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Table	Summar	y of geotechn d developmer	ical issues, ris	ks and conse ted risk treat	equences to the ment practices
	lssue	Likelihood of occurrence	Consequences to development	Level of risk to development	Risk treatment
1	Surface soil erosion	Possible	Minor	Moderate	Control upslope surface runoff with table drains and culverts; control shallow subsurface seepages
2	Tunnel erosion	Possible	Minor	Low	As for issue 1
3	Soil creep	Unlikely	Minor	Low	No action required
4	Shallow-seated landslide or soil collapse	Unlikely	Minor	Low	Support excavations more than about 0.8m high with engineered, drained retaining walls. Seek detailed engineering advice for access drives on steeper sandy slopes (in particular, for lot 2)
5	Rock falls from cliff sections, etc	Barely credible	Minor	Very low	No action required
6	Deep-seated landslide (involving, eg boulder beds, talus, colluvium, bedrock etc)	Rare	Major	Low	No action required
7	Foundation movement due to reactive or unstable soils	Likely	Minor	Moderate	Conduct appropriate AS2870 (2011) site classification at each future house site. Classifiers should consider this report.
8	Low strength materials (eg uncontrolled fill, soft soils)	Likely	Minor	Moderate	As for issues 1 and 7. Seek detailed engineering advice for access drives on steeper sandy slopes (in particular, for lot 2)
9	Vegetation removal	Likely	Minor	Low	Revegetate where appropriate. Avoid removing or planting large trees in clayey soils close to houses.
10	Flooding or waterlogging	Flooding Unlikely; waterlogging locally Possible	Minor	Low (flooding); Moderate (waterlogging)	As for issue 1.
11	Riverbank collapse	Not applicable			No action required
12	Site contamination from previous activities	Unlikely	Minor	Low	Visual inspection during site construction, and clean up as required.
13	On-site domestic wastewater disposal	Not applicable. The subdivision will be sewered			No action required
14	Earthquake risk	Almost certain (magnitude <5); Likely (magnitude>5)	Insignificant to Minor	Low to Moderate	Generally accept risk. A similar range of risks exists throughout Tasmania.
15	Sea level rise	Not applicable			No action required
16	Storm surge	Not applicable			No action required
17	Shoreline recession	Not applicable			No action required

1. The assessments are unavoidably subjective to varying degrees.

2. See next page for an explanation of the terms used in this table.

 Further reading: Australian Geomechanics Society Subcommittee (2007). Landslide Risk Management Aust. Geomechanics 42(1) March 2007, pp 1 – 219.



QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

Indicative Value of A proximate Annual ProbabilityI: CATASTROPHIC2: MAJOR3: MEDIUM4: MINOR5: 5%5: 0.5%5: 0.5%5: 0.5%1NSIGNIFICANTA - ALMOST CERTAIN 10^{1} VHVHVHVHHMHM0.5%B - LIKELY 10^{2} VHVHVHMHMMLC - POSSIBLE 10^{3} VHMMMLD - UNLIKELY 10^{4} MMLVLE - RARE 10^{5} MMLVLF - BARELY CREDIBLE 10^{6} LLVLVLNotes:(5)For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.(6)When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current	Ditt.	LIKELIH	000	CONSEQU	ENCES TO PROPH	CRTY (With Indicati	ve Approximate Cost	of Damage)
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RISK LEVEL IMPLICATIONS

time.

	Risk Level	Example Implications (7)
ИН	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
Н	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reducrisk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Terminology used in geotechnical risk assessment (1 page)

J. Citizen: proposed subdivision, Blackmans Bay Geotechnical report



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Examples of good and poor hillside engineering practices

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007



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