Associated Environmental

REPORT

Town of Canmore

Third-party Review of Phase 2 EIS
Palliser Moustache Apartments
Prepared by Associated Environmental

CANMORE T.M.

June 29, 2017

ISO 9001 and 14001 Certified | An Associated Engineering Company

Executive Summary

Associated Environmental Consultants Inc. (Associated) is contracted by the Town of Canmore to provide an independent third-party review of the Environmental Impact Statement prepared for the Northview REIT Multi-Family Rental Housing Development (Development) being constructed within the Palliser Trail Area Structure Plan area.

A two-phased Environmental Impact Statement (EIS) is being prepared, and this document presents the results and recommendations based on the review of the Phase 1 EIS. The Phase 1 EIS addresses the effects, mitigation and monitoring of the construction of the foundations and underground works, and above-ground structures of the Development. Baseline information on environmental and socio-economic disciplines for both phases of the EIS are included of the Phase 1 EIS. The Phase 2 EIS will address the effects of operations and maintenance of the Development.

For each environmental or socio-economic discipline, the adequacy of the baseline and project information are identified, missing issues or inadequate assessment are listed, recommendations for additional mitigation or alternate options are provided, and additional monitoring or studies are recommended.

Three key wildlife issues that were not fully addressed in the Phase 1 EIS:

- Elk Displacement Due to Removal of Winter Forage Habitat, and subsequent effects.

  The Phase 1 EIS was to include an assessment on the impacts of removal of elk forage on elk population movement patterns, elk population long term displacement and associated elk-cougar population dynamics and increased risk for vehicle-wildlife mortalities. Understanding multiple part of this issue, is necessary to identify the go forward management plan.

- The Baseline Conditions and Impaired Functionality of the Lower Silvertip Wildlife Corridor (LSWC) were not fully characterized.

  Although this cumulative effects issue will be addressed as part of the Phase 2 EIS assessment, the baseline conditions for the LSWC should have been integrated in the Phase 1 EIS.

  Because of the historic disturbance, and current high levels of human use in the LSWC and the additional approved or planned developments adjacent to the LSWC Corridor, a well-designed Wildlife Management Plan should be designed and implemented. Such a program will require multi-jurisdictional management. It could include fences and signage, potential trail closures or seasonal use, education programs etc. (Town of Canmore 2015). With the removal of debris and the improvement of the habitat conditions, functionality and use of the corridor by wildlife may improve, and some of the displaced wildlife species may return.

- Baseline noise data was not provided.
  There is no existing baseline noise data was provided, but it was assumed the levels would be below 52dBA which is the level at which some species of wildlife start to experience stress. If the existing baseline noise levels exceed 52dB, this would be problematic during construction.

The outcomes and recommendations of the third-party review for all environmental and socio-economic disciplines are summarized in Table 2 of the Report.

In conclusion, Phase 1 did not provide all the information required to assess the three wildlife effects from construction outlined above. Therefore, beginning construction and preparing Phase 2 of the EIS on operations and maintenance of the Development requires commitments from Northview REIT and the Town to mitigate and monitor these three effects.

Table of Contents

SECTION			PAGE NO.
Executive Summary			**i**
Table of Contents			**iii**
List of Tables			**iv**
1	**Introduction**		**1**
2	**Approach to Third-party Review**		**2**
3	**Baseline Conditions and Impact Assessment**		**2**
	3.1	Wildlife	3
	3.2	Noise	9
	3.3	Groundwater	10
	3.4	Surface Water	11
	3.5	Other	12
4	**Information to be included in Phase 2 EIS**		**12**
5	**Tables**		**14**
References			
Appendix A – Terms of Reference for EIS			

List of Tables

		PAGE NO.
Table 5-1	Key Potential Impacts from Construction of the Proposed Palliser Moustache Multi-Family Residential Development	15
Table 5-2	Summary of Findings and Recommendations of the Third-party Environmental Impact Statement Review	23
Table 5-3	DRAFT Characteristics of Lower Silver Tip Wildlife Movement compared to Design Standards (Needs Confirmation of Some Information based on Field Surveys)	31

1 Introduction

Associated Environmental Consultants Inc. (Associated) is contracted by the Town of Canmore to provide an independent Third-party Review of the Environmental Impact Statement prepared for the Northview REIT Multi-Family Rental Housing Development (Development) by WSP Canada Inc (WSP).

As noted in the Terms of Reference (TOR) prepared for the Development, "In accordance with the DC District and as part of any comprehensively designed multi-family residential rental development application, an Environmental Impact Statement (EIS) is required to be prepared. The EIS is to prepared per the Towns' EIS Policy (2016)." The purpose of the EIS is to provide sufficient information to Council to make an informed decision on the application. The Canmore EIS Policy requires the TOR and EIS must be tailored to the nature, scale and location of the Development proposal. The Town of Canmore's Municipal Development Plan and EIS Policy also requires an independent third party review of the TOR and EIS.

The preparation and review of the Development EIS will be completed in two Phases, due to the urgent need for Affordable Housing. The proposed option of Phasing the EIS avoids winter construction delays of the Development. It was decided to pursue a two Phased EIS with the caveat that the integrity of the EIS process is not jeopardized.

- Phase 1 will address effects from construction of the foundations and underground works, and may also include construction of above-ground structures depending on the available engineering information. The EIS Phase 1 will include:
  - Baseline Information for all disciplines listed in TOR, including existing developments and their effects
  - Project effects, mitigation and monitoring text for all the disciplines listed in the TOR, except Historic Resources, and Aquatic Ecology and Wetlands (as these are not applicable to this Development)
  - Human safety was added in the Land and Resource Use, and Management category.

- Phase 2 will address effects from operations/maintenance of the Development, including increased human use and effects on wildlife. The EIS Phase 2 will include:
  - Project effects, mitigation and monitoring for all the disciplines listed in the TOR
  - Cumulative Effects from the project added to the baseline conditions, and from future developments
  - Human safety was added in the Land and Resource Use, and Management category.

This Third-party Review has been presented in three sections: Approach to the Third-party Review, Baseline Conditions and Impact Assessment (including recommended mitigation, alternatives and further monitoring/studies), and Information that must be included in EIS Phase 2 to ensure the requirements of the TOR are met and the EIS is complete and comprehensive.

2 Approach to Third-party Review

The Environmental Consequences, and Mitigation and Monitoring for the environmental and socio-economic disciplines identified in the Phase 1 EIS by WSP have been summarized in Table 1.

Each environmental discipline in the EIS was assessed based on the following questions, that were requested in the TOR for the Third-Party Review.

- Is the Baseline Information and understanding of the Development to address the impacts adequate? Are there gaps in the Baseline Information that should be filled?
- Was the EIS Thorough?
  - Were all the key issues addressed, models adequate and appropriate, and positive and negative effects identified?
  - Do we agree with the Impact Assessment and significance rating for the effects, and if not why?
  - Do any of the effects of the project require the completion of a cumulative effects assessment (CEA) (i.e., high or medium significance effects identified)? Do you agree with the assessment rating if a CEA was completed? If not how would you rank the rating and why?
- Completeness of the Mitigation Recommendations where the potential effects have a medium to high consequences. Are mitigations missing?
- Are there alternative options to the Development that the developer should be considering that would reduce of remove the effects of the project?
- What additional Monitoring or Study programs, or Management Plans would you recommend be conducted or completed by the Developer during construction?

3 Baseline Conditions and Impact Assessment

Table 2 summarizes the outcomes and recommendations of the Third-party Review. For each environmental or socio-economic discipline, the

- adequacy of the baseline and project information are identified
- missing issues or inadequate assessment are listed
- recommendations for additional mitigation or alternate options are provided
- additional monitoring or studies are recommended.

Baseline conditions should provide information on the quantified state of an existing environmental or socio-economic resource, including a clear delineation of effects from previous development. This information is then used to understand and qualify the incremental effects of the proposed Development on the environmental or socio-economic resource.so that the significance of the effects can be identified.

The EIS Phase I was designed to provide all the baseline information for both Phase I and II Environmental Impact Statements. However, several baseline data sets are missing and outlined in Table 2.

Several predicted effects from the proposed Development were not quantified, or were not assessed in relation to cumulative effects from existing developments and activities on baseline environmental and socio-economic resources, thus making the significance assessment challenging. Example of missing information are also listed in Table 2 include:

- Number of people and vehicles that will be on-site for various phases of construction, and percent increase over existing number or vehicles
- Increase in noise above existing noise levels
- The area of elk winter forage lost due to the Development footprint, in relation to available medium-high quality elk forage in the RAA.

Finally, additional mitigation or alternatives options have been identified to further reduce effects from the Development, and other monitoring or further studies have been identified, and are listed in Table 2.

Four key environmental areas were identified as needing additional baseline information, assessment work, or mitigation and monitoring programs, and are discussed below. Other environmental and socio-economic discipline gaps, such as those for vegetation, soils, and aesthetics, are identified in Table 2, but not discussed in the report.

3.1 WILDLIFE

3.1.1 Missing Baseline Literature or Project Information

Baseline Condition and Impaired Function of the Lower Silvertip Wildlife Corridor was not fully characterized.

Based on the biophysical characteristics of the Lower Silvertip Wildlife Corridor (LSWC) compared to the design standards outlined in the BCEAG (2012) for wildlife corridors, the LSWC provides less than adequate security for wildlife (see Table 3). The wildlife corridor is too narrow (466 m) for its length, with inadequate hiding cover and has an above development slope. This fact coupled with the current high human use and future increase in human use, and disturbed nature of the corridor (e.g., unsanctioned disc golf, well used trails, remnants of old land use such as fencing, shelters and campfire pits), there is a need for effective mitigation to ensure Developments within 175 m of the LSWC are subject to the Wildlife Corridor and Habitat Patch Guidelines (BCEAG 2012) that are developed to understand the impact of develop and to protect the functionality of wildlife corridors. The proposed Northview REIT housing Development ranges from 33 to 150 m away from the LSWC. The BCEAG (1999) recommends a setback of ensure the functioning of the corridor and protection of wildlife. In addition to the proposed Project Development, the LSWC has a number of existing and proposed developments adjacent including the hotel, existing and proposed expansion of the cemetery, the church, the Silvertip

ASP staff housing (850 units) and the already built Palliser apartment complex. These existing and proposed developments may further compromise the effectiveness of the travel corridor. Historic monitoring of the upper and lower movement corridors for wildlife indicate that species that are sensitive to disturbance, such as the wolf, appear to have been displaced and the most abundant current species (e.g., elk, deer, and coyotes) are species that are more tolerant to sensory disturbance and can adapt to people.

Developments within 175 m of the LSWC are subject to the Wildlife Corridor and Habitat Patch Guidelines (BCEAG 2012) that are developed to understand the impact of development and to protect the functionality of wildlife corridors. The proposed Northview REIT housing Development ranges from 33 m to 150 m away from the LSWC. The BCEAG (2012) recommends a setback of developments from wildlife corridors of 20 m for single family to four-units residential housing, and 40 m for a commercial establishment. The activity associated with implementation/operation of the Northview REIT with 148 residential units in three buildings will likely be more aligned with the disturbance of a commercial establishment. If this assumption is valid, the Development would not fully meet the setback requirement from the LSWC.

A church and an additional housing development, the 850-unit Silvertip development, have been approved proximate to the LSWC, but have not yet been constructed. There are also several other land bases in the Palliser Trail Structure Plan Area that are proposed for future development.

Because of the historic disturbance, and current high levels of human use in the LSWC and the additional approved or planned developments adjacent to the LSWC Corridor, a well-designed Wildlife and Human Use in Wildlife Corridor Management Plan should be designed and implemented. Such a program will require multi-jurisdictional management. It could include fences and signage, potential trail closures or seasonal use, education programs etc. (Town of Canmore 2015). With improvement of the habitat conditions, functionality and use of the corridor by wildlife may improve, and some of the displaced wildlife species may return.

Although this cumulative effects issue will be addressed as part of the Phase 2 EIS assessment, the baseline conditions for the LSWC should have been integrated in the Phase 1 EIS.

Information on Several Wildlife Species was not Provided in the EIS

- Alberta Environment and Parks (AEP) provided **year-around camera data** from June 2015 to May 2017 (HUMR cameras see email from Sandra Code – AEP, June 1, 2017). A quick review of the database shows 10 cameras within the RAA (all within the USWC) with confirmed black bear, grizzly bear, cougar, coyote, elk, deer sp. detections at some of the cameras. This data is the most recent and relevant data and should be incorporated into the baseline.

- Most the literature reviewed on the LSWC used pellet densities and winter snow tracking to determine wildlife presence and spatial and temporal distribution. The above-mentioned

survey methods do not target **bear** sp. The AEP June 2015 to May 2017 available camera data (HUMR cameras see email from Sandra Code – AEP, June 1, 2017) is a year-round survey that has the potential to detect bear sp. A quick review of the database shows 10 cameras within the RAA (all within the USWC) with confirmed black bear and grizzly bear detections at some of the cameras. This is the most relevant data to determine bear sp. baseline and should be incorporated.

- **Raptors** have been selected as a VEC in the EIS to determine project impacts. Baseline data mentions *'between 31 and 67 avian species using the Silvertip ASP area'*, further details are required to outline if raptors were detected and if so where did they occur (LAA, RAA, LSWC, USWC, Project Footprint?). The below text in the baseline *'Based on the vegetation present, some grassland / open meadow species such as vesper sparrows may use the site, however use is anticipated to be infrequent due to the poor quality of habitat present.'* is more appropriate for the environmental effects section, however if included this statement needs a reference and it is unclear whether it refers to vesper sparrows specifically or birds in general. It is recommended to select 2-3 representative raptors (owl sp., hawk sp., falcon sp.), based on historical and/or current presence in the RAA or LAA, in order to effectively determine breeding and nesting times and potential impacts. Using the broad category of 'Raptors' will make it difficult to determine impacts. If it is determined that most raptors do not occur on the project footprint and/or LAA elaborate on this (it is mentioned).

- The '**Bird'** baseline is vague in term of species present in the RAA. The *Canadian Environmental Protection Act, Migratory Birds Convention Act* and the *Species at Risk Act* documents may apply and therefore should be addressed.

- Baseline data for **cougar** concludes '*Cougar habitat use within the Bow Valley Corridor appears to be generally localized to higher elevations (McCallum and Paquet, 1997; Jacques Whitford, 2003; 2005; Chinook Co., 2011; Miistakis, 2010; Garrow and Everett, 2013), away from human development (Callaghan and Jevons, 2004).* The most recent backtracking data for cougar (Garrow and Everett 2013) shows both lower elevation use and use near human development. Potential changes in prey (elk) abundance and distribution due to the Project, may have an impact on predator (cougar) distribution and human-wildlife conflict so it is important to highlight the most recent baseline on cougar spatial distribution and habitat selection. As well anecdotally (and likely AEP human-wildlife occurrence databases will confirm) there has been an increase of cougar sightings and human/dog-cougar interactions in the RAA since 2010. Accessing the AEP human-wildlife conflict occurrences database and/or speaking with Provincial Biologists as part of the desktop review would provide additional background on recent cougar activity in the RAA.

- **The Silvertip area is important winter range** from October/November to May each year (Jacques Whitford 2003; Silvertip monitoring from 1997 to 2002; McCallum and Paquet 1992. Migration (e.g., elk and mule deer) usually occurs in June (up to higher elevations) and September (down to valley). Ungulates seek snow free areas to access forage. Further

discussion on regional elk migrations and seasonal foraging habitat is needed in the EIS to better understand the impact of the loss of forage at the project footprint on elk populations.

3.1.2 Key Issues Not Addressed

The assessment on the impacts of removal of elk forage on elk population movement patterns, elk population long-term displacement and associated elk-cougar population dynamics and increased risk for vehicle-wildlife mortalities has not be discussed.

Elk Population Impacts

- Assessment of the impacts of removal of elk forage on elk population health, movement patterns and elk population long term displacement is not in the EIS. Questions to answer include:
  1. What percentage does the forage removed by the project footprint represent as a percentage of total forage available in the RAA, is it significant?
  2. What are the likely changes to elk movement and habitat selection within the RAA now that the forage in the project footprint is unavailable (e.g. how will the project impact how they access spring forage near the highway?).
  3. Within the RAA where will elk likely select to forage to replace loss forage at the project site (e.g. will they select habitat closer to human use developments? Closer to transportation corridors?).
- Also, a better understanding of whether there are elk calving grounds within the RAA is needed.

Elk-Cougar Population Dynamics

- As elk movement patterns and displacement occur, what are the potential changes to elk-cougar population dynamics and cougar spatial distribution. Elk may be selecting project footprint forage as a predator refuge as cougar are known to avoid high human use areas and select to hunt on edge habitat (not open spaces). Questions to answer include:
  1. If elk are displaced closer to human use areas (specifically residential areas) will cougar select for these areas? This is important to know to determine the probability of increased cougar-human conflict to be mitigated in the EIS Phase II.

Vehicle Strike Wildlife Mortality

- Questions to answer include:
  1. As elk movement patterns and foraging habits are altered, does this increase the vehicle-wildlife mortality risk from moderate to high for this section of the Trans-Canada Highway?
  2. Does this shift in elk movement patterns impact carnivore susceptibility to vehicle strike?
  3. Are deer at a higher risk for vehicle strikes due to loss of forage?
  4. What are the impacts of development on public safety (vehicle collisions) due to modification of forage type and availability adjacent to the TCH?

These are important to questions to answer to inform EIS Phase 2 including: Where are elk likely to be displaced to and does this have the potential to increase human-wildlife conflict with elk directly or cougar indirectly or vehicle-wildlife collisions?

The Design of Development to Minimize Impacts on Any Adjacent Wildlife Corridor
There is a requirement under the Canmore Municipal Development Plan Bylaw 2016-03 to discuss how development has been designed to minimize effects on wildlife. This has not been specifically presented in the EIS. Design elements should include but are not limited to placement of buildings, lighting, landscaping and fencing, educational signs, location of trails and trail heads.

Current Construction Schedule may extend into Sensitive Wildlife Windows
Alberta Environment and Parks recommends no construction in wildlife habitat during sensitive times of the year such as calving, breeding and use of winter ranges (AER 2013). The proposed Development is located in a Key Wildlife and Biodiversity Zone that is intended to protect the long-term integrity and productivity of key ungulate winter ranges, and to protect locally and regionally significant wildlife movement corridors. Industrial activity within or adjacent to Key Wildlife and Biodiversity Zones adds stress and increased energy drain for animals (Alberta Government 2015).

- McCallum and Paquet (1997) recommended no construction be allowed in the Silvertip Area from November to mid-May as this is sensitive times for **elk and deer on winter range**. They noted, if calving/lambing was found the area should stay closed to construction to mid-end of June. Three Sisters recommend winter closures from December 1 to June 15 in sensitive ungulate habitat. AER (2015) guidelines recommend winter range closures extend from Jan 15 to April 30.

- The **time window for breeding/nesting birds** in Alberta is roughly April 1 to August 31. In April, migratory birds start coming back north and both migratory and non-migratory birds begin nesting. However, some of the raptors, such as owls can begin nesting as early as February and March. (AER 2013). It is illegal to disturb an active nest (and some inactive nests for sensitive species) at any time of the year. Bird nests are protected under the provincial *Wildlife Act* (all birds) and the federal *Migratory Birds Convention Act* (migratory birds only).

The time for construction of the Development cited in the EIS are**:**

- Site preparation, grading and foundation work – Aug to end Sept 2017
- Framing – end Sept to beginning Nov 2017
- Interior Construction – Oct 2017 to Jan 2018
- Interior Finishing - Dec 2017 to May 2018
- Flat work/Landscape – April to May 2018

There is potential for overlap of construction activities and sensitive wildlife windows, especially if construction gets delayed or extended. This means three approaches must be considered by the Development:

- Relaxation from timing restrictions for construction in winter range will require approval and directions from AEP.
- Surveys for Raptor nests, extending a minimum of 100 m from the Development (into the LSWC) must be completed at the beginning of the breeding season. If nests are located, setbacks need to be defined based on the species and level of disturbance.
- Nest sweeps should be conducted by a qualified biologist before the clearing of vegetation.

3.1.3 Inadequate Impact Assessment or Significance Ratings

The Wildlife Effects Assessment is Fragmented and not Quantified
All the potential effects (habitat loss, mortality loss, and effects on movement) of Development on each Valued Ecosystem Component (VEC) (elk, deer, coyote, cougar and raptors), need to be discussed and evaluated together in relation to the baseline conditions and hence historic existing effects.

Effects of Development on Cougar
The Potential Environmental Effects for cougar for habitat, movement and mortality all state no effect due to cougars using habitat away from human influences and in the USWC. Recent data (Garrow and Everett 2013) indicates cougars use the LSWC and areas near human developments. As well local AEP biologists can provide background on cougar-human interaction history in the RAA over the last 7 years as there are well documented cases of cougars interacting closely to human developments, in some cases killing dogs, requiring the cougar to be euthanized. Please review this section for accuracy.

Significance ratings for cougar for all environmental effects (change in habitat, change wildlife movement, change in mortality risk) are negligible for environmental consequence pre- and post-mitigation. The EIS is too confined to only the construction footprint and activities and does not take a broader approach to the impacts this project has on predator-prey dynamics. The loss of elk forage and associated changes in elk movement and habitat selection will impact cougar-elk population dynamics. This needs to be addressed and the significance ratings revisited for cougar.

Increased Traffic due to Construction
The incremental traffic from construction should be assessed in relation to existing traffic information for Frontage and Palliser roads to identify the percent increase in traffic due to the construction of the Project.

3.1.4 Additional Mitigation Recommendations or Alternatives

A comprehensive Wildlife Management Plan specific to the proposed Development should be prepared before Construction. Under the Palliser Trail Area Structure Plan an Environmental Protection Plan must be submitted to the Town at the Development Approval stage to provide site-specific measures about environmentally responsible site planning and construction practices (Southwell Trapp & Assoc. 2000). Such issues as preventing wildlife from entering open trenches should be addressed, not solely monitoring the trenches for trapped animals.

A Wildlife Human Interaction Prevention Plan (WHIPP) should be developed for the construction prior to breaking ground. This should include the education of workers on the presence and importance of the lower wildlife corridor to encourage responsible use of the landscape and a wildlife attractant (garbage) management plan.

Alternative Option: A Multi-jurisdictional supported, long-term Management Plan is prepared and implemented to improve and maintain the functionality of the LSWC that has been reduced by cumulative effects from exiting developments and human use.

3.1.5 Additional Monitoring or Study Programs Recommended

Field studies should be designed to collect information on the biophysical characteristics of the LSWC, to allow the finalization of the functionality assessment of the wildlife corridor, per the BCEAG guidelines (2012).

3.2 NOISE

3.2.1 Missing Baseline Literature or Project Information

There is no baseline noise data, although there is a commitment to measure the background sound levels before construction begins. The noise baseline has been assumed to be 52dBA, based an article on the noise effects on wildlife by Shannon et al. (2016) (reference in EIS). If the existing baseline noise levels exceed 52dB, this would be problematic during construction.

3.2.2 Inadequate Impact Assessment or Significance Ratings

Sound surveys for background noise levels should be conducted and incorporated into the noise modelling assessments at the wildlife corridor receptor site for:

.

- Daytime noise for the construction phase (construction activities are only allowed between 7am and 10 pm, except for Sundays daytime, based on the Town of Canmore Noise Bylaw 1997), and
- Daytime and nighttime noise for the operation/maintenance phase, as stationary make-up air units will run 24 hours a day.

3.2.3 Additional Mitigation Recommendations or Alternatives

Good approaches to minimize noise during construction of the Development, which will be part of the Noise Monitoring and Abatement Plan, have been outlined in the Noise Impact Assessment. These commitments are outlined in Table 1.

3.2.4 Additional Monitoring or Study Programs Recommended

The Developer has committed to a comprehensive monitoring and management program for noise during construction. Noise will be monitored at closest point to receptor in the LSWC and will include:

- Background noise taken at the LSWC site.
- Sound measured on construction site at 5 to 10 m, to estimate noise at LSWC.
- Should noise exceed criteria of 52dB, corrective action to reduce noise will be taken. If noise exceeds 68 dB immediate work stoppage will be followed by corrective action.
- Monitored will occur daily until sound levels are below criteria levels for 2 weeks, then weekly monitoring will be pursued.

3.3 GROUNDWATER

3.3.1 Missing Baseline Literature or Project Information

Information on groundwater quality was not provided in the EIS, and a question not addressed is "Does the sand and gravel aquifer at the Northview Development site connect with the Town of Canmore potable aquifer?"

Information on the depth to groundwater is discussed in the Geotechnical Report but should be moved into the EIS:

- Groundwater at the development site is shallow, located within 2.2 to 2.3 m of the surface at lowest time of year (November) and could increase up to 1.2 to 1.3 m below the surface at other times of the year. There is pressurized sand and gravel aquifer (clay acts as aquitard) below the site.
- The 1:100-year flood level is 1310 masl, which is above the ground elevation at site 1309.8 m to 1310.48 m).

3.3.2 Key Issues Not Addressed or Inadequate Impact Assessment or Significance Ratings

Questions not addressed in the EIS include:

1. Will depressurization of the aquifer be required for development? If so what will be the effects and where will water be disposed? Will the Canmore potable water aquifer be affected?

2. Will the storm water facilities impact the ground water quality? The Palliser Area Structure Plan indicates that any engineering evaluation conducted as part of a subdivision application shall consider and investigate the impact of any proposed storm water faculties on ground water quality in the Town of Canmore (Southwell Trapps & Associates 2000).

3.3.3 Additional Mitigation Recommendations or Alternatives

Agree that a Groundwater Management Plan should be developed for the site prior to construction, as recommended in the Geotechnical Report. This should consider prevention and management of contamination, and what would be done if depressurization of the aquifer is needed.

3.3.4 Additional Monitoring or Study Programs Recommended

Agree that a Groundwater Management Plan should be developed for the site prior to construction.

3.4 SURFACE WATER

3.4.1 Missing Baseline Literature or Project Information

No missing baseline literature or project information was identified.

3.4.2 Key Issues Not Addressed or Inadequate Impact Assessment or Significance Ratings

There are two design/long-term drainage issues that should be addressed before construction of the Development:

- The main drainage outlet will be an infiltration / soak away tank. Will the cumulative impacts of the parking lot / building drainage discharge to the aquifer have impacts?

- What will be the impact of the increased runoff from the site have on the existing drainage system?

3.4.3 Additional Mitigation Recommendations or Alternatives

Alternative Option: The EIS proposes that the erosion and sediment control measures are the responsibility of the contractor. If erosion, sediment and runoff control are a critical impact, these should be designed to ensure that the impacts are addressed in construction. Hence, consider providing contractors a design for specific erosion and sediment controls for the site development, including sediment ponds (if required), site stabilization, and other controls to manage impacts during the construction process.

The Palliser Area Structure Plan recommends that treatment of all storm water should be provided as per Town of Canmore and Alberta Environmental Protection guidelines and subject to Best Management Practices.

Consider the incorporation of runoff controls within the development to minimize the impact of increased runoff on downstream drainage and groundwater.

Consider green infrastructure options, including bio-retention facilities or oil-grit separators to manage water quality from the parking lot.

3.4.4 Additional Monitoring or Study Programs Recommended

Include monitoring and reporting processes in the design of an erosion and sediment control plan.

3.5 OTHER

Federal, Provincial and Municipal Requirements and Restrictions
The list of federal, provincial and municipal requirements and restrictions in the EIS was reviewed and is complete. Two items are listed for clarification.

- The *Soil Conservation Act* under the mandate of Alberta Environment and Parks should be addressed. But the Alberta Environment and Parks can delegate this responsibility to the Municipalities, and appears to have done so with the Town of Canmore under the Engineering Design and Construction Guidelines (2010).

- The *Alberta Environmental Protection and Enhancement Act* covers many project aspects in addition to storm water management in Alberta. It outlines requirements for the protection of the environment including air, land, and water. This includes activities involving the release of substances to the environment, issues around conservation and reclamation, protection of potable water, handling and storage of hazardous substances and pesticides, waste minimization, recycling and management.

4 Information to be included in Phase 2 EIS

The following is a list of information to be included in the Phase 2 EIS to meet the requirements of the TOR and ensure the EIS is complete.

- Displacement of elk from winter forage habitat, and resultant effects on the elk population and elk-cougar dynamics, and potential for increased vehicle mortality.

- Human Use – Assess the impacts of increased human activity by residents from the Development on the functionality of LSWC in relation to the existing use levels. Include recognition of the BCEAG documents, and the baseline condition of LSWC.

- Wildlife Corridor Mitigation and Monitoring - Identify mitigation recommendations to reduce effects of increased human use, and to maintain or improve functionality of LSWC such as managing undesignated trail use, and monitoring.

- Human-Wildlife Conflict Mitigation:
  - Consider impacts of displacement of elk population on human-wildlife conflict. Includes where are elk likely to select forage once displaced? Are these areas high human use areas? Does this increase the probability for elk-human or cougar-human interactions?
  - Consider impacts of increased human use on human-wildlife conflict for all species including carnivores.

- Vehicle Strike Mitigation - If the probability of increased vehicle strikes is determined, how can this be mitigated?

- Public Safety – Consider impacts of development on public safety (vehicle collisions) due to modification of forage type and availability adjacent to the TCH.

- Wildlife Attractant Management - Considered impacts of increased human presence on wildlife attractant management.

- Noise Assessment - Assess effects of Noise during Operation/Maintenance that include cumulative noise from existing baseline sound surveys, and new noise sources from the Development for both daytime and nighttime conditions.

- Cumulative Effects – Consider the cumulative effects of the approved developments (e.g., church, and Silvertip 850 staff housing units) and developments proposed over the next 5 years on the Moustache Lands, on the functionality of the Lower and Upper Silvertip Wildlife Corridors.

- Provide a Summary Table of Environmental Consequences, Mitigation and Monitoring for all Disciplines for EIS Phase 2 (similar to that provided by Associated Engineering for EIS Phase 1).

- Compile a List of Commitments by discipline that have been agreed to by the Developer (identified in the EIS or baseline reports).

5 Tables

Table 5-1
Key Potential Impacts from Construction of the Proposed Palliser Moustache Multi-Family Residential Development
Summary of proposed mitigation and monitoring by Environmental or Socio-economic Discipline

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
Air Quality	Moderate	Adhere to Alberta Ambient Air Quality Objectives Dust Control Management Plan (storage pile and hauled material management) Carpooling; limit off-site idling	**Low**	Duration several months, Reversible, Local effects
Noise	High	Noise Monitoring & Abatement for Construction (Manage noise to 52 dB at LSWC), details in NIA Report include: • Physical barriers will be utilized to restrict the transmission of noise, so noise passing through the barrier will not affect the net sound level by more than 1 dB at the receiver • Sound proof housing or enclosures for noise producing machinery such as compressors, motors and generators • Efficient intake and exhaust silencers on air equipment and internal combustion engines • Sound deadening lining material on equipment such as storage and disposal bins, hoppers • Truck loading, unloading and hauling operations conducted as far away from the LSWC as possible, and conducted only during daylight hours • Electric rather than internal combustion engines	**Low**	Duration several months, Reversible, Local effects

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
		• Stationary noise producing equipment placed a maximum distance from LSWC • Tailgates with hydraulic systems to prevent banging. Existing baseline noise to be measured prior to construction Work hours limited to daytime by Town of Canmore Land Use Bylaw		
Surface Water – Local Drainage	Moderate	Erosion and Sediment Control Plan High rainfall events; onsite containment & treatment of water prior to release	**Negligible**	Effects during construction
Groundwater Quantity and Quality	Moderate	Groundwater Management Plan Determine pre-construction groundwater level Refueling and chemical use in restricted areas Spill Contingency Plan Erosion and Sediment Control Plan Manage high water flow events	**Low**	Effects during construction, Reversible, Local effects
Vegetation – Change in	High	Reclaim site with non-attractant vegetation (Town of Canmore Urban Environment)	**High**	Long-term change, Project Footprint, Irreversible

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
Plant Community		Monitor Restoration Success	(But EIS says Negligible in written Description)	
Vegetation – Introduction or Spread of Weeds	Medium	Develop Weed Management Plan for construction and for future maintenance during operations Meet requirement of Alberta Weed Control Regulation (2016) Monitoring Plan for Weeds during Construction	**Low**	Duration of construction, Local, Reversible
Terrain & Soils	Assessment Missed	Construction minimizes during wet soils to reduce compaction, erosion and sedimentation	**Assessment Missed**	10% of soils will be stockpiled for landscaping and 90% will be removed from site
Aesthetics	Moderate	Construction fencing to mask disturbance Follow Town of Canmore stringent architectural controls: • Town of Canmore Construction and Landscaping Standards • Town of Canmore Engineering Design and Construction Guidelines Execute Landscaping as soon as possible	**Moderate**	Duration several months, Local, Irreversible
Public & Worker Safety & Health	High	Active construction area will be fenced to exclude public Contractor to follow Contractor Health and Safety Responsibility 2017 (Town of Canmore 2017)	**Low**	Duration several months, Project Development Area, Irreversible

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
		Develop Project Specific Health and Safety Plan Only people directly involved with the, and with proper training will have access to site Fire Management Plan Develop Comprehensive hazard assessment for each aspect of Project Construction activities Personal protective gear Do not feed or harass wildlife Waste in secure containers		
Elk – Change in Habitat	Moderate	Minimize disturbance to Project Footprint Noise Monitoring and Abatement Program (levels no higher than 52 dB) Construction activates restricted specific hours (7 am to 10 pm)– Town of Canmore Noise Bylaw	**Moderate**	Regional, Long-term, Irreversible

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
Elk – Change in Wildlife Movement	Low	Prepare Wildlife Mitigation Plan to address wildlife concerns during construction Noisy construction (site preparation, grading and building construction) – Aug to beginning of Nov, and hence will occur before elk and deer winter period before spring raptor and other bird breeding seasons Noise Monitoring and Abatement Program (levels no higher than 52 dB) Temporary construction site fencing Wildlife proof garbage containers Select landscaping vegetation to reduce attractiveness to wildlife (Canmore Construction and Landscaping Standards (2016)) Contractor should embrace stewardship responsibility related to wildlife during construction	**Low**	Regional, Short-term, Reversible

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
Elk – Change in Mortality	Low	Work conducted per the Wildlife Management Plan Contractors will be made aware of no attractants or harassment of wildlife All chemical stored safely Spill Contingency Plan to avoid contamination Monitor open trenches during deep utility installation. Get Alberta Govt involved if animals trapped. Traffic control measures: maintain posted speeds (25 km/hr for off ramp and 50 km /hr on Palliser Trail) Carpooling to reduce number vehicles If work extends into critical wildlife constraints periods: breeding bird sweeps and work with qualified wildlife practitioner If elk or deer are present in immediate area, cease work until animals move off	**Low**	Regional, Short-term, Reversible
Deer – Change in Habitat	Low	See Above	**Moderate** (error in report)	Local, Long-term, Irreversible

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
Deer – Change in Wildlife Movement	Low		**Low**	Regional, Short-term, Reversible
Deer – Change in Mortality	Low		**Low**	Regional, Short-term, Reversible
Coyotes – Change in Habitat	Low	See Above	**Low**	Regional, Long-term, Irreversible
Coyotes – Change in Wildlife Movement	Low		**Low**	Regional, Short-term, Reversible
Coyotes – Change in Mortality	Low		**Low**	Regional, Short-term, Reversible
Cougars– Change in Habitat	Negligible		**Negligible**	Regional, Long-term, Irreversible
Cougars– Change in Wildlife Movement	Negligible		**Negligible**	Regional, Long-term, Reversible
Cougars – Change in Mortality	Negligible		**Negligible**	Regional, Short-term, Reversible

Environmental or Socio-economic Discipline	Environmental or Socio-economic Magnitude Pre-Mitigation	Mitigation & Monitoring	Environmental or Socio-economic Magnitude Post-Mitigation	Duration, Reversibility, Spatial Extent
Raptors– Change in Mortality	Low		**Low**	Local, Long-term, Irreversible
Raptors– Change in Mortality	Low		**Low**	Local, Short-term, Reversible
Raptors – Change in Mortality	Low		**Low**	Local, Short-term, Reversible

Table 5-2
Summary of Findings and Recommendations of the Third-party Environmental Impact Statement Review

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
General **Wildlife**	Baseline conditions and security of Lower Silvertip Wildlife Corridor (LSWC) not provided (BCEAG 2012). The housing development may not meet the setback distance from the LSWC, required by the BCEAG (2012).	-	**Alternative Option**: A Multi-jurisdictional, long-term Management Plan is prepared and implemented to improve and maintain the functionality of the LSWC that has been impacted by developments and human use.	-
	-	What actions will be taken by the Developer/Contractor if construction extends into the sensitive wintering season for elk and deer, or breeding season for birds?	At the beginning of the breeding season, surveys for raptor nests and bird sweeps for smaller nests are conducted, and directions are provided by Alberta Environment and Parks (AEP) on actions if nests are located. Relaxation of timing restriction for construction on ungulate winter ranges requires approval and direction from AEP.	-
	Baseline on birds including raptors present in the RAA was not provided.	There was not enough background information provided on the raptors to determine the significance rating of the potential impacts.		

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
General Wildlife	Camera data from AEP from June 2015 to May 2017 is the most recent and relevant data on wildlife use of the Upper Silvertip Wildlife Corridor but it was not referenced in the report.	Description of "design of development" to minimize the effects on the adjacent wildlife corridor, as required under the Canmore Municipal Plan Bylaw 2016-03, was not provided.	Development of comprehensive Wildlife Management Plan before Construction begins. Under the Palliser Trail Area Structure Plan an Environmental Protection Plan must be submitted to the Town at the Development Approval stage to provide site-specific measures about environmentally responsible site planning and construction practices (Southwell Trapp & Assoc. 2000). A Wildlife Human Interaction Prevention Plan (WHIPP) should be developed for the construction prior to breaking ground. This should include education of workers on the presence and importance of the LSWC to encourage responsible behavior around wildlife. Need to prevent wildlife from entering open trenches, related to deep utilities.	Finalize field information to complete the functionality and security analysis of LSWC (BCEAG 2012).

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
General Wildlife	Number of people and vehicles on site for various phases of construction were not been provided.	The incremental traffic from construction should be assessed in relation to existing traffic information for Frontage and Palliser roads.		
Elk and Deer	The importance of the Silvertip area as winter range for and migration of ungulates was not clearly defined. Elk and some deer migrate seasonally from higher elevations to the valley in Oct/Nov to access better forage areas, and then back to higher elevation around June.	The assessment on the impact of the removal of elk forage on the elk population movement patterns, elk population long-term displacement and associated elk-cougar population dynamics and increased risk for vehicle-wildlife mortalities was not addressed.	-	-
Cougar	Baseline on cougar is incomplete and underestimates the presence of, and subsequently the effect of development on this species.	The effect of development on cougars is underestimated. Potential changes in prey (elk) distribution, and in human-wildlife conflict need to be addressed.	-	-
Noise	No Baseline Sound Survey Conducted	Difficult to know if exiting baseline noise conditions are below 52dB.	Baseline Noise to be collected prior to construction. Detailed Noise Mitigation during Construction is outlined in Noise Impact Assessment, and appears adequate if baseline noise conditions are below 52dB.	-

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
Groundwater Quantity and Quality	No information on quality of portability of groundwater. Is there a connection to the Town of Canmore potable groundwater aquifer?	If there is a connection to the Town of Canmore potable groundwater aquifer, what are the potentials for effects on this aquifer? From contamination, or depressurization? Will the storm water facilities impact the ground water quality? The Palliser Area Structure Plan indicates that any engineering evaluation conducted as part of a subdivision application shall consider and investigate the impact of any proposed storm water faculties on ground water quality in the Town of Canmore. (Southwell Trapps & Associates 2000).	Support the development of a Groundwater Water Management Report prior to construction as recommended in the Geotechnical Report. **Alternative Option:** The EIA proposes that the erosion and sediment control measures are the responsibility of the contractor. If erosion, sediment and runoff control are a critical impact, these should be designed to ensure that the impacts are addressed in construction.	-
Air Quality	No Baseline Air Quality.	No quantification of the change in air quality.	-	How will air quality be monitored against the AAAQO? Air Quality Monitoring?

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
Surface Water – Local Drainage	No comments.	There are two design/long-term drainage issues that should be addressed before construction of the Development: • The main drainage outlet will be an infiltration / soak away tank. Will the cumulative impacts of the parking lot / building drainage discharge to the aquifer have impacts? • What will be the impact of the increased runoff from the site have on the existing drainage system?	**Alternative Option:** The EIS proposes that the erosion and sediment control measures are the responsibility of the contractor. If erosion, sediment and runoff control are a critical impact, these should be designed to ensure that the impacts are addressed in construction. Hence consider, providing contractors a design for specific erosion and sediment controls for the site development, including sediment ponds (if required), site stabilization, and other controls to manage impacts during the construction process. The Palliser Area Structure Plan recommends that treatment of all storm water should be provided as per Town of Canmore and Alberta Environmental Protection guidelines and subject to Best Management Practices.	Include monitoring and reporting processes in the design of an erosion and sediment control plan.

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
Surface Water – Local Drainage			Consider incorporation of runoff controls within the development to minimize the impact of increased runoff on downstream drainage and groundwater. Consider green infrastructure options, including bio-retention facilities or oil-grit separators to manage water quality from the parking lot.	
Vegetation – Plant community	What is the area of the development footprint? What percent of the area will be landscaped?	Positive benefit of removing attractant forage that draws wildlife (particularly elk) towards traffic, and replaced with non-attractant vegetation was not addressed.	Do not use legumes in reclamation as the Development Site is in as Key Wildlife and Biodiversity Zone (AER 2013).	Monitor use of reclaimed landscape by Wildlife
Terrain & Soils	Soil information in Geotechnical Report but no terrain information.	No Assessment Provided.	Soil is a resource and the 90% of the soil being removed should be utilized by the Town.	-

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
Terrain & Soils			Develop Soil Management Plan to be prepared before start of Construction, and include: • Where soil stripping occurs, salvage all topsoil. Store reclamation material separately (topsoil, subsoil and coarse woody debris) on the disposition such that it can be distributed evenly over disturbed sites for final reclamation (AER 2013). • If soil is stockpiled more than 2 months, Contractor to protect stockpile from erosion. • When handling wet or saturated topsoil extra care will be taken to minimize damage to soil structure.	
Aesthetics	-	-	-	A Visual Impact Assessment will need to be completed under the Development Permit (Southwell Trapp & Associates 2000).

Environmental or Socio-economic Discipline	Missing Baseline or Project Information	Issue Not Addressed or Inadequate Assessment	Recommended Additional Mitigation, or Alternate Options	Recommended Additional Monitoring or Studies
Public & Worker Safety & Health	None.	None.	None.	None.

Table 5-3
DRAFT Characteristics of Lower Silver Tip Wildlife Movement compared to Design Standards (Needs Confirmation of Some Information based on Field Surveys)
Based on Wildlife Corridor and Habitat Patch Guidelines for the Bow Valley (BCEAG 2012)

Design Standard	Wildlife Corridor Minimum Design Standards	Lower Silver Tip Wildlife Movement Corridor Status of Current Corridor	Cautions
Evaluation of Security to Wildlife from the LSWC based on its Biophysical Characteristics:			
Width/Area	350 m	466 m/78.26 ha	Includes fairways of Silvertip golf course and designated recreational trail that runs length of movement corridor so corridor should be wider
Length	1 km	2.34 km	Add 200 m
Topography	Flat	Slopes between 0 and 25 degrees Wolf, coyote, wolverine, elk, deer and moose prefer flatter areas (<10%). Lynx and cougar select for 10 to 20 degree slopes.	Movement corridor is above the development so the corridor needs to be wider. Add 100 m Slope is greater than 0 degrees. Add 100m
Vegetation Hiding Cover	>40%	Overall density may be less than 40%. (Need to verified with field data). • 28% Dense coniferous • 25% herbs • 24% grassland • 13% tall shrubland • 10% developed, exposed land or rock?	If less than 40% increase width Add 100m
Maximum add on total width is 200m. In other words, the minimum width the LSWC should be, based on its biophysical characteristics, to provide maximum security and functionality to moving wildlife is 550 m (ideal with of 350m + 200m). The LSWC is only 466 m wide. Because the LSWC cannot be increased in width, it must be managed through other approaches.			

Design Standard	Wildlife Corridor Minimum Design Standards	Lower Silver Tip Wildlife Movement Corridor Status of Current Corridor	Cautions
Anthropogenic Footprints in the LSWC	What is the linear density threshold? *Although referenced in the Wildlife Corridor and Habitat Patch Guidelines for the Bow Valley, no threshold was listed in the report. (BCEAG 2012).*	**Linear Features:** • **Total length: 10.1 km** • **Linear Density: 12.9 km/km2 (3.1 designated and 9.1 non-designated)** • Designated Recreational Trails: 2.4 km • on-Designated recreational trails: 7.1 km • Vehicular roads: 0.6 km • No other Rights-of-Ways • No existing development footprint **Golf Course**: 6.52 ha or 8.3%	

References

Alberta Energy Regulator (AER). 2013. Integrated Standards and Guidelines Enhanced Approval Process. 94 pp.

Bow Valley Corridor Ecosystem Advisory Group (BCEAG). 2012. Wildlife Corridor and Habitat Patch Guidelines for the Bow Valley. 27 pp.

Bow Valley Corridor Ecosystem Advisory Group (BCEAG). 1999. Guidelines for Human Use within Wildlife Corridors and Habitat Patches in the Bow Valley (Banff National Park to Seebe). 27 pp.

Canmore Municipal Development Plan Bylaw 2016-03. 95 pp.

Southwell Trapps & Associates. 2000. Palliser Trail Area Structure Plan - Town of Canmore. Prepared for Alberta Social Housing Corporation. 34pp.

Town of Canmore. Sept 2016. Environmental Impact Statement. Council Resolution 265-2016. 5 pp.

Town of Canmore. 2015. Human Use Management Review. Consultation Summary, Final Recommendation and Implementation Plans. 28pp.

Town of Canmore Noise Bylaw. Nov 1997. 6 pp.

Appendix A – Terms of Reference for EIS

Terms of Reference
Environmental Impact Statement (EIS) for a Comprehensively Designed Multi-Family Rental Housing Development at 1451 Palliser Trail, Canmore, Alberta

1.0 Introduction

1.1 Planning Context

On February 13, 2017, the Palliser Moustache Rental Apartment Direct Control District [2016-23] was approved by Council. The intent of this district is:

"To provide for a comprehensive medium to high density multi-family rental housing development. The district regulations are intended to provide a basic outline for development in this area; however, it is anticipated that Council when acting as development authority may choose to alter any of these regulations. Commercial uses are intended to provide residents with basic retail, personal and food services that can be readily accessed without motorized transportation."

The District falls within the Palliser Area Structure Plan (ASP) and is bordered by the Trans-Canada Highway Off-Ramp to the south and west, and Palliser Trail to the north and east. The District is approximately 1.70 ha in area.

The BCEAG Wildlife Corridor and Habitat Patch Guidelines for The Bow Valley (Updated 2012) and Municipal Development Plan (MDP) identifies a Wildlife Corridor adjacent to Palliser Trail, approximately 33m from the north portion of the subject site. It is further described as the 'Lower Wildlife Corridor' in the 2007 Silvertip Area Structure Plan (ASP).

The Town of Canmore recently awarded the development of 148 purpose built rental units to Northview Apartment REIT. Three buildings are proposed to be constructed to accommodate these units.

It is expected that Developer will review and apply relevant sections of following guidelines in the design and development of the Rental Apartment Housing Project and Environmental Impact Statement:

- Recommendations for Trails and Management of Recreational use for The Town of Canmore: South Canmore and West Palliser (2012)
- BCEAG Wildlife Corridor and Habitat Patch Guidelines for The Bow Valley (2012)
- Palliser Area Structure Plan- Town of Canmore (2000, updated in 2016)
- Silvertip Area Structure Plan – Town of Canmore (2007)
- Municipal Development Plan Bylaw 2016-03– Town of Canmore (2016)
- Palliser Moustache Rental Apartment DC (2016-23) District - Town of Canmore (2017)
- Human Use Management Report (2015)
- Contractor health and Safety Guidelines, Responsibilities and Sign off - Town of Canmore (2017)

1.2 Requirement for EIS

In accordance with the DC District and as part of any comprehensively designed multi-family residential rental development application, an Environmental Impact Statement (EIS) is required to be prepared.
The Town of Canmore's Municipal Development Plan also identifies the requirements for an independent third party review of the EIS be conducted by the Town.
The preparation of an EIS is outlined in the Town's EIS Policy. Prior to preparing the EIS, the Town must prepare a Terms of Reference (TOR) and obtain input from a qualified third party reviewer.

2.0 Purpose of the EIS

The purpose of the EIS is to provide sufficient information to Council to make an informed decision on the application to develop multi-family rental housing. The EIS will outline existing conditions, identify significant natural and ecological features, determine the nature and scale of the potential impacts generated by the proposal, discuss cumulative effects in reference to existing, approved and future developments in the area, provide recommendations for how to best avoid or mitigate those impacts, identify residual impacts and their significance, and recommend further studies and/or monitoring to be undertaken through the course of implementation.

3.0 Scope

In accordance with the DC District and as part of any comprehensively designed multi-family residential rental development application, an EIS is required to be prepared.
The EIS for the application to develop a Comprehensively Designed Multi-Family Rental Housing Development will contain the following information at a minimum.

The EIS should be structured to describe: the Baseline or Existing Conditions including the ecological conditions and the developments, the Project Impact Assessment that identifies the effects from the Rental Apartment housing development, and these effects added cumulatively to the Baseline Conditions, and a Future Impact Assessment that addresses probable projects and their effects that could occur in the next five years.

1) Proposal Overview
    a. A description of the proposal
    b. Mapping of the proposal in relation to existing site conditions and constraints, and other existing developments.
    c. Identification of federal or provincial requirements or restrictions relevant to the study, and how the proposal will meet the intent of legislative requirements.
    d. An overview of the planning policy context, including statutory documents and zoning.

2) Detailed Description of the Proposal (Project)
    a. Describe the benefits of the project,
    b. Site location map,
    c. A detailed description of the project and its associated infrastructure, including the development plan and schedule, and utilities including water, waste water and waste management,

d. Number of people and traffic associated with the project during construction, and
e. Increase in number of people, and human use and traffic associated with the housing development

3) Public Consultation and Approach Used to Addressed Concerns Raised
   a. Identify the approaches used to consult with the public to identify their concerns about the Project, and how the issues have been addressed.

4) Study Areas and Valued Ecosystem Components
   a. Study Areas should be defined to include all the effects from the project. Study areas will vary in size and shape for each discipline. For example, the study area for soils and landforms will be smaller to reflect the disturbance from the Project footprint, and the wildlife study area should include the lower movement corridor. Cumulative effects study areas need to include all overlapping effects from other development in an area larger than the Project Area, such as the Silvertip Employee Housing area to the west and proposed Catholic Church site.
   b. Valued Ecosystem Components (VECs) are any part of the environment that is considered important by the proponent, public, scientists or government involved in the assessment process. Importance may be determined based on cultural values or scientific concern. Several key features of the environment such as the lower wildlife movement corridor should be selected as VECs for this assessment.

5) Baseline Conditions, including Impacts from Existing Developments
   a. A description of existing environmental conditions within the defined Study Areas, including:
      i. Air Quality and Noise
      ii. Surface and Bedrock Geology
      iii. Groundwater Quantity and Quality
      iv. Surface Water Quantity and Quality
      v. Aquatic Ecology including wetlands
      vi. Terrain, Soil and Vegetation
      vii. Wildlife including populations, habitat and movements corridors
      viii. Biodiversity (unique and special species and communities)
      ix. Land and Resource Use, and Management
         1. Existing human use of project site and study areas (including the Lower Wildlife Movement Corridor)
         2. Public Safety
      x. Hazards and Constraints resulting from existing site conditions.

b. A literature review of relevant studies including background ecological and development information, and existing effects studies (e.g., *Silvertip EIA, Silvertip wildlife movement corridor monitoring information, monitoring Palliser PAH Project 2008, wildlife-vehicle collisions assessments, human-wildlife encounters in local region, 2015-2017 Government of Alberta camera data, studies on unleashed dog in movement corridors etc*.), and
c. Any additional background studies available for this Project and the study area (e.g., recreational trail use trackers).
d. Effects from existing developments, including existing mitigation

6) Project Impact Assessment
    a. Environmental Impact Assessment:
        i. Identify the positive and negative effects from the proposed Rental Apartment Housing development, and opportunities to reduce the current environmental effects in the proposed study areas.
        ii. Outline alternatives and modifications to the proposal to limit or remove impacts.
        iii. Identify the cumulative effects from the project and the baseline developments, related to a minimum of the following disciplines:
            1. Air Quality and Noise
            2. Surface and Bedrock Geology
            3. Groundwater Quantity and Quality
            4. Surface Water Quantity and Quality
            5. Aquatic Ecology including wetlands
            6. Terrain, Soil and Vegetation
            7. Wildlife including populations, habitat and movements corridors
            8. Biodiversity (unique and special species and communities)
            9. Land and Resource Use, and Management
                a. Existing human use of project site and study areas (including the Lower Wildlife Movement Corridor)
                b. Public Safety
            10. Hazards and Constraints resulting from existing site conditions.
    b. An evaluation of whether the form of the proposal (project) can be accommodated given any identified ecological sensitivities or constraints, including land use type and intensity of the proposed development.
    c. Historic Resource Impact Assessment
        i. Determine whether the project site requires clearance through Alberta Culture and Tourism under the Historic Impact Assessment Act.

d. Mitigation and Environmental Management Plans
    i. Provide recommendations for how to reduce, avoid or mitigate negative impacts, or build on positive impacts from the proposed housing project.
    ii. Specific recommendations on how to mitigate long-term human use impacts resulting from the proposal.
    iii. Where applicable provide more detailed environmental management plans such for effects on wildlife, habitat and the movement corridor and to reduce human-wildlife interactions.
e. Define Significance of Effects
    i. Identify the significance of both the pre-mitigated and residual (post-mitigated) effects from the project
    ii. Significance Terms to be used in defining the Impact for the Assessment shall include:
        1. Direction (positive or negative);
        2. Context (the current and future sensitivity and resilience of the Valued Component (VC) to change that may be caused by the Project);
        3. Magnitude (the expected size or severity of the residual effect, e.g., number of hectares lost or gained, amount of population change);
        4. Duration (the length of time the residual effect persists, e.g., days, years, decades);
        5. Frequency (number of times the effect happens per unit time);
        6. Geographic extent (the spatial extent of the effect);
        7. Reversibility (whether the residual effect on the VC can be reversed once the Project or activity causing disturbance ceases); and,
        8. Likelihood (whether a residual effect is likely to occur).
f. Monitoring and Future Study Recommendations
    i. Monitoring programs are required both to verify the Housing Development predicted effects, and to track uncertain effects. Identify potential monitoring programs, for the project regional effects.
    ii. Identify whether more extensive environmental studies are required.

7) <u>Future Development and Impact Assessment</u>
    a. Conduct cumulative effects assessment (CEA) that includes projects that could occur in the next five years (*e.g. church).*
    b. Only residual effects from the proposed project that are significant should be addressed in the broader CEA.
    c. CEAs for projects can be variable depending on the existing and future developments near the proposed project development area.
        i. Issues that may need to be addressed in the CEA include:
            1. Incremental effects on the lower wildlife movement corridor,

2. Increased human-wildlife interactions, and
3. Increased traffic on human safety and wildlife mortality.

8) Regional and Cooperative Efforts
   a. Discuss regional and cooperative efforts that have been initiated by developers in the region to address regional environmental issues such as mitigating effects of human use of the movement corridor and reducing human wildlife effects *(e.g. fence and signage, vegetation that does not attract wildlife).*
   b. Identify regional monitoring programs (e.g. lower movement corridor, wildlife encounters and/or mortality).

9) Specific Analyses to be Considered
   a. Human-use impacts on wildlife populations and habitat.
   b. Alternatives and modifications to the proposal to limit or remove impacts.

4.0 EIS Report

The EIS report will contain all information required by this Terms of Reference. The format of the report will include mapping, tables and supporting text.

5.0 Review of EIS

The EIS Policy requires that this EIS Terms of Reference and the resulting EIS are reviewed by an independent qualified third party that reports directly to the Town. The EIS Policy also requires that the third-party reviewer be involved from the beginning of the process. Therefore, the Town and its third-party reviewer will work with the applicant's consultant to update and revise the EIS as may be necessary through the review process. As questions arise or incremental work is produced by the Town or its consultant, it will be provided to the applicant and their consultant for consideration.

The EIS must be submitted and reviewed by the Town's third party reviewer prior to Council's review of a Development Permit for a residential development.

The Town may also refer the EIS to other agencies or committees for comment, including but not limited to the Province of Alberta and Canmore's Environmental Advisory Review Committee (EARC).