Appendix L: Impact Assessment Methodology

IMPACT ASSESSMENT CRITERIA

The following documents were used in developing the assessment criteria shown below and in Table 1:

- DEAT (2002) Impact Significant, Integrated Environmental Management, Information Series 5, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

The assessment criteria ensure that a comprehensive assessment of potential impacts is undertaken in order to determine the overall impact significance. The following criteria should be taken into consideration:

- the nature of the impact i.e. positive, negative, direct, indirect;
- the extent and location of the impact;
- the duration of the impact i.e. short term, long term, intermittent or continuous;
- the magnitude/intensity of the impact i.e. high, medium, low;
- the likelihood or probability of the impact actually occurring ;
- the extent to which the impact can be reversed;
- the degree to which an impact may cause irreplaceable loss of a resource;
- the cumulative impacts;
- the mitigatory potential of impacts; and
- the significance of the impact on a local, regional or global level.

Mitigation measures should subsequently be identified and recommended for all impacts to reduce the overall impact significance to an acceptable level, where and if possible. Mitigation measures should aim to ensure that:

- More environmentally sound designs / layouts / technologies, etc., are investigated and implemented, if feasible;
- Environmental benefits of a proposed activity are enhanced;
- Negative impacts are avoided, minimised or remedied; and
- Residual negative impacts are within acceptable levels.

Table 1: Description of criteria considered when assessing potential impacts.

CRITERIA	***DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE***	
Nature of impact	**This is an appraisal/evaluation of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.**	
Extent of the impact	**LOW**	**<u>Site specific/Local:</u>** **Extends only as far as the activity; or** **Limited to the site and its immediate surroundings**
	MEDIUM	**<u>Regional/Provincial:</u>** **Will have an impact on the region/province**
	HIGH	**<u>National:</u>**

CRITERIA	*DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE*	
		Will have an impact on a national scale - particularly if an ecosystem or species of national significance is affected
	HIGH – VERY HIGH	**<u>International:</u>** **Will have an impact across international borders or will impact on an ecosystem or species of international significance.**
Duration of impact	**SHORT TERM**	**0 – 5 years**
	MEDIUM TERM	**5 – 15 years**
	LONG TERM	**> 15 years** **Where the impact will cease after the operational or working life of the activity, either due to natural process or by human intervention**
	PERMANENT	**Where mitigation or moderation by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient or temporary**
Intensity of impact	**ZERO TO VERY LOW INTENSITY**	**Natural, cultural and social functions and processes are not affected**
	LOW INTENSITY	**Affects the environment in such a way that natural, cultural and social functions and processes continue, although in a slightly modified way**
	MEDIUM INTENSITY	**Affects the environment in such a way that natural, cultural and social functions and processes continue, although in a modified way**
	HIGH INTENSITY	**Natural, cultural or social functions or processes are altered to the extent that they will temporarily or permanently cease**
Probability of impact occurring	**LOW**	**Low likelihood**
	MEDIUM	**Probable**
	HIGH	**Highly Probable**
	DEFINITE	**Impact will occur regardless of any prevention measures**
Degree of Reversibility	**HIGH**	**Impact can be reversed with mitigation**
	MEDIUM	**Impact may be reversed, but residual impacts are evident**
	LOW	**Impact cannot be reversed despite mitigation measures**

CRITERIA	*DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE*	
Irreplaceability of a resource	**LOW**	**Impact will result in a partial loss of a resource, however, natural, cultural and social functions will not be affected**
	MEDIUM	**Impact will result in a partial loss of a resource**
	HIGH	**Impact will result in the irreplaceable loss of a resource**
Cumulative Impacts	**Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.**	
Mitigatory potential of impacts	**LOW**	**Little or no mechanism to mitigate negative impacts**
	MEDIUM	**Potential to mitigate negative impacts. Implementation of mitigation measures will reduce some negative effects**
	HIGH	**High potential to mitigate negative impacts. Mitigation will result in negative impacts becoming insignificant**
Determination of significance	**Based on a synthesis or combination of the information contained in the above-described criteria; and drawing on legal policies and guidelines as well as the status of the impacts and potential risks, the overall significance can be determined as follows:**	
	LOW SIGNIFICANCE	**The impacts will have a minor influence on the activity and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation (a choice of other methods to alleviate the impacts).**
	MEDIUM SIGNIFICANCE	**The impacts will have a moderate influence on the activity and/or environment. The impact can be ameliorated (lessened or improved) by a modification in the project design or implementation of effective mitigation measures. Should have an influence on decision, unless it is mitigated.**
	HIGH SIGNIFICANCE	**The impacts will have a major influence on the activity and/or environment. The impacts could have the no-go implication on portions of the development regardless of any mitigation measures that could be implemented. Influence decision, regardless of any possible mitigation.**

Table 2: Methodology for assigning significance ratings to potential impacts.

SIGNIFICANCE RATING	*LIST OF CRITERIA USED IN ASSIGNING A SPECIFIC SIGNIFICANCE RATING*		
	INTENSITY	**EXTENT**	**DURATION**
High Significance	High	Regional	Medium Term
	High	National	Short Term
	High	Local	Long Term
	Medium	National	Medium Term
	Medium	Regional	Long Term
Medium Significance	High	Local	Medium Term
	High	Regional	Short Term
	Medium	National	Short Term
	Medium	Regional	Medium Term
	Medium	Local	Long Term
	Low	National	Medium Term
	Low	Regional	Long Term
Low Significance	Medium	Local	Medium Term
	Medium - High	Local	Short Term
	Medium	Regional	Short Term
	Low	National	Short Term
	Low	Regional	Medium Term
	Low	Local	Long Term
Very Low Significance	Low	Local	Medium Term
	Low	Regional	Short Term
	Very Low	Local	Short Term
Neutral / No impact	Zero intensity with any combination of extent and duration.		