

Nondalton Tribal Council Comments – Pebble Project Preliminary Draft EIS, Section 3.13 - Geology

Agency	Comment Number	Section, Paragraph, and Page #	Relevant Text/Subject	Comment	Response
Nondalton Tribal Council	1	Section 3.13.4, 3.13.4.1	Alternative 1- Applicants proposed Alternative Mine Site	Colluvium is to some extent self-defined and a common geologic term. The geologic term Felsenmeer, coming from German and meaning “sea of rock,” is used to describe exposed rock surfaces that have been quickly broken up by frost action so that much rock is buried under a cover of angular shattered boulders. While common to arctic conditions, the term is not common to most geologists and others familiar with mining projects and therefore should be described further.	<p>The term “felsenmeer” is included in the project glossary, available on the public website as follows:</p> <p>Felsenmeer – an assemblage of angular and subangular rock fragments that have been broken up largely through freeze and thaw cycles in high mountainous regions; these often mantle the surface above timberline where slopes are not too steep to retain the loose debris.</p>
Nondalton Tribal Council	2	Section 3.13.4, 3.13.4.2	Alternative 1- Applicants proposed Alternative Construction Materials	This subsection describes the construction materials as “suitable for use as rockfill” but does not describe what properties make them suitable. The section should be more descriptive and address what the physical and chemical characteristics of the rockfill materials are in terms of “suitability.” In numerous instances construction materials used in mining projects, because they were not adequately characterized (such as for acid drainage or even nitrogen from blasting in some cases) have led to significant adverse impacts that required additional mitigation to meet regulatory requirements and prevent environmental degradation. This same comment is pertinent to other descriptions of construction materials throughout Section 3.13.	<p>The discussion referenced pertains specifically to excavated rock (from quarries A, B, and C) that would be used in embankment construction. The text notes the quarry rock is typically a strong and chemically resistant rock (i.e., resistant to chemical weathering). Granodiorite is defined in the project glossary (available on the public website) as: “an intermediate composition, coarse-grained igneous rock.” The “intermediate” composition (mineral content) of granodiorite is defined as greater than 20% quartz and 65% to 90% of the feldspar mineral group as plagioclase (sodium and calcium feldspars). Other similar igneous rocks may have greater potassium feldspar (orthoclase) content, such as granite. Because of the resistance to physical weathering and the chemical content of the mineralogy of granodiorite, this rock type does not tend to break apart into small pieces and chemical weathering does not produce adverse effects such as acid rock drainage. Section 4.18, Water and Sediment Quality, clarifies where monitoring would occur to assess explosives residue potentially leaching from this material. Explosives residue was considered in evaluating changes to water quality (SRK 2018a).</p> <p>In addition, the material sites that would support construction outside of the mine site are not in mineralized areas and it is not anticipated that leachable</p>

Nondalton Tribal Council Comments – Pebble Project Preliminary Draft EIS, Section 3.13 - Geology

Agency	Comment Number	Section, Paragraph, and Page #	Relevant Text/Subject	Comment	Response
					metals would be a significant concern. However, mitigation including testing of material sites for leachable metals and PAG rock is included in the project and described in Chapter 5, Mitigation.