special letters patent from the Province may also provide for the creation of Development Permit areas within the resort area that would be administered by the RDBN.

Although the Town of Smithers is the nearest community to the resort and is the centre for many commercial, support and healthcare related services, the resort is located within the boundaries of the RDBN, and to that end, the form of governance and resort administration will need to be developed cooperatively between the HBMA and the RDBN.

5.0 Environmental Overview

The following Environmental Overview was prepared by Laurence Turney, R.P. Bio of Gartner Lee Ltd, based out of Smithers, B.C.

5.1 Study Area Delineation

An area of approximately 6,541 ha was delineated as the study area for the description of the environment surrounding the proposed development at Hudson Bay Mountain by HBMA. This study area includes all of the area within the proposed Commercial Recreation Area (CRA) boundary plus a buffer ranging from 1,000 to 1,500 m to natural boundaries such as the height of land or stream features (see Figure 5 - 1). All descriptions of known terrestrial and aquatic values are based on this study area and future assessments would be concentrated within this study area.

5.2 Aquatic Environment

5.2.1 Aquatic Habitats and Hydrology

The proposed CRA contains headwater tributaries to a small number of streams that drain into the Telkwa and Bulkley River systems. These small, steep streams range from 10 to 30% gradient, drain into Pine Creek on the south-facing slopes and Simpson Creek and Chicken Lake Creek on the north-facing slopes. There are also a small number of streams that appear from the Terrestrial Resources Inventory Mapping (TRIM) to go sub-surface before entering Seymour Lake and eventually the Bulkley River. Crater Lake, a small (~ 3 ha) alpine lake is located outside of the CRA to the west. There are also five small ponds (< 1 ha) located within the CRA above the existing Panorama T bar. Aquatic habitats are likely typical of high elevation streams and ponds, with aquatic vegetation and invertebrate growth and species diversity dependent on the amount and timing of snow-melt in the spring and subsequent re-freezing in the fall.

Stream hydrology is expected to be typical for alpine and sub-alpine streams, with the majority of the flow occurring during snow-melt, with the volumes and timing dependent on snow pack and late spring and early summer weather conditions. Rain on snow-events during the late fall and early winter can occur in this area and can affect stream flows significantly.

5.2.2 Fish

There are no known fish – bearing streams values within the proposed CRA based on a search of FISS information available online (at <http://a100.gov.bc.ca/pub/fidq/fissSpeciesSelect.do>) although there are downstream fisheries values including spawning steelhead and cutthroat trout, pink salmon and coho salmon. The closest known spawning area to the CRA is approximately 1 km downstream on Chicken Lake Creek on the northeast side of Hudson Bay Mountain near the Smithers Golf Course where juvenile cutthroat and coho salmon were observed. It is possible that fish rearing could occur further upstream of the observed location, but a 2 m cascade located approximately 1.8 km above the power line right-of-way limits any fisheries use upstream of that point (see Figure 5 – 2). On the south side of Hudson Bay Mountain, within Pine Creek (approximately 1.5 km from the CRA boundary), coho salmon, cutthroat trout, Dolly Varden, mountain whitefish, and pink salmon have been observed. It is not expected that any of these species would be found

within the proposed CRA boundary due to the steep gradients (10 - 20%) and likely fish barriers between Pine Creek and the CRA boundary.

5.3 Terrestrial Environment

5.3.1 Terrain and Soils

Terrain and soils mapping have been completed for a portion of the study area during 2002 by local resource consultants familiar with the area and with extensive experience in their fields. The mapping was conducted between the Ski Hill Road, Twinkletoes, the Panorama T-bar and the bottom of the chair lift, an area of approximately 330 ha on the south and east facing gentle slopes of Hudson Bay Mountain (Weiland 2002). This area corresponds to the area that is proposed for the Base Area development of a Village Centre, residential housing and roads.

The terrain mapping by I. Weiland found very little high hazard terrain polygons within the mapped area (Weiland 2002). Some small areas (approximately 2-3 ha) associated with the 'Gully' ski run and a stream below the main access road had Marginally Stable to Unstable stability class ratings. Soil erosion potential within these areas was rated as High to Very High. Soil mapping conducted by D. Yole, found some soil types that were considered be sensitive to compaction or surface erosion as well as a small number of organic types that should not be developed due to their high water table and high poor drainage (Yole 2002). Some of these soil types were located within a portion of the proposed based development area.

5.3.2 Biogeoclimatic Subzones and Ecosystems

A review of the biogeoclimatic subzones and ecosystems that are within the study area was conducted using available Predicted Ecosystem Mapping (PEM). Table 5 – 1 shows that the majority of the study area is made up of mid elevation Interior Cedar Hemlock (ICHmc1) forests (27%), followed by Sub-boreal Spruce (SBSmc2) forests (20%) and Engleman Spruce, Sub-alpine Fir (ESSFmc and ESSFwv) forests (28%). Sub-alpine parkland habitats (ESSFmcp and ESSFwvp) make up 7% of the area, while 14% of the area is Alpine habitats.

A summary of the ecosystems found in the study area based on the available PEM is outlined in Appendix A. The majority (13%) of the study area is classified as mesic ICHmc1 forest ecosystems (Hw - Step moss - HM), followed by rich-moist ICHmc1 forested ecosystems (HwBl - Oak fern | HwBl - Devil's club - HO|HD), which make up 10% of the study area. Alpine/Sub-alpine habitats such as Heath/Grasslands make up approximately 10% of the study area, while 7% of the study area is classified as Rock. Herbaceous meadows, wet meadows and wetlands were found to make up ~223 ha (3%), ~55 ha (1%) and ~13 ha (< 1%) of the study area, primarily in the alpine and sub-alpine areas.

Table 5 - 1 Summary of biogeo-climatic subzone area within the study area.

Biogeoclimatic Subzone	Area (ha)	% of Total Area
AT	931.0	14%
ESSFmcp	250.1	4%
ESSFwvp	224.8	3%
ESSFmc	1,123.4	17%
ESSFwv	730.0	11%
ICHmc1	1,750.5	27%
SBSmc2	1,279.3	20%
SBSdk	252.1	4%
Total	6,541.1	100%

The majority of the forested area contains mature to old forests ranging in age from 200 to > 250 years in the upper portions, with younger stands in the lower section ranging in age from 100 to 120 years. High elevation forests are primarily sub-alpine fir (*Abies lasiocarpa*), with hybrid spruce (*Picea engelmannii* x *glauca*) and mountain hemlock (*Tsuga mertensiana*) also present. At the lower elevations, sub-alpine fir is dominant, but western hemlock (*Tsuga heterophylla*), hybrid spruce and lodgepole pine (*Pinus contorta*) can make up over 50% of the stand.

Figure 5 – 1: Study area used for assessment of effects and risks to aquatic and terrestrial values.

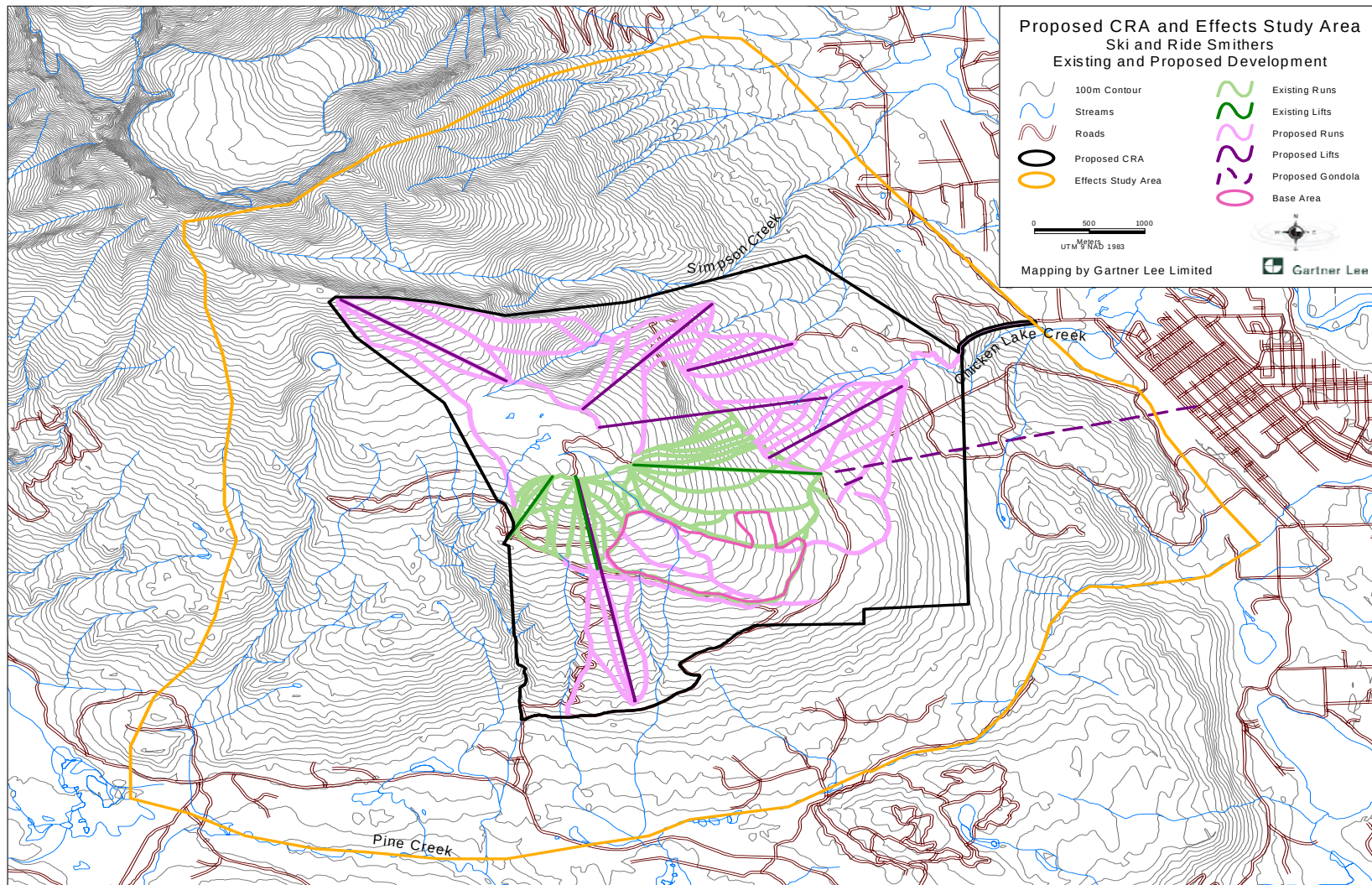
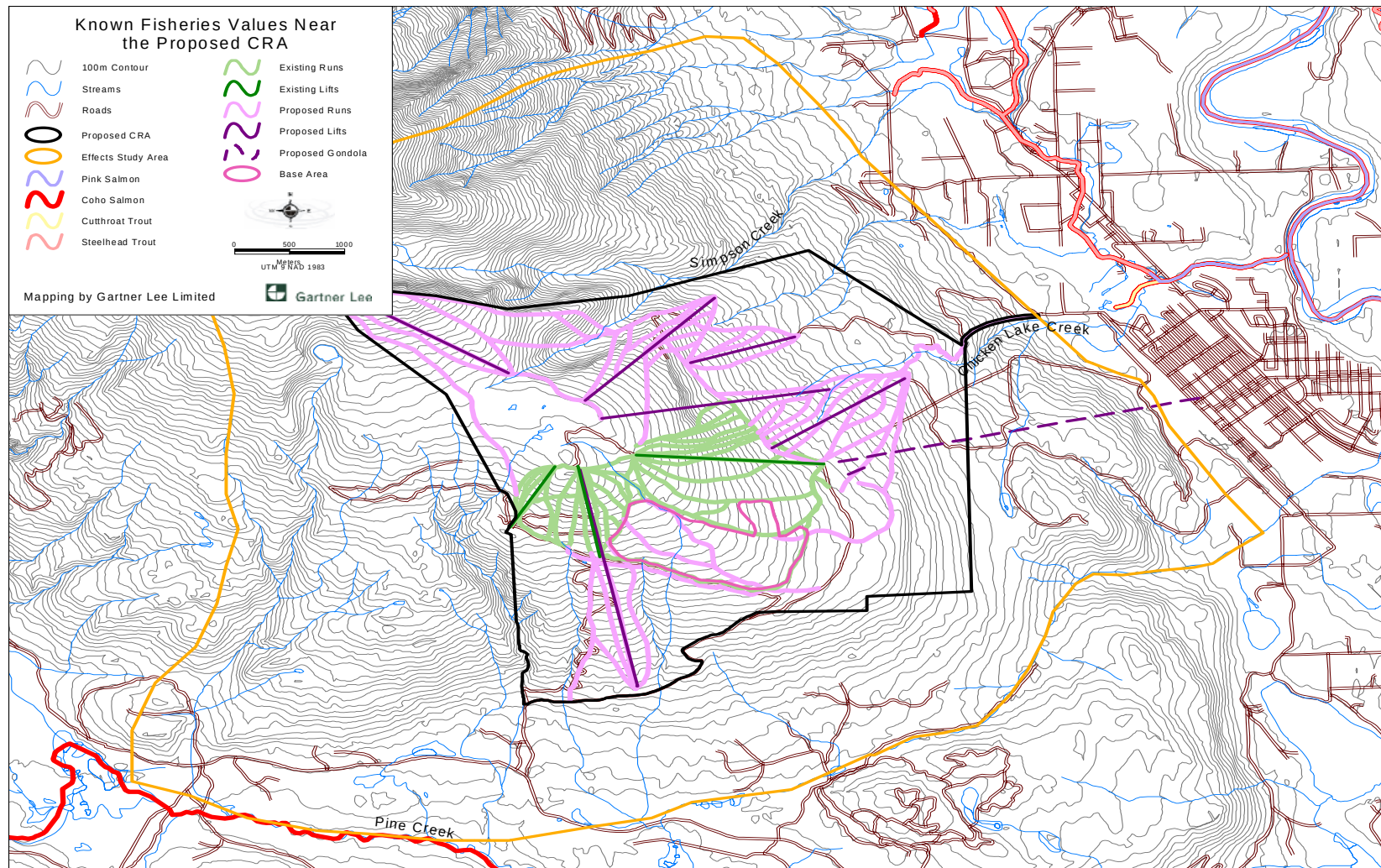


Figure 5 – 2: Locations of known fisheries values near the proposed CRA

5.3.3 Rare Plants and Ecosystems

Field assessments for rare plants and ecosystems have not been undertaken within the proposed study areas in association with the development of the proposed Master Plan, although some work has been undertaken within the Community Forest and in association with the proposed Blue Pearl Molybdenum Mine adjacent to the CRA area. The results of these studies have not been reviewed as the Blue Pearl information is not public at this time and the Community Forest information was not available in time for this review. A review of the PEM found four rare ecosystems which were identified in the mapping (see Table 5 – 2).

Table 5 – 2: Summary of rare ecosystems identified within the study area from the PEM.

Biogeoclimatic Subzone	Site Series	Site Series Code	Description	CDC Status	Area (ha)
ICHmc1	02	LK	HwPl - Kinnikinnick - Cladonia	Blue	33.2
SBSdk	02	LJ	Pl - Juniper - Ricegrass	Blue	4.4
SBSdk	04	DS	Fd - Feathermoss - Step moss	Blue	9.5
SBSdk	08	CD	Act - Dogwood - Prickly rose	Red	25.3

5.4 Wildlife Values

5.4.1 Amphibians

Amphibian assessments have not been undertaken to date within the study area in association with the Master Plan. It is likely that adult Western Toad (*Bufo boreas*) is using forested, sub-alpine and possibly alpine habitats on Hudson Bay Mountain, as this species is often found in these habitat types (Corkran and Thoms 1996). No toads were observed in 2002 during habitat assessments (Murphy 2002), but a researcher conducting studies on Horned Larks observed a dead western toad during studies between 2003 and 2007 (Camfield 2008). Wetland and small standing water habitats can support western toad breeding habitats with surrounding forested and alpine habitats supporting foraging for the species (Wind and Dupuis 2002). Other amphibian species that may use the study area include long-toed salamander (*Ambystoma macrodactylum*), spotted frog (*Rana pretiosa*) and wood frog (*Rana sylvatica*) where suitable habitats such as wetlands and ponds are available for breeding (Corkran and Thoms 1996).

5.4.2 Birds

Although breeding bird assessments were not conducted in conjunction with the development of the Master Plan, observations of birds during studies of nesting Horned Larks by A. Camfield, a Ph.D. student from 2003 to 2007 have been reviewed (see Table 5 – 3). Based on these observations and previous observations by Murphy (2002), bird species in CRA are typical of those expected in high elevation forested, sub-alpine and alpine habitats. Of the species observed in the study area, the Surf scoter is listed by the BC Conservation Data Centre (BC CDC) as Blue (Special Concern) and recently Olive-sided flycatcher was listed as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (BC CDC 2008).

Table 5 – 3: Birds observed during Horned Lark nesting studies 2003-2007, Hudson Bay Mountain (from Camfield 2008).

<i>Alpine Birds</i>		<i>Sub-Alpine Birds</i>	
Common Name	Observations	Common Name	Observations
American pipit	abundant, breeding	American robin	abundant, breeding
American robin	abundant	Blue grouse	abundant, breeding
Baird's sandpiper	occasional	Clark's nutcracker	abundant
Common raven	abundant	Cliff swallow	abundant, breeding
Golden eagle	occasional	Dark-eyed junco	abundant, breeding
Horned lark	abundant, breeding	Fox sparrow	abundant, breeding
Merlin	occasional	Golden-crowned sparrow	abundant, breeding
Northern harrier	occasional	Gray jay	abundant, breeding
Osprey	occasional	Hermit thrush	abundant
Red-tailed hawk	occasional	Savannah sparrow	abundant, breeding
Rock ptarmigan	abundant, breeding	Varied thrush	abundant
Rosy finch	abundant, breeding	White-crowned sparrow	occasional, breeding
Savannah sparrow	abundant, breeding	Winter wren	abundant
Sharp-shinned hawk	occasional	Yellow-rumped warbler	abundant
Surf scoter*	occasional		
Willow ptarmigan	abundant, breeding		
<i>Forest Birds</i>		<i>Forest Birds</i>	
Common Name	Observations	Common Name	Observations
American robin	observed	Northern flicker	observed
Black-capped chickadee	observed	Olive-sided flycatcher**	observed
Boreal chickadee	observed	Pacific-slope flycatcher	observed
Chipping sparrow	observed	Pine grosbeak	observed
Clark's nutcracker	observed	Pine siskin	observed
<i>Forest Birds</i>		<i>Forest Birds</i>	
Common Name	Observations	Common Name	Observations
Common raven	observed	Red crossbill	observed
Dark-eyed junco	observed	Red-breasted nuthatch	observed
Fox sparrow	observed	Steller's jay	observed
Golden-crowned kinglet	observed	Three-toed woodpecker	observed
Golden-crowned sparrow	observed	Townsend's Solitaire	observed
Gray jay	observed	Townsend's warbler	observed
Hairy woodpecker	observed	Varied thrush	observed
Hermit thrush	observed	Wilson's warbler	observed
Lincoln's sparrow	observed	Winter wren	observed
Mountain chickadee	observed	Yellow-rumped warbler	observed

* BC CDC Blue listed; ** COSEWIC Threatened

Due to the reconnaissance nature of the observations of forest birds, it is unknown which species may be nesting in the CRA, although it is likely that all nest in suitable habitat within the CRA and the study area. For the sub-alpine and alpine bird species, nesting chronology data provided by Camfield for Horned larks, Savannah sparrows and American pipits indicates that nesting activity ranges from May 16 to August 6 (Camfield 2008).

5.4.3 Mammals

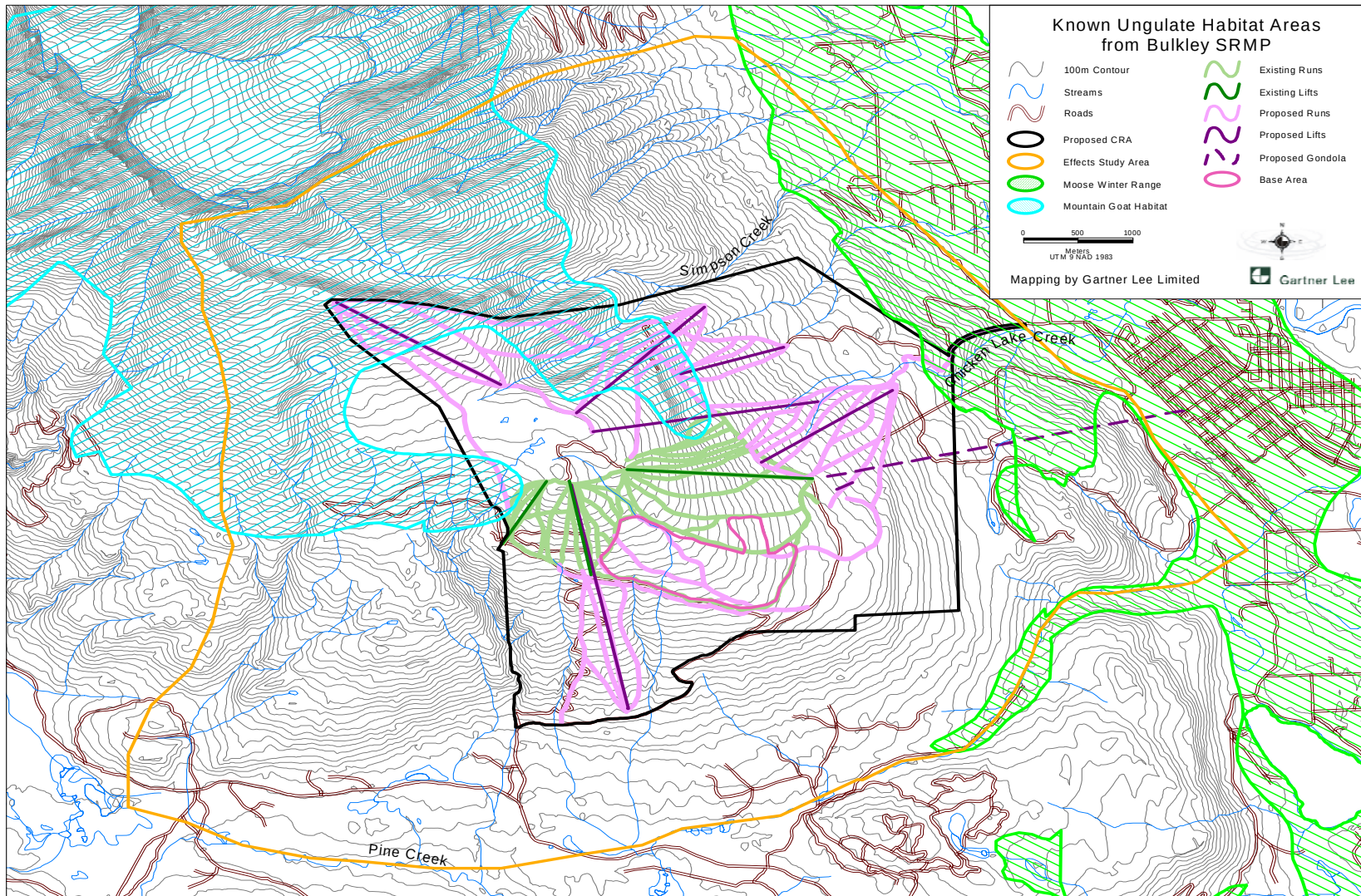
Wildlife values in this area include a variety of species typical of forested ecosystems within the Bulkley Valley with species such as mountain goat, moose, mule deer, marten and black bears observed in the general area. The lower portion of the CRA is within confirmed moose winter range as outlined in the Bulkley Valley Sustainable Resource Management Plan (SRMP), with the potential for mule deer using the area during the early and late portions of the winter possible. Mountain goat habitat identified in the Bulkley Valley SRMP is located within the northern portions of the CRA near several proposed ski runs and lifts near Simpson Creek (see Figure 5 – 3). Field assessments conducted in 2002 found evidence of use within the proposed CRA and development areas by mule deer, black bear and moose as well as two marten dens and spring mountain goat use south of Simpson Creek. During field work conducted between May and August 2003 to 2007 Camfield (2008) observed a wide variety of mammals within the alpine, sub-alpine and forested areas of the CRA (see Table 5 – 4).

Table 5 – 4: Mammals observed during Horned Lark nesting studies 2003-2007, Hudson Bay Mountain (from Camfield 2008).

<i>Alpine/Sub-Alpine Mammals</i>		<i>Forest Mammals</i>	
Common Name	Observations	Common Name	Observations
Brown Lemming	abundant, breeding	Black bear	abundant, breeding
Chipmunk	occasional	Coyote	occasional
Coyote	occasional)	Grizzly bear	occasional
Gray wolf	occasional	Moose	occasional
Hoary marmot	abundant, breeding	Mule deer	abundant
Mountain goat	abundant	Pine marten	occasional
Mule deer	occasional	Porcupine	abundant, breeding
Porcupine	abundant	Red Squirrel	abundant
Red fox	abundant, breeding	Snowshoe hare	abundant
Short-tailed weasel	abundant, breeding		
Wolverine	occasional		

Mountain goats have been observed numerous times north of Simpson Creek (Turney unpub. data) in summer, early winter and spring. Aerial surveys of the Hudson Bay Mountain area during 2005 found 88 goats, with five individuals observed using the southern and eastern slope areas near the CRA (Turney unpub. data). During observations in the winter of 2005/2006, eight individuals were observed on the eastern slope of Hudson Bay Mountain, north of the CRA (Turney unpub. data). Camfield (2008) has observed numerous times up to 10 mountain goats during the late spring and summer on the slopes north of Simpson Creek near the proposed Terrain Pod E.

Figure 5 – 3: Location of high value ungulate habitats (from Bulkley Valley Sustainable Resource Management Plan)



The proposed Base Area housing and infrastructure development is primarily within forested habitats that are likely used by mule deer during the summer and marten year-round. Sign of moose foraging was observed in this area by Murphy (2002), although it is unlikely that this is winter range due to the deep snow loads that would limit movements.

Woodland caribou foraging habitats may be found within the proposed CRA, but it is not expected that they would be used extensively due to the distance of the CRA to the core habitats found in the Telkwa mountains. A review of available telemetry data for the collared caribou indicates that a caribou has wandered close to Hudson Bay Mountain, but the animal did not spend any significant time in the area before returning to the Telkwa Mountains (Roberts *et al.* 2003).

5.5 Environmental Effects and Risk Assessment

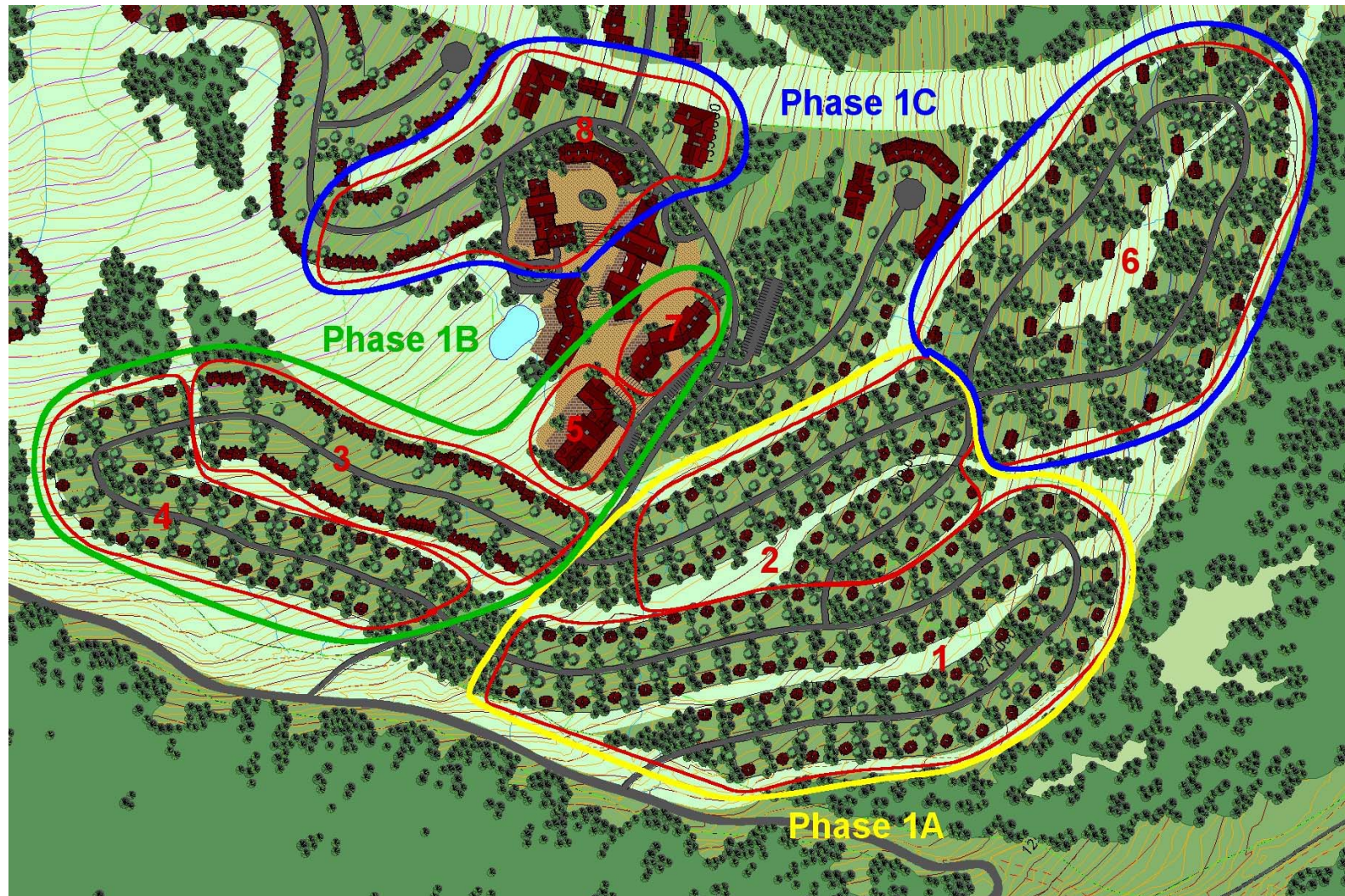
The assessment of potential environmental effects and risks was based on a review of the proposed mountain (lift and ski terrain) and Base Area development as described in Sections 3 and 4, plus the Implementation Strategy and Phasing Schedule (Section 7) and summarized below:

- Phase 1A: Development of Sites 1 and 2 in Neighbourhood One (see Figure 5 – 4) within the Base Area and completion of Terrain Pod I and the Trail to Town ski runs.
- Phase 1B: Development of Sites 3 and 4 in Neighbourhood Two, plus initial development of Village Centre in Sites 5 and 8 (see Figure 5 – 4). No new lift developments are proposed, although improvements may occur with other existing and proposed infrastructure.
- Phase 1C: Development of Site 6 in Neighbourhood One, a portion of Neighbourhood Four (Site 8), plus additional Village Centre development.

A decision on the development of Terrain Pods D, E and F would be deferred until the results of mountain goat assessments have been reviewed and the possible effects and risks to the population determined in consultation with the Ministry of Environment.

Using the PEM and the proposed development plans, ArcView GIS was used to determine the amount and types of ecosystems that would be affected by the proposed development. For the assessment, it was assumed that clearing for lifts and runs would be 30 m wide. For the Base Area it was assumed that the entire area would be affected, although it is likely that 20 to 30% of the area will remain undisturbed, the final design is not available and so the analysis provides a worst-case scenario for disturbed areas. Although the development of a Gondola is at this stage conceptual, an assessment was also made of the potential areas that could be affected by that development.

Figure 5 – 4 Phasing Schedule for Base Area Lands



5.6 Effects and Risks to Aquatic Values and Hydrology

Effects of the proposed development of the lifts, runs and Base Area associated with the proposed Master Plan on streams and hydrology are expected to be limited, due to the small number of streams that would be affected and the limited amount of clearing and development associated with the Master Plan.

The proposed Base Area contains at least two small tributaries to Pine Creek, with a small number of ephemeral streams that likely only flow during snow-melt (Yole 2002). Riparian management practices will be applied to all perennial streams within the Base Area, with 20 m riparian reserves maintained and all road crossing structures built to the standards outlined in the Stream Crossing Guidebook. Sediment and erosion control plans will be in place during construction, and a Stormwater Management Plan will be developed to ensure that all rain and melt-water associated with the Base Area will be controlled to reduce hydrological and sediment effects (see Proposed Mitigation Measures section below).

Development of Terrain Pod I and the proposed Trail to Town on the north side of the CRA will require some clearing of riparian trees where the proposed runs will cross the upper portions of Chicken Lake Creek. Clearing for crossings of these areas will be confined to harvesting by hand, with standing trees cut by hand to a height of 0.5 m or less, and all shrub and herbaceous plants less than 1.0 m in height will be retained as per a Site Clearing Plan (see Proposed Mitigation Measures section below). At all other times, a 20 m riparian reserve will be maintained on Chicken Lake Creek, which will retain all standing timber and riparian vegetation and ensure that no machinery is operated in the reserve.

The south tributary of Simpson Creek will be crossed by portions of three runs associated with Terrain Pod E, which may be developed in Phase 2. Clearing of vegetation along the lower portions of these runs near the tributary is expected to be limited due to the low height of the existing vegetation, as it appears from available ortho-photographs to be primarily stunted sub-alpine fir and mountain hemlock. Where required, standing trees will be cut by hand to a height of 0.5 m or less, with all shrub and herbaceous vegetation retained within 20 m of the tributary as per a Site Clearing Plan (see Proposed Mitigation Measures section below). There will be no vegetation clearing required in the alpine areas adjacent to this tributary.

Hydrological effects due to the proposed development are expected to be limited due to the relatively small amount of timber harvesting that is expected to take place and the mitigation measures that will be put into place to manage rain and snowmelt within the CRA (see Proposed Mitigation Measures section below). Based on the available PEM and proposed development areas, approximately 255 ha of forested habitats may be removed, with the majority of the removal associated with the Base Area (up to 117 ha) and Runs (approximately 130 ha). It is unknown, however, if the proposed removal of timber has the potential to increase peak flows and alter timing of peak flows due to the change in snow melt timing and amounts. A reconnaissance-level hydrology assessment will be conducted prior to the Phase 1 development of the Base Area, runs and lifts to determine if there are any potential hydrological effects associated with the proposed Master Plan. This assessment will review the existing streams and watersheds, the proportion of vegetated vs. non-vegetated areas, determine impervious surface run – off, etc, and a review of the age and spatial distribution of the forested landbase (i.e. calculate clear-cut equivalences) to assess the potential hydrologic effects of the proposed development.

5.7 Effects and Risks to Fisheries Values

There are no direct effects expected on fish or fish habitats as there is no fish habitat likely to be found within the proposed CRA area. Indirect effects on fish habitats due to increased sedimentation or changes to hydrology due to the proposed development are expected to be very low due to the proposed mitigation strategies that will be employed. As outlined in the previous section, maintaining a 20 m riparian reserve on all perennial streams, Sediment and Erosion Control Plans, Stormwater Management Plans, Site Clearing Plans and adherence to the Land Development Guidelines and Stream Crossing Guidebook, where applicable, when crossing streams are all expected to reduce potential inputs of sediment and excess water to downstream fish habitats (see Proposed Mitigation Measures section below).

In order to more accurately identify the upper limit of fish presence and habitats, fish habitat assessments will be conducted prior to construction activities within Simpson Creek, Chicken Lake Creek and tributaries to Pine Creek areas. Assessments will be conducted in the summer months using recognized sampling standards.

5.8 Effects and Risks to Terrain and Soils

Based on the available terrain stability mapping, it is not expected that the proposed development of runs in the south portion of the CRA and Base Area development will affect unstable or high erosion potential terrain. The mapped unstable terrain units appear to be outside of the proposed development areas, although care will need to be taken regarding stormwater management (see Proposed Mitigation Measures section below) to ensure that melt-water or rainwater from the development of the Base Area and associated roads, parking areas, driveways, etc do not affect these areas.

Soils mapping within the Base Area found several, silty, soil types that will require careful management during site clearing and during the development of the proposed infrastructure. There are also two small organic wetlands that should not be developed within the proposed Base Area and therefore modifications within the proposed Base Area development will be required prior to construction. Yole (2002) outlines several mitigation measures related to controlling water; partial harvesting of trees only; and prompt seeding with appropriate native seed mixes (see Proposed Mitigation Measures section below). These mitigation measures will be adhered to during the development of the Base Area and the soil erosion information will be incorporated into the development of the detailed Base Area plans to ensure that soil erosion is minimized.

It is not expected that additional terrain stability mapping will be required, although it is proposed that a terrain specialist review the Simpson Creek area prior to development of Terrain Pod D and E to ensure that there are no concerns related to that area.

Additional soil assessments are not expected to be required prior to development. The detailed Base Area design will incorporate the existing soils information to avoid the organic wetlands and minimize disturbance to the erosion prone silty soils identified by Yole (2002).

Overall it is expected that the proposed mitigation measures will ensure that the Master Plan has no significant risk to terrain stability or soil erosion.

5.9 Effects and Risks to Biogeoclimatic Subzones and Ecosystems

Using the PEM and the proposed development plans, ArcView GIS was used to determine the amount of each biogeoclimatic subzone that would be affected by the proposed development. For the assessment, it was assumed that clearing for lifts and runs would be 30 m wide. For the Base Area it was assumed that the entire area would be affected, although it is likely that 20 to 30% of the area would remain undisturbed, the final design is not available and so the analysis provides a worst-case scenario for disturbed areas. Although the development of a Gondola is at this stage conceptual, an assessment was also made of the potential areas that could be affected by that development.

The proposed Master Plan development consists of approximately 307 ha. A summary of the amount of each biogeoclimatic subzone that will be affected by the proposed development is outlined in Figure 5 – 5 while the ecosystems affected is outlined in Table 5 - 5

The proposed full build-out of the Master Plan will affect approximately 5% of the study area, with the majority of the effects occurring within the ESSFmc and ESSFwv subzones (2% and 1% of the study area respectively). The Base Area will affect approximately 2% of the study area and approximately 11% of the ESSFmc subzone in the study area. The development of runs will also affect approximately 2% of the study area, but the effects are distributed across subzones with the greatest effect occurring in the ESSFwv subzone where approximately 8% of the subzone in the study area will be affected. Effects to Alpine and sub-alpine parkland (ESSFmcp and ESSFwvp) habitats are likely to be more limited than what was modeled as there will be limited clearing of vegetation required due to the low heights of the vegetation in those subzones.

Table 5 – 5: Summary of biogeoclimatic subzone areas affected by the potential Master Plan development within the study area.

Biogeoclimatic Subzone		Gondola	Lifts	Runs	Trail to Town	Base Area	Total
AT	Area (ha)		1.9	32.7			34.5
	% of Study Area		0%	0%			1%
	% of BEC Subzone		0%	4%			4%
ESSFmcp	Area (ha)		1.5	2.3			3.8
	% of Study Area		0%	0%			0%
	% of BEC Subzone		1%	1%			2%
ESSFwvp	Area (ha)		3.1	9.2			12.3
	% of Study Area		0%	0%			0%
	% of BEC Subzone		1%	4%			5%
ESSFmc	Area (ha)		2.8	25.1		120.4	148.3
	% of Study Area		0%	0%		2%	2%
	% of BEC Subzone		0%	2%		11%	13%
ESSFwv	Area (ha)	1.8	12.0	59.0			72.8
	% of Study Area	0%	0%	1%			1%
	% of BEC Subzone	0%	2%	8%			10%
ICHmc1	Area (ha)	6.6	1.2	10.1	4.3		22.2
	% of Study Area	0%	0%	0%	0%		0%

Biogeo-climatic Subzone		Gondola	Lifts	Runs	Trail to Town	Base Area	Total
	% of BEC Subzone	0%	0%	1%	0%		1%
SBSmc2	Area (ha)		0.7	10.7			11.4
	% of Study Area		0%	0%	0%		0%
	% of BEC Subzone		0%	1%	0%		1%
SBSdk	Area (ha)	1.0			1.1		2.1
	% of Study Area	0%			0%		0%
	% of BEC Subzone	0%			0%		0%
Total	Area (ha)	9.4	23.2	148.9	5.4	120.4	307.4
	% of Study Area	0%	0%	2%	0%	2%	5%

The proposed development of the Master Plan will primarily affect ecosystems that have been identified as Moderate which are those ecosystems that have mesic soil moisture and moderate soil productivity conditions (see Table 5 – 6). Based on the PEM mapping the full build-out outlined in the Master Plan would affect ~3% of the available Moderate ecosystems, primarily the ESSFmc Bl - Huckleberry - Leafy liverwort (map code FB) ecosystem. Less than 1% of the available Rich-Wet ecosystems will be affected by the proposed development, with the majority of the effects occurring in the ESSFwv Bl - Oak fern - Heron's bill (map code FO) ecosystem. A very small amount (< 0.1 ha) of mapped Wetland ecosystem are identified as being affected by the proposed development. Based on available soils mapping (Yole 2002), the PEM does not appear to have been accurate enough to detect the small wetlands identified. As these wetlands have been mapped by Yole (2002) and the mitigation measure will be to avoid disturbance to these wetlands and their hydrology, the effects to wetlands is expected to be minimal.

The expected overall effects to ecosystems due to the proposed development in the Master Plan are low due to the small amount of available ecosystems that will be affected. Sensitive ecosystems such as wetlands will not be developed and existing water flows will be maintained. Other mitigation measures that could be implemented to reduce effects on ecosystems and their associated vegetation would be to conduct as much of construction staging and construction activities as possible when the ground is snow-covered and frozen. This will reduce the effects of disturbance to vegetation and compaction and disturbance to soils. Prior to development of the Base Area and the runs and lifts associated with the different phases of development, Site Clearing Plans (see Proposed Mitigation Measures section below) will be developed that will utilize additional ground-based information. The ground-based assessments will verify the PEM and develop site-specific mitigation measures related to ecosystems to ensure that sensitive or high value ecosystems are maintained where possible. It is not expected that Terrestrial Ecosystem Mapping (TEM) will be required, and that the combination of PEM and ground verification and development of site specific mitigation such as the Site Clear Plans will be sufficient to ensure that ecosystem values are maintained.

5.10 Effects and Risks to Rare Plants and Ecosystems

The potential effects and risks to rare plants from the proposed development outlined in the Master Plan are unknown due to the lack of available detailed assessments for rare plants. There is potential for activities associated with development of the lifts and runs in the alpine and sub-alpine areas to affect rare plant communities that have not been identified. Development of the Base Area has a lower risk due to the

general lack of ecosystem types such as wetlands, rich-wet sites or dry rocky sites that tend to have more at-risk plants and communities. The planned retention of identified wetlands and their hydrology in the Base Area also lowers the risk somewhat as any rare plants located within those wetlands would be protected. In order to ensure that the risk and effects on rare plants is quantified, a rare plants assessment will be prior to construction and the results made available to resource agencies to determine appropriate mitigation and protection measures prior to development and construction activities.

The PEM identified four rare ecosystems within the forested portion of the study area, but all were located outside of any potential development activities (see Figure 5 – 5). The PEM, however, is not a good tool for the identification of rare ecosystems as there is very little input data to resolve ecosystems in alpine and sub-alpine areas and a general lack of resolution to detect what are commonly quite small ecosystems. Overall, it is likely that the risk to rare ecosystems from the Base Area other developments in the forested portions of the CRA is low, there is a much higher risk in the alpine and sub-alpine areas due to the lack of information. To reduce this risk and ensure that the potential effects on rare ecosystems is accurately identified, an assessment for rare ecosystems will be conducted in conjunction with the rare plant assessments during the summer months prior to construction activities. These assessments will concentrate on the alpine and sub-alpine areas of the CRA as well as the Base Area. As outlined above, the results of the assessment will be provided to resource agencies to help develop appropriate mitigation and protection measures prior to development and construction activities.

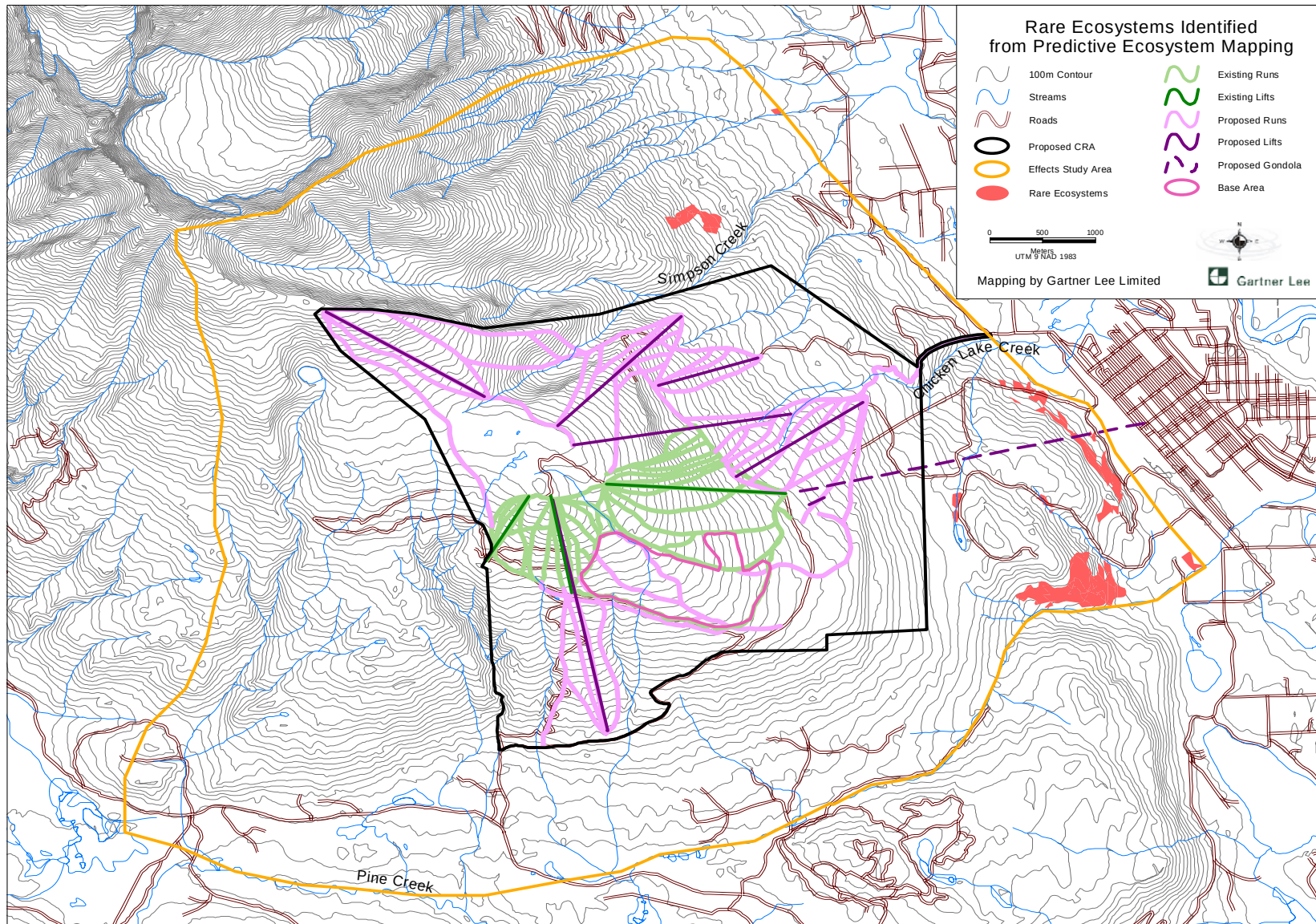
Figure 5 – 5: Location of rare ecosystems from Predictive Ecosystem Mapping

Table 5 – 6: Summary of ecosystems affected by the potential development within the study area.

Biogeo-climatic Subzone	Ecosystem Code	General Ecosystem Type	Ecosystem Description	Area Affected (ha)
AT	HG	Moderate	Heath/Grassland	20.1
	HM	Rich-Wet	Herbaceous Meadows	6.7
	RO	Rock	Rock	6.2
	WM	Rich-Wet	Wet Meadow	1.5
ESSFmcp	HG	Moderate	Heath/Grassland	1.6
	HM	Rich-Wet	Herbaceous Meadows	2.2
ESSFwvp	HG	Moderate	Heath/Grassland	7.9
	PF KR	Moderate	Parkland Forest/Krummholz	3.5
	RO	Rock	Rock	0.9
ESSFmc	AW	Riparian	Alder willow	13.3
	DEV	Development	Developed	11.4
	FB	Moderate	Bl - Huckleberry - Leafy liverwort	107.6
	FD	Rich-Wet	Bl - Devil's club - Lady fern	2.2
	FT FO	Moderate	Bl - Huckleberry - Thimbleberry Bl - Oak fern - Heron's Bill	5.4
	FV	Rich-Wet	Bl - Valerian - Sickie moss	6.2
	HG FH	Rich-Wet	Bl - Horsetail - Leafy moss Bl - Horsetail - Glow	0.1
	HH	Moderate	Bl - Huckleberry - Heron's-bill	2.1
ESSFwv	AW	Riparian	Alder willow	0.7
	DEV	Development	Developed	1.8
	FA	Moderate	BlHm - Azalea	34.0
	FD	Rich-Wet	Bl - Devil's club - Lady fern	6.2
	FH FL	Rich-Wet	Bl - Horsetail - Glow moss Bl - Lady fern - Horsetail	0.1
	FO	Rich-Wet	Bl - Oak fern - Heron's bill	15.1
	FV	Rich-Wet	Bl - Valerian - Sickie moss	1.5
	LC FF	Poor	Bl - Huckleberry - Crowberry BlHm - Feathermoss	4.5
	MH	Moderate	BlHm - Heron's bill	8.4
	RO	Rock	Rock	0.2
	SA	Rich-Wet	Slide/Avalanche	0.1
	WE	Wetland	Wetland	0.0
ICHmc1	HC	Rich-Wet	Hw - Azalea - Skunk cabbage	0.1
	HM	Moderate	Hw - Step moss	12.8
	HMb	Moderate	Hw - Step moss - submesic	0.8
	HO HD	Rich-Wet	HwBl - Oak fern HwBl - Devil's club	8.6
SBSmc2	DEV	Development	Developed	1.9
	PH	Poor	Pl - Huckleberry - Cladonia	0.2
	SB	Moderate	Sxw - Huckleberry	7.2

	SBc	Poor	Sxw - Huckleberry - coarse soils	0.2
	SD	Rich-Wet	Sxw - Devil's club	0.2
	TC SO	Rich-Wet	Sxw - Twinberry - Coltsfoot Sxw - Oak fern	1.5
SBSdk	DEV	Development	Developed	0.3
	DS	Moderate	Fd - Feathermoss - Step moss	0.2
	RS	Riparian	Riparian Shrub	0.2
	SP	Moderate	Sxw - Spirea - Purple peavine	0.5
	ST	Moderate	Sxw - Twinberry - Coltsfoot	0.9
Total				307.4

5.11 Effects and Risks to Amphibians

The effects and potential risks to amphibians from the proposed development outlined in the Master Plan is unknown due to the lack of information on potential breeding sites for amphibians, particularly Western Toad, in the CRA. There is a potential that the wetlands identified by Yole (2002) in the Base Area contains breeding habitats for amphibians. These wetlands will be retained, and natural water flows maintained, but it will also be important to ensure that the wetlands remain accessible to amphibians and that stormwater and other water run-off from the Base Area developments do not affect the wetland water quality or hydrology.

The Stormwater Management Plan and the Sediment and Erosion Control Plan (see Proposed Mitigation Measures section below) will ensure that water quality is maintained. To determine if breeding is occurring within the proposed development areas in the CRA, an amphibian field assessment will be conducted in the spring and summer prior to Phase 1A development. This assessment will determine if any potential breeding areas will be affected by proposed development of the Base Area. As breeding areas for Western Toads may not be used every year (Wind and Dupuis 2002), follow-up assessments may be conducted in subsequent years (up to 5 years) to confirm that areas are not used. Notwithstanding the confirmation of Western Toad breeding within the wetlands identified in the Base Area, the Site Clearing Plan(s) for the Phase 1 developments (see Proposed Mitigation Measures section below) will be developed to ensure that a buffer of at least 20 m of appropriate vegetation is maintained around the wetlands or any other small pond or wetland observed during the assessments and that access to the site is maintained from adjacent upland forests. Provision of road crossing structures such as open – bottomed culverts with diversion fences and vegetated riparian and upland corridors will be incorporated into the mitigation measures proposed for the Phase 1 developments.

5.12 Effects and Risks to Birds

The effects and risks to birds breeding within the CRA from the proposed developments outlined in the Master Plan are expected to be low due to the small amount of habitat affected. Although no breeding bird assessments were conducted in conjunction with the proposed Master Plan, work conducted by Camfield (2008) in the alpine and sub-alpine areas of the CRA from 2003 to 2007 is sufficient to suggest that there are no bird species at risk that would be affected by the proposed development in those areas. To ensure that development activities do not affect nesting birds, Nesting Surveys (RISC standards) will be conducted prior to any activities that could damage nests or disturb ground-nesting birds between May 1st and August 15th.

In addition, where possible, construction activities would be scheduled to occur when the ground is frozen and snow covered to reduce the affects of disturbance on vegetation cover and possible ground nests.

The observations of birds in forested habitats by Camfield (2008) suggest that only one species, Olive-sided Flycatcher, is potentially breeding in the forested habitats in the CRA. The reconnaissance nature of these surveys requires that additional breeding bird surveys be conducted in the spring prior to Phase 1A development to ensure that no other bird species at risk are present that could be affected within the proposed development area. If clearing activities associated with the proposed development (runs, lifts and Base Area) occur between May 1st and August 15th, Nesting Surveys will be conducted to ensure that no nesting birds are affected by the clearing activities. All breeding bird and nesting surveys will be conducted to Resource Inventory Standards Committee (RISC) or agreed upon Canadian Wildlife Service (CWS) standards.

There is no evidence that waterfowl are breeding within the proposed development areas within the CRA, which is not unexpected due to the lack of appropriate-sized lakes and ponds. As part of the preparation of the Site Clearing Plans for the runs, lifts and Base Area, field assessments to identify wildlife trees that are used by cavity nesters and raptors would be conducted and where appropriate and safe to do so, these trees and sufficient recruitment trees would be retained.

To ensure that the proposed development does not affect the movements of migrating birds and ability of songbirds to breed effectively, a Light and Noise Pollution Plan will be developed to reduce the effects of light and noise on birds. This plan will be developed using available technology to reduce light and noise pollution through the use of directional lighting, low wattage lighting, low height lights and the use of sound and visual screens near machinery.

5.13 Effects and Risks to Mammals

5.13.1 Black and Grizzly Bear

The effects and risks to black and grizzly bear habitats due to the proposed development outlined in the Master Plan is low due to the limited amount of high value habitat that will be removed and the likely net increase of berry producing sites within the proposed runs and lifts. Based on the PEM, approximately 53 ha of rich-wet and wetland ecosystems will be affected, which are high value spring and summer foraging sites due to the extensive herbaceous growth of species such as Indian Hellebore and Sitka Valerian. The total amount of rich-wet sites that will be removed by the proposed development is less than 1% of the available area within the study area. Moderate forest types (e.g. ESSFmc FB), which can produce large amounts of berry species such as black huckleberries (*Vaccinium membranacium*) when in early seral conditions will likely increase productivity and available high value summer habitats for bear due to the clearing for lifts and runs. Approximately 74 ha of potential berry producing habitats will be affected by the proposed development of runs and lifts within all phases of the proposed Master Plan.

Effects on black and grizzly bear due to increase human use of the CRA during the spring, summer and fall is more difficult to predict as the potential increase in high value habitats in the summer may cause increased potential for bear/human interactions due to bears encountering humans more often in those habitats. As well, the increased human presence on the mountain due to residences and year-round use has the potential for increased risks to both humans and bears if adequate measures are not put into place to control access to high value habitats, control wastes that may attract wildlife and manage human and wildlife movements on

the mountain. Mitigation measures to reduce the effects of human/wildlife conflicts include the Public/Users Education Strategy and Wildlife/Human Interaction Strategy, which would include a Bear Safe/Bear Aware type plan (see Proposed Mitigation Measures section below). If the above strategies are effective, it is expected that risks to bears will be low.

5.13.2 Moose

The effects on moose habitat, especially winter habitats which are critical to moose survival are expected to be very low to low, based on the interaction of the proposed developments and mapped winter range from the Bulkley Valley SRMP. The removal of mature forest to clear for runs and lifts will affect snow interception cover important for moose in the lower elevation areas to the north of the CRA, but only 2.6 ha will be removed which is less than 1% of the available delineated moose winter range habitat in the study area. The proposed development outlined in the Master Plan is not expected to affect other seasonal high value foraging habitats, as the majority of these habitats in high elevations are extensive shrub and wetland habitats. Assessment of the PEM data indicates that approximately 14 ha of these types of habitats will be affected by the proposed development, which is approximately 12% of the total amount of these habitats identified within the study area. The overall risk to moose from these habitat losses is expected to be very low. To further reduce this risk, field assessments to support the development of the Site Clearing Plans (see Proposed Mitigation Measures section below) will identify and maintain where possible, high value foraging sites such as willow shrub areas where they are found.

Interactions with moose and humans are a potential concern, but it is expected to be limited at most times of the year. There is some potential for moose to use the Trail to Town area and that skiers will potentially come across a moose while skiing this run as it is located within the upper portions of potential identified winter range. The Public/Users Education Strategy and Wildlife/Human Interaction Strategy (see Proposed Mitigation Measures section below) will outline education options and signage that will address this concern.

5.13.3 Mountain Goat

Mountain goats are known to use the area north and east of the proposed Terrain Pod D and E during all seasons and have been found within the proposed CRA on rocky, cliff habitats north of 'Coldsmoke' (Murphy 2002). The effects of the proposed development outlined in the Master Plan on mountain goat habitat and use is likely moderate to high, at the population level, as increased use of the area outlined in Terrain Pod E and the associated avalanche control measures will alter mountain goat habitat use of the area along Simpson Creek north of Terrain Pod D and E. The extent of the risk to the mountain goat population due to the potential change in habitat use is unknown, as there is insufficient information available to determine the proportion of the population that is using that area during the winter. Although, the number of mountain goats observed using the area is limited, it is difficult to determine from these observations if the goats are the same animals at all times or if they are different animals and that a large portion or small portion of the population is using the area.

To assess the potential risks to the population from activities in this area, additional assessments are proposed that will be initiated in conjunction with Phase 1A. These assessments will be used to identify mountain goat habitats and habitat use patterns within the area occupied by the mountain goats, both adjacent and away from the proposed development. Methods to conduct these assessments will include a review of available information, air-photo interpretation, modeling and habitat mapping in conjunction with MOE biologists. Field verification through periodic ground checks using a spotting scope will be conducted

during all seasons. Additional fieldwork to quantify habitat use through ground-based sign transects will also be conducted. An assessment of the existing and potential use by recreational and out-of-bounds skiers and other seasonal users in mountain goat habitat near Terrain Pods D and E will also be initiated in conjunction with Phase 1A development. The above field assessments and any associated assessment of risk and mitigation strategies will be completed and used to evaluate if it is possible to develop Terrain Pods D and E. All assessment methods and workplans will be reviewed with MOE prior to work commencing to ensure that the proposed methods will provide sufficient data for assessment of potential effects.

5.13.4 Woodland Caribou

The effects and risks to woodland caribou due to the proposed development outlined in the Master Plan are expected to be very low due to the lack of use by caribou of this area. Although limited numbers of caribou have been observed periodically in the area and there is available foraging habitat within the CRA, it is expected that the observed caribou are wandering from the Telkwa herd and are not part of any resident population using the mountain as a continuous home range (Roberts *et al.* 2003). A Wildlife Monitoring Plan, which outlines methods for recording periodic use by Woodland Caribou, and other species, will be developed and implemented during Phase 1 of the project.

5.13.5 Mule Deer

The effects and risks to mule deer and mule deer habitat are expected to be low due to the limited amount of habitat that will be affected by the proposed development outlined in the Master Plan. Mule deer winter range delineated within the Bulkley Valley SRMP is not affected by the proposed development as it is all located at lower elevations. Use of the forested portions of the CRA by mule deer in the spring and summer has been noted by Murphy (2002) and Camfield (2008). High value foraging sites for mule deer in the spring and summer are likely the rich-wet ecosystems identified in the PEM as they contain important forage species such as Indian Hellebore and Sitka Valerian. As outlined for black and grizzly bears, the amount of rich-wet ecosystems that will be affected is less than 1% of the available sites within the study area, so the anticipated effects and risks to mule deer habitat from the proposed development is rated as very low to low.

5.13.6 Hoary Marmot

Hoary marmots are known to breed within the CRA (Camfield 2008) and may be affected by the proposed development outlined in the Master Plan within the alpine and sub-alpine habitat areas in Terrain Pods D and E. Although not a species at risk, hoary marmots are an important prey species as well as a species of interest for First Nations, and mitigation measures aimed at reducing effects of the development of lifts and runs can likely be easily accommodated. During field assessments to help develop the Site Clearing Plans (see Proposed Mitigation Measures section below), identification of hoary marmot dens and colonies can be undertaken and measures to protect those sites through avoidance and or scheduling activities when the ground is frozen and snow covered are possible. The effects and risks to hoary marmots if these mitigation measures are used is likely low due to the small area that is likely to be affected and the effectiveness of these measures is relatively high.

5.13.7 Pine Marten

Pine marten are known to den within the CRA (Murphy 2002) and have been observed in both the summer (Camfield 2008) and winter (Turney unpub. data) foraging near the existing runs and lifts. The effects on marten habitat can be approximated by assuming that all forested habitats can support marten use. Using this assumption, approximately 227 ha of forested habitat will be affected by the proposed development outlined in the Master Plan, with approximately 117 ha being affected by the Base Area. This is

approximately 5% and 2% respectively of the available forested habitat within the study area. To mitigate potential effects on marten habitat, during the development of the Site Clearing Plans (see Proposed Mitigation Measures section below), field assessments will be conducted to identify wildlife trees that are used by marten for denning, and where safe to do so, these trees and sufficient recruitment trees would be retained. Other mitigation measures that could be implemented include the retention and creation of brush and stump piles during site clearing to provide small mammal and marten foraging sites, and the retention of vegetated corridors within the Base Area to facilitate movements of marten. Based on the small amount of potential habitat affected and the proposed mitigation measures outlined, the risk to marten from the development outlined in the Master Plan is assessed to be low.

5.14 Summary of Proposed Mitigation Measures to Reduce Risks

A number of mitigation measures are proposed to reduce risks to habitats and risks during the construction and operation of the proposed ski runs and lifts. Table 5 – 7 outlines the proposed mitigation plans and procedures that would be put into place to reduce risks to the environment, fish and wildlife. Each of the Plans and Strategies outlined below to detail the mitigation measures would be prepared prior to the development and construction activities proposed for Phase 1A and updated as required for the subsequent Phases as outlined in Section 7.

Table 5 –7: Summary of mitigation measures to reduce environmental effects.

Type	Description
Sediment/ Erosion Control Plans	Procedures document for on-ground contractors and environmental monitors outlining methods to control sediment during construction activities. No road upgrading will be attempted during the winter season, but when these activities occur the following measures will apply: <ul style="list-style-type: none"> • erecting silt fencing, managing water during rain events; • maintaining a 20 m riparian reserve adjacent to streams and wetlands where standing timber and riparian vegetation are retained, and the area is maintained as a machine-free zone; • where roads and trails must cross creeks, retaining riparian brush alongside creeks; • utilize accepted native plant seed mixes for reduce soil erosion; and, • constructing road crossings as per the Land Development Guidelines and Stream Crossing Guidelines.
Stormwater Management Plan	Plan outlining how rainwater and snow-meltwater will be managed within the development area. Outlines general ditchline construction and maintenance as well as catchment area and potential receiving environments near the parking area.
Site-clearing Plans	A plan that outlines the amount of clearing, the location and methods of disposing of cleared timber, stumps, slash etc. Clearing will be conducted to retain shrubs and herbaceous materials less than 1 m tall in forested areas and 1.5 m in alpine and parkland areas. Wildlife trees and snags will be retained where it is safe to do so. Slash and timber will be piled away from riparian areas and burned under appropriate conditions. Local site conditions will be evaluated in the field prior to development of the Plans.
Public/Users Education Strategy	A strategy that would outline the methods and implementation plan used to educate the public and land-owners to ensure environmental damage does not occur. This would include developing signage and interpretive materials to ensure trails are used, avoiding removal of plants and animals, and avoidance of known habitat features. It would also include specific measures to provide information to users regarding the potential effects of out-of-bounds use on wildlife and their habitat.
Wildlife/Human Interaction Strategy	A set of procedures and mitigation measures aimed at reducing conflicts between wildlife and humans through education, ensuring adequate waste management to avoid attracting wildlife and bear aware training. Will integrate with the Public/Users Education Strategy to ensure all residents and users avoid situations where conflicts with wildlife will cause harm to humans or wildlife. Will include a Bear Safe/Bear Aware type plan.
Invasive Weed Management Plan	A plan that outlines how invasive weed species will be managed within the development area. This may include educational information for land-owners, requirements for monitoring and detecting invasive species and the methods that would be used to control those species.
Light and Noise Pollution Plan	Plan that provides direction on methods of lighting and noise abatement that would be used during the development to ensure that lighting and noise do not affect the surroundings (e.g. other users, wildlife, viewsapes).

Type	Description
Species Specific Mitigation Measures	Species specific mitigation measures will be developed and implemented within various Plans and Strategies (e.g. Site-clearing plans, Wildlife/Human Interaction Strategy, etc.) based on the results of the field assessments. An example of a species specific mitigation measure would be the requirement in a Site-clearing Plan to retain brush and stump piles from clearing activities to provide for small mammal and marten foraging habitats.
Wildlife Monitoring Plan	A Wildlife Monitoring Plan will be developed to allow ongoing monitoring of Wildlife Use through both incidental and periodic formal assessments. The Monitoring Plan will incorporate measurable objectives and methods to allow periodic review of the effects of the Master Plan developments and allow the implementation of adaptive management strategies/measures when required.

5.15 Summary of Assessment Commitments

A number of assessments have been identified to be completed prior to the Phase 1A development and construction activities to provide additional information and allow a more accurate assessment of the effects and risks to the resources and ensure development of appropriate mitigation measures to protect those resources. A summary of assessments and the appropriate assessment season is provided in Table 5 – 8.

Table 5 – 8: Summary assessments to be conducted prior to Phase 1A development and construction activities

Assessment	Description	Work Conducted
Hydrology Study	A reconnaissance-level assessment of the potential effects of the proposed development on hydrological values. Will include an description of the existing streams, assessment of stream flows from clearing of lifts, runs and Base Area	Spring and Summer
Downstream Fish Habitat	Fish presence and habitat surveys using accepted methods will be conducted during the summer to confirm the upstream limit of fish near the proposed CRA boundary. Surveys will focus on Simpson, Chicken Lake and tributaries to Pine Creeks.	Summer
Rare Plants and Ecosystems	A field assessment for rare plants and rare ecosystems will be conducted within the areas that will be affected by development of the runs, lifts and Base Area during the summer.	Summer
Amphibians	An assessment for amphibian breeding sites will be conducted within the areas that will be affected by development of the runs, lifts and Base Area during the late spring and summer. Additional assessments for up to five years will be conducted to determine Western Toad use of the area and to develop and monitor the effectiveness of mitigation strategies.	Spring and Summer
Breeding and Nesting Birds	An assessment for breeding birds will be conducted within the areas that will be affected by development of the Base Area during the late spring. If clearing activities are to take place between May 1 st and August 15 th , in any year, nesting bird surveys as per guidelines developed by the Canadian Wildlife Service will be conducted.	Spring and Summer
Mountain Goat Habitat Use	A review of available information on mountain goat use will be conducted using ground based sampling methods both at a distance and possibly within known and suspected habitat use areas to determine the extent and seasons of use by mountain goats. These assessments will be conducted in all seasons and over several years. Ministry of Environment will be consulted and help develop and review the assessments.	Year round
Field Reviews for Site Clearing Plans	To help in the development of the Site Clearing Plans, field assessments will be conducted within the proposed clearing areas to identify potential mitigation and retention options for high value foraging sites, wildlife trees and other habitat features.	Summer

All assessments will follow the appropriate RISC standard, or a methodology approved by the Ministry of Environment, where a RISC standard is not available.

5.16 Commitment to Field Assessments and Mitigation Planning

The proponent is committed to ensuring that the field assessments and mitigation plans and strategies are completed prior to any development and construction activities are initiated that could affect the values that the field assessments or mitigation plans/strategies are conducted for. Upon approval of the Master Plan, the specific field assessment procedures, as well as mitigation plans and strategies, will be developed in further details, including discussions and consultation with the MOE on the form and type of assessments and proposed mitigation plans. Prior to any development or construction activities for Phase 1A, the field assessments outlined in Table 5 – 8 will be initiated and in most cases completed so that the information obtained can be used to complete the mitigation plans and strategies outlined in Table 5 – 7. Some field assessments such as the mountain goat and amphibian assessments will be multi-year assessments and would not be completed prior to initiation of Phase 1A, but would continue into subsequent components of Phase 1.

The proponent is also committed to ensuring that the development of Terrain Pods D and E would not be initiated until the results of the mountain goat assessments have been evaluated and reviewed by Ministry of Environment and that a review of required changes to LRMP designations in those Terrain Pods has been completed and approved.

5.17 Commitment to Environmental and Construction Monitoring

The proponent is committed to ensuring that the proposed mitigation measures and assessments are conducted effectively and will use third-party environmental and construction monitors during the construction phases of this development. The third-party monitors will be appropriately trained and have the authority to stop work when required if environmental values are at risk due to weather conditions or activities do not meet the required mitigation measures or plans. The proponent will submit the credentials of the monitors to the appropriate resource agencies or obtain a short-list of qualified monitors from resource agencies to ensure that the monitors meet the requirements of those agencies.

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Appendix A

Summary of Ecosystems within the Hudson Bay Mountain Study Area.

Biogeoclimatic Subzone	Site Series	Site Series Code	Description	Area (ha)
AT	GL	GL	Glacier	5.1
AT	HG	HG	Heath/Grassland	394.8
AT	HM	HM	Herbaceous Meadows	131.8
AT	LA	LA	Lake	4.1
AT	RO	RO	Rock	340.7
AT	WM	WM	Wet Meadow	54.5
ESSFmc	01	FB	Bl - Huckleberry - Leafy liverwort	291.3
ESSFmc	02 03	LC FC	BlPl - Juniper - Cladonia Bl - Huckleberry - Crowberry	115.9
ESSFmc	04	HH	Bl - Huckleberry - Heron's-bill	312.3
ESSFmc	05 06	FT FO	Bl - Huckleberry - Thimbleberry Bl - Oak fern - Heron's Bill	94.8
ESSFmc	07	FD	Bl - Devil's club - Lady fern	38.9
ESSFmc	08	FV	Bl - Valerian - Sickie moss	124.6
ESSFmc	09 10	HG FH	Bl - Horsetail - Leafy moss Bl - Horsetail - Glow	9.6
ESSFmc	AW	AW	Alder willow	25.6
ESSFmc	DEV	DEV	Developed	80.6
ESSFmc	RO	RO	Rock	3.1
ESSFmc	SA	SA	Slide/Avalanche	25.7
ESSFmc	WE	WE	Wetland	1.0
ESSFmcp	HG	HG	Heath/Grassland	127.3
ESSFmcp	HM	HM	Herbaceous Meadows	88.6
ESSFmcp	PF KR	PF KR	Parkland Forest Krummholz	20.3
ESSFmcp	RO	RO	Rock	13.2
ESSFmcp	WM	WM	Wet Meadow	0.7
ESSFwv	01	FA	BlHm - Azalea	270.0
ESSFwv	02 03	LC FF	Bl - Huckleberry - Crowberry BlHm - Feathermoss	79.2
ESSFwv	04	MH	BlHm - Heron's bill	117.7
ESSFwv	05	FO	Bl - Oak fern - Heron's bill	81.7
ESSFwv	06	FD	Bl - Devil's club - Lady fern	52.3
ESSFwv	07	FV	Bl - Valerian - Sickie moss	7.4
ESSFwv	08 09	FH FL	Bl - Horsetail - Glow moss Bl - Lady fern - Horsetail	0.3
ESSFwv	AW	AW	Alder willow	21.0
ESSFwv	DEV	DEV	Developed	21.3
ESSFwv	RO	RO	Rock	3.9
ESSFwv	SA	SA	Slide/Avalanche	74.9
ESSFwv	WE	WE	Wetland	0.2
ESSFwvp	HG	HG	Heath/Grassland	108.5
ESSFwvp	HM	HM	Herbaceous Meadows	2.9
ESSFwvp	PF KR	PF KR	Parkland Forest/Krummholz	30.5

Biogeoclimatic Subzone	Site Series	Site Series Code	Description	Area (ha)
ESSFwvp	RO	RO	Rock	82.8
ESSFwvp	WM	WM	Wet Meadow	0.1
ICH mc 1	01	HM	Hw - Step moss	852.8
ICH mc 1	01b	HMb	Hw - Step moss - submesic	109.1
ICH mc 1	02	LK	HwPl - Kinnikinnick - Cladonia	33.2
ICH mc 1	03 04	HO HD	HwBl - Oak fern HwBl - Devil's club	656.9
ICH mc 1	05	CD	Act - Dogwood - Prickly rose	24.6
ICH mc 1	06	HC	Hw - Azalea - Skunk cabbage	2.9
ICH mc 1	AW	AW	Alder willow	23.6
ICH mc 1	DEV	DEV	Developed	21.2
ICH mc 1	RO	RO	Rock	3.4
ICH mc 1	RS	RS	Riparian Shrub	10.7
ICH mc 1	SA	SA	Slide/Avalanche	9.9
ICH mc 1	WE	WE	Wetland	2.1
SBS dk	01	SP	Sxw - Spirea - Purple peavine	39.8
SBS dk	02	LJ	Pl - Juniper - Ricegrass	4.4
SBS dk	03	LC	Pl - Feathermoss - Cladina	0.9
SBS dk	04	DS	Fd - Feathermoss - Step moss	9.5
SBS dk	05	SF	Sxw - Spirea - Feathermoss	2.1
SBS dk	06	ST	Sxw - Twinberry - Coltsfoot	123.0
SBS dk	07	SH	Sxw - Horsetail	11.9
SBS dk	08	CD	Act - Dogwood - Prickly rose	0.7
SBS dk	DEV	DEV	Developed	43.3
SBS dk	RO	RO	Rock	4.0
SBS dk	RS	RS	Riparian Shrub	12.5
SBS mc 2	01	SB	Sxw - Huckleberry	514.0
SBS mc 2	01c	SBc	Sxw - Huckleberry - coarse soils	94.9
SBS mc 2	02	PH	Pl - Huckleberry - Cladonia	15.5
SBS mc 2	03	BM	SbPl - Feathermoss	0.1
SBS mc 2	05 06	TC SO	Sxw - Twinberry - Coltsfoot Sxw - Oak fern	368.6
SBS mc 2	09	SD	Sxw - Devil's club	140.4
SBS mc 2	10	SH	Sxw - Horsetail	68.5
SBS mc 2	12 07	SS BF	SbSxw - Scrub birch - Sedge Sxw - Scrub birch - Feathermoss	6.2
SBS mc 2	DEV	DEV	Developed	41.1
SBS mc 2	LA	LA	Lake	0.1
SBS mc 2	RS	RS	Riparian Shrub	19.7
SBS mc 2	WE	WE	Wetland	10.1

6.0 Infrastructure, Utilities and Servicing

Existing utilities and services at the resort are of a limited nature, but are sufficient for the current level of development. The existing access road, from the Town to the resort, is maintained by the Ministry of Transportation. The Panorama Day Lodge is currently serviced, for potable water, with a system of drilled wells and a cistern, with the lower lodge serviced through two drilled wells. Sanitary sewer service for the lodges is based on an existing lagoon system. Electrical power is provided from an existing hydro electrical line maintained by BC Hydro.

6.1 Introduction

HBMA retained the services of Kevin Clark, P. Eng. of Ancam Management and Engineering Consulting Ltd. to develop a communal system approach for the new development as described in the master plan. The following section outlines, in conceptual form, a description of the infrastructure and servicing requirements to support the proposed development within the base area of the resort.

The following is an outline of the individual system for proposed infrastructure systems that will allow a phased approach to development of the residential communities within the proposed Base Area Lands. It is assumed that the existing day skier facilities, adjacent to the Skyline Chair, will be tied into new services as the development commences during the construction of the Base Area Lands. Detailed designs will provide for allowances on the supply of potable water, the removal of washroom and kitchen effluent and enhancements to other existing services. Specifically, the new infrastructure systems will include the following sub-systems:

- Communal Potable Water Systems
- Communal Sewer and Waste-Water Systems
- Electrical Servicing
- Roads and Surface Drainage Systems – Storm water management plans (tied into snowmaking & fire suppression)
- Fire Suppression Systems
- Other Community Servicing
- Solid Waste Systems

The initial phase of base area lands is assumed to consist of approximately 100 + individual building lots. This development will require the following services, as a minimum:

- Potable Water Systems capable of delivering approximately 150,000 litres of water per day for residential community use and 35,000 litres of water per day for walk-in area traffic
- Sewer and Waste-Water Systems capable of handling effluent flows of the same
- Electrical Servicing as required from a dedicated, centrally located transformer
- Natural Gas, Cable and other Community Servicing as required by third party providers
- Fire Suppression storage facilities to comply with the BC Building Code and to the satisfaction of the Regional District of Bulkley Nechako

- Solid Waste Systems to comply with the BC Building Code and to the satisfaction of the Regional District of Bulkley Nechako

As additional lands in the base area are developed, infrastructure needs will be addressed by adding modular treatment systems to accommodate the additional residential units or separate stand-alone physical plants similar to what is described below.

6.2 Communal Potable Water Systems

The potable water systems planned for the Phase 1 development will operate in the following manner. Extraction of potable water would be by gravity or pump system from a series of capped wells which would direct raw water through a treatment system to a storage tank(s) through a distribution system to individual user appliances and fixtures. A physical plant will be located within the residential community to house the pumping, metering and treatment systems required for this development. The entire system will consist of the following major components:

- **Extraction and treatment systems**
- **Storage and pumping systems**
- **Piping Distribution systems**

a) Extraction and treatment systems:

At present, the raw water source is provided through drilled wells below the development area. Extraction of potable water would be by gravity or duplex pump system from a series of capped wells. Specific, suitable well locations are being determined by test wells that will be quantified and capped until development is undertaken. This work will be completed in 2008.

Water treatment planned for the Phase 1 development consists of an NSF¹ approved treatment system supplied by Karcher or equivalent. This is a modular system that allows for pre-treatment and post treatment of potable water prior to the application of residual chlorination and distribution. The physical plant will consist of a utility building approximately 40m² in area with piping systems designed for expansion of the existing systems.

Treatment applications are dependent upon raw water quality. Current options available include an activated carbon filter to eliminate hydrocarbons, pesticides or herbicides or a media filter to remove turbidity, iron, manganese or other minerals. A Reverse Osmosis membrane filter will be used to eliminate physical material larger than 0.0001 micro-meter prior to the application of residual chlorination as prescribed by the health authority. Post treatment chlorination will ensure adequate water quality into the storage and distribution process for potable water users. It is expected that a low-pressure pump will serve to lift treated water to the storage water reservoir.

The water treatment process will be an automated un-manned process. Testing ports and data logging capability will allow monitoring through remote sensing and local health authority testing programs. Water meters will ensure that accurate results are available for used quantities.

b) Storage and Pumping Systems:

¹ NSF – National Sanitation Foundation – approver of food service equipment and technologies

Potable water storage planned for the Phase 1 development will consist of a concrete tank(s) to hold approximately 0.5 day use of water for the built – out community – approximately 75,000 – 100,000 litres.

Distribution of this water will be via water mains in street corridors to individual residential branches into dwellings and resort buildings. Each main and branch connection would be sized for proper water deliver in accordance with the BC Building Code and to the satisfaction of the Regional District of Bulkley Nechako. Additional water metering will be take place at each user location.

The pumping system will deliver a set pressure of water to all users when demand is called for. A duplex pump arrangement will be packaged within the area of the physical plant to ensure that all infrastructure items are conveniently located in one area for this community.

c) Piping Distribution Systems:

Water piping systems will be in accordance with ANSI² / ASME³ and CAN/CSA⁴ standards for water distribution piping systems. Systems will be aligned within road allowances in accordance with design details such that other infrastructure crossings are minimized and expansion/contraction and expected geological affects are accounted for.

6.3 Communal Sewer and Waste Water Systems

The sewer and waste water systems planned for the Phase 1 development will operate in the following manner. Each residential lot and day lodge facility will have an individual septic tank where solid waste will be removed from the effluent stream. The waste water from each residence and day lodge facility will travel in branch lines to sewer mains buried within a service corridor in the road allowances to a centrally located holding tank sized appropriately for the built-out development. Effluent waste from the day-lodge kitchen facility will be diverted to a suitably sized grease interceptor prior to meeting the other day-lodge streams. The waste-water stream will be directed through an inline treatment system and then to a sub-surface dispersion system in a suitable location nearby. The treatment unit will be sized such that a continuous waste stream can be processed by the system; additional modules may be added within the physical plant as the residential development is built out to improve the effluent throughput, but the individual rate of treatment will be per the manufacturer specification to ensure a high effluent quality through the treatment process.

A physical plant for waste water treatment will be located within a defined services area adjacent to the residential community as provided by the HBMA development group (see Figure 6 – 1). The effluent stream will produce a treated output with characteristics not worse than the requirements for a type 3 system, namely <10 mg/L TSS, 5 day BOD <10 mg/L and <400 CFU per 100 ml for coliform density. The entire system will consist of the following major components:

- **Piping Collection Systems**
- **Storage and Treatment Systems**

a) Piping Collection Systems:

² ANSI – American National Standards Institute – standards developer for technical information

³ ASME – American Society of Mechanical Engineers – standards developer for mechanical devices

⁴ CSA – Canadian Standards Association – Canadian standards developer for equipment and technologies

Sewer piping systems will be in accordance with ANSI⁵ / ASME⁶ and CAN/CSA⁷ standards for effluent collection piping systems. Systems will be aligned within road allowances in accordance with design details such that other infrastructure crossings are minimized and expansion/contraction and expected geological affects are accounted for. Service access points will be provided in the detailed design in accordance with local and provincial regulations, including the BC Building Code and to the satisfaction of the Regional District of Bulkley Nechako.

b) Storage and Pumping Systems:

Effluent storage will be within concrete tanks. It is proposed that effluent storage facilities will house 1 – 2 days of peak flow for the built – out Phase 1 development. The location of the tanks will allow for gravity feed of the effluent streams into the treatment system from the collection system. Sewage pumps, if required, will be centrally located in the physical plant and will comprise a minimum 2 pump system to ensure that a level of redundancy exists for this critical system.

The Effluent treatment system will be a Waterloo Biofilter© or equivalent stand-alone type system suited for sub-surface disposal of treated effluent. Treatment will consist of a treatment pump chamber which will direct waste water into the treatment media (in the case of Waterloo Biofilter it is foam which enhances bacteria microbial growth within the pore space of the foam). The manufactured media allows for enhanced aerobic action within the treatment and capillary retention of wastewater compared to alternative treatment units. Additionally, it is proven technology in colder climates with operating installations in the Canadian arctic. The effluent stream is processed within the treatment unit and an additional ultraviolet disinfection treatment may be required to remove the coliform matter suitable for sub-surface discharge requirements established by the BC Health Act and the Ministry of Environment. On discharge from the treatment unit the waste stream will be diverted to a suitable area of the property for sub-surface discharge to the watershed.

Additional treatment may be added to the effluent stream on exit of the filter media as required to remove pathogens, nitrogen or phosphates. These modules can be added in-line to the treatment system.

The operations of the system will be automatic and monitors will establish and record the effluent quantity / quality to ensure system performance and to activate alarms in the event of a system malfunction.

Prior to detailed design of the system, proposed subsurface discharge locations will be evaluated for soils suitability and other key criteria to ensure that the area is suited to accommodate the re-introduction of the treated effluent stream of the built – out Phase 1 development.

Pumping systems part of the treatment will be utilized only to re-circulate the effluent as the treatment process requires. Existing facilities may require pumps to lift the 3rd stage lagoon effluent into final treatment and discharge through the Phase 1 treatment system; the details of these systems will be determined on investigation prior to detailed design of the Sewer and Waste Water Systems.

⁵ ANSI – American National Standards Institute – standards developer for technical information

⁶ ASME – American Society of Mechanical Engineers – standards developer for mechanical devices

⁷ CSA – Canadian Standards Association – Canadian standards developer for equipment and technologies

6.4 Electrical Systems

An existing overhead power line provides 250 KV from the Town of Smithers to the general vicinity of the base area development. Modifications to the existing overhead power pole locations may be required to accommodate the proposed residential development.

A new dedicated transformer is proposed to feed the new residential community. The location of the transformer will be adjacent to the physical plant for the water treatment and waste water treatment facilities. The distribution of power from this transformer is proposed within a service corridor under road allowance areas with sewer and potable water lines. The installation of all electrical servicing will be in accordance with local and provincial codes and regulations, including the BC Building Code and to the satisfaction of the Regional District of Bulkley Nechako.

6.5 Roads and Surface Drainage Systems

The roads within the resort area are expected to be planned and developed pursuant to the provincial requirements for Mountain Resort Road specifications. The roads are planned to be all-weather gravel surface roadways with right of ways prescribed to allow for emergency vehicle access. Adequate snow dump zones will be provided within the road allowance / rights of way for new road areas. Roads are to be built in accordance with the Phase 1 build out on commencement to avoid rework as the development matures. The current expectation is that residential developments will be based on bare land strata, and accordingly, all roads within the subdivision will be constructed to those standards.

The proposed development will alter existing run-off paths and require surface drainage to prevent property damage to residential properties. The proposed drainage system would consist of grit separation units and a collection area that could be utilized in snow making operations or as part of the fire suppression water storage system. Depending on the ultimate location of this system, a pump chamber may be required to lift collected water into adjacent system reservoirs.

A storm water management plan will be developed as part of the detailed design of the Phase 1 community to address all related issues.

6.6 Fire Suppression Systems

A fire suppression system will be integrated into the Phase 1 development as required by local codes and regulations. The reservoir utilized for water storage will draw on surface water sources and area drainage sources or such alternate design as maybe acceptable to the BNRD at that time. Future snow making operations, if required by HBMA, may draw upon this water source for operations, however snow making is not part of the current HBMA operating strategy at the present time.

Operating plans for the staffing of the community fire department will draw on ski area operations expertise and equipment to direct water from the storage reservoir to fire hydrants in the residential community as required in the event of a fire emergency. A portable fire water pumping system will serve as the interim means of pressurizing the system until the Phase 1 development is complete.

It is the intent of HBMA to develop a Fire Protection Plan that includes the establishment of a strategy and timetable for the creation and funding of a fire department, provides information on the interface fire hazard reduction measures and ensures access to residential areas is suitable to emergency vehicles (e.g. adequate road width, room to turn around, secondary access routes and fire breaks, etc). This plan will be developed and completed prior to approval of Phase 2.

6.7 Other Community Servicing

Other required community services will be contracted by competent third party providers. Services are to be provided underground to all residences and day-use facilities proposed in this development plan.

6.8 Solid Waste Systems

The regional district has stated that all septic system solid waste arising from the development at the resort must be dealt with on-site as existing regional district facilities have limited capacities to receive and process waste from the resort. Accordingly, an area adjacent to the Base Area development will be dedicated as the community solid waste facility. This area will house trash bins required by the community as well as centrally located recycling facilities whereby residents will be able to discharge used items responsibly. The system concept is that only materials that can be reused by means of recycling will be transported from the resort lands (on the understanding that the regional district has a facility to receive such recycling materials).

Solid waste from the resort lands will be utilized in the generation of steam heat and electricity for service area uses. Within a centrally located services area, potable water treatment, sanitary sewer effluent treatment and solid waste co-generation facility (consistent with MOE regulations) will be provided for the development lands. Additional recycling facilities will be provided to separate and consolidate recyclables from the area prior to transport to the regional transfer station (Bulkley Nechako Regional District). The solid waste co-generation will be a dual fueled system with primary combustion heat exchange capability and an option for a steam driven electricity generator. The initial capacity of this system will be approximately 20 kg/hr, serviced by a gravity based feeder system. This will incinerate resort waste, private residence waste and septic tank solid waste, with required periodic clean – out. The regional district has stated that one of their key concerns for solid waste disposal was to ensure that the public have an opportunity to provide input on the concept of co-generation by incinerating solid waste at the resort. Accordingly, as part of the rezoning application for the base lands, to be prepared and submitted in 2008 by HBMA, a public review process of the proposed solid waste co-generation facility will be undertaken.

The service area is planned to be adjacent to the physical plant and will be contained within appropriate barrier to prevent wildlife interaction and constructed in a manner which meets the intent of the balance of the residential community within the defined services area of the development lands.

6.9 Ownership and Maintenance of Services and Utilities

HBMA is proposing to establish separate utility companies that will be owned and operated by a mountain resort association, incorporated pursuant to the *Mountain Resorts Association Act, R.S.B.C., Ch. 320, and amendments thereto* (“MRA”), which will be responsible for the construction and maintenance of individual utilities to service the resort lands. The mountain resort association will assess its’ members levies to cover the cost of the utilities, so provided pursuant to the powers granted to it under the MRA. Members of the mountain resort association will be owners and occupiers of the resort lands, including the ski resort operator, business owners, tenants and other occupiers of the mountain resort area. Title to lands in the mountain resort area will carry a notation that they are subject to the mountain resort association bylaws. Unpaid assessments levied by the mountain resort association will be registered against title to the lands, owned or occupied by the delinquent member.

6.10 Future Phases

Further expansion of development beyond Phase 1 will require submission of additional detailed information to MTSA and other relevant agencies for review prior to development approvals being provided.

Figure 6 - 1: Service Plan

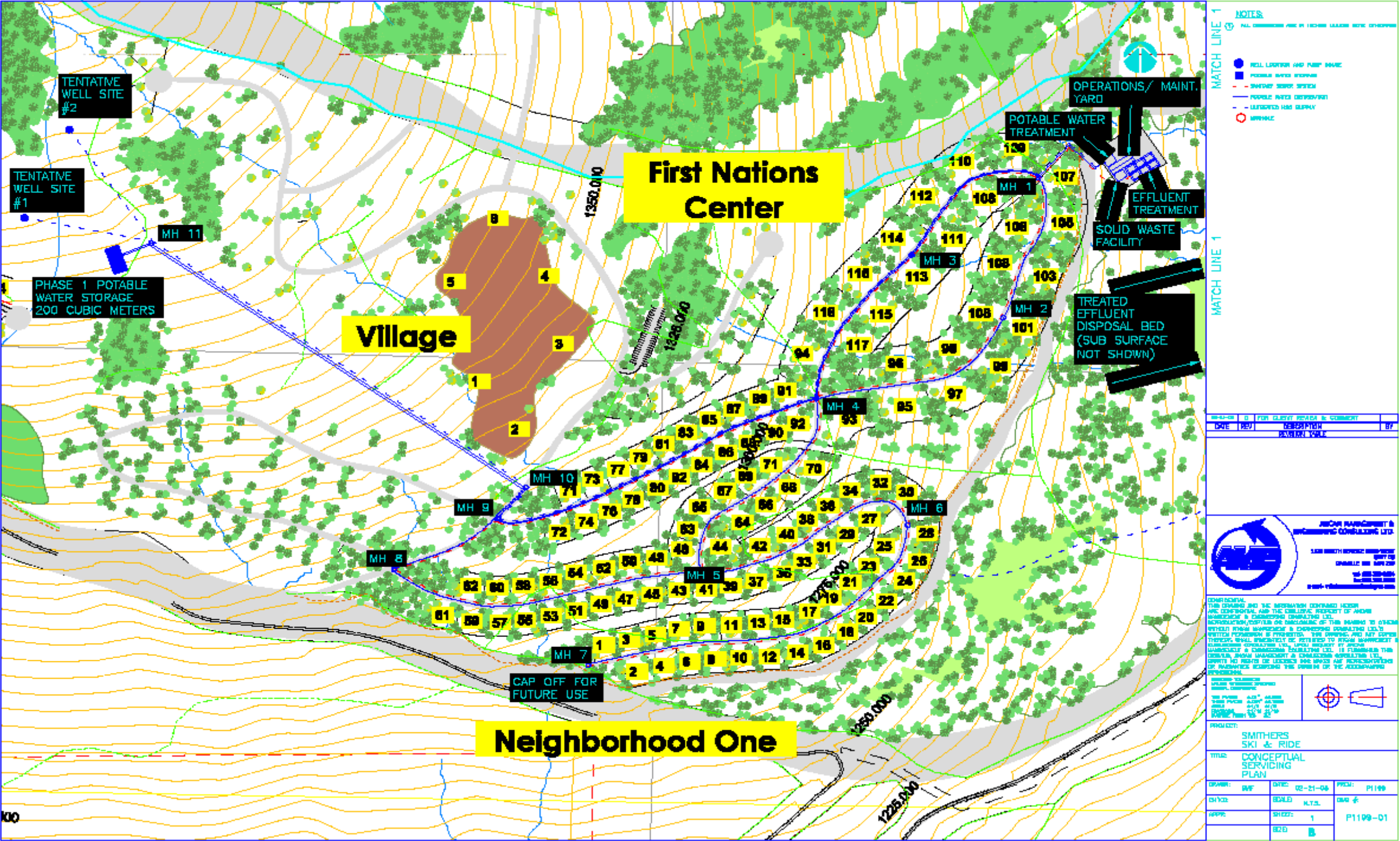
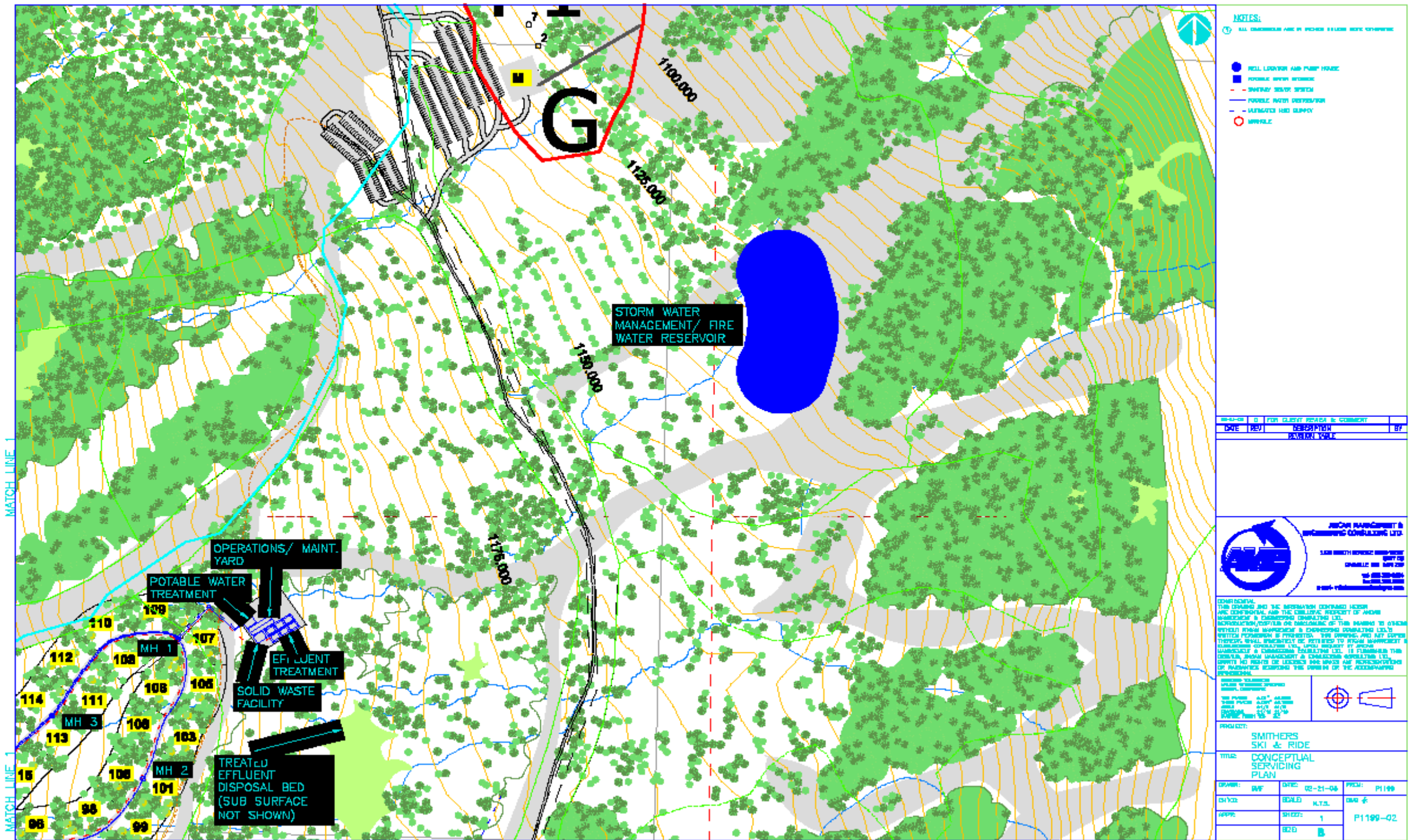


Figure 6 – 2: Service Plan



7.0 Implementation Strategy and Phasing Schedule

7.1 Implementation Strategy

The proposed expansion of Ski & Ride Smithers, for both the mountain and base area, as described in the preceding sections, is outlined in a phase by phase basis. Each phase takes into account all aspects of resort development and ensures that the facilities on the mountain are fully integrated and balanced with the level of development and services to be provided in the base area. One of the overriding objectives of HBMA is to ensure that as each phase of development is implemented, the goal of providing a memorable and sustainable resort experience is achieved.

The Master Plan contemplates three phases of development, however for purposes of the Implementation Strategy, only Phase 1 is outlined in detail at this stage. Implementation of the phases of a ski area master plan is ultimately market driven, and can occur within a couple of years or extended out for as long as is necessary in order for the market to create sufficient demand to justify further expansion in subsequent phases. It is the expectation of HBMA that the pace of development will be dictated by many factors, including, but not limited to financial costs, economic conditions and the level of utilization of the existing infrastructure and facilities.

The previous sections in the Master Plan have outlined the proposed form and location of development, both for the mountain and base area. Although the Master Plan has addressed all of the substantive issues necessary to make a determination on the potential effects of the proposed development, it is clear that additional assessments and more detailed site planning is required before development can proceed. HBMA has outlined in the master plan what assessments and plans will be completed prior to development and that sufficient mitigation measures will be in place to reduce effects on the environment. While there are some uncertainties in the location and extent of some of the environmental values, there is a clear commitment to assess and modify the plan, as needed, to mitigate any values or potential effects on those values. It is the position of HBMA that the development, as outlined for Phase 1, will not significantly affect environmental values, especially since certain components of Phase 1 (e.g. Terrain Pod D) are being postponed until the results of certain assessments (e.g. mountain goat) have been completed.

The Environmental Overview (Section 5) outlines the various mitigation measures and environmental assessments that will be required as development proceeds within the resort area. A summary of the mitigation measures to reduce environmental effects, along with the assessments to be conducted prior to development, on a phase by phase basis, are outlined on the following tables. With respect to the mitigation measures and proposed assessments, the Ministry of Environment will be consulted during the development of the Plans and provided with an opportunity to review and comment on the objectives, methods and assessment criteria developed in the plan, prior to implementation.

In addition to the aforementioned assessments, the implementation strategy for Phase 1 will also include a comprehensive rezoning application for the base lands (including rezoning of lands near the bottom of the Trail to Town for a suitable parking area) and a detailed plan of subdivision for the first phase of lots to be developed and marketed in the base area.

Table 7 – 1: Summary of mitigation measures to reduce environmental effects.

Type	Description	Timing
Sediment/ Erosion Control Plans	<p>Procedures document for on-ground contractors and environmental monitors outlining methods to control sediment during construction activities. No road upgrading will be attempted during the winter season, but when these activities occur the following measures will apply:</p> <ul style="list-style-type: none"> • erecting silt fencing, managing water during rain events; • maintaining a 20 m riparian reserve adjacent to streams and wetlands where standing timber and riparian vegetation are retained, and the area is maintained as a machine-free zone; • where roads and trails must cross creeks, retaining riparian brush alongside creeks; • utilize accepted native plant seed mixes for reduce soil erosion; and, • constructing road crossings as per the Land Development Guidelines and Stream Crossing Guidebook. 	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Stormwater Management Plan	Plan outlining how rainwater and snow-meltwater will be managed within the development area. Outlines general ditchline construction and maintenance as well as catchment area and potential receiving environments near the parking area.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Site Clearing Plans	A plan that outlines the amount of clearing, the location and methods of disposing of cleared timber, stumps, slash etc. Clearing will be conducted to retain shrubs and herbaceous materials under 1 m tall in forested areas and 1.5 m in alpine and parkland areas. Wildlife trees and snags will be retained where it is safe to do so. Slash and timber will be piled away from riparian areas and burned under appropriate conditions. Local site conditions will be evaluated in the field prior to development of the Plans.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Public/Users Education Strategy	A strategy that would outline the methods and implementation plan used to educate the public and land-owners to ensure environmental damage does not occur. This would include developing signage and interpretive materials to ensure trails are used, avoiding removal of plants and animals, and avoidance of known habitat features. It would also include specific measures to provide information to users regarding the potential effects of out-of-bounds use on wildlife and their habitat.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Wildlife/Human Interaction Strategy	A set of procedures and mitigation measures aimed at reducing conflicts between wildlife and humans through education, ensuring adequate waste management to avoid attracting wildlife and bear aware training. Will integrate with the Public/Users Education Strategy to ensure all residents and users avoid situations where conflicts with wildlife will cause harm to humans or wildlife. Will include a Bear Safe/Bear Aware type plan.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Invasive Weed Management Plan	A plan that outlines how invasive weed species will managed within the development area. This may include educational information for land-owners, requirements for monitoring and detecting invasive species and the methods that would be used to control those species.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Light and Noise Pollution Plan	Plan that provides direction on methods of lighting and noise abatement that would be used during the development to ensure that lighting and noise do not affect the surroundings (e.g. other users, wildlife, viewscapes).	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2

Type	Description	Timing
Species Specific Mitigation Measures	Species specific mitigation measures will be developed and implemented within various Plans and Strategies (e.g. Site-clearing plans, Wildlife/Human Interaction Strategy, etc.) based on the results of the field assessments. An example of a species specific mitigation measure would be the requirement in a Site-clearing Plan to retain brush and stump piles from clearing activities to provide for small mammal and marten foraging habitats.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2
Wildlife Monitoring Plan	A Wildlife Monitoring Plan will be developed to allow ongoing monitoring of Wildlife Use through both incidental and periodic formal assessments. The Monitoring Plan will incorporate measurable objectives and methods to allow periodic review of the effects of the Master Plan developments and allow the implementation of adaptive management strategies/measures when required. Ministry of Environment will be consulted in the development of the plan and will review and comment on the objectives, methods and assessment criteria developed in the Plan.	Prepared prior to Phase 1A construction, updated as required for Phase 1B, 1C and 2

Table 7 – 2: Summary assessments to be conducted prior to Phase 1A development and construction activities.

Assessment	Description	Work Conducted	Timing and Area Covered
Hydrology Study	A reconnaissance-level assessment of the potential effects of the proposed development on hydrological values. Will include a description of the existing streams, assessment of stream flows from clearing of lifts, runs and Base Area	Spring and Summer	Conducted prior to Phase 1A for watersheds affected by Phase 1, 2 and 3 developments.
Downstream Fish Habitat	Fish presence and habitat surveys using accepted methods will be conducted during the summer to confirm the upstream limit of fish near the proposed CRA boundary. Surveys will focus on Simpson, Chicken Lake and tributaries to Pine Creeks.	Summer	Conducted prior to Phase 1A for watersheds affected by Phase 1 development. Conducted prior to Phase 2 and 3 construction for areas affected by Phase 2 and 3 development.
Rare Plants and Ecosystems	A field assessment for rare plants and rare ecosystems will be conducted within the areas that will be affected by development of the runs, lifts and Base Area during the summer.	Summer	Conducted prior to Phase 1A for areas affected by Phase 1 development. Conducted prior to Phase 2 and 3 construction for areas affected by Phase 2 and 3 development.
Amphibians	An assessment for amphibian breeding sites will be conducted within the areas that will be affected by development of the runs, lifts and Base Area during the late spring and summer. Additional assessments for up to five years will be conducted to determine Western Toad use of the area and to develop and monitor the effectiveness of mitigation strategies.	Spring and Summer	Conducted prior to Phase 1A for areas affected by Phase 1 development. Continued during Phase 1B and 1C. Conducted prior to Phase 2 and 3 construction for areas affected by Phase 2 and 3 development.
Breeding and Nesting Birds	An assessment for breeding birds will be conducted within the areas that will be affected by development of the Base Area during the late spring. If clearing activities are to take place between May 1 st and August 15 th , in any year, nesting bird surveys as per guidelines developed by the Canadian Wildlife Service will be conducted.	Spring and Summer	Conducted prior to Phase 1A for areas affected by Phase 1 development. Continued during Phase 1B and 1C. Conducted prior to Phase 2 and 3 construction for areas affected by Phase 2 and 3 development.
Mountain Goat Habitat Use	A review of available information on mountain goat use will be conducted using ground based sampling methods both at a distance and possibly within known and suspected habitat use areas to determine the extent and seasons of use by mountain goats. These assessments will be conducted in all seasons and over several years. Ministry of Environment will be consulted in the development of the Assessment methods and will review and comment on the objectives, methods and assessment criteria developed in the Study.	Year-round	Conducted prior to Phase 1A for areas affected by Phase 1, 2 and 3 development and including undisturbed areas used by the population. Continued during Phase 1B and 1C.
Field Reviews for Site Clearing Plans	To help in the development of the Site Clearing Plans, field assessments will be conducted within the proposed clearing areas to identify potential mitigation and retention options for high value foraging sites, wildlife trees and other habitat features.	Summer	Conducted prior to Phase 1A for areas affected by Phase 1 development. Conducted prior to Phase 1B and 1C for areas affected by Phase 1B and 1C development. Conducted prior to Phase 2 and 3 construction for areas affected by Phase 2 and 3 development.

7.2 Phasing Schedule

HBMA is proposing to implement the Phase 1 improvements on the mountain and base area into three distinct components – Phase 1A, 1B & 1C. As each component of Phase 1 has been successfully implemented, it is the expectation for HBMA to move forward on the subsequent component. At the conclusion of Phase 1, the expansion of mountain facilities (additional ski lifts) will result in a CCC of 3622 (existing CCC is 1742) and approximately 180 ha of ski terrain (existing ski terrain is 116 ha) to reflect and balance the additional uphill capacity and CCC. In terms of base area development, the increase in CCC translates, for Phase 1, into an estimated Bed Unit entitlement of 2861 Bed Units (1376 – from existing lifts, plus 621 from additional lift capacity in Phase 1A and 864 in Phase 1C).

Figure 7 – 1: Phasing Schedule

Phase	Mountain Development	CCC	Base Area	Bed Units (developed)
Existing	<ul style="list-style-type: none"> Four lifts 	1742	<ul style="list-style-type: none"> N/A 	
1A	<ul style="list-style-type: none"> Development of Terrain Pod I, including lift and associated ski terrain, plus Lift G (beginner lift) Creation of the Trail to Town 	786	<ul style="list-style-type: none"> Development of Sites 1 and 2 (1A), Site 4 (1B) and Site 6 (1C) 	1376
1B	<ul style="list-style-type: none"> No lift development 	N/A	<ul style="list-style-type: none"> Development of Site 3 (1B) as well as Sites 5 & 7 – Village Centre (1B) 	1000
1C	<ul style="list-style-type: none"> Development of Terrain Pod D, including lift and associated ski terrain 	1094	<ul style="list-style-type: none"> Development of Site 8 (1C) plus additional Village Centre development 	485
Total		3622		2861
2	<ul style="list-style-type: none"> Development of Terrain Pods E and H, along with associated lift and ski terrain improvements 	1916	<ul style="list-style-type: none"> Development of Neighbourhood 3, along with additional Village Centre development 	1741
Total		5538		4602
3	<ul style="list-style-type: none"> Development of Terrain Pod F and replacement of Lift B, plus additional ski terrain improvements 	1743	<ul style="list-style-type: none"> Development of Neighbourhoods 4 and 5, plus continuation of the Village Centre expansion 	1135
Total		7281		5737

Total Bed Units earned at Phase 3:	6337
Less Prairie Village (600):	<u>(600)</u>
Total Bed Unit Entitlement (at Phase 3):	5737

Figure 7 – 2: Mountain Phasing Program

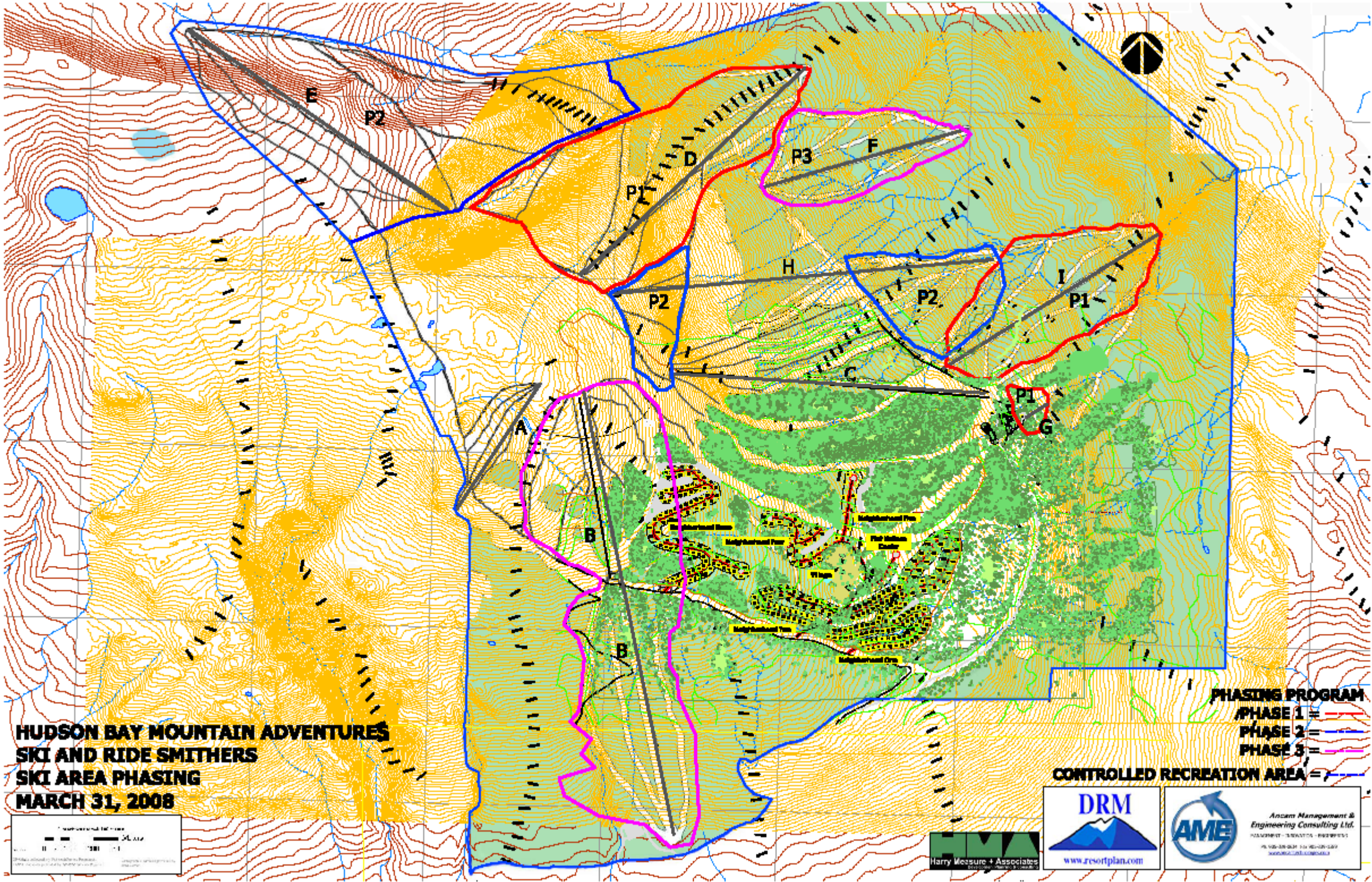


Figure 7 – 3 Base Area Phasing Program

Phase 1



Phase 2



Phase 3

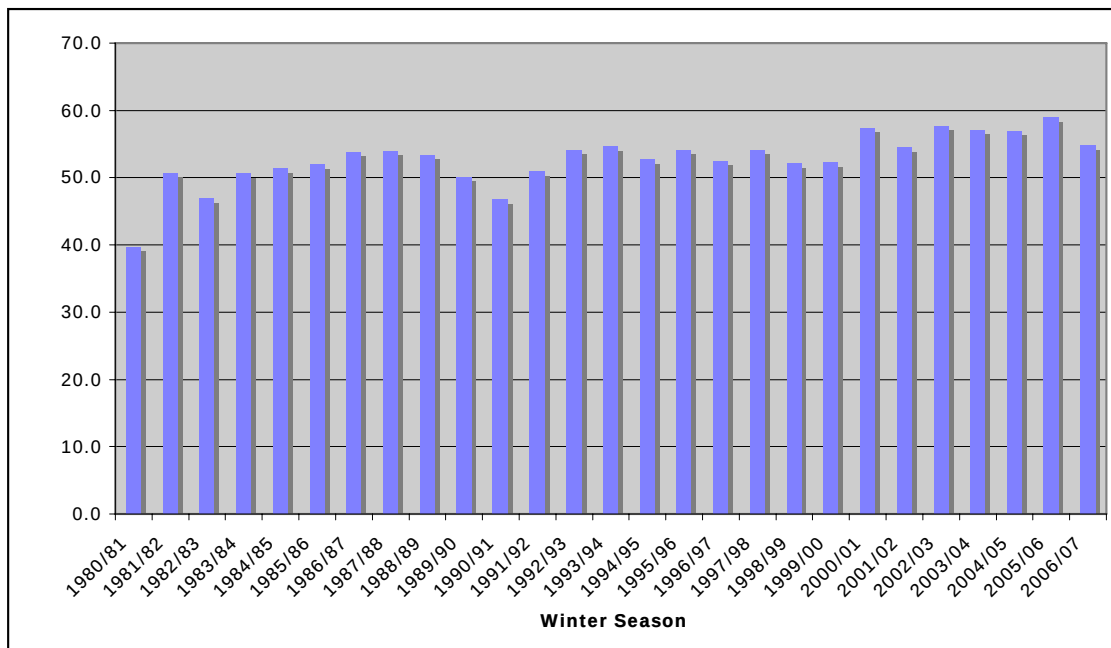


8.0 Market Assessment of Winter Alpine Skiing and Snowboard Market

8.1 American Ski Industry Trends

The American skier-snowboard market has become relatively mature and stable. Modest growth has occurred for most years over the last decade. Weather, and particularly a lack of snow, has been the most important factor affecting skier visit volumes. This year's preliminary estimate of 55,068,344, a decline of 6.5% from the industry's best year, is a remarkable achievement given the very poor start to the ski season in the eastern half of the country. Figure 8-1 presents skier-snowboard visits for American ski areas.

Figure 8-1
American skier visits (millions)



Source: Kottke National End of Season Survey Final Report

Skier visits include all visits utilizing the lifts during the ski season (skier, snowboarder and foot passenger visits are not separated). The various regions of the American market have experienced significant volatility from year to year. The Eastern and Midwest regions and some Pacific areas have been particularly prone to large weather-related swings in annual skier visit volumes. The larger resorts that are predominantly in the Rockies and Lake Tahoe area are also subject to weather fluctuations but the swings are generally not as large.

Many areas this past season didn't receive adequate snow until mid-January. The Northeast region was particularly impacted. This region has the most ski areas: 134 of a total of 478 operating areas for the 2005-2006 season and the largest population base. The lack of snow in the east was the cause of this year's decline in skier visits.

Ski industry cost pressures and extraneous factors to the industry including air travel costs and inconvenience, terrorism, health scares, and America's international unpopularity (Middle East conflicts and international tensions) have resulted in a modest rate of growth for the American industry. Despite these market and industry problems, the ski industry has not experienced the decline that was predicted in the late 1990's. Demographic factors, e.g. ageing of the baby boomers, were anticipated to result in declining skier visits over this last decade. The industry has demonstrated strong resilience as skier visits have increased most years since new initiatives to encourage skier participation have been undertaken. The industry has found ways to keep the baby boomers skiing (skiers are more active than the general population), attract the younger generation and the sport is making inroads with the non-white segments of North American society. Skier visits were 52,089,100 in 1998/99 but visits have ranged between 56.9 to 58.9 million four of the last five years.

The advent of detachable quad chairs along with substantially more snowmaking and superior grooming has enabled ski areas to comfortably handle larger volumes while improving the skiing experience for a broader range of skiers (particularly for beginner and older skiers). These technological changes have also been accompanied by extensive resort development at a number of the leading ski areas. As a result, there has been a net transfer of skiers to the areas and regions that provide a more consistent and higher quality experience. The large, more developed regions and resorts have generally experienced reasonably good growth at the expense of less developed areas.

The Rocky Mountain and selected areas in the Pacific and Northeast regions have been the main benefactors of the shifts in ski area business. Many ski areas in these two regions contain substantially larger terrain, more alpine environments, more consistent snow and heavier investment in on-mountain and resort facilities.

Over the last two decades, a number of the Rocky Mountain resorts have grown to the 1,000,000 skier visit level. Colorado, Lake Tahoe and Utah ski areas have also benefited from having a number of good ski resorts relatively close to each other. Washington State ski areas have not experienced growth like a number of other western states. Nearly all Washington areas are on Forest Service lands and the practice of the Forest Service in this region is to not allow resort development and the building of overnight accommodation. Washington State skier visits have ranged for the period 1994/95 to 2006/07 from a high of 2,151,544 to a low of 1,399,869 (except for the 491,537 visits in 2004/05 year). Total visits in 2006/07 were 1,928,097, a relatively good year. Poor weekend weather in February and March prevented last year from reaching all time highs. Figure 8-2 illustrates the historic results for the five American ski sub-regions.

Figure 8-2: US Skier Visits by Region

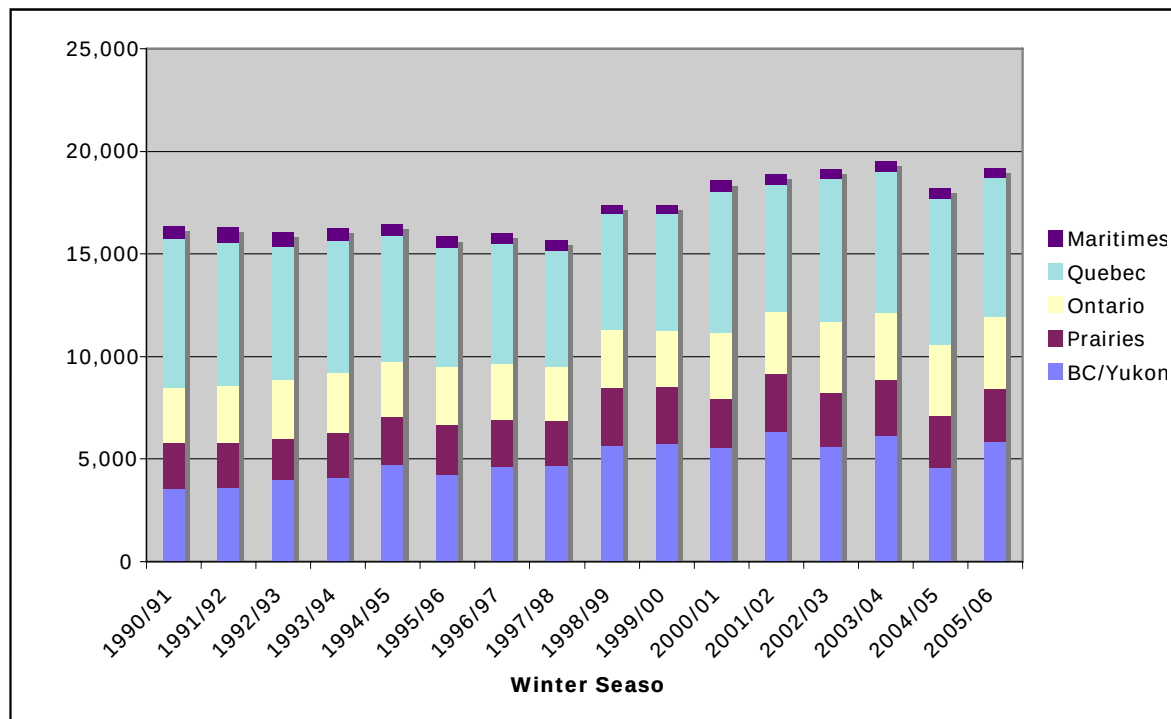
<u>YR.</u>	<u>USA</u>	<u>Pacific</u>	<u>Rockies</u>	<u>Midwest</u>	<u>Southeast</u>	<u>Northeast</u>
06/07	54,822,170	10,046,617	20,889,444	7,330,015	4,883,871	11,672,223
05/06	58,896,970	12,048,642	20,717,139	7,786,901	5,839,233	12,505,055
04/05	56,882,299	10,578,599	19,606,365	7,532,897	5,503,915	13,660,522
03/04	57,067,320	11,945,750	18,868,323	7,773,218	5,588,292	12,891,738
02/03	57,593,611	10,912,819	18,728,294	8,128,526	5,832,703	13,991,269
01/02	54,410,802	12,126,135	18,123,401	6,979,935	4,993,753	12,187,577
00/01	57,337,114	11,277,590	19,323,540	7,580,361	5,458,264	13,697,359
99/00	52,198,398	10,451,127	18,109,291	6,421,761	5,191,255	12,024,964
98/99	52,089,107	11,083,714	18,439,840	6,004,792	4,261,266	12,299,495
97/98	54,122,398	11,169,249	19,191,410	6,706,958	4,343,244	12,711,537
96/97	52,519,912	9,841,438	18,904,015	7,136,894	4,230,889	12,406,676
95/96	53,983,048	9,033,528	18,147,559	7,283,985	5,693,266	13,824,710
94/95	52,677,000	11,346,000	18,412,000	6,907,000	4,746,000	11,265,000
93/94	54,637,000	10,244,000	17,503,000	7,364,000	5,808,000	13,718,000
92/93	54,032,000	10,575,000	18,602,000	6,978,000	4,660,000	13,217,000
91/92	50,835,000	9,936,000	17,687,000	6,535,000	4,425,000	12,252,000
90/91	46,722,000	8,115,000	16,706,000	6,486,000	4,257,000	11,157,000
89/90	50,020,000	9,311,000	16,048,000	6,915,000	4,447,000	13,299,000
88/89	53,335,000	11,556,000	16,601,000	7,013,000	5,424,000	12,741,000
87/88	53,908,000	10,255,000	16,564,000	6,783,000	5,885,000	14,421,000
86/87	53,749,000	9,564,000	16,680,000	6,944,000	5,816,000	14,745,000
85/86	51,921,000	9,797,000	16,869,000	7,201,000	5,218,000	12,836,000
84/85	51,354,000	11,352,000	17,626,000	6,899,000	4,394,000	11,083,000
83/84	50,630,000	9,606,000	16,801,000	6,961,000	5,175,000	12,087,000
82/83	46,861,000	12,061,000	14,808,000	6,213,000	4,256,000	9,523,000
81/82	50,718,000	11,004,000	15,337,000	7,846,000	5,064,000	11,467,000
80/81	39,700,000	8,401,000	10,486,000	7,688,000	4,172,000	8,953,000

Source: Kottke National End of Season Survey Report

8.2 Canadian Ski Industry Trends

The overall Canadian market, like the American market, has produced modest growth. Exhibit 8-3 presents skier visit totals for Canada's respective regions. British Columbia ski areas have been the largest generator of Canadian market growth as illustrated by the bottom bar on each year's column. British Columbia has several advantages over Quebec, the current largest skier visit region. Additional analysis of skier survey results reveals that the British Columbia market is a younger market than Quebec's. BC is also the fastest growing region and it has the largest and best mountain terrain and best snow quality. Expansion of the Okanagan and Kootenay ski areas and more emphasis on the destination market should enable BC to eventually pass Quebec as the leading generator of skier visits.

Figure 8-3
Canadian Skier Visits (-000-)



Source: Canadian Ski Council "Facts & Stats"

8.2.1 Market size

Although a reasonable understanding of market size can be obtained by examining skier visit numbers, a more thorough analysis requires examination of a number of other variables. One of these variables is the total number of potential and active skiers/snowboarders. Canada as a whole has more skiers per capita than the United States. The Print Measurement Bureau now estimates that 15.5% of Canadians 12 years of age and over alpine ski, snowboard and/or cross-country ski. In 2006 this percentage represented 4.4 million Canadians up from 4.1 million the previous year. There is a strong correlation between participation and weather (snow). The better the snow conditions, the higher the participation.

By contrast, the National Ski & Snowboard Retailers Association in the United States estimates there are close to 13.0 million skiers and boarders. Although Canada's population is about one-tenth of the United States, Canada's skier percentage of its population is larger than the American skier percentage of its total population.

8.2.2 Current Industry Trends

The ski industry has undergone a substantial amount of change in both philosophy and the level of service it offers. For much of its history, the ski industry saw itself as being in the uphill transportation business. During the 1970's, however, attitudes changed and skiing became more of a recreation outlet rather than purely a sport. Correspondingly, customers and the industry recognized that operators were also in the downhill transportation business. That is, ski operators started spending a lot of effort and money on assisting the skier in getting down the hill. Snowmaking, careful trail design and snow grooming became major thrusts of the industry.

During the 1980's, major resorts developed and skiing became a vacation activity and resort experience as well as a recreation activity. Competition to ski areas is now considered to be from any location or activity that attracts the leisure entertainment dollar.

To go along with the high degree of technology that has become commonplace with many ski area operations is the advancement in ski equipment design. Improved comfort in boots, safer bindings, the shaped or parabolic skis and snowboarding are all helping a greater cross-section of the general population to take up skiing and riding. As a result, it takes less time and effort to learn how to ski and consequently skiing is now available to the less-than-athletic as well as the older skier.

A further factor that is increasing participation is snowboarding. Snowboarding is extremely popular with the younger generations, and boarders now represent 29.6%⁸ of the American total skier visits, up from only 10% in the early 1990's. The percentage of snowboarders is higher in ski areas that have a younger clientele. Boarders are expected to make up 36.0% of the American alpine market in the near future, but snowboard growth as compared to skier growth is now slowing. The percentage of boarders is a little higher in Canada. The Canadian Ski Council has estimated boarders to be also 36.0% of total alpine riders in 2006. There is, however, an increasing percentage of the skiing market that skis and rides or skis, rides and cross country skis. The percentage of participants that participate in two or all three disciplines now makes up 19.9% of the total market.

The negative side to these changes, however, is also important. Skiing has become expensive. The cost of lifts, equipment, lessons and resort vacations has jumped dramatically. Skiing is in danger of becoming elitist. The industry can no longer depend strictly on the sport and recreation side. The general population is aging and the cost of transportation, lodging, etc. means the industry needs middle-aged skiers who have a greater ability to pay. Fortunately, the new thrusts of snowboarding and new ski designs are allowing participants to learn quickly and experience more terrain and types of skiing/riding than many skiers thought possible a generation ago.

Future growth in alpine skiing and boarding is going to require the industry to focus on a number of issues including:

- υ relationship between price and value

⁸ Kottke National End of Season Survey 2006/07 Final Report

- υ redevelopment of existing product on the mountain and at the base
- υ commitment to consistency (snowmaking and grooming are important to keep people skiing and riding as they get older)
- υ target and niche markets especially for smaller ski areas
- υ need to regenerate the passion side of the sport/activity
- υ ensuring adequate training slopes and opportunities (local “feeder” hills) exist
- υ cater to women’s needs because they are key in deciding/influencing vacation decisions

There is a danger that all the high technology can make the industry approach to marketing too rational or solely based on tangible benefits. Skiing and its accompanying mountain/country lifestyle is also an emotional experience. Ski areas must satisfy an increasingly fragmenting and demanding marketplace with a widely diverse range of customers. Ski and resort industry designers and operators will need to understand who their target market is. Specialized facilities and services may be required to address how to assimilate different and discriminating customers. The ability of operators to attract a broader cross-section of future customers will be based on product offering, affordability, convenience and attitude.

8.3 The BC Destination and Regional Ski Demand is Strong

Of even greater relevance to BC is the British Columbia and Alberta position in the total Canadian market. The Canadian Ski Council estimates⁹ the total alpine skier/boarder population in British Columbia was 653,000 in 2003. A similar analysis estimates that there were 413,000 Alberta alpine skiers/boarders in 2003. Therefore, the BC and Alberta market is about 1,066,000 skier/boarders at the present time. BC and Alberta’s populations have generally grown faster than the rest of Canada over the last decade and consequently, internal population growth should provide a good base for the BC ski areas. With the expansion of the Smithers airport, HBMA should be able to use a significant part of Alberta’s population growth as part of its base.

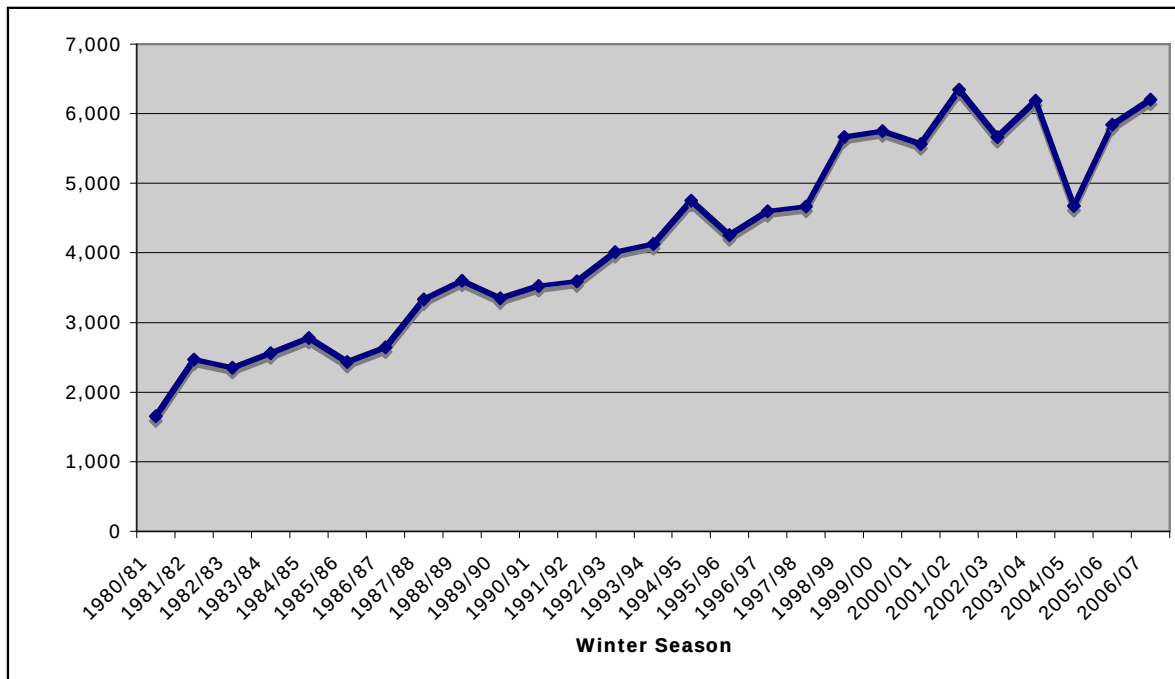
British Columbia attracts approximately 30% of the total Canadian skier/boarder visits. BC residents that exclusively ski or board represent about 18% of the Canadian skier/boarder population. This comparison clearly attests to BC’s ability to draw skiers from the rest of Canada and from outside Canada. With BC’s population growing faster than the rest of Canada and with BC resorts’ success in attracting skier visits from outside of the Province, BC total skiers should continue to grow. BC skier visit growth should also experience positive impetus from the buildup to the Olympics. International focus on BC will foster growth and the increased spotlight on the alpine sports and the alpine environment should encourage more residents to try skiing.

The demand for downhill skiing has grown over the last two decades as displayed in Figure 8-4. The one big decline occurred in 2004/05 when the worst snow conditions in history were experienced in many of BC ski areas’ operating history. The 2006-2007 figure of 6.2 million visits is a preliminary estimate. Growth

⁹ Canadian Ski Council’s Facts and Stats 2004

slowed a little for the recessions during the early 1980's and 1990's, but weather has been the main factor explaining skier visit fluctuations.

Figure 8-4
History of British Columbia and Yukon Skier Visits (-ooo-)



Source: CWSAA

The high growth rate occurring in BC ski areas can be attributed to a number of factors including the strong success of the Province's resort areas including Whistler, Okanagan areas and recent developments in the East Kootenays. The success of BC ski areas is a combination of increasing recognition in the marketplace of British Columbia's skiing potential, capital investment in ski resorts and general population growth. The growth at Mt. Washington on Vancouver Island also attests to the latent demand amongst the local population. This area caters almost exclusively to Vancouver Island residents, and as the ski area has expanded its facilities, it has experienced strong growth.

8.3.1 Constraints to Ski Area Expansion serving Vancouver, Calgary and Edmonton are Hindering Skier Demand Growth

The dominant ski area in British Columbia has been Whistler/Blackcomb, which has exhibited strong growth since the construction of the Whistler Village in 1979-1980. There has been strong growth in local, regional and destination skier markets. Whistler's success can be attributed to superior on-mountain and resort facilities, excellent terrain, more abundant snow than most other major resorts and good snowmaking. Growth at Whistler/Blackcomb is now slowing as this municipality is reaching maturity and nearing the

municipality's allowable unit buildout. If the Resort Municipality prevents accommodation expansion, as the Resort's Community Sustainable Plan calls for, skier visit growth will slow, as accommodation supply becomes a constraining factor. This restriction in supply at Whistler provides an opportunity for other ski areas that are able to expand.

Similarly, constraints to growth exist in Alberta. The Alberta economy has been the strongest economy in Canada and is expected to continue for a number of years (with only BC being a possible challenger over the next few years). Federal and Alberta Parks' restrictions on growth and particularly accommodation expansion have become a constraint to the established ski areas in Alberta. The Calgary demand pressure, for example, has effectively been transferred to British Columbia. Demand from Calgary has significantly helped the growth of the BC Rockies and Interior regions.

Edmonton skiers also face similar problems as Calgary skiers with the added problem of being four hours or more driving time to the Rockies and BC ski areas. If Smithers can provide a convenient and low cost air travel alternative, HBMA should have a good opportunity to tap a large potential ski market.

Small areas generate interest in skiing and act as "feeder areas" by providing easily accessible and affordable areas to learn how to ski. As a result, the Canada West Ski Area members (CWSAA) have implemented a policy to adopt and help smaller ski areas. This policy should help sustain many of the feeder areas. For Smithers to successfully expand its regional market, it will become important for the other ski areas along the Highway 16 corridor to continue to introduce new skiers and boarders to the sport.

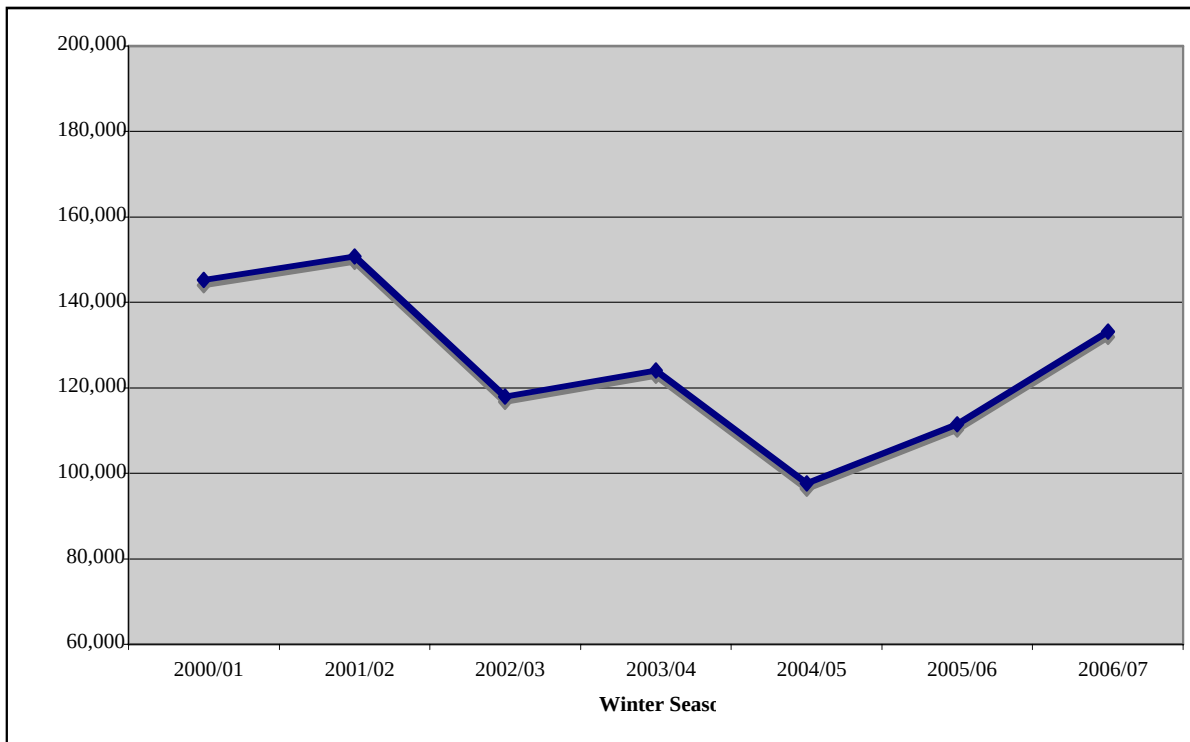
8.4 Smithers – Local and Regional Skier Market

8.4.1 Competition

At the present time, there are seven small ski areas that service north central BC communities from Prince George in the east, Mackenzie in the north, to Prince Rupert in the west. With the exception of SRS, which draws skiers across the region, all of these ski areas service only their local market areas. Several of the areas are struggling to exist as their limited facilities, low elevation with recent poor snowfall years has hurt their ability to consistently attract sufficient skier visits to be economically viable.

The 2004/0005 season's extremely low snowfall resulted in three of the seven ski areas being closed or operating for only a few days. The regional skier areas have experienced varying market demand from year to year because of the dramatic swings in snowfall. Presented in Figure 8-5 is a graph of the skier visits for the seven regional ski areas.

Figure 8-5
North Central BC Ski Areas Skier Visits



Source: CWSAA and Ecosign

The ski areas represented are Shames near Terrace, SRS, Murray Ridge at Fort St. James, Hart Highlands in Prince George, Tabor and Purden Village east of Prince George, Powder King in Pine Pass 196 km north of Prince George.

SRS has the biggest volume of the seven areas operating with 40,000 and 46,000 skier visits over the above period. Smithers best year was 1989/90 when the ski area experienced 65,612 skier visits

Figure 8-6 presents preliminary critical ski area variables comparing the present ski operations at SRS with six of the other regional areas. Hart Highlands is a beginner community ski hill in Prince George that also offers night skiing. The hill's base elevation is at 575 meters.

Figure 8-6
Regional Competition to Ski & Ride Smithers

	Peak Ski Elevation	Base Ski Elevation	Vertical Drop	Hourly Capacity	Skiable Acres	Snowfall cm
Shames Mountain	1,189m	701m	488m	2,100	252	1219
SRS	1,676m	1,128m	548m	2,858	300	508
Murray Ridge	1,231m	701m	530m	1,650	NA	300
Purden Village	1,311m	935m	305m	1,300	487	406
Tabor Mountain	795m	549m	246m	1,450	180	168
Powder King	1,529m	914m	615m	2,600	141	1257

Source: Ecosign, White Book of Ski Areas & SkiTown.com

SRS, which is located on the large Hudson Bay Mountain massif, is the one area that can be expanded to several times its current size. The present ski development and cabin colony utilize only a small portion of Hudson Bay Mountain. Ski area also has the advantage of being directly above the town. Smithers is the one community along the Highway 16 corridor that is well focused on tourism, which adds to the ability of the town and the ski corporation to turn around the region's declining skiers visit totals.

8.4.2 Expansion and Improvement Plans

Phase I will add Lift I (and related ski terrain) and a carpet lift - Lift G, both of which are to be located near the bottom of the existing Skyline Chair. These two lifts will add easily obtained vertical, approximately another 300 metres, which would make Smithers the clear leader in the region. It is anticipated Lift I will be a quad chair, and consequently will improve the immediate skiing experience at a modest cost. The addition of the Lift I pod will improve the ski area balance by adding low-intermediate and immediate terrain. Pod I and G will add an additional 56.5 and 9.41 acres of skiable terrain respectively.

The next phase will add two lifts to access the ridge northeast of the Skyline Chair and the small Simpson Gulch Valley. These two lifts will add significant new advanced and expert terrain (178 acres) and enable the company to build an additional ski trail that will extend to the valley floor near Simpson Creek and next to the Town of Smithers. The second phase chairs will change the verticals to:

- υ Top elevation 2100m
- υ Base elevation 1025m
- υ Vertical drop 1075m

These new vertical drops will clearly outclass the competition in the region and allow Smithers to compare favourably to most of the destination ski areas in North America. If the new planned trails to the valley are constructed, the ski area would have a vertical drop going from 2100m to 500m or a total drop approaching 1650m (5249ft.). Only Blackcomb has more vertical drop in North America. Future phases may take lift access to the top of the Simpson Creek drainage and the total vertical drop to the Town of Smithers could be

1825m or just under 6000 feet, considerably higher than other present ski developments in North America. Smithers' higher latitude may also become an important selling feature. If global warming persists, more attention will be focused on good ski areas that are further north.

Future phases may add extensive terrain and further balance the area's terrain. Preliminary plans for these phases include a lift to access the high alpine on the south side, above and west of the current Prairie Village. A later phase could open up the "Fan" area on the north side of Simpson Creek.

A proposed gondola development, connecting the Town of Smithers to the proposed Village Centre would allow Smithers to rival Telluride, Colorado.

8.4.3 Short term Marketing Strategies

To regain the 65,600 skier visit level and to more fully tap the regional market, a number of strategies need to be implemented:

- υ Continue to build and restore good relations with existing clientele and the local community.
- υ Work with the Town of Smithers' accommodation and other tourism operators to market and package overnight and multi-day visits.
- υ Implement first phase of the mountain plan as soon as possible to build on the current goodwill and create a "bang" to put the mountain and the town back on the radar screen.

These initiatives should allow HBMA to approximately double its skier visits over the next five years.

8.5 Smithers' Destination Market Appeal

Smithers and the Bulkley Valley have tremendous destination appeal. The Bulkley Valley is one of the most scenic and pastoral spots along the entire Highway 16 corridor that connects Alberta and Edmonton to the east with Prince Rupert, the Queen Charlottes and the Alaska Panhandle to the west. The Bulkley Valley is not only picturesque, but its agricultural industry helps to diversify the local economy. Unlike most northern BC communities, (that are almost solely based on resource extraction), Smithers has a diversified economy. Besides being a distribution centre for forestry and mining in Northwest BC, Smithers and the Bulkley Valley have agricultural, tourism and outdoor adventure economic sectors. Smithers is the gateway for tourism in the region that includes world-class fishing and hunting, and is an airport connection point for Last Frontier Heliskiing and Skeena Heliskiing.

A number of years ago, Smithers refurbished the main street to make it an effective tourism and local gathering and service area. Recreation opportunities abound and these include fishing, hunting, road and mountain biking, horseback riding, canoeing and kayaking. In addition there is mountain climbing and excellent hiking in the area. Hudson Bay Mountain has extensive hiking trails on its slopes above town and there is good summer hiking in the alpine regions above the existing base area and cabin colony.

There is also great cross-country potential in the Bulkley Valley including a good area below the ski area. The access road to the downhill area passes directly by the cross-country area.

8.5.1 Smithers is a significant Northwest BC Transportation Hub

Smithers is close to the halfway point on Hwy 16 between Prince George and Prince Rupert. Hwy 16 is a major tourist and commercial highway and is one of three highways crossing BC to the Pacific Coast. It is the easiest drive, being a relatively flat highway throughout its length. In addition to this highway, CN Railway's transcontinental route passes through Smithers to Prince Rupert. CN uses Smithers as a train sorting area. Via Rail operates a passenger train on this route, but its full tourism potential has not been developed.

Approximately an hour's drive west of Smithers is the turnoff to Hwy 37 (the Stewart-Cassiar Highway). This is the Province's second highway to the north connecting to the Yukon immediately west of Watson Lake. This highway provides tourists and outdoor adventurers access to spectacular wilderness including Mt. Edziza and Spatsizi Plateau Provincial Parks. It is also the highway that accesses the major heliskiing in this part of the Province.

Smithers is the regional airport serving much of Northwest BC. Air Canada offers daily flights to Vancouver. The airport has good approaches and has few weather-related cancellations. The airport in the past had daily jet service to and from Vancouver but a change in government regulations deemed the runway too short for commercial jets. A major initiative to extend the runway has now been approved and the extension will allow regular scheduled flights for both smaller and mid-size commercial jets.

Because of Smithers' tourist and community services, amenities and airport, nearly all the outfitters, recreation operators, heli-ski operations and many of the Northwest resource companies use Smithers as their base and gateway. Smithers and the immediate region's world class fishing and hunting are known to many northern European and American outdoor adventure travelers. This tourism has resulted in many of Smithers' accommodation properties having strong business in the fall months.

8.5.2 Mountain improvements are necessary for HBMA to attract destination visitors

Hudson Bay Mountain has the natural assets to appeal to destination ski markets. The present ski development is not adequate to provide visitors enough terrain and amenities to keep visitors more than a couple of days. A significant expansion as proposed in Phase IA and IB should dramatically improve the product offering and appeal to destination visitors.

The ski area is also immediately above the Town of Smithers, which has many of the tourist facilities and amenities to attract and help keep destination visitors. The town's amenities will be essential until the mountain village can be developed to provide accommodation and other required services. At the same time, the mountain village would be a complement to the town and both would ensure the visitor has an experience that would help to distinguish Smithers from other boutique and mid-size mountain ski destinations.

Other ski areas in the BC Interior and Whistler Resort have had substantial skier visitor growth as new mountain, village facilities and recreational real estate have been added to the ski area. Exhibit 8-7

highlights some of the skier visit growth at several of the Interior and Whistler Resorts. First year percentage growth after these expansions ranges from a low of 8% to a high of 72%.

Figure 8-7
Growth in selected BC Mountain Resorts

<u>Resort</u>	<u>Year</u>	<u>Prior expn. skier visits</u>	<u>Year</u>	<u>Post expn. skier visits</u>	<u>Comment</u>
Whistler	1978/79	280,030	1979/80	426,000	Village plan announced 1978 1st Phase 1979-81 Blackcomb exp'n starts 1987
			1980/81	372,000	
			1981/82	640,594	
			1986/87	812,378	
			1987/88	1,065,400	
			1988/89	1,202,758	
Silver Star	1990/91	170,000	1991/92	208,000	Putnam Creek Hotel & S. Family expansion
			1992/93	220,000	
			1993/94	263,900	
Big White	1991/92	240,000	1992/93	350,000	Real estate exp'n., start of new village buildings, etc.
			1993/94	395,000	
			1994/95	420,000	
Sun Peaks	1992/93	69,201	1993/94	88,367	Start real estate Start village & new lifts
			1994/95	112,560	
			1995/96	122,772	
			1996/97	136,468	
Panorama	1992/93	127,500	1997/98	148,000	Acquired 1993 Village expansion
			1998/99	165,000	

Source: David A. Hughes & Associates' Interviews

8.5.3 Demand Considerations and Market Positioning

The proposed mountain and mountain village will give HBMA and the Town destination appeal. The master plan's terrain and facilities should make SRS one of the best ski areas in North America. Besides great terrain and huge expansion potential, the mountain also receives dry quality snow. A number of steps need to be completed for HBMA to realize its potential. For the Town and ski area to become a destination resort, a number of initiatives and milestones need to be accomplished:

- u work to get the airport expansion built as quickly as possible to:
 - obtain regular flights to Edmonton, Seattle and Eastern Canada

- get customs and immigration clearance services
 - arrange packages, promotions and/or guarantees to secure competing airlines, e.g. Westjet
- υ reinforce Smithers' tourism industry and work to promote the year-round destination
 - υ develop cross-country and other winter recreation
 - υ develop and promote hiking, biking and other summer recreation on the mountain
 - υ proceed with phases 2 & 3 as the real estate starts to build out. With the completion of the first three phases and the corresponding real estate development, Ski Smithers in conjunction with the town, should achieve sufficient critical mass to be an attractive boutique destination resort.
 - υ work with the community to secure the gondola connection to the town
 - υ if demand warrants, build toward phase 4, which should make Smithers one of the finest mountain resorts in North America.

In the short term, the Phase I and II lifts should allow HBMA to reach its regional potential. The next most important development will be the expansion of the airport and the expansion of air services. This improved transportation access is necessary to effectively attract a sufficient number of destination visitors. Improved access should enable HBMA, in partnership with the Town, to attract destination visitors from Edmonton, Vancouver and eastern Canada. There is also potential to build on the European and American visitor base that comes to the area for heliskiing and other outdoor adventure. Further expansion would permit HBMA to increase skier visits to well beyond the 100,000 skier visit level. As later mountain phases develop, the mountain will become better known and attractive to a larger client base across much of North America.

9.0 Socio – Economic Impacts

The proposed expansion of the ski area on Hudson Bay Mountain by HBMA will have a positive impact on the Bulkley Valley and surrounding area, providing significant economic and social benefits to the community.

Although the level of development contemplated in Phase 1 is relatively low, the provision of increased lift capacity and additional ski terrain will increase skier visits and interest in the resort. HBMA appreciates and acknowledges that expansion of the resort, over time, will impact a number of community services and facilities including but not limited to policing, health services, accommodation (full and seasonal), employment, education (schools), and recreation services. To that end, HBMA is committed to undertaking a formal socio – economic assessment to address the potential impacts of the resort expansion on various community related services and facilities as part of the review and approval process for Phase 2 of the master plan. It is the position of HBMA that the level of development proposed for Phase 1, while creating economic benefits for the community (increased utilization of commercial and retail services in the Town of Smithers), is sufficiently low and that impacts on existing community services will be minimal.

10.0 Corporate – Resort Area Management and Planning Team

10.1 Corporate – Resort Area Management

The 20|20 Group is a Vancouver-based company, founded in 2000 by President and CEO John Murphy. The aim was to provide clients with one-stop access to exceptional real estate opportunities and services in diverse growth markets across North America. Equipped with a management team who already had a decade of experience syndicating over \$600 million in multi-family properties, the 20|20 group today is one of Canada's leading investment real estate firms and is responsible for over \$900,000,000 of equity in their client's real estate portfolios.

The 20|20 Group has three operating divisions; Properties, Resorts and Investments. These three facets combine to create, deliver and service premium condominium and resort real estate opportunities and investment vehicles for clients.

In the few years since inception, 20|20's reputation has grown to become synonymous with real estate expertise and product excellence. Having acquired properties spanning Mexico, Arizona, and across Canada, 20|20 continues to create and provide excellent options for real estate investing.

Hudson Bay Mountain Adventures Ltd is owned by the 20|20 Group. The key personnel of the 20|20 Group, who are responsible for the implementation and management of the Ski Area Master Plan and the operations of the ski resort include:

John Murphy, Chairman & CEO of 20|20 Group

Mr. Murphy is a past international board member of the Young Entrepreneurs' Organization (EO) and provides the overall vision and leadership for the 20|20 Group. He has an exemplary track record of success in both entrepreneurial ventures and real estate investments. His passion for developing real estate programs and strategies has helped investor clients purchase almost a billion dollars in well selected investment real estate, locally and internationally.

Lorne Borgal –President and COO of 20|20 Group

Mr. Borgal leads the operations of the 20|20 Group and contributes over 20 years of diverse experience in resort development. As past President and CEO of Whistler Mountain Ski Corporation and Horseshoe Resort Corporation, and past Chairman and Director of the Whistler Resort Association, Mr. Borgal has a wealth of knowledge in the operation and development of mountain resorts. His experience extends to Europe with work on a range of projects in several European Countries, the USA and Canada from start-up businesses to Microsoft. He possesses a unique combination of skills that are critical to managing the diverse interests of the 20|20 Group. Mr. Borgal holds an MBA from the Stanford Graduate School of Business, a B.Sc. from the University of British Columbia and is a member of the World Presidents Organization.

Darryl Inglis, Vice President of Development of 20|20 Group

Mr. Inglis brings to the 20|20 Group the experience of over 20 years of diverse activities in design, construction and all aspects of real estate development, including analysis, negotiations and complete

project administration. After several years as an independent development consultant, Mr. Inglis is anchoring the 20|20 Resorts development team, providing the vision, strategy and leadership

Nancy Trieber, General Manager – Ski & Ride Smithers

Nancy Trieber stepped into this position in fall 2007 and is the point person for all aspects of operations at Ski & Ride Smithers. Nancy has served as the general manager of a private equity ski club for eight years; college professor in Ski Area Management and Tourism Hospitality fields in Ontario; two-term president of the Whistler Chamber of Commerce; and board position on BC College Boards. Her business initiatives with start up companies from Whistler, BC to Europe offer an entrepreneurial style of management with a solid industry base.

Jeff Kelso, Mountain Operations Manager – Ski & Ride Smithers

Jeff Kelso came to this position in mid-December 2007 with 25 years' experience in the ski business, including roles at ski resort development companies such as Intrawest and Vail Associates. His on-hands mountain management experience encompasses time as slope maintenance supervisor, construction manager for a ski lift company and installation manager for a snowmaking equipment manufacturer. Kelso's background also includes more than 15 years in the ski travel industry.

10.2 Planning Team

Preparation of the Ski Area Master Plan for Hudson Bay Mountain Adventures was undertaken with several consultants. The planning team includes the following members:

D.R Matthews and Associates

D.R. Matthews & Associates is an Ontario - based ski area planning company with extensive knowledge and experience in all facets of ski area planning ranging from ski layout to financial and market assessments as well as resort acquisition reviews. Dan Matthews has been involved in the ski industry for over 35 years, including management, operations and planning.

DRM has worked on ski area projects throughout Canada, including many in British Columbia and has assisted the Provincial Government with technical reviews of master plans prepared by other consulting companies. DRM is also a leader in the research and design of winter adventure and snow play facilities.

Dan Matthews' background includes time as instructor at Humber College (Ski Area Management School), Director of Ski Resort Development for the Province of BC, V/P of Operations for both Big White and Apex Alpine ski resorts and approximately 25 years as a ski area planner and consultant.

Harry Measures and Associates

Harry Measure & Associates (HMA) is a Whistler based consulting firm that specializes in planning, architecture and environmental design for the resort, recreation and tourism industries. Over the past 25 years, planning projects have included the master planning of major all season mountain resorts in North America, South America, Asia, and Australasia; and golf resort communities in Canada, the United States and Argentina. Other planning projects have included spa resorts, ecotourism facilities, and

waterfront resorts. HMA's resort based architecture experience includes mixed-use projects in a village setting, condominium hotels, townhomes, day lodge facilities, and commercial retail venues.

Mr. Harry Measure is principal of HMA and holds a Master's degree in Architecture and Environmental Design; and a Bachelor's of Arts degree in Fine Arts and Geography. Mr. Measure's professional background in resort, tourism and recreation planning and design spans the past three decades. For further information regarding the scope of services provided by HMA and the firm's background, refer to the website: www.hmawhistler.com.

David A. Hughes & Associates Ltd

David A. Hughes & Associates Ltd. (DHA) is a firm of Certified Management Consultants servicing the Hospitality, Tourism and Recreation Industry. Mr. David Hughes, President of the company, is a Certified Management Consultant and Chartered Accountant. Mr. Hughes has a Bachelor of Commerce degree from the University of British Columbia and a Master of Business Administration degree from the University of Washington. He is a Past President of the British Columbia Institute of Certified Management Consultants.

Before establishing his own firm, Mr. Hughes was Partner-in-Charge of the Canadian Consulting practice for the Tourism, Hospitality and Recreation Industry of KPMG and previous merger partners. Mr. Hughes served as an Executive Committee member on the National Prosperity Initiative—Tourism Sector and he has undertaken industry sector studies for the hotel and the alpine ski and resort sectors.

DHA works extensively with the resort and recreation sectors and their related real estate developments in Canada and the United States. Their assignments have taken them to Mexico, Europe, New Zealand and Australia. Clients include industry operators, investor/owner groups, financial institutions, real estate developers, governments, planning agencies and consultants.

DHA's engagements include assignments for nearly all of BC's ski areas, and a number of ski areas in Alberta, Quebec and the United States. DHA was involved in the feasibility planning of the Whistler Village, expansion of Sun Peaks, Red Mountain, Fernie and Kimberly Alpine Resorts, and the examination of several proposed alpine resorts. He has assisted several ski areas in financial restructuring and refinancing including Skiing Louise, Snowbird, Big White and Silver Star.

DHA has also assisted a number of ski areas with their Master Development Agreements in assessing market potential and in securing acquisition and expansion financing. Mr. Hughes directed several major divestiture engagements for clients including the sale of the CN Hotel Chain and the Delta Mountain at Whistler

Ancam Management & Engineering Consulting Ltd

Ancam Management & Engineering Consulting Ltd. (AME) is a private, specialized technical consulting services business with offices located in Oakville, Ontario Canada. AME is a division of the Ancam Companies which offers single source solutions to customers in industrial, commercial and recreational sectors.

Services required for recreational projects offered from our Oakville office include:

- Mechanical, Structural, Electrical and Civil Engineering Services
- Ropeway and Lift Engineering and Ski Lift Engineering
- Snow making system design and analysis
- Infrastructure Systems designs for residential and commercial development
- Waterslide and amusement device Engineering; pumping systems and foundation designs
- Infrastructure Systems designs for residential and commercial development
- Project and Construction Management
- Quality Assurance and Systems Verification
- Performance Testing, Licensure and Approvals

Our Staff includes four licensed Engineering Professionals in various disciplines, Four Engineering Technologists/Technicians and 2 Industry Specialists. We have a combined experience base of over 180 years in providing innovative solutions for our customers' unique needs.

Key Associates Include:

Kevin Clark, P. Eng., CED, MBA – Career Profile

- Founder and President of the Ancam Companies – 2001 – Present
- Director – Engineering Services – Ancam Management & Engineering Consulting Ltd., 2001 – Present
- Member – CAN/CSA Z98, Passenger Ropeway Code Technical Committee
- Project Engineering – Ski and Recreation Projects – 1996 – Present including
- Snow making system design, analysis and review; operations strategies for optimizations in Ontario
- Contract Engineer – Leitner Poma Canada – 2004 – 2006, responsible for engineering on service work and testing of existing installations in Eastern Canada
- Lift relocations and upgrades – Primarily Ontario
- Lift Engineering Assessments on aging equipment – as mandated by Ontario Government Regulations
- Ropeway Carrier accelerometer testing and fatigue testing
- Forensic and Investigative work on system and component failures 1997

DON VANDERHORST CONSULTING LTD

DON VANDERHORST CONSULTING LTD (DVCL) was established in September 1997. The company specializes in providing assistance to clients interested in achieving provincial and local government land use approvals as well as Crown land acquisitions (purchase, lease, etc), and offers a package of

experience, skills and abilities that effectively meets the needs of a wide range of private and public sector clients for various land use planning and development requirements.

Don van der Horst, as the principal of *DVCL*, has a Masters degree in Natural Resource Management from Simon Fraser University and over 20 years experience with the BC provincial government in planning, administration, marketing and development of Crown land.

DVCL has extensive knowledge and experience with both provincial and local government land use and planning requirements, and is especially familiar with provincial land use policies and procedures. The company provides general and specific assistance on Crown land applications (prepare applications/management plans and assist in negotiations with provincial agencies), rezoning and subdivision applications and other provincial and federal land use approval requirements (applications pursuant to the Water Act, Navigable Waters Protection Act, etc). The company is an Associate Member of both the Canada West Ski Areas Association and HeliCat Canada Association.

Laurence Turney, R.P. Bio, Gartner Lee Limited

Gartner Lee is an Environmental Consulting firm with offices in Smithers, Burnaby, Terrace, Whitehorse, Calgary, Yellowknife, Grande Prairie and Rocky Mountain House as well as several offices in eastern Canada. With over 300 professional scientists and technicians, Gartner Lee has experience in a wide variety of fields including Environmental Planning, Ecological Sciences, Geosciences, Engineering, Geographic Information Management and Economics.

The Smithers office of Gartner Lee was recently opened when they acquired Ardea Biological Consulting a small resource based consulting firm owned by Laurence Turney. Mr. Turney is a wildlife ecologist with over 23 years experience in ecology and wildlife management issues, who has worked in both coastal and the interior of B.C. and in the central N.W.T. for a variety of government and industry clients. He has worked in northwest B.C. since 1990 and has completed projects on the Queen Charlotte Islands, Central Coast and Vancouver Island. Mr. Turney's career has spanned a variety of positions with the government (N.W.T. Dept. of Renewable Resources and the B.C. Ministry of Environment) and as a private sector consultant. He has been involved in projects that have included literature reviews, policy development, wildlife population inventories, fish and wildlife habitat assessments, wildlife suitability mapping and modeling, vegetation and ecosystem mapping, research planning and evaluation, data synthesis and analysis, report preparation and environmental impact assessment.

Mr. Turney and his staff have a wide experience in wildlife research and inventories including: aerial and ground-based population surveys for ungulates such as caribou, moose, deer, mountain goat and mountain sheep at the reconnaissance and relative abundance levels using both stratified and total count methods. They have completed habitat assessments and wildlife suitability ratings assessments for a wide variety of amphibian, bird and mammal species and has spent over 10 year working on mountain goats, moose and bears. The Smithers office has completed numerous habitat suitability mapping projects for a wide variety of clients including the forest and mining industry and government. Their work developing habitat suitability models based on the B.C. Resource Inventory Standards Committee (RISC) as well as developing Habitat Suitability Index (HSI) models using Bayesian Belief Networks have been used for a number of planning initiatives including the Morice and Lakes Innovative Forest Practices Agreement and the Morice Land and Resource Management Plan.

Appendices