

Appendix P - SLR Impact Significance Determination



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1.0 Impact Assessment Methodology

This assessment methodology enables the assessment of biophysical, cultural, and socio-economic impacts, including cumulative impacts and impact significance, by considering intensity, extent, duration, and the probability of the impact occurring. Consideration is also given to the degree to which impacts may cause irreplaceable loss of resources, be avoided, reversibility of impacts and the degree to which the impacts can be mitigated.

1.1 Methodology Used to Determine the Significance of Impacts

Evaluation of impact significance follows a stepwise process as set out below. Part A (Table 1) provides the definition for determining impact consequence (combining intensity, extent, and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Parts B (Table 2) and Part C (Table 3). The impact significance is interpreted in Part D (

Criteria for ranking the PROBABILITY of impacts	Unlikely	Where the possibility of the impact to occur is very low or not expected to occur, i.e. $\leq 5\%$ chance of occurring.
	Conceivable	Where the impact could occur but there is little evidence to suggest that it would happen. >5 to $\leq 35\%$ chance of occurring.
	Possible/frequent	Where there is a reasonable probability that the impact would occur, i.e. >35 to $\leq 65\%$ chance of occurring.
	Probable/likely	Where there is high probability that the impact would occur and is not continuous i.e. >65 but $\leq 95\%$ chance of occurring.
	Highly Likely/ Definite/ Continuous	Where an impact is certain to occur, >95 to 100% chance of occurring.

Table 4). This methodology is utilised to assess both the incremental and cumulative project related impacts.

Table 1: Criteria and Definitions for Determining Consequence and Significance

PART A: DEFINITIONS AND CRITERIA		
Definition of SIGNIFICANCE		Significance = consequence x probability
Definition of CONSEQUENCE		Consequence is a function of intensity, extent, and duration
Criteria for ranking of the INTENSITY of environmental impacts	VL	- Negligible change (severity), disturbance, or nuisance with very minor consequences or deterioration. - Targets, limits, and thresholds of concern never exceeded. - Species or habitats with negligible importance.
	L	- Minor (Slight) change (severity), disturbance, or nuisance with minor consequences or deterioration. - Targets, limits, and thresholds of concern rarely exceeded. - Habitats and ecosystems which are degraded and modified.
	M	Moderate change (severity), disturbance, or discomfort with real but not substantial consequences.

PART A: DEFINITIONS AND CRITERIA

		- Targets, limits, and thresholds of concern may occasionally be exceeded. - Habitats or ecosystems with important functional value in maintaining biotic integrity.
	H	- Prominent change (severity), disturbance, or degradation with real and substantial consequences. - May result in illness or injury. - Targets, limits, and thresholds of concern regularly exceeded. - Habitats or ecosystems which are important for meeting national/provincial conservation targets.
	VH	- Severe change (severity), disturbance, or degradation with severe consequences. - May result in severe illness, injury, or death. - Targets, limits, and thresholds of concern are continually exceeded. - Habitats or ecosystems of high importance for maintaining the persistence of species or habitats that meet critical habitat thresholds.
	VL+	- Negligible change or improvement. - Almost no benefits. - Change not measurable/will remain in the current range.
	L+	- Minor change or improvement. - Minor benefits. - Change not measurable/will remain in the current range.
	M+	- Moderate change or improvement. - Real but not substantial benefits. - Will be within or marginally better than the current conditions.
	H+	- Prominent change or improvement. - Real and substantial benefits. - Will be better than current conditions.
	VH+	- Substantial, large-scale change or improvement. - Considerable and widespread benefit. - Will be much better than the current conditions.
Criteria for ranking the DURATION of impacts	Very Short term	Very short, always less than a year or may be intermittent (less than 1 year). Quickly reversible.
	Short term	Short term occurs for more than 1 but less than 5 years. Reversible over time.
	Medium term	Medium-term, 5 to 10 years.
	Long term	Long term, between 10 and 20 years. Likely to cease at the end of the operational life of the activity or because of natural processes or by human intervention.
	Permanent	Very long, permanent, +20 years. Irreversible. Beyond closure or where recovery is not possible either by natural processes or by human intervention.

PART A: DEFINITIONS AND CRITERIA		
Criteria for ranking the EXTENT of impacts	Within/near site	The impact is limited to the immediate footprint of the activity and the nearby vicinity.
	Local	The impact goes beyond the site footprint but is confined to a localised area / project surroundings / remains within a habitat or vegetation type or local (municipal) administrative boundary.
	Regional	The impact goes well beyond the site footprint and is regional but remains within an ecosystem or regional (district/province) administrative boundary.
	Inter-regional	The impact affects several regions, e.g. several ecosystems or regional administrative units.
	National/International	The impact extends to a national scale and/or beyond.

Table 2: Determining Consequence

PART B: DETERMINING CONSEQUENCE – APPLIES TO POTENTIAL POSITIVE OR ADVERSE IMPACTS						
		EXTENT				
		Within/near site	Local	Regional	Inter-regional	National/International
INTENSITY = VL						
DURATION	Very short term	Very Low	Very Low	Very Low	Low	Low
	Short term	Very Low	Very Low	Low	Low	Medium
	Medium term	Very Low	Low	Low	Medium	Medium
	Long term	Low	Low	Medium	Medium	Medium
	Very long term/permanent	Low	Medium	Medium	Medium	High
INTENSITY = L						
DURATION	Very short term	Very Low	Very Low	Low	Low	Medium
	Short term	Very Low	Low	Low	Medium	Medium
	Medium term	Low	Low	Medium	Medium	Medium
	Long term	Low	Medium	Medium	Medium	High
	Very long term/permanent	Medium	Medium	Medium	High	High
INTENSITY = M						
DURATION	Very short term	Very Low	Low	Low	Medium	Medium
	Short term	Low	Low	Medium	Medium	Medium
	Medium term	Low	Medium	Medium	Medium	High
	Long term	Medium	Medium	Medium	High	High
	Very long term/permanent	Medium	Medium	High	High	High
INTENSITY = H						
DURATION	Very short term	Low	Low	Medium	Medium	Medium
	Short term	Low	Medium	Medium	Medium	High
	Medium term	Medium	Medium	Medium	High	High

PART B: DETERMINING CONSEQUENCE – APPLIES TO POTENTIAL POSITIVE OR ADVERSE IMPACTS

	Long term	Medium	Medium	High	High	High
	Very long term/permanent	Medium	High	High	High	Very High
INTENSITY = VH						
DURATION	Very short term	Low	Medium	Medium	Medium	High
	Short term	Medium	Medium	Medium	High	High
	Medium term	Medium	Medium	High	High	High
	Long term	Medium	High	High	High	Very High
	Very long term/permanent	High	High	High	Very High	Very High

Table 3: Determining Significance

PART C: DETERMINING SIGNIFICANCE - APPLIES TO POSITIVE OR ADVERSE IMPACTS						
		CONSEQUENCE				
		Very Low	Low	Medium	High	Very High
PROBABILITY (of exposure to impacts)	Unlikely	Insignificant	Insignificant	Very Low	Low	Medium
	Conceivable	Insignificant	Very Low	Low	Medium	High
	Possible/frequent	Insignificant	Very Low	Low	Medium	High
	Probable/likely	Very Low	Low	Medium	High	Very High
	Highly likely/definite/continuous	Very Low	Low	Medium	High	Very High
Criteria for ranking the PROBABILITY of impacts	Unlikely	Where the possibility of the impact to occur is very low or not expected to occur, i.e. ≤ 5% chance of occurring.				
	Conceivable	Where the impact could occur but there is little evidence to suggest that it would happen. >5 to ≤35% chance of occurring.				
	Possible/frequent	Where there is a reasonable probability that the impact would occur, i.e. >35 to ≤65% chance of occurring.				
	Probable/likely	Where there is high probability that the impact would occur and is not continuous i.e. >65 but ≤95 % chance of occurring.				
	Highly Likely/Definite/Continuous	Where an impact is certain to occur, >95 to 100% chance of occurring.				

Table 4: Interpretation of Significance

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
Insignificant	Predicted impacts on resources or receptors of very low or low sensitivity and are indistinguishable from natural background variations, and <u>no mitigation or monitoring is required beyond routine good practice</u>.



PART D: INTERPRETATION OF SIGNIFICANCE		
Significance		Decision guideline
		No meaningful adverse residual impact¹ remains, and <u>no further action is typically required beyond routine good practice.</u>
Very Low	Very Low +	Beneficial or adverse impacts will not influence the project decision. - Minor, short-lived effects on receptors; change is negligible and within accepted standards or norms. <u>No specific mitigation</u> measures are required beyond standard controls; however, monitoring may be applied to verify expected performance. - The residual impact is considered acceptable and reversible within a short-term, and <u>no further action is typically required beyond routine good practice.</u>
Low	Low +	Beneficial or adverse impacts are unlikely to influence the project decision on their own. - Minor adverse changes may occur but remain within the range of normal variation or below compliance thresholds. Reversible within project lifetime or through normal recovery processes. In cases of adverse impacts, <u>limited mitigation may be necessary.</u> Residual impact remains low and acceptable, <u>subject to standard monitoring or compliance verification.</u>
Medium	Medium +	- These beneficial or adverse impacts may influence decision-making, but are not a key deciding factor on their own. - Moderate adverse change; may exceed natural variation or regulatory thresholds at times. Reversible in the medium term with intervention. <u>Mitigation is required</u> and must demonstrate "as low as reasonably practicable", even if residual remains Medium. Residual impacts <u>require ongoing monitoring and adaptive management.</u>
High	High +	- These beneficial or adverse impacts are important and will influence the project decision. Adverse change exceeds accepted limits or represents long-term effects to sensitive receptors. Natural recovery is unlikely in the short term; active rehabilitation or design modification is required. In the event of adverse impacts, <u>substantial mitigation measures are required.</u> - High residual impacts warrant scrutiny in decision-making, must be reduced to an acceptable level to proceed, and may trigger the need for compensation, offsets and project redesign, and will require long-term monitoring and reporting to the authority/lenders.
Very High	Very High +	- Represents a key factor in decision-making. Adverse impact far exceeds legal or lender thresholds, is irreversible or permanent, or affects critical/sensitive receptors. An adverse impact would be considered a <u>potential fatal flaw</u> unless it is mitigated to a lower significance. Residual impact must be reduced below a critical threshold to proceed. If not, the project must be fundamentally redesigned, relocated, or discontinued. Offset or compensation only considered after full application of mitigation hierarchy.

¹ A residual impact is the level of impact that remains after the implementation of all reasonable and practicable mitigation measures, including avoidance, minimisation, restoration and standard operational controls. This represents the final predicted significance rating of an impact following mitigation and informs the appropriate management response.

1.2 Additional assessment criteria

Additional criteria that are taken into consideration in the impact assessment process to describe the impact further and support the interpretation of significance in the impact assessment process include:

- the nature and type of impact;
- the degree to which impacts may cause irreplaceable loss of resources;
- the degree to which impacts can be avoided;
- the degree to which impacts can be reversed;
- the degree to which the impacts can be mitigated; and
- the extent to which cumulative impacts may arise from interaction or combination of other planned activities or projects.

Definitions for these supporting criteria are indicated in Table 5 below.

Table 5: Categorisation and Description of Additional Assessment Criteria

Criteria	Rating	Description
Criteria for IMPACT NATURE	Positive	An impact that is considered to represent an improvement to the baseline conditions or introduces a positive change to a receptor.
	Negative	An impact that is considered to represent an adverse change from the baseline conditions or receptor or introduces a new adverse effect.
	Neutral	An impact that has no or negligible effect on the receptor.
Criteria for IMPACT TYPE	Direct	Impacts that result from a direct interaction between a proposed project activity and the receiving environment (e.g., effluent discharge and receiving water quality). Sometimes referred to as primary impacts.
	Indirect	Impacts that are not a direct result of a proposed project, often produced away from or as a result of a complex impact pathway. Sometimes referred to as secondary impacts.
	Induced	A type of indirect impact resulting from factors or activities caused by the presence of the Project, but which are not always planned or expected (e.g., human in-migration along new access or for jobs creating increased demand on resources).
	Residual	The impacts that remain after implementation of the project and all associated mitigation, and other environmental and social management measures.
Criteria for DEGREE TO WHICH AN IMPACT CAN BE REVERSED	FULLY REVERSIBLE	Where the impact can be completely reversed.
	PARTIALLY REVERSIBLE	Where the impact can be partially reversed and is temporary.
	IRREVERSIBLE	Where the impact cannot be reversed and is permanent.
Criteria for DEGREE OF IRREPLACEABLE	NONE	It will not cause irreplaceable loss.
	LOW	Where the activity results in a marginal effect on an irreplaceable resource.

Criteria	Rating	Description
RESOURCE LOSS	MEDIUM	Where an impact results in a moderate loss, fragmentation or damage to an irreplaceable receptor or resource.
	HIGH	Where the activity results in an extensive or high proportion of loss, fragmentation or damage to an irreplaceable receptor or resource.
Criteria for DEGREE TO WHICH IMPACT CAN BE AVOIDED	HIGH	The impact can be avoided through the implementation of preventative mitigation measures.
	MEDIUM	The impact cannot be avoided, but mitigation measures can reduce the significance.
	LOW	The impact cannot be avoided but can be mitigated to acceptable levels through rehabilitation and restoration.
	NONE	The impact cannot be avoided, and consideration should be given to compensation and offsets.
Criteria for the DEGREE TO WHICH IMPACT CAN BE MITIGATED	HIGH	Mitigation can be easily applied or is considered standard operating practice for the activity and will reduce the impact significance rating.
	MEDIUM	Mitigation is feasible and will may reduce the impact significance rating.
	LOW	Some mitigation is possible but will have a marginal effect in reducing the impact significance rating.
	NONE	No mitigation is possible, or mitigation, even if applied, would not change the impact.
Criteria for POTENTIAL FOR CUMULATIVE IMPACTS	UNLIKELY	There is a low likelihood of cumulative impacts arising.
	POSSIBLE	Cumulative impacts with other activities or projects may arise.
	LIKELY	Cumulative impacts with other activities or projects, either through interaction or in combination, can be expected.