

BEDROCK AND TOPOGRAPHY

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The easternmost parcel of Urban Reserve (UR) land in the proposed development is documented as containing significant geotechnical features including rock outcrops and slopes greater than 35%. Outcrops and steep slopes are key triggers that limit development as defined in the Town's Guidelines for Subdivision and Development in Mountainous Terrain (GSDMT) as well as in the Municipal Development Plan (MDP). Any development concept in the proposal area is likely to require significant excavation of bedrock by blasting or another method. As a result, this land is likely not suitable for development.

Council cannot reasonably make a decision to rezone this land for residential development without the following information:

1. Detailed site-specific information on the slopes of the land along with the extent and location of the rock outcrops;
2. A plan describing how any development in this area could possibly be implemented consistent with the GSDMT and MDP; and
3. A preliminary plan for any required excavation including whether blasting is being proposed and what provisions will be made to protect the safety of the community and the integrity of adjacent properties and town infrastructure.

These issues were not addressed in the material presented at the First Reading. We see this as a significant oversight.

Documented Geotechnical Features

The easternmost parcel of land in the proposed Peaks of Grassi development contains mapped rock outcrops and slopes in excess of 35% as documented in Figures 3 and 4 of the 1995 Agra Report on the "Three Sisters Resorts Inc., Pods 7, 8 and 9, Slope Stability and Geotechnical Assessment" that was provided to us by the Town Planning and Development Department. It is also documented in "Peaks of Grassi Phase III Land Use Report in Support of an Application for Amendment to the Land Use Bylaw" dated April 1998 and prepared by TSRI and UMA Engineering Ltd. as shown in the figure below.

Key Points:

The majority of the land in the easternmost parcel of this rezoning application has bedrock outcrops and steep slopes.

The NRCB Decision and Undertaking by Three Sisters Resorts Inc. (TSRI) states there will be no construction considered on slopes of over 25 percent.

The GSMDT states that slopes of 35% or higher should be avoided, and bedrock outcrops should not be altered.

The MDP states that natural landform features shall be preserved.

Geotechnical screening is required.

Any blasting carries significant risks to existing houses and infrastructure.



Slope plan showing proposed UR plot in yellow outline and slopes over 35% and slopes 22 - 35% associated with the rock outcrop (Source: Peaks of Grassi Phase III Land Use Report in support of an application for Amendment to the Land Use Bylaw. April 1998)

Clearly, these geotechnical features were key factors in the decision not to develop this parcel as part of the original development.

NRCB Decision and Undertaking by Three Sisters Resorts Inc. (TSRI)

An undertaking by TSRI in its Environmental Impact Assessment for the 1992 for the NRCB Public Hearing states the following:

“No construction is to be considered on slopes of over 25 percent.”

The commitment to the undertakings is specifically noted in the NRCB Decision. As a result, any development on the areas with slopes exceeding 25% here would be a violation of the NRCB approval. As can be ascertained from the figure above, a large fraction of the easternmost parcel of land is impacted by this restriction.

Guidelines for Subdivision and Development in Mountainous Terrain

The Town’s Guidelines for Subdivision and Development in Mountainous Terrain which was adopted by Council on June 13, 2006 includes the following pertinent statements:

Section 2.1.1 “Slopes of 35% or greater which require grading in order to create building sites should be avoided.”

Section 2.1.3: “Prominent topographic features such as knolls, ridgelines, bedrock outcrops, cliffs, ravines should not be graded or otherwise altered.”

Section 2.2.2: “Throughout new developments sloped terrain and other significant features should remain undisturbed to the greatest extent possible in order to maintain slope stability and create an esthetically pleasing community. Prior to development, significant features of the landscape shall be identified and should be protected and incorporated into the subdivision plan or site plan. Significant features may include, unique landforms – particularly crests of slopes, ridgelines, cliffbands and escarpments. Development around these features should complement the character of the feature.”

The original subdivision development of this area clearly honored these guidelines by excluding this parcel of land. A key question that Council should be asking is “Can this parcel of land be developed now in a manner consistent with the GSDMT?”

Municipal Development Plan (MDP)

The Canmore MDP in section 8.8(e) “Preservation of Natural Features” reinforces the GSMDT by stating the following:

“Wherever feasible, natural features including landform and vegetation shall be preserved to contribute to the natural visual quality, continuity of tree cover and screening of development (GMP-adapted)”.

This rock outcrop with steep slopes clearly qualifies as a natural feature and landform that should be protected from development.

Requirement for a Geotechnical Report

The definition of Urban Reserve includes the provision for geotechnical screening to determine if the lands are suitable for development. We have been advised by the Town Planning and Development Department that a geotechnical report was not required to be submitted with the current application as detailed geotechnical reports are not typically required at the rezoning application stage. However, the definition of Urban Reserve includes the following statement:

“Lands located within this district have received preliminary screening only and may require environmental, geotechnical, and other screening to determine their potential suitability for any development.”

A geotechnical screening report at this stage would certainly aid in determining if this land is suitable to even consider for development. The report should provide additional information on the slopes of the land and the extent and location of the rock outcrops. It should also include a preliminary plan addressing how any development in this area could possibly be implemented consistent with the Town’s GSDMT and MDP. Finally, there should be a plan for any required excavation including specifically whether blasting is being proposed and, if so, what provisions

will be made to protect the safety of the community and the integrity of adjacent properties and community infrastructure.

The Town's Planning and Development Department has advised us that detailed geotechnical reports are typically required at the subdivision stage and that, even if the land is rezoned, it may subsequently be determined undevelopable. We submit that a detailed geotechnical report was not necessarily required at this stage; however, a geotechnical screening report that addresses slopes and features such as rock outcrops that may impact suitability for development should be provided.

A Preliminary Plan of Development

If this parcel of land were to be developed with either 20 m wide lots as proposed or with 15 m wide lots as suggested by the Town Planning and Development Department at First Reading, it is very likely that a significant volume of rock would have to be excavated in order to meet the Town's limitations on grades. It is difficult to understand how a recommendation on lot width can be made without a more detailed consideration of the geotechnical issues and excavation requirements.

Furthermore, the proposal is for development "consistent with the current neighborhood". Given that the original development did not develop on any of the mapped outcrops or in areas with grades greater than 35%, it is not clear how the proposed development can be consistent with the current development. More information should be made available to both Council and the public. A detailed preliminary plan for development of these lands that reasonably accounts for the geotechnical features should be required by Council.

Methods of Excavation

A very significant concern to the members of the community is what methods of excavation are being considered. It is our understanding that the developer has been inquiring about blasting at this location. We have recently consulted with Dr. Derek Martin of the University of Alberta who is both a part-time Canmore resident and a recognized expert on rock engineering. Dr. Martin has strongly advised against blasting of rock at this location as it will pose a very significant risk to several surrounding properties and the corresponding infrastructure. Inevitably, the Town of Canmore will share that burden of risk. Dr. Martin has also advised that other forms of excavation would likely be prohibitively expensive for such a development. A copy of Dr. Martin's letter is included after this report.

In summary, Council should be fully apprised of the unusual complexities and risks that the Town will need to manage and consider at later stages in the development process when it considers whether this UR land is suitable for development. We believe these risks are cost-prohibitive and this parcel of land, with its bedrock outcrops and steep slopes in excess of 25% and even 35%, should not be rezoned for any development.