IMPACT ASSESSMENT OF PROPOSED AMENDMENTS TO EA – ERF 11330 IDAS VALLEY

Below is a description of the potential impacts of the project on the geographical, physical, biological, social, economic, heritage and cultural aspects environment. Each aspect is discussed in terms of the construction, operational and decommissioning phases. It is not anticipated that the planning and design phase will have any impacts on the environment and as such, this phase is not discussed below. An assessment of all impacts related to the proposed change is detailed below. This includes an assessment of all impacts in accordance with standard methodology.

The impacts assessed included water and electricity usage, increased housing and increased traffic. No additional impacts were noted during the assessment. The building has the SAME footprint and is the same height. The internal layout of the flats has been amended.

Advantages associated with the proposed change:

- Increased housing. 36 additional units. The proposed development will provide much needed residential housing. The reason for this development is to provide the community with subsidy housing to cater for the current and growing population.
- Densification.

Low-density development is threatening long-term sustainability and has created the following challenges:

- Environmentally sensitive and good agricultural land on the urban edge and elsewhere is rapidly being consumed by urban development, and valuable biodiversity resources and areas of scenic and amenity value are being threatened.
- The unit cost of providing the necessary infrastructure required to service low-density forms of urban development is far greater than the unit and operating cost of servicing medium to higher-density forms of urban development.
- Lastly, the inefficiency caused by this fragmented and low density form of development has serious economic implications, limiting access to opportunities and causing operational inefficiencies and a wastage of supporting economic resources (both natural and built).

Densification is viewed as a necessary step to promote the longer-term sustainability of valuable natural, urban and rural environments.

Disadvantages associated with the proposed change:

- Increase in water and electricity usage.
- Increased traffic due to the general increase in residents to the area.

Measures to ensure avoidance, management and mitigation of impacts associated with proposed change:

- Ongoing maintenance of infrastructure and energy and water efficient technologies.
- Ongoing maintenance of infrastructure.
- The internal roads should have minimum 4,5-metre wide blacktops.
- All bellmouths should have a radius of at least 4 metres.
- A paved sidewalk should be provided along the extension of Assegaai Street through Erf 11330.

Any changes to the Environmental Management Programme ("EMPr"):
Only change required is two numbers on page 8 of the EMPr. That would be changing "60" to "96". No other changes are required.

CONSTRUCTION PHASE

(a) Impacts that may result from the planning, design and construction phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the planning, design and construction phase.

NO additional impacts. The building has the SAME footprint and is the same height. The internal layout of the flats has been amended.

OPERATIONAL PHASE

(b) Impacts that may result from the operational phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the operational phase.

Nature of impact: Water and electricity usage.				
Discussion: Additional 36 units will make use of electricity and water.				
Cumulative impacts: Increase in water and electricity usage.				
Mitigation: Ongoing maintenance of infrastructure and energy and water efficient technologies.				
Criteria	**Approved EA 60 flats Without Mitigation**	**With Mitigation**	**96 flats Without Mitigation**	**With Mitigation**
Extent	3	3	3	3
Duration	5	5	5	5
Magnitude	4	2	4	2
Probability	4	4	4	4
Significance	48- Medium	40-Medium	48- Medium	40-Medium
Status	Medium significance	Medium significance	Medium significance	Medium significance
Reversibility	100%		100%	
Irreplaceable loss of resources	1-Will not be lost		1-Will not be lost	
Can impacts be mitigated?	1-Yes		1-Yes	

Nature of impact: Increased housing and densification.						
Discussion: The proposed development will provide much needed residential housing.						
Cumulative impacts: The reason for this development is to provide the community with subsidy housing to cater for the current and growing population.						
Mitigation: Ongoing maintenance of infrastructure.						
Criteria	**Approved with 60 flat units Without Mitigation**	**With Mitigation**	**Amended EA with 96 flat units Without Mitigation**	**With Mitigation**		
Status	Negative	Positive	Negative	Positive		

Nature of impact:
Increased traffic due to the general increase in residents to the area.

Discussion:
The approved development with 60 flat units:
The generated trips were added to the 2015 background traffic volumes to obtain expected 2016 traffic volumes. The 2016 volumes were again analysed to determine the impact caused by the additional trips. The analysis shows that, although delays will increase slightly, the Helshoogte Road / Cluver Street / Rustenburg Road intersection will continue to operate at a level of service C during both the weekday AM and PM peak hours with the traffic signals running on a three-stage phasing plan. The service level of the Sonnebloem Street approach at the Rustenburg Road / Old Helshoogte Road / Sonnebloem Street intersection will deteriorate to a C, but the other approaches will continue to operate at a level of service A. It can be concluded that the development of Remainder Erf 11330 will have a moderate traffic impact.

The amendment application (96 flats):
The addition of 36 flat units will cause a slight increase in traffic levels. The flats will generate 0,9 trips per unit. Hence an addition of 32.4 trips. Trips were distributed via Old Helshoogte Road and Rustenburg Road to the Helshoogte Road / Rustenburg Road / Cluver Street intersection, where it was split to the east, south and west according to the existing directional splits at the intersection. With this inclusion it is anticipated that the development will still have a moderate traffic impact.

The proposed upgrades to the Old Helshoogte Road will have a positive impact on the traffic,

Cumulative impacts:
- The approved development will generate 262 trips in each of the AM and PM peak hours.
- The amended EA application would increase such to 294.4 trips in each of the AM and PM peak hours.
- The proposed housing development on Remainder Erf 11330 Ida's Valley will have a moderate traffic impact.
- As the existing traffic volumes are relatively low, this cumulative impact is not significant.

Mitigation:
- The internal roads should have minimum 4,5-metre wide blacktops.
- All bellmouths should have a radius of at least 4 metres.
- A paved sidewalk should be provided along the extension of Assegaai Street through Erf 11330.

Criteria	60 flats Without Mitigation	With Mitigation	96 flats Without Mitigation	With Mitigation
Extent	2	2	2	2
Duration	5	5	5	5
Magnitude	4	2	4	2
Probability	4	4	4	4
Significance	44- Medium	36- Medium	44- Medium	36- Medium
Status	Medium significance if not mitigated	Medium significance if mitigated	Medium significance if not mitigated	Medium significance if mitigated
Reversibility	100%		100%	
Irreplaceable loss of resources	1-Will not be lost		1-Will not be lost	
Can impacts be mitigated?	1-Yes		1-Yes	

DECOMMISSIONING AND CLOSURE PHASE

(c) Impacts that may result from the decommissioning and closure phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase.

NO additional impacts. The building has the SAME footprint and is the same height. The internal layout of the flats has been amended.

The **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed amendment:

Below is the assessment methodology utilized in determining the significance of the construction, operational and decommission impacts of the proposed activities, and where applicable the possible alternatives, on the biophysical and socio-economic environment. The methodology is broadly consistent to that described in DEA&DP's Guideline Document on the EIA Regulations (1998).

For each impact, the significance is determined by various factors. Significance is described prior to mitigation as well as with the most effective mitigation measure(s) in place. The mitigation described in the document (also see Appendix F for the Draft Environmental Management Programme) represents the full range of plausible and pragmatic measures *but does not necessarily imply that they all should or will be implemented*. The decision as to which mitigation measures to implement lies with the applicant and ultimately with the DEA&DP.

To facilitate informed decision-making, EIAs must endeavour to come to terms with the significance of the potential environmental impacts associated with particular development activities. Despite the attempts at providing a completely objective and impartial assessment of the environmental implications of development activities, EIA processes can never completely escape the subjectivity inherent in attempting to define significance. Recognising this, potential subjectivity in the current process is addressed as follows:

- Be clear about the difficulty of being completely objective in the determination of significance;
- Develop an explicit methodology for assigning significance to impacts and outlining this methodology in detail. Having an explicit methodology not only forces the assessor to come to terms with the various facets contributing toward determination of significance, thereby avoiding arbitrary assignment, but also provides the reader of the EIR with a clear summary of how the assessor derived the assigned significance; and
- Wherever possible, differentiating between the likely significance of potential environmental impacts as experienced by the various affected parties.

Although these measures may not totally eliminate subjectivity, they do provide an explicit context within which to review the assessment of impacts.

Table 6: Assessment criteria for the evaluation of impacts

Criteria	Description		
Nature	a description of what causes the effect, what will be affected, and how it will be affected.		
	Type	**Score**	**Description**
Extent (E)	None (No)	1	Footprint
	Site (S)	2	On site or within 100 m of the site
	Local (L)	3	Within a 20 km radius of the centre of the site
	Regional (R)	4	Beyond a 20 km radius of the site
	National (Na)	5	Crossing provincial boundaries or on a national / land wide scale
Duration (D)	Short term (S)	1	0 – 1 years
	Short to medium (S-M)	2	2 – 5 years
	Medium term (M)	3	5 – 15 years
	Long term (L)	4	> 15 years
	Permanent(P)	5	Will not cease
Magnitude (M)	Small (S)	0	will have no effect on the environment
	Minor (Mi)	2	will not result in an impact on processes
	Low (L)	4	will cause a slight impact on processes
	Moderate (Mo)	6	processes continuing but in a modified way
	High (H)	8	processes are altered to the extent that they temporarily cease
	Very high (VH)	10	results in complete destruction of patterns and permanent cessation of processes.

Criteria	Description		
Probability (P) the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned	Very improbable (VP)	1	probably will not happen
	Improbable (I)	2	some possibility, but low likelihood
	Probable (P)	3	distinct possibility
	Highly probable (HP)	4	most likely
	Definite (D)	5	impact will occur regardless of any prevention measures
Significance (S)	Determined through a synthesis of the characteristics described above: **S = (E+D+M) x P** Significance can be assessed as low, medium or high		
Low: < 30 points:	The impact would not have a direct influence on the decision to develop in the area		
Medium: 30 – 60 points:	The impact could influence the decision to develop in the area unless it is effectively mitigated		
High: < 60 points:	The impact must have an influence on the decision process to develop in the area		
No significance	When no impact will occur or the impact will not affect the environment		
Status	Positive (+)		Negative (-)
The degree to which the impact can be reversed	Completely reversible (R)	90-100%	The impact can be mostly to completely reversed with the implementation of the correct mitigation and rehabilitation measures.
	Partly reversible (PR)	6-89%	The impact can be partly reversed providing that mitigation measures as stipulated in the EMP are implemented and rehabilitation measures are undertaken
	Irreversible (IR)	0-5%	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures taking place
The degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost (R)	1	The resource will not be lost or destroyed provided that mitigation and rehabilitation measures as stipulated in the EMP are implemented
	Resource may be partly destroyed (PR)	2	Partial loss or destruction of the resources will occur even though all management and mitigation measures as stipulated in the EMP are implemented
	Resource cannot be replaced (IR)	3	The resource cannot be replaced no matter which management or mitigation measures are implemented.
The degree to which the impact can be mitigated	Completely mitigatible (CM)	1	The impact can be completely mitigated providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly mitigatible (PM)	2	The impact cannot be completely mitigated even though all management and mitigation measures as stipulated in the EMP are implemented. Implementation of these measures will provide a measure of mitigatibility
	Un-mitigatible (UM)	3	The impact cannot be mitigated no matter which management or mitigation measures are implemented.